

Monday, January 11, 2010

Page 1 of 3  
REQUEST NUMBER: 10-1211

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

ATTN: Valerie Davis

These Samples are on:

General Engineering Laboratories, Inc., Charleston, SC.

LANL Request Number: 10-1211

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: 1/12/2010

TURNAROUND/REPORT DUE: 2/11/2010

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	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	

Monday, January 11, 2010

REQUEST NUMBER: 10-1211

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1						
1		1	RE12-10-7253	R	1/7/2010	
1		1	RE12-10-7254	R	1/7/2010	
1		1	RE12-10-7255	R	1/7/2010	
1		1	RE12-10-7276	R	1/7/2010	
HASL-300:AM-241						
1		1	RE12-10-7236	R	1/7/2010	
1		1	RE12-10-7237	R	1/7/2010	
1		1	RE12-10-7238	R	1/7/2010	
1		1	RE12-10-7239	R	1/7/2010	
1		1	RE12-10-7240	R	1/7/2010	
1		1	RE12-10-7241	R	1/7/2010	
1		1	RE12-10-7242	R	1/7/2010	
1		1	RE12-10-7243	R	1/7/2010	
1		1	RE12-10-7252	R	1/7/2010	
1		1	RE12-10-7253	R	1/7/2010	
1		1	RE12-10-7254	R	1/7/2010	
1		1	RE12-10-7255	R	1/7/2010	
1		1	RE12-10-7276	R	1/7/2010	
HASL-300:ISOPU						
1		1	RE12-10-7236	R	1/7/2010	
1		1	RE12-10-7237	R	1/7/2010	
1		1	RE12-10-7238	R	1/7/2010	
1		1	RE12-10-7239	R	1/7/2010	
1		1	RE12-10-7240	R	1/7/2010	
1		1	RE12-10-7241	R	1/7/2010	
1		1	RE12-10-7242	R	1/7/2010	
1		1	RE12-10-7243	R	1/7/2010	
1		1	RE12-10-7252	R	1/7/2010	
1		1	RE12-10-7253	R	1/7/2010	
1		1	RE12-10-7254	R	1/7/2010	

Monday, January 11, 2010

Page 3 of 3  
REQUEST NUMBER: 10-1211

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:ISOU	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	

Final Page of REQUEST NUMBER 10-1211

Monday, January 11, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1211C

**LOS ALAMOS**

REQUEST NUMBER: 10-1211

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/11/2010

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
RE12-10-7243	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7240	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7241	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7237	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7239	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7238	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7242	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7236	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7252	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7253	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7254	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7255	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7276	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7239

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		11:55		SUB-MEDIA:	TUFF.1		
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610528			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0 ft		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.6 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	OK		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO			WATER FLOWING: YES/NO/NA			
BOREHOLE DECLINATION:	NA			BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Light brown sandy silty frozen soil from 1/10 to brownish gray decomposed tuff

## SAMPLE COMMENTS:

Sample duplicated by RE12-10-7276

## LOCATION DESC:

4a-1

## FIELD SCREENING/MEASUREMENT RESULTS:

$\alpha \leq 22 \text{ dpm}$

$\text{PID} = \frac{0}{0} \text{ ppm}$

$\text{B}/8 \leq 2250 \text{ dpm}$

## COLLECTED BY (PRINT)

L. Lopez

## REVIEWED BY (PRINT) J. Marin

RELINQUISHED BY (Printed Name) <u>L. Lopez</u> (Signature) <u>[Signature]</u>	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) <u>K. Greene</u> (Signature) <u>[Signature]</u>	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7236

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		10:40		SUB-MEDIA:	TUFF 1		
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610527			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.6-0.5 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R			EXCAVATED: YES	(NO) NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES	(NO) NA			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NME D-EXP	1RM 1/7/10 500 ML AMBER GLASS 250 mL	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	1	
1		Met+U+CLO4+C N	1 GAL POLY 1 L 1/7/10	Ice	1	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	1	

## SAMPLE DESC:

1RM 1/7/10  
Light grayish brown, moderately indurated frozen tuff

## SAMPLE COMMENTS:

## LOCATION DESC:

4a2

## FIELD SCREENING/MEASUREMENT RESULTS:

HE spot test Negative

Alpha  $\leq 16$  dpmB18  $\leq 2020$ PID =  $\frac{0}{0}$  ppm

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT) J. Marin

RELINQUISHED BY (Printed Name) Larry Lopez (Signature) Larry Lopez	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) K. Grace (Signature) K. Grace	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7252

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		13:46		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610539			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.7 ft		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	8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1 L 2RM 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Light grayish brown, silty sandy dry soil

## SAMPLE COMMENTS:

55 dpm site background  
2010 dpm

## LOCATION DESC:

4a5

## FIELD SCREENING/MEASUREMENT RESULTS:

alpha 22 dpm  
B/X 2050 dpm  
PID: 0 ppm  
HE test negative

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT)

J. Marin

RELINQUISHED BY (Printed Name) Lacey Lopez (Signature) Lacey Lopez	Date/Time 11/7/10 16:00	RECEIVED BY (Printed Name) K. Greene (Signature) K. Greene	Date/Time 11/7/10 4:06
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7241

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/07/2010	MEDIA:		OBT3
TIME COLLECTED (HH:MM)		12:50	SUB-MEDIA:		TUFF 1
PRS ID:	12-004(a)	OK	SAMPLE TECH CODE:		HA
LOCATION ID:	12-610529		FIELD QC TYPE:		NA
LOCATION TYPE:	GENERIC		FIELD PREP:		NA
TOP DEPTH:	0	1.0 ft	SAMPLE USAGE:		INV
BOTTOM DEPTH:	0	2.0 ft	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+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1 L 1/2 1/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Light pinkish gray dry ash flow tuff

## SAMPLE COMMENTS:

## LOCATION DESC:

4a3

## FIELD SCREENING/MEASUREMENT RESULTS:

alpha  $\leq$  55 dpmB/g  $\leq$  2450 dpmPID:  $\frac{0}{0}$  ppm

## COLLECTED BY (PRINT)

L. Lopez

## REVIEWED BY (PRINT)

F. MARIN

RELINQUISHED BY (Printed Name) <u>L. Lopez</u> (Signature) <u>[Signature]</u>	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) <u>K. Guzman</u> (Signature) <u>[Signature]</u>	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7254

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3	ALLH	
TIME COLLECTED (HH:MM)		14:20		SUB-MEDIA:	TUFF1	NA	
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610540			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.6 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA	NO		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1 L 2RM 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Medium brown, organic, silty, sandy, dry soil

## SAMPLE COMMENTS:

## LOCATION DESC:

4a4

## FIELD SCREENING/MEASUREMENT RESULTS:

$\text{Alpha} = \frac{\text{Alpha}}{\text{Beta/Gamma}} = \frac{\text{dpm}}{\text{dpm}} = \text{dpm}$   
 $\text{Beta/Gamma} = \frac{\text{Beta/Gamma}}{\text{Alpha}} = \frac{\text{dpm}}{\text{dpm}} = \text{dpm}$

$\text{Alpha} = 27 \text{ dpm}$   
 $\text{Beta/Gamma} = 2440 \text{ dpm}$

$\text{PID} = \frac{\text{Ambient Reading}}{\text{Reading}} = \frac{0}{0} \text{ ppm}$

HE Spot test Negative

COLLECTED BY (PRINT)

REVIEWED BY (PRINT) J. Marin

L. Lopez

RELINQUISHED BY (Printed Name) Larry Lopez (Signature) Larry Lopez	Date/Time 11/7/10 16:00	RECEIVED BY (Printed Name) K. Green (Signature) K. Green	Date/Time 11/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7253

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	OBT3		OK
TIME COLLECTED (HH:MM)		13:55		SUB-MEDIA:	TUFF 1		
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610539			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 (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	8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 L POLY 1 L 1/2 1/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC:

Light gray, moderately indurated, dry, ash flow tuff

SAMPLE COMMENTS:

LOCATION DESC:

4a5

FIELD SCREENING/MEASUREMENT RESULTS:

alpha = 27 dpm  
B/g = 2570 dpm  
pid = 0 ppm

COLLECTED BY (PRINT)

L Lopez

REVIEWED BY (PRINT) J Marin

RELINQUISHED BY (Printed Name) LARRY LOPEZ (Signature) [Signature]	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) K. Green (Signature) [Signature]	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7284

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	01/07/2010	MEDIA:	NA
TIME COLLECTED (HH:MM)	1521	SUB-MEDIA:	OTHER
PRS ID: 12-004(a)	OK	SAMPLE TECH CODE:	DC
LOCATION ID: UNK		FIELD QC TYPE:	ER
LOCATION TYPE: GENERIC		FIELD PREP:	UF
TOP DEPTH: 0		SAMPLE USAGE:	QC
BOTTOM DEPTH: 0		SCREEN/PORT DESC:	NA
FIELD MATRIX: W		EXCAVATED: YES/NO/NA	NA
COMPOSITE TYPE: NA	COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA	NA
BOREHOLE: YES/NO/NA	BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA	NA

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

SAMPLE DESC: QC Sample of RE12-10-7255

## SAMPLE COMMENTS:

WATER

## LOCATION DESC:

4a 4

## FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT) J. Marin

RELINQUISHED BY (Printed Name) Larry Lopez (Signature) Larry Lopez	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) K. G. - C. - E. (Signature) [Signature]	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7238

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3	ALL H	
TIME COLLECTED (HH:MM)		11:40		SUB-MEDIA:	TUFF 1	NA	
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610528			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.55 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		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	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 L POLY 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC:

Light brown silty sandy soil, frozen

SAMPLE COMMENTS:

LOCATION DESC:

4a-1

FIELD SCREENING/MEASUREMENT RESULTS:

HE spot test negative  
 $\alpha \leq 11$  dpm  
 $R/V \leq 1962$  dpm  
 $PID = 0$  ppm

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT)

J. MARIN

RELINQUISHED BY (Printed Name) Larry Lopez (Signature) Larry Lopez	Date/Time 11/7/10 16:00	RECEIVED BY (Printed Name) K. Grucce (Signature) [Signature]	Date/Time 11/7/10 4:10
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7237

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010	MEDIA:	OBT3		OK	
TIME COLLECTED (HH:MM)		11:05	SUB-MEDIA:	TUFF.1			
PRS ID:	12-004(a)	OK	SAMPLE TECH CODE:	HA			
LOCATION ID:	12-610527		FIELD QC TYPE:	NA			
LOCATION TYPE:	GENERIC		FIELD PREP:	NA			
TOP DEPTH:	0	1.0 ft	SAMPLE USAGE:	INV			
BOTTOM DEPTH:	0	2.0 ft	SCREEN/PORT DESC:	NA			
FIELD MATRIX:	R	R	EXCAVATED: YES/NO/NA	NA			
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	NA			
BOREHOLE: YES/NO/NA			BOREHOLE DECLINATION:	NA			
			BOREHOLE DIRECTION:	NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NME D-EXP	500 ML AMBER GLASS 250 ML	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		Met+U+CLO4+C N	1 L POLY 1/7/10	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

light grayish brown, moderately indurated frozen stuff

SAMPLE COMMENTS:

LOCATION DESC:

4a2

FIELD SCREENING/MEASUREMENT RESULTS:

 $\text{Alpha} \leq 16 \text{ dpm}$   
 $\text{B}/\text{S} \leq 2580 \text{ dpm}$  PID = 0 ppm

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) LARRY LOPEZ	1/7/10	(Printed Name) L. Green	1/7/10
(Signature) Larry A. Lopez	16:00	(Signature) [Signature]	4:00
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7255

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3	OK	
TIME COLLECTED (HH:MM)		14:45		SUB-MEDIA:	TUFF 1		
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610540			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		
BOREHOLE: YES/NO/NA	NO/NA			WATER FLOWING: YES/NO/NA			
BOREHOLE DECLINATION:	NA			BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8270C+NMED Exp	500mL 500ML AMBER GLASS JRM 1/2/10	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1L JRM 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Light brownish gray, moderately indurated, dry, ash flow tuff

## SAMPLE COMMENTS:

## LOCATION DESC:

4a4

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 27 dpm

Beta/Gamma = 2320 dpm

COLLECTED BY (PRINT)

L. Lopez

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

REVIEWED BY (PRINT) J. Marin

RELINQUISHED BY (Printed Name) Larry A. Lopez (Signature) Larry A. Lopez	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) L. Bruce (Signature) [Signature]	Date/Time 1/7/10 4:00
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7242

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	OBT3	ALLH	
TIME COLLECTED (HH:MM)		13:20		SUB-MEDIA:	TUFF 1	NA	
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA	OK	
LOCATION ID:	12-610530			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	1.0 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA	NO		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO			WATER FLOWING: YES/NO/NA	NO		
BOREHOLE DECLINATION:	NA			BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1L PRM 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Dark brown loamy sandy soil

## SAMPLE COMMENTS:

## LOCATION DESC:

4a6

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq 5$  dpm P10 =  $\frac{0}{5}$  ppmB/8  $\leq 1997$  dpm HE Spot test Negative

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT)

J. Marin

RELINQUISHED BY (Printed Name) LARRY LOPEZ (Signature) Larry Lopez	Date/Time 1/07/10 16:00	RECEIVED BY (Printed Name) L. Guevara (Signature) [Signature]	Date/Time 1/7/10 4:10
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7276

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/07/2010	MEDIA:		OBT3
TIME COLLECTED (HH:MM)		11:55	SUB-MEDIA:		TUFF 1
PRS ID:	12-004(a)	OK	SAMPLE TECH CODE:		HA
LOCATION ID:	UNK	12-610528	FIELD QC TYPE:		NA
LOCATION TYPE:	GENERIC		FIELD PREP:		NA
TOP DEPTH:	0	1.0	SAMPLE USAGE:		INV
BOTTOM DEPTH:	0	2.6	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES/NO/NA		NO
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA		NO
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	✓	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1 L 2RM 1/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC:

Light brown to brownish gray decomposed tuff.

SAMPLE COMMENTS:

Duplicate sample of RE12-10-7239

LOCATION DESC:

4a-1

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 22 \text{ dpm}$  $\beta \leq 2250 \text{ dpm}$  $\text{PID} = \frac{0}{0} \text{ ppm}$ 

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT)

for Marin

RELINQUISHED BY (Printed Name) <i>L. Lopez</i> (Signature) <i>L. Lopez</i>	Date/Time 1/07/10 16:00	RECEIVED BY <i>V. Green</i> (Printed Name) (Signature) <i>V. Green</i>	Date/Time 1/7/10 4:10
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7243

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		13:34		SUB-MEDIA:	TUFF 1		
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:	HA		
LOCATION ID:	12-610530			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0 ft		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.0 ft		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	B	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+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1 L 2AM 1/7/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Light grayish brown, moderately indurated, dry, ash flow tuff

## SAMPLE COMMENTS:

## LOCATION DESC:

4a6

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  49 dpm      PID:  $\frac{0}{0}$  ppm  
 B/x  $\leq$  2260 dpm

COLLECTED BY (PRINT)

REVIEWED BY (PRINT)

J. Marin

RELINQUISHED BY (Printed Name) Larry Lopez (Signature) <i>Larry Lopez</i>	Date/Time 1/7/10 16:00	RECEIVED BY (Printed Name) K. Greene (Signature) <i>K. Greene</i>	Date/Time 1/7/10 4:10
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2480

EVENT NAME: 4th Qtr. FY09 - AOC 12-004(a) - Threemile Canyon

SAMPLE ID: RE12-10-7240

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/07/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		12:25		SUB-MEDIA:		TUFF 1	
PRS ID:	12-004(a)	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	12-610529			FIELD QC TYPE:		NA	
LOCATION TYPE:	GENERIC			FIELD PREP:		NA	
TOP DEPTH:	0			SAMPLE USAGE:		INV	
BOTTOM DEPTH:	0	0.6 ft		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	OK 1/10 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+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		Met+U+CLO4+C N	1 GAL POLY 1L 1/10	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

## SAMPLE DESC:

Medium brown silty sandy frozen soil

## SAMPLE COMMENTS:

## LOCATION DESC:

4a3

## FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 27$  dpm $B/\gamma \leq 2100$  dpm

PID = 0 ppm HE Spot test negative

COLLECTED BY (PRINT)

L. Lopez

REVIEWED BY (PRINT)

J. Marin

RELINQUISHED BY (Printed Name) <u>L. Lopez</u> (Signature) <u>[Signature]</u>	Date/Time <u>1/7/10</u> <u>16:00</u>	RECEIVED BY (Printed Name) <u>K. Greene</u> (Signature) <u>[Signature]</u>	Date/Time <u>1/7/10</u> <u>4:10</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9834

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7236  
Sample Collection Date: 01/07/10 10:40  
Sample Matrix: Soil/Solid

Request or PO Number:  
ARS Sample ID: ARS2-10-00012-001  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDL	Yen	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	42.87	32.48	39.18	32.90		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	36.65	18.88	19.19	16.23		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
RA-22	0.00	0.00	0.08	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	17.39	6.07	1.21	6.10		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	7.93	0.08	7.99		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.18	0.12	0.06	0.12		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.21	0.16	0.05	0.16		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.47	0.34	0.09	0.34		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.53	0.41	0.07	0.42		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	1.50	0.62	0.21	0.62		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	0.20	0.46	0.22	0.46		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	3.33	2.26	0.90	2.39		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.07	0.21	0.10	0.21		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 2.44

*Matthew J. Edgar*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NH 07844

505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012

Request or PO Number:

Client Sample ID: RE12-10-7237

ARS Sample ID: ARS2-10-00012-002

Sample Collection Date: 01/07/10 11:05

Date Received: 01/08/10 00:00

Sample Matrix: Soil/Sludg

Report Date: 01/09/10 06:48

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MSC	TPU	Final	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	13.55	18.28	28.64	18.37		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	53.48	16.46	17.99	17.72		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.08	0.16	0.13	0.16		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	41.00	11.99	2.04	12.06		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CD-60	0.08	0.16	0.14	0.16		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.00	0.00	0.10	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	-0.01	17.45	0.06	17.45		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.00	13.87	0.16	13.87		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.82	0.64	0.19	0.65		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PA-228	0.77	0.57	0.39	0.56		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	2.45	1.04	0.25	1.05		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	6.14	2.44	1.49	4.44		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.00	0.88	0.89	0.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 0.94

*Matthew D. Edin*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558





133 State Road 4, White Rock, NM 87544

505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012

Client Sample ID: RE12-10-7238

Sample Collection Date: 01/07/10 11:40

Sample Matrix: Soil/Solid

Request or PO Number:

ARS Sample ID: ARS2-10-00012-003

Date Received: 01/08/10 00:00

Report Date: 01/08/10 06:48

Analyte Description	Analysis Results	Analysis Error +/- 2 s	MEC	TRU	QAC	Analysis Units	Analysis Test Method	Analysis Date/Time	Analyst Technician	Tracer/Chem Recovery
GROSS ALPHA	51.43	32.93	32.33	33.53		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
GROSS BETA	24.00	15.10	19.86	19.38		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
NA-22	0.00	0.00	0.15	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	11.60	12.10	4.62	12.10		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	15.98	0.16	18.98		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.15	0.14	0.11	0.14		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.35	0.29	0.10	0.29		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.77	0.79	0.20	0.79		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.34	0.57	0.15	0.57		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-226	3.45	1.33	0.42	1.44		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.99	1.15	0.26	1.15		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	1.62	3.02	1.61	3.04		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.34	0.40	0.16	0.40		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.61

*Matthew J. Folger*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9334

ARS Sample Delivery Group: AR52-10-00012  
Client Sample ID: RE12-10-7239  
Sample Collection Date: 01/07/10 11:55  
Sample Matrix: Soil/Solid

Request or PO Number:  
ARS Sample ID: AR52-10-00012-004  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error $\pm 2s$	MDC	TPA	QUA	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracew/Chem Recovery
GROSS ALPHA	26.26	29.71	35.16	29.08		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	46.88	15.81	18.65	16.89		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.10	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	12.40	7.32	2.41	7.33		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO 60	0.00	10.74	0.11	10.74		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.10	0.14	0.08	0.14		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	-0.01	14.06	0.07	14.06		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.00	11.17	0.13	11.17		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.59	0.51	0.12	0.51		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA 228	1.00	0.85	0.20	0.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	0.98	0.71	0.30	0.71		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	2.41	2.67	1.32	2.73		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.05	0.14	0.07	0.14		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.06

*Matthew A. Edm*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544

505-672-2770 FAX 505-672-9834

ARS Sample Delivery Group: AR52-10-00012

Client Sample ID: RE12-10-7240

Sample Collection Date: 01/07/10 12:38

Sample Matrix: Soil/Solid

Request or PO Number:

ARS Sample ID: AR52-10-00012-005

Date Received: 01/08/10 00:00

Report Date: 01/09/10 06:48

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TBU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	37.87	38.93	39.11	31.27		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	29.01	14.57	19.00	14.99		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.12	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	-0.06	-19.98	3.36	-19.98		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	11.83	0.12	11.83		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.00	0.00	0.09	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.13	0.16	0.07	0.16		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
SU-152	0.00	12.31	0.14	12.31		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.35	0.48	0.11	0.48		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA 226	8.37	0.56	0.37	0.46		nCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.38	0.80	0.18	0.81		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	6.46	4.62	1.69	4.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.14	0.21	0.10	0.21		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.42

*Matthew J. Eden*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544

505-672-2770 FAX 505-872-9534

ARS Sample Delivery Group: ARS2-10-00012

Client Sample ID: RE12-10-7241

Sample Collection Date: 01/07/10 12:50

Sample Matrix: Soil/Solid

Request of PU Number:

ARS Sample ID: ARS2-10-00012-006

Date Received: 01/08/10 00:00

Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MEP	TPH	Unit	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Reviewer
GROSS ALPHA	41.26	28.73	28.64	29.17		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	43.46	18.90	17.99	18.77		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.12	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	27.60	9.64	1.92	9.68		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
GO-60	0.07	0.18	0.13	0.15		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.00	0.00	0.09	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.33	0.26	0.06	0.26		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.00	66.54	0.18	66.54		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.43	0.51	0.11	0.51		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-226	1.88	1.21	0.34	1.21		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.79	0.85	0.20	0.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	0.76	2.93	1.55	1.94		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.69	0.85	0.18	0.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.05

*Matthew J. Eddy*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7242  
Sample Collection Date: 01/07/10 13:20  
Sample Matrix: Soil/Solid

Request or PO Number:  
ARS Sample ID: ARS2-10-00012-007  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:48

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDR	TDH	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	51.43	32.93	32.23	32.93		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	41.67	17.06	19.86	17.81		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.12	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	16.77	8.84	2.74	8.85		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	12.02	0.12	12.02		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.32	0.26	0.09	0.26		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.30	0.31	0.08	0.31		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
KU-152	0.51	0.58	0.14	0.58		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.64	0.53	0.10	0.53		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	0.57	0.40	0.66	0.40		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.08	1.06	0.35	1.06		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	3.18	2.04	0.87	2.17		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.78	0.39	0.10	0.39		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.33

*Matthew J. Folmer*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7243  
Sample Collection Date: 01/07/10 13:34  
Sample Matrix: Soil/Solid

Request or PO Number:

ARS Sample ID: ARS2-10-00012-008  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	49.87	33.87	94.04	33.13		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	58.90	17.69	18.46	19.11		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.13	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	25.97	9.70	2.08	9.73		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	13.61	0.14	13.61		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.00	0.00	0.10	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.25	0.23	0.09	0.23		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
SU-152	0.00	14.16	0.16	14.16		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-213	1.36	0.55	0.17	0.56		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-226	2.08	0.99	0.35	0.99		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-233	0.64	0.79	0.40	0.79		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	9.15	4.23	1.45	4.72		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.20	0.33	0.15	0.33		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 0.48

*Matthew L. Foley*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the test of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7252  
Sample Collection Date: 01/07/10 13:46  
Sample Matrix: Soil/Solid

Request or PO Number:  
ARS Sample ID: ARS2-10-00012-009  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MBC	TBU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	72.39	40.19	39.11	41.16		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
GROSS BETA	61.99	16.95	19.00	19.86		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
NA-22	0.00	0.00	0.11	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	26.64	0.92	1.71	0.95		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.13	0.10	0.11	0.10		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.37	0.33	0.08	0.33		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.59	0.52	0.07	0.32		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.09	0.18	0.13	0.18		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.50	0.54	0.16	0.54		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	1.32	1.03	0.30	1.03		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	-0.07	99.84	0.23	99.84		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	3.11	4.60	1.14	4.60		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.02	0.09	0.05	0.09		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.52

*Matthew J. Eden*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the rest of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012

Request of PQ Number:

Client Sample ID: RE12-10-7353

ARS Sample ID: ARS2-10-00012-010

Sample Collection Date: 01/07/10 13:55

Date Received: 01/08/10 00:00

Sample Matrix: Soil/Solid

Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MFC	TPH	Quant	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	96.62	42.51	28.64	44.13		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	54.42	17.86	17.99	19.96		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.08	0.15	0.12	0.15		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	-2.41	-50.73	5.11	-50.73		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	12.74	0.13	12.74		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.04	0.08	0.09	0.08		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	-0.01	16.67	0.08	16.67		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.82	0.83	0.23	0.53		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.09	0.60	0.25	0.60		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	1.37	0.79	0.34	0.79		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	0.13	0.27	0.20	0.27		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	3.88	3.88	1.50	4.09		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.45	0.48	0.19	0.48		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 0.34

*Matthew J. Edley*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # EB7558





133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7254  
Sample Collection Date: 01/07/10 14:20  
Sample Matrix: KHL/KHld

Request or PO Number:  
ARS Sample ID: ARS2-10-00012-011  
Date Received: 01/08/10 00:00  
Report Date: 01/09/10 06:40

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	YBU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	70.75	37.98	32.23	34.95		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
GROSS BETA	52.83	18.56	19.86	19.85		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
NA-22	0.00	0.00	0.11	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	-1.94	938.02	2.10	938.02		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.00	11.38	0.13	11.38		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.05	0.11	0.08	0.11		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.25	0.21	0.07	0.21		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.06	0.48	0.13	0.48		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.17	0.53	0.20	0.53		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	2.67	1.02	0.30	1.02		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.47	0.73	0.14	0.74		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	8.10	3.46	1.09	3.92		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.13	0.17	0.07	0.17		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 1.65

*Matthew A. Eder*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658

NELAP Certificate # E87558



133 State Road 4, White Rock, NM 87544  
505-672-2770 FAX 505-672-9314

ARS Sample Delivery Group: ARS2-10-00012  
Client Sample ID: RE12-10-7255  
Sample Collection Date: 01/07/10 14:45  
Sample Matrix: Soil/Solid

Request or PO Number:  
ARS Sample ID: ARS2-10-00012-012  
Date Received: 01/08/10 00:00  
Report Date: 01/08/10 06:40

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDX	TPU	Qua	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	63.80	36.21	35.16	37.04		pCi/g	EPA 900.0M	1/8/2010	ME	N/A
GROSS BETA	72.96	19.28	18.65	21.23		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.12	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	28.53	9.56	1.96	9.59		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.07	0.11	0.11	0.11		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.00	0.00	0.00	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	0.24	0.22	0.08	0.22		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
BU-152	0.70	0.62	0.15	0.63		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.70	0.60	0.17	0.60		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-226	2.85	1.50	0.34	1.50		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	-0.08	144.89	0.32	144.89		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	6.48	4.04	1.99	4.04		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.36	0.36	0.15	0.36		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOIMS: % Moisture: 0.17

Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658

NELAP Certificate # EB7558



133 State Road 4, White Rock, NM 87544

505-672-2770 FAX 505-672-9534

ARS Sample Delivery Group: ARS2-10-00012

Client Sample ID: RE12-10-7276

Sample Collection Date: 01/07/10 11:56

Sample Matrix: Soil/Rail

Request or PO Number:

ARS Sample ID: ARS2-10-00012-013

Date Received: 01/08/10 00:00

Report Date: 01/09/10 06:49

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MCr	YrH	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	87.40	43.63	39.18	44.93		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
GROSS BETA	56.37	18.16	19.19	19.44		pCi/g	EPA 900.0M	1/9/2010	ME	N/A
NA-22	0.00	0.00	0.12	0.00		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
K-40	16.38	7.55	1.91	7.56		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CO-60	0.06	0.10	0.13	0.10		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-134	0.14	0.13	0.09	0.14		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
CS-137	-0.01	16.35	0.08	16.35		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
EU-152	0.00	12.99	0.18	12.99		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
PB-212	1.15	0.52	0.10	0.53		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
RA-228	0.47	0.47	0.33	0.47		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-235	1.22	0.84	0.32	0.84		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
U-238	2.55	3.10	1.42	3.10		pCi/g	EPA 901.1M	1/8/2010	ME	N/A
AM-241	0.25	0.24	0.09	0.24		pCi/g	EPA 901.1M	1/8/2010	ME	N/A

NOTES: % Moisture: 0.84

*Matthew J. Eden*  
Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate # 30658

NELAP Certificate # EB7558

## DATA VALIDATION COVER SHEET

5119-1

## Data Validation Cover Sheet

Records Use only



## Section I.

REQUEST NUMBER: 10-1211 VALIDATION DATE: 2/17/10 LAB CODE: GEL

CONTRACT LABORATORY NAME: GEL Laboratories LLC

VALIDATOR: Charissa Lewis 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      |
| <input type="checkbox"/> GENERAL CHEMISTRY       | <input checked="" type="checkbox"/> RADIOCHEMISTRY | <input type="checkbox"/> LCMSMS HIGH EXPLOSIVES | PESTICIDES/POLYCHLORINATED BIPHENYLS         |
| <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. The gamma spec sample results that were rejected by the laboratory due to high counting uncertainty, interference or low abundance were qualified R,R5a. QC sample results were also rejected by the laboratory due to interference or low abundance. Since these were QC samples, no sample data were qualified as a result.
2. The tracer %R was < the laboratory LAL for Pu-242 in sample RE12-10-7255. The associated sample results were NDs and, thus, were not qualified.
3. It should be noted that the matrix QC parent sample for gamma spec was from another LANL RN. No sample data were qualified as a result.

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


VALIDATOR'S SIGNATURE: \_\_\_\_\_

A handwritten signature in cursive script that reads "Charissa Lewis".


DATE: 2/17/10

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

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"/>	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	
<b>5119-2</b>  <b>Rad Analytical Data Validation Checklist</b>	Records Use only  

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input checked="" type="checkbox"/>	<input 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	
<b>5119-2</b>  <b>Rad Analytical Data Validation Checklist</b>	Records Use only  

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				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

**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: RE12-10-7243  
 Sample ID: 244600001  
 Matrix: R  
 Collect Date: 07-JAN-10  
 Receive Date: 13-JAN-10  
 Collector: Client  
 Moisture: 5.84%

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	0.00206	0.022	+/-0.00573	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00254	0.021	+/-0.00254	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00889	0.024	+/-0.00384	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.748	0.120	+/-0.0756	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0479	0.0746	+/-0.0155	0.100	pCi/g						
Uranium-238		0.888	0.0697	+/-0.0863	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.056	0.374	+/-0.105	0.200	pCi/g		MXR1	01/22/10	0754	941635	4
Bismuth-211	UI	3.42	R,R5a	0.297	+/-0.233	pCi/g						
Bismuth-214		0.917		0.109	+/-0.0715	0.200	pCi/g					
Cadmium-109	UI	1.93	R,R5a	1.04	+/-0.589	pCi/g						
Cerium-139	U	-0.0127		0.0449	+/-0.0136	0.050	pCi/g					
Cesium-134	UI	0.100	R,R5a	0.0873	+/-0.0296	0.100	pCi/g					
Cesium-137		0.0691		0.0603	+/-0.0247	0.100	pCi/g					
Cobalt-60	U	-0.0272		0.0642	+/-0.0207	0.100	pCi/g					
Europium-152	U	0.00152		0.149	+/-0.0531	0.200	pCi/g					
Lanthanum-140	U	0.0441		0.135	+/-0.0379	pCi/g						
Lead-212		1.52		0.083	+/-0.0771	0.100	pCi/g					
Lead-214		1.19		0.103	+/-0.0868	0.100	pCi/g					
Mercury-203	U	0.0399		0.068	+/-0.021	0.100	pCi/g					
Potassium-40		32.7		0.496	+/-1.67	1.00	pCi/g					
Radium-223	U	0.224		0.950	+/-0.306	pCi/g						
Radium-224	UI	4.19	R,R5a	0.944	+/-0.561	pCi/g						
Radium-226		0.917		0.109	+/-0.0715	pCi/g						
Radium-228		1.46		0.204	+/-0.165	0.500	pCi/g					
Ruthenium-106	U	-0.0327		0.474	+/-0.139	0.800	pCi/g					
Sodium-22	U	-0.0249		0.0678	+/-0.0215	0.080	pCi/g					
Strontium-85	UI	0.0658	R,R5a	0.0602	+/-0.0179	pCi/g						

CLL  
2/17/10



# 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: RE12-10-7243  
Sample ID: 244600001

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		0.409	0.0499	+/-0.0348	0.080	pCi/g					
Thorium-227	U	-0.244	0.549	+/-0.164		pCi/g					
Thorium-231	U	0.224	0.950	+/-0.306		pCi/g					
Thorium-234	U	0.523	3.01	+/-0.845	2.00	pCi/g					
Tin-113	U	0.0101	0.0717	+/-0.0209	0.100	pCi/g					
Uranium-235	U	0.262	0.352	+/-0.102	0.500	pCi/g					
Yttrium-88	U	0.00786	0.0493	+/-0.0144	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"	92.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	93.5	(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

CLL  
2/17/10

# 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: RE12-10-7240  
Sample ID: 244600002  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 13.5%

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	0.00669	0.0361	+/-0.0038	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00127	0.021	+/-0.00221	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00127	0.0241	+/-0.00221	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.883	0.111	+/-0.0841	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0622	0.0691	+/-0.0172	0.100	pCi/g						
Uranium-238		0.923	0.0646	+/-0.0869	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0586	0.155	+/-0.047	0.200	pCi/g		MXR1	01/22/10	0755	941635	4
Bismuth-211	UI	3.13	R,R5a	0.247	+/-0.277	pCi/g						
Bismuth-214		0.998		0.0922	+/-0.0819	pCi/g						
Cadmium-109	UI	1.50	R,R5a	0.871	+/-0.535	pCi/g						
Cerium-139	U	-0.00715		0.0353	+/-0.0102	pCi/g						
Cesium-134	U	0.0511		0.0714	+/-0.0192	pCi/g						
Cesium-137	U	-0.0229		0.0464	+/-0.015	pCi/g						
Cobalt-60	U	0.00588		0.0526	+/-0.0157	pCi/g						
Europium-152	U	-0.0124		0.121	+/-0.0389	pCi/g						
Lanthanum-140	U	-0.0423		0.106	+/-0.0415	pCi/g						
Lead-212		1.43		0.070	+/-0.110	pCi/g						
Lead-214		1.09		0.0862	+/-0.101	pCi/g						
Mercury-203	U	0.0227		0.0567	+/-0.0162	pCi/g						
Potassium-40		21.2		0.414	+/-1.14	pCi/g						
Radium-223	U	-0.246		0.802	+/-0.283	pCi/g						
Radium-224	UI	3.82	R,R5a	0.796	+/-0.500	pCi/g						
Radium-226		0.998		0.0922	+/-0.0819	pCi/g						
Radium-228		1.18		0.158	+/-0.150	pCi/g						
Ruthenium-106	U	0.0469		0.391	+/-0.114	pCi/g						
Sodium-22	U	-0.00357		0.0554	+/-0.0171	pCi/g						
Strontium-85	U	0.0438		0.0517	+/-0.0152	pCi/g						
Thallium-208		0.397		0.0456	+/-0.0379	pCi/g						

CLL  
2/17/10

# 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:

RE12-10-7240  
244600002

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	-0.0913	0.457	+/-0.137		pCi/g						
Thorium-231	U	-0.246	0.802	+/-0.283		pCi/g						
Thorium-234	UI	1.30	R,R5a	+/-0.606	2.00	pCi/g						
Tin-113	U	-0.0119	0.0545	+/-0.0159	0.100	pCi/g						
Uranium-235	U	0.00605	0.265	+/-0.0758	0.500	pCi/g						
Yttrium-88	U	0.0158	0.0447	+/-0.012	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"	57.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	98.2	(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
- N/A RPD or %Recovery limits do not apply.

CLL  
2/17/10

# 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: RE12-10-7241  
Sample ID: 244600003  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 9.37%

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	-6.51E-05	0.0297	+/-0.00175	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00425	0.0234	+/-0.00318	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00142	0.0268	+/-0.00246	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.983	0.124	+/-0.094	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0642	0.0769	+/-0.0184	0.100	pCi/g						
Uranium-238		1.06	0.0718	+/-0.0998	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0226	0.233	+/-0.0689	0.200	pCi/g		MXR1	01/22/10	0755	941635	4
Bismuth-211	UI	3.88	R,R5a	0.267	+/-0.223	pCi/g						
Bismuth-214		1.17		0.0953	+/-0.0923	pCi/g						
Cadmium-109	UI	3.53	R,R5a	1.21	+/-0.468	pCi/g						
Cerium-139	U	-0.00592		0.0428	+/-0.0125	pCi/g						
Cesium-134	U	0.0526		0.0773	+/-0.0211	pCi/g						
Cesium-137	U	-0.0344		0.0513	+/-0.0169	pCi/g						
Cobalt-60	U	-0.00147		0.054	+/-0.0164	pCi/g						
Europium-152	U	-0.00424		0.133	+/-0.0471	pCi/g						
Lanthanum-140	U	-0.0179		0.104	+/-0.0322	pCi/g						
Lead-212		1.49		0.0764	+/-0.0706	pCi/g						
Lead-214		1.35		0.093	+/-0.0852	pCi/g						
Mercury-203	U	0.0086		0.0523	+/-0.022	pCi/g						
Potassium-40		27.0		0.480	+/-1.23	pCi/g						
Radium-223	U	0.0093		0.899	+/-0.293	pCi/g						
Radium-224	UI	4.18	R,R5a	0.869	+/-0.489	pCi/g						
Radium-226		1.17		0.0953	+/-0.0923	pCi/g						
Radium-228		1.51		0.169	+/-0.153	pCi/g						
Ruthenium-106	U	-0.0483		0.457	+/-0.134	pCi/g						
Sodium-22	U	-0.0472		0.0641	+/-0.0215	pCi/g						
Strontium-85	U	0.0401		0.0556	+/-0.0172	pCi/g						
Thallium-208		0.524		0.0518	+/-0.0405	pCi/g						

CLL  
2/17/10

# 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:

RE12-10-7241  
244600003

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	-0.135	0.526	+/-0.151		pCi/g					
Thorium-231	U	0.0093	0.899	+/-0.293		pCi/g					
Thorium-234	UI	1.97	R,R5a	+/-0.978	2.00	pCi/g					
Tin-113	U	0.00806	0.0652	+/-0.0188	0.100	pCi/g					
Uranium-235	U	-0.125	0.301	+/-0.0898	0.500	pCi/g					
Yttrium-88	U	0.000476	0.0439	+/-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"	62.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	82.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.2	(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
- N/A RPD or %Recovery limits do not apply.

CLL  
2/17/10

# 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: RE12-10-7237  
Sample ID: 244600004  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 10.1%

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	-3.52E-05	0.0302	+/-0.00178	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.002	0.033	+/-0.00999	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.002	0.0378	+/-0.00529	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.705	0.126	+/-0.0735	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0302	0.0784	+/-0.0125	0.100	pCi/g						
Uranium-238		0.709	0.0733	+/-0.0738	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00988	0.214	+/-0.0679	0.200	pCi/g		MXR1	01/22/10	0756	941635	4
Bismuth-211	UI	3.35	R,R5a	0.260	+/-0.266	pCi/g						
Bismuth-214		1.11		0.0892	+/-0.0913	pCi/g						
Cadmium-109	UI	2.17	R,R5a	0.948	+/-0.454	pCi/g						
Cerium-139	U	-0.0017	0.0426	+/-0.0122	0.050	pCi/g						
Cesium-134	UI	0.121	R,R5a	0.0775	+/-0.0274	pCi/g						
Cesium-137	U	0.0314	0.0595	+/-0.0168	0.100	pCi/g						
Cobalt-60	U	-0.0201	0.0522	+/-0.0172	0.100	pCi/g						
Europium-152	U	0.0264	0.130	+/-0.0386	0.200	pCi/g						
Lanthanum-140	U	-0.0329	0.101	+/-0.0328		pCi/g						
Lead-212		1.62	0.0752	+/-0.107	0.100	pCi/g						
Lead-214		1.17	0.0906	+/-0.0975	0.100	pCi/g						
Mercury-203	U	0.0204	0.0544	+/-0.0174	0.100	pCi/g						
Potassium-40		31.2	0.459	+/-1.60	1.00	pCi/g						
Radium-223	U	-0.331	0.899	+/-0.321		pCi/g						
Radium-224	UI	4.37	R,R5a	0.855	+/-0.619	pCi/g						
Radium-226		1.11	0.0892	+/-0.0913		pCi/g						
Radium-228		1.66	0.187	+/-0.166	0.500	pCi/g						
Ruthenium-106	U	0.0051	0.399	+/-0.119	0.800	pCi/g						
Sodium-22	U	0.0153	0.0654	+/-0.0192	0.080	pCi/g						
Strontium-85	U	0.00341	0.0486	+/-0.0161		pCi/g						
Thallium-208		0.513	0.0516	+/-0.0427	0.080	pCi/g						

CLL  
2/17/10

## 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: RE12-10-7237  
Sample ID: 244600004  
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	0.0089	0.522	+/-0.154		pCi/g					
Thorium-231	U	-0.331	0.899	+/-0.321		pCi/g					
Thorium-234	U	1.47	1.71	+/-0.701	2.00	pCi/g					
Tin-113	U	0.000992	0.0625	+/-0.0178	0.100	pCi/g					
Uranium-235	U	0.0363	0.291	+/-0.0826	0.500	pCi/g					
Yttrium-88	U	-0.00261	0.0458	+/-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"	58.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	57.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.2	(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
- N/A RPD or %Recovery limits do not apply.

CLL  
2/17/10

## 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: RE12-10-7239  
Sample ID: 244600005  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 9.32%

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	0.000985	0.0237	+/-0.00303	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00434	0.0179	+/-0.00553	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00108	0.0205	+/-0.00287	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.917	0.122	+/-0.0888	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0438	0.0758	+/-0.0149	0.100	pCi/g						
Uranium-238		0.906	0.0708	+/-0.0881	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0348	0.178	+/-0.0566	0.200	pCi/g		MXR1	01/22/10	0757	941635	4
Bismuth-211	UI	4.00	R,R5a	0.295	+/-0.295	pCi/g						
Bismuth-214		1.15		0.0939	+/-0.0982	0.200	pCi/g					
Cadmium-109	UI	2.14	R,R5a	1.09	+/-0.462	pCi/g						
Cerium-139	U	-0.00334	0.0423	+/-0.0146	0.050	pCi/g						
Cesium-134	U	0.0591	0.0843	+/-0.0231	0.100	pCi/g						
Cesium-137	U	-0.0133	0.0487	+/-0.0149	0.100	pCi/g						
Cobalt-60	U	0.0056	0.0539	+/-0.0163	0.100	pCi/g						
Europium-152	U	0.0522	0.152	+/-0.0467	0.200	pCi/g						
Lanthanum-140	U	-0.0736	0.119	+/-0.0414	pCi/g							
Lead-212		1.78	0.0832	+/-0.110	0.100	pCi/g						
Lead-214		1.39	0.103	+/-0.109	0.100	pCi/g						
Mercury-203	U	0.0187	0.0636	+/-0.0204	0.100	pCi/g						
Potassium-40		21.9	0.486	+/-1.21	1.00	pCi/g						
Radium-223	U	0.0511	0.970	+/-0.323	pCi/g							
Radium-224	UI	4.84	R,R5a	0.946	+/-0.706	pCi/g						
Radium-226		1.15	0.0939	+/-0.0982	pCi/g							
Radium-228		1.62	0.190	+/-0.154	0.500	pCi/g						
Ruthenium-106	U	0.076	0.482	+/-0.145	0.800	pCi/g						
Sodium-22	U	0.0336	0.0663	+/-0.0186	0.080	pCi/g						
Strontium-85	U	0.0504	0.0566	+/-0.0171	pCi/g							
Thallium-208		0.543	0.0512	+/-0.049	0.080	pCi/g						

CLL  
2/17/10



# 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:

RE12-10-7239  
244600005

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	0.0691	0.599	+/-0.172		pCi/g					
Thorium-231	U	0.0511	0.970	+/-0.323		pCi/g					
Thorium-234		2.67	1.47	+/-0.775	2.00	pCi/g					
Tin-113	U	-0.0151	0.0626	+/-0.0192	0.100	pCi/g					
Uranium-235	U	-0.0602	0.315	+/-0.0976	0.500	pCi/g					
Yttrium-88	U	-0.0139	0.0485	+/-0.0162	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"	81.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	103	(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.

CLL  
2/17/10

# 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: RE12-10-7238  
Sample ID: 244600006  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 16.7%

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	0.000793	0.0222	+/-0.00131	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00852	0.0201	+/-0.00471	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00852	0.023	+/-0.00368	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.00	0.108	+/-0.0918	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0647	0.0671	+/-0.0173	0.100	pCi/g						
Uranium-238		1.43	0.0627	+/-0.123	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0203	0.101	+/-0.0301	0.200	pCi/g		MXR1	01/22/10	0805	941635	4
Bismuth-211	UI	4.01	R,R5a	0.336	+/-0.274	pCi/g						
Bismuth-214		1.34		0.112	+/-0.128	pCi/g						
Cadmium-109	UI	4.09	R,R5a	0.921	+/-0.438	pCi/g						
Cerium-139	U	-0.0234	0.0456	+/-0.014	0.050	pCi/g						
Cesium-134	U	0.0885	0.105	+/-0.0479	0.100	pCi/g						
Cesium-137		0.129	0.0853	+/-0.0266	0.100	pCi/g						
Cobalt-60	U	-0.00884	0.0685	+/-0.021	0.100	pCi/g						
Europium-152	U	-0.000742	0.159	+/-0.0458	0.200	pCi/g						
Lanthanum-140	U	0.00639	0.176	+/-0.0528		pCi/g						
Lead-212		1.67	0.0917	+/-0.103	0.100	pCi/g						
Lead-214		1.40	0.117	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.0321	0.0744	+/-0.0203	0.100	pCi/g						
Potassium-40		17.9	0.540	+/-1.11	1.00	pCi/g						
Radium-223	U	-0.0814	1.12	+/-0.322		pCi/g						
Radium-224	UI	3.92	R,R5a	1.05	+/-0.763	pCi/g						
Radium-226		1.34		0.112	+/-0.128	pCi/g						
Radium-228	UI	1.84	R,R5a	0.624	+/-0.196	0.500	pCi/g					
Ruthenium-106	U	0.222	0.604	+/-0.173	0.800	pCi/g						
Sodium-22	U	-0.0187	0.0789	+/-0.0257	0.080	pCi/g						
Strontium-85	U	0.0465	0.0693	+/-0.0211		pCi/g						
Thallium-208		0.500	0.0652	+/-0.0523	0.080	pCi/g						

CLL  
2/17/10

# 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: RE12-10-7238  
Sample ID: 244600006  
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	0.398	0.656	+/-0.189		pCi/g						
Thorium-231	U	-0.0814	1.12	+/-0.322		pCi/g						
Thorium-234		1.82	0.928	+/-0.502	2.00	pCi/g						
Tin-113	U	-0.00575	0.077	+/-0.0226	0.100	pCi/g						
Uranium-235	U	0.229	0.351	+/-0.0996	0.500	pCi/g						
Yttrium-88	U	-0.0028	0.0539	+/-0.0169	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"	87.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	104	(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.

# 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: RE12-10-7242  
Sample ID: 244600007  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 16.3%

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	0.00537	0.0244	+/-0.00346	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00718	0.0198	+/-0.00657	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0144	0.0226	+/-0.00513	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.11	0.134	+/-0.106	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0694	0.0831	+/-0.0213	0.100	pCi/g						
Uranium-238		1.81	0.0777	+/-0.157	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0149	0.0682	+/-0.022	0.200	pCi/g		MXR1	01/22/10	0805	941635	4
Bismuth-211	UI	3.44	R,R5a	0.266	+/-0.283	pCi/g						
Bismuth-214		1.09		0.0955	+/-0.0975	pCi/g						
Cadmium-109	UI	3.78	R,R5a	0.637	+/-0.361	pCi/g						
Cerium-139	U	-0.0134		0.036	+/-0.0107	pCi/g						
Cesium-134	U	0.0602		0.0811	+/-0.0221	pCi/g						
Cesium-137		0.386		0.0601	+/-0.0407	pCi/g						
Cobalt-60	U	0.0152		0.062	+/-0.0179	pCi/g						
Europium-152	U	-0.0317		0.130	+/-0.0396	pCi/g						
Lanthanum-140	U	-0.0211		0.133	+/-0.0412	pCi/g						
Lead-212		1.52		0.0736	+/-0.0986	pCi/g						
Lead-214		1.20		0.0928	+/-0.103	pCi/g						
Mercury-203	U	0.0264		0.0517	+/-0.0171	pCi/g						
Potassium-40		23.0		0.510	+/-1.23	pCi/g						
Radium-223	U	-0.347		0.919	+/-0.274	pCi/g						
Radium-224	UI	4.40	R,R5a	0.839	+/-0.515	pCi/g						
Radium-226		1.09		0.0955	+/-0.0975	pCi/g						
Radium-228		1.55		0.190	+/-0.147	pCi/g						
Ruthenium-106	U	0.244		0.503	+/-0.137	pCi/g						
Sodium-22	U	0.00479		0.0684	+/-0.0204	pCi/g						
Strontium-85	U	0.0338		0.059	+/-0.0187	pCi/g						
Thallium-208		0.518		0.0498	+/-0.0495	pCi/g						

CLL  
2/17/10

# 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:

RE12-10-7242  
244600007

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	0.0737	0.525	+/-0.155		pCi/g					
Thorium-231	U	-0.347	0.919	+/-0.274		pCi/g					
Thorium-234		1.81	0.710	+/-0.404	2.00	pCi/g					
Tin-113	U	-0.00969	0.0645	+/-0.0191	0.100	pCi/g					
Uranium-235	U	0.0638	0.289	+/-0.0824	0.500	pCi/g					
Yttrium-88	U	0.0162	0.0612	+/-0.0172	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"	81.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	83.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.0	(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.

## 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: RE12-10-7236  
Sample ID: 244600008  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 21.7%

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	0.0169	0.0244	+/-0.00866	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00158	0.0261	+/-0.00419	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0174	0.0299	+/-0.00659	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.29	0.126	+/-0.117	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0753	0.0781	+/-0.0214	0.100	pCi/g						
Uranium-238		1.79	0.073	+/-0.154	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.12	0.508	+/-0.167	0.200	pCi/g		MXR1	01/22/10	0835	941635	4
Bismuth-211	UI	3.70	R,R5a	0.398	+/-0.259	pCi/g						
Bismuth-214		1.10		0.128	+/-0.092	0.200	pCi/g					
Cadmium-109	UI	4.03	R,R5a	1.65	+/-0.687	pCi/g						
Cerium-139	U	0.00321	0.0593	+/-0.0175	0.050	pCi/g						
Cesium-134	U	0.0764	0.0936	+/-0.0343	0.100	pCi/g						
Cesium-137		0.248	0.074	+/-0.0391	0.100	pCi/g						
Cobalt-60	U	-0.0334	0.0629	+/-0.0217	0.100	pCi/g						
Europium-152	U	0.0159	0.190	+/-0.0671	0.200	pCi/g						
Lanthanum-140	U	-0.022	0.146	+/-0.0456		pCi/g						
Lead-212		1.64	0.109	+/-0.094	0.100	pCi/g						
Lead-214		1.29	0.138	+/-0.0962	0.100	pCi/g						
Mercury-203	U	-0.00149	0.0852	+/-0.0247	0.100	pCi/g						
Potassium-40		23.6	0.669	+/-1.28	1.00	pCi/g						
Radium-223	U	-0.824	1.28	+/-0.400		pCi/g						
Radium-224	UI	4.46	R,R5a	1.24	+/-0.741	pCi/g						
Radium-226		1.10	0.128	+/-0.092		pCi/g						
Radium-228		1.73	0.235	+/-0.183	0.500	pCi/g						
Ruthenium-106	U	-0.118	0.556	+/-0.174	0.800	pCi/g						
Sodium-22	U	0.0122	0.086	+/-0.0258	0.080	pCi/g						
Strontium-85	U	0.0654	0.0747	+/-0.023		pCi/g						
Thallium-208		0.523	0.0629	+/-0.043	0.080	pCi/g						

CLL  
2/17/10

# 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: RE12-10-7236  
Sample ID: 244600008

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	-0.103	0.778	+/-0.226		pCi/g						
Thorium-231	U	-0.824	1.28	+/-0.400		pCi/g						
Thorium-234	U	1.73	3.83	+/-1.16	2.00	pCi/g						
Tin-113	U	-0.011	0.089	+/-0.0266	0.100	pCi/g						
Uranium-235	U	0.330	0.448	+/-0.131	0.500	pCi/g						
Yttrium-88	U	0.0213	0.0573	+/-0.0152	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"	80.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	70.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.4	(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.

CLL  
2/17/10

## 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: RE12-10-7252  
Sample ID: 244600009  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 15.9%

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	0.014	0.0224	+/-0.00684	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0012	0.0199	+/-0.00208	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0204	0.0227	+/-0.0061	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.54	0.128	+/-0.136	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236		0.112	0.0794	+/-0.0252	0.100	pCi/g						
Uranium-238		2.31	0.0742	+/-0.192	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.033	0.265	+/-0.0798	0.200	pCi/g		MXR1	01/22/10	0836	941635	4
Bismuth-211	UI	3.24	R,R5a	0.232	+/-0.218	pCi/g						
Bismuth-214		1.16		0.0844	+/-0.0744	0.200	pCi/g					
Cadmium-109	UI	3.33	R,R5a	1.05	+/-0.471	pCi/g						
Cerium-139	U	-0.0184		0.0376	+/-0.0108	0.050	pCi/g					
Cesium-134	U	0.0598		0.0649	+/-0.0204	0.100	pCi/g					
Cesium-137		0.389		0.0479	+/-0.0319	0.100	pCi/g					
Cobalt-60	U	0.00391		0.048	+/-0.0143	0.100	pCi/g					
Europium-152	U	0.0246		0.111	+/-0.0442	0.200	pCi/g					
Lanthanum-140	U	-0.024		0.0844	+/-0.0277	pCi/g						
Lead-212		1.51		0.069	+/-0.0685	0.100	pCi/g					
Lead-214		1.13		0.0808	+/-0.0814	0.100	pCi/g					
Mercury-203	U	0.0329		0.0538	+/-0.015	0.100	pCi/g					
Potassium-40		25.3		0.318	+/-1.13	1.00	pCi/g					
Radium-223	U	-0.465		0.804	+/-0.291	pCi/g						
Radium-224	UI	4.47	R,R5a	0.784	+/-0.497	pCi/g						
Radium-226		1.16		0.0844	+/-0.0744	pCi/g						
Radium-228		1.37		0.159	+/-0.140	0.500	pCi/g					
Ruthenium-106	U	-0.0191		0.370	+/-0.112	0.800	pCi/g					
Sodium-22	U	-0.0195		0.0501	+/-0.0158	0.080	pCi/g					
Strontium-85	UI	0.092	R,R5a	0.0545	+/-0.0158	pCi/g						
Thallium-208		0.466		0.0416	+/-0.0343	0.080	pCi/g					

CLL  
2/17/10



# 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:

RE12-10-7252  
244600009

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	0.00995	0.468	+/-0.135		pCi/g						
Thorium-231	U	-0.465	0.804	+/-0.291		pCi/g						
Thorium-234	U	1.37	2.11	+/-0.899	2.00	pCi/g						
Tin-113	U	0.00473	0.054	+/-0.0153	0.100	pCi/g						
Uranium-235	U	0.0441	0.277	+/-0.0814	0.500	pCi/g						
Yttrium-88	U	-0.00985	0.0363	+/-0.0118	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"	78.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.9	(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.

# 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: RE12-10-7253  
Sample ID: 244600010  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 3.26%

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	0.00115	0.0251	+/-0.00246	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0204	+/-0.00124	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00	0.0233	+/-0.00124	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.783	0.0881	+/-0.0718	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.0808	0.0547	+/-0.0191	0.100	pCi/g						
Uranium-238		0.867	0.0511	+/-0.0778	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0123	0.0763	+/-0.0231	0.200	pCi/g		MXR1	01/22/10	0837	941635	4
Bismuth-211	UI	4.09	R,R5a	0.308	+/-0.281	pCi/g						
Bismuth-214		1.15		0.125	+/-0.110	pCi/g						
Cadmium-109	UI	3.79	R,R5a	0.711	+/-0.365	pCi/g						
Cerium-139	U	-0.00706	0.0409	+/-0.0115	0.050	pCi/g						
Cesium-134	U	0.0579	0.0994	+/-0.0278	0.100	pCi/g						
Cesium-137	U	-0.0367	0.0666	+/-0.0218	0.100	pCi/g						
Cobalt-60	U	0.0208	0.0873	+/-0.0246	0.100	pCi/g						
Europium-152	U	-0.104	0.136	+/-0.0449	0.200	pCi/g						
Lanthanum-140	U	-0.223	0.126	+/-0.0594		pCi/g						
Lead-212		1.85	0.0794	+/-0.106	0.100	pCi/g						
Lead-214		1.42	0.108	+/-0.104	0.100	pCi/g						
Mercury-203	U	0.039	0.0662	+/-0.0201	0.100	pCi/g						
Potassium-40		32.8	0.342	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.108	0.933	+/-0.316		pCi/g						
Radium-224	UI	5.33	R,R5a	0.906	+/-0.722	pCi/g						
Radium-226		1.15	0.125	+/-0.110		pCi/g						
Radium-228		1.62	0.254	+/-0.185	0.500	pCi/g						
Ruthenium-106	U	-0.026	0.578	+/-0.173	0.800	pCi/g						
Sodium-22	U	0.0517	0.108	+/-0.0306	0.080	pCi/g						
Strontium-85	U	0.0023	0.0693	+/-0.0228		pCi/g						
Thallium-208		0.585	0.0609	+/-0.0563	0.080	pCi/g						

CLL  
2/17/10

# 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: RE12-10-7253  
Sample ID: 244600010

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	0.119	0.593	+/-0.168		pCi/g					
Thorium-231	U	-0.108	0.933	+/-0.316		pCi/g					
Thorium-234		1.20	0.755	+/-0.361	2.00	pCi/g					
Tin-113	U	0.00195	0.0783	+/-0.0237	0.100	pCi/g					
Uranium-235	U	0.0951	0.289	+/-0.0852	0.500	pCi/g					
Yttrium-88	U	0.00488	0.0838	+/-0.0253	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"	70.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	96.9	(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.

CLL  
2/17/10

# 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: RE12-10-7254  
Sample ID: 244600011  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 15.3%

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	0.0129	0.0209	+/-0.00442	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00489	0.0202	+/-0.00458	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0208	0.0231	+/-0.00595	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.38	0.102	+/-0.118	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.118	0.0633	+/-0.0234	0.100	pCi/g						
Uranium-238		2.41	0.0592	+/-0.191	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0133	0.201	+/-0.0621	0.200	pCi/g		MXR1	01/22/10	0837	941635	4
Bismuth-211	UI	3.74	R,R5a	0.287	+/-0.272	pCi/g						
Bismuth-214		0.958		0.0913	+/-0.0873	pCi/g						
Cadmium-109	UI	2.80	R,R5a	1.08	+/-0.423	pCi/g						
Cerium-139	U	-0.025		0.0422	+/-0.0125	pCi/g						
Cesium-134	UI	0.110	R,R5a	0.0721	+/-0.0297	pCi/g						
Cesium-137		0.438		0.0517	+/-0.0354	pCi/g						
Cobalt-60	U	-0.0194		0.0441	+/-0.0142	pCi/g						
Europium-152	U	-0.089		0.132	+/-0.0429	pCi/g						
Lanthanum-140	U	-0.0994		0.105	+/-0.0364	pCi/g						
Lead-212		1.59		0.0781	+/-0.114	pCi/g						
Lead-214		1.30		0.0936	+/-0.101	pCi/g						
Mercury-203	U	0.0217		0.0615	+/-0.018	pCi/g						
Potassium-40		26.3		0.416	+/-1.36	pCi/g						
Radium-223	U	0.218		0.935	+/-0.303	pCi/g						
Radium-224	UI	4.03	R,R5a	0.888	+/-0.580	pCi/g						
Radium-226		0.958		0.0913	+/-0.0873	pCi/g						
Radium-228		1.76		0.185	+/-0.158	pCi/g						
Ruthenium-106	U	-0.0695		0.422	+/-0.126	pCi/g						
Sodium-22	U	0.00456		0.0599	+/-0.0178	pCi/g						
Strontium-85	UI	0.123	R,R5a	0.0628	+/-0.0191	pCi/g						
Thallium-208		0.528		0.0492	+/-0.0442	pCi/g						

CLL  
2/17/10

# 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: RE12-10-7254  
Sample ID: 244600011  
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	0.304	0.588	+/-0.171		pCi/g						
Thorium-231	U	0.218	0.935	+/-0.303		pCi/g						
Thorium-234		2.60	1.69	+/-0.760	2.00	pCi/g						
Tin-113	U	-0.014	0.0602	+/-0.018	0.100	pCi/g						
Uranium-235	U	0.193	0.332	+/-0.0942	0.500	pCi/g						
Yttrium-88	U	-0.0126	0.0378	+/-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"	86.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.8	(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.

# 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: RE12-10-7255  
Sample ID: 244600012  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 6.61%

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	0.00638	0.0199	+/-0.00276	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00829	0.0457	+/-0.0138	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0138	0.0522	+/-0.00834	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.846	0.0931	+/-0.0774	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236	U	0.0483	0.0578	+/-0.0138	0.100	pCi/g						
Uranium-238		0.926	0.054	+/-0.0831	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0721	0.180	+/-0.0558	0.200	pCi/g		MXR1	01/22/10	0849	941635	4
Bismuth-211	UI	3.87	R,R5a	0.327	+/-0.270	pCi/g						
Bismuth-214		1.28		0.117	+/-0.104	pCi/g						
Cadmium-109	UI	3.12	R,R5a	1.16	+/-0.469	pCi/g						
Cerium-139	U	-0.0131	0.0511	+/-0.0158	0.050	pCi/g						
Cesium-134	UI	0.128	R,R5a	0.0887	+/-0.0321	pCi/g						
Cesium-137		0.113		0.0584	+/-0.0357	pCi/g						
Cobalt-60	U	-0.002	0.0636	+/-0.0194	0.100	pCi/g						
Europium-152	U	0.0701	0.166	+/-0.0533	0.200	pCi/g						
Lanthanum-140	U	0.00292	0.114	+/-0.0405		pCi/g						
Lead-212		1.77	0.0914	+/-0.103	0.100	pCi/g						
Lead-214		1.35	0.114	+/-0.100	0.100	pCi/g						
Mercury-203	U	0.0258	0.0705	+/-0.020	0.100	pCi/g						
Potassium-40		34.5	0.496	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.234	1.05	+/-0.366		pCi/g						
Radium-224	UI	4.35	R,R5a	1.04	+/-0.672	pCi/g						
Radium-226		1.28	0.117	+/-0.104		pCi/g						
Radium-228		1.80	0.216	+/-0.175	0.500	pCi/g						
Ruthenium-106	U	0.0502	0.535	+/-0.156	0.800	pCi/g						
Sodium-22	U	-0.0412	0.0707	+/-0.0234	0.080	pCi/g						
Strontium-85	U	0.0664	0.0775	+/-0.0236		pCi/g						
Thallium-208		0.521	0.0615	+/-0.050	0.080	pCi/g						

CLL  
2/17/10

# 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: RE12-10-7255  
Sample ID: 244600012

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	0.626	+/-0.188		pCi/g					
Thorium-231	U	-0.234	1.05	+/-0.366		pCi/g					
Thorium-234	U	1.18	1.59	+/-0.752	2.00	pCi/g					
Tin-113	U	-0.011	0.072	+/-0.022	0.100	pCi/g					
Uranium-235	U	0.105	0.357	+/-0.107	0.500	pCi/g					
Yttrium-88	U	0.0233	0.0718	+/-0.0199	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"	92.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	41.5 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	95.0	(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.

CLL  
2/17/10

**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: RE12-10-7276  
 Sample ID: 244600013  
 Matrix: R  
 Collect Date: 07-JAN-10  
 Receive Date: 13-JAN-10  
 Collector: Client  
 Moisture: 8.35%

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	0.0007	0.0214	+/-0.00202	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0034	0.0281	+/-0.00241	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0034	0.0321	+/-0.00241	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.909	0.0937	+/-0.0824	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.0635	0.0582	+/-0.0169	0.100	pCi/g						
Uranium-238		0.844	0.0544	+/-0.0779	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0856	0.330	+/-0.103	0.200	pCi/g		MXR1	01/22/10	0850	941635	4
Bismuth-211	UI	3.71	R,R5a	0.342	+/-0.247	pCi/g						
Bismuth-214		1.15		0.118	+/-0.087	0.200	pCi/g					
Cadmium-109	UI	2.76	R,R5a	1.34	+/-0.513	pCi/g						
Cerium-139	U	0.00494	0.051	+/-0.0149	0.050	pCi/g						
Cesium-134	U	0.0598	0.0961	+/-0.0296	0.100	pCi/g						
Cesium-137	U	-0.0396	0.0606	+/-0.0202	0.100	pCi/g						
Cobalt-60	U	0.00194	0.0638	+/-0.0194	0.100	pCi/g						
Europium-152	U	-0.139	0.161	+/-0.0565	0.200	pCi/g						
Lanthanum-140	U	-0.0141	0.113	+/-0.0352	pCi/g							
Lead-212		1.60	0.0966	+/-0.0793	0.100	pCi/g						
Lead-214		1.29	0.119	+/-0.0924	0.100	pCi/g						
Mercury-203	U	0.0122	0.069	+/-0.0195	0.100	pCi/g						
Potassium-40		19.8	0.570	+/-1.09	1.00	pCi/g						
Radium-223	U	-0.679	1.10	+/-0.398	pCi/g							
Radium-224	UI	4.40	R,R5a	1.10	+/-0.659	pCi/g						
Radium-226		1.15	0.118	+/-0.087	pCi/g							
Radium-228		1.34	0.216	+/-0.169	0.500	pCi/g						
Ruthenium-106	U	-0.00156	0.566	+/-0.171	0.800	pCi/g						
Sodium-22	U	-0.0257	0.0753	+/-0.0244	0.080	pCi/g						
Strontium-85	U	0.061	0.0694	+/-0.021	pCi/g							
Thallium-208		0.486	0.0603	+/-0.038	0.080	pCi/g						

CLL  
2/17/10



# 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: RE12-10-7276  
Sample ID: 244600013

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	0.341	0.679	+/-0.198		pCi/g					
Thorium-231		-0.679	1.10	+/-0.398		pCi/g					
Thorium-234	U	2.46	2.57	+/-1.12	2.00	pCi/g					
Tin-113	U	-0.0113	0.0777	+/-0.0231	0.100	pCi/g					
Uranium-235	U	0.0192	0.389	+/-0.115	0.500	pCi/g					
Yttrium-88	U	0.00471	0.0529	+/-0.0155	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"	86.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	71.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	95.6	(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.

CLL  
2/17/10

Monday, January 11, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1211C

**LOS ALAMOS**

REQUEST NUMBER: 10-1211

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/11/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

244600%.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE12-10-7243	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7240	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7241	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7237	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7239	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7238	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7242	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7236	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7252	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7253	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7254	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7255	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7276	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

Date Time

Received By:

Date Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

REQUEST NUMBER: 10-1211

Monday, January 11, 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: 10-1211

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 1/12/2010

TURNAROUND/REPORT DUE: 2/11/2010

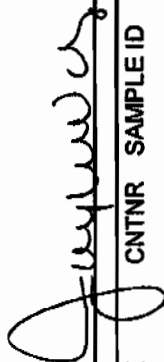
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	

Monday, January 11, 2010

REQUEST NUMBER: 10-1211

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-301.1	1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:AM-241	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:ISOPU	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	

REQUEST NUMBER: 10-1211

Monday, January 11, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:ISOU	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	

Final Page of REQUEST NUMBER 10-1211



January 15, 2010

[www.gel.com](http://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 Order: 244600  
SDG: 10-1211

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on January 13, 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  
Project Manager

Purchase Order: 72733-001-09  
Chain of Custody: 10-1211  
Enclosures

**Los Alamos National Laboratory (72733-001-09)**  
**LANL ER Project**  
**Work Order #: 244600**  
**SDG: 10-1211**

## TABLE OF CONTENTS

Case Narrative.....	1
Chain of Custody and Supporting Documentation.....	5
Data Review Qualifier Flag Definition Sheet.....	14
Radiological Analysis.....	16
Sample Data Summary.....	28
Quality Control Data.....	69
Raw Data.....	76
Background and Efficiency Data.....	905
Standards Data.....	1075
Runlogs.....	1107



# Case Narrative

**Case Narrative for  
Los Alamos National Laboratory (72733-001-09)  
LANL ER Project  
Workorder #: 244600  
SDG #: 10-1211**

**January 15, 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 13, 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 10,12,13C temperatures. 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>
244600001	RE12-10-7243
244600002	RE12-10-7240
244600003	RE12-10-7241
244600004	RE12-10-7237
244600005	RE12-10-7239
244600006	RE12-10-7238
244600007	RE12-10-7242
244600008	RE12-10-7236
244600009	RE12-10-7252
244600010	RE12-10-7253
244600011	RE12-10-7254
244600012	RE12-10-7255
244600013	RE12-10-7276

**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 15 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**

Monday, January 11, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1211C

REQUEST NUMBER: 10-1211

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

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/11/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2446007.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE12-10-7243	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7240	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7241	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7237	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7239	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7238	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7242	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7236	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7252	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7253	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7254	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7255	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7276	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

Monday, January 11, 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: 10-1211  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

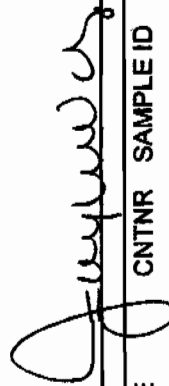
Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/12/2010  
TURNAROUND/REPORT DUE: 2/11/2010  
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	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	

Monday, January 11, 2010

REQUEST NUMBER: 10-1211

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-901.1	1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300-AM-241	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:ISOPU	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	



Monday, January 11, 2010

Page 3 of 3

REQUEST NUMBER: 10-1211

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	
	HASL-300:ISOU	1	RE12-10-7236	R	1/7/2010	
		1	RE12-10-7237	R	1/7/2010	
		1	RE12-10-7238	R	1/7/2010	
		1	RE12-10-7239	R	1/7/2010	
		1	RE12-10-7240	R	1/7/2010	
		1	RE12-10-7241	R	1/7/2010	
		1	RE12-10-7242	R	1/7/2010	
		1	RE12-10-7243	R	1/7/2010	
		1	RE12-10-7252	R	1/7/2010	
		1	RE12-10-7253	R	1/7/2010	
		1	RE12-10-7254	R	1/7/2010	
		1	RE12-10-7255	R	1/7/2010	
		1	RE12-10-7276	R	1/7/2010	

Final Page of REQUEST NUMBER 10-1211



Laboratories LLC

## SAMPLE RECEIPT &amp; REVIEW FORM

Client: LANL		SDG/ARCOC/Work Order: 10-1211	
Received By: Greg Tyler		Date Received: 1/13/10	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
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 1-6C    10, 12, 13C
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 Preservation 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 Tracking Numbers:

7209 7849 4887 1C    7209 7849 4854 10C  
 7209 7849 4924 1C    7209 7849 4800 12C  
 7209 7849 4810 2C    7209 7849 4843 13C  
 7209 7849 4898 3C  
 7209 7849 4946 4C  
 7209 7849 4865 5C  
 7209 7849 4876 6C  
 7209 7849 4935 6C

ORIGIN ID: SAFA (505) 555-9988  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
T800 BLDG 1237 DPU 03

SHIP DATE: 12JAN18  
ACTWT: 54.8 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS, NM 87545  
UNITED STATES US

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR3A0352VA00



FedEx  
Express



2 of 2  
PS# 263 7209 7849 4887

str# 7209 7849 4878 [0201]

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



ORIGIN ID: SAFA (505) 555-9988  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
T800 BLDG 1237 DPU 03

SHIP DATE: 12JAN18  
ACTWT: 55.0 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS, NM 87545  
UNITED STATES US

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR2A0515BYDO



FedEx  
Express



3 of 3  
7209 7849 4810

7209 7849 4795 [0201]

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

Page 11 of 11

ORIGIN ID: SAFA (505) 555-9988  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
T800 BLDG 1237 DPU 03

SHIP DATE: 12JAN18  
ACTWT: 47.8 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS, NM 87545  
UNITED STATES US

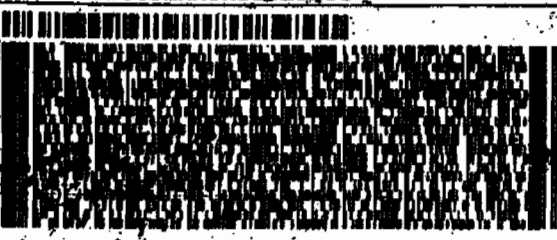
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR3A0352VE00



FedEx  
Express



TRKH 7209 7849 4924

[0201]

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



ORIGIN ID: SAFA (505) 555-9988  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
T800 BLDG 1237 DPU 03

SHIP DATE: 12JAN18  
ACTWT: 57.0 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS, NM 87545  
UNITED STATES US

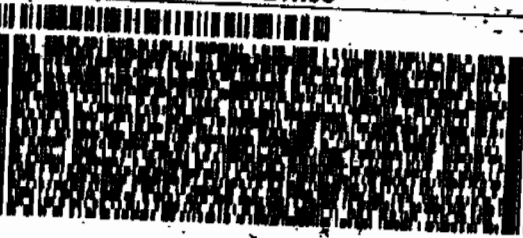
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR3A0352VA00



FedEx  
Express



TRKH 7209 7849 4898

[0201]

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

ORIGIN ID: SAFA (505) 665-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
7A00 BLDG 1237 DPU 03

SHIP DATE: 12JAN10  
ACTWGT: 55.0 LB MAN  
CRD: 0014176/CAFE2449

LOS ALAMOS, NM 87545  
UNITED STATES US

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

4°



FedEx  
Express

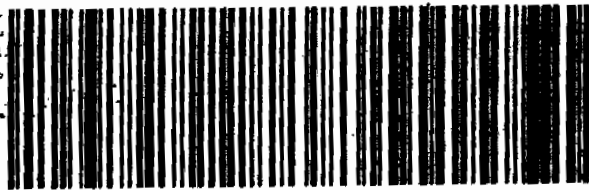


TRKH 7209 7849 4946  
0201

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



ORIGIN ID: SAFA (505) 665-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
7A00 BLDG 1237 DPU 03

SHIP DATE: 12JAN10  
ACTWGT: 55.0 LB MAN  
CRD: 0014176/CAFE2449

BILL SENDER

LOS ALAMOS, NM 87545  
UNITED STATES US

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

6°



FedEx  
Express



TRKH 7209 7849 4876  
0201

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

12 of 1111

ORIGIN ID: SAFA (505) 665-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
7A00 BLDG 1237 DPU 03

SHIP DATE: 12JAN10  
ACTWGT: 48.0 LB MAN  
CRD: 0014176/CAFE2449

LOS ALAMOS, NM 87545  
UNITED STATES US

BILL SENDER

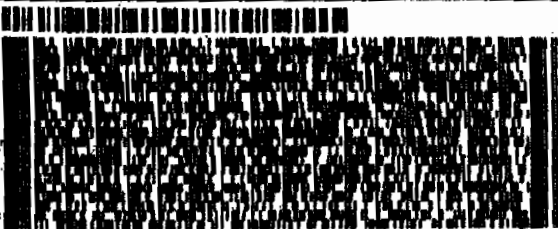
VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A0352VA00

5°



FedEx  
Express



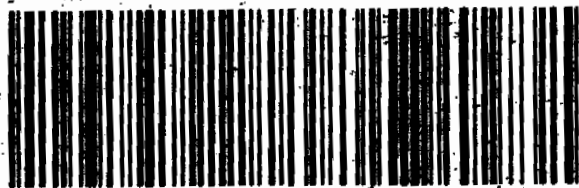
3 of 3  
NPSN 7209 7849 4865  
0201

MatrN 7209 7849 4843 0201

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



ORIGIN ID: SAFA (505) 665-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
7A00 BLDG 1237 DPU 03

SHIP DATE: 12JAN10  
ACTWGT: 51.0 LB MAN  
CRD: 0014176/CAFE2449

LOS ALAMOS, NM 87545  
UNITED STATES US

BILL SENDER

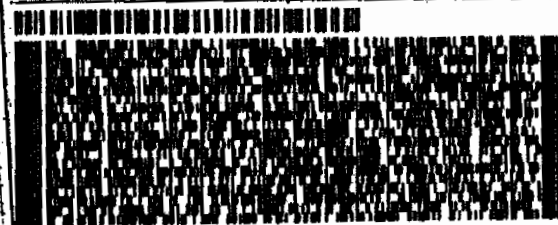
VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

6°



FedEx  
Express



TRKH 7209 7849 4935  
0201

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

ORIGIN ID: SAFA (505) 865-9958  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB.  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 12 JAN 10  
ACTWT: 45.0 LB MAN  
CAD: 0014176/CAF2449

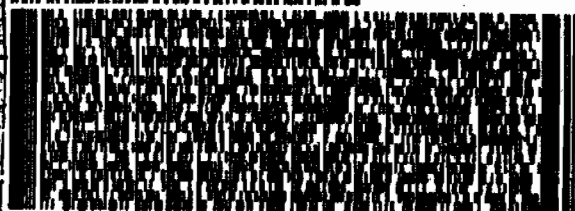
**BILL SENDER**

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

10°

**CHARLESTON SC 29407**

REF: 6B010AMR3A0352VA00



**FedEx**  
Express



2 of 3  
MPS# 7209 7849 4854  
0263  
Matr# 7209 7849 4843 0291

WED - 13JAN A1  
PRIORITY OVERNIGHT

**XX CHSA**

**29407**  
**SC-US**  
**CHS**



Part # 158148-434 NFUT V3 04-0

ORIGIN ID: SAFA (505) 865-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB.  
TAGO BLDG 1237 DPU 03

LOS ALAMOS; NM 87545  
UNITED STATES US

SHIP DATE: 12JAN10  
ACTWGT: 59.0 LB MAN  
CAD: 0014176/CAFE2449

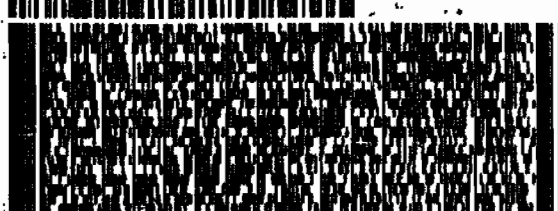
**BILL SENDER**

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

12°

**CHARLESTON SC 29407**

REF: 68010AMR2A0515BYDO



**FedEx**  
Express



2 of 3  
NPS# 7209 7849 4800  
6263  
Matr# 7209 7849 4795 6261

WED - 13JAN A1  
PRIORITY OVERNIGHT

XX CHSA

29407  
SE-US  
CHS



Part # 166148-434 PART V3 04-08

ORIGIN ID: SAFA (505) 685-2068  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1297 DPU 83  
LOS ALAMOS, NM 87545  
UNITED STATES US

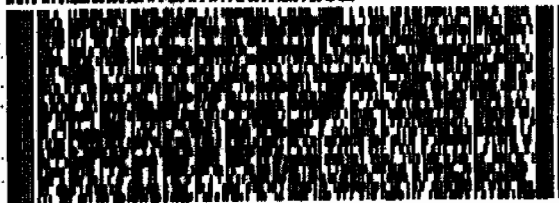
SHIP DATE: 12JAN10  
ACTWT: 30.0 LB MAN  
CRO: 0014176/CAFE2449

**BILL SENDER**

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

13°

CHARLESTON SC 29407  
(843) 556-8171  
REF: 68910MR3A0352VA00



**FedEx**  
Express



1 of 3  
TRK# 7209 7849 4843  
0201  
MM MASTER MM

WED - 13JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

**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 10-1211**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941693  
**Prep Batch Number:** 941620

<b>Sample ID</b>	<b>Client ID</b>
244600001	RE12-10-7243
244600002	RE12-10-7240
244600003	RE12-10-7241
244600004	RE12-10-7237
244600005	RE12-10-7239
244600006	RE12-10-7238
244600007	RE12-10-7242
244600008	RE12-10-7236
244600009	RE12-10-7252
244600010	RE12-10-7253
244600011	RE12-10-7254
244600012	RE12-10-7255
244600013	RE12-10-7276
1202015579	Method Blank (MB)
1202015580	244600013(RE12-10-7276) Sample Duplicate (DUP)
1202015581	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 1202015579 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 244600013 (RE12-10-7276). The QC was from LANL work order 244600.

##### **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:** 941694  
**Prep Batch Number:** 941620

<b>Sample ID</b>	<b>Client ID</b>
244600001	RE12-10-7243
244600002	RE12-10-7240
244600003	RE12-10-7241
244600004	RE12-10-7237
244600005	RE12-10-7239
244600006	RE12-10-7238
244600007	RE12-10-7242
244600008	RE12-10-7236
244600009	RE12-10-7252
244600010	RE12-10-7253
244600011	RE12-10-7254
244600012	RE12-10-7255
244600013	RE12-10-7276
1202015582	Method Blank (MB)
1202015583	244600013(RE12-10-7276) Sample Duplicate (DUP)
1202015584	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 1202015582 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 244600013 (RE12-10-7276). The QC was from LANL work order 244600.

**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 244600012 (RE12-10-7255) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

**Blank Decision Level**

The blank result is less than the decision level.

**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:** 941697  
**Prep Batch Number:** 941620

Sample ID	Client ID
244600001	RE12-10-7243
244600002	RE12-10-7240
244600003	RE12-10-7241
244600004	RE12-10-7237
244600005	RE12-10-7239
244600006	RE12-10-7238
244600007	RE12-10-7242
244600008	RE12-10-7236
244600009	RE12-10-7252
244600010	RE12-10-7253
244600011	RE12-10-7254
244600012	RE12-10-7255
244600013	RE12-10-7276
1202015590	Method Blank (MB)
1202015591	244600013(RE12-10-7276) Sample Duplicate (DUP)
1202015592	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 1202015590 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 244600013 (RE12-10-7276). The QC was from LANL work order 244600.

**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:** GAMMA SPEC

**Analytical Method:** DOE HASL 300, 4.5.2.3/Ga-01-R

**Prep Method:** Dry Soil Prep

**Analytical Batch Number:** 941635

**Prep Batch Number:** 941620

Sample ID	Client ID
244600001	RE12-10-7243
244600002	RE12-10-7240
244600003	RE12-10-7241
244600004	RE12-10-7237
244600005	RE12-10-7239
244600006	RE12-10-7238
244600007	RE12-10-7242
244600008	RE12-10-7236
244600009	RE12-10-7252
244600010	RE12-10-7253
244600011	RE12-10-7254
244600012	RE12-10-7255
244600013	RE12-10-7276
1202015435	Method Blank (MB)
1202015436	244597001(RE12-10-7722) Sample Duplicate (DUP)
1202015437	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, March 2009, April 2009, June 2009, July 2009, August 2009, October 2009, November 2009, December 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: 244597001 (RE12-10-7722). The QC was from LANL work order 244597.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank results for Pb-212, Sr-85, and Th-227 for sample 1202015435 (MB) are 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.

**Additional Comments**

Additional comments were not required for this sample set.

**Blank Decision Level**

The blank results for Sr-85 and Th-227 for sample 1202015435 (MB) are greater than the decision level but less than the MDC.

**Qualifier information**

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to high counting uncertainty.	Thorium-234	244600002	RE12-10-7240
			244600003	RE12-10-7241



UI	Data rejected due to interference.			
		Bismuth-211	244600001	RE12-10-7243
			244600002	RE12-10-7240
			244600003	RE12-10-7241
			244600004	RE12-10-7237
			244600005	RE12-10-7239
			244600006	RE12-10-7238
			244600007	RE12-10-7242
			244600008	RE12-10-7236
			244600009	RE12-10-7252
			244600010	RE12-10-7253
			244600011	RE12-10-7254
			244600012	RE12-10-7255
			244600013	RE12-10-7276
			1202015436	RE12-10-7722(244597001DUP)
		Cadmium-109	244600001	RE12-10-7243
			244600002	RE12-10-7240
			244600003	RE12-10-7241
			244600004	RE12-10-7237
			244600005	RE12-10-7239
			244600006	RE12-10-7238
			244600007	RE12-10-7242
			244600008	RE12-10-7236
			244600009	RE12-10-7252
			244600010	RE12-10-7253
			244600011	RE12-10-7254
			244600012	RE12-10-7255
			244600013	RE12-10-7276
		Radium-224	244600001	RE12-10-7243
			244600002	RE12-10-7240

			244600003	RE12-10-7241
			244600004	RE12-10-7237
			244600005	RE12-10-7239
			244600006	RE12-10-7238
			244600007	RE12-10-7242
			244600008	RE12-10-7236
			244600009	RE12-10-7252
			244600010	RE12-10-7253
			244600011	RE12-10-7254
			244600012	RE12-10-7255
			244600013	RE12-10-7276
			1202015436	RE12-10-7722(244597001DUP)
UI	Data rejected due to low abundance.	Cesium-134	244600001	RE12-10-7243
			244600004	RE12-10-7237
			244600011	RE12-10-7254
			244600012	RE12-10-7255
		Radium-228	244600006	RE12-10-7238
			1202015436	RE12-10-7722(244597001DUP)
		Strontium-85	244600001	RE12-10-7243
			244600009	RE12-10-7252
			244600011	RE12-10-7254

#### **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: 10-1211 GEL Work Order: 244600

**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

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: RE12-10-7243  
Sample ID: 244600001  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 5.84%

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	0.00206	0.022	+/-0.00573	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00254	0.021	+/-0.00254	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00889	0.024	+/-0.00384	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.748	0.120	+/-0.0756	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0479	0.0746	+/-0.0155	0.100	pCi/g						
Uranium-238		0.888	0.0697	+/-0.0863	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.056	0.374	+/-0.105	0.200	pCi/g		MXR1	01/22/10	0754	941635	4
Bismuth-211	UI	3.42	0.297	+/-0.233		pCi/g						
Bismuth-214		0.917	0.109	+/-0.0715	0.200	pCi/g						
Cadmium-109	UI	1.93	1.04	+/-0.589		pCi/g						
Cerium-139	U	-0.0127	0.0449	+/-0.0136	0.050	pCi/g						
Cesium-134	UI	0.100	0.0873	+/-0.0296	0.100	pCi/g						
Cesium-137		0.0691	0.0603	+/-0.0247	0.100	pCi/g						
Cobalt-60	U	-0.0272	0.0642	+/-0.0207	0.100	pCi/g						
Europium-152	U	0.00152	0.149	+/-0.0531	0.200	pCi/g						
Lanthanum-140	U	0.0441	0.135	+/-0.0379		pCi/g						
Lead-212		1.52	0.083	+/-0.0771	0.100	pCi/g						
Lead-214		1.19	0.103	+/-0.0868	0.100	pCi/g						
Mercury-203	U	0.0399	0.068	+/-0.021	0.100	pCi/g						
Potassium-40		32.7	0.496	+/-1.67	1.00	pCi/g						
Radium-223	U	0.224	0.950	+/-0.306		pCi/g						
Radium-224	UI	4.19	0.944	+/-0.561		pCi/g						
Radium-226		0.917	0.109	+/-0.0715		pCi/g						
Radium-228		1.46	0.204	+/-0.165	0.500	pCi/g						
Ruthenium-106	U	-0.0327	0.474	+/-0.139	0.800	pCi/g						
Sodium-22	U	-0.0249	0.0678	+/-0.0215	0.080	pCi/g						
Strontium-85	UI	0.0658	0.0602	+/-0.0179		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: RE12-10-7243  
Sample ID: 244600001

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		0.409	0.0499	+/-0.0348	0.080	pCi/g					
Thorium-227	U	-0.244	0.549	+/-0.164		pCi/g					
Thorium-231	U	0.224	0.950	+/-0.306		pCi/g					
Thorium-234	U	0.523	3.01	+/-0.845	2.00	pCi/g					
Tin-113	U	0.0101	0.0717	+/-0.0209	0.100	pCi/g					
Uranium-235	U	0.262	0.352	+/-0.102	0.500	pCi/g					
Yttrium-88	U	0.00786	0.0493	+/-0.0144	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"	92.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	93.5	(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

## 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: RE12-10-7243  
Sample ID: 244600001

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

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: RE12-10-7240  
Sample ID: 244600002  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 13.5%

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	0.00669	0.0361	+/-0.0038	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00127	0.021	+/-0.00221	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00127	0.0241	+/-0.00221	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.883	0.111	+/-0.0841	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0622	0.0691	+/-0.0172	0.100	pCi/g						
Uranium-238		0.923	0.0646	+/-0.0869	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0586	0.155	+/-0.047	0.200	pCi/g		MXR1	01/22/10	0755	941635	4
Bismuth-211	UI	3.13	0.247	+/-0.277		pCi/g						
Bismuth-214		0.998	0.0922	+/-0.0819	0.200	pCi/g						
Cadmium-109	UI	1.50	0.871	+/-0.535		pCi/g						
Cerium-139	U	-0.00715	0.0353	+/-0.0102	0.050	pCi/g						
Cesium-134	U	0.0511	0.0714	+/-0.0192	0.100	pCi/g						
Cesium-137	U	-0.0229	0.0464	+/-0.015	0.100	pCi/g						
Cobalt-60	U	0.00588	0.0526	+/-0.0157	0.100	pCi/g						
Europium-152	U	-0.0124	0.121	+/-0.0389	0.200	pCi/g						
Lanthanum-140	U	-0.0423	0.106	+/-0.0415		pCi/g						
Lead-212		1.43	0.070	+/-0.110	0.100	pCi/g						
Lead-214		1.09	0.0862	+/-0.101	0.100	pCi/g						
Mercury-203	U	0.0227	0.0567	+/-0.0162	0.100	pCi/g						
Potassium-40		21.2	0.414	+/-1.14	1.00	pCi/g						
Radium-223	U	-0.246	0.802	+/-0.283		pCi/g						
Radium-224	UI	3.82	0.796	+/-0.500		pCi/g						
Radium-226		0.998	0.0922	+/-0.0819		pCi/g						
Radium-228		1.18	0.158	+/-0.150	0.500	pCi/g						
Ruthenium-106	U	0.0469	0.391	+/-0.114	0.800	pCi/g						
Sodium-22	U	-0.00357	0.0554	+/-0.0171	0.080	pCi/g						
Strontium-85	U	0.0438	0.0517	+/-0.0152		pCi/g						
Thallium-208		0.397	0.0456	+/-0.0379	0.080	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: RE12-10-7240  
Sample ID: 244600002

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	-0.0913	0.457	+/-0.137		pCi/g					
Thorium-231	U	-0.246	0.802	+/-0.283		pCi/g					
Thorium-234	UI	1.30	1.29	+/-0.606	2.00	pCi/g					
Tin-113	U	-0.0119	0.0545	+/-0.0159	0.100	pCi/g					
Uranium-235	U	0.00605	0.265	+/-0.0758	0.500	pCi/g					
Yttrium-88	U	0.0158	0.0447	+/-0.012	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"	57.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	98.2	(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
- N/A RPD or %Recovery limits do not apply.

# 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: RE12-10-7240  
Sample ID: 244600002

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.

# 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: RE12-10-7241  
Sample ID: 244600003  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 9.37%

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	-6.51E-05	0.0297	+/-0.00175	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00425	0.0234	+/-0.00318	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00142	0.0268	+/-0.00246	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.983	0.124	+/-0.094	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0642	0.0769	+/-0.0184	0.100	pCi/g						
Uranium-238		1.06	0.0718	+/-0.0998	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0226	0.233	+/-0.0689	0.200	pCi/g		MXR1	01/22/10	0755	941635	4
Bismuth-211	UI	3.88	0.267	+/-0.223		pCi/g						
Bismuth-214		1.17	0.0953	+/-0.0923	0.200	pCi/g						
Cadmium-109	UI	3.53	1.21	+/-0.468		pCi/g						
Cerium-139	U	-0.00592	0.0428	+/-0.0125	0.050	pCi/g						
Cesium-134	U	0.0526	0.0773	+/-0.0211	0.100	pCi/g						
Cesium-137	U	-0.0344	0.0513	+/-0.0169	0.100	pCi/g						
Cobalt-60	U	-0.00147	0.054	+/-0.0164	0.100	pCi/g						
Europium-152	U	-0.00424	0.133	+/-0.0471	0.200	pCi/g						
Lanthanum-140	U	-0.0179	0.104	+/-0.0322		pCi/g						
Lead-212		1.49	0.0764	+/-0.0706	0.100	pCi/g						
Lead-214		1.35	0.093	+/-0.0852	0.100	pCi/g						
Mercury-203	U	0.0086	0.0523	+/-0.022	0.100	pCi/g						
Potassium-40		27.0	0.480	+/-1.23	1.00	pCi/g						
Radium-223	U	0.0093	0.899	+/-0.293		pCi/g						
Radium-224	UI	4.18	0.869	+/-0.489		pCi/g						
Radium-226		1.17	0.0953	+/-0.0923		pCi/g						
Radium-228		1.51	0.169	+/-0.153	0.500	pCi/g						
Ruthenium-106	U	-0.0483	0.457	+/-0.134	0.800	pCi/g						
Sodium-22	U	-0.0472	0.0641	+/-0.0215	0.080	pCi/g						
Strontium-85	U	0.0401	0.0556	+/-0.0172		pCi/g						
Thallium-208		0.524	0.0518	+/-0.0405	0.080	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:

RE12-10-7241  
244600003

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	-0.135	0.526	+/-0.151		pCi/g					
Thorium-231	U	0.0093	0.899	+/-0.293		pCi/g					
Thorium-234	UI	1.97	1.88	+/-0.978	2.00	pCi/g					
Tin-113	U	0.00806	0.0652	+/-0.0188	0.100	pCi/g					
Uranium-235	U	-0.125	0.301	+/-0.0898	0.500	pCi/g					
Yttrium-88	U	0.000476	0.0439	+/-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"	62.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	82.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.2	(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
- N/A RPD or %Recovery limits do not apply.

# 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: RE12-10-7241  
Sample ID: 244600003

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.

# 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: RE12-10-7237  
Sample ID: 244600004  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 10.1%

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	-3.52E-05	0.0302	+/-0.00178	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.002	0.033	+/-0.00999	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.002	0.0378	+/-0.00529	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.705	0.126	+/-0.0735	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0302	0.0784	+/-0.0125	0.100	pCi/g						
Uranium-238		0.709	0.0733	+/-0.0738	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00988	0.214	+/-0.0679	0.200	pCi/g		MXR1	01/22/10	0756	941635	4
Bismuth-211	UI	3.35	0.260	+/-0.266		pCi/g						
Bismuth-214		1.11	0.0892	+/-0.0913	0.200	pCi/g						
Cadmium-109	UI	2.17	0.948	+/-0.454		pCi/g						
Cerium-139	U	-0.0017	0.0426	+/-0.0122	0.050	pCi/g						
Cesium-134	UI	0.121	0.0775	+/-0.0274	0.100	pCi/g						
Cesium-137	U	0.0314	0.0595	+/-0.0168	0.100	pCi/g						
Cobalt-60	U	-0.0201	0.0522	+/-0.0172	0.100	pCi/g						
Europium-152	U	0.0264	0.130	+/-0.0386	0.200	pCi/g						
Lanthanum-140	U	-0.0329	0.101	+/-0.0328		pCi/g						
Lead-212		1.62	0.0752	+/-0.107	0.100	pCi/g						
Lead-214		1.17	0.0906	+/-0.0975	0.100	pCi/g						
Mercury-203	U	0.0204	0.0544	+/-0.0174	0.100	pCi/g						
Potassium-40		31.2	0.459	+/-1.60	1.00	pCi/g						
Radium-223	U	-0.331	0.899	+/-0.321		pCi/g						
Radium-224	UI	4.37	0.855	+/-0.619		pCi/g						
Radium-226		1.11	0.0892	+/-0.0913		pCi/g						
Radium-228		1.66	0.187	+/-0.166	0.500	pCi/g						
Ruthenium-106	U	0.0051	0.399	+/-0.119	0.800	pCi/g						
Sodium-22	U	0.0153	0.0654	+/-0.0192	0.080	pCi/g						
Strontium-85	U	0.00341	0.0486	+/-0.0161		pCi/g						
Thallium-208		0.513	0.0516	+/-0.0427	0.080	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: RE12-10-7237  
Sample ID: 244600004

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	0.0089	0.522	+/-0.154		pCi/g					
Thorium-231	U	-0.331	0.899	+/-0.321		pCi/g					
Thorium-234	U	1.47	1.71	+/-0.701	2.00	pCi/g					
Tin-113	U	0.000992	0.0625	+/-0.0178	0.100	pCi/g					
Uranium-235	U	0.0363	0.291	+/-0.0826	0.500	pCi/g					
Yttrium-88	U	-0.00261	0.0458	+/-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"	58.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	57.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.2	(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
- N/A RPD or %Recovery limits do not apply.



# 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: RE12-10-7237 Project: LANL01004  
Sample ID: 244600004 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.

# 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: RE12-10-7239  
Sample ID: 244600005  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 9.32%

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	0.000985	0.0237	+/-0.00303	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00434	0.0179	+/-0.00553	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00108	0.0205	+/-0.00287	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.917	0.122	+/-0.0888	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0438	0.0758	+/-0.0149	0.100	pCi/g						
Uranium-238		0.906	0.0708	+/-0.0881	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0348	0.178	+/-0.0566	0.200	pCi/g		MXR1	01/22/10	0757	941635	4
Bismuth-211	UI	4.00	0.295	+/-0.295		pCi/g						
Bismuth-214		1.15	0.0939	+/-0.0982	0.200	pCi/g						
Cadmium-109	UI	2.14	1.09	+/-0.462		pCi/g						
Cerium-139	U	-0.00334	0.0423	+/-0.0146	0.050	pCi/g						
Cesium-134	U	0.0591	0.0843	+/-0.0231	0.100	pCi/g						
Cesium-137	U	-0.0133	0.0487	+/-0.0149	0.100	pCi/g						
Cobalt-60	U	0.0056	0.0539	+/-0.0163	0.100	pCi/g						
Europium-152	U	0.0522	0.152	+/-0.0467	0.200	pCi/g						
Lanthanum-140	U	-0.0736	0.119	+/-0.0414		pCi/g						
Lead-212		1.78	0.0832	+/-0.110	0.100	pCi/g						
Lead-214		1.39	0.103	+/-0.109	0.100	pCi/g						
Mercury-203	U	0.0187	0.0636	+/-0.0204	0.100	pCi/g						
Potassium-40		21.9	0.486	+/-1.21	1.00	pCi/g						
Radium-223	U	0.0511	0.970	+/-0.323		pCi/g						
Radium-224	UI	4.84	0.946	+/-0.706		pCi/g						
Radium-226		1.15	0.0939	+/-0.0982		pCi/g						
Radium-228		1.62	0.190	+/-0.154	0.500	pCi/g						
Ruthenium-106	U	0.076	0.482	+/-0.145	0.800	pCi/g						
Sodium-22	U	0.0336	0.0663	+/-0.0186	0.080	pCi/g						
Strontium-85	U	0.0504	0.0566	+/-0.0171		pCi/g						
Thallium-208		0.543	0.0512	+/-0.049	0.080	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: RE12-10-7239  
Sample ID: 244600005

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	0.0691	0.599	+/-0.172		pCi/g						
Thorium-231	U	0.0511	0.970	+/-0.323		pCi/g						
Thorium-234		2.67	1.47	+/-0.775	2.00	pCi/g						
Tin-113	U	-0.0151	0.0626	+/-0.0192	0.100	pCi/g						
Uranium-235	U	-0.0602	0.315	+/-0.0976	0.500	pCi/g						
Yttrium-88	U	-0.0139	0.0485	+/-0.0162	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"	81.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	103	(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.

# 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: RE12-10-7239  
Sample ID: 244600005

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.

# 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: RE12-10-7238  
Sample ID: 244600006  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 16.7%

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	0.000793	0.0222	+/-0.00131	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00852	0.0201	+/-0.00471	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00852	0.023	+/-0.00368	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.00	0.108	+/-0.0918	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0647	0.0671	+/-0.0173	0.100	pCi/g						
Uranium-238		1.43	0.0627	+/-0.123	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0203	0.101	+/-0.0301	0.200	pCi/g		MXR1	01/22/10	0805	941635	4
Bismuth-211	UI	4.01	0.336	+/-0.274		pCi/g						
Bismuth-214		1.34	0.112	+/-0.128	0.200	pCi/g						
Cadmium-109	UI	4.09	0.921	+/-0.438		pCi/g						
Cerium-139	U	-0.0234	0.0456	+/-0.014	0.050	pCi/g						
Cesium-134	U	0.0885	0.105	+/-0.0479	0.100	pCi/g						
Cesium-137		0.129	0.0853	+/-0.0266	0.100	pCi/g						
Cobalt-60	U	-0.00884	0.0685	+/-0.021	0.100	pCi/g						
Europium-152	U	-0.000742	0.159	+/-0.0458	0.200	pCi/g						
Lanthanum-140	U	0.00639	0.176	+/-0.0528		pCi/g						
Lead-212		1.67	0.0917	+/-0.103	0.100	pCi/g						
Lead-214		1.40	0.117	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.0321	0.0744	+/-0.0203	0.100	pCi/g						
Potassium-40		17.9	0.540	+/-1.11	1.00	pCi/g						
Radium-223	U	-0.0814	1.12	+/-0.322		pCi/g						
Radium-224	UI	3.92	1.05	+/-0.763		pCi/g						
Radium-226		1.34	0.112	+/-0.128		pCi/g						
Radium-228	UI	1.84	0.624	+/-0.196	0.500	pCi/g						
Ruthenium-106	U	0.222	0.604	+/-0.173	0.800	pCi/g						
Sodium-22	U	-0.0187	0.0789	+/-0.0257	0.080	pCi/g						
Strontium-85	U	0.0465	0.0693	+/-0.0211		pCi/g						
Thallium-208		0.500	0.0652	+/-0.0523	0.080	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: RE12-10-7238  
Sample ID: 244600006

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	0.398	0.656	+/-0.189		pCi/g					
Thorium-231	U	-0.0814	1.12	+/-0.322		pCi/g					
Thorium-234		1.82	0.928	+/-0.502	2.00	pCi/g					
Tin-113	U	-0.00575	0.077	+/-0.0226	0.100	pCi/g					
Uranium-235	U	0.229	0.351	+/-0.0996	0.500	pCi/g					
Yttrium-88	U	-0.0028	0.0539	+/-0.0169	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"	87.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	104	(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.

# 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: RE12-10-7238 Project: LANL01004  
Sample ID: 244600006 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.

# 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: RE12-10-7242  
Sample ID: 244600007  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 16.3%

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	0.00537	0.0244	+/-0.00346	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00718	0.0198	+/-0.00657	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0144	0.0226	+/-0.00513	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.11	0.134	+/-0.106	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0694	0.0831	+/-0.0213	0.100	pCi/g						
Uranium-238		1.81	0.0777	+/-0.157	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0149	0.0682	+/-0.022	0.200	pCi/g		MXR1	01/22/10	0805	941635	4
Bismuth-211	UI	3.44	0.266	+/-0.283		pCi/g						
Bismuth-214		1.09	0.0955	+/-0.0975	0.200	pCi/g						
Cadmium-109	UI	3.78	0.637	+/-0.361		pCi/g						
Cerium-139	U	-0.0134	0.036	+/-0.0107	0.050	pCi/g						
Cesium-134	U	0.0602	0.0811	+/-0.0221	0.100	pCi/g						
Cesium-137		0.386	0.0601	+/-0.0407	0.100	pCi/g						
Cobalt-60	U	0.0152	0.062	+/-0.0179	0.100	pCi/g						
Europium-152	U	-0.0317	0.130	+/-0.0396	0.200	pCi/g						
Lanthanum-140	U	-0.0211	0.133	+/-0.0412		pCi/g						
Lead-212		1.52	0.0736	+/-0.0986	0.100	pCi/g						
Lead-214		1.20	0.0928	+/-0.103	0.100	pCi/g						
Mercury-203	U	0.0264	0.0517	+/-0.0171	0.100	pCi/g						
Potassium-40		23.0	0.510	+/-1.23	1.00	pCi/g						
Radium-223	U	-0.347	0.919	+/-0.274		pCi/g						
Radium-224	UI	4.40	0.839	+/-0.515		pCi/g						
Radium-226		1.09	0.0955	+/-0.0975		pCi/g						
Radium-228		1.55	0.190	+/-0.147	0.500	pCi/g						
Ruthenium-106	U	0.244	0.503	+/-0.137	0.800	pCi/g						
Sodium-22	U	0.00479	0.0684	+/-0.0204	0.080	pCi/g						
Strontium-85	U	0.0338	0.059	+/-0.0187		pCi/g						
Thallium-208		0.518	0.0498	+/-0.0495	0.080	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:

RE12-10-7242  
244600007

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	0.0737	0.525	+/-0.155		pCi/g					
Thorium-231	U	-0.347	0.919	+/-0.274		pCi/g					
Thorium-234		1.81	0.710	+/-0.404	2.00	pCi/g					
Tin-113	U	-0.00969	0.0645	+/-0.0191	0.100	pCi/g					
Uranium-235	U	0.0638	0.289	+/-0.0824	0.500	pCi/g					
Yttrium-88	U	0.0162	0.0612	+/-0.0172	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"	81.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	83.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.0	(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.

## 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: RE12-10-7242  
Sample ID: 244600007

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.

# 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: RE12-10-7236  
Sample ID: 244600008  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 21.7%

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	0.0169	0.0244	+/-0.00866	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00158	0.0261	+/-0.00419	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0174	0.0299	+/-0.00659	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.29	0.126	+/-0.117	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236	U	0.0753	0.0781	+/-0.0214	0.100	pCi/g						
Uranium-238		1.79	0.073	+/-0.154	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.12	0.508	+/-0.167	0.200	pCi/g		MXR1	01/22/10	0835	941635	4
Bismuth-211	UI	3.70	0.398	+/-0.259		pCi/g						
Bismuth-214		1.10	0.128	+/-0.092	0.200	pCi/g						
Cadmium-109	UI	4.03	1.65	+/-0.687		pCi/g						
Cerium-139	U	0.00321	0.0593	+/-0.0175	0.050	pCi/g						
Cesium-134	U	0.0764	0.0936	+/-0.0343	0.100	pCi/g						
Cesium-137		0.248	0.074	+/-0.0391	0.100	pCi/g						
Cobalt-60	U	-0.0334	0.0629	+/-0.0217	0.100	pCi/g						
Europium-152	U	0.0159	0.190	+/-0.0671	0.200	pCi/g						
Lanthanum-140	U	-0.022	0.146	+/-0.0456		pCi/g						
Lead-212		1.64	0.109	+/-0.094	0.100	pCi/g						
Lead-214		1.29	0.138	+/-0.0962	0.100	pCi/g						
Mercury-203	U	-0.00149	0.0852	+/-0.0247	0.100	pCi/g						
Potassium-40		23.6	0.669	+/-1.28	1.00	pCi/g						
Radium-223	U	-0.824	1.28	+/-0.400		pCi/g						
Radium-224	UI	4.46	1.24	+/-0.741		pCi/g						
Radium-226		1.10	0.128	+/-0.092		pCi/g						
Radium-228		1.73	0.235	+/-0.183	0.500	pCi/g						
Ruthenium-106	U	-0.118	0.556	+/-0.174	0.800	pCi/g						
Sodium-22	U	0.0122	0.086	+/-0.0258	0.080	pCi/g						
Strontium-85	U	0.0654	0.0747	+/-0.023		pCi/g						
Thallium-208		0.523	0.0629	+/-0.043	0.080	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:

RE12-10-7236  
244600008

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	-0.103	0.778	+/-0.226		pCi/g					
Thorium-231	U	-0.824	1.28	+/-0.400		pCi/g					
Thorium-234	U	1.73	3.83	+/-1.16	2.00	pCi/g					
Tin-113	U	-0.011	0.089	+/-0.0266	0.100	pCi/g					
Uranium-235	U	0.330	0.448	+/-0.131	0.500	pCi/g					
Yttrium-88	U	0.0213	0.0573	+/-0.0152	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"	80.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	70.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.4	(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.

## 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: RE12-10-7236 Project: LANL01004  
Sample ID: 244600008 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.

# 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: RE12-10-7252  
Sample ID: 244600009  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 15.9%

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	0.014	0.0224	+/-0.00684	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0012	0.0199	+/-0.00208	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0204	0.0227	+/-0.0061	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.54	0.128	+/-0.136	0.100	pCi/g		HAKB	01/20/10	2016	941697	3
Uranium-235/236		0.112	0.0794	+/-0.0252	0.100	pCi/g						
Uranium-238		2.31	0.0742	+/-0.192	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.033	0.265	+/-0.0798	0.200	pCi/g		MXR1	01/22/10	0836	941635	4
Bismuth-211	UI	3.24	0.232	+/-0.218		pCi/g						
Bismuth-214		1.16	0.0844	+/-0.0744	0.200	pCi/g						
Cadmium-109	UI	3.33	1.05	+/-0.471		pCi/g						
Cerium-139	U	-0.0184	0.0376	+/-0.0108	0.050	pCi/g						
Cesium-134	U	0.0598	0.0649	+/-0.0204	0.100	pCi/g						
Cesium-137		0.389	0.0479	+/-0.0319	0.100	pCi/g						
Cobalt-60	U	0.00391	0.048	+/-0.0143	0.100	pCi/g						
Europium-152	U	0.0246	0.111	+/-0.0442	0.200	pCi/g						
Lanthanum-140	U	-0.024	0.0844	+/-0.0277		pCi/g						
Lead-212		1.51	0.069	+/-0.0685	0.100	pCi/g						
Lead-214		1.13	0.0808	+/-0.0814	0.100	pCi/g						
Mercury-203	U	0.0329	0.0538	+/-0.015	0.100	pCi/g						
Potassium-40		25.3	0.318	+/-1.13	1.00	pCi/g						
Radium-223	U	-0.465	0.804	+/-0.291		pCi/g						
Radium-224	UI	4.47	0.784	+/-0.497		pCi/g						
Radium-226		1.16	0.0844	+/-0.0744		pCi/g						
Radium-228		1.37	0.159	+/-0.140	0.500	pCi/g						
Ruthenium-106	U	-0.0191	0.370	+/-0.112	0.800	pCi/g						
Sodium-22	U	-0.0195	0.0501	+/-0.0158	0.080	pCi/g						
Strontium-85	UI	0.092	0.0545	+/-0.0158		pCi/g						
Thallium-208		0.466	0.0416	+/-0.0343	0.080	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: RE12-10-7252  
Sample ID: 244600009

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	0.00995	0.468	+/-0.135		pCi/g					
Thorium-231	U	-0.465	0.804	+/-0.291		pCi/g					
Thorium-234	U	1.37	2.11	+/-0.899	2.00	pCi/g					
Tin-113	U	0.00473	0.054	+/-0.0153	0.100	pCi/g					
Uranium-235	U	0.0441	0.277	+/-0.0814	0.500	pCi/g					
Yttrium-88	U	-0.00985	0.0363	+/-0.0118	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"	78.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.9	(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.

## 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: RE12-10-7252  
Sample ID: 244600009

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.



# 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: RE12-10-7253  
Sample ID: 244600010  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 3.26%

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	0.00115	0.0251	+/-0.00246	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0204	+/-0.00124	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.00	0.0233	+/-0.00124	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.783	0.0881	+/-0.0718	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.0808	0.0547	+/-0.0191	0.100	pCi/g						
Uranium-238		0.867	0.0511	+/-0.0778	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0123	0.0763	+/-0.0231	0.200	pCi/g		MXR1	01/22/10	0837	941635	4
Bismuth-211	UI	4.09	0.308	+/-0.281		pCi/g						
Bismuth-214		1.15	0.125	+/-0.110	0.200	pCi/g						
Cadmium-109	UI	3.79	0.711	+/-0.365		pCi/g						
Cerium-139	U	-0.00706	0.0409	+/-0.0115	0.050	pCi/g						
Cesium-134	U	0.0579	0.0994	+/-0.0278	0.100	pCi/g						
Cesium-137	U	-0.0367	0.0666	+/-0.0218	0.100	pCi/g						
Cobalt-60	U	0.0208	0.0873	+/-0.0246	0.100	pCi/g						
Europium-152	U	-0.104	0.136	+/-0.0449	0.200	pCi/g						
Lanthanum-140	U	-0.223	0.126	+/-0.0594		pCi/g						
Lead-212		1.85	0.0794	+/-0.106	0.100	pCi/g						
Lead-214		1.42	0.108	+/-0.104	0.100	pCi/g						
Mercury-203	U	0.039	0.0662	+/-0.0201	0.100	pCi/g						
Potassium-40		32.8	0.342	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.108	0.933	+/-0.316		pCi/g						
Radium-224	UI	5.33	0.906	+/-0.722		pCi/g						
Radium-226		1.15	0.125	+/-0.110		pCi/g						
Radium-228		1.62	0.254	+/-0.185	0.500	pCi/g						
Ruthenium-106	U	-0.026	0.578	+/-0.173	0.800	pCi/g						
Sodium-22	U	0.0517	0.108	+/-0.0306	0.080	pCi/g						
Strontium-85	U	0.0023	0.0693	+/-0.0228		pCi/g						
Thallium-208		0.585	0.0609	+/-0.0563	0.080	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: RE12-10-7253  
Sample ID: 244600010

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	0.119	0.593	+/-0.168		pCi/g					
Thorium-231	U	-0.108	0.933	+/-0.316		pCi/g					
Thorium-234		1.20	0.755	+/-0.361	2.00	pCi/g					
Tin-113	U	0.00195	0.0783	+/-0.0237	0.100	pCi/g					
Uranium-235	U	0.0951	0.289	+/-0.0852	0.500	pCi/g					
Yttrium-88	U	0.00488	0.0838	+/-0.0253	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"	70.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	96.9	(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.

# 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: RE12-10-7253  
Sample ID: 244600010

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.

# 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: RE12-10-7254  
Sample ID: 244600011  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 15.3%

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	0.0129	0.0209	+/-0.00442	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00489	0.0202	+/-0.00458	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0208	0.0231	+/-0.00595	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.38	0.102	+/-0.118	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.118	0.0633	+/-0.0234	0.100	pCi/g						
Uranium-238		2.41	0.0592	+/-0.191	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0133	0.201	+/-0.0621	0.200	pCi/g		MXR1	01/22/10	0837	941635	4
Bismuth-211	UI	3.74	0.287	+/-0.272		pCi/g						
Bismuth-214		0.958	0.0913	+/-0.0873	0.200	pCi/g						
Cadmium-109	UI	2.80	1.08	+/-0.423		pCi/g						
Cerium-139	U	-0.025	0.0422	+/-0.0125	0.050	pCi/g						
Cesium-134	UI	0.110	0.0721	+/-0.0297	0.100	pCi/g						
Cesium-137		0.438	0.0517	+/-0.0354	0.100	pCi/g						
Cobalt-60	U	-0.0194	0.0441	+/-0.0142	0.100	pCi/g						
Europium-152	U	-0.089	0.132	+/-0.0429	0.200	pCi/g						
Lanthanum-140	U	-0.0994	0.105	+/-0.0364		pCi/g						
Lead-212		1.59	0.0781	+/-0.114	0.100	pCi/g						
Lead-214		1.30	0.0936	+/-0.101	0.100	pCi/g						
Mercury-203	U	0.0217	0.0615	+/-0.018	0.100	pCi/g						
Potassium-40		26.3	0.416	+/-1.36	1.00	pCi/g						
Radium-223	U	0.218	0.935	+/-0.303		pCi/g						
Radium-224	UI	4.03	0.888	+/-0.580		pCi/g						
Radium-226		0.958	0.0913	+/-0.0873		pCi/g						
Radium-228		1.76	0.185	+/-0.158	0.500	pCi/g						
Ruthenium-106	U	-0.0695	0.422	+/-0.126	0.800	pCi/g						
Sodium-22	U	0.00456	0.0599	+/-0.0178	0.080	pCi/g						
Strontium-85	UI	0.123	0.0628	+/-0.0191		pCi/g						
Thallium-208		0.528	0.0492	+/-0.0442	0.080	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: RE12-10-7254  
Sample ID: 244600011

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	0.304	0.588	+/-0.171		pCi/g					
Thorium-231	U	0.218	0.935	+/-0.303		pCi/g					
Thorium-234		2.60	1.69	+/-0.760	2.00	pCi/g					
Tin-113	U	-0.014	0.0602	+/-0.018	0.100	pCi/g					
Uranium-235	U	0.193	0.332	+/-0.0942	0.500	pCi/g					
Yttrium-88	U	-0.0126	0.0378	+/-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"	86.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.8	(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.

## 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: RE12-10-7254  
Sample ID: 244600011  
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.

# 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: RE12-10-7255  
Sample ID: 244600012  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 6.61%

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	0.00638	0.0199	+/-0.00276	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00829	0.0457	+/-0.0138	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0138	0.0522	+/-0.00834	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.846	0.0931	+/-0.0774	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236	U	0.0483	0.0578	+/-0.0138	0.100	pCi/g						
Uranium-238		0.926	0.054	+/-0.0831	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0721	0.180	+/-0.0558	0.200	pCi/g		MXR1	01/22/10	0849	941635	4
Bismuth-211	UI	3.87	0.327	+/-0.270		pCi/g						
Bismuth-214		1.28	0.117	+/-0.104	0.200	pCi/g						
Cadmium-109	UI	3.12	1.16	+/-0.469		pCi/g						
Cerium-139	U	-0.0131	0.0511	+/-0.0158	0.050	pCi/g						
Cesium-134	UI	0.128	0.0887	+/-0.0321	0.100	pCi/g						
Cesium-137		0.113	0.0584	+/-0.0357	0.100	pCi/g						
Cobalt-60	U	-0.002	0.0636	+/-0.0194	0.100	pCi/g						
Europium-152	U	0.0701	0.166	+/-0.0533	0.200	pCi/g						
Lanthanum-140	U	0.00292	0.114	+/-0.0405		pCi/g						
Lead-212		1.77	0.0914	+/-0.103	0.100	pCi/g						
Lead-214		1.35	0.114	+/-0.100	0.100	pCi/g						
Mercury-203	U	0.0258	0.0705	+/-0.020	0.100	pCi/g						
Potassium-40		34.5	0.496	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.234	1.05	+/-0.366		pCi/g						
Radium-224	UI	4.35	1.04	+/-0.672		pCi/g						
Radium-226		1.28	0.117	+/-0.104		pCi/g						
Radium-228		1.80	0.216	+/-0.175	0.500	pCi/g						
Ruthenium-106	U	0.0502	0.535	+/-0.156	0.800	pCi/g						
Sodium-22	U	-0.0412	0.0707	+/-0.0234	0.080	pCi/g						
Strontium-85	U	0.0664	0.0775	+/-0.0236		pCi/g						
Thallium-208		0.521	0.0615	+/-0.050	0.080	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:

RE12-10-7255  
244600012

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	0.626	+/-0.188		pCi/g					
Thorium-231	U	-0.234	1.05	+/-0.366		pCi/g					
Thorium-234	U	1.18	1.59	+/-0.752	2.00	pCi/g					
Tin-113	U	-0.011	0.072	+/-0.022	0.100	pCi/g					
Uranium-235	U	0.105	0.357	+/-0.107	0.500	pCi/g					
Yttrium-88	U	0.0233	0.0718	+/-0.0199	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"	92.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	41.5 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	95.0	(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.



## 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:

RE12-10-7255  
244600012

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.

# 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: RE12-10-7276  
Sample ID: 244600013  
Matrix: R  
Collect Date: 07-JAN-10  
Receive Date: 13-JAN-10  
Collector: Client  
Moisture: 8.35%

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	0.0007	0.0214	+/-0.00202	0.050	pCi/g		HAKB	01/20/10	1641	941693	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0034	0.0281	+/-0.00241	0.050	pCi/g		HAKB	01/19/10	1320	941694	2
Plutonium-239/240	U	0.0034	0.0321	+/-0.00241	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.909	0.0937	+/-0.0824	0.100	pCi/g		HAKB	01/20/10	2017	941697	3
Uranium-235/236		0.0635	0.0582	+/-0.0169	0.100	pCi/g						
Uranium-238		0.844	0.0544	+/-0.0779	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0856	0.330	+/-0.103	0.200	pCi/g		MXR1	01/22/10	0850	941635	4
Bismuth-211	UI	3.71	0.342	+/-0.247		pCi/g						
Bismuth-214		1.15	0.118	+/-0.087	0.200	pCi/g						
Cadmium-109	UI	2.76	1.34	+/-0.513		pCi/g						
Cerium-139	U	0.00494	0.051	+/-0.0149	0.050	pCi/g						
Cesium-134	U	0.0598	0.0961	+/-0.0296	0.100	pCi/g						
Cesium-137	U	-0.0396	0.0606	+/-0.0202	0.100	pCi/g						
Cobalt-60	U	0.00194	0.0638	+/-0.0194	0.100	pCi/g						
Europium-152	U	-0.139	0.161	+/-0.0565	0.200	pCi/g						
Lanthanum-140	U	-0.0141	0.113	+/-0.0352		pCi/g						
Lead-212		1.60	0.0966	+/-0.0793	0.100	pCi/g						
Lead-214		1.29	0.119	+/-0.0924	0.100	pCi/g						
Mercury-203	U	0.0122	0.069	+/-0.0195	0.100	pCi/g						
Potassium-40		19.8	0.570	+/-1.09	1.00	pCi/g						
Radium-223	U	-0.679	1.10	+/-0.398		pCi/g						
Radium-224	UI	4.40	1.10	+/-0.659		pCi/g						
Radium-226		1.15	0.118	+/-0.087		pCi/g						
Radium-228		1.34	0.216	+/-0.169	0.500	pCi/g						
Ruthenium-106	U	-0.00156	0.566	+/-0.171	0.800	pCi/g						
Sodium-22	U	-0.0257	0.0753	+/-0.0244	0.080	pCi/g						
Strontium-85	U	0.061	0.0694	+/-0.021		pCi/g						
Thallium-208		0.486	0.0603	+/-0.038	0.080	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:

RE12-10-7276  
244600013

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	0.341	0.679	+/-0.198		pCi/g					
Thorium-231	U	-0.679	1.10	+/-0.398		pCi/g					
Thorium-234	U	2.46	2.57	+/-1.12	2.00	pCi/g					
Tin-113	U	-0.0113	0.0777	+/-0.0231	0.100	pCi/g					
Uranium-235	U	0.0192	0.389	+/-0.115	0.500	pCi/g					
Yttrium-88	U	0.00471	0.0529	+/-0.0155	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"	86.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	71.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	95.6	(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.

## 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: RE12-10-7276  
Sample ID: 244600013

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

# GEL LABORATORIES LLC

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

## 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: 244600

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 941693										
QC1202015580 244600013 DUP										
Americium-241	U	0.0007	U	-0.000495	pCi/g	0.132		(0-1) HAKB		01/20/1016:41
	TPU:	+/-0.00202		+/-0.00252						
	Yield:	86.4		83.8						
QC1202015581 LCS										
Americium-241	33.2			31.4	pCi/g		94.8 (75%-125%)			01/20/1012:59
	TPU:			+/-2.17						
	Yield:			103						
QC1202015579 MB										
Americium-241	U	0.00209	U	0.00209	pCi/g					
	TPU:	+/-0.00398		+/-0.00398						
	Yield:			90.2						
Batch 941694										
QC1202015583 244600013 DUP										
Plutonium-238	U	0.0034	U	0.0111	pCi/g	0.519		(0-1) HAKB		01/19/1013:20
	TPU:	+/-0.00241		+/-0.00498						
	Yield:	71.3		104						
Plutonium-239/240	U	0.0034	U	5.28E-10	pCi/g	0.272		(0-1)		
	TPU:	+/-0.00241		+/-0.00383						
	Yield:	71.3		104						
QC1202015584 LCS										
Plutonium-238				6.97	pCi/g		(75%-125%)			
	TPU:			+/-0.513						
	Yield:			92.7						
Plutonium-239/240	41.8			38.4	pCi/g		91.9 (75%-125%)			
	TPU:			+/-2.36						
	Yield:			92.7						
QC1202015582 MB										
Plutonium-238	U	-0.00725	U	-0.00725	pCi/g					
	TPU:	+/-0.00925		+/-0.00925						
	Yield:			80.1						
Plutonium-239/240	U	0.00181	U	0.00181	pCi/g					
	TPU:	+/-0.0048		+/-0.0048						
	Yield:			80.1						
Batch 941697										
QC1202015591 244600013 DUP										
Uranium-233/234		0.909		0.850	pCi/g	0.185		(0-1) HAKB		01/20/1020:17
	TPU:	+/-0.0824		+/-0.0772						
	Yield:	95.6		95.4						
Uranium-235/236		0.0635		0.0762	pCi/g	0.181		(0-1)		
	TPU:	+/-0.0169		+/-0.0182						
	Yield:	95.6		95.4						
Uranium-238		0.844		0.966	pCi/g	0.373		(0-1)		
	TPU:	+/-0.0779		+/-0.0857						

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 244600

Page 2 of 6

Parname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	941697										
QC1202015592	LCS	Yield:	95.6	95.4							
Uranium-233/234				5.61	pCi/g			(75%-125%)			
		TPU:		+/-0.499							
		Yield:		95.0							
Uranium-235/236				0.350	pCi/g			(75%-125%)			
		TPU:		+/-0.0823							
		Yield:		95.0							
Uranium-238	5.75			5.36	pCi/g		93.2	(75%-125%)			
		TPU:		+/-0.480							
		Yield:		95.0							
QC1202015590	MB										
Uranium-233/234			U	0.00747	pCi/g						
		TPU:		+/-0.00522							
		Yield:		95.7							
Uranium-235/236			U	0.00589	pCi/g						
		TPU:		+/-0.00521							
		Yield:		95.7							
Uranium-238			U	0.00476	pCi/g						
		TPU:		+/-0.00477							
		Yield:		95.7							
Rad Gamma Spec											
Batch	941635										
QC1202015436	244597001	DUP									
Americium-241		U	0.0567	U	0.034	pCi/g	0.111	(0-1)	MXR1	01/22/10	10:24
		TPU:	+/-0.0564		+/-0.0459						
Bismuth-211		UI	1.81	UI	2.06	pCi/g	0.340	(0-1)			
		TPU:	+/-0.188		+/-0.176						
Bismuth-214			0.793		0.643	pCi/g	0.549	(0-1)			
		TPU:	+/-0.0703		+/-0.0667						
Cadmium-109		U	1.02	U	0.915	pCi/g	0.0728	(0-1)			
		TPU:	+/-0.369		+/-0.346						
Cerium-139		U	0.00806	U	-0.022	pCi/g	0.688	(0-1)			
		TPU:	+/-0.0113		+/-0.0106						
Cesium-134		U	0.0631	U	0.0461	pCi/g	0.178	(0-1)			
		TPU:	+/-0.0305		+/-0.0171						
Cesium-137			0.320		0.291	pCi/g	0.228	(0-1)			
		TPU:	+/-0.0318		+/-0.0312						
Cobalt-60		U	-0.0182	U	0.0209	pCi/g	0.632	(0-1)			
		TPU:	+/-0.0163		+/-0.0147						
Europium-152		U	-0.0125	U	0.0183	pCi/g	0.168	(0-1)			
		TPU:	+/-0.0514		+/-0.0404						
Lanthanum-140		U	-0.0113	U	-0.0547	pCi/g	0.358	(0-1)			
		TPU:	+/-0.0308		+/-0.0298						
Lead-212			0.893		0.921	pCi/g	0.123	(0-1)			
		TPU:	+/-0.0516		+/-0.062						
Lead-214			0.629		0.715	pCi/g	0.327	(0-1)			
		TPU:	+/-0.0673		+/-0.064						
Mercury-203		U	0.0166	U	0.0142	pCi/g	0.040	(0-1)			
		TPU:	+/-0.0156		+/-0.0138						

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 244600

Page 3 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	941635										
Potassium-40		29.8		30.9	pCi/g	0.194		(0-1)			
		TPU: +/-1.33		+/-1.55							
Radium-223		U -0.238	U	0.490	pCi/g	0.677		(0-1)			
		TPU: +/-0.291		+/-0.246							
Radium-224		UI 2.61	UI	2.25	pCi/g	0.201		(0-1)			
		TPU: +/-0.426		+/-0.462							
Radium-226		0.793		0.643	pCi/g	0.549		(0-1)			
		TPU: +/-0.0703		+/-0.0667							
Radium-228		0.846	UI	0.893	pCi/g	0.0976		(0-1)			
		TPU: +/-0.137		+/-0.103							
Ruthenium-106		U -0.0417	U	0.137	pCi/g	0.371		(0-1)			
		TPU: +/-0.123		+/-0.117							
Sodium-22		U -0.0352	U	-0.00964	pCi/g	0.343		(0-1)			
		TPU: +/-0.019		+/-0.0182							
Strontium-85		UI 0.103	U	0.0326	pCi/g	1.09		(0-1)			
		TPU: +/-0.0165		+/-0.0158							
Thallium-208		0.267		0.314	pCi/g	0.398		(0-1)			
		TPU: +/-0.0266		+/-0.0325							
Thorium-227		U -0.283	U	0.0507	pCi/g	0.614		(0-1)			
		TPU: +/-0.138		+/-0.133							
Thorium-231		U -0.238	U	0.490	pCi/g	0.677		(0-1)			
		TPU: +/-0.291		+/-0.246							
Thorium-234		U 1.37	U	0.650	pCi/g	0.307		(0-1)			
		TPU: +/-0.631		+/-0.534							
Tin-113		U 0.00568	U	-0.0119	pCi/g	0.283		(0-1)			
		TPU: +/-0.0164		+/-0.0147							
Uranium-235		U 0.175	U	0.144	pCi/g	0.0958		(0-1)			
		TPU: +/-0.0841		+/-0.0781							
Yttrium-88		U -0.0106	U	0.00987	pCi/g	0.507		(0-1)			
		TPU: +/-0.00958		+/-0.0106							
QC1202015437	LCS										
Americium-241	15.9			13.4	pCi/g		84.1	(75%-125%)		01/22/10	10:25
		TPU: +/-0.712									
Bismuth-211				2.05	pCi/g						
		TPU: +/-0.272									
Bismuth-214				0.840	pCi/g						
		TPU: +/-0.126									
Cadmium-109				35.0	pCi/g						
		TPU: +/-2.11									
Cerium-139			U	0.0426	pCi/g						
		TPU: +/-0.0183									
Cesium-134			U	-0.00109	pCi/g						
		TPU: +/-0.045									
Cesium-137	5.57			6.11	pCi/g		110	(75%-125%)			
		TPU: +/-0.368									
Cobalt-60	6.45			6.59	pCi/g		102	(75%-125%)			
		TPU: +/-0.317									
Europium-152			U	-0.0261	pCi/g						
		TPU: +/-0.084									
Lanthanum-140			U	-0.0273	pCi/g						
		TPU: +/-0.041									



# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 244600

Page 4 of 6

Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
<b>Rad Gamma Spec</b>									
Batch	941635								
Lead-212			1.15	pCi/g					
	TPU:		+/-0.0911						
Lead-214			0.714	pCi/g					
	TPU:		+/-0.0966						
Mercury-203		U	0.0806	pCi/g					
	TPU:		+/-0.0285						
Potassium-40		U	-0.0234	pCi/g					
	TPU:		+/-0.319						
Radium-223		U	-1.14	pCi/g					
	TPU:		+/-0.517						
Radium-224			2.99	pCi/g					
	TPU:		+/-0.751						
Radium-226			0.840	pCi/g					
	TPU:		+/-0.126						
Radium-228			1.46	pCi/g					
	TPU:		+/-0.328						
Ruthenium-106		U	-0.0373	pCi/g					
	TPU:		+/-0.270						
Sodium-22		U	0.00489	pCi/g					
	TPU:		+/-0.0238						
Strontium-85		U	0.00404	pCi/g					
	TPU:		+/-0.0361						
Thallium-208			0.381	pCi/g					
	TPU:		+/-0.0635						
Thorium-227		U	-0.186	pCi/g					
	TPU:		+/-0.298						
Thorium-231		U	-1.14	pCi/g					
	TPU:		+/-0.517						
Thorium-234		U	0.684	pCi/g					
	TPU:		+/-0.371						
Tin-113		U	0.0242	pCi/g					
	TPU:		+/-0.0388						
Uranium-235		U	-0.0882	pCi/g					
	TPU:		+/-0.123						
Yttrium-88		U	0.0205	pCi/g					
	TPU:		+/-0.026						
QC1202015435 MB									
Americium-241		U	-0.0509	pCi/g					01/22/1009:49
	TPU:		+/-0.024						
Bismuth-211		U	0.0128	pCi/g					
	TPU:		+/-0.0424						
Bismuth-214		U	-0.0149	pCi/g					
	TPU:		+/-0.019						
Cadmium-109		U	-0.592	pCi/g					
	TPU:		+/-0.149						
Cerium-139		U	0.00261	pCi/g					
	TPU:		+/-0.00579						
Cesium-134		U	0.00132	pCi/g					
	TPU:		+/-0.0108						
Cesium-137		U	-0.00764	pCi/g					
	TPU:		+/-0.00832						

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 244600

Page 5 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	941635										
Cobalt-60			U	2.64E-05	pCi/g						
	TPU:			+/-0.00788							
Europium-152			U	-0.024	pCi/g						
	TPU:			+/-0.022							
Lanthanum-140			U	0.00144	pCi/g						
	TPU:			+/-0.0148							
Lead-212			U	0.0257	pCi/g						
	TPU:			+/-0.0149							
Lead-214			U	0.00418	pCi/g						
	TPU:			+/-0.0149							
Mercury-203			U	-0.00622	pCi/g						
	TPU:			+/-0.00788							
Potassium-40			U	0.137	pCi/g						
	TPU:			+/-0.123							
Radium-223			U	-0.0684	pCi/g						
	TPU:			+/-0.149							
Radium-224			U	-0.0943	pCi/g						
	TPU:			+/-0.146							
Radium-226			U	-0.0149	pCi/g						
	TPU:			+/-0.019							
Radium-228			U	0.0373	pCi/g						
	TPU:			+/-0.032							
Ruthenium-106			U	-0.0573	pCi/g						
	TPU:			+/-0.0798							
Sodium-22			U	0.00545	pCi/g						
	TPU:			+/-0.0096							
Strontium-85			U	0.0376	pCi/g						
	TPU:			+/-0.0109							
Thallium-208			U	0.00981	pCi/g						
	TPU:			+/-0.00906							
Thorium-227			U	0.157	pCi/g						
	TPU:			+/-0.0834							
Thorium-231			U	-0.0684	pCi/g						
	TPU:			+/-0.149							
Thorium-234			U	-0.104	pCi/g						
	TPU:			+/-0.214							
Tin-113			U	0.0073	pCi/g						
	TPU:			+/-0.00868							
Uranium-235			U	0.0116	pCi/g						
	TPU:			+/-0.0433							
Yttrium-88			U	0.00211	pCi/g						
	TPU:			+/-0.00928							

### 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

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

### QC Summary

Workorder: 244600

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#

941693

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.	✓		
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 stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hlt 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:

E. Green 1/21/10

2/3  
LAWL

# Am/Cm Que Sheet

14-JAN-10

Batch #: 941693 Analyst: HAKB First Client Due Date: 03-FEB-10 Internal Due Date: 24-JAN-10  
 Tracer(s): Am241/Cm244 Tracer Code: 445-96-2-SS Expiration Date: 5/11/10  
 LCS Isotope(s): Am241/Cm244 LCS Code(s): SPNA 07244-B/ NA Expiration Date: 5/30/20 / NA  
 Spike Isotope(s): Am241/Cm244 Spike Code(s): NA / NA Expiration Date: NA / NA  
 Prep Date: 1/18/10 Initials: HAKB Pipet ID: 2871058 Balance ID: 50410272

Comments:

Vol: 8.1  
 Vol(s): 8.110g / NA  
 Vol(s): NA / NA  
 Witness: 4/11/10

Wet/Dry

Sample ID	Client Description	Type	Hazard	Min	Code	CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g/l/f)	Am/Cm Det #
244597801-1	RE12-10-7722	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	1	1	1.251	87
244600001-1	RE12-10-7243	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	2	2	1.255	88
244600002-1	RE12-10-7348	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	3	3	1.260	89
244600003-1	RE12-10-7241	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	4	4	1.260	90
244600004-1	RE12-10-7237	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	5	5	1.261	91
244600005-1	RE12-10-7239	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	6	6	1.262	92
244600006-1	RE12-10-7238	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	7	7	1.251	93
244600007-1	RE12-10-7242	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	8	8	1.253	94
244600008-1	RE12-10-7236	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	9	9	1.258	95
244600009-1	RE12-10-7252	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	10	10	1.260	97
244600010-1	RE12-10-7253	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	11	11	1.269	99
244600011-1	RE12-10-7254	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	12	12	1.255	100
244600012-1	RE12-10-7255	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	13	13	1.258	101
244600013-1	RE12-10-7276	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	14	14	1.254	102
244612001-1	RE16-10-2783	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	15	15	1.262	103
244613001-1	RE16-10-1286	SAMPLE	.05	pCi/g			SOIL	LANL010	07-JAN-10	16	16	1.259	104
1202815579-1	MB for batch 941693	MB	.05	pCi/g			SOIL	QC ACCOUNT		17	17	1	43
1202815580-1	RE12-10-7276(244600013DUP)	DUP	.05	pCi/g			SOIL	QC ACCOUNT	07-JAN-10	18	18	1.257	105
1202815581-1	LCS for batch 941693	LCS	.05	pCi/g			SOIL	QC ACCOUNT		19	19	0.110	48

Choose SOP Used: GL-RAD-A-013  
 GL-RAD-A-036

Solid Sample Dissolution by: LEACH OR DIGESTION

Circle One

Data Reviewed By:

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

# Blank Correction Report

**Batch ID 941693**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202015580	DUP	Americium-241	1.26 g	-0.000495	0.00252	0.0224	.001658730	pCi/g	YES
1202015581	LCS	Americium-241	0.110 g	31.4	2.17	0.217	.019	pCi/g	NO
1202015579	MB	Americium-241	1.00 g	0.00209	0.00398	0.0248	.00209	pCi/g	YES
244597001	RE12-10-7722	Americium-241	1.25 g	0.00202	0.00436	0.0218	.001672	pCi/g	YES
244600001	RE12-10-7243	Americium-241	1.26 g	0.00206	0.00573	0.022	.001658730	pCi/g	YES
244600002	RE12-10-7240	Americium-241	1.26 g	0.00669	0.0038	0.0361	.001658730	pCi/g	YES
244600003	RE12-10-7241	Americium-241	1.26 g	-6.51E-05	0.00175	0.0297	.001658730	pCi/g	YES
244600004	RE12-10-7237	Americium-241	1.26 g	-3.52E-05	0.00178	0.0302	.001658730	pCi/g	YES
244600005	RE12-10-7239	Americium-241	1.26 g	0.000985	0.00303	0.0237	.001658730	pCi/g	YES
244600006	RE12-10-7238	Americium-241	1.25 g	0.000793	0.00131	0.0222	.001672	pCi/g	YES
244600007	RE12-10-7242	Americium-241	1.25 g	0.00537	0.00346	0.0244	.001672	pCi/g	YES
244600008	RE12-10-7236	Americium-241	1.26 g	0.0169	0.00866	0.0244	.001658730	pCi/g	NO
244600009	RE12-10-7252	Americium-241	1.26 g	0.014	0.00684	0.0224	.001658730	pCi/g	NO
244600010	RE12-10-7253	Americium-241	1.27 g	0.00115	0.00246	0.0251	.001645669	pCi/g	YES
244600011	RE12-10-7254	Americium-241	1.26 g	0.0129	0.00442	0.0209	.001658730	pCi/g	NO
244600012	RE12-10-7255	Americium-241	1.26 g	0.00638	0.00276	0.0199	.001658730	pCi/g	YES
244600013	RE12-10-7276	Americium-241	1.25 g	0.0007	0.00202	0.0214	.001672	pCi/g	YES
244612001	RE16-10-2783	Americium-241	1.26 g	0.0017	0.00141	0.0199	.001658730	pCi/g	YES
244613001	RE16-10-1286	Americium-241	1.26 g	0.00321	0.00202	0.0213	.001658730	pCi/g	YES

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941693  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600001\_AM  
SAMPLE QTY: 1.255 G

DETECTOR NUMBER :33452  
AVERAGE %EFFICIENCY :30.1337  
% YIELD : 92.139

COUNT DATE:20-JAN-2010 16:41:40  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :HAKB

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 : 2.68730 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B088.CNF;1010  
BKG DATE : 17-JAN-2010  
EFF FILE : W088.CNF;284  
CAL DATE : 11-JAN-2010

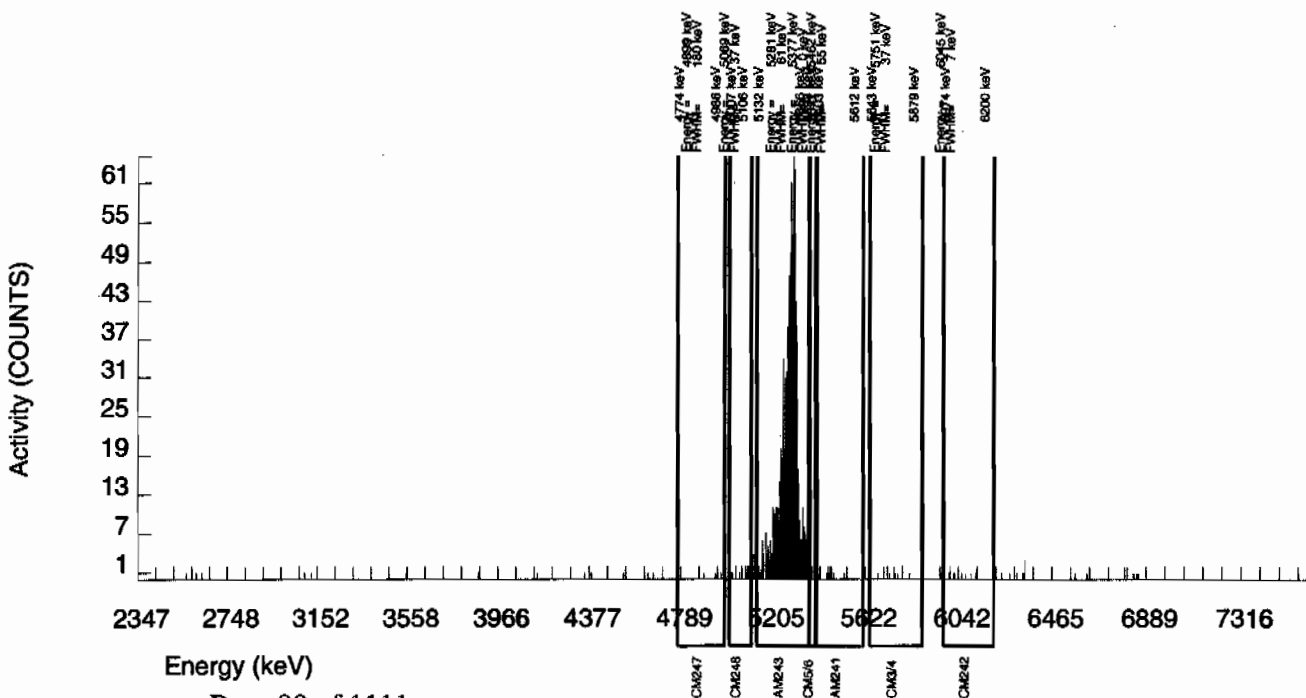
NUCLIDE ACTIVITY SUMMARY

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
CM-3/4	5795.020	9.000	-2.000	11.000	5.2338	100.0000	-2.59E-03	5.79E-03	1.57E-02	3.50E-02	5.79E-03
CM-5/6	5386.000	10.000	9.000	1.000	19.8463	86.09000	1.35E-02	5.05E-03	6.93E-02	1.43E-01	4.98E-03
AM-241	5479.150	12.000	1.594	9.000	3.0704	99.94000	2.06E-03	5.73E-03	9.24E-03	2.20E-02	5.73E-03
CM-242	6102.000	11.000	9.000	2.000	4.3186	100.0000	1.24E-02	5.00E-03	1.30E-02	2.95E-02	4.95E-03
AM243	5270.000	811.000	808.000	3.000	1.7321	99.78000	1.05E+00	7.35E-02	5.22E-03	1.40E-02	3.70E-02
CM-247	4946.000	5.000	4.000	1.000	15.3366	79.30000	6.52E-03	4.01E-03	5.82E-02	1.21E-01	3.99E-03
CM-248	5078.600	15.000	15.000	0.000	22.1555	91.00000	2.13E-02	5.65E-03	7.32E-02	1.50E-01	5.50E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.				SAMPLE ID : S0244600002_AM SAMPLE QTY: 1.260 G			
DETECTOR NUMBER :78262 AVERAGE %EFFICIENCY :29.3898 % YIELD : 57.291				COUNT DATE:20-JAN-2010 16:41:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB			
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 : 1.67093 dpm		LIB FILE : ENV_ALPHA_AM.N BKG FILE : B089.CNF;707 BKG DATE : 17-JAN-2010 EFF FILE : W089.CNF;193 CAL DATE : 11-JAN-2010	

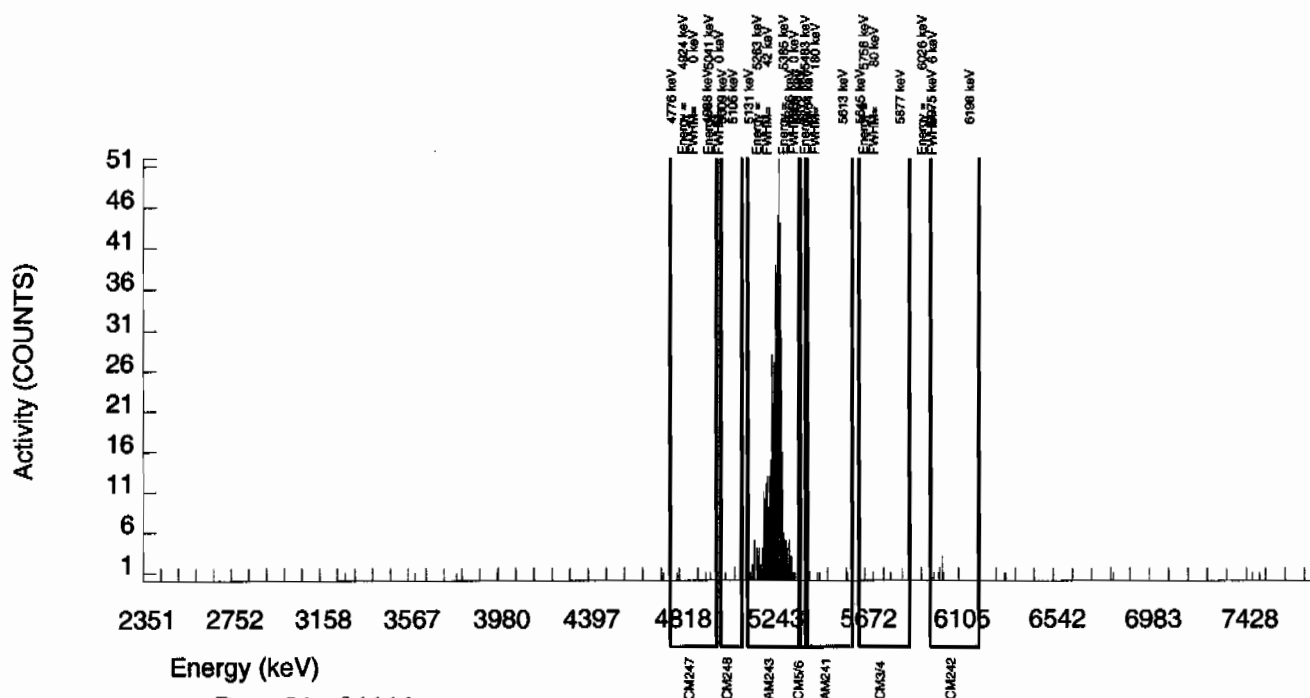
NUCLIDE ACTIVITY SUMMARY

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	2.000	0.000	5.2338	100.0000	4.25E-03	3.02E-03	2.59E-02	5.75E-02	3.01E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	2.47E-03	1.14E-01	2.34E-01	2.47E-03
AM-241	5479.150	4.000	3.147	0.000	3.0704	99.94000	6.69E-03	3.80E-03	1.52E-02	3.61E-02	3.77E-03
CM-242	6102.000	6.000	6.000	0.000	4.3186	100.0000	1.35E-02	5.59E-03	2.13E-02	4.84E-02	5.52E-03
AM243	5270.000	492.000	490.000	2.000	1.4142	99.78000	1.04E+00	8.44E-02	7.00E-03	1.98E-02	4.73E-02
CM-247	4946.000	5.000	3.000	2.000	15.3366	79.30000	8.03E-03	7.10E-03	9.55E-02	1.98E-01	7.08E-03
CM-248	5078.600	4.000	4.000	0.000	22.1555	91.00000	9.33E-03	4.71E-03	1.20E-01	2.47E-01	4.67E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.				SAMPLE ID : S0244600003_AM SAMPLE QTY: 1.260 G			
DETECTOR NUMBER :78263 AVERAGE %EFFICIENCY :32.5470 % YIELD : 62.924				COUNT DATE:20-JAN-2010 16:41:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB			
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 : 1.83524 dpm		LIB FILE : ENV_ALPHA_AM.N BKG FILE : B090.CNF;717 BKG DATE : 17-JAN-2010 EFF FILE : W090.CNF;199 CAL DATE : 11-JAN-2010	

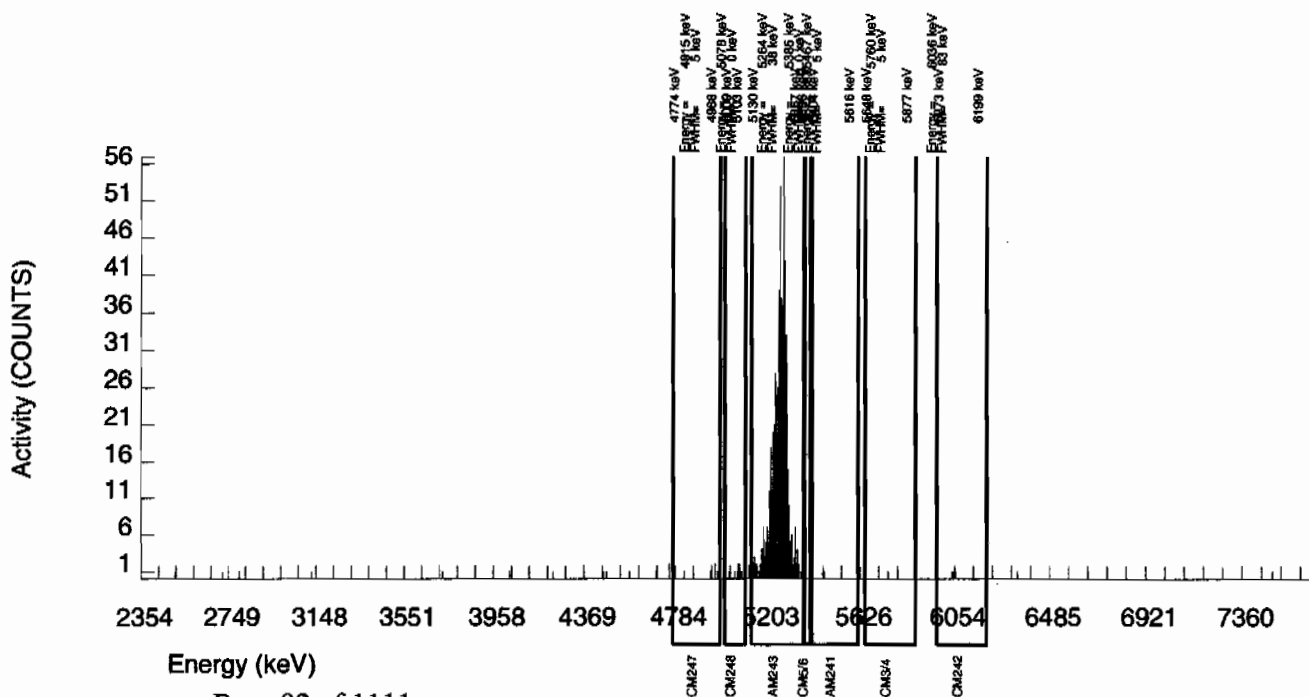
NUCLIDE ACTIVITY SUMMARY

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	1.000	0.000	5.2338	100.0000	1.75E-03	1.75E-03	2.13E-02	4.72E-02	1.75E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	2.03E-03	9.36E-02	1.93E-01	2.03E-03
AM-241	5479.150	1.000	-0.037	0.000	3.0704	99.94000	-6.51E-05	1.75E-03	1.25E-02	2.97E-02	1.75E-03
CM-242	6102.000	4.000	3.000	1.000	4.3186	100.0000	5.56E-03	4.16E-03	1.75E-02	3.98E-02	4.14E-03
AM243	5270.000	598.000	596.000	2.000	1.4142	99.78000	1.04E+00	8.08E-02	5.76E-03	1.63E-02	4.29E-02
CM-247	4946.000	6.000	6.000	0.000	15.3366	79.30000	1.32E-02	5.46E-03	7.85E-02	1.63E-01	5.39E-03
CM-248	5078.600	13.000	13.000	0.000	22.1555	91.00000	2.49E-02	7.11E-03	9.89E-02	2.03E-01	6.92E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600004_AM SAMPLE QTY: 1.261 G	
DETECTOR NUMBER :78259 AVERAGE %EFFICIENCY :34.6360 % YIELD : 58.137		COUNT DATE:20-JAN-2010 16:41:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 1.69562 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B091.CNF;715 BKG DATE : 17-JAN-2010 EFF FILE : W091.CNF;190 CAL DATE : 11-JAN-2010

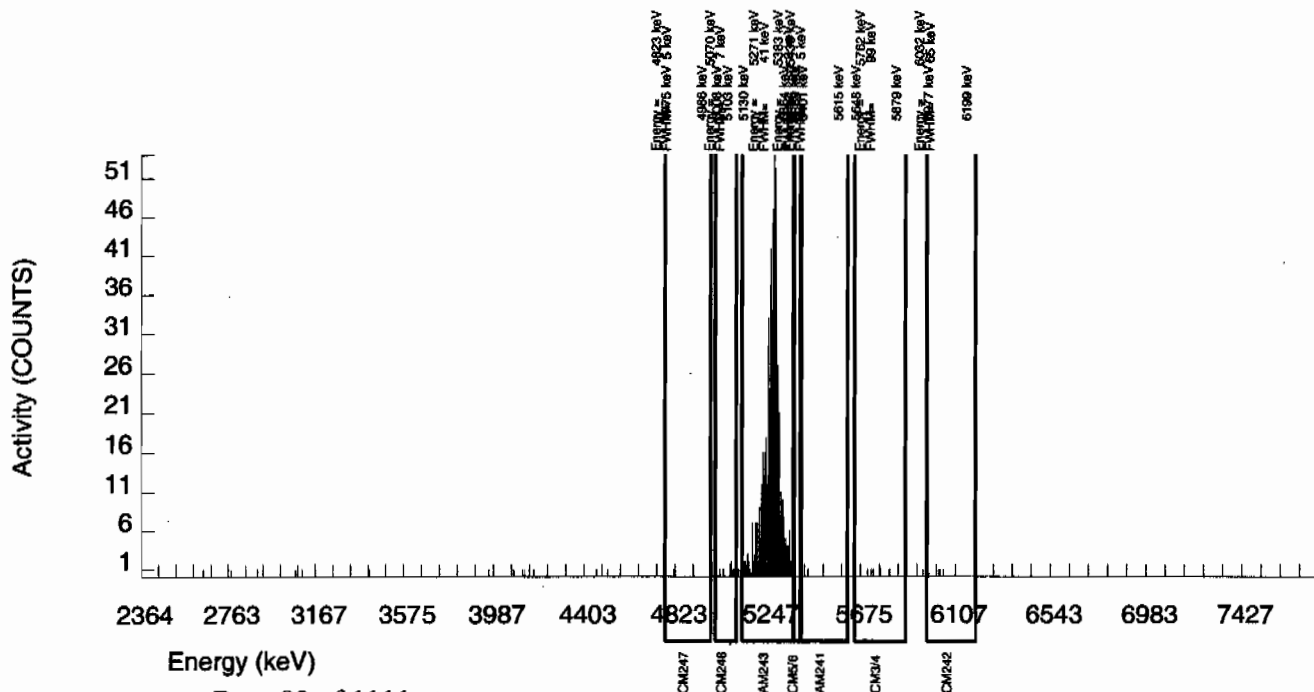
NUCLIDE ACTIVITY SUMMARY

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	6.000	0.000	5.2338	100.0000	1.07E-02	4.41E-03	2.16E-02	4.80E-02	4.35E-03
CM-5/6	5386.000	3.000	3.000	0.000	19.8463	86.09000	6.18E-03	3.59E-03	9.51E-02	1.96E-01	3.57E-03
AM-241	5479.150	1.000	-0.020	0.000	3.0704	99.94000	-3.52E-05	1.78E-03	1.27E-02	3.02E-02	1.78E-03
CM-242	6102.000	4.000	3.000	1.000	4.3186	100.0000	5.65E-03	4.23E-03	1.78E-02	4.05E-02	4.21E-03
AM243	5270.000	586.000	586.000	0.000	0.0000	99.78000	1.04E+00	8.10E-02	0.00E+00	4.82E-03	4.30E-02
CM-247	4946.000	1.000	1.000	0.000	15.3366	79.30000	2.24E-03	2.24E-03	7.98E-02	1.66E-01	2.24E-03
CM-248	5078.600	8.000	7.000	1.000	22.1555	91.00000	1.36E-02	5.92E-03	1.00E-01	2.06E-01	5.85E-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: 941693  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600005\_AM  
SAMPLE QTY: 1.262 G

DETECTOR NUMBER :79457  
AVERAGE %EFFICIENCY :31.5061  
% YIELD : 81.145

COUNT DATE:20-JAN-2010 16:41:41  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :HAKB

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 : 2.36666 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B092.CNF;718  
BKG DATE : 17-JAN-2010  
EFF FILE : W092.CNF;233  
CAL DATE : 11-JAN-2010

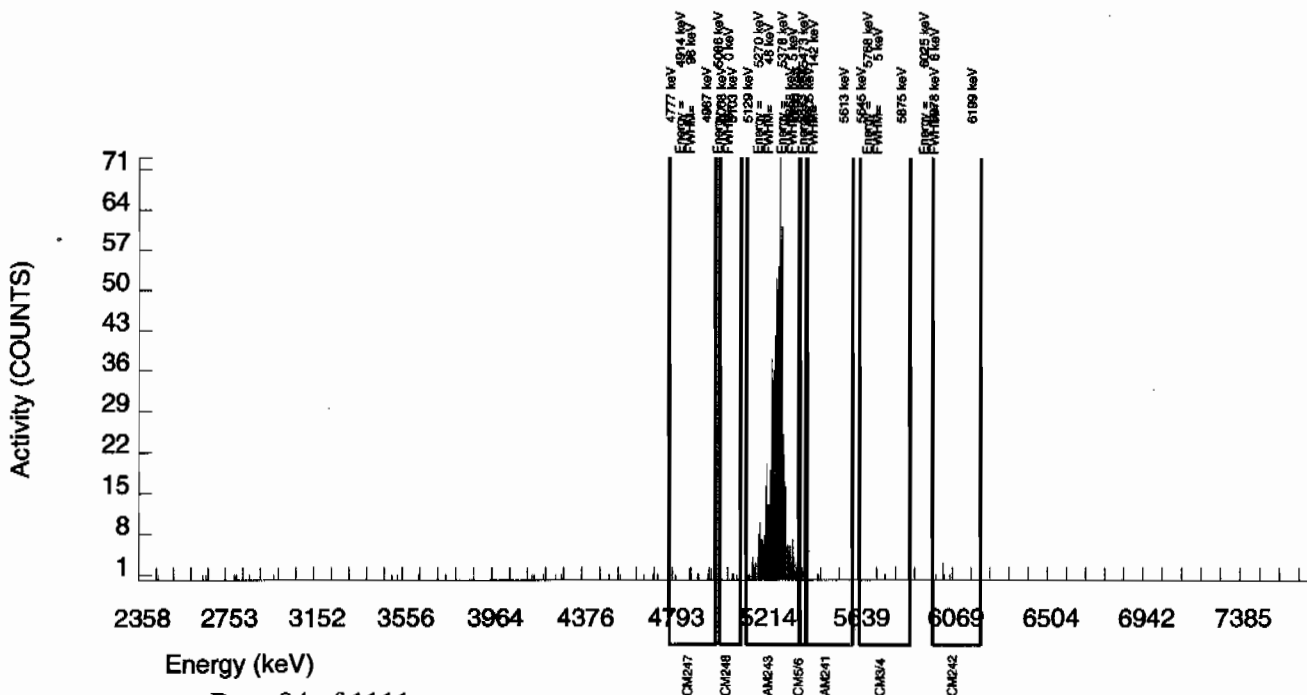
NUCLIDE ACTIVITY SUMMARY

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	-1.67E-10	1.98E-03	1.70E-02	3.78E-02	1.98E-03
CM-5/6	5386.000	2.000	2.000	0.000	19.8463	86.09000	3.24E-03	2.30E-03	7.49E-02	1.54E-01	2.29E-03
AM-241	5479.150	4.000	0.705	2.000	3.0704	99.94000	9.85E-04	3.03E-03	9.98E-03	2.37E-02	3.03E-03
CM-242	6102.000	7.000	7.000	0.000	4.3186	100.0000	1.04E-02	3.98E-03	1.40E-02	3.18E-02	3.92E-03
AM243	5270.000	746.000	744.000	2.000	1.4142	99.78000	1.04E+00	7.60E-02	4.60E-03	1.30E-02	3.83E-02
CM-247	4946.000	8.000	6.000	2.000	15.3366	79.30000	1.06E-02	5.61E-03	6.28E-02	1.30E-01	5.57E-03
CM-248	5078.600	7.000	5.000	2.000	22.1555	91.00000	7.67E-03	4.63E-03	7.91E-02	1.62E-01	4.60E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.			SAMPLE ID : S0244600006_AM SAMPLE QTY: 1.251 G		
DETECTOR NUMBER :33206 AVERAGE %EFFICIENCY :31.9813 % YIELD : 86.064			COUNT DATE:20-JAN-2010 16:41:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB		
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 : 2.51012 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B093.CNF;706 BKG DATE : 17-JAN-2010 EFF FILE : W093.CNF;199 CAL DATE : 11-JAN-2010		

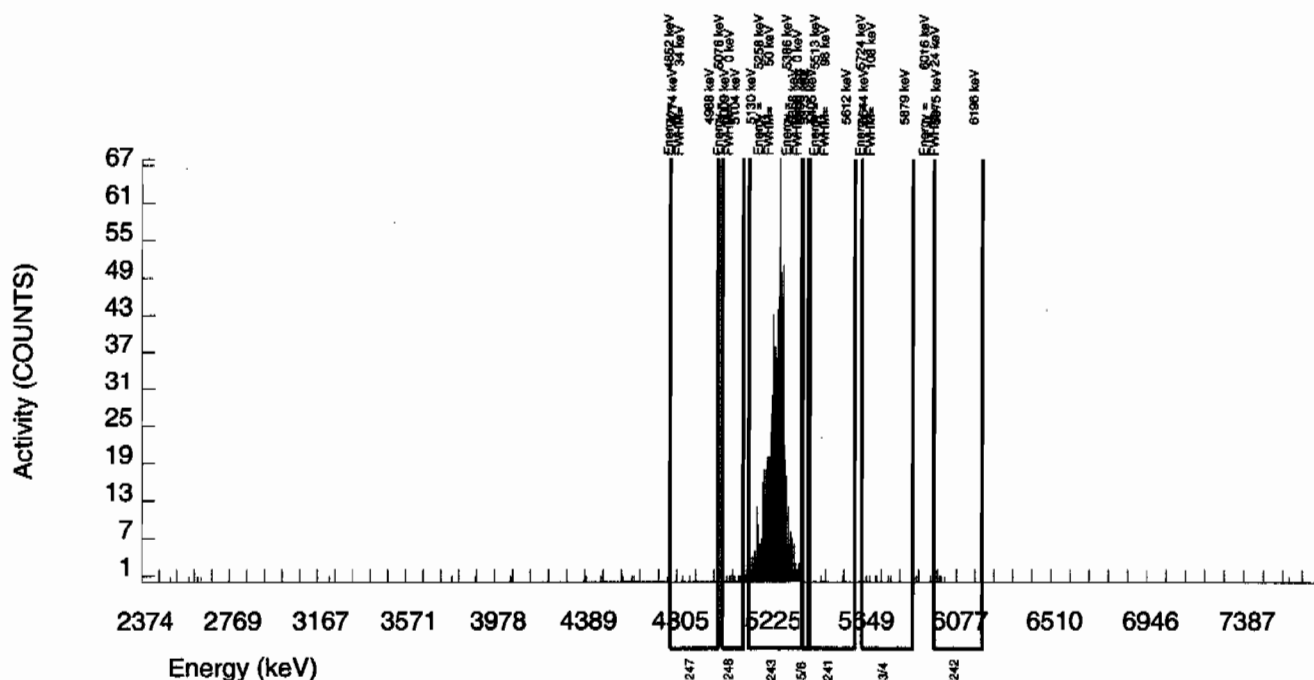
NUCLIDE ACTIVITY SUMMARY

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	4.000	2.000	5.2338	100.0000	5.24E-03	3.72E-03	1.59E-02	3.54E-02	3.71E-03
CM-5/6	5386.000	1.000	0.000	1.000	19.8463	86.09000	-1.81E-10	2.15E-03	7.02E-02	1.44E-01	2.15E-03
AM-241	5479.150	2.000	0.606	0.000	3.0704	99.94000	7.93E-04	1.31E-03	9.35E-03	2.22E-02	1.31E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.17E-03	2.42E-03	1.31E-02	2.98E-02	2.41E-03
AM243	5270.000	801.000	801.000	0.000	0.0000	99.78000	1.05E+00	7.52E-02	0.00E+00	3.55E-03	3.71E-02
CM-247	4946.000	2.000	1.000	1.000	15.3366	79.30000	1.65E-03	2.86E-03	5.89E-02	1.22E-01	2.86E-03
CM-248	5078.600	10.000	10.000	0.000	22.1555	91.00000	1.44E-02	4.63E-03	7.41E-02	1.52E-01	4.55E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600007_AM SAMPLE QTY: 1.253 G	
DETECTOR NUMBER :78267 AVERAGE %EFFICIENCY :30.7541 % YIELD : 81.342		COUNT DATE:20-JAN-2010 16:41:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 2.37239 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B094.CNF;707 BKG DATE : 17-JAN-2010 EFF FILE : W094.CNF;191 CAL DATE : 11-JAN-2010

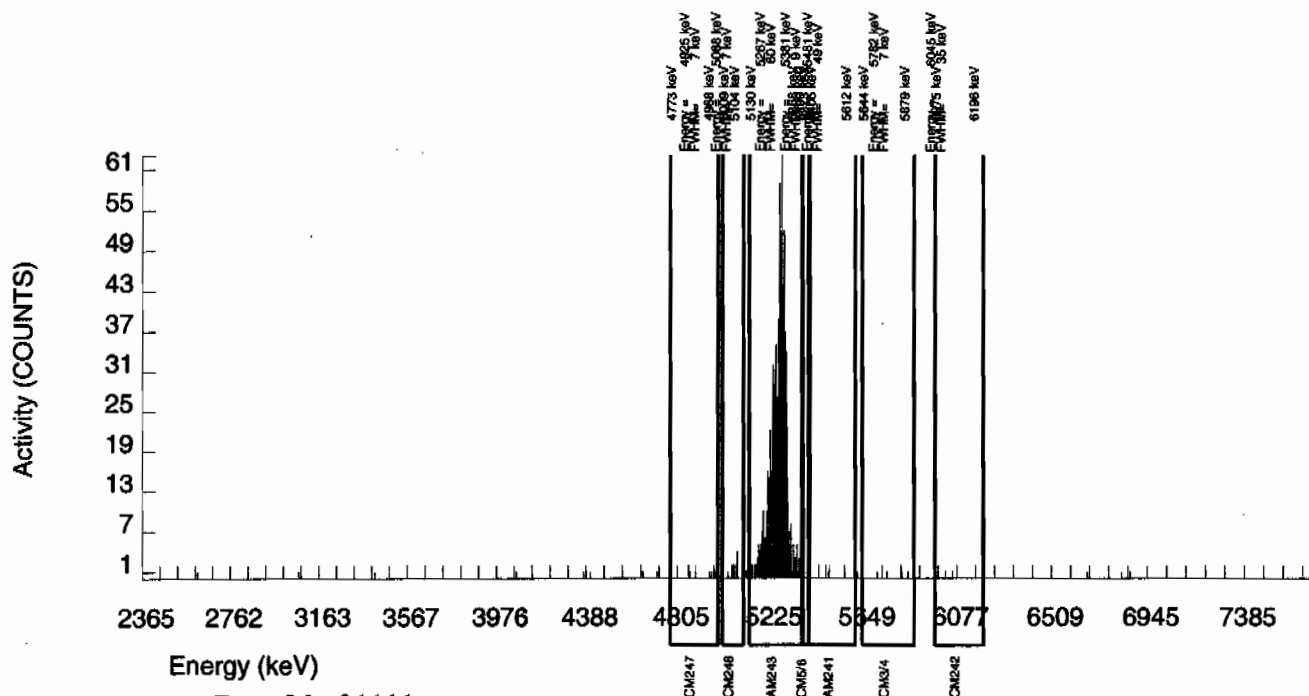
NUCLIDE ACTIVITY SUMMARY

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	0.000	5.2338	100.0000	1.01E-02	3.86E-03	1.75E-02	3.89E-02	3.81E-03
CM-5/6	5386.000	2.000	2.000	0.000	19.8463	86.09000	3.34E-03	2.37E-03	7.71E-02	1.59E-01	2.36E-03
AM-241	5479.150	6.000	3.733	1.000	3.0704	99.94000	5.37E-03	3.46E-03	1.03E-02	2.44E-02	3.44E-03
CM-242	6102.000	2.000	2.000	0.000	4.3186	100.0000	3.05E-03	2.17E-03	1.44E-02	3.28E-02	2.16E-03
AM243	5270.000	729.000	728.000	1.000	1.0000	99.78000	1.05E+00	7.70E-02	3.35E-03	1.06E-02	3.89E-02
CM-247	4946.000	7.000	7.000	0.000	15.3366	79.30000	1.27E-02	4.86E-03	6.47E-02	1.34E-01	4.79E-03
CM-248	5078.600	14.000	13.000	1.000	22.1555	91.00000	2.05E-02	6.25E-03	8.14E-02	1.67E-01	6.12E-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: 941693  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600008\_AM  
SAMPLE QTY: 1.258 G

DETECTOR NUMBER :64279  
AVERAGE %EFFICIENCY :31.0608  
% YIELD : 80.206

COUNT DATE:20-JAN-2010 16:41:42  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :HAKB

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 : 2.33928 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B095.CNF;673  
BKG DATE : 17-JAN-2010  
EFF FILE : W095.CNF;207  
CAL DATE : 11-JAN-2010

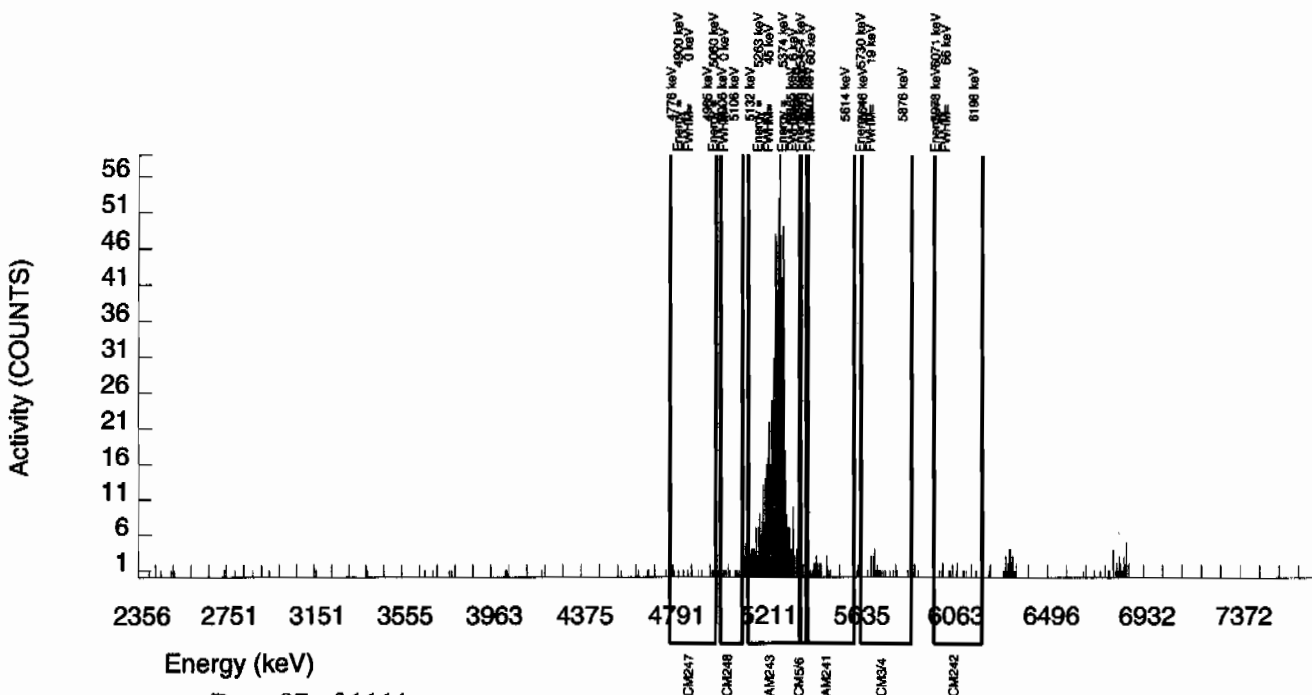
NUCLIDE ACTIVITY SUMMARY

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	24.000	9.000	15.000	5.2338	100.0000	1.30E-02	9.02E-03	1.75E-02	3.89E-02	8.99E-03
CM-5/6	5386.000	5.000	4.000	1.000	19.8463	86.09000	6.68E-03	4.11E-03	7.71E-02	1.59E-01	4.09E-03
AM-241	5479.150	25.000	11.738	12.000	3.0704	99.94000	1.69E-02	8.66E-03	1.03E-02	2.44E-02	8.60E-03
CM-242	6102.000	14.000	5.000	9.000	4.3186	100.0000	7.63E-03	7.33E-03	1.44E-02	3.28E-02	7.32E-03
AM243	5270.000	731.000	725.000	6.000	2.4495	99.78000	1.04E+00	7.56E-02	8.21E-03	2.03E-02	3.91E-02
CM-247	4946.000	10.000	4.000	6.000	15.3366	79.30000	7.25E-03	7.26E-03	6.47E-02	1.34E-01	7.25E-03
CM-248	5078.600	9.000	7.000	2.000	22.1555	91.00000	1.11E-02	5.28E-03	8.14E-02	1.67E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600009_AM SAMPLE QTY: 1.260 G	
DETECTOR NUMBER :67599 AVERAGE %EFFICIENCY :34.6778 % YIELD : 78.381		COUNT DATE:20-JAN-2010 16:41:42 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.28603 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B097.CNF;667 BKG DATE : 17-JAN-2010 EFF FILE : W097.CNF;191 CAL DATE : 11-JAN-2010

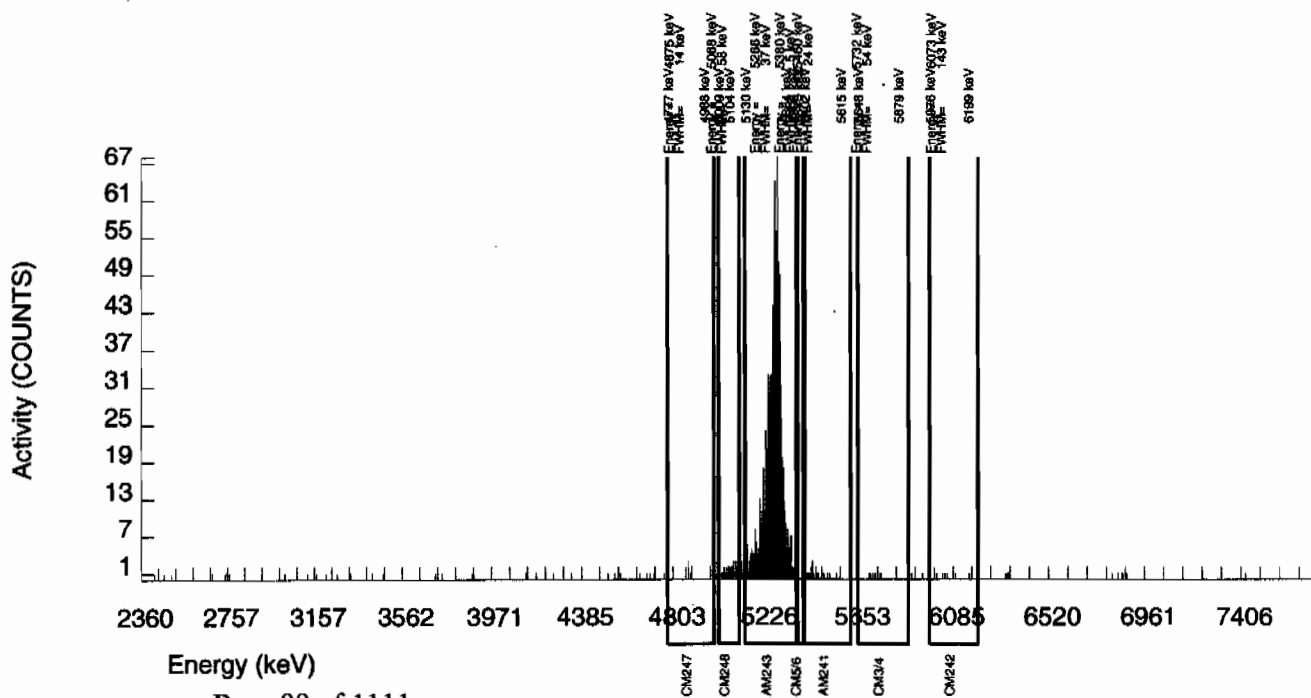
NUCLIDE ACTIVITY SUMMARY

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	2.000	4.000	5.2338	100.0000	2.63E-03	4.17E-03	1.60E-02	3.56E-02	4.17E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.53E-03	1.53E-03	7.05E-02	1.45E-01	1.53E-03
AM-241	5479.150	20.000	10.623	8.000	3.0704	99.94000	1.40E-02	6.84E-03	9.40E-03	2.24E-02	6.79E-03
CM-242	6102.000	6.000	5.000	1.000	4.3186	100.0000	6.98E-03	3.72E-03	1.32E-02	3.00E-02	3.69E-03
AM243	5270.000	795.000	791.000	4.000	2.0000	99.78000	1.04E+00	7.36E-02	6.13E-03	1.58E-02	3.73E-02
CM-247	4946.000	6.000	2.000	4.000	15.3366	79.30000	3.32E-03	5.25E-03	5.92E-02	1.23E-01	5.24E-03
CM-248	5078.600	24.000	22.000	2.000	22.1555	91.00000	3.18E-02	7.62E-03	7.45E-02	1.53E-01	7.37E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600010_AM SAMPLE QTY: 1.269 G	
DETECTOR NUMBER :70317 AVERAGE %EFFICIENCY :33.9756 % YIELD : 70.898		COUNT DATE:20-JAN-2010 16:41:42 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.06780 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B099.CNF;670 BKG DATE : 17-JAN-2010 EFF FILE : W099.CNF;191 CAL DATE : 11-JAN-2010

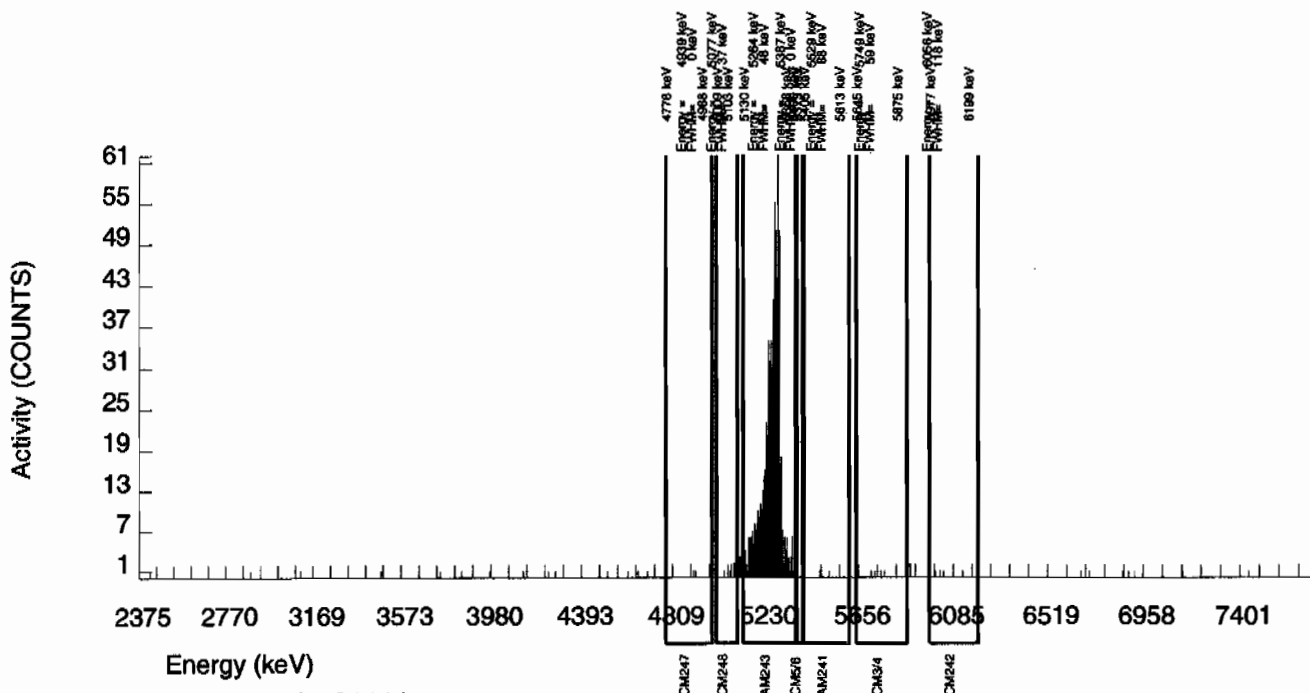
NUCLIDE ACTIVITY SUMMARY

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	4.000	4.000	0.000	5.2338	100.0000	5.90E-03	2.97E-03	1.79E-02	3.99E-02	2.95E-03
CM-5/6	5386.000	0.000	-1.000	1.000	19.8463	86.09000	-1.71E-03	2.42E-03	7.90E-02	1.63E-01	2.42E-03
AM-241	5479.150	3.000	0.780	1.000	3.0704	99.94000	1.15E-03	2.46E-03	1.05E-02	2.51E-02	2.46E-03
CM-242	6102.000	4.000	4.000	0.000	4.3186	100.0000	6.26E-03	3.15E-03	1.48E-02	3.36E-02	3.13E-03
AM243	5270.000	704.000	701.000	3.000	1.7321	99.78000	1.04E+00	7.54E-02	5.95E-03	1.59E-02	3.93E-02
CM-247	4946.000	3.000	2.000	1.000	15.3366	79.30000	3.72E-03	3.72E-03	6.63E-02	1.38E-01	3.72E-03
CM-248	5078.600	12.000	10.000	2.000	22.1555	91.00000	1.62E-02	6.14E-03	8.35E-02	1.71E-01	6.06E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600011_AM SAMPLE QTY: 1.255 G	
DETECTOR NUMBER :79456 AVERAGE %EFFICIENCY :33.7658 % YIELD : 86.502		COUNT DATE:20-JAN-2010 16:41:42 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.52290 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B100.CNF;671 BKG DATE : 17-JAN-2010 EFF FILE : W100.CNF;199 CAL DATE : 11-JAN-2010

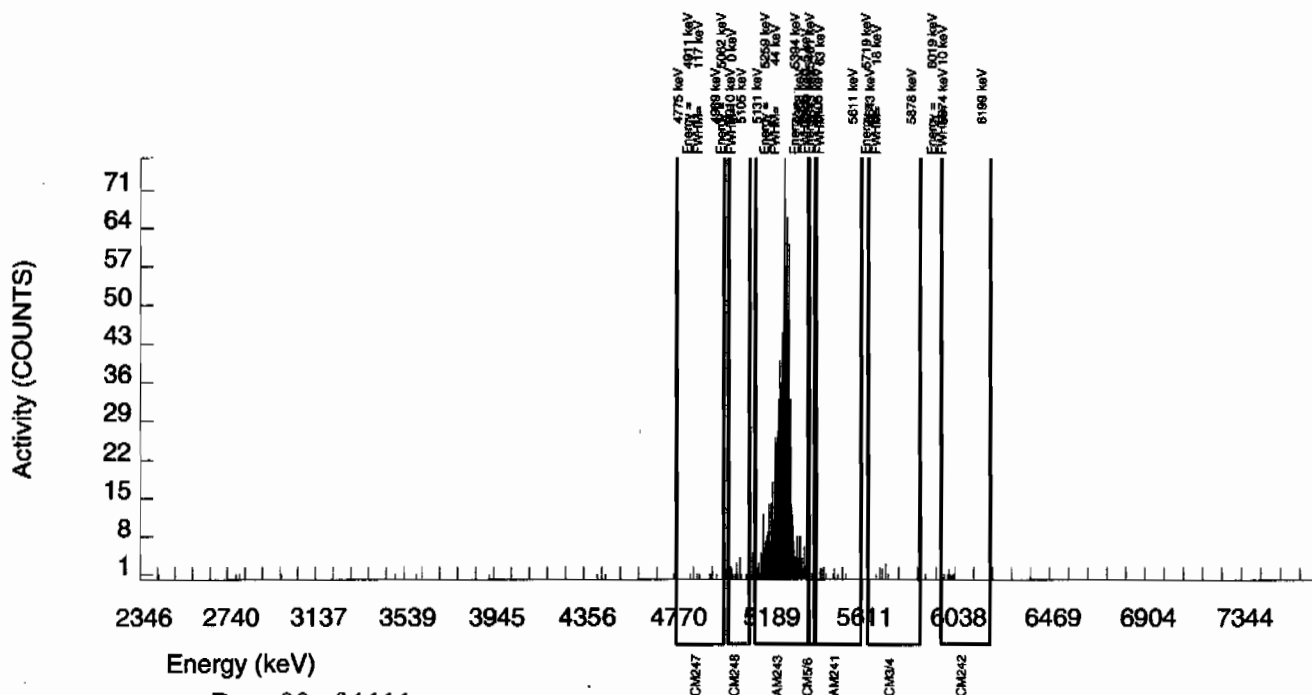
NUCLIDE ACTIVITY SUMMARY

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	6.000	1.000	5.2338	100.0000	7.38E-03	3.51E-03	1.50E-02	3.33E-02	3.48E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.43E-03	1.43E-03	6.59E-02	1.36E-01	1.43E-03
AM-241	5479.150	13.000	10.521	1.000	3.0704	99.94000	1.29E-02	4.42E-03	8.78E-03	2.09E-02	4.35E-03
CM-242	6102.000	7.000	7.000	0.000	4.3186	100.0000	9.13E-03	3.49E-03	1.23E-02	2.80E-02	3.45E-03
AM243	5270.000	850.000	850.000	0.000	0.0000	99.78000	1.05E+00	7.24E-02	0.00E+00	3.34E-03	3.59E-02
CM-247	4946.000	7.000	4.000	3.000	15.3366	79.30000	6.20E-03	4.91E-03	5.53E-02	1.15E-01	4.90E-03
CM-248	5078.600	20.000	20.000	0.000	22.1555	91.00000	2.70E-02	6.25E-03	6.96E-02	1.43E-01	6.04E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600012_AM SAMPLE QTY: 1.258 G	
DETECTOR NUMBER :64253 AVERAGE %EFFICIENCY :33.0490 % YIELD : 92.641		COUNT DATE:20-JAN-2010 16:41:43 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 2.70195 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B101.CNF;674 BKG DATE : 17-JAN-2010 EFF FILE : W101.CNF;178 CAL DATE : 11-JAN-2010

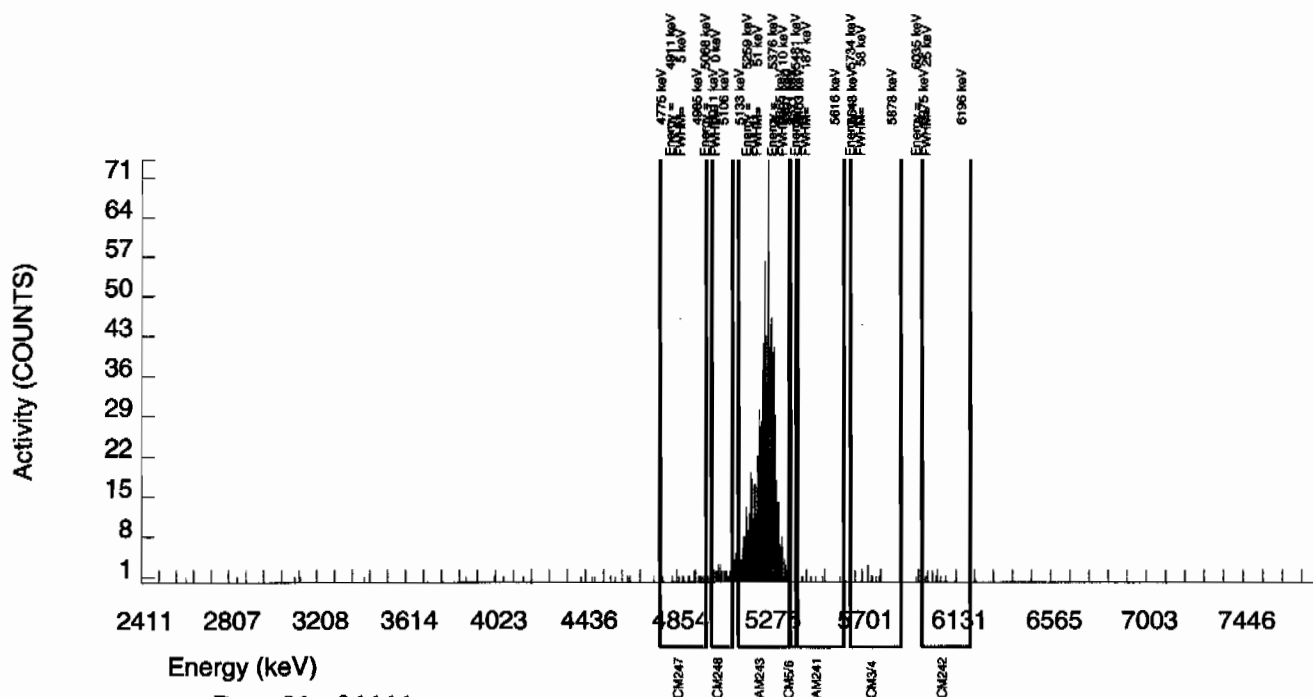
NUCLIDE ACTIVITY SUMMARY

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	7.000	2.000	5.2338	100.0000	8.20E-03	3.92E-03	1.42E-02	3.16E-02	3.88E-03
CM-5/6	5386.000	4.000	4.000	0.000	19.8463	86.09000	5.43E-03	2.74E-03	6.27E-02	1.29E-01	2.72E-03
AM-241	5479.150	7.000	5.449	0.000	3.0704	99.94000	6.38E-03	2.76E-03	8.36E-03	1.99E-02	2.73E-03
CM-242	6102.000	9.000	9.000	0.000	4.3186	100.0000	1.12E-02	3.78E-03	1.17E-02	2.67E-02	3.72E-03
AM243	5270.000	893.000	891.000	2.000	1.4142	99.78000	1.04E+00	7.15E-02	3.86E-03	1.09E-02	3.51E-02
CM-247	4946.000	13.000	12.000	1.000	15.3366	79.30000	1.77E-02	5.62E-03	5.26E-02	1.09E-01	5.52E-03
CM-248	5078.600	31.000	31.000	0.000	22.1555	91.00000	3.98E-02	7.54E-03	6.62E-02	1.36E-01	7.16E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600013_AM SAMPLE QTY: 1.254 G	
DETECTOR NUMBER :72525 AVERAGE %EFFICIENCY :33.0102 % YIELD : 86.400		COUNT DATE:20-JAN-2010 16:41:43 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 2.51993 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B102.CNF;672 BKG DATE : 17-JAN-2010 EFF FILE : W102.CNF;192 CAL DATE : 11-JAN-2010

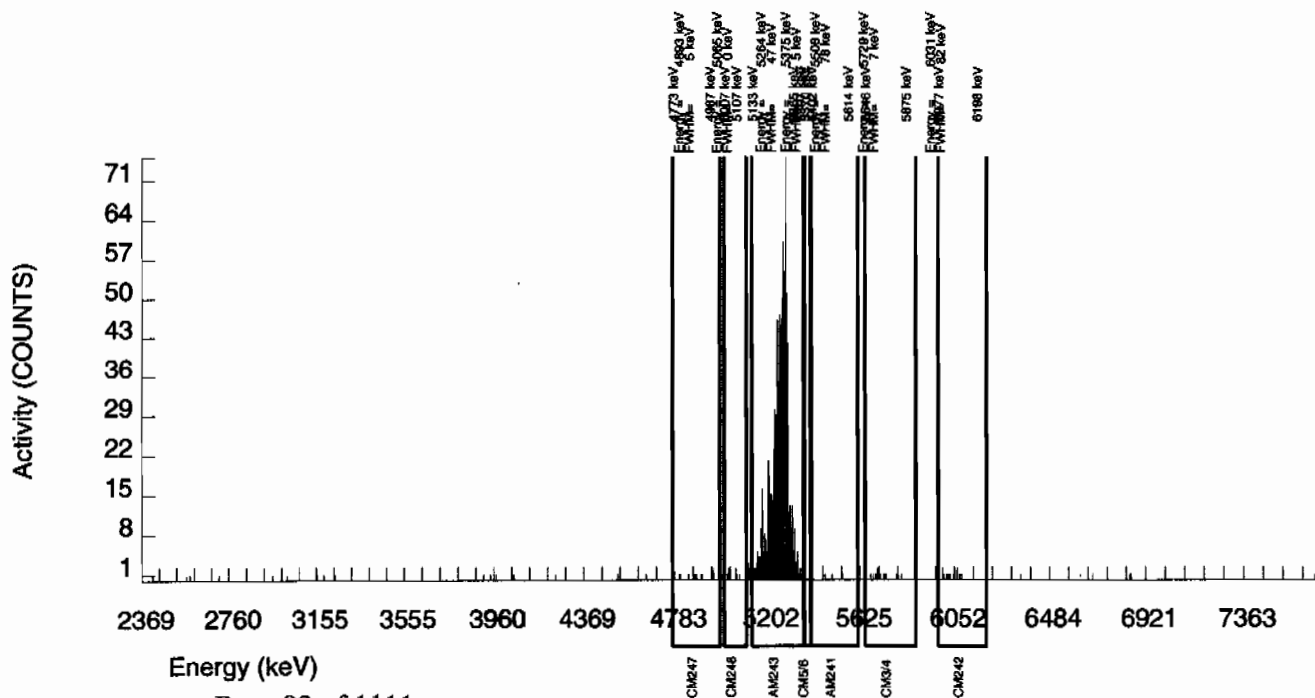
NUCLIDE ACTIVITY SUMMARY

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	11.000	1.000	5.2338	100.0000	1.39E-02	4.62E-03	1.53E-02	3.41E-02	4.55E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.46E-03	1.47E-03	6.75E-02	1.39E-01	1.46E-03
AM-241	5479.150	3.000	0.556	1.000	3.0704	99.94000	7.00E-04	2.02E-03	9.00E-03	2.14E-02	2.01E-03
CM-242	6102.000	16.000	14.000	2.000	4.3186	100.0000	1.87E-02	5.78E-03	1.27E-02	2.87E-02	5.67E-03
AM243	5270.000	830.000	830.000	0.000	0.0000	99.78000	1.05E+00	7.29E-02	0.00E+00	3.42E-03	3.64E-02
CM-247	4946.000	11.000	10.000	1.000	15.3366	79.30000	1.59E-02	5.58E-03	5.67E-02	1.18E-01	5.50E-03
CM-248	5078.600	11.000	11.000	0.000	22.1555	91.00000	1.52E-02	4.68E-03	7.13E-02	1.46E-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: 941693 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015579_AM SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :76543 AVERAGE %EFFICIENCY :34.3031 % YIELD : 90.155		COUNT DATE:20-JAN-2010 12:59:59 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.62945 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B043.CNF;1098 BKG DATE : 17-JAN-2010 EFF FILE : W043.CNF;284 CAL DATE : 4-JAN-2010

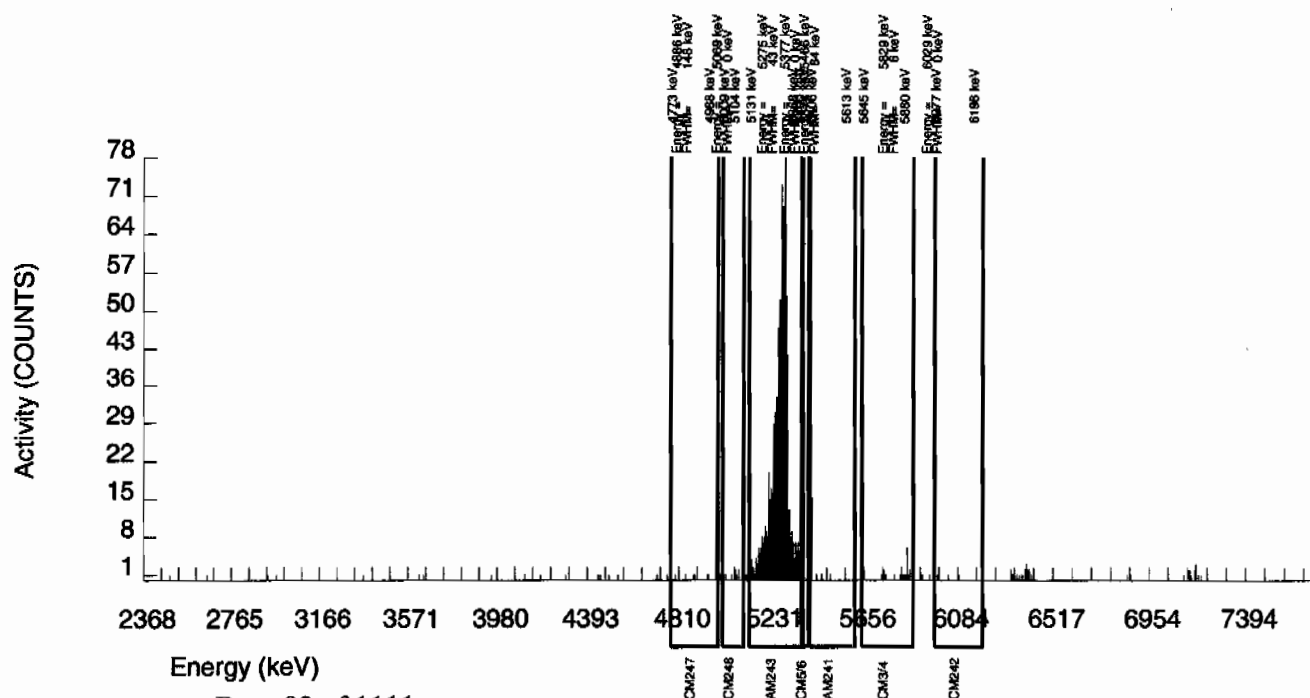
NUCLIDE ACTIVITY SUMMARY

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	21.000	8.000	13.000	5.2338	100.0000	1.17E-02	8.52E-03	1.77E-02	3.94E-02	8.50E-03
CM-5/6	5386.000	7.000	7.000	0.000	19.8463	86.09000	1.18E-02	4.53E-03	7.81E-02	1.61E-01	4.48E-03
AM-241	5479.150	6.000	1.434	3.000	3.0704	99.94000	2.09E-03	3.98E-03	1.04E-02	2.48E-02	3.97E-03
CM-242	6102.000	4.000	4.000	0.000	4.3186	100.0000	5.90E-03	2.97E-03	1.46E-02	3.32E-02	2.95E-03
AM243	5270.000	900.000	900.000	0.000	0.0000	99.78000	1.31E+00	8.96E-02	0.00E+00	3.96E-03	4.38E-02
CM-247	4946.000	6.000	5.000	1.000	15.3366	79.30000	9.18E-03	4.89E-03	6.55E-02	1.36E-01	4.86E-03
CM-248	5078.600	12.000	12.000	0.000	22.1555	91.00000	1.92E-02	5.66E-03	8.25E-02	1.69E-01	5.54E-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: 941693 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S1202015580_AM SAMPLE QTY: 1.257 G	
DETECTOR NUMBER :78777 AVERAGE %EFFICIENCY :32.3821 % YIELD : 83.831		COUNT DATE:20-JAN-2010 16:41:43 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 2.44501 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B105.CNF;674 BKG DATE : 17-JAN-2010 EFF FILE : W105.CNF;173 CAL DATE : 11-JAN-2010

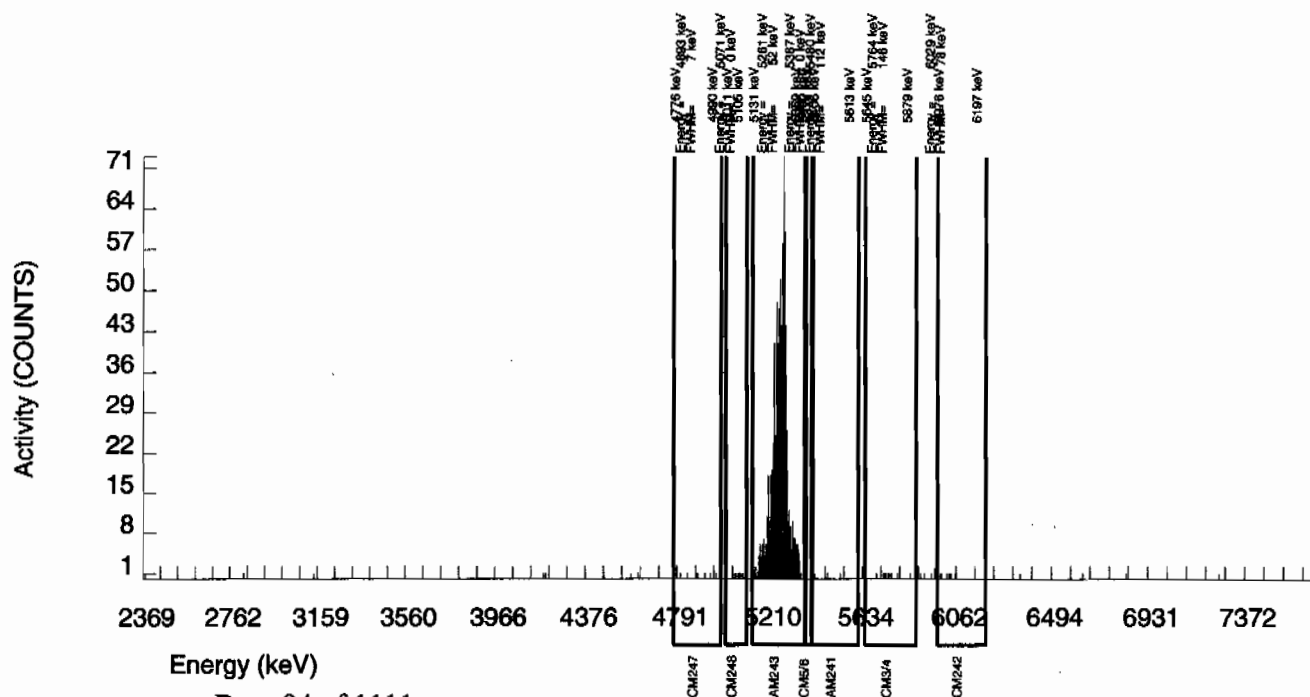
NUCLIDE ACTIVITY SUMMARY

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	8.000	1.000	5.2338	100.0000	1.06E-02	4.23E-03	1.61E-02	3.57E-02	4.18E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.53E-03	1.54E-03	7.08E-02	1.46E-01	1.53E-03
AM-241	5479.150	3.000	-0.375	2.000	3.0704	99.94000	-4.95E-04	2.52E-03	9.43E-03	2.24E-02	2.52E-03
CM-242	6102.000	9.000	9.000	0.000	4.3186	100.0000	1.26E-02	4.27E-03	1.33E-02	3.01E-02	4.20E-03
AM243	5270.000	791.000	790.000	1.000	1.0000	99.78000	1.05E+00	7.37E-02	3.08E-03	9.74E-03	3.72E-02
CM-247	4946.000	9.000	8.000	1.000	15.3366	79.30000	1.33E-02	5.33E-03	5.94E-02	1.23E-01	5.26E-03
CM-248	5078.600	8.000	7.000	1.000	22.1555	91.00000	1.02E-02	4.40E-03	7.48E-02	1.53E-01	4.35E-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: 941693 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015581_AM SAMPLE QTY: 0.110 G	
DETECTOR NUMBER :42483 AVERAGE %EFFICIENCY :31.2622 % YIELD : 102.662		COUNT DATE:20-JAN-2010 12:59:59 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.99421 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B048.CNF;1104 BKG DATE : 17-JAN-2010 EFF FILE : W048.CNF;314 CAL DATE : 4-JAN-2010

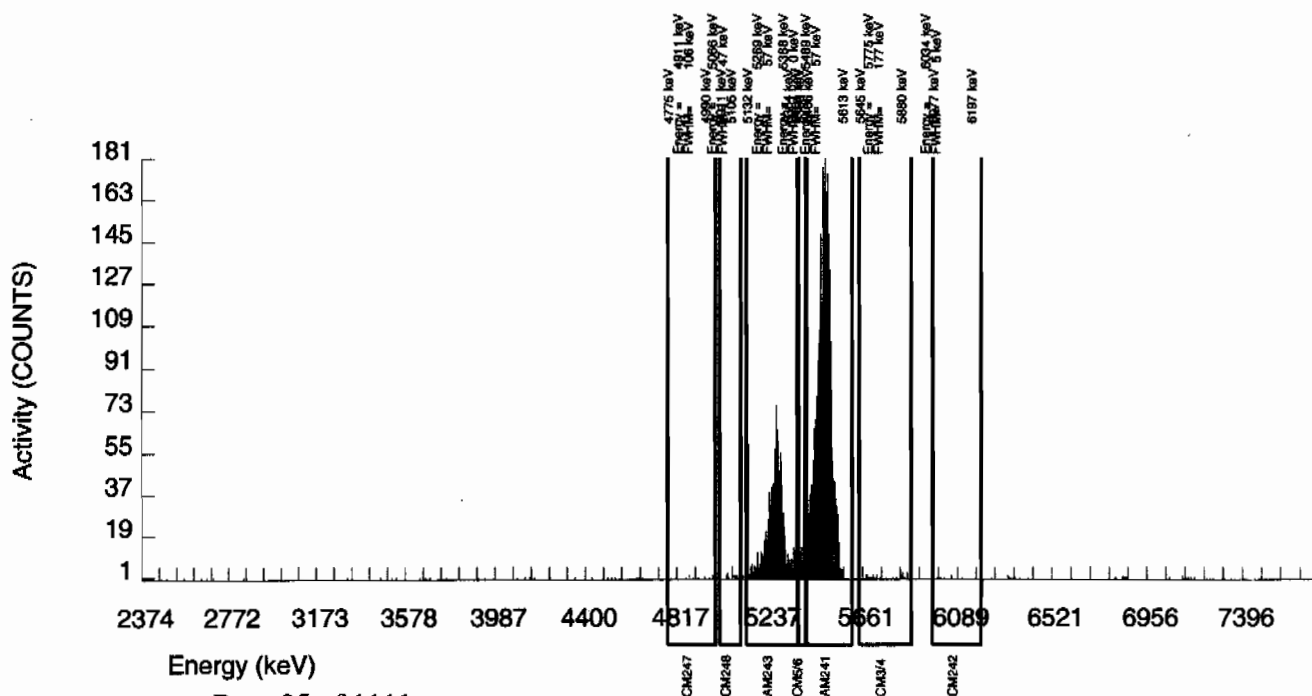
NUCLIDE ACTIVITY SUMMARY

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	7.000	19.000	5.2338	100.0000	8.93E-02	8.58E-02	1.55E-01	3.45E-01	8.56E-02
CM-5/6	5386.000	95.000	94.000	1.000	19.8463	86.09000	1.39E+00	1.72E-01	6.84E-01	1.41E+00	1.45E-01
AM-241	5479.150	2476.000	2461.375	13.000	3.0704	99.94000	3.14E+01	2.17E+00	9.12E-02	2.17E-01	6.37E-01
CM-242	6102.000	9.000	8.000	1.000	4.3186	100.0000	1.03E-01	4.14E-02	1.28E-01	2.91E-01	4.08E-02
AM243	5270.000	935.000	934.000	1.000	1.0000	99.78000	1.19E+01	8.81E-01	2.97E-02	9.42E-02	3.91E-01
CM-247	4946.000	13.000	8.000	5.000	15.3366	79.30000	1.29E-01	6.88E-02	5.74E-01	1.19E+00	6.83E-02
CM-248	5078.600	16.000	15.000	1.000	22.1555	91.00000	2.10E-01	5.95E-02	7.23E-01	1.48E+00	5.78E-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#

941694

Product

Pu

Date

1/20/10

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 initiated 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:

Denise Green 1/20/10

Secondary Review Performed By:

J. L. M. I - 1/20/10

2/3

LANX



PV

# Plutonium Que Sheet

14-JAN-10

Batch #: 941694 Analyst: HAKB First Client Due Date: 03-FEB-10 Internal Due Date: 24-JAN-10  
 Tracer Isotope(s): Pu-242/Pu-238 Tracer Code: 1374-A Expiration Date: 12/18/10 Vol: 0.1 \* 0.2  
 LCS Isotope(s): Pu-239/Pu-238 LCS Code: SRM D244-B Expiration Date: 4/30/20 Vol: 0.110 g  
 Spike Isotope(s): Pu-239/Pu-238 Spike Code: NA Expiration Date: NA Vol: NA  
 Prep Date: 1/18/10 Initials: CHAB Pipet ID: 2971058 Balance ID: 50410272 Witness: LM 1-18/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet Dry Allquot (g) (1/1)	Pu Det #
244597601-1	RE12-10-7722	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	1	1	1.251	25
244600001-1	RE12-10-7743	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	2	2	1.255	26
244600002-1	RE12-10-7740	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	3	3	1.260	27
244600003-1	RE12-10-7741	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	4	4	1.260	28
244600004-1	RE12-10-7737	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	5	5	1.261	29
244600005-1	RE12-10-7739	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	6	6	1.262	30
244600006-1	RE12-10-7738	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	7	7	1.251	38
244600007-1	RE12-10-7742	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	8	8	1.253	39
244600008-1	RE12-10-7736	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	9	9	1.258	40
244600009-1	RE12-10-7752	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	10	10	1.260	42
244600010-1	RE12-10-7753	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	11	11	1.269	43
244600011-1	RE12-10-7754	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	12	12	1.255	47
244600012-1	RE12-10-7755	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	13	13	1.258	48
244600013-1	RE12-10-7776	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	14	14	1.254	68
244612001-1	RE16-10-2783	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	15	15	1.262	69
244613001-1	RE16-10-1286	SAMPLE	.05 pCi/g		SOIL	LANL010	07-JAN-10	16	16	1.259	70
1202015582-1	MB for batch 941694	MB	.05 pCi/g		SOIL	QC ACCOUNT		17	17	1	65
1202015583-1	RE12-10-7776(244600013DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT	07-JAN-10	18	18	1.257	66
1202015584-1	LCS for batch 941694	LCS	.05 pCi/g		SOIL	QC ACCOUNT		19	19	0.110	67

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: DS 1/20/10

DS 1/20/10

# Blank Correction Report

**Batch ID 941694**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202015583	DUP	Plutonium-238	1.26 g	0.0111	0.00498	0.0183	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	5.28E-10	0.00383	0.0209	.001436508	pCi/g	YES
1202015584	LCS	Plutonium-238	0.110 g	6.97	0.513	0.225	-.06590909	pCi/g	NO
		Plutonium-239/240	0.110 g	38.4	2.36	0.257	.016454545	pCi/g	NO
1202015582	MB	Plutonium-238	1.00 g	-0.00725	0.00925	0.0299	-.00725	pCi/g	NO
		Plutonium-239/240	1.00 g	0.00181	0.0048	0.0343	.00181	pCi/g	YES
244597001	RE12-10-7722	Plutonium-238	1.25 g	0.0053	0.00772	0.0219	-.0058	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0172	0.00485	0.025	.001448	pCi/g	NO
244600001	RE12-10-7243	Plutonium-238	1.26 g	0.00254	0.00254	0.021	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00889	0.00384	0.024	.001436508	pCi/g	NO
244600002	RE12-10-7240	Plutonium-238	1.26 g	-0.00127	0.00221	0.021	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00127	0.00221	0.0241	.001436508	pCi/g	YES
244600003	RE12-10-7241	Plutonium-238	1.26 g	0.00425	0.00318	0.0234	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00142	0.00246	0.0268	.001436508	pCi/g	YES
244600004	RE12-10-7237	Plutonium-238	1.26 g	-0.002	0.00999	0.033	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.002	0.00529	0.0378	.001436508	pCi/g	YES
244600005	RE12-10-7239	Plutonium-238	1.26 g	0.00434	0.00553	0.0179	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00108	0.00287	0.0205	.001436508	pCi/g	YES
244600006	RE12-10-7238	Plutonium-238	1.25 g	-0.00852	0.00471	0.0201	-.0058	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00852	0.00368	0.023	.001448	pCi/g	NO
244600007	RE12-10-7242	Plutonium-238	1.25 g	0.00718	0.00657	0.0198	-.0058	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0144	0.00513	0.0226	.001448	pCi/g	NO
244600008	RE12-10-7236	Plutonium-238	1.26 g	0.00158	0.00419	0.0261	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0174	0.00659	0.0299	.001436508	pCi/g	NO
244600009	RE12-10-7252	Plutonium-238	1.26 g	0.0012	0.00208	0.0199	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0204	0.0061	0.0227	.001436508	pCi/g	NO
244600010	RE12-10-7253	Plutonium-238	1.27 g	0.00	0.00124	0.0204	-.00570866	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00	0.00124	0.0233	.001425197	pCi/g	YES
244600011	RE12-10-7254	Plutonium-238	1.26 g	0.00489	0.00458	0.0202	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0208	0.00595	0.0231	.001436508	pCi/g	NO
244600012	RE12-10-7255	Plutonium-238	1.26 g	-0.00829	0.0138	0.0457	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0138	0.00834	0.0522	.001436508	pCi/g	NO
244600013	RE12-10-7276	Plutonium-238	1.25 g	0.0034	0.00241	0.0281	-.0058	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0034	0.00241	0.0321	.001448	pCi/g	YES
244612001	RE16-10-2783	Plutonium-238	1.26 g	0.00128	0.00221	0.0211	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	3.05E-10	0.00361	0.0241	.001436508	pCi/g	YES
244613001	RE16-10-1286	Plutonium-238	1.26 g	5.74E-10	0.00417	0.0199	-.00575397	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00361	0.00361	0.0227	.001436508	pCi/g	YES

*Handwritten signature and date:*  
1/26/10

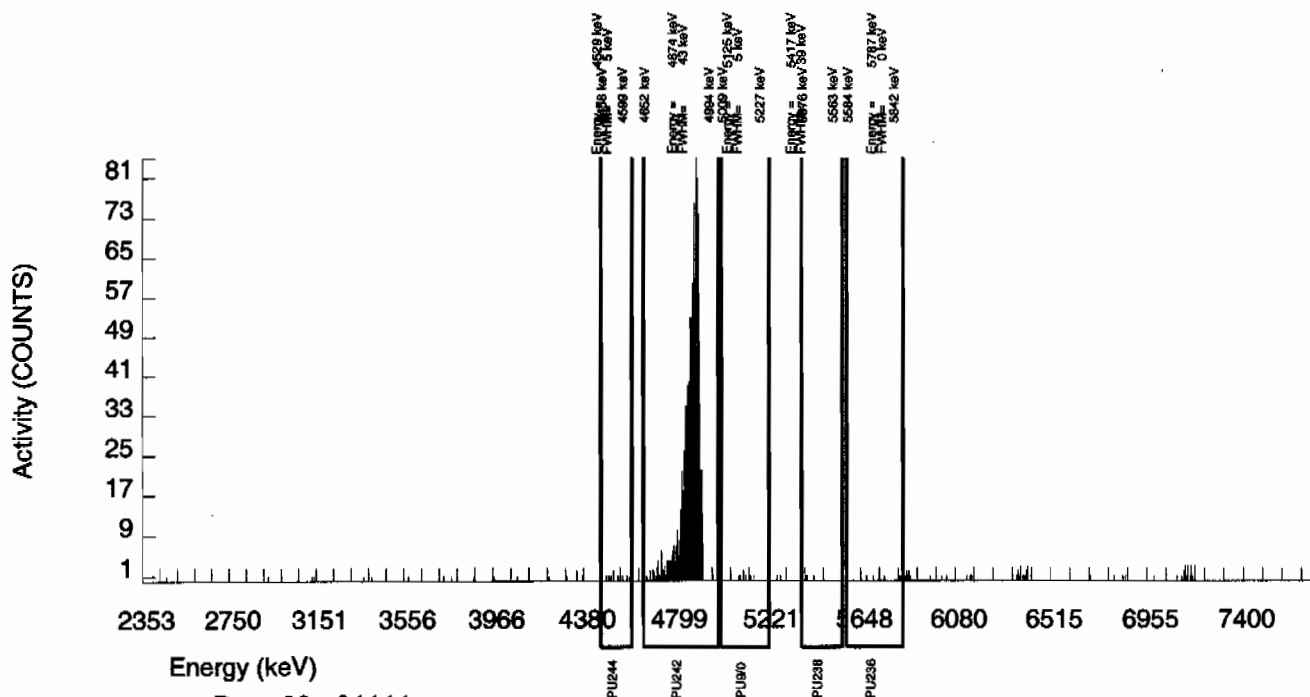
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600001_PU SAMPLE QTY: 1.255 G	
DETECTOR NUMBER :78204 AVERAGE %EFFICIENCY :31.5763 % YIELD : 89.617		COUNT DATE:19-JAN-2010 13:20:51 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 3.03392 dpm	LIB FILE : ENV_ALPHA_PU.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
PU-9/0	5155.000	8.000	7.000	1.000	3.4797	99.90000	8.89E-03	3.84E-03	1.03E-02	2.40E-02	3.81E-03
PU-236	5749.000	9.000	4.000	5.000	2.1286	100.0000	5.12E-03	4.79E-03	6.28E-03	1.60E-02	4.79E-03
PU-238	5499.000	3.000	2.000	1.000	2.9680	99.90000	2.54E-03	2.54E-03	8.77E-03	2.10E-02	2.54E-03
PU242	4890.000	961.000	958.000	3.000	1.7321	100.0000	1.22E+00	7.57E-02	5.11E-03	1.37E-02	3.94E-02
PU-244	4589.000	10.000	10.000	0.000	5.2050	99.90000	1.27E-02	4.07E-03	1.54E-02	3.42E-02	4.02E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



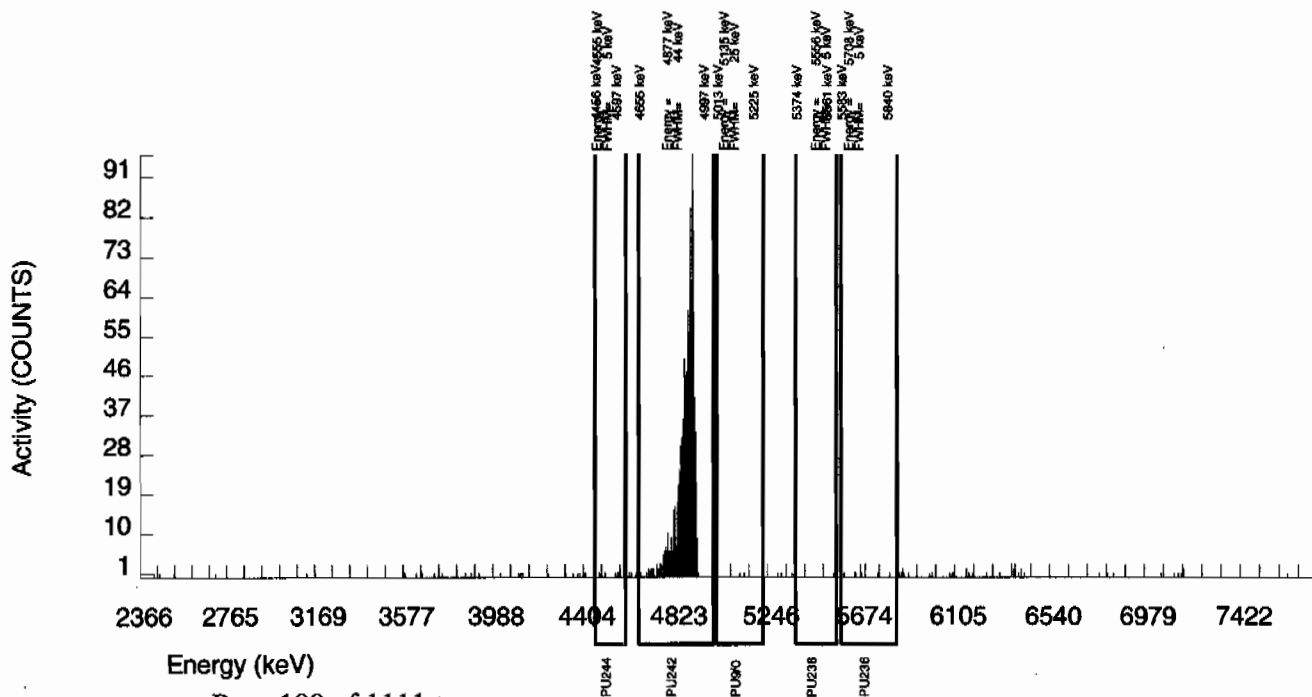
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600002_PU SAMPLE QTY: 1.260 G	
DETECTOR NUMBER :42484 AVERAGE %EFFICIENCY :33.2327 % YIELD : 84.617		COUNT DATE:19-JAN-2010 13:20:51 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.86465 dpm	LIB FILE : ENV_ALPHA_PU.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
PU-9/0	5155.000	2.000	1.000	1.000	3.4797	99.90000	1.27E-03	2.21E-03	1.03E-02	2.41E-02	2.20E-03
PU-236	5749.000	11.000	6.000	5.000	2.1286	100.0000	7.69E-03	5.15E-03	6.30E-03	1.60E-02	5.13E-03
PU-238	5499.000	1.000	-1.000	2.000	2.9680	99.90000	-1.27E-03	2.21E-03	8.79E-03	2.10E-02	2.20E-03
PU242	4890.000	954.000	952.000	2.000	1.4142	100.0000	1.21E+00	7.55E-02	4.18E-03	1.18E-02	3.93E-02
PU-244	4589.000	8.000	8.000	0.000	5.2050	99.90000	1.02E-02	3.64E-03	1.54E-02	3.43E-02	3.60E-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: 941694  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600003\_PU  
SAMPLE QTY: 1.260 G

DETECTOR NUMBER :78792  
AVERAGE %EFFICIENCY :30.5070  
% YIELD : 82.785

COUNT DATE:19-JAN-2010 13:20:51  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :HAKB

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

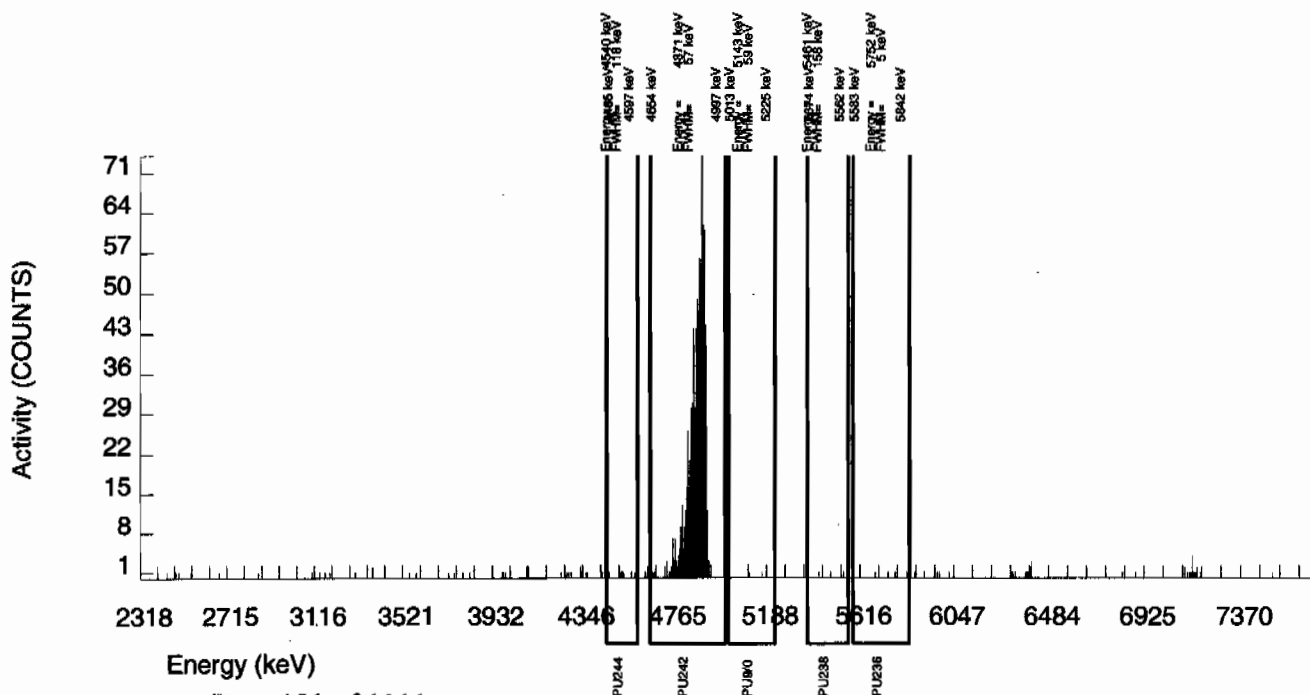
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 2.80264 dpm

LIB FILE : ENV\_ALPHA\_PU.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
PU-9/0	5155.000	2.000	1.000	1.000	3.4797	99.90000	1.42E-03	2.46E-03	1.15E-02	2.68E-02	2.45E-03
PU-236	5749.000	7.000	-5.000	12.000	2.1286	100.0000	-7.14E-03	6.22E-03	7.01E-03	1.79E-02	6.22E-03
PU-238	5499.000	4.000	3.000	1.000	2.9680	99.90000	4.25E-03	3.18E-03	9.78E-03	2.34E-02	3.17E-03
PU242	4890.000	856.000	855.000	1.000	1.0000	100.0000	1.21E+00	7.78E-02	3.29E-03	1.04E-02	4.14E-02
PU-244	4589.000	6.000	6.000	0.000	5.2050	99.90000	8.50E-03	3.50E-03	1.72E-02	3.82E-02	3.47E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



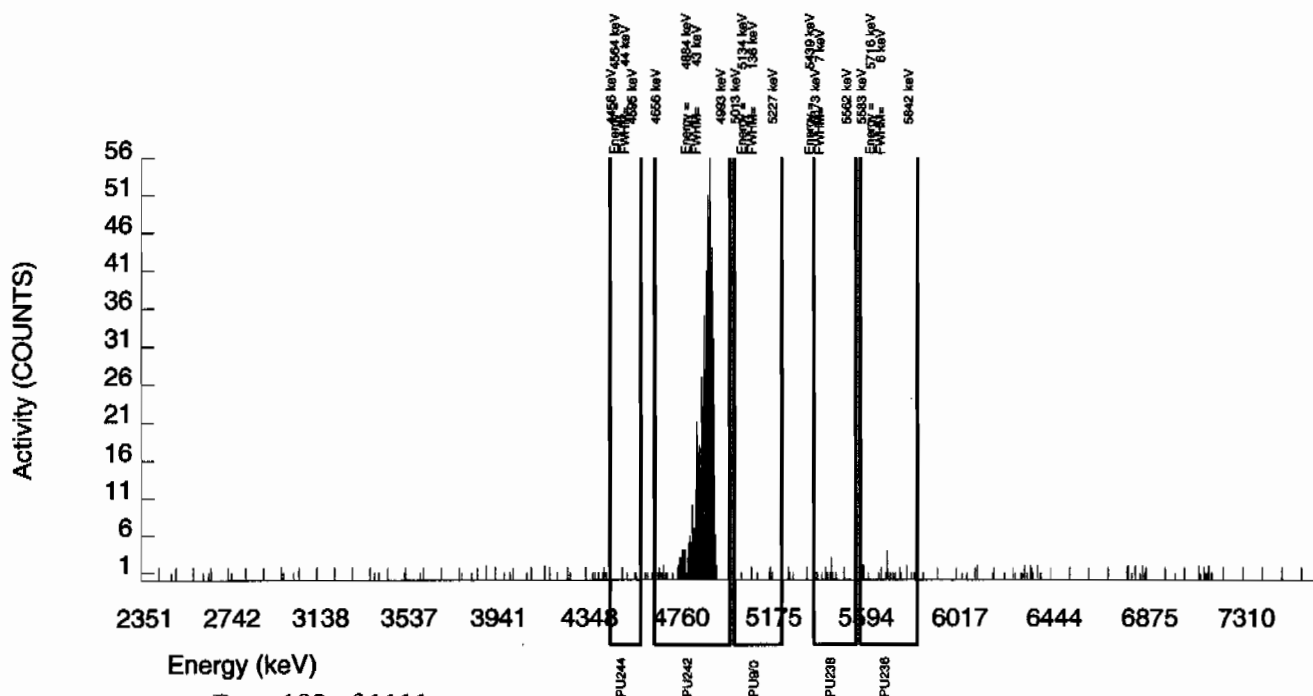
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600004_PU SAMPLE QTY: 1.261 G	
DETECTOR NUMBER :33454 AVERAGE %EFFICIENCY :31.1998 % YIELD : 57.373		COUNT DATE:19-JAN-2010 13:20:51 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 1.94232 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	4.000	1.000	3.000	3.4797	99.90000	2.00E-03	5.29E-03	1.62E-02	3.78E-02	5.29E-03
PU-236	5749.000	21.000	3.000	18.000	2.1286	100.0000	6.04E-03	1.26E-02	9.88E-03	2.52E-02	1.26E-02
PU-238	5499.000	12.000	-1.000	13.000	2.9680	99.90000	-2.00E-03	9.99E-03	1.38E-02	3.30E-02	9.99E-03
PU242	4890.000	610.000	606.000	4.000	2.0000	100.0000	1.21E+00	8.66E-02	9.29E-03	2.40E-02	4.94E-02
PU-244	4589.000	3.000	3.000	0.000	5.2050	99.90000	5.99E-03	3.48E-03	2.42E-02	5.38E-02	3.46E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



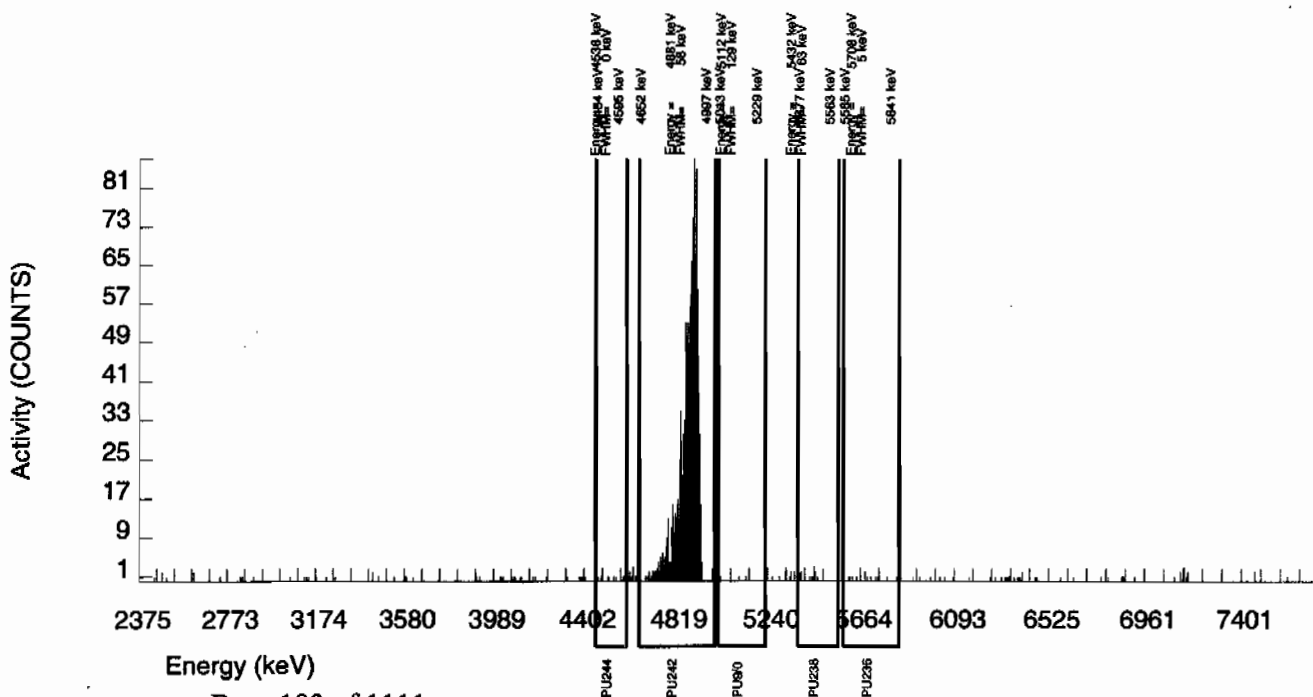
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600005_PU SAMPLE QTY: 1.262 G	
DETECTOR NUMBER :33447 AVERAGE %EFFICIENCY :32.1103 % YIELD : 102.661		COUNT DATE:19-JAN-2010 13:20:51 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 3.47552 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	4.000	1.000	3.000	3.4797	99.90000	1.08E-03	2.87E-03	8.77E-03	2.05E-02	2.87E-03
PU-236	5749.000	13.000	-5.000	18.000	2.1286	100.0000	-5.46E-03	6.08E-03	5.36E-03	1.37E-02	6.08E-03
PU-238	5499.000	15.000	4.000	11.000	2.9680	99.90000	4.34E-03	5.53E-03	7.48E-03	1.79E-02	5.53E-03
PU242	4890.000	1124.000	1116.000	8.000	2.8284	100.0000	1.21E+00	7.25E-02	7.12E-03	1.72E-02	3.64E-02
PU-244	4589.000	11.000	11.000	0.000	5.2050	99.90000	1.19E-02	3.65E-03	1.31E-02	2.92E-02	3.59E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



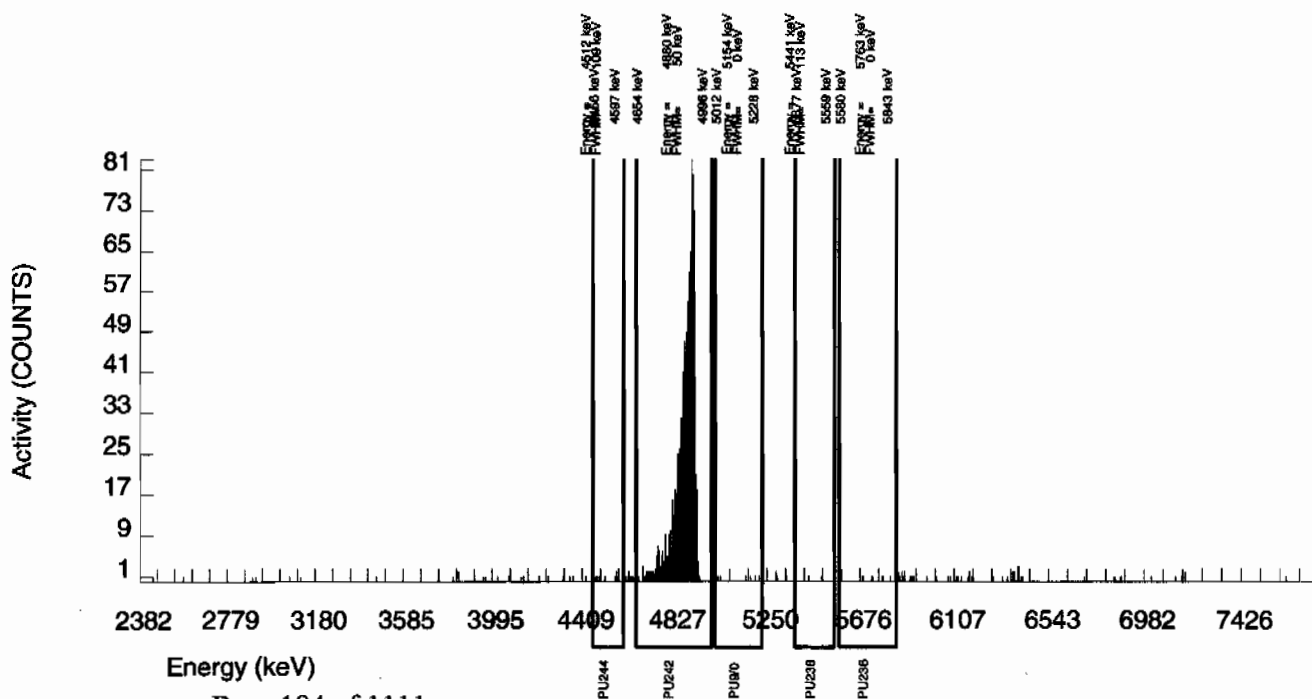
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600006_PU SAMPLE QTY: 1.251 G	
DETECTOR NUMBER :72532 AVERAGE %EFFICIENCY :33.8964 % YIELD : 87.404		COUNT DATE:19-JAN-2010 13:20:54 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.95902 dpm	LIB FILE : ENV_ALPHA_PU.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
PU-9/0	5155.000	8.000	7.000	1.000	3.4797	99.90000	8.52E-03	3.68E-03	9.85E-03	2.30E-02	3.65E-03
PU-236	5749.000	11.000	-3.000	14.000	2.1286	100.0000	-3.68E-03	6.13E-03	6.02E-03	1.53E-02	6.13E-03
PU-238	5499.000	4.000	-7.000	11.000	2.9680	99.90000	-8.52E-03	4.71E-03	8.40E-03	2.01E-02	4.71E-03
PU242	4890.000	1004.000	1003.000	1.000	1.0000	100.0000	1.22E+00	7.29E-02	2.83E-03	8.95E-03	3.85E-02
PU-244	4589.000	11.000	9.000	2.000	5.2050	99.90000	1.09E-02	4.42E-03	1.47E-02	3.28E-02	4.39E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





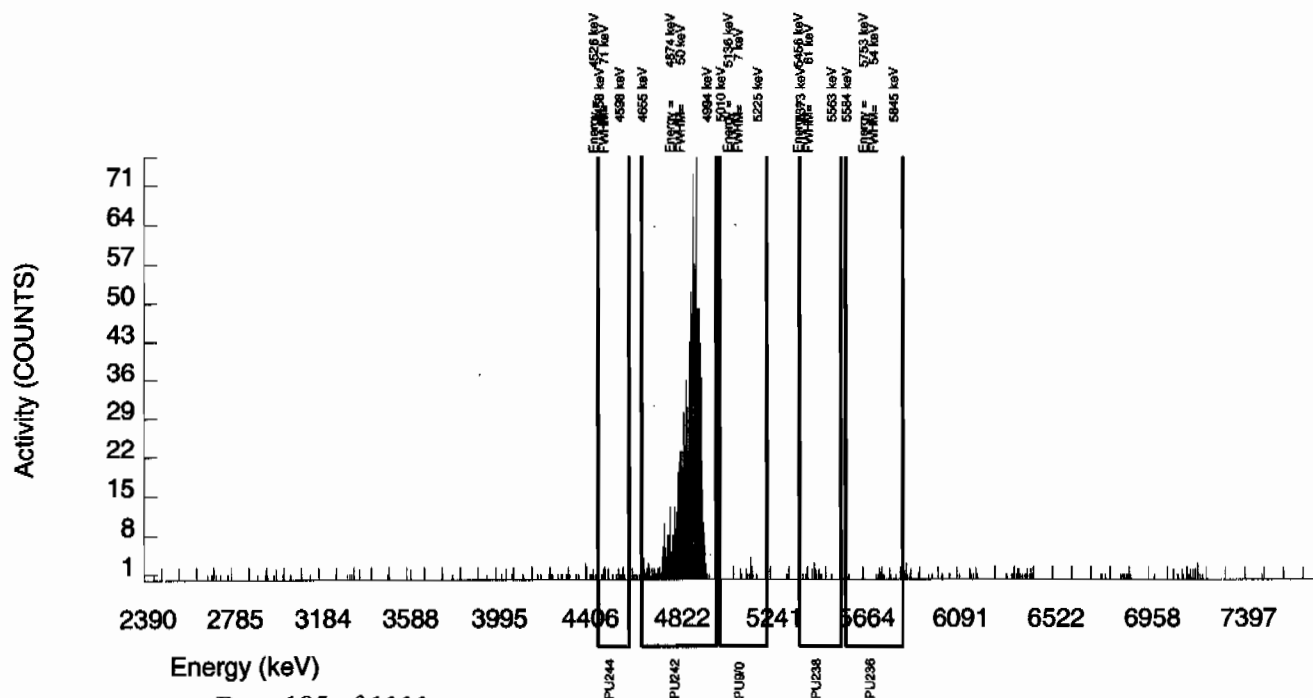
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600007_PU SAMPLE QTY: 1.253 G	
DETECTOR NUMBER :45-149BB2 AVERAGE %EFFICIENCY :35.9356 % YIELD : 83.678		COUNT DATE:19-JAN-2010 13:20:54 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.83285 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B039.CNF;1105 BKG DATE : 17-JAN-2010 EFF FILE : W039.CNF;296 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	15.000	12.000	3.000	3.4797	99.90000	1.44E-02	5.13E-03	9.69E-03	2.26E-02	5.08E-03
PU-236	5749.000	12.000	-12.000	24.000	2.1286	100.0000	-1.45E-02	7.24E-03	5.92E-03	1.51E-02	7.23E-03
PU-238	5499.000	18.000	6.000	12.000	2.9680	99.90000	7.18E-03	6.57E-03	8.26E-03	1.98E-02	6.56E-03
PU242	4890.000	1021.000	1018.000	3.000	1.7321	100.0000	1.22E+00	7.26E-02	4.82E-03	1.29E-02	3.83E-02
PU-244	4589.000	13.000	13.000	0.000	5.2050	99.90000	1.56E-02	4.39E-03	1.45E-02	3.22E-02	4.31E-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: 941694  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600008\_PU  
SAMPLE QTY: 1.258 G

DETECTOR NUMBER :78773  
AVERAGE %EFFICIENCY :32.1969  
% YIELD : 70.367

COUNT DATE:19-JAN-2010 13:20:54  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :HAKB

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

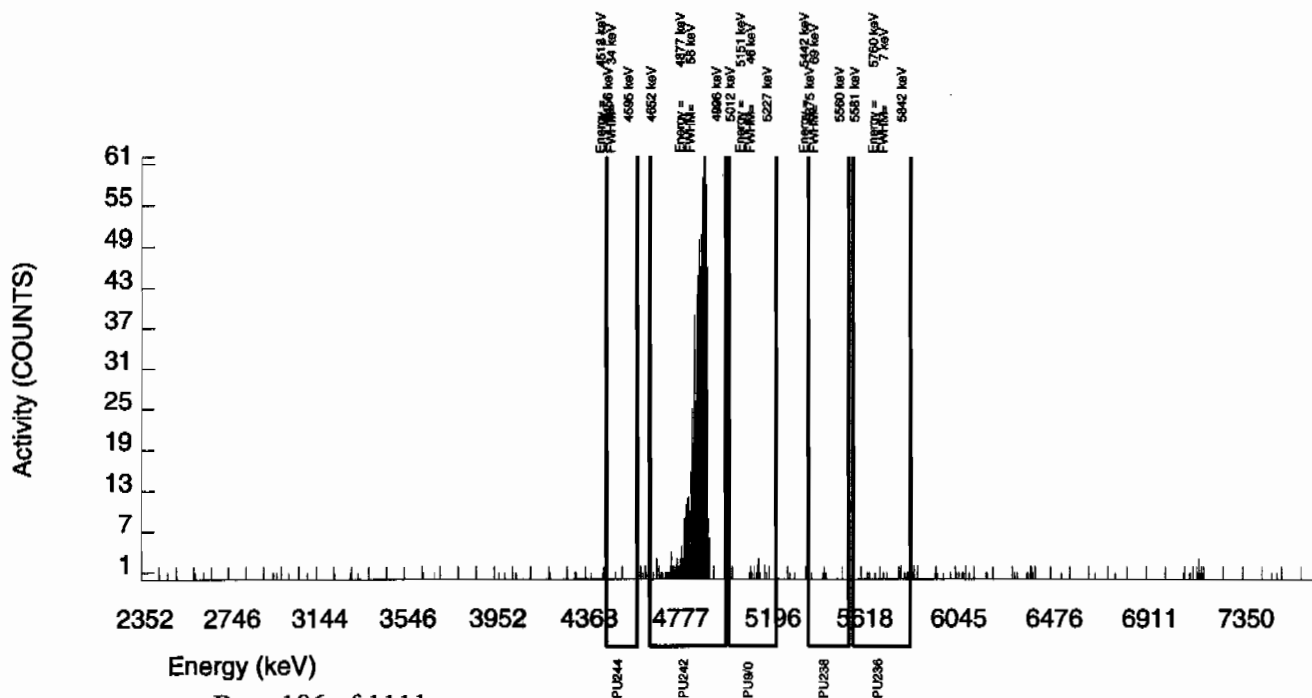
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 2.38222 dpm

LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B040.CNF;1108  
BKG DATE : 17-JAN-2010  
EFF FILE : W040.CNF;315  
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	14.000	11.000	3.000	3.4797	99.90000	1.74E-02	6.59E-03	1.28E-02	2.99E-02	6.52E-03
PU-236	5749.000	11.000	4.000	7.000	2.1286	100.0000	6.38E-03	6.77E-03	7.83E-03	1.99E-02	6.76E-03
PU-238	5499.000	4.000	1.000	3.000	2.9680	99.90000	1.58E-03	4.19E-03	1.09E-02	2.61E-02	4.19E-03
PU242	4890.000	768.000	767.000	1.000	1.0000	100.0000	1.21E+00	7.85E-02	3.68E-03	1.16E-02	4.38E-02
PU-244	4589.000	2.000	2.000	0.000	5.2050	99.90000	3.16E-03	2.24E-03	1.92E-02	4.26E-02	2.24E-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: 941694  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600009\_PU  
SAMPLE QTY: 1.260 G

DETECTOR NUMBER :78793  
AVERAGE %EFFICIENCY :33.4897  
% YIELD : 88.907

COUNT DATE:19-JAN-2010 13:20:54  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :HAKB

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

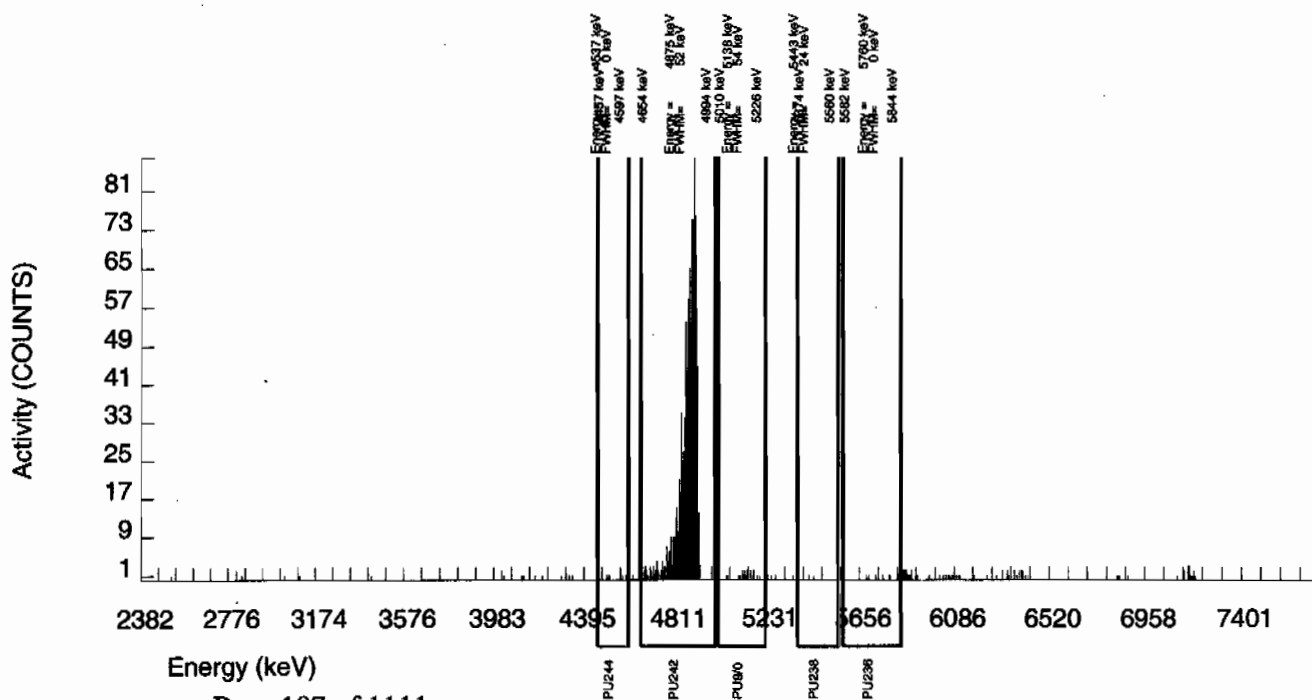
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.00988 dpm

LIB FILE : ENV\_ALPHA\_PU.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
PU-9/0	5155.000	21.000	17.000	4.000	3.4797	99.90000	2.04E-02	6.10E-03	9.73E-03	2.27E-02	6.01E-03
PU-236	5749.000	9.000	-1.000	10.000	2.1286	100.0000	-1.21E-03	5.28E-03	5.95E-03	1.51E-02	5.28E-03
PU-238	5499.000	2.000	1.000	1.000	2.9680	99.90000	1.20E-03	2.08E-03	8.30E-03	1.99E-02	2.08E-03
PU242	4890.000	1012.000	1008.000	4.000	2.0000	100.0000	1.21E+00	7.25E-02	5.59E-03	1.44E-02	3.83E-02
PU-244	4589.000	7.000	7.000	0.000	5.2050	99.90000	8.41E-03	3.21E-03	1.46E-02	3.24E-02	3.18E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



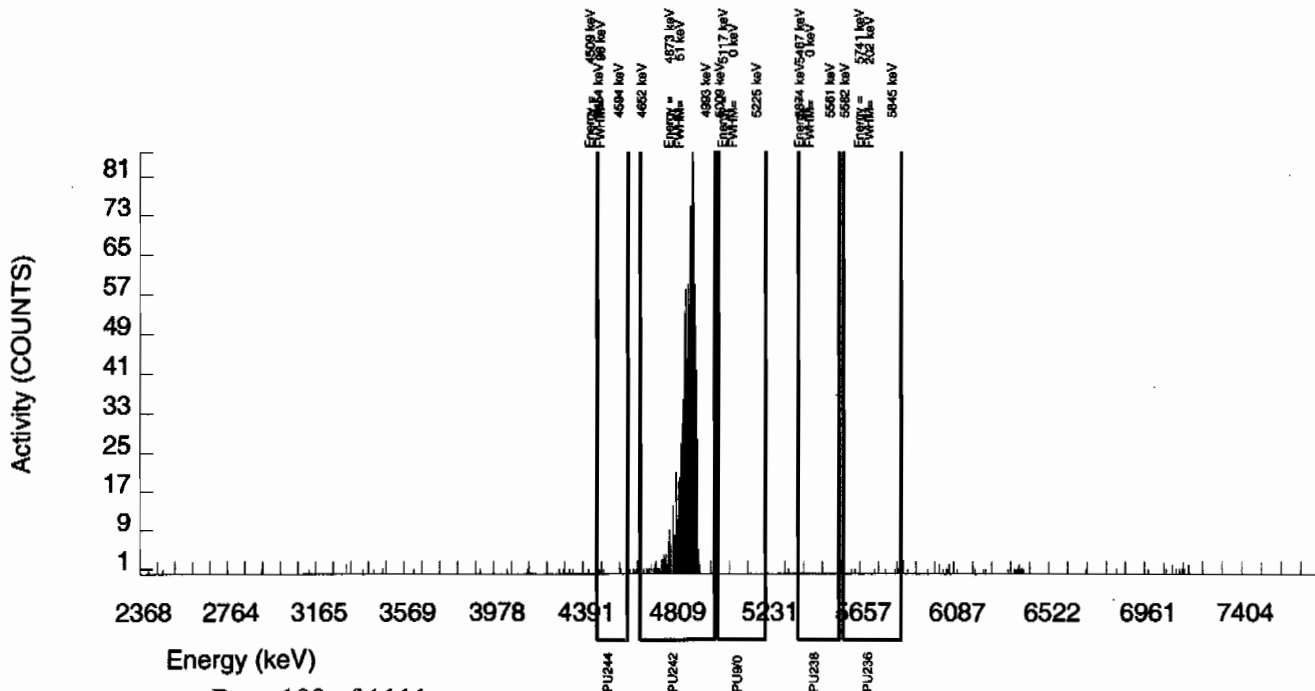
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600010_PU SAMPLE QTY: 1.269 G	
DETECTOR NUMBER :78783 AVERAGE %EFFICIENCY :33.6899 % YIELD : 85.485		COUNT DATE:19-JAN-2010 13:20:55 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.89404 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B045.CNF;1097 BKG DATE : 17-JAN-2010 EFF FILE : W045.CNF;296 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	0.000	0.000	0.000	3.4797	99.90000	0.00E+00	1.24E-03	9.99E-03	2.33E-02	1.23E-03
PU-236	5749.000	7.000	-9.000	16.000	2.1286	100.0000	-1.12E-02	5.96E-03	6.10E-03	1.55E-02	5.96E-03
PU-238	5499.000	0.000	0.000	0.000	2.9680	99.90000	0.00E+00	1.24E-03	8.52E-03	2.04E-02	1.23E-03
PU242	4890.000	979.000	975.000	4.000	2.0000	100.0000	1.20E+00	7.26E-02	5.73E-03	1.48E-02	3.86E-02
PU-244	4589.000	3.000	2.000	1.000	5.2050	99.90000	2.47E-03	2.47E-03	1.49E-02	3.32E-02	2.47E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



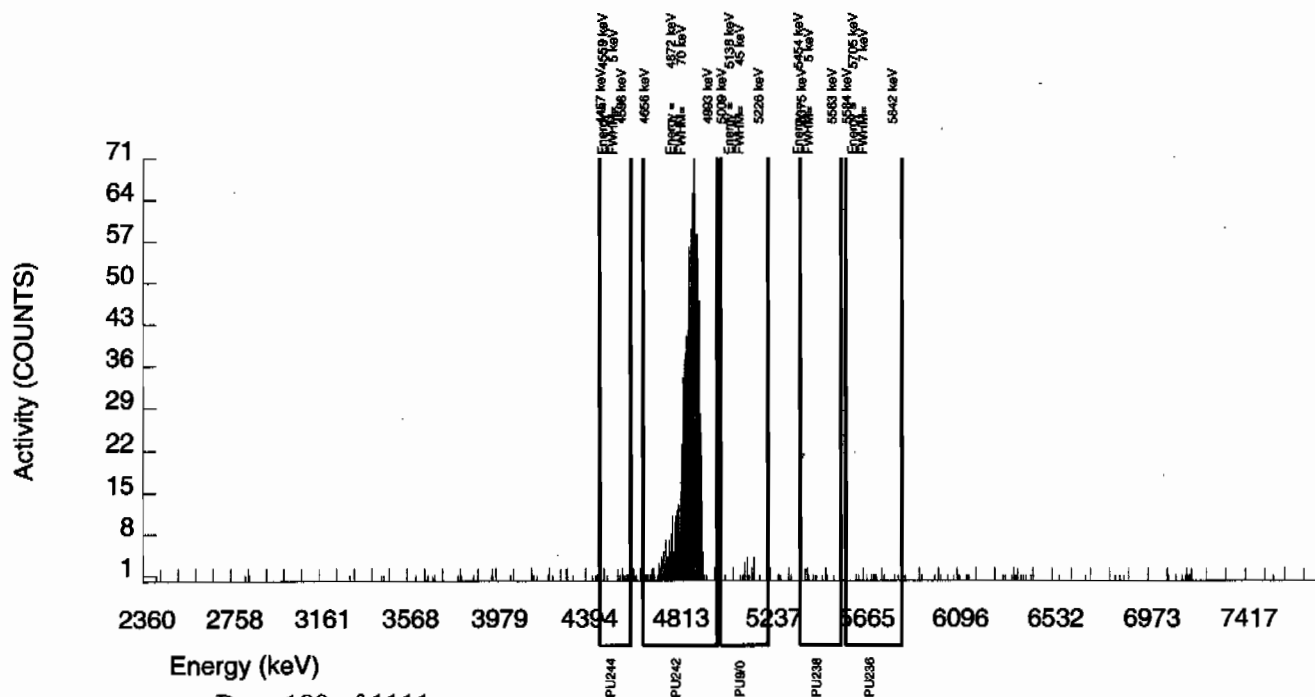
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600011_PU SAMPLE QTY: 1.255 G	
DETECTOR NUMBER :46-089B1 AVERAGE %EFFICIENCY :34.5024 % YIELD : 85.270		COUNT DATE:19-JAN-2010 13:20:55 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.88675 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	20.000	17.000	3.000	3.4797	99.90000	2.08E-02	5.95E-03	9.89E-03	2.31E-02	5.86E-03
PU-236	5749.000	14.000	4.000	10.000	2.1286	100.0000	4.92E-03	6.03E-03	6.04E-03	1.54E-02	6.03E-03
PU-238	5499.000	9.000	4.000	5.000	2.9680	99.90000	4.89E-03	4.58E-03	8.43E-03	2.02E-02	4.57E-03
PU242	4890.000	998.000	996.000	2.000	1.4142	100.0000	1.22E+00	7.29E-02	4.01E-03	1.13E-02	3.86E-02
PU-244	4589.000	8.000	7.000	1.000	5.2050	99.90000	8.55E-03	3.69E-03	1.48E-02	3.29E-02	3.66E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



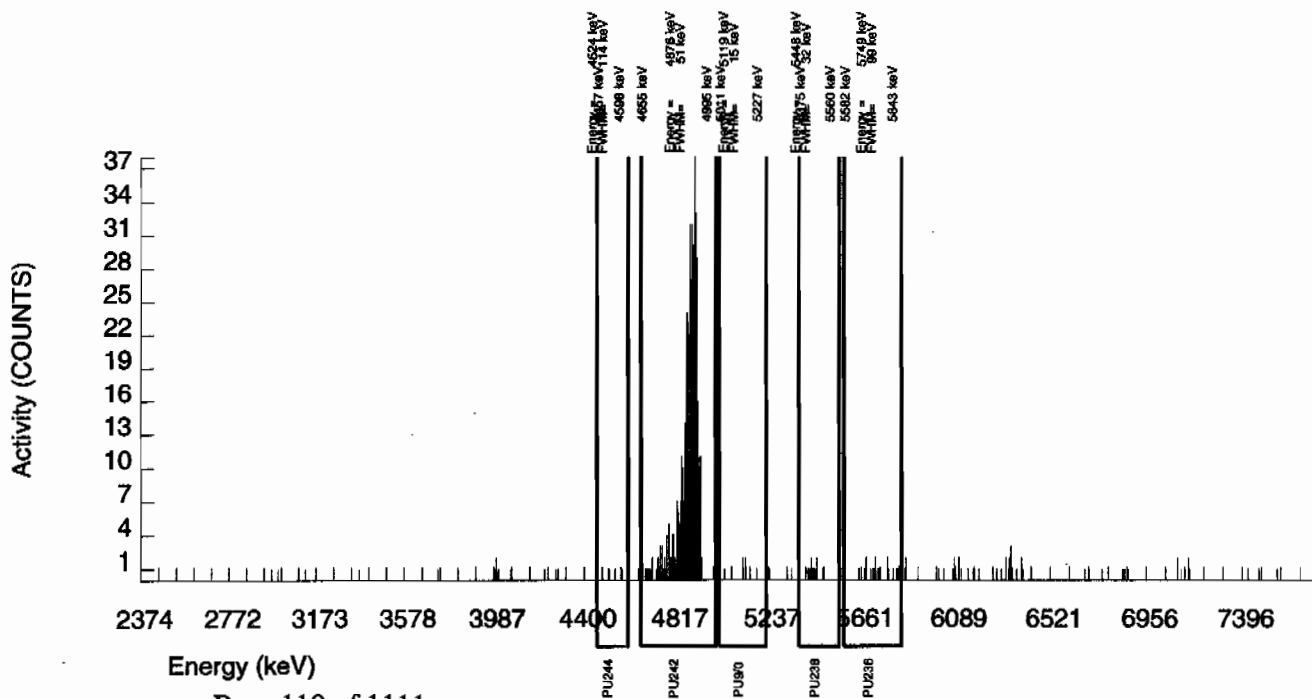
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600012_PU SAMPLE QTY: 1.258 G	
DETECTOR NUMBER :42483 AVERAGE %EFFICIENCY :31.2622 % YIELD : 41.479		COUNT DATE:19-JAN-2010 13:20:55 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 1.40425 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B048.CNF;1104 BKG DATE : 17-JAN-2010 EFF FILE : W048.CNF;314 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	7.000	5.000	2.000	3.4797	99.90000	1.38E-02	8.34E-03	2.24E-02	5.22E-02	8.29E-03
PU-236	5749.000	19.000	3.000	16.000	2.1286	100.0000	8.36E-03	1.65E-02	1.37E-02	3.48E-02	1.65E-02
PU-238	5499.000	11.000	-3.000	14.000	2.9680	99.90000	-8.29E-03	1.38E-02	1.91E-02	4.57E-02	1.38E-02
PU242	4890.000	446.000	439.000	7.000	2.6458	100.0000	1.21E+00	9.61E-02	1.70E-02	4.15E-02	5.88E-02
PU-244	4589.000	5.000	4.000	1.000	5.2050	99.90000	1.11E-02	6.81E-03	3.35E-02	7.44E-02	6.77E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



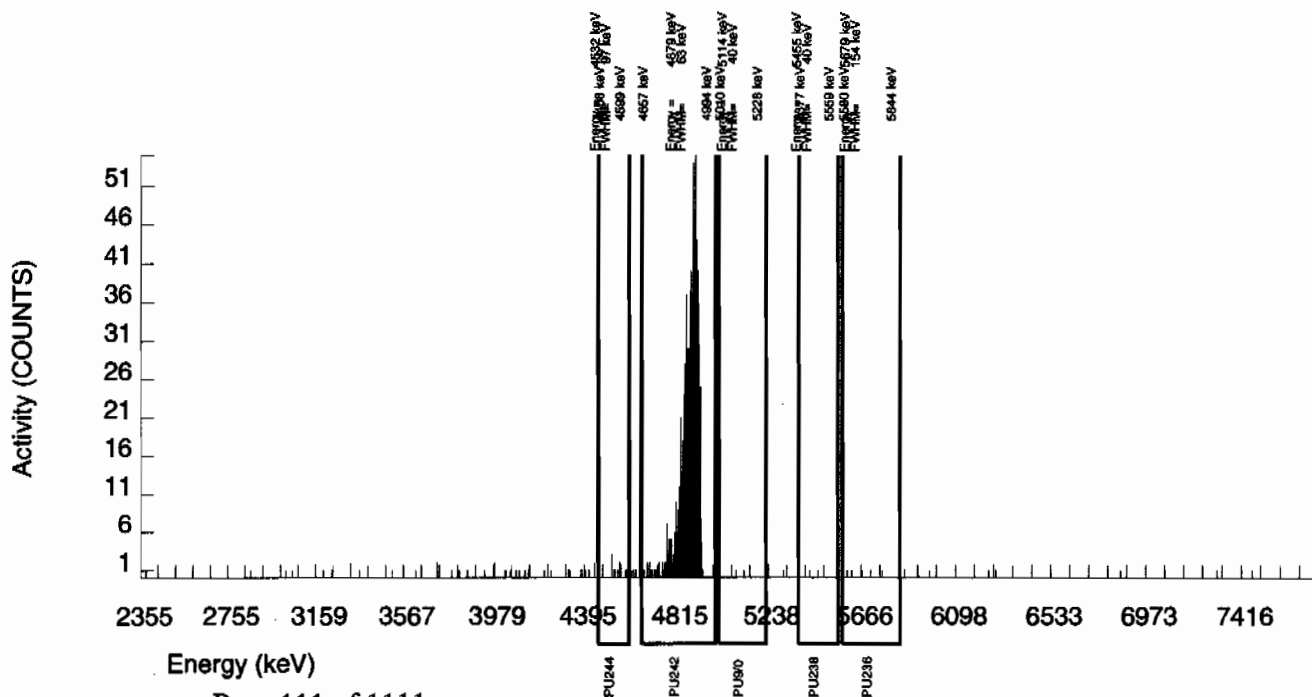
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600013_PU SAMPLE QTY: 1.254 G	
DETECTOR NUMBER :78794 AVERAGE %EFFICIENCY :29.6665 % YIELD : 71.291		COUNT DATE:19-JAN-2010 13:20:56 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.41350 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	2.000	2.000	0.000	3.4797	99.90000	3.40E-03	2.41E-03	1.38E-02	3.21E-02	2.40E-03
PU-236	5749.000	5.000	-2.000	7.000	2.1286	100.0000	-3.43E-03	5.93E-03	8.41E-03	2.14E-02	5.93E-03
PU-238	5499.000	2.000	2.000	0.000	2.9680	99.90000	3.40E-03	2.41E-03	1.17E-02	2.81E-02	2.41E-03
PU242	4890.000	717.000	716.000	1.000	1.0000	100.0000	1.22E+00	8.05E-02	3.95E-03	1.25E-02	4.55E-02
PU-244	4589.000	15.000	15.000	0.000	5.2050	99.90000	2.55E-02	6.73E-03	2.06E-02	4.58E-02	6.58E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



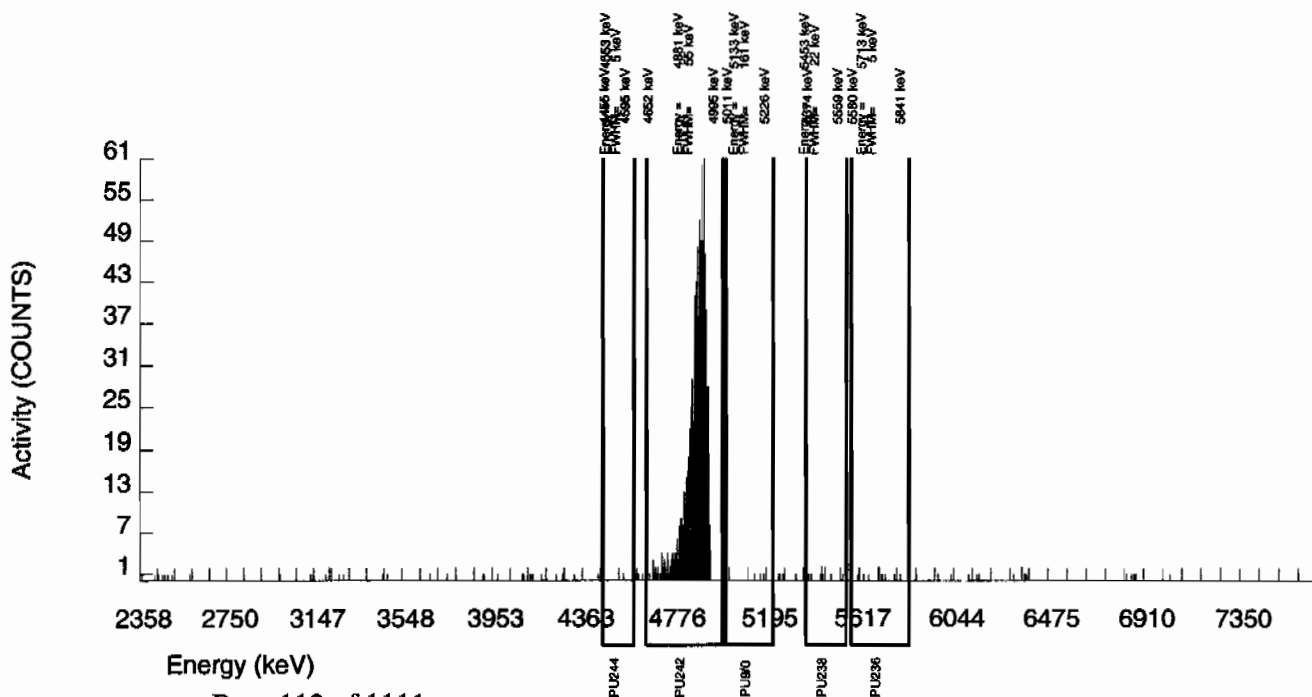
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015582_PU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :68551 AVERAGE %EFFICIENCY :31.0643 % YIELD : 80.064		COUNT DATE:19-JAN-2010 13:20:56 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 2.71051 dpm	LIB FILE : ENV_ALPHA_PU.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
PU-9/0	5155.000	4.000	1.000	3.000	3.4797	99.90000	1.81E-03	4.80E-03	1.47E-02	3.43E-02	4.80E-03
PU-236	5749.000	10.000	-7.000	17.000	2.1286	100.0000	-1.27E-02	9.42E-03	8.97E-03	2.28E-02	9.42E-03
PU-238	5499.000	11.000	-4.000	15.000	2.9680	99.90000	-7.25E-03	9.25E-03	1.25E-02	2.99E-02	9.24E-03
PU242	4890.000	846.000	842.000	4.000	2.0000	100.0000	1.52E+00	9.63E-02	8.43E-03	2.18E-02	5.28E-02
PU-244	4589.000	1.000	1.000	0.000	5.2050	99.90000	1.81E-03	1.82E-03	2.20E-02	4.88E-02	1.81E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





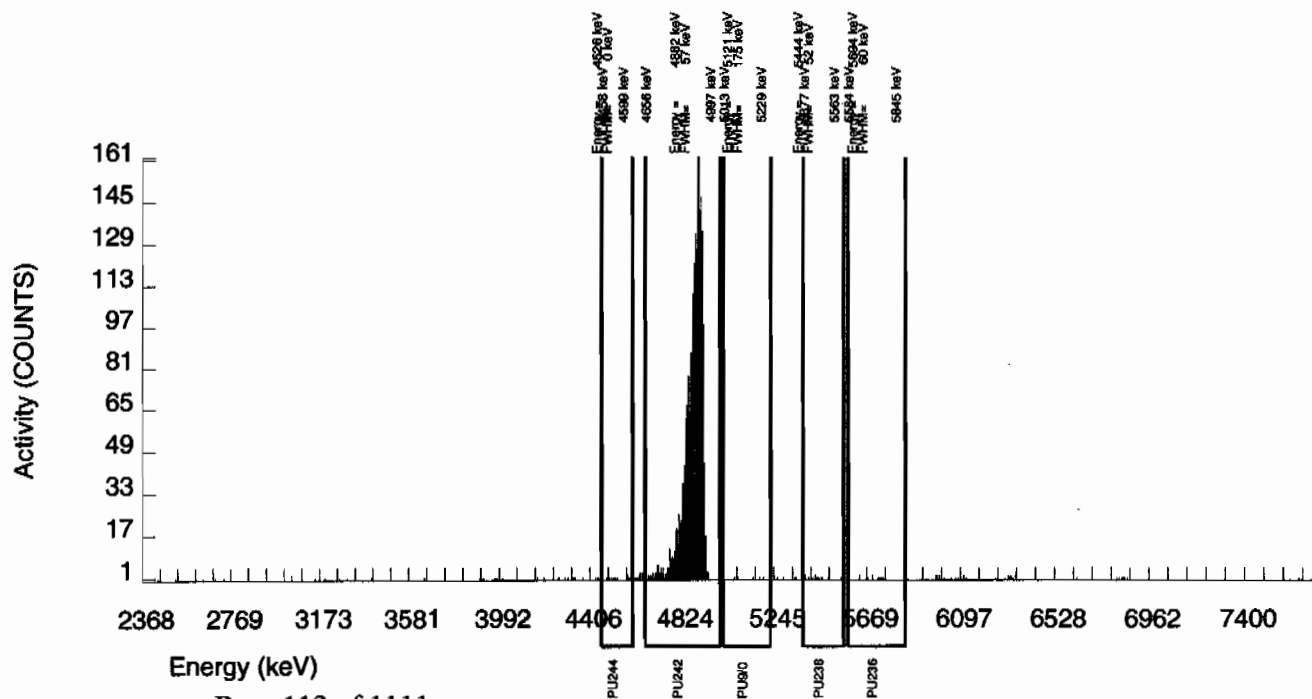
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S1202015583_PU SAMPLE QTY: 1.257 G	
DETECTOR NUMBER :46-089C1 AVERAGE %EFFICIENCY :31.1641 % YIELD : 104.025		COUNT DATE:19-JAN-2010 13:20:56 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 6.77086 dpm RESULTS : 7.04337 dpm	LIB FILE : ENV_ALPHA_PU.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
PU-9/0	5155.000	6.000	0.000	6.000	3.4797	99.90000	5.28E-10	3.83E-03	8.96E-03	2.09E-02	3.83E-03
PU-236	5749.000	12.000	-2.000	14.000	2.1286	100.0000	-2.23E-03	5.69E-03	5.47E-03	1.39E-02	5.68E-03
PU-238	5499.000	15.000	10.000	5.000	2.9680	99.90000	1.11E-02	4.97E-03	7.64E-03	1.83E-02	4.95E-03
PU242	4890.000	2201.000	2195.000	6.000	2.4495	100.0000	2.43E+00	1.21E-01	6.30E-03	1.56E-02	5.19E-02
PU-244	4589.000	17.000	14.000	3.000	5.2050	99.90000	1.55E-02	5.00E-03	1.34E-02	2.98E-02	4.95E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



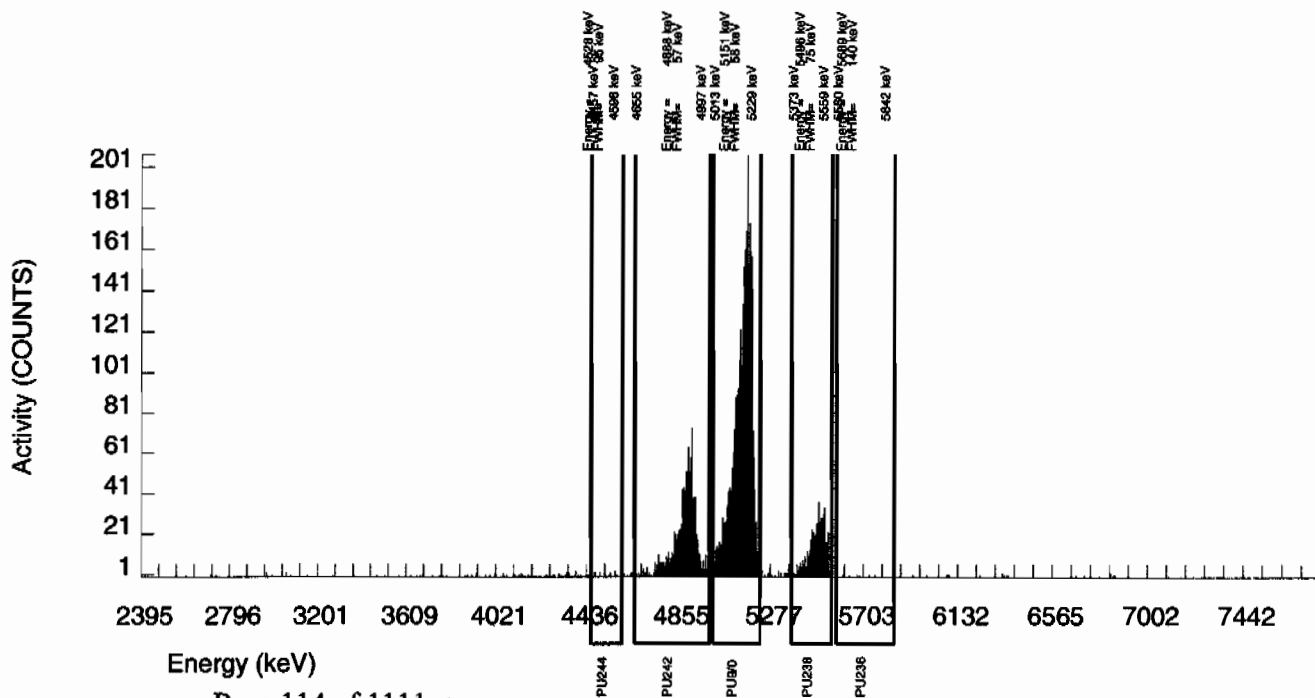
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941694 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015584_PU SAMPLE QTY: 0.110 G	
DETECTOR NUMBER :46-089B4 AVERAGE %EFFICIENCY :32.5269 % YIELD : 92.719		COUNT DATE:19-JAN-2010 13:20:56 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :HAKB	
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 : 3.13894 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	2829.000	2825.000	4.000	3.4797	99.90000	3.84E+01	2.36E+00	1.10E-01	2.57E-01	7.23E-01
PU-236	5749.000	6.000	1.000	5.000	2.1286	100.0000	1.36E-02	4.51E-02	6.72E-02	1.71E-01	4.51E-02
PU-238	5499.000	518.000	513.000	5.000	2.9680	99.90000	6.97E+00	5.13E-01	9.38E-02	2.25E-01	3.11E-01
PU242	4890.000	1025.000	1021.000	4.000	2.0000	100.0000	1.39E+01	9.20E-01	6.32E-02	1.63E-01	4.36E-01
PU-244	4589.000	16.000	12.000	4.000	5.2050	99.90000	1.63E-01	6.15E-02	1.65E-01	3.66E-01	6.08E-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#

941697

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.	✓		
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:

Denise L. Green 1/21/10

Secondary Review Performed By:

2-1/21/10

2/3

LANL

✓P

# Uranium Que Sheet

14-JAN-10

Batch #: 941697 Analyst: HAKB First Client Due Date: 03-FEB-10 Internal Due Date: 24-JAN-10  
Tracer Isotope: U-232/J-236 Tracer Code: 1283-H Expiration Date: 12/9/10 Vol: 8.1  
LCS Isotope: U-238 LCS Code: 592A-0744-A Expiration Date: 10/31/20 Vol: 0.1083  
Spike Isotope: U-238 Spike Code: NA Expiration Date: NA Vol: NA  
Prep Date: 1/18/10 Initials: SHYB Pipet ID: 2971058 Balance ID: 50410272

Witness: KM 1-18/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g) (l/f)	U Det #
244597001-1	RE12-10-7722	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	1	1	0.512	151
244600001-1	RE12-10-7243	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	2	2	0.511	152
244600002-1	RE12-10-7248	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	3	3	0.504	153
244600003-1	RE12-10-7241	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	4	4	0.510	154
244600004-1	RE12-10-7237	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	5	5	0.505	155
244600005-1	RE12-10-7239	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	6	6	0.513	156
244600006-1	RE12-10-7238	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	7	7	0.502	157
244600007-1	RE12-10-7242	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	8	8	0.509	158
244600008-1	RE12-10-7236	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	9	9	0.507	159
244600009-1	RE12-10-7252	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	10	10	0.505	160
244600010-1	RE12-10-7253	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	11	11	0.503	1
244600011-1	RE12-10-7254	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	12	12	0.513	2
244600012-1	RE12-10-7255	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	13	13	0.506	3
244600013-1	RE12-10-7276	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	14	14	0.506	4
244612001-1	RE16-10-3783	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	15	15	0.502	5
244613001-1	RE16-10-1286	SAMPLE		.1 pCi/g	SOIL	LANL010	07-JAN-10	16	16	0.505	6
1202015590-1	MB for batch 941697	MB		.1 pCi/g	SOIL	QC ACCOUNT		17	17	1	7
1202015591-1	RE12-10-7276(244600013DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	07-JAN-10	18	18	0.503	8
1202015592-1	LCS for batch 941697	LCS		.1 pCi/g	SOIL	QC ACCOUNT		19	19	0.108	9

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION  
Circle One

Data Reviewed By: DS 1/21/10

# Blank Correction Report

**Batch ID 941697**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202015591	DUP	Uranium-233/234	0.503 g	0.850	0.0772	0.091	.014850895	pCi/g	NO
		Uranium-235/236	0.503 g	0.0762	0.0182	0.0565	.011709742	pCi/g	NO
		Uranium-238	0.503 g	0.966	0.0857	0.0528	.009463221	pCi/g	NO
1202015592	LCS	Uranium-233/234	0.108 g	5.61	0.499	0.399	.089166667	pCi/g	NO
		Uranium-235/236	0.108 g	0.350	0.0823	0.248	.054537037	pCi/g	NO
		Uranium-238	0.108 g	5.36	0.480	0.231	.044074074	pCi/g	NO
1202015590	MB	Uranium-233/234	1.00 g	0.00747	0.00522	0.0492	.00747	pCi/g	YES
		Uranium-235/236	1.00 g	0.00589	0.00521	0.0305	.00589	pCi/g	YES
		Uranium-238	1.00 g	0.00476	0.00477	0.0285	.00476	pCi/g	YES
244597001	RE12-10-7722	Uranium-233/234	0.512 g	0.679	0.0721	0.127	.014589844	pCi/g	NO
		Uranium-235/236	0.512 g	0.0202	0.0102	0.0787	.011503906	pCi/g	YES
		Uranium-238	0.512 g	0.868	0.086	0.0736	.009296875	pCi/g	NO
244600001	RE12-10-7243	Uranium-233/234	0.511 g	0.748	0.0756	0.120	.014618395	pCi/g	NO
		Uranium-235/236	0.511 g	0.0479	0.0155	0.0746	.011526419	pCi/g	YES
		Uranium-238	0.511 g	0.888	0.0863	0.0697	.009315068	pCi/g	NO
244600002	RE12-10-7240	Uranium-233/234	0.504 g	0.883	0.0841	0.111	.014821429	pCi/g	NO
		Uranium-235/236	0.504 g	0.0622	0.0172	0.0691	.011686508	pCi/g	NO
		Uranium-238	0.504 g	0.923	0.0869	0.0646	.009444444	pCi/g	NO
244600003	RE12-10-7241	Uranium-233/234	0.510 g	0.983	0.094	0.124	.014647059	pCi/g	NO
		Uranium-235/236	0.510 g	0.0642	0.0184	0.0769	.011549020	pCi/g	NO
		Uranium-238	0.510 g	1.06	0.0998	0.0718	.009333333	pCi/g	NO
244600004	RE12-10-7237	Uranium-233/234	0.505 g	0.705	0.0735	0.126	.014792079	pCi/g	NO
		Uranium-235/236	0.505 g	0.0302	0.0125	0.0784	.011663366	pCi/g	YES
		Uranium-238	0.505 g	0.709	0.0738	0.0733	.009425743	pCi/g	NO
244600005	RE12-10-7239	Uranium-233/234	0.513 g	0.917	0.0888	0.122	.014561404	pCi/g	NO
		Uranium-235/236	0.513 g	0.0438	0.0149	0.0758	.011481481	pCi/g	YES
		Uranium-238	0.513 g	0.906	0.0881	0.0708	.009276752	pCi/g	NO
244600006	RE12-10-7238	Uranium-233/234	0.502 g	1.00	0.0918	0.108	.014880478	pCi/g	NO
		Uranium-235/236	0.502 g	0.0647	0.0173	0.0671	.011733068	pCi/g	NO
		Uranium-238	0.502 g	1.43	0.123	0.0627	.009482072	pCi/g	NO
244600007	RE12-10-7242	Uranium-233/234	0.509 g	1.11	0.106	0.134	.014675835	pCi/g	NO
		Uranium-235/236	0.509 g	0.0694	0.0213	0.0831	.011571709	pCi/g	NO
		Uranium-238	0.509 g	1.81	0.157	0.0777	.009351670	pCi/g	NO
244600008	RE12-10-7236	Uranium-233/234	0.507 g	1.29	0.117	0.126	.014733728	pCi/g	NO
		Uranium-235/236	0.507 g	0.0753	0.0214	0.0781	.011617357	pCi/g	NO
		Uranium-238	0.507 g	1.79	0.154	0.073	.009388560	pCi/g	NO
244600009	RE12-10-7252	Uranium-233/234	0.505 g	1.54	0.136	0.128	.014792079	pCi/g	NO
		Uranium-235/236	0.505 g	0.112	0.0252	0.0794	.011663366	pCi/g	NO
		Uranium-238	0.505 g	2.31	0.192	0.0742	.009425743	pCi/g	NO
244600010	RE12-10-7253	Uranium-233/234	0.503 g	0.783	0.0718	0.0881	.014850895	pCi/g	NO
		Uranium-235/236	0.503 g	0.0808	0.0191	0.0547	.011709742	pCi/g	NO

## Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
244600010	RE12-10-7253	Uranium-238	0.503 g	0.867	0.0778	0.0511	.009463221	pCi/g	NO
244600011	RE12-10-7254	Uranium-233/234	0.513 g	1.38	0.118	0.102	.014561404	pCi/g	NO
		Uranium-235/236	0.513 g	0.118	0.0234	0.0633	.011481481	pCi/g	NO
		Uranium-238	0.513 g	2.41	0.191	0.0592	.009278752	pCi/g	NO
244600012	RE12-10-7255	Uranium-233/234	0.506 g	0.846	0.0774	0.0931	.014762846	pCi/g	NO
		Uranium-235/236	0.506 g	0.0483	0.0138	0.0578	.011640318	pCi/g	YES
		Uranium-238	0.506 g	0.926	0.0831	0.054	.009407115	pCi/g	NO
244600013	RE12-10-7276	Uranium-233/234	0.506 g	0.909	0.0824	0.0937	.014762846	pCi/g	NO
		Uranium-235/236	0.506 g	0.0635	0.0169	0.0582	.011640318	pCi/g	NO
		Uranium-238	0.506 g	0.844	0.0779	0.0544	.009407115	pCi/g	NO
244612001	RE16-10-2783	Uranium-233/234	0.502 g	0.491	0.051	0.0897	.014880478	pCi/g	NO
		Uranium-235/236	0.502 g	0.0215	0.00889	0.0557	.011733068	pCi/g	YES
		Uranium-238	0.502 g	0.457	0.0482	0.052	.009482072	pCi/g	NO
244613001	RE16-10-1286	Uranium-233/234	0.505 g	0.951	0.0864	0.099	.014792079	pCi/g	NO
		Uranium-235/236	0.505 g	0.079	0.0185	0.0815	.011663366	pCi/g	NO
		Uranium-238	0.505 g	0.930	0.0847	0.0574	.009425743	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600001_UU SAMPLE QTY: 0.511 G	
DETECTOR NUMBER :76222 AVERAGE %EFFICIENCY :24.3115 % YIELD : 93.545		COUNT DATE:20-JAN-2010 20:16:22 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.21775 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B152.CNF;386 BKG DATE : 17-JAN-2010 EFF FILE : W152.CNF;105 CAL DATE : 18-JAN-2010

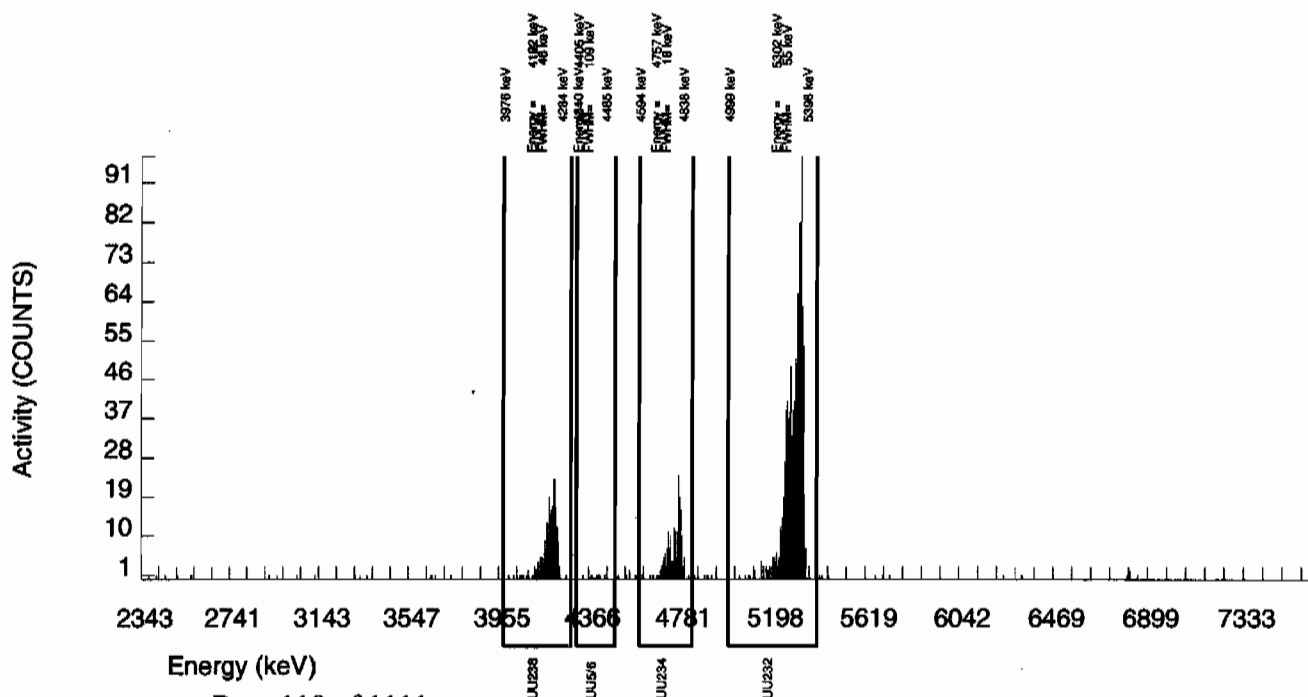
NUCLIDE ACTIVITY SUMMARY

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	194.000	192.963	0.000	6.0782	100.0000	7.48E-01	7.56E-02	5.48E-02	1.20E-01	5.38E-02
U232	5302.100	1026.000	1025.000	1.000	1.0000	100.0000	3.97E+00	3.08E-01	9.02E-03	2.85E-02	1.24E-01
U-235	4391.000	10.000	10.000	0.000	2.7628	80.90000	4.79E-02	1.55E-02	3.08E-02	7.46E-02	1.52E-02
U-238	4184.730	230.000	229.000	1.000	3.2810	100.0000	8.88E-01	8.63E-02	2.96E-02	6.97E-02	5.89E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600002_UU SAMPLE QTY: 0.504 G	
DETECTOR NUMBER :76223 AVERAGE %EFFICIENCY :25.3391 % YIELD : 98.158		COUNT DATE:20-JAN-2010 20:16:26 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.42571 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B153.CNF;381 BKG DATE : 17-JAN-2010 EFF FILE : W153.CNF;108 CAL DATE : 18-JAN-2010

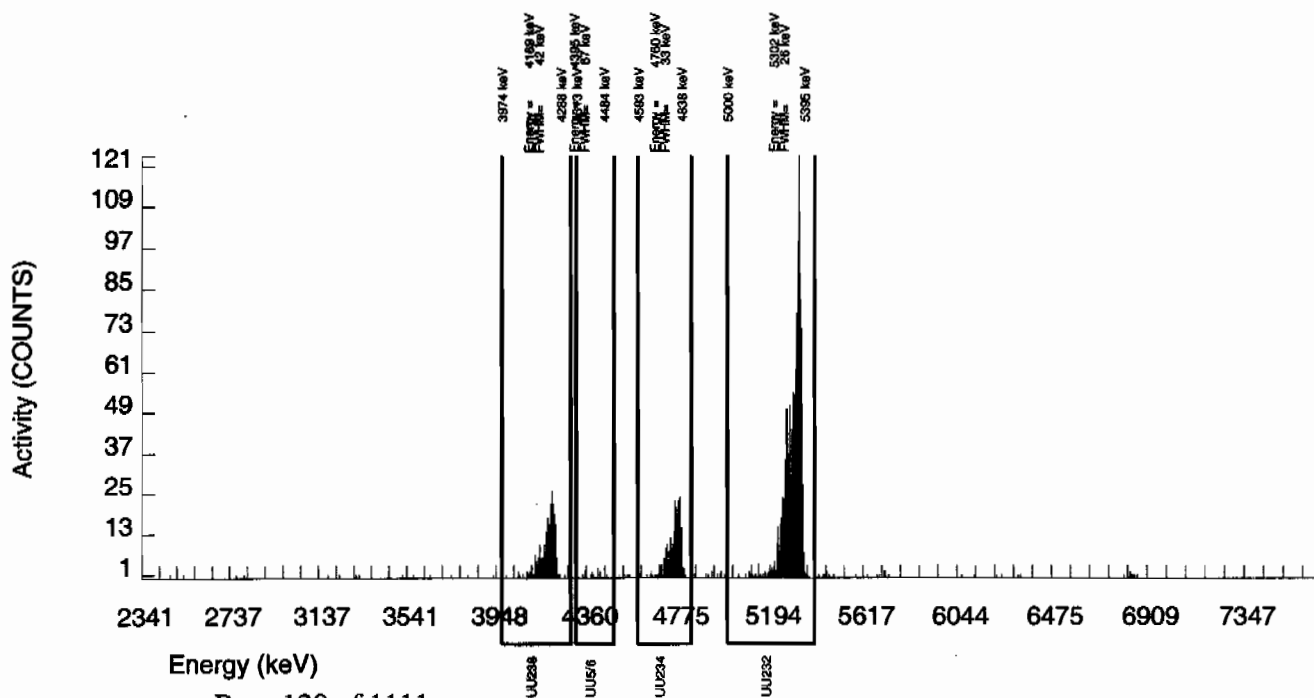
NUCLIDE ACTIVITY SUMMARY

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	248.000	245.866	1.000	6.0782	100.0000	8.83E-01	8.41E-02	5.08E-02	1.11E-01	5.66E-02
U232	5302.100	1123.000	1121.000	2.000	1.4142	100.0000	4.03E+00	3.08E-01	1.18E-02	3.34E-02	1.21E-01
U-235	4391.000	14.000	14.000	0.000	2.7628	80.90000	6.22E-02	1.72E-02	2.85E-02	6.91E-02	1.66E-02
U-238	4184.730	257.000	257.000	0.000	3.2810	100.0000	9.23E-01	8.69E-02	2.74E-02	6.46E-02	5.76E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600003_UU SAMPLE QTY: 0.510 G	
DETECTOR NUMBER :76224 AVERAGE %EFFICIENCY :25.6513 % YIELD : 86.151		COUNT DATE:20-JAN-2010 20:16:28 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 3.88436 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B154.CNF;383 BKG DATE : 17-JAN-2010 EFF FILE : W154.CNF;106 CAL DATE : 18-JAN-2010

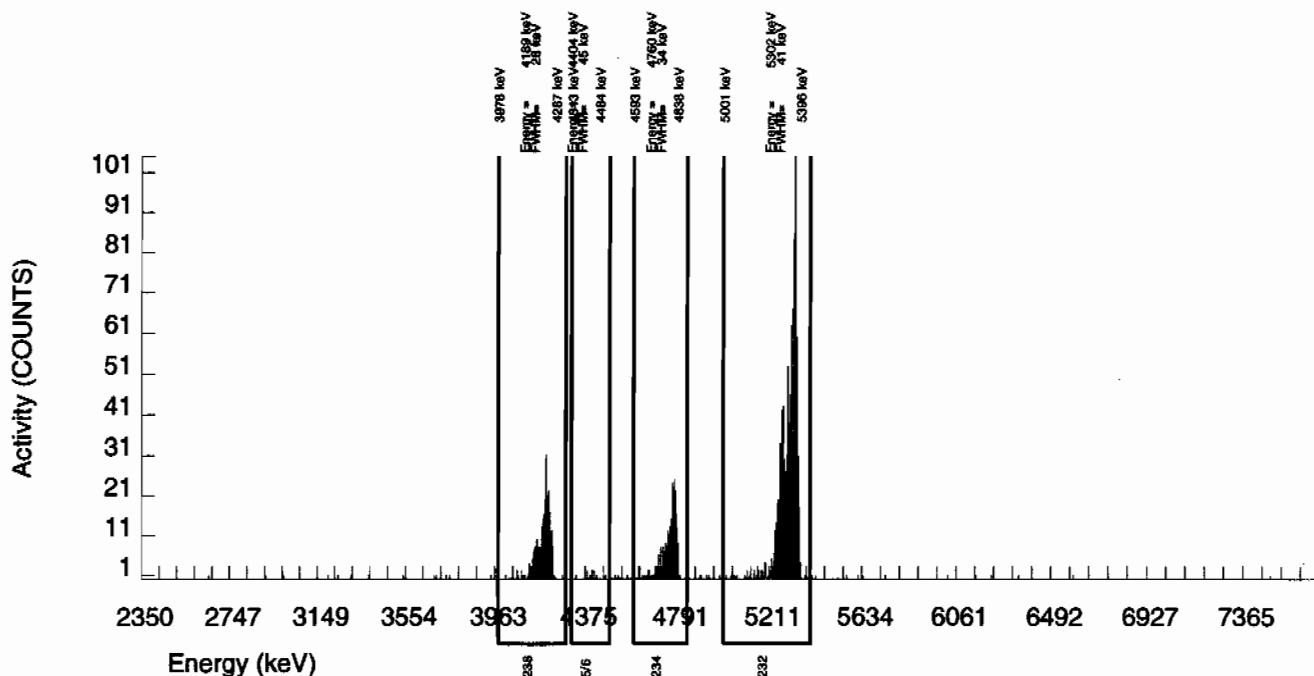
NUCLIDE ACTIVITY SUMMARY

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	247.000	245.993	0.000	6.0782	100.0000	9.83E-01	9.40E-02	5.65E-02	1.24E-01	6.27E-02
U232	5302.100	998.000	996.000	2.000	1.4142	100.0000	3.98E+00	3.11E-01	1.31E-02	3.71E-02	1.26E-01
U-235	4391.000	13.000	13.000	0.000	2.7628	80.90000	6.42E-02	1.84E-02	3.18E-02	7.69E-02	1.78E-02
U-238	4184.730	266.000	265.000	1.000	3.2810	100.0000	1.06E+00	9.98E-02	3.05E-02	7.18E-02	6.53E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600004_UU SAMPLE QTY: 0.505 G	
DETECTOR NUMBER :75553 AVERAGE %EFFICIENCY :25.9756 % YIELD : 84.221		COUNT DATE:20-JAN-2010 20:16:30 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 3.79736 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B155.CNF;390 BKG DATE : 17-JAN-2010 EFF FILE : W155.CNF;115 CAL DATE : 18-JAN-2010

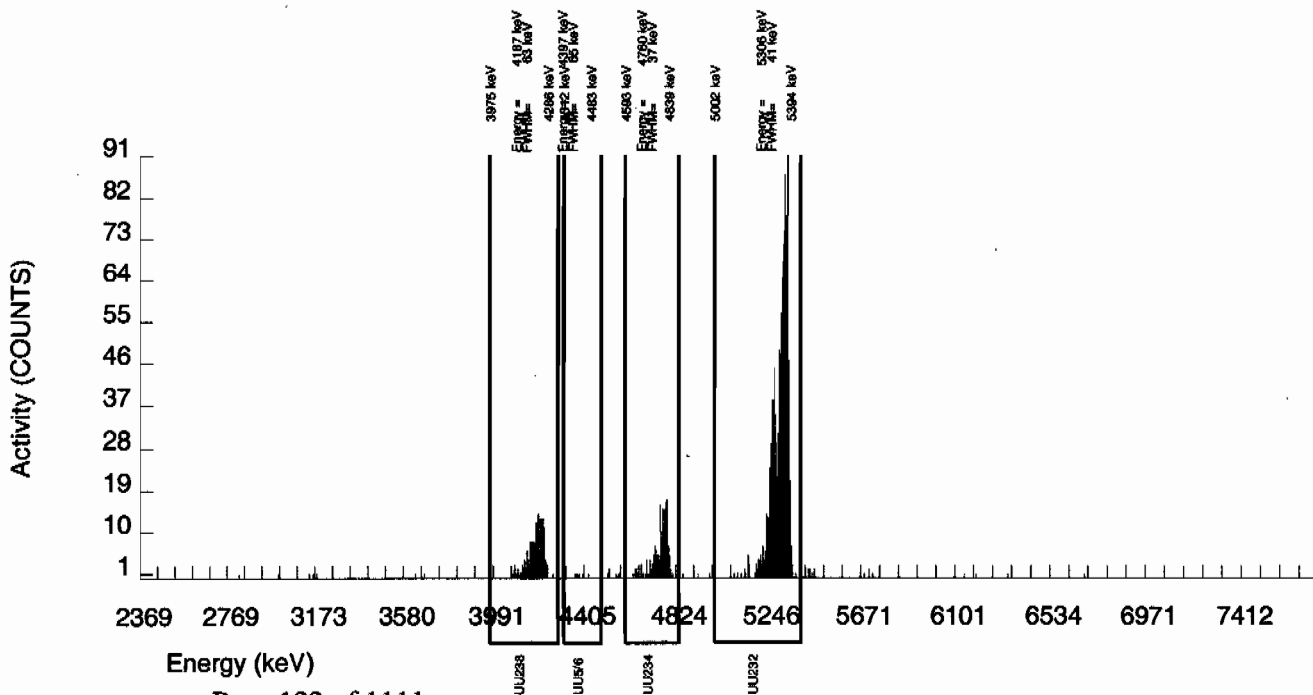
NUCLIDE ACTIVITY SUMMARY

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	174.000	173.003	0.000	6.0782	100.0000	7.05E-01	7.35E-02	5.77E-02	1.26E-01	5.36E-02
U232	5302.100	986.000	986.000	0.000	0.0000	100.0000	4.02E+00	3.14E-01	0.00E+00	1.10E-02	1.28E-01
U-235	4391.000	6.000	6.000	0.000	2.7628	80.90000	3.02E-02	1.25E-02	3.24E-02	7.84E-02	1.23E-02
U-238	4184.730	174.000	174.000	0.000	3.2810	100.0000	7.09E-01	7.38E-02	3.11E-02	7.33E-02	5.38E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600005_UU SAMPLE QTY: 0.513 G	
DETECTOR NUMBER :75554 AVERAGE %EFFICIENCY :24.5738 % YIELD : 90.741		COUNT DATE:20-JAN-2010 20:16:33 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.09133 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B156.CNF;391 BKG DATE : 17-JAN-2010 EFF FILE : W156.CNF;119 CAL DATE : 18-JAN-2010

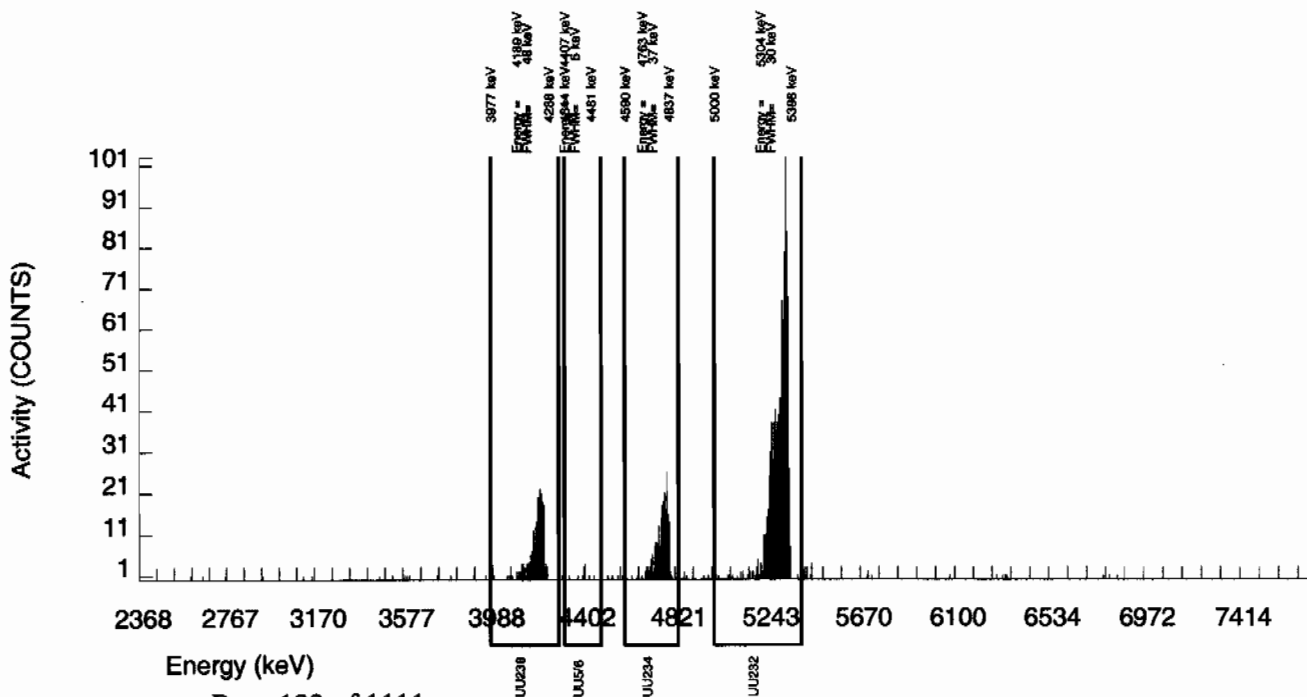
NUCLIDE ACTIVITY SUMMARY

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	234.000	232.984	0.000	6.0782	100.0000	9.17E-01	8.88E-02	5.57E-02	1.22E-01	6.01E-02
U232	5302.100	1009.000	1005.000	4.000	2.0000	100.0000	3.96E+00	3.09E-01	1.83E-02	4.73E-02	1.25E-01
U-235	4391.000	9.000	9.000	0.000	2.7628	80.90000	4.38E-02	1.49E-02	3.13E-02	7.58E-02	1.46E-02
U-238	4184.730	231.000	230.000	1.000	3.2810	100.0000	9.06E-01	8.81E-02	3.01E-02	7.08E-02	6.00E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600006_UU SAMPLE QTY: 0.502 G	
DETECTOR NUMBER :75555 AVERAGE %EFFICIENCY :24.6661 % YIELD : 104.254		COUNT DATE:20-JAN-2010 20:16:35 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.70058 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B157.CNF;391 BKG DATE : 17-JAN-2010 EFF FILE : W157.CNF;109 CAL DATE : 18-JAN-2010

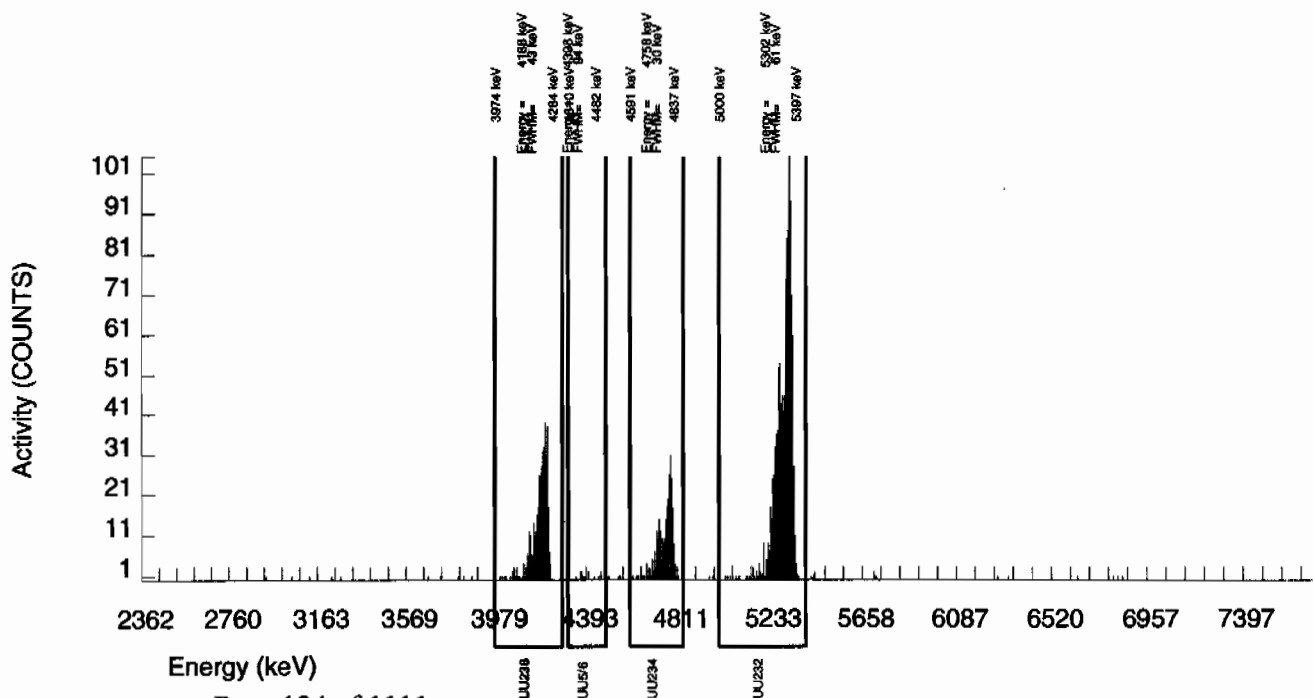
NUCLIDE ACTIVITY SUMMARY

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	288.000	286.828	0.000	6.0782	100.0000	1.00E+00	9.18E-02	4.93E-02	1.08E-01	5.91E-02
U232	5302.100	1160.000	1159.000	1.000	1.0000	100.0000	4.05E+00	3.08E-01	8.12E-03	2.57E-02	1.19E-01
U-235	4391.000	15.000	15.000	0.000	2.7628	80.90000	6.47E-02	1.73E-02	2.77E-02	6.71E-02	1.67E-02
U-238	4184.730	412.000	411.000	1.000	3.2810	100.0000	1.43E+00	1.23E-01	2.66E-02	6.27E-02	7.09E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600007_UU SAMPLE QTY: 0.509 G	
DETECTOR NUMBER :33451 AVERAGE %EFFICIENCY :24.3861 % YIELD : 83.979		COUNT DATE:20-JAN-2010 20:16:38 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 3.78642 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B158.CNF;392 BKG DATE : 17-JAN-2010 EFF FILE : W158.CNF;112 CAL DATE : 18-JAN-2010

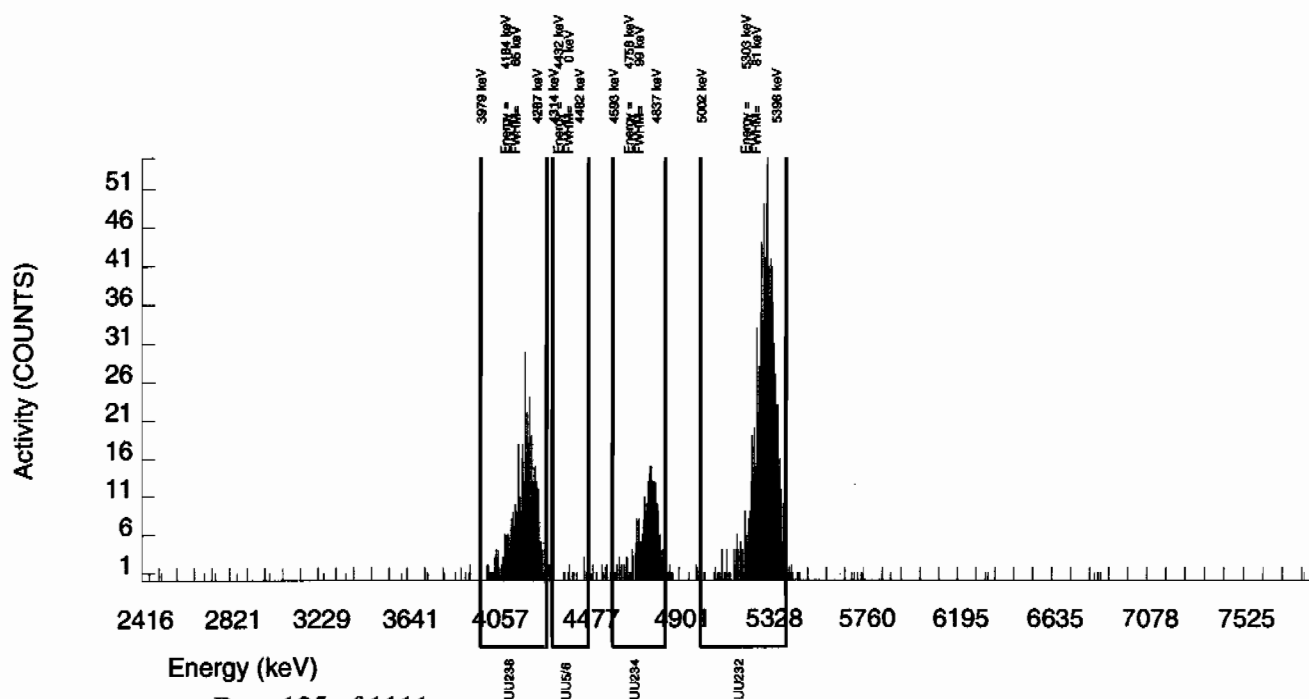
NUCLIDE ACTIVITY SUMMARY

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	258.000	256.067	1.000	6.0782	100.0000	1.11E+00	1.06E-01	6.11E-02	1.34E-01	6.94E-02
U232	5302.100	926.000	923.000	3.000	1.7321	100.0000	3.99E+00	3.15E-01	1.74E-02	4.65E-02	1.32E-01
U-235	4391.000	14.000	13.000	1.000	2.7628	80.90000	6.94E-02	2.13E-02	3.43E-02	8.31E-02	2.07E-02
U-238	4184.730	422.000	418.000	4.000	3.2810	100.0000	1.81E+00	1.57E-01	3.30E-02	7.77E-02	8.92E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600008_UU SAMPLE QTY: 0.507 G	
DETECTOR NUMBER :76225 AVERAGE %EFFICIENCY :25.0212 % YIELD : 87.434		COUNT DATE:20-JAN-2010 20:16:40 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 3.94220 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B159.CNF;365 BKG DATE : 17-JAN-2010 EFF FILE : W159.CNF;104 CAL DATE : 18-JAN-2010

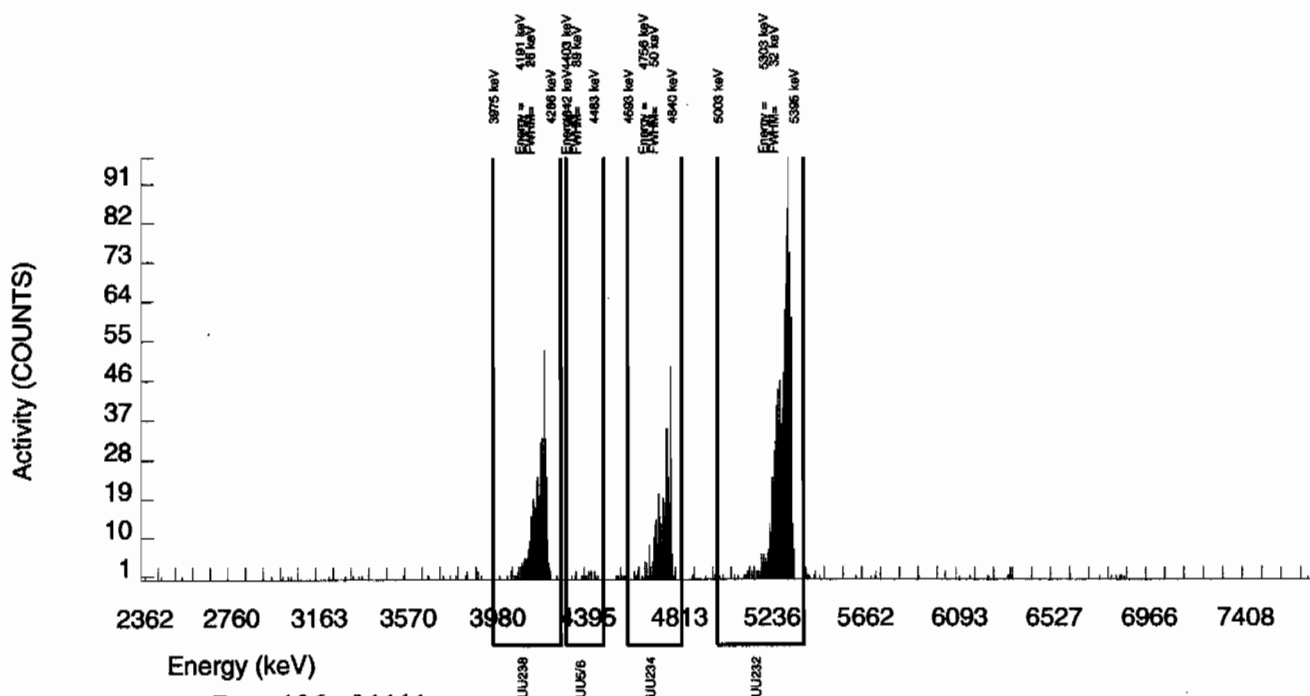
NUCLIDE ACTIVITY SUMMARY

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	320.000	317.003	2.000	6.0782	100.0000	1.29E+00	1.17E-01	5.74E-02	1.26E-01	7.28E-02
U232	5302.100	990.000	986.000	4.000	2.0000	100.0000	4.01E+00	3.13E-01	1.89E-02	4.88E-02	1.28E-01
U-235	4391.000	16.000	15.000	1.000	2.7628	80.90000	7.53E-02	2.14E-02	3.23E-02	7.81E-02	2.07E-02
U-238	4184.730	442.000	441.000	1.000	3.2810	100.0000	1.79E+00	1.54E-01	3.10E-02	7.30E-02	8.55E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600009_UU SAMPLE QTY: 0.505 G	
DETECTOR NUMBER :79994 AVERAGE %EFFICIENCY :24.5767 % YIELD : 87.932		COUNT DATE:20-JAN-2010 20:16:43 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 3.96465 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B160.CNF;367 BKG DATE : 17-JAN-2010 EFF FILE : W160.CNF;116 CAL DATE : 18-JAN-2010

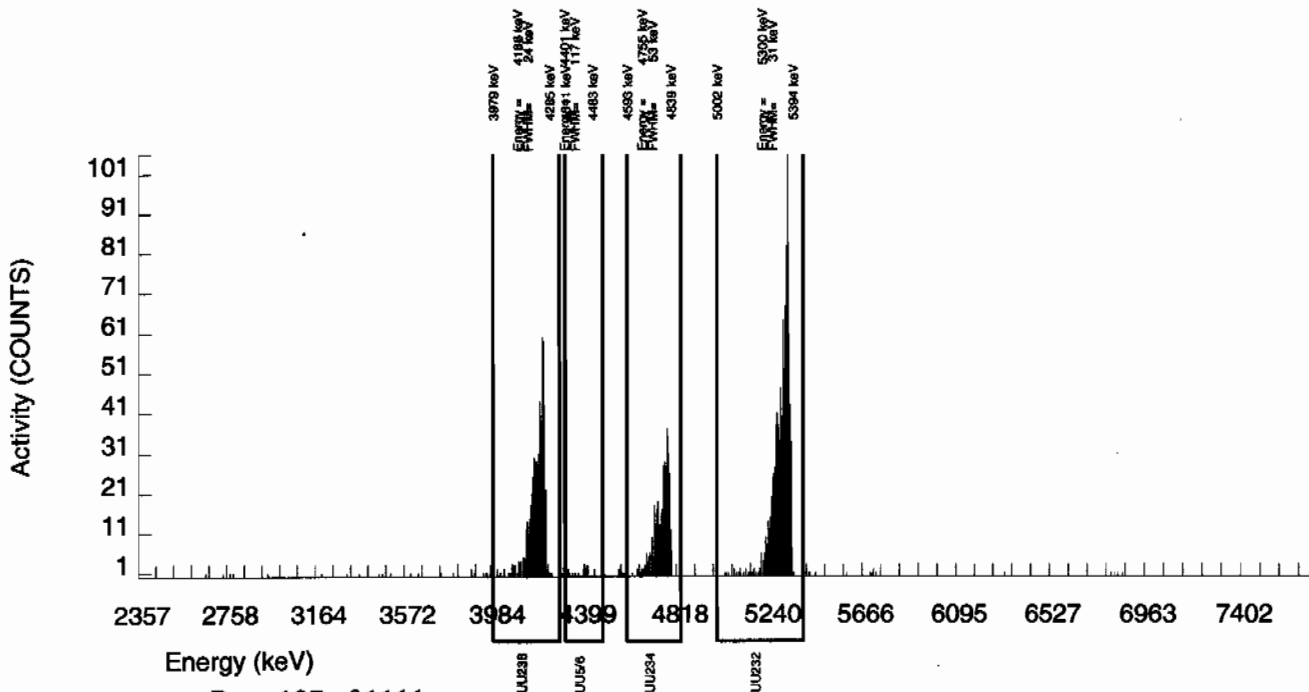
NUCLIDE ACTIVITY SUMMARY

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	376.000	374.015	1.000	6.0782	100.0000	1.54E+00	1.36E-01	5.84E-02	1.28E-01	8.00E-02
U232	5302.100	975.000	974.000	1.000	1.0000	100.0000	4.02E+00	3.15E-01	9.60E-03	3.04E-02	1.29E-01
U-235	4391.000	22.000	22.000	0.000	2.7628	80.90000	1.12E-01	2.52E-02	3.28E-02	7.94E-02	2.39E-02
U-238	4184.730	560.000	560.000	0.000	3.2810	100.0000	2.31E+00	1.92E-01	3.15E-02	7.42E-02	9.77E-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: 941697  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600010\_UU  
SAMPLE QTY: 0.503 G

DETECTOR NUMBER :79451  
AVERAGE %EFFICIENCY :32.5060  
% YIELD : 96.925

COUNT DATE:20-JAN-2010 20:17:03  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :HAKB

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 : 4.50878 dpm  
RESULTS : 4.37013 dpm

LIB 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

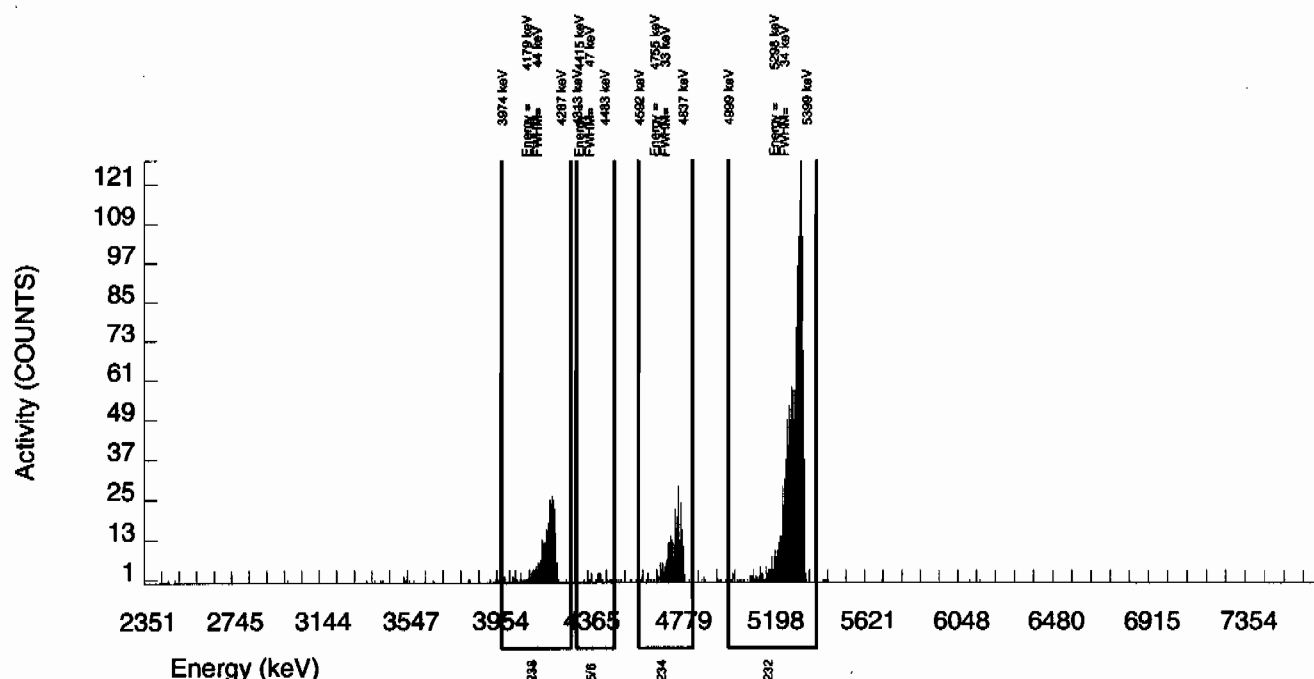
NUCLIDE ACTIVITY SUMMARY

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	277.000	275.564	0.000	6.0782	100.0000	7.83E-01	7.18E-02	4.02E-02	8.81E-02	4.72E-02
U232	5302.100	1424.000	1420.000	4.000	2.0000	100.0000	4.04E+00	2.99E-01	1.32E-02	3.42E-02	1.07E-01
U-235	4391.000	25.000	23.000	2.000	2.7628	80.90000	8.08E-02	1.91E-02	2.26E-02	5.47E-02	1.83E-02
U-238	4184.730	305.000	305.000	0.000	3.2810	100.0000	8.67E-01	7.78E-02	2.17E-02	5.11E-02	4.96E-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: 941697  
SAMPLE DATE : 7-JAN-2010 00:00:00.

SAMPLE ID : S0244600011\_UU  
SAMPLE QTY: 0.513 G

DETECTOR NUMBER :79452  
AVERAGE %EFFICIENCY :29.6879  
% YIELD : 89.833

COUNT DATE:20-JAN-2010 20:17:03  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :HAKB

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 : 4.50878 dpm  
RESULTS : 4.05037 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

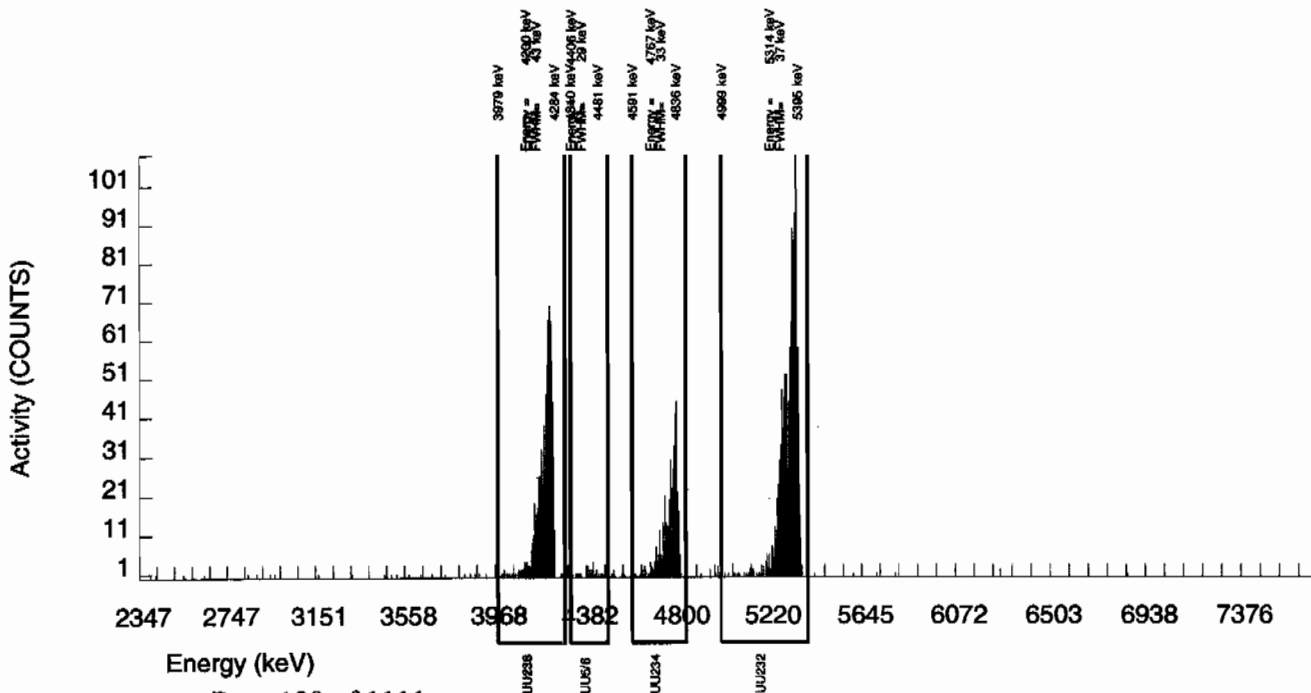
NUCLIDE ACTIVITY SUMMARY

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	422.000	419.784	1.000	6.0782	100.0000	1.38E+00	1.18E-01	4.66E-02	1.02E-01	6.76E-02
U232	5302.100	1205.000	1202.000	3.000	1.7321	100.0000	3.96E+00	3.00E-01	1.33E-02	3.55E-02	1.14E-01
U-235	4391.000	29.000	29.000	0.000	2.7628	80.90000	1.18E-01	2.34E-02	2.62E-02	6.33E-02	2.19E-02
U-238	4184.730	733.000	733.000	0.000	3.2810	100.0000	2.41E+00	1.91E-01	2.51E-02	5.92E-02	8.91E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600012_UU SAMPLE QTY: 0.506 G	
DETECTOR NUMBER :79453 AVERAGE %EFFICIENCY :31.1793 % YIELD : 95.001		COUNT DATE:20-JAN-2010 20:17:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.28336 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

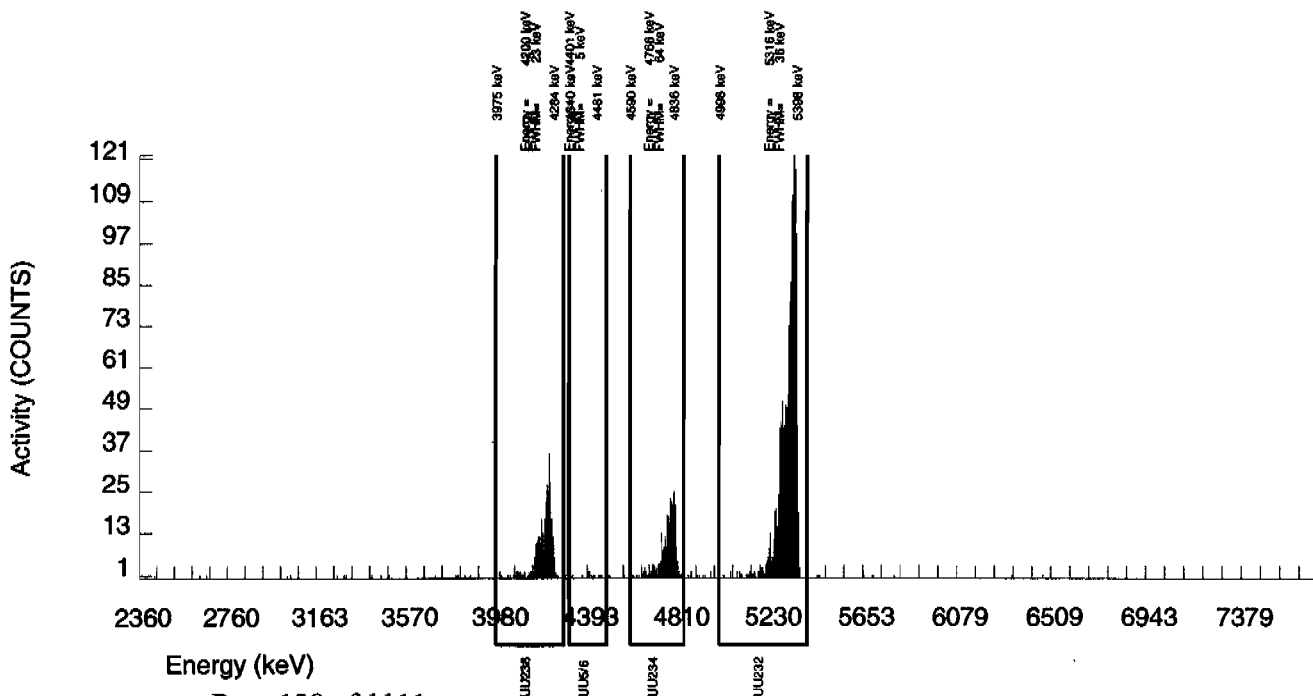
NUCLIDE ACTIVITY SUMMARY

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	283.000	281.650	0.000	6.0782	100.0000	8.46E-01	7.74E-02	4.25E-02	9.31E-02	5.04E-02
U232	5302.100	1340.000	1335.000	5.000	2.2361	100.0000	4.01E+00	3.00E-01	1.56E-02	3.94E-02	1.10E-01
U-235	4391.000	13.000	13.000	0.000	2.7628	80.90000	4.83E-02	1.38E-02	2.39E-02	5.78E-02	1.34E-02
U-238	4184.730	308.000	308.000	0.000	3.2810	100.0000	9.26E-01	8.31E-02	2.29E-02	5.40E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S0244600013_UU SAMPLE QTY: 0.506 G	
DETECTOR NUMBER :68548 AVERAGE %EFFICIENCY :30.7853 % YIELD : 95.640		COUNT DATE:20-JAN-2010 20:17:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.31218 dpm	LIB 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

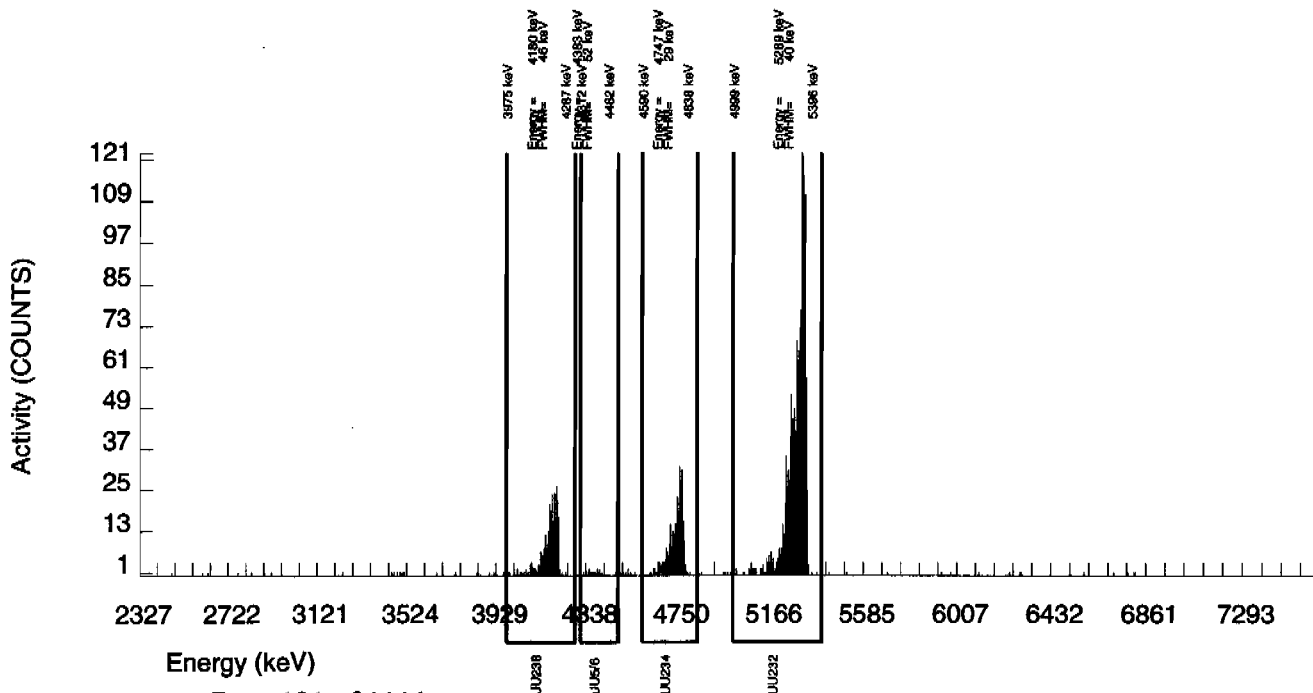
NUCLIDE ACTIVITY SUMMARY

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	305.000	300.658	3.000	6.0782	100.0000	9.09E-01	8.24E-02	4.28E-02	9.37E-02	5.29E-02
U232	5302.100	1333.000	1327.000	6.000	2.4495	100.0000	4.01E+00	3.00E-01	1.72E-02	4.27E-02	1.11E-01
U-235	4391.000	18.000	17.000	1.000	2.7628	80.90000	6.35E-02	1.69E-02	2.40E-02	5.82E-02	1.63E-02
U-238	4184.730	284.000	279.000	5.000	3.2810	100.0000	8.44E-01	7.79E-02	2.31E-02	5.44E-02	5.14E-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: 941697 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015590_UU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :67607 AVERAGE %EFFICIENCY :29.6523 % YIELD : 95.702		COUNT DATE:20-JAN-2010 20:17:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.31370 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

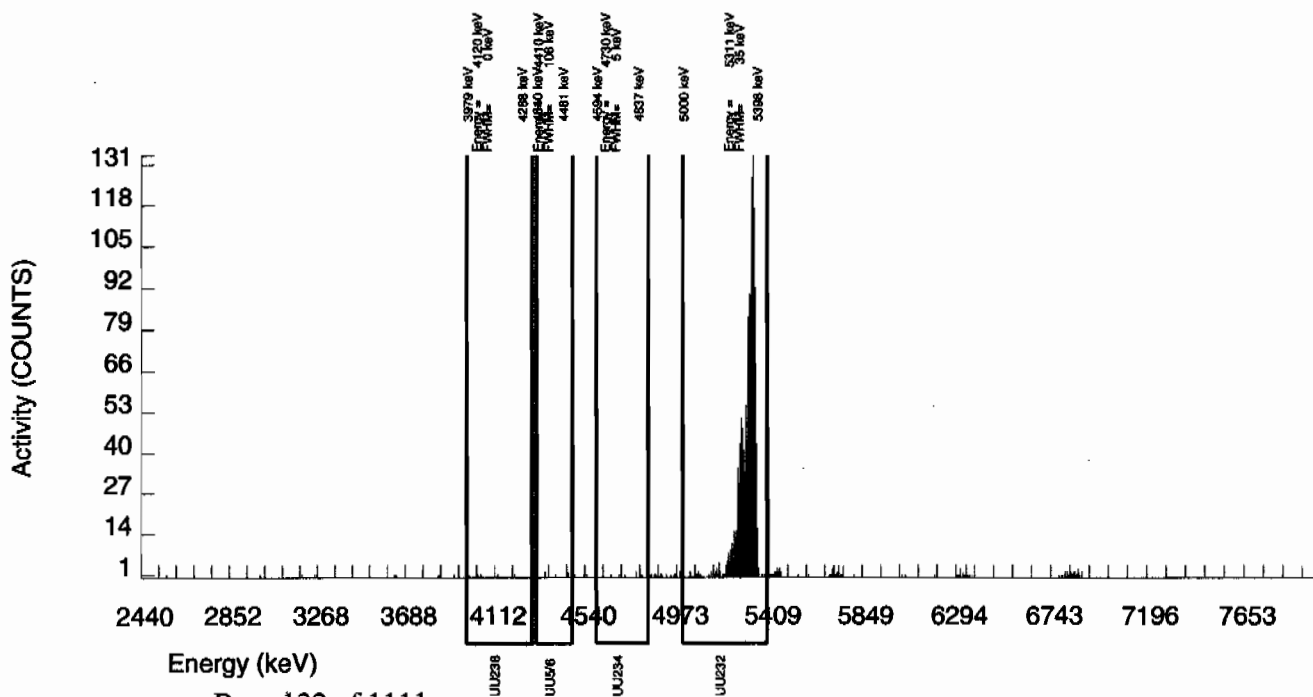
NUCLIDE ACTIVITY SUMMARY

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	9.000	4.707	3.000	6.0782	100.0000	7.47E-03	5.22E-03	2.24E-02	4.92E-02	5.19E-03
U232	5302.100	1298.000	1279.000	19.000	4.3589	100.0000	2.03E+00	1.53E-01	1.61E-02	3.65E-02	5.76E-02
U-235	4391.000	5.000	3.000	2.000	2.7628	80.90000	5.89E-03	5.21E-03	1.26E-02	3.05E-02	5.19E-03
U-238	4184.730	6.000	3.000	3.000	3.2810	100.0000	4.76E-03	4.77E-03	1.21E-02	2.85E-02	4.76E-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: 941697 SAMPLE DATE : 7-JAN-2010 00:00:00.		SAMPLE ID : S1202015591_UU SAMPLE QTY: 0.503 G	
DETECTOR NUMBER :78788 AVERAGE %EFFICIENCY :31.9627 % YIELD : 95.449		COUNT DATE:20-JAN-2010 20:17:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.50878 dpm RESULTS : 4.30358 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

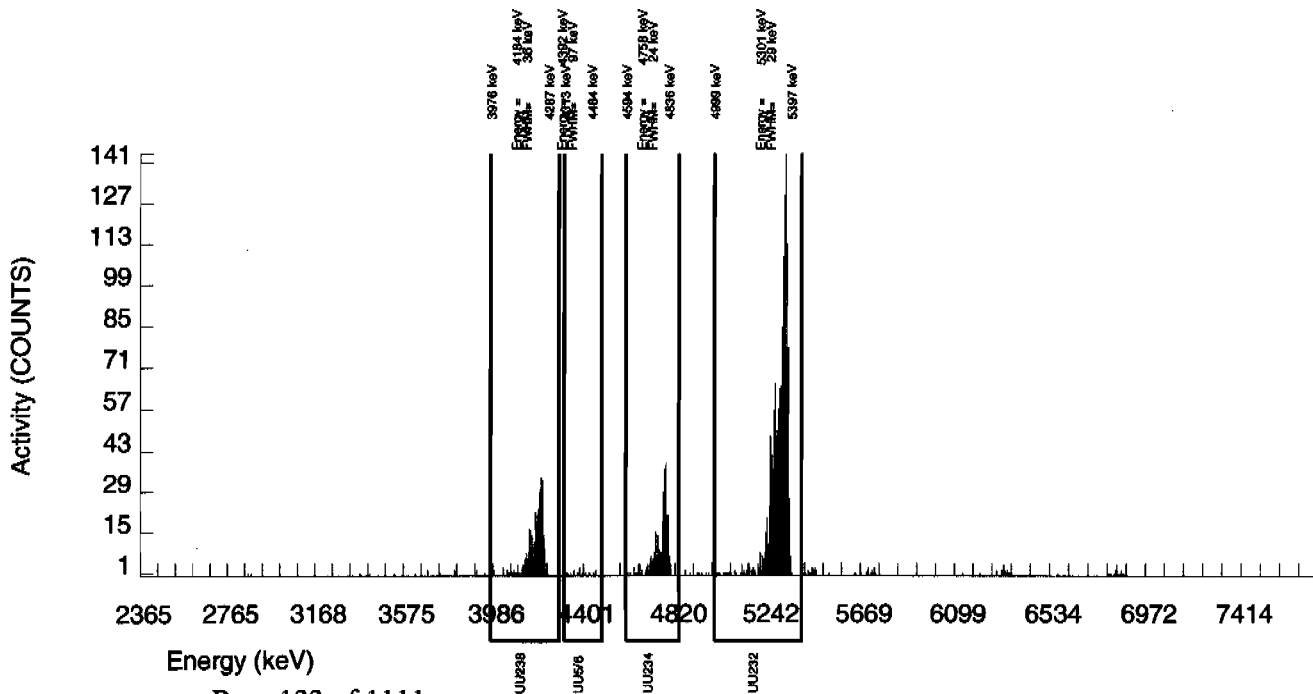
NUCLIDE ACTIVITY SUMMARY

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	291.000	289.609	0.000	6.0782	100.0000	8.50E-01	7.72E-02	4.15E-02	9.10E-02	5.00E-02
U232	5302.100	1379.000	1375.000	4.000	2.0000	100.0000	4.04E+00	3.00E-01	1.37E-02	3.53E-02	1.09E-01
U-235	4391.000	22.000	21.000	1.000	2.7628	80.90000	7.62E-02	1.82E-02	2.33E-02	5.65E-02	1.74E-02
U-238	4184.730	331.000	329.000	2.000	3.2810	100.0000	9.66E-01	8.57E-02	2.24E-02	5.28E-02	5.36E-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: 941697 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202015592_UU SAMPLE QTY: 0.108 G	
DETECTOR NUMBER :72528 AVERAGE %EFFICIENCY :34.0896 % YIELD : 95.026		COUNT DATE:20-JAN-2010 20:17:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :HAKB	
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 : 4.28320 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

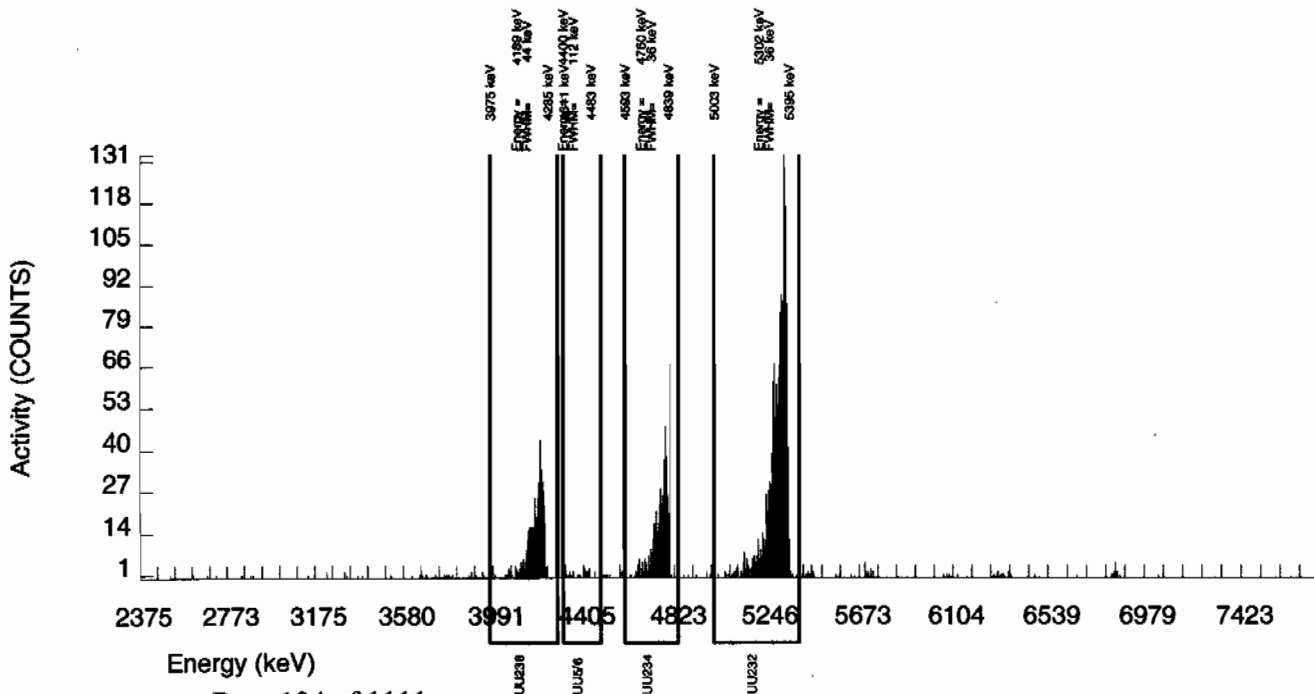
NUCLIDE ACTIVITY SUMMARY

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	440.000	435.523	3.000	6.0782	100.0000	5.61E+00	4.99E-01	1.82E-01	3.99E-01	2.71E-01
U232	5302.100	1467.000	1460.000	7.000	2.6458	100.0000	1.88E+01	1.49E+00	7.92E-02	1.93E-01	4.94E-01
U-235	4391.000	23.000	22.000	1.000	2.7628	80.90000	3.50E-01	8.23E-02	1.02E-01	2.48E-01	7.80E-02
U-238	4184.730	417.000	416.000	1.000	3.2810	100.0000	5.36E+00	4.80E-01	9.83E-02	2.31E-01	2.63E-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# 941635 Product: YS Date: 11/25/10

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%.			
Or meets the client's contract acceptance criteria.			NA
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.			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] 11/25/10

Secondary Review Performed By:

[Signature] 11/25/10

# Gamma Spec Que Sheet

1.9- 1/22/10

01/15/2010

Batch #: 941635 Analyst: MXR1 ✓ First Client Due Date: 02/03/2010 Internal Due Date: 01/24/2010

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: 10322-A Expiration Date: 12/2/10 Vol: 1.0 mL Nominal Concentration: 15.91 Cs

Initials: VS Prep Date: 1/15/10 Library: SOLID Witness: N/A Co 6.453

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Detector	Sealing Date/Time (if Applicable)
244597001-1	RE12-10-7722	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	RP	165.80	14	1/15/10
244600001-1	RE12-10-7243	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	RP	143.19	10	
244600002-1	RE12-10-7240	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	148.33	11	
244600003-1	RE12-10-7241	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	158.28	12	
244600004-1	RE12-10-7237	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	157.10	16	
244600005-1	RE12-10-7239	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	130.22	20	
244600006-1	RE12-10-7238	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	141.62	17	
244600007-1	RE12-10-7242	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	143.36	25	
244600008-1	RE12-10-7236	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	174.74	15	
244600009-1	RE12-10-7252	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	154.62	18	
244600010-1	RE12-10-7253	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	148.46	21	
244600011-1	RE12-10-7254	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	147.00	22	
244600012-1	RE12-10-7255	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	132.31	7	
244600013-1	RE12-10-7276	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	135.74	23	
244612001-1	RE16-10-2783	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	132.37	15	
244613001-1	RE16-10-1286	SAMPLE	LANL010	SOIL	07-JAN-10 12:00:00	KF	136.07	19	
1202015435-1	MB	MB	QC ACCOUNT	SOIL	1/15/10	KF	155.81	14	
1202015436-1	DUP RE12-10-7722(244597001)	DUP	QC ACCOUNT	SOIL	07-JAN-10 12:00:00	KF	155.81	20	
1202015437-1	LCS	LCS	QC ACCOUNT	SOIL	1/15/10	KF	155.44	25	

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: Heaven G. McCarty 1/25/10 Page 1 of 1



# Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
941635	244597001	SAMPLE	22-JAN-10					
941635	244600001	SAMPLE	22-JAN-10		Americium-241	-0.05604	0.3736	0.200
					Thorium-234	0.5234	3.008	2.00
941635	244600002	SAMPLE	22-JAN-10					
941635	244600003	SAMPLE	22-JAN-10		Americium-241	0.02258	0.2332	0.200
941635	244600004	SAMPLE	22-JAN-10		Americium-241	0.00988	0.2139	0.200
941635	244600005	SAMPLE	22-JAN-10					
941635	244600006	SAMPLE	22-JAN-10		Cesium-134	0.0885	0.1045	0.100
941635	244600007	SAMPLE	22-JAN-10					
941635	244600008	SAMPLE	22-JAN-10		Americium-241	-0.1196	0.5079	0.200
					Cerium-139	0.00321	0.05925	0.050
					Sodium-22	0.01223	0.08603	0.080
					Thorium-234	1.733	3.829	2.00
941635	244600009	SAMPLE	22-JAN-10		Americium-241	0.03298	0.2649	0.200
					Thorium-234	1.372	2.113	2.00
941635	244600010	SAMPLE	22-JAN-10		Sodium-22	0.05172	0.1081	0.080
941635	244600012	SAMPLE	22-JAN-10		Cerium-139	-0.01314	0.05105	0.050
941635	244600013	SAMPLE	22-JAN-10		Americium-241	0.08561	0.3297	0.200
					Cerium-139	0.00494	0.05101	0.050
					Thorium-234	2.459	2.573	2.00
941635	244612001	SAMPLE	22-JAN-10		Cerium-139	-0.01438	0.05142	0.050
					Cesium-134	0.1073	0.1137	0.100
					Sodium-22	-0.016	0.1011	0.080
941635	244613001	SAMPLE	22-JAN-10		Americium-241	0.04742	0.2315	0.200
941635	1202015435	MB	22-JAN-10					
941635	1202015436	DUP						
941635	1202015437	LCS			Cerium-139	0.04258	0.06769	0.050
					Cesium-134	-0.00109	0.1518	0.100
					Europium-152	-0.02609	0.2569	0.200
					Mercury-203	0.08061	0.102	0.100
					Potassium-40	-0.0234	1.094	1.00
					Ruthenium-106	-0.03733	0.9325	0.800
					Sodium-22	0.00489	0.0804	0.080
					Tin-113	0.02422	0.1366	0.100

## Gamma Review Report based on Result &gt; MDA for Batch:941635

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244597001	07-JAN-10 12:00	22-JAN-10 07:38	14.8	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	0.8461	0.1367	pCi/g	0.1966	N	912.1 3	1.503	IDENTIFIED 15.05	<input type="checkbox"/>	
Americium-243	0.2883	0.03292	pCi/g	0.06895	N	75.03 1	1.69	IDENTIFIED 15.34	<input type="checkbox"/>	
Annihilation Rad.	0.1482	0.02859	pCi/g	0.03712	N	511.5 1	2.472	IDENTIFIED 19.06	<input type="checkbox"/>	
Barium-137m	0.3024	0.03009	pCi/g	0.03757	N	661.9 2	1.553	IDENTIFIED 9.495	<input type="checkbox"/>	
Beryllium-7	0.4867	0.2093	pCi/g	0.3997	N	477.1 1	3.762	IDENTIFIED 42.88	<input type="checkbox"/>	
Bismuth-211	1.808	0.1875	pCi/g	0.2583	Y	352.1 4	1.435	IDENTIFIED 9.873	<input checked="" type="checkbox"/>	✓
Bismuth-214	0.793	0.07026	pCi/g	0.07898	0.200	609.4 4	1.71	IDENTIFIED 7.927	<input type="checkbox"/>	
Cerium-143	481.7	77	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137	0.3197	0.03182	pCi/g	0.03971	0.100	661.9 2	1.553	IDENTIFIED 9.495	<input type="checkbox"/>	
Gross Gamma	6.985	1.177	pCi/g	2.511	N	0			<input type="checkbox"/>	
Iodine-123	4.56E+05	1.57E+06	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135	8.78E+13	1.09E+15	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Krypton-85	20.22	3.235	pCi/g	12.64	N	0 10 0		NOT_IDENTI 0	<input type="checkbox"/>	
Lead-212	0.8929	0.05161	pCi/g	0.0707	0.100	238.6 4	1.594	IDENTIFIED 4.488	<input type="checkbox"/>	
Lead-214	0.629	0.06725	pCi/g	0.09003	0.100	352.1 4	1.435	IDENTIFIED 9.873	<input type="checkbox"/>	
Niobium-95m	0.3536	0.05642	pCi/g	0.1981	N	0 10 0		NOT_IDENTI 0	<input type="checkbox"/>	
Polonium-212	0.8929	0.05161	pCi/g	0.0707	N	238.6 4	1.594	IDENTIFIED 4.488	<input type="checkbox"/>	
Polonium-214	0.629	0.06725	pCi/g	0.09003	N	352.1 4	1.435	IDENTIFIED 9.873	<input type="checkbox"/>	
Polonium-216	0.8929	0.05161	pCi/g	0.0707	N	238.6 4	1.594	IDENTIFIED 4.488	<input type="checkbox"/>	
Polonium-218	0.629	0.06725	pCi/g	0.09003	N	352.1 4	1.435	IDENTIFIED 9.873	<input type="checkbox"/>	
Potassium-40	29.82	1.334	pCi/g	0.4511	1.00	1462 1	2.064	IDENTIFIED 2.615	<input type="checkbox"/>	
Radium-224	2.608	0.426	pCi/g	0.804	Y	241.7 1	1.874	IDENTIFIED 16.08	<input checked="" type="checkbox"/>	✓
Radium-226	0.793	0.07026	pCi/g	0.07898	Y	609.4 4	1.71	IDENTIFIED 7.927	<input type="checkbox"/>	
Radium-228	0.8461	0.1367	pCi/g	0.1966	0.500	912.1 3	1.503	IDENTIFIED 15.05	<input type="checkbox"/>	
Sodium-24	26880	1.95E+05	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Strontium-85	0.1033	0.01653	pCi/g	0.06458	Y	0 10 0		NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Technetium-99m	5.31E+15	6.67E+15	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	0.2672	0.02658	pCi/g	0.04614	0.880	583.4 1	1.382	IDENTIFIED 9.342	<input type="checkbox"/>	
Thorium-228	0.9062	0.05237	pCi/g	0.07175	N	238.6 4	1.594	IDENTIFIED 4.488	<input type="checkbox"/>	
Thorium-230	0.793	0.07026	pCi/g	0.07898	N	609.4 4	1.71	IDENTIFIED 7.927	<input type="checkbox"/>	
Thorium-232	0.8461	0.1367	pCi/g	0.1966	N	912.1 3	1.503	IDENTIFIED 15.05	<input type="checkbox"/>	
Titanium-44	0.1747	0.01811	pCi/g	0.05916	N	0 10 0		FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	4.1451	1.88E-06	ug/g	2.2569	N	0			<input type="checkbox"/>	
Uranium-234	0.793	0.07026	pCi/g	0.07898	N	609.4 4	1.71	IDENTIFIED 7.927	<input type="checkbox"/>	
Zirconium-97	1.73E+06	5.74E+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
244600001	07-JAN-10 12:00	22-JAN-10 07:54	14.8	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	1.463	0.1648	pCi/g	0.2036	N	911.5 3	1.545	IDENTIFIED 9.42	<input type="checkbox"/>	
Americium-243	0.2804	0.0384	pCi/g	0.1055	N	74.56 1	0.8221	IDENTIFIED 12.55	<input type="checkbox"/>	
Annihilation Rad.	0.1557	0.02594	pCi/g	0.04562	N	510.5 1	1.329	IDENTIFIED 16.35	<input type="checkbox"/>	
Barium-137m	0.06538	0.02337	pCi/g	0.05704	N	661.5 2	0.9585	IDENTIFIED 35.66	<input type="checkbox"/>	
Bismuth-211	3.422	0.2331	pCi/g	0.2967	Y	351.8 4	1.228	IDENTIFIED 5.755	<input checked="" type="checkbox"/>	✓
Bismuth-212	1.502	0.2325	pCi/g	0.6619	N	0 10 0		FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	0.9168	0.07148	pCi/g	0.1089	0.200	609.5 4	1.452	IDENTIFIED 6.805	<input type="checkbox"/>	
Cadmium-109	1.925	0.589	pCi/g	1.037	Y	87.08 3	1.288	IDENTIFIED 30.08	<input checked="" type="checkbox"/>	✓
Cerium-143	585.3	86.51	pCi/g	0	N	0 10 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134	0.1001	0.0296	pCi/g	0.08733	0.100	0 10 0		FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137	0.06912	0.0247	pCi/g	0.06029	0.100	661.5 2	0.9585	IDENTIFIED 35.66	<input type="checkbox"/>	
Gross Gamma	9.19	1.421	pCi/g	3.109	N	0			<input type="checkbox"/>	

Krypton-85	HE	12.87	3.492	pCi/g	11.79	N	0	10	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	✓	1.517	0.0771	pCi/g	0.08297	0.100	238.6	4	1.149	IDENTIFIED	3.385	<input type="checkbox"/>
Lead-214	✓	1.19	0.08684	pCi/g	0.1034	0.100	351.8	4	1.228	IDENTIFIED	5.755	<input type="checkbox"/>
Lutetium-177	HE	1.933	0.6584	pCi/g	1.798	N	0	10	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	HE	0.5557	0.1795	pCi/g	0.4483	N	87.08	3	1.288	IDENTIFIED	30.08	<input type="checkbox"/>
Niobium-97	HE	14030	36120	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	NR	1.517	0.0771	pCi/g	0.08297	N	238.6	4	1.149	IDENTIFIED	3.385	<input type="checkbox"/>
Polonium-214	NR	1.19	0.08684	pCi/g	0.1034	N	351.8	4	1.228	IDENTIFIED	5.755	<input type="checkbox"/>
Polonium-216	NR	1.517	0.0771	pCi/g	0.08297	N	238.6	4	1.149	IDENTIFIED	3.385	<input type="checkbox"/>
Polonium-218	NR	1.19	0.08684	pCi/g	0.1034	N	351.8	4	1.228	IDENTIFIED	5.755	<input type="checkbox"/>
Potassium-40	✓	32.74	1.667	pCi/g	0.4964	1.00	1461	1	2.171	IDENTIFIED	2.716	<input type="checkbox"/>
Radium-224	INT	4.194	0.3608	pCi/g	0.9439	Y	241.5	1	1.67	IDENTIFIED	13.01	<input checked="" type="checkbox"/> UF
Radium-226	✓	0.9168	0.07148	pCi/g	0.1089	Y	609.5	4	1.452	IDENTIFIED	6.805	<input type="checkbox"/>
Radium-228	✓	1.463	0.1648	pCi/g	0.2036	0.500	911.5	3	1.545	IDENTIFIED	9.42	<input type="checkbox"/>
Strontium-85	LA	0.0658	0.01785	pCi/g	0.06024	Y	0	10	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-200	HE	340.2	170.6	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.4089	0.0348	pCi/g	0.04987	0.080	583.3	1	1.375	IDENTIFIED	7.819	<input type="checkbox"/>
Thorium-228	NR	1.539	0.07825	pCi/g	0.08421	N	238.6	4	1.149	IDENTIFIED	3.385	<input type="checkbox"/>
Thorium-230	NR	0.9168	0.07148	pCi/g	0.1089	N	609.5	4	1.452	IDENTIFIED	6.805	<input type="checkbox"/>
Thorium-232	NR	1.463	0.1648	pCi/g	0.2036	N	911.5	3	1.545	IDENTIFIED	9.42	<input type="checkbox"/>
Tin-126	HE	0.1892	0.05791	pCi/g	0.1027	N	87.08	3	1.288	IDENTIFIED	30.08	<input type="checkbox"/>
Titanium-44	LA	0.3364	0.03003	pCi/g	0.07734	N	0	10	0	FAIL_ABUND	0	<input type="checkbox"/>
Uranium-234	NR	0.9168	0.07148	pCi/g	0.1089	N	609.5	4	1.452	IDENTIFIED	6.805	<input type="checkbox"/>
Zirconium-97		2.18E+06	6.18E+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	
244600002	07-JAN-10 12:00	22-JAN-10 07:55	14.8	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	1.177	0.1504	pCi/g	0.158	N	911.9	3	1.957	IDENTIFIED 11.24	<input type="checkbox"/>
Americium-243	INT	0.2838	0.02788	pCi/g	0.05798	N	74.89	1	1.05	IDENTIFIED 8.948	<input type="checkbox"/>
Annihilation Rad.		0.09894	0.03038	pCi/g	0.03782	N	511.1	1	1.929	IDENTIFIED 30.23	<input type="checkbox"/>
Bismuth-211	INT	3.126	0.2773	pCi/g	0.2474	Y	352	4	1.07	IDENTIFIED 5.956	<input checked="" type="checkbox"/> UF
Bismuth-214	✓	0.9977	0.08185	pCi/g	0.09221	0.200	609.6	4	1.145	IDENTIFIED 5.948	<input type="checkbox"/>
Cadmium-109	INT	1.5	0.5354	pCi/g	0.8713	Y	87.09	3	1.026	IDENTIFIED 35.39	<input checked="" type="checkbox"/> UF
Cerium-143		198.8	54.82	pCi/g	0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Gross Gamma		7.314	1.124	pCi/g	2.526	N	0	0	0		<input type="checkbox"/>
Iodine-133	HE	472.9	1676	pCi/g	0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Iodine-135	HE	5.15E+14	1.06E+15	pCi/g	0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.431	0.1101	pCi/g	0.06996	0.100	238.7	4	1.024	IDENTIFIED 3.181	<input type="checkbox"/>
Lead-214	✓	1.087	0.1006	pCi/g	0.08624	0.100	352	4	1.07	IDENTIFIED 5.956	<input type="checkbox"/>
Lutetium-177	HE	1.682	0.5889	pCi/g	1.488	N	0	8	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	HE	0.433	0.1609	pCi/g	0.2716	N	87.09	3	1.026	IDENTIFIED 35.39	<input type="checkbox"/>
Niobium-97	HE	4772	27450	pCi/g	0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-212	NR	1.431	0.1101	pCi/g	0.06996	N	238.7	4	1.024	IDENTIFIED 3.181	<input type="checkbox"/>
Polonium-214	NR	1.087	0.1006	pCi/g	0.08624	N	352	4	1.07	IDENTIFIED 5.956	<input type="checkbox"/>
Polonium-216	NR	1.431	0.1101	pCi/g	0.06996	N	238.7	4	1.024	IDENTIFIED 3.181	<input type="checkbox"/>
Polonium-218	NR	1.087	0.1006	pCi/g	0.08624	N	352	4	1.07	IDENTIFIED 5.956	<input type="checkbox"/>
Potassium-40	✓	21.17	1.135	pCi/g	0.4136	1.00	1462	1	1.721	IDENTIFIED 3.176	<input type="checkbox"/>
Radium-224	INT	3.821	0.5002	pCi/g	0.7963	Y	241.6	1	1.536	IDENTIFIED 11.24	<input checked="" type="checkbox"/> UF
Radium-226	✓	0.9977	0.08185	pCi/g	0.09221	Y	609.6	4	1.145	IDENTIFIED 5.948	<input type="checkbox"/>
Radium-228	✓	1.177	0.1504	pCi/g	0.158	0.500	911.9	3	1.957	IDENTIFIED 11.24	<input type="checkbox"/>
Sodium-24	HE	2.36E+05	2.20E+05	pCi/g	0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.3971	0.0379	pCi/g	0.04556	0.080	583.5	1	1.234	IDENTIFIED 7.871	<input type="checkbox"/>
Thorium-228	NR	1.453	0.1117	pCi/g	0.07101	N	238.7	4	1.024	IDENTIFIED 3.181	<input type="checkbox"/>
Thorium-230	NR	0.9977	0.08185	pCi/g	0.0922	N	609.6	4	1.145	IDENTIFIED 5.948	<input type="checkbox"/>
Thorium-232	NR	1.177	0.1504	pCi/g	0.158	N	911.9	3	1.957	IDENTIFIED 11.24	<input type="checkbox"/>
Thorium-234	✓	1.296	0.6056	pCi/g	1.286	2.00	63.24	2	0.9583	IDENTIFIED 45.9	<input checked="" type="checkbox"/> UF
Tin-126	HE	0.1475	0.05265	pCi/g	0.08596	N	87.09	3	1.026	IDENTIFIED 35.39	<input type="checkbox"/>

Titanium-44	LA	0.3176	0.02246	pCi/g	0.85714	N	0	8	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		3.8589	1.80E-06	ug/g	1.9144	N		0			<input type="checkbox"/>
Uranium-234	NR	0.9977	0.08185	pCi/g	0.8922	N	609.6	4	1.145	IDENTIFIED 5.948	<input type="checkbox"/>
Uranium-238	HE	1.296	0.6056	pCi/g	1.286	N	63.24	2	0.9583	IDENTIFIED 45.9	<input type="checkbox"/>
Zirconium-97		1.29E+06	5.40E+05	pCi/g	0	N	0	8	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
244600003	07-JAN-10 12:00	22-JAN-10 07:55	14.8	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	1.588	0.1525	pCi/g	0.1692	N	910.8	3	1.251	IDENTIFIED 8.489	<input type="checkbox"/>
Americium-243	INT	0.3841	0.03666	pCi/g	0.87847	N	74.69	1	1.112	IDENTIFIED 8.918	<input type="checkbox"/>
Annihilation Rad.		0.1536	0.02692	pCi/g	0.84215	N	510.7	1	1.639	IDENTIFIED 17.26	<input type="checkbox"/>
Bismuth-211	INT	3.884	0.2231	pCi/g	0.2669	Y	351.6	4	1.339	IDENTIFIED 4.807	<input checked="" type="checkbox"/> UI
Bismuth-212	LA	1.19	0.2397	pCi/g	0.6127	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214	✓	1.171	0.09233	pCi/g	0.89531	0.200	609.1	4	1.466	IDENTIFIED 6.728	<input type="checkbox"/>
Cadmium-109	INT	3.525	0.468	pCi/g	1.205	Y	87.06	3	1.134	IDENTIFIED 12.72	<input checked="" type="checkbox"/> UI
Cerium-143		699.7	96.77	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Gross Gamma		8.905	1.418	pCi/g	2.81	N		0			<input type="checkbox"/>
Iodine-123	HE	8.41E+05	1.65E+06	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Iodine-135		3.27E+15	1.28E+15	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.494	0.07059	pCi/g	0.87639	0.100	238.4	4	1.066	IDENTIFIED 3.118	<input type="checkbox"/>
Lead-214	✓	1.351	0.08523	pCi/g	0.09303	0.100	351.6	4	1.339	IDENTIFIED 4.807	<input type="checkbox"/>
Lutetium-177	HE	2.197	0.6294	pCi/g	1.747	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	INT	1.018	0.1711	pCi/g	0.3538	N	87.06	3	1.134	IDENTIFIED 12.72	<input type="checkbox"/>
Polonium-212	NR	1.494	0.07059	pCi/g	0.87639	N	238.4	4	1.066	IDENTIFIED 3.118	<input type="checkbox"/>
Polonium-214	NR	1.351	0.08523	pCi/g	0.09303	N	351.6	4	1.339	IDENTIFIED 4.807	<input type="checkbox"/>
Polonium-216	NR	1.494	0.07059	pCi/g	0.87639	N	238.4	4	1.066	IDENTIFIED 3.118	<input type="checkbox"/>
Polonium-218	NR	1.351	0.08523	pCi/g	0.09303	N	351.6	4	1.339	IDENTIFIED 4.807	<input type="checkbox"/>
Potassium-40	✓	27.04	1.232	pCi/g	0.4796	1.00	1460	1	2.25	IDENTIFIED 2.839	<input type="checkbox"/>
Radium-224	INT	4.18	0.4894	pCi/g	0.8692	Y	241.5	1	1.694	IDENTIFIED 11.38	<input checked="" type="checkbox"/> UI
Radium-226	✓	1.171	0.09233	pCi/g	0.89531	Y	609.1	4	1.466	IDENTIFIED 6.728	<input type="checkbox"/>
Radium-228	✓	1.588	0.1525	pCi/g	0.1692	0.500	910.8	3	1.251	IDENTIFIED 8.489	<input type="checkbox"/>
Sodium-24		5.10E+05	2.03E+05	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Technetium-99m	HE	8.41E+14	7.05E+15	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.5241	0.04051	pCi/g	0.85183	0.080	583	1	1.349	IDENTIFIED 6.851	<input type="checkbox"/>
Thorium-228	NR	1.516	0.07164	pCi/g	0.87753	N	238.4	4	1.066	IDENTIFIED 3.118	<input type="checkbox"/>
Thorium-230	NR	1.171	0.09232	pCi/g	0.89531	N	609.1	4	1.466	IDENTIFIED 6.728	<input type="checkbox"/>
Thorium-232	NR	1.588	0.1525	pCi/g	0.1692	N	910.8	3	1.251	IDENTIFIED 8.489	<input type="checkbox"/>
Thorium-234	↑ USE	1.972	0.9781	pCi/g	1.882	2.00	63.25	2	1.795	IDENTIFIED 48.85	<input checked="" type="checkbox"/> UI
Tin-126	INT	0.3466	0.04602	pCi/g	0.1191	N	87.06	3	1.134	IDENTIFIED 12.72	<input type="checkbox"/>
Titanium-44	LA	0.3585	0.0252	pCi/g	0.8659	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		5.8099	2.91E-06	ug/g	2.8017	N		0			<input type="checkbox"/>
Uranium-234	NR	1.171	0.09232	pCi/g	0.89531	N	609.1	4	1.466	IDENTIFIED 6.728	<input type="checkbox"/>
Uranium-238	HE	1.972	0.9781	pCi/g	1.882	N	63.25	2	1.795	IDENTIFIED 48.85	<input type="checkbox"/>
Zirconium-97		2.34E+06	6.22E+05	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
244600004	07-JAN-10 12:00	22-JAN-10 07:56	14.8	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	1.658	0.1656	pCi/g	0.1865	N	911	3	1.506	IDENTIFIED 8.036	<input type="checkbox"/>
Americium-243	INT	0.3031	0.02898	pCi/g	0.07551	N	74.9	1	0.8475	IDENTIFIED 8.616	<input type="checkbox"/>
Annihilation Rad.		0.1206	0.03145	pCi/g	0.83909	N	510.7	1	1.695	IDENTIFIED 25.65	<input type="checkbox"/>
Bismuth-211	INT	3.349	0.2664	pCi/g	0.2598	Y	351.8	4	1.065	IDENTIFIED 5.789	<input checked="" type="checkbox"/> UI
Bismuth-212	NR	0.9887	0.2036	pCi/g	0.3985	N	727.3	1	1.523	IDENTIFIED 19.92	<input type="checkbox"/>
Bismuth-214	✓	1.114	0.09126	pCi/g	0.88915	0.200	609.1	4	1.237	IDENTIFIED 6.261	<input type="checkbox"/>
Cadmium-109	INT	2.169	0.4539	pCi/g	0.948	Y	86.82	3	1.044	IDENTIFIED 20.38	<input checked="" type="checkbox"/> UI
Cerium-143		432.5	76.64	pCi/g	0	N	0	6	0	SHORT HLIF 0	<input type="checkbox"/>

Cesium-134	LA	0.1285	0.02738	pCi/g	0.07752	0.100	0	6	0	FAIL_ABUND 0	<input checked="" type="checkbox"/> UI	Date rejected due to low abundance.
Gross Gamma		9.557	1.357	pCi/g	3.19	N		0			<input type="checkbox"/>	
Iodine-135	HE	5.68E+14	1.29E+15	pCi/g	0	N	0	6	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212	✓	1.62	0.1073	pCi/g	0.07517	0.100	238.5	4	0.9794	IDENTIFIED 2.97	<input type="checkbox"/>	
Lead-214	✓	1.165	0.09754	pCi/g	0.09057	0.100	351.8	4	1.065	IDENTIFIED 5.789	<input type="checkbox"/>	
Lutetium-177	HE	2.719	0.528	pCi/g	1.67	N	0	6	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	HE	0.6263	0.1461	pCi/g	0.3392	N	86.82	3	1.044	IDENTIFIED 20.38	<input type="checkbox"/>	
Niobium-95	HE	0.05722	0.03247	pCi/g	0.0572	N	767.3	1	0.6778	IDENTIFIED 56.55	<input type="checkbox"/>	
Polonium-212	NR	1.62	0.1073	pCi/g	0.07517	N	238.5	4	0.9794	IDENTIFIED 2.97	<input type="checkbox"/>	
Polonium-214	NR	1.165	0.09754	pCi/g	0.09057	N	351.8	4	1.065	IDENTIFIED 5.789	<input type="checkbox"/>	
Polonium-216	NR	1.62	0.1073	pCi/g	0.07517	N	238.5	4	0.9794	IDENTIFIED 2.97	<input type="checkbox"/>	
Polonium-218	NR	1.165	0.09754	pCi/g	0.09057	N	351.8	4	1.065	IDENTIFIED 5.789	<input type="checkbox"/>	
Potassium-40	✓	31.16	1.597	pCi/g	0.4594	1.00	1460	1	1.905	IDENTIFIED 2.638	<input type="checkbox"/>	
Radium-224	INT	4.368	0.6191	pCi/g	0.8554	Y	241.6	1	1.911	IDENTIFIED 13.06	<input checked="" type="checkbox"/> UI	
Radium-226	✓	1.114	0.09126	pCi/g	0.08915	Y	609.1	4	1.237	IDENTIFIED 6.261	<input type="checkbox"/>	
Radium-228	✓	1.658	0.1656	pCi/g	0.1865	0.500	911	3	1.506	IDENTIFIED 8.036	<input type="checkbox"/>	
Thallium-208	✓	0.5127	0.04268	pCi/g	0.05159	0.000	583	1	1.278	IDENTIFIED 6.688	<input type="checkbox"/>	
Thorium-228	NR	1.644	0.1089	pCi/g	0.07629	N	238.5	4	0.9794	IDENTIFIED 2.97	<input type="checkbox"/>	
Thorium-230	NR	1.114	0.09126	pCi/g	0.08915	N	609.1	4	1.237	IDENTIFIED 6.261	<input type="checkbox"/>	
Thorium-232	NR	1.658	0.1656	pCi/g	0.1865	N	911	3	1.506	IDENTIFIED 8.036	<input type="checkbox"/>	
Tin-126	INT	0.2133	0.04463	pCi/g	0.1164	N	86.82	3	1.044	IDENTIFIED 20.38	<input type="checkbox"/>	
Titanium-44	LA	0.3296	0.02446	pCi/g	0.06272	N	0	6	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium		4.3778	2.09E-06	ug/g	2.5428	N					<input type="checkbox"/>	
Uranium-234	NR	1.114	0.09126	pCi/g	0.08915	N	609.1	4	1.237	IDENTIFIED 6.261	<input type="checkbox"/>	
Zirconium-97	HE	4.94E+05	6.10E+05	pCi/g	0	N	0	6	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
244600005	07-JAN-10 12:00	22-JAN-10 07:57	14.8	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	1.624	0.1536	pCi/g	0.1903	N	911	3	1.411	IDENTIFIED 7.21
Americium-243	INT	0.4175	0.03448	pCi/g	0.06689	N	74.97	1	1.243	IDENTIFIED 7.204
Annihilation Rad.	HE	0.07329	0.03156	pCi/g	0.04324	N	510.8	1	1.584	IDENTIFIED 42.8
Bismuth-211	INT	4.002	0.2948	pCi/g	0.2951	Y	351.9	4	1.371	IDENTIFIED 5.599
Bismuth-212	HE	0.8025	0.2139	pCi/g	0.618	N	0	10	0	FAIL_ABUND 0
Bismuth-214	✓	1.147	0.09819	pCi/g	0.09385	0.200	609.4	4	1.448	IDENTIFIED 6.509
Cadmium-109	INT	2.136	0.4622	pCi/g	1.091	Y	86.9	3	0.8963	IDENTIFIED 21.13
Cerium-143		608.3	96.21	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Gross Gamma		8.745	1.35	pCi/g	3.499	N				
Iodine-135		3.90E+15	1.18E+15	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Lead-212	✓	1.782	0.1101	pCi/g	0.08318	0.100	238.6	4	1.122	IDENTIFIED 3.139
Lead-214	✓	1.392	0.1088	pCi/g	0.1029	0.100	351.9	4	1.371	IDENTIFIED 5.599
Lutetium-177	HE	2.754	0.7926	pCi/g	1.845	N	0	10	0	FAIL_ABUND 0
Neptunium-237	HE	0.6168	0.1479	pCi/g	0.3447	N	86.9	3	0.8963	IDENTIFIED 21.13
Niobium-97	HE	5153	27960	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Polonium-212	NR	1.782	0.1101	pCi/g	0.08318	N	238.6	4	1.122	IDENTIFIED 3.139
Polonium-214	NR	1.392	0.1088	pCi/g	0.1029	N	351.9	4	1.371	IDENTIFIED 5.599
Polonium-216	NR	1.782	0.1101	pCi/g	0.08318	N	238.6	4	1.122	IDENTIFIED 3.139
Polonium-218	NR	1.392	0.1088	pCi/g	0.1029	N	351.9	4	1.371	IDENTIFIED 5.599
Potassium-40	✓	21.9	1.209	pCi/g	0.4857	1.00	1461	1	2.013	IDENTIFIED 3.386
Radium-224	INT	4.839	0.7055	pCi/g	0.9463	Y	241.6	1	1.793	IDENTIFIED 13.75
Radium-226	✓	1.147	0.09819	pCi/g	0.09385	Y	609.4	4	1.448	IDENTIFIED 6.509
Radium-228	✓	1.624	0.1536	pCi/g	0.1903	0.500	911	3	1.411	IDENTIFIED 7.21
Sodium-24	HE	2.08E+05	2.04E+05	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Technetium-99m	HE	5.18E+15	7.91E+15	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Thallium-200	HE	165.2	166.1	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Thallium-208	✓	0.5434	0.04901	pCi/g	0.05118	0.000	583.2	1	1.442	IDENTIFIED 7.411
Thorium-228	NR	1.809	0.1117	pCi/g	0.08442	N	238.6	4	1.122	IDENTIFIED 3.139
Thorium-230	NR	1.147	0.09819	pCi/g	0.09385	N	609.4	4	1.448	IDENTIFIED 6.509

Thorium-232	NR	1.624	0.1536	pCi/g	0.1903	N	911	3	1.411	IDENTIFIED	7.21	<input type="checkbox"/>
Thorium-234	✓	2.667	0.7752	pCi/g	1.469	2.00	63.66	2	1.352	IDENTIFIED	27.74	<input type="checkbox"/>
Tin-126	HE	0.21	0.04545	pCi/g	0.1201	N	86.9	3	0.8963	IDENTIFIED	21.13	<input type="checkbox"/>
Titanium-44	LA	0.3945	0.02695	pCi/g	0.07188	N	0	10	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		7.9054	2.31E-06	ug/g	2.1883	N	0					<input type="checkbox"/>
Uranium-234	NR	1.147	0.09819	pCi/g	0.09385	N	609.4	4	1.448	IDENTIFIED	6.509	<input type="checkbox"/>
Uranium-238	HE	2.667	0.7752	pCi/g	1.469	N	63.66	2	1.352	IDENTIFIED	27.74	<input type="checkbox"/>
Zirconium-97	HE	1.29E+06	6.60E+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
244600006	07-JAN-10 12:00	22-JAN-10 08:05	14.8	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	LA	1.844	0.1958	pCi/g	0.6244	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Americium-243	NR	0.3826	0.03034	pCi/g	0.05567	N	74.82	1	1.013	IDENTIFIED	6.249	<input type="checkbox"/>
Annihilation Rad.	HE	0.09479	0.03479	pCi/g	0.0545	N	510.4	1	1.192	IDENTIFIED	36.43	<input type="checkbox"/>
Barium-137m	HE	0.122	0.02515	pCi/g	0.0807	N	661	2	1.145	IDENTIFIED	20.18	<input type="checkbox"/>
Bismuth-210	HE	1.173	0.3986	pCi/g	0.74	N	46.54	3	1.003	IDENTIFIED	33.55	<input type="checkbox"/>
Bismuth-211	NR	4.011	0.2744	pCi/g	0.3363	Y	351.7	4	1.137	IDENTIFIED	5.005	<input checked="" type="checkbox"/> UI
Bismuth-212	NR	1.605	0.2683	pCi/g	0.4968	N	726.5	1	1.622	IDENTIFIED	15.95	<input type="checkbox"/>
Bismuth-214	✓	1.335	0.1275	pCi/g	0.112	0.200	609	4	1.531	IDENTIFIED	8.086	<input type="checkbox"/>
Cadmium-109	NR	4.091	0.438	pCi/g	0.9214	Y	87.17	3	1.216	IDENTIFIED	9.531	<input checked="" type="checkbox"/> UI
Cerium-143		599.4	98.53	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-137	✓	0.1289	0.02658	pCi/g	0.08531	0.100	661	2	1.145	IDENTIFIED	20.18	<input type="checkbox"/>
Europium-155	HE	0.1571	0.06983	pCi/g	0.1534	N	105	1	1.543	IDENTIFIED	44.13	<input type="checkbox"/>
Gross Gamma		8.352	1.337	pCi/g	3.853	N	0					<input type="checkbox"/>
Iodine-135	HE	7.67E+14	1.53E+15	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-210	HE	1.173	0.3986	pCi/g	0.74	N	46.54	3	1.003	IDENTIFIED	33.55	<input type="checkbox"/>
Lead-212	✓	1.669	0.1025	pCi/g	0.09173	0.100	238.5	4	1.036	IDENTIFIED	3.511	<input type="checkbox"/>
Lead-214	✓	1.395	0.1022	pCi/g	0.1173	0.100	351.7	4	1.137	IDENTIFIED	5.005	<input type="checkbox"/>
Lutetium-177	LA	3.821	0.8042	pCi/g	2.092	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	NR	1.181	0.1756	pCi/g	0.2649	N	87.17	3	1.216	IDENTIFIED	9.531	<input type="checkbox"/>
Niobium-97		91650	44360	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-210	HE	1.173	0.398	pCi/g	0.74	N	46.54	3	1.003	IDENTIFIED	33.55	<input type="checkbox"/>
Polonium-212	NR	1.669	0.1025	pCi/g	0.09173	N	238.5	4	1.036	IDENTIFIED	3.511	<input type="checkbox"/>
Polonium-214	NR	1.395	0.1022	pCi/g	0.1173	N	351.7	4	1.137	IDENTIFIED	5.005	<input type="checkbox"/>
Polonium-216	NR	1.669	0.1025	pCi/g	0.09173	N	238.5	4	1.036	IDENTIFIED	3.511	<input type="checkbox"/>
Polonium-218	NR	1.395	0.1022	pCi/g	0.1173	N	351.7	4	1.137	IDENTIFIED	5.005	<input type="checkbox"/>
Potassium-40	✓	17.93	1.109	pCi/g	0.5398	1.00	1459	1	1.859	IDENTIFIED	4.312	<input type="checkbox"/>
Radium-224	NR	3.918	0.7625	pCi/g	1.045	Y	241.5	1	1.821	IDENTIFIED	18.93	<input checked="" type="checkbox"/> UI
Radium-226	✓	1.335	0.1275	pCi/g	0.112	Y	609	4	1.531	IDENTIFIED	8.086	<input type="checkbox"/>
Radium-228	LA	1.844	0.1958	pCi/g	0.6244	0.500	0	11	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Sodium-24	HE	3.22E+05	3.17E+05	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.5001	0.05234	pCi/g	0.06524	0.080	582.8	1	1.293	IDENTIFIED	9.336	<input type="checkbox"/>
Thorium-228	NR	1.694	0.1041	pCi/g	0.0931	N	238.5	4	1.036	IDENTIFIED	3.511	<input type="checkbox"/>
Thorium-230	NR	1.335	0.1275	pCi/g	0.112	N	609	4	1.531	IDENTIFIED	8.086	<input type="checkbox"/>
Thorium-232	NR	1.844	0.1958	pCi/g	0.6244	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Thorium-234	✓	1.821	0.5021	pCi/g	0.9283	2.00	63.38	2	0.9774	IDENTIFIED	25.94	<input type="checkbox"/>
Tin-126	NR	0.4022	0.04307	pCi/g	0.09049	N	87.17	3	1.216	IDENTIFIED	9.531	<input type="checkbox"/>
Titanium-44	LA	0.4171	0.02718	pCi/g	0.06081	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		5.5249	1.49E-06	ug/g	1.394	N	0					<input type="checkbox"/>
Uranium-231	HE	1.723	0.608	pCi/g	1.336	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Uranium-234	NR	1.335	0.1275	pCi/g	0.112	N	609	4	1.531	IDENTIFIED	8.086	<input type="checkbox"/>
Uranium-238	HE	1.821	0.5021	pCi/g	0.9283	N	63.38	2	0.9774	IDENTIFIED	25.94	<input type="checkbox"/>
Zirconium-97		1.93E+06	8.06E+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
244600007	07-JAN-10 12:00	22-JAN-10 08:05	14.8	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	1.552	0.1472	pCi/g 0.1897	N	910.9 3	1.494	IDENTIFIED 7.386	<input type="checkbox"/>	
Americium-243	INT	0.3042	0.02323	pCi/g 0.04171	N	74.86 1	0.7685	IDENTIFIED 5.704	<input type="checkbox"/>	
Annihilation Rad.	HE	0.09097	0.03381	pCi/g 0.04162	N	510.7 1	1.593	IDENTIFIED 36.81	<input type="checkbox"/>	
Barium-137m	NR	0.3653	0.03851	pCi/g 0.05689	N	661.6 2	1.48	IDENTIFIED 8.969	<input type="checkbox"/>	
Bismuth-210	HE	1.122	0.3261	pCi/g 0.5604	N	46.44 3	0.866	IDENTIFIED 28.6	<input type="checkbox"/>	
Bismuth-211	INT	3.435	0.2829	pCi/g 0.2661	Y	351.9 4	1.149	IDENTIFIED 6.337	<input checked="" type="checkbox"/>	✓
Bismuth-212	HE	0.9233	0.2075	pCi/g 0.6232	N	0 7 0		FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	✓	1.094	0.09754	pCi/g 0.09549	0.200	609.1 4	1.368	IDENTIFIED 6.563	<input type="checkbox"/>	
Cadmium-109	INT	3.775	0.3611	pCi/g 0.6366	Y	87.22 3	1.205	IDENTIFIED 7.929	<input checked="" type="checkbox"/>	✓
Cerium-143		311.6	66.47	pCi/g 0	N	0 7 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137	✓	0.3861	0.04072	pCi/g 0.06014	0.100	661.6 2	1.48	IDENTIFIED 8.969	<input type="checkbox"/>	
Gross Gamma		8.453	1.072	pCi/g 2.798	N	0			<input type="checkbox"/>	
Lead-210	HE	1.122	0.3261	pCi/g 0.5604	N	46.44 3	0.866	IDENTIFIED 28.6	<input type="checkbox"/>	
Lead-212	✓	1.521	0.09856	pCi/g 0.0736	0.100	238.6 4	1.024	IDENTIFIED 3.094	<input type="checkbox"/>	
Lead-214	✓	1.195	0.1032	pCi/g 0.09279	0.100	351.9 4	1.149	IDENTIFIED 6.337	<input type="checkbox"/>	
Lutetium-177	LA	3.929	0.6964	pCi/g 1.691	N	0 7 0		FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	INT	1.09	0.1534	pCi/g 0.1826	N	87.22 3	1.205	IDENTIFIED 7.929	<input type="checkbox"/>	
Niobium-97	HE	47580	37100	pCi/g 0	N	0 7 0		SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-210	HE	1.122	0.3254	pCi/g 0.5604	N	46.44 3	0.866	IDENTIFIED 28.6	<input type="checkbox"/>	
Polonium-212	NR	1.521	0.09856	pCi/g 0.0736	N	238.6 4	1.024	IDENTIFIED 3.094	<input type="checkbox"/>	
Polonium-214	NR	1.195	0.1032	pCi/g 0.09279	N	351.9 4	1.149	IDENTIFIED 6.337	<input type="checkbox"/>	
Polonium-216	NR	1.521	0.09856	pCi/g 0.0736	N	238.6 4	1.024	IDENTIFIED 3.094	<input type="checkbox"/>	
Polonium-218	NR	1.195	0.1032	pCi/g 0.09279	N	351.9 4	1.149	IDENTIFIED 6.337	<input type="checkbox"/>	
Potassium-40	✓	23.02	1.228	pCi/g 0.5098	1.00	1461 1	2.274	IDENTIFIED 3.213	<input type="checkbox"/>	
Radium-224	INT	4.397	0.5148	pCi/g 0.8385	Y	241.6 1	1.464	IDENTIFIED 10.46	<input checked="" type="checkbox"/>	✓
Radium-226	✓	1.094	0.09754	pCi/g 0.09549	Y	609.1 4	1.368	IDENTIFIED 6.563	<input type="checkbox"/>	
Radium-228	✓	1.552	0.1472	pCi/g 0.1897	0.500	910.9 3	1.494	IDENTIFIED 7.386	<input type="checkbox"/>	
Thallium-200	HE	108.8	166.6	pCi/g 0	N	0 7 0		SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.5176	0.04951	pCi/g 0.04975	0.080	583.3 1	1.258	IDENTIFIED 7.727	<input type="checkbox"/>	
Thorium-228	NR	1.544	0.1	pCi/g 0.0747	N	238.6 4	1.024	IDENTIFIED 3.094	<input type="checkbox"/>	
Thorium-230	NR	1.094	0.09754	pCi/g 0.09549	N	609.1 4	1.368	IDENTIFIED 6.563	<input type="checkbox"/>	
Thorium-232	NR	1.552	0.1472	pCi/g 0.1897	N	910.9 3	1.494	IDENTIFIED 7.386	<input type="checkbox"/>	
Thorium-234	✓	1.807	0.4041	pCi/g 0.7097	2.00	63.35 2	0.8907	IDENTIFIED 20.33	<input type="checkbox"/>	
Tin-126	INT	0.3712	0.03551	pCi/g 0.06248	N	87.22 3	1.205	IDENTIFIED 7.929	<input type="checkbox"/>	
Titanium-44	LA	0.3221	0.02104	pCi/g 0.04142	N	0 7 0		FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium		5.4059	1.20E-06	ug/g 1.0584	N	0			<input type="checkbox"/>	
Uranium-234	NR	1.094	0.09754	pCi/g 0.09549	N	609.1 4	1.368	IDENTIFIED 6.563	<input type="checkbox"/>	
Uranium-238	NR	1.807	0.4041	pCi/g 0.7097	N	63.35 2	0.8907	IDENTIFIED 20.33	<input type="checkbox"/>	
Zirconium-97		1.63E+06	6.58E+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
244600008	07-JAN-10 12:00	22-JAN-10 08:35	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	1.728	0.1827	pCi/g 0.2347	N	910.5 3	1.689	IDENTIFIED 8.992	<input type="checkbox"/>	
Americium-243	INT	0.4147	0.07196	pCi/g 0.1312	N	74.34 1	1.913	IDENTIFIED 16.44	<input type="checkbox"/>	
Annihilation Rad.	HE	0.09752	0.03975	pCi/g 0.04994	N	509.9 1	1.834	IDENTIFIED 40.66	<input type="checkbox"/>	
Barium-137m	NR	0.2342	0.037	pCi/g 0.07002	N	661.1 2	1.489	IDENTIFIED 15.6	<input type="checkbox"/>	
Bismuth-211	INT	3.695	0.2593	pCi/g 0.3982	Y	351.3 4	1.434	IDENTIFIED 6.12	<input checked="" type="checkbox"/>	✓
Bismuth-212	HE	0.7815	0.2222	pCi/g 0.5276	N	726.8 1	1.592	IDENTIFIED 28.17	<input type="checkbox"/>	
Bismuth-214	✓	1.097	0.09201	pCi/g 0.1277	0.200	608.7 4	1.299	IDENTIFIED 7.521	<input type="checkbox"/>	
Cadmium-109	INT	4.026	0.6867	pCi/g 1.649	Y	86.71 3	1.282	IDENTIFIED 16.06	<input checked="" type="checkbox"/>	✓
Cerium-143		1145	165.4	pCi/g 0	N	0 9 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-135	HE	0.3628	0.1105	pCi/g 0.3628	N	0 9 0		NOT_IDENTI 0	<input type="checkbox"/>	
Cesium-137	✓	0.2475	0.03912	pCi/g 0.07402	0.100	661.1 2	1.489	IDENTIFIED 15.6	<input type="checkbox"/>	
Gross Gamma		8.86	1.536	pCi/g 4.002	N	0			<input type="checkbox"/>	
Iodine-123	HE	4.48E+05	2.42E+06	pCi/g 0	N	0 9 0		SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-133	HE	2266	2696	pCi/g 0	N	0 9 0		SHORT_HLIF 0	<input type="checkbox"/>	



Iodine-135	HE	1.21E+15	1.67E+15	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-212	✓	1.643	0.09395	pCi/g	0.1093	0.100	238	4	1.334	IDENTIFIED	3.947	<input type="checkbox"/>
Lead-214	✓	1.285	0.09623	pCi/g	0.1377	0.100	351.3	4	1.434	IDENTIFIED	6.12	<input type="checkbox"/>
Neptunium-237	INT	1.162	0.2317	pCi/g	0.531	N	86.71	3	1.282	IDENTIFIED	16.06	<input type="checkbox"/>
Niobium-95m	LA	1.667	0.1273	pCi/g	0.4193	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97		1.15E+05	55130	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	NR	1.643	0.09395	pCi/g	0.1093	N	238	4	1.334	IDENTIFIED	3.947	<input type="checkbox"/>
Polonium-214	NR	1.285	0.09623	pCi/g	0.1377	N	351.3	4	1.434	IDENTIFIED	6.12	<input type="checkbox"/>
Polonium-216	NR	1.643	0.09395	pCi/g	0.1093	N	238	4	1.334	IDENTIFIED	3.947	<input type="checkbox"/>
Polonium-218	NR	1.285	0.09623	pCi/g	0.1377	N	351.3	4	1.434	IDENTIFIED	6.12	<input type="checkbox"/>
Potassium-40	✓	23.61	1.281	pCi/g	0.6692	1.00	1460	1	2.018	IDENTIFIED	3.85	<input type="checkbox"/>
Radium-224	INT	4.462	0.7412	pCi/g	1.243	Y	240.9	1	1.804	IDENTIFIED	16.25	<input checked="" type="checkbox"/>
Radium-226	✓	1.097	0.09201	pCi/g	0.1277	Y	608.7	4	1.299	IDENTIFIED	7.521	<input type="checkbox"/>
Radium-228	✓	1.728	0.1827	pCi/g	0.2347	0.500	910.5	3	1.689	IDENTIFIED	8.992	<input type="checkbox"/>
Thallium-208	✓	0.5228	0.04299	pCi/g	0.06291	0.080	582.5	1	1.673	IDENTIFIED	7.581	<input type="checkbox"/>
Thorium-228	NR	1.667	0.09535	pCi/g	0.1109	N	238	4	1.334	IDENTIFIED	3.947	<input type="checkbox"/>
Thorium-230	NR	1.097	0.092	pCi/g	0.1277	N	608.7	4	1.299	IDENTIFIED	7.521	<input type="checkbox"/>
Thorium-232	NR	1.728	0.1827	pCi/g	0.2347	N	910.5	3	1.689	IDENTIFIED	8.992	<input type="checkbox"/>
Tin-126	INT	0.3958	0.06752	pCi/g	0.1634	N	86.71	3	1.282	IDENTIFIED	16.06	<input type="checkbox"/>
Titanium-44	LA	0.2155	0.03194	pCi/g	0.1027	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>
Uranium-234	NR	1.097	0.092	pCi/g	0.1277	N	608.7	4	1.299	IDENTIFIED	7.521	<input type="checkbox"/>
Zirconium-97		8.37E+06	9.93E+05	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?	quene		
244600009	07-JAN-10 12:00	22-JAN-10 08:36	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	1.366	0.1404	pCi/g	0.1589	N	911	3	1.761	IDENTIFIED 7.86	<input type="checkbox"/>	
Americium-243	INT	0.3453	0.03583	pCi/g	0.08202	N	75.06	1	1.185	IDENTIFIED 9.497	<input type="checkbox"/>	
Annihilation Rad.		0.1223	0.02492	pCi/g	0.03368	N	510.9	1	1.863	IDENTIFIED 20.1	<input type="checkbox"/>	
Antimony-122	HE	2.18	0.7951	pCi/g	2.18	N	562.6	1	2.011	IDENTIFIED 36.31	<input type="checkbox"/>	
Barium-137m	NR	0.3675	0.03014	pCi/g	0.0453	N	661.6	2	1.619	IDENTIFIED 7.261	<input type="checkbox"/>	
Bismuth-211	INT	3.235	0.2184	pCi/g	0.232	Y	351.8	4	1.512	IDENTIFIED 5.938	<input checked="" type="checkbox"/>	
Bismuth-212	LA	1.25	0.2019	pCi/g	0.4899	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.16	0.07435	pCi/g	0.08435	0.200	609.1	4	1.729	IDENTIFIED 4.594	<input type="checkbox"/>	
Cadmium-109	INT	3.328	0.4714	pCi/g	1.045	Y	87.4	3	1.339	IDENTIFIED 13.4	<input checked="" type="checkbox"/>	
Cerium-143		463.9	73.93	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-135	HE	0.2271	0.06761	pCi/g	0.2214	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Cesium-137	✓	0.3885	0.03188	pCi/g	0.04789	0.100	661.6	2	1.619	IDENTIFIED 7.261	<input type="checkbox"/>	
Gross Gamma		9.185	1.252	pCi/g	2.568	N	0				<input type="checkbox"/>	
Iodine-123	HE	23560	1.51E+06	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	LA	18	3.085	pCi/g	10.66	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	✓	1.506	0.06849	pCi/g	0.06899	0.100	238.8	4	1.258	IDENTIFIED 2.814	<input type="checkbox"/>	
Lead-214	✓	1.125	0.08144	pCi/g	0.08083	0.100	351.8	4	1.512	IDENTIFIED 5.938	<input type="checkbox"/>	
Lutetium-177	HE	2.333	0.6068	pCi/g	1.575	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	INT	0.9608	0.1684	pCi/g	0.3085	N	87.4	3	1.339	IDENTIFIED 13.4	<input type="checkbox"/>	
Niobium-95	HE	0.07615	0.01855	pCi/g	0.0617	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97		1.20E+05	31150	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	NR	1.506	0.06849	pCi/g	0.06899	N	238.8	4	1.258	IDENTIFIED 2.814	<input type="checkbox"/>	
Polonium-214	NR	1.125	0.08144	pCi/g	0.08083	N	351.8	4	1.512	IDENTIFIED 5.938	<input type="checkbox"/>	
Polonium-216	NR	1.506	0.06849	pCi/g	0.06899	N	238.8	4	1.258	IDENTIFIED 2.814	<input type="checkbox"/>	
Polonium-218	NR	1.125	0.08144	pCi/g	0.08083	N	351.8	4	1.512	IDENTIFIED 5.938	<input type="checkbox"/>	
Potassium-40	✓	25.27	1.131	pCi/g	0.3177	1.00	1460	1	2.287	IDENTIFIED 2.37	<input type="checkbox"/>	
Radium-224	INT	4.472	0.4966	pCi/g	0.784	Y	241.7	1	1.833	IDENTIFIED 10.75	<input checked="" type="checkbox"/>	
Radium-226	✓	1.16	0.07435	pCi/g	0.08435	Y	609.1	4	1.729	IDENTIFIED 4.594	<input type="checkbox"/>	
Radium-228	✓	1.366	0.1404	pCi/g	0.1589	0.500	911	3	1.761	IDENTIFIED 7.86	<input type="checkbox"/>	
Strontium-85	LA	0.09202	0.01577	pCi/g	0.05452	Y	0	12	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-200	HE	72.69	133.6	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.4661	0.03426	pCi/g	0.04162	0.080	583.2	1	1.41	IDENTIFIED 6.218	<input type="checkbox"/>	







Lead-212	✓	1.766	0.1027	pCi/g	0.09143	0.100	238.7	4	1.113	IDENTIFIED	3.311	☐
Lead-214	✓	1.347	0.1002	pCi/g	0.114	0.100	352	4	1.114	IDENTIFIED	5.334	☐
Lutetium-177	HE	2.248	0.6638	pCi/g	1.999	N	0	8	0	FAIL_ABUND	0	☐
Neptunium-237	INT	0.9007	0.1642	pCi/g	0.3783	N	87.28	3	1.19	IDENTIFIED	14.29	☐
Polonium-212	NR	1.766	0.1027	pCi/g	0.09143	N	238.7	4	1.113	IDENTIFIED	3.311	☐
Polonium-214	NR	1.347	0.1002	pCi/g	0.114	N	352	4	1.114	IDENTIFIED	5.334	☐
Polonium-216	NR	1.766	0.1027	pCi/g	0.09143	N	238.7	4	1.113	IDENTIFIED	3.311	☐
Polonium-218	NR	1.347	0.1002	pCi/g	0.114	N	352	4	1.114	IDENTIFIED	5.334	☐
Potassium-40	✓	34.48	1.774	pCi/g	0.4961	1.00	1461	1	1.987	IDENTIFIED	2.838	☐
Radium-224	INT	4.352	0.6717	pCi/g	1.041	Y	241.7	1	1.768	IDENTIFIED	14.84	☐
Radium-226	✓	1.284	0.1041	pCi/g	0.1165	Y	609.5	4	1.419	IDENTIFIED	6.246	☐
Radium-228	✓	1.798	0.1751	pCi/g	0.2164	0.500	911.5	3	1.673	IDENTIFIED	7.809	☐
Thallium-200	HE	67.25	185.7	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐
Thallium-208	✓	0.5206	0.04999	pCi/g	0.0615	0.080	583.5	1	1.583	IDENTIFIED	8.326	☐
Thorium-228	NR	1.793	0.1043	pCi/g	0.09279	N	238.7	4	1.113	IDENTIFIED	3.311	☐
Thorium-230	NR	1.284	0.1041	pCi/g	0.1165	N	609.5	4	1.419	IDENTIFIED	6.246	☐
Thorium-232	NR	1.798	0.1751	pCi/g	0.2164	N	911.5	3	1.673	IDENTIFIED	7.809	☐
Tin-126	INT	0.3067	0.04612	pCi/g	0.1146	N	87.28	3	1.19	IDENTIFIED	14.29	☐
Titanium-44	LA	0.3874	0.02601	pCi/g	0.07061	N	0	8	0	FAIL_ABUND	0	☐
Total Uranium		3.5641	2.24E-06	ug/g	2.3729	N		0				☐
Uranium-234	NR	1.284	0.1041	pCi/g	0.1165	N	609.5	4	1.419	IDENTIFIED	6.246	☐
Zirconium-97	HE	1.42E+05	8.35E+05	pCi/g	0	N	0	8	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		
244600013	07-JAN-10 12:00	22-JAN-10 08:50	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	1.343	0.169	pCi/g	0.2155	N	910.3	3	2.075	IDENTIFIED	11.17	☐
Americium-243	INT	0.4203	0.04489	pCi/g	0.1025	N	74.67	1	1.282	IDENTIFIED	9.713	☐
Annihilation Rad.		0.129	0.0404	pCi/g	0.04611	N	510.4	1	2.058	IDENTIFIED	31.19	☐
Bismuth-211	INT	3.711	0.2473	pCi/g	0.3415	Y	351.5	4	1.284	IDENTIFIED	5.814	☐✓
Bismuth-214	✓	1.145	0.08696	pCi/g	0.1181	0.200	608.7	4	1.715	IDENTIFIED	6.599	☐
Cadmium-109	INT	2.764	0.5131	pCi/g	1.335	Y	87.2	3	1.206	IDENTIFIED	17.92	☐✓
Cerium-143		747.1	115.2	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Cesium-135	HE	0.4503	0.09993	pCi/g	0.3281	N	0	9	0	NOT_IDENTI	0	☐
Gross Gamma		7.726	1.231	pCi/g	2.894	N	0					☐
Iodine-123	HE	2.73E+06	2.07E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Lead-212	✓	1.6	0.07929	pCi/g	0.09655	0.100	238.4	4	1.158	IDENTIFIED	3.412	☐
Lead-214	✓	1.291	0.09238	pCi/g	0.119	0.100	351.5	4	1.284	IDENTIFIED	5.814	☐
Lutetium-177	HE	4.043	1.09	pCi/g	2.14	N	0	9	0	FAIL_ABUND	0	☐
Neptunium-237	INT	0.7979	0.1695	pCi/g	0.4486	N	87.2	3	1.206	IDENTIFIED	17.92	☐
Niobium-95m	LA	0.7615	0.08763	pCi/g	0.2993	N	0	9	0	NOT_IDENTI	0	☐
Niobium-97	HE	21550	40830	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Polonium-212	NR	1.6	0.07929	pCi/g	0.09655	N	238.4	4	1.158	IDENTIFIED	3.412	☐
Polonium-214	NR	1.291	0.09238	pCi/g	0.119	N	351.5	4	1.284	IDENTIFIED	5.814	☐
Polonium-216	NR	1.6	0.07929	pCi/g	0.09655	N	238.4	4	1.158	IDENTIFIED	3.412	☐
Polonium-218	NR	1.291	0.09238	pCi/g	0.119	N	351.5	4	1.284	IDENTIFIED	5.814	☐
Potassium-40	✓	19.82	1.094	pCi/g	0.5696	1.00	1459	1	2.159	IDENTIFIED	4.056	☐
Radium-224	INT	4.4	0.6593	pCi/g	1.099	Y	241.4	1	1.91	IDENTIFIED	14.72	☐✓
Radium-226	✓	1.145	0.08696	pCi/g	0.1181	Y	608.7	4	1.715	IDENTIFIED	6.599	☐
Radium-228	✓	1.343	0.169	pCi/g	0.2155	0.500	910.3	3	2.075	IDENTIFIED	11.17	☐
Technetium-99m		7.12E+13	0	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Thallium-208	✓	0.486	0.03799	pCi/g	0.0603	0.080	582.5	1	1.255	IDENTIFIED	7.11	☐
Thorium-228	NR	1.624	0.08047	pCi/g	0.09799	N	238.4	4	1.158	IDENTIFIED	3.412	☐
Thorium-230	NR	1.145	0.08696	pCi/g	0.118	N	608.7	4	1.715	IDENTIFIED	6.599	☐
Thorium-232	NR	1.343	0.169	pCi/g	0.2155	N	910.3	3	2.075	IDENTIFIED	11.17	☐
Tin-126	INT	0.2717	0.05045	pCi/g	0.154	N	87.2	3	1.206	IDENTIFIED	17.92	☐
Titanium-44	LA	0.3974	0.03235	pCi/g	0.09237	N	0	9	0	FAIL_ABUND	0	☐
Total Uranium		7.3243	3.32E-06	ug/g	3.83	N	0					☐

Uranium-234 *NR* 1.145 0.08696 pCi/g 0.118 N 608.7 4 1.715 IDENTIFIED 6.599 ☐  
 Zirconium-97 4.91E+06 9.29E+05 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
244612001	07-JAN-10 12:00	22-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 <i>NR</i>	1.42	0.1898	pCi/g	0.275	N	910.8 3	1.474	IDENTIFIED 12.31	<input type="checkbox"/>	
Americium-243 <i>INT</i>	0.2719	0.03091	pCi/g	0.05932	N	74.71 1	1.343	IDENTIFIED 10.52	<input type="checkbox"/>	
Annihilation Rad.	0.1669	0.04004	pCi/g	0.05936	N	510.5 1	2.169	IDENTIFIED 23.73	<input type="checkbox"/>	
Bismuth-210 <i>HE</i>	1.39	0.4573	pCi/g	0.8516	N	46.32 3	1.119	IDENTIFIED 32.65	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	2.359	0.2146	pCi/g	0.3962	Y	351.6 4	1.471	IDENTIFIED 8.34	<input checked="" type="checkbox"/>	<i>✓</i>
Bismuth-214 <i>✓</i>	0.9997	0.1014	pCi/g	0.1346	0.200	608.8 4	1.528	IDENTIFIED 9.003	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	2.888	0.3747	pCi/g	1.029	Y	87.12 3	1.258	IDENTIFIED 12.35	<input checked="" type="checkbox"/>	<i>✓</i>
Cerium-143	547.1	97.77	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Gross Gamma	8.017	1.375	pCi/g	2.491	N	0	0	0	<input type="checkbox"/>	
Iodine-123	4.91E+06	2.20E+06	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135 <i>HE</i>	3.97E+14	2.25E+15	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-210 <i>HE</i>	1.39	0.4573	pCi/g	0.8516	N	46.32 3	1.119	IDENTIFIED 32.65	<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.136	0.07516	pCi/g	0.09524	0.100	238.4 4	1.387	IDENTIFIED 4.811	<input type="checkbox"/>	
Lead-214 <i>✓</i>	0.8205	0.07767	pCi/g	0.1379	0.100	351.6 4	1.471	IDENTIFIED 8.34	<input type="checkbox"/>	
Neptunium-237 <i>INT</i>	0.8338	0.1382	pCi/g	0.3405	N	87.12 3	1.258	IDENTIFIED 12.35	<input type="checkbox"/>	
Niobium-97 <i>HE</i>	42830	44740	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-210 <i>HE</i>	1.39	0.4564	pCi/g	0.8516	N	46.32 3	1.119	IDENTIFIED 32.65	<input type="checkbox"/>	
Polonium-212 <i>NR</i>	1.136	0.07516	pCi/g	0.09524	N	238.4 4	1.387	IDENTIFIED 4.811	<input type="checkbox"/>	
Polonium-214 <i>NR</i>	0.8205	0.07767	pCi/g	0.1379	N	351.6 4	1.471	IDENTIFIED 8.34	<input type="checkbox"/>	
Polonium-216 <i>NR</i>	1.136	0.07516	pCi/g	0.09524	N	238.4 4	1.387	IDENTIFIED 4.811	<input type="checkbox"/>	
Polonium-218 <i>NR</i>	0.8205	0.07767	pCi/g	0.1379	N	351.6 4	1.471	IDENTIFIED 8.34	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	34.08	1.468	pCi/g	0.6428	1.00	1460 1	2.056	IDENTIFIED 3.035	<input type="checkbox"/>	
Radium-224 <i>INT</i>	2.558	0.5509	pCi/g	1.084	Y	241.4 1	1.42	IDENTIFIED 21.17	<input checked="" type="checkbox"/>	<i>✓</i>
Radium-226 <i>✓</i>	0.9997	0.1014	pCi/g	0.1346	Y	608.8 4	1.528	IDENTIFIED 9.003	<input type="checkbox"/>	
Radium-228 <i>✓</i>	1.42	0.1898	pCi/g	0.275	0.500	910.8 3	1.474	IDENTIFIED 12.31	<input type="checkbox"/>	
Technetium-99m	1.97E+16	0	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-200 <i>HE</i>	136.4	226.3	pCi/g	0	N	0 8 0	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208 <i>✓</i>	0.4393	0.04946	pCi/g	0.06889	0.080	582.6 1	1.583	IDENTIFIED 10.47	<input type="checkbox"/>	
Thorium-228 <i>NR</i>	1.153	0.07628	pCi/g	0.09666	N	238.4 4	1.387	IDENTIFIED 4.811	<input type="checkbox"/>	
Thorium-230 <i>NR</i>	0.9997	0.1014	pCi/g	0.1346	N	608.8 4	1.528	IDENTIFIED 9.003	<input type="checkbox"/>	
Thorium-232 <i>NR</i>	1.42	0.1898	pCi/g	0.275	N	910.8 3	1.474	IDENTIFIED 12.31	<input type="checkbox"/>	
Thorium-234 <i>✓</i>	1.237	0.5378	pCi/g	1.011	2.00	63.23 2	1.14	IDENTIFIED 42.48	<input type="checkbox"/>	
Tin-126 <i>INT</i>	0.2839	0.03684	pCi/g	0.101	N	87.12 3	1.258	IDENTIFIED 12.35	<input type="checkbox"/>	
Titanium-44 <i>LA</i>	0.2888	0.02312	pCi/g	0.05471	N	0 8 0	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	3.8532	1.60E-06	ug/g	1.5068	N	0	0	0	<input type="checkbox"/>	
Uranium-234 <i>NR</i>	0.9997	0.1014	pCi/g	0.1346	N	608.8 4	1.528	IDENTIFIED 9.003	<input type="checkbox"/>	
Uranium-235 <i>✓</i>	0.3719	0.1443	pCi/g	0.3607	0.500	143.2 1	1.708	IDENTIFIED 37.67	<input checked="" type="checkbox"/>	<i>✓</i>
Uranium-238 <i>HE</i>	1.237	0.5378	pCi/g	1.011	N	63.23 2	1.14	IDENTIFIED 42.48	<input type="checkbox"/>	
Zirconium-97	2.98E+06	1.01E+06	pCi/g	0	N	0 8 0	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
244613001	07-JAN-10 12:00	22-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 <i>NR</i>	1.535	0.1564	pCi/g	0.1829	N	911.8 3	1.595	IDENTIFIED 8.318	<input type="checkbox"/>	
Americium-243 <i>INT</i>	0.3037	0.04361	pCi/g	0.08425	N	74.86 1	1.617	IDENTIFIED 13.8	<input type="checkbox"/>	
Annihilation Rad. <i>HE</i>	0.09269	0.02763	pCi/g	0.04646	N	511 1	1.665	IDENTIFIED 29.66	<input type="checkbox"/>	
Barium-137m <i>NR</i>	0.1241	0.02679	pCi/g	0.05828	N	661.6 2	1.195	IDENTIFIED 21.4	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	3.179	0.2223	pCi/g	0.3288	Y	351.9 4	1.388	IDENTIFIED 6.221	<input checked="" type="checkbox"/>	<i>✓</i>
Bismuth-212 <i>HE</i>	0.7534	0.2038	pCi/g	0.4068	N	0 12 0	0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	0.9889	0.08567	pCi/g	0.0984	0.200	609.5 4	1.678	IDENTIFIED 7.72	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	2.107	0.4435	pCi/g	1.354	Y	87.17 3	1.602	IDENTIFIED 20.58	<input checked="" type="checkbox"/>	<i>✓</i>



\*\*\* = Number of isotopes identified with a keyline at this energy.

13 of 14      Page 150 of 1111      1/22/2010 2:36 PM

Uranium-234	0.8395	0.1262	pCi/g	0.2035	N	609.2	4	1.383	IDENTIFIED	13.77	<input type="checkbox"/>
-------------	--------	--------	-------	--------	---	-------	---	-------	------------	-------	--------------------------

\*\*\* = Number of isotopes identified with a keyline at this energy.

# GEL QUALS

Batch ID: 941635

Report run on: January 25, 2010 11:23 AM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244600001-1 22-JAN-2010 07:38	Bismuth-211	UI	UI	UI Data rejected due to interference.		1.808			
	Radium-224	UI	UI	UI Data rejected due to interference.		2.608			
	Strontium-85	UI	UI	UI Data rejected due to low abundance.		.1033			
244600001-1 22-JAN-2010 07:54	Bismuth-211	UI	UI	UI Data rejected due to interference.		3.422			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		1.925			
	Cesium-134	UI	UI	UI Data rejected due to low abundance.		.1001		.1	.1
	Radium-224	UI	UI	UI Data rejected due to interference.		4.194			
	Strontium-85	UI	UI	UI Data rejected due to low abundance.		.0658			
244600002-1 22-JAN-2010 07:55	Bismuth-211	UI	UI	UI Data rejected due to interference.		3.126			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		1.5			
	Radium-224	UI	UI	UI Data rejected due to interference.		3.821			
	Thorium-234	UI	UI	UI Data rejected due to high counting uncertainty.		1.286		2	2
244600003-1 22-JAN-2010 07:55	Bismuth-211	UI	UI	UI Data rejected due to interference.		3.884			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		3.525			
	Radium-224	UI	UI	UI Data rejected due to interference.		4.18			
	Thorium-234	UI	UI	UI Data rejected due to high counting uncertainty.		1.972		2	2
244600004-1 22-JAN-2010 07:56	Bismuth-211	UI	UI	UI Data rejected due to interference.		3.349			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		2.169			
	Cesium-134	UI	UI	UI Data rejected due to low abundance.		.1205		.1	.1
	Radium-224	UI	UI	UI Data rejected due to interference.		4.368			



# GEL QUALS

Batch ID: 941635

Report run on: January 25, 2010 11:23 AM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244600005-1 22-JAN-2010 07:57	Bismuth-211	UI	UI	Data rejected due to interference.		4.002			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.136			
	Radium-224	UI	UI	Data rejected due to interference.		4.839			
244600006-1 22-JAN-2010 08:05	Bismuth-211	UI	UI	Data rejected due to interference.		4.011			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.091			
	Radium-224	UI	UI	Data rejected due to interference.		3.918			
	Radium-228	UI	UI	Data rejected due to low abundance.		1.844		.5	.5
244600007-1 22-JAN-2010 08:05	Bismuth-211	UI	UI	Data rejected due to interference.		3.435			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.775			
	Radium-224	UI	UI	Data rejected due to interference.		4.397			
244600008-1 22-JAN-2010 08:35	Bismuth-211	UI	UI	Data rejected due to interference.		3.695			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.026			
	Radium-224	UI	UI	Data rejected due to interference.		4.462			
244600009-1 22-JAN-2010 08:36	Bismuth-211	UI	UI	Data rejected due to interference.		3.235			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.328			
	Radium-224	UI	UI	Data rejected due to interference.		4.472			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.09202			
244600010-1 22-JAN-2010 08:37	Bismuth-211	UI	UI	Data rejected due to interference.		4.091			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.793			

# GEL QUALS

Batch ID: 941635

Report run on: January 25, 2010 11:23 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
244600010-1 22-JAN-2010 08:37	Radium-224	UI	UI	UI	Data rejected due to interference.		5.332			
244600011-1 22-JAN-2010 08:37	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.743			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.802			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1102		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.031			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1232			
244600012-1 22-JAN-2010 08:49	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.872			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.119			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1283		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.352			
244600013-1 22-JAN-2010 08:50	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.711			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.784			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.4			
244612001-1 22-JAN-2010 08:02	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.359			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.888			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.558			
	Uranium-235				Data rejected due to no valid peak		0.3719			
244613001-1 22-JAN-2010 08:03	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.179			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.107			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.389			

# GEL QUALS

Batch ID: 941635

Report run on: January 25, 2010 11:23 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
244613001-1 22-JAN-2010 09:03	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07666			
1202015436-1 DUP 22-JAN-2010 10:24	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.055			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.251			
	Radium-228	UI	UI	UI	Data rejected due to low abundance.		.8929		.5	.5

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
941635	244612001	SAMPLE	22-JAN-10	Zirconium-97	2.96E+06	1.01E+06	pCi/g	0	N
941635	244613001	SAMPLE	22-JAN-10	Bismuth-211	3.179	0.2223	pCi/g	0.1645	Y
				Bismuth-214	0.9889	0.08567	pCi/g	0.04923	0.200
				Cadmium-109	2.107	0.4435	pCi/g	0.8774	Y
				Cerium-143	670.8	100.9	pCi/g	0	N
				Cesium-134	0.07488	0.02125	pCi/g	0.03997	0.100
				Cesium-137	0.1311	0.02832	pCi/g	0.03082	0.100
				Gross Gamma	7.246	1.136	pCi/g	1.409	N
				Iodine-133	2043	2168	pCi/g	0	N
				Iodine-135	1.05E+15	1.39E+15	pCi/g	0	N
				Krypton-85	14.99	4.039	pCi/g	6.816	N
				Lead-212	1.227	0.08503	pCi/g	0.04315	0.100
				Lead-214	1.106	0.08254	pCi/g	0.05266	0.100
				Mercury-203	0.03432	0.01805	pCi/g	0.03287	0.100
				Niobium-97	27300	37400	pCi/g	0	N
				Potassium-40	20.67	1.067	pCi/g	0.246	1.00
				Protactinium-234m	5.116	2.028	pCi/g	3.684	N
				Radium-224	3.389	0.6061	pCi/g	0.4807	Y
				Radium-226	0.9889	0.08567	pCi/g	0.04923	Y
				Radium-228	1.555	0.1564	pCi/g	0.99153	0.500
				Sodium-24	1.01E+05	2.24E+05	pCi/g	0	N
				Strontium-85	0.07688	0.02068	pCi/g	0.03488	Y
				Thallium-208	0.3631	0.03885	pCi/g	0.02822	0.080
				Thorium-234	2.055	0.7281	pCi/g	0.9765	2.00
				Zirconium-97	2.09E+06	7.20E+05	pCi/g	0	N
941635	1202015435	MB	22-JAN-10	Iodine-123	60.77	69.49	pCi/g	0	N
				Iodine-135	6.69E+06	3.99E+06	pCi/g	0	N
				Krypton-85	7.946	2.294	pCi/g	4.084	N
				Niobium-97	10.8	10.35	pCi/g	0	N
				Radon-220	11.55	5.827	pCi/g	11.07	N
				Sodium-24	11.92	37.28	pCi/g	0	N
				Strontium-85	0.03757	0.01085	pCi/g	0.01922	Y
				Technetium-99m	1.42E+06	4.74E+06	pCi/g	0	N
				Thorium-227	0.1588	0.08344	pCi/g	0.1587	Y
				Zirconium-97	721.8	231.5	pCi/g	0	N
941635	1202015436	DUP	22-JAN-10	Bismuth-211	2.055	0.178	pCi/g	0.1218	Y
				Bismuth-214	0.8425	0.0667	pCi/g	0.03762	0.200

MLP 1/25/10

MLP 1/25/10

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:39:28.34

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244597001.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:38:16
Sample ID          : G244597001      Sample quantity   : 1.55800E+02 GRAM
Detector name      : GAM14           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.33  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941635          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.03*	55	475	1.85	91.64	87	12	7.62E-03	82.6	
2	0	63.33*	100	540	1.12	126.22	122	10	1.39E-02	45.4	
3	2	75.03	348	644	1.69	149.59	144	14	4.84E-02	15.3	1.36E+00
4	2	77.24*	447	412	1.20	154.01	144	14	6.20E-02	9.6	
5	5	87.11	108	528	1.73	173.73	170	21	1.51E-02	35.9	2.79E+00
6	5	92.90*	246	562	1.80	185.29	170	21	3.42E-02	21.3	
7	0	186.11*	165	268	1.40	371.54	367	10	2.29E-02	21.3	
8	2	238.58*	920	195	1.59	476.39	469	20	1.28E-01	4.5	2.60E+00
9	2	241.68	236	183	1.87	482.58	469	20	3.28E-02	16.1	
10	0	294.90	274	214	1.45	588.94	583	12	3.81E-02	12.2	
11	0	328.15	124	187	1.89	655.38	648	14	1.72E-02	25.4	
12	0	338.21	190	124	1.28	675.48	671	10	2.64E-02	13.1	
13	0	352.07	406	237	1.44	703.20	695	16	5.63E-02	9.9	
14	0	462.79	76	121	1.84	924.50	919	12	1.06E-02	31.0	
15	0	477.06	57	119	3.76	953.02	945	14	7.89E-03	42.9	
16	0	511.49*	190	128	2.47	1021.84	1011	23	2.64E-02	19.1	
17	0	569.68*	137	88	2.24	1138.16	1130	16	1.91E-02	18.2	
18	0	583.37*	257	80	1.38	1165.54	1160	11	3.58E-02	9.3	
19	0	609.43*	405	104	1.71	1217.63	1209	19	5.62E-02	7.9	
20	0	661.95	278	85	1.55	1322.63	1316	16	3.87E-02	9.5	
21	0	727.80*	50	67	1.62	1454.30	1449	10	6.94E-03	34.8	
22	0	795.21	42	85	1.17	1589.10	1583	13	5.76E-03	48.2	
23	0	860.47	71	38	1.34	1719.59	1712	14	9.81E-03	22.1	
24	0	912.06*	179	107	1.50	1822.77	1816	16	2.49E-02	15.1	
25	0	969.60*	108	43	1.07	1937.86	1933	10	1.49E-02	15.5	
26	0	1120.72	90	80	1.76	2240.13	2230	16	1.25E-02	24.6	
27	0	1461.77*	1598	26	2.06	2922.52	2914	17	2.22E-01	2.6	
28	0	1731.23	19	16	1.67	3461.87	3453	16	2.65E-03	52.1	
29	0	1764.96*	70	4	3.03	3529.39	3520	18	9.66E-03	14.7	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244597001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 07:38:16
Sample ID        : G244597001             Sample quantity  : 155.80 GRAM
Sample type      : SOLID                  Sample geometry  :
Detector name    : GAMMA14               Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.33    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
BE-7	+	477.59	*	4.867E-01	4.186E-01	3.843E-01	2.590E-02	1.267
K-40	+	1460.81	*	2.982E+01	2.668E+00	4.473E-01	3.248E-02	66.665
CD-109	+	88.03	*	1.019E+00	7.382E-01	9.569E-01	8.367E-02	1.065
SN-126	+	64.28		5.408E-01	4.969E-01	5.332E-01	7.598E-02	1.014
	+	86.94		4.168E-01	3.457E-01	4.287E-01	1.773E-01	0.972
	+	87.57	*	1.002E-01	7.259E-02	9.440E-02	8.214E-03	1.062
BA-137M	+	661.65	*	3.024E-01	6.018E-02	3.643E-02	2.166E-03	8.300
CS-137	+	661.65	*	3.197E-01	6.364E-02	3.851E-02	2.299E-03	8.300
TL-208		277.35		3.485E-01	2.925E-01	5.100E-01	5.393E-02	0.683
	+	510.84		6.863E-01	2.708E-01	1.654E-01	1.687E-02	4.148
	+	583.14	*	2.672E-01	5.316E-02	4.459E-02	3.050E-03	5.991
	+	860.37		7.025E-01	3.175E-01	3.559E-01	3.348E-02	1.974
BI-210	+	46.50	*	1.863E+00	3.080E+00	2.758E+00	2.045E-01	0.676
PB-210	+	46.50	*	1.863E+00	3.080E+00	2.758E+00	2.045E-01	0.676
PO-210	+	46.50	*	1.863E+00	3.079E+00	2.758E+00	1.730E-01	0.676
BI-211		72.87		5.652E+00	2.612E+00	3.991E+00	2.941E-01	1.416
	+	351.07	*	1.808E+00	3.750E-01	2.463E-01	1.560E-02	7.342
PB-212	+	74.81		1.285E+00	4.234E-01	3.891E-01	4.666E-02	3.303
	+	77.11		9.466E-01	1.963E-01	2.058E-01	1.584E-02	4.600
	+	87.30		4.636E-01	3.389E-01	4.375E-01	5.791E-02	1.060
	+	238.63	*	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
		300.09		9.913E-01	6.533E-01	1.037E+00	8.575E-02	0.956
PO-212	+	74.81		1.285E+00	4.234E-01	3.891E-01	4.666E-02	3.303
	+	77.11		9.466E-01	1.963E-01	2.058E-01	1.584E-02	4.600
	+	87.30		4.636E-01	3.389E-01	4.375E-01	5.791E-02	1.060
		115.19		3.868E-01	2.790E+00	4.521E+00	3.290E-01	0.086
	+	238.63	*	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
		300.09		9.913E-01	6.533E-01	1.037E+00	8.575E-02	0.956
BI-214	+	609.31	*	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
	+	1120.29		9.428E-01	4.719E-01	4.015E-01	3.720E-02	2.348
	+	1764.49		1.002E+00	2.999E-01	2.293E-01	1.375E-02	4.369
PB-214	+	74.81		2.214E+00	7.186E-01	6.704E-01	7.074E-02	3.303
	+	77.11		1.623E+00	3.585E-01	3.528E-01	3.821E-02	4.600
	+	87.30		7.943E-01	5.784E-01	7.495E-01	8.696E-02	1.060

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		1.375E+00	4.559E-01	4.016E-01	3.226E-02	3.425
	+	295.21		7.206E-01	1.867E-01	1.746E-01	1.493E-02	4.127
	+	351.92	*	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327
	+	74.81		2.214E+00	7.186E-01	6.704E-01	7.074E-02	3.303
	+	77.11		1.623E+00	3.585E-01	3.528E-01	3.821E-02	4.600
	+	87.30		7.943E-01	5.784E-01	7.495E-01	8.696E-02	1.060
PO-216	+	241.98		1.375E+00	4.559E-01	4.016E-01	3.226E-02	3.425
	+	295.21		7.206E-01	1.867E-01	1.746E-01	1.493E-02	4.127
	+	351.92	*	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327
	+	74.81		1.285E+00	4.234E-01	3.891E-01	4.666E-02	3.303
	+	77.11		9.466E-01	1.963E-01	2.058E-01	1.584E-02	4.600
	+	87.30		4.636E-01	3.389E-01	4.375E-01	5.791E-02	1.060
PO-218	+	238.63	*	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
	+	300.09		9.913E-01	6.533E-01	1.037E+00	8.575E-02	0.956
	+	74.81		2.214E+00	7.186E-01	6.704E-01	7.074E-02	3.303
	+	77.11		1.623E+00	3.585E-01	3.528E-01	3.821E-02	4.600
	+	87.30		7.943E-01	5.784E-01	7.495E-01	8.696E-02	1.060
	+	241.98		1.375E+00	4.559E-01	4.016E-01	3.226E-02	3.425
RA-224	+	295.21		7.206E-01	1.867E-01	1.746E-01	1.493E-02	4.127
	+	351.92	*	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327
	+	240.98	*	2.608E+00	8.520E-01	7.591E-01	4.363E-02	3.435
	+	609.31	*	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
	+	1120.29		9.428E-01	4.719E-01	4.015E-01	3.720E-02	2.348
	+	1764.49		1.002E+00	2.999E-01	2.293E-01	1.375E-02	4.369
AC-228	+	338.32		9.328E-01	4.519E-01	2.792E-01	1.138E-01	3.340
	+	911.07	*	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
	+	969.11		8.975E-01	3.478E-01	3.862E-01	9.018E-02	2.324
	+	338.32		9.328E-01	4.519E-01	2.792E-01	1.138E-01	3.340
	+	911.07	*	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
	+	969.11		8.975E-01	3.478E-01	3.862E-01	9.018E-02	2.324
TH-228	+	74.81		1.304E+00	4.124E-01	3.949E-01	3.000E-02	3.303
	+	77.11		9.607E-01	1.992E-01	2.088E-01	1.608E-02	4.600
	+	87.30		4.705E-01	3.407E-01	4.440E-01	3.850E-02	1.060
	+	238.63	*	9.062E-01	1.047E-01	6.773E-02	4.934E-03	13.379
	+	300.09		1.006E+00	8.856E-01	1.052E+00	6.202E-01	0.956
	+	609.31	*	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
TH-230	+	1120.29		9.428E-01	4.719E-01	4.015E-01	3.720E-02	2.348
	+	1764.49		1.002E+00	2.999E-01	2.293E-01	1.375E-02	4.369
	+	338.32		9.328E-01	2.502E-01	2.792E-01	1.604E-02	3.340
	+	911.07	*	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
	+	969.11		8.975E-01	3.478E-01	3.862E-01	9.018E-02	2.324
	+	63.29	*	1.366E+00	1.262E+00	1.384E+00	2.379E-01	0.987
TH-234	+	92.38		1.497E+00	6.910E-01	6.266E-01	1.126E-01	2.389
	+	609.31	*	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
	+	1120.29		9.428E-01	4.719E-01	4.015E-01	3.720E-02	2.348
	+	1764.49		1.002E+00	2.999E-01	2.293E-01	1.375E-02	4.369
	+	86.50	*	2.944E-01	2.216E-01	2.868E-01	6.409E-02	1.027
	+	95.87		5.131E-01	8.378E-01	1.208E+00	2.955E-01	0.425
U-238	+	63.29	*	1.366E+00	1.262E+00	1.384E+00	2.379E-01	0.987

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	92.38		1.497E+00	6.488E-01	6.266E-01	5.242E-02	2.389
	+	74.67	*	2.083E-01	6.583E-02	6.322E-02	4.744E-03	3.295
	+	86.72		1.104E+01	7.993E+00	1.137E+01	9.793E-01	0.971
		117.66		-2.472E+00	3.020E+00	4.692E+00	3.383E-01	-0.527
ANH-511		142.18		8.982E+00	1.409E+01	2.316E+01	1.457E+00	0.388
	+	511.00	*	1.482E-01	5.717E-02	3.575E-02	2.100E-03	4.147

## ---- 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	*	-3.521E-02	3.799E-02	5.668E-02	3.702E-03	-0.621
NA-24		1368.53	*	2.680E-02	3.799E-02	Half-Life too short		
AL-26		1129.67		1.837E-01	1.429E+00	2.392E+00	1.510E-01	0.077
		1808.65	*	1.649E-04	2.290E-02	3.706E-02	2.148E-03	0.004
TI-44		67.85		-4.922E-02	3.786E-02	5.002E-02	3.521E-03	-0.984
	+	78.38	*	1.747E-01	3.623E-02	5.430E-02	4.240E-03	3.217
SC-46		889.25	*	-3.296E-02	3.286E-02	5.000E-02	4.620E-03	-0.659
	+	1120.51		1.610E-01	7.988E-02	9.820E-02	6.359E-03	1.639
V-48		944.10		2.919E-01	7.333E-01	1.264E+00	1.129E-01	0.231
		983.50	*	-1.633E-02	6.239E-02	1.017E-01	8.633E-03	-0.161
		1312.09		-6.770E-02	6.812E-02	9.933E-02	6.864E-03	-0.682
CR-51		320.08	*	2.570E-02	2.853E-01	4.499E-01	2.907E-02	0.057
MN-52		744.21		2.354E-02	1.848E-01	3.011E-01	2.125E-02	0.078
		848.13		8.806E-01	5.152E+00	8.757E+00	7.525E-01	0.101
		935.52		3.729E-01	2.074E-01	3.895E-01	3.515E-02	0.957
		1246.25		3.462E+00	6.036E+00	1.042E+01	6.490E-01	0.332
		1333.61		2.851E-01	3.836E+00	6.355E+00	4.529E-01	0.045
		1434.06	*	-1.096E-01	1.453E-01	2.038E-01	1.428E-02	-0.538
MN-54		834.83	*	1.306E-02	2.908E-02	5.046E-02	4.232E-03	0.259
CO-56		846.75	*	-7.869E-03	3.010E-02	4.932E-02	4.227E-03	-0.160
		977.42		1.284E+00	2.647E+00	4.492E+00	3.847E-01	0.286
		1037.82		1.019E-01	2.696E-01	4.620E-01	3.827E-02	0.221
		1175.09		7.277E-01	1.905E+00	3.246E+00	1.794E-01	0.224
		1238.25		1.405E-01	7.988E-02	1.468E-01	9.536E-03	0.957
		1360.21		1.708E-01	7.334E-01	1.241E+00	8.814E-02	0.138
		1771.40		1.079E-02	1.886E-01	2.656E-01	1.585E-02	0.041
CO-57		122.06	*	-2.699E-03	2.047E-02	3.277E-02	2.332E-03	-0.082
		136.48		-1.215E-01	1.588E-01	2.459E-01	1.805E-02	-0.494
CO-58		810.76	*	-3.134E-02	3.170E-02	4.568E-02	3.676E-03	-0.686
FE-59		142.65		1.679E+00	2.142E+00	3.540E+00	2.220E-01	0.474
		192.34		-2.742E-01	7.520E-01	1.118E+00	1.306E-01	-0.245
		1099.22	*	-2.222E-02	8.207E-02	1.330E-01	1.024E-02	-0.167
		1291.56		-1.038E-02	1.014E-01	1.650E-01	1.343E-02	-0.063
CO-60		1173.22		-1.706E-02	3.884E-02	6.175E-02	3.401E-03	-0.276
		1332.49	*	-1.822E-02	3.251E-02	4.980E-02	3.549E-03	-0.366
ZN-65		1115.52	*	4.347E-02	8.628E-02	1.304E-01	8.568E-03	0.333
GE-68		1077.35	*	-8.387E-01	1.066E+00	1.641E+00	1.179E-01	-0.511
AS-73		53.44	*	-1.119E-01	5.028E-01	7.862E-01	5.125E-02	-0.142



## ---- 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	*	-3.432E-02	7.604E-02	1.194E-01	7.143E-03	-0.287	
	634.78		-1.188E-01	2.651E-01	4.126E-01	2.465E-02	-0.288	
SE-75	66.05		-1.789E+00	3.741E+00	5.212E+00	4.740E-01	-0.343	
	96.73		1.467E-01	6.604E-01	9.440E-01	1.254E-01	0.155	
	121.11		-5.082E-02	1.093E-01	1.724E-01	1.744E-02	-0.295	
	136.00		-2.313E-02	3.004E-02	4.654E-02	3.074E-03	-0.497	
	198.60		-1.480E-01	1.350E+00	2.212E+00	1.531E-01	-0.067	
	264.65	*	-1.620E-03	3.434E-02	5.612E-02	3.295E-03	-0.029	
	279.53		4.253E-02	8.231E-02	1.406E-01	8.852E-03	0.303	
	303.91		-8.404E-01	1.605E+00	2.595E+00	2.480E-01	-0.324	
	400.65		4.623E-02	1.973E-01	3.300E-01	2.939E-02	0.140	
BR-77	+ 87.88		2.020E+02	1.463E+02	2.155E+02	1.882E+01	0.937	
	+ 200.40		3.289E+01	1.108E+02	1.886E+02	1.049E+01	0.174	
	+ 239.00		1.314E+02	1.400E+01	2.263E+01	1.299E+00	5.808	
	249.79		-2.258E+01	4.478E+01	7.306E+01	4.220E+00	-0.309	
	281.68		-9.066E+01	6.418E+01	9.913E+01	5.781E+00	-0.915	
	297.23		1.162E+02	5.029E+01	8.138E+01	4.747E+00	1.427	
	303.76		-6.223E+01	1.259E+02	2.042E+02	1.190E+01	-0.305	
	439.47		3.029E+01	1.019E+02	1.707E+02	9.651E+00	0.177	
	484.57		2.754E+01	1.653E+02	2.668E+02	1.550E+01	0.103	
	520.65	*	-2.785E+00	9.120E+00	1.248E+01	7.357E-01	-0.223	
	574.64		-1.124E+02	1.714E+02	2.225E+02	1.328E+01	-0.505	
	578.91		6.383E+01	6.325E+01	9.917E+01	5.924E+00	0.644	
	585.48		8.298E+02	1.839E+02	3.323E+02	1.986E+01	2.497	
	755.35		6.780E+01	1.256E+02	2.113E+02	1.524E+01	0.321	
	817.79		4.369E+01	9.399E+01	1.638E+02	1.331E+01	0.267	
SR-82	698.33		-2.687E+01	2.637E+01	3.867E+01	2.486E+00	-0.695	
	776.49	*	-4.538E-02	2.888E-01	4.572E-01	3.437E-02	-0.099	
	1395.20		4.270E+00	7.730E+00	1.366E+01	9.649E-01	0.313	
RB-83	520.41	*	-2.004E-02	6.562E-02	8.980E-02	5.293E-03	-0.223	
	529.64		-7.117E-02	8.450E-02	1.291E-01	7.632E-03	-0.551	
	552.65		-3.429E-03	1.521E-01	2.475E-01	1.472E-02	-0.014	
RB-84	881.50	*	8.841E-03	5.936E-02	1.005E-01	9.164E-03	0.088	
KR-85	513.99	*	2.022E+01	6.470E+00	1.217E+01	7.158E-01	1.661	
SR-85	513.99	*	1.033E-01	3.307E-02	6.220E-02	3.659E-03	1.661	
RB-86	1076.63	*	-5.698E-01	6.706E-01	1.025E+00	7.380E-02	-0.556	
Y-88	898.02		1.351E-02	3.559E-02	6.127E-02	5.771E-03	0.221	
	1836.01	*	-1.055E-02	1.915E-02	2.550E-02	1.448E-03	-0.414	
ZR-88	392.90	*	1.258E-02	2.313E-02	3.943E-02	2.147E-03	0.319	
Y-91	1204.90	*	1.209E+01	1.764E+01	3.055E+01	1.777E+00	0.396	
NB-94	702.63	*	3.038E-02	2.471E-02	4.395E-02	2.850E-03	0.691	
	871.10		8.954E-03	2.662E-02	4.584E-02	4.104E-03	0.195	
NB-95	765.79	*	2.201E-02	3.389E-02	5.737E-02	4.225E-03	0.384	
NB-95M	235.69	*	3.536E-01	1.128E-01	1.869E-01	1.397E-02	1.892	
ZR-95	724.18		1.597E-02	7.774E-02	1.109E-01	8.547E-03	0.144	
	756.15	*	4.871E-02	5.784E-02	9.954E-02	8.211E-03	0.489	
NB-97	657.90	*	-2.502E-02	5.784E-02	Half-Life too short			
	1024.50		-9.088E+00	5.784E-02	Half-Life too short			
ZR-97	254.15		-1.044E+00	5.784E-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			1.015E+00	5.784E-02	Half-Life	too short	
	507.63	*		1.727E+00	5.784E-02	Half-Life	too short	
	602.52			-4.327E+00	5.784E-02	Half-Life	too short	
	1021.30			3.477E+00	5.784E-02	Half-Life	too short	
	1147.95			1.619E+00	5.784E-02	Half-Life	too short	
	1362.66			1.486E+00	5.784E-02	Half-Life	too short	
	1750.46			1.655E+00	5.784E-02	Half-Life	too short	
MO-99	140.51			7.727E+00	1.941E+01	3.133E+01	8.482E+00	0.247
	181.06			8.517E+00	1.315E+01	1.992E+01	3.391E+00	0.428
	366.43			-3.902E+01	6.148E+01	9.779E+01	5.488E+00	-0.399
	739.58	*		3.832E+00	8.495E+00	1.421E+01	2.035E+00	0.270
	778.00			-1.805E+01	2.395E+01	3.551E+01	2.678E+00	-0.508
TC-99M	140.51	*		5.305E+09	2.395E+01	Half-Life	too short	
RH-101	127.23			-1.149E-02	2.652E-02	4.191E-02	2.883E-03	-0.274
	198.01	*		-3.175E-03	2.460E-02	4.024E-02	2.232E-03	-0.079
	325.23			2.018E-01	1.958E-01	3.030E-01	1.754E-02	0.666
RH-102	418.52			3.599E-02	2.151E-01	3.581E-01	1.993E-02	0.101
	475.06	*		2.457E-02	2.617E-02	4.043E-02	2.337E-03	0.608
	631.29			1.469E-02	4.249E-02	7.087E-02	4.234E-03	0.207
	697.49			-5.183E-02	5.909E-02	8.786E-02	5.638E-03	-0.590
	766.84			1.277E-01	8.583E-02	1.536E-01	1.133E-02	0.831
	1046.59			-1.049E-02	9.806E-02	1.614E-01	1.235E-02	-0.065
	1112.84			3.444E-03	2.170E-01	3.098E-01	2.047E-02	0.011
RU-103	497.08	*		3.332E-03	3.084E-02	5.087E-02	6.442E-03	0.065
+	610.33			8.518E+00	1.888E+00	2.055E+00	3.183E-01	4.144
RH-106	511.85	+		7.400E-01	2.854E-01	3.323E-01	1.953E-02	2.227
	621.84	*		-4.172E-02	2.469E-01	3.949E-01	4.671E-02	-0.106
	1050.47			-4.057E-01	2.038E+00	3.257E+00	2.474E-01	-0.125
RU-106	511.85	+		7.400E-01	2.854E-01	3.323E-01	1.953E-02	2.227
	621.84	*		-4.172E-02	2.469E-01	3.949E-01	2.361E-02	-0.106
	1050.47			-4.057E-01	2.038E+00	3.257E+00	2.474E-01	-0.125
AG-108M	433.93	*		-4.181E-03	2.367E-02	3.845E-02	2.362E-03	-0.109
	614.37			7.019E-03	3.030E-02	4.372E-02	2.824E-03	0.161
	722.95			-3.851E-02	3.886E-02	4.705E-02	3.382E-03	-0.818
AG-110M	657.75	*		-1.589E-02	3.220E-02	4.226E-02	2.669E-03	-0.376
	677.61			-2.655E-02	2.448E-01	3.922E-01	2.545E-02	-0.068
	706.67			-4.225E-02	1.640E-01	2.588E-01	1.773E-02	-0.163
	763.93			1.594E-02	1.323E-01	2.151E-01	1.640E-02	0.074
	884.67			1.371E-02	4.186E-02	7.185E-02	6.775E-03	0.191
	937.48			1.216E-01	9.456E-02	1.725E-01	1.605E-02	0.705
	1384.27			-1.188E-02	1.407E-01	2.282E-01	1.683E-02	-0.052
IN-111	171.28			-4.954E-01	7.189E-01	1.110E+00	5.986E-02	-0.446
	245.39	*		2.718E-01	7.846E-01	1.170E+00	6.741E-02	0.232
IN-113M	391.69	*		5.678E-03	3.289E-02	5.487E-02	3.211E-03	0.103
SN-113	391.69	*		5.678E-03	3.289E-02	5.487E-02	3.211E-03	0.103
IN-114M	190.27	*		1.245E-01	1.406E-01	2.173E-01	1.196E-02	0.573
CD-115	260.90			5.572E+01	8.785E+01	1.511E+02	8.772E+00	0.369
	492.35			-4.695E+00	2.550E+01	4.119E+01	2.401E+00	-0.114
	527.90	*		-1.392E+01	7.781E+00	1.081E+01	6.389E-01	-1.287

---- 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			1.630E-01	1.787E+00	2.872E+00	1.653E-01	0.057
	158.56	*		-1.204E-03	4.343E-02	6.940E-02	3.926E-03	-0.017
SB-122	563.90	*		1.089E+00	1.629E+00	2.462E+00	1.468E-01	0.442
	692.80			9.868E+00	3.098E+01	5.140E+01	3.266E+00	0.192
I-123	159.00	*		4.558E-01	3.098E+01	Half-Life too short		
	528.96			-2.502E+02	3.098E+01	Half-Life too short		
TE-123M	159.00	*		3.282E-03	2.262E-02	3.642E-02	2.083E-03	0.090
I-124	602.71	*		-5.663E-01	6.053E-01	7.614E-01	4.555E-02	-0.744
	722.78			-3.524E+00	3.881E+00	4.767E+00	3.222E-01	-0.739
	1325.50			1.186E+01	2.689E+01	4.634E+01	3.268E+00	0.256
	1376.25			1.610E+01	2.444E+01	4.292E+01	3.042E+00	0.375
	1509.49			1.407E+01	1.075E+01	2.080E+01	1.427E+00	0.677
	1691.02			4.107E-01	2.601E+00	4.355E+00	2.744E-01	0.094
SB-124	602.71			-3.447E-02	3.684E-02	4.634E-02	2.773E-03	-0.744
	645.85			2.036E-02	3.706E-01	6.034E-01	4.036E-02	0.034
	709.31			-1.566E+00	2.231E+00	3.379E+00	2.222E-01	-0.464
	713.82			-7.052E-01	1.479E+00	2.276E+00	2.437E-01	-0.310
	722.78			-3.109E-01	3.424E-01	4.206E-01	2.942E-02	-0.739
+	968.20			9.208E+00	2.957E+00	5.327E+00	4.619E-01	1.728
	1045.16			5.712E-02	2.160E+00	3.596E+00	2.760E-01	0.016
	1325.50			1.117E+00	2.534E+00	4.367E+00	3.080E-01	0.256
	1368.21			-4.157E-02	1.290E+00	2.105E+00	2.643E-01	-0.020
	1436.60			6.005E-01	2.378E+00	4.058E+00	2.842E-01	0.148
	1691.02	*		8.547E-03	5.413E-02	9.063E-02	6.127E-03	0.094
SB-125	427.89	*		3.074E-02	6.731E-02	1.141E-01	6.690E-03	0.269
+	463.38			5.347E-01	3.329E-01	4.318E-01	2.899E-02	1.238
	600.56			9.720E-02	1.515E-01	2.444E-01	1.678E-02	0.398
	635.90			-1.093E-01	1.985E-01	3.052E-01	2.118E-02	-0.358
TE-125M	109.28	*		-6.089E+00	7.451E+00	1.160E+01	1.089E+00	-0.525
I-126	388.63			-2.112E-01	1.514E-01	2.266E-01	1.238E-02	-0.932
	666.33	*		-8.064E-02	1.462E-01	1.887E-01	1.133E-02	-0.427
	753.82			-7.250E-03	1.167E+00	1.877E+00	1.350E-01	-0.004
SB-126	223.80			-1.095E+00	3.039E+00	5.020E+00	2.851E-01	-0.218
	278.60			1.484E+00	1.869E+00	3.227E+00	1.881E-01	0.460
	296.50			4.596E+00	1.496E+00	2.470E+00	1.441E-01	1.861
	414.70			-5.168E-02	5.709E-02	8.840E-02	4.906E-03	-0.585
	415.30			-3.924E+00	4.671E+00	7.259E+00	4.030E-01	-0.541
	555.20			-7.150E-01	2.933E+00	4.685E+00	2.788E-01	-0.153
	573.80			-3.570E-01	9.212E-01	1.238E+00	7.392E-02	-0.288
	593.00			1.225E-01	7.357E-01	1.211E+00	7.244E-02	0.101
	656.30			-2.381E+00	3.059E+00	3.858E+00	2.297E-01	-0.617
	666.33			-3.368E-02	6.107E-02	7.879E-02	4.732E-03	-0.427
	675.00			8.811E-01	1.601E+00	2.702E+00	1.653E-01	0.326
	695.00			6.327E-02	5.665E-02	9.997E-02	6.381E-03	0.633
	697.00			-2.174E-01	2.078E-01	3.041E-01	1.949E-02	-0.715
	720.50	*		2.062E-02	1.211E-01	1.869E-01	1.258E-02	0.110
	856.80			-1.345E-01	4.274E-01	5.940E-01	5.184E-02	-0.226
	989.30			1.201E-01	1.021E+00	1.707E+00	1.437E-01	0.070
	1034.80			-3.166E+00	7.728E+00	1.239E+01	9.691E-01	-0.256

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1213.00		8.376E-01	4.418E+00	7.388E+00	4.357E-01	0.113
	61.10		3.303E+01	4.070E+01	5.973E+01	5.764E+00	0.553
	252.40		1.105E+00	2.978E+00	5.011E+00	2.080E+00	0.221
	290.80		-5.891E+00	1.807E+01	2.555E+01	2.318E+00	-0.231
	411.60		7.058E+00	8.806E+00	1.513E+01	2.148E+00	0.467
	444.90		-6.379E+00	7.617E+00	1.178E+01	1.253E+00	-0.541
	473.00		7.158E-01	1.326E+00	1.986E+00	2.198E-01	0.360
	543.00		1.939E+00	1.227E+01	2.025E+01	2.611E+00	0.096
	603.60		-8.507E+00	1.049E+01	1.338E+01	1.441E+00	-0.636
	685.20	*	4.462E-01	1.027E+00	1.718E+00	1.652E-01	0.260
	698.50		-1.188E+01	1.130E+01	1.633E+01	2.396E+00	-0.728
	722.20		-2.847E+01	2.721E+01	3.271E+01	3.170E+00	-0.870
XE-127	783.80		2.274E+00	2.685E+00	4.618E+00	5.386E-01	0.492
	57.60		1.776E+00	4.060E+00	6.244E+00	4.113E-01	0.284
	145.22		1.168E-01	5.423E-01	8.773E-01	5.414E-02	0.133
	172.10		5.032E-02	8.832E-02	1.448E-01	7.815E-03	0.348
	202.84	*	2.605E-03	3.451E-02	5.822E-02	3.246E-03	0.045
I-131	374.96		-4.250E-02	1.635E-01	2.607E-01	1.449E-02	-0.163
	80.18		-4.687E+00	3.778E+00	5.028E+00	4.035E-01	-0.932
	284.30		2.742E-02	1.099E+00	1.834E+00	1.188E-01	0.015
	364.48	*	3.233E-02	8.771E-02	1.482E-01	9.354E-03	0.218
	636.97		-6.950E-01	1.148E+00	1.761E+00	1.170E-01	-0.395
TE-132	722.89		-6.143E+00	6.388E+00	7.776E+00	5.310E-01	-0.790
	49.72		-7.988E+00	1.139E+01	1.563E+01	1.427E+00	-0.511
	111.76		2.647E-01	2.199E+01	3.548E+01	3.482E+00	0.007
	116.30		-3.608E+00	2.011E+01	3.216E+01	3.123E+00	-0.112
	228.16	*	3.278E-01	4.915E-01	8.435E-01	1.203E-01	0.389
BA-133	53.15		3.881E-02	2.161E+00	3.413E+00	2.224E-01	0.011
	79.62		1.241E+00	1.103E+00	1.621E+00	2.405E-01	0.766
	81.00		-1.646E-01	9.332E-02	1.066E-01	1.660E-02	-1.544
	276.40		3.528E-01	2.875E-01	5.000E-01	6.489E-02	0.705
	302.84		-2.765E-02	1.098E-01	1.803E-01	2.104E-02	-0.153
I-133	356.01	*	3.950E-03	3.540E-02	5.134E-02	5.901E-03	0.077
	383.85		8.199E-02	2.367E-01	3.986E-01	4.271E-02	0.206
	510.53	+	1.188E+00	2.367E-01	Half-Life	too short	
	529.87	*	-1.721E-03	2.367E-01	Half-Life	too short	
	706.58		-4.779E-02	2.367E-01	Half-Life	too short	
	856.28		-9.053E-02	2.367E-01	Half-Life	too short	
	875.33		-5.173E-02	2.367E-01	Half-Life	too short	
	1236.41		6.985E-01	2.367E-01	Half-Life	too short	
	1298.22		1.039E-01	2.367E-01	Half-Life	too short	
	475.35		2.398E+00	1.519E+00	2.735E+00	1.581E-01	0.877
	563.23		1.827E-01	3.144E-01	4.704E-01	2.859E-02	0.388
	569.32	+	7.733E-01	2.848E-01	3.704E-01	2.272E-02	2.088
CS-134	604.70		-1.389E-02	3.123E-02	4.170E-02	2.508E-03	-0.333
	795.84	*	6.308E-02	6.105E-02	7.376E-02	5.806E-03	0.855
	801.93		-1.134E-01	3.598E-01	4.753E-01	3.776E-02	-0.239
	1038.57		1.343E+00	3.323E+00	5.708E+00	4.434E-01	0.235
	1167.94		-2.349E-01	2.134E+00	3.494E+00	1.960E-01	-0.067

---- 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			-3.887E-01	9.625E-01	1.491E+00	1.129E-01	-0.261
	268.24	*		6.950E-02	1.222E-01	2.090E-01	1.604E-02	0.332
	288.45			9.433E+09	1.222E-01	Half-Life	too short	
	417.63			4.169E+09	1.222E-01	Half-Life	too short	
	546.56			1.797E+09	1.222E-01	Half-Life	too short	
	836.80			7.992E+09	1.222E-01	Half-Life	too short	
	1038.76			2.799E+09	1.222E-01	Half-Life	too short	
	1124.00			1.801E+10	1.222E-01	Half-Life	too short	
	1131.51			-1.637E+09	1.222E-01	Half-Life	too short	
	1260.41	*		8.775E+07	1.222E-01	Half-Life	too short	
	1457.56			6.138E+10	1.222E-01	Half-Life	too short	
	1678.03			1.278E+09	1.222E-01	Half-Life	too short	
	1706.46			1.464E+09	1.222E-01	Half-Life	too short	
	1791.20			1.827E+09	1.222E-01	Half-Life	too short	
	66.91			-4.836E-01	6.031E-01	8.220E-01	1.199E-01	-0.588
CS-136 + 153.22 163.89 176.55 273.65 340.57 818.51 1048.07 1235.34 CE-139 BA-140 162.64 304.84 423.70 537.32 LA-140 + 328.77 432.53 487.03 751.79 815.85 867.82 919.63 925.24 1596.49 CE-141 CE-143 57.37 231.56 293.26 + 350.59 490.36 664.57 721.93 CE-144 80.11 133.54 PM-144 + 476.78								
	86.29			1.288E+00	9.405E-01	1.404E+00	1.800E-01	0.917
	153.22			3.173E-01	5.088E-01	8.355E-01	6.078E-02	0.380
	163.89			-5.035E-01	8.226E-01	1.278E+00	8.907E-02	-0.394
	176.55			-2.182E-01	2.838E-01	4.309E-01	2.665E-02	-0.506
	273.65			-5.808E-01	3.569E-01	5.480E-01	3.637E-02	-1.060
	340.57			2.162E-01	1.163E-01	1.869E-01	1.141E-02	1.157
	818.51			2.916E-02	5.575E-02	9.761E-02	7.953E-03	0.299
	1048.07	*		-7.724E-04	9.098E-02	1.510E-01	1.214E-02	-0.005
	1235.34			-8.068E-02	5.323E-01	8.678E-01	8.831E-02	-0.093
	165.85	*		8.056E-03	2.252E-02	3.657E-02	1.963E-03	0.220
	162.64			-1.397E-01	5.727E-01	9.056E-01	5.664E-02	-0.154
	304.84			-8.627E-01	9.876E-01	1.520E+00	4.150E-01	-0.567
	423.70			-4.616E-01	1.474E+00	2.366E+00	7.510E-01	-0.195
	537.32	*		-1.285E-01	2.026E-01	3.072E-01	9.998E-02	-0.418
	328.77			7.370E-01	3.774E-01	4.187E-01	2.712E-02	1.760
	432.53			-7.514E-01	1.430E+00	2.260E+00	1.412E-01	-0.333
	487.03			1.038E-02	1.087E-01	1.792E-01	1.179E-02	0.058
	751.79			-6.213E-02	1.366E+00	2.191E+00	1.807E-01	-0.028
	815.85			-1.617E-02	2.424E-01	4.046E-01	3.702E-02	-0.040
	867.82			6.800E-01	1.145E+00	1.887E+00	1.763E-01	0.360
	919.63			-8.301E-01	2.517E+00	3.463E+00	3.847E-01	-0.240
	925.24			1.462E-01	8.281E-01	1.406E+00	1.355E-01	0.104
	1596.49	*		-1.133E-02	6.165E-02	9.712E-02	6.438E-03	-0.117
	145.44	*		-3.408E-03	4.955E-02	7.922E-02	5.055E-03	-0.043
	57.37			8.076E-05	4.955E-02	Half-Life	too short	
	231.56			-1.303E-03	4.955E-02	Half-Life	too short	
	293.26	*		4.817E-04	4.955E-02	Half-Life	too short	
	350.59			1.233E-02	4.955E-02	Half-Life	too short	
	490.36			3.467E-04	4.955E-02	Half-Life	too short	
	664.57			4.954E-03	4.955E-02	Half-Life	too short	
	721.93			-9.125E-04	4.955E-02	Half-Life	too short	
	80.11			-2.069E+00	1.786E+00	2.388E+00	1.901E-01	-0.866
	133.54	*		-1.757E-01	1.651E-01	2.501E-01	3.641E-02	-0.703
	476.78			1.024E-01	8.814E-02	1.023E-01	7.090E-03	1.001

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01	8.474E-03	2.504E-02	3.820E-02	2.414E-03	0.222
		696.49 *	-1.602E-02	2.640E-02	4.033E-02	2.584E-03	-0.397
		778.57	-1.229E+00	1.729E+00	2.576E+00	1.945E-01	-0.477
PR-144		696.49 *	-1.085E+00	1.789E+00	2.732E+00	1.749E-01	-0.397
		1489.15	-8.454E+00	6.460E+00	6.757E+00	4.666E-01	-1.251
PM-146		453.90 *	-2.033E-03	3.555E-02	5.816E-02	4.979E-03	-0.035
		633.02	-5.050E-01	1.077E+00	1.649E+00	6.078E-01	-0.306
		735.90	-5.968E-02	1.186E-01	1.803E-01	5.074E-02	-0.331
		747.13	-2.061E-02	7.238E-02	1.134E-01	1.493E-02	-0.182
ND-147		91.11	4.654E-01	2.253E-01	3.829E-01	3.519E-02	1.216
		319.41	8.750E-01	2.483E+00	4.100E+00	2.379E-01	0.213
		439.89	6.456E-01	4.532E+00	7.518E+00	4.254E-01	0.086
		531.02 *	2.031E-01	4.295E-01	7.245E-01	9.832E-02	0.280
PM-149		285.90 *	-1.356E+01	6.454E+01	1.064E+02	1.509E+01	-0.127
EU-152		121.78	-1.594E-02	5.952E-02	9.475E-02	8.196E-03	-0.168
		244.69	2.334E-01	2.684E-01	4.128E-01	2.378E-02	0.565
		344.27 *	-1.250E-02	1.027E-01	1.275E-01	8.251E-03	-0.098
		443.98	-3.929E-01	7.654E-01	1.215E+00	6.890E-02	-0.323
		778.89	-1.731E-01	2.025E-01	2.968E-01	2.242E-02	-0.583
		867.32	3.494E-01	7.154E-01	1.135E+00	1.009E-01	0.308
		964.01	4.704E-01	2.781E-01	4.652E-01	4.056E-02	1.011
		1085.78	-2.833E-01	3.487E-01	5.356E-01	3.779E-02	-0.529
		1112.02	-7.100E-02	3.175E-01	4.396E-01	2.911E-02	-0.161
		1407.95	2.079E-02	1.393E-01	2.326E-01	1.639E-02	0.089
GD-153		69.67	3.155E-01	1.390E+00	1.862E+00	1.332E-01	0.169
		83.37	9.091E+00	1.236E+01	1.800E+01	1.488E+00	0.505
		97.43 *	6.407E-02	6.618E-02	9.816E-02	7.872E-03	0.653
		103.18	-9.841E-02	8.018E-02	1.224E-01	9.445E-03	-0.804
EU-154		123.07	3.036E-02	4.141E-02	6.843E-02	7.002E-03	0.444
		247.94	6.853E-02	2.977E-01	4.402E-01	4.192E-02	0.156
		591.81	1.583E-01	4.926E-01	8.204E-01	8.107E-02	0.193
		723.30	-2.256E-01	1.694E-01	1.948E-01	1.537E-02	-1.158
		756.87	5.930E-02	6.340E-01	1.029E+00	1.134E-01	0.058
		873.19	-1.950E-01	2.359E-01	3.635E-01	4.545E-02	-0.537
		996.32	-8.472E-04	2.841E-01	4.729E-01	8.336E-02	-0.002
		1004.76	7.933E-02	1.769E-01	3.052E-01	3.464E-02	0.260
		1274.45 *	-1.020E-01	1.061E-01	1.571E-01	1.540E-02	-0.649
EU-155		48.70	-1.203E+00	1.539E+00	2.109E+00	1.352E-01	-0.571
		60.01	2.263E+00	3.617E+00	5.282E+00	3.511E-01	0.428
	+	86.54	1.207E-01	8.743E-02	1.302E-01	1.130E-02	0.927
		105.31 *	3.817E-02	8.255E-02	1.357E-01	1.050E-02	0.281
TB-160	+	86.79	3.216E-01	2.329E-01	3.448E-01	2.971E-02	0.933
		197.04	1.140E-01	4.093E-01	6.804E-01	3.771E-02	0.168
		215.65	-2.092E-01	5.512E-01	9.106E-01	5.137E-02	-0.230
		298.57	5.413E-02	1.000E-01	1.498E-01	8.739E-03	0.361
		879.36 *	3.539E-03	1.141E-01	1.915E-01	1.739E-02	0.018
		962.29	3.962E-01	4.798E-01	7.951E-01	6.948E-02	0.498
		966.15	4.187E-01	2.024E-01	3.443E-01	2.994E-02	1.216
		1177.93	-2.131E-01	3.158E-01	4.943E-01	2.745E-02	-0.431

---- 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			-1.712E-01	6.159E-01	9.865E-01	6.405E-02	-0.174
	80.57			-4.395E-01	2.305E-01	2.939E-01	2.352E-02	-1.495
	184.41			4.334E-02	3.178E-02	5.030E-02	2.751E-03	0.862
	280.46			-3.138E-02	6.400E-02	1.041E-01	6.070E-03	-0.302
	410.95			1.711E-01	1.874E-01	3.253E-01	1.800E-02	0.526
	711.68	*		5.292E-03	5.094E-02	8.214E-02	5.428E-03	0.064
TM-171	752.31			-5.708E-02	2.251E-01	3.542E-01	2.540E-02	-0.161
	810.29			-1.042E-02	4.593E-02	7.203E-02	5.774E-03	-0.145
	51.35			-1.449E+00	1.977E+01	2.820E+01	1.829E+00	-0.051
	52.39			-2.907E+00	1.045E+01	1.474E+01	9.585E-01	-0.197
	59.40			1.158E+01	1.920E+01	2.802E+01	1.856E+00	0.413
	66.72	*		-2.384E+01	2.250E+01	3.043E+01	2.122E+00	-0.783
LU-176	88.36			2.378E-01	1.722E-01	2.566E-01	2.236E-02	0.927
	201.83			5.630E-03	2.130E-02	3.619E-02	2.016E-03	0.156
	306.84	*		-5.106E-03	1.865E-02	3.055E-02	1.779E-03	-0.167
	401.10			1.857E+00	5.225E+00	8.798E+00	4.826E-01	0.211
LU-177	112.95			4.351E-01	1.235E+00	2.018E+00	1.482E-01	0.216
	208.36	*		5.475E-01	8.066E-01	1.372E+00	7.689E-02	0.399
LU-177M	52.97			-1.767E-02	1.022E+00	1.544E+00	1.005E-01	-0.011
	54.07			-9.835E-02	5.049E-01	8.189E-01	5.346E-02	-0.120
	61.30			1.363E+00	1.104E+00	1.659E+00	1.112E-01	0.822
	121.62			-7.968E-02	3.034E-01	4.832E-01	3.437E-02	-0.165
	147.16			-4.432E-01	5.200E-01	8.023E-01	4.892E-02	-0.552
	171.86			2.074E-01	3.577E-01	5.866E-01	3.166E-02	0.354
	218.09			-1.528E-01	6.407E-01	1.065E+00	6.020E-02	-0.143
	268.79			5.386E-01	6.082E-01	1.054E+00	6.134E-02	0.511
	319.02			5.098E-02	1.950E-01	3.284E-01	1.905E-02	0.155
	367.43			-5.698E-01	7.128E-01	1.122E+00	6.287E-02	-0.508
	413.65	*		-2.512E-02	1.335E-01	2.172E-01	1.204E-02	-0.116
	56.28			-1.838E-01	5.846E-01	9.435E-01	6.191E-02	-0.195
HF-181	57.53			1.389E-01	3.413E-01	5.244E-01	3.453E-02	0.265
	65.20			5.805E-01	7.437E-01	1.095E+00	7.547E-02	0.530
	133.02			-5.499E-02	5.255E-02	8.054E-02	5.351E-03	-0.683
	136.25			-3.143E-01	3.489E-01	5.370E-01	3.500E-02	-0.585
	345.85			-4.377E-02	1.781E-01	2.512E-01	1.436E-02	-0.174
	482.03	*		-2.117E-02	3.777E-02	5.036E-02	2.921E-03	-0.420
W-181	56.28			-7.207E-02	2.296E-01	3.705E-01	2.431E-02	-0.195
	57.53			5.448E-02	1.341E-01	2.061E-01	1.357E-02	0.264
	65.20	*		2.263E-01	2.900E-01	4.271E-01	2.942E-02	0.530
TA-182	67.75			-1.165E-01	9.018E-02	1.192E-01	8.383E-03	-0.977
	100.10			2.502E-02	1.326E-01	2.160E-01	1.699E-02	0.116
	152.43			1.589E-01	2.674E-01	4.387E-01	2.586E-02	0.362
	222.10			9.397E-02	2.644E-01	4.500E-01	2.552E-02	0.209
	1001.68			1.597E+00	1.601E+00	2.883E+00	2.383E-01	0.554
	1121.28			4.449E-01	2.208E-01	2.698E-01	1.744E-02	1.649
RE-183	1189.05			-8.559E-02	2.727E-01	4.387E-01	2.484E-02	-0.195
	1221.42	*		7.523E-02	1.890E-01	3.205E-01	1.917E-02	0.235
	1230.97			-1.025E-01	4.353E-01	7.049E-01	4.283E-02	-0.145
	57.98			1.014E-01	1.404E-01	2.077E-01	1.369E-02	0.488

---- 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		4.804E-02	7.874E-02	1.149E-01	7.613E-03	0.418
		67.20		-1.145E-01	1.561E-01	2.147E-01	1.503E-02	-0.533
		162.32	*	-1.885E-02	8.489E-02	1.344E-01	7.401E-03	-0.140
		208.81		4.716E-01	7.407E-01	1.258E+00	7.053E-02	0.375
		291.72		3.945E-02	8.338E-01	1.211E+00	7.063E-02	0.033
		57.98		3.743E-01	5.184E-01	7.666E-01	5.054E-02	0.488
		59.32		1.772E-01	2.904E-01	4.239E-01	2.808E-02	0.418
		67.20		-4.224E-01	5.761E-01	7.923E-01	5.546E-02	-0.533
		161.27		-1.746E-03	2.785E-01	4.453E-01	2.471E-02	-0.004
		216.55		2.042E-02	1.991E-01	3.357E-01	1.895E-02	0.061
		252.85	*	2.076E-02	1.672E-01	2.813E-01	1.627E-02	0.074
		318.01		-7.074E-02	3.374E-01	5.541E-01	3.216E-02	-0.128
		792.07		7.356E-01	8.516E-01	1.309E+00	1.014E-01	0.562
		903.28		-3.811E-01	8.800E-01	1.347E+00	1.257E-01	-0.283
OS-185		920.93		-2.616E-01	3.743E-01	5.313E-01	4.873E-02	-0.492
		59.72		1.222E-01	2.142E-01	3.121E-01	2.071E-02	0.391
		61.14		1.055E-01	1.219E-01	1.796E-01	1.203E-02	0.588
		69.30		-1.989E-01	2.887E-01	3.281E-01	2.338E-02	-0.606
		592.07		1.521E-01	2.028E+00	3.317E+00	1.984E-01	0.046
		646.12	*	4.792E-03	3.159E-02	5.187E-02	3.093E-03	0.092
		717.42		5.925E-01	7.410E-01	1.271E+00	8.499E-02	0.466
		874.81		-2.669E-01	4.570E-01	7.241E-01	6.524E-02	-0.369
		880.27		-8.275E-02	6.504E-01	1.077E+00	9.799E-02	-0.077
		155.03	*	-2.237E-02	1.366E-01	2.172E-01	1.258E-02	-0.103
RE-188	+	477.96		4.665E+00	4.009E+00	4.398E+00	2.545E-01	1.061
		633.10		-1.018E+00	2.139E+00	3.324E+00	1.986E-01	-0.306
W-188	+	63.58		5.475E+01	4.984E+01	6.174E+01	4.203E+00	0.887
		227.08		4.502E+00	9.664E+00	1.652E+01	9.404E-01	0.273
IR-192		290.67	*	-2.298E+00	6.577E+00	9.283E+00	5.416E-01	-0.248
	+	295.96		5.479E-01	1.379E-01	1.944E-01	1.152E-02	2.819
		308.46		8.726E-03	6.986E-02	1.170E-01	6.886E-03	0.075
		316.51	*	-1.316E-03	2.587E-02	4.287E-02	2.502E-03	-0.031
AU-195		468.07		1.683E-02	5.712E-02	7.914E-02	5.262E-03	0.213
		604.41		-1.892E-01	4.215E-01	5.620E-01	6.432E-02	-0.337
		612.46		2.032E+00	7.194E-01	1.232E+00	9.502E-02	1.649
		65.12		1.195E-01	1.348E-01	1.993E-01	1.372E-02	0.599
		66.83		-8.102E-02	7.431E-02	1.003E-01	7.001E-03	-0.808
	+	75.70		6.734E-01	2.128E-01	3.127E-01	2.372E-02	2.154
		98.88	*	1.857E-01	1.803E-01	2.817E-01	2.235E-02	0.659
		129.76		3.731E+00	2.306E+00	3.915E+00	2.652E-01	0.953
TL-200		367.94	*	-2.482E-04	2.306E+00	Half-Life	too short	
		579.30		1.988E-03	2.306E+00	Half-Life	too short	
		828.27		6.715E-05	2.306E+00	Half-Life	too short	
		1205.75		8.639E-04	2.306E+00	Half-Life	too short	
TL-201		68.90		-5.044E+00	5.265E+00	4.947E+00	3.513E-01	-1.020
		70.82		5.859E-01	2.014E+00	2.904E+00	2.098E-01	0.202
		80.30		-5.439E+00	3.937E+00	5.194E+00	4.144E-01	-1.047
		135.34		-9.686E+00	1.805E+01	2.829E+01	1.853E+00	-0.342
		167.43	*	8.161E-01	4.913E+00	7.911E+00	4.250E-01	0.103



---- 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		-4.774E-01	4.983E-01	4.682E-01	3.325E-02	-1.020
		70.82		5.530E-02	1.901E-01	2.741E-01	1.981E-02	0.202
		80.30		-5.135E-01	3.718E-01	4.904E-01	3.913E-02	-1.047
HG-203		439.56	*	1.573E-02	5.289E-02	8.864E-02	5.012E-03	0.177
		70.83		2.460E-01	8.349E-01	1.203E+00	1.536E-01	0.204
		72.87		1.119E+00	5.292E-01	7.902E-01	9.817E-02	1.416
		82.60		-6.565E-01	1.128E+00	1.290E+00	1.739E-01	-0.509
BI-207		279.20	*	1.655E-02	3.115E-02	5.322E-02	3.293E-03	0.311
		72.80		3.094E-01	1.517E-01	2.312E-01	1.702E-02	1.338
	+	74.97		3.739E-01	1.182E-01	1.614E-01	1.215E-02	2.316
		84.90		3.129E-01	1.590E-01	2.409E-01	2.029E-02	1.299
	+	569.67		1.206E-01	4.437E-02	5.747E-02	3.429E-03	2.098
TL-207		1063.62	*	-1.783E-02	4.510E-02	7.223E-02	5.346E-03	-0.247
		1770.23		-9.937E-03	3.997E-01	5.484E-01	3.275E-02	-0.018
		81.07		-3.588E-01	2.003E-01	2.357E-01	1.897E-02	-1.522
		83.78		1.019E-01	1.047E-01	1.538E-01	1.278E-02	0.663
		94.90		4.913E-01	2.093E-01	3.223E-01	2.637E-02	1.524
		122.32		1.308E-01	1.413E+00	2.283E+00	1.791E-01	0.057
		144.24		3.772E-01	5.377E-01	8.858E-01	6.701E-02	0.426
		154.21		-5.359E-02	3.167E-01	5.035E-01	3.542E-02	-0.106
		269.46		1.308E-01	1.446E-01	2.507E-01	1.525E-02	0.522
		323.87	*	-2.375E-01	5.815E-01	8.096E-01	1.337E-01	-0.293
	+	338.28		3.895E+00	1.099E+00	1.679E+00	1.763E-01	2.320
PO-209		445.03		-1.738E+00	1.863E+00	2.859E+00	2.916E-01	-0.608
		260.50		4.885E+00	7.186E+00	1.238E+01	7.186E-01	0.394
		262.80		7.478E-01	2.091E+01	3.432E+01	1.993E+00	0.022
PB-211		896.60	*	-9.899E-03	6.411E+00	1.072E+01	1.003E+00	-0.001
		404.84	*	-2.884E-01	7.471E-01	1.166E+00	7.268E-01	-0.247
		427.08		3.922E-01	1.548E+00	2.560E+00	1.582E+00	0.153
BI-212		831.96		-3.651E-01	9.787E-01	1.519E+00	9.515E-01	-0.240
	+	727.18	*	4.501E-01	3.159E-01	4.697E-01	3.995E-02	0.958
		785.46		1.686E+00	1.336E+00	2.381E+00	1.821E-01	0.708
PO-215		1620.62		-5.776E-02	8.459E-01	1.357E+00	8.887E-02	-0.043
		81.07		-3.588E-01	2.003E-01	2.357E-01	1.897E-02	-1.522
		83.78		1.019E-01	1.047E-01	1.538E-01	1.278E-02	0.663
		94.90		4.913E-01	2.093E-01	3.223E-01	2.637E-02	1.524
		122.32		1.308E-01	1.413E+00	2.283E+00	1.791E-01	0.057
		144.24		3.772E-01	5.377E-01	8.858E-01	6.701E-02	0.426
		154.21		-5.359E-02	3.167E-01	5.035E-01	3.542E-02	-0.106
		269.46		1.308E-01	1.446E-01	2.507E-01	1.525E-02	0.522
		323.87	*	-2.375E-01	5.815E-01	8.096E-01	1.337E-01	-0.293
	+	338.28		3.895E+00	1.099E+00	1.679E+00	1.763E-01	2.320
		445.03		-1.738E+00	1.863E+00	2.859E+00	2.916E-01	-0.608
RN-219		271.23		2.274E-01	1.876E-01	3.283E-01	2.666E-02	0.693
		401.81	*	1.576E-01	3.170E-01	5.373E-01	7.241E-02	0.293
RN-220		549.76	*	3.599E+00	2.055E+01	3.396E+01	2.018E+00	0.106
RA-223		81.07		-3.588E-01	2.003E-01	2.357E-01	1.897E-02	-1.522
		83.78		1.019E-01	1.047E-01	1.538E-01	1.278E-02	0.663
		94.90		4.913E-01	2.093E-01	3.223E-01	2.637E-02	1.524

----- 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		1.308E-01	1.413E+00	2.283E+00	1.791E-01	0.057
		144.24		3.772E-01	5.377E-01	8.858E-01	6.701E-02	0.426
		154.21		-5.359E-02	3.167E-01	5.035E-01	3.542E-02	-0.106
		269.46		1.308E-01	1.446E-01	2.507E-01	1.525E-02	0.522
		323.87	*	-2.375E-01	5.815E-01	8.096E-01	1.337E-01	-0.293
	+	338.28		3.895E+00	1.099E+00	1.679E+00	1.763E-01	2.320
		445.03		-1.738E+00	1.863E+00	2.859E+00	2.916E-01	-0.608
		79.80		8.209E-01	1.370E+00	1.982E+00	4.210E-01	0.414
		236.00		1.101E+00	2.508E-01	3.996E-01	4.161E-02	2.756
		256.20	*	-2.826E-01	2.756E-01	4.319E-01	6.029E-02	-0.654
		286.10		-1.775E-01	1.185E+00	1.960E+00	2.270E-01	-0.091
		299.80		1.488E+00	1.245E+00	1.914E+00	3.119E-01	0.778
TH-227		304.40		-1.237E+00	1.461E+00	2.297E+00	3.975E-01	-0.539
		334.20		1.340E+00	2.514E+00	2.639E+00	4.836E-01	0.508
		79.80		8.209E-01	1.371E+00	1.982E+00	4.265E-01	0.414
	+	94.00		5.784E+00	2.761E+00	2.901E+00	6.275E-01	1.994
		236.00		1.101E+00	2.441E-01	3.996E-01	3.601E-02	2.756
		256.20	*	-2.826E-01	2.769E-01	4.319E-01	7.298E-02	-0.654
		286.10		-1.775E-01	1.198E+00	1.960E+00	1.964E+00	-0.091
		299.80		1.488E+00	1.245E+00	1.914E+00	3.119E-01	0.778
		304.40		-1.237E+00	1.461E+00	2.297E+00	3.975E-01	-0.539
		334.20		1.340E+00	2.514E+00	2.639E+00	4.836E-01	0.508
		85.43		3.870E-01	1.616E-01	2.468E-01	2.092E-02	1.568
	+	88.47		1.369E-01	9.911E-02	1.478E-01	1.286E-02	0.926
TH-229		100.00		3.404E-02	1.382E-01	2.256E-01	1.776E-02	0.151
		193.63	*	-1.267E-01	3.739E-01	6.110E-01	3.374E-02	-0.207
		210.97		5.969E-01	5.673E-01	9.903E-01	5.563E-02	0.603
		283.67	*	-1.087E-01	1.154E+00	1.914E+00	2.640E-01	-0.057
		301.29		4.655E-01	4.764E-01	7.609E-01	7.966E-02	0.612
		81.07		-3.588E-01	2.003E-01	2.357E-01	1.897E-02	-1.522
		83.78		1.019E-01	1.047E-01	1.538E-01	1.278E-02	0.663
		94.90		4.913E-01	2.093E-01	3.223E-01	2.637E-02	1.524
		122.32		1.308E-01	1.413E+00	2.283E+00	1.791E-01	0.057
		144.24		3.772E-01	5.377E-01	8.858E-01	6.701E-02	0.426
		154.21		-5.359E-02	3.167E-01	5.035E-01	3.542E-02	-0.106
		269.46		1.308E-01	1.446E-01	2.507E-01	1.525E-02	0.522
U-231		323.87	*	-2.375E-01	5.815E-01	8.096E-01	1.337E-01	-0.293
	+	338.28		3.895E+00	1.099E+00	1.679E+00	1.763E-01	2.320
		445.03		-1.738E+00	1.863E+00	2.859E+00	2.916E-01	-0.608
		84.21		5.681E+00	4.248E+00	6.322E+00	5.280E-01	0.899
	+	92.29		5.437E+00	2.357E+00	2.872E+00	2.405E-01	1.893
		95.87	*	5.535E-01	8.946E-01	1.303E+00	1.058E-01	0.425
		108.00		4.786E-01	1.525E+00	2.490E+00	1.871E-01	0.192
		75.28		1.091E+01	3.716E+00	4.914E+00	7.260E-01	2.221
	+	86.59		1.962E+00	1.506E+00	2.112E+00	5.663E-01	0.929
		300.12		5.104E-01	3.418E-01	5.354E-01	7.202E-02	0.953
		311.98	*	2.356E-02	4.764E-02	8.127E-02	5.018E-03	0.290
		340.50		1.137E+00	6.289E-01	9.313E-01	2.137E-01	1.221
PA-233		398.62		-2.640E-01	1.646E+00	2.686E+00	6.926E-01	-0.098

---- 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		-1.334E+00	1.299E+00	1.947E+00	3.994E-01	-0.685
		63.00		1.592E+00	1.464E+00	1.811E+00	2.637E-01	0.879
		94.67		4.729E-01	1.597E-01	2.405E-01	2.913E-02	1.967
		98.44		9.632E-02	9.339E-02	1.154E-01	6.429E-02	0.834
		99.86		1.625E-01	3.491E-01	5.744E-01	4.527E-02	0.283
		111.00		6.989E-02	1.438E-01	2.360E-01	2.657E-02	0.296
		131.20		7.387E-02	8.454E-02	1.403E-01	9.427E-03	0.526
		152.70		1.347E-01	2.580E-01	4.208E-01	6.666E-02	0.320
	+	186.00		3.041E+00	1.596E+00	1.860E+00	5.673E-01	1.635
		226.40		1.006E-01	3.064E-01	5.205E-01	5.989E-02	0.193
		227.20		1.719E-01	3.283E-01	5.623E-01	3.202E-02	0.306
		248.90		-3.441E-01	6.517E-01	9.928E-01	2.132E-01	-0.347
	+	293.70		3.459E+00	1.013E+00	1.209E+00	1.945E-01	2.862
		369.80		1.412E-02	6.630E-01	1.098E+00	2.279E-01	0.013
	+	568.70		3.923E+00	1.444E+00	1.857E+00	1.108E-01	2.113
	+	569.50		1.070E+00	3.938E-01	5.113E-01	3.050E-02	2.093
		574.00		-5.649E-01	1.342E+00	1.797E+00	1.073E-01	-0.314
		699.00		-4.031E-01	5.517E-01	8.254E-01	1.502E-01	-0.488
		706.10		-3.053E-01	8.286E-01	1.277E+00	5.650E-01	-0.239
		733.00		-6.761E-02	3.366E-01	4.548E-01	9.817E-02	-0.149
		742.81		9.244E-02	1.111E+00	1.799E+00	1.206E+00	0.051
	+	796.30		1.226E+00	1.228E+00	1.424E+00	3.817E-01	0.861
		805.60		9.061E-02	7.738E-01	1.255E+00	3.825E-01	0.072
		819.60		1.351E-01	9.312E-01	1.580E+00	5.994E-01	0.085
		826.30		-2.431E-01	5.953E-01	9.442E-01	4.218E-01	-0.257
		831.60		-1.779E-01	4.931E-01	7.839E-01	2.333E-01	-0.227
		876.40		-8.138E-03	6.524E-01	1.091E+00	1.122E+00	-0.007
		880.51		-2.503E-02	2.361E-01	3.917E-01	3.565E-02	-0.064
		883.24		5.924E-02	2.423E-01	4.081E-01	2.746E-01	0.145
		899.00		5.684E-01	7.535E-01	1.263E+00	5.543E-01	0.450
		925.00		2.816E-01	8.632E-01	1.486E+00	1.356E-01	0.190
		926.50		2.651E-02	1.269E-01	2.160E-01	5.497E-02	0.123
		946.00	*	1.543E-01	2.446E-01	4.272E-01	8.075E-02	0.361
		949.00		-2.190E-01	3.736E-01	5.910E-01	5.250E-02	-0.371
		980.50		3.569E-01	6.496E-01	1.129E+00	9.624E-02	0.316
		1394.10		1.178E-01	8.491E-01	1.414E+00	9.175E-01	0.083
PA-234M		766.42		1.181E+01	1.072E+01	1.586E+01	8.017E+00	0.744
		1001.03	*	1.339E+00	3.738E+00	6.407E+00	6.194E-01	0.209
U-235		89.95		1.174E+00	8.984E-01	1.391E+00	4.291E-01	0.844
	+	93.35		1.800E+00	9.158E-01	9.253E-01	2.584E-01	1.945
		105.00		4.653E-01	8.226E-01	1.339E+00	3.961E-01	0.347
		143.76	*	1.746E-01	1.682E-01	2.772E-01	4.563E-02	0.630
		163.35		-1.560E-01	3.676E-01	5.747E-01	1.028E-01	-0.271
	+	185.71		1.126E-01	4.848E-02	6.910E-02	3.785E-03	1.630
		205.31		-2.304E-01	3.918E-01	6.398E-01	1.146E-01	-0.360
NP-236		94.67		3.605E-01	1.169E-01	1.825E-01	1.497E-02	1.975
		98.44		7.284E-02	5.808E-02	8.727E-02	6.947E-03	0.835
		111.00		5.286E-02	1.087E-01	1.785E-01	1.322E-02	0.296
		160.31	*	6.269E-03	6.261E-02	1.006E-01	5.621E-03	0.062

---- 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		9.315E-02	1.206E-01	1.941E-01	1.533E-02	0.480
		117.00	*	-8.968E-02	1.513E-01	2.376E-01	1.717E-02	-0.377
		209.75		5.069E-01	5.867E-01	1.004E+00	5.635E-02	0.505
		228.18		1.124E-01	1.706E-01	2.937E-01	1.674E-02	0.383
		277.60		1.608E-01	1.391E-01	2.435E-01	1.420E-02	0.660
		334.30		7.484E-01	1.418E+00	1.493E+00	8.602E-02	0.501
AM-241		59.54	*	5.669E-02	1.128E-01	1.639E-01	1.216E-02	0.346
CM-243		99.55		9.585E-02	1.241E-01	1.997E-01	1.578E-02	0.480
		103.76	*	-1.583E-03	7.294E-02	1.177E-01	9.051E-03	-0.013
		117.00		-9.226E-02	1.557E-01	2.445E-01	1.767E-02	-0.377
		209.75		4.997E-01	5.783E-01	9.899E-01	5.555E-02	0.505
		228.18		1.135E-01	1.724E-01	2.968E-01	1.691E-02	0.383
		277.60		1.621E-01	1.402E-01	2.455E-01	1.431E-02	0.660
AM-246		798.80		4.743E-02	1.255E-01	1.822E-01	1.429E-02	0.260
		1036.00		-1.008E-01	2.605E-01	4.181E-01	3.263E-02	-0.241
		1062.04		-1.079E-01	1.883E-01	2.957E-01	2.196E-02	-0.365
		1078.86	*	2.855E-02	1.227E-01	2.075E-01	1.487E-02	0.138
CM-247		278.00		4.281E-01	5.789E-01	9.971E-01	5.812E-02	0.429
		287.40		3.509E-01	1.004E+00	1.612E+00	9.403E-02	0.218
		402.60	*	4.823E-03	2.822E-02	4.702E-02	2.583E-03	0.103
CF-249		252.85		7.799E-02	6.281E-01	1.057E+00	6.112E-02	0.074
		333.44		9.569E-02	1.852E-01	1.948E-01	1.122E-02	0.491
		387.95	*	-3.864E-02	3.047E-02	4.612E-02	2.522E-03	-0.838
CF-251		176.60	*	-7.541E-02	9.945E-02	1.511E-01	8.195E-03	-0.499
		227.00		1.235E-01	2.903E-01	4.953E-01	2.820E-02	0.249
		285.00		5.972E-01	1.318E+00	2.245E+00	1.310E-01	0.266

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244597001      *
* Acquisition date   : 22-JAN-2010 07:38:16 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 02:00:01.33 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244597001 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.5580E+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 :                               *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
BE-7	4.867E-01	4.103E-01	3.997E-01	0.000E+00
K-40	2.982E+01	2.614E+00	4.511E-01	0.000E+00
CD-109	1.019E+00	7.234E-01	1.039E+00	0.000E+00
SN-126	1.002E-01	7.114E-02	1.026E-01	0.000E+00
BA-137M	3.024E-01	5.898E-02	3.757E-02	0.000E+00
CS-137	3.197E-01	6.237E-02	3.971E-02	0.000E+00
TL-208	2.672E-01	5.209E-02	4.614E-02	0.000E+00
BI-210	1.863E+00	3.019E+00	3.042E+00	0.000E+00
PB-210	1.863E+00	3.019E+00	3.042E+00	0.000E+00
PO-210	1.863E+00	3.018E+00	3.042E+00	0.000E+00
BI-211	1.808E+00	3.675E-01	2.583E-01	0.000E+00
PB-212	8.929E-01	1.011E-01	7.070E-02	0.000E+00
PO-212	8.929E-01	1.011E-01	7.070E-02	0.000E+00
BI-214	7.930E-01	1.377E-01	7.898E-02	0.000E+00
PB-214	6.290E-01	1.318E-01	9.003E-02	0.000E+00
PO-214	6.290E-01	1.318E-01	9.003E-02	0.000E+00
PO-216	8.929E-01	1.011E-01	7.070E-02	0.000E+00
PO-218	6.290E-01	1.318E-01	9.003E-02	0.000E+00
RA-224	2.608E+00	8.349E-01	8.040E-01	0.000E+00
RA-226	7.930E-01	1.377E-01	7.898E-02	0.000E+00
AC-228	8.461E-01	2.679E-01	1.966E-01	0.000E+00
RA-228	8.461E-01	2.679E-01	1.966E-01	0.000E+00
TH-228	9.062E-01	1.027E-01	7.175E-02	0.000E+00
TH-230	7.930E-01	1.377E-01	7.898E-02	0.000E+00
TH-232	8.461E-01	2.679E-01	1.966E-01	0.000E+00
TH-234	1.366E+00	1.237E+00	1.516E+00	0.000E+00
U-234	7.930E-01	1.377E-01	7.898E-02	0.000E+00
NP-237	2.944E-01	2.172E-01	3.116E-01	0.000E+00
U-238	1.366E+00	1.237E+00	1.516E+00	0.000E+00
AM-243	2.083E-01	6.451E-02	6.895E-02	0.000E+00
ANH-511	1.482E-01	5.603E-02	3.712E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
NA-22	-3.521E-02	3.723E-02	5.739E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.818E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.649E-04	2.245E-02	3.715E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	3.550E-02	5.916E-02	0.000E+00	FAIL ABUN
SC-46	-3.296E-02	3.220E-02	5.114E-02	0.000E+00	FAIL ABUN
V-48	-1.633E-02	6.114E-02	1.037E-01	0.000E+00	NOT IDENT.
CR-51	2.570E-02	2.795E-01	4.730E-01	0.000E+00	NOT IDENT.
MN-52	-1.096E-01	1.424E-01	2.057E-01	0.000E+00	NOT IDENT.
MN-54	1.306E-02	2.850E-02	5.170E-02	0.000E+00	NOT IDENT.
CO-56	-7.869E-03	2.950E-02	5.051E-02	0.000E+00	NOT IDENT.
CO-57	-2.699E-03	2.006E-02	3.532E-02	0.000E+00	NOT IDENT.
CO-58	-3.134E-02	3.107E-02	4.684E-02	0.000E+00	NOT IDENT.
FE-59	-2.222E-02	8.043E-02	1.352E-01	0.000E+00	NOT IDENT.
CO-60	-1.822E-02	3.186E-02	5.036E-02	0.000E+00	NOT IDENT.
ZN-65	4.347E-02	8.456E-02	1.325E-01	0.000E+00	NOT IDENT.
GE-68	-8.387E-01	1.045E+00	1.669E+00	0.000E+00	NOT IDENT.
AS-73	-1.119E-01	4.928E-01	8.644E-01	0.000E+00	NOT IDENT.
AS-74	-3.432E-02	7.452E-02	1.235E-01	0.000E+00	NOT IDENT.
SE-75	-1.620E-03	3.365E-02	5.930E-02	0.000E+00	NOT IDENT.
BR-77	-2.785E+00	8.938E+00	1.295E+01	0.000E+00	FAIL ABUN
SR-82	-4.538E-02	2.830E-01	4.694E-01	0.000E+00	NOT IDENT.
RB-83	-2.004E-02	6.431E-02	9.319E-02	0.000E+00	NOT IDENT.
RB-84	8.841E-03	5.817E-02	1.028E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	6.340E+00	1.264E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.241E-02	6.458E-02	0.000E+00	NOT IDENT.
RB-86	-5.698E-01	6.571E-01	1.043E+00	0.000E+00	NOT IDENT.
Y-88	-1.055E-02	1.877E-02	2.555E-02	0.000E+00	NOT IDENT.
ZR-88	1.258E-02	2.267E-02	4.123E-02	0.000E+00	NOT IDENT.
Y-91	1.209E+01	1.729E+01	3.099E+01	0.000E+00	NOT IDENT.
NB-94	3.038E-02	2.422E-02	4.525E-02	0.000E+00	NOT IDENT.
NB-95	2.201E-02	3.321E-02	5.892E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.106E-01	1.981E-01	0.000E+00	NOT IDENT.
ZR-95	4.871E-02	5.668E-02	1.023E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.613E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.125E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.832E+00	8.325E+00	1.461E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.306E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.175E-03	2.410E-02	4.283E-02	0.000E+00	NOT IDENT.
RH-102	2.457E-02	2.565E-02	4.207E-02	0.000E+00	NOT IDENT.
RU-103	3.332E-03	3.022E-02	5.286E-02	0.000E+00	FAIL ABUN
RH-106	-4.172E-02	2.419E-01	4.079E-01	0.000E+00	FAIL ABUN
RU-106	-4.172E-02	2.419E-01	4.079E-01	0.000E+00	FAIL ABUN
AG-108M	-4.181E-03	2.320E-02	4.010E-02	0.000E+00	NOT IDENT.
AG-110M	-1.589E-02	3.155E-02	4.358E-02	0.000E+00	NOT IDENT.
IN-111	2.718E-01	7.689E-01	1.238E+00	0.000E+00	NOT IDENT.
IN-113M	5.678E-03	3.223E-02	5.738E-02	0.000E+00	NOT IDENT.
SN-113	5.678E-03	3.223E-02	5.738E-02	0.000E+00	NOT IDENT.
IN-114M	1.245E-01	1.378E-01	2.315E-01	0.000E+00	NOT IDENT.
CD-115	-1.392E+01	7.626E+00	1.122E+01	0.000E+00	NOT IDENT.
SN-117M	-1.204E-03	4.256E-02	7.429E-02	0.000E+00	NOT IDENT.
SB-122	1.089E+00	1.596E+00	2.550E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.079E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	3.282E-03	2.217E-02	3.899E-02	0.000E+00	NOT IDENT.
I-124	-5.663E-01	5.932E-01	7.871E-01	0.000E+00	NOT IDENT.
SB-124	8.547E-03	5.305E-02	9.103E-02	0.000E+00	FAIL ABUN
SB-125	3.074E-02	6.597E-02	1.191E-01	0.000E+00	FAIL ABUN
TE-125M	-6.089E+00	7.302E+00	1.254E+01	0.000E+00	NOT IDENT.
I-126	-8.064E-02	1.433E-01	1.945E-01	0.000E+00	NOT IDENT.
SB-126	2.062E-02	1.187E-01	1.923E-01	0.000E+00	NOT IDENT.
SB-127	4.462E-01	1.006E+00	1.770E+00	0.000E+00	NOT IDENT.
XE-127	2.605E-03	3.382E-02	6.194E-02	0.000E+00	NOT IDENT.
I-131	3.233E-02	8.596E-02	1.552E-01	0.000E+00	NOT IDENT.
TE-132	3.278E-01	4.817E-01	8.946E-01	0.000E+00	NOT IDENT.
BA-133	3.950E-03	3.469E-02	5.382E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.712E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.308E-02	5.983E-02	7.568E-02	0.000E+00	FAIL ABUN
CS-135	6.950E-02	1.198E-01	2.208E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.138E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.724E-04	8.916E-02	1.537E-01	0.000E+00	FAIL ABUN
CE-139	8.056E-03	2.206E-02	3.910E-02	0.000E+00	NOT IDENT.
BA-140	-1.285E-01	1.985E-01	3.186E-01	0.000E+00	NOT IDENT.
LA-140	-1.133E-02	6.042E-02	9.771E-02	0.000E+00	FAIL ABUN
CE-141	-3.408E-03	4.856E-02	8.498E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.509E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	-1.757E-01	1.618E-01	2.689E-01	0.000E+00	NOT IDENT.
PM-144	-1.602E-02	2.587E-02	4.152E-02	0.000E+00	FAIL ABUN
PR-144	-1.085E+00	1.753E+00	2.813E+00	0.000E+00	NOT IDENT.
PM-146	-2.033E-03	3.484E-02	6.058E-02	0.000E+00	NOT IDENT.
ND-147	2.031E-01	4.210E-01	7.515E-01	0.000E+00	NOT IDENT.
PM-149	-1.356E+01	6.325E+01	1.122E+02	0.000E+00	NOT IDENT.
EU-152	-1.250E-02	1.007E-01	1.338E-01	0.000E+00	NOT IDENT.
GD-153	6.407E-02	6.486E-02	1.064E-01	0.000E+00	NOT IDENT.
EU-154	-1.020E-01	1.039E-01	1.591E-01	0.000E+00	NOT IDENT.
EU-155	3.817E-02	8.090E-02	1.467E-01	0.000E+00	FAIL ABUN
TB-160	3.539E-03	1.118E-01	1.959E-01	0.000E+00	FAIL ABUN
HO-166M	5.292E-03	4.992E-02	8.453E-02	0.000E+00	NOT IDENT.
TM-171	-2.384E+01	2.205E+01	3.328E+01	0.000E+00	NOT IDENT.
LU-176	-5.106E-03	1.827E-02	3.215E-02	0.000E+00	FAIL ABUN
LU-177	5.475E-01	7.904E-01	1.459E+00	0.000E+00	NOT IDENT.
LU-177M	-2.512E-02	1.308E-01	2.268E-01	0.000E+00	NOT IDENT.
HF-181	-2.117E-02	3.701E-02	5.237E-02	0.000E+00	NOT IDENT.
W-181	2.263E-01	2.842E-01	4.673E-01	0.000E+00	NOT IDENT.
TA-182	7.523E-02	1.853E-01	3.249E-01	0.000E+00	FAIL ABUN
RE-183	-1.885E-02	8.319E-02	1.438E-01	0.000E+00	NOT IDENT.
RE-184	2.076E-02	1.638E-01	2.975E-01	0.000E+00	NOT IDENT.
OS-185	4.792E-03	3.096E-02	5.351E-02	0.000E+00	NOT IDENT.
RE-188	-2.237E-02	1.339E-01	2.326E-01	0.000E+00	FAIL ABUN
W-188	-2.298E+00	6.446E+00	9.784E+00	0.000E+00	FAIL ABUN
IR-192	-1.316E-03	2.536E-02	4.509E-02	0.000E+00	FAIL ABUN
AU-195	1.857E-01	1.767E-01	3.051E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.890E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	8.161E-01	4.815E+00	8.457E+00	0.000E+00	NOT IDENT.
TL-202	1.573E-02	5.184E-02	9.241E-02	0.000E+00	NOT IDENT.
HG-203	1.655E-02	3.053E-02	5.615E-02	0.000E+00	NOT IDENT.
BI-207	-1.783E-02	4.419E-02	7.351E-02	0.000E+00	FAIL ABUN
TL-207	-2.375E-01	5.699E-01	8.509E-01	0.000E+00	FAIL ABUN
PO-209	-9.899E-03	6.283E+00	1.096E+01	0.000E+00	NOT IDENT.
PB-211	-2.884E-01	7.322E-01	1.219E+00	0.000E+00	NOT IDENT.
BI-212	4.501E-01	3.096E-01	4.830E-01	0.000E+00	FAIL ABUN
PO-215	-2.375E-01	5.699E-01	8.509E-01	0.000E+00	FAIL ABUN
RN-219	1.576E-01	3.106E-01	5.615E-01	0.000E+00	NOT IDENT.
RN-220	3.599E+00	2.014E+01	3.519E+01	0.000E+00	NOT IDENT.
RA-223	-2.375E-01	5.699E-01	8.509E-01	0.000E+00	FAIL ABUN
AC-227	-2.826E-01	2.701E-01	4.567E-01	0.000E+00	NOT IDENT.
TH-227	-2.826E-01	2.714E-01	4.567E-01	0.000E+00	FAIL ABUN
TH-229	-1.267E-01	3.664E-01	6.507E-01	0.000E+00	FAIL ABUN
PA-231	-1.087E-01	1.131E+00	2.019E+00	0.000E+00	NOT IDENT.
TH-231	-2.375E-01	5.699E-01	8.509E-01	0.000E+00	FAIL ABUN
U-231	5.535E-01	8.767E-01	1.412E+00	0.000E+00	FAIL ABUN
PA-233	2.356E-02	4.669E-02	8.549E-02	0.000E+00	FAIL ABUN
PA-234	1.543E-01	2.397E-01	4.362E-01	0.000E+00	FAIL ABUN
PA-234M	1.339E+00	3.663E+00	6.532E+00	0.000E+00	NOT IDENT.
U-235	1.746E-01	1.649E-01	2.975E-01	0.000E+00	FAIL ABUN
NP-236	6.269E-03	6.136E-02	1.077E-01	0.000E+00	NOT IDENT.
NP-239	-8.968E-02	1.483E-01	2.563E-01	0.000E+00	NOT IDENT.
AM-241	5.669E-02	1.106E-01	1.797E-01	0.000E+00	NOT IDENT.
CM-243	-1.583E-03	7.148E-02	1.274E-01	0.000E+00	NOT IDENT.
AM-246	2.855E-02	1.202E-01	2.111E-01	0.000E+00	NOT IDENT.
CM-247	4.823E-03	2.765E-02	4.913E-02	0.000E+00	NOT IDENT.
CF-249	-3.864E-02	2.986E-02	4.825E-02	0.000E+00	NOT IDENT.
CF-251	-7.541E-02	9.746E-02	1.613E-01	0.000E+00	NOT IDENT.



```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244597001.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:38:16
Sample ID          : G244597001      Sample quantity      : 1.55800E+02 GRAM
Detector name      : GAM14            Detector geometry   : CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time  : 0 02:00:01.33  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials   : MXR1
Abundance limit    : 75.00000          Sensitivity         : 5.00000
Batch ID           : 941635            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
BE-7	477.59	57	10.42*	3.270E+00	4.014E-01	4.867E-01	86.01
K-40	1460.81	1598	10.67*	1.211E+00	2.982E+01	2.982E+01	8.95
CD-109	88.03	108	3.72*	7.043E+00	9.971E-01	1.019E+00	72.41
SN-126	64.28	100	9.60	4.634E+00	5.408E-01	5.408E-01	91.88
	86.94	108	8.90	7.043E+00	4.168E-01	4.168E-01	82.94
	87.57	108	37.00*	7.043E+00	1.002E-01	1.002E-01	72.41
BA-137M	661.65	278	89.98*	2.468E+00	3.021E-01	3.024E-01	19.90
CS-137	661.65	278	85.12*	2.468E+00	3.194E-01	3.197E-01	19.91
TL-208	277.35	-----	6.80	5.002E+00	-----	Line Not Found	-----
	510.84	190	21.60	3.085E+00	6.863E-01	6.863E-01	39.46
	583.14	257	84.20*	2.757E+00	2.672E-01	2.672E-01	19.90
	860.37	71	12.46	1.944E+00	7.025E-01	7.025E-01	45.20
BI-210	46.50	55	4.05*	1.755E+00	1.861E+00	1.863E+00	165.29
PB-210	46.50	55	4.05*	1.755E+00	1.861E+00	1.863E+00	165.29
PO-210	46.50	55	4.05*	1.755E+00	1.861E+00	1.863E+00	165.24
BI-211	72.87	-----	1.27	5.875E+00	-----	Line Not Found	-----
	351.07	406	12.94*	4.176E+00	1.808E+00	1.808E+00	20.74
PB-212	74.81	348	10.70	6.103E+00	1.285E+00	1.285E+00	32.95
	77.11	447	18.00	6.317E+00	9.466E-01	9.466E-01	20.74
	87.30	108	8.00	7.043E+00	4.636E-01	4.636E-01	73.10
	238.63	920	44.60*	5.568E+00	8.929E-01	8.929E-01	11.56
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
PO-212	74.81	348	10.70	6.103E+00	1.285E+00	1.285E+00	32.95
	77.11	447	18.00	6.317E+00	9.466E-01	9.466E-01	20.74
	87.30	108	8.00	7.043E+00	4.636E-01	4.636E-01	73.10
	115.19	-----	0.60	7.689E+00	-----	Line Not Found	-----
	238.63	920	44.60*	5.568E+00	8.929E-01	8.929E-01	11.56
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
BI-214	609.31	405	46.30*	2.654E+00	7.930E-01	7.930E-01	17.72
	1120.29	90	15.10	1.523E+00	9.428E-01	9.428E-01	50.05
	1764.49	70	15.80	1.059E+00	1.002E+00	1.002E+00	29.94
PB-214	74.81	348	6.21	6.103E+00	2.214E+00	2.214E+00	32.46



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	447	10.50	6.317E+00	1.623E+00	1.623E+00	22.09
	87.30	108	4.67	7.043E+00	7.942E-01	7.943E-01	72.82
	241.98	236	7.49	5.519E+00	1.375E+00	1.375E+00	33.15
	295.21	274	19.20	4.780E+00	7.206E-01	7.206E-01	25.91
	351.92	406	37.20*	4.176E+00	6.290E-01	6.290E-01	21.38
	74.81	348	6.21	6.103E+00	2.214E+00	2.214E+00	32.46
	77.11	447	10.50	6.317E+00	1.623E+00	1.623E+00	22.09
	87.30	108	4.67	7.043E+00	7.942E-01	7.943E-01	72.82
	241.98	236	7.49	5.519E+00	1.375E+00	1.375E+00	33.15
	295.21	274	19.20	4.780E+00	7.206E-01	7.206E-01	25.91
PO-216	351.92	406	37.20*	4.176E+00	6.290E-01	6.290E-01	21.38
	74.81	348	10.70	6.103E+00	1.285E+00	1.285E+00	32.95
	77.11	447	18.00	6.317E+00	9.466E-01	9.466E-01	20.74
	87.30	108	8.00	7.043E+00	4.636E-01	4.636E-01	73.10
	238.63	920	44.60*	5.568E+00	8.929E-01	8.929E-01	11.56
PO-218	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
	74.81	348	6.21	6.103E+00	2.214E+00	2.214E+00	32.46
	77.11	447	10.50	6.317E+00	1.623E+00	1.623E+00	22.09
	87.30	108	4.67	7.043E+00	7.942E-01	7.943E-01	72.82
	241.98	236	7.49	5.519E+00	1.375E+00	1.375E+00	33.15
	295.21	274	19.20	4.780E+00	7.206E-01	7.206E-01	25.91
	351.92	406	37.20*	4.176E+00	6.290E-01	6.290E-01	21.38
RA-224	240.98	236	3.95*	5.519E+00	2.608E+00	2.608E+00	32.67
RA-226	609.31	405	46.30*	2.654E+00	7.930E-01	7.930E-01	17.72
	1120.29	90	15.10	1.523E+00	9.428E-01	9.428E-01	50.05
AC-228	1764.49	70	15.80	1.059E+00	1.002E+00	1.002E+00	29.94
	338.32	190	11.40	4.308E+00	9.328E-01	9.328E-01	48.45
	911.07	179	27.70*	1.842E+00	8.461E-01	8.461E-01	32.31
RA-228	969.11	108	16.60	1.741E+00	8.975E-01	8.975E-01	38.76
	338.32	190	11.40	4.308E+00	9.328E-01	9.328E-01	48.45
	911.07	179	27.70*	1.842E+00	8.461E-01	8.461E-01	32.31
TH-228	969.11	108	16.60	1.741E+00	8.975E-01	8.975E-01	38.76
	74.81	348	10.70	6.103E+00	1.285E+00	1.304E+00	31.62
	77.11	447	18.00	6.317E+00	9.466E-01	9.607E-01	20.74
	87.30	108	8.00	7.043E+00	4.636E-01	4.705E-01	72.41
TH-230	238.63	920	44.60*	5.568E+00	8.929E-01	9.062E-01	11.56
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
	609.31	405	46.30*	2.654E+00	7.930E-01	7.930E-01	17.72
TH-232	1120.29	90	15.10	1.523E+00	9.428E-01	9.428E-01	50.05
	1764.49	70	15.80	1.059E+00	1.002E+00	1.002E+00	29.94
	338.32	190	11.40	4.308E+00	9.328E-01	9.328E-01	26.82
TH-234	911.07	179	27.70*	1.842E+00	8.461E-01	8.461E-01	32.31
	969.11	108	16.60	1.741E+00	8.975E-01	8.975E-01	38.76
	63.29	100	3.80*	4.634E+00	1.366E+00	1.366E+00	92.39
U-234	92.38	246	5.41	7.319E+00	1.497E+00	1.497E+00	46.17
	609.31	405	46.30*	2.654E+00	7.930E-01	7.930E-01	17.72
	1120.29	90	15.10	1.523E+00	9.428E-01	9.428E-01	50.05
NP-237	1764.49	70	15.80	1.059E+00	1.002E+00	1.002E+00	29.94
	86.50	108	12.60*	7.043E+00	2.944E-01	2.944E-01	75.29

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	95.87	-----	2.60	7.425E+00	-----	Line Not Found	-----
U-238	63.29	100	3.80*	4.634E+00	1.366E+00	1.366E+00	92.39
	92.38	246	5.41	7.319E+00	1.497E+00	1.497E+00	43.34
AM-243	74.67	348	66.00*	6.103E+00	2.083E-01	2.083E-01	31.60
	86.72	108	0.34	7.043E+00	1.104E+01	1.104E+01	72.41
	117.66	-----	0.55	7.685E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.399E+00	-----	Line Not Found	-----
ANH-511	511.00	190	100.00*	3.085E+00	1.482E-01	1.482E-01	38.57

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
BE-7	53.44D	1.21	4.014E-01	4.867E-01	4.186E-01	86.01	
K-40	1.28E+09Y	1.00	2.982E+01	2.982E+01	0.267E+01	8.95	
CD-109	464.00D	1.02	9.971E-01	1.019E+00	0.738E+00	72.41	
SN-126	1.00E+05Y	1.00	1.002E-01	1.002E-01	0.726E-01	72.41	
BA-137M	30.17Y	1.00	3.021E-01	3.024E-01	0.602E-01	19.90	
CS-137	30.17Y	1.00	3.194E-01	3.197E-01	0.636E-01	19.91	
TL-208	1.41E+10Y	1.00	2.672E-01	2.672E-01	0.532E-01	19.90	
BI-210	22.26Y	1.00	1.861E+00	1.863E+00	3.080E+00	165.29	
PB-210	22.26Y	1.00	1.861E+00	1.863E+00	3.080E+00	165.29	
PO-210	22.26Y	1.00	1.861E+00	1.863E+00	3.079E+00	165.24	
BI-211	7.04E+08Y	1.00	1.808E+00	1.808E+00	0.375E+00	20.74	
PB-212	1.41E+10Y	1.00	8.929E-01	8.929E-01	1.032E-01	11.56	
PO-212	1.41E+10Y	1.00	8.929E-01	8.929E-01	1.032E-01	11.56	
BI-214	1600.00Y	1.00	7.930E-01	7.930E-01	1.405E-01	17.72	
PB-214	1600.00Y	1.00	6.290E-01	6.290E-01	1.345E-01	21.38	
PO-214	1600.00Y	1.00	6.290E-01	6.290E-01	1.345E-01	21.38	
PO-216	1.41E+10Y	1.00	8.929E-01	8.929E-01	1.032E-01	11.56	
PO-218	1600.00Y	1.00	6.290E-01	6.290E-01	1.345E-01	21.38	
RA-224	1.41E+10Y	1.00	2.608E+00	2.608E+00	0.852E+00	32.67	
RA-226	1600.00Y	1.00	7.930E-01	7.930E-01	1.405E-01	17.72	
AC-228	1.41E+10Y	1.00	8.461E-01	8.461E-01	2.734E-01	32.31	
RA-228	1.41E+10Y	1.00	8.461E-01	8.461E-01	2.734E-01	32.31	
TH-228	1.91Y	1.01	8.929E-01	9.062E-01	1.047E-01	11.56	
TH-230	4.47E+09Y	1.00	7.930E-01	7.930E-01	1.405E-01	17.72	
TH-232	1.41E+10Y	1.00	8.461E-01	8.461E-01	2.734E-01	32.31	
TH-234	4.47E+09Y	1.00	1.366E+00	1.366E+00	1.262E+00	92.39	
U-234	4.47E+09Y	1.00	7.930E-01	7.930E-01	1.405E-01	17.72	
NP-237	2.14E+06Y	1.00	2.944E-01	2.944E-01	2.216E-01	75.29	
U-238	4.47E+09Y	1.00	1.366E+00	1.366E+00	1.262E+00	92.39	
AM-243	7380.00Y	1.00	2.083E-01	2.083E-01	0.658E-01	31.60	
ANH-511	1.00E+09Y	1.00	1.482E-01	1.482E-01	0.572E-01	38.57	
Total Activity :			5.676E+01	5.688E+01			

Grand Total Activity : 5.676E+01 5.688E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244597001

Page : 5  
Acquisition date : 22-JAN-2010 07:38:16

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	186.11	165	268	1.40	371.54	367	10	2.29E-02	42.7	6.53E+00	T
0	328.15	124	187	1.89	655.38	648	14	1.72E-02	50.8	4.41E+00	T
0	462.79	76	121	1.84	924.50	919	12	1.06E-02	61.9	3.35E+00	T
0	569.68	137	88	2.24	1138.16	1130	16	1.91E-02	36.3	2.81E+00	T
0	727.80	50	67	1.62	1454.30	1449	10	6.94E-03	69.7	2.27E+00	T
0	795.21	42	85	1.17	1589.10	1583	13	5.76E-03	96.5	2.09E+00	T
0	1731.23	19	16	1.67	3461.87	3453	16	2.65E-03	****	1.07E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244597001.CNF;1  *
* Acquisition date   : 22-JAN-2010 07:38:16  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 02:00:01.33             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G244597001             Analyst initials: MXR1          *
* Batch Number       : 941635                 Sample Quantity : 1.55800E+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     :              *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.867E-01	4.186E-01	3.843E-01	2.590E-02	1.267
K-40	2.982E+01	2.668E+00	4.473E-01	3.248E-02	66.665
CD-109	1.019E+00	7.382E-01	9.569E-01	8.367E-02	1.065
SN-126	1.002E-01	7.259E-02	9.440E-02	8.214E-03	1.062
BA-137M	3.024E-01	6.018E-02	3.643E-02	2.166E-03	8.300
CS-137	3.197E-01	6.364E-02	3.851E-02	2.299E-03	8.300
TL-208	2.672E-01	5.316E-02	4.459E-02	3.050E-03	5.991
BI-210	1.863E+00	3.080E+00	2.758E+00	2.045E-01	0.676
PB-210	1.863E+00	3.080E+00	2.758E+00	2.045E-01	0.676
PO-210	1.863E+00	3.079E+00	2.758E+00	1.730E-01	0.676
BI-211	1.808E+00	3.750E-01	2.463E-01	1.560E-02	7.342
PB-212	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
PO-212	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
BI-214	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
PB-214	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327
PO-214	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327
PO-216	8.929E-01	1.032E-01	6.674E-02	4.861E-03	13.379
PO-218	6.290E-01	1.345E-01	8.585E-02	7.044E-03	7.327

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-224	2.608E+00	8.520E-01	7.591E-01	4.363E-02	3.435
RA-226	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
AC-228	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
RA-228	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
TH-228	9.062E-01	1.047E-01	6.773E-02	4.934E-03	13.379
TH-230	7.930E-01	1.405E-01	7.642E-02	6.049E-03	10.377
TH-232	8.461E-01	2.734E-01	1.924E-01	2.260E-02	4.398
U-234	1.366E+00	1.262E+00	1.384E+00	2.379E-01	0.987
U-238	1.366E+00	1.262E+00	1.384E+00	2.379E-01	0.987
NP-237	2.944E-01	2.216E-01	2.868E-01	6.409E-02	1.027
AM-243	2.083E-01	6.583E-02	6.322E-02	4.744E-03	3.295
ANH-511	1.482E-01	5.717E-02	3.575E-02	2.100E-03	4.147

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	-3.521E-02		3.799E-02	5.668E-02	3.702E-03	-0.621
NA-24	2.680E-02		1.948E-01	Half-Life too short		
AL-26	1.649E-04		2.290E-02	3.706E-02	2.148E-03	0.004
TI-44	1.747E-01	+	3.623E-02	5.430E-02	4.240E-03	3.217
SC-46	-3.296E-02		3.286E-02	5.000E-02	4.620E-03	-0.659
V-48	-1.633E-02		6.239E-02	1.017E-01	8.633E-03	-0.161
CR-51	2.570E-02		2.853E-01	4.499E-01	2.907E-02	0.057
MN-52	-1.096E-01		1.453E-01	2.038E-01	1.428E-02	-0.538
MN-54	1.306E-02		2.908E-02	5.046E-02	4.232E-03	0.259
CO-56	-7.869E-03		3.010E-02	4.932E-02	4.227E-03	-0.160
CO-57	-2.699E-03		2.047E-02	3.277E-02	2.332E-03	-0.082
CO-58	-3.134E-02		3.170E-02	4.568E-02	3.676E-03	-0.686
FE-59	-2.222E-02		8.207E-02	1.330E-01	1.024E-02	-0.167
CO-60	-1.822E-02		3.251E-02	4.980E-02	3.549E-03	-0.366
ZN-65	4.347E-02		8.628E-02	1.304E-01	8.568E-03	0.333
GE-68	-8.387E-01		1.066E+00	1.641E+00	1.179E-01	-0.511
AS-73	-1.119E-01		5.028E-01	7.862E-01	5.125E-02	-0.142
AS-74	-3.432E-02		7.604E-02	1.194E-01	7.143E-03	-0.287
SE-75	-1.620E-03		3.434E-02	5.612E-02	3.295E-03	-0.029
BR-77	-2.785E+00		9.120E+00	1.248E+01	7.357E-01	-0.223
SR-82	-4.538E-02		2.888E-01	4.572E-01	3.437E-02	-0.099
RB-83	-2.004E-02		6.562E-02	8.980E-02	5.293E-03	-0.223
RB-84	8.841E-03		5.936E-02	1.005E-01	9.164E-03	0.088
KR-85	2.022E+01		6.470E+00	1.217E+01	7.158E-01	1.661
SR-85	1.033E-01		3.307E-02	6.220E-02	3.659E-03	1.661
RB-86	-5.698E-01		6.706E-01	1.025E+00	7.380E-02	-0.556
Y-88	-1.055E-02		1.915E-02	2.550E-02	1.448E-03	-0.414
ZR-88	1.258E-02		2.313E-02	3.943E-02	2.147E-03	0.319
Y-91	1.209E+01		1.764E+01	3.055E+01	1.777E+00	0.396
NB-94	3.038E-02		2.471E-02	4.395E-02	2.850E-03	0.691

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	2.201E-02		3.389E-02	5.737E-02	4.225E-03	0.384
NB-95M	3.536E-01		1.128E-01	1.869E-01	1.397E-02	1.892
ZR-95	4.871E-02		5.784E-02	9.954E-02	8.211E-03	0.489
NB-97	-2.502E-02		3.374E-02	Half-Life too short		
ZR-97	1.727E+00		5.737E-01	Half-Life too short		
MO-99	3.832E+00		8.495E+00	1.421E+01	2.035E+00	0.270
TC-99M	5.305E+09		6.665E+09	Half-Life too short		
RH-101	-3.175E-03		2.460E-02	4.024E-02	2.232E-03	-0.079
RH-102	2.457E-02		2.617E-02	4.043E-02	2.337E-03	0.608
RU-103	3.332E-03		3.084E-02	5.087E-02	6.442E-03	0.065
RH-106	-4.172E-02		2.469E-01	3.949E-01	4.671E-02	-0.106
RU-106	-4.172E-02		2.469E-01	3.949E-01	2.361E-02	-0.106
AG-108M	-4.181E-03		2.367E-02	3.845E-02	2.362E-03	-0.109
AG-110M	-1.589E-02		3.220E-02	4.226E-02	2.669E-03	-0.376
IN-111	2.718E-01		7.846E-01	1.170E+00	6.741E-02	0.232
IN-113M	5.678E-03		3.289E-02	5.487E-02	3.211E-03	0.103
SN-113	5.678E-03		3.289E-02	5.487E-02	3.211E-03	0.103
IN-114M	1.245E-01		1.406E-01	2.173E-01	1.196E-02	0.573
CD-115	-1.392E+01		7.781E+00	1.081E+01	6.389E-01	-1.287
SN-117M	-1.204E-03		4.343E-02	6.940E-02	3.926E-03	-0.017
SB-122	1.089E+00		1.629E+00	2.462E+00	1.468E-01	0.442
I-123	4.558E-01		1.571E+00	Half-Life too short		
TE-123M	3.282E-03		2.262E-02	3.642E-02	2.083E-03	0.090
I-124	-5.663E-01		6.053E-01	7.614E-01	4.555E-02	-0.744
SB-124	8.547E-03		5.413E-02	9.063E-02	6.127E-03	0.094
SB-125	3.074E-02		6.731E-02	1.141E-01	6.690E-03	0.269
TE-125M	-6.089E+00		7.451E+00	1.160E+01	1.089E+00	-0.525
I-126	-8.064E-02		1.462E-01	1.887E-01	1.133E-02	-0.427
SB-126	2.062E-02		1.211E-01	1.869E-01	1.258E-02	0.110
SB-127	4.462E-01		1.027E+00	1.718E+00	1.652E-01	0.260
XE-127	2.605E-03		3.451E-02	5.822E-02	3.246E-03	0.045
I-131	3.233E-02		8.771E-02	1.482E-01	9.354E-03	0.218
TE-132	3.278E-01		4.915E-01	8.435E-01	1.203E-01	0.389
BA-133	3.950E-03		3.540E-02	5.134E-02	5.901E-03	0.077
I-133	-1.721E-03		1.894E-03	Half-Life too short		
CS-134	6.308E-02	+	6.105E-02	7.376E-02	5.806E-03	0.855
CS-135	6.950E-02		1.222E-01	2.090E-01	1.604E-02	0.332
I-135	8.775E+07		1.091E+09	Half-Life too short		
CS-136	-7.724E-04		9.098E-02	1.510E-01	1.214E-02	-0.005
CE-139	8.056E-03		2.252E-02	3.657E-02	1.963E-03	0.220
BA-140	-1.285E-01		2.026E-01	3.072E-01	9.998E-02	-0.418
LA-140	-1.133E-02		6.165E-02	9.712E-02	6.438E-03	-0.117
CE-141	-3.408E-03		4.955E-02	7.922E-02	5.055E-03	-0.043
CE-143	4.817E-04		7.700E-05	Half-Life too short		
CE-144	-1.757E-01		1.651E-01	2.501E-01	3.641E-02	-0.703
PM-144	-1.602E-02		2.640E-02	4.033E-02	2.584E-03	-0.397
PR-144	-1.085E+00		1.789E+00	2.732E+00	1.749E-01	-0.397
PM-146	-2.033E-03		3.555E-02	5.816E-02	4.979E-03	-0.035

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	2.031E-01		4.295E-01	7.245E-01	9.832E-02	0.280
PM-149	-1.356E+01		6.454E+01	1.064E+02	1.509E+01	-0.127
EU-152	-1.250E-02		1.027E-01	1.275E-01	8.251E-03	-0.098
GD-153	6.407E-02		6.618E-02	9.816E-02	7.872E-03	0.653
EU-154	-1.020E-01		1.061E-01	1.571E-01	1.540E-02	-0.649
EU-155	3.817E-02		8.255E-02	1.357E-01	1.050E-02	0.281
TB-160	3.539E-03		1.141E-01	1.915E-01	1.739E-02	0.018
HO-166M	5.292E-03		5.094E-02	8.214E-02	5.428E-03	0.064
TM-171	-2.384E+01		2.250E+01	3.043E+01	2.122E+00	-0.783
LU-176	-5.106E-03		1.865E-02	3.055E-02	1.779E-03	-0.167
LU-177	5.475E-01		8.066E-01	1.372E+00	7.689E-02	0.399
LU-177M	-2.512E-02		1.335E-01	2.172E-01	1.204E-02	-0.116
HF-181	-2.117E-02		3.777E-02	5.036E-02	2.921E-03	-0.420
W-181	2.263E-01		2.900E-01	4.271E-01	2.942E-02	0.530
TA-182	7.523E-02		1.890E-01	3.205E-01	1.917E-02	0.235
RE-183	-1.885E-02		8.489E-02	1.344E-01	7.401E-03	-0.140
RE-184	2.076E-02		1.672E-01	2.813E-01	1.627E-02	0.074
OS-185	4.792E-03		3.159E-02	5.187E-02	3.093E-03	0.092
RE-188	-2.237E-02		1.366E-01	2.172E-01	1.258E-02	-0.103
W-188	-2.298E+00		6.577E+00	9.283E+00	5.416E-01	-0.248
IR-192	-1.316E-03		2.587E-02	4.287E-02	2.502E-03	-0.031
AU-195	1.857E-01		1.803E-01	2.817E-01	2.235E-02	0.659
TL-200	-2.482E-04		1.475E-04	Half-Life too short		
TL-201	8.161E-01		4.913E+00	7.911E+00	4.250E-01	0.103
TL-202	1.573E-02		5.289E-02	8.864E-02	5.012E-03	0.177
HG-203	1.655E-02		3.115E-02	5.322E-02	3.293E-03	0.311
BI-207	-1.783E-02		4.510E-02	7.223E-02	5.346E-03	-0.247
TL-207	-2.375E-01		5.815E-01	8.096E-01	1.337E-01	-0.293
PO-209	-9.899E-03		6.411E+00	1.072E+01	1.003E+00	-0.001
PB-211	-2.884E-01		7.471E-01	1.166E+00	7.268E-01	-0.247
BI-212	4.501E-01	+	3.159E-01	4.697E-01	3.995E-02	0.958
PO-215	-2.375E-01		5.815E-01	8.096E-01	1.337E-01	-0.293
RN-219	1.576E-01		3.170E-01	5.373E-01	7.241E-02	0.293
RN-220	3.599E+00		2.055E+01	3.396E+01	2.018E+00	0.106
RA-223	-2.375E-01		5.815E-01	8.096E-01	1.337E-01	-0.293
AC-227	-2.826E-01		2.756E-01	4.319E-01	6.029E-02	-0.654
TH-227	-2.826E-01		2.769E-01	4.319E-01	7.298E-02	-0.654
TH-229	-1.267E-01		3.739E-01	6.110E-01	3.374E-02	-0.207
PA-231	-1.087E-01		1.154E+00	1.914E+00	2.640E-01	-0.057
TH-231	-2.375E-01		5.815E-01	8.096E-01	1.337E-01	-0.293
U-231	5.535E-01		8.946E-01	1.303E+00	1.058E-01	0.425
PA-233	2.356E-02		4.764E-02	8.127E-02	5.018E-03	0.290
PA-234	1.543E-01		2.446E-01	4.272E-01	8.075E-02	0.361
PA-234M	1.339E+00		3.738E+00	6.407E+00	6.194E-01	0.209
U-235	1.746E-01		1.682E-01	2.772E-01	4.563E-02	0.630
NP-236	6.269E-03		6.261E-02	1.006E-01	5.621E-03	0.062
NP-239	-8.968E-02		1.513E-01	2.376E-01	1.717E-02	-0.377
AM-241	5.669E-02		1.128E-01	1.639E-01	1.216E-02	0.346



----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.583E-03		7.294E-02	1.177E-01	9.051E-03	-0.013
AM-246	2.855E-02		1.227E-01	2.075E-01	1.487E-02	0.138
CM-247	4.823E-03		2.822E-02	4.702E-02	2.583E-03	0.103
CF-249	-3.864E-02		3.047E-02	4.612E-02	2.522E-03	-0.838
CF-251	-7.541E-02		9.945E-02	1.511E-01	8.195E-03	-0.499

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244597001          *
* Acquisition date   : 22-JAN-2010 07:38:16 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 02:00:01.33 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244597001 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.5580E+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 :                  *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
BE-7	4.867E-01	4.103E-01	2.000E-01	2.093E-01
K-40	2.982E+01	2.614E+00	2.257E-01	1.334E+00
CD-109	1.019E+00	7.234E-01	5.200E-01	3.691E-01
SN-126	1.002E-01	7.114E-02	5.131E-02	3.629E-02
BA-137M	3.024E-01	5.898E-02	1.880E-02	3.009E-02
CS-137	3.197E-01	6.237E-02	1.987E-02	3.182E-02
TL-208	2.672E-01	5.209E-02	2.308E-02	2.658E-02
BI-210	1.863E+00	3.019E+00	1.522E+00	1.540E+00
PB-210	1.863E+00	3.019E+00	1.522E+00	1.540E+00
PO-210	1.863E+00	3.018E+00	1.522E+00	1.540E+00
BI-211	1.808E+00	3.675E-01	1.292E-01	1.875E-01
PB-212	8.929E-01	1.011E-01	3.537E-02	5.161E-02
PO-212	8.929E-01	1.011E-01	3.537E-02	5.161E-02
BI-214	7.930E-01	1.377E-01	3.951E-02	7.026E-02
PB-214	6.290E-01	1.318E-01	4.504E-02	6.725E-02
PO-214	6.290E-01	1.318E-01	4.504E-02	6.725E-02
PO-216	8.929E-01	1.011E-01	3.537E-02	5.161E-02
PO-218	6.290E-01	1.318E-01	4.504E-02	6.725E-02
RA-224	2.608E+00	8.349E-01	4.022E-01	4.260E-01
RA-226	7.930E-01	1.377E-01	3.951E-02	7.026E-02
AC-228	8.461E-01	2.679E-01	9.838E-02	1.367E-01
RA-228	8.461E-01	2.679E-01	9.838E-02	1.367E-01
TH-228	9.062E-01	1.027E-01	3.590E-02	5.237E-02
TH-230	7.930E-01	1.377E-01	3.951E-02	7.026E-02
TH-232	8.461E-01	2.679E-01	9.838E-02	1.367E-01
TH-234	1.366E+00	1.237E+00	7.583E-01	6.311E-01
U-234	7.930E-01	1.377E-01	3.951E-02	7.026E-02
NP-237	2.944E-01	2.172E-01	1.559E-01	1.108E-01
U-238	1.366E+00	1.237E+00	7.583E-01	6.311E-01
AM-243	2.083E-01	6.451E-02	3.450E-02	3.292E-02
ANH-511	1.482E-01	5.603E-02	1.857E-02	2.859E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
NA-22	-3.521E-02	3.723E-02	2.871E-02	1.899E-02 NOT IDENT.
NA-24	2.680E+04	3.818E+05	0.000E+00	1.948E+05 SHORT HLIF
AL-26	1.649E-04	2.245E-02	1.859E-02	1.145E-02 NOT IDENT.
TI-44	1.747E-01	3.550E-02	2.960E-02	1.811E-02 FAIL ABUN
SC-46	-3.296E-02	3.220E-02	2.559E-02	1.643E-02 FAIL ABUN
V-48	-1.633E-02	6.114E-02	5.188E-02	3.119E-02 NOT IDENT.
CR-51	2.570E-02	2.795E-01	2.366E-01	1.426E-01 NOT IDENT.
MN-52	-1.096E-01	1.424E-01	1.029E-01	7.264E-02 NOT IDENT.
MN-54	1.306E-02	2.850E-02	2.586E-02	1.454E-02 NOT IDENT.
CO-56	-7.869E-03	2.950E-02	2.527E-02	1.505E-02 NOT IDENT.
CO-57	-2.699E-03	2.006E-02	1.767E-02	1.024E-02 NOT IDENT.
CO-58	-3.134E-02	3.107E-02	2.344E-02	1.585E-02 NOT IDENT.
FE-59	-2.222E-02	8.043E-02	6.763E-02	4.104E-02 NOT IDENT.
CO-60	-1.822E-02	3.186E-02	2.519E-02	1.626E-02 NOT IDENT.
ZN-65	4.347E-02	8.456E-02	6.628E-02	4.314E-02 NOT IDENT.
GE-68	-8.387E-01	1.045E+00	8.351E-01	5.332E-01 NOT IDENT.
AS-73	-1.119E-01	4.928E-01	4.325E-01	2.514E-01 NOT IDENT.
AS-74	-3.432E-02	7.452E-02	6.178E-02	3.802E-02 NOT IDENT.
SE-75	-1.620E-03	3.365E-02	2.967E-02	1.717E-02 NOT IDENT.
BR-77	-2.785E+00	8.938E+00	6.480E+00	4.560E+00 FAIL ABUN
SR-82	-4.538E-02	2.830E-01	2.348E-01	1.444E-01 NOT IDENT.
RB-83	-2.004E-02	6.431E-02	4.663E-02	3.281E-02 NOT IDENT.
RB-84	8.841E-03	5.817E-02	5.145E-02	2.968E-02 NOT IDENT.
KR-85	2.022E+01	6.340E+00	6.321E+00	3.235E+00 NOT IDENT.
SR-85	1.033E-01	3.241E-02	3.231E-02	1.653E-02 NOT IDENT.
RB-86	-5.698E-01	6.571E-01	5.217E-01	3.353E-01 NOT IDENT.
Y-88	-1.055E-02	1.877E-02	1.278E-02	9.577E-03 NOT IDENT.
ZR-88	1.258E-02	2.267E-02	2.063E-02	1.157E-02 NOT IDENT.
Y-91	1.209E+01	1.729E+01	1.550E+01	8.822E+00 NOT IDENT.
NB-94	3.038E-02	2.422E-02	2.264E-02	1.235E-02 NOT IDENT.
NB-95	2.201E-02	3.321E-02	2.948E-02	1.695E-02 NOT IDENT.
NB-95M	3.536E-01	1.106E-01	9.910E-02	5.642E-02 NOT IDENT.
ZR-95	4.871E-02	5.668E-02	5.116E-02	2.892E-02 NOT IDENT.
NB-97	-2.502E+04	6.613E+04	0.000E+00	3.374E+04 SHORT HLIF
ZR-97	1.727E+06	1.125E+06	0.000E+00	5.737E+05 SHORT HLIF
MO-99	3.832E+00	8.325E+00	7.307E+00	4.247E+00 NOT IDENT.
TC-99M	5.305E+15	1.306E+16	0.000E+00	6.665E+15 SHORT HLIF
RH-101	-3.175E-03	2.410E-02	2.143E-02	1.230E-02 NOT IDENT.
RH-102	2.457E-02	2.565E-02	2.105E-02	1.308E-02 NOT IDENT.
RU-103	3.332E-03	3.022E-02	2.645E-02	1.542E-02 FAIL ABUN
RH-106	-4.172E-02	2.419E-01	2.041E-01	1.234E-01 FAIL ABUN
RU-106	-4.172E-02	2.419E-01	2.041E-01	1.234E-01 FAIL ABUN
AG-108M	-4.181E-03	2.320E-02	2.006E-02	1.184E-02 NOT IDENT.
AG-110M	-1.589E-02	3.155E-02	2.180E-02	1.610E-02 NOT IDENT.
IN-111	2.718E-01	7.689E-01	6.195E-01	3.923E-01 NOT IDENT.
IN-113M	5.678E-03	3.223E-02	2.871E-02	1.644E-02 NOT IDENT.
SN-113	5.678E-03	3.223E-02	2.871E-02	1.644E-02 NOT IDENT.
IN-114M	1.245E-01	1.378E-01	1.158E-01	7.031E-02 NOT IDENT.
CD-115	-1.392E+01	7.626E+00	5.611E+00	3.891E+00 NOT IDENT.
SN-117M	-1.204E-03	4.256E-02	3.717E-02	2.171E-02 NOT IDENT.
SB-122	1.089E+00	1.596E+00	1.276E+00	8.144E-01 NOT IDENT.
I-123	4.558E+05	3.079E+06	0.000E+00	1.571E+06 SHORT HLIF
TE-123M	3.282E-03	2.217E-02	1.951E-02	1.131E-02 NOT IDENT.
I-124	-5.663E-01	5.932E-01	3.938E-01	3.027E-01 NOT IDENT.
SB-124	8.547E-03	5.305E-02	4.554E-02	2.707E-02 FAIL ABUN
SB-125	3.074E-02	6.597E-02	5.958E-02	3.366E-02 FAIL ABUN
TE-125M	-6.089E+00	7.302E+00	6.272E+00	3.725E+00 NOT IDENT.
I-126	-8.064E-02	1.433E-01	9.731E-02	7.312E-02 NOT IDENT.
SB-126	2.062E-02	1.187E-01	9.620E-02	6.057E-02 NOT IDENT.
SB-127	4.462E-01	1.006E+00	8.856E-01	5.133E-01 NOT IDENT.
XE-127	2.605E-03	3.382E-02	3.099E-02	1.726E-02 NOT IDENT.
I-131	3.233E-02	8.596E-02	7.766E-02	4.386E-02 NOT IDENT.
TE-132	3.278E-01	4.817E-01	4.476E-01	2.458E-01 NOT IDENT.
BA-133	3.950E-03	3.469E-02	2.693E-02	1.770E-02 NOT IDENT.
I-133	-1.721E+03	3.712E+03	0.000E+00	1.894E+03 SHORT HLIF
CS-134	6.308E-02	5.983E-02	3.786E-02	3.053E-02 FAIL ABUN
CS-135	6.950E-02	1.198E-01	1.105E-01	6.111E-02 NOT IDENT.
I-135	8.775E+13	2.138E+15	0.000E+00	1.091E+15 SHORT HLIF
CS-136	-7.724E-04	8.916E-02	7.692E-02	4.549E-02 FAIL ABUN
CE-139	8.056E-03	2.206E-02	1.956E-02	1.126E-02 NOT IDENT.
BA-140	-1.285E-01	1.985E-01	1.594E-01	1.013E-01 NOT IDENT.
LA-140	-1.133E-02	6.042E-02	4.889E-02	3.083E-02 FAIL ABUN
CE-141	-3.408E-03	4.856E-02	4.252E-02	2.477E-02 NOT IDENT.
CE-143	4.817E+02	1.509E+02	0.000E+00	7.700E+01 SHORT HLIF

CE-144	-1.757E-01	1.618E-01	1.345E-01	8.255E-02	NOT IDENT.
PM-144	-1.602E-02	2.587E-02	2.077E-02	1.320E-02	FAIL ABUN
PR-144	-1.085E+00	1.753E+00	1.407E+00	8.943E-01	NOT IDENT.
PM-146	-2.033E-03	3.484E-02	3.031E-02	1.777E-02	NOT IDENT.
ND-147	2.031E-01	4.210E-01	3.760E-01	2.148E-01	NOT IDENT.
PM-149	-1.356E+01	6.325E+01	5.612E+01	3.227E+01	NOT IDENT.
EU-152	-1.250E-02	1.007E-01	6.695E-02	5.136E-02	NOT IDENT.
GD-153	6.407E-02	6.486E-02	5.321E-02	3.309E-02	NOT IDENT.
EU-154	-1.020E-01	1.039E-01	7.958E-02	5.303E-02	NOT IDENT.
EU-155	3.817E-02	8.090E-02	7.340E-02	4.128E-02	FAIL ABUN
TB-160	3.539E-03	1.118E-01	9.802E-02	5.705E-02	FAIL ABUN
HO-166M	5.292E-03	4.992E-02	4.229E-02	2.547E-02	NOT IDENT.
TM-171	-2.384E+01	2.205E+01	1.665E+01	1.125E+01	NOT IDENT.
LU-176	-5.106E-03	1.827E-02	1.609E-02	9.323E-03	FAIL ABUN
LU-177	5.475E-01	7.904E-01	7.297E-01	4.033E-01	NOT IDENT.
LU-177M	-2.512E-02	1.308E-01	1.135E-01	6.673E-02	NOT IDENT.
HF-181	-2.117E-02	3.701E-02	2.620E-02	1.888E-02	NOT IDENT.
W-181	2.263E-01	2.842E-01	2.338E-01	1.450E-01	NOT IDENT.
TA-182	7.523E-02	1.853E-01	1.625E-01	9.452E-02	FAIL ABUN
RE-183	-1.885E-02	8.319E-02	7.192E-02	4.244E-02	NOT IDENT.
RE-184	2.076E-02	1.638E-01	1.488E-01	8.359E-02	NOT IDENT.
OS-185	4.792E-03	3.096E-02	2.677E-02	1.579E-02	NOT IDENT.
RE-188	-2.237E-02	1.339E-01	1.164E-01	6.830E-02	FAIL ABUN
W-188	-2.298E+00	6.446E+00	4.895E+00	3.289E+00	FAIL ABUN
IR-192	-1.316E-03	2.536E-02	2.256E-02	1.294E-02	FAIL ABUN
AU-195	1.857E-01	1.767E-01	1.526E-01	9.014E-02	FAIL ABUN
TL-200	-2.482E+02	2.890E+02	0.000E+00	1.475E+02	SHORT HLIF
TL-201	8.161E-01	4.815E+00	4.231E+00	2.457E+00	NOT IDENT.
TL-202	1.573E-02	5.184E-02	4.623E-02	2.645E-02	NOT IDENT.
HG-203	1.655E-02	3.053E-02	2.809E-02	1.558E-02	NOT IDENT.
BI-207	-1.783E-02	4.419E-02	3.678E-02	2.255E-02	FAIL ABUN
TL-207	-2.375E-01	5.699E-01	4.257E-01	2.908E-01	FAIL ABUN
PO-209	-9.899E-03	6.283E+00	5.485E+00	3.206E+00	NOT IDENT.
PB-211	-2.884E-01	7.322E-01	6.097E-01	3.736E-01	NOT IDENT.
BI-212	4.501E-01	3.096E-01	2.417E-01	1.579E-01	FAIL ABUN
PO-215	-2.375E-01	5.699E-01	4.257E-01	2.908E-01	FAIL ABUN
RN-219	1.576E-01	3.106E-01	2.809E-01	1.585E-01	NOT IDENT.
RN-220	3.599E+00	2.014E+01	1.760E+01	1.028E+01	NOT IDENT.
RA-223	-2.375E-01	5.699E-01	4.257E-01	2.908E-01	FAIL ABUN
AC-227	-2.826E-01	2.701E-01	2.285E-01	1.378E-01	NOT IDENT.
TH-227	-2.826E-01	2.714E-01	2.285E-01	1.384E-01	FAIL ABUN
TH-229	-1.267E-01	3.664E-01	3.256E-01	1.870E-01	FAIL ABUN
PA-231	-1.087E-01	1.131E+00	1.010E+00	5.769E-01	NOT IDENT.
TH-231	-2.375E-01	5.699E-01	4.257E-01	2.908E-01	FAIL ABUN
U-231	5.535E-01	8.767E-01	7.065E-01	4.473E-01	FAIL ABUN
PA-233	2.356E-02	4.669E-02	4.277E-02	2.382E-02	FAIL ABUN
PA-234	1.543E-01	2.397E-01	2.182E-01	1.223E-01	FAIL ABUN
PA-234M	1.339E+00	3.663E+00	3.268E+00	1.869E+00	NOT IDENT.
U-235	1.746E-01	1.649E-01	1.488E-01	8.412E-02	FAIL ABUN
NP-236	6.269E-03	6.136E-02	5.386E-02	3.131E-02	NOT IDENT.
NP-239	-8.968E-02	1.483E-01	1.282E-01	7.565E-02	NOT IDENT.
AM-241	5.669E-02	1.106E-01	8.990E-02	5.641E-02	NOT IDENT.
CM-243	-1.583E-03	7.148E-02	6.372E-02	3.647E-02	NOT IDENT.
AM-246	2.855E-02	1.202E-01	1.056E-01	6.134E-02	NOT IDENT.
CM-247	4.823E-03	2.765E-02	2.458E-02	1.411E-02	NOT IDENT.
CF-249	-3.864E-02	2.986E-02	2.414E-02	1.524E-02	NOT IDENT.
CF-251	-7.541E-02	9.746E-02	8.070E-02	4.972E-02	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT          *
*****

```

ENERGY	MDA COUNTS
--------	------------

46.50	332.2560
46.50	332.2560
46.50	332.2560
48.70	399.3347
49.72	372.0648
51.35	367.8518
52.39	381.3761
52.97	373.9795
53.15	369.7635
53.44	379.2461
54.07	381.2665
56.28	413.0022
56.28	413.0033
57.37	0.0000
57.53	392.2936
57.53	392.2943
57.60	392.3227
57.98	382.0509
57.98	382.0509
59.32	394.1319
59.32	394.1319
59.40	394.1647
59.54	405.7686
59.72	405.8445
60.01	405.9661
61.10	432.8565
61.14	432.8741
61.30	432.9453
63.00	465.1434
63.29	471.9025
63.29	471.9025
63.58	472.0395
64.28	475.6853
65.12	486.0346
65.20	486.0735
65.20	486.0735
66.05	496.4419
66.72	529.9948
66.83	530.0532
66.91	506.8298
67.20	506.9731
67.20	506.9731
67.75	563.7882
67.85	563.8420
68.90	595.2144
68.90	595.2144
69.30	552.4141
69.67	489.4351
70.82	510.4003
70.82	510.4003
70.83	510.4041
72.80	531.3990
72.87	531.4330
72.87	531.4330
74.67	510.5548
74.81	510.6200
74.81	510.6200
74.81	510.6200
74.81	510.6200
74.81	510.6200
74.81	510.6200
74.81	510.6200
74.97	510.6944
75.28	510.8387
75.70	511.0332
77.11	434.5126
77.11	434.5126

77.11	434.5126
77.11	434.5126
77.11	434.5126
77.11	434.5126
77.11	434.5126
78.38	408.1329
79.62	490.9713
79.80	491.0498
79.80	491.0498
80.11	553.4224
80.18	553.4566
80.30	553.5148
80.30	553.5148
80.57	573.8391
81.00	580.7893
81.07	580.8251
81.07	580.8251
81.07	580.8251
81.07	580.8251
82.60	542.2628
83.37	465.5849
83.78	453.9375
83.78	453.9375
83.78	453.9375
83.78	453.9375
84.21	435.5356
84.90	427.3467
85.43	441.0572
86.29	510.7125
86.50	510.8029
86.54	510.8213
86.59	510.8416
86.72	573.4922
86.79	573.5233
86.94	573.5978
87.30	485.5461
87.30	485.5461
87.30	485.5461
87.30	485.5461
87.30	485.5461
87.30	485.5461
87.30	485.5461
87.57	485.6564
87.88	485.7825
88.03	485.8420
88.36	485.9768
88.47	486.0206
89.95	486.6159
91.11	487.0782
92.29	487.5457
92.38	487.5825
92.38	487.5825
93.35	487.9641
94.00	382.9175
94.67	391.6345
94.67	391.6359
94.90	398.5198
94.90	398.5198
94.90	398.5198
94.90	398.5198
95.87	392.0107
95.87	392.0107
96.73	371.8121
97.43	325.9404
98.44	309.1196
98.44	309.1196
98.88	318.9067
99.55	324.7708
99.55	324.7708
99.86	333.3972
100.00	340.9149
100.10	340.9417
103.18	378.1718
103.76	338.6829
105.00	335.7815
105.31	336.9322
108.00	351.5864
109.28	400.3487

111.00	338.3540
111.00	338.3540
111.76	363.3384
112.95	345.3070
115.19	341.5385
116.30	338.5635
117.00	359.2939
117.00	359.2939
117.66	361.6265
121.11	351.6448
121.62	348.5125
121.78	351.8079
122.06	347.5317
122.32	339.9904
122.32	339.9904
122.32	339.9904
122.32	339.9904
123.07	317.3433
127.23	393.4419
129.76	322.0553
131.20	326.7347
133.02	370.8899
133.54	364.4474
135.34	317.7606
136.00	325.5688
136.25	327.8137
136.48	320.1881
140.51	317.7166
140.51	0.0000
142.18	331.2580
142.65	322.5499
143.76	310.6578
144.24	318.4640
144.24	318.4640
144.24	318.4640
144.24	318.4640
145.22	326.3764
145.44	338.5521
147.16	357.6800
152.43	311.2113
152.70	311.2627
153.22	302.4949
154.21	332.6111
154.21	332.6111
154.21	332.6111
154.21	332.6111
155.03	330.5574
156.02	322.9836
158.56	317.9119
159.00	0.0000
159.00	307.9879
160.31	300.4356
161.27	301.7199
162.32	299.6758
162.64	299.7313
163.35	305.4300
163.89	312.2144
165.85	267.9163
167.43	265.9251
171.28	290.0214
171.86	241.9503
172.10	241.9832
176.55	288.6328
176.60	288.6407
181.06	264.2041
184.41	302.2831
185.71	304.0007
186.00	281.7712
190.27	217.2407
192.34	258.9024
193.63	262.0580
197.04	244.3575
198.01	265.3833
198.60	269.1009
200.40	264.8004
201.83	267.7259
202.84	269.6863
205.31	300.1302

208.36	272.2688
208.81	268.6751
209.75	261.4865
209.75	261.4865
210.97	255.2414
215.65	259.5019
216.55	254.1117
218.09	260.7291
222.10	250.2005
223.80	265.1344
226.40	244.2645
227.00	238.8020
227.08	238.8115
227.20	238.8241
228.16	230.6305
228.18	230.6335
228.18	230.6335
231.56	0.0000
235.69	222.1904
236.00	234.5684
236.00	234.5684
238.63	218.7854
238.63	218.7854
238.63	218.7854
238.63	218.7854
239.00	218.8229
240.98	219.0231
241.98	219.1239
241.98	219.1239
241.98	219.1239
244.69	187.4771
245.39	182.8878
247.94	186.2024
248.90	215.3897
249.79	208.7203
252.40	177.2460
252.85	184.7464
252.85	184.7464
254.15	0.0000
256.20	204.6448
256.20	204.6448
260.50	182.5626
260.90	178.8503
262.80	200.5518
264.65	200.7138
268.24	210.4184
268.79	199.1951
269.46	203.9514
269.46	203.9514
269.46	203.9514
269.46	203.9514
271.23	198.4616
273.65	274.9334
276.40	186.6450
277.35	190.4896
277.60	187.6824
277.60	187.6824
278.00	198.0901
278.60	193.4212
279.20	193.4713
279.53	187.8330
280.46	202.0696
281.68	228.6268
283.67	184.3764
284.30	181.5867
285.00	172.1802
285.90	194.9582
286.10	193.0803
286.10	193.0803
287.40	182.2946
288.45	0.0000
290.67	205.4551
290.80	205.4657
291.72	200.7991
293.26	0.0000
293.70	191.4676
295.21	204.2526
295.21	204.2526



295.21	204.2526
295.96	229.6541
296.50	245.5460
297.23	229.7721
298.57	196.6033
299.80	166.5598
299.80	166.5598
300.09	155.4737
300.09	155.4737
300.09	155.4737
300.09	155.4737
300.12	155.4757
301.29	174.1429
302.84	188.6801
303.76	192.5633
303.91	191.6198
304.40	199.2873
304.40	199.2873
304.84	195.5057
306.84	169.8909
308.46	150.8985
311.98	147.2832
316.51	158.0814
318.01	161.0499
319.02	153.4395
319.41	147.0686
320.08	146.3065
323.87	172.9424
323.87	172.9424
323.87	172.9424
323.87	172.9424
325.23	153.8066
328.77	144.3878
333.44	110.8925
334.20	110.9247
334.20	110.9247
334.30	110.9290
338.28	149.7343
338.28	149.7343
338.28	149.7343
338.28	149.7343
338.32	149.7381
338.32	149.7381
338.32	149.7381
340.50	165.9731
340.57	165.9773
344.27	169.4308
345.85	174.3728
350.59	0.0000
351.07	141.7066
351.92	141.7512
351.92	141.7512
351.92	141.7512
355.39	0.0000
356.01	124.7819
364.48	134.5887
366.43	152.2504
367.43	156.2090
367.94	0.0000
369.80	138.7516
374.96	148.7919
383.85	133.5397
387.95	151.4264
388.63	149.4951
391.69	119.1301
391.69	119.1301
392.90	117.2089
398.62	138.1594
400.65	127.3906
401.10	128.3972
401.81	121.5120
402.60	125.4978
404.84	140.4243
410.95	114.9451
411.60	112.9883
413.65	125.9566
414.70	138.8977
415.30	132.9711

415.76	138.9473
417.63	0.0000
418.52	112.2510
423.70	128.3607
427.08	105.5885
427.89	98.6423
432.53	102.7800
433.93	102.8252
439.47	110.0067
439.56	110.0107
439.89	117.0229
443.98	127.1891
444.90	138.2443
445.03	138.2510
445.03	138.2510
445.03	138.2510
453.90	123.5630
463.38	88.9965
468.07	86.7695
473.00	84.2041
475.06	92.6827
475.35	85.9494
476.78	85.9857
477.59	92.7521
477.96	91.0767
482.03	108.0729
484.57	96.8888
487.03	106.5419
490.36	0.0000
492.35	100.6121
497.08	93.6273
507.63	0.0000
510.53	0.0000
510.84	97.0659
511.00	97.0706
511.85	97.0938
511.85	97.0938
513.99	97.1529
513.99	97.1529
520.41	109.2839
520.65	109.2917
527.90	118.0715
528.96	0.0000
529.64	109.9101
529.87	0.0000
531.02	85.2898
537.32	99.8513
543.00	88.6665
546.56	0.0000
549.76	88.8324
552.65	86.8342
555.20	84.8268
563.23	79.4818
563.90	74.3104
568.70	86.1733
569.32	86.1875
569.50	86.1915
569.67	86.1956
573.80	93.5684
574.00	93.5728
574.64	95.3213
578.91	62.4639
579.30	0.0000
583.14	85.4614
585.48	86.9039
591.81	83.5664
592.07	88.7955
593.00	87.7714
595.88	106.6592
600.56	87.6819
602.52	0.0000
602.71	115.2288
602.71	115.2288
603.60	115.2556
604.41	106.5465
604.70	106.5539
609.31	70.3042

609.31	70.3042
609.31	70.3042
609.31	70.3042
610.33	70.3222
612.46	78.7610
614.37	64.7906
618.01	64.6005
621.84	81.0549
621.84	81.0549
631.29	72.8054
633.02	80.2249
633.10	80.2268
634.78	77.0920
635.90	73.9443
636.97	80.3047
645.85	67.7734
646.12	66.7191
656.30	90.2419
657.75	86.7330
657.90	0.0000
661.65	52.0900
661.65	52.0900
664.57	0.0000
666.33	70.9505
666.33	70.9505
675.00	74.6519
677.61	77.9011
685.20	70.5584
692.80	70.6841
695.00	56.7913
696.49	82.5363
696.49	82.5363
697.00	92.1939
697.49	86.8436
698.33	91.1509
698.50	91.1550
699.00	84.7302
702.63	54.7453
706.10	81.6462
706.58	0.0000
706.67	80.5829
709.31	88.1580
711.68	73.1465
713.82	93.6312
717.42	70.0115
720.50	75.4500
721.93	0.0000
722.20	97.0466
722.78	91.6655
722.78	91.6655
722.89	91.6697
722.95	91.6697
723.30	102.4636
724.18	64.7271
727.18	73.4071
733.00	70.2606
735.90	74.6332
739.58	62.7876
742.81	71.4995
744.21	69.3547
747.13	71.5687
751.79	72.7284
752.31	77.0790
753.82	71.6751
755.35	68.4402
756.15	63.0198
756.87	72.8102
763.93	76.1899
765.79	71.8652
766.42	62.0738
766.84	60.9902
776.49	64.3930
778.00	68.7817
778.57	67.6975
778.89	70.9795
783.80	57.9364
785.46	49.2089
792.07	52.9295

795.84	60.2784
796.30	60.2852
798.80	60.3174
801.93	65.8447
805.60	59.3064
810.29	61.5645
810.76	74.7635
815.85	61.4521
817.79	55.9725
818.51	54.1458
819.60	56.9115
826.30	56.9910
828.27	0.0000
831.60	66.2563
831.96	67.1825
834.83	65.3795
836.80	0.0000
846.75	63.6950
848.13	61.8665
856.28	0.0000
856.80	71.3578
860.37	59.2435
867.32	54.2284
867.82	53.1528
871.10	54.7339
873.19	68.6779
874.81	64.9870
875.33	0.0000
876.40	58.5075
879.36	64.1176
880.27	68.7758
880.51	68.7788
881.50	67.8627
883.24	63.2367
884.67	64.1849
889.25	78.2100
896.60	70.8650
898.02	66.2202
899.00	59.7031
903.28	75.0658
911.07	76.9436
911.07	76.9436
911.07	76.9436
919.63	61.0158
920.93	61.2088
925.00	45.9435
925.24	48.7585
926.50	45.9564
935.52	46.0362
937.48	52.6333
944.10	58.3457
946.00	52.7188
949.00	71.5871
962.29	71.7680
964.01	59.9159
966.15	63.1791
968.20	93.9951
969.11	99.2792
969.11	99.2792
969.11	99.2792
977.42	63.0173
980.50	62.5370
983.50	73.0005
989.30	54.0974
996.32	54.1681
1001.03	58.0190
1001.68	47.5622
1004.76	57.1069
1021.30	0.0000
1024.50	0.0000
1034.80	71.7712
1036.00	68.9150
1037.82	60.3212
1038.57	58.4137
1038.76	0.0000
1045.16	66.1531
1046.59	64.2520
1048.07	63.3091

1050.47	57.5781
1050.47	57.5781
1062.04	64.4264
1063.62	68.2930
1076.63	72.3053
1077.35	71.3503
1078.86	60.7595
1085.78	74.3525
1099.22	74.5248
1112.02	69.8379
1112.84	63.1946
1115.52	61.5600
1120.29	67.9919
1120.29	67.9919
1120.29	67.9919
1120.29	67.9919
1120.51	59.9464
1121.28	61.6193
1124.00	0.0000
1129.67	62.2630
1131.51	0.0000
1147.95	0.0000
1167.94	68.5360
1173.22	74.4754
1175.09	62.7370
1177.93	77.4763
1189.05	78.6003
1204.90	77.8171
1205.75	0.0000
1213.00	89.7522
1221.42	88.8867
1230.97	91.9896
1235.34	98.9827
1236.41	0.0000
1238.25	67.3387
1246.25	60.4837
1260.41	0.0000
1271.85	58.7359
1274.45	65.7314
1274.54	65.7314
1291.56	47.9297
1298.22	0.0000
1312.09	55.0918
1325.50	34.1259
1325.50	34.1259
1332.49	43.2047
1333.61	34.1688
1360.21	25.2238
1362.66	0.0000
1365.15	32.3099
1368.21	26.2634
1368.53	0.0000
1376.25	33.3746
1384.27	37.4637
1394.10	22.3079
1395.20	19.2690
1407.95	26.4168
1434.06	21.4170
1436.60	15.3033
1457.56	0.0000
1460.81	26.6168
1489.15	16.4447
1509.49	12.3682
1596.49	19.8141
1620.62	14.6466
1678.03	0.0000
1691.02	11.6128
1691.02	11.6128
1706.46	0.0000
1750.46	0.0000
1764.49	11.7202
1764.49	11.7202
1764.49	11.7202
1764.49	11.7202
1770.23	12.7944
1771.40	10.9683
1791.20	0.0000
1808.65	11.7837

1836.01

8.5980

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244597001

Total Uranium Activity	4.1451E+00	ug/g
Total Uranium Counting Unc.	3.6807E+00	ug/g
Total Uranium Tpu	1.8779E-06	ug/g
Total Uranium Mda	2.2569E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244597001
*  ANALYST       : MXR1            DETECTOR    : GAM14
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 07:38:16.97  SAMPLE ALQT: 155.800 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 6.985E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.177E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.511E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.220E+00

```



VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:55:16.45

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600001.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:54:51
Sample ID          : G244600001      Sample quantity   : 1.43190E+02 GRAM
Detector name      : GAM10           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.15  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941635          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	74.56*	272	392	0.82	149.26	145	13	3.78E-02	12.6	1.47E+00
2	3	76.88*	520	344	0.85	153.90	145	13	7.23E-02	7.1	
3	0	87.08	141	558	1.29	174.27	170	8	1.95E-02	30.1	
4	0	89.66	92	349	1.03	179.43	177	6	1.27E-02	33.9	
5	0	92.65*	203	455	1.18	185.41	182	8	2.82E-02	20.3	
6	0	105.56	53	440	1.17	211.20	205	9	7.30E-03	73.3	
7	0	185.72*	177	323	1.19	371.38	367	9	2.45E-02	20.4	
8	0	208.75	97	307	0.99	417.41	414	9	1.35E-02	33.9	
9	5	238.55*	1320	223	1.15	476.97	471	18	1.83E-01	3.4	1.26E+00
10	5	241.50	321	244	1.67	482.86	471	18	4.45E-02	13.0	
11	0	270.05	124	175	1.41	539.93	536	9	1.73E-02	21.1	
12	0	277.60	57	219	0.94	555.00	550	8	7.93E-03	47.0	
13	2	295.13*	392	157	1.14	590.05	586	22	5.45E-02	7.4	1.12E+00
14	2	300.34	114	171	1.54	600.46	586	22	1.58E-02	23.5	
15	0	327.88	136	181	0.91	655.49	650	11	1.89E-02	21.0	
16	0	338.25*	269	209	1.23	676.22	671	12	3.73E-02	12.5	
17	0	351.85*	657	174	1.23	703.40	696	13	9.12E-02	5.8	
18	0	462.69	93	168	1.31	924.95	918	14	1.29E-02	31.4	
19	0	510.53*	174	97	1.33	1020.57	1013	14	2.42E-02	16.3	
20	0	583.32*	345	91	1.38	1166.09	1161	11	4.79E-02	7.8	
21	0	609.49*	410	96	1.45	1218.40	1213	10	5.69E-02	6.8	
22	0	661.47	53	94	0.96	1322.32	1319	9	7.33E-03	35.7	
23	0	727.26*	146	68	1.37	1453.85	1447	15	2.03E-02	15.0	
24	0	768.13	64	89	1.67	1535.57	1530	13	8.90E-03	32.7	
25	0	795.29	58	61	1.27	1589.87	1585	11	7.99E-03	29.3	
26	0	861.30	85	63	1.51	1721.86	1716	14	1.18E-02	23.0	
27	0	911.45*	269	74	1.55	1822.14	1814	15	3.74E-02	9.4	
28	1	964.86*	60	82	1.92	1928.95	1922	23	8.37E-03	29.5	1.13E+00
29	1	969.41	180	49	1.87	1938.03	1922	23	2.50E-02	11.0	
30	0	1121.38*	95	102	1.45	2241.95	2235	15	1.32E-02	26.3	
31	0	1238.81	40	83	1.26	2476.84	2471	13	5.49E-03	49.7	
32	0	1461.31*	1475	19	2.17	2921.93	2915	17	2.05E-01	2.7	
33	0	1729.86	32	3	2.79	3459.25	3452	14	4.39E-03	21.7	
34	0	1765.20*	87	12	2.37	3529.98	3523	15	1.21E-02	14.4	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 09:55:19

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600001.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 7-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 07:54:51  
 Sample ID : G244600001 Sample quantity : 143.19 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA10 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.15 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	*	3.274E+01	3.333E+00	4.940E-01	4.255E-02	66.277
CD-109	+	88.03	*	1.925E+00	1.178E+00	9.718E-01	1.102E-01	1.980
SN-126		64.28		-4.690E-01	6.312E-01	1.000E+00	1.710E-01	-0.469
	+	86.94		7.867E-01	5.772E-01	5.902E-01	2.478E-01	1.333
	+	87.57	*	1.892E-01	1.158E-01	9.625E-02	1.089E-02	1.966
BA-137M	+	661.65	*	6.538E-02	4.674E-02	5.577E-02	2.752E-03	1.172
CS-137	+	661.65	*	6.912E-02	4.941E-02	5.895E-02	2.926E-03	1.172
EU-155		48.70		-1.187E+00	4.921E+00	8.178E+00	9.823E-01	-0.145
		60.01		-4.699E+00	6.631E+00	1.072E+01	1.320E+00	-0.439
	+	86.54		2.279E-01	1.395E-01	1.721E-01	1.948E-02	1.324
	+	105.31	*	1.046E-01	1.535E-01	1.751E-01	1.452E-02	0.597
TL-208	+	277.35		4.779E-01	4.521E-01	5.434E-01	5.927E-02	0.880
	+	510.84		7.209E-01	2.476E-01	2.053E-01	2.158E-02	3.511
	+	583.14	*	4.089E-01	6.959E-02	4.863E-02	3.267E-03	8.408
	+	860.37		9.717E-01	4.565E-01	4.311E-01	4.210E-02	2.254
BI-211		72.87		9.469E+00	3.967E+00	6.255E+00	6.879E-01	1.514
	+	351.07	*	3.422E+00	4.663E-01	2.862E-01	2.087E-02	11.958
PB-212	+	74.81		1.729E+00	5.006E-01	6.048E-01	8.707E-02	2.859
	+	77.11		1.823E+00	3.254E-01	3.351E-01	3.664E-02	5.440
	+	87.30		8.752E-01	5.428E-01	4.471E-01	6.746E-02	1.958
	+	238.63	*	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
	+	300.09		2.011E+00	9.616E-01	1.102E+00	9.686E-02	1.825
PO-212	+	74.81		1.729E+00	5.006E-01	6.048E-01	8.707E-02	2.859
	+	77.11		1.823E+00	3.254E-01	3.351E-01	3.664E-02	5.440
	+	87.30		8.752E-01	5.428E-01	4.471E-01	6.746E-02	1.958
	+	115.19		1.847E+00	3.334E+00	5.535E+00	3.960E-01	0.334
	+	238.63	*	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
	+	300.09		2.011E+00	9.616E-01	1.102E+00	9.686E-02	1.825
BI-214	+	609.31	*	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
	+	1120.29		1.163E+00	6.218E-01	4.499E-01	4.397E-02	2.585
	+	1764.49		1.478E+00	4.379E-01	2.611E-01	1.743E-02	5.663
PB-214	+	74.81		2.980E+00	8.456E-01	1.042E+00	1.378E-01	2.859
	+	77.11		3.125E+00	6.066E-01	5.745E-01	7.656E-02	5.440
	+	87.30		1.499E+00	9.250E-01	7.659E-01	1.048E-01	1.958

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		2.212E+00	6.044E-01	4.778E-01	3.976E-02	4.628
	+	295.21		1.215E+00	2.097E-01	1.931E-01	1.744E-02	6.289
	+	351.92	*	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
	+	74.81		2.980E+00	8.456E-01	1.042E+00	1.378E-01	2.859
	+	77.11		3.125E+00	6.066E-01	5.745E-01	7.656E-02	5.440
	+	87.30		1.499E+00	9.250E-01	7.659E-01	1.048E-01	1.958
PO-216	+	241.98		2.212E+00	6.044E-01	4.778E-01	3.976E-02	4.628
	+	295.21		1.215E+00	2.097E-01	1.931E-01	1.744E-02	6.289
	+	351.92	*	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
	+	74.81		1.729E+00	5.006E-01	6.048E-01	8.707E-02	2.859
	+	77.11		1.823E+00	3.254E-01	3.351E-01	3.664E-02	5.440
	+	87.30		8.752E-01	5.428E-01	4.471E-01	6.746E-02	1.958
PO-218	+	238.63	*	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
	+	300.09		2.011E+00	9.616E-01	1.102E+00	9.686E-02	1.825
	+	74.81		2.980E+00	8.456E-01	1.042E+00	1.378E-01	2.859
	+	77.11		3.125E+00	6.066E-01	5.745E-01	7.656E-02	5.440
	+	87.30		1.499E+00	9.250E-01	7.659E-01	1.048E-01	1.958
	+	241.98		2.212E+00	6.044E-01	4.778E-01	3.976E-02	4.628
RA-224	+	295.21		1.215E+00	2.097E-01	1.931E-01	1.744E-02	6.289
	+	351.92	*	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
	+	240.98	*	4.194E+00	1.122E+00	9.031E-01	5.544E-02	4.644
RA-226	+	609.31	*	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
	+	1120.29		1.163E+00	6.218E-01	4.499E-01	4.397E-02	2.585
	+	1764.49		1.478E+00	4.379E-01	2.611E-01	1.743E-02	5.663
AC-228	+	338.32		1.544E+00	7.398E-01	3.247E-01	1.328E-01	4.755
	+	911.07	*	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299
	+	969.11		1.739E+00	5.610E-01	3.562E-01	8.421E-02	4.881
RA-228	+	338.32		1.544E+00	7.398E-01	3.247E-01	1.328E-01	4.755
	+	911.07	*	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299
	+	969.11		1.739E+00	5.610E-01	3.562E-01	8.421E-02	4.881
TH-228	+	74.81		1.755E+00	4.812E-01	6.138E-01	6.756E-02	2.859
	+	77.11		1.850E+00	3.303E-01	3.401E-01	3.719E-02	5.440
	+	87.30		8.883E-01	5.437E-01	4.537E-01	5.127E-02	1.958
TH-230	+	238.63	*	1.539E+00	1.565E-01	8.055E-02	6.111E-03	19.110
	+	300.09		2.041E+00	1.540E+00	1.119E+00	6.601E-01	1.825
	+	609.31	*	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
TH-232	+	1120.29		1.163E+00	6.218E-01	4.499E-01	4.397E-02	2.585
	+	1764.49		1.478E+00	4.379E-01	2.611E-01	1.743E-02	5.663
	+	338.32		1.544E+00	3.990E-01	3.247E-01	2.177E-02	4.755
U-234	+	911.07	*	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299
	+	969.11		1.739E+00	5.610E-01	3.562E-01	8.421E-02	4.881
	+	609.31	*	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
U-235	+	1120.29		1.163E+00	6.218E-01	4.499E-01	4.397E-02	2.585
	+	1764.49		1.478E+00	4.379E-01	2.611E-01	1.743E-02	5.663
	+	89.95		1.620E+00	1.212E+00	1.666E+00	5.256E-01	0.973
	+	93.35		2.072E+00	1.028E+00	7.913E-01	2.255E-01	2.618
	+	105.00		1.025E+00	1.533E+00	1.580E+00	4.698E-01	0.648
	+	143.76	*	2.623E-01	2.044E-01	3.333E-01	5.450E-02	0.787
	+	163.35		9.847E-02	4.356E-01	6.927E-01	1.239E-01	0.142

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	185.71		1.434E-01	5.915E-02	6.469E-02	3.641E-03	2.217
		205.31		2.338E-01	4.721E-01	7.253E-01	1.305E-01	0.322
NP-237	+	86.50	*	5.557E-01	3.589E-01	4.199E-01	9.869E-02	1.323
		95.87		-6.742E-01	9.751E-01	1.351E+00	3.377E-01	-0.499
AM-243	+	74.67	*	2.804E-01	7.681E-02	9.850E-02	1.079E-02	2.846
	+	86.72		2.084E+01	1.275E+01	1.569E+01	1.767E+00	1.328
		117.66		-4.223E+00	3.563E+00	5.469E+00	3.795E-01	-0.772
		142.18		3.570E+00	1.681E+01	2.685E+01	1.603E+00	0.133
ANH-511	+	511.00	*	1.557E-01	5.188E-02	4.436E-02	2.842E-03	3.510

## ---- 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	*	1.046E-01	2.822E-01	4.681E-01	3.481E-02	0.224
NA-22		1274.54	*	-2.493E-02	4.290E-02	6.726E-02	5.210E-03	-0.371
NA-24		1368.53	*	-1.537E-01	4.290E-02	Half-Life too short		
AL-26		1129.67		8.627E-01	1.730E+00	2.835E+00	1.989E-01	0.304
		1808.65	*	4.254E-03	2.098E-02	3.576E-02	2.267E-03	0.119
TI-44		67.85		4.726E-02	5.287E-02	9.006E-02	1.017E-02	0.525
	+	78.38	*	3.364E-01	6.006E-02	7.231E-02	7.912E-03	4.653
SC-46		889.25	*	1.764E-02	3.776E-02	6.421E-02	6.354E-03	0.275
	+	1120.51		1.986E-01	1.054E-01	1.276E-01	9.161E-03	1.557
V-48		944.10		-1.085E-02	9.077E-01	1.476E+00	1.430E-01	-0.007
		983.50	*	-3.834E-03	6.672E-02	1.076E-01	9.951E-03	-0.036
		1312.09		4.684E-02	7.946E-02	1.395E-01	1.164E-02	0.336
CR-51		320.08	*	-2.048E-01	3.083E-01	4.897E-01	3.537E-02	-0.418
MN-52		744.21		1.084E-01	2.036E-01	3.517E-01	2.294E-02	0.308
		848.13		2.151E+00	5.591E+00	9.503E+00	8.423E-01	0.226
		935.52		1.631E-01	2.346E-01	4.048E-01	3.957E-02	0.403
		1246.25		7.612E+00	7.791E+00	1.283E+01	9.348E-01	0.593
		1333.61		2.187E-01	5.129E+00	8.539E+00	7.419E-01	0.026
		1434.06	*	1.162E-01	2.306E-01	4.033E-01	3.408E-02	0.288
MN-54		834.83	*	-3.602E-02	3.535E-02	5.280E-02	4.511E-03	-0.682
CO-56		846.75	*	-6.006E-03	3.315E-02	5.343E-02	4.718E-03	-0.112
		977.42		-1.983E+00	2.897E+00	4.223E+00	3.936E-01	-0.470
		1037.82		1.843E-03	3.167E-01	5.118E-01	4.602E-02	0.004
		1175.09		4.028E-01	2.414E+00	4.092E+00	2.534E-01	0.098
	+	1238.25		1.373E-01	1.370E-01	1.649E-01	1.230E-02	0.833
		1360.21		-3.829E-01	8.787E-01	1.368E+00	1.182E-01	-0.280
		1771.40		3.570E-02	2.259E-01	3.281E-01	2.174E-02	0.109
CO-57		122.06	*	-2.204E-04	2.280E-02	3.692E-02	2.435E-03	-0.006
		136.48		6.176E-02	1.848E-01	3.022E-01	2.114E-02	0.204
CO-58		810.76	*	-3.061E-02	3.953E-02	6.084E-02	4.868E-03	-0.503
FE-59		142.65		1.982E+00	2.548E+00	4.158E+00	2.478E-01	0.477
		192.34		-1.011E+00	8.651E-01	1.276E+00	1.501E-01	-0.792
		1099.22	*	1.558E-03	9.259E-02	1.491E-01	1.245E-02	0.010
		1291.56		-3.768E-02	1.136E-01	1.820E-01	1.684E-02	-0.207
CO-60		1173.22		3.220E-02	4.734E-02	8.321E-02	5.131E-03	0.387

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-2.719E-02	4.143E-02	6.376E-02	5.541E-03	-0.426
ZN-65	1115.52	*		-1.192E-02	1.068E-01	1.455E-01	1.060E-02	-0.082
GE-68	1077.35	*		-3.138E-03	1.360E+00	2.190E+00	1.735E-01	-0.001
AS-73	53.44	*		-1.613E-01	1.404E+00	2.287E+00	3.027E-01	-0.071
AS-74	595.88	*		-4.139E-02	7.721E-02	1.247E-01	7.125E-03	-0.332
	634.78			5.258E-02	3.163E-01	5.362E-01	2.830E-02	0.098
SE-75	66.05			-7.115E+00	5.849E+00	9.176E+00	1.182E+00	-0.775
	96.73			-9.227E-01	8.236E-01	1.107E+00	1.568E-01	-0.833
	121.11			-4.594E-02	1.246E-01	1.986E-01	1.945E-02	-0.231
	136.00			1.487E-04	3.487E-02	5.623E-02	3.492E-03	0.003
	198.60			4.475E-01	1.633E+00	2.579E+00	1.827E-01	0.174
	264.65	*		1.837E-02	4.087E-02	6.520E-02	4.159E-03	0.282
	279.53			5.920E-02	1.089E-01	1.657E-01	1.135E-02	0.357
	303.91			1.345E-01	2.031E+00	2.981E+00	2.988E-01	0.045
	400.65			5.389E-02	2.283E-01	3.785E-01	3.697E-02	0.142
BR-77	+ 87.88			3.826E+02	2.342E+02	2.959E+02	3.355E+01	1.293
	200.40			-9.605E+00	1.355E+02	2.133E+02	1.230E+01	-0.045
	+ 239.00			2.240E+02	2.044E+01	3.182E+01	1.948E+00	7.040
	249.79			-9.699E+00	5.140E+01	8.551E+01	5.311E+00	-0.113
	281.68			2.355E+01	8.189E+01	1.226E+02	7.896E+00	0.192
	297.23			1.172E+02	4.767E+01	8.650E+01	5.648E+00	1.354
	303.76			-2.895E+00	1.587E+02	2.315E+02	1.519E+01	-0.013
	439.47			1.640E+02	1.153E+02	2.045E+02	1.375E+01	0.802
	484.57			-1.539E+02	1.891E+02	2.855E+02	1.870E+01	-0.539
	520.65	*		3.572E+00	8.158E+00	1.356E+01	8.605E-01	0.263
	574.64			-1.130E+02	1.714E+02	2.758E+02	1.633E+01	-0.410
	578.91			2.417E+01	7.420E+01	1.126E+02	6.619E+00	0.215
	585.48			9.816E+02	2.003E+02	3.763E+02	2.189E+01	2.608
	755.35			-1.461E+01	1.361E+02	2.232E+02	1.508E+01	-0.065
	817.79			1.910E+00	1.145E+02	1.886E+02	1.535E+01	0.010
SR-82	698.33			7.648E+00	2.915E+01	4.947E+01	2.776E+00	0.155
	776.49	*		-3.968E-01	3.552E-01	5.094E-01	3.672E-02	-0.779
	1395.20			1.572E+00	9.258E+00	1.566E+01	1.340E+00	0.100
RB-83	520.41	*		1.814E-02	5.792E-02	9.540E-02	6.054E-03	0.190
	529.64			-4.851E-02	9.275E-02	1.422E-01	8.932E-03	-0.341
	552.65			9.600E-02	1.748E-01	2.918E-01	1.782E-02	0.329
RB-84	881.50	*		-3.017E-03	6.302E-02	1.026E-01	9.951E-03	-0.029
KR-85	513.99	*		1.287E+01	6.984E+00	1.146E+01	7.320E-01	1.123
SR-85	513.99	*		6.580E-02	3.570E-02	5.858E-02	3.742E-03	1.123
RB-86	1076.63	*		-3.377E-02	8.643E-01	1.387E+00	1.101E-01	-0.024
Y-88	898.02			3.657E-02	3.898E-02	6.870E-02	6.979E-03	0.532
	1836.01	*		7.856E-03	2.885E-02	4.933E-02	3.026E-03	0.159
ZR-88	392.90	*		4.910E-03	2.908E-02	4.804E-02	3.265E-03	0.102
Y-91	1204.90	*		5.806E+00	2.044E+01	3.484E+01	2.314E+00	0.167
NB-94	702.63	*		-1.254E-02	2.894E-02	4.648E-02	2.646E-03	-0.270
	871.10			3.232E-03	3.091E-02	5.110E-02	4.821E-03	0.063
NB-95	765.79	*		3.356E-02	4.404E-02	6.818E-02	4.758E-03	0.492
NB-95M	235.69	*		1.491E-01	1.218E-01	1.924E-01	1.492E-02	0.775
ZR-95	724.18			1.531E-01	8.287E-02	1.436E-01	1.024E-02	1.066

## ----- 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	*		1.622E-03	6.434E-02	1.067E-01	8.379E-03	0.015
	657.90	*		1.403E-02	6.434E-02	Half-Life too short		
ZR-97	1024.50			1.553E+00	6.434E-02	Half-Life too short		
	254.15			-1.878E+00	6.434E-02	Half-Life too short		
	355.39			-2.438E-01	6.434E-02	Half-Life too short		
	507.63	*		2.178E+00	6.434E-02	Half-Life too short		
	602.52			-2.855E+00	6.434E-02	Half-Life too short		
	1021.30			5.091E+00	6.434E-02	Half-Life too short		
	1147.95			4.997E-01	6.434E-02	Half-Life too short		
MO-99	1362.66			3.876E+00	6.434E-02	Half-Life too short		
	1750.46			-8.661E-01	6.434E-02	Half-Life too short		
	140.51			-8.438E+00	2.216E+01	3.489E+01	9.419E+00	-0.242
	181.06			1.379E+00	1.657E+01	2.351E+01	4.012E+00	0.059
	366.43			5.982E+01	7.295E+01	1.253E+02	8.488E+00	0.477
	739.58	*		-3.164E+00	8.516E+00	1.360E+01	1.911E+00	-0.233
	778.00			-4.260E+01	2.980E+01	4.289E+01	3.107E+00	-0.993
TC-99M	140.51	*		-5.963E+09	2.980E+01	Half-Life too short		
RH-101	127.23			2.466E-02	2.991E-02	4.991E-02	3.190E-03	0.494
	198.01	*		4.109E-03	3.069E-02	4.818E-02	2.768E-03	0.085
	325.23			1.325E-01	2.123E-01	3.233E-01	2.153E-02	0.410
RH-102	418.52			-1.356E-01	2.611E-01	4.082E-01	2.763E-02	-0.332
	475.06	*		-9.837E-03	2.623E-02	4.118E-02	2.717E-03	-0.239
	631.29			1.627E-02	5.314E-02	9.083E-02	4.832E-03	0.179
	697.49			2.435E-02	6.652E-02	1.137E-01	6.363E-03	0.214
	766.84	+		2.429E-01	1.597E-01	1.937E-01	1.356E-02	1.254
RU-103	1046.59			8.236E-02	1.153E-01	1.981E-01	1.664E-02	0.416
	1112.84			-8.653E-02	2.442E-01	3.678E-01	2.692E-02	-0.235
	497.08	*		9.428E-03	3.753E-02	6.153E-02	7.983E-03	0.153
RH-106	610.33	+		9.850E+00	2.019E+00	2.533E+00	3.883E-01	3.889
RH-106	511.85	+		7.774E-01	2.590E-01	3.719E-01	2.381E-02	2.090
	621.84	*		-3.270E-02	2.783E-01	4.627E-01	5.349E-02	-0.071
RU-106	1050.47			-2.450E+00	2.446E+00	3.556E+00	2.966E-01	-0.689
	511.85	+		7.774E-01	2.590E-01	3.719E-01	2.381E-02	2.090
	621.84	*		-3.270E-02	2.783E-01	4.627E-01	2.513E-02	-0.071
AG-108M	1050.47			-2.450E+00	2.446E+00	3.556E+00	2.966E-01	-0.689
	433.93	*		3.190E-03	2.808E-02	4.601E-02	3.299E-03	0.069
	614.37			1.199E-02	3.896E-02	5.865E-02	3.537E-03	0.204
AG-110M	722.95			2.887E-02	3.493E-02	5.559E-02	3.647E-03	0.519
	657.75	*		5.202E-03	3.424E-02	5.058E-02	2.740E-03	0.103
	677.61			-3.695E-02	2.693E-01	4.442E-01	2.493E-02	-0.083
	706.67			2.614E-02	1.804E-01	3.033E-01	1.856E-02	0.086
	763.93			-4.204E-02	1.745E-01	2.434E-01	1.762E-02	-0.173
IN-111	884.67			1.830E-02	4.648E-02	7.867E-02	7.886E-03	0.233
	937.48			-8.277E-02	1.092E-01	1.647E-01	1.653E-02	-0.503
	1384.27			-9.526E-02	1.669E-01	2.569E-01	2.268E-02	-0.371
	171.28			-8.166E-01	8.644E-01	1.314E+00	7.225E-02	-0.622
	245.39	*		-3.348E-01	9.094E-01	1.313E+00	8.109E-02	-0.255
IN-113M	391.69	*		1.010E-02	4.176E-02	6.930E-02	4.941E-03	0.146
SN-113	391.69	*		1.010E-02	4.176E-02	6.930E-02	4.941E-03	0.146

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-114M	190.27	*		8.474E-02	1.784E-01	2.588E-01	1.468E-02	0.327
CD-115	260.90			-5.508E+00	1.037E+02	1.732E+02	1.091E+01	-0.032
	492.35			-7.906E+00	2.954E+01	4.662E+01	3.036E+00	-0.170
	527.90	*		2.851E+00	8.446E+00	1.392E+01	8.765E-01	0.205
SN-117M	156.02			-1.750E+00	2.064E+00	3.175E+00	1.798E-01	-0.551
	158.56	*		-2.757E-02	4.983E-02	7.768E-02	4.356E-03	-0.355
SB-122	563.90	*		2.110E+00	1.688E+00	2.955E+00	1.777E-01	0.714
	692.80			-1.497E+01	3.526E+01	5.674E+01	3.124E+00	-0.264
I-123	159.00	*		-4.604E-01	3.526E+01	Half-Life	too short	
	528.96			-5.124E+01	3.526E+01	Half-Life	too short	
TE-123M	159.00	*		-3.267E-03	2.577E-02	4.099E-02	2.328E-03	-0.080
I-124	602.71	*		-3.556E-01	5.731E-01	8.625E-01	4.866E-02	-0.412
	722.78			2.676E+00	3.460E+00	5.480E+00	3.336E-01	0.488
	1325.50			1.144E+01	3.123E+01	5.387E+01	4.618E+00	0.212
	1376.25			4.167E+01	3.112E+01	5.781E+01	4.975E+00	0.721
	1509.49			4.874E+00	1.265E+01	2.197E+01	1.796E+00	0.222
	1691.02			8.462E-01	3.141E+00	5.377E+00	3.867E-01	0.157
SB-124	602.71			-2.160E-02	3.482E-02	5.240E-02	2.957E-03	-0.412
	645.85			5.312E-03	4.225E-01	7.075E-01	4.222E-02	0.008
	709.31			5.372E-01	2.556E+00	4.314E+00	2.512E-01	0.125
	713.82			4.491E-01	1.476E+00	2.508E+00	2.577E-01	0.179
	722.78			2.357E-01	3.048E-01	4.826E-01	3.064E-02	0.488
+	968.20			1.784E+01	4.262E+00	7.038E+00	6.634E-01	2.535
	1045.16			2.832E+00	2.487E+00	4.412E+00	3.715E-01	0.642
	1325.50			1.076E+00	2.937E+00	5.067E+00	4.344E-01	0.212
	1368.21			-3.639E-01	1.643E+00	2.640E+00	3.558E-01	-0.138
	1436.60			1.544E-02	3.805E+00	6.273E+00	5.296E-01	0.002
	1691.02	*		1.758E-02	6.524E-02	1.117E-01	8.486E-03	0.157
SB-125	427.89	*		2.160E-02	8.138E-02	1.348E-01	9.385E-03	0.160
+	463.38			7.493E-01	4.742E-01	5.150E-01	3.862E-02	1.455
	600.56			1.414E-01	1.498E-01	2.677E-01	1.764E-02	0.528
	635.90			-7.134E-02	2.499E-01	4.098E-01	2.598E-02	-0.174
TE-125M	109.28	*		2.974E+00	9.034E+00	1.422E+01	1.365E+00	0.209
I-126	388.63			1.096E-01	1.779E-01	3.021E-01	2.052E-02	0.363
	666.33	*		1.236E-01	1.737E-01	2.712E-01	1.360E-02	0.456
	753.82			-1.994E-01	1.258E+00	2.054E+00	1.381E-01	-0.097
SB-126	223.80			-7.341E-01	3.522E+00	5.897E+00	3.531E-01	-0.124
+	278.60			3.110E+00	2.929E+00	4.071E+00	2.613E-01	0.764
+	296.50			1.190E+01	1.915E+00	3.149E+00	2.055E-01	3.778
	414.70			-3.722E-02	6.466E-02	1.012E-01	6.855E-03	-0.368
	415.30			-4.521E-01	5.273E+00	8.545E+00	5.789E-01	-0.053
	555.20			4.454E-01	3.720E+00	6.001E+00	3.653E-01	0.074
	573.80			-4.219E-01	9.298E-01	1.520E+00	9.007E-02	-0.278
	593.00			2.877E-01	7.459E-01	1.291E+00	7.411E-02	0.223
	656.30			-7.378E-01	3.288E+00	4.659E+00	2.332E-01	-0.158
	666.33			5.162E-02	7.252E-02	1.132E-01	5.681E-03	0.456
	675.00			1.554E+00	1.573E+00	2.831E+00	1.465E-01	0.549
	695.00			9.096E-03	6.612E-02	1.112E-01	6.169E-03	0.082
	697.00			3.076E-03	2.324E-01	3.872E-01	2.163E-02	0.008

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	720.50	*		-5.799E-02	1.210E-01	1.625E-01	9.821E-03	-0.357
	856.80			-8.567E-02	4.916E-01	6.818E-01	6.188E-02	-0.126
	989.30			1.009E+00	1.204E+00	2.100E+00	1.927E-01	0.480
	1034.80			4.395E+00	8.847E+00	1.494E+01	1.281E+00	0.294
	1213.00			-2.743E+00	4.532E+00	7.188E+00	4.864E-01	-0.382
	61.10			-3.715E+01	7.268E+01	1.185E+02	1.658E+01	-0.313
	252.40			-3.180E-01	3.419E+00	5.708E+00	2.374E+00	-0.056
	290.80			1.002E+01	1.944E+01	2.951E+01	2.807E+00	0.340
	411.60			1.385E+00	1.053E+01	1.731E+01	2.551E+00	0.080
	444.90			-8.953E-01	8.264E+00	1.331E+01	1.493E+00	-0.067
	473.00			-2.624E-01	1.448E+00	2.309E+00	2.663E-01	-0.114
	543.00			1.313E+00	1.419E+01	2.289E+01	2.978E+00	0.057
	603.60			-6.196E+00	1.109E+01	1.530E+01	1.619E+00	-0.405
	685.20	*		1.534E-01	1.205E+00	2.026E+00	1.836E-01	0.076
	698.50			2.079E+00	1.256E+01	2.115E+01	3.033E+00	0.098
XE-127	722.20			1.093E+00	2.360E+01	3.423E+01	3.161E+00	0.032
	783.80			4.357E+00	3.266E+00	5.864E+00	6.745E-01	0.743
	57.60			4.866E-01	8.608E+00	1.440E+01	1.831E+00	0.034
	145.22			3.107E-01	6.347E-01	1.041E+00	6.136E-02	0.299
	172.10			-3.176E-02	1.104E-01	1.735E-01	9.557E-03	-0.183
I-131	202.84	*		-6.429E-03	3.879E-02	6.539E-02	3.786E-03	-0.098
	374.96			-7.219E-02	1.718E-01	2.742E-01	1.860E-02	-0.263
	80.18			2.254E+00	4.748E+00	7.163E+00	7.891E-01	0.315
	284.30			-1.736E-01	1.299E+00	2.151E+00	1.514E-01	-0.081
TE-132	364.48	*		1.150E-03	1.062E-01	1.747E-01	1.284E-02	0.007
	636.97			9.564E-02	1.341E+00	2.257E+00	1.356E-01	0.042
	722.89			4.627E+00	5.727E+00	9.101E+00	5.610E-01	0.508
	49.72			1.628E+01	3.463E+01	5.904E+01	8.394E+00	0.276
	111.76			-4.202E+00	2.607E+01	4.212E+01	4.166E+00	-0.100
BA-133	116.30			2.690E+01	2.365E+01	4.001E+01	3.831E+00	0.672
	228.16	*		-6.002E-02	5.660E-01	9.506E-01	1.369E-01	-0.063
	53.15			-3.246E+00	6.156E+00	9.835E+00	1.303E+00	-0.330
	79.62			-4.766E-02	1.378E+00	2.032E+00	3.386E-01	-0.023
	81.00			-2.456E-01	1.204E-01	1.490E-01	2.576E-02	-1.648
I-133	276.40	+		4.723E-01	4.482E-01	6.312E-01	8.361E-02	0.748
	302.84			-7.404E-02	1.471E-01	2.066E-01	2.491E-02	-0.358
	356.01	*		-2.407E-02	4.258E-02	5.782E-02	6.976E-03	-0.416
	383.85			-8.788E-02	2.659E-01	4.260E-01	4.870E-02	-0.206
	510.53	+		1.259E+00	2.659E-01	Half-Life too short		
CS-134	529.87	*		-1.939E-03	2.659E-01	Half-Life too short		
	706.58			4.526E-02	2.659E-01	Half-Life too short		
	856.28			3.195E-02	2.659E-01	Half-Life too short		
	875.33			-1.015E-02	2.659E-01	Half-Life too short		
	1236.41			3.170E-01	2.659E-01	Half-Life too short		
	1298.22			3.682E-02	2.659E-01	Half-Life too short		
	475.35			-3.725E-01	1.724E+00	2.740E+00	1.807E-01	-0.136
	563.23			1.844E-01	3.269E-01	5.447E-01	3.343E-02	0.339
	569.32			5.924E-02	1.893E-01	3.091E-01	1.896E-02	0.192
	604.70			-1.470E-02	3.367E-02	4.713E-02	2.665E-03	-0.312



----- 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	*	1.001E-01	5.921E-02	8.574E-02	6.610E-03	1.167
		801.93		-7.426E-01	4.637E-01	5.791E-01	4.535E-02	-1.282
		1038.57		7.681E-01	3.919E+00	6.446E+00	5.490E-01	0.119
		1167.94		-5.168E-01	2.385E+00	3.920E+00	2.459E-01	-0.132
		1365.15		2.103E-01	1.142E+00	1.933E+00	1.744E-01	0.109
		268.24	*	9.169E-02	1.557E-01	2.379E-01	1.923E-02	0.385
		288.45		1.266E+09	1.557E-01	Half-Life	too short	
		417.63		-1.228E+10	1.557E-01	Half-Life	too short	
		546.56		-5.606E+09	1.557E-01	Half-Life	too short	
		836.80		2.029E+09	1.557E-01	Half-Life	too short	
		1038.76		1.128E+09	1.557E-01	Half-Life	too short	
		1124.00		1.347E+10	1.557E-01	Half-Life	too short	
		1131.51		-6.957E+08	1.557E-01	Half-Life	too short	
		1260.41	*	-7.055E+08	1.557E-01	Half-Life	too short	
		1457.56		1.433E+11	1.557E-01	Half-Life	too short	
		1678.03		-1.975E+09	1.557E-01	Half-Life	too short	
		1706.46		2.638E+09	1.557E-01	Half-Life	too short	
		1791.20		-2.352E+09	1.557E-01	Half-Life	too short	
CS-136		66.91		5.524E-01	8.896E-01	1.501E+00	2.571E-01	0.368
	+	86.29		2.432E+00	1.507E+00	1.975E+00	2.910E-01	1.232
		153.22		2.698E-01	5.877E-01	9.603E-01	6.875E-02	0.281
		163.89		-2.572E-01	9.930E-01	1.546E+00	1.084E-01	-0.166
		176.55		-3.506E-02	3.371E-01	5.336E-01	3.357E-02	-0.066
		273.65		1.955E-01	5.813E-01	6.460E-01	4.609E-02	0.303
		340.57		2.450E-01	1.286E-01	2.091E-01	1.470E-02	1.172
		818.51		-5.944E-02	6.847E-02	1.035E-01	8.451E-03	-0.574
		1048.07	*	-4.849E-02	1.108E-01	1.712E-01	1.499E-02	-0.283
		1235.34		1.577E-01	6.367E-01	9.404E-01	1.016E-01	0.168
CE-139 BA-140		165.85	*	-1.265E-02	2.729E-02	4.261E-02	2.327E-03	-0.297
		162.64		4.474E-01	6.786E-01	1.100E+00	6.909E-02	0.407
		304.84		9.915E-01	1.233E+00	1.864E+00	5.119E-01	0.532
		423.70		3.548E-01	1.710E+00	2.816E+00	9.004E-01	0.126
		537.32	*	8.808E-02	2.205E-01	3.619E-01	1.180E-01	0.243
LA-140	+	328.77		9.505E-01	4.058E-01	5.113E-01	3.725E-02	1.859
		432.53		-3.111E-01	1.782E+00	2.861E+00	2.080E-01	-0.109
		487.03		-8.747E-03	1.251E-01	2.007E-01	1.450E-02	-0.044
		751.79		-8.216E-01	1.427E+00	2.238E+00	1.753E-01	-0.367
		815.85		2.609E-01	3.027E-01	5.246E-01	4.798E-02	0.497
		867.82		7.472E-02	1.363E+00	1.947E+00	1.903E-01	0.038
		919.63		-1.873E+00	2.543E+00	3.687E+00	4.326E-01	-0.508
		925.24		1.261E-02	9.827E-01	1.604E+00	1.661E-01	0.008
		1596.49	*	4.410E-02	7.580E-02	1.348E-01	1.046E-02	0.327
		145.44	*	1.728E-03	5.790E-02	9.316E-02	5.701E-03	0.019
CE-141 CE-143		57.37		-1.858E-05	5.790E-02	Half-Life	too short	
		231.56		2.855E-05	5.790E-02	Half-Life	too short	
		293.26	*	5.053E-04	5.790E-02	Half-Life	too short	
	+	350.59		2.347E-02	5.790E-02	Half-Life	too short	
		490.36		-8.366E-04	5.790E-02	Half-Life	too short	
		664.57		3.506E-04	5.790E-02	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			-5.897E-04	5.790E-02	Half-Life too short	
CE-144	80.11			-5.889E-01	2.315E+00	3.375E+00	3.703E-01
	133.54	*		-2.330E-02	1.841E-01	2.954E-01	4.245E-02
PM-144	476.78			2.628E-02	5.798E-02	9.680E-02	7.370E-03
	618.01			5.065E-04	2.824E-02	4.744E-02	2.772E-03
	696.49	*		9.246E-03	3.015E-02	5.132E-02	2.864E-03
	778.57			-1.817E+00	2.039E+00	3.094E+00	2.246E-01
PR-144	696.49	*		6.265E-01	2.043E+00	3.477E+00	1.939E-01
	1489.15			-4.076E+00	9.297E+00	1.401E+01	1.157E+00
PM-146	453.90	*		-3.659E-02	3.954E-02	5.953E-02	5.498E-03
	633.02			5.728E-01	1.334E+00	2.271E+00	8.346E-01
	735.90			-7.501E-02	1.213E-01	1.802E-01	5.047E-02
	747.13			2.933E-02	8.108E-02	1.381E-01	1.780E-02
ND-147	91.11	+		3.995E-01	2.748E-01	4.677E-01	5.214E-02
	319.41			-1.327E+00	2.719E+00	4.370E+00	2.900E-01
	439.89			7.635E+00	4.902E+00	8.776E+00	5.902E-01
	531.02	*		1.577E-01	4.816E-01	7.919E-01	1.087E-01
PM-149	285.90	*		3.974E+01	7.408E+01	1.264E+02	1.828E+01
EU-152	121.78			2.019E-02	6.561E-02	1.077E-01	8.878E-03
	244.69			-1.833E-01	3.025E-01	4.294E-01	2.649E-02
	344.27	*		1.523E-03	1.062E-01	1.433E-01	1.056E-02
	443.98			-3.286E-01	8.480E-01	1.337E+00	8.974E-02
	778.89			-1.618E-01	2.360E-01	3.659E-01	2.657E-02
	867.32			-2.557E-01	8.398E-01	1.138E+00	1.063E-01
	964.01	+		6.693E-01	4.002E-01	5.516E-01	5.226E-02
	1085.78			-2.081E-01	3.833E-01	5.810E-01	4.523E-02
	1112.02			-2.618E-02	3.310E-01	5.278E-01	3.871E-02
	1407.95			1.303E-01	1.919E-01	3.398E-01	2.898E-02
GD-153	69.67			-1.333E+00	1.961E+00	3.009E+00	3.356E-01
	83.37			1.250E+01	1.674E+01	2.537E+01	2.812E+00
	97.43	*		-1.801E-02	7.677E-02	1.172E-01	1.091E-02
	103.18			4.764E-02	1.070E-01	1.598E-01	1.351E-02
EU-154	123.07			-2.039E-02	4.804E-02	7.633E-02	7.543E-03
	247.94			-8.770E-03	3.144E-01	5.102E-01	4.993E-02
	591.81			4.662E-01	4.991E-01	8.945E-01	8.719E-02
	723.30			1.436E-01	1.523E-01	2.443E-01	1.790E-02
	756.87			2.250E-01	6.968E-01	1.182E+00	1.269E-01
	873.19			1.158E-01	2.741E-01	4.655E-01	5.990E-02
	996.32			-2.255E-01	3.522E-01	5.303E-01	9.544E-02
	1004.76			2.588E-02	2.259E-01	3.695E-01	4.400E-02
	1274.45	*		-9.278E-02	1.222E-01	1.877E-01	2.000E-02
TB-160	86.79	+		6.071E-01	3.716E-01	4.880E-01	5.497E-02
	197.04			-2.387E-01	5.177E-01	8.001E-01	4.589E-02
	215.65			1.760E-01	6.425E-01	1.099E+00	6.499E-02
	298.57			8.892E-02	1.006E-01	1.740E-01	1.137E-02
	879.36	*		-9.517E-02	1.269E-01	1.917E-01	1.849E-02
	962.29			9.219E-01	5.699E-01	9.463E-01	8.983E-02
	966.15	+		4.583E-01	2.740E-01	4.235E-01	4.002E-02
	1177.93			8.210E-03	3.856E-01	6.464E-01	4.031E-02

## ---- 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			4.594E-02	6.835E-01	1.145E+00	8.805E-02	0.040
	80.57			-1.418E-01	2.928E-01	4.213E-01	4.628E-02	-0.337
	184.41		+	1.076E-01	4.436E-02	5.774E-02	3.242E-03	1.863
	280.46			-1.276E-03	8.405E-02	1.233E-01	7.931E-03	-0.010
	410.95			1.689E-01	2.241E-01	3.818E-01	2.589E-02	0.442
	711.68		*	5.181E-02	5.609E-02	9.932E-02	5.829E-03	0.522
	752.31			-1.199E-01	2.365E-01	3.740E-01	2.503E-02	-0.321
TM-171	810.29			-5.948E-02	6.089E-02	9.205E-02	7.334E-03	-0.646
	51.35			-4.508E+01	5.475E+01	8.812E+01	1.159E+01	-0.512
	52.39			-1.731E+01	2.768E+01	4.399E+01	5.826E+00	-0.393
	59.40			-1.088E+01	3.635E+01	5.989E+01	7.440E+00	-0.182
LU-176	66.72		*	1.619E+01	3.291E+01	5.551E+01	6.324E+00	0.292
	88.36		+	4.488E-01	2.747E-01	3.413E-01	3.838E-02	1.315
	201.83			-1.575E-02	2.398E-02	3.959E-02	2.289E-03	-0.398
	306.84		*	1.917E-02	2.336E-02	3.784E-02	2.489E-03	0.507
LU-177	401.10			1.218E+00	6.083E+00	1.006E+01	6.832E-01	0.121
	112.95			-4.030E-01	1.470E+00	2.363E+00	1.740E-01	-0.171
LU-177M	208.36		+	1.933E+00	1.317E+00	1.715E+00	1.002E-01	1.127
	52.97		*	-1.316E+00	2.778E+00	4.448E+00	5.893E-01	-0.296
HF-181	54.07			7.790E-01	1.409E+00	2.350E+00	3.099E-01	0.332
	61.30			1.420E-02	1.938E+00	3.229E+00	3.907E-01	0.004
	121.62			8.268E-02	3.384E-01	5.542E-01	3.667E-02	0.149
	147.16			-4.911E-01	5.850E-01	9.029E-01	5.285E-02	-0.544
	171.86			-2.059E-01	4.447E-01	6.928E-01	3.814E-02	-0.297
	218.09			-6.657E-01	7.477E-01	1.216E+00	7.215E-02	-0.548
	268.79		+	2.175E+00	9.294E-01	1.265E+00	8.035E-02	1.720
	319.02			5.299E-02	2.130E-01	3.579E-01	2.374E-02	0.148
	367.43			2.443E-01	8.449E-01	1.411E+00	9.555E-02	0.173
	413.65		*	-8.101E-02	1.572E-01	2.474E-01	1.677E-02	-0.327
	56.28			-6.576E-01	1.409E+00	2.307E+00	2.980E-01	-0.285
	57.53			-5.432E-03	7.279E-01	1.215E+00	1.546E-01	-0.004
	65.20			-1.133E+00	1.137E+00	1.810E+00	2.091E-01	-0.626
	133.02			1.649E-02	5.924E-02	9.674E-02	6.008E-03	0.170
W-181	136.25			5.193E-02	4.060E-01	6.582E-01	4.028E-02	0.079
	345.85			-1.588E-02	1.937E-01	2.785E-01	1.873E-02	-0.057
	482.03		*	8.748E-03	3.626E-02	5.960E-02	3.913E-03	0.147
	56.28			-2.589E-01	5.532E-01	9.055E-01	1.170E-01	-0.286
TA-182	57.53			-2.158E-03	2.860E-01	4.774E-01	6.074E-02	-0.005
	65.20		*	-4.417E-01	4.433E-01	7.056E-01	8.152E-02	-0.626
	67.75			1.161E-01	1.264E-01	2.154E-01	2.433E-02	0.539
	100.10			-2.046E-03	1.856E-01	2.709E-01	2.407E-02	-0.008
RE-183	152.43			2.482E-01	3.008E-01	4.992E-01	2.864E-02	0.497
	222.10			2.277E-02	3.100E-01	5.254E-01	3.138E-02	0.043
	1001.68			1.082E+00	2.048E+00	3.468E+00	3.128E-01	0.312
	1121.28		+	5.490E-01	2.912E-01	3.582E-01	2.568E-02	1.532
	1189.05			-9.884E-02	3.123E-01	5.090E-01	3.259E-02	-0.194
	1221.42		*	1.682E-01	1.912E-01	3.403E-01	2.346E-02	0.494

## ---- 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		-4.758E-02	1.494E-01	2.459E-01	3.058E-02	-0.193
		67.20		1.894E-01	2.276E-01	3.873E-01	4.394E-02	0.489
		162.32	*	6.533E-02	1.004E-01	1.627E-01	9.001E-03	0.401
	+	208.81		1.785E+00	1.216E+00	1.587E+00	9.280E-02	1.125
		291.72		-9.773E-02	9.227E-01	1.341E+00	8.716E-02	-0.073
		57.98		-1.592E-02	1.034E+00	1.725E+00	2.182E-01	-0.009
		59.32		-1.755E-01	5.509E-01	9.070E-01	1.128E-01	-0.193
		67.20		6.990E-01	8.397E-01	1.429E+00	1.621E-01	0.489
		161.27		-4.166E-02	3.278E-01	5.210E-01	2.893E-02	-0.080
		216.55		-1.841E-02	2.254E-01	3.800E-01	2.250E-02	-0.048
		252.85	*	-8.972E-02	1.921E-01	3.147E-01	1.962E-02	-0.285
		318.01		1.731E-01	3.720E-01	6.327E-01	4.194E-02	0.274
		792.07		3.848E-01	9.337E-01	1.404E+00	1.060E-01	0.274
		903.28		7.954E-01	1.020E+00	1.640E+00	1.653E-01	0.485
OS-185		920.93		-6.219E-02	3.937E-01	6.314E-01	6.263E-02	-0.098
		59.72		-1.325E-01	3.949E-01	6.494E-01	8.032E-02	-0.204
		61.14		-1.064E-01	2.170E-01	3.545E-01	4.298E-02	-0.300
		69.30		-2.241E-01	3.528E-01	5.427E-01	6.066E-02	-0.413
		592.07		1.678E+00	2.008E+00	3.588E+00	2.063E-01	0.468
		646.12	*	-1.086E-03	3.587E-02	5.985E-02	3.075E-03	-0.018
		717.42		-5.426E-01	7.212E-01	1.115E+00	6.669E-02	-0.487
		874.81		-1.582E-01	5.481E-01	8.728E-01	8.315E-02	-0.181
		880.27		8.977E-02	6.883E-01	1.140E+00	1.102E-01	0.079
	RE-188	155.03	*	1.114E-01	1.546E-01	2.552E-01	1.450E-02	0.436
		477.96		1.253E+00	2.725E+00	4.546E+00	2.993E-01	0.276
	W-188	633.10		1.233E+00	2.661E+00	4.596E+00	2.435E-01	0.268
		63.58		1.924E+00	6.575E+01	1.080E+02	1.270E+01	0.018
		227.08		1.097E+00	1.137E+01	1.927E+01	1.159E+00	0.057
IR-192		290.67	*	1.586E+00	7.151E+00	1.064E+01	6.910E-01	0.149
	+	295.96		9.236E-01	1.490E-01	2.558E-01	1.690E-02	3.610
		308.46		-2.079E-02	8.265E-02	1.353E-01	8.986E-03	-0.154
		316.51	*	5.441E-03	2.884E-02	4.831E-02	3.212E-03	0.113
		468.07		-3.623E-02	7.138E-02	9.577E-02	7.101E-03	-0.378
AU-195		604.41		-1.984E-01	4.546E-01	6.357E-01	7.158E-02	-0.312
		612.46		1.555E+00	7.084E-01	1.225E+00	9.029E-02	1.270
		65.12		-2.015E-01	2.059E-01	3.281E-01	3.794E-02	-0.614
		66.83		6.647E-02	1.082E-01	1.831E-01	2.084E-02	0.363
	+	75.70		9.064E-01	2.483E-01	4.896E-01	5.355E-02	1.851
		98.88	*	1.844E-01	2.105E-01	3.511E-01	3.186E-02	0.525
		129.76		2.403E+00	2.633E+00	4.405E+00	2.779E-01	0.546
TL-200		367.94	*	3.402E-04	2.633E+00	Half-Life	too short	
		579.30		1.041E-03	2.633E+00	Half-Life	too short	
		828.27		-3.356E-03	2.633E+00	Half-Life	too short	
		1205.75		3.044E-05	2.633E+00	Half-Life	too short	
TL-201		68.90		-2.158E+00	5.136E+00	8.386E+00	9.398E-01	-0.257
		70.82		-1.970E+00	3.202E+00	4.609E+00	5.109E-01	-0.427
		80.30		-1.481E+00	5.112E+00	7.436E+00	8.163E-01	-0.199
		135.34		5.086E+00	2.122E+01	3.458E+01	2.125E+00	0.147
		167.43	*	7.973E-01	5.988E+00	9.611E+00	5.256E-01	0.083

---- 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		-2.039E-01	4.852E-01	7.922E-01	8.878E-02	-0.257
		70.82		-1.856E-01	3.017E-01	4.342E-01	4.813E-02	-0.427
		80.30		-1.395E-01	4.817E-01	7.007E-01	7.692E-02	-0.199
		439.56	*	7.954E-02	5.990E-02	1.057E-01	7.104E-03	0.753
HG-203		70.83		-8.028E-01	1.326E+00	1.905E+00	2.912E-01	-0.421
		72.87		1.875E+00	8.078E-01	1.239E+00	1.841E-01	1.514
		82.60		3.660E-01	1.219E+00	1.821E+00	2.801E-01	0.201
		279.20	*	3.989E-02	4.190E-02	6.521E-02	4.400E-03	0.612
BI-207		72.80		4.827E-01	2.279E-01	3.586E-01	3.945E-02	1.346
	+	74.97		5.033E-01	1.379E-01	2.409E-01	2.637E-02	2.089
		84.90		1.657E-01	2.165E-01	3.277E-01	3.656E-02	0.506
		569.67		9.942E-03	2.958E-02	4.837E-02	2.885E-03	0.206
		1063.62	*	1.503E-03	5.780E-02	9.339E-02	7.602E-03	0.016
		1770.23		1.013E-01	4.887E-01	7.163E-01	4.752E-02	0.141
TL-207		81.07		-5.479E-01	2.556E-01	3.279E-01	3.606E-02	-1.671
		83.78		9.967E-02	1.439E-01	2.175E-01	2.415E-02	0.458
		94.90		6.766E-02	2.298E-01	3.415E-01	3.335E-02	0.198
		122.32		-4.437E-01	1.601E+00	2.562E+00	1.891E-01	-0.173
		144.24		7.113E-01	6.537E-01	1.077E+00	7.896E-02	0.660
		154.21		2.814E-01	3.597E-01	5.951E-01	4.125E-02	0.473
	+	269.46		5.098E-01	2.181E-01	3.083E-01	2.034E-02	1.654
		323.87	*	2.237E-01	6.120E-01	9.148E-01	1.540E-01	0.245
	+	338.28		6.448E+00	1.760E+00	2.250E+00	2.487E-01	2.866
		445.03		-4.155E-02	2.039E+00	3.304E+00	3.571E-01	-0.013
PO-209		260.50		4.974E+00	8.408E+00	1.447E+01	9.108E-01	0.344
		262.80		-2.388E+01	2.352E+01	3.734E+01	2.356E+00	-0.640
		896.60	*	7.362E+00	6.920E+00	1.232E+01	1.243E+00	0.598
BI-210		46.50	*	4.690E-01	7.925E+00	1.335E+01	1.309E+00	0.035
PB-210		46.50	*	4.690E-01	7.925E+00	1.335E+01	1.309E+00	0.035
PO-210		46.50	*	4.690E-01	7.925E+00	1.335E+01	1.198E+00	0.035
PB-211		404.84	*	-5.696E-01	9.218E-01	1.329E+00	8.299E-01	-0.429
		427.08		9.676E-01	1.901E+00	3.042E+00	1.883E+00	0.318
		831.96		5.777E-01	1.113E+00	1.813E+00	1.136E+00	0.319
BI-212		727.18	*	1.502E+00	4.650E-01	6.485E-01	5.188E-02	2.316
		785.46		1.869E+00	1.677E+00	2.988E+00	2.214E-01	0.626
		1620.62		2.791E-01	1.091E+00	1.858E+00	1.417E-01	0.150
PO-215		81.07		-5.479E-01	2.556E-01	3.279E-01	3.606E-02	-1.671
		83.78		9.967E-02	1.439E-01	2.175E-01	2.415E-02	0.458
		94.90		6.766E-02	2.298E-01	3.415E-01	3.335E-02	0.198
		122.32		-4.437E-01	1.601E+00	2.562E+00	1.891E-01	-0.173
		144.24		7.113E-01	6.537E-01	1.077E+00	7.896E-02	0.660
		154.21		2.814E-01	3.597E-01	5.951E-01	4.125E-02	0.473
	+	269.46		5.098E-01	2.181E-01	3.083E-01	2.034E-02	1.654
		323.87	*	2.237E-01	6.120E-01	9.148E-01	1.540E-01	0.245
	+	338.28		6.448E+00	1.760E+00	2.250E+00	2.487E-01	2.866
		445.03		-4.155E-02	2.039E+00	3.304E+00	3.571E-01	-0.013
RN-219		271.23		6.541E-01	2.820E-01	3.939E-01	3.356E-02	1.661
	+	401.81	*	3.311E-01	3.731E-01	6.381E-01	8.970E-02	0.519
RN-220		549.76	*	-1.416E+01	2.328E+01	3.527E+01	2.163E+00	-0.402

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07	-5.479E-01	2.556E-01	3.279E-01	3.606E-02	-1.671
		83.78	9.967E-02	1.439E-01	2.175E-01	2.415E-02	0.458
		94.90	6.766E-02	2.298E-01	3.415E-01	3.335E-02	0.198
		122.32	-4.437E-01	1.601E+00	2.562E+00	1.891E-01	-0.173
		144.24	7.113E-01	6.537E-01	1.077E+00	7.896E-02	0.660
		154.21	2.814E-01	3.597E-01	5.951E-01	4.125E-02	0.473
	+	269.46	5.098E-01	2.181E-01	3.083E-01	2.034E-02	1.654
		323.87	* 2.237E-01	6.120E-01	9.148E-01	1.540E-01	0.245
	+	338.28	6.448E+00	1.760E+00	2.250E+00	2.487E-01	2.866
		445.03	-4.155E-02	2.039E+00	3.304E+00	3.571E-01	-0.013
AC-227		79.80	-7.269E-01	1.797E+00	2.591E+00	5.842E-01	-0.281
		236.00	4.848E-01	2.383E-01	3.833E-01	4.071E-02	1.265
		256.20	* -2.443E-01	3.273E-01	5.257E-01	7.442E-02	-0.465
		286.10	2.926E-01	1.371E+00	2.309E+00	2.749E-01	0.127
	+	299.80	3.727E+00	1.857E+00	2.456E+00	4.068E-01	1.518
		304.40	1.104E+00	1.823E+00	2.767E+00	4.862E-01	0.399
		334.20	1.125E+00	2.278E+00	3.210E+00	5.982E-01	0.351
TH-227		79.80	-7.269E-01	1.798E+00	2.591E+00	5.910E-01	-0.281
	+	94.00	6.659E+00	3.088E+00	3.379E+00	7.547E-01	1.970
		236.00	4.848E-01	2.369E-01	3.833E-01	3.546E-02	1.265
		256.20	* -2.443E-01	3.281E-01	5.257E-01	8.969E-02	-0.465
		286.10	2.926E-01	1.401E+00	2.309E+00	2.313E+00	0.127
	+	299.80	3.727E+00	1.857E+00	2.456E+00	4.068E-01	1.518
		304.40	1.104E+00	1.823E+00	2.767E+00	4.862E-01	0.399
TH-229		334.20	1.125E+00	2.278E+00	3.210E+00	5.982E-01	0.351
		85.43	1.510E-01	2.206E-01	3.326E-01	3.721E-02	0.454
	+	88.47	1.614E-01	1.109E-01	1.947E-01	2.185E-02	0.829
		100.00	-4.957E-03	1.930E-01	2.814E-01	2.505E-02	-0.018
		193.63	* -1.847E-02	4.597E-01	7.262E-01	4.141E-02	-0.025
PA-231		210.97	2.680E-01	7.428E-01	1.133E+00	6.650E-02	0.236
		283.67	* -9.651E-01	1.381E+00	2.211E+00	3.110E-01	-0.437
	+	301.29	1.491E+00	7.192E-01	9.781E-01	1.065E-01	1.524
TH-231		81.07	-5.479E-01	2.556E-01	3.279E-01	3.606E-02	-1.671
		83.78	9.967E-02	1.439E-01	2.175E-01	2.415E-02	0.458
		94.90	6.766E-02	2.298E-01	3.415E-01	3.335E-02	0.198
		122.32	-4.437E-01	1.601E+00	2.562E+00	1.891E-01	-0.173
		144.24	7.113E-01	6.537E-01	1.077E+00	7.896E-02	0.660
		154.21	2.814E-01	3.597E-01	5.951E-01	4.125E-02	0.473
	+	269.46	5.098E-01	2.181E-01	3.083E-01	2.034E-02	1.654
		323.87	* 2.237E-01	6.120E-01	9.148E-01	1.540E-01	0.245
	+	338.28	6.448E+00	1.760E+00	2.250E+00	2.487E-01	2.866
		445.03	-4.155E-02	2.039E+00	3.304E+00	3.571E-01	-0.013
U-231		84.21	6.685E+00	5.843E+00	8.955E+00	9.960E-01	0.746
	+	92.29	6.271E+00	2.624E+00	3.606E+00	3.712E-01	1.739
		95.87	* -7.286E-01	1.040E+00	1.460E+00	1.400E-01	-0.499
PA-233		108.00	2.031E+00	1.985E+00	3.040E+00	2.393E-01	0.668
	+	75.28	1.469E+01	4.434E+00	7.337E+00	1.230E+00	2.002
	+	86.59	3.705E+00	2.455E+00	3.000E+00	8.334E-01	1.235
	+	300.12	1.039E+00	5.089E-01	6.811E-01	9.383E-02	1.526

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	311.98	*		-8.433E-03	5.369E-02	8.825E-02	6.107E-03	-0.096
	340.50			1.364E+00	7.095E-01	1.054E+00	2.446E-01	1.294
	398.62			-2.852E+00	2.087E+00	2.888E+00	7.536E-01	-0.987
	415.76			-1.934E-02	1.419E+00	2.311E+00	4.826E-01	-0.008
	63.00			1.927E+00	2.012E+00	3.368E+00	5.892E-01	0.572
	94.67			1.537E-01	1.661E-01	2.530E-01	3.354E-02	0.608
	98.44			8.637E-02	9.789E-02	1.433E-01	8.004E-02	0.603
	99.86			-2.220E-02	4.884E-01	7.116E-01	6.350E-02	-0.031
	111.00			-1.596E-01	1.745E-01	2.716E-01	3.084E-02	-0.588
	131.20			-9.935E-02	1.007E-01	1.556E-01	9.749E-03	-0.638
	152.70			2.567E-01	2.934E-01	4.838E-01	7.636E-02	0.530
	186.00	+		3.873E+00	1.975E+00	2.240E+00	6.837E-01	1.729
	226.40			5.739E-02	3.532E-01	6.001E-01	7.001E-02	0.096
	227.20			2.004E-02	3.831E-01	6.479E-01	3.899E-02	0.031
	248.90			2.328E-01	6.991E-01	1.190E+00	2.570E-01	0.196
	293.70	+		5.830E+00	1.283E+00	1.528E+00	2.498E-01	3.815
	369.80			-3.114E-01	7.785E-01	1.242E+00	2.624E-01	-0.251
	568.70			3.824E-01	9.386E-01	1.544E+00	9.220E-02	0.248
	569.50			8.520E-02	2.623E-01	4.285E-01	2.556E-02	0.199
	574.00			-7.142E-01	1.350E+00	2.194E+00	1.300E-01	-0.325
	699.00			2.477E-01	6.139E-01	1.050E+00	1.883E-01	0.236
	706.10			-4.079E-02	9.102E-01	1.508E+00	6.653E-01	-0.027
	733.00			2.953E-01	3.292E-01	5.242E-01	1.122E-01	0.563
	742.81			4.590E-01	1.212E+00	2.005E+00	1.343E+00	0.229
	796.30	+		1.946E+00	1.254E+00	1.689E+00	4.519E-01	1.152
	805.60			1.015E+00	1.036E+00	1.756E+00	5.346E-01	0.578
	819.60			-7.597E-01	1.159E+00	1.731E+00	6.566E-01	-0.439
	826.30			1.876E-01	7.474E-01	1.248E+00	5.579E-01	0.150
	831.60			-7.715E-02	5.599E-01	9.080E-01	2.706E-01	-0.085
	876.40			5.930E-01	9.477E-01	1.280E+00	1.317E+00	0.463
	880.51			4.965E-02	2.511E-01	4.185E-01	4.048E-02	0.119
	883.24			7.221E-04	2.687E-01	4.395E-01	2.961E-01	0.002
	899.00			-1.807E-01	8.365E-01	1.334E+00	5.875E-01	-0.135
	925.00			5.276E-02	1.041E+00	1.705E+00	1.685E-01	0.031
	926.50			1.785E-02	1.544E-01	2.544E-01	6.546E-02	0.070
	946.00	*		-2.605E-01	3.212E-01	4.785E-01	9.220E-02	-0.545
	949.00			1.055E-01	4.581E-01	7.599E-01	7.324E-02	0.139
	980.50			4.486E-01	6.783E-01	1.170E+00	1.086E-01	0.384
PA-234M	1394.10			3.642E-01	1.001E+00	1.693E+00	1.102E+00	0.215
	766.42			1.312E+01	1.417E+01	1.981E+01	1.000E+01	0.662
TH-234	1001.03	*		2.411E+00	4.651E+00	7.867E+00	8.120E-01	0.306
	63.29	*		5.234E-01	1.690E+00	2.800E+00	5.519E-01	0.187
NP-236	92.38	+		1.723E+00	7.713E-01	9.918E-01	1.877E-01	1.737
	94.67			1.188E-01	1.257E-01	1.922E-01	1.885E-02	0.618
U-238	98.44			6.528E-02	6.466E-02	1.083E-01	9.903E-03	0.603
	111.00			-1.207E-01	1.316E-01	2.055E-01	1.552E-02	-0.588
	160.31	*		-1.713E-02	7.263E-02	1.149E-01	6.401E-03	-0.149
	63.29	*		5.234E-01	1.690E+00	2.800E+00	5.519E-01	0.187
	92.38	+		1.723E+00	7.210E-01	9.918E-01	1.019E-01	1.737

----- 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		4.250E-02	1.513E-01	2.387E-01	2.141E-02	0.178
		117.00	*	5.579E-02	1.749E-01	2.878E-01	2.013E-02	0.194
	+	209.75		1.412E+00	9.620E-01	1.241E+00	7.266E-02	1.138
		228.18		-2.179E-02	1.967E-01	3.304E-01	1.991E-02	-0.066
	+	277.60		2.305E-01	2.171E-01	2.995E-01	1.921E-02	0.770
AM-241		334.30		6.059E-01	1.285E+00	1.813E+00	1.213E-01	0.334
		59.54	*	-5.604E-02	2.105E-01	3.473E-01	4.461E-02	-0.161
		99.55		4.373E-02	1.556E-01	2.456E-01	2.203E-02	0.178
		103.76	*	6.001E-02	9.161E-02	1.532E-01	1.284E-02	0.392
		117.00		5.740E-02	1.800E-01	2.961E-01	2.071E-02	0.194
CM-243	+	209.75		1.392E+00	9.483E-01	1.223E+00	7.162E-02	1.138
		228.18		-2.202E-02	1.988E-01	3.338E-01	2.012E-02	-0.066
	+	277.60		2.324E-01	2.189E-01	3.020E-01	1.936E-02	0.770
		798.80		-1.052E-01	1.477E-01	1.917E-01	1.477E-02	-0.548
		1036.00		1.111E-01	3.055E-01	5.099E-01	4.362E-02	0.218
AM-246		1062.04		-2.111E-02	2.425E-01	3.879E-01	3.167E-02	-0.054
		1078.86	*	8.477E-02	1.495E-01	2.529E-01	1.997E-02	0.335
	+	278.00		9.559E-01	9.003E-01	1.244E+00	7.979E-02	0.768
		287.40		4.873E-01	1.077E+00	1.836E+00	1.188E-01	0.265
		402.60	*	4.278E-02	3.295E-02	5.792E-02	3.933E-03	0.739
CF-249		252.85		-3.371E-01	7.217E-01	1.182E+00	7.370E-02	-0.285
		333.44		1.629E-01	1.806E-01	2.434E-01	1.628E-02	0.669
		387.95	*	-6.590E-03	3.573E-02	5.781E-02	3.928E-03	-0.114
CF-251		176.60	*	-1.391E-02	1.182E-01	1.870E-01	1.037E-02	-0.074
		227.00		9.457E-02	3.402E-01	5.806E-01	3.493E-02	0.163
		285.00		5.281E-01	1.531E+00	2.596E+00	1.677E-01	0.203



## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600001
* Acquisition date   : 22-JAN-2010 07:54:51 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 02:00:01.15 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date       : 7-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID         : G244600001 Analyst initials: MXR1
* Batch Number      : 941635 Sample Quantity : 1.4319E+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     :
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.274E+01	3.267E+00	4.964E-01	0.000E+00
CD-109	1.925E+00	1.154E+00	1.037E+00	0.000E+00
SN-126	1.892E-01	1.135E-01	1.027E-01	0.000E+00
BA-137M	6.538E-02	4.580E-02	5.704E-02	0.000E+00
CS-137	6.912E-02	4.842E-02	6.029E-02	0.000E+00
EU-155	1.046E-01	1.504E-01	1.861E-01	0.000E+00
TL-208	4.089E-01	6.820E-02	4.987E-02	0.000E+00
BI-211	3.422E+00	4.569E-01	2.967E-01	0.000E+00
PB-212	1.517E+00	1.511E-01	8.297E-02	0.000E+00
PO-212	1.517E+00	1.511E-01	8.297E-02	0.000E+00
BI-214	9.168E-01	1.401E-01	1.089E-01	0.000E+00
PB-214	1.190E+00	1.702E-01	1.034E-01	0.000E+00
PO-214	1.190E+00	1.702E-01	1.034E-01	0.000E+00
PO-216	1.517E+00	1.511E-01	8.297E-02	0.000E+00
PO-218	1.190E+00	1.702E-01	1.034E-01	0.000E+00
RA-224	4.194E+00	1.099E+00	9.439E-01	0.000E+00
RA-226	9.168E-01	1.401E-01	1.089E-01	0.000E+00
AC-228	1.463E+00	3.230E-01	2.036E-01	0.000E+00
RA-228	1.463E+00	3.230E-01	2.036E-01	0.000E+00
TH-228	1.539E+00	1.534E-01	8.421E-02	0.000E+00
TH-230	9.168E-01	1.401E-01	1.089E-01	0.000E+00
TH-232	1.463E+00	3.230E-01	2.036E-01	0.000E+00
U-234	9.168E-01	1.401E-01	1.089E-01	0.000E+00
U-235	2.623E-01	2.003E-01	3.521E-01	0.000E+00
NP-237	5.557E-01	3.518E-01	4.483E-01	0.000E+00
AM-243	2.804E-01	7.527E-02	1.055E-01	0.000E+00
ANH-511	1.557E-01	5.084E-02	4.562E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	1.046E-01	2.766E-01	4.822E-01	0.000E+00	NOT IDENT.
NA-22	-2.493E-02	4.204E-02	6.779E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.902E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	4.254E-03	2.056E-02	3.576E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.886E-02	7.734E-02	0.000E+00	FAIL ABUN
SC-46	1.764E-02	3.700E-02	6.524E-02	0.000E+00	FAIL ABUN
V-48	-3.834E-03	6.538E-02	1.091E-01	0.000E+00	NOT IDENT.
CR-51	-2.048E-01	3.021E-01	5.088E-01	0.000E+00	NOT IDENT.
MN-52	1.162E-01	2.260E-01	4.054E-01	0.000E+00	NOT IDENT.
MN-54	-3.602E-02	3.464E-02	5.372E-02	0.000E+00	NOT IDENT.
CO-56	-6.006E-03	3.249E-02	5.435E-02	0.000E+00	FAIL ABUN
CO-57	-2.204E-04	2.234E-02	3.914E-02	0.000E+00	NOT IDENT.
CO-58	-3.061E-02	3.874E-02	6.194E-02	0.000E+00	NOT IDENT.
FE-59	1.558E-03	9.074E-02	1.508E-01	0.000E+00	NOT IDENT.
CO-60	-2.719E-02	4.060E-02	6.420E-02	0.000E+00	NOT IDENT.
ZN-65	-1.192E-02	1.046E-01	1.471E-01	0.000E+00	NOT IDENT.
GE-68	-3.138E-03	1.333E+00	2.216E+00	0.000E+00	NOT IDENT.
AS-73	-1.613E-01	1.376E+00	2.465E+00	0.000E+00	NOT IDENT.
AS-74	-4.139E-02	7.567E-02	1.279E-01	0.000E+00	NOT IDENT.
SE-75	1.837E-02	4.005E-02	6.801E-02	0.000E+00	NOT IDENT.
BR-77	3.572E+00	7.995E+00	1.394E+01	0.000E+00	FAIL ABUN
SR-82	-3.968E-01	3.481E-01	5.191E-01	0.000E+00	NOT IDENT.
RB-83	1.814E-02	5.676E-02	9.808E-02	0.000E+00	NOT IDENT.
RB-84	-3.017E-03	6.175E-02	1.043E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	6.844E+00	1.179E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.498E-02	6.024E-02	0.000E+00	NOT IDENT.
RB-86	-3.377E-02	8.470E-01	1.403E+00	0.000E+00	NOT IDENT.
Y-88	7.856E-03	2.827E-02	4.931E-02	0.000E+00	NOT IDENT.
ZR-88	4.910E-03	2.850E-02	4.969E-02	0.000E+00	NOT IDENT.
Y-91	5.806E+00	2.003E+01	3.516E+01	0.000E+00	NOT IDENT.
NB-94	-1.254E-02	2.837E-02	4.747E-02	0.000E+00	NOT IDENT.
NB-95	3.356E-02	4.316E-02	6.950E-02	0.000E+00	NOT IDENT.
NB-95M	1.491E-01	1.193E-01	2.011E-01	0.000E+00	NOT IDENT.
ZR-95	1.622E-03	6.305E-02	1.088E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.079E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.212E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-3.164E+00	8.345E+00	1.387E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.535E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	4.109E-03	3.008E-02	5.057E-02	0.000E+00	NOT IDENT.
RH-102	-9.837E-03	2.571E-02	4.242E-02	0.000E+00	FAIL ABUN
RU-103	9.428E-03	3.678E-02	6.332E-02	0.000E+00	FAIL ABUN
RH-106	-3.270E-02	2.728E-01	4.739E-01	0.000E+00	FAIL ABUN
RU-106	-3.270E-02	2.727E-01	4.739E-01	0.000E+00	FAIL ABUN
AG-108M	3.190E-03	2.752E-02	4.749E-02	0.000E+00	NOT IDENT.
AG-110M	5.202E-03	3.355E-02	5.174E-02	0.000E+00	NOT IDENT.
IN-111	-3.348E-01	8.912E-01	1.372E+00	0.000E+00	NOT IDENT.
IN-113M	1.010E-02	4.092E-02	7.168E-02	0.000E+00	NOT IDENT.
SN-113	1.010E-02	4.092E-02	7.168E-02	0.000E+00	NOT IDENT.
IN-114M	8.474E-02	1.749E-01	2.719E-01	0.000E+00	NOT IDENT.
CD-115	2.851E+00	8.277E+00	1.431E+01	0.000E+00	NOT IDENT.
SN-117M	-2.757E-02	4.883E-02	8.190E-02	0.000E+00	NOT IDENT.
SB-122	2.110E+00	1.655E+00	3.032E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.559E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.267E-03	2.526E-02	4.322E-02	0.000E+00	NOT IDENT.
I-124	-3.556E-01	5.616E-01	8.839E-01	0.000E+00	NOT IDENT.
SB-124	1.758E-02	6.394E-02	1.118E-01	0.000E+00	FAIL ABUN
SB-125	2.160E-02	7.976E-02	1.391E-01	0.000E+00	FAIL ABUN
TE-125M	2.974E+00	8.853E+00	1.511E+01	0.000E+00	NOT IDENT.
I-126	1.236E-01	1.702E-01	2.773E-01	0.000E+00	NOT IDENT.
SB-126	-5.799E-02	1.185E-01	1.659E-01	0.000E+00	FAIL ABUN
SB-127	1.534E-01	1.181E+00	2.070E+00	0.000E+00	NOT IDENT.
XE-127	-6.429E-03	3.801E-02	6.859E-02	0.000E+00	NOT IDENT.
I-131	1.150E-03	1.041E-01	1.810E-01	0.000E+00	NOT IDENT.
TE-132	-6.002E-02	5.547E-01	9.947E-01	0.000E+00	NOT IDENT.
BA-133	-2.407E-02	4.173E-02	5.993E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.171E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.802E-02	8.733E-02	0.000E+00	FAIL ABUN
CS-135	9.169E-02	1.526E-01	2.481E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.360E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.849E-02	1.085E-01	1.734E-01	0.000E+00	FAIL ABUN
CE-139	-1.265E-02	2.674E-02	4.488E-02	0.000E+00	NOT IDENT.
BA-140	8.808E-02	2.161E-01	3.719E-01	0.000E+00	NOT IDENT.
LA-140	4.410E-02	7.429E-02	1.351E-01	0.000E+00	FAIL ABUN
CE-141	1.728E-03	5.674E-02	9.839E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.696E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.330E-02	1.805E-01	3.126E-01	0.000E+00	NOT IDENT.
PM-144	9.246E-03	2.954E-02	5.243E-02	0.000E+00	NOT IDENT.
PR-144	6.265E-01	2.002E+00	3.552E+00	0.000E+00	NOT IDENT.

PM-146	-3.659E-02	3.875E-02	6.138E-02	0.000E+00	NOT IDENT.
ND-147	1.577E-01	4.720E-01	8.138E-01	0.000E+00	FAIL ABUN
PM-149	3.974E+01	7.260E+01	1.317E+02	0.000E+00	NOT IDENT.
EU-152	1.523E-03	1.040E-01	1.486E-01	0.000E+00	FAIL ABUN
GD-153	-1.801E-02	7.523E-02	1.248E-01	0.000E+00	NOT IDENT.
EU-154	-9.278E-02	1.197E-01	1.892E-01	0.000E+00	NOT IDENT.
TB-160	-9.517E-02	1.243E-01	1.949E-01	0.000E+00	FAIL ABUN
HO-166M	5.181E-02	5.496E-02	1.014E-01	0.000E+00	FAIL ABUN
TM-171	1.619E+01	3.225E+01	5.957E+01	0.000E+00	NOT IDENT.
LU-176	1.917E-02	2.290E-02	3.935E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.290E+00	1.798E+00	0.000E+00	FAIL ABUN
LU-177M	-8.101E-02	1.541E-01	2.557E-01	0.000E+00	FAIL ABUN
HF-181	8.748E-03	3.553E-02	6.138E-02	0.000E+00	NOT IDENT.
W-181	-4.417E-01	4.344E-01	7.575E-01	0.000E+00	NOT IDENT.
TA-182	1.682E-01	1.873E-01	3.433E-01	0.000E+00	FAIL ABUN
RE-183	6.533E-02	9.838E-02	1.715E-01	0.000E+00	FAIL ABUN
RE-184	-8.972E-02	1.883E-01	3.285E-01	0.000E+00	NOT IDENT.
OS-185	-1.086E-03	3.515E-02	6.125E-02	0.000E+00	NOT IDENT.
RE-188	1.114E-01	1.515E-01	2.692E-01	0.000E+00	NOT IDENT.
W-188	1.586E+00	7.008E+00	1.108E+01	0.000E+00	NOT IDENT.
IR-192	5.441E-03	2.826E-02	5.020E-02	0.000E+00	FAIL ABUN
AU-195	1.844E-01	2.063E-01	3.737E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.343E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	7.973E-01	5.868E+00	1.012E+01	0.000E+00	NOT IDENT.
TL-202	7.954E-02	5.870E-02	1.090E-01	0.000E+00	NOT IDENT.
HG-203	3.989E-02	4.107E-02	6.795E-02	0.000E+00	NOT IDENT.
BI-207	1.503E-03	5.664E-02	9.451E-02	0.000E+00	FAIL ABUN
TL-207	2.237E-01	5.997E-01	9.502E-01	0.000E+00	FAIL ABUN
PO-209	7.362E+00	6.782E+00	1.252E+01	0.000E+00	NOT IDENT.
BI-210	4.690E-01	7.766E+00	1.443E+01	0.000E+00	NOT IDENT.
PB-210	4.690E-01	7.766E+00	1.443E+01	0.000E+00	NOT IDENT.
PO-210	4.690E-01	7.766E+00	1.443E+01	0.000E+00	NOT IDENT.
PB-211	-5.696E-01	9.034E-01	1.374E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.557E-01	6.619E-01	0.000E+00	FAIL ABUN
PO-215	2.237E-01	5.997E-01	9.502E-01	0.000E+00	FAIL ABUN
RN-219	3.311E-01	3.657E-01	6.597E-01	0.000E+00	FAIL ABUN
RN-220	-1.416E+01	2.281E+01	3.622E+01	0.000E+00	NOT IDENT.
RA-223	2.237E-01	5.997E-01	9.502E-01	0.000E+00	FAIL ABUN
AC-227	-2.443E-01	3.208E-01	5.487E-01	0.000E+00	FAIL ABUN
TH-227	-2.443E-01	3.216E-01	5.487E-01	0.000E+00	FAIL ABUN
TH-229	-1.847E-02	4.505E-01	7.625E-01	0.000E+00	FAIL ABUN
PA-231	-9.651E-01	1.353E+00	2.303E+00	0.000E+00	FAIL ABUN
TH-231	2.237E-01	5.997E-01	9.502E-01	0.000E+00	FAIL ABUN
U-231	-7.286E-01	1.019E+00	1.556E+00	0.000E+00	FAIL ABUN
PA-233	-8.433E-03	5.262E-02	9.173E-02	0.000E+00	FAIL ABUN
PA-234	-2.605E-01	3.147E-01	4.855E-01	0.000E+00	FAIL ABUN
PA-234M	2.411E+00	4.558E+00	7.972E+00	0.000E+00	NOT IDENT.
TH-234	5.234E-01	1.656E+00	3.008E+00	0.000E+00	FAIL ABUN
NP-236	-1.713E-02	7.118E-02	1.211E-01	0.000E+00	NOT IDENT.
U-238	5.234E-01	1.656E+00	3.008E+00	0.000E+00	FAIL ABUN
NP-239	5.579E-02	1.714E-01	3.053E-01	0.000E+00	FAIL ABUN
AM-241	-5.604E-02	2.063E-01	3.736E-01	0.000E+00	NOT IDENT.
CM-243	6.001E-02	8.978E-02	1.629E-01	0.000E+00	FAIL ABUN
AM-246	8.477E-02	1.465E-01	2.558E-01	0.000E+00	NOT IDENT.
CM-247	4.278E-02	3.230E-02	5.988E-02	0.000E+00	FAIL ABUN
CF-249	-6.590E-03	3.520E-02	5.982E-02	0.000E+00	NOT IDENT.
CF-251	-1.391E-02	1.158E-01	1.967E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600001.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:54:51
Sample ID          : G244600001          Sample quantity  : 1.43190E+02 GRAM
Detector name      : GAM10              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.15  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941635             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	1475	10.67*	1.107E+00	3.274E+01	3.274E+01	10.18
CD-109	88.03	141	3.72*	5.260E+00	1.882E+00	1.925E+00	61.21
SN-126	64.28	-----	9.60	2.419E+00	-----	Line Not Found	-----
	86.94	141	8.90	5.260E+00	7.867E-01	7.867E-01	73.37
	87.57	141	37.00*	5.260E+00	1.892E-01	1.892E-01	61.21
BA-137M	661.65	53	89.98*	2.355E+00	6.532E-02	6.538E-02	71.48
CS-137	661.65	53	85.12*	2.355E+00	6.905E-02	6.912E-02	71.48
EU-155	48.70	-----	4.60	5.445E-01	-----	Line Not Found	-----
	60.01	-----	1.11	1.818E+00	-----	Line Not Found	-----
	86.54	141	30.90	5.260E+00	2.266E-01	2.279E-01	61.22
	105.31	53	20.70*	6.406E+00	1.040E-01	1.046E-01	146.81
TL-208	277.35	57	6.80	4.607E+00	4.779E-01	4.779E-01	94.60
	510.84	174	21.60	2.931E+00	7.209E-01	7.209E-01	34.34
	583.14	345	84.20*	2.627E+00	4.089E-01	4.089E-01	17.02
	860.37	85	12.46	1.839E+00	9.717E-01	9.717E-01	46.98
BI-211	72.87	-----	1.27	3.633E+00	-----	Line Not Found	-----
	351.07	657	12.94*	3.887E+00	3.422E+00	3.422E+00	13.63
PB-212	74.81	272	10.70	3.858E+00	1.729E+00	1.729E+00	28.94
	77.11	520	18.00	4.156E+00	1.823E+00	1.823E+00	17.85
	87.30	141	8.00	5.260E+00	8.752E-01	8.752E-01	62.02
	238.63	1320	44.60*	5.115E+00	1.517E+00	1.517E+00	10.17
	300.09	114	3.41	4.357E+00	2.011E+00	2.011E+00	47.81
PO-212	74.81	272	10.70	3.858E+00	1.729E+00	1.729E+00	28.94
	77.11	520	18.00	4.156E+00	1.823E+00	1.823E+00	17.85
	87.30	141	8.00	5.260E+00	8.752E-01	8.752E-01	62.02
	115.19	-----	0.60	6.657E+00	-----	Line Not Found	-----
	238.63	1320	44.60*	5.115E+00	1.517E+00	1.517E+00	10.17
	300.09	114	3.41	4.357E+00	2.011E+00	2.011E+00	47.81
BI-214	609.31	410	46.30*	2.530E+00	9.168E-01	9.168E-01	15.59
	1120.29	95	15.10	1.414E+00	1.163E+00	1.163E+00	53.45
	1764.49	87	15.80	9.763E-01	1.478E+00	1.478E+00	29.62
PB-214	74.81	272	6.21	3.858E+00	2.980E+00	2.980E+00	28.38

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	520	10.50	4.156E+00	3.125E+00	3.125E+00	19.41
	87.30	141	4.67	5.260E+00	1.499E+00	1.499E+00	61.69
	241.98	321	7.49	5.073E+00	2.212E+00	2.212E+00	27.33
	295.21	392	19.20	4.411E+00	1.214E+00	1.215E+00	17.27
	351.92	657	37.20*	3.887E+00	1.190E+00	1.190E+00	14.59
	74.81	272	6.21	3.858E+00	2.980E+00	2.980E+00	28.38
	77.11	520	10.50	4.156E+00	3.125E+00	3.125E+00	19.41
	87.30	141	4.67	5.260E+00	1.499E+00	1.499E+00	61.69
	241.98	321	7.49	5.073E+00	2.212E+00	2.212E+00	27.33
	295.21	392	19.20	4.411E+00	1.214E+00	1.215E+00	17.27
PO-216	351.92	657	37.20*	3.887E+00	1.190E+00	1.190E+00	14.59
	74.81	272	10.70	3.858E+00	1.729E+00	1.729E+00	28.94
	77.11	520	18.00	4.156E+00	1.823E+00	1.823E+00	17.85
	87.30	141	8.00	5.260E+00	8.752E-01	8.752E-01	62.02
	238.63	1320	44.60*	5.115E+00	1.517E+00	1.517E+00	10.17
PO-218	300.09	114	3.41	4.357E+00	2.011E+00	2.011E+00	47.81
	74.81	272	6.21	3.858E+00	2.980E+00	2.980E+00	28.38
	77.11	520	10.50	4.156E+00	3.125E+00	3.125E+00	19.41
	87.30	141	4.67	5.260E+00	1.499E+00	1.499E+00	61.69
	241.98	321	7.49	5.073E+00	2.212E+00	2.212E+00	27.33
RA-224	295.21	392	19.20	4.411E+00	1.214E+00	1.215E+00	17.27
	351.92	657	37.20*	3.887E+00	1.190E+00	1.190E+00	14.59
	240.98	321	3.95*	5.073E+00	4.194E+00	4.194E+00	26.74
	609.31	410	46.30*	2.530E+00	9.168E-01	9.168E-01	15.59
	1120.29	95	15.10	1.414E+00	1.163E+00	1.163E+00	53.45
AC-228	1764.49	87	15.80	9.763E-01	1.478E+00	1.478E+00	29.62
	338.32	269	11.40	4.000E+00	1.544E+00	1.544E+00	47.91
	911.07	269	27.70*	1.739E+00	1.463E+00	1.463E+00	22.52
RA-228	969.11	180	16.60	1.635E+00	1.739E+00	1.739E+00	32.27
	338.32	269	11.40	4.000E+00	1.544E+00	1.544E+00	47.91
	911.07	269	27.70*	1.739E+00	1.463E+00	1.463E+00	22.52
TH-228	969.11	180	16.60	1.635E+00	1.739E+00	1.739E+00	32.27
	74.81	272	10.70	3.858E+00	1.729E+00	1.755E+00	27.42
	77.11	520	18.00	4.156E+00	1.823E+00	1.850E+00	17.85
TH-230	87.30	141	8.00	5.260E+00	8.752E-01	8.883E-01	61.21
	238.63	1320	44.60*	5.115E+00	1.517E+00	1.539E+00	10.17
	300.09	114	3.41	4.357E+00	2.011E+00	2.041E+00	75.44
	609.31	410	46.30*	2.530E+00	9.168E-01	9.168E-01	15.59
	1120.29	95	15.10	1.414E+00	1.163E+00	1.163E+00	53.45
TH-232	1764.49	87	15.80	9.763E-01	1.478E+00	1.478E+00	29.62
	338.32	269	11.40	4.000E+00	1.544E+00	1.544E+00	25.84
	911.07	269	27.70*	1.739E+00	1.463E+00	1.463E+00	22.52
U-234	969.11	180	16.60	1.635E+00	1.739E+00	1.739E+00	32.27
	609.31	410	46.30*	2.530E+00	9.168E-01	9.168E-01	15.59
	1120.29	95	15.10	1.414E+00	1.163E+00	1.163E+00	53.45
U-235	1764.49	87	15.80	9.763E-01	1.478E+00	1.478E+00	29.62
	89.95	92	2.70	5.484E+00	1.620E+00	1.620E+00	74.80
	93.35	203	4.50	5.716E+00	2.072E+00	2.072E+00	49.62
	105.00	53	2.10	6.406E+00	1.025E+00	1.025E+00	149.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	143.76	-----	10.50*	6.659E+00	-----	Line Not Found	-----
	163.35	-----	4.70	6.374E+00	-----	Line Not Found	-----
	185.71	177	54.00	5.981E+00	1.434E-01	1.434E-01	41.24
	205.31	-----	4.70	5.638E+00	-----	Line Not Found	-----
NP-237	86.50	141	12.60*	5.260E+00	5.557E-01	5.557E-01	64.59
	95.87	-----	2.60	5.933E+00	-----	Line Not Found	-----
AM-243	74.67	272	66.00*	3.858E+00	2.804E-01	2.804E-01	27.39
	86.72	141	0.34	5.260E+00	2.084E+01	2.084E+01	61.21
	117.66	-----	0.55	6.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.676E+00	-----	Line Not Found	-----
ANH-511	511.00	174	100.00*	2.931E+00	1.557E-01	1.557E-01	33.32

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	3.274E+01	3.274E+01	0.333E+01	10.18	
CD-109	464.00D	1.02	1.882E+00	1.925E+00	1.178E+00	61.21	
SN-126	1.00E+05Y	1.00	1.892E-01	1.892E-01	1.158E-01	61.21	
BA-137M	30.17Y	1.00	6.532E-02	6.538E-02	4.674E-02	71.48	
CS-137	30.17Y	1.00	6.905E-02	6.912E-02	4.941E-02	71.48	
EU-155	4.96Y	1.01	1.040E-01	1.046E-01	1.535E-01	146.81	
TL-208	1.41E+10Y	1.00	4.089E-01	4.089E-01	0.696E-01	17.02	
BI-211	7.04E+08Y	1.00	3.422E+00	3.422E+00	0.466E+00	13.63	
PB-212	1.41E+10Y	1.00	1.517E+00	1.517E+00	0.154E+00	10.17	
PO-212	1.41E+10Y	1.00	1.517E+00	1.517E+00	0.154E+00	10.17	
BI-214	1600.00Y	1.00	9.168E-01	9.168E-01	1.430E-01	15.59	
PB-214	1600.00Y	1.00	1.190E+00	1.190E+00	0.174E+00	14.59	
PO-214	1600.00Y	1.00	1.190E+00	1.190E+00	0.174E+00	14.59	
PO-216	1.41E+10Y	1.00	1.517E+00	1.517E+00	0.154E+00	10.17	
PO-218	1600.00Y	1.00	1.190E+00	1.190E+00	0.174E+00	14.59	
RA-224	1.41E+10Y	1.00	4.194E+00	4.194E+00	1.122E+00	26.74	
RA-226	1600.00Y	1.00	9.168E-01	9.168E-01	1.430E-01	15.59	
AC-228	1.41E+10Y	1.00	1.463E+00	1.463E+00	0.330E+00	22.52	
RA-228	1.41E+10Y	1.00	1.463E+00	1.463E+00	0.330E+00	22.52	
TH-228	1.91Y	1.01	1.517E+00	1.539E+00	0.157E+00	10.17	
TH-230	4.47E+09Y	1.00	9.168E-01	9.168E-01	1.430E-01	15.59	
TH-232	1.41E+10Y	1.00	1.463E+00	1.463E+00	0.330E+00	22.52	
U-234	4.47E+09Y	1.00	9.168E-01	9.168E-01	1.430E-01	15.59	
U-235	7.04E+08Y	1.00	1.434E-01	1.434E-01	0.591E-01	41.24	K
NP-237	2.14E+06Y	1.00	5.557E-01	5.557E-01	3.589E-01	64.59	
AM-243	7380.00Y	1.00	2.804E-01	2.804E-01	0.768E-01	27.39	
ANH-511	1.00E+09Y	1.00	1.557E-01	1.557E-01	0.519E-01	33.32	

Total Activity : 6.191E+01 6.197E+01

Grand Total Activity : 6.191E+01 6.197E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244600001

Page : 5  
Acquisition date : 22-JAN-2010 07:54:51

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	208.75	97	307	0.99	417.41	414	9	1.35E-02	67.9	5.58E+00	T
0	270.05	124	175	1.41	539.93	536	9	1.73E-02	42.3	4.70E+00	T
0	327.88	136	181	0.91	655.49	650	11	1.89E-02	42.1	4.09E+00	T
0	462.69	93	168	1.31	924.95	918	14	1.29E-02	62.8	3.17E+00	T
0	727.26	146	68	1.37	1453.85	1447	15	2.03E-02	29.9	2.16E+00	T
0	768.13	64	89	1.67	1535.57	1530	13	8.90E-03	65.4	2.05E+00	T
0	795.29	58	61	1.27	1589.87	1585	11	7.99E-03	58.7	1.99E+00	T
1	964.86	60	82	1.92	1928.95	1922	23	8.37E-03	59.0	1.64E+00	T
0	1238.81	40	83	1.26	2476.84	2471	13	5.49E-03	99.5	1.28E+00	T
0	1729.86	32	3	2.79	3459.25	3452	14	4.39E-03	43.4	9.86E-01	

Flags: "T" = Tentatively associated



```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600001.CNF;1  *
* Acquisition date   : 22-JAN-2010 07:54:51  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 02:00:01.15           Half life ratio  : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G244600001             Analyst initials: MXR1          *
* Batch Number       : 941635                 Sample Quantity : 1.43190E+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      :             *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.274E+01	3.333E+00	4.940E-01	4.255E-02	66.277
CD-109	1.925E+00	1.178E+00	9.718E-01	1.102E-01	1.980
SN-126	1.892E-01	1.158E-01	9.625E-02	1.089E-02	1.966
BA-137M	6.538E-02	4.674E-02	5.577E-02	2.752E-03	1.172
CS-137	6.912E-02	4.941E-02	5.895E-02	2.926E-03	1.172
EU-155	1.046E-01	1.535E-01	1.751E-01	1.452E-02	0.597
TL-208	4.089E-01	6.959E-02	4.863E-02	3.267E-03	8.408
BI-211	3.422E+00	4.663E-01	2.862E-01	2.087E-02	11.958
PB-212	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
PO-212	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
BI-214	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
PB-214	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
PO-214	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
PO-216	1.517E+00	1.542E-01	7.937E-02	6.021E-03	19.110
PO-218	1.190E+00	1.737E-01	9.976E-02	8.946E-03	11.933
RA-224	4.194E+00	1.122E+00	9.031E-01	5.544E-02	4.644
RA-226	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
AC-228	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299
TH-228	1.539E+00	1.565E-01	8.055E-02	6.111E-03	19.110
TH-230	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
TH-232	1.463E+00	3.296E-01	2.005E-01	2.474E-02	7.299
U-234	9.168E-01	1.430E-01	1.063E-01	8.092E-03	8.622
U-235	1.434E-01	5.915E-02	3.333E-01	5.450E-02	0.430
NP-237	5.557E-01	3.589E-01	4.199E-01	9.869E-02	1.323
AM-243	2.804E-01	7.681E-02	9.850E-02	1.079E-02	2.846
ANH-511	1.557E-01	5.188E-02	4.436E-02	2.842E-03	3.510

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.046E-01		2.822E-01	4.681E-01	3.481E-02	0.224
NA-22	-2.493E-02		4.290E-02	6.726E-02	5.210E-03	-0.371
NA-24	-1.537E-01		2.501E-01	Half-Life too short		
AL-26	4.254E-03		2.098E-02	3.576E-02	2.267E-03	0.119
TI-44	3.364E-01	+	6.006E-02	7.231E-02	7.912E-03	4.653
SC-46	1.764E-02		3.776E-02	6.421E-02	6.354E-03	0.275
V-48	-3.834E-03		6.672E-02	1.076E-01	9.951E-03	-0.036
CR-51	-2.048E-01		3.083E-01	4.897E-01	3.537E-02	-0.418
MN-52	1.162E-01		2.306E-01	4.033E-01	3.408E-02	0.288
MN-54	-3.602E-02		3.535E-02	5.280E-02	4.511E-03	-0.682
CO-56	-6.006E-03		3.315E-02	5.343E-02	4.718E-03	-0.112
CO-57	-2.204E-04		2.280E-02	3.692E-02	2.435E-03	-0.006
CO-58	-3.061E-02		3.953E-02	6.084E-02	4.868E-03	-0.503
FE-59	1.558E-03		9.259E-02	1.491E-01	1.245E-02	0.010
CO-60	-2.719E-02		4.143E-02	6.376E-02	5.541E-03	-0.426
ZN-65	-1.192E-02		1.068E-01	1.455E-01	1.060E-02	-0.082
GE-68	-3.138E-03		1.360E+00	2.190E+00	1.735E-01	-0.001
AS-73	-1.613E-01		1.404E+00	2.287E+00	3.027E-01	-0.071
AS-74	-4.139E-02		7.721E-02	1.247E-01	7.125E-03	-0.332
SE-75	1.837E-02		4.087E-02	6.520E-02	4.159E-03	0.282
BR-77	3.572E+00		8.158E+00	1.356E+01	8.605E-01	0.263
SR-82	-3.968E-01		3.552E-01	5.094E-01	3.672E-02	-0.779
RB-83	1.814E-02		5.792E-02	9.540E-02	6.054E-03	0.190
RB-84	-3.017E-03		6.302E-02	1.026E-01	9.951E-03	-0.029
KR-85	1.287E+01		6.984E+00	1.146E+01	7.320E-01	1.123
SR-85	6.580E-02		3.570E-02	5.858E-02	3.742E-03	1.123
RB-86	-3.377E-02		8.643E-01	1.387E+00	1.101E-01	-0.024
Y-88	7.856E-03		2.885E-02	4.933E-02	3.026E-03	0.159
ZR-88	4.910E-03		2.908E-02	4.804E-02	3.265E-03	0.102
Y-91	5.806E+00		2.044E+01	3.484E+01	2.314E+00	0.167
NB-94	-1.254E-02		2.894E-02	4.648E-02	2.646E-03	-0.270
NB-95	3.356E-02		4.404E-02	6.818E-02	4.758E-03	0.492
NB-95M	1.491E-01		1.218E-01	1.924E-01	1.492E-02	0.775
ZR-95	1.622E-03		6.434E-02	1.067E-01	8.379E-03	0.015

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	1.403E-02		3.612E-02	Half-Life too short		
ZR-97	2.178E+00		6.184E-01	Half-Life too short		
MO-99	-3.164E+00		8.516E+00	1.360E+01	1.911E+00	-0.233
TC-99M	-5.963E+09		7.833E+09	Half-Life too short		
RH-101	4.109E-03		3.069E-02	4.818E-02	2.768E-03	0.085
RH-102	-9.837E-03		2.623E-02	4.118E-02	2.717E-03	-0.239
RU-103	9.428E-03		3.753E-02	6.153E-02	7.983E-03	0.153
RH-106	-3.270E-02		2.783E-01	4.627E-01	5.349E-02	-0.071
RU-106	-3.270E-02		2.783E-01	4.627E-01	2.513E-02	-0.071
AG-108M	3.190E-03		2.808E-02	4.601E-02	3.299E-03	0.069
AG-110M	5.202E-03		3.424E-02	5.058E-02	2.740E-03	0.103
IN-111	-3.348E-01		9.094E-01	1.313E+00	8.109E-02	-0.255
IN-113M	1.010E-02		4.176E-02	6.930E-02	4.941E-03	0.146
SN-113	1.010E-02		4.176E-02	6.930E-02	4.941E-03	0.146
IN-114M	8.474E-02		1.784E-01	2.588E-01	1.468E-02	0.327
CD-115	2.851E+00		8.446E+00	1.392E+01	8.765E-01	0.205
SN-117M	-2.757E-02		4.983E-02	7.768E-02	4.356E-03	-0.355
SB-122	2.110E+00		1.688E+00	2.955E+00	1.777E-01	0.714
I-123	-4.604E-01		1.816E+00	Half-Life too short		
TE-123M	-3.267E-03		2.577E-02	4.099E-02	2.328E-03	-0.080
I-124	-3.556E-01		5.731E-01	8.625E-01	4.866E-02	-0.412
SB-124	1.758E-02		6.524E-02	1.117E-01	8.486E-03	0.157
SB-125	2.160E-02		8.138E-02	1.348E-01	9.385E-03	0.160
TE-125M	2.974E+00		9.034E+00	1.422E+01	1.365E+00	0.209
I-126	1.236E-01		1.737E-01	2.712E-01	1.360E-02	0.456
SB-126	-5.799E-02		1.210E-01	1.625E-01	9.821E-03	-0.357
SB-127	1.534E-01		1.205E+00	2.026E+00	1.836E-01	0.076
XE-127	-6.429E-03		3.879E-02	6.539E-02	3.786E-03	-0.098
I-131	1.150E-03		1.062E-01	1.747E-01	1.284E-02	0.007
TE-132	-6.002E-02		5.660E-01	9.506E-01	1.369E-01	-0.063
BA-133	-2.407E-02		4.258E-02	5.782E-02	6.976E-03	-0.416
I-133	-1.939E-03		2.128E-03	Half-Life too short		
CS-134	1.001E-01	+	5.921E-02	8.574E-02	6.610E-03	1.167
CS-135	9.169E-02		1.557E-01	2.379E-01	1.923E-02	0.385
I-135	-7.055E+08		1.204E+09	Half-Life too short		
CS-136	-4.849E-02		1.108E-01	1.712E-01	1.499E-02	-0.283
CE-139	-1.265E-02		2.729E-02	4.261E-02	2.327E-03	-0.297
BA-140	8.808E-02		2.205E-01	3.619E-01	1.180E-01	0.243
LA-140	4.410E-02		7.580E-02	1.348E-01	1.046E-02	0.327
CE-141	1.728E-03		5.790E-02	9.316E-02	5.701E-03	0.019
CE-143	5.053E-04		8.651E-05	Half-Life too short		
CE-144	-2.330E-02		1.841E-01	2.954E-01	4.245E-02	-0.079
PM-144	9.246E-03		3.015E-02	5.132E-02	2.864E-03	0.180
PR-144	6.265E-01		2.043E+00	3.477E+00	1.939E-01	0.180
PM-146	-3.659E-02		3.954E-02	5.953E-02	5.498E-03	-0.615
ND-147	1.577E-01		4.816E-01	7.919E-01	1.087E-01	0.199
PM-149	3.974E+01		7.408E+01	1.264E+02	1.828E+01	0.314
EU-152	1.523E-03		1.062E-01	1.433E-01	1.056E-02	0.011

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-1.801E-02		7.677E-02	1.172E-01	1.091E-02	-0.154
EU-154	-9.278E-02		1.222E-01	1.877E-01	2.000E-02	-0.494
TB-160	-9.517E-02		1.269E-01	1.917E-01	1.849E-02	-0.496
HO-166M	5.181E-02		5.609E-02	9.932E-02	5.829E-03	0.522
TM-171	1.619E+01		3.291E+01	5.551E+01	6.324E+00	0.292
LU-176	1.917E-02		2.336E-02	3.784E-02	2.489E-03	0.507
LU-177	1.933E+00	+	1.317E+00	1.715E+00	1.002E-01	1.127
LU-177M	-8.101E-02		1.572E-01	2.474E-01	1.677E-02	-0.327
HF-181	8.748E-03		3.626E-02	5.960E-02	3.913E-03	0.147
W-181	-4.417E-01		4.433E-01	7.056E-01	8.152E-02	-0.626
TA-182	1.682E-01		1.912E-01	3.403E-01	2.346E-02	0.494
RE-183	6.533E-02		1.004E-01	1.627E-01	9.001E-03	0.401
RE-184	-8.972E-02		1.921E-01	3.147E-01	1.962E-02	-0.285
OS-185	-1.086E-03		3.587E-02	5.985E-02	3.075E-03	-0.018
RE-188	1.114E-01		1.546E-01	2.552E-01	1.450E-02	0.436
W-188	1.586E+00		7.151E+00	1.064E+01	6.910E-01	0.149
IR-192	5.441E-03		2.884E-02	4.831E-02	3.212E-03	0.113
AU-195	1.844E-01		2.105E-01	3.511E-01	3.186E-02	0.525
TL-200	3.402E-04		1.706E-04	Half-Life too short		
TL-201	7.973E-01		5.988E+00	9.611E+00	5.256E-01	0.083
TL-202	7.954E-02		5.990E-02	1.057E-01	7.104E-03	0.753
HG-203	3.989E-02		4.190E-02	6.521E-02	4.400E-03	0.612
BI-207	1.503E-03		5.780E-02	9.339E-02	7.602E-03	0.016
TL-207	2.237E-01		6.120E-01	9.148E-01	1.540E-01	0.245
PO-209	7.362E+00		6.920E+00	1.232E+01	1.243E+00	0.598
BI-210	4.690E-01		7.925E+00	1.335E+01	1.309E+00	0.035
PB-210	4.690E-01		7.925E+00	1.335E+01	1.309E+00	0.035
PO-210	4.690E-01		7.925E+00	1.335E+01	1.198E+00	0.035
PB-211	-5.696E-01		9.218E-01	1.329E+00	8.299E-01	-0.429
BI-212	1.502E+00	+	4.650E-01	6.485E-01	5.188E-02	2.316
PO-215	2.237E-01		6.120E-01	9.148E-01	1.540E-01	0.245
RN-219	3.311E-01		3.731E-01	6.381E-01	8.970E-02	0.519
RN-220	-1.416E+01		2.328E+01	3.527E+01	2.163E+00	-0.402
RA-223	2.237E-01		6.120E-01	9.148E-01	1.540E-01	0.245
AC-227	-2.443E-01		3.273E-01	5.257E-01	7.442E-02	-0.465
TH-227	-2.443E-01		3.281E-01	5.257E-01	8.969E-02	-0.465
TH-229	-1.847E-02		4.597E-01	7.262E-01	4.141E-02	-0.025
PA-231	-9.651E-01		1.381E+00	2.211E+00	3.110E-01	-0.437
TH-231	2.237E-01		6.120E-01	9.148E-01	1.540E-01	0.245
U-231	-7.286E-01		1.040E+00	1.460E+00	1.400E-01	-0.499
PA-233	-8.433E-03		5.369E-02	8.825E-02	6.107E-03	-0.096
PA-234	-2.605E-01		3.212E-01	4.785E-01	9.220E-02	-0.545
PA-234M	2.411E+00		4.651E+00	7.867E+00	8.120E-01	0.306
TH-234	5.234E-01		1.690E+00	2.800E+00	5.519E-01	0.187
NP-236	-1.713E-02		7.263E-02	1.149E-01	6.401E-03	-0.149
U-238	5.234E-01		1.690E+00	2.800E+00	5.519E-01	0.187
NP-239	5.579E-02		1.749E-01	2.878E-01	2.013E-02	0.194
AM-241	-5.604E-02		2.105E-01	3.473E-01	4.461E-02	-0.161

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	6.001E-02		9.161E-02	1.532E-01	1.284E-02	0.392
AM-246	8.477E-02		1.495E-01	2.529E-01	1.997E-02	0.335
CM-247	4.278E-02		3.295E-02	5.792E-02	3.933E-03	0.739
CF-249	-6.590E-03		3.573E-02	5.781E-02	3.928E-03	-0.114
CF-251	-1.391E-02		1.182E-01	1.870E-01	1.037E-02	-0.074

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600001
* Acquisition date   : 22-JAN-2010 07:54:51 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 02:00:01.15 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244600001 Analyst initials: MXR1
* Batch Number       : 941635 Sample Quantity : 1.4319E+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     :
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.274E+01	3.267E+00	2.483E-01	1.667E+00
CD-109	1.925E+00	1.154E+00	5.188E-01	5.890E-01
SN-126	1.892E-01	1.135E-01	5.139E-02	5.791E-02
BA-137M	6.538E-02	4.580E-02	2.854E-02	2.337E-02
CS-137	6.912E-02	4.842E-02	3.016E-02	2.470E-02
EU-155	1.046E-01	1.504E-01	9.312E-02	7.675E-02
TL-208	4.089E-01	6.820E-02	2.495E-02	3.480E-02
BI-211	3.422E+00	4.569E-01	1.485E-01	2.331E-01
PB-212	1.517E+00	1.511E-01	4.151E-02	7.710E-02
PO-212	1.517E+00	1.511E-01	4.151E-02	7.710E-02
BI-214	9.168E-01	1.401E-01	5.451E-02	7.148E-02
PB-214	1.190E+00	1.702E-01	5.174E-02	8.684E-02
PO-214	1.190E+00	1.702E-01	5.174E-02	8.684E-02
PO-216	1.517E+00	1.511E-01	4.151E-02	7.710E-02
PO-218	1.190E+00	1.702E-01	5.174E-02	8.684E-02
RA-224	4.194E+00	1.099E+00	4.722E-01	5.608E-01
RA-226	9.168E-01	1.401E-01	5.451E-02	7.148E-02
AC-228	1.463E+00	3.230E-01	1.019E-01	1.648E-01
RA-228	1.463E+00	3.230E-01	1.019E-01	1.648E-01
TH-228	1.539E+00	1.534E-01	4.213E-02	7.825E-02
TH-230	9.168E-01	1.401E-01	5.451E-02	7.148E-02
TH-232	1.463E+00	3.230E-01	1.019E-01	1.648E-01
U-234	9.168E-01	1.401E-01	5.451E-02	7.148E-02
U-235	2.623E-01	2.003E-01	1.762E-01	1.022E-01
NP-237	5.557E-01	3.518E-01	2.243E-01	1.795E-01
AM-243	2.804E-01	7.527E-02	5.276E-02	3.840E-02
ANH-511	1.557E-01	5.084E-02	2.283E-02	2.594E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----

BE-7	1.046E-01	2.766E-01	2.412E-01	1.411E-01	NOT IDENT.
NA-22	-2.493E-02	4.204E-02	3.392E-02	2.145E-02	NOT IDENT.
NA-24	-1.537E+05	4.902E+05	0.000E+00	2.501E+05	SHORT HLIF
AL-26	4.254E-03	2.056E-02	1.789E-02	1.049E-02	NOT IDENT.
TI-44	3.364E-01	5.886E-02	3.869E-02	3.003E-02	FAIL ABUN
SC-46	1.764E-02	3.700E-02	3.264E-02	1.888E-02	FAIL ABUN
V-48	-3.834E-03	6.538E-02	5.458E-02	3.336E-02	NOT IDENT.
CR-51	-2.048E-01	3.021E-01	2.545E-01	1.541E-01	NOT IDENT.
MN-52	1.162E-01	2.260E-01	2.028E-01	1.153E-01	NOT IDENT.
MN-54	-3.602E-02	3.464E-02	2.688E-02	1.767E-02	NOT IDENT.
CO-56	-6.006E-03	3.249E-02	2.719E-02	1.658E-02	FAIL ABUN
CO-57	-2.204E-04	2.234E-02	1.958E-02	1.140E-02	NOT IDENT.
CO-58	-3.061E-02	3.874E-02	3.099E-02	1.976E-02	NOT IDENT.
FE-59	1.558E-03	9.074E-02	7.544E-02	4.630E-02	NOT IDENT.
CO-60	-2.719E-02	4.060E-02	3.212E-02	2.071E-02	NOT IDENT.
ZN-65	-1.192E-02	1.046E-01	7.359E-02	5.339E-02	NOT IDENT.
GE-68	-3.138E-03	1.333E+00	1.109E+00	6.802E-01	NOT IDENT.
AS-73	-1.613E-01	1.376E+00	1.233E+00	7.021E-01	NOT IDENT.
AS-74	-4.139E-02	7.567E-02	6.396E-02	3.861E-02	NOT IDENT.
SE-75	1.837E-02	4.005E-02	3.402E-02	2.043E-02	NOT IDENT.
BR-77	3.572E+00	7.995E+00	6.976E+00	4.079E+00	FAIL ABUN
SR-82	-3.968E-01	3.481E-01	2.597E-01	1.776E-01	NOT IDENT.
RB-83	1.814E-02	5.676E-02	4.907E-02	2.896E-02	NOT IDENT.
RB-84	-3.017E-03	6.175E-02	5.217E-02	3.151E-02	NOT IDENT.
KR-85	1.287E+01	6.844E+00	5.896E+00	3.492E+00	NOT IDENT.
SR-85	6.580E-02	3.498E-02	3.014E-02	1.785E-02	NOT IDENT.
RB-86	-3.377E-02	8.470E-01	7.021E-01	4.322E-01	NOT IDENT.
Y-88	7.856E-03	2.827E-02	2.467E-02	1.443E-02	NOT IDENT.
ZR-88	4.910E-03	2.850E-02	2.486E-02	1.454E-02	NOT IDENT.
Y-91	5.806E+00	2.003E+01	1.759E+01	1.022E+01	NOT IDENT.
NB-94	-1.254E-02	2.837E-02	2.375E-02	1.447E-02	NOT IDENT.
NB-95	3.356E-02	4.316E-02	3.477E-02	2.202E-02	NOT IDENT.
NB-95M	1.491E-01	1.193E-01	1.006E-01	6.089E-02	NOT IDENT.
ZR-95	1.622E-03	6.305E-02	5.442E-02	3.217E-02	NOT IDENT.
NB-97	1.403E+04	7.079E+04	0.000E+00	3.612E+04	SHORT HLIF
ZR-97	2.178E+06	1.212E+06	0.000E+00	6.184E+05	SHORT HLIF
MO-99	-3.164E+00	8.345E+00	6.940E+00	4.258E+00	NOT IDENT.
TC-99M	-5.963E+15	1.535E+16	0.000E+00	7.833E+15	SHORT HLIF
RH-101	4.109E-03	3.008E-02	2.530E-02	1.535E-02	NOT IDENT.
RH-102	-9.837E-03	2.571E-02	2.122E-02	1.312E-02	FAIL ABUN
RU-103	9.428E-03	3.678E-02	3.168E-02	1.877E-02	FAIL ABUN
RH-106	-3.270E-02	2.728E-01	2.371E-01	1.392E-01	FAIL ABUN
RU-106	-3.270E-02	2.727E-01	2.371E-01	1.392E-01	FAIL ABUN
AG-108M	3.190E-03	2.752E-02	2.376E-02	1.404E-02	NOT IDENT.
AG-110M	5.202E-03	3.355E-02	2.588E-02	1.712E-02	NOT IDENT.
IN-111	-3.348E-01	8.912E-01	6.864E-01	4.547E-01	NOT IDENT.
IN-113M	1.010E-02	4.092E-02	3.586E-02	2.088E-02	NOT IDENT.
SN-113	1.010E-02	4.092E-02	3.586E-02	2.088E-02	NOT IDENT.
IN-114M	8.474E-02	1.749E-01	1.360E-01	8.921E-02	NOT IDENT.
CD-115	2.851E+00	8.277E+00	7.159E+00	4.223E+00	NOT IDENT.
SN-117M	-2.757E-02	4.883E-02	4.097E-02	2.491E-02	NOT IDENT.
SB-122	2.110E+00	1.655E+00	1.517E+00	8.442E-01	NOT IDENT.
I-123	-4.604E+05	3.559E+06	0.000E+00	1.816E+06	SHORT HLIF
TE-123M	-3.267E-03	2.526E-02	2.162E-02	1.289E-02	NOT IDENT.
I-124	-3.556E-01	5.616E-01	4.422E-01	2.866E-01	NOT IDENT.
SB-124	1.758E-02	6.394E-02	5.596E-02	3.262E-02	FAIL ABUN
SB-125	2.160E-02	7.976E-02	6.961E-02	4.069E-02	FAIL ABUN
TE-125M	2.974E+00	8.853E+00	7.559E+00	4.517E+00	NOT IDENT.
I-126	1.236E-01	1.702E-01	1.387E-01	8.683E-02	NOT IDENT.
SB-126	-5.799E-02	1.185E-01	8.300E-02	6.048E-02	FAIL ABUN
SB-127	1.534E-01	1.181E+00	1.036E+00	6.024E-01	NOT IDENT.
XE-127	-6.429E-03	3.801E-02	3.431E-02	1.939E-02	NOT IDENT.
I-131	1.150E-03	1.041E-01	9.054E-02	5.311E-02	NOT IDENT.
TE-132	-6.002E-02	5.547E-01	4.976E-01	2.830E-01	NOT IDENT.
BA-133	-2.407E-02	4.173E-02	2.998E-02	2.129E-02	FAIL ABUN
I-133	-1.939E+03	4.171E+03	0.000E+00	2.128E+03	SHORT HLIF
CS-134	1.001E-01	5.802E-02	4.369E-02	2.960E-02	FAIL ABUN
CS-135	9.169E-02	1.526E-01	1.241E-01	7.785E-02	NOT IDENT.
I-135	-7.055E+14	2.360E+15	0.000E+00	1.204E+15	SHORT HLIF
CS-136	-4.849E-02	1.085E-01	8.673E-02	5.538E-02	FAIL ABUN
CE-139	-1.265E-02	2.674E-02	2.245E-02	1.364E-02	NOT IDENT.
BA-140	8.808E-02	2.161E-01	1.860E-01	1.103E-01	NOT IDENT.
LA-140	4.410E-02	7.429E-02	6.761E-02	3.790E-02	FAIL ABUN
CE-141	1.728E-03	5.674E-02	4.923E-02	2.895E-02	NOT IDENT.
CE-143	5.053E+02	1.696E+02	0.000E+00	8.651E+01	SHORT HLIF
CE-144	-2.330E-02	1.805E-01	1.564E-01	9.207E-02	NOT IDENT.
PM-144	9.246E-03	2.954E-02	2.623E-02	1.507E-02	NOT IDENT.
PR-144	6.265E-01	2.002E+00	1.777E+00	1.021E+00	NOT IDENT.

PM-146	-3.659E-02	3.875E-02	3.071E-02	1.977E-02	NOT IDENT.
ND-147	1.577E-01	4.720E-01	4.072E-01	2.408E-01	FAIL ABUN
PM-149	3.974E+01	7.260E+01	6.587E+01	3.704E+01	NOT IDENT.
EU-152	1.523E-03	1.040E-01	7.436E-02	5.308E-02	FAIL ABUN
GD-153	-1.801E-02	7.523E-02	6.242E-02	3.838E-02	NOT IDENT.
EU-154	-9.278E-02	1.197E-01	9.466E-02	6.109E-02	NOT IDENT.
TB-160	-9.517E-02	1.243E-01	9.749E-02	6.344E-02	FAIL ABUN
HO-166M	5.181E-02	5.496E-02	5.074E-02	2.804E-02	FAIL ABUN
TM-171	1.619E+01	3.225E+01	2.980E+01	1.645E+01	NOT IDENT.
LU-176	1.917E-02	2.290E-02	1.969E-02	1.168E-02	FAIL ABUN
LU-177	1.933E+00	1.290E+00	8.997E-01	6.584E-01	FAIL ABUN
LU-177M	-8.101E-02	1.541E-01	1.279E-01	7.861E-02	FAIL ABUN
HF-181	8.748E-03	3.553E-02	3.071E-02	1.813E-02	NOT IDENT.
W-181	-4.417E-01	4.344E-01	3.790E-01	2.216E-01	NOT IDENT.
TA-182	1.682E-01	1.873E-01	1.717E-01	9.558E-02	FAIL ABUN
RE-183	6.533E-02	9.838E-02	8.581E-02	5.019E-02	FAIL ABUN
RE-184	-8.972E-02	1.883E-01	1.644E-01	9.605E-02	NOT IDENT.
OS-185	-1.086E-03	3.515E-02	3.064E-02	1.793E-02	NOT IDENT.
RE-188	1.114E-01	1.515E-01	1.347E-01	7.728E-02	NOT IDENT.
W-188	1.586E+00	7.008E+00	5.543E+00	3.575E+00	NOT IDENT.
IR-192	5.441E-03	2.826E-02	2.512E-02	1.442E-02	FAIL ABUN
AU-195	1.844E-01	2.063E-01	1.870E-01	1.053E-01	FAIL ABUN
TL-200	3.402E+02	3.343E+02	0.000E+00	1.706E+02	SHORT HLIF
TL-201	7.973E-01	5.868E+00	5.064E+00	2.994E+00	NOT IDENT.
TL-202	7.954E-02	5.870E-02	5.455E-02	2.995E-02	NOT IDENT.
HG-203	3.989E-02	4.107E-02	3.399E-02	2.095E-02	NOT IDENT.
BI-207	1.503E-03	5.664E-02	4.728E-02	2.890E-02	FAIL ABUN
TL-207	2.237E-01	5.997E-01	4.754E-01	3.060E-01	FAIL ABUN
PO-209	7.362E+00	6.782E+00	6.262E+00	3.460E+00	NOT IDENT.
BI-210	4.690E-01	7.766E+00	7.218E+00	3.962E+00	NOT IDENT.
PB-210	4.690E-01	7.766E+00	7.218E+00	3.962E+00	NOT IDENT.
PO-210	4.690E-01	7.766E+00	7.218E+00	3.962E+00	NOT IDENT.
PB-211	-5.696E-01	9.034E-01	6.874E-01	4.609E-01	NOT IDENT.
BI-212	1.502E+00	4.557E-01	3.311E-01	2.325E-01	FAIL ABUN
PO-215	2.237E-01	5.997E-01	4.754E-01	3.060E-01	FAIL ABUN
RN-219	3.311E-01	3.657E-01	3.301E-01	1.866E-01	FAIL ABUN
RN-220	-1.416E+01	2.281E+01	1.812E+01	1.164E+01	NOT IDENT.
RA-223	2.237E-01	5.997E-01	4.754E-01	3.060E-01	FAIL ABUN
AC-227	-2.443E-01	3.208E-01	2.745E-01	1.637E-01	FAIL ABUN
TH-227	-2.443E-01	3.216E-01	2.745E-01	1.641E-01	FAIL ABUN
TH-229	-1.847E-02	4.505E-01	3.815E-01	2.298E-01	FAIL ABUN
PA-231	-9.651E-01	1.353E+00	1.152E+00	6.905E-01	FAIL ABUN
TH-231	2.237E-01	5.997E-01	4.754E-01	3.060E-01	FAIL ABUN
U-231	-7.286E-01	1.019E+00	7.783E-01	5.201E-01	FAIL ABUN
PA-233	-8.433E-03	5.262E-02	4.589E-02	2.685E-02	FAIL ABUN
PA-234	-2.605E-01	3.147E-01	2.429E-01	1.606E-01	FAIL ABUN
PA-234M	2.411E+00	4.558E+00	3.989E+00	2.326E+00	NOT IDENT.
TH-234	5.234E-01	1.656E+00	1.505E+00	8.450E-01	FAIL ABUN
NP-236	-1.713E-02	7.118E-02	6.058E-02	3.632E-02	NOT IDENT.
U-238	5.234E-01	1.656E+00	1.505E+00	8.450E-01	FAIL ABUN
NP-239	5.579E-02	1.714E-01	1.527E-01	8.747E-02	FAIL ABUN
AM-241	-5.604E-02	2.063E-01	1.869E-01	1.053E-01	NOT IDENT.
CM-243	6.001E-02	8.978E-02	8.152E-02	4.581E-02	FAIL ABUN
AM-246	8.477E-02	1.465E-01	1.280E-01	7.474E-02	NOT IDENT.
CM-247	4.278E-02	3.230E-02	2.996E-02	1.648E-02	FAIL ABUN
CF-249	-6.590E-03	3.502E-02	2.993E-02	1.787E-02	NOT IDENT.
CF-251	-1.391E-02	1.158E-01	9.840E-02	5.909E-02	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
*****

```

ENERGY	MDA COUNTS
--------	------------

46.50	287.7430
46.50	287.7430
46.50	287.7430
48.70	290.3883
49.72	263.5348
51.35	297.9755
52.39	283.9287
52.97	281.5612
53.15	288.1976
53.44	279.1054
54.07	260.9121
56.28	310.1256
56.28	310.1281
57.37	0.0000
57.53	304.4924
57.53	304.4937
57.60	301.7236
57.98	306.7036
57.98	306.7036
59.32	335.0542
59.32	335.0542
59.40	335.1174
59.54	335.2284
59.72	334.4264
60.01	346.9437
61.10	376.2603
61.14	376.2946
61.30	354.6255
63.00	329.3585
63.29	355.2937
63.29	355.2937
63.58	355.5270
64.28	381.8644
65.12	404.5811
65.20	404.6526
65.20	404.6526
66.05	422.6676
66.72	358.9797
66.83	353.3068
66.91	353.3686
67.20	343.0238
67.20	343.0238
67.75	347.2822
67.85	347.3575
68.90	409.8662
68.90	409.8662
69.30	413.5003
69.67	416.1477
70.82	437.2046
70.82	437.2046
70.83	437.2138
72.80	393.8043
72.87	393.8619
72.87	393.8619
74.67	426.5556
74.81	426.6778
74.81	426.6778
74.81	426.6778
74.81	426.6778
74.81	426.6778
74.81	426.6778
74.81	426.6778
74.97	426.8156
75.28	427.0846
75.70	427.4469
77.11	428.6582
77.11	428.6582

77.11	428.6582
77.11	428.6582
77.11	428.6582
77.11	428.6582
77.11	428.6582
78.38	367.2955
79.62	363.7543
79.80	391.9866
79.80	391.9866
80.11	392.2252
80.18	349.3492
80.30	390.8881
80.30	390.8881
80.57	391.0935
81.00	492.2401
81.07	492.3059
81.07	492.3059
81.07	492.3059
81.07	492.3059
82.60	400.0583
83.37	396.1750
83.78	411.3910
83.78	411.3910
83.78	411.3910
83.78	411.3910
84.21	392.3309
84.90	421.2207
85.43	463.5029
86.29	510.6675
86.50	510.8678
86.54	510.9042
86.59	510.9510
86.72	511.0759
86.79	511.1384
86.94	511.2815
87.30	240.0574
87.30	240.0574
87.30	240.0574
87.30	240.0574
87.30	240.0574
87.30	240.0574
87.57	240.1758
87.88	240.3125
88.03	240.3784
88.36	240.5237
88.47	240.5713
89.95	413.0863
91.11	290.0654
92.29	319.4395
92.38	319.4910
92.38	319.4910
93.35	283.6359
94.00	283.9597
94.67	310.1338
94.67	310.1369
94.90	322.4285
94.90	322.4285
94.90	322.4285
94.90	322.4285
95.87	332.1111
95.87	332.1111
96.73	347.8621
97.43	306.7289
98.44	271.3495
98.44	271.3495
98.88	276.6569
99.55	298.0235
99.55	298.0235
99.86	312.9042
100.00	312.9789
100.10	313.0334
103.18	285.3321
103.76	301.5572
105.00	302.1682
105.31	357.5237
108.00	275.1351
109.28	307.7822

111.00	345.6830
111.00	345.6830
111.76	325.2460
112.95	325.8474
115.19	302.8688
116.30	266.6388
117.00	291.0918
117.00	291.0918
117.66	336.6146
121.11	300.2867
121.62	275.1180
121.78	269.8908
122.06	282.7070
122.32	297.6435
122.32	297.6435
122.32	297.6435
122.32	297.6435
123.07	311.7574
127.23	305.1020
129.76	301.9171
131.20	361.5318
133.02	292.5389
133.54	295.9780
135.34	281.6057
136.00	284.0204
136.25	281.9561
136.48	273.4013
140.51	314.0035
140.51	0.0000
142.18	314.7032
142.65	293.1050
143.76	283.7138
144.24	292.6261
144.24	292.6261
144.24	292.6261
144.24	292.6261
145.22	302.8419
145.44	318.2398
147.16	315.6621
152.43	268.1395
152.70	268.2309
153.22	284.9747
154.21	276.4791
154.21	276.4791
154.21	276.4791
154.21	276.4791
155.03	274.5498
156.02	322.5499
158.56	304.6600
159.00	0.0000
159.00	285.9120
160.31	290.8266
161.27	295.6288
162.32	256.9110
162.64	257.0093
163.35	270.6498
163.89	294.3260
165.85	295.0162
167.43	276.4647
171.28	298.0366
171.86	286.9411
172.10	285.8912
176.55	282.8125
176.60	283.9635
181.06	287.6810
184.41	283.5988
185.71	293.7578
186.00	293.8516
190.27	236.9843
192.34	285.4782
193.63	256.9382
197.04	282.2616
198.01	259.2933
198.60	243.1657
200.40	254.1138
201.83	266.1670
202.84	251.5454
205.31	224.9453

208.36	241.1576
208.81	250.4392
209.75	247.1469
209.75	247.1469
210.97	264.4183
215.65	239.7272
216.55	239.0527
218.09	270.5645
222.10	254.6479
223.80	253.2754
226.40	237.7584
227.00	239.6893
227.08	246.8899
227.20	245.1235
228.16	238.1567
228.18	238.1608
228.18	238.1608
231.56	0.0000
235.69	237.4917
236.00	237.5618
236.00	237.5618
238.63	220.5321
238.63	220.5321
238.63	220.5321
238.63	220.5321
239.00	220.6062
240.98	221.0067
241.98	221.2088
241.98	221.2088
241.98	221.2088
244.69	201.4948
245.39	192.8550
247.94	189.3218
248.90	185.0352
249.79	190.6836
252.40	180.0983
252.85	186.6048
252.85	186.6048
254.15	0.0000
256.20	203.7479
256.20	203.7479
260.50	181.3754
260.90	191.6209
262.80	213.2596
264.65	177.0713
268.24	190.7750
268.79	193.8479
269.46	193.9558
269.46	193.9558
269.46	193.9558
269.46	193.9558
271.23	188.6414
273.65	183.4091
276.40	201.0851
277.35	195.2349
277.60	193.7740
277.60	193.7740
278.00	192.3344
278.60	177.3976
279.20	188.0127
279.53	183.5510
280.46	185.1967
281.68	176.3369
283.67	200.0213
284.30	185.0211
285.00	169.0689
285.90	168.2466
286.10	178.6727
286.10	178.6727
287.40	166.5549
288.45	0.0000
290.67	170.0289
290.80	160.9357
291.72	183.8456
293.26	0.0000
293.70	190.2222
295.21	179.9734
295.21	179.9734

295.21	179.9734
295.96	180.0801
296.50	180.1550
297.23	180.2589
298.57	180.4492
299.80	180.6222
299.80	180.6222
300.09	180.6626
300.09	180.6626
300.09	180.6626
300.09	180.6626
300.12	180.6655
301.29	180.8299
302.84	191.5863
303.76	161.0453
303.91	161.0658
304.40	150.3831
304.40	150.3831
304.84	142.7605
306.84	146.0532
308.46	158.7410
311.98	145.6615
316.51	137.4477
318.01	129.8493
319.02	131.8870
319.41	147.4448
320.08	150.4306
323.87	130.8029
323.87	130.8029
323.87	130.8029
323.87	130.8029
325.23	138.7279
328.77	154.7165
333.44	117.6050
334.20	129.4380
334.20	129.4380
334.30	129.4460
338.28	147.5166
338.28	147.5166
338.28	147.5166
338.28	147.5166
338.32	147.5212
338.32	147.5212
338.32	147.5212
340.50	146.5681
340.57	146.5749
344.27	150.1190
345.85	150.2860
350.59	0.0000
351.07	139.9178
351.92	140.0017
351.92	140.0017
351.92	140.0017
355.39	0.0000
356.01	135.4169
364.48	149.2183
366.43	129.3602
367.43	140.4849
367.94	0.0000
369.80	144.7273
374.96	133.1219
383.85	132.8830
387.95	134.2538
388.63	118.0320
391.69	138.6542
391.69	138.6542
392.90	141.8209
398.62	162.8163
400.65	124.0630
401.10	129.2261
401.81	114.9189
402.60	105.7363
404.84	144.9480
410.95	122.7968
411.60	130.0721
413.65	132.3027
414.70	125.1487
415.30	112.7788

415.76	111.7755
417.63	0.0000
418.52	125.4404
423.70	118.5540
427.08	103.1633
427.89	108.4275
432.53	110.8183
433.93	101.4921
439.47	85.0280
439.56	87.1325
439.89	78.7491
443.98	112.6181
444.90	109.5177
445.03	109.5272
445.03	109.5272
445.03	109.5272
445.03	109.5272
453.90	123.8483
463.38	103.2312
468.07	124.6311
473.00	108.0677
475.06	108.1909
475.35	107.1365
476.78	87.9208
477.59	93.3230
477.96	93.3429
482.03	88.1748
484.57	110.9086
487.03	105.6667
490.36	0.0000
492.35	99.4823
497.08	99.7336
507.63	0.0000
510.53	0.0000
510.84	113.5651
511.00	113.5746
511.85	117.1200
511.85	117.1200
513.99	78.7505
513.99	78.7505
520.41	76.8188
520.65	76.8274
527.90	77.1136
528.96	0.0000
529.64	93.7210
529.87	0.0000
531.02	80.5455
537.32	76.3742
543.00	87.6913
546.56	0.0000
549.76	93.5554
552.65	76.9575
555.20	94.9220
563.23	84.0843
563.90	69.5324
568.70	92.1749
569.32	97.8246
569.50	97.8325
569.67	97.8405
573.80	106.3729
574.00	106.3815
574.64	105.5142
578.91	79.8235
579.30	0.0000
583.14	77.8703
585.48	74.0284
591.81	61.8226
592.07	61.8309
593.00	70.9541
595.88	91.9998
600.56	73.9402
602.52	0.0000
602.71	99.3698
602.71	99.3698
603.60	105.1256
604.41	103.6408
604.70	103.6546
609.31	104.4842

609.31	104.4842
609.31	104.4842
609.31	104.4842
610.33	85.5814
612.46	68.8367
614.37	88.8007
618.01	86.4933
621.84	83.8773
621.84	83.8773
631.29	94.4123
633.02	88.0002
633.10	88.0049
634.78	81.5805
635.90	91.8239
636.97	80.7320
645.85	72.6623
646.12	72.6699
656.30	81.1019
657.75	74.9102
657.90	0.0000
661.65	93.7939
661.65	93.7939
664.57	0.0000
666.33	68.9183
666.33	68.9183
675.00	52.8227
677.61	77.4315
685.20	83.3615
692.80	83.6236
695.00	76.0918
696.49	76.1367
696.49	76.1367
697.00	80.9139
697.49	74.2638
698.33	75.2429
698.50	78.1062
699.00	72.4060
702.63	83.0090
706.10	78.3484
706.58	0.0000
706.67	74.5437
709.31	82.2774
711.68	70.8637
713.82	74.7589
717.42	70.0682
720.50	57.6614
721.93	0.0000
722.20	52.8918
722.78	46.4913
722.78	46.4913
722.89	46.4937
722.95	46.4949
723.30	49.7090
724.18	43.3092
727.18	67.4502
733.00	38.6318
735.90	61.2382
739.58	59.0669
742.81	61.0805
744.21	63.0544
747.13	65.0682
751.79	70.0506
752.31	72.0109
753.82	69.1314
755.35	72.0940
756.15	73.0920
756.87	68.2380
763.93	84.7137
765.79	73.3612
766.42	81.5328
766.84	78.2832
776.49	85.1178
778.00	92.3729
778.57	77.6499
778.89	75.6916
783.80	62.0448
785.46	66.0251
792.07	55.9791

795.84	67.5993
796.30	57.7153
798.80	79.2266
801.93	104.8135
805.60	66.5175
810.29	95.4727
810.76	89.5210
815.85	54.8080
817.79	65.8163
818.51	75.8089
819.60	69.8513
826.30	59.0158
828.27	0.0000
831.60	66.1434
831.96	55.1262
834.83	88.2922
836.80	0.0000
846.75	55.4163
848.13	50.4028
856.28	0.0000
856.80	67.4072
860.37	65.8046
867.32	57.5064
867.82	52.4412
871.10	55.8876
873.19	53.8941
874.81	64.0982
875.33	0.0000
876.40	43.7737
879.36	65.2172
880.27	53.0055
880.51	53.0093
881.50	57.1061
883.24	60.2013
884.67	56.1467
889.25	58.2789
896.60	47.1489
898.02	50.2477
899.00	70.7806
903.28	52.8311
911.07	62.8258
911.07	62.8258
911.07	62.8258
919.63	60.8241
920.93	51.6650
925.00	50.6999
925.24	50.7035
926.50	49.6887
935.52	55.0263
937.48	73.7613
944.10	68.7151
946.00	82.3000
949.00	66.7375
962.29	50.6143
964.01	62.8667
966.15	62.9092
968.20	62.9502
969.11	62.9678
969.11	62.9678
969.11	62.9678
977.42	64.3024
980.50	46.3418
983.50	56.9281
989.30	48.5819
996.32	64.5638
1001.03	61.4777
1001.68	61.4891
1004.76	70.0364
1021.30	0.0000
1024.50	0.0000
1034.80	55.6842
1036.00	57.8470
1037.82	62.1659
1038.57	58.9639
1038.76	0.0000
1045.16	48.3376
1046.59	52.6583
1048.07	69.8813



1050.47	78.5392
1050.47	78.5392
1062.04	68.0111
1063.62	72.3620
1076.63	72.6368
1077.35	70.4844
1078.86	58.5826
1085.78	59.7856
1099.22	62.1990
1112.02	68.9955
1112.84	74.2445
1115.52	71.2556
1120.29	62.2033
1120.29	62.2033
1120.29	62.2033
1120.29	62.2033
1120.51	59.2813
1121.28	59.2945
1124.00	0.0000
1129.67	55.0305
1131.51	0.0000
1147.95	0.0000
1167.94	64.8816
1173.22	67.7603
1175.09	78.0083
1177.93	78.9992
1189.05	76.4379
1204.90	82.3783
1205.75	0.0000
1213.00	78.8013
1221.42	60.1719
1230.97	60.3203
1235.34	72.7923
1236.41	0.0000
1238.25	66.3705
1246.25	55.3555
1260.41	0.0000
1271.85	49.5265
1274.45	61.9505
1274.54	58.1381
1291.56	45.9453
1298.22	0.0000
1312.09	39.4452
1325.50	33.7838
1325.50	33.7838
1332.49	51.2445
1333.61	44.4895
1360.21	31.1484
1362.66	0.0000
1365.15	28.2613
1368.21	32.1836
1368.53	0.0000
1376.25	32.2440
1384.27	42.0954
1394.10	19.6248
1395.20	22.5742
1407.95	31.5013
1434.06	26.7396
1436.60	30.7187
1457.56	0.0000
1460.81	22.9176
1489.15	18.0491
1509.49	18.1304
1596.49	16.4199
1620.62	15.4712
1678.03	0.0000
1691.02	11.5089
1691.02	11.5089
1706.46	0.0000
1750.46	0.0000
1764.49	10.9177
1764.49	10.9177
1764.49	10.9177
1764.49	10.9177
1770.23	12.7515
1771.40	10.9323
1791.20	0.0000
1808.65	6.4226

1836.01

9.6833

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600001

Total Uranium Activity	1.6783E+00	ug/g
Total Uranium Counting Unc.	4.9279E+00	ug/g
Total Uranium Tpu	2.5142E-06	ug/g
Total Uranium Mda	4.4774E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244600001
*  ANALYST       : MXR1           DETECTOR    : GAM10
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 07:54:51.69  SAMPLE ALQT: 143.190 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.190E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.421E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.109E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.507E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:56:18.66

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600002.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:55:16
Sample ID          : G244600002          Sample quantity   : 1.48330E+02 GRAM
Detector name      : GAM11              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.67 0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity        : 5.00000
Batch ID           : 941635             Detector SN#       :
Matrix Spike ID    :                    LCS ID             : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.24*	83	432	0.96	125.36	122	8	1.16E-02	45.9	
2	3	74.89*	429	383	1.05	148.67	143	16	5.96E-02	8.9	2.42E+00
3	3	77.06*	737	364	0.96	153.03	143	16	1.02E-01	5.7	
4	0	87.09*	146	707	1.03	173.11	167	10	2.03E-02	35.4	
5	0	89.85	168	252	1.33	178.63	177	5	2.34E-02	16.2	
6	0	92.70*	241	388	1.31	184.32	182	8	3.34E-02	16.4	
7	0	129.15	68	333	0.89	257.29	254	8	9.50E-03	47.8	
8	0	185.96*	153	272	1.05	370.99	367	8	2.12E-02	21.6	
9	0	209.39	90	266	0.96	417.89	414	9	1.25E-02	34.5	
10	5	238.67*	1314	150	1.02	476.48	471	18	1.83E-01	3.2	4.48E+00
11	5	241.56*	308	225	1.54	482.26	471	18	4.28E-02	11.2	
12	0	270.38*	109	174	1.45	539.95	536	9	1.52E-02	24.2	
13	1	295.28*	441	113	1.10	589.79	584	19	6.12E-02	6.3	3.45E+00
14	1	300.00	90	124	1.20	599.22	584	19	1.25E-02	22.0	
15	0	328.95	50	180	1.09	657.17	651	10	6.88E-03	52.9	
16	0	338.34	289	198	1.06	675.96	670	12	4.02E-02	11.4	
17	0	351.98*	627	199	1.07	703.25	698	11	8.70E-02	6.0	
18	0	463.10	69	106	0.75	925.63	921	10	9.62E-03	30.2	
19	0	511.13*	115	161	1.93	1021.75	1014	17	1.60E-02	30.2	
20	0	583.54*	351	92	1.23	1166.67	1162	12	4.88E-02	7.9	
21	0	609.62*	469	84	1.15	1218.86	1214	9	6.51E-02	5.9	
22	0	727.51	57	96	0.96	1454.76	1451	10	7.87E-03	34.9	
23	0	769.52	81	90	1.73	1538.82	1531	17	1.12E-02	29.0	
24	0	795.43*	32	37	1.10	1590.67	1588	7	4.38E-03	37.2	
25	0	860.58	88	52	1.39	1721.02	1713	16	1.23E-02	21.1	
26	0	911.86*	236	88	1.96	1823.63	1818	17	3.28E-02	11.2	
27	0	965.09	66	52	1.72	1930.15	1922	13	9.18E-03	25.6	
28	0	969.58*	178	35	1.31	1939.12	1935	12	2.47E-02	10.1	
29	0	1120.78*	97	43	1.64	2241.64	2237	10	1.34E-02	16.7	
30	0	1461.58*	1093	18	1.72	2923.44	2915	18	1.52E-01	3.2	
31	0	1475.48*	6	12	0.67	2951.25	2944	10	8.60E-04	117.8	
32	0	1591.37	27	32	4.54	3183.08	3173	18	3.81E-03	51.7	
33	0	1631.77	18	3	1.02	3263.89	3260	9	2.43E-03	31.8	
34	0	1765.80*	83	11	1.69	3531.98	3525	15	1.15E-02	14.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 09:56:21

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 07:55:16
Sample ID        : G244600002             Sample quantity  : 148.33 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA11                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.67   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	*	2.117E+01	2.271E+00	4.110E-01	3.553E-02	51.502
CD-109	+	88.03	*	1.500E+00	1.071E+00	8.105E-01	7.686E-02	1.850
SN-126	+	64.28		5.131E-01	4.768E-01	4.733E-01	6.866E-02	1.084
	+	86.94		6.130E-01	5.031E-01	3.564E-01	1.480E-01	1.720
	+	87.57	*	1.475E-01	1.053E-01	7.996E-02	7.542E-03	1.844
TL-208		277.35		1.109E-01	3.081E-01	5.066E-01	8.983E-02	0.219
	+	510.84		4.580E-01	2.838E-01	1.695E-01	2.298E-02	2.702
	+	583.14	*	3.971E-01	7.580E-02	4.426E-02	4.780E-03	8.972
	+	860.37		9.305E-01	4.051E-01	3.205E-01	3.338E-02	2.903
BI-211		72.87		4.224E-01	2.138E+00	3.125E+00	2.482E-01	0.135
	+	351.07	*	3.126E+00	5.546E-01	2.375E-01	3.133E-02	13.163
PB-212	+	74.81		1.751E+00	3.809E-01	3.307E-01	4.091E-02	5.293
	+	77.11		1.721E+00	2.434E-01	1.896E-01	1.575E-02	9.080
	+	87.30		6.820E-01	4.917E-01	3.954E-01	5.427E-02	1.725
	+	238.63	*	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
	+	300.09		1.517E+00	7.096E-01	1.012E+00	1.622E-01	1.499
PO-212	+	74.81		1.751E+00	3.809E-01	3.307E-01	4.091E-02	5.293
	+	77.11		1.721E+00	2.434E-01	1.896E-01	1.575E-02	9.080
	+	87.30		6.820E-01	4.917E-01	3.954E-01	5.427E-02	1.725
	+	115.19		5.416E-01	2.329E+00	4.006E+00	3.394E-01	0.135
	+	238.63	*	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
	+	300.09		1.517E+00	7.096E-01	1.012E+00	1.622E-01	1.499
BI-214	+	609.31	*	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
	+	1120.29		1.058E+00	3.721E-01	3.770E-01	4.071E-02	2.808
	+	1764.49		1.241E+00	3.737E-01	2.209E-01	1.820E-02	5.615
PB-214	+	74.81		3.016E+00	6.334E-01	5.698E-01	6.257E-02	5.293
	+	77.11		2.951E+00	4.739E-01	3.250E-01	3.664E-02	9.080
	+	87.30		1.168E+00	8.391E-01	6.774E-01	8.235E-02	1.725
	+	241.98		2.015E+00	5.396E-01	4.010E-01	5.842E-02	5.024
	+	295.21		1.300E+00	2.675E-01	1.694E-01	2.763E-02	7.675
	+	351.92	*	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
PO-214	+	74.81		3.016E+00	6.334E-01	5.698E-01	6.257E-02	5.293
	+	77.11		2.951E+00	4.739E-01	3.250E-01	3.664E-02	9.080
	+	87.30		1.168E+00	8.391E-01	6.774E-01	8.235E-02	1.725

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.015E+00	5.396E-01	4.010E-01	5.842E-02	5.024
	+	295.21		1.300E+00	2.675E-01	1.694E-01	2.763E-02	7.675
	+	351.92	*	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
	+	74.81		1.751E+00	3.809E-01	3.307E-01	4.091E-02	5.293
	+	77.11		1.721E+00	2.434E-01	1.896E-01	1.575E-02	9.080
	+	87.30		6.820E-01	4.917E-01	3.954E-01	5.427E-02	1.725
PO-218	+	238.63	*	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
	+	300.09		1.517E+00	7.096E-01	1.012E+00	1.622E-01	1.499
	+	74.81		3.016E+00	6.334E-01	5.698E-01	6.257E-02	5.293
	+	77.11		2.951E+00	4.739E-01	3.250E-01	3.664E-02	9.080
	+	87.30		1.168E+00	8.391E-01	6.774E-01	8.235E-02	1.725
	+	241.98		2.015E+00	5.396E-01	4.010E-01	5.842E-02	5.024
RA-224	+	295.21		1.300E+00	2.675E-01	1.694E-01	2.763E-02	7.675
	+	351.92	*	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
	+	240.98	*	3.821E+00	1.000E+00	7.578E-01	1.015E-01	5.042
RA-226	+	609.31	*	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
	+	1120.29		1.058E+00	3.721E-01	3.770E-01	4.071E-02	2.808
AC-228	+	1764.49		1.241E+00	3.737E-01	2.209E-01	1.820E-02	5.615
	+	338.32		1.590E+00	7.668E-01	2.551E-01	1.085E-01	6.231
	+	911.07	*	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
RA-228	+	969.11		1.563E+00	4.859E-01	1.776E-01	4.209E-02	8.800
	+	338.32		1.590E+00	7.668E-01	2.551E-01	1.085E-01	6.231
	+	911.07	*	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
TH-228	+	969.11		1.563E+00	4.859E-01	1.776E-01	4.209E-02	8.800
	+	74.81		1.777E+00	3.496E-01	3.356E-01	2.746E-02	5.293
	+	77.11		1.747E+00	2.470E-01	1.924E-01	1.599E-02	9.080
TH-230	+	87.30		6.922E-01	4.942E-01	4.013E-01	3.772E-02	1.725
	+	238.63	*	1.453E+00	2.235E-01	6.755E-02	9.461E-03	21.502
	+	300.09		1.540E+00	1.151E+00	1.027E+00	6.214E-01	1.499
	+	609.31	*	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
	+	1120.29		1.058E+00	3.721E-01	3.769E-01	4.071E-02	2.808
TH-232	+	1764.49		1.241E+00	3.737E-01	2.209E-01	1.820E-02	5.615
	+	338.32		1.590E+00	4.202E-01	2.551E-01	3.440E-02	6.231
	+	911.07	*	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
TH-234	+	969.11		1.563E+00	4.859E-01	1.776E-01	4.209E-02	8.800
	+	63.29	*	1.296E+00	1.211E+00	1.187E+00	2.066E-01	1.092
U-234	+	92.38		1.596E+00	5.996E-01	4.604E-01	8.447E-02	3.467
	+	609.31	*	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
	+	1120.29		1.058E+00	3.721E-01	3.769E-01	4.071E-02	2.808
NP-237	+	1764.49		1.241E+00	3.737E-01	2.209E-01	1.820E-02	5.615
	+	86.50	*	4.330E-01	3.218E-01	2.526E-01	5.717E-02	1.715
U-238	+	95.87		-1.107E-01	7.154E-01	1.009E+00	2.499E-01	-0.110
	+	63.29	*	1.296E+00	1.211E+00	1.187E+00	2.066E-01	1.092
	+	92.38		1.596E+00	5.432E-01	4.604E-01	4.216E-02	3.467
AM-243	+	74.67	*	2.838E-01	5.576E-02	5.374E-02	4.349E-03	5.281
	+	86.72		1.624E+01	1.159E+01	9.455E+00	8.822E-01	1.717
	+	117.66		5.113E-01	2.495E+00	4.282E+00	3.621E-01	0.119
ANH-511	+	142.18		-5.200E+00	1.194E+01	1.971E+01	1.758E+00	-0.264
	+	511.00	*	9.894E-02	6.075E-02	3.662E-02	3.916E-03	2.701

---- 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	*		8.226E-02	2.451E-01	4.186E-01	4.738E-02	0.196
NA-22	1274.54	*		-3.566E-03	3.414E-02	5.484E-02	4.504E-03	-0.065
NA-24	1368.53	*		2.355E-01	3.414E-02	Half-Life too short		
AL-26	1129.67			-6.210E-02	1.243E+00	2.032E+00	1.717E-01	-0.031
	1808.65	*		-2.545E-02	1.994E-02	2.025E-02	1.653E-03	-1.257
TI-44	67.85			-4.245E-03	2.929E-02	4.601E-02	3.486E-03	-0.092
	78.38	*		3.176E-01	4.491E-02	4.745E-02	4.000E-03	6.693
SC-46	889.25	*		1.612E-02	2.989E-02	5.257E-02	5.178E-03	0.307
	1120.51	+		1.808E-01	6.241E-02	1.055E-01	8.998E-03	1.713
V-48	944.10			-1.215E-01	6.341E-01	1.037E+00	1.003E-01	-0.117
	983.50	*		1.769E-02	4.502E-02	7.829E-02	7.426E-03	0.226
	1312.09			-1.276E-02	5.913E-02	9.311E-02	7.677E-03	-0.137
CR-51	320.08	*		5.921E-02	2.710E-01	4.400E-01	6.385E-02	0.135
MN-52	744.21			-1.251E-01	1.920E-01	2.895E-01	2.812E-02	-0.432
	848.13			-1.951E+00	3.973E+00	6.303E+00	6.210E-01	-0.310
	935.52			4.962E-02	1.919E-01	3.281E-01	3.185E-02	0.151
	1246.25			1.139E+00	5.416E+00	9.015E+00	7.359E-01	0.126
	1333.61			2.037E+00	3.740E+00	6.483E+00	5.358E-01	0.314
	1434.06	*		1.058E-01	1.632E-01	2.899E-01	2.429E-02	0.365
MN-54	834.83	*		4.204E-04	2.752E-02	4.647E-02	4.576E-03	0.009
CO-56	846.75	*		-1.351E-02	2.538E-02	4.022E-02	3.963E-03	-0.336
	977.42			2.084E+00	2.083E+00	3.675E+00	3.497E-01	0.567
	1037.82			-1.289E-01	2.376E-01	3.704E-01	3.554E-02	-0.348
	1175.09			-5.594E-01	1.738E+00	2.753E+00	2.213E-01	-0.203
	1238.25			9.136E-02	6.938E-02	1.254E-01	1.055E-02	0.729
	1360.21			-1.929E-01	7.601E-01	1.182E+00	9.813E-02	-0.163
	1771.40			5.283E-03	1.824E-01	2.612E-01	2.149E-02	0.020
CO-57	122.06	*		2.270E-03	1.703E-02	2.909E-02	2.461E-03	0.078
	136.48			5.328E-02	1.416E-01	2.428E-01	2.281E-02	0.219
CO-58	810.76	*		-4.017E-03	3.113E-02	4.877E-02	4.802E-03	-0.082
FE-59	142.65			2.620E-01	1.906E+00	3.146E+00	2.810E-01	0.083
	192.34			-3.219E-01	6.946E-01	1.121E+00	1.682E-01	-0.287
	1099.22	*		-4.703E-02	7.097E-02	1.086E-01	1.021E-02	-0.433
	1291.56			-8.207E-03	9.885E-02	1.590E-01	1.501E-02	-0.052
CO-60	1173.22			8.518E-03	3.404E-02	5.718E-02	4.594E-03	0.149
	1332.49	*		5.875E-03	3.143E-02	5.212E-02	4.307E-03	0.113
ZN-65	1115.52	*		-3.180E-02	8.033E-02	1.079E-01	9.260E-03	-0.295
GE-68	1077.35	*		-1.349E-01	1.067E+00	1.741E+00	1.546E-01	-0.077
AS-73	53.44	*		-3.163E-01	4.620E-01	7.116E-01	5.344E-02	-0.444
AS-74	595.88	*		-2.257E-02	7.210E-02	1.152E-01	1.172E-02	-0.196
	634.78			-1.405E-01	2.717E-01	4.219E-01	4.127E-02	-0.333
SE-75	66.05			4.546E-01	3.194E+00	4.673E+00	4.440E-01	0.097
	96.73			-1.358E-01	6.008E-01	8.436E-01	1.166E-01	-0.161
	121.11			1.812E-02	9.142E-02	1.566E-01	1.737E-02	0.116
	136.00			1.314E-02	2.628E-02	4.531E-02	3.989E-03	0.290
	198.60			8.115E-01	1.284E+00	2.138E+00	2.558E-01	0.379
	264.65	*		3.762E-04	3.233E-02	5.244E-02	7.708E-03	0.007
	279.53			9.562E-03	8.654E-02	1.406E-01	2.202E-02	0.068
	303.91			2.666E-01	1.854E+00	2.681E+00	4.457E-01	0.099



----- 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		2.020E-01	1.892E-01	3.383E-01	4.327E-02	0.597
		87.88		2.981E+02	2.129E+02	2.055E+02	1.946E+01	1.451
		200.40		-6.476E+01	1.057E+02	1.685E+02	1.906E+01	-0.384
	+	239.00		2.114E+02	3.111E+01	2.920E+01	3.881E+00	7.238
		249.79		3.388E+01	4.505E+01	7.614E+01	1.056E+01	0.445
		281.68		-2.457E+01	6.474E+01	1.019E+02	1.571E+01	-0.241
		297.23		5.836E+01	4.150E+01	7.031E+01	1.055E+01	0.830
		303.76		1.008E+02	1.402E+02	2.115E+02	3.131E+01	0.477
		439.47		-8.259E+00	8.802E+01	1.467E+02	1.583E+01	-0.056
		484.57		-4.418E+01	1.508E+02	2.455E+02	2.643E+01	-0.180
		520.65	*	-4.116E+00	6.893E+00	1.082E+01	1.153E+00	-0.380
		574.64		-1.733E+01	1.380E+02	2.245E+02	2.321E+01	-0.077
		578.91		5.310E+00	6.491E+01	9.455E+01	9.746E+00	0.056
		585.48		8.522E+02	1.852E+02	3.288E+02	3.372E+01	2.592
		755.35		1.898E+01	1.155E+02	1.888E+02	1.839E+01	0.101
SR-82		817.79		-5.771E+01	9.640E+01	1.435E+02	1.411E+01	-0.402
		698.33		2.064E+01	2.660E+01	4.583E+01	4.396E+00	0.450
		776.49	*	5.525E-02	3.184E-01	4.570E-01	4.470E-02	0.121
RB-83		1395.20		3.446E+00	7.416E+00	1.287E+01	1.074E+00	0.268
		520.41	*	-2.195E-02	4.864E-02	7.743E-02	8.251E-03	-0.284
		529.64		5.839E-03	7.307E-02	1.218E-01	1.293E-02	0.048
		552.65		-6.695E-02	1.460E-01	2.313E-01	2.426E-02	-0.289
RB-84		881.50	*	3.931E-02	5.008E-02	9.017E-02	8.884E-03	0.436
KR-85		513.99	*	8.559E+00	5.954E+00	9.799E+00	1.047E+00	0.873
SR-85		513.99	*	4.375E-02	3.044E-02	5.009E-02	5.351E-03	0.873
RB-86		1076.63	*	-5.364E-01	6.868E-01	1.048E+00	9.311E-02	-0.512
Y-88		898.02		-1.125E-02	3.122E-02	5.048E-02	4.989E-03	-0.223
		1836.01	*	1.577E-02	2.390E-02	4.471E-02	3.630E-03	0.353
ZR-88		392.90	*	8.418E-03	2.174E-02	3.770E-02	4.021E-03	0.223
Y-91		1204.90	*	-4.317E+00	1.599E+01	2.549E+01	2.064E+00	-0.169
NB-94		702.63	*	-3.366E-02	2.763E-02	3.947E-02	3.791E-03	-0.853
		871.10		-7.497E-03	2.453E-02	3.994E-02	3.936E-03	-0.188
NB-95		765.79	*	5.653E-03	3.572E-02	5.115E-02	4.993E-03	0.111
NB-95M		235.69	*	1.339E-02	9.649E-02	1.422E-01	1.986E-02	0.094
ZR-95		724.18		-1.474E-02	7.905E-02	1.087E-01	1.123E-02	-0.136
		756.15	*	2.003E-02	5.362E-02	8.941E-02	9.408E-03	0.224
NB-97		657.90	*	4.772E-03	5.362E-02	Half-Life	too short	
		1024.50		-3.859E+00	5.362E-02	Half-Life	too short	
ZR-97		254.15		-8.939E-01	5.362E-02	Half-Life	too short	
		355.39		-9.983E-01	5.362E-02	Half-Life	too short	
		507.63	*	1.291E+00	5.362E-02	Half-Life	too short	
		602.52		-2.826E+00	5.362E-02	Half-Life	too short	
		1021.30		6.801E-01	5.362E-02	Half-Life	too short	
		1147.95		9.645E-01	5.362E-02	Half-Life	too short	
		1362.66		-3.652E+00	5.362E-02	Half-Life	too short	
		1750.46		2.112E+00	5.362E-02	Half-Life	too short	
MO-99		140.51		-7.901E+00	1.724E+01	2.771E+01	7.694E+00	-0.285
		181.06		-3.816E+00	1.184E+01	1.841E+01	3.532E+00	-0.207
		366.43		-5.123E+01	6.209E+01	9.130E+01	1.106E+01	-0.561

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	739.58	*		5.993E+00	8.406E+00	1.439E+01	2.277E+00	0.417
	778.00			-3.531E+01	2.645E+01	3.413E+01	3.340E+00	-1.034
TC-99M	140.51	*		-5.587E+09	2.645E+01	Half-Life	too short	
RH-101	127.23			1.689E-02	2.336E-02	3.704E-02	3.164E-03	0.456
	198.01	*		1.805E-02	2.384E-02	3.992E-02	4.468E-03	0.452
	325.23			-3.393E-02	1.867E-01	2.605E-01	3.656E-02	-0.130
RH-102	418.52			8.820E-03	2.099E-01	3.547E-01	3.813E-02	0.025
	475.06	*		-2.336E-02	2.302E-02	3.535E-02	3.811E-03	-0.661
	631.29			-1.329E-02	4.136E-02	6.552E-02	6.434E-03	-0.203
	697.49			-1.694E-02	6.329E-02	1.001E-01	9.601E-03	-0.169
	766.84			6.286E-02	1.016E-01	1.525E-01	1.489E-02	0.412
	1046.59			-8.878E-03	9.068E-02	1.486E-01	1.353E-02	-0.060
	1112.84			3.246E-02	1.720E-01	2.885E-01	2.480E-02	0.112
RU-103	497.08	*		1.644E-02	2.887E-02	5.003E-02	7.776E-03	0.329
	610.33	+		1.072E+01	2.265E+00	2.516E+00	4.393E-01	4.260
RH-106	511.85	+		4.939E-01	3.033E-01	3.515E-01	3.758E-02	1.405
	621.84	*		4.687E-02	2.284E-01	3.804E-01	5.414E-02	0.123
	1050.47			1.007E+00	1.800E+00	3.137E+00	2.848E-01	0.321
RU-106	511.85	+		4.939E-01	3.033E-01	3.515E-01	3.758E-02	1.405
	621.84	*		4.687E-02	2.283E-01	3.804E-01	3.774E-02	0.123
	1050.47			1.007E+00	1.800E+00	3.137E+00	2.848E-01	0.321
AG-108M	433.93	*		6.129E-03	2.204E-02	3.780E-02	4.179E-03	0.162
	614.37			2.453E-02	3.164E-02	4.943E-02	5.086E-03	0.496
	722.95			-1.968E-02	3.480E-02	4.506E-02	4.490E-03	-0.437
AG-110M	657.75	*		1.472E-02	2.526E-02	4.328E-02	4.218E-03	0.340
	677.61			-7.259E-02	2.359E-01	3.717E-01	3.620E-02	-0.195
	706.67			1.810E-01	1.577E-01	2.798E-01	2.750E-02	0.647
	763.93			3.762E-02	1.320E-01	1.927E-01	1.922E-02	0.195
	884.67			-2.349E-02	3.673E-02	5.757E-02	5.812E-03	-0.408
	937.48			-2.475E-02	8.366E-02	1.356E-01	1.354E-02	-0.182
	1384.27			-3.624E-02	1.298E-01	2.009E-01	1.725E-02	-0.180
IN-111	171.28			-3.487E-02	6.406E-01	1.065E+00	1.060E-01	-0.033
	245.39	*		-3.165E-01	8.152E-01	1.148E+00	1.565E-01	-0.276
IN-113M	391.69	*		-1.192E-02	3.182E-02	5.249E-02	5.709E-03	-0.227
SN-113	391.69	*		-1.192E-02	3.182E-02	5.249E-02	5.709E-03	-0.227
IN-114M	190.27	*		6.301E-02	1.392E-01	2.250E-01	2.435E-02	0.280
CD-115	260.90			-3.790E+01	8.871E+01	1.399E+02	2.023E+01	-0.271
	492.35			-4.474E+00	2.241E+01	3.667E+01	3.941E+00	-0.122
	527.90	*		-3.941E+00	7.071E+00	1.113E+01	1.182E+00	-0.354
SN-117M	156.02			-1.230E-01	1.601E+00	2.674E+00	2.504E-01	-0.046
	158.56	*		-1.997E-02	3.772E-02	6.153E-02	5.815E-03	-0.325
SB-122	563.90	*		-4.641E-02	1.437E+00	2.363E+00	2.461E-01	-0.020
	692.80			4.413E+00	3.139E+01	5.151E+01	4.930E+00	0.086
I-123	159.00	*		-6.667E-01	3.139E+01	Half-Life	too short	
	528.96			1.139E+02	3.139E+01	Half-Life	too short	
TE-123M	159.00	*		-4.730E-03	1.944E-02	3.217E-02	3.061E-03	-0.147
I-124	602.71	*		-3.074E-01	4.431E-01	6.782E-01	6.855E-02	-0.453
	722.78			-2.008E+00	3.462E+00	4.472E+00	4.321E-01	-0.449
	1325.50			-8.882E+00	2.441E+01	3.746E+01	3.094E+00	-0.237

## ---- 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		5.690E+00	2.370E+01	3.943E+01	3.282E+00	0.144
		1509.49		7.726E+00	1.077E+01	1.983E+01	1.669E+00	0.390
		1691.02		-2.047E+00	2.339E+00	3.023E+00	2.521E-01	-0.677
		602.71		-1.867E-02	2.692E-02	4.120E-02	4.165E-03	-0.453
		645.85		-1.991E-01	3.681E-01	5.676E-01	5.744E-02	-0.351
		709.31		-9.924E-01	2.166E+00	3.349E+00	3.223E-01	-0.296
		713.82		5.200E-03	1.309E+00	2.117E+00	2.707E-01	0.002
		722.78		-1.768E-01	3.049E-01	3.939E-01	3.871E-02	-0.449
	+	968.20		1.604E+01	3.572E+00	5.964E+00	5.704E-01	2.689
		1045.16		-7.072E-01	1.990E+00	3.177E+00	2.895E-01	-0.223
		1325.50		-8.355E-01	2.295E+00	3.524E+00	2.910E-01	-0.237
		1368.21		1.985E-01	1.486E+00	2.442E+00	3.244E-01	0.081
		1436.60		-5.452E-01	2.857E+00	4.449E+00	3.728E-01	-0.123
		1691.02	*	-4.251E-02	4.860E-02	6.280E-02	5.457E-03	-0.677
SB-125		427.89	*	1.343E-02	6.651E-02	1.135E-01	1.237E-02	0.118
	+	463.38		5.368E-01	3.299E-01	4.392E-01	4.980E-02	1.222
		600.56		-7.477E-03	1.263E-01	2.060E-01	2.199E-02	-0.036
		635.90		2.643E-02	2.043E-01	3.374E-01	3.505E-02	0.078
TE-125M		109.28	*	6.874E+00	6.253E+00	1.107E+01	1.136E+00	0.621
	I-126	388.63		8.694E-03	1.454E-01	2.473E-01	2.683E-02	0.035
SB-126		666.33	*	1.991E-02	1.515E-01	2.489E-01	2.360E-02	0.080
		753.82		1.861E-01	1.062E+00	1.740E+00	1.694E-01	0.107
		223.80		1.372E+00	3.035E+00	5.082E+00	6.348E-01	0.270
		278.60		1.972E+00	1.934E+00	3.265E+00	5.044E-01	0.604
	+	296.50		1.274E+01	2.497E+00	2.926E+00	4.396E-01	4.354
		414.70		-1.726E-02	5.271E-02	8.680E-02	9.323E-03	-0.199
		415.30		-2.983E+00	4.463E+00	7.156E+00	7.687E-01	-0.417
		555.20		5.907E-01	2.769E+00	4.653E+00	4.874E-01	0.127
		573.80		-3.226E-01	7.538E-01	1.193E+00	1.235E-01	-0.270
		593.00		3.739E-01	6.887E-01	1.181E+00	1.203E-01	0.317
		656.30		-2.755E-02	2.451E+00	3.986E+00	3.798E-01	-0.007
		666.33		8.316E-03	6.328E-02	1.040E-01	9.855E-03	0.080
		675.00		9.222E-01	1.530E+00	2.613E+00	2.486E-01	0.353
		695.00		1.366E-02	6.429E-02	9.917E-02	9.500E-03	0.138
		697.00		-1.900E-01	2.387E-01	3.372E-01	3.233E-02	-0.563
		720.50	*	-2.712E-02	1.071E-01	1.686E-01	1.628E-02	-0.161
		856.80		3.190E-01	3.204E-01	5.381E-01	5.303E-02	0.593
		989.30		1.347E-03	8.544E-01	1.421E+00	1.344E-01	0.001
SB-127		1034.80		7.488E+00	6.311E+00	1.167E+01	1.072E+00	0.642
		1213.00		1.074E+00	4.047E+00	6.758E+00	5.481E-01	0.159
		61.10		5.788E+00	3.304E+01	4.890E+01	4.891E+00	0.118
		252.40		4.293E-01	2.995E+00	4.904E+00	2.130E+00	0.088
		290.80		-1.750E+01	1.780E+01	2.300E+01	3.842E+00	-0.761
		411.60		7.015E+00	8.722E+00	1.532E+01	2.592E+00	0.458
		444.90		-1.618E+00	6.884E+00	1.135E+01	1.594E+00	-0.143
		473.00		4.852E-01	1.221E+00	2.094E+00	3.002E-01	0.232
		543.00		1.938E+00	1.112E+01	1.864E+01	2.902E+00	0.104
		603.60		-4.730E+00	8.238E+00	1.164E+01	1.572E+00	-0.406
		685.20	*	-4.643E-01	9.841E-01	1.521E+00	1.828E-01	-0.305

---- 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		9.121E+00	1.143E+01	1.962E+01	3.201E+00	0.465
		722.20		2.797E-01	2.221E+01	3.318E+01	3.950E+00	0.008
		783.80		1.610E+00	2.762E+00	4.657E+00	6.140E-01	0.346
		57.60		-2.910E+00	3.402E+00	5.172E+00	3.723E-01	-0.563
		145.22		1.062E-02	5.059E-01	8.316E-01	7.491E-02	0.013
		172.10		-1.135E-02	8.146E-02	1.348E-01	1.346E-02	-0.084
I-131		202.84	*	-1.056E-02	3.258E-02	5.282E-02	6.036E-03	-0.200
		374.96		8.686E-02	1.574E-01	2.585E-01	3.010E-02	0.336
		80.18		2.857E+00	3.006E+00	4.556E+00	3.946E-01	0.627
		284.30		5.944E-01	1.107E+00	1.840E+00	2.873E-01	0.323
		364.48	*	2.446E-02	8.226E-02	1.333E-01	1.673E-02	0.183
		636.97		4.284E-01	1.182E+00	1.989E+00	2.026E-01	0.215
TE-132		722.89		-3.262E+00	5.715E+00	7.394E+00	7.180E-01	-0.441
		49.72		-7.006E-01	9.517E+00	1.521E+01	1.558E+00	-0.046
		111.76		-3.841E+00	1.870E+01	3.133E+01	3.348E+00	-0.123
		116.30		7.068E+00	1.710E+01	2.959E+01	3.153E+00	0.239
		228.16	*	-1.598E-01	4.561E-01	7.303E-01	1.332E-01	-0.219
		53.15		-9.475E-01	1.985E+00	3.095E+00	2.333E-01	-0.306
BA-133		79.62		1.398E-01	8.924E-01	1.298E+00	1.972E-01	0.108
		81.00		4.358E-02	6.707E-02	9.971E-02	1.587E-02	0.437
		276.40		2.655E-01	3.062E-01	5.113E-01	9.825E-02	0.519
		302.84		2.152E-02	1.263E-01	1.830E-01	3.285E-02	0.118
		356.01	*	-7.590E-03	3.816E-02	5.268E-02	8.496E-03	-0.144
		383.85		-1.577E-02	2.141E-01	3.612E-01	5.216E-02	-0.044
I-133	+	510.53		8.002E-01	2.141E-01	Half-Life	too short	
		529.87	*	4.729E-04	2.141E-01	Half-Life	too short	
		706.58		2.884E-01	2.141E-01	Half-Life	too short	
		856.28		2.056E-01	2.141E-01	Half-Life	too short	
		875.33		4.754E-03	2.141E-01	Half-Life	too short	
		1236.41		2.172E-01	2.141E-01	Half-Life	too short	
CS-134		1298.22		1.378E-01	2.141E-01	Half-Life	too short	
		475.35		-8.860E-01	1.470E+00	2.340E+00	2.523E-01	-0.379
		563.23		1.938E-01	2.632E-01	4.586E-01	4.811E-02	0.423
		569.32		-1.278E-02	1.594E-01	2.601E-01	2.725E-02	-0.049
		604.70		-7.286E-04	2.507E-02	3.588E-02	3.627E-03	-0.020
	+	795.84	*	5.108E-02	3.838E-02	6.991E-02	6.896E-03	0.731
CS-135		801.93		-6.618E-02	3.382E-01	5.345E-01	5.270E-02	-0.124
		1038.57		-8.838E-01	2.914E+00	4.668E+00	4.275E-01	-0.189
		1167.94		6.268E-01	1.933E+00	3.269E+00	2.643E-01	0.192
		1365.15		6.129E-01	9.771E-01	1.712E+00	1.492E-01	0.358
		268.24	*	4.251E-02	1.282E-01	1.898E-01	2.979E-02	0.224
	I-135	288.45		3.108E+09	1.282E-01	Half-Life	too short	
I-135		417.63		8.088E+09	1.282E-01	Half-Life	too short	
		546.56		4.862E+08	1.282E-01	Half-Life	too short	
		836.80		-2.002E+09	1.282E-01	Half-Life	too short	
		1038.76		6.114E+08	1.282E-01	Half-Life	too short	
		1124.00		1.173E+10	1.282E-01	Half-Life	too short	
		1131.51		-1.281E+09	1.282E-01	Half-Life	too short	
		1260.41	*	5.147E+08	1.282E-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		2.995E+10	1.282E-01	Half-Life	too short	
		1678.03		2.753E+09	1.282E-01	Half-Life	too short	
		1706.46		-3.000E+09	1.282E-01	Half-Life	too short	
		1791.20		-4.443E+08	1.282E-01	Half-Life	too short	
		66.91		4.279E-01	5.135E-01	7.732E-01	1.148E-01	0.553
	+	86.29		1.895E+00	1.365E+00	1.291E+00	1.718E-01	1.468
		153.22		6.154E-02	4.769E-01	8.043E-01	8.218E-02	0.077
		163.89		2.655E-01	7.302E-01	1.240E+00	1.312E-01	0.214
		176.55		1.980E-02	2.606E-01	4.352E-01	4.617E-02	0.045
		273.65		-4.779E-03	3.740E-01	5.386E-01	8.350E-02	-0.009
		340.57		2.162E-01	1.125E-01	1.789E-01	2.423E-02	1.208
		818.51		1.265E-02	5.637E-02	9.222E-02	9.075E-03	0.137
		1048.07	*	2.428E-02	8.407E-02	1.430E-01	1.350E-02	0.170
		1235.34		-4.166E-01	4.622E-01	6.861E-01	7.896E-02	-0.607
BA-137M		661.65	*	-2.170E-02	2.832E-02	4.279E-02	4.049E-03	-0.507
CS-137		661.65	*	-2.294E-02	2.994E-02	4.524E-02	4.287E-03	-0.507
CE-139		165.85	*	-7.154E-03	2.030E-02	3.330E-02	3.236E-03	-0.215
BA-140		162.64		4.347E-01	5.044E-01	8.740E-01	8.784E-02	0.497
		304.84		-7.542E-01	1.028E+00	1.530E+00	4.663E-01	-0.493
		423.70		8.767E-01	1.401E+00	2.407E+00	7.955E-01	0.364
LA-140		537.32	*	7.820E-02	1.925E-01	3.258E-01	1.098E-01	0.240
	+	328.77		3.318E-01	3.543E-01	4.145E-01	5.884E-02	0.801
		432.53		-3.918E-02	1.378E+00	2.312E+00	2.570E-01	-0.017
		487.03		7.485E-02	9.326E-02	1.648E-01	1.845E-02	0.454
		751.79		-8.210E-01	1.283E+00	1.923E+00	2.030E-01	-0.427
		815.85		-3.345E-03	2.379E-01	3.796E-01	4.067E-02	-0.009
		867.82		1.798E-01	1.066E+00	1.667E+00	1.710E-01	0.108
		919.63		7.321E-01	2.226E+00	3.394E+00	3.937E-01	0.216
		925.24		-1.318E-01	8.248E-01	1.357E+00	1.388E-01	-0.097
		1596.49	*	-4.226E-02	8.293E-02	1.060E-01	8.915E-03	-0.399
CE-141		145.44	*	-5.646E-03	4.528E-02	7.389E-02	6.773E-03	-0.076
CE-143		57.37		-4.407E-04	4.528E-02	Half-Life	too short	
		231.56		-1.371E-04	4.528E-02	Half-Life	too short	
		293.26	*	1.988E-04	4.528E-02	Half-Life	too short	
	+	350.59		2.144E-02	4.528E-02	Half-Life	too short	
		490.36		-1.291E-03	4.528E-02	Half-Life	too short	
		664.57		3.680E-04	4.528E-02	Half-Life	too short	
		721.93		-4.118E-05	4.528E-02	Half-Life	too short	
CE-144		80.11		1.354E+00	1.417E+00	2.149E+00	1.848E-01	0.630
		133.54	*	-1.251E-01	1.556E-01	2.234E-01	3.485E-02	-0.560
PM-144		476.78		4.822E-03	5.245E-02	8.813E-02	1.008E-02	0.055
		618.01		-1.164E-02	2.324E-02	3.620E-02	3.680E-03	-0.321
		696.49	*	-1.851E-02	3.048E-02	4.374E-02	4.193E-03	-0.423
		778.57		-2.005E+00	1.801E+00	2.528E+00	2.474E-01	-0.793
PR-144		696.49	*	-1.254E+00	2.065E+00	2.964E+00	2.840E-01	-0.423
		1489.15		-6.634E-02	8.822E+00	1.478E+01	1.243E+00	-0.004
PM-146		453.90	*	2.819E-03	2.943E-02	4.967E-02	6.228E-03	0.057
		633.02		-3.815E-02	1.017E+00	1.654E+00	6.230E-01	-0.023
		735.90		-1.842E-02	1.194E-01	1.895E-01	5.485E-02	-0.097

---- 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		3.465E-02	7.032E-02	1.184E-01	1.745E-02	0.293
		91.11		5.616E-01	1.909E-01	3.034E-01	3.007E-02	1.851
		319.41		8.641E-01	2.415E+00	3.956E+00	5.639E-01	0.218
		439.89		2.918E+00	3.828E+00	6.779E+00	7.313E-01	0.430
PM-149	*	531.02		-3.067E-01	3.986E-01	6.103E-01	9.874E-02	-0.502
		285.90		-1.228E+01	6.675E+01	1.063E+02	2.132E+01	-0.116
		121.78		-2.824E-03	4.936E-02	8.365E-02	8.182E-03	-0.034
		244.69		1.185E-01	2.593E-01	3.900E-01	5.301E-02	0.304
EU-152	*	344.27		-1.244E-02	7.785E-02	1.161E-01	1.574E-02	-0.107
		443.98		-2.761E-01	7.006E-01	1.141E+00	1.231E-01	-0.242
		778.89		-1.594E-01	2.080E-01	3.060E-01	2.994E-02	-0.521
		867.32		2.195E-01	6.697E-01	1.026E+00	1.011E-01	0.214
	+	964.01		6.674E-01	3.480E-01	4.713E-01	4.517E-02	1.416
		1085.78		-2.634E-02	2.895E-01	4.727E-01	4.167E-02	-0.056
		1112.02		1.390E-01	2.358E-01	4.110E-01	3.535E-02	0.338
		1407.95		4.863E-02	1.630E-01	2.724E-01	2.276E-02	0.179
GD-153		69.67		3.418E-01	1.131E+00	1.670E+00	1.286E-01	0.205
		83.37		-2.862E+00	1.124E+01	1.592E+01	1.424E+00	-0.180
		97.43	*	-6.008E-02	6.564E-02	8.794E-02	7.812E-03	-0.683
		103.18		-2.614E-02	6.913E-02	1.166E-01	1.011E-02	-0.224
EU-154		123.07		1.207E-02	3.541E-02	6.094E-02	6.854E-03	0.198
		247.94		-2.366E-02	2.673E-01	4.330E-01	6.803E-02	-0.055
		591.81		1.828E-01	4.635E-01	7.856E-01	1.012E-01	0.233
		723.30		-1.591E-01	1.607E-01	1.956E-01	2.051E-02	-0.813
		756.87		1.832E-01	5.880E-01	9.743E-01	1.248E-01	0.188
		873.19		6.534E-02	2.112E-01	3.654E-01	4.803E-02	0.179
		996.32		-1.731E-01	2.820E-01	4.362E-01	7.924E-02	-0.397
		1004.76		-7.602E-02	1.780E-01	2.835E-01	3.460E-02	-0.268
EU-155	*	1274.45		-1.184E-02	9.517E-02	1.525E-01	1.677E-02	-0.078
		48.70		-7.450E-01	1.297E+00	2.019E+00	1.633E-01	-0.369
		60.01		1.814E+00	3.012E+00	4.572E+00	3.262E-01	0.397
		86.54		1.776E-01	1.268E-01	1.267E-01	1.190E-02	1.402
TB-160	+	105.31	*	1.088E-01	7.296E-02	1.309E-01	1.142E-02	0.832
		86.79		4.731E-01	3.378E-01	3.385E-01	3.161E-02	1.398
		197.04		-1.628E-01	4.213E-01	6.700E-01	7.467E-02	-0.243
		215.65		3.938E-01	5.485E-01	9.307E-01	1.124E-01	0.423
	+	298.57		2.201E-01	1.022E-01	1.450E-01	2.170E-02	1.518
		879.36	*	-1.178E-02	9.818E-02	1.629E-01	1.605E-02	-0.072
		962.29		2.968E-01	4.489E-01	7.028E-01	6.741E-02	0.422
		966.15		4.571E-01	2.383E-01	3.208E-01	3.071E-02	1.425
HO-166M	+	1177.93		1.356E-01	2.736E-01	4.701E-01	3.781E-02	0.289
		1271.85		2.424E-01	5.079E-01	8.734E-01	7.161E-02	0.278
		80.57		1.725E-01	1.817E-01	2.753E-01	2.381E-02	0.626
		184.41		6.678E-03	2.882E-02	4.553E-02	4.801E-03	0.147
		280.46		-3.109E-02	6.777E-02	1.061E-01	1.640E-02	-0.293
		410.95		2.536E-01	1.841E-01	3.335E-01	3.579E-02	0.760
		711.68	*	-3.738E-03	4.724E-02	7.583E-02	7.303E-03	-0.049
		752.31		-1.101E-01	2.065E-01	3.132E-01	3.049E-02	-0.352
		810.29		6.255E-03	4.570E-02	7.365E-02	7.237E-03	0.085

----- 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		2.101E+00	1.685E+01	2.717E+01	2.101E+00	0.077
		52.39		8.741E+00	8.588E+00	1.441E+01	1.098E+00	0.606
		59.40		9.617E+00	1.609E+01	2.444E+01	1.738E+00	0.394
		66.72	*	1.670E+01	1.886E+01	2.863E+01	2.149E+00	0.583
LU-176	+	88.36		3.497E-01	2.497E-01	2.303E-01	2.177E-02	1.519
		201.83		-1.471E-02	1.982E-02	3.131E-02	3.563E-03	-0.470
		306.84	*	1.095E-02	1.893E-02	3.142E-02	4.619E-03	0.349
		401.10		4.383E+00	5.037E+00	8.933E+00	9.556E-01	0.491
LU-177		112.95		-5.800E-01	1.064E+00	1.755E+00	1.490E-01	-0.331
	+	208.36	*	1.682E+00	1.178E+00	1.411E+00	1.651E-01	-1.192
LU-177M		52.97		-2.493E-01	9.040E-01	1.426E+00	1.077E-01	-0.175
		54.07		-3.451E-01	4.777E-01	7.338E-01	5.467E-02	-0.470
		61.30		1.314E-01	8.971E-01	1.325E+00	9.542E-02	0.099
		121.62		-2.438E-02	2.523E-01	4.268E-01	3.606E-02	-0.057
		147.16		1.854E-01	4.566E-01	7.805E-01	7.078E-02	0.237
		171.86		-3.358E-02	3.302E-01	5.476E-01	5.462E-02	-0.061
		218.09		-3.907E-01	6.347E-01	1.006E+00	1.227E-01	-0.388
		268.79		7.351E-01	6.789E-01	1.048E+00	1.562E-01	0.702
		319.02		2.470E-02	1.922E-01	3.101E-01	4.426E-02	0.080
		367.43		-3.970E-01	6.941E-01	1.045E+00	1.260E-01	-0.380
		413.65	*	-5.935E-02	1.312E-01	2.143E-01	2.301E-02	-0.277
HF-181		56.28		6.379E-02	5.101E-01	8.192E-01	5.963E-02	0.078
		57.53		-2.607E-01	2.858E-01	4.329E-01	3.118E-02	-0.602
		65.20		-8.721E-01	6.439E-01	8.592E-01	6.369E-02	-1.015
		133.02		-1.161E-02	4.766E-02	7.142E-02	6.192E-03	-0.163
		136.25		9.592E-02	3.084E-01	5.276E-01	4.618E-02	0.182
		345.85		2.637E-02	1.432E-01	2.307E-01	3.033E-02	0.114
		482.03	*	-1.693E-02	3.072E-02	4.892E-02	5.269E-03	-0.346
W-181		56.28		2.510E-02	2.003E-01	3.217E-01	2.341E-02	0.078
		57.53		-1.026E-01	1.123E-01	1.701E-01	1.225E-02	-0.603
		65.20	*	-3.400E-01	2.510E-01	3.349E-01	2.483E-02	-1.015
TA-182		67.75		-9.034E-03	6.980E-02	1.097E-01	8.307E-03	-0.082
		100.10		6.616E-02	1.169E-01	2.047E-01	1.796E-02	0.323
		152.43		5.112E-03	2.386E-01	4.007E-01	3.703E-02	0.013
		222.10		1.355E-01	2.596E-01	4.362E-01	5.410E-02	0.311
		1001.68		1.526E+00	1.732E+00	3.060E+00	2.872E-01	0.499
	+	1121.28		4.995E-01	1.725E-01	2.908E-01	2.478E-02	1.718
		1189.05		-1.524E-02	2.515E-01	4.092E-01	3.300E-02	-0.037
		1221.42	*	7.038E-03	1.519E-01	2.490E-01	2.023E-02	0.028
		1230.97		-1.228E-01	3.715E-01	5.865E-01	4.774E-02	-0.209
RE-183		57.98		-3.423E-02	1.111E-01	1.741E-01	1.250E-02	-0.197
		59.32		3.663E-02	6.587E-02	9.982E-02	7.104E-03	0.367
		67.20		-1.868E-02	1.383E-01	1.991E-01	1.500E-02	-0.094
		162.32	*	1.368E-04	7.541E-02	1.261E-01	1.209E-02	0.001
	+	208.81		1.553E+00	1.088E+00	1.321E+00	1.549E-01	1.176
		291.72		-4.699E-01	7.801E-01	1.054E+00	1.599E-01	-0.446
RE-184		57.98		-1.263E-01	4.099E-01	6.426E-01	4.613E-02	-0.197
		59.32		1.351E-01	2.429E-01	3.682E-01	2.620E-02	0.367
		67.20		-6.892E-02	5.103E-01	7.347E-01	5.536E-02	-0.094

---- 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		-1.661E-01	2.457E-01	3.970E-01	3.791E-02	-0.418
		216.55		2.772E-01	1.954E-01	3.392E-01	4.110E-02	0.817
		252.85	*	4.117E-02	1.670E-01	2.755E-01	3.865E-02	0.149
		318.01		-3.355E-02	3.417E-01	5.382E-01	7.700E-02	-0.062
		792.07		7.717E-02	7.238E-01	1.029E+00	1.009E-01	0.075
		903.28		2.770E-01	7.416E-01	1.285E+00	1.263E-01	0.216
		920.93		-8.012E-02	3.585E-01	5.294E-01	5.170E-02	-0.151
		59.72		1.141E-01	1.786E-01	2.717E-01	1.935E-02	0.420
		61.14		1.683E-02	9.874E-02	1.461E-01	1.051E-02	0.115
		69.30		-8.994E-02	1.906E-01	2.945E-01	2.261E-02	-0.305
		592.07		1.553E+00	1.834E+00	3.220E+00	3.285E-01	0.482
		646.12	*	-1.794E-02	3.155E-02	4.852E-02	4.683E-03	-0.370
		717.42		3.317E-01	6.922E-01	1.167E+00	1.126E-01	0.284
		874.81		2.350E-01	4.041E-01	7.174E-01	7.070E-02	0.328
		880.27		1.610E-01	5.496E-01	9.494E-01	9.355E-02	0.170
RE-188		155.03	*	1.616E-01	1.258E-01	2.206E-01	2.058E-02	0.732
		477.96		1.101E+00	2.325E+00	4.008E+00	4.320E-01	0.275
		633.10		-1.217E-01	2.045E+00	3.320E+00	3.254E-01	-0.037
W-188	+	63.58		5.195E+01	4.784E+01	5.606E+01	4.104E+00	0.927
		227.08		-3.183E+00	9.200E+00	1.477E+01	1.869E+00	-0.216
IR-192	+	290.67	*	-2.923E+00	6.180E+00	8.474E+00	1.287E+00	-0.345
		295.96		9.890E-01	1.941E-01	2.415E-01	3.641E-02	4.095
		308.46		1.584E-03	7.281E-02	1.169E-01	1.715E-02	0.014
		316.51	*	-1.468E-02	2.709E-02	4.124E-02	5.928E-03	-0.356
		468.07		-4.428E-02	5.878E-02	7.959E-02	8.985E-03	-0.556
AU-195		604.41		-2.521E-01	3.576E-01	4.638E-01	6.510E-02	-0.543
		612.46		8.136E-01	6.466E-01	1.037E+00	1.155E-01	0.784
		65.12		-1.426E-01	1.154E-01	1.551E-01	1.149E-02	-0.919
		66.83		5.340E-02	6.226E-02	9.437E-02	7.089E-03	0.566
	+	75.70		9.174E-01	1.803E-01	2.916E-01	2.386E-02	3.146
		98.88	*	2.131E-01	1.514E-01	2.712E-01	2.393E-02	0.786
	+	129.76		3.106E+00	2.980E+00	3.588E+00	3.084E-01	0.866
TL-200		367.94	*	-2.800E-06	2.980E+00	Half-Life	too short	
		579.30		-3.207E-04	2.980E+00	Half-Life	too short	
		828.27		-1.341E-03	2.980E+00	Half-Life	too short	
		1205.75		-6.604E-05	2.980E+00	Half-Life	too short	
TL-201		68.90		-1.424E+00	2.832E+00	4.371E+00	3.343E-01	-0.326
		70.82		4.897E-01	1.712E+00	2.525E+00	1.966E-01	0.194
		80.30		2.962E+00	3.144E+00	4.764E+00	4.106E-01	0.622
		135.34		7.508E+00	1.596E+01	2.749E+01	2.399E+00	0.273
TL-202		167.43	*	1.551E+00	4.418E+00	7.495E+00	7.332E-01	0.207
		68.90		-1.345E-01	2.676E-01	4.129E-01	3.158E-02	-0.326
		70.82		4.613E-02	1.613E-01	2.379E-01	1.852E-02	0.194
		80.30		2.792E-01	2.963E-01	4.489E-01	3.869E-02	0.622
HG-203		439.56	*	-1.485E-03	4.582E-02	7.675E-02	8.278E-03	-0.019
		70.83		1.963E-01	7.074E-01	1.042E+00	1.365E-01	0.188
		72.87		8.366E-02	4.236E-01	6.188E-01	7.903E-02	0.135
		82.60		-7.611E-01	8.230E-01	1.112E+00	1.545E-01	-0.684
	*	279.20		2.271E-02	3.243E-02	5.415E-02	8.459E-03	0.419



---- 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		1.820E-02	1.246E-01	1.816E-01	1.442E-02	0.100
	+	74.97		5.094E-01	1.001E-01	1.534E-01	1.245E-02	3.320
		84.90		9.929E-02	1.381E-01	2.055E-01	1.873E-02	0.483
		569.67		8.697E-03	2.379E-02	4.015E-02	4.167E-03	0.217
		1063.62	*	1.680E-02	3.993E-02	6.876E-02	6.177E-03	0.244
TL-207		1770.23		2.053E-01	3.399E-01	5.733E-01	4.719E-02	0.358
		81.07		9.992E-02	1.476E-01	2.206E-01	1.919E-02	0.453
		83.78		2.484E-02	9.544E-02	1.389E-01	1.249E-02	0.179
		94.90		1.516E-02	1.685E-01	2.417E-01	2.178E-02	0.063
		122.32		2.189E-01	1.178E+00	2.015E+00	1.833E-01	0.109
		144.24		2.409E-02	4.967E-01	8.176E-01	8.146E-02	0.029
		154.21		1.897E-01	2.877E-01	4.948E-01	4.998E-02	0.383
	+	269.46		4.271E-01	2.169E-01	2.703E-01	4.066E-02	1.580
		323.87	*	-2.459E-01	5.665E-01	7.685E-01	1.607E-01	-0.320
	+	338.28		6.638E+00	1.849E+00	2.129E+00	3.428E-01	3.118
		445.03		-2.427E-01	1.700E+00	2.823E+00	3.873E-01	-0.086
	PO-209	260.50		-1.921E-02	7.093E+00	1.151E+01	1.663E+00	-0.002
		262.80		1.763E+00	1.968E+01	3.209E+01	4.676E+00	0.055
		896.60	*	-3.707E+00	5.671E+00	8.882E+00	8.745E-01	-0.417
BI-210		46.50	*	1.340E+00	1.848E+00	3.075E+00	2.862E-01	0.436
PB-210		46.50	*	1.340E+00	1.848E+00	3.075E+00	2.862E-01	0.436
PO-210		46.50	*	1.340E+00	1.847E+00	3.075E+00	2.592E-01	0.436
PB-211		404.84	*	3.854E-03	6.815E-01	1.152E+00	7.253E-01	0.003
		427.08		8.735E-02	1.535E+00	2.592E+00	1.619E+00	0.034
		831.96		2.191E-02	9.044E-01	1.446E+00	9.089E-01	0.015
BI-212	+	727.18	*	5.472E-01	3.861E-01	5.384E-01	5.884E-02	1.016
		785.46		8.679E-01	1.396E+00	2.367E+00	2.318E-01	0.367
		1620.62		2.533E-01	9.809E-01	1.698E+00	1.426E-01	0.149
PO-215		81.07		9.992E-02	1.476E-01	2.206E-01	1.919E-02	0.453
		83.78		2.484E-02	9.544E-02	1.389E-01	1.249E-02	0.179
		94.90		1.516E-02	1.685E-01	2.417E-01	2.178E-02	0.063
		122.32		2.189E-01	1.178E+00	2.015E+00	1.833E-01	0.109
		144.24		2.409E-02	4.967E-01	8.176E-01	8.146E-02	0.029
		154.21		1.897E-01	2.877E-01	4.948E-01	4.998E-02	0.383
	+	269.46		4.271E-01	2.169E-01	2.703E-01	4.066E-02	1.580
		323.87	*	-2.459E-01	5.665E-01	7.685E-01	1.607E-01	-0.320
	+	338.28		6.638E+00	1.849E+00	2.129E+00	3.428E-01	3.118
		445.03		-2.427E-01	1.700E+00	2.823E+00	3.873E-01	-0.086
	RN-219	271.23		5.480E-01	2.798E-01	3.519E-01	5.654E-02	1.557
		401.81	*	9.482E-02	3.141E-01	5.401E-01	8.809E-02	0.176
RN-220		549.76	*	1.033E+01	1.949E+01	3.352E+01	3.522E+00	0.308
RA-223		81.07		9.992E-02	1.476E-01	2.206E-01	1.919E-02	0.453
		83.78		2.484E-02	9.544E-02	1.389E-01	1.249E-02	0.179
		94.90		1.516E-02	1.685E-01	2.417E-01	2.178E-02	0.063
		122.32		2.189E-01	1.178E+00	2.015E+00	1.833E-01	0.109
		144.24		2.409E-02	4.967E-01	8.176E-01	8.146E-02	0.029
		154.21		1.897E-01	2.877E-01	4.948E-01	4.998E-02	0.383
	+	269.46		4.271E-01	2.169E-01	2.703E-01	4.066E-02	1.580
		323.87	*	-2.459E-01	5.665E-01	7.685E-01	1.607E-01	-0.320

## ---- 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		6.638E+00	1.849E+00	2.129E+00	3.428E-01	3.118
		445.03		-2.427E-01	1.700E+00	2.823E+00	3.873E-01	-0.086
		79.80		2.430E-01	1.136E+00	1.656E+00	3.558E-01	0.147
		236.00		-5.954E-02	1.864E-01	2.656E-01	4.182E-02	-0.224
		256.20	*	-9.133E-02	2.744E-01	4.355E-01	8.301E-02	-0.210
		286.10		1.149E-01	1.198E+00	1.943E+00	3.554E-01	0.059
TH-227	+	299.80		2.811E+00	1.373E+00	1.973E+00	4.205E-01	1.425
		304.40		-5.271E-01	1.578E+00	2.345E+00	5.158E-01	-0.225
		334.20		-4.044E-02	1.870E+00	2.644E+00	5.848E-01	-0.015
		79.80		2.430E-01	1.136E+00	1.656E+00	3.603E-01	0.147
	+	94.00		6.168E+00	2.435E+00	2.406E+00	5.283E-01	2.564
		236.00		-5.954E-02	1.864E-01	2.656E-01	3.946E-02	-0.224
TH-229		256.20	*	-9.133E-02	2.745E-01	4.355E-01	9.279E-02	-0.210
		286.10		1.149E-01	1.204E+00	1.943E+00	1.966E+00	0.059
	+	299.80		2.811E+00	1.373E+00	1.973E+00	4.205E-01	1.425
		304.40		-5.271E-01	1.578E+00	2.345E+00	5.158E-01	-0.225
		334.20		-4.044E-02	1.870E+00	2.644E+00	5.848E-01	-0.015
		85.43		3.692E-02	1.367E-01	1.992E-01	1.828E-02	0.185
PA-231	+	88.47		2.013E-01	1.438E-01	1.311E-01	1.238E-02	1.536
		100.00		1.301E-01	1.204E-01	2.142E-01	1.880E-02	0.608
		193.63	*	5.765E-02	3.749E-01	6.248E-01	6.860E-02	0.092
		210.97		5.005E-01	5.901E-01	9.142E-01	1.082E-01	0.547
		283.67	*	-5.325E-01	1.214E+00	1.897E+00	3.759E-01	-0.281
	+	301.29		1.125E+00	5.310E-01	8.401E-01	1.448E-01	1.339
TH-231		81.07		9.992E-02	1.476E-01	2.206E-01	1.919E-02	0.453
		83.78		2.484E-02	9.544E-02	1.389E-01	1.249E-02	0.179
		94.90		1.516E-02	1.685E-01	2.417E-01	2.178E-02	0.063
		122.32		2.189E-01	1.178E+00	2.015E+00	1.833E-01	0.109
		144.24		2.409E-02	4.967E-01	8.176E-01	8.146E-02	0.029
		154.21		1.897E-01	2.877E-01	4.948E-01	4.998E-02	0.383
U-231	+	269.46		4.271E-01	2.169E-01	2.703E-01	4.066E-02	1.580
		323.87	*	-2.459E-01	5.665E-01	7.685E-01	1.607E-01	-0.320
	+	338.28		6.638E+00	1.849E+00	2.129E+00	3.428E-01	3.118
		445.03		-2.427E-01	1.700E+00	2.823E+00	3.873E-01	-0.086
		84.21		3.453E+00	3.792E+00	5.690E+00	5.143E-01	0.607
	+	92.29		5.810E+00	1.977E+00	2.644E+00	2.422E-01	2.197
PA-233		95.87	*	-1.197E-01	7.727E-01	1.091E+00	9.772E-02	-0.110
		108.00		-9.126E-01	1.335E+00	2.216E+00	1.898E-01	-0.412
	+	75.28		1.487E+01	3.478E+00	4.556E+00	6.873E-01	3.263
	+	86.59		2.887E+00	2.188E+00	2.071E+00	5.601E-01	1.394
	+	300.12		7.838E-01	3.759E-01	5.511E-01	1.059E-01	1.422
		311.98	*	1.560E-03	4.769E-02	7.658E-02	1.124E-02	0.020
PA-234		340.50		1.223E+00	6.291E-01	9.075E-01	2.355E-01	1.347
		398.62		-4.066E-01	1.554E+00	2.577E+00	7.054E-01	-0.158
		415.76		-9.637E-01	1.228E+00	1.926E+00	4.331E-01	-0.500
	+	63.00		1.511E+00	1.405E+00	1.658E+00	2.455E-01	0.911
		94.67		5.754E-02	1.222E-01	1.791E-01	2.272E-02	0.321
		98.44		4.033E-02	6.563E-02	1.084E-01	6.050E-02	0.372
		99.86		3.871E-01	3.079E-01	5.502E-01	4.833E-02	0.704

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		-3.257E-02	1.276E-01	2.134E-01	2.564E-02	-0.153
		131.20		6.435E-02	7.576E-02	1.208E-01	1.042E-02	0.533
		152.70		3.635E-02	2.335E-01	3.944E-01	6.851E-02	0.092
	+	186.00		3.137E+00	1.683E+00	1.979E+00	6.297E-01	1.585
		226.40		9.054E-02	2.960E-01	4.922E-01	7.927E-02	0.184
		227.20		-9.346E-02	3.068E-01	4.936E-01	6.252E-02	-0.189
		248.90		2.608E-01	6.049E-01	1.004E+00	2.498E-01	0.260
		293.70		3.108E+00	9.343E-01	1.217E+00	2.591E-01	2.553
		369.80		4.976E-01	6.581E-01	1.086E+00	2.529E-01	0.458
		568.70		-2.459E-01	7.990E-01	1.280E+00	1.329E-01	-0.192
		569.50		8.293E-02	2.116E-01	3.578E-01	3.713E-02	0.232
		574.00		-8.914E-02	1.067E+00	1.744E+00	1.804E-01	-0.051
		699.00		5.617E-01	5.778E-01	9.953E-01	1.945E-01	0.564
		706.10		8.332E-01	8.739E-01	1.399E+00	6.267E-01	0.596
		733.00		4.155E-02	3.326E-01	4.762E-01	1.078E-01	0.087
		742.81		-2.030E-01	1.105E+00	1.735E+00	1.169E+00	-0.117
	+	796.30		9.929E-01	7.883E-01	1.389E+00	3.813E-01	0.715
		805.60		-2.922E-01	8.167E-01	1.251E+00	3.879E-01	-0.234
		819.60		5.771E-01	9.485E-01	1.574E+00	6.032E-01	0.367
		826.30		-2.373E-01	6.040E-01	9.036E-01	4.066E-01	-0.263
		831.60		1.133E-02	4.681E-01	7.486E-01	2.262E-01	0.015
		876.40		-2.023E-01	6.174E-01	9.409E-01	9.683E-01	-0.215
		880.51		5.310E-02	1.986E-01	3.422E-01	3.372E-02	0.155
		883.24		7.018E-02	2.144E-01	3.625E-01	2.443E-01	0.194
		899.00		-4.945E-03	6.298E-01	1.055E+00	4.639E-01	-0.005
		925.00		-2.804E-01	8.824E-01	1.428E+00	1.392E-01	-0.196
		926.50		7.386E-03	1.271E-01	2.138E-01	5.491E-02	0.035
		946.00	*	-7.345E-02	2.265E-01	3.650E-01	7.032E-02	-0.201
		949.00		1.353E-01	3.392E-01	5.872E-01	5.668E-02	0.230
		980.50		-2.061E-01	5.027E-01	7.968E-01	7.570E-02	-0.259
PA-234M		1394.10		-2.920E-02	8.336E-01	1.336E+00	8.691E-01	-0.022
		766.42		3.237E+00	1.043E+01	1.500E+01	7.639E+00	0.216
U-235	+	1001.03	*	4.793E+00	3.832E+00	6.943E+00	7.386E-01	0.690
	+	89.95		2.278E+00	1.024E+00	1.286E+00	3.993E-01	1.772
	+	93.35		1.919E+00	8.297E-01	8.698E-01	2.451E-01	2.206
		105.00		1.220E+00	7.982E-01	1.294E+00	3.863E-01	0.943
		143.76	*	6.046E-03	1.516E-01	2.493E-01	4.408E-02	0.024
		163.35		3.516E-01	3.290E-01	5.648E-01	1.104E-01	0.622
	+	185.71		1.162E-01	5.166E-02	7.343E-02	7.787E-03	1.582
		205.31		3.208E-02	4.095E-01	6.073E-01	1.249E-01	0.053
NP-236		94.67		4.441E-02	9.266E-02	1.359E-01	1.226E-02	0.327
		98.44		3.043E-02	4.667E-02	8.192E-02	7.242E-03	0.371
		111.00		-2.464E-02	9.647E-02	1.614E-01	1.375E-02	-0.153
		160.31	*	-5.840E-02	5.428E-02	8.561E-02	8.144E-03	-0.682
NP-239		99.55		1.717E-01	1.051E-01	1.894E-01	1.666E-02	0.907
		117.00	*	2.239E-02	1.242E-01	2.130E-01	1.802E-02	0.105
	+	209.75		1.229E+00	8.605E-01	1.058E+00	1.246E-01	1.162
		228.18		-1.462E-01	1.642E-01	2.537E-01	3.226E-02	-0.577
		277.60		8.741E-02	1.477E-01	2.454E-01	3.777E-02	0.356

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.30		-4.127E-02	1.059E+00	1.494E+00	2.041E-01	-0.028
AM-241		59.54	*	5.855E-02	9.395E-02	1.428E-01	1.122E-02	0.410
CM-243		99.55		1.767E-01	1.082E-01	1.949E-01	1.714E-02	0.907
		103.76	*	-8.807E-03	6.456E-02	1.100E-01	9.521E-03	-0.080
		117.00		2.303E-02	1.278E-01	2.191E-01	1.854E-02	0.105
	+	209.75		1.211E+00	8.482E-01	1.043E+00	1.228E-01	1.162
		228.18		-1.478E-01	1.659E-01	2.563E-01	3.260E-02	-0.577
		277.60		8.813E-02	1.489E-01	2.474E-01	3.808E-02	0.356
AM-246		798.80		-1.106E-01	1.372E-01	1.699E-01	1.667E-02	-0.651
		1036.00		-5.658E-02	2.219E-01	3.573E-01	3.278E-02	-0.158
		1062.04		4.890E-02	1.679E-01	2.860E-01	2.572E-02	0.171
		1078.86	*	8.078E-02	1.198E-01	2.113E-01	1.874E-02	0.382
CM-247		278.00		3.908E-01	6.206E-01	1.032E+00	1.591E-01	0.379
		287.40		3.524E-01	9.684E-01	1.593E+00	2.434E-01	0.221
		402.60	*	-1.530E-02	2.804E-02	4.565E-02	4.885E-03	-0.335
CF-249		252.85		1.547E-01	6.274E-01	1.035E+00	1.452E-01	0.149
		333.44		7.713E-02	1.499E-01	2.044E-01	2.799E-02	0.377
		387.95	*	3.590E-03	2.860E-02	4.884E-02	5.319E-03	0.074
CF-251		176.60	*	5.130E-03	9.116E-02	1.521E-01	1.549E-02	0.034
		227.00		-7.136E-02	2.780E-01	4.488E-01	5.680E-02	-0.159
		285.00		1.921E-01	1.368E+00	2.225E+00	3.414E-01	0.086

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600002
* Acquisition date   : 22-JAN-2010 07:55:16 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 02:00:01.67 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244600002 Analyst initials: MXR1
* Batch Number       : 941635 Sample Quantity : 1.4833E+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 :
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.117E+01	2.225E+00	4.136E-01	0.000E+00
CD-109	1.500E+00	1.049E+00	8.713E-01	0.000E+00
SN-126	1.475E-01	1.032E-01	8.596E-02	0.000E+00
TL-208	3.971E-01	7.429E-02	4.556E-02	0.000E+00
BI-211	3.126E+00	5.435E-01	2.474E-01	0.000E+00
PB-212	1.431E+00	2.158E-01	6.996E-02	0.000E+00
PO-212	1.431E+00	2.158E-01	6.996E-02	0.000E+00
BI-214	9.977E-01	1.604E-01	9.221E-02	0.000E+00
PB-214	1.087E+00	1.971E-01	8.624E-02	0.000E+00
PO-214	1.087E+00	1.971E-01	8.624E-02	0.000E+00
PO-216	1.431E+00	2.158E-01	6.996E-02	0.000E+00
PO-218	1.087E+00	1.971E-01	8.624E-02	0.000E+00
RA-224	3.821E+00	9.804E-01	7.963E-01	0.000E+00
RA-226	9.977E-01	1.604E-01	9.221E-02	0.000E+00
AC-228	1.177E+00	2.949E-01	1.580E-01	0.000E+00
RA-228	1.177E+00	2.949E-01	1.580E-01	0.000E+00
TH-228	1.453E+00	2.190E-01	7.101E-02	0.000E+00
TH-230	9.977E-01	1.604E-01	9.220E-02	0.000E+00
TH-232	1.177E+00	2.949E-01	1.580E-01	0.000E+00
TH-234	1.296E+00	1.187E+00	1.286E+00	0.000E+00
U-234	9.977E-01	1.604E-01	9.220E-02	0.000E+00
NP-237	4.330E-01	3.154E-01	2.716E-01	0.000E+00
U-238	1.296E+00	1.187E+00	1.286E+00	0.000E+00
AM-243	2.838E-01	5.465E-02	5.798E-02	0.000E+00
ANH-511	9.894E-02	5.954E-02	3.782E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	8.226E-02	2.402E-01	4.330E-01	0.000E+00 NOT IDENT.
NA-22	-3.566E-03	3.345E-02	5.538E-02	0.000E+00 NOT IDENT.

NA-24	0.000E+00	4.312E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-2.545E-02	1.954E-02	2.027E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.401E-02	5.114E-02	0.000E+00	FAIL ABUN
SC-46	1.612E-02	2.929E-02	5.356E-02	0.000E+00	FAIL ABUN
V-48	1.769E-02	4.412E-02	7.956E-02	0.000E+00	NOT IDENT.
CR-51	5.921E-02	2.656E-01	4.593E-01	0.000E+00	NOT IDENT.
MN-52	1.058E-01	1.599E-01	2.918E-01	0.000E+00	NOT IDENT.
MN-54	4.204E-04	2.697E-02	4.742E-02	0.000E+00	NOT IDENT.
CO-56	-1.351E-02	2.487E-02	4.103E-02	0.000E+00	NOT IDENT.
CO-57	2.270E-03	1.669E-02	3.105E-02	0.000E+00	NOT IDENT.
CO-58	-4.017E-03	3.051E-02	4.980E-02	0.000E+00	NOT IDENT.
FE-59	-4.703E-02	6.956E-02	1.101E-01	0.000E+00	NOT IDENT.
CO-60	5.875E-03	3.080E-02	5.257E-02	0.000E+00	NOT IDENT.
ZN-65	-3.180E-02	7.872E-02	1.093E-01	0.000E+00	NOT IDENT.
GE-68	-1.349E-01	1.046E+00	1.765E+00	0.000E+00	NOT IDENT.
AS-73	-3.163E-01	4.527E-01	7.733E-01	0.000E+00	NOT IDENT.
AS-74	-2.257E-02	7.066E-02	1.185E-01	0.000E+00	NOT IDENT.
SE-75	3.762E-04	3.168E-02	5.499E-02	0.000E+00	NOT IDENT.
BR-77	-4.116E+00	6.755E+00	1.117E+01	0.000E+00	FAIL ABUN
SR-82	5.525E-02	3.120E-01	4.672E-01	0.000E+00	NOT IDENT.
RB-83	-2.195E-02	4.767E-02	7.991E-02	0.000E+00	NOT IDENT.
RB-84	3.931E-02	4.908E-02	9.188E-02	0.000E+00	NOT IDENT.
KR-85	8.559E+00	5.835E+00	1.012E+01	0.000E+00	NOT IDENT.
SR-85	4.375E-02	2.983E-02	5.171E-02	0.000E+00	NOT IDENT.
RB-86	-5.364E-01	6.731E-01	1.062E+00	0.000E+00	NOT IDENT.
Y-88	1.577E-02	2.342E-02	4.474E-02	0.000E+00	NOT IDENT.
ZR-88	8.418E-03	2.131E-02	3.917E-02	0.000E+00	NOT IDENT.
Y-91	-4.317E+00	1.567E+01	2.578E+01	0.000E+00	NOT IDENT.
NB-94	-3.366E-02	2.708E-02	4.045E-02	0.000E+00	NOT IDENT.
NB-95	5.653E-03	3.500E-02	5.230E-02	0.000E+00	NOT IDENT.
NB-95M	1.339E-02	9.456E-02	1.495E-01	0.000E+00	NOT IDENT.
ZR-95	2.003E-02	5.255E-02	9.145E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	5.380E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.059E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	5.993E+00	8.237E+00	1.472E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.195E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.805E-02	2.336E-02	4.214E-02	0.000E+00	NOT IDENT.
RH-102	-2.336E-02	2.256E-02	3.656E-02	0.000E+00	NOT IDENT.
RU-103	1.644E-02	2.830E-02	5.169E-02	0.000E+00	FAIL ABUN
RH-106	4.687E-02	2.238E-01	3.910E-01	0.000E+00	FAIL ABUN
RU-106	4.687E-02	2.238E-01	3.910E-01	0.000E+00	FAIL ABUN
AG-108M	6.129E-03	2.159E-02	3.919E-02	0.000E+00	NOT IDENT.
AG-110M	1.472E-02	2.476E-02	4.442E-02	0.000E+00	NOT IDENT.
IN-111	-3.165E-01	7.989E-01	1.206E+00	0.000E+00	NOT IDENT.
IN-113M	-1.192E-02	3.119E-02	5.454E-02	0.000E+00	NOT IDENT.
SN-113	-1.192E-02	3.119E-02	5.454E-02	0.000E+00	NOT IDENT.
IN-114M	6.301E-02	1.364E-01	2.378E-01	0.000E+00	NOT IDENT.
CD-115	-3.941E+00	6.930E+00	1.148E+01	0.000E+00	NOT IDENT.
SN-117M	-1.997E-02	3.696E-02	6.528E-02	0.000E+00	NOT IDENT.
SB-122	-4.641E-02	1.409E+00	2.434E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.686E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-4.730E-03	1.906E-02	3.413E-02	0.000E+00	NOT IDENT.
I-124	-3.074E-01	4.343E-01	6.975E-01	0.000E+00	NOT IDENT.
SB-124	-4.251E-02	4.763E-02	6.296E-02	0.000E+00	FAIL ABUN
SB-125	1.343E-02	6.518E-02	1.177E-01	0.000E+00	FAIL ABUN
TE-125M	6.874E+00	6.128E+00	1.184E+01	0.000E+00	NOT IDENT.
I-126	1.991E-02	1.485E-01	2.554E-01	0.000E+00	NOT IDENT.
SB-126	-2.712E-02	1.049E-01	1.727E-01	0.000E+00	FAIL ABUN
SB-127	-4.643E-01	9.644E-01	1.559E+00	0.000E+00	NOT IDENT.
XE-127	-1.056E-02	3.193E-02	5.572E-02	0.000E+00	NOT IDENT.
I-131	2.446E-02	8.061E-02	1.388E-01	0.000E+00	NOT IDENT.
TE-132	-1.598E-01	4.469E-01	7.684E-01	0.000E+00	NOT IDENT.
BA-133	-7.590E-03	3.740E-02	5.486E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.286E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.108E-02	3.761E-02	7.141E-02	0.000E+00	FAIL ABUN
CS-135	4.251E-02	1.256E-01	1.990E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.077E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.428E-02	8.239E-02	1.451E-01	0.000E+00	FAIL ABUN
BA-137M	-2.170E-02	2.775E-02	4.391E-02	0.000E+00	NOT IDENT.
CS-137	-2.294E-02	2.934E-02	4.642E-02	0.000E+00	NOT IDENT.
CE-139	-7.154E-03	1.989E-02	3.530E-02	0.000E+00	NOT IDENT.
BA-140	7.820E-02	1.886E-01	3.360E-01	0.000E+00	NOT IDENT.
LA-140	-4.226E-02	8.127E-02	1.064E-01	0.000E+00	FAIL ABUN
CE-141	-5.646E-03	4.437E-02	7.855E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.074E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.251E-01	1.525E-01	2.379E-01	0.000E+00	NOT IDENT.
PM-144	-1.851E-02	2.987E-02	4.483E-02	0.000E+00	NOT IDENT.
PR-144	-1.254E+00	2.024E+00	3.037E+00	0.000E+00	NOT IDENT.

PM-146	2.819E-03	2.884E-02	5.143E-02	0.000E+00	NOT IDENT.
ND-147	-3.067E-01	3.906E-01	6.296E-01	0.000E+00	FAIL ABUN
PM-149	-1.228E+01	6.542E+01	1.113E+02	0.000E+00	NOT IDENT.
EU-152	-1.244E-02	7.629E-02	1.210E-01	0.000E+00	FAIL ABUN
GD-153	-6.008E-02	6.432E-02	9.432E-02	0.000E+00	NOT IDENT.
EU-154	-1.184E-02	9.326E-02	1.540E-01	0.000E+00	NOT IDENT.
EU-155	1.088E-01	7.150E-02	1.401E-01	0.000E+00	FAIL ABUN
TB-160	-1.178E-02	9.621E-02	1.660E-01	0.000E+00	FAIL ABUN
HO-166M	-3.738E-03	4.630E-02	7.767E-02	0.000E+00	NOT IDENT.
TM-171	1.670E+01	1.849E+01	3.097E+01	0.000E+00	NOT IDENT.
LU-176	1.095E-02	1.855E-02	3.284E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.154E+00	1.488E+00	0.000E+00	FAIL ABUN
LU-177M	-5.935E-02	1.285E-01	2.224E-01	0.000E+00	NOT IDENT.
HF-181	-1.693E-02	3.011E-02	5.058E-02	0.000E+00	NOT IDENT.
W-181	-3.400E-01	2.460E-01	3.624E-01	0.000E+00	NOT IDENT.
TA-182	7.038E-03	1.488E-01	2.517E-01	0.000E+00	FAIL ABUN
RE-183	1.368E-04	7.390E-02	1.337E-01	0.000E+00	FAIL ABUN
RE-184	4.117E-02	1.637E-01	2.892E-01	0.000E+00	NOT IDENT.
OS-185	-1.794E-02	3.092E-02	4.982E-02	0.000E+00	NOT IDENT.
RE-188	1.616E-01	1.233E-01	2.342E-01	0.000E+00	NOT IDENT.
W-188	-2.923E+00	6.056E+00	8.867E+00	0.000E+00	FAIL ABUN
IR-192	-1.468E-02	2.655E-02	4.307E-02	0.000E+00	FAIL ABUN
AU-195	2.131E-01	1.483E-01	2.908E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.857E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.551E+00	4.330E+00	7.942E+00	0.000E+00	NOT IDENT.
TL-202	-1.485E-03	4.490E-02	7.953E-02	0.000E+00	NOT IDENT.
HG-203	2.271E-02	3.178E-02	5.671E-02	0.000E+00	NOT IDENT.
BI-207	1.680E-02	3.913E-02	6.975E-02	0.000E+00	FAIL ABUN
TL-207	-2.459E-01	5.551E-01	8.021E-01	0.000E+00	FAIL ABUN
PO-209	-3.707E+00	5.557E+00	9.047E+00	0.000E+00	NOT IDENT.
BI-210	1.340E+00	1.811E+00	3.351E+00	0.000E+00	NOT IDENT.
PB-210	1.340E+00	1.811E+00	3.351E+00	0.000E+00	NOT IDENT.
PO-210	1.340E+00	1.810E+00	3.351E+00	0.000E+00	NOT IDENT.
PB-211	3.854E-03	6.678E-01	1.196E+00	0.000E+00	NOT IDENT.
BI-212	5.472E-01	3.784E-01	5.512E-01	0.000E+00	FAIL ABUN
PO-215	-2.459E-01	5.551E-01	8.021E-01	0.000E+00	FAIL ABUN
RN-219	9.482E-02	3.078E-01	5.609E-01	0.000E+00	FAIL ABUN
RN-220	1.033E+01	1.910E+01	3.455E+01	0.000E+00	NOT IDENT.
RA-223	-2.459E-01	5.551E-01	8.021E-01	0.000E+00	FAIL ABUN
AC-227	-9.133E-02	2.689E-01	4.570E-01	0.000E+00	FAIL ABUN
TH-227	-9.133E-02	2.690E-01	4.570E-01	0.000E+00	FAIL ABUN
TH-229	5.765E-02	3.674E-01	6.598E-01	0.000E+00	FAIL ABUN
PA-231	-5.325E-01	1.189E+00	1.986E+00	0.000E+00	FAIL ABUN
TH-231	-2.459E-01	5.551E-01	8.021E-01	0.000E+00	FAIL ABUN
U-231	-1.197E-01	7.572E-01	1.170E+00	0.000E+00	FAIL ABUN
PA-233	1.560E-03	4.674E-02	8.000E-02	0.000E+00	FAIL ABUN
PA-234	-7.345E-02	2.219E-01	3.713E-01	0.000E+00	FAIL ABUN
PA-234M	4.793E+00	3.755E+00	7.053E+00	0.000E+00	NOT IDENT.
U-235	6.046E-03	1.485E-01	2.651E-01	0.000E+00	FAIL ABUN
NP-236	-5.840E-02	5.319E-02	9.081E-02	0.000E+00	NOT IDENT.
NP-239	2.239E-02	1.217E-01	2.275E-01	0.000E+00	FAIL ABUN
AM-241	5.855E-02	9.207E-02	1.548E-01	0.000E+00	NOT IDENT.
CM-243	-8.807E-03	6.327E-02	1.178E-01	0.000E+00	FAIL ABUN
AM-246	8.078E-02	1.174E-01	2.143E-01	0.000E+00	NOT IDENT.
CM-247	-1.530E-02	2.748E-02	4.740E-02	0.000E+00	NOT IDENT.
CF-249	3.590E-03	2.803E-02	5.076E-02	0.000E+00	NOT IDENT.
CF-251	5.130E-03	8.934E-02	1.610E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600002.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:55:16
Sample ID          : G244600002      Sample quantity      : 1.48330E+02 GRAM
Detector name      : GAM11           Detector geometry    : CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time  : 0 02:00:01.67  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials   : MXR1
Abundance limit    : 75.00000         Sensitivity         : 5.00000
Batch ID           : 941635           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	1093	10.67*	1.225E+00	2.117E+01	2.117E+01	10.73
CD-109	88.03	146	3.72*	6.783E+00	1.467E+00	1.500E+00	71.41
SN-126	64.28	83	9.60	4.275E+00	5.131E-01	5.131E-01	92.94
	86.94	146	8.90	6.783E+00	6.130E-01	6.130E-01	82.07
	87.57	146	37.00*	6.783E+00	1.475E-01	1.475E-01	71.41
TL-208	277.35	-----	6.80	4.676E+00	-----	Line Not Found	-----
	510.84	115	21.60	2.953E+00	4.580E-01	4.580E-01	61.97
	583.14	351	84.20*	2.660E+00	3.971E-01	3.971E-01	19.09
	860.37	88	12.46	1.927E+00	9.305E-01	9.305E-01	43.53
BI-211	72.87	-----	1.27	5.576E+00	-----	Line Not Found	-----
	351.07	627	12.94*	3.921E+00	3.126E+00	3.126E+00	17.74
PB-212	74.81	429	10.70	5.798E+00	1.751E+00	1.751E+00	21.76
	77.11	737	18.00	6.018E+00	1.721E+00	1.721E+00	14.14
	87.30	146	8.00	6.783E+00	6.820E-01	6.820E-01	72.10
	238.63	1314	44.60*	5.210E+00	1.431E+00	1.431E+00	15.38
	300.09	90	3.41	4.415E+00	1.517E+00	1.517E+00	46.78
PO-212	74.81	429	10.70	5.798E+00	1.751E+00	1.751E+00	21.76
	77.11	737	18.00	6.018E+00	1.721E+00	1.721E+00	14.14
	87.30	146	8.00	6.783E+00	6.820E-01	6.820E-01	72.10
	115.19	-----	0.60	7.407E+00	-----	Line Not Found	-----
	238.63	1314	44.60*	5.210E+00	1.431E+00	1.431E+00	15.38
	300.09	90	3.41	4.415E+00	1.517E+00	1.517E+00	46.78
BI-214	609.31	469	46.30*	2.569E+00	9.977E-01	9.977E-01	16.41
	1120.29	97	15.10	1.531E+00	1.058E+00	1.058E+00	35.16
	1764.49	83	15.80	1.070E+00	1.241E+00	1.241E+00	30.12
PB-214	74.81	429	6.21	5.798E+00	3.016E+00	3.016E+00	21.00
	77.11	737	10.50	6.018E+00	2.951E+00	2.951E+00	16.06
	87.30	146	4.67	6.783E+00	1.168E+00	1.168E+00	71.82
	241.98	308	7.49	5.165E+00	2.015E+00	2.015E+00	26.78
	295.21	441	19.20	4.466E+00	1.300E+00	1.300E+00	20.57
	351.92	627	37.20*	3.921E+00	1.087E+00	1.087E+00	18.49
PO-214	74.81	429	6.21	5.798E+00	3.016E+00	3.016E+00	21.00



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	737	10.50	6.018E+00	2.951E+00	2.951E+00	16.06
	87.30	146	4.67	6.783E+00	1.168E+00	1.168E+00	71.82
	241.98	308	7.49	5.165E+00	2.015E+00	2.015E+00	26.78
	295.21	441	19.20	4.466E+00	1.300E+00	1.300E+00	20.57
	351.92	627	37.20*	3.921E+00	1.087E+00	1.087E+00	18.49
	74.81	429	10.70	5.798E+00	1.751E+00	1.751E+00	21.76
	77.11	737	18.00	6.018E+00	1.721E+00	1.721E+00	14.14
	87.30	146	8.00	6.783E+00	6.820E-01	6.820E-01	72.10
	238.63	1314	44.60*	5.210E+00	1.431E+00	1.431E+00	15.38
	300.09	90	3.41	4.415E+00	1.517E+00	1.517E+00	46.78
PO-218	74.81	429	6.21	5.798E+00	3.016E+00	3.016E+00	21.00
	77.11	737	10.50	6.018E+00	2.951E+00	2.951E+00	16.06
	87.30	146	4.67	6.783E+00	1.168E+00	1.168E+00	71.82
	241.98	308	7.49	5.165E+00	2.015E+00	2.015E+00	26.78
	295.21	441	19.20	4.466E+00	1.300E+00	1.300E+00	20.57
	351.92	627	37.20*	3.921E+00	1.087E+00	1.087E+00	18.49
	240.98	308	3.95*	5.165E+00	3.821E+00	3.821E+00	26.19
	609.31	469	46.30*	2.569E+00	9.977E-01	9.977E-01	16.41
	1120.29	97	15.10	1.531E+00	1.058E+00	1.058E+00	35.16
	1764.49	83	15.80	1.070E+00	1.241E+00	1.241E+00	30.12
AC-228	338.32	289	11.40	4.038E+00	1.590E+00	1.590E+00	48.24
	911.07	236	27.70*	1.833E+00	1.177E+00	1.177E+00	25.56
	969.11	178	16.60	1.737E+00	1.563E+00	1.563E+00	31.09
	338.32	289	11.40	4.038E+00	1.590E+00	1.590E+00	48.24
RA-228	911.07	236	27.70*	1.833E+00	1.177E+00	1.177E+00	25.56
	969.11	178	16.60	1.737E+00	1.563E+00	1.563E+00	31.09
	74.81	429	10.70	5.798E+00	1.751E+00	1.777E+00	19.68
	77.11	737	18.00	6.018E+00	1.721E+00	1.747E+00	14.14
TH-228	87.30	146	8.00	6.783E+00	6.820E-01	6.922E-01	71.41
	238.63	1314	44.60*	5.210E+00	1.431E+00	1.453E+00	15.38
	300.09	90	3.41	4.415E+00	1.517E+00	1.540E+00	74.79
	609.31	469	46.30*	2.569E+00	9.977E-01	9.977E-01	16.41
	1120.29	97	15.10	1.531E+00	1.058E+00	1.058E+00	35.16
	1764.49	83	15.80	1.070E+00	1.241E+00	1.241E+00	30.12
	338.32	289	11.40	4.038E+00	1.590E+00	1.590E+00	26.44
	911.07	236	27.70*	1.833E+00	1.177E+00	1.177E+00	25.56
	969.11	178	16.60	1.737E+00	1.563E+00	1.563E+00	31.09
	63.29	83	3.80*	4.275E+00	1.296E+00	1.296E+00	93.44
TH-234	92.38	241	5.41	7.056E+00	1.596E+00	1.596E+00	37.56
	609.31	469	46.30*	2.569E+00	9.977E-01	9.977E-01	16.41
	1120.29	97	15.10	1.531E+00	1.058E+00	1.058E+00	35.16
	1764.49	83	15.80	1.070E+00	1.241E+00	1.241E+00	30.12
U-234	86.50	146	12.60*	6.783E+00	4.330E-01	4.330E-01	74.33
	95.87	-----	2.60	7.169E+00	-----	Line Not Found	-----
	63.29	83	3.80*	4.275E+00	1.296E+00	1.296E+00	93.44
U-238	92.38	241	5.41	7.056E+00	1.596E+00	1.596E+00	34.03
	74.67	429	66.00*	5.798E+00	2.838E-01	2.838E-01	19.65
	86.72	146	0.34	6.783E+00	1.624E+01	1.624E+01	71.41
AM-243	117.66	-----	0.55	7.397E+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	7.065E+00	-----	Line Not Found	-----
ANH-511	511.00	115	100.00*	2.953E+00	9.894E-02	9.894E-02	61.41

Flag: "\*" = Keyline

Total number of lines in spectrum 34  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 30 88.24%

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	2.117E+01	2.117E+01	0.227E+01	10.73	
CD-109	464.00D	1.02	1.467E+00	1.500E+00	1.071E+00	71.41	
SN-126	1.00E+05Y	1.00	1.475E-01	1.475E-01	1.053E-01	71.41	
TL-208	1.41E+10Y	1.00	3.971E-01	3.971E-01	0.758E-01	19.09	
BI-211	7.04E+08Y	1.00	3.126E+00	3.126E+00	0.555E+00	17.74	
PB-212	1.41E+10Y	1.00	1.431E+00	1.431E+00	0.220E+00	15.38	
PO-212	1.41E+10Y	1.00	1.431E+00	1.431E+00	0.220E+00	15.38	
BI-214	1600.00Y	1.00	9.977E-01	9.977E-01	1.637E-01	16.41	
PB-214	1600.00Y	1.00	1.087E+00	1.087E+00	0.201E+00	18.49	
PO-214	1600.00Y	1.00	1.087E+00	1.087E+00	0.201E+00	18.49	
PO-216	1.41E+10Y	1.00	1.431E+00	1.431E+00	0.220E+00	15.38	
PO-218	1600.00Y	1.00	1.087E+00	1.087E+00	0.201E+00	18.49	
RA-224	1.41E+10Y	1.00	3.821E+00	3.821E+00	1.000E+00	26.19	
RA-226	1600.00Y	1.00	9.977E-01	9.977E-01	1.637E-01	16.41	
AC-228	1.41E+10Y	1.00	1.177E+00	1.177E+00	0.301E+00	25.56	
RA-228	1.41E+10Y	1.00	1.177E+00	1.177E+00	0.301E+00	25.56	
TH-228	1.91Y	1.01	1.431E+00	1.453E+00	0.223E+00	15.38	
TH-230	4.47E+09Y	1.00	9.977E-01	9.977E-01	1.637E-01	16.41	
TH-232	1.41E+10Y	1.00	1.177E+00	1.177E+00	0.301E+00	25.56	
TH-234	4.47E+09Y	1.00	1.296E+00	1.296E+00	1.211E+00	93.44	
U-234	4.47E+09Y	1.00	9.977E-01	9.977E-01	1.637E-01	16.41	
NP-237	2.14E+06Y	1.00	4.330E-01	4.330E-01	3.218E-01	74.33	
U-238	4.47E+09Y	1.00	1.296E+00	1.296E+00	1.211E+00	93.44	
AM-243	7380.00Y	1.00	2.838E-01	2.838E-01	0.558E-01	19.65	
ANH-511	1.00E+09Y	1.00	9.894E-02	9.894E-02	6.075E-02	61.41	
Total Activity :			5.004E+01	5.010E+01			

Grand Total Activity : 5.004E+01 5.010E+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	89.85	168	252	1.33	178.63	177	5	2.34E-02	32.5	6.93E+00	T
0	129.15	68	333	0.89	257.29	254	8	9.50E-03	95.6	7.28E+00	T
0	185.96	153	272	1.05	370.99	367	8	2.12E-02	43.2	6.15E+00	T
0	209.39	90	266	0.96	417.89	414	9	1.25E-02	69.0	5.70E+00	T
0	270.38	109	174	1.45	539.95	536	9	1.52E-02	48.5	4.76E+00	T
0	328.95	50	180	1.09	657.17	651	10	6.88E-03	****	4.12E+00	T
0	463.10	69	106	0.75	925.63	921	10	9.62E-03	60.4	3.19E+00	T
0	727.51	57	96	0.96	1454.76	1451	10	7.87E-03	69.7	2.22E+00	T
0	769.52	81	90	1.73	1538.82	1531	17	1.12E-02	58.0	2.12E+00	
0	795.43	32	37	1.10	1590.67	1588	7	4.38E-03	74.5	2.06E+00	T
0	965.09	66	52	1.72	1930.15	1922	13	9.18E-03	51.3	1.74E+00	T
0	1475.48	6	12	0.67	2951.25	2944	10	8.60E-04	****	1.22E+00	
0	1591.37	27	32	4.54	3183.08	3173	18	3.81E-03	****	1.15E+00	
0	1631.77	18	3	1.02	3263.89	3260	9	2.43E-03	63.7	1.13E+00	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600002.CNF;1
* Acquisition date   : 22-JAN-2010 07:55:16   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 02:00:01.67          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244600002             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity : 1.48330E+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      :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.117E+01	2.271E+00	4.110E-01	3.553E-02	51.502
CD-109	1.500E+00	1.071E+00	8.105E-01	7.686E-02	1.850
SN-126	1.475E-01	1.053E-01	7.996E-02	7.542E-03	1.844
TL-208	3.971E-01	7.580E-02	4.426E-02	4.780E-03	8.972
BI-211	3.126E+00	5.546E-01	2.375E-01	3.133E-02	13.163
PB-212	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
PO-212	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
BI-214	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
PB-214	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
PO-214	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
PO-216	1.431E+00	2.202E-01	6.656E-02	9.322E-03	21.502
PO-218	1.087E+00	2.011E-01	8.279E-02	1.171E-02	13.135
RA-224	3.821E+00	1.000E+00	7.578E-01	1.015E-01	5.042
RA-226	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
AC-228	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
RA-228	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
TH-228	1.453E+00	2.235E-01	6.755E-02	9.461E-03	21.502
TH-230	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.177E+00	3.009E-01	1.551E-01	1.889E-02	7.589
TH-234	1.296E+00	1.211E+00	1.187E+00	2.066E-01	1.092
U-234	9.977E-01	1.637E-01	8.968E-02	1.014E-02	11.125
NP-237	4.330E-01	3.218E-01	2.526E-01	5.717E-02	1.715
U-238	1.296E+00	1.211E+00	1.187E+00	2.066E-01	1.092
AM-243	2.838E-01	5.576E-02	5.374E-02	4.349E-03	5.281
ANH-511	9.894E-02	6.075E-02	3.662E-02	3.916E-03	2.701

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	8.226E-02		2.451E-01	4.186E-01	4.738E-02	0.196
NA-22	-3.566E-03		3.414E-02	5.484E-02	4.504E-03	-0.065
NA-24	2.355E-01		2.200E-01	Half-Life too short		
AL-26	-2.545E-02		1.994E-02	2.025E-02	1.653E-03	-1.257
TI-44	3.176E-01	+	4.491E-02	4.745E-02	4.000E-03	6.693
SC-46	1.612E-02		2.989E-02	5.257E-02	5.178E-03	0.307
V-48	1.769E-02		4.502E-02	7.829E-02	7.426E-03	0.226
CR-51	5.921E-02		2.710E-01	4.400E-01	6.385E-02	0.135
MN-52	1.058E-01		1.632E-01	2.899E-01	2.429E-02	0.365
MN-54	4.204E-04		2.752E-02	4.647E-02	4.576E-03	0.009
CO-56	-1.351E-02		2.538E-02	4.022E-02	3.963E-03	-0.336
CO-57	2.270E-03		1.703E-02	2.909E-02	2.461E-03	0.078
CO-58	-4.017E-03		3.113E-02	4.877E-02	4.802E-03	-0.082
FE-59	-4.703E-02		7.097E-02	1.086E-01	1.021E-02	-0.433
CO-60	5.875E-03		3.143E-02	5.212E-02	4.307E-03	0.113
ZN-65	-3.180E-02		8.033E-02	1.079E-01	9.260E-03	-0.295
GE-68	-1.349E-01		1.067E+00	1.741E+00	1.546E-01	-0.077
AS-73	-3.163E-01		4.620E-01	7.116E-01	5.344E-02	-0.444
AS-74	-2.257E-02		7.210E-02	1.152E-01	1.172E-02	-0.196
SE-75	3.762E-04		3.233E-02	5.244E-02	7.708E-03	0.007
BR-77	-4.116E+00		6.893E+00	1.082E+01	1.153E+00	-0.380
SR-82	5.525E-02		3.184E-01	4.570E-01	4.470E-02	0.121
RB-83	-2.195E-02		4.864E-02	7.743E-02	8.251E-03	-0.284
RB-84	3.931E-02		5.008E-02	9.017E-02	8.884E-03	0.436
KR-85	8.559E+00		5.954E+00	9.799E+00	1.047E+00	0.873
SR-85	4.375E-02		3.044E-02	5.009E-02	5.351E-03	0.873
RB-86	-5.364E-01		6.868E-01	1.048E+00	9.311E-02	-0.512
Y-88	1.577E-02		2.390E-02	4.471E-02	3.630E-03	0.353
ZR-88	8.418E-03		2.174E-02	3.770E-02	4.021E-03	0.223
Y-91	-4.317E+00		1.599E+01	2.549E+01	2.064E+00	-0.169
NB-94	-3.366E-02		2.763E-02	3.947E-02	3.791E-03	-0.853
NB-95	5.653E-03		3.572E-02	5.115E-02	4.993E-03	0.111
NB-95M	1.339E-02		9.649E-02	1.422E-01	1.986E-02	0.094
ZR-95	2.003E-02		5.362E-02	8.941E-02	9.408E-03	0.224
NB-97	4.772E-03		2.745E-02	Half-Life too short		
ZR-97	1.291E+00		5.402E-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	5.993E+00		8.406E+00	1.439E+01	2.277E+00	0.417
TC-99M	-5.587E+09		6.098E+09	Half-Life too short		
RH-101	1.805E-02		2.384E-02	3.992E-02	4.468E-03	0.452
RH-102	-2.336E-02		2.302E-02	3.535E-02	3.811E-03	-0.661
RU-103	1.644E-02		2.887E-02	5.003E-02	7.776E-03	0.329
RH-106	4.687E-02		2.284E-01	3.804E-01	5.414E-02	0.123
RU-106	4.687E-02		2.283E-01	3.804E-01	3.774E-02	0.123
AG-108M	6.129E-03		2.204E-02	3.780E-02	4.179E-03	0.162
AG-110M	1.472E-02		2.526E-02	4.328E-02	4.218E-03	0.340
IN-111	-3.165E-01		8.152E-01	1.148E+00	1.565E-01	-0.276
IN-113M	-1.192E-02		3.182E-02	5.249E-02	5.709E-03	-0.227
SN-113	-1.192E-02		3.182E-02	5.249E-02	5.709E-03	-0.227
IN-114M	6.301E-02		1.392E-01	2.250E-01	2.435E-02	0.280
CD-115	-3.941E+00		7.071E+00	1.113E+01	1.182E+00	-0.354
SN-117M	-1.997E-02		3.772E-02	6.153E-02	5.815E-03	-0.325
SB-122	-4.641E-02		1.437E+00	2.363E+00	2.461E-01	-0.020
I-123	-6.667E-01		1.371E+00	Half-Life too short		
TE-123M	-4.730E-03		1.944E-02	3.217E-02	3.061E-03	-0.147
I-124	-3.074E-01		4.431E-01	6.782E-01	6.855E-02	-0.453
SB-124	-4.251E-02		4.860E-02	6.280E-02	5.457E-03	-0.677
SB-125	1.343E-02		6.651E-02	1.135E-01	1.237E-02	0.118
TE-125M	6.874E+00		6.253E+00	1.107E+01	1.136E+00	0.621
I-126	1.991E-02		1.515E-01	2.489E-01	2.360E-02	0.080
SB-126	-2.712E-02		1.071E-01	1.686E-01	1.628E-02	-0.161
SB-127	-4.643E-01		9.841E-01	1.521E+00	1.828E-01	-0.305
XE-127	-1.056E-02		3.258E-02	5.282E-02	6.036E-03	-0.200
I-131	2.446E-02		8.226E-02	1.333E-01	1.673E-02	0.183
TE-132	-1.598E-01		4.561E-01	7.303E-01	1.332E-01	-0.219
BA-133	-7.590E-03		3.816E-02	5.268E-02	8.496E-03	-0.144
I-133	4.729E-04		1.676E-03	Half-Life too short		
CS-134	5.108E-02	+	3.838E-02	6.991E-02	6.896E-03	0.731
CS-135	4.251E-02		1.282E-01	1.898E-01	2.979E-02	0.224
I-135	5.147E+08		1.060E+09	Half-Life too short		
CS-136	2.428E-02		8.407E-02	1.430E-01	1.350E-02	0.170
BA-137M	-2.170E-02		2.832E-02	4.279E-02	4.049E-03	-0.507
CS-137	-2.294E-02		2.994E-02	4.524E-02	4.287E-03	-0.507
CE-139	-7.154E-03		2.030E-02	3.330E-02	3.236E-03	-0.215
BA-140	7.820E-02		1.925E-01	3.258E-01	1.098E-01	0.240
LA-140	-4.226E-02		8.293E-02	1.060E-01	8.915E-03	-0.399
CE-141	-5.646E-03		4.528E-02	7.389E-02	6.773E-03	-0.076
CE-143	1.988E-04		5.482E-05	Half-Life too short		
CE-144	-1.251E-01		1.556E-01	2.234E-01	3.485E-02	-0.560
PM-144	-1.851E-02		3.048E-02	4.374E-02	4.193E-03	-0.423
PR-144	-1.254E+00		2.065E+00	2.964E+00	2.840E-01	-0.423
PM-146	2.819E-03		2.943E-02	4.967E-02	6.228E-03	0.057
ND-147	-3.067E-01		3.986E-01	6.103E-01	9.874E-02	-0.502
PM-149	-1.228E+01		6.675E+01	1.063E+02	2.132E+01	-0.116
EU-152	-1.244E-02		7.785E-02	1.161E-01	1.574E-02	-0.107

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-6.008E-02		6.564E-02	8.794E-02	7.812E-03	-0.683
EU-154	-1.184E-02		9.517E-02	1.525E-01	1.677E-02	-0.078
EU-155	1.088E-01		7.296E-02	1.309E-01	1.142E-02	0.832
TB-160	-1.178E-02		9.818E-02	1.629E-01	1.605E-02	-0.072
HO-166M	-3.738E-03		4.724E-02	7.583E-02	7.303E-03	-0.049
TM-171	1.670E+01		1.886E+01	2.863E+01	2.149E+00	0.583
LU-176	1.095E-02		1.893E-02	3.142E-02	4.619E-03	0.349
LU-177	1.682E+00	+	1.178E+00	1.411E+00	1.651E-01	1.192
LU-177M	-5.935E-02		1.312E-01	2.143E-01	2.301E-02	-0.277
HF-181	-1.693E-02		3.072E-02	4.892E-02	5.269E-03	-0.346
W-181	-3.400E-01		2.510E-01	3.349E-01	2.483E-02	-1.015
TA-182	7.038E-03		1.519E-01	2.490E-01	2.023E-02	0.028
RE-183	1.368E-04		7.541E-02	1.261E-01	1.209E-02	0.001
RE-184	4.117E-02		1.670E-01	2.755E-01	3.865E-02	0.149
OS-185	-1.794E-02		3.155E-02	4.852E-02	4.683E-03	-0.370
RE-188	1.616E-01		1.258E-01	2.206E-01	2.058E-02	0.732
W-188	-2.923E+00		6.180E+00	8.474E+00	1.287E+00	-0.345
IR-192	-1.468E-02		2.709E-02	4.124E-02	5.928E-03	-0.356
AU-195	2.131E-01		1.514E-01	2.712E-01	2.393E-02	0.786
TL-200	-2.800E-06		1.457E-04	Half-Life too short		
TL-201	1.551E+00		4.418E+00	7.495E+00	7.332E-01	0.207
TL-202	-1.485E-03		4.582E-02	7.675E-02	8.278E-03	-0.019
HG-203	2.271E-02		3.243E-02	5.415E-02	8.459E-03	0.419
BI-207	1.680E-02		3.993E-02	6.876E-02	6.177E-03	0.244
TL-207	-2.459E-01		5.665E-01	7.685E-01	1.607E-01	-0.320
PO-209	-3.707E+00		5.671E+00	8.882E+00	8.745E-01	-0.417
BI-210	1.340E+00		1.848E+00	3.075E+00	2.862E-01	0.436
PB-210	1.340E+00		1.848E+00	3.075E+00	2.862E-01	0.436
PO-210	1.340E+00		1.847E+00	3.075E+00	2.592E-01	0.436
PB-211	3.854E-03		6.815E-01	1.152E+00	7.253E-01	0.003
BI-212	5.472E-01	+	3.861E-01	5.384E-01	5.884E-02	1.016
PO-215	-2.459E-01		5.665E-01	7.685E-01	1.607E-01	-0.320
RN-219	9.482E-02		3.141E-01	5.401E-01	8.809E-02	0.176
RN-220	1.033E+01		1.949E+01	3.352E+01	3.522E+00	0.308
RA-223	-2.459E-01		5.665E-01	7.685E-01	1.607E-01	-0.320
AC-227	-9.133E-02		2.744E-01	4.355E-01	8.301E-02	-0.210
TH-227	-9.133E-02		2.745E-01	4.355E-01	9.279E-02	-0.210
TH-229	5.765E-02		3.749E-01	6.248E-01	6.860E-02	0.092
PA-231	-5.325E-01		1.214E+00	1.897E+00	3.759E-01	-0.281
TH-231	-2.459E-01		5.665E-01	7.685E-01	1.607E-01	-0.320
U-231	-1.197E-01		7.727E-01	1.091E+00	9.772E-02	-0.110
PA-233	1.560E-03		4.769E-02	7.658E-02	1.124E-02	0.020
PA-234	-7.345E-02		2.265E-01	3.650E-01	7.032E-02	-0.201
PA-234M	4.793E+00		3.832E+00	6.943E+00	7.386E-01	0.690
U-235	6.046E-03		1.516E-01	2.493E-01	4.408E-02	0.024
NP-236	-5.840E-02		5.428E-02	8.561E-02	8.144E-03	-0.682
NP-239	2.239E-02		1.242E-01	2.130E-01	1.802E-02	0.105
AM-241	5.855E-02		9.395E-02	1.428E-01	1.122E-02	0.410



----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-8.807E-03		6.456E-02	1.100E-01	9.521E-03	-0.080
AM-246	8.078E-02		1.198E-01	2.113E-01	1.874E-02	0.382
CM-247	-1.530E-02		2.804E-02	4.565E-02	4.885E-03	-0.335
CF-249	3.590E-03		2.860E-02	4.884E-02	5.319E-03	0.074
CF-251	5.130E-03		9.116E-02	1.521E-01	1.549E-02	0.034

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600002          *
* Acquisition date   : 22-JAN-2010 07:55:16 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 02:00:01.67 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600002 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4833E+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 :                             *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.117E+01	2.225E+00	2.069E-01	1.135E+00
CD-109	1.500E+00	1.049E+00	4.359E-01	5.354E-01
SN-126	1.475E-01	1.032E-01	4.301E-02	5.265E-02
TL-208	3.971E-01	7.429E-02	2.279E-02	3.790E-02
BI-211	3.126E+00	5.435E-01	1.238E-01	2.773E-01
PB-212	1.431E+00	2.158E-01	3.500E-02	1.101E-01
PO-212	1.431E+00	2.158E-01	3.500E-02	1.101E-01
BI-214	9.977E-01	1.604E-01	4.613E-02	8.185E-02
PB-214	1.087E+00	1.971E-01	4.314E-02	1.006E-01
PO-214	1.087E+00	1.971E-01	4.314E-02	1.006E-01
PO-216	1.431E+00	2.158E-01	3.500E-02	1.101E-01
PO-218	1.087E+00	1.971E-01	4.314E-02	1.006E-01
RA-224	3.821E+00	9.804E-01	3.984E-01	5.002E-01
RA-226	9.977E-01	1.604E-01	4.613E-02	8.185E-02
AC-228	1.177E+00	2.949E-01	7.903E-02	1.504E-01
RA-228	1.177E+00	2.949E-01	7.903E-02	1.504E-01
TH-228	1.453E+00	2.190E-01	3.552E-02	1.117E-01
TH-230	9.977E-01	1.604E-01	4.613E-02	8.185E-02
TH-232	1.177E+00	2.949E-01	7.903E-02	1.504E-01
TH-234	1.296E+00	1.187E+00	6.432E-01	6.056E-01
U-234	9.977E-01	1.604E-01	4.613E-02	8.185E-02
NP-237	4.330E-01	3.154E-01	1.359E-01	1.609E-01
U-238	1.296E+00	1.187E+00	6.432E-01	6.056E-01
AM-243	2.838E-01	5.465E-02	2.901E-02	2.788E-02
ANH-511	9.894E-02	5.954E-02	1.892E-02	3.038E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	8.226E-02	2.402E-01	2.166E-01	1.225E-01 NOT IDENT.
NA-22	-3.566E-03	3.345E-02	2.771E-02	1.707E-02 NOT IDENT.

NA-24	2.355E+05	4.312E+05	0.000E+00	2.200E+05	SHORT HLIF
AL-26	-2.545E-02	1.954E-02	1.014E-02	9.972E-03	NOT IDENT.
TI-44	3.176E-01	4.401E-02	2.559E-02	2.246E-02	FAIL ABUN
SC-46	1.612E-02	2.929E-02	2.679E-02	1.495E-02	FAIL ABUN
V-48	1.769E-02	4.412E-02	3.980E-02	2.251E-02	NOT IDENT.
CR-51	5.921E-02	2.656E-01	2.298E-01	1.355E-01	NOT IDENT.
MN-52	1.058E-01	1.599E-01	1.460E-01	8.159E-02	NOT IDENT.
MN-54	4.204E-04	2.697E-02	2.372E-02	1.376E-02	NOT IDENT.
CO-56	-1.351E-02	2.487E-02	2.053E-02	1.269E-02	NOT IDENT.
CO-57	2.270E-03	1.669E-02	1.553E-02	8.517E-03	NOT IDENT.
CO-58	-4.017E-03	3.051E-02	2.492E-02	1.556E-02	NOT IDENT.
FE-59	-4.703E-02	6.956E-02	5.506E-02	3.549E-02	NOT IDENT.
CO-60	5.875E-03	3.080E-02	2.630E-02	1.572E-02	NOT IDENT.
ZN-65	-3.180E-02	7.872E-02	5.470E-02	4.016E-02	NOT IDENT.
GE-68	-1.349E-01	1.046E+00	8.832E-01	5.336E-01	NOT IDENT.
AS-73	-3.163E-01	4.527E-01	3.869E-01	2.310E-01	NOT IDENT.
AS-74	-2.257E-02	7.066E-02	5.930E-02	3.605E-02	NOT IDENT.
SE-75	3.762E-04	3.168E-02	2.751E-02	1.616E-02	NOT IDENT.
BR-77	-4.116E+00	6.755E+00	5.589E+00	3.447E+00	FAIL ABUN
SR-82	5.525E-02	3.120E-01	2.337E-01	1.592E-01	NOT IDENT.
RB-83	-2.195E-02	4.767E-02	3.998E-02	2.432E-02	NOT IDENT.
RB-84	3.931E-02	4.908E-02	4.597E-02	2.504E-02	NOT IDENT.
KR-85	8.559E+00	5.835E+00	5.061E+00	2.977E+00	NOT IDENT.
SR-85	4.375E-02	2.983E-02	2.587E-02	1.522E-02	NOT IDENT.
RB-86	-5.364E-01	6.731E-01	5.316E-01	3.434E-01	NOT IDENT.
Y-88	1.577E-02	2.342E-02	2.238E-02	1.195E-02	NOT IDENT.
ZR-88	8.418E-03	2.131E-02	1.960E-02	1.087E-02	NOT IDENT.
Y-91	-4.317E+00	1.567E+01	1.290E+01	7.997E+00	NOT IDENT.
NB-94	-3.366E-02	2.708E-02	2.024E-02	1.381E-02	NOT IDENT.
NB-95	5.653E-03	3.500E-02	2.617E-02	1.786E-02	NOT IDENT.
NB-95M	1.339E-02	9.456E-02	7.481E-02	4.825E-02	NOT IDENT.
ZR-95	2.003E-02	5.255E-02	4.575E-02	2.681E-02	NOT IDENT.
NB-97	4.772E+03	5.380E+04	0.000E+00	2.745E+04	SHORT HLIF
ZR-97	1.291E+06	1.059E+06	0.000E+00	5.402E+05	SHORT HLIF
MO-99	5.993E+00	8.237E+00	7.365E+00	4.203E+00	NOT IDENT.
TC-99M	-5.587E+15	1.195E+16	0.000E+00	6.098E+15	SHORT HLIF
RH-101	1.805E-02	2.336E-02	2.108E-02	1.192E-02	NOT IDENT.
RH-102	-2.336E-02	2.256E-02	1.829E-02	1.151E-02	NOT IDENT.
RU-103	1.644E-02	2.830E-02	2.586E-02	1.444E-02	FAIL ABUN
RH-106	4.687E-02	2.238E-01	1.956E-01	1.142E-01	FAIL ABUN
RU-106	4.687E-02	2.238E-01	1.956E-01	1.142E-01	FAIL ABUN
AG-108M	6.129E-03	2.159E-02	1.960E-02	1.102E-02	NOT IDENT.
AG-110M	1.472E-02	2.476E-02	2.222E-02	1.263E-02	NOT IDENT.
IN-111	-3.165E-01	7.989E-01	6.035E-01	4.076E-01	NOT IDENT.
IN-113M	-1.192E-02	3.119E-02	2.729E-02	1.591E-02	NOT IDENT.
SN-113	-1.192E-02	3.119E-02	2.729E-02	1.591E-02	NOT IDENT.
IN-114M	6.301E-02	1.364E-01	1.189E-01	6.959E-02	NOT IDENT.
CD-115	-3.941E+00	6.930E+00	5.742E+00	3.535E+00	NOT IDENT.
SN-117M	-1.997E-02	3.696E-02	3.266E-02	1.886E-02	NOT IDENT.
SB-122	-4.641E-02	1.409E+00	1.218E+00	7.187E-01	NOT IDENT.
I-123	-6.667E+05	2.686E+06	0.000E+00	1.371E+06	SHORT HLIF
TE-123M	-4.730E-03	1.906E-02	1.708E-02	9.722E-03	NOT IDENT.
I-124	-3.074E-01	4.343E-01	3.490E-01	2.216E-01	NOT IDENT.
SB-124	-4.251E-02	4.763E-02	3.150E-02	2.430E-02	FAIL ABUN
SB-125	1.343E-02	6.518E-02	5.886E-02	3.326E-02	FAIL ABUN
TE-125M	6.874E+00	6.128E+00	5.924E+00	3.126E+00	NOT IDENT.
I-126	1.991E-02	1.485E-01	1.278E-01	7.576E-02	NOT IDENT.
SB-126	-2.712E-02	1.049E-01	8.638E-02	5.353E-02	FAIL ABUN
SB-127	-4.643E-01	9.644E-01	7.801E-01	4.920E-01	NOT IDENT.
XE-127	-1.056E-02	3.193E-02	2.788E-02	1.629E-02	NOT IDENT.
I-131	2.446E-02	8.061E-02	6.942E-02	4.113E-02	NOT IDENT.
TE-132	-1.598E-01	4.469E-01	3.844E-01	2.280E-01	NOT IDENT.
BA-133	-7.590E-03	3.740E-02	2.745E-02	1.908E-02	NOT IDENT.
I-133	4.729E+02	3.286E+03	0.000E+00	1.676E+03	SHORT HLIF
CS-134	5.108E-02	3.761E-02	3.573E-02	1.919E-02	FAIL ABUN
CS-135	4.251E-02	1.256E-01	9.956E-02	6.409E-02	NOT IDENT.
I-135	5.147E+14	2.077E+15	0.000E+00	1.060E+15	SHORT HLIF
CS-136	2.428E-02	8.239E-02	7.260E-02	4.204E-02	FAIL ABUN
BA-137M	-2.170E-02	2.775E-02	2.197E-02	1.416E-02	NOT IDENT.
CS-137	-2.294E-02	2.934E-02	2.322E-02	1.497E-02	NOT IDENT.
CE-139	-7.154E-03	1.989E-02	1.766E-02	1.015E-02	NOT IDENT.
BA-140	7.820E-02	1.886E-01	1.681E-01	9.625E-02	NOT IDENT.
LA-140	-4.226E-02	8.127E-02	5.325E-02	4.146E-02	FAIL ABUN
CE-141	-5.646E-03	4.437E-02	3.930E-02	2.264E-02	NOT IDENT.
CE-143	1.988E+02	1.074E+02	0.000E+00	5.482E+01	SHORT HLIF
CE-144	-1.251E-01	1.525E-01	1.190E-01	7.779E-02	NOT IDENT.
PM-144	-1.851E-02	2.987E-02	2.243E-02	1.524E-02	NOT IDENT.
PR-144	-1.254E+00	2.024E+00	1.520E+00	1.032E+00	NOT IDENT.

PM-146	2.819E-03	2.884E-02	2.573E-02	1.471E-02	NOT IDENT.
ND-147	-3.067E-01	3.906E-01	3.150E-01	1.993E-01	FAIL ABUN
PM-149	-1.228E+01	6.542E+01	5.568E+01	3.338E+01	NOT IDENT.
EU-152	-1.244E-02	7.629E-02	6.052E-02	3.893E-02	FAIL ABUN
GD-153	-6.008E-02	6.432E-02	4.719E-02	3.282E-02	NOT IDENT.
EU-154	-1.184E-02	9.326E-02	7.705E-02	4.758E-02	NOT IDENT.
EU-155	1.088E-01	7.150E-02	7.009E-02	3.648E-02	FAIL ABUN
TB-160	-1.178E-02	9.621E-02	8.303E-02	4.909E-02	FAIL ABUN
HO-166M	-3.738E-03	4.630E-02	3.886E-02	2.362E-02	NOT IDENT.
TM-171	1.670E+01	1.849E+01	1.549E+01	9.432E+00	NOT IDENT.
LU-176	1.095E-02	1.855E-02	1.643E-02	9.464E-03	FAIL ABUN
LU-177	1.682E+00	1.154E+00	7.442E-01	5.889E-01	FAIL ABUN
LU-177M	-5.935E-02	1.285E-01	1.113E-01	6.558E-02	NOT IDENT.
HF-181	-1.693E-02	3.011E-02	2.530E-02	1.536E-02	NOT IDENT.
W-181	-3.400E-01	2.460E-01	1.813E-01	1.255E-01	NOT IDENT.
TA-182	7.038E-03	1.488E-01	1.259E-01	7.593E-02	FAIL ABUN
RE-183	1.368E-04	7.390E-02	6.690E-02	3.771E-02	FAIL ABUN
RE-184	4.117E-02	1.637E-01	1.447E-01	8.350E-02	NOT IDENT.
OS-185	-1.794E-02	3.092E-02	2.492E-02	1.578E-02	NOT IDENT.
RE-188	1.616E-01	1.233E-01	1.172E-01	6.290E-02	NOT IDENT.
W-188	-2.923E+00	6.056E+00	4.436E+00	3.090E+00	FAIL ABUN
IR-192	-1.468E-02	2.655E-02	2.155E-02	1.355E-02	FAIL ABUN
AU-195	2.131E-01	1.483E-01	1.455E-01	7.568E-02	FAIL ABUN
TL-200	-2.800E+00	2.857E+02	0.000E+00	1.457E+02	SHORT HLIF
TL-201	1.551E+00	4.330E+00	3.973E+00	2.209E+00	NOT IDENT.
TL-202	-1.485E-03	4.490E-02	3.979E-02	2.291E-02	NOT IDENT.
HG-203	2.271E-02	3.178E-02	2.837E-02	1.621E-02	NOT IDENT.
BI-207	1.680E-02	3.913E-02	3.489E-02	1.997E-02	FAIL ABUN
TL-207	-2.459E-01	5.551E-01	4.013E-01	2.832E-01	FAIL ABUN
PO-209	-3.707E+00	5.557E+00	4.526E+00	2.835E+00	NOT IDENT.
BI-210	1.340E+00	1.811E+00	1.677E+00	9.240E-01	NOT IDENT.
PB-210	1.340E+00	1.811E+00	1.677E+00	9.240E-01	NOT IDENT.
PO-210	1.340E+00	1.810E+00	1.677E+00	9.236E-01	NOT IDENT.
PB-211	3.854E-03	6.678E-01	5.981E-01	3.407E-01	NOT IDENT.
BI-212	5.472E-01	3.784E-01	2.758E-01	1.931E-01	FAIL ABUN
PO-215	-2.459E-01	5.551E-01	4.013E-01	2.832E-01	FAIL ABUN
RN-219	9.482E-02	3.078E-01	2.806E-01	1.571E-01	FAIL ABUN
RN-220	1.033E+01	1.910E+01	1.729E+01	9.743E+00	NOT IDENT.
RA-223	-2.459E-01	5.551E-01	4.013E-01	2.832E-01	FAIL ABUN
AC-227	-9.133E-02	2.689E-01	2.287E-01	1.372E-01	FAIL ABUN
TH-227	-9.133E-02	2.690E-01	2.287E-01	1.372E-01	FAIL ABUN
TH-229	5.765E-02	3.674E-01	3.301E-01	1.875E-01	FAIL ABUN
PA-231	-5.325E-01	1.189E+00	9.935E-01	6.068E-01	FAIL ABUN
TH-231	-2.459E-01	5.551E-01	4.013E-01	2.832E-01	FAIL ABUN
U-231	-1.197E-01	7.572E-01	5.855E-01	3.863E-01	FAIL ABUN
PA-233	1.560E-03	4.674E-02	4.002E-02	2.385E-02	FAIL ABUN
PA-234	-7.345E-02	2.219E-01	1.858E-01	1.132E-01	FAIL ABUN
PA-234M	4.793E+00	3.755E+00	3.529E+00	1.916E+00	NOT IDENT.
U-235	6.046E-03	1.485E-01	1.326E-01	7.579E-02	FAIL ABUN
NP-236	-5.840E-02	5.319E-02	4.543E-02	2.714E-02	NOT IDENT.
NP-239	2.239E-02	1.217E-01	1.138E-01	6.209E-02	FAIL ABUN
AM-241	5.855E-02	9.207E-02	7.747E-02	4.697E-02	NOT IDENT.
CM-243	-8.807E-03	6.327E-02	5.892E-02	3.228E-02	FAIL ABUN
AM-246	8.078E-02	1.174E-01	1.072E-01	5.989E-02	NOT IDENT.
CM-247	-1.530E-02	2.748E-02	2.371E-02	1.402E-02	NOT IDENT.
CF-249	3.590E-03	2.803E-02	2.540E-02	1.430E-02	NOT IDENT.
CF-251	5.130E-03	8.934E-02	8.053E-02	4.558E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	190.3094
46.50	190.3094
46.50	190.3094
48.70	236.7122
49.72	212.2467
51.35	223.3656
52.39	196.3952
52.97	233.4542
53.15	233.5912
53.44	240.4910
54.07	242.0961
56.28	211.2153
56.28	211.2174
57.37	0.0000
57.53	250.3860
57.53	250.3877
57.60	250.4402
57.98	237.1801
57.98	237.1801
59.32	225.2961
59.32	225.2961
59.40	225.3507
59.54	226.9585
59.72	228.5952
60.01	230.3097
61.10	246.2596
61.14	246.2885
61.30	246.4047
63.00	269.4158
63.29	269.6417
63.29	269.6417
63.58	269.8676
64.28	293.0405
65.12	332.1892
65.20	339.9557
65.20	339.9557
66.05	286.8030
66.72	270.3453
66.83	270.4308
66.91	270.4895
67.20	320.2094
67.20	320.2094
67.75	323.0197
67.85	323.1088
68.90	333.3648
68.90	333.3648
69.30	344.2289
69.67	311.4827
70.82	307.7584
70.82	307.7584
70.83	307.7664
72.80	320.3707
72.87	320.4288
72.87	320.4288
74.67	302.9941
74.81	303.1035
74.81	303.1035
74.81	303.1035
74.81	303.1035
74.81	303.1035
74.81	303.1035
74.81	303.1035
74.97	303.2285
75.28	303.4707
75.70	303.7969
77.11	304.8848
77.11	304.8848

77.11	304.8848
77.11	304.8848
77.11	304.8848
77.11	304.8848
77.11	304.8848
78.38	305.8574
79.62	298.8093
79.80	298.9424
79.80	298.9424
80.11	262.3743
80.18	262.4194
80.30	262.4961
80.30	262.4961
80.57	262.6696
81.00	278.9799
81.07	279.0276
81.07	279.0276
81.07	279.0276
81.07	279.0276
82.60	339.6146
83.37	343.4642
83.78	330.8895
83.78	330.8895
83.78	330.8895
83.78	330.8895
84.21	294.0652
84.90	294.5466
85.43	332.1824
86.29	332.8518
86.50	333.0145
86.54	333.0458
86.59	333.0854
86.72	333.1855
86.79	333.2376
86.94	333.3544
87.30	333.6339
87.30	333.6339
87.30	333.6339
87.30	333.6339
87.30	333.6339
87.30	333.6339
87.57	293.1281
87.88	293.3386
88.03	293.4393
88.36	293.6627
88.47	293.7360
89.95	272.6238
91.11	221.6245
92.29	222.2095
92.38	222.2534
92.38	222.2534
93.35	245.8294
94.00	246.1810
94.67	264.7412
94.67	264.7444
94.90	264.8763
94.90	264.8763
94.90	264.8763
94.90	264.8763
95.87	263.7772
95.87	263.7772
96.73	272.5793
97.43	312.9355
98.44	257.7263
98.44	257.7279
98.88	233.7577
99.55	223.2198
99.55	223.2198
99.86	223.3664
100.00	223.4316
100.10	241.8946
103.18	255.2371
103.76	254.6988
105.00	214.7582
105.31	219.1241
108.00	275.5997
109.28	224.2793

111.00	254.1301
111.00	254.1301
111.76	238.2247
112.95	246.5034
115.19	220.8203
116.30	216.0988
117.00	213.7870
117.00	213.7870
117.66	214.0521
121.11	218.0392
121.62	222.6075
121.78	222.6723
122.06	219.2918
122.32	217.6470
122.32	217.6470
122.32	217.6470
122.32	217.6470
123.07	222.3198
127.23	207.6664
129.76	240.9198
131.20	193.1290
133.02	216.4491
133.54	240.7132
135.34	207.4675
136.00	205.0131
136.25	213.1599
136.48	212.3463
140.51	229.1075
140.51	0.0000
142.18	236.9684
142.65	221.7646
143.76	233.0448
144.24	237.7627
144.24	237.7627
144.24	237.7627
144.24	237.7627
145.22	239.0474
145.44	235.4933
147.16	226.1123
152.43	233.5051
152.70	237.2821
153.22	248.5190
154.21	227.6931
154.21	227.6931
154.21	227.6931
154.21	227.6931
155.03	215.9818
156.02	235.7214
158.56	224.5659
159.00	0.0000
159.00	210.7850
160.31	223.2935
161.27	222.6815
162.32	207.1652
162.64	183.9220
163.35	180.3760
163.89	201.0966
165.85	206.3641
167.43	185.2125
171.28	192.8562
171.86	193.9601
172.10	194.0268
176.55	208.5740
176.60	208.5896
181.06	218.4977
184.41	212.2703
185.71	209.2673
186.00	209.3468
190.27	204.9072
192.34	219.8617
193.63	207.5615
197.04	215.3271
198.01	173.4547
198.60	171.6230
200.40	200.5220
201.83	195.9595
202.84	192.2646
205.31	192.8577

208.36	199.5401
208.81	181.7714
209.75	181.9799
209.75	181.9799
210.97	170.3007
215.65	174.2673
216.55	155.4052
218.09	201.8956
222.10	178.6295
223.80	185.0515
226.40	172.4228
227.00	177.6169
227.08	177.6329
227.20	171.5667
228.16	166.6743
228.18	187.0042
228.18	187.0042
231.56	0.0000
235.69	176.8114
236.00	199.9432
236.00	199.9432
238.63	172.7629
238.63	172.7629
238.63	172.7629
238.63	172.7629
239.00	172.8330
240.98	173.2107
241.98	173.4021
241.98	173.4021
241.98	173.4021
244.69	142.8586
245.39	166.2765
247.94	153.7496
248.90	141.4287
249.79	135.3175
252.40	139.8696
252.85	135.7592
252.85	135.7592
254.15	0.0000
256.20	144.6232
256.20	144.6232
260.50	143.1663
260.90	151.6494
262.80	139.2859
264.65	139.5491
268.24	140.0593
268.79	140.1372
269.46	127.4854
269.46	127.4854
269.46	127.4854
269.46	127.4854
271.23	148.4657
273.65	156.8245
276.40	162.6040
277.35	173.4631
277.60	166.0088
277.60	166.0088
278.00	169.2894
278.60	144.7311
279.20	150.1799
279.53	160.9589
280.46	167.5496
281.68	156.9963
283.67	156.2219
284.30	127.2091
285.00	142.3984
285.90	153.3191
286.10	142.5488
286.10	142.5488
287.40	139.4849
288.45	0.0000
290.67	143.1746
290.80	161.0925
291.72	144.9455
293.26	0.0000
293.70	124.0056
295.21	152.5041
295.21	152.5041



295.21	152.5041
295.96	152.6123
296.50	152.6892
297.23	152.7946
298.57	152.9854
299.80	153.1592
299.80	153.1592
300.09	167.4278
300.09	167.4278
300.09	167.4278
300.09	167.4278
300.12	167.4309
301.29	138.0330
302.84	139.8759
303.76	120.2312
303.91	140.0134
304.40	150.2957
304.40	150.2957
304.84	156.0723
306.84	115.6149
308.46	122.4022
311.98	115.0492
316.51	125.5134
318.01	111.2203
319.02	111.3200
319.41	106.9043
320.08	106.9668
323.87	127.4475
323.87	127.4475
323.87	127.4475
323.87	127.4475
325.23	122.5615
328.77	121.2539
333.44	101.4514
334.20	111.6691
334.20	111.6691
334.30	111.6791
338.28	99.6051
338.28	99.6051
338.28	99.6051
338.28	99.6051
338.32	99.6087
338.32	99.6087
338.32	99.6087
340.50	107.1623
340.57	107.1700
344.27	113.3043
345.85	104.7952
350.59	0.0000
351.07	105.2482
351.92	105.3212
351.92	105.3212
351.92	105.3212
355.39	0.0000
356.01	115.4364
364.48	86.7340
366.43	115.8244
367.43	106.6427
367.94	0.0000
369.80	87.1002
374.96	99.1131
383.85	97.7415
387.95	96.2798
388.63	98.9810
391.69	101.8674
391.69	101.8674
392.90	88.6597
398.62	105.9571
400.65	84.7137
401.10	91.8790
401.81	103.5302
402.60	115.1997
404.84	100.1824
410.95	83.5575
411.60	91.6873
413.65	107.1265
414.70	94.5955
415.30	101.8459

415.76	105.4867
417.63	0.0000
418.52	92.1449
423.70	82.5104
427.08	92.7036
427.89	84.5722
432.53	75.7228
433.93	70.3170
439.47	73.3374
439.56	73.3411
439.89	62.3544
443.98	90.1150
444.90	90.1718
445.03	90.1793
445.03	90.1793
445.03	90.1793
453.90	70.3547
463.38	89.4287
468.07	103.1597
473.00	81.5545
475.06	105.1299
475.35	95.7604
476.78	88.3315
477.59	81.7961
477.96	78.0544
482.03	82.9713
484.57	77.4393
487.03	57.6966
490.36	0.0000
492.35	66.4314
497.08	63.7725
507.63	0.0000
510.53	0.0000
510.84	84.4719
511.00	84.4799
511.85	84.5242
511.85	84.5242
513.99	69.2452
513.99	69.2452
520.41	71.4436
520.65	75.3173
527.90	72.7341
528.96	0.0000
529.64	62.1289
529.87	0.0000
531.02	75.7815
537.32	67.2859
543.00	61.6388
546.56	0.0000
549.76	63.8435
552.65	73.7869
555.20	60.1009
563.23	60.3727
563.90	73.2661
568.70	73.4648
569.32	72.4965
569.50	59.5917
569.67	59.5972
573.80	73.6725
574.00	65.7140
574.64	66.7342
578.91	67.0913
579.30	0.0000
583.14	71.0498
585.48	48.0938
591.81	62.3349
592.07	53.2944
593.00	61.3686
595.88	81.6155
600.56	65.6586
602.52	0.0000
602.71	71.8017
602.71	71.8017
603.60	70.1479
604.41	71.2594
604.70	58.3119
609.31	82.2014

609.31	82.2014
609.31	82.2014
609.31	82.2014
610.33	82.8526
612.46	71.5623
614.37	56.9810
618.01	67.2830
621.84	56.1816
621.84	56.1816
631.29	66.7198
633.02	59.5877
633.10	59.5895
634.78	70.9520
635.90	60.7033
636.97	62.7946
645.85	64.1116
646.12	65.1533
656.30	61.3281
657.75	52.0096
657.90	0.0000
661.65	80.2498
661.65	80.2498
664.57	0.0000
666.33	80.4331
666.33	80.4331
675.00	57.6956
677.61	65.1201
685.20	65.3585
692.80	64.5370
695.00	60.3677
696.49	79.4861
696.49	79.4861
697.00	85.8672
697.49	79.5250
698.33	60.4633
698.50	60.4668
699.00	59.4197
702.63	89.2833
706.10	51.1011
706.58	0.0000
706.67	48.9845
709.31	70.3687
711.68	64.0430
713.82	66.2421
717.42	55.6515
720.50	62.1595
721.93	0.0000
722.20	57.2038
722.78	63.5125
722.78	63.5125
722.89	63.5161
722.95	63.5179
723.30	80.6963
724.18	63.5522
727.18	60.1990
733.00	58.6334
735.90	63.6760
739.58	49.7271
742.81	63.8741
744.21	73.6632
747.13	50.9803
751.79	61.9541
752.31	59.7954
753.82	50.0430
755.35	53.3425
756.15	51.1839
756.87	52.2891
763.93	48.9549
765.79	57.7436
766.42	66.5111
766.84	68.2729
776.49	49.2215
778.00	72.8763
778.57	68.1815
778.89	64.8914
783.80	56.2108
785.46	54.0439
792.07	38.9329

795.84	43.2049
796.30	40.9972
798.80	76.3124
801.93	58.8648
805.60	62.2925
810.29	45.6958
810.76	51.2783
815.85	46.9180
817.79	57.0170
818.51	46.9693
819.60	40.2781
826.30	47.1205
828.27	0.0000
831.60	49.4705
831.96	49.4785
834.83	56.7415
836.80	0.0000
846.75	43.4391
848.13	38.0307
856.28	0.0000
856.80	27.2585
860.37	42.7659
867.32	41.0581
867.82	43.0213
871.10	47.5147
873.19	40.2381
874.81	35.6875
875.33	0.0000
876.40	44.8668
879.36	44.0016
880.27	40.3487
880.51	40.3525
881.50	36.6982
883.24	42.2311
884.67	53.2776
889.25	44.1691
896.60	56.2910
898.02	52.6276
899.00	48.9525
903.28	45.3322
911.07	44.8476
911.07	44.8476
911.07	44.8476
919.63	38.7858
920.93	45.2345
925.00	49.4339
925.24	46.6406
926.50	42.9296
935.52	50.5630
937.48	51.5370
944.10	44.1474
946.00	49.8182
949.00	44.2266
962.29	50.4284
964.01	52.0365
966.15	18.9365
968.20	18.9507
969.11	18.9570
969.11	18.9570
969.11	18.9570
977.42	27.3315
980.50	40.9224
983.50	29.5340
989.30	37.2309
996.32	53.5924
1001.03	34.5085
1001.68	42.1867
1004.76	61.4281
1021.30	0.0000
1024.50	0.0000
1034.80	29.0918
1036.00	44.6254
1037.82	50.4766
1038.57	46.6055
1038.76	0.0000
1045.16	54.4961
1046.59	49.6528
1048.07	45.7814

1050.47	41.9187
1050.47	41.9187
1062.04	39.1445
1063.62	41.1223
1076.63	67.8478
1077.35	58.0292
1078.86	43.2975
1085.78	41.4217
1099.22	54.4790
1112.02	39.7832
1112.84	46.7590
1115.52	56.4232
1120.29	54.8469
1120.29	54.8469
1120.29	54.8469
1120.29	54.8469
1120.51	54.8496
1121.28	53.2005
1124.00	0.0000
1129.67	44.0064
1131.51	0.0000
1147.95	0.0000
1167.94	46.5548
1173.22	45.6152
1175.09	53.7557
1177.93	43.6509
1189.05	58.0576
1204.90	67.5436
1205.75	0.0000
1213.00	66.6790
1221.42	54.5036
1230.97	61.8750
1235.34	75.3775
1236.41	0.0000
1238.25	47.5386
1246.25	46.6128
1260.41	0.0000
1271.85	30.2603
1274.45	41.7695
1274.54	41.7695
1291.56	40.9214
1298.22	0.0000
1312.09	32.7135
1325.50	30.7162
1325.50	30.7162
1332.49	30.7743
1333.61	25.4766
1360.21	27.7977
1362.66	0.0000
1365.15	22.4817
1368.21	30.0002
1368.53	0.0000
1376.25	31.1382
1384.27	30.1273
1394.10	20.4964
1395.20	16.1865
1407.95	31.3973
1434.06	15.2599
1436.60	22.9042
1457.56	0.0000
1460.81	20.8508
1489.15	19.3406
1509.49	15.7355
1596.49	27.5408
1620.62	17.1057
1678.03	0.0000
1691.02	13.5169
1691.02	13.5169
1706.46	0.0000
1750.46	0.0000
1764.49	10.0907
1764.49	10.0907
1764.49	10.0907
1764.49	10.0907
1770.23	6.7355
1771.40	10.1057
1791.20	0.0000
1808.65	13.8633

1836.01

6.9709

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600002

Total Uranium Activity	3.8589E+00	ug/g
Total Uranium Counting Unc.	3.5316E+00	ug/g
Total Uranium Tpu	1.8019E-06	ug/g
Total Uranium Mda	1.9144E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID : G244600002
*  ANALYST       : MXR1            DETECTOR  : GAM11
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00 COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 07:55:16.40 SAMPLE ALQT: 148.330 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.314E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.124E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.526E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.218E+00

```



VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:57:16.73

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600003.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:55:44
Sample ID          : G244600003      Sample quantity   : 1.58280E+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           : 941635            Detector SN#     :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.25*	101	645	1.80	125.98	121	10	1.40E-02	48.9	
2	2	74.69	490	482	1.11	148.88	143	15	6.80E-02	8.9	2.04E+00
3	2	76.95*	709	389	1.05	153.39	143	15	9.85E-02	6.1	
4	2	87.06	305	452	1.13	173.63	170	19	4.24E-02	12.7	2.37E+00
5	2	89.82	153	431	1.15	179.15	170	19	2.12E-02	23.9	
6	2	92.79*	194	409	1.16	185.09	170	19	2.70E-02	20.2	
7	0	128.73	133	469	1.04	257.01	251	11	1.84E-02	32.8	
8	0	185.66*	219	319	1.23	370.93	367	9	3.05E-02	16.8	
9	0	209.05	120	321	1.21	417.73	413	9	1.67E-02	28.5	
10	4	238.45*	1409	190	1.07	476.55	470	20	1.96E-01	3.1	1.36E+00
11	4	241.52	346	272	1.69	482.70	470	20	4.81E-02	11.4	
12	0	270.32	145	183	1.30	540.32	535	10	2.02E-02	19.3	
13	0	278.01*	10	208	1.01	555.70	550	8	1.40E-03	255.9	
14	0	294.86*	463	212	1.23	589.42	582	12	6.43E-02	8.0	
15	0	299.89	77	193	1.03	599.48	595	8	1.07E-02	33.3	
16	0	327.62	84	142	1.93	654.98	651	8	1.17E-02	26.8	
17	0	338.02*	250	270	1.11	675.78	669	14	3.48E-02	15.4	
18	0	351.60*	798	148	1.34	702.94	696	13	1.11E-01	4.8	
19	0	462.81	85	124	1.24	925.45	920	12	1.18E-02	28.2	
20	0	510.73*	181	116	1.66	1021.32	1015	15	2.51E-02	17.3	
21	0	582.97*	466	127	1.35	1165.85	1159	13	6.47E-02	6.9	
22	0	609.07*	552	160	1.47	1218.05	1210	16	7.67E-02	6.7	
23	0	726.75	123	95	1.74	1453.47	1447	16	1.71E-02	19.7	
24	0	769.47	110	91	5.29	1538.93	1532	17	1.53E-02	21.9	
25	0	859.89	76	54	2.05	1719.81	1711	14	1.05E-02	23.9	
26	0	910.78*	301	73	1.25	1821.59	1815	14	4.18E-02	8.5	
27	0	934.05	36	53	1.90	1868.13	1863	10	4.99E-03	41.9	
28	0	964.26	44	60	1.39	1928.56	1922	11	6.10E-03	37.5	
29	0	968.42*	193	64	1.60	1936.90	1932	11	2.68E-02	10.8	
30	0	1120.10*	109	85	1.88	2240.27	2232	15	1.51E-02	21.1	
31	0	1238.34	67	65	3.16	2476.73	2470	13	9.35E-03	28.0	
32	0	1460.14*	1384	21	2.25	2920.29	2910	22	1.92E-01	2.8	
33	0	1729.18*	16	9	2.02	3458.25	3451	11	2.21E-03	47.2	
34	0	1763.39*	99	11	2.91	3526.65	3520	14	1.38E-02	12.7	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 07:55:44
Sample ID        : G244600003             Sample quantity  : 158.28 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)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.704E+01	2.465E+00	4.751E-01	3.387E-02	56.908
CD-109	+	88.03	*	3.525E+00	9.360E-01	1.105E+00	8.459E-02	3.189
SN-126	+	64.28		7.807E-01	7.706E-01	6.719E-01	9.435E-02	1.162
	+	86.94		1.441E+00	6.972E-01	4.571E-01	1.881E-01	3.153
	+	87.57	*	3.466E-01	9.204E-02	1.092E-01	8.324E-03	3.174
HG-203		70.83		-1.047E-01	9.145E-01	1.375E+00	1.710E-01	-0.076
		72.87		9.017E-01	5.509E-01	8.715E-01	1.050E-01	1.035
		82.60		-4.063E-01	9.870E-01	1.437E+00	1.859E-01	-0.283
	+	279.20	*	8.595E-03	4.399E-02	4.943E-02	2.973E-03	0.174
TL-208	+	277.35		7.831E-02	4.009E-01	4.750E-01	4.975E-02	0.165
	+	510.84		7.110E-01	2.562E-01	1.875E-01	1.936E-02	3.792
	+	583.14	*	5.241E-01	8.102E-02	5.001E-02	3.577E-03	10.481
	+	860.37		8.012E-01	3.891E-01	3.259E-01	2.848E-02	2.459
BI-211		72.87		4.553E+00	2.744E+00	4.400E+00	2.952E-01	1.035
	+	351.07	*	3.884E+00	4.461E-01	2.539E-01	1.596E-02	15.298
PB-212	+	74.81		2.369E+00	5.035E-01	4.409E-01	5.096E-02	5.374
	+	77.11		1.943E+00	2.732E-01	2.502E-01	1.732E-02	7.766
	+	87.30		1.603E+00	4.549E-01	5.066E-01	6.363E-02	3.165
	+	238.63	*	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
	+	300.09		1.260E+00	8.457E-01	1.015E+00	8.287E-02	1.242
PO-212	+	74.81		2.369E+00	5.035E-01	4.409E-01	5.096E-02	5.374
	+	77.11		1.943E+00	2.732E-01	2.502E-01	1.732E-02	7.766
	+	87.30		1.603E+00	4.549E-01	5.066E-01	6.363E-02	3.165
		115.19		7.557E-01	2.936E+00	4.873E+00	3.091E-01	0.155
	+	238.63	*	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
	+	300.09		1.260E+00	8.457E-01	1.015E+00	8.287E-02	1.242
BI-214	+	609.31	*	1.171E+00	1.847E-01	9.208E-02	7.580E-03	12.713
	+	1120.29		1.198E+00	5.177E-01	3.920E-01	3.561E-02	3.056
	+	1764.49		1.501E+00	3.926E-01	3.175E-01	1.881E-02	4.730
PB-214	+	74.81		4.083E+00	8.359E-01	7.597E-01	7.639E-02	5.374
	+	77.11		3.331E+00	5.326E-01	4.289E-01	4.415E-02	7.766
	+	87.30		2.746E+00	7.593E-01	8.678E-01	9.394E-02	3.165
	+	241.98		2.205E+00	5.308E-01	4.332E-01	3.409E-02	5.089
	+	295.21		1.329E+00	2.392E-01	1.873E-01	1.581E-02	7.093

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	351.92	*	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
	+	74.81		4.083E+00	8.359E-01	7.597E-01	7.639E-02	5.374
	+	77.11		3.331E+00	5.326E-01	4.289E-01	4.415E-02	7.766
	+	87.30		2.746E+00	7.593E-01	8.678E-01	9.394E-02	3.165
	+	241.98		2.205E+00	5.308E-01	4.332E-01	3.409E-02	5.089
PO-216	+	295.21		1.329E+00	2.392E-01	1.873E-01	1.581E-02	7.093
	+	351.92	*	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
	+	74.81		2.369E+00	5.035E-01	4.409E-01	5.096E-02	5.374
	+	77.11		1.943E+00	2.732E-01	2.502E-01	1.732E-02	7.766
	+	87.30		1.603E+00	4.549E-01	5.066E-01	6.363E-02	3.165
PO-218	+	238.63	*	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
	+	300.09		1.260E+00	8.457E-01	1.015E+00	8.287E-02	1.242
	+	74.81		4.083E+00	8.359E-01	7.597E-01	7.639E-02	5.374
	+	77.11		3.331E+00	5.326E-01	4.289E-01	4.415E-02	7.766
	+	87.30		2.746E+00	7.593E-01	8.678E-01	9.394E-02	3.165
RA-224	+	241.98		2.205E+00	5.308E-01	4.332E-01	3.409E-02	5.089
	+	295.21		1.329E+00	2.392E-01	1.873E-01	1.581E-02	7.093
	+	351.92	*	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
	+	240.98	*	4.180E+00	9.787E-01	8.186E-01	4.516E-02	5.107
	+	609.31	*	1.171E+00	1.847E-01	9.208E-02	7.580E-03	12.713
AC-228	+	1120.29		1.198E+00	5.177E-01	3.920E-01	3.561E-02	3.056
	+	1764.49		1.501E+00	3.926E-01	3.175E-01	1.881E-02	4.730
	+	338.32		1.342E+00	6.858E-01	3.088E-01	1.258E-01	4.345
	+	911.07	*	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
	+	969.11		1.706E+00	5.402E-01	3.760E-01	8.668E-02	4.539
RA-228	+	338.32		1.342E+00	6.858E-01	3.088E-01	1.258E-01	4.345
	+	911.07	*	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
	+	969.11		1.706E+00	5.402E-01	3.760E-01	8.668E-02	4.539
	+	74.81		2.405E+00	4.598E-01	4.474E-01	3.084E-02	5.374
	+	77.11		1.972E+00	2.772E-01	2.539E-01	1.758E-02	7.766
TH-228	+	87.30		1.627E+00	4.320E-01	5.141E-01	3.907E-02	3.165
	+	238.63	*	1.516E+00	1.433E-01	7.299E-02	5.183E-03	20.772
	+	300.09		1.279E+00	1.138E+00	1.030E+00	6.071E-01	1.242
	+	609.31	*	1.171E+00	1.846E-01	9.207E-02	7.580E-03	12.713
	+	1120.29		1.198E+00	5.177E-01	3.920E-01	3.561E-02	3.056
TH-232	+	1764.49		1.501E+00	3.926E-01	3.174E-01	1.881E-02	4.730
	+	338.32		1.342E+00	4.211E-01	3.088E-01	1.749E-02	4.345
	+	911.07	*	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
	+	969.11		1.706E+00	5.402E-01	3.760E-01	8.668E-02	4.539
	+	63.29	*	1.972E+00	1.956E+00	1.712E+00	2.915E-01	1.152
TH-234	+	92.38		1.423E+00	6.270E-01	7.153E-01	1.251E-01	1.989
	+	609.31	*	1.171E+00	1.846E-01	9.207E-02	7.580E-03	12.713
	+	1120.29		1.198E+00	5.177E-01	3.920E-01	3.561E-02	3.056
	+	1764.49		1.501E+00	3.926E-01	3.174E-01	1.881E-02	4.730
	+	86.50	*	1.018E+00	3.423E-01	3.244E-01	7.127E-02	3.137
NP-237	+	95.87		3.879E-01	8.601E-01	1.299E+00	3.135E-01	0.299
	+	63.29	*	1.972E+00	1.956E+00	1.712E+00	2.915E-01	1.152
	+	92.38		1.423E+00	5.848E-01	7.153E-01	5.208E-02	1.989
	+	74.67	*	3.841E-01	7.332E-02	7.169E-02	4.871E-03	5.358
	+							

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	86.72		3.817E+01	1.013E+01	1.214E+01	9.170E-01	3.145
		117.66		-5.970E-01	3.139E+00	5.109E+00	3.219E-01	-0.117
		142.18		4.668E+00	1.430E+01	2.354E+01	1.332E+00	0.198
ANH-511	+	511.00	*	1.536E-01	5.383E-02	4.051E-02	2.469E-03	3.791

---- 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	*	1.577E-01	2.920E-01	4.871E-01	3.352E-02	0.324
NA-22		1274.54	*	-4.717E-02	4.295E-02	6.322E-02	4.071E-03	-0.746
NA-24		1368.53	*	5.099E-01	4.295E-02	Half-Life too short		
AL-26		1129.67		8.478E-01	1.363E+00	2.392E+00	1.458E-01	0.354
		1808.65	*	-3.390E-03	2.485E-02	3.949E-02	2.266E-03	-0.086
TI-44		67.85		-3.717E-03	4.090E-02	6.170E-02	4.016E-03	-0.060
	+	78.38	*	3.585E-01	5.041E-02	6.028E-02	4.216E-03	5.948
SC-46		889.25	*	7.213E-03	3.377E-02	5.581E-02	4.626E-03	0.129
	+	1120.51		2.046E-01	8.737E-02	1.162E-01	7.222E-03	1.760
V-48		944.10		-4.102E-01	8.650E-01	1.333E+00	1.071E-01	-0.308
		983.50	*	-2.258E-02	6.466E-02	1.002E-01	7.723E-03	-0.225
		1312.09		-3.245E-02	7.047E-02	1.096E-01	7.440E-03	-0.296
CR-51		320.08	*	-6.682E-02	2.971E-01	4.861E-01	3.091E-02	-0.137
MN-52		744.21		1.440E-01	2.093E-01	3.618E-01	2.584E-02	0.398
		848.13		1.824E-01	5.444E+00	8.884E+00	7.076E-01	0.021
	+	935.52		3.413E-01	2.873E-01	4.202E-01	3.402E-02	0.812
		1246.25		4.996E+00	6.875E+00	1.151E+01	7.092E-01	0.434
		1333.61		2.030E+00	3.858E+00	6.721E+00	4.694E-01	0.302
		1434.06	*	9.553E-02	1.758E-01	3.088E-01	2.121E-02	0.309
MN-54		834.83	*	1.052E-02	3.541E-02	5.899E-02	4.637E-03	0.178
CO-56		846.75	*	-1.078E-02	3.348E-02	5.281E-02	4.201E-03	-0.204
		977.42		-1.829E+00	2.793E+00	4.200E+00	3.258E-01	-0.435
		1037.82		-7.797E-02	2.644E-01	4.304E-01	3.325E-02	-0.181
		1175.09		-1.227E+00	2.135E+00	3.368E+00	1.857E-01	-0.364
	+	1238.25		2.082E-01	1.171E-01	1.616E-01	1.040E-02	1.288
		1360.21		4.976E-02	7.746E-01	1.277E+00	8.890E-02	0.039
		1771.40		-3.328E-01	2.587E-01	3.471E-01	2.047E-02	-0.959
CO-57		122.06	*	-2.255E-03	2.112E-02	3.443E-02	2.153E-03	-0.066
		136.48		3.204E-02	1.678E-01	2.753E-01	1.852E-02	0.116
CO-58		810.76	*	-1.516E-02	3.400E-02	5.325E-02	4.098E-03	-0.285
FE-59		142.65		2.332E-01	2.232E+00	3.620E+00	2.045E-01	0.064
		192.34		-5.114E-01	8.051E-01	1.241E+00	1.434E-01	-0.412
		1099.22	*	-3.602E-02	8.309E-02	1.332E-01	9.836E-03	-0.270
		1291.56		-5.308E-02	1.039E-01	1.608E-01	1.295E-02	-0.330
CO-60		1173.22		-2.813E-02	4.230E-02	6.614E-02	3.636E-03	-0.425
		1332.49	*	-1.470E-03	3.278E-02	5.338E-02	3.728E-03	-0.028
ZN-65		1115.52	*	-2.877E-02	9.642E-02	1.327E-01	8.349E-03	-0.217
GE-68		1077.35	*	1.209E-01	1.127E+00	1.897E+00	1.279E-01	0.064
AS-73		53.44	*	8.213E-02	6.804E-01	1.163E+00	7.507E-02	0.071
AS-74		595.88	*	4.635E-02	7.823E-02	1.360E-01	8.660E-03	0.341

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75	634.78			3.143E-02	3.050E-01	5.118E-01	3.298E-02	0.061
	66.05			-1.089E+00	4.291E+00	6.435E+00	5.618E-01	-0.169
	96.73			-3.869E-01	7.087E-01	1.021E+00	1.292E-01	-0.379
	121.11			-7.664E-02	1.139E-01	1.809E-01	1.722E-02	-0.424
	136.00			-8.723E-03	3.285E-02	5.287E-02	3.122E-03	-0.165
	198.60			-4.691E-01	1.582E+00	2.439E+00	1.639E-01	-0.192
	264.65	*		2.274E-04	3.871E-02	5.730E-02	3.248E-03	0.004
	279.53			5.957E-02	9.307E-02	1.433E-01	8.781E-03	0.416
	303.91			-1.139E-01	1.936E+00	2.820E+00	2.671E-01	-0.040
	400.65			-8.128E-02	2.083E-01	3.307E-01	2.956E-02	-0.246
BR-77	87.88		+	7.008E+02	1.861E+02	2.663E+02	2.036E+01	2.632
	200.40			2.346E+01	1.265E+02	2.028E+02	1.076E+01	0.116
	239.00		+	2.207E+02	1.836E+01	3.006E+01	1.655E+00	7.342
	249.79			2.483E+01	4.910E+01	8.460E+01	4.698E+00	0.294
	281.68			-5.801E+01	7.284E+01	1.007E+02	5.691E+00	-0.576
	297.23			1.016E+02	6.379E+01	7.954E+01	4.515E+00	1.278
	303.76			6.408E+01	1.480E+02	2.235E+02	1.270E+01	0.287
	439.47			-1.021E+01	1.166E+02	1.878E+02	1.081E+01	-0.054
	484.57			1.333E+00	1.861E+02	2.993E+02	1.791E+01	0.004
	520.65	*		2.727E+00	8.335E+00	1.366E+01	8.379E-01	0.200
SR-82	574.64			-5.207E+01	1.647E+02	2.629E+02	1.659E+01	-0.198
	578.91			-1.017E+01	7.433E+01	1.070E+02	6.766E+00	-0.095
	585.48			7.231E+02	1.870E+02	3.374E+02	2.139E+01	2.143
	755.35			2.195E+01	1.292E+02	2.152E+02	1.556E+01	0.102
	817.79			2.429E+01	1.080E+02	1.797E+02	1.389E+01	0.135
	698.33			5.102E-01	2.935E+01	4.857E+01	3.291E+00	0.011
	776.49	*		-2.590E-01	3.498E-01	4.447E-01	3.291E-02	-0.582
	1395.20			-1.486E+00	9.102E+00	1.451E+01	1.004E+00	-0.102
	520.41	*		-6.275E-03	6.142E-02	9.743E-02	5.974E-03	-0.064
	529.64			-7.713E-03	8.969E-02	1.422E-01	8.768E-03	-0.054
RB-83	552.65			-6.784E-02	1.587E-01	2.587E-01	1.616E-02	-0.262
	881.50	*		3.696E-02	5.820E-02	9.999E-02	8.227E-03	0.370
RB-84	513.99	*		7.834E+00	6.745E+00	1.046E+01	6.390E-01	0.749
KR-85	513.99	*		4.005E-02	3.448E-02	5.349E-02	3.266E-03	0.749
SR-85	1076.63	*		-1.511E-01	7.081E-01	1.159E+00	7.827E-02	-0.130
RB-86	898.02			-8.578E-03	3.732E-02	5.910E-02	4.965E-03	-0.145
Y-88	1836.01	*		4.761E-04	2.638E-02	4.374E-02	2.462E-03	0.011
ZR-88	392.90	*		-2.846E-03	2.588E-02	4.199E-02	2.303E-03	-0.068
Y-91	1204.90	*		1.557E+01	1.722E+01	3.041E+01	1.758E+00	0.512
NB-94	702.63	*		8.944E-03	2.966E-02	5.006E-02	3.410E-03	0.179
NB-95	871.10			3.570E-03	3.022E-02	4.958E-02	4.039E-03	0.072
	765.79	*		6.263E-02	4.354E-02	7.027E-02	5.140E-03	0.891
NB-95M	235.69	*		3.098E-02	1.112E-01	1.686E-01	1.230E-02	0.184
ZR-95	724.18			1.258E-01	9.311E-02	1.505E-01	1.187E-02	0.835
NB-97	756.15	*		1.607E-02	5.920E-02	9.943E-02	8.212E-03	0.162
	657.90	*		-8.974E-03	5.920E-02	Half-Life too short		
ZR-97	1024.50			1.834E+00	5.920E-02	Half-Life too short		
	254.15			-9.556E-01	5.920E-02	Half-Life too short		
	355.39			3.129E-01	5.920E-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
	507.63	*		2.335E+00	5.920E-02	Half-Life	too short	
	602.52			6.270E-01	5.920E-02	Half-Life	too short	
	1021.30			-3.420E+00	5.920E-02	Half-Life	too short	
	1147.95			-1.486E+00	5.920E-02	Half-Life	too short	
	1362.66			-5.434E+00	5.920E-02	Half-Life	too short	
	1750.46			-1.354E+00	5.920E-02	Half-Life	too short	
MO-99	140.51			1.217E+00	1.993E+01	3.246E+01	8.740E+00	0.037
	181.06			-2.456E+00	1.503E+01	2.117E+01	3.587E+00	-0.116
	366.43			-1.545E+01	6.423E+01	1.039E+02	5.807E+00	-0.149
	739.58	*		-8.033E-01	9.804E+00	1.603E+01	2.305E+00	-0.050
	778.00			-3.237E+01	2.891E+01	3.688E+01	2.734E+00	-0.878
TC-99M	140.51	*		8.612E+08	2.891E+01	Half-Life	too short	
RH-101	127.23			2.487E-02	2.624E-02	4.445E-02	2.698E-03	0.559
	198.01	*		-4.323E-03	2.967E-02	4.615E-02	2.442E-03	-0.094
	325.23			6.884E-02	2.045E-01	3.051E-01	1.733E-02	0.226
RH-102	418.52			2.590E-01	2.379E-01	4.140E-01	2.335E-02	0.626
	475.06	*		1.140E-02	2.694E-02	4.461E-02	2.649E-03	0.255
	631.29			-1.126E-02	4.667E-02	7.636E-02	4.916E-03	-0.147
	697.49			-6.846E-03	6.581E-02	1.079E-01	7.308E-03	-0.063
	766.84			1.797E-01	1.166E-01	1.883E-01	1.379E-02	0.954
	1046.59			-4.324E-02	9.288E-02	1.483E-01	1.051E-02	-0.292
	1112.84			2.633E-02	2.275E-01	3.305E-01	2.086E-02	0.080
RU-103	497.08	*		-1.988E-02	3.382E-02	5.154E-02	6.574E-03	-0.386
	610.33	+		1.258E+01	2.596E+00	2.657E+00	4.159E-01	4.733
RH-106	511.85	+		7.667E-01	2.687E-01	3.789E-01	2.310E-02	2.024
	621.84	*		-4.833E-02	2.685E-01	4.418E-01	5.327E-02	-0.109
	1050.47			-1.093E+00	1.879E+00	2.963E+00	2.087E-01	-0.369
RU-106	511.85	+		7.667E-01	2.687E-01	3.789E-01	2.310E-02	2.024
	621.84	*		-4.833E-02	2.685E-01	4.418E-01	2.837E-02	-0.109
	1050.47			-1.093E+00	1.879E+00	2.963E+00	2.087E-01	-0.369
AG-108M	433.93	*		-6.066E-03	2.805E-02	4.481E-02	2.792E-03	-0.135
	614.37			-1.770E-02	3.632E-02	4.995E-02	3.424E-03	-0.354
	722.95			1.696E-02	3.698E-02	5.571E-02	4.115E-03	0.304
AG-110M	657.75	*		-4.011E-03	2.840E-02	4.665E-02	3.180E-03	-0.086
	677.61			-6.176E-02	2.701E-01	4.397E-01	3.044E-02	-0.140
	706.67			1.565E-02	1.834E-01	3.047E-01	2.176E-02	0.051
	763.93			3.082E-02	1.536E-01	2.235E-01	1.695E-02	0.138
	884.67			-3.603E-02	4.206E-02	6.200E-02	5.296E-03	-0.581
	937.48			-7.633E-02	1.211E-01	1.537E-01	1.293E-02	-0.497
	1384.27			1.042E-02	1.459E-01	2.402E-01	1.738E-02	0.043
IN-111	171.28			-1.161E-01	7.949E-01	1.268E+00	6.521E-02	-0.092
	245.39	*		-2.456E-01	8.487E-01	1.238E+00	6.855E-02	-0.198
IN-113M	391.69	*		8.056E-03	3.755E-02	6.219E-02	3.661E-03	0.130
SN-113	391.69	*		8.056E-03	3.755E-02	6.219E-02	3.661E-03	0.130
IN-114M	190.27	*		-6.215E-02	1.683E-01	2.330E-01	1.222E-02	-0.267
CD-115	260.90			-2.256E+01	9.429E+01	1.566E+02	8.758E+00	-0.144
	492.35			7.651E+00	2.793E+01	4.579E+01	2.755E+00	0.167
	527.90	*		-2.324E+00	8.277E+00	1.291E+01	7.949E-01	-0.180
SN-117M	156.02			-2.607E-01	1.861E+00	2.987E+00	1.595E-01	-0.087

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-122	158.56	*		2.843E-02	4.442E-02	7.365E-02	3.890E-03	0.386
	563.90	*		5.610E-01	1.680E+00	2.883E+00	1.810E-01	0.195
	692.80			-5.775E+00	3.342E+01	5.451E+01	3.670E+00	-0.106
I-123	159.00	*		8.409E-01	3.342E+01	Half-Life	too short	
	528.96			-8.161E+01	3.342E+01	Half-Life	too short	
TE-123M	159.00	*		5.963E-03	2.332E-02	3.804E-02	2.038E-03	0.157
I-124	602.71	*		-3.119E-01	6.151E-01	8.484E-01	5.414E-02	-0.368
	722.78			1.323E+00	3.655E+00	5.450E+00	3.800E-01	0.243
	1325.50			1.661E+01	3.006E+01	5.209E+01	3.603E+00	0.319
SB-124	1376.25			5.005E+01	2.895E+01	5.416E+01	3.762E+00	0.924
	1509.49			7.219E+00	1.354E+01	2.344E+01	1.577E+00	0.308
	1691.02			-3.517E+00	2.712E+00	3.645E+00	2.263E-01	-0.965
	602.71			-1.895E-02	3.737E-02	5.154E-02	3.290E-03	-0.368
	645.85			-5.296E-02	4.304E-01	7.092E-01	5.061E-02	-0.075
	709.31			-1.352E+00	2.386E+00	3.761E+00	2.582E-01	-0.359
	713.82			4.461E-01	1.368E+00	2.314E+00	2.516E-01	0.193
	722.78			1.165E-01	3.219E-01	4.799E-01	3.456E-02	0.243
	968.20	+		1.751E+01	4.038E+00	6.775E+00	5.309E-01	2.584
	1045.16			2.425E-01	2.036E+00	3.441E+00	2.444E-01	0.070
	1325.50			1.562E+00	2.827E+00	4.899E+00	3.389E-01	0.319
SB-125	1368.21			1.453E+00	1.263E+00	2.378E+00	2.967E-01	0.611
	1436.60			1.090E-01	3.146E+00	5.140E+00	3.529E-01	0.021
	1691.02	*		-7.305E-02	5.636E-02	7.571E-02	5.052E-03	-0.965
	427.89	*		-2.524E-02	7.781E-02	1.235E-01	7.340E-03	-0.204
	463.38	+		6.509E-01	3.704E-01	4.699E-01	3.211E-02	1.385
TE-125M	600.56			2.196E-02	1.531E-01	2.448E-01	1.766E-02	0.090
	635.90			8.188E-02	2.383E-01	4.065E-01	2.989E-02	0.201
	109.28	*		6.846E+00	7.613E+00	1.295E+01	1.116E+00	0.529
I-126	388.63			7.164E-03	1.708E-01	2.800E-01	1.538E-02	0.026
	666.33	*		2.859E-02	1.557E-01	2.617E-01	1.706E-02	0.109
	753.82			2.939E-01	1.214E+00	2.035E+00	1.469E-01	0.144
SB-126	223.80			-4.386E-01	3.181E+00	5.365E+00	2.915E-01	-0.082
	278.60	+		5.095E-01	2.608E+00	3.496E+00	1.974E-01	0.146
	296.50			9.059E+00	2.015E+00	2.943E+00	1.670E-01	3.078
	414.70			-3.787E-02	5.996E-02	9.319E-02	5.236E-03	-0.406
	415.30			-2.877E+00	5.089E+00	7.954E+00	4.472E-01	-0.362
	555.20			7.188E-01	3.112E+00	5.323E+00	3.328E-01	0.135
	573.80			8.293E-02	8.440E-01	1.426E+00	8.996E-02	0.058
	593.00			-1.937E-01	8.000E-01	1.317E+00	8.373E-02	-0.147
	656.30			4.703E-01	2.710E+00	4.562E+00	2.955E-01	0.103
	666.33			1.194E-02	6.501E-02	1.093E-01	7.125E-03	0.109
	675.00			3.241E-01	1.729E+00	2.857E+00	1.883E-01	0.113
	695.00			-1.671E-02	6.511E-02	1.055E-01	7.123E-03	-0.158
	697.00			3.649E-02	2.198E-01	3.680E-01	2.490E-02	0.099
	720.50	*		8.522E-04	1.309E-01	1.872E-01	1.302E-02	0.005
	856.80			1.609E-01	4.184E-01	6.185E-01	4.969E-02	0.260
	989.30			-6.879E-01	1.128E+00	1.697E+00	1.299E-01	-0.405
	1034.80			-1.255E+00	7.351E+00	1.211E+01	8.732E-01	-0.104
	1213.00			-4.626E+00	4.406E+00	6.648E+00	3.893E-01	-0.696

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	61.10			-7.424E+00	4.788E+01	7.240E+01	6.800E+00	-0.103
	252.40			-6.101E-01	3.351E+00	5.578E+00	2.315E+00	-0.109
	290.80			-1.301E+01	1.708E+01	2.350E+01	2.108E+00	-0.553
	411.60			-4.415E+00	1.017E+01	1.571E+01	2.235E+00	-0.281
	444.90			-4.122E-01	8.554E+00	1.380E+01	1.476E+00	-0.030
	473.00			-2.115E-01	1.428E+00	2.276E+00	2.540E-01	-0.093
	543.00			4.629E+00	1.268E+01	2.189E+01	2.851E+00	0.211
	603.60			-2.427E+00	1.033E+01	1.465E+01	1.612E+00	-0.166
	685.20	*		1.584E-01	1.108E+00	1.855E+00	1.835E-01	0.085
	698.50			5.390E-01	1.254E+01	2.079E+01	3.083E+00	0.026
	722.20			9.511E+00	2.505E+01	3.742E+01	3.683E+00	0.254
	783.80			3.518E+00	2.981E+00	5.292E+00	6.117E-01	0.665
	57.60			3.403E+00	4.945E+00	8.584E+00	5.425E-01	0.396
	145.22			3.450E-02	5.783E-01	9.354E-01	5.226E-02	0.037
XE-127	172.10			8.478E-02	9.922E-02	1.653E-01	8.508E-03	0.513
	202.84	*		-1.283E-02	3.877E-02	6.055E-02	3.220E-03	-0.212
	374.96			-3.134E-02	1.624E-01	2.630E-01	1.462E-02	-0.119
	80.18			4.219E-01	3.863E+00	5.828E+00	4.177E-01	0.072
I-131	284.30			-8.190E-01	1.155E+00	1.855E+00	1.172E-01	-0.441
	364.48	*		8.504E-03	8.913E-02	1.473E-01	9.269E-03	0.058
	636.97			9.272E-01	1.315E+00	2.298E+00	1.626E-01	0.404
	722.89			2.568E+00	6.059E+00	9.095E+00	6.401E-01	0.282
TE-132	49.72			-5.644E+00	1.400E+01	2.350E+01	2.163E+00	-0.240
	111.76			-1.657E+01	2.304E+01	3.672E+01	3.347E+00	-0.451
	116.30			-1.958E+00	2.150E+01	3.517E+01	3.182E+00	-0.056
	228.16	*		2.454E-01	5.083E-01	8.769E-01	1.243E-01	0.280
BA-133	53.15			2.830E+00	2.908E+00	5.113E+00	3.306E-01	0.553
	79.62			6.191E-02	1.097E+00	1.652E+00	2.380E-01	0.037
	81.00			-7.985E-02	8.754E-02	1.246E-01	1.885E-02	-0.641
	276.40			4.561E-01	3.283E-01	5.213E-01	6.722E-02	0.875
	302.84			4.021E-02	1.299E-01	1.943E-01	2.254E-02	0.207
	356.01	*		1.281E-02	3.820E-02	5.672E-02	6.507E-03	0.226
	383.85			1.623E-01	2.588E-01	4.387E-01	4.704E-02	0.370
	510.53	+		1.242E+00	2.588E-01	Half-Life too short		
I-133	529.87	*		-7.958E-05	2.588E-01	Half-Life too short		
	706.58			2.659E-02	2.588E-01	Half-Life too short		
	856.28			-6.505E-02	2.588E-01	Half-Life too short		
	875.33			3.522E-03	2.588E-01	Half-Life too short		
	1236.41			9.590E-01	2.588E-01	Half-Life too short		
	1298.22			7.180E-02	2.588E-01	Half-Life too short		
	475.35			1.247E+00	1.714E+00	2.895E+00	1.720E-01	0.431
CS-134	563.23			8.935E-02	3.110E-01	5.323E-01	3.401E-02	0.168
	569.32			-1.544E-02	1.677E-01	2.799E-01	1.807E-02	-0.055
	604.70			5.315E-03	3.143E-02	4.646E-02	2.981E-03	0.114
	795.84	*		5.259E-02	4.220E-02	7.521E-02	5.734E-03	0.699
	801.93			3.230E-01	3.649E-01	6.364E-01	4.872E-02	0.508
	1038.57			-2.778E-01	3.313E+00	5.501E+00	3.945E-01	-0.050
	1167.94			4.831E-01	2.325E+00	3.916E+00	2.182E-01	0.123
	1365.15			-5.137E-01	9.912E-01	1.499E+00	1.115E-01	-0.343



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135	268.24	*		1.375E-01	1.407E-01	2.206E-01	1.659E-02	0.623
I-135	288.45			-2.841E+08	1.407E-01	Half-Life too short		
	417.63			1.224E+09	1.407E-01	Half-Life too short		
	546.56			-2.073E+09	1.407E-01	Half-Life too short		
	836.80			3.287E+09	1.407E-01	Half-Life too short		
	1038.76			-1.297E+09	1.407E-01	Half-Life too short		
	1124.00			-3.814E+09	1.407E-01	Half-Life too short		
	1131.51			-2.164E+08	1.407E-01	Half-Life too short		
	1260.41	*		3.269E+09	1.407E-01	Half-Life too short		
	1457.56			4.289E+11	1.407E-01	Half-Life too short		
	1678.03			-1.366E+09	1.407E-01	Half-Life too short		
	1706.46			4.976E+09	1.407E-01	Half-Life too short		
	1791.20			1.627E+09	1.407E-01	Half-Life too short		
CS-136	66.91			1.998E-01	6.737E-01	1.034E+00	1.484E-01	0.193
	86.29	+		4.456E+00	1.257E+00	1.739E+00	2.111E-01	2.563
	153.22			5.016E-01	5.329E-01	8.944E-01	6.178E-02	0.561
	163.89			3.306E-02	9.009E-01	1.440E+00	9.728E-02	0.023
	176.55			-2.597E-01	3.075E-01	4.727E-01	2.819E-02	-0.549
	273.65			1.178E-01	4.747E-01	5.262E-01	3.403E-02	0.224
	340.57			1.273E-01	1.197E-01	1.861E-01	1.123E-02	0.684
	818.51			2.651E-02	6.359E-02	1.075E-01	8.323E-03	0.247
	1048.07	*		-4.528E-02	8.720E-02	1.385E-01	1.040E-02	-0.327
	1235.34			7.920E-01	6.479E-01	1.023E+00	1.037E-01	0.774
BA-137M	661.65	*		-3.258E-02	3.205E-02	4.699E-02	3.046E-03	-0.693
CS-137	661.65	*		-3.444E-02	3.388E-02	4.967E-02	3.231E-03	-0.693
CE-139	165.85	*		-5.919E-03	2.506E-02	3.988E-02	2.044E-03	-0.148
BA-140	162.64			1.470E-01	6.247E-01	1.008E+00	6.036E-02	0.146
	304.84			-4.735E-01	1.049E+00	1.629E+00	4.442E-01	-0.291
	423.70			-1.911E-01	1.600E+00	2.577E+00	8.185E-01	-0.074
	537.32	*		-9.012E-02	1.992E-01	3.212E-01	1.047E-01	-0.281
LA-140	328.77	+		5.485E-01	2.964E-01	4.506E-01	2.878E-02	1.217
	432.53			-3.754E-01	1.720E+00	2.747E+00	1.740E-01	-0.137
	487.03			4.108E-02	1.162E-01	1.917E-01	1.291E-02	0.214
	751.79			-1.262E-01	1.427E+00	2.327E+00	1.927E-01	-0.054
	815.85			-1.197E-02	2.725E-01	4.430E-01	3.902E-02	-0.027
	867.82			6.602E-01	1.152E+00	1.969E+00	1.694E-01	0.335
	919.63			4.135E-01	2.219E+00	3.653E+00	3.770E-01	0.113
	925.24			-1.234E-01	9.272E-01	1.476E+00	1.290E-01	-0.084
	1596.49	*		-1.788E-02	6.448E-02	1.033E-01	6.725E-03	-0.173
CE-141	145.44	*		1.516E-02	5.161E-02	8.471E-02	4.932E-03	0.179
CE-143	57.37			4.289E-04	5.161E-02	Half-Life too short		
	231.56			1.648E-04	5.161E-02	Half-Life too short		
	293.26	*		6.997E-04	5.161E-02	Half-Life too short		
	350.59	+		2.665E-02	5.161E-02	Half-Life too short		
	490.36			-1.347E-03	5.161E-02	Half-Life too short		
	664.57			-2.877E-04	5.161E-02	Half-Life too short		
	721.93			3.175E-04	5.161E-02	Half-Life too short		
CE-144	80.11			1.488E-01	1.820E+00	2.743E+00	1.947E-01	0.054
	133.54	*		6.759E-02	1.736E-01	2.742E-01	3.903E-02	0.247

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-144		476.78		6.106E-02	6.182E-02	1.059E-01	7.481E-03	0.577
		618.01		7.479E-03	2.659E-02	4.528E-02	3.047E-03	0.165
		696.49	*	9.631E-03	2.907E-02	4.925E-02	3.332E-03	0.196
		778.57		-1.965E+00	1.997E+00	2.739E+00	2.032E-01	-0.717
PR-144		696.49	*	6.525E-01	1.969E+00	3.337E+00	2.256E-01	0.196
		1489.15		-3.800E+00	8.541E+00	1.267E+01	8.579E-01	-0.300
PM-146		453.90	*	4.976E-02	3.743E-02	6.557E-02	5.669E-03	0.759
		633.02		-2.575E-01	1.199E+00	1.959E+00	7.233E-01	-0.131
		735.90		-5.823E-02	1.329E-01	2.029E-01	5.717E-02	-0.287
		747.13		9.875E-03	8.104E-02	1.345E-01	1.775E-02	0.073
ND-147	+	91.11		5.685E-01	2.760E-01	4.052E-01	3.322E-02	1.403
		319.41		9.660E-01	2.550E+00	4.318E+00	2.456E-01	0.224
		439.89		1.096E+00	5.013E+00	8.241E+00	4.750E-01	0.133
		531.02	*	1.267E-01	4.637E-01	7.562E-01	1.035E-01	0.168
PM-149		285.90	*	6.065E+01	6.514E+01	1.131E+02	1.597E+01	0.536
EU-152		121.78		-2.692E-02	6.168E-02	9.912E-02	7.884E-03	-0.272
		244.69		-8.968E-02	2.741E-01	3.989E-01	2.207E-02	-0.225
		344.27	*	-4.237E-03	9.414E-02	1.264E-01	8.098E-03	-0.034
		443.98		-6.184E-01	8.642E-01	1.330E+00	7.690E-02	-0.465
		778.89		-1.303E-01	2.156E-01	3.220E-01	2.388E-02	-0.405
		867.32		1.997E-01	7.421E-01	1.176E+00	9.542E-02	0.170
	+	964.01		4.463E-01	3.362E-01	4.962E-01	3.906E-02	0.900
		1085.78		-1.222E-02	3.652E-01	6.070E-01	4.032E-02	-0.020
		1112.02		1.054E-01	3.150E-01	4.702E-01	2.973E-02	0.224
		1407.95		1.070E-01	1.667E-01	2.918E-01	2.015E-02	0.367
GD-153		69.67		4.632E-02	1.429E+00	2.166E+00	1.424E-01	0.021
		83.37		4.373E+00	1.335E+01	2.012E+01	1.471E+00	0.217
		97.43	*	-5.591E-02	6.857E-02	1.043E-01	7.255E-03	-0.536
		103.18		3.527E-02	8.589E-02	1.442E-01	9.633E-03	0.245
EU-154		123.07		3.066E-02	4.770E-02	7.214E-02	6.971E-03	0.425
		247.94		-4.668E-03	3.115E-01	4.874E-01	4.576E-02	-0.010
		591.81		-7.400E-01	5.463E-01	8.172E-01	8.265E-02	-0.905
		723.30		8.311E-02	1.593E-01	2.412E-01	1.947E-02	0.345
		756.87		1.101E-01	6.361E-01	1.060E+00	1.169E-01	0.104
		873.19		-4.671E-02	2.620E-01	4.178E-01	4.983E-02	-0.112
		996.32		-9.664E-02	2.971E-01	4.831E-01	8.351E-02	-0.200
		1004.76		-1.047E-01	1.782E-01	2.825E-01	3.063E-02	-0.371
		1274.45	*	-1.318E-01	1.204E-01	1.766E-01	1.721E-02	-0.746
EU-155		48.70		7.719E-03	1.837E+00	3.139E+00	2.051E-01	0.002
		60.01		-3.363E-01	4.363E+00	6.627E+00	4.164E-01	-0.051
	+	86.54		4.174E-01	1.110E-01	1.657E-01	1.266E-02	2.519
		105.31	*	-3.096E-03	9.072E-02	1.495E-01	1.008E-02	-0.021
TB-160	+	86.79		1.112E+00	2.953E-01	4.402E-01	3.328E-02	2.526
		197.04		-4.441E-02	4.963E-01	7.737E-01	4.088E-02	-0.057
		215.65		-3.446E-02	6.401E-01	1.010E+00	5.441E-02	-0.034
	+	298.57		1.829E-01	1.223E-01	1.763E-01	1.001E-02	1.037
		879.36	*	3.544E-03	1.205E-01	1.960E-01	1.609E-02	0.018
		962.29		6.684E-01	5.563E-01	8.736E-01	6.889E-02	0.765
		966.15		1.400E+00	3.253E-01	5.069E-01	3.981E-02	2.761

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1177.93		1.142E-02	3.577E-01	5.672E-01	3.142E-02	0.020
		1271.85		1.467E-01	6.214E-01	1.045E+00	6.690E-02	0.140
		80.57		1.919E-01	2.253E-01	3.511E-01	2.502E-02	0.547
	+	184.41		1.233E-01	4.182E-02	5.581E-02	2.909E-03	2.209
		280.46		3.055E-02	7.267E-02	1.103E-01	6.230E-03	0.277
		410.95		5.211E-02	2.133E-01	3.526E-01	1.973E-02	0.148
TM-171		711.68	*	2.463E-03	5.068E-02	8.398E-02	5.780E-03	0.029
		752.31		-1.652E-02	2.289E-01	3.738E-01	2.694E-02	-0.044
		810.29		-2.030E-02	5.113E-02	8.047E-02	6.170E-03	-0.252
		51.35		3.672E+00	2.469E+01	4.231E+01	2.757E+00	0.087
		52.39		1.275E+01	1.301E+01	2.288E+01	1.485E+00	0.557
		59.40		4.955E+00	2.378E+01	3.662E+01	2.297E+00	0.135
LU-176		66.72	*	-8.109E+00	2.530E+01	3.781E+01	2.447E+00	-0.214
	+	88.36		8.221E-01	2.183E-01	3.018E-01	2.300E-02	2.724
		201.83		-1.073E-02	2.430E-02	3.777E-02	2.006E-03	-0.284
		306.84	*	-7.973E-03	1.997E-02	3.247E-02	1.845E-03	-0.246
LU-177		401.10		3.030E-01	5.394E+00	8.832E+00	4.890E-01	0.034
		112.95		-6.478E-01	1.298E+00	2.090E+00	1.335E-01	-0.310
LU-177M	+	208.36	*	2.197E+00	1.259E+00	1.639E+00	8.768E-02	1.340
		52.97		1.428E+00	1.322E+00	2.331E+00	1.508E-01	0.613
HF-181		54.07		-1.295E-01	7.014E-01	1.185E+00	7.626E-02	-0.109
		61.30		1.146E-02	1.307E+00	1.992E+00	1.258E-01	0.006
		121.62		-1.482E-01	3.155E-01	5.063E-01	3.162E-02	-0.293
		147.16		1.457E-01	5.412E-01	8.868E-01	4.914E-02	0.164
		171.86		3.269E-01	4.008E-01	6.666E-01	3.431E-02	0.490
		218.09		-3.387E-01	7.297E-01	1.125E+00	6.081E-02	-0.301
		268.79		1.007E+00	7.503E-01	1.197E+00	6.724E-02	0.841
		319.02		7.032E-03	1.993E-01	3.311E-01	1.882E-02	0.021
		367.43		-1.899E-01	7.388E-01	1.193E+00	6.665E-02	-0.159
		413.65	*	-1.899E-01	1.535E-01	2.229E-01	1.251E-02	-0.852
		56.28		-4.702E-01	7.728E-01	1.283E+00	8.159E-02	-0.367
		57.53		2.718E-01	4.159E-01	7.212E-01	4.559E-02	0.377
		65.20		-1.587E-01	8.590E-01	1.294E+00	8.311E-02	-0.123
		133.02		-2.030E-02	5.977E-02	8.526E-02	5.029E-03	-0.238
W-181		136.25		-1.017E-02	3.731E-01	6.065E-01	3.524E-02	-0.017
		345.85		-1.319E-01	1.760E-01	2.381E-01	1.345E-02	-0.554
		482.03	*	-9.447E-03	3.756E-02	5.930E-02	3.541E-03	-0.159
		56.28		-1.837E-01	3.034E-01	5.038E-01	3.204E-02	-0.365
TA-182		57.53		1.066E-01	1.634E-01	2.834E-01	1.791E-02	0.376
		65.20	*	-6.186E-02	3.349E-01	5.042E-01	3.240E-02	-0.123
		67.75		-1.148E-02	9.738E-02	1.468E-01	9.547E-03	-0.078
		100.10		3.436E-03	1.430E-01	2.369E-01	1.615E-02	0.015
+		152.43		2.059E-02	2.783E-01	4.514E-01	2.447E-02	0.046
		222.10		2.598E-01	2.757E-01	4.851E-01	2.631E-02	0.535
		1001.68		1.565E+00	1.566E+00	2.854E+00	2.152E-01	0.548
	+	1121.28		5.654E-01	2.415E-01	3.126E-01	1.939E-02	1.809
		1189.05		-3.756E-02	2.784E-01	4.553E-01	2.567E-02	-0.082
		1221.42	*	-9.633E-02	1.807E-01	2.852E-01	1.692E-02	-0.338
		1230.97		-2.108E-01	5.113E-01	6.891E-01	4.148E-02	-0.306

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		57.98		1.130E-01	1.700E-01	2.828E-01	1.784E-02	0.400
		59.32		5.537E-02	9.622E-02	1.507E-01	9.452E-03	0.368
		67.20		6.686E-02	1.737E-01	2.678E-01	1.737E-02	0.250
		162.32	*	6.849E-03	9.271E-02	1.485E-01	7.722E-03	0.046
	+	208.81		2.029E+00	1.162E+00	1.514E+00	8.101E-02	1.340
		291.72		-1.325E-01	7.819E-01	1.133E+00	6.422E-02	-0.117
RE-184		57.98		4.171E-01	6.274E-01	1.044E+00	6.584E-02	0.400
		59.32		2.042E-01	3.549E-01	5.556E-01	3.486E-02	0.368
		67.20		2.467E-01	6.410E-01	9.882E-01	6.411E-02	0.250
		161.27		-1.429E-01	2.935E-01	4.623E-01	2.414E-02	-0.309
		216.55		5.534E-02	2.237E-01	3.581E-01	1.932E-02	0.155
		252.85	*	3.640E-02	1.867E-01	3.172E-01	1.765E-02	0.115
		318.01		-9.651E-03	3.586E-01	5.939E-01	3.376E-02	-0.016
		792.07		-5.508E-02	8.855E-01	1.445E+00	1.087E-01	-0.038
		903.28		1.464E-01	9.860E-01	1.469E+00	1.222E-01	0.100
		920.93		2.013E-01	3.638E-01	6.205E-01	5.090E-02	0.324
		59.72		2.766E-02	2.603E-01	3.989E-01	2.503E-02	0.069
OS-185		61.14		-1.737E-02	1.432E-01	2.169E-01	1.370E-02	-0.080
		69.30		1.433E-02	2.587E-01	3.925E-01	2.575E-02	0.037
		592.07		-2.082E+00	2.170E+00	3.376E+00	2.146E-01	-0.617
		646.12	*	3.763E-03	3.626E-02	6.078E-02	3.928E-03	0.062
		717.42		-1.688E-01	7.350E-01	1.189E+00	8.238E-02	-0.142
		874.81		1.054E-01	5.091E-01	8.419E-01	6.883E-02	0.125
		880.27		9.072E-02	6.486E-01	1.066E+00	8.761E-02	0.085
		155.03	*	4.703E-02	1.417E-01	2.322E-01	1.245E-02	0.203
		477.96		9.836E-01	2.805E+00	4.623E+00	2.751E-01	0.213
		633.10		-5.637E-01	2.405E+00	3.936E+00	2.536E-01	-0.143
W-188	+	63.58		7.904E+01	7.740E+01	7.954E+01	5.074E+00	0.994
		227.08		1.993E-01	1.038E+01	1.741E+01	9.488E-01	0.011
IR-192	+	290.67	*	-8.110E+00	6.432E+00	8.488E+00	4.811E-01	-0.955
		295.96		1.010E+00	1.709E-01	2.465E-01	1.422E-02	4.099
		308.46		6.103E-02	7.597E-02	1.316E-01	7.572E-03	0.464
		316.51	*	1.061E-02	2.672E-02	4.533E-02	2.590E-03	0.234
		468.07		2.276E-02	6.168E-02	9.015E-02	6.110E-03	0.253
		604.41		-9.299E-03	4.257E-01	6.176E-01	7.201E-02	-0.015
		612.46		6.944E-01	6.453E-01	1.032E+00	8.305E-02	0.673
AU-195		65.12		5.890E-02	1.527E-01	2.357E-01	1.514E-02	0.250
		66.83		-1.907E-02	8.380E-02	1.258E-01	8.143E-03	-0.152
	+	75.70		1.242E+00	2.370E-01	3.979E-01	2.725E-02	3.120
		98.88	*	1.644E-02	1.815E-01	3.015E-01	2.073E-02	0.055
	+	129.76		6.187E+00	4.081E+00	4.109E+00	2.462E-01	1.506
TL-200		367.94	*	-1.472E-04	4.081E+00	Half-Life	too short	
		579.30		6.560E-04	4.081E+00	Half-Life	too short	
		828.27		6.218E-04	4.081E+00	Half-Life	too short	
		1205.75		4.773E-04	4.081E+00	Half-Life	too short	
TL-201		68.90		7.797E-01	3.701E+00	6.003E+00	3.930E-01	0.130
		70.82		-2.572E-01	2.213E+00	3.328E+00	2.203E-01	-0.077
		80.30		6.318E-01	4.047E+00	6.119E+00	4.351E-01	0.103
		135.34		-1.016E+00	1.959E+01	3.183E+01	1.857E+00	-0.032

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202	167.43	*		2.887E-01	5.449E+00	8.782E+00	4.502E-01	0.033
	68.90			7.364E-02	3.496E-01	5.671E-01	3.712E-02	0.130
	70.82			-2.422E-02	2.085E-01	3.135E-01	2.076E-02	-0.077
	80.30			5.953E-02	3.814E-01	5.766E-01	4.100E-02	0.103
BI-207	439.56	*		-4.254E-03	6.044E-02	9.746E-02	5.613E-03	-0.044
	72.80			2.201E-01	1.585E-01	2.522E-01	1.691E-02	0.873
	74.97	+		6.895E-01	1.316E-01	1.995E-01	1.359E-02	3.456
	84.90			2.085E-01	1.694E-01	2.640E-01	1.959E-02	0.790
	569.67			-9.430E-03	2.626E-02	4.302E-02	2.709E-03	-0.219
	1063.62	*		1.891E-02	4.592E-02	7.935E-02	5.474E-03	0.238
TL-207	1770.23			-1.814E+00	6.503E-01	6.735E-01	3.975E-02	-2.693
	81.07			-1.805E-01	1.916E-01	2.744E-01	1.964E-02	-0.658
	83.78			7.478E-02	1.125E-01	1.719E-01	1.262E-02	0.435
	94.90			1.442E-01	2.017E-01	3.100E-01	2.203E-02	0.465
	122.32			1.084E-01	1.472E+00	2.418E+00	1.712E-01	0.045
	144.24			-2.817E-01	5.766E-01	9.111E-01	6.452E-02	-0.309
	154.21			1.836E-01	3.283E-01	5.429E-01	3.621E-02	0.338
	269.46	+		5.524E-01	2.161E-01	2.921E-01	1.721E-02	1.891
	323.87	*		9.295E-03	5.857E-01	8.534E-01	1.406E-01	0.011
	338.28	+		5.602E+00	1.826E+00	2.122E+00	2.219E-01	2.640
PO-209	445.03			6.277E-01	2.057E+00	3.395E+00	3.484E-01	0.185
	260.50			1.106E+00	7.498E+00	1.269E+01	7.097E-01	0.087
	262.80			-1.649E+01	2.076E+01	3.342E+01	1.872E+00	-0.494
	896.60	*		6.011E-01	6.458E+00	1.055E+01	8.803E-01	0.057
BI-210	46.50	*		-6.949E-01	2.624E+00	4.335E+00	3.265E-01	-0.160
PB-210	46.50	*		-6.949E-01	2.624E+00	4.335E+00	3.265E-01	-0.160
PO-210	46.50	*		-6.949E-01	2.624E+00	4.335E+00	2.780E-01	-0.160
PB-211	404.84	*		-9.128E-01	9.815E-01	1.207E+00	7.522E-01	-0.756
BI-212	427.08			-3.519E-01	1.769E+00	2.812E+00	1.738E+00	-0.125
	831.96			3.223E-01	1.149E+00	1.885E+00	1.180E+00	0.171
	727.18	+		1.190E+00	4.794E-01	5.948E-01	5.150E-02	2.001
	785.46			1.551E+00	1.491E+00	2.640E+00	1.972E-01	0.587
	1620.62			4.936E-01	1.021E+00	1.825E+00	1.175E-01	0.270
PO-215	81.07			-1.805E-01	1.916E-01	2.744E-01	1.964E-02	-0.658
	83.78			7.478E-02	1.125E-01	1.719E-01	1.262E-02	0.435
	94.90			1.442E-01	2.017E-01	3.100E-01	2.203E-02	0.465
	122.32			1.084E-01	1.472E+00	2.418E+00	1.712E-01	0.045
	144.24			-2.817E-01	5.766E-01	9.111E-01	6.452E-02	-0.309
	154.21			1.836E-01	3.283E-01	5.429E-01	3.621E-02	0.338
	269.46	+		5.524E-01	2.161E-01	2.921E-01	1.721E-02	1.891
	323.87	*		9.295E-03	5.857E-01	8.534E-01	1.406E-01	0.011
	338.28	+		5.602E+00	1.826E+00	2.122E+00	2.219E-01	2.640
	445.03			6.277E-01	2.057E+00	3.395E+00	3.484E-01	0.185
RN-219	271.23	+		7.088E-01	2.799E-01	3.658E-01	2.919E-02	1.938
	401.81	*		1.650E-01	3.236E-01	5.448E-01	7.354E-02	0.303
RN-220	549.76	*		-3.317E+00	2.042E+01	3.396E+01	2.118E+00	-0.098
RA-223	81.07			-1.805E-01	1.916E-01	2.744E-01	1.964E-02	-0.658
	83.78			7.478E-02	1.125E-01	1.719E-01	1.262E-02	0.435
	94.90			1.442E-01	2.017E-01	3.100E-01	2.203E-02	0.465

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		1.472E+00	2.418E+00	1.712E-01	0.045
		144.24		5.766E-01	9.111E-01	6.452E-02	-0.309
		154.21		3.283E-01	5.429E-01	3.621E-02	0.338
	+	269.46		2.161E-01	2.921E-01	1.721E-02	1.891
		323.87	*	5.857E-01	8.534E-01	1.406E-01	0.011
	+	338.28		1.826E+00	2.122E+00	2.219E-01	2.640
		445.03		2.057E+00	3.395E+00	3.484E-01	0.185
		79.80		1.393E+00	2.099E+00	4.394E-01	0.053
		236.00		2.239E-01	3.604E-01	3.707E-02	1.208
		256.20	*	3.023E-01	4.966E-01	6.887E-02	-0.272
		286.10		1.175E+00	2.077E+00	2.386E-01	0.755
	+	299.80		1.601E+00	2.268E+00	3.683E-01	1.030
		304.40		1.657E+00	2.437E+00	4.206E-01	-0.421
		334.20		2.119E+00	2.878E+00	5.264E-01	-0.513
TH-227		79.80		1.393E+00	2.099E+00	4.453E-01	0.053
	+	94.00		2.513E+00	3.105E+00	6.597E-01	1.771
		236.00		2.228E-01	3.604E-01	3.194E-02	1.208
		256.20	*	3.026E-01	4.966E-01	8.355E-02	-0.272
		286.10		1.953E+00	2.077E+00	2.080E+00	0.755
	+	299.80		1.601E+00	2.268E+00	3.683E-01	1.030
		304.40		1.657E+00	2.437E+00	4.206E-01	-0.421
		334.20		2.119E+00	2.878E+00	5.264E-01	-0.513
		85.43		1.763E-01	2.718E-01	2.028E-02	0.633
	+	88.47		1.112E-01	1.723E-01	1.311E-02	1.333
PA-231		100.00		1.473E-01	2.474E-01	1.687E-02	0.226
		193.63	*	4.364E-01	7.075E-01	3.725E-02	0.239
		210.97		7.094E-01	1.056E+00	5.664E-02	0.631
		283.67	*	1.188E+00	1.937E+00	2.658E-01	-0.262
	+	301.29		6.298E-01	9.000E-01	9.347E-02	1.038
TH-231		81.07		1.916E-01	2.744E-01	1.964E-02	-0.658
		83.78		1.125E-01	1.719E-01	1.262E-02	0.435
		94.90		2.017E-01	3.100E-01	2.203E-02	0.465
		122.32		1.472E+00	2.418E+00	1.712E-01	0.045
U-231		144.24		5.766E-01	9.111E-01	6.452E-02	-0.309
		154.21		3.283E-01	5.429E-01	3.621E-02	0.338
	+	269.46		2.161E-01	2.921E-01	1.721E-02	1.891
		323.87	*	5.857E-01	8.534E-01	1.406E-01	0.011
	+	338.28		1.826E+00	2.122E+00	2.219E-01	2.640
		445.03		2.057E+00	3.395E+00	3.484E-01	0.185
		84.21		4.548E+00	7.022E+00	5.176E-01	0.610
	+	92.29		2.129E+00	3.257E+00	2.373E-01	1.590
		95.87	*	9.246E-01	1.404E+00	9.892E-02	0.299
		108.00		1.620E+00	2.703E+00	1.761E-01	0.188
	+	75.28		4.613E+00	6.101E+00	8.795E-01	3.298
	+	86.59		2.493E+00	2.700E+00	7.154E-01	2.513
	+	300.12		4.424E-01	6.393E-01	8.558E-02	1.019
		311.98	*	4.935E-02	8.193E-02	4.957E-03	-0.004
PA-233		340.50		6.178E-01	9.353E-01	2.145E-01	0.799
		398.62		1.680E+00	2.724E+00	7.025E-01	-0.058

----- 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		1.135E-01	1.365E+00	2.234E+00	4.588E-01	0.051
		63.00		2.299E+00	2.271E+00	2.346E+00	3.372E-01	0.980
		94.67		2.058E-01	1.493E-01	2.337E-01	2.666E-02	0.881
		98.44		-1.240E-02	7.469E-02	1.224E-01	6.797E-02	-0.101
		99.86		1.328E-01	3.763E-01	6.312E-01	4.310E-02	0.210
		111.00		-1.285E-01	1.528E-01	2.419E-01	2.573E-02	-0.532
		131.20		5.329E-02	9.138E-02	1.376E-01	8.184E-03	0.387
		152.70		4.744E-02	2.687E-01	4.376E-01	6.857E-02	0.108
	+	186.00		4.439E+00	2.010E+00	2.153E+00	6.556E-01	2.062
		226.40		-1.488E-01	3.274E-01	5.377E-01	6.122E-02	-0.277
		227.20		1.820E-01	3.413E-01	5.910E-01	3.221E-02	0.308
		248.90		3.483E-02	6.597E-01	1.114E+00	2.387E-01	0.031
	+	293.70		6.377E+00	1.440E+00	1.495E+00	2.397E-01	4.266
		369.80		-1.010E-01	7.024E-01	1.142E+00	2.371E-01	-0.088
		568.70		1.878E-01	8.573E-01	1.460E+00	9.191E-02	0.129
		569.50		-4.570E-02	2.303E-01	3.816E-01	2.402E-02	-0.120
		574.00		1.396E-01	1.233E+00	2.086E+00	1.316E-01	0.067
		699.00		1.288E-01	6.164E-01	1.034E+00	1.894E-01	0.125
		706.10		1.264E-01	9.217E-01	1.535E+00	6.797E-01	0.082
		733.00		1.664E-02	3.564E-01	5.113E-01	1.106E-01	0.033
		742.81		1.072E+00	1.420E+00	2.149E+00	1.441E+00	0.499
		796.30		6.929E-01	8.277E-01	1.407E+00	3.762E-01	0.492
		805.60		-3.909E-02	9.429E-01	1.535E+00	4.665E-01	-0.025
		819.60		8.370E-01	1.127E+00	1.883E+00	7.126E-01	0.444
		826.30		-5.195E-02	7.401E-01	1.198E+00	5.344E-01	-0.043
		831.60		-2.515E-01	6.064E-01	9.476E-01	2.807E-01	-0.265
		876.40		-4.403E-02	7.255E-01	1.168E+00	1.200E+00	-0.038
		880.51		7.208E-02	2.365E-01	3.947E-01	3.244E-02	0.183
		883.24		-5.750E-04	2.419E-01	3.921E-01	2.634E-01	-0.001
		899.00		-4.348E-01	7.918E-01	1.179E+00	5.147E-01	-0.369
		925.00		9.902E-02	9.601E-01	1.567E+00	1.281E-01	0.063
		926.50		-3.694E-02	1.467E-01	2.231E-01	5.607E-02	-0.166
		946.00	*	-2.196E-02	2.968E-01	4.751E-01	8.786E-02	-0.046
		949.00		-1.221E-01	4.405E-01	6.921E-01	5.532E-02	-0.176
		980.50		3.296E-01	6.598E-01	1.110E+00	8.580E-02	0.297
		1394.10		7.690E-01	1.074E+00	1.718E+00	1.115E+00	0.448
	PA-234M	766.42		1.689E+01	1.477E+01	1.939E+01	9.799E+00	0.871
		1001.03	*	2.459E-01	3.961E+00	6.175E+00	5.589E-01	0.040
	U-235	+	89.95	2.306E+00	1.309E+00	1.572E+00	4.804E-01	1.467
		+	93.35	1.711E+00	8.381E-01	1.038E+00	2.867E-01	1.648
			105.00	4.979E-01	8.861E-01	1.475E+00	4.325E-01	0.338
			143.76	* -1.247E-01	1.796E-01	2.796E-01	4.542E-02	-0.446
			163.35	1.197E-01	4.018E-01	6.491E-01	1.155E-01	0.184
		+	185.71	1.644E-01	5.575E-02	7.988E-02	4.170E-03	2.058
			205.31	-7.863E-02	4.871E-01	6.792E-01	1.211E-01	-0.116
	NP-236		94.67	1.578E-01	1.124E-01	1.774E-01	1.263E-02	0.889
			98.44	-9.341E-03	5.623E-02	9.251E-02	6.382E-03	-0.101
			111.00	-9.723E-02	1.153E-01	1.829E-01	1.177E-02	-0.532
			160.31	* -3.115E-02	6.596E-02	1.040E-01	5.454E-03	-0.299

----- 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		7.310E-02	1.268E-01	2.145E-01	1.468E-02	0.341
		117.00	*	-1.011E-01	1.594E-01	2.546E-01	1.607E-02	-0.397
	+	209.75		1.605E+00	9.196E-01	1.174E+00	6.289E-02	1.367
		228.18		9.932E-02	1.757E-01	3.047E-01	1.662E-02	0.326
	+	277.60		3.777E-02	1.933E-01	2.567E-01	1.448E-02	0.147
AM-241		334.30		-8.479E-01	1.191E+00	1.628E+00	9.233E-02	-0.521
		59.54	*	2.258E-02	1.379E-01	2.119E-01	1.506E-02	0.107
		99.55		7.522E-02	1.305E-01	2.207E-01	1.510E-02	0.341
		103.76	*	7.605E-02	7.924E-02	1.356E-01	9.028E-03	0.561
		117.00		-1.041E-01	1.640E-01	2.619E-01	1.653E-02	-0.397
CM-243	+	209.75		1.582E+00	9.065E-01	1.157E+00	6.199E-02	1.367
		228.18		1.004E-01	1.775E-01	3.078E-01	1.679E-02	0.326
	+	277.60		3.808E-02	1.949E-01	2.588E-01	1.460E-02	0.147
		798.80		-2.928E-01	1.385E-01	1.843E-01	1.397E-02	-1.588
		1036.00		4.242E-02	2.478E-01	4.212E-01	3.032E-02	0.101
AM-246		1062.04		1.567E-01	1.918E-01	3.429E-01	2.371E-02	0.457
		1078.86	*	6.855E-02	1.301E-01	2.262E-01	1.521E-02	0.303
	+	278.00		1.566E-01	8.016E-01	1.091E+00	6.158E-02	0.144
		287.40		6.734E-01	9.854E-01	1.653E+00	9.359E-02	0.407
		402.60	*	1.683E-02	2.925E-02	4.951E-02	2.746E-03	0.340
CF-249		252.85		1.367E-01	7.015E-01	1.192E+00	6.632E-02	0.115
		333.44		7.114E-04	1.532E-01	2.225E-01	1.262E-02	0.003
		387.95	*	-8.713E-03	3.416E-02	5.498E-02	3.022E-03	-0.158
CF-251		176.60	*	-8.623E-02	1.078E-01	1.662E-01	8.592E-03	-0.519
		227.00		2.457E-03	3.121E-01	5.234E-01	2.852E-02	0.005
		285.00		1.654E-01	1.384E+00	2.327E+00	1.317E-01	0.071



# VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600003
* Acquisition date   : 22-JAN-2010 07:55:44 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        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244600003 Analyst initials: MXR1
* Batch Number       : 941635 Sample Quantity : 1.5828E+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     :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.704E+01	2.415E+00	4.796E-01	0.000E+00
CD-109	3.525E+00	9.173E-01	1.205E+00	0.000E+00
SN-126	3.466E-01	9.019E-02	1.191E-01	0.000E+00
HG-203	8.595E-03	4.311E-02	5.228E-02	0.000E+00
TL-208	5.241E-01	7.940E-02	5.183E-02	0.000E+00
BI-211	3.884E+00	4.372E-01	2.669E-01	0.000E+00
PB-212	1.494E+00	1.384E-01	7.639E-02	0.000E+00
PO-212	1.494E+00	1.384E-01	7.639E-02	0.000E+00
BI-214	1.171E+00	1.810E-01	9.531E-02	0.000E+00
PB-214	1.351E+00	1.670E-01	9.303E-02	0.000E+00
PO-214	1.351E+00	1.670E-01	9.303E-02	0.000E+00
PO-216	1.494E+00	1.384E-01	7.639E-02	0.000E+00
PO-218	1.351E+00	1.670E-01	9.303E-02	0.000E+00
RA-224	4.180E+00	9.591E-01	8.692E-01	0.000E+00
RA-226	1.171E+00	1.810E-01	9.531E-02	0.000E+00
AC-228	1.508E+00	2.988E-01	1.692E-01	0.000E+00
RA-228	1.508E+00	2.988E-01	1.692E-01	0.000E+00
TH-228	1.516E+00	1.404E-01	7.753E-02	0.000E+00
TH-230	1.171E+00	1.810E-01	9.531E-02	0.000E+00
TH-232	1.508E+00	2.988E-01	1.692E-01	0.000E+00
TH-234	1.972E+00	1.917E+00	1.882E+00	0.000E+00
U-234	1.171E+00	1.810E-01	9.531E-02	0.000E+00
NP-237	1.018E+00	3.354E-01	3.538E-01	0.000E+00
U-238	1.972E+00	1.917E+00	1.882E+00	0.000E+00
AM-243	3.841E-01	7.185E-02	7.847E-02	0.000E+00
ANH-511	1.536E-01	5.276E-02	4.215E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	1.577E-01	2.862E-01	5.077E-01	0.000E+00 NOT IDENT.

NA-22	-4.717E-02	4.209E-02	6.407E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.986E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.390E-03	2.435E-02	3.961E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.940E-02	6.590E-02	0.000E+00	FAIL ABUN
SC-46	7.213E-03	3.309E-02	5.716E-02	0.000E+00	FAIL ABUN
V-48	-2.258E-02	6.337E-02	1.024E-01	0.000E+00	NOT IDENT.
CR-51	-6.682E-02	2.911E-01	5.122E-01	0.000E+00	NOT IDENT.
MN-52	9.553E-02	1.723E-01	3.119E-01	0.000E+00	FAIL ABUN
MN-54	1.052E-02	3.471E-02	6.052E-02	0.000E+00	NOT IDENT.
CO-56	-1.078E-02	3.281E-02	5.416E-02	0.000E+00	FAIL ABUN
CO-57	-2.255E-03	2.070E-02	3.721E-02	0.000E+00	NOT IDENT.
CO-58	-1.516E-02	3.332E-02	5.468E-02	0.000E+00	NOT IDENT.
FE-59	-3.602E-02	8.143E-02	1.356E-01	0.000E+00	NOT IDENT.
CO-60	-1.470E-03	3.212E-02	5.402E-02	0.000E+00	NOT IDENT.
ZN-65	-2.877E-02	9.450E-02	1.350E-01	0.000E+00	NOT IDENT.
GE-68	1.209E-01	1.105E+00	1.932E+00	0.000E+00	NOT IDENT.
AS-73	8.213E-02	6.668E-01	1.283E+00	0.000E+00	NOT IDENT.
AS-74	4.635E-02	7.667E-02	1.409E-01	0.000E+00	NOT IDENT.
SE-75	2.274E-04	3.794E-02	6.069E-02	0.000E+00	NOT IDENT.
BR-77	2.727E+00	8.168E+00	1.421E+01	0.000E+00	FAIL ABUN
SR-82	-2.590E-01	3.428E-01	4.572E-01	0.000E+00	NOT IDENT.
RB-83	-6.275E-03	6.019E-02	1.013E-01	0.000E+00	NOT IDENT.
RB-84	3.696E-02	5.704E-02	1.024E-01	0.000E+00	NOT IDENT.
KR-85	7.834E+00	6.610E+00	1.088E+01	0.000E+00	NOT IDENT.
SR-85	4.005E-02	3.379E-02	5.563E-02	0.000E+00	NOT IDENT.
RB-86	-1.511E-01	6.940E-01	1.181E+00	0.000E+00	NOT IDENT.
Y-88	4.761E-04	2.585E-02	4.386E-02	0.000E+00	NOT IDENT.
ZR-88	-2.846E-03	2.536E-02	4.399E-02	0.000E+00	NOT IDENT.
Y-91	1.557E+01	1.688E+01	3.087E+01	0.000E+00	NOT IDENT.
NB-94	8.944E-03	2.907E-02	5.162E-02	0.000E+00	NOT IDENT.
NB-95	6.263E-02	4.267E-02	7.227E-02	0.000E+00	NOT IDENT.
NB-95M	3.098E-02	1.090E-01	1.791E-01	0.000E+00	NOT IDENT.
ZR-95	1.607E-02	5.802E-02	1.023E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	5.854E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.219E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-8.033E-01	9.608E+00	1.650E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.382E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-4.323E-03	2.908E-02	4.926E-02	0.000E+00	NOT IDENT.
RH-102	1.140E-02	2.640E-02	4.650E-02	0.000E+00	NOT IDENT.
RU-103	-1.988E-02	3.314E-02	5.366E-02	0.000E+00	FAIL ABUN
RH-106	-4.833E-02	2.631E-01	4.571E-01	0.000E+00	FAIL ABUN
RU-106	-4.833E-02	2.631E-01	4.571E-01	0.000E+00	FAIL ABUN
AG-108M	-6.066E-03	2.749E-02	4.683E-02	0.000E+00	NOT IDENT.
AG-110M	-4.011E-03	2.784E-02	4.819E-02	0.000E+00	NOT IDENT.
IN-111	-2.456E-01	8.318E-01	1.314E+00	0.000E+00	NOT IDENT.
IN-113M	8.056E-03	3.680E-02	6.517E-02	0.000E+00	NOT IDENT.
SN-113	8.056E-03	3.680E-02	6.517E-02	0.000E+00	NOT IDENT.
IN-114M	-6.215E-02	1.650E-01	2.489E-01	0.000E+00	NOT IDENT.
CD-115	-2.324E+00	8.112E+00	1.341E+01	0.000E+00	NOT IDENT.
SN-117M	2.843E-02	4.353E-02	7.907E-02	0.000E+00	NOT IDENT.
SB-122	5.610E-01	1.646E+00	2.991E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.223E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.963E-03	2.286E-02	4.084E-02	0.000E+00	NOT IDENT.
I-124	-3.119E-01	6.028E-01	8.785E-01	0.000E+00	NOT IDENT.
SB-124	-7.305E-02	5.523E-02	7.609E-02	0.000E+00	FAIL ABUN
SB-125	-2.524E-02	7.625E-02	1.291E-01	0.000E+00	FAIL ABUN
TE-125M	6.846E+00	7.461E+00	1.404E+01	0.000E+00	NOT IDENT.
I-126	2.859E-02	1.526E-01	2.702E-01	0.000E+00	NOT IDENT.
SB-126	8.522E-04	1.283E-01	1.929E-01	0.000E+00	FAIL ABUN
SB-127	1.584E-01	1.086E+00	1.913E+00	0.000E+00	NOT IDENT.
XE-127	-1.283E-02	3.799E-02	6.459E-02	0.000E+00	NOT IDENT.
I-131	8.504E-03	8.735E-02	1.547E-01	0.000E+00	NOT IDENT.
TE-132	2.454E-01	4.982E-01	9.324E-01	0.000E+00	NOT IDENT.
BA-133	1.281E-02	3.743E-02	5.959E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.030E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.259E-02	4.136E-02	7.726E-02	0.000E+00	NOT IDENT.
CS-135	1.375E-01	1.378E-01	2.336E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.502E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.528E-02	8.545E-02	1.411E-01	0.000E+00	FAIL ABUN
BA-137M	-3.258E-02	3.141E-02	4.853E-02	0.000E+00	NOT IDENT.
CS-137	-3.444E-02	3.320E-02	5.130E-02	0.000E+00	NOT IDENT.
CE-139	-5.919E-03	2.456E-02	4.277E-02	0.000E+00	NOT IDENT.
BA-140	-9.012E-02	1.953E-01	3.336E-01	0.000E+00	NOT IDENT.
LA-140	-1.788E-02	6.319E-02	1.040E-01	0.000E+00	FAIL ABUN
CE-141	1.516E-02	5.058E-02	9.115E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.897E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	6.759E-02	1.701E-01	2.957E-01	0.000E+00	NOT IDENT.
PM-144	9.631E-03	2.848E-02	5.079E-02	0.000E+00	NOT IDENT.

PR-144	6.525E-01	1.930E+00	3.441E+00	0.000E+00	NOT IDENT.
PM-146	4.976E-02	3.668E-02	6.843E-02	0.000E+00	NOT IDENT.
ND-147	1.267E-01	4.544E-01	7.858E-01	0.000E+00	FAIL ABUN
PM-149	6.065E+01	6.384E+01	1.196E+02	0.000E+00	NOT IDENT.
EU-152	-4.237E-03	9.226E-02	1.329E-01	0.000E+00	FAIL ABUN
GD-153	-5.591E-02	6.720E-02	1.134E-01	0.000E+00	NOT IDENT.
EU-154	-1.318E-01	1.179E-01	1.790E-01	0.000E+00	NOT IDENT.
EU-155	-3.096E-03	8.890E-02	1.622E-01	0.000E+00	FAIL ABUN
TB-160	3.544E-03	1.181E-01	2.007E-01	0.000E+00	FAIL ABUN
HO-166M	2.463E-03	4.967E-02	8.655E-02	0.000E+00	FAIL ABUN
TM-171	-8.109E+00	2.480E+01	4.150E+01	0.000E+00	NOT IDENT.
LU-176	-7.973E-03	1.957E-02	3.425E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.234E+00	1.747E+00	0.000E+00	FAIL ABUN
LU-177M	-1.899E-01	1.505E-01	2.333E-01	0.000E+00	NOT IDENT.
HF-181	-9.447E-03	3.680E-02	6.179E-02	0.000E+00	NOT IDENT.
W-181	-6.186E-02	3.282E-01	5.538E-01	0.000E+00	NOT IDENT.
TA-182	-9.633E-02	1.771E-01	2.894E-01	0.000E+00	FAIL ABUN
RE-183	6.849E-03	9.086E-02	1.594E-01	0.000E+00	FAIL ABUN
RE-184	3.640E-02	1.830E-01	3.364E-01	0.000E+00	NOT IDENT.
OS-185	3.763E-03	3.554E-02	6.281E-02	0.000E+00	NOT IDENT.
RE-188	4.703E-02	1.389E-01	2.494E-01	0.000E+00	NOT IDENT.
W-188	-8.110E+00	6.303E+00	8.967E+00	0.000E+00	FAIL ABUN
IR-192	1.061E-02	2.619E-02	4.778E-02	0.000E+00	FAIL ABUN
AU-195	1.644E-02	1.778E-01	3.277E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.088E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.887E-01	5.340E+00	9.415E+00	0.000E+00	NOT IDENT.
TL-202	-4.254E-03	5.923E-02	1.018E-01	0.000E+00	NOT IDENT.
BI-207	1.891E-02	4.500E-02	8.084E-02	0.000E+00	FAIL ABUN
TL-207	9.295E-03	5.740E-01	8.990E-01	0.000E+00	FAIL ABUN
PO-209	6.011E-01	6.329E+00	1.080E+01	0.000E+00	NOT IDENT.
BI-210	-6.949E-01	2.572E+00	4.800E+00	0.000E+00	NOT IDENT.
PB-210	-6.949E-01	2.572E+00	4.800E+00	0.000E+00	NOT IDENT.
PO-210	-6.949E-01	2.572E+00	4.800E+00	0.000E+00	NOT IDENT.
PB-211	-9.128E-01	9.618E-01	1.264E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.698E-01	6.127E-01	0.000E+00	FAIL ABUN
PO-215	9.295E-03	5.740E-01	8.990E-01	0.000E+00	FAIL ABUN
RN-219	1.650E-01	3.172E-01	5.706E-01	0.000E+00	FAIL ABUN
RN-220	-3.317E+00	2.001E+01	3.526E+01	0.000E+00	NOT IDENT.
RA-223	9.295E-03	5.740E-01	8.990E-01	0.000E+00	FAIL ABUN
AC-227	-1.353E-01	2.963E-01	5.264E-01	0.000E+00	FAIL ABUN
TH-227	-1.353E-01	2.965E-01	5.264E-01	0.000E+00	FAIL ABUN
TH-229	1.694E-01	4.277E-01	7.557E-01	0.000E+00	FAIL ABUN
PA-231	-5.082E-01	1.165E+00	2.048E+00	0.000E+00	FAIL ABUN
TH-231	9.295E-03	5.740E-01	8.990E-01	0.000E+00	FAIL ABUN
U-231	4.193E-01	9.061E-01	1.527E+00	0.000E+00	FAIL ABUN
PA-233	-3.254E-04	4.837E-02	8.639E-02	0.000E+00	FAIL ABUN
PA-234	-2.196E-02	2.908E-01	4.856E-01	0.000E+00	FAIL ABUN
PA-234M	2.459E-01	3.882E+00	6.302E+00	0.000E+00	NOT IDENT.
U-235	-1.247E-01	1.760E-01	3.010E-01	0.000E+00	FAIL ABUN
NP-236	-3.115E-02	6.464E-02	1.116E-01	0.000E+00	NOT IDENT.
NP-239	-1.011E-01	1.562E-01	2.755E-01	0.000E+00	FAIL ABUN
AM-241	2.258E-02	1.351E-01	2.332E-01	0.000E+00	NOT IDENT.
CM-243	7.605E-02	7.766E-02	1.471E-01	0.000E+00	FAIL ABUN
AM-246	6.855E-02	1.275E-01	2.304E-01	0.000E+00	NOT IDENT.
CM-247	1.683E-02	2.866E-02	5.185E-02	0.000E+00	FAIL ABUN
CF-249	-8.713E-03	3.348E-02	5.763E-02	0.000E+00	NOT IDENT.
CF-251	-8.623E-02	1.056E-01	1.779E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600003.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:55:44
Sample ID          : G244600003          Sample quantity  : 1.58280E+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           : 941635             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	1384	10.67*	1.138E+00	2.704E+01	2.704E+01	9.12
CD-109	88.03	305	3.72*	5.641E+00	3.448E+00	3.525E+00	26.55
SN-126	64.28	101	9.60	3.201E+00	7.807E-01	7.807E-01	98.71
	86.94	305	8.90	5.641E+00	1.441E+00	1.441E+00	48.39
	87.57	305	37.00*	5.641E+00	3.466E-01	3.466E-01	26.55
HG-203	70.83	-----	4.75	4.155E+00	-----	Line Not Found	-----
	72.87	-----	8.00	4.387E+00	-----	Line Not Found	-----
	82.60	-----	3.55	5.314E+00	-----	Line Not Found	-----
	279.20	10	77.30*	4.497E+00	6.889E-03	8.595E-03	511.82
TL-208	277.35	10	6.80	4.497E+00	7.831E-02	7.831E-02	511.89
	510.84	181	21.60	2.794E+00	7.110E-01	7.110E-01	36.03
	583.14	466	84.20*	2.505E+00	5.241E-01	5.241E-01	15.46
	860.37	76	12.46	1.796E+00	8.012E-01	8.012E-01	48.57
BI-211	72.87	-----	1.27	4.387E+00	-----	Line Not Found	-----
	351.07	798	12.94*	3.764E+00	3.884E+00	3.884E+00	11.49
PB-212	74.81	490	10.70	4.583E+00	2.369E+00	2.369E+00	21.25
	77.11	709	18.00	4.811E+00	1.943E+00	1.943E+00	14.06
	87.30	305	8.00	5.641E+00	1.603E+00	1.603E+00	28.37
	238.63	1409	44.60*	5.017E+00	1.494E+00	1.494E+00	9.45
	300.09	77	3.41	4.251E+00	1.260E+00	1.260E+00	67.09
PO-212	74.81	490	10.70	4.583E+00	2.369E+00	2.369E+00	21.25
	77.11	709	18.00	4.811E+00	1.943E+00	1.943E+00	14.06
	87.30	305	8.00	5.641E+00	1.603E+00	1.603E+00	28.37
	115.19	-----	0.60	6.604E+00	-----	Line Not Found	-----
	238.63	1409	44.60*	5.017E+00	1.494E+00	1.494E+00	9.45
	300.09	77	3.41	4.251E+00	1.260E+00	1.260E+00	67.09
BI-214	609.31	552	46.30*	2.415E+00	1.171E+00	1.171E+00	15.77
	1120.29	109	15.10	1.423E+00	1.198E+00	1.198E+00	43.21
	1764.49	99	15.80	9.905E-01	1.501E+00	1.501E+00	26.15
PB-214	74.81	490	6.21	4.583E+00	4.083E+00	4.083E+00	20.47
	77.11	709	10.50	4.811E+00	3.331E+00	3.331E+00	15.99
	87.30	305	4.67	5.641E+00	2.746E+00	2.746E+00	27.65

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	241.98	346	7.49	4.972E+00	2.205E+00	2.205E+00	24.07
	295.21	463	19.20	4.305E+00	1.329E+00	1.329E+00	18.01
	351.92	798	37.20*	3.764E+00	1.351E+00	1.351E+00	12.62
	74.81	490	6.21	4.583E+00	4.083E+00	4.083E+00	20.47
	77.11	709	10.50	4.811E+00	3.331E+00	3.331E+00	15.99
	87.30	305	4.67	5.641E+00	2.746E+00	2.746E+00	27.65
	241.98	346	7.49	4.972E+00	2.205E+00	2.205E+00	24.07
PO-216	295.21	463	19.20	4.305E+00	1.329E+00	1.329E+00	18.01
	351.92	798	37.20*	3.764E+00	1.351E+00	1.351E+00	12.62
	74.81	490	10.70	4.583E+00	2.369E+00	2.369E+00	21.25
	77.11	709	18.00	4.811E+00	1.943E+00	1.943E+00	14.06
	87.30	305	8.00	5.641E+00	1.603E+00	1.603E+00	28.37
	238.63	1409	44.60*	5.017E+00	1.494E+00	1.494E+00	9.45
	300.09	77	3.41	4.251E+00	1.260E+00	1.260E+00	67.09
PO-218	74.81	490	6.21	4.583E+00	4.083E+00	4.083E+00	20.47
	77.11	709	10.50	4.811E+00	3.331E+00	3.331E+00	15.99
	87.30	305	4.67	5.641E+00	2.746E+00	2.746E+00	27.65
	241.98	346	7.49	4.972E+00	2.205E+00	2.205E+00	24.07
	295.21	463	19.20	4.305E+00	1.329E+00	1.329E+00	18.01
	351.92	798	37.20*	3.764E+00	1.351E+00	1.351E+00	12.62
	240.98	346	3.95*	4.972E+00	4.180E+00	4.180E+00	23.41
RA-224	609.31	552	46.30*	2.415E+00	1.171E+00	1.171E+00	15.77
	1120.29	109	15.10	1.423E+00	1.198E+00	1.198E+00	43.21
	1764.49	99	15.80	9.905E-01	1.501E+00	1.501E+00	26.15
AC-228	338.32	250	11.40	3.880E+00	1.342E+00	1.342E+00	51.12
	911.07	301	27.70*	1.707E+00	1.508E+00	1.508E+00	20.22
	969.11	193	16.60	1.617E+00	1.706E+00	1.706E+00	31.66
RA-228	338.32	250	11.40	3.880E+00	1.342E+00	1.342E+00	51.12
	911.07	301	27.70*	1.707E+00	1.508E+00	1.508E+00	20.22
	969.11	193	16.60	1.617E+00	1.706E+00	1.706E+00	31.66
TH-228	74.81	490	10.70	4.583E+00	2.369E+00	2.405E+00	19.12
	77.11	709	18.00	4.811E+00	1.943E+00	1.972E+00	14.06
	87.30	305	8.00	5.641E+00	1.603E+00	1.627E+00	26.55
TH-230	238.63	1409	44.60*	5.017E+00	1.494E+00	1.516E+00	9.45
	300.09	77	3.41	4.251E+00	1.260E+00	1.279E+00	88.92
	609.31	552	46.30*	2.415E+00	1.171E+00	1.171E+00	15.77
	1120.29	109	15.10	1.423E+00	1.198E+00	1.198E+00	43.21
	1764.49	99	15.80	9.905E-01	1.501E+00	1.501E+00	26.15
TH-232	338.32	250	11.40	3.880E+00	1.342E+00	1.342E+00	31.39
	911.07	301	27.70*	1.707E+00	1.508E+00	1.508E+00	20.22
	969.11	193	16.60	1.617E+00	1.706E+00	1.706E+00	31.66
TH-234	63.29	101	3.80*	3.201E+00	1.972E+00	1.972E+00	99.18
	92.38	194	5.41	5.978E+00	1.423E+00	1.423E+00	44.06
U-234	609.31	552	46.30*	2.415E+00	1.171E+00	1.171E+00	15.77
	1120.29	109	15.10	1.423E+00	1.198E+00	1.198E+00	43.21
	1764.49	99	15.80	9.905E-01	1.501E+00	1.501E+00	26.15
NP-237	86.50	305	12.60*	5.641E+00	1.018E+00	1.018E+00	33.63
	95.87	-----	2.60	6.124E+00	-----	Line Not Found	-----
U-238	63.29	101	3.80*	3.201E+00	1.972E+00	1.972E+00	99.18

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	92.38	194	5.41	5.978E+00	1.423E+00	1.423E+00	41.09
	74.67	490	66.00*	4.583E+00	3.841E-01	3.841E-01	19.09
	86.72	305	0.34	5.641E+00	3.817E+01	3.817E+01	26.55
	117.66	-----	0.55	6.624E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	6.534E+00	-----	Line Not Found	-----
	511.00	181	100.00*	2.794E+00	1.536E-01	1.536E-01	35.05

Flag: "\*" = Keyline

Total number of lines in spectrum 34  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 32 94.12%

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	2.704E+01	2.704E+01	0.246E+01	9.12	
CD-109	464.00D	1.02	3.448E+00	3.525E+00	0.936E+00	26.55	
SN-126	1.00E+05Y	1.00	3.466E-01	3.466E-01	0.920E-01	26.55	
HG-203	46.60D	1.25	6.889E-03	8.595E-03	43.99E-03	511.82	
TL-208	1.41E+10Y	1.00	5.241E-01	5.241E-01	0.810E-01	15.46	
BI-211	7.04E+08Y	1.00	3.884E+00	3.884E+00	0.446E+00	11.49	
PB-212	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.141E+00	9.45	
PO-212	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.141E+00	9.45	
BI-214	1600.00Y	1.00	1.171E+00	1.171E+00	0.185E+00	15.77	
PB-214	1600.00Y	1.00	1.351E+00	1.351E+00	0.170E+00	12.62	
PO-214	1600.00Y	1.00	1.351E+00	1.351E+00	0.170E+00	12.62	
PO-216	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.141E+00	9.45	
PO-218	1600.00Y	1.00	1.351E+00	1.351E+00	0.170E+00	12.62	
RA-224	1.41E+10Y	1.00	4.180E+00	4.180E+00	0.979E+00	23.41	
RA-226	1600.00Y	1.00	1.171E+00	1.171E+00	0.185E+00	15.77	
AC-228	1.41E+10Y	1.00	1.508E+00	1.508E+00	0.305E+00	20.22	
RA-228	1.41E+10Y	1.00	1.508E+00	1.508E+00	0.305E+00	20.22	
TH-228	1.91Y	1.01	1.494E+00	1.516E+00	0.143E+00	9.45	
TH-230	4.47E+09Y	1.00	1.171E+00	1.171E+00	0.185E+00	15.77	
TH-232	1.41E+10Y	1.00	1.508E+00	1.508E+00	0.305E+00	20.22	
TH-234	4.47E+09Y	1.00	1.972E+00	1.972E+00	1.956E+00	99.18	
U-234	4.47E+09Y	1.00	1.171E+00	1.171E+00	0.185E+00	15.77	
NP-237	2.14E+06Y	1.00	1.018E+00	1.018E+00	0.342E+00	33.63	
U-238	4.47E+09Y	1.00	1.972E+00	1.972E+00	1.956E+00	99.18	
AM-243	7380.00Y	1.00	3.841E-01	3.841E-01	0.733E-01	19.09	
ANH-511	1.00E+09Y	1.00	1.536E-01	1.536E-01	0.538E-01	35.05	

Total Activity : 6.416E+01 6.426E+01

Grand Total Activity : 6.416E+01 6.426E+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	89.82	153	431	1.15	179.15	170	19	2.12E-02	47.8	5.81E+00	T
0	128.73	133	469	1.04	257.01	251	11	1.84E-02	65.7	6.64E+00	T
0	185.66	219	319	1.23	370.93	367	9	3.05E-02	33.5	5.86E+00	T
0	209.05	120	321	1.21	417.73	413	9	1.67E-02	57.0	5.47E+00	T
0	270.32	145	183	1.30	540.32	535	10	2.02E-02	38.7	4.59E+00	T
0	327.62	84	142	1.93	654.98	651	8	1.17E-02	53.7	3.97E+00	T
0	462.81	85	124	1.24	925.45	920	12	1.18E-02	56.5	3.03E+00	T
0	726.75	123	95	1.74	1453.47	1447	16	1.71E-02	39.3	2.08E+00	T
0	769.47	110	91	5.29	1538.93	1532	17	1.53E-02	43.7	1.98E+00	
0	934.05	36	53	1.90	1868.13	1863	10	4.99E-03	83.8	1.67E+00	T
0	964.26	44	60	1.39	1928.56	1922	11	6.10E-03	74.9	1.62E+00	T
0	1238.34	67	65	3.16	2476.73	2470	13	9.35E-03	55.9	1.30E+00	T
0	1729.18	16	9	2.02	3458.25	3451	11	2.21E-03	94.3	1.00E+00	

Flags: "T" = Tentatively associated



```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600003.CNF;1
* Acquisition date   : 22-JAN-2010 07:55:44  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        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244600003             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity : 1.58280E+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	2.704E+01	2.465E+00	4.751E-01	3.387E-02	56.908
CD-109	3.525E+00	9.360E-01	1.105E+00	8.459E-02	3.189
SN-126	3.466E-01	9.204E-02	1.092E-01	8.324E-03	3.174
HG-203	8.595E-03	4.399E-02	4.943E-02	2.973E-03	0.174
TL-208	5.241E-01	8.102E-02	5.001E-02	3.577E-03	10.481
BI-211	3.884E+00	4.461E-01	2.539E-01	1.596E-02	15.298
PB-212	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
PO-212	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
BI-214	1.171E+00	1.847E-01	9.208E-02	7.580E-03	12.713
PB-214	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
PO-214	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
PO-216	1.494E+00	1.412E-01	7.192E-02	5.107E-03	20.772
PO-218	1.351E+00	1.705E-01	8.852E-02	7.231E-03	15.264
RA-224	4.180E+00	9.787E-01	8.186E-01	4.516E-02	5.107
RA-226	1.171E+00	1.847E-01	9.208E-02	7.580E-03	12.713
AC-228	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
RA-228	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
TH-228	1.516E+00	1.433E-01	7.299E-02	5.183E-03	20.772

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.171E+00	1.846E-01	9.207E-02	7.580E-03	12.713
TH-232	1.508E+00	3.049E-01	1.653E-01	1.815E-02	9.122
TH-234	1.972E+00	1.956E+00	1.712E+00	2.915E-01	1.152
U-234	1.171E+00	1.846E-01	9.207E-02	7.580E-03	12.713
NP-237	1.018E+00	3.423E-01	3.244E-01	7.127E-02	3.137
U-238	1.972E+00	1.956E+00	1.712E+00	2.915E-01	1.152
AM-243	3.841E-01	7.332E-02	7.169E-02	4.871E-03	5.358
ANH-511	1.536E-01	5.383E-02	4.051E-02	2.469E-03	3.791

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.577E-01		2.920E-01	4.871E-01	3.352E-02	0.324
NA-22	-4.717E-02		4.295E-02	6.322E-02	4.071E-03	-0.746
NA-24	5.099E-01		2.033E-01	Half-Life too short		
AL-26	-3.390E-03		2.485E-02	3.949E-02	2.266E-03	-0.086
TI-44	3.585E-01	+	5.041E-02	6.028E-02	4.216E-03	5.948
SC-46	7.213E-03		3.377E-02	5.581E-02	4.626E-03	0.129
V-48	-2.258E-02		6.466E-02	1.002E-01	7.723E-03	-0.225
CR-51	-6.682E-02		2.971E-01	4.861E-01	3.091E-02	-0.137
MN-52	9.553E-02		1.758E-01	3.088E-01	2.121E-02	0.309
MN-54	1.052E-02		3.541E-02	5.899E-02	4.637E-03	0.178
CO-56	-1.078E-02		3.348E-02	5.281E-02	4.201E-03	-0.204
CO-57	-2.255E-03		2.112E-02	3.443E-02	2.153E-03	-0.066
CO-58	-1.516E-02		3.400E-02	5.325E-02	4.098E-03	-0.285
FE-59	-3.602E-02		8.309E-02	1.332E-01	9.836E-03	-0.270
CO-60	-1.470E-03		3.278E-02	5.338E-02	3.728E-03	-0.028
ZN-65	-2.877E-02		9.642E-02	1.327E-01	8.349E-03	-0.217
GE-68	1.209E-01		1.127E+00	1.897E+00	1.279E-01	0.064
AS-73	8.213E-02		6.804E-01	1.163E+00	7.507E-02	0.071
AS-74	4.635E-02		7.823E-02	1.360E-01	8.660E-03	0.341
SE-75	2.274E-04		3.871E-02	5.730E-02	3.248E-03	0.004
BR-77	2.727E+00		8.335E+00	1.366E+01	8.379E-01	0.200
SR-82	-2.590E-01		3.498E-01	4.447E-01	3.291E-02	-0.582
RB-83	-6.275E-03		6.142E-02	9.743E-02	5.974E-03	-0.064
RB-84	3.696E-02		5.820E-02	9.999E-02	8.227E-03	0.370
KR-85	7.834E+00		6.745E+00	1.046E+01	6.390E-01	0.749
SR-85	4.005E-02		3.448E-02	5.349E-02	3.266E-03	0.749
RB-86	-1.511E-01		7.081E-01	1.159E+00	7.827E-02	-0.130
Y-88	4.761E-04		2.638E-02	4.374E-02	2.462E-03	0.011
ZR-88	-2.846E-03		2.588E-02	4.199E-02	2.303E-03	-0.068
Y-91	1.557E+01		1.722E+01	3.041E+01	1.758E+00	0.512
NB-94	8.944E-03		2.966E-02	5.006E-02	3.410E-03	0.179
NB-95	6.263E-02		4.354E-02	7.027E-02	5.140E-03	0.891
NB-95M	3.098E-02		1.112E-01	1.686E-01	1.230E-02	0.184
ZR-95	1.607E-02		5.920E-02	9.943E-02	8.212E-03	0.162
NB-97	-8.974E-03		2.987E-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	2.335E+00		6.221E-01	Half-Life too short		
MO-99	-8.033E-01		9.804E+00	1.603E+01	2.305E+00	-0.050
TC-99M	8.612E+08		7.052E+09	Half-Life too short		
RH-101	-4.323E-03		2.967E-02	4.615E-02	2.442E-03	-0.094
RH-102	1.140E-02		2.694E-02	4.461E-02	2.649E-03	0.255
RU-103	-1.988E-02		3.382E-02	5.154E-02	6.574E-03	-0.386
RH-106	-4.833E-02		2.685E-01	4.418E-01	5.327E-02	-0.109
RU-106	-4.833E-02		2.685E-01	4.418E-01	2.837E-02	-0.109
AG-108M	-6.066E-03		2.805E-02	4.481E-02	2.792E-03	-0.135
AG-110M	-4.011E-03		2.840E-02	4.665E-02	3.180E-03	-0.086
IN-111	-2.456E-01		8.487E-01	1.238E+00	6.855E-02	-0.198
IN-113M	8.056E-03		3.755E-02	6.219E-02	3.661E-03	0.130
SN-113	8.056E-03		3.755E-02	6.219E-02	3.661E-03	0.130
IN-114M	-6.215E-02		1.683E-01	2.330E-01	1.222E-02	-0.267
CD-115	-2.324E+00		8.277E+00	1.291E+01	7.949E-01	-0.180
SN-117M	2.843E-02		4.442E-02	7.365E-02	3.890E-03	0.386
SB-122	5.610E-01		1.680E+00	2.883E+00	1.810E-01	0.195
I-123	8.409E-01		1.645E+00	Half-Life too short		
TE-123M	5.963E-03		2.332E-02	3.804E-02	2.038E-03	0.157
I-124	-3.119E-01		6.151E-01	8.484E-01	5.414E-02	-0.368
SB-124	-7.305E-02		5.636E-02	7.571E-02	5.052E-03	-0.965
SB-125	-2.524E-02		7.781E-02	1.235E-01	7.340E-03	-0.204
TE-125M	6.846E+00		7.613E+00	1.295E+01	1.116E+00	0.529
I-126	2.859E-02		1.557E-01	2.617E-01	1.706E-02	0.109
SB-126	8.522E-04		1.309E-01	1.872E-01	1.302E-02	0.005
SB-127	1.584E-01		1.108E+00	1.855E+00	1.835E-01	0.085
XE-127	-1.283E-02		3.877E-02	6.055E-02	3.220E-03	-0.212
I-131	8.504E-03		8.913E-02	1.473E-01	9.269E-03	0.058
TE-132	2.454E-01		5.083E-01	8.769E-01	1.243E-01	0.280
BA-133	1.281E-02		3.820E-02	5.672E-02	6.507E-03	0.226
I-133	-7.958E-05		2.056E-03	Half-Life too short		
CS-134	5.259E-02		4.220E-02	7.521E-02	5.734E-03	0.699
CS-135	1.375E-01		1.407E-01	2.206E-01	1.659E-02	0.623
I-135	3.269E+09		1.276E+09	Half-Life too short		
CS-136	-4.528E-02		8.720E-02	1.385E-01	1.040E-02	-0.327
BA-137M	-3.258E-02		3.205E-02	4.699E-02	3.046E-03	-0.693
CS-137	-3.444E-02		3.388E-02	4.967E-02	3.231E-03	-0.693
CE-139	-5.919E-03		2.506E-02	3.988E-02	2.044E-03	-0.148
BA-140	-9.012E-02		1.992E-01	3.212E-01	1.047E-01	-0.281
LA-140	-1.788E-02		6.448E-02	1.033E-01	6.725E-03	-0.173
CE-141	1.516E-02		5.161E-02	8.471E-02	4.932E-03	0.179
CE-143	6.997E-04		9.677E-05	Half-Life too short		
CE-144	6.759E-02		1.736E-01	2.742E-01	3.903E-02	0.247
PM-144	9.631E-03		2.907E-02	4.925E-02	3.332E-03	0.196
PR-144	6.525E-01		1.969E+00	3.337E+00	2.256E-01	0.196
PM-146	4.976E-02		3.743E-02	6.557E-02	5.669E-03	0.759
ND-147	1.267E-01		4.637E-01	7.562E-01	1.035E-01	0.168
PM-149	6.065E+01		6.514E+01	1.131E+02	1.597E+01	0.536

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-4.237E-03		9.414E-02	1.264E-01	8.098E-03	-0.034
GD-153	-5.591E-02		6.857E-02	1.043E-01	7.255E-03	-0.536
EU-154	-1.318E-01		1.204E-01	1.766E-01	1.721E-02	-0.746
EU-155	-3.096E-03		9.072E-02	1.495E-01	1.008E-02	-0.021
TB-160	3.544E-03		1.205E-01	1.960E-01	1.609E-02	0.018
HO-166M	2.463E-03		5.068E-02	8.398E-02	5.780E-03	0.029
TM-171	-8.109E+00		2.530E+01	3.781E+01	2.447E+00	-0.214
LU-176	-7.973E-03		1.997E-02	3.247E-02	1.845E-03	-0.246
LU-177	2.197E+00	+	1.259E+00	1.639E+00	8.768E-02	1.340
LU-177M	-1.899E-01		1.535E-01	2.229E-01	1.251E-02	-0.852
HF-181	-9.447E-03		3.756E-02	5.930E-02	3.541E-03	-0.159
W-181	-6.186E-02		3.349E-01	5.042E-01	3.240E-02	-0.123
TA-182	-9.633E-02		1.807E-01	2.852E-01	1.692E-02	-0.338
RE-183	6.849E-03		9.271E-02	1.485E-01	7.722E-03	0.046
RE-184	3.640E-02		1.867E-01	3.172E-01	1.765E-02	0.115
OS-185	3.763E-03		3.626E-02	6.078E-02	3.928E-03	0.062
RE-188	4.703E-02		1.417E-01	2.322E-01	1.245E-02	0.203
W-188	-8.110E+00		6.432E+00	8.488E+00	4.811E-01	-0.955
IR-192	1.061E-02		2.672E-02	4.533E-02	2.590E-03	0.234
AU-195	1.644E-02		1.815E-01	3.015E-01	2.073E-02	0.055
TL-200	-1.472E-04		1.576E-04	Half-Life too short		
TL-201	2.887E-01		5.449E+00	8.782E+00	4.502E-01	0.033
TL-202	-4.254E-03		6.044E-02	9.746E-02	5.613E-03	-0.044
BI-207	1.891E-02		4.592E-02	7.935E-02	5.474E-03	0.238
TL-207	9.295E-03		5.857E-01	8.534E-01	1.406E-01	0.011
PO-209	6.011E-01		6.458E+00	1.055E+01	8.803E-01	0.057
BI-210	-6.949E-01		2.624E+00	4.335E+00	3.265E-01	-0.160
PB-210	-6.949E-01		2.624E+00	4.335E+00	3.265E-01	-0.160
PO-210	-6.949E-01		2.624E+00	4.335E+00	2.780E-01	-0.160
PB-211	-9.128E-01		9.815E-01	1.207E+00	7.522E-01	-0.756
BI-212	1.190E+00	+	4.794E-01	5.948E-01	5.150E-02	2.001
PO-215	9.295E-03		5.857E-01	8.534E-01	1.406E-01	0.011
RN-219	1.650E-01		3.236E-01	5.448E-01	7.354E-02	0.303
RN-220	-3.317E+00		2.042E+01	3.396E+01	2.118E+00	-0.098
RA-223	9.295E-03		5.857E-01	8.534E-01	1.406E-01	0.011
AC-227	-1.353E-01		3.023E-01	4.966E-01	6.887E-02	-0.272
TH-227	-1.353E-01		3.026E-01	4.966E-01	8.355E-02	-0.272
TH-229	1.694E-01		4.364E-01	7.075E-01	3.725E-02	0.239
PA-231	-5.082E-01		1.188E+00	1.937E+00	2.658E-01	-0.262
TH-231	9.295E-03		5.857E-01	8.534E-01	1.406E-01	0.011
U-231	4.193E-01		9.246E-01	1.404E+00	9.892E-02	0.299
PA-233	-3.254E-04		4.935E-02	8.193E-02	4.957E-03	-0.004
PA-234	-2.196E-02		2.968E-01	4.751E-01	8.786E-02	-0.046
PA-234M	2.459E-01		3.961E+00	6.175E+00	5.589E-01	0.040
U-235	-1.247E-01		1.796E-01	2.796E-01	4.542E-02	-0.446
NP-236	-3.115E-02		6.596E-02	1.040E-01	5.454E-03	-0.299
NP-239	-1.011E-01		1.594E-01	2.546E-01	1.607E-02	-0.397
AM-241	2.258E-02		1.379E-01	2.119E-01	1.506E-02	0.107

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	7.605E-02		7.924E-02	1.356E-01	9.028E-03	0.561
AM-246	6.855E-02		1.301E-01	2.262E-01	1.521E-02	0.303
CM-247	1.683E-02		2.925E-02	4.951E-02	2.746E-03	0.340
CF-249	-8.713E-03		3.416E-02	5.498E-02	3.022E-03	-0.158
CF-251	-8.623E-02		1.078E-01	1.662E-01	8.592E-03	-0.519

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600003          *
* Acquisition date   : 22-JAN-2010 07:55:44 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        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G244600003              Analyst initials: MXR1         *
* Batch Number       : 941635                  Sample Quantity : 1.5828E+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    :              *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.704E+01	2.415E+00	2.399E-01	1.232E+00
CD-109	3.525E+00	9.173E-01	6.029E-01	4.680E-01
SN-126	3.466E-01	9.019E-02	5.957E-02	4.602E-02
HG-203	8.595E-03	4.311E-02	2.616E-02	2.200E-02
TL-208	5.241E-01	7.940E-02	2.593E-02	4.051E-02
BI-211	3.884E+00	4.372E-01	1.335E-01	2.231E-01
PB-212	1.494E+00	1.384E-01	3.822E-02	7.059E-02
PO-212	1.494E+00	1.384E-01	3.822E-02	7.059E-02
BI-214	1.171E+00	1.810E-01	4.768E-02	9.233E-02
PB-214	1.351E+00	1.670E-01	4.654E-02	8.523E-02
PO-214	1.351E+00	1.670E-01	4.654E-02	8.523E-02
PO-216	1.494E+00	1.384E-01	3.822E-02	7.059E-02
PO-218	1.351E+00	1.670E-01	4.654E-02	8.523E-02
RA-224	4.180E+00	9.591E-01	4.349E-01	4.894E-01
RA-226	1.171E+00	1.810E-01	4.768E-02	9.233E-02
AC-228	1.508E+00	2.988E-01	8.464E-02	1.525E-01
RA-228	1.508E+00	2.988E-01	8.464E-02	1.525E-01
TH-228	1.516E+00	1.404E-01	3.879E-02	7.164E-02
TH-230	1.171E+00	1.810E-01	4.768E-02	9.232E-02
TH-232	1.508E+00	2.988E-01	8.464E-02	1.525E-01
TH-234	1.972E+00	1.917E+00	9.414E-01	9.781E-01
U-234	1.171E+00	1.810E-01	4.768E-02	9.232E-02
NP-237	1.018E+00	3.354E-01	1.770E-01	1.711E-01
U-238	1.972E+00	1.917E+00	9.414E-01	9.781E-01
AM-243	3.841E-01	7.185E-02	3.926E-02	3.666E-02
ANH-511	1.536E-01	5.276E-02	2.109E-02	2.692E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	1.577E-01	2.862E-01	2.540E-01	1.460E-01 NOT IDENT.

NA-22	-4.717E-02	4.209E-02	3.205E-02	2.147E-02	NOT IDENT.
NA-24	5.099E+05	3.986E+05	0.000E+00	2.033E+05	SHORT HLIF
AL-26	-3.390E-03	2.435E-02	1.982E-02	1.242E-02	NOT IDENT.
TI-44	3.585E-01	4.940E-02	3.297E-02	2.520E-02	FAIL ABUN
SC-46	7.213E-03	3.309E-02	2.859E-02	1.688E-02	FAIL ABUN
V-48	-2.258E-02	6.337E-02	5.121E-02	3.233E-02	NOT IDENT.
CR-51	-6.682E-02	2.911E-01	2.563E-01	1.485E-01	NOT IDENT.
MN-52	9.553E-02	1.723E-01	1.560E-01	8.792E-02	FAIL ABUN
MN-54	1.052E-02	3.471E-02	3.028E-02	1.771E-02	NOT IDENT.
CO-56	-1.078E-02	3.281E-02	2.710E-02	1.674E-02	FAIL ABUN
CO-57	-2.255E-03	2.070E-02	1.862E-02	1.056E-02	NOT IDENT.
CO-58	-1.516E-02	3.332E-02	2.736E-02	1.700E-02	NOT IDENT.
FE-59	-3.602E-02	8.143E-02	6.782E-02	4.155E-02	NOT IDENT.
CO-60	-1.470E-03	3.212E-02	2.703E-02	1.639E-02	NOT IDENT.
ZN-65	-2.877E-02	9.450E-02	6.756E-02	4.821E-02	NOT IDENT.
GE-68	1.209E-01	1.105E+00	9.666E-01	5.636E-01	NOT IDENT.
AS-73	8.213E-02	6.668E-01	6.421E-01	3.402E-01	NOT IDENT.
AS-74	4.635E-02	7.667E-02	7.050E-02	3.912E-02	NOT IDENT.
SE-75	2.274E-04	3.794E-02	3.036E-02	1.936E-02	NOT IDENT.
BR-77	2.727E+00	8.168E+00	7.107E+00	4.167E+00	FAIL ABUN
SR-82	-2.590E-01	3.428E-01	2.287E-01	1.749E-01	NOT IDENT.
RB-83	-6.275E-03	6.019E-02	5.068E-02	3.071E-02	NOT IDENT.
RB-84	3.696E-02	5.704E-02	5.124E-02	2.910E-02	NOT IDENT.
KR-85	7.834E+00	6.610E+00	5.445E+00	3.372E+00	NOT IDENT.
SR-85	4.005E-02	3.379E-02	2.783E-02	1.724E-02	NOT IDENT.
RB-86	-1.511E-01	6.940E-01	5.908E-01	3.541E-01	NOT IDENT.
Y-88	4.761E-04	2.585E-02	2.194E-02	1.319E-02	NOT IDENT.
ZR-88	-2.846E-03	2.536E-02	2.201E-02	1.294E-02	NOT IDENT.
Y-91	1.557E+01	1.688E+01	1.545E+01	8.611E+00	NOT IDENT.
NB-94	8.944E-03	2.907E-02	2.582E-02	1.483E-02	NOT IDENT.
NB-95	6.263E-02	4.267E-02	3.616E-02	2.177E-02	NOT IDENT.
NB-95M	3.098E-02	1.090E-01	8.961E-02	5.560E-02	NOT IDENT.
ZR-95	1.607E-02	5.802E-02	5.118E-02	2.960E-02	NOT IDENT.
NB-97	-8.974E+03	5.854E+04	0.000E+00	2.987E+04	SHORT HLIF
ZR-97	2.335E+06	1.219E+06	0.000E+00	6.221E+05	SHORT HLIF
MO-99	-8.033E-01	9.608E+00	8.255E+00	4.902E+00	NOT IDENT.
TC-99M	8.612E+14	1.382E+16	0.000E+00	7.052E+15	SHORT HLIF
RH-101	-4.323E-03	2.908E-02	2.465E-02	1.484E-02	NOT IDENT.
RH-102	1.140E-02	2.640E-02	2.326E-02	1.347E-02	NOT IDENT.
RU-103	-1.988E-02	3.314E-02	2.684E-02	1.691E-02	FAIL ABUN
RH-106	-4.833E-02	2.631E-01	2.287E-01	1.343E-01	FAIL ABUN
RU-106	-4.833E-02	2.631E-01	2.287E-01	1.342E-01	FAIL ABUN
AG-108M	-6.066E-03	2.749E-02	2.343E-02	1.403E-02	NOT IDENT.
AG-110M	-4.011E-03	2.784E-02	2.411E-02	1.420E-02	NOT IDENT.
IN-111	-2.456E-01	8.318E-01	6.576E-01	4.244E-01	NOT IDENT.
IN-113M	8.056E-03	3.680E-02	3.260E-02	1.878E-02	NOT IDENT.
SN-113	8.056E-03	3.680E-02	3.260E-02	1.878E-02	NOT IDENT.
IN-114M	-6.215E-02	1.650E-01	1.245E-01	8.416E-02	NOT IDENT.
CD-115	-2.324E+00	8.112E+00	6.710E+00	4.139E+00	NOT IDENT.
SN-117M	2.843E-02	4.353E-02	3.956E-02	2.221E-02	NOT IDENT.
SB-122	5.610E-01	1.646E+00	1.496E+00	8.400E-01	NOT IDENT.
I-123	8.409E+05	3.223E+06	0.000E+00	1.645E+06	SHORT HLIF
TE-123M	5.963E-03	2.286E-02	2.043E-02	1.166E-02	NOT IDENT.
I-124	-3.119E-01	6.028E-01	4.395E-01	3.075E-01	NOT IDENT.
SB-124	-7.305E-02	5.523E-02	3.807E-02	2.818E-02	FAIL ABUN
SB-125	-2.524E-02	7.625E-02	6.457E-02	3.890E-02	FAIL ABUN
TE-125M	6.846E+00	7.461E+00	7.022E+00	3.806E+00	NOT IDENT.
I-126	2.859E-02	1.526E-01	1.352E-01	7.784E-02	NOT IDENT.
SB-126	8.522E-04	1.283E-01	9.650E-02	6.545E-02	FAIL ABUN
SE-127	1.584E-01	1.086E+00	9.573E-01	5.541E-01	NOT IDENT.
XB-127	-1.283E-02	3.799E-02	3.231E-02	1.938E-02	NOT IDENT.
I-131	8.504E-03	8.735E-02	7.739E-02	4.456E-02	NOT IDENT.
TE-132	2.454E-01	4.982E-01	4.665E-01	2.542E-01	NOT IDENT.
BA-133	1.281E-02	3.743E-02	2.982E-02	1.910E-02	NOT IDENT.
I-133	-7.958E+01	4.030E+03	0.000E+00	2.056E+03	SHORT HLIF
CS-134	5.259E-02	4.136E-02	3.866E-02	2.110E-02	NOT IDENT.
CS-135	1.375E-01	1.378E-01	1.169E-01	7.033E-02	NOT IDENT.
I-135	3.269E+15	2.502E+15	0.000E+00	1.276E+15	SHORT HLIF
CS-136	-4.528E-02	8.545E-02	7.061E-02	4.360E-02	FAIL ABUN
BA-137M	-3.258E-02	3.141E-02	2.428E-02	1.602E-02	NOT IDENT.
CS-137	-3.444E-02	3.320E-02	2.566E-02	1.694E-02	NOT IDENT.
CE-139	-5.919E-03	2.456E-02	2.140E-02	1.253E-02	NOT IDENT.
BA-140	-9.012E-02	1.953E-01	1.669E-01	9.962E-02	NOT IDENT.
LA-140	-1.788E-02	6.319E-02	5.201E-02	3.224E-02	FAIL ABUN
CE-141	1.516E-02	5.058E-02	4.560E-02	2.581E-02	NOT IDENT.
CE-143	6.997E+02	1.897E+02	0.000E+00	9.677E+01	SHORT HLIF
CE-144	6.759E-02	1.701E-01	1.479E-01	8.680E-02	NOT IDENT.
PM-144	9.631E-03	2.848E-02	2.541E-02	1.453E-02	NOT IDENT.

PR-144	6.525E-01	1.930E+00	1.722E+00	9.847E-01	NOT IDENT.
PM-146	4.976E-02	3.668E-02	3.424E-02	1.872E-02	NOT IDENT.
ND-147	1.267E-01	4.544E-01	3.931E-01	2.318E-01	FAIL ABUN
PM-149	6.065E+01	6.384E+01	5.983E+01	3.257E+01	NOT IDENT.
EU-152	-4.237E-03	9.226E-02	6.648E-02	4.707E-02	FAIL ABUN
GD-153	-5.591E-02	6.720E-02	5.675E-02	3.428E-02	NOT IDENT.
EU-154	-1.318E-01	1.179E-01	8.955E-02	6.018E-02	NOT IDENT.
EU-155	-3.096E-03	8.890E-02	8.117E-02	4.536E-02	FAIL ABUN
TB-160	3.544E-03	1.181E-01	1.004E-01	6.025E-02	FAIL ABUN
HO-166M	2.463E-03	4.967E-02	4.330E-02	2.534E-02	FAIL ABUN
TM-171	-8.109E+00	2.480E+01	2.076E+01	1.265E+01	NOT IDENT.
LU-176	-7.973E-03	1.957E-02	1.714E-02	9.986E-03	FAIL ABUN
LU-177	2.197E+00	1.234E+00	8.742E-01	6.294E-01	FAIL ABUN
LU-177M	-1.899E-01	1.505E-01	1.167E-01	7.677E-02	NOT IDENT.
HF-181	-9.447E-03	3.680E-02	3.091E-02	1.878E-02	NOT IDENT.
W-181	-6.186E-02	3.282E-01	2.771E-01	1.674E-01	NOT IDENT.
TA-182	-9.633E-02	1.771E-01	1.448E-01	9.036E-02	FAIL ABUN
RE-183	6.849E-03	9.086E-02	7.973E-02	4.636E-02	FAIL ABUN
RE-184	3.640E-02	1.830E-01	1.683E-01	9.337E-02	NOT IDENT.
OS-185	3.763E-03	3.554E-02	3.143E-02	1.813E-02	NOT IDENT.
RE-188	4.703E-02	1.389E-01	1.248E-01	7.087E-02	NOT IDENT.
W-188	-8.110E+00	6.303E+00	4.486E+00	3.216E+00	FAIL ABUN
IR-192	1.061E-02	2.619E-02	2.390E-02	1.336E-02	FAIL ABUN
AU-195	1.644E-02	1.778E-01	1.640E-01	9.073E-02	FAIL ABUN
TL-200	-1.472E+02	3.088E+02	0.000E+00	1.576E+02	SHORT HLIF
TL-201	2.887E-01	5.340E+00	4.710E+00	2.725E+00	NOT IDENT.
TL-202	-4.254E-03	5.923E-02	5.093E-02	3.022E-02	NOT IDENT.
BI-207	1.891E-02	4.500E-02	4.045E-02	2.296E-02	FAIL ABUN
TL-207	9.295E-03	5.740E-01	4.498E-01	2.928E-01	FAIL ABUN
PO-209	6.011E-01	6.329E+00	5.403E+00	3.229E+00	NOT IDENT.
BI-210	-6.949E-01	2.572E+00	2.402E+00	1.312E+00	NOT IDENT.
PB-210	-6.949E-01	2.572E+00	2.402E+00	1.312E+00	NOT IDENT.
PO-210	-6.949E-01	2.572E+00	2.402E+00	1.312E+00	NOT IDENT.
PB-211	-9.128E-01	9.618E-01	6.322E-01	4.907E-01	NOT IDENT.
BI-212	1.190E+00	4.698E-01	3.065E-01	2.397E-01	FAIL ABUN
PO-215	9.295E-03	5.740E-01	4.498E-01	2.928E-01	FAIL ABUN
RN-219	1.650E-01	3.172E-01	2.855E-01	1.618E-01	FAIL ABUN
RN-220	-3.317E+00	2.001E+01	1.764E+01	1.021E+01	NOT IDENT.
RA-223	9.295E-03	5.740E-01	4.498E-01	2.928E-01	FAIL ABUN
AC-227	-1.353E-01	2.963E-01	2.634E-01	1.512E-01	FAIL ABUN
TH-227	-1.353E-01	2.965E-01	2.634E-01	1.513E-01	FAIL ABUN
TH-229	1.694E-01	4.277E-01	3.781E-01	2.182E-01	FAIL ABUN
PA-231	-5.082E-01	1.165E+00	1.025E+00	5.942E-01	FAIL ABUN
TH-231	9.295E-03	5.740E-01	4.498E-01	2.928E-01	FAIL ABUN
U-231	4.193E-01	9.061E-01	7.641E-01	4.623E-01	FAIL ABUN
PA-233	-3.254E-04	4.837E-02	4.322E-02	2.468E-02	FAIL ABUN
PA-234	-2.196E-02	2.908E-01	2.430E-01	1.484E-01	FAIL ABUN
PA-234M	2.459E-01	3.882E+00	3.153E+00	1.980E+00	NOT IDENT.
U-235	-1.247E-01	1.760E-01	1.506E-01	8.978E-02	FAIL ABUN
NP-236	-3.115E-02	6.464E-02	5.586E-02	3.298E-02	NOT IDENT.
NP-239	-1.011E-01	1.562E-01	1.378E-01	7.971E-02	FAIL ABUN
AM-241	2.258E-02	1.351E-01	1.167E-01	6.893E-02	NOT IDENT.
CM-243	7.605E-02	7.766E-02	7.361E-02	3.962E-02	FAIL ABUN
AM-246	6.855E-02	1.275E-01	1.153E-01	6.504E-02	NOT IDENT.
CM-247	1.683E-02	2.866E-02	2.594E-02	1.462E-02	FAIL ABUN
CF-249	-8.713E-03	3.348E-02	2.883E-02	1.708E-02	NOT IDENT.
CF-251	-8.623E-02	1.056E-01	8.900E-02	5.390E-02	NOT IDENT.



\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	262.4825
46.50	262.4825
46.50	262.4825
48.70	266.1644
49.72	282.4792
51.35	294.3185
52.39	286.6710
52.97	277.6855
53.15	277.8439
53.44	309.2872
54.07	319.4497
56.28	339.9892
56.28	339.9922
57.37	0.0000
57.53	313.2057
57.53	313.2076
57.60	313.2720
57.98	317.3186
57.98	317.3186
59.32	317.5232
59.32	317.5232
59.40	336.1239
59.54	336.2624
59.72	336.4397
60.01	339.3770
61.10	356.4103
61.14	356.4518
61.30	356.6153
63.00	357.4573
63.29	357.7489
63.29	357.7489
63.58	358.0411
64.28	381.1088
65.12	384.6878
65.20	413.0255
65.20	413.0255
66.05	395.1114
66.72	399.8841
66.83	400.0060
66.91	370.3574
67.20	365.2371
67.20	365.2371
67.75	386.0977
67.85	386.2042
68.90	380.4947
68.90	380.4947
69.30	382.2588
69.67	375.8255
70.82	396.0795
70.82	396.0795
70.83	396.0905
72.80	387.1282
72.87	387.1992
72.87	387.1992
74.67	386.2112
74.81	386.3480
74.81	386.3480
74.81	386.3480
74.81	386.3480
74.81	386.3480
74.81	386.3480
74.81	386.3480
74.97	386.5028
75.28	386.8030
75.70	387.2089
77.11	388.5632
77.11	388.5632

77.11	388.5632
77.11	388.5632
77.11	388.5632
77.11	388.5632
77.11	388.5632
78.38	399.5167
79.62	368.6034
79.80	368.7625
79.80	368.7625
80.11	378.8236
80.18	378.8856
80.30	378.9952
80.30	378.9952
80.57	334.4581
81.00	428.6573
81.07	428.7296
81.07	428.7296
81.07	428.7296
81.07	428.7296
82.60	395.1263
83.37	387.3839
83.78	372.2470
83.78	372.2470
83.78	372.2470
83.78	372.2470
84.21	355.6805
84.90	360.4887
85.43	420.3754
86.29	458.0729
86.50	431.3339
86.54	431.3733
86.59	431.4220
86.72	431.5496
86.79	431.6168
86.94	431.7653
87.30	432.1155
87.30	432.1155
87.30	432.1155
87.30	432.1155
87.30	432.1155
87.30	432.1155
87.30	432.1155
87.57	432.3799
87.88	432.6814
88.03	432.8275
88.36	433.1476
88.47	433.2543
89.95	434.6807
91.11	435.7939
92.29	436.9165
92.38	437.0023
92.38	437.0023
93.35	365.8924
94.00	360.6339
94.67	325.0322
94.67	325.0357
94.90	325.1953
94.90	325.1953
94.90	325.1953
94.90	325.1953
95.87	325.8648
95.87	325.8648
96.73	349.6736
97.43	352.2190
98.44	316.4592
98.44	316.4608
98.88	305.0898
99.55	292.8629
99.55	292.8629
99.86	293.0497
100.00	287.2907
100.10	301.9633
103.18	295.0323
103.76	279.6742
105.00	298.0730
105.31	324.8337
108.00	305.7703
109.28	284.7053

111.00	329.4377
111.00	329.4377
111.76	327.9207
112.95	319.6680
115.19	295.9303
116.30	303.5760
117.00	319.0638
117.00	319.0638
117.66	298.2884
121.11	311.3097
121.62	307.5340
121.78	307.6219
122.06	296.6026
122.32	296.7393
122.32	296.7393
122.32	296.7393
122.32	296.7393
123.07	273.2211
127.23	278.8046
129.76	288.7691
131.20	253.8727
133.02	298.1279
133.54	273.5203
135.34	294.0835
136.00	307.9268
136.25	288.2824
136.48	272.7728
140.51	295.5257
140.51	0.0000
142.18	287.9113
142.65	283.9197
143.76	319.1850
144.24	310.9918
144.24	310.9918
144.24	310.9918
144.24	310.9918
145.22	289.2993
145.44	294.6807
147.16	295.4754
152.43	291.4705
152.70	289.4537
153.22	266.1633
154.21	279.4073
154.21	279.4073
154.21	279.4073
154.21	279.4073
155.03	284.0399
156.02	296.2682
158.56	260.7512
159.00	0.0000
159.00	269.5440
160.31	290.5875
161.27	289.9135
162.32	269.7703
162.64	264.4748
163.35	266.9154
163.89	275.8100
165.85	290.7411
167.43	273.9338
171.28	282.0009
171.86	248.1853
172.10	248.2680
176.55	296.2111
176.60	296.2316
181.06	286.8985
184.41	266.3958
185.71	275.2410
186.00	275.3461
190.27	268.4362
192.34	285.5129
193.63	265.6348
197.04	278.1347
198.01	288.7007
198.60	278.6755
200.40	257.6410
201.83	275.2265
202.84	261.8484
205.31	264.9319

208.36	256.7027
208.81	256.8411
209.75	249.0601
209.75	249.0601
210.97	239.0300
215.65	251.9680
216.55	234.7975
218.09	255.0143
222.10	218.4715
223.80	243.5099
226.40	245.1122
227.00	234.6901
227.08	234.7124
227.20	219.7405
228.16	213.7939
228.18	210.2655
228.18	210.2655
231.56	0.0000
235.69	256.5659
236.00	253.8021
236.00	253.8021
238.63	212.7060
238.63	212.7060
238.63	212.7060
238.63	212.7060
239.00	212.7895
240.98	213.2471
241.98	213.4759
241.98	213.4759
241.98	213.4759
244.69	191.4262
245.39	197.3305
247.94	202.1968
248.90	201.4983
249.79	190.8340
252.40	204.9573
252.85	194.1661
252.85	194.1661
254.15	0.0000
256.20	200.3015
256.20	200.3015
260.50	178.3225
260.90	190.2869
262.80	192.4883
264.65	176.3174
268.24	175.4756
268.79	191.8008
269.46	176.2413
269.46	176.2413
269.46	176.2413
269.46	176.2413
271.23	158.9877
273.65	144.5409
276.40	156.0747
277.35	174.0746
277.60	168.1620
277.60	168.1620
278.00	168.2282
278.60	166.8352
279.20	155.0098
279.53	155.0580
280.46	155.1976
281.68	180.7762
283.67	170.2668
284.30	181.6027
285.00	165.7998
285.90	142.5023
286.10	129.4024
286.10	129.4024
287.40	148.0689
288.45	0.0000
290.67	183.8250
290.80	164.2584
291.72	155.3500
293.26	0.0000
293.70	134.4799
295.21	196.7075
295.21	196.7075

295.21	196.7075
295.96	181.7021
296.50	181.7900
297.23	181.9131
298.57	182.1357
299.80	189.9384
299.80	189.9384
300.09	177.8309
300.09	177.8309
300.09	177.8309
300.09	177.8309
300.12	177.8337
301.29	181.0683
302.84	161.5128
303.76	155.5475
303.91	172.3443
304.40	181.8310
304.40	181.8310
304.84	172.2725
306.84	165.3447
308.46	136.8707
311.98	140.1788
316.51	133.0263
318.01	148.6447
319.02	137.1833
319.41	135.2960
320.08	153.7474
323.87	144.3544
323.87	144.3544
323.87	144.3544
323.87	144.3544
325.23	153.8488
328.77	173.0175
333.44	150.2274
334.20	165.9821
334.20	165.9821
334.30	165.9951
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	162.1320
340.57	162.1395
344.27	136.1870
345.85	151.7766
350.59	0.0000
351.07	126.0253
351.92	126.1125
351.92	126.1125
351.92	126.1125
355.39	0.0000
356.01	119.5514
364.48	118.3493
366.43	130.5832
367.43	130.6844
367.94	0.0000
369.80	130.9244
374.96	131.4461
383.85	126.2270
387.95	139.8911
388.63	132.8108
391.69	126.9687
391.69	126.9687
392.90	131.1816
398.62	117.3242
400.65	125.7436
401.10	116.5054
401.81	103.1555
402.60	104.2456
404.84	151.9706
410.95	133.9465
411.60	136.0872
413.65	143.5675
414.70	121.8095
415.30	124.9860

415.76	114.6091
417.63	0.0000
418.52	98.1280
423.70	121.5331
427.08	120.7679
427.89	119.7856
432.53	115.9518
433.93	118.1711
439.47	122.8535
439.56	122.8606
439.89	115.4732
443.98	134.9123
444.90	129.6808
445.03	119.0615
445.03	119.0615
445.03	119.0615
445.03	119.0615
453.90	89.8229
463.38	109.7477
468.07	93.2436
473.00	115.8394
475.06	113.8232
475.35	103.0017
476.78	103.0959
477.59	108.5770
477.96	111.8610
482.03	112.1470
484.57	106.8735
487.03	95.0228
490.36	0.0000
492.35	90.9535
497.08	100.0103
507.63	0.0000
510.53	0.0000
510.84	105.2790
511.00	105.2892
511.85	105.3428
511.85	105.3428
513.99	90.5991
513.99	90.5991
520.41	101.4197
520.65	90.2895
527.90	89.5532
528.96	0.0000
529.64	90.7641
529.87	0.0000
531.02	82.9880
537.32	87.3426
543.00	82.2066
546.56	0.0000
549.76	83.4289
552.65	90.8301
555.20	80.0443
563.23	97.7629
563.90	99.6275
568.70	97.1417
569.32	99.9255
569.50	99.9362
569.67	104.5288
573.80	89.1424
574.00	89.1519
574.64	97.0487
578.91	93.6892
579.30	0.0000
583.14	91.4421
585.48	89.3978
591.81	115.0633
592.07	105.8007
593.00	99.3512
595.88	87.4136
600.56	87.3962
602.52	0.0000
602.71	104.2159
602.71	104.2159
603.60	96.4840
604.41	94.9675
604.70	91.8682
609.31	87.0944

609.31	87.0944
609.31	87.0944
609.31	87.0944
610.33	87.1398
612.46	76.6064
614.37	93.8965
618.01	80.9022
621.84	86.7149
621.84	86.7149
631.29	87.1327
633.02	88.1547
633.10	88.1593
634.78	84.4392
635.90	83.5377
636.97	76.9322
645.85	84.9063
646.12	80.1466
656.30	75.7540
657.75	78.6868
657.90	0.0000
661.65	96.1401
661.65	96.1401
664.57	0.0000
666.33	87.6853
666.33	87.6853
675.00	78.3758
677.61	87.1919
685.20	77.7832
692.80	80.0121
695.00	86.9314
696.49	78.1953
696.49	78.1953
697.00	78.2129
697.49	87.0314
698.33	88.0444
698.50	88.0510
699.00	84.1586
702.63	86.2598
706.10	86.3973
706.58	0.0000
706.67	86.4209
709.31	89.4737
711.68	74.8069
713.82	70.9383
717.42	74.0167
720.50	69.1780
721.93	0.0000
722.20	62.6375
722.78	62.6545
722.78	62.6545
722.89	62.6576
722.95	62.6592
723.30	65.9668
724.18	70.9423
727.18	76.3251
733.00	69.5676
735.90	79.6074
739.58	82.7285
742.81	68.8720
744.21	72.9091
747.13	76.0037
751.79	72.1494
752.31	70.1624
753.82	67.1996
755.35	69.2510
756.15	66.2626
756.87	65.2793
763.93	68.8372
765.79	68.8922
766.42	77.3143
766.84	77.3293
776.49	69.2075
778.00	76.7328
778.57	74.7601
778.89	66.4630
783.80	59.9406
785.46	58.9657
792.07	71.3638

795.84	66.3695
796.30	69.4460
798.80	121.6583
801.93	67.5614
805.60	82.0176
810.29	70.8766
810.76	71.9175
815.85	63.8315
817.79	63.8815
818.51	59.7771
819.60	56.7107
826.30	70.3060
828.27	0.0000
831.60	90.1414
831.96	76.6829
834.83	82.9961
836.80	0.0000
846.75	65.6701
848.13	58.4049
856.28	0.0000
856.80	50.5813
860.37	43.6656
867.32	52.5403
867.82	51.4991
871.10	61.0359
873.19	63.1919
874.81	57.9622
875.33	0.0000
876.40	60.1061
879.36	59.1186
880.27	53.8588
880.51	52.8076
881.50	48.6021
883.24	56.0343
884.67	65.5859
889.25	56.1637
896.60	58.4442
898.02	66.9821
899.00	73.3883
903.28	63.9185
911.07	50.2152
911.07	50.2152
911.07	50.2152
919.63	48.2311
920.93	43.9649
925.00	49.4006
925.24	53.7012
926.50	52.5317
935.52	55.6993
937.48	75.5183
944.10	77.8623
946.00	74.6686
949.00	77.9994
962.29	65.3086
964.01	179.7074
966.15	43.5986
968.20	81.8060
969.11	83.6520
969.11	83.6520
969.11	83.6520
977.42	73.3189
980.50	53.6787
983.50	65.7979
989.30	65.9312
996.32	56.9115
1001.03	46.8901
1001.68	40.4631
1004.76	63.5209
1021.30	0.0000
1024.50	0.0000
1034.80	56.7308
1036.00	51.1709
1037.82	59.5807
1038.57	57.7314
1038.76	0.0000
1045.16	52.2607
1046.59	56.0181
1048.07	57.9156



1050.47	57.9610
1050.47	57.9610
1062.04	45.9814
1063.62	55.3941
1076.63	66.0010
1077.35	62.2429
1078.86	58.4984
1085.78	65.2490
1099.22	71.2280
1112.02	57.2144
1112.84	62.1343
1115.52	76.9127
1120.29	58.3169
1120.29	58.3169
1120.29	58.3169
1120.29	58.3169
1120.51	52.4487
1121.28	59.0198
1124.00	0.0000
1129.67	46.0234
1131.51	0.0000
1147.95	0.0000
1167.94	69.8467
1173.22	82.5893
1175.09	83.6099
1177.93	71.0306
1189.05	72.2415
1204.90	63.7543
1205.75	0.0000
1213.00	96.3491
1221.42	84.7577
1230.97	86.4040
1235.34	79.7289
1236.41	0.0000
1238.25	74.7012
1246.25	63.1316
1260.41	0.0000
1271.85	48.9920
1274.45	77.0439
1274.54	77.0470
1291.56	49.2612
1298.22	0.0000
1312.09	48.5293
1325.50	37.5450
1325.50	37.5450
1332.49	35.5825
1333.61	27.4570
1360.21	26.6284
1362.66	0.0000
1365.15	31.7909
1368.21	14.3691
1368.53	0.0000
1376.25	28.7987
1384.27	35.0431
1394.10	20.6665
1395.20	29.9747
1407.95	30.0738
1434.06	18.7910
1436.60	26.1149
1457.56	0.0000
1460.81	27.3245
1489.15	19.0503
1509.49	25.5264
1596.49	21.4029
1620.62	16.8430
1678.03	0.0000
1691.02	15.2087
1691.02	15.2087
1706.46	0.0000
1750.46	0.0000
1764.49	20.2793
1764.49	20.2793
1764.49	20.2793
1764.49	20.2793
1770.23	68.6451
1771.40	36.7489
1791.20	0.0000
1808.65	12.6699

1836.01

11.7614

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600003

Total Uranium Activity	5.8099E+00	ug/g
Total Uranium Counting Unc.	5.7038E+00	ug/g
Total Uranium Tpu	2.9101E-06	ug/g
Total Uranium Mda	2.8017E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244600003
*  ANALYST       : MXR1            DETECTOR    : GAM12
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 07:55:44.60  SAMPLE ALQT: 158.280 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.905E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.418E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.810E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.362E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:58:13.94

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600004.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:56:42
Sample ID          : G244600004      Sample quantity   : 1.53700E+02 GRAM
Detector name      : GAM16           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:02.21  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941635          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.38*	81	465	0.69	126.95	124	7	1.12E-02	47.0	
2	4	74.90	419	412	0.85	149.99	144	22	5.82E-02	8.6	1.82E+00
3	4	77.17*	707	434	1.00	154.53	144	22	9.82E-02	6.1	
4	0	86.82	201	547	1.04	173.83	172	7	2.80E-02	20.4	
5	5	90.01	226	240	1.00	180.20	178	14	3.13E-02	11.6	3.00E+00
6	5	93.01*	320	447	1.42	186.21	178	14	4.44E-02	13.5	
7	0	128.86	117	452	1.16	257.91	254	9	1.62E-02	34.1	
8	0	185.73*	311	494	1.11	371.65	365	14	4.32E-02	16.6	
9	0	209.15	151	235	1.16	418.50	415	7	2.09E-02	18.7	
10	6	238.53*	1546	208	0.98	477.26	473	17	2.15E-01	3.0	1.84E+00
11	6	241.64	366	312	1.91	483.47	473	17	5.08E-02	13.1	
12	5	269.90	120	166	1.30	539.99	535	11	1.67E-02	21.4	4.08E-01
13	5	271.11	54	144	1.21	542.41	535	11	7.44E-03	44.0	
14	0	277.09	112	200	0.95	554.38	549	10	1.56E-02	25.3	
15	0	295.00*	464	252	1.18	590.19	585	12	6.45E-02	8.3	
16	0	300.67*	114	239	1.41	601.54	596	13	1.58E-02	30.2	
17	0	327.84	116	204	1.06	655.86	651	11	1.60E-02	25.7	
18	0	338.23	325	255	1.04	676.65	672	11	4.52E-02	11.0	
19	0	351.83*	699	237	1.07	703.85	699	11	9.71E-02	5.8	
20	0	462.75	138	165	1.66	925.68	918	16	1.92E-02	22.4	
21	0	510.71*	146	195	1.69	1021.57	1014	17	2.03E-02	25.7	
22	0	583.02*	472	120	1.28	1166.19	1160	12	6.55E-02	6.7	
23	0	609.05*	544	129	1.24	1218.24	1211	14	7.55E-02	6.3	
24	0	727.28	106	91	1.52	1454.64	1449	11	1.47E-02	19.9	
25	0	767.28	42	127	0.68	1534.63	1531	13	5.87E-03	56.6	
26	0	794.58	77	54	1.27	1589.22	1583	12	1.07E-02	22.2	
27	0	860.04	53	69	1.88	1720.10	1715	11	7.33E-03	33.4	
28	0	911.01*	343	79	1.51	1822.02	1815	16	4.77E-02	8.0	
29	0	935.14	46	77	4.92	1870.28	1863	15	6.34E-03	44.8	
30	1	964.56	53	57	1.76	1929.10	1924	19	7.42E-03	31.7	2.99E+00
31	1	968.85*	186	51	1.52	1937.68	1924	19	2.58E-02	10.2	
32	0	1119.80*	124	93	1.62	2239.47	2232	14	1.72E-02	19.1	
33	0	1238.15	49	76	1.41	2476.08	2470	11	6.85E-03	37.2	
34	0	1408.12*	42	17	1.72	2815.89	2807	18	5.80E-03	29.1	
35	0	1460.49*	1645	36	1.90	2920.59	2911	19	2.28E-01	2.6	
36	0	1620.75	18	10	1.41	3240.94	3236	10	2.50E-03	40.4	
37	0	1729.21	31	3	2.01	3457.75	3451	14	4.28E-03	22.1	
38	0	1764.00*	110	5	1.83	3527.27	3518	15	1.53E-02	10.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
----	----	--------	------	-------	------	---------	------	----	---------	------	-----

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 09:58:17

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600004.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 7-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 07:56:42  
 Sample ID : G244600004 Sample quantity : 153.70 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA16 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.21 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	*	3.116E+01	3.195E+00	4.558E-01	4.006E-02	68.378
NB-95	+	765.79	*	5.722E-02	6.494E-02	5.577E-02	5.155E-03	1.026
CD-109	+	88.03	*	2.169E+00	9.077E-01	8.753E-01	8.434E-02	2.478
SN-126	+	64.28		5.802E-01	5.523E-01	5.878E-01	8.565E-02	0.987
	+	86.94		8.866E-01	5.161E-01	4.412E-01	1.833E-01	2.010
	+	87.57	*	2.133E-01	8.926E-02	1.075E-01	1.031E-02	1.984
TL-208	+	277.35		8.600E-01	4.541E-01	4.302E-01	6.394E-02	1.999
	+	510.84		5.582E-01	2.949E-01	1.745E-01	2.207E-02	3.198
	+	583.14	*	5.127E-01	8.536E-02	4.994E-02	4.950E-03	10.267
	+	860.37		5.388E-01	3.641E-01	3.825E-01	3.829E-02	1.409
BI-211		72.87		9.778E-01	2.549E+00	3.997E+00	3.249E-01	0.245
	+	351.07	*	3.349E+00	5.329E-01	2.482E-01	2.714E-02	13.493
BI-212	+	727.18	*	9.887E-01	4.072E-01	3.880E-01	4.054E-02	2.548
		785.46		1.013E+00	1.389E+00	2.466E+00	2.292E-01	0.411
	+	1620.62		1.431E+00	1.164E+00	1.618E+00	1.374E-01	0.885
PB-212	+	74.81		1.869E+00	3.979E-01	4.271E-01	5.335E-02	4.377
	+	77.11		1.786E+00	2.651E-01	2.423E-01	2.058E-02	7.372
	+	87.30		9.864E-01	4.244E-01	4.985E-01	6.895E-02	1.979
	+	238.63	*	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
	+	300.09		1.846E+00	1.142E+00	9.053E-01	1.186E-01	2.039
PO-212	+	74.81		1.869E+00	3.979E-01	4.271E-01	5.335E-02	4.377
	+	77.11		1.786E+00	2.651E-01	2.423E-01	2.058E-02	7.372
	+	87.30		9.864E-01	4.244E-01	4.985E-01	6.895E-02	1.979
		115.19		1.445E+00	2.655E+00	4.548E+00	3.795E-01	0.318
	+	238.63	*	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
	+	300.09		1.846E+00	1.142E+00	9.053E-01	1.186E-01	2.039
BI-214	+	609.31	*	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
	+	1120.29		1.321E+00	5.243E-01	3.969E-01	4.261E-02	3.328
	+	1764.49		1.610E+00	3.699E-01	2.168E-01	1.795E-02	7.424
PB-214	+	74.81		3.221E+00	6.606E-01	7.358E-01	8.181E-02	4.377
	+	77.11		3.062E+00	5.108E-01	4.154E-01	4.739E-02	7.372
	+	87.30		1.690E+00	7.191E-01	8.540E-01	1.049E-01	1.979
	+	241.98		2.304E+00	6.657E-01	4.283E-01	5.307E-02	5.378
	+	295.21		1.315E+00	2.804E-01	1.676E-01	2.237E-02	7.847

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	351.92	*	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
	+	74.81		3.221E+00	6.606E-01	7.358E-01	8.181E-02	4.377
	+	77.11		3.062E+00	5.108E-01	4.154E-01	4.739E-02	7.372
	+	87.30		1.690E+00	7.191E-01	8.540E-01	1.049E-01	1.979
	+	241.98		2.304E+00	6.657E-01	4.283E-01	5.307E-02	5.378
PO-216	+	295.21		1.315E+00	2.804E-01	1.676E-01	2.237E-02	7.847
	+	351.92	*	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
	+	74.81		1.869E+00	3.979E-01	4.271E-01	5.335E-02	4.377
	+	77.11		1.786E+00	2.651E-01	2.423E-01	2.058E-02	7.372
	+	87.30		9.864E-01	4.244E-01	4.985E-01	6.895E-02	1.979
PO-218	+	238.63	*	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
	+	300.09		1.846E+00	1.142E+00	9.053E-01	1.186E-01	2.039
	+	74.81		3.221E+00	6.606E-01	7.358E-01	8.181E-02	4.377
	+	77.11		3.062E+00	5.108E-01	4.154E-01	4.739E-02	7.372
	+	87.30		1.690E+00	7.191E-01	8.540E-01	1.049E-01	1.979
RA-224	+	241.98		2.304E+00	6.657E-01	4.283E-01	5.307E-02	5.378
	+	295.21		1.315E+00	2.804E-01	1.676E-01	2.237E-02	7.847
	+	351.92	*	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
	+	240.98	*	4.368E+00	1.238E+00	8.095E-01	8.920E-02	5.396
	+	609.31	*	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
RA-226	+	1120.29		1.321E+00	5.243E-01	3.969E-01	4.261E-02	3.328
	+	1764.49		1.610E+00	3.699E-01	2.168E-01	1.795E-02	7.424
	+	338.32		1.718E+00	8.116E-01	2.888E-01	1.207E-01	5.947
	+	911.07	*	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
	+	969.11		1.581E+00	4.925E-01	2.840E-01	6.697E-02	5.568
AC-228	+	338.32		1.718E+00	8.116E-01	2.888E-01	1.207E-01	5.947
	+	911.07	*	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
	+	969.11		1.581E+00	4.925E-01	2.840E-01	6.697E-02	5.568
	+	338.32		1.718E+00	8.116E-01	2.888E-01	1.207E-01	5.947
	+	911.07	*	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
TH-228	+	969.11		1.581E+00	4.925E-01	2.840E-01	6.697E-02	5.568
	+	74.81		1.897E+00	3.635E-01	4.334E-01	3.626E-02	4.377
	+	77.11		1.813E+00	2.690E-01	2.459E-01	2.089E-02	7.372
	+	87.30		1.001E+00	4.190E-01	5.059E-01	4.835E-02	1.979
	+	238.63	*	1.644E+00	2.177E-01	7.218E-02	8.546E-03	22.777
TH-230	+	300.09		1.874E+00	1.593E+00	9.188E-01	5.495E-01	2.039
	+	609.31	*	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
	+	1120.29		1.321E+00	5.243E-01	3.969E-01	4.261E-02	3.328
	+	1764.49		1.610E+00	3.699E-01	2.168E-01	1.795E-02	7.424
	+	338.32		1.718E+00	4.222E-01	2.888E-01	3.152E-02	5.947
TH-232	+	911.07	*	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
	+	969.11		1.581E+00	4.925E-01	2.840E-01	6.697E-02	5.568
	+	63.29	*	1.466E+00	1.402E+00	1.565E+00	2.729E-01	0.937
	+	92.38		2.183E+00	7.127E-01	5.460E-01	1.004E-01	3.999
	+	609.31	*	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
U-234	+	1120.29		1.321E+00	5.243E-01	3.969E-01	4.261E-02	3.328
	+	1764.49		1.610E+00	3.699E-01	2.168E-01	1.795E-02	7.424
	+	86.50	*	6.263E-01	2.922E-01	3.131E-01	7.107E-02	2.000
	+	95.87		9.018E-02	7.459E-01	1.143E+00	2.831E-01	0.079
	+	63.29	*	1.466E+00	1.402E+00	1.565E+00	2.729E-01	0.937
U-238	+	92.38		2.183E+00	6.225E-01	5.460E-01	5.038E-02	3.999
	+	74.67	*	3.031E-01	5.796E-02	6.945E-02	5.749E-03	4.364



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	86.72		2.349E+01	9.829E+00	1.171E+01	1.111E+00	2.005
		117.66		-1.795E+00	2.744E+00	4.471E+00	3.720E-01	-0.401
		142.18		-3.161E+00	1.315E+01	2.165E+01	1.846E+00	-0.146
ANH-511	+	511.00	*	1.206E-01	6.291E-02	3.771E-02	3.586E-03	3.197

---- 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	*	1.771E-01	2.656E-01	4.583E-01	4.636E-02	0.386
NA-22		1274.54	*	1.526E-02	3.838E-02	6.464E-02	5.379E-03	0.236
NA-24		1368.53	*	-1.651E-01	3.838E-02	Half-Life too short		
AL-26		1129.67		5.387E-01	1.402E+00	2.377E+00	1.992E-01	0.227
		1808.65	*	2.359E-02	2.111E-02	4.237E-02	3.465E-03	0.557
TI-44		67.85		-9.095E-03	3.794E-02	5.824E-02	4.510E-03	-0.156
	+	78.38	*	3.296E-01	4.892E-02	5.774E-02	4.973E-03	5.708
SC-46		889.25	*	2.448E-02	3.397E-02	5.988E-02	5.661E-03	0.409
	+	1120.51		2.256E-01	8.828E-02	1.169E-01	9.875E-03	1.930
V-48		944.10		-2.413E-01	7.439E-01	1.201E+00	1.122E-01	-0.201
		983.50	*	-1.284E-02	6.062E-02	9.858E-02	9.074E-03	-0.130
		1312.09		-1.949E-02	6.845E-02	1.071E-01	8.987E-03	-0.182
CR-51		320.08	*	1.220E-01	3.235E-01	5.232E-01	6.117E-02	0.233
MN-52		744.21		-8.404E-02	1.871E-01	2.866E-01	2.632E-02	-0.293
		848.13		1.253E-01	5.304E+00	8.911E+00	8.386E-01	0.014
	+	935.52		4.183E-01	3.769E-01	3.980E-01	3.729E-02	1.051
		1246.25		-2.191E+00	6.616E+00	1.044E+01	8.605E-01	-0.210
		1333.61		-3.831E+00	4.525E+00	6.575E+00	5.547E-01	-0.583
		1434.06	*	-4.717E-02	1.641E-01	2.502E-01	2.135E-02	-0.189
MN-54		834.83	*	-1.247E-02	3.217E-02	5.242E-02	4.924E-03	-0.238
CO-56		846.75	*	-6.987E-03	3.260E-02	5.371E-02	5.054E-03	-0.130
		977.42		-1.111E+00	2.483E+00	3.946E+00	3.642E-01	-0.281
		1037.82		-2.302E-02	2.582E-01	4.224E-01	3.971E-02	-0.054
		1175.09		4.513E-01	1.949E+00	3.247E+00	2.612E-01	0.139
	+	1238.25		1.476E-01	1.106E-01	1.513E-01	1.283E-02	0.976
		1360.21		1.995E-01	8.287E-01	1.378E+00	1.167E-01	0.145
		1771.40		-2.641E-01	1.929E-01	2.270E-01	1.875E-02	-1.163
CO-57		122.06	*	8.804E-03	1.887E-02	3.218E-02	2.674E-03	0.274
		136.48		1.160E-01	1.568E-01	2.685E-01	2.441E-02	0.432
CO-58		810.76	*	3.594E-03	3.281E-02	5.568E-02	5.216E-03	0.065
FE-59		142.65		-5.843E-02	2.086E+00	3.397E+00	2.900E-01	-0.017
		192.34		9.727E-02	7.164E-01	1.179E+00	1.669E-01	0.083
		1099.22	*	8.102E-02	7.759E-02	1.385E-01	1.287E-02	0.585
		1291.56		1.350E-02	1.104E-01	1.810E-01	1.728E-02	0.075
CO-60		1173.22		-3.022E-02	4.149E-02	6.337E-02	5.095E-03	-0.477
		1332.49	*	-2.005E-02	3.443E-02	5.168E-02	4.359E-03	-0.388
ZN-65		1115.52	*	9.027E-02	8.449E-02	1.353E-01	1.149E-02	0.667
GE-68		1077.35	*	6.646E-01	1.107E+00	1.912E+00	1.670E-01	0.348
AS-73		53.44	*	5.884E-01	6.713E-01	1.094E+00	8.344E-02	0.538
AS-74		595.88	*	-7.365E-02	7.869E-02	1.140E-01	1.058E-02	-0.646

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75	634.78			-1.186E-01	2.787E-01	4.349E-01	3.942E-02	-0.273
	66.05			-3.908E+00	4.251E+00	5.746E+00	5.528E-01	-0.680
	96.73			-3.362E-02	6.144E-01	9.335E-01	1.290E-01	-0.036
	121.11			-7.323E-02	1.007E-01	1.631E-01	1.791E-02	-0.449
	136.00			3.089E-02	2.961E-02	5.120E-02	4.346E-03	0.603
	198.60			1.072E+00	1.499E+00	2.504E+00	2.684E-01	0.428
	264.65	*		1.822E-02	3.858E-02	5.698E-02	6.649E-03	0.320
	279.53			1.573E-02	9.328E-02	1.343E-01	1.644E-02	0.117
	303.91			1.062E+00	1.675E+00	2.492E+00	3.463E-01	0.426
	400.65			-6.110E-03	1.987E-01	3.326E-01	3.872E-02	-0.018
BR-77	87.88	+		4.313E+02	1.805E+02	2.428E+02	2.337E+01	1.776
	200.40			6.536E+01	1.230E+02	2.050E+02	2.037E+01	0.319
	239.00	+		2.393E+02	2.982E+01	3.089E+01	3.388E+00	7.748
	249.79			-2.502E+00	4.814E+01	7.723E+01	8.691E+00	-0.032
	281.68			3.603E+00	7.098E+01	1.012E+02	1.213E+01	0.036
	297.23			8.781E+01	5.709E+01	7.310E+01	8.598E+00	1.201
	303.76			7.895E+01	1.311E+02	1.948E+02	2.270E+01	0.405
	439.47			8.592E+01	1.086E+02	1.892E+02	1.785E+01	0.454
	484.57			1.656E+00	1.702E+02	2.820E+02	2.682E+01	0.006
	520.65	*		1.658E+00	7.877E+00	1.316E+01	1.251E+00	0.126
SR-82	574.64			-2.265E+01	1.553E+02	2.510E+02	2.352E+01	-0.090
	578.91			1.893E+01	7.187E+01	1.057E+02	9.886E+00	0.179
	585.48			5.565E+02	1.785E+02	3.051E+02	2.846E+01	1.824
	755.35			1.090E+02	1.337E+02	2.280E+02	2.101E+01	0.478
	817.79			9.606E-01	9.970E+01	1.678E+02	1.571E+01	0.006
	698.33			8.782E+00	2.628E+01	4.352E+01	3.927E+00	0.202
	776.49	*		-1.267E-01	3.109E-01	4.766E-01	4.419E-02	-0.266
	1395.20			8.411E-02	9.057E+00	1.459E+01	1.241E+00	0.006
	520.41	*		7.955E-03	5.617E-02	9.344E-02	8.879E-03	0.085
	529.64			8.644E-03	8.421E-02	1.396E-01	1.324E-02	0.062
RB-83	552.65			1.306E-01	1.659E-01	2.865E-01	2.705E-02	0.456
	881.50	*		4.238E-02	6.043E-02	1.064E-01	1.005E-02	0.398
RB-84	513.99	*		6.663E-01	6.278E+00	9.174E+00	8.723E-01	0.073
KR-85	513.99	*		3.406E-03	3.209E-02	4.690E-02	4.459E-03	0.073
SR-85	1076.63	*		8.200E-01	6.786E-01	1.227E+00	1.072E-01	0.669
RB-86	898.02			-3.659E-03	3.564E-02	5.899E-02	5.602E-03	-0.062
Y-88	1836.01	*		-2.605E-03	2.828E-02	4.567E-02	3.708E-03	-0.057
ZR-88	392.90	*		-1.675E-02	2.417E-02	3.878E-02	3.587E-03	-0.432
Y-91	1204.90	*		5.205E+00	1.714E+01	2.862E+01	2.327E+00	0.182
NB-94	702.63	*		-3.905E-03	2.812E-02	4.472E-02	4.043E-03	-0.087
NB-95M	871.10			7.242E-03	2.697E-02	4.618E-02	4.358E-03	0.157
	235.69	*		-3.061E-02	1.081E-01	1.526E-01	1.815E-02	-0.201
ZR-95	724.18			4.769E-02	8.542E-02	1.273E-01	1.251E-02	0.375
NB-97	756.15	*		2.172E-02	6.145E-02	1.012E-01	1.016E-02	0.215
	657.90	*		-8.812E-02	6.145E-02	Half-Life	too short	
ZR-97	1024.50			-2.899E+00	6.145E-02	Half-Life	too short	
	254.15			-1.339E+00	6.145E-02	Half-Life	too short	
	355.39			-1.660E+00	6.145E-02	Half-Life	too short	
	507.63	*		4.942E-01	6.145E-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			-2.506E+00	6.145E-02	Half-Life	too short	
	1021.30			1.709E+00	6.145E-02	Half-Life	too short	
	1147.95			-1.019E+00	6.145E-02	Half-Life	too short	
	1362.66			-3.945E+00	6.145E-02	Half-Life	too short	
	1750.46			3.065E-01	6.145E-02	Half-Life	too short	
MO-99	140.51			-1.155E+01	1.857E+01	2.915E+01	8.060E+00	-0.396
	181.06			-5.083E+00	1.404E+01	2.011E+01	3.758E+00	-0.253
	366.43			2.542E+01	6.117E+01	1.056E+02	1.068E+01	0.241
	739.58	*		3.653E+00	8.981E+00	1.489E+01	2.308E+00	0.245
	778.00			1.196E+01	2.529E+01	4.215E+01	3.910E+00	0.284
TC-99M	140.51	*		-8.189E+09	2.529E+01	Half-Life	too short	
RH-101	127.23			1.340E-02	2.665E-02	4.100E-02	3.414E-03	0.327
	198.01	*		3.230E-02	2.738E-02	4.644E-02	4.585E-03	0.696
	325.23			1.343E-01	1.981E-01	2.934E-01	3.294E-02	0.458
RH-102	418.52			8.840E-02	2.321E-01	3.968E-01	3.717E-02	0.223
	475.06	*		9.784E-04	2.391E-02	3.973E-02	3.777E-03	0.025
	631.29			2.762E-02	4.220E-02	7.220E-02	6.561E-03	0.382
	697.49			2.069E-03	6.012E-02	9.710E-02	8.759E-03	0.021
+	766.84			1.444E-01	1.639E-01	1.751E-01	1.619E-02	0.825
	1046.59			5.289E-02	1.002E-01	1.727E-01	1.539E-02	0.306
	1112.84			3.170E-02	2.193E-01	3.171E-01	2.696E-02	0.100
RU-103	497.08	*		-8.992E-04	3.339E-02	5.507E-02	8.109E-03	-0.016
+	610.33			1.196E+01	2.526E+00	2.491E+00	4.234E-01	4.803
RH-106	511.85	+		6.019E-01	3.141E-01	3.630E-01	3.453E-02	1.658
	621.84	*		5.098E-03	2.376E-01	3.868E-01	5.300E-02	0.013
	1050.47			-2.220E-01	2.025E+00	3.305E+00	2.938E-01	-0.067
RU-106	511.85	+		6.019E-01	3.141E-01	3.630E-01	3.453E-02	1.658
	621.84	*		5.098E-03	2.376E-01	3.868E-01	3.537E-02	0.013
	1050.47			-2.220E-01	2.025E+00	3.305E+00	2.938E-01	-0.067
AG-108M	433.93	*		7.167E-03	2.557E-02	4.342E-02	4.226E-03	0.165
	614.37			5.430E-03	3.265E-02	4.737E-02	4.503E-03	0.115
	722.95			-8.398E-03	3.920E-02	5.347E-02	5.044E-03	-0.157
AG-110M	657.75	*		-5.015E-02	2.855E-02	3.815E-02	3.491E-03	-1.315
	677.61			-7.810E-02	2.500E-01	3.923E-01	3.599E-02	-0.199
	706.67			9.159E-03	1.747E-01	2.822E-01	2.619E-02	0.032
	763.93			8.889E-02	1.483E-01	2.218E-01	2.099E-02	0.401
	884.67			-3.900E-02	4.275E-02	6.559E-02	6.365E-03	-0.595
	937.48			5.168E-02	1.005E-01	1.546E-01	1.492E-02	0.334
	1384.27			-5.756E-03	1.364E-01	2.184E-01	1.909E-02	-0.026
IN-111	171.28			-3.143E-01	7.204E-01	1.161E+00	1.068E-01	-0.271
	245.39	*		2.154E-02	8.548E-01	1.229E+00	1.369E-01	0.018
IN-113M	391.69	*		9.922E-04	3.557E-02	5.984E-02	5.680E-03	0.017
SN-113	391.69	*		9.922E-04	3.557E-02	5.984E-02	5.680E-03	0.017
IN-114M	190.27	*		-1.911E-02	1.501E-01	2.176E-01	2.104E-02	-0.088
CD-115	260.90			-2.394E+01	9.410E+01	1.487E+02	1.716E+01	-0.161
	492.35			9.684E+00	2.670E+01	4.523E+01	4.304E+00	0.214
	527.90	*		-2.825E+00	8.063E+00	1.291E+01	1.225E+00	-0.219
SN-117M	156.02			-2.988E-01	1.811E+00	2.977E+00	2.625E-01	-0.100
	158.56	*		-4.256E-02	4.213E-02	6.632E-02	5.891E-03	-0.642

---- 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	*	7.043E-01	1.482E+00	2.514E+00	2.365E-01	0.280
		692.80		-2.069E+01	3.064E+01	4.498E+01	4.049E+00	-0.460
I-123		159.00	*	-2.106E+00	3.064E+01	Half-Life	too short	
		528.96		-9.497E+01	3.064E+01	Half-Life	too short	
TE-123M		159.00	*	-1.492E-02	2.202E-02	3.526E-02	3.154E-03	-0.423
I-124		602.71	*	-4.313E-01	6.176E-01	7.888E-01	7.295E-02	-0.547
		722.78		-4.175E-01	3.889E+00	5.377E+00	4.899E-01	-0.078
		1325.50		-3.439E+00	3.030E+01	4.834E+01	4.071E+00	-0.071
		1376.25		4.011E+01	2.739E+01	5.048E+01	4.284E+00	0.795
		1509.49		1.035E+01	1.128E+01	2.107E+01	1.802E+00	0.491
		1691.02		2.849E-01	2.867E+00	4.831E+00	4.062E-01	0.059
SB-124		602.71		-2.620E-02	3.752E-02	4.791E-02	4.432E-03	-0.547
		645.85		3.664E-01	3.779E-01	6.618E-01	6.279E-02	0.554
		709.31		-7.648E-02	2.333E+00	3.669E+00	3.325E-01	-0.021
		713.82		-1.457E+00	1.396E+00	1.979E+00	2.448E-01	-0.736
		722.78		-3.676E-02	3.424E-01	4.735E-01	4.398E-02	-0.078
	+	968.20		1.622E+01	3.627E+00	6.218E+00	5.760E-01	2.609
		1045.16		-4.749E-01	2.157E+00	3.486E+00	3.109E-01	-0.136
		1325.50		-3.234E-01	2.849E+00	4.546E+00	3.828E-01	-0.071
		1368.21	.	-3.620E-01	1.312E+00	2.024E+00	2.709E-01	-0.179
		1436.60		-2.997E+00	2.755E+00	3.844E+00	3.280E-01	-0.780
		1691.02	*	5.917E-03	5.955E-02	1.003E-01	8.786E-03	0.059
SB-125		427.89	*	3.576E-02	7.443E-02	1.278E-01	1.221E-02	0.280
	+	463.38		1.031E+00	4.728E-01	4.738E-01	4.788E-02	2.176
		600.56		9.838E-02	1.410E-01	2.414E-01	2.379E-02	0.408
		635.90		-3.572E-02	2.177E-01	3.481E-01	3.384E-02	-0.103
TE-125M		109.28	*	5.208E+00	6.879E+00	1.188E+01	1.209E+00	0.438
I-126		388.63		3.355E-03	1.728E-01	2.907E-01	2.720E-02	0.012
		666.33	*	6.420E-02	1.558E-01	2.596E-01	2.309E-02	0.247
		753.82		5.908E-01	1.202E+00	2.006E+00	1.847E-01	0.295
SB-126		223.80		1.848E+00	3.319E+00	5.508E+00	5.817E-01	0.335
		278.60		2.962E+00	2.209E+00	3.407E+00	4.086E-01	0.869
	+	296.50		1.289E+01	2.626E+00	2.825E+00	3.326E-01	4.561
		414.70		1.004E-04	5.937E-02	9.934E-02	9.289E-03	0.001
		415.30		-1.129E+00	4.879E+00	8.043E+00	7.523E-01	-0.140
		555.20		8.550E-01	3.194E+00	5.339E+00	5.036E-01	0.160
		573.80		2.694E-01	8.128E-01	1.362E+00	1.277E-01	0.198
		593.00		3.698E-01	7.650E-01	1.292E+00	1.201E-01	0.286
		656.30		-2.130E+00	2.570E+00	3.833E+00	3.417E-01	-0.556
		666.33		2.681E-02	6.507E-02	1.084E-01	9.642E-03	0.247
		675.00		-1.064E+00	1.686E+00	2.574E+00	2.299E-01	-0.413
		695.00		2.641E-02	5.673E-02	9.519E-02	8.577E-03	0.277
		697.00		5.040E-02	2.062E-01	3.391E-01	3.058E-02	0.149
		720.50	*	3.007E-02	1.266E-01	1.988E-01	1.810E-02	0.151
		856.80		5.958E-02	4.191E-01	6.216E-01	5.857E-02	0.096
		989.30		1.861E-01	9.977E-01	1.681E+00	1.544E-01	0.111
		1034.80		-4.423E+00	7.180E+00	1.112E+01	9.979E-01	-0.398
		1213.00		-1.215E+00	4.444E+00	7.080E+00	5.774E-01	-0.172
SB-127		61.10		3.809E+01	4.554E+01	6.802E+01	6.828E+00	0.560

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		252.40		-3.356E-01	3.296E+00	5.265E+00	2.245E+00	-0.064
		290.80		-5.069E+00	1.808E+01	2.500E+01	3.437E+00	-0.203
		411.60		-1.407E+01	9.724E+00	1.440E+01	2.314E+00	-0.977
		444.90		2.085E+00	7.352E+00	1.246E+01	1.626E+00	0.167
		473.00		-5.716E-02	1.253E+00	2.071E+00	2.776E-01	-0.028
		543.00		4.277E+00	1.253E+01	2.107E+01	3.130E+00	0.203
		603.60		-4.423E+00	1.017E+01	1.335E+01	1.719E+00	-0.331
		685.20	*	2.365E-01	9.845E-01	1.622E+00	1.877E-01	0.146
		698.50		1.991E+00	1.139E+01	1.862E+01	2.976E+00	0.107
		722.20		5.120E-01	2.653E+01	3.726E+01	4.271E+00	0.014
		783.80		1.435E+00	2.925E+00	4.857E+00	6.225E-01	0.296
XE-127		57.60		1.575E+00	4.881E+00	7.738E+00	5.594E-01	0.204
		145.22		-4.187E-02	5.516E-01	8.969E-01	7.699E-02	-0.047
		172.10		-3.561E-02	9.190E-02	1.485E-01	1.368E-02	-0.240
		202.84	*	1.121E-02	3.594E-02	5.941E-02	5.942E-03	0.189
		374.96		-4.287E-02	1.520E-01	2.516E-01	2.475E-02	-0.170
I-131		80.18		-4.034E+00	3.207E+00	5.216E+00	4.610E-01	-0.773
		284.30		-5.188E-01	1.151E+00	1.782E+00	2.188E-01	-0.291
		364.48	*	3.784E-02	8.893E-02	1.535E-01	1.623E-02	0.246
		636.97		5.403E-02	1.208E+00	1.966E+00	1.870E-01	0.027
		722.89		-9.776E-01	6.395E+00	8.792E+00	8.055E-01	-0.111
TE-132		49.72		-1.146E+01	1.450E+01	2.180E+01	2.258E+00	-0.526
		111.76		-3.085E+00	2.087E+01	3.490E+01	3.699E+00	-0.088
		116.30		-1.415E+00	1.897E+01	3.174E+01	3.349E+00	-0.045
		228.16	*	-1.373E-01	5.468E-01	8.736E-01	1.475E-01	-0.157
BA-133		53.15		3.174E+00	2.903E+00	4.773E+00	3.657E-01	0.665
		79.62		-1.024E+00	9.372E-01	1.521E+00	2.325E-01	-0.673
		81.00		-1.057E-01	7.093E-02	1.116E-01	1.787E-02	-0.947
	+	276.40		8.498E-01	4.532E-01	5.365E-01	8.928E-02	1.584
		302.84		2.964E-03	1.152E-01	1.630E-01	2.518E-02	0.018
		356.01	*	-3.449E-02	3.697E-02	5.028E-02	7.265E-03	-0.686
		383.85		1.783E-01	2.389E-01	4.169E-01	5.521E-02	0.428
I-133	+	510.53		9.758E-01	2.389E-01	Half-Life	too short	
		529.87	*	-6.876E-04	2.389E-01	Half-Life	too short	
		706.58		1.820E-02	2.389E-01	Half-Life	too short	
		856.28		1.868E-01	2.389E-01	Half-Life	too short	
		875.33		1.175E-02	2.389E-01	Half-Life	too short	
		1236.41		5.720E-01	2.389E-01	Half-Life	too short	
		1298.22		-2.032E-01	2.389E-01	Half-Life	too short	
CS-134		475.35		1.442E-01	1.568E+00	2.615E+00	2.486E-01	0.055
		563.23		2.898E-01	2.774E-01	4.882E-01	4.630E-02	0.594
		569.32		5.619E-02	1.542E-01	2.559E-01	2.430E-02	0.220
		604.70		2.143E-04	2.943E-02	4.197E-02	3.886E-03	0.005
	+	795.84	*	1.205E-01	5.476E-02	7.565E-02	7.092E-03	1.593
		801.93		8.182E-02	3.214E-01	5.410E-01	5.073E-02	0.151
		1038.57		1.264E+00	3.146E+00	5.383E+00	4.820E-01	0.235
		1167.94		1.259E+00	2.263E+00	3.865E+00	3.125E-01	0.326
		1365.15		3.071E-01	9.212E-01	1.556E+00	1.381E-01	0.197
CS-135		268.24	*	9.692E-02	1.391E-01	2.078E-01	2.650E-02	0.466

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-135	288.45			3.949E+09	1.391E-01	Half-Life too short		
	417.63			-2.786E+09	1.391E-01	Half-Life too short		
	546.56			-1.801E+09	1.391E-01	Half-Life too short		
	836.80			5.839E+09	1.391E-01	Half-Life too short		
	1038.76			4.612E+09	1.391E-01	Half-Life too short		
	1124.00			-8.133E+09	1.391E-01	Half-Life too short		
	1131.51			-2.556E+09	1.391E-01	Half-Life too short		
	1260.41	*		5.680E+08	1.391E-01	Half-Life too short		
	1457.56			2.944E+11	1.391E-01	Half-Life too short		
	1678.03			-2.212E+09	1.391E-01	Half-Life too short		
	1706.46			1.323E+09	1.391E-01	Half-Life too short		
	1791.20			5.044E+09	1.391E-01	Half-Life too short		
CS-136	66.91			-2.874E-01	6.726E-01	9.354E-01	1.396E-01	-0.307
	86.29		+	2.742E+00	1.177E+00	1.545E+00	2.073E-01	1.774
	153.22			6.897E-01	5.212E-01	9.000E-01	8.781E-02	0.766
	163.89			4.154E-01	8.599E-01	1.445E+00	1.446E-01	0.288
	176.55			-9.588E-02	2.925E-01	4.736E-01	4.634E-02	-0.202
	273.65			2.956E-03	4.445E-01	4.967E-01	6.104E-02	0.006
	340.57			6.489E-02	1.069E-01	1.665E-01	1.841E-02	0.390
	818.51			-5.287E-03	5.818E-02	9.706E-02	9.096E-03	-0.054
	1048.07	*		3.590E-02	9.172E-02	1.564E-01	1.448E-02	0.230
	1235.34			4.684E-01	6.405E-01	9.638E-01	1.114E-01	0.486
BA-137M	661.65	*		2.968E-02	3.174E-02	5.469E-02	4.854E-03	0.543
CS-137	661.65	*		3.138E-02	3.356E-02	5.782E-02	5.140E-03	0.543
CE-139	165.85	*		-1.696E-03	2.430E-02	3.996E-02	3.624E-03	-0.042
BA-140	162.64			2.070E-01	5.964E-01	9.977E-01	9.445E-02	0.207
	304.84			-4.183E-01	1.082E+00	1.465E+00	4.261E-01	-0.286
LA-140	423.70			-1.106E+00	1.550E+00	2.401E+00	7.833E-01	-0.461
	537.32	*		6.488E-02	2.044E-01	3.419E-01	1.141E-01	0.190
	328.77		+	7.421E-01	3.905E-01	4.487E-01	5.171E-02	1.654
	432.53			-3.207E-01	1.669E+00	2.708E+00	2.654E-01	-0.118
	487.03			1.190E-02	1.065E-01	1.776E-01	1.776E-02	0.067
	751.79			-1.281E+00	1.464E+00	2.147E+00	2.162E-01	-0.597
	815.85			2.693E-02	2.543E-01	4.314E-01	4.435E-02	0.062
	867.82			-2.048E-01	1.082E+00	1.780E+00	1.754E-01	-0.115
	919.63			-2.839E+00	2.257E+00	3.137E+00	3.544E-01	-0.905
	925.24			1.930E-01	9.138E-01	1.550E+00	1.534E-01	0.125
	1596.49	*		-3.287E-02	6.567E-02	1.008E-01	8.586E-03	-0.326
CE-141	145.44	*		8.057E-03	4.854E-02	8.111E-02	7.095E-03	0.099
CE-143	57.37			5.935E-04	4.854E-02	Half-Life too short		
	231.56			-7.315E-04	4.854E-02	Half-Life too short		
	293.26	*		4.325E-04	4.854E-02	Half-Life too short		
	350.59		+	2.299E-02	4.854E-02	Half-Life too short		
	490.36			-3.836E-04	4.854E-02	Half-Life too short		
	664.57			-1.103E-04	4.854E-02	Half-Life too short		
	721.93			-3.283E-04	4.854E-02	Half-Life too short		
CE-144	80.11			-1.890E+00	1.513E+00	2.461E+00	2.161E-01	-0.768
PM-144	133.54	*		-1.829E-01	1.787E-01	2.490E-01	3.845E-02	-0.735
	476.78			3.800E-02	5.637E-02	9.726E-02	9.963E-03	0.391

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-1.807E-04	2.413E-02	3.921E-02	3.682E-03	-0.005
		696.49	*	4.925E-03	2.677E-02	4.381E-02	3.951E-03	0.112
		778.57		5.732E-01	1.900E+00	3.116E+00	2.892E-01	0.184
PR-144		696.49	*	3.337E-01	1.814E+00	2.968E+00	2.676E-01	0.112
		1489.15		3.800E+00	8.498E+00	1.517E+01	1.297E+00	0.250
PM-146		453.90	*	3.717E-02	3.518E-02	6.202E-02	7.082E-03	0.599
		633.02		1.349E-02	1.109E+00	1.801E+00	6.752E-01	0.007
		735.90		4.322E-02	1.332E-01	2.184E-01	6.284E-02	0.198
		747.13		5.695E-02	7.324E-02	1.250E-01	1.799E-02	0.456
ND-147	+	91.11		7.816E-01	1.980E-01	3.684E-01	3.683E-02	2.121
		319.41		1.235E-01	2.831E+00	4.493E+00	5.102E-01	0.027
		439.89		3.967E+00	4.602E+00	8.059E+00	7.607E-01	0.492
		531.02	*	-2.086E-01	4.450E-01	7.038E-01	1.089E-01	-0.296
PM-149		285.90	*	-1.089E+01	6.652E+01	1.050E+02	1.847E+01	-0.104
EU-152		121.78		1.712E-02	5.430E-02	9.208E-02	8.890E-03	0.186
		244.69		1.885E-01	2.799E-01	4.203E-01	4.673E-02	0.449
		344.27	*	2.641E-02	7.711E-02	1.242E-01	1.388E-02	0.213
		443.98		-2.160E-01	7.808E-01	1.277E+00	1.206E-01	-0.169
		778.89		4.861E-02	2.180E-01	3.550E-01	3.294E-02	0.137
		867.32		-2.654E-01	6.750E-01	1.058E+00	9.986E-02	-0.251
	+	964.01		5.238E-01	3.359E-01	4.799E-01	4.452E-02	1.091
		1085.78		-1.213E-01	3.238E-01	5.124E-01	4.448E-02	-0.237
		1112.02		1.466E-01	2.878E-01	4.535E-01	3.859E-02	0.323
	+	1407.95		3.971E-01	2.337E-01	3.164E-01	2.694E-02	1.255
GD-153		69.67		2.081E-01	1.363E+00	2.125E+00	1.674E-01	0.098
		83.37		1.440E+01	1.420E+01	1.862E+01	1.697E+00	0.773
		97.43	*	-1.355E-02	6.627E-02	9.866E-02	8.765E-03	-0.137
		103.18		-6.785E-02	7.915E-02	1.289E-01	1.111E-02	-0.526
EU-154		123.07		-4.098E-03	3.990E-02	6.654E-02	7.403E-03	-0.062
		247.94		-2.126E-01	2.854E-01	4.376E-01	5.918E-02	-0.486
		591.81		2.422E-01	5.145E-01	8.679E-01	1.057E-01	0.279
		723.30		-3.190E-02	1.641E-01	2.244E-01	2.239E-02	-0.142
		756.87		2.151E-01	6.644E-01	1.092E+00	1.356E-01	0.197
		873.19		-1.857E-01	2.513E-01	3.917E-01	5.028E-02	-0.474
		996.32		-3.772E-02	3.240E-01	5.310E-01	9.574E-02	-0.071
		1004.76		-7.144E-02	1.923E-01	3.078E-01	3.697E-02	-0.232
		1274.45	*	5.762E-02	1.067E-01	1.819E-01	2.015E-02	0.317
EU-155		48.70		-2.683E+00	1.989E+00	2.896E+00	2.379E-01	-0.927
		60.01		3.405E+00	4.233E+00	6.329E+00	4.521E-01	0.538
	+	86.54		2.568E-01	1.075E-01	1.471E-01	1.404E-02	1.746
		105.31	*	8.024E-02	8.131E-02	1.416E-01	1.225E-02	0.567
TB-160	+	86.79		6.842E-01	2.864E-01	3.977E-01	3.776E-02	1.721
		197.04		-9.233E-02	4.618E-01	7.443E-01	7.329E-02	-0.124
		215.65		-2.059E-01	5.931E-01	9.464E-01	9.789E-02	-0.218
		298.57		1.288E-01	1.305E-01	1.597E-01	1.875E-02	0.807
		879.36	*	4.987E-02	1.183E-01	2.044E-01	1.931E-02	0.244
		962.29		6.728E-01	4.970E-01	8.164E-01	7.579E-02	0.824
		966.15		7.540E-01	2.112E-01	4.040E-01	3.745E-02	1.866
		1177.93		-3.531E-02	3.253E-01	5.262E-01	4.238E-02	-0.067

## ---- 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			5.157E-02	6.588E-01	1.076E+00	8.939E-02	0.048
	80.57			-2.570E-01	1.932E-01	3.132E-01	2.764E-02	-0.821
	184.41		+	1.716E-01	5.927E-02	5.370E-02	5.111E-03	3.196
	280.46			6.841E-03	7.102E-02	1.017E-01	1.220E-02	0.067
	410.95			-8.427E-02	1.947E-01	3.171E-01	2.960E-02	-0.266
	711.68		*	9.873E-03	4.830E-02	7.906E-02	7.173E-03	0.125
TM-171	752.31			-5.452E-02	2.336E-01	3.660E-01	3.369E-02	-0.149
	810.29			-4.034E-03	5.028E-02	8.408E-02	7.860E-03	-0.048
	51.35			-4.040E+00	2.479E+01	3.860E+01	3.041E+00	-0.105
	52.39			5.810E+00	1.291E+01	2.067E+01	1.602E+00	0.281
	59.40			-4.056E+00	2.163E+01	3.347E+01	2.377E+00	-0.121
	66.72		*	-5.594E+00	2.440E+01	3.437E+01	2.633E+00	-0.163
LU-176	88.36			6.238E-01	1.935E-01	2.734E-01	2.625E-02	2.282
	201.83			-1.042E-02	2.294E-02	3.658E-02	3.649E-03	-0.285
	306.84		*	5.883E-03	2.169E-02	3.131E-02	3.631E-03	0.188
	401.10			3.198E-02	5.195E+00	8.714E+00	8.096E-01	0.004
LU-177	112.95			-1.432E-01	1.188E+00	1.988E+00	1.665E-01	-0.072
	208.36		+	2.719E+00	1.056E+00	1.574E+00	1.597E-01	1.728
LU-177M	52.97			1.475E+00	1.316E+00	2.165E+00	1.663E-01	0.681
	54.07			1.666E-01	6.973E-01	1.105E+00	8.350E-02	0.151
	61.30			9.659E-01	1.231E+00	1.837E+00	1.333E-01	0.526
	121.62			2.907E-02	2.788E-01	4.690E-01	3.893E-02	0.062
	147.16			2.079E-01	5.020E-01	8.463E-01	7.298E-02	0.246
	171.86			-1.600E-01	3.712E-01	5.985E-01	5.511E-02	-0.267
	218.09			-8.102E-03	6.810E-01	1.105E+00	1.150E-01	-0.007
	268.79		+	1.923E+00	8.545E-01	1.158E+00	1.360E-01	1.661
	319.02			4.134E-02	2.245E-01	3.594E-01	4.083E-02	0.115
	367.43			6.039E-02	7.062E-01	1.197E+00	1.207E-01	0.050
	413.65		*	7.508E-02	1.351E-01	2.335E-01	2.182E-02	0.322
	56.28			1.295E-01	7.549E-01	1.190E+00	8.736E-02	0.109
HF-181	57.53			1.327E-01	4.112E-01	6.519E-01	4.716E-02	0.204
	65.20			-5.927E-01	8.195E-01	1.123E+00	8.481E-02	-0.528
	133.02			-5.136E-02	5.641E-02	7.998E-02	6.707E-03	-0.642
	136.25			2.804E-01	3.434E-01	5.896E-01	4.970E-02	0.476
	345.85			-1.239E-01	1.497E-01	2.276E-01	2.439E-02	-0.544
	482.03		*	-2.327E-02	3.413E-02	5.367E-02	5.105E-03	-0.433
W-181	56.28			5.158E-02	2.964E-01	4.674E-01	3.431E-02	0.110
	57.53			5.216E-02	1.616E-01	2.562E-01	1.853E-02	0.204
	65.20		*	-2.310E-01	3.195E-01	4.378E-01	3.306E-02	-0.528
TA-182	67.75			-4.535E-02	9.154E-02	1.385E-01	1.072E-02	-0.327
	100.10			4.245E-03	1.341E-01	2.270E-01	1.985E-02	0.019
	152.43			-8.510E-02	2.663E-01	4.352E-01	3.802E-02	-0.196
	222.10			-2.571E-01	2.893E-01	4.470E-01	4.701E-02	-0.575
	1001.68			-4.820E-01	1.801E+00	2.902E+00	2.649E-01	-0.166
RE-183	1121.28		+	6.234E-01	2.440E-01	3.236E-01	2.732E-02	1.926
	1189.05			-2.101E-01	2.847E-01	4.344E-01	3.513E-02	-0.484
	1221.42		*	-1.318E-01	1.988E-01	3.069E-01	2.510E-02	-0.430
	1230.97			-2.572E-01	5.173E-01	7.241E-01	5.940E-02	-0.355
	57.98			-6.071E-02	1.645E-01	2.525E-01	1.818E-02	-0.240



---- 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		-2.904E-02	8.901E-02	1.368E-01	9.722E-03	-0.212
		67.20		-5.211E-02	1.750E-01	2.455E-01	1.889E-02	-0.212
		162.32	*	2.972E-02	8.762E-02	1.466E-01	1.316E-02	0.203
	+	208.81		2.511E+00	9.751E-01	1.474E+00	1.497E-01	1.704
		291.72		-1.589E-03	8.350E-01	1.182E+00	1.400E-01	-0.001
		57.98		-2.241E-01	6.072E-01	9.321E-01	6.711E-02	-0.240
		59.32		-1.071E-01	3.283E-01	5.045E-01	3.585E-02	-0.212
		67.20		-1.923E-01	6.456E-01	9.058E-01	6.972E-02	-0.212
		161.27		-1.055E-02	2.792E-01	4.603E-01	4.119E-02	-0.023
		216.55		-1.327E-01	2.120E-01	3.329E-01	3.452E-02	-0.399
		252.85	*	-1.030E-01	1.887E-01	2.936E-01	3.327E-02	-0.351
		318.01		-1.575E-01	3.900E-01	6.014E-01	6.845E-02	-0.262
		792.07		3.548E-01	7.973E-01	1.234E+00	1.149E-01	0.287
		903.28		-1.583E-01	9.191E-01	1.424E+00	1.346E-01	-0.111
OS-185		920.93		-1.913E-01	3.554E-01	5.612E-01	5.279E-02	-0.341
		59.72		4.382E-02	2.578E-01	3.731E-01	2.655E-02	0.117
		61.14		1.123E-01	1.358E-01	2.030E-01	1.470E-02	0.553
		69.30		1.018E-01	2.284E-01	3.810E-01	2.991E-02	0.267
		592.07		1.231E+00	2.114E+00	3.594E+00	3.342E-01	0.343
		646.12	*	3.193E-02	3.251E-02	5.696E-02	5.120E-03	0.561
		717.42		4.003E-01	7.480E-01	1.255E+00	1.141E-01	0.319
		874.81		-8.480E-02	4.800E-01	7.907E-01	7.466E-02	-0.107
		880.27		3.404E-01	6.565E-01	1.143E+00	1.080E-01	0.298
		155.03	*	2.139E-01	1.393E-01	2.419E-01	2.128E-02	0.884
RE-188		477.96		1.239E+00	2.502E+00	4.277E+00	4.066E-01	0.290
		633.10		-8.056E-02	2.242E+00	3.628E+00	3.292E-01	-0.022
	+	63.58		5.875E+01	5.543E+01	7.173E+01	5.331E+00	0.819
W-188		227.08		-4.114E+00	1.062E+01	1.685E+01	1.795E+00	-0.244
		290.67	*	-1.433E+00	6.589E+00	9.165E+00	1.087E+00	-0.156
IR-192	+	295.96		1.000E+00	2.041E-01	2.406E-01	2.845E-02	4.157
		308.46		2.778E-02	7.803E-02	1.265E-01	1.468E-02	0.220
		316.51	*	-1.129E-02	2.962E-02	4.575E-02	5.229E-03	-0.247
		468.07		-2.480E-02	5.624E-02	7.820E-02	7.869E-03	-0.317
AU-195		604.41		-1.517E-02	3.957E-01	5.616E-01	7.546E-02	-0.027
		612.46		9.129E-02	6.118E-01	8.851E-01	9.212E-02	0.103
		65.12		-9.666E-02	1.484E-01	2.043E-01	1.542E-02	-0.473
		66.83		-1.587E-02	8.064E-02	1.138E-01	8.726E-03	-0.140
	+	75.70		9.797E-01	1.874E-01	3.366E-01	2.817E-02	2.911
		98.88	*	1.142E-01	1.703E-01	2.893E-01	2.547E-02	0.395
	+	129.76		5.214E+00	3.578E+00	4.153E+00	3.467E-01	1.256
TL-200		367.94	*	-5.748E-05	3.578E+00	Half-Life	too short	
		579.30		1.938E-03	3.578E+00	Half-Life	too short	
		828.27		3.829E-03	3.578E+00	Half-Life	too short	
		1205.75		2.058E-03	3.578E+00	Half-Life	too short	
TL-201		68.90		2.563E+00	3.313E+00	5.811E+00	4.545E-01	0.441
		70.82		1.113E+00	2.092E+00	3.304E+00	2.633E-01	0.337
		80.30		-4.266E+00	3.354E+00	5.451E+00	4.796E-01	-0.783
		135.34		1.417E+01	1.796E+01	3.081E+01	2.593E+00	0.460
		167.43	*	-1.457E-01	5.104E+00	8.400E+00	7.647E-01	-0.017

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		2.421E-01	3.129E-01	5.488E-01	4.293E-02	0.441
		70.82		1.048E-01	1.970E-01	3.112E-01	2.479E-02	0.337
		80.30		-4.019E-01	3.160E-01	5.136E-01	4.518E-02	-0.783
		439.56	*	6.358E-02	5.535E-02	9.825E-02	9.272E-03	0.647
HG-203		70.83		4.614E-01	8.656E-01	1.365E+00	1.802E-01	0.338
		72.87		1.937E-01	5.053E-01	7.917E-01	1.020E-01	0.245
		82.60		-1.056E+00	9.087E-01	1.296E+00	1.815E-01	-0.814
		279.20	*	2.040E-02	3.482E-02	5.166E-02	6.296E-03	0.395
BI-207		72.80		5.517E-02	1.488E-01	2.333E-01	1.895E-02	0.237
	+	74.97		5.440E-01	1.040E-01	1.744E-01	1.448E-02	3.120
		84.90		2.308E-01	1.824E-01	2.418E-01	2.244E-02	0.955
		569.67		6.597E-03	2.402E-02	3.961E-02	3.718E-03	0.167
		1063.62	*	1.599E-02	4.768E-02	8.071E-02	7.115E-03	0.198
		1770.23		-2.046E+00	6.333E-01	5.174E-01	4.276E-02	-3.955
TL-207		81.07		-2.352E-01	1.533E-01	2.459E-01	2.183E-02	-0.956
		83.78		1.665E-01	1.223E-01	1.630E-01	1.493E-02	1.022
		94.90		2.615E-01	1.846E-01	2.974E-01	2.689E-02	0.879
		122.32		5.953E-01	1.323E+00	2.254E+00	2.018E-01	0.264
		144.24		5.943E-02	5.420E-01	8.880E-01	8.520E-02	0.067
		154.21		5.703E-01	3.260E-01	5.677E-01	5.462E-02	1.005
	+	269.46		4.507E-01	2.005E-01	2.914E-01	3.466E-02	1.547
		323.87	*	-3.312E-01	6.411E-01	8.567E-01	1.639E-01	-0.387
	+	338.28		7.173E+00	1.872E+00	2.250E+00	3.154E-01	3.188
		445.03		5.114E-01	1.803E+00	3.056E+00	3.880E-01	0.167
PO-209		260.50		5.932E+00	7.332E+00	1.227E+01	1.415E+00	0.483
		262.80		-3.259E+00	2.137E+01	3.397E+01	3.938E+00	-0.096
		896.60	*	-2.602E+00	6.433E+00	1.037E+01	9.808E-01	-0.251
BI-210		46.50	*	2.468E+00	2.953E+00	4.814E+00	4.489E-01	0.513
PB-210		46.50	*	2.468E+00	2.953E+00	4.814E+00	4.489E-01	0.513
PO-210		46.50	*	2.468E+00	2.952E+00	4.814E+00	4.066E-01	0.513
PB-211		404.84	*	-6.068E-01	8.498E-01	1.213E+00	7.612E-01	-0.500
		427.08		7.452E-01	1.737E+00	2.871E+00	1.787E+00	0.260
		831.96		-6.638E-01	1.111E+00	1.643E+00	1.031E+00	-0.404
PO-215		81.07		-2.352E-01	1.533E-01	2.459E-01	2.183E-02	-0.956
		83.78		1.665E-01	1.223E-01	1.630E-01	1.493E-02	1.022
		94.90		2.615E-01	1.846E-01	2.974E-01	2.689E-02	0.879
		122.32		5.953E-01	1.323E+00	2.254E+00	2.018E-01	0.264
		144.24		5.943E-02	5.420E-01	8.880E-01	8.520E-02	0.067
		154.21		5.703E-01	3.260E-01	5.677E-01	5.462E-02	1.005
	+	269.46		4.507E-01	2.005E-01	2.914E-01	3.466E-02	1.547
		323.87	*	-3.312E-01	6.411E-01	8.567E-01	1.639E-01	-0.387
	+	338.28		7.173E+00	1.872E+00	2.250E+00	3.154E-01	3.188
		445.03		5.114E-01	1.803E+00	3.056E+00	3.880E-01	0.167
RN-219	+	271.23		2.587E-01	2.302E-01	3.698E-01	4.842E-02	0.700
		401.81	*	7.889E-02	3.206E-01	5.451E-01	8.407E-02	0.145
RN-220		549.76	*	-1.074E+01	2.151E+01	3.391E+01	3.203E+00	-0.317
RA-223		81.07		-2.352E-01	1.533E-01	2.459E-01	2.183E-02	-0.956
		83.78		1.665E-01	1.223E-01	1.630E-01	1.493E-02	1.022
		94.90		2.615E-01	1.846E-01	2.974E-01	2.689E-02	0.879

---- 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		5.953E-01	1.323E+00	2.254E+00	2.018E-01	0.264
		144.24		5.943E-02	5.420E-01	8.880E-01	8.520E-02	0.067
		154.21		5.703E-01	3.260E-01	5.677E-01	5.462E-02	1.005
	+	269.46		4.507E-01	2.005E-01	2.914E-01	3.466E-02	1.547
		323.87	*	-3.312E-01	6.411E-01	8.567E-01	1.639E-01	-0.387
	+	338.28		7.173E+00	1.872E+00	2.250E+00	3.154E-01	3.188
		445.03		5.114E-01	1.803E+00	3.056E+00	3.880E-01	0.167
		79.80		-1.361E+00	1.206E+00	1.921E+00	4.141E-01	-0.708
		236.00		-7.336E-02	2.031E-01	2.852E-01	3.974E-02	-0.257
		256.20	*	8.903E-03	3.075E-01	4.948E-01	8.450E-02	0.018
		286.10		-2.018E-01	1.215E+00	1.917E+00	2.983E-01	-0.105
	+	299.80		3.422E+00	2.170E+00	2.121E+00	4.075E-01	1.613
TH-227		304.40		-4.649E-01	1.620E+00	2.224E+00	4.454E-01	-0.209
		334.20		-5.937E-01	2.153E+00	2.939E+00	6.050E-01	-0.202
		79.80		-1.361E+00	1.206E+00	1.921E+00	4.194E-01	-0.708
	+	94.00		8.438E+00	2.938E+00	3.025E+00	6.647E-01	2.789
		236.00		-7.336E-02	2.031E-01	2.852E-01	3.685E-02	-0.257
		256.20	*	8.903E-03	3.075E-01	4.948E-01	9.675E-02	0.018
		286.10		-2.018E-01	1.231E+00	1.917E+00	1.931E+00	-0.105
	+	299.80		3.422E+00	2.170E+00	2.121E+00	4.075E-01	1.613
		304.40		-4.649E-01	1.620E+00	2.224E+00	4.454E-01	-0.209
		334.20		-5.937E-01	2.153E+00	2.939E+00	6.050E-01	-0.202
	+	85.43		4.782E-01	2.002E-01	2.385E-01	2.227E-02	2.006
		88.47		3.528E-01	1.109E-01	1.566E-01	1.502E-02	2.252
TH-229		100.00		-7.871E-03	1.429E-01	2.369E-01	2.073E-02	-0.033
		193.63	*	-7.836E-02	3.889E-01	6.295E-01	6.142E-02	-0.124
		210.97		5.845E-01	6.731E-01	1.024E+00	1.046E-01	0.571
	PA-231	283.67	*	5.063E-01	1.169E+00	1.910E+00	3.304E-01	0.265
	+	301.29		1.369E+00	8.509E-01	8.006E-01	1.167E-01	1.710
	TH-231	81.07		-2.352E-01	1.533E-01	2.459E-01	2.183E-02	-0.956
		83.78		1.665E-01	1.223E-01	1.630E-01	1.493E-02	1.022
		94.90		2.615E-01	1.846E-01	2.974E-01	2.689E-02	0.879
		122.32		5.953E-01	1.323E+00	2.254E+00	2.018E-01	0.264
		144.24		5.943E-02	5.420E-01	8.880E-01	8.520E-02	0.067
		154.21		5.703E-01	3.260E-01	5.677E-01	5.462E-02	1.005
	+	269.46		4.507E-01	2.005E-01	2.914E-01	3.466E-02	1.547
U-231		323.87	*	-3.312E-01	6.411E-01	8.567E-01	1.639E-01	-0.387
	+	338.28		7.173E+00	1.872E+00	2.250E+00	3.154E-01	3.188
		445.03		5.114E-01	1.803E+00	3.056E+00	3.880E-01	0.167
		84.21		6.685E+00	5.026E+00	6.685E+00	6.154E-01	1.000
	+	92.29		7.948E+00	2.266E+00	3.021E+00	2.789E-01	2.631
		95.87	*	9.747E-02	8.060E-01	1.236E+00	1.110E-01	0.079
		108.00		-8.727E-01	1.499E+00	2.468E+00	2.090E-01	-0.354
	PA-233	75.28		1.587E+01	3.644E+00	5.125E+00	7.783E-01	3.098
	+	86.59		4.175E+00	2.044E+00	2.398E+00	6.500E-01	1.741
	+	300.12		9.540E-01	5.985E-01	5.870E-01	9.895E-02	1.625
		311.98	*	-1.007E-02	5.393E-02	8.449E-02	9.875E-03	-0.119
		340.50		4.003E-01	5.384E-01	8.341E-01	2.063E-01	0.480
		398.62		9.898E-01	1.619E+00	2.780E+00	7.464E-01	0.356

---- 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	-7.060E-01	1.321E+00	2.120E+00	4.634E-01	-0.333
		63.00	1.709E+00	1.627E+00	2.123E+00	3.153E-01	0.805
		94.67	3.125E-01	1.399E-01	2.255E-01	2.866E-02	1.386
		98.44	3.519E-02	7.542E-02	1.183E-01	6.604E-02	0.297
		99.86	8.085E-02	3.606E-01	6.037E-01	5.287E-02	0.134
		111.00	-1.200E-01	1.389E-01	2.246E-01	2.680E-02	-0.534
		131.20	5.662E-02	8.835E-02	1.366E-01	1.143E-02	0.414
		152.70	1.228E-01	2.590E-01	4.356E-01	7.452E-02	0.282
		186.00	6.178E+00	2.826E+00	2.135E+00	6.722E-01	2.894
		226.40	-2.040E-01	3.440E-01	5.394E-01	7.872E-02	-0.378
		227.20	-1.298E-01	3.600E-01	5.723E-01	6.097E-02	-0.227
		248.90	-1.472E-01	6.491E-01	1.030E+00	2.425E-01	-0.143
		293.70	6.313E+00	1.597E+00	1.370E+00	2.616E-01	4.608
		369.80	-1.038E-02	6.666E-01	1.123E+00	2.511E-01	-0.009
		568.70	2.854E-01	8.045E-01	1.335E+00	1.253E-01	0.214
		569.50	7.190E-02	2.129E-01	3.527E-01	3.312E-02	0.204
		574.00	3.208E-01	1.180E+00	1.970E+00	1.846E-01	0.163
		699.00	8.831E-02	5.645E-01	9.207E-01	1.774E-01	0.096
		706.10	3.930E-01	8.992E-01	1.470E+00	6.568E-01	0.267
		733.00	-1.809E-01	3.694E-01	5.147E-01	1.153E-01	-0.351
		742.81	-3.172E-01	1.106E+00	1.689E+00	1.137E+00	-0.188
		796.30	1.636E+00	9.436E-01	1.462E+00	3.989E-01	1.119
		805.60	-4.430E-01	8.205E-01	1.301E+00	4.016E-01	-0.340
		819.60	-5.415E-02	9.718E-01	1.626E+00	6.210E-01	-0.033
		826.30	2.783E-02	6.982E-01	1.177E+00	5.282E-01	0.024
		831.60	-5.419E-01	5.751E-01	8.569E-01	2.577E-01	-0.632
		876.40	2.715E-01	7.316E-01	1.170E+00	1.203E+00	0.232
		880.51	1.547E-01	2.322E-01	4.090E-01	3.864E-02	0.378
		883.24	-1.342E-02	2.466E-01	4.101E-01	2.761E-01	-0.033
		899.00	-2.030E-02	7.251E-01	1.207E+00	5.299E-01	-0.017
		925.00	1.932E-01	9.710E-01	1.645E+00	1.546E-01	0.117
		926.50	-4.882E-03	1.451E-01	2.345E-01	5.993E-02	-0.021
		946.00 *	-5.065E-02	2.538E-01	4.143E-01	7.914E-02	-0.122
		949.00	1.477E-01	3.859E-01	6.614E-01	6.169E-02	0.223
		980.50	6.636E-01	6.299E-01	1.132E+00	1.043E-01	0.586
		1394.10	-3.919E-02	9.798E-01	1.567E+00	1.020E+00	-0.025
PA-234M	+	766.42	1.519E+01	1.884E+01	1.789E+01	9.095E+00	0.849
		1001.03 *	-1.026E+00	4.183E+00	6.757E+00	7.035E-01	-0.152
U-235	+	89.95	3.170E+00	1.230E+00	1.505E+00	4.681E-01	2.106
	+	93.35	2.625E+00	1.025E+00	1.024E+00	2.888E-01	2.563
		105.00	6.917E-01	8.227E-01	1.386E+00	4.135E-01	0.499
		143.76 *	3.634E-02	1.653E-01	2.718E-01	4.749E-02	0.134
		163.35	1.518E-01	3.825E-01	6.395E-01	1.231E-01	0.237
	+	185.71	2.288E-01	7.902E-02	8.006E-02	7.648E-03	2.858
		205.31	1.715E-01	4.314E-01	6.414E-01	1.268E-01	0.267
NP-236		94.67	2.389E-01	1.041E-01	1.712E-01	1.551E-02	1.395
		98.44	2.657E-02	5.510E-02	8.944E-02	7.896E-03	0.297
		111.00	-9.073E-02	1.047E-01	1.699E-01	1.428E-02	-0.534
		160.31 *	-3.256E-02	6.223E-02	1.004E-01	8.961E-03	-0.324

----- 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		6.223E-02	1.194E-01	2.019E-01	1.771E-02	0.308
		117.00	*	-9.588E-02	1.381E-01	2.246E-01	1.870E-02	-0.427
	+	209.75		1.987E+00	7.714E-01	1.174E+00	1.195E-01	1.693
		228.18		-4.789E-02	1.900E-01	3.036E-01	3.243E-02	-0.158
	+	277.60		4.148E-01	2.159E-01	2.600E-01	3.112E-02	1.595
AM-241		334.30		-3.482E-01	1.218E+00	1.663E+00	1.832E-01	-0.209
		59.54	*	9.875E-03	1.359E-01	1.956E-01	1.535E-02	0.050
	CM-243	99.55		6.403E-02	1.229E-01	2.077E-01	1.822E-02	0.308
		103.76	*	-2.271E-02	7.295E-02	1.217E-01	1.046E-02	-0.187
		117.00		-9.864E-02	1.420E-01	2.311E-01	1.924E-02	-0.427
AM-246	+	209.75		1.958E+00	7.605E-01	1.157E+00	1.178E-01	1.693
		228.18		-4.839E-02	1.920E-01	3.068E-01	3.276E-02	-0.158
	+	277.60		4.181E-01	2.177E-01	2.621E-01	3.137E-02	1.595
		798.80		-7.064E-02	1.230E-01	1.676E-01	1.563E-02	-0.422
		1036.00		-1.257E-01	2.467E-01	3.866E-01	3.467E-02	-0.325
CM-247		1062.04		2.785E-02	2.061E-01	3.434E-01	3.031E-02	0.081
		1078.86	*	-9.623E-02	1.321E-01	2.029E-01	1.770E-02	-0.474
	+	278.00		1.720E+00	8.954E-01	1.071E+00	1.283E-01	1.606
		287.40		-1.073E-02	9.942E-01	1.584E+00	1.886E-01	-0.007
		402.60	*	-1.551E-02	2.883E-02	4.667E-02	4.340E-03	-0.332
CF-249		252.85		-3.868E-01	7.088E-01	1.103E+00	1.250E-01	-0.351
		333.44		4.056E-02	1.670E-01	2.179E-01	2.404E-02	0.186
		387.95	*	8.258E-03	3.358E-02	5.718E-02	5.364E-03	0.144
CF-251		176.60	*	-3.422E-02	1.024E-01	1.657E-01	1.545E-02	-0.207
		227.00		-2.363E-01	3.256E-01	5.073E-01	5.402E-02	-0.466
		285.00		-9.436E-01	1.403E+00	2.137E+00	2.551E-01	-0.442

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600004      *
* Acquisition date   : 22-JAN-2010 07:56:42 Detector SN#                   *
* Detector ID        : GAM16 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 02:00:02.21 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600004 Analyst initials: MXR1                  *
* Batch Number       : 941635 Sample Quantity : 1.5370E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 16-NOV-2009 11:22:16 MS Isotope                    *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.116E+01	3.131E+00	4.594E-01	0.000E+00
NB-95	5.722E-02	6.364E-02	5.720E-02	0.000E+00
CD-109	2.169E+00	8.896E-01	9.480E-01	0.000E+00
SN-126	2.133E-01	8.747E-02	1.164E-01	0.000E+00
TL-208	5.127E-01	8.365E-02	5.159E-02	0.000E+00
BI-211	3.349E+00	5.222E-01	2.598E-01	0.000E+00
BI-212	9.887E-01	3.990E-01	3.985E-01	0.000E+00
PB-212	1.620E+00	2.102E-01	7.517E-02	0.000E+00
PO-212	1.620E+00	2.102E-01	7.517E-02	0.000E+00
BI-214	1.114E+00	1.789E-01	8.915E-02	0.000E+00
PB-214	1.165E+00	1.912E-01	9.057E-02	0.000E+00
PO-214	1.165E+00	1.912E-01	9.057E-02	0.000E+00
PO-216	1.620E+00	2.102E-01	7.517E-02	0.000E+00
PO-218	1.165E+00	1.912E-01	9.057E-02	0.000E+00
RA-224	4.368E+00	1.213E+00	8.554E-01	0.000E+00
RA-226	1.114E+00	1.789E-01	8.915E-02	0.000E+00
AC-228	1.658E+00	3.247E-01	1.865E-01	0.000E+00
RA-228	1.658E+00	3.247E-01	1.865E-01	0.000E+00
TH-228	1.644E+00	2.134E-01	7.629E-02	0.000E+00
TH-230	1.114E+00	1.789E-01	8.915E-02	0.000E+00
TH-232	1.658E+00	3.247E-01	1.865E-01	0.000E+00
TH-234	1.466E+00	1.374E+00	1.708E+00	0.000E+00
U-234	1.114E+00	1.789E-01	8.915E-02	0.000E+00
NP-237	6.263E-01	2.864E-01	3.392E-01	0.000E+00
U-238	1.466E+00	1.374E+00	1.708E+00	0.000E+00
AM-243	3.031E-01	5.680E-02	7.551E-02	0.000E+00
ANH-511	1.206E-01	6.165E-02	3.909E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	1.771E-01	2.603E-01	4.759E-01	0.000E+00	NOT IDENT.
NA-22	1.526E-02	3.761E-02	6.540E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.891E+05	0.000E+00	0.000E+00	SHORT HLIF
AI-26	2.359E-02	2.069E-02	4.246E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.794E-02	6.272E-02	0.000E+00	FAIL ABUN
SC-46	2.448E-02	3.329E-02	6.118E-02	0.000E+00	FAIL ABUN
V-48	-1.284E-02	5.941E-02	1.004E-01	0.000E+00	NOT IDENT.
CR-51	1.220E-01	3.170E-01	5.490E-01	0.000E+00	NOT IDENT.
MN-52	-4.717E-02	1.609E-01	2.523E-01	0.000E+00	FAIL ABUN
MN-54	-1.247E-02	3.153E-02	5.365E-02	0.000E+00	NOT IDENT.
CO-56	-6.987E-03	3.195E-02	5.495E-02	0.000E+00	FAIL ABUN
CO-57	8.804E-03	1.849E-02	3.458E-02	0.000E+00	NOT IDENT.
CO-58	3.594E-03	3.216E-02	5.702E-02	0.000E+00	NOT IDENT.
FE-59	8.102E-02	7.604E-02	1.407E-01	0.000E+00	NOT IDENT.
CO-60	-2.005E-02	3.374E-02	5.223E-02	0.000E+00	NOT IDENT.
ZN-65	9.027E-02	8.280E-02	1.374E-01	0.000E+00	NOT IDENT.
GE-68	6.646E-01	1.084E+00	1.944E+00	0.000E+00	NOT IDENT.
AS-73	5.884E-01	6.579E-01	1.199E+00	0.000E+00	NOT IDENT.
AS-74	-7.365E-02	7.711E-02	1.177E-01	0.000E+00	NOT IDENT.
SE-75	1.822E-02	3.781E-02	6.008E-02	0.000E+00	NOT IDENT.
BR-77	1.658E+00	7.719E+00	1.364E+01	0.000E+00	FAIL ABUN
SR-82	-1.267E-01	3.047E-01	4.887E-01	0.000E+00	NOT IDENT.
RB-83	7.955E-03	5.505E-02	9.683E-02	0.000E+00	NOT IDENT.
RB-84	4.238E-02	5.922E-02	1.088E-01	0.000E+00	NOT IDENT.
KR-85	6.663E-01	6.153E+00	9.509E+00	0.000E+00	NOT IDENT.
SR-85	3.406E-03	3.145E-02	4.861E-02	0.000E+00	NOT IDENT.
RB-86	8.200E-01	6.650E-01	1.247E+00	0.000E+00	NOT IDENT.
Y-88	-2.605E-03	2.771E-02	4.575E-02	0.000E+00	NOT IDENT.
ZR-88	-1.675E-02	2.368E-02	4.048E-02	0.000E+00	NOT IDENT.
Y-91	5.205E+00	1.680E+01	2.900E+01	0.000E+00	NOT IDENT.
NB-94	-3.905E-03	2.755E-02	4.598E-02	0.000E+00	NOT IDENT.
NB-95M	-3.061E-02	1.059E-01	1.614E-01	0.000E+00	NOT IDENT.
ZR-95	2.172E-02	6.022E-02	1.039E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	5.803E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.196E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.653E+00	8.801E+00	1.529E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.292E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.230E-02	2.683E-02	4.932E-02	0.000E+00	NOT IDENT.
RH-102	9.784E-04	2.343E-02	4.127E-02	0.000E+00	FAIL ABUN
RU-103	-8.992E-04	3.273E-02	5.714E-02	0.000E+00	FAIL ABUN
RH-106	5.098E-03	2.328E-01	3.989E-01	0.000E+00	FAIL ABUN
RU-106	5.098E-03	2.328E-01	3.989E-01	0.000E+00	FAIL ABUN
AG-108M	7.167E-03	2.506E-02	4.520E-02	0.000E+00	NOT IDENT.
AG-110M	-5.015E-02	2.798E-02	3.929E-02	0.000E+00	NOT IDENT.
IN-111	2.154E-02	8.377E-01	1.298E+00	0.000E+00	NOT IDENT.
IN-113M	9.922E-04	3.486E-02	6.246E-02	0.000E+00	NOT IDENT.
SN-113	9.922E-04	3.486E-02	6.246E-02	0.000E+00	NOT IDENT.
IN-114M	-1.911E-02	1.471E-01	2.313E-01	0.000E+00	NOT IDENT.
CD-115	-2.825E+00	7.902E+00	1.337E+01	0.000E+00	NOT IDENT.
SN-117M	-4.256E-02	4.129E-02	7.082E-02	0.000E+00	NOT IDENT.
SB-122	7.043E-01	1.453E+00	2.599E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.046E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.492E-02	2.158E-02	3.765E-02	0.000E+00	NOT IDENT.
I-124	-4.313E-01	6.053E-01	8.142E-01	0.000E+00	NOT IDENT.
SB-124	5.917E-03	5.836E-02	1.007E-01	0.000E+00	FAIL ABUN
SB-125	3.576E-02	7.295E-02	1.331E-01	0.000E+00	FAIL ABUN
TE-125M	5.208E+00	6.742E+00	1.280E+01	0.000E+00	NOT IDENT.
I-126	6.420E-02	1.527E-01	2.672E-01	0.000E+00	NOT IDENT.
SB-126	3.007E-02	1.240E-01	2.042E-01	0.000E+00	FAIL ABUN
SB-127	2.365E-01	9.648E-01	1.669E+00	0.000E+00	NOT IDENT.
XE-127	1.121E-02	3.523E-02	6.306E-02	0.000E+00	NOT IDENT.
I-131	3.784E-02	8.715E-02	1.605E-01	0.000E+00	NOT IDENT.
TE-132	-1.373E-01	5.359E-01	9.245E-01	0.000E+00	NOT IDENT.
BA-133	-3.449E-02	3.623E-02	5.261E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.837E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.367E-02	7.752E-02	0.000E+00	FAIL ABUN
CS-135	9.692E-02	1.364E-01	2.190E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.537E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.590E-02	8.989E-02	1.590E-01	0.000E+00	FAIL ABUN
BA-137M	2.968E-02	3.111E-02	5.632E-02	0.000E+00	NOT IDENT.
CS-137	3.138E-02	3.289E-02	5.953E-02	0.000E+00	NOT IDENT.
CE-139	-1.696E-03	2.382E-02	4.262E-02	0.000E+00	NOT IDENT.
BA-140	6.488E-02	2.003E-01	3.539E-01	0.000E+00	NOT IDENT.
LA-140	-3.287E-02	6.435E-02	1.014E-01	0.000E+00	FAIL ABUN
CE-141	8.057E-03	4.757E-02	8.679E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.502E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.829E-01	1.751E-01	2.670E-01	0.000E+00	NOT IDENT.
PM-144	4.925E-03	2.623E-02	4.505E-02	0.000E+00	NOT IDENT.

PR-144	3.337E-01	1.777E+00	3.052E+00	0.000E+00	NOT IDENT.
PM-146	3.717E-02	3.448E-02	6.449E-02	0.000E+00	NOT IDENT.
ND-147	-2.086E-01	4.361E-01	7.289E-01	0.000E+00	FAIL ABUN
PM-149	-1.089E+01	6.519E+01	1.105E+02	0.000E+00	NOT IDENT.
EU-152	2.641E-02	7.557E-02	1.301E-01	0.000E+00	FAIL ABUN
GD-153	-1.355E-02	6.495E-02	1.066E-01	0.000E+00	NOT IDENT.
EU-154	5.762E-02	1.045E-01	1.840E-01	0.000E+00	NOT IDENT.
EU-155	8.024E-02	7.968E-02	1.527E-01	0.000E+00	FAIL ABUN
TB-160	4.987E-02	1.159E-01	2.089E-01	0.000E+00	FAIL ABUN
HO-166M	9.873E-03	4.733E-02	8.126E-02	0.000E+00	FAIL ABUN
TM-171	-5.594E+00	2.391E+01	3.747E+01	0.000E+00	NOT IDENT.
LU-176	5.883E-03	2.126E-02	3.288E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	1.035E+00	1.670E+00	0.000E+00	FAIL ABUN
LU-177M	7.508E-02	1.324E-01	2.434E-01	0.000E+00	FAIL ABUN
HF-181	-2.327E-02	3.345E-02	5.573E-02	0.000E+00	NOT IDENT.
W-181	-2.310E-01	3.131E-01	4.776E-01	0.000E+00	NOT IDENT.
TA-182	-1.318E-01	1.949E-01	3.109E-01	0.000E+00	FAIL ABUN
RE-183	2.972E-02	8.587E-02	1.564E-01	0.000E+00	FAIL ABUN
RE-184	-1.030E-01	1.849E-01	3.098E-01	0.000E+00	NOT IDENT.
OS-185	3.193E-02	3.186E-02	5.869E-02	0.000E+00	NOT IDENT.
RE-188	2.139E-01	1.365E-01	2.585E-01	0.000E+00	NOT IDENT.
W-188	-1.433E+00	6.457E+00	9.639E+00	0.000E+00	FAIL ABUN
IR-192	-1.129E-02	2.903E-02	4.802E-02	0.000E+00	FAIL ABUN
AU-195	1.142E-01	1.669E-01	3.125E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.964E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.457E-01	5.002E+00	8.958E+00	0.000E+00	NOT IDENT.
TL-202	6.358E-02	5.424E-02	1.023E-01	0.000E+00	NOT IDENT.
HG-203	2.040E-02	3.413E-02	5.440E-02	0.000E+00	NOT IDENT.
BI-207	1.599E-02	4.673E-02	8.206E-02	0.000E+00	FAIL ABUN
TL-207	-3.312E-01	6.283E-01	8.986E-01	0.000E+00	FAIL ABUN
PO-209	-2.602E+00	6.304E+00	1.059E+01	0.000E+00	NOT IDENT.
BI-210	2.468E+00	2.894E+00	5.293E+00	0.000E+00	NOT IDENT.
PB-210	2.468E+00	2.894E+00	5.293E+00	0.000E+00	NOT IDENT.
PO-210	2.468E+00	2.893E+00	5.293E+00	0.000E+00	NOT IDENT.
PB-211	-6.068E-01	8.328E-01	1.265E+00	0.000E+00	NOT IDENT.
PO-215	-3.312E-01	6.283E-01	8.986E-01	0.000E+00	FAIL ABUN
RN-219	7.889E-02	3.142E-01	5.687E-01	0.000E+00	FAIL ABUN
RN-220	-1.074E+01	2.108E+01	3.508E+01	0.000E+00	NOT IDENT.
RA-223	-3.312E-01	6.283E-01	8.986E-01	0.000E+00	FAIL ABUN
AC-227	8.903E-03	3.013E-01	5.221E-01	0.000E+00	FAIL ABUN
TH-227	8.903E-03	3.013E-01	5.221E-01	0.000E+00	FAIL ABUN
TH-229	-7.836E-02	3.811E-01	6.689E-01	0.000E+00	FAIL ABUN
PA-231	5.063E-01	1.145E+00	2.011E+00	0.000E+00	FAIL ABUN
TH-231	-3.312E-01	6.283E-01	8.986E-01	0.000E+00	FAIL ABUN
U-231	9.747E-02	7.899E-01	1.336E+00	0.000E+00	FAIL ABUN
PA-233	-1.007E-02	5.285E-02	8.871E-02	0.000E+00	FAIL ABUN
PA-234	-5.065E-02	2.487E-01	4.225E-01	0.000E+00	FAIL ABUN
PA-234M	-1.026E+00	4.100E+00	6.882E+00	0.000E+00	FAIL ABUN
U-235	3.634E-02	1.620E-01	2.909E-01	0.000E+00	FAIL ABUN
NP-236	-3.256E-02	6.099E-02	1.072E-01	0.000E+00	NOT IDENT.
NP-239	-9.588E-02	1.353E-01	2.417E-01	0.000E+00	FAIL ABUN
AM-241	9.875E-03	1.331E-01	2.139E-01	0.000E+00	NOT IDENT.
CM-243	-2.271E-02	7.150E-02	1.312E-01	0.000E+00	FAIL ABUN
AM-246	-9.623E-02	1.294E-01	2.062E-01	0.000E+00	NOT IDENT.
CM-247	-1.551E-02	2.826E-02	4.869E-02	0.000E+00	FAIL ABUN
CF-249	8.258E-03	3.291E-02	5.970E-02	0.000E+00	NOT IDENT.
CF-251	-3.422E-02	1.003E-01	1.765E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600004.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:56:42
Sample ID          : G244600004          Sample quantity   : 1.53700E+02 GRAM
Detector name      : GAM16              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:02.21  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941635             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	1645	10.67*	1.208E+00	3.116E+01	3.116E+01	10.25
NB-95	765.79	42	99.81*	2.121E+00	4.871E-02	5.722E-02	113.48
CD-109	88.03	201	3.72*	6.228E+00	2.121E+00	2.169E+00	41.85
SN-126	64.28	81	9.60	3.544E+00	5.802E-01	5.802E-01	95.18
	86.94	201	8.90	6.228E+00	8.866E-01	8.866E-01	58.20
	87.57	201	37.00*	6.228E+00	2.133E-01	2.133E-01	41.85
TL-208	277.35	112	6.80	4.698E+00	8.600E-01	8.600E-01	52.80
	510.84	146	21.60	2.965E+00	5.582E-01	5.582E-01	52.84
	583.14	472	84.20*	2.668E+00	5.127E-01	5.127E-01	16.65
	860.37	53	12.46	1.920E+00	5.388E-01	5.388E-01	67.57
BI-211	72.87	-----	1.27	4.872E+00	-----	Line Not Found	-----
	351.07	699	12.94*	3.940E+00	3.349E+00	3.349E+00	15.91
BI-212	727.18	106	11.80*	2.221E+00	9.887E-01	9.887E-01	41.18
	785.46	-----	1.97	2.079E+00	-----	Line Not Found	-----
	1620.62	18	2.75	1.117E+00	1.431E+00	1.431E+00	81.33
PB-212	74.81	419	10.70	5.116E+00	1.869E+00	1.869E+00	21.29
	77.11	707	18.00	5.369E+00	1.786E+00	1.786E+00	14.84
	87.30	201	8.00	6.228E+00	9.864E-01	9.864E-01	43.03
	238.63	1546	44.60*	5.226E+00	1.620E+00	1.620E+00	13.24
	300.09	114	3.41	4.426E+00	1.846E+00	1.846E+00	61.83
PO-212	74.81	419	10.70	5.116E+00	1.869E+00	1.869E+00	21.29
	77.11	707	18.00	5.369E+00	1.786E+00	1.786E+00	14.84
	87.30	201	8.00	6.228E+00	9.864E-01	9.864E-01	43.03
	115.19	-----	0.60	7.166E+00	-----	Line Not Found	-----
	238.63	1546	44.60*	5.226E+00	1.620E+00	1.620E+00	13.24
	300.09	114	3.41	4.426E+00	1.846E+00	1.846E+00	61.83
BI-214	609.31	544	46.30*	2.575E+00	1.114E+00	1.114E+00	16.39
	1120.29	124	15.10	1.517E+00	1.321E+00	1.321E+00	39.69
	1764.49	110	15.80	1.056E+00	1.610E+00	1.610E+00	22.98
PB-214	74.81	419	6.21	5.116E+00	3.221E+00	3.221E+00	20.51
	77.11	707	10.50	5.369E+00	3.062E+00	3.062E+00	16.68
	87.30	201	4.67	6.228E+00	1.690E+00	1.690E+00	42.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	241.98	366	7.49	5.179E+00	2.304E+00	2.304E+00	28.90
	295.21	464	19.20	4.488E+00	1.315E+00	1.315E+00	21.32
	351.92	699	37.20*	3.940E+00	1.165E+00	1.165E+00	16.74
	74.81	419	6.21	5.116E+00	3.221E+00	3.221E+00	20.51
	77.11	707	10.50	5.369E+00	3.062E+00	3.062E+00	16.68
	87.30	201	4.67	6.228E+00	1.690E+00	1.690E+00	42.56
	241.98	366	7.49	5.179E+00	2.304E+00	2.304E+00	28.90
	295.21	464	19.20	4.488E+00	1.315E+00	1.315E+00	21.32
PO-216	351.92	699	37.20*	3.940E+00	1.165E+00	1.165E+00	16.74
	74.81	419	10.70	5.116E+00	1.869E+00	1.869E+00	21.29
	77.11	707	18.00	5.369E+00	1.786E+00	1.786E+00	14.84
	87.30	201	8.00	6.228E+00	9.864E-01	9.864E-01	43.03
	238.63	1546	44.60*	5.226E+00	1.620E+00	1.620E+00	13.24
	300.09	114	3.41	4.426E+00	1.846E+00	1.846E+00	61.83
	74.81	419	6.21	5.116E+00	3.221E+00	3.221E+00	20.51
	77.11	707	10.50	5.369E+00	3.062E+00	3.062E+00	16.68
PO-218	87.30	201	4.67	6.228E+00	1.690E+00	1.690E+00	42.56
	241.98	366	7.49	5.179E+00	2.304E+00	2.304E+00	28.90
	295.21	464	19.20	4.488E+00	1.315E+00	1.315E+00	21.32
	351.92	699	37.20*	3.940E+00	1.165E+00	1.165E+00	16.74
	240.98	366	3.95*	5.179E+00	4.368E+00	4.368E+00	28.35
	609.31	544	46.30*	2.575E+00	1.114E+00	1.114E+00	16.39
	1120.29	124	15.10	1.517E+00	1.321E+00	1.321E+00	39.69
	1764.49	110	15.80	1.056E+00	1.610E+00	1.610E+00	22.98
AC-228	338.32	325	11.40	4.058E+00	1.718E+00	1.718E+00	47.25
	911.07	343	27.70*	1.825E+00	1.658E+00	1.658E+00	19.98
	969.11	186	16.60	1.727E+00	1.581E+00	1.581E+00	31.15
	338.32	325	11.40	4.058E+00	1.718E+00	1.718E+00	47.25
	911.07	343	27.70*	1.825E+00	1.658E+00	1.658E+00	19.98
	969.11	186	16.60	1.727E+00	1.581E+00	1.581E+00	31.15
	74.81	419	10.70	5.116E+00	1.869E+00	1.897E+00	19.16
	77.11	707	18.00	5.369E+00	1.786E+00	1.813E+00	14.84
TH-228	87.30	201	8.00	6.228E+00	9.864E-01	1.001E+00	41.85
	238.63	1546	44.60*	5.226E+00	1.620E+00	1.644E+00	13.24
	300.09	114	3.41	4.426E+00	1.846E+00	1.874E+00	85.02
	609.31	544	46.30*	2.575E+00	1.114E+00	1.114E+00	16.39
	1120.29	124	15.10	1.517E+00	1.321E+00	1.321E+00	39.69
	1764.49	110	15.80	1.056E+00	1.610E+00	1.610E+00	22.98
	338.32	325	11.40	4.058E+00	1.718E+00	1.718E+00	24.58
	911.07	343	27.70*	1.825E+00	1.658E+00	1.658E+00	19.98
TH-232	969.11	186	16.60	1.727E+00	1.581E+00	1.581E+00	31.15
	63.29	81	3.80*	3.544E+00	1.466E+00	1.466E+00	95.66
	92.38	320	5.41	6.607E+00	2.183E+00	2.183E+00	32.64
	609.31	544	46.30*	2.575E+00	1.114E+00	1.114E+00	16.39
	1120.29	124	15.10	1.517E+00	1.321E+00	1.321E+00	39.69
	1764.49	110	15.80	1.056E+00	1.610E+00	1.610E+00	22.98
	86.50	201	12.60*	6.228E+00	6.263E-01	6.263E-01	46.66
	95.87	-----	2.60	6.742E+00	-----	Line Not Found	-----
U-238	63.29	81	3.80*	3.544E+00	1.466E+00	1.466E+00	95.66

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	92.38	320	5.41	6.607E+00	2.183E+00	2.183E+00	28.51
	74.67	419	66.00*	5.116E+00	3.031E-01	3.031E-01	19.13
	86.72	201	0.34	6.228E+00	2.349E+01	2.349E+01	41.85
	117.66	-----	0.55	7.175E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	6.968E+00	-----	Line Not Found	-----
	511.00	146	100.00*	2.965E+00	1.206E-01	1.206E-01	52.18

Flag: "\*" = Keyline

Total number of lines in spectrum 38  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 37 97.37%

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	3.116E+01	3.116E+01	0.319E+01	10.25	
NB-95	64.02D	1.17	4.871E-02	5.722E-02	6.494E-02	113.48	
CD-109	464.00D	1.02	2.121E+00	2.169E+00	0.908E+00	41.85	
SN-126	1.00E+05Y	1.00	2.133E-01	2.133E-01	0.893E-01	41.85	
TL-208	1.41E+10Y	1.00	5.127E-01	5.127E-01	0.854E-01	16.65	
BI-211	7.04E+08Y	1.00	3.349E+00	3.349E+00	0.533E+00	15.91	
BI-212	1.41E+10Y	1.00	9.887E-01	9.887E-01	4.072E-01	41.18	
PB-212	1.41E+10Y	1.00	1.620E+00	1.620E+00	0.215E+00	13.24	
PO-212	1.41E+10Y	1.00	1.620E+00	1.620E+00	0.215E+00	13.24	
BI-214	1600.00Y	1.00	1.114E+00	1.114E+00	0.183E+00	16.39	
PB-214	1600.00Y	1.00	1.165E+00	1.165E+00	0.195E+00	16.74	
PO-214	1600.00Y	1.00	1.165E+00	1.165E+00	0.195E+00	16.74	
PO-216	1.41E+10Y	1.00	1.620E+00	1.620E+00	0.215E+00	13.24	
PO-218	1600.00Y	1.00	1.165E+00	1.165E+00	0.195E+00	16.74	
RA-224	1.41E+10Y	1.00	4.368E+00	4.368E+00	1.238E+00	28.35	
RA-226	1600.00Y	1.00	1.114E+00	1.114E+00	0.183E+00	16.39	
AC-228	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.331E+00	19.98	
RA-228	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.331E+00	19.98	
TH-228	1.91Y	1.01	1.620E+00	1.644E+00	0.218E+00	13.24	
TH-230	4.47E+09Y	1.00	1.114E+00	1.114E+00	0.183E+00	16.39	
TH-232	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.331E+00	19.98	
TH-234	4.47E+09Y	1.00	1.466E+00	1.466E+00	1.402E+00	95.66	
U-234	4.47E+09Y	1.00	1.114E+00	1.114E+00	0.183E+00	16.39	
NP-237	2.14E+06Y	1.00	6.263E-01	6.263E-01	2.922E-01	46.66	
U-238	4.47E+09Y	1.00	1.466E+00	1.466E+00	1.402E+00	95.66	
AM-243	7380.00Y	1.00	3.031E-01	3.031E-01	0.580E-01	19.13	
ANH-511	1.00E+09Y	1.00	1.206E-01	1.206E-01	0.629E-01	52.18	
Total Activity :			6.615E+01	6.623E+01			

Grand Total Activity : 6.615E+01 6.623E+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	90.01	226	240	1.00	180.20	178	14	3.13E-02	23.2	6.44E+00	T
0	128.86	117	452	1.16	257.91	254	9	1.62E-02	68.1	7.13E+00	T
0	185.73	311	494	1.11	371.65	365	14	4.32E-02	33.2	6.15E+00	T
0	209.15	151	235	1.16	418.50	415	7	2.09E-02	37.5	5.71E+00	T
5	269.90	120	166	1.30	539.99	535	11	1.67E-02	42.9	4.79E+00	T
5	271.11	54	144	1.21	542.41	535	11	7.44E-03	88.0	4.77E+00	T
0	327.84	116	204	1.06	655.86	651	11	1.60E-02	51.3	4.15E+00	T
0	462.75	138	165	1.66	925.68	918	16	1.92E-02	44.7	3.20E+00	T
0	794.58	77	54	1.27	1589.22	1583	12	1.07E-02	44.5	2.06E+00	T
0	935.14	46	77	4.92	1870.28	1863	15	6.34E-03	89.6	1.78E+00	T
1	964.56	53	57	1.76	1929.10	1924	19	7.42E-03	63.4	1.73E+00	T
0	1238.15	49	76	1.41	2476.08	2470	11	6.85E-03	74.4	1.39E+00	T
0	1408.12	42	17	1.72	2815.89	2807	18	5.80E-03	58.2	1.24E+00	T
0	1729.21	31	3	2.01	3457.75	3451	14	4.28E-03	44.2	1.07E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600004.CNF;1
* Acquisition date   : 22-JAN-2010 07:56:42  Detector SN#      :
* Detector ID        : GAM16                  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 02:00:02.21          Half life ratio : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244600004           Analyst initials: MXR1
* Batch Number       : 941635               Sample Quantity : 1.53700E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-NOV-2009 11:22:16.1MS 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	3.116E+01	3.195E+00	4.558E-01	4.006E-02	68.378
NB-95	5.722E-02	6.494E-02	5.577E-02	5.155E-03	1.026
CD-109	2.169E+00	9.077E-01	8.753E-01	8.434E-02	2.478
SN-126	2.133E-01	8.926E-02	1.075E-01	1.031E-02	1.984
TL-208	5.127E-01	8.536E-02	4.994E-02	4.950E-03	10.267
BI-211	3.349E+00	5.329E-01	2.482E-01	2.714E-02	13.493
BI-212	9.887E-01	4.072E-01	3.880E-01	4.054E-02	2.548
PB-212	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
PO-212	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
BI-214	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
PB-214	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
PO-214	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
PO-216	1.620E+00	2.145E-01	7.112E-02	8.420E-03	22.777
RA-218	1.165E+00	1.951E-01	8.652E-02	1.046E-02	13.465
RA-224	4.368E+00	1.238E+00	8.095E-01	8.920E-02	5.396
RA-226	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
AC-228	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
RA-228	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.644E+00	2.177E-01	7.218E-02	8.546E-03	22.777
TH-230	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
TH-232	1.658E+00	3.313E-01	1.827E-01	2.170E-02	9.075
U-234	1.466E+00	1.402E+00	1.565E+00	2.729E-01	0.937
U-238	1.114E+00	1.825E-01	8.639E-02	9.134E-03	12.890
NP-237	6.263E-01	2.922E-01	3.131E-01	7.107E-02	2.000
U-238	1.466E+00	1.402E+00	1.565E+00	2.729E-01	0.937
AM-243	3.031E-01	5.796E-02	6.945E-02	5.749E-03	4.364
ANH-511	1.206E-01	6.291E-02	3.771E-02	3.586E-03	3.197

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.771E-01		2.656E-01	4.583E-01	4.636E-02	0.386
NA-22	1.526E-02		3.838E-02	6.464E-02	5.379E-03	0.236
NA-24	-1.651E-01		1.985E-01	Half-Life too short		
AL-26	2.359E-02		2.111E-02	4.237E-02	3.465E-03	0.557
TI-44	3.296E-01	+	4.892E-02	5.774E-02	4.973E-03	5.708
SC-46	2.448E-02		3.397E-02	5.988E-02	5.661E-03	0.409
V-48	-1.284E-02		6.062E-02	9.858E-02	9.074E-03	-0.130
CR-51	1.220E-01		3.235E-01	5.232E-01	6.117E-02	0.233
MN-52	-4.717E-02		1.641E-01	2.502E-01	2.135E-02	-0.189
MN-54	-1.247E-02		3.217E-02	5.242E-02	4.924E-03	-0.238
CO-56	-6.987E-03		3.260E-02	5.371E-02	5.054E-03	-0.130
CO-57	8.804E-03		1.887E-02	3.218E-02	2.674E-03	0.274
CO-58	3.594E-03		3.281E-02	5.568E-02	5.216E-03	0.065
FE-59	8.102E-02		7.759E-02	1.385E-01	1.287E-02	0.585
CO-60	-2.005E-02		3.443E-02	5.168E-02	4.359E-03	-0.388
ZN-65	9.027E-02		8.449E-02	1.353E-01	1.149E-02	0.667
GE-68	6.646E-01		1.107E+00	1.912E+00	1.670E-01	0.348
AS-73	5.884E-01		6.713E-01	1.094E+00	8.344E-02	0.538
AS-74	-7.365E-02		7.869E-02	1.140E-01	1.058E-02	-0.646
SE-75	1.822E-02		3.858E-02	5.698E-02	6.649E-03	0.320
BR-77	1.658E+00		7.877E+00	1.316E+01	1.251E+00	0.126
SR-82	-1.267E-01		3.109E-01	4.766E-01	4.419E-02	-0.266
RB-83	7.955E-03		5.617E-02	9.344E-02	8.879E-03	0.085
RB-84	4.238E-02		6.043E-02	1.064E-01	1.005E-02	0.398
KR-85	6.663E-01		6.278E+00	9.174E+00	8.723E-01	0.073
SR-85	3.406E-03		3.209E-02	4.690E-02	4.459E-03	0.073
RB-86	8.200E-01		6.786E-01	1.227E+00	1.072E-01	0.669
Y-88	-2.605E-03		2.828E-02	4.567E-02	3.708E-03	-0.057
ZR-88	-1.675E-02		2.417E-02	3.878E-02	3.587E-03	-0.432
Y-91	5.205E+00		1.714E+01	2.862E+01	2.327E+00	0.182
NB-94	-3.905E-03		2.812E-02	4.472E-02	4.043E-03	-0.087
NB-95M	-3.061E-02		1.081E-01	1.526E-01	1.815E-02	-0.201
ZR-95	2.172E-02		6.145E-02	1.012E-01	1.016E-02	0.215
NB-97	-8.812E-02		2.961E-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	4.942E-01		6.100E-01	Half-Life too short		
MO-99	3.653E+00		8.981E+00	1.489E+01	2.308E+00	0.245
TC-99M	-8.189E+09		6.589E+09	Half-Life too short		
RH-101	3.230E-02		2.738E-02	4.644E-02	4.585E-03	0.696
RH-102	9.784E-04		2.391E-02	3.973E-02	3.777E-03	0.025
RU-103	-8.992E-04		3.339E-02	5.507E-02	8.109E-03	-0.016
RH-106	5.098E-03		2.376E-01	3.868E-01	5.300E-02	0.013
RU-106	5.098E-03		2.376E-01	3.868E-01	5.337E-02	0.013
AG-108M	7.167E-03		2.557E-02	4.342E-02	4.226E-03	0.165
AG-110M	-5.015E-02		2.855E-02	3.815E-02	3.491E-03	-1.315
IN-111	2.154E-02		8.548E-01	1.229E+00	1.369E-01	0.018
IN-113M	9.922E-04		3.557E-02	5.984E-02	5.680E-03	0.017
SN-113	9.922E-04		3.557E-02	5.984E-02	5.680E-03	0.017
IN-114M	-1.911E-02		1.501E-01	2.176E-01	2.104E-02	-0.088
CD-115	-2.825E+00		8.063E+00	1.291E+01	1.225E+00	-0.219
SN-117M	-4.256E-02		4.213E-02	6.632E-02	5.891E-03	-0.642
SB-122	7.043E-01		1.482E+00	2.514E+00	2.365E-01	0.280
I-123	-2.106E+00		1.554E+00	Half-Life too short		
TE-123M	-1.492E-02		2.202E-02	3.526E-02	3.154E-03	-0.423
I-124	-4.313E-01		6.176E-01	7.888E-01	7.295E-02	-0.547
SB-124	5.917E-03		5.955E-02	1.003E-01	8.786E-03	0.059
SB-125	3.576E-02		7.443E-02	1.278E-01	1.221E-02	0.280
TE-125M	5.208E+00		6.879E+00	1.188E+01	1.209E+00	0.438
I-126	6.420E-02		1.558E-01	2.596E-01	2.309E-02	0.247
SB-126	3.007E-02		1.266E-01	1.988E-01	1.810E-02	0.151
SB-127	2.365E-01		9.845E-01	1.622E+00	1.877E-01	0.146
XE-127	1.121E-02		3.594E-02	5.941E-02	5.942E-03	0.189
I-131	3.784E-02		8.893E-02	1.535E-01	1.623E-02	0.246
TE-132	-1.373E-01		5.468E-01	8.736E-01	1.475E-01	-0.157
BA-133	-3.449E-02		3.697E-02	5.028E-02	7.265E-03	-0.686
I-133	-6.876E-04		1.957E-03	Half-Life too short		
CS-134	1.205E-01	+	5.476E-02	7.565E-02	7.092E-03	1.593
CS-135	9.692E-02		1.391E-01	2.078E-01	2.650E-02	0.466
I-135	5.680E+08		1.294E+09	Half-Life too short		
CS-136	3.590E-02		9.172E-02	1.564E-01	1.448E-02	0.230
BA-137M	2.968E-02		3.174E-02	5.469E-02	4.854E-03	0.543
CS-137	3.138E-02		3.356E-02	5.782E-02	5.140E-03	0.543
CE-139	-1.696E-03		2.430E-02	3.996E-02	3.624E-03	-0.042
BA-140	6.488E-02		2.044E-01	3.419E-01	1.141E-01	0.190
LA-140	-3.287E-02		6.567E-02	1.008E-01	8.586E-03	-0.326
CE-141	8.057E-03		4.854E-02	8.111E-02	7.095E-03	0.099
CE-143	4.325E-04		7.664E-05	Half-Life too short		
CE-144	-1.829E-01		1.787E-01	2.490E-01	3.845E-02	-0.735
PM-144	4.925E-03		2.677E-02	4.381E-02	3.951E-03	0.112
PR-144	3.337E-01		1.814E+00	2.968E+00	2.676E-01	0.112
PM-146	3.717E-02		3.518E-02	6.202E-02	7.082E-03	0.599
ND-147	-2.086E-01		4.450E-01	7.038E-01	1.089E-01	-0.296
PM-149	-1.089E+01		6.652E+01	1.050E+02	1.847E+01	-0.104



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	2.641E-02		7.711E-02	1.242E-01	1.388E-02	0.213
GD-153	-1.355E-02		6.627E-02	9.866E-02	8.765E-03	-0.137
EU-154	5.762E-02		1.067E-01	1.819E-01	2.015E-02	0.317
EU-155	8.024E-02		8.131E-02	1.416E-01	1.225E-02	0.567
TB-160	4.987E-02		1.183E-01	2.044E-01	1.931E-02	0.244
HO-166M	9.873E-03		4.830E-02	7.906E-02	7.173E-03	0.125
TM-171	-5.594E+00		2.440E+01	3.437E+01	2.633E+00	-0.163
LU-176	5.883E-03		2.169E-02	3.131E-02	3.631E-03	0.188
LU-177	2.719E+00	+	1.056E+00	1.574E+00	1.597E-01	1.728
LU-177M	7.508E-02		1.351E-01	2.335E-01	2.182E-02	0.322
HF-181	-2.327E-02		3.413E-02	5.367E-02	5.105E-03	-0.433
W-181	-2.310E-01		3.195E-01	4.378E-01	3.306E-02	-0.528
TA-182	-1.318E-01		1.988E-01	3.069E-01	2.510E-02	-0.430
RE-183	2.972E-02		8.762E-02	1.466E-01	1.316E-02	0.203
RE-184	-1.030E-01		1.887E-01	2.936E-01	3.327E-02	-0.351
OS-185	3.193E-02		3.251E-02	5.696E-02	5.120E-03	0.561
RE-188	2.139E-01		1.393E-01	2.419E-01	2.128E-02	0.884
W-188	-1.433E+00		6.589E+00	9.165E+00	1.087E+00	-0.156
IR-192	-1.129E-02		2.962E-02	4.575E-02	5.229E-03	-0.247
AU-195	1.142E-01		1.703E-01	2.893E-01	2.547E-02	0.395
TL-200	-5.748E-05		1.512E-04	Half-Life too short		
TL-201	-1.457E-01		5.104E+00	8.400E+00	7.647E-01	-0.017
TL-202	6.358E-02		5.535E-02	9.825E-02	9.272E-03	0.647
HG-203	2.040E-02		3.482E-02	5.166E-02	6.296E-03	0.395
BI-207	1.599E-02		4.768E-02	8.071E-02	7.115E-03	0.198
TL-207	-3.312E-01		6.411E-01	8.567E-01	1.639E-01	-0.387
PO-209	-2.602E+00		6.433E+00	1.037E+01	9.808E-01	-0.251
BI-210	2.468E+00		2.953E+00	4.814E+00	4.489E-01	0.513
PB-210	2.468E+00		2.953E+00	4.814E+00	4.489E-01	0.513
PO-210	2.468E+00		2.952E+00	4.814E+00	4.066E-01	0.513
PB-211	-6.068E-01		8.498E-01	1.213E+00	7.612E-01	-0.500
PO-215	-3.312E-01		6.411E-01	8.567E-01	1.639E-01	-0.387
RN-219	7.889E-02		3.206E-01	5.451E-01	8.407E-02	0.145
RN-220	-1.074E+01		2.151E+01	3.391E+01	3.203E+00	-0.317
RA-223	-3.312E-01		6.411E-01	8.567E-01	1.639E-01	-0.387
AC-227	8.903E-03		3.075E-01	4.948E-01	8.450E-02	0.018
TH-227	8.903E-03		3.075E-01	4.948E-01	9.675E-02	0.018
TH-229	-7.836E-02		3.889E-01	6.295E-01	6.142E-02	-0.124
PA-231	5.063E-01		1.169E+00	1.910E+00	3.304E-01	0.265
TH-231	-3.312E-01		6.411E-01	8.567E-01	1.639E-01	-0.387
U-231	9.747E-02		8.060E-01	1.236E+00	1.110E-01	0.079
PA-233	-1.007E-02		5.393E-02	8.449E-02	9.875E-03	-0.119
PA-234	-5.065E-02		2.538E-01	4.143E-01	7.914E-02	-0.122
PA-234M	-1.026E+00		4.183E+00	6.757E+00	7.035E-01	-0.152
U-235	3.634E-02		1.653E-01	2.718E-01	4.749E-02	0.134
NP-236	-3.256E-02		6.223E-02	1.004E-01	8.961E-03	-0.324
NP-239	-9.588E-02		1.381E-01	2.246E-01	1.870E-02	-0.427
AM-241	9.875E-03		1.359E-01	1.956E-01	1.535E-02	0.050

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-2.271E-02		7.295E-02	1.217E-01	1.046E-02	-0.187
AM-246	-9.623E-02		1.321E-01	2.029E-01	1.770E-02	-0.474
CM-247	-1.551E-02		2.883E-02	4.667E-02	4.340E-03	-0.332
CF-249	8.258E-03		3.358E-02	5.718E-02	5.364E-03	0.144
CF-251	-3.422E-02		1.024E-01	1.657E-01	1.545E-02	-0.207

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600004          *
* Acquisition date   : 22-JAN-2010 07:56:42 Detector SN# :                  *
* Detector ID        : GAM16                      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 02:00:02.21             Half life ratio : 8.000     *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600004              Analyst initials: MXR1        *
* Batch Number       : 941635                  Sample Quantity : 1.5370E+02 GRAM *
* Recovery           : 1.00000                 Carrier Weight : 0.00000       *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-NOV-2009 11:22:16 MS Isotope :                  *
* MSD DPM             : 0.000                   MSD Isotope :                  *
* LCS DPM             : 0.000                   LCS Isotope :                  *
* LCSD DPM            : 0.000                   LCSD Isotope :                  *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.116E+01	3.131E+00	2.298E-01	1.597E+00
NB-95	5.722E-02	6.364E-02	2.862E-02	3.247E-02
CD-109	2.169E+00	8.896E-01	4.743E-01	4.539E-01
SN-126	2.133E-01	8.747E-02	5.825E-02	4.463E-02
TL-208	5.127E-01	8.365E-02	2.581E-02	4.268E-02
BI-211	3.349E+00	5.222E-01	1.300E-01	2.664E-01
BI-212	9.887E-01	3.990E-01	1.994E-01	2.036E-01
PB-212	1.620E+00	2.102E-01	3.761E-02	1.073E-01
PO-212	1.620E+00	2.102E-01	3.761E-02	1.073E-01
BI-214	1.114E+00	1.789E-01	4.460E-02	9.126E-02
PB-214	1.165E+00	1.912E-01	4.531E-02	9.754E-02
PO-214	1.165E+00	1.912E-01	4.531E-02	9.754E-02
PO-216	1.620E+00	2.102E-01	3.761E-02	1.073E-01
PO-218	1.165E+00	1.912E-01	4.531E-02	9.754E-02
RA-224	4.368E+00	1.213E+00	4.280E-01	6.191E-01
RA-226	1.114E+00	1.789E-01	4.460E-02	9.126E-02
AC-228	1.658E+00	3.247E-01	9.331E-02	1.656E-01
RA-228	1.658E+00	3.247E-01	9.331E-02	1.656E-01
TH-228	1.644E+00	2.134E-01	3.817E-02	1.089E-01
TH-230	1.114E+00	1.789E-01	4.460E-02	9.126E-02
TH-232	1.658E+00	3.247E-01	9.331E-02	1.656E-01
TH-234	1.466E+00	1.374E+00	8.544E-01	7.012E-01
U-234	1.114E+00	1.789E-01	4.460E-02	9.126E-02
NP-237	6.263E-01	2.864E-01	1.697E-01	1.461E-01
U-238	1.466E+00	1.374E+00	8.544E-01	7.012E-01
AM-243	3.031E-01	5.680E-02	3.778E-02	2.898E-02
ANH-511	1.206E-01	6.165E-02	1.956E-02	3.145E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----

BE-7	1.771E-01	2.603E-01	2.381E-01	1.328E-01	NOT IDENT.
NA-22	1.526E-02	3.761E-02	3.272E-02	1.919E-02	NOT IDENT.
NA-24	-1.651E+05	3.891E+05	0.000E+00	1.985E+05	SHORT HLIF
AL-26	2.359E-02	2.069E-02	2.124E-02	1.055E-02	NOT IDENT.
TI-44	3.296E-01	4.794E-02	3.138E-02	2.446E-02	FAIL ABUN
SC-46	2.448E-02	3.329E-02	3.061E-02	1.699E-02	FAIL ABUN
V-48	-1.284E-02	5.941E-02	5.025E-02	3.031E-02	NOT IDENT.
CR-51	1.220E-01	3.170E-01	2.747E-01	1.618E-01	NOT IDENT.
MN-52	-4.717E-02	1.609E-01	1.262E-01	8.207E-02	FAIL ABUN
MN-54	-1.247E-02	3.153E-02	2.684E-02	1.609E-02	NOT IDENT.
CO-56	-6.987E-03	3.195E-02	2.749E-02	1.630E-02	FAIL ABUN
CO-57	8.804E-03	1.849E-02	1.730E-02	9.434E-03	NOT IDENT.
CO-58	3.594E-03	3.216E-02	2.853E-02	1.641E-02	NOT IDENT.
FE-59	8.102E-02	7.604E-02	7.039E-02	3.880E-02	NOT IDENT.
CO-60	-2.005E-02	3.374E-02	2.613E-02	1.722E-02	NOT IDENT.
ZN-65	9.027E-02	8.280E-02	6.874E-02	4.225E-02	NOT IDENT.
GE-68	6.646E-01	1.084E+00	9.723E-01	5.533E-01	NOT IDENT.
AS-73	5.884E-01	6.579E-01	5.997E-01	3.357E-01	NOT IDENT.
AS-74	-7.365E-02	7.711E-02	5.887E-02	3.934E-02	NOT IDENT.
SE-75	1.822E-02	3.781E-02	3.006E-02	1.929E-02	NOT IDENT.
BR-77	1.658E+00	7.719E+00	6.824E+00	3.938E+00	FAIL ABUN
SR-82	-1.267E-01	3.047E-01	2.445E-01	1.555E-01	NOT IDENT.
RB-83	7.955E-03	5.505E-02	4.844E-02	2.809E-02	NOT IDENT.
RB-84	4.238E-02	5.922E-02	5.441E-02	3.022E-02	NOT IDENT.
KR-85	6.663E-01	6.153E+00	4.757E+00	3.139E+00	NOT IDENT.
SR-85	3.406E-03	3.145E-02	2.432E-02	1.605E-02	NOT IDENT.
RB-86	8.200E-01	6.650E-01	6.238E-01	3.393E-01	NOT IDENT.
Y-88	-2.605E-03	2.771E-02	2.289E-02	1.414E-02	NOT IDENT.
ZR-88	-1.675E-02	2.368E-02	2.025E-02	1.208E-02	NOT IDENT.
Y-91	5.205E+00	1.680E+01	1.451E+01	8.572E+00	NOT IDENT.
NB-94	-3.905E-03	2.755E-02	2.300E-02	1.406E-02	NOT IDENT.
NB-95M	-3.061E-02	1.059E-01	8.074E-02	5.404E-02	NOT IDENT.
ZR-95	2.172E-02	6.022E-02	5.197E-02	3.072E-02	NOT IDENT.
NB-97	-8.812E+04	5.803E+04	0.000E+00	2.961E+04	SHORT HLIF
ZR-97	4.942E+05	1.196E+06	0.000E+00	6.100E+05	SHORT HLIF
MO-99	3.653E+00	8.801E+00	7.648E+00	4.491E+00	NOT IDENT.
TC-99M	-8.189E+15	1.292E+16	0.000E+00	6.589E+15	SHORT HLIF
RH-101	3.230E-02	2.683E-02	2.467E-02	1.369E-02	NOT IDENT.
RH-102	9.784E-04	2.343E-02	2.065E-02	1.195E-02	FAIL ABUN
RU-103	-8.992E-04	3.273E-02	2.858E-02	1.670E-02	FAIL ABUN
RH-106	5.098E-03	2.328E-01	1.996E-01	1.188E-01	FAIL ABUN
RU-106	5.098E-03	2.328E-01	1.996E-01	1.188E-01	FAIL ABUN
AG-108M	7.167E-03	2.506E-02	2.261E-02	1.279E-02	NOT IDENT.
AG-110M	-5.015E-02	2.798E-02	1.965E-02	1.428E-02	NOT IDENT.
IN-111	2.154E-02	8.377E-01	6.496E-01	4.274E-01	NOT IDENT.
IN-113M	9.922E-04	3.486E-02	3.125E-02	1.779E-02	NOT IDENT.
SN-113	9.922E-04	3.486E-02	3.125E-02	1.779E-02	NOT IDENT.
IN-114M	-1.911E-02	1.471E-01	1.157E-01	7.504E-02	NOT IDENT.
CD-115	-2.825E+00	7.902E+00	6.691E+00	4.031E+00	NOT IDENT.
SN-117M	-4.256E-02	4.129E-02	3.543E-02	2.107E-02	NOT IDENT.
SB-122	7.043E-01	1.453E+00	1.300E+00	7.411E-01	NOT IDENT.
I-123	-2.106E+06	3.046E+06	0.000E+00	1.554E+06	SHORT HLIF
TE-123M	-1.492E-02	2.158E-02	1.884E-02	1.101E-02	NOT IDENT.
I-124	-4.313E-01	6.053E-01	4.073E-01	3.088E-01	NOT IDENT.
SB-124	5.917E-03	5.836E-02	5.039E-02	2.977E-02	FAIL ABUN
SB-125	3.576E-02	7.295E-02	6.660E-02	3.722E-02	FAIL ABUN
TE-125M	5.208E+00	6.742E+00	6.405E+00	3.440E+00	NOT IDENT.
I-126	6.420E-02	1.527E-01	1.337E-01	7.791E-02	NOT IDENT.
SB-126	3.007E-02	1.240E-01	1.022E-01	6.328E-02	FAIL ABUN
SB-127	2.365E-01	9.648E-01	8.350E-01	4.922E-01	NOT IDENT.
XE-127	1.121E-02	3.523E-02	3.155E-02	1.797E-02	NOT IDENT.
I-131	3.784E-02	8.715E-02	8.031E-02	4.446E-02	NOT IDENT.
TE-132	-1.373E-01	5.359E-01	4.625E-01	2.734E-01	NOT IDENT.
BA-133	-3.449E-02	3.623E-02	2.632E-02	1.848E-02	FAIL ABUN
I-133	-6.876E+02	3.837E+03	0.000E+00	1.957E+03	SHORT HLIF
CS-134	1.205E-01	5.367E-02	3.878E-02	2.738E-02	FAIL ABUN
CS-135	9.692E-02	1.364E-01	1.096E-01	6.957E-02	NOT IDENT.
I-135	5.680E+14	2.537E+15	0.000E+00	1.294E+15	SHORT HLIF
CS-136	3.590E-02	8.989E-02	7.957E-02	4.586E-02	FAIL ABUN
BA-137M	2.968E-02	3.111E-02	2.818E-02	1.587E-02	NOT IDENT.
CS-137	3.138E-02	3.289E-02	2.978E-02	1.678E-02	NOT IDENT.
CE-139	-1.696E-03	2.382E-02	2.132E-02	1.215E-02	NOT IDENT.
BA-140	6.488E-02	2.003E-01	1.771E-01	1.022E-01	NOT IDENT.
LA-140	-3.287E-02	6.435E-02	5.071E-02	3.283E-02	FAIL ABUN
CE-141	8.057E-03	4.757E-02	4.342E-02	2.427E-02	NOT IDENT.
CE-143	4.325E+02	1.502E+02	0.000E+00	7.664E+01	SHORT HLIF
CE-144	-1.829E-01	1.751E-01	1.336E-01	8.935E-02	NOT IDENT.
PM-144	4.925E-03	2.623E-02	2.254E-02	1.338E-02	NOT IDENT.

PR-144	3.337E-01	1.777E+00	1.527E+00	9.068E-01	NOT IDENT.
PM-146	3.717E-02	3.448E-02	3.226E-02	1.759E-02	NOT IDENT.
ND-147	-2.086E-01	4.361E-01	3.647E-01	2.225E-01	FAIL ABUN
PM-149	-1.089E+01	6.519E+01	5.527E+01	3.326E+01	NOT IDENT.
EU-152	2.641E-02	7.557E-02	6.509E-02	3.855E-02	FAIL ABUN
GD-153	-1.355E-02	6.495E-02	5.333E-02	3.314E-02	NOT IDENT.
EU-154	5.762E-02	1.045E-01	9.205E-02	5.333E-02	NOT IDENT.
EU-155	8.024E-02	7.968E-02	7.641E-02	4.065E-02	FAIL ABUN
TB-160	4.987E-02	1.159E-01	1.045E-01	5.915E-02	FAIL ABUN
HO-166M	9.873E-03	4.733E-02	4.065E-02	2.415E-02	FAIL ABUN
TM-171	-5.594E+00	2.391E+01	1.874E+01	1.220E+01	NOT IDENT.
LU-176	5.883E-03	2.126E-02	1.645E-02	1.085E-02	NOT IDENT.
LU-177	2.719E+00	1.035E+00	8.353E-01	5.280E-01	FAIL ABUN
LU-177M	7.508E-02	1.324E-01	1.218E-01	6.754E-02	FAIL ABUN
HF-181	-2.327E-02	3.345E-02	2.788E-02	1.707E-02	NOT IDENT.
W-181	-2.310E-01	3.131E-01	2.389E-01	1.597E-01	NOT IDENT.
TA-182	-1.318E-01	1.949E-01	1.556E-01	9.942E-02	FAIL ABUN
RE-183	2.972E-02	8.587E-02	7.826E-02	4.381E-02	FAIL ABUN
RE-184	-1.030E-01	1.849E-01	1.550E-01	9.433E-02	NOT IDENT.
OS-185	3.193E-02	3.186E-02	2.936E-02	1.625E-02	NOT IDENT.
RE-188	2.139E-01	1.365E-01	1.293E-01	6.963E-02	NOT IDENT.
W-188	-1.433E+00	6.457E+00	4.823E+00	3.294E+00	FAIL ABUN
IR-192	-1.129E-02	2.903E-02	2.403E-02	1.481E-02	FAIL ABUN
AU-195	1.142E-01	1.669E-01	1.563E-01	8.514E-02	FAIL ABUN
TL-200	-5.748E+01	2.964E+02	0.000E+00	1.512E+02	SHORT HLIF
TL-201	-1.457E-01	5.002E+00	4.481E+00	2.552E+00	NOT IDENT.
TL-202	6.358E-02	5.424E-02	5.116E-02	2.767E-02	NOT IDENT.
HG-203	2.040E-02	3.413E-02	2.721E-02	1.741E-02	NOT IDENT.
BI-207	1.599E-02	4.673E-02	4.105E-02	2.384E-02	FAIL ABUN
TL-207	-3.312E-01	6.283E-01	4.496E-01	3.205E-01	FAIL ABUN
PO-209	-2.602E+00	6.304E+00	5.300E+00	3.217E+00	NOT IDENT.
BI-210	2.468E+00	2.894E+00	2.648E+00	1.477E+00	NOT IDENT.
PB-210	2.468E+00	2.894E+00	2.648E+00	1.477E+00	NOT IDENT.
PB-211	-6.068E-01	8.328E-01	6.328E-01	4.249E-01	NOT IDENT.
PO-215	-3.312E-01	6.283E-01	4.496E-01	3.205E-01	FAIL ABUN
RN-219	7.889E-02	3.142E-01	2.845E-01	1.603E-01	FAIL ABUN
RN-220	-1.074E+01	2.108E+01	1.755E+01	1.076E+01	NOT IDENT.
RA-223	-3.312E-01	6.283E-01	4.496E-01	3.205E-01	FAIL ABUN
AC-227	8.903E-03	3.013E-01	2.612E-01	1.537E-01	FAIL ABUN
TH-227	8.903E-03	3.013E-01	2.612E-01	1.537E-01	FAIL ABUN
TH-229	-7.836E-02	3.811E-01	3.346E-01	1.944E-01	FAIL ABUN
PA-231	5.063E-01	1.145E+00	1.006E+00	5.843E-01	FAIL ABUN
TH-231	-3.312E-01	6.283E-01	4.496E-01	3.205E-01	FAIL ABUN
U-231	9.747E-02	7.899E-01	6.683E-01	4.030E-01	FAIL ABUN
PA-233	-1.007E-02	5.285E-02	4.438E-02	2.697E-02	FAIL ABUN
PA-234	-5.065E-02	2.487E-01	2.114E-01	1.269E-01	FAIL ABUN
PA-234M	-1.026E+00	4.100E+00	3.443E+00	2.092E+00	FAIL ABUN
U-235	3.634E-02	1.620E-01	1.455E-01	8.264E-02	FAIL ABUN
NP-236	-3.256E-02	6.099E-02	5.362E-02	3.112E-02	NOT IDENT.
NP-239	-9.588E-02	1.353E-01	1.209E-01	6.903E-02	FAIL ABUN
AM-241	9.875E-03	1.331E-01	1.070E-01	6.793E-02	NOT IDENT.
CM-243	-2.271E-02	7.150E-02	6.566E-02	3.648E-02	FAIL ABUN
AM-246	-9.623E-02	1.294E-01	1.032E-01	6.603E-02	NOT IDENT.
CM-247	-1.551E-02	2.826E-02	2.436E-02	1.442E-02	FAIL ABUN
CF-249	8.258E-03	3.291E-02	2.987E-02	1.679E-02	NOT IDENT.
CF-251	-3.422E-02	1.003E-01	8.829E-02	5.119E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
46.50	232.7443
46.50	232.7443
46.50	232.7443
48.70	295.8899
49.72	271.8799
51.35	272.0181
52.39	268.0653
52.97	249.3395
53.15	249.4700
53.44	256.8818
54.07	280.1966
56.28	285.5823
56.28	285.5841
57.37	0.0000
57.53	297.5045
57.53	297.5059
57.60	297.5620
57.98	333.1306
57.98	333.1306
59.32	341.6676
59.32	341.6676
59.40	336.8593
59.54	327.2190
59.72	327.3769
60.01	298.2918
61.10	299.1584
61.14	299.1896
61.30	299.3157
63.00	341.3116
63.29	341.5684
63.29	341.5684
63.58	341.8241
64.28	334.6086
65.12	379.9261
65.20	380.0016
65.20	380.0016
66.05	394.0640
66.72	363.2133
66.83	363.3136
66.91	379.9801
67.20	381.9131
67.20	381.9131
67.75	406.5424
67.85	406.6444
68.90	383.5158
68.90	383.5158
69.30	395.5738
69.67	412.2189
70.82	412.1046
70.82	412.1046
70.83	412.1146
72.80	449.3946
72.87	449.4679
72.87	449.4679
74.67	421.7774
74.81	421.9119
74.81	421.9119
74.81	421.9119
74.81	421.9119
74.81	421.9119
74.81	421.9119
74.97	422.0693
75.28	422.3713
75.70	422.7774
77.11	424.1378
77.11	424.1378

77.11	424.1378
77.11	424.1378
77.11	424.1378
77.11	424.1378
77.11	424.1378
78.38	425.3535
79.62	426.5312
79.80	426.7012
79.80	426.7012
80.11	426.9931
80.18	427.0591
80.30	427.1708
80.30	427.1708
80.57	427.4246
81.00	427.8281
81.07	427.8941
81.07	427.8941
81.07	427.8941
81.07	427.8941
82.60	422.0074
83.37	333.5111
83.78	333.8064
83.78	333.8064
83.78	333.8064
83.78	333.8064
84.21	339.2935
84.90	334.6036
85.43	370.4684
86.29	453.9540
86.50	464.5641
86.54	464.6023
86.59	464.6513
86.72	464.7766
86.79	464.8419
86.94	464.9917
87.30	483.5890
87.30	483.5890
87.30	483.5890
87.30	483.5890
87.30	483.5890
87.30	483.5890
87.57	483.8607
87.88	313.2111
88.03	313.3081
88.36	313.5223
88.47	313.5938
89.95	314.5459
91.11	291.6409
92.29	292.3354
92.38	292.3878
92.38	292.3878
93.35	292.9536
94.00	293.3329
94.67	300.3327
94.67	300.3362
94.90	305.7659
94.90	305.7659
94.90	305.7659
94.90	305.7659
95.87	305.0213
95.87	305.0213
96.73	306.8639
97.43	319.2499
98.44	296.4117
98.44	296.4134
98.88	284.5687
99.55	291.1653
99.55	291.1653
99.86	304.7016
100.00	314.5845
100.10	314.6474
103.18	326.3277
103.76	312.3199
105.00	283.3491
105.31	279.0107
108.00	329.2141
109.28	274.6739

111.00	318.2485
111.00	318.2485
111.76	301.3745
112.95	302.9149
115.19	272.9499
116.30	273.4698
117.00	279.3099
117.00	279.3099
117.66	274.1034
121.11	282.1694
121.62	263.8897
121.78	257.4760
122.06	258.5229
122.32	266.0496
122.32	266.0496
122.32	266.0496
122.32	266.0496
123.07	292.3661
127.23	276.1249
129.76	278.6460
131.20	270.8174
133.02	315.4380
133.54	317.1055
135.34	258.3647
136.00	250.1023
136.25	254.9348
136.48	255.0251
140.51	277.5666
140.51	0.0000
142.18	286.8622
142.65	277.4948
143.76	279.8660
144.24	289.6532
144.24	289.6532
144.24	289.6532
144.24	289.6532
145.22	294.8735
145.44	294.9672
147.16	280.2929
152.43	306.6747
152.70	290.2859
153.22	270.0958
154.21	267.5504
154.21	267.5504
154.21	267.5504
154.21	267.5504
155.03	268.8322
156.02	312.1191
158.56	296.5765
159.00	0.0000
159.00	286.9584
160.31	287.4741
161.27	279.9902
162.32	280.3874
162.64	284.4432
163.35	284.7166
163.89	286.8942
165.85	297.5309
167.43	266.4551
171.28	260.8300
171.86	261.0272
172.10	261.1072
176.55	282.6454
176.60	282.6655
181.06	279.7188
184.41	238.8761
185.71	239.2554
186.00	239.3418
190.27	230.8985
192.34	231.9832
193.63	241.5504
197.04	264.1031
198.01	231.4819
198.60	247.0825
200.40	255.8534
201.83	266.6110
202.84	230.7106
205.31	216.3179



208.36	234.2422
208.81	241.6525
209.75	275.2739
209.75	275.2739
210.97	234.9289
215.65	240.3447
216.55	245.8352
218.09	231.5165
222.10	265.2857
223.80	231.8855
226.40	265.4419
227.00	264.5473
227.08	248.6321
227.20	248.6631
228.16	248.9154
228.18	248.9202
228.18	248.9202
231.56	0.0000
235.69	241.2209
236.00	249.3420
236.00	249.3420
238.63	212.9149
238.63	212.9149
238.63	212.9149
238.63	212.9149
239.00	212.9934
240.98	213.4224
241.98	213.6379
241.98	213.6379
241.98	213.6379
244.69	172.0236
245.39	185.1369
247.94	195.3735
248.90	186.8670
249.79	181.5945
252.40	184.2403
252.85	198.4997
252.85	198.4997
254.15	0.0000
256.20	184.9202
256.20	184.9202
260.50	146.1317
260.90	176.9618
262.80	178.3839
264.65	158.8389
268.24	167.6758
268.79	154.4740
269.46	146.2603
269.46	146.2603
269.46	146.2603
269.46	146.2603
271.23	144.2796
273.65	143.4899
276.40	146.0824
277.35	146.2076
277.60	159.0804
277.60	159.0804
278.00	144.0621
278.60	155.8732
279.20	149.2477
279.53	156.0038
280.46	146.0611
281.68	151.2625
283.67	139.1872
284.30	163.9738
285.00	171.9413
285.90	160.8343
286.10	159.7355
286.10	159.7355
287.40	163.2990
288.45	0.0000
290.67	167.7242
290.80	167.7423
291.72	166.1825
293.26	0.0000
293.70	163.0723
295.21	161.5852
295.21	161.5852

295.21	161.5852
295.96	161.6925
296.50	156.6594
297.23	156.7577
298.57	156.9374
299.80	141.7343
299.80	141.7343
300.09	145.1859
300.09	145.1859
300.09	145.1859
300.09	145.1859
300.12	145.1910
301.29	145.3363
302.84	124.9831
303.76	113.0870
303.91	113.1011
304.40	145.7202
304.40	145.7202
304.84	144.0597
306.84	133.9958
308.46	143.3538
311.98	159.8788
316.51	167.4055
318.01	171.0798
319.02	160.8092
319.41	163.1747
320.08	159.7899
323.87	172.4796
323.87	172.4796
323.87	172.4796
323.87	172.4796
325.23	132.5547
328.77	148.0891
333.44	138.1084
334.20	159.8554
334.20	159.8554
334.30	159.8693
338.28	138.3404
338.28	138.3404
338.28	138.3404
338.28	138.3404
338.32	138.3452
338.32	138.3452
338.32	138.3452
340.50	148.2894
340.57	148.2971
344.27	122.7552
345.85	138.7751
350.59	0.0000
351.07	124.5828
351.92	124.6640
351.92	124.6640
351.92	124.6640
355.39	0.0000
356.01	140.0555
364.48	123.1445
366.43	118.8214
367.43	125.2137
367.94	0.0000
369.80	127.2369
374.96	127.7146
383.85	114.8566
387.95	139.8749
388.63	150.0013
391.69	128.3255
391.69	128.3255
392.90	134.8562
398.62	105.9191
400.65	120.8236
401.10	119.9390
401.81	116.3043
402.60	129.2975
404.84	146.1432
410.95	133.7476
411.60	157.0347
413.65	105.1443
414.70	121.9790
415.30	122.0269

415.76	126.7239
417.63	0.0000
418.52	114.8208
423.70	129.2655
427.08	111.7150
427.89	108.9571
432.53	112.1127
433.93	101.8400
439.47	104.0968
439.56	94.6381
439.89	97.4976
443.98	116.7333
444.90	101.6072
445.03	101.6170
445.03	101.6170
445.03	101.6170
445.03	101.6170
453.90	91.6787
463.38	97.0208
468.07	97.1055
473.00	98.5557
475.06	105.4507
475.35	105.4690
476.78	99.7482
477.59	97.8592
477.96	96.9116
482.03	109.7757
484.57	100.2119
487.03	92.5632
490.36	0.0000
492.35	91.8758
497.08	101.9307
507.63	0.0000
510.53	0.0000
510.84	96.8112
511.00	96.8202
511.85	96.8658
511.85	96.8658
513.99	102.9209
513.99	102.9209
520.41	92.3671
520.65	92.3813
527.90	96.7425
528.96	0.0000
529.64	87.8523
529.87	0.0000
531.02	95.9121
537.32	83.2102
543.00	81.4548
546.56	0.0000
549.76	97.9029
552.65	82.8909
555.20	85.0280
563.23	68.1082
563.90	76.2657
568.70	76.4580
569.32	71.3843
569.50	71.3907
569.67	72.4171
573.80	80.7503
574.00	80.7575
574.64	89.9873
578.91	85.2668
579.30	0.0000
583.14	97.5716
585.48	90.4895
591.81	81.4977
592.07	81.5073
593.00	82.5781
595.88	100.2710
600.56	76.6761
602.52	0.0000
602.71	101.2368
602.71	101.2368
603.60	89.6590
604.41	84.7128
604.70	84.7252
609.31	82.2113

609.31	82.2113
609.31	82.2113
609.31	82.2113
610.33	78.2958
612.46	81.7137
614.37	71.7751
618.01	71.0671
621.84	67.0117
621.84	67.0117
631.29	62.0591
633.02	74.7441
633.10	75.7991
634.78	77.9678
635.90	76.9543
636.97	73.8303
645.85	54.0163
646.12	55.0834
656.30	80.8892
657.75	99.0509
657.90	0.0000
661.65	82.1579
661.65	82.1579
664.57	0.0000
666.33	86.6113
666.33	86.6113
675.00	91.2489
677.61	77.3855
685.20	61.4740
692.80	67.0935
695.00	59.5772
696.49	69.3711
696.49	69.3711
697.00	69.3867
697.49	72.6556
698.33	68.3429
698.50	72.6883
699.00	72.7047
702.63	84.7769
706.10	77.2857
706.58	0.0000
706.67	80.5717
709.31	75.2140
711.68	67.6536
713.82	75.3614
717.42	68.9159
720.50	71.3554
721.93	0.0000
722.20	77.1697
722.78	78.9434
722.78	78.9434
722.89	78.9478
722.95	80.7044
723.30	80.7156
724.18	70.2148
727.18	80.1913
733.00	88.1006
735.90	77.1820
739.58	65.1542
742.81	67.4559
744.21	71.9209
747.13	55.3909
751.79	86.5789
752.31	76.6058
753.82	64.4340
755.35	67.8096
756.15	72.2800
756.87	71.1895
763.93	62.4719
765.79	78.5963
766.42	83.9781
766.84	85.7789
776.49	71.7637
778.00	57.2225
778.57	63.9684
778.89	63.9771
783.80	68.6027
785.46	62.1219
792.07	52.6567

795.84	58.7634
796.30	52.7464
798.80	70.8997
801.93	58.4012
805.60	75.3261
810.29	74.5567
810.76	70.0238
815.85	61.9620
817.79	64.7442
818.51	62.9372
819.60	61.1391
826.30	70.4467
828.27	0.0000
831.60	94.4276
831.96	84.3543
834.83	87.2001
836.80	0.0000
846.75	70.0773
848.13	63.6565
856.28	0.0000
856.80	61.7041
860.37	64.8765
867.32	62.9791
867.82	60.4091
871.10	53.9686
873.19	72.6337
874.81	63.3599
875.33	0.0000
876.40	55.0057
879.36	60.6661
880.27	58.8195
880.51	54.1555
881.50	59.7797
883.24	67.2943
884.67	77.6159
889.25	59.0117
896.60	72.3172
898.02	68.5961
899.00	68.6211
903.28	72.9628
911.07	66.0847
911.07	66.0847
911.07	66.0847
919.63	68.3907
920.93	59.6854
925.00	56.9238
925.24	55.9794
926.50	56.9546
935.52	56.1811
937.48	50.8203
944.10	64.9453
946.00	64.0311
949.00	61.2281
962.29	57.6621
964.01	56.0931
966.15	54.8514
968.20	54.8889
969.11	51.3750
969.11	51.3750
969.11	51.3750
977.42	64.7198
980.50	49.3154
983.50	64.8523
989.30	51.4007
996.32	68.0449
1001.03	68.1509
1001.68	65.2449
1004.76	74.0833
1021.30	0.0000
1024.50	0.0000
1034.80	61.0282
1036.00	60.0677
1037.82	57.1447
1038.57	49.2749
1038.76	0.0000
1045.16	65.1814
1046.59	56.3181
1048.07	56.3432

1050.47	64.3018
1050.47	64.3018
1062.04	64.5366
1063.62	63.5750
1076.63	46.8761
1077.35	56.8636
1078.86	77.8477
1085.78	57.0111
1099.22	48.2063
1112.02	53.2907
1112.84	60.5098
1115.52	50.4639
1120.29	64.0137
1120.29	64.0137
1120.29	64.0137
1120.29	64.0137
1120.51	64.0168
1121.28	62.3472
1124.00	0.0000
1129.67	53.7194
1131.51	0.0000
1147.95	0.0000
1167.94	64.5750
1173.22	83.1516
1175.09	63.6832
1177.93	72.9865
1189.05	85.5938
1204.90	73.5481
1205.75	0.0000
1213.00	91.3688
1221.42	107.1944
1230.97	102.8550
1235.34	88.8018
1236.41	0.0000
1238.25	76.6742
1246.25	79.6404
1260.41	0.0000
1271.85	59.0898
1274.45	47.5181
1274.54	49.6300
1291.56	50.9180
1298.22	0.0000
1312.09	45.8618
1325.50	46.0234
1325.50	46.0234
1332.49	35.3832
1333.61	42.9023
1360.21	30.2367
1362.66	0.0000
1365.15	22.7062
1368.21	27.0520
1368.53	0.0000
1376.25	31.4440
1384.27	32.5942
1394.10	29.4073
1395.20	29.4152
1407.95	25.1372
1434.06	21.9990
1436.60	30.2675
1457.56	0.0000
1460.81	26.7544
1489.15	15.7895
1509.49	16.7981
1596.49	24.7495
1620.62	19.1398
1678.03	0.0000
1691.02	14.5740
1691.02	14.5740
1706.46	0.0000
1750.46	0.0000
1764.49	10.1472
1764.49	10.1472
1764.49	10.1472
1764.49	10.1472
1770.23	71.1123
1771.40	23.7100
1791.20	0.0000
1808.65	4.9768

1836.01

15.0116

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600004

Total Uranium Activity	4.3778E+00	ug/g
Total Uranium Counting Unc.	4.0891E+00	ug/g
Total Uranium Tpu	2.0863E-06	ug/g
Total Uranium Mda	2.5428E+00	ug/g



```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941635                          SAMPLE ID   : G244600004
*  ANALYST       : MXR1                             DETECTOR    : GAM16
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 07:56:42.66          SAMPLE ALQT  : 153.700 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.557E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.357E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.190E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.546E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 09:59:08.20

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600005.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:57:12
Sample ID          : G244600005          Sample quantity  : 1.30220E+02 GRAM
Detector name      : GAM20              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:32.52  0.4%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941635             Detector SN#       :
Matrix Spike ID    :                    LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.66*	165	523	1.35	127.31	122	10	2.29E-02	27.7	
2	2	74.97*	579	408	1.24	149.89	143	18	8.04E-02	7.2	2.63E+00
3	2	77.23*	836	366	1.18	154.40	143	18	1.16E-01	5.4	
4	0	86.90	187	506	0.90	173.71	172	7	2.59E-02	21.1	
5	4	90.09	141	189	0.88	180.07	178	14	1.95E-02	14.4	2.20E+00
6	4	93.03*	217	490	1.54	185.95	178	14	3.01E-02	21.0	
7	0	128.96	111	314	1.08	257.70	253	9	1.54E-02	30.3	
8	0	164.13*	60	355	3.60	327.94	323	12	8.34E-03	64.8	
9	0	185.87*	235	297	1.21	371.36	366	11	3.27E-02	16.2	
10	0	209.44	130	324	1.27	418.45	413	11	1.80E-02	28.4	
11	4	238.56*	1448	212	1.12	476.62	472	18	2.01E-01	3.1	1.18E+00
12	4	241.59	345	243	1.79	482.67	472	18	4.79E-02	13.8	
13	0	269.81	112	193	1.21	539.03	536	10	1.56E-02	24.8	
14	0	277.56	87	157	1.07	554.52	550	10	1.20E-02	29.3	
15	0	295.06*	425	227	1.19	589.48	582	14	5.91E-02	9.0	
16	0	299.94	70	104	0.98	599.22	596	7	9.77E-03	27.0	
17	0	328.34	75	177	1.05	655.97	650	11	1.04E-02	36.6	
18	0	338.23*	268	208	0.99	675.73	670	12	3.73E-02	12.5	
19	0	351.90*	713	184	1.37	703.03	697	14	9.91E-02	5.6	
20	0	409.26	38	119	1.48	817.64	814	10	5.29E-03	55.7	
21	0	463.20	46	110	1.04	925.42	920	10	6.43E-03	44.9	
22	0	510.83*	76	164	1.58	1020.61	1015	14	1.06E-02	42.8	
23	0	583.17*	428	116	1.44	1165.21	1158	15	5.94E-02	7.4	
24	0	609.35*	479	106	1.45	1217.54	1212	13	6.66E-02	6.5	
25	0	727.33*	74	83	1.07	1453.39	1450	11	1.03E-02	26.0	
26	0	860.89	50	43	1.41	1720.45	1715	11	6.90E-03	29.5	
27	0	911.00	290	42	1.41	1820.67	1815	10	4.03E-02	7.2	
28	0	934.06	35	27	0.94	1866.79	1861	10	4.80E-03	33.1	
29	2	964.40	79	39	2.02	1927.48	1921	29	1.09E-02	20.0	9.47E-01
30	2	968.89	173	43	1.84	1936.45	1921	29	2.41E-02	10.6	
31	0	1120.80	87	67	2.11	2240.36	2232	15	1.20E-02	23.3	
32	0	1239.27	61	73	2.17	2477.43	2469	19	8.41E-03	37.6	
33	0	1377.84	46	13	1.87	2754.78	2748	13	6.39E-03	21.9	
34	0	1460.70*	1016	24	2.01	2920.68	2913	18	1.41E-01	3.4	
35	0	1589.41	16	19	0.91	3178.40	3168	12	2.26E-03	58.0	
36	0	1729.35	36	4	1.19	3458.68	3454	9	4.95E-03	19.9	
37	0	1764.12	101	13	2.20	3528.33	3521	13	1.40E-02	12.4	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600005.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 07:57:12
Sample ID        : G244600005             Sample quantity  : 130.22 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:32.52    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

```

## 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	*	2.190E+01	2.418E+00	4.853E-01	4.232E-02	45.133
CD-109	+	88.03	*	2.136E+00	9.244E-01	1.042E+00	9.854E-02	2.050
SN-126	+	64.28		1.056E+00	6.052E-01	5.552E-01	8.038E-02	1.901
	+	86.94		8.732E-01	5.172E-01	4.702E-01	1.952E-01	1.857
	+	87.57	*	2.100E-01	9.090E-02	1.147E-01	1.079E-02	1.831
TL-208	+	277.35		7.778E-01	4.675E-01	5.203E-01	6.918E-02	1.495
	+	510.84		3.393E-01	2.936E-01	1.965E-01	2.457E-02	1.727
	+	583.14	*	5.434E-01	9.802E-02	5.037E-02	5.178E-03	10.788
	+	860.37		5.884E-01	3.521E-01	3.389E-01	3.592E-02	1.736
BI-211		72.87		5.018E+00	2.299E+00	3.980E+00	3.143E-01	1.261
	+	351.07	*	4.002E+00	5.895E-01	2.881E-01	2.760E-02	13.894
PB-212	+	74.81		2.575E+00	4.887E-01	3.923E-01	4.841E-02	6.565
	+	77.11		2.138E+00	2.921E-01	2.257E-01	1.867E-02	9.470
	+	87.30		9.714E-01	4.315E-01	5.357E-01	7.342E-02	1.813
	+	238.63	*	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
	+	300.09		1.332E+00	7.356E-01	1.022E+00	1.169E-01	1.303
PO-212	+	74.81		2.575E+00	4.887E-01	3.923E-01	4.841E-02	6.565
	+	77.11		2.138E+00	2.921E-01	2.257E-01	1.867E-02	9.470
	+	87.30		9.714E-01	4.315E-01	5.357E-01	7.342E-02	1.813
	+	115.19		3.225E+00	3.138E+00	5.261E+00	4.419E-01	0.613
	+	238.63	*	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
	+	300.09		1.332E+00	7.356E-01	1.022E+00	1.169E-01	1.303
BI-214	+	609.31	*	1.147E+00	1.964E-01	9.244E-02	1.029E-02	12.406
	+	1120.29		1.064E+00	5.081E-01	3.817E-01	4.130E-02	2.787
	+	1764.49		1.667E+00	4.366E-01	2.661E-01	2.186E-02	6.267
PB-214	+	74.81		4.437E+00	8.033E-01	6.759E-01	7.399E-02	6.565
	+	77.11		3.665E+00	5.734E-01	3.870E-01	4.351E-02	9.470
	+	87.30		1.664E+00	7.315E-01	9.177E-01	1.114E-01	1.813
	+	241.98		2.552E+00	7.577E-01	4.858E-01	5.433E-02	5.253
	+	295.21		1.414E+00	3.045E-01	1.811E-01	2.114E-02	7.808
	+	351.92	*	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
PO-214	+	74.81		4.437E+00	8.033E-01	6.759E-01	7.399E-02	6.565
	+	77.11		3.665E+00	5.734E-01	3.870E-01	4.351E-02	9.470
	+	87.30		1.664E+00	7.315E-01	9.177E-01	1.114E-01	1.813

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.552E+00	7.577E-01	4.858E-01	5.433E-02	5.253
	+	295.21		1.414E+00	3.045E-01	1.811E-01	2.114E-02	7.808
	+	351.92	*	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
	+	74.81		2.575E+00	4.887E-01	3.923E-01	4.841E-02	6.565
	+	77.11		2.138E+00	2.921E-01	2.257E-01	1.867E-02	9.470
	+	87.30		9.714E-01	4.315E-01	5.357E-01	7.342E-02	1.813
PO-218	+	238.63	*	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
	+	300.09		1.332E+00	7.356E-01	1.022E+00	1.169E-01	1.303
	+	74.81		4.437E+00	8.033E-01	6.759E-01	7.399E-02	6.565
	+	77.11		3.665E+00	5.734E-01	3.870E-01	4.351E-02	9.470
	+	87.30		1.664E+00	7.315E-01	9.177E-01	1.114E-01	1.813
	+	241.98		2.552E+00	7.577E-01	4.858E-01	5.433E-02	5.253
RA-224	+	295.21		1.414E+00	3.045E-01	1.811E-01	2.114E-02	7.808
	+	351.92	*	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
	+	240.98	*	4.839E+00	1.411E+00	9.182E-01	8.875E-02	5.270
RA-226	+	609.31	*	1.147E+00	1.964E-01	9.244E-02	1.029E-02	12.406
	+	1120.29		1.064E+00	5.081E-01	3.817E-01	4.130E-02	2.787
	+	1764.49		1.667E+00	4.366E-01	2.661E-01	2.186E-02	6.267
AC-228	+	338.32		1.660E+00	8.032E-01	3.258E-01	1.350E-01	5.095
	+	911.07	*	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
	+	969.11		1.707E+00	5.423E-01	3.142E-01	7.456E-02	5.434
RA-228	+	338.32		1.660E+00	8.032E-01	3.258E-01	1.350E-01	5.095
	+	911.07	*	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
	+	969.11		1.707E+00	5.423E-01	3.142E-01	7.456E-02	5.434
TH-228	+	74.81		2.614E+00	4.327E-01	3.981E-01	3.240E-02	6.565
	+	77.11		2.169E+00	2.965E-01	2.291E-01	1.895E-02	9.470
	+	87.30		9.859E-01	4.267E-01	5.437E-01	5.096E-02	1.813
TH-230	+	238.63	*	1.809E+00	2.234E-01	8.190E-02	8.710E-03	22.086
	+	300.09		1.352E+00	1.086E+00	1.037E+00	6.169E-01	1.303
	+	609.31	*	1.147E+00	1.964E-01	9.243E-02	1.029E-02	12.406
TH-232	+	1120.29		1.064E+00	5.081E-01	3.817E-01	4.130E-02	2.787
	+	1764.49		1.667E+00	4.366E-01	2.660E-01	2.186E-02	6.267
	+	338.32		1.660E+00	4.432E-01	3.258E-01	3.053E-02	5.095
TH-234	+	911.07	*	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
	+	969.11		1.707E+00	5.423E-01	3.142E-01	7.456E-02	5.434
	+	63.29	*	2.667E+00	1.550E+00	1.396E+00	2.426E-01	1.910
U-234	+	92.38		1.609E+00	7.387E-01	6.292E-01	1.154E-01	2.557
	+	609.31	*	1.147E+00	1.964E-01	9.243E-02	1.029E-02	12.406
	+	1120.29		1.064E+00	5.081E-01	3.817E-01	4.130E-02	2.787
U-235	+	1764.49		1.667E+00	4.366E-01	2.660E-01	2.186E-02	6.267
	+	89.95		2.125E+00	9.002E-01	1.389E+00	4.314E-01	1.530
	+	93.35		1.934E+00	9.799E-01	7.536E-01	2.123E-01	2.567
NP-237	+	105.00		4.568E-01	9.427E-01	1.538E+00	4.589E-01	0.297
	+	143.76	*	-6.024E-02	1.951E-01	3.030E-01	5.280E-02	-0.199
	+	163.35		5.563E-01	7.287E-01	6.233E-01	1.191E-01	0.892
NP-237	+	185.71		2.035E-01	6.858E-02	6.040E-02	5.436E-03	3.369
	+	205.31		-1.769E-01	5.113E-01	7.439E-01	1.441E-01	-0.238
	+	86.50	*	6.168E-01	2.957E-01	3.292E-01	7.447E-02	1.874
		95.87		1.433E-02	8.908E-01	1.289E+00	3.190E-01	0.011

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	+	63.29	*	2.667E+00	1.550E+00	1.396E+00	2.426E-01	1.910
	+	92.38		1.609E+00	6.930E-01	6.292E-01	5.752E-02	2.557
AM-243	+	74.67	*	4.175E-01	6.896E-02	6.373E-02	5.130E-03	6.551
	+	86.72		2.313E+01	1.001E+01	1.233E+01	1.147E+00	1.877
		117.66		-1.921E+00	3.267E+00	5.103E+00	4.272E-01	-0.376
		142.18		-5.824E+00	1.598E+01	2.508E+01	2.117E+00	-0.232
ANH-511	+	511.00	*	7.329E-02	6.311E-02	4.246E-02	3.957E-03	1.726

---- 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	*	2.038E-01	2.856E-01	4.876E-01	4.739E-02	0.418
NA-22		1274.54	*	3.358E-02	3.723E-02	6.609E-02	5.474E-03	0.508
NA-24		1368.53	*	2.076E-01	3.723E-02	Half-Life too short		
AL-26		1129.67		4.219E-01	1.490E+00	2.492E+00	2.111E-01	0.169
		1808.65	*	-1.599E-02	2.386E-02	3.277E-02	2.662E-03	-0.488
TI-44		67.85		1.306E-02	3.757E-02	5.604E-02	4.216E-03	0.233
	+	78.38	*	3.945E-01	5.391E-02	6.853E-02	5.752E-03	5.756
SC-46		889.25	*	-9.721E-03	3.317E-02	5.313E-02	5.297E-03	-0.183
	+	1120.51		1.817E-01	8.593E-02	1.129E-01	9.656E-03	1.610
V-48		944.10		-5.632E-02	7.926E-01	1.295E+00	1.264E-01	-0.043
		983.50	*	-1.275E-02	5.308E-02	8.456E-02	8.082E-03	-0.151
		1312.09		4.231E-02	6.787E-02	1.177E-01	9.819E-03	0.359
CR-51		320.08	*	-1.382E-01	3.265E-01	5.269E-01	5.282E-02	-0.262
MN-52		744.21		-7.989E-03	2.013E-01	3.351E-01	3.404E-02	-0.024
		848.13		-5.024E+00	5.357E+00	7.957E+00	8.017E-01	-0.631
	+	935.52		3.661E-01	2.448E-01	3.776E-01	3.699E-02	0.969
		1246.25		3.467E+00	6.425E+00	9.717E+00	7.983E-01	0.357
		1333.61		2.354E+00	4.117E+00	7.123E+00	5.967E-01	0.330
		1434.06	*	-8.990E-02	1.566E-01	2.345E-01	1.985E-02	-0.383
MN-54		834.83	*	-1.074E-02	3.354E-02	5.408E-02	5.462E-03	-0.199
CO-56		846.75	*	-1.397E-02	3.227E-02	5.108E-02	5.148E-03	-0.273
		977.42		-3.628E-01	2.927E+00	4.082E+00	3.916E-01	-0.089
		1037.82		3.979E-03	2.688E-01	4.403E-01	4.249E-02	0.009
		1175.09		-2.647E+00	2.087E+00	2.914E+00	2.344E-01	-0.909
	+	1238.25		2.076E-01	1.570E-01	1.613E-01	1.365E-02	1.287
		1360.21		-3.557E-02	7.302E-01	1.217E+00	1.023E-01	-0.029
		1771.40		-6.827E-02	1.899E-01	2.890E-01	2.370E-02	-0.236
CO-57		122.06	*	2.232E-02	2.222E-02	3.722E-02	3.107E-03	0.600
		136.48		-1.200E-01	1.858E-01	2.876E-01	2.603E-02	-0.417
CO-58		810.76	*	-4.704E-02	3.364E-02	4.746E-02	4.819E-03	-0.991
FE-59		142.65		-4.257E-01	2.493E+00	3.902E+00	3.295E-01	-0.109
		192.34		-1.886E-02	7.993E-01	1.354E+00	1.858E-01	-0.014
		1099.22	*	-3.909E-03	8.227E-02	1.334E-01	1.258E-02	-0.029
		1291.56		2.409E-03	9.888E-02	1.597E-01	1.519E-02	0.015
CO-60		1173.22		-4.634E-03	4.031E-02	6.458E-02	5.192E-03	-0.072
		1332.49	*	5.597E-03	3.268E-02	5.377E-02	4.504E-03	0.104
ZN-65		1115.52	*	-6.123E-02	9.304E-02	1.177E-01	1.013E-02	-0.520

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68		1077.35	*	3.873E-01	1.158E+00	1.951E+00	1.741E-01	0.199
AS-73		53.44	*	1.616E-01	5.101E-01	8.519E-01	6.324E-02	0.190
AS-74		595.88	*	-3.840E-02	8.874E-02	1.369E-01	1.340E-02	-0.281
		634.78		-1.688E-01	2.983E-01	4.790E-01	4.764E-02	-0.352
SE-75		66.05		-1.753E+00	3.793E+00	5.440E+00	5.147E-01	-0.322
		96.73		2.688E-02	7.176E-01	1.039E+00	1.435E-01	0.026
		121.11		5.981E-02	1.171E-01	1.924E-01	2.118E-02	0.311
		136.00		-1.100E-02	3.493E-02	5.503E-02	4.650E-03	-0.200
		198.60		-1.418E+00	1.542E+00	2.461E+00	2.477E-01	-0.576
		264.65	*	8.901E-03	3.884E-02	6.365E-02	6.302E-03	0.140
		279.53		1.046E-02	1.074E-01	1.588E-01	1.625E-02	0.066
		303.91		1.704E+00	1.947E+00	3.032E+00	3.751E-01	0.562
		400.65		1.334E-01	2.424E-01	4.101E-01	4.501E-02	0.325
BR-77	+	87.88		4.248E+02	1.838E+02	2.689E+02	2.539E+01	1.580
		200.40		-1.477E+01	1.261E+02	2.123E+02	1.953E+01	-0.070
	+	239.00		2.634E+02	3.030E+01	3.532E+01	3.407E+00	7.456
		249.79		-3.628E+01	5.085E+01	8.176E+01	7.969E+00	-0.444
		281.68		8.835E+00	8.081E+01	1.196E+02	1.189E+01	0.074
		297.23		1.742E+02	6.932E+01	9.267E+01	9.118E+00	1.880
		303.76		1.313E+02	1.523E+02	2.376E+02	2.324E+01	0.552
		439.47		5.228E+01	1.171E+02	1.970E+02	1.731E+01	0.265
		484.57		-2.294E+01	1.860E+02	2.986E+02	2.728E+01	-0.077
		520.65	*	6.433E+00	7.977E+00	1.375E+01	1.289E+00	0.468
		574.64		-1.783E+02	1.743E+02	2.525E+02	2.446E+01	-0.706
		578.91		1.629E+01	7.784E+01	1.117E+02	1.084E+01	0.146
		585.48		8.965E+02	2.292E+02	3.905E+02	3.803E+01	2.296
		755.35		1.930E+01	1.316E+02	2.224E+02	2.260E+01	0.087
		817.79		-1.581E+01	1.001E+02	1.637E+02	1.658E+01	-0.097
SR-82		698.33		2.440E+00	2.963E+01	4.961E+01	5.015E+00	0.049
		776.49	*	-2.439E-01	3.089E-01	4.739E-01	4.815E-02	-0.515
		1395.20		-1.972E+00	8.289E+00	1.339E+01	1.130E+00	-0.147
RB-83		520.41	*	1.002E-02	6.060E-02	9.918E-02	9.302E-03	0.101
		529.64		-1.505E-01	9.325E-02	1.260E-01	1.189E-02	-1.194
		552.65		-1.375E-01	1.696E-01	2.512E-01	2.404E-02	-0.547
RB-84		881.50	*	4.795E-02	6.416E-02	1.129E-01	1.128E-02	0.425
KR-85		513.99	*	9.860E+00	6.708E+00	1.086E+01	1.014E+00	0.907
SR-85		513.99	*	5.040E-02	3.429E-02	5.554E-02	5.186E-03	0.907
RB-86		1076.63	*	5.893E-02	7.234E-01	1.190E+00	1.062E-01	0.050
Y-88		898.02		-3.237E-02	3.569E-02	5.310E-02	5.298E-03	-0.610
		1836.01	*	-1.387E-02	3.232E-02	4.866E-02	3.926E-03	-0.285
ZR-88		392.90	*	-2.072E-02	2.692E-02	4.166E-02	3.484E-03	-0.497
Y-91		1204.90	*	-8.006E+00	1.762E+01	2.753E+01	2.236E+00	-0.291
NB-94		702.63	*	-2.000E-03	2.833E-02	4.723E-02	4.779E-03	-0.042
		871.10		8.287E-04	2.690E-02	4.466E-02	4.475E-03	0.019
NB-95		765.79	*	4.247E-03	3.867E-02	6.504E-02	6.610E-03	0.065
NB-95M		235.69	*	3.673E-02	1.247E-01	1.880E-01	2.020E-02	0.195
ZR-95		724.18		7.576E-02	7.942E-02	1.290E-01	1.391E-02	0.587
		756.15	*	-1.865E-02	6.275E-02	1.020E-01	1.114E-02	-0.183
NB-97		657.90	*	5.153E-03	6.275E-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			-8.532E+00	6.275E-02	Half-Life	too short	
	254.15			3.153E+00	6.275E-02	Half-Life	too short	
	355.39			2.392E-01	6.275E-02	Half-Life	too short	
	507.63	*		1.292E+00	6.275E-02	Half-Life	too short	
	602.52			-7.537E+00	6.275E-02	Half-Life	too short	
	1021.30			-2.011E+00	6.275E-02	Half-Life	too short	
	1147.95			-4.414E-01	6.275E-02	Half-Life	too short	
	1362.66			-1.750E+00	6.275E-02	Half-Life	too short	
	1750.46			1.564E+00	6.275E-02	Half-Life	too short	
MO-99	140.51			7.301E+00	2.227E+01	3.538E+01	9.776E+00	0.206
	181.06			1.249E+01	1.521E+01	2.234E+01	4.120E+00	0.559
	366.43			-2.806E+01	6.818E+01	1.090E+02	9.690E+00	-0.257
	739.58	*		2.371E-01	9.350E+00	1.566E+01	2.523E+00	0.015
	778.00			-1.161E+01	2.622E+01	4.181E+01	4.249E+00	-0.278
TC-99M	140.51	*		5.183E+09	2.622E+01	Half-Life	too short	
RH-101	127.23			3.309E-03	3.018E-02	4.339E-02	3.620E-03	0.076
	198.01	*		-2.884E-02	2.873E-02	4.573E-02	4.192E-03	-0.631
	325.23			3.576E-03	2.153E-01	3.137E-01	2.996E-02	0.011
RH-102	418.52			1.708E-01	2.538E-01	4.337E-01	3.731E-02	0.394
	475.06	*		5.903E-04	2.642E-02	4.295E-02	3.894E-03	0.014
	631.29			2.798E-02	5.114E-02	8.541E-02	8.485E-03	0.328
	697.49			-2.105E-02	6.650E-02	1.077E-01	1.089E-02	-0.195
	766.84			1.113E-01	9.826E-02	1.765E-01	1.793E-02	0.631
	1046.59			-2.511E-02	9.637E-02	1.529E-01	1.400E-02	-0.164
RU-103	1112.84			-5.693E-02	2.286E-01	3.093E-01	2.667E-02	-0.184
	497.08	*		-1.105E-02	3.658E-02	5.771E-02	8.390E-03	-0.191
	610.33	+		1.232E+01	2.672E+00	2.811E+00	4.878E-01	4.383
RH-106	511.85	+		3.659E-01	3.151E-01	4.141E-01	3.861E-02	0.884
	621.84	*		7.601E-02	2.907E-01	4.748E-01	6.750E-02	0.160
RU-106	1050.47			1.093E+00	1.993E+00	3.439E+00	3.139E-01	0.318
	511.85	+		3.659E-01	3.151E-01	4.141E-01	3.861E-02	0.884
	621.84	*		7.601E-02	2.906E-01	4.748E-01	4.700E-02	0.160
AG-108M	1050.47			1.093E+00	1.993E+00	3.439E+00	3.139E-01	0.318
	433.93	*		1.515E-02	2.896E-02	4.899E-02	4.446E-03	0.309
	614.37			-2.772E-03	3.720E-02	5.131E-02	5.216E-03	-0.054
AG-110M	722.95			2.022E-02	3.457E-02	5.420E-02	5.653E-03	0.373
	657.75	*		4.397E-03	2.673E-02	4.564E-02	4.676E-03	0.096
	677.61			1.334E-03	2.824E-01	4.747E-01	4.881E-02	0.003
	706.67			-1.098E-01	1.697E-01	2.676E-01	2.763E-02	-0.410
	763.93			-2.326E-01	1.535E-01	2.207E-01	2.289E-02	-1.054
	884.67			-2.672E-03	4.531E-02	7.448E-02	7.614E-03	-0.036
	937.48			7.720E-04	1.055E-01	1.507E-01	1.517E-02	0.005
	1384.27			1.288E-02	1.548E-01	2.276E-01	1.975E-02	0.057
IN-111	171.28			-3.914E-01	8.255E-01	1.274E+00	1.121E-01	-0.307
	245.39	*		-3.415E-01	9.023E-01	1.295E+00	1.257E-01	-0.264
IN-113M	391.69	*		-1.511E-02	3.839E-02	6.119E-02	5.279E-03	-0.247
SN-113	391.69	*		-1.511E-02	3.839E-02	6.119E-02	5.279E-03	-0.247
IN-114M	190.27	*		-1.047E-01	1.724E-01	2.484E-01	2.251E-02	-0.422
CD-115	260.90			-7.678E+01	1.030E+02	1.650E+02	1.624E+01	-0.465

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		492.35		2.255E+00	2.941E+01	4.793E+01	4.405E+00	0.047
		527.90	*	2.537E+00	8.075E+00	1.339E+01	1.262E+00	0.189
SN-117M		156.02		1.570E+00	2.046E+00	3.365E+00	2.893E-01	0.467
		158.56	*	6.699E-04	5.185E-02	7.843E-02	6.769E-03	0.009
SB-122		563.90	*	-6.326E-01	1.884E+00	2.945E+00	2.836E-01	-0.215
		692.80		1.073E+01	3.413E+01	5.870E+01	5.929E+00	0.183
I-123		159.00	*	-6.447E-01	3.413E+01	Half-Life too short		
		528.96		-2.049E+02	3.413E+01	Half-Life too short		
TE-123M		159.00	*	-4.564E-03	2.918E-02	4.080E-02	3.545E-03	-0.112
I-124		602.71	*	-8.214E-01	6.550E-01	8.294E-01	8.144E-02	-0.990
		722.78		2.067E+00	3.449E+00	5.416E+00	5.493E-01	0.382
		1325.50		-4.699E+00	2.759E+01	4.324E+01	3.617E+00	-0.109
		1376.25		3.401E+01	3.250E+01	5.400E+01	4.548E+00	0.630
		1509.49		6.082E+00	1.282E+01	2.274E+01	1.928E+00	0.267
		1691.02		1.656E+00	2.176E+00	4.261E+00	3.553E-01	0.389
SB-124		602.71		-4.989E-02	3.979E-02	5.038E-02	4.947E-03	-0.990
		645.85		1.496E-01	4.416E-01	7.630E-01	7.962E-02	0.196
		709.31		7.673E-01	2.187E+00	3.775E+00	3.823E-01	0.203
		713.82		1.288E-01	1.355E+00	2.289E+00	3.013E-01	0.056
		722.78		1.820E-01	3.037E-01	4.769E-01	4.912E-02	0.382
	+	968.20		1.752E+01	4.066E+00	6.931E+00	6.681E-01	2.528
		1045.16		-2.143E+00	2.150E+00	3.104E+00	2.845E-01	-0.690
		1325.50		-4.419E-01	2.594E+00	4.066E+00	3.402E-01	-0.109
		1368.21		4.680E-02	1.353E+00	2.281E+00	3.044E-01	0.021
		1436.60		-9.178E-01	2.758E+00	4.357E+00	3.688E-01	-0.211
		1691.02		3.439E-02	4.520E-02	8.849E-02	7.690E-03	0.389
SB-125		427.89	*	-6.598E-03	7.768E-02	1.249E-01	1.106E-02	-0.053
	+	463.38		4.035E-01	3.640E-01	4.828E-01	4.648E-02	0.836
		600.56		9.269E-02	1.665E-01	2.780E-01	2.884E-02	0.333
		635.90		-2.263E-01	2.253E-01	3.451E-01	3.644E-02	-0.656
TE-125M		109.28	*	1.431E+00	8.305E+00	1.349E+01	1.379E+00	0.106
I-126		388.63		1.086E-01	1.690E-01	2.893E-01	2.437E-02	0.375
		666.33	*	6.581E-02	1.481E-01	2.577E-01	2.589E-02	0.255
		753.82		8.902E-01	1.209E+00	2.141E+00	2.176E-01	0.416
SB-126		223.80		-2.556E+00	3.496E+00	5.678E+00	5.386E-01	-0.450
	+	278.60		5.061E+00	3.009E+00	3.778E+00	3.761E-01	1.340
	+	296.50		1.386E+01	2.855E+00	3.385E+00	3.332E-01	4.095
		414.70		-2.010E-02	7.570E-02	1.056E-01	9.045E-03	-0.190
		415.30		-4.916E-01	6.064E+00	9.110E+00	7.810E-01	-0.054
		555.20		2.814E+00	3.584E+00	5.896E+00	5.651E-01	0.477
		573.80		-4.268E-01	9.323E-01	1.435E+00	1.390E-01	-0.297
		593.00		-6.380E-01	8.667E-01	1.295E+00	1.266E-01	-0.493
		656.30		2.150E+00	2.545E+00	4.578E+00	4.586E-01	0.470
		666.33		2.748E-02	6.185E-02	1.076E-01	1.081E-02	0.255
		675.00		2.439E+00	1.725E+00	3.180E+00	3.201E-01	0.767
		695.00		-6.256E-02	6.468E-02	9.910E-02	1.001E-02	-0.631
		697.00		-2.452E-01	2.349E-01	3.553E-01	3.592E-02	-0.690
		720.50	*	-1.638E-02	1.136E-01	1.878E-01	1.904E-02	-0.087
		856.80		-3.038E-01	4.353E-01	5.581E-01	5.612E-02	-0.544



---- 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			5.835E-01	9.887E-01	1.726E+00	1.644E-01	0.338
	1034.80			7.179E-01	7.724E+00	1.276E+01	1.178E+00	0.056
	1213.00			-3.450E+00	4.537E+00	6.832E+00	5.561E-01	-0.505
	61.10			2.017E+01	4.012E+01	6.041E+01	6.023E+00	0.334
	252.40			6.285E-01	3.658E+00	6.167E+00	2.606E+00	0.102
	290.80			-5.518E+00	1.950E+01	2.789E+01	3.372E+00	-0.198
	411.60			-2.546E+00	1.212E+01	1.702E+01	2.660E+00	-0.150
	444.90			-2.285E+00	7.997E+00	1.273E+01	1.604E+00	-0.180
	473.00			-8.532E-01	1.464E+00	2.261E+00	2.959E-01	-0.377
	543.00			3.687E+00	1.411E+01	2.322E+01	3.456E+00	0.159
	603.60			-8.901E+00	1.144E+01	1.433E+01	1.905E+00	-0.621
	685.20	*		-4.686E-01	1.162E+00	1.886E+00	2.349E-01	-0.248
	698.50			3.419E-02	1.293E+01	2.115E+01	3.516E+00	0.002
	722.20			6.083E+00	2.433E+01	3.659E+01	4.500E+00	0.166
XE-127	783.80			1.616E+00	2.931E+00	5.098E+00	6.863E-01	0.317
	57.60			6.164E-01	3.929E+00	6.508E+00	4.650E-01	0.095
	145.22			-2.494E-02	6.323E-01	9.947E-01	8.426E-02	-0.025
	172.10			-2.780E-02	1.041E-01	1.625E-01	1.432E-02	-0.171
	202.84	*		3.113E-02	4.069E-02	6.886E-02	6.356E-03	0.452
I-131	374.96			-1.246E-01	1.652E-01	2.498E-01	2.178E-02	-0.499
	80.18			-1.232E-01	3.547E+00	5.153E+00	4.446E-01	-0.024
	284.30			4.740E-02	1.309E+00	2.186E+00	2.255E-01	0.022
	364.48	*		-4.597E-02	9.464E-02	1.503E-01	1.410E-02	-0.306
TE-132	636.97			-1.165E+00	1.263E+00	1.954E+00	2.026E-01	-0.596
	722.89			3.353E+00	5.684E+00	8.916E+00	9.083E-01	0.376
	49.72			-1.712E+01	1.040E+01	1.573E+01	1.600E+00	-1.088
	111.76			-2.120E+01	2.541E+01	3.932E+01	4.185E+00	-0.539
BA-133	116.30			1.684E+01	2.247E+01	3.728E+01	3.949E+00	0.452
	228.16	*		-2.361E-01	5.786E-01	9.537E-01	1.543E-01	-0.248
	53.15			1.131E+00	2.172E+00	3.656E+00	2.724E-01	0.309
	79.62			9.347E-01	1.053E+00	1.588E+00	2.409E-01	0.589
+ 276.40	81.00			-7.951E-02	8.230E-02	1.123E-01	1.785E-02	-0.708
	302.84			7.686E-01	4.656E-01	5.810E-01	8.873E-02	1.323
	356.01	*		-6.535E-02	1.383E-01	1.937E-01	2.726E-02	-0.337
	383.85			2.190E-02	4.133E-02	6.255E-02	8.449E-03	0.350
I-133	510.53			-5.807E-02	2.455E-01	3.959E-01	4.966E-02	-0.147
	529.87	*		5.935E-01	2.455E-01	Half-Life	too short	
	706.58			-6.719E-03	2.455E-01	Half-Life	too short	
	856.28			-1.662E-01	2.455E-01	Half-Life	too short	
	875.33			-2.456E-01	2.455E-01	Half-Life	too short	
	1236.41			-5.659E-02	2.455E-01	Half-Life	too short	
	1298.22			9.720E-01	2.455E-01	Half-Life	too short	
	475.35			-4.074E-01	2.455E-01	Half-Life	too short	
CS-134	563.23			3.027E-01	1.696E+00	2.791E+00	2.531E-01	0.108
	569.32			6.880E-02	3.499E-01	5.707E-01	5.536E-02	0.121
	604.70			7.357E-02	1.843E-01	3.052E-01	2.980E-02	0.241
	795.84	*		9.297E-04	3.263E-02	4.566E-02	4.496E-03	0.020
	801.93			5.905E-02	4.610E-02	8.342E-02	8.512E-03	0.708
				-1.204E-01	3.472E-01	5.590E-01	5.694E-02	-0.215

## ---- 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			1.899E+00	3.327E+00	5.760E+00	5.306E-01	0.330
	1167.94			2.239E-01	2.271E+00	3.719E+00	3.010E-01	0.060
	1365.15			-4.307E-01	8.999E-01	1.397E+00	1.232E-01	-0.308
	268.24	*		2.041E-01	1.579E-01	2.504E-01	2.775E-02	0.815
	288.45			3.827E+09	1.579E-01	Half-Life	too short	
	417.63			6.741E+07	1.579E-01	Half-Life	too short	
	546.56			-4.931E+09	1.579E-01	Half-Life	too short	
	836.80			6.729E+09	1.579E-01	Half-Life	too short	
	1038.76			4.123E+09	1.579E-01	Half-Life	too short	
	1124.00			8.786E+09	1.579E-01	Half-Life	too short	
	1131.51			-9.392E+08	1.579E-01	Half-Life	too short	
	1260.41	*		3.902E+09	1.579E-01	Half-Life	too short	
	1457.56			1.777E+11	1.579E-01	Half-Life	too short	
	1678.03			-1.055E+09	1.579E-01	Half-Life	too short	
	1706.46			-5.207E+09	1.579E-01	Half-Life	too short	
CS-136	1791.20			1.910E+09	1.579E-01	Half-Life	too short	
	66.91			-1.346E-01	6.093E-01	8.846E-01	1.311E-01	-0.152
	86.29	+		2.700E+00	1.196E+00	1.682E+00	2.235E-01	1.605
	153.22			2.776E-01	6.005E-01	9.756E-01	9.350E-02	0.284
	163.89	+		1.241E+00	1.613E+00	1.535E+00	1.493E-01	0.809
	176.55			-8.265E-02	3.316E-01	5.178E-01	4.846E-02	-0.160
	273.65			-2.843E-01	5.834E-01	5.789E-01	6.033E-02	-0.491
	340.57			1.563E-01	1.294E-01	2.033E-01	1.945E-02	0.768
	818.51			1.026E-02	6.240E-02	1.053E-01	1.066E-02	0.098
	1048.07	*		8.095E-03	8.950E-02	1.477E-01	1.402E-02	0.055
BA-137M	1235.34			5.069E-01	5.889E-01	9.073E-01	1.047E-01	0.559
	661.65	*		-1.256E-02	2.812E-02	4.542E-02	4.559E-03	-0.276
	661.65	*		-1.328E-02	2.972E-02	4.802E-02	4.826E-03	-0.276
CE-139	165.85	*		-3.340E-03	2.916E-02	4.078E-02	3.560E-03	-0.082
BA-140	162.64	+		8.738E-01	1.135E+00	1.084E+00	9.954E-02	0.806
	304.84			1.209E+00	1.155E+00	1.834E+00	5.209E-01	0.659
LA-140	423.70			8.259E-02	1.522E+00	2.496E+00	8.093E-01	0.033
	537.32	*		-1.815E-01	2.440E-01	3.561E-01	1.188E-01	-0.510
	328.77	+		5.618E-01	4.148E-01	4.908E-01	4.881E-02	1.145
	432.53			2.020E-01	1.835E+00	3.017E+00	2.758E-01	0.067
	487.03			4.355E-02	1.171E-01	1.954E-01	1.887E-02	0.223
	751.79			-6.234E-01	1.434E+00	2.299E+00	2.518E-01	-0.271
	815.85			5.892E-03	2.634E-01	4.386E-01	4.819E-02	0.013
	867.82			6.196E-01	1.132E+00	1.884E+00	1.964E-01	0.329
	919.63			1.330E+00	2.403E+00	4.167E+00	4.865E-01	0.319
	925.24			-5.971E-01	1.054E+00	1.588E+00	1.638E-01	-0.376
CE-141	1596.49	*		-7.357E-02	8.279E-02	1.195E-01	1.009E-02	-0.616
	145.44	*		1.914E-02	5.576E-02	9.036E-02	7.802E-03	0.212
CE-143	57.37			1.702E-04	5.576E-02	Half-Life	too short	
	231.56			8.386E-04	5.576E-02	Half-Life	too short	
	293.26	*		6.083E-04	5.576E-02	Half-Life	too short	
	350.59	+		2.748E-02	5.576E-02	Half-Life	too short	
	490.36			-1.118E-03	5.576E-02	Half-Life	too short	
	664.57			5.438E-04	5.576E-02	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			9.815E-05	5.576E-02	Half-Life too short		
CE-144	80.11			2.080E-03	1.674E+00	2.437E+00	2.087E-01	0.001
	133.54	*		-1.862E-02	1.892E-01	2.866E-01	4.422E-02	-0.065
PM-144	476.78			2.173E-02	6.329E-02	1.052E-01	1.036E-02	0.207
	618.01			1.782E-02	2.848E-02	4.795E-02	4.839E-03	0.372
	696.49	*		-2.884E-02	3.013E-02	4.590E-02	4.641E-03	-0.628
	778.57			-3.090E-01	1.846E+00	3.026E+00	3.075E-01	-0.102
PR-144	696.49	*		-1.954E+00	2.041E+00	3.110E+00	3.143E-01	-0.628
	1489.15			-2.846E+00	1.026E+01	1.639E+01	1.390E+00	-0.174
PM-146	453.90	*		1.521E-02	3.728E-02	6.252E-02	6.847E-03	0.243
	633.02			1.334E-01	1.251E+00	2.014E+00	7.592E-01	0.066
	735.90			-8.320E-02	1.255E-01	1.930E-01	5.616E-02	-0.431
	747.13			-2.386E-02	7.950E-02	1.292E-01	1.942E-02	-0.185
ND-147	91.11	+		5.240E-01	1.598E-01	4.223E-01	4.178E-02	1.241
	319.41			-2.513E-01	2.865E+00	4.724E+00	4.546E-01	-0.053
	439.89			1.617E+00	5.153E+00	8.589E+00	7.549E-01	0.188
	531.02	*		-2.550E-01	4.737E-01	7.239E-01	1.118E-01	-0.352
PM-149	285.90	*		-1.847E+01	7.572E+01	1.244E+02	2.028E+01	-0.148
EU-152	121.78			3.833E-02	6.487E-02	1.069E-01	1.035E-02	0.359
	244.69			-7.761E-02	2.980E-01	4.320E-01	4.191E-02	-0.180
	344.27	*		5.215E-02	9.336E-02	1.485E-01	1.449E-02	0.351
	443.98			-6.278E-01	8.583E-01	1.307E+00	1.153E-01	-0.480
	778.89			-2.719E-02	2.121E-01	3.490E-01	3.546E-02	-0.078
	867.32			1.601E-02	7.281E-01	1.098E+00	1.102E-01	0.015
	964.01	+		8.900E-01	3.661E-01	5.374E-01	5.192E-02	1.656
	1085.78			-1.275E-01	3.873E-01	6.108E-01	5.408E-02	-0.209
	1112.02			-2.301E-04	2.877E-01	4.409E-01	3.805E-02	-0.001
	1407.95			5.667E-02	1.636E-01	2.853E-01	2.410E-02	0.199
GD-153	69.67			2.965E-01	1.344E+00	1.987E+00	1.520E-01	0.149
	83.37			1.715E+01	1.265E+01	1.947E+01	1.736E+00	0.881
	97.43	*		-9.985E-04	7.611E-02	1.095E-01	9.711E-03	-0.009
	103.18			-7.712E-02	9.236E-02	1.435E-01	1.241E-02	-0.537
EU-154	123.07			3.869E-02	4.536E-02	7.538E-02	8.407E-03	0.513
	247.94			-1.021E-02	3.218E-01	5.000E-01	6.166E-02	-0.020
	591.81			-3.452E-01	5.732E-01	8.662E-01	1.086E-01	-0.399
	723.30			9.150E-02	1.429E-01	2.256E-01	2.465E-02	0.405
	756.87			1.298E-01	6.696E-01	1.136E+00	1.491E-01	0.114
	873.19			-2.232E-01	2.366E-01	3.461E-01	4.591E-02	-0.645
	996.32			-4.144E-01	3.353E-01	4.623E-01	8.414E-02	-0.896
	1004.76			-1.545E-01	1.916E-01	2.859E-01	3.504E-02	-0.540
	1274.45	*		7.974E-02	1.055E-01	1.841E-01	2.035E-02	0.433
EU-155	48.70			-1.475E+00	1.353E+00	2.126E+00	1.701E-01	-0.694
	60.01			3.195E-01	3.672E+00	5.425E+00	3.849E-01	0.059
	86.54	+		2.529E-01	1.095E-01	1.580E-01	1.480E-02	1.600
	105.31	*		1.461E-02	9.540E-02	1.551E-01	1.348E-02	0.094
TB-160	86.79	+		6.739E-01	2.916E-01	4.229E-01	3.938E-02	1.593
	197.04			-2.915E-01	4.839E-01	7.869E-01	7.202E-02	-0.370
	215.65			-2.988E-01	6.398E-01	1.018E+00	9.563E-02	-0.293
	298.57	+		1.933E-01	1.061E-01	1.792E-01	1.762E-02	1.078

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		879.36	*	7.383E-02	1.259E-01	2.191E-01	2.191E-02	0.337
		962.29		8.265E-01	5.253E-01	8.762E-01	8.473E-02	0.943
		966.15		8.450E-01	2.359E-01	4.509E-01	4.351E-02	1.874
		1177.93		2.730E-01	3.073E-01	5.421E-01	4.365E-02	0.504
		1271.85		1.292E-02	6.118E-01	9.884E-01	8.172E-02	0.013
		80.57		1.214E-02	2.132E-01	3.112E-01	2.681E-02	0.039
	+	184.41		1.526E-01	5.144E-02	5.983E-02	5.374E-03	2.551
		280.46		-2.436E-02	8.241E-02	1.181E-01	1.175E-02	-0.206
		410.95		8.948E-02	2.645E-01	3.904E-01	3.331E-02	0.229
		711.68	*	-4.600E-03	4.960E-02	8.243E-02	8.350E-03	-0.056
TM-171		752.31		-1.320E-02	2.299E-01	3.820E-01	3.881E-02	-0.035
		810.29		-4.597E-02	4.977E-02	7.474E-02	7.576E-03	-0.615
		51.35		2.225E+00	1.763E+01	2.927E+01	2.236E+00	0.076
		52.39		6.573E+00	9.270E+00	1.573E+01	1.183E+00	0.418
		59.40		5.882E+00	1.946E+01	2.908E+01	2.058E+00	0.202
LU-176		66.72	*	-6.296E-01	2.218E+01	3.253E+01	2.423E+00	-0.019
	+	88.36		4.982E-01	2.156E-01	3.184E-01	3.002E-02	1.565
		201.83		4.178E-03	2.427E-02	4.136E-02	3.811E-03	0.101
		306.84	*	5.700E-03	2.091E-02	3.528E-02	3.441E-03	0.162
LU-177		401.10		1.231E+00	6.473E+00	1.073E+01	9.058E-01	0.115
		112.95		-1.789E+00	1.480E+00	2.206E+00	1.859E-01	-0.811
LU-177M	+	208.36	*	2.754E+00	1.585E+00	1.786E+00	1.661E-01	1.541
		52.97		5.098E-01	9.793E-01	1.649E+00	1.231E-01	0.309
		54.07		-8.735E-02	5.333E-01	8.736E-01	6.438E-02	-0.100
		61.30		9.165E-01	1.090E+00	1.667E+00	1.193E-01	0.550
		121.62		2.180E-01	3.282E-01	5.429E-01	4.527E-02	0.402
		147.16		2.354E-01	5.775E-01	9.383E-01	7.968E-02	0.251
		171.86		-8.922E-02	4.223E-01	6.615E-01	5.827E-02	-0.135
		218.09		-4.328E-01	7.320E-01	1.199E+00	1.129E-01	-0.361
	+	268.79		2.104E+00	1.065E+00	1.365E+00	1.350E-01	1.542
		319.02		5.021E-02	2.258E-01	3.791E-01	3.649E-02	0.132
HF-181		367.43		-1.698E-01	7.911E-01	1.283E+00	1.138E-01	-0.132
		413.65	*	-4.661E-02	1.782E-01	2.486E-01	2.128E-02	-0.187
		56.28		-1.384E-01	6.038E-01	9.853E-01	7.108E-02	-0.140
		57.53		6.432E-02	3.312E-01	5.493E-01	3.927E-02	0.117
		65.20		-2.963E-01	7.574E-01	1.092E+00	8.034E-02	-0.271
		133.02		1.467E-03	6.351E-02	9.064E-02	7.584E-03	0.016
		136.25		-2.185E-01	4.070E-01	6.339E-01	5.319E-02	-0.345
W-181		345.85		-2.245E-01	2.057E-01	2.688E-01	2.487E-02	-0.835
		482.03	*	3.167E-03	3.714E-02	6.064E-02	5.529E-03	0.052
		56.28		-5.412E-02	2.371E-01	3.869E-01	2.791E-02	-0.140
		57.53		2.542E-02	1.301E-01	2.159E-01	1.543E-02	0.118
		65.20	*	-1.155E-01	2.953E-01	4.256E-01	3.132E-02	-0.271
TA-182		67.75		-3.205E-03	9.077E-02	1.330E-01	9.997E-03	-0.024
		100.10		6.671E-02	1.513E-01	2.492E-01	2.182E-02	0.268
		152.43		-4.877E-04	3.096E-01	4.929E-01	4.216E-02	-0.001
		222.10		8.276E-02	3.031E-01	5.168E-01	4.892E-02	0.160
		1001.68		3.407E+00	1.909E+00	3.567E+00	3.371E-01	0.955
	+	1121.28		5.022E-01	2.375E-01	3.090E-01	2.641E-02	1.625

---- 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		1.145E-01	2.678E-01	4.524E-01	3.655E-02	0.253
		1221.42	*	-1.067E-01	1.692E-01	2.551E-01	2.082E-02	-0.418
		1230.97		-2.524E-01	4.725E-01	6.428E-01	5.259E-02	-0.393
		57.98		-2.902E-02	1.373E-01	2.134E-01	1.521E-02	-0.136
		59.32		2.390E-02	7.979E-02	1.192E-01	8.439E-03	0.200
		67.20		-2.463E-02	1.585E-01	2.309E-01	1.728E-02	-0.107
		162.32	*	1.269E-02	1.126E-01	1.575E-01	1.367E-02	0.081
RE-184	+	208.81		2.542E+00	1.464E+00	1.676E+00	1.560E-01	1.517
		291.72		-7.778E-01	8.923E-01	1.208E+00	1.194E-01	-0.644
		57.98		-1.071E-01	5.068E-01	7.878E-01	5.616E-02	-0.136
		59.32		8.813E-02	2.943E-01	4.396E-01	3.112E-02	0.200
		67.20		-9.087E-02	5.848E-01	8.522E-01	6.375E-02	-0.107
		161.27		-5.985E-02	3.482E-01	4.857E-01	4.209E-02	-0.123
		216.55		-3.300E-02	2.201E-01	3.687E-01	3.466E-02	-0.090
OS-185		252.85	*	1.714E-01	2.081E-01	3.616E-01	3.534E-02	0.474
		318.01		1.189E-01	3.909E-01	6.596E-01	6.356E-02	0.180
		792.07		3.082E-01	8.985E-01	1.536E+00	1.560E-01	0.201
		903.28		1.173E+00	9.135E-01	1.639E+00	1.626E-01	0.715
		920.93		1.604E-01	3.938E-01	6.748E-01	6.651E-02	0.238
		59.72		6.722E-02	2.147E-01	3.208E-01	2.272E-02	0.210
		61.14		6.404E-02	1.200E-01	1.810E-01	1.293E-02	0.354
RE-188		69.30		6.994E-02	2.408E-01	3.572E-01	2.723E-02	0.196
		592.07		-1.569E+00	2.338E+00	3.511E+00	3.431E-01	-0.447
		646.12	*	5.776E-03	3.772E-02	6.430E-02	6.421E-03	0.090
		717.42		-2.439E-01	7.474E-01	1.215E+00	1.232E-01	-0.201
		874.81		-6.552E-01	4.788E-01	6.607E-01	6.615E-02	-0.992
		880.27		3.741E-01	6.923E-01	1.201E+00	1.200E-01	0.312
		155.03	*	1.067E-01	1.608E-01	2.633E-01	2.260E-02	0.405
W-188		477.96		9.881E-01	2.793E+00	4.651E+00	4.227E-01	0.212
		633.10		5.402E-02	2.523E+00	4.032E+00	4.008E-01	0.013
	+	63.58		1.069E+02	5.980E+01	6.923E+01	5.032E+00	1.544
IR-192		227.08		1.067E+01	1.112E+01	1.945E+01	1.852E+00	0.549
		290.67	*	-1.334E+00	7.118E+00	1.027E+01	1.016E+00	-0.130
	+	295.96		1.076E+00	2.219E-01	2.787E-01	2.760E-02	3.860
AU-195		308.46		-5.476E-02	8.029E-02	1.273E-01	1.245E-02	-0.430
		316.51	*	8.164E-03	3.003E-02	5.058E-02	4.892E-03	0.161
		468.07		3.761E-02	6.452E-02	9.732E-02	9.351E-03	0.386
TL-200		604.41		-2.218E-01	4.667E-01	6.119E-01	8.473E-02	-0.362
		612.46		4.194E-01	7.295E-01	1.081E+00	1.188E-01	0.388
	+	65.12		3.697E-01	2.069E-01	2.000E-01	1.471E-02	1.848
TL-201		66.83		-1.774E-02	7.414E-02	1.076E-01	8.023E-03	-0.165
	+	75.70		1.350E+00	2.229E-01	3.902E-01	3.177E-02	3.459
		98.88	*	6.034E-02	2.071E-01	3.216E-01	2.832E-02	0.188
TL-200	+	129.76		5.733E+00	3.502E+00	4.447E+00	3.714E-01	1.289
		367.94	*	1.652E-04	3.502E+00	Half-Life	too short	
		579.30		9.767E-04	3.502E+00	Half-Life	too short	
TL-201		828.27		1.552E-03	3.502E+00	Half-Life	too short	
		1205.75		-4.418E-04	3.502E+00	Half-Life	too short	
		68.90		4.291E+00	3.564E+00	5.497E+00	4.175E-01	0.781

---- 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			-1.085E+00	2.086E+00	2.971E+00	2.298E-01	-0.365
	80.30			9.730E-02	3.686E+00	5.373E+00	4.613E-01	0.018
	135.34			1.047E+01	2.052E+01	3.361E+01	2.817E+00	0.312
	167.43	*		8.760E-01	6.360E+00	9.047E+00	7.915E-01	0.097
	68.90			4.053E-01	3.365E-01	5.191E-01	3.943E-02	0.781
	70.82			-1.022E-01	1.964E-01	2.798E-01	2.164E-02	-0.365
HG-203	80.30			9.166E-03	3.472E-01	5.062E-01	4.346E-02	0.018
	439.56	*		2.667E-02	6.060E-02	1.019E-01	8.952E-03	0.262
	70.83			-4.429E-01	8.628E-01	1.228E+00	1.604E-01	-0.361
	72.87			9.939E-01	4.661E-01	7.883E-01	1.004E-01	1.261
BI-207	82.60			-3.509E-01	9.560E-01	1.363E+00	1.891E-01	-0.258
	279.20	*		1.874E-02	4.080E-02	6.181E-02	6.287E-03	0.303
	72.80			1.466E-01	1.496E-01	2.276E-01	1.796E-02	0.644
	74.97		+	7.494E-01	1.238E-01	1.901E-01	1.535E-02	3.942
	84.90			1.949E-01	1.677E-01	2.557E-01	2.323E-02	0.762
TL-207	569.67			1.877E-02	2.821E-02	4.766E-02	4.604E-03	0.394
	1063.62	*		-1.087E-02	4.724E-02	7.526E-02	6.796E-03	-0.144
	1770.23			-1.866E+00	6.250E-01	4.733E-01	3.883E-02	-3.943
	81.07			-1.784E-01	1.801E-01	2.475E-01	2.145E-02	-0.721
	83.78			1.104E-01	1.092E-01	1.659E-01	1.486E-02	0.666
	94.90			5.294E-01	2.171E-01	3.447E-01	3.100E-02	1.536
	122.32			1.398E+00	1.538E+00	2.566E+00	2.306E-01	0.545
	144.24			1.608E-01	6.277E-01	1.001E+00	9.512E-02	0.161
	154.21			1.627E-01	3.730E-01	6.051E-01	5.711E-02	0.269
	269.46		+	4.932E-01	2.498E-01	3.247E-01	3.265E-02	1.519
PO-209	323.87	*		5.107E-02	6.453E-01	9.453E-01	1.719E-01	0.054
	338.28		+	6.932E+00	1.949E+00	2.417E+00	3.105E-01	2.868
	445.03			-4.260E-01	1.971E+00	3.155E+00	3.862E-01	-0.135
	260.50			-3.141E+00	8.324E+00	1.364E+01	1.342E+00	-0.230
	262.80			-5.837E+00	2.306E+01	3.804E+01	3.747E+00	-0.153
	896.60	*		-3.126E+00	6.100E+00	9.504E+00	9.453E-01	-0.329
BI-210	46.50	*		2.293E+00	1.928E+00	3.289E+00	3.050E-01	0.697
PB-210	46.50	*		2.293E+00	1.928E+00	3.289E+00	3.050E-01	0.697
PO-210	46.50	*		2.293E+00	1.926E+00	3.289E+00	2.759E-01	0.697
PB-211	404.84	*		-3.132E-01	1.048E+00	1.438E+00	9.006E-01	-0.218
BI-212	427.08			-2.626E+00	2.413E+00	2.535E+00	1.576E+00	-1.036
	831.96			-3.664E-01	1.061E+00	1.662E+00	1.045E+00	-0.220
	727.18	*	+	8.025E-01	4.277E-01	6.104E-01	6.928E-02	1.315
	785.46			5.008E-01	1.496E+00	2.562E+00	2.603E-01	0.195
	1620.62			7.530E-01	1.303E+00	2.320E+00	1.953E-01	0.325
PO-215	81.07			-1.784E-01	1.801E-01	2.475E-01	2.145E-02	-0.721
	83.78			1.104E-01	1.092E-01	1.659E-01	1.486E-02	0.666
	94.90			5.294E-01	2.171E-01	3.447E-01	3.100E-02	1.536
	122.32			1.398E+00	1.538E+00	2.566E+00	2.306E-01	0.545
	144.24			1.608E-01	6.277E-01	1.001E+00	9.512E-02	0.161
	154.21			1.627E-01	3.730E-01	6.051E-01	5.711E-02	0.269
	269.46		+	4.932E-01	2.498E-01	3.247E-01	3.265E-02	1.519
	323.87	*		5.107E-02	6.453E-01	9.453E-01	1.719E-01	0.054
	338.28		+	6.932E+00	1.949E+00	2.417E+00	3.105E-01	2.868

----- 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		-4.260E-01	1.971E+00	3.155E+00	3.862E-01	-0.135
		271.23		6.327E-01	3.224E-01	4.147E-01	4.732E-02	1.526
		401.81	*	7.101E-02	3.988E-01	6.603E-01	9.857E-02	0.108
		549.76	*	-9.762E+00	2.192E+01	3.375E+01	3.225E+00	-0.289
RN-220		81.07		-1.784E-01	1.801E-01	2.475E-01	2.145E-02	-0.721
RA-223		83.78		1.104E-01	1.092E-01	1.659E-01	1.486E-02	0.666
		94.90		5.294E-01	2.171E-01	3.447E-01	3.100E-02	1.536
		122.32		1.398E+00	1.538E+00	2.566E+00	2.306E-01	0.545
		144.24		1.608E-01	6.277E-01	1.001E+00	9.512E-02	0.161
AC-227		154.21		1.627E-01	3.730E-01	6.051E-01	5.711E-02	0.269
		269.46		4.932E-01	2.498E-01	3.247E-01	3.265E-02	1.519
		323.87	*	5.107E-02	6.453E-01	9.453E-01	1.719E-01	0.054
		338.28		6.932E+00	1.949E+00	2.417E+00	3.105E-01	2.868
		445.03		-4.260E-01	1.971E+00	3.155E+00	3.862E-01	-0.135
		79.80		3.197E-01	1.308E+00	1.927E+00	4.136E-01	0.166
		236.00		5.440E-01	2.570E-01	4.089E-01	5.301E-02	1.330
		256.20	*	6.906E-02	3.441E-01	5.817E-01	9.331E-02	0.119
		286.10		-1.127E-01	1.383E+00	2.295E+00	3.232E-01	-0.049
		299.80		2.469E+00	1.407E+00	2.220E+00	4.020E-01	1.112
		304.40		1.077E+00	1.797E+00	2.736E+00	5.200E-01	0.394
		334.20		-6.479E-01	2.378E+00	3.124E+00	6.180E-01	-0.207
TH-227		79.80		3.197E-01	1.308E+00	1.927E+00	4.189E-01	0.166
		94.00		6.217E+00	2.952E+00	3.291E+00	7.223E-01	1.889
		236.00		5.440E-01	2.554E-01	4.089E-01	4.853E-02	1.330
		256.20	*	6.906E-02	3.442E-01	5.817E-01	1.085E-01	0.119
TH-229		286.10		-1.127E-01	1.388E+00	2.295E+00	2.306E+00	-0.049
		299.80		2.469E+00	1.407E+00	2.220E+00	4.020E-01	1.112
		304.40		1.077E+00	1.797E+00	2.736E+00	5.200E-01	0.394
		334.20		-6.479E-01	2.378E+00	3.124E+00	6.180E-01	-0.207
		85.43		4.710E-01	2.038E-01	2.689E-01	2.461E-02	1.751
		88.47		4.107E-01	1.375E-01	1.816E-01	1.711E-02	2.262
		100.00		4.511E-02	1.603E-01	2.602E-01	2.279E-02	0.173
		193.63	*	4.495E-01	4.377E-01	7.700E-01	7.013E-02	0.584
		210.97		9.654E-01	7.596E-01	1.195E+00	1.116E-01	0.808
		283.67	*	1.891E-01	1.416E+00	2.299E+00	3.671E-01	0.082
		301.29		9.874E-01	5.490E-01	8.702E-01	1.140E-01	1.135
		81.07		-1.784E-01	1.801E-01	2.475E-01	2.145E-02	-0.721
TH-231		83.78		1.104E-01	1.092E-01	1.659E-01	1.486E-02	0.666
		94.90		5.294E-01	2.171E-01	3.447E-01	3.100E-02	1.536
		122.32		1.398E+00	1.538E+00	2.566E+00	2.306E-01	0.545
		144.24		1.608E-01	6.277E-01	1.001E+00	9.512E-02	0.161
PA-231		154.21		1.627E-01	3.730E-01	6.051E-01	5.711E-02	0.269
		269.46		4.932E-01	2.498E-01	3.247E-01	3.265E-02	1.519
		323.87	*	5.107E-02	6.453E-01	9.453E-01	1.719E-01	0.054
		338.28		6.932E+00	1.949E+00	2.417E+00	3.105E-01	2.868
		445.03		-4.260E-01	1.971E+00	3.155E+00	3.862E-01	-0.135
		84.21		2.641E+00	4.560E+00	6.801E+00	6.128E-01	0.388
		92.29		5.857E+00	2.523E+00	3.225E+00	2.949E-01	1.817
		95.87	*	1.549E-02	9.630E-01	1.393E+00	1.246E-01	0.011
		154.21		1.627E-01	3.730E-01	6.051E-01	5.711E-02	0.269
		269.46		4.932E-01	2.498E-01	3.247E-01	3.265E-02	1.519
		323.87	*	5.107E-02	6.453E-01	9.453E-01	1.719E-01	0.054
		338.28		6.932E+00	1.949E+00	2.417E+00	3.105E-01	2.868
U-231		445.03		-4.260E-01	1.971E+00	3.155E+00	3.862E-01	-0.135
		84.21		2.641E+00	4.560E+00	6.801E+00	6.128E-01	0.388
		92.29		5.857E+00	2.523E+00	3.225E+00	2.949E-01	1.817
		95.87	*	1.549E-02	9.630E-01	1.393E+00	1.246E-01	0.011

---- 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		-8.730E-01	1.778E+00	2.807E+00	2.392E-01	-0.311
	+	75.28		2.187E+01	4.556E+00	5.725E+00	8.624E-01	3.820
	+	86.59		4.112E+00	2.063E+00	2.572E+00	6.956E-01	1.599
	+	300.12		6.882E-01	3.870E-01	6.173E-01	9.628E-02	1.115
		311.98	*	3.872E-04	5.212E-02	8.652E-02	8.584E-03	0.004
		340.50		1.024E+00	6.908E-01	1.044E+00	2.515E-01	0.982
		398.62		-9.764E-01	1.983E+00	3.116E+00	8.279E-01	-0.313
PA-234		415.76		2.493E-01	1.542E+00	2.463E+00	5.305E-01	0.101
	+	63.00		3.108E+00	1.785E+00	2.018E+00	2.982E-01	1.540
		94.67		4.415E-01	1.661E-01	2.570E-01	3.257E-02	1.718
		98.44		9.819E-03	8.386E-02	1.289E-01	7.197E-02	0.076
		99.86		6.254E-02	4.099E-01	6.618E-01	5.802E-02	0.095
		111.00		6.646E-02	1.628E-01	2.667E-01	3.194E-02	0.249
		131.20		7.420E-03	1.043E-01	1.494E-01	1.249E-02	0.050
		152.70		1.424E-01	2.969E-01	4.818E-01	8.198E-02	0.296
	+	186.00		5.494E+00	2.479E+00	2.407E+00	7.539E-01	2.283
		226.40		1.990E-01	3.548E-01	6.105E-01	8.427E-02	0.326
		227.20		2.835E-01	3.771E-01	6.547E-01	6.235E-02	0.433
		248.90		-3.339E-01	6.900E-01	1.120E+00	2.561E-01	-0.298
	+	293.70		6.789E+00	1.730E+00	1.645E+00	2.953E-01	4.128
		369.80		5.760E-01	7.489E-01	1.277E+00	2.792E-01	0.451
		568.70		6.179E-01	9.049E-01	1.532E+00	1.479E-01	0.403
		569.50		1.018E-01	2.550E-01	4.224E-01	4.081E-02	0.241
		574.00		-6.861E-01	1.356E+00	2.077E+00	2.011E-01	-0.330
		699.00		-9.914E-02	6.446E-01	1.041E+00	2.062E-01	-0.095
		706.10		-2.577E-01	8.489E-01	1.372E+00	6.161E-01	-0.188
		733.00		-2.195E-01	3.642E-01	4.828E-01	1.102E-01	-0.455
		742.81		4.708E-02	1.201E+00	2.012E+00	1.357E+00	0.023
		796.30		1.076E+00	9.266E-01	1.597E+00	4.405E-01	0.674
		805.60		3.432E-01	8.885E-01	1.498E+00	4.660E-01	0.229
		819.60		4.347E-01	1.044E+00	1.781E+00	6.838E-01	0.244
		826.30		-4.162E-01	6.984E-01	1.046E+00	4.712E-01	-0.398
		831.60		-1.074E-01	5.359E-01	8.710E-01	2.640E-01	-0.123
		876.40		1.789E-02	6.681E-01	1.108E+00	1.140E+00	0.016
		880.51		1.248E-01	2.544E-01	4.392E-01	4.390E-02	0.284
		883.24		2.009E-01	2.973E-01	4.674E-01	3.150E-01	0.430
		899.00		-3.270E-01	7.370E-01	1.139E+00	5.010E-01	-0.287
		925.00		-6.302E-01	1.112E+00	1.675E+00	1.649E-01	-0.376
		926.50		4.972E-02	1.713E-01	2.683E-01	6.899E-02	0.185
		946.00	*	2.038E-01	2.680E-01	4.687E-01	9.050E-02	0.435
		949.00		-1.677E-02	4.100E-01	6.719E-01	6.541E-02	-0.025
		980.50		2.145E-01	5.876E-01	1.003E+00	9.604E-02	0.214
		1394.10		-1.777E-01	8.744E-01	1.406E+00	9.151E-01	-0.126
PA-234M		766.42		9.911E+00	1.142E+01	1.831E+01	9.343E+00	0.541
		1001.03	*	7.453E+00	4.242E+00	7.928E+00	8.481E-01	0.940
NP-236		94.67		3.368E-01	1.225E-01	1.951E-01	1.757E-02	1.726
		98.44		7.401E-03	6.326E-02	9.747E-02	8.601E-03	0.076
		111.00		5.027E-02	1.230E-01	2.018E-01	1.707E-02	0.249
		160.31	*	-3.938E-02	7.993E-02	1.090E-01	9.432E-03	-0.361



---- 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		1.885E-02	1.380E-01	2.227E-01	1.955E-02	0.085
		117.00	*	-4.492E-02	1.642E-01	2.608E-01	2.185E-02	-0.172
	+	209.75		2.011E+00	1.158E+00	1.327E+00	1.237E-01	1.516
		228.18		-7.239E-02	2.004E-01	3.316E-01	3.161E-02	-0.218
	+	277.60		3.751E-01	2.230E-01	2.889E-01	2.874E-02	1.299
AM-241		334.30		-3.534E-01	1.347E+00	1.773E+00	1.671E-01	-0.199
		59.54	*	3.476E-02	1.132E-01	1.692E-01	1.324E-02	0.205
		99.55		1.939E-02	1.420E-01	2.292E-01	2.012E-02	0.085
		103.76	*	-1.210E-02	8.404E-02	1.350E-01	1.165E-02	-0.090
		117.00		-4.621E-02	1.689E-01	2.683E-01	2.248E-02	-0.172
CM-243	+	209.75		1.983E+00	1.141E+00	1.308E+00	1.219E-01	1.516
		228.18		-7.314E-02	2.025E-01	3.350E-01	3.194E-02	-0.218
	+	277.60		3.782E-01	2.248E-01	2.912E-01	2.897E-02	1.299
		798.80		-1.920E-01	1.387E-01	2.020E-01	2.050E-02	-0.951
		1036.00		-1.548E-01	2.730E-01	4.192E-01	3.869E-02	-0.369
AM-246		1062.04		-1.101E-02	1.969E-01	3.195E-01	2.889E-02	-0.034
		1078.86	*	9.782E-03	1.394E-01	2.289E-01	2.039E-02	0.043
	+	278.00		1.556E+00	9.249E-01	1.185E+00	1.179E-01	1.313
		287.40		1.424E-01	1.152E+00	1.870E+00	1.853E-01	0.076
		402.60	*	1.094E-02	3.563E-02	5.946E-02	5.028E-03	0.184
CF-249		252.85		6.439E-01	7.817E-01	1.358E+00	1.327E-01	0.474
		333.44		1.193E-01	2.065E-01	2.369E-01	2.236E-02	0.504
		387.95	*	1.865E-02	3.347E-02	5.702E-02	4.811E-03	0.327
CF-251		176.60	*	-2.945E-02	1.160E-01	1.812E-01	1.608E-02	-0.163
		227.00		3.349E-01	3.354E-01	5.874E-01	5.592E-02	0.570
		285.00		-3.919E-01	1.598E+00	2.628E+00	2.608E-01	-0.149

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600005      *
* Acquisition date   : 22-JAN-2010 07:57:12 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 02:00:32.52 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600005 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.3022E+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 :                               *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.190E+01	2.370E+00	4.857E-01	0.000E+00
CD-109	2.136E+00	9.059E-01	1.091E+00	0.000E+00
SN-126	2.100E-01	8.908E-02	1.201E-01	0.000E+00
TL-208	5.434E-01	9.606E-02	5.118E-02	0.000E+00
BI-211	4.002E+00	5.777E-01	2.951E-01	0.000E+00
PB-212	1.782E+00	2.157E-01	8.318E-02	0.000E+00
PO-212	1.782E+00	2.157E-01	8.318E-02	0.000E+00
BI-214	1.147E+00	1.925E-01	9.385E-02	0.000E+00
PB-214	1.392E+00	2.132E-01	1.029E-01	0.000E+00
PO-214	1.392E+00	2.132E-01	1.029E-01	0.000E+00
PO-216	1.782E+00	2.157E-01	8.318E-02	0.000E+00
PO-218	1.392E+00	2.132E-01	1.029E-01	0.000E+00
RA-224	4.839E+00	1.383E+00	9.463E-01	0.000E+00
RA-226	1.147E+00	1.925E-01	9.385E-02	0.000E+00
AC-228	1.624E+00	3.011E-01	1.903E-01	0.000E+00
TH-228	1.624E+00	3.011E-01	1.903E-01	0.000E+00
RA-228	1.809E+00	2.189E-01	8.442E-02	0.000E+00
TH-230	1.147E+00	1.925E-01	9.385E-02	0.000E+00
TH-232	1.624E+00	3.011E-01	1.903E-01	0.000E+00
TH-234	2.667E+00	1.519E+00	1.469E+00	0.000E+00
U-234	1.147E+00	1.925E-01	9.385E-02	0.000E+00
U-235	-6.024E-02	1.912E-01	3.148E-01	0.000E+00
NP-237	6.168E-01	2.898E-01	3.447E-01	0.000E+00
U-238	2.667E+00	1.519E+00	1.469E+00	0.000E+00
AM-243	4.175E-01	6.758E-02	6.689E-02	0.000E+00
ANH-511	7.329E-02	6.185E-02	4.324E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	2.038E-01	2.799E-01	4.970E-01	0.000E+00 NOT IDENT.

NA-22	3.358E-02	3.649E-02	6.629E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.991E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.599E-02	2.338E-02	3.267E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.283E-02	7.188E-02	0.000E+00	FAIL ABUN
SC-46	-9.721E-03	3.251E-02	5.361E-02	0.000E+00	FAIL ABUN
V-48	-1.275E-02	5.202E-02	8.518E-02	0.000E+00	NOT IDENT.
CR-51	-1.382E-01	3.200E-01	5.406E-01	0.000E+00	NOT IDENT.
MN-52	-8.990E-02	1.535E-01	2.348E-01	0.000E+00	FAIL ABUN
MN-54	-1.074E-02	3.287E-02	5.462E-02	0.000E+00	NOT IDENT.
CO-56	-1.397E-02	3.163E-02	5.159E-02	0.000E+00	FAIL ABUN
CO-57	2.232E-02	2.178E-02	3.877E-02	0.000E+00	NOT IDENT.
CO-58	-4.704E-02	3.297E-02	4.796E-02	0.000E+00	NOT IDENT.
FE-59	-3.909E-03	8.063E-02	1.341E-01	0.000E+00	NOT IDENT.
CO-60	5.597E-03	3.203E-02	5.389E-02	0.000E+00	NOT IDENT.
ZN-65	-6.123E-02	9.118E-02	1.184E-01	0.000E+00	NOT IDENT.
GE-68	3.873E-01	1.135E+00	1.962E+00	0.000E+00	NOT IDENT.
AS-73	1.616E-01	4.998E-01	8.987E-01	0.000E+00	NOT IDENT.
AS-74	-3.840E-02	8.697E-02	1.390E-01	0.000E+00	NOT IDENT.
SE-75	8.901E-03	3.807E-02	6.551E-02	0.000E+00	NOT IDENT.
BR-77	6.433E+00	7.817E+00	1.399E+01	0.000E+00	FAIL ABUN
SR-82	-2.439E-01	3.028E-01	4.793E-01	0.000E+00	NOT IDENT.
RB-83	1.002E-02	5.939E-02	1.010E-01	0.000E+00	NOT IDENT.
RB-84	4.795E-02	6.288E-02	1.140E-01	0.000E+00	NOT IDENT.
KR-85	9.860E+00	6.574E+00	1.106E+01	0.000E+00	NOT IDENT.
SR-85	5.040E-02	3.360E-02	5.655E-02	0.000E+00	NOT IDENT.
RB-86	5.893E-02	7.089E-01	1.197E+00	0.000E+00	NOT IDENT.
Y-88	-1.387E-02	3.167E-02	4.851E-02	0.000E+00	NOT IDENT.
ZR-88	-2.072E-02	2.638E-02	4.260E-02	0.000E+00	NOT IDENT.
Y-91	-8.006E+00	1.726E+01	2.764E+01	0.000E+00	NOT IDENT.
NB-94	-2.000E-03	2.777E-02	4.784E-02	0.000E+00	NOT IDENT.
NB-95	4.247E-03	3.790E-02	6.579E-02	0.000E+00	NOT IDENT.
NB-95M	3.673E-02	1.222E-01	1.938E-01	0.000E+00	NOT IDENT.
ZR-95	-1.865E-02	6.150E-02	1.032E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	5.481E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.293E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.371E-01	9.163E+00	1.585E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.550E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.884E-02	2.815E-02	4.728E-02	0.000E+00	NOT IDENT.
RH-102	5.903E-04	2.589E-02	4.379E-02	0.000E+00	NOT IDENT.
RU-103	-1.105E-02	3.585E-02	5.879E-02	0.000E+00	FAIL ABUN
RH-106	7.601E-02	2.849E-01	4.820E-01	0.000E+00	FAIL ABUN
RU-106	7.601E-02	2.848E-01	4.820E-01	0.000E+00	FAIL ABUN
AG-108M	1.515E-02	2.838E-02	5.002E-02	0.000E+00	NOT IDENT.
AG-110M	4.397E-03	2.620E-02	4.628E-02	0.000E+00	NOT IDENT.
IN-111	-3.415E-01	8.842E-01	1.335E+00	0.000E+00	NOT IDENT.
IN-113M	-1.511E-02	3.763E-02	6.258E-02	0.000E+00	NOT IDENT.
SN-113	-1.511E-02	3.763E-02	6.258E-02	0.000E+00	NOT IDENT.
IN-114M	-1.047E-01	1.690E-01	2.569E-01	0.000E+00	NOT IDENT.
CD-115	2.537E+00	7.914E+00	1.363E+01	0.000E+00	NOT IDENT.
SN-117M	6.699E-04	5.081E-02	8.137E-02	0.000E+00	NOT IDENT.
SB-122	-6.326E-01	1.846E+00	2.994E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.039E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-4.564E-03	2.860E-02	4.233E-02	0.000E+00	NOT IDENT.
I-124	-8.214E-01	6.419E-01	8.423E-01	0.000E+00	NOT IDENT.
SB-124	3.439E-02	4.430E-02	8.834E-02	0.000E+00	FAIL ABUN
SB-125	-6.598E-03	7.613E-02	1.276E-01	0.000E+00	FAIL ABUN
TE-125M	1.431E+00	8.138E+00	1.408E+01	0.000E+00	NOT IDENT.
I-126	6.581E-02	1.452E-01	2.612E-01	0.000E+00	NOT IDENT.
SB-126	-1.638E-02	1.114E-01	1.901E-01	0.000E+00	FAIL ABUN
SB-127	-4.686E-01	1.139E+00	1.911E+00	0.000E+00	NOT IDENT.
XE-127	3.113E-02	3.988E-02	7.117E-02	0.000E+00	NOT IDENT.
I-131	-4.597E-02	9.275E-02	1.539E-01	0.000E+00	NOT IDENT.
TE-132	-2.361E-01	5.670E-01	9.837E-01	0.000E+00	NOT IDENT.
BA-133	2.190E-02	4.050E-02	6.406E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.252E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.905E-02	4.517E-02	8.433E-02	0.000E+00	NOT IDENT.
CS-135	2.041E-01	1.547E-01	2.577E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.317E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	8.095E-03	8.771E-02	1.486E-01	0.000E+00	FAIL ABUN
BA-137M	-1.256E-02	2.756E-02	4.606E-02	0.000E+00	NOT IDENT.
CS-137	-1.328E-02	2.913E-02	4.869E-02	0.000E+00	NOT IDENT.
CE-139	-3.340E-03	2.858E-02	4.227E-02	0.000E+00	NOT IDENT.
BA-140	-1.815E-01	2.392E-01	3.623E-01	0.000E+00	FAIL ABUN
LA-140	-7.357E-02	8.114E-02	1.194E-01	0.000E+00	FAIL ABUN
CE-141	1.914E-02	5.465E-02	9.388E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.886E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.862E-02	1.854E-01	2.981E-01	0.000E+00	NOT IDENT.
PM-144	-2.884E-02	2.953E-02	4.650E-02	0.000E+00	NOT IDENT.

PR-144	-1.954E+00	2.000E+00	3.151E+00	0.000E+00	NOT IDENT.
PM-146	1.521E-02	3.653E-02	6.378E-02	0.000E+00	NOT IDENT.
ND-147	-2.550E-01	4.642E-01	7.366E-01	0.000E+00	FAIL ABUN
PM-149	-1.847E+01	7.421E+01	1.279E+02	0.000E+00	NOT IDENT.
EU-152	5.215E-02	9.149E-02	1.522E-01	0.000E+00	FAIL ABUN
GD-153	-9.985E-04	7.459E-02	1.145E-01	0.000E+00	NOT IDENT.
EU-154	7.974E-02	1.033E-01	1.847E-01	0.000E+00	NOT IDENT.
EU-155	1.461E-02	9.350E-02	1.619E-01	0.000E+00	FAIL ABUN
TB-160	7.383E-02	1.234E-01	2.211E-01	0.000E+00	FAIL ABUN
HO-166M	-4.600E-03	4.861E-02	8.348E-02	0.000E+00	FAIL ABUN
TM-171	-6.296E-01	2.173E+01	3.420E+01	0.000E+00	NOT IDENT.
LU-176	5.700E-03	2.049E-02	3.622E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.554E+00	1.845E+00	0.000E+00	FAIL ABUN
LU-177M	-4.661E-02	1.746E-01	2.540E-01	0.000E+00	FAIL ABUN
HF-181	3.167E-03	3.640E-02	6.181E-02	0.000E+00	NOT IDENT.
W-181	-1.155E-01	2.894E-01	4.477E-01	0.000E+00	NOT IDENT.
TA-182	-1.067E-01	1.659E-01	2.561E-01	0.000E+00	FAIL ABUN
RE-183	1.269E-02	1.104E-01	1.633E-01	0.000E+00	FAIL ABUN
RE-184	1.714E-01	2.039E-01	3.723E-01	0.000E+00	NOT IDENT.
OS-185	5.776E-03	3.697E-02	6.523E-02	0.000E+00	NOT IDENT.
RE-188	1.067E-01	1.576E-01	2.732E-01	0.000E+00	NOT IDENT.
W-188	-1.334E+00	6.976E+00	1.055E+01	0.000E+00	FAIL ABUN
IR-192	8.164E-03	2.943E-02	5.191E-02	0.000E+00	FAIL ABUN
AU-195	6.034E-02	2.030E-01	3.361E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.256E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	8.760E-01	6.233E+00	9.378E+00	0.000E+00	NOT IDENT.
TL-202	2.667E-02	5.939E-02	1.040E-01	0.000E+00	NOT IDENT.
HG-203	1.874E-02	3.998E-02	6.356E-02	0.000E+00	NOT IDENT.
BI-207	-1.087E-02	4.630E-02	7.572E-02	0.000E+00	FAIL ABUN
TL-207	5.107E-02	6.324E-01	9.696E-01	0.000E+00	FAIL ABUN
PO-209	-3.126E+00	5.978E+00	9.589E+00	0.000E+00	NOT IDENT.
BI-210	2.293E+00	1.889E+00	3.477E+00	0.000E+00	NOT IDENT.
PB-210	2.293E+00	1.889E+00	3.477E+00	0.000E+00	NOT IDENT.
PO-210	2.293E+00	1.887E+00	3.477E+00	0.000E+00	NOT IDENT.
PB-211	-3.132E-01	1.027E+00	1.469E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.192E-01	6.180E-01	0.000E+00	FAIL ABUN
PO-215	5.107E-02	6.324E-01	9.696E-01	0.000E+00	FAIL ABUN
RN-219	7.101E-02	3.908E-01	6.750E-01	0.000E+00	FAIL ABUN
RN-220	-9.762E+00	2.148E+01	3.433E+01	0.000E+00	NOT IDENT.
RA-223	5.107E-02	6.324E-01	9.696E-01	0.000E+00	FAIL ABUN
AC-227	6.906E-02	3.372E-01	5.990E-01	0.000E+00	FAIL ABUN
TH-227	6.906E-02	3.373E-01	5.990E-01	0.000E+00	FAIL ABUN
TH-229	4.495E-01	4.290E-01	7.963E-01	0.000E+00	FAIL ABUN
PA-231	1.891E-01	1.387E+00	2.364E+00	0.000E+00	FAIL ABUN
TH-231	5.107E-02	6.324E-01	9.696E-01	0.000E+00	FAIL ABUN
U-231	1.549E-02	9.437E-01	1.457E+00	0.000E+00	FAIL ABUN
PA-233	3.872E-04	5.107E-02	8.881E-02	0.000E+00	FAIL ABUN
PA-234	2.038E-01	2.627E-01	4.724E-01	0.000E+00	FAIL ABUN
PA-234M	7.453E+00	4.157E+00	7.985E+00	0.000E+00	NOT IDENT.
NP-236	-3.938E-02	7.833E-02	1.131E-01	0.000E+00	NOT IDENT.
NP-239	-4.492E-02	1.609E-01	2.719E-01	0.000E+00	FAIL ABUN
AM-241	3.476E-02	1.110E-01	1.782E-01	0.000E+00	NOT IDENT.
CM-243	-1.210E-02	8.236E-02	1.410E-01	0.000E+00	FAIL ABUN
AM-246	9.782E-03	1.366E-01	2.302E-01	0.000E+00	NOT IDENT.
CM-247	1.094E-02	3.492E-02	6.078E-02	0.000E+00	FAIL ABUN
CF-249	1.865E-02	3.280E-02	5.832E-02	0.000E+00	NOT IDENT.
CF-251	-2.945E-02	1.137E-01	1.877E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600005.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 07:57:12
Sample ID          : G244600005          Sample quantity  : 1.30220E+02 GRAM
Detector name      : GAM20              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:32.52  0.4%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941635             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	1016	10.67*	1.253E+00	2.190E+01	2.190E+01	11.04
CD-109	88.03	187	3.72*	6.919E+00	2.089E+00	2.136E+00	43.28
SN-126	64.28	165	9.60	4.690E+00	1.056E+00	1.056E+00	57.34
	86.94	187	8.90	6.919E+00	8.732E-01	8.732E-01	59.24
	87.57	187	37.00*	6.919E+00	2.100E-01	2.100E-01	43.28
TL-208	277.35	87	6.80	4.719E+00	7.778E-01	7.778E-01	60.10
	510.84	76	21.60	2.993E+00	3.393E-01	3.393E-01	86.51
	583.14	428	84.20*	2.696E+00	5.434E-01	5.434E-01	18.04
	860.37	50	12.46	1.953E+00	5.884E-01	5.884E-01	59.85
BI-211	72.87	-----	1.27	5.845E+00	-----	Line Not Found	-----
	351.07	713	12.94*	3.969E+00	4.002E+00	4.002E+00	14.73
PB-212	74.81	579	10.70	6.056E+00	2.575E+00	2.575E+00	18.98
	77.11	836	18.00	6.262E+00	2.138E+00	2.138E+00	13.67
	87.30	187	8.00	6.919E+00	9.714E-01	9.714E-01	44.42
	238.63	1448	44.60*	5.250E+00	1.782E+00	1.782E+00	12.35
	300.09	70	3.41	4.463E+00	1.332E+00	1.332E+00	55.22
PO-212	74.81	579	10.70	6.056E+00	2.575E+00	2.575E+00	18.98
	77.11	836	18.00	6.262E+00	2.138E+00	2.138E+00	13.67
	87.30	187	8.00	6.919E+00	9.714E-01	9.714E-01	44.42
	115.19	-----	0.60	7.430E+00	-----	Line Not Found	-----
	238.63	1448	44.60*	5.250E+00	1.782E+00	1.782E+00	12.35
	300.09	70	3.41	4.463E+00	1.332E+00	1.332E+00	55.22
BI-214	609.31	479	46.30*	2.603E+00	1.147E+00	1.147E+00	17.13
	1120.29	87	15.10	1.557E+00	1.064E+00	1.064E+00	47.75
	1764.49	101	15.80	1.100E+00	1.667E+00	1.667E+00	26.19
PB-214	74.81	579	6.21	6.056E+00	4.437E+00	4.437E+00	18.10
	77.11	836	10.50	6.262E+00	3.665E+00	3.665E+00	15.65
	87.30	187	4.67	6.919E+00	1.664E+00	1.664E+00	43.96
	241.98	345	7.49	5.204E+00	2.552E+00	2.552E+00	29.69
	295.21	425	19.20	4.516E+00	1.414E+00	1.414E+00	21.53
	351.92	713	37.20*	3.969E+00	1.392E+00	1.392E+00	15.63
PO-214	74.81	579	6.21	6.056E+00	4.437E+00	4.437E+00	18.10

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	836	10.50	6.262E+00	3.665E+00	3.665E+00	15.65
	87.30	187	4.67	6.919E+00	1.664E+00	1.664E+00	43.96
	241.98	345	7.49	5.204E+00	2.552E+00	2.552E+00	29.69
	295.21	425	19.20	4.516E+00	1.414E+00	1.414E+00	21.53
	351.92	713	37.20*	3.969E+00	1.392E+00	1.392E+00	15.63
	74.81	579	10.70	6.056E+00	2.575E+00	2.575E+00	18.98
	77.11	836	18.00	6.262E+00	2.138E+00	2.138E+00	13.67
	87.30	187	8.00	6.919E+00	9.714E-01	9.714E-01	44.42
	238.63	1448	44.60*	5.250E+00	1.782E+00	1.782E+00	12.35
	300.09	70	3.41	4.463E+00	1.332E+00	1.332E+00	55.22
PO-218	74.81	579	6.21	6.056E+00	4.437E+00	4.437E+00	18.10
	77.11	836	10.50	6.262E+00	3.665E+00	3.665E+00	15.65
	87.30	187	4.67	6.919E+00	1.664E+00	1.664E+00	43.96
	241.98	345	7.49	5.204E+00	2.552E+00	2.552E+00	29.69
	295.21	425	19.20	4.516E+00	1.414E+00	1.414E+00	21.53
	351.92	713	37.20*	3.969E+00	1.392E+00	1.392E+00	15.63
RA-224	240.98	345	3.95*	5.204E+00	4.839E+00	4.839E+00	29.16
RA-226	609.31	479	46.30*	2.603E+00	1.147E+00	1.147E+00	17.13
AC-228	1120.29	87	15.10	1.557E+00	1.064E+00	1.064E+00	47.75
	1764.49	101	15.80	1.100E+00	1.667E+00	1.667E+00	26.19
	338.32	268	11.40	4.087E+00	1.660E+00	1.660E+00	48.39
	911.07	290	27.70*	1.861E+00	1.624E+00	1.624E+00	18.92
	969.11	173	16.60	1.765E+00	1.707E+00	1.707E+00	31.76
RA-228	338.32	268	11.40	4.087E+00	1.660E+00	1.660E+00	48.39
	911.07	290	27.70*	1.861E+00	1.624E+00	1.624E+00	18.92
	969.11	173	16.60	1.765E+00	1.707E+00	1.707E+00	31.76
TH-228	74.81	579	10.70	6.056E+00	2.575E+00	2.614E+00	16.56
	77.11	836	18.00	6.262E+00	2.138E+00	2.169E+00	13.67
	87.30	187	8.00	6.919E+00	9.714E-01	9.859E-01	43.28
	238.63	1448	44.60*	5.250E+00	1.782E+00	1.809E+00	12.35
	300.09	70	3.41	4.463E+00	1.332E+00	1.352E+00	80.34
TH-230	609.31	479	46.30*	2.603E+00	1.147E+00	1.147E+00	17.13
	1120.29	87	15.10	1.557E+00	1.064E+00	1.064E+00	47.75
	1764.49	101	15.80	1.100E+00	1.667E+00	1.667E+00	26.19
TH-232	338.32	268	11.40	4.087E+00	1.660E+00	1.660E+00	26.70
	911.07	290	27.70*	1.861E+00	1.624E+00	1.624E+00	18.92
	969.11	173	16.60	1.765E+00	1.707E+00	1.707E+00	31.76
TH-234	63.29	165	3.80*	4.690E+00	2.667E+00	2.667E+00	58.14
	92.38	217	5.41	7.176E+00	1.609E+00	1.609E+00	45.91
U-234	609.31	479	46.30*	2.603E+00	1.147E+00	1.147E+00	17.13
	1120.29	87	15.10	1.557E+00	1.064E+00	1.064E+00	47.75
	1764.49	101	15.80	1.100E+00	1.667E+00	1.667E+00	26.19
U-235	89.95	141	2.70	7.066E+00	2.125E+00	2.125E+00	42.36
	93.35	217	4.50	7.176E+00	1.934E+00	1.934E+00	50.66
	105.00	-----	2.10	7.414E+00	-----	Line Not Found	-----
	143.76	-----	10.50*	7.037E+00	-----	Line Not Found	-----
	163.35	60	4.70	6.621E+00	5.563E-01	5.563E-01	130.99
	185.71	235	54.00	6.175E+00	2.035E-01	2.035E-01	33.70
	205.31	-----	4.70	5.804E+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	187	12.60*	6.919E+00	6.168E-01	6.168E-01	47.94
	95.87	-----	2.60	7.260E+00	-----	Line Not Found	-----
U-238	63.29	165	3.80*	4.690E+00	2.667E+00	2.667E+00	58.14
	92.38	217	5.41	7.176E+00	1.609E+00	1.609E+00	43.07
AM-243	74.67	579	66.00*	6.056E+00	4.175E-01	4.175E-01	16.52
	86.72	187	0.34	6.919E+00	2.313E+01	2.313E+01	43.28
	117.66	-----	0.55	7.416E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.067E+00	-----	Line Not Found	-----
ANH-511	511.00	76	100.00*	2.993E+00	7.329E-02	7.329E-02	86.11

Flag: "\*" = Keyline

Total number of lines in spectrum 37  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 33 89.19%

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	2.190E+01	2.190E+01	0.242E+01	11.04	
CD-109	464.00D	1.02	2.089E+00	2.136E+00	0.924E+00	43.28	
SN-126	1.00E+05Y	1.00	2.100E-01	2.100E-01	0.909E-01	43.28	
TL-208	1.41E+10Y	1.00	5.434E-01	5.434E-01	0.980E-01	18.04	
BI-211	7.04E+08Y	1.00	4.002E+00	4.002E+00	0.590E+00	14.73	
PB-212	1.41E+10Y	1.00	1.782E+00	1.782E+00	0.220E+00	12.35	
PO-212	1.41E+10Y	1.00	1.782E+00	1.782E+00	0.220E+00	12.35	
BI-214	1600.00Y	1.00	1.147E+00	1.147E+00	0.196E+00	17.13	
PB-214	1600.00Y	1.00	1.392E+00	1.392E+00	0.218E+00	15.63	
PO-214	1600.00Y	1.00	1.392E+00	1.392E+00	0.218E+00	15.63	
PO-216	1.41E+10Y	1.00	1.782E+00	1.782E+00	0.220E+00	12.35	
PO-218	1600.00Y	1.00	1.392E+00	1.392E+00	0.218E+00	15.63	
RA-224	1.41E+10Y	1.00	4.839E+00	4.839E+00	1.411E+00	29.16	
RA-226	1600.00Y	1.00	1.147E+00	1.147E+00	0.196E+00	17.13	
AC-228	1.41E+10Y	1.00	1.624E+00	1.624E+00	0.307E+00	18.92	
RA-228	1.41E+10Y	1.00	1.624E+00	1.624E+00	0.307E+00	18.92	
TH-228	1.91Y	1.01	1.782E+00	1.809E+00	0.223E+00	12.35	
TH-230	4.47E+09Y	1.00	1.147E+00	1.147E+00	0.196E+00	17.13	
TH-232	1.41E+10Y	1.00	1.624E+00	1.624E+00	0.307E+00	18.92	
TH-234	4.47E+09Y	1.00	2.667E+00	2.667E+00	1.550E+00	58.14	
U-234	4.47E+09Y	1.00	1.147E+00	1.147E+00	0.196E+00	17.13	
U-235	7.04E+08Y	1.00	2.035E-01	2.035E-01	0.686E-01	33.70	K
NP-237	2.14E+06Y	1.00	6.168E-01	6.168E-01	2.957E-01	47.94	
U-238	4.47E+09Y	1.00	2.667E+00	2.667E+00	1.550E+00	58.14	
AM-243	7380.00Y	1.00	4.175E-01	4.175E-01	0.690E-01	16.52	
ANH-511	1.00E+09Y	1.00	7.329E-02	7.329E-02	6.311E-02	86.11	
Total Activity :			6.100E+01	6.107E+01			

Grand Total Activity : 6.100E+01 6.107E+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	128.96	111	314	1.08	257.70	253	9	1.54E-02	60.5	7.29E+00	T
0	209.44	130	324	1.27	418.45	413	11	1.80E-02	56.8	5.73E+00	T
0	269.81	112	193	1.21	539.03	536	10	1.56E-02	49.7	4.82E+00	T
0	328.34	75	177	1.05	655.97	650	11	1.04E-02	73.2	4.18E+00	T
0	409.26	38	119	1.48	817.64	814	10	5.29E-03	****	3.55E+00	
0	463.20	46	110	1.04	925.42	920	10	6.43E-03	89.7	3.23E+00	T
0	727.33	74	83	1.07	1453.39	1450	11	1.03E-02	52.1	2.25E+00	T
0	934.06	35	27	0.94	1866.79	1861	10	4.80E-03	66.1	1.82E+00	T
2	964.40	79	39	2.02	1927.48	1921	29	1.09E-02	40.0	1.77E+00	T
0	1239.27	61	73	2.17	2477.43	2469	19	8.41E-03	75.2	1.43E+00	T
0	1377.84	46	13	1.87	2754.78	2748	13	6.39E-03	43.7	1.31E+00	
0	1589.41	16	19	0.91	3178.40	3168	12	2.26E-03	****	1.18E+00	
0	1729.35	36	4	1.19	3458.68	3454	9	4.95E-03	39.7	1.11E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600005.CNF;1  *
* Acquisition date   : 22-JAN-2010 07:57:12  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 02:00:32.52           Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G244600005              Analyst initials: MXR1          *
* Batch Number       : 941635                  Sample Quantity : 1.30220E+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        :              *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.190E+01	2.418E+00	4.853E-01	4.232E-02	45.133
CD-109	2.136E+00	9.244E-01	1.042E+00	9.854E-02	2.050
SN-126	2.100E-01	9.090E-02	1.147E-01	1.079E-02	1.831
TL-208	5.434E-01	9.802E-02	5.037E-02	5.178E-03	10.788
BI-211	4.002E+00	5.895E-01	2.881E-01	2.760E-02	13.894
PB-212	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
PO-212	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
BI-214	1.147E+00	1.964E-01	9.244E-02	1.029E-02	12.406
PB-214	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
PO-214	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
PO-216	1.782E+00	2.201E-01	8.070E-02	8.582E-03	22.086
PO-218	1.392E+00	2.176E-01	1.004E-01	1.094E-02	13.865
RA-224	4.839E+00	1.411E+00	9.182E-01	8.875E-02	5.270
RA-226	1.147E+00	1.964E-01	9.244E-02	1.029E-02	12.406
AC-228	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
RA-228	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
TH-228	1.809E+00	2.234E-01	8.190E-02	8.710E-03	22.086
TH-230	1.147E+00	1.964E-01	9.243E-02	1.029E-02	12.406

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.624E+00	3.072E-01	1.886E-01	2.311E-02	8.609
TH-234	2.667E+00	1.550E+00	1.396E+00	2.426E-01	1.910
U-234	1.147E+00	1.964E-01	9.243E-02	1.029E-02	12.406
U-235	2.035E-01	6.858E-02	3.030E-01	5.280E-02	0.672
NP-237	6.168E-01	2.957E-01	3.292E-01	7.447E-02	1.874
U-238	2.667E+00	1.550E+00	1.396E+00	2.426E-01	1.910
AM-243	4.175E-01	6.896E-02	6.373E-02	5.130E-03	6.551
ANH-511	7.329E-02	6.311E-02	4.246E-02	3.957E-03	1.726

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.038E-01		2.856E-01	4.876E-01	4.739E-02	0.418
NA-22	3.358E-02		3.723E-02	6.609E-02	5.474E-03	0.508
NA-24	2.076E-01		2.036E-01	Half-Life too short		
AL-26	-1.599E-02		2.386E-02	3.277E-02	2.662E-03	-0.488
TI-44	3.945E-01	+	5.391E-02	6.853E-02	5.752E-03	5.756
SC-46	-9.721E-03		3.317E-02	5.313E-02	5.297E-03	-0.183
V-48	-1.275E-02		5.308E-02	8.456E-02	8.082E-03	-0.151
CR-51	-1.382E-01		3.265E-01	5.269E-01	5.282E-02	-0.262
MN-52	-8.990E-02		1.566E-01	2.345E-01	1.985E-02	-0.383
MN-54	-1.074E-02		3.354E-02	5.408E-02	5.462E-03	-0.199
CO-56	-1.397E-02		3.227E-02	5.108E-02	5.148E-03	-0.273
CO-57	2.232E-02		2.222E-02	3.722E-02	3.107E-03	0.600
CO-58	-4.704E-02		3.364E-02	4.746E-02	4.819E-03	-0.991
FE-59	-3.909E-03		8.227E-02	1.334E-01	1.258E-02	-0.029
CO-60	5.597E-03		3.268E-02	5.377E-02	4.504E-03	0.104
ZN-65	-6.123E-02		9.304E-02	1.177E-01	1.013E-02	-0.520
GE-68	3.873E-01		1.158E+00	1.951E+00	1.741E-01	0.199
AS-73	1.616E-01		5.101E-01	8.519E-01	6.324E-02	0.190
AS-74	-3.840E-02		8.874E-02	1.369E-01	1.340E-02	-0.281
SE-75	8.901E-03		3.884E-02	6.365E-02	6.302E-03	0.140
BR-77	6.433E+00		7.977E+00	1.375E+01	1.289E+00	0.468
SR-82	-2.439E-01		3.089E-01	4.739E-01	4.815E-02	-0.515
RB-83	1.002E-02		6.060E-02	9.918E-02	9.302E-03	0.101
RB-84	4.795E-02		6.416E-02	1.129E-01	1.128E-02	0.425
KR-85	9.860E+00		6.708E+00	1.086E+01	1.014E+00	0.907
SR-85	5.040E-02		3.429E-02	5.554E-02	5.186E-03	0.907
RB-86	5.893E-02		7.234E-01	1.190E+00	1.062E-01	0.050
Y-88	-1.387E-02		3.232E-02	4.866E-02	3.926E-03	-0.285
ZR-88	-2.072E-02		2.692E-02	4.166E-02	3.484E-03	-0.497
Y-91	-8.006E+00		1.762E+01	2.753E+01	2.236E+00	-0.291
NB-94	-2.000E-03		2.833E-02	4.723E-02	4.779E-03	-0.042
NB-95	4.247E-03		3.867E-02	6.504E-02	6.610E-03	0.065
NB-95M	3.673E-02		1.247E-01	1.880E-01	2.020E-02	0.195
ZR-95	-1.865E-02		6.275E-02	1.020E-01	1.114E-02	-0.183
NB-97	5.153E-03		2.796E-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	1.292E+00		6.595E-01	Half-Life too short		
MO-99	2.371E-01		9.350E+00	1.566E+01	2.523E+00	0.015
TC-99M	5.183E+09		7.906E+09	Half-Life too short		
RH-101	-2.884E-02		2.873E-02	4.573E-02	4.192E-03	-0.631
RH-102	5.903E-04		2.642E-02	4.295E-02	3.894E-03	0.014
RU-103	-1.105E-02		3.658E-02	5.771E-02	8.390E-03	-0.191
RH-106	7.601E-02		2.907E-01	4.748E-01	6.750E-02	0.160
RU-106	7.601E-02		2.906E-01	4.748E-01	4.700E-02	0.160
AG-108M	1.515E-02		2.896E-02	4.899E-02	4.446E-03	0.309
AG-110M	4.397E-03		2.673E-02	4.564E-02	4.676E-03	0.096
IN-111	-3.415E-01		9.023E-01	1.295E+00	1.257E-01	-0.264
IN-113M	-1.511E-02		3.839E-02	6.119E-02	5.279E-03	-0.247
SN-113	-1.511E-02		3.839E-02	6.119E-02	5.279E-03	-0.247
IN-114M	-1.047E-01		1.724E-01	2.484E-01	2.251E-02	-0.422
CD-115	2.537E+00		8.075E+00	1.339E+01	1.262E+00	0.189
SN-117M	6.699E-04		5.185E-02	7.843E-02	6.769E-03	0.009
SB-122	-6.326E-01		1.884E+00	2.945E+00	2.836E-01	-0.215
I-123	-6.447E-01		2.061E+00	Half-Life too short		
TE-123M	-4.564E-03		2.918E-02	4.080E-02	3.545E-03	-0.112
I-124	-8.214E-01		6.550E-01	8.294E-01	8.144E-02	-0.990
SB-124	3.439E-02		4.520E-02	8.849E-02	7.690E-03	0.389
SB-125	-6.598E-03		7.768E-02	1.249E-01	1.106E-02	-0.053
TE-125M	1.431E+00		8.305E+00	1.349E+01	1.379E+00	0.106
I-126	6.581E-02		1.481E-01	2.577E-01	2.589E-02	0.255
SB-126	-1.638E-02		1.136E-01	1.878E-01	1.904E-02	-0.087
SB-127	-4.686E-01		1.162E+00	1.886E+00	2.349E-01	-0.248
XE-127	3.113E-02		4.069E-02	6.886E-02	6.356E-03	0.452
I-131	-4.597E-02		9.464E-02	1.503E-01	1.410E-02	-0.306
TE-132	-2.361E-01		5.786E-01	9.537E-01	1.543E-01	-0.248
BA-133	2.190E-02		4.133E-02	6.255E-02	8.449E-03	0.350
I-133	-6.719E-03		2.169E-03	Half-Life too short		
CS-134	5.905E-02		4.610E-02	8.342E-02	8.512E-03	0.708
CS-135	2.041E-01		1.579E-01	2.504E-01	2.775E-02	0.815
I-135	3.902E+09		1.182E+09	Half-Life too short		
CS-136	8.095E-03		8.950E-02	1.477E-01	1.402E-02	0.055
BA-137M	-1.256E-02		2.812E-02	4.542E-02	4.559E-03	-0.276
CS-137	-1.328E-02		2.972E-02	4.802E-02	4.826E-03	-0.276
CE-139	-3.340E-03		2.916E-02	4.078E-02	3.560E-03	-0.082
BA-140	-1.815E-01		2.440E-01	3.561E-01	1.188E-01	-0.510
LA-140	-7.357E-02		8.279E-02	1.195E-01	1.009E-02	-0.616
CE-141	1.914E-02		5.576E-02	9.036E-02	7.802E-03	0.212
CE-143	6.083E-04		9.621E-05	Half-Life too short		
CE-144	-1.862E-02		1.892E-01	2.866E-01	4.422E-02	-0.065
PM-144	-2.884E-02		3.013E-02	4.590E-02	4.641E-03	-0.628
PR-144	-1.954E+00		2.041E+00	3.110E+00	3.143E-01	-0.628
PM-146	1.521E-02		3.728E-02	6.252E-02	6.847E-03	0.243
ND-147	-2.550E-01		4.737E-01	7.239E-01	1.118E-01	-0.352
PM-149	-1.847E+01		7.572E+01	1.244E+02	2.028E+01	-0.148

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	5.215E-02		9.336E-02	1.485E-01	1.449E-02	0.351
GD-153	-9.985E-04		7.611E-02	1.095E-01	9.711E-03	-0.009
EU-154	7.974E-02		1.055E-01	1.841E-01	2.035E-02	0.433
EU-155	1.461E-02		9.540E-02	1.551E-01	1.348E-02	0.094
TB-160	7.383E-02		1.259E-01	2.191E-01	2.191E-02	0.337
HO-166M	-4.600E-03		4.960E-02	8.243E-02	8.350E-03	-0.056
TM-171	-6.296E-01		2.218E+01	3.253E+01	2.423E+00	-0.019
LU-176	5.700E-03		2.091E-02	3.528E-02	3.441E-03	0.162
LU-177	2.754E+00	+	1.585E+00	1.786E+00	1.661E-01	1.541
LU-177M	-4.661E-02		1.782E-01	2.486E-01	2.128E-02	-0.187
HF-181	3.167E-03		3.714E-02	6.064E-02	5.529E-03	0.052
W-181	-1.155E-01		2.953E-01	4.256E-01	3.132E-02	-0.271
TA-182	-1.067E-01		1.692E-01	2.551E-01	2.082E-02	-0.418
RE-183	1.269E-02		1.126E-01	1.575E-01	1.367E-02	0.081
RE-184	1.714E-01		2.081E-01	3.616E-01	3.534E-02	0.474
OS-185	5.776E-03		3.772E-02	6.430E-02	6.421E-03	0.090
RE-188	1.067E-01		1.608E-01	2.633E-01	2.260E-02	0.405
W-188	-1.334E+00		7.118E+00	1.027E+01	1.016E+00	-0.130
IR-192	8.164E-03		3.003E-02	5.058E-02	4.892E-03	0.161
AU-195	6.034E-02		2.071E-01	3.216E-01	2.832E-02	0.188
TL-200	1.652E-04		1.661E-04	Half-Life too short		
TL-201	8.760E-01		6.360E+00	9.047E+00	7.915E-01	0.097
TL-202	2.667E-02		6.060E-02	1.019E-01	8.952E-03	0.262
HG-203	1.874E-02		4.080E-02	6.181E-02	6.287E-03	0.303
BI-207	-1.087E-02		4.724E-02	7.526E-02	6.796E-03	-0.144
TL-207	5.107E-02		6.453E-01	9.453E-01	1.719E-01	0.054
PO-209	-3.126E+00		6.100E+00	9.504E+00	9.453E-01	-0.329
BI-210	2.293E+00		1.928E+00	3.289E+00	3.050E-01	0.697
PB-210	2.293E+00		1.928E+00	3.289E+00	3.050E-01	0.697
PO-210	2.293E+00		1.926E+00	3.289E+00	2.759E-01	0.697
PB-211	-3.132E-01		1.048E+00	1.438E+00	9.006E-01	-0.218
BI-212	8.025E-01	+	4.277E-01	6.104E-01	6.928E-02	1.315
PO-215	5.107E-02		6.453E-01	9.453E-01	1.719E-01	0.054
RN-219	7.101E-02		3.988E-01	6.603E-01	9.857E-02	0.108
RN-220	-9.762E+00		2.192E+01	3.375E+01	3.225E+00	-0.289
RA-223	5.107E-02		6.453E-01	9.453E-01	1.719E-01	0.054
AC-227	6.906E-02		3.441E-01	5.817E-01	9.331E-02	0.119
TH-227	6.906E-02		3.442E-01	5.817E-01	1.085E-01	0.119
TH-229	4.495E-01		4.377E-01	7.700E-01	7.013E-02	0.584
PA-231	1.891E-01		1.416E+00	2.299E+00	3.671E-01	0.082
TH-231	5.107E-02		6.453E-01	9.453E-01	1.719E-01	0.054
U-231	1.549E-02		9.630E-01	1.393E+00	1.246E-01	0.011
PA-233	3.872E-04		5.212E-02	8.652E-02	8.584E-03	0.004
PA-234	2.038E-01		2.680E-01	4.687E-01	9.050E-02	0.435
PA-234M	7.453E+00		4.242E+00	7.928E+00	8.481E-01	0.940
NP-236	-3.938E-02		7.993E-02	1.090E-01	9.432E-03	-0.361
NP-239	-4.492E-02		1.642E-01	2.608E-01	2.185E-02	-0.172
AM-241	3.476E-02		1.132E-01	1.692E-01	1.324E-02	0.205

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.210E-02		8.404E-02	1.350E-01	1.165E-02	-0.090
AM-246	9.782E-03		1.394E-01	2.289E-01	2.039E-02	0.043
CM-247	1.094E-02		3.563E-02	5.946E-02	5.028E-03	0.184
CF-249	1.865E-02		3.347E-02	5.702E-02	4.811E-03	0.327
CF-251	-2.945E-02		1.160E-01	1.812E-01	1.608E-02	-0.163

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600005          *
* Acquisition date   : 22-JAN-2010 07:57:12 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 02:00:32.52 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                          *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600005 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.3022E+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 :                  *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.190E+01	2.370E+00	2.430E-01	1.209E+00
CD-109	2.136E+00	9.059E-01	5.458E-01	4.622E-01
SN-126	2.100E-01	8.908E-02	6.008E-02	4.545E-02
TL-208	5.434E-01	9.606E-02	2.560E-02	4.901E-02
BI-211	4.002E+00	5.777E-01	1.477E-01	2.948E-01
PB-212	1.782E+00	2.157E-01	4.162E-02	1.101E-01
PO-212	1.782E+00	2.157E-01	4.162E-02	1.101E-01
BI-214	1.147E+00	1.925E-01	4.696E-02	9.819E-02
PB-214	1.392E+00	2.132E-01	5.146E-02	1.088E-01
PO-214	1.392E+00	2.132E-01	5.146E-02	1.088E-01
PO-216	1.782E+00	2.157E-01	4.162E-02	1.101E-01
PO-218	1.392E+00	2.132E-01	5.146E-02	1.088E-01
RA-224	4.839E+00	1.383E+00	4.734E-01	7.055E-01
RA-226	1.147E+00	1.925E-01	4.696E-02	9.819E-02
AC-228	1.624E+00	3.011E-01	9.519E-02	1.536E-01
TH-228	1.624E+00	3.011E-01	9.519E-02	1.536E-01
TH-228	1.809E+00	2.189E-01	4.224E-02	1.117E-01
TH-230	1.147E+00	1.925E-01	4.695E-02	9.819E-02
TH-232	1.624E+00	3.011E-01	9.519E-02	1.536E-01
TH-234	2.667E+00	1.519E+00	7.352E-01	7.752E-01
U-234	1.147E+00	1.925E-01	4.695E-02	9.819E-02
U-235	-6.024E-02	1.912E-01	1.575E-01	9.757E-02
NP-237	6.168E-01	2.898E-01	1.725E-01	1.479E-01
U-238	2.667E+00	1.519E+00	7.352E-01	7.752E-01
AM-243	4.175E-01	6.758E-02	3.347E-02	3.448E-02
ANH-511	7.329E-02	6.185E-02	2.163E-02	3.156E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.038E-01	2.799E-01	2.487E-01	1.428E-01 NOT IDENT.

NA-22	3.358E-02	3.649E-02	3.316E-02	1.862E-02	NOT IDENT.
NA-24	2.076E+05	3.991E+05	0.000E+00	2.036E+05	SHORT HLIF
AL-26	-1.599E-02	2.338E-02	1.635E-02	1.193E-02	NOT IDENT.
TI-44	3.945E-01	5.283E-02	3.596E-02	2.695E-02	FAIL ABUN
SC-46	-9.721E-03	3.251E-02	2.682E-02	1.659E-02	FAIL ABUN
V-48	-1.275E-02	5.202E-02	4.262E-02	2.654E-02	NOT IDENT.
CR-51	-1.382E-01	3.200E-01	2.704E-01	1.632E-01	NOT IDENT.
MN-52	-8.990E-02	1.535E-01	1.175E-01	7.830E-02	FAIL ABUN
MN-54	-1.074E-02	3.287E-02	2.733E-02	2.177E-02	NOT IDENT.
CO-56	-1.397E-02	3.163E-02	2.581E-02	1.614E-02	FAIL ABUN
CO-57	2.232E-02	2.178E-02	1.940E-02	1.111E-02	NOT IDENT.
CO-58	-4.704E-02	3.297E-02	2.399E-02	1.682E-02	NOT IDENT.
FE-59	-3.909E-03	8.063E-02	6.708E-02	4.114E-02	NOT IDENT.
CO-60	5.597E-03	3.203E-02	2.696E-02	1.634E-02	NOT IDENT.
ZN-65	-6.123E-02	9.118E-02	5.921E-02	4.652E-02	NOT IDENT.
GE-68	3.873E-01	1.135E+00	9.818E-01	5.792E-01	NOT IDENT.
AS-73	1.616E-01	4.998E-01	4.496E-01	2.550E-01	NOT IDENT.
AS-74	-3.840E-02	8.697E-02	6.956E-02	4.437E-02	NOT IDENT.
SE-75	8.901E-03	3.807E-02	3.277E-02	1.942E-02	NOT IDENT.
BR-77	6.433E+00	7.817E+00	7.000E+00	3.988E+00	FAIL ABUN
SR-82	-2.439E-01	3.028E-01	2.398E-01	1.545E-01	NOT IDENT.
RB-83	1.002E-02	5.939E-02	5.051E-02	3.030E-02	NOT IDENT.
RB-84	4.795E-02	6.288E-02	5.701E-02	3.208E-02	NOT IDENT.
KR-85	9.860E+00	6.574E+00	5.534E+00	3.354E+00	NOT IDENT.
SR-85	5.040E-02	3.360E-02	2.829E-02	1.714E-02	NOT IDENT.
RB-86	5.893E-02	7.089E-01	5.986E-01	3.617E-01	NOT IDENT.
Y-88	-1.387E-02	3.167E-02	2.427E-02	1.616E-02	NOT IDENT.
ZR-88	-2.072E-02	2.638E-02	2.131E-02	1.346E-02	NOT IDENT.
Y-91	-8.006E+00	1.726E+01	1.383E+01	8.808E+00	NOT IDENT.
NB-94	-2.000E-03	2.777E-02	2.394E-02	1.417E-02	NOT IDENT.
NB-95	4.247E-03	3.790E-02	3.292E-02	1.934E-02	NOT IDENT.
NB-95M	3.673E-02	1.222E-01	9.696E-02	6.236E-02	NOT IDENT.
ZR-95	-1.865E-02	6.150E-02	5.165E-02	3.138E-02	NOT IDENT.
NB-97	5.153E+03	5.481E+04	0.000E+00	2.796E+04	SHORT HLIF
ZR-97	1.292E+06	1.293E+06	0.000E+00	6.595E+05	SHORT HLIF
MO-99	2.371E-01	9.163E+00	7.931E+00	4.675E+00	NOT IDENT.
TC-99M	5.183E+15	1.550E+16	0.000E+00	7.906E+15	SHORT HLIF
RH-101	-2.884E-02	2.815E-02	2.365E-02	1.436E-02	NOT IDENT.
RH-102	5.903E-04	2.589E-02	2.191E-02	1.321E-02	NOT IDENT.
RU-103	-1.105E-02	3.585E-02	2.941E-02	1.829E-02	FAIL ABUN
RH-106	7.601E-02	2.849E-01	2.411E-01	1.454E-01	FAIL ABUN
RU-106	7.601E-02	2.848E-01	2.411E-01	1.453E-01	FAIL ABUN
AG-108M	1.515E-02	2.838E-02	2.503E-02	1.448E-02	NOT IDENT.
AG-110M	4.397E-03	2.620E-02	2.316E-02	1.337E-02	NOT IDENT.
IN-111	-3.415E-01	8.842E-01	6.677E-01	4.511E-01	NOT IDENT.
IN-113M	-1.511E-02	3.763E-02	3.131E-02	1.920E-02	NOT IDENT.
SN-113	-1.511E-02	3.763E-02	3.131E-02	1.920E-02	NOT IDENT.
IN-114M	-1.047E-01	1.690E-01	1.285E-01	8.620E-02	NOT IDENT.
CD-115	2.537E+00	7.914E+00	6.820E+00	4.038E+00	NOT IDENT.
SN-117M	6.699E-04	5.081E-02	4.071E-02	2.593E-02	NOT IDENT.
SB-122	-6.326E-01	1.846E+00	1.498E+00	9.420E-01	NOT IDENT.
I-123	-6.447E+05	4.039E+06	0.000E+00	2.061E+06	SHORT HLIF
TE-123M	-4.564E-03	2.860E-02	2.118E-02	1.459E-02	NOT IDENT.
I-124	-8.214E-01	6.419E-01	4.214E-01	3.275E-01	NOT IDENT.
SB-124	3.439E-02	4.430E-02	4.419E-02	2.260E-02	FAIL ABUN
SB-125	-6.598E-03	7.613E-02	6.382E-02	3.884E-02	FAIL ABUN
TE-125M	1.431E+00	8.138E+00	7.044E+00	4.152E+00	NOT IDENT.
I-126	6.581E-02	1.452E-01	1.307E-01	7.406E-02	NOT IDENT.
SB-126	-1.638E-02	1.114E-01	9.512E-02	5.682E-02	FAIL ABUN
SB-127	-4.686E-01	1.139E+00	9.561E-01	5.810E-01	NOT IDENT.
XE-127	3.113E-02	3.988E-02	3.560E-02	2.034E-02	NOT IDENT.
I-131	-4.597E-02	9.275E-02	7.699E-02	4.732E-02	NOT IDENT.
TE-132	-2.361E-01	5.670E-01	4.922E-01	2.893E-01	NOT IDENT.
BA-133	2.190E-02	4.050E-02	3.205E-02	2.066E-02	FAIL ABUN
I-133	-6.719E+03	4.252E+03	0.000E+00	2.169E+03	SHORT HLIF
CS-134	5.905E-02	4.517E-02	4.219E-02	2.305E-02	NOT IDENT.
CS-135	2.041E-01	1.547E-01	1.289E-01	7.893E-02	NOT IDENT.
I-135	3.902E+15	2.317E+15	0.000E+00	1.182E+15	SHORT HLIF
CS-136	8.095E-03	8.771E-02	7.437E-02	4.475E-02	FAIL ABUN
BA-137M	-1.256E-02	2.756E-02	2.304E-02	1.406E-02	NOT IDENT.
CS-137	-1.328E-02	2.913E-02	2.436E-02	1.486E-02	NOT IDENT.
CE-139	-3.340E-03	2.858E-02	2.115E-02	1.458E-02	NOT IDENT.
BA-140	-1.815E-01	2.392E-01	1.812E-01	1.220E-01	FAIL ABUN
LA-140	-7.357E-02	8.114E-02	5.975E-02	4.140E-02	FAIL ABUN
CE-141	1.914E-02	5.465E-02	4.697E-02	2.788E-02	NOT IDENT.
CE-143	6.083E+02	1.886E+02	0.000E+00	9.621E+01	SHORT HLIF
CE-144	-1.862E-02	1.854E-01	1.491E-01	9.459E-02	NOT IDENT.
PM-144	-2.884E-02	2.953E-02	2.327E-02	1.506E-02	NOT IDENT.



PR-144	-1.954E+00	2.000E+00	1.576E+00	1.021E+00	NOT IDENT.
PM-146	1.521E-02	3.653E-02	3.191E-02	1.864E-02	NOT IDENT.
ND-147	-2.550E-01	4.642E-01	3.685E-01	2.369E-01	FAIL ABUN
PM-149	-1.847E+01	7.421E+01	6.398E+01	3.786E+01	NOT IDENT.
EU-152	5.215E-02	9.149E-02	7.616E-02	4.668E-02	FAIL ABUN
GD-153	-9.985E-04	7.459E-02	5.726E-02	3.806E-02	NOT IDENT.
EU-154	7.974E-02	1.033E-01	9.240E-02	5.273E-02	NOT IDENT.
EU-155	1.461E-02	9.350E-02	8.102E-02	4.770E-02	FAIL ABUN
TB-160	7.383E-02	1.234E-01	1.106E-01	6.296E-02	FAIL ABUN
HO-166M	-4.600E-03	4.861E-02	4.177E-02	2.480E-02	FAIL ABUN
TM-171	-6.296E-01	2.173E+01	1.711E+01	1.109E+01	NOT IDENT.
LU-176	5.700E-03	2.049E-02	1.812E-02	1.045E-02	FAIL ABUN
LU-177	2.754E+00	1.554E+00	9.233E-01	7.926E-01	FAIL ABUN
LU-177M	-4.661E-02	1.746E-01	1.271E-01	8.909E-02	FAIL ABUN
HF-181	3.167E-03	3.640E-02	3.092E-02	1.857E-02	NOT IDENT.
W-181	-1.155E-01	2.894E-01	2.240E-01	1.476E-01	NOT IDENT.
TA-182	-1.067E-01	1.659E-01	1.281E-01	8.462E-02	FAIL ABUN
RE-183	1.269E-02	1.104E-01	8.169E-02	5.631E-02	FAIL ABUN
RE-184	1.714E-01	2.039E-01	1.863E-01	1.040E-01	NOT IDENT.
OS-185	5.776E-03	3.697E-02	3.263E-02	1.886E-02	NOT IDENT.
RE-188	1.067E-01	1.576E-01	1.367E-01	8.042E-02	NOT IDENT.
W-188	-1.334E+00	6.976E+00	5.280E+00	3.559E+00	FAIL ABUN
IR-192	8.164E-03	2.943E-02	2.597E-02	1.501E-02	FAIL ABUN
AU-195	6.034E-02	2.030E-01	1.682E-01	1.036E-01	FAIL ABUN
TL-200	1.652E+02	3.256E+02	0.000E+00	1.661E+02	SHORT HLIF
TL-201	8.760E-01	6.233E+00	4.692E+00	3.180E+00	NOT IDENT.
TL-202	2.667E-02	5.939E-02	5.204E-02	3.030E-02	NOT IDENT.
HG-203	1.874E-02	3.998E-02	3.180E-02	2.040E-02	NOT IDENT.
BI-207	-1.087E-02	4.630E-02	3.788E-02	2.362E-02	FAIL ABUN
TL-207	5.107E-02	6.324E-01	4.851E-01	3.226E-01	FAIL ABUN
PO-209	-3.126E+00	5.978E+00	4.797E+00	3.050E+00	NOT IDENT.
BI-210	2.293E+00	1.889E+00	1.740E+00	9.639E-01	NOT IDENT.
PB-210	2.293E+00	1.889E+00	1.740E+00	9.639E-01	NOT IDENT.
PO-210	2.293E+00	1.887E+00	1.740E+00	9.628E-01	NOT IDENT.
PB-211	-3.132E-01	1.027E+00	7.351E-01	5.242E-01	NOT IDENT.
BI-212	8.025E-01	4.192E-01	3.092E-01	2.139E-01	FAIL ABUN
PO-215	5.107E-02	6.324E-01	4.851E-01	3.226E-01	FAIL ABUN
RN-219	7.101E-02	3.908E-01	3.377E-01	1.994E-01	FAIL ABUN
RN-220	-9.762E+00	2.148E+01	1.718E+01	1.096E+01	NOT IDENT.
RA-223	5.107E-02	6.324E-01	4.851E-01	3.226E-01	FAIL ABUN
AC-227	6.906E-02	3.372E-01	2.997E-01	1.721E-01	FAIL ABUN
TH-227	6.906E-02	3.373E-01	2.997E-01	1.721E-01	FAIL ABUN
TH-229	4.495E-01	4.290E-01	3.984E-01	2.189E-01	FAIL ABUN
PA-231	1.891E-01	1.387E+00	1.183E+00	7.079E-01	FAIL ABUN
TH-231	5.107E-02	6.324E-01	4.851E-01	3.226E-01	FAIL ABUN
U-231	1.549E-02	9.437E-01	7.288E-01	4.815E-01	FAIL ABUN
PA-233	3.872E-04	5.107E-02	4.443E-02	2.606E-02	FAIL ABUN
PA-234	2.038E-01	2.627E-01	2.364E-01	1.340E-01	FAIL ABUN
PA-234M	7.453E+00	4.157E+00	3.995E+00	2.121E+00	NOT IDENT.
NP-236	-3.938E-02	7.833E-02	5.657E-02	3.997E-02	NOT IDENT.
NP-239	-4.492E-02	1.609E-01	1.360E-01	8.210E-02	FAIL ABUN
AM-241	3.476E-02	1.110E-01	8.915E-02	5.661E-02	NOT IDENT.
CM-243	-1.210E-02	8.236E-02	7.052E-02	4.202E-02	FAIL ABUN
AM-246	9.782E-03	1.366E-01	1.152E-01	6.970E-02	NOT IDENT.
CM-247	1.094E-02	3.492E-02	3.041E-02	1.782E-02	FAIL ABUN
CF-249	1.865E-02	3.280E-02	2.918E-02	1.674E-02	NOT IDENT.
CF-251	-2.945E-02	1.137E-01	9.389E-02	5.802E-02	NOT IDENT.

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON , SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
*****

```

```

ENERGY          MDA COUNTS

```

46.50	241.1853
46.50	241.1853
46.50	241.1853
48.70	308.7641
49.72	318.2366
51.35	271.1660
52.39	259.9233
52.97	275.9981
53.15	276.0971
53.44	289.0836
54.07	306.2387
56.28	315.4995
56.28	315.5011
57.37	0.0000
57.53	313.2745
57.53	313.2753
57.60	313.3161
57.98	330.8615
57.98	330.8615
59.32	320.3216
59.32	320.3216
59.40	320.3690
59.54	320.4531
59.72	320.5608
60.01	335.7206
61.10	328.8885
61.14	328.9119
61.30	319.9948
63.00	336.5569
63.29	336.7320
63.29	336.7320
63.58	336.9071
64.28	360.9926
65.12	396.3217
65.20	396.3777
65.20	396.3777
66.05	374.2426
66.72	356.4767
66.83	370.1997
66.91	370.2518
67.20	370.4380
67.20	370.4380
67.75	389.0254
67.85	367.8134
68.90	345.6367
68.90	345.6367
69.30	387.0113
69.67	387.2554
70.82	417.0294
70.82	417.0294
70.83	417.0357
72.80	401.5453
72.87	356.6294
72.87	356.6294
74.67	357.6803
74.81	357.7619
74.81	357.7619
74.81	357.7619
74.81	357.7619
74.81	357.7619
74.81	357.7619
74.97	357.8542
75.28	358.0335
75.70	358.2749
77.11	359.0844
77.11	359.0844

77.11	359.0844
77.11	359.0844
77.11	359.0844
77.11	359.0844
77.11	359.0844
78.38	359.8069
79.62	325.3853
79.80	331.6762
79.80	331.6762
80.11	331.8362
80.18	331.8721
80.30	325.7298
80.30	325.7298
80.57	325.8659
81.00	386.6404
81.07	386.6822
81.07	386.6822
81.07	386.6822
81.07	386.6822
82.60	395.3732
83.37	314.7959
83.78	336.8243
83.78	336.8243
83.78	336.8243
83.78	336.8243
84.21	365.1287
84.90	348.3252
85.43	342.3496
86.29	403.8317
86.50	455.6266
86.54	455.6533
86.59	455.6866
86.72	455.7732
86.79	455.8198
86.94	466.8891
87.30	492.2181
87.30	492.2181
87.30	492.2181
87.30	492.2181
87.30	492.2181
87.30	492.2181
87.57	484.5712
87.88	389.0894
88.03	389.1745
88.36	389.3618
88.47	389.4243
89.95	390.2625
91.11	329.4391
92.29	329.9940
92.38	330.0370
92.38	330.0370
93.35	330.4899
94.00	330.7928
94.67	299.4163
94.67	299.4192
94.90	285.2518
94.90	285.2518
94.90	285.2518
94.90	285.2518
95.87	328.4833
95.87	328.4833
96.73	309.8098
97.43	310.1073
98.44	303.2103
98.44	303.2103
98.88	302.1172
99.55	304.0932
99.55	304.0932
99.86	297.8390
100.00	288.3207
100.10	288.3607
103.18	325.8760
103.76	300.4634
105.00	294.5276
105.31	304.2894
108.00	332.2322
109.28	305.8538

111.00	284.9359
111.00	284.9359
111.76	333.8243
112.95	333.2405
115.19	258.2207
116.30	250.9691
117.00	269.6695
117.00	269.6695
117.66	272.0630
121.11	240.4135
121.62	242.7459
121.78	250.4478
122.06	237.4034
122.32	239.6649
122.32	239.6649
122.32	239.6649
122.32	239.6649
123.07	239.8788
127.23	249.3035
129.76	246.7176
131.20	268.6833
133.02	254.2794
133.54	263.4062
135.34	237.7219
136.00	271.2460
136.25	276.8803
136.48	276.9512
140.51	258.0656
140.51	0.0000
142.18	290.9898
142.65	273.2192
143.76	276.9077
144.24	259.1042
144.24	259.1042
144.24	259.1042
144.24	259.1042
145.22	260.4973
145.44	260.5587
147.16	252.0319
152.43	273.7812
152.70	258.0134
153.22	266.0771
154.21	274.2809
154.21	274.2809
154.21	274.2809
154.21	274.2809
155.03	266.5695
156.02	247.5341
158.56	254.0880
159.00	0.0000
159.00	257.9576
160.31	251.4540
161.27	234.5719
162.32	238.2424
162.64	240.0333
163.35	210.4608
163.89	210.5732
165.85	228.7480
167.43	217.0412
171.28	231.6763
171.86	223.7303
172.10	223.7816
176.55	243.2547
176.60	243.2675
181.06	193.6741
184.41	226.8198
185.71	226.0354
186.00	226.0945
190.27	240.6817
192.34	228.2572
193.63	209.1054
197.04	227.4259
198.01	239.1319
198.60	229.5041
200.40	222.7617
201.83	220.3679
202.84	205.3130
205.31	238.1320

208.36	216.2255
208.81	216.3067
209.75	216.4766
209.75	216.4766
210.97	206.3092
215.65	207.5146
216.55	199.7004
218.09	220.6649
222.10	206.9215
223.80	227.1087
226.40	198.5640
227.00	185.0509
227.08	185.0618
227.20	190.5240
228.16	221.5364
228.18	219.7242
228.18	219.7242
231.56	0.0000
235.69	235.2581
236.00	229.4668
236.00	229.4668
238.63	198.6247
238.63	198.6247
238.63	198.6247
238.63	198.6247
239.00	198.6810
240.98	198.9807
241.98	199.1297
241.98	199.1297
241.98	199.1297
244.69	164.7789
245.39	164.8650
247.94	158.5415
248.90	169.7233
249.79	170.7586
252.40	172.9356
252.85	163.7417
252.85	163.7417
254.15	0.0000
256.20	178.9798
256.20	178.9798
260.50	171.1636
260.90	175.8667
262.80	165.8565
264.65	153.5449
268.24	154.1505
268.79	143.7281
269.46	166.2642
269.46	166.2642
269.46	166.2642
269.46	166.2642
271.23	149.9731
273.65	169.0054
276.40	155.5298
277.35	155.3169
277.60	155.3446
277.60	155.3446
278.00	155.3874
278.60	158.2767
279.20	161.3568
279.53	161.3934
280.46	158.4780
281.68	151.0571
283.67	157.7423
284.30	159.8378
285.00	170.3210
285.90	166.6382
286.10	162.8719
286.10	162.8719
287.40	160.3058
288.45	0.0000
290.67	151.9727
290.80	151.9873
291.72	159.6841
293.26	0.0000
293.70	137.0500
295.21	137.1863
295.21	137.1863

295.21	137.1863
295.96	137.2544
296.50	137.3027
297.23	137.3687
298.57	137.4895
299.80	134.5416
299.80	134.5416
300.09	134.5674
300.09	134.5674
300.09	134.5674
300.12	134.5695
301.29	151.5067
302.84	147.0633
303.76	114.9609
303.91	114.9719
304.40	125.7427
304.40	125.7427
304.84	109.9285
306.84	124.7890
308.46	136.4488
311.98	116.5301
316.51	127.4883
318.01	126.6404
319.02	128.6550
319.41	135.4584
320.08	142.2919
323.87	130.4010
323.87	130.4010
323.87	130.4010
323.87	130.4010
325.23	132.0634
328.77	137.0231
333.44	101.4974
334.20	132.7876
334.20	132.7876
334.30	132.7959
338.28	128.2195
338.28	128.2195
338.28	128.2195
338.28	128.2195
338.32	128.2235
338.32	128.2235
338.32	128.2235
340.50	137.9941
340.57	138.0006
344.27	120.4917
345.85	160.4558
350.59	0.0000
351.07	122.2896
351.92	122.3501
351.92	122.3501
351.92	122.3501
355.39	0.0000
356.01	102.8590
364.48	109.3219
366.43	114.4174
367.43	113.4868
367.94	0.0000
369.80	96.6921
374.96	98.9713
383.85	97.4485
387.95	91.6262
388.63	90.6523
391.69	109.9730
391.69	109.9730
392.90	118.1212
398.62	129.6230
400.65	115.5690
401.10	126.7509
401.81	126.7986
402.60	123.8076
404.84	134.9277
410.95	120.6818
411.60	119.0919
413.65	109.4197
414.70	109.4802
415.30	110.3318

415.76	103.9352
417.63	0.0000
418.52	91.0724
423.70	83.1061
427.08	103.8049
427.89	80.1995
432.53	97.9079
433.93	87.6627
439.47	88.9395
439.56	88.9434
439.89	93.0954
443.98	97.4309
444.90	91.2535
445.03	91.2589
445.03	91.2589
445.03	91.2589
445.03	91.2589
453.90	80.1982
463.38	100.4458
468.07	77.1803
473.00	100.9058
475.06	90.4827
475.35	85.2332
476.78	92.6608
477.59	77.9486
477.96	86.3905
482.03	82.3335
484.57	85.6003
487.03	75.1179
490.36	0.0000
492.35	81.6656
497.08	89.2820
507.63	0.0000
510.53	0.0000
510.84	89.8370
511.00	89.8428
511.85	89.8774
511.85	89.8774
513.99	65.1158
513.99	65.1158
520.41	75.1825
520.65	59.0770
527.90	61.4201
528.96	0.0000
529.64	94.8965
529.87	0.0000
531.02	77.6887
537.32	93.0468
543.00	73.7524
546.56	0.0000
549.76	71.7887
552.65	78.4094
555.20	59.9599
563.23	89.6950
563.90	98.4732
568.70	71.2604
569.32	80.0532
569.50	80.0576
569.67	73.4837
573.80	84.5947
574.00	84.6018
574.64	90.1179
578.91	70.4590
579.30	0.0000
583.14	72.7857
585.48	86.5419
591.81	84.1061
592.07	85.2221
593.00	89.6814
595.88	94.2191
600.56	77.7374
602.52	0.0000
602.71	103.7382
602.71	103.7382
603.60	90.7267
604.41	87.1975
604.70	72.9692
609.31	69.0897

609.31	69.0897
609.31	69.0897
609.31	69.0897
610.33	69.1180
612.46	76.7617
614.37	67.8879
618.01	62.6155
621.84	68.3085
621.84	68.3085
631.29	66.3084
633.02	66.3516
633.10	67.4780
634.78	72.9237
635.90	74.7567
636.97	74.7871
645.85	66.8999
646.12	69.6196
656.30	46.2872
657.75	53.5768
657.90	0.0000
661.65	64.5656
661.65	64.5656
664.57	0.0000
666.33	61.0344
666.33	61.0344
675.00	51.1752
677.61	75.0052
685.20	76.1286
692.80	62.5397
695.00	78.2369
696.49	75.5157
696.49	75.5157
697.00	79.2120
697.49	67.2505
698.33	64.5056
698.50	64.5090
699.00	67.2862
702.63	68.2946
706.10	63.7593
706.58	0.0000
706.67	68.3922
709.31	52.7292
711.68	60.1805
713.82	59.2984
717.42	64.0103
720.50	58.5073
721.93	0.0000
722.20	49.5586
722.78	43.3729
722.78	43.3729
722.89	43.3740
722.95	43.3752
723.30	41.8315
724.18	43.3934
727.18	48.0931
733.00	65.2883
735.90	63.4844
739.58	60.7598
742.81	62.6980
744.21	62.7274
747.13	64.6639
751.79	63.8264
752.31	58.2052
753.82	48.8414
755.35	59.2040
756.15	67.6793
756.87	59.2332
763.93	95.1856
765.79	76.3844
766.42	65.0817
766.84	63.2034
776.49	61.5120
778.00	58.7017
778.57	53.0305
778.89	52.0889
783.80	54.0693
785.46	55.9967
792.07	64.6764



795.84	60.9453
796.30	60.0023
798.80	89.5983
801.93	62.9723
805.60	48.7177
810.29	61.2266
810.76	67.9336
815.85	48.8758
817.79	48.9057
818.51	49.8761
819.60	45.0952
826.30	53.8439
828.27	0.0000
831.60	57.7852
831.96	59.7174
834.83	68.4467
836.80	0.0000
846.75	52.2505
848.13	56.1436
856.28	0.0000
856.80	54.9982
860.37	37.8927
867.32	43.1191
867.82	36.5176
871.10	40.9397
873.19	49.7437
874.81	56.5981
875.33	0.0000
876.40	41.9806
879.36	47.8815
880.27	46.9160
880.51	48.8745
881.50	47.9114
883.24	47.9365
884.67	55.7865
889.25	49.9815
896.60	49.1077
898.02	57.9701
899.00	54.0560
903.28	40.4557
911.07	52.6029
911.07	52.6029
911.07	52.6029
919.63	43.5048
920.93	44.5100
925.00	55.4545
925.24	55.4586
926.50	44.5803
935.52	54.6281
937.48	44.7198
944.10	51.7740
946.00	41.8390
949.00	54.8362
962.29	38.3614
964.01	47.0562
966.15	47.0838
968.20	47.1113
969.11	47.1228
969.11	47.1228
969.11	47.1228
977.42	46.8957
980.50	36.2074
983.50	37.2439
989.30	33.2699
996.32	62.6267
1001.03	35.3982
1001.68	30.3464
1004.76	58.7193
1021.30	0.0000
1024.50	0.0000
1034.80	45.9229
1036.00	55.1246
1037.82	44.9367
1038.57	38.8183
1038.76	0.0000
1045.16	55.2577
1046.59	45.0398
1048.07	41.9870

1050.47	39.9636
1050.47	39.9636
1062.04	45.2203
1063.62	51.4087
1076.63	50.5480
1077.35	48.4940
1078.86	56.7698
1085.78	59.9711
1099.22	50.8375
1112.02	46.8369
1112.84	52.0508
1115.52	60.7686
1120.29	44.8477
1120.29	44.8477
1120.29	44.8477
1120.29	44.8477
1120.51	44.8498
1121.28	43.4672
1124.00	0.0000
1129.67	45.9959
1131.51	0.0000
1147.95	0.0000
1167.94	52.7539
1173.22	53.8787
1175.09	69.7544
1177.93	39.1318
1189.05	46.6576
1204.90	63.8613
1205.75	0.0000
1213.00	73.5787
1221.42	59.8336
1230.97	65.7778
1235.34	53.5938
1236.41	0.0000
1238.25	50.4103
1246.25	35.8171
1260.41	0.0000
1271.85	36.7459
1274.45	32.4419
1274.54	30.2791
1291.56	31.4794
1298.22	0.0000
1312.09	27.2595
1325.50	29.5273
1325.50	29.5273
1332.49	26.2852
1333.61	24.1012
1360.21	21.1170
1362.66	0.0000
1365.15	22.9767
1368.21	22.0723
1368.53	0.0000
1376.25	31.5848
1384.27	25.3103
1394.10	20.3430
1395.20	22.1973
1407.95	26.8925
1434.06	18.6466
1436.60	19.5884
1457.56	0.0000
1460.81	23.4344
1489.15	22.6240
1509.49	19.8755
1596.49	32.7175
1620.62	22.2326
1678.03	0.0000
1691.02	3.9162
1691.02	3.9162
1706.46	0.0000
1750.46	0.0000
1764.49	11.9009
1764.49	11.9009
1764.49	11.9009
1764.49	11.9009
1770.23	55.5921
1771.40	13.9009
1791.20	0.0000
1808.65	12.9905

1836.01

17.0657

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600005

Total Uranium Activity	7.9054E+00	ug/g
Total Uranium Counting Unc.	4.5212E+00	ug/g
Total Uranium Tpu	2.3068E-06	ug/g
Total Uranium Mda	2.1883E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635                          SAMPLE ID   : G244600005
*  ANALYST       : MXR1                             DETECTOR    : GAM20
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 07:57:12.47          SAMPLE ALQT  : 130.220 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.745E+00
GROSS GAMMA ERROR (pCi/GRAM )   : 1.350E+00
GROSS GAMMA MDA (pCi/GRAM )     : 3.499E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.696E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:05:49.88

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600006.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:05:14
Sample ID          : G244600006          Sample quantity  : 1.41620E+02 GRAM
Detector name      : GAM17              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:09.36  0.1%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941635              Detector SN#       :
Matrix Spike ID    :                     LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.54*	113	369	1.00	92.71	89	9	1.57E-02	33.5	
2	0	63.38*	177	560	0.98	126.39	122	9	2.46E-02	25.9	
3	3	74.82*	647	403	1.01	149.29	144	17	8.99E-02	6.2	1.73E+00
4	3	77.12*	1041	338	1.01	153.89	144	17	1.45E-01	4.3	
5	4	87.17	375	339	1.22	173.99	164	29	5.21E-02	9.5	6.94E+00
6	4	89.95	258	317	1.21	179.55	164	29	3.59E-02	13.1	
7	4	92.60*	431	337	1.36	184.86	164	29	5.99E-02	9.7	
8	4	94.47	103	281	1.13	188.61	164	29	1.42E-02	34.9	
9	0	105.03	78	336	1.54	209.73	206	9	1.08E-02	44.1	
10	0	128.98	148	286	1.77	257.65	253	10	2.05E-02	22.9	
11	0	185.92*	161	260	1.47	371.58	367	10	2.24E-02	21.2	
12	0	209.28	151	229	1.35	418.31	414	10	2.10E-02	20.6	
13	5	238.54*	1130	149	1.04	476.85	472	26	1.57E-01	3.5	1.06E+00
14	5	241.47	233	200	1.82	482.71	472	26	3.23E-02	18.9	
15	0	270.13	152	156	1.23	540.05	534	11	2.11E-02	17.9	
16	0	295.05*	294	181	1.23	589.91	585	10	4.08E-02	10.6	
17	0	299.94	69	93	1.38	599.70	596	7	9.55E-03	26.3	
18	0	338.03*	236	157	1.03	675.91	670	11	3.28E-02	12.3	
19	1	349.51	40	39	1.12	698.89	697	11	5.61E-03	31.9	1.86E+00
20	1	351.68*	570	72	1.14	703.23	697	11	7.91E-02	5.0	
21	0	409.91	23	119	3.08	819.74	818	9	3.13E-03	92.2	
22	0	463.36	81	123	1.43	926.70	919	15	1.13E-02	31.8	
23	0	510.38*	74	107	1.19	1020.78	1014	13	1.02E-02	36.4	
24	0	582.78*	288	95	1.29	1165.66	1160	13	4.00E-02	9.3	
25	0	608.99	405	121	1.53	1218.12	1209	18	5.63E-02	8.1	
26	0	660.96*	66	32	1.14	1322.11	1317	9	9.22E-03	20.2	
27	0	726.52	105	39	1.62	1453.32	1447	14	1.45E-02	16.0	
28	0	786.31	14	62	1.36	1572.95	1565	11	2.01E-03	109.3	
29	0	795.13	34	64	1.53	1590.61	1582	15	4.72E-03	54.0	
30	0	862.68	83	60	8.34	1725.79	1714	24	1.16E-02	27.9	
31	0	910.49*	228	39	1.59	1821.48	1816	14	3.16E-02	9.0	
32	0	933.69	28	24	1.11	1867.92	1863	11	3.83E-03	39.7	
33	0	1119.16	83	31	1.36	2239.11	2234	11	1.16E-02	16.8	
34	0	1392.96	9	6	1.35	2787.16	2779	10	1.30E-03	56.2	
35	0	1459.46*	562	4	1.86	2920.28	2912	16	7.80E-02	4.3	
36	0	1762.92*	52	21	1.15	3527.76	3518	17	7.27E-03	25.2	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600006.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:05:14
Sample ID         : G244600006           Sample quantity  : 141.62 GRAM
Sample type       : SOLID                 Sample geometry   :
Detector name     : GAMMA17              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:09.36   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	*	1.793E+01	2.219E+00	5.375E-01	4.772E-02	33.347
CD-109	+	88.03	*	4.091E+00	8.759E-01	8.655E-01	8.449E-02	4.727
SN-126	+	64.28		7.210E-01	3.914E-01	3.445E-01	5.499E-02	2.093
	+	86.94		1.672E+00	7.653E-01	3.526E-01	1.467E-01	4.742
	+	87.57	*	4.022E-01	8.613E-02	8.498E-02	8.293E-03	4.733
BA-137M	+	661.65	*	1.220E-01	5.029E-02	7.899E-02	6.654E-03	1.544
CS-137	+	661.65	*	1.289E-01	5.317E-02	8.350E-02	7.048E-03	1.544
EU-155		48.70		-1.654E-01	4.113E-01	6.218E-01	6.246E-02	-0.266
		60.01		1.373E+00	1.938E+00	3.065E+00	3.083E-01	0.448
	+	86.54		4.844E-01	1.039E-01	1.020E-01	1.003E-02	4.748
	+	105.31	*	1.571E-01	1.397E-01	1.446E-01	1.553E-02	1.087
TL-208		277.35		3.545E-01	3.786E-01	6.679E-01	8.503E-02	0.531
	+	510.84		4.388E-01	3.242E-01	2.455E-01	2.999E-02	1.787
	+	583.14	*	5.001E-01	1.047E-01	6.368E-02	6.023E-03	7.853
		860.37		7.929E-01	3.728E-01	7.147E-01	6.724E-02	1.109
BI-210	+	46.50	*	1.173E+00	7.972E-01	6.865E-01	7.447E-02	1.709
PB-210	+	46.50	*	1.173E+00	7.972E-01	6.865E-01	7.447E-02	1.709
PO-210	+	46.50	*	1.173E+00	7.959E-01	6.865E-01	6.936E-02	1.709
BI-211		72.87		1.893E+00	1.963E+00	3.091E+00	3.022E-01	0.613
	+	351.07	*	4.011E+00	5.488E-01	3.248E-01	3.031E-02	12.350
BI-212	+	727.18	*	1.605E+00	5.367E-01	4.873E-01	4.889E-02	3.293
	+	785.46		1.433E+00	3.135E+00	2.816E+00	2.468E-01	0.509
		1620.62		-1.892E-01	1.525E+00	2.458E+00	2.118E-01	-0.077
PB-212	+	74.81		2.360E+00	4.344E-01	3.215E-01	4.345E-02	7.340
	+	77.11		2.260E+00	2.946E-01	1.920E-01	1.872E-02	11.772
	+	87.30		1.860E+00	4.397E-01	3.927E-01	5.487E-02	4.737
	+	238.63	*	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988
	+	300.09		1.600E+00	8.595E-01	1.121E+00	1.221E-01	1.427
PO-212	+	74.81		2.360E+00	4.344E-01	3.215E-01	4.345E-02	7.340
	+	77.11		2.260E+00	2.946E-01	1.920E-01	1.872E-02	11.772
	+	87.30		1.860E+00	4.397E-01	3.927E-01	5.487E-02	4.737
		115.19		1.794E+00	3.053E+00	5.184E+00	5.836E-01	0.346
	+	238.63	*	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988
	+	300.09		1.600E+00	8.595E-01	1.121E+00	1.221E-01	1.427

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-214	+	609.31	*	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
	+	1120.29		1.497E+00	5.290E-01	4.686E-01	5.010E-02	3.195
		1764.49		1.362E+00	4.974E-01	9.842E-01	8.323E-02	1.383
PB-214	+	74.81		4.066E+00	7.118E-01	5.540E-01	6.789E-02	7.340
	+	77.11		3.875E+00	5.850E-01	3.292E-01	4.073E-02	11.772
	+	87.30		3.187E+00	7.253E-01	6.728E-01	8.366E-02	4.737
	+	241.98		2.066E+00	8.125E-01	5.299E-01	5.642E-02	3.899
	+	295.21		1.196E+00	2.855E-01	2.062E-01	2.290E-02	5.800
	+	351.92	*	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
PO-214	+	74.81		4.066E+00	7.118E-01	5.540E-01	6.789E-02	7.340
	+	77.11		3.875E+00	5.850E-01	3.292E-01	4.073E-02	11.772
	+	87.30		3.187E+00	7.253E-01	6.728E-01	8.366E-02	4.737
	+	241.98		2.066E+00	8.125E-01	5.299E-01	5.642E-02	3.899
	+	295.21		1.196E+00	2.855E-01	2.062E-01	2.290E-02	5.800
	+	351.92	*	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
PO-216	+	74.81		2.360E+00	4.344E-01	3.215E-01	4.345E-02	7.340
	+	77.11		2.260E+00	2.946E-01	1.920E-01	1.872E-02	11.772
	+	87.30		1.860E+00	4.397E-01	3.927E-01	5.487E-02	4.737
	+	238.63	*	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988
	+	300.09		1.600E+00	8.595E-01	1.121E+00	1.221E-01	1.427
	+	74.81		4.066E+00	7.118E-01	5.540E-01	6.789E-02	7.340
PO-218	+	77.11		3.875E+00	5.850E-01	3.292E-01	4.073E-02	11.772
	+	87.30		3.187E+00	7.253E-01	6.728E-01	8.366E-02	4.737
	+	241.98		2.066E+00	8.125E-01	5.299E-01	5.642E-02	3.899
	+	295.21		1.196E+00	2.855E-01	2.062E-01	2.290E-02	5.800
	+	351.92	*	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
	+	240.98	*	3.918E+00	1.525E+00	1.001E+00	9.054E-02	3.913
RA-224	+	609.31	*	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
	+	1120.29		1.497E+00	5.290E-01	4.686E-01	5.010E-02	3.195
		1764.49		1.362E+00	4.974E-01	9.842E-01	8.323E-02	1.383
TH-228	+	74.81		2.395E+00	3.808E-01	3.263E-01	3.206E-02	7.340
	+	77.11		2.294E+00	2.990E-01	1.949E-01	1.900E-02	11.772
	+	87.30		1.888E+00	4.043E-01	3.986E-01	3.889E-02	4.737
	+	238.63	*	1.694E+00	2.081E-01	8.921E-02	8.994E-03	18.988
	+	300.09		1.624E+00	1.288E+00	1.138E+00	6.755E-01	1.427
	+	609.31	*	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
TH-230	+	1120.29		1.497E+00	5.290E-01	4.686E-01	5.010E-02	3.195
		1764.49		1.362E+00	4.974E-01	9.842E-01	8.322E-02	1.383
	+	63.29	*	1.821E+00	1.004E+00	8.663E-01	1.617E-01	2.103
TH-234	+	92.38		3.204E+00	8.631E-01	5.902E-01	1.107E-01	5.429
	+	609.31	*	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
	+	1120.29		1.497E+00	5.290E-01	4.686E-01	5.010E-02	3.195
U-234		1764.49		1.362E+00	4.974E-01	9.842E-01	8.322E-02	1.383
	+	89.95		3.820E+00	1.557E+00	1.173E+00	3.663E-01	3.256
	+	93.35		3.852E+00	1.325E+00	7.119E-01	2.028E-01	5.411
U-235	+	105.00		1.540E+00	1.438E+00	1.415E+00	4.315E-01	1.088
	+	143.76	*	2.290E-01	1.991E-01	3.330E-01	6.105E-02	0.688
	+	163.35		2.285E-01	4.547E-01	7.556E-01	1.440E-01	0.302
	+	185.71		1.646E-01	7.104E-02	6.500E-02	5.566E-03	2.532



## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	205.31			-7.920E-02	5.652E-01	8.009E-01	1.533E-01	-0.099
NP-237	+	86.50	*	1.181E+00	3.512E-01	2.487E-01	5.677E-02	4.748
	+	95.87		1.592E+00	1.182E+00	1.182E+00	2.980E-01	1.347
U-238	+	63.29	*	1.821E+00	1.004E+00	8.663E-01	1.617E-01	2.103
	+	92.38		3.204E+00	6.967E-01	5.902E-01	5.883E-02	5.429
AM-243	+	74.67	*	3.826E-01	6.068E-02	5.212E-02	5.088E-03	7.341
	+	86.72		4.429E+01	9.485E+00	9.334E+00	9.104E-01	4.745
		117.66		-3.490E+00	3.346E+00	5.233E+00	5.975E-01	-0.667
		142.18		3.989E+00	1.614E+01	2.677E+01	2.761E+00	0.149
ANH-511	+	511.00	*	9.479E-02	6.958E-02	5.306E-02	4.738E-03	1.787

## ---- 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	*	2.933E-01	3.327E-01	5.834E-01	5.551E-02	0.503
NA-22		1274.54	*	-1.867E-02	5.131E-02	7.835E-02	6.601E-03	-0.238
NA-24		1368.53	*	3.220E-01	5.131E-02	Half-Life too short		
AL-26		1129.67		-1.101E-01	1.860E+00	2.997E+00	2.504E-01	-0.037
		1808.65	*	-7.942E-03	3.694E-02	5.730E-02	4.802E-03	-0.139
TI-44		67.85		9.508E-03	2.343E-02	3.853E-02	3.795E-03	0.247
	+	78.38	*	4.171E-01	5.436E-02	5.699E-02	5.553E-03	7.319
SC-46		889.25	*	1.171E-03	4.522E-02	7.505E-02	6.570E-03	0.016
	+	1120.51		2.557E-01	8.875E-02	1.519E-01	1.274E-02	1.684
V-48		944.10		-1.026E+00	9.778E-01	1.394E+00	1.219E-01	-0.736
		983.50	*	-1.763E-02	7.278E-02	1.157E-01	1.010E-02	-0.152
		1312.09		4.667E-02	7.842E-02	1.422E-01	1.207E-02	0.328
CR-51		320.08	*	-2.412E-01	3.503E-01	5.614E-01	5.361E-02	-0.430
MN-52		744.21		1.223E-01	2.530E-01	4.430E-01	3.850E-02	0.276
		848.13		6.337E-01	6.372E+00	1.071E+01	9.415E-01	0.059
		935.52		4.704E-03	3.409E-01	4.880E-01	4.271E-02	0.010
		1246.25		-6.001E+00	8.227E+00	1.202E+01	1.004E+00	-0.499
		1333.61		1.080E+00	5.108E+00	8.811E+00	7.511E-01	0.123
		1434.06	*	-6.337E-02	2.477E-01	3.949E-01	3.405E-02	-0.160
MN-54		834.83	*	1.461E-02	4.354E-02	7.463E-02	6.562E-03	0.196
CO-56		846.75	*	-5.881E-03	4.017E-02	6.562E-02	5.768E-03	-0.090
		977.42		-2.073E+00	3.023E+00	4.501E+00	3.929E-01	-0.461
		1037.82		1.010E-02	3.753E-01	6.154E-01	5.596E-02	0.016
		1175.09		-1.381E+00	2.576E+00	3.893E+00	3.182E-01	-0.355
		1238.25		2.180E-02	1.092E-01	1.794E-01	1.541E-02	0.122
		1360.21		5.066E-02	9.809E-01	1.654E+00	1.416E-01	0.031
		1771.40		-5.341E-02	2.525E-01	3.917E-01	3.308E-02	-0.136
CO-57		122.06	*	-1.337E-02	2.216E-02	3.548E-02	4.157E-03	-0.377
		136.48		-1.655E-02	1.863E-01	3.051E-01	3.434E-02	-0.054
CO-58		810.76	*	-2.888E-02	4.084E-02	6.250E-02	5.504E-03	-0.462
FE-59		142.65		1.799E+00	2.539E+00	4.246E+00	4.363E-01	0.424
		192.34		-5.385E-02	8.682E-01	1.397E+00	1.876E-01	-0.039
		1099.22	*	-9.888E-02	1.170E-01	1.718E-01	1.577E-02	-0.575
		1291.56		7.280E-02	1.648E-01	2.778E-01	2.676E-02	0.262

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-60	1173.22			-1.547E-02	5.128E-02	7.971E-02	6.512E-03	-0.194
	1332.49	*		-8.840E-03	4.190E-02	6.809E-02	5.803E-03	-0.130
ZN-65	1115.52	*		7.983E-02	1.090E-01	1.714E-01	1.443E-02	0.466
GE-68	1077.35	*		-5.234E-01	1.458E+00	2.272E+00	1.939E-01	-0.230
AS-73	53.44	*		2.054E-01	2.031E-01	3.550E-01	3.552E-02	0.579
AS-74	595.88	*		-1.203E-02	1.040E-01	1.659E-01	1.462E-02	-0.072
	634.78			1.489E-02	4.193E-01	6.548E-01	5.640E-02	0.023
SE-75	66.05			-1.145E+00	2.408E+00	3.549E+00	4.082E-01	-0.323
	96.73			-4.306E-01	6.395E-01	9.166E-01	1.345E-01	-0.470
	121.11			-1.613E-02	1.174E-01	1.929E-01	2.640E-02	-0.084
	136.00			-7.433E-03	3.530E-02	5.745E-02	6.213E-03	-0.129
	198.60			8.036E-01	1.800E+00	2.965E+00	2.857E-01	0.271
	264.65	*		2.438E-02	4.720E-02	6.949E-02	6.384E-03	0.351
	279.53			5.433E-02	1.070E-01	1.860E-01	1.765E-02	0.292
	303.91			3.443E-01	2.065E+00	3.123E+00	3.714E-01	0.110
	400.65			-1.231E-01	2.733E-01	4.386E-01	4.828E-02	-0.281
BR-77	87.88	+		8.149E+02	1.745E+02	2.499E+02	2.439E+01	3.260
	200.40			1.208E+02	1.505E+02	2.518E+02	2.195E+01	0.480
	239.00	+		2.470E+02	2.825E+01	3.766E+01	3.402E+00	6.558
	249.79			-3.228E+00	6.403E+01	8.998E+01	8.180E+00	-0.036
	281.68			1.787E+01	8.003E+01	1.373E+02	1.261E+01	0.130
	297.23			6.000E+01	7.661E+01	9.152E+01	8.402E+00	0.656
	303.76			3.176E+01	1.627E+02	2.467E+02	2.262E+01	0.129
	439.47			9.434E+01	1.403E+02	2.427E+02	2.115E+01	0.389
	484.57			-3.748E+01	2.250E+02	3.632E+02	3.227E+01	-0.103
	520.65	*		4.034E+00	1.013E+01	1.709E+01	1.528E+00	0.236
	574.64			-2.090E+02	2.105E+02	3.056E+02	2.713E+01	-0.684
	578.91			8.355E+01	9.162E+01	1.447E+02	1.283E+01	0.578
	585.48			3.422E+02	2.034E+02	3.378E+02	2.989E+01	1.013
	755.35			1.290E+02	1.653E+02	2.966E+02	2.585E+01	0.435
	817.79			4.713E+01	1.427E+02	2.453E+02	2.156E+01	0.192
SR-82	698.33			8.782E+00	3.874E+01	6.647E+01	5.692E+00	0.132
	776.49	*		-2.889E-01	4.366E-01	6.829E-01	5.976E-02	-0.423
	1395.20			-7.969E+00	1.328E+01	1.614E+01	1.387E+00	-0.494
RB-83	520.41	*		2.732E-02	7.238E-02	1.219E-01	1.090E-02	0.224
	529.64			2.383E-02	1.076E-01	1.787E-01	1.598E-02	0.133
	552.65			-5.185E-03	2.283E-01	3.610E-01	3.221E-02	-0.014
RB-84	881.50	*		6.420E-02	7.747E-02	1.389E-01	1.218E-02	0.462
KR-85	513.99	*		9.089E+00	8.254E+00	1.320E+01	1.179E+00	0.689
SR-85	513.99	*		4.646E-02	4.219E-02	6.747E-02	6.028E-03	0.689
RB-86	1076.63	*		-1.339E-01	8.869E-01	1.419E+00	1.211E-01	-0.094
Y-88	898.02			-2.402E-02	4.548E-02	7.054E-02	6.196E-03	-0.341
	1836.01	*		-2.795E-03	3.385E-02	5.390E-02	4.495E-03	-0.052
ZR-88	392.90	*		1.032E-03	3.020E-02	5.030E-02	4.238E-03	0.021
Y-91	1204.90	*		1.225E-01	2.062E+01	3.332E+01	2.750E+00	0.004
NB-94	702.63	*		-1.486E-02	3.770E-02	6.132E-02	5.260E-03	-0.242
	871.10			2.919E-02	3.878E-02	6.275E-02	5.507E-03	0.465
NB-95	765.79	*		1.692E-02	4.770E-02	8.225E-02	7.184E-03	0.206
NB-95M	235.69	*		1.753E-02	1.379E-01	1.973E-01	2.015E-02	0.089

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	724.18			4.487E-02	1.309E-01	1.988E-01	1.866E-02	0.226
	756.15	*		1.433E-03	7.849E-02	1.317E-01	1.262E-02	0.011
NB-97	657.90	*		9.165E-02	7.849E-02	Half-Life too short		
	1024.50			6.059E-01	7.849E-02	Half-Life too short		
ZR-97	254.15			-1.241E+00	7.849E-02	Half-Life too short		
	355.39			-2.175E-01	7.849E-02	Half-Life too short		
	507.63	*		1.925E+00	7.849E-02	Half-Life too short		
	602.52			-6.349E+00	7.849E-02	Half-Life too short		
	1021.30			4.231E+00	7.849E-02	Half-Life too short		
	1147.95			2.613E+00	7.849E-02	Half-Life too short		
	1362.66			-6.291E+00	7.849E-02	Half-Life too short		
	1750.46			-4.157E-01	7.849E-02	Half-Life too short		
MO-99	140.51			-3.073E+01	2.490E+01	3.527E+01	9.984E+00	-0.871
	181.06			2.124E+00	1.613E+01	2.352E+01	4.289E+00	0.090
	366.43			4.231E+01	7.731E+01	1.338E+02	1.171E+01	0.316
	739.58	*		-4.449E+00	1.247E+01	2.021E+01	3.075E+00	-0.220
	778.00			-6.084E+00	3.700E+01	5.731E+01	5.017E+00	-0.106
TC-99M	140.51	*		-2.212E+10	3.700E+01	Half-Life too short		
RH-101	127.23			1.803E-02	2.938E-02	4.504E-02	5.122E-03	0.400
	198.01	*		3.229E-03	3.320E-02	5.377E-02	4.675E-03	0.060
	325.23			-2.335E-01	2.247E-01	3.520E-01	3.200E-02	-0.663
RH-102	418.52			1.262E-02	2.876E-01	4.774E-01	4.105E-02	0.026
	475.06	*		-1.690E-02	2.996E-02	4.662E-02	4.130E-03	-0.363
	631.29			2.889E-02	6.074E-02	1.021E-01	8.818E-03	0.283
	697.49			5.052E-02	8.601E-02	1.518E-01	1.299E-02	0.333
	766.84			5.563E-02	1.282E-01	2.220E-01	1.939E-02	0.251
	1046.59			-3.597E-02	1.150E-01	1.797E-01	1.548E-02	-0.200
	1112.84			2.298E-02	2.896E-01	4.121E-01	3.469E-02	0.056
RU-103	497.08	*		-3.998E-02	4.208E-02	6.198E-02	8.889E-03	-0.645
+	610.33			1.435E+01	3.340E+00	3.366E+00	5.639E-01	4.262
RH-106	511.85	+		4.732E-01	3.474E-01	4.673E-01	4.174E-02	1.013
	621.84	*		2.215E-01	3.465E-01	5.908E-01	7.917E-02	0.375
	1050.47			3.962E-01	2.375E+00	3.962E+00	3.410E-01	0.100
RU-106	511.85	+		4.732E-01	3.474E-01	4.673E-01	4.174E-02	1.013
	621.84	*		2.215E-01	3.458E-01	5.908E-01	5.133E-02	0.375
	1050.47			3.962E-01	2.375E+00	3.962E+00	3.410E-01	0.100
AG-108M	433.93	*		-1.950E-02	3.729E-02	5.911E-02	5.335E-03	-0.330
	614.37			-1.035E-02	4.402E-02	5.963E-02	5.404E-03	-0.174
	722.95			-1.959E-02	5.416E-02	7.564E-02	6.790E-03	-0.259
AG-110M	657.75	*		1.175E-02	4.579E-02	6.616E-02	5.767E-03	0.178
	677.61			-2.259E-01	3.386E-01	4.990E-01	4.358E-02	-0.453
	706.67			-7.405E-02	2.525E-01	4.151E-01	3.665E-02	-0.178
	763.93			-1.780E-01	1.860E-01	2.825E-01	2.534E-02	-0.630
	884.67			-2.933E-02	5.767E-02	9.011E-02	8.140E-03	-0.326
	937.48			1.469E-02	1.392E-01	2.023E-01	1.833E-02	0.073
	1384.27			8.545E-02	1.831E-01	3.079E-01	2.718E-02	0.278
IN-111	171.28			-6.496E-01	8.627E-01	1.341E+00	1.126E-01	-0.485
	245.39	*		-1.199E+00	9.682E-01	1.402E+00	1.271E-01	-0.856
IN-113M	391.69	*		-5.751E-03	4.525E-02	7.449E-02	6.472E-03	-0.077

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-113		391.69	*	-5.751E-03	4.525E-02	7.449E-02	6.472E-03	-0.077
IN-114M		190.27	*	8.089E-02	1.825E-01	2.714E-01	2.337E-02	0.298
CD-115		260.90		-1.723E+02	1.164E+02	1.624E+02	1.484E+01	-1.061
		492.35		1.615E+01	3.561E+01	6.043E+01	5.380E+00	0.267
		527.90	*	3.753E+00	1.020E+01	1.717E+01	1.535E+00	0.219
SN-117M		156.02		-5.318E-01	2.155E+00	3.477E+00	3.201E-01	-0.153
		158.56	*	2.636E-04	5.093E-02	8.312E-02	7.471E-03	0.003
SB-122		563.90	*	-1.145E+00	2.253E+00	3.482E+00	3.101E-01	-0.329
		692.80		3.697E+01	4.405E+01	7.935E+01	6.780E+00	0.466
I-123		159.00	*	-2.162E-01	4.405E+01	Half-Life	too short	
		528.96		2.405E+01	4.405E+01	Half-Life	too short	
TE-123M		159.00	*	-1.520E-03	2.689E-02	4.374E-02	3.937E-03	-0.035
I-124		602.71	*	-7.248E-01	8.102E-01	9.961E-01	8.747E-02	-0.728
		722.78		-2.687E+00	5.479E+00	7.521E+00	6.497E-01	-0.357
		1325.50		1.343E+01	3.727E+01	6.533E+01	5.560E+00	0.206
		1376.25		3.762E+01	3.598E+01	6.719E+01	5.762E+00	0.560
		1509.49		1.613E+01	1.796E+01	3.353E+01	2.900E+00	0.481
		1691.02		1.509E+00	4.206E+00	7.717E+00	6.601E-01	0.196
SB-124		602.71		-4.399E-02	4.917E-02	6.045E-02	5.309E-03	-0.728
		645.85		-1.366E-01	5.502E-01	8.583E-01	7.778E-02	-0.159
		709.31		1.301E+00	3.385E+00	5.873E+00	5.050E-01	0.222
		713.82		-1.145E+00	1.898E+00	3.016E+00	3.629E-01	-0.380
		722.78		-2.364E-01	4.820E-01	6.617E-01	5.839E-02	-0.357
		968.20		1.121E+01	4.379E+00	8.120E+00	7.094E-01	1.380
		1045.16		-8.878E-01	2.540E+00	3.953E+00	3.407E-01	-0.225
		1325.50		1.262E+00	3.502E+00	6.138E+00	5.224E-01	0.206
		1368.21		8.390E-01	2.015E+00	3.557E+00	4.781E-01	0.236
		1436.60		1.193E+00	3.671E+00	6.460E+00	5.570E-01	0.185
		1691.02	*	3.132E-02	8.729E-02	1.601E-01	1.425E-02	0.196
SB-125		427.89	*	-1.501E-02	9.707E-02	1.584E-01	1.397E-02	-0.095
+		463.38		9.310E-01	5.992E-01	6.258E-01	5.933E-02	1.488
		600.56		-8.831E-02	2.103E-01	2.970E-01	2.797E-02	-0.297
		635.90		-7.542E-02	3.271E-01	4.972E-01	4.625E-02	-0.152
TE-125M		109.28	*	2.389E-01	8.232E+00	1.229E+01	1.510E+00	0.019
I-126		388.63		-4.253E-02	2.193E-01	3.598E-01	3.045E-02	-0.118
		666.33	*	2.817E-01	2.170E-01	3.669E-01	3.098E-02	0.768
		753.82		4.742E-01	1.648E+00	2.833E+00	2.468E-01	0.167
SB-126		223.80		1.391E+00	3.707E+00	6.064E+00	5.413E-01	0.229
		278.60		2.263E+00	2.443E+00	4.322E+00	3.968E-01	0.523
+		296.50		1.172E+01	2.701E+00	3.477E+00	3.192E-01	3.371
		414.70		1.902E-02	8.210E-02	1.224E-01	1.049E-02	0.155
		415.30		2.075E+00	6.817E+00	1.024E+01	8.782E-01	0.203
		555.20		-2.051E+00	4.261E+00	6.584E+00	5.873E-01	-0.312
		573.80		8.619E-02	1.085E+00	1.769E+00	1.571E-01	0.049
		593.00		2.085E-02	9.742E-01	1.576E+00	1.390E-01	0.013
		656.30		-1.212E-01	4.170E+00	5.797E+00	4.907E-01	-0.021
		666.33		1.176E-01	9.061E-02	1.532E-01	1.294E-02	0.768
		675.00		-1.754E+00	2.163E+00	3.129E+00	2.653E-01	-0.561
		695.00		-1.059E-02	8.916E-02	1.488E-01	1.273E-02	-0.071

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		697.00		3.384E-02	2.897E-01	4.932E-01	4.221E-02	0.069
		720.50	*	1.578E-01	1.839E-01	2.965E-01	2.559E-02	0.532
		856.80		2.883E-01	5.243E-01	8.219E-01	7.221E-02	0.351
		989.30		2.836E-01	1.391E+00	2.337E+00	2.037E-01	0.121
		1034.80		1.393E+00	1.030E+01	1.710E+01	1.478E+00	0.081
		1213.00		1.814E+00	5.085E+00	8.541E+00	7.067E-01	0.212
		61.10		9.116E+00	2.233E+01	3.485E+01	4.251E+00	0.262
		252.40		-2.692E+00	4.235E+00	6.186E+00	2.605E+00	-0.435
		290.80		-1.355E+01	2.128E+01	2.999E+01	3.456E+00	-0.452
		411.60		1.259E+01	1.335E+01	2.105E+01	3.290E+00	0.598
		444.90		5.777E+00	9.580E+00	1.649E+01	2.068E+00	0.350
		473.00		-9.819E-01	1.607E+00	2.483E+00	3.216E-01	-0.395
		543.00		-6.305E+00	1.772E+01	2.781E+01	4.039E+00	-0.227
		603.60		-2.033E-02	1.295E+01	1.821E+01	2.285E+00	-0.001
		685.20	*	1.083E+00	1.505E+00	2.568E+00	2.883E-01	0.422
		698.50		-5.377E-01	1.661E+01	2.791E+01	4.391E+00	-0.019
		722.20		-1.456E+01	3.687E+01	5.123E+01	5.682E+00	-0.284
XE-127		783.80		4.582E+00	4.780E+00	7.695E+00	9.573E-01	0.595
		57.60		8.849E-02	1.903E+00	3.251E+00	3.265E-01	0.027
		145.22		-2.776E-01	6.303E-01	9.980E-01	1.006E-01	-0.278
		172.10		-1.345E-02	1.090E-01	1.759E-01	1.479E-02	-0.076
I-131		202.84	*	-2.949E-02	4.547E-02	7.041E-02	6.156E-03	-0.419
		374.96		4.238E-02	1.972E-01	3.334E-01	2.884E-02	0.127
		80.18		2.112E+00	3.470E+00	4.388E+00	4.294E-01	0.481
		284.30		-1.052E+00	1.397E+00	2.257E+00	2.168E-01	-0.466
TE-132		364.48	*	-2.782E-02	1.097E-01	1.797E-01	1.659E-02	-0.155
		636.97		-2.693E-01	1.709E+00	2.698E+00	2.450E-01	-0.100
		722.89		-4.390E+00	9.036E+00	1.241E+01	1.079E+00	-0.354
		49.72		-1.807E+00	3.473E+00	5.208E+00	6.216E-01	-0.347
BA-133		111.76		-1.860E+00	2.274E+01	3.761E+01	4.815E+00	-0.049
		116.30		-6.439E+00	2.250E+01	3.677E+01	4.798E+00	-0.175
		228.16	*	4.133E-01	6.410E-01	1.058E+00	1.677E-01	0.391
		53.15		6.281E-01	8.576E-01	1.488E+00	1.489E-01	0.422
I-133		79.62		2.513E-01	1.021E+00	1.255E+00	1.994E-01	0.200
		81.00		1.028E-02	7.890E-02	9.608E-02	1.586E-02	0.107
		276.40		3.325E-01	3.632E-01	6.396E-01	9.458E-02	0.520
		302.84		5.835E-02	1.367E-01	2.115E-01	2.887E-02	0.276
CS-134		356.01	*	2.073E-02	4.638E-02	7.111E-02	9.501E-03	0.292
		383.85		-5.171E-02	3.141E-01	5.165E-01	6.479E-02	-0.100
		510.53		7.709E-01	3.141E-01	Half-Life	too short	
		529.87	*	-1.613E-03	3.141E-01	Half-Life	too short	
		706.58		-1.296E-01	3.141E-01	Half-Life	too short	
		856.28		9.449E-03	3.141E-01	Half-Life	too short	
		875.33		2.056E-03	3.141E-01	Half-Life	too short	
		1236.41		6.232E-01	3.141E-01	Half-Life	too short	
		1298.22		8.728E-03	3.141E-01	Half-Life	too short	
		475.35		8.193E-02	1.927E+00	3.172E+00	2.810E-01	0.026
		563.23		8.614E-02	4.120E-01	6.796E-01	6.106E-02	0.127
		569.32		1.439E-01	2.264E-01	3.859E-01	3.476E-02	0.373

----- 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		604.70		1.649E-02	3.888E-02	5.783E-02	5.085E-03	0.285
	+	795.84	*	8.850E-02	9.586E-02	1.027E-01	9.077E-03	0.862
		801.93		-1.925E-01	4.577E-01	6.875E-01	6.069E-02	-0.280
		1038.57		2.679E-01	4.644E+00	7.641E+00	6.597E-01	0.035
		1167.94		1.607E+00	2.845E+00	4.900E+00	4.015E-01	0.328
		1365.15		8.514E-02	1.337E+00	2.256E+00	2.021E-01	0.038
		268.24	*	2.040E-01	1.761E-01	2.701E-01	2.818E-02	0.755
		288.45		1.066E+09	1.761E-01	Half-Life	too short	
		417.63		-8.958E+09	1.761E-01	Half-Life	too short	
		546.56		7.747E+09	1.761E-01	Half-Life	too short	
		836.80		1.346E+10	1.761E-01	Half-Life	too short	
		1038.76		3.885E+08	1.761E-01	Half-Life	too short	
		1124.00		-2.397E+08	1.761E-01	Half-Life	too short	
		1131.51		-7.642E+08	1.761E-01	Half-Life	too short	
		1260.41	*	7.674E+08	1.761E-01	Half-Life	too short	
		1457.56		3.378E+11	1.761E-01	Half-Life	too short	
		1678.03		1.695E+06	1.761E-01	Half-Life	too short	
		1706.46		-2.594E+08	1.761E-01	Half-Life	too short	
		1791.20		2.999E+09	1.761E-01	Half-Life	too short	
CS-136		66.91		-1.513E-01	4.043E-01	5.990E-01	9.683E-02	-0.253
	+	86.29		5.172E+00	1.212E+00	1.538E+00	2.097E-01	3.363
		153.22		5.690E-01	6.242E-01	1.059E+00	1.099E-01	0.537
		163.89		3.722E-01	1.007E+00	1.669E+00	1.596E-01	0.223
		176.55		2.369E-02	3.347E-01	5.450E-01	4.886E-02	0.043
		273.65		-4.035E-01	4.981E-01	6.437E-01	6.249E-02	-0.627
		340.57		5.718E-02	1.317E-01	2.017E-01	1.863E-02	0.283
		818.51		1.226E-02	8.431E-02	1.425E-01	1.253E-02	0.086
		1048.07	*	-1.103E-01	1.104E-01	1.542E-01	1.384E-02	-0.716
		1235.34		5.692E-01	6.922E-01	1.201E+00	1.398E-01	0.474
CE-139 BA-140		165.85	*	-2.343E-02	2.794E-02	4.336E-02	3.616E-03	-0.540
		162.64		4.293E-01	7.167E-01	1.200E+00	1.096E-01	0.358
		304.84		-8.398E-01	1.195E+00	1.814E+00	5.116E-01	-0.463
		423.70		-1.262E+00	1.998E+00	3.070E+00	9.953E-01	-0.411
LA-140		537.32	*	-3.860E-02	2.828E-01	4.535E-01	1.507E-01	-0.085
		328.77		4.007E-01	2.936E-01	5.273E-01	5.026E-02	0.760
		432.53		1.028E+00	2.254E+00	3.839E+00	3.492E-01	0.268
		487.03		4.768E-02	1.452E-01	2.441E-01	2.296E-02	0.195
		751.79		1.033E+00	1.817E+00	3.204E+00	3.083E-01	0.322
		815.85		1.075E-01	3.513E-01	6.034E-01	5.892E-02	0.178
		867.82		1.344E+00	1.743E+00	2.791E+00	2.576E-01	0.481
		919.63		-3.016E+00	3.025E+00	4.425E+00	4.759E-01	-0.682
CE-141 CE-143		925.24		1.066E+00	1.204E+00	2.178E+00	2.022E-01	0.489
		1596.49	*	6.392E-03	1.056E-01	1.760E-01	1.519E-02	0.036
		145.44	*	-7.257E-02	5.861E-02	8.839E-02	9.015E-03	-0.821
		57.37		-2.292E-05	5.861E-02	Half-Life	too short	
		231.56		-1.021E-03	5.861E-02	Half-Life	too short	
		293.26	*	5.994E-04	5.861E-02	Half-Life	too short	
	+	350.59		1.947E-03	5.861E-02	Half-Life	too short	
		490.36		5.035E-05	5.861E-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
	664.57			9.298E-04	5.861E-02	Half-Life	too short	
	721.93			-5.857E-04	5.861E-02	Half-Life	too short	
CE-144	80.11			1.023E+00	1.634E+00	2.069E+00	2.015E-01	0.494
	133.54	*		2.872E-02	1.951E-01	2.900E-01	4.919E-02	0.099
PM-144	476.78			5.546E-02	7.034E-02	1.225E-01	1.182E-02	0.453
	618.01			-1.161E-02	3.335E-02	5.162E-02	4.617E-03	-0.225
	696.49	*		-1.616E-02	3.762E-02	6.097E-02	5.219E-03	-0.265
	778.57			-7.995E-02	2.742E+00	4.158E+00	3.641E-01	-0.019
PR-144	696.49	*		-1.095E+00	2.549E+00	4.131E+00	3.535E-01	-0.265
	1489.15			-6.079E+00	1.407E+01	2.163E+01	1.870E+00	-0.281
PM-146	453.90	*		1.019E-02	4.569E-02	7.648E-02	8.301E-03	0.133
	633.02			-9.777E-02	1.604E+00	2.560E+00	9.566E-01	-0.038
	735.90			7.909E-02	1.561E-01	2.721E-01	7.788E-02	0.291
	747.13			-8.189E-02	9.719E-02	1.476E-01	2.080E-02	-0.555
ND-147	91.11		+	9.424E-01	2.660E-01	4.133E-01	4.353E-02	2.280
	319.41			-1.149E+00	3.020E+00	4.950E+00	4.514E-01	-0.232
	439.89			-3.105E-01	6.178E+00	1.015E+01	8.846E-01	-0.031
	531.02	*		-3.563E-01	5.807E-01	8.845E-01	1.339E-01	-0.403
PM-149	285.90	*		5.527E-01	7.784E+01	1.319E+02	2.092E+01	0.004
EU-152	121.78			-1.849E-02	6.369E-02	1.038E-01	1.317E-02	-0.178
	244.69			-3.479E-01	3.195E-01	4.691E-01	4.252E-02	-0.742
	344.27	*		-7.415E-04	9.162E-02	1.534E-01	1.451E-02	-0.005
	443.98			1.284E+00	9.402E-01	1.709E+00	1.493E-01	0.751
	778.89			-2.870E-02	3.298E-01	4.735E-01	4.145E-02	-0.061
	867.32			8.316E-01	1.013E+00	1.640E+00	1.439E-01	0.507
	964.01			-1.289E+00	4.780E-01	5.954E-01	5.203E-02	-2.165
	1085.78			-1.296E-02	4.848E-01	7.872E-01	6.699E-02	-0.016
	1112.02			9.008E-02	3.765E-01	5.952E-01	5.013E-02	0.151
	1407.95			1.637E-01	2.018E-01	3.745E-01	3.222E-02	0.437
GD-153	69.67			3.650E-02	9.573E-01	1.461E+00	1.435E-01	0.025
	83.37			1.776E+01	1.002E+01	1.733E+01	1.689E+00	1.024
	97.43	*		-1.934E-02	6.709E-02	9.821E-02	1.004E-02	-0.197
	103.18			5.321E-02	9.356E-02	1.442E-01	1.519E-02	0.369
EU-154	123.07			6.878E-03	4.365E-02	7.267E-02	1.003E-02	0.095
	247.94			2.481E-02	3.806E-01	5.410E-01	6.398E-02	0.046
	591.81			-3.546E-01	6.834E-01	1.044E+00	1.234E-01	-0.340
	723.30			-6.908E-02	2.275E-01	3.203E-01	3.058E-02	-0.216
	756.87			-1.584E-01	8.393E-01	1.380E+00	1.663E-01	-0.115
	873.19			-8.206E-02	3.280E-01	5.125E-01	6.331E-02	-0.160
	996.32			-7.281E-02	4.306E-01	6.926E-01	1.233E-01	-0.105
	1004.76			1.389E-02	2.532E-01	4.175E-01	4.883E-02	0.033
	1274.45	*		-7.253E-02	1.457E-01	2.182E-01	2.434E-02	-0.332
TB-160	86.79		+	1.291E+00	2.763E-01	4.006E-01	3.908E-02	3.222
	197.04			-2.134E-02	5.432E-01	8.739E-01	7.589E-02	-0.024
	215.65			-3.646E-01	6.868E-01	1.064E+00	9.425E-02	-0.343
	298.57		+	2.322E-01	1.240E-01	1.994E-01	1.830E-02	1.164
	879.36	*		6.852E-03	1.505E-01	2.505E-01	2.196E-02	0.027
	962.29			1.200E-01	6.783E-01	1.133E+00	9.904E-02	0.106
	966.15			8.224E-01	3.217E-01	6.052E-01	5.288E-02	1.359

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1177.93			2.954E-01	3.876E-01	6.830E-01	5.588E-02	0.432
	1271.85			3.614E-01	7.127E-01	1.230E+00	1.034E-01	0.294
	80.57			5.369E-02	2.174E-01	2.673E-01	2.603E-02	0.201
	184.41			3.597E-02	3.909E-02	6.129E-02	5.239E-03	0.587
	280.46			-2.016E-02	8.343E-02	1.396E-01	1.282E-02	-0.144
	410.95		+	2.106E-01	3.885E-01	4.792E-01	4.098E-02	0.439
TM-171	711.68		*	-7.832E-03	7.152E-02	1.193E-01	1.026E-02	-0.066
	752.31			2.355E-01	2.939E-01	5.285E-01	4.603E-02	0.446
	810.29			-3.186E-02	5.915E-02	9.230E-02	8.109E-03	-0.345
	51.35			-4.521E+00	6.482E+00	1.026E+01	1.027E+00	-0.441
	52.39			1.724E+00	3.524E+00	6.072E+00	6.075E-01	0.284
	59.40			2.895E+00	1.026E+01	1.595E+01	1.607E+00	0.181
LU-176	66.72		*	-4.769E+00	1.465E+01	2.177E+01	2.149E+00	-0.219
	88.36		+	9.540E-01	2.043E-01	2.888E-01	2.824E-02	3.303
	201.83			-1.087E-02	2.937E-02	4.633E-02	4.046E-03	-0.235
	306.84		*	-7.410E-03	2.323E-02	3.838E-02	3.517E-03	-0.193
LU-177	401.10			-1.403E+00	7.070E+00	1.156E+01	9.810E-01	-0.121
	112.95			-4.034E-01	1.336E+00	2.186E+00	2.430E-01	-0.185
LU-177M	208.36		*	3.821E+00	1.608E+00	1.999E+00	1.758E-01	1.912
	52.97			2.988E-01	3.839E-01	6.671E-01	6.674E-02	0.448
HF-181	54.07			1.153E-01	2.168E-01	3.738E-01	3.740E-02	0.308
	61.30			2.374E-01	6.174E-01	9.625E-01	9.639E-02	0.247
	121.62			-7.185E-02	3.270E-01	5.350E-01	6.248E-02	-0.134
	147.16			-5.259E-01	5.684E-01	8.821E-01	8.759E-02	-0.596
	171.86			-1.168E-01	4.417E-01	7.071E-01	5.942E-02	-0.165
	218.09			1.018E-03	7.735E-01	1.240E+00	1.101E-01	0.001
	268.79		+	3.459E+00	1.280E+00	1.533E+00	1.404E-01	2.256
	319.02			-1.651E-01	2.407E-01	3.857E-01	3.518E-02	-0.428
	367.43			-2.202E-01	8.670E-01	1.419E+00	1.240E-01	-0.155
	413.65		*	3.720E-02	1.983E-01	2.941E-01	2.520E-02	0.126
	56.28			-2.509E-01	2.729E-01	4.476E-01	4.487E-02	-0.560
	57.53			1.474E-03	1.595E-01	2.721E-01	2.732E-02	0.005
W-181	65.20			-2.536E-01	4.603E-01	6.768E-01	6.702E-02	-0.375
	133.02			8.061E-03	6.145E-02	9.132E-02	1.002E-02	0.088
	136.25			-1.063E-01	4.099E-01	6.653E-01	7.151E-02	-0.160
	345.85			2.169E-01	1.920E-01	3.131E-01	2.803E-02	0.693
	482.03		*	-1.714E-02	4.447E-02	7.036E-02	6.247E-03	-0.244
	56.28			-9.811E-02	1.072E-01	1.758E-01	1.763E-02	-0.558
TA-182	57.53			5.103E-04	6.265E-02	1.069E-01	1.073E-02	0.005
	65.20		*	-9.883E-02	1.794E-01	2.638E-01	2.613E-02	-0.375
	67.75			1.880E-03	5.974E-02	9.130E-02	8.993E-03	0.021
	100.10			-7.960E-02	1.485E-01	2.277E-01	2.360E-02	-0.350
	152.43			1.228E-02	3.181E-01	5.210E-01	4.953E-02	0.024
	222.10			2.418E-03	3.186E-01	5.101E-01	4.547E-02	0.005
	1001.68			-2.037E-01	2.405E+00	3.907E+00	3.399E-01	-0.052
	1121.28			5.808E-01	2.231E-01	4.013E-01	3.367E-02	1.447
	1189.05			-2.985E-02	3.929E-01	6.299E-01	5.173E-02	-0.047
	1221.42		*	2.211E-01	2.444E-01	4.287E-01	3.556E-02	0.516
	1230.97			-1.267E-01	5.457E-01	8.562E-01	7.122E-02	-0.148



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		57.98		3.838E-02	6.351E-02	1.104E-01	1.110E-02	0.348
		59.32		1.049E-02	4.188E-02	6.503E-02	6.552E-03	0.161
		67.20		-5.849E-02	1.076E-01	1.584E-01	1.562E-02	-0.369
		162.32	*	1.019E-02	1.066E-01	1.745E-01	1.511E-02	0.058
	+	208.81		3.527E+00	1.484E+00	1.855E+00	1.632E-01	1.902
RE-184		291.72		-2.072E-02	9.561E-01	1.426E+00	1.310E-01	-0.015
		57.98		1.417E-01	2.344E-01	4.076E-01	4.096E-02	0.348
		59.32		3.868E-02	1.544E-01	2.398E-01	2.416E-02	0.161
		67.20		-2.158E-01	3.972E-01	5.843E-01	5.762E-02	-0.369
		161.27		-8.220E-02	3.453E-01	5.562E-01	4.867E-02	-0.148
OS-185		216.55		1.051E-01	2.401E-01	3.950E-01	3.503E-02	0.266
		252.85	*	-8.939E-02	2.295E-01	3.545E-01	3.228E-02	-0.252
		318.01		1.664E-01	4.004E-01	6.924E-01	6.318E-02	0.240
		792.07		1.402E+00	1.233E+00	1.981E+00	1.737E-01	0.708
		903.28		2.684E-01	1.252E+00	2.003E+00	1.751E-01	0.134
RE-188		920.93		-1.952E-01	4.772E-01	7.475E-01	6.541E-02	-0.261
		59.72		5.310E-02	1.148E-01	1.799E-01	1.811E-02	0.295
		61.14		2.904E-02	6.682E-02	1.044E-01	1.046E-02	0.278
		69.30		5.183E-03	1.599E-01	2.593E-01	2.548E-02	0.020
		592.07		-1.083E+00	2.737E+00	4.239E+00	3.740E-01	-0.256
W-188		646.12	*	-1.051E-03	4.637E-02	7.416E-02	6.332E-03	-0.014
		717.42		-2.295E-01	1.067E+00	1.761E+00	1.519E-01	-0.130
		874.81		6.127E-02	5.747E-01	9.650E-01	8.464E-02	0.063
		880.27		2.121E-01	8.355E-01	1.420E+00	1.244E-01	0.149
		155.03	*	1.307E-01	1.672E-01	2.822E-01	2.622E-02	0.463
IR-192		477.96		2.023E+00	3.280E+00	5.639E+00	4.999E-01	0.359
		633.10		-1.972E-01	3.233E+00	5.160E+00	4.449E-01	-0.038
	+	63.58		7.301E+01	3.856E+01	4.516E+01	4.491E+00	1.617
		227.08		-8.181E-01	1.238E+01	1.972E+01	1.765E+00	-0.041
		290.67	*	-5.038E+00	7.714E+00	1.087E+01	9.980E-01	-0.464
AU-195		295.96		9.095E-01	2.098E-01	2.963E-01	2.738E-02	3.069
		308.46		1.353E-01	9.110E-02	1.659E-01	1.526E-02	0.816
		316.51	*	7.499E-04	3.126E-02	5.271E-02	4.822E-03	0.014
		468.07		2.208E-02	7.782E-02	1.156E-01	1.092E-02	0.191
		604.41		1.580E-01	5.192E-01	7.608E-01	9.983E-02	0.208
TL-200		612.46		4.457E-01	7.882E-01	1.194E+00	1.194E-01	0.373
		65.12		-2.798E-02	8.347E-02	1.242E-01	1.230E-02	-0.225
		66.83		-2.064E-02	4.901E-02	7.251E-02	7.155E-03	-0.285
	+	75.70		1.237E+00	1.961E-01	3.270E-01	3.190E-02	3.783
		98.88	*	3.169E-02	1.832E-01	2.917E-01	3.004E-02	0.109
TL-201		129.76		8.684E+00	4.096E+00	4.705E+00	5.270E-01	1.846
		367.94	*	-7.639E-05	4.096E+00	Half-Life	too short	
		579.30		3.597E-03	4.096E+00	Half-Life	too short	
		828.27		-1.977E-03	4.096E+00	Half-Life	too short	
		1205.75		6.771E-05	4.096E+00	Half-Life	too short	
TL-201		68.90		9.641E-01	2.267E+00	3.891E+00	3.825E-01	0.248
		70.82		1.784E-01	1.511E+00	2.312E+00	2.266E-01	0.077
		80.30		2.135E+00	3.638E+00	4.593E+00	4.474E-01	0.465
		135.34		-5.369E+00	2.121E+01	3.445E+01	3.726E+00	-0.156

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202	167.43	*		8.523E-01	5.944E+00	9.743E+00	8.136E-01	0.087
	68.90			9.096E-02	2.139E-01	3.671E-01	3.609E-02	0.248
	70.82			1.678E-02	1.421E-01	2.175E-01	2.132E-02	0.077
	80.30			2.009E-01	3.424E-01	4.323E-01	4.211E-02	0.465
HG-203	439.56	*		4.316E-02	7.207E-02	1.241E-01	1.081E-02	0.348
	70.83			7.216E-02	6.233E-01	9.539E-01	1.372E-01	0.076
	72.87			3.750E-01	3.906E-01	6.122E-01	8.563E-02	0.613
	82.60			6.067E-01	9.360E-01	1.179E+00	1.707E-01	0.514
BI-207	279.20	*		3.210E-02	4.065E-02	7.155E-02	6.733E-03	0.449
	72.80			9.406E-02	1.138E-01	1.784E-01	1.745E-02	0.527
	+	74.97		6.868E-01	1.089E-01	1.592E-01	1.554E-02	4.313
	84.90			2.872E-01	1.334E-01	2.317E-01	2.259E-02	1.239
	569.67			1.966E-02	3.480E-02	5.905E-02	5.250E-03	0.333
	1063.62	*		1.241E-02	5.549E-02	9.308E-02	7.980E-03	0.133
	1770.23			-5.307E-01	6.144E-01	8.176E-01	6.906E-02	-0.649
	81.07			1.766E-02	1.741E-01	2.116E-01	2.061E-02	0.083
TL-207	83.78			1.843E-01	8.740E-02	1.518E-01	1.479E-02	1.214
	+	94.90		3.696E-01	2.609E-01	3.038E-01	3.066E-02	1.217
	122.32			-1.061E+00	1.530E+00	2.435E+00	2.964E-01	-0.436
	144.24			5.378E-01	6.322E-01	1.062E+00	1.172E-01	0.506
	154.21			3.711E-01	3.874E-01	6.578E-01	6.680E-02	0.564
	+	269.46		8.107E-01	3.003E-01	3.834E-01	3.578E-02	2.114
	323.87	*		-8.138E-02	6.446E-01	1.075E+00	1.929E-01	-0.076
	+	338.28		7.613E+00	2.109E+00	2.760E+00	3.475E-01	2.758
PO-209	445.03			1.290E+00	2.335E+00	4.008E+00	4.880E-01	0.322
	260.50			-1.306E+01	9.253E+00	1.299E+01	1.187E+00	-1.006
	262.80			1.964E+01	2.499E+01	4.170E+01	3.813E+00	0.471
	896.60	*		-7.806E+00	8.633E+00	1.278E+01	1.118E+00	-0.611
PB-211	404.84	*		3.490E-01	9.651E-01	1.600E+00	1.003E+00	0.218
	427.08			-1.247E+00	2.278E+00	3.378E+00	2.099E+00	-0.369
	831.96			-3.647E-01	1.365E+00	2.177E+00	1.365E+00	-0.168
	81.07			1.766E-02	1.741E-01	2.116E-01	2.061E-02	0.083
PO-215	83.78			1.843E-01	8.740E-02	1.518E-01	1.479E-02	1.214
	+	94.90		3.696E-01	2.609E-01	3.038E-01	3.066E-02	1.217
	122.32			-1.061E+00	1.530E+00	2.435E+00	2.964E-01	-0.436
	144.24			5.378E-01	6.322E-01	1.062E+00	1.172E-01	0.506
	154.21			3.711E-01	3.874E-01	6.578E-01	6.680E-02	0.564
	+	269.46		8.107E-01	3.003E-01	3.834E-01	3.578E-02	2.114
	323.87	*		-8.138E-02	6.446E-01	1.075E+00	1.929E-01	-0.076
	+	338.28		7.613E+00	2.109E+00	2.760E+00	3.475E-01	2.758
RN-219	445.03			1.290E+00	2.335E+00	4.008E+00	4.880E-01	0.322
	271.23			1.040E+00	3.894E-01	4.744E-01	5.111E-02	2.193
	401.81	*		-2.426E-01	4.391E-01	6.972E-01	1.042E-01	-0.348
	549.76	*		-9.639E+00	2.990E+01	4.711E+01	4.205E+00	-0.205
RN-220	81.07			1.766E-02	1.741E-01	2.116E-01	2.061E-02	0.083
RA-223	83.78			1.843E-01	8.740E-02	1.518E-01	1.479E-02	1.214
	+	94.90		3.696E-01	2.609E-01	3.038E-01	3.066E-02	1.217
	122.32			-1.061E+00	1.530E+00	2.435E+00	2.964E-01	-0.436
	144.24			5.378E-01	6.322E-01	1.062E+00	1.172E-01	0.506

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		154.21		3.711E-01	3.874E-01	6.578E-01	6.680E-02	0.564
	+	269.46		8.107E-01	3.003E-01	3.834E-01	3.578E-02	2.114
		323.87	*	-8.138E-02	6.446E-01	1.075E+00	1.929E-01	-0.076
	+	338.28		7.613E+00	2.109E+00	2.760E+00	3.475E-01	2.758
		445.03		1.290E+00	2.335E+00	4.008E+00	4.880E-01	0.322
		79.80		2.907E-01	1.298E+00	1.593E+00	3.500E-01	0.183
		236.00		2.514E-01	2.668E-01	4.007E-01	5.018E-02	0.627
		256.20	*	3.982E-01	3.753E-01	6.290E-01	9.834E-02	0.633
		286.10		6.970E-01	1.426E+00	2.478E+00	3.365E-01	0.281
	+	299.80		2.965E+00	1.646E+00	2.575E+00	4.577E-01	1.151
TH-227		304.40		-1.155E+00	1.840E+00	2.721E+00	5.087E-01	-0.425
		334.20		1.142E+00	2.530E+00	3.873E+00	7.592E-01	0.295
		79.80		2.907E-01	1.298E+00	1.593E+00	3.543E-01	0.183
	+	94.00		2.957E+00	2.169E+00	3.311E+00	7.411E-01	0.893
		236.00		2.514E-01	2.665E-01	4.007E-01	4.562E-02	0.627
		256.20	*	3.982E-01	3.772E-01	6.290E-01	1.151E-01	0.633
		286.10		6.970E-01	1.585E+00	2.478E+00	2.489E+00	0.281
	+	299.80		2.965E+00	1.646E+00	2.575E+00	4.577E-01	1.151
		304.40		-1.155E+00	1.840E+00	2.721E+00	5.087E-01	-0.425
		334.20		1.142E+00	2.530E+00	3.873E+00	7.592E-01	0.295
AC-228	+	338.32		1.823E+00	8.779E-01	6.611E-01	2.733E-01	2.758
	+	911.07	*	1.844E+00	3.916E-01	6.154E-01	6.980E-02	2.996
		969.11		1.165E+00	4.967E-01	7.976E-01	1.865E-01	1.460
RA-228	+	338.32		1.823E+00	8.779E-01	6.611E-01	2.733E-01	2.758
	+	911.07	*	1.844E+00	3.916E-01	6.154E-01	6.980E-02	2.996
		969.11		1.165E+00	4.967E-01	7.976E-01	1.865E-01	1.460
TH-229		85.43		3.416E-01	1.352E-01	2.355E-01	2.296E-02	1.451
	+	88.47		5.492E-01	1.176E-01	1.644E-01	1.608E-02	3.340
		100.00		-4.338E-02	1.462E-01	2.378E-01	2.463E-02	-0.182
PA-231		193.63	*	-3.286E-01	4.749E-01	7.347E-01	6.354E-02	-0.447
		210.97		1.012E+00	7.610E-01	1.191E+00	1.050E-01	0.850
		283.67	*	-8.674E-01	1.449E+00	2.358E+00	3.657E-01	-0.368
	+	301.29		1.186E+00	6.417E-01	9.904E-01	1.252E-01	1.198
TH-231		81.07		1.766E-02	1.741E-01	2.116E-01	2.061E-02	0.083
		83.78		1.843E-01	8.740E-02	1.518E-01	1.479E-02	1.214
	+	94.90		3.696E-01	2.609E-01	3.038E-01	3.066E-02	1.217
		122.32		-1.061E+00	1.530E+00	2.435E+00	2.964E-01	-0.436
U-231		144.24		5.378E-01	6.322E-01	1.062E+00	1.172E-01	0.506
		154.21		3.711E-01	3.874E-01	6.578E-01	6.680E-02	0.564
	+	269.46		8.107E-01	3.003E-01	3.834E-01	3.578E-02	2.114
		323.87	*	-8.138E-02	6.446E-01	1.075E+00	1.929E-01	-0.076
	+	338.28		7.613E+00	2.109E+00	2.760E+00	3.475E-01	2.758
		445.03		1.290E+00	2.335E+00	4.008E+00	4.880E-01	0.322
		84.21		7.220E+00	3.577E+00	6.208E+00	6.050E-01	1.163
	+	92.29		1.168E+01	2.539E+00	3.431E+00	3.418E-01	3.403
	+	95.87	*	1.723E+00	1.216E+00	1.257E+00	1.275E-01	1.370
		108.00		1.805E-01	1.708E+00	2.563E+00	2.772E-01	0.070
TH-232	+	338.32		1.823E+00	4.790E-01	6.611E-01	5.957E-02	2.758
	+	911.07	*	1.844E+00	3.916E-01	6.154E-01	6.980E-02	2.996

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		969.11		1.165E+00	4.967E-01	7.976E-01	1.865E-01	1.460
	+	75.28		2.004E+01	4.072E+00	4.864E+00	7.789E-01	4.121
	+	86.59		7.874E+00	2.616E+00	2.428E+00	6.606E-01	3.243
	+	300.12		8.266E-01	4.527E-01	7.238E-01	1.100E-01	1.142
		311.98	*	-6.439E-03	5.905E-02	9.880E-02	9.266E-03	-0.065
		340.50		4.769E-01	6.690E-01	1.034E+00	2.479E-01	0.461
		398.62		8.956E-01	2.166E+00	3.678E+00	9.776E-01	0.244
PA-234		415.76		1.818E-01	1.826E+00	2.683E+00	5.777E-01	0.068
	+	63.00		2.123E+00	1.154E+00	1.314E+00	2.140E-01	1.616
	+	94.67		2.636E-01	1.876E-01	2.370E-01	3.189E-02	1.113
		98.44		7.242E-03	7.930E-02	1.185E-01	6.644E-02	0.061
		99.86		-8.395E-02	3.708E-01	6.053E-01	6.266E-02	-0.139
		111.00		-5.295E-02	1.511E-01	2.466E-01	3.424E-02	-0.215
		131.20		2.904E-02	1.006E-01	1.511E-01	1.677E-02	0.192
		152.70		1.383E-01	3.103E-01	5.164E-01	9.037E-02	0.268
	+	186.00		4.443E+00	2.336E+00	2.498E+00	7.793E-01	1.779
		226.40		-3.570E-01	4.046E-01	6.080E-01	8.158E-02	-0.587
		227.20		3.716E-02	4.172E-01	6.705E-01	6.002E-02	0.055
		248.90		-2.307E-01	8.936E-01	1.230E+00	2.780E-01	-0.188
	+	293.70		5.740E+00	1.578E+00	1.762E+00	3.098E-01	3.259
		369.80		-5.948E-01	8.567E-01	1.340E+00	2.923E-01	-0.444
		568.70		7.234E-01	1.120E+00	1.914E+00	1.702E-01	0.378
		569.50		1.730E-01	3.111E-01	5.272E-01	4.688E-02	0.328
		574.00		-2.287E-01	1.580E+00	2.519E+00	2.237E-01	-0.091
		699.00		-3.477E-01	8.022E-01	1.297E+00	2.472E-01	-0.268
		706.10		-5.851E-01	1.270E+00	2.012E+00	8.970E-01	-0.291
		733.00		-2.282E-01	4.576E-01	6.169E-01	1.370E-01	-0.370
		742.81		1.424E+00	1.812E+00	2.793E+00	1.878E+00	0.510
	+	796.30		1.720E+00	1.915E+00	1.908E+00	5.170E-01	0.902
		805.60		5.919E-01	1.077E+00	1.870E+00	5.741E-01	0.316
		819.60		-1.623E+00	1.563E+00	2.107E+00	8.019E-01	-0.770
		826.30		-6.874E-01	9.391E-01	1.349E+00	6.039E-01	-0.510
		831.60		-4.119E-01	7.056E-01	1.085E+00	3.242E-01	-0.380
		876.40		-7.594E-01	1.194E+00	1.348E+00	1.386E+00	-0.563
		880.51		9.860E-02	3.053E-01	5.224E-01	4.579E-02	0.189
		883.24		6.777E-02	3.169E-01	5.319E-01	3.576E-01	0.127
		899.00		-3.032E-01	9.483E-01	1.497E+00	6.547E-01	-0.203
		925.00		1.335E+00	1.261E+00	2.319E+00	2.030E-01	0.576
		926.50		1.882E-02	1.927E-01	3.132E-01	7.931E-02	0.060
		946.00	*	-7.477E-02	3.039E-01	4.841E-01	9.113E-02	-0.154
		949.00		1.203E-01	4.699E-01	7.971E-01	6.973E-02	0.151
		980.50		2.895E-01	7.088E-01	1.226E+00	1.070E-01	0.236
PA-234M	+	1394.10		9.866E-01	1.281E+00	2.060E+00	1.341E+00	0.479
		766.42		9.968E+00	1.384E+01	2.295E+01	1.165E+01	0.434
NP-236		1001.03	*	-1.914E+00	5.503E+00	8.675E+00	8.705E-01	-0.221
	+	94.67		2.000E-01	1.412E-01	1.801E-01	1.816E-02	1.110
		98.44		5.443E-03	5.987E-02	8.958E-02	9.205E-03	0.061
		111.00		-4.005E-02	1.142E-01	1.865E-01	2.051E-02	-0.215
		160.31	*	1.543E-02	7.694E-02	1.267E-01	1.119E-02	0.122

----- 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		-4.028E-02	1.250E-01	2.032E-01	2.100E-02	-0.198
		117.00	*	-2.050E-01	1.693E-01	2.621E-01	2.981E-02	-0.782
	+	209.75		2.790E+00	1.174E+00	1.458E+00	1.284E-01	1.914
		228.18		1.433E-01	2.217E-01	3.672E-01	3.290E-02	0.390
		277.60		1.835E-01	1.825E-01	3.237E-01	2.971E-02	0.567
		334.30		6.814E-01	1.431E+00	2.202E+00	1.990E-01	0.309
AM-241		59.54	*	2.029E-02	6.011E-02	9.367E-02	9.946E-03	0.217
CM-243		99.55		-4.144E-02	1.286E-01	2.091E-01	2.161E-02	-0.198
	+	103.76	*	1.407E-01	1.251E-01	1.368E-01	1.446E-02	1.029
		117.00		-2.109E-01	1.742E-01	2.696E-01	3.067E-02	-0.782
	+	209.75		2.750E+00	1.158E+00	1.437E+00	1.266E-01	1.914
		228.18		1.448E-01	2.240E-01	3.711E-01	3.324E-02	0.390
		277.60		1.850E-01	1.839E-01	3.264E-01	2.996E-02	0.567
AM-246		798.80		-2.830E-02	1.639E-01	2.314E-01	2.031E-02	-0.122
		1036.00		-5.835E-02	3.555E-01	5.701E-01	4.925E-02	-0.102
		1062.04		2.164E-02	2.576E-01	4.245E-01	3.641E-02	0.051
		1078.86	*	-7.318E-02	1.719E-01	2.660E-01	2.269E-02	-0.275
CM-247		278.00		6.980E-01	7.472E-01	1.323E+00	1.214E-01	0.528
		287.40		1.042E+00	1.093E+00	1.950E+00	1.791E-01	0.534
		402.60	*	1.647E-02	3.795E-02	6.483E-02	5.508E-03	0.254
CF-249		252.85		-3.358E-01	8.621E-01	1.332E+00	1.213E-01	-0.252
		333.44		1.549E-02	1.873E-01	2.790E-01	2.523E-02	0.056
		387.95	*	2.908E-02	4.340E-02	7.519E-02	6.370E-03	0.387
CF-251		176.60	*	8.285E-03	1.171E-01	1.907E-01	1.613E-02	0.043
		227.00		-1.340E-01	3.784E-01	5.917E-01	5.296E-02	-0.226
		285.00		-1.258E+00	1.631E+00	2.628E+00	2.414E-01	-0.479

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600006      *
* Acquisition date   : 22-JAN-2010 08:05:14 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 02:00:09.36 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600006 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4162E+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 :                             *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	1.793E+01	2.174E+00	5.398E-01	0.000E+00
CD-109	4.091E+00	8.584E-01	9.214E-01	0.000E+00
SN-126	4.022E-01	8.441E-02	9.049E-02	0.000E+00
BA-137M	1.220E-01	4.928E-02	8.070E-02	0.000E+00
CS-137	1.289E-01	5.210E-02	8.531E-02	0.000E+00
EU-155	1.571E-01	1.369E-01	1.534E-01	0.000E+00
TL-208	5.001E-01	1.026E-01	6.524E-02	0.000E+00
BI-210	1.173E+00	7.813E-01	7.400E-01	0.000E+00
PB-210	1.173E+00	7.813E-01	7.400E-01	0.000E+00
PO-210	1.173E+00	7.800E-01	7.400E-01	0.000E+00
BI-211	4.011E+00	5.378E-01	3.363E-01	0.000E+00
BI-212	1.605E+00	5.259E-01	4.968E-01	0.000E+00
PB-212	1.669E+00	2.010E-01	9.173E-02	0.000E+00
PO-212	1.669E+00	2.010E-01	9.173E-02	0.000E+00
BI-214	1.335E+00	2.500E-01	1.120E-01	0.000E+00
PB-214	1.395E+00	2.002E-01	1.173E-01	0.000E+00
PO-214	1.395E+00	2.002E-01	1.173E-01	0.000E+00
PO-216	1.669E+00	2.010E-01	9.173E-02	0.000E+00
PO-218	1.395E+00	2.002E-01	1.173E-01	0.000E+00
RA-224	3.918E+00	1.494E+00	1.045E+00	0.000E+00
RA-226	1.335E+00	2.500E-01	1.120E-01	0.000E+00
TH-228	1.694E+00	2.039E-01	9.310E-02	0.000E+00
TH-230	1.335E+00	2.500E-01	1.120E-01	0.000E+00
TH-234	1.821E+00	9.841E-01	9.283E-01	0.000E+00
U-234	1.335E+00	2.500E-01	1.120E-01	0.000E+00
U-235	2.290E-01	1.951E-01	3.511E-01	0.000E+00
NP-237	1.181E+00	3.442E-01	2.649E-01	0.000E+00
U-238	1.821E+00	9.841E-01	9.283E-01	0.000E+00
AM-243	3.826E-01	5.946E-02	5.567E-02	0.000E+00
ANH-511	9.479E-02	6.819E-02	5.450E-02	0.000E+00

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	2.933E-01	3.261E-01	6.001E-01	0.000E+00	NOT IDENT.
NA-22	-1.867E-02	5.028E-02	7.892E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.218E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-7.942E-03	3.620E-02	5.727E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.328E-02	6.081E-02	0.000E+00	FAIL ABUN
SC-46	1.171E-03	4.431E-02	7.619E-02	0.000E+00	FAIL ABUN
V-48	-1.763E-02	7.133E-02	1.173E-01	0.000E+00	NOT IDENT.
CR-51	-2.412E-01	3.433E-01	5.823E-01	0.000E+00	NOT IDENT.
MN-52	-6.337E-02	2.428E-01	3.968E-01	0.000E+00	NOT IDENT.
MN-54	1.461E-02	4.267E-02	7.587E-02	0.000E+00	NOT IDENT.
CO-56	-5.881E-03	3.937E-02	6.668E-02	0.000E+00	NOT IDENT.
CO-57	-1.337E-02	2.171E-02	3.753E-02	0.000E+00	NOT IDENT.
CO-58	-2.888E-02	4.002E-02	6.358E-02	0.000E+00	NOT IDENT.
FE-59	-9.888E-02	1.147E-01	1.737E-01	0.000E+00	NOT IDENT.
CO-60	-8.840E-03	4.107E-02	6.852E-02	0.000E+00	NOT IDENT.
ZN-65	7.983E-02	1.068E-01	1.732E-01	0.000E+00	NOT IDENT.
GE-68	-5.234E-01	1.428E+00	2.297E+00	0.000E+00	NOT IDENT.
AS-73	2.054E-01	1.990E-01	3.817E-01	0.000E+00	NOT IDENT.
AS-74	-1.203E-02	1.019E-01	1.699E-01	0.000E+00	NOT IDENT.
SE-75	2.438E-02	4.625E-02	7.237E-02	0.000E+00	NOT IDENT.
BR-77	4.034E+00	9.932E+00	1.755E+01	0.000E+00	FAIL ABUN
SR-82	-2.889E-01	4.279E-01	6.953E-01	0.000E+00	NOT IDENT.
RB-83	2.732E-02	7.093E-02	1.252E-01	0.000E+00	NOT IDENT.
RB-84	6.420E-02	7.592E-02	1.411E-01	0.000E+00	NOT IDENT.
KR-85	9.089E+00	8.089E+00	1.356E+01	0.000E+00	NOT IDENT.
SR-85	4.646E-02	4.135E-02	6.930E-02	0.000E+00	NOT IDENT.
RB-86	-1.339E-01	8.691E-01	1.434E+00	0.000E+00	NOT IDENT.
Y-88	-2.795E-03	3.317E-02	5.386E-02	0.000E+00	NOT IDENT.
ZR-88	1.032E-03	2.960E-02	5.195E-02	0.000E+00	NOT IDENT.
Y-91	1.225E-01	2.021E+01	3.360E+01	0.000E+00	NOT IDENT.
NB-94	-1.486E-02	3.694E-02	6.257E-02	0.000E+00	NOT IDENT.
NB-95	1.692E-02	4.675E-02	8.377E-02	0.000E+00	NOT IDENT.
NB-95M	1.753E-02	1.351E-01	2.060E-01	0.000E+00	NOT IDENT.
ZR-95	1.433E-03	7.692E-02	1.342E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	8.695E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.580E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-4.449E+00	1.222E+01	2.060E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.763E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.229E-03	3.254E-02	5.633E-02	0.000E+00	NOT IDENT.
RH-102	-1.690E-02	2.936E-02	4.797E-02	0.000E+00	NOT IDENT.
RU-103	-3.998E-02	4.123E-02	6.371E-02	0.000E+00	FAIL ABUN
RH-106	2.215E-01	3.396E-01	6.044E-01	0.000E+00	FAIL ABUN
RU-106	2.215E-01	3.389E-01	6.044E-01	0.000E+00	FAIL ABUN
AG-108M	-1.950E-02	3.654E-02	6.093E-02	0.000E+00	NOT IDENT.
AG-110M	1.175E-02	4.487E-02	6.761E-02	0.000E+00	NOT IDENT.
IN-111	-1.199E+00	9.488E-01	1.462E+00	0.000E+00	NOT IDENT.
IN-113M	-5.751E-03	4.435E-02	7.695E-02	0.000E+00	NOT IDENT.
SN-113	-5.751E-03	4.435E-02	7.695E-02	0.000E+00	NOT IDENT.
IN-114M	8.089E-02	1.789E-01	2.845E-01	0.000E+00	NOT IDENT.
CD-115	3.753E+00	9.995E+00	1.762E+01	0.000E+00	NOT IDENT.
SN-117M	2.636E-04	4.991E-02	8.747E-02	0.000E+00	NOT IDENT.
SB-122	-1.145E+00	2.208E+00	3.570E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.747E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.520E-03	2.635E-02	4.603E-02	0.000E+00	NOT IDENT.
I-124	-7.248E-01	7.940E-01	1.020E+00	0.000E+00	NOT IDENT.
SB-124	3.132E-02	8.554E-02	1.603E-01	0.000E+00	NOT IDENT.
SB-125	-1.501E-02	9.513E-02	1.634E-01	0.000E+00	FAIL ABUN
TE-125M	2.389E-01	8.068E+00	1.303E+01	0.000E+00	NOT IDENT.
I-126	2.817E-01	2.126E-01	3.748E-01	0.000E+00	NOT IDENT.
SB-126	1.578E-01	1.802E-01	3.024E-01	0.000E+00	FAIL ABUN
SB-127	1.083E+00	1.475E+00	2.622E+00	0.000E+00	NOT IDENT.
XE-127	-2.949E-02	4.456E-02	7.373E-02	0.000E+00	NOT IDENT.
I-131	-2.782E-02	1.075E-01	1.859E-01	0.000E+00	NOT IDENT.
TE-132	4.133E-01	6.282E-01	1.105E+00	0.000E+00	NOT IDENT.
BA-133	2.073E-02	4.545E-02	7.361E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.988E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.850E-02	9.394E-02	1.045E-01	0.000E+00	FAIL ABUN
CS-135	2.040E-01	1.726E-01	2.812E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.998E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.103E-01	1.082E-01	1.559E-01	0.000E+00	FAIL ABUN
CE-139	-2.343E-02	2.738E-02	4.559E-02	0.000E+00	NOT IDENT.
BA-140	-3.860E-02	2.771E-01	4.654E-01	0.000E+00	NOT IDENT.
LA-140	6.392E-03	1.035E-01	1.764E-01	0.000E+00	NOT IDENT.
CE-141	-7.257E-02	5.743E-02	9.318E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.931E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	2.872E-02	1.912E-01	3.062E-01	0.000E+00	NOT IDENT.
PM-144	-1.616E-02	3.686E-02	6.222E-02	0.000E+00	NOT IDENT.
PR-144	-1.095E+00	2.498E+00	4.216E+00	0.000E+00	NOT IDENT.
PM-146	1.019E-02	4.477E-02	7.876E-02	0.000E+00	NOT IDENT.
ND-147	-3.563E-01	5.691E-01	9.079E-01	0.000E+00	FAIL ABUN
PM-149	5.527E-01	7.628E+01	1.371E+02	0.000E+00	NOT IDENT.
EU-152	-7.415E-04	8.978E-02	1.589E-01	0.000E+00	NOT IDENT.
GD-153	-1.934E-02	6.575E-02	1.043E-01	0.000E+00	NOT IDENT.
EU-154	-7.253E-02	1.428E-01	2.198E-01	0.000E+00	NOT IDENT.
TB-160	6.852E-03	1.475E-01	2.544E-01	0.000E+00	FAIL ABUN
HO-166M	-7.832E-03	7.009E-02	1.217E-01	0.000E+00	FAIL ABUN
TM-171	-4.769E+00	1.435E+01	2.331E+01	0.000E+00	NOT IDENT.
LU-176	-7.410E-03	2.277E-02	3.985E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.576E+00	2.092E+00	0.000E+00	FAIL ABUN
LU-177M	3.720E-02	1.943E-01	3.034E-01	0.000E+00	FAIL ABUN
HF-181	-1.714E-02	4.358E-02	7.237E-02	0.000E+00	NOT IDENT.
W-181	-9.883E-02	1.758E-01	2.825E-01	0.000E+00	NOT IDENT.
TA-182	2.211E-01	2.395E-01	4.322E-01	0.000E+00	NOT IDENT.
RE-183	1.019E-02	1.045E-01	1.835E-01	0.000E+00	FAIL ABUN
RE-184	-8.939E-02	2.249E-01	3.695E-01	0.000E+00	NOT IDENT.
OS-185	-1.051E-03	4.544E-02	7.581E-02	0.000E+00	NOT IDENT.
RE-188	1.307E-01	1.638E-01	2.971E-01	0.000E+00	NOT IDENT.
W-188	-5.038E+00	7.559E+00	1.129E+01	0.000E+00	FAIL ABUN
IR-192	7.499E-04	3.063E-02	5.469E-02	0.000E+00	FAIL ABUN
AU-195	3.169E-02	1.795E-01	3.098E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.713E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	8.523E-01	5.825E+00	1.024E+01	0.000E+00	NOT IDENT.
TL-202	4.316E-02	7.063E-02	1.279E-01	0.000E+00	NOT IDENT.
HG-203	3.210E-02	3.984E-02	7.443E-02	0.000E+00	NOT IDENT.
BI-207	1.241E-02	5.438E-02	9.413E-02	0.000E+00	FAIL ABUN
TL-207	-8.138E-02	6.317E-01	1.115E+00	0.000E+00	FAIL ABUN
PO-209	-7.806E+00	8.460E+00	1.297E+01	0.000E+00	NOT IDENT.
PB-211	3.490E-01	9.458E-01	1.652E+00	0.000E+00	NOT IDENT.
PO-215	-8.138E-02	6.317E-01	1.115E+00	0.000E+00	FAIL ABUN
RN-219	-2.426E-01	4.303E-01	7.198E-01	0.000E+00	FAIL ABUN
RN-220	-9.639E+00	2.931E+01	4.832E+01	0.000E+00	NOT IDENT.
RA-223	-8.138E-02	6.317E-01	1.115E+00	0.000E+00	FAIL ABUN
AC-227	3.982E-01	3.578E-01	6.555E-01	0.000E+00	FAIL ABUN
TH-227	3.982E-01	3.697E-01	6.555E-01	0.000E+00	FAIL ABUN
AC-228	0.000E+00	3.838E-01	6.244E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	3.838E-01	6.244E-01	0.000E+00	FAIL ABUN
TH-229	-3.286E-01	4.654E-01	7.700E-01	0.000E+00	FAIL ABUN
PA-231	-8.674E-01	1.420E+00	2.452E+00	0.000E+00	FAIL ABUN
TH-231	-8.138E-02	6.317E-01	1.115E+00	0.000E+00	FAIL ABUN
U-231	0.000E+00	1.192E+00	1.336E+00	0.000E+00	FAIL ABUN
TH-232	0.000E+00	3.838E-01	6.244E-01	0.000E+00	FAIL ABUN
PA-233	-6.439E-03	5.787E-02	1.025E-01	0.000E+00	FAIL ABUN
PA-234	-7.477E-02	2.978E-01	4.908E-01	0.000E+00	FAIL ABUN
PA-234M	-1.914E+00	5.393E+00	8.785E+00	0.000E+00	NOT IDENT.
NP-236	1.543E-02	7.540E-02	1.333E-01	0.000E+00	FAIL ABUN
NP-239	-2.050E-01	1.659E-01	2.775E-01	0.000E+00	FAIL ABUN
AM-241	2.029E-02	5.891E-02	1.005E-01	0.000E+00	NOT IDENT.
CM-243	1.407E-01	1.226E-01	1.452E-01	0.000E+00	FAIL ABUN
AM-246	-7.318E-02	1.685E-01	2.689E-01	0.000E+00	NOT IDENT.
CM-247	1.647E-02	3.719E-02	6.693E-02	0.000E+00	NOT IDENT.
CF-249	2.908E-02	4.253E-02	7.768E-02	0.000E+00	NOT IDENT.
CF-251	8.285E-03	1.148E-01	2.003E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600006.CNF;1
Sample date     : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:05:14
Sample ID       : G244600006           Sample quantity  : 1.41620E+02 GRAM
Detector name   : GAM17               Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:09.36 0.1%
Energy tolerance: 1.50000 keV         Analyst Initials : MXR1
Abundance limit : 75.00000           Sensitivity      : 5.00000
Batch ID        : 941635             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	562	10.67*	7.784E-01	1.793E+01	1.793E+01	12.38
CD-109	88.03	375	3.72*	6.676E+00	4.001E+00	4.091E+00	21.41
SN-126	64.28	177	9.60	6.777E+00	7.210E-01	7.210E-01	54.28
	86.94	375	8.90	6.676E+00	1.672E+00	1.672E+00	45.77
	87.57	375	37.00*	6.676E+00	4.022E-01	4.022E-01	21.41
BA-137M	661.65	66	89.98*	1.605E+00	1.219E-01	1.220E-01	41.23
CS-137	661.65	66	85.12*	1.605E+00	1.288E-01	1.289E-01	41.23
EU-155	48.70	-----	4.60	6.416E+00	-----	Line Not Found	-----
	60.01	-----	1.11	6.736E+00	-----	Line Not Found	-----
	86.54	375	30.90	6.676E+00	4.816E-01	4.844E-01	21.45
	105.31	78	20.70*	6.377E+00	1.562E-01	1.571E-01	88.90
TL-208	277.35	-----	6.80	3.568E+00	-----	Line Not Found	-----
	510.84	74	21.60	2.058E+00	4.388E-01	4.388E-01	73.88
	583.14	288	84.20*	1.812E+00	5.001E-01	5.001E-01	20.93
	860.37	-----	12.46	1.247E+00	-----	Line Not Found	-----
BI-210	46.50	113	4.05*	6.314E+00	1.172E+00	1.173E+00	67.97
PB-210	46.50	113	4.05*	6.314E+00	1.172E+00	1.173E+00	67.97
PO-210	46.50	113	4.05*	6.314E+00	1.172E+00	1.173E+00	67.85
BI-211	72.87	-----	1.27	6.803E+00	-----	Line Not Found	-----
	351.07	570	12.94*	2.909E+00	4.011E+00	4.011E+00	13.68
BI-212	727.18	105	11.80*	1.465E+00	1.605E+00	1.605E+00	33.44
	785.46	14	1.97	1.358E+00	1.433E+00	1.433E+00	218.83
	1620.62	-----	2.75	7.161E-01	-----	Line Not Found	-----
PB-212	74.81	647	10.70	6.795E+00	2.360E+00	2.360E+00	18.41
	77.11	1041	18.00	6.782E+00	2.260E+00	2.260E+00	13.03
	87.30	375	8.00	6.676E+00	1.860E+00	1.860E+00	23.63
	238.63	1130	44.60*	4.023E+00	1.669E+00	1.669E+00	12.29
	300.09	69	3.41	3.342E+00	1.600E+00	1.600E+00	53.73
PO-212	74.81	647	10.70	6.795E+00	2.360E+00	2.360E+00	18.41
	77.11	1041	18.00	6.782E+00	2.260E+00	2.260E+00	13.03
	87.30	375	8.00	6.676E+00	1.860E+00	1.860E+00	23.63
	115.19	-----	0.60	6.177E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BI-214	238.63	1130	44.60*	4.023E+00	1.669E+00	1.669E+00	12.29
	300.09	69	3.41	3.342E+00	1.600E+00	1.600E+00	53.73
	609.31	405	46.30*	1.737E+00	1.335E+00	1.335E+00	19.10
	1120.29	83	15.10	9.778E-01	1.497E+00	1.497E+00	35.33
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
PB-214	74.81	647	6.21	6.795E+00	4.066E+00	4.066E+00	17.50
	77.11	1041	10.50	6.782E+00	3.875E+00	3.875E+00	15.10
	87.30	375	4.67	6.676E+00	3.187E+00	3.187E+00	22.76
	241.98	233	7.49	3.985E+00	2.066E+00	2.066E+00	39.32
	295.21	294	19.20	3.389E+00	1.196E+00	1.196E+00	23.87
PO-214	351.92	570	37.20*	2.909E+00	1.395E+00	1.395E+00	14.64
	74.81	647	6.21	6.795E+00	4.066E+00	4.066E+00	17.50
	77.11	1041	10.50	6.782E+00	3.875E+00	3.875E+00	15.10
	87.30	375	4.67	6.676E+00	3.187E+00	3.187E+00	22.76
	241.98	233	7.49	3.985E+00	2.066E+00	2.066E+00	39.32
PO-216	295.21	294	19.20	3.389E+00	1.196E+00	1.196E+00	23.87
	351.92	570	37.20*	2.909E+00	1.395E+00	1.395E+00	14.64
	74.81	647	10.70	6.795E+00	2.360E+00	2.360E+00	18.41
	77.11	1041	18.00	6.782E+00	2.260E+00	2.260E+00	13.03
	87.30	375	8.00	6.676E+00	1.860E+00	1.860E+00	23.63
PO-218	238.63	1130	44.60*	4.023E+00	1.669E+00	1.669E+00	12.29
	300.09	69	3.41	3.342E+00	1.600E+00	1.600E+00	53.73
	74.81	647	6.21	6.795E+00	4.066E+00	4.066E+00	17.50
	77.11	1041	10.50	6.782E+00	3.875E+00	3.875E+00	15.10
	87.30	375	4.67	6.676E+00	3.187E+00	3.187E+00	22.76
RA-224	241.98	233	7.49	3.985E+00	2.066E+00	2.066E+00	39.32
	295.21	294	19.20	3.389E+00	1.196E+00	1.196E+00	23.87
	351.92	570	37.20*	2.909E+00	1.395E+00	1.395E+00	14.64
	240.98	233	3.95*	3.985E+00	3.918E+00	3.918E+00	38.92
	609.31	405	46.30*	1.737E+00	1.335E+00	1.335E+00	19.10
TH-228	1120.29	83	15.10	9.778E-01	1.497E+00	1.497E+00	35.33
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
	74.81	647	10.70	6.795E+00	2.360E+00	2.395E+00	15.90
	77.11	1041	18.00	6.782E+00	2.260E+00	2.294E+00	13.03
	87.30	375	8.00	6.676E+00	1.860E+00	1.888E+00	21.41
TH-230	238.63	1130	44.60*	4.023E+00	1.669E+00	1.694E+00	12.29
	300.09	69	3.41	3.342E+00	1.600E+00	1.624E+00	79.32
	609.31	405	46.30*	1.737E+00	1.335E+00	1.335E+00	19.10
	1120.29	83	15.10	9.778E-01	1.497E+00	1.497E+00	35.33
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
TH-234	63.29	177	3.80*	6.777E+00	1.821E+00	1.821E+00	55.13
	92.38	431	5.41	6.596E+00	3.204E+00	3.204E+00	26.93
	609.31	405	46.30*	1.737E+00	1.335E+00	1.335E+00	19.10
U-234	1120.29	83	15.10	9.778E-01	1.497E+00	1.497E+00	35.33
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
	89.95	258	2.70	6.637E+00	3.820E+00	3.820E+00	40.76
U-235	93.35	431	4.50	6.596E+00	3.852E+00	3.852E+00	34.41
	105.00	78	2.10	6.377E+00	1.540E+00	1.540E+00	93.37
	143.76	-----	10.50*	5.592E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	163.35	-----	4.70	5.210E+00	-----	Line Not Found	-----
	185.71	161	54.00	4.806E+00	1.646E-01	1.646E-01	43.17
	205.31	-----	4.70	4.493E+00	-----	Line Not Found	-----
NP-237	86.50	375	12.60*	6.676E+00	1.181E+00	1.181E+00	29.74
	95.87	103	2.60	6.566E+00	1.592E+00	1.592E+00	74.27
U-238	63.29	177	3.80*	6.777E+00	1.821E+00	1.821E+00	55.13
	92.38	431	5.41	6.596E+00	3.204E+00	3.204E+00	21.74
AM-243	74.67	647	66.00*	6.795E+00	3.826E-01	3.826E-01	15.86
	86.72	375	0.34	6.676E+00	4.429E+01	4.429E+01	21.41
	117.66	-----	0.55	6.127E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.624E+00	-----	Line Not Found	-----
ANH-511	511.00	74	100.00*	2.058E+00	9.479E-02	9.479E-02	73.40

Flag: "\*" = Keyline

Total number of lines in spectrum 36  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 33 91.67%

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	1.793E+01	1.793E+01	0.222E+01	12.38	
CD-109	464.00D	1.02	4.001E+00	4.091E+00	0.876E+00	21.41	
SN-126	1.00E+05Y	1.00	4.022E-01	4.022E-01	0.861E-01	21.41	
BA-137M	30.17Y	1.00	1.219E-01	1.220E-01	0.503E-01	41.23	
CS-137	30.17Y	1.00	1.288E-01	1.289E-01	0.532E-01	41.23	
EU-155	4.96Y	1.01	1.562E-01	1.571E-01	1.397E-01	88.90	
TL-208	1.41E+10Y	1.00	5.001E-01	5.001E-01	1.047E-01	20.93	
BI-210	22.26Y	1.00	1.172E+00	1.173E+00	0.797E+00	67.97	
PB-210	22.26Y	1.00	1.172E+00	1.173E+00	0.797E+00	67.97	
PO-210	22.26Y	1.00	1.172E+00	1.173E+00	0.796E+00	67.85	
BI-211	7.04E+08Y	1.00	4.011E+00	4.011E+00	0.549E+00	13.68	
BI-212	1.41E+10Y	1.00	1.605E+00	1.605E+00	0.537E+00	33.44	
PB-212	1.41E+10Y	1.00	1.669E+00	1.669E+00	0.205E+00	12.29	
PO-212	1.41E+10Y	1.00	1.669E+00	1.669E+00	0.205E+00	12.29	
BI-214	1600.00Y	1.00	1.335E+00	1.335E+00	0.255E+00	19.10	
PB-214	1600.00Y	1.00	1.395E+00	1.395E+00	0.204E+00	14.64	
PO-214	1600.00Y	1.00	1.395E+00	1.395E+00	0.204E+00	14.64	
PO-216	1.41E+10Y	1.00	1.669E+00	1.669E+00	0.205E+00	12.29	
PO-218	1600.00Y	1.00	1.395E+00	1.395E+00	0.204E+00	14.64	
RA-224	1.41E+10Y	1.00	3.918E+00	3.918E+00	1.525E+00	38.92	
RA-226	1600.00Y	1.00	1.335E+00	1.335E+00	0.255E+00	19.10	
TH-228	1.91Y	1.01	1.669E+00	1.694E+00	0.208E+00	12.29	
TH-230	4.47E+09Y	1.00	1.335E+00	1.335E+00	0.255E+00	19.10	
TH-234	4.47E+09Y	1.00	1.821E+00	1.821E+00	1.004E+00	55.13	
U-234	4.47E+09Y	1.00	1.335E+00	1.335E+00	0.255E+00	19.10	
U-235	7.04E+08Y	1.00	1.646E-01	1.646E-01	0.710E-01	43.17	K
NP-237	2.14E+06Y	1.00	1.181E+00	1.181E+00	0.351E+00	29.74	
U-238	4.47E+09Y	1.00	1.821E+00	1.821E+00	1.004E+00	55.13	
AM-243	7380.00Y	1.00	3.826E-01	3.826E-01	0.607E-01	15.86	
ANH-511	1.00E+09Y	1.00	9.479E-02	9.479E-02	6.958E-02	73.40	

Total Activity : 5.795E+01 5.807E+01

Grand Total Activity : 5.795E+01 5.807E+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	128.98	148	286	1.77	257.65	253	10	2.05E-02	45.8	5.89E+00	T
0	209.28	151	229	1.35	418.31	414	10	2.10E-02	41.2	4.43E+00	T
0	270.13	152	156	1.23	540.05	534	11	2.11E-02	35.9	3.65E+00	T
0	338.03	236	157	1.03	675.91	670	11	3.28E-02	24.7	3.01E+00	T
1	349.51	40	39	1.12	698.89	697	11	5.61E-03	63.9	2.93E+00	T
0	409.91	23	119	3.08	819.74	818	9	3.13E-03	****	2.53E+00	T
0	463.36	81	123	1.43	926.70	919	15	1.13E-02	63.7	2.26E+00	T
0	795.13	34	64	1.53	1590.61	1582	15	4.72E-03	****	1.34E+00	T
0	862.68	83	60	8.34	1725.79	1714	24	1.16E-02	55.8	1.24E+00	
0	910.49	228	39	1.59	1821.48	1816	14	3.16E-02	18.0	1.18E+00	T
0	933.69	28	24	1.11	1867.92	1863	11	3.83E-03	79.4	1.15E+00	
0	1392.96	9	6	1.35	2787.16	2779	10	1.30E-03	****	8.09E-01	T
0	1762.92	52	21	1.15	3527.76	3518	17	7.27E-03	50.4	6.72E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600006.CNF;1
* Acquisition date   : 22-JAN-2010 08:05:14   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 02:00:09.36           Half life ratio   : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244600006             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity  : 1.41620E+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        :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	1.793E+01	2.219E+00	5.375E-01	4.772E-02	33.347
CD-109	4.091E+00	8.759E-01	8.655E-01	8.449E-02	4.727
SN-126	4.022E-01	8.613E-02	8.498E-02	8.293E-03	4.733
BA-137M	1.220E-01	5.029E-02	7.899E-02	6.654E-03	1.544
CS-137	1.289E-01	5.317E-02	8.350E-02	7.048E-03	1.544
EU-155	1.571E-01	1.397E-01	1.446E-01	1.553E-02	1.087
TL-208	5.001E-01	1.047E-01	6.368E-02	6.023E-03	7.853
BI-210	1.173E+00	7.972E-01	6.865E-01	7.447E-02	1.709
PB-210	1.173E+00	7.972E-01	6.865E-01	7.447E-02	1.709
PO-210	1.173E+00	7.959E-01	6.865E-01	6.936E-02	1.709
BI-211	4.011E+00	5.488E-01	3.248E-01	3.031E-02	12.350
BI-212	1.605E+00	5.367E-01	4.873E-01	4.889E-02	3.293
PB-212	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988
PO-212	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988
BI-214	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
PB-214	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
PO-214	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
PO-216	1.669E+00	2.051E-01	8.790E-02	8.862E-03	18.988

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-218	1.395E+00	2.043E-01	1.133E-01	1.210E-02	12.320
RA-224	3.918E+00	1.525E+00	1.001E+00	9.054E-02	3.913
RA-226	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
TH-228	1.694E+00	2.081E-01	8.921E-02	8.994E-03	18.988
TH-230	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
TH-234	1.821E+00	1.004E+00	8.663E-01	1.617E-01	2.103
U-234	1.335E+00	2.551E-01	1.095E-01	1.113E-02	12.197
U-235	1.646E-01	7.104E-02	3.330E-01	6.105E-02	0.494
NP-237	1.181E+00	3.512E-01	2.487E-01	5.677E-02	4.748
U-238	1.821E+00	1.004E+00	8.663E-01	1.617E-01	2.103
AM-243	3.826E-01	6.068E-02	5.212E-02	5.088E-03	7.341
ANH-511	9.479E-02	6.958E-02	5.306E-02	4.738E-03	1.787

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.933E-01		3.327E-01	5.834E-01	5.551E-02	0.503
NA-22	-1.867E-02		5.131E-02	7.835E-02	6.601E-03	-0.238
NA-24	3.220E-01		3.172E-01	Half-Life too short		
AL-26	-7.942E-03		3.694E-02	5.730E-02	4.802E-03	-0.139
TI-44	4.171E-01	+	5.436E-02	5.699E-02	5.553E-03	7.319
SC-46	1.171E-03		4.522E-02	7.505E-02	6.570E-03	0.016
V-48	-1.763E-02		7.278E-02	1.157E-01	1.010E-02	-0.152
CR-51	-2.412E-01		3.503E-01	5.614E-01	5.361E-02	-0.430
MN-52	-6.337E-02		2.477E-01	3.949E-01	3.405E-02	-0.160
MN-54	1.461E-02		4.354E-02	7.463E-02	6.562E-03	0.196
CO-56	-5.881E-03		4.017E-02	6.562E-02	5.768E-03	-0.090
CO-57	-1.337E-02		2.216E-02	3.548E-02	4.157E-03	-0.377
CO-58	-2.888E-02		4.084E-02	6.250E-02	5.504E-03	-0.462
FE-59	-9.888E-02		1.170E-01	1.718E-01	1.577E-02	-0.575
CO-60	-8.840E-03		4.190E-02	6.809E-02	5.803E-03	-0.130
ZN-65	7.983E-02		1.090E-01	1.714E-01	1.443E-02	0.466
GE-68	-5.234E-01		1.458E+00	2.272E+00	1.939E-01	-0.230
AS-73	2.054E-01		2.031E-01	3.550E-01	3.552E-02	0.579
AS-74	-1.203E-02		1.040E-01	1.659E-01	1.462E-02	-0.072
SE-75	2.438E-02		4.720E-02	6.949E-02	6.384E-03	0.351
BR-77	4.034E+00		1.013E+01	1.709E+01	1.528E+00	0.236
SR-82	-2.889E-01		4.366E-01	6.829E-01	5.976E-02	-0.423
RB-83	2.732E-02		7.238E-02	1.219E-01	1.090E-02	0.224
RB-84	6.420E-02		7.747E-02	1.389E-01	1.218E-02	0.462
KR-85	9.089E+00		8.254E+00	1.320E+01	1.179E+00	0.689
SR-85	4.646E-02		4.219E-02	6.747E-02	6.028E-03	0.689
RB-86	-1.339E-01		8.869E-01	1.419E+00	1.211E-01	-0.094
Y-88	-2.795E-03		3.385E-02	5.390E-02	4.495E-03	-0.052
ZR-88	1.032E-03		3.020E-02	5.030E-02	4.238E-03	0.021
Y-91	1.225E-01		2.062E+01	3.332E+01	2.750E+00	0.004
NB-94	-1.486E-02		3.770E-02	6.132E-02	5.260E-03	-0.242

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	1.692E-02		4.770E-02	8.225E-02	7.184E-03	0.206
NB-95M	1.753E-02		1.379E-01	1.973E-01	2.015E-02	0.089
ZR-95	1.433E-03		7.849E-02	1.317E-01	1.262E-02	0.011
NB-97	9.165E-02		4.436E-02	Half-Life too short		
ZR-97	1.925E+00		8.059E-01	Half-Life too short		
MO-99	-4.449E+00		1.247E+01	2.021E+01	3.075E+00	-0.220
TC-99M	-2.212E+10		8.996E+09	Half-Life too short		
RH-101	3.229E-03		3.320E-02	5.377E-02	4.675E-03	0.060
RH-102	-1.690E-02		2.996E-02	4.662E-02	4.130E-03	-0.363
RU-103	-3.998E-02		4.208E-02	6.198E-02	8.889E-03	-0.645
RH-106	2.215E-01		3.465E-01	5.908E-01	7.917E-02	0.375
RU-106	2.215E-01		3.458E-01	5.908E-01	5.133E-02	0.375
AG-108M	-1.950E-02		3.729E-02	5.911E-02	5.335E-03	-0.330
AG-110M	1.175E-02		4.579E-02	6.616E-02	5.767E-03	0.178
IN-111	-1.199E+00		9.682E-01	1.402E+00	1.271E-01	-0.856
IN-113M	-5.751E-03		4.525E-02	7.449E-02	6.472E-03	-0.077
SN-113	-5.751E-03		4.525E-02	7.449E-02	6.472E-03	-0.077
IN-114M	8.089E-02		1.825E-01	2.714E-01	2.337E-02	0.298
CD-115	3.753E+00		1.020E+01	1.717E+01	1.535E+00	0.219
SN-117M	2.636E-04		5.093E-02	8.312E-02	7.471E-03	0.003
SB-122	-1.145E+00		2.253E+00	3.482E+00	3.101E-01	-0.329
I-123	-2.162E-01		1.912E+00	Half-Life too short		
TE-123M	-1.520E-03		2.689E-02	4.374E-02	3.937E-03	-0.035
I-124	-7.248E-01		8.102E-01	9.961E-01	8.747E-02	-0.728
SB-124	3.132E-02		8.729E-02	1.601E-01	1.425E-02	0.196
SB-125	-1.501E-02		9.707E-02	1.584E-01	1.397E-02	-0.095
TE-125M	2.389E-01		8.232E+00	1.229E+01	1.510E+00	0.019
I-126	2.817E-01		2.170E-01	3.669E-01	3.098E-02	0.768
SB-126	1.578E-01		1.839E-01	2.965E-01	2.559E-02	0.532
SB-127	1.083E+00		1.505E+00	2.568E+00	2.883E-01	0.422
XE-127	-2.949E-02		4.547E-02	7.041E-02	6.156E-03	-0.419
I-131	-2.782E-02		1.097E-01	1.797E-01	1.659E-02	-0.155
TE-132	4.133E-01		6.410E-01	1.058E+00	1.677E-01	0.391
BA-133	2.073E-02		4.638E-02	7.111E-02	9.501E-03	0.292
I-133	-1.613E-03		2.545E-03	Half-Life too short		
CS-134	8.850E-02	+	9.586E-02	1.027E-01	9.077E-03	0.862
CS-135	2.040E-01		1.761E-01	2.701E-01	2.818E-02	0.755
I-135	7.674E+08		1.530E+09	Half-Life too short		
CS-136	-1.103E-01		1.104E-01	1.542E-01	1.384E-02	-0.716
CE-139	-2.343E-02		2.794E-02	4.336E-02	3.616E-03	-0.540
BA-140	-3.860E-02		2.828E-01	4.535E-01	1.507E-01	-0.085
LA-140	6.392E-03		1.056E-01	1.760E-01	1.519E-02	0.036
CE-141	-7.257E-02		5.861E-02	8.839E-02	9.015E-03	-0.821
CE-143	5.994E-04		9.853E-05	Half-Life too short		
CE-144	2.872E-02		1.951E-01	2.900E-01	4.919E-02	0.099
PM-144	-1.616E-02		3.762E-02	6.097E-02	5.219E-03	-0.265
PR-144	-1.095E+00		2.549E+00	4.131E+00	3.535E-01	-0.265
PM-146	1.019E-02		4.569E-02	7.648E-02	8.301E-03	0.133



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-3.563E-01		5.807E-01	8.845E-01	1.339E-01	-0.403
PM-149	5.527E-01		7.784E+01	1.319E+02	2.092E+01	0.004
EU-152	-7.415E-04		9.162E-02	1.534E-01	1.451E-02	-0.005
GD-153	-1.934E-02		6.709E-02	9.821E-02	1.004E-02	-0.197
EU-154	-7.253E-02		1.457E-01	2.182E-01	2.434E-02	-0.332
TB-160	6.852E-03		1.505E-01	2.505E-01	2.196E-02	0.027
HO-166M	-7.832E-03		7.152E-02	1.193E-01	1.026E-02	-0.066
TM-171	-4.769E+00		1.465E+01	2.177E+01	2.149E+00	-0.219
LU-176	-7.410E-03		2.323E-02	3.838E-02	3.517E-03	-0.193
LU-177	3.821E+00	+	1.608E+00	1.999E+00	1.758E-01	1.912
LU-177M	3.720E-02		1.983E-01	2.941E-01	2.520E-02	0.126
HF-181	-1.714E-02		4.447E-02	7.036E-02	6.247E-03	-0.244
W-181	-9.883E-02		1.794E-01	2.638E-01	2.613E-02	-0.375
TA-182	2.211E-01		2.444E-01	4.287E-01	3.556E-02	0.516
RE-183	1.019E-02		1.066E-01	1.745E-01	1.511E-02	0.058
RE-184	-8.939E-02		2.295E-01	3.545E-01	3.228E-02	-0.252
OS-185	-1.051E-03		4.637E-02	7.416E-02	6.332E-03	-0.014
RE-188	1.307E-01		1.672E-01	2.822E-01	2.622E-02	0.463
W-188	-5.038E+00		7.714E+00	1.087E+01	9.980E-01	-0.464
IR-192	7.499E-04		3.126E-02	5.271E-02	4.822E-03	0.014
AU-195	3.169E-02		1.832E-01	2.917E-01	3.004E-02	0.109
TL-200	-7.639E-05		1.894E-04	Half-Life too short		
TL-201	8.523E-01		5.944E+00	9.743E+00	8.136E-01	0.087
TL-202	4.316E-02		7.207E-02	1.241E-01	1.081E-02	0.348
HG-203	3.210E-02		4.065E-02	7.155E-02	6.733E-03	0.449
BI-207	1.241E-02		5.549E-02	9.308E-02	7.980E-03	0.133
TL-207	-8.138E-02		6.446E-01	1.075E+00	1.929E-01	-0.076
PO-209	-7.806E+00		8.633E+00	1.278E+01	1.118E+00	-0.611
PB-211	3.490E-01		9.651E-01	1.600E+00	1.003E+00	0.218
PO-215	-8.138E-02		6.446E-01	1.075E+00	1.929E-01	-0.076
RN-219	-2.426E-01		4.391E-01	6.972E-01	1.042E-01	-0.348
RN-220	-9.639E+00		2.990E+01	4.711E+01	4.205E+00	-0.205
RA-223	-8.138E-02		6.446E-01	1.075E+00	1.929E-01	-0.076
AC-227	3.982E-01		3.753E-01	6.290E-01	9.834E-02	0.633
TH-227	3.982E-01		3.772E-01	6.290E-01	1.151E-01	0.633
AC-228	1.844E+00	+	3.916E-01	6.154E-01	6.980E-02	2.996
RA-228	1.844E+00	+	3.916E-01	6.154E-01	6.980E-02	2.996
TH-229	-3.286E-01		4.749E-01	7.347E-01	6.354E-02	-0.447
PA-231	-8.674E-01		1.449E+00	2.358E+00	3.657E-01	-0.368
TH-231	-8.138E-02		6.446E-01	1.075E+00	1.929E-01	-0.076
U-231	1.723E+00	+	1.216E+00	1.257E+00	1.275E-01	1.370
TH-232	1.844E+00	+	3.916E-01	6.154E-01	6.980E-02	2.996
PA-233	-6.439E-03		5.905E-02	9.880E-02	9.266E-03	-0.065
PA-234	-7.477E-02		3.039E-01	4.841E-01	9.113E-02	-0.154
PA-234M	-1.914E+00		5.503E+00	8.675E+00	8.705E-01	-0.221
NP-236	1.543E-02		7.694E-02	1.267E-01	1.119E-02	0.122
NP-239	-2.050E-01		1.693E-01	2.621E-01	2.981E-02	-0.782
AM-241	2.029E-02		6.011E-02	9.367E-02	9.946E-03	0.217

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.407E-01	+	1.251E-01	1.368E-01	1.446E-02	1.029
AM-246	-7.318E-02		1.719E-01	2.660E-01	2.269E-02	-0.275
CM-247	1.647E-02		3.795E-02	6.483E-02	5.508E-03	0.254
CF-249	2.908E-02		4.340E-02	7.519E-02	6.370E-03	0.387
CF-251	8.285E-03		1.171E-01	1.907E-01	1.613E-02	0.043

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600006          *
* Acquisition date   : 22-JAN-2010 08:05:14 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 02:00:09.36 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600006 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4162E+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 :                               *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TFU
K-40	1.793E+01	2.174E+00	2.701E-01	1.109E+00
CD-109	4.091E+00	8.584E-01	4.610E-01	4.380E-01
SN-126	4.022E-01	8.441E-02	4.527E-02	4.307E-02
BA-137M	1.220E-01	4.928E-02	4.037E-02	2.515E-02
CS-137	1.289E-01	5.210E-02	4.268E-02	2.658E-02
EU-155	1.571E-01	1.369E-01	7.674E-02	6.983E-02
TL-208	5.001E-01	1.026E-01	3.264E-02	5.234E-02
BI-210	1.173E+00	7.813E-01	3.702E-01	3.986E-01
PB-210	1.173E+00	7.813E-01	3.702E-01	3.986E-01
PO-210	1.173E+00	7.800E-01	3.702E-01	3.980E-01
BI-211	4.011E+00	5.378E-01	1.682E-01	2.744E-01
BI-212	1.605E+00	5.259E-01	2.486E-01	2.683E-01
PB-212	1.669E+00	2.010E-01	4.589E-02	1.025E-01
PO-212	1.669E+00	2.010E-01	4.589E-02	1.025E-01
BI-214	1.335E+00	2.500E-01	5.605E-02	1.275E-01
PB-214	1.395E+00	2.002E-01	5.866E-02	1.022E-01
PO-214	1.395E+00	2.002E-01	5.866E-02	1.022E-01
PO-216	1.669E+00	2.010E-01	4.589E-02	1.025E-01
PO-218	1.395E+00	2.002E-01	5.866E-02	1.022E-01
RA-224	3.918E+00	1.494E+00	5.226E-01	7.625E-01
RA-226	1.335E+00	2.500E-01	5.605E-02	1.275E-01
TH-228	1.694E+00	2.039E-01	4.658E-02	1.041E-01
TH-230	1.335E+00	2.500E-01	5.605E-02	1.275E-01
TH-234	1.821E+00	9.841E-01	4.644E-01	5.021E-01
U-234	1.335E+00	2.500E-01	5.605E-02	1.275E-01
U-235	2.290E-01	1.951E-01	1.757E-01	9.955E-02
NP-237	1.181E+00	3.442E-01	1.325E-01	1.756E-01
U-238	1.821E+00	9.841E-01	4.644E-01	5.021E-01
AM-243	3.826E-01	5.946E-02	2.785E-02	3.034E-02
ANH-511	9.479E-02	6.819E-02	2.727E-02	3.479E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.933E-01	3.261E-01	3.002E-01	1.664E-01 NOT IDENT.
NA-22	-1.867E-02	5.028E-02	3.948E-02	2.565E-02 NOT IDENT.
NA-24	3.220E+05	6.218E+05	0.000E+00	3.172E+05 SHORT HLIF
AL-26	-7.942E-03	3.620E-02	2.865E-02	1.847E-02 NOT IDENT.
TI-44	4.171E-01	5.328E-02	3.042E-02	2.718E-02 FAIL ABUN
SC-46	1.171E-03	4.431E-02	3.812E-02	2.612E-02 FAIL ABUN
V-48	-1.763E-02	7.133E-02	5.866E-02	3.639E-02 NOT IDENT.
CR-51	-2.412E-01	3.433E-01	2.913E-01	1.751E-01 NOT IDENT.
MN-52	-6.337E-02	2.428E-01	1.985E-01	1.239E-01 NOT IDENT.
MN-54	1.461E-02	4.267E-02	3.796E-02	2.177E-02 NOT IDENT.
CO-56	-5.881E-03	3.937E-02	3.336E-02	2.009E-02 NOT IDENT.
CO-57	-1.337E-02	2.171E-02	1.878E-02	1.108E-02 NOT IDENT.
CO-58	-2.888E-02	4.002E-02	3.181E-02	2.042E-02 NOT IDENT.
FE-59	-9.888E-02	1.147E-01	8.688E-02	5.850E-02 NOT IDENT.
CO-60	-8.840E-03	4.107E-02	3.428E-02	2.095E-02 NOT IDENT.
ZN-65	7.983E-02	1.068E-01	8.664E-02	5.448E-02 NOT IDENT.
GE-68	-5.234E-01	1.428E+00	1.149E+00	7.288E-01 NOT IDENT.
AS-73	2.054E-01	1.990E-01	1.909E-01	1.015E-01 NOT IDENT.
AS-74	-1.203E-02	1.019E-01	8.499E-02	5.199E-02 NOT IDENT.
SE-75	2.438E-02	4.625E-02	3.621E-02	2.360E-02 NOT IDENT.
BR-77	4.034E+00	9.932E+00	8.782E+00	5.067E+00 FAIL ABUN
SR-82	-2.889E-01	4.279E-01	3.478E-01	2.183E-01 NOT IDENT.
RB-83	2.732E-02	7.093E-02	6.263E-02	3.619E-02 NOT IDENT.
RB-84	6.420E-02	7.592E-02	7.058E-02	3.873E-02 NOT IDENT.
KR-85	9.089E+00	8.089E+00	6.782E+00	4.127E+00 NOT IDENT.
SR-85	4.646E-02	4.135E-02	3.467E-02	2.110E-02 NOT IDENT.
RB-86	-1.339E-01	8.691E-01	7.176E-01	4.434E-01 NOT IDENT.
Y-88	-2.795E-03	3.317E-02	2.695E-02	1.693E-02 NOT IDENT.
ZR-88	1.032E-03	2.960E-02	2.599E-02	1.510E-02 NOT IDENT.
Y-91	1.225E-01	2.021E+01	1.681E+01	1.031E+01 NOT IDENT.
NB-94	-1.486E-02	3.694E-02	3.130E-02	1.885E-02 NOT IDENT.
NB-95	1.692E-02	4.675E-02	4.191E-02	2.385E-02 NOT IDENT.
NB-95M	1.753E-02	1.351E-01	1.031E-01	6.893E-02 NOT IDENT.
ZR-95	1.433E-03	7.692E-02	6.715E-02	3.925E-02 NOT IDENT.
NB-97	9.165E+04	8.695E+04	0.000E+00	4.436E+04 SHORT HLIF
ZR-97	1.925E+06	1.580E+06	0.000E+00	8.059E+05 SHORT HLIF
MO-99	-4.449E+00	1.222E+01	1.030E+01	6.233E+00 NOT IDENT.
TC-99M	-2.212E+16	1.763E+16	0.000E+00	8.996E+15 SHORT HLIF
RH-101	3.229E-03	3.254E-02	2.818E-02	1.660E-02 NOT IDENT.
RH-102	-1.690E-02	2.936E-02	2.400E-02	1.498E-02 NOT IDENT.
RU-103	-3.998E-02	4.123E-02	3.187E-02	2.104E-02 FAIL ABUN
RH-106	2.215E-01	3.396E-01	3.024E-01	1.733E-01 FAIL ABUN
RU-106	2.215E-01	3.389E-01	3.024E-01	1.729E-01 FAIL ABUN
AG-108M	-1.950E-02	3.654E-02	3.048E-02	1.864E-02 NOT IDENT.
AG-110M	1.175E-02	4.487E-02	3.382E-02	2.289E-02 NOT IDENT.
IN-111	-1.199E+00	9.488E-01	7.313E-01	4.841E-01 NOT IDENT.
IN-113M	-5.751E-03	4.435E-02	3.850E-02	2.263E-02 NOT IDENT.
SN-113	-5.751E-03	4.435E-02	3.850E-02	2.263E-02 NOT IDENT.
IN-114M	8.089E-02	1.789E-01	1.423E-01	9.126E-02 NOT IDENT.
CD-115	3.753E+00	9.995E+00	8.816E+00	5.100E+00 NOT IDENT.
SN-117M	2.636E-04	4.991E-02	4.376E-02	2.547E-02 NOT IDENT.
SB-122	-1.145E+00	2.208E+00	1.786E+00	1.127E+00 NOT IDENT.
I-123	-2.162E+05	3.747E+06	0.000E+00	1.912E+06 SHORT HLIF
TE-123M	-1.520E-03	2.635E-02	2.303E-02	1.344E-02 NOT IDENT.
I-124	-7.248E-01	7.940E-01	5.102E-01	4.051E-01 NOT IDENT.
SB-124	3.132E-02	8.554E-02	8.019E-02	4.364E-02 NOT IDENT.
SB-125	-1.501E-02	9.513E-02	6.173E-02	4.854E-02 FAIL ABUN
TE-125M	2.389E-01	8.068E+00	6.517E+00	4.116E+00 NOT IDENT.
I-126	2.817E-01	2.126E-01	1.875E-01	1.085E-01 NOT IDENT.
SB-126	1.578E-01	1.802E-01	1.513E-01	9.194E-02 FAIL ABUN
SB-127	1.083E+00	1.475E+00	1.312E+00	7.526E-01 NOT IDENT.
XE-127	-2.949E-02	4.456E-02	3.689E-02	2.273E-02 NOT IDENT.
I-131	-2.782E-02	1.075E-01	9.299E-02	5.484E-02 NOT IDENT.
TE-132	4.133E-01	6.282E-01	5.529E-01	3.205E-01 NOT IDENT.
BA-133	2.073E-02	4.545E-02	3.682E-02	2.319E-02 NOT IDENT.
I-133	-1.613E+03	4.988E+03	0.000E+00	2.545E+03 SHORT HLIF
CS-134	8.850E-02	9.394E-02	5.230E-02	4.793E-02 FAIL ABUN
CS-135	2.040E-01	1.726E-01	1.407E-01	8.806E-02 NOT IDENT.
I-135	7.674E+14	2.998E+15	0.000E+00	1.530E+15 SHORT HLIF
CS-136	-1.103E-01	1.082E-01	7.802E-02	5.519E-02 FAIL ABUN
CE-139	-2.343E-02	2.738E-02	2.281E-02	1.397E-02 NOT IDENT.
BA-140	-3.860E-02	2.771E-01	2.328E-01	1.414E-01 NOT IDENT.
LA-140	6.392E-03	1.035E-01	8.826E-02	5.282E-02 NOT IDENT.
CE-141	-7.257E-02	5.743E-02	4.662E-02	2.930E-02 NOT IDENT.
CE-143	5.994E+02	1.931E+02	0.000E+00	9.853E+01 SHORT HLIF

CE-144	2.872E-02	1.912E-01	1.532E-01	9.753E-02	NOT IDENT.
PM-144	-1.616E-02	3.686E-02	3.113E-02	1.881E-02	NOT IDENT.
PR-144	-1.095E+00	2.498E+00	2.109E+00	1.274E+00	NOT IDENT.
PM-146	1.019E-02	4.477E-02	3.940E-02	2.284E-02	NOT IDENT.
ND-147	-3.563E-01	5.691E-01	4.542E-01	2.904E-01	FAIL ABUN
PM-149	5.527E-01	7.628E+01	6.861E+01	3.892E+01	NOT IDENT.
EU-152	-7.415E-04	8.978E-02	7.948E-02	4.581E-02	NOT IDENT.
GD-153	-1.934E-02	6.575E-02	5.220E-02	3.355E-02	NOT IDENT.
EU-154	-7.253E-02	1.428E-01	1.100E-01	7.287E-02	NOT IDENT.
TB-160	6.852E-03	1.475E-01	1.273E-01	7.523E-02	FAIL ABUN
HO-166M	-7.832E-03	7.009E-02	6.086E-02	3.576E-02	FAIL ABUN
TM-171	-4.769E+00	1.435E+01	1.166E+01	7.324E+00	NOT IDENT.
LU-176	-7.410E-03	2.277E-02	1.994E-02	1.162E-02	FAIL ABUN
LU-177	3.821E+00	1.576E+00	1.046E+00	8.042E-01	FAIL ABUN
LU-177M	3.720E-02	1.943E-01	1.518E-01	9.913E-02	FAIL ABUN
HF-181	-1.714E-02	4.358E-02	3.621E-02	2.223E-02	NOT IDENT.
W-181	-9.883E-02	1.758E-01	1.413E-01	8.971E-02	NOT IDENT.
TA-182	2.211E-01	2.395E-01	2.162E-01	1.222E-01	NOT IDENT.
RE-183	1.019E-02	1.045E-01	9.183E-02	5.330E-02	FAIL ABUN
RE-184	-8.939E-02	2.249E-01	1.849E-01	1.147E-01	NOT IDENT.
OS-185	-1.051E-03	4.544E-02	3.793E-02	2.319E-02	NOT IDENT.
RE-188	1.307E-01	1.638E-01	1.486E-01	8.359E-02	NOT IDENT.
W-188	-5.038E+00	7.559E+00	5.650E+00	3.857E+00	FAIL ABUN
IR-192	7.499E-04	3.063E-02	2.736E-02	1.563E-02	FAIL ABUN
AU-195	3.169E-02	1.795E-01	1.550E-01	9.160E-02	FAIL ABUN
TL-200	-7.639E+01	3.713E+02	0.000E+00	1.894E+02	SHORT HLIF
TL-201	8.523E-01	5.825E+00	5.124E+00	2.972E+00	NOT IDENT.
TL-202	4.316E-02	7.063E-02	6.397E-02	3.603E-02	NOT IDENT.
HG-203	3.210E-02	3.984E-02	3.724E-02	2.032E-02	NOT IDENT.
BI-207	1.241E-02	5.438E-02	4.709E-02	2.774E-02	FAIL ABUN
TL-207	-8.138E-02	6.317E-01	5.578E-01	3.223E-01	FAIL ABUN
PO-209	-7.806E+00	8.460E+00	6.491E+00	4.316E+00	NOT IDENT.
PB-211	3.490E-01	9.458E-01	8.265E-01	4.826E-01	NOT IDENT.
PO-215	-8.138E-02	6.317E-01	5.578E-01	3.223E-01	FAIL ABUN
RN-219	-2.426E-01	4.303E-01	3.601E-01	2.195E-01	FAIL ABUN
RN-220	-9.639E+00	2.931E+01	2.417E+01	1.495E+01	NOT IDENT.
RA-223	-8.138E-02	6.317E-01	5.578E-01	3.223E-01	FAIL ABUN
AC-227	3.982E-01	3.678E-01	3.279E-01	1.877E-01	FAIL ABUN
TH-227	3.982E-01	3.697E-01	3.279E-01	1.886E-01	FAIL ABUN
AC-228	1.844E+00	3.838E-01	3.124E-01	1.958E-01	FAIL ABUN
RA-228	1.844E+00	3.838E-01	3.124E-01	1.958E-01	FAIL ABUN
TH-229	-3.286E-01	4.654E-01	3.852E-01	2.375E-01	FAIL ABUN
PA-231	-8.674E-01	1.420E+00	1.227E+00	7.243E-01	FAIL ABUN
TH-231	-8.138E-02	6.317E-01	5.578E-01	3.223E-01	FAIL ABUN
U-231	1.723E+00	1.192E+00	6.684E-01	6.080E-01	FAIL ABUN
TH-232	1.844E+00	3.838E-01	3.124E-01	1.958E-01	FAIL ABUN
PA-233	-6.439E-03	5.787E-02	5.130E-02	2.953E-02	FAIL ABUN
PA-234	-7.477E-02	2.978E-01	2.456E-01	1.519E-01	FAIL ABUN
PA-234M	-1.914E+00	5.393E+00	4.395E+00	2.752E+00	NOT IDENT.
NP-236	1.543E-02	7.540E-02	6.667E-02	3.847E-02	FAIL ABUN
NP-239	-2.050E-01	1.659E-01	1.388E-01	8.465E-02	FAIL ABUN
AM-241	2.029E-02	5.891E-02	5.027E-02	3.006E-02	NOT IDENT.
CM-243	1.407E-01	1.226E-01	7.264E-02	6.255E-02	FAIL ABUN
AM-246	-7.318E-02	1.685E-01	1.345E-01	8.595E-02	NOT IDENT.
CM-247	1.647E-02	3.719E-02	3.349E-02	1.897E-02	NOT IDENT.
CF-249	2.908E-02	4.253E-02	3.886E-02	2.170E-02	NOT IDENT.
CF-251	8.285E-03	1.148E-01	1.002E-01	5.857E-02	NOT IDENT.

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON , SC 29417 *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
*****

```

ENERGY	MDA COUNTS
--------	------------

46.50	202.2367
46.50	202.2367
46.50	202.2367
48.70	237.4951
49.72	252.0660
51.35	272.4938
52.39	240.4447
52.97	242.5308
53.15	242.6515
53.44	237.7525
54.07	250.0738
56.28	308.9050
56.28	308.9069
57.37	0.0000
57.53	301.3487
57.53	301.3505
57.60	301.4041
57.98	285.3741
57.98	285.3741
59.32	318.2862
59.32	318.2862
59.40	318.3518
59.54	318.4673
59.72	316.0242
60.01	303.2982
61.10	323.6390
61.14	323.6713
61.30	331.6049
63.00	327.3625
63.29	327.5977
63.29	327.5977
63.58	327.8329
64.28	331.4545
65.12	368.8934
65.20	368.9647
65.20	368.9647
66.05	360.5135
66.72	366.3639
66.83	375.6889
66.91	375.7607
67.20	394.4929
67.20	394.4929
67.75	377.8319
67.85	359.4238
68.90	372.6757
68.90	372.6757
69.30	393.5331
69.67	392.8134
70.82	395.1873
70.82	395.1873
70.83	395.1964
72.80	407.6680
72.87	407.7309
72.87	407.7309
74.67	359.7161
74.81	359.8265
74.81	359.8265
74.81	359.8265
74.81	359.8265
74.81	359.8265
74.81	359.8265
74.81	359.8265
74.97	359.9553
75.28	360.2007
75.70	360.5360
77.11	361.6483
77.11	361.6483

77.11	361.6483
77.11	361.6483
77.11	361.6483
77.11	361.6483
77.11	361.6483
78.38	362.6420
79.62	290.3413
79.80	290.4524
79.80	290.4524
80.11	266.1967
80.18	266.2371
80.30	266.3044
80.30	266.3044
80.57	290.9258
81.00	291.1903
81.07	291.2328
81.07	291.2328
81.07	291.2328
81.07	291.2328
82.60	292.1651
83.37	287.1591
83.78	287.4042
83.78	287.4042
83.78	287.4042
83.78	287.4042
84.21	287.6573
84.90	288.0627
85.43	288.3735
86.29	288.8766
86.50	288.9984
86.54	289.0208
86.59	289.0512
86.72	289.1265
86.79	289.1650
86.94	289.2531
87.30	289.4630
87.30	289.4630
87.30	289.4630
87.30	289.4630
87.30	289.4630
87.30	289.4630
87.30	289.4630
87.57	289.6184
87.88	289.7978
88.03	289.8843
88.36	290.0734
88.47	290.1375
89.95	290.9850
91.11	291.6435
92.29	292.3100
92.38	292.3613
92.38	292.3613
93.35	292.9060
94.00	293.2681
94.67	293.6382
94.67	293.6414
94.90	293.7696
94.90	293.7696
94.90	293.7696
94.90	293.7696
95.87	266.2772
95.87	266.2772
96.73	263.9002
97.43	248.7820
98.44	239.3893
98.44	239.3893
98.88	234.5103
99.55	253.0481
99.55	253.0481
99.86	244.7207
100.00	244.7828
100.10	254.2456
103.18	227.2534
103.76	226.0660
105.00	236.5378
105.31	236.6670
108.00	213.4293
109.28	219.6433

111.00	233.2470
111.00	233.2470
111.76	224.8975
112.95	243.6461
115.19	219.4248
116.30	238.2262
117.00	262.7380
117.00	262.7380
117.66	252.3458
121.11	216.6670
121.62	219.7746
121.78	219.8307
122.06	229.7026
122.32	229.7970
122.32	229.7970
122.32	229.7970
122.32	229.7970
123.07	198.7419
127.23	186.2420
129.76	185.9767
131.20	200.7594
133.02	192.3623
133.54	195.4966
135.34	218.4653
136.00	220.6763
136.25	220.7572
136.48	213.8367
140.51	257.3099
140.51	0.0000
142.18	222.6658
142.65	202.6501
143.76	184.7946
144.24	189.9717
144.24	189.9717
144.24	189.9717
144.24	189.9717
145.22	209.4616
145.44	234.8297
147.16	215.1033
152.43	223.8254
152.70	218.7958
153.22	210.7652
154.21	215.1462
154.21	215.1462
154.21	215.1462
154.21	215.1462
155.03	218.4602
156.02	233.1285
158.56	209.1868
159.00	0.0000
159.00	212.4019
160.31	214.8343
161.27	226.4787
162.32	219.5415
162.64	206.1641
163.35	204.2805
163.89	204.4228
165.85	217.4234
167.43	182.4198
171.28	197.9747
171.86	187.6346
172.10	184.5454
176.55	182.4011
176.60	182.4134
181.06	179.6920
184.41	201.1701
185.71	187.6213
186.00	187.6857
190.27	162.3681
192.34	175.1126
193.63	190.4356
197.04	195.4960
198.01	207.6055
198.60	198.0043
200.40	184.3119
201.83	218.2693
202.84	202.2076
205.31	194.5834



208.36	185.3889
208.81	169.6133
209.75	169.7867
209.75	169.7867
210.97	138.2021
215.65	164.2480
216.55	141.2344
218.09	148.0947
222.10	148.7176
223.80	144.5308
226.40	187.2791
227.00	172.8929
227.08	162.8673
227.20	158.4254
228.16	151.8794
228.18	151.8822
228.18	151.8822
231.56	0.0000
235.69	185.6653
236.00	185.7240
236.00	185.7240
238.63	163.6368
238.63	163.6368
238.63	163.6368
238.63	163.6368
239.00	163.6958
240.98	164.0144
241.98	164.1737
241.98	164.1737
241.98	164.1737
244.69	164.6074
245.39	164.7180
247.94	124.6957
248.90	136.7786
249.79	123.2051
252.40	146.3828
252.85	141.8689
252.85	141.8689
254.15	0.0000
256.20	113.6228
256.20	113.6228
260.50	144.0379
260.90	147.5495
262.80	103.9270
264.65	112.7780
268.24	120.1099
268.79	119.5883
269.46	119.6595
269.46	119.6595
269.46	119.6595
269.46	119.6595
271.23	127.4136
273.65	150.4291
276.40	132.3854
277.35	140.3931
277.60	139.5471
277.60	139.5471
278.00	136.9618
278.60	137.9116
279.20	136.2281
279.53	136.2659
280.46	146.0555
281.68	130.3582
283.67	133.2287
284.30	138.5992
285.00	131.6164
285.90	118.4584
286.10	110.5213
286.10	110.5213
287.40	92.9420
288.45	0.0000
290.67	130.6598
290.80	130.6732
291.72	117.9832
293.26	0.0000
293.70	103.9430
295.21	118.3317
295.21	118.3317

295.21	118.3317
295.96	110.5605
296.50	142.7222
297.23	142.8101
298.57	142.9712
299.80	114.4922
299.80	114.4922
300.09	107.3639
300.09	107.3639
300.09	107.3639
300.09	107.3639
300.12	107.3657
301.29	101.7383
302.84	88.9555
303.76	97.6388
303.91	97.6504
304.40	116.1269
304.40	116.1269
304.84	115.9972
306.84	113.3608
308.46	85.5820
311.98	102.9924
316.51	96.1143
318.01	87.1509
319.02	110.8436
319.41	105.4241
320.08	114.5720
323.87	115.8282
323.87	115.8282
323.87	115.8282
323.87	115.8282
325.23	140.6035
328.77	103.4546
333.44	111.7289
334.20	105.9100
334.20	105.9100
334.30	105.9187
338.28	112.5116
338.28	112.5116
338.28	112.5116
338.28	112.5116
338.32	112.5153
338.32	112.5153
338.32	112.5153
340.50	103.4636
340.57	103.4688
344.27	95.4199
345.85	69.7484
350.59	0.0000
351.07	98.6973
351.92	98.7588
351.92	98.7588
351.92	98.7588
355.39	0.0000
356.01	85.2245
364.48	92.1427
366.43	81.9143
367.43	88.5682
367.94	0.0000
369.80	100.9868
374.96	89.0415
383.85	100.0781
387.95	95.5811
388.63	109.0128
391.69	92.9504
391.69	92.9504
392.90	84.3960
398.62	85.6837
400.65	105.0815
401.10	99.3270
401.81	105.1630
402.60	84.9465
404.84	83.1393
410.95	79.5914
411.60	74.5758
413.65	79.3438
414.70	74.7270
415.30	73.1988

415.76	74.7785
417.63	0.0000
418.52	79.0089
423.70	92.9735
427.08	90.2312
427.89	86.3524
432.53	84.6379
433.93	102.4432
439.47	73.1452
439.56	73.1486
439.89	85.0289
443.98	51.5430
444.90	67.4407
445.03	67.4459
445.03	67.4459
445.03	67.4459
445.03	67.4459
453.90	73.7956
463.38	80.2344
468.07	69.1947
473.00	72.6240
475.06	74.7306
475.35	65.6536
476.78	60.6537
477.59	58.6593
477.96	65.7528
482.03	74.0203
484.57	73.1140
487.03	67.1158
490.36	0.0000
492.35	64.2603
497.08	74.6597
507.63	0.0000
510.53	0.0000
510.84	78.3280
511.00	78.3350
511.85	74.2473
511.85	74.2473
513.99	59.4672
513.99	59.4672
520.41	58.0200
520.65	58.0269
527.90	54.0947
528.96	0.0000
529.64	55.1868
529.87	0.0000
531.02	66.6895
537.32	67.9596
543.00	71.3099
546.56	0.0000
549.76	72.6155
552.65	63.2391
555.20	66.4895
563.23	67.8242
563.90	79.5090
568.70	59.5120
569.32	62.7199
569.50	62.7253
569.67	61.6675
573.80	57.5349
574.00	59.6709
574.64	72.4824
578.91	46.1465
579.30	0.0000
583.14	62.0870
585.48	54.8719
591.81	64.5044
592.07	61.2861
593.00	54.8599
595.88	66.7870
600.56	66.2205
602.52	0.0000
602.71	74.3598
602.71	74.3598
603.60	57.0910
604.41	51.9214
604.70	51.9287
609.31	50.9602

609.31	50.9602
609.31	50.9602
609.31	50.9602
610.33	50.9846
612.46	46.9112
614.37	52.1704
618.01	54.4388
621.84	46.9026
621.84	46.9026
631.29	49.3025
633.02	59.2108
633.10	59.2141
634.78	53.7732
635.90	58.1936
636.97	57.1241
645.85	54.0498
646.12	50.7463
656.30	53.1987
657.75	55.0083
657.90	0.0000
661.65	85.3242
661.65	85.3242
664.57	0.0000
666.33	43.0492
666.33	43.0492
675.00	58.1176
677.61	55.9464
685.20	47.1526
692.80	46.8584
695.00	66.7481
696.49	62.2769
696.49	62.2769
697.00	56.8753
697.49	54.1772
698.33	61.4241
698.50	65.0426
699.00	65.9584
702.63	65.1568
706.10	72.5059
706.58	0.0000
706.67	72.5234
709.31	54.4526
711.68	63.5930
713.82	66.3790
717.42	64.6592
720.50	48.6328
721.93	0.0000
722.20	63.8767
722.78	66.9346
722.78	66.9346
722.89	66.9382
722.95	63.8955
723.30	63.9058
724.18	68.4961
727.18	46.6359
733.00	51.9435
735.90	39.4632
739.58	57.9059
742.81	42.3366
744.21	44.2031
747.13	53.4758
751.79	41.5690
752.31	38.8059
753.82	49.9236
755.35	39.7782
756.15	49.9711
756.87	49.9856
763.93	66.8373
765.79	54.8098
766.42	52.0365
766.84	61.3384
776.49	59.7094
778.00	49.0098
778.57	46.6858
778.89	46.6919
783.80	49.9010
785.46	37.4502
792.07	33.7922

795.84	37.6025
796.30	43.8776
798.80	42.3512
801.93	44.7585
805.60	36.8005
810.29	40.6484
810.76	45.3832
815.85	39.7872
817.79	43.6090
818.51	44.5697
819.60	57.8696
826.30	47.5537
828.27	0.0000
831.60	51.4608
831.96	48.6081
834.83	49.6145
836.80	0.0000
846.75	37.3756
848.13	31.6416
856.28	0.0000
856.80	30.4606
860.37	34.6737
867.32	30.5774
867.82	33.8020
871.10	25.7845
873.19	38.7061
874.81	30.0146
875.33	0.0000
876.40	44.5636
879.36	36.8524
880.27	32.0139
880.51	32.0163
881.50	29.1160
883.24	35.9323
884.67	47.6099
889.25	41.8484
896.60	50.7394
898.02	42.9548
899.00	42.9698
903.28	44.0123
911.07	44.1321
911.07	44.1321
911.07	44.1321
919.63	40.3283
920.93	37.3942
925.00	25.6217
925.24	27.5946
926.50	33.9609
935.52	46.1540
937.48	36.2880
944.10	45.6271
946.00	32.7535
949.00	31.7930
962.29	60.8749
964.01	138.7964
966.15	59.9546
968.20	60.9940
969.11	58.0127
969.11	58.0127
969.11	58.0127
977.42	36.1063
980.50	24.0955
983.50	33.1635
989.30	34.2333
996.32	42.3845
1001.03	47.5026
1001.68	44.4802
1004.76	41.4885
1021.30	0.0000
1024.50	0.0000
1034.80	37.7985
1036.00	40.8789
1037.82	40.9023
1038.57	39.8893
1038.76	0.0000
1045.16	32.7969
1046.59	30.7603
1048.07	37.9557

1050.47	28.7451
1050.47	28.7451
1062.04	35.0293
1063.62	29.8921
1076.63	37.2551
1077.35	41.4043
1078.86	44.5285
1085.78	41.5098
1099.22	55.2204
1112.02	35.2991
1112.84	36.6150
1115.52	29.6642
1120.29	31.4531
1120.29	31.4531
1120.29	31.4531
1120.29	31.4531
1120.51	31.4546
1121.28	34.9577
1124.00	0.0000
1129.67	35.7448
1131.51	0.0000
1147.95	0.0000
1167.94	34.0141
1173.22	38.3238
1175.09	44.7337
1177.93	28.7811
1189.05	51.3258
1204.90	38.6631
1205.75	0.0000
1213.00	36.5981
1221.42	42.0754
1230.97	47.5943
1235.34	44.4013
1236.41	0.0000
1238.25	54.1919
1246.25	46.7058
1260.41	0.0000
1271.85	20.7785
1274.45	38.3018
1274.54	36.1147
1291.56	36.2758
1298.22	0.0000
1312.09	17.4978
1325.50	23.1028
1325.50	23.1028
1332.49	24.0693
1333.61	20.3726
1360.21	16.7805
1362.66	0.0000
1365.15	19.6012
1368.21	19.6157
1368.53	0.0000
1376.25	21.5269
1384.27	16.2556
1394.10	14.5038
1395.20	20.9563
1407.95	15.0918
1434.06	18.9844
1436.60	12.3472
1457.56	0.0000
1460.81	13.1004
1489.15	20.1934
1509.49	14.4910
1596.49	18.7155
1620.62	16.8333
1678.03	0.0000
1691.02	7.0353
1691.02	7.0353
1706.46	0.0000
1750.46	0.0000
1764.49	10.4937
1764.49	10.4937
1764.49	10.4937
1764.49	10.4937
1770.23	18.3853
1771.40	10.2165
1791.20	0.0000
1808.65	11.3209

1836.01

7.2430

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600006

Total Uranium Activity	5.5249E+00	ug/g
Total Uranium Counting Unc.	2.9292E+00	ug/g
Total Uranium Tpu	1.4945E-06	ug/g
Total Uranium Mda	1.3840E+00	ug/g



```

*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 941635                SAMPLE ID   : G244600006                *
*  ANALYST       : MXR1                  DETECTOR    : GAM17                  *
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE : 22-JAN-2010 08:05:14.68  SAMPLE ALQT: 141.620 GRAM          *
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.352E+00
GROSS GAMMA ERROR (pCi/GRAM )   : 1.337E+00
GROSS GAMMA MDA (pCi/GRAM )     : 3.853E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.866E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:06:46.33

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600007.CNF;1
Sample date       : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:05:42
Sample ID        : G244600007      Sample quantity   : 1.43360E+02 GRAM
Detector name    : GAM25           Detector geometry: CAN
Elapsed live time: 0 02:00:00.00   Elapsed real time: 0 02:00:01.90  0.0%
Energy tolerance : 1.50000 keV     Analyst Initials : MXR1
Abundance limit  : 75.00000         Sensitivity      : 5.00000
Batch ID        : 941635           Detector SN#    :
Matrix Spike ID  :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.44*	159	541	0.87	92.45	88	9	2.21E-02	28.6	
2	0	63.35*	256	715	0.89	126.26	122	9	3.56E-02	20.3	
3	3	74.86*	743	457	0.77	149.28	145	13	1.03E-01	5.7	1.12E+00
4	3	77.09*	1158	425	0.87	153.74	145	13	1.61E-01	4.1	
5	4	84.18*	159	295	1.19	167.91	165	27	2.21E-02	17.9	4.42E+00
6	4	87.22	493	386	1.20	173.99	165	27	6.85E-02	7.9	
7	4	89.90	261	306	1.07	179.35	165	27	3.62E-02	12.6	
8	4	92.72*	461	329	1.20	185.00	165	27	6.41E-02	8.9	
9	0	186.11*	240	345	1.10	371.75	367	9	3.33E-02	16.0	
10	0	209.14	209	282	1.26	417.81	413	11	2.91E-02	17.0	
11	3	238.62*	1383	153	1.02	476.76	471	17	1.92E-01	3.1	1.63E+00
12	3	241.63	351	233	1.46	482.79	471	17	4.87E-02	10.5	
13	0	270.27	129	164	1.10	540.06	536	9	1.79E-02	20.0	
14	5	277.42	75	128	1.37	554.37	551	9	1.04E-02	25.2	7.65E+00
15	5	278.74	29	102	0.93	557.00	551	9	4.09E-03	64.4	
16	0	295.22	398	162	1.18	589.97	586	8	5.53E-02	7.5	
17	0	300.56	100	217	1.04	600.65	596	11	1.39E-02	30.2	
18	0	338.30*	227	164	1.04	676.12	672	9	3.15E-02	12.3	
19	0	351.94*	660	250	1.15	703.40	697	13	9.16E-02	6.3	
20	0	463.18	108	156	1.33	925.87	919	15	1.50E-02	27.2	
21	0	510.73*	98	209	1.59	1020.96	1015	15	1.36E-02	36.8	
22	0	583.25*	415	129	1.26	1166.00	1159	14	5.77E-02	7.7	
23	0	609.11*	465	93	1.37	1217.71	1210	14	6.45E-02	6.6	
24	0	661.60*	280	80	1.48	1322.69	1317	11	3.89E-02	9.0	
25	0	727.59	85	67	1.31	1454.67	1449	11	1.18E-02	21.7	
26	0	769.55	35	118	1.11	1538.58	1532	14	4.89E-03	67.1	
27	0	860.78*	49	60	0.68	1721.05	1714	15	6.76E-03	39.1	
28	0	910.93*	276	30	1.49	1821.34	1814	13	3.83E-02	7.4	
29	1	964.86	66	41	1.97	1929.20	1921	23	9.14E-03	25.1	1.44E+00
30	1	968.89*	149	48	1.78	1937.27	1921	23	2.07E-02	12.4	
31	0	1120.04*	94	35	1.50	2239.57	2234	10	1.30E-02	16.2	
32	0	1377.67	34	21	1.72	2754.85	2749	13	4.70E-03	33.5	
33	0	1460.63*	1040	9	2.27	2920.78	2911	19	1.44E-01	3.2	
34	0	1764.39*	76	5	2.27	3528.36	3523	12	1.05E-02	14.0	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600007.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 7-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 08:05:42  
 Sample ID : G244600007 Sample quantity : 143.36 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA25 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.90 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	*	2.302E+01	2.456E+00	5.074E-01	4.321E-02	45.377
CD-109	+	88.03	*	3.775E+00	7.223E-01	5.965E-01	6.410E-02	6.329
SN-126	+	64.28		7.153E-01	3.124E-01	2.618E-01	4.172E-02	2.732
	+	86.94		1.543E+00	6.906E-01	2.426E-01	1.015E-01	6.360
	+	87.57	*	3.712E-01	7.102E-02	5.853E-02	6.276E-03	6.343
BA-137M	+	661.65	*	3.653E-01	7.701E-02	5.562E-02	6.162E-03	6.567
CS-137	+	661.65	*	3.861E-01	8.144E-02	5.880E-02	6.521E-03	6.567
HG-203		70.83		-1.318E-02	4.670E-01	6.774E-01	9.849E-02	-0.019
		72.87		1.231E-01	2.820E-01	4.162E-01	5.914E-02	0.296
		82.60		1.374E-01	5.826E-01	8.463E-01	1.268E-01	0.162
	+	279.20	*	2.640E-02	3.412E-02	4.964E-02	5.634E-03	0.532
TL-208	+	277.35		6.067E-01	3.178E-01	4.672E-01	6.637E-02	1.299
	+	510.84		4.212E-01	3.150E-01	1.873E-01	2.480E-02	2.249
	+	583.14	*	5.176E-01	9.902E-02	4.850E-02	5.468E-03	10.672
	+	860.37		5.795E-01	4.573E-01	4.126E-01	4.314E-02	1.404
BI-210	+	46.50	*	1.122E+00	6.523E-01	5.184E-01	5.345E-02	2.165
PB-210	+	46.50	*	1.122E+00	6.523E-01	5.184E-01	5.345E-02	2.165
PO-210	+	46.50	*	1.122E+00	6.508E-01	5.184E-01	4.937E-02	2.165
BI-211		72.87		6.217E-01	1.422E+00	2.101E+00	2.121E-01	0.296
	+	351.07	*	3.435E+00	5.658E-01	2.566E-01	2.704E-02	13.388
PB-212	+	74.81		1.876E+00	3.360E-01	2.404E-01	3.318E-02	7.805
	+	77.11		1.745E+00	2.281E-01	1.440E-01	1.476E-02	12.117
	+	87.30		1.717E+00	3.706E-01	2.704E-01	3.961E-02	6.350
	+	238.63	*	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
	+	300.09		1.732E+00	1.069E+00	9.641E-01	1.201E-01	1.796
PO-212	+	74.81		1.876E+00	3.360E-01	2.404E-01	3.318E-02	7.805
	+	77.11		1.745E+00	2.281E-01	1.440E-01	1.476E-02	12.117
	+	87.30		1.717E+00	3.706E-01	2.704E-01	3.961E-02	6.350
		115.19		-4.745E-01	2.269E+00	3.809E+00	4.724E-01	-0.125
	+	238.63	*	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
	+	300.09		1.732E+00	1.069E+00	9.641E-01	1.201E-01	1.796
BI-214	+	609.31	*	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
	+	1120.29		1.164E+00	3.984E-01	4.208E-01	4.566E-02	2.767
	+	1764.49		1.334E+00	3.906E-01	2.919E-01	2.405E-02	4.571

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-214	+	74.81		3.233E+00	5.488E-01	4.142E-01	5.208E-02	7.805
	+	77.11		2.992E+00	4.526E-01	2.469E-01	3.153E-02	12.117
	+	87.30		2.941E+00	6.067E-01	4.632E-01	6.111E-02	6.350
	+	241.98		2.319E+00	5.583E-01	4.247E-01	5.065E-02	5.460
	+	295.21		1.206E+00	2.363E-01	1.779E-01	2.256E-02	6.782
	+	351.92	*	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355
PO-214	+	74.81		3.233E+00	5.488E-01	4.142E-01	5.208E-02	7.805
	+	77.11		2.992E+00	4.526E-01	2.469E-01	3.153E-02	12.117
	+	87.30		2.941E+00	6.067E-01	4.632E-01	6.111E-02	6.350
	+	241.98		2.319E+00	5.583E-01	4.247E-01	5.065E-02	5.460
	+	295.21		1.206E+00	2.363E-01	1.779E-01	2.256E-02	6.782
	+	351.92	*	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355
PO-216	+	74.81		1.876E+00	3.360E-01	2.404E-01	3.318E-02	7.805
	+	77.11		1.745E+00	2.281E-01	1.440E-01	1.476E-02	12.117
	+	87.30		1.717E+00	3.706E-01	2.704E-01	3.961E-02	6.350
	+	238.63	*	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
	+	300.09		1.732E+00	1.069E+00	9.641E-01	1.201E-01	1.796
PO-218	+	74.81		3.233E+00	5.488E-01	4.142E-01	5.208E-02	7.805
	+	77.11		2.992E+00	4.526E-01	2.469E-01	3.153E-02	12.117
	+	87.30		2.941E+00	6.067E-01	4.632E-01	6.111E-02	6.350
	+	241.98		2.319E+00	5.583E-01	4.247E-01	5.065E-02	5.460
	+	295.21		1.206E+00	2.363E-01	1.779E-01	2.256E-02	6.782
	+	351.92	*	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355
RA-224	+	240.98	*	4.397E+00	1.030E+00	8.022E-01	8.429E-02	5.481
RA-226	+	609.31	*	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
	+	1120.29		1.164E+00	3.984E-01	4.208E-01	4.566E-02	2.767
	+	1764.49		1.334E+00	3.906E-01	2.919E-01	2.405E-02	4.571
AC-228	+	338.32		1.298E+00	6.281E-01	3.081E-01	1.284E-01	4.213
	+	911.07	*	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
	+	969.11		1.477E+00	5.048E-01	3.489E-01	8.234E-02	4.233
RA-228	+	338.32		1.298E+00	6.281E-01	3.081E-01	1.284E-01	4.213
	+	911.07	*	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
	+	969.11		1.477E+00	5.048E-01	3.489E-01	8.234E-02	4.233
TH-228	+	74.81		1.904E+00	2.917E-01	2.440E-01	2.494E-02	7.805
	+	77.11		1.771E+00	2.315E-01	1.462E-01	1.498E-02	12.117
	+	87.30		1.742E+00	3.334E-01	2.744E-01	2.938E-02	6.350
	+	238.63	*	1.544E+00	2.000E-01	7.144E-02	8.134E-03	21.610
	+	300.09		1.758E+00	1.493E+00	9.785E-01	5.839E-01	1.796
TH-230	+	609.31	*	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
	+	1120.29		1.164E+00	3.984E-01	4.207E-01	4.566E-02	2.767
	+	1764.49		1.334E+00	3.906E-01	2.919E-01	2.405E-02	4.571
TH-232	+	338.32		1.298E+00	3.466E-01	3.081E-01	3.212E-02	4.213
	+	911.07	*	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
	+	969.11		1.477E+00	5.048E-01	3.489E-01	8.234E-02	4.233
TH-234	+	63.29	*	1.807E+00	8.082E-01	6.605E-01	1.230E-01	2.736
	+	92.38		2.415E+00	6.334E-01	4.176E-01	8.067E-02	5.784
U-234	+	609.31	*	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
	+	1120.29		1.164E+00	3.984E-01	4.207E-01	4.566E-02	2.767
	+	1764.49		1.334E+00	3.906E-01	2.919E-01	2.405E-02	4.571

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	1.090E+00	3.067E-01	1.711E-01	3.974E-02	6.373
		95.87		-3.159E-01	5.550E-01	8.233E-01	2.111E-01	-0.384
U-238	+	63.29	*	1.807E+00	8.082E-01	6.605E-01	1.230E-01	2.736
	+	92.38		2.415E+00	5.038E-01	4.176E-01	4.583E-02	5.784
AM-243	+	74.67	*	3.042E-01	4.647E-02	3.895E-02	3.956E-03	7.809
	+	86.72		4.088E+01	7.821E+00	6.421E+00	6.857E-01	6.367
		117.66		2.193E-01	2.405E+00	4.082E+00	5.132E-01	0.054
		142.18		8.990E-01	1.318E+01	2.163E+01	2.443E+00	0.042
ANH-511	+	511.00	*	9.097E-02	6.761E-02	4.046E-02	4.165E-03	2.248

---- 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	*	-1.424E-01	2.921E-01	4.581E-01	4.850E-02	-0.311
NA-22		1274.54	*	4.789E-03	4.076E-02	6.782E-02	5.561E-03	0.071
NA-24		1368.53	*	-4.984E-01	4.076E-02	Half-Life too short		
AL-26		1129.67		2.414E-01	1.481E+00	2.503E+00	2.137E-01	0.096
		1808.65	*	-1.737E-02	3.284E-02	4.895E-02	4.011E-03	-0.355
TI-44		67.85		-1.372E-02	1.758E-02	2.687E-02	2.674E-03	-0.511
	+	78.38	*	3.221E-01	4.209E-02	3.872E-02	3.987E-03	8.319
SC-46		889.25	*	1.354E-02	3.372E-02	5.712E-02	5.470E-03	0.237
	+	1120.51		1.989E-01	6.676E-02	1.174E-01	1.009E-02	1.694
V-48		944.10		6.332E-02	7.593E-01	1.239E+00	1.163E-01	0.051
		983.50	*	2.415E-02	6.660E-02	1.112E-01	1.030E-02	0.217
		1312.09		-8.012E-02	7.589E-02	1.081E-01	8.813E-03	-0.741
CR-51		320.08	*	1.281E-01	2.750E-01	4.757E-01	5.283E-02	0.269
MN-52		744.21		8.688E-02	2.142E-01	3.660E-01	3.954E-02	0.237
		848.13		1.571E+00	5.889E+00	9.867E+00	9.886E-01	0.159
		935.52		2.508E-02	2.285E-01	3.739E-01	3.516E-02	0.067
		1246.25		-1.157E+00	6.897E+00	1.119E+01	9.191E-01	-0.103
		1333.61		2.718E-01	4.449E+00	7.336E+00	5.959E-01	0.037
		1434.06	*	1.281E-01	2.027E-01	3.591E-01	2.959E-02	0.357
MN-54		834.83	*	9.545E-03	3.234E-02	5.437E-02	5.517E-03	0.176
CO-56		846.75	*	1.377E-02	3.395E-02	5.767E-02	5.786E-03	0.239
		977.42		-1.494E+00	2.746E+00	4.159E+00	3.862E-01	-0.359
		1037.82		-3.102E-01	2.766E-01	4.085E-01	3.876E-02	-0.759
		1175.09		-9.286E-01	2.257E+00	3.607E+00	2.969E-01	-0.257
		1238.25		4.418E-02	9.235E-02	1.575E-01	1.335E-02	0.281
		1360.21		3.849E-01	1.023E+00	1.743E+00	1.423E-01	0.221
		1771.40		-7.085E-01	3.243E-01	3.498E-01	2.880E-02	-2.025
CO-57		122.06	*	7.869E-04	1.606E-02	2.716E-02	3.502E-03	0.029
		136.48		-1.548E-02	1.398E-01	2.330E-01	2.857E-02	-0.066
CO-58		810.76	*	-2.446E-02	3.447E-02	5.244E-02	5.441E-03	-0.466
FE-59		142.65		1.607E+00	2.063E+00	3.471E+00	3.905E-01	0.463
		192.34		-6.051E-01	7.116E-01	1.105E+00	1.548E-01	-0.548
		1099.22	*	-3.931E-02	8.388E-02	1.336E-01	1.258E-02	-0.294
		1291.56		-7.786E-02	1.165E-01	1.766E-01	1.659E-02	-0.441
CO-60		1173.22		3.227E-03	4.392E-02	7.326E-02	6.030E-03	0.044

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key.	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
			(pCi/GRAM)				
	1332.49	*	1.519E-02	3.577E-02	6.154E-02	4.998E-03	0.247
ZN-65	1115.52	*	6.776E-02	9.144E-02	1.436E-01	1.240E-02	0.472
GE-68	1077.35	*	7.832E-01	1.167E+00	2.062E+00	1.826E-01	0.380
AS-73	53.44	*	1.517E-01	1.523E-01	2.537E-01	2.436E-02	0.598
AS-74	595.88	*	3.691E-02	8.116E-02	1.345E-01	1.457E-02	0.274
	634.78		-2.900E-02	2.889E-01	4.808E-01	5.288E-02	-0.060
SE-75	66.05		1.262E+00	1.808E+00	2.718E+00	3.133E-01	0.464
	96.73		-7.323E-01	4.786E-01	6.591E-01	1.015E-01	-1.111
	121.11		-5.942E-02	8.725E-02	1.422E-01	2.090E-02	-0.418
	136.00		-2.257E-02	2.665E-02	4.275E-02	5.072E-03	-0.528
	198.60		1.691E+00	1.456E+00	2.447E+00	2.569E-01	0.691
	264.65	*	3.186E-02	3.382E-02	5.678E-02	6.223E-03	0.561
+	279.53		7.074E-02	9.142E-02	1.405E-01	1.603E-02	0.503
	303.91		-1.863E-01	1.869E+00	2.771E+00	3.689E-01	-0.067
	400.65		1.282E-03	2.181E-01	3.610E-01	4.176E-02	0.004
BR-77	87.88	+	7.521E+02	1.439E+02	1.906E+02	2.047E+01	3.945
	200.40		2.940E+00	1.156E+02	1.885E+02	1.826E+01	0.016
+	239.00		2.252E+02	2.737E+01	3.037E+01	3.180E+00	7.414
	249.79		-1.843E+01	4.676E+01	7.289E+01	7.777E+00	-0.253
	281.68		1.633E+01	7.333E+01	1.051E+02	1.171E+01	0.155
	297.23		9.573E+01	6.273E+01	7.940E+01	8.748E+00	1.206
	303.76		-1.225E+01	1.471E+02	2.184E+02	2.391E+01	-0.056
	439.47		1.223E+02	1.213E+02	2.112E+02	2.034E+01	0.579
	484.57		-7.909E+01	2.007E+02	3.170E+02	3.192E+01	-0.249
	520.65	*	2.744E+00	8.463E+00	1.403E+01	1.455E+00	0.196
	574.64		-2.183E+01	1.724E+02	2.731E+02	2.929E+01	-0.080
	578.91		2.348E+01	7.933E+01	1.145E+02	1.231E+01	0.205
	585.48		1.127E+03	2.339E+02	3.972E+02	4.284E+01	2.836
	755.35		1.054E+02	1.505E+02	2.614E+02	2.809E+01	0.403
	817.79		8.401E+00	1.029E+02	1.702E+02	1.753E+01	0.049
SR-82	698.33		1.103E+00	3.162E+01	5.276E+01	5.801E+00	0.021
	776.49	*	1.149E-02	3.847E-01	5.776E-01	6.130E-02	0.020
	1395.20		-1.479E+01	1.033E+01	1.304E+01	1.070E+00	-1.134
RB-83	520.41	*	1.435E-02	5.974E-02	9.846E-02	1.021E-02	0.146
	529.64		-2.996E-02	9.036E-02	1.416E-01	1.477E-02	-0.212
	552.65		1.184E-01	1.821E-01	3.074E-01	3.256E-02	0.385
RB-84	881.50	*	6.210E-02	6.552E-02	1.157E-01	1.118E-02	0.537
KR-85	513.99	*	6.607E+00	7.324E+00	1.122E+01	1.158E+00	0.589
SR-85	513.99	*	3.378E-02	3.744E-02	5.736E-02	5.918E-03	0.589
RB-86	1076.63	*	5.220E-01	7.355E-01	1.304E+00	1.155E-01	0.400
Y-88	898.02		1.254E-02	3.733E-02	6.268E-02	5.961E-03	0.200
	1836.01	*	1.619E-02	3.431E-02	6.118E-02	5.000E-03	0.265
ZR-88	392.90	*	7.014E-03	2.619E-02	4.413E-02	4.017E-03	0.159
Y-91	1204.90	*	2.066E+01	1.835E+01	3.298E+01	2.714E+00	0.627
NB-94	702.63	*	-4.992E-03	3.219E-02	5.206E-02	5.717E-03	-0.096
	871.10		1.720E-03	3.031E-02	4.969E-02	4.861E-03	0.035
NB-95	765.79	*	3.807E-02	4.539E-02	7.062E-02	7.544E-03	0.539
NB-95M	235.69	*	2.276E-02	1.028E-01	1.494E-01	1.713E-02	0.152
ZR-95	724.18		8.760E-02	8.815E-02	1.410E-01	1.622E-02	0.621

---- 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	*		4.493E-02	6.985E-02	1.208E-01	1.384E-02	0.372
	657.90	*		4.758E-02	6.985E-02	Half-Life	too short	
ZR-97	1024.50			1.678E+00	6.985E-02	Half-Life	too short	
	254.15			-1.088E+00	6.985E-02	Half-Life	too short	
	355.39			1.519E+00	6.985E-02	Half-Life	too short	
	507.63	*		1.628E+00	6.985E-02	Half-Life	too short	
	602.52			1.642E+00	6.985E-02	Half-Life	too short	
	1021.30			3.162E+00	6.985E-02	Half-Life	too short	
	1147.95			-2.888E+00	6.985E-02	Half-Life	too short	
	1362.66			4.126E+00	6.985E-02	Half-Life	too short	
MO-99	1750.46			2.865E+00	6.985E-02	Half-Life	too short	
	140.51			-6.896E+00	1.807E+01	2.908E+01	8.343E+00	-0.237
	181.06			-6.596E+00	1.283E+01	1.810E+01	3.366E+00	-0.364
	366.43			7.714E+00	6.891E+01	1.156E+02	1.133E+01	0.067
	739.58	*		3.320E+00	9.913E+00	1.685E+01	2.786E+00	0.197
	778.00			2.549E+00	3.009E+01	4.993E+01	5.295E+00	0.051
TC-99M	140.51	*		-4.966E+09	3.009E+01	Half-Life	too short	
RH-101	127.23			-1.626E-02	2.157E-02	3.500E-02	4.381E-03	-0.464
	198.01	*		2.397E-02	2.649E-02	4.420E-02	4.259E-03	0.542
	325.23			-2.153E-03	1.843E-01	3.100E-01	3.302E-02	-0.007
RH-102	418.52			-1.009E-01	2.530E-01	4.057E-01	3.815E-02	-0.249
	475.06	*		-8.397E-03	2.584E-02	4.106E-02	4.100E-03	-0.204
	631.29			1.599E-02	4.358E-02	7.538E-02	8.281E-03	0.212
	697.49			4.333E-02	7.283E-02	1.262E-01	1.388E-02	0.343
	766.84			1.429E-01	1.263E-01	1.995E-01	2.130E-02	0.716
	1046.59			7.070E-02	1.072E-01	1.898E-01	1.710E-02	0.373
RU-103	1112.84			1.103E-01	2.360E-01	3.715E-01	3.212E-02	0.297
	497.08	*		-2.026E-02	3.933E-02	6.127E-02	9.289E-03	-0.331
RH-106	610.33	+		1.176E+01	2.616E+00	2.692E+00	4.838E-01	4.367
RH-106	511.85	+		4.541E-01	3.375E-01	3.982E-01	4.101E-02	1.140
	621.84	*		2.441E-01	2.759E-01	4.908E-01	7.346E-02	0.497
RU-106	1050.47			3.459E-01	2.120E+00	3.603E+00	3.240E-01	0.096
	511.85	+		4.541E-01	3.375E-01	3.982E-01	4.101E-02	1.140
AG-108M	621.84	*		2.441E-01	2.748E-01	4.908E-01	5.374E-02	0.497
	1050.47			3.459E-01	2.120E+00	3.603E+00	3.240E-01	0.096
	433.93	*		-2.431E-02	2.910E-02	4.483E-02	4.430E-03	-0.542
AG-110M	614.37			1.193E-02	3.873E-02	5.799E-02	6.488E-03	0.206
	722.95			1.117E-03	4.065E-02	5.873E-02	6.563E-03	0.019
	657.75	*		1.658E-02	3.492E-02	5.346E-02	6.024E-03	0.310
	677.61			1.624E-01	2.755E-01	4.800E-01	5.396E-02	0.338
	706.67			2.758E-02	1.959E-01	3.292E-01	3.672E-02	0.084
	763.93			-5.583E-02	1.799E-01	2.480E-01	2.701E-02	-0.225
IN-111	884.67			-4.487E-03	4.760E-02	7.677E-02	7.584E-03	-0.058
	937.48			-8.286E-02	1.038E-01	1.534E-01	1.486E-02	-0.540
	1384.27			2.543E-02	1.848E-01	2.645E-01	2.234E-02	0.096
	171.28			6.841E-03	6.678E-01	1.101E+00	9.949E-02	0.006
	245.39	*		3.093E-02	8.536E-01	1.221E+00	1.293E-01	0.025
IN-113M	391.69	*		-9.686E-03	3.824E-02	6.236E-02	5.824E-03	-0.155
SN-113	391.69	*		-9.686E-03	3.824E-02	6.236E-02	5.824E-03	-0.155

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-114M	190.27	*		9.163E-02	1.480E-01	2.247E-01	2.126E-02	0.408
CD-115	260.90			-3.164E+01	9.389E+01	1.464E+02	1.590E+01	-0.216
	492.35			8.639E+00	3.037E+01	5.038E+01	5.108E+00	0.171
	527.90	*		-1.674E+00	8.125E+00	1.287E+01	1.342E+00	-0.130
SN-117M	156.02			-1.499E+00	1.656E+00	2.608E+00	2.600E-01	-0.575
	158.56	*		-2.911E-03	3.792E-02	6.262E-02	6.080E-03	-0.046
SB-122	563.90	*		-1.779E+00	1.897E+00	2.801E+00	2.987E-01	-0.635
	692.80			-2.855E+01	3.916E+01	6.143E+01	6.765E+00	-0.465
I-123	159.00	*		-1.680E+00	3.916E+01	Half-Life	too short	
	528.96			-2.241E+01	3.916E+01	Half-Life	too short	
TE-123M	159.00	*		-1.181E-02	2.009E-02	3.232E-02	3.138E-03	-0.365
I-124	602.71	*		1.250E-01	5.772E-01	8.685E-01	9.440E-02	0.144
	722.78			3.657E-01	3.974E+00	5.788E+00	6.312E-01	0.063
	1325.50			-1.106E+01	2.916E+01	4.536E+01	3.689E+00	-0.244
+	1376.25			5.534E+01	3.738E+01	5.705E+01	4.666E+00	0.970
	1509.49			2.172E+01	1.289E+01	2.578E+01	2.138E+00	0.843
	1691.02			-2.304E-01	2.799E+00	4.565E+00	3.784E-01	-0.050
SB-124	602.71			7.586E-03	3.502E-02	5.271E-02	5.729E-03	0.144
	645.85			-5.536E-02	4.231E-01	7.015E-01	8.027E-02	-0.079
	709.31			-1.180E-01	2.578E+00	4.269E+00	4.678E-01	-0.028
	713.82			4.552E-01	1.477E+00	2.512E+00	3.466E-01	0.181
	722.78			3.217E-02	3.495E-01	5.091E-01	5.628E-02	0.063
+	968.20			1.516E+01	4.004E+00	6.911E+00	6.438E-01	2.193
	1045.16			1.211E+00	2.288E+00	4.011E+00	3.616E-01	0.302
	1325.50			-1.039E+00	2.740E+00	4.262E+00	3.466E-01	-0.244
	1368.21			-1.476E+00	1.515E+00	2.076E+00	2.739E-01	-0.711
	1436.60			1.982E-02	3.411E+00	5.546E+00	4.572E-01	0.004
	1691.02	*		-4.781E-03	5.808E-02	9.471E-02	8.187E-03	-0.050
SB-125	427.89	*		6.201E-02	8.131E-02	1.401E-01	1.354E-02	0.442
+	463.38			9.033E-01	5.011E-01	5.191E-01	5.434E-02	1.740
	600.56			6.311E-02	1.564E-01	2.578E-01	2.931E-02	0.245
	635.90			-2.606E-02	2.191E-01	3.639E-01	4.205E-02	-0.072
TE-125M	109.28	*		3.186E+00	5.664E+00	9.807E+00	1.302E+00	0.325
I-126	388.63			2.770E-02	1.734E-01	2.905E-01	2.668E-02	0.095
	666.33	*		1.373E-01	1.701E-01	2.691E-01	2.979E-02	0.510
	753.82			1.505E+00	1.452E+00	2.571E+00	2.765E-01	0.585
SB-126	223.80			-6.658E-02	2.901E+00	4.677E+00	4.759E-01	-0.014
+	278.60			1.566E+00	2.023E+00	3.447E+00	3.844E-01	0.454
+	296.50			1.182E+01	2.195E+00	3.036E+00	3.347E-01	3.895
	414.70			1.734E-02	6.089E-02	1.024E-01	9.582E-03	0.169
	415.30			3.911E+00	5.043E+00	8.737E+00	8.183E-01	0.448
	555.20			2.935E+00	3.527E+00	6.033E+00	6.401E-01	0.486
	573.80			-1.955E-01	9.035E-01	1.419E+00	1.522E-01	-0.138
	593.00			1.227E-01	7.950E-01	1.287E+00	1.393E-01	0.095
	656.30			-1.267E+00	3.383E+00	4.710E+00	5.211E-01	-0.269
	666.33			5.733E-02	7.102E-02	1.124E-01	1.244E-02	0.510
	675.00			-9.144E-01	1.705E+00	2.714E+00	3.000E-01	-0.337
	695.00			1.112E-02	7.309E-02	1.230E-01	1.354E-02	0.090
	697.00			8.811E-02	2.489E-01	4.248E-01	4.672E-02	0.207



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	720.50	*		1.326E-02	1.232E-01	1.951E-01	2.130E-02	0.068
	856.80			1.730E-01	4.917E-01	7.258E-01	7.209E-02	0.238
	989.30			4.292E-01	1.163E+00	1.943E+00	1.796E-01	0.221
	1034.80			2.145E-01	8.080E+00	1.359E+01	1.232E+00	0.016
	1213.00			4.317E-01	4.602E+00	7.661E+00	6.303E-01	0.056
	61.10			6.223E+00	1.594E+01	2.384E+01	2.874E+00	0.261
	252.40			4.749E-01	3.243E+00	5.221E+00	2.218E+00	0.091
	290.80			-9.265E+00	1.772E+01	2.550E+01	3.336E+00	-0.363
	411.60			-2.321E+00	9.751E+00	1.583E+01	2.543E+00	-0.147
	444.90			-4.910E+00	8.312E+00	1.301E+01	1.721E+00	-0.377
	473.00			6.652E-01	1.377E+00	2.322E+00	3.189E-01	0.286
	543.00			6.496E+00	1.364E+01	2.278E+01	3.544E+00	0.285
	603.60			-2.743E+00	9.763E+00	1.387E+01	1.954E+00	-0.198
	685.20	*		-8.067E-01	1.211E+00	1.904E+00	2.520E-01	-0.424
	698.50			-3.068E+00	1.361E+01	2.225E+01	3.822E+00	-0.138
	722.20			9.799E-01	2.672E+01	3.866E+01	5.002E+00	0.025
	783.80			2.217E+00	3.184E+00	5.519E+00	7.600E-01	0.402
XE-127	57.60			1.296E+00	1.445E+00	2.373E+00	2.313E-01	0.546
	145.22			5.352E-01	5.042E-01	8.709E-01	9.596E-02	0.614
	172.10			2.177E-02	8.442E-02	1.408E-01	1.275E-02	0.155
	202.84	*		-1.817E-02	3.485E-02	5.512E-02	5.369E-03	-0.330
I-131	374.96			3.879E-03	1.736E-01	2.892E-01	2.769E-02	0.013
	80.18			3.147E-01	2.344E+00	3.396E+00	3.538E-01	0.093
	284.30			-1.256E-01	1.205E+00	1.894E+00	2.174E-01	-0.066
	364.48	*		-3.024E-02	1.005E-01	1.646E-01	1.689E-02	-0.184
TE-132	636.97			3.280E-01	1.238E+00	2.123E+00	2.417E-01	0.155
	722.89			8.829E-01	6.573E+00	9.622E+00	1.053E+00	0.092
	49.72			8.254E-01	2.625E+00	3.970E+00	4.573E-01	0.208
	111.76			8.655E+00	1.748E+01	3.016E+01	4.158E+00	0.287
BA-133	116.30			3.986E+00	1.656E+01	2.828E+01	3.976E+00	0.141
	228.16	*		2.365E-01	4.782E-01	7.900E-01	1.313E-01	0.299
	53.15			6.884E-01	6.453E-01	1.078E+00	1.034E-01	0.639
	79.62			-3.321E-01	6.752E-01	9.441E-01	1.536E-01	-0.352
+ 276.40	81.00			-2.933E-02	5.940E-02	7.184E-02	1.215E-02	-0.408
	302.84			5.995E-01	3.172E-01	5.186E-01	8.330E-02	1.156
	356.01	*		9.102E-02	1.259E-01	1.972E-01	2.940E-02	0.462
	383.85			9.932E-03	3.666E-02	5.524E-02	7.832E-03	0.180
I-133	510.53			1.870E-01	2.638E-01	4.548E-01	5.956E-02	0.411
	529.87	*		7.400E-01	2.638E-01	Half-Life too short		
	706.58			-8.402E-04	2.638E-01	Half-Life too short		
	856.28			2.079E-02	2.638E-01	Half-Life too short		
CS-134	875.33			2.234E-01	2.638E-01	Half-Life too short		
	1236.41			-2.943E-02	2.638E-01	Half-Life too short		
	1298.22			6.928E-01	2.638E-01	Half-Life too short		
	475.35			3.556E-02	2.638E-01	Half-Life too short		
	563.23			-8.443E-01	1.697E+00	2.658E+00	2.655E-01	-0.318
	569.32			-2.185E-01	3.419E-01	5.188E-01	5.565E-02	-0.421
	604.70			5.563E-02	1.851E-01	2.981E-01	3.216E-02	0.187
				-9.455E-03	2.956E-02	4.179E-02	4.553E-03	-0.226

## ---- 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	*		6.022E-02	4.409E-02	7.960E-02	8.379E-03	0.757
	801.93			-2.542E-01	3.737E-01	5.704E-01	5.971E-02	-0.446
	1038.57			-3.921E+00	3.480E+00	5.145E+00	4.655E-01	-0.762
	1167.94			-1.015E+00	2.544E+00	4.075E+00	3.370E-01	-0.249
	1365.15			-6.321E-01	1.154E+00	1.741E+00	1.494E-01	-0.363
	268.24	*		6.127E-03	1.411E-01	2.001E-01	2.415E-02	0.031
	288.45			3.852E+09	1.411E-01	Half-Life	too short	
	417.63			6.423E+09	1.411E-01	Half-Life	too short	
	546.56			-6.542E+09	1.411E-01	Half-Life	too short	
	836.80			-1.462E+07	1.411E-01	Half-Life	too short	
	1038.76			-8.049E+09	1.411E-01	Half-Life	too short	
	1124.00			-5.401E+09	1.411E-01	Half-Life	too short	
	1131.51			-5.918E+08	1.411E-01	Half-Life	too short	
	1260.41	*		-1.573E+09	1.411E-01	Half-Life	too short	
	1457.56			2.748E+11	1.411E-01	Half-Life	too short	
	1678.03			1.126E+09	1.411E-01	Half-Life	too short	
	1706.46			-4.647E+09	1.411E-01	Half-Life	too short	
	1791.20			-2.830E+08	1.411E-01	Half-Life	too short	
CS-136 +	66.91			1.761E-01	3.062E-01	4.566E-01	7.400E-02	0.386
	86.29			4.774E+00	1.020E+00	1.164E+00	1.664E-01	4.102
	153.22			4.413E-01	4.812E-01	8.257E-01	9.183E-02	0.534
	163.89			-9.702E-02	7.790E-01	1.261E+00	1.276E-01	-0.077
	176.55			-5.352E-02	2.566E-01	4.176E-01	4.019E-02	-0.128
	273.65			8.291E-02	4.757E-01	5.376E-01	6.193E-02	0.154
	340.57			1.238E-01	1.124E-01	1.787E-01	1.892E-02	0.693
	818.51			-4.492E-04	6.274E-02	1.028E-01	1.059E-02	-0.004
	1048.07	*		8.216E-02	9.951E-02	1.783E-01	1.667E-02	0.461
	1235.34			6.101E-01	5.788E-01	1.023E+00	1.182E-01	0.596
CE-139 BA-140	165.85	*		-1.343E-02	2.134E-02	3.414E-02	3.045E-03	-0.393
	162.64			1.533E-01	5.495E-01	9.064E-01	8.829E-02	0.169
	304.84			-4.600E-01	1.120E+00	1.608E+00	4.633E-01	-0.286
	423.70			-4.937E-01	1.711E+00	2.752E+00	8.986E-01	-0.179
	537.32	*		2.654E-02	2.336E-01	3.797E-01	1.278E-01	0.070
LA-140	328.77			1.887E-01	2.535E-01	4.404E-01	4.841E-02	0.428
	432.53			-9.519E-01	1.732E+00	2.730E+00	2.713E-01	-0.349
	487.03			4.371E-02	1.211E-01	2.021E-01	2.133E-02	0.216
	751.79			-8.003E-01	1.656E+00	2.627E+00	3.025E-01	-0.305
	815.85			-5.290E-02	2.662E-01	4.276E-01	4.771E-02	-0.124
	867.82			4.950E-01	1.357E+00	2.014E+00	2.058E-01	0.246
	919.63			-6.248E-01	2.592E+00	4.100E+00	4.640E-01	-0.152
	925.24			5.862E-02	1.049E+00	1.709E+00	1.696E-01	0.034
	1596.49	*		-2.106E-02	8.244E-02	1.328E-01	1.104E-02	-0.159
	145.44	*		1.337E-02	4.614E-02	7.779E-02	8.651E-03	0.172
CE-141 CE-143 +	57.37			1.889E-04	4.614E-02	Half-Life	too short	
	231.56			-1.359E-03	4.614E-02	Half-Life	too short	
	293.26	*		3.116E-04	4.614E-02	Half-Life	too short	
	350.59			2.365E-02	4.614E-02	Half-Life	too short	
	490.36			-2.323E-03	4.614E-02	Half-Life	too short	
	664.57			2.307E-03	4.614E-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		2.215E-04	4.614E-02	Half-Life	too short	
CE-144		80.11		1.111E-01	1.102E+00	1.594E+00	1.653E-01	0.070
		133.54	*	-9.309E-03	1.395E-01	2.332E-01	4.124E-02	-0.040
PM-144		476.78		-2.484E-02	6.200E-02	9.799E-02	1.049E-02	-0.253
		618.01		2.848E-03	2.840E-02	4.814E-02	5.355E-03	0.059
		696.49	*	2.233E-02	3.208E-02	5.599E-02	6.161E-03	0.399
		778.57		8.559E-01	2.123E+00	3.615E+00	3.832E-01	0.237
PR-144		696.49	*	1.513E+00	2.174E+00	3.794E+00	4.173E-01	0.399
		1489.15		3.386E+00	1.040E+01	1.774E+01	1.469E+00	0.191
PM-146		453.90	*	1.548E-02	3.837E-02	6.453E-02	7.535E-03	0.240
		633.02		-7.390E-01	1.169E+00	1.799E+00	6.834E-01	-0.411
		735.90		-1.215E-01	1.364E-01	1.998E-01	5.865E-02	-0.608
		747.13		1.129E-02	8.440E-02	1.411E-01	2.183E-02	0.080
ND-147	+	91.11		6.690E-01	1.852E-01	2.774E-01	3.184E-02	2.412
		319.41		1.210E+00	2.469E+00	4.274E+00	4.593E-01	0.283
		439.89		3.390E+00	5.267E+00	8.991E+00	8.666E-01	0.377
		531.02	*	-1.527E-01	4.732E-01	7.411E-01	1.191E-01	-0.206
PM-149		285.90	*	-2.726E+01	6.991E+01	1.075E+02	1.834E+01	-0.254
EU-152		121.78		1.489E-04	4.630E-02	7.813E-02	1.077E-02	0.002
		244.69		4.582E-02	2.759E-01	3.987E-01	4.217E-02	0.115
		344.27	*	-3.168E-02	7.928E-02	1.249E-01	1.341E-02	-0.254
		443.98		-5.614E-01	8.581E-01	1.339E+00	1.296E-01	-0.419
		778.89		6.470E-02	2.421E-01	4.080E-01	4.323E-02	0.159
		867.32		1.857E-01	8.256E-01	1.202E+00	1.181E-01	0.155
	+	964.01		7.518E-01	3.840E-01	5.756E-01	5.369E-02	1.306
		1085.78		1.472E-01	3.894E-01	6.712E-01	5.911E-02	0.219
		1112.02		-3.896E-02	3.147E-01	4.943E-01	4.276E-02	-0.079
		1407.95		5.724E-02	1.660E-01	2.827E-01	2.323E-02	0.202
GD-153		69.67		1.671E-01	6.496E-01	1.036E+00	1.036E-01	0.161
	+	83.37		2.088E+01	7.810E+00	1.266E+01	1.332E+00	1.649
		97.43	*	-9.790E-03	4.853E-02	7.410E-02	8.345E-03	-0.132
		103.18		-5.814E-02	6.256E-02	1.022E-01	1.186E-02	-0.569
EU-154		123.07		1.942E-02	3.237E-02	5.578E-02	8.260E-03	0.348
		247.94		9.079E-02	2.732E-01	4.460E-01	5.825E-02	0.204
		591.81		5.448E-02	5.312E-01	8.563E-01	1.145E-01	0.064
		723.30		1.040E-02	1.704E-01	2.472E-01	2.876E-02	0.042
		756.87		3.758E-01	7.722E-01	1.320E+00	1.793E-01	0.285
		873.19		1.958E-02	2.601E-01	4.272E-01	5.583E-02	0.046
		996.32		-1.351E-01	3.164E-01	4.820E-01	8.708E-02	-0.280
		1004.76		-7.456E-02	2.152E-01	3.338E-01	4.028E-02	-0.223
		1274.45	*	1.553E-02	1.128E-01	1.882E-01	2.067E-02	0.083
EU-155		48.70		-3.686E-03	3.206E-01	4.774E-01	4.544E-02	-0.008
		60.01		-1.298E+00	1.473E+00	2.051E+00	2.018E-01	-0.633
	+	86.54		4.470E-01	8.570E-02	1.121E-01	1.204E-02	3.988
		105.31	*	1.163E-01	6.713E-02	1.192E-01	1.409E-02	0.976
TB-160	+	86.79		1.191E+00	2.279E-01	3.058E-01	3.267E-02	3.894
		197.04		-8.981E-02	4.582E-01	7.302E-01	7.020E-02	-0.123
		215.65		2.983E-01	5.953E-01	9.868E-01	9.878E-02	0.302
		298.57		8.970E-02	1.392E-01	1.636E-01	1.800E-02	0.548

----- 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	*	2.368E-03	1.273E-01	2.078E-01	2.013E-02	0.011
		962.29		7.176E-01	5.961E-01	9.427E-01	8.798E-02	0.761
	+	966.15		5.149E-01	2.630E-01	5.075E-01	4.731E-02	1.014
		1177.93		2.859E-02	3.623E-01	6.042E-01	4.973E-02	0.047
		1271.85		-1.367E-01	6.469E-01	1.039E+00	8.515E-02	-0.132
		80.57		1.242E-01	1.507E-01	2.000E-01	2.078E-02	0.621
		184.41		7.125E-02	3.129E-02	5.148E-02	4.805E-03	1.384
		280.46		2.512E-02	7.241E-02	1.050E-01	1.171E-02	0.239
		410.95		1.324E-01	2.008E-01	3.453E-01	3.217E-02	0.383
		711.68	*	-1.741E-03	5.588E-02	9.261E-02	1.014E-02	-0.019
TM-171		752.31		-6.216E-02	2.657E-01	4.308E-01	4.636E-02	-0.144
		810.29		-5.115E-02	5.316E-02	7.854E-02	8.138E-03	-0.651
		51.35		-6.071E+00	4.850E+00	7.307E+00	6.978E-01	-0.831
		52.39		1.867E+00	2.627E+00	4.343E+00	4.157E-01	0.430
		59.40		-2.476E+00	7.537E+00	1.085E+01	1.067E+00	-0.228
		66.72	*	1.691E+01	1.083E+01	1.678E+01	1.666E+00	1.008
LU-176	+	88.36		8.805E-01	1.684E-01	2.078E-01	2.237E-02	4.236
		201.83		-4.120E-02	2.237E-02	3.236E-02	3.145E-03	-1.273
		306.84	*	-2.418E-03	2.008E-02	3.262E-02	3.559E-03	-0.074
		401.10		3.309E+00	5.598E+00	9.601E+00	8.833E-01	0.345
LU-177		112.95		-6.247E-01	9.985E-01	1.646E+00	2.016E-01	-0.380
	+	208.36	*	3.929E+00	1.393E+00	1.613E+00	1.590E-01	2.436
LU-177M		52.97		2.750E-01	2.896E-01	4.820E-01	4.620E-02	0.571
		54.07		1.419E-01	1.621E-01	2.689E-01	2.586E-02	0.528
		61.30		2.066E-01	4.326E-01	6.498E-01	6.398E-02	0.318
		121.62		2.099E-02	2.370E-01	4.015E-01	5.162E-02	0.052
		147.16		-2.418E-01	4.692E-01	7.634E-01	8.274E-02	-0.317
		171.86		7.610E-02	3.417E-01	5.690E-01	5.148E-02	0.134
		218.09		-4.749E-01	6.876E-01	1.070E+00	1.077E-01	-0.444
	+	268.79		2.182E+00	9.064E-01	1.151E+00	1.266E-01	1.895
		319.02		1.043E-01	1.918E-01	3.333E-01	3.582E-02	0.313
		367.43		1.273E-01	7.920E-01	1.332E+00	1.302E-01	0.096
HF-181		413.65	*	-2.092E-01	1.489E-01	2.192E-01	2.049E-02	-0.955
		56.28		-1.143E-01	2.090E-01	3.246E-01	3.146E-02	-0.352
		57.53		1.145E-01	1.205E-01	1.986E-01	1.935E-02	0.576
		65.20		-5.794E-02	3.471E-01	5.030E-01	4.978E-02	-0.115
		133.02		7.898E-03	4.536E-02	7.663E-02	9.244E-03	0.103
		136.25		-1.703E-01	3.082E-01	5.026E-01	5.931E-02	-0.339
		345.85		4.223E-02	1.684E-01	2.537E-01	2.606E-02	0.166
		482.03	*	3.113E-02	3.981E-02	6.814E-02	6.847E-03	0.457
W-181		56.28		-4.466E-02	8.206E-02	1.275E-01	1.236E-02	-0.350
		57.53		4.492E-02	4.733E-02	7.802E-02	7.603E-03	0.576
		65.20	*	-2.258E-02	1.353E-01	1.961E-01	1.940E-02	-0.115
TA-182		67.75		-3.271E-02	4.175E-02	6.381E-02	6.349E-03	-0.513
		100.10		8.449E-02	1.029E-01	1.804E-01	2.060E-02	0.468
		152.43		-6.844E-02	2.470E-01	4.055E-01	4.191E-02	-0.169
		222.10		2.185E-01	2.580E-01	4.345E-01	4.407E-02	0.503
		1001.68		-1.144E-01	1.939E+00	3.147E+00	2.896E-01	-0.036
	+	1121.28		5.496E-01	1.845E-01	3.260E-01	2.801E-02	1.686

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1189.05			-1.644E-01	3.085E-01	4.870E-01	4.008E-02	-0.338
	1221.42	*		-1.040E-02	1.991E-01	3.273E-01	2.691E-02	-0.032
	1230.97			-3.323E-02	4.665E-01	7.650E-01	6.288E-02	-0.043
	57.98			1.963E-02	4.964E-02	8.007E-02	7.819E-03	0.245
	59.32			-2.334E-02	3.155E-02	4.436E-02	4.360E-03	-0.526
	67.20			1.906E-02	7.913E-02	1.167E-01	1.159E-02	0.163
RE-184	162.32	*		4.597E-02	7.997E-02	1.335E-01	1.243E-02	0.344
	208.81			3.626E+00	1.285E+00	1.510E+00	1.490E-01	2.402
	291.72			-4.772E-01	8.203E-01	1.175E+00	1.301E-01	-0.406
	57.98			7.247E-02	1.832E-01	2.955E-01	2.886E-02	0.245
	59.32			-8.606E-02	1.163E-01	1.636E-01	1.608E-02	-0.526
	67.20			7.034E-02	2.920E-01	4.304E-01	4.277E-02	0.163
OS-185	161.27			-5.578E-04	2.549E-01	4.219E-01	3.975E-02	-0.001
	216.55			1.073E-01	2.071E-01	3.436E-01	3.446E-02	0.312
	252.85	*		3.015E-03	1.834E-01	2.935E-01	3.147E-02	0.010
	318.01			-2.050E-01	3.325E-01	5.381E-01	5.792E-02	-0.381
	792.07			-4.479E-01	8.801E-01	1.379E+00	1.449E-01	-0.325
	903.28			-5.896E-01	1.047E+00	1.427E+00	1.351E-01	-0.413
RE-188	920.93			2.554E-01	4.288E-01	7.343E-01	6.927E-02	0.348
	59.72			-3.407E-02	8.449E-02	1.211E-01	1.191E-02	-0.281
	61.14			2.440E-02	4.733E-02	7.124E-02	7.013E-03	0.343
	69.30			-7.174E-02	1.168E-01	1.797E-01	1.795E-02	-0.399
	592.07			2.690E-01	2.168E+00	3.502E+00	3.788E-01	0.077
	646.12	*		-3.856E-03	3.613E-02	6.001E-02	6.622E-03	-0.064
W-188	717.42			-5.419E-01	7.704E-01	1.195E+00	1.306E-01	-0.453
	874.81			-1.561E-01	5.125E-01	8.079E-01	7.870E-02	-0.193
	880.27			5.671E-01	7.104E-01	1.242E+00	1.203E-01	0.456
	155.03	*		5.644E-02	1.268E-01	2.128E-01	2.143E-02	0.265
	477.96			-5.360E-01	2.755E+00	4.423E+00	4.428E-01	-0.121
	633.10			-1.573E+00	2.286E+00	3.600E+00	3.957E-01	-0.437
IR-192	63.58			7.243E+01	3.031E+01	3.534E+01	3.489E+00	2.049
	227.08			-2.773E+00	9.168E+00	1.451E+01	1.486E+00	-0.191
	290.67	*		-2.261E+00	6.366E+00	9.294E+00	1.029E+00	-0.243
	295.96			9.175E-01	1.706E-01	2.507E-01	2.777E-02	3.660
	308.46			-8.478E-03	7.748E-02	1.302E-01	1.422E-02	-0.065
	316.51	*		-1.509E-02	2.532E-02	4.103E-02	4.432E-03	-0.368
AU-195	468.07			-3.908E-02	6.142E-02	8.116E-02	8.491E-03	-0.482
	604.41			-8.359E-02	4.020E-01	5.763E-01	8.420E-02	-0.145
	612.46			7.779E-01	7.276E-01	1.166E+00	1.393E-01	0.667
	65.12			-1.451E-02	6.242E-02	9.015E-02	8.921E-03	-0.161
	66.83			2.415E-02	3.721E-02	5.579E-02	5.539E-03	0.433
	75.70			9.832E-01	1.502E-01	2.350E-01	2.395E-02	4.185
TL-200	98.88	*		2.355E-01	1.321E-01	2.356E-01	2.673E-02	1.000
	129.76			2.727E+00	2.065E+00	3.595E+00	4.430E-01	0.758
	367.94	*		1.088E-04	2.065E+00	Half-Life	too short	
	579.30			1.153E-03	2.065E+00	Half-Life	too short	
	828.27			1.840E-03	2.065E+00	Half-Life	too short	
	1205.75			3.478E-04	2.065E+00	Half-Life	too short	
TL-201	68.90			-7.234E-01	1.717E+00	2.666E+00	2.660E-01	-0.271

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82	-3.160E-02	1.132E+00	1.642E+00	1.647E-01	-0.019
		80.30	2.824E+00	2.629E+00	3.536E+00	3.669E-01	0.799
		135.34	-1.071E+01	1.621E+01	2.631E+01	3.124E+00	-0.407
		167.43	* 2.742E-01	4.526E+00	7.494E+00	6.704E-01	0.037
		68.90	-6.825E-02	1.620E-01	2.515E-01	2.510E-02	-0.271
		70.82	-2.973E-03	1.065E-01	1.545E-01	1.549E-02	-0.019
		80.30	2.657E-01	2.474E-01	3.327E-01	3.453E-02	0.799
BI-207		439.56	* 4.857E-02	6.329E-02	1.087E-01	1.048E-02	0.447
		72.80	2.426E-02	8.251E-02	1.212E-01	1.223E-02	0.200
	+	74.97	5.460E-01	8.341E-02	1.190E-01	1.210E-02	4.587
	+	84.90	2.702E-01	1.011E-01	1.662E-01	1.760E-02	1.626
TL-207		569.67	6.464E-03	2.871E-02	4.595E-02	4.915E-03	0.141
		1063.62	* -2.734E-02	4.999E-02	7.935E-02	7.082E-03	-0.345
		1770.23	-1.386E-01	4.747E-01	6.095E-01	5.018E-02	-0.227
		81.07	-6.611E-02	1.309E-01	1.586E-01	1.651E-02	-0.417
	+	83.78	1.782E-01	6.666E-02	1.114E-01	1.173E-02	1.600
		94.90	2.506E-01	1.325E-01	2.187E-01	2.431E-02	1.146
		122.32	3.700E-01	1.112E+00	1.900E+00	2.528E-01	0.195
		144.24	2.641E-01	5.300E-01	8.835E-01	1.053E-01	0.299
		154.21	3.085E-01	2.961E-01	5.064E-01	5.517E-02	0.609
	+	269.46	5.114E-01	2.127E-01	2.863E-01	3.191E-02	1.786
PO-209		323.87	* -3.467E-01	5.485E-01	8.850E-01	1.663E-01	-0.392
	+	338.28	5.420E+00	1.524E+00	2.154E+00	2.938E-01	2.516
		445.03	-4.468E-01	1.985E+00	3.200E+00	4.119E-01	-0.140
		260.50	-2.090E+00	7.644E+00	1.197E+01	1.300E+00	-0.175
		262.80	-1.548E+01	2.127E+01	3.219E+01	3.508E+00	-0.481
PB-211		896.60	* -2.172E+00	6.631E+00	1.040E+01	9.872E-01	-0.209
		404.84	* -2.719E-01	7.960E-01	1.255E+00	7.877E-01	-0.217
		427.08	8.659E-01	1.931E+00	3.144E+00	1.957E+00	0.275
BI-212		831.96	-4.518E-01	1.087E+00	1.646E+00	1.035E+00	-0.274
	+	727.18	* 9.233E-01	4.150E-01	6.106E-01	7.337E-02	1.512
		785.46	8.685E-01	1.607E+00	2.761E+00	2.914E-01	0.315
PO-215		1620.62	1.366E+00	1.170E+00	2.263E+00	1.881E-01	0.604
		81.07	-6.611E-02	1.309E-01	1.586E-01	1.651E-02	-0.417
	+	83.78	1.782E-01	6.666E-02	1.114E-01	1.173E-02	1.600
		94.90	2.506E-01	1.325E-01	2.187E-01	2.431E-02	1.146
		122.32	3.700E-01	1.112E+00	1.900E+00	2.528E-01	0.195
		144.24	2.641E-01	5.300E-01	8.835E-01	1.053E-01	0.299
		154.21	3.085E-01	2.961E-01	5.064E-01	5.517E-02	0.609
	+	269.46	5.114E-01	2.127E-01	2.863E-01	3.191E-02	1.786
		323.87	* -3.467E-01	5.485E-01	8.850E-01	1.663E-01	-0.392
	+	338.28	5.420E+00	1.524E+00	2.154E+00	2.938E-01	2.516
RN-219		445.03	-4.468E-01	1.985E+00	3.200E+00	4.119E-01	-0.140
	+	271.23	6.562E-01	2.751E-01	3.734E-01	4.631E-02	1.757
		401.81	* 4.853E-02	3.493E-01	5.829E-01	8.960E-02	0.083
		549.76	* -1.426E+01	2.402E+01	3.662E+01	3.872E+00	-0.389
RA-223		81.07	-6.611E-02	1.309E-01	1.586E-01	1.651E-02	-0.417
	+	83.78	1.782E-01	6.666E-02	1.114E-01	1.173E-02	1.600
		94.90	2.506E-01	1.325E-01	2.187E-01	2.431E-02	1.146

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		3.700E-01	1.112E+00	1.900E+00	2.528E-01	0.195
		144.24		2.641E-01	5.300E-01	8.835E-01	1.053E-01	0.299
		154.21		3.085E-01	2.961E-01	5.064E-01	5.517E-02	0.609
	+	269.46		5.114E-01	2.127E-01	2.863E-01	3.191E-02	1.786
		323.87	*	-3.467E-01	5.485E-01	8.850E-01	1.663E-01	-0.392
	+	338.28		5.420E+00	1.524E+00	2.154E+00	2.938E-01	2.516
		445.03		-4.468E-01	1.985E+00	3.200E+00	4.119E-01	-0.140
		79.80		-4.071E-02	8.450E-01	1.213E+00	2.700E-01	-0.034
		236.00		1.469E-01	1.960E-01	2.937E-01	3.984E-02	0.500
		256.20	*	7.366E-02	3.108E-01	5.027E-01	8.375E-02	0.147
		286.10		-5.696E-01	1.275E+00	1.953E+00	2.921E-01	-0.292
	+	299.80		3.210E+00	2.031E+00	2.227E+00	4.180E-01	1.441
TH-227		304.40		-1.464E-01	1.648E+00	2.446E+00	4.800E-01	-0.060
		334.20		-6.288E-01	2.115E+00	3.051E+00	6.199E-01	-0.206
		79.80		-4.071E-02	8.450E-01	1.213E+00	2.732E-01	-0.034
	+	94.00		9.334E+00	2.697E+00	2.365E+00	5.405E-01	3.947
		236.00		1.469E-01	1.958E-01	2.937E-01	3.678E-02	0.500
		256.20	*	7.366E-02	3.108E-01	5.027E-01	9.647E-02	0.147
		286.10		-5.696E-01	1.396E+00	1.953E+00	1.965E+00	-0.292
	+	299.80		3.210E+00	2.031E+00	2.227E+00	4.180E-01	1.441
		304.40		-1.464E-01	1.648E+00	2.446E+00	4.800E-01	-0.060
		334.20		-6.288E-01	2.115E+00	3.051E+00	6.199E-01	-0.206
	+	85.43		2.667E-01	9.979E-02	1.652E-01	1.754E-02	1.615
	+	88.47		5.068E-01	9.697E-02	1.172E-01	1.262E-02	4.326
TH-229		100.00		1.024E-01	1.077E-01	1.894E-01	2.162E-02	0.541
		193.63	*	1.806E-02	3.770E-01	6.171E-01	5.887E-02	0.029
		210.97		7.131E-01	6.412E-01	9.899E-01	9.812E-02	0.720
		283.67	*	1.138E+00	1.228E+00	2.037E+00	3.409E-01	0.558
	+	301.29		1.284E+00	7.966E-01	9.203E-01	1.289E-01	1.395
	TH-231	81.07		-6.611E-02	1.309E-01	1.586E-01	1.651E-02	-0.417
	+	83.78		1.782E-01	6.666E-02	1.114E-01	1.173E-02	1.600
		94.90		2.506E-01	1.325E-01	2.187E-01	2.431E-02	1.146
		122.32		3.700E-01	1.112E+00	1.900E+00	2.528E-01	0.195
		144.24		2.641E-01	5.300E-01	8.835E-01	1.053E-01	0.299
		154.21		3.085E-01	2.961E-01	5.064E-01	5.517E-02	0.609
	+	269.46		5.114E-01	2.127E-01	2.863E-01	3.191E-02	1.786
U-231		323.87	*	-3.467E-01	5.485E-01	8.850E-01	1.663E-01	-0.392
	+	338.28		5.420E+00	1.524E+00	2.154E+00	2.938E-01	2.516
		445.03		-4.468E-01	1.985E+00	3.200E+00	4.119E-01	-0.140
	+	84.21		7.326E+00	2.741E+00	4.647E+00	4.905E-01	1.577
	+	92.29		8.802E+00	1.836E+00	2.518E+00	2.763E-01	3.495
		95.87	*	-3.418E-01	5.954E-01	8.908E-01	9.951E-02	-0.384
		108.00		-1.331E+00	1.236E+00	1.996E+00	2.379E-01	-0.667
	PA-233	75.28		1.593E+01	3.165E+00	3.492E+00	5.683E-01	4.562
	+	86.59		7.267E+00	2.311E+00	1.832E+00	5.047E-01	3.967
	+	300.12		8.948E-01	5.603E-01	6.302E-01	1.031E-01	1.420
		311.98	*	2.474E-02	5.062E-02	8.766E-02	9.681E-03	0.282
		340.50		7.355E-01	5.846E-01	9.018E-01	2.212E-01	0.816
		398.62		6.775E-02	1.834E+00	3.043E+00	8.159E-01	0.022

----- 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		8.565E-01	1.392E+00	2.370E+00	5.181E-01	0.361
		63.00		2.107E+00	9.223E-01	1.024E+00	1.661E-01	2.058
		94.67		1.643E-01	9.458E-02	1.662E-01	2.366E-02	0.989
		98.44		7.834E-02	6.983E-02	9.395E-02	5.287E-02	0.834
		99.86		3.087E-01	2.753E-01	4.855E-01	5.538E-02	0.636
		111.00		-5.069E-03	1.159E-01	1.964E-01	2.904E-02	-0.026
		131.20		-3.189E-02	7.640E-02	1.260E-01	1.539E-02	-0.253
		152.70		1.283E-01	2.349E-01	3.976E-01	7.140E-02	0.323
	+	186.00		4.899E+00	2.200E+00	2.198E+00	6.907E-01	2.229
		226.40		-2.104E-01	2.941E-01	4.518E-01	6.462E-02	-0.466
		227.20		-9.577E-02	3.115E-01	4.930E-01	5.050E-02	-0.194
		248.90		-8.455E-02	6.287E-01	9.973E-01	2.321E-01	-0.085
		293.70		4.070E+00	1.057E+00	1.401E+00	2.609E-01	2.906
		369.80		-3.831E-01	7.482E-01	1.199E+00	2.667E-01	-0.319
		568.70		6.138E-01	9.292E-01	1.536E+00	1.642E-01	0.400
		569.50		6.690E-02	2.554E-01	4.101E-01	4.386E-02	0.163
		574.00		-2.440E-01	1.321E+00	2.082E+00	2.232E-01	-0.117
		699.00		-5.561E-01	6.897E-01	1.062E+00	2.153E-01	-0.523
		706.10		-1.422E-01	9.762E-01	1.601E+00	7.223E-01	-0.089
		733.00		3.527E-01	3.631E-01	5.724E-01	1.326E-01	0.616
		742.81		1.194E+00	1.513E+00	2.275E+00	1.537E+00	0.525
		796.30		1.153E+00	8.942E-01	1.526E+00	4.226E-01	0.756
		805.60		9.414E-01	9.603E-01	1.635E+00	5.102E-01	0.576
		819.60		8.621E-01	1.070E+00	1.811E+00	6.960E-01	0.476
		826.30		6.423E-02	7.189E-01	1.187E+00	5.352E-01	0.054
		831.60		-1.415E-01	5.536E-01	8.816E-01	2.674E-01	-0.160
		876.40		-3.595E-01	8.162E-01	1.122E+00	1.155E+00	-0.320
		880.51		1.902E-01	2.633E-01	4.570E-01	4.423E-02	0.416
		883.24		1.262E-01	2.831E-01	4.591E-01	3.093E-01	0.275
		899.00		5.857E-03	7.756E-01	1.261E+00	5.537E-01	0.005
		925.00		2.524E-01	1.092E+00	1.810E+00	1.706E-01	0.139
		926.50		-1.980E-01	1.782E-01	2.436E-01	6.227E-02	-0.813
		946.00	*	-1.617E-01	2.684E-01	4.020E-01	7.687E-02	-0.402
		949.00		1.476E-01	3.840E-01	6.462E-01	6.054E-02	0.228
		980.50		-1.780E-01	6.831E-01	1.070E+00	9.922E-02	-0.166
		1394.10		-1.124E+00	1.320E+00	1.517E+00	9.864E-01	-0.741
		766.42		1.727E+01	1.521E+01	2.027E+01	1.036E+01	0.852
		1001.03	*	-1.045E+00	4.378E+00	6.978E+00	7.309E-01	-0.150
U-235	+	89.95		2.712E+00	1.095E+00	1.106E+00	3.490E-01	2.452
	+	93.35		2.904E+00	9.831E-01	8.541E-01	2.465E-01	3.400
		105.00		7.170E-01	6.861E-01	1.151E+00	3.554E-01	0.623
		143.76	*	6.382E-02	1.647E-01	2.733E-01	5.161E-02	0.234
NP-236		163.35		9.582E-03	3.531E-01	5.761E-01	1.115E-01	0.017
	+	185.71		1.814E-01	6.065E-02	8.116E-02	7.599E-03	2.236
		205.31		3.626E-01	4.085E-01	6.206E-01	1.219E-01	0.584
		94.67		1.268E-01	7.100E-02	1.263E-01	1.402E-02	1.004
		98.44		5.919E-02	4.148E-02	7.102E-02	8.040E-03	0.833
		111.00		-3.834E-03	8.768E-02	1.486E-01	1.800E-02	-0.026
		160.31	*	-2.382E-02	5.707E-02	9.262E-02	8.821E-03	-0.257



----- 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		1.604E-01	9.247E-02	1.647E-01	1.876E-02	0.973
		117.00	*	-5.987E-02	1.209E-01	1.999E-01	2.504E-02	-0.300
	+	209.75		2.868E+00	1.017E+00	1.198E+00	1.184E-01	2.395
		228.18		8.261E-02	1.657E-01	2.743E-01	2.815E-02	0.301
	+	277.60		2.926E-01	1.511E-01	2.623E-01	2.921E-02	1.115
		334.30		-3.882E-01	1.195E+00	1.723E+00	1.809E-01	-0.225
AM-241		59.54	*	-1.488E-02	4.407E-02	6.338E-02	6.586E-03	-0.235
CM-243		99.55		1.650E-01	9.515E-02	1.695E-01	1.930E-02	0.973
		103.76	*	-1.005E-02	5.690E-02	9.630E-02	1.121E-02	-0.104
		117.00		-6.159E-02	1.243E-01	2.056E-01	2.576E-02	-0.300
	+	209.75		2.827E+00	1.002E+00	1.181E+00	1.167E-01	2.395
		228.18		8.347E-02	1.674E-01	2.772E-01	2.845E-02	0.301
	+	277.60		2.950E-01	1.523E-01	2.645E-01	2.945E-02	1.115
AM-246		798.80		-1.881E-01	1.370E-01	1.956E-01	2.044E-02	-0.962
		1036.00		9.399E-02	2.690E-01	4.656E-01	4.218E-02	0.202
		1062.04		3.638E-03	2.173E-01	3.642E-01	3.254E-02	0.010
		1078.86	*	6.025E-02	1.350E-01	2.344E-01	2.073E-02	0.257
CM-247	+	278.00		1.213E+00	6.265E-01	1.081E+00	1.204E-01	1.122
		287.40		-2.009E-02	1.011E+00	1.597E+00	1.773E-01	-0.013
		402.60	*	-5.658E-03	3.121E-02	5.100E-02	4.701E-03	-0.111
CF-249		252.85		1.133E-02	6.890E-01	1.102E+00	1.182E-01	0.010
		333.44		-1.014E-01	1.592E-01	2.234E-01	2.349E-02	-0.454
		387.95	*	1.179E-02	3.398E-02	5.757E-02	5.298E-03	0.205
CF-251		176.60	*	-1.940E-02	8.979E-02	1.460E-01	1.337E-02	-0.133
		227.00		-8.591E-02	2.757E-01	4.362E-01	4.467E-02	-0.197
		285.00		-6.892E-01	1.448E+00	2.216E+00	2.465E-01	-0.311

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                          *
*                                     Charleston, SC 29414                      *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600007        *
* Acquisition date   : 22-JAN-2010 08:05:42 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 02:00:01.90                               Half life ratio : 8.000   *
*****
*                                     SAMPLE DATA                          *
*                                     *                                       *
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID          : G244600007                               Analyst initials: MXR1     *
* Batch Number       : 941635                                   Sample Quantity : 1.4336E+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 :                   *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.302E+01	2.407E+00	5.098E-01	0.000E+00
CD-109	3.775E+00	7.078E-01	6.366E-01	0.000E+00
SN-126	3.712E-01	6.960E-02	6.248E-02	0.000E+00
BA-137M	3.653E-01	7.547E-02	5.689E-02	0.000E+00
CS-137	3.861E-01	7.981E-02	6.014E-02	0.000E+00
HG-203	2.640E-02	3.343E-02	5.173E-02	0.000E+00
TL-208	5.176E-01	9.704E-02	4.975E-02	0.000E+00
BI-210	1.122E+00	6.392E-01	5.604E-01	0.000E+00
PB-210	1.122E+00	6.392E-01	5.604E-01	0.000E+00
PO-210	1.122E+00	6.378E-01	5.604E-01	0.000E+00
BI-211	3.435E+00	5.545E-01	2.661E-01	0.000E+00
PB-212	1.521E+00	1.932E-01	7.360E-02	0.000E+00
PO-212	1.521E+00	1.932E-01	7.360E-02	0.000E+00
BI-214	1.094E+00	1.912E-01	9.549E-02	0.000E+00
PB-214	1.195E+00	2.023E-01	9.279E-02	0.000E+00
PO-214	1.195E+00	2.023E-01	9.279E-02	0.000E+00
PO-216	1.521E+00	1.932E-01	7.360E-02	0.000E+00
PO-218	1.195E+00	2.023E-01	9.279E-02	0.000E+00
RA-224	4.397E+00	1.009E+00	8.385E-01	0.000E+00
RA-226	1.094E+00	1.912E-01	9.549E-02	0.000E+00
AC-228	1.552E+00	2.885E-01	1.897E-01	0.000E+00
RA-228	1.552E+00	2.885E-01	1.897E-01	0.000E+00
TH-228	1.544E+00	1.960E-01	7.470E-02	0.000E+00
TH-230	1.094E+00	1.912E-01	9.549E-02	0.000E+00
TH-232	1.552E+00	2.885E-01	1.897E-01	0.000E+00
TH-234	1.807E+00	7.921E-01	7.097E-01	0.000E+00
U-234	1.094E+00	1.912E-01	9.549E-02	0.000E+00
NP-237	1.090E+00	3.006E-01	1.826E-01	0.000E+00
U-238	1.807E+00	7.921E-01	7.097E-01	0.000E+00
AM-243	3.042E-01	4.554E-02	4.171E-02	0.000E+00
ANH-511	9.097E-02	6.626E-02	4.162E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-1.424E-01	2.863E-01	4.719E-01	0.000E+00	NOT IDENT.
NA-22	4.789E-03	3.994E-02	6.835E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.846E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.737E-02	3.218E-02	4.894E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.125E-02	4.142E-02	0.000E+00	FAIL ABUN
SC-46	1.354E-02	3.305E-02	5.805E-02	0.000E+00	FAIL ABUN
V-48	2.415E-02	6.527E-02	1.127E-01	0.000E+00	NOT IDENT.
CR-51	1.281E-01	2.695E-01	4.943E-01	0.000E+00	NOT IDENT.
MN-52	1.281E-01	1.986E-01	3.610E-01	0.000E+00	NOT IDENT.
MN-54	9.545E-03	3.170E-02	5.532E-02	0.000E+00	NOT IDENT.
CO-56	1.377E-02	3.327E-02	5.866E-02	0.000E+00	NOT IDENT.
CO-57	7.869E-04	1.574E-02	2.880E-02	0.000E+00	NOT IDENT.
CO-58	-2.446E-02	3.378E-02	5.340E-02	0.000E+00	NOT IDENT.
FE-59	-3.931E-02	8.220E-02	1.351E-01	0.000E+00	NOT IDENT.
CO-60	1.519E-02	3.506E-02	6.197E-02	0.000E+00	NOT IDENT.
ZN-65	6.776E-02	8.961E-02	1.452E-01	0.000E+00	NOT IDENT.
GE-68	7.832E-01	1.143E+00	2.087E+00	0.000E+00	NOT IDENT.
AS-73	1.517E-01	1.492E-01	2.736E-01	0.000E+00	NOT IDENT.
AS-74	3.691E-02	7.954E-02	1.379E-01	0.000E+00	NOT IDENT.
SE-75	3.186E-02	3.315E-02	5.924E-02	0.000E+00	FAIL ABUN
BR-77	2.744E+00	8.293E+00	1.443E+01	0.000E+00	FAIL ABUN
SR-82	1.149E-02	3.770E-01	5.887E-01	0.000E+00	NOT IDENT.
RB-83	1.435E-02	5.854E-02	1.012E-01	0.000E+00	NOT IDENT.
RB-84	6.210E-02	6.421E-02	1.176E-01	0.000E+00	NOT IDENT.
KR-85	6.607E+00	7.178E+00	1.154E+01	0.000E+00	NOT IDENT.
SR-85	3.378E-02	3.669E-02	5.899E-02	0.000E+00	NOT IDENT.
RB-86	5.220E-01	7.208E-01	1.319E+00	0.000E+00	NOT IDENT.
Y-88	1.619E-02	3.362E-02	6.115E-02	0.000E+00	NOT IDENT.
ZR-88	7.014E-03	2.567E-02	4.566E-02	0.000E+00	NOT IDENT.
Y-91	2.066E+01	1.798E+01	3.328E+01	0.000E+00	NOT IDENT.
NB-94	-4.992E-03	3.154E-02	5.318E-02	0.000E+00	NOT IDENT.
NB-95	3.807E-02	4.448E-02	7.200E-02	0.000E+00	NOT IDENT.
NB-95M	2.276E-02	1.007E-01	1.563E-01	0.000E+00	NOT IDENT.
ZR-95	4.493E-02	6.846E-02	1.232E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.272E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.289E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.320E+00	9.715E+00	1.719E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.276E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.397E-02	2.596E-02	4.640E-02	0.000E+00	NOT IDENT.
RH-102	-8.397E-03	2.532E-02	4.231E-02	0.000E+00	NOT IDENT.
RU-103	-2.026E-02	3.854E-02	6.306E-02	0.000E+00	FAIL ABUN
RH-106	2.441E-01	2.704E-01	5.027E-01	0.000E+00	FAIL ABUN
RU-106	2.441E-01	2.693E-01	5.027E-01	0.000E+00	FAIL ABUN
AG-108M	-2.431E-02	2.851E-02	4.628E-02	0.000E+00	NOT IDENT.
AG-110M	1.658E-02	3.422E-02	5.469E-02	0.000E+00	NOT IDENT.
IN-111	3.093E-02	8.365E-01	1.276E+00	0.000E+00	NOT IDENT.
IN-113M	-9.686E-03	3.748E-02	6.451E-02	0.000E+00	NOT IDENT.
SN-113	-9.686E-03	3.748E-02	6.451E-02	0.000E+00	NOT IDENT.
IN-114M	9.163E-02	1.451E-01	2.360E-01	0.000E+00	NOT IDENT.
CD-115	-1.674E+00	7.963E+00	1.323E+01	0.000E+00	NOT IDENT.
SN-117M	-2.911E-03	3.716E-02	6.604E-02	0.000E+00	NOT IDENT.
SB-122	-1.779E+00	1.859E+00	2.875E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.801E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.181E-02	1.969E-02	3.408E-02	0.000E+00	NOT IDENT.
I-124	1.250E-01	5.656E-01	8.902E-01	0.000E+00	FAIL ABUN
SB-124	-4.781E-03	5.692E-02	9.485E-02	0.000E+00	FAIL ABUN
SB-125	6.201E-02	7.969E-02	1.447E-01	0.000E+00	FAIL ABUN
TE-125M	3.186E+00	5.551E+00	1.042E+01	0.000E+00	NOT IDENT.
I-126	1.373E-01	1.667E-01	2.752E-01	0.000E+00	NOT IDENT.
SB-126	1.326E-02	1.207E-01	1.992E-01	0.000E+00	FAIL ABUN
SB-127	-8.067E-01	1.187E+00	1.946E+00	0.000E+00	NOT IDENT.
XE-127	-1.817E-02	3.416E-02	5.783E-02	0.000E+00	NOT IDENT.
I-131	-3.024E-02	9.851E-02	1.706E-01	0.000E+00	NOT IDENT.
TE-132	2.365E-01	4.686E-01	8.267E-01	0.000E+00	NOT IDENT.
BA-133	9.932E-03	3.593E-02	5.726E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.019E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.022E-02	4.321E-02	8.108E-02	0.000E+00	NOT IDENT.
CS-135	6.127E-03	1.383E-01	2.087E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.603E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	8.216E-02	9.752E-02	1.805E-01	0.000E+00	FAIL ABUN
CE-139	-1.343E-02	2.091E-02	3.597E-02	0.000E+00	NOT IDENT.
BA-140	2.654E-02	2.289E-01	3.901E-01	0.000E+00	NOT IDENT.
LA-140	-2.106E-02	8.079E-02	1.331E-01	0.000E+00	NOT IDENT.
CE-141	1.337E-02	4.522E-02	8.218E-02	0.000E+00	NOT IDENT.

CE-143	0.000E+00	1.303E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-9.309E-03	1.367E-01	2.468E-01	0.000E+00	NOT IDENT.
PM-144	2.233E-02	3.144E-02	5.721E-02	0.000E+00	NOT IDENT.
PR-144	1.513E+00	2.130E+00	3.876E+00	0.000E+00	NOT IDENT.
PM-146	1.548E-02	3.761E-02	6.654E-02	0.000E+00	NOT IDENT.
ND-147	-1.527E-01	4.637E-01	7.617E-01	0.000E+00	FAIL ABUN
PM-149	-2.726E+01	6.851E+01	1.120E+02	0.000E+00	NOT IDENT.
EU-152	-3.168E-02	7.769E-02	1.296E-01	0.000E+00	FAIL ABUN
GD-153	-9.790E-03	4.755E-02	7.893E-02	0.000E+00	FAIL ABUN
EU-154	1.553E-02	1.106E-01	1.897E-01	0.000E+00	NOT IDENT.
EU-155	1.163E-01	6.579E-02	1.267E-01	0.000E+00	FAIL ABUN
TB-160	2.368E-03	1.248E-01	2.112E-01	0.000E+00	FAIL ABUN
HO-166M	-1.741E-03	5.476E-02	9.457E-02	0.000E+00	NOT IDENT.
TM-171	1.691E+01	1.061E+01	1.801E+01	0.000E+00	NOT IDENT.
LU-176	-2.418E-03	1.968E-02	3.392E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.365E+00	1.691E+00	0.000E+00	FAIL ABUN
LU-177M	-2.092E-01	1.460E-01	2.265E-01	0.000E+00	FAIL ABUN
HF-181	3.113E-02	3.902E-02	7.018E-02	0.000E+00	NOT IDENT.
W-181	-2.258E-02	1.326E-01	2.105E-01	0.000E+00	NOT IDENT.
TA-182	-1.040E-02	1.951E-01	3.302E-01	0.000E+00	FAIL ABUN
RE-183	4.597E-02	7.837E-02	1.407E-01	0.000E+00	FAIL ABUN
RE-184	3.015E-03	1.797E-01	3.065E-01	0.000E+00	NOT IDENT.
OS-185	-3.856E-03	3.540E-02	6.141E-02	0.000E+00	NOT IDENT.
RE-188	5.644E-02	1.243E-01	2.245E-01	0.000E+00	NOT IDENT.
W-188	-2.261E+00	6.239E+00	9.677E+00	0.000E+00	FAIL ABUN
IR-192	-1.509E-02	2.481E-02	4.265E-02	0.000E+00	FAIL ABUN
AU-195	2.355E-01	1.295E-01	2.509E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.266E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.742E-01	4.436E+00	7.894E+00	0.000E+00	NOT IDENT.
TL-202	4.857E-02	6.203E-02	1.122E-01	0.000E+00	NOT IDENT.
BI-207	-2.734E-02	4.899E-02	8.031E-02	0.000E+00	FAIL ABUN
TL-207	-3.467E-01	5.376E-01	9.193E-01	0.000E+00	FAIL ABUN
PO-209	-2.172E+00	6.499E+00	1.057E+01	0.000E+00	NOT IDENT.
PB-211	-2.719E-01	7.800E-01	1.298E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.067E-01	6.232E-01	0.000E+00	FAIL ABUN
PO-215	-3.467E-01	5.376E-01	9.193E-01	0.000E+00	FAIL ABUN
RN-219	4.853E-02	3.423E-01	6.027E-01	0.000E+00	FAIL ABUN
RN-220	-1.426E+01	2.354E+01	3.761E+01	0.000E+00	NOT IDENT.
RA-223	-3.467E-01	5.376E-01	9.193E-01	0.000E+00	FAIL ABUN
AC-227	7.366E-02	3.045E-01	5.249E-01	0.000E+00	FAIL ABUN
TH-227	7.366E-02	3.046E-01	5.249E-01	0.000E+00	FAIL ABUN
TH-229	1.806E-02	3.694E-01	6.480E-01	0.000E+00	FAIL ABUN
PA-231	1.138E+00	1.203E+00	2.122E+00	0.000E+00	FAIL ABUN
TH-231	-3.467E-01	5.376E-01	9.193E-01	0.000E+00	FAIL ABUN
U-231	-3.418E-01	5.835E-01	9.491E-01	0.000E+00	FAIL ABUN
PA-233	2.474E-02	4.961E-02	9.114E-02	0.000E+00	FAIL ABUN
PA-234	-1.617E-01	2.630E-01	4.079E-01	0.000E+00	FAIL ABUN
PA-234M	-1.045E+00	4.290E+00	7.072E+00	0.000E+00	NOT IDENT.
U-235	6.382E-02	1.615E-01	2.888E-01	0.000E+00	FAIL ABUN
NP-236	-2.382E-02	5.593E-02	9.765E-02	0.000E+00	NOT IDENT.
NP-239	-5.987E-02	1.184E-01	2.121E-01	0.000E+00	FAIL ABUN
AM-241	-1.488E-02	4.318E-02	6.819E-02	0.000E+00	NOT IDENT.
CM-243	-1.005E-02	5.576E-02	1.024E-01	0.000E+00	FAIL ABUN
AM-246	6.025E-02	1.323E-01	2.371E-01	0.000E+00	NOT IDENT.
CM-247	-5.658E-03	3.059E-02	5.273E-02	0.000E+00	FAIL ABUN
CF-249	1.179E-02	3.330E-02	5.957E-02	0.000E+00	NOT IDENT.
CF-251	-1.940E-02	8.799E-02	1.536E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600007.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:05:42
Sample ID          : G244600007      Sample quantity      : 1.43360E+02 GRAM
Detector name      : GAM25           Detector geometry    : CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time  : 0 02:00:01.90  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials   : MXR1
Abundance limit    : 75.00000        Sensitivity        : 5.00000
Batch ID           : 941635          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	1040	10.67*	1.109E+00	2.302E+01	2.302E+01	10.67
CD-109	88.03	493	3.72*	9.405E+00	3.692E+00	3.775E+00	19.13
SN-126	64.28	256	9.60	9.779E+00	7.153E-01	7.153E-01	43.67
	86.94	493	8.90	9.405E+00	1.543E+00	1.543E+00	44.75
	87.57	493	37.00*	9.405E+00	3.712E-01	3.712E-01	19.13
BA-137M	661.65	280	89.98*	2.231E+00	3.649E-01	3.653E-01	21.08
CS-137	661.65	280	85.12*	2.231E+00	3.858E-01	3.861E-01	21.09
HG-203	70.83	-----	4.75	9.750E+00	-----	Line Not Found	-----
	72.87	-----	8.00	9.724E+00	-----	Line Not Found	-----
	82.60	-----	3.55	9.528E+00	-----	Line Not Found	-----
	279.20	29	77.30*	4.719E+00	2.116E-02	2.640E-02	129.23
TL-208	277.35	75	6.80	4.737E+00	6.067E-01	6.067E-01	52.38
	510.84	98	21.60	2.808E+00	4.212E-01	4.212E-01	74.79
	583.14	415	84.20*	2.496E+00	5.176E-01	5.176E-01	19.13
	860.37	49	12.46	1.765E+00	5.795E-01	5.795E-01	78.92
BI-210	46.50	159	4.05*	9.183E+00	1.121E+00	1.122E+00	58.13
PB-210	46.50	159	4.05*	9.183E+00	1.121E+00	1.122E+00	58.13
PO-210	46.50	159	4.05*	9.183E+00	1.121E+00	1.122E+00	57.99
BI-211	72.87	-----	1.27	9.724E+00	-----	Line Not Found	-----
	351.07	660	12.94*	3.885E+00	3.435E+00	3.435E+00	16.47
PB-212	74.81	743	10.70	9.693E+00	1.876E+00	1.876E+00	17.91
	77.11	1158	18.00	9.652E+00	1.745E+00	1.745E+00	13.07
	87.30	493	8.00	9.405E+00	1.717E+00	1.717E+00	21.59
	238.63	1383	44.60*	5.339E+00	1.521E+00	1.521E+00	12.96
	300.09	100	3.41	4.436E+00	1.732E+00	1.732E+00	61.71
PO-212	74.81	743	10.70	9.693E+00	1.876E+00	1.876E+00	17.91
	77.11	1158	18.00	9.652E+00	1.745E+00	1.745E+00	13.07
	87.30	493	8.00	9.405E+00	1.717E+00	1.717E+00	21.59
	115.19	-----	0.60	8.498E+00	-----	Line Not Found	-----
	238.63	1383	44.60*	5.339E+00	1.521E+00	1.521E+00	12.96
	300.09	100	3.41	4.436E+00	1.732E+00	1.732E+00	61.71
BI-214	609.31	465	46.30*	2.401E+00	1.094E+00	1.094E+00	17.83

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	1120.29	94	15.10	1.398E+00	1.164E+00	1.164E+00	34.22
	1764.49	76	15.80	9.413E-01	1.334E+00	1.334E+00	29.28
	74.81	743	6.21	9.693E+00	3.233E+00	3.233E+00	16.98
	77.11	1158	10.50	9.652E+00	2.992E+00	2.992E+00	15.13
	87.30	493	4.67	9.405E+00	2.941E+00	2.941E+00	20.63
	241.98	351	7.49	5.287E+00	2.319E+00	2.319E+00	24.08
PO-214	295.21	398	19.20	4.503E+00	1.206E+00	1.206E+00	19.59
	351.92	660	37.20*	3.885E+00	1.195E+00	1.195E+00	17.28
	74.81	743	6.21	9.693E+00	3.233E+00	3.233E+00	16.98
	77.11	1158	10.50	9.652E+00	2.992E+00	2.992E+00	15.13
	87.30	493	4.67	9.405E+00	2.941E+00	2.941E+00	20.63
	241.98	351	7.49	5.287E+00	2.319E+00	2.319E+00	24.08
PO-216	295.21	398	19.20	4.503E+00	1.206E+00	1.206E+00	19.59
	351.92	660	37.20*	3.885E+00	1.195E+00	1.195E+00	17.28
	74.81	743	10.70	9.693E+00	1.876E+00	1.876E+00	17.91
	77.11	1158	18.00	9.652E+00	1.745E+00	1.745E+00	13.07
	87.30	493	8.00	9.405E+00	1.717E+00	1.717E+00	21.59
	238.63	1383	44.60*	5.339E+00	1.521E+00	1.521E+00	12.96
PO-218	300.09	100	3.41	4.436E+00	1.732E+00	1.732E+00	61.71
	74.81	743	6.21	9.693E+00	3.233E+00	3.233E+00	16.98
	77.11	1158	10.50	9.652E+00	2.992E+00	2.992E+00	15.13
	87.30	493	4.67	9.405E+00	2.941E+00	2.941E+00	20.63
	241.98	351	7.49	5.287E+00	2.319E+00	2.319E+00	24.08
	295.21	398	19.20	4.503E+00	1.206E+00	1.206E+00	19.59
RA-224	351.92	660	37.20*	3.885E+00	1.195E+00	1.195E+00	17.28
	240.98	351	3.95*	5.287E+00	4.397E+00	4.397E+00	23.41
RA-226	609.31	465	46.30*	2.401E+00	1.094E+00	1.094E+00	17.83
	1120.29	94	15.10	1.398E+00	1.164E+00	1.164E+00	34.22
AC-228	1764.49	76	15.80	9.413E-01	1.334E+00	1.334E+00	29.28
	338.32	227	11.40	4.018E+00	1.298E+00	1.298E+00	48.39
	911.07	276	27.70*	1.678E+00	1.552E+00	1.552E+00	18.97
	969.11	149	16.60	1.589E+00	1.477E+00	1.477E+00	34.18
RA-228	338.32	227	11.40	4.018E+00	1.298E+00	1.298E+00	48.39
	911.07	276	27.70*	1.678E+00	1.552E+00	1.552E+00	18.97
	969.11	149	16.60	1.589E+00	1.477E+00	1.477E+00	34.18
TH-228	74.81	743	10.70	9.693E+00	1.876E+00	1.904E+00	15.32
	77.11	1158	18.00	9.652E+00	1.745E+00	1.771E+00	13.07
	87.30	493	8.00	9.405E+00	1.717E+00	1.742E+00	19.13
	238.63	1383	44.60*	5.339E+00	1.521E+00	1.544E+00	12.96
TH-230	300.09	100	3.41	4.436E+00	1.732E+00	1.758E+00	84.93
	609.31	465	46.30*	2.401E+00	1.094E+00	1.094E+00	17.83
	1120.29	94	15.10	1.398E+00	1.164E+00	1.164E+00	34.22
TH-232	1764.49	76	15.80	9.413E-01	1.334E+00	1.334E+00	29.28
	338.32	227	11.40	4.018E+00	1.298E+00	1.298E+00	26.71
	911.07	276	27.70*	1.678E+00	1.552E+00	1.552E+00	18.97
	969.11	149	16.60	1.589E+00	1.477E+00	1.477E+00	34.18
TH-234	63.29	256	3.80*	9.779E+00	1.807E+00	1.807E+00	44.72
	92.38	461	5.41	9.242E+00	2.415E+00	2.415E+00	26.22
U-234	609.31	465	46.30*	2.401E+00	1.094E+00	1.094E+00	17.83

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	1120.29	94	15.10	1.398E+00	1.164E+00	1.164E+00	34.22
	1764.49	76	15.80	9.413E-01	1.334E+00	1.334E+00	29.28
NP-237	86.50	493	12.60*	9.405E+00	1.090E+00	1.090E+00	28.14
	95.87	-----	2.60	9.143E+00	-----	Line Not Found	-----
U-238	63.29	256	3.80*	9.779E+00	1.807E+00	1.807E+00	44.72
	92.38	461	5.41	9.242E+00	2.415E+00	2.415E+00	20.86
AM-243	74.67	743	66.00*	9.693E+00	3.042E-01	3.042E-01	15.28
	86.72	493	0.34	9.405E+00	4.088E+01	4.088E+01	19.13
	117.66	-----	0.55	8.415E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.617E+00	-----	Line Not Found	-----
ANH-511	511.00	98	100.00*	2.808E+00	9.097E-02	9.097E-02	74.33

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	2.302E+01	2.302E+01	0.246E+01	10.67	
CD-109	464.00D	1.02	3.692E+00	3.775E+00	0.722E+00	19.13	
SN-126	1.00E+05Y	1.00	3.712E-01	3.712E-01	0.710E-01	19.13	
BA-137M	30.17Y	1.00	3.649E-01	3.653E-01	0.770E-01	21.08	
CS-137	30.17Y	1.00	3.858E-01	3.861E-01	0.814E-01	21.09	
HG-203	46.60D	1.25	2.116E-02	2.640E-02	3.412E-02	129.23	
TL-208	1.41E+10Y	1.00	5.176E-01	5.176E-01	0.990E-01	19.13	
BI-210	22.26Y	1.00	1.121E+00	1.122E+00	0.652E+00	58.13	
PB-210	22.26Y	1.00	1.121E+00	1.122E+00	0.652E+00	58.13	
PO-210	22.26Y	1.00	1.121E+00	1.122E+00	0.651E+00	57.99	
BI-211	7.04E+08Y	1.00	3.435E+00	3.435E+00	0.566E+00	16.47	
PB-212	1.41E+10Y	1.00	1.521E+00	1.521E+00	0.197E+00	12.96	
PO-212	1.41E+10Y	1.00	1.521E+00	1.521E+00	0.197E+00	12.96	
BI-214	1600.00Y	1.00	1.094E+00	1.094E+00	0.195E+00	17.83	
PB-214	1600.00Y	1.00	1.195E+00	1.195E+00	0.206E+00	17.28	
PO-214	1600.00Y	1.00	1.195E+00	1.195E+00	0.206E+00	17.28	
PO-216	1.41E+10Y	1.00	1.521E+00	1.521E+00	0.197E+00	12.96	
PO-218	1600.00Y	1.00	1.195E+00	1.195E+00	0.206E+00	17.28	
RA-224	1.41E+10Y	1.00	4.397E+00	4.397E+00	1.030E+00	23.41	
RA-226	1600.00Y	1.00	1.094E+00	1.094E+00	0.195E+00	17.83	
AC-228	1.41E+10Y	1.00	1.552E+00	1.552E+00	0.294E+00	18.97	
RA-228	1.41E+10Y	1.00	1.552E+00	1.552E+00	0.294E+00	18.97	
TH-228	1.91Y	1.01	1.521E+00	1.544E+00	0.200E+00	12.96	
TH-230	4.47E+09Y	1.00	1.094E+00	1.094E+00	0.195E+00	17.83	
TH-232	1.41E+10Y	1.00	1.552E+00	1.552E+00	0.294E+00	18.97	
TH-234	4.47E+09Y	1.00	1.807E+00	1.807E+00	0.808E+00	44.72	
U-234	4.47E+09Y	1.00	1.094E+00	1.094E+00	0.195E+00	17.83	
NP-237	2.14E+06Y	1.00	1.090E+00	1.090E+00	0.307E+00	28.14	
U-238	4.47E+09Y	1.00	1.807E+00	1.807E+00	0.808E+00	44.72	
AM-243	7380.00Y	1.00	3.042E-01	3.042E-01	0.465E-01	15.28	
ANH-511	1.00E+09Y	1.00	9.097E-02	9.097E-02	6.761E-02	74.33	

Total Activity : 6.337E+01 6.349E+01

Grand Total Activity : 6.337E+01 6.349E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit



Unidentified Energy Lines  
Sample ID : G244600007

Page : 5  
Acquisition date : 22-JAN-2010 08:05:42

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	84.18	159	295	1.19	167.91	165	27	2.21E-02	35.9	9.49E+00	T
4	89.90	261	306	1.07	179.35	165	27	3.62E-02	25.2	9.33E+00	T
0	186.11	240	345	1.10	371.75	367	9	3.33E-02	32.1	6.41E+00	T
0	209.14	209	282	1.26	417.81	413	11	2.91E-02	34.0	5.90E+00	T
0	270.27	129	164	1.10	540.06	536	9	1.79E-02	40.1	4.84E+00	T
0	463.18	108	156	1.33	925.87	919	15	1.50E-02	54.5	3.06E+00	T
0	727.59	85	67	1.31	1454.67	1449	11	1.18E-02	43.3	2.05E+00	T
0	769.55	35	118	1.11	1538.58	1532	14	4.89E-03	****	1.95E+00	
1	964.86	66	41	1.97	1929.20	1921	23	9.14E-03	50.2	1.59E+00	T
0	1377.67	34	21	1.72	2754.85	2749	13	4.70E-03	67.0	1.17E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600007.CNF;1
* Acquisition date   : 22-JAN-2010 08:05:42   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 02:00:01.90          Half life ratio      : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244600007             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity  : 1.43360E+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      :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.302E+01	2.456E+00	5.074E-01	4.321E-02	45.377
CD-109	3.775E+00	7.223E-01	5.965E-01	6.410E-02	6.329
SN-126	3.712E-01	7.102E-02	5.853E-02	6.276E-03	6.343
BA-137M	3.653E-01	7.701E-02	5.562E-02	6.162E-03	6.567
CS-137	3.861E-01	8.144E-02	5.880E-02	6.521E-03	6.567
HG-203	2.640E-02	3.412E-02	4.964E-02	5.634E-03	0.532
TL-208	5.176E-01	9.902E-02	4.850E-02	5.468E-03	10.672
BI-210	1.122E+00	6.523E-01	5.184E-01	5.345E-02	2.165
PB-210	1.122E+00	6.523E-01	5.184E-01	5.345E-02	2.165
PO-210	1.122E+00	6.508E-01	5.184E-01	4.937E-02	2.165
BI-211	3.435E+00	5.658E-01	2.566E-01	2.704E-02	13.388
PB-212	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
PO-212	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
BI-214	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
PB-214	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355
PO-214	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355
PO-216	1.521E+00	1.971E-01	7.040E-02	8.014E-03	21.610
PO-218	1.195E+00	2.065E-01	8.948E-02	1.051E-02	13.355

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-224	4.397E+00	1.030E+00	8.022E-01	8.429E-02	5.481
RA-226	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
AC-228	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
RA-228	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
TH-228	1.544E+00	2.000E-01	7.144E-02	8.134E-03	21.610
TH-230	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
TH-232	1.552E+00	2.944E-01	1.868E-01	2.222E-02	8.311
TH-234	1.807E+00	8.082E-01	6.605E-01	1.230E-01	2.736
U-234	1.094E+00	1.951E-01	9.319E-02	1.125E-02	11.741
NP-237	1.090E+00	3.067E-01	1.711E-01	3.974E-02	6.373
U-238	1.807E+00	8.082E-01	6.605E-01	1.230E-01	2.736
AM-243	3.042E-01	4.647E-02	3.895E-02	3.956E-03	7.809
ANH-511	9.097E-02	6.761E-02	4.046E-02	4.165E-03	2.248

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.424E-01		2.921E-01	4.581E-01	4.850E-02	-0.311
NA-22	4.789E-03		4.076E-02	6.782E-02	5.561E-03	0.071
NA-24	-4.984E-01		2.472E-01	Half-Life too short		
AL-26	-1.737E-02		3.284E-02	4.895E-02	4.011E-03	-0.355
TI-44	3.221E-01	+	4.209E-02	3.872E-02	3.987E-03	8.319
SC-46	1.354E-02		3.372E-02	5.712E-02	5.470E-03	0.237
V-48	2.415E-02		6.660E-02	1.112E-01	1.030E-02	0.217
CR-51	1.281E-01		2.750E-01	4.757E-01	5.283E-02	0.269
MN-52	1.281E-01		2.027E-01	3.591E-01	2.959E-02	0.357
MN-54	9.545E-03		3.234E-02	5.437E-02	5.517E-03	0.176
CO-56	1.377E-02		3.395E-02	5.767E-02	5.786E-03	0.239
CO-57	7.869E-04		1.606E-02	2.716E-02	3.502E-03	0.029
CO-58	-2.446E-02		3.447E-02	5.244E-02	5.441E-03	-0.466
FE-59	-3.931E-02		8.388E-02	1.336E-01	1.258E-02	-0.294
CO-60	1.519E-02		3.577E-02	6.154E-02	4.998E-03	0.247
ZN-65	6.776E-02		9.144E-02	1.436E-01	1.240E-02	0.472
GE-68	7.832E-01		1.167E+00	2.062E+00	1.826E-01	0.380
AS-73	1.517E-01		1.523E-01	2.537E-01	2.436E-02	0.598
AS-74	3.691E-02		8.116E-02	1.345E-01	1.457E-02	0.274
SE-75	3.186E-02		3.382E-02	5.678E-02	6.223E-03	0.561
BR-77	2.744E+00		8.463E+00	1.403E+01	1.455E+00	0.196
SR-82	1.149E-02		3.847E-01	5.776E-01	6.130E-02	0.020
RB-83	1.435E-02		5.974E-02	9.846E-02	1.021E-02	0.146
RB-84	6.210E-02		6.552E-02	1.157E-01	1.118E-02	0.537
KR-85	6.607E+00		7.324E+00	1.122E+01	1.158E+00	0.589
SR-85	3.378E-02		3.744E-02	5.736E-02	5.918E-03	0.589
RB-86	5.220E-01		7.355E-01	1.304E+00	1.155E-01	0.400
Y-88	1.619E-02		3.431E-02	6.118E-02	5.000E-03	0.265
ZR-88	7.014E-03		2.619E-02	4.413E-02	4.017E-03	0.159
Y-91	2.066E+01		1.835E+01	3.298E+01	2.714E+00	0.627

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94	-4.992E-03		3.219E-02	5.206E-02	5.717E-03	-0.096
NB-95	3.807E-02		4.539E-02	7.062E-02	7.544E-03	0.539
NB-95M	2.276E-02		1.028E-01	1.494E-01	1.713E-02	0.152
ZR-95	4.493E-02		6.985E-02	1.208E-01	1.384E-02	0.372
NB-97	4.758E-02		3.710E-02	Half-Life	too short	
ZR-97	1.628E+00		6.577E-01	Half-Life	too short	
MO-99	3.320E+00		9.913E+00	1.685E+01	2.786E+00	0.197
TC-99M	-4.966E+09		6.508E+09	Half-Life	too short	
RH-101	2.397E-02		2.649E-02	4.420E-02	4.259E-03	0.542
RH-102	-8.397E-03		2.584E-02	4.106E-02	4.100E-03	-0.204
RU-103	-2.026E-02		3.933E-02	6.127E-02	9.289E-03	-0.331
RH-106	2.441E-01		2.759E-01	4.908E-01	7.346E-02	0.497
RU-106	2.441E-01		2.748E-01	4.908E-01	5.374E-02	0.497
AG-108M	-2.431E-02		2.910E-02	4.483E-02	4.430E-03	-0.542
AG-110M	1.658E-02		3.492E-02	5.346E-02	6.024E-03	0.310
IN-111	3.093E-02		8.536E-01	1.221E+00	1.293E-01	0.025
IN-113M	-9.686E-03		3.824E-02	6.236E-02	5.824E-03	-0.155
SN-113	-9.686E-03		3.824E-02	6.236E-02	5.824E-03	-0.155
IN-114M	9.163E-02		1.480E-01	2.247E-01	2.126E-02	0.408
CD-115	-1.674E+00		8.125E+00	1.287E+01	1.342E+00	-0.130
SN-117M	-2.911E-03		3.792E-02	6.262E-02	6.080E-03	-0.046
SB-122	-1.779E+00		1.897E+00	2.801E+00	2.987E-01	-0.635
I-123	-1.680E+00		1.429E+00	Half-Life	too short	
TE-123M	-1.181E-02		2.009E-02	3.232E-02	3.138E-03	-0.365
I-124	1.250E-01		5.772E-01	8.685E-01	9.440E-02	0.144
SB-124	-4.781E-03		5.808E-02	9.471E-02	8.187E-03	-0.050
SB-125	6.201E-02		8.131E-02	1.401E-01	1.354E-02	0.442
TE-125M	3.186E+00		5.664E+00	9.807E+00	1.302E+00	0.325
I-126	1.373E-01		1.701E-01	2.691E-01	2.979E-02	0.510
SB-126	1.326E-02		1.232E-01	1.951E-01	2.130E-02	0.068
SB-127	-8.067E-01		1.211E+00	1.904E+00	2.520E-01	-0.424
XE-127	-1.817E-02		3.485E-02	5.512E-02	5.369E-03	-0.330
I-131	-3.024E-02		1.005E-01	1.646E-01	1.689E-02	-0.184
TE-132	2.365E-01		4.782E-01	7.900E-01	1.313E-01	0.299
BA-133	9.932E-03		3.666E-02	5.524E-02	7.832E-03	0.180
I-133	-8.402E-04		2.051E-03	Half-Life	too short	
CS-134	6.022E-02		4.409E-02	7.960E-02	8.379E-03	0.757
CS-135	6.127E-03		1.411E-01	2.001E-01	2.415E-02	0.031
I-135	-1.573E+09		1.328E+09	Half-Life	too short	
CS-136	8.216E-02		9.951E-02	1.783E-01	1.667E-02	0.461
CE-139	-1.343E-02		2.134E-02	3.414E-02	3.045E-03	-0.393
BA-140	2.654E-02		2.336E-01	3.797E-01	1.278E-01	0.070
LA-140	-2.106E-02		8.244E-02	1.328E-01	1.104E-02	-0.159
CE-141	1.337E-02		4.614E-02	7.779E-02	8.651E-03	0.172
CE-143	3.116E-04		6.647E-05	Half-Life	too short	
CE-144	-9.309E-03		1.395E-01	2.332E-01	4.124E-02	-0.040
PM-144	2.233E-02		3.208E-02	5.599E-02	6.161E-03	0.399
PR-144	1.513E+00		2.174E+00	3.794E+00	4.173E-01	0.399

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-146	1.548E-02		3.837E-02	6.453E-02	7.535E-03	0.240
ND-147	-1.527E-01		4.732E-01	7.411E-01	1.191E-01	-0.206
PM-149	-2.726E+01		6.991E+01	1.075E+02	1.834E+01	-0.254
EU-152	-3.168E-02		7.928E-02	1.249E-01	1.341E-02	-0.254
GD-153	-9.790E-03		4.853E-02	7.410E-02	8.345E-03	-0.132
EU-154	1.553E-02		1.128E-01	1.882E-01	2.067E-02	0.083
EU-155	1.163E-01		6.713E-02	1.192E-01	1.409E-02	0.976
TB-160	2.368E-03		1.273E-01	2.078E-01	2.013E-02	0.011
HO-166M	-1.741E-03		5.588E-02	9.261E-02	1.014E-02	-0.019
TM-171	1.691E+01		1.083E+01	1.678E+01	1.666E+00	1.008
LU-176	-2.418E-03		2.008E-02	3.262E-02	3.559E-03	-0.074
LU-177	3.929E+00	+	1.393E+00	1.613E+00	1.590E-01	2.436
LU-177M	-2.092E-01		1.489E-01	2.192E-01	2.049E-02	-0.955
HF-181	3.113E-02		3.981E-02	6.814E-02	6.847E-03	0.457
W-181	-2.258E-02		1.353E-01	1.961E-01	1.940E-02	-0.115
TA-182	-1.040E-02		1.991E-01	3.273E-01	2.691E-02	-0.032
RE-183	4.597E-02		7.997E-02	1.335E-01	1.243E-02	0.344
RE-184	3.015E-03		1.834E-01	2.935E-01	3.147E-02	0.010
OS-185	-3.856E-03		3.613E-02	6.001E-02	6.622E-03	-0.064
RE-188	5.644E-02		1.268E-01	2.128E-01	2.143E-02	0.265
W-188	-2.261E+00		6.366E+00	9.294E+00	1.029E+00	-0.243
IR-192	-1.509E-02		2.532E-02	4.103E-02	4.432E-03	-0.368
AU-195	2.355E-01		1.321E-01	2.356E-01	2.673E-02	1.000
TL-200	1.088E-04		1.666E-04	Half-Life	too short	
TL-201	2.742E-01		4.526E+00	7.494E+00	6.704E-01	0.037
TL-202	4.857E-02		6.329E-02	1.087E-01	1.048E-02	0.447
BI-207	-2.734E-02		4.999E-02	7.935E-02	7.082E-03	-0.345
TL-207	-3.467E-01		5.485E-01	8.850E-01	1.663E-01	-0.392
PO-209	-2.172E+00		6.631E+00	1.040E+01	9.872E-01	-0.209
PB-211	-2.719E-01		7.960E-01	1.255E+00	7.877E-01	-0.217
BI-212	9.233E-01	+	4.150E-01	6.106E-01	7.337E-02	1.512
PO-215	-3.467E-01		5.485E-01	8.850E-01	1.663E-01	-0.392
RN-219	4.853E-02		3.493E-01	5.829E-01	8.960E-02	0.083
RN-220	-1.426E+01		2.402E+01	3.662E+01	3.872E+00	-0.389
RA-223	-3.467E-01		5.485E-01	8.850E-01	1.663E-01	-0.392
AC-227	7.366E-02		3.108E-01	5.027E-01	8.375E-02	0.147
TH-227	7.366E-02		3.108E-01	5.027E-01	9.647E-02	0.147
TH-229	1.806E-02		3.770E-01	6.171E-01	5.887E-02	0.029
PA-231	1.138E+00		1.228E+00	2.037E+00	3.409E-01	0.558
TH-231	-3.467E-01		5.485E-01	8.850E-01	1.663E-01	-0.392
U-231	-3.418E-01		5.954E-01	8.908E-01	9.951E-02	-0.384
PA-233	2.474E-02		5.062E-02	8.766E-02	9.681E-03	0.282
PA-234	-1.617E-01		2.684E-01	4.020E-01	7.687E-02	-0.402
PA-234M	-1.045E+00		4.378E+00	6.978E+00	7.309E-01	-0.150
U-235	6.382E-02		1.647E-01	2.733E-01	5.161E-02	0.234
NP-236	-2.382E-02		5.707E-02	9.262E-02	8.821E-03	-0.257
NP-239	-5.987E-02		1.209E-01	1.999E-01	2.504E-02	-0.300
AM-241	-1.488E-02		4.407E-02	6.338E-02	6.586E-03	-0.235

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.005E-02		5.690E-02	9.630E-02	1.121E-02	-0.104
AM-246	6.025E-02		1.350E-01	2.344E-01	2.073E-02	0.257
CM-247	-5.658E-03		3.121E-02	5.100E-02	4.701E-03	-0.111
CF-249	1.179E-02		3.398E-02	5.757E-02	5.298E-03	0.205
CF-251	-1.940E-02		8.979E-02	1.460E-01	1.337E-02	-0.133

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600007          *
* Acquisition date   : 22-JAN-2010 08:05:42 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 02:00:01.90 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600007 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4336E+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 :                              *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.302E+01	2.407E+00	2.551E-01	1.228E+00
CD-109	3.775E+00	7.078E-01	3.185E-01	3.611E-01
SN-126	3.712E-01	6.960E-02	3.126E-02	3.551E-02
BA-137M	3.653E-01	7.547E-02	2.846E-02	3.851E-02
CS-137	3.861E-01	7.981E-02	3.009E-02	4.072E-02
HG-203	2.640E-02	3.343E-02	2.588E-02	1.706E-02
TL-208	5.176E-01	9.704E-02	2.489E-02	4.951E-02
BI-210	1.122E+00	6.392E-01	2.804E-01	3.261E-01
PB-210	1.122E+00	6.392E-01	2.804E-01	3.261E-01
PO-210	1.122E+00	6.378E-01	2.804E-01	3.254E-01
BI-211	3.435E+00	5.545E-01	1.331E-01	2.829E-01
PB-212	1.521E+00	1.932E-01	3.682E-02	9.856E-02
PO-212	1.521E+00	1.932E-01	3.682E-02	9.856E-02
BI-214	1.094E+00	1.912E-01	4.777E-02	9.754E-02
PB-214	1.195E+00	2.023E-01	4.642E-02	1.032E-01
PO-214	1.195E+00	2.023E-01	4.642E-02	1.032E-01
PO-216	1.521E+00	1.932E-01	3.682E-02	9.856E-02
PO-218	1.195E+00	2.023E-01	4.642E-02	1.032E-01
RA-224	4.397E+00	1.009E+00	4.195E-01	5.148E-01
RA-226	1.094E+00	1.912E-01	4.777E-02	9.754E-02
AC-228	1.552E+00	2.885E-01	9.491E-02	1.472E-01
RA-228	1.552E+00	2.885E-01	9.491E-02	1.472E-01
TH-228	1.544E+00	1.960E-01	3.737E-02	1.000E-01
TH-230	1.094E+00	1.912E-01	4.777E-02	9.754E-02
TH-232	1.552E+00	2.885E-01	9.491E-02	1.472E-01
TH-234	1.807E+00	7.921E-01	3.551E-01	4.041E-01
U-234	1.094E+00	1.912E-01	4.777E-02	9.754E-02
NP-237	1.090E+00	3.006E-01	9.137E-02	1.534E-01
U-238	1.807E+00	7.921E-01	3.551E-01	4.041E-01
AM-243	3.042E-01	4.554E-02	2.087E-02	2.323E-02
ANH-511	9.097E-02	6.626E-02	2.082E-02	3.381E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.424E-01	2.863E-01	2.361E-01	1.460E-01 NOT IDENT.
NA-22	4.789E-03	3.994E-02	3.420E-02	2.038E-02 NOT IDENT.
NA-24	-4.984E+05	4.846E+05	0.000E+00	2.472E+05 SHORT HLIF
AL-26	-1.737E-02	3.218E-02	2.449E-02	1.642E-02 NOT IDENT.
TI-44	3.221E-01	4.125E-02	2.072E-02	2.104E-02 FAIL ABUN
SC-46	1.354E-02	3.305E-02	2.904E-02	1.686E-02 FAIL ABUN
V-48	2.415E-02	6.527E-02	5.639E-02	3.330E-02 NOT IDENT.
CR-51	1.281E-01	2.695E-01	2.473E-01	1.375E-01 NOT IDENT.
MN-52	1.281E-01	1.986E-01	1.806E-01	1.013E-01 NOT IDENT.
MN-54	9.545E-03	3.170E-02	2.768E-02	1.617E-02 NOT IDENT.
CO-56	1.377E-02	3.327E-02	2.935E-02	1.697E-02 NOT IDENT.
CO-57	7.869E-04	1.574E-02	1.441E-02	8.032E-03 NOT IDENT.
CO-58	-2.446E-02	3.378E-02	2.672E-02	1.724E-02 NOT IDENT.
FE-59	-3.931E-02	8.220E-02	6.758E-02	4.194E-02 NOT IDENT.
CO-60	1.519E-02	3.506E-02	3.100E-02	1.789E-02 NOT IDENT.
ZN-65	6.776E-02	8.961E-02	7.263E-02	4.572E-02 NOT IDENT.
GE-68	7.832E-01	1.143E+00	1.044E+00	5.833E-01 NOT IDENT.
AS-73	1.517E-01	1.492E-01	1.369E-01	7.615E-02 NOT IDENT.
AS-74	3.691E-02	7.954E-02	6.898E-02	4.058E-02 NOT IDENT.
SE-75	3.186E-02	3.315E-02	2.964E-02	1.691E-02 FAIL ABUN
BR-77	2.744E+00	8.293E+00	7.218E+00	4.231E+00 FAIL ABUN
SR-82	1.149E-02	3.770E-01	2.945E-01	1.924E-01 NOT IDENT.
RB-83	1.435E-02	5.854E-02	5.065E-02	2.987E-02 NOT IDENT.
RB-84	6.210E-02	6.421E-02	5.882E-02	3.276E-02 NOT IDENT.
KR-85	6.607E+00	7.178E+00	5.773E+00	3.662E+00 NOT IDENT.
SR-85	3.378E-02	3.669E-02	2.951E-02	1.872E-02 NOT IDENT.
RB-86	5.220E-01	7.208E-01	6.601E-01	3.678E-01 NOT IDENT.
Y-88	1.619E-02	3.362E-02	3.059E-02	1.715E-02 NOT IDENT.
ZR-88	7.014E-03	2.567E-02	2.284E-02	1.310E-02 NOT IDENT.
Y-91	2.066E+01	1.798E+01	1.665E+01	9.174E+00 NOT IDENT.
NB-94	-4.992E-03	3.154E-02	2.661E-02	1.609E-02 NOT IDENT.
NB-95	3.807E-02	4.448E-02	3.602E-02	2.270E-02 NOT IDENT.
NB-95M	2.276E-02	1.007E-01	7.819E-02	5.138E-02 NOT IDENT.
ZR-95	4.493E-02	6.846E-02	6.165E-02	3.493E-02 NOT IDENT.
NB-97	4.758E+04	7.272E+04	0.000E+00	3.710E+04 SHORT HLIF
ZR-97	1.628E+06	1.289E+06	0.000E+00	6.577E+05 SHORT HLIF
MO-99	3.320E+00	9.715E+00	8.599E+00	4.957E+00 NOT IDENT.
TC-99M	-4.966E+15	1.276E+16	0.000E+00	6.508E+15 SHORT HLIF
RH-101	2.397E-02	2.596E-02	2.321E-02	1.325E-02 NOT IDENT.
RH-102	-8.397E-03	2.532E-02	2.117E-02	1.292E-02 NOT IDENT.
RU-103	-2.026E-02	3.854E-02	3.155E-02	1.967E-02 FAIL ABUN
RH-106	2.441E-01	2.704E-01	2.515E-01	1.380E-01 FAIL ABUN
RU-106	2.441E-01	2.693E-01	2.515E-01	1.374E-01 FAIL ABUN
AG-108M	-2.431E-02	2.851E-02	2.315E-02	1.455E-02 NOT IDENT.
AG-110M	1.658E-02	3.422E-02	2.736E-02	1.746E-02 NOT IDENT.
IN-111	3.093E-02	8.365E-01	6.382E-01	4.268E-01 NOT IDENT.
IN-113M	-9.686E-03	3.748E-02	3.228E-02	1.912E-02 NOT IDENT.
SN-113	-9.686E-03	3.748E-02	3.228E-02	1.912E-02 NOT IDENT.
IN-114M	9.163E-02	1.451E-01	1.181E-01	7.402E-02 NOT IDENT.
CD-115	-1.674E+00	7.963E+00	6.619E+00	4.063E+00 NOT IDENT.
SN-117M	-2.911E-03	3.716E-02	3.304E-02	1.896E-02 NOT IDENT.
SB-122	-1.779E+00	1.859E+00	1.439E+00	9.485E-01 NOT IDENT.
I-123	-1.680E+06	2.801E+06	0.000E+00	1.429E+06 SHORT HLIF
TE-123M	-1.181E-02	1.969E-02	1.705E-02	1.004E-02 NOT IDENT.
I-124	1.250E-01	5.656E-01	4.454E-01	2.886E-01 FAIL ABUN
SB-124	-4.781E-03	5.962E-02	4.745E-02	2.904E-02 FAIL ABUN
SB-125	6.201E-02	7.969E-02	7.240E-02	4.066E-02 FAIL ABUN
TE-125M	3.186E+00	5.551E+00	5.214E+00	2.832E+00 NOT IDENT.
I-126	1.373E-01	1.667E-01	1.377E-01	8.504E-02 NOT IDENT.
SB-126	1.326E-02	1.207E-01	9.965E-02	6.159E-02 FAIL ABUN
SB-127	-8.067E-01	1.187E+00	9.738E-01	6.056E-01 NOT IDENT.
XE-127	-1.817E-02	3.416E-02	2.893E-02	1.743E-02 NOT IDENT.
I-131	-3.024E-02	9.851E-02	8.533E-02	5.026E-02 NOT IDENT.
TE-132	2.365E-01	4.686E-01	4.136E-01	2.391E-01 NOT IDENT.
BA-133	9.932E-03	3.593E-02	2.865E-02	1.833E-02 FAIL ABUN
I-133	-8.402E+02	4.019E+03	0.000E+00	2.051E+03 SHORT HLIF
CS-134	6.022E-02	4.321E-02	4.056E-02	2.205E-02 NOT IDENT.
CS-135	6.127E-03	1.383E-01	1.044E-01	7.054E-02 NOT IDENT.
I-135	-1.573E+15	2.603E+15	0.000E+00	1.328E+15 SHORT HLIF
CS-136	8.216E-02	9.752E-02	9.030E-02	4.976E-02 FAIL ABUN
CE-139	-1.343E-02	2.091E-02	1.800E-02	1.067E-02 NOT IDENT.
BA-140	2.654E-02	2.289E-01	1.952E-01	1.168E-01 NOT IDENT.
LA-140	-2.106E-02	8.079E-02	6.660E-02	4.122E-02 NOT IDENT.
CE-141	1.337E-02	4.522E-02	4.111E-02	2.307E-02 NOT IDENT.



CE-143	3.116E+02	1.303E+02	0.000E+00	6.647E+01	SHORT HLIF
CE-144	-9.309E-03	1.367E-01	1.235E-01	6.974E-02	NOT IDENT.
PM-144	2.233E-02	3.144E-02	2.862E-02	1.604E-02	NOT IDENT.
PR-144	1.513E+00	2.130E+00	1.939E+00	1.087E+00	NOT IDENT.
PM-146	1.548E-02	3.761E-02	3.329E-02	1.919E-02	NOT IDENT.
ND-147	-1.527E-01	4.637E-01	3.811E-01	2.366E-01	FAIL ABUN
PM-149	-2.726E+01	6.851E+01	5.603E+01	3.496E+01	NOT IDENT.
EU-152	-3.168E-02	7.769E-02	6.483E-02	3.964E-02	FAIL ABUN
GD-153	-9.790E-03	4.755E-02	3.949E-02	2.426E-02	FAIL ABUN
EU-154	1.553E-02	1.106E-01	9.489E-02	5.642E-02	NOT IDENT.
EU-155	1.163E-01	6.579E-02	6.340E-02	3.357E-02	FAIL ABUN
TB-160	2.368E-03	1.248E-01	1.057E-01	6.367E-02	FAIL ABUN
HO-166M	-1.741E-03	5.476E-02	4.731E-02	2.794E-02	NOT IDENT.
TM-171	1.691E+01	1.061E+01	9.011E+00	5.414E+00	NOT IDENT.
LU-176	-2.418E-03	1.968E-02	1.697E-02	1.004E-02	FAIL ABUN
LU-177	3.929E+00	1.365E+00	8.460E-01	6.964E-01	FAIL ABUN
LU-177M	-2.092E-01	1.460E-01	1.133E-01	7.447E-02	FAIL ABUN
HF-181	3.113E-02	3.902E-02	3.511E-02	1.991E-02	NOT IDENT.
W-181	-2.258E-02	1.326E-01	1.053E-01	6.765E-02	NOT IDENT.
TA-182	-1.040E-02	1.951E-01	1.652E-01	9.953E-02	FAIL ABUN
RE-183	4.597E-02	7.837E-02	7.041E-02	3.999E-02	FAIL ABUN
RE-184	3.015E-03	1.797E-01	1.533E-01	9.171E-02	NOT IDENT.
OS-185	-3.856E-03	3.540E-02	3.072E-02	1.806E-02	NOT IDENT.
RE-188	5.644E-02	1.243E-01	1.123E-01	6.341E-02	NOT IDENT.
W-188	-2.261E+00	6.239E+00	4.841E+00	3.183E+00	FAIL ABUN
IR-192	-1.509E-02	2.481E-02	2.134E-02	1.266E-02	FAIL ABUN
AU-195	2.355E-01	1.295E-01	1.255E-01	6.606E-02	FAIL ABUN
TL-200	1.088E+02	3.266E+02	0.000E+00	1.666E+02	SHORT HLIF
TL-201	2.742E-01	4.436E+00	3.949E+00	2.263E+00	NOT IDENT.
TL-202	4.857E-02	6.203E-02	5.615E-02	3.165E-02	NOT IDENT.
BI-207	-2.734E-02	4.899E-02	4.018E-02	2.499E-02	FAIL ABUN
TL-207	-3.467E-01	5.376E-01	4.599E-01	2.743E-01	FAIL ABUN
PO-209	-2.172E+00	6.499E+00	5.288E+00	3.316E+00	NOT IDENT.
PB-211	-2.719E-01	7.800E-01	6.492E-01	3.980E-01	NOT IDENT.
BI-212	9.233E-01	4.067E-01	3.118E-01	2.075E-01	FAIL ABUN
PO-215	-3.467E-01	5.376E-01	4.599E-01	2.743E-01	FAIL ABUN
RN-219	4.853E-02	3.423E-01	3.015E-01	1.747E-01	FAIL ABUN
RN-220	-1.426E+01	2.354E+01	1.882E+01	1.201E+01	NOT IDENT.
RA-223	-3.467E-01	5.376E-01	4.599E-01	2.743E-01	FAIL ABUN
AC-227	7.366E-02	3.045E-01	2.626E-01	1.554E-01	FAIL ABUN
TH-227	7.366E-02	3.046E-01	2.626E-01	1.554E-01	FAIL ABUN
TH-229	1.806E-02	3.694E-01	3.242E-01	1.885E-01	FAIL ABUN
PA-231	1.138E+00	1.203E+00	1.062E+00	6.138E-01	FAIL ABUN
TH-231	-3.467E-01	5.376E-01	4.599E-01	2.743E-01	FAIL ABUN
U-231	-3.418E-01	5.835E-01	4.749E-01	2.977E-01	FAIL ABUN
PA-233	2.474E-02	4.961E-02	4.560E-02	2.531E-02	FAIL ABUN
PA-234	-1.617E-01	2.630E-01	2.041E-01	1.342E-01	FAIL ABUN
PA-234M	-1.045E+00	4.290E+00	3.538E+00	2.189E+00	NOT IDENT.
U-235	6.382E-02	1.615E-01	1.445E-01	8.237E-02	FAIL ABUN
NP-236	-2.382E-02	5.593E-02	4.886E-02	2.854E-02	NOT IDENT.
NP-239	-5.987E-02	1.184E-01	1.061E-01	6.043E-02	FAIL ABUN
AM-241	-1.488E-02	4.318E-02	3.411E-02	2.203E-02	NOT IDENT.
CM-243	-1.005E-02	5.576E-02	5.125E-02	2.845E-02	FAIL ABUN
AM-246	6.025E-02	1.323E-01	1.186E-01	6.751E-02	NOT IDENT.
CM-247	-5.658E-03	3.059E-02	2.638E-02	1.560E-02	FAIL ABUN
CF-249	1.179E-02	3.330E-02	2.981E-02	1.699E-02	NOT IDENT.
CF-251	-1.940E-02	8.799E-02	7.687E-02	4.489E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON, SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	250.3616
46.50	250.3616
46.50	250.3616
48.70	281.2077
49.72	270.9500
51.35	327.6675
52.39	268.9846
52.97	279.5074
53.15	273.1369
53.44	276.7632
54.07	276.3869
56.28	322.2166
56.28	322.2210
57.37	0.0000
57.53	288.0976
57.53	288.0995
57.60	294.8791
57.98	327.7607
57.98	327.7607
59.32	370.3342
59.32	370.3342
59.40	344.9532
59.54	345.1392
59.72	349.8840
60.01	375.8304
61.10	324.5580
61.14	317.0583
61.30	317.2505
63.00	405.9321
63.29	406.3674
63.29	406.3674
63.58	406.8006
64.28	407.8442
65.12	409.0889
65.20	409.2077
65.20	409.2077
66.05	373.5645
66.72	342.0919
66.83	400.8095
66.91	400.9206
67.20	402.8768
67.20	402.8768
67.75	439.6125
67.85	439.7686
68.90	416.9229
68.90	416.9229
69.30	437.3274
69.67	402.8571
70.82	428.2755
70.82	428.2755
70.83	428.2895
72.80	424.8386
72.87	424.9374
72.87	424.9374
74.67	419.1525
74.81	419.3437
74.81	419.3437
74.81	419.3437
74.81	419.3437
74.81	419.3437
74.81	419.3437
74.81	419.3437
74.97	419.5619
75.28	419.9847
75.70	420.5583
77.11	422.4651
77.11	422.4651

77.11	422.4651
77.11	422.4651
77.11	422.4651
77.11	422.4651
77.11	422.4651
78.38	394.1270
79.62	389.2250
79.80	368.5236
79.80	368.5236
80.11	368.8777
80.18	368.9569
80.30	299.7884
80.30	299.7884
80.57	300.0381
81.00	380.3901
81.07	380.4716
81.07	380.4716
81.07	380.4716
81.07	380.4716
82.60	340.8612
83.37	335.1418
83.78	276.1013
83.78	276.1013
83.78	276.1013
83.78	276.1013
84.21	276.4565
84.90	277.0255
85.43	277.4601
86.29	278.1618
86.50	278.3325
86.54	278.3653
86.59	278.4066
86.72	278.5118
86.79	278.5670
86.94	278.6912
87.30	278.9825
87.30	278.9825
87.30	278.9825
87.30	278.9825
87.30	278.9825
87.30	278.9825
87.57	279.2015
87.88	279.4515
88.03	279.5722
88.36	279.8378
88.47	279.9274
89.95	281.1137
91.11	282.0362
92.29	294.6541
92.38	294.7286
92.38	294.7286
93.35	295.5204
94.00	296.0501
94.67	296.5905
94.67	296.5941
94.90	242.1328
94.90	242.1328
94.90	242.1328
94.90	242.1328
95.87	287.0267
95.87	287.0267
96.73	318.1123
97.43	285.6926
98.44	246.4843
98.44	246.4843
98.88	241.3324
99.55	240.9087
99.55	240.9087
99.86	258.1436
100.00	258.2377
100.10	258.3086
103.18	294.7447
103.76	268.5043
105.00	257.2624
105.31	235.8646
108.00	309.6440
109.28	250.4156

111.00	272.4951
111.00	272.4951
111.76	255.4391
112.95	282.5763
115.19	265.4953
116.30	248.4408
117.00	257.7325
117.00	257.7325
117.66	240.3259
121.11	249.4065
121.62	224.5445
121.78	226.4229
122.06	228.3633
122.32	221.2997
122.32	221.2997
122.32	221.2997
122.32	221.2997
123.07	207.2536
127.23	280.0970
129.76	264.2581
131.20	302.6779
133.02	256.8853
133.54	250.7140
135.34	258.1340
136.00	258.4860
136.25	250.2768
136.48	236.4841
140.51	277.7064
140.51	0.0000
142.18	270.1934
142.65	262.9358
143.76	286.1009
144.24	277.8949
144.24	277.8949
144.24	277.8949
144.24	277.8949
145.22	246.3416
145.44	272.8866
147.16	272.8564
152.43	267.0117
152.70	238.4224
153.22	241.5308
154.21	229.4963
154.21	229.4963
154.21	229.4963
154.21	229.4963
155.03	240.4277
156.02	266.8842
158.56	223.6097
159.00	0.0000
159.00	237.3512
160.31	238.8906
161.27	230.5509
162.32	206.6215
162.64	221.3680
163.35	230.4375
163.89	226.7513
165.85	236.3690
167.43	202.6052
171.28	208.9158
171.86	202.1863
172.10	201.2778
176.55	207.8011
176.60	207.8180
181.06	224.9687
184.41	197.3605
185.71	238.3468
186.00	238.4567
190.27	197.6927
192.34	232.6759
193.63	208.4971
197.04	241.6100
198.01	205.7795
198.60	201.8237
200.40	220.0224
201.83	258.9849
202.84	217.7126
205.31	166.2412

208.36	187.9988
208.81	188.1245
209.75	188.3830
209.75	188.3830
210.97	189.7742
215.65	204.8603
216.55	193.4342
218.09	229.0083
222.10	162.8213
223.80	170.7231
226.40	179.9585
227.00	168.2446
227.08	168.2637
227.20	169.3694
228.16	158.7894
228.18	158.7939
228.18	158.7939
231.56	0.0000
235.69	188.2402
236.00	188.3174
236.00	188.3174
238.63	189.5232
238.63	189.5232
238.63	189.5232
238.63	189.5232
239.00	189.6147
240.98	190.1092
241.98	190.3574
241.98	190.3574
241.98	190.3574
244.69	157.3495
245.39	164.1228
247.94	144.1487
248.90	155.4264
249.79	157.8259
252.40	153.8869
252.85	158.4384
252.85	158.4384
254.15	0.0000
256.20	163.5846
256.20	163.5846
260.50	159.9522
260.90	156.6493
262.80	164.9213
264.65	125.6677
268.24	162.0288
268.79	158.7227
269.46	150.3101
269.46	150.3101
269.46	150.3101
269.46	150.3101
271.23	159.1853
273.65	140.7598
276.40	177.3802
277.35	152.8640
277.60	152.9099
277.60	152.9099
278.00	152.9803
278.60	141.5781
279.20	141.6757
279.53	133.0887
280.46	128.0411
281.68	136.8854
283.67	122.7242
284.30	150.6193
285.00	156.5387
285.90	156.6980
286.10	156.7337
286.10	156.7337
287.40	146.5027
288.45	0.0000
290.67	156.8465
290.80	162.4708
291.72	166.8440
293.26	0.0000
293.70	151.7563
295.21	159.5189
295.21	159.5189

295.21	159.5189
295.96	140.8691
296.50	162.0950
297.23	162.2269
298.57	162.4656
299.80	143.8226
299.80	143.8226
300.09	143.8673
300.09	143.8673
300.09	143.8673
300.09	143.8673
300.12	143.8722
301.29	144.0559
302.84	133.4176
303.76	150.5997
303.91	150.6230
304.40	145.0163
304.40	145.0163
304.84	150.7757
306.84	140.5100
308.46	147.2578
311.98	127.2054
316.51	124.2118
318.01	126.2106
319.02	108.2941
319.41	113.7549
320.08	110.2200
323.87	159.6289
323.87	159.6289
323.87	159.6289
323.87	159.6289
325.23	153.4941
328.77	158.6035
333.44	158.2532
334.20	148.1095
334.20	148.1095
334.30	148.1243
338.28	134.3554
338.28	134.3554
338.28	134.3554
338.28	134.3554
338.32	134.3598
338.32	134.3598
338.32	134.3598
340.50	126.9025
340.57	126.9109
344.27	128.0076
345.85	114.2179
350.59	0.0000
351.07	112.7451
351.92	112.8374
351.92	112.8374
351.92	112.8374
355.39	0.0000
356.01	100.3577
364.48	141.5474
366.43	128.5687
367.43	127.7408
367.94	0.0000
369.80	137.5018
374.96	130.5300
383.85	114.2898
387.95	113.7417
388.63	119.5971
391.69	123.7871
391.69	123.7871
392.90	113.2688
398.62	121.6145
400.65	115.9785
401.10	102.3740
401.81	112.1924
402.60	116.1728
404.84	116.3961
410.95	97.3353
411.60	115.0951
413.65	129.0871
414.70	97.6404
415.30	88.8080

415.76	94.7651
417.63	0.0000
418.52	119.7168
423.70	123.2091
427.08	107.6078
427.89	97.7084
432.53	107.0833
433.93	119.2252
439.47	97.6142
439.56	103.6601
439.89	103.6868
443.98	115.1324
444.90	113.1946
445.03	103.0988
445.03	103.0988
445.03	103.0988
445.03	103.0988
453.90	94.6532
463.38	96.3666
468.07	90.5365
473.00	83.6425
475.06	99.2842
475.35	102.4095
476.78	107.6959
477.59	106.7233
477.96	99.4980
482.03	92.5200
484.57	111.4377
487.03	87.6414
490.36	0.0000
492.35	91.1219
497.08	113.5009
507.63	0.0000
510.53	0.0000
510.84	87.0180
511.00	87.0280
511.85	87.0793
511.85	87.0793
513.99	93.5906
513.99	93.5906
520.41	76.9153
520.65	77.9947
527.90	71.9399
528.96	0.0000
529.64	80.6259
529.87	0.0000
531.02	79.6232
537.32	84.2842
543.00	69.4180
546.56	0.0000
549.76	91.5187
552.65	75.3171
555.20	68.8832
563.23	100.0145
563.90	111.0544
568.70	72.7917
569.32	79.4399
569.50	79.4509
569.67	79.4597
573.80	79.6663
574.00	79.6772
574.64	80.8173
578.91	74.5951
579.30	0.0000
583.14	70.1175
585.48	57.0672
591.81	67.1393
592.07	67.1484
593.00	68.3067
595.88	70.6712
600.56	71.9980
602.52	0.0000
602.71	69.0880
602.71	69.0880
603.60	72.1309
604.41	72.1660
604.70	72.1797
609.31	72.3789

609.31	72.3789
609.31	72.3789
609.31	72.3789
610.33	90.5298
612.46	80.0693
614.37	75.6246
618.01	78.2126
621.84	61.0704
621.84	61.0704
631.29	55.9112
633.02	70.6460
633.10	70.6498
634.78	64.2903
635.90	62.4933
636.97	59.7727
645.85	67.4733
646.12	67.4840
656.30	79.0297
657.75	66.6871
657.90	0.0000
661.65	83.9312
661.65	83.9312
664.57	0.0000
666.33	57.6574
666.33	57.6574
675.00	74.2187
677.61	63.9758
685.20	85.0254
692.80	95.8094
695.00	83.5742
696.49	72.2353
696.49	72.2353
697.00	78.9108
697.49	77.0291
698.33	82.7732
698.50	87.5370
699.00	97.0793
702.63	82.9622
706.10	82.1577
706.58	0.0000
706.67	79.3161
709.31	78.4706
711.68	74.7341
713.82	67.1443
717.42	71.1148
720.50	57.7529
721.93	0.0000
722.20	61.0155
722.78	62.6403
722.78	62.6403
722.89	62.6434
722.95	65.8576
723.30	65.8693
724.18	53.0409
727.18	74.3738
733.00	46.8241
735.90	73.7345
739.58	63.1814
742.81	59.3901
744.21	64.3033
747.13	66.3498
751.79	83.1302
752.31	78.2598
753.82	66.5723
755.35	68.5815
756.15	69.5890
756.87	73.5370
763.93	81.9926
765.79	68.9370
766.42	67.3157
766.84	80.4684
776.49	66.4691
778.00	68.3582
778.57	61.4399
778.89	61.4505
783.80	60.6024
785.46	60.6500
792.07	69.8206



795.84	54.9570
796.30	52.9702
798.80	90.0549
801.93	64.1344
805.60	50.1917
810.29	67.4057
810.76	62.3890
815.85	50.4333
817.79	47.4498
818.51	50.4956
819.60	38.3961
826.30	51.6910
828.27	0.0000
831.60	59.9449
831.96	59.9550
834.83	54.9453
836.80	0.0000
846.75	47.0590
848.13	52.2065
856.28	0.0000
856.80	56.5200
860.37	55.5807
867.32	46.4590
867.82	44.7489
871.10	49.6395
873.19	47.6138
874.81	51.7908
875.33	0.0000
876.40	52.8639
879.36	52.9324
880.27	44.6471
880.51	47.7666
881.50	45.7091
883.24	50.9416
884.67	59.2961
889.25	42.7357
896.60	53.3271
898.02	48.1282
899.00	54.4286
903.28	64.4145
911.07	50.8503
911.07	50.8503
911.07	50.8503
919.63	57.0171
920.93	48.5965
925.00	49.7378
925.24	52.9175
926.50	69.8881
935.52	54.2062
937.48	62.7595
944.10	43.7307
946.00	53.3716
949.00	41.6813
962.29	59.0981
964.01	56.9879
966.15	57.0371
968.20	57.0837
969.11	57.1044
969.11	57.1044
969.11	57.1044
977.42	56.2123
980.50	53.0339
983.50	48.7628
989.30	46.7016
996.32	47.9188
1001.03	51.2800
1001.68	50.2013
1004.76	64.4664
1021.30	0.0000
1024.50	0.0000
1034.80	52.4982
1036.00	46.0734
1037.82	59.9351
1038.57	60.8733
1038.76	0.0000
1045.16	48.0793
1046.59	47.1816
1048.07	45.3553

1050.47	50.9538
1050.47	50.9538
1062.04	55.8252
1063.62	62.3736
1076.63	46.7712
1077.35	46.7834
1078.86	50.5525
1085.78	54.4340
1099.22	58.4681
1112.02	60.2513
1112.84	54.0150
1115.52	47.1553
1120.29	53.2064
1120.29	53.2064
1120.29	53.2064
1120.29	53.2064
1120.51	45.6094
1121.28	40.7331
1124.00	0.0000
1129.67	47.6624
1131.51	0.0000
1147.95	0.0000
1167.94	73.4023
1173.22	62.8920
1175.09	72.6135
1177.93	66.8662
1189.05	74.8977
1204.90	53.7803
1205.75	0.0000
1213.00	70.5908
1221.42	75.6997
1230.97	73.9624
1235.34	67.1533
1236.41	0.0000
1238.25	82.0442
1246.25	64.4155
1260.41	0.0000
1271.85	45.9569
1274.45	43.9946
1274.54	44.9945
1291.56	50.2604
1298.22	0.0000
1312.09	49.5662
1325.50	34.5326
1325.50	34.5326
1332.49	29.5168
1333.61	32.5807
1360.21	33.8661
1362.66	0.0000
1365.15	33.9158
1368.21	31.8880
1368.53	0.0000
1376.25	30.0488
1384.27	31.8905
1394.10	35.2396
1395.20	39.3978
1407.95	24.9736
1434.06	18.8694
1436.60	24.1277
1457.56	0.0000
1460.81	24.2915
1489.15	17.0299
1509.49	9.6321
1596.49	26.2773
1620.62	12.2750
1678.03	0.0000
1691.02	10.5688
1691.02	10.5688
1706.46	0.0000
1750.46	0.0000
1764.49	12.7103
1764.49	12.7103
1764.49	12.7103
1764.49	12.7103
1770.23	13.7061
1771.40	47.9849
1791.20	0.0000
1808.65	19.7538

1836.01

11.9259

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600007

Total Uranium Activity	5.4059E+00	ug/g
Total Uranium Counting Unc.	2.3576E+00	ug/g
Total Uranium Tpu	1.2028E-06	ug/g
Total Uranium Mda	1.0584E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635                          SAMPLE ID   : G244600007
*  ANALYST       : MXR1                             DETECTOR    : GAM25
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 08:05:42.59          SAMPLE ALQT  : 143.360 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.453E+00
GROSS GAMMA ERROR (pCi/GRAM )   : 1.072E+00
GROSS GAMMA MDA (pCi/GRAM )     : 2.798E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.357E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:36:21.43

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600008.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:35:46
Sample ID          : G244600008          Sample quantity   : 1.34740E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.27  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941635             Detector SN#       :
Matrix Spike ID    :                    LCS ID             : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.64*	41	252	1.44	125.78	123	6	5.67E-03	66.3	
2	4	74.34	311	564	1.91	149.17	142	18	4.32E-02	16.4	4.86E-01
3	4	76.59*	486	398	1.25	153.66	142	18	6.74E-02	8.9	
4	3	86.71*	232	407	1.28	173.89	170	21	3.22E-02	16.1	6.50E-01
5	3	89.52	104	317	1.23	179.51	170	21	1.44E-02	30.5	
6	3	92.21*	278	392	1.75	184.89	170	21	3.86E-02	16.4	
7	0	185.23*	200	397	1.28	370.85	364	13	2.78E-02	22.5	
8	0	208.47	92	366	1.09	417.32	412	11	1.28E-02	41.4	
9	3	238.05*	1110	204	1.33	476.44	469	19	1.54E-01	3.9	7.33E-01
10	3	240.93	265	246	1.80	482.21	469	19	3.68E-02	16.2	
11	0	269.78	124	210	2.04	539.88	535	11	1.72E-02	24.4	
12	3	294.66*	343	183	1.61	589.62	584	20	4.76E-02	9.3	1.97E+00
13	3	299.50	124	142	1.89	599.29	584	20	1.73E-02	19.7	
14	0	337.78	229	152	1.66	675.83	671	11	3.18E-02	12.3	
15	0	351.30*	550	136	1.43	702.85	698	11	7.64E-02	6.1	
16	0	463.26	92	122	4.60	926.70	919	15	1.28E-02	28.6	
17	0	509.93*	86	167	1.83	1020.00	1011	17	1.20E-02	40.7	
18	0	582.52*	352	75	1.67	1165.13	1159	12	4.89E-02	7.6	
19	0	608.71*	393	106	1.30	1217.50	1212	12	5.46E-02	7.5	
20	0	661.06	153	97	1.49	1322.17	1315	13	2.12E-02	15.6	
21	0	726.76*	62	62	1.59	1453.52	1449	11	8.59E-03	28.2	
22	0	794.80*	36	52	1.12	1589.55	1582	12	5.00E-03	44.8	
23	0	836.08	28	51	1.77	1672.10	1662	13	3.89E-03	56.3	
24	0	859.90*	42	42	2.01	1719.74	1715	9	5.81E-03	32.8	
25	0	910.47*	263	59	1.69	1820.85	1814	16	3.66E-02	9.0	
26	3	963.58	45	57	2.45	1927.03	1922	21	6.30E-03	33.2	2.32E+00
27	3	968.43*	106	50	2.00	1936.74	1922	21	1.48E-02	17.6	
28	0	1119.86*	101	38	1.69	2239.55	2232	14	1.41E-02	16.8	
29	0	1240.79	9	75	0.49	2481.36	2472	12	1.31E-03	186.6	
30	0	1376.93	34	20	2.51	2753.61	2743	15	4.71E-03	32.9	
31	0	1460.22*	903	52	2.02	2920.17	2913	17	1.25E-01	3.9	
32	0	1619.86	26	8	1.06	3239.42	3230	18	3.57E-03	33.6	
33	0	1764.00*	74	3	1.99	3527.70	3521	13	1.03E-02	13.7	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600008.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:35:46
Sample ID        : G244600008             Sample quantity  : 134.74 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA15                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.27   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	*	2.361E+01	2.562E+00	6.678E-01	5.104E-02	35.354
MN-54	+	834.83	*	4.871E-02	5.494E-02	6.044E-02	4.530E-03	0.806
CD-109	+	88.03	*	4.026E+00	1.373E+00	1.564E+00	1.809E-01	2.574
SN-126	+	64.28		7.063E-02	9.683E-01	1.409E+00	2.415E-01	0.050
	+	86.94		1.646E+00	8.708E-01	6.516E-01	2.740E-01	2.526
	+	87.57	*	3.958E-01	1.350E-01	1.550E-01	1.789E-02	2.554
BA-137M	+	661.65	*	2.342E-01	7.401E-02	6.884E-02	3.464E-03	3.401
CS-137	+	661.65	*	2.475E-01	7.824E-02	7.278E-02	3.682E-03	3.401
TL-208	+	277.35		4.262E-01	4.640E-01	7.855E-01	8.801E-02	0.543
	+	510.84		4.515E-01	3.699E-01	2.262E-01	2.277E-02	1.996
	+	583.14	*	5.228E-01	8.597E-02	6.171E-02	3.929E-03	8.472
	+	860.37		5.800E-01	3.838E-01	4.698E-01	4.038E-02	1.234
BI-211	+	72.87		2.155E+01	7.479E+00	6.902E+00	7.696E-01	3.122
	+	351.07	*	3.695E+00	5.186E-01	3.870E-01	2.659E-02	9.546
BI-212	+	727.18	*	7.815E-01	4.444E-01	5.197E-01	4.046E-02	1.504
	+	785.46		-6.185E-02	2.011E+00	3.190E+00	2.148E-01	-0.019
	+	1620.62		2.811E+00	1.898E+00	2.295E+00	1.579E-01	1.225
PB-212	+	74.81		2.558E+00	9.193E-01	7.621E-01	1.106E-01	3.356
	+	77.11		2.195E+00	4.599E-01	4.197E-01	4.661E-02	5.230
	+	87.30		1.831E+00	6.509E-01	7.203E-01	1.099E-01	2.542
	+	238.63	*	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
	+	300.09		2.830E+00	1.145E+00	1.267E+00	1.137E-01	2.233
PO-212	+	74.81		2.558E+00	9.193E-01	7.621E-01	1.106E-01	3.356
	+	77.11		2.195E+00	4.599E-01	4.197E-01	4.661E-02	5.230
	+	87.30		1.831E+00	6.509E-01	7.203E-01	1.099E-01	2.542
	+	115.19		2.258E+00	4.265E+00	7.101E+00	5.433E-01	0.318
	+	238.63	*	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
	+	300.09		2.830E+00	1.145E+00	1.267E+00	1.137E-01	2.233
BI-214	+	609.31	*	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
	+	1120.29		1.478E+00	5.163E-01	4.509E-01	4.160E-02	3.278
	+	1764.49		1.479E+00	4.162E-01	4.064E-01	2.529E-02	3.638
PB-214	+	74.81		4.407E+00	1.564E+00	1.313E+00	1.753E-01	3.356
	+	77.11		3.764E+00	8.390E-01	7.196E-01	9.690E-02	5.230
	+	87.30		3.136E+00	1.097E+00	1.234E+00	1.710E-01	2.542

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		2.353E+00	7.929E-01	6.062E-01	5.418E-02	3.882
	+	295.21		1.370E+00	2.836E-01	2.467E-01	2.282E-02	5.552
	+	351.92	*	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
	+	74.81		4.407E+00	1.564E+00	1.313E+00	1.753E-01	3.356
	+	77.11		3.764E+00	8.390E-01	7.196E-01	9.690E-02	5.230
	+	87.30		3.136E+00	1.097E+00	1.234E+00	1.710E-01	2.542
PO-216	+	241.98		2.353E+00	7.929E-01	6.062E-01	5.418E-02	3.882
	+	295.21		1.370E+00	2.836E-01	2.467E-01	2.282E-02	5.552
	+	351.92	*	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
	+	74.81		2.558E+00	9.193E-01	7.621E-01	1.106E-01	3.356
	+	77.11		2.195E+00	4.599E-01	4.197E-01	4.661E-02	5.230
	+	87.30		1.831E+00	6.509E-01	7.203E-01	1.099E-01	2.542
PO-218	+	238.63	*	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
	+	300.09		2.830E+00	1.145E+00	1.267E+00	1.137E-01	2.233
	+	74.81		4.407E+00	1.564E+00	1.313E+00	1.753E-01	3.356
	+	77.11		3.764E+00	8.390E-01	7.196E-01	9.690E-02	5.230
	+	87.30		3.136E+00	1.097E+00	1.234E+00	1.710E-01	2.542
	+	241.98		2.353E+00	7.929E-01	6.062E-01	5.418E-02	3.882
RA-224	+	295.21		1.370E+00	2.836E-01	2.467E-01	2.282E-02	5.552
	+	351.92	*	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
RA-226	+	240.98	*	4.462E+00	1.482E+00	1.200E+00	8.355E-02	3.717
	+	609.31	*	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
AC-228	+	1120.29		1.478E+00	5.163E-01	4.509E-01	4.160E-02	3.278
	+	1764.49		1.479E+00	4.162E-01	4.064E-01	2.529E-02	3.638
	+	338.32		1.697E+00	8.101E-01	4.213E-01	1.721E-01	4.029
	+	911.07	*	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
RA-228	+	969.11		1.232E+00	5.189E-01	4.044E-01	9.351E-02	3.047
	+	338.32		1.697E+00	8.101E-01	4.213E-01	1.721E-01	4.029
	+	911.07	*	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
TH-228	+	969.11		1.232E+00	5.189E-01	4.044E-01	9.351E-02	3.047
	+	74.81		2.596E+00	9.014E-01	7.734E-01	8.637E-02	3.356
	+	77.11		2.228E+00	4.668E-01	4.260E-01	4.731E-02	5.230
	+	87.30		1.858E+00	6.339E-01	7.310E-01	8.421E-02	2.542
TH-230	+	238.63	*	1.667E+00	1.907E-01	1.071E-01	8.864E-03	15.570
	+	300.09		2.872E+00	2.040E+00	1.286E+00	7.595E-01	2.233
	+	609.31	*	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
	+	1120.29		1.478E+00	5.163E-01	4.509E-01	4.160E-02	3.278
TH-232	+	1764.49		1.479E+00	4.162E-01	4.064E-01	2.529E-02	3.638
	+	338.32		1.697E+00	4.327E-01	4.213E-01	2.712E-02	4.029
	+	911.07	*	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
TH-234	+	969.11		1.232E+00	5.189E-01	4.044E-01	9.351E-02	3.047
	+	63.29	*	1.733E+00	2.325E+00	3.612E+00	7.129E-01	0.480
U-234	+	92.38		2.970E+00	1.128E+00	9.864E-01	1.880E-01	3.011
	+	609.31	*	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
NP-237	+	1120.29		1.478E+00	5.163E-01	4.509E-01	4.160E-02	3.278
	+	1764.49		1.479E+00	4.162E-01	4.064E-01	2.529E-02	3.638
	+	86.50	*	1.162E+00	4.635E-01	5.037E-01	1.189E-01	2.308
U-238	+	95.87		-3.029E-01	1.271E+00	1.801E+00	4.520E-01	-0.168
	+	63.29	*	1.733E+00	2.325E+00	3.612E+00	7.129E-01	0.480



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	92.38		2.970E+00	1.024E+00	9.864E-01	1.038E-01	3.011
	+	74.67	*	4.147E-01	1.439E-01	1.242E-01	1.380E-02	3.340
	+	86.72		4.359E+01	1.487E+01	1.733E+01	1.989E+00	2.516
		117.66		-3.392E+00	4.569E+00	7.218E+00	5.392E-01	-0.470
ANH-511		142.18		-8.750E+00	2.167E+01	3.405E+01	2.320E+00	-0.257
	+	511.00	*	9.752E-02	7.949E-02	4.888E-02	2.760E-03	1.995

---- 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	*	8.670E-02	3.832E-01	6.357E-01	4.236E-02	0.136
NA-22		1274.54	*	1.223E-02	5.164E-02	8.562E-02	5.876E-03	0.143
NA-24		1368.53	*	-3.504E-01	5.164E-02	Half-Life too short		
AL-26		1129.67		1.423E+00	1.869E+00	3.266E+00	2.057E-01	0.436
		1808.65	*	-1.602E-02	3.071E-02	4.466E-02	2.672E-03	-0.359
TI-44		67.85		-2.946E-02	8.751E-02	1.162E-01	1.326E-02	-0.253
		78.38	*	2.155E-01	6.389E-02	9.722E-02	1.081E-02	2.217
SC-46		889.25	*	1.178E-02	4.570E-02	7.728E-02	6.482E-03	0.152
	+	1120.51		2.525E-01	8.660E-02	1.360E-01	8.732E-03	1.856
V-48		944.10		-1.691E-01	9.082E-01	1.469E+00	1.208E-01	-0.115
		983.50	*	8.372E-02	7.918E-02	1.422E-01	1.123E-02	0.589
CR-51		1312.09		-3.830E-02	9.344E-02	1.437E-01	1.049E-02	-0.267
		320.08	*	-2.143E-01	4.036E-01	6.505E-01	4.692E-02	-0.329
MN-52		744.21		-1.710E-01	2.349E-01	3.669E-01	2.251E-02	-0.466
		848.13		-3.028E+00	7.061E+00	1.126E+01	8.675E-01	-0.269
		935.52		2.637E-01	2.736E-01	4.878E-01	4.041E-02	0.540
		1246.25		8.243E+00	8.474E+00	1.377E+01	8.979E-01	0.599
		1333.61		-8.340E-01	5.186E+00	8.189E+00	6.180E-01	-0.102
		1434.06	*	1.448E-01	2.285E-01	4.144E-01	3.072E-02	0.349
CO-56		846.75	*	-5.163E-03	4.190E-02	6.876E-02	5.285E-03	-0.075
		977.42		-9.986E-01	3.192E+00	5.090E+00	4.048E-01	-0.196
		1037.82		-1.987E-01	3.435E-01	5.298E-01	4.193E-02	-0.375
		1175.09		6.942E-01	2.392E+00	3.976E+00	2.272E-01	0.175
		1238.25		2.490E-02	1.089E-01	1.799E-01	1.216E-02	0.138
		1360.21		5.872E-02	1.076E+00	1.748E+00	1.315E-01	0.034
		1771.40		-5.067E-01	3.540E-01	4.585E-01	2.837E-02	-1.105
		122.06	*	-1.940E-03	3.019E-02	4.907E-02	3.528E-03	-0.040
CO-57		136.48		6.536E-03	2.489E-01	4.046E-01	3.105E-02	0.016
CO-58		810.76	*	-2.866E-02	4.539E-02	7.151E-02	5.109E-03	-0.401
FE-59		142.65		-1.184E+00	3.338E+00	5.257E+00	3.580E-01	-0.225
		192.34		-3.268E-01	1.184E+00	1.847E+00	2.277E-01	-0.177
		1099.22	*	2.570E-02	9.186E-02	1.546E-01	1.170E-02	0.166
		1291.56		-1.136E-01	1.446E-01	2.125E-01	1.793E-02	-0.535
CO-60		1173.22		3.013E-02	4.865E-02	8.329E-02	4.744E-03	0.362
		1332.49	*	-3.339E-02	4.340E-02	6.263E-02	4.727E-03	-0.533
ZN-65		1115.52	*	-6.452E-03	1.207E-01	1.676E-01	1.089E-02	-0.038
GE-68		1077.35	*	-2.701E-01	1.318E+00	2.110E+00	1.466E-01	-0.128
AS-73		53.44	*	-8.053E-01	2.105E+00	3.448E+00	4.713E-01	-0.234

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74	595.88	*		1.044E-01	1.068E-01	1.810E-01	9.732E-03	0.577
	634.78			-2.376E-01	4.072E-01	6.230E-01	3.231E-02	-0.381
SE-75	66.05			2.924E+00	8.597E+00	1.265E+01	1.641E+00	0.231
	96.73			8.789E-01	1.011E+00	1.512E+00	2.169E-01	0.581
	121.11			1.583E-02	1.604E-01	2.625E-01	2.677E-02	0.060
	136.00			-1.058E-02	4.768E-02	7.674E-02	5.344E-03	-0.138
	198.60			-5.558E-01	2.280E+00	3.554E+00	2.837E-01	-0.156
	264.65	*		2.714E-02	5.808E-02	8.740E-02	6.113E-03	0.311
	279.53			-4.449E-02	1.324E-01	2.181E-01	1.592E-02	-0.204
	303.91			-7.141E-01	2.714E+00	3.854E+00	3.912E-01	-0.185
	400.65			1.201E-01	3.205E-01	5.232E-01	4.725E-02	0.229
BR-77	87.88	+		8.069E+02	2.753E+02	4.156E+02	4.805E+01	1.941
	200.40			-1.538E+01	1.849E+02	2.952E+02	2.017E+01	-0.052
	239.00	+		2.446E+02	2.574E+01	4.107E+01	2.857E+00	5.957
	249.79			-1.770E+01	7.340E+01	1.220E+02	8.495E+00	-0.145
	281.68			-3.799E+01	1.010E+02	1.659E+02	1.143E+01	-0.229
	297.23			2.486E+02	6.715E+01	1.245E+02	8.469E+00	1.997
	303.76			-5.802E+01	2.146E+02	3.046E+02	2.059E+01	-0.190
	439.47			2.139E+01	1.625E+02	2.688E+02	1.536E+01	0.080
	484.57			-5.057E+01	2.463E+02	3.964E+02	2.255E+01	-0.128
	520.65	*		-6.429E+00	1.028E+01	1.585E+01	8.918E-01	-0.406
	574.64			-3.207E+02	2.479E+02	3.321E+02	1.814E+01	-0.966
	578.91			1.587E+02	1.078E+02	1.721E+02	9.372E+00	0.922
	585.48			6.849E+02	2.360E+02	4.051E+02	2.196E+01	1.691
	755.35			1.362E+02	1.681E+02	2.979E+02	1.875E+01	0.457
	817.79			9.268E+01	1.341E+02	2.358E+02	1.704E+01	0.393
SR-82	698.33			-2.514E+00	3.692E+01	6.161E+01	3.392E+00	-0.041
	776.49	*		-4.765E-01	4.273E-01	6.455E-01	4.261E-02	-0.738
	1395.20			1.787E+00	1.095E+01	1.871E+01	1.399E+00	0.096
RB-83	520.41	*		-5.445E-02	7.292E-02	1.112E-01	6.257E-03	-0.490
	529.64			2.296E-02	1.163E-01	1.919E-01	1.075E-02	0.120
	552.65			2.135E-01	2.267E-01	3.930E-01	2.177E-02	0.543
RB-84	881.50	*		-1.003E-02	7.428E-02	1.214E-01	1.003E-02	-0.083
KR-85	513.99	*		1.278E+01	8.976E+00	1.430E+01	8.066E-01	0.894
SR-85	513.99	*		6.535E-02	4.590E-02	7.312E-02	4.124E-03	0.894
RB-86	1076.63	*		-3.399E-01	8.373E-01	1.311E+00	9.124E-02	-0.259
Y-88	898.02			-3.216E-02	4.897E-02	7.625E-02	6.541E-03	-0.422
	1836.01	*		2.134E-02	3.032E-02	5.745E-02	3.356E-03	0.371
ZR-88	392.90	*		1.194E-02	3.617E-02	6.081E-02	3.448E-03	0.196
Y-91	1204.90	*		-9.570E+00	2.062E+01	3.197E+01	1.934E+00	-0.299
NB-94	702.63	*		-3.036E-02	3.550E-02	5.547E-02	3.085E-03	-0.547
	871.10			1.369E-02	3.773E-02	6.449E-02	5.214E-03	0.212
NB-95	765.79	*		6.572E-02	4.994E-02	9.033E-02	5.821E-03	0.728
NB-95M	235.69	*		1.667E+00	2.546E-01	4.046E-01	3.419E-02	4.119
ZR-95	724.18			2.317E-01	1.114E-01	1.940E-01	1.340E-02	1.194
	756.15	*		3.664E-02	7.768E-02	1.344E-01	1.002E-02	0.273
NB-97	657.90	*		1.151E-01	7.768E-02	Half-Life	too short	
	1024.50			1.503E+00	7.768E-02	Half-Life	too short	
ZR-97	254.15			2.411E+00	7.768E-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			1.222E+00	7.768E-02	Half-Life	too short	
	507.63	*		8.371E+00	7.768E-02	Half-Life	too short	
	602.52			1.398E+00	7.768E-02	Half-Life	too short	
	1021.30			-2.845E+00	7.768E-02	Half-Life	too short	
	1147.95			7.849E-01	7.768E-02	Half-Life	too short	
	1362.66			3.112E+00	7.768E-02	Half-Life	too short	
	1750.46			-6.415E-01	7.768E-02	Half-Life	too short	
MO-99	140.51			-2.267E+01	2.984E+01	4.587E+01	1.247E+01	-0.494
	181.06			1.299E+00	2.171E+01	3.058E+01	5.344E+00	0.042
	366.43			2.654E+01	8.960E+01	1.509E+02	9.162E+00	0.176
	739.58	*		-2.325E+00	1.163E+01	1.913E+01	2.658E+00	-0.122
	778.00			-1.234E+01	3.366E+01	5.434E+01	3.600E+00	-0.227
TC-99M	140.51	*		-1.721E+10	3.366E+01	Half-Life	too short	
RH-101	127.23			5.091E-02	3.986E-02	6.767E-02	4.768E-03	0.752
	198.01	*		-8.815E-03	4.157E-02	6.489E-02	4.427E-03	-0.136
	325.23			1.822E-01	2.658E-01	4.567E-01	3.003E-02	0.399
RH-102	418.52			-2.526E-01	3.283E-01	5.119E-01	2.920E-02	-0.493
	475.06	*		1.772E-02	3.593E-02	6.057E-02	3.453E-03	0.293
	631.29			1.320E-02	6.297E-02	1.032E-01	5.370E-03	0.128
	697.49			-1.644E-02	8.454E-02	1.398E-01	7.679E-03	-0.118
	766.84			1.590E-01	1.293E-01	2.323E-01	1.501E-02	0.684
	1046.59			-1.377E-02	1.226E-01	1.987E-01	1.449E-02	-0.069
	1112.84			1.871E-02	2.920E-01	4.123E-01	2.687E-02	0.045
RU-103	497.08	*		3.425E-02	4.551E-02	7.792E-02	9.807E-03	0.440
	610.33			1.262E+01	2.474E+00	3.155E+00	4.808E-01	4.000
RH-106	511.85			1.382E+00	2.681E-01	4.874E-01	2.751E-02	2.836
	621.84	*		-1.176E-01	3.489E-01	5.457E-01	6.263E-02	-0.216
	1050.47			-9.539E-01	2.523E+00	3.975E+00	2.882E-01	-0.240
RU-106	511.85			1.382E+00	2.681E-01	4.874E-01	2.751E-02	2.836
	621.84	*		-1.176E-01	3.487E-01	5.457E-01	2.867E-02	-0.216
	1050.47			-9.539E-01	2.523E+00	3.975E+00	2.882E-01	-0.240
AG-108M	433.93	*		-2.029E-03	4.035E-02	6.604E-02	4.106E-03	-0.031
	614.37			3.359E-02	4.679E-02	7.049E-02	4.107E-03	0.477
	722.95			9.989E-03	4.841E-02	7.159E-02	4.529E-03	0.140
AG-110M	657.75	*		3.684E-02	4.996E-02	7.453E-02	4.085E-03	0.494
	677.61			-9.123E-02	3.393E-01	5.313E-01	2.988E-02	-0.172
	706.67			-9.559E-03	2.244E-01	3.749E-01	2.240E-02	-0.025
	763.93			-1.375E-01	1.935E-01	3.059E-01	2.062E-02	-0.450
	884.67			1.773E-02	5.575E-02	9.483E-02	8.154E-03	0.187
	937.48			-6.370E-02	1.227E-01	1.924E-01	1.654E-02	-0.331
	1384.27			-1.421E-02	1.670E-01	2.591E-01	2.014E-02	-0.055
IN-111	171.28			-5.161E-01	1.128E+00	1.780E+00	1.188E-01	-0.290
	245.39	*		6.676E-02	1.276E+00	1.875E+00	1.305E-01	0.036
IN-113M	391.69	*		-1.098E-02	5.318E-02	8.666E-02	5.257E-03	-0.127
SN-113	391.69	*		-1.098E-02	5.318E-02	8.666E-02	5.257E-03	-0.127
IN-114M	190.27	*		4.259E-03	2.496E-01	3.500E-01	2.373E-02	0.012
CD-115	260.90			-4.077E+01	1.387E+02	2.294E+02	1.594E+01	-0.178
	492.35			-2.366E+01	3.825E+01	5.953E+01	3.381E+00	-0.397
	527.90	*		-7.735E+00	1.130E+01	1.737E+01	9.743E-01	-0.445

---- 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			-1.020E+00	2.642E+00	4.200E+00	2.815E-01	-0.243
	158.56	*		3.353E-02	6.226E-02	1.029E-01	6.879E-03	0.326
SB-122	563.90	*		-6.339E-01	2.093E+00	3.308E+00	1.820E-01	-0.192
	692.80			2.957E+01	4.541E+01	7.963E+01	4.326E+00	0.371
I-123	159.00	*		4.480E-01	4.541E+01	Half-Life	too short	
	528.96			-1.370E+02	4.541E+01	Half-Life	too short	
TE-123M	159.00	*		3.068E-03	3.315E-02	5.377E-02	3.630E-03	0.057
I-124	602.71	*		4.208E-01	8.767E-01	1.280E+00	6.845E-02	0.329
	722.78			5.070E-01	4.807E+00	7.028E+00	4.101E-01	0.072
	1325.50			1.031E+01	3.438E+01	5.773E+01	4.308E+00	0.179
+	1376.25			6.577E+01	4.356E+01	6.422E+01	4.819E+00	1.024
	1509.49			5.437E+00	1.862E+01	3.090E+01	2.238E+00	0.176
	1691.02			-2.748E-02	3.683E+00	6.341E+00	4.174E-01	-0.004
SB-124	602.71			2.545E-02	5.303E-02	7.745E-02	4.142E-03	0.329
	645.85			-2.302E-01	5.875E-01	9.140E-01	5.442E-02	-0.252
	709.31			1.468E+00	3.125E+00	5.409E+00	3.057E-01	0.271
	713.82			1.019E+00	1.858E+00	3.230E+00	3.282E-01	0.316
	722.78			4.445E-02	4.215E-01	6.162E-01	3.764E-02	0.072
+	968.20			1.265E+01	4.566E+00	7.474E+00	6.001E-01	1.692
	1045.16			-4.552E-01	2.661E+00	4.236E+00	3.094E-01	-0.107
	1325.50			9.652E-01	3.220E+00	5.406E+00	4.034E-01	0.179
	1368.21			-1.104E+00	2.597E+00	3.286E+00	4.205E-01	-0.336
	1436.60			3.726E+00	3.567E+00	6.815E+00	5.050E-01	0.547
	1691.02	*		-5.683E-04	7.617E-02	1.311E-01	9.210E-03	-0.004
SB-125	427.89	*		-2.867E-02	1.080E-01	1.743E-01	1.039E-02	-0.164
+	463.38			9.459E-01	5.457E-01	6.203E-01	4.147E-02	1.525
	600.56			-8.600E-02	2.218E-01	3.376E-01	2.137E-02	-0.255
	635.90			-8.434E-02	3.127E-01	4.920E-01	3.086E-02	-0.171
TE-125M	109.28	*		-1.999E+00	1.071E+01	1.737E+01	1.726E+00	-0.115
I-126	388.63			1.102E-02	2.389E-01	3.952E-01	2.261E-02	0.028
	666.33	*		6.308E-02	2.329E-01	3.324E-01	1.692E-02	0.190
	753.82			7.742E-01	1.611E+00	2.788E+00	1.748E-01	0.278
SB-126	223.80			4.841E-01	4.987E+00	7.992E+00	5.537E-01	0.061
	278.60			1.629E+00	2.931E+00	5.022E+00	3.465E-01	0.324
	296.50			1.108E+01	2.105E+00	3.917E+00	2.667E-01	2.828
	414.70			6.011E-02	8.481E-02	1.456E-01	8.298E-03	0.413
	415.30			4.990E+00	7.100E+00	1.218E+01	6.944E-01	0.410
	555.20			-2.117E+00	4.606E+00	7.207E+00	3.986E-01	-0.294
	573.80			-1.210E+00	1.205E+00	1.795E+00	9.811E-02	-0.674
	593.00			-6.518E-01	1.074E+00	1.652E+00	8.902E-02	-0.395
	656.30			4.486E-01	4.209E+00	5.904E+00	2.990E-01	0.076
	666.33			2.634E-02	9.725E-02	1.388E-01	7.065E-03	0.190
	675.00			6.231E-01	2.087E+00	3.440E+00	1.789E-01	0.181
	695.00			1.030E-01	8.184E-02	1.493E-01	8.155E-03	0.690
	697.00			3.025E-02	2.924E-01	4.940E-01	2.711E-02	0.061
	720.50	*		-6.856E-02	1.732E-01	2.383E-01	1.383E-02	-0.288
	856.80			5.873E-01	5.900E-01	9.394E-01	7.373E-02	0.625
	989.30			-4.013E-01	1.286E+00	2.045E+00	1.605E-01	-0.196
	1034.80			3.108E+00	9.508E+00	1.609E+01	1.193E+00	0.193

---- 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			2.162E+00	5.583E+00	9.294E+00	5.705E-01	0.233
	61.10			1.058E+02	1.121E+02	1.699E+02	2.372E+01	0.623
	252.40			4.833E+00	5.392E+00	8.750E+00	3.649E+00	0.552
	290.80			-1.920E+01	2.847E+01	3.936E+01	3.843E+00	-0.488
	411.60			-1.178E-01	1.389E+01	2.286E+01	3.263E+00	-0.005
	444.90			6.702E+00	1.147E+01	1.946E+01	2.075E+00	0.344
	473.00			-2.480E-01	1.990E+00	3.228E+00	3.566E-01	-0.077
	543.00			1.658E+01	1.774E+01	3.064E+01	3.902E+00	0.541
	603.60			8.272E+00	1.514E+01	2.222E+01	2.320E+00	0.372
	685.20	*		4.518E-01	1.341E+00	2.310E+00	2.092E-01	0.196
	698.50			-3.918E+00	1.586E+01	2.609E+01	3.732E+00	-0.150
	722.20			-7.257E+00	3.287E+01	4.618E+01	4.195E+00	-0.157
	783.80			1.330E+00	3.784E+00	6.475E+00	7.186E-01	0.205
	57.60			6.485E+00	1.328E+01	2.089E+01	2.661E+00	0.310
XE-127	145.22			6.885E-01	8.304E-01	1.387E+00	9.410E-02	0.496
	172.10			-3.923E-02	1.437E-01	2.287E-01	1.527E-02	-0.172
	202.84	*		-4.243E-02	6.825E-02	8.992E-02	6.156E-03	-0.472
	374.96			-5.169E-02	2.287E-01	3.729E-01	2.216E-02	-0.139
I-131	80.18			-4.612E+00	6.836E+00	9.547E+00	1.069E+00	-0.483
	284.30			-9.073E-01	1.761E+00	2.870E+00	2.132E-01	-0.316
	364.48	*		-1.981E-02	1.299E-01	2.130E-01	1.436E-02	-0.093
	636.97			-3.043E-01	1.724E+00	2.735E+00	1.624E-01	-0.111
TE-132	722.89			1.359E+00	7.952E+00	1.171E+01	6.928E-01	0.116
	49.72			-2.695E+01	5.650E+01	9.222E+01	1.379E+01	-0.292
	111.76			-6.821E-01	3.386E+01	5.486E+01	5.619E+00	-0.012
	116.30			-2.999E+00	3.115E+01	5.064E+01	5.047E+00	-0.059
BA-133	228.16	*		-4.484E-01	7.487E-01	1.225E+00	1.814E-01	-0.366
	53.15			-3.863E+00	9.293E+00	1.520E+01	2.084E+00	-0.254
	79.62			-7.227E-01	1.969E+00	2.796E+00	4.692E-01	-0.258
	81.00			-1.266E-01	1.613E-01	2.059E-01	3.584E-02	-0.615
I-133	276.40			4.584E-01	4.896E-01	7.798E-01	1.052E-01	0.588
	302.84			3.771E-02	1.784E-01	2.627E-01	3.196E-02	0.144
	356.01	*		-1.127E-02	5.757E-02	8.139E-02	9.584E-03	-0.138
	383.85			-1.573E-01	3.640E-01	5.853E-01	6.363E-02	-0.269
	510.53	+		8.066E-01	3.640E-01	Half-Life	too short	
	529.87	*		2.266E-03	3.640E-01	Half-Life	too short	
	706.58			-2.064E-02	3.640E-01	Half-Life	too short	
	856.28			2.977E-01	3.640E-01	Half-Life	too short	
	875.33			8.143E-02	3.640E-01	Half-Life	too short	
	1236.41			6.752E-01	3.640E-01	Half-Life	too short	
	1298.22			2.592E-01	3.640E-01	Half-Life	too short	
	475.35			1.210E+00	2.352E+00	3.970E+00	2.263E-01	0.305
CS-134	563.23			-4.538E-02	3.829E-01	6.145E-01	3.461E-02	-0.074
	569.32			1.679E-01	2.181E-01	3.737E-01	2.117E-02	0.449
	604.70			6.370E-02	4.379E-02	6.981E-02	3.750E-03	0.912
	795.84	+	*	7.644E-02	6.866E-02	9.233E-02	6.434E-03	0.828
	801.93			-3.503E-01	4.879E-01	7.284E-01	5.130E-02	-0.481
	1038.57			-3.464E+00	4.440E+00	6.710E+00	4.948E-01	-0.516
	1167.94			1.618E+00	2.762E+00	4.744E+00	2.738E-01	0.341

## ----- 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		5.528E-01	1.505E+00	2.486E+00	1.980E-01	0.222	
		268.24	*	3.628E-01	2.210E-01	3.510E-01	3.001E-02	1.034	
		288.45		5.027E+09	2.210E-01	Half-Life	too short		
		417.63		-3.251E+09	2.210E-01	Half-Life	too short		
		546.56		6.730E+08	2.210E-01	Half-Life	too short		
	+	836.80		1.361E+10	2.210E-01	Half-Life	too short		
		1038.76		-7.763E+09	2.210E-01	Half-Life	too short		
		1124.00		-7.615E+09	2.210E-01	Half-Life	too short		
		1131.51		-4.974E+08	2.210E-01	Half-Life	too short		
		1260.41	*	1.213E+09	2.210E-01	Half-Life	too short		
		1457.56		4.511E+11	2.210E-01	Half-Life	too short		
		1678.03		9.327E+08	2.210E-01	Half-Life	too short		
		1706.46		-1.157E+10	2.210E-01	Half-Life	too short		
CS-136		1791.20		2.218E+09	2.210E-01	Half-Life	too short		
		66.91		-1.023E-01	1.475E+00	1.987E+00	3.417E-01	-0.051	
	+	86.29		5.096E+00	1.805E+00	2.613E+00	3.893E-01	1.950	
		153.22		-3.278E-01	7.822E-01	1.243E+00	9.919E-02	-0.264	
		163.89		1.114E-01	1.261E+00	2.043E+00	1.625E-01	0.055	
		176.55		-1.313E-02	4.466E-01	7.180E-01	5.264E-02	-0.018	
		273.65		-4.521E-01	6.198E-01	8.592E-01	6.542E-02	-0.526	
		340.57		2.805E-01	1.593E-01	2.575E-01	1.737E-02	1.089	
		818.51		8.974E-02	7.858E-02	1.428E-01	1.035E-02	0.628	
		1048.07	*	-8.430E-02	1.150E-01	1.738E-01	1.339E-02	-0.485	
		1235.34		1.003E+00	7.268E-01	1.171E+00	1.211E-01	0.856	
	CE-139		165.85	*	3.211E-03	3.509E-02	5.683E-02	3.780E-03	0.056
	BA-140		162.64		8.864E-01	8.674E-01	1.457E+00	1.064E-01	0.608
LA-140		304.84		-1.259E+00	1.705E+00	2.281E+00	6.274E-01	-0.552	
		423.70		5.596E-01	2.078E+00	3.464E+00	1.100E+00	0.162	
		537.32	*	-2.729E-01	2.850E-01	4.023E-01	1.307E-01	-0.678	
		328.77		7.189E-01	3.585E-01	6.455E-01	4.626E-02	1.114	
		432.53		-8.105E-01	2.489E+00	4.003E+00	2.533E-01	-0.202	
		487.03		7.088E-02	1.528E-01	2.577E-01	1.666E-02	0.275	
		751.79		9.181E-01	1.783E+00	3.100E+00	2.313E-01	0.296	
		815.85		1.560E-01	3.499E-01	6.034E-01	5.044E-02	0.259	
		867.82		-4.946E-01	1.474E+00	2.366E+00	2.015E-01	-0.209	
		919.63		-2.235E-01	3.080E+00	4.672E+00	4.889E-01	-0.048	
		925.24		1.208E-01	1.141E+00	1.904E+00	1.697E-01	0.063	
	CE-141		1596.49	*	-2.195E-02	9.110E-02	1.456E-01	1.015E-02	-0.151
	CE-143		145.44	*	4.594E-02	7.499E-02	1.244E-01	8.680E-03	0.369
CE-143		57.37		2.264E-04	7.499E-02	Half-Life	too short		
		231.56		1.819E-03	7.499E-02	Half-Life	too short		
	+	293.26	*	1.145E-03	7.499E-02	Half-Life	too short		
	+	350.59		2.571E-02	7.499E-02	Half-Life	too short		
		490.36		1.823E-04	7.499E-02	Half-Life	too short		
		664.57		7.544E-04	7.499E-02	Half-Life	too short		
		721.93		-6.026E-04	7.499E-02	Half-Life	too short		
CE-144		80.11		-2.171E+00	3.218E+00	4.495E+00	5.015E-01	-0.483	
	133.54	*	-7.244E-02	2.508E-01	4.025E-01	5.916E-02	-0.180		
PM-144		476.78		1.232E-02	8.190E-02	1.352E-01	9.271E-03	0.091	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-9.891E-03	3.363E-02	5.281E-02	2.986E-03	-0.187
		696.49	*	1.129E-02	3.908E-02	6.685E-02	3.667E-03	0.169
		778.57		-6.105E-01	2.460E+00	4.015E+00	2.664E-01	-0.152
PR-144		696.49	*	7.653E-01	2.648E+00	4.530E+00	2.483E-01	0.169
		1489.15		-6.554E+00	1.141E+01	1.712E+01	1.249E+00	-0.383
PM-146		453.90	*	5.152E-02	5.220E-02	9.053E-02	7.753E-03	0.569
		633.02		-3.833E-01	1.645E+00	2.589E+00	9.510E-01	-0.148
		735.90		-1.220E-01	1.680E-01	2.587E-01	7.225E-02	-0.472
		747.13		-3.919E-02	9.231E-02	1.483E-01	1.881E-02	-0.264
ND-147	+	91.11		1.470E+00	5.097E-01	6.882E-01	7.828E-02	2.136
		319.41		-3.348E+00	3.646E+00	5.739E+00	3.807E-01	-0.583
		439.89		-6.767E-01	7.084E+00	1.155E+01	6.606E-01	-0.059
		531.02	*	6.170E-01	6.078E-01	1.055E+00	1.418E-01	0.585
PM-149		285.90	*	9.929E+00	1.027E+02	1.724E+02	2.525E+01	0.058
EU-152		121.78		6.013E-03	8.701E-02	1.422E-01	1.240E-02	0.042
		244.69		1.964E-01	4.030E-01	6.092E-01	4.241E-02	0.322
		344.27	*	1.586E-02	1.341E-01	1.842E-01	1.298E-02	0.086
		443.98		1.453E-01	1.186E+00	1.960E+00	1.120E-01	0.074
		778.89		-4.117E-02	2.806E-01	4.620E-01	3.066E-02	-0.089
		867.32		-7.977E-03	8.897E-01	1.441E+00	1.156E-01	-0.006
	+	964.01		6.043E-01	4.048E-01	6.153E-01	4.962E-02	0.982
		1085.78		-4.264E-01	3.976E-01	5.662E-01	3.879E-02	-0.753
		1112.02		2.324E-01	4.046E-01	6.108E-01	3.988E-02	0.380
		1407.95		6.188E-02	1.981E-01	3.437E-01	2.564E-02	0.180
GD-153		69.67		-7.926E-01	2.772E+00	3.969E+00	4.481E-01	-0.200
		83.37		9.878E-01	2.354E+01	3.162E+01	3.567E+00	0.031
		97.43	*	1.350E-01	1.052E-01	1.607E-01	1.542E-02	0.840
		103.18		8.573E-02	1.214E-01	2.041E-01	1.796E-02	0.420
EU-154		123.07		-1.832E-02	6.232E-02	1.003E-01	1.032E-02	-0.183
		247.94		-7.343E-02	4.356E-01	7.075E-01	7.280E-02	-0.104
		591.81		-2.687E-01	7.005E-01	1.096E+00	1.046E-01	-0.245
		723.30		2.000E-01	1.935E-01	3.126E-01	2.224E-02	0.640
		756.87		5.422E-01	8.447E-01	1.478E+00	1.543E-01	0.367
		873.19		1.153E-01	3.429E-01	5.840E-01	6.947E-02	0.197
		996.32		-3.266E-01	4.022E-01	6.005E-01	1.043E-01	-0.544
		1004.76		-1.591E-01	2.493E-01	3.845E-01	4.222E-02	-0.414
		1274.45	*	3.417E-02	1.443E-01	2.392E-01	2.399E-02	0.143
EU-155		48.70		-5.115E+00	7.852E+00	1.272E+01	1.636E+00	-0.402
		60.01		-1.195E+00	1.048E+01	1.520E+01	1.858E+00	-0.079
	+	86.54		4.767E-01	1.627E-01	2.430E-01	2.802E-02	1.962
		105.31	*	4.153E-02	1.240E-01	2.057E-01	1.781E-02	0.202
TB-160	+	86.79		1.270E+00	4.334E-01	6.463E-01	7.421E-02	1.966
		197.04		-3.621E-01	7.114E-01	1.096E+00	7.468E-02	-0.331
		215.65		1.845E-01	9.494E-01	1.530E+00	1.056E-01	0.121
	+	298.57		4.107E-01	1.645E-01	2.462E-01	1.673E-02	1.668
		879.36	*	-1.057E-01	1.521E-01	2.350E-01	1.932E-02	-0.450
	+	962.29		1.113E+00	7.456E-01	1.098E+00	8.866E-02	1.014
		966.15		1.271E+00	3.024E-01	5.874E-01	4.727E-02	2.163
		1177.93		-8.263E-02	3.775E-01	6.004E-01	3.451E-02	-0.138

---- 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		-1.695E-04	8.017E-01	1.298E+00	8.853E-02	0.000
		80.57		-3.525E-01	4.459E-01	5.724E-01	6.393E-02	-0.616
	+	184.41		1.554E-01	7.064E-02	8.246E-02	5.564E-03	1.885
		280.46		-6.620E-02	1.027E-01	1.665E-01	1.147E-02	-0.398
		410.95		-5.349E-02	2.937E-01	4.783E-01	2.725E-02	-0.112
		711.68	*	4.856E-02	7.277E-02	1.273E-01	7.237E-03	0.381
TM-171		752.31		4.544E-02	2.961E-01	5.007E-01	3.129E-02	0.091
		810.29		-4.175E-02	6.906E-02	1.091E-01	7.759E-03	-0.383
		51.35		8.650E+01	8.515E+01	1.460E+02	2.016E+01	0.593
		52.39		8.555E+00	4.190E+01	7.029E+01	9.697E+00	0.122
		59.40		3.966E+00	5.655E+01	8.288E+01	1.020E+01	0.048
		66.72	*	-4.709E+00	5.458E+01	7.343E+01	8.444E+00	-0.064
LU-176	+	88.36		3.998E-01	2.483E-01	4.658E-01	5.344E-02	0.858
		201.83		-1.553E-02	3.671E-02	5.550E-02	3.797E-03	-0.280
		306.84	*	6.186E-03	2.861E-02	4.822E-02	3.248E-03	0.128
		401.10		5.402E+00	8.437E+00	1.398E+01	7.948E-01	0.386
LU-177		112.95		1.282E+00	1.916E+00	3.181E+00	2.490E-01	0.403
	+	208.36	*	2.361E+00	1.960E+00	2.334E+00	1.604E-01	1.011
LU-177M		52.97		-6.806E-01	4.178E+00	6.911E+00	9.492E-01	-0.098
		54.07		-1.082E+00	2.082E+00	3.386E+00	4.590E-01	-0.320
	+	61.30		1.849E+00	2.463E+00	4.614E+00	5.570E-01	0.401
		121.62		1.395E-02	4.451E-01	7.264E-01	5.234E-02	0.019
		147.16		-4.854E-01	7.902E-01	1.247E+00	8.439E-02	-0.389
		171.86		-2.611E-01	5.793E-01	9.145E-01	6.106E-02	-0.286
		218.09		-1.470E-01	1.102E+00	1.749E+00	1.209E-01	-0.084
	+	268.79		2.798E+00	1.378E+00	1.787E+00	1.239E-01	1.566
		319.02		-3.068E-01	2.864E-01	4.459E-01	2.958E-02	-0.688
		367.43		2.263E-01	1.023E+00	1.715E+00	1.039E-01	0.132
		413.65	*	-5.632E-02	2.089E-01	3.380E-01	1.926E-02	-0.167
		56.28		-1.213E+00	2.092E+00	3.392E+00	4.430E-01	-0.358
HF-181		57.53		3.090E-01	1.085E+00	1.763E+00	2.248E-01	0.175
		65.20		-5.334E-02	1.715E+00	2.480E+00	2.887E-01	-0.022
		133.02		-4.533E-02	8.101E-02	1.287E-01	8.925E-03	-0.352
		136.25		-6.782E-02	5.498E-01	8.884E-01	6.117E-02	-0.076
		345.85		1.243E-01	2.432E-01	3.647E-01	2.315E-02	0.341
		482.03	*	-2.196E-02	4.937E-02	7.808E-02	4.445E-03	-0.281
W-181		56.28		-4.767E-01	8.211E-01	1.331E+00	1.738E-01	-0.358
		57.53		1.213E-01	4.262E-01	6.926E-01	8.833E-02	0.175
		65.20	*	-2.079E-02	6.682E-01	9.666E-01	1.125E-01	-0.022
TA-182		67.75		-7.467E-02	2.089E-01	2.771E-01	3.163E-02	-0.269
		100.10		-7.375E-02	2.152E-01	3.479E-01	3.199E-02	-0.212
		152.43		1.903E-01	4.053E-01	6.679E-01	4.492E-02	0.285
		222.10		-1.787E-01	4.516E-01	7.075E-01	4.898E-02	-0.253
		1001.68		2.623E-01	2.412E+00	4.031E+00	3.118E-01	0.065
	+	1121.28		6.978E-01	2.393E-01	3.724E-01	2.387E-02	1.874
RE-183		1189.05		-3.587E-01	3.374E-01	4.877E-01	2.863E-02	-0.736
		1221.42	*	-2.268E-01	2.236E-01	3.272E-01	2.040E-02	-0.693
		1230.97		-2.912E-01	5.839E-01	8.202E-01	5.203E-02	-0.355
		57.98		2.653E-01	4.304E-01	6.803E-01	8.601E-02	0.390



---- 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		2.347E-02	2.330E-01	3.420E-01	4.216E-02	0.069
		67.20		-7.898E-02	3.795E-01	5.081E-01	5.823E-02	-0.155
		162.32	*	7.125E-02	1.290E-01	2.130E-01	1.420E-02	0.334
	+	208.81		2.174E+00	1.806E+00	2.122E+00	1.459E-01	1.025
		291.72		9.939E-01	1.349E+00	2.048E+00	1.400E-01	0.485
		57.98		9.790E-01	1.588E+00	2.510E+00	3.174E-01	0.390
		59.32		8.653E-02	8.592E-01	1.261E+00	1.554E-01	0.069
		67.20		-2.914E-01	1.400E+00	1.875E+00	2.148E-01	-0.155
		161.27		4.394E-02	4.206E-01	6.822E-01	4.551E-02	0.064
		216.55		1.358E-01	3.408E-01	5.539E-01	3.824E-02	0.245
		252.85	*	3.071E-01	2.754E-01	4.838E-01	3.368E-02	0.635
		318.01		-5.295E-01	5.002E-01	7.800E-01	5.182E-02	-0.679
		792.07		6.752E-01	1.330E+00	2.011E+00	1.374E-01	0.336
		903.28		2.523E-01	1.278E+00	1.863E+00	1.584E-01	0.135
OS-185		920.93		-1.316E-01	4.694E-01	7.533E-01	6.318E-02	-0.175
		59.72		-1.947E-01	6.300E-01	9.040E-01	1.108E-01	-0.215
	+	61.14		2.021E-01	2.692E-01	5.058E-01	6.116E-02	0.400
		69.30		-2.771E-02	4.948E-01	7.173E-01	8.113E-02	-0.039
		592.07		-1.690E+00	2.932E+00	4.519E+00	2.437E-01	-0.374
		646.12	*	-3.182E-02	5.042E-02	7.680E-02	3.935E-03	-0.414
		717.42		-1.099E+00	9.961E-01	1.520E+00	8.756E-02	-0.724
		874.81		5.331E-01	6.334E-01	1.125E+00	9.164E-02	0.474
		880.27		-4.026E-02	8.123E-01	1.339E+00	1.103E-01	-0.030
		155.03	*	8.074E-02	1.988E-01	3.269E-01	2.192E-02	0.247
RE-188		477.96		1.462E+00	3.701E+00	6.204E+00	3.534E-01	0.236
		633.10		-8.316E-01	3.299E+00	5.204E+00	2.704E-01	-0.160
		63.58		6.949E+01	9.258E+01	1.522E+02	1.797E+01	0.457
W-188	+	227.08		5.395E-01	1.460E+01	2.465E+01	1.710E+00	0.022
IR-192		290.67	*	-7.061E+00	1.029E+01	1.422E+01	9.733E-01	-0.496
	+	295.96		1.042E+00	2.060E-01	3.200E-01	2.205E-02	3.256
		308.46		-4.785E-02	1.139E-01	1.856E-01	1.259E-02	-0.258
AU-195		316.51	*	-9.025E-03	3.891E-02	6.395E-02	4.274E-03	-0.141
		468.07		-3.858E-02	8.895E-02	1.204E-01	7.952E-03	-0.320
		604.41		8.280E-01	5.943E-01	9.354E-01	1.040E-01	0.885
		612.46		1.032E+00	9.341E-01	1.442E+00	1.038E-01	0.716
		65.12		-8.929E-03	3.104E-01	4.491E-01	5.231E-02	-0.020
		66.83		-1.374E-02	1.799E-01	2.421E-01	2.781E-02	-0.057
	+	75.70		1.936E+00	4.055E-01	6.348E-01	7.048E-02	3.049
		98.88	*	2.895E-01	2.763E-01	4.551E-01	4.266E-02	0.636
		129.76		4.212E+00	3.571E+00	6.038E+00	4.223E-01	0.697
		367.94	*	-6.206E-05	3.571E+00	Half-Life	too short	
TL-200		579.30		1.188E-02	3.571E+00	Half-Life	too short	
		828.27		2.737E-03	3.571E+00	Half-Life	too short	
		1205.75		7.478E-04	3.571E+00	Half-Life	too short	
TL-201		68.90		5.343E-01	7.662E+00	1.118E+01	1.267E+00	0.048
		70.82		1.595E-01	4.218E+00	6.138E+00	6.892E-01	0.026
		80.30		-4.838E+00	7.170E+00	1.001E+01	1.118E+00	-0.483
		135.34		-5.794E+00	2.887E+01	4.651E+01	3.209E+00	-0.125
		167.43	*	-4.919E+00	7.958E+00	1.248E+01	8.305E-01	-0.394

## ---- 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		5.023E-02	7.203E-01	1.051E+00	1.191E-01	0.048
		70.82		1.496E-02	3.954E-01	5.754E-01	6.461E-02	0.026
		80.30		-4.537E-01	6.724E-01	9.391E-01	1.048E-01	-0.483
		439.56	*	1.101E-02	8.358E-02	1.383E-01	7.901E-03	0.080
HG-203		70.83		7.245E-02	1.732E+00	2.521E+00	3.880E-01	0.029
	+	72.87		4.270E+00	1.542E+00	1.707E+00	2.556E-01	2.502
		82.60		5.065E-01	1.937E+00	2.398E+00	3.723E-01	0.211
		279.20	*	-1.490E-03	4.938E-02	8.251E-02	5.942E-03	-0.018
BI-207		72.80		9.372E-01	2.943E-01	4.997E-01	5.573E-02	1.875
	+	74.97		7.443E-01	2.583E-01	3.517E-01	3.907E-02	2.116
		84.90		6.653E-01	2.983E-01	4.574E-01	5.198E-02	1.454
		569.67		2.587E-02	3.419E-02	5.851E-02	3.207E-03	0.442
		1063.62	*	5.487E-02	6.053E-02	1.071E-01	7.607E-03	0.512
		1770.23		1.533E-01	5.958E-01	8.934E-01	5.533E-02	0.172
TL-207		81.07		-1.271E-01	3.822E-01	4.552E-01	5.092E-02	-0.279
		83.78		1.685E-02	1.872E-01	2.697E-01	3.048E-02	0.062
		94.90		6.130E-02	3.114E-01	4.527E-01	4.539E-02	0.135
		122.32		3.779E-02	2.075E+00	3.383E+00	2.679E-01	0.011
		144.24		1.201E+00	8.340E-01	1.397E+00	1.125E-01	0.860
		154.21		-2.385E-01	4.735E-01	7.492E-01	5.832E-02	-0.318
	+	269.46		6.557E-01	3.231E-01	4.239E-01	3.032E-02	1.547
		323.87	*	-8.239E-01	8.000E-01	1.238E+00	2.081E-01	-0.665
	+	338.28		7.087E+00	1.911E+00	2.728E+00	2.973E-01	2.598
		445.03		1.636E+00	2.800E+00	4.748E+00	4.854E-01	0.344
PO-209		260.50		-7.844E-01	1.101E+01	1.841E+01	1.280E+00	-0.043
		262.80		8.836E+00	3.264E+01	5.250E+01	3.647E+00	0.168
		896.60	*	-5.013E+00	8.296E+00	1.294E+01	1.101E+00	-0.387
BI-210		46.50	*	-2.659E-01	1.324E+01	2.152E+01	2.236E+00	-0.012
PB-210		46.50	*	-2.659E-01	1.324E+01	2.152E+01	2.236E+00	-0.012
PO-210		46.50	*	-2.659E-01	1.324E+01	2.152E+01	2.067E+00	-0.012
PB-211		404.84	*	-2.923E-01	1.182E+00	1.897E+00	1.182E+00	-0.154
		427.08		-1.139E+00	2.543E+00	3.895E+00	2.407E+00	-0.292
		831.96		-4.692E-01	1.573E+00	2.126E+00	1.329E+00	-0.221
PO-215		81.07		-1.271E-01	3.822E-01	4.552E-01	5.092E-02	-0.279
		83.78		1.685E-02	1.872E-01	2.697E-01	3.048E-02	0.062
		94.90		6.130E-02	3.114E-01	4.527E-01	4.539E-02	0.135
		122.32		3.779E-02	2.075E+00	3.383E+00	2.679E-01	0.011
		144.24		1.201E+00	8.340E-01	1.397E+00	1.125E-01	0.860
		154.21		-2.385E-01	4.735E-01	7.492E-01	5.832E-02	-0.318
	+	269.46		6.557E-01	3.231E-01	4.239E-01	3.032E-02	1.547
		323.87	*	-8.239E-01	8.000E-01	1.238E+00	2.081E-01	-0.665
	+	338.28		7.087E+00	1.911E+00	2.728E+00	2.973E-01	2.598
		445.03		1.636E+00	2.800E+00	4.748E+00	4.854E-01	0.344
RN-219	+	271.23		8.413E-01	4.170E-01	5.437E-01	4.864E-02	1.547
		401.81	*	5.142E-01	5.063E-01	8.741E-01	1.185E-01	0.588
RN-220		549.76	*	-2.421E+00	3.114E+01	5.024E+01	2.787E+00	-0.048
RA-223		81.07		-1.271E-01	3.822E-01	4.552E-01	5.092E-02	-0.279
		83.78		1.685E-02	1.872E-01	2.697E-01	3.048E-02	0.062
		94.90		6.130E-02	3.114E-01	4.527E-01	4.539E-02	0.135

---- 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		3.779E-02	2.075E+00	3.383E+00	2.679E-01	0.011
		144.24		1.201E+00	8.340E-01	1.397E+00	1.125E-01	0.860
		154.21		-2.385E-01	4.735E-01	7.492E-01	5.832E-02	-0.318
	+	269.46		6.557E-01	3.231E-01	4.239E-01	3.032E-02	1.547
		323.87	*	-8.239E-01	8.000E-01	1.238E+00	2.081E-01	-0.665
	+	338.28		7.087E+00	1.911E+00	2.728E+00	2.973E-01	2.598
		445.03		1.636E+00	2.800E+00	4.748E+00	4.854E-01	0.344
		79.80		-1.100E+00	2.495E+00	3.517E+00	7.961E-01	-0.313
		236.00		4.399E+00	6.529E-01	8.531E-01	9.498E-02	5.157
		256.20	*	-1.027E-01	4.527E-01	7.518E-01	1.089E-01	-0.137
		286.10		5.097E-01	1.849E+00	3.130E+00	3.797E-01	0.163
	+	299.80		5.244E+00	2.247E+00	3.100E+00	5.165E-01	1.692
TH-227		304.40		-5.598E-01	2.409E+00	3.426E+00	6.043E-01	-0.163
		334.20		-2.336E+00	3.068E+00	4.113E+00	7.634E-01	-0.568
		79.80		-1.100E+00	2.495E+00	3.517E+00	8.053E-01	-0.313
		94.00		8.206E+00	3.241E+00	4.376E+00	9.823E-01	1.875
		236.00		4.399E+00	6.112E-01	8.531E-01	8.391E-02	5.157
		256.20	*	-1.027E-01	4.528E-01	7.518E-01	1.303E-01	-0.137
		286.10		5.097E-01	1.918E+00	3.130E+00	3.137E+00	0.163
	+	299.80		5.244E+00	2.247E+00	3.100E+00	5.165E-01	1.692
		304.40		-5.598E-01	2.409E+00	3.426E+00	6.043E-01	-0.163
		334.20		-2.336E+00	3.068E+00	4.113E+00	7.634E-01	-0.568
	+	85.43		8.876E-01	3.028E-01	4.617E-01	5.261E-02	1.923
	+	88.47		2.301E-01	1.429E-01	2.648E-01	3.030E-02	0.869
PA-231		100.00		-2.920E-02	2.229E-01	3.634E-01	3.348E-02	-0.080
		193.63	*	2.002E-01	6.350E-01	1.017E+00	6.912E-02	0.197
		210.97		6.599E-01	1.104E+00	1.592E+00	1.096E-01	0.415
		283.67	*	-8.040E-01	1.858E+00	3.037E+00	4.333E-01	-0.265
		301.29		1.140E+00	7.589E-01	1.197E+00	1.320E-01	0.952
		81.07		-1.271E-01	3.822E-01	4.552E-01	5.092E-02	-0.279
		83.78		1.685E-02	1.872E-01	2.697E-01	3.048E-02	0.062
		94.90		6.130E-02	3.114E-01	4.527E-01	4.539E-02	0.135
		122.32		3.779E-02	2.075E+00	3.383E+00	2.679E-01	0.011
		144.24		1.201E+00	8.340E-01	1.397E+00	1.125E-01	0.860
		154.21		-2.385E-01	4.735E-01	7.492E-01	5.832E-02	-0.318
	+	269.46		6.557E-01	3.231E-01	4.239E-01	3.032E-02	1.547
U-231		323.87	*	-8.239E-01	8.000E-01	1.238E+00	2.081E-01	-0.665
	+	338.28		7.087E+00	1.911E+00	2.728E+00	2.973E-01	2.598
		445.03		1.636E+00	2.800E+00	4.748E+00	4.854E-01	0.344
		84.21		4.215E+00	7.808E+00	1.146E+01	1.298E+00	0.368
	+	92.29		1.086E+01	3.746E+00	4.839E+00	5.100E-01	2.244
		95.87	*	-3.288E-01	1.377E+00	1.956E+00	1.927E-01	-0.168
		108.00		-2.518E+00	2.310E+00	3.595E+00	2.974E-01	-0.700
	+	75.28		2.172E+01	8.027E+00	1.039E+01	1.752E+00	2.091
	+	86.59		7.749E+00	3.296E+00	3.948E+00	1.100E+00	1.963
	+	300.12		1.462E+00	6.118E-01	8.682E-01	1.206E-01	1.684
		311.98	*	2.627E-02	7.592E-02	1.287E-01	9.019E-03	0.204
		340.50		1.550E+00	8.639E-01	1.293E+00	2.991E-01	1.199
		398.62		-2.378E+00	2.740E+00	4.041E+00	1.044E+00	-0.589

----- 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		1.445E+00	1.890E+00	3.220E+00	6.620E-01	0.449
		63.00		2.021E+00	2.704E+00	4.513E+00	7.907E-01	0.448
		94.67		1.650E-01	2.276E-01	3.379E-01	4.544E-02	0.488
		98.44		1.734E-01	1.512E-01	1.886E-01	1.054E-01	0.920
		99.86		3.531E-02	5.620E-01	9.235E-01	8.525E-02	0.038
		111.00		8.498E-02	2.178E-01	3.611E-01	4.206E-02	0.235
		131.20		-2.605E-02	1.332E-01	2.150E-01	1.498E-02	-0.121
		152.70		7.957E-02	3.901E-01	6.361E-01	1.029E-01	0.125
		186.00		5.596E+00	3.047E+00	3.008E+00	9.250E-01	1.860
		226.40		9.720E-03	4.664E-01	7.873E-01	9.581E-02	0.012
		227.20		-1.134E-02	4.930E-01	8.305E-01	5.761E-02	-0.014
		248.90		-4.745E-01	9.748E-01	1.593E+00	3.478E-01	-0.298
		293.70		6.576E+00	1.630E+00	2.034E+00	3.352E-01	3.233
		369.80		-2.551E-01	9.727E-01	1.581E+00	3.301E-01	-0.161
		568.70		6.492E-01	1.096E+00	1.856E+00	1.018E-01	0.350
		569.50		2.113E-01	3.038E-01	5.177E-01	2.838E-02	0.408
		574.00		-1.851E+00	1.749E+00	2.593E+00	1.417E-01	-0.714
		699.00		-1.416E-01	7.607E-01	1.257E+00	2.249E-01	-0.113
		706.10		-3.660E-01	1.140E+00	1.845E+00	8.138E-01	-0.198
		733.00		1.874E-01	4.505E-01	6.794E-01	1.448E-01	0.276
		742.81		6.775E-01	1.445E+00	2.388E+00	1.599E+00	0.284
		796.30		3.414E-01	1.175E+00	1.736E+00	4.609E-01	0.197
		805.60		1.036E+00	1.228E+00	2.104E+00	6.364E-01	0.492
		819.60		1.140E+00	1.356E+00	2.304E+00	8.696E-01	0.495
		826.30		1.150E-01	8.989E-01	1.403E+00	6.247E-01	0.082
		831.60		-2.305E-01	7.639E-01	1.045E+00	3.084E-01	-0.221
		876.40		-4.564E-02	9.295E-01	1.531E+00	1.573E+00	-0.030
		880.51		-1.056E-01	3.042E-01	4.872E-01	4.015E-02	-0.217
		883.24		-1.045E-01	3.296E-01	5.177E-01	3.478E-01	-0.202
		899.00		-2.223E-01	9.431E-01	1.519E+00	6.636E-01	-0.146
		925.00		-2.029E-02	1.187E+00	1.957E+00	1.635E-01	-0.010
		926.50		9.303E-02	1.752E-01	3.021E-01	7.609E-02	0.308
		946.00	*	-2.205E-01	3.282E-01	5.013E-01	9.312E-02	-0.440
		949.00		3.387E-01	4.840E-01	8.480E-01	6.939E-02	0.399
		980.50		-1.672E-01	8.424E-01	1.361E+00	1.078E-01	-0.123
		1394.10		-1.542E-02	1.183E+00	1.975E+00	1.283E+00	-0.008
PA-234M	+	766.42		1.451E+01	1.549E+01	2.435E+01	1.228E+01	0.596
		1001.03	*	3.560E-01	5.418E+00	9.026E+00	8.319E-01	0.039
U-235	+	89.95		2.310E+00	1.589E+00	2.524E+00	7.983E-01	0.915
		93.35		3.571E+00	1.557E+00	1.505E+00	4.304E-01	2.372
		105.00		7.212E-01	1.235E+00	2.038E+00	6.079E-01	0.354
		143.76	*	3.299E-01	2.612E-01	4.283E-01	7.146E-02	0.770
		163.35		2.256E-01	5.620E-01	9.200E-01	1.682E-01	0.245
		185.71		2.073E-01	9.418E-02	1.113E-01	7.521E-03	1.861
NP-236	+	205.31		3.103E-01	7.284E-01	1.022E+00	1.876E-01	0.304
		94.67		1.271E-01	1.723E-01	2.565E-01	2.583E-02	0.496
		98.44		1.311E-01	8.855E-02	1.425E-01	1.345E-02	0.920
		111.00		6.428E-02	1.647E-01	2.731E-01	2.183E-02	0.235
		160.31	*	-9.005E-02	9.579E-02	1.482E-01	9.893E-03	-0.608

---- 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		2.753E-02	1.884E-01	3.106E-01	2.881E-02	0.089
		117.00	*	-6.061E-02	2.260E-01	3.647E-01	2.742E-02	-0.166
	+	209.75		1.720E+00	1.428E+00	1.711E+00	1.177E-01	1.005
		228.18		-1.569E-01	2.579E-01	4.231E-01	2.936E-02	-0.371
		277.60		1.720E-01	2.176E-01	3.762E-01	2.598E-02	0.457
		334.30		-1.260E+00	1.726E+00	2.343E+00	1.519E-01	-0.538
AM-241		59.54	*	-1.196E-01	3.345E-01	4.786E-01	6.091E-02	-0.250
CM-243		99.55		2.833E-02	1.939E-01	3.196E-01	2.964E-02	0.089
		103.76	*	7.053E-02	1.118E-01	1.875E-01	1.637E-02	0.376
		117.00		-6.235E-02	2.325E-01	3.752E-01	2.820E-02	-0.166
	+	209.75		1.695E+00	1.408E+00	1.687E+00	1.160E-01	1.005
		228.18		-1.585E-01	2.606E-01	4.275E-01	2.967E-02	-0.371
		277.60		1.734E-01	2.193E-01	3.793E-01	2.619E-02	0.457
AM-246		798.80		4.616E-04	1.663E-01	2.386E-01	1.655E-02	0.002
		1036.00		-1.239E-01	3.416E-01	5.405E-01	4.000E-02	-0.229
		1062.04		4.529E-02	2.759E-01	4.585E-01	3.266E-02	0.099
		1078.86	*	8.541E-02	1.466E-01	2.541E-01	1.761E-02	0.336
CM-247		278.00		2.239E-01	9.103E-01	1.540E+00	1.063E-01	0.145
		287.40		3.948E-01	1.557E+00	2.493E+00	1.711E-01	0.158
		402.60	*	3.533E-02	4.605E-02	7.903E-02	4.494E-03	0.447
CF-249		252.85		1.153E+00	1.035E+00	1.817E+00	1.265E-01	0.635
		333.44		-1.899E-01	2.329E-01	3.145E-01	2.041E-02	-0.604
		387.95	*	3.165E-02	4.680E-02	8.023E-02	4.600E-03	0.395
CF-251		176.60	*	-6.431E-03	1.560E-01	2.507E-01	1.681E-02	-0.026
		227.00		3.451E-02	4.400E-01	7.443E-01	5.163E-02	0.046
		285.00		-1.054E-01	2.100E+00	3.503E+00	2.407E-01	-0.030

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600008      *
* Acquisition date   : 22-JAN-2010 08:35:46 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 02:00:01.27 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600008 Analyst initials: MXR1                  *
* Batch Number       : 941635 Sample Quantity : 1.3474E+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 :                               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.361E+01	2.510E+00	6.692E-01	0.000E+00
MN-54	4.871E-02	5.384E-02	6.121E-02	0.000E+00
CD-109	4.026E+00	1.346E+00	1.649E+00	0.000E+00
SN-126	3.958E-01	1.323E-01	1.634E-01	0.000E+00
BA-137M	2.342E-01	7.253E-02	7.002E-02	0.000E+00
CS-137	2.475E-01	7.668E-02	7.402E-02	0.000E+00
TL-208	5.228E-01	8.425E-02	6.291E-02	0.000E+00
BI-211	3.695E+00	5.082E-01	3.982E-01	0.000E+00
BI-212	7.815E-01	4.356E-01	5.276E-01	0.000E+00
PB-212	1.643E+00	1.841E-01	1.093E-01	0.000E+00
PO-212	1.643E+00	1.841E-01	1.093E-01	0.000E+00
BI-214	1.097E+00	1.803E-01	1.277E-01	0.000E+00
PB-214	1.285E+00	1.886E-01	1.377E-01	0.000E+00
PO-214	1.285E+00	1.886E-01	1.377E-01	0.000E+00
PO-216	1.643E+00	1.841E-01	1.093E-01	0.000E+00
PO-218	1.285E+00	1.886E-01	1.377E-01	0.000E+00
RA-224	4.462E+00	1.453E+00	1.243E+00	0.000E+00
RA-226	1.097E+00	1.803E-01	1.277E-01	0.000E+00
AC-228	1.728E+00	3.581E-01	2.347E-01	0.000E+00
RA-228	1.728E+00	3.581E-01	2.347E-01	0.000E+00
TH-228	1.667E+00	1.869E-01	1.109E-01	0.000E+00
TH-230	1.097E+00	1.803E-01	1.277E-01	0.000E+00
TH-232	1.728E+00	3.581E-01	2.347E-01	0.000E+00
TH-234	1.733E+00	2.279E+00	3.829E+00	0.000E+00
U-234	1.097E+00	1.803E-01	1.277E-01	0.000E+00
NP-237	1.162E+00	4.542E-01	5.310E-01	0.000E+00
U-238	1.733E+00	2.279E+00	3.829E+00	0.000E+00
AM-243	4.147E-01	1.410E-01	1.312E-01	0.000E+00
ANH-511	9.752E-02	7.790E-02	4.994E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Key-Line	Activity	K.L. Act error	MDA
----------	----------	----------------	-----

Nuclide	(pCi/GRAM	) Ided	(pCi/GRAM	)	
BE-7	8.670E-02	3.756E-01	6.504E-01	0.000E+00	NOT IDENT.
NA-22	1.223E-02	5.061E-02	8.603E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	8.076E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.602E-02	3.010E-02	4.457E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.261E-02	1.027E-01	0.000E+00	NOT IDENT.
SC-46	1.178E-02	4.479E-02	7.817E-02	0.000E+00	FAIL ABUN
V-48	8.372E-02	7.760E-02	1.436E-01	0.000E+00	NOT IDENT.
CR-51	-2.143E-01	3.955E-01	6.704E-01	0.000E+00	NOT IDENT.
MN-52	1.448E-01	2.239E-01	4.154E-01	0.000E+00	NOT IDENT.
CO-56	-5.163E-03	4.106E-02	6.961E-02	0.000E+00	NOT IDENT.
CO-57	-1.940E-03	2.959E-02	5.144E-02	0.000E+00	NOT IDENT.
CO-58	-2.866E-02	4.448E-02	7.246E-02	0.000E+00	NOT IDENT.
FE-59	2.570E-02	9.002E-02	1.557E-01	0.000E+00	NOT IDENT.
CO-60	-3.339E-02	4.253E-02	6.287E-02	0.000E+00	NOT IDENT.
ZN-65	-6.452E-03	1.182E-01	1.688E-01	0.000E+00	NOT IDENT.
GE-68	-2.701E-01	1.292E+00	2.127E+00	0.000E+00	NOT IDENT.
AS-73	-8.053E-01	2.063E+00	3.666E+00	0.000E+00	NOT IDENT.
AS-74	1.044E-01	1.046E-01	1.844E-01	0.000E+00	NOT IDENT.
SE-75	2.714E-02	5.692E-02	9.037E-02	0.000E+00	NOT IDENT.
BR-77	-6.429E+00	1.007E+01	1.619E+01	0.000E+00	FAIL ABUN
SR-82	-4.765E-01	4.188E-01	6.545E-01	0.000E+00	NOT IDENT.
RB-83	-5.445E-02	7.146E-02	1.136E-01	0.000E+00	NOT IDENT.
RB-84	-1.003E-02	7.280E-02	1.229E-01	0.000E+00	NOT IDENT.
KR-85	1.278E+01	8.796E+00	1.461E+01	0.000E+00	NOT IDENT.
SR-85	6.535E-02	4.498E-02	7.471E-02	0.000E+00	NOT IDENT.
RB-86	-3.399E-01	8.206E-01	1.322E+00	0.000E+00	NOT IDENT.
Y-88	2.134E-02	2.971E-02	5.733E-02	0.000E+00	NOT IDENT.
ZR-88	1.194E-02	3.544E-02	6.243E-02	0.000E+00	NOT IDENT.
Y-91	-9.570E+00	2.021E+01	3.216E+01	0.000E+00	NOT IDENT.
NB-94	-3.036E-02	3.479E-02	5.635E-02	0.000E+00	NOT IDENT.
NB-95	6.572E-02	4.894E-02	9.162E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.496E-01	4.193E-01	0.000E+00	NOT IDENT.
ZR-95	3.664E-02	7.613E-02	1.364E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.080E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.947E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.325E+00	1.140E+01	1.941E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.223E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-8.815E-03	4.074E-02	6.744E-02	0.000E+00	NOT IDENT.
RH-102	1.772E-02	3.521E-02	6.198E-02	0.000E+00	NOT IDENT.
RU-103	3.425E-02	4.460E-02	7.966E-02	0.000E+00	NOT IDENT.
RH-106	-1.176E-01	3.419E-01	5.556E-01	0.000E+00	NOT IDENT.
RU-106	-1.176E-01	3.417E-01	5.556E-01	0.000E+00	NOT IDENT.
AG-108M	-2.029E-03	3.954E-02	6.769E-02	0.000E+00	NOT IDENT.
AG-110M	3.684E-02	4.896E-02	7.581E-02	0.000E+00	NOT IDENT.
IN-111	6.676E-02	1.250E+00	1.941E+00	0.000E+00	NOT IDENT.
IN-113M	-1.098E-02	5.212E-02	8.898E-02	0.000E+00	NOT IDENT.
SN-113	-1.098E-02	5.212E-02	8.898E-02	0.000E+00	NOT IDENT.
IN-114M	4.259E-03	2.446E-01	3.640E-01	0.000E+00	NOT IDENT.
CD-115	-7.735E+00	1.107E+01	1.774E+01	0.000E+00	NOT IDENT.
SN-117M	3.353E-02	6.101E-02	1.073E-01	0.000E+00	NOT IDENT.
SB-122	-6.339E-01	2.051E+00	3.375E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.745E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	3.068E-03	3.248E-02	5.610E-02	0.000E+00	NOT IDENT.
I-124	4.208E-01	8.592E-01	1.304E+00	0.000E+00	FAIL ABUN
SB-124	-5.683E-04	7.465E-02	1.311E-01	0.000E+00	FAIL ABUN
SB-125	-2.867E-02	1.058E-01	1.787E-01	0.000E+00	FAIL ABUN
TE-125M	-1.999E+00	1.049E+01	1.824E+01	0.000E+00	NOT IDENT.
I-126	6.308E-02	2.282E-01	3.380E-01	0.000E+00	NOT IDENT.
SB-126	-6.856E-02	1.697E-01	2.420E-01	0.000E+00	NOT IDENT.
SB-127	4.518E-01	1.315E+00	2.348E+00	0.000E+00	NOT IDENT.
XE-127	-4.243E-02	6.689E-02	9.341E-02	0.000E+00	NOT IDENT.
I-131	-1.981E-02	1.273E-01	2.190E-01	0.000E+00	NOT IDENT.
TE-132	-4.484E-01	7.337E-01	1.270E+00	0.000E+00	NOT IDENT.
BA-133	-1.127E-02	5.642E-02	8.371E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.283E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.644E-02	6.729E-02	9.358E-02	0.000E+00	FAIL ABUN
CS-135	3.628E-01	2.165E-01	3.628E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.268E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.430E-02	1.127E-01	1.753E-01	0.000E+00	FAIL ABUN
CE-139	3.211E-03	3.439E-02	5.925E-02	0.000E+00	NOT IDENT.
BA-140	-2.729E-01	2.793E-01	4.108E-01	0.000E+00	NOT IDENT.
LA-140	-2.195E-02	8.928E-02	1.456E-01	0.000E+00	NOT IDENT.
CE-141	4.594E-02	7.349E-02	1.299E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.243E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.244E-02	2.458E-01	4.212E-01	0.000E+00	NOT IDENT.
PM-144	1.129E-02	3.830E-02	6.793E-02	0.000E+00	NOT IDENT.

PR-144	7.653E-01	2.595E+00	4.602E+00	0.000E+00	NOT IDENT.
PM-146	5.152E-02	5.116E-02	9.271E-02	0.000E+00	NOT IDENT.
ND-147	6.170E-01	5.956E-01	1.078E+00	0.000E+00	FAIL ABUN
PM-149	9.929E+00	1.006E+02	1.780E+02	0.000E+00	NOT IDENT.
EU-152	1.586E-02	1.314E-01	1.895E-01	0.000E+00	FAIL ABUN
GD-153	1.350E-01	1.031E-01	1.691E-01	0.000E+00	NOT IDENT.
EU-154	3.417E-02	1.414E-01	2.403E-01	0.000E+00	NOT IDENT.
EU-155	4.153E-02	1.216E-01	2.161E-01	0.000E+00	FAIL ABUN
TB-160	-1.057E-01	1.491E-01	2.377E-01	0.000E+00	FAIL ABUN
HO-166M	4.856E-02	7.132E-02	1.293E-01	0.000E+00	FAIL ABUN
TM-171	-4.709E+00	5.349E+01	7.776E+01	0.000E+00	NOT IDENT.
LU-176	6.186E-03	2.804E-02	4.973E-02	0.000E+00	FAIL ABUN
LU-177	2.361E+00	1.921E+00	2.424E+00	0.000E+00	FAIL ABUN
LU-177M	-5.632E-02	2.047E-01	3.467E-01	0.000E+00	FAIL ABUN
HF-181	-2.196E-02	4.838E-02	7.987E-02	0.000E+00	NOT IDENT.
W-181	-2.079E-02	6.548E-01	1.024E+00	0.000E+00	NOT IDENT.
TA-182	-2.268E-01	2.192E-01	3.290E-01	0.000E+00	FAIL ABUN
RE-183	7.125E-02	1.264E-01	2.222E-01	0.000E+00	FAIL ABUN
RE-184	3.071E-01	2.699E-01	5.007E-01	0.000E+00	NOT IDENT.
OS-185	-3.182E-02	4.942E-02	7.814E-02	0.000E+00	FAIL ABUN
RE-188	8.074E-02	1.948E-01	3.412E-01	0.000E+00	NOT IDENT.
W-188	-7.061E+00	1.008E+01	1.468E+01	0.000E+00	FAIL ABUN
IR-192	-9.025E-03	3.814E-02	6.592E-02	0.000E+00	FAIL ABUN
AU-195	2.895E-01	2.708E-01	4.788E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.306E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-4.919E+00	7.798E+00	1.301E+01	0.000E+00	NOT IDENT.
TL-202	1.101E-02	8.191E-02	1.417E-01	0.000E+00	NOT IDENT.
HG-203	-1.490E-03	4.839E-02	8.523E-02	0.000E+00	FAIL ABUN
BI-207	5.487E-02	5.932E-02	1.079E-01	0.000E+00	FAIL ABUN
TL-207	-8.239E-01	7.840E-01	1.276E+00	0.000E+00	FAIL ABUN
PO-209	-5.013E+00	8.130E+00	1.309E+01	0.000E+00	NOT IDENT.
BI-210	-2.659E-01	1.298E+01	2.293E+01	0.000E+00	NOT IDENT.
PB-210	-2.659E-01	1.298E+01	2.293E+01	0.000E+00	NOT IDENT.
PO-210	-2.659E-01	1.298E+01	2.293E+01	0.000E+00	NOT IDENT.
PB-211	-2.923E-01	1.158E+00	1.946E+00	0.000E+00	NOT IDENT.
PO-215	-8.239E-01	7.840E-01	1.276E+00	0.000E+00	FAIL ABUN
RN-219	5.142E-01	4.962E-01	8.971E-01	0.000E+00	FAIL ABUN
RN-220	-2.421E+00	3.052E+01	5.127E+01	0.000E+00	NOT IDENT.
RA-223	-8.239E-01	7.840E-01	1.276E+00	0.000E+00	FAIL ABUN
AC-227	-1.027E-01	4.437E-01	7.778E-01	0.000E+00	FAIL ABUN
TH-227	-1.027E-01	4.438E-01	7.778E-01	0.000E+00	FAIL ABUN
TH-229	2.002E-01	6.223E-01	1.057E+00	0.000E+00	FAIL ABUN
PA-231	-8.040E-01	1.821E+00	3.136E+00	0.000E+00	NOT IDENT.
TH-231	-8.239E-01	7.840E-01	1.276E+00	0.000E+00	FAIL ABUN
U-231	-3.288E-01	1.350E+00	2.058E+00	0.000E+00	FAIL ABUN
PA-233	2.627E-02	7.440E-02	1.327E-01	0.000E+00	FAIL ABUN
PA-234	-2.205E-01	3.217E-01	5.065E-01	0.000E+00	FAIL ABUN
PA-234M	3.560E-01	5.310E+00	9.109E+00	0.000E+00	NOT IDENT.
U-235	3.299E-01	2.560E-01	4.476E-01	0.000E+00	FAIL ABUN
NP-236	-9.005E-02	9.387E-02	1.546E-01	0.000E+00	NOT IDENT.
NP-239	-6.061E-02	2.215E-01	3.825E-01	0.000E+00	FAIL ABUN
AM-241	-1.196E-01	3.278E-01	5.079E-01	0.000E+00	NOT IDENT.
CM-243	7.053E-02	1.096E-01	1.971E-01	0.000E+00	FAIL ABUN
AM-246	8.541E-02	1.436E-01	2.561E-01	0.000E+00	NOT IDENT.
CM-247	3.533E-02	4.513E-02	8.110E-02	0.000E+00	NOT IDENT.
CF-249	3.165E-02	4.587E-02	8.239E-02	0.000E+00	NOT IDENT.
CF-251	-6.431E-03	1.529E-01	2.611E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600008.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:35:46
Sample ID          : G244600008          Sample quantity  : 1.34740E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time : 0 02:00:01.27  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941635             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	903	10.67*	9.990E-01	2.361E+01	2.361E+01	10.85
MN-54	834.83	28	99.97*	1.655E+00	4.713E-02	4.871E-02	112.79
CD-109	88.03	232	3.72*	4.413E+00	3.937E+00	4.026E+00	34.12
SN-126	64.28	-----	9.60	1.930E+00	-----	Line Not Found	-----
	86.94	232	8.90	4.413E+00	1.646E+00	1.646E+00	52.92
	87.57	232	37.00*	4.413E+00	3.958E-01	3.958E-01	34.12
BA-137M	661.65	153	89.98*	2.020E+00	2.339E-01	2.342E-01	31.60
CS-137	661.65	153	85.12*	2.020E+00	2.473E-01	2.475E-01	31.61
TL-208	277.35	-----	6.80	3.788E+00	-----	Line Not Found	-----
	510.84	86	21.60	2.463E+00	4.515E-01	4.515E-01	81.94
	583.14	352	84.20*	2.231E+00	5.228E-01	5.228E-01	16.45
	860.37	42	12.46	1.614E+00	5.800E-01	5.800E-01	66.18
BI-211	72.87	311	1.27	3.166E+00	2.155E+01	2.155E+01	34.71
	351.07	550	12.94*	3.207E+00	3.695E+00	3.695E+00	14.03
BI-212	727.18	62	11.80*	1.868E+00	7.815E-01	7.815E-01	56.87
	785.46	-----	1.97	1.748E+00	-----	Line Not Found	-----
	1620.62	26	2.75	9.263E-01	2.811E+00	2.811E+00	67.51
PB-212	74.81	311	10.70	3.166E+00	2.558E+00	2.558E+00	35.94
	77.11	486	18.00	3.423E+00	2.195E+00	2.195E+00	20.95
	87.30	232	8.00	4.413E+00	1.831E+00	1.831E+00	35.55
	238.63	1110	44.60*	4.221E+00	1.643E+00	1.643E+00	11.44
	300.09	124	3.41	3.588E+00	2.830E+00	2.830E+00	40.48
PO-212	74.81	311	10.70	3.166E+00	2.558E+00	2.558E+00	35.94
	77.11	486	18.00	3.423E+00	2.195E+00	2.195E+00	20.95
	87.30	232	8.00	4.413E+00	1.831E+00	1.831E+00	35.55
	115.19	-----	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	1110	44.60*	4.221E+00	1.643E+00	1.643E+00	11.44
	300.09	124	3.41	3.588E+00	2.830E+00	2.830E+00	40.48
BI-214	609.31	393	46.30*	2.156E+00	1.097E+00	1.097E+00	16.77
	1120.29	101	15.10	1.264E+00	1.478E+00	1.478E+00	34.93
	1764.49	74	15.80	8.816E-01	1.479E+00	1.479E+00	28.14
PB-214	74.81	311	6.21	3.166E+00	4.407E+00	4.407E+00	35.49

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	486	10.50	3.423E+00	3.764E+00	3.764E+00	22.29
	87.30	232	4.67	4.413E+00	3.136E+00	3.136E+00	34.98
	241.98	265	7.49	4.185E+00	2.353E+00	2.353E+00	33.70
	295.21	343	19.20	3.629E+00	1.370E+00	1.370E+00	20.70
	351.92	550	37.20*	3.207E+00	1.285E+00	1.285E+00	14.97
	74.81	311	6.21	3.166E+00	4.407E+00	4.407E+00	35.49
	77.11	486	10.50	3.423E+00	3.764E+00	3.764E+00	22.29
	87.30	232	4.67	4.413E+00	3.136E+00	3.136E+00	34.98
	241.98	265	7.49	4.185E+00	2.353E+00	2.353E+00	33.70
	295.21	343	19.20	3.629E+00	1.370E+00	1.370E+00	20.70
PO-216	351.92	550	37.20*	3.207E+00	1.285E+00	1.285E+00	14.97
	74.81	311	10.70	3.166E+00	2.558E+00	2.558E+00	35.94
	77.11	486	18.00	3.423E+00	2.195E+00	2.195E+00	20.95
	87.30	232	8.00	4.413E+00	1.831E+00	1.831E+00	35.55
	238.63	1110	44.60*	4.221E+00	1.643E+00	1.643E+00	11.44
	300.09	124	3.41	3.588E+00	2.830E+00	2.830E+00	40.48
	74.81	311	6.21	3.166E+00	4.407E+00	4.407E+00	35.49
	77.11	486	10.50	3.423E+00	3.764E+00	3.764E+00	22.29
	87.30	232	4.67	4.413E+00	3.136E+00	3.136E+00	34.98
	241.98	265	7.49	4.185E+00	2.353E+00	2.353E+00	33.70
PO-218	295.21	343	19.20	3.629E+00	1.370E+00	1.370E+00	20.70
	351.92	550	37.20*	3.207E+00	1.285E+00	1.285E+00	14.97
	240.98	265	3.95*	4.185E+00	4.462E+00	4.462E+00	33.23
	609.31	393	46.30*	2.156E+00	1.097E+00	1.097E+00	16.77
	1120.29	101	15.10	1.264E+00	1.478E+00	1.478E+00	34.93
	1764.49	74	15.80	8.816E-01	1.479E+00	1.479E+00	28.14
	338.32	229	11.40	3.296E+00	1.697E+00	1.697E+00	47.73
	911.07	263	27.70*	1.532E+00	1.728E+00	1.728E+00	21.14
	969.11	106	16.60	1.447E+00	1.232E+00	1.232E+00	42.12
	338.32	229	11.40	3.296E+00	1.697E+00	1.697E+00	47.73
RA-224	911.07	263	27.70*	1.532E+00	1.728E+00	1.728E+00	21.14
	969.11	106	16.60	1.447E+00	1.232E+00	1.232E+00	42.12
	74.81	311	10.70	3.166E+00	2.558E+00	2.596E+00	34.72
	77.11	486	18.00	3.423E+00	2.195E+00	2.228E+00	20.95
	87.30	232	8.00	4.413E+00	1.831E+00	1.858E+00	34.12
	238.63	1110	44.60*	4.221E+00	1.643E+00	1.667E+00	11.44
	300.09	124	3.41	3.588E+00	2.830E+00	2.872E+00	71.02
	609.31	393	46.30*	2.156E+00	1.097E+00	1.097E+00	16.77
	1120.29	101	15.10	1.264E+00	1.478E+00	1.478E+00	34.93
	1764.49	74	15.80	8.816E-01	1.479E+00	1.479E+00	28.14
TH-228	338.32	229	11.40	3.296E+00	1.697E+00	1.697E+00	25.49
	911.07	263	27.70*	1.532E+00	1.728E+00	1.728E+00	21.14
	969.11	106	16.60	1.447E+00	1.232E+00	1.232E+00	42.12
	63.29	41	3.80*	1.728E+00	1.733E+00	1.733E+00	134.15
	92.38	278	5.41	4.820E+00	2.970E+00	2.970E+00	37.97
	609.31	393	46.30*	2.156E+00	1.097E+00	1.097E+00	16.77
	1120.29	101	15.10	1.264E+00	1.478E+00	1.478E+00	34.93
	1764.49	74	15.80	8.816E-01	1.479E+00	1.479E+00	28.14
	86.50	232	12.60*	4.413E+00	1.162E+00	1.162E+00	39.87

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	95.87	-----	2.60	5.041E+00	-----	Line Not Found	-----
U-238	63.29	41	3.80*	1.728E+00	1.733E+00	1.733E+00	134.15
	92.38	278	5.41	4.820E+00	2.970E+00	2.970E+00	34.49
AM-243	74.67	311	66.00*	3.166E+00	4.147E-01	4.147E-01	34.71
	86.72	232	0.34	4.413E+00	4.359E+01	4.359E+01	34.12
	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----
ANH-511	511.00	86	100.00*	2.463E+00	9.752E-02	9.752E-02	81.52

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	Hlfe	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.361E+01	2.361E+01	0.256E+01	10.85	
MN-54	312.70D	1.03	4.713E-02	4.871E-02	5.494E-02	112.79	
CD-109	464.00D	1.02	3.937E+00	4.026E+00	1.373E+00	34.12	
SN-126	1.00E+05Y	1.00	3.958E-01	3.958E-01	1.350E-01	34.12	
BA-137M	30.17Y	1.00	2.339E-01	2.342E-01	0.740E-01	31.60	
CS-137	30.17Y	1.00	2.473E-01	2.475E-01	0.782E-01	31.61	
TL-208	1.41E+10Y	1.00	5.228E-01	5.228E-01	0.860E-01	16.45	
BI-211	7.04E+08Y	1.00	3.695E+00	3.695E+00	0.519E+00	14.03	
BI-212	1.41E+10Y	1.00	7.815E-01	7.815E-01	4.444E-01	56.87	
PB-212	1.41E+10Y	1.00	1.643E+00	1.643E+00	0.188E+00	11.44	
PO-212	1.41E+10Y	1.00	1.643E+00	1.643E+00	0.188E+00	11.44	
BI-214	1600.00Y	1.00	1.097E+00	1.097E+00	0.184E+00	16.77	
PB-214	1600.00Y	1.00	1.285E+00	1.285E+00	0.192E+00	14.97	
PO-214	1600.00Y	1.00	1.285E+00	1.285E+00	0.192E+00	14.97	
PO-216	1.41E+10Y	1.00	1.643E+00	1.643E+00	0.188E+00	11.44	
PO-218	1600.00Y	1.00	1.285E+00	1.285E+00	0.192E+00	14.97	
RA-224	1.41E+10Y	1.00	4.462E+00	4.462E+00	1.482E+00	33.23	
RA-226	1600.00Y	1.00	1.097E+00	1.097E+00	0.184E+00	16.77	
AC-228	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.365E+00	21.14	
RA-228	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.365E+00	21.14	
TH-228	1.91Y	1.01	1.643E+00	1.667E+00	0.191E+00	11.44	
TH-230	4.47E+09Y	1.00	1.097E+00	1.097E+00	0.184E+00	16.77	
TH-232	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.365E+00	21.14	
TH-234	4.47E+09Y	1.00	1.733E+00	1.733E+00	2.325E+00	134.15	
U-234	4.47E+09Y	1.00	1.097E+00	1.097E+00	0.184E+00	16.77	
NP-237	2.14E+06Y	1.00	1.162E+00	1.162E+00	0.463E+00	39.87	
U-238	4.47E+09Y	1.00	1.733E+00	1.733E+00	2.325E+00	134.15	
AM-243	7380.00Y	1.00	4.147E-01	4.147E-01	1.439E-01	34.71	
ANH-511	1.00E+09Y	1.00	9.752E-02	9.752E-02	7.949E-02	81.52	

Total Activity : 6.307E+01 6.319E+01

Grand Total Activity : 6.307E+01 6.319E+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	89.52	104	317	1.23	179.51	170	21	1.44E-02	61.1	4.63E+00	T
0	185.23	200	397	1.28	370.85	364	13	2.78E-02	44.9	4.99E+00	T
0	208.47	92	366	1.09	417.32	412	11	1.28E-02	82.7	4.62E+00	T
0	269.78	124	210	2.04	539.88	535	11	1.72E-02	48.8	3.86E+00	T
0	463.26	92	122	4.60	926.70	919	15	1.28E-02	57.3	2.64E+00	T
0	794.80	36	52	1.12	1589.55	1582	12	5.00E-03	89.6	1.73E+00	T
3	963.58	45	57	2.45	1927.03	1922	21	6.30E-03	66.5	1.45E+00	T
0	1240.79	9	75	0.49	2481.36	2472	12	1.31E-03	****	1.15E+00	
0	1376.93	34	20	2.51	2753.61	2743	15	4.71E-03	65.8	1.05E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600008.CNF;1
* Acquisition date   : 22-JAN-2010 08:35:46  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 02:00:01.27          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244600008             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity : 1.34740E+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  :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.361E+01	2.562E+00	6.678E-01	5.104E-02	35.354
MN-54	4.871E-02	5.494E-02	6.044E-02	4.530E-03	0.806
CD-109	4.026E+00	1.373E+00	1.564E+00	1.809E-01	2.574
SN-126	3.958E-01	1.350E-01	1.550E-01	1.789E-02	2.554
BA-137M	2.342E-01	7.401E-02	6.884E-02	3.464E-03	3.401
CS-137	2.475E-01	7.824E-02	7.278E-02	3.682E-03	3.401
TL-208	5.228E-01	8.597E-02	6.171E-02	3.929E-03	8.472
BI-211	3.695E+00	5.186E-01	3.870E-01	2.659E-02	9.546
BI-212	7.815E-01	4.444E-01	5.197E-01	4.046E-02	1.504
PB-212	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
PO-212	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
BI-214	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
PB-214	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
PO-214	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
PO-216	1.643E+00	1.879E-01	1.055E-01	8.734E-03	15.570
PO-218	1.285E+00	1.925E-01	1.339E-01	1.154E-02	9.599
RA-224	4.462E+00	1.482E+00	1.200E+00	8.355E-02	3.717
RA-226	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-228	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
RA-228	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
TH-228	1.667E+00	1.907E-01	1.071E-01	8.864E-03	15.570
TH-230	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
TH-232	1.728E+00	3.654E-01	2.321E-01	2.580E-02	7.445
TH-234	1.733E+00	2.325E+00	3.612E+00	7.129E-01	0.480
U-234	1.097E+00	1.840E-01	1.254E-01	9.307E-03	8.751
NP-237	1.162E+00	4.635E-01	5.037E-01	1.189E-01	2.308
U-238	1.733E+00	2.325E+00	3.612E+00	7.129E-01	0.480
AM-243	4.147E-01	1.439E-01	1.242E-01	1.380E-02	3.340
ANH-511	9.752E-02	7.949E-02	4.888E-02	2.760E-03	1.995

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	8.670E-02		3.832E-01	6.357E-01	4.236E-02	0.136
NA-22	1.223E-02		5.164E-02	8.562E-02	5.876E-03	0.143
NA-24	-3.504E-01		4.120E-01	Half-Life	too short	
AL-26	-1.602E-02		3.071E-02	4.466E-02	2.672E-03	-0.359
TI-44	2.155E-01		6.389E-02	9.722E-02	1.081E-02	2.217
SC-46	1.178E-02		4.570E-02	7.728E-02	6.482E-03	0.152
V-48	8.372E-02		7.918E-02	1.422E-01	1.123E-02	0.589
CR-51	-2.143E-01		4.036E-01	6.505E-01	4.692E-02	-0.329
MN-52	1.448E-01		2.285E-01	4.144E-01	3.072E-02	0.349
CO-56	-5.163E-03		4.190E-02	6.876E-02	5.285E-03	-0.075
CO-57	-1.940E-03		3.019E-02	4.907E-02	3.528E-03	-0.040
CO-58	-2.866E-02		4.539E-02	7.151E-02	5.109E-03	-0.401
FE-59	2.570E-02		9.186E-02	1.546E-01	1.170E-02	0.166
CO-60	-3.339E-02		4.340E-02	6.263E-02	4.727E-03	-0.533
ZN-65	-6.452E-03		1.207E-01	1.676E-01	1.089E-02	-0.038
GE-68	-2.701E-01		1.318E+00	2.110E+00	1.466E-01	-0.128
AS-73	-8.053E-01		2.105E+00	3.448E+00	4.713E-01	-0.234
AS-74	1.044E-01		1.068E-01	1.810E-01	9.732E-03	0.577
SE-75	2.714E-02		5.808E-02	8.740E-02	6.113E-03	0.311
BR-77	-6.429E+00		1.028E+01	1.585E+01	8.918E-01	-0.406
SR-82	-4.765E-01		4.273E-01	6.455E-01	4.261E-02	-0.738
RB-83	-5.445E-02		7.292E-02	1.112E-01	6.257E-03	-0.490
RB-84	-1.003E-02		7.428E-02	1.214E-01	1.003E-02	-0.083
KR-85	1.278E+01		8.976E+00	1.430E+01	8.066E-01	0.894
SR-85	6.535E-02		4.590E-02	7.312E-02	4.124E-03	0.894
RB-86	-3.399E-01		8.373E-01	1.311E+00	9.124E-02	-0.259
Y-88	2.134E-02		3.032E-02	5.745E-02	3.356E-03	0.371
ZR-88	1.194E-02		3.617E-02	6.081E-02	3.448E-03	0.196
Y-91	-9.570E+00		2.062E+01	3.197E+01	1.934E+00	-0.299
NB-94	-3.036E-02		3.550E-02	5.547E-02	3.085E-03	-0.547
NB-95	6.572E-02		4.994E-02	9.033E-02	5.821E-03	0.728
NB-95M	1.667E+00		2.546E-01	4.046E-01	3.419E-02	4.119

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	3.664E-02		7.768E-02	1.344E-01	1.002E-02	0.273
NB-97	1.151E-01		5.513E-02	Half-Life too short		
ZR-97	8.371E+00		9.934E-01	Half-Life too short		
MO-99	-2.325E+00		1.163E+01	1.913E+01	2.658E+00	-0.122
TC-99M	-1.721E+10		1.134E+10	Half-Life too short		
RH-101	-8.815E-03		4.157E-02	6.489E-02	4.427E-03	-0.136
RH-102	1.772E-02		3.593E-02	6.057E-02	3.453E-03	0.293
RU-103	3.425E-02		4.551E-02	7.792E-02	9.807E-03	0.440
RH-106	-1.176E-01		3.489E-01	5.457E-01	6.263E-02	-0.216
RU-106	-1.176E-01		3.487E-01	5.457E-01	2.867E-02	-0.216
AG-108M	-2.029E-03		4.035E-02	6.604E-02	4.106E-03	-0.031
AG-110M	3.684E-02		4.996E-02	7.453E-02	4.085E-03	0.494
IN-111	6.676E-02		1.276E+00	1.875E+00	1.305E-01	0.036
IN-113M	-1.098E-02		5.318E-02	8.666E-02	5.257E-03	-0.127
SN-113	-1.098E-02		5.318E-02	8.666E-02	5.257E-03	-0.127
IN-114M	4.259E-03		2.496E-01	3.500E-01	2.373E-02	0.012
CD-115	-7.735E+00		1.130E+01	1.737E+01	9.743E-01	-0.445
SN-117M	3.353E-02		6.226E-02	1.029E-01	6.879E-03	0.326
SB-122	-6.339E-01		2.093E+00	3.308E+00	1.820E-01	-0.192
I-123	4.480E-01		2.421E+00	Half-Life too short		
TE-123M	3.068E-03		3.315E-02	5.377E-02	3.630E-03	0.057
I-124	4.208E-01		8.767E-01	1.280E+00	6.845E-02	0.329
SB-124	-5.683E-04		7.617E-02	1.311E-01	9.210E-03	-0.004
SB-125	-2.867E-02		1.080E-01	1.743E-01	1.039E-02	-0.164
TE-125M	-1.999E+00		1.071E+01	1.737E+01	1.726E+00	-0.115
I-126	6.308E-02		2.329E-01	3.324E-01	1.692E-02	0.190
SB-126	-6.856E-02		1.732E-01	2.383E-01	1.383E-02	-0.288
SB-127	4.518E-01		1.341E+00	2.310E+00	2.092E-01	0.196
XE-127	-4.243E-02		6.825E-02	8.992E-02	6.156E-03	-0.472
I-131	-1.981E-02		1.299E-01	2.130E-01	1.436E-02	-0.093
TE-132	-4.484E-01		7.487E-01	1.225E+00	1.814E-01	-0.366
BA-133	-1.127E-02		5.757E-02	8.139E-02	9.584E-03	-0.138
I-133	2.266E-03		2.696E-03	Half-Life too short		
CS-134	7.644E-02	+	6.866E-02	9.233E-02	6.434E-03	0.828
CS-135	3.628E-01		2.210E-01	3.510E-01	3.001E-02	1.034
I-135	1.213E+09		1.667E+09	Half-Life too short		
CS-136	-8.430E-02		1.150E-01	1.738E-01	1.339E-02	-0.485
CE-139	3.211E-03		3.509E-02	5.683E-02	3.780E-03	0.056
BA-140	-2.729E-01		2.850E-01	4.023E-01	1.307E-01	-0.678
LA-140	-2.195E-02		9.110E-02	1.456E-01	1.015E-02	-0.151
CE-141	4.594E-02		7.499E-02	1.244E-01	8.680E-03	0.369
CE-143	1.145E-03	+	1.654E-04	Half-Life too short		
CE-144	-7.244E-02		2.508E-01	4.025E-01	5.916E-02	-0.180
PM-144	1.129E-02		3.908E-02	6.685E-02	3.667E-03	0.169
PR-144	7.653E-01		2.648E+00	4.530E+00	2.483E-01	0.169
PM-146	5.152E-02		5.220E-02	9.053E-02	7.753E-03	0.569
ND-147	6.170E-01		6.078E-01	1.055E+00	1.418E-01	0.585
PM-149	9.929E+00		1.027E+02	1.724E+02	2.525E+01	0.058



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	1.586E-02		1.341E-01	1.842E-01	1.298E-02	0.086
GD-153	1.350E-01		1.052E-01	1.607E-01	1.542E-02	0.840
EU-154	3.417E-02		1.443E-01	2.392E-01	2.399E-02	0.143
EU-155	4.153E-02		1.240E-01	2.057E-01	1.781E-02	0.202
TB-160	-1.057E-01		1.521E-01	2.350E-01	1.932E-02	-0.450
HO-166M	4.856E-02		7.277E-02	1.273E-01	7.237E-03	0.381
TM-171	-4.709E+00		5.458E+01	7.343E+01	8.444E+00	-0.064
LU-176	6.186E-03		2.861E-02	4.822E-02	3.248E-03	0.128
LU-177	2.361E+00	+	1.960E+00	2.334E+00	1.604E-01	1.011
LU-177M	-5.632E-02		2.089E-01	3.380E-01	1.926E-02	-0.167
HF-181	-2.196E-02		4.937E-02	7.808E-02	4.445E-03	-0.281
W-181	-2.079E-02		6.682E-01	9.666E-01	1.125E-01	-0.022
TA-182	-2.268E-01		2.236E-01	3.272E-01	2.040E-02	-0.693
RE-183	7.125E-02		1.290E-01	2.130E-01	1.420E-02	0.334
RE-184	3.071E-01		2.754E-01	4.838E-01	3.368E-02	0.635
OS-185	-3.182E-02		5.042E-02	7.680E-02	3.935E-03	-0.414
RE-188	8.074E-02		1.988E-01	3.269E-01	2.192E-02	0.247
W-188	-7.061E+00		1.029E+01	1.422E+01	9.733E-01	-0.496
IR-192	-9.025E-03		3.891E-02	6.395E-02	4.274E-03	-0.141
AU-195	2.895E-01		2.763E-01	4.551E-01	4.266E-02	0.636
TL-200	-6.206E-05		2.197E-04	Half-Life	too short	
TL-201	-4.919E+00		7.958E+00	1.248E+01	8.305E-01	-0.394
TL-202	1.101E-02		8.358E-02	1.383E-01	7.901E-03	0.080
HG-203	-1.490E-03		4.938E-02	8.251E-02	5.942E-03	-0.018
BI-207	5.487E-02		6.053E-02	1.071E-01	7.607E-03	0.512
TL-207	-8.239E-01		8.000E-01	1.238E+00	2.081E-01	-0.665
PO-209	-5.013E+00		8.296E+00	1.294E+01	1.101E+00	-0.387
BI-210	-2.659E-01		1.324E+01	2.152E+01	2.236E+00	-0.012
PB-210	-2.659E-01		1.324E+01	2.152E+01	2.236E+00	-0.012
PO-210	-2.659E-01		1.324E+01	2.152E+01	2.067E+00	-0.012
PB-211	-2.923E-01		1.182E+00	1.897E+00	1.182E+00	-0.154
PO-215	-8.239E-01		8.000E-01	1.238E+00	2.081E-01	-0.665
RN-219	5.142E-01		5.063E-01	8.741E-01	1.185E-01	0.588
RN-220	-2.421E+00		3.114E+01	5.024E+01	2.787E+00	-0.048
RA-223	-8.239E-01		8.000E-01	1.238E+00	2.081E-01	-0.665
AC-227	-1.027E-01		4.527E-01	7.518E-01	1.089E-01	-0.137
TH-227	-1.027E-01		4.528E-01	7.518E-01	1.303E-01	-0.137
TH-229	2.002E-01		6.350E-01	1.017E+00	6.912E-02	0.197
PA-231	-8.040E-01		1.858E+00	3.037E+00	4.333E-01	-0.265
TH-231	-8.239E-01		8.000E-01	1.238E+00	2.081E-01	-0.665
U-231	-3.288E-01		1.377E+00	1.956E+00	1.927E-01	-0.168
PA-233	2.627E-02		7.592E-02	1.287E-01	9.019E-03	0.204
PA-234	-2.205E-01		3.282E-01	5.013E-01	9.312E-02	-0.440
PA-234M	3.560E-01		5.418E+00	9.026E+00	8.319E-01	0.039
U-235	3.299E-01		2.612E-01	4.283E-01	7.146E-02	0.770
NP-236	-9.005E-02		9.579E-02	1.482E-01	9.893E-03	-0.608
NP-239	-6.061E-02		2.260E-01	3.647E-01	2.742E-02	-0.166
AM-241	-1.196E-01		3.345E-01	4.786E-01	6.091E-02	-0.250

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	7.053E-02		1.118E-01	1.875E-01	1.637E-02	0.376
AM-246	8.541E-02		1.466E-01	2.541E-01	1.761E-02	0.336
CM-247	3.533E-02		4.605E-02	7.903E-02	4.494E-03	0.447
CF-249	3.165E-02		4.680E-02	8.023E-02	4.600E-03	0.395
CF-251	-6.431E-03		1.560E-01	2.507E-01	1.681E-02	-0.026

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600008
* Acquisition date   : 22-JAN-2010 08:35:46 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 02:00:01.27 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244600008 Analyst initials: MXR1
* Batch Number       : 941635 Sample Quantity : 1.3474E+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     :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.361E+01	2.510E+00	3.348E-01	1.281E+00
MN-54	4.871E-02	5.384E-02	3.062E-02	2.747E-02
CD-109	4.026E+00	1.346E+00	8.248E-01	6.867E-01
SN-126	3.958E-01	1.323E-01	8.175E-02	6.752E-02
BA-137M	2.342E-01	7.253E-02	3.503E-02	3.700E-02
CS-137	2.475E-01	7.668E-02	3.703E-02	3.912E-02
TL-208	5.228E-01	8.425E-02	3.147E-02	4.299E-02
BI-211	3.695E+00	5.082E-01	1.992E-01	2.593E-01
BI-212	7.815E-01	4.356E-01	2.640E-01	2.222E-01
PB-212	1.643E+00	1.841E-01	5.468E-02	9.395E-02
PO-212	1.643E+00	1.841E-01	5.468E-02	9.395E-02
BI-214	1.097E+00	1.803E-01	6.388E-02	9.201E-02
PB-214	1.285E+00	1.886E-01	6.892E-02	9.623E-02
PO-214	1.285E+00	1.886E-01	6.892E-02	9.623E-02
PO-216	1.643E+00	1.841E-01	5.468E-02	9.395E-02
PO-218	1.285E+00	1.886E-01	6.892E-02	9.623E-02
RA-224	4.462E+00	1.453E+00	6.220E-01	7.412E-01
RA-226	1.097E+00	1.803E-01	6.388E-02	9.201E-02
AC-228	1.728E+00	3.581E-01	1.174E-01	1.827E-01
RA-228	1.728E+00	3.581E-01	1.174E-01	1.827E-01
TH-228	1.667E+00	1.869E-01	5.550E-02	9.535E-02
TH-230	1.097E+00	1.803E-01	6.388E-02	9.200E-02
TH-232	1.728E+00	3.581E-01	1.174E-01	1.827E-01
TH-234	1.733E+00	2.279E+00	1.916E+00	1.163E+00
U-234	1.097E+00	1.803E-01	6.388E-02	9.200E-02
NP-237	1.162E+00	4.542E-01	2.657E-01	2.317E-01
U-238	1.733E+00	2.279E+00	1.916E+00	1.163E+00
AM-243	4.147E-01	1.410E-01	6.566E-02	7.196E-02
ANH-511	9.752E-02	7.790E-02	2.499E-02	3.975E-02

---- Non-Identified Nuclides ----

Key-Line Activity	K.L Act error	DLC	TPU
----------------------	---------------	-----	-----

Nuclide	(pCi/GRAM )		(pCi/GRAM )		
BE-7	8.670E-02	3.756E-01	3.254E-01	1.916E-01	NOT IDENT.
NA-22	1.223E-02	5.061E-02	4.304E-02	2.582E-02	NOT IDENT.
NA-24	-3.504E+05	8.076E+05	0.000E+00	4.120E+05	SHORT HLIF
AL-26	-1.602E-02	3.010E-02	2.230E-02	1.536E-02	NOT IDENT.
TI-44	2.155E-01	6.261E-02	5.137E-02	3.194E-02	NOT IDENT.
SC-46	1.178E-02	4.479E-02	3.911E-02	2.285E-02	FAIL ABUN
V-48	8.372E-02	7.760E-02	7.183E-02	3.959E-02	NOT IDENT.
CR-51	-2.143E-01	3.955E-01	3.354E-01	2.018E-01	NOT IDENT.
MN-52	1.448E-01	2.239E-01	2.078E-01	1.143E-01	NOT IDENT.
CO-56	-5.163E-03	4.106E-02	3.483E-02	2.095E-02	NOT IDENT.
CO-57	-1.940E-03	2.959E-02	2.573E-02	1.510E-02	NOT IDENT.
CO-58	-2.866E-02	4.448E-02	3.625E-02	2.269E-02	NOT IDENT.
FE-59	2.570E-02	9.002E-02	7.791E-02	4.593E-02	NOT IDENT.
CO-60	-3.339E-02	4.253E-02	3.145E-02	2.170E-02	NOT IDENT.
ZN-65	-6.452E-03	1.182E-01	8.447E-02	6.033E-02	NOT IDENT.
GE-68	-2.701E-01	1.292E+00	1.064E+00	6.589E-01	NOT IDENT.
AS-73	-8.053E-01	2.063E+00	1.834E+00	1.053E+00	NOT IDENT.
AS-74	1.044E-01	1.046E-01	9.228E-02	5.339E-02	NOT IDENT.
SE-75	2.714E-02	5.692E-02	4.521E-02	2.904E-02	NOT IDENT.
BR-77	-6.429E+00	1.007E+01	8.101E+00	5.138E+00	FAIL ABUN
SR-82	-4.765E-01	4.188E-01	3.275E-01	2.137E-01	NOT IDENT.
RB-83	-5.445E-02	7.146E-02	5.683E-02	3.646E-02	NOT IDENT.
RB-84	-1.003E-02	7.280E-02	6.146E-02	3.714E-02	NOT IDENT.
KR-85	1.278E+01	8.796E+00	7.309E+00	4.488E+00	NOT IDENT.
SR-85	6.535E-02	4.498E-02	3.737E-02	2.295E-02	NOT IDENT.
RB-86	-3.399E-01	8.206E-01	6.613E-01	4.187E-01	NOT IDENT.
Y-88	2.134E-02	2.971E-02	2.868E-02	1.516E-02	NOT IDENT.
ZR-88	1.194E-02	3.544E-02	3.123E-02	1.808E-02	NOT IDENT.
Y-91	-9.570E+00	2.021E+01	1.609E+01	1.031E+01	NOT IDENT.
NB-94	-3.036E-02	3.479E-02	2.819E-02	1.775E-02	NOT IDENT.
NB-95	6.572E-02	4.894E-02	4.584E-02	2.497E-02	NOT IDENT.
NB-95M	1.667E+00	2.496E-01	2.098E-01	1.273E-01	NOT IDENT.
ZR-95	3.664E-02	7.613E-02	6.822E-02	3.884E-02	NOT IDENT.
NB-97	1.151E+05	1.080E+05	0.000E+00	5.513E+04	SHORT HLIF
ZR-97	8.371E+06	1.947E+06	0.000E+00	9.934E+05	SHORT HLIF
MO-99	-2.325E+00	1.140E+01	9.712E+00	5.817E+00	NOT IDENT.
TC-99M	-1.721E+16	2.223E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-8.815E-03	4.074E-02	3.374E-02	2.079E-02	NOT IDENT.
RH-102	1.772E-02	3.521E-02	3.101E-02	1.797E-02	NOT IDENT.
RU-103	3.425E-02	4.460E-02	3.985E-02	2.276E-02	NOT IDENT.
RH-106	-1.176E-01	3.419E-01	2.780E-01	1.745E-01	NOT IDENT.
RU-106	-1.176E-01	3.417E-01	2.780E-01	1.744E-01	NOT IDENT.
AG-108M	-2.029E-03	3.954E-02	3.386E-02	2.018E-02	NOT IDENT.
AG-110M	3.684E-02	4.896E-02	3.793E-02	2.498E-02	NOT IDENT.
IN-111	6.676E-02	1.250E+00	9.712E-01	6.378E-01	NOT IDENT.
IN-113M	-1.098E-02	5.212E-02	4.451E-02	2.659E-02	NOT IDENT.
SN-113	-1.098E-02	5.212E-02	4.451E-02	2.659E-02	NOT IDENT.
IN-114M	4.259E-03	2.446E-01	1.821E-01	1.248E-01	NOT IDENT.
CD-115	-7.735E+00	1.107E+01	8.875E+00	5.648E+00	NOT IDENT.
SN-117M	3.353E-02	6.101E-02	5.370E-02	3.113E-02	NOT IDENT.
SB-122	-6.339E-01	2.051E+00	1.688E+00	1.047E+00	NOT IDENT.
I-123	4.480E+05	4.745E+06	0.000E+00	2.421E+06	SHORT HLIF
TE-123M	3.068E-03	3.248E-02	2.807E-02	1.657E-02	NOT IDENT.
I-124	4.208E-01	8.592E-01	6.526E-01	4.384E-01	FAIL ABUN
SB-124	-5.683E-04	7.465E-02	6.557E-02	3.809E-02	FAIL ABUN
SB-125	-2.867E-02	1.058E-01	8.940E-02	5.398E-02	FAIL ABUN
TE-125M	-1.999E+00	1.049E+01	9.127E+00	5.354E+00	NOT IDENT.
I-126	6.308E-02	2.282E-01	1.691E-01	1.164E-01	NOT IDENT.
SB-126	-6.856E-02	1.697E-01	1.211E-01	8.660E-02	NOT IDENT.
SB-127	4.518E-01	1.315E+00	1.175E+00	6.707E-01	NOT IDENT.
XE-127	-4.243E-02	6.689E-02	4.674E-02	3.413E-02	NOT IDENT.
I-131	-1.981E-02	1.273E-01	1.095E-01	6.494E-02	NOT IDENT.
TE-132	-4.484E-01	7.337E-01	6.355E-01	3.743E-01	NOT IDENT.
BA-133	-1.127E-02	5.642E-02	4.188E-02	2.879E-02	NOT IDENT.
I-133	2.266E+03	5.283E+03	0.000E+00	2.696E+03	SHORT HLIF
CS-134	7.644E-02	6.729E-02	4.682E-02	3.433E-02	FAIL ABUN
CS-135	3.628E-01	2.165E-01	1.815E-01	1.105E-01	NOT IDENT.
I-135	1.213E+15	3.268E+15	0.000E+00	1.667E+15	SHORT HLIF
CS-136	-8.430E-02	1.127E-01	8.768E-02	5.751E-02	FAIL ABUN
CE-139	3.211E-03	3.439E-02	2.964E-02	1.754E-02	NOT IDENT.
BA-140	-2.729E-01	2.793E-01	2.055E-01	1.425E-01	NOT IDENT.
LA-140	-2.195E-02	8.928E-02	7.286E-02	4.555E-02	NOT IDENT.
CE-141	4.594E-02	7.349E-02	6.501E-02	3.750E-02	NOT IDENT.
CE-143	1.145E+03	3.243E+02	0.000E+00	1.654E+02	SHORT HLIF
CE-144	-7.244E-02	2.458E-01	2.107E-01	1.254E-01	NOT IDENT.
PM-144	1.129E-02	3.830E-02	3.398E-02	1.954E-02	NOT IDENT.

PR-144	7.653E-01	2.595E+00	2.303E+00	1.324E+00	NOT IDENT.
PM-146	5.152E-02	5.116E-02	4.638E-02	2.610E-02	NOT IDENT.
ND-147	6.170E-01	5.956E-01	5.391E-01	3.039E-01	FAIL ABUN
PM-149	9.929E+00	1.006E+02	8.906E+01	5.134E+01	NOT IDENT.
EU-152	1.586E-02	1.314E-01	9.483E-02	6.705E-02	FAIL ABUN
GD-153	1.350E-01	1.031E-01	8.459E-02	5.262E-02	NOT IDENT.
EU-154	3.417E-02	1.414E-01	1.202E-01	7.214E-02	NOT IDENT.
EU-155	4.153E-02	1.216E-01	1.081E-01	6.202E-02	FAIL ABUN
TB-160	-1.057E-01	1.491E-01	1.189E-01	7.605E-02	FAIL ABUN
HO-166M	4.856E-02	7.132E-02	6.469E-02	3.639E-02	FAIL ABUN
TM-171	-4.709E+00	5.349E+01	3.890E+01	2.729E+01	NOT IDENT.
LU-176	6.186E-03	2.804E-02	2.488E-02	1.430E-02	FAIL ABUN
LU-177	2.361E+00	1.921E+00	1.213E+00	9.802E-01	FAIL ABUN
LU-177M	-5.632E-02	2.047E-01	1.734E-01	1.044E-01	FAIL ABUN
HF-181	-2.196E-02	4.838E-02	3.996E-02	2.468E-02	NOT IDENT.
W-181	-2.079E-02	6.548E-01	5.123E-01	3.341E-01	NOT IDENT.
TA-182	-2.268E-01	2.192E-01	1.646E-01	1.118E-01	FAIL ABUN
RE-183	7.125E-02	1.264E-01	1.111E-01	6.450E-02	FAIL ABUN
RE-184	3.071E-01	2.699E-01	2.505E-01	1.377E-01	NOT IDENT.
OS-185	-3.182E-02	4.942E-02	3.909E-02	2.521E-02	FAIL ABUN
RE-188	8.074E-02	1.948E-01	1.707E-01	9.940E-02	NOT IDENT.
W-188	-7.061E+00	1.008E+01	7.346E+00	5.144E+00	FAIL ABUN
IR-192	-9.025E-03	3.814E-02	3.298E-02	1.946E-02	FAIL ABUN
AU-195	2.895E-01	2.708E-01	2.395E-01	1.381E-01	FAIL ABUN
TL-200	-6.206E+01	4.306E+02	0.000E+00	2.197E+02	SHORT HLIF
TL-201	-4.919E+00	7.798E+00	6.509E+00	3.979E+00	NOT IDENT.
TL-202	1.101E-02	8.191E-02	7.087E-02	4.179E-02	NOT IDENT.
HG-203	-1.490E-03	4.839E-02	4.264E-02	2.469E-02	FAIL ABUN
BI-207	5.487E-02	5.932E-02	5.400E-02	3.027E-02	FAIL ABUN
TL-207	-8.239E-01	7.840E-01	6.383E-01	4.000E-01	FAIL ABUN
PO-209	-5.013E+00	8.130E+00	6.547E+00	4.148E+00	NOT IDENT.
BI-210	-2.659E-01	1.298E+01	1.147E+01	6.621E+00	NOT IDENT.
PB-210	-2.659E-01	1.298E+01	1.147E+01	6.621E+00	NOT IDENT.
PO-210	-2.659E-01	1.298E+01	1.147E+01	6.621E+00	NOT IDENT.
PB-211	-2.923E-01	1.158E+00	9.737E-01	5.911E-01	NOT IDENT.
PO-215	-8.239E-01	7.840E-01	6.383E-01	4.000E-01	FAIL ABUN
RN-219	5.142E-01	4.962E-01	4.488E-01	2.532E-01	FAIL ABUN
RN-220	-2.421E+00	3.052E+01	2.565E+01	1.557E+01	NOT IDENT.
RA-223	-8.239E-01	7.840E-01	6.383E-01	4.000E-01	FAIL ABUN
AC-227	-1.027E-01	4.437E-01	3.891E-01	2.264E-01	FAIL ABUN
TH-227	-1.027E-01	4.438E-01	3.891E-01	2.264E-01	FAIL ABUN
TH-229	2.002E-01	6.223E-01	5.289E-01	3.175E-01	FAIL ABUN
PA-231	-8.040E-01	1.821E+00	1.569E+00	9.289E-01	NOT IDENT.
TH-231	-8.239E-01	7.840E-01	6.383E-01	4.000E-01	FAIL ABUN
U-231	-3.288E-01	1.350E+00	1.030E+00	6.887E-01	FAIL ABUN
PA-233	2.627E-02	7.440E-02	6.637E-02	3.796E-02	FAIL ABUN
PA-234	-2.205E-01	3.217E-01	2.534E-01	1.641E-01	FAIL ABUN
PA-234M	3.560E-01	5.310E+00	4.557E+00	2.709E+00	NOT IDENT.
U-235	3.299E-01	2.560E-01	2.239E-01	1.306E-01	FAIL ABUN
NP-236	-9.005E-02	9.387E-02	7.734E-02	4.789E-02	NOT IDENT.
NP-239	-6.061E-02	2.215E-01	1.914E-01	1.130E-01	FAIL ABUN
AM-241	-1.196E-01	3.278E-01	2.541E-01	1.673E-01	NOT IDENT.
CM-243	7.053E-02	1.096E-01	9.859E-02	5.591E-02	FAIL ABUN
AM-246	8.541E-02	1.436E-01	1.281E-01	7.328E-02	NOT IDENT.
CM-247	3.533E-02	4.513E-02	4.057E-02	2.302E-02	NOT IDENT.
CF-249	3.165E-02	4.587E-02	4.122E-02	2.340E-02	NOT IDENT.
CF-251	-6.431E-03	1.529E-01	1.306E-01	7.802E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	296.0089
46.50	296.0089
46.50	296.0089
48.70	324.5019
49.72	329.7922
51.35	279.5294
52.39	313.2328
52.97	323.0320
53.15	338.3334
53.44	334.6896
54.07	332.1767
56.28	345.7666
56.28	345.7680
57.37	0.0000
57.53	317.1888
57.53	317.1900
57.60	306.2848
57.98	305.1885
57.98	305.1885
59.32	322.4539
59.32	322.4539
59.40	322.4937
59.54	347.1384
59.72	347.2343
60.01	342.7761
61.10	329.4848
61.14	329.5044
61.30	329.5834
63.00	358.0182
63.29	366.8595
63.29	366.8595
63.58	389.4238
64.28	392.9171
65.12	367.0676
65.20	367.1099
65.20	367.1099
66.05	356.7036
66.72	386.1516
66.83	386.2138
66.91	386.2579
67.20	400.0099
67.20	400.0099
67.75	406.1509
67.85	406.2083
68.90	392.4057
68.90	392.4057
69.30	389.5096
69.67	403.7406
70.82	410.6277
70.82	410.6277
70.83	410.6341
72.80	409.9789
72.87	410.0172
72.87	410.0172
74.67	411.0114
74.81	411.0881
74.81	411.0881
74.81	411.0881
74.81	411.0881
74.81	411.0881
74.81	411.0881
74.81	411.0881
74.97	411.1760
75.28	411.3455
75.70	411.5740
77.11	412.3380
77.11	412.3380

77.11	412.3380
77.11	412.3380
77.11	412.3380
77.11	412.3380
77.11	412.3380
78.38	419.5264
79.62	448.6330
79.80	448.7370
79.80	448.7370
80.11	459.9803
80.18	460.0212
80.30	460.0923
80.30	460.0923
80.57	472.5078
81.00	472.7668
81.07	443.1345
81.07	443.1345
81.07	443.1345
81.07	443.1345
82.60	417.5627
83.37	430.5299
83.78	435.1188
83.78	435.1188
83.78	435.1188
83.78	435.1188
84.21	440.1179
84.90	434.1340
85.43	423.2784
86.29	463.5486
86.50	463.6676
86.54	393.3802
86.59	393.4043
86.72	393.4661
86.79	393.4992
86.94	393.5716
87.30	393.7448
87.30	393.7448
87.30	393.7448
87.30	393.7448
87.30	393.7448
87.30	393.7448
87.57	393.8729
87.88	394.0206
88.03	394.0929
88.36	394.2496
88.47	394.3023
89.95	395.0015
91.11	395.5470
92.29	396.0970
92.38	396.1392
92.38	396.1392
93.35	327.7123
94.00	340.8226
94.67	368.4365
94.67	368.4378
94.90	368.5357
94.90	368.5357
94.90	368.5357
94.90	368.5357
95.87	346.3922
95.87	346.3922
96.73	295.1271
97.43	288.9052
98.44	284.1194
98.44	284.1194
98.88	297.9244
99.55	331.6623
99.55	331.6623
99.86	331.7774
100.00	339.9221
100.10	348.0562
103.18	289.3444
103.76	290.5440
105.00	292.9713
105.31	300.1923
108.00	351.0691
109.28	320.8886

111.00	318.3994
111.00	318.3994
111.76	332.9978
112.95	315.9695
115.19	321.8416
116.30	332.5011
117.00	329.6478
117.00	329.6478
117.66	347.3924
121.11	310.3226
121.62	313.5853
121.78	313.6350
122.06	322.0048
122.32	315.8727
122.32	315.8727
122.32	315.8727
122.32	315.8727
123.07	335.7985
127.23	337.1618
129.76	351.5415
131.20	386.4912
133.02	374.5983
133.54	356.9844
135.34	342.9019
136.00	347.3086
136.25	338.9933
136.48	327.5176
140.51	358.2280
140.51	0.0000
142.18	346.1052
142.65	349.4185
143.76	291.6476
144.24	287.5432
144.24	287.5432
144.24	287.5432
144.24	287.5432
145.22	322.7105
145.44	325.9482
147.16	361.4201
152.43	321.5547
152.70	326.9557
153.22	344.1486
154.21	339.1075
154.21	339.1075
154.21	339.1075
154.21	339.1075
155.03	297.7274
156.02	324.6792
158.56	276.1426
159.00	0.0000
159.00	295.5157
160.31	337.6435
161.27	303.5851
162.32	288.8171
162.64	272.7857
163.35	297.6600
163.89	308.5438
165.85	296.1172
167.43	323.4524
171.28	304.9887
171.86	307.2947
172.10	305.1888
176.55	310.6087
176.60	310.6196
181.06	296.4417
184.41	314.6858
185.71	314.9978
186.00	295.8119
190.27	291.4970
192.34	303.3785
193.63	284.9638
197.04	308.8412
198.01	296.9196
198.60	301.4618
200.40	291.9062
201.83	306.1209
202.84	308.3678
205.31	266.3049



208.36	309.1359
208.81	309.2334
209.75	284.9512
209.75	284.9512
210.97	303.0179
215.65	285.0054
216.55	282.9438
218.09	296.6774
222.10	301.9785
223.80	265.2371
226.40	253.0904
227.00	245.9833
227.08	245.9966
227.20	246.0149
228.16	256.9940
228.18	256.9975
228.18	256.9975
231.56	0.0000
235.69	256.7587
236.00	262.8532
236.00	262.8532
238.63	234.2471
238.63	234.2471
238.63	234.2471
238.63	234.2471
239.00	234.3022
240.98	234.6014
241.98	213.8236
241.98	213.8236
241.98	213.8236
244.69	189.8880
245.39	211.2488
247.94	224.2748
248.90	233.0408
249.79	230.4283
252.40	206.0747
252.85	194.2225
252.85	194.2225
254.15	0.0000
256.20	224.0022
256.20	224.0022
260.50	200.6614
260.90	207.1555
262.80	194.7203
264.65	189.1696
268.24	201.9077
268.79	206.5997
269.46	208.2266
269.46	208.2266
269.46	208.2266
269.46	208.2266
271.23	211.5317
273.65	250.4916
276.40	204.4346
277.35	204.5474
277.60	207.3666
277.60	207.3666
278.00	223.2275
278.60	210.2804
279.20	222.4550
279.53	229.0124
280.46	227.2727
281.68	218.1124
283.67	212.7647
284.30	210.9756
285.00	199.8544
285.90	201.8250
286.10	194.3728
286.10	194.3728
287.40	191.7120
288.45	0.0000
290.67	223.2979
290.80	223.3153
291.72	214.0569
293.26	0.0000
293.70	189.2693
295.21	175.6526
295.21	175.6526

295.21	175.6526
295.96	175.7257
296.50	175.7805
297.23	175.8512
298.57	175.9836
299.80	142.8281
299.80	142.8281
300.09	142.8522
300.09	142.8522
300.09	142.8522
300.09	142.8522
300.12	142.8540
301.29	163.3675
302.84	155.6462
303.76	174.6005
303.91	174.6163
304.40	169.9409
304.40	169.9409
304.84	188.8696
306.84	164.4971
308.46	184.5121
311.98	165.9039
316.51	158.7071
318.01	168.3445
319.02	166.5320
319.41	166.5662
320.08	153.2959
323.87	197.4915
323.87	197.4915
323.87	197.4915
323.87	197.4915
325.23	168.9905
328.77	154.9560
333.44	191.7676
334.20	179.0537
334.20	179.0537
334.30	179.0628
338.28	148.9907
338.28	148.9907
338.28	148.9907
338.28	148.9907
338.32	148.9945
338.32	148.9945
338.32	148.9945
340.50	134.7244
340.57	134.7295
344.27	144.6240
345.85	131.8737
350.59	0.0000
351.07	153.8275
351.92	151.6331
351.92	151.6331
351.92	151.6331
355.39	0.0000
356.01	150.3246
364.48	138.2905
366.43	125.7498
367.43	126.7865
367.94	0.0000
369.80	136.6948
374.96	140.9484
383.85	154.3226
387.95	127.0426
388.63	140.8756
391.69	146.0091
391.69	146.0091
392.90	132.2710
398.62	158.3516
400.65	130.7609
401.10	127.8158
401.81	128.8479
402.60	139.8020
404.84	160.7858
410.95	147.2972
411.60	141.3656
413.65	140.4991
414.70	112.6510
415.30	113.6785

415.76	107.7179
417.63	0.0000
418.52	132.8149
423.70	107.0953
427.08	134.3190
427.89	127.3473
432.53	136.6475
433.93	133.7127
439.47	127.9860
439.56	127.9906
439.89	134.0569
443.98	129.2422
444.90	119.1912
445.03	119.1984
445.03	119.1984
445.03	119.1984
445.03	119.1984
453.90	105.4498
463.38	108.9200
468.07	118.9895
473.00	126.7246
475.06	114.5566
475.35	114.5703
476.78	116.6844
477.59	111.6026
477.96	110.5958
482.03	113.8536
484.57	108.8363
487.03	92.4994
490.36	0.0000
492.35	109.1740
497.08	85.6454
507.63	0.0000
510.53	0.0000
510.84	86.1054
511.00	86.1110
511.85	98.5932
511.85	98.5932
513.99	88.2871
513.99	88.2871
520.41	91.6287
520.65	90.5960
527.90	101.2864
528.96	0.0000
529.64	85.6796
529.87	0.0000
531.02	72.1333
537.32	93.2610
543.00	75.6070
546.56	0.0000
549.76	101.0602
552.65	79.0375
555.20	102.3165
563.23	83.5730
563.90	88.8829
568.70	79.4971
569.32	78.4552
569.50	80.5793
569.67	79.5245
573.80	111.4984
574.00	111.5061
574.64	119.4983
578.91	81.5594
579.30	0.0000
583.14	79.9054
585.48	88.8570
591.81	90.8354
592.07	98.3228
593.00	100.4946
595.88	72.7696
600.56	111.9514
602.52	0.0000
602.71	98.3291
602.71	98.3291
603.60	98.3582
604.41	78.7089
604.70	78.7170
609.31	93.1751

609.31	93.1751
609.31	93.1751
609.31	93.1751
610.33	89.6240
612.46	86.0996
614.37	70.0020
618.01	76.5573
621.84	80.9747
621.84	80.9747
631.29	80.1480
633.02	89.9484
633.10	89.9504
634.78	90.0011
635.90	85.6946
636.97	82.4700
645.85	89.2411
646.12	93.6027
656.30	74.6211
657.75	87.4023
657.90	0.0000
661.65	92.9812
661.65	92.9812
664.57	0.0000
666.33	78.5131
666.33	78.5131
675.00	64.8150
677.61	75.8646
685.20	65.2076
692.80	76.4109
695.00	62.6446
696.49	85.7155
696.49	85.7155
697.00	83.8851
697.49	87.5859
698.33	84.8406
698.50	87.6129
699.00	82.0921
702.63	88.6484
706.10	84.1202
706.58	0.0000
706.67	79.5122
709.31	78.6516
711.68	84.2646
713.82	75.9791
717.42	92.7592
720.50	76.3996
721.93	0.0000
722.20	70.0682
722.78	66.8950
722.78	66.8950
722.89	66.8979
722.95	66.8994
723.30	52.5696
724.18	50.9900
727.18	78.1484
733.00	62.3086
735.90	83.0156
739.58	70.9686
742.81	55.1469
744.21	70.1309
747.13	65.5111
751.79	60.9150
752.31	68.4227
753.82	68.4538
755.35	61.9166
756.15	66.6232
756.87	63.8219
763.93	100.6325
765.79	76.2209
766.42	85.6458
766.84	81.8917
776.49	88.7274
778.00	68.9350
778.57	69.8899
778.89	67.0637
783.80	69.0494
785.46	72.6781
792.07	76.3898

795.84	65.0809
796.30	73.2254
798.80	61.8786
801.93	78.7200
805.60	67.5708
810.29	81.0001
810.76	80.0591
815.85	58.2201
817.79	53.4764
818.51	46.8008
819.60	46.8148
826.30	52.3255
828.27	0.0000
831.60	64.0864
831.96	70.6669
834.83	55.9200
836.80	0.0000
846.75	60.6378
848.13	64.5123
856.28	0.0000
856.80	54.5976
860.37	53.1313
867.32	54.9003
867.82	60.9800
871.10	55.2199
873.19	60.0966
874.81	47.5156
875.33	0.0000
876.40	60.1470
879.36	65.0480
880.27	53.4111
880.51	60.2126
881.50	56.3421
883.24	64.1429
884.67	57.3615
889.25	62.2969
896.60	66.3163
898.02	75.1201
899.00	63.4303
903.28	58.6145
911.07	57.7528
911.07	57.7528
911.07	57.7528
919.63	51.0119
920.93	52.9915
925.00	47.1523
925.24	47.1553
926.50	40.2910
935.52	49.2472
937.48	64.0518
944.10	50.3391
946.00	61.2255
949.00	47.4355
962.29	61.1895
964.01	51.5789
966.15	51.6064
968.20	51.6318
969.11	56.1836
969.11	56.1836
969.11	56.1836
977.42	55.7288
980.50	60.7493
983.50	44.8480
989.30	49.9003
996.32	61.9811
1001.03	58.0472
1001.68	59.0576
1004.76	69.1179
1021.30	0.0000
1024.50	0.0000
1034.80	47.4131
1036.00	59.5354
1037.82	58.5522
1038.57	64.6198
1038.76	0.0000
1045.16	49.5503
1046.59	50.5778
1048.07	57.6772

1050.47	55.6848
1050.47	55.6848
1062.04	60.9082
1063.62	47.7286
1076.63	52.9627
1077.35	49.9152
1078.86	39.7411
1085.78	52.0500
1099.22	41.9709
1112.02	49.2754
1112.84	56.3259
1115.52	65.1629
1120.29	44.0761
1120.29	44.0761
1120.29	44.0761
1120.29	44.0761
1120.51	44.0778
1121.28	47.6116
1124.00	0.0000
1129.67	46.3751
1131.51	0.0000
1147.95	0.0000
1167.94	49.8750
1173.22	43.6902
1175.09	45.7886
1177.93	53.1042
1189.05	67.8406
1204.90	63.8768
1205.75	0.0000
1213.00	63.9835
1221.42	76.7041
1230.97	70.1850
1235.34	50.5781
1236.41	0.0000
1238.25	78.0228
1246.25	42.7709
1260.41	0.0000
1271.85	46.7070
1274.45	48.8544
1274.54	48.8544
1291.56	54.3494
1298.22	0.0000
1312.09	46.0077
1325.50	27.8905
1325.50	27.8905
1332.49	39.7446
1333.61	32.2327
1360.21	28.0767
1362.66	0.0000
1365.15	30.6580
1368.21	40.7881
1368.53	0.0000
1376.25	25.9951
1384.27	24.8508
1394.10	24.2190
1395.20	23.2928
1407.95	27.0833
1434.06	17.8291
1436.60	13.1436
1457.56	0.0000
1460.81	30.1730
1489.15	20.8491
1509.49	24.7287
1596.49	23.1688
1620.62	20.3540
1678.03	0.0000
1691.02	9.8043
1691.02	9.8043
1706.46	0.0000
1750.46	0.0000
1764.49	19.0936
1764.49	19.0936
1764.49	19.0936
1764.49	19.0936
1770.23	13.8984
1771.40	39.7168
1791.20	0.0000
1808.65	13.9805

1836.01

6.0165

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600008

Total Uranium Activity	5.3097E+00	ug/g
Total Uranium Counting Unc.	6.7809E+00	ug/g
Total Uranium Tpu	3.4596E-06	ug/g
Total Uranium Mda	5.6998E+00	ug/g



```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244600008
*  ANALYST       : MXR1            DETECTOR    : GAM15
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 08:35:46.81  SAMPLE ALQT: 134.740 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.860E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.536E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.002E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.940E+00

```

## VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:37:21.12

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600009.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:36:30
Sample ID          : G244600009      Sample quantity   : 1.54620E+02 GRAM
Detector name      : GAM18           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.84  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941635          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.49*	67	575	0.88	126.11	122	8	9.29E-03	64.9	
2	2	75.06*	464	514	1.18	149.23	142	23	6.45E-02	9.5	1.79E+00
3	2	77.33*	737	401	1.03	153.78	142	23	1.02E-01	5.8	
4	4	84.43*	151	579	1.47	167.98	164	28	2.10E-02	30.3	2.02E+00
5	4	87.40	322	507	1.34	173.92	164	28	4.47E-02	13.4	
6	4	89.92	210	437	1.22	178.95	164	28	2.92E-02	18.6	
7	4	92.96*	522	549	1.50	185.02	164	28	7.26E-02	9.6	
8	0	129.12	139	597	1.46	257.33	253	11	1.93E-02	35.1	
9	0	186.08*	323	564	1.24	371.19	366	11	4.49E-02	15.7	
10	0	209.35	165	472	1.42	417.72	413	10	2.29E-02	25.9	
11	4	238.76*	1879	268	1.26	476.52	469	22	2.61E-01	2.8	1.61E+00
12	4	241.74	491	318	1.83	482.48	469	22	6.82E-02	10.8	
13	0	270.38	196	331	1.31	539.75	535	11	2.72E-02	19.4	
14	0	295.32*	493	367	1.19	589.61	583	13	6.85E-02	9.4	
15	0	300.43	119	265	1.16	599.81	596	10	1.66E-02	27.4	
16	0	328.49	94	224	1.66	655.92	651	10	1.31E-02	31.6	
17	0	338.60*	438	369	1.39	676.14	668	16	6.09E-02	11.0	
18	0	351.80*	940	404	1.51	702.54	695	17	1.31E-01	5.9	
19	0	463.28	98	241	1.28	925.43	918	14	1.37E-02	35.2	
20	0	510.86*	217	233	1.86	1020.56	1011	19	3.02E-02	20.1	
21	0	562.60	56	98	2.01	1124.00	1118	10	7.75E-03	36.3	
22	0	583.17*	636	193	1.41	1165.13	1159	14	8.83E-02	6.2	
23	0	609.09*	844	121	1.73	1216.97	1209	16	1.17E-01	4.6	
24	0	661.59	488	164	1.62	1321.93	1313	15	6.78E-02	7.3	
25	0	727.58*	203	130	1.53	1453.88	1445	18	2.81E-02	15.4	
26	0	768.81	86	219	4.52	1536.33	1528	19	1.19E-02	43.0	
27	0	794.94	58	103	0.94	1588.56	1582	10	8.06E-03	33.9	
28	0	860.32	109	94	1.81	1719.31	1710	15	1.51E-02	21.7	
29	0	910.96*	433	148	1.76	1820.56	1813	15	6.02E-02	7.9	
30	0	934.11*	38	46	1.73	1866.86	1863	9	5.21E-03	38.8	
31	1	964.49	128	86	2.32	1927.61	1919	24	1.78E-02	17.6	1.30E+00
32	1	968.75*	279	59	2.17	1936.13	1919	24	3.87E-02	8.9	
33	0	1119.76*	204	74	2.13	2238.09	2231	14	2.84E-02	11.5	
34	0	1237.89	92	147	1.21	2474.31	2462	22	1.28E-02	35.3	
35	0	1376.79	73	27	1.59	2752.09	2743	15	1.01E-02	19.3	
36	0	1460.09*	2103	57	2.29	2918.67	2907	22	2.92E-01	2.4	
37	0	1509.33	31	44	2.40	3017.13	3010	17	4.33E-03	51.3	
38	0	1587.28	39	10	2.34	3173.02	3168	10	5.40E-03	22.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1729.97	37	19	2.49	3458.39	3446	16	5.12E-03	29.7	
40	0	1763.70*	180	11	2.56	3525.85	3514	22	2.50E-02	9.3	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600009.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:36:30
Sample ID        : G244600009             Sample quantity  : 154.62 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA18                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.84   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	*	2.527E+01	2.262E+00	3.151E-01	2.391E-02	80.206
CD-109	+	88.03	*	3.328E+00	9.429E-01	9.634E-01	8.906E-02	3.454
SB-122	+	563.90	*	2.180E+00	1.590E+00	2.107E+00	1.468E-01	1.035
		692.80		4.079E+00	2.790E+01	4.702E+01	3.791E+00	0.087
SN-126	+	64.28		5.430E-01	7.094E-01	7.553E-01	1.117E-01	0.719
	+	86.94		1.360E+00	6.718E-01	3.999E-01	1.659E-01	3.401
	+	87.57	*	3.272E-01	9.271E-02	9.534E-02	8.784E-03	3.432
BA-137M	+	661.65	*	3.675E-01	6.028E-02	4.397E-02	3.352E-03	8.358
CS-137	+	661.65	*	3.885E-01	6.375E-02	4.648E-02	3.552E-03	8.358
TL-208		277.35		4.114E-01	2.774E-01	4.745E-01	4.983E-02	0.867
	+	510.84		5.663E-01	2.355E-01	1.502E-01	1.597E-02	3.769
	+	583.14	*	4.661E-01	6.851E-02	4.025E-02	3.156E-03	11.578
	+	860.37		7.260E-01	3.251E-01	2.894E-01	3.237E-02	2.508
BI-211		72.87		4.398E+00	2.936E+00	4.581E+00	3.783E-01	0.960
	+	351.07	*	3.235E+00	4.367E-01	2.214E-01	1.421E-02	14.612
PB-212	+	74.81		2.130E+00	4.848E-01	4.629E-01	5.801E-02	4.602
	+	77.11		1.888E+00	2.726E-01	2.589E-01	2.195E-02	7.292
	+	87.30		1.513E+00	4.547E-01	4.426E-01	6.012E-02	3.419
	+	238.63	*	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
	+	300.09		1.419E+00	7.858E-01	9.051E-01	7.432E-02	1.568
PO-212	+	74.81		2.130E+00	4.848E-01	4.629E-01	5.801E-02	4.602
	+	77.11		1.888E+00	2.726E-01	2.589E-01	2.195E-02	7.292
	+	87.30		1.513E+00	4.547E-01	4.426E-01	6.012E-02	3.419
		115.19		-1.611E+00	2.858E+00	4.502E+00	2.836E-01	-0.358
	+	238.63	*	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
	+	300.09		1.419E+00	7.858E-01	9.051E-01	7.432E-02	1.568
BI-214	+	609.31	*	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
	+	1120.29		1.407E+00	3.509E-01	3.290E-01	3.149E-02	4.276
	+	1764.49		1.629E+00	3.173E-01	1.460E-01	8.875E-03	11.158
PB-214	+	74.81		3.670E+00	8.088E-01	7.975E-01	8.903E-02	4.602
	+	77.11		3.237E+00	5.284E-01	4.439E-01	5.059E-02	7.292
	+	87.30		2.592E+00	7.613E-01	7.582E-01	9.096E-02	3.419
	+	241.98		2.358E+00	5.403E-01	3.920E-01	3.099E-02	6.016
	+	295.21		1.032E+00	2.132E-01	1.404E-01	1.191E-02	7.353

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	351.92	*	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
	+	74.81		3.670E+00	8.088E-01	7.975E-01	8.903E-02	4.602
	+	77.11		3.237E+00	5.284E-01	4.439E-01	5.059E-02	7.292
	+	87.30		2.592E+00	7.613E-01	7.582E-01	9.096E-02	3.419
	+	241.98		2.358E+00	5.403E-01	3.920E-01	3.099E-02	6.016
	+	295.21		1.032E+00	2.132E-01	1.404E-01	1.191E-02	7.353
PO-216	+	351.92	*	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
	+	74.81		2.130E+00	4.848E-01	4.629E-01	5.801E-02	4.602
	+	77.11		1.888E+00	2.726E-01	2.589E-01	2.195E-02	7.292
	+	87.30		1.513E+00	4.547E-01	4.426E-01	6.012E-02	3.419
	+	238.63	*	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
	+	300.09		1.419E+00	7.858E-01	9.051E-01	7.432E-02	1.568
PO-218	+	74.81		3.670E+00	8.088E-01	7.975E-01	8.903E-02	4.602
	+	77.11		3.237E+00	5.284E-01	4.439E-01	5.059E-02	7.292
	+	87.30		2.592E+00	7.613E-01	7.582E-01	9.096E-02	3.419
	+	241.98		2.358E+00	5.403E-01	3.920E-01	3.099E-02	6.016
	+	295.21		1.032E+00	2.132E-01	1.404E-01	1.191E-02	7.353
	+	351.92	*	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
RA-224	+	240.98	*	4.472E+00	9.933E-01	7.412E-01	4.129E-02	6.033
RA-226	+	609.31	*	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
	+	1120.29		1.407E+00	3.509E-01	3.290E-01	3.149E-02	4.276
AC-228	+	1764.49		1.629E+00	3.173E-01	1.460E-01	8.875E-03	11.158
	+	338.32		1.674E+00	7.755E-01	2.655E-01	1.082E-01	6.305
	+	911.07	*	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777
	+	969.11		1.544E+00	4.599E-01	2.502E-01	5.990E-02	6.171
RA-228	+	338.32		1.674E+00	7.755E-01	2.655E-01	1.082E-01	6.305
	+	911.07	*	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777
	+	969.11		1.544E+00	4.599E-01	2.502E-01	5.990E-02	6.171
TH-228	+	74.81		2.162E+00	4.493E-01	4.698E-01	3.959E-02	4.602
	+	77.11		1.916E+00	2.767E-01	2.628E-01	2.227E-02	7.292
	+	87.30		1.536E+00	4.352E-01	4.492E-01	4.129E-02	3.419
	+	238.63	*	1.529E+00	1.390E-01	6.618E-02	4.728E-03	23.097
TH-230	+	300.09		1.440E+00	1.159E+00	9.186E-01	5.414E-01	1.568
	+	609.31	*	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
	+	1120.29		1.407E+00	3.509E-01	3.289E-01	3.149E-02	4.276
	+	1764.49		1.629E+00	3.173E-01	1.460E-01	8.875E-03	11.158
TH-232	+	338.32		1.674E+00	3.809E-01	2.655E-01	1.536E-02	6.305
	+	911.07	*	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777
	+	969.11		1.544E+00	4.599E-01	2.502E-01	5.990E-02	6.171
TH-234	+	63.29	*	1.372E+00	1.797E+00	1.933E+00	3.408E-01	0.709
	+	92.38		3.369E+00	8.887E-01	6.146E-01	1.108E-01	5.481
U-234	+	609.31	*	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
	+	1120.29		1.407E+00	3.509E-01	3.289E-01	3.149E-02	4.276
	+	1764.49		1.629E+00	3.173E-01	1.460E-01	8.875E-03	11.158
NP-237	+	86.50	*	9.608E-01	3.368E-01	2.843E-01	6.415E-02	3.379
	+	95.87		-1.999E-01	8.324E-01	1.195E+00	2.918E-01	-0.167
U-238	+	63.29	*	1.372E+00	1.797E+00	1.933E+00	3.408E-01	0.709
	+	92.38		3.369E+00	7.092E-01	6.146E-01	5.224E-02	5.481
AM-243	+	74.67	*	3.453E-01	7.167E-02	7.533E-02	6.286E-03	4.584

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	86.72		3.603E+01	1.021E+01	1.063E+01	9.717E-01	3.390
		117.66		-2.253E+00	3.056E+00	4.768E+00	2.933E-01	-0.473
		142.18		7.809E+00	1.315E+01	2.138E+01	1.177E+00	0.365
ANH-511	+	511.00	*	1.223E-01	4.983E-02	3.246E-02	2.144E-03	3.768

---- 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	*	1.009E-01	2.225E-01	3.759E-01	2.724E-02	0.268
NA-22		1274.54	*	-1.946E-02	3.167E-02	4.953E-02	3.370E-03	-0.393
NA-24		1368.53	*	-2.674E-01	3.167E-02	Half-Life too short		
AL-26		1129.67		3.937E-01	1.193E+00	1.991E+00	1.330E-01	0.198
		1808.65	*	-1.145E-02	1.899E-02	2.808E-02	1.639E-03	-0.408
TI-44		67.85		1.341E-02	4.346E-02	6.967E-02	5.602E-03	0.192
	+	78.38	*	3.484E-01	5.031E-02	6.773E-02	5.791E-03	5.144
SC-46		889.25	*	-2.461E-03	2.656E-02	4.311E-02	4.808E-03	-0.057
	+	1120.51		2.403E-01	5.779E-02	9.224E-02	6.373E-03	2.605
V-48		944.10		4.252E-02	6.348E-01	1.037E+00	1.097E-01	0.041
		983.50	*	-4.005E-02	5.222E-02	7.944E-02	7.858E-03	-0.504
		1312.09		2.266E-02	5.384E-02	9.131E-02	6.651E-03	0.248
CR-51		320.08	*	1.097E-01	2.728E-01	4.479E-01	2.884E-02	0.245
MN-52		744.21		8.938E-02	1.525E-01	2.625E-01	2.315E-02	0.341
		848.13		-6.674E-01	4.444E+00	7.215E+00	7.548E-01	-0.092
	+	935.52		2.246E-01	1.761E-01	3.002E-01	3.220E-02	0.748
		1246.25		5.468E-01	5.169E+00	7.344E+00	4.722E-01	0.074
		1333.61		-8.877E-01	3.613E+00	5.781E+00	4.367E-01	-0.154
		1434.06	*	-4.180E-02	1.558E-01	2.453E-01	1.808E-02	-0.170
MN-54		834.83	*	-5.600E-03	2.589E-02	4.196E-02	4.298E-03	-0.133
CO-56		846.75	*	-2.634E-03	2.749E-02	4.484E-02	4.681E-03	-0.059
		977.42		6.966E-01	2.239E+00	3.542E+00	3.543E-01	0.197
		1037.82		1.417E-01	2.115E-01	3.695E-01	3.424E-02	0.383
		1175.09		1.037E+00	1.510E+00	2.613E+00	1.450E-01	0.397
	+	1238.25		1.769E-01	1.255E-01	1.171E-01	7.802E-03	1.511
		1360.21		-5.955E-03	6.807E-01	1.110E+00	8.340E-02	-0.005
		1771.40		-1.647E-01	1.474E-01	1.344E-01	8.123E-03	-1.225
CO-57		122.06	*	-6.702E-04	2.005E-02	3.213E-02	1.903E-03	-0.021
		136.48		-5.070E-02	1.589E-01	2.496E-01	1.634E-02	-0.203
CO-58		810.76	*	-1.429E-02	2.636E-02	4.172E-02	4.118E-03	-0.343
FE-59		142.65		7.397E-01	2.100E+00	3.344E+00	1.840E-01	0.221
		192.34		-1.980E-01	7.022E-01	1.123E+00	1.302E-01	-0.176
		1099.22	*	-2.856E-02	5.843E-02	9.361E-02	7.705E-03	-0.305
		1291.56		2.807E-02	8.254E-02	1.391E-01	1.169E-02	0.202
CO-60		1173.22		1.682E-03	2.949E-02	4.901E-02	2.709E-03	0.034
		1332.49	*	3.910E-03	2.868E-02	4.744E-02	3.584E-03	0.082
ZN-65		1115.52	*	8.981E-03	7.143E-02	1.029E-01	7.246E-03	0.087
GE-68		1077.35	*	8.167E-01	8.479E-01	1.504E+00	1.194E-01	0.543
AS-73		53.44	*	4.291E-01	8.730E-01	1.494E+00	1.184E-01	0.287
AS-74		595.88	*	3.610E-02	6.611E-02	1.104E-01	7.929E-03	0.327

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75	634.78			3.096E-01	2.452E-01	4.252E-01	3.166E-02	0.728
	66.05			-4.379E+00	4.985E+00	7.047E+00	6.980E-01	-0.621
	96.73			-7.119E-01	7.058E-01	9.663E-01	1.274E-01	-0.737
	121.11			5.356E-02	1.081E-01	1.768E-01	1.650E-02	0.303
	136.00			2.239E-03	2.953E-02	4.718E-02	2.687E-03	0.047
	198.60			1.181E+00	1.366E+00	2.320E+00	1.574E-01	0.509
	264.65	*		1.792E-02	3.402E-02	5.290E-02	3.025E-03	0.339
	279.53			2.198E-02	8.112E-02	1.336E-01	8.253E-03	0.165
	303.91			-4.628E-01	1.654E+00	2.291E+00	2.180E-01	-0.202
	400.65			9.854E-02	1.745E-01	2.996E-01	2.730E-02	0.329
BR-77	87.88		+	6.671E+02	1.890E+02	2.577E+02	2.381E+01	2.588
	200.40			1.044E+02	1.124E+02	1.934E+02	1.041E+01	0.540
	239.00		+	2.243E+02	1.775E+01	2.638E+01	1.467E+00	8.504
	249.79			-2.509E+01	4.315E+01	6.897E+01	3.866E+00	-0.364
	281.68			-7.158E+01	6.325E+01	9.750E+01	5.564E+00	-0.734
	297.23			2.372E+02	6.344E+01	8.406E+01	4.826E+00	2.821
	303.76			-3.279E+01	1.310E+02	1.819E+02	1.047E+01	-0.180
	439.47			-1.149E+01	9.232E+01	1.523E+02	9.284E+00	-0.075
	484.57			2.058E+01	1.437E+02	2.387E+02	1.532E+01	0.086
	520.65	*		-4.375E+00	7.013E+00	1.106E+01	7.376E-01	-0.396
SR-82	574.64			-5.986E+01	1.342E+02	2.116E+02	1.490E+01	-0.283
	578.91			6.244E+01	6.433E+01	9.724E+01	6.875E+00	0.642
	585.48			1.440E+03	1.980E+02	3.414E+02	2.429E+01	4.218
	755.35			6.079E+01	1.118E+02	1.912E+02	1.718E+01	0.318
	817.79			2.108E+01	7.980E+01	1.339E+02	1.335E+01	0.157
	698.33			-1.714E+00	2.296E+01	3.819E+01	3.109E+00	-0.045
	776.49	*		6.031E-02	2.890E-01	4.195E-01	3.907E-02	0.144
	1395.20			-8.062E+00	7.727E+00	1.116E+01	8.316E-01	-0.723
	520.41	*		-2.843E-02	5.003E-02	7.917E-02	5.280E-03	-0.359
	529.64			-7.826E-02	7.434E-02	1.122E-01	7.552E-03	-0.698
RB-83	552.65			2.191E-03	1.371E-01	2.236E-01	1.541E-02	0.010
	881.50	*		-4.629E-02	4.885E-02	7.379E-02	8.133E-03	-0.627
RB-84	513.99	*		1.800E+01	6.169E+00	1.028E+01	6.809E-01	1.751
KR-85	513.99	*		9.202E-02	3.155E-02	5.256E-02	3.482E-03	1.751
SR-85	1076.63	*		4.728E-01	5.484E-01	9.653E-01	7.684E-02	0.490
RB-86	898.02			-1.223E-02	2.945E-02	4.660E-02	5.282E-03	-0.262
Y-88	1836.01	*		-9.851E-03	2.354E-02	3.624E-02	2.064E-03	-0.272
ZR-88	392.90	*		4.607E-03	2.084E-02	3.529E-02	2.030E-03	0.131
Y-91	1204.90	*		1.566E+01	1.372E+01	2.417E+01	1.429E+00	0.648
NB-94	702.63	*		-3.927E-03	2.215E-02	3.657E-02	3.000E-03	-0.107
NB-95	871.10			-5.278E-03	2.384E-02	3.841E-02	4.165E-03	-0.137
	765.79	*		7.615E-02	3.710E-02	6.012E-02	5.499E-03	1.267
NB-95M	235.69	*		1.330E-01	1.006E-01	1.547E-01	1.135E-02	0.860
ZR-95	724.18			1.303E-01	7.564E-02	1.219E-01	1.131E-02	1.069
NB-97	756.15	*		3.677E-02	5.136E-02	8.856E-02	8.714E-03	0.415
	657.90	*		1.201E-01	5.136E-02	Half-Life too short		
ZR-97	1024.50			-2.213E+00	5.136E-02	Half-Life too short		
	254.15			1.456E-01	5.136E-02	Half-Life too short		
	355.39			1.170E+00	5.136E-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
	507.63	*		1.591E+00	5.136E-02	Half-Life	too short	
	602.52			-3.851E+00	5.136E-02	Half-Life	too short	
	1021.30			2.646E+00	5.136E-02	Half-Life	too short	
	1147.95			-1.369E+00	5.136E-02	Half-Life	too short	
	1362.66			2.202E+00	5.136E-02	Half-Life	too short	
	1750.46			-1.864E+00	5.136E-02	Half-Life	too short	
MO-99	140.51			-2.442E+01	2.057E+01	2.904E+01	7.810E+00	-0.841
	181.06			4.395E+00	1.257E+01	1.890E+01	3.209E+00	0.232
	366.43			2.652E+01	5.452E+01	9.390E+01	5.424E+00	0.282
	739.58	*		-5.863E-01	7.401E+00	1.224E+01	1.867E+00	-0.048
	778.00			6.146E+00	2.336E+01	3.542E+01	3.307E+00	0.174
TC-99M	140.51	*		-1.855E+10	2.336E+01	Half-Life	too short	
RH-101	127.23			2.560E-02	2.727E-02	4.068E-02	2.350E-03	0.629
	198.01	*		1.052E-02	2.489E-02	4.172E-02	2.242E-03	0.252
	325.23			-4.094E-02	1.878E-01	2.597E-01	1.500E-02	-0.158
RH-102	418.52			2.406E-02	1.937E-01	3.250E-01	1.931E-02	0.074
	475.06	*		3.255E-03	2.044E-02	3.402E-02	2.161E-03	0.096
	631.29			-6.031E-03	3.785E-02	6.026E-02	4.472E-03	-0.100
	697.49			3.802E-02	5.165E-02	8.977E-02	7.298E-03	0.424
	766.84			1.935E-01	9.571E-02	1.544E-01	1.415E-02	1.253
	1046.59			1.585E-02	7.005E-02	1.192E-01	1.028E-02	0.133
	1112.84			-7.636E-02	1.705E-01	2.305E-01	1.636E-02	-0.331
RU-103	497.08	*		9.286E-03	2.725E-02	4.564E-02	5.926E-03	0.203
	610.33	+		1.247E+01	2.305E+00	2.064E+00	3.310E-01	6.044
RH-106	511.85	+		6.106E-01	2.488E-01	3.057E-01	2.021E-02	1.997
	621.84	*		-1.914E-02	2.235E-01	3.583E-01	4.507E-02	-0.053
	1050.47			-8.318E-01	1.462E+00	2.336E+00	1.996E-01	-0.356
RU-106	511.85	+		6.106E-01	2.488E-01	3.057E-01	2.021E-02	1.997
	621.84	*		-1.914E-02	2.235E-01	3.583E-01	2.636E-02	-0.053
	1050.47			-8.318E-01	1.462E+00	2.336E+00	1.996E-01	-0.356
AG-108M	433.93	*		1.202E-03	2.261E-02	3.769E-02	2.463E-03	0.032
	614.37			2.876E-02	2.984E-02	4.501E-02	3.468E-03	0.639
	722.95			-2.831E-03	3.167E-02	4.505E-02	3.984E-03	-0.063
AG-110M	657.75	*		4.342E-02	2.805E-02	4.533E-02	3.575E-03	0.958
	677.61			-6.182E-02	1.978E-01	3.245E-01	2.633E-02	-0.190
	706.67			1.585E-02	1.371E-01	2.303E-01	1.960E-02	0.069
	763.93			1.129E-02	1.417E-01	2.032E-01	1.900E-02	0.056
	884.67			1.632E-02	3.276E-02	5.548E-02	6.265E-03	0.294
	937.48			-1.321E-02	9.121E-02	1.250E-01	1.368E-02	-0.106
	1384.27			-7.224E-03	1.186E-01	1.690E-01	1.310E-02	-0.043
IN-111	171.28			-9.823E-02	6.847E-01	1.149E+00	6.043E-02	-0.086
	245.39	*		6.562E-02	7.437E-01	1.078E+00	6.027E-02	0.061
IN-113M	391.69	*		4.729E-03	3.062E-02	5.170E-02	3.171E-03	0.091
SN-113	391.69	*		4.729E-03	3.062E-02	5.170E-02	3.171E-03	0.091
IN-114M	190.27	*		-6.770E-02	1.459E-01	2.100E-01	1.121E-02	-0.322
CD-115	260.90			-5.291E+01	8.506E+01	1.352E+02	7.631E+00	-0.391
	492.35			-2.334E-01	2.321E+01	3.816E+01	2.470E+00	-0.006
	527.90	*		-9.138E+00	6.925E+00	1.021E+01	6.864E-01	-0.895
SN-117M	156.02			2.550E-01	1.650E+00	2.812E+00	1.502E-01	0.091



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123	158.56	*		1.080E-02	3.970E-02	6.786E-02	3.607E-03	0.159
	159.00	*		2.356E-02	3.970E-02	Half-Life too short		
	528.96			-3.994E+02	3.970E-02	Half-Life too short		
TE-123M	159.00	*		1.612E-04	2.065E-02	3.498E-02	1.887E-03	0.005
I-124	602.71	*		-5.328E-01	5.579E-01	7.059E-01	5.105E-02	-0.755
	722.78			-4.632E-01	3.160E+00	4.470E+00	3.799E-01	-0.104
	1325.50			-1.204E+01	2.410E+01	3.768E+01	2.812E+00	-0.320
+ SB-124	1376.25			6.536E+01	2.575E+01	4.065E+01	3.044E+00	1.608
	1509.49			1.663E+01	1.710E+01	2.068E+01	1.481E+00	0.804
	1691.02			1.157E+00	2.498E+00	4.364E+00	2.815E-01	0.265
SB-124	602.71			-3.223E-02	3.374E-02	4.270E-02	3.088E-03	-0.755
	645.85			-9.088E-02	3.552E-01	5.606E-01	4.544E-02	-0.162
	709.31			-2.107E-01	1.842E+00	3.051E+00	2.533E-01	-0.069
+ SB-124	713.82			-7.227E-01	1.092E+00	1.739E+00	2.062E-01	-0.416
	722.78			-4.061E-02	2.770E-01	3.919E-01	3.405E-02	-0.104
	968.20			1.584E+01	3.236E+00	5.128E+00	5.214E-01	3.090
+ SB-124	1045.16			-4.809E-01	1.556E+00	2.541E+00	2.200E-01	-0.189
	1325.50			-1.128E+00	2.257E+00	3.528E+00	2.633E-01	-0.320
	1368.21			-1.000E+00	1.515E+00	1.893E+00	2.421E-01	-0.528
+ SB-124	1436.60			-6.372E-01	2.538E+00	4.003E+00	2.947E-01	-0.159
	1691.02	*		2.392E-02	5.166E-02	9.025E-02	6.226E-03	0.265
	427.89	*		1.933E-02	6.482E-02	1.095E-01	6.841E-03	0.177
+ SB-125	463.38			5.069E-01	3.585E-01	3.981E-01	2.854E-02	1.273
	600.56			-8.988E-03	1.413E-01	2.141E-01	1.705E-02	-0.042
	635.90			1.256E-01	1.912E-01	3.203E-01	2.642E-02	0.392
TE-125M	109.28	*		-1.878E+00	7.440E+00	1.191E+01	1.047E+00	-0.158
I-126	388.63			4.957E-02	1.407E-01	2.398E-01	1.378E-02	0.207
	666.33	*		-1.777E-02	1.449E-01	2.076E-01	1.596E-02	-0.086
	753.82			1.082E+00	1.034E+00	1.814E+00	1.626E-01	0.597
+ SB-126	223.80			5.356E-01	2.965E+00	4.941E+00	2.716E-01	0.108
	278.60			3.269E+00	1.796E+00	3.132E+00	1.785E-01	1.044
	296.50			1.013E+01	1.994E+00	2.616E+00	1.502E-01	3.872
+ SB-126	414.70			1.157E-02	5.170E-02	8.720E-02	5.157E-03	0.133
	415.30			1.413E+00	4.226E+00	7.166E+00	4.242E-01	0.197
	555.20			8.736E-01	2.813E+00	4.412E+00	3.049E-01	0.198
+ SB-126	573.80			-6.005E-01	7.255E-01	1.115E+00	7.845E-02	-0.539
	593.00			-8.040E-01	6.514E-01	9.653E-01	6.917E-02	-0.833
	656.30			1.506E+00	2.419E+00	3.698E+00	2.806E-01	0.407
+ SB-126	666.33			-7.423E-03	6.052E-02	8.668E-02	6.664E-03	-0.086
	675.00			-2.083E-01	1.298E+00	2.152E+00	1.681E-01	-0.097
	695.00			8.731E-03	5.243E-02	8.843E-02	7.157E-03	0.099
+ SB-126	697.00			1.960E-01	1.796E-01	3.174E-01	2.578E-02	0.617
	720.50	*		8.681E-02	1.028E-01	1.589E-01	1.345E-02	0.546
	856.80			1.309E-01	3.612E-01	5.266E-01	5.585E-02	0.249
+ SB-126	989.30			1.386E-01	8.761E-01	1.435E+00	1.403E-01	0.097
	1034.80			4.609E+00	6.141E+00	1.044E+01	9.271E-01	0.441
	1213.00			1.121E+00	3.352E+00	5.644E+00	3.393E-01	0.199
+ SB-127	61.10			4.894E+01	5.506E+01	8.559E+01	8.897E+00	0.572
	252.40			-1.360E+00	2.968E+00	4.680E+00	1.942E+00	-0.291

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-8.644E+00	1.595E+01	2.176E+01	1.963E+00	-0.397
	411.60			1.130E+00	8.367E+00	1.405E+01	2.017E+00	0.080
	444.90			1.633E+00	6.774E+00	1.105E+01	1.204E+00	0.148
	473.00			-1.103E+00	1.154E+00	1.794E+00	2.042E-01	-0.615
	543.00			5.893E+00	1.115E+01	1.872E+01	2.496E+00	0.315
	603.60			-3.673E+00	9.226E+00	1.229E+01	1.416E+00	-0.299
	685.20	*		2.880E-01	8.834E-01	1.506E+00	1.627E-01	0.191
	698.50			-6.306E-01	9.840E+00	1.637E+01	2.539E+00	-0.039
	722.20			3.995E+00	2.086E+01	3.045E+01	3.344E+00	0.131
	783.80			1.983E+00	2.386E+00	4.124E+00	5.330E-01	0.481
XE-127	57.60			-3.729E+00	5.757E+00	9.403E+00	7.247E-01	-0.397
	145.22			1.531E-01	5.352E-01	8.491E-01	4.642E-02	0.180
	172.10			-2.334E-02	8.682E-02	1.449E-01	7.630E-03	-0.161
	202.84	*		-4.300E-02	3.441E-02	5.464E-02	2.949E-03	-0.787
	374.96			4.819E-02	1.305E-01	2.234E-01	1.288E-02	0.216
I-131	80.18			-3.462E+00	3.977E+00	5.609E+00	4.889E-01	-0.617
	284.30			3.425E-01	1.062E+00	1.751E+00	1.115E-01	0.196
	364.48	*		2.514E-02	8.003E-02	1.368E-01	8.825E-03	0.184
	636.97			-5.831E-02	1.083E+00	1.736E+00	1.391E-01	-0.034
	722.89			-5.708E-01	5.211E+00	7.398E+00	6.328E-01	-0.077
TE-132	49.72			-6.376E+00	2.036E+01	3.393E+01	3.437E+00	-0.188
	111.76			-2.955E+00	2.262E+01	3.633E+01	3.342E+00	-0.081
	116.30			-4.155E+00	2.099E+01	3.353E+01	3.016E+00	-0.124
	228.16	*		2.571E-01	4.787E-01	8.053E-01	1.143E-01	0.319
BA-133	53.15			2.837E+00	3.809E+00	6.571E+00	5.214E-01	0.432
	79.62			-4.236E-01	1.163E+00	1.683E+00	2.563E-01	-0.252
	81.00			-6.705E-02	8.686E-02	1.224E-01	1.950E-02	-0.548
	276.40			2.968E-01	2.926E-01	4.604E-01	5.946E-02	0.645
	302.84			1.449E-02	1.148E-01	1.637E-01	1.904E-02	0.089
	356.01	*		-1.187E-02	3.438E-02	4.647E-02	5.369E-03	-0.255
	383.85			-1.975E-02	2.130E-01	3.560E-01	3.862E-02	-0.055
I-133	510.53	+		1.012E+00	2.130E-01	Half-Life	too short	
	529.87	*		-3.113E-03	2.130E-01	Half-Life	too short	
	706.58			1.519E-02	2.130E-01	Half-Life	too short	
	856.28			-7.573E-02	2.130E-01	Half-Life	too short	
	875.33			-9.959E-04	2.130E-01	Half-Life	too short	
	1236.41	+		1.045E+00	2.130E-01	Half-Life	too short	
	1298.22			-6.212E-02	2.130E-01	Half-Life	too short	
CS-134	475.35			4.447E-01	1.333E+00	2.239E+00	1.422E-01	0.199
	563.23	+		4.062E-01	2.963E-01	4.236E-01	2.993E-02	0.959
	569.32			5.996E-02	1.316E-01	2.145E-01	1.533E-02	0.280
	604.70			-7.670E-03	2.865E-02	3.868E-02	2.812E-03	-0.198
	795.84	*		5.976E-02	4.088E-02	6.327E-02	6.119E-03	0.944
	801.93			-9.701E-02	2.801E-01	4.454E-01	4.345E-02	-0.218
	1038.57			1.379E+00	2.623E+00	4.544E+00	3.998E-01	0.303
	1167.94			-1.185E+00	1.637E+00	2.562E+00	1.453E-01	-0.463
	1365.15			7.600E-01	8.566E-01	1.490E+00	1.186E-01	0.510
CS-135	268.24	*		2.271E-01	1.352E-01	2.099E-01	1.587E-02	1.082
I-135	288.45			-2.052E+09	1.352E-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		3.158E+09	1.352E-01	Half-Life too short		
		546.56		1.607E+08	1.352E-01	Half-Life too short		
		836.80		4.581E+09	1.352E-01	Half-Life too short		
		1038.76		2.227E+09	1.352E-01	Half-Life too short		
		1124.00		1.944E+10	1.352E-01	Half-Life too short		
		1131.51		-1.172E+09	1.352E-01	Half-Life too short		
		1260.41	*	-8.817E+08	1.352E-01	Half-Life too short		
		1457.56		5.276E+11	1.352E-01	Half-Life too short		
		1678.03		3.038E+08	1.352E-01	Half-Life too short		
		1706.46		1.374E+09	1.352E-01	Half-Life too short		
		1791.20		-2.796E+09	1.352E-01	Half-Life too short		
CS-136		66.91		1.073E-01	7.876E-01	1.168E+00	1.764E-01	0.092
	+	86.29		4.212E+00	1.259E+00	1.613E+00	2.126E-01	2.611
		153.22		4.023E-01	4.736E-01	8.247E-01	5.676E-02	0.488
		163.89		-2.301E-01	7.540E-01	1.261E+00	8.614E-02	-0.182
		176.55		-1.562E-03	2.597E-01	4.369E-01	2.647E-02	-0.004
		273.65		-4.335E-01	3.808E-01	5.050E-01	3.290E-02	-0.858
		340.57		4.716E-01	1.128E-01	1.899E-01	1.168E-02	2.483
		818.51		5.957E-03	4.711E-02	7.830E-02	7.818E-03	0.076
		1048.07	*	1.061E-02	6.592E-02	1.116E-01	1.000E-02	0.095
		1235.34		7.553E-01	4.532E-01	7.810E-01	8.029E-02	0.967
CE-139		165.85	*	-1.835E-02	2.152E-02	3.525E-02	1.850E-03	-0.521
BA-140		162.64		2.985E-01	5.392E-01	9.284E-01	5.628E-02	0.322
		304.84		1.959E-01	9.669E-01	1.384E+00	3.775E-01	0.142
		423.70		3.486E-01	1.278E+00	2.151E+00	6.844E-01	0.162
		537.32	*	-1.952E-01	1.979E-01	2.870E-01	9.389E-02	-0.680
LA-140	+	328.77		4.403E-01	2.800E-01	3.709E-01	2.403E-02	1.187
		432.53		2.728E-02	1.399E+00	2.329E+00	1.544E-01	0.012
		487.03		4.748E-03	9.330E-02	1.541E-01	1.099E-02	0.031
		751.79		6.137E-01	1.146E+00	1.963E+00	1.928E-01	0.313
		815.85		2.533E-02	2.037E-01	3.386E-01	3.660E-02	0.075
		867.82		9.341E-02	1.004E+00	1.534E+00	1.712E-01	0.061
		919.63		2.822E-01	2.080E+00	3.264E+00	4.123E-01	0.086
		925.24		1.712E-03	7.899E-01	1.286E+00	1.457E-01	0.001
		1596.49	*	-2.396E-02	5.542E-02	8.394E-02	5.759E-03	-0.285
CE-141		145.44	*	9.830E-03	4.839E-02	7.652E-02	4.368E-03	0.128
CE-143		57.37		-5.336E-04	4.839E-02	Half-Life too short		
		231.56		-2.077E-04	4.839E-02	Half-Life too short		
		293.26	*	4.639E-04	4.839E-02	Half-Life too short		
	+	350.59		2.252E-02	4.839E-02	Half-Life too short		
		490.36		-1.193E-05	4.839E-02	Half-Life too short		
		664.57		3.588E-03	4.839E-02	Half-Life too short		
		721.93		2.053E-04	4.839E-02	Half-Life too short		
CE-144		80.11		-1.543E+00	1.873E+00	2.650E+00	2.294E-01	-0.582
		133.54	*	-8.205E-02	1.810E-01	2.499E-01	3.534E-02	-0.328
PM-144		476.78		7.245E-03	4.622E-02	7.691E-02	5.707E-03	0.094
		618.01		-1.192E-02	2.441E-02	3.699E-02	2.816E-03	-0.322
		696.49	*	2.938E-02	2.318E-02	4.131E-02	3.354E-03	0.711
		778.57		1.806E-01	1.640E+00	2.537E+00	2.372E-01	0.071

## ---- 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	*	1.990E+00	1.570E+00	2.799E+00	2.272E-01	0.711
		1489.15		-7.471E+00	7.854E+00	1.109E+01	8.015E-01	-0.673
PM-146		453.90	*	-5.711E-03	2.891E-02	4.734E-02	4.212E-03	-0.121
		633.02		1.928E-01	9.687E-01	1.575E+00	5.847E-01	0.122
		735.90		-6.000E-02	1.076E-01	1.500E-01	4.295E-02	-0.400
		747.13		-7.829E-02	6.267E-02	9.366E-02	1.329E-02	-0.836
ND-147	+	91.11		6.970E-01	2.672E-01	4.106E-01	3.861E-02	1.698
		319.41		1.567E+00	2.376E+00	3.949E+00	2.281E-01	0.397
		439.89		-4.474E-01	3.969E+00	6.551E+00	3.997E-01	-0.068
		531.02	*	1.563E-01	3.697E-01	6.191E-01	8.638E-02	0.252
PM-149		285.90	*	3.012E+00	6.171E+01	1.005E+02	1.421E+01	0.030
EU-152		121.78		1.314E-02	5.826E-02	9.431E-02	7.268E-03	0.139
		244.69		1.222E-01	2.538E-01	3.765E-01	2.103E-02	0.325
		344.27	*	2.459E-02	8.839E-02	1.059E-01	6.912E-03	0.232
		443.98		-1.817E-01	7.049E-01	1.121E+00	6.873E-02	-0.162
		778.89		-1.109E-02	1.840E-01	2.890E-01	2.702E-02	-0.038
		867.32		-2.424E-01	6.427E-01	9.056E-01	9.764E-02	-0.268
	+	964.01		8.177E-01	2.992E-01	4.228E-01	4.331E-02	1.934
		1085.78		-2.453E-01	2.617E-01	4.039E-01	3.130E-02	-0.607
		1112.02		7.521E-04	2.325E-01	3.311E-01	2.357E-02	0.002
		1407.95		1.086E-01	1.387E-01	2.407E-01	1.788E-02	0.451
GD-153		69.67		-1.354E+00	1.660E+00	2.377E+00	1.929E-01	-0.569
	+	83.37		2.832E+01	1.733E+01	2.022E+01	1.796E+00	1.401
		97.43	*	-4.200E-02	7.202E-02	1.016E-01	7.940E-03	-0.414
		103.18		-8.937E-02	8.406E-02	1.304E-01	9.402E-03	-0.685
EU-154		123.07		-1.606E-02	4.075E-02	6.427E-02	6.078E-03	-0.250
		247.94		1.999E-01	2.760E-01	4.149E-01	3.908E-02	0.482
		591.81		-3.269E-02	4.259E-01	6.669E-01	7.093E-02	-0.049
		723.30		5.774E-02	1.329E-01	1.978E-01	1.864E-02	0.292
		756.87		4.551E-01	5.693E-01	9.833E-01	1.206E-01	0.463
		873.19		1.905E-02	2.120E-01	3.493E-01	4.865E-02	0.055
		996.32		-8.394E-02	2.701E-01	4.261E-01	7.792E-02	-0.197
		1004.76		-1.353E-01	1.597E-01	2.404E-01	2.955E-02	-0.563
		1274.45	*	-5.297E-02	8.865E-02	1.387E-01	1.385E-02	-0.382
EU-155		48.70		-2.204E+00	2.784E+00	4.553E+00	3.453E-01	-0.484
		60.01		5.962E+00	4.968E+00	7.852E+00	5.992E-01	0.759
	+	86.54		3.940E-01	1.118E-01	1.527E-01	1.406E-02	2.581
		105.31	*	9.248E-03	8.596E-02	1.398E-01	9.997E-03	0.066
TB-160	+	86.79		1.050E+00	2.975E-01	4.095E-01	3.746E-02	2.564
		197.04		-3.927E-01	4.296E-01	6.871E-01	3.690E-02	-0.572
		215.65		1.165E-01	5.736E-01	9.278E-01	5.065E-02	0.126
		298.57		1.611E-01	1.335E-01	1.521E-01	8.736E-03	1.059
		879.36	*	-5.136E-03	9.514E-02	1.550E-01	1.703E-02	-0.033
		962.29		1.094E+00	4.478E-01	7.352E-01	7.553E-02	1.488
		966.15		1.290E+00	2.335E-01	4.005E-01	4.087E-02	3.220
		1177.93		6.533E-02	2.399E-01	4.044E-01	2.258E-02	0.162
		1271.85		6.054E-01	4.719E-01	8.491E-01	5.738E-02	0.713
HO-166M		80.57		-1.689E-01	2.400E-01	3.415E-01	2.967E-02	-0.494
		184.41		9.235E-02	3.135E-02	5.216E-02	2.771E-03	1.771

---- 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		-8.416E-02	6.538E-02	1.001E-01	5.712E-03	-0.840
		410.95		2.076E-01	1.746E-01	3.068E-01	1.806E-02	0.677
		711.68	*	1.855E-02	3.972E-02	6.810E-02	5.676E-03	0.272
		752.31		1.232E-01	1.891E-01	3.259E-01	2.914E-02	0.378
		810.29		-3.162E-02	4.047E-02	6.285E-02	6.188E-03	-0.503
		51.35		-5.406E+00	3.290E+01	5.509E+01	4.366E+00	-0.098
		52.39		5.081E+00	1.689E+01	2.874E+01	2.283E+00	0.177
		59.40		2.774E+00	2.743E+01	4.140E+01	3.144E+00	0.067
		66.72	*	-3.217E-01	2.904E+01	4.282E+01	3.424E+00	-0.008
		88.36		7.760E-01	2.199E-01	2.993E-01	2.748E-02	2.593
LU-176	+	201.83		-2.300E-02	2.158E-02	3.456E-02	1.864E-03	-0.666
		306.84	*	-5.151E-03	1.912E-02	2.806E-02	1.616E-03	-0.184
		401.10		3.385E+00	4.631E+00	8.010E+00	4.656E-01	0.423
LU-177		112.95		-1.712E-02	1.262E+00	2.034E+00	1.311E-01	-0.008
	+	208.36	*	2.333E+00	1.214E+00	1.483E+00	8.045E-02	1.573
LU-177M		52.97		8.170E-01	1.752E+00	2.996E+00	2.378E-01	0.273
		54.07		7.161E-01	8.857E-01	1.530E+00	1.209E-01	0.468
		61.30		1.225E+00	1.477E+00	2.295E+00	1.773E-01	0.534
		121.62		7.765E-02	2.989E-01	4.845E-01	2.874E-02	0.160
		147.16		-1.907E-01	5.024E-01	7.834E-01	4.263E-02	-0.243
		171.86		-1.026E-01	3.518E-01	5.869E-01	3.089E-02	-0.175
		218.09		1.637E-01	6.406E-01	1.072E+00	5.865E-02	0.153
		268.79		1.926E+00	6.869E-01	1.118E+00	6.340E-02	1.722
		319.02		5.672E-02	1.898E-01	3.103E-01	1.791E-02	0.183
		367.43		1.415E-01	6.277E-01	1.068E+00	6.169E-02	0.133
HF-181		413.65	*	-1.363E-01	1.257E-01	1.981E-01	1.170E-02	-0.688
		56.28		-2.560E-01	9.263E-01	1.538E+00	1.198E-01	-0.166
		57.53		-2.455E-01	4.818E-01	7.913E-01	6.102E-02	-0.310
		65.20		-1.585E+00	1.004E+00	1.370E+00	1.087E-01	-1.157
		133.02		-1.100E-02	5.658E-02	7.941E-02	4.492E-03	-0.138
		136.25		2.216E-02	3.422E-01	5.465E-01	3.060E-02	0.041
		345.85		1.998E-02	1.771E-01	2.094E-01	1.212E-02	0.095
		482.03	*	-2.115E-02	2.952E-02	4.660E-02	2.983E-03	-0.454
		56.28		-1.006E-01	3.635E-01	6.035E-01	4.701E-02	-0.167
		57.53		-9.666E-02	1.892E-01	3.108E-01	2.397E-02	-0.311
W-181		65.20	*	-6.176E-01	3.914E-01	5.339E-01	4.235E-02	-1.157
		67.75		-3.883E-02	1.079E-01	1.659E-01	1.334E-02	-0.234
		100.10		1.825E-01	1.431E-01	2.423E-01	1.821E-02	0.753
TA-182		152.43		-5.993E-02	2.637E-01	4.128E-01	2.220E-02	-0.145
		222.10		1.921E-01	2.584E-01	4.392E-01	2.411E-02	0.437
		1001.68		1.536E+00	1.549E+00	2.600E+00	2.482E-01	0.591
		1121.28		4.973E-01	1.473E-01	2.501E-01	1.723E-02	1.988
		1189.05		2.766E-01	2.033E-01	3.659E-01	2.092E-02	0.756
		1221.42	*	-3.385E-02	1.455E-01	2.364E-01	1.446E-02	-0.143
		1230.97		-1.259E-01	4.185E-01	5.723E-01	3.569E-02	-0.220
		57.98		-2.167E-01	1.896E-01	3.029E-01	2.327E-02	-0.715
		59.32		4.542E-03	1.125E-01	1.693E-01	1.286E-02	0.027
		67.20		8.051E-02	2.024E-01	3.034E-01	2.432E-02	0.265
RE-183		162.32	*	6.977E-02	7.903E-02	1.375E-01	7.256E-03	0.508

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184	+	208.81	2.149E+00	1.118E+00	1.384E+00	7.511E-02	1.553
		291.72	-7.718E-01	7.419E-01	9.754E-01	5.589E-02	-0.791
		57.98	-7.998E-01	6.998E-01	1.118E+00	8.588E-02	-0.715
		59.32	1.675E-02	4.148E-01	6.243E-01	4.743E-02	0.027
		67.20	2.970E-01	7.468E-01	1.119E+00	8.973E-02	0.265
		161.27	-4.263E-02	2.566E-01	4.317E-01	2.283E-02	-0.099
		216.55	6.803E-02	1.957E-01	3.287E-01	1.796E-02	0.207
		252.85	* -1.394E-01	1.645E-01	2.593E-01	1.456E-02	-0.538
		318.01	-7.372E-02	3.285E-01	5.234E-01	3.021E-02	-0.141
		792.07	7.397E-01	8.850E-01	1.337E+00	1.278E-01	0.553
OS-185		903.28	-1.618E-01	8.508E-01	1.166E+00	1.309E-01	-0.139
		920.93	3.601E-04	3.249E-01	5.293E-01	5.800E-02	0.001
		59.72	2.353E-01	2.962E-01	4.609E-01	3.506E-02	0.511
		61.14	1.422E-01	1.632E-01	2.540E-01	1.960E-02	0.560
		69.30	3.046E-02	2.912E-01	4.350E-01	3.524E-02	0.070
		592.07	-2.430E-01	1.682E+00	2.697E+00	1.931E-01	-0.090
		646.12	* 1.754E-03	2.966E-02	4.783E-02	3.597E-03	0.037
		717.42	-4.688E-02	5.987E-01	9.709E-01	8.175E-02	-0.048
		874.81	-5.193E-02	4.178E-01	6.779E-01	7.394E-02	-0.077
		880.27	-1.722E-01	5.379E-01	8.586E-01	9.446E-02	-0.201
RE-188		155.03	* 5.536E-02	1.254E-01	2.157E-01	1.154E-02	0.257
		477.96	1.100E+00	2.148E+00	3.640E+00	2.319E-01	0.302
		633.10	5.392E-01	1.940E+00	3.180E+00	2.364E-01	0.170
W-188	+	63.58	5.499E+01	7.152E+01	8.534E+01	6.705E+00	0.644
		227.08	1.370E+00	9.344E+00	1.554E+01	8.563E-01	0.088
IR-192		290.67	* -2.794E+00	5.779E+00	7.928E+00	4.541E-01	-0.352
	+	295.96	7.851E-01	1.548E-01	2.050E-01	1.196E-02	3.829
		308.46	-2.517E-03	6.898E-02	1.112E-01	6.481E-03	-0.023
		316.51	* -1.753E-02	2.497E-02	3.878E-02	2.249E-03	-0.452
		468.07	-5.233E-03	5.405E-02	7.685E-02	5.477E-03	-0.068
AU-195		604.41	-6.397E-02	3.740E-01	5.086E-01	6.180E-02	-0.126
		612.46	2.381E+00	6.940E-01	1.141E+00	1.001E-01	2.086
		65.12	-2.807E-01	1.817E-01	2.484E-01	1.970E-02	-1.130
		66.83	9.925E-03	9.583E-02	1.420E-01	1.136E-02	0.070
	+	75.70	1.116E+00	2.317E-01	3.705E-01	3.112E-02	3.013
TL-200		98.88	* 9.621E-02	1.910E-01	3.019E-01	2.310E-02	0.319
	+	129.76	5.343E+00	3.762E+00	4.020E+00	2.300E-01	1.329
		367.94	* 7.269E-05	3.762E+00	Half-Life	too short	
		579.30	3.871E-03	3.762E+00	Half-Life	too short	
		828.27	3.066E-04	3.762E+00	Half-Life	too short	
TL-201		1205.75	1.393E-03	3.762E+00	Half-Life	too short	
		68.90	2.230E+00	4.386E+00	6.663E+00	5.386E-01	0.335
		70.82	5.854E-01	2.468E+00	3.702E+00	3.023E-01	0.158
		80.30	-3.452E+00	4.178E+00	5.908E+00	5.123E-01	-0.584
TL-202		135.34	7.732E+00	1.907E+01	2.942E+01	1.652E+00	0.263
		167.43	* 1.037E+00	4.804E+00	8.169E+00	4.288E-01	0.127
		68.90	2.096E-01	4.122E-01	6.263E-01	5.063E-02	0.335
		70.82	5.487E-02	2.314E-01	3.470E-01	2.834E-02	0.158
		80.30	-3.237E-01	3.918E-01	5.540E-01	4.803E-02	-0.584

---- 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	*	-6.615E-03	4.745E-02	7.821E-02	4.768E-03	-0.085
		70.83		2.442E-01	1.014E+00	1.520E+00	2.026E-01	0.161
		72.87		8.715E-01	5.882E-01	9.077E-01	1.177E-01	0.960
		82.60		1.757E+00	1.120E+00	1.422E+00	1.974E-01	1.235
BI-207		279.20	*	3.293E-02	3.001E-02	5.104E-02	3.096E-03	0.645
		72.80		2.339E-01	1.707E-01	2.654E-01	2.191E-02	0.881
	+	74.97		6.198E-01	1.286E-01	1.917E-01	1.602E-02	3.234
	+	84.90		3.666E-01	2.243E-01	2.667E-01	2.400E-02	1.374
		569.67		1.148E-02	2.035E-02	3.422E-02	2.398E-03	0.335
		1063.62	*	4.261E-03	3.672E-02	6.180E-02	5.102E-03	0.069
TL-207		1770.23		-1.896E-01	2.828E-01	3.167E-01	1.916E-02	-0.599
		81.07		-1.535E-01	1.905E-01	2.694E-01	2.350E-02	-0.570
	+	83.78		2.417E-01	1.479E-01	1.740E-01	1.551E-02	1.389
		94.90		4.366E-01	2.089E-01	3.276E-01	2.666E-02	1.333
		122.32		-2.783E-01	1.379E+00	2.194E+00	1.490E-01	-0.127
		144.24		2.118E-01	5.332E-01	8.498E-01	5.930E-02	0.249
		154.21		1.749E-01	2.920E-01	5.046E-01	3.357E-02	0.347
	+	269.46		5.508E-01	2.161E-01	2.693E-01	1.600E-02	2.045
		323.87	*	-4.645E-01	5.820E-01	7.661E-01	1.265E-01	-0.606
	+	338.28		6.991E+00	1.705E+00	1.856E+00	1.953E-01	3.766
PO-209		445.03		3.985E-01	1.653E+00	2.698E+00	2.823E-01	0.148
		260.50		-7.151E+00	6.948E+00	1.083E+01	6.110E-01	-0.661
		262.80		6.421E+00	1.920E+01	3.187E+01	1.801E+00	0.201
		896.60	*	5.077E-02	5.108E+00	8.347E+00	9.415E-01	0.006
BI-210		46.50	*	2.632E+00	4.265E+00	7.375E+00	5.706E-01	0.357
PB-210		46.50	*	2.632E+00	4.265E+00	7.375E+00	5.706E-01	0.357
PO-210		46.50	*	2.632E+00	4.264E+00	7.375E+00	4.905E-01	0.357
PB-211		404.84	*	-5.397E-01	7.541E-01	1.085E+00	6.767E-01	-0.497
		427.08		4.231E-01	1.479E+00	2.459E+00	1.520E+00	0.172
BI-212		831.96		-3.555E-01	8.418E-01	1.294E+00	8.137E-01	-0.275
	+	727.18	*	1.250E+00	4.039E-01	4.767E-01	4.748E-02	2.622
		785.46		1.528E+00	1.230E+00	2.172E+00	2.053E-01	0.703
PO-215		1620.62		9.087E-01	8.989E-01	1.641E+00	1.110E-01	0.554
		81.07		-1.535E-01	1.905E-01	2.694E-01	2.350E-02	-0.570
	+	83.78		2.417E-01	1.479E-01	1.740E-01	1.551E-02	1.389
		94.90		4.366E-01	2.089E-01	3.276E-01	2.666E-02	1.333
		122.32		-2.783E-01	1.379E+00	2.194E+00	1.490E-01	-0.127
		144.24		2.118E-01	5.332E-01	8.498E-01	5.930E-02	0.249
		154.21		1.749E-01	2.920E-01	5.046E-01	3.357E-02	0.347
	+	269.46		5.508E-01	2.161E-01	2.693E-01	1.600E-02	2.045
		323.87	*	-4.645E-01	5.820E-01	7.661E-01	1.265E-01	-0.606
	+	338.28		6.991E+00	1.705E+00	1.856E+00	1.953E-01	3.766
RN-219		445.03		3.985E-01	1.653E+00	2.698E+00	2.823E-01	0.148
	+	271.23		7.067E-01	2.798E-01	3.470E-01	2.782E-02	2.036
		401.81	*	8.882E-02	2.875E-01	4.876E-01	6.638E-02	0.182
RN-220		549.76	*	-1.186E+00	1.816E+01	2.947E+01	2.025E+00	-0.040
RA-223		81.07		-1.535E-01	1.905E-01	2.694E-01	2.350E-02	-0.570
	+	83.78		2.417E-01	1.479E-01	1.740E-01	1.551E-02	1.389
		94.90		4.366E-01	2.089E-01	3.276E-01	2.666E-02	1.333

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-2.783E-01	1.379E+00	2.194E+00	1.490E-01	-0.127
		144.24		2.118E-01	5.332E-01	8.498E-01	5.930E-02	0.249
		154.21		1.749E-01	2.920E-01	5.046E-01	3.357E-02	0.347
	+	269.46		5.508E-01	2.161E-01	2.693E-01	1.600E-02	2.045
		323.87	*	-4.645E-01	5.820E-01	7.661E-01	1.265E-01	-0.606
	+	338.28		6.991E+00	1.705E+00	1.856E+00	1.953E-01	3.766
		445.03		3.985E-01	1.653E+00	2.698E+00	2.823E-01	0.148
		79.80		-9.026E-01	1.472E+00	2.091E+00	4.498E-01	-0.432
		236.00		5.458E-01	2.068E-01	3.245E-01	3.348E-02	1.682
		256.20	*	9.951E-03	2.701E-01	4.434E-01	6.159E-02	0.022
		286.10		9.397E-02	1.123E+00	1.832E+00	2.111E-01	0.051
	+	299.80		2.630E+00	1.502E+00	1.916E+00	3.117E-01	1.373
		304.40		1.095E-01	1.461E+00	2.075E+00	3.587E-01	0.053
		334.20		-4.891E-01	2.322E+00	2.666E+00	4.887E-01	-0.183
TH-227		79.80		-9.026E-01	1.473E+00	2.091E+00	4.556E-01	-0.432
	+	94.00		1.302E+01	3.780E+00	3.349E+00	7.248E-01	3.886
		236.00		5.458E-01	2.049E-01	3.245E-01	2.888E-02	1.682
		256.20	*	9.951E-03	2.701E-01	4.434E-01	7.468E-02	0.022
		286.10		9.397E-02	1.127E+00	1.832E+00	1.835E+00	0.051
	+	299.80		2.630E+00	1.502E+00	1.916E+00	3.117E-01	1.373
		304.40		1.095E-01	1.461E+00	2.075E+00	3.587E-01	0.053
		334.20		-4.891E-01	2.322E+00	2.666E+00	4.887E-01	-0.183
	+	85.43		3.618E-01	2.214E-01	2.667E-01	2.411E-02	1.357
	+	88.47		4.467E-01	1.266E-01	1.713E-01	1.569E-02	2.608
TH-229		100.00		1.865E-01	1.487E-01	2.516E-01	1.894E-02	0.741
		193.63	*	3.446E-01	3.626E-01	6.260E-01	3.352E-02	0.551
		210.97		1.555E+00	6.583E-01	1.058E+00	5.753E-02	1.470
		283.67	*	1.260E-01	1.124E+00	1.837E+00	2.525E-01	0.069
	+	301.29		1.052E+00	5.864E-01	7.531E-01	7.850E-02	1.397
TH-231		81.07		-1.535E-01	1.905E-01	2.694E-01	2.350E-02	-0.570
	+	83.78		2.417E-01	1.479E-01	1.740E-01	1.551E-02	1.389
		94.90		4.366E-01	2.089E-01	3.276E-01	2.666E-02	1.333
		122.32		-2.783E-01	1.379E+00	2.194E+00	1.490E-01	-0.127
U-231		144.24		2.118E-01	5.332E-01	8.498E-01	5.930E-02	0.249
		154.21		1.749E-01	2.920E-01	5.046E-01	3.357E-02	0.347
	+	269.46		5.508E-01	2.161E-01	2.693E-01	1.600E-02	2.045
		323.87	*	-4.645E-01	5.820E-01	7.661E-01	1.265E-01	-0.606
	+	338.28		6.991E+00	1.705E+00	1.856E+00	1.953E-01	3.766
		445.03		3.985E-01	1.653E+00	2.698E+00	2.823E-01	0.148
	+	84.21		9.973E+00	6.103E+00	7.244E+00	6.480E-01	1.377
	+	92.29		1.232E+01	2.594E+00	3.409E+00	2.902E-01	3.614
		95.87	*	-2.171E-01	9.025E-01	1.297E+00	1.039E-01	-0.167
		108.00		-2.206E-01	1.574E+00	2.532E+00	1.722E-01	-0.087
	+	75.28		1.809E+01	4.401E+00	5.635E+00	8.572E-01	3.210
	+	86.59		6.405E+00	2.437E+00	2.488E+00	6.714E-01	2.575
	+	300.12		7.333E-01	4.134E-01	5.297E-01	7.105E-02	1.384
		311.98	*	1.898E-02	4.598E-02	7.571E-02	4.638E-03	0.251
		340.50		2.511E+00	7.920E-01	9.551E-01	2.193E-01	2.629
PA-233		398.62		-5.801E-01	1.425E+00	2.322E+00	6.005E-01	-0.250



---- 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		3.177E-01	1.137E+00	1.919E+00	3.958E-01	0.166	
		63.00		1.599E+00	2.090E+00	2.564E+00	3.865E-01	0.624	
		94.67		4.651E-01	1.617E-01	2.491E-01	3.013E-02	1.867	
		98.44		-8.367E-03	8.462E-02	1.221E-01	6.795E-02	-0.069	
		99.86		4.612E-01	3.761E-01	6.360E-01	4.798E-02	0.725	
		111.00		-3.292E-02	1.476E-01	2.363E-01	2.534E-02	-0.139	
		131.20		2.671E-02	9.404E-02	1.355E-01	7.711E-03	0.197	
		152.70		1.242E-01	2.517E-01	4.044E-01	6.332E-02	0.307	
		186.00		5.132E+00	2.244E+00	2.070E+00	6.306E-01	2.479	
		226.40		-1.105E-01	2.963E-01	4.826E-01	5.509E-02	-0.229	
	+	227.20		1.796E-01	3.124E-01	5.277E-01	2.908E-02	0.340	
		248.90		7.857E-02	6.180E-01	9.459E-01	2.027E-01	0.083	
		293.70		4.328E+00	9.549E-01	1.193E+00	1.916E-01	3.628	
		369.80		-2.509E-02	5.679E-01	9.539E-01	1.986E-01	-0.026	
		568.70		2.437E-01	7.031E-01	1.103E+00	7.723E-02	0.221	
		569.50		8.122E-02	1.793E-01	2.995E-01	2.099E-02	0.271	
		574.00		-6.418E-01	1.047E+00	1.633E+00	1.149E-01	-0.393	
		699.00		-1.828E-01	4.860E-01	7.916E-01	1.494E-01	-0.231	
		706.10		8.484E-02	6.865E-01	1.152E+00	5.130E-01	0.074	
		733.00		1.031E-01	2.499E-01	3.722E-01	8.265E-02	0.277	
	+	742.81		9.150E-01	1.098E+00	1.606E+00	1.080E+00	0.570	
		796.30		1.162E+00	8.485E-01	1.185E+00	3.246E-01	0.980	
		805.60		4.030E-01	7.051E-01	1.188E+00	3.680E-01	0.339	
		819.60		-5.493E-01	8.510E-01	1.291E+00	4.954E-01	-0.425	
		826.30		4.387E-01	5.786E-01	9.454E-01	4.259E-01	0.464	
		831.60		-2.368E-01	4.304E-01	6.708E-01	2.035E-01	-0.353	
		876.40		2.105E-01	6.214E-01	9.776E-01	1.007E+00	0.215	
		880.51		-8.948E-02	1.961E-01	3.096E-01	3.407E-02	-0.289	
		883.24		-1.392E-01	2.184E-01	3.051E-01	2.062E-01	-0.456	
		899.00		-5.558E-02	5.905E-01	9.568E-01	4.240E-01	-0.058	
PA-234M		925.00		8.896E-02	8.341E-01	1.369E+00	1.491E-01	0.065	
		926.50		2.950E-02	1.252E-01	1.978E-01	5.167E-02	0.149	
	*	946.00		1.216E-01	2.153E-01	3.619E-01	7.139E-02	0.336	
		949.00		-8.769E-02	3.205E-01	5.099E-01	5.355E-02	-0.172	
		980.50		3.674E-01	5.287E-01	8.975E-01	8.927E-02	0.409	
		1394.10		-4.926E-01	8.778E-01	1.246E+00	8.094E-01	-0.395	
		766.42		2.229E+01	1.500E+01	1.636E+01	8.315E+00	1.363	
	*	1001.03		2.821E+00	3.506E+00	5.820E+00	6.279E-01	0.485	
	U-235	+	89.95		2.822E+00	1.363E+00	1.560E+00	4.826E-01	1.809
		+	93.35		4.050E+00	1.376E+00	1.105E+00	3.087E-01	3.666
		105.00		8.076E-01	8.560E-01	1.382E+00	4.067E-01	0.584	
*		143.76		4.405E-02	1.628E-01	2.580E-01	4.179E-02	0.171	
		163.35		-3.766E-02	3.377E-01	5.687E-01	1.013E-01	-0.066	
+		185.71		1.901E-01	6.046E-02	7.643E-02	4.065E-03	2.487	
		205.31		1.477E-01	4.132E-01	6.153E-01	1.099E-01	0.240	
NP-236		94.67		3.561E-01	1.187E-01	1.893E-01	1.546E-02	1.881	
		98.44		-6.347E-03	6.387E-02	9.229E-02	7.108E-03	-0.069	
		111.00		-2.490E-02	1.116E-01	1.787E-01	1.175E-02	-0.139	
	*	160.31		-2.392E-02	5.901E-02	9.855E-02	5.221E-03	-0.243	

----- 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		7.685E-02	1.274E-01	2.113E-01	1.601E-02	0.364
		117.00	*	-3.266E-02	1.505E-01	2.400E-01	1.486E-02	-0.136
	+	209.75		1.700E+00	8.839E-01	1.109E+00	6.020E-02	1.533
		228.18		8.937E-02	1.650E-01	2.784E-01	1.535E-02	0.321
		277.60		2.192E-01	1.337E-01	2.316E-01	1.319E-02	0.946
		334.30		-2.814E-01	1.315E+00	1.510E+00	8.734E-02	-0.186
AM-241		59.54	*	3.298E-02	1.596E-01	2.420E-01	2.007E-02	0.136
CM-243		99.55		7.908E-02	1.311E-01	2.175E-01	1.648E-02	0.364
		103.76	*	-5.680E-02	7.819E-02	1.231E-01	8.813E-03	-0.461
		117.00		-3.360E-02	1.548E-01	2.470E-01	1.529E-02	-0.136
	+	209.75		1.676E+00	8.714E-01	1.093E+00	5.935E-02	1.533
		228.18		9.030E-02	1.668E-01	2.813E-01	1.551E-02	0.321
		277.60		2.210E-01	1.348E-01	2.335E-01	1.330E-02	0.946
AM-246		798.80		-1.080E-01	1.111E-01	1.413E-01	1.365E-02	-0.764
		1036.00		2.288E-01	2.017E-01	3.622E-01	3.206E-02	0.632
		1062.04		8.808E-02	1.556E-01	2.697E-01	2.236E-02	0.327
		1078.86	*	1.200E-01	9.714E-02	1.748E-01	1.383E-02	0.686
CM-247		278.00		1.049E+00	5.566E-01	9.718E-01	5.536E-02	1.079
		287.40		1.054E+00	8.774E-01	1.501E+00	8.586E-02	0.702
		402.60	*	-3.783E-03	2.584E-02	4.290E-02	2.499E-03	-0.088
CF-249		252.85		-5.236E-01	6.179E-01	9.738E-01	5.470E-02	-0.538
		333.44		8.156E-02	1.939E-01	2.042E-01	1.181E-02	0.399
		387.95	*	8.351E-03	2.792E-02	4.747E-02	2.729E-03	0.176
CF-251		176.60	*	-3.358E-03	9.068E-02	1.524E-01	8.046E-03	-0.022
		227.00		3.398E-02	2.808E-01	4.665E-01	2.571E-02	0.073
		285.00		-2.500E-01	1.298E+00	2.092E+00	1.196E-01	-0.119

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600009      *
* Acquisition date   : 22-JAN-2010 08:36:30 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 02:00:01.84 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600009 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.5462E+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 :                               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.527E+01	2.216E+00	3.177E-01	0.000E+00
CD-109	3.328E+00	9.240E-01	1.045E+00	0.000E+00
SB-122	2.180E+00	1.558E+00	2.180E+00	0.000E+00
SN-126	3.272E-01	9.086E-02	1.034E-01	0.000E+00
BA-137M	3.675E-01	5.907E-02	4.530E-02	0.000E+00
CS-137	3.885E-01	6.248E-02	4.789E-02	0.000E+00
TL-208	4.661E-01	6.714E-02	4.162E-02	0.000E+00
BI-211	3.235E+00	4.280E-01	2.320E-01	0.000E+00
PB-212	1.506E+00	1.342E-01	6.899E-02	0.000E+00
PO-212	1.506E+00	1.342E-01	6.899E-02	0.000E+00
BI-214	1.160E+00	1.457E-01	8.435E-02	0.000E+00
PB-214	1.125E+00	1.596E-01	8.083E-02	0.000E+00
PO-214	1.125E+00	1.596E-01	8.083E-02	0.000E+00
PO-216	1.506E+00	1.342E-01	6.899E-02	0.000E+00
PO-218	1.125E+00	1.596E-01	8.083E-02	0.000E+00
RA-224	4.472E+00	9.734E-01	7.840E-01	0.000E+00
RA-226	1.160E+00	1.457E-01	8.435E-02	0.000E+00
AC-228	1.366E+00	2.752E-01	1.589E-01	0.000E+00
RA-228	1.366E+00	2.752E-01	1.589E-01	0.000E+00
TH-228	1.529E+00	1.362E-01	7.002E-02	0.000E+00
TH-230	1.160E+00	1.457E-01	8.435E-02	0.000E+00
TH-232	1.366E+00	2.752E-01	1.589E-01	0.000E+00
TH-234	1.372E+00	1.761E+00	2.113E+00	0.000E+00
U-234	1.160E+00	1.457E-01	8.435E-02	0.000E+00
NP-237	9.608E-01	3.301E-01	3.085E-01	0.000E+00
U-238	1.372E+00	1.761E+00	2.113E+00	0.000E+00
AM-243	3.453E-01	7.023E-02	8.202E-02	0.000E+00
ANH-511	1.223E-01	4.884E-02	3.368E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	1.009E-01	2.181E-01	3.907E-01	0.000E+00	NOT IDENT.
NA-22	-1.946E-02	3.104E-02	5.013E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.676E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.145E-02	1.861E-02	2.814E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.930E-02	7.366E-02	0.000E+00	FAIL ABUN
SC-46	-2.461E-03	2.603E-02	4.406E-02	0.000E+00	FAIL ABUN
V-48	-4.005E-02	5.117E-02	8.098E-02	0.000E+00	NOT IDENT.
CR-51	1.097E-01	2.673E-01	4.703E-01	0.000E+00	NOT IDENT.
MN-52	-4.180E-02	1.526E-01	2.475E-01	0.000E+00	FAIL ABUN
MN-54	-5.600E-03	2.538E-02	4.296E-02	0.000E+00	NOT IDENT.
CO-56	-2.634E-03	2.694E-02	4.589E-02	0.000E+00	FAIL ABUN
CO-57	-6.702E-04	1.965E-02	3.457E-02	0.000E+00	NOT IDENT.
CO-58	-1.429E-02	2.583E-02	4.275E-02	0.000E+00	NOT IDENT.
FE-59	-2.856E-02	5.726E-02	9.513E-02	0.000E+00	NOT IDENT.
CO-60	3.910E-03	2.811E-02	4.795E-02	0.000E+00	NOT IDENT.
ZN-65	8.981E-03	7.000E-02	1.045E-01	0.000E+00	NOT IDENT.
GE-68	8.167E-01	8.309E-01	1.529E+00	0.000E+00	NOT IDENT.
AS-73	4.291E-01	8.555E-01	1.639E+00	0.000E+00	NOT IDENT.
AS-74	3.610E-02	6.479E-02	1.140E-01	0.000E+00	NOT IDENT.
SE-75	1.792E-02	3.334E-02	5.583E-02	0.000E+00	NOT IDENT.
BR-77	-4.375E+00	6.873E+00	1.147E+01	0.000E+00	FAIL ABUN
SR-82	6.031E-02	2.832E-01	4.304E-01	0.000E+00	NOT IDENT.
RB-83	-2.843E-02	4.903E-02	8.209E-02	0.000E+00	NOT IDENT.
RB-84	-4.629E-02	4.787E-02	7.544E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	6.046E+00	1.066E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.092E-02	5.452E-02	0.000E+00	NOT IDENT.
RB-86	4.728E-01	5.374E-01	9.815E-01	0.000E+00	NOT IDENT.
Y-88	-9.851E-03	2.307E-02	3.631E-02	0.000E+00	NOT IDENT.
ZR-88	4.607E-03	2.042E-02	3.687E-02	0.000E+00	NOT IDENT.
Y-91	1.566E+01	1.344E+01	2.450E+01	0.000E+00	NOT IDENT.
NB-94	-3.927E-03	2.170E-02	3.762E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	3.636E-02	6.170E-02	0.000E+00	NOT IDENT.
NB-95M	1.330E-01	9.855E-02	1.637E-01	0.000E+00	NOT IDENT.
ZR-95	3.677E-02	5.033E-02	9.092E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.105E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.087E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-5.863E-01	7.253E+00	1.257E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.538E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.052E-02	2.439E-02	4.435E-02	0.000E+00	NOT IDENT.
RH-102	3.255E-03	2.003E-02	3.536E-02	0.000E+00	NOT IDENT.
RU-103	9.286E-03	2.670E-02	4.738E-02	0.000E+00	FAIL ABUN
RH-106	-1.914E-02	2.191E-01	3.698E-01	0.000E+00	FAIL ABUN
RU-106	-1.914E-02	2.191E-01	3.698E-01	0.000E+00	FAIL ABUN
AG-108M	1.202E-03	2.216E-02	3.927E-02	0.000E+00	NOT IDENT.
AG-110M	4.342E-02	2.749E-02	4.671E-02	0.000E+00	NOT IDENT.
IN-111	6.562E-02	7.288E-01	1.140E+00	0.000E+00	NOT IDENT.
IN-113M	4.729E-03	3.001E-02	5.401E-02	0.000E+00	NOT IDENT.
SN-113	4.729E-03	3.001E-02	5.401E-02	0.000E+00	NOT IDENT.
IN-114M	-6.770E-02	1.430E-01	2.235E-01	0.000E+00	NOT IDENT.
CD-115	-9.138E+00	6.786E+00	1.059E+01	0.000E+00	NOT IDENT.
SN-117M	1.080E-02	3.891E-02	7.254E-02	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.957E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.612E-04	2.023E-02	3.739E-02	0.000E+00	NOT IDENT.
I-124	-5.328E-01	5.467E-01	7.292E-01	0.000E+00	FAIL ABUN
SB-124	2.392E-02	5.063E-02	9.062E-02	0.000E+00	FAIL ABUN
SB-125	1.933E-02	6.352E-02	1.141E-01	0.000E+00	FAIL ABUN
TE-125M	-1.878E+00	7.291E+00	1.284E+01	0.000E+00	NOT IDENT.
I-126	-1.777E-02	1.420E-01	2.138E-01	0.000E+00	NOT IDENT.
SB-126	8.681E-02	1.008E-01	1.633E-01	0.000E+00	FAIL ABUN
SB-127	2.880E-01	8.657E-01	1.550E+00	0.000E+00	NOT IDENT.
XE-127	-4.300E-02	3.373E-02	5.805E-02	0.000E+00	NOT IDENT.
I-131	2.514E-02	7.843E-02	1.431E-01	0.000E+00	NOT IDENT.
TE-132	2.571E-01	4.692E-01	8.531E-01	0.000E+00	NOT IDENT.
BA-133	-1.187E-02	3.369E-02	4.867E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.446E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.976E-02	4.006E-02	6.487E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.325E-01	2.214E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.913E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.061E-02	6.460E-02	1.135E-01	0.000E+00	FAIL ABUN
CE-139	-1.835E-02	2.109E-02	3.764E-02	0.000E+00	NOT IDENT.
BA-140	-1.952E-01	1.940E-01	2.974E-01	0.000E+00	NOT IDENT.
LA-140	-2.396E-02	5.431E-02	8.442E-02	0.000E+00	FAIL ABUN
CE-141	9.830E-03	4.743E-02	8.197E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.449E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-8.205E-02	1.774E-01	2.683E-01	0.000E+00	NOT IDENT.
PM-144	2.938E-02	2.271E-02	4.251E-02	0.000E+00	NOT IDENT.
PR-144	1.990E+00	1.539E+00	2.880E+00	0.000E+00	NOT IDENT.

PM-146	-5.711E-03	2.833E-02	4.927E-02	0.000E+00	NOT IDENT.
ND-147	1.563E-01	3.623E-01	6.416E-01	0.000E+00	FAIL ABUN
PM-149	3.012E+00	6.048E+01	1.059E+02	0.000E+00	NOT IDENT.
EU-152	2.459E-02	8.662E-02	1.110E-01	0.000E+00	FAIL ABUN
GD-153	-4.200E-02	7.058E-02	1.099E-01	0.000E+00	FAIL ABUN
EU-154	-5.297E-02	8.688E-02	1.404E-01	0.000E+00	NOT IDENT.
EU-155	9.248E-03	8.425E-02	1.510E-01	0.000E+00	FAIL ABUN
TB-160	-5.136E-03	9.324E-02	1.585E-01	0.000E+00	FAIL ABUN
HO-166M	1.855E-02	3.893E-02	7.003E-02	0.000E+00	NOT IDENT.
TM-171	-3.217E-01	2.846E+01	4.675E+01	0.000E+00	NOT IDENT.
LU-176	-5.151E-03	1.874E-02	2.950E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.189E+00	1.575E+00	0.000E+00	FAIL ABUN
LU-177M	-1.363E-01	1.232E-01	2.067E-01	0.000E+00	NOT IDENT.
HF-181	-2.115E-02	2.893E-02	4.842E-02	0.000E+00	NOT IDENT.
W-181	-6.176E-01	3.836E-01	5.832E-01	0.000E+00	NOT IDENT.
TA-182	-3.385E-02	1.426E-01	2.396E-01	0.000E+00	NOT IDENT.
RE-183	6.977E-02	7.745E-02	1.469E-01	0.000E+00	FAIL ABUN
RE-184	-1.394E-01	1.612E-01	2.739E-01	0.000E+00	NOT IDENT.
OS-185	1.754E-03	2.907E-02	4.931E-02	0.000E+00	NOT IDENT.
RE-188	5.536E-02	1.229E-01	2.307E-01	0.000E+00	NOT IDENT.
W-188	-2.794E+00	5.664E+00	8.346E+00	0.000E+00	FAIL ABUN
IR-192	-1.753E-02	2.447E-02	4.074E-02	0.000E+00	FAIL ABUN
AU-195	9.621E-02	1.872E-01	3.265E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.618E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.037E+00	4.708E+00	8.721E+00	0.000E+00	NOT IDENT.
TL-202	-6.615E-03	4.650E-02	8.146E-02	0.000E+00	NOT IDENT.
HG-203	3.293E-02	2.941E-02	5.379E-02	0.000E+00	NOT IDENT.
BI-207	4.261E-03	3.598E-02	6.286E-02	0.000E+00	FAIL ABUN
TL-207	-4.645E-01	5.704E-01	8.043E-01	0.000E+00	FAIL ABUN
PO-209	5.077E-02	5.005E+00	8.530E+00	0.000E+00	NOT IDENT.
BI-210	2.632E+00	4.180E+00	8.120E+00	0.000E+00	NOT IDENT.
PB-210	2.632E+00	4.180E+00	8.120E+00	0.000E+00	NOT IDENT.
PO-210	2.632E+00	4.179E+00	8.120E+00	0.000E+00	NOT IDENT.
PB-211	-5.397E-01	7.390E-01	1.133E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.958E-01	4.899E-01	0.000E+00	FAIL ABUN
PO-215	-4.645E-01	5.704E-01	8.043E-01	0.000E+00	FAIL ABUN
RN-219	8.882E-02	2.818E-01	5.090E-01	0.000E+00	FAIL ABUN
RN-220	-1.186E+00	1.780E+01	3.052E+01	0.000E+00	NOT IDENT.
RA-223	-4.645E-01	5.704E-01	8.043E-01	0.000E+00	FAIL ABUN
AC-227	9.951E-03	2.647E-01	4.683E-01	0.000E+00	FAIL ABUN
TH-227	9.951E-03	2.647E-01	4.683E-01	0.000E+00	FAIL ABUN
TH-229	3.446E-01	3.553E-01	6.659E-01	0.000E+00	FAIL ABUN
PA-231	1.260E-01	1.102E+00	1.935E+00	0.000E+00	FAIL ABUN
TH-231	-4.645E-01	5.704E-01	8.043E-01	0.000E+00	FAIL ABUN
U-231	-2.171E-01	8.844E-01	1.404E+00	0.000E+00	FAIL ABUN
PA-233	1.898E-02	4.506E-02	7.956E-02	0.000E+00	FAIL ABUN
PA-234	1.216E-01	2.110E-01	3.693E-01	0.000E+00	FAIL ABUN
PA-234M	2.821E+00	3.436E+00	5.930E+00	0.000E+00	NOT IDENT.
U-235	4.405E-02	1.595E-01	2.765E-01	0.000E+00	FAIL ABUN
NP-236	-2.392E-02	5.783E-02	1.053E-01	0.000E+00	NOT IDENT.
NP-239	-3.266E-02	1.475E-01	2.585E-01	0.000E+00	FAIL ABUN
AM-241	3.298E-02	1.564E-01	2.649E-01	0.000E+00	NOT IDENT.
CM-243	-5.680E-02	7.662E-02	1.330E-01	0.000E+00	FAIL ABUN
AM-246	1.200E-01	9.520E-02	1.778E-01	0.000E+00	NOT IDENT.
CM-247	-3.783E-03	2.532E-02	4.479E-02	0.000E+00	NOT IDENT.
CF-249	8.351E-03	2.736E-02	4.961E-02	0.000E+00	NOT IDENT.
CF-251	-3.358E-03	8.886E-02	1.624E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600009.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:36:30
Sample ID          : G244600009          Sample quantity  : 1.54620E+02 GRAM
Detector name      : GAM18              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.84  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941635             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	2103	10.67*	1.893E+00	2.527E+01	2.527E+01	8.95
CD-109	88.03	322	3.72*	6.458E+00	3.254E+00	3.328E+00	28.34
SB-122	563.90	56	70.60*	4.034E+00	4.755E-02	2.180E+00	72.95
	692.80	-----	3.70	3.464E+00	-----	Line Not Found	-----
SN-126	64.28	67	9.60	3.114E+00	5.430E-01	5.430E-01	130.66
	86.94	322	8.90	6.458E+00	1.360E+00	1.360E+00	49.39
	87.57	322	37.00*	6.458E+00	3.272E-01	3.272E-01	28.34
BA-137M	661.65	488	89.98*	3.587E+00	3.672E-01	3.675E-01	16.40
CS-137	661.65	488	85.12*	3.587E+00	3.881E-01	3.885E-01	16.41
TL-208	277.35	-----	6.80	6.258E+00	-----	Line Not Found	-----
	510.84	217	21.60	4.310E+00	5.663E-01	5.663E-01	41.59
	583.14	636	84.20*	3.933E+00	4.661E-01	4.661E-01	14.70
	860.37	109	12.46	2.915E+00	7.260E-01	7.260E-01	44.78
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	940	12.94*	5.452E+00	3.235E+00	3.235E+00	13.50
PB-212	74.81	464	10.70	4.945E+00	2.130E+00	2.130E+00	22.76
	77.11	737	18.00	5.264E+00	1.888E+00	1.888E+00	14.44
	87.30	322	8.00	6.458E+00	1.513E+00	1.513E+00	30.05
	238.63	1879	44.60*	6.792E+00	1.506E+00	1.506E+00	9.09
	300.09	119	3.41	5.981E+00	1.419E+00	1.419E+00	55.36
PO-212	74.81	464	10.70	4.945E+00	2.130E+00	2.130E+00	22.76
	77.11	737	18.00	5.264E+00	1.888E+00	1.888E+00	14.44
	87.30	322	8.00	6.458E+00	1.513E+00	1.513E+00	30.05
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	1879	44.60*	6.792E+00	1.506E+00	1.506E+00	9.09
	300.09	119	3.41	5.981E+00	1.419E+00	1.419E+00	55.36
BI-214	609.31	844	46.30*	3.813E+00	1.160E+00	1.160E+00	12.81
	1120.29	204	15.10	2.335E+00	1.407E+00	1.407E+00	24.95
	1764.49	180	15.80	1.695E+00	1.629E+00	1.629E+00	19.48
PB-214	74.81	464	6.21	4.945E+00	3.670E+00	3.670E+00	22.04
	77.11	737	10.50	5.264E+00	3.237E+00	3.237E+00	16.33
	87.30	322	4.67	6.458E+00	2.592E+00	2.592E+00	29.37

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	241.98	491	7.49	6.747E+00	2.358E+00	2.358E+00	22.91
	295.21	493	19.20	6.040E+00	1.032E+00	1.032E+00	20.65
	351.92	940	37.20*	5.452E+00	1.125E+00	1.125E+00	14.47
	74.81	464	6.21	4.945E+00	3.670E+00	3.670E+00	22.04
	77.11	737	10.50	5.264E+00	3.237E+00	3.237E+00	16.33
	87.30	322	4.67	6.458E+00	2.592E+00	2.592E+00	29.37
	241.98	491	7.49	6.747E+00	2.358E+00	2.358E+00	22.91
	295.21	493	19.20	6.040E+00	1.032E+00	1.032E+00	20.65
PO-216	351.92	940	37.20*	5.452E+00	1.125E+00	1.125E+00	14.47
	74.81	464	10.70	4.945E+00	2.130E+00	2.130E+00	22.76
	77.11	737	18.00	5.264E+00	1.888E+00	1.888E+00	14.44
	87.30	322	8.00	6.458E+00	1.513E+00	1.513E+00	30.05
	238.63	1879	44.60*	6.792E+00	1.506E+00	1.506E+00	9.09
	300.09	119	3.41	5.981E+00	1.419E+00	1.419E+00	55.36
	74.81	464	6.21	4.945E+00	3.670E+00	3.670E+00	22.04
	77.11	737	10.50	5.264E+00	3.237E+00	3.237E+00	16.33
PO-218	87.30	322	4.67	6.458E+00	2.592E+00	2.592E+00	29.37
	241.98	491	7.49	6.747E+00	2.358E+00	2.358E+00	22.91
	295.21	493	19.20	6.040E+00	1.032E+00	1.032E+00	20.65
	351.92	940	37.20*	5.452E+00	1.125E+00	1.125E+00	14.47
	240.98	491	3.95*	6.747E+00	4.472E+00	4.472E+00	22.21
	609.31	844	46.30*	3.813E+00	1.160E+00	1.160E+00	12.81
	1120.29	204	15.10	2.335E+00	1.407E+00	1.407E+00	24.95
	1764.49	180	15.80	1.695E+00	1.629E+00	1.629E+00	19.48
AC-228	338.32	438	11.40	5.577E+00	1.674E+00	1.674E+00	46.32
	911.07	433	27.70*	2.780E+00	1.366E+00	1.366E+00	20.56
	969.11	279	16.60	2.639E+00	1.544E+00	1.544E+00	29.79
	338.32	438	11.40	5.577E+00	1.674E+00	1.674E+00	46.32
	911.07	433	27.70*	2.780E+00	1.366E+00	1.366E+00	20.56
	969.11	279	16.60	2.639E+00	1.544E+00	1.544E+00	29.79
	74.81	464	10.70	4.945E+00	2.130E+00	2.162E+00	20.79
	77.11	737	18.00	5.264E+00	1.888E+00	1.916E+00	14.44
TH-228	87.30	322	8.00	6.458E+00	1.513E+00	1.536E+00	28.34
	238.63	1879	44.60*	6.792E+00	1.506E+00	1.529E+00	9.09
	300.09	119	3.41	5.981E+00	1.419E+00	1.440E+00	80.44
	609.31	844	46.30*	3.813E+00	1.160E+00	1.160E+00	12.81
	1120.29	204	15.10	2.335E+00	1.407E+00	1.407E+00	24.95
	1764.49	180	15.80	1.695E+00	1.629E+00	1.629E+00	19.48
	338.32	438	11.40	5.577E+00	1.674E+00	1.674E+00	22.75
	911.07	433	27.70*	2.780E+00	1.366E+00	1.366E+00	20.56
TH-232	969.11	279	16.60	2.639E+00	1.544E+00	1.544E+00	29.79
	63.29	67	3.80*	3.114E+00	1.372E+00	1.372E+00	131.01
	92.38	522	5.41	6.959E+00	3.369E+00	3.369E+00	26.38
	609.31	844	46.30*	3.813E+00	1.160E+00	1.160E+00	12.81
	1120.29	204	15.10	2.335E+00	1.407E+00	1.407E+00	24.95
	1764.49	180	15.80	1.695E+00	1.629E+00	1.629E+00	19.48
	86.50	322	12.60*	6.458E+00	9.608E-01	9.608E-01	35.05
	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
U-238	63.29	67	3.80*	3.114E+00	1.372E+00	1.372E+00	131.01

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	92.38	522	5.41	6.959E+00	3.369E+00	3.369E+00	21.05
	74.67	464	66.00*	4.945E+00	3.453E-01	3.453E-01	20.75
	86.72	322	0.34	6.458E+00	3.603E+01	3.603E+01	28.34
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
	511.00	217	100.00*	4.310E+00	1.223E-01	1.223E-01	40.74

Flag: "\*" = Keyline



Total number of lines in spectrum 40  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 37 92.50%

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	2.527E+01	2.527E+01	0.226E+01	8.95	
CD-109	464.00D	1.02	3.254E+00	3.328E+00	0.943E+00	28.34	
SB-122	2.70D	45.8	4.755E-02	2.180E+00	1.590E+00	72.95	
SN-126	1.00E+05Y	1.00	3.272E-01	3.272E-01	0.927E-01	28.34	
BA-137M	30.17Y	1.00	3.672E-01	3.675E-01	0.603E-01	16.40	
CS-137	30.17Y	1.00	3.881E-01	3.885E-01	0.638E-01	16.41	
TL-208	1.41E+10Y	1.00	4.661E-01	4.661E-01	0.685E-01	14.70	
BI-211	7.04E+08Y	1.00	3.235E+00	3.235E+00	0.437E+00	13.50	
PB-212	1.41E+10Y	1.00	1.506E+00	1.506E+00	0.137E+00	9.09	
PO-212	1.41E+10Y	1.00	1.506E+00	1.506E+00	0.137E+00	9.09	
BI-214	1600.00Y	1.00	1.160E+00	1.160E+00	0.149E+00	12.81	
PB-214	1600.00Y	1.00	1.125E+00	1.125E+00	0.163E+00	14.47	
PO-214	1600.00Y	1.00	1.125E+00	1.125E+00	0.163E+00	14.47	
PO-216	1.41E+10Y	1.00	1.506E+00	1.506E+00	0.137E+00	9.09	
PO-218	1600.00Y	1.00	1.125E+00	1.125E+00	0.163E+00	14.47	
RA-224	1.41E+10Y	1.00	4.472E+00	4.472E+00	0.993E+00	22.21	
RA-226	1600.00Y	1.00	1.160E+00	1.160E+00	0.149E+00	12.81	
AC-228	1.41E+10Y	1.00	1.366E+00	1.366E+00	0.281E+00	20.56	
RA-228	1.41E+10Y	1.00	1.366E+00	1.366E+00	0.281E+00	20.56	
TH-228	1.91Y	1.01	1.506E+00	1.529E+00	0.139E+00	9.09	
TH-230	4.47E+09Y	1.00	1.160E+00	1.160E+00	0.149E+00	12.81	
TH-232	1.41E+10Y	1.00	1.366E+00	1.366E+00	0.281E+00	20.56	
TH-234	4.47E+09Y	1.00	1.372E+00	1.372E+00	1.797E+00	131.01	
U-234	4.47E+09Y	1.00	1.160E+00	1.160E+00	0.149E+00	12.81	
NP-237	2.14E+06Y	1.00	9.608E-01	9.608E-01	3.368E-01	35.05	
U-238	4.47E+09Y	1.00	1.372E+00	1.372E+00	1.797E+00	131.01	
AM-243	7380.00Y	1.00	3.453E-01	3.453E-01	0.717E-01	20.75	
ANH-511	1.00E+09Y	1.00	1.223E-01	1.223E-01	0.498E-01	40.74	

Total Activity : 6.014E+01 6.237E+01

Grand Total Activity : 6.014E+01 6.237E+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
4	84.43	151	579	1.47	167.98	164	28	2.10E-02	60.5	6.14E+00	T
4	89.92	210	437	1.22	178.95	164	28	2.92E-02	37.1	6.70E+00	T
0	129.12	139	597	1.46	257.33	253	11	1.93E-02	70.2	8.25E+00	T
0	186.08	323	564	1.24	371.19	366	11	4.49E-02	31.4	7.65E+00	T
0	209.35	165	472	1.42	417.72	413	10	2.29E-02	51.7	7.26E+00	T
0	270.38	196	331	1.31	539.75	535	11	2.72E-02	38.8	6.35E+00	T
0	328.49	94	224	1.66	655.92	651	10	1.31E-02	63.3	5.68E+00	T
0	463.28	98	241	1.28	925.43	918	14	1.37E-02	70.4	4.60E+00	T
0	727.58	203	130	1.53	1453.88	1445	18	2.81E-02	30.7	3.34E+00	T
0	768.81	86	219	4.52	1536.33	1528	19	1.19E-02	86.1	3.19E+00	
0	794.94	58	103	0.94	1588.56	1582	10	8.06E-03	67.7	3.11E+00	T
0	934.11	38	46	1.73	1866.86	1863	9	5.21E-03	77.7	2.72E+00	T
1	964.49	128	86	2.32	1927.61	1919	24	1.78E-02	35.1	2.65E+00	T
0	1237.89	92	147	1.21	2474.31	2462	22	1.28E-02	70.6	2.15E+00	T
0	1376.79	73	27	1.59	2752.09	2743	15	1.01E-02	38.7	1.98E+00	T
0	1509.33	31	44	2.40	3017.13	3010	17	4.33E-03	****	1.85E+00	T
0	1587.28	39	10	2.34	3173.02	3168	10	5.40E-03	44.3	1.79E+00	
0	1729.97	37	19	2.49	3458.39	3446	16	5.12E-03	59.4	1.71E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600009.CNF;1  *
* Acquisition date   : 22-JAN-2010 08:36:30  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 02:00:01.84           Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G244600009           Analyst initials: MXR1          *
* Batch Number       : 941635              Sample Quantity : 1.54620E+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         :              *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.527E+01	2.262E+00	3.151E-01	2.391E-02	80.206
CD-109	3.328E+00	9.429E-01	9.634E-01	8.906E-02	3.454
SB-122	2.180E+00	1.590E+00	2.107E+00	1.468E-01	1.035
SN-126	3.272E-01	9.271E-02	9.534E-02	8.784E-03	3.432
BA-137M	3.675E-01	6.028E-02	4.397E-02	3.352E-03	8.358
CS-137	3.885E-01	6.375E-02	4.648E-02	3.552E-03	8.358
TL-208	4.661E-01	6.851E-02	4.025E-02	3.156E-03	11.578
BI-211	3.235E+00	4.367E-01	2.214E-01	1.421E-02	14.612
PB-212	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
PO-212	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
BI-214	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
PB-214	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
PO-214	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
PO-216	1.506E+00	1.370E-01	6.521E-02	4.658E-03	23.097
PO-218	1.125E+00	1.629E-01	7.716E-02	6.383E-03	14.585
RA-224	4.472E+00	9.933E-01	7.412E-01	4.129E-02	6.033
RA-226	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
AC-228	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777
TH-228	1.529E+00	1.390E-01	6.618E-02	4.728E-03	23.097
TH-230	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
TH-232	1.366E+00	2.808E-01	1.556E-01	2.062E-02	8.777
TH-234	1.372E+00	1.797E+00	1.933E+00	3.408E-01	0.709
U-234	1.160E+00	1.487E-01	8.169E-02	7.297E-03	14.206
NP-237	9.608E-01	3.368E-01	2.843E-01	6.415E-02	3.379
U-238	1.372E+00	1.797E+00	1.933E+00	3.408E-01	0.709
AM-243	3.453E-01	7.167E-02	7.533E-02	6.286E-03	4.584
ANH-511	1.223E-01	4.983E-02	3.246E-02	2.144E-03	3.768

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.009E-01		2.225E-01	3.759E-01	2.724E-02	0.268
NA-22	-1.946E-02		3.167E-02	4.953E-02	3.370E-03	-0.393
NA-24	-2.674E-01		2.386E-01	Half-Life	too short	
AL-26	-1.145E-02		1.899E-02	2.808E-02	1.639E-03	-0.408
TI-44	3.484E-01	+	5.031E-02	6.773E-02	5.791E-03	5.144
SC-46	-2.461E-03		2.656E-02	4.311E-02	4.808E-03	-0.057
V-48	-4.005E-02		5.222E-02	7.944E-02	7.858E-03	-0.504
CR-51	1.097E-01		2.728E-01	4.479E-01	2.884E-02	0.245
MN-52	-4.180E-02		1.558E-01	2.453E-01	1.808E-02	-0.170
MN-54	-5.600E-03		2.589E-02	4.196E-02	4.298E-03	-0.133
CO-56	-2.634E-03		2.749E-02	4.484E-02	4.681E-03	-0.059
CO-57	-6.702E-04		2.005E-02	3.213E-02	1.903E-03	-0.021
CO-58	-1.429E-02		2.636E-02	4.172E-02	4.118E-03	-0.343
FE-59	-2.856E-02		5.843E-02	9.361E-02	7.705E-03	-0.305
CO-60	3.910E-03		2.868E-02	4.744E-02	3.584E-03	0.082
ZN-65	8.981E-03		7.143E-02	1.029E-01	7.246E-03	0.087
GE-68	8.167E-01		8.479E-01	1.504E+00	1.194E-01	0.543
AS-73	4.291E-01		8.730E-01	1.494E+00	1.184E-01	0.287
AS-74	3.610E-02		6.611E-02	1.104E-01	7.929E-03	0.327
SE-75	1.792E-02		3.402E-02	5.290E-02	3.025E-03	0.339
BR-77	-4.375E+00		7.013E+00	1.106E+01	7.376E-01	-0.396
SR-82	6.031E-02		2.890E-01	4.195E-01	3.907E-02	0.144
RB-83	-2.843E-02		5.003E-02	7.917E-02	5.280E-03	-0.359
RB-84	-4.629E-02		4.885E-02	7.379E-02	8.133E-03	-0.627
KR-85	1.800E+01		6.169E+00	1.028E+01	6.809E-01	1.751
SR-85	9.202E-02		3.155E-02	5.256E-02	3.482E-03	1.751
RB-86	4.728E-01		5.484E-01	9.653E-01	7.684E-02	0.490
Y-88	-9.851E-03		2.354E-02	3.624E-02	2.064E-03	-0.272
ZR-88	4.607E-03		2.084E-02	3.529E-02	2.030E-03	0.131
Y-91	1.566E+01		1.372E+01	2.417E+01	1.429E+00	0.648
NB-94	-3.927E-03		2.215E-02	3.657E-02	3.000E-03	-0.107
NB-95	7.615E-02		3.710E-02	6.012E-02	5.499E-03	1.267
NB-95M	1.330E-01		1.006E-01	1.547E-01	1.135E-02	0.860

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	3.677E-02		5.136E-02	8.856E-02	8.714E-03	0.415
NB-97	1.201E-01		3.115E-02	Half-Life too short		
ZR-97	1.591E+00		5.548E-01	Half-Life too short		
MO-99	-5.863E-01		7.401E+00	1.224E+01	1.867E+00	-0.048
TC-99M	-1.855E+10		7.846E+09	Half-Life too short		
RH-101	1.052E-02		2.489E-02	4.172E-02	2.242E-03	0.252
RH-102	3.255E-03		2.044E-02	3.402E-02	2.161E-03	0.096
RU-103	9.286E-03		2.725E-02	4.564E-02	5.926E-03	0.203
RH-106	-1.914E-02		2.235E-01	3.583E-01	4.507E-02	-0.053
RU-106	-1.914E-02		2.235E-01	3.583E-01	2.636E-02	-0.053
AG-108M	1.202E-03		2.261E-02	3.769E-02	2.463E-03	0.032
AG-110M	4.342E-02		2.805E-02	4.533E-02	3.575E-03	0.958
IN-111	6.562E-02		7.437E-01	1.078E+00	6.027E-02	0.061
IN-113M	4.729E-03		3.062E-02	5.170E-02	3.171E-03	0.091
SN-113	4.729E-03		3.062E-02	5.170E-02	3.171E-03	0.091
IN-114M	-6.770E-02		1.459E-01	2.100E-01	1.121E-02	-0.322
CD-115	-9.138E+00		6.925E+00	1.021E+01	6.864E-01	-0.895
SN-117M	1.080E-02		3.970E-02	6.786E-02	3.607E-03	0.159
I-123	2.356E-02		1.509E+00	Half-Life too short		
TE-123M	1.612E-04		2.065E-02	3.498E-02	1.887E-03	0.005
I-124	-5.328E-01		5.579E-01	7.059E-01	5.105E-02	-0.755
SB-124	2.392E-02		5.166E-02	9.025E-02	6.226E-03	0.265
SB-125	1.933E-02		6.482E-02	1.095E-01	6.841E-03	0.177
TE-125M	-1.878E+00		7.440E+00	1.191E+01	1.047E+00	-0.158
I-126	-1.777E-02		1.449E-01	2.076E-01	1.596E-02	-0.086
SB-126	8.681E-02		1.028E-01	1.589E-01	1.345E-02	0.546
SB-127	2.880E-01		8.834E-01	1.506E+00	1.627E-01	0.191
XE-127	-4.300E-02		3.441E-02	5.464E-02	2.949E-03	-0.787
I-131	2.514E-02		8.003E-02	1.368E-01	8.825E-03	0.184
TE-132	2.571E-01		4.787E-01	8.053E-01	1.143E-01	0.319
BA-133	-1.187E-02		3.438E-02	4.647E-02	5.369E-03	-0.255
I-133	-3.113E-03		1.758E-03	Half-Life too short		
CS-134	5.976E-02	+	4.088E-02	6.327E-02	6.119E-03	0.944
CS-135	2.271E-01		1.352E-01	2.099E-01	1.587E-02	1.082
I-135	-8.817E+08		9.759E+08	Half-Life too short		
CS-136	1.061E-02		6.592E-02	1.116E-01	1.000E-02	0.095
CE-139	-1.835E-02		2.152E-02	3.525E-02	1.850E-03	-0.521
BA-140	-1.952E-01		1.979E-01	2.870E-01	9.389E-02	-0.680
LA-140	-2.396E-02		5.542E-02	8.394E-02	5.759E-03	-0.285
CE-141	9.830E-03		4.839E-02	7.652E-02	4.368E-03	0.128
CE-143	4.639E-04		7.393E-05	Half-Life too short		
CE-144	-8.205E-02		1.810E-01	2.499E-01	3.534E-02	-0.328
PM-144	2.938E-02		2.318E-02	4.131E-02	3.354E-03	0.711
PR-144	1.990E+00		1.570E+00	2.799E+00	2.272E-01	0.711
PM-146	-5.711E-03		2.891E-02	4.734E-02	4.212E-03	-0.121
ND-147	1.563E-01		3.697E-01	6.191E-01	8.638E-02	0.252
PM-149	3.012E+00		6.171E+01	1.005E+02	1.421E+01	0.030
EU-152	2.459E-02		8.839E-02	1.059E-01	6.912E-03	0.232

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-4.200E-02		7.202E-02	1.016E-01	7.940E-03	-0.414
EU-154	-5.297E-02		8.865E-02	1.387E-01	1.385E-02	-0.382
EU-155	9.248E-03		8.596E-02	1.398E-01	9.997E-03	0.066
TB-160	-5.136E-03		9.514E-02	1.550E-01	1.703E-02	-0.033
HO-166M	1.855E-02		3.972E-02	6.810E-02	5.676E-03	0.272
TM-171	-3.217E-01		2.904E+01	4.282E+01	3.424E+00	-0.008
LU-176	-5.151E-03		1.912E-02	2.806E-02	1.616E-03	-0.184
LU-177	2.333E+00	+	1.214E+00	1.483E+00	8.045E-02	1.573
LU-177M	-1.363E-01		1.257E-01	1.981E-01	1.170E-02	-0.688
HF-181	-2.115E-02		2.952E-02	4.660E-02	2.983E-03	-0.454
W-181	-6.176E-01		3.914E-01	5.339E-01	4.235E-02	-1.157
TA-182	-3.385E-02		1.455E-01	2.364E-01	1.446E-02	-0.143
RE-183	6.977E-02		7.903E-02	1.375E-01	7.256E-03	0.508
RE-184	-1.394E-01		1.645E-01	2.593E-01	1.456E-02	-0.538
OS-185	1.754E-03		2.966E-02	4.783E-02	3.597E-03	0.037
RE-188	5.536E-02		1.254E-01	2.157E-01	1.154E-02	0.257
W-188	-2.794E+00		5.779E+00	7.928E+00	4.541E-01	-0.352
IR-192	-1.753E-02		2.497E-02	3.878E-02	2.249E-03	-0.452
AU-195	9.621E-02		1.910E-01	3.019E-01	2.310E-02	0.319
TL-200	7.269E-05		1.336E-04	Half-Life	too short	
TL-201	1.037E+00		4.804E+00	8.169E+00	4.288E-01	0.127
TL-202	-6.615E-03		4.745E-02	7.821E-02	4.768E-03	-0.085
HG-203	3.293E-02		3.001E-02	5.104E-02	3.096E-03	0.645
BI-207	4.261E-03		3.672E-02	6.180E-02	5.102E-03	0.069
TL-207	-4.645E-01		5.820E-01	7.661E-01	1.265E-01	-0.606
PO-209	5.077E-02		5.108E+00	8.347E+00	9.415E-01	0.006
BI-210	2.632E+00		4.265E+00	7.375E+00	5.706E-01	0.357
PB-210	2.632E+00		4.265E+00	7.375E+00	5.706E-01	0.357
PO-210	2.632E+00		4.264E+00	7.375E+00	4.905E-01	0.357
PB-211	-5.397E-01		7.541E-01	1.085E+00	6.767E-01	-0.497
BI-212	1.250E+00	+	4.039E-01	4.767E-01	4.748E-02	2.622
PO-215	-4.645E-01		5.820E-01	7.661E-01	1.265E-01	-0.606
RN-219	8.882E-02		2.875E-01	4.876E-01	6.638E-02	0.182
RN-220	-1.186E+00		1.816E+01	2.947E+01	2.025E+00	-0.040
RA-223	-4.645E-01		5.820E-01	7.661E-01	1.265E-01	-0.606
AC-227	9.951E-03		2.701E-01	4.434E-01	6.159E-02	0.022
TH-227	9.951E-03		2.701E-01	4.434E-01	7.468E-02	0.022
TH-229	3.446E-01		3.626E-01	6.260E-01	3.352E-02	0.551
PA-231	1.260E-01		1.124E+00	1.837E+00	2.525E-01	0.069
TH-231	-4.645E-01		5.820E-01	7.661E-01	1.265E-01	-0.606
U-231	-2.171E-01		9.025E-01	1.297E+00	1.039E-01	-0.167
PA-233	1.898E-02		4.598E-02	7.571E-02	4.638E-03	0.251
PA-234	1.216E-01		2.153E-01	3.619E-01	7.139E-02	0.336
PA-234M	2.821E+00		3.506E+00	5.820E+00	6.279E-01	0.485
U-235	4.405E-02		1.628E-01	2.580E-01	4.179E-02	0.171
NP-236	-2.392E-02		5.901E-02	9.855E-02	5.221E-03	-0.243
NP-239	-3.266E-02		1.505E-01	2.400E-01	1.486E-02	-0.136
AM-241	3.298E-02		1.596E-01	2.420E-01	2.007E-02	0.136

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-5.680E-02		7.819E-02	1.231E-01	8.813E-03	-0.461
AM-246	1.200E-01		9.714E-02	1.748E-01	1.383E-02	0.686
CM-247	-3.783E-03		2.584E-02	4.290E-02	2.499E-03	-0.088
CF-249	8.351E-03		2.792E-02	4.747E-02	2.729E-03	0.176
CF-251	-3.358E-03		9.068E-02	1.524E-01	8.046E-03	-0.022

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600009          *
* Acquisition date   : 22-JAN-2010 08:36:30 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 02:00:01.84 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600009 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.5462E+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 :                  *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.527E+01	2.216E+00	1.590E-01	1.131E+00
CD-109	3.328E+00	9.240E-01	5.227E-01	4.714E-01
SB-122	2.180E+00	1.558E+00	1.091E+00	7.951E-01
SN-126	3.272E-01	9.086E-02	5.173E-02	4.636E-02
BA-137M	3.675E-01	5.907E-02	2.267E-02	3.014E-02
CS-137	3.885E-01	6.248E-02	2.396E-02	3.188E-02
TL-208	4.661E-01	6.714E-02	2.082E-02	3.426E-02
BI-211	3.235E+00	4.280E-01	1.160E-01	2.184E-01
PB-212	1.506E+00	1.342E-01	3.452E-02	6.849E-02
PO-212	1.506E+00	1.342E-01	3.452E-02	6.849E-02
BI-214	1.160E+00	1.457E-01	4.220E-02	7.435E-02
PB-214	1.125E+00	1.596E-01	4.044E-02	8.144E-02
PO-214	1.125E+00	1.596E-01	4.044E-02	8.144E-02
PO-216	1.506E+00	1.342E-01	3.452E-02	6.849E-02
PO-218	1.125E+00	1.596E-01	4.044E-02	8.144E-02
RA-224	4.472E+00	9.734E-01	3.922E-01	4.966E-01
RA-226	1.160E+00	1.457E-01	4.220E-02	7.435E-02
AC-228	1.366E+00	2.752E-01	7.951E-02	1.404E-01
RA-228	1.366E+00	2.752E-01	7.951E-02	1.404E-01
TH-228	1.529E+00	1.362E-01	3.503E-02	6.951E-02
TH-230	1.160E+00	1.457E-01	4.220E-02	7.435E-02
TH-232	1.366E+00	2.752E-01	7.951E-02	1.404E-01
TH-234	1.372E+00	1.761E+00	1.057E+00	8.985E-01
U-234	1.160E+00	1.457E-01	4.220E-02	7.435E-02
NP-237	9.608E-01	3.301E-01	1.543E-01	1.684E-01
U-238	1.372E+00	1.761E+00	1.057E+00	8.985E-01
AM-243	3.453E-01	7.023E-02	4.104E-02	3.583E-02
ANH-511	1.223E-01	4.884E-02	1.685E-02	2.492E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----



BE-7	1.009E-01	2.181E-01	1.955E-01	1.113E-01	NOT IDENT.
NA-22	-1.946E-02	3.104E-02	2.508E-02	1.583E-02	NOT IDENT.
NA-24	-2.674E+05	4.676E+05	0.000E+00	2.386E+05	SHORT HLIF
AL-26	-1.145E-02	1.861E-02	1.408E-02	9.493E-03	NOT IDENT.
TI-44	3.484E-01	4.930E-02	3.685E-02	2.515E-02	FAIL ABUN
SC-46	-2.461E-03	2.603E-02	2.204E-02	1.328E-02	FAIL ABUN
V-48	-4.005E-02	5.117E-02	4.051E-02	2.611E-02	NOT IDENT.
CR-51	1.097E-01	2.673E-01	2.353E-01	1.364E-01	NOT IDENT.
MN-52	-4.180E-02	1.526E-01	1.238E-01	7.788E-02	FAIL ABUN
MN-54	-5.600E-03	2.538E-02	2.149E-02	1.295E-02	NOT IDENT.
CO-56	-2.634E-03	2.694E-02	2.296E-02	1.375E-02	FAIL ABUN
CO-57	-6.702E-04	1.965E-02	1.729E-02	1.002E-02	NOT IDENT.
CO-58	-1.429E-02	2.583E-02	2.139E-02	1.318E-02	NOT IDENT.
FE-59	-2.856E-02	5.726E-02	4.759E-02	2.921E-02	NOT IDENT.
CO-60	3.910E-03	2.811E-02	2.399E-02	1.434E-02	NOT IDENT.
ZN-65	8.981E-03	7.000E-02	5.228E-02	3.571E-02	NOT IDENT.
GE-68	8.167E-01	8.309E-01	7.649E-01	4.239E-01	NOT IDENT.
AS-73	4.291E-01	8.555E-01	8.200E-01	4.365E-01	NOT IDENT.
AS-74	3.610E-02	6.479E-02	5.705E-02	3.306E-02	NOT IDENT.
SE-75	1.792E-02	3.334E-02	2.793E-02	1.701E-02	NOT IDENT.
BR-77	-4.375E+00	6.873E+00	5.736E+00	3.506E+00	FAIL ABUN
SR-82	6.031E-02	2.832E-01	2.153E-01	1.445E-01	NOT IDENT.
RB-83	-2.843E-02	4.903E-02	4.107E-02	2.501E-02	NOT IDENT.
RB-84	-4.629E-02	4.787E-02	3.774E-02	2.442E-02	NOT IDENT.
KR-85	1.800E+01	6.046E+00	5.334E+00	3.085E+00	NOT IDENT.
SR-85	9.202E-02	3.092E-02	2.727E-02	1.577E-02	NOT IDENT.
RB-86	4.728E-01	5.374E-01	4.911E-01	2.742E-01	NOT IDENT.
Y-88	-9.851E-03	2.307E-02	1.817E-02	1.177E-02	NOT IDENT.
ZR-88	4.607E-03	2.042E-02	1.844E-02	1.042E-02	NOT IDENT.
Y-91	1.566E+01	1.344E+01	1.226E+01	6.858E+00	NOT IDENT.
NB-94	-3.927E-03	2.170E-02	1.882E-02	1.107E-02	NOT IDENT.
NB-95	7.615E-02	3.636E-02	3.087E-02	1.855E-02	NOT IDENT.
NB-95M	1.330E-01	9.855E-02	8.190E-02	5.028E-02	NOT IDENT.
ZR-95	3.677E-02	5.033E-02	4.549E-02	2.568E-02	NOT IDENT.
NB-97	1.201E+05	6.105E+04	0.000E+00	3.115E+04	SHORT HLIF
ZR-97	1.591E+06	1.087E+06	0.000E+00	5.548E+05	SHORT HLIF
MO-99	-5.863E-01	7.253E+00	6.289E+00	3.701E+00	NOT IDENT.
TC-99M	-1.855E+16	1.538E+16	0.000E+00	7.846E+15	SHORT HLIF
RH-101	1.052E-02	2.439E-02	2.219E-02	1.244E-02	NOT IDENT.
RH-102	3.255E-03	2.003E-02	1.769E-02	1.022E-02	NOT IDENT.
RU-103	9.286E-03	2.670E-02	2.371E-02	1.362E-02	FAIL ABUN
RH-106	-1.914E-02	2.191E-01	1.850E-01	1.118E-01	FAIL ABUN
RU-106	-1.914E-02	2.191E-01	1.850E-01	1.118E-01	FAIL ABUN
AG-108M	1.202E-03	2.216E-02	1.965E-02	1.131E-02	NOT IDENT.
AG-110M	4.342E-02	2.749E-02	2.337E-02	1.403E-02	NOT IDENT.
IN-111	6.562E-02	7.288E-01	5.705E-01	3.718E-01	NOT IDENT.
IN-113M	4.729E-03	3.001E-02	2.702E-02	1.531E-02	NOT IDENT.
SN-113	4.729E-03	3.001E-02	2.702E-02	1.531E-02	NOT IDENT.
IN-114M	-6.770E-02	1.430E-01	1.118E-01	7.296E-02	NOT IDENT.
CD-115	-9.138E+00	6.786E+00	5.296E+00	3.462E+00	NOT IDENT.
SN-117M	1.080E-02	3.891E-02	3.629E-02	1.985E-02	NOT IDENT.
I-123	2.356E+04	2.957E+06	0.000E+00	1.509E+06	SHORT HLIF
TE-123M	1.612E-04	2.023E-02	1.871E-02	1.032E-02	NOT IDENT.
I-124	-5.328E-01	5.467E-01	3.648E-01	2.789E-01	FAIL ABUN
SB-124	2.392E-02	5.063E-02	4.534E-02	2.583E-02	FAIL ABUN
SB-125	1.933E-02	6.352E-02	5.709E-02	3.241E-02	FAIL ABUN
TE-125M	-1.878E+00	7.291E+00	6.426E+00	3.720E+00	NOT IDENT.
I-126	-1.777E-02	1.420E-01	1.070E-01	7.245E-02	NOT IDENT.
SB-126	8.681E-02	1.008E-01	8.171E-02	5.141E-02	FAIL ABUN
SB-127	2.880E-01	8.657E-01	7.753E-01	4.417E-01	NOT IDENT.
XE-127	-4.300E-02	3.373E-02	2.904E-02	1.721E-02	NOT IDENT.
I-131	2.514E-02	7.843E-02	7.161E-02	4.002E-02	NOT IDENT.
TE-132	2.571E-01	4.692E-01	4.268E-01	2.394E-01	NOT IDENT.
BA-133	-1.187E-02	3.369E-02	2.435E-02	1.719E-02	NOT IDENT.
I-133	-3.113E+03	3.446E+03	0.000E+00	1.758E+03	SHORT HLIF
CS-134	5.976E-02	4.006E-02	3.245E-02	2.044E-02	FAIL ABUN
CS-135	2.271E-01	1.325E-01	1.108E-01	6.761E-02	NOT IDENT.
I-135	-8.817E+14	1.913E+15	0.000E+00	9.759E+14	SHORT HLIF
CS-136	1.061E-02	6.460E-02	5.680E-02	3.296E-02	FAIL ABUN
CE-139	-1.835E-02	2.109E-02	1.883E-02	1.076E-02	NOT IDENT.
BA-140	-1.952E-01	1.940E-01	1.488E-01	9.896E-02	NOT IDENT.
LA-140	-2.396E-02	5.431E-02	4.224E-02	2.771E-02	FAIL ABUN
CE-141	9.830E-03	4.743E-02	4.101E-02	2.420E-02	NOT IDENT.
CE-143	4.639E+02	1.449E+02	0.000E+00	7.393E+01	SHORT HLIF
CE-144	-8.205E-02	1.774E-01	1.342E-01	9.049E-02	NOT IDENT.
PM-144	2.938E-02	2.271E-02	2.127E-02	1.159E-02	NOT IDENT.
PR-144	1.990E+00	1.539E+00	1.441E+00	7.852E-01	NOT IDENT.

PM-146	-5.711E-03	2.833E-02	2.465E-02	1.445E-02	NOT IDENT.
ND-147	1.563E-01	3.623E-01	3.210E-01	1.849E-01	FAIL ABUN
PM-149	3.012E+00	6.048E+01	5.296E+01	3.086E+01	NOT IDENT.
EU-152	2.459E-02	8.662E-02	5.555E-02	4.419E-02	FAIL ABUN
GD-153	-4.200E-02	7.058E-02	5.496E-02	3.601E-02	FAIL ABUN
EU-154	-5.297E-02	8.688E-02	7.024E-02	4.433E-02	NOT IDENT.
EU-155	9.248E-03	8.425E-02	7.553E-02	4.298E-02	FAIL ABUN
TB-160	-5.136E-03	9.324E-02	7.931E-02	4.757E-02	FAIL ABUN
HO-166M	1.855E-02	3.893E-02	3.503E-02	1.986E-02	NOT IDENT.
TM-171	-3.217E-01	2.846E+01	2.339E+01	1.452E+01	NOT IDENT.
LU-176	-5.151E-03	1.874E-02	1.476E-02	9.560E-03	FAIL ABUN
LU-177	2.333E+00	1.189E+00	7.878E-01	6.068E-01	FAIL ABUN
LU-177M	-1.363E-01	1.232E-01	1.034E-01	6.285E-02	NOT IDENT.
HF-181	-2.115E-02	2.893E-02	2.423E-02	1.476E-02	NOT IDENT.
W-181	-6.176E-01	3.836E-01	2.918E-01	1.957E-01	NOT IDENT.
TA-182	-3.385E-02	1.426E-01	1.199E-01	7.275E-02	NOT IDENT.
RE-183	6.977E-02	7.745E-02	7.348E-02	3.951E-02	FAIL ABUN
RE-184	-1.394E-01	1.612E-01	1.370E-01	8.224E-02	NOT IDENT.
OS-185	1.754E-03	2.907E-02	2.467E-02	1.483E-02	NOT IDENT.
RE-188	5.536E-02	1.229E-01	1.154E-01	6.268E-02	NOT IDENT.
W-188	-2.794E+00	5.664E+00	4.176E+00	2.890E+00	FAIL ABUN
IR-192	-1.753E-02	2.447E-02	2.038E-02	1.249E-02	FAIL ABUN
AU-195	9.621E-02	1.872E-01	1.633E-01	9.551E-02	FAIL ABUN
TL-200	7.269E+01	2.618E+02	0.000E+00	1.336E+02	SHORT HLIF
TL-201	1.037E+00	4.708E+00	4.363E+00	2.402E+00	NOT IDENT.
TL-202	-6.615E-03	4.650E-02	4.075E-02	2.372E-02	NOT IDENT.
HG-203	3.293E-02	2.941E-02	2.691E-02	1.501E-02	NOT IDENT.
BI-207	4.261E-03	3.598E-02	3.145E-02	1.836E-02	FAIL ABUN
TL-207	-4.645E-01	5.704E-01	4.024E-01	2.910E-01	FAIL ABUN
PO-209	5.077E-02	5.005E+00	4.268E+00	2.554E+00	NOT IDENT.
BI-210	2.632E+00	4.180E+00	4.062E+00	2.133E+00	NOT IDENT.
PB-210	2.632E+00	4.180E+00	4.062E+00	2.133E+00	NOT IDENT.
PO-210	2.632E+00	4.179E+00	4.062E+00	2.132E+00	NOT IDENT.
PB-211	-5.397E-01	7.390E-01	5.668E-01	3.770E-01	NOT IDENT.
BI-212	1.250E+00	3.958E-01	2.451E-01	2.019E-01	FAIL ABUN
PO-215	-4.645E-01	5.704E-01	4.024E-01	2.910E-01	FAIL ABUN
RN-219	8.882E-02	2.818E-01	2.547E-01	1.438E-01	FAIL ABUN
RN-220	-1.186E+00	1.780E+01	1.527E+01	9.080E+00	NOT IDENT.
RA-223	-4.645E-01	5.704E-01	4.024E-01	2.910E-01	FAIL ABUN
AC-227	9.951E-03	2.647E-01	2.343E-01	1.351E-01	FAIL ABUN
TH-227	9.951E-03	2.647E-01	2.343E-01	1.351E-01	FAIL ABUN
TH-229	3.446E-01	3.553E-01	3.331E-01	1.813E-01	FAIL ABUN
PA-231	1.260E-01	1.102E+00	9.681E-01	5.620E-01	FAIL ABUN
TH-231	-4.645E-01	5.704E-01	4.024E-01	2.910E-01	FAIL ABUN
U-231	-2.171E-01	8.844E-01	7.024E-01	4.512E-01	FAIL ABUN
PA-233	1.898E-02	4.506E-02	3.980E-02	2.299E-02	FAIL ABUN
PA-234	1.216E-01	2.110E-01	1.848E-01	1.076E-01	FAIL ABUN
PA-234M	2.821E+00	3.436E+00	2.967E+00	1.753E+00	NOT IDENT.
U-235	4.405E-02	1.595E-01	1.383E-01	8.138E-02	FAIL ABUN
NP-236	-2.392E-02	5.783E-02	5.269E-02	2.950E-02	NOT IDENT.
NP-239	-3.266E-02	1.475E-01	1.293E-01	7.524E-02	FAIL ABUN
AM-241	3.298E-02	1.564E-01	1.325E-01	7.979E-02	NOT IDENT.
CM-243	-5.680E-02	7.662E-02	6.653E-02	3.909E-02	FAIL ABUN
AM-246	1.200E-01	9.520E-02	8.894E-02	4.857E-02	NOT IDENT.
CM-247	-3.783E-03	2.532E-02	2.241E-02	1.292E-02	NOT IDENT.
CF-249	8.351E-03	2.736E-02	2.482E-02	1.396E-02	NOT IDENT.
CF-251	-3.358E-03	8.886E-02	8.127E-02	4.534E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	291.5079
46.50	291.5079
46.50	291.5079
48.70	319.1915
49.72	304.3427
51.35	303.5942
52.39	305.7268
52.97	316.4078
53.15	300.2475
53.44	306.9549
54.07	298.5558
56.28	331.3861
56.28	331.3898
57.37	0.0000
57.53	335.6700
57.53	335.6718
57.60	344.0784
57.98	363.9989
57.98	363.9989
59.32	346.1919
59.32	346.1919
59.40	346.2893
59.54	346.4596
59.72	320.1181
60.01	310.6479
61.10	346.9414
61.14	346.9895
61.30	347.1808
63.00	401.5071
63.29	401.8993
63.29	401.8993
63.58	402.2904
64.28	434.4692
65.12	482.6642
65.20	482.7915
65.20	482.7915
66.05	445.5793
66.72	423.6482
66.83	420.9382
66.91	421.0459
67.20	409.9729
67.20	409.9729
67.75	452.6287
67.85	452.7754
68.90	439.5894
68.90	439.5894
69.30	466.1213
69.67	514.3466
70.82	471.2416
70.82	471.2416
70.83	471.2564
72.80	460.9884
72.87	461.0873
72.87	461.0873
74.67	463.5946
74.81	463.7887
74.81	463.7887
74.81	463.7887
74.81	463.7887
74.81	463.7887
74.81	463.7887
74.97	464.0093
75.28	464.4384
75.70	465.0170
77.11	466.9457
77.11	466.9457

77.11	466.9457
77.11	466.9457
77.11	466.9457
77.11	466.9457
77.11	466.9457
78.38	468.6695
79.62	470.3403
79.80	470.5814
79.80	470.5814
80.11	470.9960
80.18	471.0901
80.30	471.2492
80.30	471.2492
80.57	471.6108
81.00	472.1822
81.07	472.2762
81.07	472.2762
81.07	472.2762
81.07	472.2762
82.60	330.2081
83.37	330.9097
83.78	388.5098
83.78	388.5098
83.78	388.5098
83.78	388.5098
84.21	405.5523
84.90	406.3158
85.43	406.9007
86.29	407.8468
86.50	408.0767
86.54	408.1198
86.59	408.1752
86.72	408.3168
86.79	408.3907
86.94	408.5569
87.30	408.9509
87.30	408.9509
87.30	408.9509
87.30	408.9509
87.30	408.9509
87.30	408.9509
87.57	409.2444
87.88	409.5810
88.03	409.7452
88.36	410.1023
88.47	410.2213
89.95	411.8180
91.11	413.0597
92.29	414.3157
92.38	414.4121
92.38	414.4121
93.35	415.4362
94.00	416.1217
94.67	390.4758
94.67	390.4816
94.90	390.7065
94.90	390.7065
94.90	390.7065
94.90	390.7065
95.87	405.6420
95.87	405.6420
96.73	442.3351
97.43	424.3733
98.44	414.4749
98.44	414.4749
98.88	383.2919
99.55	382.6611
99.55	382.6611
99.86	352.6049
100.00	352.7249
100.10	352.8123
103.18	410.2497
103.76	408.6975
105.00	338.9209
105.31	381.5625
108.00	395.6594
109.28	402.1583

111.00	397.2728
111.00	397.2728
111.76	404.3978
112.95	392.5227
115.19	406.3702
116.30	394.3126
117.00	377.4998
117.00	377.4998
117.66	402.0022
121.11	356.6573
121.62	362.5304
121.78	362.6512
122.06	369.4602
122.32	369.6584
122.32	369.6584
122.32	369.6584
122.32	369.6584
123.07	376.8457
127.23	341.7170
129.76	360.7620
131.20	389.7937
133.02	372.6374
133.54	391.5779
135.34	344.1650
136.00	347.0864
136.25	344.9897
136.48	364.3791
140.51	412.7737
140.51	0.0000
142.18	346.5741
142.65	364.0483
143.76	361.3509
144.24	366.2607
144.24	366.2607
144.24	366.2607
144.24	366.2607
145.22	360.0150
145.44	360.1614
147.16	390.1386
152.43	393.8141
152.70	364.8578
153.22	363.1503
154.21	377.8024
154.21	377.8024
154.21	377.8024
154.21	377.8024
155.03	377.4638
156.02	388.6620
158.56	370.0455
159.00	0.0000
159.00	371.2042
160.31	397.7154
161.27	372.6302
162.32	342.1798
162.64	358.3684
163.35	365.0249
163.89	368.9178
165.85	388.8888
167.43	362.1119
171.28	361.6685
171.86	369.2271
172.10	367.5613
176.55	349.2422
176.60	349.2686
181.06	332.6442
184.41	366.7522
185.71	353.2681
186.00	353.4229
190.27	358.0962
192.34	357.6973
193.63	317.3103
197.04	401.4133
198.01	351.2556
198.60	343.0925
200.40	345.8601
201.83	412.6615
202.84	400.9548
205.31	330.9837

208.36	368.9791
208.81	348.9918
209.75	349.4413
209.75	349.4413
210.97	338.1662
215.65	346.4703
216.55	334.3613
218.09	347.6019
222.10	324.2072
223.80	335.6270
226.40	339.6871
227.00	323.3432
227.08	323.3760
227.20	303.8842
228.16	309.1507
228.18	309.1579
228.18	309.1579
231.56	0.0000
235.69	317.6399
236.00	333.5716
236.00	333.5716
238.63	306.3125
238.63	306.3125
238.63	306.3125
238.63	306.3125
239.00	306.4516
240.98	307.1989
241.98	307.5761
241.98	307.5761
241.98	307.5761
244.69	254.0642
245.39	239.8865
247.94	222.9786
248.90	254.2843
249.79	271.3019
252.40	267.1047
252.85	279.3479
252.85	279.3479
254.15	0.0000
256.20	260.2009
256.20	260.2009
260.50	288.9749
260.90	267.7314
262.80	253.0140
264.65	246.7318
268.24	264.4354
268.79	243.2353
269.46	269.7311
269.46	269.7311
269.46	269.7311
269.46	269.7311
271.23	245.5481
273.65	330.4834
276.40	256.9042
277.35	247.8400
277.60	247.9056
277.60	247.9056
278.00	242.8264
278.60	238.8335
279.20	252.4959
279.53	277.5316
280.46	325.6803
281.68	307.3562
283.67	253.7232
284.30	242.4006
285.00	264.5428
285.90	251.1914
286.10	251.2427
286.10	251.2427
287.40	212.8068
288.45	0.0000
290.67	240.6841
290.80	240.7190
291.72	259.4877
293.26	0.0000
293.70	199.2402
295.21	208.0129
295.21	208.0129

295.21	208.0129
295.96	208.1751
296.50	266.7156
297.23	266.9156
298.57	267.2886
299.80	267.6270
299.80	267.6270
300.09	267.7077
300.09	267.7077
300.09	267.7077
300.09	267.7077
300.12	267.7154
301.29	205.9186
302.84	228.4052
303.76	226.9150
303.91	226.9475
304.40	213.4033
304.40	213.4033
304.84	203.2529
306.84	228.1934
308.46	226.0677
311.98	211.8135
316.51	236.5271
318.01	231.4698
319.02	221.9540
319.41	210.1242
320.08	222.1824
323.87	269.7817
323.87	269.7817
323.87	269.7817
323.87	269.7817
325.23	247.4773
328.77	243.0735
333.44	219.5648
334.20	246.0869
334.20	246.0869
334.30	246.1108
338.28	223.8712
338.28	223.8712
338.28	223.8712
338.28	223.8712
338.32	223.8805
338.32	223.8805
338.32	223.8805
340.50	189.1936
340.57	189.2066
344.27	168.5624
345.85	183.6134
350.59	0.0000
351.07	191.9279
351.92	192.0775
351.92	192.0775
351.92	192.0775
355.39	0.0000
356.01	193.6802
364.48	198.7546
366.43	182.8061
367.43	191.1183
367.94	0.0000
369.80	181.5283
374.96	171.3985
383.85	203.9300
387.95	191.7271
388.63	189.9917
391.69	186.7760
391.69	186.7760
392.90	179.5589
398.62	189.7036
400.65	174.1803
401.10	176.1101
401.81	187.3984
402.60	197.7795
404.84	227.1124
410.95	180.3258
411.60	203.9117
413.65	220.2434
414.70	181.8045
415.30	172.4672

415.76	173.4725
417.63	0.0000
418.52	168.1787
423.70	165.0664
427.08	176.9112
427.89	174.1672
432.53	168.1002
433.93	168.2807
439.47	172.8281
439.56	172.8391
439.89	170.9621
443.98	180.1564
444.90	164.8547
445.03	164.8714
445.03	164.8714
445.03	164.8714
445.03	164.8714
453.90	155.2793
463.38	166.1235
468.07	173.2205
473.00	186.9478
475.06	158.6436
475.35	154.7347
476.78	151.9303
477.59	150.0425
477.96	151.0688
482.03	169.3238
484.57	144.8237
487.03	150.0397
490.36	0.0000
492.35	151.5862
497.08	136.0681
507.63	0.0000
510.53	0.0000
510.84	153.4881
511.00	153.5039
511.85	153.5911
511.85	153.5911
513.99	148.4105
513.99	148.4105
520.41	168.6829
520.65	168.7113
527.90	156.2311
528.96	0.0000
529.64	158.4512
529.87	0.0000
531.02	124.8266
537.32	176.6989
543.00	135.0618
546.56	0.0000
549.76	140.8145
552.65	137.9550
555.20	125.9656
563.23	113.1047
563.90	134.0388
568.70	125.7041
569.32	118.7648
569.50	121.5706
569.67	121.5848
573.80	159.7150
574.00	153.4283
574.64	147.1812
578.91	131.7474
579.30	0.0000
583.14	139.4766
585.48	109.3376
591.81	125.0871
592.07	125.3433
593.00	159.4189
595.88	141.5918
600.56	168.1282
602.52	0.0000
602.71	179.9186
602.71	179.9186
603.60	158.6218
604.41	153.3485
604.70	165.8568
609.31	163.0771



609.31	163.0771
609.31	163.0771
609.31	163.0771
610.33	169.9725
612.46	145.0986
614.37	116.5641
618.01	158.1357
621.84	131.8231
621.84	131.8231
631.29	126.0056
633.02	121.7754
633.10	119.6062
634.78	103.3937
635.90	116.5245
636.97	131.8504
645.85	131.3965
646.12	121.5607
656.30	105.3979
657.75	113.3513
657.90	0.0000
661.65	157.7637
661.65	157.7637
664.57	0.0000
666.33	145.5020
666.33	145.5020
675.00	122.3374
677.61	116.9355
685.20	119.2630
692.80	130.9538
695.00	132.0383
696.49	108.7099
696.49	108.7099
697.00	114.3626
697.49	119.0806
698.33	136.0142
698.50	136.0260
699.00	140.7532
702.63	128.7915
706.10	120.5417
706.58	0.0000
706.67	120.5781
709.31	124.5100
711.68	108.6033
713.82	129.5190
717.42	114.6855
720.50	94.3127
721.93	0.0000
722.20	110.6660
722.78	123.7226
722.78	123.7226
722.89	123.7280
722.95	123.7306
723.30	117.2411
724.18	114.0332
727.18	98.0231
733.00	80.1702
735.90	110.3891
739.58	116.8099
742.81	95.8964
744.21	99.7979
747.13	132.6122
751.79	106.9034
752.31	108.8572
753.82	109.8994
755.35	123.4870
756.15	119.6734
756.87	121.6447
763.93	149.4517
765.79	124.6530
766.42	126.3521
766.84	131.3645
776.49	103.5633
778.00	100.9184
778.57	105.3347
778.89	107.6912
783.80	107.5450
785.46	102.7356
792.07	137.9575

795.84	101.1182
796.30	104.5104
798.80	126.5677
801.93	105.3931
805.60	103.6819
810.29	116.7636
810.76	109.8618
815.85	88.2866
817.79	87.3716
818.51	88.3916
819.60	106.3208
826.30	84.7112
828.27	0.0000
831.60	115.8749
831.96	111.8975
834.83	122.0397
836.80	0.0000
846.75	108.5955
848.13	101.6185
856.28	0.0000
856.80	96.9473
860.37	86.6926
867.32	104.9887
867.82	94.6967
871.10	102.6172
873.19	101.6907
874.81	105.8302
875.33	0.0000
876.40	93.6808
879.36	95.8359
880.27	101.9918
880.51	105.0620
881.50	112.2492
883.24	105.1814
884.67	81.7432
889.25	94.1843
896.60	95.4957
898.02	108.9092
899.00	102.7852
903.28	114.7316
911.07	112.5881
911.07	112.5881
911.07	112.5881
919.63	100.7457
920.93	101.6287
925.00	96.6006
925.24	97.6489
926.50	87.3052
935.52	81.3595
937.48	102.0024
944.10	99.4280
946.00	91.1224
949.00	105.9111
962.29	88.5391
964.01	92.8179
966.15	92.8949
968.20	92.9665
969.11	94.2083
969.11	94.2083
969.11	94.2083
977.42	95.4163
980.50	88.0980
983.50	114.7632
989.30	90.5218
996.32	108.9125
1001.03	90.9212
1001.68	88.8022
1004.76	119.9684
1021.30	0.0000
1024.50	0.0000
1034.80	80.1426
1036.00	73.3682
1037.82	82.7080
1038.57	83.6593
1038.76	0.0000
1045.16	83.8602
1046.59	71.7847
1048.07	74.6205

1050.47	87.7545
1050.47	87.7545
1062.04	84.3656
1063.62	96.6056
1076.63	84.8019
1077.35	78.2236
1078.86	74.4951
1085.78	97.3600
1099.22	90.2155
1112.02	83.4564
1112.84	95.1682
1115.52	103.6108
1120.29	105.4512
1120.29	105.4512
1120.29	105.4512
1120.29	105.4512
1120.51	105.4589
1121.28	117.2064
1124.00	0.0000
1129.67	95.0650
1131.51	0.0000
1147.95	0.0000
1167.94	102.0300
1173.22	92.4719
1175.09	88.6323
1177.93	92.6144
1189.05	77.2917
1204.90	104.2328
1205.75	0.0000
1213.00	118.3050
1221.42	134.4300
1230.97	144.0038
1235.34	115.1625
1236.41	0.0000
1238.25	115.2637
1246.25	81.9316
1260.41	0.0000
1271.85	60.2365
1274.45	99.4661
1274.54	99.4696
1291.56	68.6712
1298.22	0.0000
1312.09	61.9787
1325.50	76.5015
1325.50	76.5015
1332.49	68.4815
1333.61	74.6371
1360.21	54.6045
1362.66	0.0000
1365.15	43.3330
1368.21	66.8615
1368.53	0.0000
1376.25	47.0917
1384.27	48.4082
1394.10	57.2098
1395.20	64.5105
1407.95	55.3402
1434.06	48.3760
1436.60	47.3573
1457.56	0.0000
1460.81	31.7777
1489.15	44.8242
1509.49	32.8584
1596.49	39.4855
1620.62	31.8590
1678.03	0.0000
1691.02	25.5271
1691.02	25.5271
1706.46	0.0000
1750.46	0.0000
1764.49	11.9824
1764.49	11.9824
1764.49	11.9824
1764.49	11.9824
1770.23	19.5520
1771.40	23.1132
1791.20	0.0000
1808.65	25.2106

1836.01

29.4204

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600009

Total Uranium Activity	4.1012E+00	ug/g
Total Uranium Counting Unc.	5.2400E+00	ug/g
Total Uranium Tpu	2.6735E-06	ug/g
Total Uranium Mda	3.1461E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244600009
*  ANALYST       : MXR1            DETECTOR    : GAM18
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 08:36:30.08  SAMPLE ALQT: 154.620 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.185E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.252E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.568E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.247E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:38:20.46

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600010.CNF;1
Sample date     : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:37:00
Sample ID      : G244600010      Sample quantity   : 1.48460E+02 GRAM
Detector name   : GAM21          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:25.37 0.4%
Energy tolerance: 1.50000 keV    Analyst Initials  : MXR1
Abundance limit : 75.00000      Sensitivity    : 5.00000
Batch ID       : 941635         Detector SN#    :
Matrix Spike ID :                LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.99*	106	492	0.71	93.95	90	8	1.47E-02	37.9	
2	0	63.27*	147	591	0.66	126.51	123	7	2.04E-02	28.8	
3	3	74.85*	938	405	0.89	149.66	144	21	1.30E-01	4.5	3.68E+00
4	3	77.11*	1274	361	0.78	154.17	144	21	1.77E-01	3.6	
5	0	84.23*	194	439	1.07	168.40	165	7	2.70E-02	19.5	
6	0	87.27	444	380	1.05	174.49	172	6	6.17E-02	8.4	
7	0	89.96	249	316	0.79	179.87	178	5	3.46E-02	12.4	
8	0	93.07*	385	484	1.53	186.07	183	8	5.35E-02	11.2	
9	0	129.21	123	360	0.77	258.32	255	8	1.71E-02	28.3	
10	0	185.86*	235	341	1.00	371.58	366	11	3.27E-02	16.9	
11	0	208.98	152	224	1.14	417.80	414	8	2.11E-02	18.9	
12	7	238.49*	1428	111	0.88	476.80	474	16	1.98E-01	2.9	3.40E+00
13	7	241.51	361	172	1.88	482.83	474	16	5.02E-02	12.8	
14	0	269.99	119	205	1.04	539.78	535	10	1.65E-02	24.3	
15	0	277.01	59	145	0.76	553.80	551	7	8.20E-03	36.1	
16	0	295.22*	369	178	1.08	590.21	585	10	5.12E-02	8.7	
17	0	299.90	139	146	0.80	599.59	595	10	1.93E-02	18.3	
18	0	327.67	104	143	1.01	655.09	649	11	1.45E-02	24.3	
19	0	338.15*	263	129	0.94	676.05	671	9	3.65E-02	10.0	
20	0	351.84*	627	113	1.06	703.44	699	10	8.71E-02	5.2	
21	0	463.07	45	115	1.37	925.86	921	10	6.25E-03	47.0	
22	0	510.28*	40	144	1.28	1020.25	1014	12	5.54E-03	70.0	
23	0	583.07*	346	95	1.30	1165.84	1161	12	4.81E-02	8.0	
24	0	609.12*	357	88	1.39	1217.94	1213	12	4.96E-02	7.6	
25	0	727.69	70	90	1.33	1455.08	1449	14	9.69E-03	31.7	
26	0	768.12	39	39	1.38	1535.95	1532	7	5.35E-03	31.6	
27	0	797.63	14	85	0.68	1594.99	1587	15	1.89E-03	151.0	
28	0	860.30	49	52	1.36	1720.36	1713	14	6.85E-03	34.2	
29	0	910.95	201	48	1.36	1821.68	1816	12	2.79E-02	10.0	
30	0	933.73	40	27	2.18	1867.25	1861	12	5.59E-03	30.2	
31	3	964.42	70	23	2.15	1928.64	1920	32	9.78E-03	19.2	1.94E+00
32	3	968.67	153	18	2.15	1937.16	1920	32	2.13E-02	10.7	
33	0	1120.33	83	42	1.29	2240.59	2236	12	1.16E-02	19.3	
34	0	1239.96	61	93	3.20	2479.98	2470	23	8.41E-03	43.1	
35	0	1407.94	11	8	3.51	2816.16	2809	11	1.49E-03	60.0	
36	0	1460.43	996	21	1.91	2921.23	2914	14	1.38E-01	3.3	
37	0	1764.02	70	4	2.12	3528.97	3520	15	9.68E-03	13.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 10:38:23

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600010.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:37:00
Sample ID        : G244600010             Sample quantity  : 148.46 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA21                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:25.37   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

```

## 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	*	3.275E+01	3.541E+00	3.394E-01	2.898E-02	96.485
CD-109	+	88.03	*	3.793E+00	7.293E-01	6.614E-01	6.223E-02	5.736
SN-126	+	64.28		4.739E-01	2.818E-01	2.774E-01	4.111E-02	1.708
	+	86.94		1.551E+00	6.945E-01	2.784E-01	1.156E-01	5.570
	+	87.57	*	3.730E-01	7.171E-02	6.713E-02	6.292E-03	5.557
TL-208	+	277.35		5.767E-01	4.231E-01	5.530E-01	6.938E-02	1.043
	+	510.84		2.290E-01	3.219E-01	2.367E-01	3.006E-02	0.967
	+	583.14	*	5.845E-01	1.127E-01	5.915E-02	6.444E-03	9.882
	+	860.37		8.329E-01	5.761E-01	5.070E-01	5.034E-02	1.643
BI-210	+	46.50	*	8.947E-01	6.835E-01	5.963E-01	5.686E-02	1.500
PB-210	+	46.50	*	8.947E-01	6.835E-01	5.963E-01	5.686E-02	1.500
PO-210	+	46.50	*	8.947E-01	6.826E-01	5.963E-01	5.175E-02	1.500
BI-211		72.87		2.475E+00	1.426E+00	2.308E+00	1.932E-01	1.072
	+	351.07	*	4.091E+00	5.613E-01	2.959E-01	2.671E-02	13.823
PB-212	+	74.81		2.679E+00	4.169E-01	2.395E-01	3.023E-02	11.188
	+	77.11		2.165E+00	2.441E-01	1.431E-01	1.235E-02	15.124
	+	87.30		1.725E+00	3.738E-01	3.101E-01	4.246E-02	5.562
	+	238.63	*	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
	+	300.09		2.933E+00	1.117E+00	9.947E-01	1.062E-01	2.948
PO-212	+	74.81		2.679E+00	4.169E-01	2.395E-01	3.023E-02	11.188
	+	77.11		2.165E+00	2.441E-01	1.431E-01	1.235E-02	15.124
	+	87.30		1.725E+00	3.738E-01	3.101E-01	4.246E-02	5.562
	+	115.19		1.608E+00	2.464E+00	4.033E+00	4.431E-01	0.399
	+	238.63	*	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
	+	300.09		2.933E+00	1.117E+00	9.947E-01	1.062E-01	2.948
BI-214	+	609.31	*	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
	+	1120.29		1.504E+00	6.030E-01	5.909E-01	6.345E-02	2.545
	+	1764.49		1.864E+00	5.253E-01	4.689E-01	3.899E-02	3.974
PB-214	+	74.81		4.617E+00	6.684E-01	4.126E-01	4.647E-02	11.188
	+	77.11		3.711E+00	5.050E-01	2.454E-01	2.824E-02	15.124
	+	87.30		2.955E+00	6.121E-01	5.313E-01	6.439E-02	5.562
	+	241.98		2.812E+00	7.774E-01	4.566E-01	4.799E-02	6.159
	+	295.21		1.358E+00	2.781E-01	1.860E-01	2.027E-02	7.301
	+	351.92	*	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		4.617E+00	6.684E-01	4.126E-01	4.647E-02	11.188
	+	77.11		3.711E+00	5.050E-01	2.454E-01	2.824E-02	15.124
	+	87.30		2.955E+00	6.121E-01	5.313E-01	6.439E-02	5.562
	+	241.98		2.812E+00	7.774E-01	4.566E-01	4.799E-02	6.159
	+	295.21		1.358E+00	2.781E-01	1.860E-01	2.027E-02	7.301
PO-216	+	351.92	*	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783
	+	74.81		2.679E+00	4.169E-01	2.395E-01	3.023E-02	11.188
	+	77.11		2.165E+00	2.441E-01	1.431E-01	1.235E-02	15.124
	+	87.30		1.725E+00	3.738E-01	3.101E-01	4.246E-02	5.562
	+	238.63	*	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
PO-218	+	300.09		2.933E+00	1.117E+00	9.947E-01	1.062E-01	2.948
	+	74.81		4.617E+00	6.684E-01	4.126E-01	4.647E-02	11.188
	+	77.11		3.711E+00	5.050E-01	2.454E-01	2.824E-02	15.124
	+	87.30		2.955E+00	6.121E-01	5.313E-01	6.439E-02	5.562
	+	241.98		2.812E+00	7.774E-01	4.566E-01	4.799E-02	6.159
RA-224	+	295.21		1.358E+00	2.781E-01	1.860E-01	2.027E-02	7.301
	+	351.92	*	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783
	+	240.98	*	5.332E+00	1.444E+00	8.618E-01	7.658E-02	6.187
	+	609.31	*	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
	+	1120.29		1.504E+00	6.030E-01	5.909E-01	6.345E-02	2.545
RA-226	+	1764.49		1.864E+00	5.253E-01	4.689E-01	3.899E-02	3.974
	+	338.32		1.870E+00	8.584E-01	3.428E-01	1.415E-01	5.455
	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
	+	338.32		1.870E+00	8.584E-01	3.428E-01	1.415E-01	5.455
AC-228	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
	+	338.32		1.870E+00	8.584E-01	3.428E-01	1.415E-01	5.455
	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
RA-228	+	338.32		1.870E+00	8.584E-01	3.428E-01	1.415E-01	5.455
	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
	+	338.32		1.870E+00	8.584E-01	3.428E-01	1.415E-01	5.455
	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
TH-228	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
	+	74.81		2.719E+00	3.396E-01	2.431E-01	2.080E-02	11.188
	+	77.11		2.197E+00	2.477E-01	1.453E-01	1.253E-02	15.124
	+	87.30		1.751E+00	3.366E-01	3.148E-01	2.944E-02	5.562
	+	238.63	*	1.873E+00	2.150E-01	7.664E-02	7.621E-03	24.441
TH-230	+	300.09		2.976E+00	2.074E+00	1.010E+00	5.989E-01	2.948
	+	609.31	*	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
	+	1120.29		1.504E+00	6.030E-01	5.909E-01	6.345E-02	2.545
	+	1764.49		1.864E+00	5.253E-01	4.689E-01	3.899E-02	3.974
	+	338.32		1.870E+00	4.094E-01	3.428E-01	2.988E-02	5.455
TH-232	+	911.07	*	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
	+	969.11		2.184E+00	6.911E-01	4.179E-01	9.774E-02	5.225
	+	63.29	*	1.197E+00	7.213E-01	6.969E-01	1.231E-01	1.718
	+	92.38		2.243E+00	6.535E-01	4.337E-01	8.058E-02	5.173
	+	609.31	*	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
U-234	+	1120.29		1.504E+00	6.030E-01	5.909E-01	6.345E-02	2.545
	+	1764.49		1.864E+00	5.253E-01	4.689E-01	3.899E-02	3.974
	+	86.50	*	1.095E+00	3.089E-01	1.839E-01	4.162E-02	5.955
	+	95.87		-3.969E-02	6.085E-01	9.002E-01	2.257E-01	-0.044
	+	63.29	*	1.197E+00	7.213E-01	6.969E-01	1.231E-01	1.718
U-238	+	92.38		2.243E+00	5.476E-01	4.337E-01	4.170E-02	5.173
	+	74.67	*	4.344E-01	5.403E-02	3.881E-02	3.289E-03	11.192
	+	86.72		4.107E+01	7.897E+00	6.903E+00	6.425E-01	5.950

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-1.067E+00	2.572E+00	3.975E+00	4.436E-01	-0.268
		142.18		-1.153E+01	1.387E+01	2.057E+01	2.085E+00	-0.561
ANH-511	+	511.00	*	4.946E-02	6.940E-02	5.115E-02	4.904E-03	0.967

---- 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	*	1.647E-01	3.192E-01	5.556E-01	5.444E-02	0.297
NA-22		1274.54	*	5.172E-02	6.112E-02	1.070E-01	8.778E-03	0.483
NA-24		1368.53	*	2.276E-01	6.112E-02	Half-Life too short		
AL-26		1129.67		1.871E+00	2.165E+00	3.827E+00	3.222E-01	0.489
		1808.65	*	1.655E-02	3.060E-02	5.713E-02	4.728E-03	0.290
TI-44		67.85		-4.439E-03	1.738E-02	2.836E-02	2.300E-03	-0.157
	+	78.38	*	3.995E-01	4.504E-02	3.621E-02	3.153E-03	11.033
SC-46		889.25	*	-4.937E-03	4.344E-02	7.167E-02	6.373E-03	-0.069
	+	1120.51		2.569E-01	1.016E-01	1.562E-01	1.320E-02	1.645
V-48		944.10		-5.251E-03	1.133E+00	1.880E+00	1.648E-01	-0.003
		983.50	*	-6.250E-02	9.099E-02	1.396E-01	1.222E-02	-0.448
		1312.09		4.924E-02	1.039E-01	1.768E-01	1.440E-02	0.279
CR-51		320.08	*	-9.230E-03	3.230E-01	5.216E-01	4.849E-02	-0.018
MN-52		744.21		-9.229E-02	2.806E-01	4.368E-01	4.643E-02	-0.211
		848.13		2.494E+00	7.647E+00	1.322E+01	1.257E+00	0.189
		935.52		3.099E-01	3.187E-01	5.226E-01	4.581E-02	0.593
		1246.25		-2.870E+00	1.126E+01	1.508E+01	1.239E+00	-0.190
		1333.61		1.318E+00	6.043E+00	1.040E+01	8.445E-01	0.127
		1434.06	*	6.590E-03	2.537E-01	4.242E-01	3.503E-02	0.016
MN-54		834.83	*	6.754E-03	4.432E-02	7.545E-02	7.312E-03	0.090
CO-56		846.75	*	3.303E-02	4.580E-02	8.177E-02	7.795E-03	0.404
		977.42		1.901E+00	3.821E+00	5.907E+00	5.171E-01	0.322
		1037.82		1.234E-01	3.716E-01	6.329E-01	5.779E-02	0.195
		1175.09		1.873E-01	2.943E+00	4.810E+00	3.964E-01	0.039
		1238.25		2.167E-01	1.277E-01	2.324E-01	1.971E-02	0.933
		1360.21		-8.272E-01	1.184E+00	1.779E+00	1.452E-01	-0.465
		1771.40		8.409E-02	2.764E-01	4.810E-01	3.997E-02	0.175
CO-57		122.06	*	-6.540E-03	1.857E-02	2.875E-02	3.303E-03	-0.227
		136.48		6.392E-02	1.536E-01	2.458E-01	2.724E-02	0.260
CO-58		810.76	*	-3.963E-03	3.930E-02	6.550E-02	6.554E-03	-0.061
FE-59		142.65		-1.638E-01	2.113E+00	3.281E+00	3.314E-01	-0.050
		192.34		-5.091E-01	7.312E-01	1.188E+00	1.583E-01	-0.429
		1099.22	*	-1.060E-01	1.231E-01	1.828E-01	1.686E-02	-0.580
		1291.56		-1.006E-01	1.562E-01	2.291E-01	2.152E-02	-0.439
CO-60		1173.22		-1.224E-02	6.330E-02	1.009E-01	8.315E-03	-0.121
		1332.49	*	2.083E-02	4.914E-02	8.650E-02	7.021E-03	0.241
ZN-65		1115.52	*	-2.829E-02	1.222E-01	1.661E-01	1.408E-02	-0.170
GE-68		1077.35	*	1.050E+00	1.706E+00	2.956E+00	2.538E-01	0.355
AS-73		53.44	*	1.485E-01	1.642E-01	2.838E-01	2.298E-02	0.523
AS-74		595.88	*	-4.536E-02	1.007E-01	1.587E-01	1.665E-02	-0.286
		634.78		-3.947E-02	3.820E-01	6.175E-01	6.692E-02	-0.064

---- 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		1.528E-01	1.846E+00	2.833E+00	2.820E-01	0.054
		96.73		-2.577E-01	5.235E-01	7.529E-01	1.087E-01	-0.342
		121.11		3.113E-02	9.723E-02	1.562E-01	2.106E-02	0.199
		136.00		2.690E-04	2.905E-02	4.551E-02	4.836E-03	0.006
		198.60		5.233E-01	1.426E+00	2.424E+00	2.302E-01	0.216
		264.65	*	4.876E-03	3.984E-02	6.305E-02	5.660E-03	0.077
		279.53		7.619E-02	1.067E-01	1.649E-01	1.522E-02	0.462
		303.91		-4.307E-01	2.064E+00	2.936E+00	3.435E-01	-0.147
		400.65		9.078E-03	2.686E-01	4.267E-01	4.568E-02	0.021
BR-77	+	87.88		7.605E+02	1.462E+02	2.049E+02	1.925E+01	3.712
		200.40		-1.427E+01	1.179E+02	1.973E+02	1.691E+01	-0.072
	+	239.00		2.749E+02	2.905E+01	3.546E+01	3.147E+00	7.754
		249.79		-1.065E+01	5.187E+01	8.472E+01	7.555E+00	-0.126
		281.68		-5.799E+01	7.899E+01	1.164E+02	1.038E+01	-0.498
		297.23		8.673E+01	5.409E+01	7.511E+01	6.703E+00	1.155
		303.76		-1.609E+01	1.621E+02	2.330E+02	2.077E+01	-0.069
		439.47		1.147E+02	1.349E+02	2.404E+02	2.080E+01	0.477
		484.57		6.001E+01	1.950E+02	3.351E+02	3.102E+01	0.179
		520.65	*	-3.172E+00	9.745E+00	1.575E+01	1.528E+00	-0.201
		574.64		-4.320E+01	1.968E+02	3.177E+02	3.269E+01	-0.136
		578.91		6.946E+00	9.486E+01	1.384E+02	1.430E+01	0.050
		585.48		4.015E+02	2.058E+02	3.494E+02	3.632E+01	1.149
		755.35		-1.541E+01	1.876E+02	2.986E+02	3.147E+01	-0.052
		817.79		1.430E+02	1.483E+02	2.697E+02	2.671E+01	0.530
SR-82		698.33		5.698E+00	3.524E+01	5.795E+01	6.324E+00	0.098
		776.49	*	-3.588E-02	3.982E-01	6.303E-01	6.525E-02	-0.057
		1395.20		-3.216E+00	1.402E+01	2.267E+01	1.862E+00	-0.142
RB-83		520.41	*	6.829E-03	6.827E-02	1.146E-01	1.111E-02	0.060
		529.64		8.378E-03	1.083E-01	1.811E-01	1.775E-02	0.046
		552.65		3.569E-02	2.038E-01	3.423E-01	3.444E-02	0.104
RB-84		881.50	*	-1.693E-02	7.401E-02	1.205E-01	1.087E-02	-0.140
KR-85		513.99	*	4.502E-01	8.907E+00	1.312E+01	1.262E+00	0.034
SR-85		513.99	*	2.302E-03	4.555E-02	6.708E-02	6.455E-03	0.034
RB-86		1076.63	*	1.147E+00	1.029E+00	1.862E+00	1.598E-01	0.616
Y-88		898.02		3.114E-02	4.735E-02	8.407E-02	7.389E-03	0.370
		1836.01	*	4.877E-03	5.067E-02	8.378E-02	6.918E-03	0.058
ZR-88		392.90	*	1.997E-02	3.333E-02	5.520E-02	4.398E-03	0.362
Y-91		1204.90	*	-1.316E+01	2.677E+01	4.132E+01	3.404E+00	-0.318
NB-94		702.63	*	-5.829E-03	4.043E-02	6.449E-02	7.023E-03	-0.090
		871.10		3.376E-02	4.043E-02	7.280E-02	6.682E-03	0.464
NB-95		765.79	*	1.476E-02	6.131E-02	8.824E-02	9.222E-03	0.167
NB-95M		235.69	*	7.509E-02	1.087E-01	1.693E-01	1.706E-02	0.443
ZR-95		724.18		-2.889E-02	1.339E-01	1.833E-01	2.084E-02	-0.158
		756.15	*	3.961E-02	8.664E-02	1.451E-01	1.633E-02	0.273
NB-97		657.90	*	3.368E-02	8.664E-02	Half-Life	too short	
		1024.50		7.389E+00	8.664E-02	Half-Life	too short	
ZR-97		254.15		2.882E-01	8.664E-02	Half-Life	too short	
		355.39		6.459E-01	8.664E-02	Half-Life	too short	
		507.63	*	1.350E+00	8.664E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	602.52			-1.854E+00	8.664E-02	Half-Life too short		
	1021.30			5.628E+00	8.664E-02	Half-Life too short		
	1147.95			1.126E+00	8.664E-02	Half-Life too short		
	1362.66			0.000E+00	8.664E-02	Half-Life too short		
	1750.46			-3.461E+00	8.664E-02	Half-Life too short		
MO-99	140.51			4.498E+00	1.832E+01	2.893E+01	8.171E+00	0.155
	181.06			1.792E+00	1.332E+01	2.050E+01	3.721E+00	0.087
	366.43			1.689E+01	8.029E+01	1.303E+02	1.093E+01	0.130
	739.58	*		2.928E-01	1.200E+01	1.934E+01	3.178E+00	0.015
	778.00			-2.586E+00	3.298E+01	5.225E+01	5.402E+00	-0.049
TC-99M	140.51	*		3.422E+09	3.298E+01	Half-Life too short		
RH-101	127.23			1.018E-02	2.673E-02	3.960E-02	4.421E-03	0.257
	198.01	*		3.386E-03	2.572E-02	4.329E-02	3.697E-03	0.078
	325.23			3.689E-02	2.115E-01	3.100E-01	2.734E-02	0.119
RH-102	418.52			2.741E-01	2.813E-01	5.062E-01	4.227E-02	0.542
	475.06	*		-3.311E-03	2.937E-02	4.884E-02	4.461E-03	-0.068
	631.29			1.310E-02	5.854E-02	9.768E-02	1.056E-02	0.134
	697.49			-4.464E-02	8.138E-02	1.238E-01	1.351E-02	-0.361
+	766.84			2.154E-01	1.380E-01	2.477E-01	2.586E-02	0.870
	1046.59			-1.576E-02	1.230E-01	1.989E-01	1.722E-02	-0.079
	1112.84			-1.897E-01	2.757E-01	3.999E-01	3.390E-02	-0.474
RU-103	497.08	*		-4.423E-03	3.931E-02	6.506E-02	9.538E-03	-0.068
+	610.33			1.234E+01	2.882E+00	3.246E+00	5.780E-01	3.801
RH-106	511.85			1.682E-01	2.557E-01	4.416E-01	4.238E-02	0.381
	621.84	*		-2.603E-02	3.461E-01	5.622E-01	8.324E-02	-0.046
	1050.47			-3.592E-01	2.753E+00	4.457E+00	3.854E-01	-0.081
RU-106	511.85			1.682E-01	2.557E-01	4.416E-01	4.238E-02	0.381
	621.84	*		-2.603E-02	3.460E-01	5.622E-01	6.031E-02	-0.046
	1050.47			-3.592E-01	2.753E+00	4.457E+00	3.854E-01	-0.081
AG-108M	433.93	*		1.660E-02	3.213E-02	5.625E-02	5.015E-03	0.295
	614.37			-1.830E-02	4.881E-02	6.673E-02	7.299E-03	-0.274
	722.95			2.584E-02	5.514E-02	8.229E-02	9.091E-03	0.314
AG-110M	657.75	*		1.509E-02	3.810E-02	6.429E-02	7.211E-03	0.235
	677.61			1.492E-01	3.412E-01	5.767E-01	6.452E-02	0.259
	706.67			3.229E-02	2.542E-01	4.155E-01	4.595E-02	0.078
	763.93			5.587E-02	2.200E-01	3.182E-01	3.395E-02	0.176
	884.67			-2.553E-03	4.985E-02	8.280E-02	7.645E-03	-0.031
	937.48			1.225E-02	1.345E-01	1.970E-01	1.788E-02	0.062
	1384.27			1.224E-01	1.995E-01	3.594E-01	3.037E-02	0.341
IN-111	171.28			5.804E-03	7.313E-01	1.246E+00	1.022E-01	0.005
	245.39	*		-1.576E-01	8.356E-01	1.219E+00	1.086E-01	-0.129
IN-113M	391.69	*		1.945E-03	4.731E-02	7.536E-02	6.207E-03	0.026
SN-113	391.69	*		1.945E-03	4.731E-02	7.536E-02	6.207E-03	0.026
IN-114M	190.27	*		2.236E-01	1.522E-01	2.507E-01	2.118E-02	0.892
CD-115	260.90			-5.479E+00	1.041E+02	1.710E+02	1.529E+01	-0.032
	492.35			1.552E+01	3.375E+01	5.843E+01	5.468E+00	0.266
	527.90	*		4.373E-01	1.025E+01	1.709E+01	1.672E+00	0.026
SN-117M	156.02			-1.530E+00	1.680E+00	2.760E+00	2.491E-01	-0.554
	158.56	*		5.495E-03	3.908E-02	6.734E-02	5.928E-03	0.082

----- 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	*	-1.660E+00	2.111E+00	3.240E+00	3.298E-01	-0.512
		692.80		1.471E+01	4.455E+01	7.442E+01	8.140E+00	0.198
I-123		159.00	*	-1.277E+00	4.455E+01	Half-Life	too short	
		528.96		1.740E+01	4.455E+01	Half-Life	too short	
TE-123M		159.00	*	-8.730E-03	2.076E-02	3.487E-02	3.074E-03	-0.250
I-124		602.71	*	-1.645E-01	7.060E-01	1.094E+00	1.155E-01	-0.150
		722.78		2.733E+00	5.530E+00	8.277E+00	8.920E-01	0.330
		1325.50		3.163E+01	4.469E+01	8.057E+01	6.548E+00	0.393
		1376.25		3.956E+01	3.787E+01	6.933E+01	5.674E+00	0.571
		1509.49		2.540E+01	2.008E+01	3.864E+01	3.216E+00	0.657
		1691.02		-2.960E+00	4.301E+00	5.837E+00	4.876E-01	-0.507
SB-124		602.71		-9.949E-03	4.270E-02	6.614E-02	6.985E-03	-0.150
		645.85		4.756E-01	5.816E-01	1.013E+00	1.149E-01	0.469
		709.31		-7.061E-01	3.377E+00	5.346E+00	5.803E-01	-0.132
		713.82		-4.316E-01	1.801E+00	2.832E+00	3.882E-01	-0.152
		722.78		2.396E-01	4.849E-01	7.257E-01	7.929E-02	0.330
	+	968.20		2.241E+01	5.167E+00	9.288E+00	8.135E-01	2.413
		1045.16		4.924E-02	2.646E+00	4.359E+00	3.775E-01	0.011
		1325.50		2.961E+00	4.185E+00	7.544E+00	6.132E-01	0.393
		1368.21		8.200E-01	2.172E+00	3.809E+00	5.026E-01	0.215
		1436.60		-2.482E+00	4.193E+00	6.262E+00	5.172E-01	-0.396
		1691.02	*	-6.120E-02	8.896E-02	1.207E-01	1.051E-02	-0.507
SB-125		427.89	*	7.224E-02	9.267E-02	1.647E-01	1.425E-02	0.439
	+	463.38		4.923E-01	4.653E-01	5.819E-01	5.604E-02	0.846
		600.56		7.472E-02	2.014E-01	3.404E-01	3.766E-02	0.220
		635.90		-5.295E-02	2.976E-01	4.775E-01	5.447E-02	-0.111
TE-125M		109.28	*	4.278E-01	6.140E+00	9.817E+00	1.180E+00	0.044
I-126		388.63		4.337E-02	2.002E-01	3.236E-01	2.591E-02	0.134
		666.33	*	1.399E-01	2.037E-01	3.506E-01	3.868E-02	0.399
		753.82		4.565E-01	1.736E+00	2.859E+00	3.017E-01	0.160
SB-126		223.80		-3.949E-01	3.307E+00	5.484E+00	4.817E-01	-0.072
		278.60		3.967E+00	2.497E+00	4.051E+00	3.613E-01	0.979
	+	296.50		1.333E+01	2.599E+00	3.105E+00	2.772E-01	4.291
		414.70		-5.937E-02	6.981E-02	1.110E-01	9.206E-03	-0.535
		415.30		-2.732E+00	5.842E+00	9.584E+00	7.957E-01	-0.285
		555.20		-2.489E+00	4.254E+00	6.667E+00	6.726E-01	-0.373
		573.80		3.286E-01	1.039E+00	1.761E+00	1.811E-01	0.187
		593.00		-2.058E-01	9.377E-01	1.508E+00	1.579E-01	-0.136
		656.30		-1.364E+00	3.686E+00	5.780E+00	6.360E-01	-0.236
		666.33		5.842E-02	8.507E-02	1.464E-01	1.615E-02	0.399
		675.00		-6.808E-01	2.196E+00	3.452E+00	3.800E-01	-0.197
		695.00		-9.812E-03	8.056E-02	1.287E-01	1.406E-02	-0.076
		697.00		-1.911E-01	2.834E-01	4.246E-01	4.636E-02	-0.450
		720.50	*	1.029E-02	1.707E-01	2.673E-01	2.884E-02	0.038
		856.80		1.100E-01	5.713E-01	8.541E-01	8.021E-02	0.129
		989.30		8.021E-01	1.527E+00	2.656E+00	2.322E-01	0.302
		1034.80		1.631E+00	1.040E+01	1.740E+01	1.510E+00	0.094
		1213.00		-2.802E+00	6.461E+00	1.002E+01	8.251E-01	-0.280
SB-127		61.10		1.081E+01	1.707E+01	2.699E+01	2.831E+00	0.401

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		252.40		-1.571E+00	3.571E+00	5.642E+00	2.374E+00	-0.278
		290.80		-2.790E+00	2.018E+01	2.907E+01	3.292E+00	-0.096
		411.60		1.467E+00	1.196E+01	1.909E+01	2.954E+00	0.077
		444.90		2.592E+00	8.626E+00	1.488E+01	1.866E+00	0.174
		473.00		-7.802E-01	1.590E+00	2.559E+00	3.360E-01	-0.305
		543.00		-1.065E+00	1.682E+01	2.773E+01	4.208E+00	-0.038
		603.60		-4.476E+00	1.333E+01	1.834E+01	2.543E+00	-0.244
	*	685.20		-2.680E-02	1.402E+00	2.268E+00	2.991E-01	-0.012
		698.50		2.692E+00	1.512E+01	2.490E+01	4.264E+00	0.108
		722.20		2.170E+01	3.758E+01	5.677E+01	7.287E+00	0.382
		783.80		4.562E+00	4.239E+00	7.408E+00	1.005E+00	0.616
XE-127		57.60		1.457E-01	1.484E+00	2.481E+00	1.953E-01	0.059
		145.22		1.868E-01	5.612E-01	8.886E-01	8.802E-02	0.210
		172.10		1.253E-01	9.127E-02	1.637E-01	1.344E-02	0.765
	*	202.84		-1.680E-02	3.637E-02	5.972E-02	5.132E-03	-0.281
		374.96		5.285E-02	1.998E-01	3.250E-01	2.682E-02	0.163
I-131		80.18		-2.388E-01	2.370E+00	3.553E+00	3.155E-01	-0.067
		284.30		-1.917E-01	1.258E+00	2.036E+00	1.905E-01	-0.094
	*	364.48		-1.696E-02	1.160E-01	1.834E-01	1.630E-02	-0.092
		636.97		2.416E-01	1.653E+00	2.736E+00	3.075E-01	0.088
		722.89		4.341E+00	9.089E+00	1.358E+01	1.469E+00	0.320
TE-132		49.72		-2.952E-01	2.756E+00	4.274E+00	4.526E-01	-0.069
		111.76		5.557E+00	1.880E+01	3.035E+01	3.811E+00	0.183
		116.30		-2.122E+00	1.782E+01	2.806E+01	3.599E+00	-0.076
	*	228.16		-2.731E-01	5.276E-01	8.511E-01	1.343E-01	-0.321
BA-133		53.15		6.505E-01	6.961E-01	1.205E+00	9.778E-02	0.540
		79.62		-1.568E-01	6.713E-01	9.997E-01	1.532E-01	-0.157
		81.00		-5.288E-03	5.238E-02	7.846E-02	1.257E-02	-0.067
	+	276.40		5.699E-01	4.203E-01	6.015E-01	8.801E-02	0.947
		302.84		-1.135E-02	1.383E-01	1.992E-01	2.685E-02	-0.057
	*	356.01		-5.806E-03	4.644E-02	6.538E-02	8.592E-03	-0.089
		383.85		-5.010E-02	2.870E-01	4.497E-01	5.511E-02	-0.111
I-133	+	510.53		4.094E-01	2.870E-01	Half-Life	too short	
	*	529.87		5.292E-04	2.870E-01	Half-Life	too short	
		706.58		4.258E-02	2.870E-01	Half-Life	too short	
		856.28		1.874E-01	2.870E-01	Half-Life	too short	
		875.33		-2.437E-02	2.870E-01	Half-Life	too short	
		1236.41		4.824E-01	2.870E-01	Half-Life	too short	
		1298.22		1.442E-01	2.870E-01	Half-Life	too short	
CS-134		475.35		-2.207E-01	1.908E+00	3.172E+00	2.899E-01	-0.070
		563.23		-1.968E-01	3.987E-01	6.305E-01	6.458E-02	-0.312
		569.32		-2.750E-02	2.186E-01	3.561E-01	3.680E-02	-0.077
		604.70		-2.773E-02	3.980E-02	5.188E-02	5.497E-03	-0.534
	*	795.84		5.791E-02	5.553E-02	9.731E-02	9.934E-03	0.595
		801.93		-1.433E-01	5.086E-01	7.020E-01	7.112E-02	-0.204
		1038.57		2.828E+00	4.560E+00	7.995E+00	6.933E-01	0.354
		1167.94		-6.041E-01	3.375E+00	5.386E+00	4.451E-01	-0.112
		1365.15		4.592E-03	1.528E+00	2.558E+00	2.196E-01	0.002
CS-135	*	268.24		1.041E-01	1.547E-01	2.386E-01	2.443E-02	0.437

## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-135		288.45		-1.251E+09	1.547E-01	Half-Life	too short	
		417.63		1.903E+09	1.547E-01	Half-Life	too short	
		546.56		5.771E+09	1.547E-01	Half-Life	too short	
		836.80		1.391E+10	1.547E-01	Half-Life	too short	
		1038.76		7.759E+09	1.547E-01	Half-Life	too short	
		1124.00		-2.702E+10	1.547E-01	Half-Life	too short	
		1131.51		1.632E+08	1.547E-01	Half-Life	too short	
		1260.41	*	7.684E+08	1.547E-01	Half-Life	too short	
		1457.56		4.147E+11	1.547E-01	Half-Life	too short	
		1678.03		-4.406E+09	1.547E-01	Half-Life	too short	
		1706.46		4.028E+09	1.547E-01	Half-Life	too short	
		1791.20		2.476E+09	1.547E-01	Half-Life	too short	
CS-136		66.91		-8.275E-03	2.824E-01	4.653E-01	7.041E-02	-0.018
	+	86.29		4.802E+00	1.030E+00	1.148E+00	1.526E-01	4.184
		153.22		6.871E-01	4.908E-01	8.806E-01	8.995E-02	0.780
		163.89		2.167E-02	8.027E-01	1.373E+00	1.289E-01	0.016
		176.55		1.860E-01	2.776E-01	4.851E-01	4.264E-02	0.383
		273.65		3.315E-02	5.153E-01	6.024E-01	5.710E-02	0.055
		340.57		8.952E-02	1.213E-01	1.858E-01	1.662E-02	0.482
		818.51		6.045E-02	8.919E-02	1.587E-01	1.572E-02	0.381
		1048.07	*	8.453E-04	1.161E-01	1.910E-01	1.723E-02	0.004
		1235.34		4.200E-01	8.474E-01	1.258E+00	1.455E-01	0.334
BA-137M		661.65	*	-3.467E-02	4.125E-02	6.142E-02	6.783E-03	-0.564
CS-137		661.65	*	-3.665E-02	4.361E-02	6.493E-02	7.179E-03	-0.564
CE-139		165.85	*	-7.056E-03	2.289E-02	3.856E-02	3.134E-03	-0.183
BA-140		162.64		3.136E-01	5.578E-01	9.751E-01	8.721E-02	0.322
		304.84		8.341E-01	1.207E+00	1.830E+00	5.146E-01	0.456
LA-140		423.70		2.155E-01	1.732E+00	2.958E+00	9.575E-01	0.073
	+	537.32	*	-4.931E-02	2.522E-01	4.101E-01	1.373E-01	-0.120
		328.77		8.952E-01	4.424E-01	5.166E-01	4.789E-02	1.733
		432.53		-7.070E-01	2.010E+00	3.313E+00	2.974E-01	-0.213
		487.03		1.405E-02	1.260E-01	2.129E-01	2.084E-02	0.066
		751.79		-2.003E+00	2.098E+00	3.015E+00	3.417E-01	-0.664
		815.85		2.928E-01	3.726E-01	6.694E-01	7.232E-02	0.437
		867.82		6.699E-01	1.658E+00	2.815E+00	2.718E-01	0.238
		919.63		1.698E+00	3.210E+00	5.620E+00	6.049E-01	0.302
		925.24		2.200E-01	1.244E+00	2.109E+00	1.961E-01	0.104
		1596.49	*	-2.226E-01	1.187E-01	1.254E-01	1.049E-02	-1.775
CE-141		145.44	*	8.240E-03	5.053E-02	7.935E-02	7.955E-03	0.104
CE-143		57.37		4.226E-06	5.053E-02	Half-Life	too short	
		231.56		6.918E-04	5.053E-02	Half-Life	too short	
		293.26	*	2.829E-04	5.053E-02	Half-Life	too short	
	+	350.59		2.847E-02	5.053E-02	Half-Life	too short	
		490.36		1.398E-03	5.053E-02	Half-Life	too short	
		664.57		4.773E-04	5.053E-02	Half-Life	too short	
		721.93		1.015E-03	5.053E-02	Half-Life	too short	
CE-144		80.11		-1.399E-01	1.112E+00	1.666E+00	1.470E-01	-0.084
		133.54	*	1.242E-01	1.517E-01	2.463E-01	4.147E-02	0.504
PM-144		476.78		1.277E-02	6.762E-02	1.150E-01	1.141E-02	0.111

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		1.793E-02	3.399E-02	5.826E-02	6.344E-03	0.308
		696.49	*	-2.896E-02	3.693E-02	5.455E-02	5.958E-03	-0.531
		778.57		-1.014E+00	2.414E+00	3.659E+00	3.781E-01	-0.277
PR-144		696.49	*	-1.962E+00	2.502E+00	3.696E+00	4.036E-01	-0.531
		1489.15		-2.386E+00	1.227E+01	1.956E+01	1.625E+00	-0.122
PM-146		453.90	*	-1.473E-02	4.367E-02	7.167E-02	7.820E-03	-0.206
		633.02		-1.594E+00	1.668E+00	2.284E+00	8.664E-01	-0.698
		735.90		-7.599E-02	1.622E-01	2.446E-01	7.165E-02	-0.311
		747.13		6.678E-02	1.146E-01	1.935E-01	2.968E-02	0.345
ND-147	+	91.11		7.131E-01	1.917E-01	2.625E-01	2.677E-02	2.717
		319.41		-8.344E-01	2.936E+00	4.652E+00	4.119E-01	-0.179
		439.89		5.468E+00	5.814E+00	1.041E+01	9.017E-01	0.525
		531.02	*	-3.971E-01	6.058E-01	9.463E-01	1.483E-01	-0.420
PM-149		285.90	*	-2.644E+01	7.400E+01	1.179E+02	1.853E+01	-0.224
EU-152		121.78		-1.008E-02	5.351E-02	8.365E-02	1.044E-02	-0.120
		244.69		-1.270E-02	2.809E-01	4.153E-01	3.696E-02	-0.031
		344.27	*	-1.035E-01	8.973E-02	1.301E-01	1.193E-02	-0.796
		443.98		-8.446E-01	9.348E-01	1.464E+00	1.276E-01	-0.577
		778.89		-1.252E-01	2.780E-01	4.194E-01	4.332E-02	-0.299
		867.32		-4.991E-02	1.057E+00	1.662E+00	1.535E-01	-0.030
	+	964.01		1.154E+00	4.550E-01	7.572E-01	6.634E-02	1.524
		1085.78		7.680E-02	5.048E-01	8.397E-01	7.188E-02	0.091
		1112.02		-2.128E-01	3.715E-01	5.656E-01	4.796E-02	-0.376
	+	1407.95		1.765E-01	2.123E-01	3.207E-01	2.639E-02	0.550
GD-153		69.67		6.510E-02	6.575E-01	1.086E+00	8.901E-02	0.060
	+	83.37		2.844E+01	1.139E+01	1.349E+01	1.221E+00	2.108
		97.43	*	-2.812E-02	4.994E-02	7.800E-02	7.705E-03	-0.360
		103.18		-7.487E-02	7.107E-02	1.072E-01	1.094E-02	-0.699
EU-154		123.07		9.653E-03	3.773E-02	6.034E-02	8.215E-03	0.160
		247.94		1.152E-01	2.915E-01	4.933E-01	5.771E-02	0.233
		591.81		-2.998E-02	6.265E-01	1.025E+00	1.342E-01	-0.029
		723.30		4.562E-02	2.354E-01	3.396E-01	3.910E-02	0.134
		756.87		1.978E-01	9.325E-01	1.527E+00	2.049E-01	0.129
		873.19		-2.538E-01	3.632E-01	5.631E-01	7.107E-02	-0.451
		996.32		-2.318E-01	4.493E-01	6.981E-01	1.244E-01	-0.332
		1004.76		-1.058E-01	2.608E-01	4.114E-01	4.821E-02	-0.257
		1274.45	*	1.815E-01	1.672E-01	2.987E-01	3.282E-02	0.608
EU-155		48.70		-7.474E-02	3.336E-01	5.147E-01	4.354E-02	-0.145
		60.01		1.470E-03	1.491E+00	2.296E+00	1.793E-01	0.001
	+	86.54		4.492E-01	8.654E-02	1.168E-01	1.095E-02	3.845
		105.31	*	1.037E-01	7.329E-02	1.237E-01	1.290E-02	0.839
TB-160	+	86.79		1.197E+00	2.301E-01	3.290E-01	3.063E-02	3.639
		197.04		-4.784E-02	4.520E-01	7.528E-01	6.421E-02	-0.064
		215.65		4.252E-01	5.869E-01	1.017E+00	8.862E-02	0.418
	+	298.57		4.257E-01	1.602E-01	1.876E-01	1.674E-02	2.268
		879.36	*	4.815E-02	1.500E-01	2.592E-01	2.346E-02	0.186
		962.29		1.200E+00	6.623E-01	1.249E+00	1.094E-01	0.961
		966.15		1.351E+00	3.381E-01	6.610E-01	5.791E-02	2.044
		1177.93		9.967E-02	4.555E-01	7.563E-01	6.233E-02	0.132



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85	-4.184E-02	9.705E-01	1.555E+00	1.275E-01	-0.027
		80.57	3.055E-03	1.444E-01	2.177E-01	1.928E-02	0.014
	+	184.41	1.516E-01	5.279E-02	4.913E-02	4.115E-03	3.085
		280.46	4.985E-02	8.231E-02	1.263E-01	1.126E-02	0.395
		410.95	3.494E-01	2.552E-01	4.434E-01	3.653E-02	0.788
		711.68	* 3.401E-02	6.924E-02	1.170E-01	1.269E-02	0.291
TM-171		752.31	-1.686E-01	3.406E-01	5.187E-01	5.480E-02	-0.325
		810.29	-1.071E-02	5.944E-02	9.822E-02	9.816E-03	-0.109
		51.35	-3.992E+00	5.101E+00	8.251E+00	6.800E-01	-0.484
		52.39	1.224E+00	2.840E+00	4.837E+00	3.951E-01	0.253
		59.40	-2.268E+00	7.908E+00	1.201E+01	9.370E-01	-0.189
		66.72	* 9.652E-01	1.108E+01	1.700E+01	1.370E+00	0.057
LU-176	+	88.36	8.847E-01	1.701E-01	2.102E-01	1.981E-02	4.209
		201.83	-1.320E-02	2.223E-02	3.625E-02	3.112E-03	-0.364
		306.84	* -5.997E-03	2.231E-02	3.555E-02	3.165E-03	-0.169
		401.10	-2.156E+00	7.157E+00	1.107E+01	8.954E-01	-0.195
LU-177		112.95	-4.301E-01	1.111E+00	1.730E+00	1.874E-01	-0.249
	+	208.36	* 3.298E+00	1.278E+00	1.741E+00	1.506E-01	1.894
LU-177M		52.97	2.517E-01	3.090E-01	5.329E-01	4.331E-02	0.472
		54.07	7.709E-02	1.728E-01	2.939E-01	2.369E-02	0.262
		61.30	2.602E-01	4.691E-01	7.395E-01	5.804E-02	0.352
		121.62	4.195E-04	2.711E-01	4.283E-01	4.903E-02	0.001
		147.16	1.089E-01	5.127E-01	8.066E-01	7.868E-02	0.135
		171.86	3.736E-01	3.698E-01	6.552E-01	5.378E-02	0.570
		218.09	-1.213E-01	6.841E-01	1.133E+00	9.902E-02	-0.107
	+	268.79	2.419E+00	1.196E+00	1.360E+00	1.216E-01	1.778
		319.02	-5.305E-02	2.296E-01	3.652E-01	3.234E-02	-0.145
		367.43	2.993E-01	8.797E-01	1.443E+00	1.207E-01	0.207
		413.65	* -4.740E-02	1.739E-01	2.680E-01	2.219E-02	-0.177
		56.28	-1.114E-01	2.140E-01	3.486E-01	2.767E-02	-0.319
		57.53	9.301E-03	1.244E-01	2.078E-01	1.637E-02	0.045
		65.20	-5.296E-02	3.505E-01	5.327E-01	4.257E-02	-0.099
HF-181		133.02	5.861E-02	5.166E-02	7.968E-02	8.591E-03	0.736
		136.25	1.249E-01	3.343E-01	5.340E-01	5.640E-02	0.234
		345.85	-2.130E-02	1.711E-01	2.722E-01	2.353E-02	-0.078
		482.03	* -1.187E-03	4.153E-02	6.943E-02	6.405E-03	-0.017
		56.28	-4.397E-02	8.399E-02	1.368E-01	1.086E-02	-0.321
		57.53	3.619E-03	4.886E-02	8.160E-02	6.428E-03	0.044
W-181		65.20	* -2.064E-02	1.366E-01	2.076E-01	1.659E-02	-0.099
		67.75	-8.979E-03	4.112E-02	6.719E-02	5.446E-03	-0.134
TA-182		100.10	1.801E-02	1.142E-01	1.845E-01	1.850E-02	0.098
		152.43	-7.071E-02	2.872E-01	4.394E-01	4.100E-02	-0.161
		222.10	-4.015E-02	2.794E-01	4.630E-01	4.061E-02	-0.087
		1001.68	-1.028E-01	2.303E+00	3.784E+00	3.303E-01	-0.027
	+	1121.28	7.100E-01	2.808E-01	4.285E-01	3.620E-02	1.657
		1189.05	3.886E-03	4.109E-01	6.671E-01	5.497E-02	0.006
RE-183		1221.42	* -2.138E-03	2.626E-01	4.243E-01	3.493E-02	-0.005
		1230.97	4.327E-01	6.689E-01	1.055E+00	8.684E-02	0.410
		57.98	2.072E-02	5.045E-02	8.530E-02	6.703E-03	0.243

---- 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		-9.664E-03	3.232E-02	4.907E-02	3.829E-03	-0.197
		67.20		-1.368E-03	7.383E-02	1.217E-01	9.829E-03	-0.011
		162.32	*	2.825E-02	8.304E-02	1.440E-01	1.218E-02	0.196
	+	208.81		3.037E+00	1.177E+00	1.626E+00	1.408E-01	1.867
		291.72		3.721E-02	9.086E-01	1.329E+00	1.186E-01	0.028
		57.98		7.647E-02	1.862E-01	3.148E-01	2.473E-02	0.243
		59.32		-3.564E-02	1.192E-01	1.809E-01	1.412E-02	-0.197
		67.20		-5.047E-03	2.724E-01	4.488E-01	3.626E-02	-0.011
		161.27		-5.154E-02	2.659E-01	4.510E-01	3.860E-02	-0.114
		216.55		1.194E-01	2.127E-01	3.655E-01	3.189E-02	0.327
		252.85	*	-1.527E-02	1.956E-01	3.216E-01	2.870E-02	-0.047
		318.01		-1.426E-01	3.923E-01	6.175E-01	5.471E-02	-0.231
		792.07		7.345E-01	1.335E+00	1.999E+00	2.038E-01	0.367
		903.28		-4.780E-01	1.159E+00	1.794E+00	1.570E-01	-0.267
OS-185		920.93		-1.668E-02	5.069E-01	8.408E-01	7.367E-02	-0.020
		59.72		-2.103E-02	8.840E-02	1.346E-01	1.050E-02	-0.156
		61.14		3.283E-02	5.082E-02	8.046E-02	6.311E-03	0.408
		69.30		-1.140E-02	1.157E-01	1.897E-01	1.551E-02	-0.060
		592.07		-2.034E-01	2.545E+00	4.152E+00	4.343E-01	-0.049
		646.12	*	2.180E-02	5.060E-02	8.553E-02	9.346E-03	0.255
		717.42		-7.480E-01	1.011E+00	1.496E+00	1.617E-01	-0.500
		874.81		-2.058E-01	6.714E-01	1.087E+00	9.917E-02	-0.189
		880.27		1.842E-01	8.472E-01	1.449E+00	1.309E-01	0.127
		155.03	*	-1.072E-02	1.292E-01	2.209E-01	2.013E-02	-0.049
RE-188		477.96		9.185E-01	3.061E+00	5.250E+00	4.816E-01	0.175
		633.10		-3.214E+00	3.154E+00	4.604E+00	4.983E-01	-0.698
	+	63.58		4.799E+01	2.791E+01	3.326E+01	2.637E+00	1.443
W-188		227.08		-3.763E+00	1.041E+01	1.701E+01	1.498E+00	-0.221
		290.67	*	-1.751E+00	7.260E+00	1.036E+01	9.250E-01	-0.169
	+	295.96		1.033E+00	2.018E-01	2.828E-01	2.541E-02	3.653
IR-192		308.46		-5.201E-02	8.477E-02	1.313E-01	1.174E-02	-0.396
		316.51	*	-1.346E-02	3.129E-02	4.906E-02	4.360E-03	-0.274
		468.07		-4.140E-03	7.394E-02	1.088E-01	1.049E-02	-0.038
		604.41		-4.609E-01	5.528E-01	7.041E-01	1.013E-01	-0.655
		612.46		-9.033E-02	8.116E-01	1.149E+00	1.345E-01	-0.079
AU-195		65.12		-8.643E-03	6.317E-02	9.607E-02	7.676E-03	-0.090
		66.83		-1.106E-03	3.427E-02	5.647E-02	4.553E-03	-0.020
	+	75.70		1.404E+00	1.747E-01	2.248E-01	1.919E-02	6.248
		98.88	*	9.367E-02	1.428E-01	2.358E-01	2.348E-02	0.397
TL-200	+	129.76		5.815E+00	3.351E+00	3.879E+00	4.267E-01	1.499
		367.94	*	4.553E-05	3.351E+00	Half-Life	too short	
		579.30		1.516E-04	3.351E+00	Half-Life	too short	
		828.27		2.710E-03	3.351E+00	Half-Life	too short	
TL-201		1205.75		-2.547E-05	3.351E+00	Half-Life	too short	
		68.90		-3.719E-01	1.742E+00	2.845E+00	2.321E-01	-0.131
		70.82		1.515E-01	1.113E+00	1.704E+00	1.407E-01	0.089
		80.30		-8.643E-02	2.500E+00	3.761E+00	3.323E-01	-0.023
		135.34		-9.706E+00	1.788E+01	2.710E+01	2.879E+00	-0.358
		167.43	*	1.575E+00	4.914E+00	8.499E+00	6.922E-01	0.185

---- 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		-3.496E-02	1.638E-01	2.674E-01	2.182E-02	-0.131
		70.82		1.420E-02	1.043E-01	1.597E-01	1.319E-02	0.089
		80.30		-8.104E-03	2.345E-01	3.526E-01	3.116E-02	-0.023
HG-203		439.56	*	5.849E-02	6.935E-02	1.235E-01	1.069E-02	0.473
		70.83		6.288E-02	4.571E-01	6.997E-01	9.362E-02	0.090
		72.87		4.904E-01	2.868E-01	4.573E-01	5.964E-02	1.072
		82.60		3.268E-01	6.399E-01	8.746E-01	1.223E-01	0.374
		279.20	*	3.903E-02	4.021E-02	6.315E-02	5.781E-03	0.618
BI-207		72.80		1.374E-01	8.283E-02	1.338E-01	1.119E-02	1.027
	+	74.97		7.797E-01	9.698E-02	1.350E-01	1.147E-02	5.774
	+	84.90		3.681E-01	1.474E-01	1.795E-01	1.646E-02	2.051
		569.67		-1.523E-02	3.485E-02	5.523E-02	5.655E-03	-0.276
		1063.62	*	-1.320E-03	6.659E-02	1.090E-01	9.397E-03	-0.012
TL-207		1770.23		-2.220E+00	1.007E+00	1.040E+00	8.644E-02	-2.134
		81.07		-1.518E-02	1.156E-01	1.729E-01	1.537E-02	-0.088
	+	83.78		2.427E-01	9.718E-02	1.214E-01	1.103E-02	1.999
		94.90		1.208E-01	1.425E-01	2.205E-01	2.149E-02	0.548
		122.32		7.160E-04	1.258E+00	1.987E+00	2.375E-01	0.000
		144.24		3.963E-01	5.561E-01	8.956E-01	9.740E-02	0.442
		154.21		2.866E-01	3.051E-01	5.405E-01	5.401E-02	0.530
	+	269.46		5.670E-01	2.804E-01	3.404E-01	3.101E-02	1.666
		323.87	*	-1.082E-01	6.314E-01	8.935E-01	1.591E-01	-0.121
	+	338.28		7.808E+00	1.842E+00	2.610E+00	3.232E-01	2.991
PO-209		445.03		5.609E-01	2.099E+00	3.612E+00	4.395E-01	0.155
		260.50		1.734E+00	8.254E+00	1.377E+01	1.231E+00	0.126
		262.80		-7.045E+00	2.287E+01	3.694E+01	3.301E+00	-0.191
		896.60	*	-6.841E-01	9.197E+00	1.524E+01	1.337E+00	-0.045
PB-211		404.84	*	4.188E-01	9.684E-01	1.530E+00	9.578E-01	0.274
		427.08		1.288E+00	2.196E+00	3.610E+00	2.242E+00	0.357
		831.96		-1.364E+00	1.714E+00	2.287E+00	1.437E+00	-0.596
BI-212	+	727.18	*	1.054E+00	6.807E-01	7.807E-01	9.283E-02	1.350
		785.46		2.918E+00	2.136E+00	3.830E+00	3.931E-01	0.762
PO-215		1620.62		4.238E-01	1.521E+00	2.627E+00	2.197E-01	0.161
		81.07		-1.518E-02	1.156E-01	1.729E-01	1.537E-02	-0.088
	+	83.78		2.427E-01	9.718E-02	1.214E-01	1.103E-02	1.999
		94.90		1.208E-01	1.425E-01	2.205E-01	2.149E-02	0.548
		122.32		7.160E-04	1.258E+00	1.987E+00	2.375E-01	0.000
		144.24		3.963E-01	5.561E-01	8.956E-01	9.740E-02	0.442
		154.21		2.866E-01	3.051E-01	5.405E-01	5.401E-02	0.530
	+	269.46		5.670E-01	2.804E-01	3.404E-01	3.101E-02	1.666
		323.87	*	-1.082E-01	6.314E-01	8.935E-01	1.591E-01	-0.121
	+	338.28		7.808E+00	1.842E+00	2.610E+00	3.232E-01	2.991
RN-219		445.03		5.609E-01	2.099E+00	3.612E+00	4.395E-01	0.155
	+	271.23		7.275E-01	3.619E-01	4.104E-01	4.340E-02	1.773
		401.81	*	-1.240E-01	4.398E-01	6.806E-01	1.003E-01	-0.182
RN-220		549.76	*	-1.305E+01	2.852E+01	4.533E+01	4.547E+00	-0.288
RA-223		81.07		-1.518E-02	1.156E-01	1.729E-01	1.537E-02	-0.088
	+	83.78		2.427E-01	9.718E-02	1.214E-01	1.103E-02	1.999
		94.90		1.208E-01	1.425E-01	2.205E-01	2.149E-02	0.548

----- 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		7.160E-04	1.258E+00	1.987E+00	2.375E-01	0.000
		144.24		3.963E-01	5.561E-01	8.956E-01	9.740E-02	0.442
		154.21		2.866E-01	3.051E-01	5.405E-01	5.401E-02	0.530
	+	269.46		5.670E-01	2.804E-01	3.404E-01	3.101E-02	1.666
		323.87	*	-1.082E-01	6.314E-01	8.935E-01	1.591E-01	-0.121
	+	338.28		7.808E+00	1.842E+00	2.610E+00	3.232E-01	2.991
		445.03		5.609E-01	2.099E+00	3.612E+00	4.395E-01	0.155
		79.80		-1.994E-01	8.548E-01	1.272E+00	2.744E-01	-0.157
		236.00		1.622E-01	2.014E-01	3.152E-01	3.913E-02	0.515
		256.20	*	1.189E-01	3.359E-01	5.646E-01	8.765E-02	0.211
		286.10		-4.635E-01	1.345E+00	2.147E+00	2.878E-01	-0.216
	+	299.80		5.435E+00	2.206E+00	2.682E+00	4.732E-01	2.026
TH-227		304.40		3.625E-01	1.784E+00	2.636E+00	4.896E-01	0.137
		334.20		-2.103E+00	2.451E+00	3.176E+00	6.183E-01	-0.662
		79.80		-1.994E-01	8.548E-01	1.272E+00	2.779E-01	-0.157
	+	94.00		8.670E+00	2.736E+00	2.306E+00	5.125E-01	3.760
		236.00		1.622E-01	2.012E-01	3.152E-01	3.551E-02	0.515
		256.20	*	1.189E-01	3.361E-01	5.646E-01	1.028E-01	0.211
		286.10		-4.635E-01	1.422E+00	2.147E+00	2.155E+00	-0.216
	+	299.80		5.435E+00	2.206E+00	2.682E+00	4.732E-01	2.026
		304.40		3.625E-01	1.784E+00	2.636E+00	4.896E-01	0.137
		334.20		-2.103E+00	2.451E+00	3.176E+00	6.183E-01	-0.662
	+	85.43		3.634E-01	1.455E-01	1.629E-01	1.500E-02	2.231
	+	88.47		5.093E-01	9.791E-02	1.177E-01	1.109E-02	4.328
TH-229		100.00		2.246E-02	1.188E-01	1.922E-01	1.926E-02	0.117
		193.63	*	-2.082E-01	3.868E-01	6.347E-01	5.389E-02	-0.328
		210.97		4.920E-01	6.323E-01	9.999E-01	8.674E-02	0.492
	PA-231	283.67	*	2.980E-01	1.317E+00	2.185E+00	3.356E-01	0.136
	+	301.29		2.174E+00	8.396E-01	9.895E-01	1.232E-01	2.197
	TH-231	81.07		-1.518E-02	1.156E-01	1.729E-01	1.537E-02	-0.088
	+	83.78		2.427E-01	9.718E-02	1.214E-01	1.103E-02	1.999
		94.90		1.208E-01	1.425E-01	2.205E-01	2.149E-02	0.548
		122.32		7.160E-04	1.258E+00	1.987E+00	2.375E-01	0.000
		144.24		3.963E-01	5.561E-01	8.956E-01	9.740E-02	0.442
		154.21		2.866E-01	3.051E-01	5.405E-01	5.401E-02	0.530
	+	269.46		5.670E-01	2.804E-01	3.404E-01	3.101E-02	1.666
U-231		323.87	*	-1.082E-01	6.314E-01	8.935E-01	1.591E-01	-0.121
	+	338.28		7.808E+00	1.842E+00	2.610E+00	3.232E-01	2.991
		445.03		5.609E-01	2.099E+00	3.612E+00	4.395E-01	0.155
	+	84.21		1.002E+01	4.010E+00	5.036E+00	4.591E-01	1.989
	+	92.29		8.205E+00	2.003E+00	2.305E+00	2.215E-01	3.560
		95.87	*	-4.310E-02	6.608E-01	9.776E-01	9.575E-02	-0.044
		108.00		-2.673E-01	1.314E+00	2.074E+00	2.179E-01	-0.129
	PA-233	75.28		2.275E+01	4.044E+00	3.924E+00	5.998E-01	5.799
	+	86.59		7.302E+00	2.326E+00	1.929E+00	5.216E-01	3.786
	+	300.12		1.515E+00	5.990E-01	7.499E-01	1.129E-01	2.020
		311.98	*	-4.348E-02	5.980E-02	9.183E-02	8.380E-03	-0.473
		340.50		4.786E-01	6.080E-01	9.214E-01	2.199E-01	0.519
		398.62		1.267E+00	2.265E+00	3.704E+00	9.797E-01	0.342

## ---- 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		-4.838E-01	1.584E+00	2.626E+00	5.627E-01	-0.184
		63.00		1.395E+00	8.311E-01	9.709E-01	1.468E-01	1.437
		94.67		1.488E-01	1.079E-01	1.691E-01	2.231E-02	0.880
		98.44		7.567E-02	7.104E-02	9.726E-02	5.447E-02	0.778
		99.86		-2.036E-02	3.048E-01	4.874E-01	4.881E-02	-0.042
		111.00		-7.238E-02	1.252E-01	1.926E-01	2.630E-02	-0.376
		131.20		-4.218E-03	8.558E-02	1.232E-01	1.344E-02	-0.034
		152.70		1.487E-01	2.706E-01	4.301E-01	7.485E-02	0.346
		186.00		5.456E+00	2.508E+00	2.128E+00	6.629E-01	2.564
		226.40		1.772E-03	3.306E-01	5.512E-01	7.344E-02	0.003
		227.20		-1.275E-01	3.526E-01	5.761E-01	5.074E-02	-0.221
		248.90		3.763E-01	6.663E-01	1.130E+00	2.547E-01	0.333
		293.70		3.902E+00	1.091E+00	1.552E+00	2.709E-01	2.514
		369.80		-2.625E-01	8.294E-01	1.287E+00	2.789E-01	-0.204
		568.70		4.459E-01	1.105E+00	1.876E+00	1.919E-01	0.238
		569.50		-1.308E-01	3.095E-01	4.913E-01	5.029E-02	-0.266
		574.00		1.194E-01	1.531E+00	2.542E+00	2.614E-01	0.047
		699.00		9.232E-02	7.580E-01	1.241E+00	2.509E-01	0.074
		706.10		5.138E-02	1.281E+00	2.077E+00	9.366E-01	0.025
		733.00		-6.401E-02	4.393E-01	6.022E-01	1.390E-01	-0.106
		742.81		-7.057E-01	1.687E+00	2.483E+00	1.677E+00	-0.284
		796.30		6.817E-01	2.067E+00	1.819E+00	5.016E-01	0.375
		805.60		2.429E-01	1.017E+00	1.712E+00	5.320E-01	0.142
		819.60		2.934E-01	1.498E+00	2.558E+00	9.805E-01	0.115
		826.30		-7.848E-03	9.820E-01	1.650E+00	7.424E-01	-0.005
		831.60		-6.328E-01	7.923E-01	1.197E+00	3.613E-01	-0.529
		876.40		1.062E-01	9.595E-01	1.612E+00	1.658E+00	0.066
		880.51		3.295E-02	3.030E-01	5.125E-01	4.629E-02	0.064
		883.24		-2.142E-01	3.365E-01	4.670E-01	3.141E-01	-0.459
		899.00		9.068E-01	1.034E+00	1.742E+00	7.619E-01	0.521
		925.00		1.501E-02	1.301E+00	2.168E+00	1.900E-01	0.007
		926.50		1.648E-01	2.114E-01	3.482E-01	8.820E-02	0.473
		946.00	*	9.931E-02	3.880E-01	6.589E-01	1.241E-01	0.151
		949.00		1.746E-01	5.908E-01	1.007E+00	8.825E-02	0.173
		980.50		7.793E-01	9.142E-01	1.605E+00	1.404E-01	0.486
		1394.10		1.366E+00	1.708E+00	2.735E+00	1.779E+00	0.500
PA-234M		766.42		9.326E+00	1.791E+01	2.565E+01	1.310E+01	0.364
		1001.03	*	-6.530E-01	5.312E+00	8.653E+00	8.706E-01	-0.075
U-235	+	89.95		2.887E+00	1.150E+00	1.224E+00	3.808E-01	2.359
		93.35		2.697E+00	9.751E-01	8.140E-01	2.309E-01	3.313
		105.00		8.481E-01	7.553E-01	1.199E+00	3.643E-01	0.707
		143.76	*	9.511E-02	1.703E-01	2.718E-01	4.956E-02	0.350
		163.35		8.185E-02	3.606E-01	6.216E-01	1.179E-01	0.132
NP-236	+	185.71		2.021E-01	7.038E-02	7.859E-02	6.596E-03	2.571
		205.31		3.080E-01	4.468E-01	6.987E-01	1.333E-01	0.441
		94.67		1.145E-01	8.132E-02	1.284E-01	1.250E-02	0.892
		98.44		5.720E-02	4.347E-02	7.353E-02	7.304E-03	0.778
		111.00		-5.475E-02	9.462E-02	1.457E-01	1.559E-02	-0.376
		160.31	*	-3.615E-02	5.972E-02	9.941E-02	8.594E-03	-0.364

----- 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		1.326E-02	1.010E-01	1.630E-01	1.630E-02	0.081
		117.00	*	-1.132E-01	1.335E-01	2.007E-01	2.231E-02	-0.564
	+	209.75		2.402E+00	9.308E-01	1.281E+00	1.110E-01	1.875
		228.18		-9.500E-02	1.819E-01	2.940E-01	2.591E-02	-0.323
	+	277.60		2.781E-01	2.026E-01	2.997E-01	2.674E-02	0.928
		334.30		-1.184E+00	1.374E+00	1.802E+00	1.577E-01	-0.657
AM-241		59.54	*	-1.228E-02	4.627E-02	7.035E-02	5.968E-03	-0.174
CM-243		99.55		1.364E-02	1.039E-01	1.678E-01	1.677E-02	0.081
		103.76	*	-1.000E-01	6.684E-02	9.768E-02	1.001E-02	-1.024
		117.00		-1.164E-01	1.373E-01	2.065E-01	2.295E-02	-0.564
	+	209.75		2.368E+00	9.175E-01	1.263E+00	1.094E-01	1.875
		228.18		-9.599E-02	1.838E-01	2.970E-01	2.618E-02	-0.323
	+	277.60		2.804E-01	2.042E-01	3.022E-01	2.696E-02	0.928
AM-246	+	798.80		1.072E-01	3.239E-01	2.421E-01	2.451E-02	0.443
		1036.00		1.546E-01	3.544E-01	6.105E-01	5.298E-02	0.253
		1062.04		-4.106E-02	2.998E-01	4.850E-01	4.182E-02	-0.085
		1078.86	*	-3.293E-02	1.913E-01	3.079E-01	2.641E-02	-0.107
CM-247	+	278.00		1.153E+00	8.400E-01	1.263E+00	1.126E-01	0.913
		287.40		8.270E-01	1.078E+00	1.844E+00	1.646E-01	0.448
		402.60	*	-6.985E-03	3.928E-02	6.133E-02	4.976E-03	-0.114
CF-249		252.85		-5.735E-02	7.347E-01	1.208E+00	1.078E-01	-0.047
		333.44		1.041E-02	1.731E-01	2.501E-01	2.191E-02	0.042
CF-251		387.95	*	1.942E-02	3.868E-02	6.395E-02	5.130E-03	0.304
		176.60	*	6.780E-02	9.719E-02	1.700E-01	1.407E-02	0.399
		227.00		-1.132E-01	3.132E-01	5.116E-01	4.505E-02	-0.221
		285.00		-7.579E-01	1.548E+00	2.447E+00	2.184E-01	-0.310

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600010      *
* Acquisition date   : 22-JAN-2010 08:37:00 Detector SN# :                  *
* Detector ID        : GAM21 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 02:00:25.37 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600010 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4846E+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 :                              *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.275E+01	3.470E+00	3.416E-01	0.000E+00
CD-109	3.793E+00	7.147E-01	7.111E-01	0.000E+00
SN-126	3.730E-01	7.028E-02	7.218E-02	0.000E+00
TL-208	5.845E-01	1.104E-01	6.089E-02	0.000E+00
BI-210	8.947E-01	6.699E-01	6.501E-01	0.000E+00
PB-210	8.947E-01	6.699E-01	6.501E-01	0.000E+00
PO-210	8.947E-01	6.690E-01	6.501E-01	0.000E+00
BI-211	4.091E+00	5.500E-01	3.083E-01	0.000E+00
PB-212	1.846E+00	2.076E-01	7.938E-02	0.000E+00
PO-212	1.846E+00	2.076E-01	7.938E-02	0.000E+00
BI-214	1.148E+00	2.159E-01	1.246E-01	0.000E+00
PB-214	1.423E+00	2.047E-01	1.075E-01	0.000E+00
PO-214	1.423E+00	2.047E-01	1.075E-01	0.000E+00
PO-216	1.846E+00	2.076E-01	7.938E-02	0.000E+00
PO-218	1.423E+00	2.047E-01	1.075E-01	0.000E+00
RA-224	5.332E+00	1.415E+00	9.058E-01	0.000E+00
RA-226	1.148E+00	2.159E-01	1.246E-01	0.000E+00
AC-228	1.615E+00	3.634E-01	2.539E-01	0.000E+00
RA-228	1.615E+00	3.634E-01	2.539E-01	0.000E+00
TH-228	1.873E+00	2.107E-01	8.057E-02	0.000E+00
TH-230	1.148E+00	2.159E-01	1.246E-01	0.000E+00
TH-232	1.615E+00	3.634E-01	2.539E-01	0.000E+00
TH-234	1.197E+00	7.069E-01	7.547E-01	0.000E+00
U-234	1.148E+00	2.159E-01	1.246E-01	0.000E+00
NP-237	1.095E+00	3.027E-01	1.978E-01	0.000E+00
U-238	1.197E+00	7.069E-01	7.547E-01	0.000E+00
AM-243	4.344E-01	5.295E-02	4.188E-02	0.000E+00
ANH-511	4.946E-02	6.801E-02	5.282E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	1.647E-01	3.128E-01	5.747E-01	0.000E+00	NOT IDENT.
NA-22	5.172E-02	5.990E-02	1.081E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.715E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.655E-02	2.999E-02	5.718E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.414E-02	3.903E-02	0.000E+00	FAIL ABUN
SC-46	-4.937E-03	4.257E-02	7.302E-02	0.000E+00	FAIL ABUN
V-48	-6.250E-02	8.917E-02	1.419E-01	0.000E+00	NOT IDENT.
CR-51	-9.230E-03	3.166E-01	5.446E-01	0.000E+00	NOT IDENT.
MN-52	6.590E-03	2.486E-01	4.271E-01	0.000E+00	NOT IDENT.
MN-54	6.754E-03	4.343E-02	7.699E-02	0.000E+00	NOT IDENT.
CO-56	3.303E-02	4.488E-02	8.342E-02	0.000E+00	NOT IDENT.
CO-57	-6.540E-03	1.820E-02	3.069E-02	0.000E+00	NOT IDENT.
CO-58	-3.963E-03	3.851E-02	6.688E-02	0.000E+00	NOT IDENT.
FE-59	-1.060E-01	1.207E-01	1.852E-01	0.000E+00	NOT IDENT.
CO-60	2.083E-02	4.815E-02	8.726E-02	0.000E+00	NOT IDENT.
ZN-65	-2.829E-02	1.198E-01	1.683E-01	0.000E+00	NOT IDENT.
GE-68	1.050E+00	1.672E+00	2.998E+00	0.000E+00	NOT IDENT.
AS-73	1.485E-01	1.609E-01	3.084E-01	0.000E+00	NOT IDENT.
AS-74	-4.536E-02	9.688E-02	1.632E-01	0.000E+00	NOT IDENT.
SE-75	4.876E-03	3.905E-02	6.612E-02	0.000E+00	NOT IDENT.
BR-77	-3.172E+00	9.550E+00	1.626E+01	0.000E+00	FAIL ABUN
SR-82	-3.588E-02	3.902E-01	6.443E-01	0.000E+00	NOT IDENT.
RB-83	6.829E-03	6.691E-02	1.183E-01	0.000E+00	NOT IDENT.
RB-84	-1.693E-02	7.253E-02	1.228E-01	0.000E+00	NOT IDENT.
KR-85	4.502E-01	8.729E+00	1.354E+01	0.000E+00	NOT IDENT.
SR-85	2.302E-03	4.464E-02	6.926E-02	0.000E+00	NOT IDENT.
RB-86	1.147E+00	1.009E+00	1.888E+00	0.000E+00	NOT IDENT.
Y-88	4.877E-03	4.965E-02	8.383E-02	0.000E+00	NOT IDENT.
ZR-88	1.997E-02	3.267E-02	5.736E-02	0.000E+00	NOT IDENT.
Y-91	-1.316E+01	2.623E+01	4.178E+01	0.000E+00	NOT IDENT.
NB-94	-5.829E-03	3.962E-02	6.608E-02	0.000E+00	NOT IDENT.
NB-95	1.476E-02	6.008E-02	9.024E-02	0.000E+00	NOT IDENT.
NB-95M	7.509E-02	1.066E-01	1.780E-01	0.000E+00	NOT IDENT.
ZR-95	3.961E-02	8.490E-02	1.484E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	8.094E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.440E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.928E-01	1.176E+01	1.980E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.366E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.386E-03	2.521E-02	4.571E-02	0.000E+00	NOT IDENT.
RH-102	-3.311E-03	2.878E-02	5.052E-02	0.000E+00	FAIL ABUN
RU-103	-4.423E-03	3.853E-02	6.722E-02	0.000E+00	FAIL ABUN
RH-106	-2.603E-02	3.391E-01	5.778E-01	0.000E+00	NOT IDENT.
RU-106	-2.603E-02	3.391E-01	5.778E-01	0.000E+00	NOT IDENT.
AG-108M	1.660E-02	3.149E-02	5.831E-02	0.000E+00	NOT IDENT.
AG-110M	1.509E-02	3.734E-02	6.598E-02	0.000E+00	NOT IDENT.
IN-111	-1.576E-01	8.189E-01	1.281E+00	0.000E+00	NOT IDENT.
IN-113M	1.945E-03	4.636E-02	7.831E-02	0.000E+00	NOT IDENT.
SN-113	1.945E-03	4.636E-02	7.831E-02	0.000E+00	NOT IDENT.
IN-114M	2.236E-01	1.491E-01	2.649E-01	0.000E+00	NOT IDENT.
CD-115	4.373E-01	1.004E+01	1.763E+01	0.000E+00	NOT IDENT.
SN-117M	5.495E-03	3.830E-02	7.146E-02	0.000E+00	NOT IDENT.
SB-122	-1.660E+00	2.069E+00	3.338E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.975E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-8.730E-03	2.034E-02	3.700E-02	0.000E+00	NOT IDENT.
I-124	-1.645E-01	6.919E-01	1.125E+00	0.000E+00	NOT IDENT.
SB-124	-6.120E-02	8.718E-02	1.210E-01	0.000E+00	FAIL ABUN
SB-125	7.224E-02	9.082E-02	1.708E-01	0.000E+00	FAIL ABUN
TE-125M	4.278E-01	6.017E+00	1.050E+01	0.000E+00	NOT IDENT.
I-126	1.399E-01	1.996E-01	3.597E-01	0.000E+00	NOT IDENT.
SB-126	1.029E-02	1.673E-01	2.738E-01	0.000E+00	FAIL ABUN
SB-127	-2.680E-02	1.374E+00	2.325E+00	0.000E+00	NOT IDENT.
XE-127	-1.680E-02	3.564E-02	6.302E-02	0.000E+00	NOT IDENT.
I-131	-1.696E-02	1.137E-01	1.909E-01	0.000E+00	NOT IDENT.
TE-132	-2.731E-01	5.170E-01	8.957E-01	0.000E+00	NOT IDENT.
BA-133	-5.806E-03	4.551E-02	6.809E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.967E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.791E-02	5.442E-02	9.942E-02	0.000E+00	NOT IDENT.
CS-135	1.041E-01	1.516E-01	2.501E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.040E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	8.453E-04	1.138E-01	1.938E-01	0.000E+00	FAIL ABUN
BA-137M	-3.467E-02	4.043E-02	6.303E-02	0.000E+00	NOT IDENT.
CS-137	-3.665E-02	4.273E-02	6.663E-02	0.000E+00	NOT IDENT.
CE-139	-7.056E-03	2.243E-02	4.087E-02	0.000E+00	NOT IDENT.
BA-140	-4.931E-02	2.471E-01	4.229E-01	0.000E+00	NOT IDENT.
LA-140	-2.226E-01	1.164E-01	1.260E-01	0.000E+00	FAIL ABUN
CE-141	8.240E-03	4.952E-02	8.436E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.383E+02	0.000E+00	0.000E+00	SHORT HLIF



CE-144	1.242E-01	1.486E-01	2.623E-01	0.000E+00	NOT IDENT.
PM-144	-2.896E-02	3.620E-02	5.591E-02	0.000E+00	NOT IDENT.
PR-144	-1.962E+00	2.452E+00	3.788E+00	0.000E+00	NOT IDENT.
PM-146	-1.473E-02	4.280E-02	7.422E-02	0.000E+00	NOT IDENT.
ND-147	-3.971E-01	5.937E-01	9.762E-01	0.000E+00	FAIL ABUN
PM-149	-2.644E+01	7.252E+01	1.234E+02	0.000E+00	NOT IDENT.
EU-152	-1.035E-01	8.794E-02	1.356E-01	0.000E+00	FAIL ABUN
GD-153	-2.812E-02	4.894E-02	8.367E-02	0.000E+00	FAIL ABUN
EU-154	1.815E-01	1.639E-01	3.016E-01	0.000E+00	NOT IDENT.
EU-155	1.037E-01	7.183E-02	1.325E-01	0.000E+00	FAIL ABUN
TB-160	4.815E-02	1.470E-01	2.642E-01	0.000E+00	FAIL ABUN
HO-166M	3.401E-02	6.786E-02	1.199E-01	0.000E+00	FAIL ABUN
TM-171	9.652E-01	1.086E+01	1.839E+01	0.000E+00	NOT IDENT.
LU-176	-5.997E-03	2.186E-02	3.715E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.252E+00	1.836E+00	0.000E+00	FAIL ABUN
LU-177M	-4.740E-02	1.704E-01	2.781E-01	0.000E+00	FAIL ABUN
HF-181	-1.187E-03	4.070E-02	7.179E-02	0.000E+00	NOT IDENT.
W-181	-2.064E-02	1.339E-01	2.247E-01	0.000E+00	NOT IDENT.
TA-182	-2.138E-03	2.573E-01	4.290E-01	0.000E+00	FAIL ABUN
RE-183	2.825E-02	8.138E-02	1.527E-01	0.000E+00	FAIL ABUN
RE-184	-1.527E-02	1.917E-01	3.376E-01	0.000E+00	NOT IDENT.
OS-185	2.180E-02	4.959E-02	8.782E-02	0.000E+00	NOT IDENT.
RE-188	-1.072E-02	1.266E-01	2.345E-01	0.000E+00	NOT IDENT.
W-188	-1.751E+00	7.115E+00	1.084E+01	0.000E+00	FAIL ABUN
IR-192	-1.346E-02	3.066E-02	5.124E-02	0.000E+00	FAIL ABUN
AU-195	9.367E-02	1.399E-01	2.529E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.670E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.575E+00	4.816E+00	9.008E+00	0.000E+00	NOT IDENT.
TL-202	5.849E-02	6.796E-02	1.280E-01	0.000E+00	NOT IDENT.
HG-203	3.903E-02	3.940E-02	6.615E-02	0.000E+00	NOT IDENT.
BI-207	-1.320E-03	6.526E-02	1.106E-01	0.000E+00	FAIL ABUN
TL-207	-1.082E-01	6.187E-01	9.326E-01	0.000E+00	FAIL ABUN
PO-209	-6.841E-01	9.013E+00	1.552E+01	0.000E+00	NOT IDENT.
PB-211	4.188E-01	9.490E-01	1.589E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.671E-01	7.993E-01	0.000E+00	FAIL ABUN
PO-215	-1.082E-01	6.187E-01	9.326E-01	0.000E+00	FAIL ABUN
RN-219	-1.240E-01	4.310E-01	7.068E-01	0.000E+00	FAIL ABUN
RN-220	-1.305E+01	2.795E+01	4.673E+01	0.000E+00	NOT IDENT.
RA-223	-1.082E-01	6.187E-01	9.326E-01	0.000E+00	FAIL ABUN
AC-227	1.189E-01	3.292E-01	5.925E-01	0.000E+00	FAIL ABUN
TH-227	1.189E-01	3.294E-01	5.925E-01	0.000E+00	FAIL ABUN
TH-229	-2.082E-01	3.790E-01	6.705E-01	0.000E+00	FAIL ABUN
PA-231	2.980E-01	1.291E+00	2.288E+00	0.000E+00	FAIL ABUN
TH-231	-1.082E-01	6.187E-01	9.326E-01	0.000E+00	FAIL ABUN
U-231	-4.310E-02	6.475E-01	1.049E+00	0.000E+00	FAIL ABUN
PA-233	-4.348E-02	5.860E-02	9.593E-02	0.000E+00	FAIL ABUN
PA-234	9.931E-02	3.802E-01	6.703E-01	0.000E+00	FAIL ABUN
PA-234M	-6.530E-01	5.206E+00	8.790E+00	0.000E+00	NOT IDENT.
U-235	9.511E-02	1.669E-01	2.890E-01	0.000E+00	FAIL ABUN
NP-236	-3.615E-02	5.853E-02	1.055E-01	0.000E+00	NOT IDENT.
NP-239	-1.132E-01	1.308E-01	2.145E-01	0.000E+00	FAIL ABUN
AM-241	-1.228E-02	4.534E-02	7.629E-02	0.000E+00	NOT IDENT.
CM-243	-1.000E-01	6.550E-02	1.046E-01	0.000E+00	FAIL ABUN
AM-246	-3.293E-02	1.874E-01	3.122E-01	0.000E+00	FAIL ABUN
CM-247	-6.985E-03	3.849E-02	6.369E-02	0.000E+00	FAIL ABUN
CF-249	1.942E-02	3.791E-02	6.647E-02	0.000E+00	NOT IDENT.
CF-251	6.780E-02	9.525E-02	1.800E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600010.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:37:00
Sample ID          : G244600010      Sample quantity   : 1.48460E+02 GRAM
Detector name      : GAM21            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:25.37  0.4%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941635            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	996	10.67*	7.204E-01	3.275E+01	3.275E+01	10.81
CD-109	88.03	444	3.72*	8.135E+00	3.710E+00	3.793E+00	19.23
SN-126	64.28	147	9.60	8.181E+00	4.739E-01	4.739E-01	59.48
	86.94	444	8.90	8.135E+00	1.551E+00	1.551E+00	44.79
	87.57	444	37.00*	8.135E+00	3.730E-01	3.730E-01	19.23
TL-208	277.35	59	6.80	3.806E+00	5.767E-01	5.767E-01	73.36
	510.84	40	21.60	2.040E+00	2.290E-01	2.290E-01	140.56
	583.14	346	84.20*	1.777E+00	5.845E-01	5.845E-01	19.28
	860.37	49	12.46	1.201E+00	8.329E-01	8.329E-01	69.17
BI-210	46.50	106	4.05*	7.389E+00	8.936E-01	8.947E-01	76.40
PB-210	46.50	106	4.05*	7.389E+00	8.936E-01	8.947E-01	76.40
PO-210	46.50	106	4.05*	7.389E+00	8.936E-01	8.947E-01	76.30
BI-211	72.87	-----	1.27	8.278E+00	-----	Line Not Found	-----
	351.07	627	12.94*	2.996E+00	4.091E+00	4.091E+00	13.72
PB-212	74.81	938	10.70	8.275E+00	2.679E+00	2.679E+00	15.56
	77.11	1274	18.00	8.264E+00	2.165E+00	2.165E+00	11.27
	87.30	444	8.00	8.135E+00	1.725E+00	1.725E+00	21.67
	238.63	1428	44.60*	4.387E+00	1.846E+00	1.846E+00	11.48
	300.09	139	3.41	3.520E+00	2.933E+00	2.933E+00	38.08
PO-212	74.81	938	10.70	8.275E+00	2.679E+00	2.679E+00	15.56
	77.11	1274	18.00	8.264E+00	2.165E+00	2.165E+00	11.27
	87.30	444	8.00	8.135E+00	1.725E+00	1.725E+00	21.67
	115.19	-----	0.60	7.423E+00	-----	Line Not Found	-----
	238.63	1428	44.60*	4.387E+00	1.846E+00	1.846E+00	11.48
	300.09	139	3.41	3.520E+00	2.933E+00	2.933E+00	38.08
BI-214	609.31	357	46.30*	1.699E+00	1.148E+00	1.148E+00	19.19
	1120.29	83	15.10	9.294E-01	1.504E+00	1.504E+00	40.10
	1764.49	70	15.80	5.984E-01	1.864E+00	1.864E+00	28.19
PB-214	74.81	938	6.21	8.275E+00	4.617E+00	4.617E+00	14.48
	77.11	1274	10.50	8.264E+00	3.711E+00	3.711E+00	13.61
	87.30	444	4.67	8.135E+00	2.955E+00	2.955E+00	20.71
	241.98	361	7.49	4.336E+00	2.812E+00	2.812E+00	27.65

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	369	19.20	3.576E+00	1.358E+00	1.358E+00	20.48
	351.92	627	37.20*	2.996E+00	1.423E+00	1.423E+00	14.68
	74.81	938	6.21	8.275E+00	4.617E+00	4.617E+00	14.48
	77.11	1274	10.50	8.264E+00	3.711E+00	3.711E+00	13.61
	87.30	444	4.67	8.135E+00	2.955E+00	2.955E+00	20.71
	241.98	361	7.49	4.336E+00	2.812E+00	2.812E+00	27.65
PO-216	295.21	369	19.20	3.576E+00	1.358E+00	1.358E+00	20.48
	351.92	627	37.20*	2.996E+00	1.423E+00	1.423E+00	14.68
	74.81	938	10.70	8.275E+00	2.679E+00	2.679E+00	15.56
	77.11	1274	18.00	8.264E+00	2.165E+00	2.165E+00	11.27
	87.30	444	8.00	8.135E+00	1.725E+00	1.725E+00	21.67
	238.63	1428	44.60*	4.387E+00	1.846E+00	1.846E+00	11.48
PO-218	300.09	139	3.41	3.520E+00	2.933E+00	2.933E+00	38.08
	74.81	938	6.21	8.275E+00	4.617E+00	4.617E+00	14.48
	77.11	1274	10.50	8.264E+00	3.711E+00	3.711E+00	13.61
	87.30	444	4.67	8.135E+00	2.955E+00	2.955E+00	20.71
	241.98	361	7.49	4.336E+00	2.812E+00	2.812E+00	27.65
	295.21	369	19.20	3.576E+00	1.358E+00	1.358E+00	20.48
RA-224	351.92	627	37.20*	2.996E+00	1.423E+00	1.423E+00	14.68
RA-226	240.98	361	3.95*	4.336E+00	5.332E+00	5.332E+00	27.07
AC-228	609.31	357	46.30*	1.699E+00	1.148E+00	1.148E+00	19.19
	1120.29	83	15.10	9.294E-01	1.504E+00	1.504E+00	40.10
	1764.49	70	15.80	5.984E-01	1.864E+00	1.864E+00	28.19
	338.32	263	11.40	3.120E+00	1.870E+00	1.870E+00	45.91
	911.07	201	27.70*	1.136E+00	1.615E+00	1.615E+00	22.95
	969.11	153	16.60	1.070E+00	2.184E+00	2.184E+00	31.65
RA-228	338.32	263	11.40	3.120E+00	1.870E+00	1.870E+00	45.91
TH-228	911.07	201	27.70*	1.136E+00	1.615E+00	1.615E+00	22.95
	969.11	153	16.60	1.070E+00	2.184E+00	2.184E+00	31.65
	74.81	938	10.70	8.275E+00	2.679E+00	2.719E+00	12.49
	77.11	1274	18.00	8.264E+00	2.165E+00	2.197E+00	11.27
	87.30	444	8.00	8.135E+00	1.725E+00	1.751E+00	19.23
	238.63	1428	44.60*	4.387E+00	1.846E+00	1.873E+00	11.48
TH-230	300.09	139	3.41	3.520E+00	2.933E+00	2.976E+00	69.68
	609.31	357	46.30*	1.699E+00	1.148E+00	1.148E+00	19.19
	1120.29	83	15.10	9.294E-01	1.504E+00	1.504E+00	40.10
	1764.49	70	15.80	5.984E-01	1.864E+00	1.864E+00	28.19
	338.32	263	11.40	3.120E+00	1.870E+00	1.870E+00	21.89
	911.07	201	27.70*	1.136E+00	1.615E+00	1.615E+00	22.95
TH-234	969.11	153	16.60	1.070E+00	2.184E+00	2.184E+00	31.65
	63.29	147	3.80*	8.181E+00	1.197E+00	1.197E+00	60.25
	92.38	385	5.41	8.018E+00	2.243E+00	2.243E+00	29.13
U-234	609.31	357	46.30*	1.699E+00	1.148E+00	1.148E+00	19.19
NP-237	1120.29	83	15.10	9.294E-01	1.504E+00	1.504E+00	40.10
	1764.49	70	15.80	5.984E-01	1.864E+00	1.864E+00	28.19
	86.50	444	12.60*	8.135E+00	1.095E+00	1.095E+00	28.20
U-238	95.87	---	2.60	7.953E+00	---	Line Not Found	---
	63.29	147	3.80*	8.181E+00	1.197E+00	1.197E+00	60.25
	92.38	385	5.41	8.018E+00	2.243E+00	2.243E+00	24.41

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	938	66.00*	8.275E+00	4.344E-01	4.344E-01	12.44
	86.72	444	0.34	8.135E+00	4.107E+01	4.107E+01	19.23
	117.66	-----	0.55	7.349E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.613E+00	-----	Line Not Found	-----
ANH-511	511.00	40	100.00*	2.040E+00	4.946E-02	4.946E-02	140.32

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	3.275E+01	3.275E+01	0.354E+01	10.81	
CD-109	464.00D	1.02	3.710E+00	3.793E+00	0.729E+00	19.23	
SN-126	1.00E+05Y	1.00	3.730E-01	3.730E-01	0.717E-01	19.23	
TL-208	1.41E+10Y	1.00	5.845E-01	5.845E-01	1.127E-01	19.28	
BI-210	22.26Y	1.00	8.936E-01	8.947E-01	6.835E-01	76.40	
PB-210	22.26Y	1.00	8.936E-01	8.947E-01	6.835E-01	76.40	
PO-210	22.26Y	1.00	8.936E-01	8.947E-01	6.826E-01	76.30	
BI-211	7.04E+08Y	1.00	4.091E+00	4.091E+00	0.561E+00	13.72	
PB-212	1.41E+10Y	1.00	1.846E+00	1.846E+00	0.212E+00	11.48	
PO-212	1.41E+10Y	1.00	1.846E+00	1.846E+00	0.212E+00	11.48	
BI-214	1600.00Y	1.00	1.148E+00	1.148E+00	0.220E+00	19.19	
PB-214	1600.00Y	1.00	1.423E+00	1.423E+00	0.209E+00	14.68	
PO-214	1600.00Y	1.00	1.423E+00	1.423E+00	0.209E+00	14.68	
PO-216	1.41E+10Y	1.00	1.846E+00	1.846E+00	0.212E+00	11.48	
PO-218	1600.00Y	1.00	1.423E+00	1.423E+00	0.209E+00	14.68	
RA-224	1.41E+10Y	1.00	5.332E+00	5.332E+00	1.444E+00	27.07	
RA-226	1600.00Y	1.00	1.148E+00	1.148E+00	0.220E+00	19.19	
AC-228	1.41E+10Y	1.00	1.615E+00	1.615E+00	0.371E+00	22.95	
RA-228	1.41E+10Y	1.00	1.615E+00	1.615E+00	0.371E+00	22.95	
TH-228	1.91Y	1.01	1.846E+00	1.873E+00	0.215E+00	11.48	
TH-230	4.47E+09Y	1.00	1.148E+00	1.148E+00	0.220E+00	19.19	
TH-232	1.41E+10Y	1.00	1.615E+00	1.615E+00	0.371E+00	22.95	
TH-234	4.47E+09Y	1.00	1.197E+00	1.197E+00	0.721E+00	60.25	
U-234	4.47E+09Y	1.00	1.148E+00	1.148E+00	0.220E+00	19.19	
NP-237	2.14E+06Y	1.00	1.095E+00	1.095E+00	0.309E+00	28.20	
U-238	4.47E+09Y	1.00	1.197E+00	1.197E+00	0.721E+00	60.25	
AM-243	7380.00Y	1.00	4.344E-01	4.344E-01	0.540E-01	12.44	
ANH-511	1.00E+09Y	1.00	4.946E-02	4.946E-02	6.940E-02	140.32	

Total Activity : 7.458E+01 7.470E+01

Grand Total Activity : 7.458E+01 7.470E+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	84.23	194	439	1.07	168.40	165	7	2.70E-02	39.0	8.19E+00	T
0	89.96	249	316	0.79	179.87	178	5	3.46E-02	24.9	8.08E+00	T
0	129.21	123	360	0.77	258.32	255	8	1.71E-02	56.6	7.00E+00	T
0	185.86	235	341	1.00	371.58	366	11	3.27E-02	33.8	5.45E+00	T
0	208.98	152	224	1.14	417.80	414	8	2.11E-02	37.8	4.94E+00	T
0	269.99	119	205	1.04	539.78	535	10	1.65E-02	48.6	3.90E+00	T
0	327.67	104	143	1.01	655.09	649	11	1.45E-02	48.5	3.22E+00	T
0	463.07	45	115	1.37	925.86	921	10	6.25E-03	94.0	2.26E+00	T
0	727.69	70	90	1.33	1455.08	1449	14	9.69E-03	63.5	1.42E+00	T
0	768.12	39	39	1.38	1535.95	1532	7	5.35E-03	63.2	1.34E+00	T
0	797.63	14	85	0.68	1594.99	1587	15	1.89E-03	****	1.29E+00	T
0	933.73	40	27	2.18	1867.25	1861	12	5.59E-03	60.4	1.11E+00	
3	964.42	70	23	2.15	1928.64	1920	32	9.78E-03	38.4	1.07E+00	T
0	1239.96	61	93	3.20	2479.98	2470	23	8.41E-03	86.3	8.43E-01	
0	1407.94	11	8	3.51	2816.16	2809	11	1.49E-03	****	7.46E-01	T

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600010.CNF;1
* Acquisition date   : 22-JAN-2010 08:37:00   Detector SN#      :
* Detector ID        : GAM21                  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 02:00:25.37          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244600010             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity : 1.48460E+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    :
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.275E+01	3.541E+00	3.394E-01	2.898E-02	96.485
CD-109	3.793E+00	7.293E-01	6.614E-01	6.223E-02	5.736
SN-126	3.730E-01	7.171E-02	6.713E-02	6.292E-03	5.557
TL-208	5.845E-01	1.127E-01	5.915E-02	6.444E-03	9.882
BI-210	8.947E-01	6.835E-01	5.963E-01	5.686E-02	1.500
PB-210	8.947E-01	6.835E-01	5.963E-01	5.686E-02	1.500
PO-210	8.947E-01	6.826E-01	5.963E-01	5.175E-02	1.500
BI-211	4.091E+00	5.613E-01	2.959E-01	2.671E-02	13.823
PB-212	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
PO-212	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
BI-214	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
PB-214	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783
PO-214	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783
PO-216	1.846E+00	2.119E-01	7.551E-02	7.509E-03	24.441
PO-218	1.423E+00	2.089E-01	1.032E-01	1.075E-02	13.783
RA-224	5.332E+00	1.444E+00	8.618E-01	7.658E-02	6.187
RA-226	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
AC-228	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
TH-228	1.873E+00	2.150E-01	7.664E-02	7.621E-03	24.441
TH-230	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
TH-232	1.615E+00	3.708E-01	2.494E-01	2.830E-02	6.478
TH-234	1.197E+00	7.213E-01	6.969E-01	1.231E-01	1.718
U-234	1.148E+00	2.203E-01	1.212E-01	1.432E-02	9.474
NP-237	1.095E+00	3.089E-01	1.839E-01	4.162E-02	5.955
U-238	1.197E+00	7.213E-01	6.969E-01	1.231E-01	1.718
AM-243	4.344E-01	5.403E-02	3.881E-02	3.289E-03	11.192
ANH-511	4.946E-02	6.940E-02	5.115E-02	4.904E-03	0.967

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.647E-01		3.192E-01	5.556E-01	5.444E-02	0.297
NA-22	5.172E-02		6.112E-02	1.070E-01	8.778E-03	0.483
NA-24	2.276E-01		3.426E-01	Half-Life too short		
AL-26	1.655E-02		3.060E-02	5.713E-02	4.728E-03	0.290
TI-44	3.995E-01	+	4.504E-02	3.621E-02	3.153E-03	11.033
SC-46	-4.937E-03		4.344E-02	7.167E-02	6.373E-03	-0.069
V-48	-6.250E-02		9.099E-02	1.396E-01	1.222E-02	-0.448
CR-51	-9.230E-03		3.230E-01	5.216E-01	4.849E-02	-0.018
MN-52	6.590E-03		2.537E-01	4.242E-01	3.503E-02	0.016
MN-54	6.754E-03		4.432E-02	7.545E-02	7.312E-03	0.090
CO-56	3.303E-02		4.580E-02	8.177E-02	7.795E-03	0.404
CO-57	-6.540E-03		1.857E-02	2.875E-02	3.303E-03	-0.227
CO-58	-3.963E-03		3.930E-02	6.550E-02	6.554E-03	-0.061
FE-59	-1.060E-01		1.231E-01	1.828E-01	1.686E-02	-0.580
CO-60	2.083E-02		4.914E-02	8.650E-02	7.021E-03	0.241
ZN-65	-2.829E-02		1.222E-01	1.661E-01	1.408E-02	-0.170
GE-68	1.050E+00		1.706E+00	2.956E+00	2.538E-01	0.355
AS-73	1.485E-01		1.642E-01	2.838E-01	2.298E-02	0.523
AS-74	-4.536E-02		1.007E-01	1.587E-01	1.665E-02	-0.286
SE-75	4.876E-03		3.984E-02	6.305E-02	5.660E-03	0.077
BR-77	-3.172E+00		9.745E+00	1.575E+01	1.528E+00	-0.201
SR-82	-3.588E-02		3.982E-01	6.303E-01	6.525E-02	-0.057
RB-83	6.829E-03		6.827E-02	1.146E-01	1.111E-02	0.060
RB-84	-1.693E-02		7.401E-02	1.205E-01	1.087E-02	-0.140
KR-85	4.502E-01		8.907E+00	1.312E+01	1.262E+00	0.034
SR-85	2.302E-03		4.555E-02	6.708E-02	6.455E-03	0.034
RB-86	1.147E+00		1.029E+00	1.862E+00	1.598E-01	0.616
Y-88	4.877E-03		5.067E-02	8.378E-02	6.918E-03	0.058
ZR-88	1.997E-02		3.333E-02	5.520E-02	4.398E-03	0.362
Y-91	-1.316E+01		2.677E+01	4.132E+01	3.404E+00	-0.318
NB-94	-5.829E-03		4.043E-02	6.449E-02	7.023E-03	-0.090
NB-95	1.476E-02		6.131E-02	8.824E-02	9.222E-03	0.167
NB-95M	7.509E-02		1.087E-01	1.693E-01	1.706E-02	0.443



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	3.961E-02		8.664E-02	1.451E-01	1.633E-02	0.273
NB-97	3.368E-02		4.130E-02	Half-Life too short		
ZR-97	1.350E+00		7.347E-01	Half-Life too short		
MO-99	2.928E-01		1.200E+01	1.934E+01	3.178E+00	0.015
TC-99M	3.422E+09		6.970E+09	Half-Life too short		
RH-101	3.386E-03		2.572E-02	4.329E-02	3.697E-03	0.078
RH-102	-3.311E-03		2.937E-02	4.884E-02	4.461E-03	-0.068
RU-103	-4.423E-03		3.931E-02	6.506E-02	9.538E-03	-0.068
RH-106	-2.603E-02		3.461E-01	5.622E-01	8.324E-02	-0.046
RU-106	-2.603E-02		3.460E-01	5.622E-01	6.031E-02	-0.046
AG-108M	1.660E-02		3.213E-02	5.625E-02	5.015E-03	0.295
AG-110M	1.509E-02		3.810E-02	6.429E-02	7.211E-03	0.235
IN-111	-1.576E-01		8.356E-01	1.219E+00	1.086E-01	-0.129
IN-113M	1.945E-03		4.731E-02	7.536E-02	6.207E-03	0.026
SN-113	1.945E-03		4.731E-02	7.536E-02	6.207E-03	0.026
IN-114M	2.236E-01		1.522E-01	2.507E-01	2.118E-02	0.892
CD-115	4.373E-01		1.025E+01	1.709E+01	1.672E+00	0.026
SN-117M	5.495E-03		3.908E-02	6.734E-02	5.928E-03	0.082
SB-122	-1.660E+00		2.111E+00	3.240E+00	3.298E-01	-0.512
I-123	-1.277E+00		1.518E+00	Half-Life too short		
TE-123M	-8.730E-03		2.076E-02	3.487E-02	3.074E-03	-0.250
I-124	-1.645E-01		7.060E-01	1.094E+00	1.155E-01	-0.150
SB-124	-6.120E-02		8.896E-02	1.207E-01	1.051E-02	-0.507
SB-125	7.224E-02		9.267E-02	1.647E-01	1.425E-02	0.439
TE-125M	4.278E-01		6.140E+00	9.817E+00	1.180E+00	0.044
I-126	1.399E-01		2.037E-01	3.506E-01	3.868E-02	0.399
SB-126	1.029E-02		1.707E-01	2.673E-01	2.884E-02	0.038
SB-127	-2.680E-02		1.402E+00	2.268E+00	2.991E-01	-0.012
XE-127	-1.680E-02		3.637E-02	5.972E-02	5.132E-03	-0.281
I-131	-1.696E-02		1.160E-01	1.834E-01	1.630E-02	-0.092
TE-132	-2.731E-01		5.276E-01	8.511E-01	1.343E-01	-0.321
BA-133	-5.806E-03		4.644E-02	6.538E-02	8.592E-03	-0.089
I-133	5.292E-04		2.534E-03	Half-Life too short		
CS-134	5.791E-02		5.553E-02	9.731E-02	9.934E-03	0.595
CS-135	1.041E-01		1.547E-01	2.386E-01	2.443E-02	0.437
I-135	7.684E+08		2.061E+09	Half-Life too short		
CS-136	8.453E-04		1.161E-01	1.910E-01	1.723E-02	0.004
BA-137M	-3.467E-02		4.125E-02	6.142E-02	6.783E-03	-0.564
CS-137	-3.665E-02		4.361E-02	6.493E-02	7.179E-03	-0.564
CE-139	-7.056E-03		2.289E-02	3.856E-02	3.134E-03	-0.183
BA-140	-4.931E-02		2.522E-01	4.101E-01	1.373E-01	-0.120
LA-140	-2.226E-01		1.187E-01	1.254E-01	1.049E-02	-1.775
CE-141	8.240E-03		5.053E-02	7.935E-02	7.955E-03	0.104
CE-143	2.829E-04		7.058E-05	Half-Life too short		
CE-144	1.242E-01		1.517E-01	2.463E-01	4.147E-02	0.504
PM-144	-2.896E-02		3.693E-02	5.455E-02	5.958E-03	-0.531
PR-144	-1.962E+00		2.502E+00	3.696E+00	4.036E-01	-0.531
PM-146	-1.473E-02		4.367E-02	7.167E-02	7.820E-03	-0.206

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-3.971E-01		6.058E-01	9.463E-01	1.483E-01	-0.420
PM-149	-2.644E+01		7.400E+01	1.179E+02	1.853E+01	-0.224
EU-152	-1.035E-01		8.973E-02	1.301E-01	1.193E-02	-0.796
GD-153	-2.812E-02		4.994E-02	7.800E-02	7.705E-03	-0.360
EU-154	1.815E-01		1.672E-01	2.987E-01	3.282E-02	0.608
EU-155	1.037E-01		7.329E-02	1.237E-01	1.290E-02	0.839
TB-160	4.815E-02		1.500E-01	2.592E-01	2.346E-02	0.186
HO-166M	3.401E-02		6.924E-02	1.170E-01	1.269E-02	0.291
TM-171	9.652E-01		1.108E+01	1.700E+01	1.370E+00	0.057
LU-176	-5.997E-03		2.231E-02	3.555E-02	3.165E-03	-0.169
LU-177	3.298E+00	+	1.278E+00	1.741E+00	1.506E-01	1.894
LU-177M	-4.740E-02		1.739E-01	2.680E-01	2.219E-02	-0.177
HF-181	-1.187E-03		4.153E-02	6.943E-02	6.405E-03	-0.017
W-181	-2.064E-02		1.366E-01	2.076E-01	1.659E-02	-0.099
TA-182	-2.138E-03		2.626E-01	4.243E-01	3.493E-02	-0.005
RE-183	2.825E-02		8.304E-02	1.440E-01	1.218E-02	0.196
RE-184	-1.527E-02		1.956E-01	3.216E-01	2.870E-02	-0.047
OS-185	2.180E-02		5.060E-02	8.553E-02	9.346E-03	0.255
RE-188	-1.072E-02		1.292E-01	2.209E-01	2.013E-02	-0.049
W-188	-1.751E+00		7.260E+00	1.036E+01	9.250E-01	-0.169
IR-192	-1.346E-02		3.129E-02	4.906E-02	4.360E-03	-0.274
AU-195	9.367E-02		1.428E-01	2.358E-01	2.348E-02	0.397
TL-200	4.553E-05		1.872E-04	Half-Life	too short	
TL-201	1.575E+00		4.914E+00	8.499E+00	6.922E-01	0.185
TL-202	5.849E-02		6.935E-02	1.235E-01	1.069E-02	0.473
HG-203	3.903E-02		4.021E-02	6.315E-02	5.781E-03	0.618
BI-207	-1.320E-03		6.659E-02	1.090E-01	9.397E-03	-0.012
TL-207	-1.082E-01		6.314E-01	8.935E-01	1.591E-01	-0.121
PO-209	-6.841E-01		9.197E+00	1.524E+01	1.337E+00	-0.045
PB-211	4.188E-01		9.684E-01	1.530E+00	9.578E-01	0.274
BI-212	1.054E+00	+	6.807E-01	7.807E-01	9.283E-02	1.350
PO-215	-1.082E-01		6.314E-01	8.935E-01	1.591E-01	-0.121
RN-219	-1.240E-01		4.398E-01	6.806E-01	1.003E-01	-0.182
RN-220	-1.305E+01		2.852E+01	4.533E+01	4.547E+00	-0.288
RA-223	-1.082E-01		6.314E-01	8.935E-01	1.591E-01	-0.121
AC-227	1.189E-01		3.359E-01	5.646E-01	8.765E-02	0.211
TH-227	1.189E-01		3.361E-01	5.646E-01	1.028E-01	0.211
TH-229	-2.082E-01		3.868E-01	6.347E-01	5.389E-02	-0.328
PA-231	2.980E-01		1.317E+00	2.185E+00	3.356E-01	0.136
TH-231	-1.082E-01		6.314E-01	8.935E-01	1.591E-01	-0.121
U-231	-4.310E-02		6.608E-01	9.776E-01	9.575E-02	-0.044
PA-233	-4.348E-02		5.980E-02	9.183E-02	8.380E-03	-0.473
PA-234	9.931E-02		3.880E-01	6.589E-01	1.241E-01	0.151
PA-234M	-6.530E-01		5.312E+00	8.653E+00	8.706E-01	-0.075
U-235	9.511E-02		1.703E-01	2.718E-01	4.956E-02	0.350
NP-236	-3.615E-02		5.972E-02	9.941E-02	8.594E-03	-0.364
NP-239	-1.132E-01		1.335E-01	2.007E-01	2.231E-02	-0.564
AM-241	-1.228E-02		4.627E-02	7.035E-02	5.968E-03	-0.174

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.000E-01		6.684E-02	9.768E-02	1.001E-02	-1.024
AM-246	-3.293E-02		1.913E-01	3.079E-01	2.641E-02	-0.107
CM-247	-6.985E-03		3.928E-02	6.133E-02	4.976E-03	-0.114
CF-249	1.942E-02		3.868E-02	6.395E-02	5.130E-03	0.304
CF-251	6.780E-02		9.719E-02	1.700E-01	1.407E-02	0.399

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600010             *
* Acquisition date   : 22-JAN-2010 08:37:00 Detector SN#      :               *
* Detector ID        : GAM21                      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 02:00:25.37             Half life ratio : 8.000         *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G244600010              Analyst initials: MXR1          *
* Batch Number       : 941635                  Sample Quantity : 1.4846E+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   :               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.275E+01	3.470E+00	1.709E-01	1.770E+00
CD-109	3.793E+00	7.147E-01	3.558E-01	3.647E-01
SN-126	3.730E-01	7.028E-02	3.611E-02	3.586E-02
TL-208	5.845E-01	1.104E-01	3.046E-02	5.634E-02
BI-210	8.947E-01	6.699E-01	3.252E-01	3.418E-01
PB-210	8.947E-01	6.699E-01	3.252E-01	3.418E-01
PO-210	8.947E-01	6.690E-01	3.252E-01	3.413E-01
BI-211	4.091E+00	5.500E-01	1.542E-01	2.806E-01
PB-212	1.846E+00	2.076E-01	3.971E-02	1.059E-01
PO-212	1.846E+00	2.076E-01	3.971E-02	1.059E-01
BI-214	1.148E+00	2.159E-01	6.234E-02	1.101E-01
PB-214	1.423E+00	2.047E-01	5.381E-02	1.044E-01
PO-214	1.423E+00	2.047E-01	5.381E-02	1.044E-01
PO-216	1.846E+00	2.076E-01	3.971E-02	1.059E-01
PO-218	1.423E+00	2.047E-01	5.381E-02	1.044E-01
RA-224	5.332E+00	1.415E+00	4.532E-01	7.218E-01
RA-226	1.148E+00	2.159E-01	6.234E-02	1.101E-01
AC-228	1.615E+00	3.634E-01	1.270E-01	1.854E-01
RA-228	1.615E+00	3.634E-01	1.270E-01	1.854E-01
TH-228	1.873E+00	2.107E-01	4.031E-02	1.075E-01
TH-230	1.148E+00	2.159E-01	6.234E-02	1.101E-01
TH-232	1.615E+00	3.634E-01	1.270E-01	1.854E-01
TH-234	1.197E+00	7.069E-01	3.776E-01	3.607E-01
U-234	1.148E+00	2.159E-01	6.234E-02	1.101E-01
NP-237	1.095E+00	3.027E-01	9.897E-02	1.545E-01
U-238	1.197E+00	7.069E-01	3.776E-01	3.607E-01
AM-243	4.344E-01	5.295E-02	2.095E-02	2.701E-02
ANH-511	4.946E-02	6.801E-02	2.643E-02	3.470E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----

BE-7	1.647E-01	3.128E-01	2.875E-01	1.596E-01	NOT IDENT.
NA-22	5.172E-02	5.990E-02	5.406E-02	3.056E-02	NOT IDENT.
NA-24	2.276E+05	6.715E+05	0.000E+00	3.426E+05	SHORT HLIF
AL-26	1.655E-02	2.999E-02	2.861E-02	1.530E-02	NOT IDENT.
TI-44	3.995E-01	4.414E-02	1.953E-02	2.252E-02	FAIL ABUN
SC-46	-4.937E-03	4.257E-02	3.653E-02	2.172E-02	FAIL ABUN
V-48	-6.250E-02	8.917E-02	7.101E-02	4.549E-02	NOT IDENT.
CR-51	-9.230E-03	3.166E-01	2.725E-01	1.615E-01	NOT IDENT.
MN-52	6.590E-03	2.486E-01	2.137E-01	1.269E-01	NOT IDENT.
MN-54	6.754E-03	4.343E-02	3.852E-02	2.216E-02	NOT IDENT.
CO-56	3.303E-02	4.488E-02	4.173E-02	2.290E-02	NOT IDENT.
CO-57	-6.540E-03	1.820E-02	1.535E-02	9.287E-03	NOT IDENT.
CO-58	-3.963E-03	3.851E-02	3.346E-02	1.965E-02	NOT IDENT.
FE-59	-1.060E-01	1.207E-01	9.267E-02	6.157E-02	NOT IDENT.
CO-60	2.083E-02	4.815E-02	4.365E-02	2.457E-02	NOT IDENT.
ZN-65	-2.829E-02	1.198E-01	8.421E-02	6.111E-02	NOT IDENT.
GE-68	1.050E+00	1.672E+00	1.500E+00	8.532E-01	NOT IDENT.
AS-73	1.485E-01	1.609E-01	1.543E-01	8.209E-02	NOT IDENT.
AS-74	-4.536E-02	9.868E-02	8.167E-02	5.035E-02	NOT IDENT.
SE-75	4.876E-03	3.905E-02	3.308E-02	1.992E-02	NOT IDENT.
BR-77	-3.172E+00	9.550E+00	8.133E+00	4.872E+00	FAIL ABUN
SR-82	-3.588E-02	3.902E-01	3.224E-01	1.991E-01	NOT IDENT.
RB-83	6.829E-03	6.691E-02	5.916E-02	3.414E-02	NOT IDENT.
RB-84	-1.693E-02	7.253E-02	6.145E-02	3.701E-02	NOT IDENT.
KR-85	4.502E-01	8.729E+00	6.776E+00	4.454E+00	NOT IDENT.
SR-85	2.302E-03	4.464E-02	3.465E-02	2.277E-02	NOT IDENT.
RB-86	1.147E+00	1.009E+00	9.446E-01	5.146E-01	NOT IDENT.
Y-88	4.877E-03	4.965E-02	4.194E-02	2.533E-02	NOT IDENT.
ZR-88	1.997E-02	3.267E-02	2.870E-02	1.667E-02	NOT IDENT.
Y-91	-1.316E+01	2.623E+01	2.090E+01	1.339E+01	NOT IDENT.
NB-94	-5.829E-03	3.962E-02	3.306E-02	2.021E-02	NOT IDENT.
NB-95	1.476E-02	6.008E-02	4.515E-02	3.066E-02	NOT IDENT.
NB-95M	7.509E-02	1.066E-01	8.907E-02	5.437E-02	NOT IDENT.
ZR-95	3.961E-02	8.490E-02	7.423E-02	4.332E-02	NOT IDENT.
NB-97	3.368E+04	8.094E+04	0.000E+00	4.130E+04	SHORT HLIF
ZR-97	1.350E+06	1.440E+06	0.000E+00	7.347E+05	SHORT HLIF
MO-99	2.928E-01	1.176E+01	9.904E+00	5.998E+00	NOT IDENT.
TC-99M	3.422E+15	1.366E+16	0.000E+00	6.970E+15	SHORT HLIF
RH-101	3.386E-03	2.521E-02	2.287E-02	1.286E-02	NOT IDENT.
RH-102	-3.311E-03	2.878E-02	2.527E-02	1.468E-02	FAIL ABUN
RU-103	-4.423E-03	3.853E-02	3.363E-02	1.966E-02	FAIL ABUN
RH-106	-2.603E-02	3.391E-01	2.891E-01	1.730E-01	NOT IDENT.
RU-106	-2.603E-02	3.391E-01	2.891E-01	1.730E-01	NOT IDENT.
AG-108M	1.660E-02	3.149E-02	2.917E-02	1.607E-02	NOT IDENT.
AG-110M	1.509E-02	3.734E-02	3.301E-02	1.905E-02	NOT IDENT.
IN-111	-1.576E-01	8.189E-01	6.409E-01	4.178E-01	NOT IDENT.
IN-113M	1.945E-03	4.636E-02	3.918E-02	2.365E-02	NOT IDENT.
SN-113	1.945E-03	4.636E-02	3.918E-02	2.365E-02	NOT IDENT.
IN-114M	2.236E-01	1.491E-01	1.325E-01	7.610E-02	NOT IDENT.
CD-115	4.373E-01	1.004E+01	8.821E+00	5.123E+00	NOT IDENT.
SN-117M	5.495E-03	3.830E-02	3.575E-02	1.954E-02	NOT IDENT.
SB-122	-1.660E+00	2.069E+00	1.670E+00	1.056E+00	NOT IDENT.
I-123	-1.277E+06	2.975E+06	0.000E+00	1.518E+06	SHORT HLIF
TE-123M	-8.730E-03	2.034E-02	1.851E-02	1.038E-02	NOT IDENT.
I-124	-1.645E-01	6.919E-01	5.627E-01	3.530E-01	NOT IDENT.
SB-124	-6.120E-02	8.718E-02	6.055E-02	4.448E-02	FAIL ABUN
SB-125	7.224E-02	9.082E-02	8.543E-02	4.634E-02	FAIL ABUN
TE-125M	4.278E-01	6.017E+00	5.255E+00	3.070E+00	NOT IDENT.
I-126	1.399E-01	1.996E-01	1.800E-01	1.018E-01	NOT IDENT.
SB-126	1.029E-02	1.673E-01	1.370E-01	8.534E-02	FAIL ABUN
SB-127	-2.680E-02	1.374E+00	1.163E+00	7.011E-01	NOT IDENT.
XE-127	-1.680E-02	3.564E-02	3.153E-02	1.819E-02	NOT IDENT.
I-131	-1.696E-02	1.137E-01	9.551E-02	5.799E-02	NOT IDENT.
TE-132	-2.731E-01	5.170E-01	4.481E-01	2.638E-01	NOT IDENT.
BA-133	-5.806E-03	4.551E-02	3.407E-02	2.322E-02	FAIL ABUN
I-133	5.292E+02	4.967E+03	0.000E+00	2.534E+03	SHORT HLIF
CS-134	5.791E-02	5.442E-02	4.974E-02	2.777E-02	NOT IDENT.
CS-135	1.041E-01	1.516E-01	1.251E-01	7.735E-02	NOT IDENT.
I-135	7.684E+14	4.040E+15	0.000E+00	2.061E+15	SHORT HLIF
CS-136	8.453E-04	1.138E-01	9.697E-02	5.807E-02	FAIL ABUN
BA-137M	-3.467E-02	4.043E-02	3.154E-02	2.063E-02	NOT IDENT.
CS-137	-3.665E-02	4.273E-02	3.334E-02	2.180E-02	NOT IDENT.
CE-139	-7.056E-03	2.243E-02	2.045E-02	1.145E-02	NOT IDENT.
BA-140	-4.931E-02	2.471E-01	2.116E-01	1.261E-01	NOT IDENT.
LA-140	-2.226E-01	1.164E-01	6.302E-02	5.937E-02	FAIL ABUN
CE-141	8.240E-03	4.952E-02	4.220E-02	2.527E-02	NOT IDENT.
CE-143	2.829E+02	1.383E+02	0.000E+00	7.058E+01	SHORT HLIF

CE-144	1.242E-01	1.486E-01	1.312E-01	7.583E-02	NOT IDENT.
PM-144	-2.896E-02	3.620E-02	2.797E-02	1.847E-02	NOT IDENT.
PR-144	-1.962E+00	2.452E+00	1.895E+00	1.251E+00	NOT IDENT.
PM-146	-1.473E-02	4.280E-02	3.713E-02	2.183E-02	NOT IDENT.
ND-147	-3.971E-01	5.937E-01	4.884E-01	3.029E-01	FAIL ABUN
PM-149	-2.644E+01	7.252E+01	6.176E+01	3.700E+01	NOT IDENT.
EU-152	-1.035E-01	8.794E-02	6.785E-02	4.487E-02	FAIL ABUN
GD-153	-2.812E-02	4.894E-02	4.186E-02	2.497E-02	FAIL ABUN
EU-154	1.815E-01	1.639E-01	1.509E-01	8.360E-02	NOT IDENT.
EU-155	1.037E-01	7.183E-02	6.627E-02	3.665E-02	FAIL ABUN
TB-160	4.815E-02	1.470E-01	1.322E-01	7.498E-02	FAIL ABUN
HO-166M	3.401E-02	6.786E-02	5.997E-02	3.462E-02	FAIL ABUN
TM-171	9.652E-01	1.086E+01	9.202E+00	5.541E+00	NOT IDENT.
LU-176	-5.997E-03	2.186E-02	1.859E-02	1.115E-02	FAIL ABUN
LU-177	3.298E+00	1.252E+00	9.184E-01	6.389E-01	FAIL ABUN
LU-177M	-4.740E-02	1.704E-01	1.392E-01	8.694E-02	FAIL ABUN
HF-181	-1.187E-03	4.070E-02	3.592E-02	2.077E-02	NOT IDENT.
W-181	-2.064E-02	1.339E-01	1.124E-01	6.829E-02	NOT IDENT.
TA-182	-2.138E-03	2.573E-01	2.146E-01	1.313E-01	FAIL ABUN
RE-183	2.825E-02	8.138E-02	7.639E-02	4.152E-02	FAIL ABUN
RE-184	-1.527E-02	1.917E-01	1.689E-01	9.780E-02	NOT IDENT.
OS-185	2.180E-02	4.959E-02	4.394E-02	2.530E-02	NOT IDENT.
RE-188	-1.072E-02	1.266E-01	1.173E-01	6.461E-02	NOT IDENT.
W-188	-1.751E+00	7.115E+00	5.424E+00	3.630E+00	FAIL ABUN
IR-192	-1.346E-02	3.066E-02	2.564E-02	1.564E-02	FAIL ABUN
AU-195	9.367E-02	1.399E-01	1.265E-01	7.138E-02	FAIL ABUN
TL-200	4.553E+01	3.670E+02	0.000E+00	1.872E+02	SHORT HLIF
TL-201	1.575E+00	4.816E+00	4.507E+00	2.457E+00	NOT IDENT.
TL-202	5.849E-02	6.796E-02	6.405E-02	3.467E-02	NOT IDENT.
HG-203	3.903E-02	3.940E-02	3.309E-02	2.010E-02	NOT IDENT.
BI-207	-1.320E-03	6.526E-02	5.533E-02	3.329E-02	FAIL ABUN
TL-207	-1.082E-01	6.187E-01	4.666E-01	3.157E-01	FAIL ABUN
PO-209	-6.841E-01	9.013E+00	7.766E+00	4.598E+00	NOT IDENT.
PB-211	4.188E-01	9.490E-01	7.948E-01	4.842E-01	NOT IDENT.
BI-212	1.054E+00	6.671E-01	3.999E-01	3.404E-01	FAIL ABUN
PO-215	-1.082E-01	6.187E-01	4.666E-01	3.157E-01	FAIL ABUN
RN-219	-1.240E-01	4.310E-01	3.536E-01	2.199E-01	FAIL ABUN
RN-220	-1.305E+01	2.795E+01	2.338E+01	1.426E+01	NOT IDENT.
RA-223	-1.082E-01	6.187E-01	4.666E-01	3.157E-01	FAIL ABUN
AC-227	1.189E-01	3.292E-01	2.964E-01	1.679E-01	FAIL ABUN
TH-227	1.189E-01	3.294E-01	2.964E-01	1.680E-01	FAIL ABUN
TH-229	-2.082E-01	3.790E-01	3.354E-01	1.934E-01	FAIL ABUN
PA-231	2.980E-01	1.291E+00	1.145E+00	6.586E-01	FAIL ABUN
TH-231	-1.082E-01	6.187E-01	4.666E-01	3.157E-01	FAIL ABUN
U-231	-4.310E-02	6.475E-01	5.248E-01	3.304E-01	FAIL ABUN
PA-233	-4.348E-02	5.860E-02	4.800E-02	2.990E-02	FAIL ABUN
PA-234	9.931E-02	3.802E-01	3.354E-01	1.940E-01	FAIL ABUN
PA-234M	-6.530E-01	5.206E+00	4.398E+00	2.656E+00	NOT IDENT.
U-235	9.511E-02	1.669E-01	1.446E-01	8.515E-02	FAIL ABUN
NP-236	-3.615E-02	5.853E-02	5.276E-02	2.986E-02	NOT IDENT.
NP-239	-1.132E-01	1.308E-01	1.073E-01	6.674E-02	FAIL ABUN
AM-241	-1.228E-02	4.534E-02	3.817E-02	2.313E-02	NOT IDENT.
CM-243	-1.000E-01	6.550E-02	5.235E-02	3.342E-02	FAIL ABUN
AM-246	-3.293E-02	1.874E-01	1.562E-01	9.563E-02	FAIL ABUN
CM-247	-6.985E-03	3.849E-02	3.186E-02	1.964E-02	FAIL ABUN
CF-249	1.942E-02	3.791E-02	3.326E-02	1.934E-02	NOT IDENT.
CF-251	6.780E-02	9.525E-02	9.004E-02	4.860E-02	NOT IDENT.

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON , SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
*****

```

ENERGY	MDA COUNTS
46.50	227.2186
46.50	227.2186
46.50	227.2186
48.70	237.0324
49.72	235.7754
51.35	273.3312
52.39	248.6890
52.97	248.4303
53.15	248.6370
53.44	250.8350
54.07	254.3660
56.28	276.7351
56.28	276.7385
57.37	0.0000
57.53	273.5123
57.53	273.5156
57.60	273.5958
57.98	275.9505
57.98	275.9505
59.32	315.1861
59.32	315.1861
59.40	315.2928
59.54	315.4813
59.72	315.7213
60.01	304.5901
61.10	294.4138
61.14	294.4627
61.30	302.3787
63.00	339.1588
63.29	339.5589
63.29	339.5589
63.58	339.9569
64.28	345.1491
65.12	346.3056
65.20	346.4161
65.20	346.4161
66.05	339.7083
66.72	339.2811
66.83	347.3245
66.91	347.4319
67.20	347.8213
67.20	347.8213
67.75	343.6087
67.85	347.7062
68.90	350.0986
68.90	350.0986
69.30	347.6421
69.67	348.1293
70.82	343.2836
70.82	343.2836
70.83	343.2967
72.80	322.9224
72.87	323.0029
72.87	323.0029
74.67	325.1074
74.81	325.2710
74.81	325.2710
74.81	325.2710
74.81	325.2710
74.81	325.2710
74.81	325.2710
74.81	325.2710
74.97	325.4565
75.28	325.8154
75.70	326.2988
77.11	327.9175
77.11	327.9175

77.11	327.9175
77.11	327.9175
77.11	327.9175
77.11	327.9175
77.11	327.9175
78.38	329.3652
79.62	330.7642
79.80	330.9668
79.80	330.9668
80.11	331.3159
80.18	331.3940
80.30	331.5283
80.30	331.5283
80.57	331.8311
81.00	332.3096
81.07	332.3877
81.07	332.3877
81.07	332.3877
81.07	332.3877
82.60	271.4456
83.37	223.9839
83.78	224.2876
83.78	224.2876
83.78	224.2876
83.78	224.2876
84.21	224.6027
84.90	256.6643
85.43	257.1036
86.29	257.8129
86.50	257.9860
86.54	258.0195
86.59	258.0605
86.72	258.1666
86.79	258.2224
86.94	294.3484
87.30	294.6836
87.30	294.6836
87.30	294.6836
87.30	294.6836
87.30	294.6836
87.30	294.6836
87.57	294.9360
87.88	276.1092
88.03	276.2401
88.36	276.5257
88.47	276.6209
89.95	258.6593
91.11	266.0222
92.29	266.9796
92.38	257.0030
92.38	257.0030
93.35	257.7550
94.00	258.2594
94.67	245.7602
94.67	245.7637
94.90	232.9115
94.90	232.9115
94.90	232.9115
94.90	232.9115
95.87	253.8928
95.87	253.8928
96.73	277.8073
97.43	274.3647
98.44	214.8715
98.44	214.8722
98.88	234.9033
99.55	250.7509
99.55	250.7509
99.86	257.5782
100.00	244.4656
100.10	244.5384
103.18	275.5507
103.76	289.3500
105.00	218.8716
105.31	213.4688
108.00	236.4198
109.28	222.5433



111.00	238.3088
111.00	238.3088
111.76	214.9047
112.95	246.3651
115.19	206.4880
116.30	211.6733
117.00	231.6380
117.00	231.6380
117.66	206.6260
121.11	203.7430
121.62	212.1565
121.78	220.4022
122.06	226.3876
122.32	210.1822
122.32	210.1822
122.32	210.1822
122.32	210.1822
123.07	210.5653
127.23	237.8698
129.76	229.3760
131.20	222.5867
133.02	180.4064
133.54	189.4115
135.34	219.0687
136.00	203.7201
136.25	191.7724
136.48	191.8719
140.51	202.1023
140.51	0.0000
142.18	246.8224
142.65	229.9454
143.76	228.0413
144.24	228.2740
144.24	228.2740
144.24	228.2740
144.24	228.2740
145.22	232.4404
145.44	232.5471
147.16	214.8689
152.43	250.9249
152.70	221.0853
153.22	199.2274
154.21	218.8371
154.21	218.8371
154.21	218.8371
154.21	218.8371
155.03	233.4224
156.02	244.7829
158.56	197.1542
159.00	0.0000
159.00	213.3452
160.31	226.5748
161.27	216.8359
162.32	209.6374
162.64	201.2755
163.35	214.3066
163.89	216.2323
165.85	223.8796
167.43	193.6969
171.28	208.0434
171.86	180.6129
172.10	171.1815
176.55	183.9081
176.60	183.9253
181.06	192.4248
184.41	207.7024
185.71	208.1709
186.00	208.2761
190.27	155.3458
192.34	200.6849
193.63	190.3458
197.04	190.5255
198.01	171.8377
198.60	172.9072
200.40	186.1295
201.83	192.9315
202.84	191.4233
205.31	167.4726

208.36	182.0781
208.81	182.2070
209.75	170.0353
209.75	170.0353
210.97	153.7395
215.65	152.5305
216.55	160.1897
218.09	172.7017
222.10	169.0521
223.80	176.0715
226.40	167.2969
227.00	171.2286
227.08	171.2489
227.20	171.2783
228.16	167.7290
228.18	167.7344
228.18	167.7344
231.56	0.0000
235.69	156.6260
236.00	153.8207
236.00	153.8207
238.63	157.7606
238.63	157.7606
238.63	157.7606
238.63	157.7606
239.00	157.8423
240.98	158.2811
241.98	158.5013
241.98	158.5013
241.98	158.5013
244.69	129.5087
245.39	123.8074
247.94	123.7534
248.90	120.0121
249.79	143.6025
252.40	146.0686
252.85	138.3106
252.85	138.3106
254.15	0.0000
256.20	141.8848
256.20	141.8848
260.50	132.7814
260.90	138.8009
262.80	138.1488
264.65	132.7014
268.24	136.6166
268.79	135.2115
269.46	131.3172
269.46	131.3172
269.46	131.3172
269.46	131.3172
271.23	128.0940
273.65	126.9741
276.40	122.8620
277.35	147.8090
277.60	164.0599
277.60	164.0599
278.00	142.8618
278.60	123.1957
279.20	121.7651
279.53	123.3366
280.46	118.9067
281.68	146.5635
283.67	115.2921
284.30	120.4847
285.00	131.8292
285.90	126.8583
286.10	126.8886
286.10	126.8886
287.40	108.6396
288.45	0.0000
290.67	129.6453
290.80	129.6632
291.72	123.6255
293.26	0.0000
293.70	133.2097
295.21	117.9290
295.21	117.9290

295.21	117.9290
295.96	83.8658
296.50	83.9185
297.23	83.9910
298.57	84.1229
299.80	102.9639
299.80	102.9639
300.09	102.9981
300.09	102.9981
300.09	102.9981
300.09	102.9981
300.12	103.0021
301.29	104.7039
302.84	112.7197
303.76	114.4056
303.91	117.5606
304.40	103.5117
304.40	103.5117
304.84	94.1492
306.84	116.3815
308.46	115.5457
311.98	126.5527
316.51	113.4132
318.01	104.0472
319.02	105.2258
319.41	108.4601
320.08	98.9639
323.87	97.7716
323.87	97.7716
323.87	97.7716
323.87	97.7716
325.23	94.7047
328.77	124.0723
333.44	106.8774
334.20	126.4120
334.20	126.4120
334.30	126.4263
338.28	107.4252
338.28	107.4252
338.28	107.4252
338.28	107.4252
338.32	107.4293
338.32	107.4293
338.32	107.4293
340.50	92.9920
340.57	92.9990
344.27	113.5553
345.85	94.0555
350.59	0.0000
351.07	95.6572
351.92	95.7404
351.92	95.7404
351.92	95.7404
355.39	0.0000
356.01	101.1076
364.48	106.9766
366.43	98.2480
367.43	88.2867
367.94	0.0000
369.80	96.3318
374.96	95.6873
383.85	87.4161
387.95	80.9136
388.63	88.9481
391.69	102.9236
391.69	102.9236
392.90	98.4594
398.62	94.3721
400.65	98.0063
401.10	106.1204
401.81	105.0336
402.60	102.7994
404.84	83.3306
410.95	76.8040
411.60	90.8207
413.65	86.3198
414.70	96.3239
415.30	91.9936

415.76	91.1539
417.63	0.0000
418.52	75.5597
423.70	75.9009
427.08	79.6619
427.89	78.8311
432.53	88.9252
433.93	75.6759
439.47	75.1355
439.56	75.1406
439.89	73.3728
443.98	89.7835
444.90	66.4900
445.03	66.4979
445.03	66.4979
445.03	66.4979
453.90	85.0871
463.38	72.0578
468.07	76.1719
473.00	79.0424
475.06	76.4080
475.35	75.5049
476.78	71.9015
477.59	66.4124
477.96	69.1990
482.03	69.4176
484.57	56.5704
487.03	59.4648
490.36	0.0000
492.35	64.3706
497.08	65.5363
507.63	0.0000
510.53	0.0000
510.84	78.5053
511.00	78.5154
511.85	95.4129
511.85	95.4129
513.99	94.0444
513.99	94.0444
520.41	60.9570
520.65	67.6372
527.90	64.1579
528.96	0.0000
529.64	64.2376
529.87	0.0000
531.02	80.6162
537.32	60.7313
543.00	67.7484
546.56	0.0000
549.76	74.8710
552.65	59.4326
555.20	74.1747
563.23	78.5059
563.90	79.5218
568.70	58.1105
569.32	65.0312
569.50	71.9373
569.67	71.9463
573.80	55.3438
574.00	59.3042
574.64	61.3075
578.91	63.4629
579.30	0.0000
583.14	56.6782
585.48	57.3627
591.81	54.9983
592.07	55.0067
593.00	58.0425
595.88	72.1868
600.56	68.3798
602.52	0.0000
602.71	69.0485
602.71	69.0485
603.60	69.3186
604.41	75.8059
604.70	70.9801
609.31	65.7260

609.31	65.7260
609.31	65.7260
609.31	65.7260
610.33	65.7677
612.46	61.5997
614.37	71.4119
618.01	51.8498
621.84	59.1063
621.84	59.1063
631.29	52.2747
633.02	70.8004
633.10	70.8025
634.78	56.4955
635.90	58.5899
636.97	54.5123
645.85	52.7369
646.12	59.9842
656.30	62.4280
657.75	52.0676
657.90	0.0000
661.65	73.0612
661.65	73.0612
664.57	0.0000
666.33	54.4216
666.33	54.4216
675.00	58.9019
677.61	49.5101
685.20	50.7817
692.80	51.0000
695.00	52.1268
696.49	60.6877
696.49	60.6877
697.00	59.6401
697.49	57.5266
698.33	49.0266
698.50	49.0308
699.00	51.1772
702.63	68.3750
706.10	67.4355
706.58	0.0000
706.67	65.3151
709.31	67.5547
711.68	50.4625
713.82	53.7476
717.42	60.3152
720.50	56.7171
721.93	0.0000
722.20	53.5598
722.78	55.3047
722.78	55.3047
722.89	55.3086
722.95	55.3109
723.30	60.5066
724.18	74.3724
727.18	51.9712
733.00	43.4448
735.90	50.0388
739.58	46.8672
742.81	58.9570
744.21	57.9073
747.13	53.6192
751.79	69.1062
752.31	64.7365
753.82	52.7080
755.35	58.2453
756.15	52.7725
756.87	53.8921
763.93	54.7510
765.79	67.1791
766.42	72.5047
766.84	72.9630
776.49	42.2166
778.00	40.0243
778.57	44.4849
778.89	44.4922
783.80	45.7171
785.46	41.2919
792.07	48.3706

795.84	43.7488
796.30	43.7596
798.80	37.7467
801.93	48.0065
805.60	36.0703
810.29	39.7676
810.76	38.8732
815.85	41.6886
817.79	41.7268
818.51	46.2785
819.60	50.8430
826.30	51.9179
828.27	0.0000
831.60	67.5738
831.96	68.4979
834.83	55.7876
836.80	0.0000
846.75	41.3866
848.13	45.0953
856.28	0.0000
856.80	38.5010
860.37	41.6503
867.32	49.9077
867.82	43.3410
871.10	38.1352
873.19	55.8618
874.81	46.5857
875.33	0.0000
876.40	41.9568
879.36	35.4784
880.27	37.3604
880.51	37.3652
881.50	39.2509
883.24	43.0228
884.67	33.6920
889.25	41.2640
896.60	50.8083
898.02	36.7177
899.00	33.9082
903.28	47.1838
911.07	44.5054
911.07	44.5054
911.07	44.5054
919.63	38.0195
920.93	39.9431
925.00	38.1084
925.24	37.1595
926.50	29.9615
935.52	33.4961
937.48	35.1207
944.10	50.9090
946.00	49.0265
949.00	51.9776
962.29	39.6857
964.01	39.7137
966.15	39.7488
968.20	39.7828
969.11	39.7978
969.11	39.7978
969.11	39.7978
977.42	34.0908
980.50	35.7598
983.50	56.6350
989.30	39.1514
996.32	50.0599
1001.03	43.2717
1001.68	41.3150
1004.76	49.2456
1021.30	0.0000
1024.50	0.0000
1034.80	38.8724
1036.00	35.8980
1037.82	37.9202
1038.57	33.9386
1038.76	0.0000
1045.16	33.0242
1046.59	34.0448
1048.07	34.0647

1050.47	42.1189
1050.47	42.1189
1062.04	50.3638
1063.62	46.3639
1076.63	37.4770
1077.35	46.6042
1078.86	52.7135
1085.78	43.7034
1099.22	61.2891
1112.02	46.1843
1112.84	49.0492
1115.52	46.2437
1120.29	49.7541
1120.29	49.7541
1120.29	49.7541
1120.29	49.7541
1120.51	40.1502
1121.28	29.1772
1124.00	0.0000
1129.67	39.2506
1131.51	0.0000
1147.95	0.0000
1167.94	56.5418
1173.22	61.8924
1175.09	51.4356
1177.93	46.2322
1189.05	54.8488
1204.90	69.9961
1205.75	0.0000
1213.00	68.0625
1221.42	58.6577
1230.97	48.9107
1235.34	53.5742
1236.41	0.0000
1238.25	53.6255
1246.25	57.3516
1260.41	0.0000
1271.85	44.4614
1274.45	33.6459
1274.54	37.9873
1291.56	40.3784
1298.22	0.0000
1312.09	29.6578
1325.50	29.4154
1325.50	29.4154
1332.49	26.7167
1333.61	27.6465
1360.21	28.8039
1362.66	0.0000
1365.15	25.1246
1368.21	22.3535
1368.53	0.0000
1376.25	19.6072
1384.27	20.5910
1394.10	16.8962
1395.20	27.2312
1407.95	9.6948
1434.06	17.0962
1436.60	20.9115
1457.56	0.0000
1460.81	4.9225
1489.15	13.5084
1509.49	14.5557
1596.49	33.7773
1620.62	12.9968
1678.03	0.0000
1691.02	13.2317
1691.02	13.2317
1706.46	0.0000
1750.46	0.0000
1764.49	14.2121
1764.49	14.2121
1764.49	14.2121
1764.49	14.2121
1770.23	48.7728
1771.40	8.3040
1791.20	0.0000
1808.65	4.1890

1836.01

12.6470



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600010

Total Uranium Activity	3.6055E+00	ug/g
Total Uranium Counting Unc.	2.1045E+00	ug/g
Total Uranium Tpu	1.0737E-06	ug/g
Total Uranium Mda	1.1252E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID : G244600010
*  ANALYST       : MXR1           DETECTOR   : GAM21
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 08:37:00.09  SAMPLE ALQT: 148.460 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.047E+01
GROSS GAMMA ERROR (pCi/GRAM ) : 1.540E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.156E+00
GROSS GAMMA DLC (pCi/GRAM ) : 2.013E+00

```

## VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:39:13.68

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600011.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:37:49
Sample ID          : G244600011      Sample quantity   : 1.47000E+02 GRAM
Detector name      : GAM22            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:02.29  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID          : 941635            Detector SN#     :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.21*	167	624	1.04	126.68	123	8	2.32E-02	27.9	
2	3	74.85*	668	605	1.20	149.92	143	19	9.28E-02	7.4	3.28E+00
3	3	77.10*	755	548	0.93	154.43	143	19	1.05E-01	6.2	
4	5	87.29*	299	603	1.09	174.79	171	22	4.15E-02	14.3	2.90E+00
5	5	89.98*	223	536	1.13	180.16	171	22	3.09E-02	18.5	
6	5	92.76*	609	579	1.57	185.71	171	22	8.45E-02	9.1	
7	0	185.81*	373	720	1.22	371.63	365	14	5.18E-02	16.5	
8	0	209.47	166	532	1.11	418.91	414	11	2.31E-02	28.0	
9	3	238.70*	1859	290	1.18	477.32	469	21	2.58E-01	2.9	1.13E+00
10	3	241.67	416	415	1.89	483.26	469	21	5.77E-02	13.0	
11	0	270.50	172	398	1.51	540.86	535	12	2.39E-02	24.4	
12	0	295.26*	562	286	1.33	590.35	586	9	7.81E-02	7.0	
13	0	300.30	95	301	1.03	600.41	596	9	1.32E-02	34.6	
14	0	328.34	126	303	0.91	656.45	651	12	1.75E-02	29.0	
15	0	338.32*	370	249	1.29	676.40	672	9	5.14E-02	9.5	
16	0	352.02*	1024	236	1.34	703.77	699	11	1.42E-01	4.4	
17	0	462.74	100	238	1.36	925.06	921	13	1.39E-02	33.2	
18	0	510.83*	120	262	2.25	1021.16	1015	15	1.67E-02	35.5	
19	0	583.18*	684	195	1.74	1165.78	1157	19	9.51E-02	6.4	
20	0	609.37*	662	284	1.62	1218.12	1211	16	9.19E-02	7.0	
21	0	661.68	524	126	1.45	1322.68	1317	12	7.28E-02	6.1	
22	0	727.63*	137	125	0.87	1454.53	1446	13	1.91E-02	19.4	
23	0	795.22	102	124	1.80	1589.64	1581	16	1.42E-02	26.4	
24	0	861.27	54	110	1.45	1721.68	1717	13	7.55E-03	41.2	
25	0	911.17*	533	85	2.17	1821.46	1813	17	7.41E-02	6.1	
26	0	935.68	40	93	1.37	1870.47	1864	14	5.53E-03	54.8	
27	2	964.53	113	106	2.81	1928.14	1920	26	1.57E-02	25.2	1.94E+00
28	2	969.20*	300	80	2.05	1937.48	1920	26	4.16E-02	8.6	
29	0	1120.41*	155	142	2.38	2239.85	2229	21	2.16E-02	21.1	
30	0	1460.82*	2096	59	2.53	2920.68	2908	26	2.91E-01	2.4	
31	0	1730.04	46	29	1.84	3459.25	3450	19	6.32E-03	31.8	
32	0	1765.06*	192	27	3.26	3529.31	3517	29	2.66E-02	11.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 10:39:16

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600011.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:37:49
Sample ID        : G244600011             Sample quantity  : 147.00 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA22                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:02.29   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	*	2.628E+01	2.725E+00	4.139E-01	3.792E-02	63.492
CD-109	+	88.03	*	2.802E+00	8.451E-01	1.003E+00	9.517E-02	2.794
SN-126	+	64.28		1.030E+00	5.934E-01	6.144E-01	8.923E-02	1.677
	+	86.94		1.145E+00	5.779E-01	4.140E-01	1.719E-01	2.767
	+	87.57	*	2.755E-01	8.309E-02	9.901E-02	9.349E-03	2.783
BA-137M	+	661.65	*	4.146E-01	6.698E-02	4.768E-02	5.028E-03	8.697
CS-137	+	661.65	*	4.383E-01	7.085E-02	5.040E-02	5.322E-03	8.697
TL-208		277.35		5.836E-01	3.437E-01	5.498E-01	9.066E-02	1.061
	+	510.84		3.304E-01	2.382E-01	1.827E-01	2.380E-02	1.809
	+	583.14	*	5.281E-01	8.847E-02	4.780E-02	5.183E-03	11.050
	+	860.37		3.814E-01	3.175E-01	3.393E-01	3.954E-02	1.124
BI-211		72.87		4.757E+00	2.485E+00	4.189E+00	3.353E-01	1.136
	+	351.07	*	3.743E+00	5.447E-01	2.758E-01	3.218E-02	13.572
PB-212	+	74.81		2.583E+00	4.974E-01	4.255E-01	5.279E-02	6.072
	+	77.11		1.659E+00	2.482E-01	2.423E-01	2.026E-02	6.848
	+	87.30		1.274E+00	4.049E-01	4.590E-01	6.303E-02	2.776
	+	238.63	*	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
	+	300.09		1.203E+00	8.504E-01	9.624E-01	1.403E-01	1.250
PO-212	+	74.81		2.583E+00	4.974E-01	4.255E-01	5.279E-02	6.072
	+	77.11		1.659E+00	2.482E-01	2.423E-01	2.026E-02	6.848
	+	87.30		1.274E+00	4.049E-01	4.590E-01	6.303E-02	2.776
		115.19		7.189E-01	3.067E+00	4.923E+00	4.078E-01	0.146
	+	238.63	*	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
	+	300.09		1.203E+00	8.504E-01	9.624E-01	1.403E-01	1.250
BI-214	+	609.31	*	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
	+	1120.29		1.121E+00	4.880E-01	3.497E-01	3.864E-02	3.205
	+	1764.49		1.804E+00	4.401E-01	2.384E-01	1.987E-02	7.567
PB-214	+	74.81		4.451E+00	8.186E-01	7.331E-01	8.080E-02	6.072
	+	77.11		2.844E+00	4.775E-01	4.153E-01	4.698E-02	6.848
	+	87.30		2.183E+00	6.795E-01	7.864E-01	9.566E-02	2.776
	+	241.98		2.126E+00	6.237E-01	4.475E-01	6.154E-02	4.750
	+	295.21		1.253E+00	2.557E-01	1.862E-01	2.773E-02	6.729
	+	351.92	*	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
PO-214	+	74.81		4.451E+00	8.186E-01	7.331E-01	8.080E-02	6.072

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		2.844E+00	4.775E-01	4.153E-01	4.698E-02	6.848
	+	87.30		2.183E+00	6.795E-01	7.864E-01	9.566E-02	2.776
	+	241.98		2.126E+00	6.237E-01	4.475E-01	6.154E-02	4.750
	+	295.21		1.253E+00	2.557E-01	1.862E-01	2.773E-02	6.729
	+	351.92	*	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
PO-216	+	74.81		2.583E+00	4.974E-01	4.255E-01	5.279E-02	6.072
	+	77.11		1.659E+00	2.482E-01	2.423E-01	2.026E-02	6.848
	+	87.30		1.274E+00	4.049E-01	4.590E-01	6.303E-02	2.776
	+	238.63	*	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
	+	300.09		1.203E+00	8.504E-01	9.624E-01	1.403E-01	1.250
PO-218	+	74.81		4.451E+00	8.186E-01	7.331E-01	8.080E-02	6.072
	+	77.11		2.844E+00	4.775E-01	4.153E-01	4.698E-02	6.848
	+	87.30		2.183E+00	6.795E-01	7.864E-01	9.566E-02	2.776
	+	241.98		2.126E+00	6.237E-01	4.475E-01	6.154E-02	4.750
	+	295.21		1.253E+00	2.557E-01	1.862E-01	2.773E-02	6.729
	+	351.92	*	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
RA-224	+	240.98	*	4.031E+00	1.161E+00	8.461E-01	1.059E-01	4.764
RA-226	+	609.31	*	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
	+	1120.29		1.121E+00	4.880E-01	3.497E-01	3.864E-02	3.205
	+	1764.49		1.804E+00	4.401E-01	2.384E-01	1.987E-02	7.567
AC-228	+	338.32		1.501E+00	6.930E-01	3.159E-01	1.329E-01	4.751
	+	911.07	*	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720
	+	969.11		1.740E+00	5.166E-01	2.816E-01	6.801E-02	6.177
RA-228	+	338.32		1.501E+00	6.930E-01	3.159E-01	1.329E-01	4.751
	+	911.07	*	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720
	+	969.11		1.740E+00	5.166E-01	2.816E-01	6.801E-02	6.177
TH-228	+	74.81		2.622E+00	4.423E-01	4.318E-01	3.558E-02	6.072
	+	77.11		1.684E+00	2.519E-01	2.459E-01	2.056E-02	6.848
	+	87.30		1.293E+00	3.900E-01	4.659E-01	4.384E-02	2.776
	+	238.63	*	1.610E+00	2.319E-01	7.554E-02	9.980E-03	21.321
	+	300.09		1.221E+00	1.119E+00	9.767E-01	5.875E-01	1.250
TH-230	+	609.31	*	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
	+	1120.29		1.121E+00	4.880E-01	3.497E-01	3.864E-02	3.205
	+	1764.49		1.804E+00	4.401E-01	2.384E-01	1.986E-02	7.567
TH-232	+	338.32		1.501E+00	3.370E-01	3.159E-01	3.757E-02	4.751
	+	911.07	*	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720
	+	969.11		1.740E+00	5.166E-01	2.816E-01	6.801E-02	6.177
TH-234	+	63.29	*	2.602E+00	1.520E+00	1.565E+00	2.725E-01	1.663
	+	92.38		3.653E+00	9.416E-01	6.530E-01	1.196E-01	5.594
U-234	+	609.31	*	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
	+	1120.29		1.121E+00	4.880E-01	3.497E-01	3.864E-02	3.205
	+	1764.49		1.804E+00	4.401E-01	2.384E-01	1.986E-02	7.567
NP-237	+	86.50	*	8.090E-01	2.956E-01	3.348E-01	7.580E-02	2.416
	+	95.87		-8.382E-01	8.735E-01	1.162E+00	2.874E-01	-0.721
U-238	+	63.29	*	2.602E+00	1.520E+00	1.565E+00	2.725E-01	1.663
	+	92.38		3.653E+00	7.412E-01	6.530E-01	5.950E-02	5.594
AM-243	+	74.67	*	4.188E-01	7.050E-02	6.917E-02	5.638E-03	6.054
	+	86.72		3.034E+01	9.150E+00	1.253E+01	1.171E+00	2.422
	+	117.66		-1.108E+00	3.293E+00	5.167E+00	4.268E-01	-0.214

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	142.18	*	1.345E+01	1.494E+01	2.577E+01	2.276E+00	0.522
		511.00	*	7.137E-02	5.112E-02	3.947E-02	3.954E-03	1.808

---- 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	*	-3.887E-02	2.670E-01	4.281E-01	4.467E-02	-0.091
NA-22		1274.54	*	4.562E-03	3.555E-02	5.933E-02	5.113E-03	0.077
NA-24		1368.53	*	-7.113E-01	3.555E-02	Half-Life too short		
AL-26		1129.67		5.573E-02	1.553E+00	2.145E+00	1.868E-01	0.026
		1808.65	*	7.531E-03	1.974E-02	3.428E-02	2.804E-03	0.220
TI-44		67.85		-1.643E-02	3.800E-02	5.852E-02	4.467E-03	-0.281
	+	78.38	*	3.061E-01	4.580E-02	6.124E-02	5.193E-03	4.999
SC-46		889.25	*	-1.129E-02	2.937E-02	4.740E-02	5.306E-03	-0.238
	+	1120.51		1.915E-01	8.239E-02	9.366E-02	8.280E-03	2.044
V-48		944.10		-4.741E-01	8.350E-01	1.156E+00	1.254E-01	-0.410
		983.50	*	2.397E-02	5.380E-02	9.097E-02	9.541E-03	0.263
		1312.09		2.259E-02	5.701E-02	9.709E-02	8.554E-03	0.233
CR-51		320.08	*	-3.333E-02	3.011E-01	5.014E-01	6.493E-02	-0.066
MN-52		744.21		-5.261E-02	2.040E-01	3.031E-01	3.294E-02	-0.174
		848.13		-6.510E-01	5.047E+00	8.340E+00	9.286E-01	-0.078
	+	935.52		2.504E-01	2.756E-01	3.383E-01	3.694E-02	0.740
		1246.25		-1.970E+00	6.041E+00	9.828E+00	8.308E-01	-0.200
		1333.61		-2.226E+00	3.550E+00	5.508E+00	4.912E-01	-0.404
		1434.06	*	1.119E-02	1.679E-01	2.764E-01	2.470E-02	0.040
MN-54		834.83	*	6.080E-04	2.998E-02	5.009E-02	5.564E-03	0.012
CO-56		846.75	*	-2.773E-02	3.079E-02	4.816E-02	5.362E-03	-0.576
		977.42		3.949E-01	2.653E+00	3.775E+00	3.981E-01	0.105
		1037.82		7.271E-02	2.488E-01	4.144E-01	4.273E-02	0.175
		1175.09		-8.082E-01	1.722E+00	2.787E+00	2.244E-01	-0.290
		1238.25		9.532E-02	7.537E-02	1.314E-01	1.139E-02	0.725
		1360.21		1.975E-01	7.270E-01	1.225E+00	1.094E-01	0.161
		1771.40		8.957E-02	1.931E-01	2.932E-01	2.436E-02	0.306
CO-57		122.06	*	2.485E-03	2.272E-02	3.535E-02	2.915E-03	0.070
		136.48		1.258E-01	1.784E-01	3.072E-01	2.850E-02	0.409
CO-58		810.76	*	-1.567E-02	2.967E-02	4.794E-02	5.309E-03	-0.327
FE-59		142.65		3.454E+00	2.388E+00	4.047E+00	3.581E-01	0.853
		192.34		1.271E-01	8.570E-01	1.317E+00	1.956E-01	0.097
		1099.22	*	1.546E-02	6.938E-02	1.145E-01	1.122E-02	0.135
		1291.56		-5.968E-02	9.237E-02	1.447E-01	1.426E-02	-0.412
CO-60		1173.22		-3.664E-02	3.523E-02	5.473E-02	4.401E-03	-0.669
		1332.49	*	-1.942E-02	2.837E-02	4.375E-02	3.901E-03	-0.444
ZN-65		1115.52	*	3.981E-03	8.261E-02	1.144E-01	1.021E-02	0.035
GE-68		1077.35	*	7.388E-02	9.913E-01	1.622E+00	1.529E-01	0.046
AS-73		53.44	*	-2.092E-01	6.241E-01	1.021E+00	7.714E-02	-0.205
AS-74		595.88	*	2.772E-02	7.158E-02	1.210E-01	1.254E-02	0.229
		634.78		-4.428E-02	2.577E-01	4.201E-01	4.403E-02	-0.105
SE-75		66.05		-5.385E+00	4.230E+00	5.870E+00	5.600E-01	-0.917

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		96.73		-2.302E-01	6.910E-01	9.758E-01	1.343E-01	-0.236
		121.11		-2.725E-02	1.223E-01	1.880E-01	2.055E-02	-0.145
		136.00		1.210E-02	3.334E-02	5.696E-02	4.943E-03	0.212
		198.60		5.776E-01	1.629E+00	2.637E+00	3.082E-01	0.219
		264.65	*	-1.689E-03	4.381E-02	6.131E-02	8.251E-03	-0.028
		279.53		4.295E-02	9.584E-02	1.558E-01	2.212E-02	0.276
		303.91		-4.302E-01	1.948E+00	2.813E+00	4.286E-01	-0.153
		400.65		2.920E-02	1.970E-01	3.258E-01	3.813E-02	0.090
BR-77	+	87.88		5.618E+02	1.694E+02	2.532E+02	2.400E+01	2.218
		200.40		8.006E+01	1.322E+02	2.212E+02	2.433E+01	0.362
	+	239.00		2.364E+02	3.234E+01	2.890E+01	3.596E+00	8.180
		249.79		2.161E+01	5.228E+01	8.575E+01	1.103E+01	0.252
		281.68		-5.733E+01	7.496E+01	1.152E+02	1.605E+01	-0.498
		297.23		2.931E+02	8.641E+01	9.952E+01	1.338E+01	2.945
		303.76		-3.831E+01	1.540E+02	2.221E+02	2.937E+01	-0.173
		439.47		3.818E+01	1.135E+02	1.876E+02	1.806E+01	0.203
		484.57		1.300E+02	1.767E+02	2.955E+02	2.921E+01	0.440
		520.65	*	-4.976E+00	7.860E+00	1.244E+01	1.252E+00	-0.400
		574.64		9.763E+00	1.805E+02	2.701E+02	2.780E+01	0.036
		578.91		3.131E+01	7.856E+01	1.154E+02	1.190E+01	0.271
		585.48		1.691E+03	2.646E+02	3.919E+02	4.048E+01	4.315
		755.35		5.672E+01	1.187E+02	1.980E+02	2.159E+01	0.286
		817.79		-2.723E+01	9.013E+01	1.476E+02	1.635E+01	-0.184
SR-82		698.33		-1.063E+01	2.657E+01	4.235E+01	4.531E+00	-0.251
		776.49	*	-1.167E-01	3.160E-01	4.988E-01	5.470E-02	-0.234
		1395.20		1.489E+00	8.878E+00	1.477E+01	1.321E+00	0.101
RB-83		520.41	*	-3.539E-02	5.590E-02	8.848E-02	8.905E-03	-0.400
		529.64		-3.917E-02	8.128E-02	1.326E-01	1.340E-02	-0.295
		552.65		8.925E-02	1.485E-01	2.553E-01	2.605E-02	0.350
RB-84		881.50	*	-2.367E-02	5.221E-02	8.390E-02	9.385E-03	-0.282
KR-85		513.99	*	2.409E+01	7.468E+00	1.190E+01	1.195E+00	2.023
SR-85		513.99	*	1.232E-01	3.819E-02	6.087E-02	6.108E-03	2.023
RB-86		1076.63	*	-5.358E-02	6.132E-01	9.919E-01	9.360E-02	-0.054
Y-88		898.02		-2.360E-02	3.258E-02	5.126E-02	5.760E-03	-0.460
		1836.01	*	-1.261E-02	2.483E-02	3.783E-02	3.059E-03	-0.333
ZR-88		392.90	*	-2.570E-02	2.466E-02	3.828E-02	3.564E-03	-0.671
Y-91		1204.90	*	-1.045E+00	1.476E+01	2.446E+01	2.011E+00	-0.043
NB-94		702.63	*	7.102E-03	2.630E-02	4.359E-02	4.671E-03	0.163
		871.10		1.204E-03	2.596E-02	4.164E-02	4.651E-03	0.029
NB-95		765.79	*	1.289E-02	3.513E-02	5.800E-02	6.342E-03	0.222
NB-95M		235.69	*	1.376E-01	1.220E-01	1.807E-01	2.388E-02	0.761
ZR-95		724.18		4.245E-02	9.007E-02	1.301E-01	1.483E-02	0.326
		756.15	*	1.992E-02	5.535E-02	9.167E-02	1.064E-02	0.217
NB-97		657.90	*	1.629E-01	5.535E-02	Half-Life too short		
		1024.50		-1.015E+00	5.535E-02	Half-Life too short		
ZR-97		254.15		-2.241E+00	5.535E-02	Half-Life too short		
		355.39		1.460E+00	5.535E-02	Half-Life too short		
		507.63	*	3.357E+00	5.535E-02	Half-Life too short		
		602.52		2.695E-01	5.535E-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			5.862E+00	5.535E-02	Half-Life	too short	
	1147.95			-3.986E+00	5.535E-02	Half-Life	too short	
	1362.66			2.181E+00	5.535E-02	Half-Life	too short	
	1750.46			1.893E+00	5.535E-02	Half-Life	too short	
MO-99	140.51			-3.403E+01	2.370E+01	3.428E+01	9.510E+00	-0.993
	181.06			1.974E-01	1.461E+01	2.128E+01	4.074E+00	0.009
	366.43			-2.800E+01	6.516E+01	1.056E+02	1.120E+01	-0.265
	739.58	*		-1.549E+00	8.444E+00	1.355E+01	2.243E+00	-0.114
	778.00			-1.489E+01	2.745E+01	4.284E+01	4.700E+00	-0.348
TC-99M	140.51	*		-2.591E+10	2.745E+01	Half-Life	too short	
RH-101	127.23			-9.846E-03	2.911E-02	4.543E-02	3.798E-03	-0.217
	198.01	*		3.050E-03	2.967E-02	4.766E-02	5.199E-03	0.064
	325.23			5.185E-02	2.051E-01	3.023E-01	3.758E-02	0.172
RH-102	418.52			-1.016E-01	2.370E-01	3.790E-01	3.597E-02	-0.268
	475.06	*		5.463E-03	2.504E-02	4.023E-02	3.956E-03	0.136
	631.29			-2.409E-02	4.192E-02	6.664E-02	6.978E-03	-0.361
	697.49			-6.557E-02	6.084E-02	9.235E-02	9.878E-03	-0.710
	766.84			8.942E-02	9.057E-02	1.536E-01	1.680E-02	0.582
	1046.59			-7.943E-02	9.182E-02	1.402E-01	1.375E-02	-0.567
	1112.84			-8.880E-02	2.077E-01	2.734E-01	2.447E-02	-0.325
RU-103	497.08	*		7.239E-03	3.225E-02	5.255E-02	7.887E-03	0.138
	610.33	+		1.030E+01	2.324E+00	2.204E+00	3.895E-01	4.673
RH-106	511.85	+		3.563E-01	2.552E-01	3.399E-01	3.407E-02	1.048
	621.84	*		-6.946E-02	2.529E-01	4.108E-01	5.999E-02	-0.169
	1050.47			-2.564E-01	1.817E+00	2.936E+00	2.866E-01	-0.087
RU-106	511.85	+		3.563E-01	2.552E-01	3.399E-01	3.407E-02	1.048
	621.84	*		-6.946E-02	2.528E-01	4.108E-01	4.291E-02	-0.169
	1050.47			-2.564E-01	1.817E+00	2.936E+00	2.866E-01	-0.087
AG-108M	433.93	*		8.323E-03	2.816E-02	4.653E-02	4.607E-03	0.179
	614.37			6.386E-03	3.532E-02	5.088E-02	5.447E-03	0.126
	722.95			-4.710E-02	4.079E-02	5.099E-02	5.642E-03	-0.924
AG-110M	657.75	*		6.442E-02	3.379E-02	5.350E-02	5.750E-03	1.204
	677.61			7.945E-02	2.463E-01	4.108E-01	4.441E-02	0.193
	706.67			4.060E-02	1.634E-01	2.704E-01	2.954E-02	0.150
	763.93			-9.067E-02	1.393E-01	2.164E-01	2.408E-02	-0.419
	884.67			1.101E-02	3.643E-02	6.165E-02	7.030E-03	0.179
	937.48			-5.247E-03	1.062E-01	1.490E-01	1.661E-02	-0.035
	1384.27			-1.633E-01	1.452E-01	2.154E-01	1.976E-02	-0.758
IN-111	171.28			2.035E-02	8.003E-01	1.333E+00	1.330E-01	0.015
	245.39	*		-4.663E-01	9.566E-01	1.312E+00	1.664E-01	-0.355
IN-113M	391.69	*		-1.403E-02	3.595E-02	5.799E-02	5.538E-03	-0.242
SN-113	391.69	*		-1.403E-02	3.595E-02	5.799E-02	5.538E-03	-0.242
IN-114M	190.27	*		3.312E-02	1.740E-01	2.544E-01	2.705E-02	0.130
CD-115	260.90			7.852E+00	1.090E+02	1.759E+02	2.338E+01	0.045
	492.35			-3.262E+00	2.607E+01	4.169E+01	4.138E+00	-0.078
	527.90	*		-3.099E-01	7.905E+00	1.322E+01	1.335E+00	-0.023
SN-117M	156.02			6.320E-01	1.906E+00	3.223E+00	3.022E-01	0.196
	158.56	*		-2.361E-02	4.667E-02	7.676E-02	7.279E-03	-0.308
SB-122	563.90	*		-4.296E-01	1.492E+00	2.447E+00	2.508E-01	-0.176



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123	692.80			9.628E+00	3.228E+01	5.365E+01	5.728E+00	0.179
	159.00	*		-8.045E-01	3.228E+01	Half-Life too short		
	528.96			-1.196E+02	3.228E+01	Half-Life too short		
TE-123M	159.00	*		-5.498E-03	2.424E-02	4.024E-02	3.843E-03	-0.137
I-124	602.71	*		-1.983E-02	5.775E-01	8.203E-01	8.521E-02	-0.024
	722.78			-4.936E+00	4.074E+00	5.061E+00	5.461E-01	-0.975
	1325.50			1.533E+01	2.466E+01	4.267E+01	3.790E+00	0.359
SB-124	1376.25			5.942E+01	2.547E+01	4.736E+01	4.233E+00	1.255
	1509.49			1.348E+01	1.135E+01	2.049E+01	1.821E+00	0.658
	1691.02			1.064E+00	2.604E+00	4.529E+00	3.873E-01	0.235
	602.71			-1.199E-03	3.492E-02	4.961E-02	5.153E-03	-0.024
	645.85			1.192E-01	3.985E-01	6.629E-01	7.250E-02	0.180
	709.31			-1.162E+00	2.205E+00	3.478E+00	3.736E-01	-0.334
	713.82			-9.583E-02	1.348E+00	2.187E+00	2.986E-01	-0.044
	722.78			-4.327E-01	3.572E-01	4.436E-01	4.854E-02	-0.975
	+	968.20		1.786E+01	3.623E+00	6.029E+00	6.410E-01	2.962
	1045.16			-1.166E+00	1.975E+00	3.086E+00	3.032E-01	-0.378
	1325.50			1.436E+00	2.309E+00	3.995E+00	3.548E-01	0.359
	1368.21			-1.569E+00	1.331E+00	1.907E+00	2.609E-01	-0.823
SB-125	1436.60			-1.096E+00	2.720E+00	4.255E+00	3.802E-01	-0.258
	1691.02	*		2.199E-02	5.385E-02	9.365E-02	8.330E-03	0.235
	427.89	*		-3.228E-03	7.810E-02	1.272E-01	1.234E-02	-0.025
	+	463.38		5.431E-01	3.651E-01	4.365E-01	4.526E-02	1.244
	600.56			4.404E-02	1.447E-01	2.328E-01	2.541E-02	0.189
TE-125M	635.90			-4.080E-02	2.018E-01	3.283E-01	3.632E-02	-0.124
	109.28	*		-7.274E-01	8.156E+00	1.271E+01	1.287E+00	-0.057
	388.63			6.328E-02	1.708E-01	2.856E-01	2.704E-02	0.222
I-126	666.33	*		1.204E-01	1.574E-01	2.351E-01	2.484E-02	0.512
	753.82			-1.226E-01	1.148E+00	1.849E+00	2.015E-01	-0.066
	223.80			4.492E-02	3.491E+00	5.693E+00	6.754E-01	0.008
	278.60			2.520E+00	2.149E+00	3.556E+00	4.971E-01	0.709
	+	296.50		1.230E+01	2.389E+00	2.964E+00	3.993E-01	4.149
	414.70			-1.294E-03	6.125E-02	1.001E-01	9.479E-03	-0.013
	415.30			1.070E+00	5.026E+00	8.307E+00	7.865E-01	0.129
	555.20			1.236E+00	3.035E+00	5.167E+00	5.278E-01	0.239
	573.80			2.531E-02	9.132E-01	1.411E+00	1.452E-01	0.018
	593.00			-3.264E-01	7.750E-01	1.194E+00	1.236E-01	-0.273
	656.30			4.953E-01	2.950E+00	4.219E+00	4.445E-01	0.117
	666.33			5.027E-02	6.573E-02	9.819E-02	1.037E-02	0.512
SB-126	675.00			7.902E-01	1.581E+00	2.660E+00	2.821E-01	0.297
	695.00			-1.819E-02	6.051E-02	9.710E-02	1.038E-02	-0.187
	697.00			-1.875E-01	2.084E-01	3.207E-01	3.430E-02	-0.585
	720.50	*		-4.422E-02	1.379E-01	1.869E-01	2.016E-02	-0.237
	856.80			8.900E-02	4.060E-01	5.898E-01	6.576E-02	0.151
	989.30			6.845E-04	9.235E-01	1.516E+00	1.581E-01	0.000
	1034.80			-1.230E+00	6.961E+00	1.124E+01	1.117E+00	-0.109
	1213.00			1.091E+00	3.720E+00	6.289E+00	5.200E-01	0.174
	61.10			2.344E+01	4.326E+01	6.580E+01	6.584E+00	0.356
	252.40			-2.044E+00	3.686E+00	5.638E+00	2.431E+00	-0.363

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-7.131E+00	1.966E+01	2.829E+01	4.337E+00	-0.252
	411.60			-4.738E-01	9.720E+00	1.588E+01	2.563E+00	-0.030
	444.90			-7.006E+00	7.912E+00	1.219E+01	1.610E+00	-0.575
	473.00			1.700E-01	1.334E+00	2.171E+00	2.961E-01	0.078
	543.00			-1.426E+00	1.183E+01	1.964E+01	3.008E+00	-0.073
	603.60			-1.768E+00	9.954E+00	1.398E+01	1.918E+00	-0.127
	685.20	*		2.518E-01	1.079E+00	1.788E+00	2.310E-01	0.141
	698.50			-4.010E+00	1.142E+01	1.824E+01	3.099E+00	-0.220
	722.20			-3.930E+01	2.814E+01	3.399E+01	4.366E+00	-1.156
	783.80			2.531E+00	2.907E+00	4.898E+00	6.908E-01	0.517
XE-127	57.60			9.655E-01	4.422E+00	7.419E+00	5.329E-01	0.130
	145.22			2.773E-02	6.105E-01	1.001E+00	8.948E-02	0.028
	172.10			4.768E-03	1.014E-01	1.689E-01	1.690E-02	0.028
	202.84	*		-1.229E-02	4.176E-02	6.549E-02	7.259E-03	-0.188
	374.96			-4.379E-02	1.590E-01	2.590E-01	2.637E-02	-0.169
I-131	80.18			-2.049E+00	3.939E+00	5.615E+00	4.887E-01	-0.365
	284.30			1.768E-01	1.294E+00	2.078E+00	2.937E-01	0.085
	364.48	*		-6.772E-03	9.399E-02	1.551E-01	1.718E-02	-0.044
	636.97			-1.677E-01	1.088E+00	1.776E+00	1.933E-01	-0.094
	722.89			-7.888E+00	6.713E+00	8.375E+00	9.074E-01	-0.942
TE-132	49.72			2.066E+00	1.321E+01	2.230E+01	2.298E+00	0.093
	111.76			-3.107E+00	2.460E+01	3.908E+01	4.126E+00	-0.080
	116.30			9.674E+00	2.232E+01	3.604E+01	3.788E+00	0.268
	228.16	*		7.692E-02	5.608E-01	9.169E-01	1.630E-01	0.084
BA-133	53.15			-4.580E-01	2.675E+00	4.402E+00	3.340E-01	-0.104
	79.62			2.137E-01	1.117E+00	1.641E+00	2.497E-01	0.130
	81.00			-1.369E-01	9.160E-02	1.216E-01	1.938E-02	-1.126
	276.40			3.642E-01	3.639E-01	5.290E-01	9.571E-02	0.688
	302.84			5.654E-03	1.354E-01	1.986E-01	3.312E-02	0.028
	356.01	*		-3.028E-02	3.964E-02	5.377E-02	8.035E-03	-0.563
	383.85			3.153E-02	2.626E-01	4.349E-01	5.820E-02	0.072
I-133	510.53	+		5.910E-01	2.626E-01	Half-Life	too short	
	529.87	*		-2.096E-03	2.626E-01	Half-Life	too short	
	706.58			6.536E-02	2.626E-01	Half-Life	too short	
	856.28			-3.946E-02	2.626E-01	Half-Life	too short	
	875.33			1.310E-02	2.626E-01	Half-Life	too short	
	1236.41			6.125E-01	2.626E-01	Half-Life	too short	
	1298.22			1.072E-02	2.626E-01	Half-Life	too short	
CS-134	475.35			5.745E-01	1.618E+00	2.617E+00	2.574E-01	0.220
	563.23			-4.006E-02	2.735E-01	4.521E-01	4.664E-02	-0.089
	569.32			2.409E-02	1.569E-01	2.631E-01	2.728E-02	0.092
	604.70			4.186E-03	3.039E-02	4.371E-02	4.551E-03	0.096
	795.84	*		1.102E-01	5.936E-02	7.064E-02	7.819E-03	1.560
	801.93			-4.781E-01	3.850E-01	4.679E-01	5.181E-02	-1.022
	1038.57			1.341E-01	3.111E+00	5.098E+00	5.048E-01	0.026
	1167.94			1.258E-01	1.870E+00	3.136E+00	2.548E-01	0.040
	1365.15			7.561E-01	8.524E-01	1.516E+00	1.412E-01	0.499
CS-135	268.24	*		2.422E-01	1.587E-01	2.355E-01	3.407E-02	1.028
I-135	288.45			3.848E+09	1.587E-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		2.359E+09	1.587E-01	Half-Life too short		
		546.56		3.755E+09	1.587E-01	Half-Life too short		
		836.80		1.102E+10	1.587E-01	Half-Life too short		
		1038.76		6.705E+08	1.587E-01	Half-Life too short		
		1124.00		6.184E+10	1.587E-01	Half-Life too short		
		1131.51		-2.298E+09	1.587E-01	Half-Life too short		
		1260.41	*	-1.214E+09	1.587E-01	Half-Life too short		
		1457.56		4.681E+11	1.587E-01	Half-Life too short		
		1678.03		-4.956E+09	1.587E-01	Half-Life too short		
		1706.46		1.561E+09	1.587E-01	Half-Life too short		
		1791.20		-3.286E+09	1.587E-01	Half-Life too short		
CS-136		66.91		-1.939E-01	6.533E-01	9.502E-01	1.413E-01	-0.204
	+	86.29		3.547E+00	1.122E+00	1.611E+00	2.145E-01	2.201
		153.22		2.989E-01	5.525E-01	9.404E-01	9.602E-02	0.318
		163.89		-4.712E-01	9.150E-01	1.465E+00	1.560E-01	-0.322
		176.55		-1.303E-01	3.003E-01	4.906E-01	5.192E-02	-0.266
		273.65		-4.523E-01	4.531E-01	5.904E-01	8.352E-02	-0.766
		340.57		5.889E-01	1.459E-01	2.247E-01	2.692E-02	2.620
		818.51		-3.539E-02	5.386E-02	8.593E-02	9.521E-03	-0.412
		1048.07	*	-7.469E-02	8.445E-02	1.286E-01	1.300E-02	-0.581
		1235.34		6.243E-01	4.648E-01	8.171E-01	9.547E-02	0.764
CE-139		165.85	*	-2.500E-02	2.489E-02	3.992E-02	3.915E-03	-0.626
BA-140		162.64		4.085E-01	6.404E-01	1.064E+00	1.076E-01	0.384
		304.84		4.166E-01	1.163E+00	1.726E+00	5.134E-01	0.241
		423.70		-4.286E-01	1.561E+00	2.505E+00	8.183E-01	-0.171
		537.32	*	3.723E-02	1.974E-01	3.328E-01	1.117E-01	0.112
LA-140	+	328.77		6.274E-01	3.721E-01	4.382E-01	5.535E-02	1.432
		432.53		-1.151E+00	1.775E+00	2.797E+00	2.786E-01	-0.412
		487.03		-2.820E-02	1.123E-01	1.786E-01	1.851E-02	-0.158
		751.79		-8.634E-01	1.361E+00	2.112E+00	2.458E-01	-0.409
		815.85		7.491E-03	2.285E-01	3.829E-01	4.540E-02	0.020
		867.82		1.895E-01	1.150E+00	1.662E+00	1.915E-01	0.114
		919.63		1.597E+00	2.392E+00	3.699E+00	4.694E-01	0.432
		925.24		4.666E-01	8.398E-01	1.437E+00	1.642E-01	0.325
		1596.49	*	-9.941E-02	7.269E-02	1.048E-01	9.183E-03	-0.949
CE-141		145.44	*	-5.118E-05	5.351E-02	9.008E-02	8.200E-03	-0.001
CE-143		57.37		1.641E-04	5.351E-02	Half-Life too short		
		231.56		-1.097E-03	5.351E-02	Half-Life too short		
		293.26	*	6.653E-04	5.351E-02	Half-Life too short		
	+	350.59		2.606E-02	5.351E-02	Half-Life too short		
		490.36		-8.360E-04	5.351E-02	Half-Life too short		
		664.57		7.904E-03	5.351E-02	Half-Life too short		
		721.93		-1.667E-03	5.351E-02	Half-Life too short		
CE-144		80.11		-9.432E-01	1.853E+00	2.643E+00	2.285E-01	-0.357
		133.54	*	-1.152E-01	1.740E-01	2.873E-01	4.459E-02	-0.401
PM-144		476.78		-8.854E-03	5.774E-02	9.093E-02	9.599E-03	-0.097
		618.01		2.786E-03	2.657E-02	4.096E-02	4.355E-03	0.068
		696.49	*	-1.539E-02	2.705E-02	4.264E-02	4.560E-03	-0.361
		778.57		-3.938E-01	1.932E+00	3.082E+00	3.383E-01	-0.128

---- 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		*	-1.043E+00	1.833E+00	2.889E+00	3.089E-01	-0.361
	1489.15			-7.438E+00	8.580E+00	1.248E+01	1.112E+00	-0.596
PM-146	453.90		*	-1.032E-02	3.628E-02	5.801E-02	6.741E-03	-0.178
	633.02			-2.014E-01	1.024E+00	1.662E+00	6.290E-01	-0.121
	735.90			3.861E-02	1.140E-01	1.885E-01	5.531E-02	0.205
	747.13			8.323E-02	7.248E-02	1.241E-01	1.927E-02	0.671
ND-147	91.11		+	6.773E-01	2.597E-01	4.436E-01	4.383E-02	1.527
	319.41			-1.473E+00	2.674E+00	4.363E+00	5.522E-01	-0.338
	439.89			-6.124E-01	4.953E+00	8.014E+00	7.717E-01	-0.076
	531.02		*	-2.137E-01	4.299E-01	6.991E-01	1.109E-01	-0.306
PM-149	285.90		*	3.069E+01	7.523E+01	1.218E+02	2.305E+01	0.252
EU-152	121.78			1.077E-02	6.558E-02	1.022E-01	9.813E-03	0.105
	244.69			1.622E-01	3.162E-01	4.587E-01	5.808E-02	0.354
	344.27		*	-8.897E-02	8.571E-02	1.264E-01	1.519E-02	-0.704
	443.98			-7.283E-01	8.214E-01	1.271E+00	1.227E-01	-0.573
	778.89			-2.644E-03	2.223E-01	3.590E-01	3.939E-02	-0.007
	867.32			1.272E-01	6.957E-01	1.008E+00	1.125E-01	0.126
	964.01		+	7.533E-01	3.885E-01	4.715E-01	5.032E-02	1.598
	1085.78			-1.714E-01	3.338E-01	5.235E-01	4.878E-02	-0.327
	1112.02			-3.251E-02	2.849E-01	3.880E-01	3.477E-02	-0.084
	1407.95			8.246E-02	1.665E-01	2.688E-01	2.403E-02	0.307
GD-153	69.67			5.465E-01	1.412E+00	2.112E+00	1.640E-01	0.259
	83.37			1.205E+00	1.482E+01	1.956E+01	1.755E+00	0.062
	97.43		*	5.680E-02	7.030E-02	1.046E-01	9.194E-03	0.543
	103.18			-3.623E-02	8.695E-02	1.373E-01	1.173E-02	-0.264
EU-154	123.07			3.301E-02	4.503E-02	7.307E-02	8.105E-03	0.452
	247.94			1.079E-01	3.316E-01	5.025E-01	7.468E-02	0.215
	591.81			1.787E-02	5.749E-01	8.225E-01	1.069E-01	0.022
	723.30			-1.551E-01	1.711E-01	2.200E-01	2.537E-02	-0.705
	756.87			3.944E-01	6.047E-01	1.016E+00	1.394E-01	0.388
	873.19			1.119E-01	2.188E-01	3.750E-01	5.310E-02	0.298
	996.32			-2.375E-01	2.901E-01	4.432E-01	8.275E-02	-0.536
	1004.76			-2.623E-02	1.775E-01	2.882E-01	3.721E-02	-0.091
	1274.45		*	1.398E-02	9.939E-02	1.660E-01	1.876E-02	0.084
EU-155	48.70			-7.398E-01	1.767E+00	2.926E+00	2.383E-01	-0.253
	60.01			7.822E-01	3.910E+00	5.877E+00	4.173E-01	0.133
	86.54		+	3.318E-01	1.001E-01	1.522E-01	1.431E-02	2.181
	105.31		*	9.245E-02	9.246E-02	1.505E-01	1.292E-02	0.614
TB-160	86.79		+	8.841E-01	2.667E-01	4.033E-01	3.771E-02	2.193
	197.04			-3.282E-01	5.064E-01	7.910E-01	8.601E-02	-0.415
	215.65			8.217E-03	6.890E-01	1.042E+00	1.205E-01	0.008
	298.57			9.936E-02	1.653E-01	1.723E-01	2.309E-02	0.577
	879.36		*	-8.090E-03	1.040E-01	1.718E-01	1.921E-02	-0.047
	962.29			1.394E+00	4.875E-01	8.125E-01	8.683E-02	1.716
	966.15			1.516E+00	2.685E-01	4.468E-01	4.759E-02	3.393
	1177.93			2.463E-01	2.767E-01	4.852E-01	3.915E-02	0.508
	1271.85			-1.626E-01	5.721E-01	9.284E-01	7.979E-02	-0.175
HO-166M	80.57			-9.736E-02	2.379E-01	3.408E-01	2.961E-02	-0.286
	184.41		+	1.739E-01	6.014E-02	5.903E-02	6.155E-03	2.946

---- 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		-3.501E-02	7.621E-02	1.193E-01	1.666E-02	-0.293
		410.95		1.293E-01	2.039E-01	3.430E-01	3.238E-02	0.377
		711.68	*	-3.523E-02	4.962E-02	7.726E-02	8.306E-03	-0.456
		752.31		-1.176E-01	2.203E-01	3.446E-01	3.754E-02	-0.341
		810.29		-2.073E-02	4.460E-02	7.238E-02	8.002E-03	-0.286
		51.35		-4.076E-01	2.204E+01	3.692E+01	2.880E+00	-0.011
		52.39		-7.823E+00	1.158E+01	1.868E+01	1.434E+00	-0.419
		59.40		1.630E+00	2.135E+01	3.194E+01	2.257E+00	0.051
		66.72	*	-7.032E+00	2.406E+01	3.503E+01	2.647E+00	-0.201
		88.36		6.534E-01	1.971E-01	2.966E-01	2.805E-02	2.203
LU-176	+	201.83		-2.134E-02	2.528E-02	4.018E-02	4.439E-03	-0.531
		306.84	*	5.438E-03	2.105E-02	3.479E-02	4.564E-03	0.156
		401.10		1.808E+00	5.146E+00	8.590E+00	8.049E-01	0.211
LU-177		112.95		-2.799E-01	1.369E+00	2.166E+00	1.800E-01	-0.129
	+	208.36	*	2.505E+00	1.431E+00	1.652E+00	1.865E-01	1.516
LU-177M		52.97		-8.446E-01	1.222E+00	1.972E+00	1.500E-01	-0.428
		54.07		-9.730E-02	6.320E-01	1.040E+00	7.787E-02	-0.094
		61.30		9.006E-01	1.177E+00	1.806E+00	1.299E-01	0.499
		121.62		5.167E-02	3.358E-01	5.233E-01	4.311E-02	0.099
		147.16		-6.661E-01	5.556E-01	8.948E-01	8.068E-02	-0.744
		171.86		5.731E-03	4.097E-01	6.817E-01	6.818E-02	0.008
		218.09		-2.580E-01	7.410E-01	1.194E+00	1.391E-01	-0.216
		268.79		1.622E+00	8.254E-01	1.235E+00	1.679E-01	1.313
		319.02		-1.606E-01	2.117E-01	3.414E-01	4.327E-02	-0.470
		367.43		-1.723E-01	7.448E-01	1.218E+00	1.286E-01	-0.141
HF-181		413.65	*	-8.109E-02	1.467E-01	2.334E-01	2.208E-02	-0.347
		56.28		-4.201E-02	6.994E-01	1.164E+00	8.480E-02	-0.036
		57.53		9.362E-02	3.716E-01	6.241E-01	4.486E-02	0.150
		65.20		-6.745E-02	8.162E-01	1.201E+00	8.954E-02	-0.056
		133.02		-9.534E-02	5.776E-02	9.067E-02	7.728E-03	-1.052
		136.25		1.793E-01	3.893E-01	6.667E-01	5.751E-02	0.269
		345.85		-4.577E-02	1.721E-01	2.562E-01	2.963E-02	-0.179
		482.03	*	1.878E-03	3.579E-02	5.794E-02	5.720E-03	0.032
		56.28		-1.620E-02	2.745E-01	4.570E-01	3.329E-02	-0.035
		57.53		3.676E-02	1.460E-01	2.452E-01	1.762E-02	0.150
W-181		65.20	*	-2.628E-02	3.181E-01	4.681E-01	3.489E-02	-0.056
		67.75		-4.229E-02	9.050E-02	1.392E-01	1.061E-02	-0.304
		100.10		-2.249E-02	1.469E-01	2.349E-01	2.035E-02	-0.096
TA-182		152.43		8.311E-02	2.848E-01	4.819E-01	4.447E-02	0.172
		222.10		2.659E-02	3.021E-01	4.941E-01	5.831E-02	0.054
		1001.68		1.257E+00	1.737E+00	2.847E+00	2.934E-01	0.441
	+	1121.28		5.291E-01	2.277E-01	2.583E-01	2.281E-02	2.048
		1189.05		9.409E-02	2.262E-01	3.866E-01	3.144E-02	0.243
		1221.42	*	4.091E-02	1.532E-01	2.585E-01	2.150E-02	0.158
		1230.97		-7.649E-01	3.883E-01	5.603E-01	4.689E-02	-1.365
		57.98		1.626E-02	1.453E-01	2.428E-01	1.737E-02	0.067
		59.32		5.158E-03	8.759E-02	1.309E-01	9.260E-03	0.039
		67.20		-1.111E-01	1.719E-01	2.464E-01	1.870E-02	-0.451
RE-183		162.32	*	3.803E-02	9.541E-02	1.576E-01	1.521E-02	0.241

----- 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		2.306E+00	1.318E+00	1.528E+00	1.728E-01	1.509
		291.72		-8.429E-02	8.936E-01	1.306E+00	1.780E-01	-0.065
		57.98		6.000E-02	5.361E-01	8.959E-01	6.411E-02	0.067
		59.32		1.902E-02	3.230E-01	4.827E-01	3.414E-02	0.039
		67.20		-4.100E-01	6.343E-01	9.090E-01	6.898E-02	-0.451
		161.27		1.865E-01	3.012E-01	5.122E-01	4.918E-02	0.364
		216.55		2.751E-02	2.241E-01	3.678E-01	4.263E-02	0.075
		252.85	*	-1.551E-01	2.035E-01	3.164E-01	4.106E-02	-0.490
		318.01		-2.439E-01	3.659E-01	5.934E-01	7.542E-02	-0.411
		792.07		5.433E-01	9.836E-01	1.417E+00	1.560E-01	0.384
OS-185		903.28		5.501E-01	8.938E-01	1.335E+00	1.491E-01	0.412
		920.93		-2.142E-01	3.873E-01	5.741E-01	6.335E-02	-0.373
		59.72		5.504E-02	2.330E-01	3.508E-01	2.484E-02	0.157
		61.14		6.956E-02	1.285E-01	1.956E-01	1.405E-02	0.356
		69.30		3.102E-01	2.445E-01	3.774E-01	2.919E-02	0.822
		592.07		-5.344E-01	2.274E+00	3.323E+00	3.439E-01	-0.161
		646.12	*	8.289E-03	3.406E-02	5.648E-02	5.936E-03	0.147
		717.42		5.482E-01	7.968E-01	1.272E+00	1.370E-01	0.431
		874.81		7.048E-02	4.336E-01	7.280E-01	8.136E-02	0.097
		880.27		-2.502E-01	5.772E-01	9.290E-01	1.039E-01	-0.269
RE-188		155.03	*	2.574E-02	1.454E-01	2.450E-01	2.286E-02	0.105
		477.96		-1.633E+00	2.621E+00	4.087E+00	4.026E-01	-0.400
		633.10		-7.870E-01	2.082E+00	3.350E+00	3.510E-01	-0.235
W-188	+	63.58		1.043E+02	5.866E+01	7.547E+01	5.545E+00	1.382
		227.08		1.663E+00	1.088E+01	1.782E+01	2.136E+00	0.093
IR-192		290.67	*	-2.515E+00	7.112E+00	1.025E+01	1.399E+00	-0.245
	+	295.96		9.532E-01	1.854E-01	2.310E-01	3.125E-02	4.127
		308.46		7.291E-03	7.888E-02	1.328E-01	1.739E-02	0.055
		316.51	*	-1.357E-03	2.786E-02	4.656E-02	5.951E-03	-0.029
		468.07		-3.873E-02	6.477E-02	8.621E-02	8.918E-03	-0.449
AU-195		604.41		-6.377E-02	4.103E-01	5.771E-01	8.226E-02	-0.111
		612.46		5.268E+00	1.031E+00	1.562E+00	1.796E-01	3.373
		65.12		1.312E-02	1.471E-01	2.181E-01	1.624E-02	0.060
		66.83		-2.344E-02	7.945E-02	1.157E-01	8.748E-03	-0.203
	+	75.70		1.354E+00	2.279E-01	3.689E-01	3.039E-02	3.670
TL-200		98.88	*	4.604E-01	1.934E-01	3.179E-01	2.772E-02	1.448
		129.76		4.885E+00	2.448E+00	4.324E+00	3.644E-01	1.130
		367.94	*	-1.233E-04	2.448E+00	Half-Life	too short	
		579.30		2.582E-03	2.448E+00	Half-Life	too short	
		828.27		-6.713E-04	2.448E+00	Half-Life	too short	
TL-201		1205.75		-8.281E-04	2.448E+00	Half-Life	too short	
		68.90		6.274E-01	3.830E+00	5.686E+00	4.382E-01	0.110
		70.82		-1.293E+00	2.199E+00	3.157E+00	2.477E-01	-0.410
		80.30		-2.016E+00	4.141E+00	5.912E+00	5.121E-01	-0.341
TL-202		135.34		1.409E+01	2.018E+01	3.479E+01	2.990E+00	0.405
		167.43	*	7.062E-01	5.519E+00	9.235E+00	9.102E-01	0.076
		68.90		5.897E-02	3.600E-01	5.344E-01	4.118E-02	0.110
		70.82		-1.212E-01	2.061E-01	2.959E-01	2.321E-02	-0.410
		80.30		-1.890E-01	3.883E-01	5.543E-01	4.802E-02	-0.341

---- 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	*		1.419E-03	5.896E-02	9.610E-02	9.251E-03	0.015
	70.83			-5.275E-01	9.046E-01	1.296E+00	1.702E-01	-0.407
	72.87			9.425E-01	5.014E-01	8.300E-01	1.063E-01	1.136
	82.60			1.136E-01	1.235E+00	1.421E+00	1.978E-01	0.080
BI-207	279.20	*		2.171E-02	3.601E-02	5.883E-02	8.327E-03	0.369
	72.80			2.325E-01	1.434E-01	2.406E-01	1.925E-02	0.966
	74.97		+	7.517E-01	1.265E-01	1.829E-01	1.495E-02	4.110
	84.90			1.882E-01	1.712E-01	2.547E-01	2.328E-02	0.739
	569.67			6.175E-03	2.414E-02	4.070E-02	4.180E-03	0.152
	1063.62	*		2.003E-02	4.521E-02	7.568E-02	7.265E-03	0.265
TL-207	1770.23			1.022E+00	4.875E-01	8.698E-01	7.230E-02	1.176
	81.07			-3.105E-01	1.980E-01	2.674E-01	2.337E-02	-1.161
	83.78			2.634E-02	1.158E-01	1.675E-01	1.511E-02	0.157
	94.90			5.088E-01	2.120E-01	3.289E-01	2.940E-02	1.547
	122.32			2.882E-01	1.576E+00	2.459E+00	2.188E-01	0.117
	144.24			4.420E-01	6.005E-01	1.002E+00	9.921E-02	0.441
	154.21			-3.012E-02	3.381E-01	5.653E-01	5.710E-02	-0.053
	269.46		+	5.156E-01	2.617E-01	2.948E-01	4.048E-02	1.749
	323.87	*		2.176E-01	6.058E-01	8.971E-01	1.783E-01	0.243
	338.28		+	6.267E+00	1.511E+00	2.013E+00	2.977E-01	3.114
PO-209	445.03			-1.698E+00	1.930E+00	2.977E+00	3.826E-01	-0.570
	260.50			-8.855E-01	8.719E+00	1.397E+01	1.855E+00	-0.063
	262.80			2.360E+00	2.378E+01	3.839E+01	5.130E+00	0.061
	896.60	*		3.854E-01	5.767E+00	9.600E+00	1.075E+00	0.040
BI-210	46.50	*		1.481E+00	2.651E+00	4.412E+00	4.099E-01	0.336
PB-210	46.50	*		1.481E+00	2.651E+00	4.412E+00	4.099E-01	0.336
PO-210	46.50	*		1.481E+00	2.651E+00	4.412E+00	3.710E-01	0.336
PB-211	404.84	*		-7.306E-01	8.872E-01	1.188E+00	7.457E-01	-0.615
	427.08			5.563E-01	1.757E+00	2.856E+00	1.779E+00	0.195
	831.96			-3.747E-01	9.789E-01	1.549E+00	9.766E-01	-0.242
BI-212	727.18	*	+	8.901E-01	3.606E-01	4.953E-01	5.916E-02	1.797
	785.46			6.926E-01	1.597E+00	2.454E+00	2.698E-01	0.282
	1620.62			5.058E-01	9.853E-01	1.720E+00	1.499E-01	0.294
PO-215	81.07			-3.105E-01	1.980E-01	2.674E-01	2.337E-02	-1.161
	83.78			2.634E-02	1.158E-01	1.675E-01	1.511E-02	0.157
	94.90			5.088E-01	2.120E-01	3.289E-01	2.940E-02	1.547
	122.32			2.882E-01	1.576E+00	2.459E+00	2.188E-01	0.117
	144.24			4.420E-01	6.005E-01	1.002E+00	9.921E-02	0.441
	154.21			-3.012E-02	3.381E-01	5.653E-01	5.710E-02	-0.053
	269.46		+	5.156E-01	2.617E-01	2.948E-01	4.048E-02	1.749
	323.87	*		2.176E-01	6.058E-01	8.971E-01	1.783E-01	0.243
	338.28		+	6.267E+00	1.511E+00	2.013E+00	2.977E-01	3.114
	445.03			-1.698E+00	1.930E+00	2.977E+00	3.826E-01	-0.570
RN-219	271.23		+	6.615E-01	3.376E-01	3.797E-01	5.625E-02	1.742
	401.81	*		3.207E-02	3.171E-01	5.229E-01	8.090E-02	0.061
RN-220	549.76	*		-3.246E+01	2.031E+01	3.045E+01	3.104E+00	-1.066
RA-223	81.07			-3.105E-01	1.980E-01	2.674E-01	2.337E-02	-1.161
	83.78			2.634E-02	1.158E-01	1.675E-01	1.511E-02	0.157
	94.90			5.088E-01	2.120E-01	3.289E-01	2.940E-02	1.547

## ---- 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		2.882E-01	1.576E+00	2.459E+00	2.188E-01	0.117
		144.24		4.420E-01	6.005E-01	1.002E+00	9.921E-02	0.441
		154.21		-3.012E-02	3.381E-01	5.653E-01	5.710E-02	-0.053
	+	269.46		5.156E-01	2.617E-01	2.948E-01	4.048E-02	1.749
		323.87	*	2.176E-01	6.058E-01	8.971E-01	1.783E-01	0.243
	+	338.28		6.267E+00	1.511E+00	2.013E+00	2.977E-01	3.114
		445.03		-1.698E+00	1.930E+00	2.977E+00	3.826E-01	-0.570
		79.80		6.357E-02	1.410E+00	2.061E+00	4.431E-01	0.031
		236.00		9.335E-01	2.785E-01	3.973E-01	5.994E-02	2.350
		256.20	*	3.035E-01	3.406E-01	5.610E-01	1.024E-01	0.541
		286.10		3.235E-01	1.376E+00	2.217E+00	3.779E-01	0.146
	+	299.80		2.230E+00	1.607E+00	2.191E+00	4.438E-01	1.018
		304.40		-1.543E-01	1.744E+00	2.538E+00	5.323E-01	-0.061
		334.20		2.485E+00	2.961E+00	3.129E+00	6.623E-01	0.794
TH-227		79.80		6.357E-02	1.410E+00	2.061E+00	4.488E-01	0.031
	+	94.00		1.412E+01	4.022E+00	3.374E+00	7.400E-01	4.183
		236.00		9.335E-01	2.742E-01	3.973E-01	5.624E-02	2.350
		256.20	*	3.035E-01	3.418E-01	5.610E-01	1.155E-01	0.541
		286.10		3.235E-01	1.413E+00	2.217E+00	2.238E+00	0.146
	+	299.80		2.230E+00	1.607E+00	2.191E+00	4.438E-01	1.018
TH-229		304.40		-1.543E-01	1.744E+00	2.538E+00	5.323E-01	-0.061
		334.20		2.485E+00	2.961E+00	3.129E+00	6.623E-01	0.794
		85.43		2.062E-01	1.737E-01	2.587E-01	2.380E-02	0.797
	+	88.47		3.762E-01	1.134E-01	1.705E-01	1.610E-02	2.206
		100.00		8.897E-03	1.524E-01	2.456E-01	2.130E-02	0.036
		193.63	*	1.309E-01	4.298E-01	7.155E-01	7.693E-02	0.183
PA-231		210.97		1.348E+00	7.686E-01	1.168E+00	1.330E-01	1.154
		283.67	*	-1.699E-01	1.359E+00	2.159E+00	4.032E-01	-0.079
	+	301.29		8.921E-01	6.330E-01	8.682E-01	1.380E-01	1.028
TH-231		81.07		-3.105E-01	1.980E-01	2.674E-01	2.337E-02	-1.161
		83.78		2.634E-02	1.158E-01	1.675E-01	1.511E-02	0.157
		94.90		5.088E-01	2.120E-01	3.289E-01	2.940E-02	1.547
U-231		122.32		2.882E-01	1.576E+00	2.459E+00	2.188E-01	0.117
		144.24		4.420E-01	6.005E-01	1.002E+00	9.921E-02	0.441
		154.21		-3.012E-02	3.381E-01	5.653E-01	5.710E-02	-0.053
	+	269.46		5.156E-01	2.617E-01	2.948E-01	4.048E-02	1.749
		323.87	*	2.176E-01	6.058E-01	8.971E-01	1.783E-01	0.243
	+	338.28		6.267E+00	1.511E+00	2.013E+00	2.977E-01	3.114
		445.03		-1.698E+00	1.930E+00	2.977E+00	3.826E-01	-0.570
		84.21		5.416E+00	4.659E+00	6.948E+00	6.298E-01	0.779
	+	92.29		1.336E+01	2.711E+00	3.513E+00	3.203E-01	3.803
		95.87	*	-9.103E-01	9.251E-01	1.262E+00	1.121E-01	-0.721
PA-233		108.00		-1.599E+00	1.715E+00	2.643E+00	2.222E-01	-0.605
	+	75.28		2.194E+01	4.626E+00	5.556E+00	8.398E-01	3.949
	+	86.59		5.393E+00	2.127E+00	2.475E+00	6.697E-01	2.179
	+	300.12		6.218E-01	4.443E-01	6.078E-01	1.096E-01	1.023
		311.98	*	-8.542E-03	5.311E-02	8.844E-02	1.159E-02	-0.097
		340.50		3.050E+00	9.949E-01	1.120E+00	2.819E-01	2.723
		398.62		-4.408E-01	1.661E+00	2.600E+00	6.988E-01	-0.170



## ---- 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		1.325E-01	1.349E+00	2.217E+00	4.857E-01	0.060
		63.00		3.033E+00	1.750E+00	2.255E+00	3.340E-01	1.345
		94.67		5.439E-01	1.675E-01	2.513E-01	3.176E-02	2.164
		98.44		2.244E-01	1.487E-01	1.300E-01	7.257E-02	1.726
		99.86		7.939E-02	3.877E-01	6.281E-01	5.450E-02	0.126
		111.00		4.790E-02	1.629E-01	2.569E-01	3.056E-02	0.186
		131.20		-7.945E-02	9.273E-02	1.507E-01	1.276E-02	-0.527
		152.70		1.112E-01	2.763E-01	4.681E-01	8.129E-02	0.238
		186.00		6.260E+00	2.866E+00	2.239E+00	7.114E-01	2.797
		226.40		6.160E-02	3.468E-01	5.681E-01	8.859E-02	0.108
		227.20		3.631E-02	3.689E-01	6.026E-01	7.227E-02	0.060
		248.90		4.698E-01	7.259E-01	1.151E+00	2.801E-01	0.408
		293.70		5.279E+00	1.318E+00	1.411E+00	2.853E-01	3.742
	+	369.80		3.156E-01	6.838E-01	1.148E+00	2.591E-01	0.275
		568.70		3.328E-01	7.793E-01	1.324E+00	1.360E-01	0.251
		569.50		6.468E-02	2.148E-01	3.629E-01	3.727E-02	0.178
		574.00		6.033E-02	1.336E+00	2.067E+00	2.126E-01	0.029
		699.00		-9.539E-02	5.558E-01	8.980E-01	1.806E-01	-0.106
		706.10		4.784E-01	8.433E-01	1.376E+00	6.196E-01	0.348
		733.00		4.073E-02	3.245E-01	4.568E-01	1.057E-01	0.089
		742.81		-7.207E-01	1.292E+00	1.734E+00	1.172E+00	-0.416
		796.30		2.142E+00	1.278E+00	1.378E+00	3.846E-01	1.554
		805.60		1.476E+00	8.805E-01	1.395E+00	4.381E-01	1.059
		819.60		-4.144E-01	9.326E-01	1.491E+00	5.764E-01	-0.278
		826.30		-1.613E-01	6.224E-01	1.015E+00	4.598E-01	-0.159
		831.60		-3.507E-01	5.005E-01	7.811E-01	2.394E-01	-0.449
	*	876.40		1.313E-02	6.231E-01	1.036E+00	1.068E+00	0.013
		880.51		-1.263E-01	2.097E-01	3.331E-01	3.725E-02	-0.379
		883.24		1.722E-02	2.129E-01	3.548E-01	2.399E-01	0.049
		899.00		-3.753E-01	6.860E-01	1.063E+00	4.709E-01	-0.353
		925.00		3.920E-01	8.980E-01	1.525E+00	1.678E-01	0.257
		926.50		-7.967E-03	1.406E-01	2.170E-01	5.682E-02	-0.037
		946.00		-5.818E-02	2.458E-01	3.908E-01	7.768E-02	-0.149
		949.00		2.316E-01	3.459E-01	5.935E-01	6.413E-02	0.390
		980.50		-3.039E-01	5.801E-01	9.174E-01	9.648E-02	-0.331
		1394.10		-1.828E-01	1.001E+00	1.604E+00	1.045E+00	-0.114
	PA-234M	766.42		7.696E+00	1.017E+01	1.587E+01	8.122E+00	0.485
		1001.03	*	2.364E+00	3.960E+00	6.443E+00	7.384E-01	0.367
U-235	+	89.95		2.742E+00	1.325E+00	1.537E+00	4.773E-01	1.784
	+	93.35		4.391E+00	1.472E+00	1.145E+00	3.224E-01	3.836
		105.00		9.684E-01	9.449E-01	1.474E+00	4.393E-01	0.657
		143.76	*	1.934E-01	1.883E-01	3.128E-01	5.518E-02	0.618
		163.35		-1.193E-01	4.097E-01	6.609E-01	1.294E-01	-0.181
NP-236	+	185.71		2.319E-01	8.019E-02	8.281E-02	8.671E-03	2.800
		205.31		-1.731E-02	5.096E-01	7.189E-01	1.464E-01	-0.024
		94.67		4.161E-01	1.218E-01	1.909E-01	1.709E-02	2.180
		98.44		1.696E-01	6.234E-02	9.830E-02	8.593E-03	1.725
		111.00		3.623E-02	1.232E-01	1.944E-01	1.622E-02	0.186
		160.31	*	-2.734E-02	6.784E-02	1.119E-01	1.070E-02	-0.244

---- 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		1.985E-01	1.281E-01	2.155E-01	1.872E-02	0.921
		117.00	*	-5.103E-02	1.644E-01	2.583E-01	2.135E-02	-0.198
	+	209.75		1.824E+00	1.042E+00	1.214E+00	1.377E-01	1.502
		228.18		2.768E-02	1.938E-01	3.169E-01	3.812E-02	0.087
		277.60		2.784E-01	1.603E-01	2.669E-01	3.721E-02	1.043
		334.30		7.734E-01	1.735E+00	1.774E+00	2.139E-01	0.436
AM-241		59.54	*	1.325E-02	1.241E-01	1.859E-01	1.453E-02	0.071
CM-243		99.55		2.043E-01	1.318E-01	2.217E-01	1.927E-02	0.921
		103.76	*	5.392E-02	7.972E-02	1.308E-01	1.115E-02	0.412
		117.00		-5.250E-02	1.691E-01	2.657E-01	2.196E-02	-0.198
	+	209.75		1.798E+00	1.027E+00	1.197E+00	1.358E-01	1.502
		228.18		2.797E-02	1.958E-01	3.202E-01	3.852E-02	0.087
		277.60		2.807E-01	1.616E-01	2.691E-01	3.751E-02	1.043
AM-246		798.80		-1.857E-02	1.265E-01	1.717E-01	1.894E-02	-0.108
		1036.00		-1.534E-02	2.393E-01	3.893E-01	3.865E-02	-0.039
		1062.04		-3.942E-02	1.982E-01	3.190E-01	3.069E-02	-0.124
		1078.86	*	-2.348E-02	1.139E-01	1.827E-01	1.719E-02	-0.128
CM-247		278.00		8.557E-01	6.593E-01	1.093E+00	1.526E-01	0.783
		287.40		4.741E-01	1.103E+00	1.789E+00	2.462E-01	0.265
		402.60	*	1.077E-02	2.827E-02	4.725E-02	4.432E-03	0.228
CF-249		252.85		-5.826E-01	7.645E-01	1.189E+00	1.542E-01	-0.490
		333.44		1.317E-01	2.236E-01	2.322E-01	2.810E-02	0.567
CF-251		387.95	*	3.100E-02	3.396E-02	5.792E-02	5.505E-03	0.535
		176.60	*	-4.721E-02	1.049E-01	1.713E-01	1.740E-02	-0.276
		227.00		5.387E-02	3.276E-01	5.365E-01	6.430E-02	0.100
		285.00		-5.749E-01	1.574E+00	2.470E+00	3.417E-01	-0.233

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600011      *
* Acquisition date   : 22-JAN-2010 08:37:49 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 02:00:02.29 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600011 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.4700E+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 :                               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.628E+01	2.671E+00	4.164E-01	0.000E+00
CD-109	2.802E+00	8.282E-01	1.076E+00	0.000E+00
SN-126	2.755E-01	8.143E-02	1.062E-01	0.000E+00
BA-137M	4.146E-01	6.564E-02	4.888E-02	0.000E+00
CS-137	4.383E-01	6.943E-02	5.167E-02	0.000E+00
TL-208	5.281E-01	8.670E-02	4.915E-02	0.000E+00
BI-211	3.743E+00	5.338E-01	2.869E-01	0.000E+00
PB-212	1.587E+00	2.239E-01	7.812E-02	0.000E+00
PO-212	1.587E+00	2.239E-01	7.812E-02	0.000E+00
BI-214	9.579E-01	1.711E-01	9.133E-02	0.000E+00
PB-214	1.302E+00	1.973E-01	9.361E-02	0.000E+00
PO-214	1.302E+00	1.973E-01	9.361E-02	0.000E+00
PO-216	1.587E+00	2.239E-01	7.812E-02	0.000E+00
PO-218	1.302E+00	1.973E-01	9.361E-02	0.000E+00
RA-224	4.031E+00	1.138E+00	8.879E-01	0.000E+00
RA-226	9.579E-01	1.711E-01	9.133E-02	0.000E+00
AC-228	1.763E+00	3.101E-01	1.846E-01	0.000E+00
RA-228	1.763E+00	3.101E-01	1.846E-01	0.000E+00
TH-228	1.610E+00	2.272E-01	7.928E-02	0.000E+00
TH-230	9.579E-01	1.711E-01	9.133E-02	0.000E+00
TH-232	1.763E+00	3.101E-01	1.846E-01	0.000E+00
TH-234	2.602E+00	1.490E+00	1.691E+00	0.000E+00
U-234	9.579E-01	1.711E-01	9.133E-02	0.000E+00
NP-237	8.090E-01	2.897E-01	3.593E-01	0.000E+00
U-238	2.602E+00	1.490E+00	1.691E+00	0.000E+00
AM-243	4.188E-01	6.909E-02	7.448E-02	0.000E+00
ANH-511	7.137E-02	5.009E-02	4.071E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	-3.887E-02	2.617E-01	4.422E-01	0.000E+00	NOT IDENT.
NA-22	4.562E-03	3.484E-02	5.988E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.367E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	7.531E-03	1.934E-02	3.431E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.488E-02	6.587E-02	0.000E+00	FAIL ABUN
SC-46	-1.129E-02	2.878E-02	4.826E-02	0.000E+00	FAIL ABUN
V-48	2.397E-02	5.272E-02	9.240E-02	0.000E+00	NOT IDENT.
CR-51	-3.333E-02	2.951E-01	5.228E-01	0.000E+00	NOT IDENT.
MN-52	1.119E-02	1.645E-01	2.782E-01	0.000E+00	FAIL ABUN
MN-54	6.080E-04	2.938E-02	5.107E-02	0.000E+00	NOT IDENT.
CO-56	-2.773E-02	3.018E-02	4.909E-02	0.000E+00	NOT IDENT.
CO-57	2.485E-03	2.227E-02	3.766E-02	0.000E+00	NOT IDENT.
CO-58	-1.567E-02	2.908E-02	4.892E-02	0.000E+00	NOT IDENT.
FE-59	1.546E-02	6.800E-02	1.160E-01	0.000E+00	NOT IDENT.
CO-60	-1.942E-02	2.780E-02	4.411E-02	0.000E+00	NOT IDENT.
ZN-65	3.981E-03	8.096E-02	1.158E-01	0.000E+00	NOT IDENT.
GE-68	7.388E-02	9.715E-01	1.644E+00	0.000E+00	NOT IDENT.
AS-73	-2.092E-01	6.116E-01	1.107E+00	0.000E+00	NOT IDENT.
AS-74	2.772E-02	7.015E-02	1.243E-01	0.000E+00	NOT IDENT.
SE-75	-1.689E-03	4.294E-02	6.420E-02	0.000E+00	NOT IDENT.
BR-77	-4.976E+00	7.703E+00	1.283E+01	0.000E+00	FAIL ABUN
SR-82	-1.167E-01	3.097E-01	5.095E-01	0.000E+00	NOT IDENT.
RB-83	-3.539E-02	5.478E-02	9.123E-02	0.000E+00	NOT IDENT.
RB-84	-2.367E-02	5.116E-02	8.544E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.319E+00	1.228E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.742E-02	6.278E-02	0.000E+00	NOT IDENT.
RB-86	-5.358E-02	6.009E-01	1.005E+00	0.000E+00	NOT IDENT.
Y-88	-1.261E-02	2.434E-02	3.784E-02	0.000E+00	NOT IDENT.
ZR-88	-2.570E-02	2.416E-02	3.973E-02	0.000E+00	NOT IDENT.
Y-91	-1.045E+00	1.447E+01	2.472E+01	0.000E+00	NOT IDENT.
NB-94	7.102E-03	2.577E-02	4.462E-02	0.000E+00	NOT IDENT.
NB-95	1.289E-02	3.443E-02	5.926E-02	0.000E+00	NOT IDENT.
NB-95M	1.376E-01	1.196E-01	1.897E-01	0.000E+00	NOT IDENT.
ZR-95	1.992E-02	5.424E-02	9.369E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.323E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.367E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.549E+00	8.275E+00	1.385E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.779E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.050E-03	2.908E-02	5.024E-02	0.000E+00	NOT IDENT.
RH-102	5.463E-03	2.454E-02	4.156E-02	0.000E+00	NOT IDENT.
RU-103	7.239E-03	3.161E-02	5.424E-02	0.000E+00	FAIL ABUN
RH-106	-6.946E-02	2.478E-01	4.218E-01	0.000E+00	FAIL ABUN
RU-106	-6.946E-02	2.477E-01	4.218E-01	0.000E+00	FAIL ABUN
AG-108M	8.323E-03	2.760E-02	4.818E-02	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	3.311E-02	5.486E-02	0.000E+00	NOT IDENT.
IN-111	-4.663E-01	9.375E-01	1.376E+00	0.000E+00	NOT IDENT.
IN-113M	-1.403E-02	3.523E-02	6.019E-02	0.000E+00	NOT IDENT.
SN-113	-1.403E-02	3.523E-02	6.019E-02	0.000E+00	NOT IDENT.
IN-114M	3.312E-02	1.705E-01	2.684E-01	0.000E+00	NOT IDENT.
CD-115	-3.099E-01	7.747E+00	1.363E+01	0.000E+00	NOT IDENT.
SN-117M	-2.361E-02	4.574E-02	8.131E-02	0.000E+00	NOT IDENT.
SB-122	-4.296E-01	1.462E+00	2.519E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.476E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-5.498E-03	2.375E-02	4.263E-02	0.000E+00	NOT IDENT.
I-124	-1.983E-02	5.659E-01	8.429E-01	0.000E+00	NOT IDENT.
SB-124	2.199E-02	5.277E-02	9.386E-02	0.000E+00	FAIL ABUN
SB-125	-3.228E-03	7.654E-02	1.318E-01	0.000E+00	FAIL ABUN
TE-125M	-7.274E-01	7.993E+00	1.357E+01	0.000E+00	NOT IDENT.
I-126	1.204E-01	1.542E-01	2.410E-01	0.000E+00	NOT IDENT.
SB-126	-4.422E-02	1.351E-01	1.913E-01	0.000E+00	FAIL ABUN
SB-127	2.518E-01	1.058E+00	1.832E+00	0.000E+00	NOT IDENT.
XE-127	-1.229E-02	4.092E-02	6.899E-02	0.000E+00	NOT IDENT.
I-131	-6.772E-03	9.211E-02	1.612E-01	0.000E+00	NOT IDENT.
TE-132	7.692E-02	5.496E-01	9.633E-01	0.000E+00	NOT IDENT.
BA-133	-3.028E-02	3.884E-02	5.593E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.735E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.817E-02	7.211E-02	0.000E+00	FAIL ABUN
CS-135	2.422E-01	1.556E-01	2.466E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.277E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.469E-02	8.276E-02	1.304E-01	0.000E+00	FAIL ABUN
CE-139	-2.500E-02	2.439E-02	4.224E-02	0.000E+00	NOT IDENT.
BA-140	3.723E-02	1.934E-01	3.429E-01	0.000E+00	NOT IDENT.
LA-140	-9.941E-02	7.124E-02	1.051E-01	0.000E+00	FAIL ABUN
CE-141	-5.118E-05	5.244E-02	9.559E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.045E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.152E-01	1.705E-01	3.054E-01	0.000E+00	NOT IDENT.
PM-144	-1.539E-02	2.651E-02	4.366E-02	0.000E+00	NOT IDENT.
PR-144	-1.043E+00	1.796E+00	2.958E+00	0.000E+00	NOT IDENT.

PM-146	-1.032E-02	3.556E-02	6.000E-02	0.000E+00	NOT IDENT.
ND-147	-2.137E-01	4.213E-01	7.205E-01	0.000E+00	FAIL ABUN
PM-149	3.069E+01	7.372E+01	1.274E+02	0.000E+00	NOT IDENT.
EU-152	-8.897E-02	8.399E-02	1.316E-01	0.000E+00	FAIL ABUN
GD-153	5.680E-02	6.889E-02	1.119E-01	0.000E+00	NOT IDENT.
EU-154	1.398E-02	9.741E-02	1.676E-01	0.000E+00	NOT IDENT.
EU-155	9.245E-02	9.061E-02	1.609E-01	0.000E+00	FAIL ABUN
TB-160	-8.090E-03	1.019E-01	1.749E-01	0.000E+00	FAIL ABUN
HO-166M	-3.523E-02	4.862E-02	7.907E-02	0.000E+00	FAIL ABUN
TM-171	-7.032E+00	2.358E+01	3.781E+01	0.000E+00	NOT IDENT.
LU-176	5.438E-03	2.063E-02	3.631E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.402E+00	1.739E+00	0.000E+00	FAIL ABUN
LU-177M	-8.109E-02	1.437E-01	2.420E-01	0.000E+00	NOT IDENT.
HF-181	1.878E-03	3.508E-02	5.985E-02	0.000E+00	NOT IDENT.
W-181	-2.628E-02	3.117E-01	5.055E-01	0.000E+00	NOT IDENT.
TA-182	4.091E-02	1.501E-01	2.612E-01	0.000E+00	FAIL ABUN
RE-183	3.803E-02	9.350E-02	1.669E-01	0.000E+00	FAIL ABUN
RE-184	-1.551E-01	1.995E-01	3.317E-01	0.000E+00	NOT IDENT.
OS-185	8.289E-03	3.338E-02	5.794E-02	0.000E+00	NOT IDENT.
RE-188	2.574E-02	1.425E-01	2.596E-01	0.000E+00	NOT IDENT.
W-188	-2.515E+00	6.970E+00	1.071E+01	0.000E+00	FAIL ABUN
IR-192	-1.357E-03	2.731E-02	4.856E-02	0.000E+00	FAIL ABUN
AU-195	0.000E+00	1.895E-01	3.402E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.130E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	7.062E-01	5.408E+00	9.770E+00	0.000E+00	NOT IDENT.
TL-202	1.419E-03	5.778E-02	9.947E-02	0.000E+00	NOT IDENT.
HG-203	2.171E-02	3.529E-02	6.153E-02	0.000E+00	NOT IDENT.
BI-207	2.003E-02	4.431E-02	7.671E-02	0.000E+00	FAIL ABUN
TL-207	2.176E-01	5.937E-01	9.351E-01	0.000E+00	FAIL ABUN
PO-209	3.854E-01	5.652E+00	9.772E+00	0.000E+00	NOT IDENT.
BI-210	1.481E+00	2.598E+00	4.798E+00	0.000E+00	NOT IDENT.
PB-210	1.481E+00	2.598E+00	4.798E+00	0.000E+00	NOT IDENT.
PO-210	1.481E+00	2.598E+00	4.798E+00	0.000E+00	NOT IDENT.
PB-211	-7.306E-01	8.694E-01	1.232E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.534E-01	5.066E-01	0.000E+00	FAIL ABUN
PO-215	2.176E-01	5.937E-01	9.351E-01	0.000E+00	FAIL ABUN
RN-219	3.207E-02	3.107E-01	5.424E-01	0.000E+00	FAIL ABUN
RN-220	-3.246E+01	1.991E+01	3.136E+01	0.000E+00	NOT IDENT.
RA-223	2.176E-01	5.937E-01	9.351E-01	0.000E+00	FAIL ABUN
AC-227	3.035E-01	3.338E-01	5.879E-01	0.000E+00	FAIL ABUN
TH-227	3.035E-01	3.350E-01	5.879E-01	0.000E+00	FAIL ABUN
TH-229	1.309E-01	4.212E-01	7.546E-01	0.000E+00	FAIL ABUN
PA-231	-1.699E-01	1.332E+00	2.257E+00	0.000E+00	FAIL ABUN
TH-231	2.176E-01	5.937E-01	9.351E-01	0.000E+00	FAIL ABUN
U-231	-9.103E-01	9.066E-01	1.352E+00	0.000E+00	FAIL ABUN
PA-233	-8.542E-03	5.204E-02	9.227E-02	0.000E+00	FAIL ABUN
PA-234	-5.818E-02	2.409E-01	3.973E-01	0.000E+00	FAIL ABUN
PA-234M	2.364E+00	3.880E+00	6.541E+00	0.000E+00	NOT IDENT.
U-235	1.934E-01	1.846E-01	3.320E-01	0.000E+00	FAIL ABUN
NP-236	-2.734E-02	6.649E-02	1.185E-01	0.000E+00	NOT IDENT.
NP-239	-5.103E-02	1.611E-01	2.754E-01	0.000E+00	FAIL ABUN
AM-241	1.325E-02	1.216E-01	2.011E-01	0.000E+00	NOT IDENT.
CM-243	5.392E-02	7.813E-02	1.399E-01	0.000E+00	FAIL ABUN
AM-246	-2.348E-02	1.117E-01	1.852E-01	0.000E+00	NOT IDENT.
CM-247	1.077E-02	2.771E-02	4.900E-02	0.000E+00	NOT IDENT.
CF-249	3.100E-02	3.328E-02	6.012E-02	0.000E+00	NOT IDENT.
CF-251	-4.721E-02	1.028E-01	1.810E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600011.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:37:49
Sample ID          : G244600011      Sample quantity   : 1.47000E+02 GRAM
Detector name      : GAM22            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:02.29  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941635            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	2096	10.67*	1.909E+00	2.628E+01	2.628E+01	10.37
CD-109	88.03	299	3.72*	7.486E+00	2.740E+00	2.802E+00	30.16
SN-126	64.28	167	9.60	4.320E+00	1.030E+00	1.030E+00	57.60
	86.94	299	8.90	7.486E+00	1.145E+00	1.145E+00	50.46
	87.57	299	37.00*	7.486E+00	2.755E-01	2.755E-01	30.16
BA-137M	661.65	524	89.98*	3.590E+00	4.143E-01	4.146E-01	16.15
CS-137	661.65	524	85.12*	3.590E+00	4.379E-01	4.383E-01	16.16
TL-208	277.35	-----	6.80	6.182E+00	-----	Line Not Found	-----
	510.84	120	21.60	4.299E+00	3.304E-01	3.304E-01	72.10
	583.14	684	84.20*	3.930E+00	5.281E-01	5.281E-01	16.75
	860.37	54	12.46	2.921E+00	3.814E-01	3.814E-01	83.24
BI-211	72.87	-----	1.27	5.897E+00	-----	Line Not Found	-----
	351.07	1024	12.94*	5.400E+00	3.743E+00	3.743E+00	14.55
PB-212	74.81	668	10.70	6.171E+00	2.583E+00	2.583E+00	19.25
	77.11	755	18.00	6.460E+00	1.659E+00	1.659E+00	14.96
	87.30	299	8.00	7.486E+00	1.274E+00	1.274E+00	31.78
	238.63	1859	44.60*	6.709E+00	1.587E+00	1.587E+00	14.40
	300.09	95	3.41	5.913E+00	1.203E+00	1.203E+00	70.67
PO-212	74.81	668	10.70	6.171E+00	2.583E+00	2.583E+00	19.25
	77.11	755	18.00	6.460E+00	1.659E+00	1.659E+00	14.96
	87.30	299	8.00	7.486E+00	1.274E+00	1.274E+00	31.78
	115.19	-----	0.60	8.535E+00	-----	Line Not Found	-----
	238.63	1859	44.60*	6.709E+00	1.587E+00	1.587E+00	14.40
	300.09	95	3.41	5.913E+00	1.203E+00	1.203E+00	70.67
BI-214	609.31	662	46.30*	3.811E+00	9.579E-01	9.579E-01	18.23
	1120.29	155	15.10	2.345E+00	1.121E+00	1.121E+00	43.53
	1764.49	192	15.80	1.716E+00	1.804E+00	1.804E+00	24.39
PB-214	74.81	668	6.21	6.171E+00	4.451E+00	4.451E+00	18.39
	77.11	755	10.50	6.460E+00	2.844E+00	2.844E+00	16.79
	87.30	299	4.67	7.486E+00	2.183E+00	2.183E+00	31.13
	241.98	416	7.49	6.665E+00	2.126E+00	2.126E+00	29.34
	295.21	562	19.20	5.970E+00	1.253E+00	1.253E+00	20.40

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	1024	37.20*	5.400E+00	1.302E+00	1.302E+00	15.46
	74.81	668	6.21	6.171E+00	4.451E+00	4.451E+00	18.39
	77.11	755	10.50	6.460E+00	2.844E+00	2.844E+00	16.79
	87.30	299	4.67	7.486E+00	2.183E+00	2.183E+00	31.13
	241.98	416	7.49	6.665E+00	2.126E+00	2.126E+00	29.34
PO-216	295.21	562	19.20	5.970E+00	1.253E+00	1.253E+00	20.40
	351.92	1024	37.20*	5.400E+00	1.302E+00	1.302E+00	15.46
	74.81	668	10.70	6.171E+00	2.583E+00	2.583E+00	19.25
	77.11	755	18.00	6.460E+00	1.659E+00	1.659E+00	14.96
	87.30	299	8.00	7.486E+00	1.274E+00	1.274E+00	31.78
PO-218	238.63	1859	44.60*	6.709E+00	1.587E+00	1.587E+00	14.40
	300.09	95	3.41	5.913E+00	1.203E+00	1.203E+00	70.67
	74.81	668	6.21	6.171E+00	4.451E+00	4.451E+00	18.39
	77.11	755	10.50	6.460E+00	2.844E+00	2.844E+00	16.79
	87.30	299	4.67	7.486E+00	2.183E+00	2.183E+00	31.13
RA-224	241.98	416	7.49	6.665E+00	2.126E+00	2.126E+00	29.34
	295.21	562	19.20	5.970E+00	1.253E+00	1.253E+00	20.40
	351.92	1024	37.20*	5.400E+00	1.302E+00	1.302E+00	15.46
	240.98	416	3.95*	6.665E+00	4.031E+00	4.031E+00	28.80
	609.31	662	46.30*	3.811E+00	9.579E-01	9.579E-01	18.23
AC-228	1120.29	155	15.10	2.345E+00	1.121E+00	1.121E+00	43.53
	1764.49	192	15.80	1.716E+00	1.804E+00	1.804E+00	24.39
	338.32	370	11.40	5.526E+00	1.501E+00	1.501E+00	46.18
	911.07	533	27.70*	2.788E+00	1.763E+00	1.763E+00	17.95
	969.11	300	16.60	2.648E+00	1.740E+00	1.740E+00	29.70
RA-228	338.32	370	11.40	5.526E+00	1.501E+00	1.501E+00	46.18
	911.07	533	27.70*	2.788E+00	1.763E+00	1.763E+00	17.95
	969.11	300	16.60	2.648E+00	1.740E+00	1.740E+00	29.70
	74.81	668	10.70	6.171E+00	2.583E+00	2.622E+00	16.87
	77.11	755	18.00	6.460E+00	1.659E+00	1.684E+00	14.96
TH-228	87.30	299	8.00	7.486E+00	1.274E+00	1.293E+00	30.16
	238.63	1859	44.60*	6.709E+00	1.587E+00	1.610E+00	14.40
	300.09	95	3.41	5.913E+00	1.203E+00	1.221E+00	91.65
	609.31	662	46.30*	3.811E+00	9.579E-01	9.579E-01	18.23
	1120.29	155	15.10	2.345E+00	1.121E+00	1.121E+00	43.53
TH-230	1764.49	192	15.80	1.716E+00	1.804E+00	1.804E+00	24.39
	338.32	370	11.40	5.526E+00	1.501E+00	1.501E+00	22.45
	911.07	533	27.70*	2.788E+00	1.763E+00	1.763E+00	17.95
	969.11	300	16.60	2.648E+00	1.740E+00	1.740E+00	29.70
	63.29	167	3.80*	4.320E+00	2.602E+00	2.602E+00	58.41
TH-232	92.38	609	5.41	7.863E+00	3.653E+00	3.653E+00	25.78
	609.31	662	46.30*	3.811E+00	9.579E-01	9.579E-01	18.23
	1120.29	155	15.10	2.345E+00	1.121E+00	1.121E+00	43.53
	1764.49	192	15.80	1.716E+00	1.804E+00	1.804E+00	24.39
	86.50	299	12.60*	7.486E+00	8.090E-01	8.090E-01	36.54
NP-237	95.87	---	2.60	8.032E+00	-----	Line Not Found	-----
	63.29	167	3.80*	4.320E+00	2.602E+00	2.602E+00	58.41
	92.38	609	5.41	7.863E+00	3.653E+00	3.653E+00	20.29
	74.67	668	66.00*	6.171E+00	4.188E-01	4.188E-01	16.83

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	299	0.34	7.486E+00	3.034E+01	3.034E+01	30.16
	117.66	-----	0.55	8.550E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.387E+00	-----	Line Not Found	-----
ANH-511	511.00	120	100.00*	4.299E+00	7.137E-02	7.137E-02	71.62

Flag: "\*" = Keyline



Total number of lines in spectrum 32  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 31 96.88%

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	2.628E+01	2.628E+01	0.273E+01	10.37	
CD-109	464.00D	1.02	2.740E+00	2.802E+00	0.845E+00	30.16	
SN-126	1.00E+05Y	1.00	2.755E-01	2.755E-01	0.831E-01	30.16	
BA-137M	30.17Y	1.00	4.143E-01	4.146E-01	0.670E-01	16.15	
CS-137	30.17Y	1.00	4.379E-01	4.383E-01	0.708E-01	16.16	
TL-208	1.41E+10Y	1.00	5.281E-01	5.281E-01	0.885E-01	16.75	
BI-211	7.04E+08Y	1.00	3.743E+00	3.743E+00	0.545E+00	14.55	
PB-212	1.41E+10Y	1.00	1.587E+00	1.587E+00	0.228E+00	14.40	
PO-212	1.41E+10Y	1.00	1.587E+00	1.587E+00	0.228E+00	14.40	
BI-214	1600.00Y	1.00	9.579E-01	9.579E-01	1.746E-01	18.23	
PB-214	1600.00Y	1.00	1.302E+00	1.302E+00	0.201E+00	15.46	
PO-214	1600.00Y	1.00	1.302E+00	1.302E+00	0.201E+00	15.46	
PO-216	1.41E+10Y	1.00	1.587E+00	1.587E+00	0.228E+00	14.40	
PO-218	1600.00Y	1.00	1.302E+00	1.302E+00	0.201E+00	15.46	
RA-224	1.41E+10Y	1.00	4.031E+00	4.031E+00	1.161E+00	28.80	
RA-226	1600.00Y	1.00	9.579E-01	9.579E-01	1.746E-01	18.23	
AC-228	1.41E+10Y	1.00	1.763E+00	1.763E+00	0.316E+00	17.95	
RA-228	1.41E+10Y	1.00	1.763E+00	1.763E+00	0.316E+00	17.95	
TH-228	1.91Y	1.01	1.587E+00	1.610E+00	0.232E+00	14.40	
TH-230	4.47E+09Y	1.00	9.579E-01	9.579E-01	1.746E-01	18.23	
TH-232	1.41E+10Y	1.00	1.763E+00	1.763E+00	0.316E+00	17.95	
TH-234	4.47E+09Y	1.00	2.602E+00	2.602E+00	1.520E+00	58.41	
U-234	4.47E+09Y	1.00	9.579E-01	9.579E-01	1.746E-01	18.23	
NP-237	2.14E+06Y	1.00	8.090E-01	8.090E-01	2.956E-01	36.54	
U-238	4.47E+09Y	1.00	2.602E+00	2.602E+00	1.520E+00	58.41	
AM-243	7380.00Y	1.00	4.188E-01	4.188E-01	0.705E-01	16.83	
ANH-511	1.00E+09Y	1.00	7.137E-02	7.137E-02	5.112E-02	71.62	
Total Activity :			6.433E+01	6.441E+01			

Grand Total Activity : 6.433E+01 6.441E+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	89.98	223	536	1.13	180.16	171	22	3.09E-02	37.0	7.68E+00	T
0	185.81	373	720	1.22	371.63	365	14	5.18E-02	33.0	7.61E+00	T
0	209.47	166	532	1.11	418.91	414	11	2.31E-02	56.0	7.18E+00	T
0	270.50	172	398	1.51	540.86	535	12	2.39E-02	48.8	6.27E+00	T
0	328.34	126	303	0.91	656.45	651	12	1.75E-02	57.9	5.62E+00	T
0	462.74	100	238	1.36	925.06	921	13	1.39E-02	66.4	4.58E+00	T
0	727.63	137	125	0.87	1454.53	1446	13	1.91E-02	38.7	3.34E+00	T
0	795.22	102	124	1.80	1589.64	1581	16	1.42E-02	52.7	3.12E+00	T
0	935.68	40	93	1.37	1870.47	1864	14	5.53E-03	****	2.73E+00	T
2	964.53	113	106	2.81	1928.14	1920	26	1.57E-02	50.5	2.66E+00	T
0	1730.04	46	29	1.84	3459.25	3450	19	6.32E-03	63.6	1.73E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600011.CNF;1  *
* Acquisition date   : 22-JAN-2010 08:37:49  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 02:00:02.29        Half life ratio   : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library   : SOLID        *
* Sample ID          : G244600011           Analyst initials: MXR1          *
* Batch Number       : 941635               Sample Quantity  : 1.47000E+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       :              *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.628E+01	2.725E+00	4.139E-01	3.792E-02	63.492
CD-109	2.802E+00	8.451E-01	1.003E+00	9.517E-02	2.794
SN-126	2.755E-01	8.309E-02	9.901E-02	9.349E-03	2.783
BA-137M	4.146E-01	6.698E-02	4.768E-02	5.028E-03	8.697
CS-137	4.383E-01	7.085E-02	5.040E-02	5.322E-03	8.697
TL-208	5.281E-01	8.847E-02	4.780E-02	5.183E-03	11.050
BI-211	3.743E+00	5.447E-01	2.758E-01	3.218E-02	13.572
PB-212	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
PO-212	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
BI-214	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
PB-214	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
PO-214	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
PO-216	1.587E+00	2.284E-01	7.443E-02	9.834E-03	21.321
PO-218	1.302E+00	2.013E-01	8.997E-02	1.147E-02	14.471
RA-224	4.031E+00	1.161E+00	8.461E-01	1.059E-01	4.764
RA-226	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
AC-228	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720
RA-228	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.610E+00	2.319E-01	7.554E-02	9.980E-03	21.321
TH-230	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
TH-232	1.763E+00	3.165E-01	1.814E-01	2.403E-02	9.720
TH-234	2.602E+00	1.520E+00	1.565E+00	2.725E-01	1.663
U-234	9.579E-01	1.746E-01	8.890E-02	1.034E-02	10.775
NP-237	8.090E-01	2.956E-01	3.348E-01	7.580E-02	2.416
U-238	2.602E+00	1.520E+00	1.565E+00	2.725E-01	1.663
AM-243	4.188E-01	7.050E-02	6.917E-02	5.638E-03	6.054
ANH-511	7.137E-02	5.112E-02	3.947E-02	3.954E-03	1.808

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.887E-02		2.670E-01	4.281E-01	4.467E-02	-0.091
NA-22	4.562E-03		3.555E-02	5.933E-02	5.113E-03	0.077
NA-24	-7.113E-01		2.228E-01	Half-Life too short		
AL-26	7.531E-03		1.974E-02	3.428E-02	2.804E-03	0.220
TI-44	3.061E-01	+	4.580E-02	6.124E-02	5.193E-03	4.999
SC-46	-1.129E-02		2.937E-02	4.740E-02	5.306E-03	-0.238
V-48	2.397E-02		5.380E-02	9.097E-02	9.541E-03	0.263
CR-51	-3.333E-02		3.011E-01	5.014E-01	6.493E-02	-0.066
MN-52	1.119E-02		1.679E-01	2.764E-01	2.470E-02	0.040
MN-54	6.080E-04		2.998E-02	5.009E-02	5.564E-03	0.012
CO-56	-2.773E-02		3.079E-02	4.816E-02	5.362E-03	-0.576
CO-57	2.485E-03		2.272E-02	3.535E-02	2.915E-03	0.070
CO-58	-1.567E-02		2.967E-02	4.794E-02	5.309E-03	-0.327
FE-59	1.546E-02		6.938E-02	1.145E-01	1.122E-02	0.135
CO-60	-1.942E-02		2.837E-02	4.375E-02	3.901E-03	-0.444
ZN-65	3.981E-03		8.261E-02	1.144E-01	1.021E-02	0.035
GE-68	7.388E-02		9.913E-01	1.622E+00	1.529E-01	0.046
AS-73	-2.092E-01		6.241E-01	1.021E+00	7.714E-02	-0.205
AS-74	2.772E-02		7.158E-02	1.210E-01	1.254E-02	0.229
SE-75	-1.689E-03		4.381E-02	6.131E-02	8.251E-03	-0.028
BR-77	-4.976E+00		7.860E+00	1.244E+01	1.252E+00	-0.400
SR-82	-1.167E-01		3.160E-01	4.988E-01	5.470E-02	-0.234
RB-83	-3.539E-02		5.590E-02	8.848E-02	8.905E-03	-0.400
RB-84	-2.367E-02		5.221E-02	8.390E-02	9.385E-03	-0.282
KR-85	2.409E+01		7.468E+00	1.190E+01	1.195E+00	2.023
SR-85	1.232E-01		3.819E-02	6.087E-02	6.108E-03	2.023
RB-86	-5.358E-02		6.132E-01	9.919E-01	9.360E-02	-0.054
Y-88	-1.261E-02		2.483E-02	3.783E-02	3.059E-03	-0.333
ZR-88	-2.570E-02		2.466E-02	3.828E-02	3.564E-03	-0.671
Y-91	-1.045E+00		1.476E+01	2.446E+01	2.011E+00	-0.043
NB-94	7.102E-03		2.630E-02	4.359E-02	4.671E-03	0.163
NB-95	1.289E-02		3.513E-02	5.800E-02	6.342E-03	0.222
NB-95M	1.376E-01		1.220E-01	1.807E-01	2.388E-02	0.761
ZR-95	1.992E-02		5.535E-02	9.167E-02	1.064E-02	0.217

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	1.629E-01		3.736E-02	Half-Life too short		
ZR-97	3.357E+00		6.976E-01	Half-Life too short		
MO-99	-1.549E+00		8.444E+00	1.355E+01	2.243E+00	-0.114
TC-99M	-2.591E+10		9.077E+09	Half-Life too short		
RH-101	3.050E-03		2.967E-02	4.766E-02	5.199E-03	0.064
RH-102	5.463E-03		2.504E-02	4.023E-02	3.956E-03	0.136
RU-103	7.239E-03		3.225E-02	5.255E-02	7.887E-03	0.138
RH-106	-6.946E-02		2.529E-01	4.108E-01	5.999E-02	-0.169
RU-106	-6.946E-02		2.528E-01	4.108E-01	4.291E-02	-0.169
AG-108M	8.323E-03		2.816E-02	4.653E-02	4.607E-03	0.179
AG-110M	6.442E-02		3.379E-02	5.350E-02	5.750E-03	1.204
IN-111	-4.663E-01		9.566E-01	1.312E+00	1.664E-01	-0.355
IN-113M	-1.403E-02		3.595E-02	5.799E-02	5.538E-03	-0.242
SN-113	-1.403E-02		3.595E-02	5.799E-02	5.538E-03	-0.242
IN-114M	3.312E-02		1.740E-01	2.544E-01	2.705E-02	0.130
CD-115	-3.099E-01		7.905E+00	1.322E+01	1.335E+00	-0.023
SN-117M	-2.361E-02		4.667E-02	7.676E-02	7.279E-03	-0.308
SB-122	-4.296E-01		1.492E+00	2.447E+00	2.508E-01	-0.176
I-123	-8.045E-01		1.773E+00	Half-Life too short		
TE-123M	-5.498E-03		2.424E-02	4.024E-02	3.843E-03	-0.137
I-124	-1.983E-02		5.775E-01	8.203E-01	8.521E-02	-0.024
SB-124	2.199E-02		5.385E-02	9.365E-02	8.330E-03	0.235
SB-125	-3.228E-03		7.810E-02	1.272E-01	1.234E-02	-0.025
TE-125M	-7.274E-01		8.156E+00	1.271E+01	1.287E+00	-0.057
I-126	1.204E-01		1.574E-01	2.351E-01	2.484E-02	0.512
SB-126	-4.422E-02		1.379E-01	1.869E-01	2.016E-02	-0.237
SB-127	2.518E-01		1.079E+00	1.788E+00	2.310E-01	0.141
XE-127	-1.229E-02		4.176E-02	6.549E-02	7.259E-03	-0.188
I-131	-6.772E-03		9.399E-02	1.551E-01	1.718E-02	-0.044
TE-132	7.692E-02		5.608E-01	9.169E-01	1.630E-01	0.084
BA-133	-3.028E-02		3.964E-02	5.377E-02	8.035E-03	-0.563
I-133	-2.096E-03		1.906E-03	Half-Life too short		
CS-134	1.102E-01	+	5.936E-02	7.064E-02	7.819E-03	1.560
CS-135	2.422E-01		1.587E-01	2.355E-01	3.407E-02	1.028
I-135	-1.214E+09		1.162E+09	Half-Life too short		
CS-136	-7.469E-02		8.445E-02	1.286E-01	1.300E-02	-0.581
CE-139	-2.500E-02		2.489E-02	3.992E-02	3.915E-03	-0.626
BA-140	3.723E-02		1.974E-01	3.328E-01	1.117E-01	0.112
LA-140	-9.941E-02		7.269E-02	1.048E-01	9.183E-03	-0.949
CE-141	-5.118E-05		5.351E-02	9.008E-02	8.200E-03	-0.001
CE-143	6.653E-04		1.044E-04	Half-Life too short		
CE-144	-1.152E-01		1.740E-01	2.873E-01	4.459E-02	-0.401
PM-144	-1.539E-02		2.705E-02	4.264E-02	4.560E-03	-0.361
PR-144	-1.043E+00		1.833E+00	2.889E+00	3.089E-01	-0.361
PM-146	-1.032E-02		3.628E-02	5.801E-02	6.741E-03	-0.178
ND-147	-2.137E-01		4.299E-01	6.991E-01	1.109E-01	-0.306
PM-149	3.069E+01		7.523E+01	1.218E+02	2.305E+01	0.252
EU-152	-8.897E-02		8.571E-02	1.264E-01	1.519E-02	-0.704

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	5.680E-02		7.030E-02	1.046E-01	9.194E-03	0.543
EU-154	1.398E-02		9.939E-02	1.660E-01	1.876E-02	0.084
EU-155	9.245E-02		9.246E-02	1.505E-01	1.292E-02	0.614
TB-160	-8.090E-03		1.040E-01	1.718E-01	1.921E-02	-0.047
HO-166M	-3.523E-02		4.962E-02	7.726E-02	8.306E-03	-0.456
TM-171	-7.032E+00		2.406E+01	3.503E+01	2.647E+00	-0.201
LU-176	5.438E-03		2.105E-02	3.479E-02	4.564E-03	0.156
LU-177	2.505E+00	+	1.431E+00	1.652E+00	1.865E-01	1.516
LU-177M	-8.109E-02		1.467E-01	2.334E-01	2.208E-02	-0.347
HF-181	1.878E-03		3.579E-02	5.794E-02	5.720E-03	0.032
W-181	-2.628E-02		3.181E-01	4.681E-01	3.489E-02	-0.056
TA-182	4.091E-02		1.532E-01	2.585E-01	2.150E-02	0.158
RE-183	3.803E-02		9.541E-02	1.576E-01	1.521E-02	0.241
RE-184	-1.551E-01		2.035E-01	3.164E-01	4.106E-02	-0.490
OS-185	8.289E-03		3.406E-02	5.648E-02	5.936E-03	0.147
RE-188	2.574E-02		1.454E-01	2.450E-01	2.286E-02	0.105
W-188	-2.515E+00		7.112E+00	1.025E+01	1.399E+00	-0.245
IR-192	-1.357E-03		2.786E-02	4.656E-02	5.951E-03	-0.029
AU-195	4.604E-01		1.934E-01	3.179E-01	2.772E-02	1.448
TL-200	-1.233E-04		1.597E-04	Half-Life too short		
TL-201	7.062E-01		5.519E+00	9.235E+00	9.102E-01	0.076
TL-202	1.419E-03		5.896E-02	9.610E-02	9.251E-03	0.015
HG-203	2.171E-02		3.601E-02	5.883E-02	8.327E-03	0.369
BI-207	2.003E-02		4.521E-02	7.568E-02	7.265E-03	0.265
TL-207	2.176E-01		6.058E-01	8.971E-01	1.783E-01	0.243
PO-209	3.854E-01		5.767E+00	9.600E+00	1.075E+00	0.040
BI-210	1.481E+00		2.651E+00	4.412E+00	4.099E-01	0.336
PB-210	1.481E+00		2.651E+00	4.412E+00	4.099E-01	0.336
PO-210	1.481E+00		2.651E+00	4.412E+00	3.710E-01	0.336
PB-211	-7.306E-01		8.872E-01	1.188E+00	7.457E-01	-0.615
BI-212	8.901E-01	+	3.606E-01	4.953E-01	5.916E-02	1.797
PO-215	2.176E-01		6.058E-01	8.971E-01	1.783E-01	0.243
RN-219	3.207E-02		3.171E-01	5.229E-01	8.090E-02	0.061
RN-220	-3.246E+01		2.031E+01	3.045E+01	3.104E+00	-1.066
RA-223	2.176E-01		6.058E-01	8.971E-01	1.783E-01	0.243
AC-227	3.035E-01		3.406E-01	5.610E-01	1.024E-01	0.541
TH-227	3.035E-01		3.418E-01	5.610E-01	1.155E-01	0.541
TH-229	1.309E-01		4.298E-01	7.155E-01	7.693E-02	0.183
PA-231	-1.699E-01		1.359E+00	2.159E+00	4.032E-01	-0.079
TH-231	2.176E-01		6.058E-01	8.971E-01	1.783E-01	0.243
U-231	-9.103E-01		9.251E-01	1.262E+00	1.121E-01	-0.721
PA-233	-8.542E-03		5.311E-02	8.844E-02	1.159E-02	-0.097
PA-234	-5.818E-02		2.458E-01	3.908E-01	7.768E-02	-0.149
PA-234M	2.364E+00		3.960E+00	6.443E+00	7.384E-01	0.367
U-235	1.934E-01		1.883E-01	3.128E-01	5.518E-02	0.618
NP-236	-2.734E-02		6.784E-02	1.119E-01	1.070E-02	-0.244
NP-239	-5.103E-02		1.644E-01	2.583E-01	2.135E-02	-0.198
AM-241	1.325E-02		1.241E-01	1.859E-01	1.453E-02	0.071

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	5.392E-02		7.972E-02	1.308E-01	1.115E-02	0.412
AM-246	-2.348E-02		1.139E-01	1.827E-01	1.719E-02	-0.128
CM-247	1.077E-02		2.827E-02	4.725E-02	4.432E-03	0.228
CF-249	3.100E-02		3.396E-02	5.792E-02	5.505E-03	0.535
CF-251	-4.721E-02		1.049E-01	1.713E-01	1.740E-02	-0.276

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600011          *
* Acquisition date   : 22-JAN-2010 08:37:49 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 02:00:02.29             Half life ratio: 8.000       *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600011             Analyst initials: MXR1         *
* Batch Number       : 941635                 Sample Quantity : 1.4700E+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  :              *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.628E+01	2.671E+00	2.083E-01	1.363E+00
CD-109	2.802E+00	8.282E-01	5.383E-01	4.225E-01
SN-126	2.755E-01	8.143E-02	5.315E-02	4.155E-02
BA-137M	4.146E-01	6.564E-02	2.446E-02	3.349E-02
CS-137	4.383E-01	6.943E-02	2.585E-02	3.542E-02
TL-208	5.281E-01	8.670E-02	2.459E-02	4.424E-02
BI-211	3.743E+00	5.338E-01	1.436E-01	2.723E-01
PB-212	1.587E+00	2.239E-01	3.908E-02	1.142E-01
PO-212	1.587E+00	2.239E-01	3.908E-02	1.142E-01
BI-214	9.579E-01	1.711E-01	4.569E-02	8.730E-02
PB-214	1.302E+00	1.973E-01	4.683E-02	1.006E-01
PO-214	1.302E+00	1.973E-01	4.683E-02	1.006E-01
PO-216	1.587E+00	2.239E-01	3.908E-02	1.142E-01
PO-218	1.302E+00	1.973E-01	4.683E-02	1.006E-01
RA-224	4.031E+00	1.138E+00	4.442E-01	5.804E-01
RA-226	9.579E-01	1.711E-01	4.569E-02	8.730E-02
AC-228	1.763E+00	3.101E-01	9.234E-02	1.582E-01
RA-228	1.763E+00	3.101E-01	9.234E-02	1.582E-01
TH-228	1.610E+00	2.272E-01	3.967E-02	1.159E-01
TH-230	9.579E-01	1.711E-01	4.569E-02	8.729E-02
TH-232	1.763E+00	3.101E-01	9.234E-02	1.582E-01
TH-234	2.602E+00	1.490E+00	8.461E-01	7.600E-01
U-234	9.579E-01	1.711E-01	4.569E-02	8.729E-02
NP-237	8.090E-01	2.897E-01	1.798E-01	1.478E-01
U-238	2.602E+00	1.490E+00	8.461E-01	7.600E-01
AM-243	4.188E-01	6.909E-02	3.726E-02	3.525E-02
ANH-511	7.137E-02	5.009E-02	2.037E-02	2.556E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----



BE-7	-3.887E-02	2.617E-01	2.212E-01	1.335E-01	NOT IDENT.
NA-22	4.562E-03	3.484E-02	2.996E-02	1.777E-02	NOT IDENT.
NA-24	-7.113E+05	4.367E+05	0.000E+00	2.228E+05	SHORT HLIF
AL-26	7.531E-03	1.934E-02	1.716E-02	9.870E-03	NOT IDENT.
TI-44	3.061E-01	4.488E-02	3.296E-02	2.290E-02	FAIL ABUN
SC-46	-1.129E-02	2.878E-02	2.414E-02	1.468E-02	FAIL ABUN
V-48	2.397E-02	5.272E-02	4.623E-02	2.690E-02	NOT IDENT.
CR-51	-3.333E-02	2.951E-01	2.616E-01	1.506E-01	NOT IDENT.
MN-52	1.119E-02	1.645E-01	1.392E-01	8.393E-02	FAIL ABUN
MN-54	6.080E-04	2.938E-02	2.555E-02	1.499E-02	NOT IDENT.
CO-56	-2.773E-02	3.018E-02	2.456E-02	1.540E-02	NOT IDENT.
CO-57	2.485E-03	2.227E-02	1.884E-02	1.136E-02	NOT IDENT.
CO-58	-1.567E-02	2.908E-02	2.447E-02	1.484E-02	NOT IDENT.
FE-59	1.546E-02	6.800E-02	5.801E-02	3.469E-02	NOT IDENT.
CO-60	-1.942E-02	2.780E-02	2.207E-02	1.418E-02	NOT IDENT.
ZN-65	3.981E-03	8.096E-02	5.796E-02	4.131E-02	NOT IDENT.
GE-68	7.388E-02	9.715E-01	8.223E-01	4.957E-01	NOT IDENT.
AS-73	-2.092E-01	6.116E-01	5.538E-01	3.121E-01	NOT IDENT.
AS-74	2.772E-02	7.015E-02	6.221E-02	3.579E-02	NOT IDENT.
SE-75	-1.689E-03	4.294E-02	3.212E-02	2.191E-02	NOT IDENT.
BR-77	-4.976E+00	7.703E+00	6.418E+00	3.930E+00	FAIL ABUN
SR-82	-1.167E-01	3.097E-01	2.549E-01	1.580E-01	NOT IDENT.
RB-83	-3.539E-02	5.478E-02	4.564E-02	2.795E-02	NOT IDENT.
RB-84	-2.367E-02	5.116E-02	4.275E-02	2.610E-02	NOT IDENT.
KR-85	2.409E+01	7.319E+00	6.143E+00	3.734E+00	NOT IDENT.
SR-85	1.232E-01	3.742E-02	3.141E-02	1.909E-02	NOT IDENT.
RB-86	-5.358E-02	6.009E-01	5.029E-01	3.066E-01	NOT IDENT.
Y-88	-1.261E-02	2.434E-02	1.893E-02	1.242E-02	NOT IDENT.
ZR-88	-2.570E-02	2.416E-02	1.988E-02	1.233E-02	NOT IDENT.
Y-91	-1.045E+00	1.447E+01	1.237E+01	7.380E+00	NOT IDENT.
NB-94	7.102E-03	2.577E-02	2.232E-02	1.315E-02	NOT IDENT.
NB-95	1.289E-02	3.443E-02	2.965E-02	1.757E-02	NOT IDENT.
NB-95M	1.376E-01	1.196E-01	9.491E-02	6.102E-02	NOT IDENT.
ZR-95	1.992E-02	5.424E-02	4.687E-02	2.767E-02	NOT IDENT.
NB-97	1.629E+05	7.323E+04	0.000E+00	3.736E+04	SHORT HLIF
ZR-97	3.357E+06	1.367E+06	0.000E+00	6.976E+05	SHORT HLIF
MO-99	-1.549E+00	8.275E+00	6.931E+00	4.222E+00	NOT IDENT.
TC-99M	-2.591E+16	1.779E+16	0.000E+00	9.077E+15	SHORT HLIF
RH-101	3.050E-03	2.908E-02	2.513E-02	1.484E-02	NOT IDENT.
RH-102	5.463E-03	2.454E-02	2.079E-02	1.252E-02	NOT IDENT.
RU-103	7.239E-03	3.161E-02	2.714E-02	1.613E-02	FAIL ABUN
RH-106	-6.946E-02	2.478E-01	2.110E-01	1.264E-01	FAIL ABUN
RU-106	-6.946E-02	2.477E-01	2.110E-01	1.264E-01	FAIL ABUN
AG-108M	8.323E-03	2.760E-02	2.411E-02	1.408E-02	NOT IDENT.
AG-110M	6.442E-02	3.311E-02	2.745E-02	1.689E-02	NOT IDENT.
IN-111	-4.663E-01	9.375E-01	6.884E-01	4.783E-01	NOT IDENT.
IN-113M	-1.403E-02	3.523E-02	3.011E-02	1.797E-02	NOT IDENT.
SN-113	-1.403E-02	3.523E-02	3.011E-02	1.797E-02	NOT IDENT.
IN-114M	3.312E-02	1.705E-01	1.343E-01	8.701E-02	NOT IDENT.
CD-115	-3.099E-01	7.747E+00	6.817E+00	3.953E+00	NOT IDENT.
SN-117M	-2.361E-02	4.574E-02	4.068E-02	2.334E-02	NOT IDENT.
SB-122	-4.296E-01	1.462E+00	1.260E+00	7.462E-01	NOT IDENT.
I-123	-8.045E+05	3.476E+06	0.000E+00	1.773E+06	SHORT HLIF
TE-123M	-5.498E-03	2.375E-02	2.133E-02	1.212E-02	NOT IDENT.
I-124	-1.983E-02	5.659E-01	4.217E-01	2.887E-01	NOT IDENT.
SB-124	2.199E-02	5.277E-02	4.696E-02	2.692E-02	FAIL ABUN
SB-125	-3.228E-03	7.654E-02	6.592E-02	3.905E-02	FAIL ABUN
TE-125M	-7.274E-01	7.993E+00	6.791E+00	4.078E+00	NOT IDENT.
I-126	1.204E-01	1.542E-01	1.206E-01	7.869E-02	NOT IDENT.
SB-126	-4.422E-02	1.351E-01	9.569E-02	6.895E-02	FAIL ABUN
SB-127	2.518E-01	1.058E+00	9.165E-01	5.396E-01	NOT IDENT.
XE-127	-1.229E-02	4.092E-02	3.452E-02	2.088E-02	NOT IDENT.
I-131	-6.772E-03	9.211E-02	8.065E-02	4.700E-02	NOT IDENT.
TE-132	7.692E-02	5.496E-01	4.820E-01	2.804E-01	NOT IDENT.
BA-133	-3.028E-02	3.884E-02	2.798E-02	1.982E-02	NOT IDENT.
I-133	-2.096E+03	3.735E+03	0.000E+00	1.906E+03	SHORT HLIF
CS-134	1.102E-01	5.817E-02	3.607E-02	2.968E-02	FAIL ABUN
CS-135	2.422E-01	1.556E-01	1.233E-01	7.936E-02	NOT IDENT.
I-135	-1.214E+15	2.277E+15	0.000E+00	1.162E+15	SHORT HLIF
CS-136	-7.469E-02	8.276E-02	6.522E-02	4.223E-02	FAIL ABUN
CE-139	-2.500E-02	2.439E-02	2.113E-02	1.245E-02	NOT IDENT.
BA-140	3.723E-02	1.934E-01	1.716E-01	9.870E-02	NOT IDENT.
LA-140	-9.941E-02	7.124E-02	5.261E-02	3.635E-02	FAIL ABUN
CE-141	-5.118E-05	5.244E-02	4.783E-02	2.676E-02	NOT IDENT.
CE-143	6.653E+02	2.045E+02	0.000E+00	1.044E+02	SHORT HLIF
CE-144	-1.152E-01	1.705E-01	1.528E-01	8.701E-02	NOT IDENT.
PM-144	-1.539E-02	2.651E-02	2.184E-02	1.353E-02	NOT IDENT.
PR-144	-1.043E+00	1.796E+00	1.480E+00	9.165E-01	NOT IDENT.

PM-146	-1.032E-02	3.556E-02	3.002E-02	1.814E-02	NOT IDENT.
ND-147	-2.137E-01	4.213E-01	3.604E-01	2.150E-01	FAIL ABUN
PM-149	3.069E+01	7.372E+01	6.372E+01	3.761E+01	NOT IDENT.
EU-152	-8.897E-02	8.399E-02	6.582E-02	4.285E-02	FAIL ABUN
GD-153	5.680E-02	6.889E-02	5.600E-02	3.515E-02	NOT IDENT.
EU-154	1.398E-02	9.741E-02	8.383E-02	4.970E-02	NOT IDENT.
EU-155	9.245E-02	9.061E-02	8.048E-02	4.623E-02	FAIL ABUN
TB-160	-8.090E-03	1.019E-01	8.752E-02	5.200E-02	FAIL ABUN
HO-166M	-3.523E-02	4.862E-02	3.956E-02	2.481E-02	FAIL ABUN
TM-171	-7.032E+00	2.358E+01	1.892E+01	1.203E+01	NOT IDENT.
LU-176	5.438E-03	2.063E-02	1.816E-02	1.052E-02	FAIL ABUN
LU-177	2.505E+00	1.402E+00	8.702E-01	7.154E-01	FAIL ABUN
LU-177M	-8.109E-02	1.437E-01	1.211E-01	7.334E-02	NOT IDENT.
HF-181	1.878E-03	3.508E-02	2.994E-02	1.790E-02	NOT IDENT.
W-181	-2.628E-02	3.117E-01	2.529E-01	1.590E-01	NOT IDENT.
TA-182	4.091E-02	1.501E-01	1.307E-01	7.659E-02	FAIL ABUN
RE-183	3.803E-02	9.350E-02	8.348E-02	4.770E-02	FAIL ABUN
RE-184	-1.551E-01	1.995E-01	1.659E-01	1.018E-01	NOT IDENT.
OS-185	8.289E-03	3.338E-02	2.899E-02	1.703E-02	NOT IDENT.
RE-188	2.574E-02	1.425E-01	1.299E-01	7.271E-02	NOT IDENT.
W-188	-2.515E+00	6.970E+00	5.356E+00	3.556E+00	FAIL ABUN
IR-192	-1.357E-03	2.731E-02	2.430E-02	1.393E-02	FAIL ABUN
AU-195	4.604E-01	1.895E-01	1.702E-01	9.669E-02	FAIL ABUN
TL-200	-1.233E+02	3.130E+02	0.000E+00	1.597E+02	SHORT HLIF
TL-201	7.062E-01	5.408E+00	4.888E+00	2.759E+00	NOT IDENT.
TL-202	1.419E-03	5.778E-02	4.977E-02	2.948E-02	NOT IDENT.
HG-203	2.171E-02	3.529E-02	3.078E-02	1.801E-02	NOT IDENT.
BI-207	2.003E-02	4.431E-02	3.838E-02	2.261E-02	FAIL ABUN
TL-207	2.176E-01	5.937E-01	4.678E-01	3.029E-01	FAIL ABUN
PO-209	3.854E-01	5.652E+00	4.889E+00	2.884E+00	NOT IDENT.
BI-210	1.481E+00	2.598E+00	2.401E+00	1.326E+00	NOT IDENT.
PB-210	1.481E+00	2.598E+00	2.401E+00	1.326E+00	NOT IDENT.
PO-210	1.481E+00	2.598E+00	2.401E+00	1.325E+00	NOT IDENT.
PB-211	-7.306E-01	8.694E-01	6.163E-01	4.436E-01	NOT IDENT.
BI-212	8.901E-01	3.534E-01	2.535E-01	1.803E-01	FAIL ABUN
PO-215	2.176E-01	5.937E-01	4.678E-01	3.029E-01	FAIL ABUN
RN-219	3.207E-02	3.107E-01	2.714E-01	1.585E-01	FAIL ABUN
RN-220	-3.246E+01	1.991E+01	1.569E+01	1.016E+01	NOT IDENT.
RA-223	2.176E-01	5.937E-01	4.678E-01	3.029E-01	FAIL ABUN
AC-227	3.035E-01	3.338E-01	2.941E-01	1.703E-01	FAIL ABUN
TH-227	3.035E-01	3.350E-01	2.941E-01	1.709E-01	FAIL ABUN
TH-229	1.309E-01	4.212E-01	3.775E-01	2.149E-01	FAIL ABUN
PA-231	-1.699E-01	1.332E+00	1.129E+00	6.796E-01	FAIL ABUN
TH-231	2.176E-01	5.937E-01	4.678E-01	3.029E-01	FAIL ABUN
U-231	-9.103E-01	9.066E-01	6.763E-01	4.625E-01	FAIL ABUN
PA-233	-8.542E-03	5.204E-02	4.616E-02	2.655E-02	FAIL ABUN
PA-234	-5.818E-02	2.409E-01	1.988E-01	1.229E-01	FAIL ABUN
PA-234M	2.364E+00	3.880E+00	3.272E+00	1.980E+00	NOT IDENT.
U-235	1.934E-01	1.846E-01	1.661E-01	9.417E-02	FAIL ABUN
NP-236	-2.734E-02	6.649E-02	5.928E-02	3.392E-02	NOT IDENT.
NP-239	-5.103E-02	1.611E-01	1.378E-01	8.218E-02	FAIL ABUN
AM-241	1.325E-02	1.216E-01	1.006E-01	6.205E-02	NOT IDENT.
CM-243	5.392E-02	7.813E-02	6.998E-02	3.986E-02	FAIL ABUN
AM-246	-2.348E-02	1.117E-01	9.265E-02	5.697E-02	NOT IDENT.
CM-247	1.077E-02	2.771E-02	2.452E-02	1.414E-02	NOT IDENT.
CF-249	3.100E-02	3.328E-02	3.008E-02	1.698E-02	NOT IDENT.
CF-251	-4.721E-02	1.028E-01	9.056E-02	5.246E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
--------	------------

46.50	338.6898
46.50	338.6898
46.50	338.6898
48.70	366.8315
49.72	345.6255
51.35	350.9290
52.39	361.8134
52.97	385.0486
53.15	363.9403
53.44	377.4422
54.07	362.5758
56.28	401.7953
56.28	401.7996
57.37	0.0000
57.53	391.5432
57.53	391.5463
57.60	394.5005
57.98	400.8086
57.98	400.8086
59.32	411.0889
59.32	411.0889
59.40	411.2191
59.54	411.4480
59.72	401.7000
60.01	402.1614
61.10	412.5400
61.14	412.6039
61.30	412.8608
63.00	470.7872
63.29	471.3075
63.29	471.3075
63.58	471.8254
64.28	502.2738
65.12	518.5000
65.20	525.9802
65.20	525.9802
66.05	567.3174
66.72	509.7766
66.83	509.9825
66.91	510.1330
67.20	538.7142
67.20	538.7142
67.75	543.0398
67.85	543.2373
68.90	533.1097
68.90	533.1097
69.30	468.4361
69.67	534.5723
70.82	584.5759
70.82	584.5759
70.83	584.5968
72.80	554.9717
72.87	555.1067
72.87	555.1067
74.67	558.5016
74.81	558.7632
74.81	558.7632
74.81	558.7632
74.81	558.7632
74.81	558.7632
74.81	558.7632
74.97	559.0641
75.28	559.6436
75.70	560.4255
77.11	563.0385
77.11	563.0385

77.11	563.0385
77.11	563.0385
77.11	563.0385
77.11	563.0385
77.11	563.0385
78.38	565.3730
79.62	549.6714
79.80	549.9873
79.80	549.9873
80.11	586.0005
80.18	586.1310
80.30	586.3542
80.30	586.3542
80.57	586.8558
81.00	663.4326
81.07	663.5799
81.07	663.5799
81.07	663.5799
81.07	663.5799
82.60	550.2000
83.37	587.8618
83.78	588.0903
83.78	588.0903
83.78	588.0903
83.78	588.0903
84.21	527.9522
84.90	540.0233
85.43	576.9541
86.29	694.7728
86.50	695.2112
86.54	695.2955
86.59	695.4000
86.72	695.6732
86.79	535.2422
86.94	535.4860
87.30	536.0619
87.30	536.0619
87.30	536.0619
87.30	536.0619
87.30	536.0619
87.30	536.0619
87.57	536.4925
87.88	536.9879
88.03	537.2266
88.36	537.7505
88.47	537.9269
89.95	540.2667
91.11	542.0903
92.29	543.9321
92.38	544.0721
92.38	544.0721
93.35	545.5740
94.00	546.5779
94.67	434.8608
94.67	434.8670
94.90	435.1472
94.90	435.1472
94.90	435.1472
94.90	435.1472
95.87	486.4221
95.87	486.4221
96.73	453.5666
97.43	404.1254
98.44	332.0043
98.44	332.0058
98.88	355.8664
99.55	384.1547
99.55	384.1547
99.86	440.0215
100.00	440.1880
100.10	447.9404
103.18	443.9217
103.76	404.9800
105.00	395.2480
105.31	401.0894
108.00	501.7664
109.28	457.6256

111.00	442.7798
111.00	442.7798
111.76	480.6750
112.95	467.4407
115.19	439.4128
116.30	420.1475
117.00	444.7354
117.00	444.7354
117.66	445.4335
121.11	438.7148
121.62	419.6865
121.78	419.8406
122.06	427.0176
122.32	427.2723
122.32	427.2723
122.32	427.2723
122.32	427.2723
123.07	407.2441
127.23	507.7474
129.76	440.0415
131.20	526.8953
133.02	540.4753
133.54	497.6885
135.34	447.1555
136.00	464.6952
136.25	464.9421
136.48	456.2578
140.51	549.9745
140.51	0.0000
142.18	462.5931
142.65	438.6651
143.76	455.0340
144.24	461.8140
144.24	461.8140
144.24	461.8140
144.24	461.8140
145.22	487.2257
145.44	496.5200
147.16	520.0869
152.43	461.0681
152.70	461.3090
153.22	457.1630
154.21	479.2728
154.21	479.2728
154.21	479.2728
154.21	479.2728
155.03	465.2267
156.02	458.6923
158.56	480.4510
159.00	0.0000
159.00	463.1392
160.31	466.1412
161.27	430.4744
162.32	420.0547
162.64	404.3552
163.35	437.7603
163.89	442.8921
165.85	458.6284
167.43	424.9215
171.28	428.7930
171.86	430.1828
172.10	430.3652
176.55	420.2431
176.60	420.2798
181.06	400.0291
184.41	421.9629
185.71	422.8714
186.00	423.0762
190.27	420.3295
192.34	410.6775
193.63	408.5603
197.04	445.5869
198.01	420.3644
198.60	418.7567
200.40	423.9353
201.83	475.9821
202.84	443.8885
205.31	419.0881

208.36	438.8401
208.81	406.1214
209.75	406.6935
209.75	406.6935
210.97	404.7922
215.65	398.3217
216.55	383.1366
218.09	415.8239
222.10	400.6756
223.80	403.7169
226.40	382.3441
227.00	375.3880
227.08	375.4293
227.20	377.5730
228.16	377.0382
228.18	377.0493
228.18	377.0493
231.56	0.0000
235.69	400.7563
236.00	390.8203
236.00	390.8203
238.63	351.8486
238.63	351.8486
238.63	351.8486
238.63	351.8486
239.00	352.0239
240.98	352.9589
241.98	353.4314
241.98	353.4314
241.98	353.4314
244.69	334.0374
245.39	347.9928
247.94	316.6386
248.90	304.7932
249.79	312.0382
252.40	344.2944
252.85	356.3341
252.85	356.3341
254.15	0.0000
256.20	321.1038
256.20	321.1038
260.50	359.8090
260.90	353.4653
262.80	337.9509
264.65	325.1776
268.24	303.7848
268.79	307.5061
269.46	318.3099
269.46	318.3099
269.46	318.3099
269.46	318.3099
271.23	297.8460
273.65	383.5592
276.40	299.7027
277.35	282.7944
277.60	288.5843
277.60	288.5843
278.00	303.1593
278.60	307.8210
279.20	324.7217
279.53	324.8464
280.46	353.0456
281.68	352.4382
283.67	321.9565
284.30	312.1253
285.00	333.6540
285.90	307.1044
286.10	317.2652
286.10	317.2652
287.40	311.0037
288.45	0.0000
290.67	339.5977
290.80	339.6483
291.72	332.4847
293.26	0.0000
293.70	307.5979
295.21	323.2292
295.21	323.2292

295.21	323.2292
295.96	353.7374
296.50	353.9517
297.23	354.2421
298.57	354.7753
299.80	264.1683
299.80	264.1683
300.09	267.2943
300.09	267.2943
300.09	267.2943
300.09	267.2943
300.12	267.3015
301.29	279.8146
302.84	303.1479
303.76	295.8311
303.91	295.8784
304.40	291.4623
304.40	291.4623
304.84	273.2816
306.84	280.5128
308.46	278.6587
311.98	284.3360
316.51	265.3111
318.01	282.4617
319.02	286.4828
319.41	282.8810
320.08	270.9724
323.87	257.0975
323.87	257.0975
323.87	257.0975
323.87	257.0975
325.23	269.9429
328.77	285.6568
333.44	240.7652
334.20	222.0538
334.20	222.0538
334.30	250.4269
338.28	280.8495
338.28	280.8495
338.28	280.8495
338.28	280.8495
338.32	280.8640
338.32	280.8640
338.32	280.8640
340.50	250.4142
340.57	250.4303
344.27	287.5481
345.85	264.9536
350.59	0.0000
351.07	264.2578
351.92	231.7772
351.92	231.7772
351.92	231.7772
355.39	0.0000
356.01	249.4342
364.48	244.3236
366.43	244.7740
367.43	241.0994
367.94	0.0000
369.80	212.2849
374.96	232.9671
383.85	260.6339
387.95	228.7731
388.63	240.8568
391.69	232.5335
391.69	232.5335
392.90	240.7764
398.62	199.8211
400.65	200.1757
401.10	195.2243
401.81	200.3798
402.60	192.4572
404.84	249.3669
410.95	226.3238
411.60	240.6655
413.65	244.1367
414.70	225.0116
415.30	212.9009

415.76	215.0232
417.63	0.0000
418.52	227.7801
423.70	223.6416
427.08	212.9533
427.89	225.4481
432.53	245.9430
433.93	219.3263
439.47	214.0796
439.56	225.5269
439.89	228.7065
443.98	236.7595
444.90	229.6277
445.03	229.6519
445.03	229.6519
445.03	229.6519
445.03	229.6519
453.90	211.2954
463.38	196.9756
468.07	219.6514
473.00	194.1615
475.06	192.3267
475.35	184.8895
476.78	198.9964
477.59	199.1167
477.96	217.3775
482.03	197.6315
484.57	176.4842
487.03	192.9756
490.36	0.0000
492.35	166.6760
497.08	167.2513
507.63	0.0000
510.53	0.0000
510.84	204.0097
511.00	204.0324
511.85	204.1539
511.85	204.1539
513.99	170.3865
513.99	170.3865
520.41	190.7295
520.65	190.7633
527.90	175.7477
528.96	0.0000
529.64	175.9564
529.87	0.0000
531.02	177.0535
537.32	161.9886
543.00	156.0699
546.56	0.0000
549.76	190.5727
552.65	142.0294
555.20	154.5174
563.23	165.7501
563.90	173.4055
568.70	163.4896
569.32	175.9141
569.50	169.2796
569.67	169.2977
573.80	188.1837
574.00	189.4795
574.64	191.7867
578.91	198.4608
579.30	0.0000
583.14	177.4761
585.48	164.7007
591.81	167.0100
592.07	175.0970
593.00	178.3858
595.88	160.5254
600.56	165.2587
602.52	0.0000
602.71	176.4646
602.71	176.4646
603.60	179.8920
604.41	183.3154
604.70	178.3458
609.31	174.5316



609.31	174.5316
609.31	174.5316
609.31	174.5316
610.33	174.6408
612.46	174.1688
614.37	169.3385
618.01	151.6018
621.84	163.0854
621.84	163.0854
631.29	153.1331
633.02	135.4893
633.10	141.4290
634.78	132.6587
635.90	137.6991
636.97	127.8741
645.85	140.4922
646.12	142.5083
656.30	142.6273
657.75	134.1468
657.90	0.0000
661.65	167.9106
661.65	167.9106
664.57	0.0000
666.33	133.0715
666.33	133.0715
675.00	144.8620
677.61	145.0715
685.20	156.8887
692.80	149.3565
695.00	160.8011
696.49	164.0072
696.49	164.0072
697.00	170.2047
697.49	175.3766
698.33	163.1439
698.50	163.1600
699.00	156.0171
702.63	149.1241
706.10	140.1283
706.58	0.0000
706.67	146.3566
709.31	161.0115
711.68	168.4486
713.82	159.3295
717.42	140.2211
720.50	167.3096
721.93	0.0000
722.20	185.2718
722.78	181.7658
722.78	181.7658
722.89	181.7764
722.95	181.7800
723.30	180.0331
724.18	165.8476
727.18	128.5990
733.00	121.8223
735.90	121.4092
739.58	133.1727
742.81	145.9992
744.21	141.8967
747.13	112.6339
751.79	150.8872
752.31	148.8171
753.82	138.3666
755.35	121.5605
756.15	126.8970
756.87	121.6540
763.93	181.5379
765.79	163.6407
766.42	157.3132
766.84	157.3463
776.49	154.8959
778.00	164.6307
778.57	152.9150
778.89	148.6603
783.80	139.3707
785.46	147.3528
792.07	151.3105

795.84	92.4299
796.30	97.9979
798.80	129.5874
801.93	142.7610
805.60	91.0068
810.29	127.5081
810.76	129.3987
815.85	105.4468
817.79	113.0155
818.51	119.5938
819.60	119.6540
826.30	120.0313
828.27	0.0000
831.60	145.7071
831.96	141.9706
834.83	148.7505
836.80	0.0000
846.75	139.1532
848.13	122.1905
856.28	0.0000
856.80	116.4908
860.37	108.3426
867.32	98.6496
867.82	98.6712
871.10	101.6067
873.19	94.8359
874.81	102.5721
875.33	0.0000
876.40	105.5228
879.36	107.5820
880.27	111.4688
880.51	114.3640
881.50	113.4524
883.24	102.9547
884.67	98.2059
889.25	111.9097
896.60	113.2356
898.02	128.7997
899.00	129.8218
903.28	107.0104
911.07	139.2619
911.07	139.2619
911.07	139.2619
919.63	100.3481
920.93	126.9567
925.00	99.9224
925.24	95.0344
926.50	104.7986
935.52	99.3814
937.48	127.5285
944.10	135.1749
946.00	121.3284
949.00	100.9274
962.29	88.7940
964.01	108.5172
966.15	108.6122
968.20	108.7016
969.11	108.7434
969.11	108.7434
969.11	108.7434
977.42	103.3508
980.50	118.2613
983.50	97.3315
989.30	96.5508
996.32	123.0425
1001.03	106.0931
1001.68	103.0886
1004.76	128.5104
1021.30	0.0000
1024.50	0.0000
1034.80	111.5851
1036.00	110.6104
1037.82	106.5862
1038.57	110.7196
1038.76	0.0000
1045.16	120.2441
1046.59	123.3942
1048.07	121.4076

1050.47	110.1870
1050.47	110.1870
1062.04	133.4182
1063.62	122.1155
1076.63	107.1061
1077.35	108.1749
1078.86	113.4403
1085.78	128.3323
1099.22	99.6055
1112.02	108.7524
1112.84	119.8477
1115.52	119.9628
1120.29	108.8088
1120.29	108.8088
1120.29	108.8088
1120.29	108.8088
1120.51	108.8196
1121.28	108.8484
1124.00	0.0000
1129.67	109.4366
1131.51	0.0000
1147.95	0.0000
1167.94	110.9023
1173.22	139.3462
1175.09	126.2466
1177.93	104.6790
1189.05	105.0720
1204.90	133.2281
1205.75	0.0000
1213.00	136.4496
1221.42	130.1313
1230.97	184.2891
1235.34	131.6861
1236.41	0.0000
1238.25	135.6600
1246.25	150.4775
1260.41	0.0000
1271.85	108.9238
1274.45	105.1194
1274.54	105.1227
1291.56	92.9648
1298.22	0.0000
1312.09	64.9990
1325.50	61.3113
1325.50	61.3113
1332.49	71.3518
1333.61	71.3760
1360.21	54.9614
1362.66	0.0000
1365.15	41.0313
1368.21	72.1208
1368.53	0.0000
1376.25	48.1948
1384.27	99.6375
1394.10	72.6724
1395.20	64.6172
1407.95	61.8172
1434.06	49.0078
1436.60	52.1097
1457.56	0.0000
1460.81	50.4086
1489.15	48.7312
1509.49	38.5763
1596.49	75.8659
1620.62	41.0310
1678.03	0.0000
1691.02	26.2200
1691.02	26.2200
1706.46	0.0000
1750.46	0.0000
1764.49	29.6509
1764.49	29.6509
1764.49	29.6509
1764.49	29.6509
1770.23	26.7217
1771.40	24.9471
1791.20	0.0000
1808.65	18.9727

1836.01

31.1497

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600011

Total Uranium Activity	7.8315E+00	ug/g
Total Uranium Counting Unc.	4.4321E+00	ug/g
Total Uranium Tpu	2.2613E-06	ug/g
Total Uranium Mda	2.5183E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID : G244600011
*  ANALYST       : MXR1            DETECTOR  : GAM22
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 08:37:49.93  SAMPLE ALQT: 147.000 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.036E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.102E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.026E+00
GROSS GAMMA DLC (pCi/GRAM ) : 9.846E-01

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:50:16.85

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600012.CNF;1
Sample date     : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:49:46
Sample ID       : G244600012      Sample quantity   : 1.32310E+02 GRAM
Detector name   : GAM07           Detector geometry: CAN
Elapsed live time: 0 02:00:00.00  Elapsed real time: 0 02:00:01.40  0.0%
Energy tolerance: 1.50000 keV     Analyst Initials : MXR1
Abundance limit : 75.00000        Sensitivity    : 5.00000
Batch ID        : 941635          Detector SN#    :
Matrix Spike ID :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.62*	41	400	1.10	92.91	89	8	5.63E-03	91.1	
2	0	63.31*	76	649	1.03	126.27	123	9	1.06E-02	63.0	
3	3	74.82*	541	594	1.34	149.29	142	18	7.51E-02	9.1	3.59E+00
4	3	77.14*	834	400	1.08	153.92	142	18	1.16E-01	5.3	
5	3	87.28*	274	466	1.19	174.20	171	21	3.80E-02	14.3	1.34E+00
6	3	89.95	179	440	1.10	179.55	171	21	2.49E-02	20.9	
7	3	92.88*	258	470	1.35	185.40	171	21	3.58E-02	17.1	
8	0	129.25	150	497	1.01	258.12	252	12	2.09E-02	30.7	
9	0	186.02*	236	325	1.23	371.64	367	10	3.27E-02	16.2	
10	0	209.23	101	255	0.94	418.07	415	8	1.40E-02	29.2	
11	5	238.73*	1363	210	1.11	477.04	471	18	1.89E-01	3.3	6.69E-01
12	5	241.68	295	300	1.77	482.96	471	18	4.10E-02	14.8	
13	0	270.36	143	255	1.09	540.31	534	11	1.99E-02	23.2	
14	1	295.29*	407	114	1.21	590.15	582	24	5.66E-02	6.7	1.02E+00
15	1	300.23	98	138	1.33	600.02	582	24	1.36E-02	22.6	
16	0	328.00	63	158	1.32	655.55	651	9	8.81E-03	38.0	
17	0	338.46*	253	189	1.28	676.48	670	13	3.52E-02	13.0	
18	0	352.00*	650	140	1.11	703.56	697	11	9.03E-02	5.3	
19	0	463.72	98	154	2.34	926.96	918	14	1.35E-02	28.8	
20	0	510.72*	136	147	2.19	1020.94	1013	14	1.89E-02	23.7	
21	0	583.52*	383	120	1.58	1166.53	1161	15	5.31E-02	8.3	
22	0	609.46*	501	111	1.42	1218.39	1213	12	6.95E-02	6.2	
23	0	662.84	76	97	0.86	1325.14	1318	16	1.05E-02	31.2	
24	0	727.74*	109	96	1.77	1454.93	1450	15	1.51E-02	22.2	
25	0	794.75	66	46	1.82	1588.93	1581	13	9.10E-03	24.6	
26	0	861.86	49	74	1.87	1723.13	1715	12	6.87E-03	37.7	
27	0	911.46	298	59	1.67	1822.31	1816	15	4.13E-02	7.8	
28	1	964.83	41	73	1.98	1929.05	1924	25	5.66E-03	38.2	3.10E+00
29	1	969.22	209	63	1.98	1937.81	1924	25	2.91E-02	10.3	
30	0	1120.71*	86	105	1.48	2240.77	2234	15	1.19E-02	28.6	
31	0	1461.14*	1464	45	1.99	2921.58	2911	19	2.03E-01	2.8	
32	1	1588.34	23	27	2.32	3175.95	3168	21	3.18E-03	49.7	1.04E+00
33	1	1592.84	22	10	2.00	3184.95	3168	21	3.10E-03	32.3	
34	0	1764.86*	88	9	2.11	3528.98	3520	16	1.22E-02	13.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 10:50:21

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600012.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 7-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 08:49:46  
 Sample ID : G244600012 Sample quantity : 132.31 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA7 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.40 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	Energy	Activity	Act error	MDA	MDA error	Act/MDA
	Ided	(keV)	(pCi/GRAM)		(pCi/GRAM)		
K-40	+	1460.81 *	3.448E+01	3.549E+00	4.954E-01	4.254E-02	69.591
CD-109	+	88.03 *	3.119E+00	9.381E-01	1.107E+00	1.043E-01	2.818
SN-126	+	64.28	4.677E-01	5.933E-01	5.818E-01	8.439E-02	0.804
	+	86.94	1.275E+00	6.427E-01	5.086E-01	2.111E-01	2.507
	+	87.57 *	3.067E-01	9.224E-02	1.091E-01	1.022E-02	2.812
BA-137M	+	661.65 *	1.071E-01	6.752E-02	5.442E-02	4.816E-03	1.969
CS-137	+	661.65 *	1.132E-01	7.138E-02	5.752E-02	5.100E-03	1.969
TL-208		277.35	5.717E-01	3.703E-01	6.490E-01	7.947E-02	0.881
	+	510.84	6.488E-01	3.175E-01	2.290E-01	2.789E-02	2.834
	+	583.14 *	5.206E-01	9.998E-02	6.043E-02	5.781E-03	8.615
	+	860.37	6.327E-01	4.811E-01	4.995E-01	4.885E-02	1.267
BI-210	+	46.50 *	1.360E+00	2.480E+00	2.778E+00	2.606E-01	0.489
PB-210	+	46.50 *	1.360E+00	2.480E+00	2.778E+00	2.606E-01	0.489
PO-210	+	46.50 *	1.360E+00	2.479E+00	2.778E+00	2.364E-01	0.489
BI-211		72.87	7.156E+00	2.576E+00	4.471E+00	3.529E-01	1.600
	+	351.07 *	3.872E+00	5.396E-01	3.185E-01	2.857E-02	12.156
PB-212	+	74.81	2.360E+00	5.205E-01	4.344E-01	5.358E-02	5.433
	+	77.11	2.099E+00	2.819E-01	2.512E-01	2.073E-02	8.358
	+	87.30	1.419E+00	4.496E-01	5.052E-01	6.912E-02	2.808
	+	238.63 *	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
	+	300.09	1.969E+00	9.152E-01	1.166E+00	1.209E-01	1.690
PO-212	+	74.81	2.360E+00	5.205E-01	4.344E-01	5.358E-02	5.433
	+	77.11	2.099E+00	2.819E-01	2.512E-01	2.073E-02	8.358
	+	87.30	1.419E+00	4.496E-01	5.052E-01	6.912E-02	2.808
	+	115.19	2.707E+00	3.362E+00	5.589E+00	4.814E-01	0.484
	+	238.63 *	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
	+	300.09	1.969E+00	9.152E-01	1.166E+00	1.209E-01	1.690
BI-214	+	609.31 *	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
	+	1120.29	1.139E+00	6.621E-01	4.977E-01	5.344E-02	2.288
	+	1764.49	1.610E+00	4.534E-01	3.851E-01	3.167E-02	4.181
PB-214	+	74.81	4.066E+00	8.664E-01	7.485E-01	8.188E-02	5.433
	+	77.11	3.599E+00	5.556E-01	4.306E-01	4.836E-02	8.358
	+	87.30	2.430E+00	7.545E-01	8.655E-01	1.048E-01	2.808
	+	241.98	2.295E+00	7.201E-01	5.330E-01	5.410E-02	4.306



## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.432E+00	2.446E-01	2.041E-01	2.160E-02	7.017
	+	351.92	*	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
	+	74.81		4.066E+00	8.664E-01	7.485E-01	8.188E-02	5.433
	+	77.11		3.599E+00	5.556E-01	4.306E-01	4.836E-02	8.358
	+	87.30		2.430E+00	7.545E-01	8.655E-01	1.048E-01	2.808
	+	241.98		2.295E+00	7.201E-01	5.330E-01	5.410E-02	4.306
PO-216	+	295.21		1.432E+00	2.446E-01	2.041E-01	2.160E-02	7.017
	+	351.92	*	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
	+	74.81		2.360E+00	5.205E-01	4.344E-01	5.358E-02	5.433
	+	77.11		2.099E+00	2.819E-01	2.512E-01	2.073E-02	8.358
	+	87.30		1.419E+00	4.496E-01	5.052E-01	6.912E-02	2.808
	+	238.63	*	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
PO-218	+	300.09		1.969E+00	9.152E-01	1.166E+00	1.209E-01	1.690
	+	74.81		4.066E+00	8.664E-01	7.485E-01	8.188E-02	5.433
	+	77.11		3.599E+00	5.556E-01	4.306E-01	4.836E-02	8.358
	+	87.30		2.430E+00	7.545E-01	8.655E-01	1.048E-01	2.808
	+	241.98		2.295E+00	7.201E-01	5.330E-01	5.410E-02	4.306
	+	295.21		1.432E+00	2.446E-01	2.041E-01	2.160E-02	7.017
RA-224	+	351.92	*	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
	+	240.98	*	4.352E+00	1.343E+00	1.007E+00	8.518E-02	4.321
RA-226	+	609.31	*	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
	+	1120.29		1.139E+00	6.621E-01	4.977E-01	5.344E-02	2.288
AC-228	+	1764.49		1.610E+00	4.534E-01	3.851E-01	3.167E-02	4.181
	+	338.32		1.661E+00	8.103E-01	3.632E-01	1.498E-01	4.575
	+	911.07	*	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
	+	969.11		2.229E+00	6.979E-01	3.741E-01	8.789E-02	5.958
RA-228	+	338.32		1.661E+00	8.103E-01	3.632E-01	1.498E-01	4.575
	+	911.07	*	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
TH-228	+	969.11		2.229E+00	6.979E-01	3.741E-01	8.789E-02	5.958
	+	74.81		2.395E+00	4.792E-01	4.409E-01	3.583E-02	5.433
	+	77.11		2.131E+00	2.861E-01	2.549E-01	2.104E-02	8.358
	+	87.30		1.440E+00	4.330E-01	5.127E-01	4.788E-02	2.808
TH-230	+	238.63	*	1.793E+00	2.086E-01	8.981E-02	8.590E-03	19.960
	+	300.09		1.999E+00	1.491E+00	1.183E+00	7.011E-01	1.690
	+	609.31	*	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
	+	1120.29		1.139E+00	6.621E-01	4.977E-01	5.344E-02	2.288
TH-232	+	1764.49		1.610E+00	4.534E-01	3.851E-01	3.167E-02	4.181
	+	338.32		1.661E+00	4.552E-01	3.632E-01	3.109E-02	4.575
TH-234	+	911.07	*	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
	+	969.11		2.229E+00	6.979E-01	3.741E-01	8.789E-02	5.958
U-234	+	63.29	*	1.182E+00	1.503E+00	1.509E+00	2.626E-01	0.783
	+	92.38		1.924E+00	7.470E-01	7.324E-01	1.344E-01	2.627
NP-237	+	609.31	*	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
	+	1120.29		1.139E+00	6.621E-01	4.977E-01	5.344E-02	2.288
U-238	+	1764.49		1.610E+00	4.534E-01	3.851E-01	3.167E-02	4.181
	+	86.50	*	9.007E-01	3.285E-01	3.601E-01	8.142E-02	2.501
U-238	+	95.87		-2.237E-01	9.341E-01	1.336E+00	3.308E-01	-0.167
	+	63.29	*	1.182E+00	1.503E+00	1.509E+00	2.626E-01	0.783
U-238	+	92.38		1.924E+00	6.815E-01	7.324E-01	6.709E-02	2.627

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.826E-01	7.643E-02	7.055E-02	5.671E-03	5.423
	+	86.72		3.377E+01	1.016E+01	1.349E+01	1.250E+00	2.504
		117.66		-2.807E+00	3.567E+00	5.532E+00	4.758E-01	-0.507
		142.18		2.894E+00	1.745E+01	2.805E+01	2.315E+00	0.103
ANH-511	+	511.00	*	1.402E-01	6.759E-02	4.947E-02	4.395E-03	2.833

## ---- 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	*	-3.183E-01	3.423E-01	5.077E-01	4.791E-02	-0.627
NA-22		1274.54	*	-4.122E-02	4.684E-02	7.042E-02	5.781E-03	-0.585
NA-24		1368.53	*	-1.619E-01	4.684E-02	Half-Life too short		
AL-26		1129.67		1.602E-03	1.912E+00	3.046E+00	2.558E-01	0.001
		1808.65	*	8.303E-03	3.605E-02	6.222E-02	5.074E-03	0.133
TI-44		67.85		-2.305E-03	3.910E-02	5.714E-02	4.311E-03	-0.040
	+	78.38	*	3.874E-01	5.202E-02	6.711E-02	5.618E-03	5.773
SC-46		889.25	*	-2.840E-02	3.774E-02	5.615E-02	5.146E-03	-0.506
	+	1120.51		1.945E-01	1.124E-01	1.404E-01	1.187E-02	1.385
V-48		944.10		-2.329E-01	9.511E-01	1.500E+00	1.364E-01	-0.155
		983.50	*	2.179E-02	7.676E-02	1.269E-01	1.143E-02	0.172
		1312.09		5.637E-03	8.535E-02	1.417E-01	1.162E-02	0.040
CR-51		320.08	*	1.438E-01	3.630E-01	6.103E-01	5.515E-02	0.236
MN-52		744.21		-3.653E-02	2.424E-01	3.938E-01	3.575E-02	-0.093
		848.13		1.867E+00	6.985E+00	1.164E+01	1.069E+00	0.160
		935.52		1.005E-01	2.648E-01	4.428E-01	4.032E-02	0.227
		1246.25		-2.202E+00	7.671E+00	1.238E+01	1.014E+00	-0.178
		1333.61		2.319E+00	4.507E+00	7.891E+00	6.466E-01	0.294
		1434.06	*	-8.011E-02	2.276E-01	3.535E-01	2.939E-02	-0.227
MN-54		834.83	*	6.866E-03	4.177E-02	6.901E-02	6.335E-03	0.099
CO-56		846.75	*	1.382E-02	4.084E-02	6.853E-02	6.292E-03	0.202
		977.42		9.716E-01	3.421E+00	4.949E+00	4.462E-01	0.196
		1037.82		-3.329E-01	3.191E-01	4.814E-01	4.466E-02	-0.692
		1175.09		-1.807E+00	2.357E+00	3.648E+00	2.969E-01	-0.495
		1238.25		1.364E-01	1.017E-01	1.828E-01	1.545E-02	0.746
		1360.21		3.394E-01	1.035E+00	1.767E+00	1.455E-01	0.192
		1771.40		-8.904E-01	3.600E-01	3.859E-01	3.169E-02	-2.307
CO-57		122.06	*	7.676E-03	2.355E-02	3.840E-02	3.304E-03	0.200
		136.48		1.151E-01	2.105E-01	3.442E-01	3.099E-02	0.334
CO-58		810.76	*	-5.203E-02	4.428E-02	6.465E-02	5.939E-03	-0.805
FE-59		142.65		3.723E-01	2.756E+00	4.352E+00	3.589E-01	0.086
		192.34		3.968E-01	8.907E-01	1.530E+00	2.008E-01	0.259
		1099.22	*	2.593E-02	9.857E-02	1.683E-01	1.559E-02	0.154
		1291.56		4.623E-02	1.250E-01	2.140E-01	2.015E-02	0.216
CO-60		1173.22		1.694E-02	4.743E-02	8.120E-02	6.607E-03	0.209
		1332.49	*	-2.002E-03	3.877E-02	6.344E-02	5.197E-03	-0.032
ZN-65		1115.52	*	-9.184E-02	1.190E-01	1.554E-01	1.319E-02	-0.591
GE-68		1077.35	*	7.207E-01	1.423E+00	2.474E+00	2.144E-01	0.291
AS-73		53.44	*	1.382E-01	5.028E-01	8.344E-01	6.266E-02	0.166

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74		595.88	*	-7.352E-03	9.278E-02	1.541E-01	1.382E-02	-0.048
		634.78		-8.718E-02	3.627E-01	5.922E-01	5.280E-02	-0.147
SE-75		66.05		-2.537E+00	3.978E+00	5.656E+00	5.366E-01	-0.448
		96.73		-5.040E-01	7.822E-01	1.091E+00	1.512E-01	-0.462
		121.11		1.057E-02	1.276E-01	2.059E-01	2.307E-02	0.051
		136.00		5.732E-03	4.014E-02	6.459E-02	5.430E-03	0.089
		198.60		6.954E-01	1.723E+00	2.952E+00	2.713E-01	0.236
		264.65	*	4.547E-02	4.832E-02	7.505E-02	6.409E-03	0.606
		279.53		1.078E-03	1.076E-01	1.784E-01	1.573E-02	0.006
		303.91		-3.403E-01	2.271E+00	3.248E+00	3.713E-01	-0.105
		400.65		-8.182E-02	2.674E-01	4.249E-01	4.645E-02	-0.193
BR-77	+	87.88		6.270E+02	1.886E+02	2.803E+02	2.637E+01	2.237
		200.40		1.587E+02	1.487E+02	2.603E+02	2.140E+01	0.610
	+	239.00		2.638E+02	2.832E+01	3.683E+01	3.112E+00	7.161
		249.79		7.000E+01	6.121E+01	1.071E+02	9.079E+00	0.654
		281.68		-6.756E+01	8.206E+01	1.296E+02	1.102E+01	-0.521
		297.23		2.346E+02	6.084E+01	1.092E+02	9.330E+00	2.150
		303.76		-3.243E+01	1.799E+02	2.567E+02	2.197E+01	-0.126
		439.47		5.618E+01	1.350E+02	2.239E+02	1.929E+01	0.251
		484.57		-2.800E+00	2.261E+02	3.617E+02	3.186E+01	-0.008
		520.65	*	4.053E+00	9.590E+00	1.661E+01	1.479E+00	0.244
		574.64		-1.400E+02	1.945E+02	3.082E+02	2.764E+01	-0.454
		578.91		-1.272E+01	9.000E+01	1.291E+02	1.158E+01	-0.099
		585.48		1.334E+03	2.592E+02	4.761E+02	4.270E+01	2.802
		755.35		1.155E+02	1.658E+02	2.867E+02	2.609E+01	0.403
		817.79		-1.063E+02	1.235E+02	1.841E+02	1.688E+01	-0.577
SR-82		698.33		5.114E-01	3.466E+01	5.734E+01	5.142E+00	0.009
		776.49	*	3.049E-01	3.791E-01	6.621E-01	6.046E-02	0.461
		1395.20		-3.097E+00	9.771E+00	1.525E+01	1.262E+00	-0.203
RB-83		520.41	*	3.119E-02	6.823E-02	1.184E-01	1.055E-02	0.263
		529.64		-2.183E-02	1.016E-01	1.683E-01	1.502E-02	-0.130
		552.65		-8.178E-02	1.876E-01	3.044E-01	2.726E-02	-0.269
RB-84		881.50	*	-3.197E-02	6.643E-02	1.023E-01	9.378E-03	-0.313
KR-85		513.99	*	1.299E+01	9.213E+00	1.486E+01	1.322E+00	0.874
SR-85		513.99	*	6.642E-02	4.711E-02	7.601E-02	6.759E-03	0.874
RB-86		1076.63	*	6.509E-01	8.886E-01	1.570E+00	1.361E-01	0.415
Y-88		898.02		-2.134E-02	4.518E-02	7.000E-02	6.437E-03	-0.305
		1836.01	*	2.331E-02	3.975E-02	7.197E-02	5.841E-03	0.324
ZR-88		392.90	*	3.401E-03	3.036E-02	4.968E-02	4.138E-03	0.068
Y-91		1204.90	*	-2.058E+01	2.163E+01	3.310E+01	2.703E+00	-0.622
NB-94		702.63	*	-1.919E-02	3.514E-02	5.555E-02	4.988E-03	-0.345
		871.10		4.234E-03	3.768E-02	6.188E-02	5.677E-03	0.068
NB-95		765.79	*	-2.729E-03	4.309E-02	7.039E-02	6.416E-03	-0.039
NB-95M		235.69	*	5.850E-02	1.345E-01	2.031E-01	1.971E-02	0.288
ZR-95		724.18		-6.414E-03	1.160E-01	1.648E-01	1.606E-02	-0.039
		756.15	*	7.410E-02	7.515E-02	1.324E-01	1.315E-02	0.560
NB-97		657.90	*	-1.349E-02	7.515E-02	Half-Life too short		
		1024.50		4.377E+00	7.515E-02	Half-Life too short		
ZR-97		254.15		-2.713E+00	7.515E-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			1.488E+00	7.515E-02	Half-Life	too short	
	507.63	*		1.416E-01	7.515E-02	Half-Life	too short	
	602.52			-2.718E+00	7.515E-02	Half-Life	too short	
	1021.30			1.100E-01	7.515E-02	Half-Life	too short	
	1147.95			1.568E+00	7.515E-02	Half-Life	too short	
	1362.66			3.369E+00	7.515E-02	Half-Life	too short	
	1750.46			-1.005E+00	7.515E-02	Half-Life	too short	
MO-99	140.51			-2.614E+01	2.599E+01	3.807E+01	1.050E+01	-0.687
	181.06			7.516E-01	1.679E+01	2.520E+01	4.543E+00	0.030
	366.43			-6.402E+00	7.772E+01	1.261E+02	1.068E+01	-0.051
	739.58	*		1.001E+01	1.186E+01	2.062E+01	3.184E+00	0.485
	778.00			-2.685E+01	3.185E+01	4.803E+01	4.387E+00	-0.559
TC-99M	140.51	*		-2.033E+10	3.185E+01	Half-Life	too short	
RH-101	127.23			3.266E-02	3.263E-02	4.921E-02	4.179E-03	0.664
	198.01	*		2.499E-03	3.191E-02	5.401E-02	4.430E-03	0.046
	325.23			4.281E-02	2.348E-01	3.434E-01	2.945E-02	0.125
RH-102	418.52			1.051E-01	2.810E-01	4.663E-01	3.962E-02	0.225
	475.06	*		1.326E-02	2.877E-02	4.775E-02	4.189E-03	0.278
	631.29			2.031E-02	5.477E-02	9.365E-02	8.355E-03	0.217
	697.49			4.229E-02	7.798E-02	1.340E-01	1.201E-02	0.316
	766.84			2.664E-02	1.128E-01	1.884E-01	1.718E-02	0.141
	1046.59			6.859E-02	1.285E-01	2.244E-01	1.973E-02	0.306
	1112.84			1.596E-01	2.748E-01	4.365E-01	3.706E-02	0.366
RU-103	497.08	*		-2.125E-02	4.077E-02	6.220E-02	8.895E-03	-0.342
+	610.33			1.381E+01	2.897E+00	3.099E+00	5.224E-01	4.455
RH-106	511.85	+		6.997E-01	3.374E-01	4.641E-01	4.124E-02	1.508
	621.84	*		5.015E-02	3.122E-01	5.263E-01	7.140E-02	0.095
	1050.47			7.917E-01	2.564E+00	4.405E+00	3.867E-01	0.180
RU-106	511.85	+		6.997E-01	3.374E-01	4.641E-01	4.124E-02	1.508
	621.84	*		5.015E-02	3.122E-01	5.263E-01	4.704E-02	0.095
	1050.47			7.917E-01	2.564E+00	4.405E+00	3.867E-01	0.180
AG-108M	433.93	*		2.622E-03	3.063E-02	4.975E-02	4.441E-03	0.053
	614.37			9.247E-03	4.177E-02	6.197E-02	5.747E-03	0.149
	722.95			-1.926E-02	5.002E-02	6.832E-02	6.391E-03	-0.282
AG-110M	657.75	*		-5.344E-03	3.835E-02	5.433E-02	4.950E-03	-0.098
	677.61			1.992E-01	3.368E-01	5.805E-01	5.305E-02	0.343
	706.67			7.639E-02	2.245E-01	3.797E-01	3.500E-02	0.201
	763.93			-6.793E-02	1.748E-01	2.781E-01	2.599E-02	-0.244
	884.67			-1.911E-02	4.357E-02	6.710E-02	6.326E-03	-0.285
	937.48			-6.813E-02	1.236E-01	1.893E-01	1.779E-02	-0.360
	1384.27			-1.398E-02	1.643E-01	2.668E-01	2.272E-02	-0.052
IN-111	171.28			3.651E-01	9.834E-01	1.581E+00	1.258E-01	0.231
	245.39	*		-1.376E+00	1.104E+00	1.473E+00	1.247E-01	-0.934
IN-113M	391.69	*		-1.099E-02	4.403E-02	7.029E-02	6.042E-03	-0.156
SN-113	391.69	*		-1.099E-02	4.403E-02	7.029E-02	6.042E-03	-0.156
IN-114M	190.27	*		-2.192E-01	1.961E-01	2.726E-01	2.218E-02	-0.804
CD-115	260.90			-1.431E+02	1.195E+02	1.856E+02	1.577E+01	-0.771
	492.35			5.137E+00	3.375E+01	5.465E+01	4.827E+00	0.094
	527.90	*		4.365E+00	9.369E+00	1.629E+01	1.453E+00	0.268

## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M	156.02			1.551E-01	2.254E+00	3.593E+00	2.894E-01	0.043
	158.56	*		2.798E-02	5.450E-02	8.849E-02	7.095E-03	0.316
SB-122	563.90	*		3.093E+00	1.972E+00	3.611E+00	3.238E-01	0.856
	692.80			-3.046E+01	4.099E+01	6.356E+01	5.689E+00	-0.479
I-123	159.00	*		2.956E+00	4.099E+01	Half-Life	too short	
	528.96			-6.596E+01	4.099E+01	Half-Life	too short	
TE-123M	159.00	*		1.999E-02	2.809E-02	4.599E-02	3.710E-03	0.435
I-124	602.71	*		-4.364E-01	7.180E-01	1.029E+00	9.216E-02	-0.424
	722.78			-1.419E+00	5.046E+00	6.982E+00	6.305E-01	-0.203
	1325.50			1.305E+01	3.508E+01	6.011E+01	4.925E+00	0.217
	1376.25			4.404E+01	2.940E+01	5.596E+01	4.618E+00	0.787
	1509.49			8.157E+00	1.421E+01	2.508E+01	2.097E+00	0.325
	1691.02			-1.637E+00	3.228E+00	4.589E+00	3.813E-01	-0.357
SB-124	602.71			-2.636E-02	4.336E-02	6.213E-02	5.567E-03	-0.424
	645.85			-4.654E-01	4.480E-01	6.698E-01	6.291E-02	-0.695
	709.31			1.065E+00	2.952E+00	5.002E+00	4.500E-01	0.213
	713.82			-8.003E-01	1.683E+00	2.666E+00	3.284E-01	-0.300
	722.78			-1.242E-01	4.418E-01	6.113E-01	5.629E-02	-0.203
	+ 968.20			2.288E+01	5.168E+00	8.143E+00	7.361E-01	2.810
	1045.16			1.937E+00	2.687E+00	4.761E+00	4.190E-01	0.407
	1325.50			1.220E+00	3.281E+00	5.621E+00	4.606E-01	0.217
	1368.21			-2.162E-01	1.890E+00	3.062E+00	4.053E-01	-0.071
	1436.60			-2.018E+00	3.491E+00	5.185E+00	4.313E-01	-0.389
	1691.02	*		-3.380E-02	6.666E-02	9.477E-02	8.208E-03	-0.357
SB-125	427.89	*		-9.013E-02	8.609E-02	1.267E-01	1.105E-02	-0.711
	+ 463.38			9.081E-01	5.305E-01	6.096E-01	5.727E-02	1.490
	600.56			8.055E-02	1.804E-01	3.102E-01	2.970E-02	0.260
	635.90			-1.334E-01	2.708E-01	4.325E-01	4.146E-02	-0.309
TE-125M	109.28	*		-6.976E+00	8.504E+00	1.307E+01	1.355E+00	-0.534
I-126	388.63			1.506E-02	2.030E-01	3.315E-01	2.766E-02	0.045
	666.33	*		8.812E-02	2.032E-01	3.060E-01	2.713E-02	0.288
	753.82			-5.744E-01	1.562E+00	2.489E+00	2.264E-01	-0.231
SB-126	223.80			1.726E+00	3.930E+00	6.710E+00	5.624E-01	0.257
	278.60			2.695E+00	2.429E+00	4.224E+00	3.585E-01	0.638
	+ 296.50			1.406E+01	2.235E+00	3.597E+00	3.073E-01	3.910
	414.70			-3.943E-02	7.396E-02	1.150E-01	9.748E-03	-0.343
	415.30			-1.537E+00	6.106E+00	9.701E+00	8.224E-01	-0.158
	555.20			-2.979E-01	3.602E+00	6.007E+00	5.381E-01	-0.050
	573.80			-2.167E-01	1.017E+00	1.676E+00	1.503E-01	-0.129
	593.00			-4.809E-01	9.135E-01	1.465E+00	1.314E-01	-0.328
	656.30			-2.174E+00	4.029E+00	5.457E+00	4.838E-01	-0.398
	666.33			3.680E-02	8.485E-02	1.278E-01	1.133E-02	0.288
	675.00			3.914E-02	2.135E+00	3.541E+00	3.150E-01	0.011
	695.00			5.525E-04	7.668E-02	1.268E-01	1.136E-02	0.004
	697.00			1.518E-01	2.699E-01	4.643E-01	4.161E-02	0.327
	720.50	*		9.700E-02	1.530E-01	2.579E-01	2.328E-02	0.376
	856.80			-2.337E-01	5.823E-01	7.768E-01	7.131E-02	-0.301
	989.30			1.718E-01	1.324E+00	2.159E+00	1.940E-01	0.080
	1034.80			5.762E+00	8.832E+00	1.565E+01	1.383E+00	0.368

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1213.00			-3.103E+00	5.324E+00	8.427E+00	6.887E-01	-0.368
	61.10			3.027E+01	4.053E+01	6.193E+01	6.221E+00	0.489
	252.40			1.426E+00	4.234E+00	7.098E+00	2.980E+00	0.201
	290.80			-2.149E+01	2.247E+01	3.002E+01	3.307E+00	-0.716
	411.60			7.799E+00	1.222E+01	2.049E+01	3.194E+00	0.381
	444.90			6.712E+00	9.408E+00	1.588E+01	1.982E+00	0.423
	473.00			-3.527E-01	1.650E+00	2.603E+00	3.357E-01	-0.136
	543.00			-5.727E+00	1.536E+01	2.453E+01	3.565E+00	-0.233
	603.60			-1.227E+01	1.317E+01	1.716E+01	2.176E+00	-0.715
	685.20	*		9.580E-01	1.372E+00	2.381E+00	2.749E-01	0.402
XE-127	698.50			-1.945E+00	1.487E+01	2.432E+01	3.882E+00	-0.080
	722.20			1.674E+01	3.264E+01	4.925E+01	5.618E+00	0.340
	783.80			2.291E+00	3.547E+00	6.100E+00	7.759E-01	0.376
	57.60			-3.922E+00	3.897E+00	6.144E+00	4.453E-01	-0.638
	145.22			2.603E-01	7.059E-01	1.124E+00	9.231E-02	0.231
	172.10			3.453E-02	1.235E-01	1.977E-01	1.575E-02	0.175
	202.84	*		-2.384E-02	4.545E-02	7.492E-02	6.174E-03	-0.318
	374.96			1.066E-02	1.916E-01	3.132E-01	2.639E-02	0.034
	80.18			-8.255E-01	3.980E+00	5.754E+00	4.949E-01	-0.143
	284.30			-6.474E-01	1.456E+00	2.352E+00	2.107E-01	-0.275
I-131	364.48	*		-1.317E-03	1.097E-01	1.789E-01	1.602E-02	-0.007
	636.97			-1.378E-01	1.506E+00	2.487E+00	2.332E-01	-0.055
	722.89			-2.878E+00	8.264E+00	1.134E+01	1.030E+00	-0.254
	49.72			-2.428E+00	1.092E+01	1.612E+01	1.652E+00	-0.151
	111.76			1.164E+01	2.591E+01	4.257E+01	4.600E+00	0.273
	116.30			-6.717E+00	2.466E+01	3.926E+01	4.232E+00	-0.171
	228.16	*		-2.462E-01	6.069E-01	9.957E-01	1.549E-01	-0.247
	53.15			1.853E-01	2.187E+00	3.607E+00	2.718E-01	0.051
	79.62			-5.306E-02	1.129E+00	1.644E+00	2.492E-01	-0.032
	81.00			-1.493E-01	9.561E-02	1.253E-01	1.990E-02	-1.191
TE-132	276.40			5.099E-01	3.675E-01	6.382E-01	9.171E-02	0.799
	302.84			7.365E-02	1.475E-01	2.218E-01	2.939E-02	0.332
	356.01	*		2.818E-03	4.666E-02	6.714E-02	8.817E-03	0.042
	383.85			1.494E-01	3.085E-01	5.162E-01	6.420E-02	0.289
	510.53	+		1.168E+00	3.085E-01	Half-Life	too short	
	529.87	*		-2.258E-04	3.085E-01	Half-Life	too short	
	706.58			1.140E-01	3.085E-01	Half-Life	too short	
	856.28			-5.471E-02	3.085E-01	Half-Life	too short	
	875.33			2.142E-02	3.085E-01	Half-Life	too short	
	1236.41			7.129E-01	3.085E-01	Half-Life	too short	
BA-133	1298.22			-6.466E-02	3.085E-01	Half-Life	too short	
	475.35			5.403E-01	1.890E+00	3.097E+00	2.717E-01	0.174
	563.23			4.634E-01	3.620E-01	6.544E-01	5.918E-02	0.708
	569.32			-5.278E-02	2.015E-01	3.297E-01	2.993E-02	-0.160
	604.70			-2.893E-02	3.791E-02	5.043E-02	4.528E-03	-0.574
	795.84	+	*	1.283E-01	6.414E-02	8.766E-02	8.077E-03	1.464
	801.93			-1.629E-01	4.523E-01	6.906E-01	6.357E-02	-0.236
	1038.57			-5.147E+00	4.210E+00	6.264E+00	5.528E-01	-0.822
	1167.94			-1.067E+00	2.809E+00	4.528E+00	3.700E-01	-0.236
CS-134								

----- 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			1.681E-01	1.348E+00	2.248E+00	1.944E-01	0.075
	268.24	*		1.977E-01	1.798E-01	2.798E-01	2.759E-02	0.706
	288.45			8.783E+09	1.798E-01	Half-Life	too short	
	417.63			3.000E+09	1.798E-01	Half-Life	too short	
	546.56			3.806E+09	1.798E-01	Half-Life	too short	
	836.80			4.210E+09	1.798E-01	Half-Life	too short	
	1038.76			-1.197E+10	1.798E-01	Half-Life	too short	
	1124.00			-1.779E+09	1.798E-01	Half-Life	too short	
	1131.51			-5.098E+08	1.798E-01	Half-Life	too short	
	1260.41	*		-3.683E+08	1.798E-01	Half-Life	too short	
	1457.56			2.392E+11	1.798E-01	Half-Life	too short	
	1678.03			5.424E+09	1.798E-01	Half-Life	too short	
	1706.46			5.555E+09	1.798E-01	Half-Life	too short	
	1791.20			-3.859E+08	1.798E-01	Half-Life	too short	
CS-136 +	66.91			-2.952E-01	6.466E-01	9.266E-01	1.375E-01	-0.319
	86.29			3.950E+00	1.246E+00	1.745E+00	2.314E-01	2.264
	153.22			4.941E-01	6.497E-01	1.065E+00	9.769E-02	0.464
	163.89			7.161E-01	1.101E+00	1.792E+00	1.622E-01	0.400
	176.55			-8.481E-02	3.405E-01	5.720E-01	4.886E-02	-0.148
	273.65			-5.760E-01	4.952E-01	6.576E-01	5.965E-02	-0.876
	340.57			3.461E-01	1.475E-01	2.422E-01	2.133E-02	1.429
	818.51			-5.832E-02	7.225E-02	1.082E-01	9.934E-03	-0.539
	1048.07	*		-9.167E-02	1.196E-01	1.874E-01	1.715E-02	-0.489
	1235.34			3.295E-01	6.635E-01	1.135E+00	1.310E-01	0.290
CE-139 BA-140	165.85	*		-1.314E-02	3.162E-02	4.911E-02	3.884E-03	-0.268
	162.64			3.765E-02	7.716E-01	1.226E+00	1.042E-01	0.031
	304.84			-7.073E-01	1.399E+00	1.922E+00	5.384E-01	-0.368
	423.70			8.180E-01	1.739E+00	2.879E+00	9.325E-01	0.284
LA-140 +	537.32	*		7.639E-02	2.520E-01	4.306E-01	1.431E-01	0.177
	328.77			5.074E-01	3.880E-01	5.315E-01	4.814E-02	0.955
	432.53			1.027E+00	1.963E+00	3.288E+00	2.958E-01	0.312
	487.03			-6.203E-02	1.392E-01	2.148E-01	2.006E-02	-0.289
	751.79			-2.020E+00	1.792E+00	2.645E+00	2.637E-01	-0.764
	815.85			7.512E-02	3.085E-01	5.157E-01	5.213E-02	0.146
	867.82			4.621E-01	1.558E+00	2.459E+00	2.362E-01	0.188
	919.63			-4.762E-01	3.126E+00	4.490E+00	4.968E-01	-0.106
	925.24			1.058E-01	1.100E+00	1.799E+00	1.733E-01	0.059
	1596.49	*		2.919E-03	8.100E-02	1.135E-01	9.497E-03	0.026
CE-141 CE-143	145.44	*		1.538E-02	6.227E-02	1.003E-01	8.400E-03	0.153
	57.37			-6.245E-04	6.227E-02	Half-Life	too short	
	231.56			1.615E-03	6.227E-02	Half-Life	too short	
	293.26	*		4.469E-04	6.227E-02	Half-Life	too short	
+	350.59			2.707E-02	6.227E-02	Half-Life	too short	
	490.36			5.288E-04	6.227E-02	Half-Life	too short	
	664.57			1.209E-03	6.227E-02	Half-Life	too short	
	721.93			4.633E-05	6.227E-02	Half-Life	too short	
CE-144	80.11			-3.562E-01	1.871E+00	2.707E+00	2.312E-01	-0.132
	133.54	*		2.388E-02	2.266E-01	3.247E-01	5.013E-02	0.074
PM-144	476.78			-4.225E-02	6.964E-02	1.062E-01	1.017E-02	-0.398

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-4.973E-03	3.116E-02	5.129E-02	4.704E-03	-0.097
		696.49	*	3.597E-02	3.422E-02	6.082E-02	5.452E-03	0.592
		778.57		-1.799E+00	2.328E+00	3.543E+00	3.237E-01	-0.508
PR-144		696.49	*	2.437E+00	2.318E+00	4.121E+00	3.693E-01	0.592
		1489.15		-5.129E+00	9.960E+00	1.463E+01	1.222E+00	-0.351
PM-146		453.90	*	2.404E-02	4.405E-02	7.356E-02	7.926E-03	0.327
		633.02		6.723E-01	1.401E+00	2.378E+00	8.904E-01	0.283
		735.90		-7.601E-02	1.940E-01	2.629E-01	7.554E-02	-0.289
		747.13		2.431E-02	9.218E-02	1.549E-01	2.219E-02	0.157
ND-147	+	91.11		6.720E-01	2.890E-01	4.405E-01	4.359E-02	1.526
		319.41		1.625E+00	3.218E+00	5.441E+00	4.667E-01	0.299
		439.89		4.037E-01	5.916E+00	9.583E+00	8.258E-01	0.042
		531.02	*	3.221E-02	5.439E-01	9.193E-01	1.391E-01	0.035
PM-149		285.90	*	2.830E+00	8.330E+01	1.381E+02	2.139E+01	0.020
EU-152		121.78		2.230E-02	6.874E-02	1.121E-01	1.110E-02	0.199
		244.69		-2.487E-02	3.562E-01	5.211E-01	4.413E-02	-0.048
		344.27	*	7.005E-02	1.066E-01	1.612E-01	1.462E-02	0.434
		443.98		-1.249E-01	9.839E-01	1.570E+00	1.356E-01	-0.080
		778.89		-2.225E-01	2.677E-01	4.046E-01	3.696E-02	-0.550
		867.32		3.009E-04	9.977E-01	1.470E+00	1.349E-01	0.000
	+	964.01		4.992E-01	3.841E-01	5.803E-01	5.252E-02	0.860
		1085.78		1.246E-01	4.281E-01	7.335E-01	6.327E-02	0.170
		1112.02		3.123E-01	3.630E-01	6.221E-01	5.285E-02	0.502
		1407.95		8.742E-02	1.896E-01	3.281E-01	2.720E-02	0.266
GD-153		69.67		5.197E-02	1.407E+00	2.075E+00	1.590E-01	0.025
		83.37		6.284E+00	1.402E+01	2.086E+01	1.853E+00	0.301
		97.43	*	1.093E-02	7.867E-02	1.148E-01	1.027E-02	0.095
		103.18		-6.578E-02	9.744E-02	1.532E-01	1.345E-02	-0.429
EU-154		123.07		1.152E-02	5.043E-02	7.802E-02	8.840E-03	0.148
		247.94		-2.759E-01	3.728E-01	5.755E-01	6.543E-02	-0.479
		591.81		-2.937E-01	6.658E-01	9.673E-01	1.154E-01	-0.304
		723.30		-1.260E-01	2.184E-01	2.918E-01	2.890E-02	-0.432
		756.87		5.371E-01	8.342E-01	1.435E+00	1.769E-01	0.374
		873.19		-2.217E-02	3.271E-01	5.285E-01	6.680E-02	-0.042
		996.32		-3.448E-01	4.038E-01	5.863E-01	1.052E-01	-0.588
		1004.76		-4.306E-02	2.229E-01	3.514E-01	4.174E-02	-0.123
		1274.45	*	-1.223E-01	1.317E-01	1.964E-01	2.159E-02	-0.623
EU-155		48.70		-4.566E-01	1.379E+00	2.024E+00	1.638E-01	-0.226
		60.01		1.566E+00	3.652E+00	5.519E+00	3.974E-01	0.284
	+	86.54		3.694E-01	1.112E-01	1.646E-01	1.535E-02	2.244
		105.31	*	8.677E-02	9.932E-02	1.660E-01	1.467E-02	0.523
TB-160	+	86.79		9.844E-01	2.960E-01	4.417E-01	4.097E-02	2.229
		197.04		-6.209E-01	5.442E-01	8.722E-01	7.148E-02	-0.712
		215.65		4.031E-01	7.265E-01	1.248E+00	1.040E-01	0.323
		298.57		1.154E-01	1.088E-01	1.887E-01	1.614E-02	0.612
		879.36	*	4.742E-02	1.352E-01	2.272E-01	2.084E-02	0.209
		962.29		2.527E-01	6.724E-01	9.994E-01	9.048E-02	0.253
	+	966.15		3.420E-01	2.632E-01	5.060E-01	4.577E-02	0.676
		1177.93		-1.891E-01	3.870E-01	6.164E-01	5.019E-02	-0.307



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1271.85			-1.079E-01	7.445E-01	1.213E+00	9.944E-02	-0.089
	80.57			-1.363E-01	2.433E-01	3.455E-01	2.967E-02	-0.394
	184.41			7.183E-02	3.937E-02	6.414E-02	5.185E-03	1.120
	280.46			-8.728E-02	8.509E-02	1.330E-01	1.129E-02	-0.656
	410.95			2.780E-01	2.609E-01	4.483E-01	3.788E-02	0.620
	711.68	*		-7.364E-03	6.497E-02	1.063E-01	9.569E-03	-0.069
TM-171	752.31			-2.694E-01	2.871E-01	4.323E-01	3.931E-02	-0.623
	810.29			-7.685E-02	6.779E-02	9.960E-02	9.130E-03	-0.772
	51.35			-4.870E+00	1.850E+01	2.903E+01	2.242E+00	-0.168
	52.39			1.113E+00	9.153E+00	1.528E+01	1.163E+00	0.073
	59.40			1.376E+01	1.908E+01	2.923E+01	2.102E+00	0.471
	66.72	*		-1.338E+01	2.366E+01	3.379E+01	2.527E+00	-0.396
LU-176	88.36	+		7.274E-01	2.188E-01	3.292E-01	3.094E-02	2.210
	201.83			-2.267E-02	2.810E-02	4.573E-02	3.765E-03	-0.496
	306.84	*		-1.969E-02	2.622E-02	3.975E-02	3.405E-03	-0.495
	401.10			3.184E+00	6.873E+00	1.147E+01	9.620E-01	0.278
LU-177	112.95			4.162E-01	1.503E+00	2.452E+00	2.116E-01	0.170
	208.36	+	*	2.248E+00	1.328E+00	1.930E+00	1.599E-01	1.165
LU-177M	52.97			1.529E-01	9.829E-01	1.625E+00	1.227E-01	0.094
	54.07			1.361E-01	5.170E-01	8.573E-01	6.393E-02	0.159
	61.30			9.673E-01	1.100E+00	1.692E+00	1.225E-01	0.572
	121.62			1.235E-01	3.524E-01	5.753E-01	4.944E-02	0.215
	147.16			-7.087E-02	6.476E-01	1.027E+00	8.402E-02	-0.069
	171.86			1.154E-01	4.982E-01	7.960E-01	6.340E-02	0.145
	218.09			-3.945E-01	8.283E-01	1.362E+00	1.137E-01	-0.290
	268.79			1.997E+00	9.569E-01	1.552E+00	1.319E-01	1.287
	319.02			1.459E-01	2.556E-01	4.337E-01	3.719E-02	0.336
	367.43			3.551E-01	8.531E-01	1.430E+00	1.210E-01	0.248
HF-181	413.65	*		-2.862E-01	1.873E-01	2.688E-01	2.276E-02	-1.065
	56.28			-5.620E-01	5.948E-01	9.405E-01	6.876E-02	-0.598
	57.53			-3.374E-01	3.276E-01	5.159E-01	3.741E-02	-0.654
	65.20			1.577E-01	7.632E-01	1.130E+00	8.362E-02	0.140
	133.02			-3.069E-02	7.385E-02	1.027E-01	8.618E-03	-0.299
	136.25			8.620E-02	4.647E-01	7.491E-01	6.249E-02	0.115
	345.85			-8.666E-02	2.196E-01	3.042E-01	2.599E-02	-0.285
	482.03	*		3.266E-02	4.524E-02	7.611E-02	6.696E-03	0.429
W-181	56.28			-2.202E-01	2.335E-01	3.692E-01	2.699E-02	-0.596
	57.53			-1.326E-01	1.287E-01	2.026E-01	1.469E-02	-0.655
	65.20	*		6.144E-02	2.974E-01	4.403E-01	3.258E-02	0.140
TA-182	67.75			-5.489E-03	9.310E-02	1.361E-01	1.026E-02	-0.040
	100.10			7.217E-02	1.627E-01	2.684E-01	2.377E-02	0.269
	152.43			8.861E-03	3.377E-01	5.378E-01	4.360E-02	0.016
	222.10			1.945E-01	3.438E-01	5.899E-01	4.938E-02	0.330
	1001.68			1.913E+00	2.134E+00	3.710E+00	3.320E-01	0.516
	1121.28	+		5.376E-01	3.105E-01	3.831E-01	3.236E-02	1.403
RE-183	1189.05			6.499E-02	3.192E-01	5.395E-01	4.398E-02	0.120
	1221.42	*		-5.932E-02	2.290E-01	3.723E-01	3.045E-02	-0.159
	1230.97			-1.278E-01	5.176E-01	8.410E-01	6.883E-02	-0.152
	57.98			-1.163E-01	1.295E-01	2.052E-01	1.484E-02	-0.567

----- 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		7.873E-02	7.717E-02	1.198E-01	8.614E-03	0.657
		67.20		-4.604E-03	1.656E-01	2.424E-01	1.819E-02	-0.019
		162.32	*	7.004E-03	1.140E-01	1.813E-01	1.444E-02	0.039
	+	208.81		2.069E+00	1.222E+00	1.775E+00	1.470E-01	1.166
		291.72		-1.016E+00	9.916E-01	1.315E+00	1.122E-01	-0.773
		57.98		-4.292E-01	4.778E-01	7.571E-01	5.477E-02	-0.567
		59.32		2.903E-01	2.845E-01	4.416E-01	3.176E-02	0.657
		67.20		-1.698E-02	6.107E-01	8.940E-01	6.711E-02	-0.019
		161.27		-2.364E-01	3.629E-01	5.575E-01	4.447E-02	-0.424
		216.55		9.843E-03	2.575E-01	4.333E-01	3.613E-02	0.023
OS-185		252.85	*	2.495E-02	2.323E-01	3.892E-01	3.303E-02	0.064
		318.01		3.124E-03	4.433E-01	7.296E-01	6.257E-02	0.004
		792.07		-6.229E-01	1.139E+00	1.499E+00	1.371E-01	-0.416
		903.28		-2.093E-01	1.077E+00	1.664E+00	1.523E-01	-0.126
		920.93		-7.907E-03	4.654E-01	7.522E-01	6.866E-02	-0.011
		59.72		1.432E-01	2.120E-01	3.240E-01	2.331E-02	0.442
		61.14		9.318E-02	1.203E-01	1.843E-01	1.333E-02	0.505
		69.30		7.151E-02	2.487E-01	3.709E-01	2.832E-02	0.193
		592.07		-7.219E-01	2.617E+00	4.029E+00	3.612E-01	-0.179
		646.12	*	-3.489E-02	3.854E-02	5.859E-02	5.209E-03	-0.595
RE-188		717.42		-3.314E-01	9.478E-01	1.519E+00	1.370E-01	-0.218
		874.81		8.801E-02	6.325E-01	1.041E+00	9.549E-02	0.085
		880.27		1.193E-01	7.319E-01	1.209E+00	1.109E-01	0.099
		155.03	*	-1.384E-02	1.724E-01	2.730E-01	2.203E-02	-0.051
		477.96		-1.091E+00	3.216E+00	5.021E+00	4.410E-01	-0.217
W-188	+	633.10		1.374E+00	2.783E+00	4.800E+00	4.280E-01	0.286
		63.58		4.738E+01	5.980E+01	6.780E+01	4.966E+00	0.699
IR-192		227.08		-9.064E+00	1.217E+01	1.967E+01	1.652E+00	-0.461
		290.67	*	-7.763E+00	8.100E+00	1.085E+01	9.251E-01	-0.716
	+	295.96		1.090E+00	1.735E-01	2.858E-01	2.460E-02	3.812
		308.46		2.108E-02	1.004E-01	1.673E-01	1.441E-02	0.126
		316.51	*	2.440E-04	3.456E-02	5.690E-02	4.890E-03	0.004
AU-195		468.07		8.101E-02	7.277E-02	1.133E-01	1.060E-02	0.715
		604.41		-3.694E-01	5.140E-01	6.860E-01	9.086E-02	-0.538
		612.46		2.144E+00	8.834E-01	1.506E+00	1.534E-01	1.424
		65.12		3.792E-02	1.380E-01	2.050E-01	1.516E-02	0.185
		66.83		-3.934E-02	7.837E-02	1.123E-01	8.402E-03	-0.350
TL-200	+	75.70		1.237E+00	2.471E-01	3.957E-01	3.215E-02	3.126
		98.88	*	2.594E-01	2.134E-01	3.459E-01	3.076E-02	0.750
	+	129.76		8.007E+00	4.960E+00	5.033E+00	4.251E-01	1.591
TL-201		367.94	*	6.725E-05	4.960E+00	Half-Life too short		
		579.30		1.556E-05	4.960E+00	Half-Life too short		
		828.27		-6.368E-04	4.960E+00	Half-Life too short		
		1205.75		-2.889E-03	4.960E+00	Half-Life too short		
TL-201		68.90		-2.268E+00	4.274E+00	5.582E+00	4.248E-01	-0.406
		70.82		-1.004E-01	2.211E+00	3.247E+00	2.513E-01	-0.031
		80.30		-9.905E-01	4.186E+00	6.042E+00	5.172E-01	-0.164
		135.34		2.676E+00	2.418E+01	3.887E+01	3.248E+00	0.069
		167.43	*	-2.380E+00	6.880E+00	1.071E+01	8.486E-01	-0.222

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90	-2.128E-01	4.011E-01	5.239E-01	3.987E-02	-0.406
		70.82	-9.397E-03	2.070E-01	3.039E-01	2.352E-02	-0.031
		80.30	-9.274E-02	3.919E-01	5.656E-01	4.842E-02	-0.164
		439.56	* 2.800E-02	6.922E-02	1.148E-01	9.884E-03	0.244
HG-203		70.83	-3.722E-02	9.064E-01	1.331E+00	1.740E-01	-0.028
		72.87	1.418E+00	5.299E-01	8.861E-01	1.129E-01	1.600
		82.60	8.681E-02	1.025E+00	1.503E+00	2.083E-01	0.058
		279.20	* 2.581E-02	4.005E-02	6.842E-02	5.977E-03	0.377
BI-207		72.80	3.935E-01	1.492E-01	2.588E-01	2.041E-02	1.521
	+	74.97	6.867E-01	1.372E-01	1.937E-01	1.562E-02	3.545
		84.90	2.354E-01	1.781E-01	2.730E-01	2.472E-02	0.862
		569.67	-6.616E-03	3.154E-02	5.181E-02	4.646E-03	-0.128
		1063.62	* 2.188E-02	5.421E-02	9.394E-02	8.196E-03	0.233
		1770.23	5.623E-01	4.360E-01	8.393E-01	6.895E-02	0.670
TL-207		81.07	-3.279E-01	2.065E-01	2.768E-01	2.392E-02	-1.185
		83.78	8.343E-02	1.188E-01	1.784E-01	1.593E-02	0.468
		94.90	4.883E-01	2.319E-01	3.637E-01	3.288E-02	1.343
		122.32	4.950E-01	1.622E+00	2.643E+00	2.438E-01	0.187
		144.24	4.574E-01	6.955E-01	1.120E+00	1.041E-01	0.408
		154.21	2.019E-01	3.992E-01	6.482E-01	5.829E-02	0.311
	+	269.46	6.664E-01	3.141E-01	3.820E-01	3.315E-02	1.744
		323.87	* -2.335E-01	7.318E-01	1.025E+00	1.813E-01	-0.228
	+	338.28	6.938E+00	1.996E+00	2.455E+00	3.012E-01	2.826
		445.03	1.677E+00	2.295E+00	3.877E+00	4.693E-01	0.432
PO-209		260.50	-7.940E+00	9.563E+00	1.521E+01	1.292E+00	-0.522
		262.80	-8.969E+00	2.694E+01	4.405E+01	3.743E+00	-0.204
		896.60	* -6.715E-01	8.008E+00	1.289E+01	1.180E+00	-0.052
PB-211		404.84	* 3.607E-01	1.004E+00	1.623E+00	1.016E+00	0.222
		427.08	-4.414E-01	1.912E+00	2.999E+00	1.864E+00	-0.147
		831.96	3.010E-01	1.328E+00	2.185E+00	1.371E+00	0.138
BI-212	+	727.18	* 1.271E+00	5.801E-01	7.208E-01	7.476E-02	1.763
		785.46	1.386E+00	1.852E+00	3.208E+00	2.933E-01	0.432
		1620.62	1.311E+00	1.314E+00	2.438E+00	2.037E-01	0.538
PO-215		81.07	-3.279E-01	2.065E-01	2.768E-01	2.392E-02	-1.185
		83.78	8.343E-02	1.188E-01	1.784E-01	1.593E-02	0.468
		94.90	4.883E-01	2.319E-01	3.637E-01	3.288E-02	1.343
		122.32	4.950E-01	1.622E+00	2.643E+00	2.438E-01	0.187
		144.24	4.574E-01	6.955E-01	1.120E+00	1.041E-01	0.408
		154.21	2.019E-01	3.992E-01	6.482E-01	5.829E-02	0.311
	+	269.46	6.664E-01	3.141E-01	3.820E-01	3.315E-02	1.744
		323.87	* -2.335E-01	7.318E-01	1.025E+00	1.813E-01	-0.228
	+	338.28	6.938E+00	1.996E+00	2.455E+00	3.012E-01	2.826
		445.03	1.677E+00	2.295E+00	3.877E+00	4.693E-01	0.432
RN-219	+	271.23	8.550E-01	4.056E-01	4.774E-01	4.874E-02	1.791
		401.81	* 1.993E-01	4.316E-01	7.187E-01	1.071E-01	0.277
RN-220		549.76	* 9.243E+00	2.488E+01	4.288E+01	3.839E+00	0.216
RA-223		81.07	-3.279E-01	2.065E-01	2.768E-01	2.392E-02	-1.185
		83.78	8.343E-02	1.188E-01	1.784E-01	1.593E-02	0.468
		94.90	4.883E-01	2.319E-01	3.637E-01	3.288E-02	1.343

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		4.950E-01	1.622E+00	2.643E+00	2.438E-01	0.187
		144.24		4.574E-01	6.955E-01	1.120E+00	1.041E-01	0.408
		154.21		2.019E-01	3.992E-01	6.482E-01	5.829E-02	0.311
	+	269.46		6.664E-01	3.141E-01	3.820E-01	3.315E-02	1.744
		323.87	*	-2.335E-01	7.318E-01	1.025E+00	1.813E-01	-0.228
	+	338.28		6.938E+00	1.996E+00	2.455E+00	3.012E-01	2.826
		445.03		1.677E+00	2.295E+00	3.877E+00	4.693E-01	0.432
		79.80		2.060E-02	1.435E+00	2.097E+00	4.501E-01	0.010
		236.00		2.319E-01	2.597E-01	3.995E-01	4.840E-02	0.581
		256.20	*	-1.906E-01	3.746E-01	6.062E-01	9.260E-02	-0.314
		286.10		7.225E-01	1.493E+00	2.530E+00	3.322E-01	0.286
	+	299.80		3.650E+00	1.772E+00	2.601E+00	4.541E-01	1.403
TH-227		304.40		-1.295E+00	2.087E+00	2.852E+00	5.250E-01	-0.454
		334.20		-7.707E-01	2.448E+00	3.418E+00	6.626E-01	-0.225
		79.80		2.060E-02	1.435E+00	2.097E+00	4.559E-01	0.010
	+	94.00		7.435E+00	3.024E+00	3.472E+00	7.626E-01	2.142
		236.00		2.319E-01	2.594E-01	3.995E-01	4.369E-02	0.581
		256.20	*	-1.906E-01	3.750E-01	6.062E-01	1.091E-01	-0.314
		286.10		7.225E-01	1.657E+00	2.530E+00	2.539E+00	0.286
	+	299.80		3.650E+00	1.772E+00	2.601E+00	4.541E-01	1.403
		304.40		-1.295E+00	2.087E+00	2.852E+00	5.250E-01	-0.454
		334.20		-7.707E-01	2.448E+00	3.418E+00	6.626E-01	-0.225
		85.43		3.131E-01	1.810E-01	2.799E-01	2.552E-02	1.119
	+	88.47		4.188E-01	1.259E-01	1.897E-01	1.781E-02	2.208
TH-229		100.00		1.053E-01	1.688E-01	2.801E-01	2.482E-02	0.376
		193.63	*	2.518E-01	4.892E-01	8.427E-01	6.881E-02	0.299
		210.97		9.521E-01	8.489E-01	1.331E+00	1.105E-01	0.716
		283.67	*	-5.748E-01	1.470E+00	2.378E+00	3.596E-01	-0.242
	+	301.29		1.460E+00	6.849E-01	1.032E+00	1.259E-01	1.414
		81.07		-3.279E-01	2.065E-01	2.768E-01	2.392E-02	-1.185
		83.78		8.343E-02	1.188E-01	1.784E-01	1.593E-02	0.468
		94.90		4.883E-01	2.319E-01	3.637E-01	3.288E-02	1.343
		122.32		4.950E-01	1.622E+00	2.643E+00	2.438E-01	0.187
		144.24		4.574E-01	6.955E-01	1.120E+00	1.041E-01	0.408
		154.21		2.019E-01	3.992E-01	6.482E-01	5.829E-02	0.311
	+	269.46		6.664E-01	3.141E-01	3.820E-01	3.315E-02	1.744
U-231		323.87	*	-2.335E-01	7.318E-01	1.025E+00	1.813E-01	-0.228
	+	338.28		6.938E+00	1.996E+00	2.455E+00	3.012E-01	2.826
		445.03		1.677E+00	2.295E+00	3.877E+00	4.693E-01	0.432
		84.21		2.248E+00	4.969E+00	7.386E+00	6.632E-01	0.304
	+	92.29		7.047E+00	2.496E+00	3.450E+00	3.162E-01	2.043
		95.87	*	-2.432E-01	1.014E+00	1.452E+00	1.307E-01	-0.167
		108.00		-2.719E+00	1.845E+00	2.743E+00	2.382E-01	-0.991
	+	75.28		2.004E+01	4.744E+00	5.903E+00	8.887E-01	3.395
	+	86.59		6.004E+00	2.364E+00	2.679E+00	7.242E-01	2.241
	+	300.12		1.018E+00	4.850E-01	7.274E-01	1.079E-01	1.399
		311.98	*	3.208E-02	6.650E-02	1.123E-01	9.901E-03	0.286
		340.50		1.859E+00	8.422E-01	1.214E+00	2.891E-01	1.532
		398.62		9.361E-01	2.116E+00	3.509E+00	9.318E-01	0.267
PA-233								

---- 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		7.576E-01	1.615E+00	2.685E+00	5.773E-01	0.282
		63.00		1.377E+00	1.748E+00	1.993E+00	2.951E-01	0.691
		94.67		5.025E-01	1.773E-01	2.731E-01	3.470E-02	1.840
		98.44		1.015E-01	1.076E-01	1.402E-01	7.831E-02	0.724
		99.86		2.801E-01	4.277E-01	7.107E-01	6.298E-02	0.394
		111.00		3.943E-02	1.682E-01	2.742E-01	3.321E-02	0.144
		131.20		6.570E-02	1.151E-01	1.693E-01	1.426E-02	0.388
		152.70		6.524E-02	3.282E-01	5.263E-01	8.837E-02	0.124
		186.00		5.750E+00	2.581E+00	2.558E+00	7.947E-01	2.248
		226.40		-3.030E-01	3.880E-01	6.241E-01	8.149E-02	-0.486
		227.20		-4.080E-01	4.157E-01	6.633E-01	5.571E-02	-0.615
		248.90		4.934E-01	8.095E-01	1.377E+00	3.078E-01	0.358
		293.70		4.658E+00	1.144E+00	1.626E+00	2.807E-01	2.864
		369.80		8.531E-03	7.936E-01	1.295E+00	2.811E-01	0.007
		568.70		-9.098E-01	1.045E+00	1.632E+00	1.464E-01	-0.557
	569.50		-6.567E-02	2.794E-01	4.581E-01	4.108E-02	-0.143	
	574.00		-5.945E-01	1.498E+00	2.437E+00	2.186E-01	-0.244	
	699.00		-3.076E-01	7.357E-01	1.173E+00	2.256E-01	-0.262	
	706.10		3.671E-02	1.132E+00	1.874E+00	8.369E-01	0.020	
	733.00		-1.525E-01	4.432E-01	6.043E-01	1.352E-01	-0.252	
	742.81		-2.655E-01	1.454E+00	2.339E+00	1.574E+00	-0.113	
	796.30		8.819E-01	1.121E+00	1.692E+00	4.606E-01	0.521	
	805.60		3.621E-01	1.155E+00	1.926E+00	5.933E-01	0.188	
	819.60		-5.822E-01	1.250E+00	1.918E+00	7.318E-01	-0.304	
	826.30		-8.251E-01	9.128E-01	1.232E+00	5.524E-01	-0.670	
	831.60		2.508E-01	6.639E-01	1.111E+00	3.334E-01	0.226	
	876.40		2.112E-01	9.019E-01	1.455E+00	1.496E+00	0.145	
	880.51		4.791E-02	2.598E-01	4.303E-01	3.946E-02	0.111	
	883.24		-1.423E-01	2.782E-01	3.983E-01	2.680E-01	-0.357	
	899.00		-1.565E-01	9.206E-01	1.449E+00	6.349E-01	-0.108	
	925.00		3.005E-01	1.153E+00	1.916E+00	1.748E-01	0.157	
	926.50		-1.867E-02	1.726E-01	2.761E-01	7.028E-02	-0.068	
	946.00	*	1.793E-02	3.021E-01	4.911E-01	9.322E-02	0.037	
	949.00		1.136E-01	4.408E-01	7.304E-01	6.633E-02	0.155	
	980.50		-9.936E-02	7.932E-01	1.262E+00	1.137E-01	-0.079	
	1394.10		7.371E-02	1.006E+00	1.667E+00	1.084E+00	0.044	
PA-234M		766.42		1.199E+00	1.154E+01	1.908E+01	9.695E+00	0.063
		1001.03	*	5.130E+00	4.845E+00	8.516E+00	8.732E-01	0.602
U-235	+	89.95		2.719E+00	1.417E+00	1.683E+00	5.226E-01	1.616
		93.35		2.313E+00	1.026E+00	1.137E+00	3.204E-01	2.034
	+	105.00		9.864E-01	1.018E+00	1.641E+00	4.903E-01	0.601
		143.76	*	1.051E-01	2.147E-01	3.428E-01	5.937E-02	0.307
		163.35		7.924E-02	4.969E-01	7.929E-01	1.489E-01	0.100
		185.71		2.130E-01	7.112E-02	9.446E-02	7.647E-03	2.255
NP-236	+	205.31		1.384E-01	5.448E-01	8.181E-01	1.548E-01	0.169
		94.67		3.833E-01	1.302E-01	2.073E-01	1.877E-02	1.849
		98.44		7.669E-02	6.950E-02	1.060E-01	9.444E-03	0.723
		111.00		2.983E-02	1.272E-01	2.074E-01	1.794E-02	0.144
		160.31	*	-6.623E-02	8.367E-02	1.277E-01	1.021E-02	-0.519

---- 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		1.031E-01	1.428E-01	2.378E-01	2.110E-02	0.433
		117.00	*	-1.256E-01	1.799E-01	2.804E-01	2.412E-02	-0.448
	+	209.75		1.636E+00	9.661E-01	1.403E+00	1.163E-01	1.166
		228.18		-8.366E-02	2.091E-01	3.436E-01	2.888E-02	-0.243
		277.60		2.287E-01	1.782E-01	3.121E-01	2.649E-02	0.733
		334.30		-4.731E-01	1.383E+00	1.929E+00	1.653E-01	-0.245
AM-241		59.54	*	7.209E-02	1.116E-01	1.704E-01	1.351E-02	0.423
CM-243		99.55		1.060E-01	1.469E-01	2.447E-01	2.171E-02	0.433
		103.76	*	6.915E-03	8.907E-02	1.447E-01	1.268E-02	0.048
		117.00		-1.292E-01	1.850E-01	2.884E-01	2.482E-02	-0.448
	+	209.75		1.613E+00	9.523E-01	1.383E+00	1.147E-01	1.166
		228.18		-8.453E-02	2.113E-01	3.472E-01	2.918E-02	-0.243
		277.60		2.305E-01	1.796E-01	3.146E-01	2.671E-02	0.733
AM-246		798.80		-4.531E-02	1.552E-01	2.111E-01	1.933E-02	-0.215
		1036.00		2.967E-01	2.977E-01	5.414E-01	4.784E-02	0.548
		1062.04		-2.093E-02	2.426E-01	4.036E-01	3.524E-02	-0.052
	*	1078.86		9.793E-02	1.630E-01	2.853E-01	2.470E-02	0.343
CM-247		278.00		8.129E-01	7.410E-01	1.289E+00	1.094E-01	0.631
		287.40		1.462E+00	1.244E+00	2.115E+00	1.801E-01	0.691
	*	402.60		2.763E-03	3.894E-02	6.343E-02	5.326E-03	0.044
CF-249		252.85		9.373E-02	8.726E-01	1.462E+00	1.241E-01	0.064
		333.44		-1.677E-02	2.202E-01	2.642E-01	2.264E-02	-0.063
	*	387.95		2.874E-02	3.864E-02	6.579E-02	5.491E-03	0.437
CF-251		176.60	*	-2.723E-02	1.191E-01	2.002E-01	1.604E-02	-0.136
		227.00		-2.697E-01	3.663E-01	5.923E-01	4.974E-02	-0.455
		285.00		-7.487E-01	1.716E+00	2.772E+00	2.359E-01	-0.270

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600012      *
* Acquisition date   : 22-JAN-2010 08:49:46 Detector SN# :                  *
* Detector ID        : GAM07 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 02:00:01.40 Half life ratio : 8.000                *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600012 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.3231E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.448E+01	3.478E+00	4.961E-01	0.000E+00
CD-109	3.119E+00	9.194E-01	1.163E+00	0.000E+00
SN-126	3.067E-01	9.040E-02	1.146E-01	0.000E+00
BA-137M	1.071E-01	6.617E-02	5.525E-02	0.000E+00
CS-137	1.132E-01	6.995E-02	5.841E-02	0.000E+00
TL-208	5.206E-01	9.798E-02	6.150E-02	0.000E+00
BI-210	1.360E+00	2.430E+00	2.948E+00	0.000E+00
PB-210	1.360E+00	2.430E+00	2.948E+00	0.000E+00
PO-210	1.360E+00	2.430E+00	2.948E+00	0.000E+00
BI-211	3.872E+00	5.288E-01	3.269E-01	0.000E+00
PB-212	1.766E+00	2.014E-01	9.143E-02	0.000E+00
PO-212	1.766E+00	2.014E-01	9.143E-02	0.000E+00
BI-214	1.284E+00	2.041E-01	1.165E-01	0.000E+00
PB-214	1.347E+00	1.964E-01	1.140E-01	0.000E+00
PO-214	1.347E+00	1.964E-01	1.140E-01	0.000E+00
PO-216	1.766E+00	2.014E-01	9.143E-02	0.000E+00
PO-218	1.347E+00	1.964E-01	1.140E-01	0.000E+00
RA-224	4.352E+00	1.316E+00	1.041E+00	0.000E+00
RA-226	1.284E+00	2.041E-01	1.165E-01	0.000E+00
AC-228	1.798E+00	3.432E-01	2.164E-01	0.000E+00
RA-228	1.798E+00	3.432E-01	2.164E-01	0.000E+00
TH-228	1.793E+00	2.044E-01	9.279E-02	0.000E+00
TH-230	1.284E+00	2.041E-01	1.165E-01	0.000E+00
TH-232	1.798E+00	3.432E-01	2.164E-01	0.000E+00
TH-234	1.182E+00	1.473E+00	1.593E+00	0.000E+00
U-234	1.284E+00	2.041E-01	1.165E-01	0.000E+00
NP-237	9.007E-01	3.219E-01	3.783E-01	0.000E+00
U-238	1.182E+00	1.473E+00	1.593E+00	0.000E+00
AM-243	3.826E-01	7.490E-02	7.429E-02	0.000E+00
ANH-511	1.402E-01	6.623E-02	5.045E-02	0.000E+00

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-3.183E-01	3.354E-01	5.184E-01	0.000E+00	NOT IDENT.
NA-22	-4.122E-02	4.590E-02	7.069E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.834E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	8.303E-03	3.533E-02	6.207E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.098E-02	7.061E-02	0.000E+00	FAIL ABUN
SC-46	-2.840E-02	3.699E-02	5.673E-02	0.000E+00	FAIL ABUN
V-48	2.179E-02	7.523E-02	1.280E-01	0.000E+00	NOT IDENT.
CR-51	1.438E-01	3.558E-01	6.274E-01	0.000E+00	NOT IDENT.
MN-52	-8.011E-02	2.231E-01	3.541E-01	0.000E+00	NOT IDENT.
MN-54	6.866E-03	4.094E-02	6.979E-02	0.000E+00	NOT IDENT.
CO-56	1.382E-02	4.002E-02	6.929E-02	0.000E+00	NOT IDENT.
CO-57	7.676E-03	2.308E-02	4.012E-02	0.000E+00	NOT IDENT.
CO-58	-5.203E-02	4.340E-02	6.541E-02	0.000E+00	NOT IDENT.
FE-59	2.593E-02	9.660E-02	1.694E-01	0.000E+00	NOT IDENT.
CO-60	-2.002E-03	3.799E-02	6.363E-02	0.000E+00	NOT IDENT.
ZN-65	-9.184E-02	1.564E-01	1.564E-01	0.000E+00	NOT IDENT.
GE-68	7.207E-01	1.395E+00	2.491E+00	0.000E+00	NOT IDENT.
AS-73	1.382E-01	4.927E-01	8.834E-01	0.000E+00	NOT IDENT.
AS-74	-7.352E-03	9.092E-02	1.568E-01	0.000E+00	NOT IDENT.
SE-75	4.547E-02	4.736E-02	7.741E-02	0.000E+00	NOT IDENT.
BR-77	4.053E+00	9.398E+00	1.693E+01	0.000E+00	FAIL ABUN
SR-82	3.049E-01	3.715E-01	6.704E-01	0.000E+00	NOT IDENT.
RB-83	3.119E-02	6.686E-02	1.207E-01	0.000E+00	NOT IDENT.
RB-84	-3.197E-02	6.510E-02	1.033E-01	0.000E+00	NOT IDENT.
KR-85	1.299E+01	9.029E+00	1.516E+01	0.000E+00	NOT IDENT.
SR-85	6.642E-02	4.617E-02	7.752E-02	0.000E+00	NOT IDENT.
RB-86	6.509E-01	8.709E-01	1.581E+00	0.000E+00	NOT IDENT.
Y-88	2.331E-02	3.896E-02	7.178E-02	0.000E+00	NOT IDENT.
ZR-88	3.401E-03	2.975E-02	5.089E-02	0.000E+00	NOT IDENT.
Y-91	-2.058E+01	2.120E+01	3.326E+01	0.000E+00	NOT IDENT.
NB-94	-1.919E-02	3.443E-02	5.635E-02	0.000E+00	NOT IDENT.
NB-95	-2.729E-03	4.223E-02	7.129E-02	0.000E+00	NOT IDENT.
NB-95M	5.850E-02	1.318E-01	2.099E-01	0.000E+00	NOT IDENT.
ZR-95	7.410E-02	7.365E-02	1.341E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	8.194E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.637E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.001E+01	1.163E+01	2.090E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.986E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.499E-03	3.127E-02	5.598E-02	0.000E+00	NOT IDENT.
RH-102	1.326E-02	2.819E-02	4.876E-02	0.000E+00	NOT IDENT.
RU-103	-2.125E-02	3.996E-02	6.347E-02	0.000E+00	FAIL ABUN
RH-106	5.015E-02	3.059E-01	5.350E-01	0.000E+00	FAIL ABUN
RU-106	5.015E-02	3.059E-01	5.350E-01	0.000E+00	FAIL ABUN
AG-108M	2.622E-03	3.002E-02	5.088E-02	0.000E+00	NOT IDENT.
AG-110M	-5.344E-03	3.758E-02	5.518E-02	0.000E+00	NOT IDENT.
IN-111	-1.376E+00	1.082E+00	1.521E+00	0.000E+00	NOT IDENT.
IN-113M	-1.099E-02	4.315E-02	7.201E-02	0.000E+00	NOT IDENT.
SN-113	-1.099E-02	4.315E-02	7.201E-02	0.000E+00	NOT IDENT.
IN-114M	-2.192E-01	1.921E-01	2.827E-01	0.000E+00	NOT IDENT.
CD-115	4.365E+00	9.182E+00	1.660E+01	0.000E+00	NOT IDENT.
SN-117M	2.798E-02	5.341E-02	9.204E-02	0.000E+00	NOT IDENT.
SB-122	3.093E+00	1.932E+00	3.677E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.070E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.999E-02	2.753E-02	4.783E-02	0.000E+00	NOT IDENT.
I-124	-4.364E-01	7.036E-01	1.046E+00	0.000E+00	NOT IDENT.
SB-124	-3.380E-02	6.532E-02	9.465E-02	0.000E+00	FAIL ABUN
SB-125	-9.013E-02	8.437E-02	1.296E-01	0.000E+00	FAIL ABUN
TE-125M	-6.976E+00	8.334E+00	1.368E+01	0.000E+00	NOT IDENT.
I-126	8.812E-02	1.991E-01	3.107E-01	0.000E+00	NOT IDENT.
SB-126	9.700E-02	1.499E-01	2.615E-01	0.000E+00	FAIL ABUN
SB-127	9.580E-01	1.345E+00	2.416E+00	0.000E+00	NOT IDENT.
XE-127	-2.384E-02	4.454E-02	7.762E-02	0.000E+00	NOT IDENT.
I-131	-1.317E-03	1.076E-01	1.835E-01	0.000E+00	NOT IDENT.
TE-132	-2.462E-01	5.948E-01	1.030E+00	0.000E+00	NOT IDENT.
BA-133	2.818E-03	4.572E-02	6.890E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.665E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.286E-02	8.873E-02	0.000E+00	FAIL ABUN
CS-135	1.977E-01	1.762E-01	2.885E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.975E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.167E-02	1.173E-01	1.888E-01	0.000E+00	FAIL ABUN
CE-139	-1.314E-02	3.098E-02	5.105E-02	0.000E+00	NOT IDENT.
BA-140	7.639E-02	2.470E-01	4.388E-01	0.000E+00	NOT IDENT.
LA-140	2.919E-03	7.938E-02	1.135E-01	0.000E+00	FAIL ABUN
CE-141	1.538E-02	6.103E-02	1.045E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.588E+02	0.000E+00	0.000E+00	SHORT HLIF



CE-144	2.388E-02	2.220E-01	3.388E-01	0.000E+00	NOT IDENT.
PM-144	3.597E-02	3.353E-02	6.170E-02	0.000E+00	NOT IDENT.
PR-144	2.437E+00	2.272E+00	4.180E+00	0.000E+00	NOT IDENT.
PM-146	2.404E-02	4.317E-02	7.518E-02	0.000E+00	NOT IDENT.
ND-147	3.221E-02	5.330E-01	9.370E-01	0.000E+00	FAIL ABUN
PM-149	2.830E+00	8.163E+01	1.423E+02	0.000E+00	NOT IDENT.
EU-152	7.005E-02	1.045E-01	1.656E-01	0.000E+00	FAIL ABUN
GD-153	1.093E-02	7.710E-02	1.204E-01	0.000E+00	NOT IDENT.
EU-154	-1.223E-01	1.291E-01	1.971E-01	0.000E+00	NOT IDENT.
EU-155	8.677E-02	9.733E-02	1.738E-01	0.000E+00	FAIL ABUN
TB-160	4.742E-02	1.325E-01	2.296E-01	0.000E+00	FAIL ABUN
HO-166M	-7.364E-03	6.367E-02	1.078E-01	0.000E+00	NOT IDENT.
TM-171	-1.338E+01	2.319E+01	3.564E+01	0.000E+00	NOT IDENT.
LU-176	-1.969E-02	2.569E-02	4.090E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.301E+00	1.999E+00	0.000E+00	FAIL ABUN
LU-177M	-2.862E-01	1.835E-01	2.751E-01	0.000E+00	NOT IDENT.
HF-181	3.266E-02	4.433E-02	7.771E-02	0.000E+00	NOT IDENT.
W-181	6.144E-02	2.914E-01	4.647E-01	0.000E+00	NOT IDENT.
TA-182	-5.932E-02	2.245E-01	3.741E-01	0.000E+00	FAIL ABUN
RE-183	7.004E-03	1.118E-01	1.885E-01	0.000E+00	FAIL ABUN
RE-184	2.495E-02	2.277E-01	4.017E-01	0.000E+00	NOT IDENT.
OS-185	-3.489E-02	3.777E-02	5.952E-02	0.000E+00	NOT IDENT.
RE-188	-1.384E-02	1.689E-01	2.840E-01	0.000E+00	NOT IDENT.
W-188	-7.763E+00	7.938E+00	1.117E+01	0.000E+00	FAIL ABUN
IR-192	2.440E-04	3.387E-02	5.851E-02	0.000E+00	FAIL ABUN
AU-195	2.594E-01	2.091E-01	3.626E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.639E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.380E+00	6.743E+00	1.113E+01	0.000E+00	NOT IDENT.
TL-202	2.800E-02	6.783E-02	1.173E-01	0.000E+00	NOT IDENT.
HG-203	2.581E-02	3.925E-02	7.050E-02	0.000E+00	NOT IDENT.
BI-207	2.188E-02	5.313E-02	9.460E-02	0.000E+00	FAIL ABUN
TL-207	-2.335E-01	7.172E-01	1.054E+00	0.000E+00	FAIL ABUN
PO-209	-6.715E-01	7.848E+00	1.302E+01	0.000E+00	NOT IDENT.
PB-211	3.607E-01	9.840E-01	1.662E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.685E-01	7.307E-01	0.000E+00	FAIL ABUN
PO-215	-2.335E-01	7.172E-01	1.054E+00	0.000E+00	FAIL ABUN
RN-219	1.993E-01	4.229E-01	7.360E-01	0.000E+00	FAIL ABUN
RN-220	9.243E+00	2.438E+01	4.368E+01	0.000E+00	NOT IDENT.
RA-223	-2.335E-01	7.172E-01	1.054E+00	0.000E+00	FAIL ABUN
AC-227	-1.906E-01	3.671E-01	6.255E-01	0.000E+00	FAIL ABUN
TH-227	-1.906E-01	3.675E-01	6.255E-01	0.000E+00	FAIL ABUN
TH-229	2.518E-01	4.795E-01	8.737E-01	0.000E+00	FAIL ABUN
PA-231	-5.748E-01	1.441E+00	2.450E+00	0.000E+00	FAIL ABUN
TH-231	-2.335E-01	7.172E-01	1.054E+00	0.000E+00	FAIL ABUN
U-231	-2.432E-01	9.940E-01	1.523E+00	0.000E+00	FAIL ABUN
PA-233	3.208E-02	6.517E-02	1.155E-01	0.000E+00	FAIL ABUN
PA-234	1.793E-02	2.961E-01	4.955E-01	0.000E+00	FAIL ABUN
PA-234M	5.130E+00	4.748E+00	8.585E+00	0.000E+00	NOT IDENT.
U-235	1.051E-01	2.104E-01	3.572E-01	0.000E+00	FAIL ABUN
NP-236	-6.623E-02	8.200E-02	1.328E-01	0.000E+00	NOT IDENT.
NP-239	-1.256E-01	1.763E-01	2.931E-01	0.000E+00	FAIL ABUN
AM-241	7.209E-02	1.094E-01	1.801E-01	0.000E+00	NOT IDENT.
CM-243	6.915E-03	8.729E-02	1.516E-01	0.000E+00	FAIL ABUN
AM-246	9.793E-02	1.598E-01	2.872E-01	0.000E+00	NOT IDENT.
CM-247	2.763E-03	3.817E-02	6.496E-02	0.000E+00	NOT IDENT.
CF-249	2.874E-02	3.786E-02	6.741E-02	0.000E+00	NOT IDENT.
CF-251	-2.723E-02	1.167E-01	2.079E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600012.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:49:46
Sample ID          : G244600012      Sample quantity   : 1.32310E+02 GRAM
Detector name      : GAM07            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.40  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941635            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	1464	10.67*	1.129E+00	3.448E+01	3.448E+01	10.29
CD-109	88.03	274	3.72*	6.838E+00	3.051E+00	3.119E+00	30.08
SN-126	64.28	76	9.60	4.800E+00	4.677E-01	4.677E-01	126.85
	86.94	274	8.90	6.838E+00	1.275E+00	1.275E+00	50.41
	87.57	274	37.00*	6.838E+00	3.067E-01	3.067E-01	30.08
BA-137M	661.65	76	89.98*	2.228E+00	1.070E-01	1.071E-01	63.03
CS-137	661.65	76	85.12*	2.228E+00	1.131E-01	1.132E-01	63.03
TL-208	277.35	-----	6.80	4.401E+00	-----	Line Not Found	-----
	510.84	136	21.60	2.756E+00	6.488E-01	6.488E-01	48.94
	583.14	383	84.20*	2.475E+00	5.206E-01	5.206E-01	19.20
	860.37	49	12.46	1.780E+00	6.327E-01	6.327E-01	76.04
BI-210	46.50	41	4.05*	2.090E+00	1.358E+00	1.360E+00	182.34
PB-210	46.50	41	4.05*	2.090E+00	1.358E+00	1.360E+00	182.34
PO-210	46.50	41	4.05*	2.090E+00	1.358E+00	1.360E+00	182.30
BI-211	72.87	-----	1.27	5.899E+00	-----	Line Not Found	-----
	351.07	650	12.94*	3.681E+00	3.872E+00	3.872E+00	13.94
PB-212	74.81	541	10.70	6.073E+00	2.360E+00	2.360E+00	22.06
	77.11	834	18.00	6.259E+00	2.099E+00	2.099E+00	13.43
	87.30	274	8.00	6.838E+00	1.419E+00	1.419E+00	31.69
	238.63	1363	44.60*	4.909E+00	1.766E+00	1.766E+00	11.63
	300.09	98	3.41	4.150E+00	1.969E+00	1.969E+00	46.47
PO-212	74.81	541	10.70	6.073E+00	2.360E+00	2.360E+00	22.06
	77.11	834	18.00	6.259E+00	2.099E+00	2.099E+00	13.43
	87.30	274	8.00	6.838E+00	1.419E+00	1.419E+00	31.69
	115.19	-----	0.60	7.150E+00	-----	Line Not Found	-----
	238.63	1363	44.60*	4.909E+00	1.766E+00	1.766E+00	11.63
	300.09	98	3.41	4.150E+00	1.969E+00	1.969E+00	46.47
BI-214	609.31	501	46.30*	2.389E+00	1.284E+00	1.284E+00	16.22
	1120.29	86	15.10	1.414E+00	1.139E+00	1.139E+00	58.14
	1764.49	88	15.80	9.832E-01	1.610E+00	1.610E+00	28.16
PB-214	74.81	541	6.21	6.073E+00	4.066E+00	4.066E+00	21.31
	77.11	834	10.50	6.259E+00	3.599E+00	3.599E+00	15.44

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	274	4.67	6.838E+00	2.430E+00	2.430E+00	31.05
	241.98	295	7.49	4.866E+00	2.295E+00	2.295E+00	31.37
	295.21	407	19.20	4.201E+00	1.432E+00	1.432E+00	17.08
	351.92	650	37.20*	3.681E+00	1.347E+00	1.347E+00	14.88
	74.81	541	6.21	6.073E+00	4.066E+00	4.066E+00	21.31
	77.11	834	10.50	6.259E+00	3.599E+00	3.599E+00	15.44
	87.30	274	4.67	6.838E+00	2.430E+00	2.430E+00	31.05
	241.98	295	7.49	4.866E+00	2.295E+00	2.295E+00	31.37
	295.21	407	19.20	4.201E+00	1.432E+00	1.432E+00	17.08
	351.92	650	37.20*	3.681E+00	1.347E+00	1.347E+00	14.88
PO-216	74.81	541	10.70	6.073E+00	2.360E+00	2.360E+00	22.06
	77.11	834	18.00	6.259E+00	2.099E+00	2.099E+00	13.43
	87.30	274	8.00	6.838E+00	1.419E+00	1.419E+00	31.69
	238.63	1363	44.60*	4.909E+00	1.766E+00	1.766E+00	11.63
	300.09	98	3.41	4.150E+00	1.969E+00	1.969E+00	46.47
PO-218	74.81	541	6.21	6.073E+00	4.066E+00	4.066E+00	21.31
	77.11	834	10.50	6.259E+00	3.599E+00	3.599E+00	15.44
	87.30	274	4.67	6.838E+00	2.430E+00	2.430E+00	31.05
	241.98	295	7.49	4.866E+00	2.295E+00	2.295E+00	31.37
	295.21	407	19.20	4.201E+00	1.432E+00	1.432E+00	17.08
RA-224	351.92	650	37.20*	3.681E+00	1.347E+00	1.347E+00	14.88
	240.98	295	3.95*	4.866E+00	4.352E+00	4.352E+00	30.86
RA-226	609.31	501	46.30*	2.389E+00	1.284E+00	1.284E+00	16.22
	1120.29	86	15.10	1.414E+00	1.139E+00	1.139E+00	58.14
AC-228	1764.49	88	15.80	9.832E-01	1.610E+00	1.610E+00	28.16
	338.32	253	11.40	3.792E+00	1.661E+00	1.661E+00	48.77
	911.07	298	27.70*	1.695E+00	1.798E+00	1.798E+00	19.48
	969.11	209	16.60	1.606E+00	2.229E+00	2.229E+00	31.31
	338.32	253	11.40	3.792E+00	1.661E+00	1.661E+00	48.77
RA-228	911.07	298	27.70*	1.695E+00	1.798E+00	1.798E+00	19.48
	969.11	209	16.60	1.606E+00	2.229E+00	2.229E+00	31.31
TH-228	74.81	541	10.70	6.073E+00	2.360E+00	2.395E+00	20.01
	77.11	834	18.00	6.259E+00	2.099E+00	2.131E+00	13.43
	87.30	274	8.00	6.838E+00	1.419E+00	1.440E+00	30.08
	238.63	1363	44.60*	4.909E+00	1.766E+00	1.793E+00	11.63
	300.09	98	3.41	4.150E+00	1.969E+00	1.999E+00	74.60
TH-230	609.31	501	46.30*	2.389E+00	1.284E+00	1.284E+00	16.22
	1120.29	86	15.10	1.414E+00	1.139E+00	1.139E+00	58.14
	1764.49	88	15.80	9.832E-01	1.610E+00	1.610E+00	28.16
TH-232	338.32	253	11.40	3.792E+00	1.661E+00	1.661E+00	27.40
	911.07	298	27.70*	1.695E+00	1.798E+00	1.798E+00	19.48
	969.11	209	16.60	1.606E+00	2.229E+00	2.229E+00	31.31
TH-234	63.29	76	3.80*	4.800E+00	1.182E+00	1.182E+00	127.22
	92.38	258	5.41	7.021E+00	1.924E+00	1.924E+00	38.83
U-234	609.31	501	46.30*	2.389E+00	1.284E+00	1.284E+00	16.22
	1120.29	86	15.10	1.414E+00	1.139E+00	1.139E+00	58.14
	1764.49	88	15.80	9.832E-01	1.610E+00	1.610E+00	28.16
NP-237	86.50	274	12.60*	6.838E+00	9.007E-01	9.007E-01	36.47
	95.87	-----	2.60	7.087E+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	76	3.80*	4.800E+00	1.182E+00	1.182E+00	127.22
	92.38	258	5.41	7.021E+00	1.924E+00	1.924E+00	35.42
AM-243	74.67	541	66.00*	6.073E+00	3.826E-01	3.826E-01	19.98
	86.72	274	0.34	6.838E+00	3.377E+01	3.377E+01	30.08
	117.66	-----	0.55	7.126E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	6.723E+00	-----	Line Not Found	-----
	511.00	136	100.00*	2.756E+00	1.402E-01	1.402E-01	48.22

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G244600012

Page : 4  
Acquisition date : 22-JAN-2010 08:49:46

Total number of lines in spectrum 34  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 32 94.12%

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	3.448E+01	3.448E+01	0.355E+01	10.29	
CD-109	464.00D	1.02	3.051E+00	3.119E+00	0.938E+00	30.08	
SN-126	1.00E+05Y	1.00	3.067E-01	3.067E-01	0.922E-01	30.08	
BA-137M	30.17Y	1.00	1.070E-01	1.071E-01	0.675E-01	63.03	
CS-137	30.17Y	1.00	1.131E-01	1.132E-01	0.714E-01	63.03	
TL-208	1.41E+10Y	1.00	5.206E-01	5.206E-01	0.100E+00	19.20	
BI-210	22.26Y	1.00	1.358E+00	1.360E+00	2.480E+00	182.34	
PB-210	22.26Y	1.00	1.358E+00	1.360E+00	2.480E+00	182.34	
PO-210	22.26Y	1.00	1.358E+00	1.360E+00	2.479E+00	182.30	
BI-211	7.04E+08Y	1.00	3.872E+00	3.872E+00	0.540E+00	13.94	
PB-212	1.41E+10Y	1.00	1.766E+00	1.766E+00	0.205E+00	11.63	
PO-212	1.41E+10Y	1.00	1.766E+00	1.766E+00	0.205E+00	11.63	
BI-214	1600.00Y	1.00	1.284E+00	1.284E+00	0.208E+00	16.22	
PB-214	1600.00Y	1.00	1.347E+00	1.347E+00	0.200E+00	14.88	
PO-214	1600.00Y	1.00	1.347E+00	1.347E+00	0.200E+00	14.88	
PO-216	1.41E+10Y	1.00	1.766E+00	1.766E+00	0.205E+00	11.63	
PO-218	1600.00Y	1.00	1.347E+00	1.347E+00	0.200E+00	14.88	
RA-224	1.41E+10Y	1.00	4.352E+00	4.352E+00	1.343E+00	30.86	
RA-226	1600.00Y	1.00	1.284E+00	1.284E+00	0.208E+00	16.22	
AC-228	1.41E+10Y	1.00	1.798E+00	1.798E+00	0.350E+00	19.48	
RA-228	1.41E+10Y	1.00	1.798E+00	1.798E+00	0.350E+00	19.48	
TH-228	1.91Y	1.01	1.766E+00	1.793E+00	0.209E+00	11.63	
TH-230	4.47E+09Y	1.00	1.284E+00	1.284E+00	0.208E+00	16.22	
TH-232	1.41E+10Y	1.00	1.798E+00	1.798E+00	0.350E+00	19.48	
TH-234	4.47E+09Y	1.00	1.182E+00	1.182E+00	1.503E+00	127.22	
U-234	4.47E+09Y	1.00	1.284E+00	1.284E+00	0.208E+00	16.22	
NP-237	2.14E+06Y	1.00	9.007E-01	9.007E-01	3.285E-01	36.47	
U-238	4.47E+09Y	1.00	1.182E+00	1.182E+00	1.503E+00	127.22	
AM-243	7380.00Y	1.00	3.826E-01	3.826E-01	0.764E-01	19.98	
ANH-511	1.00E+09Y	1.00	1.402E-01	1.402E-01	0.676E-01	48.22	

Total Activity : 7.629E+01 7.639E+01

Grand Total Activity : 7.629E+01 7.639E+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	89.95	179	440	1.10	179.55	171	21	2.49E-02	41.8	6.94E+00	T
0	129.25	150	497	1.01	258.12	252	12	2.09E-02	61.4	6.97E+00	T
0	186.02	236	325	1.23	371.64	367	10	3.27E-02	32.4	5.81E+00	T
0	209.23	101	255	0.94	418.07	415	8	1.40E-02	58.5	5.38E+00	T
0	270.36	143	255	1.09	540.31	534	11	1.99E-02	46.3	4.49E+00	T
0	328.00	63	158	1.32	655.55	651	9	8.81E-03	75.9	3.88E+00	T
0	463.72	98	154	2.34	926.96	918	14	1.35E-02	57.7	2.97E+00	T
0	727.74	109	96	1.77	1454.93	1450	15	1.51E-02	44.5	2.06E+00	T
0	794.75	66	46	1.82	1588.93	1581	13	9.10E-03	49.1	1.91E+00	T
1	964.83	41	73	1.98	1929.05	1924	25	5.66E-03	76.4	1.61E+00	T
1	1588.34	23	27	2.32	3175.95	3168	21	3.18E-03	99.5	1.06E+00	
1	1592.84	22	10	2.00	3184.95	3168	21	3.10E-03	64.6	1.06E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600012.CNF;1  *
* Acquisition date   : 22-JAN-2010 08:49:46  Detector SN#      :              *
* Detector ID        : GAM07                  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 02:00:01.40          Half life ratio  : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00.  Nuclide Library   : SOLID          *
* Sample ID          : G244600012             Analyst initials: MXR1           *
* Batch Number       : 941635                 Sample Quantity  : 1.32310E+02 GRAM *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58.0MS 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	3.448E+01	3.549E+00	4.954E-01	4.254E-02	69.591
CD-109	3.119E+00	9.381E-01	1.107E+00	1.043E-01	2.818
SN-126	3.067E-01	9.224E-02	1.091E-01	1.022E-02	2.812
BA-137M	1.071E-01	6.752E-02	5.442E-02	4.816E-03	1.969
CS-137	1.132E-01	7.138E-02	5.752E-02	5.100E-03	1.969
TL-208	5.206E-01	9.998E-02	6.043E-02	5.781E-03	8.615
BI-210	1.360E+00	2.480E+00	2.778E+00	2.606E-01	0.489
PB-210	1.360E+00	2.480E+00	2.778E+00	2.606E-01	0.489
PO-210	1.360E+00	2.479E+00	2.778E+00	2.364E-01	0.489
BI-211	3.872E+00	5.396E-01	3.185E-01	2.857E-02	12.156
PB-212	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
PO-212	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
BI-214	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
PB-214	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
PO-214	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
PO-216	1.766E+00	2.055E-01	8.849E-02	8.464E-03	19.960
PO-218	1.347E+00	2.004E-01	1.110E-01	1.152E-02	12.130
RA-224	4.352E+00	1.343E+00	1.007E+00	8.518E-02	4.321

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
AC-228	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
RA-228	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
TH-228	1.793E+00	2.086E-01	8.981E-02	8.590E-03	19.960
TH-230	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
TH-232	1.798E+00	3.502E-01	2.143E-01	2.496E-02	8.388
TH-234	1.182E+00	1.503E+00	1.509E+00	2.626E-01	0.783
U-234	1.284E+00	2.083E-01	1.146E-01	1.186E-02	11.204
NP-237	9.007E-01	3.285E-01	3.601E-01	8.142E-02	2.501
U-238	1.182E+00	1.503E+00	1.509E+00	2.626E-01	0.783
AM-243	3.826E-01	7.643E-02	7.055E-02	5.671E-03	5.423
ANH-511	1.402E-01	6.759E-02	4.947E-02	4.395E-03	2.833

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.183E-01		3.423E-01	5.077E-01	4.791E-02	-0.627
NA-22	-4.122E-02		4.684E-02	7.042E-02	5.781E-03	-0.585
NA-24	-1.619E-01		2.977E-01	Half-Life	too short	
AL-26	8.303E-03		3.605E-02	6.222E-02	5.074E-03	0.133
TI-44	3.874E-01	+	5.202E-02	6.711E-02	5.618E-03	5.773
SC-46	-2.840E-02		3.774E-02	5.615E-02	5.146E-03	-0.506
V-48	2.179E-02		7.676E-02	1.269E-01	1.143E-02	0.172
CR-51	1.438E-01		3.630E-01	6.103E-01	5.515E-02	0.236
MN-52	-8.011E-02		2.276E-01	3.535E-01	2.939E-02	-0.227
MN-54	6.866E-03		4.177E-02	6.901E-02	6.335E-03	0.099
CO-56	1.382E-02		4.084E-02	6.853E-02	6.292E-03	0.202
CO-57	7.676E-03		2.355E-02	3.840E-02	3.304E-03	0.200
CO-58	-5.203E-02		4.428E-02	6.465E-02	5.939E-03	-0.805
FE-59	2.593E-02		9.857E-02	1.683E-01	1.559E-02	0.154
CO-60	-2.002E-03		3.877E-02	6.344E-02	5.197E-03	-0.032
ZN-65	-9.184E-02		1.190E-01	1.554E-01	1.319E-02	-0.591
GE-68	7.207E-01		1.423E+00	2.474E+00	2.144E-01	0.291
AS-73	1.382E-01		5.028E-01	8.344E-01	6.266E-02	0.166
AS-74	-7.352E-03		9.278E-02	1.541E-01	1.382E-02	-0.048
SE-75	4.547E-02		4.832E-02	7.505E-02	6.409E-03	0.606
BR-77	4.053E+00		9.590E+00	1.661E+01	1.479E+00	0.244
SR-82	3.049E-01		3.791E-01	6.621E-01	6.046E-02	0.461
RB-83	3.119E-02		6.823E-02	1.184E-01	1.055E-02	0.263
RB-84	-3.197E-02		6.643E-02	1.023E-01	9.378E-03	-0.313
KR-85	1.299E+01		9.213E+00	1.486E+01	1.322E+00	0.874
SR-85	6.642E-02		4.711E-02	7.601E-02	6.759E-03	0.874
RB-86	6.509E-01		8.886E-01	1.570E+00	1.361E-01	0.415
Y-88	2.331E-02		3.975E-02	7.197E-02	5.841E-03	0.324
ZR-88	3.401E-03		3.036E-02	4.968E-02	4.138E-03	0.068
Y-91	-2.058E+01		2.163E+01	3.310E+01	2.703E+00	-0.622
NB-94	-1.919E-02		3.514E-02	5.555E-02	4.988E-03	-0.345



----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	-2.729E-03		4.309E-02	7.039E-02	6.416E-03	-0.039
NB-95M	5.850E-02		1.345E-01	2.031E-01	1.971E-02	0.288
ZR-95	7.410E-02		7.515E-02	1.324E-01	1.315E-02	0.560
NB-97	-1.349E-02		4.181E-02	Half-Life	too short	
ZR-97	1.416E-01		8.351E-01	Half-Life	too short	
MO-99	1.001E+01		1.186E+01	2.062E+01	3.184E+00	0.485
TC-99M	-2.033E+10		1.013E+10	Half-Life	too short	
RH-101	2.499E-03		3.191E-02	5.401E-02	4.430E-03	0.046
RH-102	1.326E-02		2.877E-02	4.775E-02	4.189E-03	0.278
RU-103	-2.125E-02		4.077E-02	6.220E-02	8.895E-03	-0.342
RH-106	5.015E-02		3.122E-01	5.263E-01	7.140E-02	0.095
RU-106	5.015E-02		3.122E-01	5.263E-01	4.704E-02	0.095
AG-108M	2.622E-03		3.063E-02	4.975E-02	4.441E-03	0.053
AG-110M	-5.344E-03		3.835E-02	5.433E-02	4.950E-03	-0.098
IN-111	-1.376E+00		1.104E+00	1.473E+00	1.247E-01	-0.934
IN-113M	-1.099E-02		4.403E-02	7.029E-02	6.042E-03	-0.156
SN-113	-1.099E-02		4.403E-02	7.029E-02	6.042E-03	-0.156
IN-114M	-2.192E-01		1.961E-01	2.726E-01	2.218E-02	-0.804
CD-115	4.365E+00		9.369E+00	1.629E+01	1.453E+00	0.268
SN-117M	2.798E-02		5.450E-02	8.849E-02	7.095E-03	0.316
SB-122	3.093E+00		1.972E+00	3.611E+00	3.238E-01	0.856
I-123	2.956E+00		2.077E+00	Half-Life	too short	
TE-123M	1.999E-02		2.809E-02	4.599E-02	3.710E-03	0.435
I-124	-4.364E-01		7.180E-01	1.029E+00	9.216E-02	-0.424
SB-124	-3.380E-02		6.666E-02	9.477E-02	8.208E-03	-0.357
SB-125	-9.013E-02		8.609E-02	1.267E-01	1.105E-02	-0.711
TE-125M	-6.976E+00		8.504E+00	1.307E+01	1.355E+00	-0.534
I-126	8.812E-02		2.032E-01	3.060E-01	2.713E-02	0.288
SB-126	9.700E-02		1.530E-01	2.579E-01	2.328E-02	0.376
SB-127	9.580E-01		1.372E+00	2.381E+00	2.749E-01	0.402
XE-127	-2.384E-02		4.545E-02	7.492E-02	6.174E-03	-0.318
I-131	-1.317E-03		1.097E-01	1.789E-01	1.602E-02	-0.007
TE-132	-2.462E-01		6.069E-01	9.957E-01	1.549E-01	-0.247
BA-133	2.818E-03		4.666E-02	6.714E-02	8.817E-03	0.042
I-133	-2.258E-04		2.380E-03	Half-Life	too short	
CS-134	1.283E-01	+	6.414E-02	8.766E-02	8.077E-03	1.464
CS-135	1.977E-01		1.798E-01	2.798E-01	2.759E-02	0.706
I-135	-3.683E+08		1.518E+09	Half-Life	too short	
CS-136	-9.167E-02		1.196E-01	1.874E-01	1.715E-02	-0.489
CE-139	-1.314E-02		3.162E-02	4.911E-02	3.884E-03	-0.268
BA-140	7.639E-02		2.520E-01	4.306E-01	1.431E-01	0.177
LA-140	2.919E-03		8.100E-02	1.135E-01	9.497E-03	0.026
CE-141	1.538E-02		6.227E-02	1.003E-01	8.400E-03	0.153
CE-143	4.469E-04		8.100E-05	Half-Life	too short	
CE-144	2.388E-02		2.266E-01	3.247E-01	5.013E-02	0.074
PM-144	3.597E-02		3.422E-02	6.082E-02	5.452E-03	0.592
PR-144	2.437E+00		2.318E+00	4.121E+00	3.693E-01	0.592
PM-146	2.404E-02		4.405E-02	7.356E-02	7.926E-03	0.327

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	3.221E-02		5.439E-01	9.193E-01	1.391E-01	0.035
PM-149	2.830E+00		8.330E+01	1.381E+02	2.139E+01	0.020
EU-152	7.005E-02		1.066E-01	1.612E-01	1.462E-02	0.434
GD-153	1.093E-02		7.867E-02	1.148E-01	1.027E-02	0.095
EU-154	-1.223E-01		1.317E-01	1.964E-01	2.159E-02	-0.623
EU-155	8.677E-02		9.932E-02	1.660E-01	1.467E-02	0.523
TB-160	4.742E-02		1.352E-01	2.272E-01	2.084E-02	0.209
HO-166M	-7.364E-03		6.497E-02	1.063E-01	9.569E-03	-0.069
TM-171	-1.338E+01		2.366E+01	3.379E+01	2.527E+00	-0.396
LU-176	-1.969E-02		2.622E-02	3.975E-02	3.405E-03	-0.495
LU-177	2.248E+00	+	1.328E+00	1.930E+00	1.599E-01	1.165
LU-177M	-2.862E-01		1.873E-01	2.688E-01	2.276E-02	-1.065
HF-181	3.266E-02		4.524E-02	7.611E-02	6.696E-03	0.429
W-181	6.144E-02		2.974E-01	4.403E-01	3.258E-02	0.140
TA-182	-5.932E-02		2.290E-01	3.723E-01	3.045E-02	-0.159
RE-183	7.004E-03		1.140E-01	1.813E-01	1.444E-02	0.039
RE-184	2.495E-02		2.323E-01	3.892E-01	3.303E-02	0.064
OS-185	-3.489E-02		3.854E-02	5.859E-02	5.209E-03	-0.595
RE-188	-1.384E-02		1.724E-01	2.730E-01	2.203E-02	-0.051
W-188	-7.763E+00		8.100E+00	1.085E+01	9.251E-01	-0.716
IR-192	2.440E-04		3.456E-02	5.690E-02	4.890E-03	0.004
AU-195	2.594E-01		2.134E-01	3.459E-01	3.076E-02	0.750
TL-200	6.725E-05		1.857E-04	Half-Life too short		
TL-201	-2.380E+00		6.880E+00	1.071E+01	8.486E-01	-0.222
TL-202	2.800E-02		6.922E-02	1.148E-01	9.884E-03	0.244
HG-203	2.581E-02		4.005E-02	6.842E-02	5.977E-03	0.377
BI-207	2.188E-02		5.421E-02	9.394E-02	8.196E-03	0.233
TL-207	-2.335E-01		7.318E-01	1.025E+00	1.813E-01	-0.228
PO-209	-6.715E-01		8.008E+00	1.289E+01	1.180E+00	-0.052
PB-211	3.607E-01		1.004E+00	1.623E+00	1.016E+00	0.222
BI-212	1.271E+00	+	5.801E-01	7.208E-01	7.476E-02	1.763
PO-215	-2.335E-01		7.318E-01	1.025E+00	1.813E-01	-0.228
RN-219	1.993E-01		4.316E-01	7.187E-01	1.071E-01	0.277
RN-220	9.243E+00		2.488E+01	4.288E+01	3.839E+00	0.216
RA-223	-2.335E-01		7.318E-01	1.025E+00	1.813E-01	-0.228
AC-227	-1.906E-01		3.746E-01	6.062E-01	9.260E-02	-0.314
TH-227	-1.906E-01		3.750E-01	6.062E-01	1.091E-01	-0.314
TH-229	2.518E-01		4.892E-01	8.427E-01	6.881E-02	0.299
PA-231	-5.748E-01		1.470E+00	2.378E+00	3.596E-01	-0.242
TH-231	-2.335E-01		7.318E-01	1.025E+00	1.813E-01	-0.228
U-231	-2.432E-01		1.014E+00	1.452E+00	1.307E-01	-0.167
PA-233	3.208E-02		6.650E-02	1.123E-01	9.901E-03	0.286
PA-234	1.793E-02		3.021E-01	4.911E-01	9.322E-02	0.037
PA-234M	5.130E+00		4.845E+00	8.516E+00	8.732E-01	0.602
U-235	1.051E-01		2.147E-01	3.428E-01	5.937E-02	0.307
NP-236	-6.623E-02		8.367E-02	1.277E-01	1.021E-02	-0.519
NP-239	-1.256E-01		1.799E-01	2.804E-01	2.412E-02	-0.448
AM-241	7.209E-02		1.116E-01	1.704E-01	1.351E-02	0.423

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	6.915E-03		8.907E-02	1.447E-01	1.268E-02	0.048
AM-246	9.793E-02		1.630E-01	2.853E-01	2.470E-02	0.343
CM-247	2.763E-03		3.894E-02	6.343E-02	5.326E-03	0.044
CF-249	2.874E-02		3.864E-02	6.579E-02	5.491E-03	0.437
CF-251	-2.723E-02		1.191E-01	2.002E-01	1.604E-02	-0.136

## VAX/VMS Nuclide Identification Report Generated

```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600012            *
* Acquisition date   : 22-JAN-2010 08:49:46 Detector SN# :                  *
* Detector ID        : GAM07 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 02:00:01.40 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600012 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.3231E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
*****
```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.448E+01	3.478E+00	2.482E-01	1.774E+00
CD-109	3.119E+00	9.194E-01	5.817E-01	4.691E-01
SN-126	3.067E-01	9.040E-02	5.732E-02	4.612E-02
BA-137M	1.071E-01	6.617E-02	2.764E-02	3.376E-02
CS-137	1.132E-01	6.995E-02	2.922E-02	3.569E-02
TL-208	5.206E-01	9.798E-02	3.077E-02	4.999E-02
BI-210	1.360E+00	2.430E+00	1.475E+00	1.240E+00
PB-210	1.360E+00	2.430E+00	1.475E+00	1.240E+00
PO-210	1.360E+00	2.430E+00	1.475E+00	1.240E+00
BI-211	3.872E+00	5.288E-01	1.636E-01	2.698E-01
PB-212	1.766E+00	2.014E-01	4.574E-02	1.027E-01
PO-212	1.766E+00	2.014E-01	4.574E-02	1.027E-01
BI-214	1.284E+00	2.041E-01	5.831E-02	1.041E-01
PB-214	1.347E+00	1.964E-01	5.701E-02	1.002E-01
PO-214	1.347E+00	1.964E-01	5.701E-02	1.002E-01
PO-216	1.766E+00	2.014E-01	4.574E-02	1.027E-01
PO-218	1.347E+00	1.964E-01	5.701E-02	1.002E-01
RA-224	4.352E+00	1.316E+00	5.206E-01	6.717E-01
RA-226	1.284E+00	2.041E-01	5.831E-02	1.041E-01
AC-228	1.798E+00	3.432E-01	1.083E-01	1.751E-01
RA-228	1.798E+00	3.432E-01	1.083E-01	1.751E-01
TH-228	1.793E+00	2.044E-01	4.642E-02	1.043E-01
TH-230	1.284E+00	2.041E-01	5.831E-02	1.041E-01
TH-232	1.798E+00	3.432E-01	1.083E-01	1.751E-01
TH-234	1.182E+00	1.473E+00	7.971E-01	7.516E-01
U-234	1.284E+00	2.041E-01	5.831E-02	1.041E-01
NP-237	9.007E-01	3.219E-01	1.893E-01	1.642E-01
U-238	1.182E+00	1.473E+00	7.971E-01	7.516E-01
AM-243	3.826E-01	7.490E-02	3.717E-02	3.822E-02
ANH-511	1.402E-01	6.623E-02	2.524E-02	3.379E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-3.183E-01	3.354E-01	2.593E-01	1.711E-01 NOT IDENT.
NA-22	-4.122E-02	4.590E-02	3.537E-02	2.342E-02 NOT IDENT.
NA-24	-1.619E+05	5.834E+05	0.000E+00	2.977E+05 SHORT HLIF
AL-26	8.303E-03	3.533E-02	3.105E-02	1.803E-02 NOT IDENT.
TI-44	3.874E-01	5.098E-02	3.533E-02	2.601E-02 FAIL ABUN
SC-46	-2.840E-02	3.699E-02	2.838E-02	1.887E-02 FAIL ABUN
V-48	2.179E-02	7.523E-02	6.404E-02	3.838E-02 NOT IDENT.
CR-51	1.438E-01	3.558E-01	3.139E-01	1.815E-01 NOT IDENT.
MN-52	-8.011E-02	2.231E-01	1.772E-01	1.138E-01 NOT IDENT.
MN-54	6.866E-03	4.094E-02	3.492E-02	2.089E-02 NOT IDENT.
CO-56	1.382E-02	4.002E-02	3.467E-02	2.042E-02 NOT IDENT.
CO-57	7.676E-03	2.308E-02	2.007E-02	1.177E-02 NOT IDENT.
CO-58	-5.203E-02	4.340E-02	3.273E-02	2.214E-02 NOT IDENT.
FE-59	2.593E-02	9.660E-02	8.474E-02	4.928E-02 NOT IDENT.
CO-60	-2.002E-03	3.799E-02	3.183E-02	1.938E-02 NOT IDENT.
ZN-65	-9.184E-02	1.166E-01	7.825E-02	5.949E-02 NOT IDENT.
GE-68	7.207E-01	1.395E+00	1.246E+00	7.115E-01 NOT IDENT.
AS-73	1.382E-01	4.927E-01	4.420E-01	2.514E-01 NOT IDENT.
AS-74	-7.352E-03	9.092E-02	7.844E-02	4.639E-02 NOT IDENT.
SE-75	4.547E-02	4.736E-02	3.873E-02	2.416E-02 NOT IDENT.
BR-77	4.053E+00	9.398E+00	8.472E+00	4.795E+00 FAIL ABUN
SR-82	3.049E-01	3.715E-01	3.354E-01	1.895E-01 NOT IDENT.
RB-83	3.119E-02	6.686E-02	6.040E-02	3.411E-02 NOT IDENT.
RB-84	-3.197E-02	6.510E-02	5.170E-02	3.321E-02 NOT IDENT.
KR-85	1.299E+01	9.029E+00	7.584E+00	4.607E+00 NOT IDENT.
SR-85	6.642E-02	4.617E-02	3.878E-02	2.356E-02 NOT IDENT.
RB-86	6.509E-01	8.709E-01	7.908E-01	4.443E-01 NOT IDENT.
Y-88	2.331E-02	3.896E-02	3.591E-02	1.988E-02 NOT IDENT.
ZR-88	3.401E-03	2.975E-02	2.546E-02	1.518E-02 NOT IDENT.
Y-91	-2.058E+01	2.120E+01	1.664E+01	1.082E+01 NOT IDENT.
NB-94	-1.919E-02	3.443E-02	2.819E-02	1.757E-02 NOT IDENT.
NB-95	-2.729E-03	4.223E-02	3.567E-02	2.155E-02 NOT IDENT.
NB-95M	5.850E-02	1.318E-01	1.050E-01	6.726E-02 NOT IDENT.
ZR-95	7.410E-02	7.365E-02	6.710E-02	3.758E-02 NOT IDENT.
NB-97	-1.349E+04	8.194E+04	0.000E+00	4.181E+04 SHORT HLIF
ZR-97	1.416E+05	1.637E+06	0.000E+00	8.351E+05 SHORT HLIF
MO-99	1.001E+01	1.163E+01	1.045E+01	5.931E+00 NOT IDENT.
TC-99M	-2.033E+16	1.986E+16	0.000E+00	0.000E+00 SHORT HLIF
RH-101	2.499E-03	3.127E-02	2.801E-02	1.595E-02 NOT IDENT.
RH-102	1.326E-02	2.819E-02	2.440E-02	1.438E-02 NOT IDENT.
RU-103	-2.125E-02	3.996E-02	3.175E-02	2.039E-02 FAIL ABUN
RH-106	5.015E-02	3.059E-01	2.677E-01	1.561E-01 FAIL ABUN
RU-106	5.015E-02	3.059E-01	2.677E-01	1.561E-01 FAIL ABUN
AG-108M	2.622E-03	3.002E-02	2.545E-02	1.531E-02 NOT IDENT.
AG-110M	-5.344E-03	3.758E-02	2.760E-02	1.918E-02 NOT IDENT.
IN-111	-1.376E+00	1.082E+00	7.608E-01	5.518E-01 NOT IDENT.
IN-113M	-1.099E-02	4.315E-02	3.603E-02	2.201E-02 NOT IDENT.
SN-113	-1.099E-02	4.315E-02	3.603E-02	2.201E-02 NOT IDENT.
IN-114M	-2.192E-01	1.921E-01	1.414E-01	9.803E-02 NOT IDENT.
CD-115	4.365E+00	9.182E+00	8.307E+00	4.685E+00 NOT IDENT.
SN-117M	2.798E-02	5.341E-02	4.605E-02	2.725E-02 NOT IDENT.
SB-122	3.093E+00	1.932E+00	1.840E+00	9.859E-01 NOT IDENT.
I-123	2.956E+06	4.070E+06	0.000E+00	2.077E+06 SHORT HLIF
TE-123M	1.999E-02	2.753E-02	2.393E-02	1.405E-02 NOT IDENT.
I-124	-4.364E-01	7.036E-01	5.234E-01	3.590E-01 NOT IDENT.
SB-124	-3.380E-02	6.532E-02	4.735E-02	3.333E-02 FAIL ABUN
SB-125	-9.013E-02	8.437E-02	6.846E-02	4.305E-02 FAIL ABUN
TE-125M	-6.976E+00	8.334E+00	6.484E+00	4.252E+00 NOT IDENT.
I-126	8.812E-02	1.991E-01	1.554E-01	1.016E-01 NOT IDENT.
SB-126	9.700E-02	1.499E-01	1.308E-01	7.650E-02 FAIL ABUN
SB-127	9.580E-01	1.345E+00	1.209E+00	6.860E-01 NOT IDENT.
XE-127	-2.384E-02	4.454E-02	3.883E-02	2.273E-02 NOT IDENT.
I-131	-1.317E-03	1.076E-01	9.183E-02	5.487E-02 NOT IDENT.
TE-132	-2.462E-01	5.948E-01	5.151E-01	3.035E-01 NOT IDENT.
BA-133	2.818E-03	4.572E-02	3.447E-02	2.333E-02 NOT IDENT.
I-133	-2.258E+02	4.665E+03	0.000E+00	2.380E+03 SHORT HLIF
CS-134	1.283E-01	6.286E-02	4.439E-02	3.207E-02 FAIL ABUN
CS-135	1.977E-01	1.762E-01	1.443E-01	8.988E-02 NOT IDENT.
I-135	-3.683E+14	2.975E+15	0.000E+00	1.518E+15 SHORT HLIF
CS-136	-9.167E-02	1.173E-01	9.445E-02	5.982E-02 FAIL ABUN
CE-139	-1.314E-02	3.098E-02	2.554E-02	1.581E-02 NOT IDENT.
BA-140	7.639E-02	2.470E-01	2.195E-01	1.260E-01 NOT IDENT.
LA-140	2.919E-03	7.938E-02	5.679E-02	4.050E-02 FAIL ABUN
CE-141	1.538E-02	6.103E-02	5.229E-02	3.114E-02 NOT IDENT.
CE-143	4.469E+02	1.588E+02	0.000E+00	8.100E+01 SHORT HLIF

CE-144	2.388E-02	2.220E-01	1.695E-01	1.133E-01	NOT IDENT.
PM-144	3.597E-02	3.353E-02	3.087E-02	1.711E-02	NOT IDENT.
PR-144	2.437E+00	2.272E+00	2.091E+00	1.159E+00	NOT IDENT.
PM-146	2.404E-02	4.317E-02	3.761E-02	2.202E-02	NOT IDENT.
ND-147	3.221E-02	5.330E-01	4.688E-01	2.720E-01	FAIL ABUN
PM-149	2.830E+00	8.163E+01	7.119E+01	4.165E+01	NOT IDENT.
EU-152	7.005E-02	1.045E-01	8.284E-02	5.330E-02	FAIL ABUN
GD-153	1.093E-02	7.710E-02	6.025E-02	3.934E-02	NOT IDENT.
EU-154	-1.223E-01	1.291E-01	9.863E-02	6.585E-02	NOT IDENT.
EU-155	8.677E-02	9.733E-02	8.696E-02	4.966E-02	FAIL ABUN
TB-160	4.742E-02	1.325E-01	1.149E-01	6.759E-02	FAIL ABUN
HO-166M	-7.364E-03	6.367E-02	5.393E-02	3.248E-02	NOT IDENT.
TM-171	-1.338E+01	2.319E+01	1.783E+01	1.183E+01	NOT IDENT.
LU-176	-1.969E-02	2.569E-02	2.046E-02	1.311E-02	FAIL ABUN
LU-177	2.248E+00	1.301E+00	1.000E+00	6.638E-01	FAIL ABUN
LU-177M	-2.862E-01	1.835E-01	1.376E-01	9.363E-02	NOT IDENT.
HF-181	3.266E-02	4.433E-02	3.888E-02	2.262E-02	NOT IDENT.
W-181	6.144E-02	2.914E-01	2.325E-01	1.487E-01	NOT IDENT.
TA-182	-5.932E-02	2.245E-01	1.871E-01	1.145E-01	FAIL ABUN
RE-183	7.004E-03	1.118E-01	9.432E-02	5.702E-02	FAIL ABUN
RE-184	2.495E-02	2.277E-01	2.010E-01	1.162E-01	NOT IDENT.
OS-185	-3.489E-02	3.777E-02	2.978E-02	1.927E-02	NOT IDENT.
RE-188	-1.384E-02	1.689E-01	1.421E-01	8.619E-02	NOT IDENT.
W-188	-7.763E+00	7.938E+00	5.587E+00	4.050E+00	FAIL ABUN
IR-192	2.440E-04	3.387E-02	2.927E-02	1.728E-02	FAIL ABUN
AU-195	2.594E-01	2.091E-01	1.814E-01	1.067E-01	FAIL ABUN
TL-200	6.725E+01	3.639E+02	0.000E+00	1.857E+02	SHORT HLIF
TL-201	-2.380E+00	6.743E+00	5.570E+00	3.440E+00	NOT IDENT.
TL-202	2.800E-02	6.783E-02	5.870E-02	3.461E-02	NOT IDENT.
HG-203	2.581E-02	3.925E-02	3.527E-02	2.003E-02	NOT IDENT.
BI-207	2.188E-02	5.313E-02	4.733E-02	2.711E-02	FAIL ABUN
TL-207	-2.335E-01	7.172E-01	5.272E-01	3.659E-01	FAIL ABUN
PO-209	-6.715E-01	7.848E+00	6.514E+00	4.004E+00	NOT IDENT.
PB-211	3.607E-01	9.840E-01	8.313E-01	5.020E-01	NOT IDENT.
BI-212	1.271E+00	5.685E-01	3.656E-01	2.900E-01	FAIL ABUN
PO-215	-2.335E-01	7.172E-01	5.272E-01	3.659E-01	FAIL ABUN
RN-219	1.993E-01	4.229E-01	3.682E-01	2.158E-01	FAIL ABUN
RN-220	9.243E+00	2.438E+01	2.185E+01	1.244E+01	NOT IDENT.
RA-223	-2.335E-01	7.172E-01	5.272E-01	3.659E-01	FAIL ABUN
AC-227	-1.906E-01	3.671E-01	3.130E-01	1.873E-01	FAIL ABUN
TH-227	-1.906E-01	3.675E-01	3.130E-01	1.875E-01	FAIL ABUN
TH-229	2.518E-01	4.795E-01	4.371E-01	2.446E-01	FAIL ABUN
PA-231	-5.748E-01	1.441E+00	1.226E+00	7.351E-01	FAIL ABUN
TH-231	-2.335E-01	7.172E-01	5.272E-01	3.659E-01	FAIL ABUN
U-231	-2.432E-01	9.940E-01	7.621E-01	5.071E-01	FAIL ABUN
PA-233	3.208E-02	6.517E-02	5.777E-02	3.325E-02	FAIL ABUN
PA-234	1.793E-02	2.961E-01	2.479E-01	1.511E-01	FAIL ABUN
PA-234M	5.130E+00	4.748E+00	4.295E+00	2.422E+00	NOT IDENT.
U-235	1.051E-01	2.104E-01	1.787E-01	1.073E-01	FAIL ABUN
NP-236	-6.623E-02	8.200E-02	6.645E-02	4.183E-02	NOT IDENT.
NP-239	-1.256E-01	1.763E-01	1.466E-01	8.993E-02	FAIL ABUN
AM-241	7.209E-02	1.094E-01	9.010E-02	5.582E-02	NOT IDENT.
CM-243	6.915E-03	8.729E-02	7.585E-02	4.454E-02	FAIL ABUN
AM-246	9.793E-02	1.598E-01	1.437E-01	8.152E-02	NOT IDENT.
CM-247	2.763E-03	3.817E-02	3.250E-02	1.947E-02	NOT IDENT.
CF-249	2.874E-02	3.786E-02	3.373E-02	1.932E-02	NOT IDENT.
CF-251	-2.723E-02	1.167E-01	1.040E-01	5.954E-02	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
*****

```

```

ENERGY          MDA COUNTS

```

46.50	310.6851
46.50	310.6851
46.50	310.6851
48.70	312.5389
49.72	321.9308
51.35	347.9059
52.39	328.9440
52.97	333.2593
53.15	337.2429
53.44	325.0250
54.07	317.8557
56.28	364.9686
56.28	364.9705
57.37	0.0000
57.53	375.7585
57.53	375.7605
57.60	375.8217
57.98	380.0411
57.98	380.0411
59.32	326.7860
59.32	326.7860
59.40	344.3563
59.54	350.3082
59.72	350.4565
60.01	372.6120
61.10	370.6267
61.14	370.6605
61.30	370.7975
63.00	434.5240
63.29	434.8090
63.29	434.8090
63.58	435.0935
64.28	435.7762
65.12	433.1419
65.20	433.2185
65.20	433.2185
66.05	462.1752
66.72	465.8183
66.83	465.9333
66.91	466.0147
67.20	444.0312
67.20	444.0312
67.75	451.9945
67.85	452.0919
68.90	496.8338
68.90	496.8338
69.30	447.5327
69.67	464.3100
70.82	481.8970
70.82	481.8970
70.83	481.9068
72.80	455.8332
72.87	455.9003
72.87	455.9003
74.67	457.5804
74.81	457.7100
74.81	457.7100
74.81	457.7100
74.81	457.7100
74.81	457.7100
74.81	457.7100
74.97	457.8581
75.28	458.1451
75.70	458.5316
77.11	459.8252
77.11	459.8252

77.11	459.8252
77.11	459.8252
77.11	459.8252
77.11	459.8252
77.11	459.8252
78.38	460.9800
79.62	400.6540
79.80	400.7945
79.80	400.7945
80.11	413.2341
80.18	413.2899
80.30	413.3850
80.30	413.3850
80.57	433.4406
81.00	510.1736
81.07	510.2424
81.07	510.2424
81.07	510.2424
81.07	510.2424
82.60	453.5142
83.37	448.0339
83.78	436.0992
83.78	436.0992
83.78	436.0992
83.78	436.0992
84.21	457.9677
84.90	410.8543
85.43	423.5821
86.29	521.4512
86.50	547.8893
86.54	547.9299
86.59	547.9814
86.72	548.1115
86.79	548.1791
86.94	548.3335
87.30	438.9550
87.30	438.9550
87.30	438.9550
87.30	438.9550
87.30	438.9550
87.30	438.9550
87.57	439.1717
87.88	439.4208
88.03	439.5400
88.36	439.8044
88.47	439.8932
89.95	441.0676
91.11	441.9841
92.29	442.9071
92.38	442.9786
92.38	442.9786
93.35	443.7327
94.00	444.2375
94.67	330.4312
94.67	330.4344
94.90	339.9665
94.90	339.9665
94.90	339.9665
94.90	339.9665
95.87	362.5060
95.87	362.5060
96.73	377.1863
97.43	336.7245
98.44	305.7788
98.44	305.7788
98.88	304.1125
99.55	320.0359
99.55	320.0359
99.86	321.2562
100.00	321.3306
100.10	327.7088
103.18	349.5038
103.76	323.3334
105.00	299.5533
105.31	300.7667
108.00	349.0292
109.28	318.7197



111.00	298.1323
111.00	298.1323
111.76	299.5580
112.95	319.4720
115.19	291.4275
116.30	312.4601
117.00	318.2024
117.00	318.2024
117.66	313.1010
121.11	283.1279
121.62	274.6227
121.78	274.6868
122.06	271.5281
122.32	269.4489
122.32	269.4489
122.32	269.4489
122.32	269.4489
123.07	272.5836
127.23	255.4315
129.76	271.2303
131.20	296.6354
133.02	332.2723
133.54	305.9095
135.34	316.6647
136.00	323.6215
136.25	319.2811
136.48	302.6880
140.51	354.6773
140.51	0.0000
142.18	310.6078
142.65	307.4361
143.76	294.3982
144.24	290.0873
144.24	290.0873
144.24	290.0873
144.24	290.0873
145.22	296.0863
145.44	305.1783
147.16	308.1136
152.43	301.0957
152.70	301.1981
153.22	279.7855
154.21	289.2407
154.21	289.2407
154.21	289.2407
154.21	289.2407
155.03	302.0742
156.02	295.5984
158.56	273.6256
159.00	0.0000
159.00	258.8802
160.31	328.1331
161.27	307.8385
162.32	302.4778
162.64	302.5929
163.35	306.3043
163.89	286.9159
165.85	319.9234
167.43	302.0069
171.28	275.4706
171.86	274.4931
172.10	274.5699
176.55	270.1227
176.60	270.1392
181.06	265.1484
184.41	268.9664
185.71	244.5406
186.00	244.6186
190.27	290.6303
192.34	245.4065
193.63	252.8932
197.04	299.5456
198.01	270.2230
198.60	256.9138
200.40	243.8963
201.83	290.2255
202.84	279.7006
205.31	231.5625

208.36	251.1541
208.81	245.4585
209.75	241.6916
209.75	241.6916
210.97	251.8130
215.65	233.0607
216.55	241.4998
218.09	251.0259
222.10	232.6900
223.80	230.3066
226.40	241.9610
227.00	237.4787
227.08	237.4983
227.20	245.8418
228.16	215.5382
228.18	215.5435
228.18	215.5435
231.56	0.0000
235.69	241.4694
236.00	250.4845
236.00	250.4845
238.63	215.7800
238.63	215.7800
238.63	215.7800
238.63	215.7800
239.00	215.8540
240.98	216.2435
241.98	216.4400
241.98	216.4400
241.98	216.4400
244.69	205.8863
245.39	228.5733
247.94	218.5443
248.90	183.8465
249.79	175.5003
252.40	197.6564
252.85	198.6806
252.85	198.6806
254.15	0.0000
256.20	202.1105
256.20	202.1105
260.50	208.5773
260.90	212.4618
262.80	202.3083
264.65	162.1029
268.24	184.0693
268.79	184.1543
269.46	166.0257
269.46	166.0257
269.46	166.0257
269.46	166.0257
271.23	163.0035
273.65	215.7217
276.40	161.1952
277.35	156.4901
277.60	165.2179
277.60	165.2179
278.00	170.1052
278.60	171.1555
279.20	173.1741
279.53	186.7685
280.46	206.2787
281.68	190.9730
283.67	169.9211
284.30	182.6356
285.00	176.9068
285.90	169.2528
286.10	156.6320
286.10	156.6320
287.40	144.6926
288.45	0.0000
290.67	184.3491
290.80	184.3692
291.72	175.1230
293.26	0.0000
293.70	155.6252
295.21	155.8096
295.21	155.8096

295.21	155.8096
295.96	155.9018
296.50	155.9673
297.23	156.0571
298.57	156.2196
299.80	156.3701
299.80	156.3701
300.09	156.4040
300.09	156.4040
300.09	156.4040
300.09	156.4040
300.12	156.4089
301.29	149.6575
302.84	132.4866
303.76	156.2561
303.91	156.2730
304.40	168.9665
304.40	168.9665
304.84	164.2850
306.84	179.6791
308.46	169.2935
311.98	157.8330
316.51	153.3890
318.01	148.5748
319.02	138.7073
319.41	138.7476
320.08	139.8141
323.87	152.2227
323.87	152.2227
323.87	152.2227
323.87	152.2227
325.23	134.7302
328.77	149.5515
333.44	145.2151
334.20	142.0654
334.20	142.0654
334.30	142.0762
338.28	141.6705
338.28	141.6705
338.28	141.6705
338.28	141.6705
338.32	141.6748
338.32	141.6748
338.32	141.6748
340.50	132.9737
340.57	132.9797
344.27	121.9464
345.85	149.7516
350.59	0.0000
351.07	132.7335
351.92	132.8128
351.92	132.8128
351.92	132.8128
355.39	0.0000
356.01	121.3015
364.48	119.5259
366.43	121.7469
367.43	105.3089
367.94	0.0000
369.80	108.5777
374.96	117.2485
383.85	121.0605
387.95	103.5923
388.63	123.5276
391.69	122.7200
391.69	122.7200
392.90	116.5165
398.62	113.7777
400.65	136.0744
401.10	119.2297
401.81	123.5056
402.60	132.0152
404.84	126.9122
410.95	118.8992
411.60	120.0090
413.65	154.1864
414.70	121.3007
415.30	114.9576

415.76	100.0844
417.63	0.0000
418.52	101.3187
423.70	85.5872
427.08	94.3365
427.89	107.2525
432.53	90.3408
433.93	90.4151
439.47	100.4288
439.56	100.4331
439.89	109.0941
443.98	109.3530
444.90	92.0790
445.03	92.0868
445.03	92.0868
445.03	92.0868
445.03	92.0868
453.90	94.7341
463.38	104.0005
468.07	77.2718
473.00	103.4579
475.06	85.9457
475.35	89.2661
476.78	109.1876
477.59	120.2699
477.96	108.1550
482.03	95.1228
484.57	104.1149
487.03	102.0358
490.36	0.0000
492.35	88.9807
497.08	97.0108
507.63	0.0000
510.53	0.0000
510.84	106.7010
511.00	106.7097
511.85	118.6687
511.85	118.6687
513.99	124.5000
513.99	124.5000
520.41	86.6859
520.65	86.6977
527.90	75.2350
528.96	0.0000
529.64	89.8178
529.87	0.0000
531.02	88.9728
537.32	84.7013
543.00	84.9397
546.56	0.0000
549.76	76.9781
552.65	86.2638
555.20	76.2644
563.23	74.7174
563.90	71.9729
568.70	103.5836
569.32	90.6644
569.50	90.6715
569.67	90.6787
573.80	91.7853
574.00	96.4285
574.64	100.1689
578.91	91.3881
579.30	0.0000
583.14	91.2601
585.48	91.3606
591.81	86.8223
592.07	85.3286
593.00	91.6812
595.88	92.7400
600.56	88.2466
602.52	0.0000
602.71	106.0543
602.71	106.0543
603.60	112.8135
604.41	101.8825
604.70	101.8958
609.31	92.3703

609.31	92.3703
609.31	92.3703
609.31	92.3703
610.33	84.8694
612.46	75.5117
614.37	77.1527
618.01	81.3788
621.84	75.8320
621.84	75.8320
631.29	74.2466
633.02	71.4459
633.10	71.4478
634.78	85.8010
635.90	83.9352
636.97	78.2503
645.85	72.8067
646.12	72.8142
656.30	94.6266
657.75	73.8216
657.90	0.0000
661.65	68.4796
661.65	68.4796
664.57	0.0000
666.33	74.0930
666.33	74.0930
675.00	89.2373
677.61	81.5657
685.20	73.0573
692.80	87.9434
695.00	79.2222
696.49	64.5901
696.49	64.5901
697.00	75.3701
697.49	75.3852
698.33	84.2258
698.50	86.1910
699.00	90.1268
702.63	94.1859
706.10	91.3698
706.58	0.0000
706.67	85.4941
709.31	81.6504
711.68	86.6529
713.82	83.7715
717.42	85.8658
720.50	73.5648
721.93	0.0000
722.20	70.8671
722.78	89.0156
722.78	89.0156
722.89	89.0200
722.95	89.0222
723.30	98.9282
724.18	94.0143
727.18	79.2637
733.00	77.7902
735.90	91.1363
739.58	68.6985
742.81	78.7551
744.21	76.8026
747.13	65.9049
751.79	90.0330
752.31	86.0483
753.82	84.0964
755.35	70.1213
756.15	64.1312
756.87	71.1647
763.93	89.4476
765.79	81.4647
766.42	80.4785
766.84	83.5086
776.49	57.5594
778.00	74.7678
778.57	76.8053
778.89	76.8146
783.80	64.8047
785.46	66.8717
792.07	74.4845

795.84	57.6365
796.30	67.8190
798.80	64.4868
801.93	77.0202
805.60	79.6187
810.29	94.0686
810.76	92.0391
815.85	53.2771
817.79	67.6677
818.51	65.6344
819.60	63.6090
826.30	71.9893
828.27	0.0000
831.60	65.9422
831.96	72.1345
834.83	81.4919
836.80	0.0000
846.75	60.0815
848.13	63.2190
856.28	0.0000
856.80	76.2319
860.37	70.7758
867.32	67.0700
867.82	61.3045
871.10	65.8139
873.19	66.9063
874.81	62.7598
875.33	0.0000
876.40	57.5607
879.36	48.1899
880.27	47.1577
880.51	45.0650
881.50	54.5162
883.24	50.3520
884.67	46.1785
889.25	57.8118
896.60	64.2779
898.02	70.6330
899.00	63.2754
903.28	64.5382
911.07	58.2347
911.07	58.2347
911.07	58.2347
919.63	57.6415
920.93	56.2996
925.00	47.8652
925.24	49.9972
926.50	52.1462
935.52	59.7707
937.48	73.6915
944.10	63.1470
946.00	52.4764
949.00	49.3107
962.29	69.9734
964.01	50.2646
966.15	57.1251
968.20	57.1613
969.11	57.1782
969.11	57.1782
969.11	57.1782
977.42	48.6738
980.50	60.6307
983.50	57.4356
989.30	55.3679
996.32	70.7208
1001.03	47.9413
1001.68	50.1306
1004.76	58.9043
1021.30	0.0000
1024.50	0.0000
1034.80	47.7005
1036.00	42.2116
1037.82	67.9417
1038.57	77.1401
1038.76	0.0000
1045.16	56.1276
1046.59	61.6757
1048.07	77.3589

1050.47	63.5897
1050.47	63.5897
1062.04	61.9565
1063.62	53.6576
1076.63	60.3609
1077.35	64.0895
1078.86	63.1883
1085.78	58.6600
1099.22	61.6897
1112.02	58.5355
1112.84	63.3334
1115.52	88.5348
1120.29	64.8784
1120.29	64.8784
1120.29	64.8784
1120.29	64.8784
1120.51	64.8812
1121.28	64.8953
1124.00	0.0000
1129.67	65.6125
1131.51	0.0000
1147.95	0.0000
1167.94	78.1196
1173.22	61.0573
1175.09	73.4971
1177.93	73.5535
1189.05	62.2758
1204.90	94.2875
1205.75	0.0000
1213.00	91.5944
1221.42	90.8330
1230.97	82.3403
1235.34	87.2827
1236.41	0.0000
1238.25	74.7285
1246.25	70.9950
1260.41	0.0000
1271.85	52.8596
1274.45	63.6696
1274.54	62.6901
1291.56	41.3164
1298.22	0.0000
1312.09	44.4928
1325.50	36.7034
1325.50	36.7034
1332.49	34.7793
1333.61	25.8424
1360.21	31.0101
1362.66	0.0000
1365.15	35.0527
1368.21	36.0806
1368.53	0.0000
1376.25	22.0913
1384.27	32.1940
1394.10	20.1676
1395.20	25.2157
1407.95	28.3258
1434.06	28.4967
1436.60	26.4761
1457.56	0.0000
1460.81	20.4785
1489.15	18.5479
1509.49	18.6313
1596.49	14.4615
1620.62	14.8374
1678.03	0.0000
1691.02	13.9754
1691.02	13.9754
1706.46	0.0000
1750.46	0.0000
1764.49	20.5659
1764.49	20.5659
1764.49	20.5659
1764.49	20.5659
1770.23	4.9131
1771.40	57.1003
1791.20	0.0000
1808.65	17.9112

1836.01

15.1607



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600012

Total Uranium Activity	3.5641E+00	ug/g
Total Uranium Counting Unc.	4.3839E+00	ug/g
Total Uranium Tpu	2.2367E-06	ug/g
Total Uranium Mda	2.3729E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635                          SAMPLE ID   : G244600012
*  ANALYST       : MXR1                             DETECTOR    : GAM07
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 08:49:46.81          SAMPLE ALQT  : 132.310 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.023E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.584E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.581E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.739E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 10:51:13.80

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600013.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:50:12
Sample ID          : G244600013      Sample quantity   : 1.35740E+02 GRAM
Detector name      : GAM23            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.66  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity      : 5.00000
Batch ID           : 941635           Detector SN#     :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.03*	86	410	0.97	126.07	122	9	1.20E-02	44.5	
2	3	74.67	405	376	1.28	149.34	143	17	5.63E-02	9.7	2.56E+00
3	3	77.00*	602	317	1.20	153.99	143	17	8.37E-02	6.8	
4	0	87.20	190	350	1.21	174.39	171	7	2.64E-02	17.9	
5	2	89.81*	100	133	1.13	179.62	178	16	1.38E-02	18.3	3.50E+00
6	2	92.93*	202	334	1.56	185.86	178	16	2.80E-02	18.8	
7	0	128.87	121	328	1.16	257.74	253	10	1.68E-02	29.5	
8	0	185.74*	195	277	1.28	371.48	367	9	2.70E-02	17.8	
9	0	209.21	175	403	1.34	418.41	410	16	2.43E-02	26.8	
10	3	238.35*	1197	157	1.16	476.71	470	22	1.66E-01	3.4	1.38E+00
11	3	241.38	289	179	1.91	482.75	470	22	4.01E-02	14.7	
12	0	269.99*	125	208	1.42	539.98	535	12	1.74E-02	25.3	
13	0	294.87	312	197	1.25	589.74	584	12	4.34E-02	10.6	
14	0	300.22	99	159	1.50	600.44	596	12	1.38E-02	27.5	
15	0	328.36	47	190	0.80	656.73	650	10	6.47E-03	57.6	
16	0	337.82	217	169	1.37	675.64	671	9	3.02E-02	12.7	
17	0	351.47*	598	135	1.28	702.95	697	13	8.30E-02	5.8	
18	0	463.04	50	136	1.89	926.09	918	13	6.90E-03	50.5	
19	0	510.40*	119	176	2.06	1020.80	1012	20	1.65E-02	31.2	
20	0	582.53*	337	61	1.26	1165.06	1159	11	4.68E-02	7.1	
21	0	608.65*	421	66	1.71	1217.31	1211	14	5.84E-02	6.6	
22	0	727.02	36	71	0.94	1454.03	1452	8	5.02E-03	45.9	
23	0	793.93	41	58	1.07	1587.85	1583	11	5.69E-03	39.2	
24	0	860.14	54	62	1.73	1720.28	1712	16	7.47E-03	36.6	
25	0	910.32	205	69	2.08	1820.64	1812	15	2.85E-02	11.2	
26	0	968.14	113	83	1.86	1936.27	1929	13	1.58E-02	19.1	
27	0	1119.65	78	62	1.66	2239.30	2230	16	1.09E-02	25.4	
28	0	1236.68	70	44	3.24	2473.36	2464	16	9.77E-03	24.2	
29	0	1459.36*	763	37	2.16	2918.72	2910	16	1.06E-01	4.1	
30	0	1763.31*	48	11	2.88	3526.61	3521	12	6.66E-03	20.8	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 10:51:16

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600013.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 7-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 08:50:12
Sample ID        : G244600013             Sample quantity  : 135.74 GRAM
Sample type      : SOLID                   Sample geometry  :
Detector name    : GAMMA23                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.66   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	*	1.982E+01	2.187E+00	5.682E-01	4.250E-02	34.879
CD-109	+	88.03	*	2.764E+00	1.026E+00	1.265E+00	1.235E-01	2.185
SN-126	+	64.28		9.733E-01	8.786E-01	9.393E-01	1.430E-01	1.036
	+	86.94		1.130E+00	6.203E-01	6.626E-01	2.756E-01	1.705
	+	87.57	*	2.717E-01	1.009E-01	1.458E-01	1.419E-02	1.863
TL-208		277.35		4.035E-01	3.979E-01	6.468E-01	6.834E-02	0.624
	+	510.84		5.971E-01	3.774E-01	2.087E-01	2.120E-02	2.861
	+	583.14	*	4.860E-01	7.597E-02	5.911E-02	3.838E-03	8.221
	+	860.37		7.421E-01	5.474E-01	4.653E-01	4.206E-02	1.595
BI-211		72.87		1.076E+01	4.145E+00	6.562E+00	5.788E-01	1.640
	+	351.07	*	3.711E+00	4.946E-01	3.316E-01	2.161E-02	11.189
PB-212	+	74.81		2.592E+00	6.045E-01	5.951E-01	7.678E-02	4.356
	+	77.11		2.154E+00	3.506E-01	3.335E-01	3.000E-02	6.458
	+	87.30		1.257E+00	4.833E-01	6.769E-01	9.434E-02	1.857
	+	238.63	*	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
	+	300.09		2.065E+00	1.149E+00	1.199E+00	9.959E-02	1.722
PO-212	+	74.81		2.592E+00	6.045E-01	5.951E-01	7.678E-02	4.356
	+	77.11		2.154E+00	3.506E-01	3.335E-01	3.000E-02	6.458
	+	87.30		1.257E+00	4.833E-01	6.769E-01	9.434E-02	1.857
		115.19		-1.088E+00	3.533E+00	5.746E+00	3.665E-01	-0.189
	+	238.63	*	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
	+	300.09		2.065E+00	1.149E+00	1.199E+00	9.959E-02	1.722
BI-214	+	609.31	*	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
	+	1120.29		1.140E+00	5.888E-01	4.067E-01	3.779E-02	2.803
	+	1764.49		9.606E-01	4.047E-01	2.711E-01	1.686E-02	3.543
PB-214	+	74.81		4.467E+00	1.010E+00	1.025E+00	1.187E-01	4.356
	+	77.11		3.692E+00	6.636E-01	5.716E-01	6.740E-02	6.458
	+	87.30		2.153E+00	8.165E-01	1.160E+00	1.437E-01	1.857
	+	241.98		2.321E+00	7.075E-01	5.607E-01	4.460E-02	4.139
	+	295.21		1.139E+00	2.612E-01	2.221E-01	1.904E-02	5.128
	+	351.92	*	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
PO-214	+	74.81		4.467E+00	1.010E+00	1.025E+00	1.187E-01	4.356
	+	77.11		3.692E+00	6.636E-01	5.716E-01	6.740E-02	6.458
	+	87.30		2.153E+00	8.165E-01	1.160E+00	1.437E-01	1.857

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.321E+00	7.075E-01	5.607E-01	4.460E-02	4.139
	+	295.21		1.139E+00	2.612E-01	2.221E-01	1.904E-02	5.128
	+	351.92	*	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
	+	74.81		2.592E+00	6.045E-01	5.951E-01	7.678E-02	4.356
	+	77.11		2.154E+00	3.506E-01	3.335E-01	3.000E-02	6.458
	+	87.30		1.257E+00	4.833E-01	6.769E-01	9.434E-02	1.857
PO-218	+	238.63	*	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
	+	300.09		2.065E+00	1.149E+00	1.199E+00	9.959E-02	1.722
	+	74.81		4.467E+00	1.010E+00	1.025E+00	1.187E-01	4.356
	+	77.11		3.692E+00	6.636E-01	5.716E-01	6.740E-02	6.458
	+	87.30		2.153E+00	8.165E-01	1.160E+00	1.437E-01	1.857
	+	241.98		2.321E+00	7.075E-01	5.607E-01	4.460E-02	4.139
RA-224	+	295.21		1.139E+00	2.612E-01	2.221E-01	1.904E-02	5.128
	+	351.92	*	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
	+	240.98	*	4.400E+00	1.319E+00	1.060E+00	5.970E-02	4.153
RA-226	+	609.31	*	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
	+	1120.29		1.140E+00	5.888E-01	4.067E-01	3.779E-02	2.803
	+	1764.49		9.606E-01	4.047E-01	2.711E-01	1.686E-02	3.543
AC-228	+	338.32		1.483E+00	7.132E-01	3.982E-01	1.624E-01	3.725
	+	911.07	*	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
	+	969.11		1.311E+00	5.871E-01	3.321E-01	7.733E-02	3.947
RA-228	+	338.32		1.483E+00	7.132E-01	3.982E-01	1.624E-01	3.725
	+	911.07	*	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
	+	969.11		1.311E+00	5.871E-01	3.321E-01	7.733E-02	3.947
TH-228	+	74.81		2.631E+00	5.628E-01	6.040E-01	5.414E-02	4.356
	+	77.11		2.186E+00	3.558E-01	3.384E-01	3.045E-02	6.458
	+	87.30		1.276E+00	4.736E-01	6.870E-01	6.669E-02	1.857
TH-230	+	238.63	*	1.624E+00	1.609E-01	9.449E-02	6.794E-03	17.185
	+	300.09		2.096E+00	1.690E+00	1.217E+00	7.175E-01	1.722
	+	609.31	*	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
TH-232	+	1120.29		1.140E+00	5.888E-01	4.067E-01	3.779E-02	2.803
	+	1764.49		9.605E-01	4.047E-01	2.711E-01	1.686E-02	3.543
	+	338.32		1.483E+00	3.881E-01	3.982E-01	2.352E-02	3.725
TH-234	+	911.07	*	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
	+	969.11		1.311E+00	5.871E-01	3.321E-01	7.733E-02	3.947
	+	63.29	*	2.459E+00	2.232E+00	2.423E+00	4.367E-01	1.015
U-234	+	92.38		1.842E+00	7.711E-01	7.690E-01	1.402E-01	2.396
	+	609.31	*	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
	+	1120.29		1.140E+00	5.888E-01	4.067E-01	3.779E-02	2.803
NP-237	+	1764.49		9.605E-01	4.047E-01	2.711E-01	1.686E-02	3.543
	+	86.50	*	7.979E-01	3.390E-01	4.249E-01	9.676E-02	1.878
	+	95.87		-4.989E-01	1.088E+00	1.535E+00	3.769E-01	-0.325
U-238	+	63.29	*	2.459E+00	2.232E+00	2.423E+00	4.367E-01	1.015
	+	92.38		1.842E+00	7.133E-01	7.690E-01	6.872E-02	2.396
	+	74.67	*	4.203E-01	8.978E-02	9.686E-02	8.607E-03	4.339
AM-243	+	86.72		2.992E+01	1.111E+01	1.617E+01	1.561E+00	1.851
	+	117.66		-1.479E+00	3.835E+00	6.211E+00	3.846E-01	-0.238
	+	142.18		1.369E+01	1.859E+01	3.127E+01	1.702E+00	0.438
ANH-511	+	511.00	*	1.290E-01	8.080E-02	4.509E-02	2.619E-03	2.860

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-2.833E-01	3.291E-01	5.061E-01	3.439E-02	-0.560
NA-22		1274.54	*	-2.573E-02	4.880E-02	7.490E-02	5.030E-03	-0.344
NA-24		1368.53	*	-5.705E-01	4.880E-02	Half-Life	too short	
AL-26		1129.67		-4.599E-01	1.922E+00	3.086E+00	1.966E-01	-0.149
		1808.65	*	1.053E-02	3.054E-02	5.396E-02	3.243E-03	0.195
TI-44		67.85		-6.947E-02	6.584E-02	8.462E-02	7.368E-03	-0.821
	+	78.38	*	3.974E-01	6.469E-02	8.733E-02	7.916E-03	4.551
SC-46		889.25	*	-2.364E-02	3.918E-02	6.125E-02	5.472E-03	-0.386
	+	1120.51		1.947E-01	9.976E-02	1.279E-01	8.330E-03	1.523
V-48		944.10		2.001E-02	1.015E+00	1.688E+00	1.471E-01	0.012
		983.50	*	4.500E-03	6.871E-02	1.146E-01	9.533E-03	0.039
		1312.09		-1.966E-02	7.276E-02	1.137E-01	8.087E-03	-0.173
CR-51		320.08	*	1.627E-01	4.058E-01	6.775E-01	4.443E-02	0.240
MN-52		744.21		3.058E-05	2.443E-01	3.928E-01	2.501E-02	0.000
		848.13		-1.864E+00	6.818E+00	1.111E+01	9.063E-01	-0.168
		935.52		1.185E-01	2.762E-01	4.753E-01	4.178E-02	0.249
		1246.25		-3.441E+00	7.586E+00	1.180E+01	7.555E-01	-0.291
		1333.61		-2.043E+00	5.000E+00	7.659E+00	5.622E-01	-0.267
		1434.06	*	-1.574E-01	2.361E-01	3.389E-01	2.452E-02	-0.464
MN-54		834.83	*	-3.941E-03	3.736E-02	6.189E-02	4.901E-03	-0.064
CO-56		846.75	*	-9.781E-03	4.104E-02	6.710E-02	5.459E-03	-0.146
		977.42		2.030E+00	2.880E+00	5.105E+00	4.280E-01	0.398
		1037.82		-1.295E-01	3.120E-01	4.918E-01	4.031E-02	-0.263
		1175.09		6.702E-02	2.375E+00	3.901E+00	2.208E-01	0.017
		1238.25		1.594E-01	1.135E-01	1.844E-01	1.226E-02	0.865
		1360.21		5.060E-01	8.771E-01	1.553E+00	1.137E-01	0.326
		1771.40		-2.069E-01	2.609E-01	3.674E-01	2.273E-02	-0.563
CO-57		122.06	*	1.647E-02	2.626E-02	4.424E-02	2.608E-03	0.372
		136.48		-1.955E-01	2.211E-01	3.488E-01	2.268E-02	-0.561
CO-58		810.76	*	-5.316E-02	4.016E-02	5.859E-02	4.402E-03	-0.907
FE-59		142.65		1.127E+00	2.922E+00	4.767E+00	2.592E-01	0.236
		192.34		-7.463E-02	1.002E+00	1.617E+00	1.871E-01	-0.046
		1099.22	*	-1.329E-02	9.388E-02	1.522E-01	1.172E-02	-0.087
		1291.56		4.077E-03	1.262E-01	2.062E-01	1.712E-02	0.020
CO-60		1173.22		-3.286E-03	4.675E-02	7.605E-02	4.290E-03	-0.043
		1332.49	*	1.939E-03	3.885E-02	6.357E-02	4.666E-03	0.031
ZN-65		1115.52	*	1.500E-01	1.072E-01	1.786E-01	1.179E-02	0.840
GE-68		1077.35	*	7.039E-02	1.322E+00	2.189E+00	1.567E-01	0.032
AS-73		53.44	*	1.047E+00	1.119E+00	1.940E+00	1.713E-01	0.540
AS-74		595.88	*	-3.725E-02	9.822E-02	1.551E-01	8.552E-03	-0.240
		634.78		-1.068E-01	3.677E-01	5.812E-01	3.077E-02	-0.184
SE-75		66.05		-5.747E+00	6.412E+00	8.968E+00	9.412E-01	-0.641
		96.73		-3.750E-01	8.771E-01	1.244E+00	1.668E-01	-0.301
		121.11		1.022E-02	1.417E-01	2.337E-01	2.180E-02	0.044
		136.00		-1.374E-02	4.084E-02	6.601E-02	3.727E-03	-0.208
		198.60		-1.159E+00	1.907E+00	2.963E+00	2.001E-01	-0.391
		264.65	*	-1.118E-02	5.244E-02	7.179E-02	4.179E-03	-0.156
		279.53		1.406E-03	1.041E-01	1.757E-01	1.105E-02	0.008
		303.91		-8.689E-01	2.404E+00	3.421E+00	3.282E-01	-0.254

## ---- 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		1.933E-01	2.755E-01	4.753E-01	4.325E-02	0.407
		87.88		5.555E+02	2.063E+02	3.359E+02	3.278E+01	1.654
		200.40		-1.553E+02	1.588E+02	2.446E+02	1.309E+01	-0.635
	+	239.00		2.390E+02	2.112E+01	3.604E+01	2.026E+00	6.631
		249.79		9.870E+00	6.393E+01	9.975E+01	5.671E+00	0.099
		281.68		-1.229E+02	8.072E+01	1.245E+02	7.255E+00	-0.987
		297.23		2.159E+02	8.061E+01	1.058E+02	6.211E+00	2.041
		303.76		-7.598E+01	1.904E+02	2.701E+02	1.590E+01	-0.281
		439.47		-3.720E+01	1.389E+02	2.255E+02	1.319E+01	-0.165
		484.57		2.096E+02	2.122E+02	3.738E+02	2.186E+01	0.561
		520.65	*	-1.232E+00	9.968E+00	1.574E+01	9.109E-01	-0.078
		574.64		-7.738E+01	2.061E+02	3.163E+02	1.775E+01	-0.245
		578.91		8.608E+01	9.752E+01	1.502E+02	8.402E+00	0.573
		585.48		4.870E+02	2.170E+02	3.632E+02	2.021E+01	1.341
		755.35		6.091E+01	1.775E+02	2.934E+02	1.921E+01	0.208
		817.79		-1.850E+01	1.330E+02	2.199E+02	1.674E+01	-0.084
SR-82		698.33		-9.872E+00	3.923E+01	6.204E+01	3.504E+00	-0.159
		776.49	*	-2.997E-01	3.958E-01	6.212E-01	4.285E-02	-0.483
		1395.20		-6.546E+00	1.054E+01	1.527E+01	1.113E+00	-0.429
RB-83		520.41	*	-8.736E-03	7.071E-02	1.116E-01	6.462E-03	-0.078
		529.64		-4.030E-02	1.074E-01	1.707E-01	9.842E-03	-0.236
		552.65		-1.570E-01	2.075E-01	3.180E-01	1.812E-02	-0.494
RB-84		881.50	*	2.885E-02	6.918E-02	1.198E-01	1.053E-02	0.241
KR-85		513.99	*	1.193E+01	8.222E+00	1.327E+01	7.702E-01	0.898
SR-85		513.99	*	6.099E-02	4.204E-02	6.788E-02	3.939E-03	0.898
RB-86		1076.63	*	1.458E-01	8.245E-01	1.382E+00	9.906E-02	0.105
Y-88		898.02		-2.233E-02	4.387E-02	6.949E-02	6.354E-03	-0.321
		1836.01	*	4.709E-03	3.105E-02	5.303E-02	3.123E-03	0.089
ZR-88		392.90	*	-1.192E-02	3.245E-02	5.271E-02	3.043E-03	-0.226
Y-91		1204.90	*	1.322E+01	1.954E+01	3.398E+01	2.027E+00	0.389
NB-94		702.63	*	1.857E-02	3.916E-02	6.546E-02	3.741E-03	0.284
		871.10		-1.831E-02	3.358E-02	5.237E-02	4.497E-03	-0.350
NB-95		765.79	*	8.490E-03	4.970E-02	8.085E-02	5.433E-03	0.105
NB-95M		235.69	*	7.615E-01	1.753E-01	2.886E-01	2.129E-02	2.639
ZR-95		724.18		2.021E-01	1.163E-01	1.917E-01	1.355E-02	1.054
		756.15	*	-1.227E-02	8.361E-02	1.326E-01	1.017E-02	-0.092
NB-97		657.90	*	2.155E-02	8.361E-02	Half-Life	too short	
		1024.50		-4.660E+00	8.361E-02	Half-Life	too short	
ZR-97		254.15		-1.475E+00	8.361E-02	Half-Life	too short	
		355.39		1.465E+00	8.361E-02	Half-Life	too short	
		507.63	*	4.906E+00	8.361E-02	Half-Life	too short	
		602.52		-5.143E+00	8.361E-02	Half-Life	too short	
		1021.30		-3.232E+00	8.361E-02	Half-Life	too short	
		1147.95		-4.251E+00	8.361E-02	Half-Life	too short	
		1362.66		5.256E+00	8.361E-02	Half-Life	too short	
		1750.46		-6.442E-01	8.361E-02	Half-Life	too short	
MO-99		140.51		9.154E-02	2.656E+01	4.270E+01	1.148E+01	0.002
		181.06		1.015E+01	1.872E+01	2.733E+01	4.631E+00	0.371
		366.43		-6.710E+00	8.071E+01	1.339E+02	7.846E+00	-0.050

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	739.58	*		-1.700E+00	1.136E+01	1.800E+01	2.519E+00	-0.094
	778.00			-2.119E+01	3.406E+01	5.418E+01	3.752E+00	-0.391
TC-99M	140.51	*		7.124E+07	3.406E+01	Half-Life too short		
RH-101	127.23			4.004E-02	3.819E-02	5.797E-02	3.329E-03	0.691
	198.01	*		1.097E-02	3.469E-02	5.628E-02	3.000E-03	0.195
	325.23			1.352E-01	2.747E-01	4.146E-01	2.450E-02	0.326
RH-102	418.52			-2.787E-02	3.057E-01	5.037E-01	2.935E-02	-0.055
	475.06	*		2.223E-02	2.959E-02	5.130E-02	3.003E-03	0.433
	631.29			2.044E-02	5.475E-02	9.178E-02	4.879E-03	0.223
	697.49			-3.774E-03	8.790E-02	1.414E-01	7.968E-03	-0.027
	766.84			2.445E-02	1.273E-01	2.074E-01	1.397E-02	0.118
	1046.59			3.139E-02	1.133E-01	1.923E-01	1.456E-02	0.163
	1112.84			-7.711E-02	2.584E-01	3.474E-01	2.305E-02	-0.222
RU-103	497.08	*		-1.128E-02	4.017E-02	6.381E-02	8.078E-03	-0.177
	610.33			9.736E+00	2.064E+00	2.821E+00	4.313E-01	3.451
RH-106	511.85	+		6.439E-01	4.034E-01	4.464E-01	2.593E-02	1.442
	621.84	*		-1.561E-03	3.420E-01	5.553E-01	6.404E-02	-0.003
	1050.47			-2.502E-01	2.387E+00	3.895E+00	2.930E-01	-0.064
RU-106	511.85	+		6.439E-01	4.034E-01	4.464E-01	2.593E-02	1.442
	621.84	*		-1.561E-03	3.420E-01	5.553E-01	2.984E-02	-0.003
	1050.47			-2.502E-01	2.387E+00	3.895E+00	2.930E-01	-0.064
AG-108M	433.93	*		-5.673E-03	3.325E-02	5.436E-02	3.446E-03	-0.104
	614.37			-1.626E-02	4.385E-02	5.866E-02	3.485E-03	-0.277
	722.95			-5.938E-02	5.498E-02	6.570E-02	4.272E-03	-0.904
AG-110M	657.75	*		1.165E-02	3.753E-02	6.233E-02	3.464E-03	0.187
	677.61			-1.907E-01	3.155E-01	4.806E-01	2.751E-02	-0.397
	706.67			9.265E-02	2.323E-01	3.867E-01	2.369E-02	0.240
	763.93			-5.248E-02	1.943E-01	3.049E-01	2.134E-02	-0.172
	884.67			-1.565E-02	4.843E-02	7.806E-02	7.117E-03	-0.200
	937.48			-1.193E-01	1.295E-01	1.969E-01	1.788E-02	-0.606
	1384.27			-1.231E-01	1.583E-01	2.236E-01	1.696E-02	-0.550
IN-111	171.28			-7.885E-01	9.736E-01	1.524E+00	7.818E-02	-0.517
	245.39	*		-1.507E-01	1.068E+00	1.476E+00	8.357E-02	-0.102
IN-113M	391.69	*		-1.134E-02	4.620E-02	7.564E-02	4.660E-03	-0.150
SN-113	391.69	*		-1.134E-02	4.620E-02	7.564E-02	4.660E-03	-0.150
IN-114M	190.27	*		1.162E-01	2.134E-01	3.122E-01	1.646E-02	0.372
CD-115	260.90			-5.703E+01	1.265E+02	1.970E+02	1.131E+01	-0.289
	492.35			1.719E+01	3.282E+01	5.611E+01	3.276E+00	0.306
	527.90	*		3.752E-01	9.992E+00	1.642E+01	9.476E-01	0.023
SN-117M	156.02			4.581E-01	2.285E+00	3.760E+00	1.967E-01	0.122
	158.56	*		5.559E-02	5.400E-02	9.182E-02	4.772E-03	0.605
SB-122	563.90	*		1.122E+00	2.010E+00	3.422E+00	1.936E-01	0.328
	692.80			-6.140E+00	4.751E+01	7.591E+01	4.225E+00	-0.081
I-123	159.00	*		2.732E+00	4.751E+01	Half-Life too short		
	528.96			-9.328E+01	4.751E+01	Half-Life too short		
TE-123M	159.00	*		1.847E-02	2.801E-02	4.696E-02	2.478E-03	0.393
I-124	602.71	*		-7.296E-01	8.288E-01	1.044E+00	5.721E-02	-0.699
	722.78			-6.074E+00	5.501E+00	6.549E+00	3.946E-01	-0.927
	1325.50			1.280E+01	3.400E+01	5.795E+01	4.209E+00	0.221



## ---- 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			5.237E+01	3.367E+01	6.377E+01	4.660E+00	0.821
	1509.49			1.995E+01	1.427E+01	2.799E+01	1.985E+00	0.713
	1691.02			-7.392E-01	3.419E+00	5.427E+00	3.543E-01	-0.136
	602.71			-4.407E-02	5.006E-02	6.305E-02	3.457E-03	-0.699
	645.85			5.221E-01	4.971E-01	8.790E-01	5.306E-02	0.594
	709.31			-1.931E+00	3.064E+00	4.664E+00	2.713E-01	-0.414
	713.82			6.653E-02	1.727E+00	2.794E+00	2.866E-01	0.024
	722.78			-5.318E-01	4.817E-01	5.734E-01	3.606E-02	-0.927
	968.20		+	1.346E+01	5.272E+00	7.369E+00	6.248E-01	1.826
	1045.16			8.991E-01	2.342E+00	4.025E+00	3.055E-01	0.223
	1325.50			1.196E+00	3.179E+00	5.418E+00	3.935E-01	0.221
	1368.21			-1.829E+00	1.665E+00	2.270E+00	2.879E-01	-0.806
	1436.60			2.312E-01	3.633E+00	5.936E+00	4.292E-01	0.039
SB-125	1691.02		*	-1.527E-02	7.061E-02	1.121E-01	7.814E-03	-0.136
	427.89		*	-3.833E-02	9.403E-02	1.513E-01	9.205E-03	-0.253
	463.38		+	4.865E-01	4.922E-01	5.691E-01	3.877E-02	0.855
	600.56			9.187E-02	1.925E-01	3.168E-01	2.041E-02	0.290
TE-125M	635.90			-5.572E-03	2.746E-01	4.446E-01	2.827E-02	-0.013
	109.28		*	-6.213E+00	9.623E+00	1.545E+01	1.378E+00	-0.402
I-126	388.63			2.924E-02	2.146E-01	3.562E-01	2.060E-02	0.082
	666.33		*	1.847E-01	1.863E-01	3.258E-01	1.686E-02	0.567
SB-126	753.82			1.650E+00	1.671E+00	2.901E+00	1.892E-01	0.569
	223.80			-7.121E-01	4.124E+00	6.580E+00	3.633E-01	-0.108
	278.60			1.909E+00	2.371E+00	4.149E+00	2.414E-01	0.460
	296.50			1.031E+01	2.402E+00	3.440E+00	2.020E-01	2.997
	414.70			-1.865E-02	7.559E-02	1.233E-01	7.176E-03	-0.151
	415.30			6.061E-01	6.261E+00	1.044E+01	6.080E-01	0.058
	555.20			3.903E-01	4.092E+00	6.738E+00	3.833E-01	0.058
	573.80			-3.829E-01	1.102E+00	1.749E+00	9.824E-02	-0.219
	593.00			2.544E-01	9.605E-01	1.598E+00	8.834E-02	0.159
	656.30			3.579E+00	3.381E+00	5.937E+00	3.056E-01	0.603
	666.33			7.715E-02	7.780E-02	1.361E-01	7.041E-03	0.567
	675.00			7.676E-01	1.976E+00	3.308E+00	1.753E-01	0.232
	695.00			2.763E-02	8.615E-02	1.426E-01	7.986E-03	0.194
SB-127	697.00			-5.412E-02	3.044E-01	4.843E-01	2.726E-02	-0.112
	720.50		*	-1.146E-01	1.538E-01	2.306E-01	1.381E-02	-0.497
	856.80			8.105E-01	6.098E-01	1.001E+00	8.332E-02	0.809
	989.30			2.210E-01	1.268E+00	2.135E+00	1.763E-01	0.104
	1034.80			4.627E+00	9.482E+00	1.608E+01	1.242E+00	0.288
	1213.00			1.220E+00	5.013E+00	8.378E+00	5.069E-01	0.146
	61.10			4.283E+01	7.261E+01	1.101E+02	1.227E+01	0.389
	252.40			-2.407E-01	4.303E+00	6.868E+00	2.851E+00	-0.035
	290.80			1.074E+01	2.261E+01	3.430E+01	3.123E+00	0.313
	411.60			-9.973E+00	1.238E+01	1.935E+01	2.772E+00	-0.515
	444.90			-1.600E+00	9.432E+00	1.540E+01	1.654E+00	-0.104
	473.00			3.126E-01	1.677E+00	2.799E+00	3.115E-01	0.112
	543.00			2.175E+00	1.626E+01	2.688E+01	3.443E+00	0.081
SB-127	603.60			-1.485E+01	1.417E+01	1.733E+01	1.821E+00	-0.857
	685.20		*	-5.563E-01	1.457E+00	2.275E+00	2.077E-01	-0.244

---- 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		-9.307E-02	1.662E+01	2.681E+01	3.850E+00	-0.003
		722.20		-3.295E+01	3.621E+01	4.410E+01	4.062E+00	-0.747
		783.80		2.735E+00	3.700E+00	6.536E+00	7.382E-01	0.419
		57.60		-4.300E+00	8.322E+00	1.264E+01	1.107E+00	-0.340
		145.22		1.926E-01	7.472E-01	1.212E+00	6.541E-02	0.159
		172.10		-6.170E-02	1.240E-01	1.970E-01	1.012E-02	-0.313
I-131		202.84	*	1.268E-02	5.515E-02	7.899E-02	4.240E-03	0.161
		374.96		1.230E-01	2.028E-01	3.498E-01	2.041E-02	0.352
		80.18		-6.990E+00	5.452E+00	7.436E+00	6.856E-01	-0.940
		284.30		-1.730E-01	1.386E+00	2.320E+00	1.503E-01	-0.075
		364.48	*	-3.027E-02	1.166E-01	1.913E-01	1.250E-02	-0.158
TE-132		636.97		-2.894E-01	1.537E+00	2.451E+00	1.478E-01	-0.118
		722.89		-9.860E+00	9.056E+00	1.081E+01	6.597E-01	-0.912
		49.72		-2.762E+01	2.684E+01	4.306E+01	4.569E+00	-0.641
		111.76		1.166E+01	2.846E+01	4.766E+01	4.430E+00	0.245
		116.30		-8.257E+00	2.617E+01	4.252E+01	3.844E+00	-0.194
BA-133		228.16	*	3.506E-01	6.564E-01	1.082E+00	1.538E-01	0.324
		53.15		4.687E+00	4.865E+00	8.445E+00	7.449E-01	0.555
		79.62		-3.459E-01	1.553E+00	2.249E+00	3.492E-01	-0.154
		81.00		-1.982E-01	1.225E-01	1.590E-01	2.578E-02	-1.246
		276.40		5.552E-01	4.282E-01	6.472E-01	8.393E-02	0.858
I-133		302.84		2.768E-02	1.608E-01	2.384E-01	2.790E-02	0.116
		356.01	*	-1.135E-02	4.966E-02	7.062E-02	8.194E-03	-0.161
		383.85		-8.902E-02	2.972E-01	4.846E-01	5.270E-02	-0.184
	+	510.53		1.075E+00	2.972E-01	Half-Life	too short	
		529.87	*	-2.537E-03	2.972E-01	Half-Life	too short	
CS-134		706.58		1.554E-01	2.972E-01	Half-Life	too short	
		856.28		7.500E-01	2.972E-01	Half-Life	too short	
		875.33		-2.616E-04	2.972E-01	Half-Life	too short	
	+	1236.41		1.715E+00	2.972E-01	Half-Life	too short	
		1298.22		-1.516E-01	2.972E-01	Half-Life	too short	
CS-135		475.35		1.022E+00	1.922E+00	3.286E+00	1.924E-01	0.311
		563.23		3.513E-01	3.731E-01	6.520E-01	3.771E-02	0.539
		569.32		1.212E-01	1.912E-01	3.281E-01	1.907E-02	0.369
		604.70		-4.286E-03	4.147E-02	5.761E-02	3.171E-03	-0.074
		795.84	*	5.981E-02	5.923E-02	9.473E-02	6.919E-03	0.631
I-135		801.93		2.071E-01	4.464E-01	7.443E-01	5.501E-02	0.278
		1038.57		-1.158E+00	3.812E+00	6.083E+00	4.669E-01	-0.190
		1167.94		1.616E+00	2.680E+00	4.641E+00	2.660E-01	0.348
		1365.15		-4.233E-01	1.116E+00	1.693E+00	1.316E-01	-0.250
	*	268.24		4.503E-01	1.999E-01	3.171E-01	2.422E-02	1.420
I-135		288.45		-6.820E+09	1.999E-01	Half-Life	too short	
		417.63		-3.012E+08	1.999E-01	Half-Life	too short	
		546.56		-8.839E+08	1.999E-01	Half-Life	too short	
		836.80		-2.988E+08	1.999E-01	Half-Life	too short	
		1038.76		-3.494E+09	1.999E-01	Half-Life	too short	
I-135		1124.00		4.054E+09	1.999E-01	Half-Life	too short	
		1131.51		3.831E+09	1.999E-01	Half-Life	too short	
	*	1260.41		-1.745E+09	1.999E-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		4.557E+11	1.999E-01	Half-Life	too short	
		1678.03		-1.380E+08	1.999E-01	Half-Life	too short	
		1706.46		-2.575E+09	1.999E-01	Half-Life	too short	
		1791.20		-4.599E+09	1.999E-01	Half-Life	too short	
		66.91		-1.245E+00	1.043E+00	1.418E+00	2.195E-01	-0.878
	+	86.29		3.500E+00	1.342E+00	2.111E+00	2.859E-01	1.658
		153.22		-2.469E-02	6.721E-01	1.096E+00	7.457E-02	-0.023
		163.89		6.406E-01	1.032E+00	1.725E+00	1.160E-01	0.371
		176.55		-6.158E-02	3.856E-01	6.220E-01	3.708E-02	-0.099
		273.65		-6.091E-01	5.505E-01	6.970E-01	4.610E-02	-0.874
		340.57		2.954E-01	1.499E-01	2.462E-01	1.542E-02	1.200
		818.51		-7.849E-03	7.599E-02	1.260E-01	9.621E-03	-0.062
		1048.07	*	-1.052E-02	1.081E-01	1.766E-01	1.407E-02	-0.060
	+	1235.34		1.885E+00	9.328E-01	1.240E+00	1.274E-01	1.520
BA-137M		661.65	*	-3.743E-02	3.812E-02	5.630E-02	2.876E-03	-0.665
CS-137		661.65	*	-3.956E-02	4.030E-02	5.951E-02	3.057E-03	-0.665
CE-139		165.85	*	4.944E-03	2.980E-02	4.887E-02	2.492E-03	0.101
BA-140		162.64		-4.817E-01	7.242E-01	1.143E+00	6.794E-02	-0.421
		304.84		-5.611E-01	1.468E+00	2.074E+00	5.664E-01	-0.271
		423.70		1.457E+00	2.080E+00	3.506E+00	1.115E+00	0.416
LA-140		537.32	*	-1.134E-01	2.737E-01	4.296E-01	1.397E-01	-0.264
	+	328.77		3.880E-01	4.475E-01	5.805E-01	3.828E-02	0.668
		432.53		-1.408E+00	2.068E+00	3.256E+00	2.099E-01	-0.432
		487.03		-9.179E-02	1.381E-01	2.155E-01	1.423E-02	-0.426
		751.79		1.320E+00	1.884E+00	3.208E+00	2.461E-01	0.412
		815.85		3.027E-01	3.324E-01	5.975E-01	5.193E-02	0.507
		867.82		-1.750E-01	1.415E+00	2.120E+00	1.906E-01	-0.083
		919.63		-5.078E-01	2.863E+00	4.679E+00	5.100E-01	-0.109
		925.24		-2.408E-01	1.123E+00	1.827E+00	1.719E-01	-0.132
		1596.49	*	-1.407E-02	7.032E-02	1.128E-01	7.741E-03	-0.125
CE-141		145.44	*	2.895E-02	6.609E-02	1.099E-01	6.197E-03	0.263
CE-143		57.37		-3.026E-04	6.609E-02	Half-Life	too short	
		231.56		-2.151E-03	6.609E-02	Half-Life	too short	
		293.26	*	7.471E-04	6.609E-02	Half-Life	too short	
	+	350.59		2.595E-02	6.609E-02	Half-Life	too short	
		490.36		-6.876E-04	6.609E-02	Half-Life	too short	
		664.57		3.711E-04	6.609E-02	Half-Life	too short	
		721.93		-1.647E-03	6.609E-02	Half-Life	too short	
CE-144		80.11		-3.200E+00	2.566E+00	3.507E+00	3.215E-01	-0.912
		133.54	*	5.435E-02	2.392E-01	3.481E-01	4.916E-02	0.156
PM-144		476.78		-5.032E-02	6.975E-02	1.086E-01	7.589E-03	-0.463
		618.01		-2.091E-02	3.398E-02	5.231E-02	3.018E-03	-0.400
		696.49	*	-4.202E-04	3.940E-02	6.354E-02	3.574E-03	-0.007
		778.57		-1.802E-01	2.357E+00	3.931E+00	2.727E-01	-0.046
PR-144		696.49	*	-2.847E-02	2.670E+00	4.305E+00	2.420E-01	-0.007
		1489.15		8.032E+00	1.192E+01	2.137E+01	1.525E+00	0.376
PM-146		453.90	*	1.783E-03	4.599E-02	7.413E-02	6.421E-03	0.024
		633.02		8.374E-01	1.430E+00	2.384E+00	8.762E-01	0.351
		735.90		-9.615E-02	1.596E-01	2.382E-01	6.663E-02	-0.404

---- 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		2.180E-02	9.873E-02	1.619E-01	2.072E-02	0.135
		91.11		4.659E-01	1.764E-01	5.254E-01	5.166E-02	0.887
		319.41		2.733E+00	3.463E+00	6.035E+00	3.566E-01	0.453
		439.89		-1.539E+00	6.021E+00	9.782E+00	5.726E-01	-0.157
		531.02	*	-5.202E-01	5.607E-01	8.401E-01	1.135E-01	-0.619
PM-149		285.90	*	1.213E+01	8.173E+01	1.387E+02	1.969E+01	0.087
EU-152		121.78		3.661E-02	7.580E-02	1.270E-01	9.764E-03	0.288
		244.69		-1.419E-01	3.652E-01	4.948E-01	2.799E-02	-0.287
		344.27	*	-1.387E-01	1.131E-01	1.559E-01	1.033E-02	-0.890
		443.98		3.265E-01	9.519E-01	1.611E+00	9.429E-02	0.203
		778.89		2.910E-03	2.743E-01	4.609E-01	3.198E-02	0.006
		867.32		3.138E-01	8.407E-01	1.304E+00	1.111E-01	0.241
		964.01		4.554E-01	3.954E-01	6.299E-01	5.368E-02	0.723
		1085.78		-8.572E-02	3.906E-01	6.274E-01	4.415E-02	-0.137
		1112.02		8.291E-02	3.484E-01	5.102E-01	3.391E-02	0.162
		1407.95		2.776E-01	1.930E-01	3.699E-01	2.690E-02	0.751
GD-153		69.67		1.164E+00	2.035E+00	3.070E+00	2.682E-01	0.379
		83.37		1.198E+01	1.880E+01	2.647E+01	2.485E+00	0.453
		97.43	*	7.825E-02	8.634E-02	1.316E-01	1.075E-02	0.595
		103.18		-3.455E-02	1.112E-01	1.816E-01	1.357E-02	-0.190
EU-154		123.07		2.556E-02	5.733E-02	8.912E-02	8.412E-03	0.287
		247.94		-1.601E-01	4.180E-01	5.659E-01	5.357E-02	-0.283
		591.81		2.706E-01	6.443E-01	1.084E+00	1.043E-01	0.250
		723.30		-8.566E-02	2.226E-01	2.940E-01	2.139E-02	-0.291
		756.87		-4.853E-01	9.243E-01	1.415E+00	1.500E-01	-0.343
		873.19		2.319E-04	2.910E-01	4.855E-01	5.947E-02	0.000
		996.32		-2.063E-01	3.795E-01	5.905E-01	1.037E-01	-0.349
		1004.76		-1.063E-01	2.146E-01	3.361E-01	3.781E-02	-0.316
EU-155		1274.45	*	-7.062E-02	1.366E-01	2.097E-01	2.082E-02	-0.337
		48.70		-1.923E+00	3.607E+00	5.940E+00	4.791E-01	-0.324
		60.01		2.358E+00	6.512E+00	9.795E+00	8.507E-01	0.241
		86.54	+	3.272E-01	1.216E-01	1.959E-01	1.904E-02	1.670
		105.31	*	-3.033E-03	1.130E-01	1.865E-01	1.376E-02	-0.016
TB-160	+	86.79		8.721E-01	3.238E-01	5.176E-01	5.001E-02	1.685
		197.04		3.906E-01	5.771E-01	9.612E-01	5.117E-02	0.406
		215.65		5.782E-01	8.360E-01	1.233E+00	6.735E-02	0.469
		298.57		2.253E-01	1.744E-01	2.036E-01	1.196E-02	1.107
		879.36	*	4.813E-02	1.437E-01	2.468E-01	2.159E-02	0.195
		962.29		5.340E-01	6.889E-01	1.067E+00	9.109E-02	0.501
		966.15		1.290E+00	3.410E-01	6.091E-01	5.177E-02	2.118
		1177.93		-1.782E-01	3.816E-01	5.954E-01	3.387E-02	-0.299
HO-166M	+	1271.85		-6.582E-01	7.958E-01	1.176E+00	7.849E-02	-0.560
		80.57		-5.129E-01	3.321E-01	4.454E-01	4.095E-02	-1.152
		184.41		1.361E-01	4.893E-02	7.286E-02	3.808E-03	1.868
		280.46		-8.307E-02	8.163E-02	1.301E-01	7.576E-03	-0.639
		410.95		-5.581E-02	2.575E-01	4.214E-01	2.450E-02	-0.132
		711.68	*	-4.907E-02	6.507E-02	9.752E-02	5.708E-03	-0.503
		752.31		2.421E-01	3.125E-01	5.347E-01	3.474E-02	0.453
		810.29		-9.858E-02	6.235E-02	8.845E-02	6.616E-03	-1.115

---- 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		-3.870E+01	4.378E+01	7.088E+01	6.161E+00	-0.546
		52.39		3.807E-02	2.179E+01	3.663E+01	3.218E+00	0.001
		59.40		1.357E+01	3.544E+01	5.338E+01	4.637E+00	0.254
LU-176		66.72	*	-4.010E+01	3.757E+01	5.209E+01	4.530E+00	-0.770
	+	88.36		6.445E-01	2.393E-01	3.906E-01	3.786E-02	1.650
		201.83		-1.474E-02	3.419E-02	4.692E-02	2.515E-03	-0.314
		306.84	*	2.815E-02	2.813E-02	4.420E-02	2.604E-03	0.637
LU-177		401.10		3.922E+00	7.284E+00	1.247E+01	7.222E-01	0.315
		112.95		1.220E+00	1.566E+00	2.659E+00	1.744E-01	0.459
LU-177M	+	208.36	*	4.043E+00	2.179E+00	2.058E+00	1.114E-01	1.964
		52.97		1.903E+00	2.207E+00	3.821E+00	3.368E-01	0.498
		54.07		5.373E-01	1.168E+00	1.993E+00	1.762E-01	0.270
		61.30		5.770E-01	2.012E+00	3.014E+00	2.618E-01	0.191
		121.62		6.755E-02	3.922E-01	6.495E-01	3.839E-02	0.104
		147.16		-4.075E-01	6.838E-01	1.090E+00	5.849E-02	-0.374
		171.86		-2.597E-01	5.009E-01	7.954E-01	4.084E-02	-0.327
		218.09		-7.270E-01	8.824E-01	1.362E+00	7.466E-02	-0.534
	+	268.79		2.567E+00	1.309E+00	1.630E+00	9.418E-02	1.575
		319.02		1.039E-01	2.811E-01	4.802E-01	2.836E-02	0.216
		367.43		-4.723E-01	9.338E-01	1.508E+00	8.833E-02	-0.313
		413.65	*	-1.571E-01	1.807E-01	2.822E-01	1.642E-02	-0.557
HF-181		56.28		6.940E-01	1.226E+00	2.098E+00	1.848E-01	0.331
		57.53		-1.845E-01	6.932E-01	1.066E+00	9.343E-02	-0.173
		65.20		7.897E-01	1.234E+00	1.865E+00	1.620E-01	0.424
		133.02		-5.811E-03	7.590E-02	1.086E-01	6.099E-03	-0.053
W-181		136.25		-3.362E-01	4.737E-01	7.532E-01	4.180E-02	-0.446
		345.85		-8.265E-02	2.223E-01	3.131E-01	1.847E-02	-0.264
		482.03	*	1.445E-02	4.307E-02	7.261E-02	4.247E-03	0.199
		56.28		2.723E-01	4.812E-01	8.235E-01	7.251E-02	0.331
		57.53		-7.242E-02	2.723E-01	4.188E-01	3.670E-02	-0.173
		65.20	*	3.077E-01	4.809E-01	7.266E-01	6.312E-02	0.424
TA-182		67.75		-1.699E-01	1.570E-01	2.014E-01	1.754E-02	-0.843
		100.10		9.943E-02	1.958E-01	3.071E-01	2.403E-02	0.324
		152.43		2.173E-01	3.411E-01	5.713E-01	3.019E-02	0.380
		222.10		2.906E-01	3.500E-01	5.861E-01	3.230E-02	0.496
		1001.68		2.881E-01	2.077E+00	3.423E+00	2.779E-01	0.084
		1121.28		4.436E-01	1.875E-01	3.316E-01	2.156E-02	1.338
RE-183		1189.05		1.984E-01	3.229E-01	5.593E-01	3.245E-02	0.355
		1221.42	*	4.408E-02	2.269E-01	3.769E-01	2.314E-02	0.117
		1230.97		-2.078E-01	6.287E-01	8.418E-01	5.251E-02	-0.247
		57.98		-1.521E-01	2.869E-01	4.119E-01	3.602E-02	-0.369
		59.32		5.914E-02	1.458E-01	2.198E-01	1.910E-02	0.269
		67.20		-2.741E-01	2.623E-01	3.641E-01	3.168E-02	-0.753
RE-184		162.32	*	-1.241E-01	1.088E-01	1.678E-01	8.632E-03	-0.740
	+	208.81		3.720E+00	2.005E+00	1.895E+00	1.026E-01	1.963
		291.72		3.261E-01	1.086E+00	1.627E+00	9.531E-02	0.200
		57.98		-5.614E-01	1.059E+00	1.520E+00	1.329E-01	-0.369
		59.32		2.181E-01	5.375E-01	8.105E-01	7.044E-02	0.269
		67.20		-1.011E+00	9.677E-01	1.343E+00	1.169E-01	-0.753

---- 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			-5.618E-01	3.551E-01	5.350E-01	2.760E-02	-1.050
	216.55			2.543E-01	2.706E-01	4.420E-01	2.418E-02	0.575
	252.85	*		7.468E-02	2.358E-01	3.843E-01	2.191E-02	0.194
	318.01			-1.344E-01	4.847E-01	8.014E-01	4.732E-02	-0.168
	792.07			1.689E+00	1.279E+00	2.097E+00	1.502E-01	0.806
	903.28			3.633E-01	1.221E+00	1.818E+00	1.648E-01	0.200
	920.93			3.023E-01	4.536E-01	8.010E-01	7.144E-02	0.377
	59.72			1.467E-01	3.894E-01	5.862E-01	5.091E-02	0.250
	61.14			1.202E-01	2.164E-01	3.279E-01	2.848E-02	0.367
	69.30			1.962E-01	3.669E-01	5.527E-01	4.825E-02	0.355
	592.07			8.504E-01	2.656E+00	4.437E+00	2.455E-01	0.192
	646.12	*		4.531E-02	4.240E-02	7.510E-02	3.919E-03	0.603
	717.42			9.968E-01	9.295E-01	1.637E+00	9.728E-02	0.609
	874.81			7.559E-02	5.730E-01	9.679E-01	8.380E-02	0.078
RE-188	880.27			1.586E-01	7.832E-01	1.331E+00	1.166E-01	0.119
	155.03	*		1.336E-02	1.761E-01	2.882E-01	1.512E-02	0.046
	477.96			-2.561E+00	3.166E+00	4.893E+00	2.863E-01	-0.523
	633.10			1.612E+00	2.810E+00	4.787E+00	2.539E-01	0.337
W-188	63.58	+		9.859E+01	8.814E+01	1.096E+02	9.515E+00	0.900
	227.08			3.058E+00	1.281E+01	2.086E+01	1.156E+00	0.147
IR-192	290.67	*		4.355E+00	8.188E+00	1.247E+01	7.304E-01	0.349
	295.96	+		8.666E-01	1.914E-01	2.739E-01	1.632E-02	3.164
	308.46			5.458E-02	1.008E-01	1.699E-01	1.012E-02	0.321
	316.51	*		2.104E-02	3.752E-02	6.467E-02	3.836E-03	0.325
AU-195	468.07			1.731E-02	7.740E-02	1.131E-01	7.616E-03	0.153
	604.41			-2.092E-01	5.504E-01	7.394E-01	8.271E-02	-0.283
	612.46			5.987E-01	7.519E-01	1.155E+00	8.425E-02	0.518
	65.12			1.683E-01	2.241E-01	3.400E-01	2.954E-02	0.495
	66.83			-1.276E-01	1.241E-01	1.724E-01	1.499E-02	-0.740
	75.70	+		1.359E+00	2.903E-01	5.328E-01	4.758E-02	2.550
	98.88	*		1.309E-01	2.614E-01	3.898E-01	3.110E-02	0.336
	129.76	+		6.915E+00	4.096E+00	5.110E+00	2.904E-01	1.353
TL-200	367.94	*		-9.404E-05	4.096E+00	Half-Life	too short	
	579.30			6.709E-03	4.096E+00	Half-Life	too short	
	828.27			-8.862E-04	4.096E+00	Half-Life	too short	
	1205.75			7.231E-05	4.096E+00	Half-Life	too short	
TL-201	68.90			2.349E+00	6.038E+00	8.455E+00	7.376E-01	0.278
	70.82			3.548E+00	3.150E+00	4.847E+00	4.247E-01	0.732
	80.30			-7.389E+00	5.730E+00	7.811E+00	7.169E-01	-0.946
	135.34			1.735E+01	2.467E+01	4.155E+01	2.313E+00	0.418
TL-202	167.43	*		8.902E-01	6.715E+00	1.099E+01	5.610E-01	0.081
	68.90			2.204E-01	5.666E-01	7.935E-01	6.922E-02	0.278
	70.82			3.320E-01	2.948E-01	4.537E-01	3.975E-02	0.732
	80.30			-6.917E-01	5.364E-01	7.312E-01	6.711E-02	-0.946
HG-203	439.56	*		-1.865E-02	7.132E-02	1.158E-01	6.777E-03	-0.161
	70.83			1.463E+00	1.300E+00	1.987E+00	2.722E-01	0.736
	72.87			2.133E+00	8.487E-01	1.300E+00	1.734E-01	1.640
	82.60			7.176E-01	1.774E+00	1.940E+00	2.756E-01	0.370
	279.20	*		1.218E-02	3.897E-02	6.673E-02	4.122E-03	0.183

---- 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		5.610E-01	2.390E-01	3.770E-01	3.325E-02	1.488
	+	74.97		7.544E-01	1.612E-01	2.677E-01	2.382E-02	2.818
		84.90		3.597E-01	2.285E-01	3.525E-01	3.351E-02	1.020
		569.67		2.403E-02	3.025E-02	5.248E-02	2.957E-03	0.458
		1063.62	*	7.915E-03	5.294E-02	8.863E-02	6.511E-03	0.089
TL-207		1770.23		-9.855E-01	6.026E-01	7.071E-01	4.378E-02	-1.394
		81.07		-4.399E-01	2.638E-01	3.504E-01	3.234E-02	-1.255
		83.78		1.467E-01	1.486E-01	2.255E-01	2.124E-02	0.650
		94.90		3.677E-01	2.648E-01	4.091E-01	3.490E-02	0.899
		122.32		1.779E+00	1.864E+00	3.080E+00	2.084E-01	0.578
		144.24		2.759E-01	7.408E-01	1.208E+00	8.361E-02	0.228
		154.21		-2.539E-01	4.169E-01	6.628E-01	4.356E-02	-0.383
	+	269.46		6.016E-01	3.070E-01	3.814E-01	2.305E-02	1.577
		323.87	*	-6.792E-01	7.952E-01	1.071E+00	1.772E-01	-0.634
	+	338.28		6.193E+00	1.710E+00	2.656E+00	2.813E-01	2.331
PO-209		445.03		-4.544E-01	2.293E+00	3.736E+00	3.848E-01	-0.122
		260.50		-6.762E-01	1.016E+01	1.619E+01	9.293E-01	-0.042
		262.80		5.047E+00	2.794E+01	4.513E+01	2.596E+00	0.112
		896.60	*	-4.820E+00	7.690E+00	1.201E+01	1.090E+00	-0.401
		46.50	*	3.752E+00	5.717E+00	9.553E+00	7.438E-01	0.393
PB-210		46.50	*	3.752E+00	5.717E+00	9.553E+00	7.438E-01	0.393
PO-210		46.50	*	3.752E+00	5.715E+00	9.553E+00	6.409E-01	0.393
PB-211		404.84	*	-1.147E+00	1.286E+00	1.665E+00	1.038E+00	-0.689
		427.08		-1.041E+00	2.243E+00	3.443E+00	2.128E+00	-0.302
BI-212		831.96		1.253E-01	1.180E+00	1.987E+00	1.243E+00	0.063
	+	727.18	*	4.511E-01	4.158E-01	6.655E-01	5.282E-02	0.678
		785.46		5.825E-01	1.910E+00	3.278E+00	2.311E-01	0.178
PO-215		1620.62		8.381E-01	1.456E+00	2.615E+00	1.774E-01	0.320
		81.07		-4.399E-01	2.638E-01	3.504E-01	3.234E-02	-1.255
		83.78		1.467E-01	1.486E-01	2.255E-01	2.124E-02	0.650
		94.90		3.677E-01	2.648E-01	4.091E-01	3.490E-02	0.899
		122.32		1.779E+00	1.864E+00	3.080E+00	2.084E-01	0.578
		144.24		2.759E-01	7.408E-01	1.208E+00	8.361E-02	0.228
		154.21		-2.539E-01	4.169E-01	6.628E-01	4.356E-02	-0.383
	+	269.46		6.016E-01	3.070E-01	3.814E-01	2.305E-02	1.577
		323.87	*	-6.792E-01	7.952E-01	1.071E+00	1.772E-01	-0.634
	+	338.28		6.193E+00	1.710E+00	2.656E+00	2.813E-01	2.331
RN-219		445.03		-4.544E-01	2.293E+00	3.736E+00	3.848E-01	-0.122
	+	271.23		7.718E-01	3.960E-01	4.724E-01	3.824E-02	1.634
		401.81	*	3.196E-01	4.540E-01	7.808E-01	1.062E-01	0.409
RN-220		549.76	*	1.238E+01	2.698E+01	4.568E+01	2.607E+00	0.271
RA-223		81.07		-4.399E-01	2.638E-01	3.504E-01	3.234E-02	-1.255
		83.78		1.467E-01	1.486E-01	2.255E-01	2.124E-02	0.650
		94.90		3.677E-01	2.648E-01	4.091E-01	3.490E-02	0.899
		122.32		1.779E+00	1.864E+00	3.080E+00	2.084E-01	0.578
		144.24		2.759E-01	7.408E-01	1.208E+00	8.361E-02	0.228
		154.21		-2.539E-01	4.169E-01	6.628E-01	4.356E-02	-0.383
	+	269.46		6.016E-01	3.070E-01	3.814E-01	2.305E-02	1.577
		323.87	*	-6.792E-01	7.952E-01	1.071E+00	1.772E-01	-0.634

---- 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		6.193E+00	1.710E+00	2.656E+00	2.813E-01	2.331
		445.03		-4.544E-01	2.293E+00	3.736E+00	3.848E-01	-0.122
		79.80		-1.025E+00	1.961E+00	2.782E+00	6.042E-01	-0.369
		236.00		2.538E+00	4.368E-01	6.474E-01	6.697E-02	3.920
	*	256.20		3.407E-01	3.938E-01	6.558E-01	9.134E-02	0.519
TH-227		286.10		1.608E-01	1.490E+00	2.524E+00	2.923E-01	0.064
	+	299.80		3.827E+00	2.196E+00	2.618E+00	4.271E-01	1.462
		304.40		-1.081E+00	2.182E+00	3.062E+00	5.305E-01	-0.353
		334.20		-2.413E-01	2.808E+00	3.832E+00	7.039E-01	-0.063
		79.80		-1.025E+00	1.962E+00	2.782E+00	6.117E-01	-0.369
TH-229	+	94.00		7.120E+00	3.103E+00	3.819E+00	8.326E-01	1.864
		236.00		2.538E+00	4.162E-01	6.474E-01	5.783E-02	3.920
	*	256.20		3.407E-01	3.951E-01	6.558E-01	1.107E-01	0.519
		286.10		1.608E-01	1.498E+00	2.524E+00	2.528E+00	0.064
	+	299.80		3.827E+00	2.196E+00	2.618E+00	4.271E-01	1.462
PA-231		304.40		-1.081E+00	2.182E+00	3.062E+00	5.305E-01	-0.353
		334.20		-2.413E-01	2.808E+00	3.832E+00	7.039E-01	-0.063
		85.43		4.737E-01	2.340E-01	3.639E-01	3.475E-02	1.302
	+	88.47		3.710E-01	1.378E-01	2.236E-01	2.162E-02	1.659
		100.00		1.104E-01	2.038E-01	3.202E-01	2.510E-02	0.345
TH-231	*	193.63		-1.765E-01	5.470E-01	8.726E-01	4.622E-02	-0.202
		210.97		1.644E+00	8.631E-01	1.356E+00	7.365E-02	1.212
	*	283.67		3.055E-01	1.449E+00	2.469E+00	3.406E-01	0.124
	+	301.29		1.531E+00	8.574E-01	1.039E+00	1.091E-01	1.473
		81.07		-4.399E-01	2.638E-01	3.504E-01	3.234E-02	-1.255
U-231		83.78		1.467E-01	1.486E-01	2.255E-01	2.124E-02	0.650
		94.90		3.677E-01	2.648E-01	4.091E-01	3.490E-02	0.899
		122.32		1.779E+00	1.864E+00	3.080E+00	2.084E-01	0.578
		144.24		2.759E-01	7.408E-01	1.208E+00	8.361E-02	0.228
		154.21		-2.539E-01	4.169E-01	6.628E-01	4.356E-02	-0.383
PA-233	+	269.46		6.016E-01	3.070E-01	3.814E-01	2.305E-02	1.577
	*	323.87		-6.792E-01	7.952E-01	1.071E+00	1.772E-01	-0.634
	+	338.28		6.193E+00	1.710E+00	2.656E+00	2.813E-01	2.331
		445.03		-4.544E-01	2.293E+00	3.736E+00	3.848E-01	-0.122
		84.21		5.719E+00	6.153E+00	9.315E+00	8.805E-01	0.614
PA-234	+	92.29		6.748E+00	2.613E+00	3.753E+00	3.359E-01	1.798
	*	95.87		-5.426E-01	1.177E+00	1.669E+00	1.400E-01	-0.325
		108.00		-9.563E-02	2.012E+00	3.315E+00	2.317E-01	-0.029
	+	75.28		2.201E+01	5.471E+00	8.312E+00	1.290E+00	2.648
	+	86.59		5.320E+00	2.393E+00	3.179E+00	8.636E-01	1.673
PA-234	+	300.12		1.067E+00	6.043E-01	7.350E-01	9.902E-02	1.452
	*	311.98		-5.365E-02	6.867E-02	1.105E-01	6.908E-03	-0.486
		340.50		1.641E+00	8.306E-01	1.239E+00	2.849E-01	1.325
		398.62		-1.819E-02	2.284E+00	3.792E+00	9.803E-01	-0.005
		415.76		-8.255E-01	1.703E+00	2.719E+00	5.599E-01	-0.304
PA-234	+	63.00		2.866E+00	2.589E+00	3.304E+00	5.133E-01	0.868
		94.67		3.887E-01	1.972E-01	3.054E-01	3.777E-02	1.272
		98.44		1.054E-01	1.180E-01	1.571E-01	8.753E-02	0.671
		99.86		3.036E-01	5.172E-01	8.140E-01	6.395E-02	0.373



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		-7.406E-02	1.867E-01	3.027E-01	3.274E-02	-0.245
		131.20		-3.731E-02	1.228E-01	1.735E-01	9.807E-03	-0.215
		152.70		1.083E-01	3.314E-01	5.476E-01	8.557E-02	0.198
	+	186.00		4.900E+00	2.294E+00	2.611E+00	7.953E-01	1.877
		226.40		-8.995E-02	4.144E-01	6.592E-01	7.536E-02	-0.136
		227.20		1.011E-01	4.337E-01	7.059E-01	3.915E-02	0.143
		248.90		-4.190E-01	9.573E-01	1.285E+00	2.757E-01	-0.326
	+	293.70		5.468E+00	1.459E+00	1.730E+00	2.786E-01	3.161
		369.80		-2.038E-01	8.772E-01	1.440E+00	3.000E-01	-0.142
		568.70		-3.640E-01	1.016E+00	1.610E+00	9.075E-02	-0.226
		569.50		1.911E-01	2.666E-01	4.601E-01	2.592E-02	0.415
		574.00		-4.308E-01	1.577E+00	2.516E+00	1.413E-01	-0.171
		699.00		-8.298E-02	8.283E-01	1.326E+00	2.378E-01	-0.063
		706.10		1.570E-01	1.200E+00	1.953E+00	8.617E-01	0.080
		733.00		-3.901E-02	4.791E-01	6.572E-01	1.404E-01	-0.059
		742.81		7.902E-01	1.493E+00	2.366E+00	1.584E+00	0.334
		796.30		1.212E+00	1.162E+00	1.807E+00	4.814E-01	0.671
		805.60		8.173E-01	1.081E+00	1.874E+00	5.685E-01	0.436
		819.60		-6.380E-01	1.357E+00	2.144E+00	8.106E-01	-0.298
		826.30		2.611E-01	8.372E-01	1.426E+00	6.358E-01	0.183
		831.60		9.336E-03	6.143E-01	1.029E+00	3.048E-01	0.009
		876.40		-2.220E-02	8.392E-01	1.395E+00	1.434E+00	-0.016
		880.51		8.699E-02	2.787E-01	4.784E-01	4.194E-02	0.182
		883.24		7.909E-02	2.891E-01	4.863E-01	3.270E-01	0.163
		899.00		-6.029E-01	9.174E-01	1.367E+00	5.990E-01	-0.441
		925.00		8.709E-03	1.150E+00	1.913E+00	1.700E-01	0.005
		926.50		-8.261E-02	1.761E-01	2.766E-01	7.016E-02	-0.299
		946.00	*	4.932E-02	3.292E-01	5.538E-01	1.041E-01	0.089
		949.00		7.569E-02	4.692E-01	7.905E-01	6.851E-02	0.096
		980.50		-2.671E-01	7.470E-01	1.191E+00	9.950E-02	-0.224
PA-234M		1394.10		-4.139E-02	1.133E+00	1.824E+00	1.184E+00	-0.023
		766.42		6.578E+00	1.336E+01	2.162E+01	1.091E+01	0.304
		1001.03	*	8.749E-01	4.650E+00	7.700E+00	7.347E-01	0.114
U-235	+	89.95		1.885E+00	9.039E-01	1.900E+00	5.906E-01	0.992
	+	93.35		2.215E+00	1.041E+00	1.230E+00	3.453E-01	1.801
		105.00		4.574E-01	1.100E+00	1.833E+00	5.406E-01	0.249
		143.76	*	1.920E-02	2.307E-01	3.721E-01	6.018E-02	0.052
		163.35		1.452E-01	4.556E-01	7.516E-01	1.336E-01	0.193
	+	185.71		1.815E-01	6.523E-02	9.698E-02	5.078E-03	1.872
		205.31		-1.228E-02	6.116E-01	8.618E-01	1.539E-01	-0.014
NP-236		94.67		2.971E-01	1.473E-01	2.319E-01	1.987E-02	1.281
		98.44		7.969E-02	7.759E-02	1.188E-01	9.545E-03	0.671
		111.00		-5.602E-02	1.411E-01	2.290E-01	1.539E-02	-0.245
		160.31	*	-6.320E-02	7.738E-02	1.213E-01	6.272E-03	-0.521
NP-239		99.55		1.336E-01	1.796E-01	2.711E-01	2.140E-02	0.493
		117.00	*	-1.342E-01	1.942E-01	3.105E-01	1.938E-02	-0.432
	+	209.75		2.942E+00	1.586E+00	1.501E+00	8.137E-02	1.960
		228.18		1.203E-01	2.258E-01	3.729E-01	2.071E-02	0.322
		277.60		1.569E-01	1.867E-01	3.115E-01	1.811E-02	0.504

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.30		-9.103E-02	1.593E+00	2.180E+00	1.288E-01	-0.042
AM-241		59.54	*	8.561E-02	2.057E-01	3.102E-01	2.886E-02	0.276
CM-243		99.55		1.375E-01	1.848E-01	2.790E-01	2.202E-02	0.493
		103.76	*	6.892E-02	9.845E-02	1.669E-01	1.237E-02	0.413
		117.00		-1.381E-01	1.998E-01	3.194E-01	1.994E-02	-0.432
	+	209.75		2.900E+00	1.563E+00	1.480E+00	8.021E-02	1.960
		228.18		1.215E-01	2.282E-01	3.768E-01	2.092E-02	0.322
		277.60		1.582E-01	1.882E-01	3.140E-01	1.826E-02	0.504
AM-246		798.80		-8.796E-02	1.751E-01	2.378E-01	1.731E-02	-0.370
		1036.00		4.517E-02	3.100E-01	5.085E-01	3.920E-02	0.089
		1062.04		8.891E-02	2.395E-01	4.093E-01	3.016E-02	0.217
		1078.86	*	2.859E-02	1.533E-01	2.570E-01	1.834E-02	0.111
CM-247		278.00		9.251E-01	7.458E-01	1.301E+00	7.565E-02	0.711
		287.40		3.792E-01	1.232E+00	2.056E+00	1.202E-01	0.184
		402.60	*	2.070E-02	4.050E-02	6.919E-02	4.010E-03	0.299
CF-249		252.85		2.805E-01	8.857E-01	1.444E+00	8.231E-02	0.194
		333.44		-1.495E-02	2.498E-01	2.849E-01	1.683E-02	-0.052
		387.95	*	2.469E-04	4.167E-02	6.861E-02	3.970E-03	0.004
CF-251		176.60	*	-2.428E-02	1.346E-01	2.170E-01	1.121E-02	-0.112
		227.00		4.712E-02	3.871E-01	6.266E-01	3.474E-02	0.075
		285.00		-5.323E-01	1.699E+00	2.816E+00	1.644E-01	-0.189

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600013      *
* Acquisition date   : 22-JAN-2010 08:50:12 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 02:00:01.66 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600013 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.3574E+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 :                               *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	1.982E+01	2.143E+00	5.696E-01	0.000E+00
CD-109	2.764E+00	1.006E+00	1.335E+00	0.000E+00
SN-126	2.717E-01	9.888E-02	1.540E-01	0.000E+00
TL-208	4.860E-01	7.445E-02	6.030E-02	0.000E+00
BI-211	3.711E+00	4.847E-01	3.415E-01	0.000E+00
PB-212	1.600E+00	1.554E-01	9.655E-02	0.000E+00
PO-212	1.600E+00	1.554E-01	9.655E-02	0.000E+00
BI-214	1.145E+00	1.704E-01	1.181E-01	0.000E+00
PB-214	1.291E+00	1.811E-01	1.190E-01	0.000E+00
PO-214	1.291E+00	1.811E-01	1.190E-01	0.000E+00
PO-216	1.600E+00	1.554E-01	9.655E-02	0.000E+00
PO-218	1.291E+00	1.811E-01	1.190E-01	0.000E+00
RA-224	4.400E+00	1.292E+00	1.099E+00	0.000E+00
RA-226	1.145E+00	1.704E-01	1.181E-01	0.000E+00
AC-228	1.343E+00	3.312E-01	2.155E-01	0.000E+00
RA-228	1.343E+00	3.312E-01	2.155E-01	0.000E+00
TH-228	1.624E+00	1.577E-01	9.799E-02	0.000E+00
TH-230	1.145E+00	1.704E-01	1.180E-01	0.000E+00
TH-232	1.343E+00	3.312E-01	2.155E-01	0.000E+00
TH-234	2.459E+00	2.188E+00	2.573E+00	0.000E+00
U-234	1.145E+00	1.704E-01	1.180E-01	0.000E+00
NP-237	7.979E-01	3.322E-01	4.486E-01	0.000E+00
U-238	2.459E+00	2.188E+00	2.573E+00	0.000E+00
AM-243	4.203E-01	8.798E-02	1.025E-01	0.000E+00
ANH-511	1.290E-01	7.918E-02	4.611E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-2.833E-01	3.225E-01	5.182E-01	0.000E+00 NOT IDENT.
NA-22	-2.573E-02	4.783E-02	7.528E-02	0.000E+00 NOT IDENT.

NA-24	0.000E+00	5.120E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.053E-02	2.992E-02	5.387E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.340E-02	9.237E-02	0.000E+00	FAIL ABUN
SC-46	-2.364E-02	3.840E-02	6.198E-02	0.000E+00	FAIL ABUN
V-48	4.500E-03	6.734E-02	1.157E-01	0.000E+00	NOT IDENT.
CR-51	1.627E-01	3.977E-01	6.989E-01	0.000E+00	NOT IDENT.
MN-52	-1.574E-01	2.314E-01	3.399E-01	0.000E+00	NOT IDENT.
MN-54	-3.941E-03	3.661E-02	6.271E-02	0.000E+00	NOT IDENT.
CO-56	-9.781E-03	4.022E-02	6.797E-02	0.000E+00	NOT IDENT.
CO-57	1.647E-02	2.573E-02	4.643E-02	0.000E+00	NOT IDENT.
CO-58	-5.316E-02	3.936E-02	5.940E-02	0.000E+00	NOT IDENT.
FE-59	-1.329E-02	9.201E-02	1.534E-01	0.000E+00	NOT IDENT.
CO-60	1.939E-03	3.808E-02	6.384E-02	0.000E+00	NOT IDENT.
ZN-65	1.500E-01	1.050E-01	1.799E-01	0.000E+00	NOT IDENT.
GE-68	7.039E-02	1.296E+00	2.208E+00	0.000E+00	NOT IDENT.
AS-73	1.047E+00	1.096E+00	2.065E+00	0.000E+00	NOT IDENT.
AS-74	-3.725E-02	9.626E-02	1.581E-01	0.000E+00	NOT IDENT.
SE-75	-1.118E-02	5.139E-02	7.431E-02	0.000E+00	NOT IDENT.
BR-77	-1.232E+00	9.769E+00	1.609E+01	0.000E+00	FAIL ABUN
SR-82	-2.997E-01	3.878E-01	6.303E-01	0.000E+00	NOT IDENT.
RB-83	-8.736E-03	6.930E-02	1.141E-01	0.000E+00	NOT IDENT.
RB-84	2.885E-02	6.779E-02	1.213E-01	0.000E+00	NOT IDENT.
KR-85	1.193E+01	8.057E+00	1.357E+01	0.000E+00	NOT IDENT.
SR-85	6.099E-02	4.120E-02	6.941E-02	0.000E+00	NOT IDENT.
RB-86	1.458E-01	8.080E-01	1.394E+00	0.000E+00	NOT IDENT.
Y-88	4.709E-03	3.043E-02	5.293E-02	0.000E+00	NOT IDENT.
ZR-88	-1.192E-02	3.180E-02	5.417E-02	0.000E+00	NOT IDENT.
Y-91	1.322E+01	1.915E+01	3.419E+01	0.000E+00	NOT IDENT.
NB-94	1.857E-02	3.838E-02	6.655E-02	0.000E+00	NOT IDENT.
NB-95	8.490E-03	4.870E-02	8.206E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.718E-01	2.993E-01	0.000E+00	NOT IDENT.
ZR-95	-1.227E-02	8.194E-02	1.346E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	8.003E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.820E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.700E+00	1.113E+01	1.828E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.025E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.097E-02	3.399E-02	5.856E-02	0.000E+00	NOT IDENT.
RH-102	2.223E-02	2.900E-02	5.254E-02	0.000E+00	NOT IDENT.
RU-103	-1.128E-02	3.937E-02	6.529E-02	0.000E+00	NOT IDENT.
RH-106	-1.561E-03	3.352E-01	5.658E-01	0.000E+00	FAIL ABUN
RU-106	-1.561E-03	3.352E-01	5.658E-01	0.000E+00	FAIL ABUN
AG-108M	-5.673E-03	3.258E-02	5.576E-02	0.000E+00	NOT IDENT.
AG-110M	1.165E-02	3.678E-02	6.345E-02	0.000E+00	NOT IDENT.
IN-111	-1.507E-01	1.047E+00	1.530E+00	0.000E+00	NOT IDENT.
IN-113M	-1.134E-02	4.528E-02	7.773E-02	0.000E+00	NOT IDENT.
SN-113	-1.134E-02	4.528E-02	7.773E-02	0.000E+00	NOT IDENT.
IN-114M	1.162E-01	2.091E-01	3.251E-01	0.000E+00	NOT IDENT.
CD-115	3.752E-01	9.792E+00	1.678E+01	0.000E+00	NOT IDENT.
SN-117M	5.559E-02	5.292E-02	9.592E-02	0.000E+00	NOT IDENT.
SB-122	1.122E+00	1.970E+00	3.493E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.060E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.847E-02	2.745E-02	4.905E-02	0.000E+00	NOT IDENT.
I-124	-7.296E-01	8.123E-01	1.064E+00	0.000E+00	NOT IDENT.
SB-124	-1.527E-02	6.920E-02	1.120E-01	0.000E+00	FAIL ABUN
SB-125	-3.833E-02	9.215E-02	1.553E-01	0.000E+00	FAIL ABUN
TE-125M	-6.213E+00	9.431E+00	1.625E+01	0.000E+00	NOT IDENT.
I-126	1.847E-01	1.825E-01	3.315E-01	0.000E+00	NOT IDENT.
SB-126	-1.146E-01	1.507E-01	2.343E-01	0.000E+00	NOT IDENT.
SB-127	-5.563E-01	1.428E+00	2.314E+00	0.000E+00	NOT IDENT.
XE-127	1.268E-02	5.405E-02	8.216E-02	0.000E+00	NOT IDENT.
I-131	-3.027E-02	1.142E-01	1.969E-01	0.000E+00	NOT IDENT.
TE-132	3.506E-01	6.433E-01	1.123E+00	0.000E+00	NOT IDENT.
BA-133	-1.135E-02	4.866E-02	7.270E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.002E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.981E-02	5.804E-02	9.608E-02	0.000E+00	NOT IDENT.
CS-135	0.000E+00	1.959E-01	3.281E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.932E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.052E-02	1.059E-01	1.781E-01	0.000E+00	FAIL ABUN
BA-137M	-3.743E-02	3.736E-02	5.729E-02	0.000E+00	NOT IDENT.
CS-137	-3.956E-02	3.949E-02	6.056E-02	0.000E+00	NOT IDENT.
CE-139	4.944E-03	2.921E-02	5.101E-02	0.000E+00	NOT IDENT.
BA-140	-1.134E-01	2.682E-01	4.389E-01	0.000E+00	NOT IDENT.
LA-140	-1.407E-02	6.892E-02	1.129E-01	0.000E+00	FAIL ABUN
CE-141	2.895E-02	6.477E-02	1.150E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.257E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	5.435E-02	2.344E-01	3.648E-01	0.000E+00	NOT IDENT.
PM-144	-4.202E-04	3.861E-02	6.460E-02	0.000E+00	NOT IDENT.
PR-144	-2.847E-02	2.616E+00	4.377E+00	0.000E+00	NOT IDENT.

PM-146	1.783E-03	4.507E-02	7.598E-02	0.000E+00	NOT IDENT.
ND-147	-5.202E-01	5.495E-01	8.585E-01	0.000E+00	FAIL ABUN
PM-149	1.213E+01	8.009E+01	1.434E+02	0.000E+00	NOT IDENT.
EU-152	-1.387E-01	1.108E-01	1.605E-01	0.000E+00	NOT IDENT.
GD-153	7.825E-02	8.461E-02	1.386E-01	0.000E+00	NOT IDENT.
EU-154	-7.062E-02	1.338E-01	2.107E-01	0.000E+00	NOT IDENT.
EU-155	-3.033E-03	1.108E-01	1.963E-01	0.000E+00	FAIL ABUN
TB-160	4.813E-02	1.408E-01	2.499E-01	0.000E+00	FAIL ABUN
HO-166M	-4.907E-02	6.377E-02	9.911E-02	0.000E+00	FAIL ABUN
TM-171	-4.010E+01	3.682E+01	5.525E+01	0.000E+00	NOT IDENT.
LU-176	2.815E-02	2.757E-02	4.563E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.136E+00	2.140E+00	0.000E+00	FAIL ABUN
LU-177M	-1.571E-01	1.771E-01	2.897E-01	0.000E+00	FAIL ABUN
HF-181	1.445E-02	4.221E-02	7.433E-02	0.000E+00	NOT IDENT.
W-181	3.077E-01	4.713E-01	7.710E-01	0.000E+00	NOT IDENT.
TA-182	4.408E-02	2.223E-01	3.792E-01	0.000E+00	NOT IDENT.
RE-183	-1.241E-01	1.067E-01	1.752E-01	0.000E+00	FAIL ABUN
RE-184	7.468E-02	2.311E-01	3.981E-01	0.000E+00	NOT IDENT.
OS-185	4.531E-02	4.155E-02	7.646E-02	0.000E+00	NOT IDENT.
RE-188	1.336E-02	1.725E-01	3.012E-01	0.000E+00	NOT IDENT.
W-188	4.355E+00	8.024E+00	1.289E+01	0.000E+00	FAIL ABUN
IR-192	2.104E-02	3.677E-02	6.672E-02	0.000E+00	FAIL ABUN
AU-195	1.309E-01	2.561E-01	4.107E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.906E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	8.902E-01	6.581E+00	1.147E+01	0.000E+00	NOT IDENT.
TL-202	-1.865E-02	6.990E-02	1.188E-01	0.000E+00	NOT IDENT.
HG-203	1.218E-02	3.819E-02	6.901E-02	0.000E+00	NOT IDENT.
BI-207	7.915E-03	5.189E-02	8.939E-02	0.000E+00	FAIL ABUN
TL-207	-6.792E-01	7.793E-01	1.104E+00	0.000E+00	FAIL ABUN
PO-209	-4.820E+00	7.536E+00	1.215E+01	0.000E+00	NOT IDENT.
BI-210	3.752E+00	5.602E+00	1.020E+01	0.000E+00	NOT IDENT.
PB-210	3.752E+00	5.602E+00	1.020E+01	0.000E+00	NOT IDENT.
PO-210	3.752E+00	5.600E+00	1.020E+01	0.000E+00	NOT IDENT.
PB-211	-1.147E+00	1.260E+00	1.710E+00	0.000E+00	NOT IDENT.
BI-212	4.511E-01	4.074E-01	6.761E-01	0.000E+00	FAIL ABUN
PO-215	-6.792E-01	7.793E-01	1.104E+00	0.000E+00	FAIL ABUN
RN-219	3.196E-01	4.450E-01	8.021E-01	0.000E+00	FAIL ABUN
RN-220	1.238E+01	2.644E+01	4.665E+01	0.000E+00	NOT IDENT.
RA-223	-6.792E-01	7.793E-01	1.104E+00	0.000E+00	FAIL ABUN
AC-227	3.407E-01	3.859E-01	6.793E-01	0.000E+00	FAIL ABUN
TH-227	3.407E-01	3.872E-01	6.793E-01	0.000E+00	FAIL ABUN
TH-229	-1.765E-01	5.360E-01	9.084E-01	0.000E+00	FAIL ABUN
PA-231	3.055E-01	1.420E+00	2.552E+00	0.000E+00	FAIL ABUN
TH-231	-6.792E-01	7.793E-01	1.104E+00	0.000E+00	FAIL ABUN
U-231	-5.426E-01	1.154E+00	1.759E+00	0.000E+00	FAIL ABUN
PA-233	-5.365E-02	6.730E-02	1.140E-01	0.000E+00	FAIL ABUN
PA-234	4.932E-02	3.227E-01	5.598E-01	0.000E+00	FAIL ABUN
PA-234M	8.749E-01	4.557E+00	7.775E+00	0.000E+00	NOT IDENT.
U-235	1.920E-02	2.261E-01	3.894E-01	0.000E+00	FAIL ABUN
NP-236	-6.320E-02	7.583E-02	1.267E-01	0.000E+00	NOT IDENT.
NP-239	-1.342E-01	1.903E-01	3.261E-01	0.000E+00	FAIL ABUN
AM-241	8.561E-02	2.016E-01	3.297E-01	0.000E+00	NOT IDENT.
CM-243	6.892E-02	9.648E-02	1.757E-01	0.000E+00	FAIL ABUN
AM-246	2.859E-02	1.502E-01	2.592E-01	0.000E+00	NOT IDENT.
CM-247	2.070E-02	3.969E-02	7.107E-02	0.000E+00	NOT IDENT.
CF-249	2.469E-04	4.084E-02	7.052E-02	0.000E+00	NOT IDENT.
CF-251	-2.428E-02	1.319E-01	2.262E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600013.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 08:50:12
Sample ID          : G244600013          Sample quantity  : 1.35740E+02 GRAM
Detector name      : GAM23              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.66  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941635             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	763	10.67*	9.975E-01	1.982E+01	1.982E+01	11.04
CD-109	88.03	190	3.72*	5.224E+00	2.703E+00	2.764E+00	37.13
SN-126	64.28	86	9.60	2.554E+00	9.733E-01	9.733E-01	90.27
	86.94	190	8.90	5.224E+00	1.130E+00	1.130E+00	54.91
	87.57	190	37.00*	5.224E+00	2.717E-01	2.717E-01	37.13
TL-208	277.35	-----	6.80	4.140E+00	-----	Line Not Found	-----
	510.84	119	21.60	2.546E+00	5.971E-01	5.971E-01	63.20
	583.14	337	84.20*	2.278E+00	4.860E-01	4.860E-01	15.63
	860.37	54	12.46	1.609E+00	7.421E-01	7.421E-01	73.76
BI-211	72.87	-----	1.27	3.829E+00	-----	Line Not Found	-----
	351.07	598	12.94*	3.442E+00	3.711E+00	3.711E+00	13.33
PB-212	74.81	405	10.70	4.040E+00	2.592E+00	2.592E+00	23.32
	77.11	602	18.00	4.297E+00	2.154E+00	2.154E+00	16.28
	87.30	190	8.00	5.224E+00	1.257E+00	1.257E+00	38.45
	238.63	1197	44.60*	4.638E+00	1.600E+00	1.600E+00	9.91
	300.09	99	3.41	3.894E+00	2.065E+00	2.065E+00	55.64
PO-212	74.81	405	10.70	4.040E+00	2.592E+00	2.592E+00	23.32
	77.11	602	18.00	4.297E+00	2.154E+00	2.154E+00	16.28
	87.30	190	8.00	5.224E+00	1.257E+00	1.257E+00	38.45
	115.19	-----	0.60	6.293E+00	-----	Line Not Found	-----
	238.63	1197	44.60*	4.638E+00	1.600E+00	1.600E+00	9.91
	300.09	99	3.41	3.894E+00	2.065E+00	2.065E+00	55.64
BI-214	609.31	421	46.30*	2.194E+00	1.145E+00	1.145E+00	15.19
	1120.29	78	15.10	1.258E+00	1.140E+00	1.140E+00	51.66
	1764.49	48	15.80	8.743E-01	9.605E-01	9.606E-01	42.14
PB-214	74.81	405	6.21	4.040E+00	4.467E+00	4.467E+00	22.61
	77.11	602	10.50	4.297E+00	3.692E+00	3.692E+00	17.97
	87.30	190	4.67	5.224E+00	2.153E+00	2.153E+00	37.92
	241.98	289	7.49	4.595E+00	2.321E+00	2.321E+00	30.49
	295.21	312	19.20	3.949E+00	1.139E+00	1.139E+00	22.93
	351.92	598	37.20*	3.442E+00	1.291E+00	1.291E+00	14.31
PO-214	74.81	405	6.21	4.040E+00	4.467E+00	4.467E+00	22.61

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	602	10.50	4.297E+00	3.692E+00	3.692E+00	17.97
	87.30	190	4.67	5.224E+00	2.153E+00	2.153E+00	37.92
	241.98	289	7.49	4.595E+00	2.321E+00	2.321E+00	30.49
	295.21	312	19.20	3.949E+00	1.139E+00	1.139E+00	22.93
	351.92	598	37.20*	3.442E+00	1.291E+00	1.291E+00	14.31
	74.81	405	10.70	4.040E+00	2.592E+00	2.592E+00	23.32
	77.11	602	18.00	4.297E+00	2.154E+00	2.154E+00	16.28
	87.30	190	8.00	5.224E+00	1.257E+00	1.257E+00	38.45
	238.63	1197	44.60*	4.638E+00	1.600E+00	1.600E+00	9.91
	300.09	99	3.41	3.894E+00	2.065E+00	2.065E+00	55.64
PO-218	74.81	405	6.21	4.040E+00	4.467E+00	4.467E+00	22.61
	77.11	602	10.50	4.297E+00	3.692E+00	3.692E+00	17.97
	87.30	190	4.67	5.224E+00	2.153E+00	2.153E+00	37.92
	241.98	289	7.49	4.595E+00	2.321E+00	2.321E+00	30.49
	295.21	312	19.20	3.949E+00	1.139E+00	1.139E+00	22.93
	351.92	598	37.20*	3.442E+00	1.291E+00	1.291E+00	14.31
RA-224	240.98	289	3.95*	4.595E+00	4.400E+00	4.400E+00	29.97
RA-226	609.31	421	46.30*	2.194E+00	1.145E+00	1.145E+00	15.19
AC-228	1120.29	78	15.10	1.258E+00	1.140E+00	1.140E+00	51.66
	1764.49	48	15.80	8.743E-01	9.605E-01	9.605E-01	42.14
	338.32	217	11.40	3.551E+00	1.483E+00	1.483E+00	48.09
	911.07	205	27.70*	1.527E+00	1.343E+00	1.343E+00	25.15
	969.11	113	16.60	1.441E+00	1.311E+00	1.311E+00	44.78
RA-228	338.32	217	11.40	3.551E+00	1.483E+00	1.483E+00	48.09
	911.07	205	27.70*	1.527E+00	1.343E+00	1.343E+00	25.15
	969.11	113	16.60	1.441E+00	1.311E+00	1.311E+00	44.78
TH-228	74.81	405	10.70	4.040E+00	2.592E+00	2.631E+00	21.39
	77.11	602	18.00	4.297E+00	2.154E+00	2.186E+00	16.28
	87.30	190	8.00	5.224E+00	1.257E+00	1.276E+00	37.13
	238.63	1197	44.60*	4.638E+00	1.600E+00	1.624E+00	9.91
	300.09	99	3.41	3.894E+00	2.065E+00	2.096E+00	80.63
TH-230	609.31	421	46.30*	2.194E+00	1.145E+00	1.145E+00	15.19
	1120.29	78	15.10	1.258E+00	1.140E+00	1.140E+00	51.66
	1764.49	48	15.80	8.743E-01	9.605E-01	9.605E-01	42.14
TH-232	338.32	217	11.40	3.551E+00	1.483E+00	1.483E+00	26.17
	911.07	205	27.70*	1.527E+00	1.343E+00	1.343E+00	25.15
	969.11	113	16.60	1.441E+00	1.311E+00	1.311E+00	44.78
TH-234	63.29	86	3.80*	2.554E+00	2.459E+00	2.459E+00	90.78
	92.38	202	5.41	5.601E+00	1.842E+00	1.842E+00	41.85
U-234	609.31	421	46.30*	2.194E+00	1.145E+00	1.145E+00	15.19
	1120.29	78	15.10	1.258E+00	1.140E+00	1.140E+00	51.66
	1764.49	48	15.80	8.743E-01	9.605E-01	9.605E-01	42.14
NP-237	86.50	190	12.60*	5.224E+00	7.979E-01	7.979E-01	42.48
	95.87	-----	2.60	5.757E+00	-----	Line Not Found	-----
U-238	63.29	86	3.80*	2.554E+00	2.459E+00	2.459E+00	90.78
	92.38	202	5.41	5.601E+00	1.842E+00	1.842E+00	38.72
AM-243	74.67	405	66.00*	4.040E+00	4.203E-01	4.203E-01	21.36
	86.72	190	0.34	5.224E+00	2.992E+01	2.992E+01	37.13
	117.66	-----	0.55	6.314E+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	6.209E+00	-----	Line Not Found	-----
ANH-511	511.00	119	100.00*	2.546E+00	1.290E-01	1.290E-01	62.64

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	1.982E+01	1.982E+01	0.219E+01	11.04	
CD-109	464.00D	1.02	2.703E+00	2.764E+00	1.026E+00	37.13	
SN-126	1.00E+05Y	1.00	2.717E-01	2.717E-01	1.009E-01	37.13	
TL-208	1.41E+10Y	1.00	4.860E-01	4.860E-01	0.760E-01	15.63	
BI-211	7.04E+08Y	1.00	3.711E+00	3.711E+00	0.495E+00	13.33	
PB-212	1.41E+10Y	1.00	1.600E+00	1.600E+00	0.159E+00	9.91	
PO-212	1.41E+10Y	1.00	1.600E+00	1.600E+00	0.159E+00	9.91	
BI-214	1600.00Y	1.00	1.145E+00	1.145E+00	0.174E+00	15.19	
PB-214	1600.00Y	1.00	1.291E+00	1.291E+00	0.185E+00	14.31	
PO-214	1600.00Y	1.00	1.291E+00	1.291E+00	0.185E+00	14.31	
PO-216	1.41E+10Y	1.00	1.600E+00	1.600E+00	0.159E+00	9.91	
PO-218	1600.00Y	1.00	1.291E+00	1.291E+00	0.185E+00	14.31	
RA-224	1.41E+10Y	1.00	4.400E+00	4.400E+00	1.319E+00	29.97	
RA-226	1600.00Y	1.00	1.145E+00	1.145E+00	0.174E+00	15.19	
AC-228	1.41E+10Y	1.00	1.343E+00	1.343E+00	0.338E+00	25.15	
RA-228	1.41E+10Y	1.00	1.343E+00	1.343E+00	0.338E+00	25.15	
TH-228	1.91Y	1.01	1.600E+00	1.624E+00	0.161E+00	9.91	
TH-230	4.47E+09Y	1.00	1.145E+00	1.145E+00	0.174E+00	15.19	
TH-232	1.41E+10Y	1.00	1.343E+00	1.343E+00	0.338E+00	25.15	
TH-234	4.47E+09Y	1.00	2.459E+00	2.459E+00	2.232E+00	90.78	
U-234	4.47E+09Y	1.00	1.145E+00	1.145E+00	0.174E+00	15.19	
NP-237	2.14E+06Y	1.00	7.979E-01	7.979E-01	3.390E-01	42.48	
U-238	4.47E+09Y	1.00	2.459E+00	2.459E+00	2.232E+00	90.78	
AM-243	7380.00Y	1.00	4.203E-01	4.203E-01	0.898E-01	21.36	
ANH-511	1.00E+09Y	1.00	1.290E-01	1.290E-01	0.808E-01	62.64	

Total Activity : 5.654E+01 5.662E+01

Grand Total Activity : 5.654E+01 5.662E+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	89.81	100	133	1.13	179.62	178	16	1.38E-02	36.5	5.41E+00	T
0	128.87	121	328	1.16	257.74	253	10	1.68E-02	59.0	6.32E+00	T
0	185.74	195	277	1.28	371.48	367	9	2.70E-02	35.6	5.49E+00	T
0	209.21	175	403	1.34	418.41	410	16	2.43E-02	53.6	5.09E+00	T
0	269.99	125	208	1.42	539.98	535	12	1.74E-02	50.7	4.23E+00	T
0	328.36	47	190	0.80	656.73	650	10	6.47E-03	****	3.63E+00	T
0	463.04	50	136	1.89	926.09	918	13	6.90E-03	****	2.76E+00	T
0	727.02	36	71	0.94	1454.03	1452	8	5.02E-03	91.8	1.88E+00	T
0	793.93	41	58	1.07	1587.85	1583	11	5.69E-03	78.4	1.73E+00	
0	1236.68	70	44	3.24	2473.36	2464	16	9.77E-03	48.4	1.15E+00	T

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244600013.CNF;1
* Acquisition date   : 22-JAN-2010 08:50:12   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 02:00:01.66          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244600013             Analyst initials: MXR1
* Batch Number       : 941635                 Sample Quantity : 1.35740E+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    :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	1.982E+01	2.187E+00	5.682E-01	4.250E-02	34.879
CD-109	2.764E+00	1.026E+00	1.265E+00	1.235E-01	2.185
SN-126	2.717E-01	1.009E-01	1.458E-01	1.419E-02	1.863
TL-208	4.860E-01	7.597E-02	5.911E-02	3.838E-03	8.221
BI-211	3.711E+00	4.946E-01	3.316E-01	2.161E-02	11.189
PB-212	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
PO-212	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
BI-214	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
PB-214	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
PO-214	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
PO-216	1.600E+00	1.586E-01	9.310E-02	6.694E-03	17.185
PO-218	1.291E+00	1.848E-01	1.156E-01	9.650E-03	11.166
RA-224	4.400E+00	1.319E+00	1.060E+00	5.970E-02	4.153
AC-226	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
AC-228	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
RA-228	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
TH-228	1.624E+00	1.609E-01	9.449E-02	6.794E-03	17.185
TH-230	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.343E+00	3.379E-01	2.130E-01	2.458E-02	6.308
TH-234	2.459E+00	2.232E+00	2.423E+00	4.367E-01	1.015
U-234	1.145E+00	1.739E-01	1.158E-01	8.707E-03	9.886
NP-237	7.979E-01	3.390E-01	4.249E-01	9.676E-02	1.878
U-238	2.459E+00	2.232E+00	2.423E+00	4.367E-01	1.015
AM-243	4.203E-01	8.978E-02	9.686E-02	8.607E-03	4.339
ANH-511	1.290E-01	8.080E-02	4.509E-02	2.619E-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	-2.833E-01		3.291E-01	5.061E-01	3.439E-02	-0.560
NA-22	-2.573E-02		4.880E-02	7.490E-02	5.030E-03	-0.344
NA-24	-5.705E-01		2.612E-01	Half-Life too short		
AL-26	1.053E-02		3.054E-02	5.396E-02	3.243E-03	0.195
TI-44	3.974E-01	+	6.469E-02	8.733E-02	7.916E-03	4.551
SC-46	-2.364E-02		3.918E-02	6.125E-02	5.472E-03	-0.386
V-48	4.500E-03		6.871E-02	1.146E-01	9.533E-03	0.039
CR-51	1.627E-01		4.058E-01	6.775E-01	4.443E-02	0.240
MN-52	-1.574E-01		2.361E-01	3.389E-01	2.452E-02	-0.464
MN-54	-3.941E-03		3.736E-02	6.189E-02	4.901E-03	-0.064
CO-56	-9.781E-03		4.104E-02	6.710E-02	5.459E-03	-0.146
CO-57	1.647E-02		2.626E-02	4.424E-02	2.608E-03	0.372
CO-58	-5.316E-02		4.016E-02	5.859E-02	4.402E-03	-0.907
FE-59	-1.329E-02		9.388E-02	1.522E-01	1.172E-02	-0.087
CO-60	1.939E-03		3.885E-02	6.357E-02	4.666E-03	0.031
ZN-65	1.500E-01		1.072E-01	1.786E-01	1.179E-02	0.840
GE-68	7.039E-02		1.322E+00	2.189E+00	1.567E-01	0.032
AS-73	1.047E+00		1.119E+00	1.940E+00	1.713E-01	0.540
AS-74	-3.725E-02		9.822E-02	1.551E-01	8.552E-03	-0.240
SE-75	-1.118E-02		5.244E-02	7.179E-02	4.179E-03	-0.156
BR-77	-1.232E+00		9.968E+00	1.574E+01	9.109E-01	-0.078
SR-82	-2.997E-01		3.958E-01	6.212E-01	4.285E-02	-0.483
RB-83	-8.736E-03		7.071E-02	1.116E-01	6.462E-03	-0.078
RB-84	2.885E-02		6.918E-02	1.198E-01	1.053E-02	0.241
KR-85	1.193E+01		8.222E+00	1.327E+01	7.702E-01	0.898
SR-85	6.099E-02		4.204E-02	6.788E-02	3.939E-03	0.898
RB-86	1.458E-01		8.245E-01	1.382E+00	9.906E-02	0.105
Y-88	4.709E-03		3.105E-02	5.303E-02	3.123E-03	0.089
ZR-88	-1.192E-02		3.245E-02	5.271E-02	3.043E-03	-0.226
Y-91	1.322E+01		1.954E+01	3.398E+01	2.027E+00	0.389
NB-94	1.857E-02		3.916E-02	6.546E-02	3.741E-03	0.284
NB-95	8.490E-03		4.970E-02	8.085E-02	5.433E-03	0.105
NB-95M	7.615E-01		1.753E-01	2.886E-01	2.129E-02	2.639
ZR-95	-1.227E-02		8.361E-02	1.326E-01	1.017E-02	-0.092
NB-97	2.155E-02		4.083E-02	Half-Life too short		
ZR-97	4.906E+00		9.287E-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	-1.700E+00		1.136E+01	1.800E+01	2.519E+00	-0.094
TC-99M	7.124E+07		1.033E+10	Half-Life too short		
RH-101	1.097E-02		3.469E-02	5.628E-02	3.000E-03	0.195
RH-102	2.223E-02		2.959E-02	5.130E-02	3.003E-03	0.433
RU-103	-1.128E-02		4.017E-02	6.381E-02	8.078E-03	-0.177
RH-106	-1.561E-03		3.420E-01	5.553E-01	6.404E-02	-0.003
RU-106	-1.561E-03		3.420E-01	5.553E-01	2.984E-02	-0.003
AG-108M	-5.673E-03		3.325E-02	5.436E-02	3.446E-03	-0.104
AG-110M	1.165E-02		3.753E-02	6.233E-02	3.464E-03	0.187
IN-111	-1.507E-01		1.068E+00	1.476E+00	8.357E-02	-0.102
IN-113M	-1.134E-02		4.620E-02	7.564E-02	4.660E-03	-0.150
SN-113	-1.134E-02		4.620E-02	7.564E-02	4.660E-03	-0.150
IN-114M	1.162E-01		2.134E-01	3.122E-01	1.646E-02	0.372
CD-115	3.752E-01		9.992E+00	1.642E+01	9.476E-01	0.023
SN-117M	5.559E-02		5.400E-02	9.182E-02	4.772E-03	0.605
SB-122	1.122E+00		2.010E+00	3.422E+00	1.936E-01	0.328
I-123	2.732E+00		2.072E+00	Half-Life too short		
TE-123M	1.847E-02		2.801E-02	4.696E-02	2.478E-03	0.393
I-124	-7.296E-01		8.288E-01	1.044E+00	5.721E-02	-0.699
SB-124	-1.527E-02		7.061E-02	1.121E-01	7.814E-03	-0.136
SB-125	-3.833E-02		9.403E-02	1.513E-01	9.205E-03	-0.253
TE-125M	-6.213E+00		9.623E+00	1.545E+01	1.378E+00	-0.402
I-126	1.847E-01		1.863E-01	3.258E-01	1.686E-02	0.567
SB-126	-1.146E-01		1.538E-01	2.306E-01	1.381E-02	-0.497
SB-127	-5.563E-01		1.457E+00	2.275E+00	2.077E-01	-0.244
XE-127	1.268E-02		5.515E-02	7.899E-02	4.240E-03	0.161
I-131	-3.027E-02		1.166E-01	1.913E-01	1.250E-02	-0.158
TE-132	3.506E-01		6.564E-01	1.082E+00	1.538E-01	0.324
BA-133	-1.135E-02		4.966E-02	7.062E-02	8.194E-03	-0.161
I-133	-2.537E-03		2.552E-03	Half-Life too short		
CS-134	5.981E-02		5.923E-02	9.473E-02	6.919E-03	0.631
CS-135	4.503E-01		1.999E-01	3.171E-01	2.422E-02	1.420
I-135	-1.745E+09		1.496E+09	Half-Life too short		
CS-136	-1.052E-02		1.081E-01	1.766E-01	1.407E-02	-0.060
BA-137M	-3.743E-02		3.812E-02	5.630E-02	2.876E-03	-0.665
CS-137	-3.956E-02		4.030E-02	5.951E-02	3.057E-03	-0.665
CE-139	4.944E-03		2.980E-02	4.887E-02	2.492E-03	0.101
BA-140	-1.134E-01		2.737E-01	4.296E-01	1.397E-01	-0.264
LA-140	-1.407E-02		7.032E-02	1.128E-01	7.741E-03	-0.125
CE-141	2.895E-02		6.609E-02	1.099E-01	6.197E-03	0.263
CE-143	7.471E-04		1.152E-04	Half-Life too short		
CE-144	5.435E-02		2.392E-01	3.481E-01	4.916E-02	0.156
PM-144	-4.202E-04		3.940E-02	6.354E-02	3.574E-03	-0.007
PR-144	-2.847E-02		2.670E+00	4.305E+00	2.420E-01	-0.007
PM-146	1.783E-03		4.599E-02	7.413E-02	6.421E-03	0.024
ND-147	-5.202E-01		5.607E-01	8.401E-01	1.135E-01	-0.619
PM-149	1.213E+01		8.173E+01	1.387E+02	1.969E+01	0.087
EU-152	-1.387E-01		1.131E-01	1.559E-01	1.033E-02	-0.890

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	7.825E-02		8.634E-02	1.316E-01	1.075E-02	0.595
EU-154	-7.062E-02		1.366E-01	2.097E-01	2.082E-02	-0.337
EU-155	-3.033E-03		1.130E-01	1.865E-01	1.376E-02	-0.016
TB-160	4.813E-02		1.437E-01	2.468E-01	2.159E-02	0.195
HO-166M	-4.907E-02		6.507E-02	9.752E-02	5.708E-03	-0.503
TM-171	-4.010E+01		3.757E+01	5.209E+01	4.530E+00	-0.770
LU-176	2.815E-02		2.813E-02	4.420E-02	2.604E-03	0.637
LU-177	4.043E+00	+	2.179E+00	2.058E+00	1.114E-01	1.964
LU-177M	-1.571E-01		1.807E-01	2.822E-01	1.642E-02	-0.557
HF-181	1.445E-02		4.307E-02	7.261E-02	4.247E-03	0.199
W-181	3.077E-01		4.809E-01	7.266E-01	6.312E-02	0.424
TA-182	4.408E-02		2.269E-01	3.769E-01	2.314E-02	0.117
RE-183	-1.241E-01		1.088E-01	1.678E-01	8.632E-03	-0.740
RE-184	7.468E-02		2.358E-01	3.843E-01	2.191E-02	0.194
OS-185	4.531E-02		4.240E-02	7.510E-02	3.919E-03	0.603
RE-188	1.336E-02		1.761E-01	2.882E-01	1.512E-02	0.046
W-188	4.355E+00		8.188E+00	1.247E+01	7.304E-01	0.349
IR-192	2.104E-02		3.752E-02	6.467E-02	3.836E-03	0.325
AU-195	1.309E-01		2.614E-01	3.898E-01	3.110E-02	0.336
TL-200	-9.404E-05		1.993E-04	Half-Life too short		
TL-201	8.902E-01		6.715E+00	1.099E+01	5.610E-01	0.081
TL-202	-1.865E-02		7.132E-02	1.158E-01	6.777E-03	-0.161
HG-203	1.218E-02		3.897E-02	6.673E-02	4.122E-03	0.183
BI-207	7.915E-03		5.294E-02	8.863E-02	6.511E-03	0.089
TL-207	-6.792E-01		7.952E-01	1.071E+00	1.772E-01	-0.634
PO-209	-4.820E+00		7.690E+00	1.201E+01	1.090E+00	-0.401
BI-210	3.752E+00		5.717E+00	9.553E+00	7.438E-01	0.393
PB-210	3.752E+00		5.717E+00	9.553E+00	7.438E-01	0.393
PO-210	3.752E+00		5.715E+00	9.553E+00	6.409E-01	0.393
PB-211	-1.147E+00		1.286E+00	1.665E+00	1.038E+00	-0.689
BI-212	4.511E-01	+	4.158E-01	6.655E-01	5.282E-02	0.678
PO-215	-6.792E-01		7.952E-01	1.071E+00	1.772E-01	-0.634
RN-219	3.196E-01		4.540E-01	7.808E-01	1.062E-01	0.409
RN-220	1.238E+01		2.698E+01	4.568E+01	2.607E+00	0.271
RA-223	-6.792E-01		7.952E-01	1.071E+00	1.772E-01	-0.634
AC-227	3.407E-01		3.938E-01	6.558E-01	9.134E-02	0.519
TH-227	3.407E-01		3.951E-01	6.558E-01	1.107E-01	0.519
TH-229	-1.765E-01		5.470E-01	8.726E-01	4.622E-02	-0.202
PA-231	3.055E-01		1.449E+00	2.469E+00	3.406E-01	0.124
TH-231	-6.792E-01		7.952E-01	1.071E+00	1.772E-01	-0.634
U-231	-5.426E-01		1.177E+00	1.669E+00	1.400E-01	-0.325
PA-233	-5.365E-02		6.867E-02	1.105E-01	6.908E-03	-0.486
PA-234	4.932E-02		3.292E-01	5.538E-01	1.041E-01	0.089
PA-234M	8.749E-01		4.650E+00	7.700E+00	7.347E-01	0.114
U-235	1.920E-02		2.307E-01	3.721E-01	6.018E-02	0.052
NP-236	-6.320E-02		7.738E-02	1.213E-01	6.272E-03	-0.521
NP-239	-1.342E-01		1.942E-01	3.105E-01	1.938E-02	-0.432
AM-241	8.561E-02		2.057E-01	3.102E-01	2.886E-02	0.276

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	6.892E-02		9.845E-02	1.669E-01	1.237E-02	0.413
AM-246	2.859E-02		1.533E-01	2.570E-01	1.834E-02	0.111
CM-247	2.070E-02		4.050E-02	6.919E-02	4.010E-03	0.299
CF-249	2.469E-04		4.167E-02	6.861E-02	3.970E-03	0.004
CF-251	-2.428E-02		1.346E-01	2.170E-01	1.121E-02	-0.112

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244600013          *
* Acquisition date   : 22-JAN-2010 08:50:12 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 02:00:01.66             Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244600013              Analyst initials: MXR1        *
* Batch Number       : 941635                  Sample Quantity : 1.3574E+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 :                  *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	1.982E+01	2.143E+00	2.850E-01	1.094E+00
CD-109	2.764E+00	1.006E+00	6.678E-01	5.131E-01
SN-126	2.717E-01	9.888E-02	7.702E-02	5.045E-02
TL-208	4.860E-01	7.445E-02	3.017E-02	3.799E-02
BI-211	3.711E+00	4.847E-01	1.709E-01	2.473E-01
PB-212	1.600E+00	1.554E-01	4.830E-02	7.929E-02
PO-212	1.600E+00	1.554E-01	4.830E-02	7.929E-02
BI-214	1.145E+00	1.704E-01	5.906E-02	8.696E-02
PB-214	1.291E+00	1.811E-01	5.956E-02	9.238E-02
PO-214	1.291E+00	1.811E-01	5.956E-02	9.238E-02
PO-216	1.600E+00	1.554E-01	4.830E-02	7.929E-02
PO-218	1.291E+00	1.811E-01	5.956E-02	9.238E-02
RA-224	4.400E+00	1.292E+00	5.497E-01	6.593E-01
RA-226	1.145E+00	1.704E-01	5.906E-02	8.696E-02
AC-228	1.343E+00	3.312E-01	1.078E-01	1.690E-01
RA-228	1.343E+00	3.312E-01	1.078E-01	1.690E-01
TH-228	1.624E+00	1.577E-01	4.903E-02	8.047E-02
TH-230	1.145E+00	1.704E-01	5.906E-02	8.696E-02
TH-232	1.343E+00	3.312E-01	1.078E-01	1.690E-01
TH-234	2.459E+00	2.188E+00	1.287E+00	1.116E+00
U-234	1.145E+00	1.704E-01	5.906E-02	8.696E-02
NP-237	7.979E-01	3.322E-01	2.244E-01	1.695E-01
U-238	2.459E+00	2.188E+00	1.287E+00	1.116E+00
AM-243	4.203E-01	8.798E-02	5.130E-02	4.489E-02
ANH-511	1.290E-01	7.918E-02	2.307E-02	4.040E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-2.833E-01	3.225E-01	2.593E-01	1.645E-01 NOT IDENT.
NA-22	-2.573E-02	4.783E-02	3.766E-02	2.440E-02 NOT IDENT.



NA-24	-5.705E+05	5.120E+05	0.000E+00	2.612E+05	SHORT HLIF
AL-26	1.053E-02	2.992E-02	2.695E-02	1.527E-02	NOT IDENT.
TI-44	3.974E-01	6.340E-02	4.621E-02	3.235E-02	FAIL ABUN
SC-46	-2.364E-02	3.840E-02	3.101E-02	1.959E-02	FAIL ABUN
V-48	4.500E-03	6.734E-02	5.791E-02	3.436E-02	NOT IDENT.
CR-51	1.627E-01	3.977E-01	3.496E-01	2.029E-01	NOT IDENT.
MN-52	-1.574E-01	2.314E-01	1.700E-01	1.181E-01	NOT IDENT.
MN-54	-3.941E-03	3.661E-02	3.137E-02	1.868E-02	NOT IDENT.
CO-56	-9.781E-03	4.022E-02	3.401E-02	2.052E-02	NOT IDENT.
CO-57	1.647E-02	2.573E-02	2.323E-02	1.313E-02	NOT IDENT.
CO-58	-5.316E-02	3.936E-02	2.972E-02	2.008E-02	NOT IDENT.
FE-59	-1.329E-02	9.201E-02	7.674E-02	4.694E-02	NOT IDENT.
CO-60	1.939E-03	3.808E-02	3.194E-02	1.943E-02	NOT IDENT.
ZN-65	1.500E-01	1.050E-01	9.003E-02	5.359E-02	NOT IDENT.
GE-68	7.039E-02	1.296E+00	1.104E+00	6.611E-01	NOT IDENT.
AS-73	1.047E+00	1.096E+00	1.033E+00	5.593E-01	NOT IDENT.
AS-74	-3.725E-02	9.626E-02	7.911E-02	4.911E-02	NOT IDENT.
SE-75	-1.118E-02	5.139E-02	3.718E-02	2.622E-02	NOT IDENT.
BR-77	-1.232E+00	9.769E+00	8.048E+00	4.984E+00	FAIL ABUN
SR-82	-2.997E-01	3.878E-01	3.153E-01	1.979E-01	NOT IDENT.
RB-83	-8.736E-03	6.930E-02	5.709E-02	3.536E-02	NOT IDENT.
RB-84	2.885E-02	6.779E-02	6.068E-02	3.459E-02	NOT IDENT.
KR-85	1.193E+01	8.057E+00	6.790E+00	4.111E+00	NOT IDENT.
SR-85	6.099E-02	4.120E-02	3.472E-02	2.102E-02	NOT IDENT.
RB-86	1.458E-01	8.080E-01	6.972E-01	4.123E-01	NOT IDENT.
Y-88	4.709E-03	3.043E-02	2.648E-02	1.552E-02	NOT IDENT.
ZR-88	-1.192E-02	3.180E-02	2.710E-02	1.622E-02	NOT IDENT.
Y-91	1.322E+01	1.915E+01	1.710E+01	9.769E+00	NOT IDENT.
NB-94	1.857E-02	3.838E-02	3.329E-02	1.958E-02	NOT IDENT.
NB-95	8.490E-03	4.870E-02	4.105E-02	2.485E-02	NOT IDENT.
NB-95M	7.615E-01	1.718E-01	1.497E-01	8.763E-02	NOT IDENT.
ZR-95	-1.227E-02	8.194E-02	6.735E-02	4.180E-02	NOT IDENT.
NB-97	2.155E+04	8.003E+04	0.000E+00	4.083E+04	SHORT HLIF
ZR-97	4.906E+06	1.820E+06	0.000E+00	9.287E+05	SHORT HLIF
MO-99	-1.700E+00	1.113E+01	9.146E+00	5.679E+00	NOT IDENT.
TC-99M	7.124E+13	2.025E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.097E-02	3.399E-02	2.930E-02	1.734E-02	NOT IDENT.
RH-102	2.223E-02	2.900E-02	2.628E-02	1.480E-02	NOT IDENT.
RU-103	-1.128E-02	3.937E-02	3.266E-02	2.009E-02	NOT IDENT.
RH-106	-1.561E-03	3.352E-01	2.831E-01	1.710E-01	FAIL ABUN
RU-106	-1.561E-03	3.352E-01	2.831E-01	1.710E-01	FAIL ABUN
AG-108M	-5.673E-03	3.258E-02	2.790E-02	1.662E-02	NOT IDENT.
AG-110M	1.165E-02	3.678E-02	3.174E-02	1.877E-02	NOT IDENT.
IN-111	-1.507E-01	1.047E+00	7.656E-01	5.341E-01	NOT IDENT.
IN-113M	-1.134E-02	4.528E-02	3.889E-02	2.310E-02	NOT IDENT.
SN-113	-1.134E-02	4.528E-02	3.889E-02	2.310E-02	NOT IDENT.
IN-114M	1.162E-01	2.091E-01	1.626E-01	1.067E-01	NOT IDENT.
CD-115	3.752E-01	9.792E+00	8.396E+00	4.996E+00	NOT IDENT.
SN-117M	5.559E-02	5.292E-02	4.799E-02	2.700E-02	NOT IDENT.
SB-122	1.122E+00	1.970E+00	1.747E+00	1.005E+00	NOT IDENT.
I-123	2.732E+06	4.060E+06	0.000E+00	2.072E+06	SHORT HLIF
TE-123M	1.847E-02	2.745E-02	2.454E-02	1.401E-02	NOT IDENT.
I-124	-7.296E-01	8.123E-01	5.324E-01	4.144E-01	NOT IDENT.
SB-124	-1.527E-02	6.920E-02	5.605E-02	3.531E-02	FAIL ABUN
SB-125	-3.833E-02	9.215E-02	7.767E-02	4.702E-02	FAIL ABUN
TE-125M	-6.213E+00	9.431E+00	8.130E+00	4.812E+00	NOT IDENT.
I-126	1.847E-01	1.825E-01	1.659E-01	9.314E-02	NOT IDENT.
SB-126	-1.146E-01	1.507E-01	1.172E-01	7.689E-02	NOT IDENT.
SB-127	-5.563E-01	1.428E+00	1.158E+00	7.285E-01	NOT IDENT.
XE-127	1.268E-02	5.405E-02	4.110E-02	2.758E-02	NOT IDENT.
I-131	-3.027E-02	1.142E-01	9.851E-02	5.828E-02	NOT IDENT.
TE-132	3.506E-01	6.433E-01	5.617E-01	3.282E-01	NOT IDENT.
BA-133	-1.135E-02	4.866E-02	3.637E-02	2.483E-02	NOT IDENT.
I-133	-2.537E+03	5.002E+03	0.000E+00	2.552E+03	SHORT HLIF
CS-134	5.981E-02	5.804E-02	4.807E-02	2.961E-02	NOT IDENT.
CS-135	4.503E-01	1.959E-01	1.642E-01	9.993E-02	NOT IDENT.
I-135	-1.745E+15	2.932E+15	0.000E+00	1.496E+15	SHORT HLIF
CS-136	-1.052E-02	1.059E-01	8.911E-02	5.405E-02	FAIL ABUN
BA-137M	-3.743E-02	3.736E-02	2.866E-02	1.906E-02	NOT IDENT.
CS-137	-3.956E-02	3.949E-02	3.030E-02	2.015E-02	NOT IDENT.
CE-139	4.944E-03	2.921E-02	2.552E-02	1.490E-02	NOT IDENT.
BA-140	-1.134E-01	2.682E-01	2.196E-01	1.369E-01	NOT IDENT.
LA-140	-1.407E-02	6.892E-02	5.649E-02	3.516E-02	FAIL ABUN
CE-141	2.895E-02	6.477E-02	5.752E-02	3.304E-02	NOT IDENT.
CE-143	7.471E+02	2.257E+02	0.000E+00	1.152E+02	SHORT HLIF
CE-144	5.435E-02	2.344E-01	1.825E-01	1.196E-01	NOT IDENT.
PM-144	-4.202E-04	3.861E-02	3.232E-02	1.970E-02	NOT IDENT.
PR-144	-2.847E-02	2.616E+00	2.190E+00	1.335E+00	NOT IDENT.

PM-146	1.783E-03	4.507E-02	3.801E-02	2.300E-02	NOT IDENT.
ND-147	-5.202E-01	5.495E-01	4.295E-01	2.803E-01	FAIL ABUN
PM-149	1.213E+01	8.009E+01	7.174E+01	4.086E+01	NOT IDENT.
EU-152	-1.387E-01	1.108E-01	8.032E-02	5.654E-02	NOT IDENT.
GD-153	7.825E-02	8.461E-02	6.936E-02	4.317E-02	NOT IDENT.
EU-154	-7.062E-02	1.338E-01	1.054E-01	6.828E-02	NOT IDENT.
EU-155	-3.033E-03	1.108E-01	9.821E-02	5.652E-02	FAIL ABUN
TB-160	4.813E-02	1.408E-01	1.250E-01	7.184E-02	FAIL ABUN
HO-166M	-4.907E-02	6.377E-02	4.958E-02	3.254E-02	FAIL ABUN
TM-171	-4.010E+01	3.682E+01	2.764E+01	1.879E+01	NOT IDENT.
LU-176	2.815E-02	2.757E-02	2.283E-02	1.407E-02	FAIL ABUN
LU-177	4.043E+00	2.136E+00	1.071E+00	1.090E+00	FAIL ABUN
LU-177M	-1.571E-01	1.771E-01	1.450E-01	9.037E-02	FAIL ABUN
HF-181	1.445E-02	4.221E-02	3.719E-02	2.153E-02	NOT IDENT.
W-181	3.077E-01	4.713E-01	3.857E-01	2.405E-01	NOT IDENT.
TA-182	4.408E-02	2.223E-01	1.897E-01	1.134E-01	NOT IDENT.
RE-183	-1.241E-01	1.067E-01	8.767E-02	5.442E-02	FAIL ABUN
RE-184	7.468E-02	2.311E-01	1.992E-01	1.179E-01	NOT IDENT.
OS-185	4.531E-02	4.155E-02	3.825E-02	2.120E-02	NOT IDENT.
RE-188	1.336E-02	1.725E-01	1.507E-01	8.803E-02	NOT IDENT.
W-188	4.355E+00	8.024E+00	6.448E+00	4.094E+00	FAIL ABUN
IR-192	2.104E-02	3.677E-02	3.338E-02	1.876E-02	FAIL ABUN
AU-195	1.309E-01	2.561E-01	2.055E-01	1.307E-01	FAIL ABUN
TL-200	-9.404E+01	3.906E+02	0.000E+00	1.993E+02	SHORT HLIF
TL-201	8.902E-01	6.581E+00	5.739E+00	3.358E+00	NOT IDENT.
TL-202	-1.865E-02	6.990E-02	5.942E-02	3.566E-02	NOT IDENT.
HG-203	1.218E-02	3.819E-02	3.452E-02	1.949E-02	NOT IDENT.
BI-207	7.915E-03	5.189E-02	4.472E-02	2.647E-02	FAIL ABUN
TL-207	-6.792E-01	7.793E-01	5.523E-01	3.976E-01	FAIL ABUN
PO-209	-4.820E+00	7.536E+00	6.079E+00	3.845E+00	NOT IDENT.
BI-210	3.752E+00	5.602E+00	5.101E+00	2.858E+00	NOT IDENT.
PB-210	3.752E+00	5.602E+00	5.101E+00	2.858E+00	NOT IDENT.
PO-210	3.752E+00	5.600E+00	5.101E+00	2.857E+00	NOT IDENT.
PB-211	-1.147E+00	1.260E+00	8.555E-01	6.430E-01	NOT IDENT.
BI-212	4.511E-01	4.074E-01	3.382E-01	2.079E-01	FAIL ABUN
PO-215	-6.792E-01	7.793E-01	5.523E-01	3.976E-01	FAIL ABUN
RN-219	3.196E-01	4.450E-01	4.013E-01	2.270E-01	FAIL ABUN
RN-220	1.238E+01	2.644E+01	2.334E+01	1.349E+01	NOT IDENT.
RA-223	-6.792E-01	7.793E-01	5.523E-01	3.976E-01	FAIL ABUN
AC-227	3.407E-01	3.859E-01	3.398E-01	1.969E-01	FAIL ABUN
TH-227	3.407E-01	3.872E-01	3.398E-01	1.976E-01	FAIL ABUN
TH-229	-1.765E-01	5.360E-01	4.544E-01	2.735E-01	FAIL ABUN
PA-231	3.055E-01	1.420E+00	1.277E+00	7.247E-01	FAIL ABUN
TH-231	-6.792E-01	7.793E-01	5.523E-01	3.976E-01	FAIL ABUN
U-231	-5.426E-01	1.154E+00	8.802E-01	5.885E-01	FAIL ABUN
PA-233	-5.365E-02	6.730E-02	5.704E-02	3.434E-02	FAIL ABUN
PA-234	4.932E-02	3.227E-01	2.801E-01	1.646E-01	FAIL ABUN
PA-234M	8.749E-01	4.557E+00	3.890E+00	2.325E+00	NOT IDENT.
U-235	1.920E-02	2.261E-01	1.948E-01	1.153E-01	FAIL ABUN
NP-236	-6.320E-02	7.583E-02	6.337E-02	3.869E-02	NOT IDENT.
NP-239	-1.342E-01	1.903E-01	1.631E-01	9.710E-02	FAIL ABUN
AM-241	8.561E-02	2.016E-01	1.649E-01	1.028E-01	NOT IDENT.
CM-243	6.892E-02	9.648E-02	8.790E-02	4.922E-02	FAIL ABUN
AM-246	2.859E-02	1.502E-01	1.297E-01	7.663E-02	NOT IDENT.
CM-247	2.070E-02	3.969E-02	3.555E-02	2.025E-02	NOT IDENT.
CF-249	2.469E-04	4.084E-02	3.528E-02	2.083E-02	NOT IDENT.
CF-251	-2.428E-02	1.319E-01	1.132E-01	6.731E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
46.50	259.2841
46.50	259.2841
46.50	259.2841
48.70	299.3155
49.72	313.4854
51.35	319.8424
52.39	293.9400
52.97	270.4716
53.15	267.8119
53.44	269.7717
54.07	300.2667
56.28	301.3634
56.28	301.3647
57.37	0.0000
57.53	326.5274
57.53	326.5281
57.60	340.0685
57.98	343.4702
57.98	343.4702
59.32	301.3632
59.32	301.3632
59.40	301.4012
59.54	301.4678
59.72	304.5101
60.01	304.6490
61.10	327.3893
61.14	331.8540
61.30	331.9367
63.00	343.5779
63.29	343.7292
63.29	343.7292
63.58	374.7377
64.28	364.7141
65.12	365.1747
65.20	365.2181
65.20	365.2181
66.05	420.9070
66.72	428.7921
66.83	428.8639
66.91	442.3650
67.20	427.6018
67.20	427.6018
67.75	437.6717
67.85	437.7360
68.90	380.3261
68.90	380.3261
69.30	374.9222
69.67	372.1226
70.82	371.2297
70.82	371.2297
70.83	371.2357
72.80	426.5278
72.87	426.5693
72.87	426.5693
74.67	403.2705
74.81	403.3487
74.81	403.3487
74.81	403.3487
74.81	403.3487
74.81	403.3487
74.81	403.3487
74.97	403.4367
75.28	403.6093
75.70	403.8406
77.11	404.6160
77.11	404.6160

77.11	404.6160
77.11	404.6160
77.11	404.6160
77.11	404.6160
77.11	404.6160
78.38	353.8616
79.62	427.4651
79.80	427.5663
79.80	427.5663
80.11	459.7095
80.18	459.7519
80.30	459.8238
80.30	459.8238
80.57	476.7423
81.00	477.0117
81.07	477.0556
81.07	477.0556
81.07	477.0556
81.07	477.0556
82.60	397.0681
83.37	387.9073
83.78	373.2006
83.78	373.2006
83.78	373.2006
83.78	373.2006
84.21	382.5897
84.90	378.3318
85.43	398.5122
86.29	484.8741
86.50	463.5158
86.54	463.5379
86.59	463.5674
86.72	480.5326
86.79	480.5727
86.94	569.7332
87.30	485.4913
87.30	485.4913
87.30	485.4913
87.30	485.4913
87.30	485.4913
87.30	485.4913
87.57	485.6552
87.88	357.4645
88.03	357.5312
88.36	357.6774
88.47	357.7270
89.95	597.3044
91.11	324.1619
92.29	324.6271
92.38	324.6630
92.38	324.6630
93.35	325.0437
94.00	325.2975
94.67	325.5558
94.67	325.5577
94.90	328.7488
94.90	328.7488
94.90	328.7488
94.90	328.7488
95.87	346.2053
95.87	346.2053
96.73	332.5712
97.43	270.6303
98.44	275.6205
98.44	275.6216
98.88	310.0375
99.55	294.6873
99.55	294.6873
99.86	306.7503
100.00	306.7995
100.10	306.8367
103.18	346.4067
103.76	292.7780
105.00	312.7975
105.31	334.4855
108.00	319.7433
109.28	344.8223

111.00	319.8051
111.00	319.8051
111.76	302.2857
112.95	277.9439
115.19	301.4116
116.30	302.7568
117.00	319.8664
117.00	319.8664
117.66	304.1825
121.11	307.2645
121.62	304.4311
121.78	290.5038
122.06	290.5871
122.32	277.3933
122.32	277.3933
122.32	277.3933
122.32	277.3933
123.07	290.5525
127.23	308.3643
129.76	336.5074
131.20	319.2460
133.02	306.8876
133.54	302.1949
135.34	290.3742
136.00	322.9525
136.25	330.1188
136.48	346.3966
140.51	325.3467
140.51	0.0000
142.18	317.7057
142.65	320.9000
143.76	337.5457
144.24	322.3913
144.24	322.3913
144.24	322.3913
144.24	322.3913
145.22	319.6172
145.44	321.7243
147.16	339.6191
152.43	280.5877
152.70	291.9628
153.22	309.5818
154.21	332.4974
154.21	332.4974
154.21	332.4974
154.21	332.4974
155.03	300.8042
156.02	290.7544
158.56	247.9980
159.00	0.0000
159.00	251.1926
160.31	276.3134
161.27	308.6494
162.32	295.4479
162.64	275.8264
163.35	246.9410
163.89	246.0164
165.85	266.1797
167.43	271.7369
171.28	292.4500
171.86	290.5010
172.10	290.5583
176.55	293.7103
176.60	293.7210
181.06	264.4526
184.41	283.7297
185.71	295.8530
186.00	284.0845
190.27	257.8805
192.34	281.4412
193.63	293.4121
197.04	250.4710
198.01	250.6539
198.60	276.3731
200.40	288.5003
201.83	273.8301
202.84	255.1952
205.31	264.2382

208.36	234.3028
208.81	234.3793
209.75	234.5373
209.75	234.5373
210.97	205.0237
215.65	202.2535
216.55	196.4514
218.09	253.2524
222.10	202.9548
223.80	232.5327
226.40	228.5948
227.00	212.3544
227.08	208.0101
227.20	208.0276
228.16	198.3543
228.18	198.3571
228.18	198.3571
231.56	0.0000
235.69	224.3422
236.00	238.4134
236.00	238.4134
238.63	223.9048
238.63	223.9048
238.63	223.9048
238.63	223.9048
239.00	223.9592
240.98	224.2534
241.98	224.4012
241.98	224.4012
241.98	224.4012
244.69	188.6554
245.39	167.5743
247.94	187.2869
248.90	189.1713
249.79	173.1063
252.40	187.1608
252.85	172.8138
252.85	172.8138
254.15	0.0000
256.20	165.4106
256.20	165.4106
260.50	189.2345
260.90	192.6241
262.80	178.3594
264.65	182.1357
268.24	170.0120
268.79	173.6504
269.46	170.1395
269.46	170.1395
269.46	170.1395
269.46	170.1395
271.23	179.2896
273.65	224.4415
276.40	149.2764
277.35	159.3875
277.60	166.4819
277.60	166.4819
278.00	155.0210
278.60	162.9795
279.20	163.9400
279.53	168.4758
280.46	184.7953
281.68	191.2451
283.67	149.0217
284.30	154.4991
285.00	165.4081
285.90	154.6452
286.10	157.3753
286.10	157.3753
287.40	154.8815
288.45	0.0000
290.67	155.6819
290.80	155.6924
291.72	176.9496
293.26	0.0000
293.70	175.6402
295.21	171.2449
295.21	171.2449

295.21	171.2449
295.96	136.4502
296.50	136.4923
297.23	136.5491
298.57	136.6534
299.80	136.7505
299.80	136.7505
300.09	153.4891
300.09	153.4891
300.09	153.4891
300.09	153.4891
300.12	153.4911
301.29	153.5939
302.84	155.2516
303.76	169.0383
303.91	169.0519
304.40	173.6696
304.40	173.6696
304.84	170.6637
306.84	134.2451
308.46	149.6358
311.98	185.4223
316.51	162.8802
318.01	175.9103
319.02	165.8694
319.41	149.3141
320.08	159.8192
323.87	175.5482
323.87	175.5482
323.87	175.5482
323.87	175.5482
325.23	169.5117
328.77	145.1328
333.44	154.7811
334.20	154.2248
334.20	154.2248
334.30	154.2329
338.28	156.7296
338.28	156.7296
338.28	156.7296
338.28	156.7296
338.32	156.7317
338.32	156.7317
338.32	156.7317
340.50	139.8230
340.57	139.8267
344.27	172.1200
345.85	144.8849
350.59	0.0000
351.07	132.1548
351.92	132.2116
351.92	132.2116
351.92	132.2116
355.39	0.0000
356.01	122.1511
364.48	133.0533
366.43	125.6275
367.43	136.0846
367.94	0.0000
369.80	130.5677
374.96	116.6713
383.85	119.0826
387.95	118.3631
388.63	121.2655
391.69	129.0921
391.69	129.0921
392.90	134.9070
398.62	136.2312
400.65	120.9966
401.10	126.7857
401.81	125.8668
402.60	128.7967
404.84	170.3042
410.95	131.2254
411.60	139.9519
413.65	130.4220
414.70	116.9529
415.30	110.2176

415.76	120.8786
417.63	0.0000
418.52	121.9979
423.70	110.6379
427.08	119.5541
427.89	112.7913
432.53	113.0250
433.93	105.2947
439.47	111.4172
439.56	111.4214
439.89	112.4156
443.98	91.0723
444.90	100.9053
445.03	100.9116
445.03	100.9116
445.03	100.9116
445.03	100.9116
453.90	100.5339
463.38	98.7476
468.07	93.9957
473.00	96.1735
475.06	82.3627
475.35	84.3577
476.78	106.2542
477.59	106.2908
477.96	106.3064
482.03	86.5816
484.57	73.7209
487.03	98.7269
490.36	0.0000
492.35	74.9551
497.08	80.1055
507.63	0.0000
510.53	0.0000
510.84	79.5396
511.00	79.5444
511.85	79.5719
511.85	79.5719
513.99	80.6465
513.99	80.6465
520.41	81.9725
520.65	81.9804
527.90	78.0452
528.96	0.0000
529.64	87.2262
529.87	0.0000
531.02	91.3315
537.32	93.5857
543.00	79.5158
546.56	0.0000
549.76	75.6314
552.65	93.1062
555.20	80.9056
563.23	71.9021
563.90	77.0581
568.70	85.4276
569.32	65.8875
569.50	65.8922
569.67	65.8953
573.80	92.8059
574.00	88.6875
574.64	85.9578
578.91	77.4811
579.30	0.0000
583.14	77.6001
585.48	88.0215
591.81	72.6523
592.07	75.7731
593.00	75.7981
595.88	91.4654
600.56	79.8187
602.52	0.0000
602.71	104.1895
602.71	104.1895
603.60	104.2236
604.41	93.8276
604.70	93.8364
609.31	83.5449



609.31	83.5449
609.31	83.5449
609.31	83.5449
610.33	81.8331
612.46	60.9851
614.37	76.7189
618.01	86.9413
621.84	78.6639
621.84	78.6639
631.29	62.0840
633.02	60.0142
633.10	60.0156
634.78	74.7996
635.90	67.4500
636.97	69.5836
645.85	51.8149
646.12	51.8197
656.30	51.9955
657.75	73.2535
657.90	0.0000
661.65	89.2931
661.65	89.2931
664.57	0.0000
666.33	61.7496
666.33	61.7496
675.00	59.7885
677.61	72.6617
685.20	82.4799
692.80	90.1975
695.00	79.5157
696.49	87.0790
696.49	87.0790
697.00	90.3185
697.49	88.1820
698.33	93.5823
698.50	88.2101
699.00	91.4518
702.63	84.0157
706.10	84.1071
706.58	0.0000
706.67	75.4944
709.31	85.2722
711.68	79.9348
713.82	68.0972
717.42	53.0243
720.50	81.2366
721.93	0.0000
722.20	86.6982
722.78	95.7455
722.78	95.7455
722.89	95.7498
722.95	95.7520
723.30	83.1148
724.18	57.8346
727.18	71.6364
733.00	72.4886
735.90	70.7399
739.58	63.1911
742.81	53.4382
744.21	63.2803
747.13	63.3370
751.79	62.3312
752.31	64.5284
753.82	63.4644
755.35	71.1556
756.15	81.0278
756.87	87.6172
763.93	89.9958
765.79	86.7515
766.42	79.0787
766.84	88.9754
776.49	75.2751
778.00	75.3085
778.57	64.2977
778.89	64.3034
783.80	62.5561
785.46	69.9496
792.07	63.2338

795.84	64.8847
796.30	60.1450
798.80	76.0279
801.93	62.1455
805.60	54.6187
810.29	78.7934
810.76	72.3141
815.85	48.2792
817.79	63.1689
818.51	58.5357
819.60	67.8479
826.30	51.2145
828.27	0.0000
831.60	55.0208
831.96	53.1615
834.83	61.6051
836.80	0.0000
846.75	60.8714
848.13	59.9583
856.28	0.0000
856.80	56.3440
860.37	52.6390
867.32	33.9031
867.82	42.3843
871.10	47.1354
873.19	47.1619
874.81	46.2396
875.33	0.0000
876.40	50.0347
879.36	49.1298
880.27	48.1974
880.51	45.3652
881.50	44.4316
883.24	45.3975
884.67	50.1458
889.25	54.9438
896.60	58.8478
898.02	60.7682
899.00	61.7336
903.28	53.7896
911.07	48.9990
911.07	48.9990
911.07	48.9990
919.63	53.4730
920.93	41.0736
925.00	44.9413
925.24	49.7254
926.50	51.6555
935.52	57.5281
937.48	76.7415
944.10	61.4974
946.00	54.7978
949.00	50.9911
962.29	66.1928
964.01	69.5317
966.15	64.6006
968.20	31.4880
969.11	38.1258
969.11	38.1258
969.11	38.1258
977.42	36.8202
980.50	50.4237
983.50	42.6984
989.30	44.7029
996.32	54.5143
1001.03	40.9327
1001.68	42.8882
1004.76	51.6996
1021.30	0.0000
1024.50	0.0000
1034.80	42.2494
1036.00	41.2771
1037.82	48.1786
1038.57	45.2363
1038.76	0.0000
1045.16	36.4430
1046.59	40.3961
1048.07	46.3230

1050.47	48.3221
1050.47	48.3221
1062.04	44.4983
1063.62	43.5256
1076.63	46.6328
1077.35	48.6252
1078.86	48.6411
1085.78	43.7476
1099.22	48.8684
1112.02	39.4366
1112.84	48.0195
1115.52	39.4671
1120.29	36.0747
1120.29	36.0747
1120.29	36.0747
1120.29	36.0747
1120.51	36.0762
1121.28	42.9548
1124.00	0.0000
1129.67	61.2532
1131.51	0.0000
1147.95	0.0000
1167.94	47.5929
1173.22	51.7035
1175.09	52.7384
1177.93	57.8442
1189.05	46.7936
1204.90	46.9508
1205.75	0.0000
1213.00	57.2555
1221.42	66.5763
1230.97	72.1332
1235.34	62.6605
1236.41	0.0000
1238.25	54.6219
1246.25	57.6543
1260.41	0.0000
1271.85	54.8525
1274.45	51.7741
1274.54	51.7761
1291.56	36.3672
1298.22	0.0000
1312.09	28.1700
1325.50	27.1987
1325.50	27.1987
1332.49	27.2367
1333.61	32.4809
1360.21	15.7983
1362.66	0.0000
1365.15	22.1382
1368.21	23.2067
1368.53	0.0000
1376.25	23.2425
1384.27	28.5688
1394.10	21.2012
1395.20	25.4473
1407.95	15.9424
1434.06	26.7008
1436.60	19.2334
1457.56	0.0000
1460.81	22.0798
1489.15	14.0251
1509.49	9.7449
1596.49	14.1342
1620.62	18.9230
1678.03	0.0000
1691.02	12.4446
1691.02	12.4446
1706.46	0.0000
1750.46	0.0000
1764.49	8.4756
1764.49	8.4756
1764.49	8.4756
1764.49	8.4756
1770.23	31.9941
1771.40	20.3635
1791.20	0.0000
1808.65	9.7538

1836.01

8.8154

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244600013

Total Uranium Activity	7.3243E+00	ug/g
Total Uranium Counting Unc.	6.5091E+00	ug/g
Total Uranium Tpu	3.3210E-06	ug/g
Total Uranium Mda	3.8300E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID   : G244600013
*  ANALYST       : MXR1            DETECTOR    : GAM23
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 08:50:12.19  SAMPLE ALQT: 135.740 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.726E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.231E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.894E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.401E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 11:49:33.11

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015435.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 09:49:06
Sample ID          : G1202015435      Sample quantity   : 1.55810E+02 GRAM
Detector name      : GAM14            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:00.49  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 941635            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	511.33*	7	45	2.17	1021.52	1012	20	9.06E-04	345.0	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015435.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 09:49:06
Sample ID         : G1202015435 Sample quantity : 155.81 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA14 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:00.49 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	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	5.092E-03	3.514E-02	2.261E-02	1.328E-03	0.225

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-2.919E-02	1.261E-01	2.007E-01	1.352E-02	-0.145
NA-22		1274.54	*	5.450E-03	1.919E-02	3.320E-02	2.169E-03	0.164
NA-24		1368.53	*	1.192E-05	1.919E-02	Half-Life too short		
AL-26		1129.67		1.050E-01	6.081E-01	1.041E+00	6.576E-02	0.101
		1808.65	*	-5.303E-03	1.374E-02	1.884E-02	1.092E-03	-0.281
K-40		1460.81	*	1.368E-01	2.458E-01	4.387E-01	3.186E-02	0.312
TI-44		67.85		-3.374E-03	1.497E-02	2.245E-02	1.580E-03	-0.150
		78.38	*	-6.512E-03	1.158E-02	1.729E-02	1.350E-03	-0.377
SC-46		889.25	*	4.462E-03	1.582E-02	2.762E-02	2.552E-03	0.162
		1120.51		1.020E-02	1.873E-02	3.382E-02	2.190E-03	0.302
V-48		944.10		-1.527E-01	2.875E-01	4.372E-01	3.907E-02	-0.349
		983.50	*	4.972E-03	2.067E-02	3.586E-02	3.045E-03	0.139
		1312.09		-1.037E-02	2.310E-02	3.392E-02	2.344E-03	-0.306
CR-51		320.08	*	-3.633E-02	1.325E-01	2.143E-01	1.385E-02	-0.170
MN-52		744.21		-2.074E-02	3.533E-02	5.025E-02	3.546E-03	-0.413
		848.13		1.248E-01	1.303E+00	2.211E+00	1.900E-01	0.056
		935.52		-3.285E-02	3.610E-02	4.879E-02	4.403E-03	-0.673
		1246.25		5.426E-01	1.229E+00	2.169E+00	1.352E-01	0.250
		1333.61		1.413E-01	8.132E-01	1.387E+00	9.882E-02	0.102
		1434.06	*	-3.201E-02	4.673E-02	6.407E-02	4.491E-03	-0.500
MN-54		834.83	*	1.443E-03	1.370E-02	2.338E-02	1.961E-03	0.062
CO-56		846.75	*	-1.704E-03	1.815E-02	3.004E-02	2.575E-03	-0.057
		977.42		-4.965E-01	1.083E+00	1.644E+00	1.408E-01	-0.302
		1037.82		-3.068E-02	1.211E-01	1.920E-01	1.590E-02	-0.160
		1175.09		-7.277E-02	7.622E-01	1.235E+00	6.826E-02	-0.059
		1238.25		-4.679E-03	2.584E-02	4.092E-02	2.658E-03	-0.114
		1360.21		1.985E-01	4.227E-01	7.622E-01	5.415E-02	0.260
		1771.40		8.407E-03	1.255E-01	2.065E-01	1.232E-02	0.041



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	122.06	*		-5.254E-04	9.465E-03	1.516E-02	1.079E-03	-0.035
	136.48			-3.657E-02	8.538E-02	1.323E-01	9.710E-03	-0.276
CO-58	810.76	*		-1.286E-03	1.791E-02	2.842E-02	2.286E-03	-0.045
FE-59	142.65			-1.307E-01	1.033E+00	1.641E+00	1.029E-01	-0.080
	192.34			-1.331E-01	3.399E-01	5.245E-01	6.123E-02	-0.254
	1099.22	*		-1.803E-02	3.184E-02	4.678E-02	3.601E-03	-0.385
	1291.56			-2.332E-02	4.065E-02	5.732E-02	4.666E-03	-0.407
CO-60	1173.22			2.491E-03	1.770E-02	2.999E-02	1.652E-03	0.083
	1332.49	*		2.640E-05	1.575E-02	2.587E-02	1.844E-03	0.001
ZN-65	1115.52	*		3.845E-03	3.576E-02	6.031E-02	3.964E-03	0.064
GE-68	1077.35	*		-7.751E-02	3.927E-01	6.209E-01	4.463E-02	-0.125
AS-73	53.44	*		5.701E-02	2.001E-01	3.347E-01	2.182E-02	0.170
AS-74	595.88	*		6.229E-03	3.412E-02	5.668E-02	3.390E-03	0.110
	634.78			-1.530E-03	1.202E-01	1.945E-01	1.162E-02	-0.008
SE-75	66.05			-1.238E+00	1.530E+00	2.293E+00	2.086E-01	-0.540
	96.73			-3.896E-01	3.235E-01	4.730E-01	6.284E-02	-0.824
	121.11			1.940E-02	4.996E-02	8.301E-02	8.399E-03	0.234
	136.00			-9.118E-03	1.556E-02	2.378E-02	1.570E-03	-0.384
	198.60			2.439E-02	7.395E-01	1.161E+00	8.036E-02	0.021
	264.65	*		7.163E-03	1.913E-02	3.110E-02	1.826E-03	0.230
	279.53			-1.561E-02	4.543E-02	7.353E-02	4.631E-03	-0.212
	303.91			-4.029E-01	7.775E-01	1.223E+00	1.169E-01	-0.329
	400.65			5.414E-02	9.811E-02	1.718E-01	1.530E-02	0.315
	87.88			-1.096E+01	6.597E+00	9.267E+00	8.095E-01	-1.183
BR-77	200.40			-3.219E+00	6.867E+00	1.114E+01	6.195E-01	-0.289
	239.00			2.847E-01	5.087E-01	8.192E-01	4.703E-02	0.347
	249.79			-7.932E-01	2.775E+00	4.523E+00	2.612E-01	-0.175
	281.68			1.106E+00	4.246E+00	7.230E+00	4.217E-01	0.153
	297.23			-7.206E-01	2.111E+00	3.395E+00	1.980E-01	-0.212
	303.76			-2.292E+00	7.163E+00	1.152E+01	6.712E-01	-0.199
	439.47			5.376E+00	6.849E+00	1.221E+01	6.904E-01	0.440
	484.57			-1.219E+01	1.109E+01	1.555E+01	9.029E-01	-0.784
	520.65	*		-1.807E-01	5.624E-01	8.254E-01	4.866E-02	-0.219
	574.64			-5.513E+00	1.064E+01	1.616E+01	9.650E-01	-0.341
	578.91			-1.561E+00	4.453E+00	6.932E+00	4.141E-01	-0.225
	585.48			-2.802E+00	8.013E+00	1.244E+01	7.433E-01	-0.225
	755.35			2.146E+00	7.519E+00	1.266E+01	9.137E-01	0.169
	817.79			-5.460E-01	6.267E+00	1.039E+01	8.443E-01	-0.053
SR-82	698.33			-9.324E+00	1.372E+01	2.006E+01	1.290E+00	-0.465
	776.49	*		2.205E-02	1.239E-01	2.055E-01	1.545E-02	0.107
	1395.20			1.646E-01	3.537E+00	5.865E+00	4.144E-01	0.028
	520.41	*		-7.180E-03	3.166E-02	5.031E-02	2.966E-03	-0.143
RB-83	529.64			2.445E-03	4.259E-02	7.008E-02	4.144E-03	0.035
	552.65			5.604E-02	8.573E-02	1.511E-01	8.987E-03	0.371
RB-84	881.50	*		2.173E-03	2.659E-02	4.506E-02	4.108E-03	0.048
KR-85	513.99	*		7.946E+00	4.588E+00	7.825E+00	4.602E-01	1.015
SR-85	513.99	*		3.757E-02	2.169E-02	3.700E-02	2.176E-03	1.015
RB-86	1076.63	*		-6.871E-02	2.035E-01	3.117E-01	2.244E-02	-0.220
Y-88	898.02			1.375E-02	1.712E-02	3.199E-02	3.013E-03	0.430

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1836.01	*		2.114E-03	1.856E-02	3.092E-02	1.756E-03	0.068
ZR-88	392.90	*		1.026E-02	1.133E-02	2.060E-02	1.122E-03	0.498
Y-91	1204.90	*		-1.743E+00	5.314E+00	8.086E+00	4.704E-01	-0.216
NB-94	702.63	*		8.784E-03	1.651E-02	2.848E-02	1.847E-03	0.308
	871.10			-1.271E-02	1.478E-02	2.105E-02	1.884E-03	-0.604
NB-95	765.79	*		4.675E-03	1.660E-02	2.786E-02	2.052E-03	0.168
NB-95M	235.69	*		-3.516E-02	4.885E-02	7.746E-02	5.789E-03	-0.454
ZR-95	724.18			1.993E-02	3.885E-02	6.713E-02	5.172E-03	0.297
	756.15	*		1.585E-02	2.778E-02	4.878E-02	4.024E-03	0.325
NB-97	657.90	*		1.080E-05	2.778E-02	Half-Life too short		
	1024.50			1.353E-03	2.778E-02	Half-Life too short		
ZR-97	254.15			-2.735E-04	2.778E-02	Half-Life too short		
	355.39			-3.879E-04	2.778E-02	Half-Life too short		
	507.63	*		7.218E-04	2.778E-02	Half-Life too short		
	602.52			1.618E-04	2.778E-02	Half-Life too short		
	1021.30			-2.356E-04	2.778E-02	Half-Life too short		
	1147.95			8.832E-05	2.778E-02	Half-Life too short		
	1362.66			-1.129E-03	2.778E-02	Half-Life too short		
	1750.46			-2.990E-04	2.778E-02	Half-Life too short		
MO-99	140.51			2.493E-01	1.665E+00	2.660E+00	7.200E-01	0.094
	181.06			-1.451E+00	1.052E+00	1.550E+00	2.638E-01	-0.937
	366.43			3.926E+00	5.306E+00	9.423E+00	5.288E-01	0.417
	739.58	*		7.946E-02	6.748E-01	1.109E+00	1.589E-01	0.072
	778.00			9.708E-01	2.021E+00	3.513E+00	2.649E-01	0.276
TC-99M	140.51	*		1.420E+00	2.021E+00	Half-Life too short		
RH-101	127.23			-2.332E-03	1.153E-02	1.820E-02	1.252E-03	-0.128
	198.01	*		1.633E-03	1.412E-02	2.231E-02	1.238E-03	0.073
	325.23			1.784E-02	9.581E-02	1.618E-01	9.363E-03	0.110
RH-102	418.52			6.649E-02	1.317E-01	2.282E-01	1.271E-02	0.291
	475.06	*		9.892E-03	1.240E-02	2.226E-02	1.287E-03	0.444
	631.29			9.434E-03	2.503E-02	4.270E-02	2.551E-03	0.221
	697.49			1.883E-02	3.388E-02	5.901E-02	3.786E-03	0.319
	766.84			1.525E-02	4.771E-02	8.033E-02	5.928E-03	0.190
	1046.59			3.775E-02	4.604E-02	8.706E-02	6.663E-03	0.434
	1112.84			-1.005E-02	9.297E-02	1.511E-01	9.983E-03	-0.067
RU-103	497.08	*		-3.874E-03	1.536E-02	2.429E-02	3.076E-03	-0.160
	610.33			-2.662E-01	3.759E-01	5.281E-01	8.180E-02	-0.504
RH-106	511.85	+		2.507E-02	1.730E-01	2.376E-01	1.397E-02	0.105
	621.84	*		-5.731E-02	1.597E-01	2.469E-01	2.920E-02	-0.232
	1050.47			-7.329E-01	1.133E+00	1.548E+00	1.176E-01	-0.473
RU-106	511.85	+		2.507E-02	1.730E-01	2.376E-01	1.397E-02	0.105
	621.84	*		-5.731E-02	1.596E-01	2.469E-01	1.476E-02	-0.232
	1050.47			-7.329E-01	1.133E+00	1.548E+00	1.176E-01	-0.473
AG-108M	433.93	*		-7.491E-03	1.447E-02	2.232E-02	1.371E-03	-0.336
	614.37			-8.934E-03	1.972E-02	3.024E-02	1.953E-03	-0.295
	722.95			1.161E-02	1.770E-02	3.131E-02	2.250E-03	0.371
CD-109	88.03	*		-5.920E-01	2.975E-01	4.058E-01	3.549E-02	-1.459
AG-110M	657.75	*		7.479E-03	1.433E-02	2.501E-02	1.580E-03	0.299
	677.61			6.101E-02	1.469E-01	2.507E-01	1.627E-02	0.243

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		706.67		-4.827E-02	1.047E-01	1.584E-01	1.085E-02	-0.305
		763.93		-3.979E-02	7.296E-02	1.071E-01	8.164E-03	-0.371
		884.67		-7.609E-03	2.177E-02	3.441E-02	3.245E-03	-0.221
		937.48		1.900E-02	4.136E-02	7.454E-02	6.935E-03	0.255
		1384.27		-3.303E-02	6.465E-02	9.128E-02	6.729E-03	-0.362
IN-111		171.28		-1.087E-02	6.522E-02	1.027E-01	5.538E-03	-0.106
		245.39	*	-5.399E-03	6.287E-02	1.044E-01	6.019E-03	-0.052
IN-113M		391.69	*	7.302E-03	1.736E-02	3.000E-02	1.755E-03	0.243
SN-113		391.69	*	7.302E-03	1.736E-02	3.000E-02	1.755E-03	0.243
IN-114M		190.27	*	-8.600E-02	7.105E-02	1.093E-01	6.017E-03	-0.787
CD-115		260.90		-1.641E+00	5.302E+00	8.635E+00	5.011E-01	-0.190
		492.35		-2.572E-01	1.408E+00	2.250E+00	1.312E-01	-0.114
		527.90	*	4.539E-01	4.343E-01	8.002E-01	4.729E-02	0.567
SN-117M		156.02		6.048E-01	6.452E-01	1.106E+00	6.369E-02	0.547
		158.56	*	6.482E-03	1.584E-02	2.617E-02	1.480E-03	0.248
SB-122		563.90	*	7.530E-03	1.305E-01	2.142E-01	1.277E-02	0.035
		692.80		-1.267E+00	2.824E+00	4.261E+00	2.707E-01	-0.297
I-123		159.00	*	6.077E-05	2.824E+00	Half-Life too short		
		528.96		2.874E-03	2.824E+00	Half-Life too short		
TE-123M		159.00	*	5.003E-03	1.144E-02	1.895E-02	1.084E-03	0.264
I-124		602.71	*	1.255E-02	9.844E-02	1.622E-01	9.703E-03	0.077
		722.78		3.379E-01	5.149E-01	9.111E-01	6.159E-02	0.371
		1325.50		-7.506E-01	2.279E+00	3.215E+00	2.268E-01	-0.233
		1376.25		-7.515E-03	3.441E+00	5.639E+00	3.996E-01	-0.001
		1509.49		-5.862E-01	2.502E+00	3.886E+00	2.666E-01	-0.151
		1691.02		-1.190E-01	6.393E-01	9.874E-01	6.221E-02	-0.120
SB-124		602.71		2.396E-03	1.880E-02	3.097E-02	1.853E-03	0.077
		645.85		1.292E-02	2.004E-01	3.279E-01	2.194E-02	0.039
		709.31		-1.036E+00	1.352E+00	1.956E+00	1.286E-01	-0.530
		713.82		2.851E-01	8.315E-01	1.369E+00	1.466E-01	0.208
		722.78		9.352E-02	1.425E-01	2.522E-01	1.764E-02	0.371
		968.20		7.930E-01	9.419E-01	1.762E+00	1.528E-01	0.450
		1045.16		2.213E-01	9.026E-01	1.566E+00	1.201E-01	0.141
		1325.50		-2.219E-01	6.737E-01	9.505E-01	6.703E-02	-0.233
		1368.21		3.290E-01	8.084E-01	1.430E+00	1.796E-01	0.230
		1436.60		-7.899E-01	1.613E+00	2.310E+00	1.618E-01	-0.342
		1691.02	*	-7.766E-03	4.174E-02	6.446E-02	4.358E-03	-0.120
SB-125		427.89	*	-1.125E-02	3.716E-02	5.880E-02	3.446E-03	-0.191
		463.38		-6.363E-02	1.133E-01	1.723E-01	1.157E-02	-0.369
		600.56		-1.637E-02	9.770E-02	1.559E-01	1.070E-02	-0.105
		635.90		-1.524E-02	1.212E-01	1.929E-01	1.338E-02	-0.079
TE-125M		109.28	*	-5.395E-01	3.344E+00	5.327E+00	4.992E-01	-0.101
I-126		388.63		-3.601E-02	5.734E-02	8.784E-02	4.798E-03	-0.410
		666.33	*	-2.027E-03	5.035E-02	8.097E-02	4.863E-03	-0.025
		753.82		-1.740E-01	4.278E-01	6.411E-01	4.611E-02	-0.271
SB-126		223.80		-2.640E-01	1.053E+00	1.731E+00	9.830E-02	-0.153
		278.60		-3.807E-01	6.834E-01	1.084E+00	6.321E-02	-0.351
		296.50		-2.462E-01	3.577E-01	5.566E-01	3.247E-02	-0.442
		414.70		1.086E-02	2.035E-02	3.554E-02	1.972E-03	0.306

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	415.30			-6.655E-01	1.810E+00	2.858E+00	1.587E-01	-0.233
	555.20			-1.510E+00	1.264E+00	1.725E+00	1.027E-01	-0.876
	573.80			-1.340E-01	3.300E-01	5.096E-01	3.042E-02	-0.263
	593.00			-1.627E-01	2.811E-01	4.200E-01	2.512E-02	-0.387
	656.30			1.438E-01	9.308E-01	1.542E+00	9.181E-02	0.093
	666.33			-8.321E-04	2.067E-02	3.324E-02	1.997E-03	-0.025
	675.00			-1.634E-01	6.067E-01	9.426E-01	5.767E-02	-0.173
	695.00			-3.884E-03	2.261E-02	3.558E-02	2.271E-03	-0.109
	697.00			3.548E-02	8.128E-02	1.391E-01	8.914E-03	0.255
	720.50	*		-8.446E-03	4.143E-02	6.468E-02	4.352E-03	-0.131
	856.80			-4.568E-02	1.319E-01	2.093E-01	1.826E-02	-0.218
	989.30			-1.155E-01	3.516E-01	5.362E-01	4.515E-02	-0.215
	1034.80			9.200E-01	2.532E+00	4.457E+00	3.486E-01	0.206
	1213.00			-1.246E-01	1.019E+00	1.638E+00	9.660E-02	-0.076
SN-126	64.28			-5.556E-02	1.635E-01	2.655E-01	3.783E-02	-0.209
	86.94			-8.450E-02	1.193E-01	1.748E-01	7.231E-02	-0.483
	87.57	*		-4.277E-02	2.806E-02	3.993E-02	3.474E-03	-1.071
SB-127	61.10			-1.064E-01	4.496E+00	6.942E+00	5.239E-01	-0.015
	252.40			1.804E-02	4.560E-01	7.650E-01	3.143E-01	0.024
	290.80			-1.088E+00	2.305E+00	3.678E+00	2.500E-01	-0.296
	411.60			3.524E-01	1.201E+00	2.047E+00	2.633E-01	0.172
	444.90			-1.060E+00	1.087E+00	1.563E+00	1.370E-01	-0.679
	473.00			1.541E-02	1.851E-01	3.066E-01	2.850E-02	0.050
	543.00			-2.970E-01	1.716E+00	2.728E+00	3.111E-01	-0.109
	603.60			1.073E+00	1.488E+00	2.604E+00	2.327E-01	0.412
	685.20	*		-6.580E-02	1.613E-01	2.448E-01	1.836E-02	-0.269
	698.50			-1.166E+00	1.908E+00	2.815E+00	3.768E-01	-0.414
	722.20			2.628E+00	3.102E+00	5.632E+00	4.279E-01	0.467
	783.80			-7.693E-02	3.784E-01	5.864E-01	5.861E-02	-0.131
XE-127	57.60			-9.127E-01	1.410E+00	2.172E+00	1.431E-01	-0.420
	145.22			6.456E-02	2.400E-01	3.931E-01	2.426E-02	0.164
	172.10			-1.532E-02	4.496E-02	6.973E-02	3.764E-03	-0.220
	202.84	*		-4.154E-03	1.586E-02	2.613E-02	1.457E-03	-0.159
	374.96			1.317E-02	8.349E-02	1.319E-01	7.334E-03	0.100
I-131	80.18			-5.661E-01	7.635E-01	1.168E+00	9.321E-02	-0.485
	284.30			2.528E-01	3.450E-01	6.090E-01	3.911E-02	0.415
	364.48	*		-2.911E-02	2.733E-02	4.005E-02	2.507E-03	-0.727
	636.97			-7.517E-02	3.463E-01	5.427E-01	3.578E-02	-0.139
	722.89			1.006E+00	1.533E+00	2.713E+00	1.839E-01	0.371
TE-132	49.72			-1.566E+00	1.119E+00	1.586E+00	1.145E-01	-0.987
	111.76			7.102E-01	2.254E+00	3.723E+00	3.002E-01	0.191
	116.30			1.409E-01	2.059E+00	3.337E+00	2.649E-01	0.042
	228.16	*		-6.089E-04	5.362E-02	8.983E-02	1.179E-02	-0.007
BA-133	53.15			1.362E-01	9.475E-01	1.567E+00	1.021E-01	0.087
	79.62			-1.923E-01	4.134E-01	6.461E-01	9.586E-02	-0.298
	81.00			-3.700E-02	3.343E-02	4.904E-02	7.636E-03	-0.754
	276.40			-2.429E-02	1.546E-01	2.544E-01	3.301E-02	-0.095
	302.84			2.511E-02	5.399E-02	9.386E-02	1.096E-02	0.268
	356.01	*		-6.913E-03	1.852E-02	2.943E-02	3.383E-03	-0.235

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	383.85		1.087E-01	1.288E-01	2.306E-01	2.470E-02	0.471
		510.53		1.089E-04	1.288E-01	Half-Life	too short	
		529.87	*	-7.211E-07	1.288E-01	Half-Life	too short	
		706.58		-1.371E-04	1.288E-01	Half-Life	too short	
		856.28		-2.441E-04	1.288E-01	Half-Life	too short	
		875.33		9.787E-05	1.288E-01	Half-Life	too short	
		1236.41		-1.545E-06	1.288E-01	Half-Life	too short	
CS-134		1298.22		1.274E-04	1.288E-01	Half-Life	too short	
		475.35		3.406E-01	8.464E-01	1.453E+00	8.400E-02	0.234
		563.23		-2.417E-03	1.697E-01	2.760E-01	1.678E-02	-0.009
		569.32		-6.402E-02	1.083E-01	1.585E-01	9.723E-03	-0.404
		604.70		3.794E-03	1.743E-02	2.899E-02	1.744E-03	0.131
		795.84	*	1.318E-03	2.166E-02	3.511E-02	2.764E-03	0.038
		801.93		-1.029E-01	1.979E-01	2.918E-01	2.318E-02	-0.353
		1038.57		-7.651E-01	1.690E+00	2.584E+00	2.007E-01	-0.296
		1167.94		5.485E-01	1.057E+00	1.895E+00	1.063E-01	0.289
		1365.15		3.967E-01	6.194E-01	1.139E+00	8.626E-02	0.348
CS-135		268.45	*	-6.192E-02	6.482E-02	9.871E-02	7.572E-03	-0.627
I-135		288.24		-4.506E+01	6.482E-02	Half-Life	too short	
		417.63		-1.416E+01	6.482E-02	Half-Life	too short	
		546.56		-1.512E+01	6.482E-02	Half-Life	too short	
		836.80		-2.581E+01	6.482E-02	Half-Life	too short	
		1038.76		-1.337E+01	6.482E-02	Half-Life	too short	
		1124.00		-1.156E+01	6.482E-02	Half-Life	too short	
		1131.51		9.719E+00	6.482E-02	Half-Life	too short	
		1260.41	*	6.692E+00	6.482E-02	Half-Life	too short	
		1457.56		-1.440E+01	6.482E-02	Half-Life	too short	
		1678.03		8.451E+00	6.482E-02	Half-Life	too short	
CS-136		1706.46		-2.131E+01	6.482E-02	Half-Life	too short	
		1791.20		2.015E+01	6.482E-02	Half-Life	too short	
		66.91		-1.884E-01	1.702E-01	2.452E-01	3.575E-02	-0.768
		86.29		5.673E-02	2.342E-01	3.862E-01	4.947E-02	0.147
		153.22		-6.998E-02	1.801E-01	2.789E-01	2.027E-02	-0.251
		163.89		-3.325E-01	2.884E-01	4.113E-01	2.864E-02	-0.808
		176.55		-3.960E-02	1.112E-01	1.661E-01	1.026E-02	-0.238
		273.65		3.085E-02	1.235E-01	2.104E-01	1.395E-02	0.147
		340.57		3.011E-02	3.679E-02	6.526E-02	3.980E-03	0.461
		818.51		-1.497E-03	2.163E-02	3.593E-02	2.926E-03	-0.042
BA-137M		1048.07	*	1.379E-02	3.003E-02	5.375E-02	4.319E-03	0.257
		1235.34		-4.382E-02	1.169E-01	1.759E-01	1.789E-02	-0.249
		661.65	*	-7.227E-03	1.574E-02	2.369E-02	1.409E-03	-0.305
CS-137		661.65	*	-7.640E-03	1.664E-02	2.504E-02	1.495E-03	-0.305
CE-139		165.85	*	2.608E-03	1.158E-02	1.886E-02	1.012E-03	0.138
BA-140		162.64		-5.428E-02	1.917E-01	2.986E-01	1.868E-02	-0.182
		304.84		-1.638E-01	3.279E-01	5.121E-01	1.398E-01	-0.320
LA-140		423.70		-2.062E-01	5.450E-01	8.506E-01	2.700E-01	-0.242
		537.32	*	3.157E-02	6.556E-02	1.134E-01	3.690E-02	0.278
		328.77		-2.879E-02	8.806E-02	1.419E-01	9.188E-03	-0.203
		432.53		1.387E-01	5.785E-01	9.783E-01	6.114E-02	0.142

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	487.03			3.283E-02	3.902E-02	7.039E-02	4.630E-03	0.466
	751.79			-2.460E-01	4.772E-01	6.971E-01	5.752E-02	-0.353
	815.85			4.195E-02	9.396E-02	1.677E-01	1.534E-02	0.250
	867.82			1.089E-02	3.681E-01	6.196E-01	5.789E-02	0.018
	919.63			-1.006E-01	7.427E-01	1.211E+00	1.346E-01	-0.083
	925.24			2.694E-01	2.963E-01	5.673E-01	5.470E-02	0.475
	1596.49	*		1.436E-03	2.955E-02	4.862E-02	3.223E-03	0.030
CE-141	145.44	*		7.621E-03	2.085E-02	3.443E-02	2.197E-03	0.221
CE-143	57.37			-3.911E+00	5.864E+00	9.012E+00	7.212E-01	-0.434
	231.56			-4.477E+00	2.115E+01	3.478E+01	1.074E+01	-0.129
	293.26	*		1.624E+00	1.103E+00	1.985E+00	4.057E-01	0.818
	350.59			6.050E+00	1.375E+01	2.358E+01	7.145E+00	0.257
	490.36			1.130E+01	2.609E+01	4.463E+01	1.379E+01	0.253
	664.57			-1.371E+00	1.075E+01	1.702E+01	5.392E+00	-0.081
	721.93			6.925E+00	1.244E+01	2.148E+01	6.149E+00	0.322
CE-144	80.11			-4.937E-01	6.705E-01	1.026E+00	8.168E-02	-0.481
	133.54	*		-1.913E-02	7.869E-02	1.237E-01	1.801E-02	-0.155
PM-144	476.78			-3.543E-03	2.871E-02	4.633E-02	3.209E-03	-0.076
	618.01			-8.341E-04	1.633E-02	2.634E-02	1.664E-03	-0.032
	696.49	*		2.968E-03	1.622E-02	2.685E-02	1.719E-03	0.111
	778.57			4.096E-01	9.567E-01	1.647E+00	1.244E-01	0.249
PR-144	696.49	*		2.003E-01	1.094E+00	1.812E+00	1.160E-01	0.111
	1489.15			-5.745E+00	5.944E+00	7.114E+00	4.913E-01	-0.808
PM-146	453.90	*		-1.129E-02	1.981E-02	3.029E-02	2.593E-03	-0.373
	633.02			2.787E-01	6.257E-01	1.065E+00	3.925E-01	0.262
	735.90			-6.528E-03	6.303E-02	9.974E-02	2.807E-02	-0.065
	747.13			1.032E-02	3.344E-02	5.697E-02	7.497E-03	0.181
ND-147	91.11			-3.426E-02	7.175E-02	1.173E-01	1.078E-02	-0.292
	319.41			-1.717E-01	8.881E-01	1.448E+00	8.401E-02	-0.119
	439.89			1.031E+00	1.617E+00	2.842E+00	1.608E-01	0.363
	531.02	*		-1.247E-01	1.512E-01	2.161E-01	2.933E-02	-0.577
PM-149	285.90	*		5.699E-01	3.645E+00	6.153E+00	8.717E-01	0.093
EU-152	121.78			3.477E-03	2.778E-02	4.520E-02	3.910E-03	0.077
	244.69			8.326E-03	1.269E-01	2.136E-01	1.230E-02	0.039
	344.27	*		-2.401E-02	4.393E-02	6.890E-02	4.457E-03	-0.348
	443.98			-3.260E-01	4.289E-01	6.392E-01	3.625E-02	-0.510
	778.89			4.922E-02	1.122E-01	1.934E-01	1.461E-02	0.254
	867.32			1.346E-01	3.456E-01	6.138E-01	5.458E-02	0.219
	964.01			-8.454E-02	1.139E-01	1.655E-01	1.443E-02	-0.511
	1085.78			3.035E-02	1.588E-01	2.726E-01	1.923E-02	0.111
	1112.02			-8.660E-02	1.355E-01	1.985E-01	1.314E-02	-0.436
	1407.95			8.065E-02	9.733E-02	1.831E-01	1.290E-02	0.441
GD-153	69.67			-2.418E-01	4.804E-01	7.510E-01	5.370E-02	-0.322
	83.37			3.130E+00	5.117E+00	8.282E+00	6.848E-01	0.378
	97.43	*		1.279E-02	3.024E-02	5.039E-02	4.041E-03	0.254
	103.18			-2.707E-02	3.606E-02	5.424E-02	4.184E-03	-0.499
EU-154	123.07			1.299E-03	1.901E-02	3.078E-02	3.149E-03	0.042
	247.94			-6.598E-02	1.420E-01	2.275E-01	2.166E-02	-0.290
	591.81			-1.558E-01	2.740E-01	4.077E-01	4.029E-02	-0.382

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155		723.30		4.125E-02	7.628E-02	1.326E-01	1.047E-02	0.311
		756.87		3.031E-01	3.204E-01	5.916E-01	6.521E-02	0.512
		873.19		-3.603E-02	1.282E-01	2.047E-01	2.560E-02	-0.176
		996.32		8.419E-02	1.570E-01	2.827E-01	4.984E-02	0.298
		1004.76		-2.738E-03	7.500E-02	1.239E-01	1.406E-02	-0.022
		1274.45	*	1.528E-02	5.384E-02	9.311E-02	9.130E-03	0.164
		48.70		-1.346E-01	6.731E-01	1.057E+00	6.771E-02	-0.127
		60.01		-1.636E+00	1.593E+00	2.262E+00	1.504E-01	-0.723
		86.54		-1.340E-03	3.264E-02	5.275E-02	4.579E-03	-0.025
		105.31	*	6.994E-03	3.846E-02	6.305E-02	4.880E-03	0.111
TB-160		86.79		-3.379E-02	8.150E-02	1.280E-01	1.103E-02	-0.264
		197.04		1.041E-01	2.215E-01	3.587E-01	1.988E-02	0.290
		215.65		1.722E-01	2.660E-01	4.692E-01	2.647E-02	0.367
		298.57		-1.541E-02	3.842E-02	6.132E-02	3.576E-03	-0.251
		879.36	*	1.632E-02	5.695E-02	9.945E-02	9.033E-03	0.164
		962.29		-9.158E-02	1.937E-01	2.973E-01	2.598E-02	-0.308
		966.15		-5.106E-02	7.337E-02	1.078E-01	9.374E-03	-0.474
		1177.93		-8.468E-02	1.276E-01	1.886E-01	1.047E-02	-0.449
		1271.85		5.482E-02	2.969E-01	5.047E-01	3.277E-02	0.109
		80.57		-9.811E-02	9.040E-02	1.344E-01	1.075E-02	-0.730
HO-166M		184.41		-1.314E-02	1.603E-02	2.546E-02	1.392E-03	-0.516
		280.46		-1.601E-03	3.682E-02	6.117E-02	3.567E-03	-0.026
		410.95		2.000E-02	9.779E-02	1.650E-01	9.126E-03	0.121
		711.68	*	8.350E-03	3.408E-02	5.549E-02	3.667E-03	0.150
		752.31		-4.998E-02	1.142E-01	1.694E-01	1.215E-02	-0.295
		810.29		6.017E-03	2.954E-02	4.886E-02	3.917E-03	0.123
		51.35		8.417E-01	8.035E+00	1.325E+01	8.590E-01	0.064
		52.39		2.214E+00	4.180E+00	7.115E+00	4.627E-01	0.311
		59.40		-9.611E+00	8.166E+00	1.129E+01	7.482E-01	-0.851
		66.72	*	-1.320E+01	9.350E+00	1.329E+01	9.266E-01	-0.993
LU-176		88.36		-1.100E-01	6.937E-02	9.867E-02	8.597E-03	-1.115
		201.83		-8.493E-03	1.136E-02	1.799E-02	1.002E-03	-0.472
		306.84	*	-1.354E-03	9.473E-03	1.552E-02	9.036E-04	-0.087
		401.10		1.559E+00	2.651E+00	4.666E+00	2.559E-01	0.334
		112.95		4.120E-02	2.898E-01	4.725E-01	3.470E-02	0.087
		208.36	*	-6.193E-02	1.961E-01	3.058E-01	1.714E-02	-0.203
		52.97		1.393E-01	4.125E-01	6.926E-01	4.510E-02	0.201
		54.07		2.611E-02	2.187E-01	3.609E-01	2.356E-02	0.072
		61.30		1.833E-01	4.184E-01	7.040E-01	4.719E-02	0.260
		121.62		3.725E-02	1.376E-01	2.266E-01	1.611E-02	0.164
LU-177M		147.16		-1.153E-01	2.493E-01	3.836E-01	2.339E-02	-0.301
		171.86		-6.202E-02	2.034E-01	3.166E-01	1.708E-02	-0.196
		218.09		-1.488E-01	3.287E-01	5.317E-01	3.005E-02	-0.280
		268.79		-1.330E-01	3.112E-01	4.997E-01	2.908E-02	-0.266
		319.02		3.967E-02	1.060E-01	1.823E-01	1.058E-02	0.218
		367.43		3.472E-01	3.948E-01	7.081E-01	3.969E-02	0.490
		413.65	*	-1.838E-02	7.224E-02	1.155E-01	6.405E-03	-0.159
		56.28		-1.645E-01	2.206E-01	3.364E-01	2.208E-02	-0.489
		57.53		-7.837E-02	1.211E-01	1.865E-01	1.228E-02	-0.420
HF-181								

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
W-181	65.20			-2.559E-02	2.755E-01	4.370E-01	3.011E-02	-0.059
	133.02			-1.011E-02	2.282E-02	3.528E-02	2.344E-03	-0.287
	136.25			-9.735E-02	1.674E-01	2.558E-01	1.667E-02	-0.381
	345.85			-5.477E-02	7.543E-02	1.158E-01	6.621E-03	-0.473
	482.03	*		2.435E-03	1.537E-02	2.571E-02	1.491E-03	0.095
	56.28			-6.985E-02	9.374E-02	1.429E-01	9.380E-03	-0.489
	57.53			-3.332E-02	5.147E-02	7.929E-02	5.221E-03	-0.420
	65.20	*		-1.079E-02	1.162E-01	1.843E-01	1.270E-02	-0.059
	67.75			-7.688E-03	3.409E-02	5.113E-02	3.596E-03	-0.150
	100.10			-6.576E-03	6.176E-02	9.895E-02	7.786E-03	-0.066
TA-182	152.43			-5.117E-03	1.260E-01	2.011E-01	1.185E-02	-0.025
	222.10			4.836E-02	1.305E-01	2.253E-01	1.278E-02	0.215
	1001.68			-4.790E-01	8.351E-01	1.252E+00	1.035E-01	-0.383
	1121.28			1.265E-02	5.301E-02	9.132E-02	5.901E-03	0.138
	1189.05			-2.942E-02	1.061E-01	1.652E-01	9.354E-03	-0.178
	1221.42	*		4.446E-03	6.226E-02	1.042E-01	6.233E-03	0.043
	1230.97			5.631E-02	1.511E-01	2.673E-01	1.625E-02	0.211
	57.98			-3.858E-02	5.014E-02	7.637E-02	5.035E-03	-0.505
	59.32			-3.793E-02	3.127E-02	4.306E-02	2.852E-03	-0.881
	67.20			-6.896E-02	6.052E-02	8.799E-02	6.159E-03	-0.784
RE-183	162.32	*		-1.703E-02	3.985E-02	6.125E-02	3.373E-03	-0.278
	208.81			-7.316E-02	3.601E-01	5.662E-01	3.174E-02	-0.129
	291.72			1.288E-01	3.639E-01	6.248E-01	3.645E-02	0.206
	57.98			-1.487E-01	1.932E-01	2.943E-01	1.940E-02	-0.505
	59.32			-1.460E-01	1.204E-01	1.658E-01	1.098E-02	-0.881
	67.20			-2.657E-01	2.331E-01	3.390E-01	2.373E-02	-0.784
	161.27			-4.223E-02	1.390E-01	2.164E-01	1.201E-02	-0.195
	216.55			1.637E-02	1.014E-01	1.724E-01	9.736E-03	0.095
	252.85	*		-1.197E-02	9.333E-02	1.543E-01	8.928E-03	-0.078
	318.01			4.006E-02	1.900E-01	3.218E-01	1.868E-02	0.124
RE-184	792.07			-1.413E-01	4.152E-01	6.280E-01	4.864E-02	-0.225
	903.28			-1.346E-01	3.863E-01	6.063E-01	5.659E-02	-0.222
	920.93			-2.938E-01	1.950E-01	2.317E-01	2.125E-02	-1.268
	59.72			-8.051E-02	8.668E-02	1.233E-01	8.181E-03	-0.653
	61.14			-3.627E-04	4.844E-02	7.490E-02	5.015E-03	-0.005
	69.30			-5.175E-02	8.946E-02	1.298E-01	9.249E-03	-0.399
	592.07			-8.173E-01	1.069E+00	1.542E+00	9.218E-02	-0.530
	646.12	*		6.723E-03	1.762E-02	3.015E-02	1.798E-03	0.223
	717.42			-3.910E-01	4.038E-01	5.508E-01	3.683E-02	-0.710
	874.81			2.468E-01	2.368E-01	4.561E-01	4.110E-02	0.541
OS-185	880.27			1.413E-02	3.339E-01	5.624E-01	5.116E-02	0.025
	155.03	*		2.778E-02	6.570E-02	1.087E-01	6.300E-03	0.256
	477.96			-2.898E-01	1.217E+00	1.933E+00	1.119E-01	-0.150
	633.10			5.357E-01	1.160E+00	2.004E+00	1.197E-01	0.267
	63.58			-1.877E+00	1.563E+01	2.579E+01	1.756E+00	-0.073
	227.08			-1.783E+00	4.727E+00	7.683E+00	4.375E-01	-0.232
	290.67	*		-1.362E+00	2.963E+00	4.735E+00	2.763E-01	-0.288
	295.96			-2.101E-02	3.838E-02	6.054E-02	3.587E-03	-0.347
	308.46			-1.897E-02	3.663E-02	5.770E-02	3.397E-03	-0.329
RE-188								
W-188								
IR-192								



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AU-195	316.51	*		-4.297E-03	1.444E-02	2.332E-02	1.361E-03	-0.184
	468.07			2.395E-02	2.621E-02	4.756E-02	3.162E-03	0.504
	604.41			9.420E-02	2.259E-01	3.830E-01	4.383E-02	0.246
	612.46			-5.950E-02	3.109E-01	4.927E-01	3.800E-02	-0.121
	65.12			-2.564E-03	5.479E-02	8.719E-02	6.004E-03	-0.029
	66.83			-4.294E-02	3.025E-02	4.296E-02	2.998E-03	-0.999
	75.70			1.868E-02	5.356E-02	8.918E-02	6.764E-03	0.209
	98.88	*		1.086E-02	8.128E-02	1.328E-01	1.054E-02	0.082
TL-200	129.76			1.628E-01	1.025E+00	1.671E+00	1.132E-01	0.097
	367.94	*		8.168E-01	1.511E+00	2.632E+00	1.474E-01	0.310
	579.30			-6.012E+00	1.257E+01	1.923E+01	1.148E+00	-0.313
	828.27			-3.187E+00	1.504E+01	2.439E+01	2.021E+00	-0.131
TL-201	1205.75			-5.649E-01	5.330E+00	8.568E+00	4.992E-01	-0.066
	68.90			-1.269E-01	2.678E-01	3.933E-01	2.793E-02	-0.323
	70.82			-1.727E-02	1.382E-01	2.228E-01	1.610E-02	-0.078
	80.30			-2.097E-01	2.795E-01	4.271E-01	3.407E-02	-0.491
TL-202	135.34			-6.901E-01	1.796E+00	2.792E+00	1.829E-01	-0.247
	167.43	*		4.411E-01	4.860E-01	8.351E-01	4.486E-02	0.528
	68.90			-4.264E-02	8.999E-02	1.322E-01	9.388E-03	-0.323
	70.82			-5.789E-03	4.633E-02	7.466E-02	5.395E-03	-0.078
HG-203	80.30			-7.030E-02	9.369E-02	1.432E-01	1.142E-02	-0.491
	439.56	*		1.530E-02	2.021E-02	3.594E-02	2.032E-03	0.426
	70.83			-3.463E-02	2.771E-01	4.465E-01	5.702E-02	-0.078
	72.87			-2.780E-02	1.621E-01	2.601E-01	3.231E-02	-0.107
BI-207	82.60			2.522E-01	3.192E-01	5.446E-01	7.341E-02	0.463
	279.20	*		-6.215E-03	1.576E-02	2.540E-02	1.571E-03	-0.245
	72.80			-9.938E-03	5.326E-02	8.539E-02	6.289E-03	-0.116
	74.97			2.474E-02	2.951E-02	5.084E-02	3.827E-03	0.487
TL-207	84.90			9.601E-03	6.670E-02	1.046E-01	8.806E-03	0.092
	569.67			-1.086E-02	1.730E-02	2.527E-02	1.507E-03	-0.430
	1063.62	*		9.331E-03	2.105E-02	3.766E-02	2.787E-03	0.248
	1770.23			1.382E-01	2.598E-01	4.773E-01	2.851E-02	0.290
TL-208	81.07			-8.109E-02	7.312E-02	1.085E-01	8.736E-03	-0.747
	83.78			9.095E-03	4.482E-02	7.061E-02	5.867E-03	0.129
	94.90			1.497E-02	9.812E-02	1.603E-01	1.312E-02	0.093
	122.32			1.562E-02	6.574E-01	1.060E+00	8.322E-02	0.015
PO-209	144.24			4.517E-02	2.783E-01	4.519E-01	3.419E-02	0.100
	154.21			-1.496E-02	1.645E-01	2.615E-01	1.839E-02	-0.057
	269.46			2.406E-02	7.244E-02	1.245E-01	7.569E-03	0.193
	323.87	*		-6.842E-02	2.977E-01	4.835E-01	7.985E-02	-0.141
TL-208	338.28			5.011E-02	4.422E-01	7.405E-01	7.777E-02	0.068
	445.03			-9.741E-01	1.017E+00	1.465E+00	1.494E-01	-0.665
	277.35			4.164E-02	1.537E-01	2.623E-01	2.774E-02	0.159
	510.84	+		2.358E-02	1.627E-01	2.258E-01	2.303E-02	0.104
PO-209	583.14	*		9.810E-03	1.812E-02	3.022E-02	2.067E-03	0.325
	860.37			1.539E-02	1.242E-01	2.118E-01	1.993E-02	0.073
	260.50			-1.551E+00	4.418E+00	7.175E+00	4.164E-01	-0.216
	262.80			1.372E+00	1.277E+01	2.041E+01	1.186E+00	0.067
	896.60	*		-1.437E+00	3.380E+00	5.272E+00	4.934E-01	-0.273

----- 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	*	-8.903E-01	9.981E-01	1.566E+00	1.161E-01	-0.568
PB-210		46.50	*	-8.903E-01	9.981E-01	1.566E+00	1.161E-01	-0.568
PO-210		46.50	*	-8.903E-01	9.974E-01	1.566E+00	9.828E-02	-0.568
BI-211		72.87		-1.568E-01	9.136E-01	1.467E+00	1.081E-01	-0.107
		351.07	*	1.282E-02	8.482E-02	1.426E-01	9.036E-03	0.090
PB-211		404.84	*	-2.429E-01	4.242E-01	6.073E-01	3.784E-01	-0.400
		427.08		-4.438E-01	8.661E-01	1.257E+00	7.766E-01	-0.353
		831.96		-4.356E-02	5.294E-01	8.272E-01	5.180E-01	-0.053
BI-212		727.18	*	-5.662E-02	1.541E-01	2.234E-01	1.901E-02	-0.253
		785.46		3.505E-01	6.704E-01	1.178E+00	9.009E-02	0.298
		1620.62		3.496E-01	5.652E-01	1.070E+00	7.010E-02	0.327
PB-212		74.81		4.099E-02	1.047E-01	1.749E-01	2.097E-02	0.234
		77.11		-2.728E-02	6.501E-02	9.847E-02	7.582E-03	-0.277
		87.30		-1.645E-01	1.305E-01	1.889E-01	2.500E-02	-0.871
		238.63	*	2.573E-02	2.980E-02	4.883E-02	3.556E-03	0.527
		300.09		1.274E-01	2.818E-01	4.896E-01	4.049E-02	0.260
PO-212		74.81		4.099E-02	1.047E-01	1.749E-01	2.097E-02	0.234
		77.11		-2.728E-02	6.501E-02	9.847E-02	7.582E-03	-0.277
		87.30		-1.645E-01	1.305E-01	1.889E-01	2.500E-02	-0.871
		115.19		1.299E-02	1.406E+00	2.268E+00	1.650E-01	0.006
		238.63	*	2.573E-02	2.980E-02	4.883E-02	3.556E-03	0.527
		300.09		1.274E-01	2.818E-01	4.896E-01	4.049E-02	0.260
BI-214		609.31	*	-1.487E-02	3.795E-02	5.552E-02	4.395E-03	-0.268
		1120.29		5.231E-02	1.182E-01	2.100E-01	1.945E-02	0.249
		1764.49		-5.898E-02	1.104E-01	1.687E-01	1.012E-02	-0.350
PB-214		74.81		7.062E-02	1.804E-01	3.013E-01	3.179E-02	0.234
		77.11		-4.676E-02	1.115E-01	1.688E-01	1.829E-02	-0.277
		87.30		-2.818E-01	2.228E-01	3.236E-01	3.755E-02	-0.871
		241.98		-2.219E-01	1.498E-01	2.203E-01	1.770E-02	-1.007
		295.21		1.432E-03	5.413E-02	9.035E-02	7.724E-03	0.016
		351.92	*	4.180E-03	2.985E-02	5.012E-02	4.113E-03	0.083
PO-214		74.81		7.062E-02	1.804E-01	3.013E-01	3.179E-02	0.234
		77.11		-4.676E-02	1.115E-01	1.688E-01	1.829E-02	-0.277
		87.30		-2.818E-01	2.228E-01	3.236E-01	3.755E-02	-0.871
		241.98		-2.219E-01	1.498E-01	2.203E-01	1.770E-02	-1.007
		295.21		1.432E-03	5.413E-02	9.035E-02	7.724E-03	0.016
		351.92	*	4.180E-03	2.985E-02	5.012E-02	4.113E-03	0.083
PO-215		81.07		-8.109E-02	7.312E-02	1.085E-01	8.736E-03	-0.747
		83.78		9.095E-03	4.482E-02	7.061E-02	5.867E-03	0.129
		94.90		1.497E-02	9.812E-02	1.603E-01	1.312E-02	0.093
		122.32		1.562E-02	6.574E-01	1.060E+00	8.322E-02	0.015
		144.24		4.517E-02	2.783E-01	4.519E-01	3.419E-02	0.100
		154.21		-1.496E-02	1.645E-01	2.615E-01	1.839E-02	-0.057
		269.46		2.406E-02	7.244E-02	1.245E-01	7.569E-03	0.193
		323.87	*	-6.842E-02	2.977E-01	4.835E-01	7.985E-02	-0.141
		338.28		5.011E-02	4.422E-01	7.405E-01	7.777E-02	0.068
		445.03		-9.741E-01	1.017E+00	1.465E+00	1.494E-01	-0.665
PO-216		74.81		4.099E-02	1.047E-01	1.749E-01	2.097E-02	0.234
		77.11		-2.728E-02	6.501E-02	9.847E-02	7.582E-03	-0.277

---- 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			-1.645E-01	1.305E-01	1.889E-01	2.500E-02	-0.871
	238.63	*		2.573E-02	2.980E-02	4.883E-02	3.556E-03	0.527
	300.09			1.274E-01	2.818E-01	4.896E-01	4.049E-02	0.260
	74.81			7.062E-02	1.804E-01	3.013E-01	3.179E-02	0.234
	77.11			-4.676E-02	1.115E-01	1.688E-01	1.829E-02	-0.277
	87.30			-2.818E-01	2.228E-01	3.236E-01	3.755E-02	-0.871
	241.98			-2.219E-01	1.498E-01	2.203E-01	1.770E-02	-1.007
RN-219	295.21			1.432E-03	5.413E-02	9.035E-02	7.724E-03	0.016
	351.92	*		4.180E-03	2.985E-02	5.012E-02	4.113E-03	0.083
	271.23			3.934E-02	9.656E-02	1.667E-01	1.354E-02	0.236
	401.81	*		1.546E-01	1.670E-01	3.017E-01	4.065E-02	0.512
RN-220	549.76	*		1.155E+01	1.165E+01	2.135E+01	1.269E+00	0.541
RA-223	81.07			-8.109E-02	7.312E-02	1.085E-01	8.736E-03	-0.747
	83.78			9.095E-03	4.482E-02	7.061E-02	5.867E-03	0.129
	94.90			1.497E-02	9.812E-02	1.603E-01	1.312E-02	0.093
	122.32			1.562E-02	6.574E-01	1.060E+00	8.322E-02	0.015
	144.24			4.517E-02	2.783E-01	4.519E-01	3.419E-02	0.100
	154.21			-1.496E-02	1.645E-01	2.615E-01	1.839E-02	-0.057
	269.46			2.406E-02	7.244E-02	1.245E-01	7.569E-03	0.193
	323.87	*		-6.842E-02	2.977E-01	4.835E-01	7.985E-02	-0.141
	338.28			5.011E-02	4.422E-01	7.405E-01	7.777E-02	0.068
	445.03			-9.741E-01	1.017E+00	1.465E+00	1.494E-01	-0.665
RA-224	240.98	*		-9.426E-02	2.910E-01	4.760E-01	2.736E-02	-0.198
RA-226	609.31	*		-1.487E-02	3.795E-02	5.552E-02	4.395E-03	-0.268
	1120.29			5.231E-02	1.182E-01	2.100E-01	1.945E-02	0.249
AC-227	1764.49			-5.898E-02	1.104E-01	1.687E-01	1.012E-02	-0.350
	79.80			-2.509E-01	5.262E-01	8.192E-01	1.740E-01	-0.306
	236.00			1.764E-02	9.653E-02	1.638E-01	1.706E-02	0.108
	256.20	*		1.568E-01	1.662E-01	2.961E-01	4.133E-02	0.530
TH-227	286.10			-1.280E-01	6.934E-01	1.137E+00	1.317E-01	-0.113
	299.80			-2.282E-01	5.494E-01	8.748E-01	1.426E-01	-0.261
	304.40			-4.000E-01	7.367E-01	1.152E+00	1.994E-01	-0.347
	334.20			-1.905E-01	1.010E+00	1.645E+00	3.014E-01	-0.116
	79.80			-2.509E-01	5.263E-01	8.192E-01	1.763E-01	-0.306
	94.00			1.279E+00	8.453E-01	1.416E+00	3.063E-01	0.904
	236.00			1.764E-02	9.653E-02	1.638E-01	1.476E-02	0.108
	256.20	*		1.568E-01	1.669E-01	2.961E-01	5.003E-02	0.530
	286.10			-1.280E-01	7.050E-01	1.137E+00	1.139E+00	-0.113
	299.80			-2.282E-01	5.494E-01	8.748E-01	1.426E-01	-0.261
AC-228	304.40			-4.000E-01	7.367E-01	1.152E+00	1.994E-01	-0.347
	334.20			-1.905E-01	1.010E+00	1.645E+00	3.014E-01	-0.116
	338.32			2.323E-02	1.056E-01	1.779E-01	7.250E-02	0.131
	911.07	*		3.730E-02	6.406E-02	1.151E-01	1.352E-02	0.324
RA-228	969.11			-2.503E-03	1.096E-01	1.748E-01	4.082E-02	-0.014
	338.32			2.323E-02	1.056E-01	1.779E-01	7.250E-02	0.131
TH-228	911.07	*		3.730E-02	6.406E-02	1.151E-01	1.352E-02	0.324
	969.11			-2.503E-03	1.096E-01	1.748E-01	4.082E-02	-0.014
	74.81			4.129E-02	1.054E-01	1.762E-01	1.338E-02	0.234
	77.11			-2.748E-02	6.550E-02	9.920E-02	7.639E-03	-0.277

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-229	87.30			-1.657E-01	1.304E-01	1.903E-01	1.650E-02	-0.871
	238.63	*		2.593E-02	3.002E-02	4.919E-02	3.583E-03	0.527
	300.09			1.283E-01	2.936E-01	4.932E-01	2.907E-01	0.260
	85.43			1.940E-02	6.563E-02	1.040E-01	8.815E-03	0.187
	88.47			-1.022E-01	4.338E-02	5.756E-02	5.009E-03	-1.776
	100.00			-6.616E-03	6.719E-02	1.077E-01	8.483E-03	-0.061
TH-230	193.63	*		-1.608E-01	2.164E-01	3.267E-01	1.804E-02	-0.492
	210.97			-4.972E-02	2.831E-01	4.689E-01	2.634E-02	-0.106
	609.31	*		-1.487E-02	3.795E-02	5.552E-02	4.395E-03	-0.268
	1120.29			5.231E-02	1.182E-01	2.100E-01	1.945E-02	0.249
PA-231	1764.49			-5.898E-02	1.104E-01	1.687E-01	1.012E-02	-0.350
	283.67	*		7.217E-01	6.909E-01	1.237E+00	1.707E-01	0.583
TH-231	301.29			8.925E-02	2.068E-01	3.588E-01	3.756E-02	0.249
	81.07			-8.109E-02	7.312E-02	1.085E-01	8.736E-03	-0.747
	83.78			9.095E-03	4.482E-02	7.061E-02	5.867E-03	0.129
	94.90			1.497E-02	9.812E-02	1.603E-01	1.312E-02	0.093
	122.32			1.562E-02	6.574E-01	1.060E+00	8.322E-02	0.015
	144.24			4.517E-02	2.783E-01	4.519E-01	3.419E-02	0.100
	154.21			-1.496E-02	1.645E-01	2.615E-01	1.839E-02	-0.057
	269.46			2.406E-02	7.244E-02	1.245E-01	7.569E-03	0.193
	323.87	*		-6.842E-02	2.977E-01	4.835E-01	7.985E-02	-0.141
	338.28			5.011E-02	4.422E-01	7.405E-01	7.777E-02	0.068
U-231	445.03			-9.741E-01	1.017E+00	1.465E+00	1.494E-01	-0.665
	84.21			-3.776E-02	5.364E-01	8.282E-01	6.917E-02	-0.046
	92.29			-3.688E-02	2.491E-01	4.146E-01	3.472E-02	-0.089
	95.87	*		-3.161E-01	1.379E-01	1.845E-01	1.498E-02	-1.713
TH-232	108.00			6.258E-02	2.213E-01	3.651E-01	2.743E-02	0.171
	338.32			2.323E-02	1.052E-01	1.779E-01	1.022E-02	0.131
	911.07	*		3.730E-02	6.406E-02	1.151E-01	1.352E-02	0.324
PA-233	969.11			-2.503E-03	1.096E-01	1.748E-01	4.082E-02	-0.014
	75.28			6.926E-01	8.742E-01	1.493E+00	2.206E-01	0.464
	86.59			-2.728E-02	5.316E-01	8.584E-01	2.302E-01	-0.032
	300.12			6.861E-02	1.461E-01	2.539E-01	3.415E-02	0.270
	311.98	*		-1.051E-03	2.728E-02	4.518E-02	2.790E-03	-0.023
	340.50			2.261E-01	2.730E-01	4.770E-01	1.095E-01	0.474
PA-234	398.62			-6.976E-01	8.598E-01	1.244E+00	3.208E-01	-0.561
	415.76			-1.200E-01	7.367E-01	1.191E+00	2.444E-01	-0.101
	63.00			-5.363E-03	4.978E-01	8.276E-01	1.205E-01	-0.006
	94.67			5.042E-02	7.184E-02	1.208E-01	1.463E-02	0.417
	98.44			2.419E-02	3.634E-02	5.762E-02	3.209E-02	0.420
	99.86			-2.853E-02	1.714E-01	2.733E-01	2.154E-02	-0.104
	111.00			4.791E-03	7.150E-02	1.160E-01	1.305E-02	0.041
	131.20			1.784E-02	3.922E-02	6.545E-02	4.396E-03	0.273
	152.70			5.451E-03	1.279E-01	2.056E-01	3.257E-02	0.027
	186.00			-3.964E-01	5.910E-01	9.276E-01	2.829E-01	-0.427
	226.40			-8.615E-02	1.639E-01	2.628E-01	3.024E-02	-0.328
	227.20			-6.327E-02	1.726E-01	2.808E-01	1.599E-02	-0.225
	248.90			-1.638E-01	3.188E-01	5.047E-01	1.084E-01	-0.324
	293.70			2.596E-01	2.662E-01	4.754E-01	7.652E-02	0.546

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		369.80		6.616E-02	4.112E-01	6.899E-01	1.433E-01	0.096
		568.70		-4.389E-01	5.474E-01	7.768E-01	4.634E-02	-0.565
		569.50		-1.017E-01	1.530E-01	2.223E-01	1.326E-02	-0.457
		574.00		-3.240E-01	7.367E-01	1.133E+00	6.763E-02	-0.286
		699.00		-9.157E-02	3.513E-01	5.466E-01	9.946E-02	-0.168
		706.10		-1.782E-01	5.303E-01	8.075E-01	3.572E-01	-0.221
		733.00		-2.214E-02	1.719E-01	2.714E-01	5.858E-02	-0.082
		742.81		1.413E-01	5.229E-01	8.705E-01	5.835E-01	0.162
		796.30		2.680E-01	4.069E-01	7.094E-01	1.902E-01	0.378
		805.60		9.771E-02	5.135E-01	8.456E-01	2.576E-01	0.116
		819.60		1.172E-01	5.420E-01	9.357E-01	3.549E-01	0.125
		826.30		-1.512E-01	3.443E-01	5.248E-01	2.345E-01	-0.288
		831.60		1.356E-02	2.734E-01	4.369E-01	1.300E-01	0.031
		876.40		1.553E-01	4.080E-01	6.669E-01	6.858E-01	0.233
		880.51		4.456E-04	1.270E-01	2.127E-01	1.936E-02	0.002
		883.24		-4.305E-02	1.323E-01	2.047E-01	1.378E-01	-0.210
		899.00		4.696E-01	4.018E-01	6.952E-01	3.050E-01	0.676
		925.00		4.048E-01	4.633E-01	8.843E-01	8.074E-02	0.458
		926.50		3.941E-02	7.001E-02	1.269E-01	3.229E-02	0.311
		946.00	*	-6.497E-02	1.294E-01	1.962E-01	3.708E-02	-0.331
		949.00		-6.431E-02	2.056E-01	3.262E-01	2.898E-02	-0.197
		980.50		-5.154E-02	2.844E-01	4.574E-01	3.901E-02	-0.113
		1394.10		3.524E-02	5.086E-01	8.464E-01	5.494E-01	0.042
PA-234M		766.42		3.066E-01	5.081E+00	8.244E+00	4.166E+00	0.037
		1001.03	*	-1.513E+00	2.031E+00	2.943E+00	2.845E-01	-0.514
TH-234		63.29	*	-1.043E-01	4.282E-01	7.002E-01	1.204E-01	-0.149
		92.38		-7.668E-02	2.351E-01	3.869E-01	6.951E-02	-0.198
U-234		609.31	*	-1.487E-02	3.795E-02	5.552E-02	4.395E-03	-0.268
		1120.29		5.231E-02	1.182E-01	2.100E-01	1.945E-02	0.249
		1764.49		-5.898E-02	1.104E-01	1.687E-01	1.012E-02	-0.350
U-235		89.95		-4.784E-01	4.348E-01	6.107E-01	1.883E-01	-0.783
		93.35		-2.047E-01	2.849E-01	4.500E-01	1.257E-01	-0.455
		105.00		-5.604E-03	3.775E-01	6.089E-01	1.801E-01	-0.009
		143.76	*	1.155E-02	8.663E-02	1.404E-01	2.310E-02	0.082
		163.35		-1.869E-01	1.942E-01	2.791E-01	4.990E-02	-0.670
		185.71		-1.805E-02	2.151E-02	3.412E-02	1.869E-03	-0.529
		205.31		1.384E-01	1.979E-01	3.476E-01	6.228E-02	0.398
NP-236		94.67		3.878E-02	5.442E-02	9.170E-02	7.519E-03	0.423
		98.44		1.830E-02	2.556E-02	4.356E-02	3.468E-03	0.420
		111.00		3.624E-03	5.409E-02	8.771E-02	6.496E-03	0.041
		160.31	*	-1.450E-02	3.310E-02	5.096E-02	2.848E-03	-0.285
NP-237		86.50	*	-2.624E-03	7.989E-02	1.292E-01	2.888E-02	-0.020
		95.87		-9.953E-01	4.911E-01	5.811E-01	1.422E-01	-1.713
U-238		63.29	*	-1.043E-01	4.282E-01	7.002E-01	1.204E-01	-0.149
		92.38		-7.668E-02	2.348E-01	3.869E-01	3.237E-02	-0.198
NP-239		99.55		-2.069E-02	5.853E-02	9.189E-02	7.258E-03	-0.225
		117.00	*	-3.230E-02	7.535E-02	1.171E-01	8.459E-03	-0.276
		209.75		-1.895E-01	3.044E-01	4.605E-01	2.584E-02	-0.411
		228.18		-8.682E-04	9.041E-02	1.515E-01	8.632E-03	-0.006

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	277.60			-2.602E-02	7.625E-02	1.234E-01	7.195E-03	-0.211
	334.30			-1.189E-01	5.711E-01	9.289E-01	5.350E-02	-0.128
AM-241	59.54	*		-5.085E-02	4.797E-02	6.715E-02	4.985E-03	-0.757
AM-243	74.67	*		6.997E-03	1.703E-02	2.849E-02	2.138E-03	0.246
	86.72			-1.080E+00	3.016E+00	4.760E+00	4.098E-01	-0.227
	117.66			-6.414E-01	1.558E+00	2.426E+00	1.749E-01	-0.264
	142.18			3.344E+00	7.540E+00	1.249E+01	7.855E-01	0.268
CM-243	99.55			-2.128E-02	6.020E-02	9.451E-02	7.464E-03	-0.225
	103.76	*		-1.104E-02	3.395E-02	5.325E-02	4.094E-03	-0.207
	117.00			-3.321E-02	7.748E-02	1.204E-01	8.698E-03	-0.276
	209.75			-1.867E-01	2.999E-01	4.537E-01	2.546E-02	-0.411
	228.18			-8.769E-04	9.130E-02	1.530E-01	8.718E-03	-0.006
	277.60			-2.621E-02	7.683E-02	1.244E-01	7.250E-03	-0.211
AM-246	798.80			2.698E-02	6.717E-02	1.142E-01	8.961E-03	0.236
	1036.00			6.041E-02	1.261E-01	2.264E-01	1.767E-02	0.267
	1062.04			8.691E-02	9.147E-02	1.762E-01	1.308E-02	0.493
	1078.86	*		1.905E-02	4.980E-02	8.905E-02	6.380E-03	0.214
CM-247	278.00			-1.816E-01	3.171E-01	5.024E-01	2.928E-02	-0.361
	287.40			-4.827E-01	5.479E-01	8.401E-01	4.901E-02	-0.575
	402.60	*		1.520E-02	1.504E-02	2.752E-02	1.512E-03	0.552
CF-249	252.85			-4.634E-02	3.614E-01	5.977E-01	3.458E-02	-0.078
	333.44			9.972E-04	7.491E-02	1.244E-01	7.170E-03	0.008
	387.95	*		-6.497E-03	1.718E-02	2.717E-02	1.486E-03	-0.239
CF-251	176.60	*		-2.029E-02	5.755E-02	8.603E-02	4.666E-03	-0.236
	227.00			-5.886E-02	1.531E-01	2.487E-01	1.416E-02	-0.237
	285.00			4.696E-01	7.641E-01	1.339E+00	7.812E-02	0.351

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015435      *
* Acquisition date   : 22-JAN-2010 09:49:06 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 02:00:00.49 Half life ratio : 8.000                *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202015435 Analyst initials: MXR1                  *
* Batch Number       : 941635 Sample Quantity : 1.5581E+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 :                               *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
ANH-511	5.092E-03	3.444E-02	2.347E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error Ided	MDA (pCi/GRAM )	
BE-7	-2.919E-02	1.236E-01	2.087E-01	0.000E+00 NOT IDENT.
NA-22	5.450E-03	1.881E-02	3.362E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	7.307E+01	0.000E+00	0.000E+00 SHORT HLIF
AL-26	-5.303E-03	1.346E-02	1.889E-02	0.000E+00 NOT IDENT.
K-40	1.368E-01	2.409E-01	4.425E-01	0.000E+00 NOT IDENT.
TI-44	-6.512E-03	1.135E-02	1.884E-02	0.000E+00 NOT IDENT.
SC-46	4.462E-03	1.550E-02	2.825E-02	0.000E+00 NOT IDENT.
V-48	4.972E-03	2.025E-02	3.658E-02	0.000E+00 NOT IDENT.
CR-51	-3.633E-02	1.299E-01	2.253E-01	0.000E+00 NOT IDENT.
MN-52	-3.201E-02	4.580E-02	6.466E-02	0.000E+00 NOT IDENT.
MN-54	1.443E-03	1.343E-02	2.395E-02	0.000E+00 NOT IDENT.
CO-56	-1.704E-03	1.778E-02	3.077E-02	0.000E+00 NOT IDENT.
CO-57	-5.254E-04	9.276E-03	1.634E-02	0.000E+00 NOT IDENT.
CO-58	-1.286E-03	1.755E-02	2.914E-02	0.000E+00 NOT IDENT.
FE-59	-1.803E-02	3.121E-02	4.756E-02	0.000E+00 NOT IDENT.
CO-60	2.640E-05	1.543E-02	2.616E-02	0.000E+00 NOT IDENT.
ZN-65	3.845E-03	3.504E-02	6.129E-02	0.000E+00 NOT IDENT.
GE-68	-7.751E-02	3.849E-01	6.317E-01	0.000E+00 NOT IDENT.
AS-73	5.701E-02	1.961E-01	3.680E-01	0.000E+00 NOT IDENT.
AS-74	6.229E-03	3.344E-02	5.862E-02	0.000E+00 NOT IDENT.
SE-75	7.163E-03	1.875E-02	3.285E-02	0.000E+00 NOT IDENT.
BR-77	-1.807E-01	5.512E-01	8.566E-01	0.000E+00 NOT IDENT.
SR-82	2.205E-02	1.214E-01	2.109E-01	0.000E+00 NOT IDENT.
RB-83	-7.180E-03	3.102E-02	5.222E-02	0.000E+00 NOT IDENT.
RB-84	2.173E-03	2.606E-02	4.610E-02	0.000E+00 NOT IDENT.
KR-85	7.946E+00	4.497E+00	8.124E+00	0.000E+00 NOT IDENT.

SR-85	3.757E-02	2.126E-02	3.841E-02	0.000E+00	NOT IDENT.
RB-86	-6.871E-02	1.994E-01	3.171E-01	0.000E+00	NOT IDENT.
Y-88	2.114E-03	1.819E-02	3.098E-02	0.000E+00	NOT IDENT.
ZR-88	1.026E-02	1.110E-02	2.154E-02	0.000E+00	NOT IDENT.
Y-91	-1.743E+00	5.208E+00	8.200E+00	0.000E+00	NOT IDENT.
NB-94	8.784E-03	1.618E-02	2.931E-02	0.000E+00	NOT IDENT.
NB-95	4.675E-03	1.626E-02	2.861E-02	0.000E+00	NOT IDENT.
NB-95M	-3.516E-02	4.787E-02	8.208E-02	0.000E+00	NOT IDENT.
ZR-95	1.585E-02	2.722E-02	5.011E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.028E+01	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.537E+02	0.000E+00	0.000E+00	SHORT HLIF
MO-99	7.946E-02	6.613E-01	1.140E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.288E+06	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.633E-03	1.384E-02	2.375E-02	0.000E+00	NOT IDENT.
RH-102	9.892E-03	1.215E-02	2.316E-02	0.000E+00	NOT IDENT.
RU-103	-3.874E-03	1.505E-02	2.524E-02	0.000E+00	NOT IDENT.
RH-106	-5.731E-02	1.565E-01	2.550E-01	0.000E+00	FAIL ABUN
RU-106	-5.731E-02	1.564E-01	2.550E-01	0.000E+00	FAIL ABUN
AG-108M	-7.491E-03	1.418E-02	2.327E-02	0.000E+00	NOT IDENT.
CD-109	-5.920E-01	2.916E-01	4.408E-01	0.000E+00	NOT IDENT.
AG-110M	7.479E-03	1.405E-02	2.579E-02	0.000E+00	NOT IDENT.
IN-111	-5.399E-03	6.161E-02	1.106E-01	0.000E+00	NOT IDENT.
IN-113M	7.302E-03	1.702E-02	3.137E-02	0.000E+00	NOT IDENT.
SN-113	7.302E-03	1.702E-02	3.137E-02	0.000E+00	NOT IDENT.
IN-114M	-8.600E-02	6.963E-02	1.165E-01	0.000E+00	NOT IDENT.
CD-115	4.539E-01	4.256E-01	8.302E-01	0.000E+00	NOT IDENT.
SN-117M	6.482E-03	1.553E-02	2.801E-02	0.000E+00	NOT IDENT.
SB-122	7.530E-03	1.279E-01	2.218E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.362E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.003E-03	1.121E-02	2.028E-02	0.000E+00	NOT IDENT.
I-124	1.255E-02	9.647E-02	1.677E-01	0.000E+00	NOT IDENT.
SB-124	-7.766E-03	4.090E-02	6.475E-02	0.000E+00	NOT IDENT.
SB-125	-1.125E-02	3.642E-02	6.135E-02	0.000E+00	NOT IDENT.
TE-125M	-5.395E-01	3.277E+00	5.756E+00	0.000E+00	NOT IDENT.
I-126	-2.027E-03	4.934E-02	8.347E-02	0.000E+00	NOT IDENT.
SB-126	-8.446E-03	4.060E-02	6.654E-02	0.000E+00	NOT IDENT.
SN-126	-4.277E-02	2.750E-02	4.338E-02	0.000E+00	NOT IDENT.
SB-127	-6.580E-02	1.580E-01	2.522E-01	0.000E+00	NOT IDENT.
XE-127	-4.154E-03	1.554E-02	2.780E-02	0.000E+00	NOT IDENT.
I-131	-2.911E-02	2.679E-02	4.196E-02	0.000E+00	NOT IDENT.
TE-132	-6.089E-04	5.255E-02	9.528E-02	0.000E+00	NOT IDENT.
BA-133	-6.913E-03	1.815E-02	3.086E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.309E+00	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.318E-03	2.123E-02	3.602E-02	0.000E+00	NOT IDENT.
CS-135	-6.192E-02	6.352E-02	1.043E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.819E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.379E-02	2.943E-02	5.472E-02	0.000E+00	NOT IDENT.
BA-137M	-7.227E-03	1.542E-02	2.443E-02	0.000E+00	NOT IDENT.
CS-137	-7.640E-03	1.630E-02	2.582E-02	0.000E+00	NOT IDENT.
CE-139	2.608E-03	1.134E-02	2.016E-02	0.000E+00	NOT IDENT.
BA-140	3.157E-02	6.425E-02	1.176E-01	0.000E+00	NOT IDENT.
LA-140	1.436E-03	2.896E-02	4.892E-02	0.000E+00	NOT IDENT.
CE-141	7.621E-03	2.043E-02	3.694E-02	0.000E+00	NOT IDENT.
CE-143	1.624E+00	1.081E+00	2.092E+00	0.000E+00	NOT IDENT.
CE-144	-1.913E-02	7.711E-02	1.330E-01	0.000E+00	NOT IDENT.
PM-144	2.968E-03	1.589E-02	2.764E-02	0.000E+00	NOT IDENT.
PR-144	2.003E-01	1.073E+00	1.866E+00	0.000E+00	NOT IDENT.
PM-146	-1.129E-02	1.942E-02	3.155E-02	0.000E+00	NOT IDENT.
ND-147	-1.247E-01	1.482E-01	2.242E-01	0.000E+00	NOT IDENT.
PM-149	5.699E-01	3.572E+00	6.488E+00	0.000E+00	NOT IDENT.
EU-152	-2.401E-02	4.305E-02	7.229E-02	0.000E+00	NOT IDENT.
GD-153	1.279E-02	2.963E-02	5.460E-02	0.000E+00	NOT IDENT.
EU-154	1.528E-02	5.276E-02	9.428E-02	0.000E+00	NOT IDENT.
EU-155	6.994E-03	3.769E-02	6.819E-02	0.000E+00	NOT IDENT.
TB-160	1.632E-02	5.581E-02	1.018E-01	0.000E+00	NOT IDENT.
HO-166M	8.350E-03	3.340E-02	5.711E-02	0.000E+00	NOT IDENT.
TM-171	-1.320E+01	9.163E+00	1.453E+01	0.000E+00	NOT IDENT.
LU-176	-1.354E-03	9.284E-03	1.633E-02	0.000E+00	NOT IDENT.
LU-177	-6.193E-02	1.922E-01	3.251E-01	0.000E+00	NOT IDENT.
LU-177M	-1.838E-02	7.080E-02	1.206E-01	0.000E+00	NOT IDENT.
HF-181	2.435E-03	1.506E-02	2.674E-02	0.000E+00	NOT IDENT.
W-181	-1.079E-02	1.139E-01	2.017E-01	0.000E+00	NOT IDENT.
TA-182	4.446E-03	6.102E-02	1.056E-01	0.000E+00	NOT IDENT.
RE-183	-1.703E-02	3.905E-02	6.552E-02	0.000E+00	NOT IDENT.
RE-184	-1.197E-02	9.146E-02	1.633E-01	0.000E+00	NOT IDENT.
OS-185	6.723E-03	1.727E-02	3.111E-02	0.000E+00	NOT IDENT.
RE-188	2.778E-02	6.439E-02	1.164E-01	0.000E+00	NOT IDENT.
W-188	-1.362E+00	2.904E+00	4.991E+00	0.000E+00	NOT IDENT.



IR-192	-4.297E-03	1.415E-02	2.453E-02	0.000E+00	NOT IDENT.
AU-195	1.086E-02	7.965E-02	1.438E-01	0.000E+00	NOT IDENT.
TL-200	8.168E-01	1.481E+00	2.757E+00	0.000E+00	NOT IDENT.
TL-201	4.411E-01	4.763E-01	8.927E-01	0.000E+00	NOT IDENT.
TL-202	1.530E-02	1.981E-02	3.747E-02	0.000E+00	NOT IDENT.
HG-203	-6.215E-03	1.545E-02	2.680E-02	0.000E+00	NOT IDENT.
BI-207	9.331E-03	2.063E-02	3.833E-02	0.000E+00	NOT IDENT.
TL-207	-6.842E-02	2.917E-01	5.082E-01	0.000E+00	NOT IDENT.
TL-208	9.810E-03	1.776E-02	3.127E-02	0.000E+00	FAIL ABUN
PO-209	-1.437E+00	3.312E+00	5.391E+00	0.000E+00	NOT IDENT.
BI-210	-8.903E-01	9.781E-01	1.728E+00	0.000E+00	NOT IDENT.
PB-210	-8.903E-01	9.781E-01	1.728E+00	0.000E+00	NOT IDENT.
PO-210	-8.903E-01	9.775E-01	1.728E+00	0.000E+00	NOT IDENT.
BI-211	1.282E-02	8.312E-02	1.496E-01	0.000E+00	NOT IDENT.
PB-211	-2.429E-01	4.157E-01	6.345E-01	0.000E+00	NOT IDENT.
BI-212	-5.662E-02	1.510E-01	2.298E-01	0.000E+00	NOT IDENT.
PB-212	2.573E-02	2.920E-02	5.173E-02	0.000E+00	NOT IDENT.
PO-212	2.573E-02	2.920E-02	5.173E-02	0.000E+00	NOT IDENT.
BI-214	-1.487E-02	3.719E-02	5.738E-02	0.000E+00	NOT IDENT.
PB-214	4.180E-03	2.925E-02	5.256E-02	0.000E+00	NOT IDENT.
PO-214	4.180E-03	2.925E-02	5.256E-02	0.000E+00	NOT IDENT.
PO-215	-6.842E-02	2.917E-01	5.082E-01	0.000E+00	NOT IDENT.
PO-216	2.573E-02	2.920E-02	5.173E-02	0.000E+00	NOT IDENT.
PO-218	4.180E-03	2.925E-02	5.256E-02	0.000E+00	NOT IDENT.
RN-219	1.546E-01	1.636E-01	3.152E-01	0.000E+00	NOT IDENT.
RN-220	1.155E+01	1.142E+01	2.212E+01	0.000E+00	NOT IDENT.
RA-223	-6.842E-02	2.917E-01	5.082E-01	0.000E+00	NOT IDENT.
RA-224	-9.426E-02	2.852E-01	5.041E-01	0.000E+00	NOT IDENT.
RA-226	-1.487E-02	3.719E-02	5.738E-02	0.000E+00	NOT IDENT.
AC-227	1.568E-01	1.629E-01	3.131E-01	0.000E+00	NOT IDENT.
TH-227	1.568E-01	1.635E-01	3.131E-01	0.000E+00	NOT IDENT.
AC-228	3.730E-02	6.278E-02	1.176E-01	0.000E+00	NOT IDENT.
RA-228	3.730E-02	6.278E-02	1.176E-01	0.000E+00	NOT IDENT.
TH-228	2.593E-02	2.942E-02	5.211E-02	0.000E+00	NOT IDENT.
TH-229	-1.608E-01	2.121E-01	3.479E-01	0.000E+00	NOT IDENT.
TH-230	-1.487E-02	3.719E-02	5.738E-02	0.000E+00	NOT IDENT.
PA-231	7.217E-01	6.771E-01	1.305E+00	0.000E+00	NOT IDENT.
TH-231	-6.842E-02	2.917E-01	5.082E-01	0.000E+00	NOT IDENT.
U-231	-3.161E-01	1.351E-01	2.000E-01	0.000E+00	NOT IDENT.
TH-232	3.730E-02	6.278E-02	1.176E-01	0.000E+00	NOT IDENT.
PA-233	-1.051E-03	2.673E-02	4.753E-02	0.000E+00	NOT IDENT.
PA-234	-6.497E-02	1.268E-01	2.003E-01	0.000E+00	NOT IDENT.
PA-234M	-1.513E+00	1.990E+00	3.000E+00	0.000E+00	NOT IDENT.
TH-234	-1.043E-01	4.197E-01	7.668E-01	0.000E+00	NOT IDENT.
U-234	-1.487E-02	3.719E-02	5.738E-02	0.000E+00	NOT IDENT.
U-235	1.155E-02	8.489E-02	1.506E-01	0.000E+00	NOT IDENT.
NP-236	-1.450E-02	3.244E-02	5.454E-02	0.000E+00	NOT IDENT.
NP-237	-2.624E-03	7.829E-02	1.404E-01	0.000E+00	NOT IDENT.
U-238	-1.043E-01	4.197E-01	7.668E-01	0.000E+00	NOT IDENT.
NP-239	-3.230E-02	7.384E-02	1.263E-01	0.000E+00	NOT IDENT.
AM-241	-5.085E-02	4.701E-02	7.364E-02	0.000E+00	NOT IDENT.
AM-243	6.997E-03	1.669E-02	3.107E-02	0.000E+00	NOT IDENT.
CM-243	-1.104E-02	3.327E-02	5.761E-02	0.000E+00	NOT IDENT.
AM-246	1.905E-02	4.880E-02	9.059E-02	0.000E+00	NOT IDENT.
CM-247	1.520E-02	1.474E-02	2.876E-02	0.000E+00	NOT IDENT.
CF-249	-6.497E-03	1.683E-02	2.842E-02	0.000E+00	NOT IDENT.
CF-251	-2.029E-02	5.640E-02	9.184E-02	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015435.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 09:49:06
Sample ID          : G1202015435 Sample quantity : 1.55810E+02 GRAM
Detector name      : GAM14 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:00.49 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 941635 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
ANH-511	511.00	7	100.00*	3.086E+00	5.092E-03	5.092E-03	690.10

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G1202015435

Page : 2  
Acquisition date : 22-JAN-2010 09:49:06

Total number of lines in spectrum 1  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 1 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
ANH-511	1.00E+09Y	1.00	5.092E-03	5.092E-03	35.14E-03	690.10	
Total Activity :			5.092E-03	5.092E-03			

Grand Total Activity : 5.092E-03 5.092E-03

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202015435

Page : 3  
Acquisition date : 22-JAN-2010 09:49:06

None

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015435.CNF;1
* Acquisition date   : 22-JAN-2010 09:49:06  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 02:00:00.49          Half life ratio   : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00  Nuclide Library   : SOLID
* Sample ID          : G1202015435          Analyst initials: MXR1
* Batch Number       : 941635              Sample Quantity  : 1.55810E+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       :
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	5.092E-03	3.514E-02	2.261E-02	1.328E-03	0.225

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.919E-02		1.261E-01	2.007E-01	1.352E-02	-0.145
NA-22	5.450E-03		1.919E-02	3.320E-02	2.169E-03	0.164
NA-24	1.192E-05		3.728E-05	Half-Life too short		
AL-26	-5.303E-03		1.374E-02	1.884E-02	1.092E-03	-0.281
K-40	1.368E-01		2.458E-01	4.387E-01	3.186E-02	0.312
TI-44	-6.512E-03		1.158E-02	1.729E-02	1.350E-03	-0.377
SC-46	4.462E-03		1.582E-02	2.762E-02	2.552E-03	0.162
V-48	4.972E-03		2.067E-02	3.586E-02	3.045E-03	0.139
CR-51	-3.633E-02		1.325E-01	2.143E-01	1.385E-02	-0.170
MN-52	-3.201E-02		4.673E-02	6.407E-02	4.491E-03	-0.500
MN-54	1.443E-03		1.370E-02	2.338E-02	1.961E-03	0.062

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-56	-1.704E-03		1.815E-02	3.004E-02	2.575E-03	-0.057
CO-57	-5.254E-04		9.465E-03	1.516E-02	1.079E-03	-0.035
CO-58	-1.286E-03		1.791E-02	2.842E-02	2.286E-03	-0.045
FE-59	-1.803E-02		3.184E-02	4.678E-02	3.601E-03	-0.385
CO-60	2.640E-05		1.575E-02	2.587E-02	1.844E-03	0.001
ZN-65	3.845E-03		3.576E-02	6.031E-02	3.964E-03	0.064
GE-68	-7.751E-02		3.927E-01	6.209E-01	4.463E-02	-0.125
AS-73	5.701E-02		2.001E-01	3.347E-01	2.182E-02	0.170
AS-74	6.229E-03		3.412E-02	5.668E-02	3.390E-03	0.110
SE-75	7.163E-03		1.913E-02	3.110E-02	1.826E-03	0.230
BR-77	-1.807E-01		5.624E-01	8.254E-01	4.866E-02	-0.219
SR-82	2.205E-02		1.239E-01	2.055E-01	1.545E-02	0.107
RB-83	-7.180E-03		3.166E-02	5.031E-02	2.966E-03	-0.143
RB-84	2.173E-03		2.659E-02	4.506E-02	4.108E-03	0.048
KR-85	7.946E+00		4.588E+00	7.825E+00	4.602E-01	1.015
SR-85	3.757E-02		2.169E-02	3.700E-02	2.176E-03	1.015
RB-86	-6.871E-02		2.035E-01	3.117E-01	2.244E-02	-0.220
Y-88	2.114E-03		1.856E-02	3.092E-02	1.756E-03	0.068
ZR-88	1.026E-02		1.133E-02	2.060E-02	1.122E-03	0.498
Y-91	-1.743E+00		5.314E+00	8.086E+00	4.704E-01	-0.216
NB-94	8.784E-03		1.651E-02	2.848E-02	1.847E-03	0.308
NB-95	4.675E-03		1.660E-02	2.786E-02	2.052E-03	0.168
NB-95M	-3.516E-02		4.885E-02	7.746E-02	5.789E-03	-0.454
ZR-95	1.585E-02		2.778E-02	4.878E-02	4.024E-03	0.325
NB-97	1.080E-05		1.035E-05	Half-Life too short		
ZR-97	7.218E-04		2.315E-04	Half-Life too short		
MO-99	7.946E-02		6.748E-01	1.109E+00	1.589E-01	0.072
TC-99M	1.420E+00		4.739E+00	Half-Life too short		
RH-101	1.633E-03		1.412E-02	2.231E-02	1.238E-03	0.073
RH-102	9.892E-03		1.240E-02	2.226E-02	1.287E-03	0.444
RU-103	-3.874E-03		1.536E-02	2.429E-02	3.076E-03	-0.160
RH-106	-5.731E-02		1.597E-01	2.469E-01	2.920E-02	-0.232
RU-106	-5.731E-02		1.596E-01	2.469E-01	1.476E-02	-0.232
AG-108M	-7.491E-03		1.447E-02	2.232E-02	1.371E-03	-0.336
CD-109	-5.920E-01		2.975E-01	4.058E-01	3.549E-02	-1.459
AG-110M	7.479E-03		1.433E-02	2.501E-02	1.580E-03	0.299
IN-111	-5.399E-03		6.287E-02	1.044E-01	6.019E-03	-0.052
IN-113M	7.302E-03		1.736E-02	3.000E-02	1.755E-03	0.243
SN-113	7.302E-03		1.736E-02	3.000E-02	1.755E-03	0.243
IN-114M	-8.600E-02		7.105E-02	1.093E-01	6.017E-03	-0.787
CD-115	4.539E-01		4.343E-01	8.002E-01	4.729E-02	0.567
SN-117M	6.482E-03		1.584E-02	2.617E-02	1.480E-03	0.248
SB-122	7.530E-03		1.305E-01	2.142E-01	1.277E-02	0.035
I-123	6.077E-05		6.949E-05	Half-Life too short		
TE-123M	5.003E-03		1.144E-02	1.895E-02	1.084E-03	0.264
I-124	1.255E-02		9.844E-02	1.622E-01	9.703E-03	0.077
SB-124	-7.766E-03		4.174E-02	6.446E-02	4.358E-03	-0.120
SB-125	-1.125E-02		3.716E-02	5.880E-02	3.446E-03	-0.191

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-125M	-5.395E-01		3.344E+00	5.327E+00	4.992E-01	-0.101
I-126	-2.027E-03		5.035E-02	8.097E-02	4.863E-03	-0.025
SB-126	-8.446E-03		4.143E-02	6.468E-02	4.352E-03	-0.131
SN-126	-4.277E-02		2.806E-02	3.993E-02	3.474E-03	-1.071
SB-127	-6.580E-02		1.613E-01	2.448E-01	1.836E-02	-0.269
XE-127	-4.154E-03		1.586E-02	2.613E-02	1.457E-03	-0.159
I-131	-2.911E-02		2.733E-02	4.005E-02	2.507E-03	-0.727
TE-132	-6.089E-04		5.362E-02	8.983E-02	1.179E-02	-0.007
BA-133	-6.913E-03		1.852E-02	2.943E-02	3.383E-03	-0.235
I-133	-7.211E-07		2.709E-06	Half-Life	too short	
CS-134	1.318E-03		2.166E-02	3.511E-02	2.764E-03	0.038
CS-135	-6.192E-02		6.482E-02	9.871E-02	7.572E-03	-0.627
I-135	6.692E+00		3.989E+00	Half-Life	too short	
CS-136	1.379E-02		3.003E-02	5.375E-02	4.319E-03	0.257
BA-137M	-7.227E-03		1.574E-02	2.369E-02	1.409E-03	-0.305
CS-137	-7.640E-03		1.664E-02	2.504E-02	1.495E-03	-0.305
CE-139	2.608E-03		1.158E-02	1.886E-02	1.012E-03	0.138
BA-140	3.157E-02		6.556E-02	1.134E-01	3.690E-02	0.278
LA-140	1.436E-03		2.955E-02	4.862E-02	3.223E-03	0.030
CE-141	7.621E-03		2.085E-02	3.443E-02	2.197E-03	0.221
CE-143	1.624E+00		1.103E+00	1.985E+00	4.057E-01	0.818
CE-144	-1.913E-02		7.869E-02	1.237E-01	1.801E-02	-0.155
PM-144	2.968E-03		1.622E-02	2.685E-02	1.719E-03	0.111
PR-144	2.003E-01		1.094E+00	1.812E+00	1.160E-01	0.111
PM-146	-1.129E-02		1.981E-02	3.029E-02	2.593E-03	-0.373
ND-147	-1.247E-01		1.512E-01	2.161E-01	2.933E-02	-0.577
PM-149	5.699E-01		3.645E+00	6.153E+00	8.717E-01	0.093
EU-152	-2.401E-02		4.393E-02	6.890E-02	4.457E-03	-0.348
GD-153	1.279E-02		3.024E-02	5.039E-02	4.041E-03	0.254
EU-154	1.528E-02		5.384E-02	9.311E-02	9.130E-03	0.164
EU-155	6.994E-03		3.846E-02	6.305E-02	4.880E-03	0.111
TB-160	1.632E-02		5.695E-02	9.945E-02	9.033E-03	0.164
HO-166M	8.350E-03		3.408E-02	5.549E-02	3.667E-03	0.150
TM-171	-1.320E+01		9.350E+00	1.329E+01	9.266E-01	-0.993
LU-176	-1.354E-03		9.473E-03	1.552E-02	9.036E-04	-0.087
LU-177	-6.193E-02		1.961E-01	3.058E-01	1.714E-02	-0.203
LU-177M	-1.838E-02		7.224E-02	1.155E-01	6.405E-03	-0.159
HF-181	2.435E-03		1.537E-02	2.571E-02	1.491E-03	0.095
W-181	-1.079E-02		1.162E-01	1.843E-01	1.270E-02	-0.059
TA-182	4.446E-03		6.226E-02	1.042E-01	6.233E-03	0.043
RE-183	-1.703E-02		3.985E-02	6.125E-02	3.373E-03	-0.278
RE-184	-1.197E-02		9.333E-02	1.543E-01	8.928E-03	-0.078
OS-185	6.723E-03		1.762E-02	3.015E-02	1.798E-03	0.223
RE-188	2.778E-02		6.570E-02	1.087E-01	6.300E-03	0.256
W-188	-1.362E+00		2.963E+00	4.735E+00	2.763E-01	-0.288
IR-192	-4.297E-03		1.444E-02	2.332E-02	1.361E-03	-0.184
AU-195	1.086E-02		8.128E-02	1.328E-01	1.054E-02	0.082
TL-200	8.168E-01		1.511E+00	2.632E+00	1.474E-01	0.310

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-201	4.411E-01		4.860E-01	8.351E-01	4.486E-02	0.528
TL-202	1.530E-02		2.021E-02	3.594E-02	2.032E-03	0.426
HG-203	-6.215E-03		1.576E-02	2.540E-02	1.571E-03	-0.245
BI-207	9.331E-03		2.105E-02	3.766E-02	2.787E-03	0.248
TL-207	-6.842E-02		2.977E-01	4.835E-01	7.985E-02	-0.141
TL-208	9.810E-03		1.812E-02	3.022E-02	2.067E-03	0.325
PO-209	-1.437E+00		3.380E+00	5.272E+00	4.934E-01	-0.273
BI-210	-8.903E-01		9.981E-01	1.566E+00	1.161E-01	-0.568
PB-210	-8.903E-01		9.981E-01	1.566E+00	1.161E-01	-0.568
PO-210	-8.903E-01		9.974E-01	1.566E+00	9.828E-02	-0.568
BI-211	1.282E-02		8.482E-02	1.426E-01	9.036E-03	0.090
PB-211	-2.429E-01		4.242E-01	6.073E-01	3.784E-01	-0.400
BI-212	-5.662E-02		1.541E-01	2.234E-01	1.901E-02	-0.253
PB-212	2.573E-02		2.980E-02	4.883E-02	3.556E-03	0.527
PO-212	2.573E-02		2.980E-02	4.883E-02	3.556E-03	0.527
BI-214	-1.487E-02		3.795E-02	5.552E-02	4.395E-03	-0.268
PB-214	4.180E-03		2.985E-02	5.012E-02	4.113E-03	0.083
PO-214	4.180E-03		2.985E-02	5.012E-02	4.113E-03	0.083
PO-215	-6.842E-02		2.977E-01	4.835E-01	7.985E-02	-0.141
PO-216	2.573E-02		2.980E-02	4.883E-02	3.556E-03	0.527
PO-218	4.180E-03		2.985E-02	5.012E-02	4.113E-03	0.083
RN-219	1.546E-01		1.670E-01	3.017E-01	4.065E-02	0.512
RN-220	1.155E+01		1.165E+01	2.135E+01	1.269E+00	0.541
RA-223	-6.842E-02		2.977E-01	4.835E-01	7.985E-02	-0.141
RA-224	-9.426E-02		2.910E-01	4.760E-01	2.736E-02	-0.198
RA-226	-1.487E-02		3.795E-02	5.552E-02	4.395E-03	-0.268
AC-227	1.568E-01		1.662E-01	2.961E-01	4.133E-02	0.530
TH-227	1.568E-01		1.669E-01	2.961E-01	5.003E-02	0.530
AC-228	3.730E-02		6.406E-02	1.151E-01	1.352E-02	0.324
RA-228	3.730E-02		6.406E-02	1.151E-01	1.352E-02	0.324
TH-228	2.593E-02		3.002E-02	4.919E-02	3.583E-03	0.527
TH-229	-1.608E-01		2.164E-01	3.267E-01	1.804E-02	-0.492
TH-230	-1.487E-02		3.795E-02	5.552E-02	4.395E-03	-0.268
PA-231	7.217E-01		6.909E-01	1.237E+00	1.707E-01	0.583
TH-231	-6.842E-02		2.977E-01	4.835E-01	7.985E-02	-0.141
U-231	-3.161E-01		1.379E-01	1.845E-01	1.498E-02	-1.713
TH-232	3.730E-02		6.406E-02	1.151E-01	1.352E-02	0.324
PA-233	-1.051E-03		2.728E-02	4.518E-02	2.790E-03	-0.023
PA-234	-6.497E-02		1.294E-01	1.962E-01	3.708E-02	-0.331
PA-234M	-1.513E+00		2.031E+00	2.943E+00	2.845E-01	-0.514
TH-234	-1.043E-01		4.282E-01	7.002E-01	1.204E-01	-0.149
U-234	-1.487E-02		3.795E-02	5.552E-02	4.395E-03	-0.268
U-235	1.155E-02		8.663E-02	1.404E-01	2.310E-02	0.082
NP-236	-1.450E-02		3.310E-02	5.096E-02	2.848E-03	-0.285
NP-237	-2.624E-03		7.989E-02	1.292E-01	2.888E-02	-0.020
U-238	-1.043E-01		4.282E-01	7.002E-01	1.204E-01	-0.149
NP-239	-3.230E-02		7.535E-02	1.171E-01	8.459E-03	-0.276
AM-241	-5.085E-02		4.797E-02	6.715E-02	4.985E-03	-0.757



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	6.997E-03		1.703E-02	2.849E-02	2.138E-03	0.246
CM-243	-1.104E-02		3.395E-02	5.325E-02	4.094E-03	-0.207
AM-246	1.905E-02		4.980E-02	8.905E-02	6.380E-03	0.214
CM-247	1.520E-02		1.504E-02	2.752E-02	1.512E-03	0.552
CF-249	-6.497E-03		1.718E-02	2.717E-02	1.486E-03	-0.239
CF-251	-2.029E-02		5.755E-02	8.603E-02	4.666E-03	-0.236

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202015435          *
* Acquisition date   : 22-JAN-2010 09:49:06 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 02:00:00.49 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202015435 Analyst initials: MXR1                *
* Batch Number       : 941635 Sample Quantity: 1.5581E+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 :                              *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
ANH-511	5.092E-03	3.444E-02	1.174E-02	1.757E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	-2.919E-02	1.236E-01	1.044E-01	6.307E-02	NOT IDENT.
NA-22	5.450E-03	1.881E-02	1.682E-02	9.597E-03	NOT IDENT.
NA-24	1.192E+01	7.307E+01	0.000E+00	3.728E+01	SHORT HLIF
AL-26	-5.303E-03	1.346E-02	9.451E-03	6.869E-03	NOT IDENT.
K-40	1.368E-01	2.409E-01	2.214E-01	1.229E-01	NOT IDENT.
TI-44	-6.512E-03	1.135E-02	9.423E-03	5.791E-03	NOT IDENT.
SC-46	4.462E-03	1.550E-02	1.413E-02	7.908E-03	NOT IDENT.
V-48	4.972E-03	2.025E-02	1.830E-02	1.033E-02	NOT IDENT.
CR-51	-3.633E-02	1.299E-01	1.127E-01	6.626E-02	NOT IDENT.
MN-52	-3.201E-02	4.580E-02	3.235E-02	2.336E-02	NOT IDENT.
MN-54	1.443E-03	1.343E-02	1.198E-02	6.850E-03	NOT IDENT.
CO-56	-1.704E-03	1.778E-02	1.539E-02	9.073E-03	NOT IDENT.
CO-57	-5.254E-04	9.276E-03	8.175E-03	4.733E-03	NOT IDENT.
CO-58	-1.286E-03	1.755E-02	1.458E-02	8.955E-03	NOT IDENT.
FE-59	-1.803E-02	3.121E-02	2.380E-02	1.592E-02	NOT IDENT.
CO-60	2.640E-05	1.543E-02	1.309E-02	7.875E-03	NOT IDENT.
ZN-65	3.845E-03	3.504E-02	3.066E-02	1.788E-02	NOT IDENT.
GE-68	-7.751E-02	3.849E-01	3.160E-01	1.964E-01	NOT IDENT.
AS-73	5.701E-02	1.961E-01	1.841E-01	1.000E-01	NOT IDENT.
AS-74	6.229E-03	3.344E-02	2.933E-02	1.706E-02	NOT IDENT.
SE-75	7.163E-03	1.875E-02	1.644E-02	9.566E-03	NOT IDENT.
BR-77	-1.807E-01	5.512E-01	4.286E-01	2.812E-01	NOT IDENT.
SR-82	2.205E-02	1.214E-01	1.055E-01	6.194E-02	NOT IDENT.
RB-83	-7.180E-03	3.102E-02	2.613E-02	1.583E-02	NOT IDENT.
RB-84	2.173E-03	2.606E-02	2.306E-02	1.330E-02	NOT IDENT.
KR-85	7.946E+00	4.497E+00	4.064E+00	2.294E+00	NOT IDENT.

SR-85	3.757E-02	2.126E-02	1.922E-02	1.085E-02	NOT IDENT.
RB-86	-6.871E-02	1.994E-01	1.587E-01	1.017E-01	NOT IDENT.
Y-88	2.114E-03	1.819E-02	1.550E-02	9.281E-03	NOT IDENT.
ZR-88	1.026E-02	1.110E-02	1.078E-02	5.665E-03	NOT IDENT.
Y-91	-1.743E+00	5.208E+00	4.103E+00	2.657E+00	NOT IDENT.
NB-94	8.784E-03	1.618E-02	1.467E-02	8.254E-03	NOT IDENT.
NB-95	4.675E-03	1.626E-02	1.431E-02	8.298E-03	NOT IDENT.
NB-95M	-3.516E-02	4.787E-02	4.106E-02	2.443E-02	NOT IDENT.
ZR-95	1.585E-02	2.722E-02	2.507E-02	1.389E-02	NOT IDENT.
NB-97	1.080E+01	2.028E+01	0.000E+00	1.035E+01	SHORT HLIF
ZR-97	7.218E+02	4.537E+02	0.000E+00	2.315E+02	SHORT HLIF
MO-99	7.946E-02	6.613E-01	5.706E-01	3.374E-01	NOT IDENT.
TC-99M	1.420E+06	9.288E+06	0.000E+00	4.739E+06	SHORT HLIF
RH-101	1.633E-03	1.384E-02	1.188E-02	7.060E-03	NOT IDENT.
RH-102	9.892E-03	1.215E-02	1.159E-02	6.198E-03	NOT IDENT.
RU-103	-3.874E-03	1.505E-02	1.263E-02	7.678E-03	NOT IDENT.
RH-106	-5.731E-02	1.565E-01	1.276E-01	7.984E-02	FAIL ABUN
RU-106	-5.731E-02	1.564E-01	1.276E-01	7.979E-02	FAIL ABUN
AG-108M	-7.491E-03	1.418E-02	1.164E-02	7.234E-03	NOT IDENT.
CD-109	-5.920E-01	2.916E-01	2.205E-01	1.488E-01	NOT IDENT.
AG-110M	7.479E-03	1.405E-02	1.290E-02	7.166E-03	NOT IDENT.
IN-111	-5.399E-03	6.161E-02	5.531E-02	3.144E-02	NOT IDENT.
IN-113M	7.302E-03	1.702E-02	1.569E-02	8.682E-03	NOT IDENT.
SN-113	7.302E-03	1.702E-02	1.569E-02	8.682E-03	NOT IDENT.
IN-114M	-8.600E-02	6.963E-02	5.828E-02	3.553E-02	NOT IDENT.
CD-115	4.539E-01	4.256E-01	4.153E-01	2.171E-01	NOT IDENT.
SN-117M	6.482E-03	1.553E-02	1.401E-02	7.922E-03	NOT IDENT.
SB-122	7.530E-03	1.279E-01	1.110E-01	6.525E-02	NOT IDENT.
I-123	6.077E+01	1.362E+02	0.000E+00	6.949E+01	SHORT HLIF
TE-123M	5.003E-03	1.121E-02	1.015E-02	5.721E-03	NOT IDENT.
I-124	1.255E-02	9.647E-02	8.389E-02	4.922E-02	NOT IDENT.
SB-124	-7.766E-03	4.090E-02	3.239E-02	2.087E-02	NOT IDENT.
SB-125	-1.125E-02	3.642E-02	3.069E-02	1.858E-02	NOT IDENT.
TE-125M	-5.395E-01	3.277E+00	2.880E+00	1.672E+00	NOT IDENT.
I-126	-2.027E-03	4.934E-02	4.176E-02	2.517E-02	NOT IDENT.
SB-126	-8.446E-03	4.060E-02	3.329E-02	2.072E-02	NOT IDENT.
SN-126	-4.277E-02	2.750E-02	2.170E-02	1.403E-02	NOT IDENT.
SB-127	-6.580E-02	1.580E-01	1.262E-01	8.063E-02	NOT IDENT.
XE-127	-4.154E-03	1.554E-02	1.391E-02	7.928E-03	NOT IDENT.
I-131	-2.911E-02	2.679E-02	2.099E-02	1.367E-02	NOT IDENT.
TE-132	-6.089E-04	5.255E-02	4.767E-02	2.681E-02	NOT IDENT.
BA-133	-6.913E-03	1.815E-02	1.544E-02	9.258E-03	NOT IDENT.
I-133	-7.211E-01	5.309E+00	0.000E+00	2.709E+00	SHORT HLIF
CS-134	1.318E-03	2.123E-02	1.802E-02	1.083E-02	NOT IDENT.
CS-135	-6.192E-02	6.352E-02	5.216E-02	3.241E-02	NOT IDENT.
I-135	6.692E+06	7.819E+06	0.000E+00	3.989E+06	SHORT HLIF
CS-136	1.379E-02	2.943E-02	2.738E-02	1.502E-02	NOT IDENT.
BA-137M	-7.227E-03	1.542E-02	1.222E-02	7.869E-03	NOT IDENT.
CS-137	-7.640E-03	1.630E-02	1.292E-02	8.318E-03	NOT IDENT.
CE-139	2.608E-03	1.134E-02	1.009E-02	5.788E-03	NOT IDENT.
BA-140	3.157E-02	6.425E-02	5.882E-02	3.278E-02	NOT IDENT.
LA-140	1.436E-03	2.896E-02	2.447E-02	1.478E-02	NOT IDENT.
CE-141	7.621E-03	2.043E-02	1.848E-02	1.042E-02	NOT IDENT.
CE-143	1.624E+00	1.081E+00	1.047E+00	5.514E-01	NOT IDENT.
CE-144	-1.913E-02	7.711E-02	6.655E-02	3.934E-02	NOT IDENT.
PM-144	2.968E-03	1.589E-02	1.383E-02	8.109E-03	NOT IDENT.
PR-144	2.003E-01	1.073E+00	9.333E-01	5.472E-01	NOT IDENT.
PM-146	-1.129E-02	1.942E-02	1.579E-02	9.906E-03	NOT IDENT.
ND-147	-1.247E-01	1.482E-01	1.122E-01	7.559E-02	NOT IDENT.
PM-149	5.699E-01	3.572E+00	3.246E+00	1.822E+00	NOT IDENT.
EU-152	-2.401E-02	4.305E-02	3.617E-02	2.197E-02	NOT IDENT.
GD-153	1.279E-02	2.963E-02	2.731E-02	1.512E-02	NOT IDENT.
EU-154	1.528E-02	5.276E-02	4.717E-02	2.692E-02	NOT IDENT.
EU-155	6.994E-03	3.769E-02	3.412E-02	1.923E-02	NOT IDENT.
TB-160	1.632E-02	5.581E-02	5.091E-02	2.847E-02	NOT IDENT.
HO-166M	8.350E-03	3.340E-02	2.857E-02	1.704E-02	NOT IDENT.
TM-171	-1.320E+01	9.163E+00	7.272E+00	4.675E+00	NOT IDENT.
LU-176	-1.354E-03	9.284E-03	8.170E-03	4.737E-03	NOT IDENT.
LU-177	-6.193E-02	1.922E-01	1.627E-01	9.807E-02	NOT IDENT.
LU-177M	-1.838E-02	7.080E-02	6.035E-02	3.612E-02	NOT IDENT.
HF-181	2.435E-03	1.506E-02	1.338E-02	7.685E-03	NOT IDENT.
W-181	-1.079E-02	1.139E-01	1.009E-01	5.811E-02	NOT IDENT.
TA-182	4.446E-03	6.102E-02	5.285E-02	3.113E-02	NOT IDENT.
RE-183	-1.703E-02	3.905E-02	3.278E-02	1.992E-02	NOT IDENT.
RE-184	-1.197E-02	9.146E-02	8.168E-02	4.666E-02	NOT IDENT.
OS-185	6.723E-03	1.727E-02	1.556E-02	8.811E-03	NOT IDENT.
RE-188	2.778E-02	6.439E-02	5.826E-02	3.285E-02	NOT IDENT.
W-188	-1.362E+00	2.904E+00	2.497E+00	1.482E+00	NOT IDENT.

IR-192	-4.297E-03	1.415E-02	1.227E-02	7.219E-03	NOT IDENT.
AU-195	1.086E-02	7.965E-02	7.196E-02	4.064E-02	NOT IDENT.
TL-200	8.168E-01	1.481E+00	1.379E+00	7.554E-01	NOT IDENT.
TL-201	4.411E-01	4.763E-01	4.466E-01	2.430E-01	NOT IDENT.
TL-202	1.530E-02	1.981E-02	1.875E-02	1.011E-02	NOT IDENT.
HG-203	-6.215E-03	1.545E-02	1.341E-02	7.882E-03	NOT IDENT.
BI-207	9.331E-03	2.063E-02	1.918E-02	1.052E-02	NOT IDENT.
TL-207	-6.842E-02	2.917E-01	2.543E-01	1.488E-01	NOT IDENT.
TL-208	9.810E-03	1.776E-02	1.564E-02	9.061E-03	FAIL ABUN
PO-209	-1.437E+00	3.312E+00	2.697E+00	1.690E+00	NOT IDENT.
BI-210	-8.903E-01	9.781E-01	8.644E-01	4.990E-01	NOT IDENT.
PB-210	-8.903E-01	9.781E-01	8.644E-01	4.990E-01	NOT IDENT.
PO-210	-8.903E-01	9.775E-01	8.644E-01	4.987E-01	NOT IDENT.
BI-211	1.282E-02	8.312E-02	7.483E-02	4.241E-02	NOT IDENT.
PB-211	-2.429E-01	4.157E-01	3.175E-01	2.121E-01	NOT IDENT.
BI-212	-5.662E-02	1.510E-01	1.150E-01	7.706E-02	NOT IDENT.
PB-212	2.573E-02	2.920E-02	2.588E-02	1.490E-02	NOT IDENT.
PO-212	2.573E-02	2.920E-02	2.588E-02	1.490E-02	NOT IDENT.
BI-214	-1.487E-02	3.719E-02	2.871E-02	1.898E-02	NOT IDENT.
PB-214	4.180E-03	2.925E-02	2.630E-02	1.492E-02	NOT IDENT.
PO-214	4.180E-03	2.925E-02	2.630E-02	1.492E-02	NOT IDENT.
PO-215	-6.842E-02	2.917E-01	2.543E-01	1.488E-01	NOT IDENT.
PO-216	2.573E-02	2.920E-02	2.588E-02	1.490E-02	NOT IDENT.
PO-218	4.180E-03	2.925E-02	2.630E-02	1.492E-02	NOT IDENT.
RN-219	1.546E-01	1.636E-01	1.577E-01	8.349E-02	NOT IDENT.
RN-220	1.155E+01	1.142E+01	1.107E+01	5.827E+00	NOT IDENT.
RA-223	-6.842E-02	2.917E-01	2.543E-01	1.488E-01	NOT IDENT.
RA-224	-9.426E-02	2.852E-01	2.522E-01	1.455E-01	NOT IDENT.
RA-226	-1.487E-02	3.719E-02	2.871E-02	1.898E-02	NOT IDENT.
AC-227	1.568E-01	1.629E-01	1.567E-01	8.310E-02	NOT IDENT.
TH-227	1.568E-01	1.635E-01	1.567E-01	8.344E-02	NOT IDENT.
AC-228	3.730E-02	6.278E-02	5.886E-02	3.203E-02	NOT IDENT.
RA-228	3.730E-02	6.278E-02	5.886E-02	3.203E-02	NOT IDENT.
TH-228	2.593E-02	2.942E-02	2.607E-02	1.501E-02	NOT IDENT.
TH-229	-1.608E-01	2.121E-01	1.741E-01	1.082E-01	NOT IDENT.
TH-230	-1.487E-02	3.719E-02	2.871E-02	1.898E-02	NOT IDENT.
PA-231	7.217E-01	6.771E-01	6.529E-01	3.455E-01	NOT IDENT.
TH-231	-6.842E-02	2.917E-01	2.543E-01	1.488E-01	NOT IDENT.
U-231	-3.161E-01	1.351E-01	1.001E-01	6.893E-02	NOT IDENT.
TH-232	3.730E-02	6.278E-02	5.886E-02	3.203E-02	NOT IDENT.
PA-233	-1.051E-03	2.673E-02	2.378E-02	1.364E-02	NOT IDENT.
PA-234	-6.497E-02	1.268E-01	1.002E-01	6.468E-02	NOT IDENT.
PA-234M	-1.513E+00	1.990E+00	1.501E+00	1.016E+00	NOT IDENT.
TH-234	-1.043E-01	4.197E-01	3.836E-01	2.141E-01	NOT IDENT.
U-234	-1.487E-02	3.719E-02	2.871E-02	1.898E-02	NOT IDENT.
U-235	1.155E-02	8.489E-02	7.536E-02	4.331E-02	NOT IDENT.
NP-236	-1.450E-02	3.244E-02	2.728E-02	1.655E-02	NOT IDENT.
NP-237	-2.624E-03	7.829E-02	7.024E-02	3.995E-02	NOT IDENT.
U-238	-1.043E-01	4.197E-01	3.836E-01	2.141E-01	NOT IDENT.
NP-239	-3.230E-02	7.384E-02	6.317E-02	3.768E-02	NOT IDENT.
AM-241	-5.085E-02	4.701E-02	3.684E-02	2.399E-02	NOT IDENT.
AM-243	6.997E-03	1.669E-02	1.555E-02	8.513E-03	NOT IDENT.
CM-243	-1.104E-02	3.327E-02	2.882E-02	1.698E-02	NOT IDENT.
AM-246	1.905E-02	4.880E-02	4.532E-02	2.490E-02	NOT IDENT.
CM-247	1.520E-02	1.474E-02	1.439E-02	7.520E-03	NOT IDENT.
CF-249	-6.497E-03	1.683E-02	1.422E-02	8.589E-03	NOT IDENT.
CF-251	-2.029E-02	5.640E-02	4.595E-02	2.878E-02	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
 \*\*\*\*\*

ENERGY	MDA COUNTS
46.50	79.2537
46.50	79.2537
46.50	79.2537
48.70	87.6092
49.72	114.2304
51.35	78.6794
52.39	72.6333
52.97	71.6566
53.15	74.7425
53.44	68.6213
54.07	73.7935
56.28	82.1895
56.28	82.1897
57.37	83.3140
57.53	83.3281
57.53	83.3282
57.60	83.3343
57.98	86.4555
57.98	86.4555
59.32	96.8839
59.32	96.8839
59.40	96.8920
59.54	95.8752
59.72	95.8931
60.01	105.2046
61.10	87.7691
61.14	87.7727
61.30	87.7871
63.00	82.7657
63.29	88.9992
63.29	88.9992
63.58	84.8843
64.28	89.0874
65.12	99.5293
65.20	99.5372
65.20	99.5372
66.05	108.9599
66.72	117.3382
66.83	117.3511
66.91	106.9743
67.20	109.0823
67.20	109.0823
67.75	98.7461
67.85	98.7555
68.90	103.0179
68.90	103.0179
69.30	100.9752
69.67	99.9697
70.82	94.8661
70.82	94.8661
70.83	94.8668
72.80	100.2640
72.87	100.2704
72.87	100.2704
74.67	92.0673
74.81	92.0790
74.81	92.0790
74.81	92.0790
74.81	92.0790
74.81	92.0790
74.81	92.0790
74.81	92.0790
74.97	80.5809
75.28	83.7440
75.70	96.3423
77.11	103.8049
77.11	103.8049

77.11	103.8049
77.11	103.8049
77.11	103.8049
77.11	103.8049
77.11	103.8049
78.38	101.8233
79.62	105.0880
79.80	105.1048
79.80	105.1048
80.11	110.3901
80.18	110.3969
80.30	110.4085
80.30	110.4085
80.57	122.0039
81.00	125.2064
81.07	125.2141
81.07	125.2141
81.07	125.2141
81.07	125.2141
82.60	86.3968
83.37	86.4537
83.78	94.9219
83.78	94.9219
83.78	94.9219
83.78	94.9219
84.21	98.1221
84.90	93.9572
85.43	91.8869
86.29	98.2952
86.50	104.6554
86.54	104.6592
86.59	104.6633
86.72	111.0190
86.79	111.0250
86.94	117.3845
87.30	129.0558
87.30	129.0558
87.30	129.0558
87.30	129.0558
87.30	129.0558
87.30	129.0558
87.57	133.3174
87.88	138.6438
88.03	153.4795
88.36	146.1107
88.47	180.0076
89.95	150.5435
91.11	98.6890
92.29	96.6594
92.38	103.0403
92.38	103.0403
93.35	108.4365
94.00	114.8752
94.67	131.9638
94.67	131.9643
94.90	135.1817
94.90	135.1817
94.90	135.1817
94.90	135.1817
95.87	180.0267
95.87	180.0267
96.73	144.9726
97.43	93.8572
98.44	76.8529
98.44	76.8529
98.88	85.4214
99.55	91.8760
99.55	91.8760
99.86	85.4865
100.00	83.3585
100.10	83.3651
103.18	82.4907
103.76	77.1682
105.00	76.1677
105.31	74.0392
108.00	83.8646
109.28	93.6299

111.00	86.2048
111.00	86.2048
111.76	85.1743
112.95	88.4849
115.19	87.5463
116.30	81.1255
117.00	90.9057
117.00	90.9057
117.66	96.3616
121.11	72.7167
121.62	71.6568
121.78	73.8362
122.06	77.1086
122.32	73.8637
122.32	73.8637
122.32	73.8637
122.32	73.8637
123.07	70.6415
127.23	75.2008
129.76	75.3282
131.20	69.9365
133.02	88.6197
133.54	84.2716
135.34	93.1367
136.00	97.5610
136.25	97.5767
136.48	96.4951
140.51	91.2473
140.51	0.0000
142.18	93.5446
142.65	102.3793
143.76	90.3331
144.24	88.1561
144.24	88.1561
144.24	88.1561
144.24	88.1561
145.22	82.6967
145.44	77.1943
147.16	88.3160
152.43	79.7410
152.70	79.7542
153.22	91.9673
154.21	89.8050
154.21	89.8050
154.21	89.8050
154.21	89.8050
155.03	82.0847
156.02	77.6936
158.56	84.4801
159.00	0.0000
159.00	81.1665
160.31	90.1307
161.27	83.5018
162.32	80.2106
162.64	76.8827
163.35	92.5208
163.89	93.6643
165.85	75.9096
167.43	65.9226
171.28	87.3424
171.86	91.8515
172.10	91.8640
176.55	87.6006
176.60	87.6030
181.06	113.4877
184.41	78.5034
185.71	79.4616
186.00	75.8615
190.27	114.0514
192.34	70.6804
193.63	84.3301
197.04	64.4959
198.01	71.7989
198.60	72.7300
200.40	84.6269
201.83	87.4207
202.84	79.2659
205.31	63.8575

208.36	72.1786
208.81	69.4534
209.75	73.1431
209.75	73.1431
210.97	72.2727
215.65	59.6029
216.55	68.8028
218.09	77.1171
222.10	64.3898
223.80	73.6484
226.40	78.3490
227.00	73.7612
227.08	73.7642
227.20	73.7681
228.16	69.1891
228.18	69.1901
228.18	69.1901
231.56	72.9964
235.69	99.0599
236.00	84.2594
236.00	84.2594
238.63	65.8210
238.63	65.8210
238.63	65.8210
238.63	65.8210
239.00	72.3228
240.98	94.6625
241.98	103.9910
241.98	103.9910
241.98	103.9910
244.69	59.4969
245.39	61.3759
247.94	62.3778
248.90	60.5420
249.79	60.5662
252.40	63.4354
252.85	63.4483
252.85	63.4483
254.15	0.0000
256.20	56.0671
256.20	56.0671
260.50	78.6423
260.90	73.9747
262.80	66.5382
264.65	55.3370
268.24	73.2707
268.79	65.7720
269.46	52.6326
269.46	52.6326
269.46	52.6326
269.46	52.6326
271.23	55.4940
273.65	60.2594
276.40	65.0429
277.35	57.5241
277.60	67.9052
277.60	67.9052
278.00	70.7465
278.60	70.7639
279.20	69.8384
279.53	69.8474
280.46	64.2090
281.68	63.2975
283.67	52.0036
284.30	55.8001
285.00	53.9246
285.90	61.5159
286.10	67.1995
286.10	67.1995
287.40	72.9178
288.45	0.0000
290.67	67.3261
290.80	67.3295
291.72	55.0221
293.26	37.9702
293.70	45.5725
295.21	54.1507
295.21	54.1507



295.21	54.1507
295.96	59.8685
296.50	63.6835
297.23	53.2437
298.57	50.4192
299.80	54.2509
299.80	54.2509
300.09	40.9308
300.09	40.9308
300.09	40.9308
300.09	40.9308
300.12	40.9314
301.29	39.9984
302.84	40.0230
303.76	47.6642
303.91	51.4800
304.40	52.4440
304.40	52.4440
304.84	50.5454
306.84	43.9044
308.46	53.4830
311.98	51.6448
316.51	59.4003
318.01	50.8074
319.02	46.0318
319.41	54.6712
320.08	54.6851
323.87	60.5298
323.87	60.5298
323.87	60.5298
323.87	60.5298
325.23	52.8710
328.77	65.4558
333.44	55.9284
334.20	57.8738
334.20	57.8738
334.30	57.8760
338.28	57.9617
338.28	57.9617
338.28	57.9617
338.28	57.9617
338.32	56.0310
338.32	56.0310
338.32	56.0310
340.50	49.3085
340.57	49.3098
344.27	59.0588
345.85	59.0930
350.59	40.7577
351.07	44.6473
351.92	45.6322
351.92	45.6322
351.92	45.6322
355.39	0.0000
356.01	49.5887
364.48	59.4921
366.43	37.0866
367.43	38.0759
367.94	41.0120
369.80	51.7876
374.96	39.1558
383.85	33.3849
387.95	45.2313
388.63	46.2255
391.69	33.4746
391.69	33.4746
392.90	26.5936
398.62	42.4347
400.65	30.6133
401.10	29.6301
401.81	27.6613
402.60	27.6688
404.84	45.4896
410.95	33.6908
411.60	31.7160
413.65	40.6632
414.70	31.7480
415.30	44.6545

415.76	42.6767
417.63	0.0000
418.52	38.7415
423.70	40.7968
427.08	35.8603
427.89	34.8735
432.53	32.9295
433.93	41.9287
439.47	32.0020
439.56	32.0031
439.89	33.0064
443.98	44.0655
444.90	45.0797
445.03	45.0818
445.03	45.0818
445.03	45.0818
445.03	45.0818
453.90	43.1968
463.38	37.2778
468.07	25.2237
473.00	33.3448
475.06	25.2771
475.35	31.3463
476.78	33.3827
477.59	34.4026
477.96	33.3948
482.03	27.3560
484.57	44.6139
487.03	24.3524
490.36	28.4392
492.35	31.5048
497.08	32.5660
507.63	0.0000
510.53	0.0000
510.84	38.8264
511.00	38.8282
511.85	38.8375
511.85	38.8375
513.99	42.6109
513.99	42.6109
520.41	38.9324
520.65	38.4229
527.90	21.5609
528.96	0.0000
529.64	27.7343
529.87	0.0000
531.02	34.9380
537.32	18.5291
543.00	26.8062
546.56	0.0000
549.76	21.6916
552.65	25.8435
555.20	44.4823
563.23	34.2117
563.90	31.1067
568.70	30.1087
569.32	29.0753
569.50	31.1536
569.67	31.1550
573.80	38.4670
574.00	39.5085
574.64	38.4751
578.91	39.5604
579.30	40.6053
583.14	21.8864
585.48	35.4568
591.81	31.3374
592.07	33.4289
593.00	34.4816
595.88	34.5074
600.56	47.1127
602.52	0.0000
602.71	41.9014
602.71	41.9014
603.60	34.5767
604.41	40.8719
604.70	40.8748
609.31	37.7754

609.31	37.7754
609.31	37.7754
609.31	37.7754
610.33	45.1322
612.46	36.7551
614.37	42.0264
618.01	36.8073
621.84	36.8431
621.84	36.8431
631.29	24.2685
633.02	22.1674
633.10	22.1679
634.78	26.4014
635.90	26.4087
636.97	25.3594
645.85	23.2971
646.12	21.1807
656.30	22.2951
657.75	19.1166
657.90	0.0000
661.65	28.7027
661.65	28.7027
664.57	22.3397
666.33	23.4137
666.33	23.4137
675.00	28.7943
677.61	25.6113
685.20	29.9339
692.80	31.0582
695.00	26.7883
696.49	27.8694
696.49	27.8694
697.00	24.6565
697.49	21.4429
698.33	37.5327
698.50	37.5344
699.00	33.2486
702.63	26.8359
706.10	34.3773
706.58	0.0000
706.67	36.5309
709.31	40.8537
711.68	25.8164
713.82	23.6769
717.42	33.3901
720.50	24.7907
721.93	19.4080
722.20	16.1744
722.78	18.3331
722.78	18.3331
722.89	18.3339
722.95	18.3339
723.30	20.4927
724.18	22.6545
727.18	30.2265
733.00	24.8615
735.90	20.5512
739.58	17.3207
742.81	14.0832
744.21	19.5060
747.13	13.0125
751.79	22.7955
752.31	21.7124
753.82	23.8917
755.35	18.4680
756.15	16.2982
756.87	13.0406
763.93	28.2991
765.79	20.6885
766.42	25.0473
766.84	22.8713
776.49	16.3711
778.00	15.2848
778.57	16.3784
778.89	16.3799
783.80	20.7697
785.46	13.1224
792.07	22.9969

795.84	24.1114
796.30	17.5375
798.80	21.9336
801.93	29.6301
805.60	25.2601
810.29	23.0867
810.76	24.1882
815.85	17.4267
817.79	21.1044
818.51	20.1899
819.60	18.3586
826.30	20.2226
828.27	19.3115
831.60	14.7236
831.96	15.6452
834.83	15.6542
836.80	0.0000
846.75	25.8472
848.13	24.9313
856.28	0.0000
856.80	22.2002
860.37	19.4393
867.32	14.8317
867.82	15.7604
871.10	23.1923
873.19	19.4897
874.81	11.1406
875.33	0.0000
876.40	16.7164
879.36	16.7263
880.27	19.5175
880.51	19.5183
881.50	18.5925
883.24	21.3889
884.67	21.3950
889.25	15.8282
896.60	22.3784
898.02	13.0575
899.00	8.3958
903.28	17.7394
911.07	19.6367
911.07	19.6367
911.07	19.6367
919.63	15.9230
920.93	27.1692
925.00	9.3762
925.24	9.3766
926.50	11.2546
935.52	17.8508
937.48	11.2786
944.10	21.6444
946.00	19.7695
949.00	21.6645
962.29	20.7749
964.01	22.6709
966.15	22.6797
968.20	13.2349
969.11	15.1283
969.11	15.1283
969.11	15.1283
977.42	16.0987
980.50	14.2130
983.50	13.2728
989.30	14.2361
996.32	13.3044
1001.03	22.8271
1001.68	20.9273
1004.76	11.4214
1021.30	0.0000
1024.50	0.0000
1034.80	14.3542
1036.00	12.4430
1037.82	16.2771
1038.57	19.1520
1038.76	0.0000
1045.16	12.4636
1046.59	9.5898
1048.07	12.4700

1050.47	13.4349
1050.47	13.4349
1062.04	8.6543
1063.62	11.5425
1076.63	11.5688
1077.35	9.6419
1078.86	8.6799
1085.78	12.5530
1099.22	16.4535
1112.02	20.3694
1112.84	16.4916
1115.52	15.5286
1120.29	13.5984
1120.29	13.5984
1120.29	13.5984
1120.29	13.5984
1120.51	12.6276
1121.28	14.5721
1124.00	0.0000
1129.67	10.7015
1131.51	0.0000
1147.95	0.0000
1167.94	13.7072
1173.22	13.7192
1175.09	12.7434
1177.93	14.7107
1189.05	13.7550
1204.90	10.8353
1205.75	8.8663
1213.00	11.8354
1221.42	10.8639
1230.97	9.8914
1235.34	11.8779
1236.41	0.0000
1238.25	11.8833
1246.25	14.8730
1260.41	0.0000
1271.85	13.9373
1274.45	12.9471
1274.54	12.9471
1291.56	11.9824
1298.22	0.0000
1312.09	12.0200
1325.50	4.0148
1325.50	4.0148
1332.49	9.0428
1333.61	9.0447
1360.21	8.0716
1362.66	0.0000
1365.15	9.0872
1368.21	10.1013
1368.53	0.0000
1376.25	9.1022
1384.27	10.1253
1394.10	8.1120
1395.20	7.0991
1407.95	9.1443
1434.06	14.2780
1436.60	11.2225
1457.56	0.0000
1460.81	10.2372
1489.15	13.3613
1509.49	14.4295
1596.49	9.3856
1620.62	4.1847
1678.03	0.0000
1691.02	9.5013
1691.02	9.5013
1706.46	0.0000
1750.46	0.0000
1764.49	4.2619
1764.49	4.2619
1764.49	4.2619
1764.49	4.2619
1770.23	5.3310
1771.40	7.4646
1791.20	0.0000
1808.65	5.3562

1836.01

6.4485

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202015435

Total Uranium Activity	-3.0504E-01	ug/g
Total Uranium Counting Unc.	1.2491E+00	ug/g
Total Uranium Tpu	6.3731E-07	ug/g
Total Uranium Mda	1.1418E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID : G1202015435
*  ANALYST       : MXR1            DETECTOR  : GAM14
*  SAMPLE DATE   : 15-JAN-2010 00:00:00.00 COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 09:49:06.72 SAMPLE ALQT: 155.810 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 5.092E-03
GROSS GAMMA ERROR (pCi/GRAM ) : 1.757E-02
GROSS GAMMA MDA (pCi/GRAM ) : 3.443E-02
GROSS GAMMA DLC (pCi/GRAM ) : 1.617E-02

```



VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 12:26:01.08

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015436.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 10:24:55
Sample ID          : G1202015436      Sample quantity   : 1.55810E+02 GRAM
Detector name      : GAM20            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:32.20  0.4%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 941635           Detector SN#      :
Matrix Spike ID    :                  LCS ID            : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	47.63*	19	377	0.89	95.30	90	9	2.67E-03	190.5	
2	0	63.38*	48	460	0.63	126.75	123	8	6.62E-03	81.7	
3	3	74.94*	254	437	0.98	149.83	146	20	3.53E-02	14.2	1.87E+00
4	3	77.21*	414	301	0.92	154.37	146	20	5.75E-02	8.2	
5	0	84.07*	74	311	1.00	168.05	166	6	1.03E-02	40.7	
6	0	86.91	96	436	1.10	173.73	172	7	1.33E-02	37.5	
7	0	93.28*	145	612	1.27	186.45	181	10	2.02E-02	34.8	
8	0	129.36	59	150	0.96	258.51	256	5	8.13E-03	34.2	
9	0	185.80*	128	282	0.90	371.22	367	9	1.78E-02	26.6	
10	0	208.99	43	166	0.71	417.55	415	6	6.01E-03	49.5	
11	3	238.53*	895	156	1.25	476.56	471	17	1.24E-01	4.1	2.55E+00
12	3	241.42	192	213	1.63	482.32	471	17	2.67E-02	19.9	
13	0	270.23	86	175	1.97	539.88	535	10	1.19E-02	30.9	
14	0	295.28*	241	155	1.19	589.92	585	10	3.35E-02	11.8	
15	0	300.17	87	191	1.51	599.69	595	13	1.20E-02	34.6	
16	0	327.73	50	115	1.06	654.74	652	8	6.88E-03	39.8	
17	0	338.31*	177	158	1.27	675.89	671	12	2.46E-02	16.3	
18	0	351.83*	438	132	1.07	702.89	698	11	6.09E-02	7.1	
19	0	410.23	49	81	1.30	819.57	814	9	6.84E-03	35.9	
20	0	477.39	50	93	1.55	953.79	950	9	7.01E-03	37.1	
21	0	511.05*	87	117	1.79	1021.05	1014	15	1.21E-02	33.9	
22	0	583.38*	296	76	1.48	1165.61	1159	15	4.11E-02	9.0	
23	0	609.07*	322	92	1.34	1216.97	1209	15	4.47E-02	8.8	
24	0	661.66	250	83	1.62	1322.10	1316	11	3.47E-02	9.5	
25	0	727.26*	66	81	1.80	1453.24	1445	16	9.19E-03	32.5	
26	0	770.91	82	99	3.53	1540.52	1530	21	1.13E-02	33.1	
27	0	911.09	191	45	1.64	1820.85	1816	10	2.65E-02	9.8	
28	0	1120.58	97	70	2.86	2239.93	2231	20	1.35E-02	23.4	
29	0	1378.25	23	32	1.60	2755.61	2748	14	3.25E-03	55.0	
30	0	1460.64	1717	23	1.69	2920.54	2914	16	2.39E-01	2.5	
31	0	1588.00	19	11	1.45	3175.58	3172	8	2.70E-03	36.4	
32	0	1764.31	74	0	2.19	3528.70	3523	14	1.03E-02	11.6	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 12:26:05

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015436.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 7-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 10:24:55  
 Sample ID : G1202015436 Sample quantity : 155.81 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA20 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:32.20 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

## 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
BE-7	+	477.59	*	4.493E-01	3.362E-01	4.164E-01	4.047E-02	1.079
K-40	+	1460.81	*	3.094E+01	3.109E+00	4.293E-01	3.743E-02	72.088
CD-109	+	88.03	*	9.149E-01	6.916E-01	1.044E+00	9.868E-02	0.877
SN-126	+	64.28		2.572E-01	4.219E-01	4.669E-01	6.760E-02	0.551
	+	86.94		3.740E-01	3.206E-01	3.361E-01	1.395E-01	1.113
	+	87.57	*	8.995E-02	6.799E-02	9.571E-02	9.002E-03	0.940
BA-137M	+	661.65	*	2.753E-01	5.896E-02	4.587E-02	4.603E-03	6.001
CS-137	+	661.65	*	2.910E-01	6.234E-02	4.849E-02	4.873E-03	6.001
TL-208		277.35		2.700E-01	2.628E-01	4.582E-01	6.093E-02	0.589
	+	510.84		3.243E-01	2.239E-01	1.562E-01	1.953E-02	2.076
	+	583.14	*	3.142E-01	6.505E-02	3.700E-02	3.804E-03	8.490
		860.37		2.315E-01	2.308E-01	4.109E-01	4.355E-02	0.563
BI-210	+	46.50	*	5.639E-01	2.149E+00	2.396E+00	2.222E-01	0.235
PB-210	+	46.50	*	5.639E-01	2.149E+00	2.396E+00	2.222E-01	0.235
PO-210	+	46.50	*	5.639E-01	2.149E+00	2.396E+00	2.010E-01	0.235
BI-211		72.87		2.946E+00	2.120E+00	3.275E+00	2.586E-01	0.900
	+	351.07	*	2.055E+00	3.520E-01	2.321E-01	2.223E-02	8.856
PB-212	+	74.81		9.443E-01	2.919E-01	3.545E-01	4.375E-02	2.664
	+	77.11		8.852E-01	1.624E-01	2.040E-01	1.687E-02	4.340
	+	87.30		4.160E-01	3.172E-01	4.463E-01	6.117E-02	0.932
	+	238.63	*	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
	+	300.09		1.374E+00	9.640E-01	8.543E-01	9.768E-02	1.608
PO-212	+	74.81		9.443E-01	2.919E-01	3.545E-01	4.375E-02	2.664
	+	77.11		8.852E-01	1.624E-01	2.040E-01	1.687E-02	4.340
	+	87.30		4.160E-01	3.172E-01	4.463E-01	6.117E-02	0.932
	+	115.19		5.173E-01	2.355E+00	3.833E+00	3.219E-01	0.135
	+	238.63	*	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
	+	300.09		1.374E+00	9.640E-01	8.543E-01	9.768E-02	1.608
BI-214	+	609.31	*	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
	+	1120.29		9.940E-01	4.782E-01	3.264E-01	3.531E-02	3.046
	+	1764.49		1.026E+00	2.529E-01	1.816E-01	1.491E-02	5.649
PB-214	+	74.81		1.627E+00	4.943E-01	6.108E-01	6.687E-02	2.664
	+	77.11		1.517E+00	3.015E-01	3.497E-01	3.932E-02	4.340
	+	87.30		7.127E-01	5.415E-01	7.645E-01	9.278E-02	0.932

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		1.187E+00	4.915E-01	3.868E-01	4.326E-02	3.069
	+	295.21		6.709E-01	1.771E-01	1.418E-01	1.655E-02	4.730
	+	351.92	*	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004
	+	74.81		1.627E+00	4.943E-01	6.108E-01	6.687E-02	2.664
	+	77.11		1.517E+00	3.015E-01	3.497E-01	3.932E-02	4.340
	+	87.30		7.127E-01	5.415E-01	7.645E-01	9.278E-02	0.932
PO-216	+	241.98		1.187E+00	4.915E-01	3.868E-01	4.326E-02	3.069
	+	295.21		6.709E-01	1.771E-01	1.418E-01	1.655E-02	4.730
	+	351.92	*	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004
	+	74.81		9.443E-01	2.919E-01	3.545E-01	4.375E-02	2.664
	+	77.11		8.852E-01	1.624E-01	2.040E-01	1.687E-02	4.340
	+	87.30		4.160E-01	3.172E-01	4.463E-01	6.117E-02	0.932
PO-218	+	238.63	*	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
	+	300.09		1.374E+00	9.640E-01	8.543E-01	9.768E-02	1.608
	+	74.81		1.627E+00	4.943E-01	6.108E-01	6.687E-02	2.664
	+	77.11		1.517E+00	3.015E-01	3.497E-01	3.932E-02	4.340
	+	87.30		7.127E-01	5.415E-01	7.645E-01	9.278E-02	0.932
	+	241.98		1.187E+00	4.915E-01	3.868E-01	4.326E-02	3.069
RA-224	+	295.21		6.709E-01	1.771E-01	1.418E-01	1.655E-02	4.730
	+	351.92	*	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004
	+	240.98	*	2.251E+00	9.233E-01	7.312E-01	7.067E-02	3.079
	+	609.31	*	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
	+	1120.29		9.940E-01	4.782E-01	3.264E-01	3.531E-02	3.046
	+	1764.49		1.026E+00	2.529E-01	1.815E-01	1.491E-02	5.649
TH-228	+	74.81		9.585E-01	2.826E-01	3.598E-01	2.928E-02	2.664
	+	77.11		8.984E-01	1.649E-01	2.070E-01	1.712E-02	4.340
	+	87.30		4.223E-01	3.192E-01	4.530E-01	4.246E-02	0.932
	+	238.63	*	9.346E-01	1.259E-01	6.522E-02	6.936E-03	14.328
	+	300.09		1.394E+00	1.273E+00	8.671E-01	5.156E-01	1.608
	+	609.31	*	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
TH-230	+	1120.29		9.940E-01	4.782E-01	3.264E-01	3.531E-02	3.046
	+	1764.49		1.026E+00	2.529E-01	1.815E-01	1.491E-02	5.649
	+	63.29	*	6.498E-01	1.068E+00	1.132E+00	1.966E-01	0.574
	+	92.38		9.004E-01	6.483E-01	5.473E-01	1.004E-01	1.645
	+	609.31	*	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
	+	1120.29		9.940E-01	4.782E-01	3.264E-01	3.531E-02	3.046
U-234	+	1764.49		1.026E+00	2.529E-01	1.815E-01	1.491E-02	5.649
	+	86.50	*	2.641E-01	2.070E-01	2.435E-01	5.509E-02	1.085
	+	95.87		-4.793E-01	6.941E-01	9.467E-01	2.343E-01	-0.506
	+	63.29	*	6.498E-01	1.068E+00	1.132E+00	1.966E-01	0.574
	+	92.38		9.004E-01	6.323E-01	5.473E-01	5.003E-02	1.645
	+	74.67	*	1.531E-01	4.511E-02	5.759E-02	4.635E-03	2.658
AM-243	+	86.72		9.906E+00	7.487E+00	9.118E+00	8.482E-01	1.086
	+	117.66		-2.683E+00	2.649E+00	4.032E+00	3.375E-01	-0.665
	+	142.18		-1.223E+01	1.300E+01	1.976E+01	1.668E+00	-0.619
	+	511.00	*	7.005E-02	4.800E-02	3.375E-02	3.145E-03	2.075

---- 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	*	-9.644E-03	3.648E-02	5.714E-02	4.734E-03	-0.169

---- 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	*		-1.503E-01	3.648E-02	Half-Life too short		
AL-26	1129.67			6.147E-01	1.496E+00	2.312E+00	1.958E-01	0.266
	1808.65	*		-1.106E-02	1.728E-02	2.322E-02	1.886E-03	-0.476
TI-44	67.85			3.636E-03	2.847E-02	4.466E-02	3.360E-03	0.081
	78.38	*		1.633E-01	2.997E-02	4.769E-02	4.002E-03	3.425
SC-46	889.25	*		1.542E-02	2.903E-02	5.031E-02	5.016E-03	0.306
	1120.51	*		1.699E-01	8.096E-02	8.581E-02	7.340E-03	1.980
V-48	944.10			-4.995E-01	6.742E-01	1.023E+00	9.985E-02	-0.488
	983.50	*		-6.051E-02	5.233E-02	7.448E-02	7.118E-03	-0.812
	1312.09			-2.119E-02	5.866E-02	8.978E-02	7.491E-03	-0.236
CR-51	320.08	*		-1.194E-01	2.541E-01	4.078E-01	4.089E-02	-0.293
MN-52	744.21			-4.160E-02	1.646E-01	2.687E-01	2.729E-02	-0.155
	848.13			-2.412E+00	4.753E+00	7.474E+00	7.531E-01	-0.323
	935.52			2.847E-01	1.927E-01	3.552E-01	3.479E-02	0.801
	1246.25			1.462E+00	5.832E+00	9.634E+00	7.915E-01	0.152
	1333.61			-3.188E-01	3.775E+00	5.995E+00	5.023E-01	-0.053
	1434.06	*		3.188E-02	1.578E-01	2.714E-01	2.297E-02	0.117
MN-54	834.83	*		-6.244E-03	2.722E-02	4.423E-02	4.468E-03	-0.141
CO-56	846.75	*		-2.162E-02	2.844E-02	4.348E-02	4.382E-03	-0.497
	977.42			-1.191E+00	2.169E+00	3.350E+00	3.213E-01	-0.356
	1037.82			2.651E-02	2.273E-01	3.763E-01	3.630E-02	0.070
	1175.09			1.355E+00	1.945E+00	3.335E+00	2.683E-01	0.406
	1238.25			8.455E-02	7.202E-02	1.269E-01	1.074E-02	0.666
	1360.21			1.002E-01	7.280E-01	1.242E+00	1.045E-01	0.081
	1771.40			-1.539E-01	1.455E-01	1.739E-01	1.426E-02	-0.885
CO-57	122.06	*		-3.799E-03	1.805E-02	2.870E-02	2.396E-03	-0.132
	136.48			1.673E-03	1.525E-01	2.441E-01	2.210E-02	0.007
CO-58	810.76	*		5.133E-03	3.036E-02	5.118E-02	5.197E-03	0.100
FE-59	142.65			-2.162E+00	2.054E+00	3.062E+00	2.586E-01	-0.706
	192.34			1.551E-01	6.395E-01	1.095E+00	1.503E-01	0.142
	1099.22	*		1.733E-04	7.130E-02	1.162E-01	1.096E-02	0.001
	1291.56			-7.739E-02	9.387E-02	1.351E-01	1.285E-02	-0.573
CO-60	1173.22			1.718E-02	4.046E-02	6.787E-02	5.456E-03	0.253
	1332.49	*		2.092E-02	2.942E-02	5.149E-02	4.313E-03	0.406
ZN-65	1115.52	*		-1.823E-02	8.266E-02	1.127E-01	9.700E-03	-0.162
GE-68	1077.35	*		2.001E-01	8.638E-01	1.445E+00	1.289E-01	0.139
AS-73	53.44	*		2.300E-01	4.047E-01	6.831E-01	5.071E-02	0.337
AS-74	595.88	*		4.923E-02	7.065E-02	1.194E-01	1.169E-02	0.412
	634.78			-7.354E-02	2.261E-01	3.700E-01	3.680E-02	-0.199
SE-75	66.05			-2.305E+00	3.181E+00	4.494E+00	4.252E-01	-0.513
	96.73			-5.414E-01	5.751E-01	7.765E-01	1.072E-01	-0.697
	121.11			3.667E-02	9.464E-02	1.548E-01	1.705E-02	0.237
	136.00			1.083E-02	2.808E-02	4.574E-02	3.864E-03	0.237
	198.60			1.759E-02	1.300E+00	2.174E+00	2.188E-01	0.008
	264.65	*		-8.997E-03	3.204E-02	4.872E-02	4.824E-03	-0.185
	279.53			9.132E-03	7.318E-02	1.229E-01	1.258E-02	0.074
	303.91			4.941E-01	1.616E+00	2.420E+00	2.994E-01	0.204
	400.65			3.534E-02	1.779E-01	2.956E-01	3.244E-02	0.120
BR-77	87.88	+		1.875E+02	1.417E+02	2.013E+02	1.901E+01	0.932

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		200.40		-6.219E+01	1.079E+02	1.776E+02	1.633E+01	-0.350
	+	239.00		1.402E+02	1.780E+01	2.420E+01	2.335E+00	5.792
		249.79		2.919E+01	4.392E+01	7.602E+01	7.410E+00	0.384
		281.68		-8.359E+01	5.883E+01	8.872E+01	8.823E+00	-0.942
		297.23		1.375E+02	5.496E+01	7.470E+01	7.350E+00	1.840
		303.76		3.776E+01	1.305E+02	1.953E+02	1.910E+01	0.193
		439.47		2.448E+01	9.988E+01	1.657E+02	1.456E+01	0.148
		484.57		7.677E+01	1.555E+02	2.620E+02	2.394E+01	0.293
		520.65	*	-2.120E+00	7.521E+00	1.185E+01	1.112E+00	-0.179
		574.64		6.011E+00	1.416E+02	2.281E+02	2.209E+01	0.026
		578.91		2.682E+00	6.703E+01	9.424E+01	9.149E+00	0.028
		585.48		5.770E+02	1.492E+02	2.705E+02	2.635E+01	2.133
		755.35		-2.004E+01	1.024E+02	1.677E+02	1.704E+01	-0.120
		817.79		-2.503E+01	9.022E+01	1.458E+02	1.477E+01	-0.172
SR-82		698.33		-4.674E+00	2.566E+01	4.210E+01	4.257E+00	-0.111
		776.49	*	3.015E-01	2.946E-01	4.803E-01	4.880E-02	0.628
		1395.20		2.039E+00	6.911E+00	1.207E+01	1.019E+00	0.169
RB-83		520.41	*	-4.090E-03	5.110E-02	8.194E-02	7.685E-03	-0.050
		529.64		-4.048E-02	7.902E-02	1.217E-01	1.148E-02	-0.333
		552.65		9.749E-03	1.407E-01	2.277E-01	2.179E-02	0.043
RB-84		881.50	*	3.952E-03	5.618E-02	9.346E-02	9.339E-03	0.042
KR-85		513.99	*	6.364E+00	6.183E+00	9.575E+00	8.941E-01	0.665
SR-85		513.99	*	3.257E-02	3.164E-02	4.900E-02	4.576E-03	0.665
RB-86		1076.63	*	-9.371E-02	5.737E-01	9.192E-01	8.207E-02	-0.102
Y-88		898.02		2.752E-02	2.819E-02	5.091E-02	5.080E-03	0.540
		1836.01	*	9.874E-03	2.114E-02	3.833E-02	3.093E-03	0.258
ZR-88		392.90	*	1.224E-02	1.955E-02	3.357E-02	2.808E-03	0.365
Y-91		1204.90	*	1.945E+00	1.511E+01	2.497E+01	2.028E+00	0.078
NB-94		702.63	*	1.503E-02	2.530E-02	4.422E-02	4.474E-03	0.340
		871.10		5.142E-03	2.614E-02	4.402E-02	4.412E-03	0.117
NB-95		765.79	*	2.980E-02	3.467E-02	5.501E-02	5.590E-03	0.542
NB-95M		235.69	*	1.186E-02	9.524E-02	1.423E-01	1.529E-02	0.083
ZR-95		724.18		-7.977E-03	8.248E-02	1.188E-01	1.281E-02	-0.067
		756.15	*	-5.732E-03	4.820E-02	7.957E-02	8.684E-03	-0.072
NB-97		657.90	*	-2.600E-03	4.820E-02	Half-Life	too short	
		1024.50		-2.570E+00	4.820E-02	Half-Life	too short	
ZR-97		254.15		-1.240E+00	4.820E-02	Half-Life	too short	
		355.39		-3.973E-01	4.820E-02	Half-Life	too short	
		507.63	*	6.936E-01	4.820E-02	Half-Life	too short	
		602.52		-2.303E+00	4.820E-02	Half-Life	too short	
		1021.30		-7.066E-01	4.820E-02	Half-Life	too short	
		1147.95		-1.918E-01	4.820E-02	Half-Life	too short	
		1362.66		3.382E+00	4.820E-02	Half-Life	too short	
		1750.46		1.815E-01	4.820E-02	Half-Life	too short	
MO-99		140.51		-1.089E+01	1.882E+01	2.832E+01	7.826E+00	-0.385
		181.06		5.892E+00	1.317E+01	1.900E+01	3.503E+00	0.310
		366.43		-3.942E+01	5.910E+01	9.267E+01	8.239E+00	-0.425
		739.58	*	-1.318E+00	8.127E+00	1.339E+01	2.157E+00	-0.098
		778.00		8.205E-01	2.694E+01	3.916E+01	3.979E+00	0.021

## ---- 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	*		-1.000E+10	2.694E+01	Half-Life	too short	
RH-101	127.23			-1.799E-02	2.521E-02	3.424E-02	2.857E-03	-0.525
	198.01	*		3.168E-03	2.391E-02	4.021E-02	3.686E-03	0.079
	325.23			-2.155E-02	1.699E-01	2.444E-01	2.333E-02	-0.088
RH-102	418.52			-4.243E-02	2.041E-01	3.283E-01	2.824E-02	-0.129
	475.06	*		7.329E-03	2.815E-02	4.094E-02	3.712E-03	0.179
	631.29			-8.353E-04	3.512E-02	5.588E-02	5.550E-03	-0.015
	697.49			-1.089E-02	5.613E-02	9.192E-02	9.292E-03	-0.118
	766.84			1.349E-01	9.455E-02	1.559E-01	1.585E-02	0.865
	1046.59			-1.331E-02	8.955E-02	1.442E-01	1.320E-02	-0.092
	1112.84			8.759E-02	2.024E-01	3.012E-01	2.597E-02	0.291
RU-103	497.08	*		4.858E-04	2.714E-02	4.400E-02	6.397E-03	0.011
	610.33		+	6.915E+00	1.706E+00	1.894E+00	3.287E-01	3.651
RH-106	511.85		+	3.498E-01	2.397E-01	3.249E-01	3.029E-02	1.077
	621.84	*		1.367E-01	2.342E-01	3.928E-01	5.584E-02	0.348
	1050.47			-2.663E-01	1.835E+00	2.955E+00	2.697E-01	-0.090
RU-106	511.85		+	3.498E-01	2.397E-01	3.249E-01	3.029E-02	1.077
	621.84	*		1.367E-01	2.338E-01	3.928E-01	3.888E-02	0.348
	1050.47			-2.663E-01	1.835E+00	2.955E+00	2.697E-01	-0.090
AG-108M	433.93	*		-3.447E-03	2.485E-02	4.013E-02	3.642E-03	-0.086
	614.37			-3.632E-03	3.262E-02	4.479E-02	4.553E-03	-0.081
	722.95			1.276E-02	3.402E-02	5.166E-02	5.388E-03	0.247
AG-110M	657.75	*		-2.747E-03	2.856E-02	4.141E-02	4.243E-03	-0.066
	677.61			1.700E-01	2.201E-01	3.914E-01	4.024E-02	0.434
	706.67			-1.326E-01	1.549E-01	2.406E-01	2.485E-02	-0.551
	763.93			1.369E-02	1.286E-01	1.890E-01	1.960E-02	0.072
	884.67			-1.743E-02	4.010E-02	6.361E-02	6.503E-03	-0.274
	937.48			-4.431E-02	8.719E-02	1.365E-01	1.373E-02	-0.325
	1384.27			4.263E-02	1.254E-01	1.933E-01	1.677E-02	0.221
IN-111	171.28			3.230E-01	6.725E-01	1.093E+00	9.617E-02	0.296
	245.39	*		-3.736E-01	7.908E-01	1.127E+00	1.094E-01	-0.331
IN-113M	391.69	*		-1.192E-02	2.940E-02	4.669E-02	4.028E-03	-0.255
SN-113	391.69	*		-1.192E-02	2.940E-02	4.669E-02	4.028E-03	-0.255
IN-114M	190.27	*		-9.053E-02	1.401E-01	2.011E-01	1.822E-02	-0.450
CD-115	260.90			-1.982E+01	8.406E+01	1.388E+02	1.365E+01	-0.143
	492.35			-2.474E+00	2.419E+01	3.884E+01	3.570E+00	-0.064
	527.90	*		-3.343E+00	7.621E+00	1.182E+01	1.114E+00	-0.283
SN-117M	156.02			-3.955E-01	1.649E+00	2.592E+00	2.229E-01	-0.153
	158.56	*		3.663E-03	4.003E-02	6.393E-02	5.517E-03	0.057
SB-122	563.90	*		-3.364E-01	1.484E+00	2.338E+00	2.252E-01	-0.144
	692.80			-2.966E+01	2.798E+01	4.220E+01	4.263E+00	-0.703
I-123	159.00	*		-5.976E-02	2.798E+01	Half-Life	too short	
	528.96			-1.430E+02	2.798E+01	Half-Life	too short	
TE-123M	159.00	*		-3.717E-04	2.114E-02	3.357E-02	2.917E-03	-0.011
I-124	602.71	*		-2.350E-01	5.464E-01	7.205E-01	7.074E-02	-0.326
	722.78			1.517E+00	3.466E+00	5.295E+00	5.371E-01	0.286
	1325.50			7.958E+00	2.580E+01	4.307E+01	3.603E+00	0.185
	1376.25			4.439E+01	2.157E+01	4.175E+01	3.517E+00	1.063
	1509.49			1.431E+01	1.076E+01	2.097E+01	1.778E+00	0.683

## ---- 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			1.176E+00	2.273E+00	4.156E+00	3.466E-01	0.283
	602.71			-1.405E-02	3.266E-02	4.308E-02	4.230E-03	-0.326
	645.85			-1.749E-01	3.480E-01	5.607E-01	5.851E-02	-0.312
	709.31			5.619E-01	1.994E+00	3.417E+00	3.460E-01	0.164
	713.82			2.976E-01	1.135E+00	1.942E+00	2.557E-01	0.153
	722.78			1.314E-01	3.003E-01	4.589E-01	4.727E-02	0.286
	968.20			5.476E+00	2.523E+00	4.630E+00	4.463E-01	1.183
	1045.16			7.624E-01	1.914E+00	3.248E+00	2.977E-01	0.235
	1325.50			7.365E-01	2.388E+00	3.986E+00	3.335E-01	0.185
	1368.21			-2.733E-01	1.034E+00	1.662E+00	2.218E-01	-0.165
	1436.60			1.250E+00	2.466E+00	4.422E+00	3.743E-01	0.283
	1691.02	*		2.404E-02	4.648E-02	8.496E-02	7.383E-03	0.283
	427.89	*		1.107E-02	6.541E-02	1.073E-01	9.495E-03	0.103
	463.38			5.517E-01	2.293E-01	4.193E-01	4.037E-02	1.316
SB-125	600.56			3.191E-02	1.374E-01	2.240E-01	2.324E-02	0.142
	635.90			4.118E-02	1.802E-01	3.096E-01	3.269E-02	0.133
	109.28	*		4.019E+00	6.502E+00	1.076E+01	1.100E+00	0.374
	388.63	*		-3.485E-02	1.401E-01	2.257E-01	1.901E-02	-0.154
TE-125M I-126	666.33	*		8.477E-02	1.403E-01	2.196E-01	2.206E-02	0.386
	753.82			-9.494E-02	9.823E-01	1.625E+00	1.652E-01	-0.058
SB-126	223.80			6.015E-01	2.862E+00	4.866E+00	4.616E-01	0.124
	278.60			1.188E+00	1.696E+00	2.930E+00	2.916E-01	0.406
	296.50	+		6.611E+00	1.696E+00	2.376E+00	2.340E-01	2.782
	414.70			2.649E-02	6.028E-02	9.013E-02	7.723E-03	0.294
	415.30			1.611E+00	4.629E+00	7.508E+00	6.437E-01	0.215
	555.20			1.208E+00	3.020E+00	4.822E+00	4.621E-01	0.251
	573.80			-5.005E-01	7.509E-01	1.129E+00	1.093E-01	-0.443
	593.00			-2.608E-01	6.492E-01	9.985E-01	9.760E-02	-0.261
	656.30			2.588E-01	2.640E+00	3.917E+00	3.924E-01	0.066
	666.33			3.541E-02	5.860E-02	9.171E-02	9.214E-03	0.386
	675.00			2.923E-01	1.376E+00	2.353E+00	2.369E-01	0.124
	695.00			-1.899E-04	5.159E-02	8.653E-02	8.744E-03	-0.002
	697.00			-2.260E-02	1.934E-01	3.188E-01	3.222E-02	-0.071
	720.50	*		1.348E-01	1.160E-01	1.903E-01	1.930E-02	0.708
SB-127	856.80			-4.632E-01	3.812E-01	5.595E-01	5.627E-02	-0.828
	989.30			1.221E-01	8.942E-01	1.488E+00	1.417E-01	0.082
	1034.80			-1.175E+00	6.731E+00	1.081E+01	9.988E-01	-0.109
	1213.00			4.323E-01	3.993E+00	6.537E+00	5.321E-01	0.066
	61.10			-1.466E+01	3.342E+01	4.794E+01	4.796E+00	-0.306
	252.40			1.323E+00	3.035E+00	5.114E+00	2.162E+00	0.259
	290.80			-8.811E+00	1.623E+01	2.266E+01	2.746E+00	-0.389
	411.60	+		1.449E+01	1.064E+01	1.543E+01	2.413E+00	0.939
	444.90			3.137E+00	6.333E+00	1.072E+01	1.353E+00	0.293
	473.00			1.308E+00	1.445E+00	2.224E+00	2.917E-01	0.588
	543.00			2.171E+00	1.176E+01	1.924E+01	2.868E+00	0.113
	603.60			-7.065E+00	9.118E+00	1.134E+01	1.511E+00	-0.623
	685.20	*		1.095E-01	9.547E-01	1.618E+00	2.019E-01	0.068
	698.50			-2.880E+00	1.136E+01	1.823E+01	3.034E+00	-0.158
	722.20			3.222E+01	2.272E+01	3.799E+01	4.682E+00	0.848

## ---- 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			1.008E+00	2.517E+00	4.329E+00	5.837E-01	0.233
	57.60			1.693E+00	3.172E+00	5.331E+00	3.809E-01	0.318
	145.22			3.818E-01	5.098E-01	8.300E-01	7.031E-02	0.460
	172.10			2.083E-02	8.552E-02	1.372E-01	1.209E-02	0.152
	202.84	*		-1.433E-02	3.188E-02	5.279E-02	4.872E-03	-0.271
I-131	374.96			5.619E-02	1.464E-01	2.420E-01	2.111E-02	0.232
	80.18			-3.545E+00	3.280E+00	4.495E+00	3.878E-01	-0.789
	284.30			-7.347E-02	1.030E+00	1.709E+00	1.764E-01	-0.043
	364.48	*		2.641E-02	8.271E-02	1.390E-01	1.304E-02	0.190
	636.97			-1.223E-01	1.064E+00	1.777E+00	1.843E-01	-0.069
TE-132	722.89			2.245E+00	5.651E+00	8.599E+00	8.761E-01	0.261
	49.72			1.836E+00	9.035E+00	1.353E+01	1.381E+00	0.136
	111.76			-4.458E+00	1.952E+01	3.112E+01	3.321E+00	-0.143
	116.30			8.761E-01	1.782E+01	2.875E+01	3.054E+00	0.030
	228.16	*		-5.289E-02	4.651E-01	7.785E-01	1.261E-01	-0.068
BA-133	53.15			1.119E+00	1.734E+00	2.937E+00	2.188E-01	0.381
	79.62			-1.082E+00	9.426E-01	1.272E+00	1.929E-01	-0.851
	81.00			-8.593E-02	7.193E-02	9.644E-02	1.533E-02	-0.891
	276.40			3.765E-01	2.747E-01	4.682E-01	7.150E-02	0.804
	302.84			-5.793E-02	1.167E-01	1.631E-01	2.296E-02	-0.355
I-133	356.01	*		1.040E-02	3.573E-02	5.300E-02	7.159E-03	0.196
	383.85			1.711E-02	2.182E-01	3.602E-01	4.518E-02	0.047
	510.53	+		6.158E-01	2.182E-01	Half-Life	too short	
	529.87	*		-1.865E-03	2.182E-01	Half-Life	too short	
	706.58			-2.306E-01	2.182E-01	Half-Life	too short	
CS-134	856.28			-5.305E-01	2.182E-01	Half-Life	too short	
	875.33			-5.521E-02	2.182E-01	Half-Life	too short	
	1236.41			3.161E-01	2.182E-01	Half-Life	too short	
	1298.22			1.143E-01	2.182E-01	Half-Life	too short	
	475.35			9.744E-01	1.870E+00	2.780E+00	2.521E-01	0.351
CS-135	563.23			-2.956E-02	2.696E-01	4.292E-01	4.163E-02	-0.069
	569.32			3.992E-02	1.365E-01	2.249E-01	2.196E-02	0.177
	604.70			-1.043E-02	2.750E-02	3.647E-02	3.591E-03	-0.286
	795.84	*		4.614E-02	3.419E-02	6.281E-02	6.409E-03	0.735
	801.93			4.051E-02	2.747E-01	4.631E-01	4.717E-02	0.087
I-135	1038.57			-8.451E-01	2.964E+00	4.704E+00	4.333E-01	-0.180
	1167.94			-1.095E+00	2.136E+00	3.298E+00	2.670E-01	-0.332
	1365.15			-1.878E-02	8.521E-01	1.426E+00	1.257E-01	-0.013
	268.24	*		1.157E-01	1.246E-01	1.947E-01	2.158E-02	0.594
	288.45			3.627E+09	1.246E-01	Half-Life	too short	
I-135	417.63			-8.782E+09	1.246E-01	Half-Life	too short	
	546.56			1.106E+09	1.246E-01	Half-Life	too short	
	836.80			1.022E+10	1.246E-01	Half-Life	too short	
	1038.76			-1.974E+09	1.246E-01	Half-Life	too short	
	1124.00			1.041E+10	1.246E-01	Half-Life	too short	
I-135	1131.51			1.263E+09	1.246E-01	Half-Life	too short	
	1260.41	*		1.606E+09	1.246E-01	Half-Life	too short	
	1457.56			3.318E+11	1.246E-01	Half-Life	too short	
	1678.03			9.683E+07	1.246E-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		-2.817E+09	1.246E-01	Half-Life	too short	
		1791.20		-1.389E+09	1.246E-01	Half-Life	too short	
		66.91		3.094E-02	5.010E-01	7.380E-01	1.094E-01	0.042
	+	86.29		1.163E+00	8.857E-01	1.237E+00	1.643E-01	0.940
		153.22		5.929E-01	4.803E-01	8.045E-01	7.711E-02	0.737
		163.89		-3.862E-01	7.913E-01	1.191E+00	1.159E-01	-0.324
		176.55		-1.491E-01	2.670E-01	4.092E-01	3.829E-02	-0.365
		273.65		-1.258E-01	3.429E-01	4.892E-01	5.098E-02	-0.257
		340.57		7.660E-02	1.055E-01	1.613E-01	1.543E-02	0.475
		818.51		-9.687E-03	5.305E-02	8.657E-02	8.772E-03	-0.112
CE-139		1048.07	*	-8.383E-02	8.583E-02	1.257E-01	1.193E-02	-0.667
		1235.34		3.389E-01	4.735E-01	8.075E-01	9.319E-02	0.420
		165.85	*	-2.204E-02	2.120E-02	3.158E-02	2.757E-03	-0.698
		162.64		3.590E-01	5.601E-01	8.944E-01	8.213E-02	0.401
BA-140		304.84		1.462E+00	1.009E+00	1.525E+00	4.331E-01	0.958
		423.70		-6.435E-01	1.288E+00	1.991E+00	6.456E-01	-0.323
		537.32	*	-1.904E-02	1.866E-01	2.978E-01	9.940E-02	-0.064
	+	328.77		3.132E-01	2.515E-01	3.879E-01	3.857E-02	0.807
		432.53		-1.297E+00	1.498E+00	2.273E+00	2.078E-01	-0.571
		487.03		-6.174E-03	9.893E-02	1.595E-01	1.540E-02	-0.039
		751.79		-8.549E-01	1.186E+00	1.842E+00	2.018E-01	-0.464
		815.85		-4.975E-02	2.390E-01	3.893E-01	4.278E-02	-0.128
		867.82		5.500E-02	9.986E-01	1.661E+00	1.732E-01	0.033
		919.63		-1.388E+00	1.885E+00	2.841E+00	3.317E-01	-0.489
CE-141		925.24		-3.464E-01	8.445E-01	1.288E+00	1.329E-01	-0.269
		1596.49	*	-5.474E-02	5.965E-02	8.328E-02	7.031E-03	-0.657
		145.44	*	4.181E-02	4.443E-02	7.390E-02	6.380E-03	0.566
		57.37		1.894E-04	4.443E-02	Half-Life	too short	
CE-143		231.56		-9.720E-05	4.443E-02	Half-Life	too short	
		293.26	*	2.051E-04	4.443E-02	Half-Life	too short	
	+	350.59		1.486E-02	4.443E-02	Half-Life	too short	
		490.36		3.429E-04	4.443E-02	Half-Life	too short	
		664.57		1.441E-03	4.443E-02	Half-Life	too short	
		721.93		1.408E-03	4.443E-02	Half-Life	too short	
		80.11		-1.714E+00	1.531E+00	2.093E+00	1.793E-01	-0.819
		133.54	*	6.871E-02	1.424E-01	2.329E-01	3.593E-02	0.295
		476.78		9.446E-02	7.069E-02	1.011E-01	9.961E-03	0.934
		618.01		7.348E-03	2.502E-02	4.096E-02	4.133E-03	0.179
PM-144		696.49	*	1.354E-03	2.482E-02	4.147E-02	4.192E-03	0.033
		778.57		3.943E-01	1.875E+00	2.788E+00	2.833E-01	0.141
		696.49	*	9.177E-02	1.682E+00	2.810E+00	2.840E-01	0.033
		1489.15		1.452E-01	6.354E+00	1.065E+01	9.027E-01	0.014
PR-144		453.90	*	-1.541E-02	3.150E-02	4.920E-02	5.388E-03	-0.313
		633.02		7.204E-02	9.016E-01	1.450E+00	5.466E-01	0.050
		735.90		5.475E-02	1.130E-01	1.944E-01	5.658E-02	0.282
		747.13		3.365E-02	6.692E-02	1.162E-01	1.747E-02	0.290
ND-147		91.11		3.467E-01	2.824E-01	3.464E-01	3.427E-02	1.001
		319.41		-1.403E+00	2.248E+00	3.568E+00	3.433E-01	-0.393
		439.89		-4.870E-01	4.153E+00	6.708E+00	5.896E-01	-0.073

---- 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	*		2.248E-02	4.132E-01	6.694E-01	1.034E-01	0.034
	285.90	*		4.748E+01	6.180E+01	1.066E+02	1.737E+01	0.446
	121.78			-1.233E-02	5.280E-02	8.386E-02	8.123E-03	-0.147
	244.69			-8.997E-02	2.557E-01	3.683E-01	3.573E-02	-0.244
	344.27	*		1.831E-02	8.073E-02	1.193E-01	1.164E-02	0.153
	443.98			1.213E-01	6.541E-01	1.073E+00	9.470E-02	0.113
	778.89			-1.292E-02	2.235E-01	3.213E-01	3.264E-02	-0.040
	867.32			-2.211E-02	6.071E-01	1.001E+00	1.004E-01	-0.022
	964.01			-3.773E-01	2.691E-01	3.916E-01	3.784E-02	-0.963
	1085.78			1.110E-01	3.143E-01	5.298E-01	4.691E-02	0.210
GD-153	1112.02			2.222E-02	2.765E-01	4.116E-01	3.552E-02	0.054
	1407.95			4.542E-02	1.299E-01	2.270E-01	1.918E-02	0.200
	69.67			-7.729E-01	9.880E-01	1.567E+00	1.199E-01	-0.493
	83.37	+		1.249E+01	1.023E+01	1.585E+01	1.413E+00	0.788
	97.43	*		-2.514E-02	5.956E-02	8.347E-02	7.402E-03	-0.301
	103.18			-6.646E-02	7.441E-02	1.151E-01	9.956E-03	-0.577
	123.07			5.083E-03	3.630E-02	5.870E-02	6.546E-03	0.087
	247.94			-9.102E-02	2.531E-01	4.161E-01	5.131E-02	-0.219
	591.81			-3.657E-01	3.943E-01	5.618E-01	7.046E-02	-0.651
	723.30			-4.703E-02	1.507E-01	2.115E-01	2.311E-02	-0.222
EU-154	756.87			1.871E-01	5.093E-01	8.781E-01	1.153E-01	0.213
	873.19			7.334E-02	2.315E-01	3.936E-01	5.220E-02	0.186
	996.32			-1.357E-01	2.840E-01	4.417E-01	8.039E-02	-0.307
	1004.76			-2.097E-01	1.793E-01	2.580E-01	3.161E-02	-0.813
	1274.45	*		-3.478E-02	1.023E-01	1.588E-01	1.754E-02	-0.219
	48.70	+		4.987E-01	1.900E+00	1.758E+00	1.406E-01	0.284
	60.01			9.971E-01	2.914E+00	4.363E+00	3.096E-01	0.229
	86.54	+		1.083E-01	8.189E-02	1.155E-01	1.082E-02	0.938
	105.31	*		2.229E-02	7.561E-02	1.237E-01	1.075E-02	0.180
	86.79	+		2.889E-01	2.184E-01	3.103E-01	2.889E-02	0.931
TB-160	197.04			1.350E-01	4.095E-01	6.942E-01	6.354E-02	0.194
	215.65			6.966E-02	5.134E-01	8.717E-01	8.185E-02	0.080
	298.57			1.628E-01	1.155E-01	1.452E-01	1.427E-02	1.121
	879.36	*		6.743E-02	1.105E-01	1.922E-01	1.922E-02	0.351
	962.29			2.116E-01	4.092E-01	6.874E-01	6.647E-02	0.308
	966.15			5.308E-02	1.860E-01	3.115E-01	3.007E-02	0.170
	1177.93			-3.892E-01	3.259E-01	4.696E-01	3.781E-02	-0.829
	1271.85			-3.288E-01	6.076E-01	9.230E-01	7.632E-02	-0.356
	80.57	+		-2.077E-01	1.967E-01	2.700E-01	2.326E-02	-0.769
	184.41	+		6.924E-02	3.741E-02	4.923E-02	4.421E-03	1.406
HO-166M	280.46			-7.145E-02	5.849E-02	8.978E-02	8.934E-03	-0.796
	410.95	+		2.993E-01	2.163E-01	3.281E-01	2.800E-02	0.912
	711.68	*		2.250E-02	4.361E-02	7.601E-02	7.699E-03	0.296
	752.31			-4.119E-03	1.799E-01	2.997E-01	3.046E-02	-0.014
	810.29			1.686E-02	4.488E-02	7.697E-02	7.802E-03	0.219
	51.35			-1.810E+01	1.667E+01	2.300E+01	1.757E+00	-0.787
	52.39			1.500E-01	7.506E+00	1.240E+01	9.330E-01	0.012
	59.40			6.322E+00	1.579E+01	2.372E+01	1.679E+00	0.266
	66.72	*		-9.245E+00	1.887E+01	2.702E+01	2.013E+00	-0.342
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		2.134E-01	1.613E-01	2.312E-01	2.180E-02	0.923
		201.83		-4.522E-03	1.948E-02	3.260E-02	3.004E-03	-0.139
		306.84	*	1.960E-02	1.825E-02	2.903E-02	2.832E-03	0.675
		401.10		4.084E-01	4.738E+00	7.810E+00	6.593E-01	0.052
LU-177	+	112.95		-1.744E+00	1.150E+00	1.664E+00	1.403E-01	-1.048
		208.36	*	7.758E-01	7.715E-01	1.290E+00	1.200E-01	0.602
LU-177M	+	52.97		4.005E-01	7.775E-01	1.310E+00	9.784E-02	0.306
		54.07		2.405E-01	4.196E-01	7.082E-01	5.219E-02	0.340
		61.30		-3.726E-01	8.931E-01	1.283E+00	9.178E-02	-0.290
		121.62		-3.597E-02	2.693E-01	4.299E-01	3.585E-02	-0.084
		147.16		-6.655E-01	4.763E-01	7.006E-01	5.950E-02	-0.950
		171.86		8.033E-02	3.453E-01	5.539E-01	4.879E-02	0.145
		218.09		2.445E-01	5.805E-01	9.976E-01	9.397E-02	0.245
		268.79		1.350E+00	8.452E-01	1.045E+00	1.034E-01	1.292
		319.02		-1.283E-01	1.783E-01	2.810E-01	2.704E-02	-0.457
		367.43		-2.704E-01	6.591E-01	1.054E+00	9.346E-02	-0.257
		413.65	*	5.594E-02	1.490E-01	2.210E-01	1.892E-02	0.253
		56.28		-8.052E-01	4.979E-01	7.585E-01	5.472E-02	-1.062
		57.53		1.298E-01	2.663E-01	4.468E-01	3.194E-02	0.290
		65.20		-3.242E-01	6.271E-01	8.979E-01	6.607E-02	-0.361
HF-181		133.02		3.326E-02	4.967E-02	7.384E-02	6.179E-03	0.450
		136.25		2.026E-02	3.339E-01	5.358E-01	4.495E-02	0.038
		345.85		7.638E-02	1.501E-01	2.382E-01	2.204E-02	0.321
		482.03	*	1.076E-02	3.358E-02	4.938E-02	4.502E-03	0.218
		56.28		-3.153E-01	1.953E-01	2.976E-01	2.147E-02	-1.060
		57.53		5.078E-02	1.045E-01	1.754E-01	1.254E-02	0.290
W-181		65.20	*	-1.262E-01	2.442E-01	3.496E-01	2.573E-02	-0.361
		67.75		3.971E-03	7.203E-02	1.060E-01	7.970E-03	0.037
		100.10		6.148E-02	1.240E-01	2.048E-01	1.794E-02	0.300
		152.43		1.030E-01	2.459E-01	3.993E-01	3.415E-02	0.258
TA-182		222.10		4.794E-02	2.430E-01	4.132E-01	3.911E-02	0.116
		1001.68		8.840E-01	1.560E+00	2.682E+00	2.535E-01	0.330
		1121.28		4.694E-01	2.237E-01	2.347E-01	2.006E-02	2.000
		1189.05		1.033E-01	2.749E-01	4.589E-01	3.709E-02	0.225
		1221.42	*	-1.251E-02	1.686E-01	2.709E-01	2.210E-02	-0.046
		1230.97		9.089E-02	3.934E-01	6.481E-01	5.302E-02	0.140
RE-183		57.98		1.233E-01	1.036E-01	1.782E-01	1.270E-02	0.692
		59.32		2.706E-02	6.485E-02	9.751E-02	6.902E-03	0.278
		67.20		5.571E-03	1.295E-01	1.905E-01	1.425E-02	0.029
		162.32	*	6.798E-02	8.304E-02	1.337E-01	1.160E-02	0.509
RE-184	+	208.81		7.095E-01	7.055E-01	1.186E+00	1.104E-01	0.598
		291.72		-2.974E-01	7.158E-01	1.011E+00	9.987E-02	-0.294
		57.98		4.547E-01	3.823E-01	6.573E-01	4.685E-02	0.692
		59.32		9.975E-02	2.390E-01	3.594E-01	2.544E-02	0.278
		67.20		2.054E-02	4.774E-01	7.026E-01	5.256E-02	0.029
		161.27		2.064E-01	2.648E-01	4.359E-01	3.778E-02	0.474
RE-184		216.55		3.356E-02	1.804E-01	3.070E-01	2.886E-02	0.109
		252.85	*	1.382E-01	1.640E-01	2.859E-01	2.794E-02	0.483
		318.01		-6.841E-02	3.112E-01	5.086E-01	4.901E-02	-0.135

## ---- 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		-6.666E-01	7.467E-01	1.142E+00	1.160E-01	-0.584
		903.28		-5.114E-01	7.066E-01	1.076E+00	1.067E-01	-0.475
		920.93		-2.503E-01	3.104E-01	4.639E-01	4.572E-02	-0.539
		59.72		5.769E-02	1.738E-01	2.601E-01	1.842E-02	0.222
		61.14		-4.346E-02	9.808E-02	1.407E-01	1.005E-02	-0.309
		69.30		-1.145E-01	1.774E-01	2.833E-01	2.159E-02	-0.404
		592.07		-1.287E+00	1.621E+00	2.363E+00	2.308E-01	-0.545
		646.12	*	-9.206E-03	2.906E-02	4.762E-02	4.755E-03	-0.193
		717.42		-7.379E-01	6.466E-01	9.667E-01	9.799E-02	-0.763
		874.81		-1.699E-01	4.517E-01	7.201E-01	7.210E-02	-0.236
RE-188		880.27		5.073E-02	6.455E-01	1.074E+00	1.074E-01	0.047
		155.03	*	9.774E-02	1.272E-01	2.095E-01	1.798E-02	0.467
	+	477.96		4.305E+00	3.218E+00	4.680E+00	4.253E-01	0.920
		633.10		-2.636E-01	1.860E+00	2.921E+00	2.904E-01	-0.090
W-188	+	63.58		2.607E+01	4.264E+01	5.395E+01	3.921E+00	0.483
		227.08		2.725E+00	9.032E+00	1.541E+01	1.468E+00	0.177
IR-192		290.67	*	-3.188E+00	5.793E+00	8.087E+00	7.996E-01	-0.394
	+	295.96		5.107E-01	1.311E-01	1.885E-01	1.866E-02	2.710
		308.46		-8.041E-02	6.365E-02	9.580E-02	9.367E-03	-0.839
		316.51	*	9.164E-03	2.338E-02	3.970E-02	3.840E-03	0.231
		468.07		-6.609E-02	5.097E-02	7.371E-02	7.082E-03	-0.897
		604.41		-1.997E-01	3.679E-01	4.754E-01	6.583E-02	-0.420
AU-195		612.46		-3.666E-01	6.283E-01	8.132E-01	8.943E-02	-0.451
		65.12		-6.859E-04	1.124E-01	1.648E-01	1.212E-02	-0.004
		66.83		4.064E-03	6.073E-02	8.948E-02	6.673E-03	0.045
	+	75.70		4.951E-01	1.459E-01	2.718E-01	2.212E-02	1.822
		98.88	*	1.198E-01	1.559E-01	2.578E-01	2.270E-02	0.465
	+	129.76		2.529E+00	1.744E+00	3.206E+00	2.678E-01	0.789
TL-200		367.94	*	3.388E-06	1.744E+00	Half-Life	too short	
		579.30		-6.799E-04	1.744E+00	Half-Life	too short	
		828.27		2.503E-04	1.744E+00	Half-Life	too short	
		1205.75		-1.446E-04	1.744E+00	Half-Life	too short	
TL-201		68.90		4.817E-01	2.689E+00	4.432E+00	3.367E-01	0.109
		70.82		-9.534E-01	1.760E+00	2.503E+00	1.936E-01	-0.381
		80.30		-3.658E+00	3.486E+00	4.787E+00	4.110E-01	-0.764
		135.34		-2.033E+00	1.749E+01	2.783E+01	2.333E+00	-0.073
TL-202		167.43	*	4.393E+00	4.479E+00	7.467E+00	6.533E-01	0.588
		68.90		4.470E-02	2.495E-01	4.113E-01	3.124E-02	0.109
		70.82		-8.823E-02	1.628E-01	2.316E-01	1.791E-02	-0.381
		80.30		-3.386E-01	3.227E-01	4.431E-01	3.805E-02	-0.764
HG-203		439.56	*	8.422E-03	5.018E-02	8.281E-02	7.275E-03	0.102
		70.83		-3.812E-01	7.124E-01	1.012E+00	1.322E-01	-0.377
		72.87		5.844E-01	4.245E-01	6.496E-01	8.278E-02	0.900
	+	82.60		9.265E-01	7.649E-01	1.130E+00	1.568E-01	0.820
BI-207		279.20	*	1.420E-02	2.754E-02	4.720E-02	4.800E-03	0.301
		72.80		1.211E-01	1.238E-01	1.885E-01	1.488E-02	0.643
	+	74.97		2.748E-01	8.097E-02	1.352E-01	1.092E-02	2.032
	+	84.90		1.616E-01	1.323E-01	2.105E-01	1.913E-02	0.768
		569.67		1.233E-03	2.172E-02	3.506E-02	3.387E-03	0.035

---- 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	*	-1.465E-02	3.852E-02	6.027E-02	5.442E-03	-0.243
		1770.23		-6.083E-02	2.609E-01	3.309E-01	2.715E-02	-0.184
		81.07		-1.949E-01	1.566E-01	2.122E-01	1.839E-02	-0.918
	+	83.78		1.066E-01	8.724E-02	1.350E-01	1.209E-02	0.790
		94.90		2.734E-01	1.662E-01	2.594E-01	2.333E-02	1.054
		122.32		-3.466E-01	1.240E+00	1.964E+00	1.766E-01	-0.176
		144.24		7.622E-01	5.025E-01	8.398E-01	7.979E-02	0.908
		154.21		1.394E-01	2.934E-01	4.773E-01	4.505E-02	0.292
	+	269.46		3.164E-01	1.981E-01	2.520E-01	2.534E-02	1.255
		323.87	*	4.898E-01	4.926E-01	7.694E-01	1.399E-01	0.637
PO-209	+	338.28		3.821E+00	1.339E+00	1.695E+00	2.178E-01	2.254
		445.03		7.873E-01	1.527E+00	2.588E+00	3.168E-01	0.304
		260.50		2.453E+00	6.498E+00	1.109E+01	1.091E+00	0.221
		262.80		-1.029E+01	1.769E+01	2.854E+01	2.812E+00	-0.360
		896.60	*	3.546E+00	5.084E+00	8.970E+00	8.922E-01	0.395
PB-211		404.84	*	4.386E-01	7.894E-01	1.124E+00	7.043E-01	0.390
		427.08		-4.026E-01	1.473E+00	2.299E+00	1.429E+00	-0.175
		831.96		-6.441E-01	9.537E-01	1.331E+00	8.368E-01	-0.484
BI-212	+	727.18	*	6.001E-01	3.956E-01	4.490E-01	5.096E-02	1.337
		785.46		5.706E-01	1.313E+00	2.263E+00	2.298E-01	0.252
		1620.62		5.835E-01	7.814E-01	1.463E+00	1.232E-01	0.399
PO-215		81.07		-1.949E-01	1.566E-01	2.122E-01	1.839E-02	-0.918
	+	83.78		1.066E-01	8.724E-02	1.350E-01	1.209E-02	0.790
		94.90		2.734E-01	1.662E-01	2.594E-01	2.333E-02	1.054
		122.32		-3.466E-01	1.240E+00	1.964E+00	1.766E-01	-0.176
		144.24		7.622E-01	5.025E-01	8.398E-01	7.979E-02	0.908
		154.21		1.394E-01	2.934E-01	4.773E-01	4.505E-02	0.292
	+	269.46		3.164E-01	1.981E-01	2.520E-01	2.534E-02	1.255
		323.87	*	4.898E-01	4.926E-01	7.694E-01	1.399E-01	0.637
	+	338.28		3.821E+00	1.339E+00	1.695E+00	2.178E-01	2.254
		445.03		7.873E-01	1.527E+00	2.588E+00	3.168E-01	0.304
RN-219	+	271.23		4.060E-01	2.551E-01	3.122E-01	3.563E-02	1.300
		401.81	*	-3.362E-02	2.953E-01	4.798E-01	7.163E-02	-0.070
RN-220		549.76	*	-1.019E+01	1.932E+01	2.958E+01	2.826E+00	-0.344
RA-223		81.07		-1.949E-01	1.566E-01	2.122E-01	1.839E-02	-0.918
	+	83.78		1.066E-01	8.724E-02	1.350E-01	1.209E-02	0.790
		94.90		2.734E-01	1.662E-01	2.594E-01	2.333E-02	1.054
		122.32		-3.466E-01	1.240E+00	1.964E+00	1.766E-01	-0.176
		144.24		7.622E-01	5.025E-01	8.398E-01	7.979E-02	0.908
		154.21		1.394E-01	2.934E-01	4.773E-01	4.505E-02	0.292
	+	269.46		3.164E-01	1.981E-01	2.520E-01	2.534E-02	1.255
		323.87	*	4.898E-01	4.926E-01	7.694E-01	1.399E-01	0.637
	+	338.28		3.821E+00	1.339E+00	1.695E+00	2.178E-01	2.254
		445.03		7.873E-01	1.527E+00	2.588E+00	3.168E-01	0.304
AC-227		79.80		-1.489E+00	1.217E+00	1.600E+00	3.435E-01	-0.931
		236.00		1.723E-01	1.896E-01	2.944E-01	3.816E-02	0.585
		256.20	*	5.074E-02	2.660E-01	4.498E-01	7.215E-02	0.113
		286.10		8.120E-01	1.100E+00	1.897E+00	2.672E-01	0.428
	+	299.80		2.546E+00	1.822E+00	1.864E+00	3.375E-01	1.366

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		304.40		1.650E+00	1.420E+00	2.228E+00	4.234E-01	0.741
		334.20		-2.231E+00	1.937E+00	2.451E+00	4.848E-01	-0.910
		79.80		-1.489E+00	1.218E+00	1.600E+00	3.479E-01	-0.931
	+	94.00		3.479E+00	2.541E+00	2.676E+00	5.873E-01	1.300
		236.00		1.723E-01	1.894E-01	2.944E-01	3.494E-02	0.585
		256.20	*	5.074E-02	2.660E-01	4.498E-01	8.391E-02	0.113
		286.10		8.120E-01	1.364E+00	1.897E+00	1.906E+00	0.428
	+	299.80		2.546E+00	1.822E+00	1.864E+00	3.375E-01	1.366
		304.40		1.650E+00	1.420E+00	2.228E+00	4.234E-01	0.741
		334.20		-2.231E+00	1.937E+00	2.451E+00	4.848E-01	-0.910
AC-228	+	338.32		9.151E-01	4.823E-01	4.056E-01	1.680E-01	2.256
	+	911.07	*	8.929E-01	2.060E-01	3.350E-01	4.104E-02	2.665
		969.11		4.650E-01	2.664E-01	4.473E-01	1.062E-01	1.040
RA-228	+	338.32		9.151E-01	4.823E-01	4.056E-01	1.680E-01	2.256
	+	911.07	*	8.929E-01	2.060E-01	3.350E-01	4.104E-02	2.665
		969.11		4.650E-01	2.664E-01	4.473E-01	1.062E-01	1.040
TH-229	+	85.43		1.595E-01	1.306E-01	2.129E-01	1.948E-02	0.749
		88.47		1.458E-02	1.152E-01	1.327E-01	1.250E-02	0.110
		100.00		3.922E-02	1.313E-01	2.132E-01	1.867E-02	0.184
		193.63	*	3.506E-02	3.497E-01	5.952E-01	5.421E-02	0.059
		210.97		2.399E-01	5.855E-01	8.846E-01	8.256E-02	0.271
PA-231		283.67	*	-4.031E-01	1.047E+00	1.702E+00	2.717E-01	-0.237
	+	301.29		1.018E+00	7.176E-01	7.200E-01	9.436E-02	1.414
TH-231		81.07		-1.949E-01	1.566E-01	2.122E-01	1.839E-02	-0.918
	+	83.78		1.066E-01	8.724E-02	1.350E-01	1.209E-02	0.790
		94.90		2.734E-01	1.662E-01	2.594E-01	2.333E-02	1.054
		122.32		-3.466E-01	1.240E+00	1.964E+00	1.766E-01	-0.176
		144.24		7.622E-01	5.025E-01	8.398E-01	7.979E-02	0.908
		154.21		1.394E-01	2.934E-01	4.773E-01	4.505E-02	0.292
	+	269.46		3.164E-01	1.981E-01	2.520E-01	2.534E-02	1.255
		323.87	*	4.898E-01	4.926E-01	7.694E-01	1.399E-01	0.637
	+	338.28		3.821E+00	1.339E+00	1.695E+00	2.178E-01	2.254
		445.03		7.873E-01	1.527E+00	2.588E+00	3.168E-01	0.304
U-231	+	84.21		4.452E+00	3.645E+00	5.712E+00	5.146E-01	0.780
	+	92.29		3.334E+00	2.341E+00	2.799E+00	2.560E-01	1.191
		95.87	*	-5.269E-01	7.534E-01	1.041E+00	9.309E-02	-0.506
		108.00		-9.027E-01	1.446E+00	2.266E+00	1.931E-01	-0.398
	+	338.32		9.151E-01	3.103E-01	4.056E-01	3.801E-02	2.256
TH-232	+	911.07	*	8.929E-01	2.060E-01	3.350E-01	4.104E-02	2.665
		969.11		4.650E-01	2.664E-01	4.473E-01	1.062E-01	1.040
	+	75.28		8.019E+00	2.573E+00	4.044E+00	6.091E-01	1.983
PA-233	+	86.59		1.761E+00	1.404E+00	1.882E+00	5.088E-01	0.936
	+	300.12		7.097E-01	5.037E-01	5.225E-01	8.149E-02	1.358
		311.98	*	2.468E-02	4.178E-02	7.189E-02	7.132E-03	0.343
		340.50		4.983E-01	5.351E-01	8.117E-01	1.956E-01	0.614
		398.62		2.250E-01	1.423E+00	2.357E+00	6.261E-01	0.095
PA-234		415.76		3.284E-01	1.220E+00	2.030E+00	4.372E-01	0.162
	+	63.00		7.575E-01	1.243E+00	1.596E+00	2.358E-01	0.475
	+	94.67		3.103E-01	2.196E-01	1.988E-01	2.519E-02	1.561

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	98.44			5.629E-02	7.005E-02	1.044E-01	5.826E-02	0.539
	99.86			2.171E-01	3.279E-01	5.401E-01	4.735E-02	0.402
	111.00			1.100E-01	1.256E-01	2.097E-01	2.511E-02	0.525
	131.20			3.882E-03	8.014E-02	1.146E-01	9.582E-03	0.034
	152.70			2.556E-01	2.395E-01	3.948E-01	6.717E-02	0.647
+	186.00			2.492E+00	1.541E+00	1.847E+00	5.785E-01	1.349
	226.40			5.205E-02	2.867E-01	4.866E-01	6.717E-02	0.107
	227.20			3.662E-02	3.077E-01	5.208E-01	4.960E-02	0.070
	248.90			-9.168E-02	5.693E-01	9.459E-01	2.163E-01	-0.097
	293.70			2.206E+00	7.219E-01	1.079E+00	1.937E-01	2.045
	369.80			-9.592E-02	6.035E-01	9.813E-01	2.145E-01	-0.098
	568.70			4.139E-02	7.170E-01	1.157E+00	1.117E-01	0.036
	569.50			6.099E-02	1.894E-01	3.129E-01	3.022E-02	0.195
	574.00			-7.614E-01	1.087E+00	1.627E+00	1.576E-01	-0.468
	699.00			-3.653E-01	5.674E-01	8.764E-01	1.735E-01	-0.417
	706.10			-6.593E-01	8.170E-01	1.186E+00	5.324E-01	-0.556
	733.00			-1.084E-01	3.199E-01	4.447E-01	1.015E-01	-0.244
	742.81			-1.085E+00	1.237E+00	1.506E+00	1.015E+00	-0.720
	796.30			9.049E-01	6.956E-01	1.209E+00	3.333E-01	0.749
	805.60			-9.748E-02	7.554E-01	1.225E+00	3.811E-01	-0.080
	819.60			-4.739E-01	8.954E-01	1.379E+00	5.293E-01	-0.344
	826.30			-2.384E-02	5.841E-01	9.657E-01	4.351E-01	-0.025
	831.60			-4.528E-01	4.823E-01	6.970E-01	2.112E-01	-0.650
	876.40			-1.834E-01	6.990E-01	1.086E+00	1.118E+00	-0.169
	880.51			4.992E-02	2.259E-01	3.807E-01	3.805E-02	0.131
	883.24			1.779E-02	2.358E-01	3.918E-01	2.641E-01	0.045
	899.00			1.045E-01	5.837E-01	9.784E-01	4.304E-01	0.107
	925.00			-3.845E-01	8.842E-01	1.345E+00	1.323E-01	-0.286
	926.50			-3.349E-02	1.328E-01	2.060E-01	5.298E-02	-0.163
	946.00	*		1.005E-01	2.329E-01	3.975E-01	7.675E-02	0.253
	949.00			1.647E-01	3.686E-01	6.295E-01	6.128E-02	0.262
	980.50			4.321E-01	5.201E-01	9.239E-01	8.846E-02	0.468
	1394.10			6.915E-02	7.439E-01	1.262E+00	8.208E-01	0.055
PA-234M	766.42			1.568E+01	1.237E+01	1.611E+01	8.218E+00	0.974
	1001.03	*		2.207E+00	3.363E+00	5.853E+00	6.261E-01	0.377
U-235	89.95			-1.579E+00	1.283E+00	1.226E+00	3.808E-01	-1.288
+	93.35			1.082E+00	8.132E-01	8.989E-01	2.532E-01	1.204
	105.00			-1.124E-01	7.535E-01	1.208E+00	3.604E-01	-0.093
	143.76	*		1.435E-01	1.563E-01	2.537E-01	4.422E-02	0.565
	163.35			-7.978E-02	3.583E-01	5.481E-01	1.048E-01	-0.146
+	185.71			9.231E-02	4.989E-02	6.872E-02	6.185E-03	1.343
	205.31			9.108E-02	3.991E-01	6.020E-01	1.167E-01	0.151
NP-236	94.67			2.353E-01	1.653E-01	1.509E-01	1.360E-02	1.559
	98.44			4.254E-02	4.748E-02	7.890E-02	6.962E-03	0.539
	111.00			8.321E-02	9.476E-02	1.586E-01	1.342E-02	0.525
	160.31	*		5.233E-03	6.019E-02	9.606E-02	8.312E-03	0.054
NP-239	99.55			4.991E-02	1.101E-01	1.800E-01	1.580E-02	0.277
	117.00	*		-3.705E-02	1.285E-01	2.037E-01	1.707E-02	-0.182
+	209.75			5.607E-01	5.576E-01	9.346E-01	8.708E-02	0.600

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		228.18	-1.875E-02	1.581E-01	2.646E-01	2.523E-02	-0.071
		277.60	1.108E-01	1.258E-01	2.189E-01	2.178E-02	0.506
		334.30	-1.230E+00	1.077E+00	1.396E+00	1.317E-01	-0.881
AM-241		59.54 *	3.398E-02	9.174E-02	1.376E-01	1.077E-02	0.247
CM-243		99.55	5.136E-02	1.133E-01	1.852E-01	1.626E-02	0.277
		103.76 *	-1.552E-02	6.718E-02	1.074E-01	9.273E-03	-0.145
		117.00	-3.812E-02	1.322E-01	2.096E-01	1.756E-02	-0.182
	+	209.75	5.527E-01	5.497E-01	9.213E-01	8.584E-02	0.600
		228.18	-1.894E-02	1.598E-01	2.674E-01	2.549E-02	-0.071
		277.60	1.117E-01	1.268E-01	2.207E-01	2.195E-02	0.506
AM-246		798.80	-2.065E-01	1.093E-01	1.470E-01	1.492E-02	-1.405
		1036.00	-1.132E-01	2.320E-01	3.600E-01	3.323E-02	-0.314
		1062.04	-9.828E-02	1.686E-01	2.574E-01	2.327E-02	-0.382
		1078.86 *	1.637E-02	1.086E-01	1.799E-01	1.603E-02	0.091
CM-247		278.00	3.653E-01	5.192E-01	8.969E-01	8.924E-02	0.407
		287.40	4.527E-01	8.905E-01	1.523E+00	1.509E-01	0.297
		402.60 *	1.690E-03	2.681E-02	4.411E-02	3.730E-03	0.038
CF-249		252.85	5.188E-01	6.160E-01	1.074E+00	1.049E-01	0.483
		333.44	-3.671E-02	1.613E-01	1.920E-01	1.812E-02	-0.191
		387.95 *	4.849E-03	2.732E-02	4.541E-02	3.832E-03	0.107
CF-251		176.60 *	-5.129E-02	9.298E-02	1.426E-01	1.265E-02	-0.360
		227.00	8.422E-02	2.717E-01	4.638E-01	4.416E-02	0.182
		285.00	3.883E-02	1.242E+00	2.073E+00	2.058E-01	0.019



## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015436      *
* Acquisition date   : 22-JAN-2010 10:24:55 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 02:00:32.20 Half life ratio : 8.000               *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID          : G1202015436 Analyst initials: MXR1                  *
* Batch Number       : 941635 Sample Quantity : 1.5581E+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 :                               *
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
BE-7	4.493E-01	3.295E-01	4.332E-01	0.000E+00
K-40	3.094E+01	3.047E+00	4.330E-01	0.000E+00
CD-109	9.149E-01	6.777E-01	1.134E+00	0.000E+00
SN-126	8.995E-02	6.663E-02	1.040E-01	0.000E+00
BA-137M	2.753E-01	5.778E-02	4.730E-02	0.000E+00
CS-137	2.910E-01	6.110E-02	5.000E-02	0.000E+00
TL-208	3.142E-01	6.375E-02	3.829E-02	0.000E+00
BI-210	5.639E-01	2.106E+00	2.643E+00	0.000E+00
PB-210	5.639E-01	2.106E+00	2.643E+00	0.000E+00
PO-210	5.639E-01	2.106E+00	2.643E+00	0.000E+00
BI-211	2.055E+00	3.450E-01	2.434E-01	0.000E+00
PB-212	9.208E-01	1.215E-01	6.808E-02	0.000E+00
PO-212	9.208E-01	1.215E-01	6.808E-02	0.000E+00
BI-214	6.425E-01	1.307E-01	7.519E-02	0.000E+00
PB-214	7.149E-01	1.255E-01	8.327E-02	0.000E+00
PO-214	7.149E-01	1.255E-01	8.327E-02	0.000E+00
PO-216	9.208E-01	1.215E-01	6.808E-02	0.000E+00
PO-218	7.149E-01	1.255E-01	8.327E-02	0.000E+00
RA-224	2.251E+00	9.049E-01	7.744E-01	0.000E+00
RA-226	6.425E-01	1.307E-01	7.519E-02	0.000E+00
TH-228	9.346E-01	1.233E-01	6.910E-02	0.000E+00
TH-230	6.425E-01	1.307E-01	7.519E-02	0.000E+00
TH-234	6.498E-01	1.046E+00	1.239E+00	0.000E+00
U-234	6.425E-01	1.307E-01	7.519E-02	0.000E+00
NP-237	2.641E-01	2.028E-01	2.646E-01	0.000E+00
U-238	6.498E-01	1.046E+00	1.239E+00	0.000E+00
AM-243	1.531E-01	4.421E-02	6.281E-02	0.000E+00
ANH-511	7.005E-02	4.704E-02	3.505E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

NA-22	-9.644E-03	3.575E-02	5.786E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.665E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.106E-02	1.694E-02	2.328E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	2.937E-02	5.195E-02	0.000E+00	FAIL ABUN
SC-46	1.542E-02	2.845E-02	5.146E-02	0.000E+00	FAIL ABUN
V-48	-6.051E-02	5.128E-02	7.596E-02	0.000E+00	NOT IDENT.
CR-51	-1.194E-01	2.490E-01	4.288E-01	0.000E+00	NOT IDENT.
MN-52	3.188E-02	1.547E-01	2.739E-01	0.000E+00	NOT IDENT.
MN-54	-6.244E-03	2.668E-02	4.531E-02	0.000E+00	NOT IDENT.
CO-56	-2.162E-02	2.787E-02	4.453E-02	0.000E+00	NOT IDENT.
CO-57	-3.799E-03	1.769E-02	3.093E-02	0.000E+00	NOT IDENT.
CO-58	5.133E-03	2.975E-02	5.248E-02	0.000E+00	NOT IDENT.
FE-59	1.733E-04	6.987E-02	1.181E-01	0.000E+00	NOT IDENT.
CO-60	2.092E-02	2.884E-02	5.207E-02	0.000E+00	NOT IDENT.
ZN-65	-1.823E-02	8.100E-02	1.145E-01	0.000E+00	NOT IDENT.
GE-68	2.001E-01	8.465E-01	1.470E+00	0.000E+00	NOT IDENT.
AS-73	2.300E-01	3.966E-01	7.510E-01	0.000E+00	NOT IDENT.
AS-74	4.923E-02	6.923E-02	1.235E-01	0.000E+00	NOT IDENT.
SE-75	-8.997E-03	3.140E-02	5.148E-02	0.000E+00	NOT IDENT.
BR-77	-2.120E+00	7.371E+00	1.230E+01	0.000E+00	FAIL ABUN
SR-82	3.015E-01	2.887E-01	4.931E-01	0.000E+00	NOT IDENT.
RB-83	-4.090E-03	5.008E-02	8.505E-02	0.000E+00	NOT IDENT.
RB-84	3.952E-03	5.506E-02	9.561E-02	0.000E+00	NOT IDENT.
KR-85	6.364E+00	6.059E+00	9.941E+00	0.000E+00	NOT IDENT.
SR-85	3.257E-02	3.101E-02	5.087E-02	0.000E+00	NOT IDENT.
RB-86	-9.371E-02	5.622E-01	9.352E-01	0.000E+00	NOT IDENT.
Y-88	9.874E-03	2.071E-02	3.841E-02	0.000E+00	NOT IDENT.
ZR-88	1.224E-02	1.916E-02	3.510E-02	0.000E+00	NOT IDENT.
Y-91	1.945E+00	1.481E+01	2.533E+01	0.000E+00	NOT IDENT.
NB-94	1.503E-02	2.479E-02	4.552E-02	0.000E+00	NOT IDENT.
NB-95	2.980E-02	3.398E-02	5.649E-02	0.000E+00	NOT IDENT.
NB-95M	1.186E-02	9.333E-02	1.508E-01	0.000E+00	NOT IDENT.
ZR-95	-5.732E-03	4.724E-02	8.175E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.550E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.204E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.318E+00	7.964E+00	1.377E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.696E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.168E-03	2.344E-02	4.280E-02	0.000E+00	NOT IDENT.
RH-102	7.329E-03	2.759E-02	4.260E-02	0.000E+00	NOT IDENT.
RU-103	4.858E-04	2.659E-02	4.572E-02	0.000E+00	FAIL ABUN
RH-106	1.367E-01	2.295E-01	4.057E-01	0.000E+00	FAIL ABUN
RU-106	1.367E-01	2.291E-01	4.057E-01	0.000E+00	FAIL ABUN
AG-108M	-3.447E-03	2.435E-02	4.185E-02	0.000E+00	NOT IDENT.
AG-110M	-2.747E-03	2.799E-02	4.271E-02	0.000E+00	NOT IDENT.
IN-111	-3.736E-01	7.750E-01	1.193E+00	0.000E+00	NOT IDENT.
IN-113M	-1.192E-02	2.882E-02	4.883E-02	0.000E+00	NOT IDENT.
SN-113	-1.192E-02	2.882E-02	4.883E-02	0.000E+00	NOT IDENT.
IN-114M	-9.053E-02	1.373E-01	2.143E-01	0.000E+00	NOT IDENT.
CD-115	-3.343E+00	7.468E+00	1.226E+01	0.000E+00	NOT IDENT.
SN-117M	3.663E-03	3.922E-02	6.843E-02	0.000E+00	NOT IDENT.
SB-122	-3.364E-01	1.455E+00	2.421E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.330E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.717E-04	2.071E-02	3.594E-02	0.000E+00	NOT IDENT.
I-124	-2.350E-01	5.354E-01	7.449E-01	0.000E+00	NOT IDENT.
SB-124	2.404E-02	4.555E-02	8.533E-02	0.000E+00	NOT IDENT.
SB-125	1.107E-02	6.411E-02	1.119E-01	0.000E+00	NOT IDENT.
TE-125M	4.019E+00	6.372E+00	1.163E+01	0.000E+00	NOT IDENT.
I-126	8.477E-02	1.375E-01	2.263E-01	0.000E+00	NOT IDENT.
SB-126	1.348E-01	1.137E-01	1.958E-01	0.000E+00	FAIL ABUN
SB-127	1.095E-01	9.356E-01	1.666E+00	0.000E+00	FAIL ABUN
XE-127	-1.433E-02	3.125E-02	5.615E-02	0.000E+00	NOT IDENT.
I-131	2.641E-02	8.106E-02	1.457E-01	0.000E+00	NOT IDENT.
TE-132	-5.289E-02	4.558E-01	8.256E-01	0.000E+00	NOT IDENT.
BA-133	1.040E-02	3.501E-02	5.556E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.852E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.614E-02	3.350E-02	6.444E-02	0.000E+00	NOT IDENT.
CS-135	1.157E-01	1.221E-01	2.057E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.663E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.383E-02	8.411E-02	1.280E-01	0.000E+00	FAIL ABUN
CE-139	-2.204E-02	2.077E-02	3.376E-02	0.000E+00	NOT IDENT.
BA-140	-1.904E-02	1.829E-01	3.088E-01	0.000E+00	NOT IDENT.
LA-140	-5.474E-02	5.846E-02	8.379E-02	0.000E+00	FAIL ABUN
CE-141	4.181E-02	4.354E-02	7.928E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.080E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	6.871E-02	1.396E-01	2.504E-01	0.000E+00	NOT IDENT.
PM-144	1.354E-03	2.433E-02	4.270E-02	0.000E+00	FAIL ABUN
PR-144	9.177E-02	1.648E+00	2.893E+00	0.000E+00	NOT IDENT.

PM-146	-1.541E-02	3.087E-02	5.124E-02	0.000E+00	NOT IDENT.
ND-147	2.248E-02	4.050E-01	6.944E-01	0.000E+00	NOT IDENT.
PM-149	4.748E+01	6.057E+01	1.124E+02	0.000E+00	NOT IDENT.
EU-152	1.831E-02	7.911E-02	1.252E-01	0.000E+00	NOT IDENT.
GD-153	-2.514E-02	5.837E-02	9.044E-02	0.000E+00	FAIL ABUN
EU-154	-3.478E-02	1.002E-01	1.608E-01	0.000E+00	NOT IDENT.
EU-155	2.229E-02	7.410E-02	1.338E-01	0.000E+00	FAIL ABUN
TB-160	6.743E-02	1.083E-01	1.967E-01	0.000E+00	FAIL ABUN
HO-166M	2.250E-02	4.273E-02	7.822E-02	0.000E+00	FAIL ABUN
TM-171	-9.245E+00	1.849E+01	2.955E+01	0.000E+00	NOT IDENT.
LU-176	1.960E-02	1.788E-02	3.056E-02	0.000E+00	FAIL ABUN
LU-177	7.758E-01	7.560E-01	1.371E+00	0.000E+00	FAIL ABUN
LU-177M	5.594E-02	1.460E-01	2.308E-01	0.000E+00	FAIL ABUN
HF-181	1.076E-02	3.291E-02	5.135E-02	0.000E+00	NOT IDENT.
W-181	-1.262E-01	2.393E-01	3.826E-01	0.000E+00	NOT IDENT.
TA-182	-1.251E-02	1.653E-01	2.746E-01	0.000E+00	FAIL ABUN
RE-183	6.798E-02	8.138E-02	1.430E-01	0.000E+00	FAIL ABUN
RE-184	1.382E-01	1.608E-01	3.024E-01	0.000E+00	NOT IDENT.
OS-185	-9.206E-03	2.848E-02	4.913E-02	0.000E+00	NOT IDENT.
RE-188	9.774E-02	1.246E-01	2.243E-01	0.000E+00	FAIL ABUN
W-188	-3.188E+00	5.677E+00	8.523E+00	0.000E+00	FAIL ABUN
IR-192	9.164E-03	2.291E-02	4.175E-02	0.000E+00	FAIL ABUN
AU-195	1.198E-01	1.528E-01	2.793E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.873E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	4.393E+00	4.390E+00	7.983E+00	0.000E+00	NOT IDENT.
TL-202	8.422E-03	4.917E-02	8.634E-02	0.000E+00	NOT IDENT.
HG-203	1.420E-02	2.699E-02	4.980E-02	0.000E+00	FAIL ABUN
BI-207	-1.465E-02	3.775E-02	6.133E-02	0.000E+00	FAIL ABUN
TL-207	4.898E-01	4.828E-01	8.086E-01	0.000E+00	FAIL ABUN
PO-209	3.546E+00	4.982E+00	9.173E+00	0.000E+00	NOT IDENT.
PB-211	4.386E-01	7.737E-01	1.175E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.877E-01	4.618E-01	0.000E+00	FAIL ABUN
PO-215	4.898E-01	4.828E-01	8.086E-01	0.000E+00	FAIL ABUN
RN-219	-3.362E-02	2.894E-01	5.014E-01	0.000E+00	FAIL ABUN
RN-220	-1.019E+01	1.893E+01	3.065E+01	0.000E+00	NOT IDENT.
RA-223	4.898E-01	4.828E-01	8.086E-01	0.000E+00	FAIL ABUN
AC-227	5.074E-02	2.607E-01	4.756E-01	0.000E+00	FAIL ABUN
TH-227	5.074E-02	2.607E-01	4.756E-01	0.000E+00	FAIL ABUN
AC-228	0.000E+00	2.019E-01	3.424E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	2.019E-01	3.424E-01	0.000E+00	FAIL ABUN
TH-229	3.506E-02	3.427E-01	6.340E-01	0.000E+00	FAIL ABUN
PA-231	-4.031E-01	1.026E+00	1.795E+00	0.000E+00	FAIL ABUN
TH-231	4.898E-01	4.828E-01	8.086E-01	0.000E+00	FAIL ABUN
U-231	-5.269E-01	7.383E-01	1.128E+00	0.000E+00	FAIL ABUN
TH-232	0.000E+00	2.019E-01	3.424E-01	0.000E+00	FAIL ABUN
PA-233	2.468E-02	4.095E-02	7.563E-02	0.000E+00	FAIL ABUN
PA-234	1.005E-01	2.283E-01	4.059E-01	0.000E+00	FAIL ABUN
PA-234M	2.207E+00	3.296E+00	5.967E+00	0.000E+00	NOT IDENT.
U-235	1.435E-01	1.531E-01	2.723E-01	0.000E+00	FAIL ABUN
NP-236	5.233E-03	5.898E-02	1.028E-01	0.000E+00	FAIL ABUN
NP-239	-3.705E-02	1.259E-01	2.198E-01	0.000E+00	FAIL ABUN
AM-241	3.398E-02	8.990E-02	1.509E-01	0.000E+00	NOT IDENT.
CM-243	-1.552E-02	6.583E-02	1.162E-01	0.000E+00	FAIL ABUN
AM-246	1.637E-02	1.065E-01	1.830E-01	0.000E+00	NOT IDENT.
CM-247	1.690E-03	2.628E-02	4.610E-02	0.000E+00	NOT IDENT.
CF-249	4.849E-03	2.678E-02	4.750E-02	0.000E+00	NOT IDENT.
CF-251	-5.129E-02	9.112E-02	1.522E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015436.CNF;1
Sample date        : 7-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 10:24:55
Sample ID          : G1202015436      Sample quantity   : 1.55810E+02 GRAM
Detector name      : GAM20            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:32.20  0.4%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 941635            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
BE-7	477.59	50	10.42*	3.154E+00	3.700E-01	4.493E-01	74.82
K-40	1460.81	1717	10.67*	1.253E+00	3.094E+01	3.094E+01	10.05
CD-109	88.03	96	3.72*	6.920E+00	8.947E-01	9.149E-01	75.59
SN-126	64.28	48	9.60	4.649E+00	2.572E-01	2.572E-01	164.02
	86.94	96	8.90	6.920E+00	3.740E-01	3.740E-01	85.73
	87.57	96	37.00*	6.920E+00	8.995E-02	8.995E-02	75.59
BA-137M	661.65	250	89.98*	2.435E+00	2.750E-01	2.753E-01	21.42
CS-137	661.65	250	85.12*	2.435E+00	2.907E-01	2.910E-01	21.43
TL-208	277.35	-----	6.80	4.722E+00	-----	Line Not Found	-----
	510.84	87	21.60	2.992E+00	3.243E-01	3.243E-01	69.02
	583.14	296	84.20*	2.696E+00	3.142E-01	3.142E-01	20.71
	860.37	-----	12.46	1.954E+00	-----	Line Not Found	-----
BI-210	46.50	19	4.05*	2.030E+00	5.632E-01	5.639E-01	381.09
PB-210	46.50	19	4.05*	2.030E+00	5.632E-01	5.639E-01	381.09
PO-210	46.50	19	4.05*	2.030E+00	5.632E-01	5.639E-01	381.07
BI-211	72.87	-----	1.27	5.845E+00	-----	Line Not Found	-----
	351.07	438	12.94*	3.970E+00	2.055E+00	2.055E+00	17.13
PB-212	74.81	254	10.70	6.053E+00	9.443E-01	9.443E-01	30.91
	77.11	414	18.00	6.261E+00	8.852E-01	8.852E-01	18.35
	87.30	96	8.00	6.920E+00	4.160E-01	4.160E-01	76.24
	238.63	895	44.60*	5.250E+00	9.208E-01	9.208E-01	13.47
	300.09	87	3.41	4.460E+00	1.374E+00	1.374E+00	70.17
PO-212	74.81	254	10.70	6.053E+00	9.443E-01	9.443E-01	30.91
	77.11	414	18.00	6.261E+00	8.852E-01	8.852E-01	18.35
	87.30	96	8.00	6.920E+00	4.160E-01	4.160E-01	76.24
	115.19	-----	0.60	7.430E+00	-----	Line Not Found	-----
	238.63	895	44.60*	5.250E+00	9.208E-01	9.208E-01	13.47
	300.09	87	3.41	4.460E+00	1.374E+00	1.374E+00	70.17
BI-214	609.31	322	46.30*	2.604E+00	6.425E-01	6.425E-01	20.76
	1120.29	97	15.10	1.557E+00	9.940E-01	9.940E-01	48.11
	1764.49	74	15.80	1.100E+00	1.026E+00	1.026E+00	24.66
PB-214	74.81	254	6.21	6.053E+00	1.627E+00	1.627E+00	30.38

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	414	10.50	6.261E+00	1.517E+00	1.517E+00	19.87
	87.30	96	4.67	6.920E+00	7.127E-01	7.127E-01	75.98
	241.98	192	7.49	5.207E+00	1.187E+00	1.187E+00	41.40
	295.21	241	19.20	4.513E+00	6.709E-01	6.709E-01	26.40
	351.92	438	37.20*	3.970E+00	7.149E-01	7.149E-01	17.91
	74.81	254	6.21	6.053E+00	1.627E+00	1.627E+00	30.38
	77.11	414	10.50	6.261E+00	1.517E+00	1.517E+00	19.87
	87.30	96	4.67	6.920E+00	7.127E-01	7.127E-01	75.98
	241.98	192	7.49	5.207E+00	1.187E+00	1.187E+00	41.40
	295.21	241	19.20	4.513E+00	6.709E-01	6.709E-01	26.40
PO-216	351.92	438	37.20*	3.970E+00	7.149E-01	7.149E-01	17.91
	74.81	254	10.70	6.053E+00	9.443E-01	9.443E-01	30.91
	77.11	414	18.00	6.261E+00	8.852E-01	8.852E-01	18.35
	87.30	96	8.00	6.920E+00	4.160E-01	4.160E-01	76.24
	238.63	895	44.60*	5.250E+00	9.208E-01	9.208E-01	13.47
	300.09	87	3.41	4.460E+00	1.374E+00	1.374E+00	70.17
PO-218	74.81	254	6.21	6.053E+00	1.627E+00	1.627E+00	30.38
	77.11	414	10.50	6.261E+00	1.517E+00	1.517E+00	19.87
	87.30	96	4.67	6.920E+00	7.127E-01	7.127E-01	75.98
	241.98	192	7.49	5.207E+00	1.187E+00	1.187E+00	41.40
	295.21	241	19.20	4.513E+00	6.709E-01	6.709E-01	26.40
	351.92	438	37.20*	3.970E+00	7.149E-01	7.149E-01	17.91
RA-224	240.98	192	3.95*	5.207E+00	2.251E+00	2.251E+00	41.02
RA-226	609.31	322	46.30*	2.604E+00	6.425E-01	6.425E-01	20.76
TH-228	1120.29	97	15.10	1.557E+00	9.940E-01	9.940E-01	48.11
	1764.49	74	15.80	1.100E+00	1.026E+00	1.026E+00	24.66
	74.81	254	10.70	6.053E+00	9.443E-01	9.585E-01	29.49
	77.11	414	18.00	6.261E+00	8.852E-01	8.984E-01	18.35
	87.30	96	8.00	6.920E+00	4.160E-01	4.223E-01	75.59
	238.63	895	44.60*	5.250E+00	9.208E-01	9.346E-01	13.47
TH-230	300.09	87	3.41	4.460E+00	1.374E+00	1.394E+00	91.27
	609.31	322	46.30*	2.604E+00	6.425E-01	6.425E-01	20.76
	1120.29	97	15.10	1.557E+00	9.940E-01	9.940E-01	48.11
	1764.49	74	15.80	1.100E+00	1.026E+00	1.026E+00	24.66
TH-234	63.29	48	3.80*	4.649E+00	6.498E-01	6.498E-01	164.30
	92.38	145	5.41	7.184E+00	9.004E-01	9.004E-01	72.00
U-234	609.31	322	46.30*	2.604E+00	6.425E-01	6.425E-01	20.76
	1120.29	97	15.10	1.557E+00	9.940E-01	9.940E-01	48.11
	1764.49	74	15.80	1.100E+00	1.026E+00	1.026E+00	24.66
NP-237	86.50	96	12.60*	6.920E+00	2.641E-01	2.641E-01	78.35
	95.87	-----	2.60	7.260E+00	-----	Line Not Found	-----
U-238	63.29	48	3.80*	4.649E+00	6.498E-01	6.498E-01	164.30
	92.38	145	5.41	7.184E+00	9.004E-01	9.004E-01	70.23
AM-243	74.67	254	66.00*	6.053E+00	1.531E-01	1.531E-01	29.47
	86.72	96	0.34	6.920E+00	9.906E+00	9.906E+00	75.59
	117.66	-----	0.55	7.416E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	7.067E+00	-----	Line Not Found	-----
	511.00	87	100.00*	2.992E+00	7.005E-02	7.005E-02	68.52

Nuclide Line Activity Report (continued)  
Sample ID : G1202015436

Page : 3  
Acquisition date : 22-JAN-2010 10:24:55

Flag: "\*" = Keyline

Total number of lines in spectrum 32  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 29 90.63%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BE-7	53.44D	1.21	3.700E-01	4.493E-01	3.362E-01	74.82	
K-40	1.28E+09Y	1.00	3.094E+01	3.094E+01	0.311E+01	10.05	
CD-109	464.00D	1.02	8.947E-01	9.149E-01	6.916E-01	75.59	
SN-126	1.00E+05Y	1.00	8.995E-02	8.995E-02	6.799E-02	75.59	
BA-137M	30.17Y	1.00	2.750E-01	2.753E-01	0.590E-01	21.42	
CS-137	30.17Y	1.00	2.907E-01	2.910E-01	0.623E-01	21.43	
TL-208	1.41E+10Y	1.00	3.142E-01	3.142E-01	0.650E-01	20.71	
BI-210	22.26Y	1.00	5.632E-01	5.639E-01	21.49E-01	381.09	
PB-210	22.26Y	1.00	5.632E-01	5.639E-01	21.49E-01	381.09	
PO-210	22.26Y	1.00	5.632E-01	5.639E-01	21.49E-01	381.07	
BI-211	7.04E+08Y	1.00	2.055E+00	2.055E+00	0.352E+00	17.13	
PB-212	1.41E+10Y	1.00	9.208E-01	9.208E-01	1.240E-01	13.47	
PO-212	1.41E+10Y	1.00	9.208E-01	9.208E-01	1.240E-01	13.47	
BI-214	1600.00Y	1.00	6.425E-01	6.425E-01	1.334E-01	20.76	
PB-214	1600.00Y	1.00	7.149E-01	7.149E-01	1.280E-01	17.91	
PO-214	1600.00Y	1.00	7.149E-01	7.149E-01	1.280E-01	17.91	
PO-216	1.41E+10Y	1.00	9.208E-01	9.208E-01	1.240E-01	13.47	
PO-218	1600.00Y	1.00	7.149E-01	7.149E-01	1.280E-01	17.91	
RA-224	1.41E+10Y	1.00	2.251E+00	2.251E+00	0.923E+00	41.02	
RA-226	1600.00Y	1.00	6.425E-01	6.425E-01	1.334E-01	20.76	
TH-228	1.91Y	1.01	9.208E-01	9.346E-01	1.259E-01	13.47	
TH-230	4.47E+09Y	1.00	6.425E-01	6.425E-01	1.334E-01	20.76	
TH-234	4.47E+09Y	1.00	6.498E-01	6.498E-01	10.68E-01	164.30	
U-234	4.47E+09Y	1.00	6.425E-01	6.425E-01	1.334E-01	20.76	
NP-237	2.14E+06Y	1.00	2.641E-01	2.641E-01	2.070E-01	78.35	
U-238	4.47E+09Y	1.00	6.498E-01	6.498E-01	10.68E-01	164.30	
AM-243	7380.00Y	1.00	1.531E-01	1.531E-01	0.451E-01	29.47	
ANH-511	1.00E+09Y	1.00	7.005E-02	7.005E-02	4.800E-02	68.52	

Total Activity : 4.936E+01 4.948E+01

Grand Total Activity : 4.936E+01 4.948E+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	84.07	74	311	1.00	168.05	166	6	1.03E-02	81.4	6.76E+00	T
0	129.36	59	150	0.96	258.51	256	5	8.13E-03	68.4	7.29E+00	T
0	185.80	128	282	0.90	371.22	367	9	1.78E-02	53.3	6.18E+00	T
0	208.99	43	166	0.71	417.55	415	6	6.01E-03	99.0	5.74E+00	T
0	270.23	86	175	1.97	539.88	535	10	1.19E-02	61.8	4.81E+00	T
0	327.73	50	115	1.06	654.74	652	8	6.88E-03	79.7	4.18E+00	T
0	338.31	177	158	1.27	675.89	671	12	2.46E-02	32.6	4.09E+00	T
0	410.23	49	81	1.30	819.57	814	9	6.84E-03	71.8	3.54E+00	T
0	727.26	66	81	1.80	1453.24	1445	16	9.19E-03	64.9	2.25E+00	T
0	770.91	82	99	3.53	1540.52	1530	21	1.13E-02	66.2	2.14E+00	
0	911.09	191	45	1.64	1820.85	1816	10	2.65E-02	19.5	1.86E+00	T
0	1378.25	23	32	1.60	2755.61	2748	14	3.25E-03	****	1.31E+00	
0	1588.00	19	11	1.45	3175.58	3172	8	2.70E-03	72.8	1.18E+00	

Flags: "T" = Tentatively associated



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015436.CNF;1
* Acquisition date   : 22-JAN-2010 10:24:55   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 02:00:32.20          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G1202015436           Analyst initials: MXR1
* Batch Number       : 941635                Sample Quantity : 1.55810E+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      :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.493E-01	3.362E-01	4.164E-01	4.047E-02	1.079
K-40	3.094E+01	3.109E+00	4.293E-01	3.743E-02	72.088
CD-109	9.149E-01	6.916E-01	1.044E+00	9.868E-02	0.877
SN-126	8.995E-02	6.799E-02	9.571E-02	9.002E-03	0.940
BA-137M	2.753E-01	5.896E-02	4.587E-02	4.603E-03	6.001
CS-137	2.910E-01	6.234E-02	4.849E-02	4.873E-03	6.001
TL-208	3.142E-01	6.505E-02	3.700E-02	3.804E-03	8.490
BI-210	5.639E-01	2.149E+00	2.396E+00	2.222E-01	0.235
PB-210	5.639E-01	2.149E+00	2.396E+00	2.222E-01	0.235
PO-210	5.639E-01	2.149E+00	2.396E+00	2.010E-01	0.235
BI-211	2.055E+00	3.520E-01	2.321E-01	2.223E-02	8.856
PB-212	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
PO-212	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
BI-214	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
PB-214	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004
PO-214	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004
PO-216	9.208E-01	1.240E-01	6.426E-02	6.834E-03	14.328
PO-218	7.149E-01	1.280E-01	7.940E-02	8.653E-03	9.004

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-224	2.251E+00	9.233E-01	7.312E-01	7.067E-02	3.079
RA-226	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
TH-228	9.346E-01	1.259E-01	6.522E-02	6.936E-03	14.328
TH-230	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
TH-234	6.498E-01	1.068E+00	1.132E+00	1.966E-01	0.574
U-234	6.425E-01	1.334E-01	7.276E-02	8.097E-03	8.830
NP-237	2.641E-01	2.070E-01	2.435E-01	5.509E-02	1.085
U-238	6.498E-01	1.068E+00	1.132E+00	1.966E-01	0.574
AM-243	1.531E-01	4.511E-02	5.759E-02	4.635E-03	2.658
ANH-511	7.005E-02	4.800E-02	3.375E-02	3.145E-03	2.075

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	-9.644E-03		3.648E-02	5.714E-02	4.734E-03	-0.169
NA-24	-1.503E-01		1.870E-01	Half-Life too short		
AL-26	-1.106E-02		1.728E-02	2.322E-02	1.886E-03	-0.476
TI-44	1.633E-01	+	2.997E-02	4.769E-02	4.002E-03	3.425
SC-46	1.542E-02		2.903E-02	5.031E-02	5.016E-03	0.306
V-48	-6.051E-02		5.233E-02	7.448E-02	7.118E-03	-0.812
CR-51	-1.194E-01		2.541E-01	4.078E-01	4.089E-02	-0.293
MN-52	3.188E-02		1.578E-01	2.714E-01	2.297E-02	0.117
MN-54	-6.244E-03		2.722E-02	4.423E-02	4.468E-03	-0.141
CO-56	-2.162E-02		2.844E-02	4.348E-02	4.382E-03	-0.497
CO-57	-3.799E-03		1.805E-02	2.870E-02	2.396E-03	-0.132
CO-58	5.133E-03		3.036E-02	5.118E-02	5.197E-03	0.100
FE-59	1.733E-04		7.130E-02	1.162E-01	1.096E-02	0.001
CO-60	2.092E-02		2.942E-02	5.149E-02	4.313E-03	0.406
ZN-65	-1.823E-02		8.266E-02	1.127E-01	9.700E-03	-0.162
GE-68	2.001E-01		8.638E-01	1.445E+00	1.289E-01	0.139
AS-73	2.300E-01		4.047E-01	6.831E-01	5.071E-02	0.337
AS-74	4.923E-02		7.065E-02	1.194E-01	1.169E-02	0.412
SE-75	-8.997E-03		3.204E-02	4.872E-02	4.824E-03	-0.185
BR-77	-2.120E+00		7.521E+00	1.185E+01	1.112E+00	-0.179
SR-82	3.015E-01		2.946E-01	4.803E-01	4.880E-02	0.628
RB-83	-4.090E-03		5.110E-02	8.194E-02	7.685E-03	-0.050
RB-84	3.952E-03		5.618E-02	9.346E-02	9.339E-03	0.042
KR-85	6.364E+00		6.183E+00	9.575E+00	8.941E-01	0.665
SR-85	3.257E-02		3.164E-02	4.900E-02	4.576E-03	0.665
RB-86	-9.371E-02		5.737E-01	9.192E-01	8.207E-02	-0.102
Y-88	9.874E-03		2.114E-02	3.833E-02	3.093E-03	0.258
ZR-88	1.224E-02		1.955E-02	3.357E-02	2.808E-03	0.365
Y-91	1.945E+00		1.511E+01	2.497E+01	2.028E+00	0.078
NB-94	1.503E-02		2.530E-02	4.422E-02	4.474E-03	0.340
NB-95	2.980E-02		3.467E-02	5.501E-02	5.590E-03	0.542
NB-95M	1.186E-02		9.524E-02	1.423E-01	1.529E-02	0.083
ZR-95	-5.732E-03		4.820E-02	7.957E-02	8.684E-03	-0.072

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	-2.600E-03		3.342E-02	Half-Life too short		
ZR-97	6.936E-01		6.145E-01	Half-Life too short		
MO-99	-1.318E+00		8.127E+00	1.339E+01	2.157E+00	-0.098
TC-99M	-1.000E+10		8.651E+09	Half-Life too short		
RH-101	3.168E-03		2.391E-02	4.021E-02	3.686E-03	0.079
RH-102	7.329E-03		2.815E-02	4.094E-02	3.712E-03	0.179
RU-103	4.858E-04		2.714E-02	4.400E-02	6.397E-03	0.011
RH-106	1.367E-01		2.342E-01	3.928E-01	5.584E-02	0.348
RU-106	1.367E-01		2.338E-01	3.928E-01	3.888E-02	0.348
AG-108M	-3.447E-03		2.485E-02	4.013E-02	3.642E-03	-0.086
AG-110M	-2.747E-03		2.856E-02	4.141E-02	4.243E-03	-0.066
IN-111	-3.736E-01		7.908E-01	1.127E+00	1.094E-01	-0.331
IN-113M	-1.192E-02		2.940E-02	4.669E-02	4.028E-03	-0.255
SN-113	-1.192E-02		2.940E-02	4.669E-02	4.028E-03	-0.255
IN-114M	-9.053E-02		1.401E-01	2.011E-01	1.822E-02	-0.450
CD-115	-3.343E+00		7.621E+00	1.182E+01	1.114E+00	-0.283
SN-117M	3.663E-03		4.003E-02	6.393E-02	5.517E-03	0.057
SB-122	-3.364E-01		1.484E+00	2.338E+00	2.252E-01	-0.144
I-123	-5.976E-02		1.699E+00	Half-Life too short		
TE-123M	-3.717E-04		2.114E-02	3.357E-02	2.917E-03	-0.011
I-124	-2.350E-01		5.464E-01	7.205E-01	7.074E-02	-0.326
SB-124	2.404E-02		4.648E-02	8.496E-02	7.383E-03	0.283
SB-125	1.107E-02		6.541E-02	1.073E-01	9.495E-03	0.103
TE-125M	4.019E+00		6.502E+00	1.076E+01	1.100E+00	0.374
I-126	8.477E-02		1.403E-01	2.196E-01	2.206E-02	0.386
SB-126	1.348E-01		1.160E-01	1.903E-01	1.930E-02	0.708
SB-127	1.095E-01		9.547E-01	1.618E+00	2.019E-01	0.068
XE-127	-1.433E-02		3.188E-02	5.279E-02	4.872E-03	-0.271
I-131	2.641E-02		8.271E-02	1.390E-01	1.304E-02	0.190
TE-132	-5.289E-02		4.651E-01	7.785E-01	1.261E-01	-0.068
BA-133	1.040E-02		3.573E-02	5.300E-02	7.159E-03	0.196
I-133	-1.865E-03		1.966E-03	Half-Life too short		
CS-134	4.614E-02		3.419E-02	6.281E-02	6.409E-03	0.735
CS-135	1.157E-01		1.246E-01	1.947E-01	2.158E-02	0.594
I-135	1.606E+09		1.359E+09	Half-Life too short		
CS-136	-8.383E-02		8.583E-02	1.257E-01	1.193E-02	-0.667
CE-139	-2.204E-02		2.120E-02	3.158E-02	2.757E-03	-0.698
BA-140	-1.904E-02		1.866E-01	2.978E-01	9.940E-02	-0.064
LA-140	-5.474E-02		5.965E-02	8.328E-02	7.031E-03	-0.657
CE-141	4.181E-02		4.443E-02	7.390E-02	6.380E-03	0.566
CE-143	2.051E-04		5.510E-05	Half-Life too short		
CE-144	6.871E-02		1.424E-01	2.329E-01	3.593E-02	0.295
PM-144	1.354E-03		2.482E-02	4.147E-02	4.192E-03	0.033
PR-144	9.177E-02		1.682E+00	2.810E+00	2.840E-01	0.033
PM-146	-1.541E-02		3.150E-02	4.920E-02	5.388E-03	-0.313
ND-147	2.248E-02		4.132E-01	6.694E-01	1.034E-01	0.034
PM-149	4.748E+01		6.180E+01	1.066E+02	1.737E+01	0.446
EU-152	1.831E-02		8.073E-02	1.193E-01	1.164E-02	0.153

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-2.514E-02		5.956E-02	8.347E-02	7.402E-03	~0.301
EU-154	-3.478E-02		1.023E-01	1.588E-01	1.754E-02	-0.219
EU-155	2.229E-02		7.561E-02	1.237E-01	1.075E-02	0.180
TB-160	6.743E-02		1.105E-01	1.922E-01	1.922E-02	0.351
HO-166M	2.250E-02		4.361E-02	7.601E-02	7.699E-03	0.296
TM-171	-9.245E+00		1.887E+01	2.702E+01	2.013E+00	-0.342
LU-176	1.960E-02		1.825E-02	2.903E-02	2.832E-03	0.675
LU-177	7.758E-01	+	7.715E-01	1.290E+00	1.200E-01	0.602
LU-177M	5.594E-02		1.490E-01	2.210E-01	1.892E-02	0.253
HF-181	1.076E-02		3.358E-02	4.938E-02	4.502E-03	0.218
W-181	-1.262E-01		2.442E-01	3.496E-01	2.573E-02	-0.361
TA-182	-1.251E-02		1.686E-01	2.709E-01	2.210E-02	-0.046
RE-183	6.798E-02		8.304E-02	1.337E-01	1.160E-02	0.509
RE-184	1.382E-01		1.640E-01	2.859E-01	2.794E-02	0.483
OS-185	-9.206E-03		2.906E-02	4.762E-02	4.755E-03	-0.193
RE-188	9.774E-02		1.272E-01	2.095E-01	1.798E-02	0.467
W-188	-3.188E+00		5.793E+00	8.087E+00	7.996E-01	-0.394
IR-192	9.164E-03		2.338E-02	3.970E-02	3.840E-03	0.231
AU-195	1.198E-01		1.559E-01	2.578E-01	2.270E-02	0.465
TL-200	3.388E-06		1.466E-04	Half-Life too short		
TL-201	4.393E+00		4.479E+00	7.467E+00	6.533E-01	0.588
TL-202	8.422E-03		5.018E-02	8.281E-02	7.275E-03	0.102
HG-203	1.420E-02		2.754E-02	4.720E-02	4.800E-03	0.301
BI-207	-1.465E-02		3.852E-02	6.027E-02	5.442E-03	-0.243
TL-207	4.898E-01		4.926E-01	7.694E-01	1.399E-01	0.637
PO-209	3.546E+00		5.084E+00	8.970E+00	8.922E-01	0.395
PB-211	4.386E-01		7.894E-01	1.124E+00	7.043E-01	0.390
BI-212	6.001E-01	+	3.956E-01	4.490E-01	5.096E-02	1.337
PO-215	4.898E-01		4.926E-01	7.694E-01	1.399E-01	0.637
RN-219	-3.362E-02		2.953E-01	4.798E-01	7.163E-02	-0.070
RN-220	-1.019E+01		1.932E+01	2.958E+01	2.826E+00	-0.344
RA-223	4.898E-01		4.926E-01	7.694E-01	1.399E-01	0.637
AC-227	5.074E-02		2.660E-01	4.498E-01	7.215E-02	0.113
TH-227	5.074E-02		2.660E-01	4.498E-01	8.391E-02	0.113
AC-228	8.929E-01	+	2.060E-01	3.350E-01	4.104E-02	2.665
RA-228	8.929E-01	+	2.060E-01	3.350E-01	4.104E-02	2.665
TH-229	3.506E-02		3.497E-01	5.952E-01	5.421E-02	0.059
PA-231	-4.031E-01		1.047E+00	1.702E+00	2.717E-01	-0.237
TH-231	4.898E-01		4.926E-01	7.694E-01	1.399E-01	0.637
U-231	-5.269E-01		7.534E-01	1.041E+00	9.309E-02	-0.506
TH-232	8.929E-01	+	2.060E-01	3.350E-01	4.104E-02	2.665
PA-233	2.468E-02		4.178E-02	7.189E-02	7.132E-03	0.343
PA-234	1.005E-01		2.329E-01	3.975E-01	7.675E-02	0.253
PA-234M	2.207E+00		3.363E+00	5.853E+00	6.261E-01	0.377
U-235	1.435E-01		1.563E-01	2.537E-01	4.422E-02	0.565
NP-236	5.233E-03		6.019E-02	9.606E-02	8.312E-03	0.054
NP-239	-3.705E-02		1.285E-01	2.037E-01	1.707E-02	-0.182
AM-241	3.398E-02		9.174E-02	1.376E-01	1.077E-02	0.247

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.552E-02		6.718E-02	1.074E-01	9.273E-03	-0.145
AM-246	1.637E-02		1.086E-01	1.799E-01	1.603E-02	0.091
CM-247	1.690E-03		2.681E-02	4.411E-02	3.730E-03	0.038
CF-249	4.849E-03		2.732E-02	4.541E-02	3.832E-03	0.107
CF-251	-5.129E-02		9.298E-02	1.426E-01	1.265E-02	-0.360

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202015436             *
* Acquisition date   : 22-JAN-2010 10:24:55 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 02:00:32.20                     Half life ratio  : 8.000   *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 7-JAN-2010 12:00:00 Nuclide Library : SOLID              *
* Sample ID          : G1202015436                     Analyst initials: MXR1       *
* Batch Number       : 941635                           Sample Quantity : 1.5581E+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       :                 *
*****

```

## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
BE-7	4.493E-01	3.295E-01	2.167E-01	1.681E-01
K-40	3.094E+01	3.047E+00	2.166E-01	1.554E+00
CD-109	9.149E-01	6.777E-01	5.672E-01	3.458E-01
SN-126	8.995E-02	6.663E-02	5.202E-02	3.400E-02
BA-137M	2.753E-01	5.778E-02	2.366E-02	2.948E-02
CS-137	2.910E-01	6.110E-02	2.501E-02	3.117E-02
TL-208	3.142E-01	6.375E-02	1.915E-02	3.252E-02
BI-210	5.639E-01	2.106E+00	1.322E+00	1.074E+00
PB-210	5.639E-01	2.106E+00	1.322E+00	1.074E+00
PO-210	5.639E-01	2.106E+00	1.322E+00	1.074E+00
BI-211	2.055E+00	3.450E-01	1.218E-01	1.760E-01
PB-212	9.208E-01	1.215E-01	3.406E-02	6.200E-02
PO-212	9.208E-01	1.215E-01	3.406E-02	6.200E-02
BI-214	6.425E-01	1.307E-01	3.762E-02	6.670E-02
PB-214	7.149E-01	1.255E-01	4.166E-02	6.401E-02
PO-214	7.149E-01	1.255E-01	4.166E-02	6.401E-02
PO-216	9.208E-01	1.215E-01	3.406E-02	6.200E-02
PO-218	7.149E-01	1.255E-01	4.166E-02	6.401E-02
RA-224	2.251E+00	9.049E-01	3.874E-01	4.617E-01
RA-226	6.425E-01	1.307E-01	3.762E-02	6.670E-02
TH-228	9.346E-01	1.233E-01	3.457E-02	6.293E-02
TH-230	6.425E-01	1.307E-01	3.762E-02	6.670E-02
TH-234	6.498E-01	1.046E+00	6.200E-01	5.339E-01
U-234	6.425E-01	1.307E-01	3.762E-02	6.670E-02
NP-237	2.641E-01	2.028E-01	1.324E-01	1.035E-01
U-238	6.498E-01	1.046E+00	6.200E-01	5.339E-01
AM-243	1.531E-01	4.421E-02	3.142E-02	2.255E-02
ANH-511	7.005E-02	4.704E-02	1.754E-02	2.400E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----

NA-22	-9.644E-03	3.575E-02	2.895E-02	1.824E-02	NOT IDENT.
NA-24	-1.503E+05	3.665E+05	0.000E+00	1.870E+05	SHORT HLIF
AL-26	-1.106E-02	1.694E-02	1.165E-02	8.642E-03	NOT IDENT.
TI-44	1.633E-01	2.937E-02	2.599E-02	1.499E-02	FAIL ABUN
SC-46	1.542E-02	2.845E-02	2.574E-02	1.452E-02	FAIL ABUN
V-48	-6.051E-02	5.128E-02	3.800E-02	2.616E-02	NOT IDENT.
CR-51	-1.194E-01	2.490E-01	2.145E-01	1.271E-01	NOT IDENT.
MN-52	3.188E-02	1.547E-01	1.370E-01	7.890E-02	NOT IDENT.
MN-54	-6.244E-03	2.668E-02	2.267E-02	1.361E-02	NOT IDENT.
CO-56	-2.162E-02	2.787E-02	2.228E-02	1.422E-02	NOT IDENT.
CO-57	-3.799E-03	1.769E-02	1.547E-02	9.026E-03	NOT IDENT.
CO-58	5.133E-03	2.975E-02	2.626E-02	1.518E-02	NOT IDENT.
FE-59	1.733E-04	6.987E-02	5.909E-02	3.565E-02	NOT IDENT.
CO-60	2.092E-02	2.884E-02	2.605E-02	1.471E-02	NOT IDENT.
ZN-65	-1.823E-02	8.100E-02	5.730E-02	4.133E-02	NOT IDENT.
GE-68	2.001E-01	8.465E-01	7.354E-01	4.319E-01	NOT IDENT.
AS-73	2.300E-01	3.966E-01	3.757E-01	2.024E-01	NOT IDENT.
AS-74	4.923E-02	6.923E-02	6.178E-02	3.532E-02	NOT IDENT.
SE-75	-8.997E-03	3.140E-02	2.575E-02	1.602E-02	NOT IDENT.
BR-77	-2.120E+00	7.371E+00	6.155E+00	3.761E+00	FAIL ABUN
SR-82	3.015E-01	2.887E-01	2.467E-01	1.473E-01	NOT IDENT.
RB-83	-4.090E-03	5.008E-02	4.255E-02	2.555E-02	NOT IDENT.
RB-84	3.952E-03	5.506E-02	4.783E-02	2.809E-02	NOT IDENT.
KR-85	6.364E+00	6.059E+00	4.974E+00	3.092E+00	NOT IDENT.
SR-85	3.257E-02	3.101E-02	2.545E-02	1.582E-02	NOT IDENT.
RB-86	-9.371E-02	5.622E-01	4.679E-01	2.869E-01	NOT IDENT.
Y-88	9.874E-03	2.071E-02	1.922E-02	1.057E-02	NOT IDENT.
ZR-88	1.224E-02	1.916E-02	1.756E-02	9.773E-03	NOT IDENT.
Y-91	1.945E+00	1.481E+01	1.267E+01	7.556E+00	NOT IDENT.
NB-94	1.503E-02	2.479E-02	2.277E-02	1.265E-02	NOT IDENT.
NB-95	2.980E-02	3.398E-02	2.826E-02	1.734E-02	NOT IDENT.
NB-95M	1.186E-02	9.333E-02	7.543E-02	4.762E-02	NOT IDENT.
ZR-95	-5.732E-03	4.724E-02	4.090E-02	2.410E-02	NOT IDENT.
NB-97	-2.600E+03	6.550E+04	0.000E+00	3.342E+04	SHORT HLIF
ZR-97	6.936E+05	1.204E+06	0.000E+00	6.145E+05	SHORT HLIF
MO-99	-1.318E+00	7.964E+00	6.887E+00	4.063E+00	NOT IDENT.
TC-99M	-1.000E+16	1.696E+16	0.000E+00	8.651E+15	SHORT HLIF
RH-101	3.168E-03	2.344E-02	2.142E-02	1.196E-02	NOT IDENT.
RH-102	7.329E-03	2.759E-02	2.131E-02	1.408E-02	NOT IDENT.
RU-103	4.858E-04	2.659E-02	2.287E-02	1.357E-02	FAIL ABUN
RH-106	1.367E-01	2.295E-01	2.030E-01	1.171E-01	FAIL ABUN
RU-106	1.367E-01	2.291E-01	2.030E-01	1.169E-01	FAIL ABUN
AG-108M	-3.447E-03	2.435E-02	2.094E-02	1.242E-02	NOT IDENT.
AG-110M	-2.747E-03	2.799E-02	2.137E-02	1.428E-02	NOT IDENT.
IN-111	-3.736E-01	7.750E-01	5.970E-01	3.954E-01	NOT IDENT.
IN-113M	-1.192E-02	2.882E-02	2.443E-02	1.470E-02	NOT IDENT.
SN-113	-1.192E-02	2.882E-02	2.443E-02	1.470E-02	NOT IDENT.
IN-114M	-9.053E-02	1.373E-01	1.072E-01	7.007E-02	NOT IDENT.
CD-115	-3.343E+00	7.468E+00	6.133E+00	3.810E+00	NOT IDENT.
SN-117M	3.663E-03	3.922E-02	3.424E-02	2.001E-02	NOT IDENT.
SB-122	-3.364E-01	1.455E+00	1.211E+00	7.422E-01	NOT IDENT.
I-123	-5.976E+04	3.330E+06	0.000E+00	1.699E+06	SHORT HLIF
TE-123M	-3.717E-04	2.071E-02	1.798E-02	1.057E-02	NOT IDENT.
I-124	-2.350E-01	5.354E-01	3.726E-01	2.732E-01	NOT IDENT.
SB-124	2.404E-02	4.555E-02	4.269E-02	2.324E-02	NOT IDENT.
SB-125	1.107E-02	6.411E-02	5.599E-02	3.271E-02	NOT IDENT.
TE-125M	4.019E+00	6.372E+00	5.816E+00	3.251E+00	NOT IDENT.
I-126	8.477E-02	1.375E-01	1.132E-01	7.015E-02	NOT IDENT.
SB-126	1.348E-01	1.137E-01	9.795E-02	5.799E-02	FAIL ABUN
SB-127	1.095E-01	9.356E-01	8.337E-01	4.773E-01	FAIL ABUN
XE-127	-1.433E-02	3.125E-02	2.809E-02	1.594E-02	NOT IDENT.
I-131	2.641E-02	8.106E-02	7.287E-02	4.136E-02	NOT IDENT.
TE-132	-5.289E-02	4.558E-01	4.131E-01	2.325E-01	NOT IDENT.
BA-133	1.040E-02	3.501E-02	2.780E-02	1.786E-02	NOT IDENT.
I-133	-1.865E+03	3.852E+03	0.000E+00	1.966E+03	SHORT HLIF
CS-134	4.614E-02	3.350E-02	3.224E-02	1.709E-02	NOT IDENT.
CS-135	1.157E-01	1.221E-01	1.029E-01	6.229E-02	NOT IDENT.
I-135	1.606E+15	2.663E+15	0.000E+00	1.359E+15	SHORT HLIF
CS-136	-8.383E-02	8.411E-02	6.403E-02	4.291E-02	FAIL ABUN
CE-139	-2.204E-02	2.077E-02	1.689E-02	1.060E-02	NOT IDENT.
BA-140	-1.904E-02	1.829E-01	1.545E-01	9.331E-02	NOT IDENT.
LA-140	-5.474E-02	5.846E-02	4.192E-02	2.983E-02	FAIL ABUN
CE-141	4.181E-02	4.354E-02	3.966E-02	2.222E-02	NOT IDENT.
CE-143	2.051E+02	1.080E+02	0.000E+00	5.510E+01	SHORT HLIF
CE-144	6.871E-02	1.396E-01	1.253E-01	7.122E-02	NOT IDENT.
PM-144	1.354E-03	2.433E-02	2.136E-02	1.241E-02	FAIL ABUN
PR-144	9.177E-02	1.648E+00	1.447E+00	8.409E-01	NOT IDENT.

PM-146	-1.541E-02	3.087E-02	2.564E-02	1.575E-02	NOT IDENT.
ND-147	2.248E-02	4.050E-01	3.474E-01	2.066E-01	NOT IDENT.
PM-149	4.748E+01	6.057E+01	5.622E+01	3.090E+01	NOT IDENT.
EU-152	1.831E-02	7.911E-02	6.264E-02	4.036E-02	NOT IDENT.
GD-153	-2.514E-02	5.837E-02	4.525E-02	2.978E-02	FAIL ABUN
EU-154	-3.478E-02	1.002E-01	8.043E-02	5.113E-02	NOT IDENT.
EU-155	2.229E-02	7.410E-02	6.693E-02	3.780E-02	FAIL ABUN
TB-160	6.743E-02	1.083E-01	9.840E-02	5.527E-02	FAIL ABUN
HO-166M	2.250E-02	4.273E-02	3.913E-02	2.180E-02	FAIL ABUN
TM-171	-9.245E+00	1.849E+01	1.479E+01	9.433E+00	NOT IDENT.
LU-176	1.960E-02	1.788E-02	1.529E-02	9.124E-03	FAIL ABUN
LU-177	7.758E-01	7.560E-01	6.860E-01	3.857E-01	FAIL ABUN
LU-177M	5.594E-02	1.460E-01	1.155E-01	7.448E-02	FAIL ABUN
HF-181	1.076E-02	3.291E-02	2.569E-02	1.679E-02	NOT IDENT.
W-181	-1.262E-01	2.393E-01	1.914E-01	1.221E-01	NOT IDENT.
TA-182	-1.251E-02	1.653E-01	1.374E-01	8.432E-02	FAIL ABUN
RE-183	6.798E-02	8.138E-02	7.155E-02	4.152E-02	FAIL ABUN
RE-184	1.382E-01	1.608E-01	1.513E-01	8.202E-02	NOT IDENT.
OS-185	-9.206E-03	2.848E-02	2.458E-02	1.453E-02	NOT IDENT.
RE-188	9.774E-02	1.246E-01	1.122E-01	6.359E-02	FAIL ABUN
W-188	-3.188E+00	5.677E+00	4.264E+00	2.896E+00	FAIL ABUN
IR-192	9.164E-03	2.291E-02	2.089E-02	1.169E-02	FAIL ABUN
AU-195	1.198E-01	1.528E-01	1.397E-01	7.795E-02	FAIL ABUN
TL-200	3.388E+00	2.873E+02	0.000E+00	1.466E+02	SHORT HLIF
TL-201	4.393E+00	4.390E+00	3.994E+00	2.240E+00	NOT IDENT.
TL-202	8.422E-03	4.917E-02	4.319E-02	2.509E-02	NOT IDENT.
HG-203	1.420E-02	2.699E-02	2.492E-02	1.377E-02	FAIL ABUN
BI-207	-1.465E-02	3.775E-02	3.069E-02	1.926E-02	FAIL ABUN
TL-207	4.898E-01	4.828E-01	4.045E-01	2.463E-01	FAIL ABUN
PO-209	3.546E+00	4.982E+00	4.589E+00	2.542E+00	NOT IDENT.
PB-211	4.386E-01	7.737E-01	5.877E-01	3.947E-01	NOT IDENT.
BI-212	6.001E-01	3.877E-01	2.310E-01	1.978E-01	FAIL ABUN
PO-215	4.898E-01	4.828E-01	4.045E-01	2.463E-01	FAIL ABUN
RN-219	-3.362E-02	2.894E-01	2.509E-01	1.477E-01	FAIL ABUN
RN-220	-1.019E+01	1.893E+01	1.534E+01	9.659E+00	NOT IDENT.
RA-223	4.898E-01	4.828E-01	4.045E-01	2.463E-01	FAIL ABUN
AC-227	5.074E-02	2.607E-01	2.379E-01	1.330E-01	FAIL ABUN
TH-227	5.074E-02	2.607E-01	2.379E-01	1.330E-01	FAIL ABUN
AC-228	8.929E-01	2.019E-01	1.713E-01	1.030E-01	FAIL ABUN
RA-228	8.929E-01	2.019E-01	1.713E-01	1.030E-01	FAIL ABUN
TH-229	3.506E-02	3.427E-01	3.172E-01	1.749E-01	FAIL ABUN
PA-231	-4.031E-01	1.026E+00	8.978E-01	5.233E-01	FAIL ABUN
TH-231	4.898E-01	4.828E-01	4.045E-01	2.463E-01	FAIL ABUN
U-231	-5.269E-01	7.383E-01	5.645E-01	3.767E-01	FAIL ABUN
TH-232	8.929E-01	2.019E-01	1.713E-01	1.030E-01	FAIL ABUN
PA-233	2.468E-02	4.095E-02	3.784E-02	2.089E-02	FAIL ABUN
PA-234	1.005E-01	2.283E-01	2.031E-01	1.165E-01	FAIL ABUN
PA-234M	2.207E+00	3.296E+00	2.985E+00	1.682E+00	NOT IDENT.
U-235	1.435E-01	1.531E-01	1.362E-01	7.813E-02	FAIL ABUN
NP-236	5.233E-03	5.898E-02	5.143E-02	3.009E-02	FAIL ABUN
NP-239	-3.705E-02	1.259E-01	1.099E-01	6.424E-02	FAIL ABUN
AM-241	3.398E-02	8.990E-02	7.549E-02	4.587E-02	NOT IDENT.
CM-243	-1.552E-02	6.583E-02	5.814E-02	3.359E-02	FAIL ABUN
AM-246	1.637E-02	1.065E-01	9.155E-02	5.432E-02	NOT IDENT.
CM-247	1.690E-03	2.628E-02	2.306E-02	1.341E-02	NOT IDENT.
CF-249	4.849E-03	2.678E-02	2.377E-02	1.366E-02	NOT IDENT.
CF-251	-5.129E-02	9.112E-02	7.615E-02	4.649E-02	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
*****

```

ENERGY	MDA COUNTS
46.50	253.8281
46.50	253.8281
46.50	253.8281
48.70	249.1609
49.72	233.5367
51.35	302.1143
52.39	259.9233
52.97	248.3983
53.15	248.4874
53.44	253.5648
54.07	253.8817
56.28	336.3343
56.28	336.3361
57.37	0.0000
57.53	281.4498
57.53	281.4505
57.60	281.4872
57.98	260.7874
57.98	260.7874
59.32	299.3660
59.32	299.3660
59.40	299.4102
59.54	299.4888
59.72	299.5895
60.01	296.7530
61.10	336.3973
61.14	336.4213
61.30	336.5204
63.00	316.4640
63.29	316.6286
63.29	316.6286
63.58	316.7932
64.28	365.5239
65.12	390.2710
65.20	390.3261
65.20	390.3261
66.05	381.8183
66.72	380.7474
66.83	347.4415
66.91	347.4904
67.20	347.6652
67.20	347.6652
67.75	346.4757
67.85	345.3190
68.90	363.4008
68.90	363.4008
69.30	400.2163
69.67	400.4688
70.82	406.3364
70.82	406.3364
70.83	406.3424
72.80	393.8822
72.87	380.1322
72.87	380.1322
74.67	418.1477
74.81	418.2432
74.81	418.2432
74.81	418.2432
74.81	418.2432
74.81	418.2432
74.81	418.2432
74.81	418.2432
74.97	418.3511
75.28	418.5607
75.70	418.8429
77.11	419.7892
77.11	419.7892

77.11	419.7892
77.11	419.7892
77.11	419.7892
77.11	419.7892
77.11	419.7892
78.38	420.6338
79.62	421.4514
79.80	421.5697
79.80	421.5697
80.11	421.7731
80.18	421.8187
80.30	421.8976
80.30	421.8976
80.57	422.0740
81.00	422.3541
81.07	422.3998
81.07	422.3998
81.07	422.3998
81.07	422.3998
82.60	277.0725
83.37	277.3944
83.78	361.7743
83.78	361.7743
83.78	361.7743
83.78	361.7743
84.21	358.8872
84.90	356.1352
85.43	356.4187
86.29	356.8745
86.50	356.9858
86.54	357.0067
86.59	357.0328
86.72	357.1006
86.79	357.1371
86.94	341.5497
87.30	489.0829
87.30	489.0829
87.30	489.0829
87.30	489.0829
87.30	489.0829
87.30	489.0829
87.57	483.0030
87.88	558.5315
88.03	558.6537
88.36	492.9823
88.47	493.0614
89.95	560.2155
91.11	460.2689
92.29	357.4671
92.38	357.5138
92.38	357.5138
93.35	358.0043
94.00	234.2456
94.67	234.4636
94.67	234.4658
94.90	259.8961
94.90	259.8961
94.90	259.8961
94.90	259.8961
95.87	291.9852
95.87	291.9852
96.73	300.2772
97.43	278.3014
98.44	246.3053
98.44	246.3053
98.88	253.8889
99.55	267.9423
99.55	267.9423
99.86	258.4817
100.00	275.5537
100.10	275.5919
103.18	304.5071
103.76	276.9396
105.00	289.1725
105.31	270.0033
108.00	307.5030
109.28	256.3141

111.00	229.8914
111.00	229.8914
111.76	260.3614
112.95	285.6348
115.19	224.5869
116.30	231.4130
117.00	237.0482
117.00	237.0482
117.66	264.4452
121.11	227.3001
121.62	251.4935
121.78	255.9161
122.06	251.6257
122.32	249.5142
122.32	249.5142
122.32	249.5142
122.32	249.5142
123.07	236.5928
127.23	264.1626
129.76	253.8928
131.20	227.2198
133.02	209.4066
133.54	222.8310
135.34	249.9413
136.00	235.6727
136.25	253.5289
136.48	253.5939
140.51	265.8858
140.51	0.0000
142.18	287.6322
142.65	282.1772
143.76	218.6113
144.24	201.8994
144.24	201.8994
144.24	201.8994
144.24	201.8994
145.22	221.1981
145.44	221.2502
147.16	281.2856
152.43	237.5787
152.70	220.6693
153.22	220.7874
154.21	241.4126
154.21	241.4126
154.21	241.4126
154.21	241.4126
155.03	234.8080
156.02	249.8051
158.56	235.6461
159.00	0.0000
159.00	242.5826
160.31	247.4627
161.27	224.8694
162.32	213.6754
162.64	214.8869
163.35	237.9123
163.89	234.6060
165.85	236.2009
167.43	168.8098
171.28	191.3347
171.86	205.2783
172.10	205.3254
176.55	229.3544
176.60	229.3665
181.06	207.6326
184.41	205.8179
185.71	217.2744
186.00	217.3311
190.27	228.0142
192.34	202.6994
193.63	211.7523
197.04	212.3822
198.01	213.4473
198.60	214.4401
200.40	228.9742
201.83	211.4821
202.84	217.0016
205.31	196.7797

208.36	214.4385
208.81	210.9437
209.75	203.9531
209.75	203.9531
210.97	190.5495
215.65	192.3620
216.55	185.3076
218.09	179.2339
222.10	191.5605
223.80	197.2498
226.40	194.0306
227.00	188.6793
227.08	188.6904
227.20	195.0603
228.16	191.5745
228.18	191.5777
228.18	191.5777
231.56	0.0000
235.69	198.7274
236.00	211.9280
236.00	211.9280
238.63	180.3183
238.63	180.3183
238.63	180.3183
238.63	180.3183
239.00	180.3694
240.98	180.6414
241.98	180.7767
241.98	180.7767
241.98	180.7767
244.69	175.0776
245.39	173.6971
247.94	168.6808
248.90	161.4216
249.79	146.7601
252.40	154.4398
252.85	144.3148
252.85	144.3148
254.15	0.0000
256.20	153.0139
256.20	153.0139
260.50	136.7448
260.90	149.8123
262.80	145.3574
264.65	145.5478
268.24	143.6742
268.79	158.6998
269.46	135.7450
269.46	135.7450
269.46	135.7450
269.46	135.7450
271.23	146.9737
273.65	157.7384
276.40	134.3863
277.35	136.4906
277.60	138.3979
277.60	138.3979
278.00	140.3195
278.60	139.4343
279.20	132.8932
279.53	137.6369
280.46	162.2513
281.68	162.3864
283.67	139.9153
284.30	140.9220
285.00	142.8804
285.90	129.7127
286.10	131.6233
286.10	131.6233
287.40	139.3198
288.45	0.0000
290.67	148.9332
290.80	148.9476
291.72	141.4345
293.26	0.0000
293.70	138.5728
295.21	120.4191
295.21	120.4191

295.21	120.4191
295.96	114.3787
296.50	114.4189
297.23	114.4739
298.57	114.5746
299.80	134.5416
299.80	134.5416
300.09	134.5674
300.09	134.5674
300.09	134.5674
300.09	134.5674
300.12	134.5695
301.29	134.6727
302.84	150.1271
303.76	122.6250
303.91	122.6367
304.40	99.6741
304.40	99.6741
304.84	90.4993
306.84	93.6877
308.46	130.6833
311.98	98.2320
316.51	108.1719
318.01	122.7735
319.02	128.6550
319.41	125.7828
320.08	123.9004
323.87	93.1436
323.87	93.1436
323.87	93.1436
323.87	93.1436
325.23	119.6339
328.77	132.3518
333.44	130.1249
334.20	151.5341
334.20	151.5341
334.30	151.5435
338.28	121.3681
338.28	121.3681
338.28	121.3681
338.28	121.3681
338.32	121.3719
338.32	121.3719
338.32	121.3719
340.50	137.9941
340.57	138.0006
344.27	121.0156
345.85	115.3604
350.59	0.0000
351.07	113.6109
351.92	109.5231
351.92	109.5231
351.92	109.5231
355.39	0.0000
356.01	113.9361
364.48	105.3466
366.43	120.3870
367.43	115.4778
367.94	0.0000
369.80	105.6636
374.96	94.9725
383.85	105.4855
387.95	92.6331
388.63	100.7248
391.69	92.8212
391.69	92.8212
392.90	72.6899
398.62	89.1158
400.65	93.2662
401.10	98.3587
401.81	103.4677
402.60	103.5113
404.84	89.4099
410.95	110.8968
411.60	109.3036
413.65	101.2541
414.70	89.8718
415.30	93.4026

415.76	98.0962
417.63	0.0000
418.52	96.1888
423.70	89.2621
427.08	83.2495
427.89	78.1431
432.53	105.1221
433.93	102.1013
439.47	89.9736
439.56	89.9776
439.89	91.0266
443.98	69.4454
444.90	69.4771
445.03	69.4812
445.03	69.4812
445.03	69.4812
445.03	69.4812
453.90	93.7381
463.38	77.4270
468.07	114.3023
473.00	84.0881
475.06	109.4209
475.35	109.4352
476.78	119.6166
477.59	101.1226
477.96	82.5978
482.03	70.9334
484.57	72.9187
487.03	81.4659
490.36	0.0000
492.35	76.3627
497.08	66.9615
507.63	0.0000
510.53	0.0000
510.84	81.2811
511.00	81.2863
511.85	81.3177
511.85	81.3177
513.99	87.3923
513.99	87.3923
520.41	79.4786
520.65	85.9302
527.90	82.9710
528.96	0.0000
529.64	85.1912
529.87	0.0000
531.02	76.6097
537.32	74.6538
543.00	71.5833
546.56	0.0000
549.76	80.4904
552.65	67.5192
555.20	65.4108
563.23	79.8504
563.90	82.0610
568.70	71.2604
569.32	63.6039
569.50	63.6074
569.67	69.0966
573.80	80.2002
574.00	80.2069
574.64	69.2369
578.91	72.2205
579.30	0.0000
583.14	56.2435
585.48	38.8556
591.81	60.8662
592.07	60.8730
593.00	68.6450
595.88	70.9414
600.56	79.9585
602.52	0.0000
602.71	81.8050
602.71	81.8050
603.60	80.0530
604.41	78.2998
604.70	78.3084
609.31	61.2892

609.31	61.2892
609.31	61.2892
609.31	61.2892
610.33	60.6455
612.46	94.6133
614.37	75.0340
618.01	73.7968
621.84	59.3500
621.84	59.3500
631.29	49.4503
633.02	49.4825
633.10	53.9824
634.78	57.6188
635.90	55.8424
636.97	65.7766
645.85	68.7080
646.12	64.1947
656.30	63.5315
657.75	69.6195
657.90	0.0000
661.65	80.3281
661.65	80.3281
664.57	0.0000
666.33	57.6943
666.33	57.6943
675.00	60.3136
677.61	55.7965
685.20	65.1220
692.80	71.7368
695.00	60.7487
696.49	61.7018
696.49	61.7018
697.00	65.3959
697.49	67.2505
698.33	72.7992
698.50	72.8031
699.00	81.1121
702.63	69.2175
706.10	81.3162
706.58	0.0000
706.67	83.1797
709.31	63.8301
711.68	59.2547
713.82	57.4454
717.42	76.9979
720.50	51.0778
721.93	0.0000
722.20	46.4612
722.78	63.5103
722.78	63.5103
722.89	63.5120
722.95	63.5136
723.30	79.0151
724.18	82.1375
727.18	75.3976
733.00	69.9518
735.90	60.6836
739.58	64.4988
742.81	74.8633
744.21	60.8550
747.13	56.2295
751.79	64.7650
752.31	50.6949
753.82	54.4770
755.35	51.6860
756.15	55.4594
756.87	47.0105
763.93	58.1166
765.79	58.1527
766.42	53.4487
766.84	61.3168
776.49	42.5852
778.00	58.3861
778.57	55.2401
778.89	61.5596
783.80	56.9150
785.46	60.7422
792.07	77.9921

795.84	44.7567
796.30	42.8588
798.80	84.8325
801.93	51.5228
805.60	57.3149
810.29	56.4432
810.76	61.2359
815.85	59.4177
817.79	54.6593
818.51	54.6718
819.60	56.6089
826.30	51.9209
828.27	0.0000
831.60	70.3053
831.96	63.5701
834.83	63.6265
836.80	0.0000
846.75	60.9590
848.13	57.1116
856.28	0.0000
856.80	84.4384
860.37	56.3532
867.32	52.5775
867.82	50.6378
871.10	53.6116
873.19	53.6451
874.81	60.5015
875.33	0.0000
876.40	64.4354
879.36	52.7673
880.27	64.5095
880.51	58.6494
881.50	60.6226
883.24	62.6109
884.67	66.5523
889.25	46.0614
896.60	37.3218
898.02	34.3890
899.00	44.2277
903.28	56.0913
911.07	46.3563
911.07	46.3563
911.07	46.3563
919.63	49.4373
920.93	50.4447
925.00	48.5227
925.24	48.5263
926.50	47.5523
935.52	40.7227
937.48	63.6016
944.10	59.7393
946.00	49.8083
949.00	57.8272
962.29	56.0410
964.01	119.1424
966.15	98.1747
968.20	74.1752
969.11	80.2090
969.11	80.2090
969.11	80.2090
977.42	53.2601
980.50	36.2074
983.50	59.3889
989.30	43.3517
996.32	58.5862
1001.03	43.4892
1001.68	42.4850
1004.76	75.9302
1021.30	0.0000
1024.50	0.0000
1034.80	52.0459
1036.00	56.1454
1037.82	44.9367
1038.57	53.1197
1038.76	0.0000
1045.16	48.0947
1046.59	54.2525
1048.07	65.5406



1050.47	56.3589
1050.47	56.3589
1062.04	52.4145
1063.62	50.3805
1076.63	47.4532
1077.35	39.2079
1078.86	48.5124
1085.78	49.6313
1099.22	53.9500
1112.02	56.5017
1112.84	52.0508
1115.52	64.2411
1120.29	46.9336
1120.29	46.9336
1120.29	46.9336
1120.29	46.9336
1120.51	46.9358
1121.28	46.9446
1124.00	0.0000
1129.67	53.7614
1131.51	0.0000
1147.95	0.0000
1167.94	73.8555
1173.22	70.7818
1175.09	62.3562
1177.93	90.9551
1189.05	72.1072
1204.90	60.6683
1205.75	0.0000
1213.00	70.3796
1221.42	76.9289
1230.97	70.6729
1235.34	67.5281
1236.41	0.0000
1238.25	61.1358
1246.25	59.0981
1260.41	0.0000
1271.85	58.3611
1274.45	56.2326
1274.54	55.1512
1291.56	47.7619
1298.22	0.0000
1312.09	37.0729
1325.50	31.7145
1325.50	31.7145
1332.49	26.2852
1333.61	33.9607
1360.21	28.4621
1362.66	0.0000
1365.15	25.7339
1368.21	20.2329
1368.53	0.0000
1376.25	11.0547
1384.27	22.1465
1394.10	19.4183
1395.20	18.4977
1407.95	24.1105
1434.06	20.5113
1436.60	16.7900
1457.56	0.0000
1460.81	26.2466
1489.15	11.3120
1509.49	13.2503
1596.49	25.0193
1620.62	9.6663
1678.03	0.0000
1691.02	7.8324
1691.02	7.8324
1706.46	0.0000
1750.46	0.0000
1764.49	7.9339
1764.49	7.9339
1764.49	7.9339
1764.49	7.9339
1770.23	6.8072
1771.40	14.8938
1791.20	0.0000
1808.65	9.9927

1836.01

7.0271

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202015436

Total Uranium Activity	1.9997E+00	ug/g
Total Uranium Counting Unc.	3.1138E+00	ug/g
Total Uranium Tpu	1.5887E-06	ug/g
Total Uranium Mda	1.8456E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941635          SAMPLE ID : G1202015436
*  ANALYST       : MXR1           DETECTOR  : GAM20
*  SAMPLE DATE   : 7-JAN-2010 12:00:00.00 COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 10:24:55.15 SAMPLE ALQT: 155.810 GRAM
*
*****

```

```

GROSS GAMMA ACTIVITY (pCi/GRAM ) : 6.679E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.383E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.203E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.066E+00

```

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 11:26:01.14

```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015437.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 10:25:30
Sample ID          : G1202015437      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM25             Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00     Elapsed real time: 0 01:00:01.93 0.1%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 941635            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	49.82	289	1600	0.77	99.19	94	10	8.02E-02	26.5	
2	0	59.56*	9677	994	0.92	118.68	115	8	2.69E+00	1.2	
3	2	74.84*	265	347	0.86	149.23	145	12	7.36E-02	12.2	4.64E-01
4	2	77.17*	449	261	0.74	153.89	145	12	1.25E-01	7.1	
5	0	88.07	2498	539	0.99	175.70	171	11	6.94E-01	2.7	
6	0	92.95*	188	320	1.38	185.46	182	9	5.23E-02	19.3	
7	0	122.18	291	293	0.83	243.90	240	8	8.08E-02	11.8	
8	0	186.01*	66	234	0.70	371.56	368	7	1.83E-02	41.9	
9	0	209.10	64	180	1.39	417.74	414	7	1.79E-02	36.7	
10	3	238.67*	568	159	1.06	476.88	470	17	1.58E-01	5.5	2.37E+00
11	3	241.40	129	225	1.46	482.32	470	17	3.59E-02	24.6	
12	0	295.00	144	194	1.33	589.52	585	9	3.99E-02	19.4	
13	0	338.49*	144	234	1.25	676.50	670	13	4.00E-02	23.5	
14	0	351.96*	214	152	1.13	703.44	699	8	5.94E-02	12.2	
15	0	510.38*	89	171	1.50	1020.26	1013	14	2.48E-02	34.4	
16	0	583.44*	166	107	1.38	1166.37	1160	14	4.60E-02	15.7	
17	0	609.22*	193	113	1.38	1217.93	1212	14	5.37E-02	13.8	
18	0	661.59*	2399	163	1.38	1322.67	1316	14	6.66E-01	2.3	
19	0	727.46	53	94	0.71	1454.41	1450	11	1.46E-02	38.2	
20	0	911.08*	141	158	1.49	1821.65	1815	16	3.91E-02	21.7	
21	0	969.18*	71	93	1.25	1937.84	1933	12	1.96E-02	29.9	
22	0	1173.06	1874	48	1.74	2345.62	2336	18	5.20E-01	2.5	
23	0	1332.33	1633	34	1.98	2664.18	2656	15	4.54E-01	2.6	
24	1	1763.21*	31	1	2.28	3526.00	3521	18	8.70E-03	21.2	4.80E+00
25	1	1765.71*	30	5	2.28	3531.00	3521	18	8.29E-03	27.0	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 11:26:04

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015437.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 10:25:30
Sample ID        : G1202015437 Sample quantity : 155.44 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA25 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.93 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
CO-57	+	122.06	*	2.026E-01	5.439E-02	4.544E-02	5.860E-03	4.459
		136.48		-1.168E-01	2.313E-01	3.771E-01	4.624E-02	-0.310
CO-60	+	1173.22		6.759E+00	6.490E-01	1.155E-01	9.508E-03	58.511
	+	1332.49	*	6.585E+00	6.346E-01	9.269E-02	7.528E-03	71.044
CD-109	+	88.03	*	3.496E+01	4.210E+00	1.170E+00	1.257E-01	29.877
SN-126		64.28		-9.321E-02	2.750E-01	4.410E-01	7.027E-02	-0.211
	+	86.94		1.445E+01	6.098E+00	4.813E-01	2.014E-01	30.023
	+	87.57	*	3.476E+00	4.186E-01	1.161E-01	1.245E-02	29.939
BA-137M	+	661.65	*	5.775E+00	6.946E-01	1.169E-01	1.295E-02	49.389
CS-137	+	661.65	*	6.105E+00	7.350E-01	1.236E-01	1.371E-02	49.389
TL-208		277.35		2.304E-01	5.917E-01	9.581E-01	1.361E-01	0.240
	+	510.84		7.105E-01	4.976E-01	4.179E-01	5.534E-02	1.700
	+	583.14	*	3.809E-01	1.271E-01	9.955E-02	1.122E-02	3.826
		860.37		3.250E-01	6.083E-01	1.034E+00	1.081E-01	0.314
BI-211		72.87		-1.150E-02	2.361E+00	3.421E+00	3.453E-01	-0.003
	+	351.07	*	2.053E+00	5.447E-01	5.047E-01	5.318E-02	4.068
PB-212	+	74.81		1.235E+00	3.467E-01	4.012E-01	5.539E-02	3.077
	+	77.11		1.248E+00	2.176E-01	2.404E-01	2.464E-02	5.191
	+	87.30		1.608E+01	2.516E+00	5.363E-01	7.858E-02	29.975
	+	238.63	*	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
		300.09		8.457E-01	1.249E+00	2.040E+00	2.540E-01	0.415
PO-212	+	74.81		1.235E+00	3.467E-01	4.012E-01	5.539E-02	3.077
	+	77.11		1.248E+00	2.176E-01	2.404E-01	2.464E-02	5.191
	+	87.30		1.608E+01	2.516E+00	5.363E-01	7.858E-02	29.975
		115.19		-4.720E+00	3.599E+00	5.625E+00	6.976E-01	-0.839
	+	238.63	*	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
		300.09		8.457E-01	1.249E+00	2.040E+00	2.540E-01	0.415
BI-214	+	609.31	*	8.396E-01	2.525E-01	1.969E-01	2.377E-02	4.263
		1120.29		8.037E-01	5.916E-01	1.076E+00	1.168E-01	0.747
	+	1764.49		9.701E-01	5.304E-01	4.480E-01	3.691E-02	2.165
PB-214	+	74.81		2.127E+00	5.850E-01	6.913E-01	8.692E-02	3.077
	+	77.11		2.139E+00	4.071E-01	4.121E-01	5.263E-02	5.191
	+	87.30		2.754E+01	3.938E+00	9.187E-01	1.212E-01	29.975
	+	241.98		1.575E+00	7.969E-01	8.285E-01	9.881E-02	1.902

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		8.024E-01	3.268E-01	3.411E-01	4.327E-02	2.352
	+	351.92	*	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
	+	74.81		2.127E+00	5.850E-01	6.913E-01	8.692E-02	3.077
	+	77.11		2.139E+00	4.071E-01	4.121E-01	5.263E-02	5.191
	+	87.30		2.754E+01	3.938E+00	9.187E-01	1.212E-01	29.975
	+	241.98		1.575E+00	7.969E-01	8.285E-01	9.881E-02	1.902
PO-216	+	295.21		8.024E-01	3.268E-01	3.411E-01	4.327E-02	2.352
	+	351.92	*	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
	+	74.81		1.235E+00	3.467E-01	4.012E-01	5.539E-02	3.077
	+	77.11		1.248E+00	2.176E-01	2.404E-01	2.464E-02	5.191
	+	87.30		1.608E+01	2.516E+00	5.363E-01	7.858E-02	29.975
	+	238.63	*	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
PO-218	+	300.09		8.457E-01	1.249E+00	2.040E+00	2.540E-01	0.415
	+	74.81		2.127E+00	5.850E-01	6.913E-01	8.692E-02	3.077
	+	77.11		2.139E+00	4.071E-01	4.121E-01	5.263E-02	5.191
	+	87.30		2.754E+01	3.938E+00	9.187E-01	1.212E-01	29.975
	+	241.98		1.575E+00	7.969E-01	8.285E-01	9.881E-02	1.902
	+	295.21		8.024E-01	3.268E-01	3.411E-01	4.327E-02	2.352
RA-224	+	351.92	*	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
	+	240.98	*	2.987E+00	1.502E+00	1.534E+00	1.612E-01	1.947
RA-226	+	609.31	*	8.396E-01	2.525E-01	1.969E-01	2.377E-02	4.263
	+	1120.29		8.037E-01	5.916E-01	1.076E+00	1.168E-01	0.747
AC-228	+	1764.49		9.701E-01	5.304E-01	4.480E-01	3.691E-02	2.165
	+	338.32		1.520E+00	9.543E-01	5.722E-01	2.385E-01	2.656
	+	911.07	*	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059
	+	969.11		1.293E+00	8.306E-01	9.949E-01	2.348E-01	1.299
RA-228	+	338.32		1.520E+00	9.543E-01	5.722E-01	2.385E-01	2.656
	+	911.07	*	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059
	+	969.11		1.293E+00	8.306E-01	9.949E-01	2.348E-01	1.299
	+	74.81		1.244E+00	3.297E-01	4.042E-01	4.132E-02	3.077
TH-228	+	77.11		1.257E+00	2.192E-01	2.422E-01	2.482E-02	5.191
	+	87.30		1.619E+01	1.950E+00	5.403E-01	5.786E-02	29.975
	+	238.63	*	1.160E+00	1.836E-01	1.356E-01	1.544E-02	8.554
	+	300.09		8.520E-01	1.353E+00	2.055E+00	1.226E+00	0.415
TH-230	+	609.31	*	8.395E-01	2.525E-01	1.969E-01	2.377E-02	4.263
	+	1120.29		8.037E-01	5.916E-01	1.076E+00	1.168E-01	0.747
TH-232	+	1764.49		9.701E-01	5.304E-01	4.480E-01	3.691E-02	2.165
	+	338.32		1.520E+00	7.312E-01	5.722E-01	5.964E-02	2.656
	+	911.07	*	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059
	+	969.11		1.293E+00	8.306E-01	9.949E-01	2.348E-01	1.299
U-234	+	609.31	*	8.395E-01	2.525E-01	1.969E-01	2.377E-02	4.263
	+	1120.29		8.037E-01	5.916E-01	1.076E+00	1.168E-01	0.747
AM-241	+	1764.49		9.701E-01	5.304E-01	4.480E-01	3.691E-02	2.165
	+	59.54	*	1.337E+01	1.423E+00	1.628E-01	1.692E-02	82.089
AM-243	+	74.67	*	2.001E-01	5.301E-02	6.501E-02	6.602E-03	3.079
	+	86.72		3.827E+02	4.609E+01	1.274E+01	1.360E+00	30.052
	+	117.66		5.032E-01	4.353E+00	6.672E+00	8.389E-01	0.075
	+	142.18		7.108E+00	2.035E+01	3.440E+01	3.885E+00	0.207
ANH-511	+	511.00	*	1.535E-01	1.067E-01	9.029E-02	9.293E-03	1.700

## ---- 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	*		3.173E-01	6.039E-01	1.012E+00	1.072E-01	0.313
NA-22	1274.54	*		4.887E-03	4.751E-02	7.942E-02	6.512E-03	0.062
NA-24	1368.53	*		-2.729E-04	4.751E-02	Half-Life too short		
AL-26	1129.67			5.985E-01	2.926E+00	4.957E+00	4.232E-01	0.121
	1808.65	*		2.679E-02	4.798E-02	8.810E-02	7.219E-03	0.304
K-40	1460.81	*		-2.340E-02	6.384E-01	1.085E+00	9.240E-02	-0.022
TI-44	67.85			2.507E-02	2.943E-02	4.804E-02	4.781E-03	0.522
	78.38	*		2.302E-01	4.014E-02	5.617E-02	5.784E-03	4.099
SC-46	889.25	*		-2.398E-02	9.226E-02	1.474E-01	1.411E-02	-0.163
	1120.51			1.401E-01	9.404E-02	1.730E-01	1.487E-02	0.810
V-48	944.10			-3.576E-01	1.825E+00	2.915E+00	2.735E-01	-0.123
	983.50	*		5.585E-02	1.240E-01	2.062E-01	1.910E-02	0.271
	1312.09			2.069E-02	7.144E-02	1.224E-01	9.972E-03	0.169
CR-51	320.08	*		3.853E-02	4.832E-01	8.177E-01	9.080E-02	0.047
MN-52	744.21			5.059E-03	1.705E-01	2.828E-01	3.056E-02	0.018
	848.13			-8.994E-01	5.899E+00	9.535E+00	9.554E-01	-0.094
	935.52			3.766E-02	2.645E-01	4.320E-01	4.062E-02	0.087
	1246.25			1.267E+00	3.486E+00	6.004E+00	4.931E-01	0.211
	1333.61	+		3.264E+02	3.146E+01	3.746E+01	3.043E+00	8.713
	1434.06	*		3.050E-02	1.198E-01	2.038E-01	1.680E-02	0.150
MN-54	834.83	*		-2.500E-02	7.939E-02	1.270E-01	1.289E-02	-0.197
CO-56	846.75	*		-9.645E-04	8.158E-02	1.332E-01	1.337E-02	-0.007
	977.42			3.438E-01	6.848E+00	1.077E+01	1.001E+00	0.032
	1037.82			1.261E-01	6.510E-01	1.106E+00	1.050E-01	0.114
	1175.09			2.713E+02	2.636E+01	3.188E+01	2.624E+00	8.510
	1238.25			7.871E-02	1.050E-01	1.870E-01	1.585E-02	0.421
	1360.21			1.100E-01	1.120E+00	1.863E+00	1.520E-01	0.059
	1771.40			2.942E-02	2.726E-01	4.028E-01	3.316E-02	0.073
CO-58	810.76	*		5.341E-02	7.567E-02	1.303E-01	1.352E-02	0.410
FE-59	142.65			9.681E-01	2.761E+00	4.667E+00	5.250E-01	0.207
	192.34			2.579E-02	1.138E+00	1.861E+00	2.608E-01	0.014
	1099.22	*		-6.077E-03	1.833E-01	3.050E-01	2.872E-02	-0.020
	1291.56			6.775E-03	1.334E-01	2.207E-01	2.073E-02	0.031
ZN-65	1115.52	*		-2.722E-01	1.933E-01	2.868E-01	2.477E-02	-0.949
GE-68	1077.35	*		8.180E-01	2.882E+00	4.906E+00	4.343E-01	0.167
AS-73	53.44	*		-1.098E-02	4.864E-01	7.199E-01	6.910E-02	-0.015
AS-74	595.88	*		-4.647E-02	1.265E-01	1.959E-01	2.123E-02	-0.237
	634.78			6.923E-02	4.911E-01	8.321E-01	9.151E-02	0.083
SE-75	66.05			-5.416E-01	2.697E+00	4.235E+00	4.882E-01	-0.128
	96.73			-2.491E-01	6.784E-01	1.022E+00	1.575E-01	-0.244
	121.11	+		1.063E+00	2.953E-01	3.652E-01	5.367E-02	2.910
	136.00			-2.974E-03	4.228E-02	7.057E-02	8.373E-03	-0.042
	198.60			-5.800E-02	2.451E+00	3.990E+00	4.189E-01	-0.015
	264.65	*		-3.189E-02	6.406E-02	9.872E-02	1.082E-02	-0.323
	279.53			1.028E-01	1.664E-01	2.725E-01	3.109E-02	0.377
	303.91			-4.220E+00	3.014E+00	4.622E+00	6.153E-01	-0.913
	400.65			1.514E-01	4.288E-01	7.232E-01	8.365E-02	0.209
BR-77	87.88	+		8.080E+02	9.731E+01	7.707E+01	8.276E+00	10.484
	200.40			-6.671E+00	2.395E+01	3.845E+01	3.725E+00	-0.174



## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	239.00		1.956E+01	2.969E+00	4.418E+00	4.626E-01	4.428
		249.79		-4.027E+00	1.035E+01	1.616E+01	1.724E+00	-0.249
		281.68		2.291E+00	1.488E+01	2.378E+01	2.650E+00	0.096
		297.23		1.335E-01	1.017E+01	1.524E+01	1.679E+00	0.009
		303.76		-5.192E+01	2.917E+01	4.373E+01	4.787E+00	-1.187
		439.47		1.124E+01	3.117E+01	5.214E+01	5.022E+00	0.216
		484.57		3.479E+01	4.633E+01	7.877E+01	7.932E+00	0.442
		520.65	*	-5.295E-01	2.148E+00	3.412E+00	3.537E-01	-0.155
		574.64		-1.344E+01	4.114E+01	6.419E+01	6.884E+00	-0.209
		578.91		3.051E+00	1.848E+01	2.625E+01	2.822E+00	0.116
		585.48		7.051E+01	3.802E+01	6.130E+01	6.610E+00	1.150
		755.35		1.244E+00	3.566E+01	5.906E+01	6.346E+00	0.021
		817.79		4.591E+01	3.239E+01	5.756E+01	5.928E+00	0.798
SR-82		698.33		-5.539E+01	4.579E+01	6.796E+01	7.473E+00	-0.815
		776.49	*	6.743E-02	6.041E-01	1.004E+00	1.065E-01	0.067
		1395.20		2.754E+00	1.147E+01	1.949E+01	1.599E+00	0.141
RB-83		520.41	*	-5.441E-02	1.276E-01	2.001E-01	2.074E-02	-0.272
		529.64		-1.152E-02	1.823E-01	2.929E-01	3.056E-02	-0.039
		552.65		-2.454E-01	3.490E-01	5.291E-01	5.604E-02	-0.464
RB-84		881.50	*	-7.572E-02	1.355E-01	2.110E-01	2.039E-02	-0.359
KR-85		513.99	*	8.545E-01	1.525E+01	2.168E+01	2.237E+00	0.039
SR-85		513.99	*	4.040E-03	7.212E-02	1.025E-01	1.058E-02	0.039
RB-86		1076.63	*	1.211E+00	1.375E+00	2.426E+00	2.149E-01	0.499
Y-88		898.02		-2.893E-04	9.711E-02	1.578E-01	1.501E-02	-0.002
		1836.01	*	2.045E-02	5.202E-02	9.254E-02	7.563E-03	0.221
ZR-88		392.90	*	1.481E-02	5.189E-02	8.732E-02	7.948E-03	0.170
Y-91		1204.90	*	-1.320E+01	2.207E+01	3.374E+01	2.776E+00	-0.391
NB-94		702.63	*	4.133E-02	5.649E-02	9.865E-02	1.083E-02	0.419
		871.10		-2.255E-03	8.128E-02	1.322E-01	1.293E-02	-0.017
NB-95		765.79	*	-5.039E-02	7.635E-02	1.198E-01	1.280E-02	-0.421
NB-95M		235.69	*	-3.479E-02	1.776E-01	2.506E-01	2.872E-02	-0.139
ZR-95		724.18		3.376E-02	1.790E-01	2.627E-01	3.021E-02	0.129
		756.15	*	-1.591E-02	1.321E-01	2.163E-01	2.477E-02	-0.074
NB-97		657.90	*	1.709E-04	1.321E-01	Half-Life	too short	
		1024.50		1.568E-02	1.321E-01	Half-Life	too short	
ZR-97		254.15		3.813E-04	1.321E-01	Half-Life	too short	
		355.39		-2.284E-04	1.321E-01	Half-Life	too short	
		507.63	*	-5.059E-04	1.321E-01	Half-Life	too short	
		602.52		6.353E-03	1.321E-01	Half-Life	too short	
		1021.30		3.528E-03	1.321E-01	Half-Life	too short	
		1147.95		-3.941E-03	1.321E-01	Half-Life	too short	
		1362.66		-1.566E-03	1.321E-01	Half-Life	too short	
		1750.46		-4.601E-03	1.321E-01	Half-Life	too short	
MO-99		140.51		3.993E-01	4.259E+00	7.127E+00	2.045E+00	0.056
		181.06		-4.418E+00	3.314E+00	4.599E+00	8.553E-01	-0.961
		366.43		-2.149E+01	2.093E+01	3.264E+01	3.199E+00	-0.658
		739.58	*	1.905E+00	3.211E+00	5.521E+00	9.130E-01	0.345
		778.00		-4.399E-02	9.526E+00	1.569E+01	1.664E+00	-0.003
TC-99M		140.51	*	2.304E+00	9.526E+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
RH-101	127.23			-4.423E-03	3.430E-02	5.736E-02	7.178E-03	-0.077
	198.01	*		6.341E-03	4.641E-02	7.615E-02	7.337E-03	0.083
	325.23			-5.229E-01	3.516E-01	5.368E-01	5.718E-02	-0.974
RH-102	418.52			-2.697E-01	5.204E-01	8.303E-01	7.807E-02	-0.325
	475.06	*		-4.173E-03	6.039E-02	9.805E-02	9.789E-03	-0.043
	631.29			7.270E-02	1.016E-01	1.781E-01	1.956E-02	0.408
	697.49			-1.280E-01	1.252E-01	1.895E-01	2.084E-02	-0.675
	766.84			-2.869E-02	2.122E-01	3.469E-01	3.703E-02	-0.083
	1046.59			-1.010E-01	2.583E-01	4.207E-01	3.790E-02	-0.240
	1112.84			6.384E-01	4.818E-01	8.706E-01	7.527E-02	0.733
RU-103	497.08	*		3.583E-02	7.075E-02	1.182E-01	1.792E-02	0.303
+	610.33			7.915E+00	2.603E+00	3.063E+00	5.505E-01	2.584
RH-106	511.85	+		7.555E-01	5.254E-01	6.170E-01	6.355E-02	1.224
	621.84	*		-3.733E-02	5.397E-01	9.031E-01	1.352E-01	-0.041
	1050.47			-8.148E-01	5.130E+00	8.497E+00	7.639E-01	-0.096
RU-106	511.85	+		7.555E-01	5.254E-01	6.170E-01	6.355E-02	1.224
	621.84	*		-3.733E-02	5.397E-01	9.031E-01	9.889E-02	-0.041
	1050.47			-8.148E-01	5.130E+00	8.497E+00	7.639E-01	-0.096
AG-108M	433.93	*		5.819E-03	6.435E-02	1.063E-01	1.050E-02	0.055
	614.37			5.146E-02	7.378E-02	1.152E-01	1.289E-02	0.447
	722.95			-1.219E-03	8.656E-02	1.245E-01	1.391E-02	-0.010
AG-110M	657.75	*		9.791E-02	8.341E-02	1.322E-01	1.490E-02	0.740
	677.61			1.291E-01	5.610E-01	9.511E-01	1.069E-01	0.136
	706.67			-1.899E-01	3.727E-01	5.953E-01	6.641E-02	-0.319
	763.93			1.707E-02	3.148E-01	5.216E-01	5.680E-02	0.033
	884.67			-3.198E-02	1.150E-01	1.834E-01	1.812E-02	-0.174
	937.48			-1.660E-01	2.987E-01	4.655E-01	4.508E-02	-0.357
	1384.27			1.206E-01	1.781E-01	3.274E-01	2.765E-02	0.368
IN-111	171.28			-1.845E-01	1.858E-01	2.886E-01	2.607E-02	-0.639
	245.39	*		2.128E-01	2.685E-01	4.039E-01	4.277E-02	0.527
IN-113M	391.69	*		2.422E-02	7.757E-02	1.307E-01	1.221E-02	0.185
SN-113	391.69	*		2.422E-02	7.757E-02	1.307E-01	1.221E-02	0.185
IN-114M	190.27	*		3.679E-02	2.318E-01	3.644E-01	3.449E-02	0.101
CD-115	260.90			7.569E+00	1.793E+01	2.927E+01	3.180E+00	0.259
	492.35			-1.033E+00	6.797E+00	1.094E+01	1.109E+00	-0.094
	527.90	*		-1.697E+00	1.853E+00	2.774E+00	2.892E-01	-0.612
SN-117M	156.02			-8.197E-01	1.815E+00	2.939E+00	2.930E-01	-0.279
	158.56	*		3.144E-02	4.365E-02	7.478E-02	7.260E-03	0.420
SB-122	563.90	*		2.438E-01	5.113E-01	8.492E-01	9.055E-02	0.287
	692.80			4.403E+00	1.066E+01	1.827E+01	2.012E+00	0.241
I-123	159.00	*		1.795E-04	1.066E+01	Half-Life too short		
	528.96			-1.392E-02	1.066E+01	Half-Life too short		
TE-123M	159.00	*		1.469E-02	3.203E-02	5.425E-02	5.267E-03	0.271
I-124	602.71	*		3.262E-01	3.346E-01	5.547E-01	6.029E-02	0.588
	722.78			-1.237E-01	2.538E+00	3.636E+00	3.965E-01	-0.034
	1325.50			-8.758E+00	1.500E+01	1.801E+01	1.465E+00	-0.486
	1376.25			7.896E+00	1.090E+01	1.978E+01	1.618E+00	0.399
	1509.49			4.476E+00	5.439E+00	1.017E+01	8.433E-01	0.440
	1691.02			-1.425E+00	1.433E+00	1.753E+00	1.453E-01	-0.813

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	602.71		6.225E-02	6.384E-02	1.058E-01	1.151E-02	0.588
	645.85		-2.872E-01	8.528E-01	1.395E+00	1.596E-01	-0.206
	709.31		3.251E+00	4.599E+00	8.010E+00	8.777E-01	0.406
	713.82		-2.289E+00	2.785E+00	4.307E+00	5.942E-01	-0.531
	722.78		-3.422E-02	7.019E-01	1.006E+00	1.112E-01	-0.034
	+ 968.20		1.218E+01	7.366E+00	1.000E+01	9.316E-01	1.218
	1045.16		3.026E-01	5.102E+00	8.586E+00	7.741E-01	0.035
	1325.50		-2.587E+00	4.432E+00	5.321E+00	4.327E-01	-0.486
	1368.21		-3.013E+00	1.898E+00	1.808E+00	2.386E-01	-1.666
	1436.60		-1.092E-01	4.796E+00	7.758E+00	6.395E-01	-0.014
	1691.02	*	-9.296E-02	9.348E-02	1.144E-01	9.886E-03	-0.813
SB-125	427.89	*	7.761E-02	1.726E-01	2.910E-01	2.811E-02	0.267
	463.38		8.883E-01	5.915E-01	1.029E+00	1.078E-01	0.863
	600.56		-1.135E-01	3.270E-01	5.069E-01	5.764E-02	-0.224
	635.90		-8.197E-01	5.231E-01	7.668E-01	8.861E-02	-1.069
TE-125M	109.28	*	2.096E+00	8.656E+00	1.485E+01	1.971E+00	0.141
I-126	388.63		-5.436E-02	2.385E-01	3.904E-01	3.584E-02	-0.139
	666.33	*	-1.483E-02	2.448E-01	3.537E-01	3.915E-02	-0.042
SB-126	753.82		9.567E-01	1.932E+00	3.300E+00	3.549E-01	0.290
	223.80		-4.770E-01	3.687E+00	5.910E+00	6.014E-01	-0.081
	+ 278.60		3.100E+00	2.527E+00	4.251E+00	4.740E-01	0.729
	296.50		5.193E+00	2.090E+00	2.796E+00	3.083E-01	1.857
	414.70		-1.799E-02	8.685E-02	1.415E-01	1.324E-02	-0.127
	415.30		-1.166E+00	7.240E+00	1.183E+01	1.108E+00	-0.099
	555.20		1.091E+00	4.690E+00	7.668E+00	8.135E-01	0.142
	573.80		-5.580E-01	1.227E+00	1.893E+00	2.029E-01	-0.295
	593.00		-7.704E-02	1.143E+00	1.815E+00	1.965E-01	-0.042
	656.30		2.708E+00	4.983E+00	7.599E+00	8.407E-01	0.356
	666.33		-6.090E-03	1.005E-01	1.452E-01	1.608E-02	-0.042
	675.00		1.665E-02	2.379E+00	3.974E+00	4.393E-01	0.004
	695.00		2.891E-02	8.473E-02	1.447E-01	1.592E-02	0.200
	697.00		-2.344E-01	2.872E-01	4.443E-01	4.887E-02	-0.527
	720.50	*	-3.980E-02	1.789E-01	2.839E-01	3.099E-02	-0.140
	856.80		-8.509E-01	6.989E-01	1.031E+00	1.025E-01	-0.825
	989.30		1.563E-01	1.894E+00	3.069E+00	2.838E-01	0.051
	1034.80		-7.966E+00	1.275E+01	2.038E+01	1.847E+00	-0.391
	1213.00		4.192E+00	3.957E+00	7.278E+00	5.987E-01	0.576
SB-127	61.10		1.001E+02	1.516E+01	2.082E+01	2.174E+00	4.811
	252.40		1.536E-01	1.642E+00	2.638E+00	1.110E+00	0.058
	290.80		-1.671E+00	8.485E+00	1.254E+01	1.457E+00	-0.133
	411.60		4.764E-01	5.424E+00	8.999E+00	1.340E+00	0.053
	444.90		2.383E+00	4.945E+00	8.314E+00	9.785E-01	0.287
	473.00		-2.789E-02	8.745E-01	1.423E+00	1.757E-01	-0.020
	543.00		1.514E+00	7.326E+00	1.198E+01	1.718E+00	0.126
	603.60		5.184E+00	5.468E+00	8.702E+00	1.109E+00	0.596
	685.20	*	-4.724E-01	5.915E-01	9.192E-01	1.083E-01	-0.514
	698.50		-6.211E+00	6.254E+00	9.422E+00	1.515E+00	-0.659
	722.20		2.577E+00	1.499E+01	2.199E+01	2.518E+00	0.117
	783.80		1.197E+00	1.797E+00	3.090E+00	3.826E-01	0.387

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		57.60	5.877E+00	4.437E+00	6.737E+00	6.568E-01	0.872
		145.22	-3.683E-02	6.766E-01	1.125E+00	1.240E-01	-0.033
		172.10	-5.129E-02	1.275E-01	2.055E-01	1.861E-02	-0.250
		202.84	-3.436E-02	5.573E-02	8.763E-02	8.535E-03	-0.392
I-131		374.96	4.665E-02	2.980E-01	5.001E-01	4.788E-02	0.093
		80.18	3.882E-01	2.071E+00	3.011E+00	3.127E-01	0.129
		284.30	1.857E-01	1.189E+00	1.900E+00	2.175E-01	0.098
		364.48	-5.352E-02	1.014E-01	1.638E-01	1.675E-02	-0.327
TE-132		636.97	-3.118E+00	1.553E+00	2.161E+00	2.454E-01	-1.443
		722.89	-4.233E-01	7.552E+00	1.081E+01	1.180E+00	-0.039
	+	49.72	5.526E+00	2.985E+00	2.735E+00	2.752E-01	2.021
		111.76	3.016E+00	5.977E+00	1.034E+01	1.302E+00	0.292
BA-133		116.30	-1.307E+00	5.374E+00	8.985E+00	1.159E+00	-0.146
		228.16	-5.135E-02	1.916E-01	3.040E-01	4.759E-02	-0.169
		53.15	1.526E+00	2.145E+00	3.243E+00	3.110E-01	0.470
		79.62	-1.309E-01	1.146E+00	1.639E+00	2.666E-01	-0.080
I-133		81.00	-6.000E-02	8.247E-02	1.236E-01	2.091E-02	-0.485
		276.40	-4.095E-01	5.965E-01	9.026E-01	1.450E-01	-0.454
		302.84	-1.775E-01	2.149E-01	3.452E-01	5.147E-02	-0.514
		356.01	-1.906E-02	8.252E-02	1.192E-01	1.690E-02	-0.160
CS-134		383.85	1.366E-01	5.074E-01	8.551E-01	1.120E-01	0.160
	+	510.53	3.295E-03	5.074E-01	Half-Life	too short	
		529.87	-4.089E-07	5.074E-01	Half-Life	too short	
		706.58	-8.315E-04	5.074E-01	Half-Life	too short	
I-135		856.28	-2.211E-03	5.074E-01	Half-Life	too short	
		875.33	1.880E-05	5.074E-01	Half-Life	too short	
		1236.41	3.591E-04	5.074E-01	Half-Life	too short	
		1298.22	-3.258E-04	5.074E-01	Half-Life	too short	
CS-135		475.35	-5.270E-01	3.992E+00	6.457E+00	6.448E-01	-0.082
		563.23	5.161E-01	6.480E-01	1.098E+00	1.177E-01	0.470
		569.32	2.132E-01	3.521E-01	5.878E-01	6.341E-02	0.363
		604.70	8.970E-03	6.358E-02	9.469E-02	1.032E-02	0.095
I-135		795.84	-1.094E-03	9.009E-02	1.480E-01	1.558E-02	-0.007
		801.93	1.072E-01	7.761E-01	1.295E+00	1.356E-01	0.083
		1038.57	1.067E+00	8.617E+00	1.457E+01	1.318E+00	0.073
		1167.94	3.717E+00	5.138E+00	7.974E+00	6.595E-01	0.466
CS-135		1365.15	5.254E-01	1.029E+00	1.898E+00	1.629E-01	0.277
		268.24	7.207E-02	2.461E-01	3.976E-01	4.800E-02	0.181
		288.45	-8.423E+01	2.461E-01	Half-Life	too short	
		417.63	-9.007E+01	2.461E-01	Half-Life	too short	
I-135		546.56	5.176E+00	2.461E-01	Half-Life	too short	
		836.80	-2.600E+01	2.461E-01	Half-Life	too short	
		1038.76	1.791E+01	2.461E-01	Half-Life	too short	
		1124.00	-3.338E+02	2.461E-01	Half-Life	too short	
I-135		1131.51	2.939E+01	2.461E-01	Half-Life	too short	
		1260.41	9.732E+00	2.461E-01	Half-Life	too short	
		1457.56	2.612E+01	2.461E-01	Half-Life	too short	
		1678.03	1.005E+01	2.461E-01	Half-Life	too short	
I-135		1706.46	9.104E+00	2.461E-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
	1791.20			1.544E+00	2.461E-01	Half-Life too short		
CS-136	66.91			1.904E-01	3.179E-01	5.136E-01	8.321E-02	0.371
	86.29			2.053E+00	9.252E-01	1.381E+00	1.974E-01	1.486
	153.22			3.743E-01	5.144E-01	8.819E-01	9.805E-02	0.424
	163.89			-8.639E-01	8.927E-01	1.395E+00	1.411E-01	-0.619
	176.55			-1.866E-01	3.186E-01	5.076E-01	4.883E-02	-0.368
	273.65			1.465E-01	4.649E-01	7.510E-01	8.650E-02	0.195
	340.57			1.726E-01	1.463E-01	2.328E-01	2.464E-02	0.741
	818.51			1.444E-01	1.136E-01	2.005E-01	2.064E-02	0.720
	1048.07	*		-8.016E-02	1.617E-01	2.611E-01	2.441E-02	-0.307
	1235.34			-6.400E-02	4.879E-01	7.923E-01	9.156E-02	-0.081
CE-139	165.85	*		4.258E-02	3.652E-02	6.334E-02	5.648E-03	0.672
BA-140	162.64			-4.529E-01	6.081E-01	9.642E-01	9.392E-02	-0.470
	304.84			-1.666E+00	1.332E+00	1.948E+00	5.615E-01	-0.855
	423.70			9.246E-01	2.301E+00	3.846E+00	1.256E+00	0.240
	537.32	*		2.271E-03	2.928E-01	4.723E-01	1.591E-01	0.005
LA-140	328.77			5.166E-01	3.094E-01	5.543E-01	6.093E-02	0.932
	432.53			-1.885E+00	2.687E+00	4.227E+00	4.200E-01	-0.446
	487.03			-2.575E-01	1.826E-01	2.661E-01	2.808E-02	-0.968
	751.79			1.208E+00	2.250E+00	3.854E+00	4.438E-01	0.314
	815.85			-4.525E-01	5.004E-01	7.651E-01	8.538E-02	-0.591
	867.82			1.607E-01	2.136E+00	3.502E+00	3.579E-01	0.046
	919.63			-2.826E+00	5.264E+00	7.345E+00	8.313E-01	-0.385
	925.24			4.341E-01	1.971E+00	3.239E+00	3.214E-01	0.134
	1596.49	*		-2.726E-02	8.207E-02	1.291E-01	1.073E-02	-0.211
CE-141	145.44	*		1.360E-02	6.037E-02	1.017E-01	1.131E-02	0.134
CE-143	57.37			4.543E+00	1.771E+01	2.632E+01	2.830E+00	0.173
	231.56			1.997E+01	7.769E+01	1.265E+02	4.054E+01	0.158
	293.26	*		7.357E+00	4.737E+00	7.377E+00	1.659E+00	0.997
+	350.59			3.351E+02	1.333E+02	1.330E+02	4.184E+01	2.519
	490.36			1.306E+02	1.237E+02	2.023E+02	6.471E+01	0.646
	664.57			6.380E+02	2.285E+02	1.779E+02	5.873E+01	3.587
	721.93			-1.341E+01	6.001E+01	8.418E+01	2.516E+01	-0.159
CE-144	80.11			3.582E-01	1.816E+00	2.642E+00	2.740E-01	0.136
	133.54	*		1.017E-01	2.281E-01	3.892E-01	6.881E-02	0.261
PM-144	476.78			2.342E-02	1.380E-01	2.271E-01	2.430E-02	0.103
	618.01			1.096E-02	5.414E-02	9.236E-02	1.027E-02	0.119
	696.49	*		-3.863E-03	5.489E-02	9.087E-02	9.997E-03	-0.043
	778.57			6.885E-01	4.383E+00	7.307E+00	7.745E-01	0.094
PR-144	696.49	*		-2.607E-01	3.705E+00	6.132E+00	6.746E-01	-0.043
	1489.15			6.246E+00	1.778E+01	3.053E+01	2.528E+00	0.205
PM-146	453.90	*		-2.983E-02	8.994E-02	1.443E-01	1.685E-02	-0.207
	633.02			3.385E+00	2.851E+00	4.645E+00	1.765E+00	0.729
	735.90			-2.585E-01	2.876E-01	4.258E-01	1.250E-01	-0.607
	747.13			-1.054E-01	1.752E-01	2.751E-01	4.254E-02	-0.383
ND-147	91.11			3.262E-01	1.639E-01	2.331E-01	2.675E-02	1.399
	319.41			9.773E-02	3.240E+00	5.470E+00	5.877E-01	0.018
	439.89			3.191E+00	7.303E+00	1.226E+01	1.182E+00	0.260
	531.02	*		3.662E-01	6.216E-01	1.042E+00	1.675E-01	0.351

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149		285.90	*	3.159E-01	1.280E+01	2.028E+01	3.455E+00	0.016
EU-152	+	121.78		5.992E-01	1.635E-01	2.123E-01	2.925E-02	2.823
		244.69		2.570E-01	5.425E-01	8.001E-01	8.463E-02	0.321
		344.27	*	-2.609E-02	1.681E-01	2.449E-01	2.630E-02	-0.107
		443.98		1.027E-02	1.946E+00	3.193E+00	3.090E-01	0.003
		778.89		1.185E-01	5.159E-01	8.644E-01	9.160E-02	0.137
		867.32		5.273E-01	1.900E+00	3.159E+00	3.103E-01	0.167
		964.01		5.813E-01	7.579E-01	1.130E+00	1.054E-01	0.515
		1085.78		2.010E-01	8.768E-01	1.488E+00	1.310E-01	0.135
		1112.02		1.002E+00	6.860E-01	1.248E+00	1.080E-01	0.803
		1407.95		2.120E-02	2.626E-01	4.329E-01	3.557E-02	0.049
GD-153		69.67		-4.684E-01	1.090E+00	1.688E+00	1.687E-01	-0.278
		83.37		5.217E+00	1.440E+01	2.108E+01	2.217E+00	0.247
		97.43	*	-3.828E-02	7.396E-02	1.104E-01	1.243E-02	-0.347
		103.18		4.536E-02	9.551E-02	1.661E-01	1.928E-02	0.273
EU-154	+	123.07		4.204E-01	1.170E-01	1.423E-01	2.107E-02	2.954
		247.94		9.455E-03	5.426E-01	8.695E-01	1.135E-01	0.011
		591.81		8.248E-01	1.156E+00	1.940E+00	2.595E-01	0.425
		723.30		3.408E-02	3.640E-01	5.293E-01	6.159E-02	0.064
		756.87		-5.148E-01	1.562E+00	2.517E+00	3.417E-01	-0.205
		873.19		-1.609E-02	6.962E-01	1.133E+00	1.481E-01	-0.014
		996.32		7.244E-02	8.529E-01	1.381E+00	2.494E-01	0.052
		1004.76		-2.125E-01	4.981E-01	7.727E-01	9.325E-02	-0.275
		1274.45	*	-1.872E-02	1.386E-01	2.229E-01	2.449E-02	-0.084
EU-155	+	48.70		3.231E+00	1.743E+00	1.516E+00	1.443E-01	2.131
	+	60.01		4.335E+02	4.383E+01	2.065E+01	2.031E+00	20.996
		86.54		9.822E-01	1.746E-01	2.481E-01	2.665E-02	3.959
		105.31	*	3.023E-02	1.014E-01	1.749E-01	2.067E-02	0.173
TB-160	+	86.79		1.039E+01	1.251E+00	7.391E-01	7.896E-02	14.051
		197.04		6.323E-01	7.296E-01	1.235E+00	1.187E-01	0.512
		215.65		3.135E-01	9.813E-01	1.615E+00	1.616E-01	0.194
		298.57		1.121E-01	1.781E-01	2.771E-01	3.049E-02	0.404
		879.36	*	-5.415E-02	2.926E-01	4.699E-01	4.553E-02	-0.115
		962.29		5.120E-01	1.231E+00	1.929E+00	1.801E-01	0.265
		966.15		4.911E-03	5.391E-01	7.505E-01	6.996E-02	0.007
		1177.93		6.272E-02	6.049E-01	8.753E-01	7.205E-02	0.072
		1271.85		-4.738E-01	8.213E-01	1.232E+00	1.009E-01	-0.385
HO-166M		80.57		-2.504E-02	2.401E-01	3.433E-01	3.567E-02	-0.073
		184.41		7.682E-02	5.042E-02	8.191E-02	7.645E-03	0.938
		280.46		-8.164E-02	1.403E-01	2.141E-01	2.388E-02	-0.381
		410.95		2.848E-01	4.311E-01	7.371E-01	6.867E-02	0.386
		711.68	*	9.178E-03	1.098E-01	1.836E-01	2.011E-02	0.050
		752.31		2.169E-01	5.491E-01	9.322E-01	1.003E-01	0.233
		810.29		7.050E-02	1.201E-01	2.054E-01	2.129E-02	0.343
TM-171		51.35		-9.465E-01	1.602E+01	2.374E+01	2.267E+00	-0.040
		52.39		5.059E+00	8.776E+00	1.324E+01	1.267E+00	0.382
	+	59.40		2.269E+03	2.295E+02	1.102E+02	1.084E+01	20.584
		66.72	*	9.500E+00	1.701E+01	2.754E+01	2.734E+00	0.345
LU-176	+	88.36		8.244E+00	9.928E-01	7.755E-01	8.347E-02	10.629

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-177		201.83		-3.386E-02	3.993E-02	6.195E-02	6.020E-03	-0.547
		306.84	*	2.454E-02	3.782E-02	6.591E-02	7.192E-03	0.372
		401.10		-3.918E+00	1.214E+01	1.972E+01	1.814E+00	-0.199
		112.95		6.619E-01	7.559E-01	1.323E+00	1.621E-01	0.500
	+	208.36	*	1.033E+00	7.653E-01	1.113E+00	1.097E-01	0.929
		52.97		7.768E-01	9.231E-01	1.400E+00	1.342E-01	0.555
		54.07		-2.211E-01	5.321E-01	7.764E-01	7.466E-02	-0.285
		61.30		5.428E+00	1.123E+00	1.746E+00	1.719E-01	3.109
	+	121.62		2.976E+00	7.986E-01	1.050E+00	1.350E-01	2.834
		147.16		6.225E-02	7.093E-01	1.187E+00	1.286E-01	0.052
HF-181		171.86		-4.409E-01	5.794E-01	9.142E-01	8.271E-02	-0.482
		218.09		-2.133E-01	1.194E+00	1.914E+00	1.926E-01	-0.111
		268.79		1.208E+00	1.218E+00	2.032E+00	2.234E-01	0.594
		319.02		-9.087E-02	4.039E-01	6.727E-01	7.231E-02	-0.135
		367.43		-1.088E+00	1.522E+00	2.427E+00	2.373E-01	-0.448
		413.65	*	-1.514E-01	3.070E-01	4.913E-01	4.593E-02	-0.308
		56.28		7.248E-01	6.177E-01	9.395E-01	9.107E-02	0.771
		57.53		4.002E-01	3.753E-01	5.678E-01	5.533E-02	0.705
		65.20		-1.042E+00	5.025E-01	7.083E-01	7.010E-02	-1.471
		133.02		6.717E-02	6.444E-02	1.125E-01	1.357E-02	0.597
W-181		136.25		-1.751E-01	4.556E-01	7.482E-01	8.828E-02	-0.234
		345.85		1.801E-02	2.657E-01	4.324E-01	4.442E-02	0.042
		482.03	*	1.647E-02	7.586E-02	1.251E-01	1.257E-02	0.132
		56.28		3.084E-01	2.625E-01	3.992E-01	3.870E-02	0.773
		57.53		1.685E-01	1.595E-01	2.412E-01	2.351E-02	0.699
TA-182		65.20	*	-4.396E-01	2.120E-01	2.987E-01	2.957E-02	-1.471
		67.75		5.096E-02	6.703E-02	1.091E-01	1.086E-02	0.467
		100.10		9.102E-02	1.512E-01	2.646E-01	3.021E-02	0.344
		152.43		8.074E-02	3.775E-01	6.337E-01	6.548E-02	0.127
		222.10		-6.932E-02	4.729E-01	7.579E-01	7.686E-02	-0.091
RE-183		1001.68		-4.567E-01	4.551E+00	7.321E+00	6.736E-01	-0.062
		1121.28		3.230E-01	2.627E-01	4.768E-01	4.096E-02	0.677
		1189.05		-6.673E-02	4.319E-01	7.032E-01	5.788E-02	-0.095
		1221.42	*	1.552E-01	2.295E-01	4.088E-01	3.362E-02	0.380
		1230.97		4.467E-03	5.239E-01	8.653E-01	7.113E-02	0.005
		57.98		1.756E+00	2.528E-01	3.323E-01	3.245E-02	5.285
	+	59.32		8.682E+00	8.779E-01	4.215E-01	4.142E-02	20.599
		67.20		3.642E-02	1.145E-01	1.836E-01	1.825E-02	0.198
		162.32	*	-6.361E-02	1.231E-01	1.979E-01	1.842E-02	-0.321
	+	208.81		1.908E+00	1.413E+00	2.092E+00	2.064E-01	0.912
RE-184		291.72		-4.771E-01	1.396E+00	2.041E+00	2.259E-01	-0.234
		57.98		6.767E+00	9.740E-01	1.280E+00	1.250E-01	5.285
	+	59.32		3.342E+01	3.380E+00	1.623E+00	1.595E-01	20.599
		67.20		1.403E-01	4.412E-01	7.074E-01	7.029E-02	0.198
		161.27		-1.998E-02	4.074E-01	6.726E-01	6.337E-02	-0.030
		216.55		1.266E-01	3.690E-01	6.075E-01	6.092E-02	0.208
		252.85	*	1.219E-01	3.414E-01	5.567E-01	5.970E-02	0.219
		318.01		7.908E-02	6.914E-01	1.173E+00	1.262E-01	0.067
		792.07		-1.866E-01	1.868E+00	3.051E+00	3.204E-01	-0.061

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	+	903.28		-2.654E-01	2.413E+00	3.657E+00	3.461E-01	-0.073
		920.93		1.618E-01	1.117E+00	1.828E+00	1.724E-01	0.089
		59.72		2.414E+01	2.441E+00	1.164E+00	1.145E-01	20.751
		61.14		9.529E-01	1.485E-01	2.153E-01	2.120E-02	4.425
		69.30		-1.139E-01	1.871E-01	2.874E-01	2.870E-02	-0.396
		592.07		3.104E+00	4.453E+00	7.474E+00	8.085E-01	0.415
		646.12	*	-1.920E-02	7.533E-02	1.240E-01	1.368E-02	-0.155
RE-188		717.42		5.844E-01	1.528E+00	2.608E+00	2.850E-01	0.224
		874.81		1.017E-01	1.264E+00	2.071E+00	2.018E-01	0.049
		880.27		-4.238E-01	1.696E+00	2.711E+00	2.624E-01	-0.156
		155.03	*	7.776E-02	1.888E-01	3.193E-01	3.217E-02	0.244
		477.96		3.357E+00	5.957E+00	1.001E+01	1.002E+00	0.335
		633.10		6.180E+00	4.811E+00	8.679E+00	9.539E-01	0.712
		63.58		1.642E+01	2.762E+01	4.293E+01	4.237E+00	0.383
W-188		227.08		-9.511E+00	1.692E+01	2.640E+01	2.704E+00	-0.360
		290.67	*	-1.161E+00	1.084E+01	1.613E+01	1.787E+00	-0.072
		295.96		5.692E-01	2.292E-01	3.157E-01	3.497E-02	1.803
		308.46		1.300E-01	1.409E-01	2.479E-01	2.709E-02	0.524
		316.51	*	-2.825E-04	5.231E-02	8.821E-02	9.528E-03	-0.003
		468.07		2.601E-02	1.292E-01	2.132E-01	2.230E-02	0.122
		604.41		1.590E-01	8.087E-01	1.210E+00	1.768E-01	0.131
AU-195		612.46		2.752E-01	1.302E+00	1.947E+00	2.327E-01	0.141
		65.12		-2.100E-01	9.933E-02	1.396E-01	1.381E-02	-1.505
		66.83		3.441E-02	5.540E-02	8.985E-02	8.921E-03	0.383
		75.70		6.291E-01	1.666E-01	2.803E-01	2.858E-02	2.244
		98.88	*	6.328E-02	1.909E-01	3.309E-01	3.755E-02	0.191
		129.76		-2.518E-01	2.964E+00	4.961E+00	6.112E-01	-0.051
		367.94	*	-9.195E-01	5.828E+00	9.626E+00	9.396E-01	-0.096
TL-200		579.30		1.703E+01	5.232E+01	7.552E+01	8.119E+00	0.226
		828.27		3.563E+01	7.916E+01	1.337E+02	1.365E+01	0.266
		1205.75		-2.426E+01	2.459E+01	3.566E+01	2.934E+00	-0.680
		68.90		-4.173E-02	5.449E-01	8.584E-01	8.565E-02	-0.049
		70.82		-1.306E-01	3.506E-01	4.989E-01	5.004E-02	-0.262
		80.30		-2.962E-02	7.662E-01	1.100E+00	1.142E-01	-0.027
		135.34		2.483E+00	4.853E+00	8.317E+00	9.876E-01	0.299
TL-201		167.43	*	1.366E+00	1.515E+00	2.603E+00	2.329E-01	0.525
		68.90		-1.401E-02	1.830E-01	2.882E-01	2.876E-02	-0.049
		70.82		-4.372E-02	1.174E-01	1.671E-01	1.676E-02	-0.262
		80.30		-9.922E-03	2.567E-01	3.685E-01	3.824E-02	-0.027
		439.56	*	4.482E-02	9.150E-02	1.540E-01	1.484E-02	0.291
		70.83		-2.622E-01	7.028E-01	9.992E-01	1.453E-01	-0.262
		72.87		-2.039E-03	4.188E-01	6.067E-01	8.621E-02	-0.003
HG-203		82.60		-7.667E-01	8.989E-01	1.339E+00	2.006E-01	-0.573
		279.20	*	8.061E-02	5.709E-02	9.674E-02	1.098E-02	0.833
		72.80		-1.316E-02	1.372E-01	1.978E-01	1.996E-02	-0.067
		74.97		3.591E-01	9.512E-02	1.547E-01	1.573E-02	2.321
		84.90		1.509E-01	1.950E-01	2.901E-01	3.072E-02	0.520
		569.67		3.345E-02	5.528E-02	9.227E-02	9.870E-03	0.363
		1063.62	*	3.929E-05	1.176E-01	1.968E-01	1.757E-02	0.000



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207	1770.23			4.141E-01	5.801E-01	1.046E+00	8.610E-02	0.396
	81.07			-1.380E-01	1.815E-01	2.728E-01	2.841E-02	-0.506
	83.78			1.507E-01	1.253E-01	1.899E-01	2.000E-02	0.794
	94.90			1.282E-01	2.004E-01	3.206E-01	3.564E-02	0.400
	122.32		+	1.428E+01	3.864E+00	5.113E+00	6.805E-01	2.794
	144.24			-3.322E-01	7.963E-01	1.297E+00	1.545E-01	-0.256
	154.21			3.705E-01	4.704E-01	8.075E-01	8.797E-02	0.459
	269.46			3.117E-01	2.925E-01	4.893E-01	5.455E-02	0.637
	323.87		*	-1.139E+00	1.034E+00	1.597E+00	3.002E-01	-0.713
	338.28		+	6.345E+00	3.104E+00	3.364E+00	4.588E-01	1.886
PO-209	445.03			1.486E+00	4.640E+00	7.737E+00	9.960E-01	0.192
	260.50			2.197E+00	1.467E+01	2.359E+01	2.562E+00	0.093
	262.80			5.792E+00	4.013E+01	6.449E+01	7.027E+00	0.090
	896.60		*	1.240E+00	1.818E+01	2.970E+01	2.818E+00	0.042
	46.50		*	5.477E-02	8.945E-01	1.374E+00	1.417E-01	0.040
BI-210	46.50		*	5.477E-02	8.945E-01	1.374E+00	1.417E-01	0.040
PB-210	46.50		*	5.477E-02	8.945E-01	1.374E+00	1.417E-01	0.040
PO-210	46.50		*	5.477E-02	8.945E-01	1.374E+00	1.309E-01	0.040
PB-211	404.84		*	4.709E-01	1.685E+00	2.786E+00	1.748E+00	0.169
BI-212	427.08			5.790E-01	3.889E+00	6.428E+00	4.002E+00	0.090
	831.96			2.507E+00	3.040E+00	4.541E+00	2.856E+00	0.552
	727.18		+	1.048E+00	8.116E-01	1.085E+00	1.303E-01	0.966
	785.46			1.740E+00	3.609E+00	6.132E+00	6.471E-01	0.284
	1620.62			-1.254E+00	2.209E+00	3.355E+00	2.789E-01	-0.374
PO-215	81.07			-1.380E-01	1.815E-01	2.728E-01	2.841E-02	-0.506
	83.78			1.507E-01	1.253E-01	1.899E-01	2.000E-02	0.794
	94.90			1.282E-01	2.004E-01	3.206E-01	3.564E-02	0.400
	122.32		+	1.428E+01	3.864E+00	5.113E+00	6.805E-01	2.794
	144.24			-3.322E-01	7.963E-01	1.297E+00	1.545E-01	-0.256
	154.21			3.705E-01	4.704E-01	8.075E-01	8.797E-02	0.459
	269.46			3.117E-01	2.925E-01	4.893E-01	5.455E-02	0.637
	323.87		*	-1.139E+00	1.034E+00	1.597E+00	3.002E-01	-0.713
	338.28		+	6.345E+00	3.104E+00	3.364E+00	4.588E-01	1.886
	445.03			1.486E+00	4.640E+00	7.737E+00	9.960E-01	0.192
RN-219	271.23			-2.446E-01	3.955E-01	6.050E-01	7.503E-02	-0.404
	401.81		*	-4.491E-01	7.679E-01	1.224E+00	1.881E-01	-0.367
RN-220	549.76		*	1.947E+01	4.732E+01	7.842E+01	8.291E+00	0.248
RA-223	81.07			-1.380E-01	1.815E-01	2.728E-01	2.841E-02	-0.506
	83.78			1.507E-01	1.253E-01	1.899E-01	2.000E-02	0.794
	94.90			1.282E-01	2.004E-01	3.206E-01	3.564E-02	0.400
	122.32		+	1.428E+01	3.864E+00	5.113E+00	6.805E-01	2.794
	144.24			-3.322E-01	7.963E-01	1.297E+00	1.545E-01	-0.256
	154.21			3.705E-01	4.704E-01	8.075E-01	8.797E-02	0.459
	269.46			3.117E-01	2.925E-01	4.893E-01	5.455E-02	0.637
	323.87		*	-1.139E+00	1.034E+00	1.597E+00	3.002E-01	-0.713
	338.28		+	6.345E+00	3.104E+00	3.364E+00	4.588E-01	1.886
	445.03			1.486E+00	4.640E+00	7.737E+00	9.960E-01	0.192
AC-227	79.80			3.434E-01	1.429E+00	2.081E+00	4.632E-01	0.165
	236.00			2.073E-02	3.605E-01	5.181E-01	7.029E-02	0.040
	256.20		*	-1.858E-01	5.962E-01	9.336E-01	1.555E-01	-0.199

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		286.10	3.205E-01	2.414E+00	3.849E+00	5.754E-01	0.083
		299.80	2.080E+00	2.364E+00	3.862E+00	7.250E-01	0.538
		304.40	-3.250E+00	2.804E+00	4.318E+00	8.476E-01	-0.753
		334.20	-1.396E-01	3.767E+00	5.559E+00	1.129E+00	-0.025
		79.80	3.434E-01	1.429E+00	2.081E+00	4.687E-01	0.165
	+	94.00	7.038E+00	3.150E+00	3.169E+00	7.243E-01	2.221
		236.00	2.073E-02	3.605E-01	5.181E-01	6.489E-02	0.040
	*	256.20	-1.858E-01	5.965E-01	9.336E-01	1.792E-01	-0.199
		286.10	3.205E-01	2.435E+00	3.849E+00	3.873E+00	0.083
		299.80	2.080E+00	2.364E+00	3.862E+00	7.250E-01	0.538
TH-229		304.40	-3.250E+00	2.804E+00	4.318E+00	8.476E-01	-0.753
		334.20	-1.396E-01	3.767E+00	5.559E+00	1.129E+00	-0.025
		85.43	1.376E-01	1.939E-01	2.875E-01	3.052E-02	0.479
	+	88.47	4.745E+00	5.715E-01	4.440E-01	4.781E-02	10.688
		100.00	1.016E-01	1.644E-01	2.879E-01	3.286E-02	0.353
	*	193.63	-3.959E-01	6.943E-01	1.099E+00	1.049E-01	-0.360
		210.97	2.579E-01	1.175E+00	1.725E+00	1.710E-01	0.150
	*	283.67	-2.123E+00	2.486E+00	3.684E+00	6.166E-01	-0.576
		301.29	9.909E-01	8.540E-01	1.508E+00	2.112E-01	0.657
		81.07	-1.380E-01	1.815E-01	2.728E-01	2.841E-02	-0.506
TH-231		83.78	1.507E-01	1.253E-01	1.899E-01	2.000E-02	0.794
		94.90	1.282E-01	2.004E-01	3.206E-01	3.564E-02	0.400
	+	122.32	1.428E+01	3.864E+00	5.113E+00	6.805E-01	2.794
		144.24	-3.322E-01	7.963E-01	1.297E+00	1.545E-01	-0.256
		154.21	3.705E-01	4.704E-01	8.075E-01	8.797E-02	0.459
		269.46	3.117E-01	2.925E-01	4.893E-01	5.455E-02	0.637
	*	323.87	-1.139E+00	1.034E+00	1.597E+00	3.002E-01	-0.713
	+	338.28	6.345E+00	3.104E+00	3.364E+00	4.588E-01	1.886
		445.03	1.486E+00	4.640E+00	7.737E+00	9.960E-01	0.192
	+	84.21	1.993E+00	1.517E+00	2.307E+00	2.436E-01	0.864
U-231	+	92.29	1.949E+00	7.806E-01	9.582E-01	1.051E-01	2.034
	*	95.87	1.311E-01	2.654E-01	4.218E-01	4.712E-02	0.311
		108.00	-8.452E-02	5.661E-01	9.561E-01	1.139E-01	-0.088
	+	75.28	1.048E+01	3.079E+00	4.478E+00	7.288E-01	2.341
	+	86.59	6.804E+01	1.913E+01	4.207E+00	1.159E+00	16.172
		300.12	4.222E-01	6.463E-01	1.051E+00	1.720E-01	0.402
	*	311.98	-5.693E-03	1.034E-01	1.741E-01	1.922E-02	-0.033
		340.50	1.387E+00	1.116E+00	1.716E+00	4.210E-01	0.808
		398.62	-1.269E+00	3.821E+00	6.181E+00	1.657E+00	-0.205
		415.76	8.446E-01	2.909E+00	4.871E+00	1.065E+00	0.173
PA-234		63.00	8.784E-01	8.648E-01	1.357E+00	2.202E-01	0.647
		94.67	1.578E-01	1.468E-01	2.382E-01	3.391E-02	0.663
		98.44	1.208E-03	7.894E-02	1.351E-01	7.600E-02	0.009
		99.86	2.663E-01	4.163E-01	7.295E-01	8.321E-02	0.365
		111.00	-6.481E-02	1.952E-01	3.263E-01	4.824E-02	-0.199
		131.20	-9.781E-02	1.192E-01	1.914E-01	2.337E-02	-0.511
		152.70	1.318E-01	3.824E-01	6.448E-01	1.158E-01	0.204
	+	186.00	2.481E+00	2.221E+00	3.027E+00	9.515E-01	0.819
		226.40	-9.954E-02	5.601E-01	8.941E-01	1.279E-01	-0.111

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		227.20		-3.479E-01	6.175E-01	9.630E-01	9.864E-02	-0.361
		248.90		-9.655E-01	1.262E+00	1.896E+00	4.411E-01	-0.509
	+	293.70		3.851E+00	1.654E+00	1.992E+00	3.711E-01	1.934
		369.80		2.281E+00	1.519E+00	2.594E+00	5.768E-01	0.879
		568.70		-7.329E-01	1.800E+00	2.783E+00	2.975E-01	-0.263
		569.50		2.970E-01	4.907E-01	8.191E-01	8.761E-02	0.363
		574.00		-1.118E+00	2.719E+00	4.210E+00	4.513E-01	-0.266
		699.00		-9.263E-01	1.177E+00	1.808E+00	3.664E-01	-0.512
		706.10		-1.920E+00	2.085E+00	2.914E+00	1.314E+00	-0.659
		733.00		4.971E-01	7.468E-01	1.142E+00	2.645E-01	0.435
		742.81		-2.122E-02	2.600E+00	4.300E+00	2.904E+00	-0.005
		796.30		-9.643E-02	1.788E+00	2.928E+00	8.110E-01	-0.033
		805.60		-8.678E-01	1.960E+00	3.074E+00	9.591E-01	-0.282
		819.60		1.549E+00	2.855E+00	4.753E+00	1.827E+00	0.326
		826.30		-1.188E+00	1.825E+00	2.709E+00	1.221E+00	-0.439
		831.60		1.229E+00	1.392E+00	2.335E+00	7.084E-01	0.526
		876.40		4.164E-02	1.924E+00	3.140E+00	3.231E+00	0.013
		880.51		-3.179E-01	6.593E-01	1.035E+00	1.001E-01	-0.307
		883.24		1.313E-01	6.808E-01	1.114E+00	7.505E-01	0.118
		899.00		9.641E-02	2.038E+00	3.323E+00	1.458E+00	0.029
		925.00		4.384E-01	3.132E+00	5.122E+00	4.828E-01	0.086
		926.50		9.482E-02	4.626E-01	7.587E-01	1.939E-01	0.125
		946.00	*	-2.214E-02	8.290E-01	1.338E+00	2.559E-01	-0.017
		949.00		-4.219E-01	1.206E+00	1.903E+00	1.783E-01	-0.222
		980.50		9.967E-01	1.774E+00	2.972E+00	2.757E-01	0.335
		1394.10		1.961E-01	1.558E+00	2.588E+00	1.683E+00	0.076
PA-234M		766.42		-1.189E+01	2.354E+01	3.619E+01	1.850E+01	-0.329
		1001.03	*	1.908E+00	1.067E+01	1.753E+01	1.836E+00	0.109
TH-234		63.29	*	6.838E-01	7.425E-01	1.159E+00	2.157E-01	0.590
	+	92.38		1.821E+00	7.847E-01	9.017E-01	1.742E-01	2.020
U-235		89.95		4.207E+00	1.726E+00	1.769E+00	5.583E-01	2.378
	+	93.35		2.189E+00	1.053E+00	1.099E+00	3.171E-01	1.993
		105.00		3.414E-01	9.934E-01	1.709E+00	5.277E-01	0.200
		143.76	*	-8.818E-02	2.449E-01	3.995E-01	7.544E-02	-0.221
		163.35		-6.838E-01	6.029E-01	9.146E-01	1.769E-01	-0.748
	+	185.71		9.187E-02	7.752E-02	1.132E-01	1.060E-02	0.812
		205.31		6.339E-01	7.539E-01	1.143E+00	2.245E-01	0.554
NP-236		94.67		1.213E-01	1.109E-01	1.809E-01	2.008E-02	0.671
		98.44		8.844E-04	5.967E-02	1.021E-01	1.156E-02	0.009
		111.00		-4.902E-02	1.476E-01	2.468E-01	2.990E-02	-0.199
		160.31	*	9.891E-03	9.575E-02	1.594E-01	1.518E-02	0.062
NP-237		86.50	*	2.128E+00	5.964E-01	5.865E-01	1.362E-01	3.629
		95.87		4.126E-01	8.406E-01	1.327E+00	3.403E-01	0.311
U-238		63.29	*	6.838E-01	7.425E-01	1.159E+00	2.157E-01	0.590
	+	92.38		1.821E+00	7.293E-01	9.017E-01	9.897E-02	2.020
NP-239		99.55		8.036E-02	1.392E-01	2.435E-01	2.772E-02	0.330
		117.00	*	4.692E-02	1.907E-01	3.262E-01	4.087E-02	0.144
	+	209.75		1.624E+00	1.203E+00	1.840E+00	1.819E-01	0.883
		228.18		-8.419E-02	3.226E-01	5.124E-01	5.259E-02	-0.164

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243		277.60	1.400E-01	2.871E-01	4.673E-01	5.204E-02	0.300
		334.30	-1.377E-01	2.131E+00	3.139E+00	3.295E-01	-0.044
		99.55	8.264E-02	1.432E-01	2.504E-01	2.851E-02	0.330
		103.76 *	1.555E-02	9.021E-02	1.549E-01	1.804E-02	0.100
		117.00	4.825E-02	1.961E-01	3.355E-01	4.203E-02	0.144
	+	209.75	1.600E+00	1.185E+00	1.813E+00	1.792E-01	0.883
		228.18	-8.503E-02	3.258E-01	5.175E-01	5.311E-02	-0.164
AM-246		277.60	1.411E-01	2.893E-01	4.709E-01	5.243E-02	0.300
		798.80	-6.372E-02	2.756E-01	4.450E-01	4.652E-02	-0.143
		1036.00	-2.778E-01	6.585E-01	1.070E+00	9.694E-02	-0.260
		1062.04	1.191E-01	5.101E-01	8.674E-01	7.748E-02	0.137
CM-247		1078.86 *	-7.333E-02	3.280E-01	5.395E-01	4.772E-02	-0.136
		278.00	1.121E+00	1.176E+00	1.956E+00	2.179E-01	0.573
		287.40	9.344E-01	1.886E+00	3.071E+00	3.410E-01	0.304
CF-249		402.60 *	-2.329E-02	6.667E-02	1.080E-01	9.958E-03	-0.216
		252.85	4.721E-01	1.322E+00	2.156E+00	2.312E-01	0.219
		333.44	-1.170E-01	2.867E-01	4.104E-01	4.315E-02	-0.285
CF-251		387.95 *	-2.110E-02	7.121E-02	1.161E-01	1.069E-02	-0.182
		176.60 *	-9.822E-02	1.648E-01	2.624E-01	2.402E-02	-0.374
		227.00	-3.263E-01	5.476E-01	8.523E-01	8.727E-02	-0.383
		285.00	4.552E-01	2.701E+00	4.319E+00	4.804E-01	0.105

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015437      *
* Acquisition date   : 22-JAN-2010 10:25:30 Detector SN# :                  *
* Detector ID        : GAM25 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 01:00:01.93 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202015437 Analyst initials: MXR1                 *
* Batch Number      : 941635 Sample Quantity : 1.5544E+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 :                               *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
CO-57	2.026E-01	5.330E-02	4.894E-02	0.000E+00
CO-60	6.585E+00	6.219E-01	9.372E-02	0.000E+00
CD-109	3.496E+01	4.126E+00	1.270E+00	0.000E+00
SN-126	3.476E+00	4.102E-01	1.261E-01	0.000E+00
BA-137M	5.775E+00	6.807E-01	1.205E-01	0.000E+00
CS-137	6.105E+00	7.203E-01	1.274E-01	0.000E+00
TL-208	3.809E-01	1.245E-01	1.030E-01	0.000E+00
BI-211	2.053E+00	5.339E-01	5.292E-01	0.000E+00
PB-212	1.152E+00	1.786E-01	1.426E-01	0.000E+00
PO-212	1.152E+00	1.786E-01	1.426E-01	0.000E+00
BI-214	8.396E-01	2.474E-01	2.035E-01	0.000E+00
PB-214	7.143E-01	1.893E-01	2.068E-01	0.000E+00
PO-214	7.143E-01	1.893E-01	2.068E-01	0.000E+00
PO-216	1.152E+00	1.786E-01	1.426E-01	0.000E+00
PO-218	7.143E-01	1.893E-01	2.068E-01	0.000E+00
RA-224	2.987E+00	1.472E+00	1.624E+00	0.000E+00
RA-226	8.396E-01	2.474E-01	2.035E-01	0.000E+00
AC-228	1.462E+00	6.434E-01	4.884E-01	0.000E+00
RA-228	1.462E+00	6.434E-01	4.884E-01	0.000E+00
TH-228	1.160E+00	1.800E-01	1.436E-01	0.000E+00
TH-230	8.395E-01	2.474E-01	2.035E-01	0.000E+00
TH-232	1.462E+00	6.434E-01	4.884E-01	0.000E+00
U-234	8.395E-01	2.474E-01	2.035E-01	0.000E+00
AM-241	1.337E+01	1.395E+00	1.784E-01	0.000E+00
AM-243	2.001E-01	5.195E-02	7.087E-02	0.000E+00
ANH-511	1.535E-01	1.046E-01	9.373E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	3.173E-01	5.919E-01	1.053E+00	0.000E+00 NOT IDENT.

NA-22	4.887E-03	4.656E-02	8.040E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.647E+02	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.679E-02	4.702E-02	8.831E-02	0.000E+00	NOT IDENT.
K-40	-2.340E-02	6.256E-01	1.094E+00	0.000E+00	NOT IDENT.
TI-44	0.000E+00	3.934E-02	6.116E-02	0.000E+00	FAIL ABUN
SC-46	-2.398E-02	9.041E-02	1.507E-01	0.000E+00	NOT IDENT.
V-48	5.585E-02	1.215E-01	2.102E-01	0.000E+00	NOT IDENT.
CR-51	3.853E-02	4.735E-01	8.593E-01	0.000E+00	NOT IDENT.
MN-52	3.050E-02	1.174E-01	2.056E-01	0.000E+00	FAIL ABUN
MN-54	-2.500E-02	7.780E-02	1.301E-01	0.000E+00	NOT IDENT.
CO-56	-9.645E-04	7.995E-02	1.364E-01	0.000E+00	NOT IDENT.
CO-58	5.341E-02	7.416E-02	1.336E-01	0.000E+00	NOT IDENT.
FE-59	-6.077E-03	1.796E-01	3.100E-01	0.000E+00	NOT IDENT.
ZN-65	-2.722E-01	1.894E-01	2.914E-01	0.000E+00	NOT IDENT.
GE-68	8.180E-01	2.824E+00	4.990E+00	0.000E+00	NOT IDENT.
AS-73	-1.098E-02	4.767E-01	7.911E-01	0.000E+00	NOT IDENT.
AS-74	-4.647E-02	1.240E-01	2.025E-01	0.000E+00	NOT IDENT.
SE-75	-3.189E-02	6.278E-02	1.043E-01	0.000E+00	FAIL ABUN
BR-77	-5.295E-01	2.105E+00	3.540E+00	0.000E+00	FAIL ABUN
SR-82	6.743E-02	5.920E-01	1.030E+00	0.000E+00	NOT IDENT.
RB-83	-5.441E-02	1.251E-01	2.076E-01	0.000E+00	NOT IDENT.
RB-84	-7.572E-02	1.328E-01	2.158E-01	0.000E+00	NOT IDENT.
KR-85	8.545E-01	1.495E+01	2.251E+01	0.000E+00	NOT IDENT.
SR-85	4.040E-03	7.068E-02	1.064E-01	0.000E+00	NOT IDENT.
RB-86	1.211E+00	1.348E+00	2.468E+00	0.000E+00	NOT IDENT.
Y-88	2.045E-02	5.098E-02	9.273E-02	0.000E+00	NOT IDENT.
ZR-88	1.481E-02	5.085E-02	9.128E-02	0.000E+00	NOT IDENT.
Y-91	-1.320E+01	2.162E+01	3.421E+01	0.000E+00	NOT IDENT.
NB-94	4.133E-02	5.536E-02	1.015E-01	0.000E+00	NOT IDENT.
NB-95	-5.039E-02	7.482E-02	1.230E-01	0.000E+00	NOT IDENT.
NB-95M	-3.479E-02	1.740E-01	2.655E-01	0.000E+00	NOT IDENT.
ZR-95	-1.591E-02	1.294E-01	2.222E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.269E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.822E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.905E+00	3.147E+00	5.674E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.408E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.341E-03	4.548E-02	8.102E-02	0.000E+00	NOT IDENT.
RH-102	-4.173E-03	5.918E-02	1.020E-01	0.000E+00	NOT IDENT.
RU-103	3.583E-02	6.934E-02	1.228E-01	0.000E+00	FAIL ABUN
RH-106	-3.733E-02	5.289E-01	9.325E-01	0.000E+00	FAIL ABUN
RU-106	-3.733E-02	5.289E-01	9.325E-01	0.000E+00	FAIL ABUN
AG-108M	5.819E-03	6.307E-02	1.108E-01	0.000E+00	NOT IDENT.
AG-110M	9.791E-02	8.174E-02	1.363E-01	0.000E+00	NOT IDENT.
IN-111	2.128E-01	2.631E-01	4.274E-01	0.000E+00	NOT IDENT.
IN-113M	2.422E-02	7.602E-02	1.366E-01	0.000E+00	NOT IDENT.
SN-113	2.422E-02	7.602E-02	1.366E-01	0.000E+00	NOT IDENT.
IN-114M	3.679E-02	2.271E-01	3.881E-01	0.000E+00	NOT IDENT.
CD-115	-1.697E+00	1.816E+00	2.878E+00	0.000E+00	NOT IDENT.
SN-117M	3.144E-02	4.278E-02	8.001E-02	0.000E+00	NOT IDENT.
SB-122	2.438E-01	5.011E-01	8.792E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.835E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.469E-02	3.139E-02	5.804E-02	0.000E+00	NOT IDENT.
I-124	3.262E-01	3.279E-01	5.733E-01	0.000E+00	NOT IDENT.
SB-124	-9.296E-02	9.161E-02	1.149E-01	0.000E+00	FAIL ABUN
SB-125	7.761E-02	1.691E-01	3.035E-01	0.000E+00	NOT IDENT.
TE-125M	2.096E+00	8.483E+00	1.604E+01	0.000E+00	NOT IDENT.
I-126	-1.483E-02	2.399E-01	3.645E-01	0.000E+00	NOT IDENT.
SB-126	-3.980E-02	1.753E-01	2.920E-01	0.000E+00	FAIL ABUN
SB-127	-4.724E-01	5.796E-01	9.467E-01	0.000E+00	NOT IDENT.
XE-127	-3.436E-02	5.461E-02	9.318E-02	0.000E+00	NOT IDENT.
I-131	-5.352E-02	9.936E-02	1.715E-01	0.000E+00	NOT IDENT.
TE-132	-5.135E-02	1.878E-01	3.223E-01	0.000E+00	FAIL ABUN
BA-133	-1.906E-02	8.087E-02	1.249E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.292E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	-1.094E-03	8.829E-02	1.518E-01	0.000E+00	NOT IDENT.
CS-135	7.207E-02	2.411E-01	4.198E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.187E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.016E-02	1.585E-01	2.658E-01	0.000E+00	NOT IDENT.
CE-139	4.258E-02	3.579E-02	6.769E-02	0.000E+00	NOT IDENT.
BA-140	2.271E-03	2.870E-01	4.896E-01	0.000E+00	NOT IDENT.
LA-140	-2.726E-02	8.043E-02	1.299E-01	0.000E+00	NOT IDENT.
CE-141	1.360E-02	5.916E-02	1.091E-01	0.000E+00	NOT IDENT.
CE-143	7.357E+00	4.642E+00	7.770E+00	0.000E+00	FAIL ABUN
CE-144	1.017E-01	2.235E-01	4.183E-01	0.000E+00	NOT IDENT.
PM-144	-3.863E-03	5.380E-02	9.354E-02	0.000E+00	NOT IDENT.
PR-144	-2.607E-01	3.631E+00	6.313E+00	0.000E+00	NOT IDENT.
PM-146	-2.983E-02	8.815E-02	1.503E-01	0.000E+00	NOT IDENT.
ND-147	3.662E-01	6.092E-01	1.081E+00	0.000E+00	NOT IDENT.

PM-149	3.159E-01	1.255E+01	2.137E+01	0.000E+00	NOT IDENT.
EU-152	-2.609E-02	1.647E-01	2.569E-01	0.000E+00	FAIL ABUN
GD-153	-3.828E-02	7.248E-02	1.195E-01	0.000E+00	NOT IDENT.
EU-154	-1.872E-02	1.358E-01	2.256E-01	0.000E+00	FAIL ABUN
EU-155	3.023E-02	9.936E-02	1.890E-01	0.000E+00	FAIL ABUN
TB-160	-5.415E-02	2.868E-01	4.807E-01	0.000E+00	FAIL ABUN
HO-166M	9.178E-03	1.077E-01	1.889E-01	0.000E+00	NOT IDENT.
TM-171	9.500E+00	1.667E+01	3.010E+01	0.000E+00	FAIL ABUN
LU-176	2.454E-02	3.706E-02	6.935E-02	0.000E+00	FAIL ABUN
LU-177	1.033E+00	7.500E-01	1.183E+00	0.000E+00	FAIL ABUN
LU-177M	-1.514E-01	3.008E-01	5.129E-01	0.000E+00	FAIL ABUN
HF-181	1.647E-02	7.435E-02	1.301E-01	0.000E+00	NOT IDENT.
W-181	-4.396E-01	2.077E-01	3.267E-01	0.000E+00	NOT IDENT.
TA-182	1.552E-01	2.249E-01	4.143E-01	0.000E+00	NOT IDENT.
RE-183	-6.361E-02	1.207E-01	2.116E-01	0.000E+00	FAIL ABUN
RE-184	1.219E-01	3.346E-01	5.886E-01	0.000E+00	FAIL ABUN
OS-185	-1.920E-02	7.382E-02	1.279E-01	0.000E+00	FAIL ABUN
RE-188	7.776E-02	1.851E-01	3.419E-01	0.000E+00	NOT IDENT.
W-188	-1.161E+00	1.062E+01	1.700E+01	0.000E+00	NOT IDENT.
IR-192	-2.825E-04	5.127E-02	9.273E-02	0.000E+00	FAIL ABUN
AU-195	6.328E-02	1.871E-01	3.583E-01	0.000E+00	FAIL ABUN
TL-200	-9.195E-01	5.712E+00	1.008E+01	0.000E+00	NOT IDENT.
TL-201	1.366E+00	1.485E+00	2.782E+00	0.000E+00	NOT IDENT.
TL-202	4.482E-02	8.967E-02	1.605E-01	0.000E+00	NOT IDENT.
HG-203	8.061E-02	5.594E-02	1.020E-01	0.000E+00	NOT IDENT.
BI-207	3.929E-05	1.153E-01	2.003E-01	0.000E+00	FAIL ABUN
TL-207	-1.139E+00	1.013E+00	1.678E+00	0.000E+00	FAIL ABUN
PO-209	1.240E+00	1.782E+01	3.036E+01	0.000E+00	NOT IDENT.
BI-210	5.477E-02	8.766E-01	1.515E+00	0.000E+00	NOT IDENT.
PB-210	5.477E-02	8.766E-01	1.515E+00	0.000E+00	NOT IDENT.
PO-210	5.477E-02	8.766E-01	1.515E+00	0.000E+00	NOT IDENT.
PB-211	4.709E-01	1.651E+00	2.910E+00	0.000E+00	NOT IDENT.
BI-212	1.048E+00	7.954E-01	1.115E+00	0.000E+00	FAIL ABUN
PO-215	-1.139E+00	1.013E+00	1.678E+00	0.000E+00	FAIL ABUN
RN-219	-4.491E-01	7.525E-01	1.278E+00	0.000E+00	NOT IDENT.
RN-220	1.947E+01	4.638E+01	8.124E+01	0.000E+00	NOT IDENT.
RA-223	-1.139E+00	1.013E+00	1.678E+00	0.000E+00	FAIL ABUN
AC-227	-1.858E-01	5.843E-01	9.869E-01	0.000E+00	NOT IDENT.
TH-227	-1.858E-01	5.846E-01	9.869E-01	0.000E+00	FAIL ABUN
TH-229	-3.959E-01	6.804E-01	1.170E+00	0.000E+00	FAIL ABUN
PA-231	-2.123E+00	2.436E+00	3.884E+00	0.000E+00	NOT IDENT.
TH-231	-1.139E+00	1.013E+00	1.678E+00	0.000E+00	FAIL ABUN
U-231	1.311E-01	2.601E-01	4.570E-01	0.000E+00	FAIL ABUN
PA-233	-5.693E-03	1.013E-01	1.830E-01	0.000E+00	FAIL ABUN
PA-234	-2.214E-02	8.125E-01	1.366E+00	0.000E+00	FAIL ABUN
PA-234M	1.908E+00	1.046E+01	1.787E+01	0.000E+00	NOT IDENT.
TH-234	6.838E-01	7.276E-01	1.268E+00	0.000E+00	FAIL ABUN
U-235	-8.818E-02	2.400E-01	4.286E-01	0.000E+00	FAIL ABUN
NP-236	9.891E-03	9.383E-02	1.705E-01	0.000E+00	NOT IDENT.
NP-237	0.000E+00	5.845E-01	6.371E-01	0.000E+00	NOT IDENT.
U-238	6.838E-01	7.276E-01	1.268E+00	0.000E+00	FAIL ABUN
NP-239	4.692E-02	1.869E-01	3.517E-01	0.000E+00	FAIL ABUN
CM-243	1.555E-02	8.840E-02	1.675E-01	0.000E+00	FAIL ABUN
AM-246	-7.333E-02	3.215E-01	5.488E-01	0.000E+00	NOT IDENT.
CM-247	-2.329E-02	6.534E-02	1.128E-01	0.000E+00	NOT IDENT.
CF-249	-2.110E-02	6.978E-02	1.214E-01	0.000E+00	NOT IDENT.
CF-251	-9.822E-02	1.615E-01	2.800E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015437.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 10:25:30
Sample ID          : G1202015437 Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM25 Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00 Elapsed real time: 0 01:00:01.93 0.1%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity        : 5.00000
Batch ID           : 941635 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
CO-57	122.06	291	85.51*	8.263E+00	1.988E-01	2.026E-01	26.84
	136.48	-----	10.60	7.796E+00	-----	Line Not Found	-----
CO-60	1173.22	1874	100.00	1.342E+00	6.741E+00	6.759E+00	9.60
	1332.49	1633	100.00*	1.201E+00	6.567E+00	6.585E+00	9.64
CD-109	88.03	2498	3.72*	9.380E+00	3.457E+01	3.496E+01	12.04
SN-126	64.28	-----	9.60	9.782E+00	-----	Line Not Found	-----
	86.94	2498	8.90	9.380E+00	1.445E+01	1.445E+01	42.20
	87.57	2498	37.00*	9.380E+00	3.476E+00	3.476E+00	12.04
BA-137M	661.65	2399	89.98*	2.231E+00	5.772E+00	5.775E+00	12.03
CS-137	661.65	2399	85.12*	2.231E+00	6.102E+00	6.105E+00	12.04
TL-208	277.35	-----	6.80	4.738E+00	-----	Line Not Found	-----
	510.84	89	21.60	2.810E+00	7.105E-01	7.105E-01	70.04
	583.14	166	84.20*	2.495E+00	3.809E-01	3.809E-01	33.37
	860.37	-----	12.46	1.765E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	9.724E+00	-----	Line Not Found	-----
	351.07	214	12.94*	3.885E+00	2.053E+00	2.053E+00	26.53
PB-212	74.81	265	10.70	9.694E+00	1.235E+00	1.235E+00	28.09
	77.11	449	18.00	9.651E+00	1.248E+00	1.248E+00	17.44
	87.30	2498	8.00	9.380E+00	1.608E+01	1.608E+01	15.65
	238.63	568	44.60*	5.338E+00	1.152E+00	1.152E+00	15.83
	300.09	-----	3.41	4.442E+00	-----	Line Not Found	-----
PO-212	74.81	265	10.70	9.694E+00	1.235E+00	1.235E+00	28.09
	77.11	449	18.00	9.651E+00	1.248E+00	1.248E+00	17.44
	87.30	2498	8.00	9.380E+00	1.608E+01	1.608E+01	15.65
	115.19	-----	0.60	8.498E+00	-----	Line Not Found	-----
	238.63	568	44.60*	5.338E+00	1.152E+00	1.152E+00	15.83
	300.09	-----	3.41	4.442E+00	-----	Line Not Found	-----
BI-214	609.31	193	46.30*	2.401E+00	8.395E-01	8.396E-01	30.07
	1120.29	-----	15.10	1.398E+00	-----	Line Not Found	-----
	1764.49	30	15.80	9.407E-01	9.701E-01	9.701E-01	54.67
PB-214	74.81	265	6.21	9.694E+00	2.127E+00	2.127E+00	27.50
	77.11	449	10.50	9.651E+00	2.139E+00	2.139E+00	19.03



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	2498	4.67	9.380E+00	2.754E+01	2.754E+01	14.30
	241.98	129	7.49	5.291E+00	1.575E+00	1.575E+00	50.58
	295.21	144	19.20	4.505E+00	8.024E-01	8.024E-01	40.73
	351.92	214	37.20*	3.885E+00	7.143E-01	7.143E-01	27.04
	74.81	265	6.21	9.694E+00	2.127E+00	2.127E+00	27.50
	77.11	449	10.50	9.651E+00	2.139E+00	2.139E+00	19.03
	87.30	2498	4.67	9.380E+00	2.754E+01	2.754E+01	14.30
	241.98	129	7.49	5.291E+00	1.575E+00	1.575E+00	50.58
PO-216	295.21	144	19.20	4.505E+00	8.024E-01	8.024E-01	40.73
	351.92	214	37.20*	3.885E+00	7.143E-01	7.143E-01	27.04
	74.81	265	10.70	9.694E+00	1.235E+00	1.235E+00	28.09
	77.11	449	18.00	9.651E+00	1.248E+00	1.248E+00	17.44
	87.30	2498	8.00	9.380E+00	1.608E+01	1.608E+01	15.65
	238.63	568	44.60*	5.338E+00	1.152E+00	1.152E+00	15.83
	300.09	-----	3.41	4.442E+00	-----	Line Not Found	-----
	74.81	265	6.21	9.694E+00	2.127E+00	2.127E+00	27.50
PO-218	77.11	449	10.50	9.651E+00	2.139E+00	2.139E+00	19.03
	87.30	2498	4.67	9.380E+00	2.754E+01	2.754E+01	14.30
	241.98	129	7.49	5.291E+00	1.575E+00	1.575E+00	50.58
	295.21	144	19.20	4.505E+00	8.024E-01	8.024E-01	40.73
	351.92	214	37.20*	3.885E+00	7.143E-01	7.143E-01	27.04
	240.98	129	3.95*	5.291E+00	2.987E+00	2.987E+00	50.27
	609.31	193	46.30*	2.401E+00	8.395E-01	8.395E-01	30.07
	1120.29	-----	15.10	1.398E+00	-----	Line Not Found	-----
AC-228	1764.49	30	15.80	9.407E-01	9.701E-01	9.701E-01	54.67
	338.32	144	11.40	4.016E+00	1.520E+00	1.520E+00	62.80
	911.07	141	27.70*	1.678E+00	1.462E+00	1.462E+00	44.91
	969.11	71	16.60	1.589E+00	1.293E+00	1.293E+00	64.26
	338.32	144	11.40	4.016E+00	1.520E+00	1.520E+00	62.80
	911.07	141	27.70*	1.678E+00	1.462E+00	1.462E+00	44.91
	969.11	71	16.60	1.589E+00	1.293E+00	1.293E+00	64.26
	74.81	265	10.70	9.694E+00	1.235E+00	1.244E+00	26.51
TH-228	77.11	449	18.00	9.651E+00	1.248E+00	1.257E+00	17.44
	87.30	2498	8.00	9.380E+00	1.608E+01	1.619E+01	12.04
	238.63	568	44.60*	5.338E+00	1.152E+00	1.160E+00	15.83
	300.09	-----	3.41	4.442E+00	-----	Line Not Found	-----
	609.31	193	46.30*	2.401E+00	8.395E-01	8.395E-01	30.07
	1120.29	-----	15.10	1.398E+00	-----	Line Not Found	-----
	1764.49	30	15.80	9.407E-01	9.701E-01	9.701E-01	54.67
	338.32	144	11.40	4.016E+00	1.520E+00	1.520E+00	48.12
TH-232	911.07	141	27.70*	1.678E+00	1.462E+00	1.462E+00	44.91
	969.11	71	16.60	1.589E+00	1.293E+00	1.293E+00	64.26
	609.31	193	46.30*	2.401E+00	8.395E-01	8.395E-01	30.07
	1120.29	-----	15.10	1.398E+00	-----	Line Not Found	-----
	1764.49	30	15.80	9.407E-01	9.701E-01	9.701E-01	54.67
	338.32	144	11.40	4.016E+00	1.520E+00	1.520E+00	48.12
	911.07	141	27.70*	1.678E+00	1.462E+00	1.462E+00	44.91
	969.11	71	16.60	1.589E+00	1.293E+00	1.293E+00	64.26
U-234	609.31	193	46.30*	2.401E+00	8.395E-01	8.395E-01	30.07
	1120.29	-----	15.10	1.398E+00	-----	Line Not Found	-----
	1764.49	30	15.80	9.407E-01	9.701E-01	9.701E-01	54.67
	59.54	9677	35.90*	9.741E+00	1.336E+01	1.337E+01	10.65
	74.67	265	66.00*	9.694E+00	2.001E-01	2.001E-01	26.49
	86.72	2498	0.34	9.380E+00	3.827E+02	3.827E+02	12.04
	117.66	-----	0.55	8.415E+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	7.617E+00	-----	Line Not Found	-----
ANH-511	511.00	89	100.00*	2.810E+00	1.535E-01	1.535E-01	69.54

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
CO-57	270.90D	1.02	1.988E-01	2.026E-01	0.544E-01	26.84	
CO-60	5.27Y	1.00	6.567E+00	6.585E+00	0.635E+00	9.64	
CD-109	464.00D	1.01	3.457E+01	3.496E+01	0.421E+01	12.04	
SN-126	1.00E+05Y	1.00	3.476E+00	3.476E+00	0.419E+00	12.04	
BA-137M	30.17Y	1.00	5.772E+00	5.775E+00	0.695E+00	12.03	
CS-137	30.17Y	1.00	6.102E+00	6.105E+00	0.735E+00	12.04	
TL-208	1.41E+10Y	1.00	3.809E-01	3.809E-01	1.271E-01	33.37	
BI-211	7.04E+08Y	1.00	2.053E+00	2.053E+00	0.545E+00	26.53	
PB-212	1.41E+10Y	1.00	1.152E+00	1.152E+00	0.182E+00	15.83	
PO-212	1.41E+10Y	1.00	1.152E+00	1.152E+00	0.182E+00	15.83	
BI-214	1600.00Y	1.00	8.395E-01	8.396E-01	2.525E-01	30.07	
PB-214	1600.00Y	1.00	7.143E-01	7.143E-01	1.931E-01	27.04	
PO-214	1600.00Y	1.00	7.143E-01	7.143E-01	1.931E-01	27.04	
PO-216	1.41E+10Y	1.00	1.152E+00	1.152E+00	0.182E+00	15.83	
PO-218	1600.00Y	1.00	7.143E-01	7.143E-01	1.931E-01	27.04	
RA-224	1.41E+10Y	1.00	2.987E+00	2.987E+00	1.502E+00	50.27	
RA-226	1600.00Y	1.00	8.395E-01	8.396E-01	2.525E-01	30.07	
AC-228	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.657E+00	44.91	
RA-228	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.657E+00	44.91	
TH-228	1.91Y	1.01	1.152E+00	1.160E+00	0.184E+00	15.83	
TH-230	4.47E+09Y	1.00	8.395E-01	8.395E-01	2.525E-01	30.07	
TH-232	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.657E+00	44.91	
U-234	4.47E+09Y	1.00	8.395E-01	8.395E-01	2.525E-01	30.07	
AM-241	432.20Y	1.00	1.336E+01	1.337E+01	0.142E+01	10.65	
AM-243	7380.00Y	1.00	2.001E-01	2.001E-01	0.530E-01	26.49	
ANH-511	1.00E+09Y	1.00	1.535E-01	1.535E-01	1.067E-01	69.54	

Total Activity : 9.032E+01 9.074E+01

Grand Total Activity : 9.032E+01 9.074E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202015437

Page : 5  
Acquisition date : 22-JAN-2010 10:25:30

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.82	289	1600	0.77	99.19	94	10	8.02E-02	53.1	9.41E+00	T
0	92.95	188	320	1.38	185.46	182	9	5.23E-02	38.5	9.23E+00	T
0	186.01	66	234	0.70	371.56	368	7	1.83E-02	83.8	6.41E+00	T
0	209.10	64	180	1.39	417.74	414	7	1.79E-02	73.4	5.90E+00	T
0	727.46	53	94	0.71	1454.41	1450	11	1.46E-02	76.5	2.05E+00	T
1	1763.21	31	1	2.28	3526.00	3521	18	8.70E-03	42.4	9.42E-01	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202015437.CNF;1
* Acquisition date   : 22-JAN-2010 10:25:30  Detector SN#      :
* Detector ID        : GAM25                  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 01:00:01.93          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 15-JAN-2010 00:00:00  Nuclide Library   : SOLID
* Sample ID          : G1202015437           Analyst initials: MXR1
* Batch Number       : 941635                Sample Quantity  : 1.55440E+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     :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.026E-01	5.439E-02	4.544E-02	5.860E-03	4.459
CO-60	6.585E+00	6.346E-01	9.269E-02	7.528E-03	71.044
CD-109	3.496E+01	4.210E+00	1.170E+00	1.257E-01	29.877
SN-126	3.476E+00	4.186E-01	1.161E-01	1.245E-02	29.939
BA-137M	5.775E+00	6.946E-01	1.169E-01	1.295E-02	49.389
CS-137	6.105E+00	7.350E-01	1.236E-01	1.371E-02	49.389
TL-208	3.809E-01	1.271E-01	9.955E-02	1.122E-02	3.826
BI-211	2.053E+00	5.447E-01	5.047E-01	5.318E-02	4.068
PB-212	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
PO-212	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
BI-214	8.396E-01	2.525E-01	1.969E-01	2.377E-02	4.263
PB-214	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
PO-214	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
PO-216	1.152E+00	1.823E-01	1.346E-01	1.533E-02	8.554
PO-218	7.143E-01	1.931E-01	1.972E-01	2.316E-02	3.622
RA-224	2.987E+00	1.502E+00	1.534E+00	1.612E-01	1.947
RA-226	8.396E-01	2.525E-01	1.969E-01	2.377E-02	4.263
AC-228	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059
TH-228	1.160E+00	1.836E-01	1.356E-01	1.544E-02	8.554
TH-230	8.395E-01	2.525E-01	1.969E-01	2.377E-02	4.263
TH-232	1.462E+00	6.566E-01	4.780E-01	5.685E-02	3.059
U-234	8.395E-01	2.525E-01	1.969E-01	2.377E-02	4.263
AM-241	1.337E+01	1.423E+00	1.628E-01	1.692E-02	82.089
AM-243	2.001E-01	5.301E-02	6.501E-02	6.602E-03	3.079
ANH-511	1.535E-01	1.067E-01	9.029E-02	9.293E-03	1.700

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	3.173E-01		6.039E-01	1.012E+00	1.072E-01	0.313
NA-22	4.887E-03		4.751E-02	7.942E-02	6.512E-03	0.062
NA-24	-2.729E-04		8.405E-05	Half-Life too short		
AL-26	2.679E-02		4.798E-02	8.810E-02	7.219E-03	0.304
K-40	-2.340E-02		6.384E-01	1.085E+00	9.240E-02	-0.022
TI-44	2.302E-01	+	4.014E-02	5.617E-02	5.784E-03	4.099
SC-46	-2.398E-02		9.226E-02	1.474E-01	1.411E-02	-0.163
V-48	5.585E-02		1.240E-01	2.062E-01	1.910E-02	0.271
CR-51	3.853E-02		4.832E-01	8.177E-01	9.080E-02	0.047
MN-52	3.050E-02		1.198E-01	2.038E-01	1.680E-02	0.150
MN-54	-2.500E-02		7.939E-02	1.270E-01	1.289E-02	-0.197
CO-56	-9.645E-04		8.158E-02	1.332E-01	1.337E-02	-0.007
CO-58	5.341E-02		7.567E-02	1.303E-01	1.352E-02	0.410
FE-59	-6.077E-03		1.833E-01	3.050E-01	2.872E-02	-0.020
ZN-65	-2.722E-01		1.933E-01	2.868E-01	2.477E-02	-0.949
GE-68	8.180E-01		2.882E+00	4.906E+00	4.343E-01	0.167
AS-73	-1.098E-02		4.864E-01	7.199E-01	6.910E-02	-0.015
AS-74	-4.647E-02		1.265E-01	1.959E-01	2.123E-02	-0.237
SE-75	-3.189E-02		6.406E-02	9.872E-02	1.082E-02	-0.323
BR-77	-5.295E-01		2.148E+00	3.412E+00	3.537E-01	-0.155
SR-82	6.743E-02		6.041E-01	1.004E+00	1.065E-01	0.067
RB-83	-5.441E-02		1.276E-01	2.001E-01	2.074E-02	-0.272
RB-84	-7.572E-02		1.355E-01	2.110E-01	2.039E-02	-0.359
KR-85	8.545E-01		1.525E+01	2.168E+01	2.237E+00	0.039
SR-85	4.040E-03		7.212E-02	1.025E-01	1.058E-02	0.039
RB-86	1.211E+00		1.375E+00	2.426E+00	2.149E-01	0.499
Y-88	2.045E-02		5.202E-02	9.254E-02	7.563E-03	0.221
ZR-88	1.481E-02		5.189E-02	8.732E-02	7.948E-03	0.170
Y-91	-1.320E+01		2.207E+01	3.374E+01	2.776E+00	-0.391
NB-94	4.133E-02		5.649E-02	9.865E-02	1.083E-02	0.419
NB-95	-5.039E-02		7.635E-02	1.198E-01	1.280E-02	-0.421
NB-95M	-3.479E-02		1.776E-01	2.506E-01	2.872E-02	-0.139
ZR-95	-1.591E-02		1.321E-01	2.163E-01	2.477E-02	-0.074
NB-97	1.709E-04		6.473E-05	Half-Life too short		
ZR-97	-5.059E-04		9.297E-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
MO-99	1.905E+00		3.211E+00	5.521E+00	9.130E-01	0.345
TC-99M	2.304E+00		1.228E+01	Half-Life too short		
RH-101	6.341E-03		4.641E-02	7.615E-02	7.337E-03	0.083
RH-102	-4.173E-03		6.039E-02	9.805E-02	9.789E-03	-0.043
RU-103	3.583E-02		7.075E-02	1.182E-01	1.792E-02	0.303
RH-106	-3.733E-02		5.397E-01	9.031E-01	1.352E-01	-0.041
RU-106	-3.733E-02		5.397E-01	9.031E-01	9.889E-02	-0.041
AG-108M	5.819E-03		6.435E-02	1.063E-01	1.050E-02	0.055
AG-110M	9.791E-02		8.341E-02	1.322E-01	1.490E-02	0.740
IN-111	2.128E-01		2.685E-01	4.039E-01	4.277E-02	0.527
IN-113M	2.422E-02		7.757E-02	1.307E-01	1.221E-02	0.185
SN-113	2.422E-02		7.757E-02	1.307E-01	1.221E-02	0.185
IN-114M	3.679E-02		2.318E-01	3.644E-01	3.449E-02	0.101
CD-115	-1.697E+00		1.853E+00	2.774E+00	2.892E-01	-0.612
SN-117M	3.144E-02		4.365E-02	7.478E-02	7.260E-03	0.420
SB-122	2.438E-01		5.113E-01	8.492E-01	9.055E-02	0.287
I-123	1.795E-04		1.957E-04	Half-Life too short		
TE-123M	1.469E-02		3.203E-02	5.425E-02	5.267E-03	0.271
I-124	3.262E-01		3.346E-01	5.547E-01	6.029E-02	0.588
SB-124	-9.296E-02		9.348E-02	1.144E-01	9.886E-03	-0.813
SB-125	7.761E-02		1.726E-01	2.910E-01	2.811E-02	0.267
TE-125M	2.096E+00		8.656E+00	1.485E+01	1.971E+00	0.141
I-126	-1.483E-02		2.448E-01	3.537E-01	3.915E-02	-0.042
SB-126	-3.980E-02		1.789E-01	2.839E-01	3.099E-02	-0.140
SB-127	-4.724E-01		5.915E-01	9.192E-01	1.083E-01	-0.514
XE-127	-3.436E-02		5.573E-02	8.763E-02	8.535E-03	-0.392
I-131	-5.352E-02		1.014E-01	1.638E-01	1.675E-02	-0.327
TE-132	-5.135E-02		1.916E-01	3.040E-01	4.759E-02	-0.169
BA-133	-1.906E-02		8.252E-02	1.192E-01	1.690E-02	-0.160
I-133	-4.089E-07		1.169E-05	Half-Life too short		
CS-134	-1.094E-03		9.009E-02	1.480E-01	1.558E-02	-0.007
CS-135	7.207E-02		2.461E-01	3.976E-01	4.800E-02	0.181
I-135	9.732E+00		1.116E+01	Half-Life too short		
CS-136	-8.016E-02		1.617E-01	2.611E-01	2.441E-02	-0.307
CE-139	4.258E-02		3.652E-02	6.334E-02	5.648E-03	0.672
BA-140	2.271E-03		2.928E-01	4.723E-01	1.591E-01	0.005
LA-140	-2.726E-02		8.207E-02	1.291E-01	1.073E-02	-0.211
CE-141	1.360E-02		6.037E-02	1.017E-01	1.131E-02	0.134
CE-143	7.357E+00		4.737E+00	7.377E+00	1.659E+00	0.997
CE-144	1.017E-01		2.281E-01	3.892E-01	6.881E-02	0.261
PM-144	-3.863E-03		5.489E-02	9.087E-02	9.997E-03	-0.043
PR-144	-2.607E-01		3.705E+00	6.132E+00	6.746E-01	-0.043
PM-146	-2.983E-02		8.994E-02	1.443E-01	1.685E-02	-0.207
ND-147	3.662E-01		6.216E-01	1.042E+00	1.675E-01	0.351
PM-149	3.159E-01		1.280E+01	2.028E+01	3.455E+00	0.016
EU-152	-2.609E-02		1.681E-01	2.449E-01	2.630E-02	-0.107
GD-153	-3.828E-02		7.396E-02	1.104E-01	1.243E-02	-0.347
EU-154	-1.872E-02		1.386E-01	2.229E-01	2.449E-02	-0.084

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	3.023E-02		1.014E-01	1.749E-01	2.067E-02	0.173
TB-160	-5.415E-02		2.926E-01	4.699E-01	4.553E-02	-0.115
HO-166M	9.178E-03		1.098E-01	1.836E-01	2.011E-02	0.050
TM-171	9.500E+00		1.701E+01	2.754E+01	2.734E+00	0.345
LU-176	2.454E-02		3.782E-02	6.591E-02	7.192E-03	0.372
LU-177	1.033E+00	+	7.653E-01	1.113E+00	1.097E-01	0.929
LU-177M	-1.514E-01		3.070E-01	4.913E-01	4.593E-02	-0.308
HF-181	1.647E-02		7.586E-02	1.251E-01	1.257E-02	0.132
W-181	-4.396E-01		2.120E-01	2.987E-01	2.957E-02	-1.471
TA-182	1.552E-01		2.295E-01	4.088E-01	3.362E-02	0.380
RE-183	-6.361E-02		1.231E-01	1.979E-01	1.842E-02	-0.321
RE-184	1.219E-01		3.414E-01	5.567E-01	5.970E-02	0.219
OS-185	-1.920E-02		7.533E-02	1.240E-01	1.368E-02	-0.155
RE-188	7.776E-02		1.888E-01	3.193E-01	3.217E-02	0.244
W-188	-1.161E+00		1.084E+01	1.613E+01	1.787E+00	-0.072
IR-192	-2.825E-04		5.231E-02	8.821E-02	9.528E-03	-0.003
AU-195	6.328E-02		1.909E-01	3.309E-01	3.755E-02	0.191
TL-200	-9.195E-01		5.828E+00	9.626E+00	9.396E-01	-0.096
TL-201	1.366E+00		1.515E+00	2.603E+00	2.329E-01	0.525
TL-202	4.482E-02		9.150E-02	1.540E-01	1.484E-02	0.291
HG-203	8.061E-02		5.709E-02	9.674E-02	1.098E-02	0.833
BI-207	3.929E-05		1.176E-01	1.968E-01	1.757E-02	0.000
TL-207	-1.139E+00		1.034E+00	1.597E+00	3.002E-01	-0.713
PO-209	1.240E+00		1.818E+01	2.970E+01	2.818E+00	0.042
BI-210	5.477E-02		8.945E-01	1.374E+00	1.417E-01	0.040
PB-210	5.477E-02		8.945E-01	1.374E+00	1.417E-01	0.040
PO-210	5.477E-02		8.945E-01	1.374E+00	1.309E-01	0.040
PB-211	4.709E-01		1.685E+00	2.786E+00	1.748E+00	0.169
BI-212	1.048E+00	+	8.116E-01	1.085E+00	1.303E-01	0.966
PO-215	-1.139E+00		1.034E+00	1.597E+00	3.002E-01	-0.713
RN-219	-4.491E-01		7.679E-01	1.224E+00	1.881E-01	-0.367
RN-220	1.947E+01		4.732E+01	7.842E+01	8.291E+00	0.248
RA-223	-1.139E+00		1.034E+00	1.597E+00	3.002E-01	-0.713
AC-227	-1.858E-01		5.962E-01	9.336E-01	1.555E-01	-0.199
TH-227	-1.858E-01		5.965E-01	9.336E-01	1.792E-01	-0.199
TH-229	-3.959E-01		6.943E-01	1.099E+00	1.049E-01	-0.360
PA-231	-2.123E+00		2.486E+00	3.684E+00	6.166E-01	-0.576
TH-231	-1.139E+00		1.034E+00	1.597E+00	3.002E-01	-0.713
U-231	1.311E-01		2.654E-01	4.218E-01	4.712E-02	0.311
PA-233	-5.693E-03		1.034E-01	1.741E-01	1.922E-02	-0.033
PA-234	-2.214E-02		8.290E-01	1.338E+00	2.559E-01	-0.017
PA-234M	1.908E+00		1.067E+01	1.753E+01	1.836E+00	0.109
TH-234	6.838E-01		7.425E-01	1.159E+00	2.157E-01	0.590
U-235	-8.818E-02		2.449E-01	3.995E-01	7.544E-02	-0.221
NP-236	9.891E-03		9.575E-02	1.594E-01	1.518E-02	0.062
NP-237	2.128E+00		5.964E-01	5.865E-01	1.362E-01	3.629
U-238	6.838E-01		7.425E-01	1.159E+00	2.157E-01	0.590
NP-239	4.692E-02		1.907E-01	3.262E-01	4.087E-02	0.144



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.555E-02		9.021E-02	1.549E-01	1.804E-02	0.100
AM-246	-7.333E-02		3.280E-01	5.395E-01	4.772E-02	-0.136
CM-247	-2.329E-02		6.667E-02	1.080E-01	9.958E-03	-0.216
CF-249	-2.110E-02		7.121E-02	1.161E-01	1.069E-02	-0.182
CF-251	-9.822E-02		1.648E-01	2.624E-01	2.402E-02	-0.374

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202015437          *
* Acquisition date   : 22-JAN-2010 10:25:30 Detector SN# :                  *
* Detector ID        : GAM25 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 01:00:01.93 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202015437 Analyst initials: MXR1                 *
* Batch Number       : 941635 Sample Quantity : 1.5544E+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 :                              *
*****

```

## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
CO-57	2.026E-01	5.330E-02	2.448E-02	2.719E-02
CO-60	6.585E+00	6.219E-01	4.689E-02	3.173E-01
CD-109	3.496E+01	4.126E+00	6.355E-01	2.105E+00
SN-126	3.476E+00	4.102E-01	6.307E-02	2.093E-01
BA-137M	5.775E+00	6.807E-01	6.031E-02	3.473E-01
CS-137	6.105E+00	7.203E-01	6.375E-02	3.675E-01
TL-208	3.809E-01	1.245E-01	5.152E-02	6.354E-02
BI-211	2.053E+00	5.339E-01	2.647E-01	2.724E-01
PB-212	1.152E+00	1.786E-01	7.133E-02	9.114E-02
PO-212	1.152E+00	1.786E-01	7.133E-02	9.114E-02
BI-214	8.396E-01	2.474E-01	1.018E-01	1.262E-01
PB-214	7.143E-01	1.893E-01	1.034E-01	9.656E-02
PO-214	7.143E-01	1.893E-01	1.034E-01	9.656E-02
PO-216	1.152E+00	1.786E-01	7.133E-02	9.114E-02
PO-218	7.143E-01	1.893E-01	1.034E-01	9.656E-02
RA-224	2.987E+00	1.472E+00	8.126E-01	7.509E-01
RA-226	8.396E-01	2.474E-01	1.018E-01	1.262E-01
AC-228	1.462E+00	6.434E-01	2.444E-01	3.283E-01
RA-228	1.462E+00	6.434E-01	2.444E-01	3.283E-01
TH-228	1.160E+00	1.800E-01	7.186E-02	9.181E-02
TH-230	8.395E-01	2.474E-01	1.018E-01	1.262E-01
TH-232	1.462E+00	6.434E-01	2.444E-01	3.283E-01
U-234	8.395E-01	2.474E-01	1.018E-01	1.262E-01
AM-241	1.337E+01	1.395E+00	8.928E-02	7.117E-01
AM-243	2.001E-01	5.195E-02	3.545E-02	2.651E-02
ANH-511	1.535E-01	1.046E-01	4.689E-02	5.336E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	3.173E-01	5.919E-01	5.268E-01	3.020E-01 NOT IDENT.

NA-22	4.887E-03	4.656E-02	4.023E-02	2.376E-02	NOT IDENT.
NA-24	-2.729E+02	1.647E+02	0.000E+00	8.405E+01	SHORT HLIF
AL-26	2.679E-02	4.702E-02	4.418E-02	2.399E-02	NOT IDENT.
K-40	-2.340E-02	6.256E-01	5.474E-01	3.192E-01	NOT IDENT.
TI-44	2.302E-01	3.934E-02	3.060E-02	2.007E-02	FAIL ABUN
SC-46	-2.398E-02	9.041E-02	7.540E-02	4.613E-02	NOT IDENT.
V-48	5.585E-02	1.215E-01	1.052E-01	6.201E-02	NOT IDENT.
CR-51	3.853E-02	4.735E-01	4.299E-01	2.416E-01	NOT IDENT.
MN-52	3.050E-02	1.174E-01	1.029E-01	5.992E-02	FAIL ABUN
MN-54	-2.500E-02	7.780E-02	6.509E-02	3.969E-02	NOT IDENT.
CO-56	-9.645E-04	7.995E-02	6.826E-02	4.079E-02	NOT IDENT.
CO-58	5.341E-02	7.416E-02	6.682E-02	3.783E-02	NOT IDENT.
FE-59	-6.077E-03	1.796E-01	1.551E-01	9.163E-02	NOT IDENT.
ZN-65	-2.722E-01	1.894E-01	1.458E-01	9.664E-02	NOT IDENT.
GE-68	8.180E-01	2.824E+00	2.496E+00	1.441E+00	NOT IDENT.
AS-73	-1.098E-02	4.767E-01	3.958E-01	2.432E-01	NOT IDENT.
AS-74	-4.647E-02	1.240E-01	1.013E-01	6.326E-02	NOT IDENT.
SE-75	-3.189E-02	6.278E-02	5.216E-02	3.203E-02	FAIL ABUN
BR-77	-5.295E-01	2.105E+00	1.771E+00	1.074E+00	FAIL ABUN
SR-82	6.743E-02	5.920E-01	5.155E-01	3.020E-01	NOT IDENT.
RB-83	-5.441E-02	1.251E-01	1.039E-01	6.381E-02	NOT IDENT.
RB-84	-7.572E-02	1.328E-01	1.080E-01	6.776E-02	NOT IDENT.
KR-85	8.545E-01	1.495E+01	1.126E+01	7.627E+00	NOT IDENT.
SR-85	4.040E-03	7.068E-02	5.324E-02	3.606E-02	NOT IDENT.
RB-86	1.211E+00	1.348E+00	1.235E+00	6.877E-01	NOT IDENT.
Y-88	2.045E-02	5.098E-02	4.639E-02	2.601E-02	NOT IDENT.
ZR-88	1.481E-02	5.085E-02	4.567E-02	2.594E-02	NOT IDENT.
Y-91	-1.320E+01	2.162E+01	1.712E+01	1.103E+01	NOT IDENT.
NB-94	4.133E-02	5.536E-02	5.079E-02	2.824E-02	NOT IDENT.
NB-95	-5.039E-02	7.482E-02	6.154E-02	3.818E-02	NOT IDENT.
NB-95M	-3.479E-02	1.740E-01	1.328E-01	8.879E-02	NOT IDENT.
ZR-95	-1.591E-02	1.294E-01	1.112E-01	6.604E-02	NOT IDENT.
NB-97	1.709E+02	1.269E+02	0.000E+00	6.473E+01	SHORT HLIF
ZR-97	-5.059E+02	1.822E+03	0.000E+00	9.297E+02	SHORT HLIF
MO-99	1.905E+00	3.147E+00	2.839E+00	1.606E+00	NOT IDENT.
TC-99M	2.304E+06	2.408E+07	0.000E+00	1.228E+07	SHORT HLIF
RH-101	6.341E-03	4.548E-02	4.054E-02	2.321E-02	NOT IDENT.
RH-102	-4.173E-03	5.918E-02	5.102E-02	3.020E-02	NOT IDENT.
RU-103	3.583E-02	6.934E-02	6.143E-02	3.538E-02	FAIL ABUN
RH-106	-3.733E-02	5.289E-01	4.665E-01	2.699E-01	FAIL ABUN
RU-106	-3.733E-02	5.289E-01	4.665E-01	2.698E-01	FAIL ABUN
AG-108M	5.819E-03	6.307E-02	5.544E-02	3.218E-02	NOT IDENT.
AG-110M	9.791E-02	8.174E-02	6.821E-02	4.171E-02	NOT IDENT.
IN-111	2.128E-01	2.631E-01	2.138E-01	1.343E-01	NOT IDENT.
IN-113M	2.422E-02	7.602E-02	6.836E-02	3.878E-02	NOT IDENT.
SN-113	2.422E-02	7.602E-02	6.836E-02	3.878E-02	NOT IDENT.
IN-114M	3.679E-02	2.271E-01	1.942E-01	1.159E-01	NOT IDENT.
CD-115	-1.697E+00	1.816E+00	1.440E+00	9.267E-01	NOT IDENT.
SN-117M	3.144E-02	4.278E-02	4.003E-02	2.183E-02	NOT IDENT.
SB-122	2.438E-01	5.011E-01	4.399E-01	2.557E-01	NOT IDENT.
I-123	1.795E+02	3.835E+02	0.000E+00	1.957E+02	SHORT HLIF
TE-123M	1.469E-02	3.139E-02	2.904E-02	1.601E-02	NOT IDENT.
I-124	3.262E-01	3.279E-01	2.868E-01	1.673E-01	NOT IDENT.
SB-124	-9.296E-02	9.161E-02	5.747E-02	4.674E-02	FAIL ABUN
SB-125	7.761E-02	1.691E-01	1.518E-01	8.628E-02	NOT IDENT.
TE-125M	2.096E+00	8.483E+00	8.025E+00	4.328E+00	NOT IDENT.
I-126	-1.483E-02	2.399E-01	1.824E-01	1.224E-01	NOT IDENT.
SB-126	-3.980E-02	1.753E-01	1.461E-01	8.945E-02	FAIL ABUN
SB-127	-4.724E-01	5.796E-01	4.736E-01	2.957E-01	NOT IDENT.
XE-127	-3.436E-02	5.461E-02	4.662E-02	2.786E-02	NOT IDENT.
I-131	-5.352E-02	9.936E-02	8.582E-02	5.069E-02	NOT IDENT.
TE-132	-5.135E-02	1.878E-01	1.613E-01	9.580E-02	FAIL ABUN
BA-133	-1.906E-02	8.087E-02	6.249E-02	4.126E-02	NOT IDENT.
I-133	-4.089E-01	2.292E+01	0.000E+00	1.169E+01	SHORT HLIF
CS-134	-1.094E-03	8.829E-02	7.595E-02	4.504E-02	NOT IDENT.
CS-135	7.207E-02	2.411E-01	2.100E-01	1.230E-01	NOT IDENT.
I-135	9.732E+06	2.187E+07	0.000E+00	1.116E+07	SHORT HLIF
CS-136	-8.016E-02	1.585E-01	1.330E-01	8.084E-02	NOT IDENT.
CE-139	4.258E-02	3.579E-02	3.387E-02	1.826E-02	NOT IDENT.
BA-140	2.271E-03	2.870E-01	2.450E-01	1.464E-01	NOT IDENT.
LA-140	-2.726E-02	8.043E-02	6.497E-02	4.103E-02	NOT IDENT.
CE-141	1.360E-02	5.916E-02	5.457E-02	3.018E-02	NOT IDENT.
CE-143	7.357E+00	4.642E+00	3.887E+00	2.369E+00	FAIL ABUN
CE-144	1.017E-01	2.235E-01	2.093E-01	1.140E-01	NOT IDENT.
PM-144	-3.863E-03	5.380E-02	4.680E-02	2.745E-02	NOT IDENT.
PR-144	-2.607E-01	3.631E+00	3.158E+00	1.852E+00	NOT IDENT.
PM-146	-2.983E-02	8.815E-02	7.520E-02	4.497E-02	NOT IDENT.
ND-147	3.662E-01	6.092E-01	5.407E-01	3.108E-01	NOT IDENT.

PM-149	3.159E-01	1.255E+01	1.069E+01	6.401E+00	NOT IDENT.
EU-152	-2.609E-02	1.647E-01	1.285E-01	8.403E-02	FAIL ABUN
GD-153	-3.828E-02	7.248E-02	5.980E-02	3.698E-02	NOT IDENT.
EU-154	-1.872E-02	1.358E-01	1.129E-01	6.928E-02	FAIL ABUN
EU-155	3.023E-02	9.936E-02	9.457E-02	5.069E-02	FAIL ABUN
TB-160	-5.415E-02	2.868E-01	2.405E-01	1.463E-01	FAIL ABUN
HO-166M	9.178E-03	1.077E-01	9.453E-02	5.492E-02	NOT IDENT.
TM-171	9.500E+00	1.667E+01	1.506E+01	8.507E+00	FAIL ABUN
LU-176	2.454E-02	3.706E-02	3.469E-02	1.891E-02	FAIL ABUN
LU-177	1.033E+00	7.500E-01	5.916E-01	3.826E-01	FAIL ABUN
LU-177M	-1.514E-01	3.008E-01	2.566E-01	1.535E-01	FAIL ABUN
HF-181	1.647E-02	7.435E-02	6.507E-02	3.793E-02	NOT IDENT.
W-181	-4.396E-01	2.077E-01	1.635E-01	1.060E-01	NOT IDENT.
TA-182	1.552E-01	2.249E-01	2.073E-01	1.148E-01	NOT IDENT.
RE-183	-6.361E-02	1.207E-01	1.059E-01	6.157E-02	FAIL ABUN
RE-184	1.219E-01	3.346E-01	2.945E-01	1.707E-01	FAIL ABUN
OS-185	-1.920E-02	7.382E-02	6.398E-02	3.767E-02	FAIL ABUN
RE-188	7.776E-02	1.851E-01	1.710E-01	9.442E-02	NOT IDENT.
W-188	-1.161E+00	1.062E+01	8.503E+00	5.418E+00	NOT IDENT.
IR-192	-2.825E-04	5.127E-02	4.639E-02	2.616E-02	FAIL ABUN
AU-195	6.328E-02	1.871E-01	1.793E-01	9.545E-02	FAIL ABUN
TL-200	-9.195E-01	5.712E+00	5.043E+00	2.914E+00	NOT IDENT.
TL-201	1.366E+00	1.485E+00	1.392E+00	7.575E-01	NOT IDENT.
TL-202	4.482E-02	8.967E-02	8.032E-02	4.575E-02	NOT IDENT.
HG-203	8.061E-02	5.594E-02	5.104E-02	2.854E-02	NOT IDENT.
BI-207	3.929E-05	1.153E-01	1.002E-01	5.881E-02	FAIL ABUN
TL-207	-1.139E+00	1.013E+00	8.397E-01	5.171E-01	FAIL ABUN
PO-209	1.240E+00	1.782E+01	1.519E+01	9.091E+00	NOT IDENT.
BI-210	5.477E-02	8.766E-01	7.581E-01	4.472E-01	NOT IDENT.
PB-210	5.477E-02	8.766E-01	7.581E-01	4.472E-01	NOT IDENT.
PO-210	5.477E-02	8.766E-01	7.581E-01	4.472E-01	NOT IDENT.
PB-211	4.709E-01	1.651E+00	1.456E+00	8.424E-01	NOT IDENT.
BI-212	1.048E+00	7.954E-01	5.580E-01	4.058E-01	FAIL ABUN
PO-215	-1.139E+00	1.013E+00	8.397E-01	5.171E-01	FAIL ABUN
RN-219	-4.491E-01	7.525E-01	6.396E-01	3.839E-01	NOT IDENT.
RN-220	1.947E+01	4.638E+01	4.064E+01	2.366E+01	NOT IDENT.
RA-223	-1.139E+00	1.013E+00	8.397E-01	5.171E-01	FAIL ABUN
AC-227	-1.858E-01	5.843E-01	4.937E-01	2.981E-01	NOT IDENT.
TH-227	-1.858E-01	5.846E-01	4.937E-01	2.983E-01	FAIL ABUN
TH-229	-3.959E-01	6.804E-01	5.855E-01	3.472E-01	FAIL ABUN
PA-231	-2.123E+00	2.436E+00	1.943E+00	1.243E+00	NOT IDENT.
TH-231	-1.139E+00	1.013E+00	8.397E-01	5.171E-01	FAIL ABUN
U-231	1.311E-01	2.601E-01	2.286E-01	1.327E-01	FAIL ABUN
PA-233	-5.693E-03	1.013E-01	9.158E-02	5.168E-02	FAIL ABUN
PA-234	-2.214E-02	8.125E-01	6.835E-01	4.145E-01	FAIL ABUN
PA-234M	1.908E+00	1.046E+01	8.938E+00	5.336E+00	NOT IDENT.
TH-234	6.838E-01	7.276E-01	6.344E-01	3.712E-01	FAIL ABUN
U-235	-8.818E-02	2.400E-01	2.144E-01	1.225E-01	FAIL ABUN
NP-236	9.891E-03	9.383E-02	8.529E-02	4.787E-02	NOT IDENT.
NP-237	2.128E+00	5.845E-01	3.187E-01	2.982E-01	NOT IDENT.
U-238	6.838E-01	7.276E-01	6.344E-01	3.712E-01	FAIL ABUN
NP-239	4.692E-02	1.869E-01	1.760E-01	9.534E-02	FAIL ABUN
CM-243	1.555E-02	8.840E-02	8.381E-02	4.510E-02	FAIL ABUN
AM-246	-7.333E-02	3.215E-01	2.745E-01	1.640E-01	NOT IDENT.
CM-247	-2.329E-02	6.534E-02	5.645E-02	3.334E-02	NOT IDENT.
CF-249	-2.110E-02	6.978E-02	6.075E-02	3.560E-02	NOT IDENT.
CF-251	-9.822E-02	1.615E-01	1.401E-01	8.238E-02	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT              *
*****

```

ENERGY	MDA COUNTS
46.50	460.2393
46.50	460.2393
46.50	460.2393
48.70	725.2576
49.72	728.5383
51.35	838.9449
52.39	790.1879
52.97	790.6588
53.15	807.3444
53.44	881.5420
54.07	875.0416
56.28	834.0594
56.28	834.0709
57.37	949.2996
57.53	949.9031
57.53	949.9096
57.60	957.6124
57.98	959.0449
57.98	959.0449
59.32	642.0875
59.32	642.0875
59.40	642.2879
59.54	642.6342
59.72	643.0807
60.01	643.7974
61.10	375.8835
61.14	375.9405
61.30	376.1685
63.00	267.5807
63.29	269.3896
63.29	269.3896
63.58	284.9128
64.28	312.7570
65.12	413.6854
65.20	413.8055
65.20	413.8055
66.05	335.5163
66.72	323.6005
66.83	323.7308
66.91	323.8205
67.20	335.7307
67.20	335.7307
67.75	327.0995
67.85	322.5743
68.90	355.1996
68.90	355.1996
69.30	369.6874
69.67	364.3229
70.82	362.6274
70.82	362.6274
70.83	362.6393
72.80	354.0321
72.87	354.1145
72.87	354.1145
74.67	343.1588
74.81	343.3154
74.81	343.3154
74.81	343.3154
74.81	343.3154
74.81	343.3154
74.81	343.3154
74.81	343.3154
74.97	343.4940
75.28	343.8401
75.70	344.3098
77.11	345.8708
77.11	345.8708

77.11	345.8708
77.11	345.8708
77.11	345.8708
77.11	345.8708
77.11	345.8708
78.38	289.9878
79.62	324.8903
79.80	302.5434
79.80	302.5434
80.11	302.8341
80.18	302.8991
80.30	312.6825
80.30	312.6825
80.57	312.9430
81.00	340.4128
81.07	340.4857
81.07	340.4857
81.07	340.4857
81.07	340.4857
82.60	373.7300
83.37	340.0226
83.78	312.7520
83.78	312.7520
83.78	312.7520
83.78	312.7520
84.21	309.8923
84.90	341.5831
85.43	347.0297
86.29	438.1664
86.50	438.4353
86.54	438.4869
86.59	438.5521
86.72	322.0550
86.79	322.1188
86.94	322.2623
87.30	322.5993
87.30	322.5993
87.30	322.5993
87.30	322.5993
87.30	322.5993
87.30	322.5993
87.30	322.5993
87.57	322.8525
87.88	323.1416
88.03	323.2812
88.36	323.5882
88.47	323.6919
89.95	174.1412
91.11	174.7127
92.29	187.8107
92.38	187.8582
92.38	187.8582
93.35	188.3629
94.00	188.7005
94.67	186.5244
94.67	186.5266
94.90	187.9052
94.90	187.9052
94.90	187.9052
94.90	187.9052
95.87	177.0209
95.87	177.0209
96.73	198.9786
97.43	209.5079
98.44	190.9744
98.44	190.9744
98.88	186.9476
99.55	184.7251
99.55	184.7251
99.86	181.4673
100.00	181.5334
100.10	181.5832
103.18	186.4711
103.76	191.9117
105.00	186.4720
105.31	190.0741
108.00	208.7488
109.28	212.0243

111.00	233.0666
111.00	233.0666
111.76	205.4046
112.95	189.2645
115.19	214.1662
116.30	189.8797
117.00	175.9691
117.00	175.9691
117.66	186.9202
121.11	185.7091
121.62	196.7010
121.78	196.7723
122.06	196.8959
122.32	197.0107
122.32	197.0107
122.32	197.0107
122.32	197.0107
123.07	198.6931
127.23	200.9787
129.76	197.5078
131.20	224.7154
133.02	173.0983
133.54	192.6442
135.34	178.5658
136.00	196.4123
136.25	203.0023
136.48	204.9529
140.51	191.6828
140.51	0.0000
142.18	192.3251
142.65	189.6894
143.76	207.9878
144.24	210.0697
144.24	210.0697
144.24	210.0697
144.24	210.0697
145.22	194.4305
145.44	188.8489
147.16	185.6940
152.43	191.4063
152.70	189.5889
153.22	179.2312
154.21	177.6436
154.21	177.6436
154.21	177.6436
154.21	177.6436
155.03	185.6102
156.02	199.4405
158.56	169.4013
159.00	0.0000
159.00	174.3805
160.31	188.3934
161.27	184.8298
162.32	195.9006
162.64	205.7649
163.35	220.6732
163.89	216.0002
165.85	181.4451
167.43	178.0172
171.28	198.0245
171.86	200.2041
172.10	191.3626
176.55	212.7963
176.60	212.8137
181.06	217.4194
184.41	182.1790
185.71	206.9053
186.00	205.9860
190.27	208.4202
192.34	206.0258
193.63	219.7950
197.04	195.1466
198.01	216.1202
198.60	222.5236
200.40	216.9089
201.83	228.8220
202.84	218.7543
205.31	167.8096

208.36	179.5966
208.81	181.8186
209.75	205.2217
209.75	205.2217
210.97	205.5887
215.65	192.1228
216.55	195.5599
218.09	207.7052
222.10	197.0994
223.80	187.9028
226.40	183.1913
227.00	199.5209
227.08	199.5435
227.20	199.5755
228.16	192.2756
228.18	192.2811
228.18	192.2811
231.56	192.0831
235.69	201.3352
236.00	201.4178
236.00	201.4178
238.63	203.7648
238.63	203.7648
238.63	203.7648
238.63	203.7648
239.00	203.8632
240.98	204.3949
241.98	212.9142
241.98	212.9142
241.98	212.9142
244.69	173.9127
245.39	167.4384
247.94	174.0872
248.90	189.8423
249.79	172.2748
252.40	169.4986
252.85	165.1330
252.85	165.1330
254.15	0.0000
256.20	187.1139
256.20	187.1139
260.50	165.5844
260.90	156.6493
262.80	158.1437
264.65	172.0854
268.24	178.5159
268.79	169.5318
269.46	163.9746
269.46	163.9746
269.46	163.9746
269.46	163.9746
271.23	215.6704
273.65	175.0915
276.40	200.9160
277.35	173.5523
277.60	173.6045
277.60	173.6045
278.00	158.7314
278.60	151.9375
279.20	142.8275
279.53	165.9287
280.46	196.0990
281.68	160.5660
283.67	181.7708
284.30	150.6193
285.00	149.5814
285.90	155.5373
286.10	155.5727
286.10	155.5727
287.40	140.6891
288.45	0.0000
290.67	151.2448
290.80	154.0671
291.72	161.2358
293.26	144.6602
293.70	144.7306
295.21	172.4211
295.21	172.4211



295.21	172.4211
295.96	188.7646
296.50	191.6949
297.23	205.9577
298.57	166.7038
299.80	162.6846
299.80	162.6846
300.09	162.7351
300.09	162.7351
300.09	162.7351
300.09	162.7351
300.12	162.7407
301.29	145.2367
302.84	173.8687
303.76	195.3534
303.91	179.3977
304.40	169.7188
304.40	169.7188
304.84	176.0235
306.84	141.6555
308.46	143.6879
311.98	167.5170
316.51	166.5158
318.01	155.9603
319.02	166.9534
319.41	157.0901
320.08	153.5852
323.87	170.5127
323.87	170.5127
323.87	170.5127
323.87	170.5127
325.23	188.9158
328.77	133.0811
333.44	147.9961
334.20	134.9116
334.20	134.9116
334.30	134.9251
338.28	136.1959
338.28	136.1959
338.28	136.1959
338.28	136.1959
338.32	136.2004
338.32	136.2004
338.32	136.2004
340.50	137.2318
340.57	137.2408
344.27	136.2593
345.85	131.3824
350.59	138.5850
351.07	128.2126
351.92	161.1431
351.92	161.1431
351.92	161.1431
355.39	0.0000
356.01	158.7749
364.48	155.7021
366.43	165.4377
367.43	162.7512
367.94	151.4673
369.80	113.7946
374.96	147.6800
383.85	133.4982
387.95	159.0456
388.63	154.3188
391.69	152.7997
391.69	152.7997
392.90	148.1207
398.62	160.5311
400.65	137.4199
401.10	159.8985
401.81	171.7031
402.60	158.1512
404.84	143.7835
410.95	133.7131
411.60	145.5904
413.65	154.7074
414.70	143.0087
415.30	142.0928

415.76	130.3021
417.63	0.0000
418.52	151.3775
423.70	133.1453
427.08	144.4734
427.89	138.5864
432.53	169.1315
433.93	153.2895
439.47	161.0132
439.56	155.9933
439.89	156.0336
443.98	160.5794
444.90	149.5786
445.03	154.6482
445.03	154.6482
445.03	154.6482
453.90	168.9509
463.38	150.7010
468.07	159.4677
473.00	155.9261
475.06	155.1315
475.35	160.3381
476.78	150.1530
477.59	142.9884
477.96	144.0649
482.03	138.2603
484.57	113.5206
487.03	158.5892
490.36	112.9537
492.35	144.5382
497.08	122.9593
507.63	0.0000
510.53	0.0000
510.84	127.3434
511.00	127.3581
511.85	125.7341
511.85	125.7341
513.99	134.4302
513.99	134.4302
520.41	127.1239
520.65	121.7999
527.90	120.2578
528.96	0.0000
529.64	104.2762
529.87	0.0000
531.02	89.3071
537.32	88.6064
543.00	90.0264
546.56	0.0000
549.76	90.4292
552.65	111.3384
555.20	91.8442
563.23	86.8257
563.90	89.0634
568.70	100.3644
569.32	86.0599
569.50	86.0718
569.67	86.0814
573.80	101.7958
574.00	101.8098
574.64	105.1732
578.91	92.3559
579.30	90.6022
583.14	86.8121
585.48	82.0341
591.81	85.0431
592.07	85.0547
593.00	98.5408
595.88	102.0806
600.56	104.6222
602.52	0.0000
602.71	77.2412
602.71	77.2412
603.60	79.6445
604.41	93.2144
604.70	93.2321
609.31	94.9973

609.31	94.9973
609.31	94.9973
609.31	94.9973
610.33	95.0563
612.46	99.7090
614.37	78.6496
618.01	84.5787
621.84	85.6809
621.84	85.6809
631.29	86.1582
633.02	75.2334
633.10	75.2374
634.78	93.6801
635.90	123.1485
636.97	128.7412
645.85	97.9750
646.12	97.9905
656.30	102.2737
657.75	107.0095
657.90	0.0000
661.65	109.1105
661.65	109.1105
664.57	99.6354
666.33	90.3819
666.33	90.3819
675.00	89.2504
677.61	87.4963
685.20	87.8596
692.80	79.6831
695.00	73.1274
696.49	73.1857
696.49	73.1857
697.00	84.6152
697.49	86.5389
698.33	91.3359
698.50	86.5855
699.00	83.7547
702.63	66.7512
706.10	103.1748
706.58	0.0000
706.67	96.5171
709.31	76.5566
711.68	83.3573
713.82	97.8388
717.42	76.8809
720.50	91.9769
721.93	91.5117
722.20	80.2836
722.78	89.9450
722.78	89.9450
722.89	89.9495
722.95	88.3455
723.30	88.3612
724.18	88.4015
727.18	83.7108
733.00	64.5850
735.90	95.0787
739.58	78.7337
742.81	85.6775
744.21	80.8662
747.13	93.6703
751.79	86.0643
752.31	89.0205
753.82	86.1523
755.35	96.9939
756.15	98.0127
756.87	100.9908
763.93	97.4072
765.79	111.2840
766.42	117.2278
766.84	108.3860
776.49	87.1170
778.00	86.1907
778.57	83.2412
778.89	83.2556
783.80	84.4459
785.46	92.4664
792.07	91.7642

795.84	90.9289
796.30	93.9472
798.80	92.0562
801.93	80.1680
805.60	87.3335
810.29	78.4723
810.76	80.5020
815.85	125.0747
817.79	83.7943
818.51	85.8425
819.60	94.9799
826.30	100.3414
828.27	90.2863
831.60	86.3613
831.96	86.3759
834.83	110.9080
836.80	0.0000
846.75	99.2332
848.13	104.4130
856.28	0.0000
856.80	125.3717
860.37	84.4003
867.32	97.0477
867.82	103.2666
871.10	106.5180
873.19	102.4732
874.81	96.3308
875.33	0.0000
876.40	98.4720
879.36	97.5617
880.27	102.7923
880.51	109.0323
881.50	103.8843
883.24	99.8039
884.67	108.1894
889.25	119.8684
896.60	109.7911
898.02	112.9966
899.00	109.9039
903.28	107.4824
911.07	97.8430
911.07	97.8430
911.07	97.8430
919.63	128.2130
920.93	114.0961
925.00	123.8155
925.24	120.6518
926.50	120.7159
935.52	134.9840
937.48	147.8572
944.10	147.1910
946.00	135.5638
949.00	136.8000
962.29	118.1963
964.01	105.7323
966.15	143.4896
968.20	127.4510
969.11	136.4759
969.11	136.4759
969.11	136.4759
977.42	99.6928
980.50	91.9976
983.50	95.3584
989.30	89.0589
996.32	93.6594
1001.03	92.7405
1001.68	99.3113
1004.76	101.6166
1021.30	0.0000
1024.50	0.0000
1034.80	96.7072
1036.00	93.0683
1037.82	88.5195
1038.57	89.4653
1038.76	0.0000
1045.16	92.4601
1046.59	98.9889
1048.07	99.0412

1050.47	95.4225
1050.47	95.4225
1062.04	87.4595
1063.62	92.1639
1076.63	84.1882
1077.35	96.3739
1078.86	99.2327
1085.78	84.4666
1099.22	95.2464
1112.02	69.1563
1112.84	71.0724
1115.52	118.5659
1120.29	62.7075
1120.29	62.7075
1120.29	62.7075
1120.29	62.7075
1120.51	59.8623
1121.28	62.7290
1124.00	0.0000
1129.67	54.3351
1131.51	0.0000
1147.95	0.0000
1167.94	54.6378
1173.22	47.4109
1175.09	43.1532
1177.93	46.5156
1189.05	44.7441
1204.90	39.1130
1205.75	45.9692
1213.00	26.4716
1221.42	26.5441
1230.97	29.5850
1235.34	38.5144
1236.41	0.0000
1238.25	31.6315
1246.25	26.7572
1260.41	0.0000
1271.85	27.9738
1274.45	20.9974
1274.54	17.9978
1291.56	21.1094
1298.22	0.0000
1312.09	18.2080
1325.50	24.3760
1325.50	24.3760
1332.49	24.4277
1333.61	19.1994
1360.21	14.3674
1362.66	0.0000
1365.15	5.1388
1368.21	21.6016
1368.53	0.0000
1376.25	14.4352
1384.27	9.3014
1394.10	15.5469
1395.20	14.5150
1407.95	19.7708
1434.06	13.6279
1436.60	16.7845
1457.56	0.0000
1460.81	25.3477
1489.15	14.9012
1509.49	8.5618
1596.49	17.8311
1620.62	24.5500
1678.03	0.0000
1691.02	13.4512
1691.02	13.4512
1706.46	0.0000
1750.46	0.0000
1764.49	8.7994
1764.49	8.7994
1764.49	8.7994
1764.49	8.7994
1770.23	3.4265
1771.40	5.1412
1791.20	0.0000
1808.65	7.9015

1836.01

8.9444

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202015437

Total Uranium Activity	1.9934E+00	ug/g
Total Uranium Counting Unc.	2.1675E+00	ug/g
Total Uranium Tpu	1.1059E-06	ug/g
Total Uranium Mda	1.8898E+00	ug/g

```

*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GROSS GAMMA REPORT                            *
*
*****
*
*  BATCH ID      : 941635                SAMPLE ID   : G1202015437                *
*  ANALYST       : MXR1                  DETECTOR    : GAM25                    *
*  SAMPLE DATE   : 15-JAN-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00          *
*  ANALYSIS DATE : 22-JAN-2010 10:25:30.75  SAMPLE ALQT: 155.440 GRAM          *
*
*****

```

```

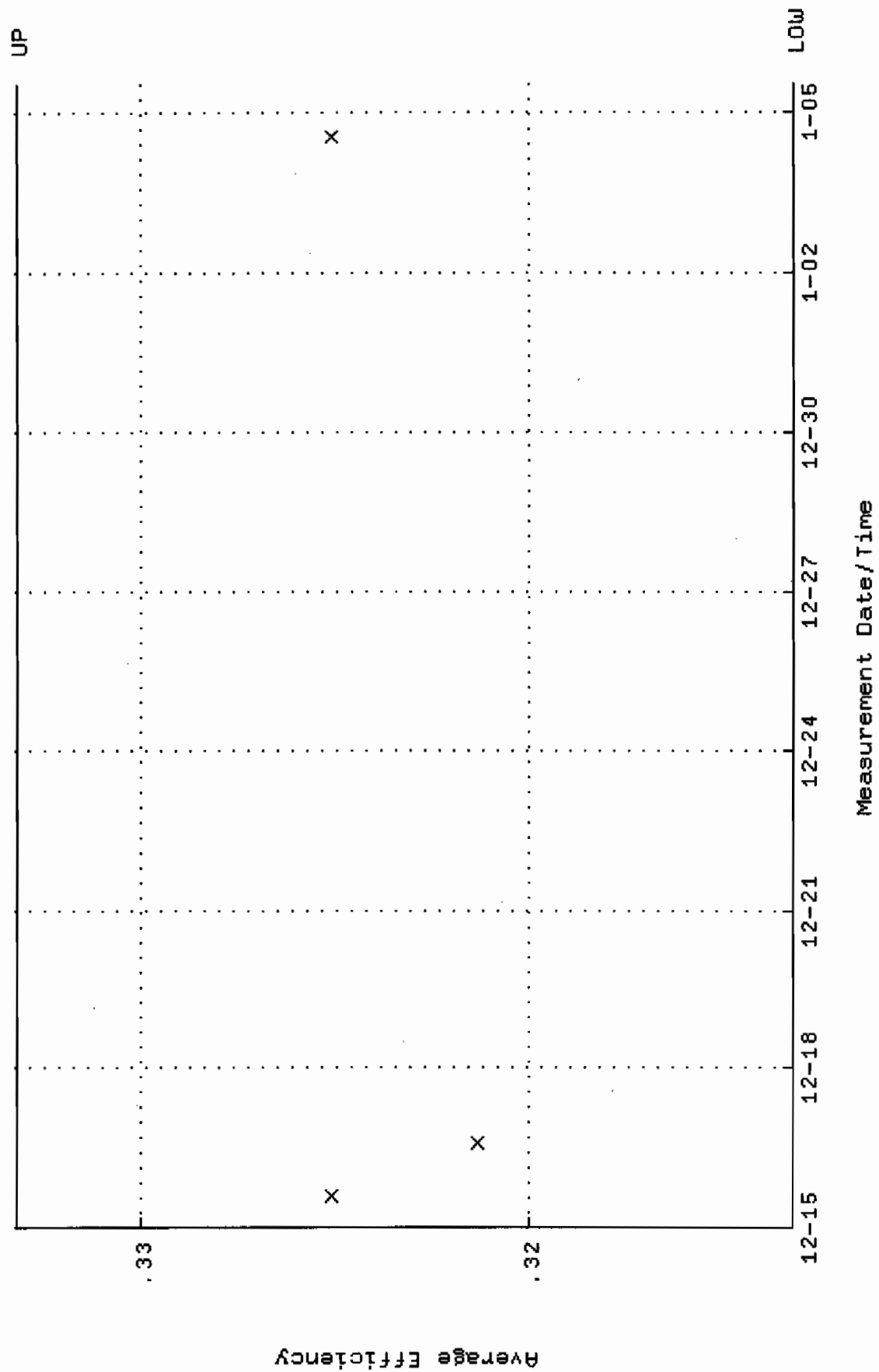
GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.861E+01
GROSS GAMMA ERROR (pCi/GRAM )   : 2.241E+00
GROSS GAMMA MDA (pCi/GRAM )     : 5.756E+00
GROSS GAMMA DLC (pCi/GRAM )     : 2.819E+00

```

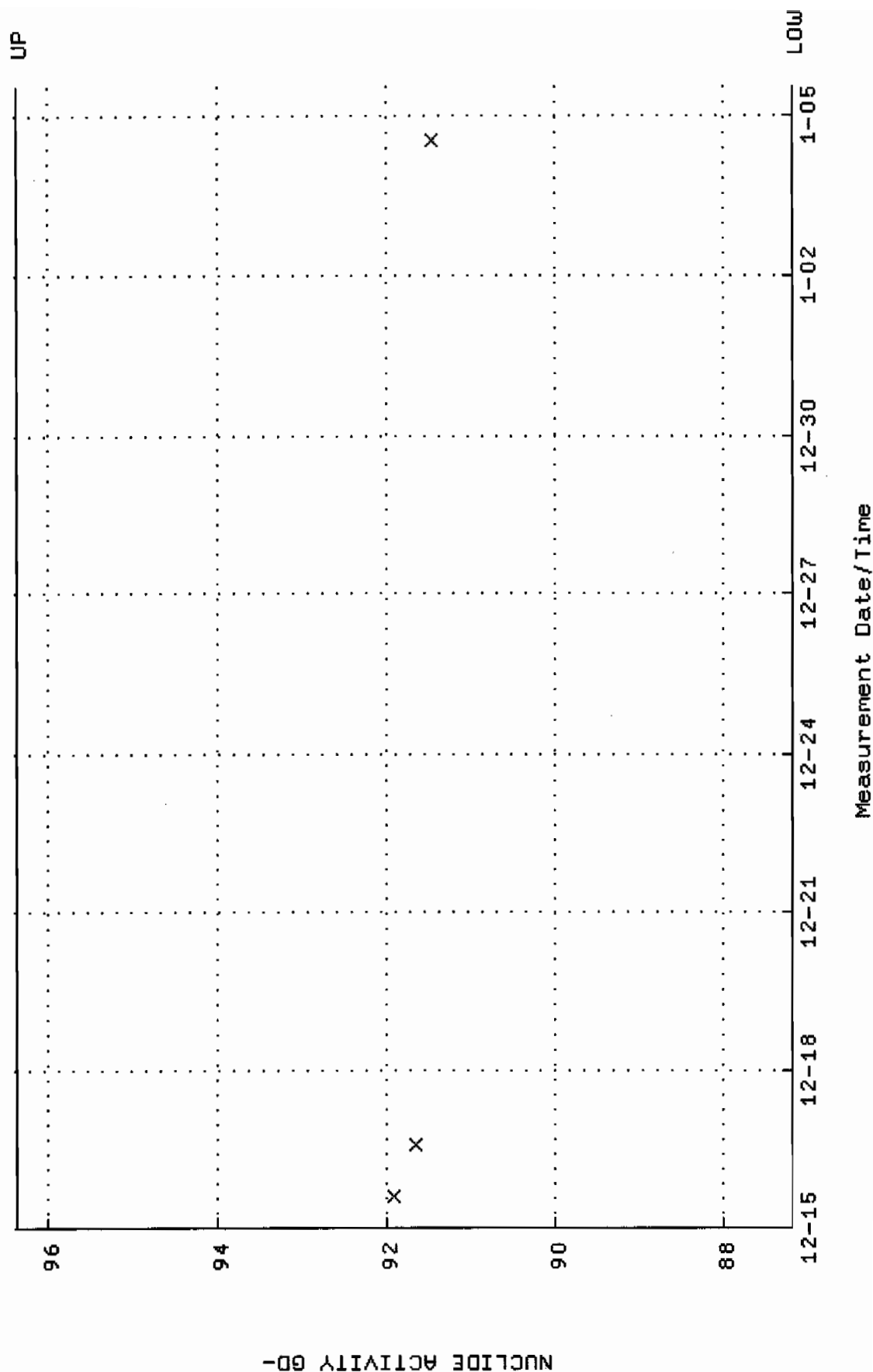


# **BACKGROUND AND EFFICIENCY DATA**

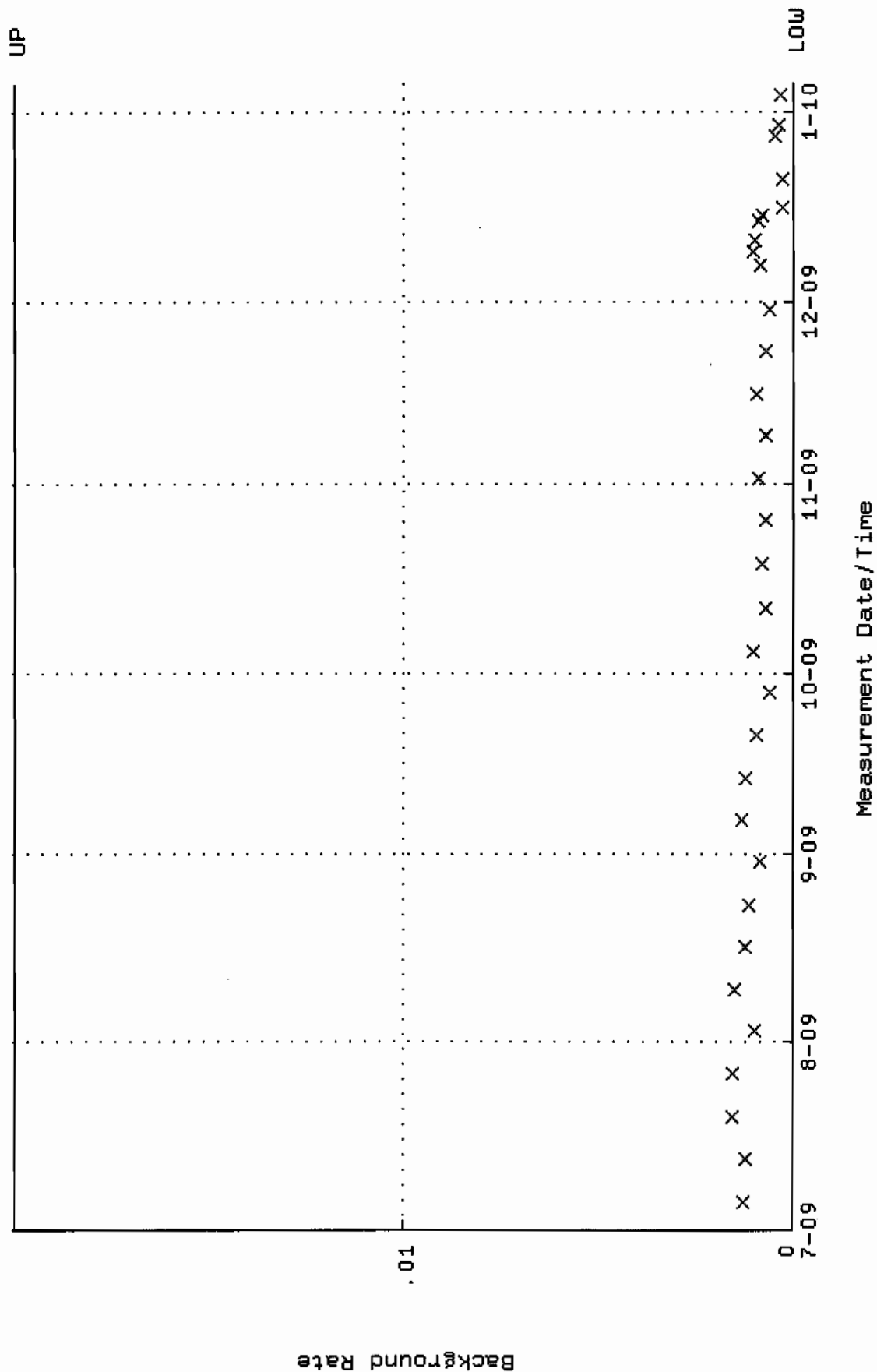
QA filename : DKA100:[ENV\_ALPHA.QA.W]W001.QAF;7  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313195 through 0.333195



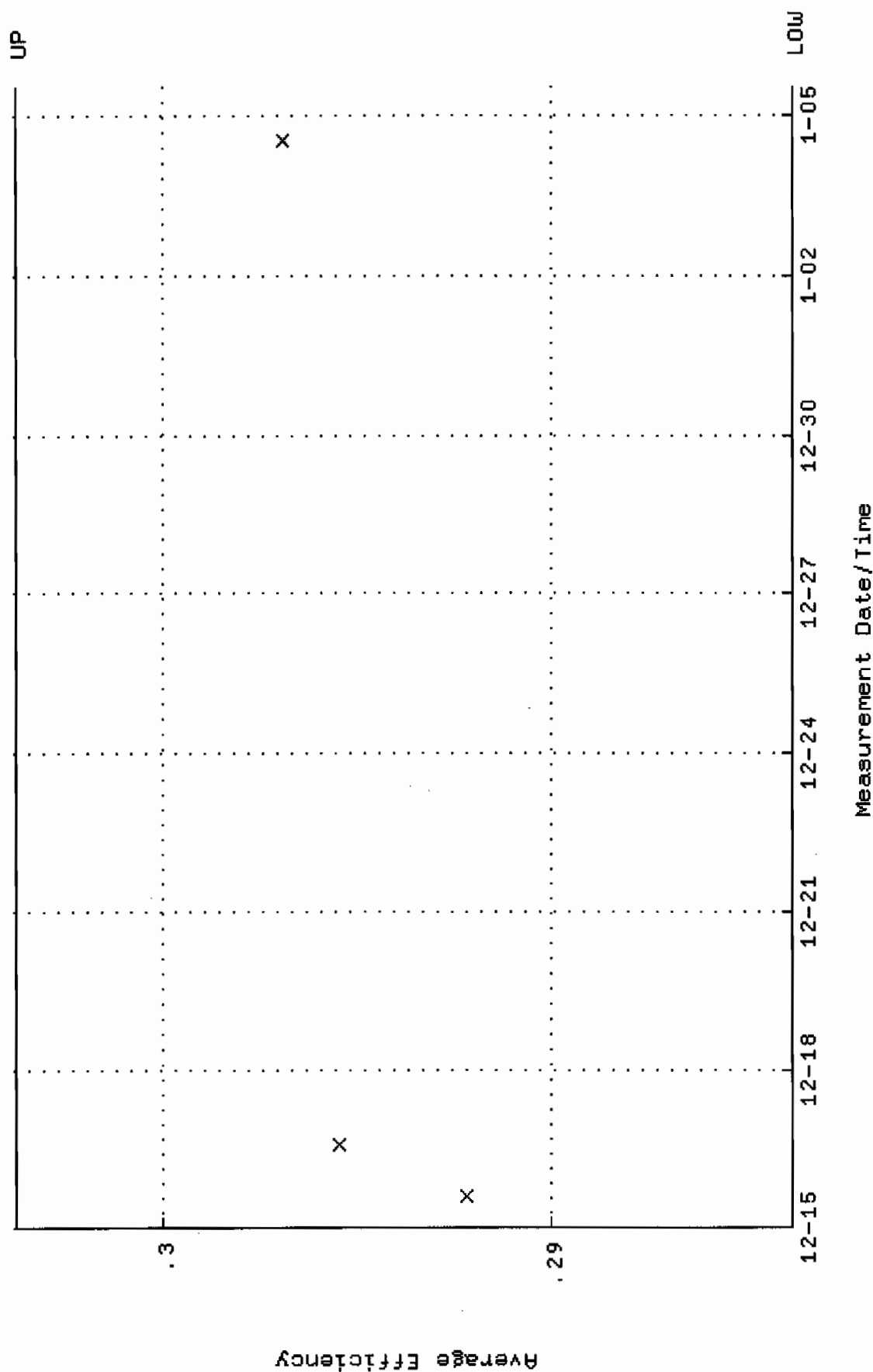
QA filename : DKA100:[ENV\_ALPHA.QA.W]W001.QAF;7  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1884 through 96.3662



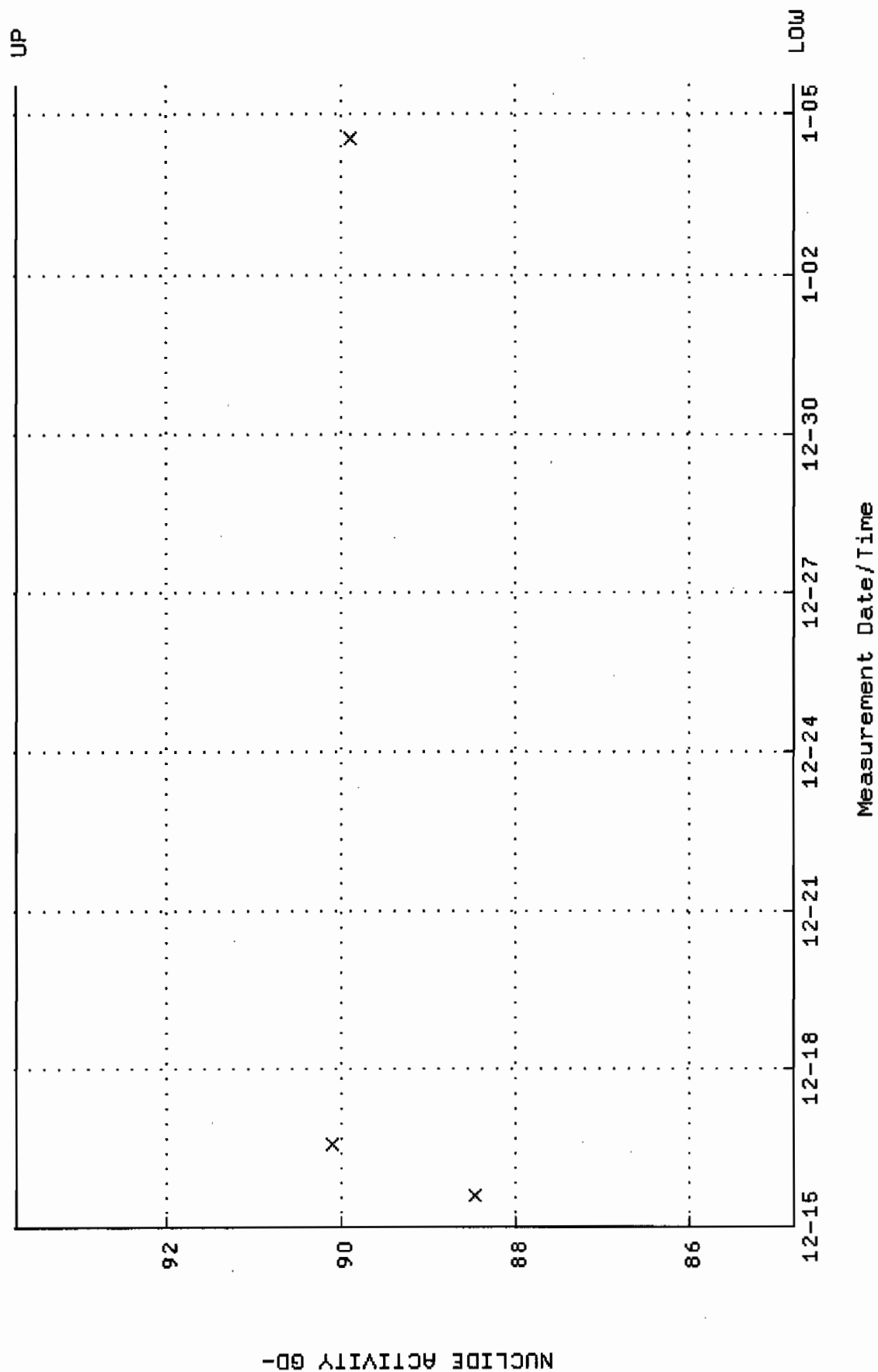
QA filename : DKA100:[ENV\_ALPHA.QA.B]B001.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



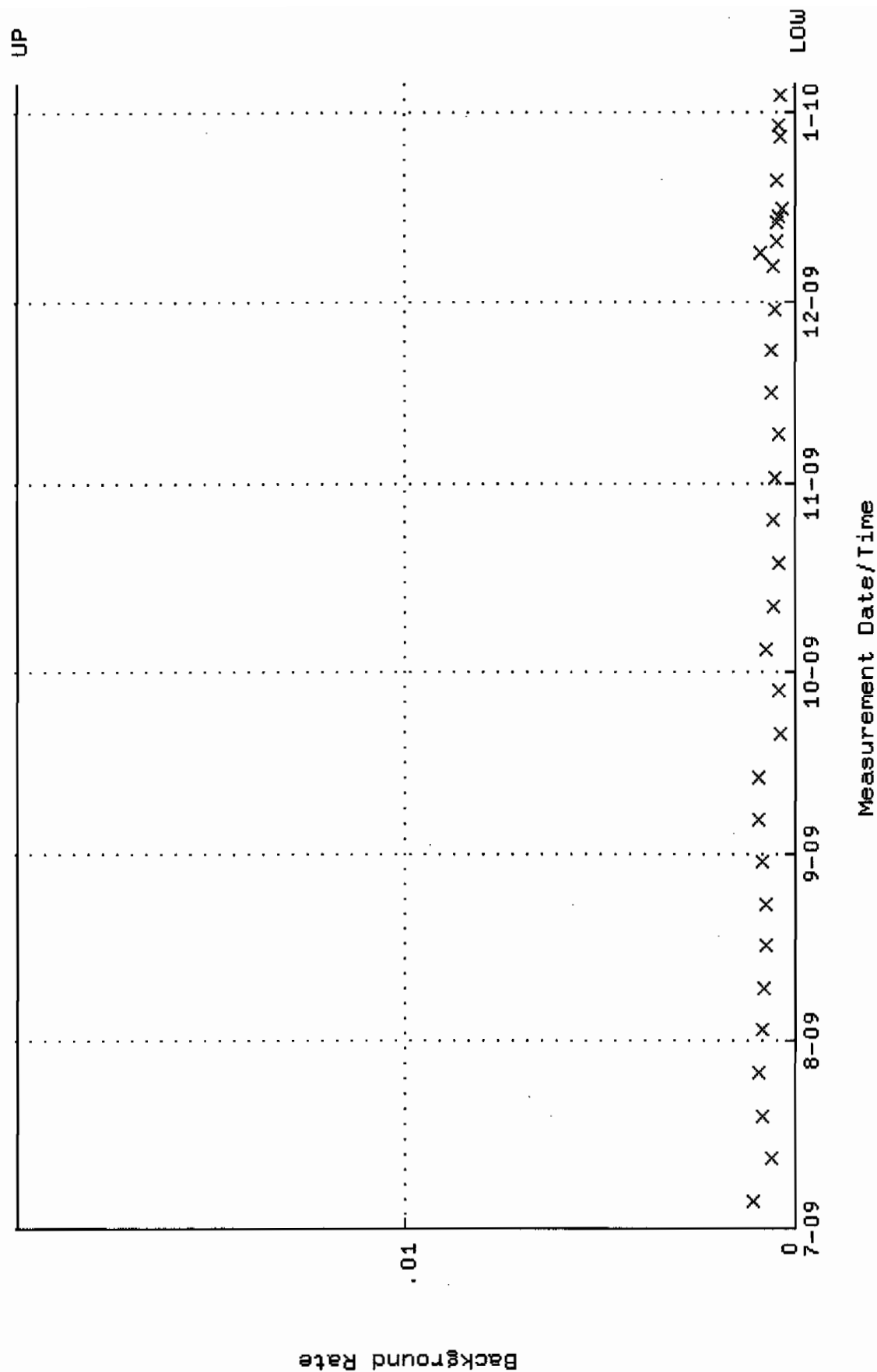
QA filename : DKA100:[ENV\_ALPHA.QA.W]W002.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.283765 through 0.303765



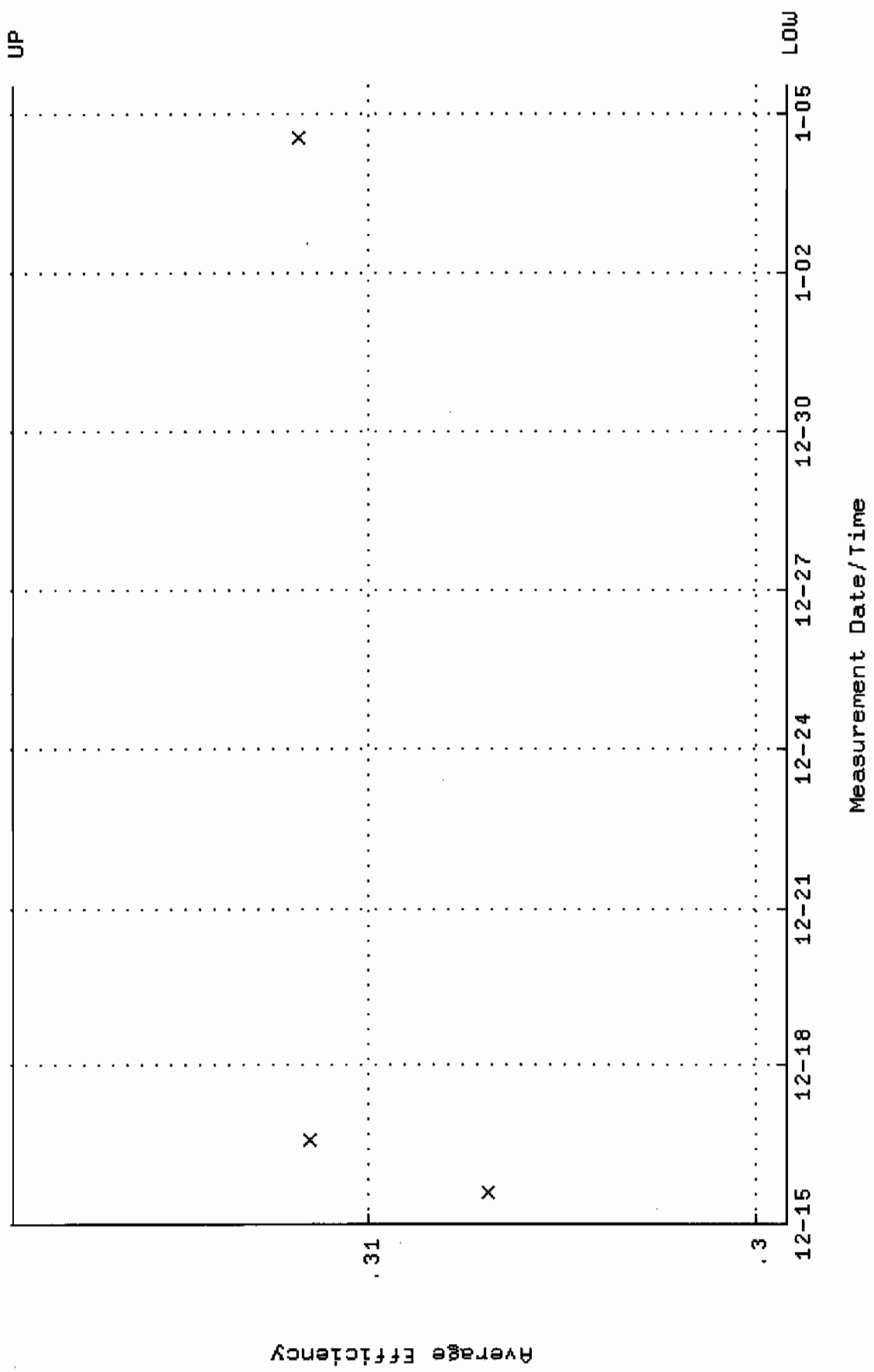
QA filename : DKA100:[ENV-ALPHA.QA.W]W002.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.8037 through 93.7305



QA filename : DKA100:[ENV\_ALPHA.QA.B]B002.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

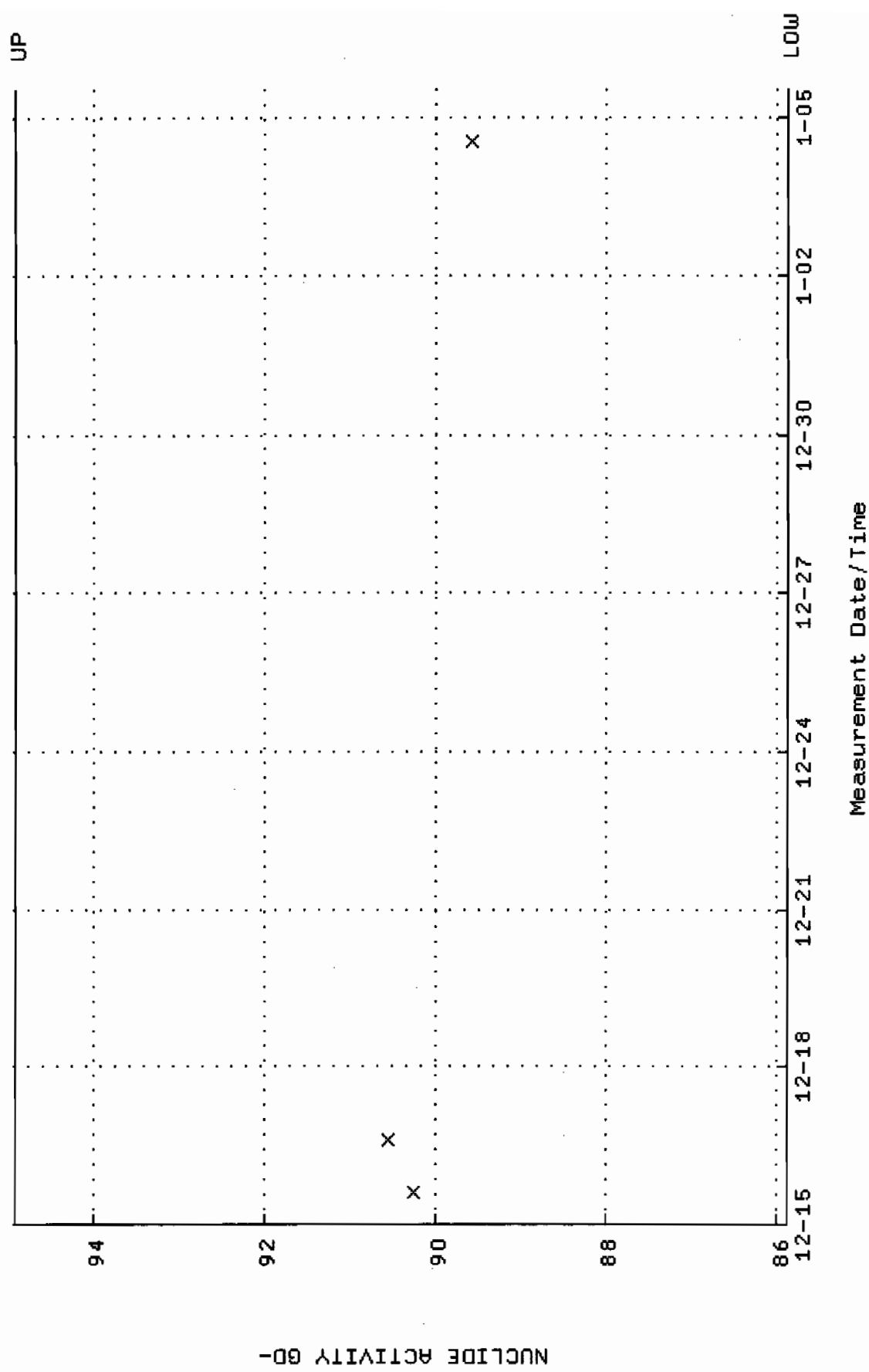


QA filename : DKA100:[ENV\_ALPHA.QA.W]W003.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.299193 through 0.319193

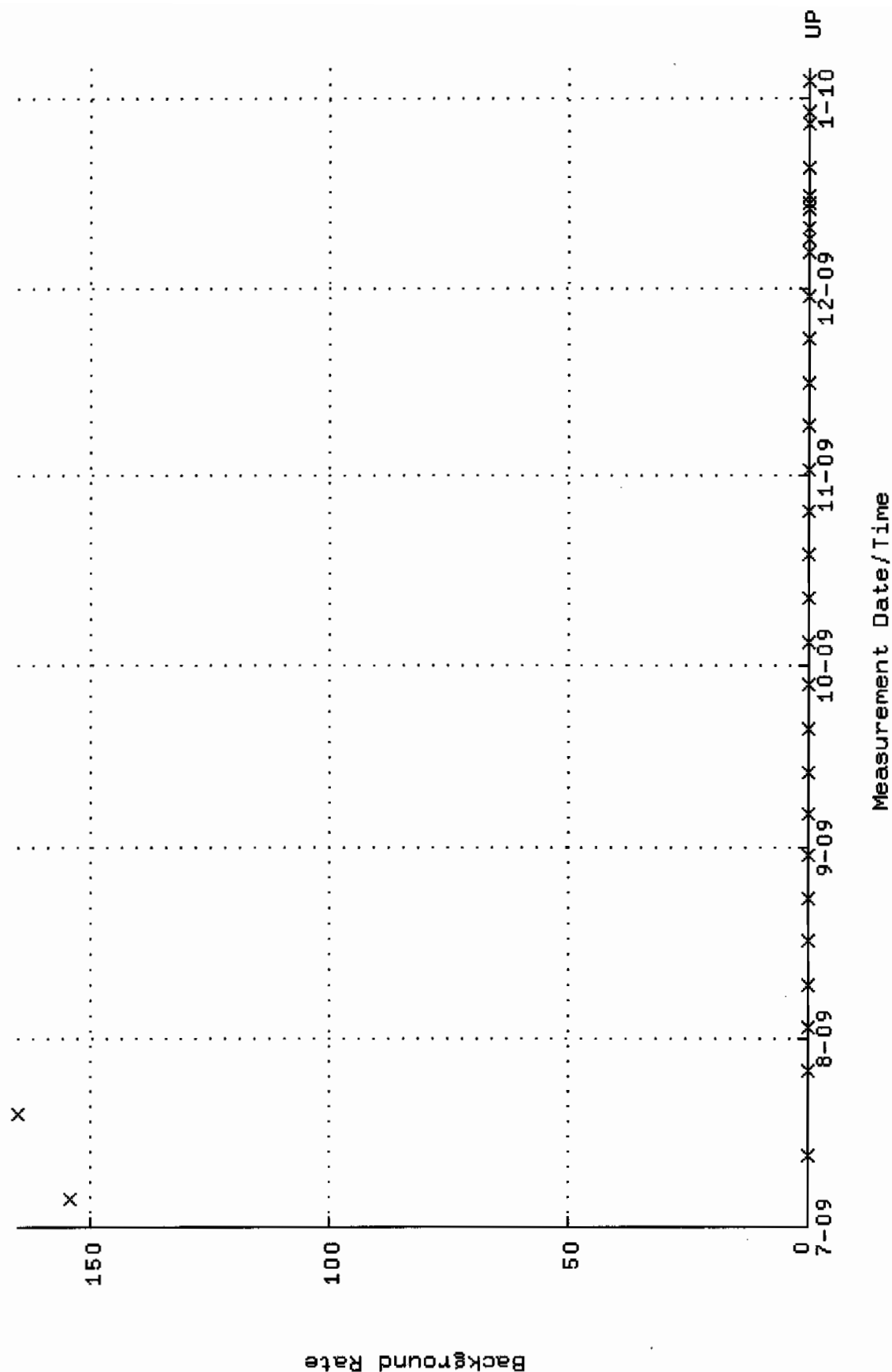




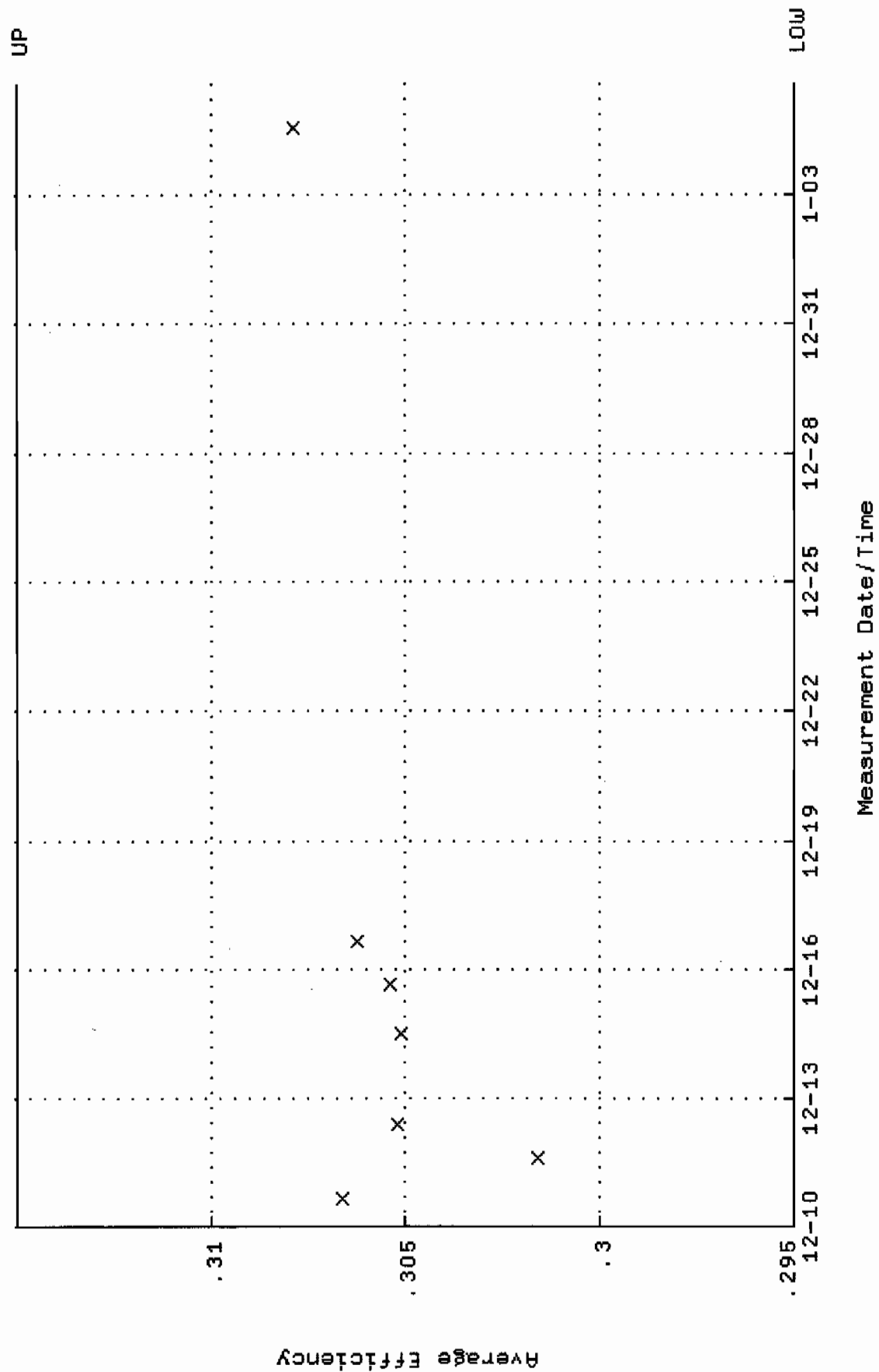
QA filename : DKA100:[ENV\_ALPHA.QA.W]W003.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8745 through 94.9139



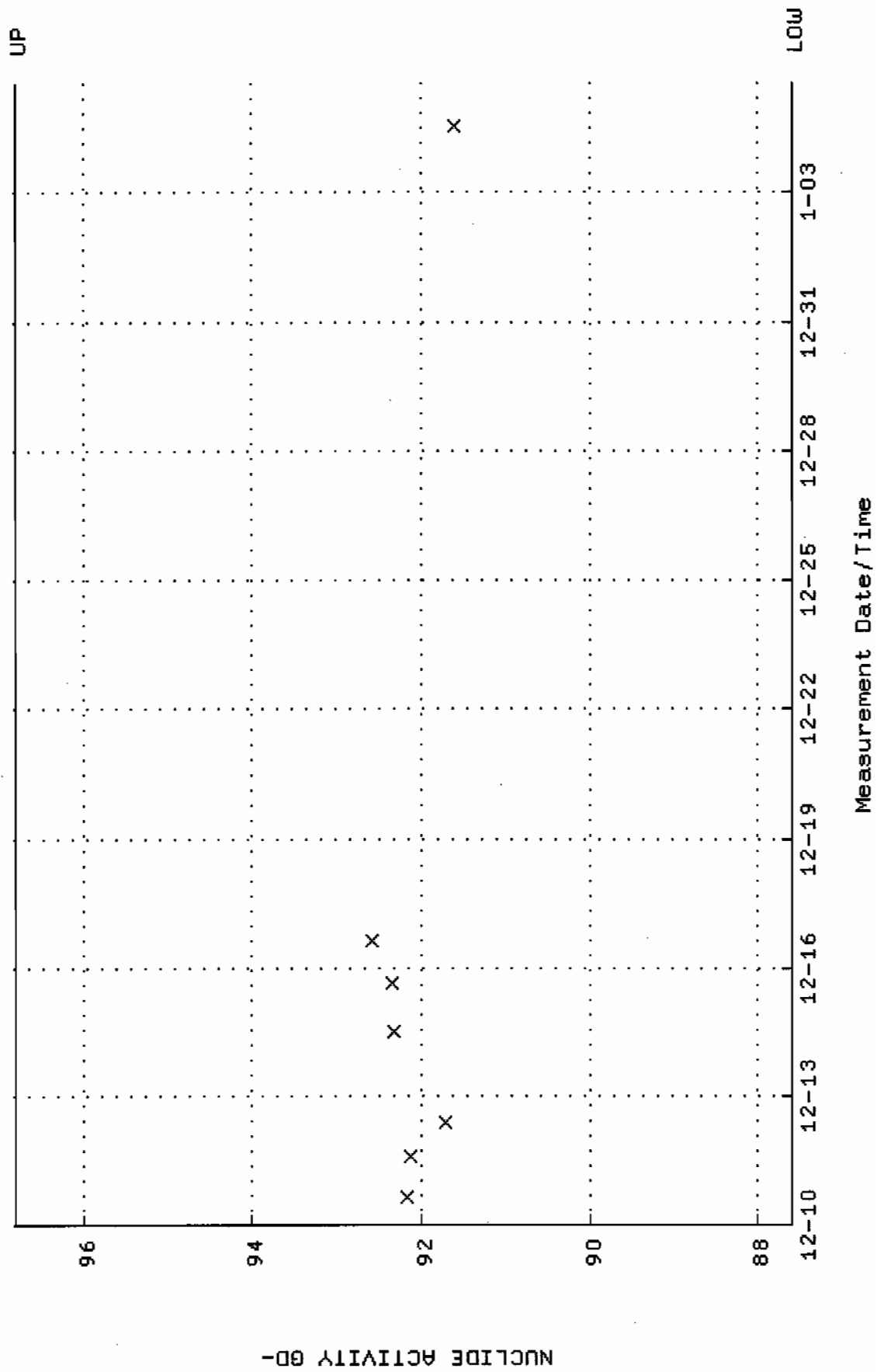
QA filename : DKA100:[ENV\_ALPHA.QA.8]B003.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W004.QAF;5  
 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

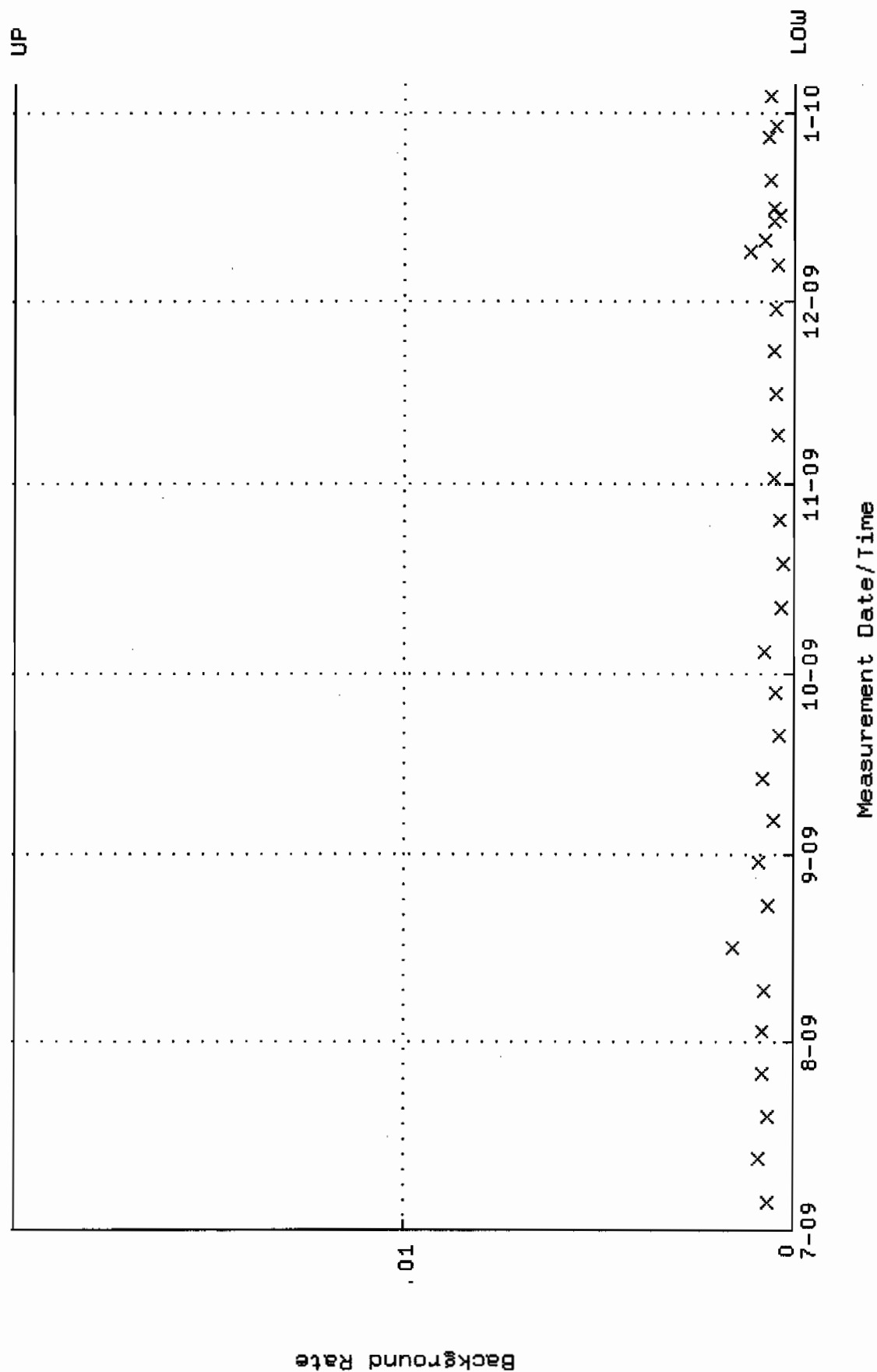


QA filename : DKA100:[ENV\_ALPHA.QA.B]B004.QAF;1

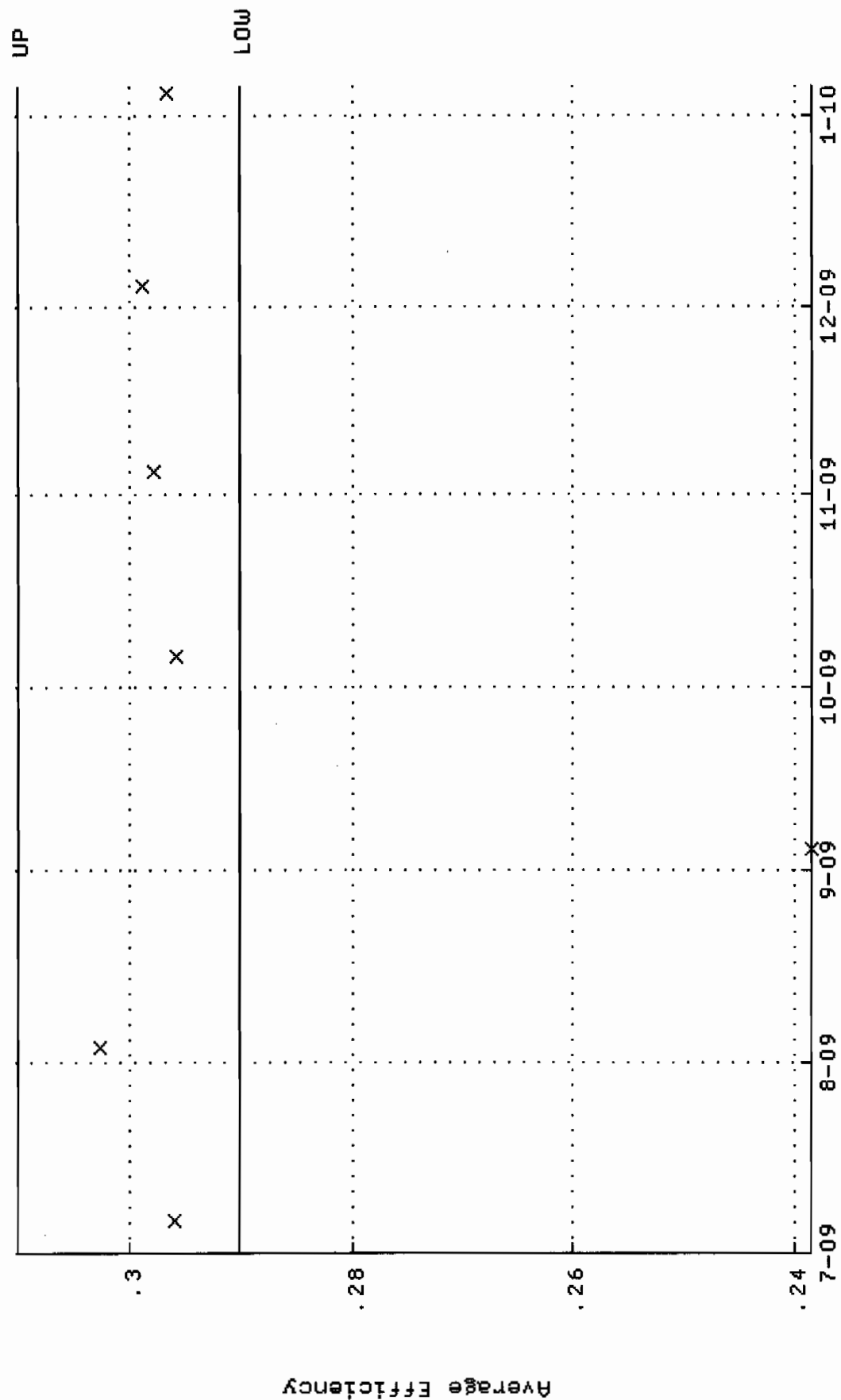
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00

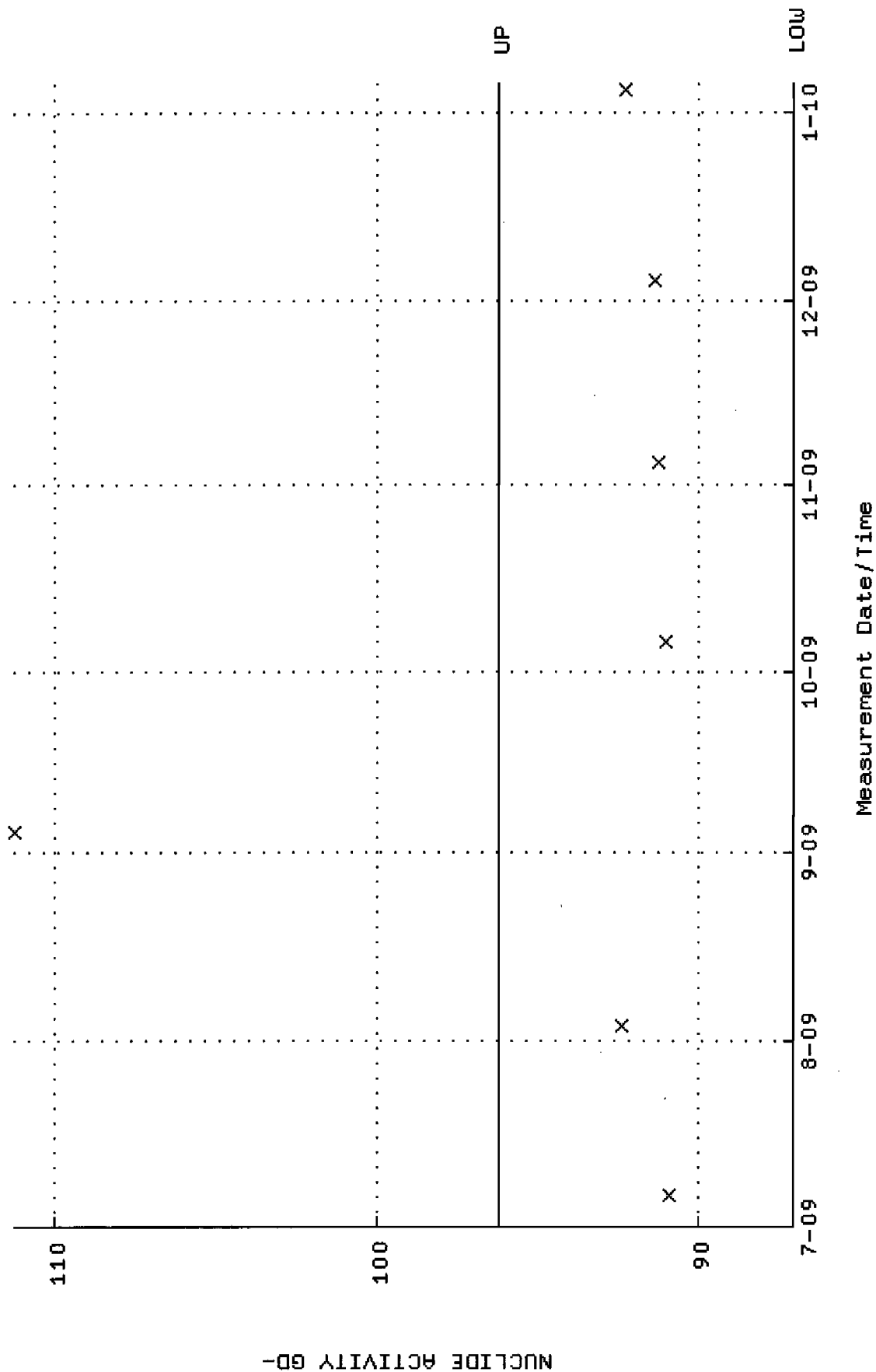
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]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



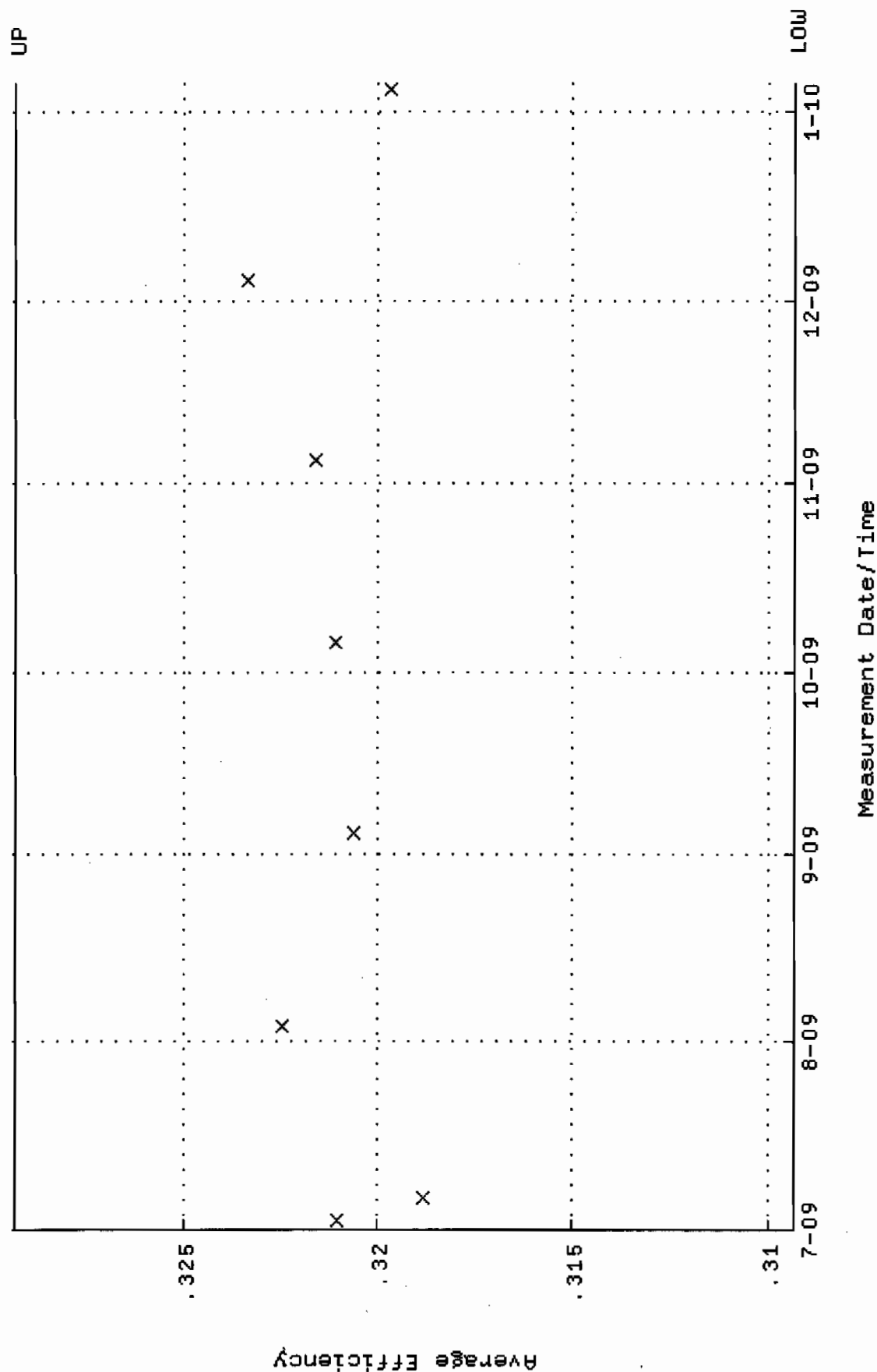
QA filename : DKA100:[ENV-ALPHA.QA.W]W007.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.0687 through 96.2339



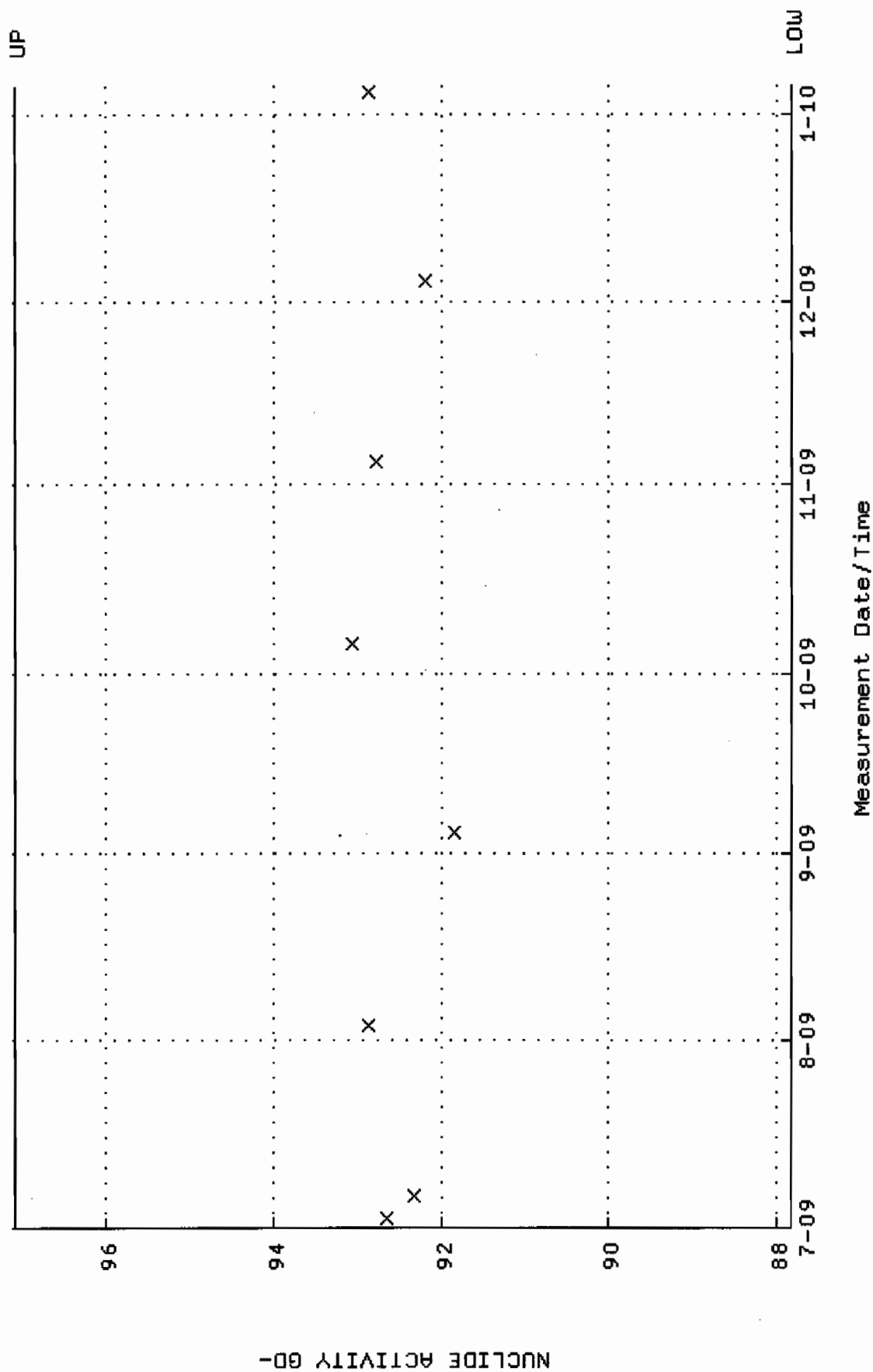




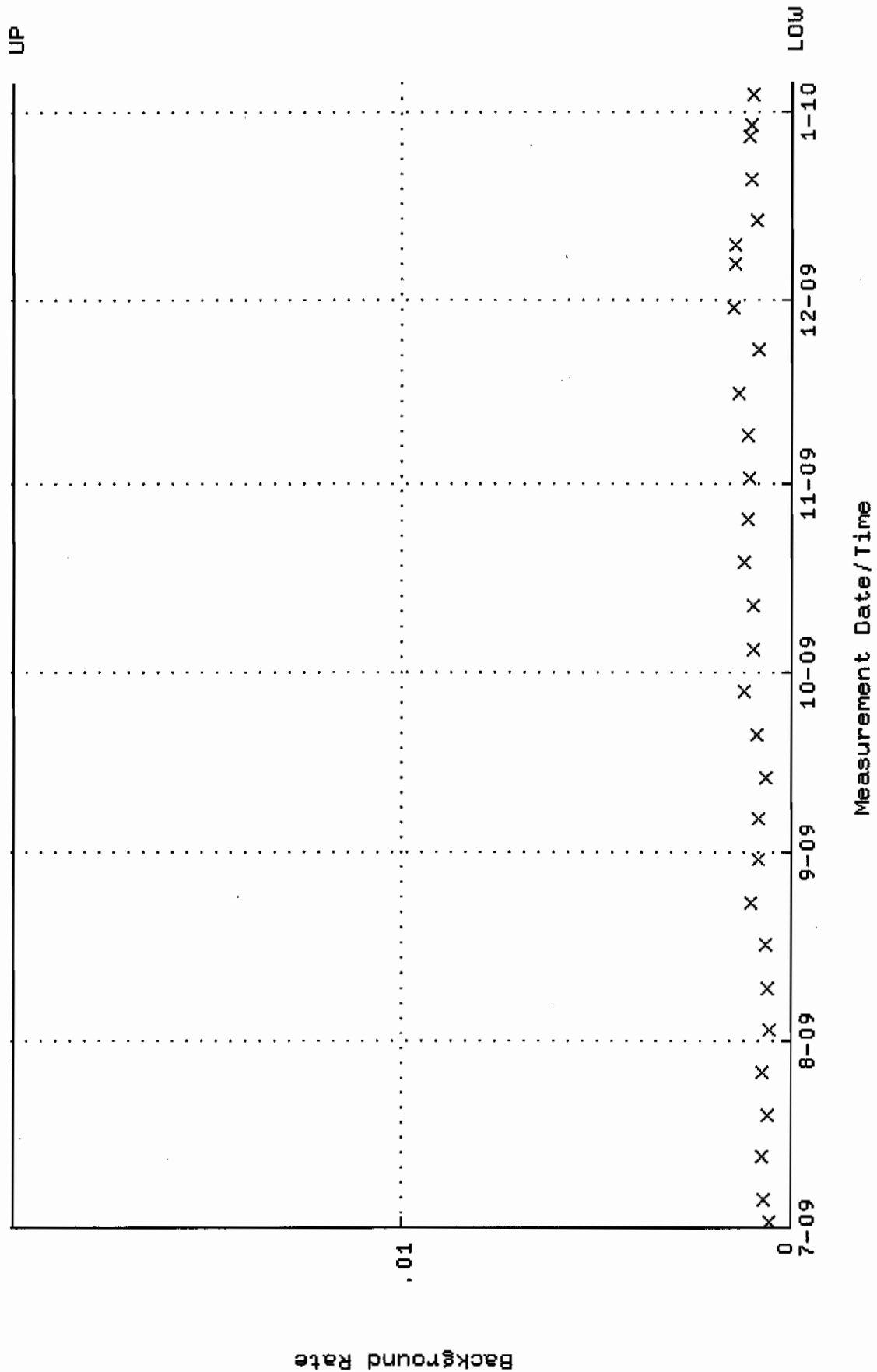
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUL-2009 15:04:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.309318 through 0.329318



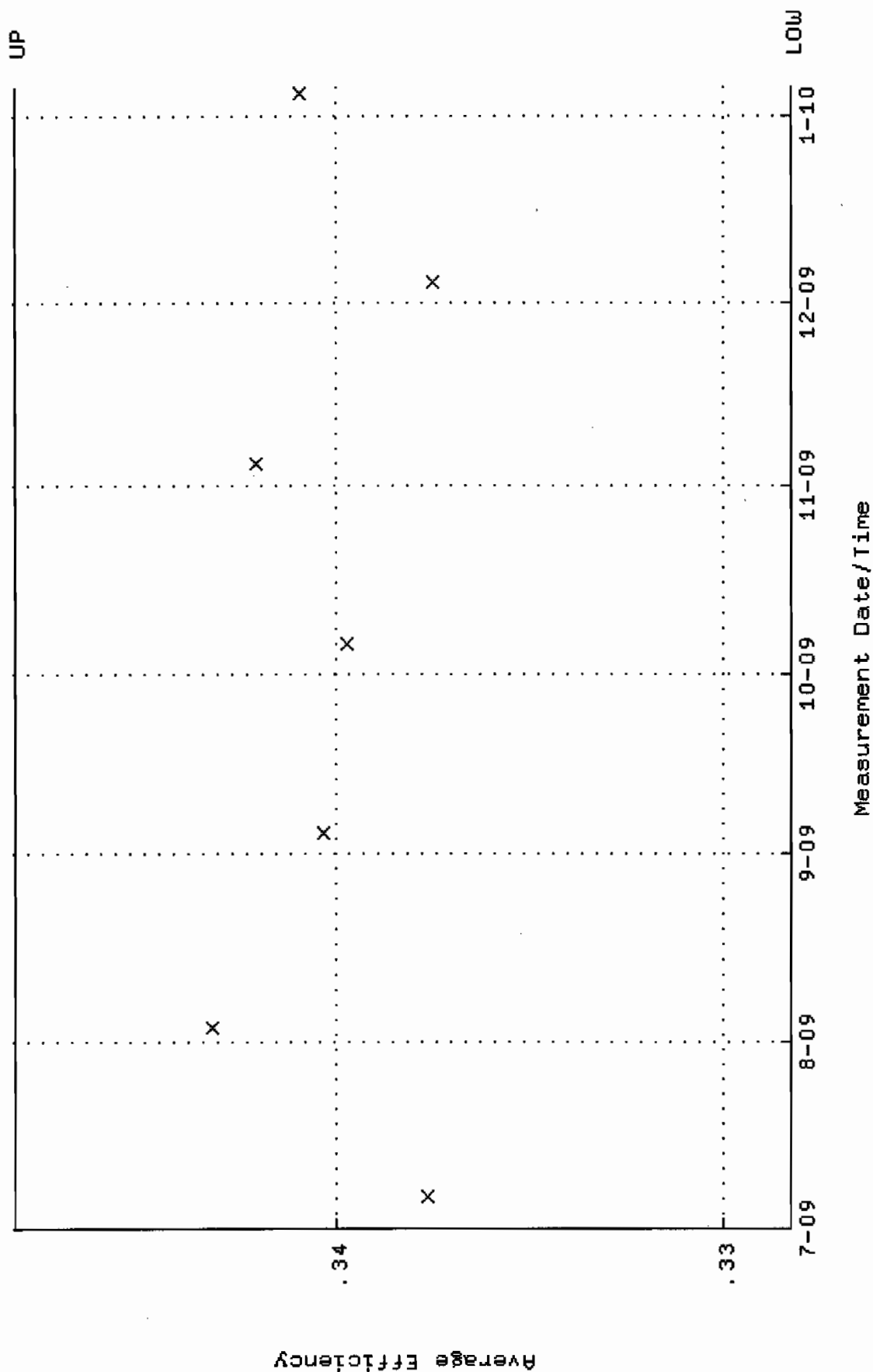
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUL-2009 15:04:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.8346 through 97.0804



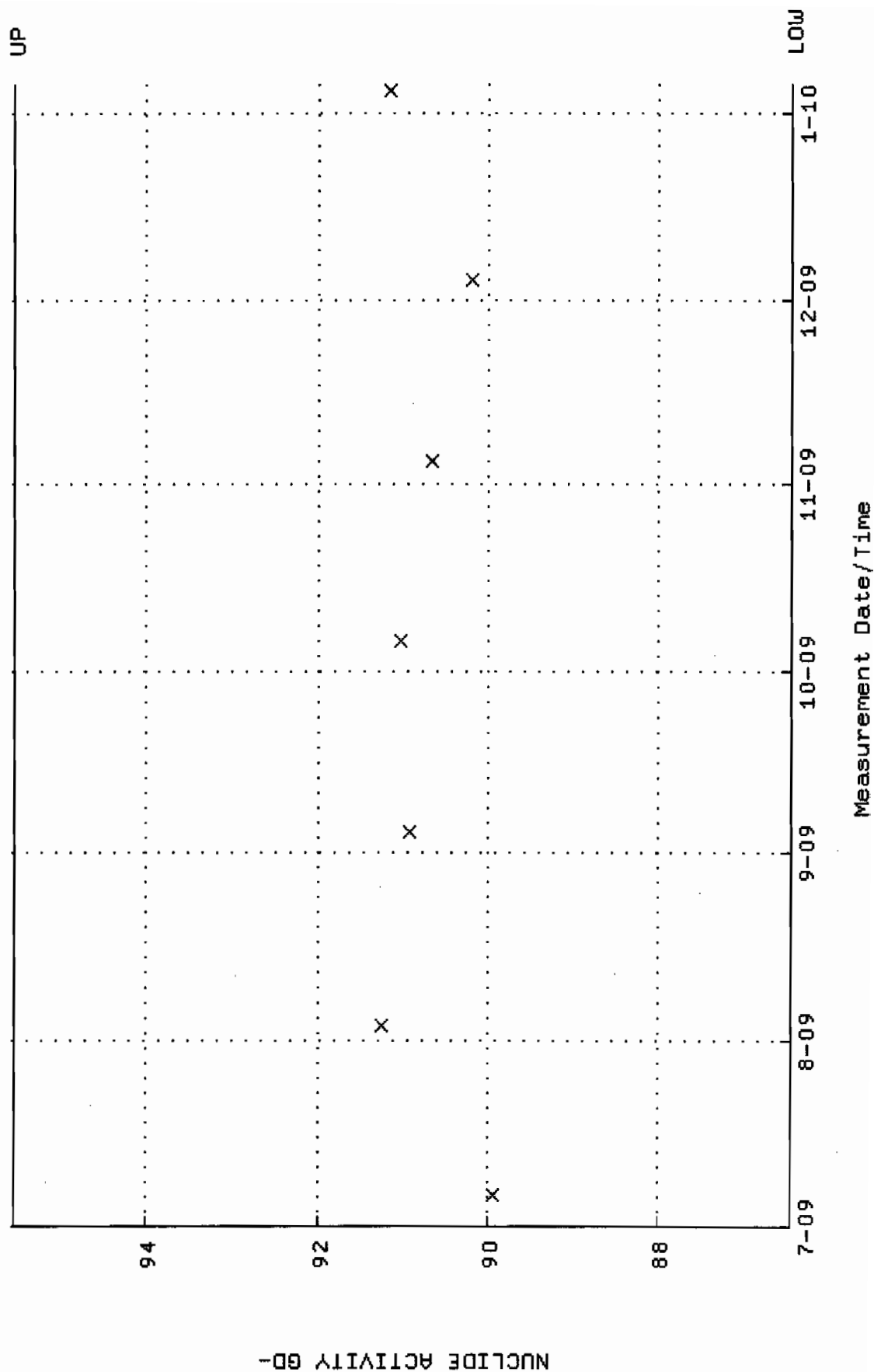
QA filename : DKA100:[ENV\_ALPHA.QA.B]B008.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUL-2009 21:39:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



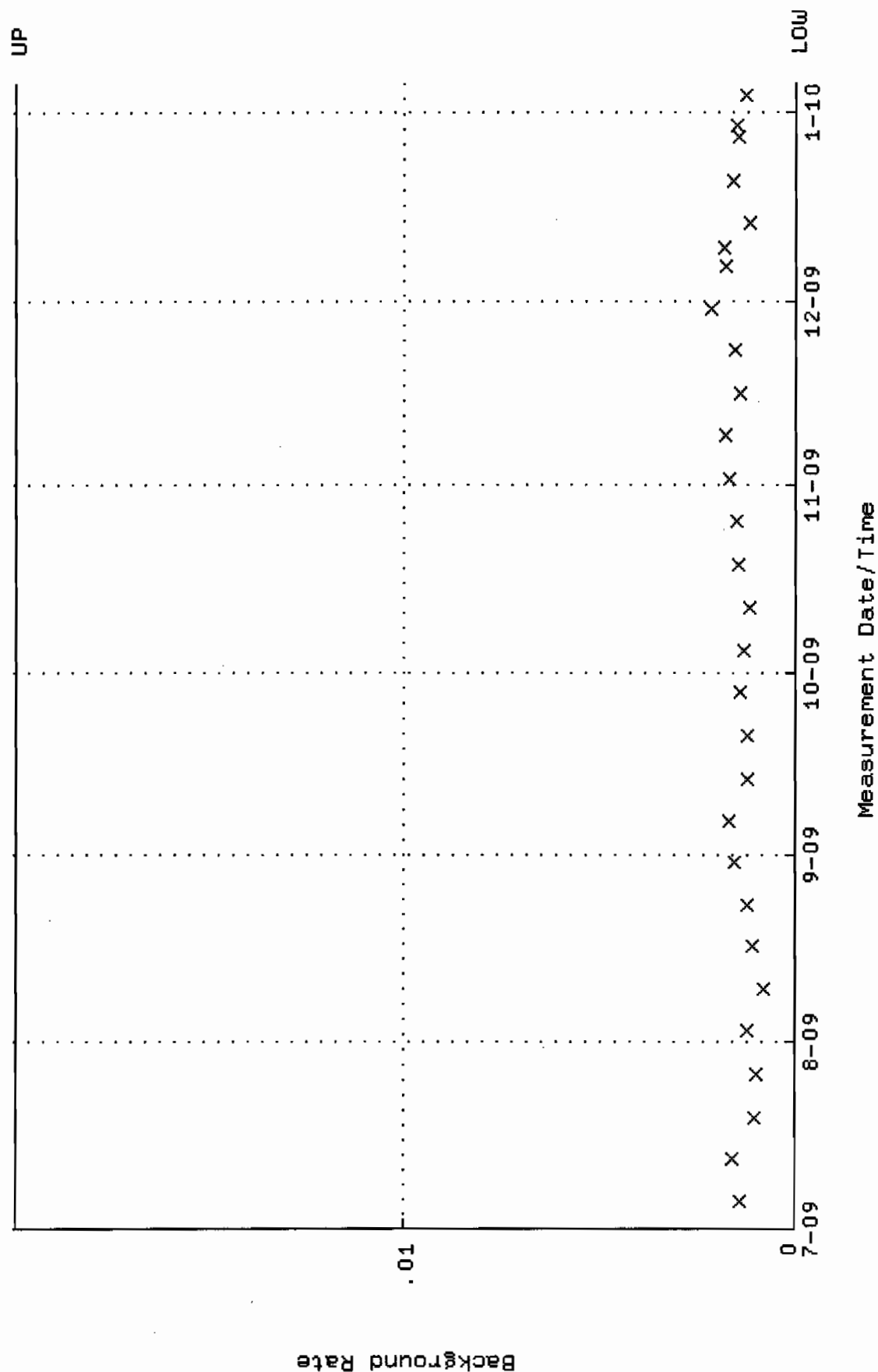
QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.328261 through 0.348261



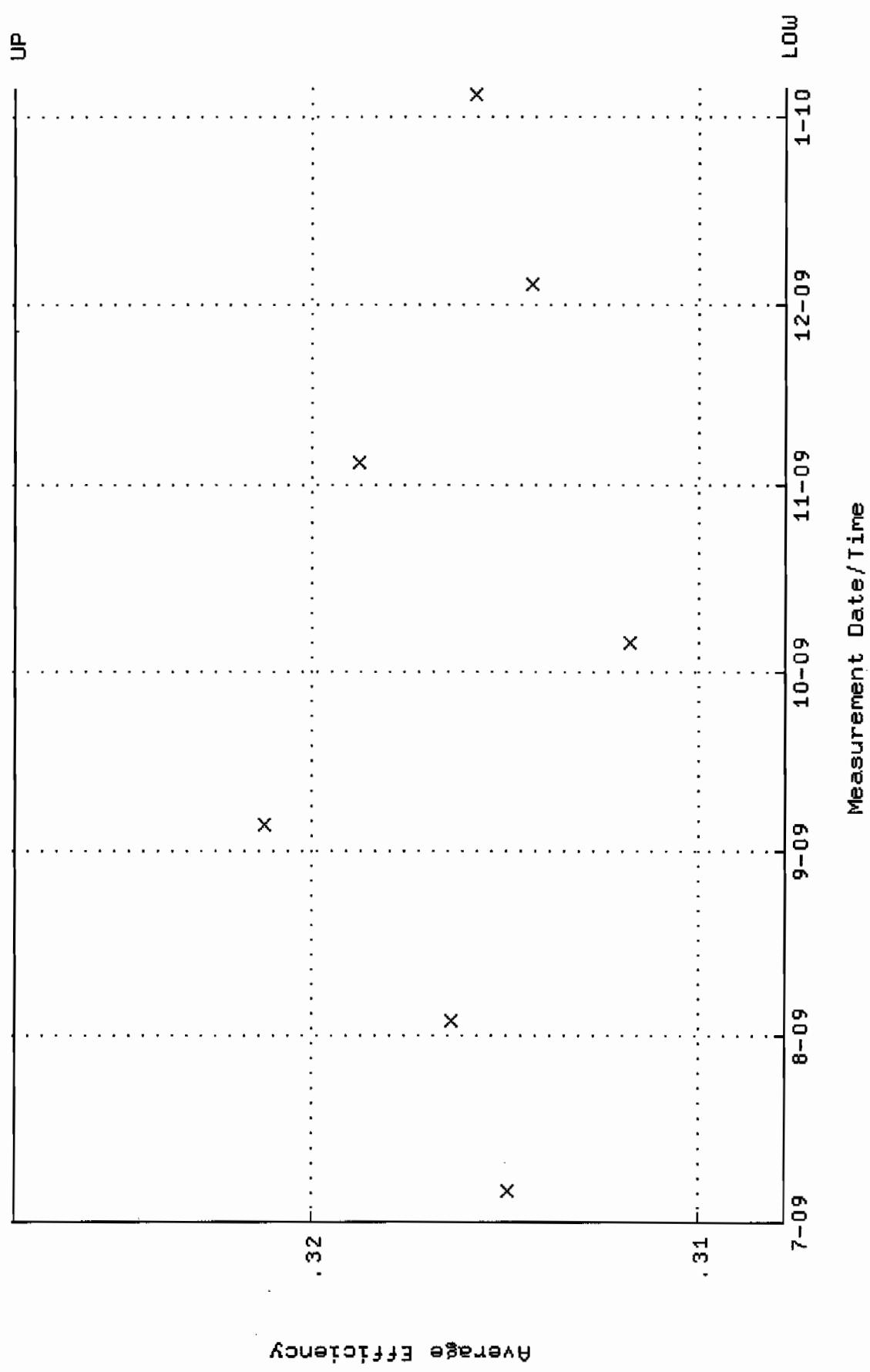
QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.4475 through 95.5473



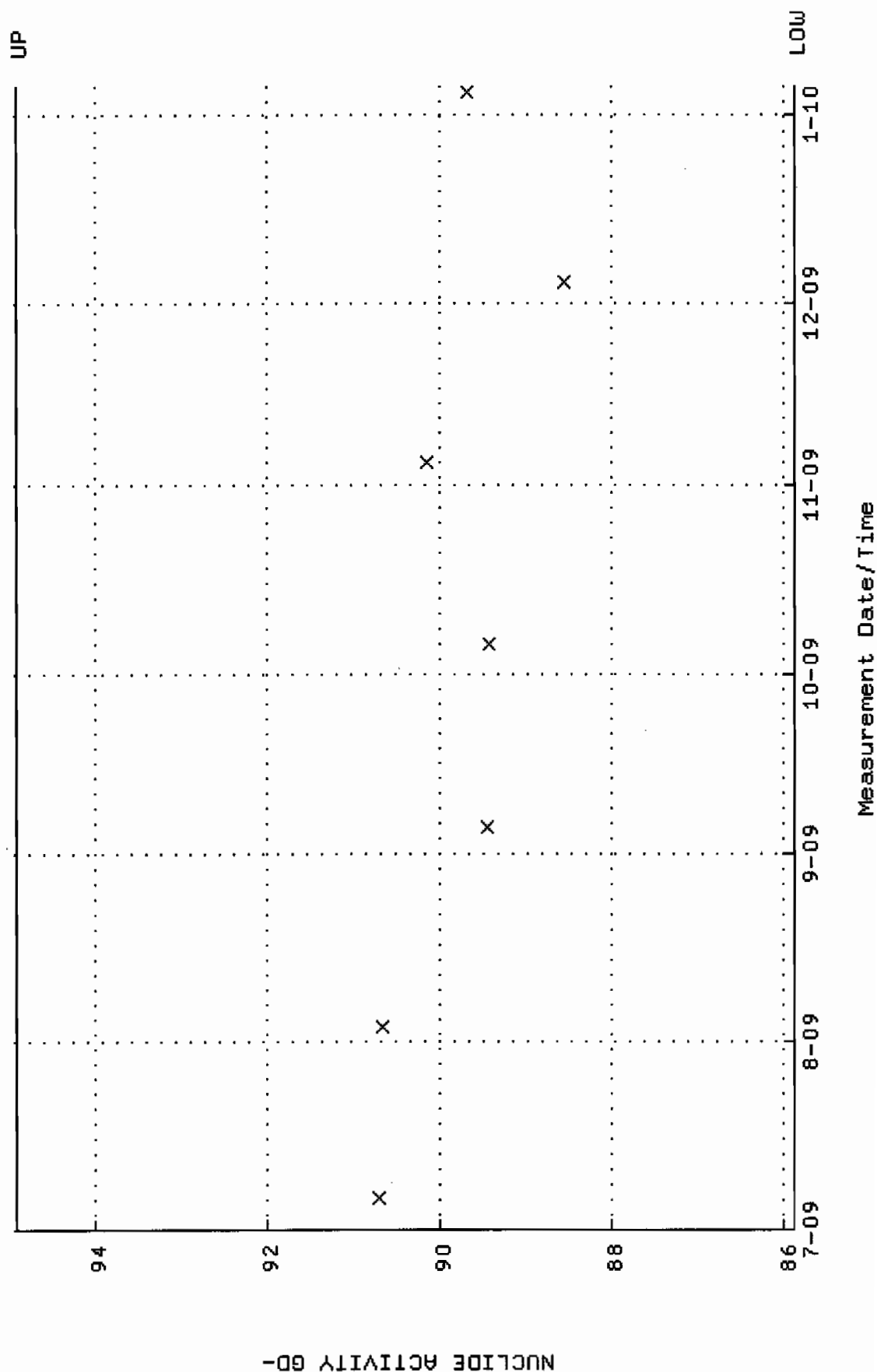
QA filename : DKA100:[ENV\_ALPHA.QA.B]B009.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]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

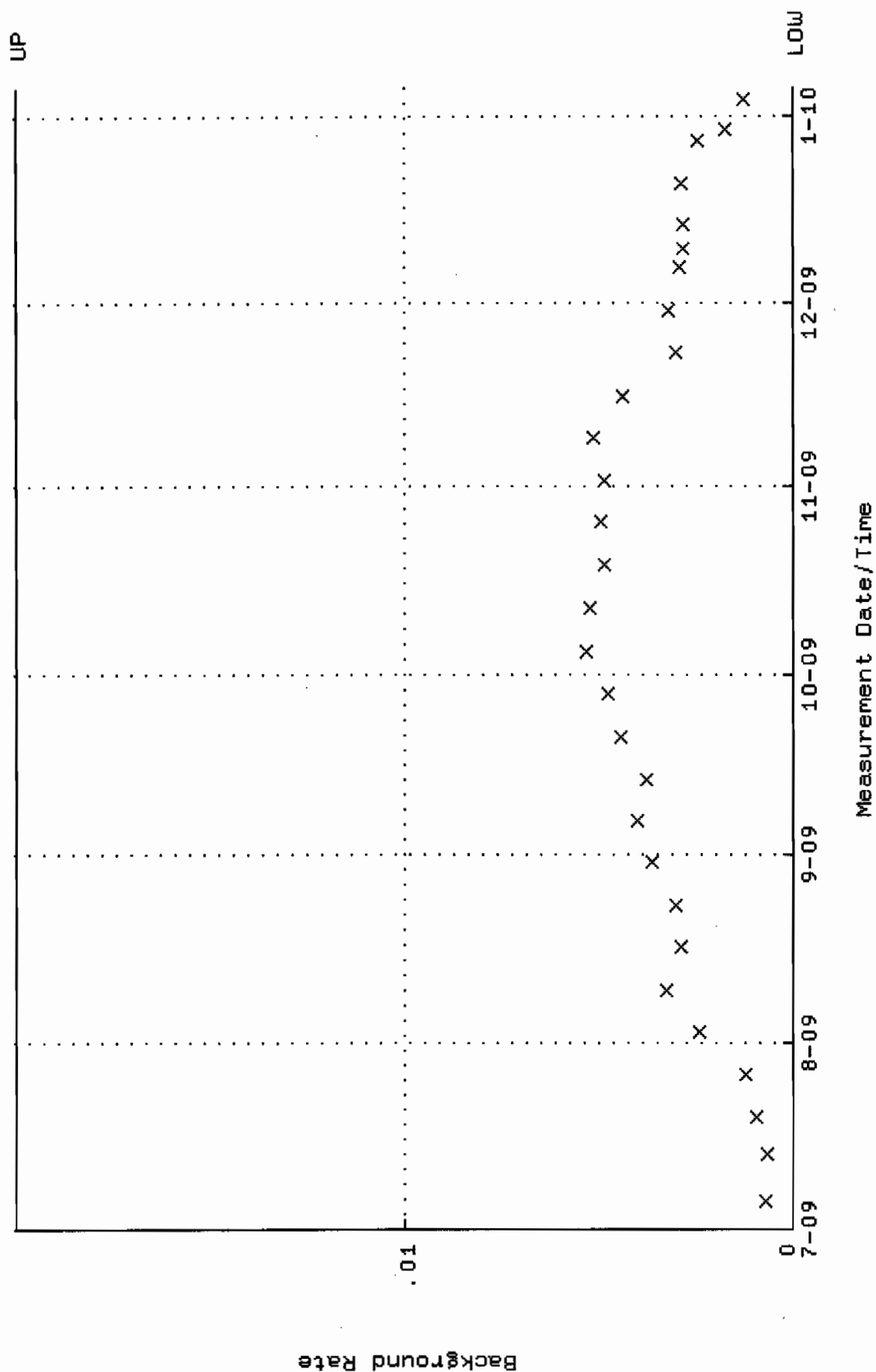


QA filename : DKA100:[ENV\_ALPHA.QA.W]w026.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8763 through 94.9159

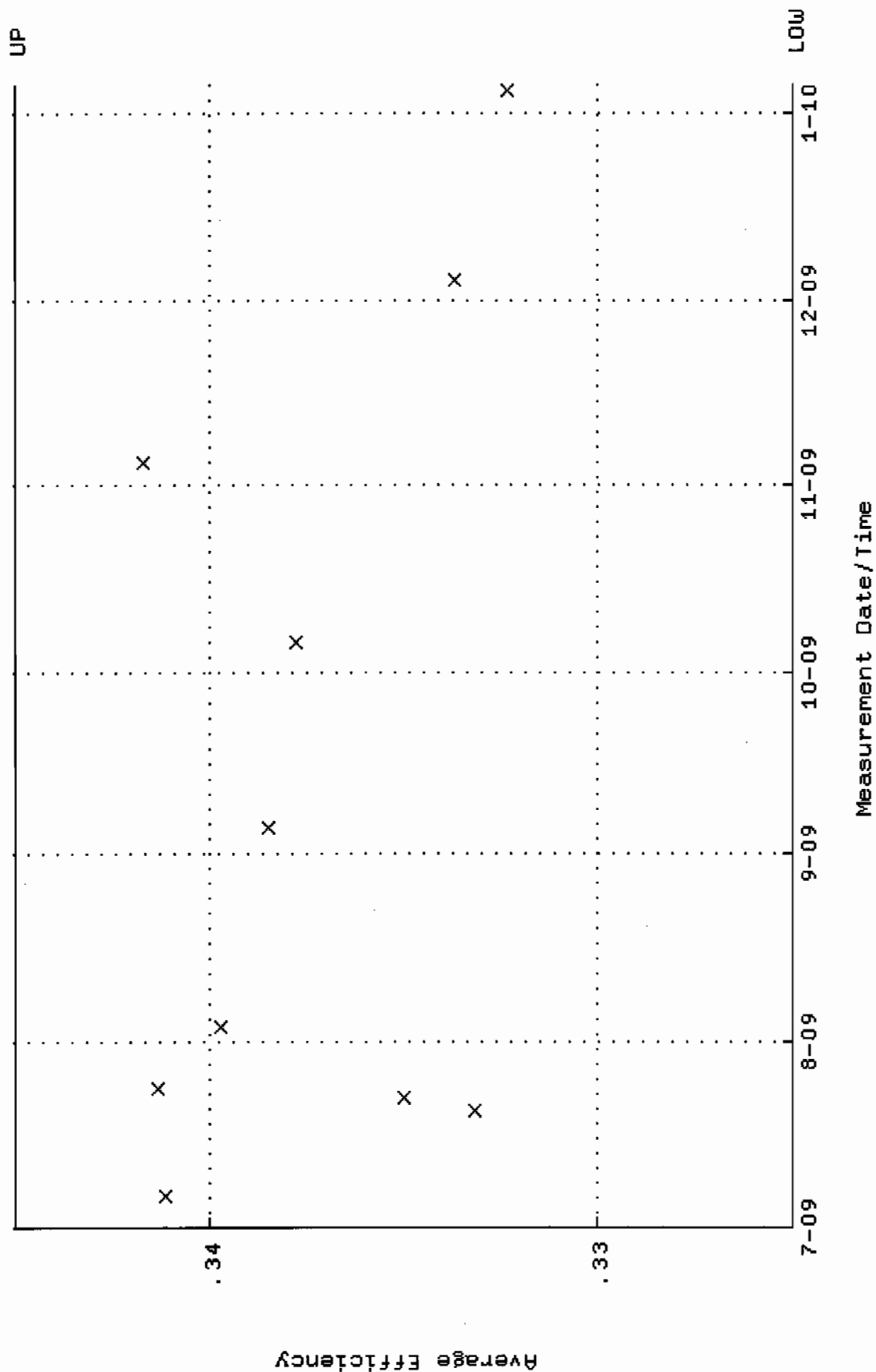




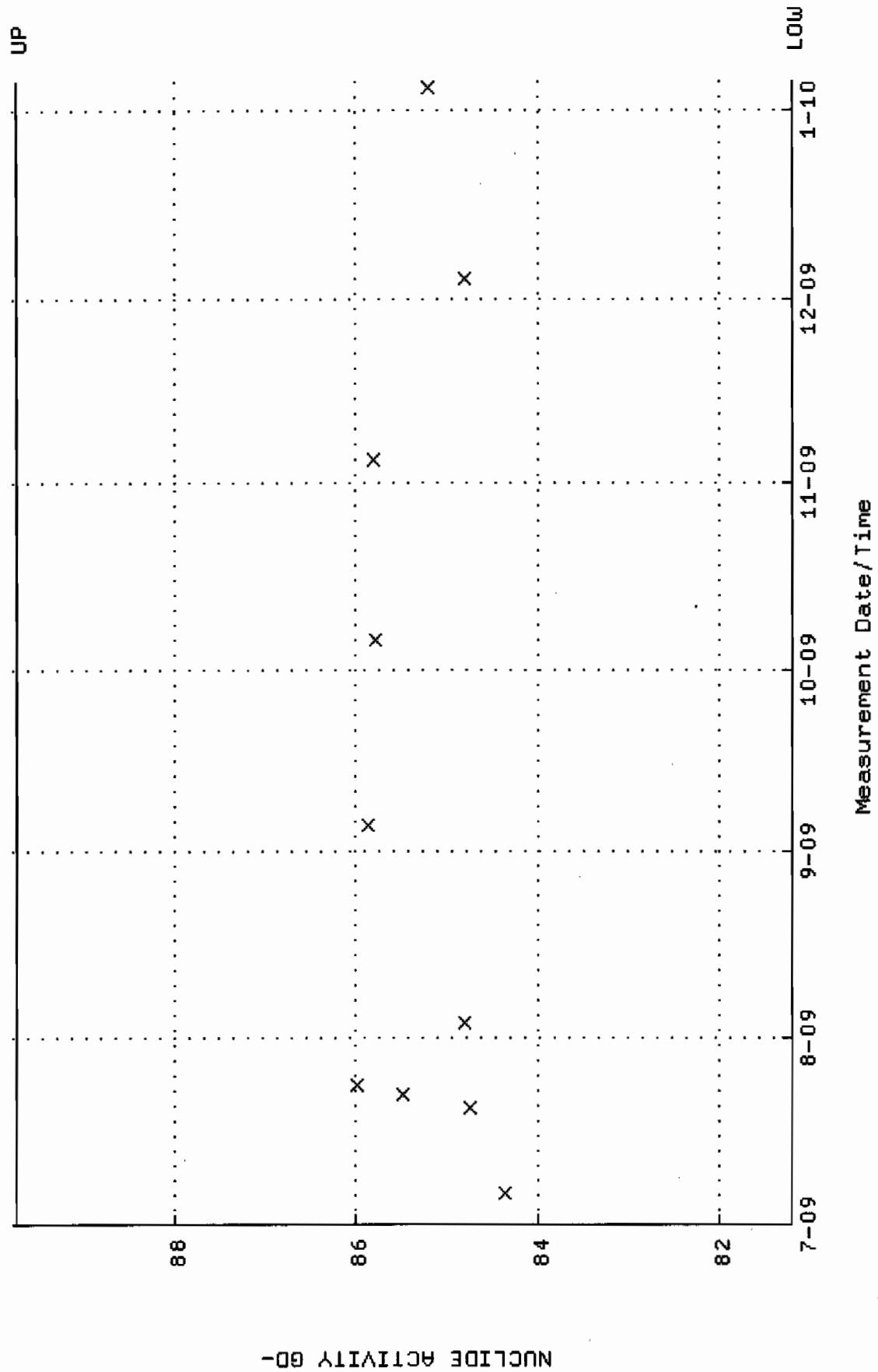
QA filename : DKA100:[ENV\_ALPHA.QA.B]B026.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



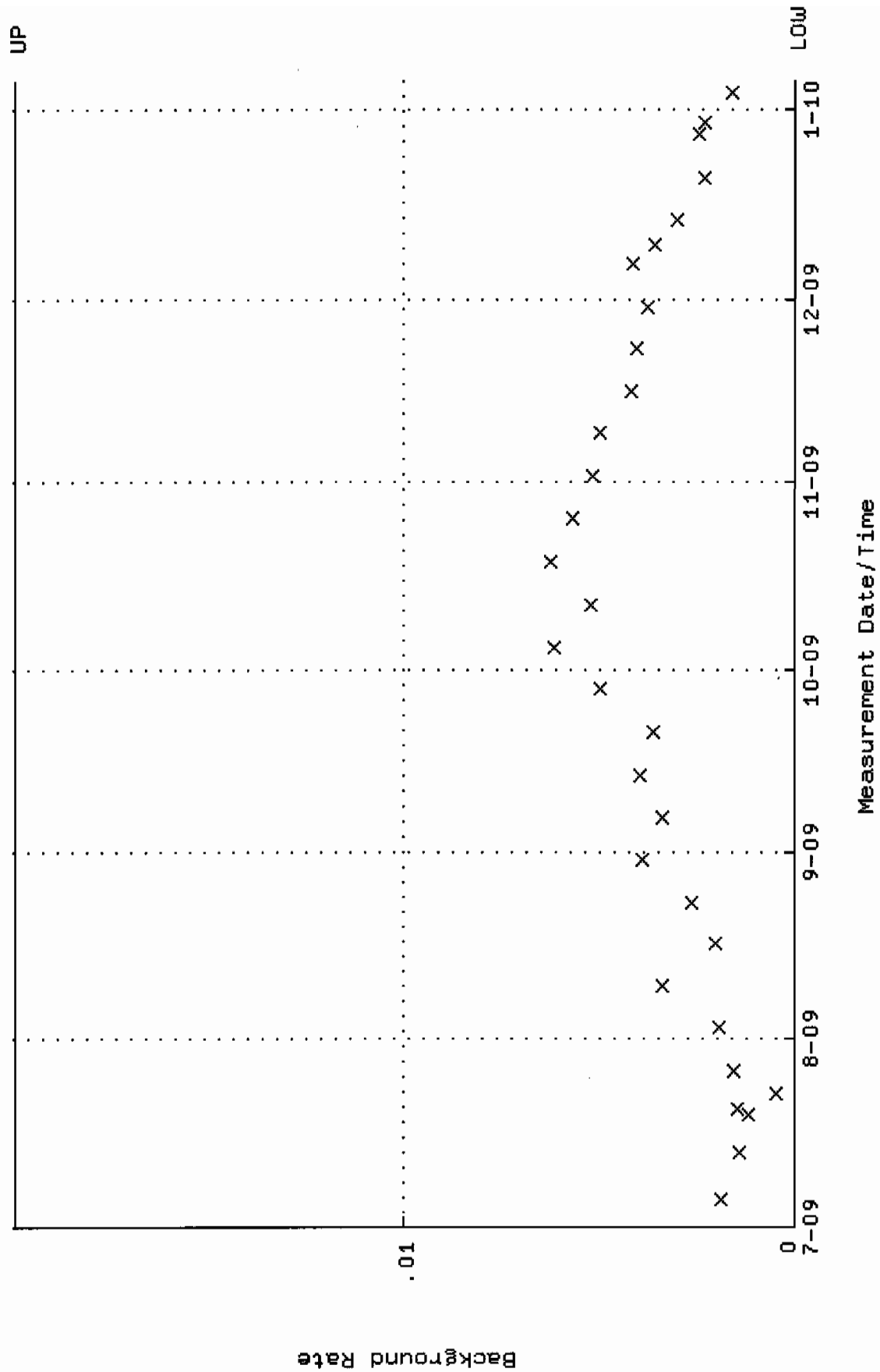
QA filename : DKA100:[ENV\_ALPHA.QA.W]W027.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.324980 through 0.344980



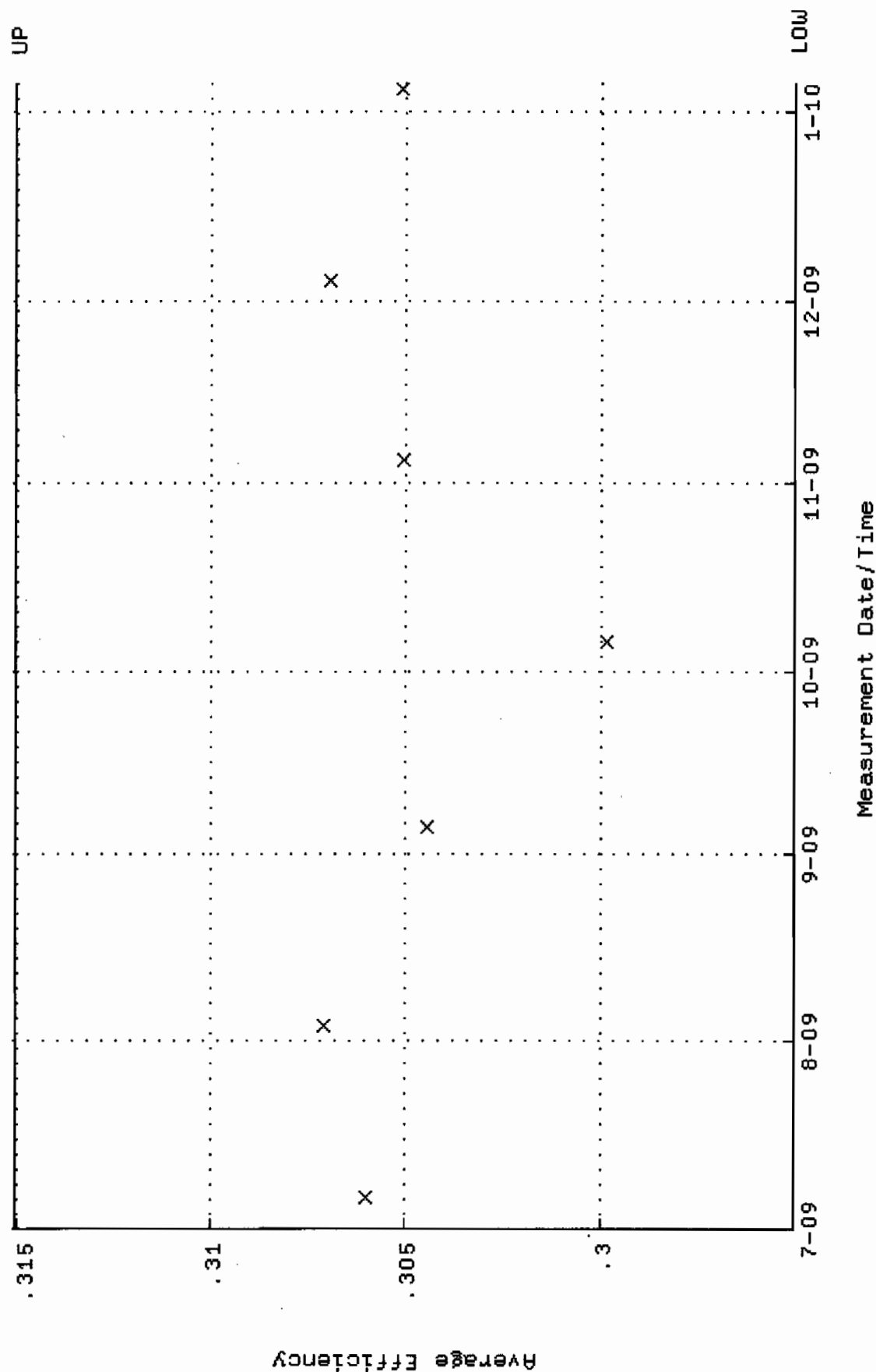
QA filename : DKA100:[ENV\_ALPHA.QA.W]W027.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 81.2030 through 89.7506



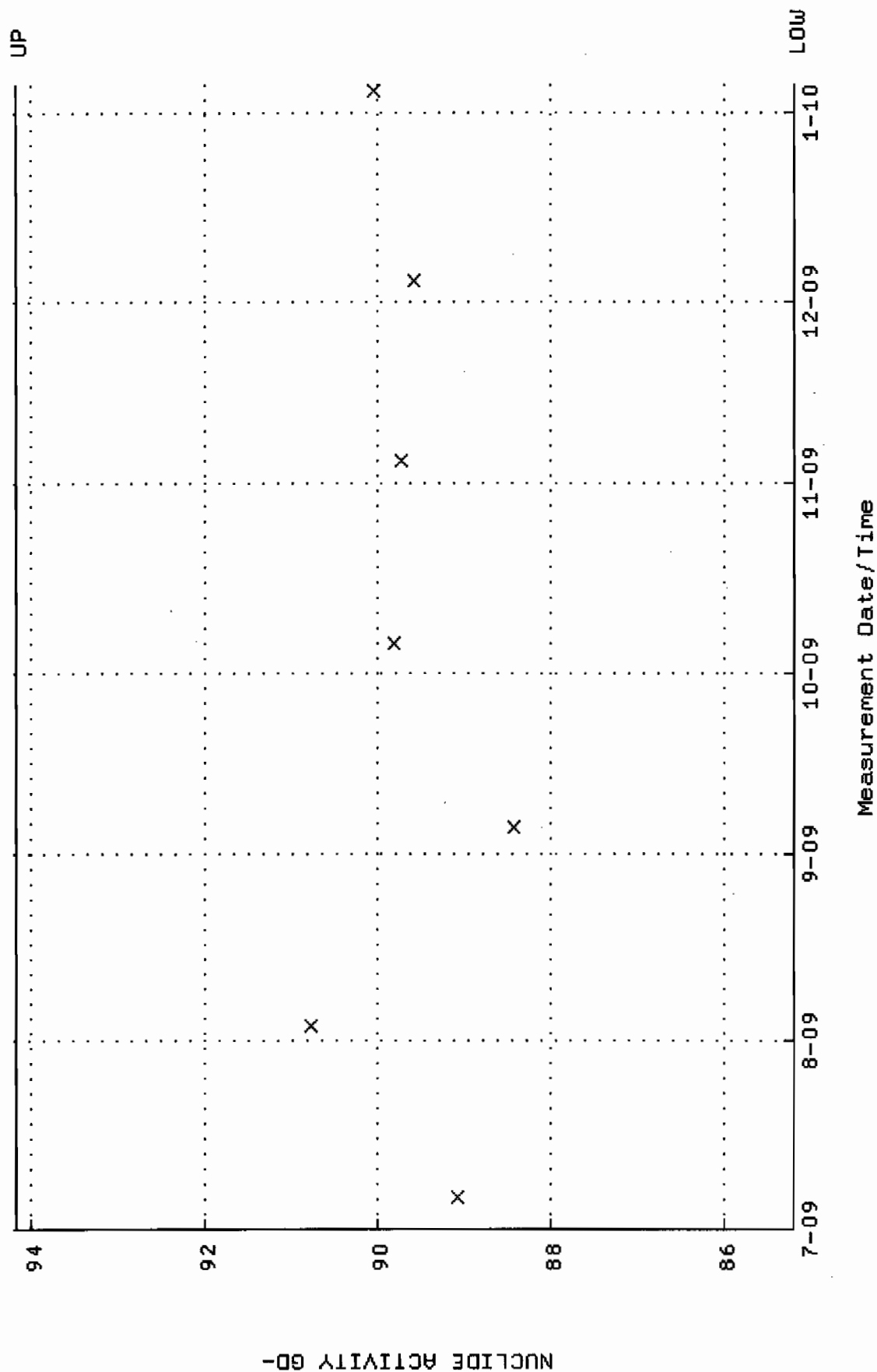
QA filename : DKA100:[ENV\_ALPHA.QA.B]B027.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W028.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: 0.295040 through 0.315040



QA filename : DKA100:[ENV\_ALPHA.QA.W]W028.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: 85.1965 through 94.1645



Background Rate

Measurement Date/Time

UP

LOW

0

.01

7-09

8-09

9-09

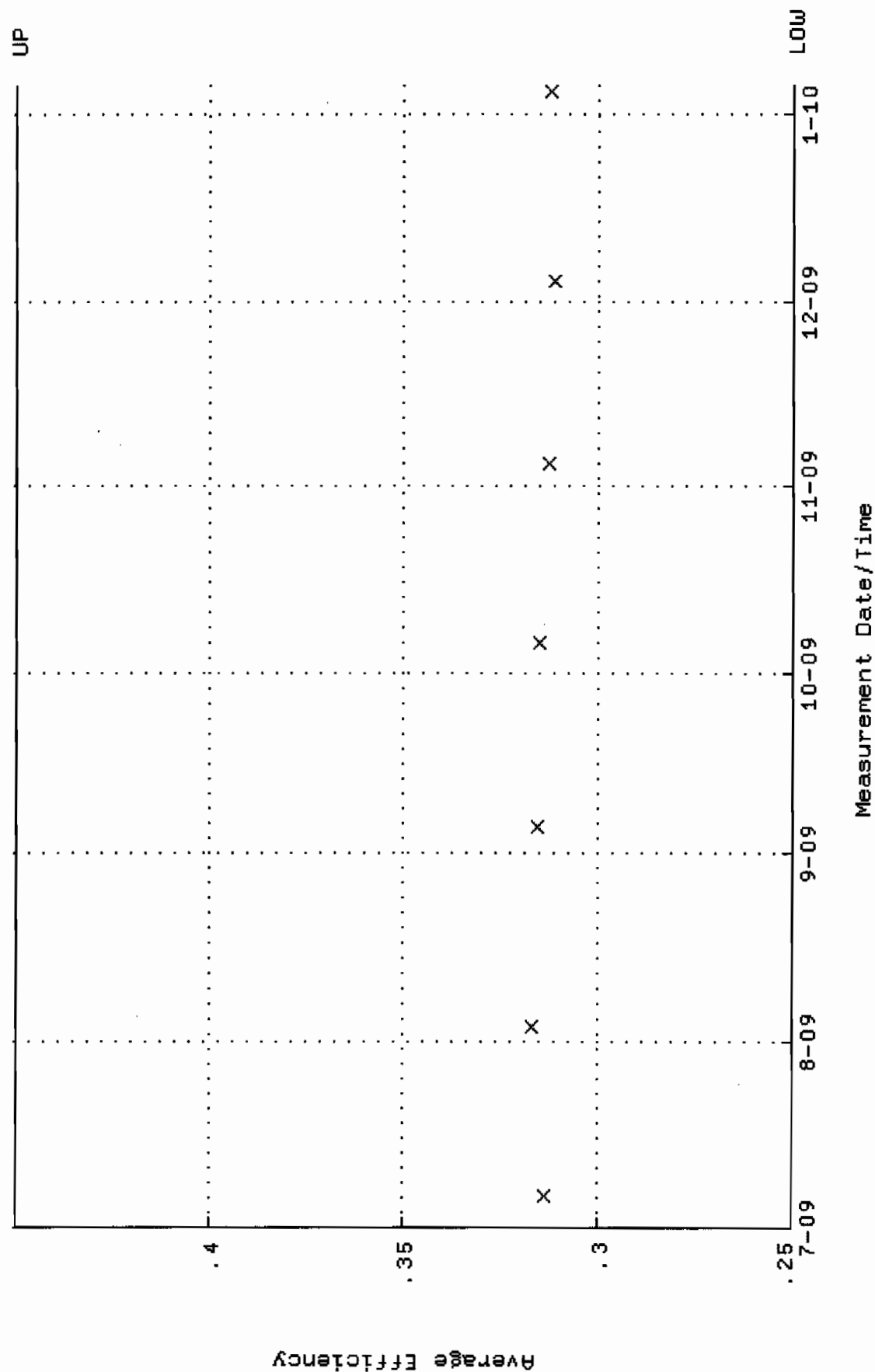
10-09

11-09

12-09

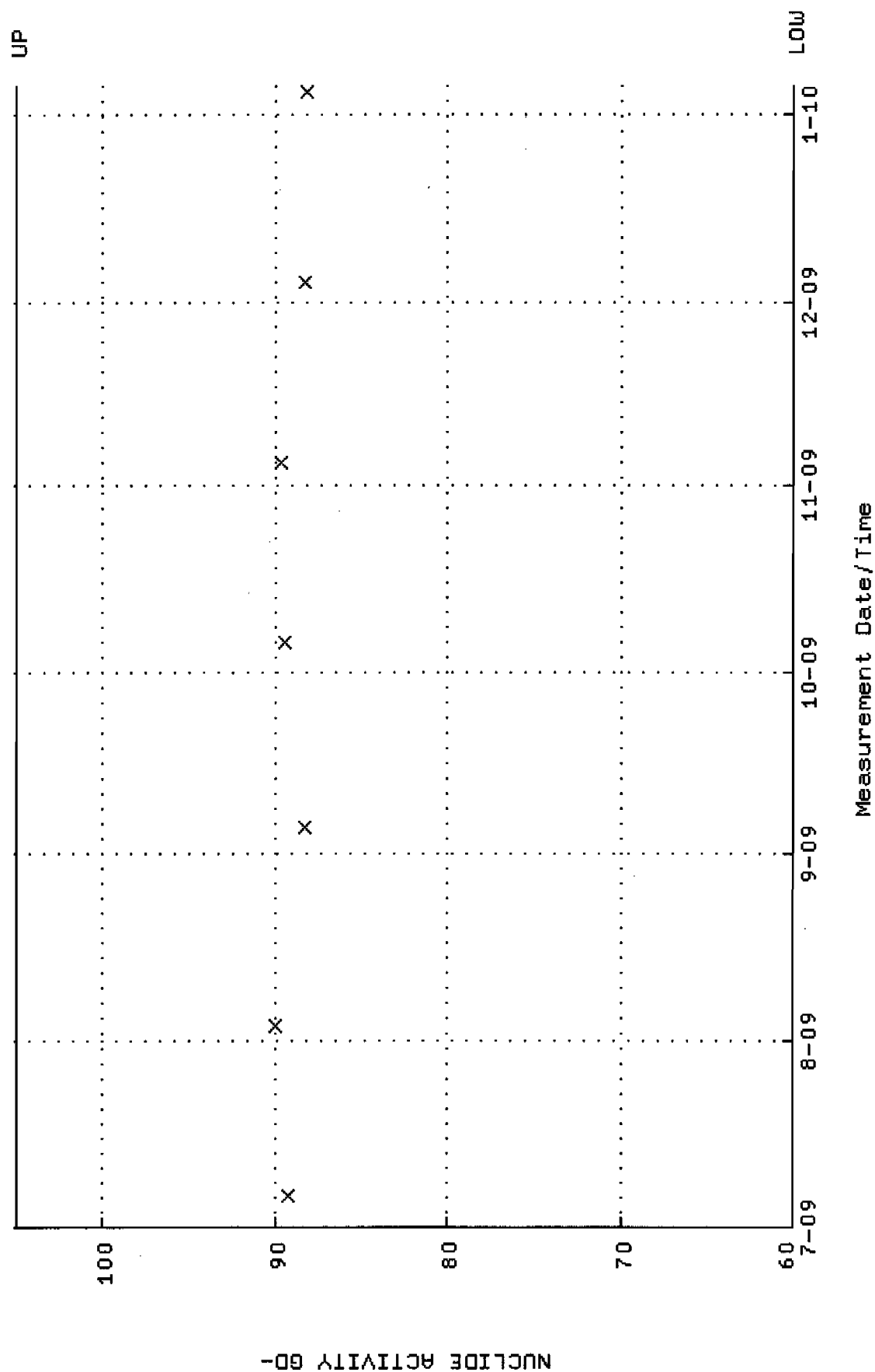
1-10

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

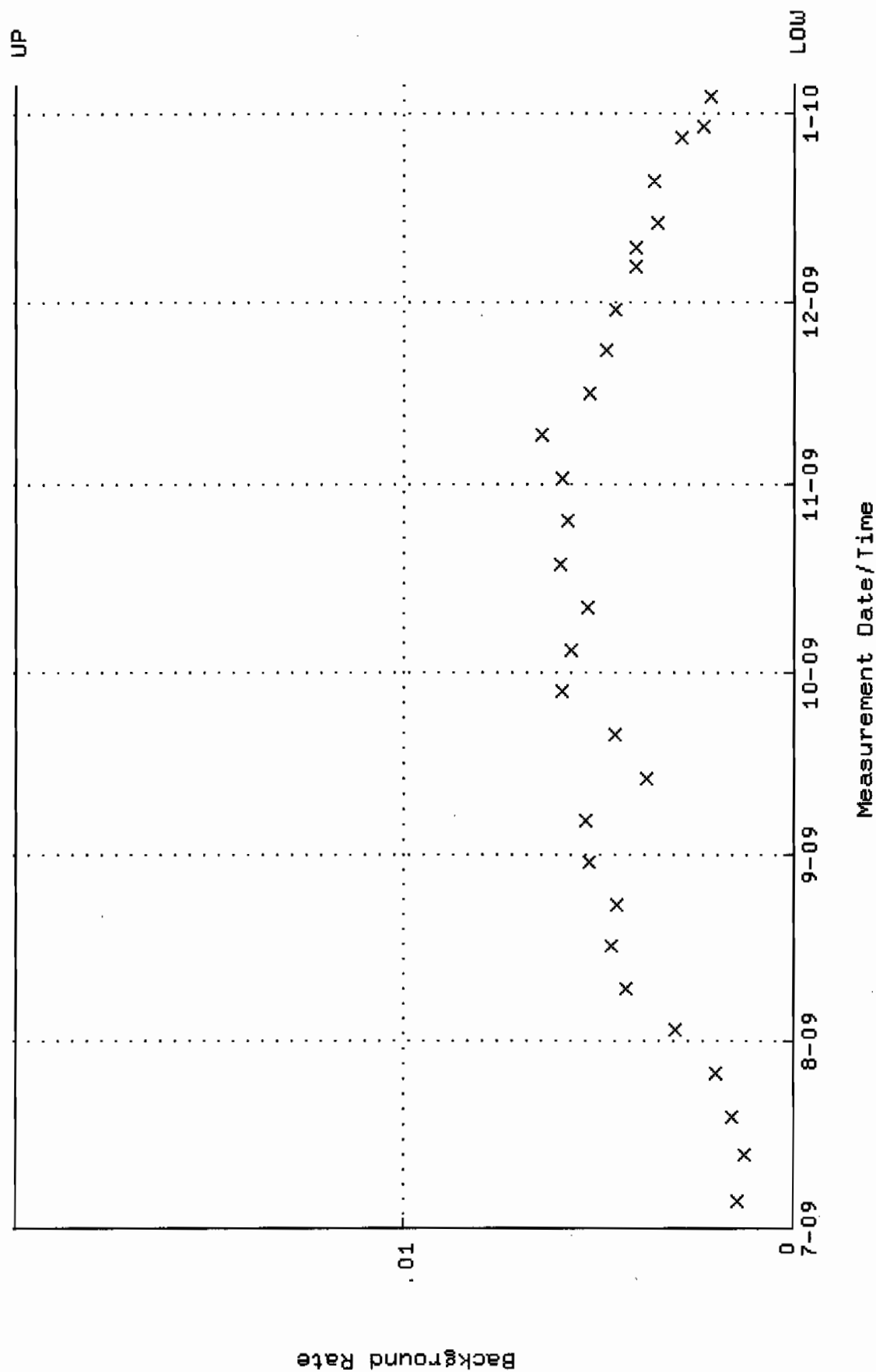




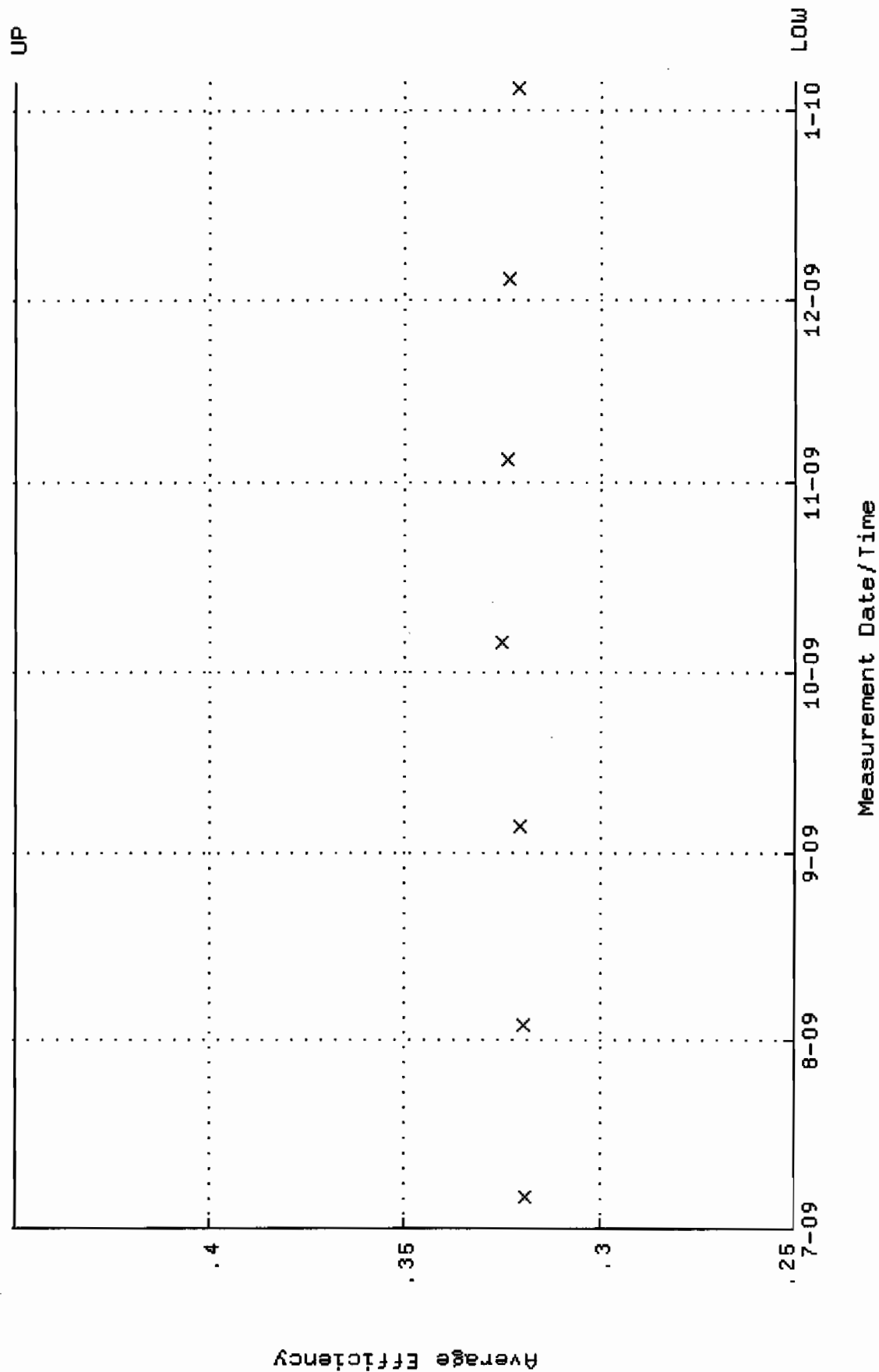
QA filename : DKA100:[ENV\_ALPHA.QA.W]W029.QAF;6  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



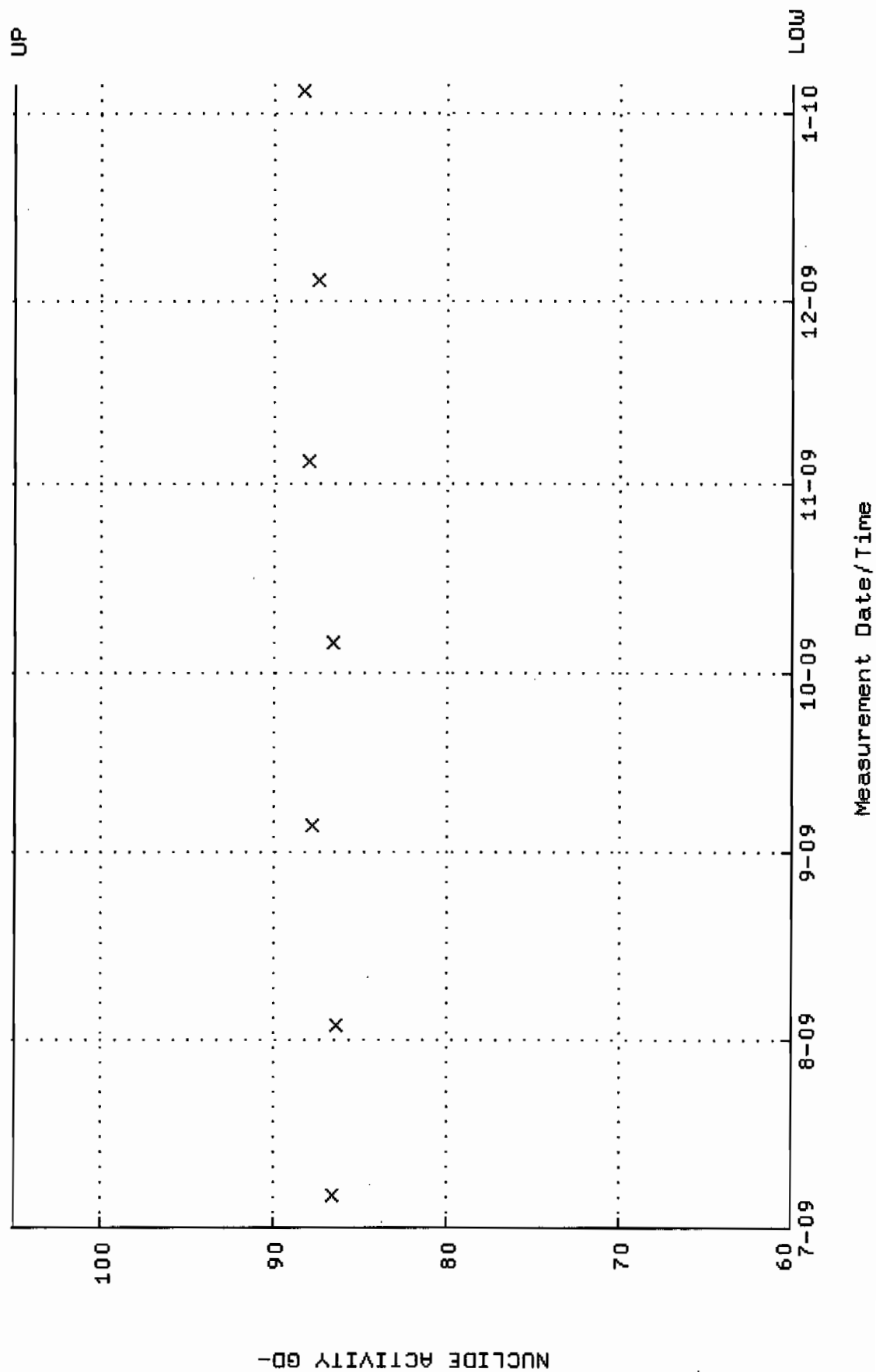
QA filename : DKA100:[ENV\_ALPHA.QA.B]B029.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



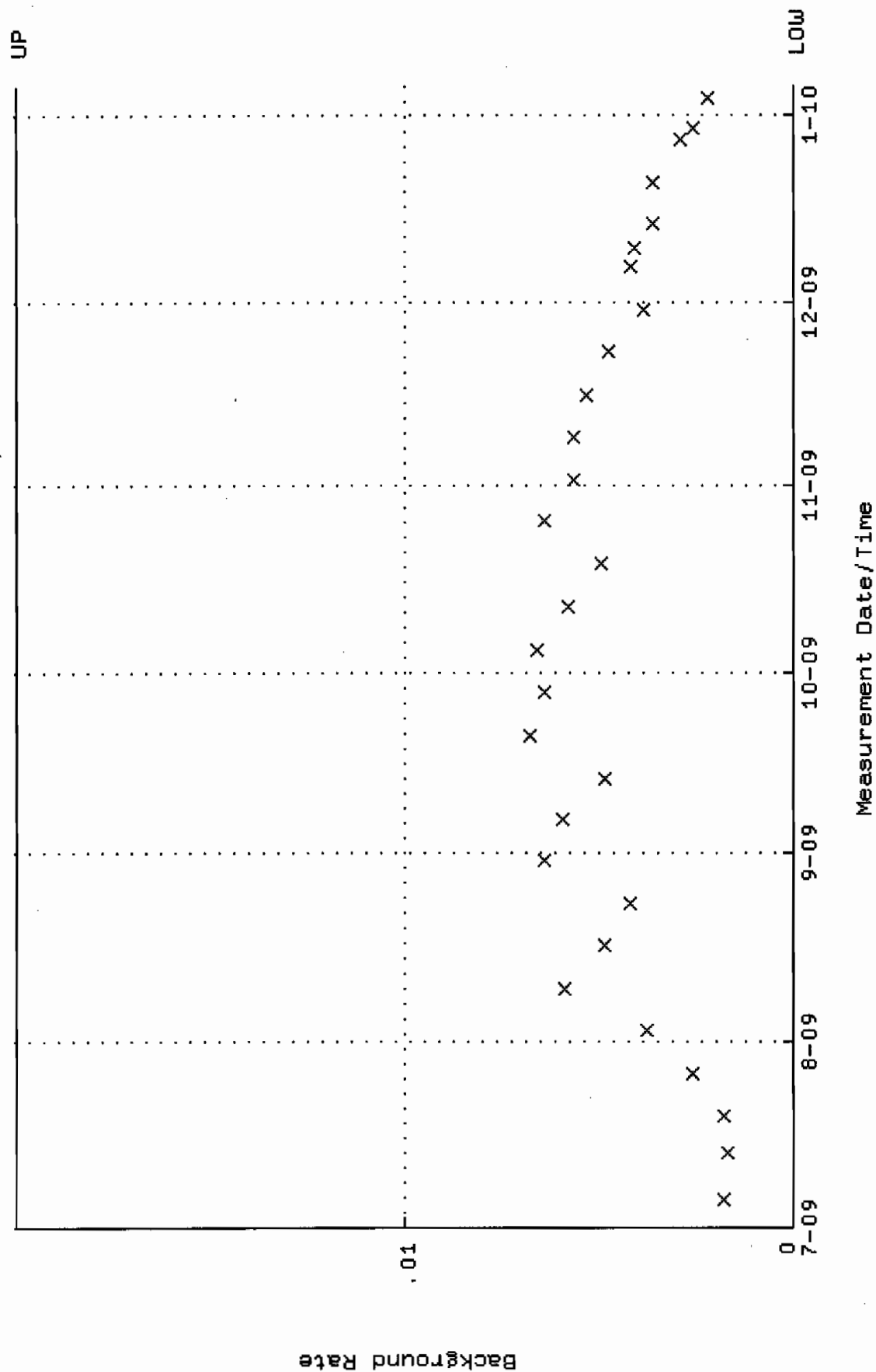
QA filename : DKA100:[ENV\_ALPHA.QA.W]W030.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



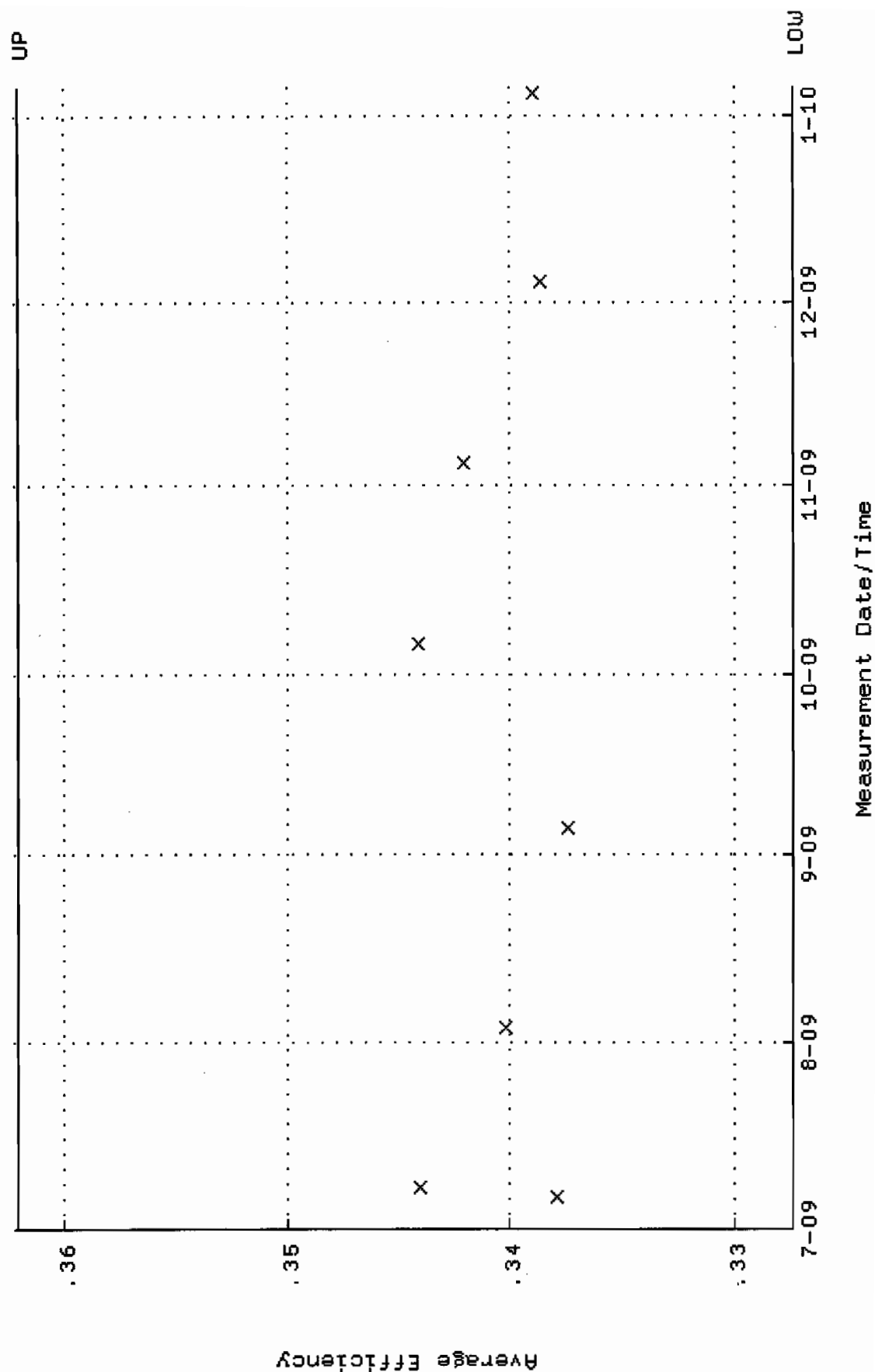
QA filename : DKA100:[ENV\_ALPHA.QA.W]W030.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



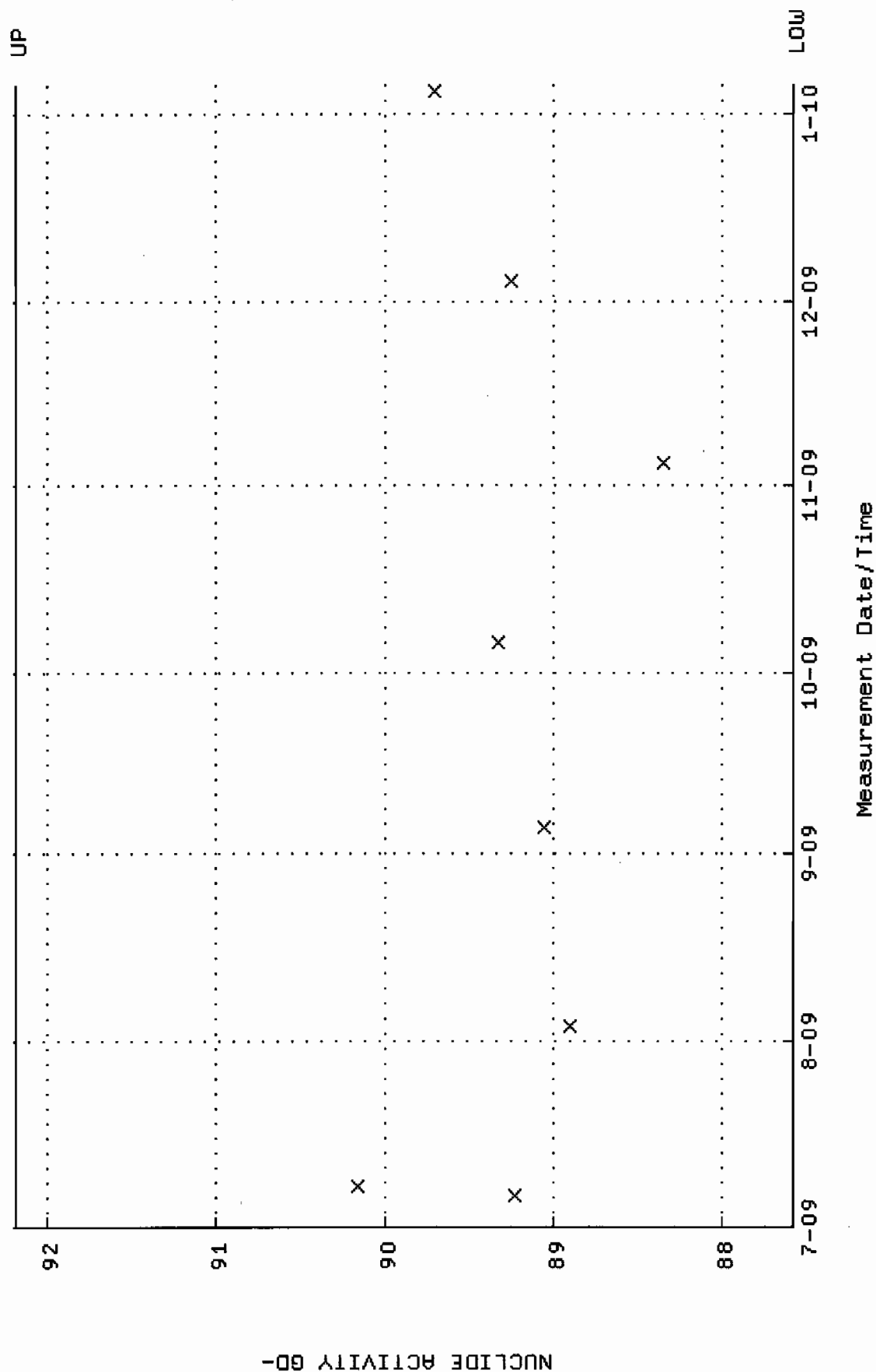
QA filename : DKA100:[ENV\_ALPHA.QA.B]B030.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



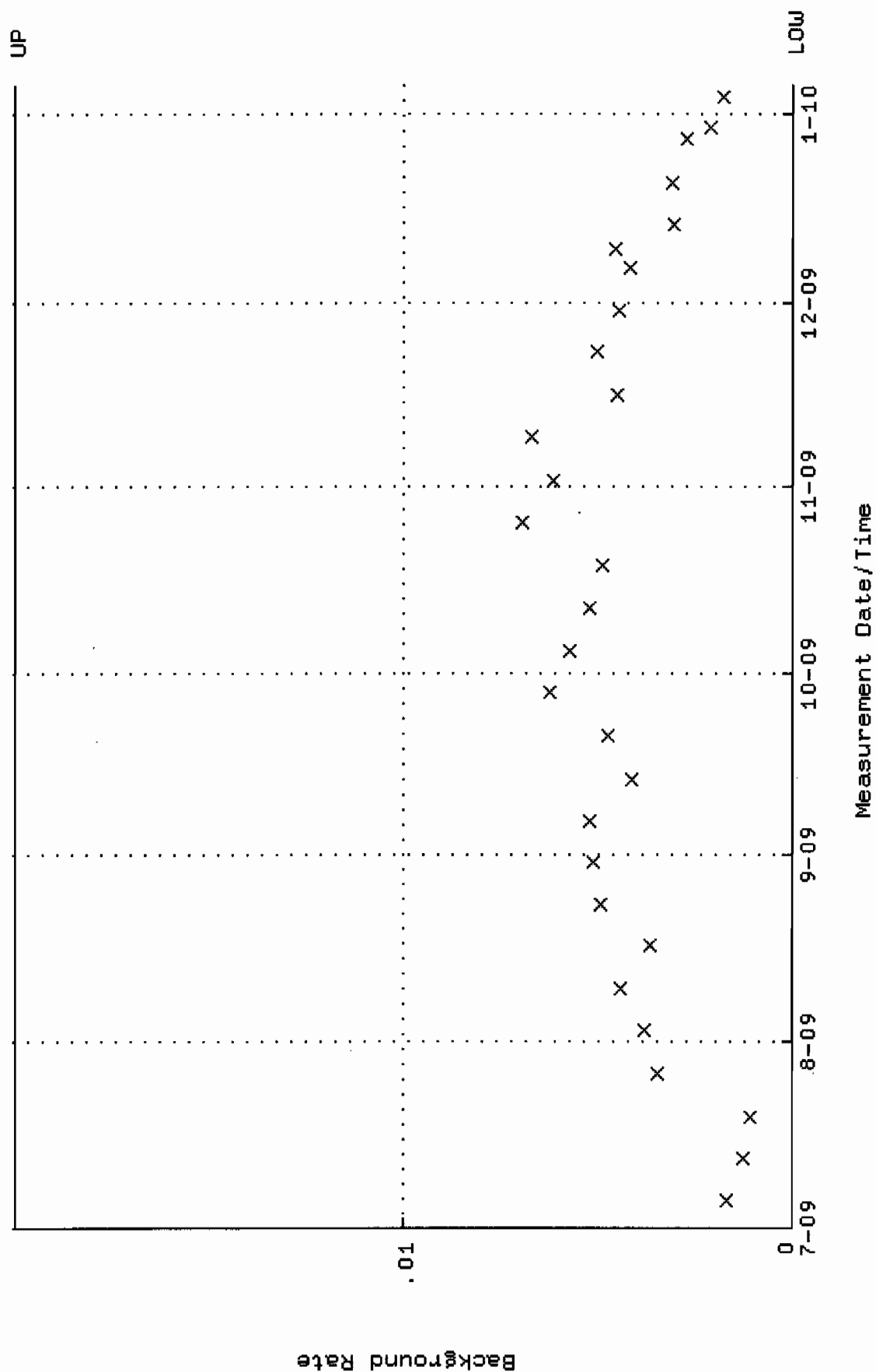
QA filename : DKA100:[ENV\_ALPHA.QA.W]W038.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.327380 through 0.362086



QA filename : DKA100:[ENV\_ALPHA.QA.W]W038.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: 87.5715 through 92.1899

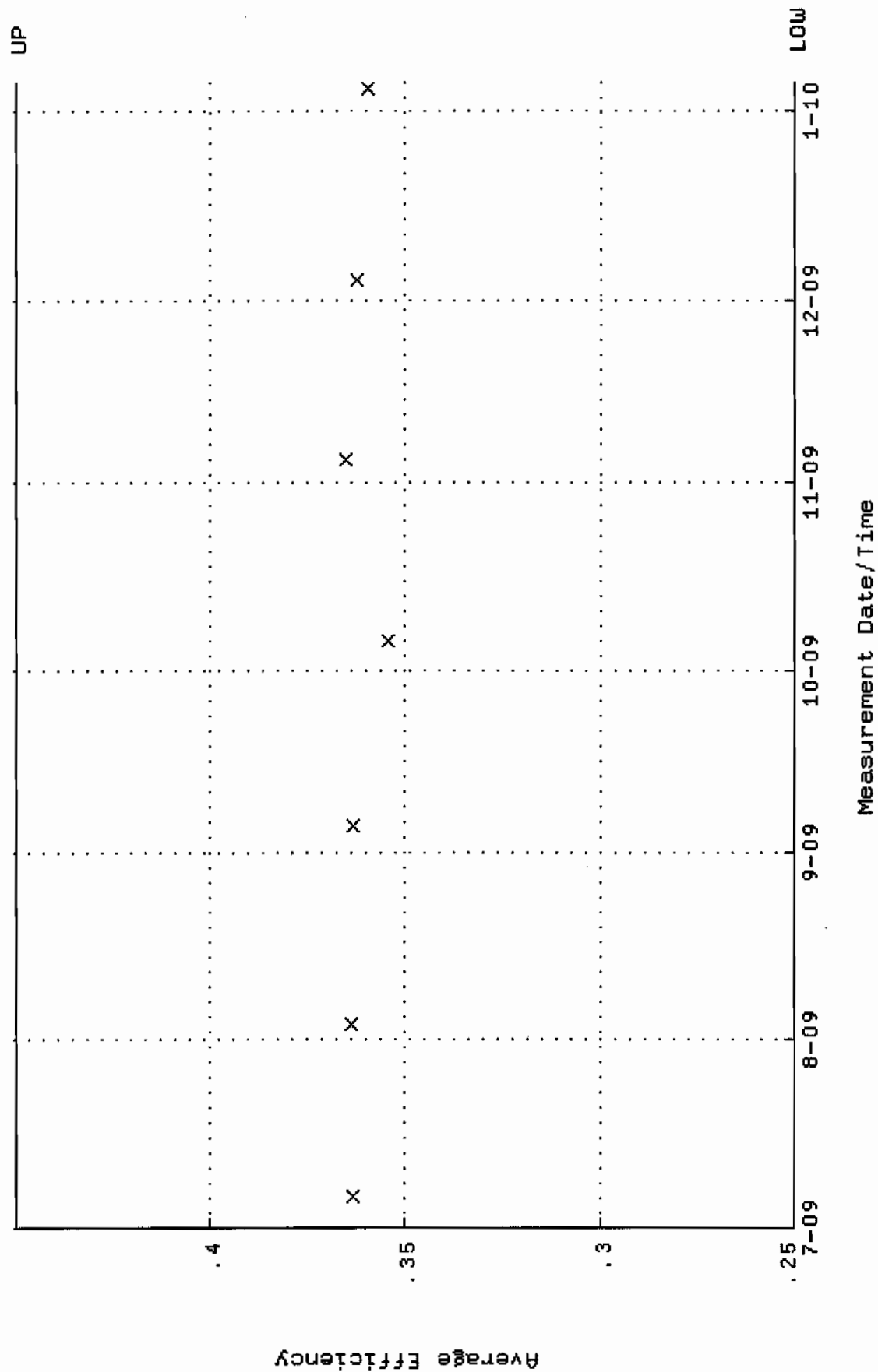


QA filename : DKA100:[ENV\_ALPHA.QA.B]B038.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

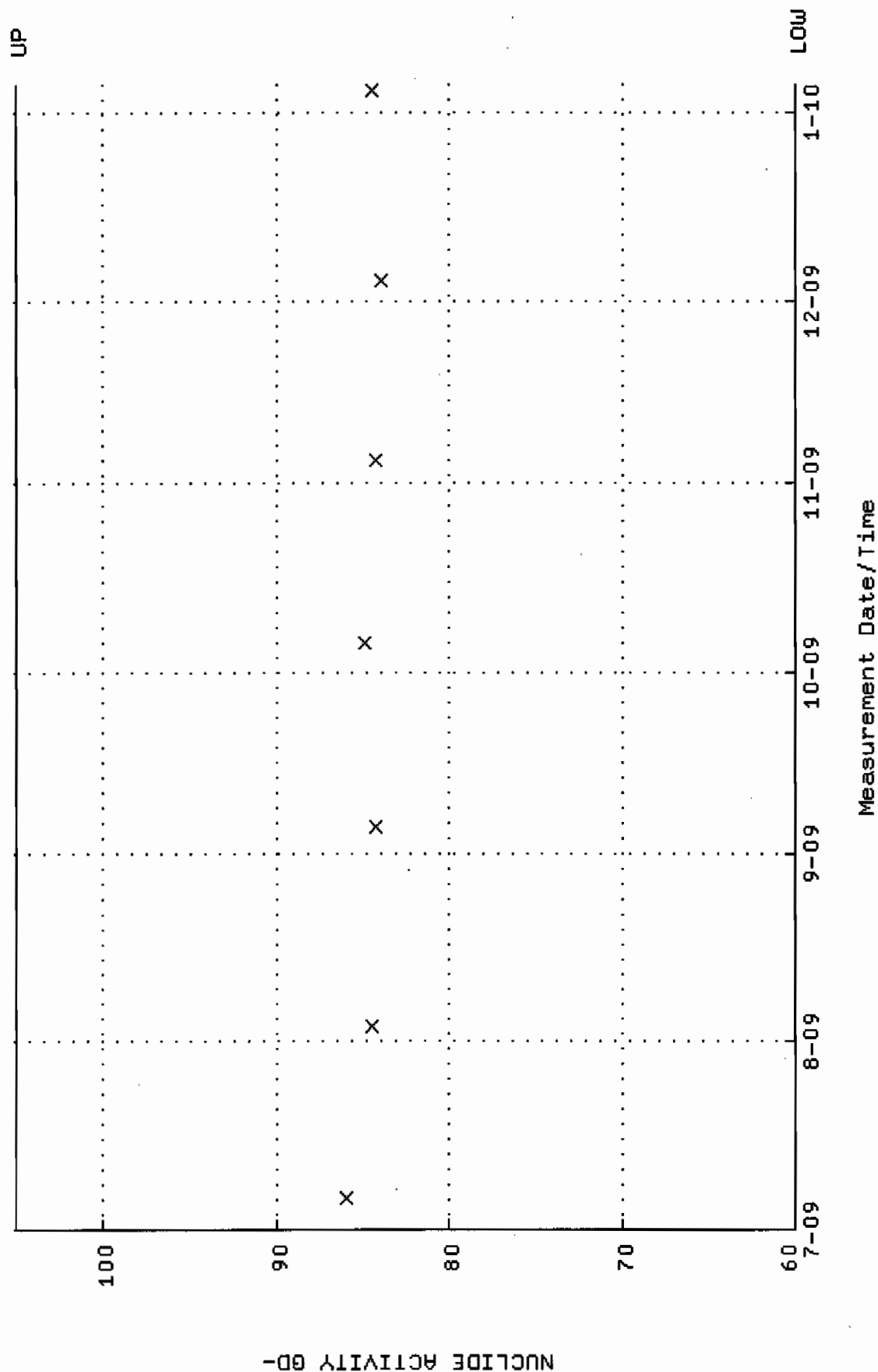




QA filename : DKA100:[ENV\_ALPHA.QA.W]W039.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000

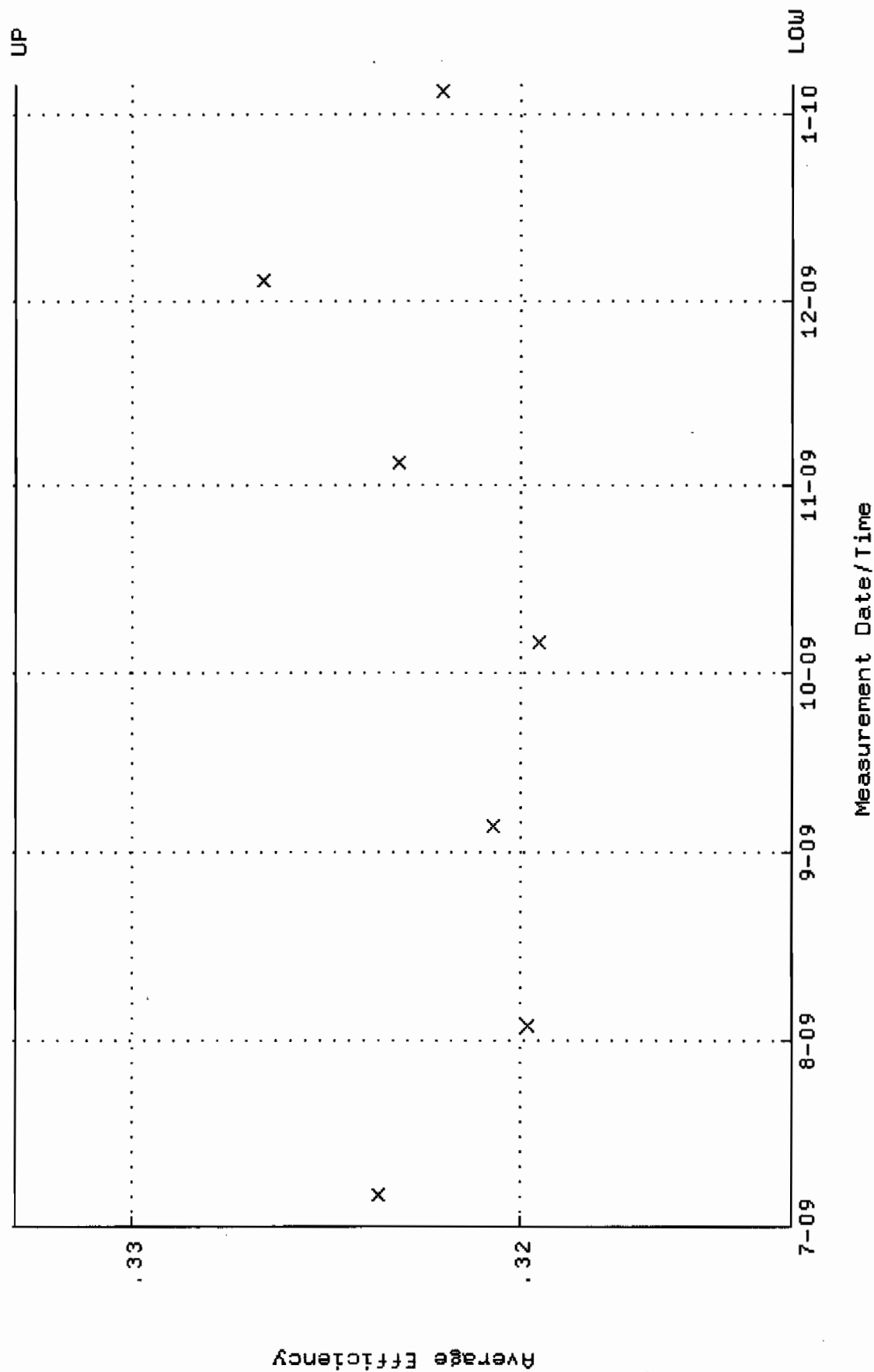


QA filename : DKA100:[ENV\_ALPHA.QA.W]W039.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000

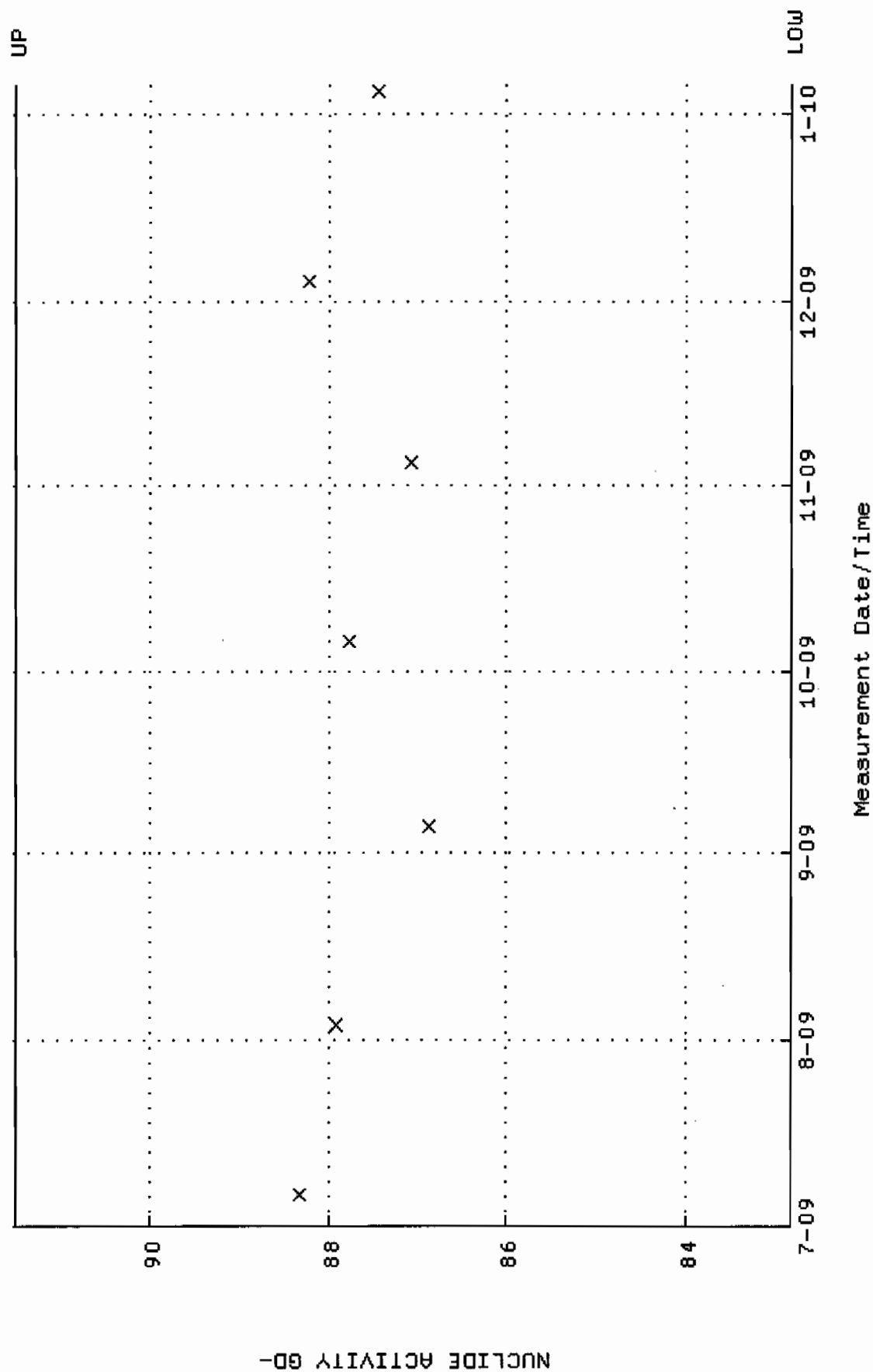




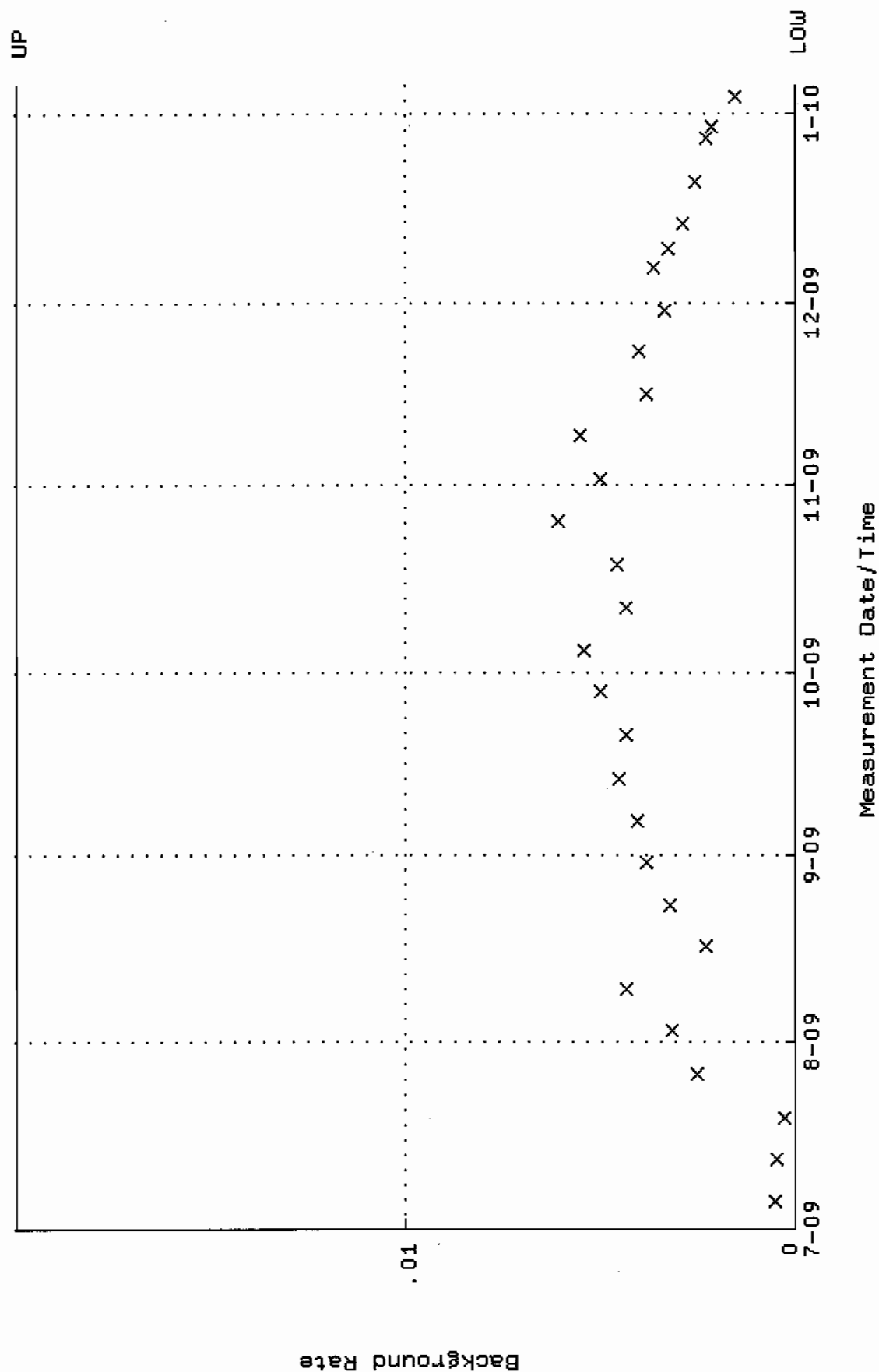
QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313016 through 0.333016



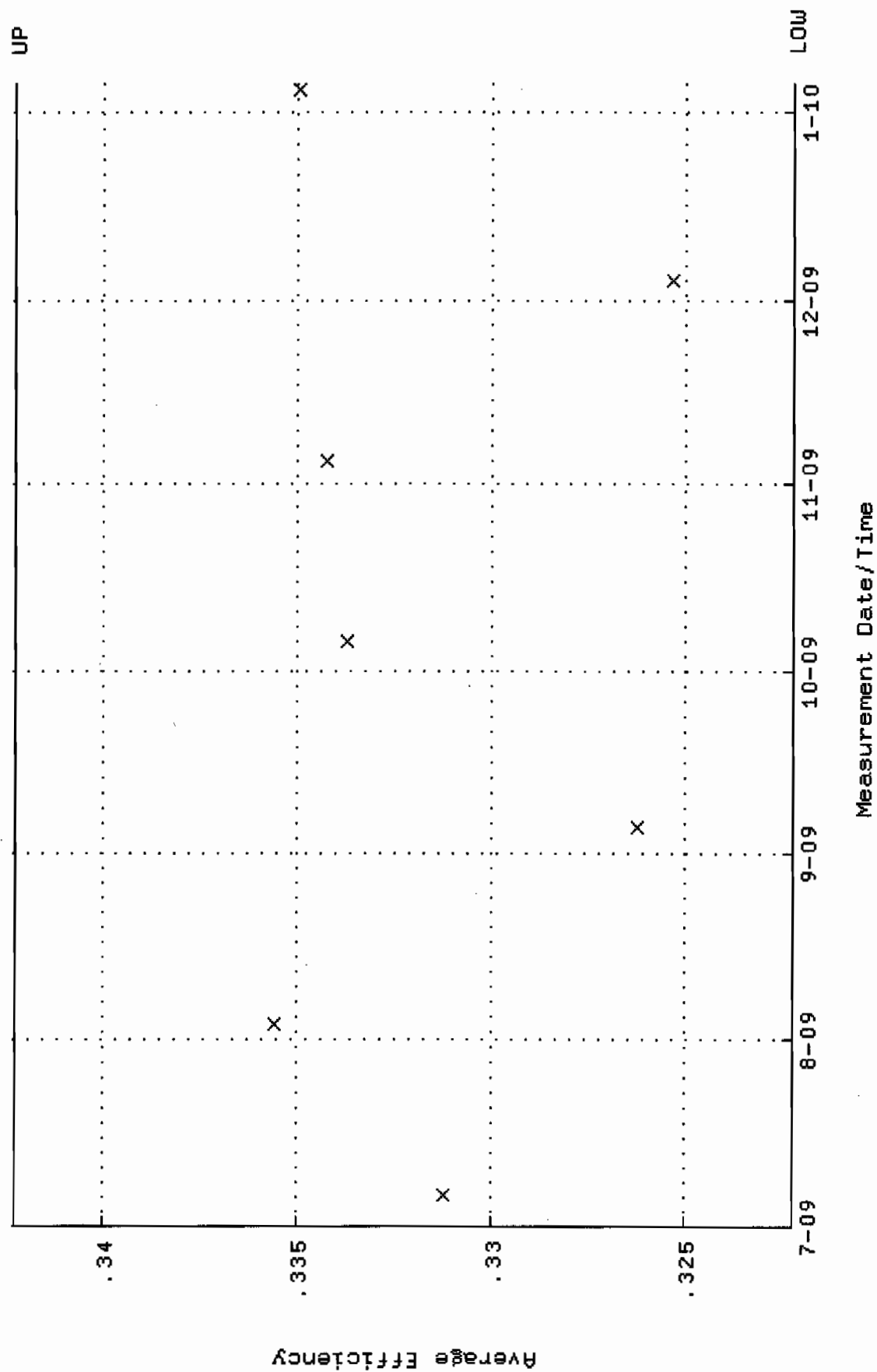
QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.8065 through 91.5229



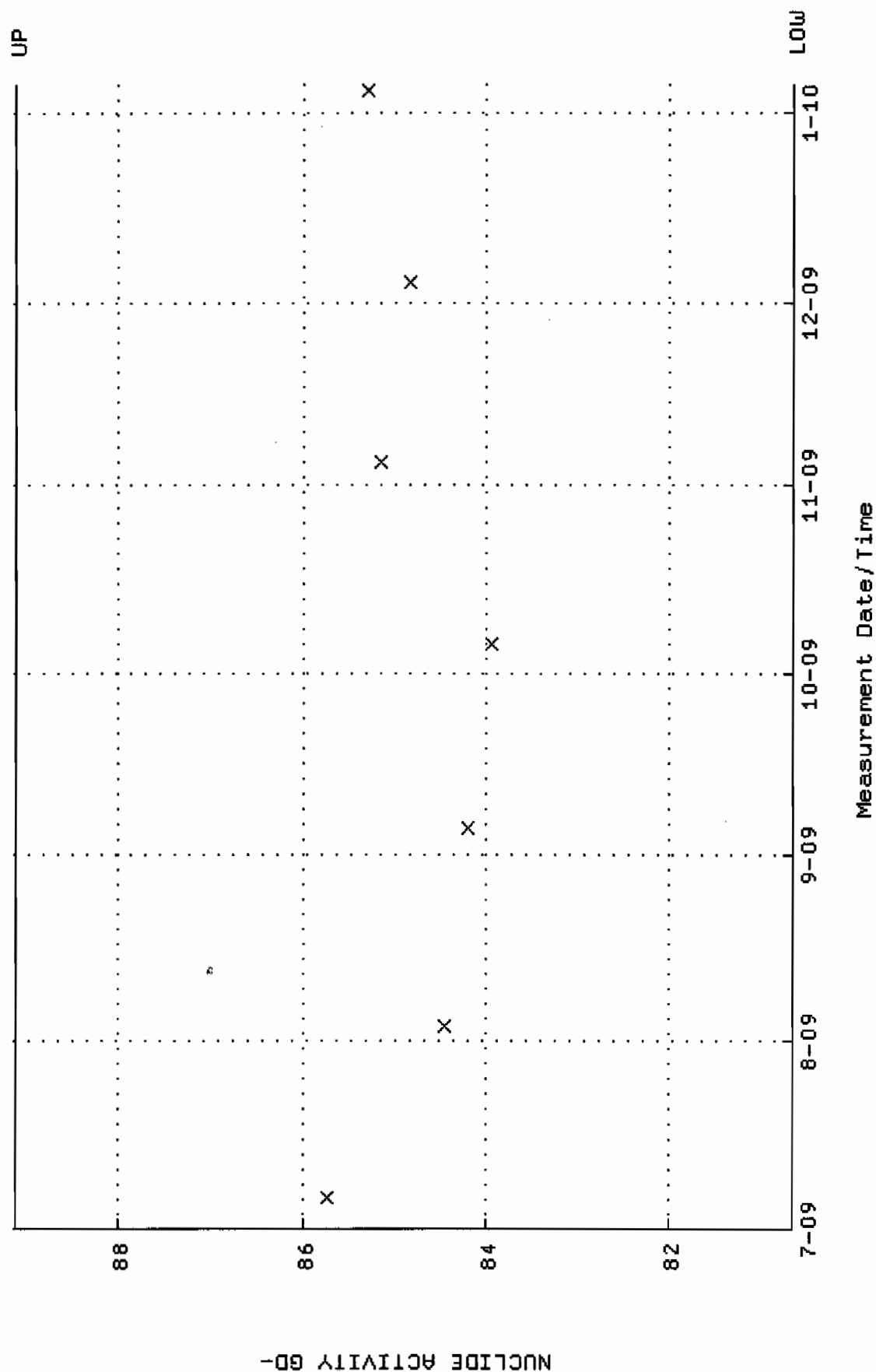
QA filename : DKA100:[ENV\_ALPHA.QA.B]B040.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]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

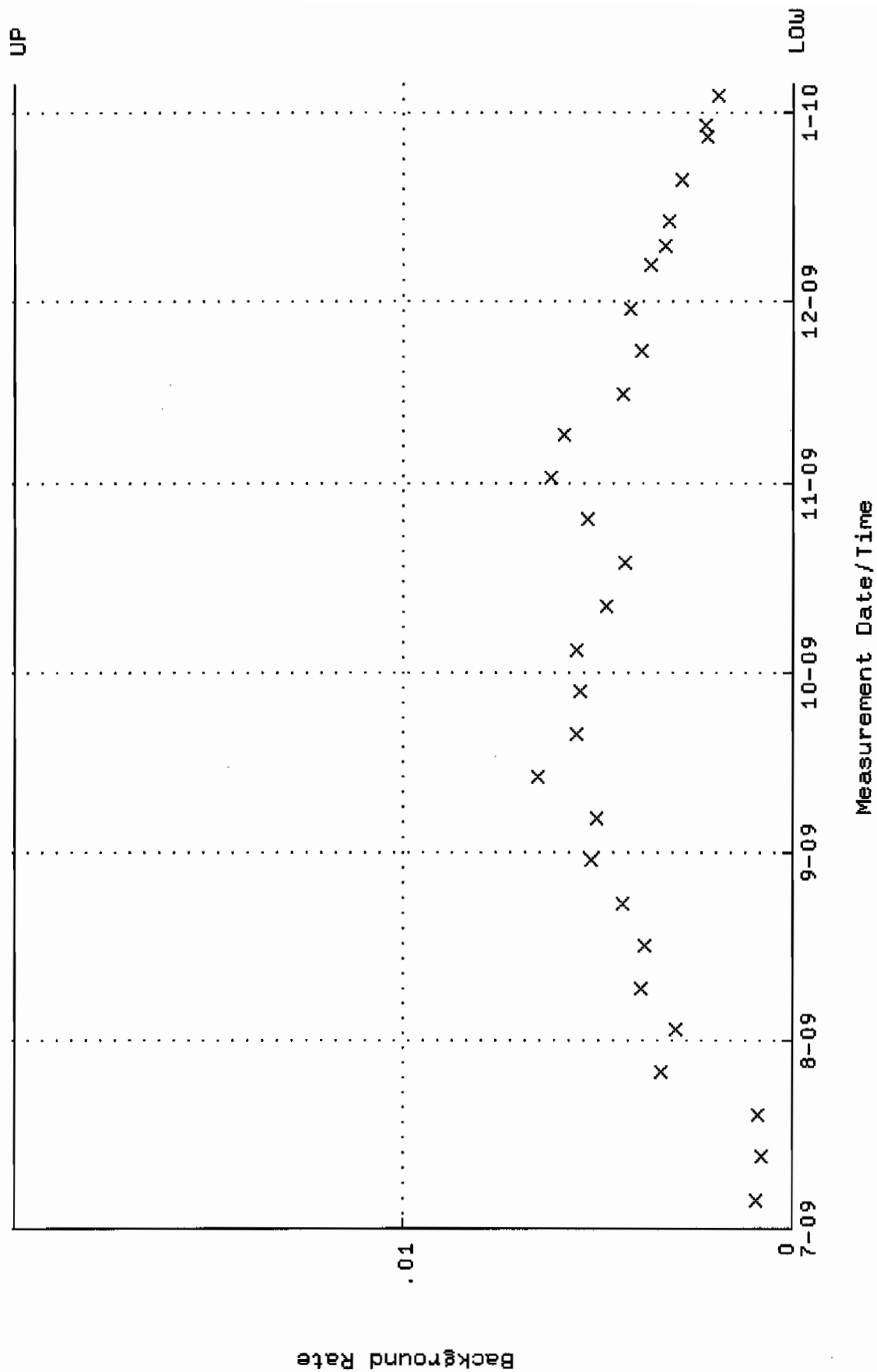


QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.6389 through 89.1273

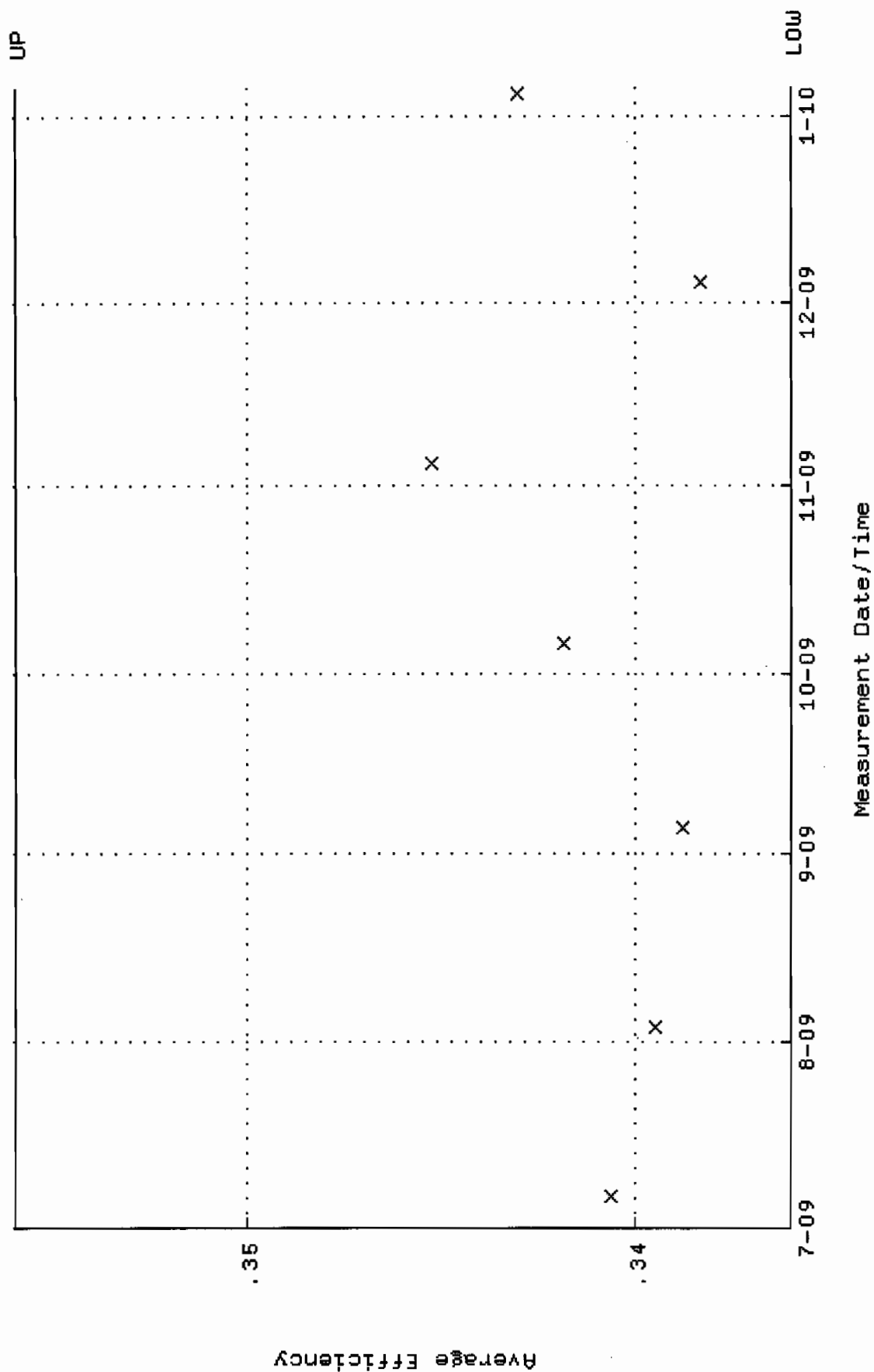




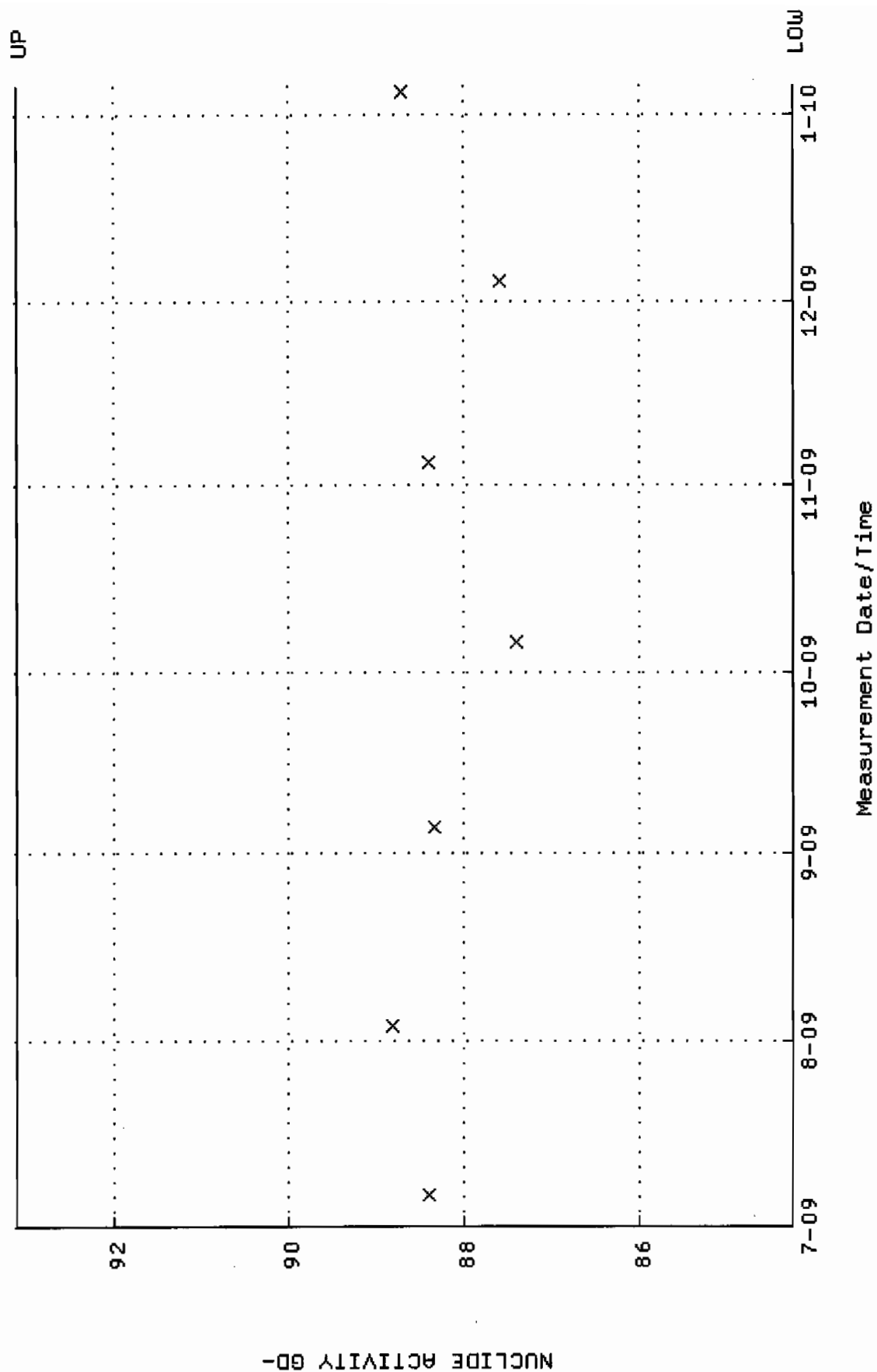
QA filename : DKA100:[ENV\_ALPHA.QA.B]B042.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



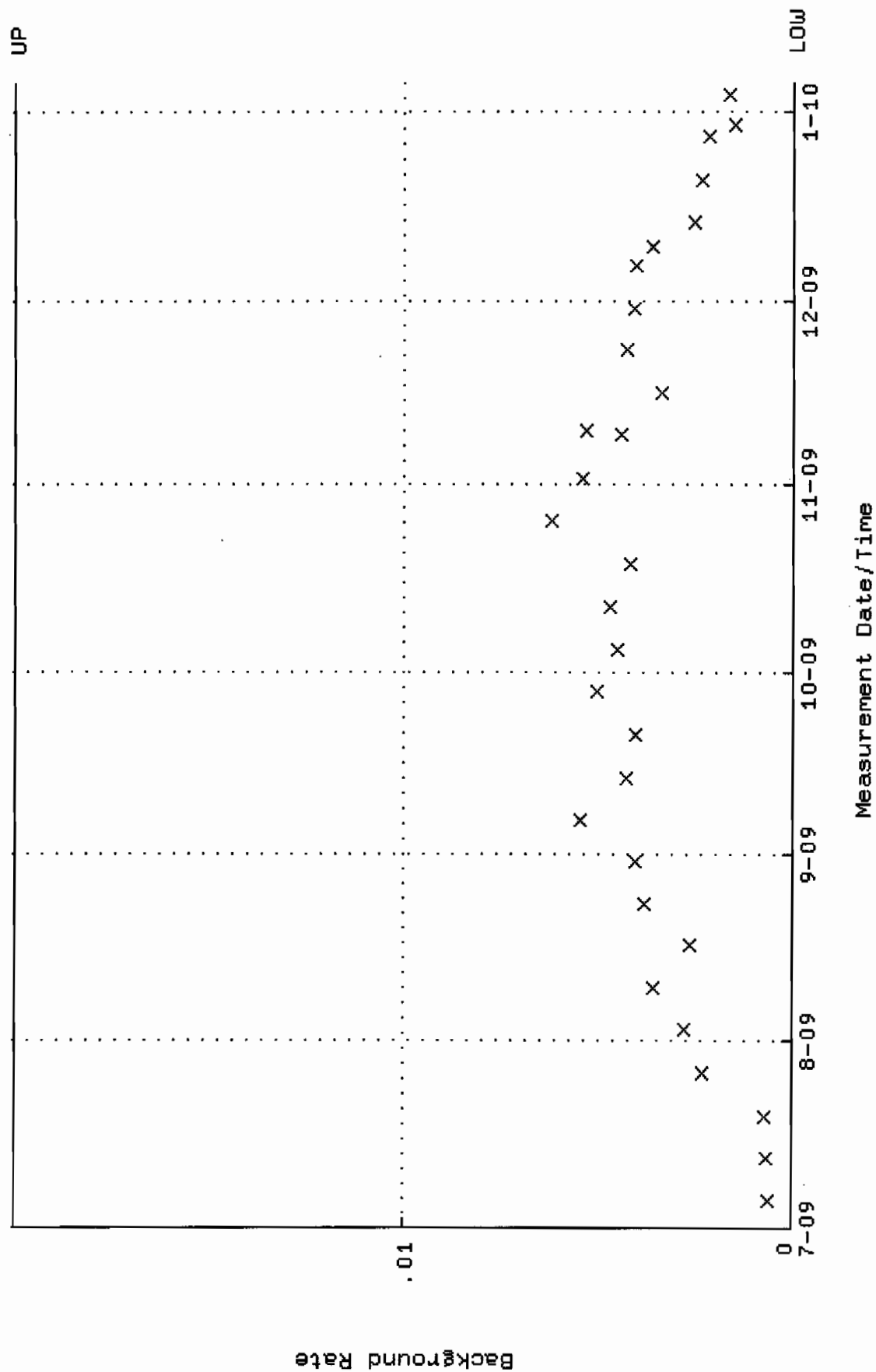
QA filename : DKA100:[ENV\_ALPHA.QA.W]W043.QAF;102  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.335973 through 0.355973



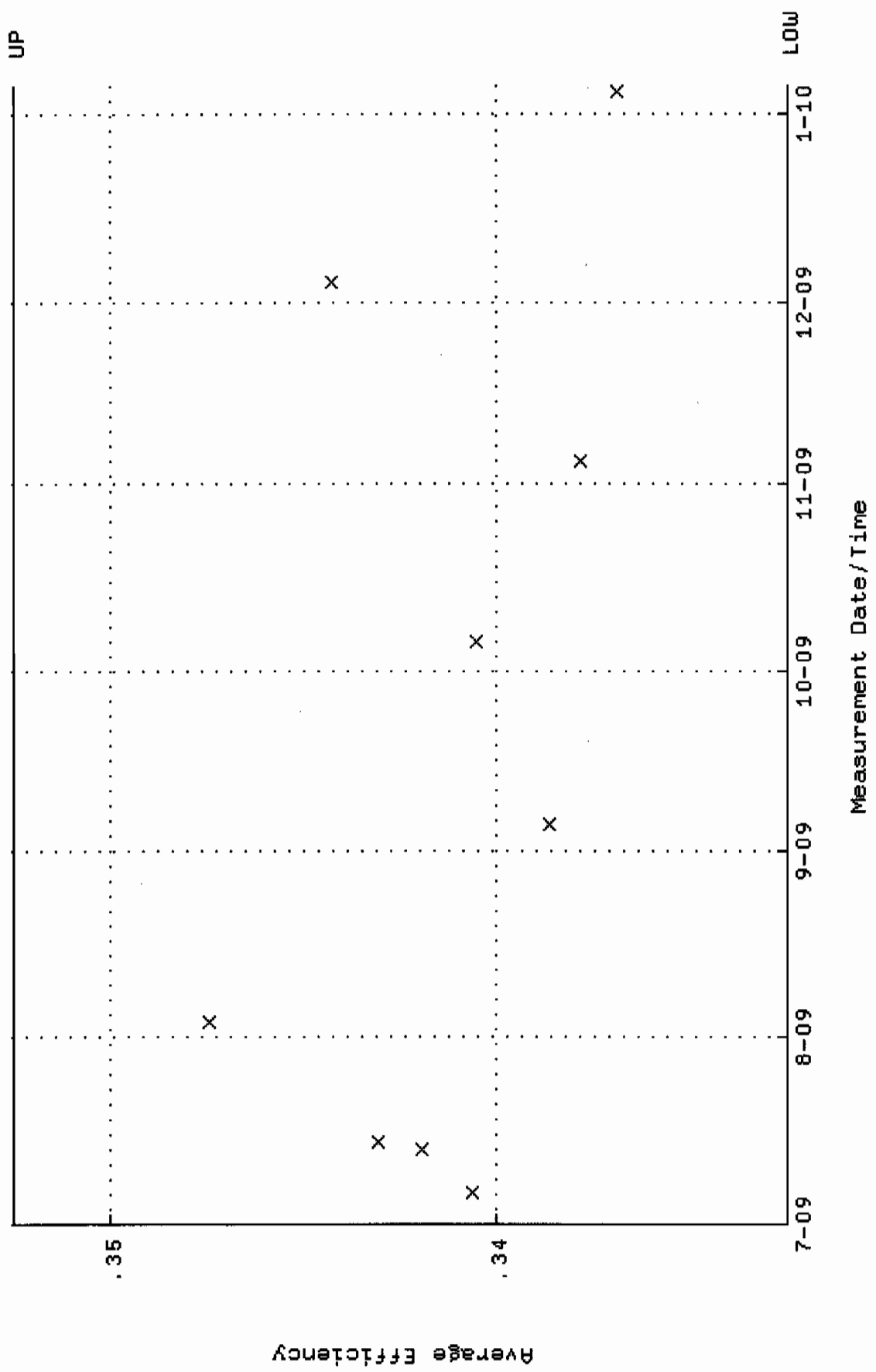
QA filename : DKA100:[ENV\_ALPHA.QA.W]W043.QAF;102  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.2440 through 93.1118



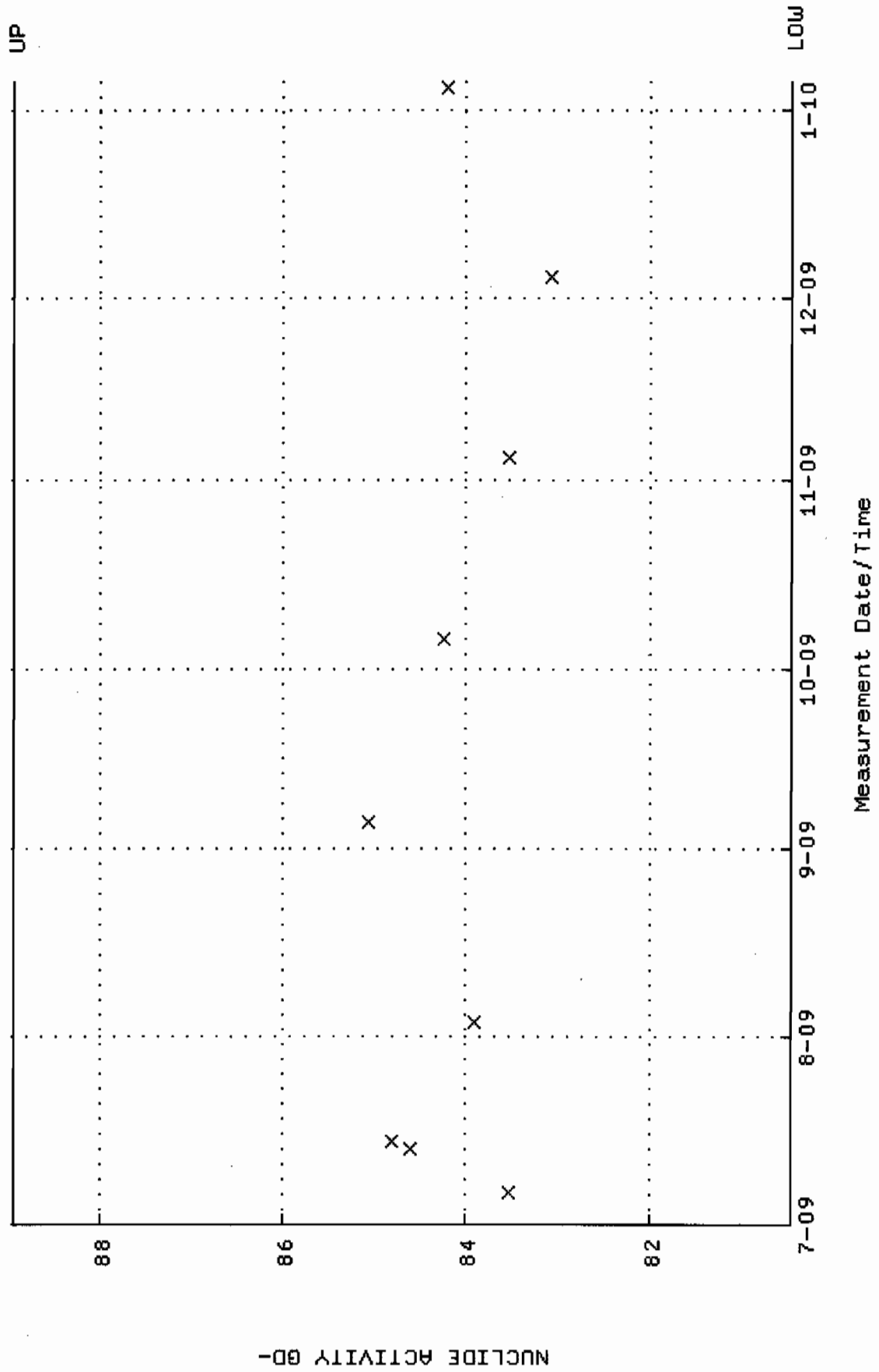
QA filename : DKA100:[ENV\_ALPHA.QA.B]B043.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W045.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: 0.332472 through 0.352472

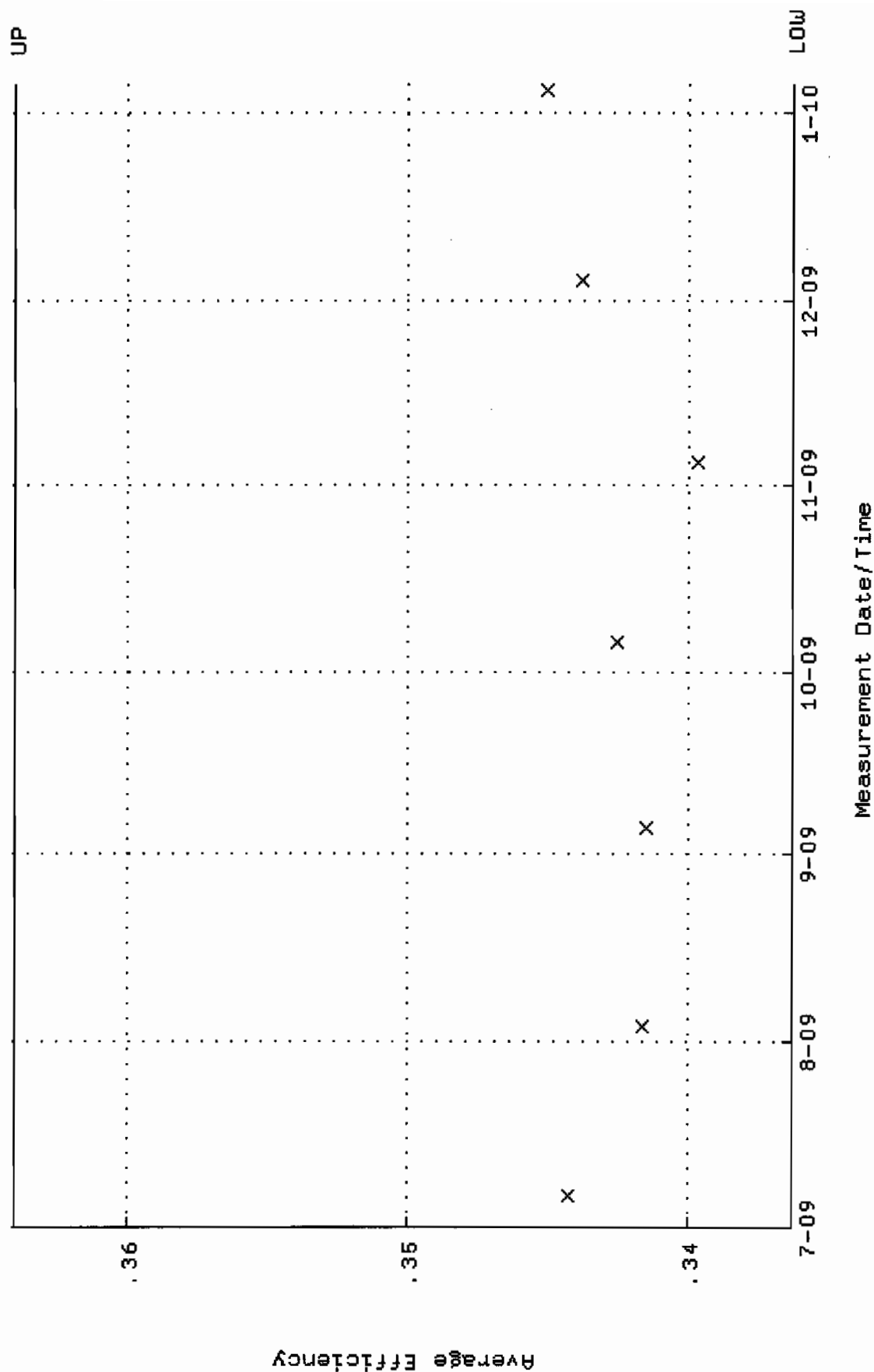


QA filename : DKA100:[ENV\_ALPHA.QA.W]W045.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.4622 through 88.9320



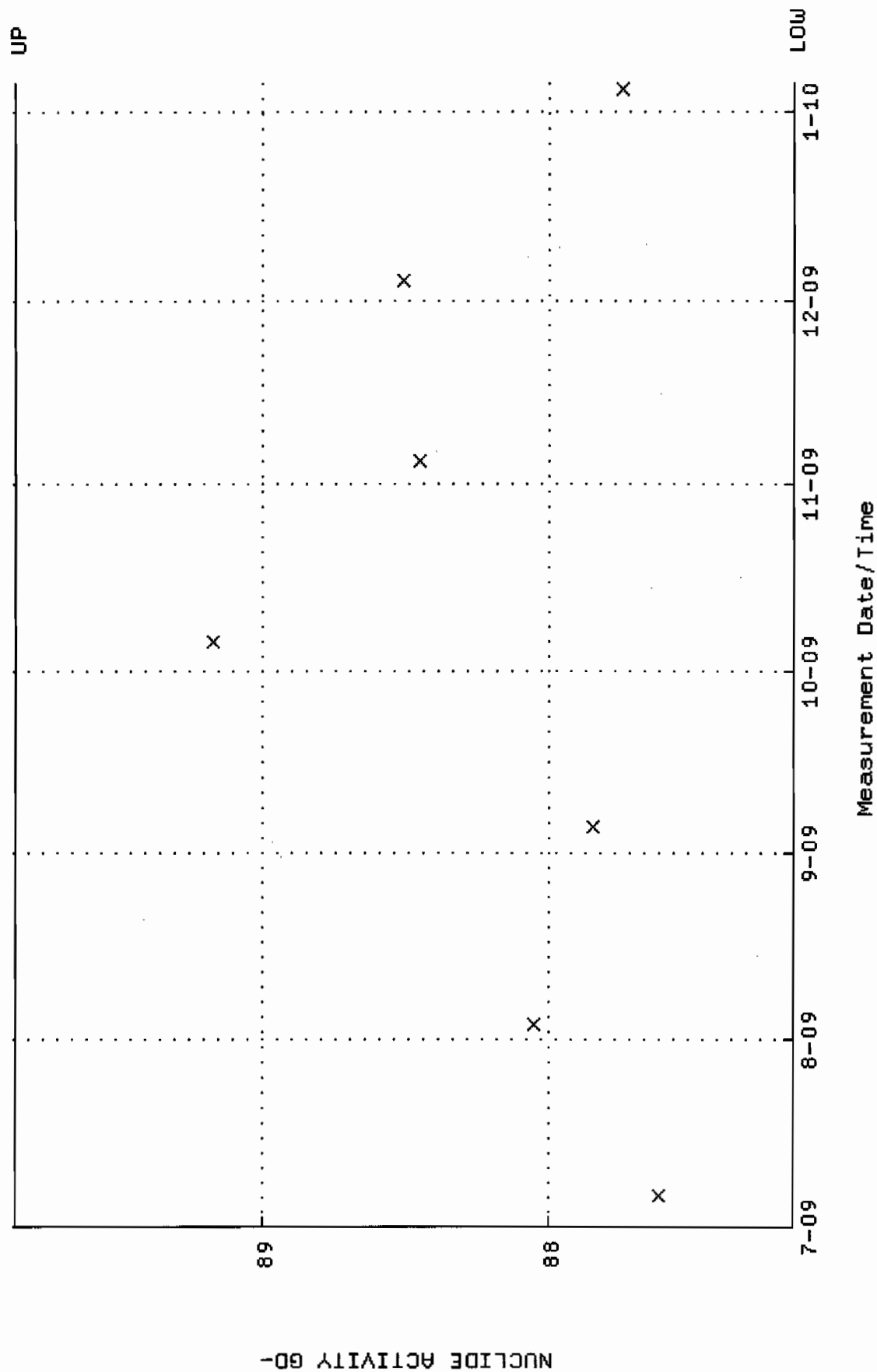


QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.336276 through 0.364038

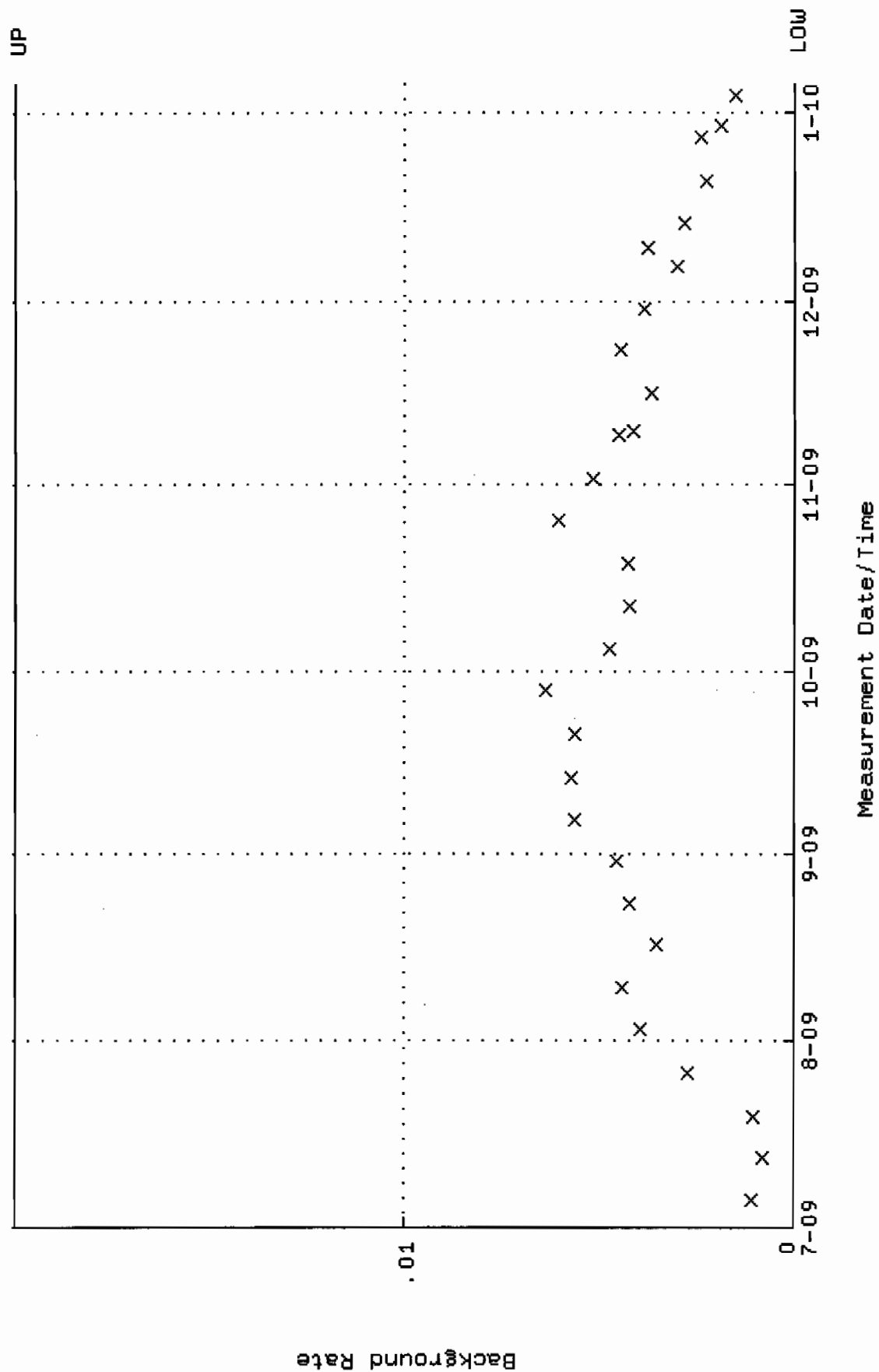




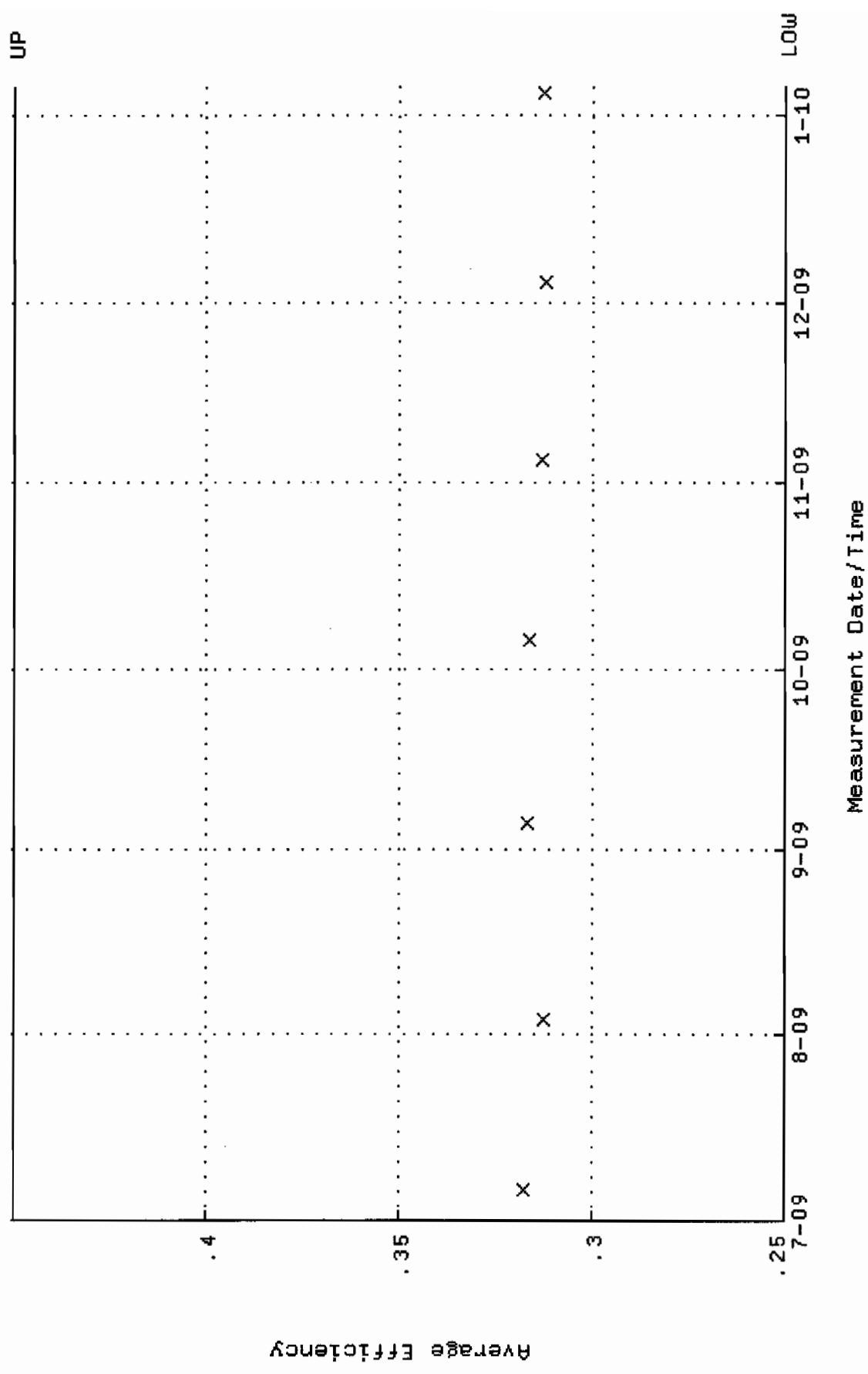
QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1403 through 89.8631



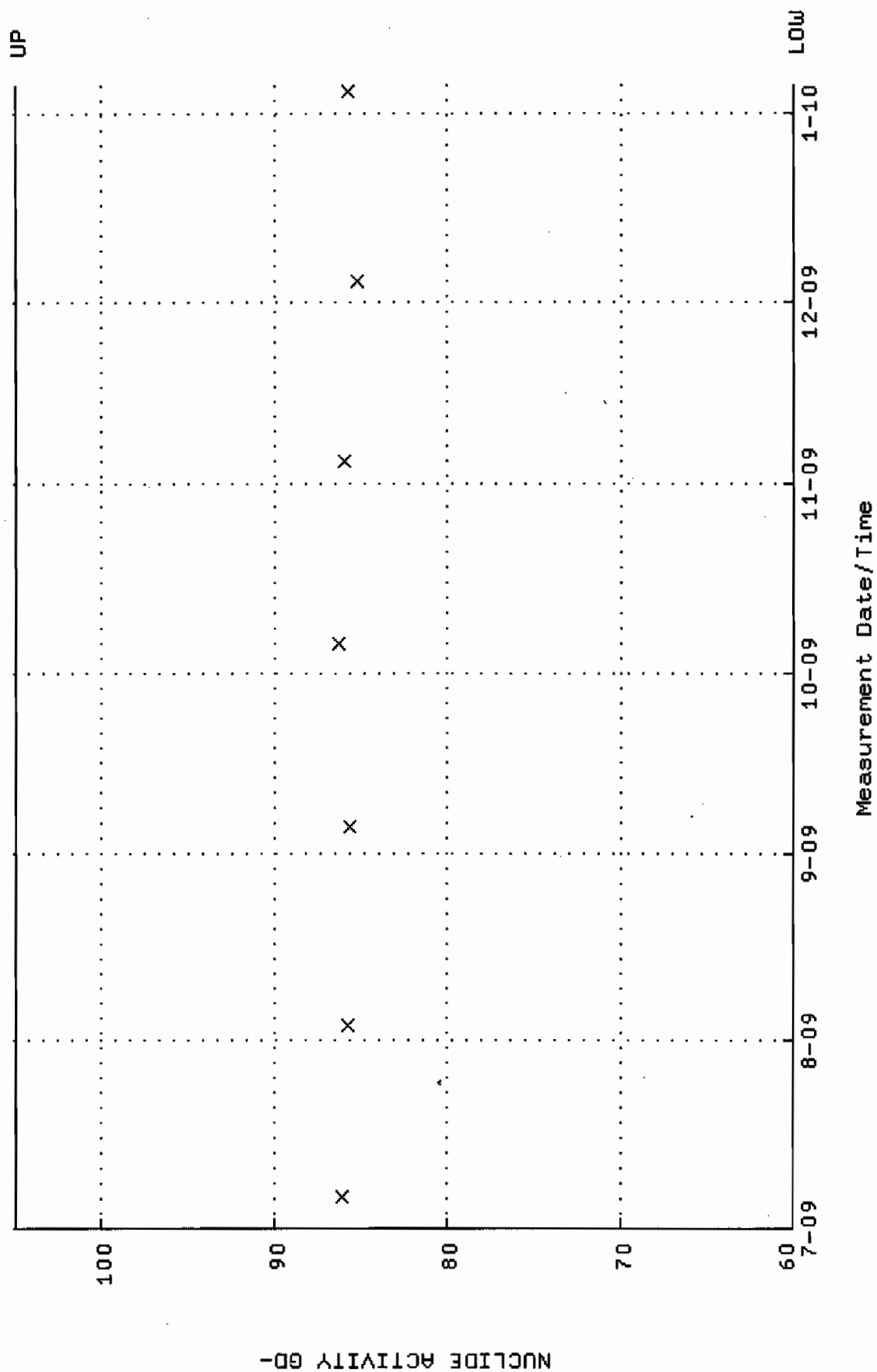
QA filename : DKA100:[ENV\_ALPHA.QA.B]B047.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W048.QAF;6  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.250000 through 0.450000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W048.QAF;6  
 Parameter Name : NLACTVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000

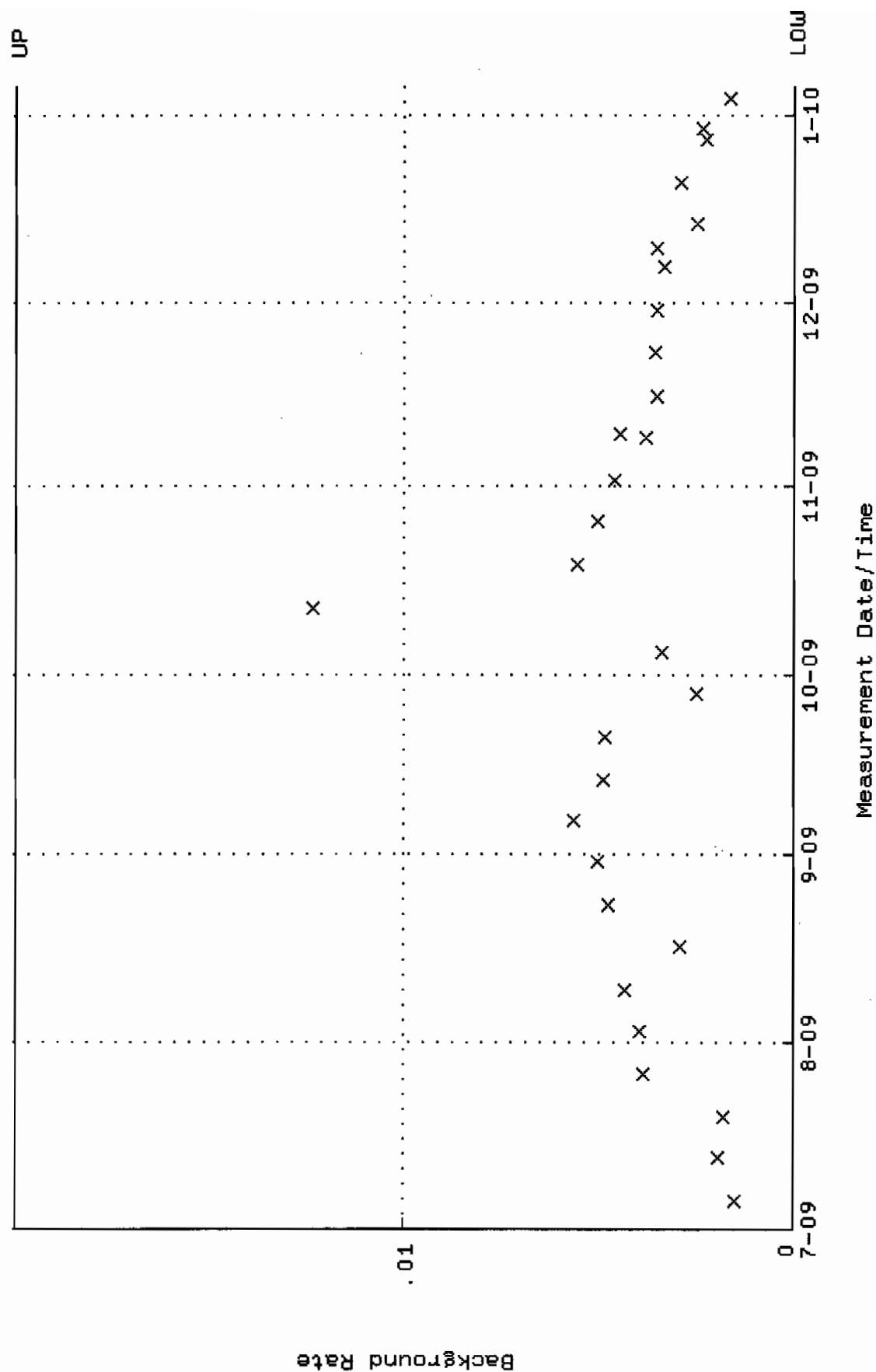


QA filename : DKA100:[ENV\_ALPHA.QA.B]B048.QAF;2

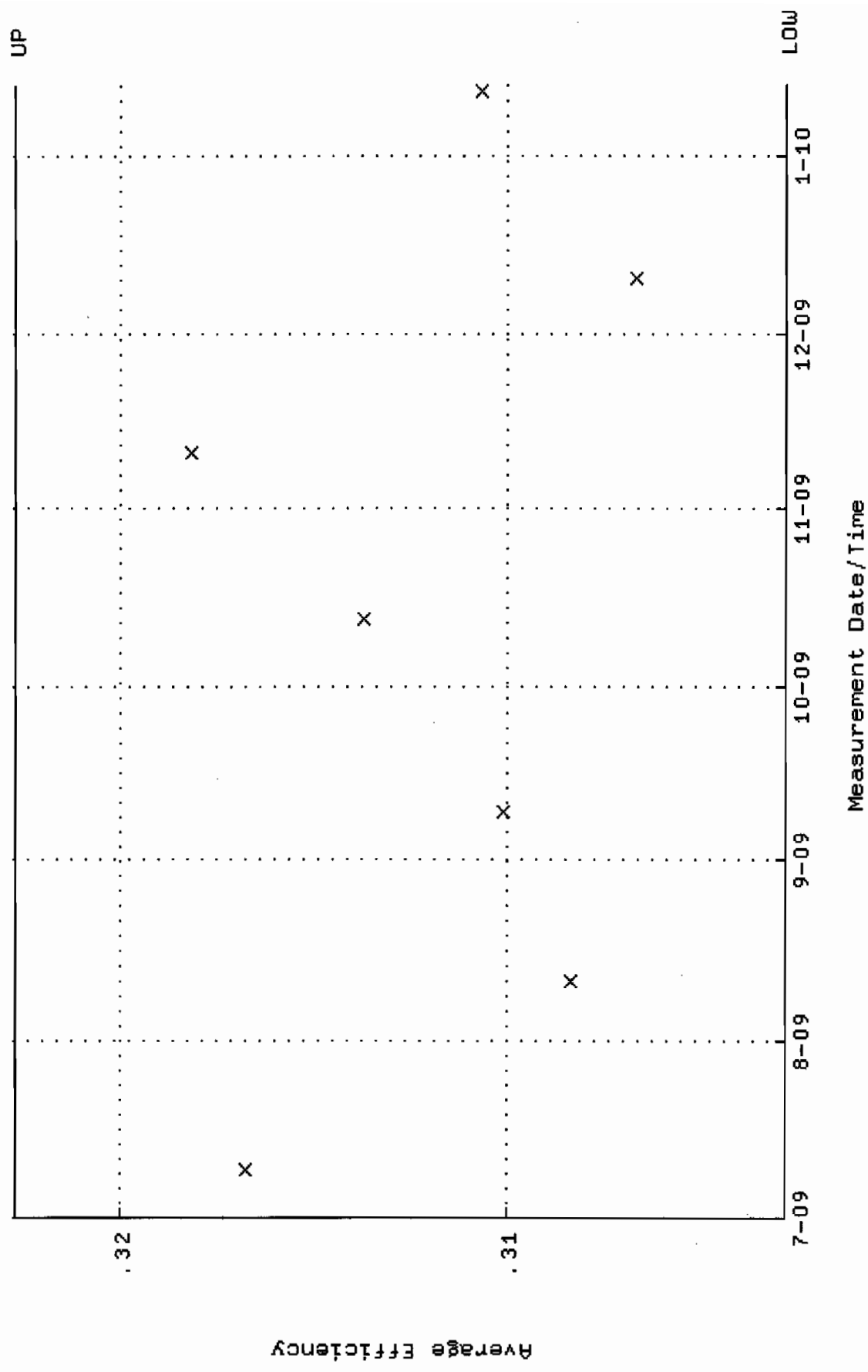
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00

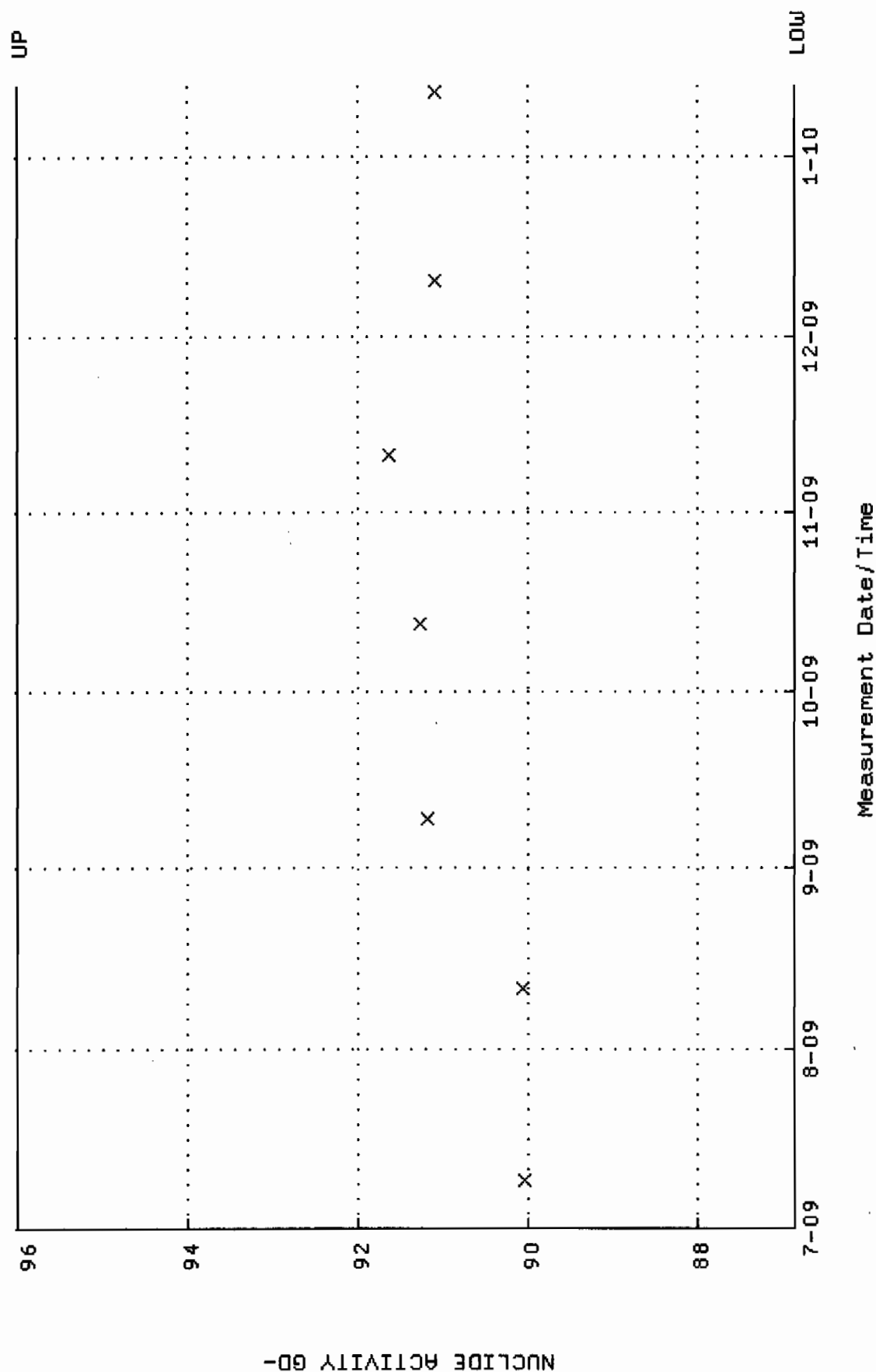
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



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



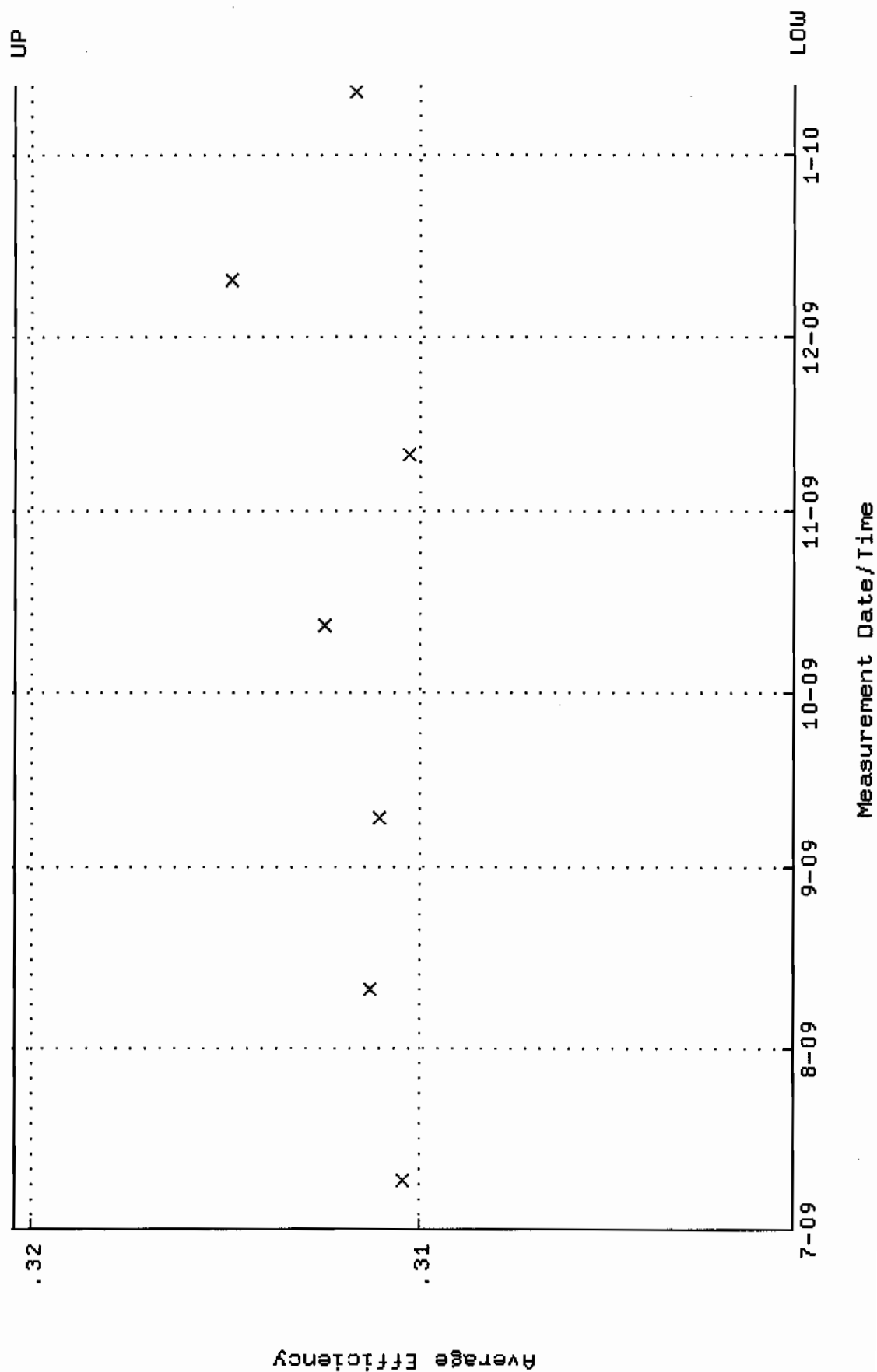
QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.8638 through 96.0074



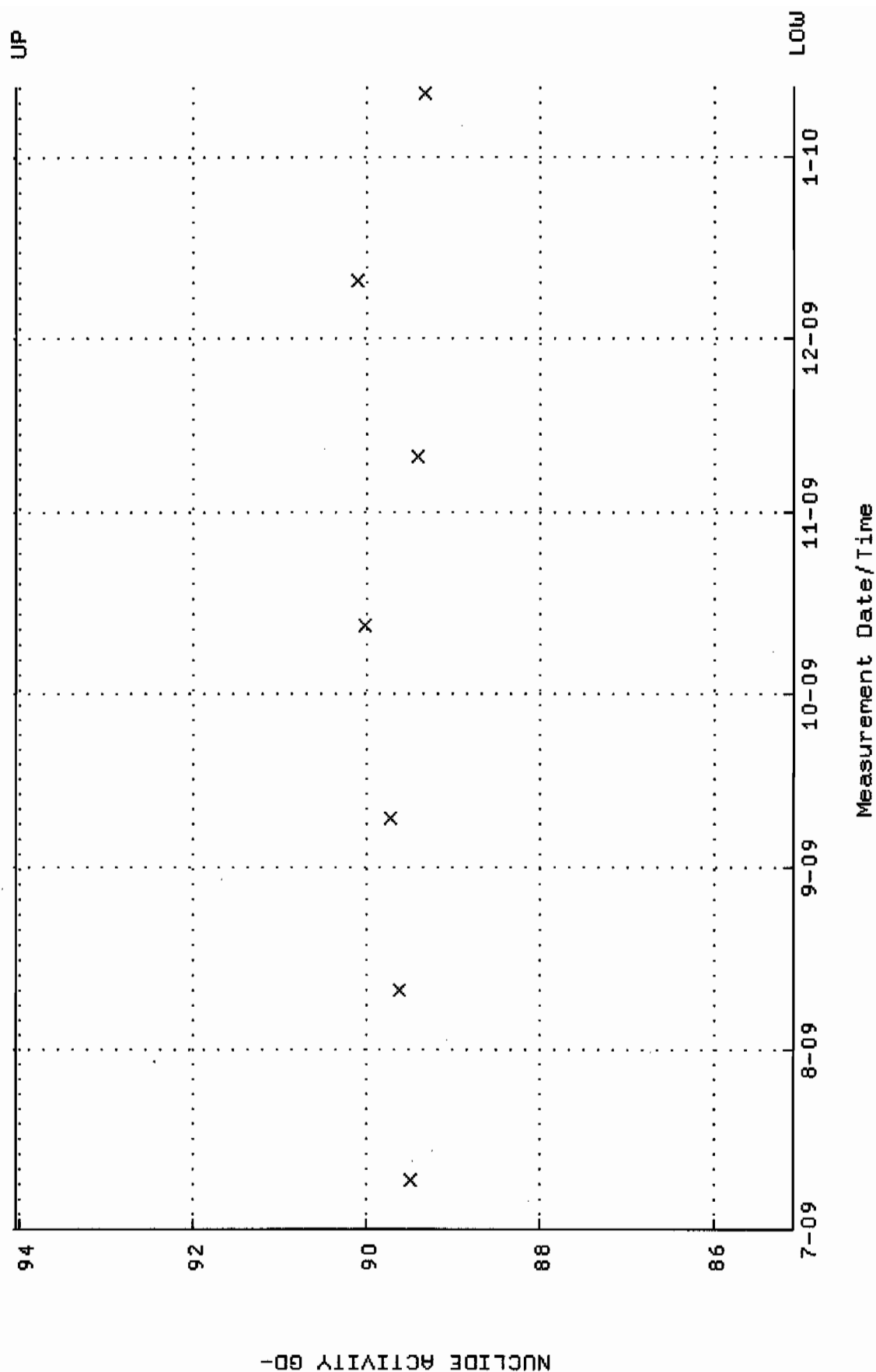
[illegible]



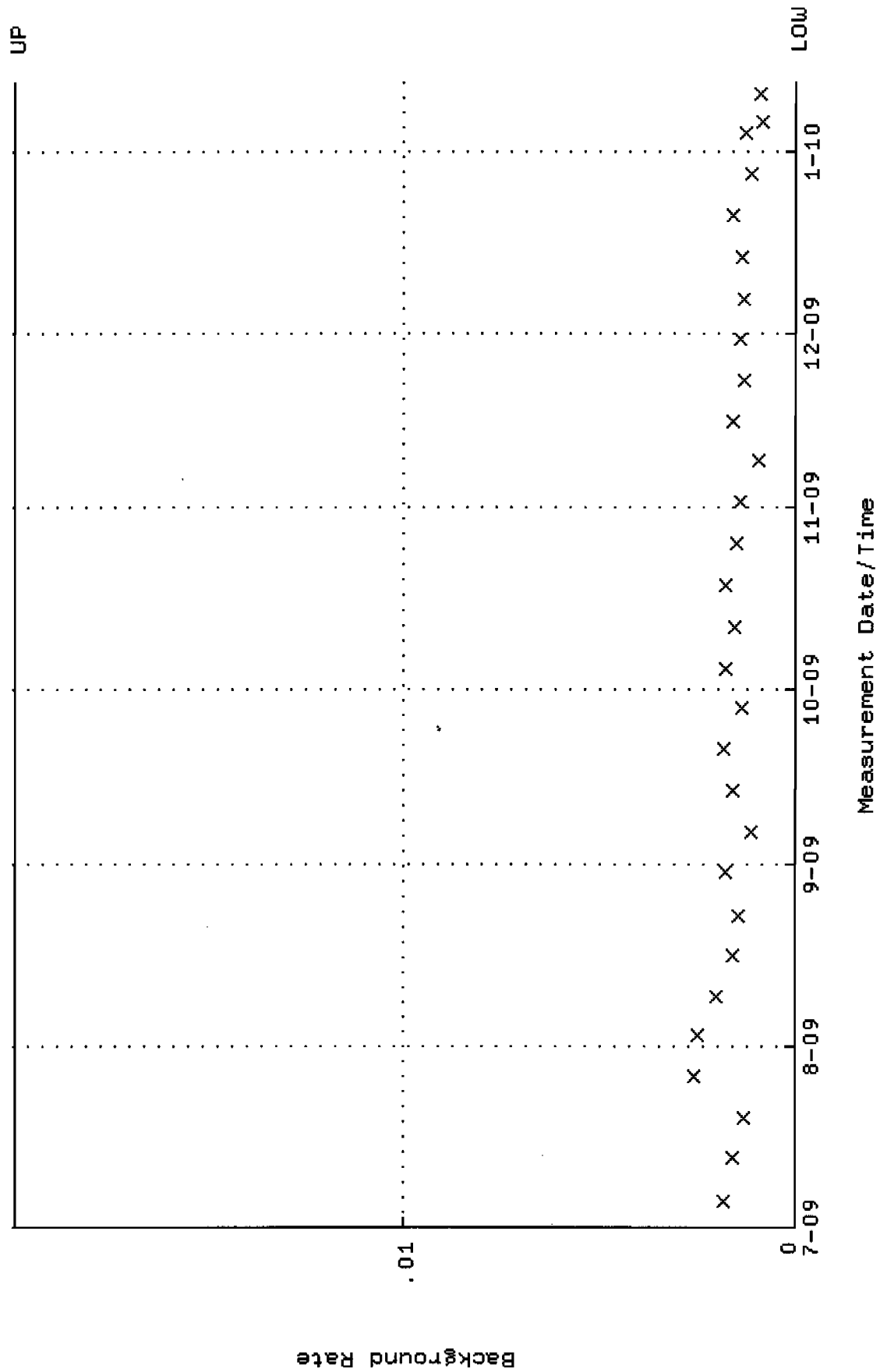
QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.300416 through 0.320416



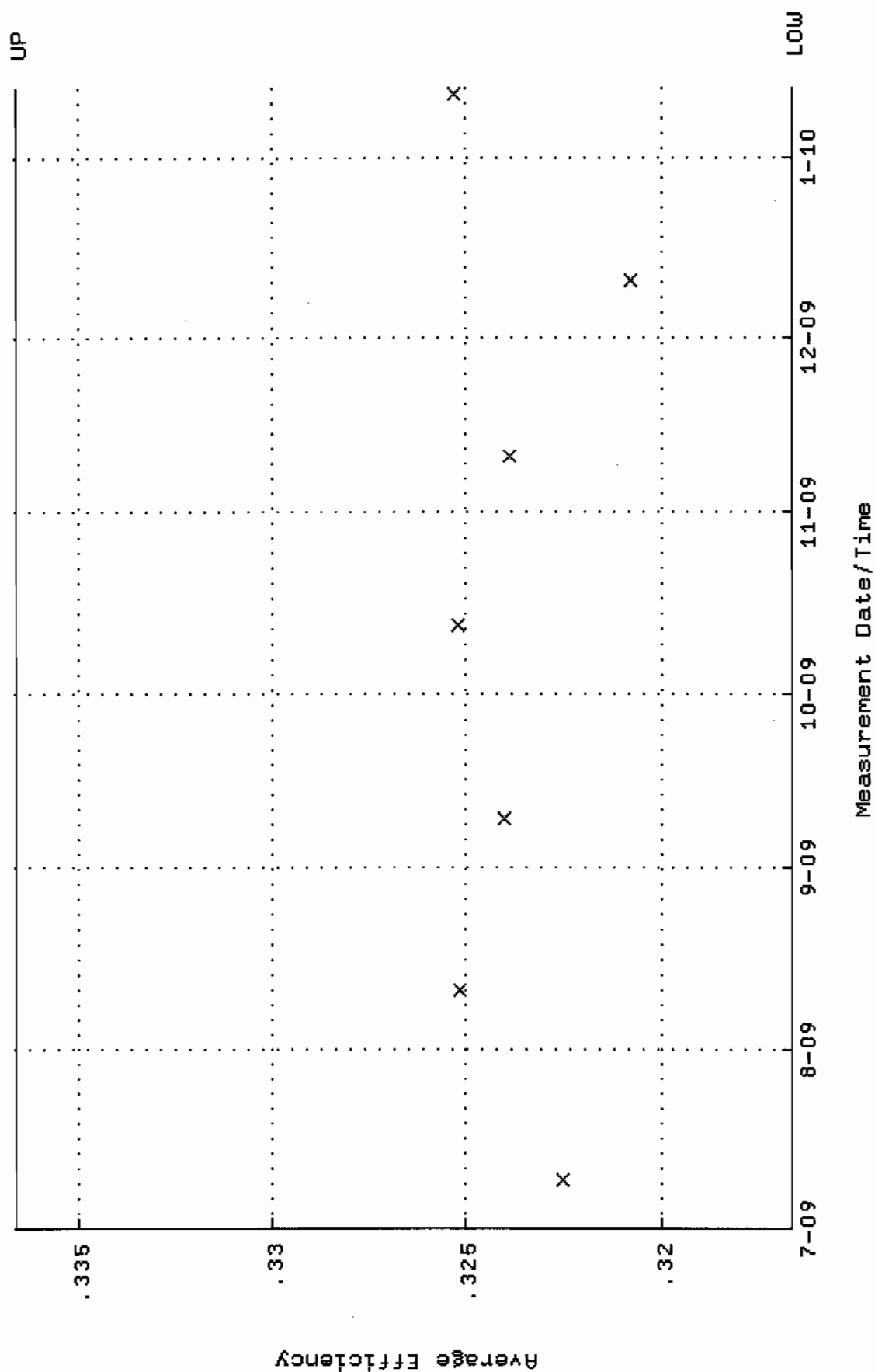
QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.0864 through 94.0428



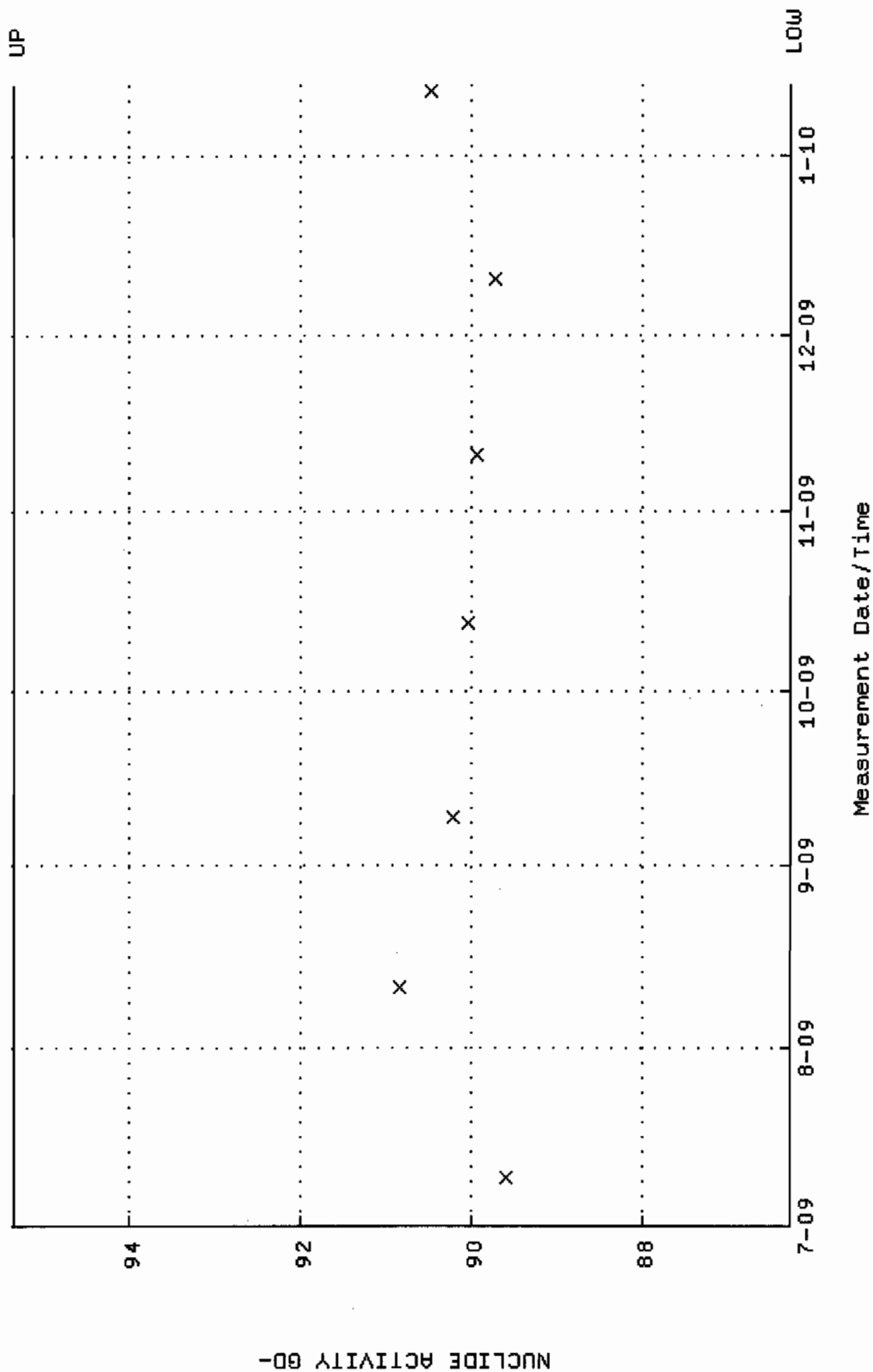
QA filename : DKA100:[ENV\_ALPHA.QA.B]B066.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]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



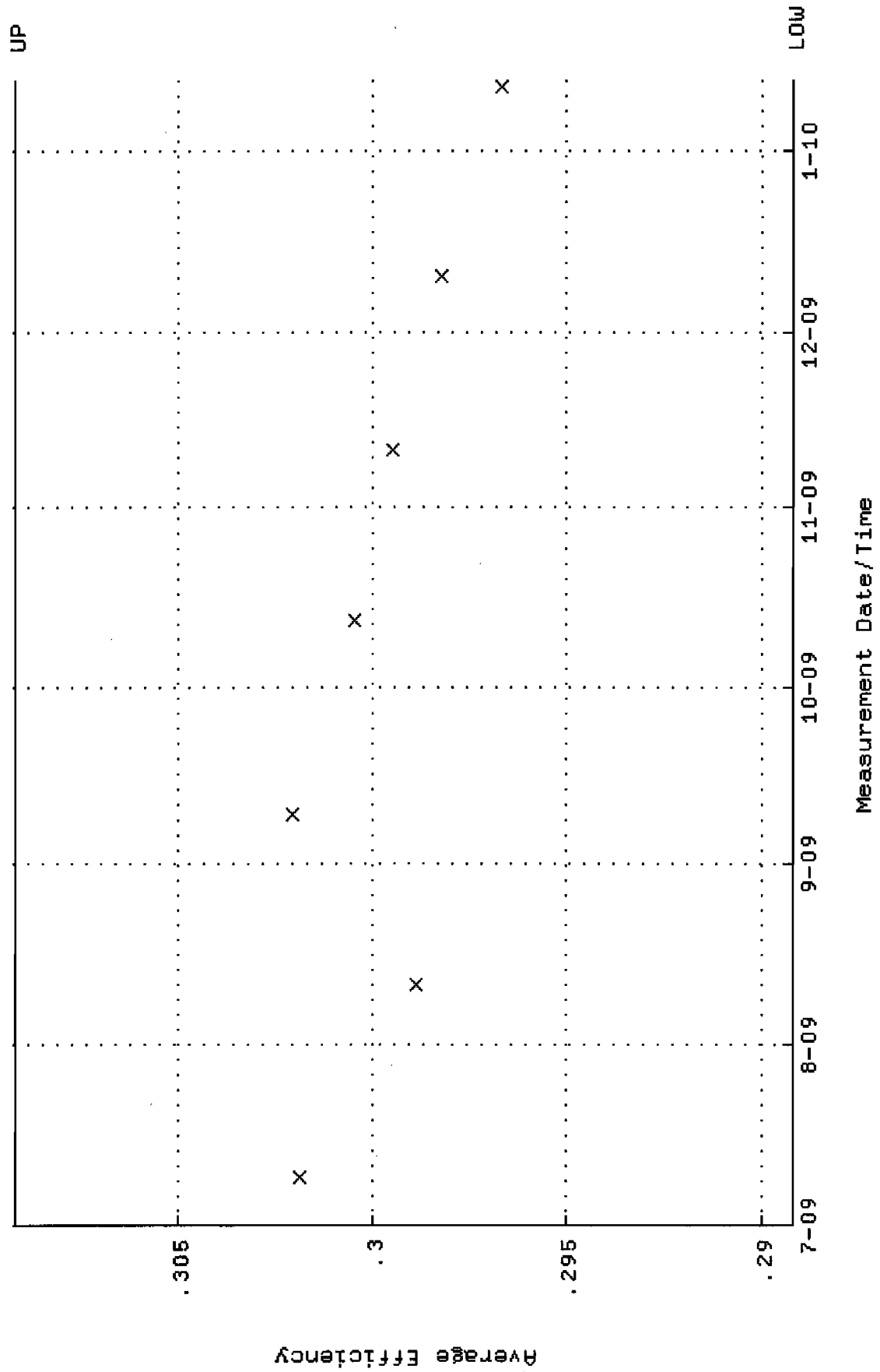
QA filename : DKA100:[ENV\_ALPHA.QA.W]W067.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.2683 through 95.3491



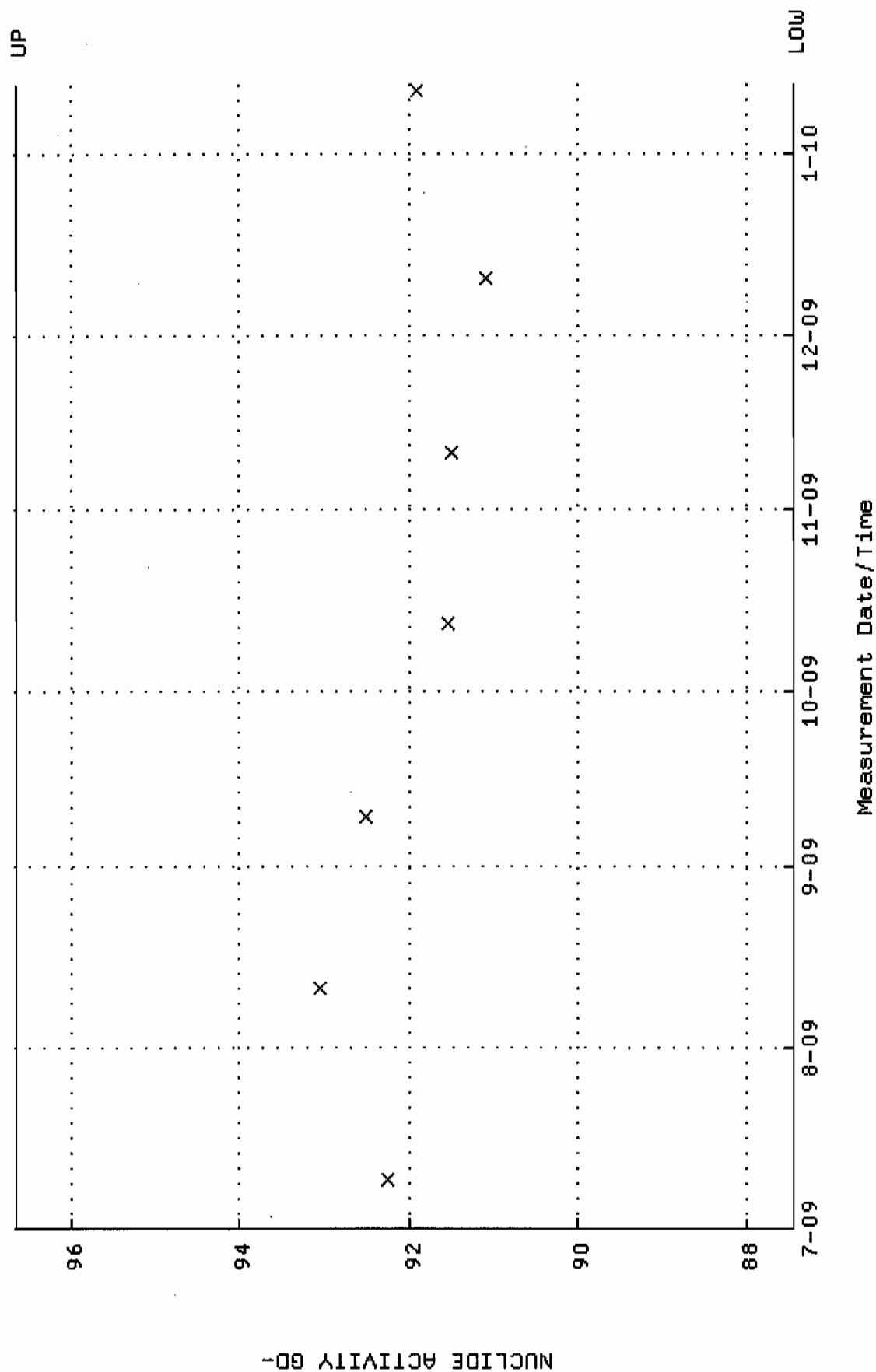
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



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

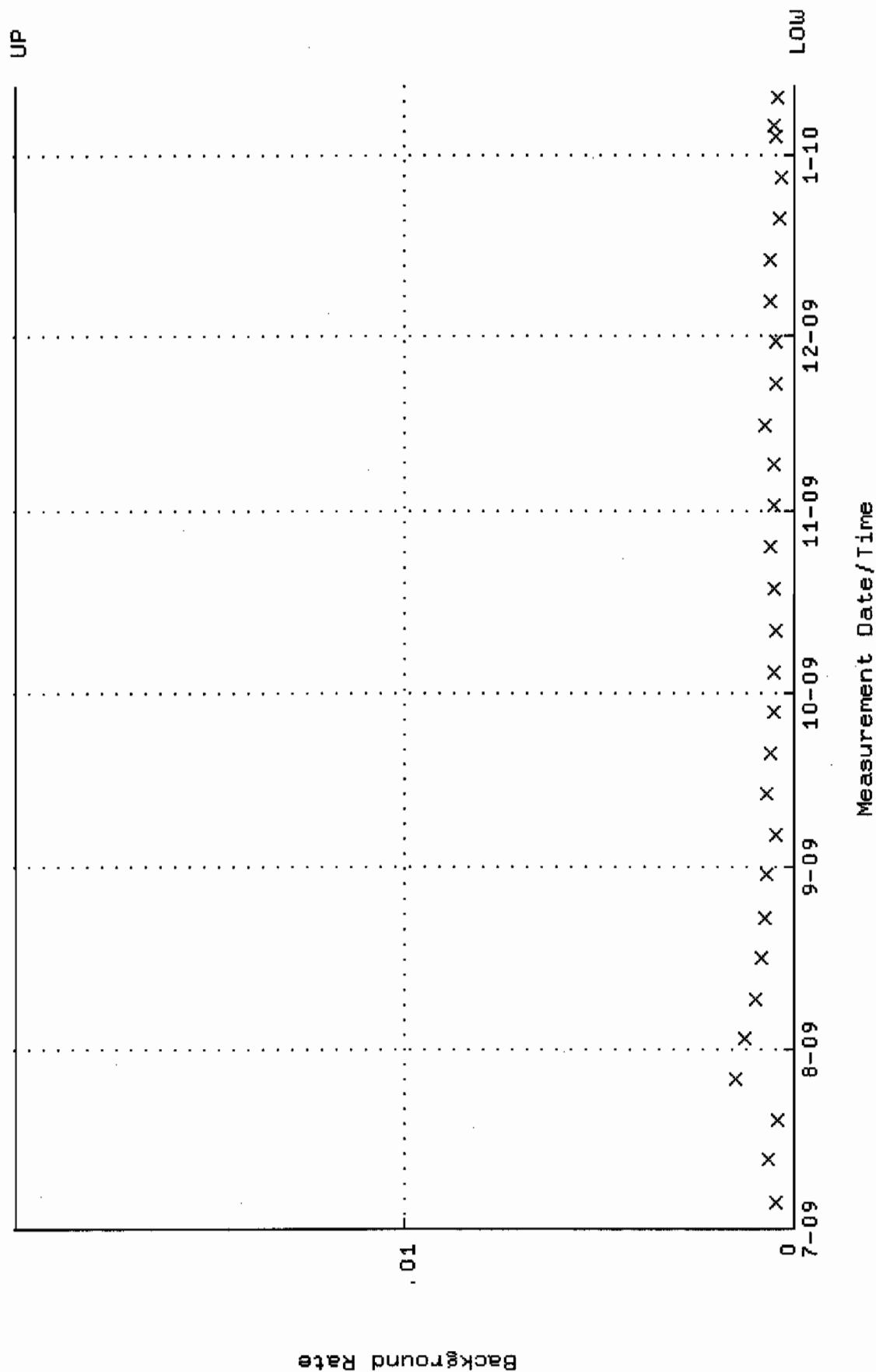


QA filename : DKA100:[ENV\_ALPHA.QA.W]W068.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.4419 through 96.6463

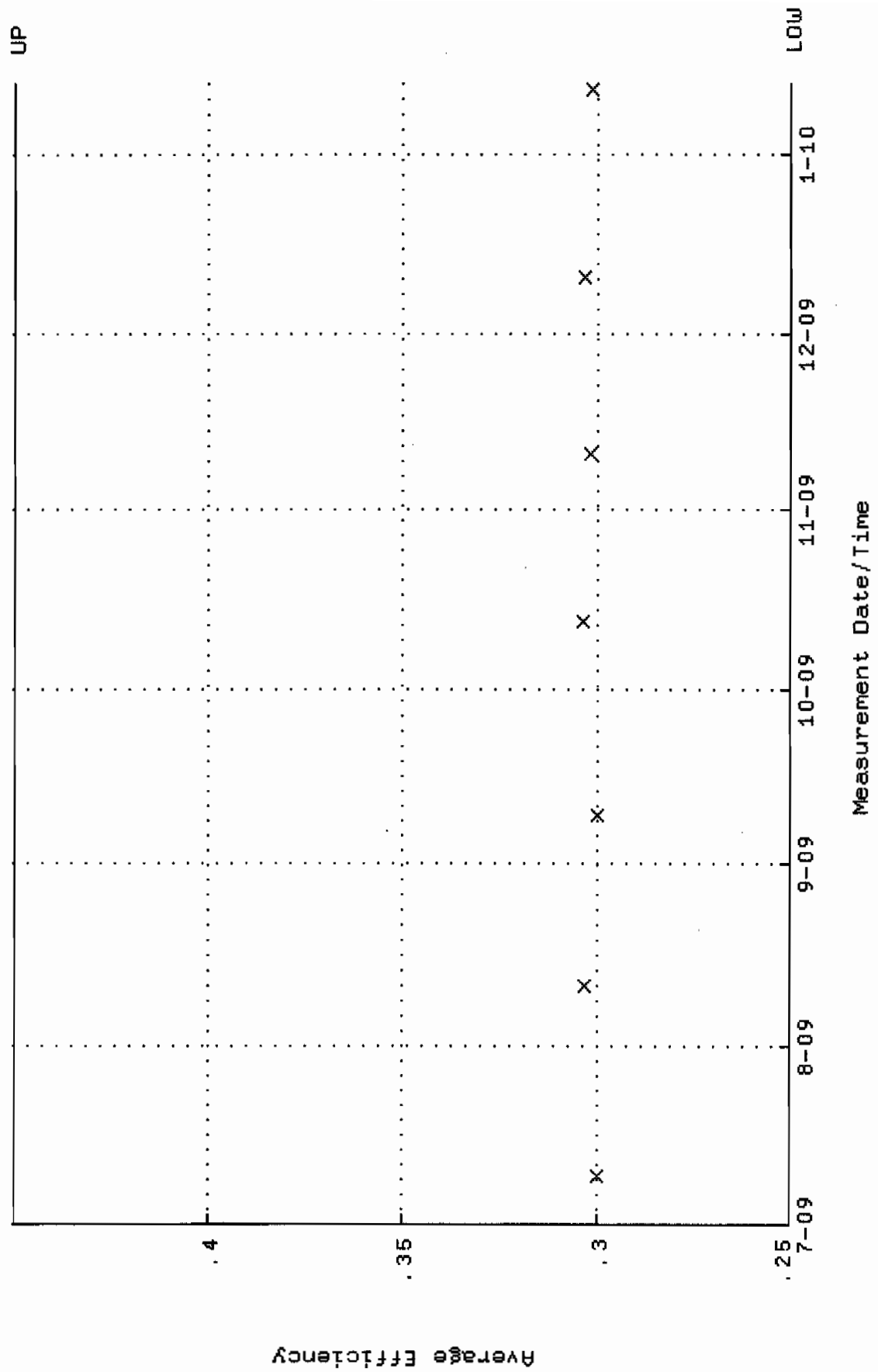




QA filename : DKA100:[ENV-ALPHA.QA.B]B068.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

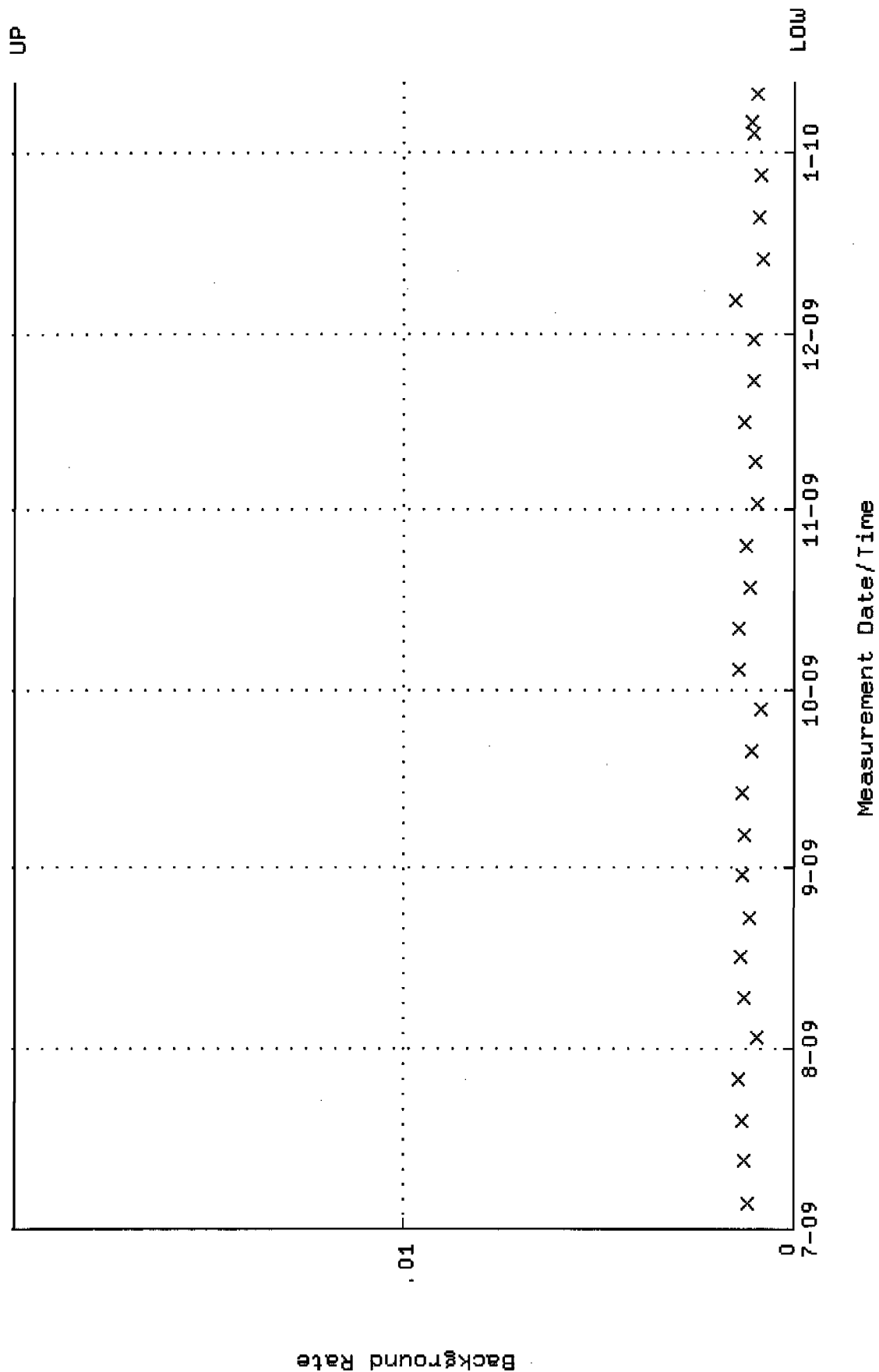


QA filename : DKA100:[ENV\_ALPHA.QA.W]W088.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000

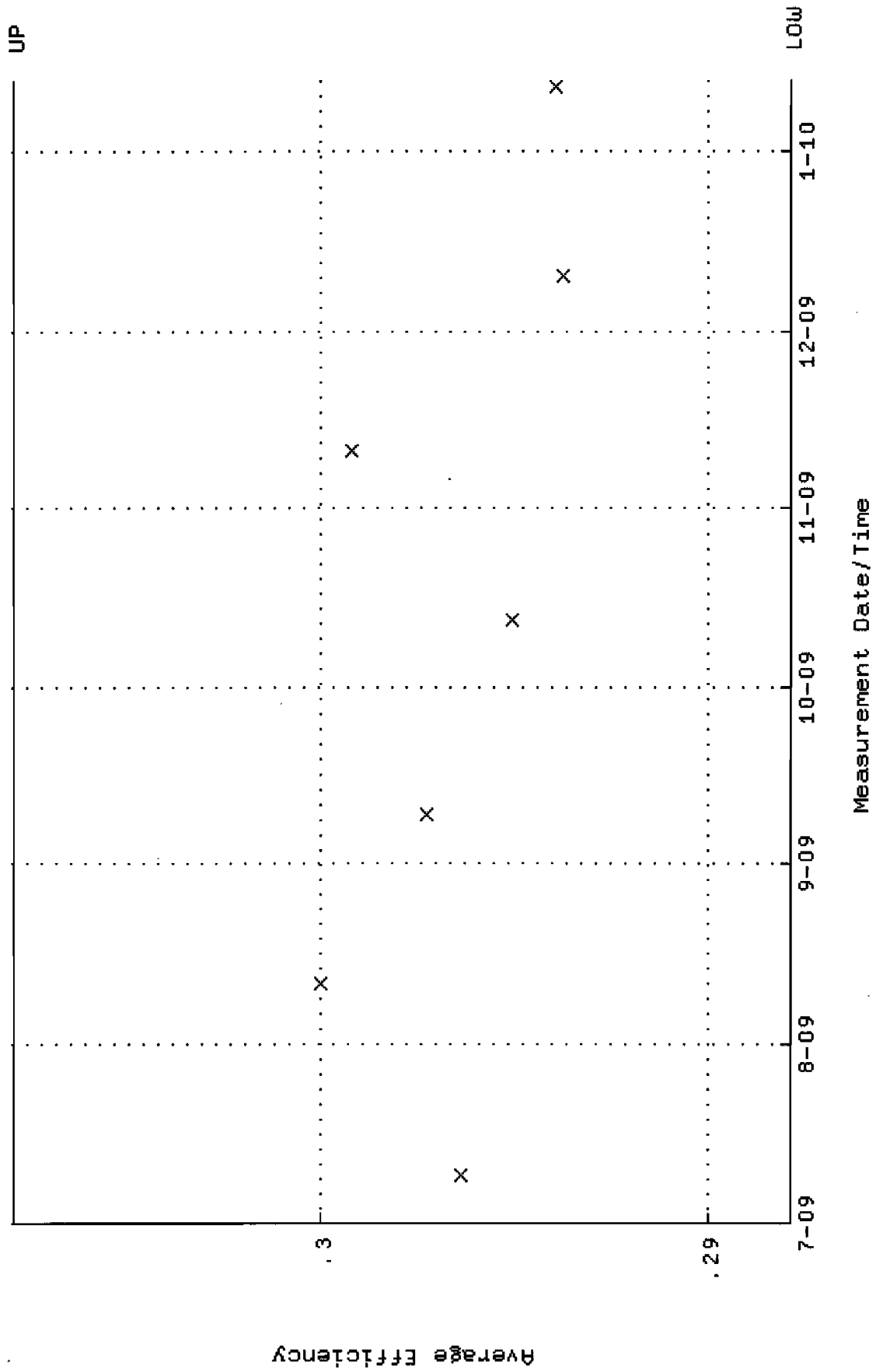




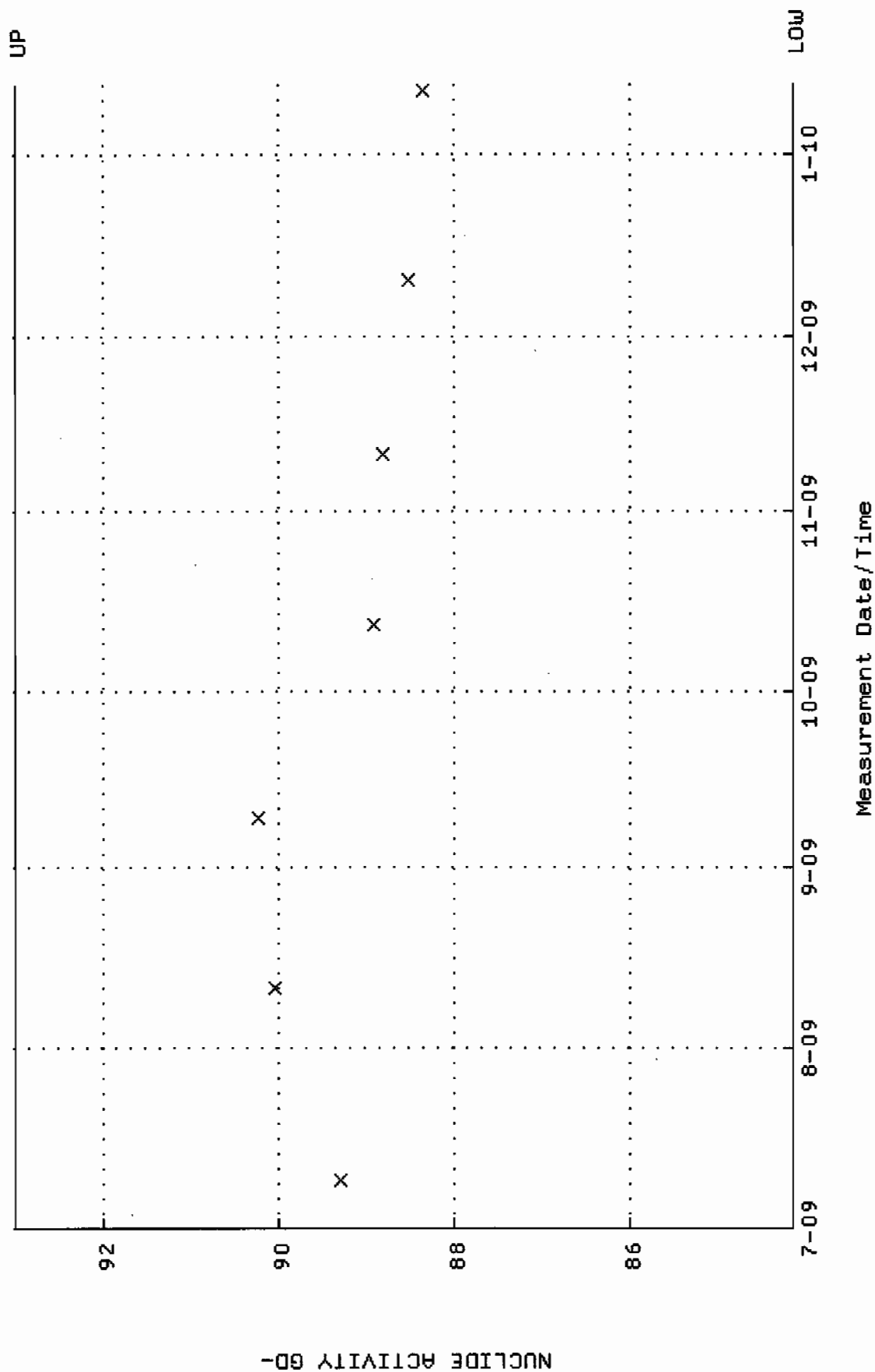
QA filename : DKA100:[ENV\_ALPHA.QA.B]B088.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



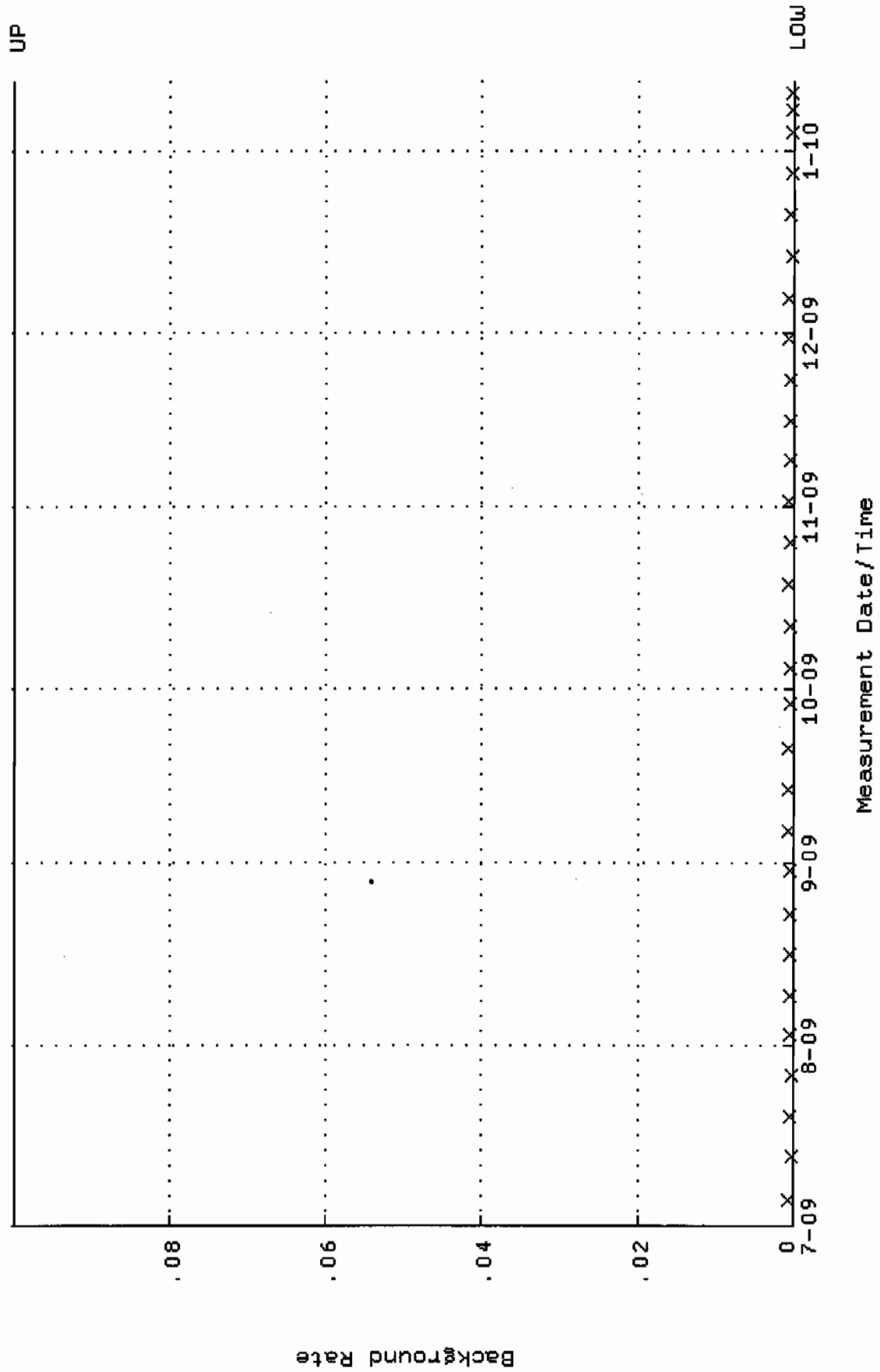
QA filename : DKA100:[ENV\_ALPHA.QA.W]W089.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.287888 through 0.307888



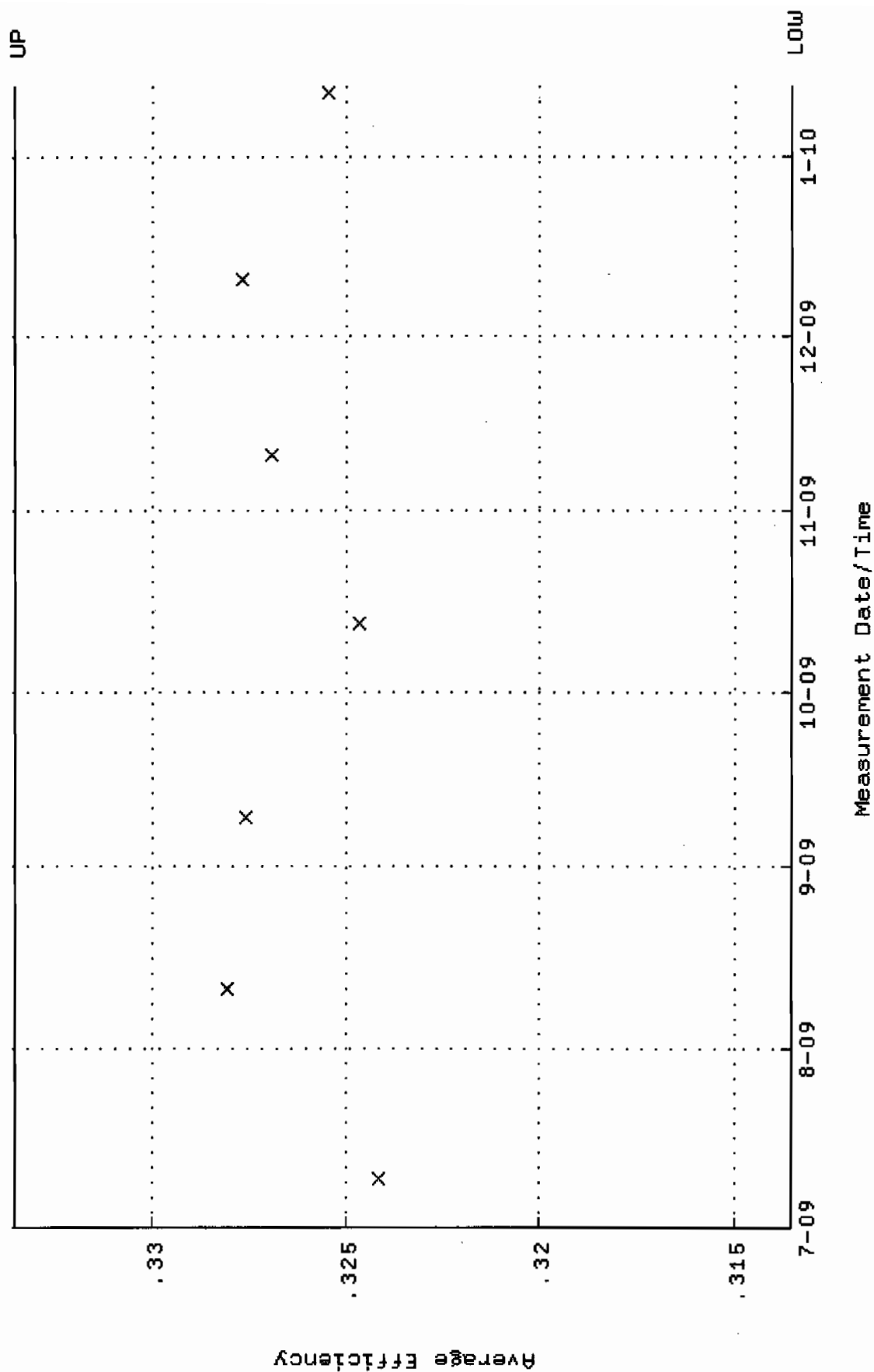
QA filename : DKA100:[ENV\_ALPHA.QA.W]W089.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.1413 through 92.9983



QA filename : DKA100:[ENV\_ALPHA.QA.B]B089.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 0.100000

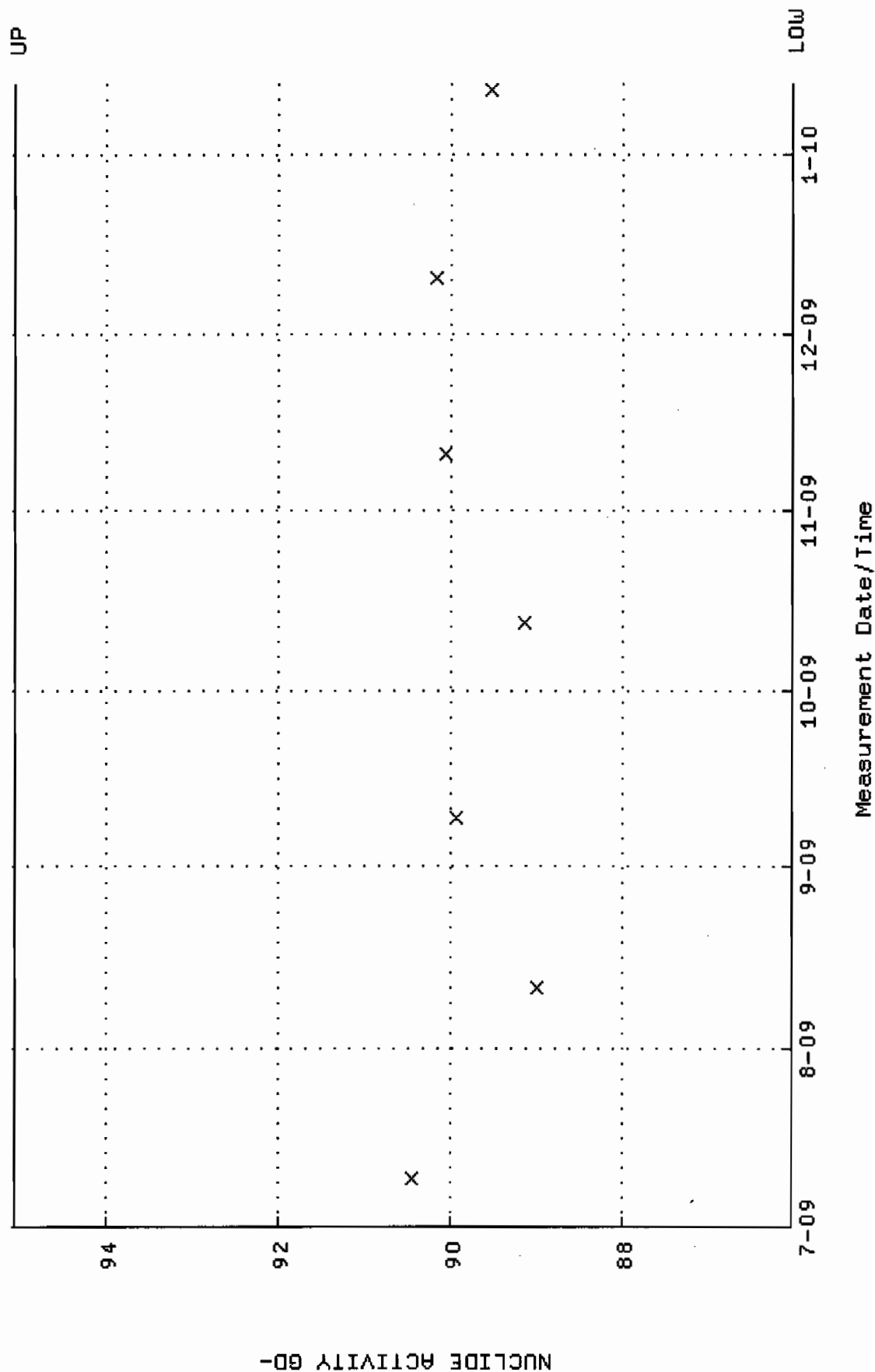


QA filename : DKA100:[ENV\_ALPHA.QA.W]W090.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313529 through 0.333529

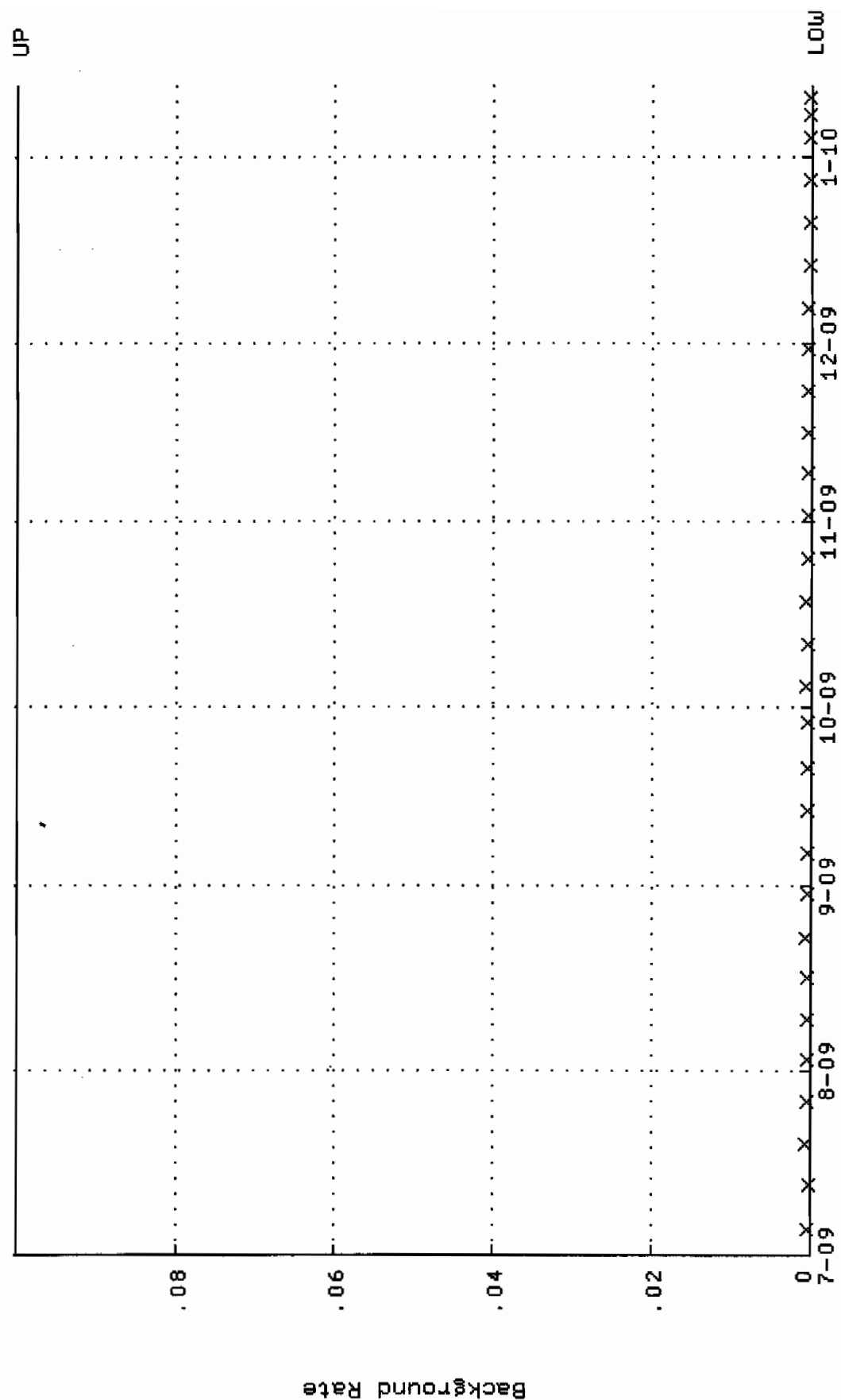




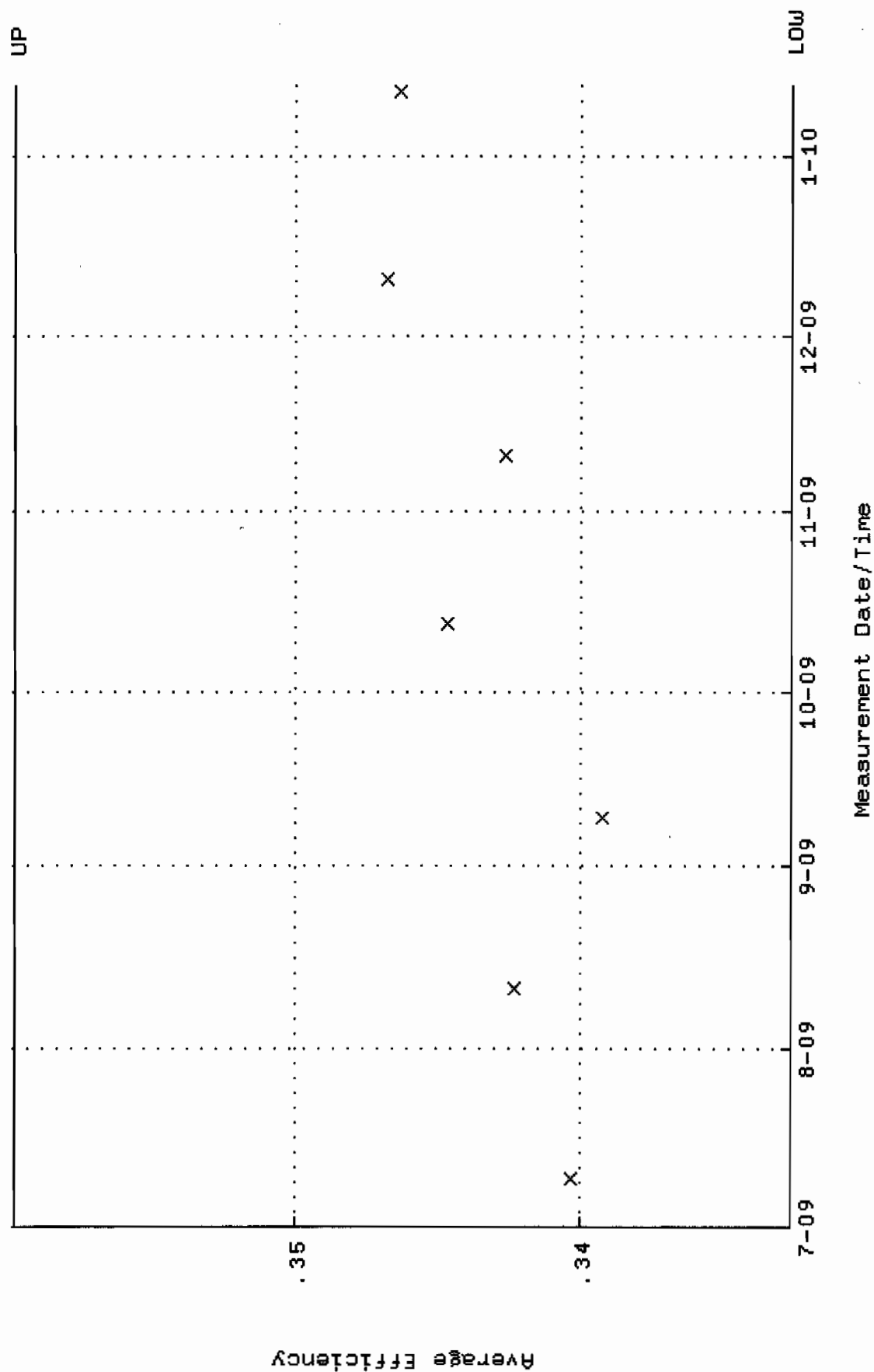
QA filename : DKA100:[ENV\_ALPHA.QA.W]W090.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.0139 through 95.0680



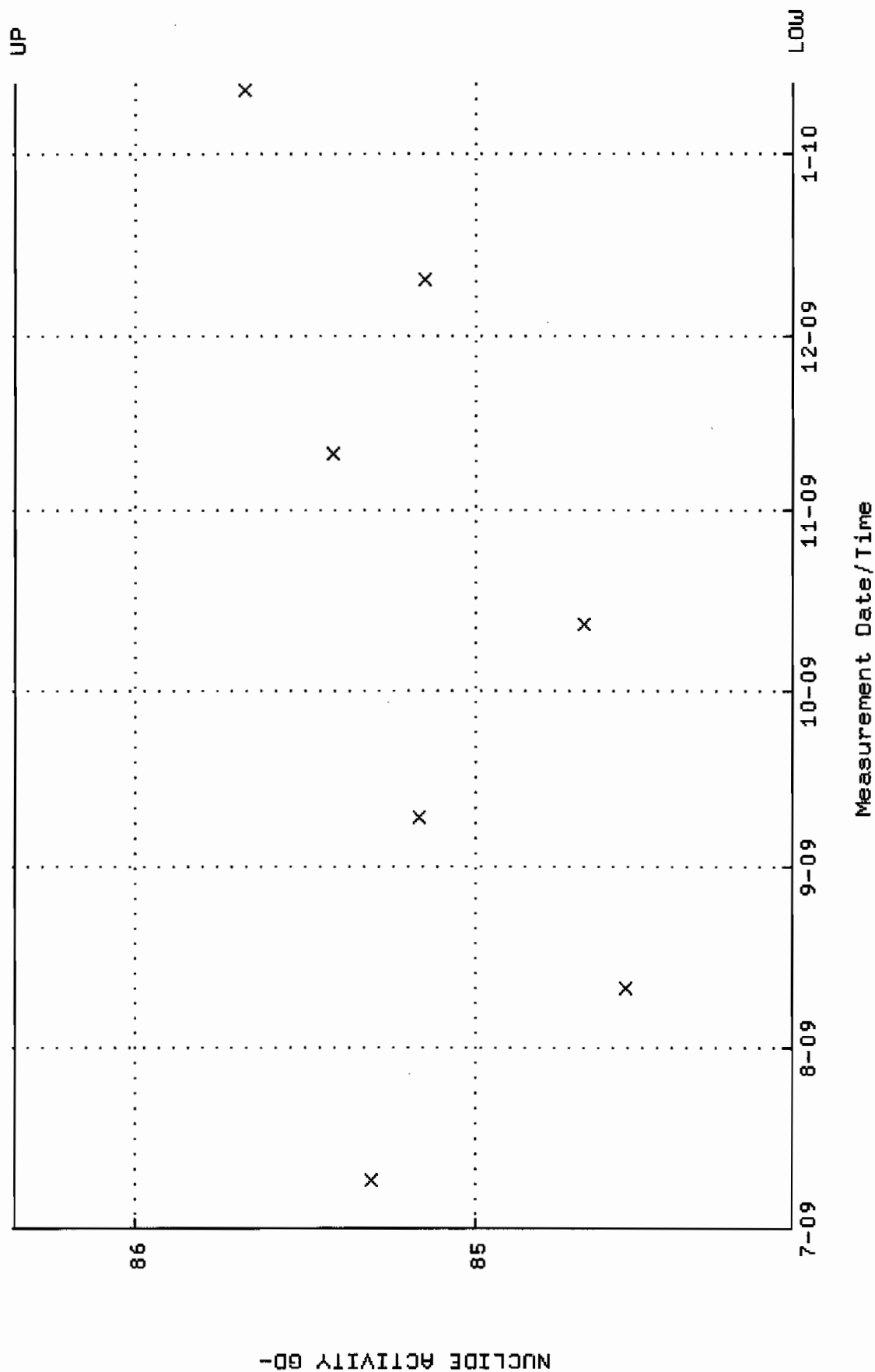
QA filename : DKA100:[ENV\_ALPHA.QA.B]B090.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



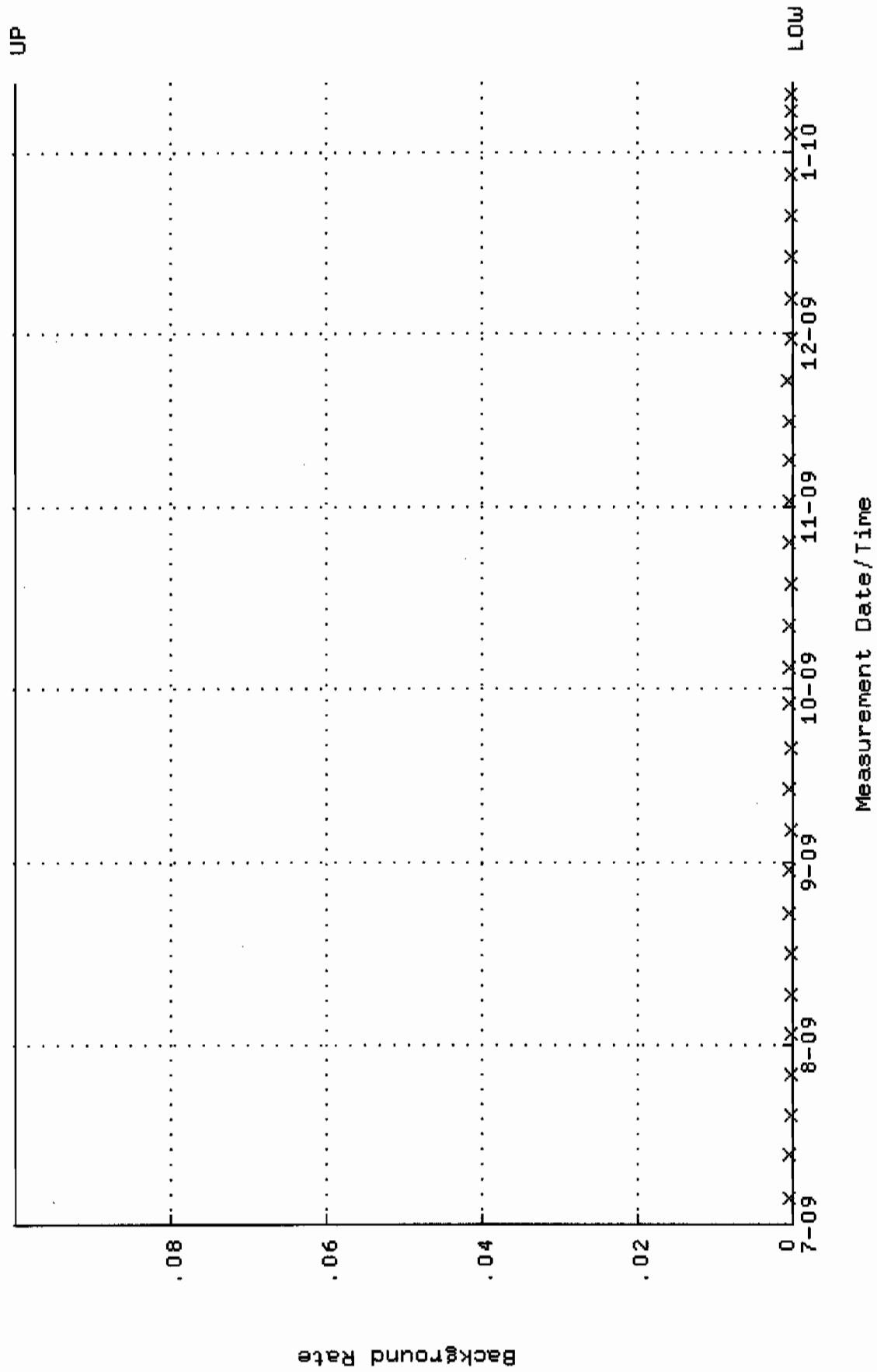
QA filename : DKA100:[ENV\_ALPHA.QA.W]W091.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.332648 through 0.359902



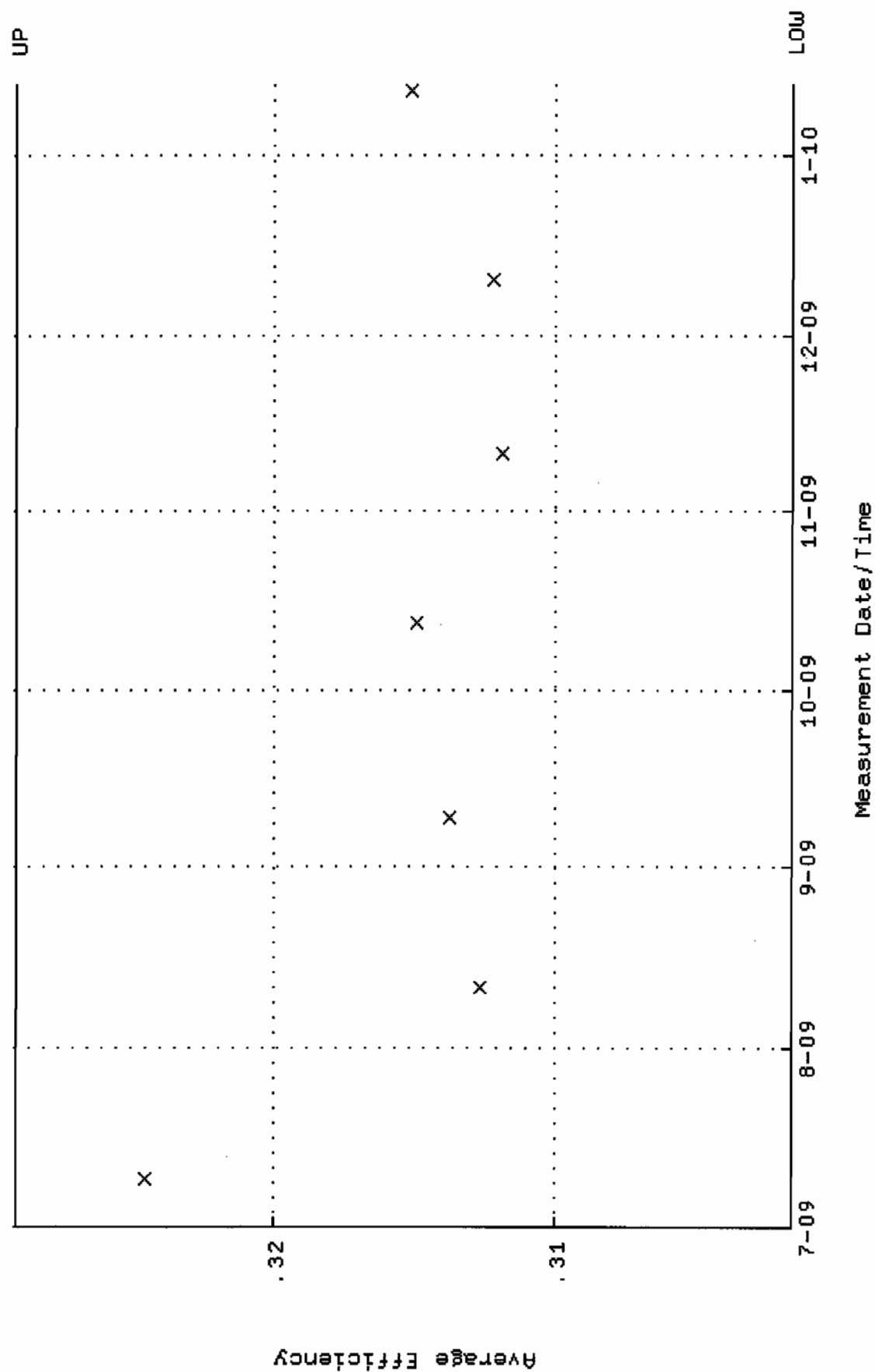
QA filename : DKA100:[ENV\_ALPHA.QA.W]W091.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.0764 through 86.3518



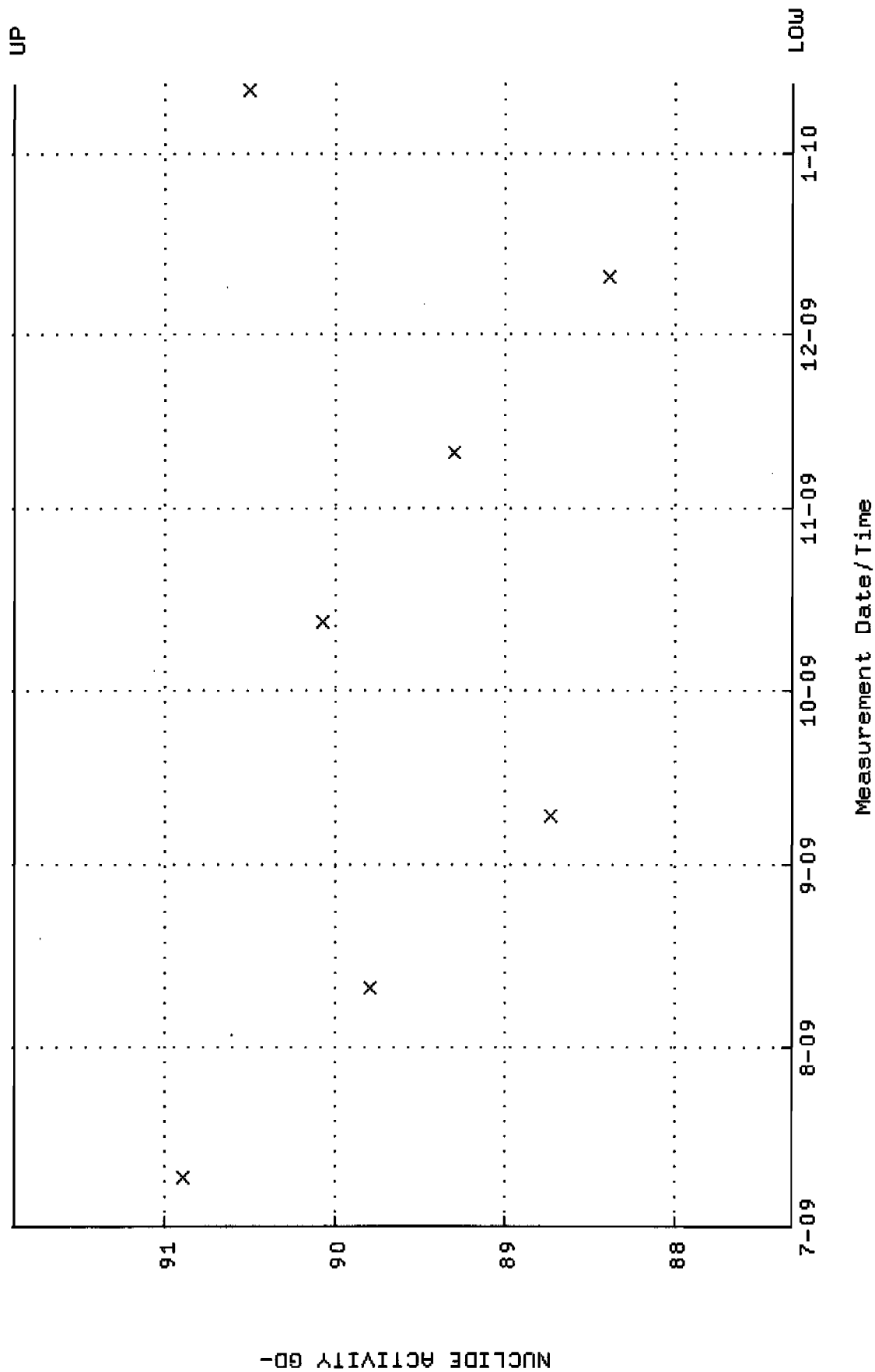
QA filename : DKA100:[ENV\_ALPHA.QA.B]B091.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.301529 through 0.329133



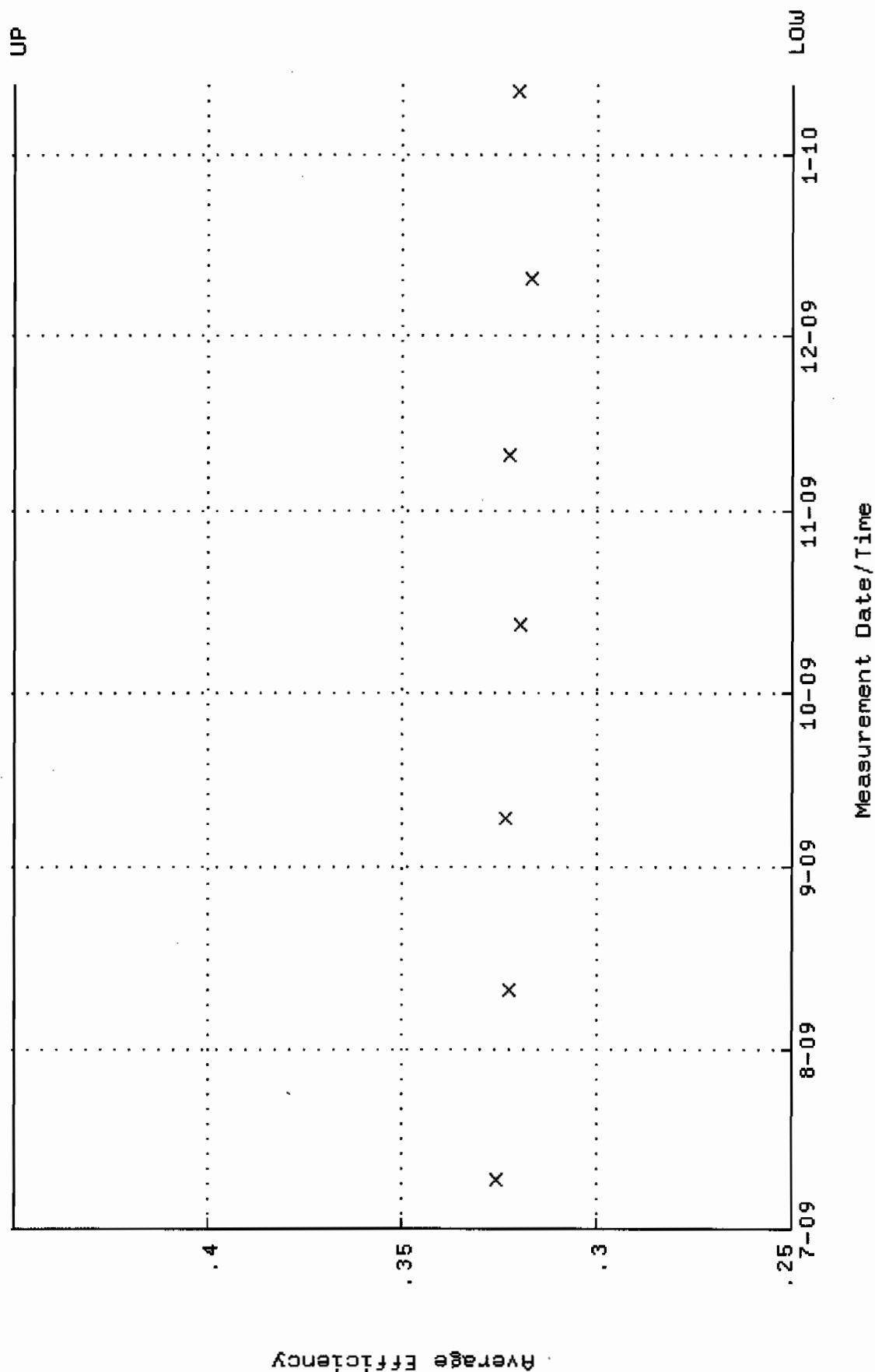
QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.3140 through 91.8878



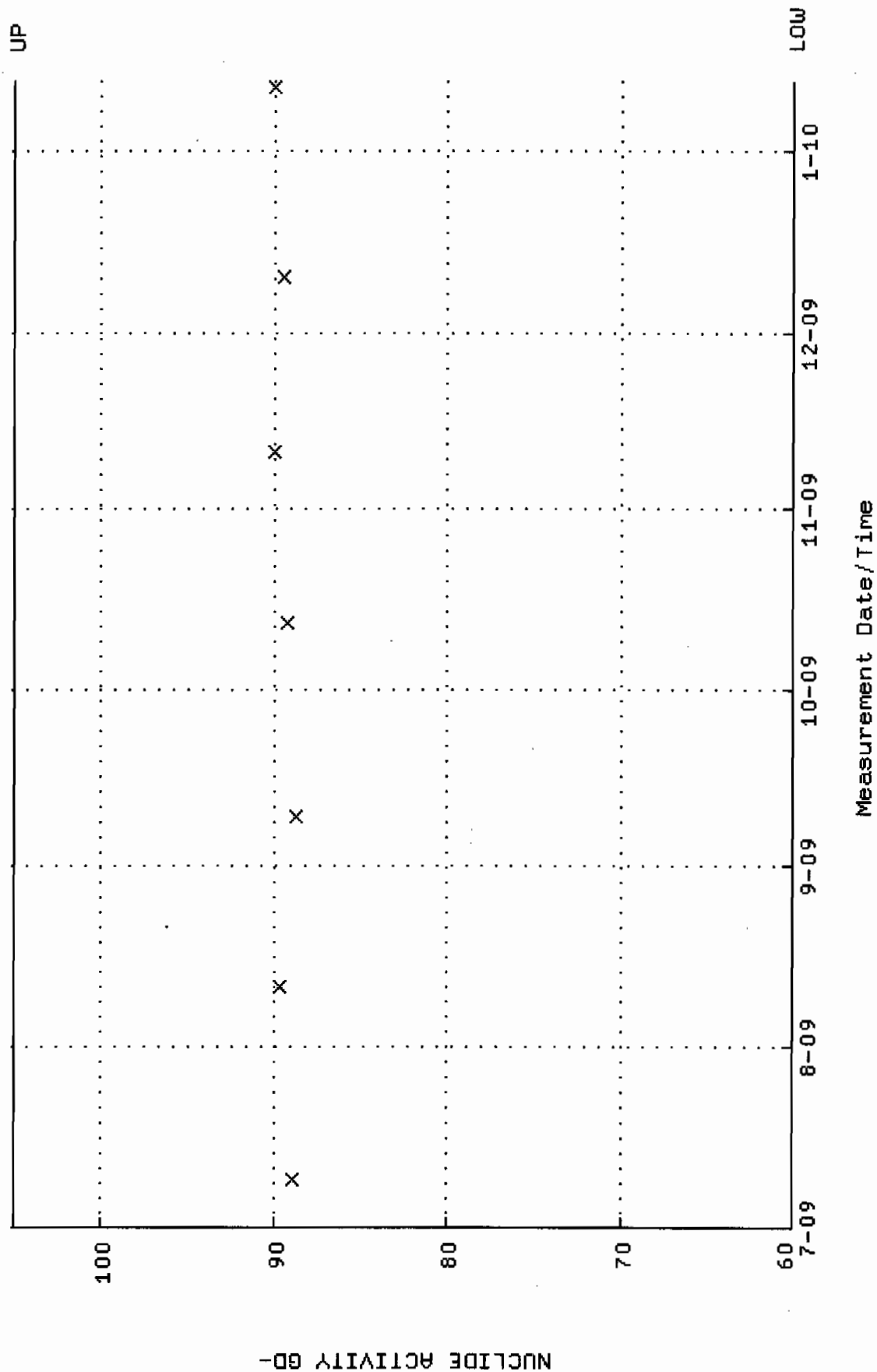




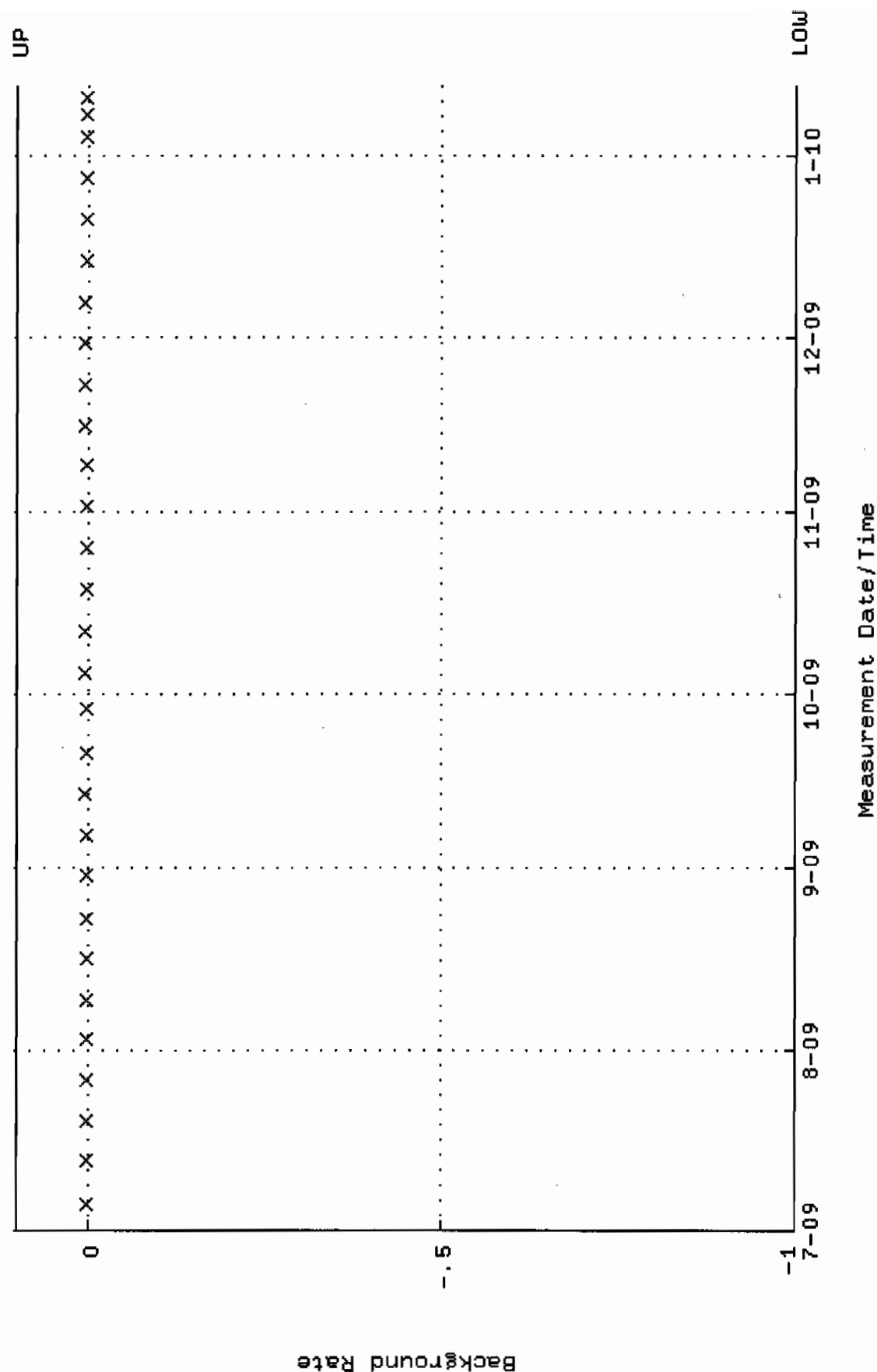
QA filename : DKA100:[ENV\_ALPHA.QA.W]W093.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



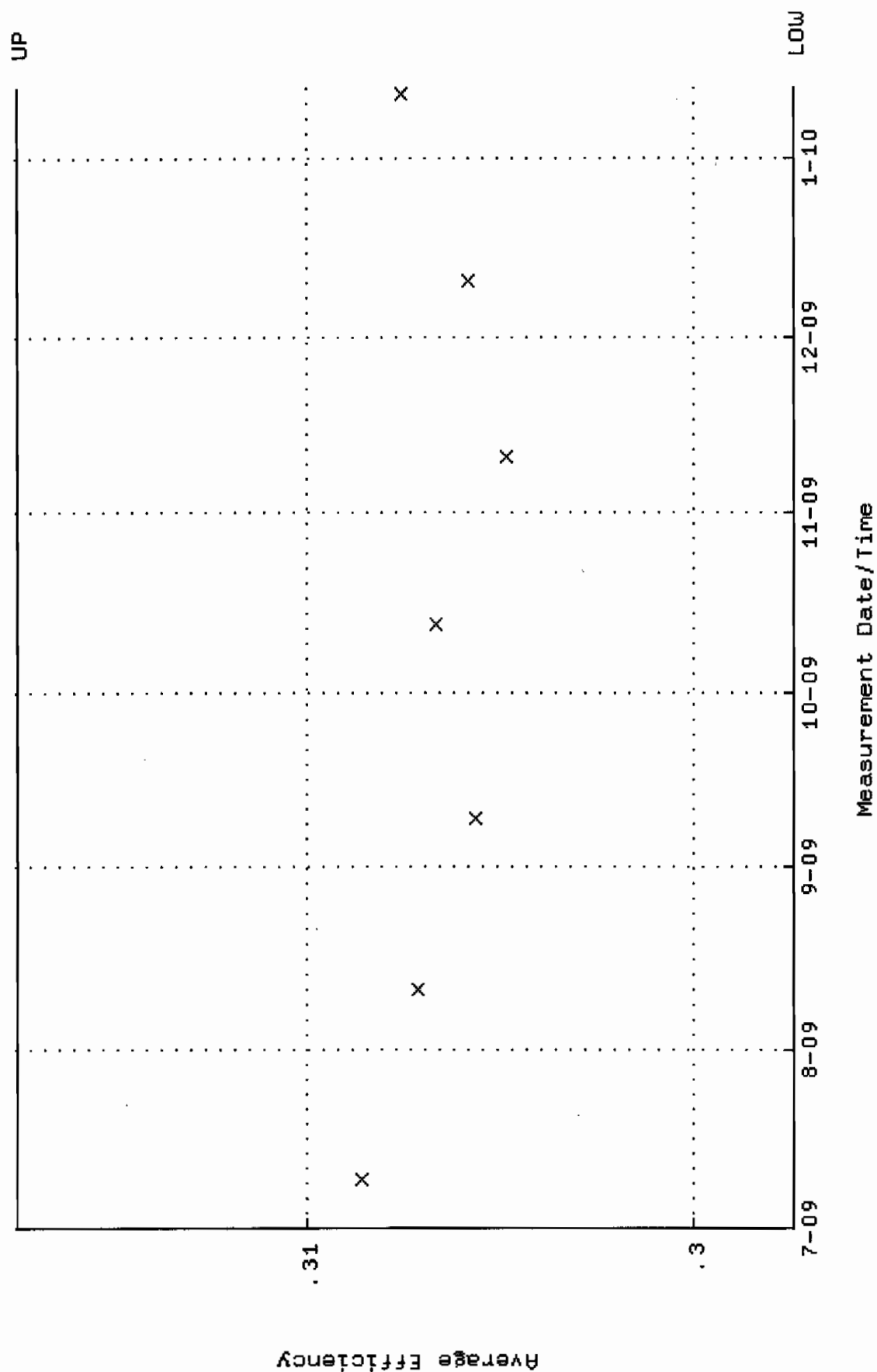
QA filename : DKA100:[ENV\_ALPHA.QA.W]W093.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



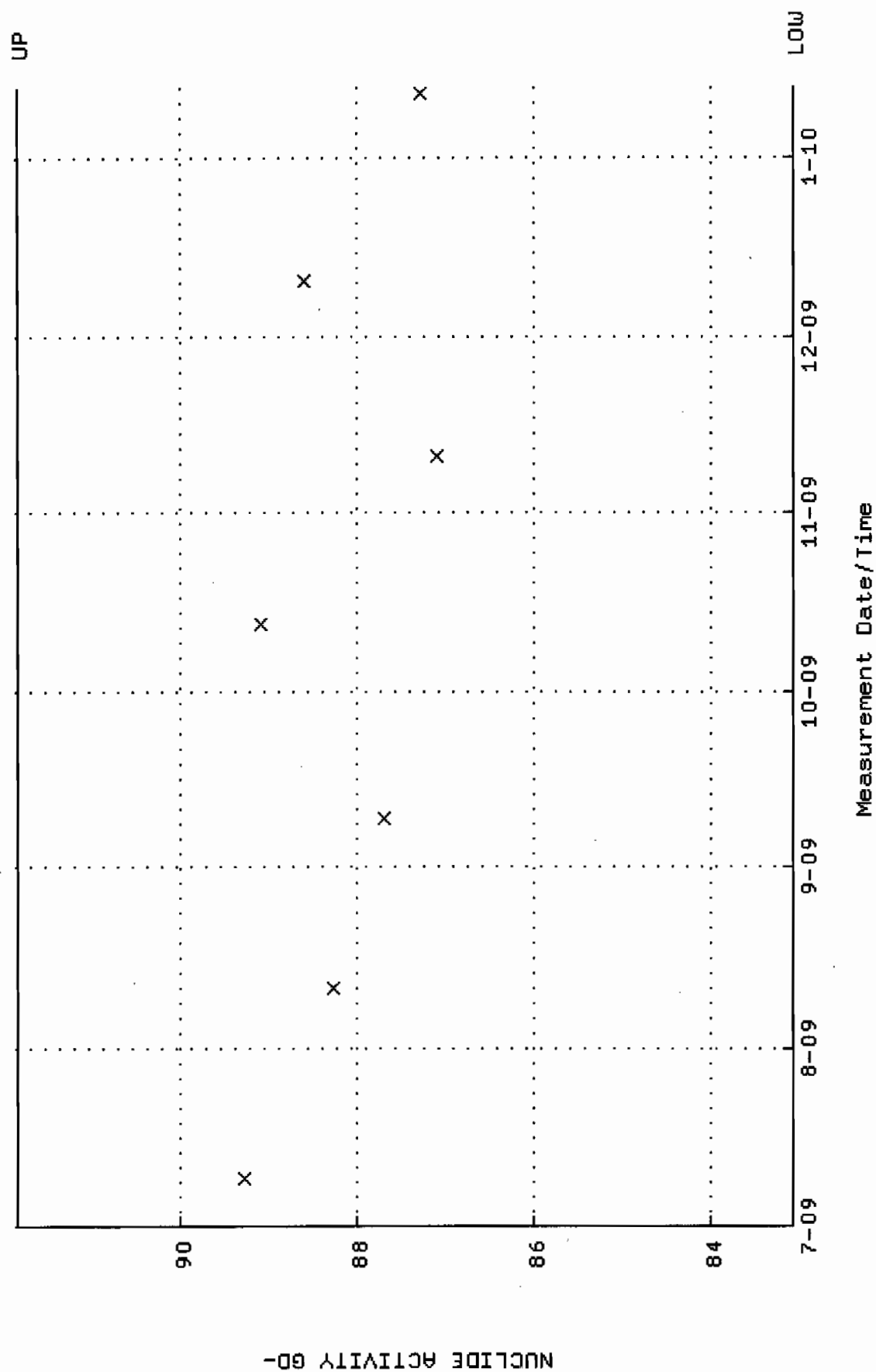
QA filename : DKA100:[ENV\_ALPHA.QA.B]B093.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: -1.00000 through 0.100000



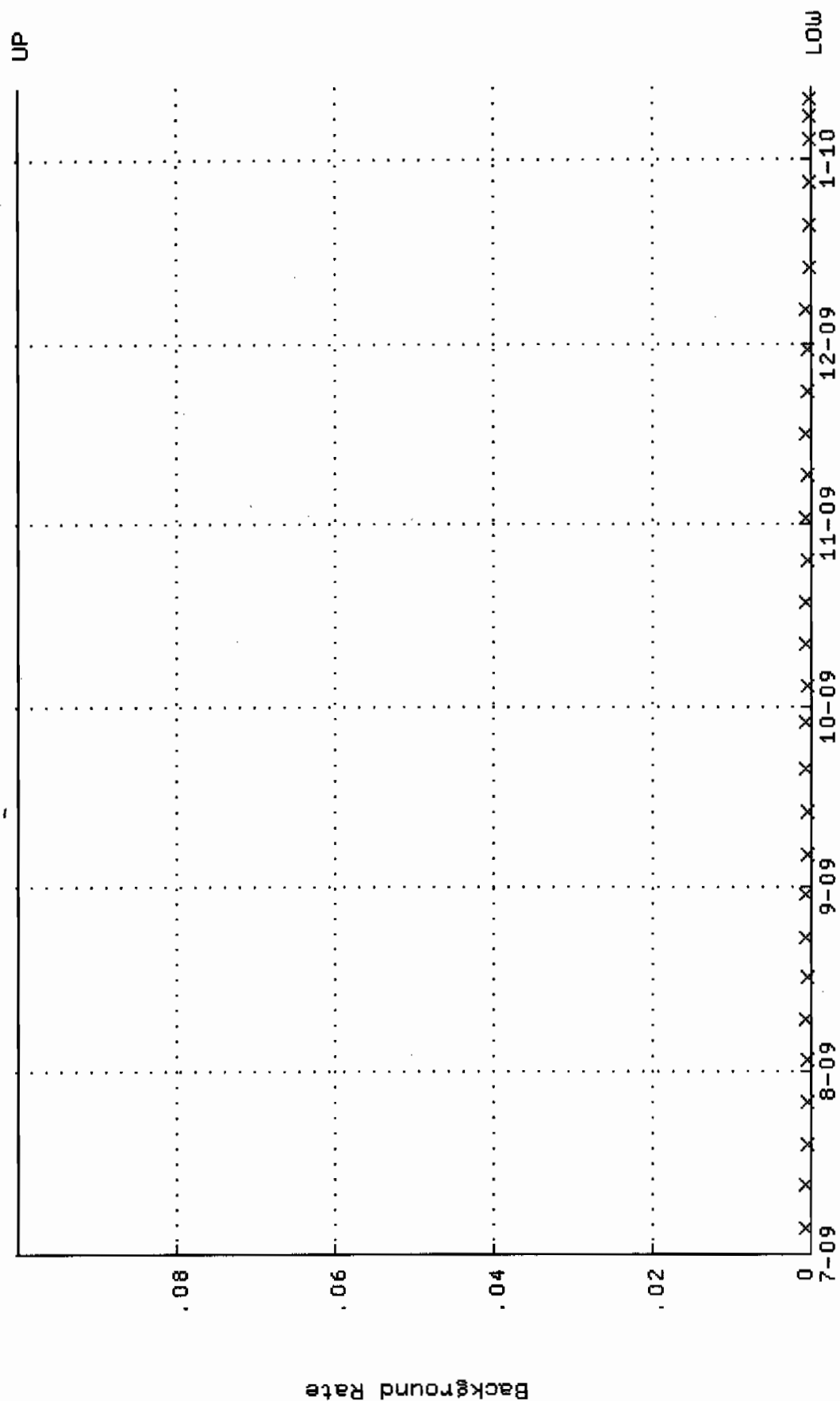
QA filename : DKA100:[ENV\_ALPHA.QA.W]W094.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.297429 through 0.317429



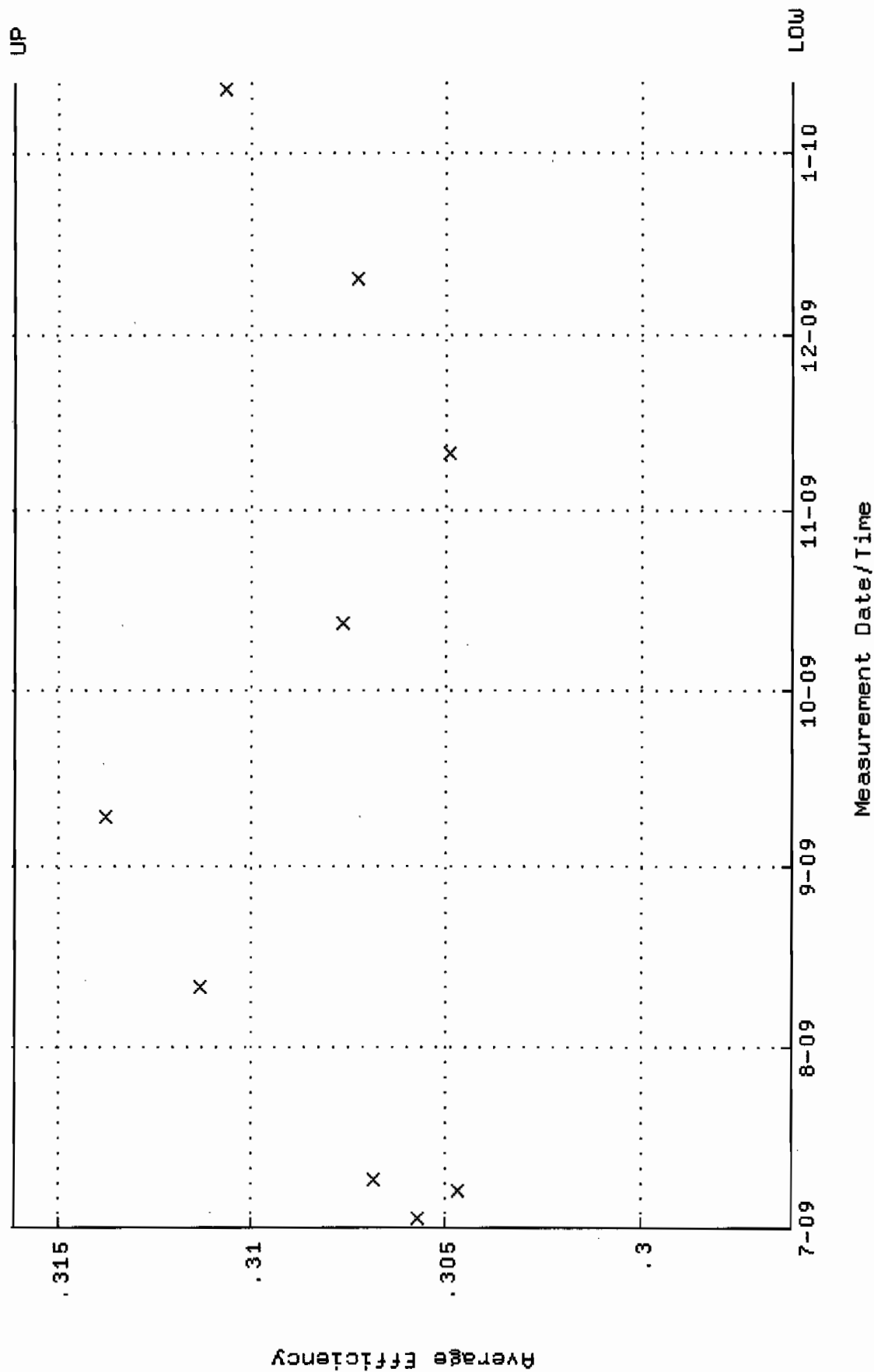
QA filename : DKA100:[ENV\_ALPHA.QA.W]W094.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.0827 through 91.8283



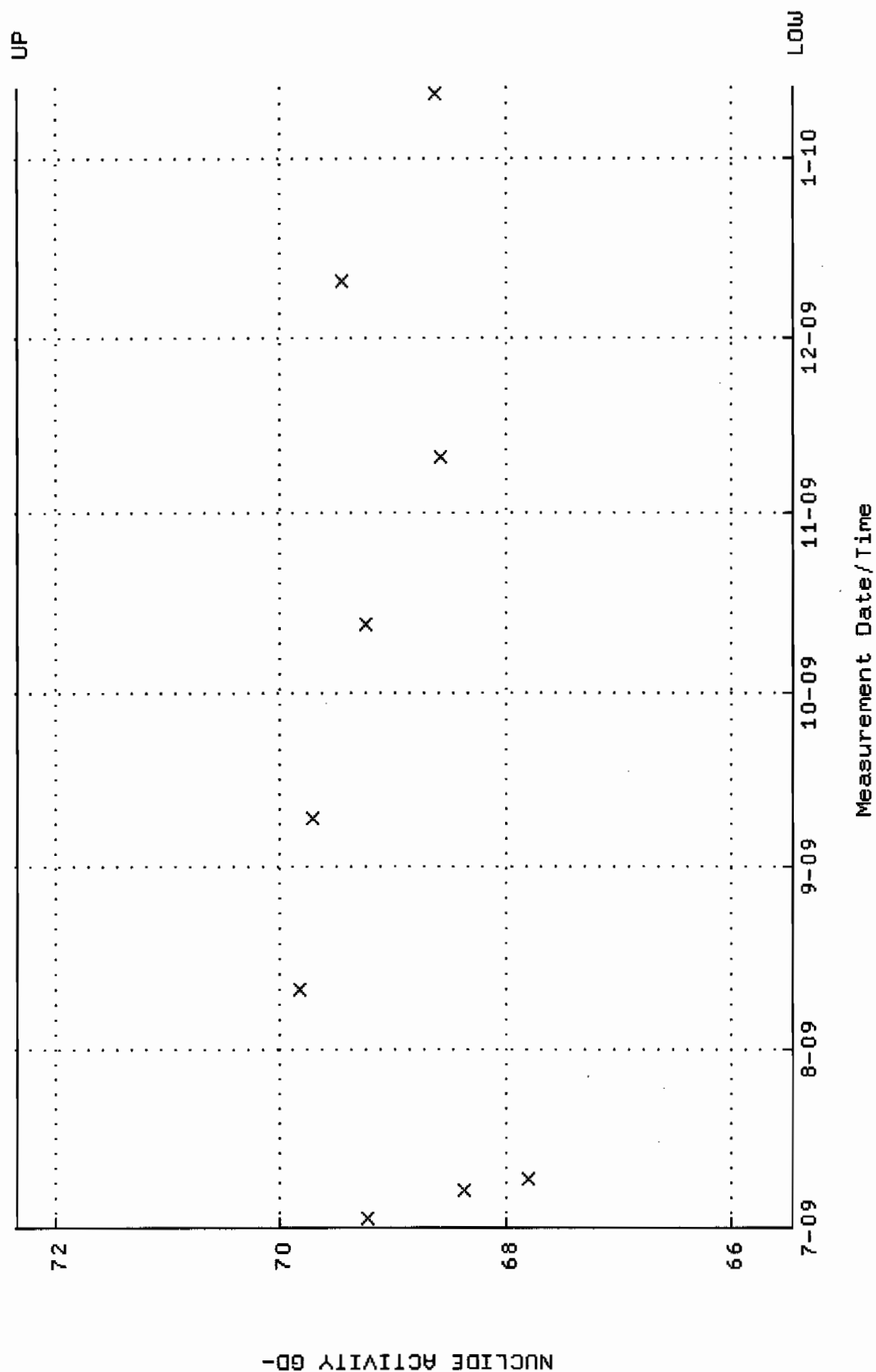
QA filename : DKA100:[ENV\_ALPHA.QA.B]B094.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W095.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUL-2009 15:04:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.296122 through 0.316122

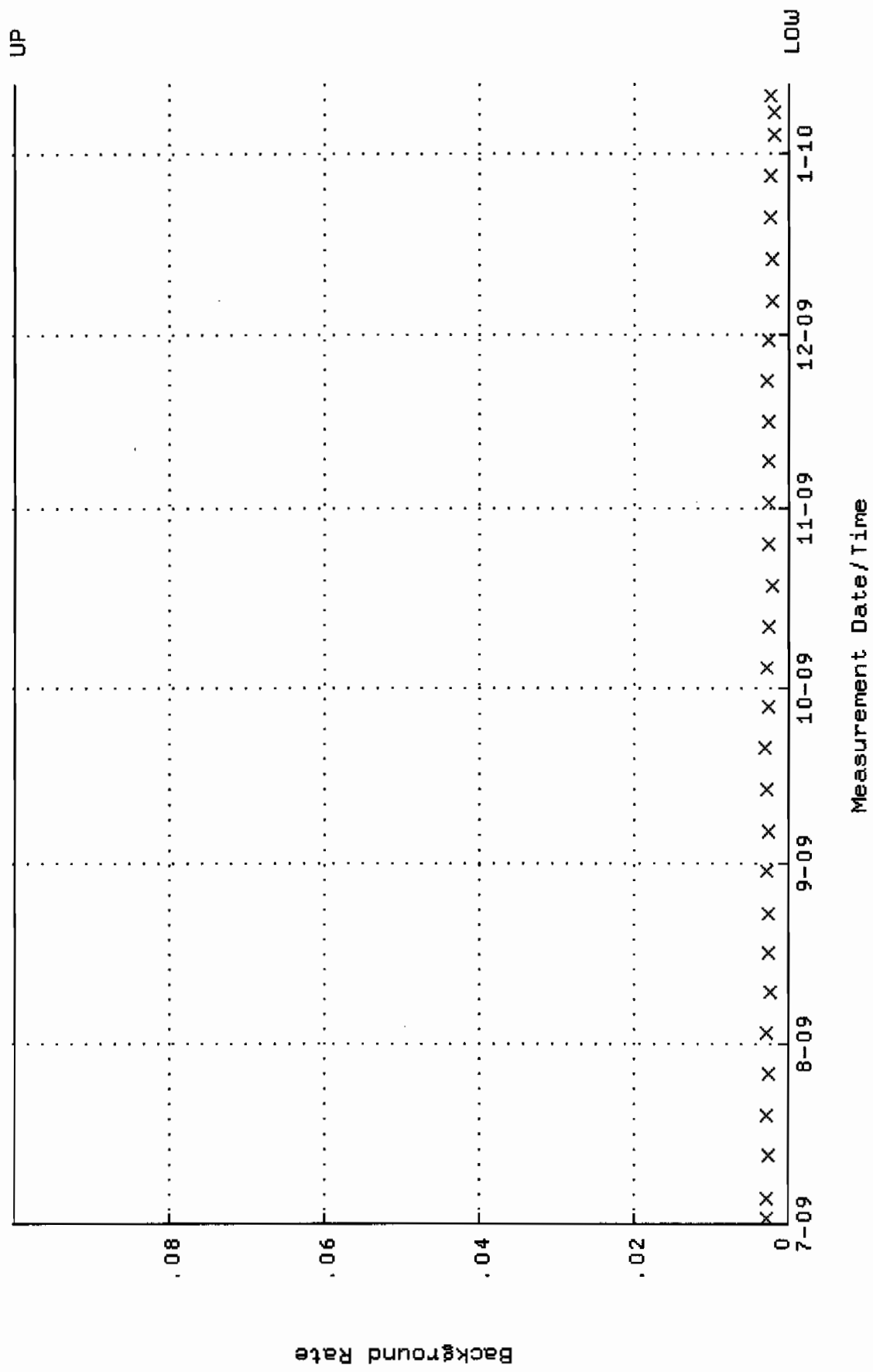


QA filename : DKA100:[ENV\_ALPHA.QA.W]W095.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUL-2009 15:04:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 65.4492 through 72.3386

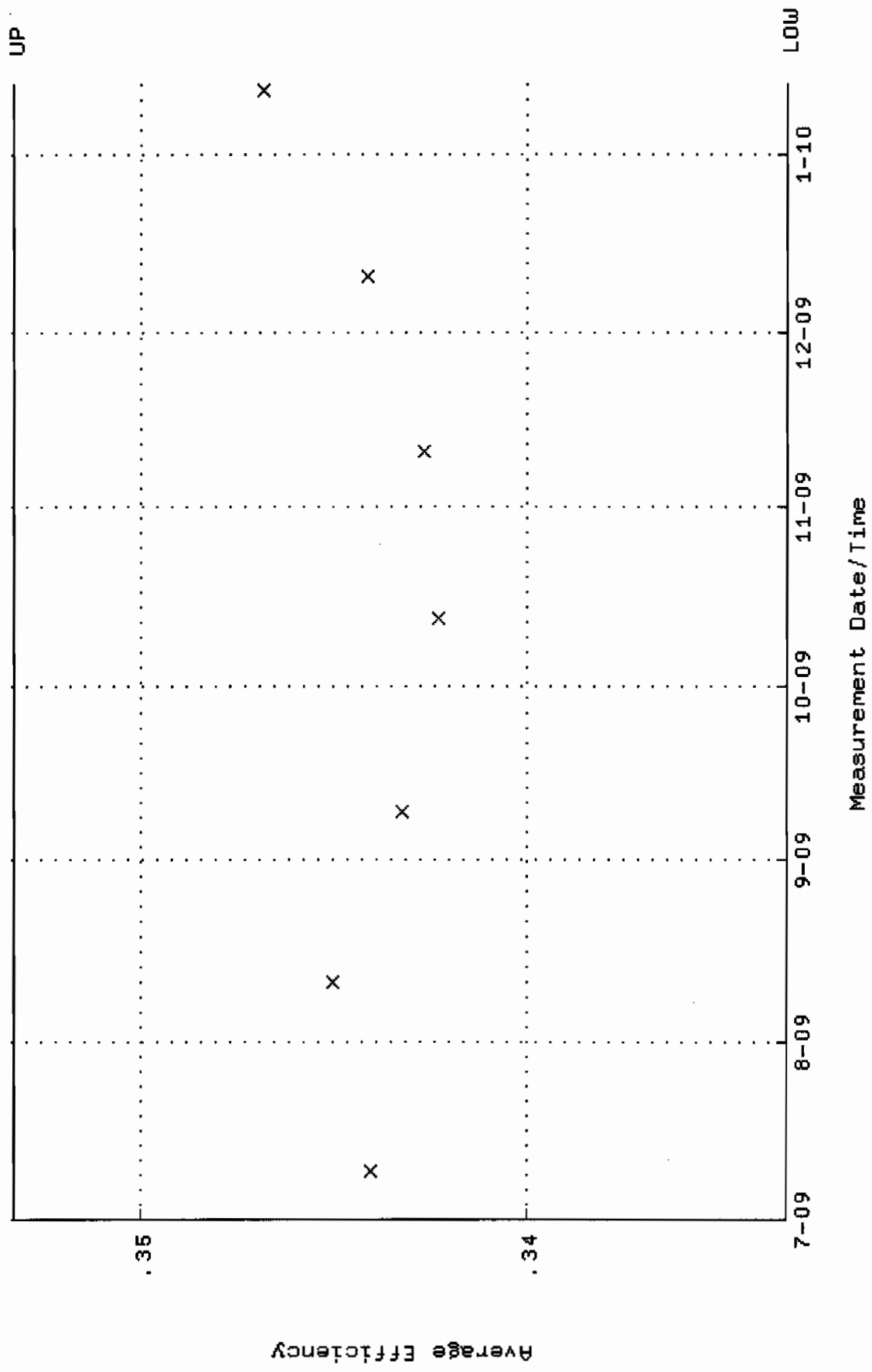




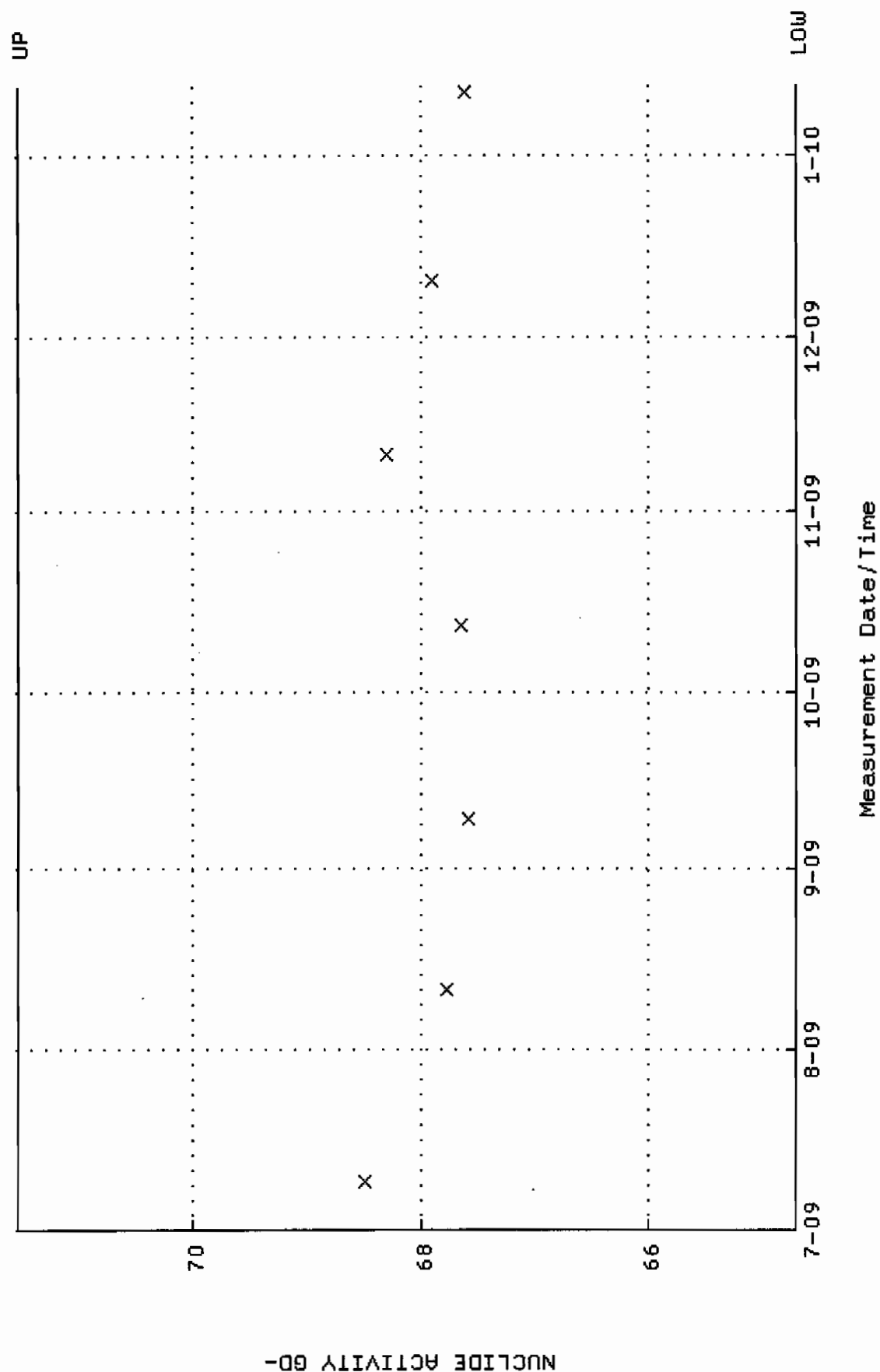
QA filename : DKA100:[ENV\_ALPHA.QA.B]B095.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUL-2009 21:40:00 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



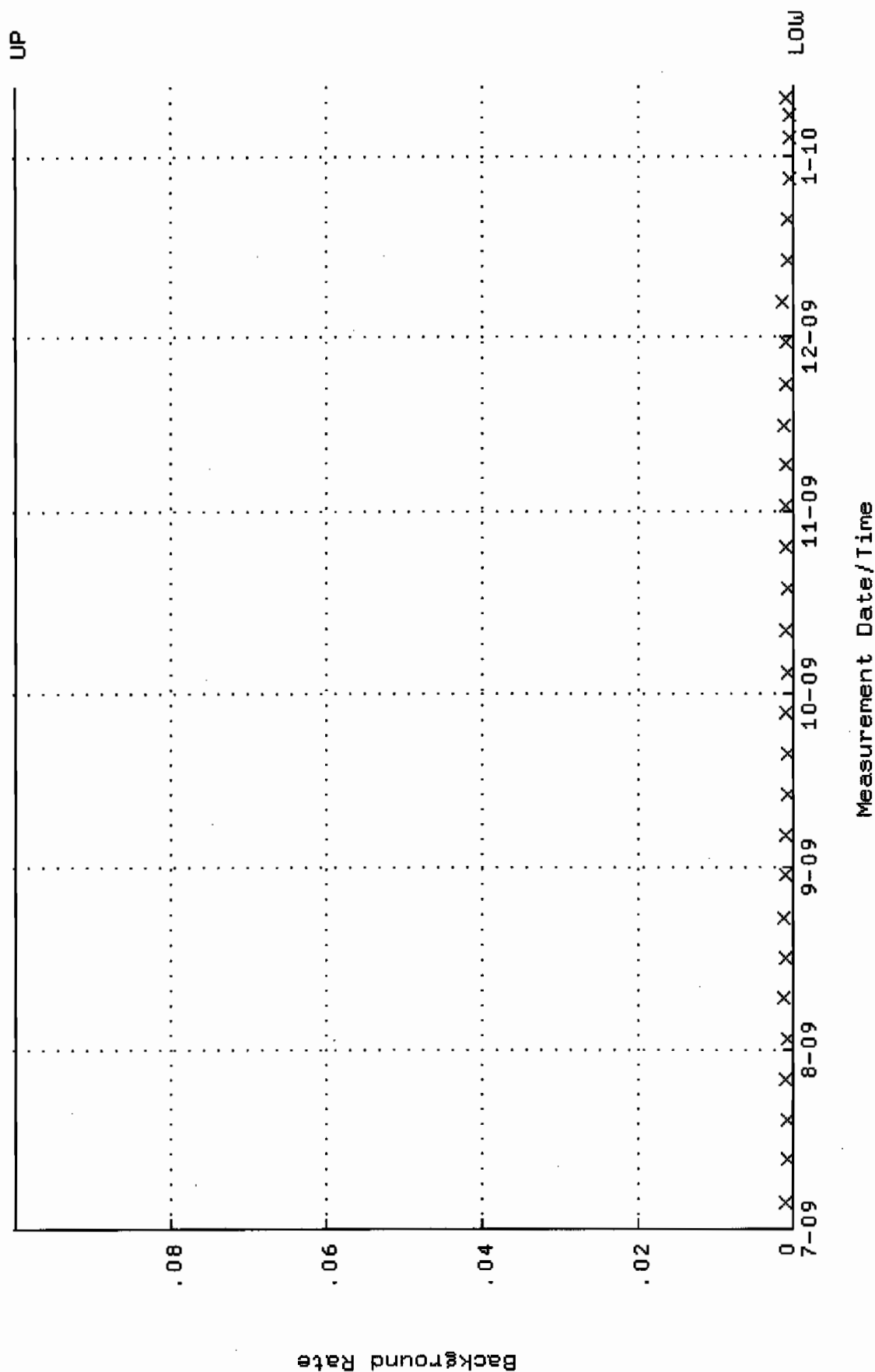
QA filename : DKA100:[ENV\_ALPHA.QA.W]W097.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.333275 through 0.353275



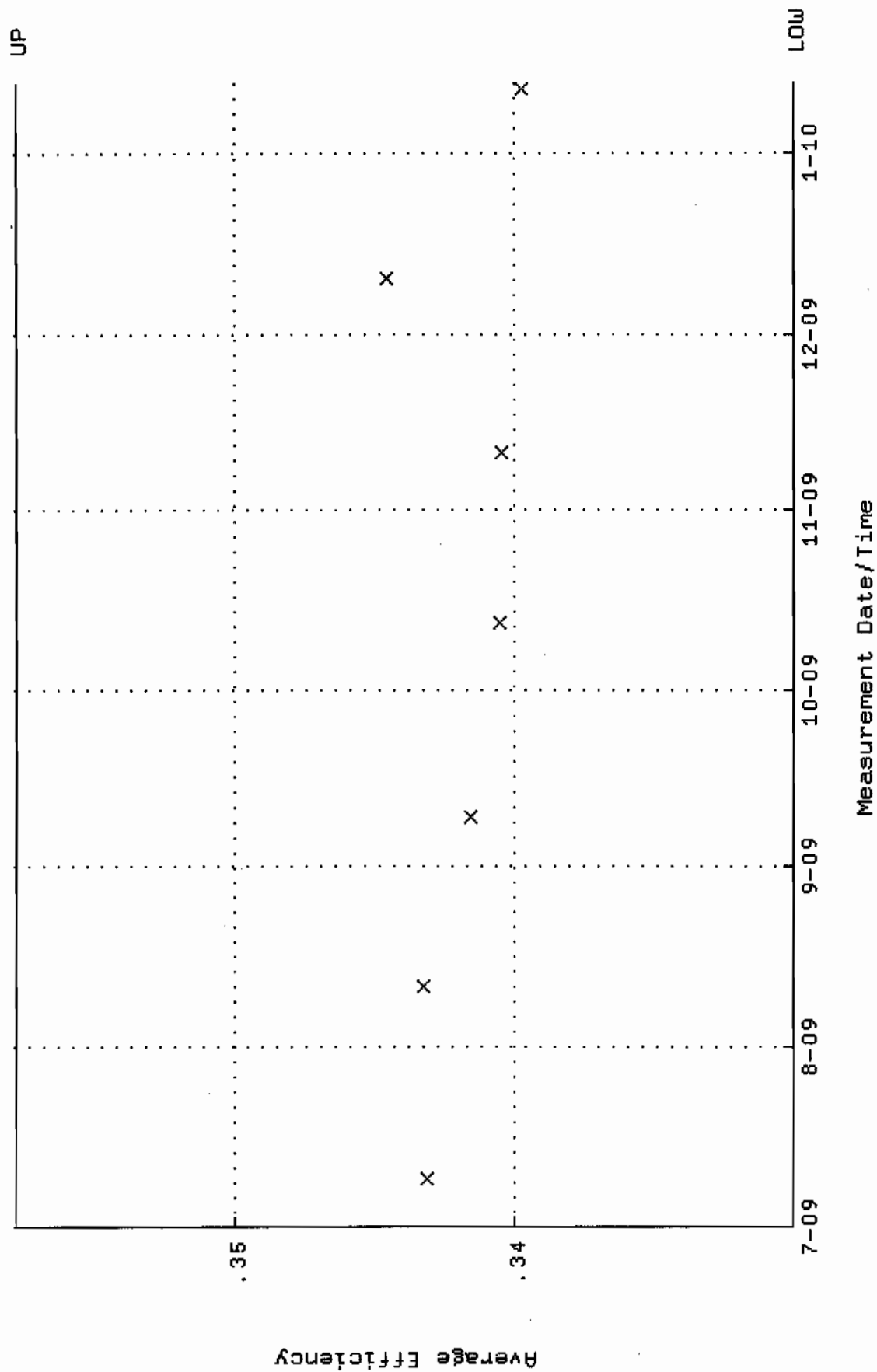
QA filename : DKA100:[ENV\_ALPHA.QA.W]W097.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 64.7068 through 71.5180



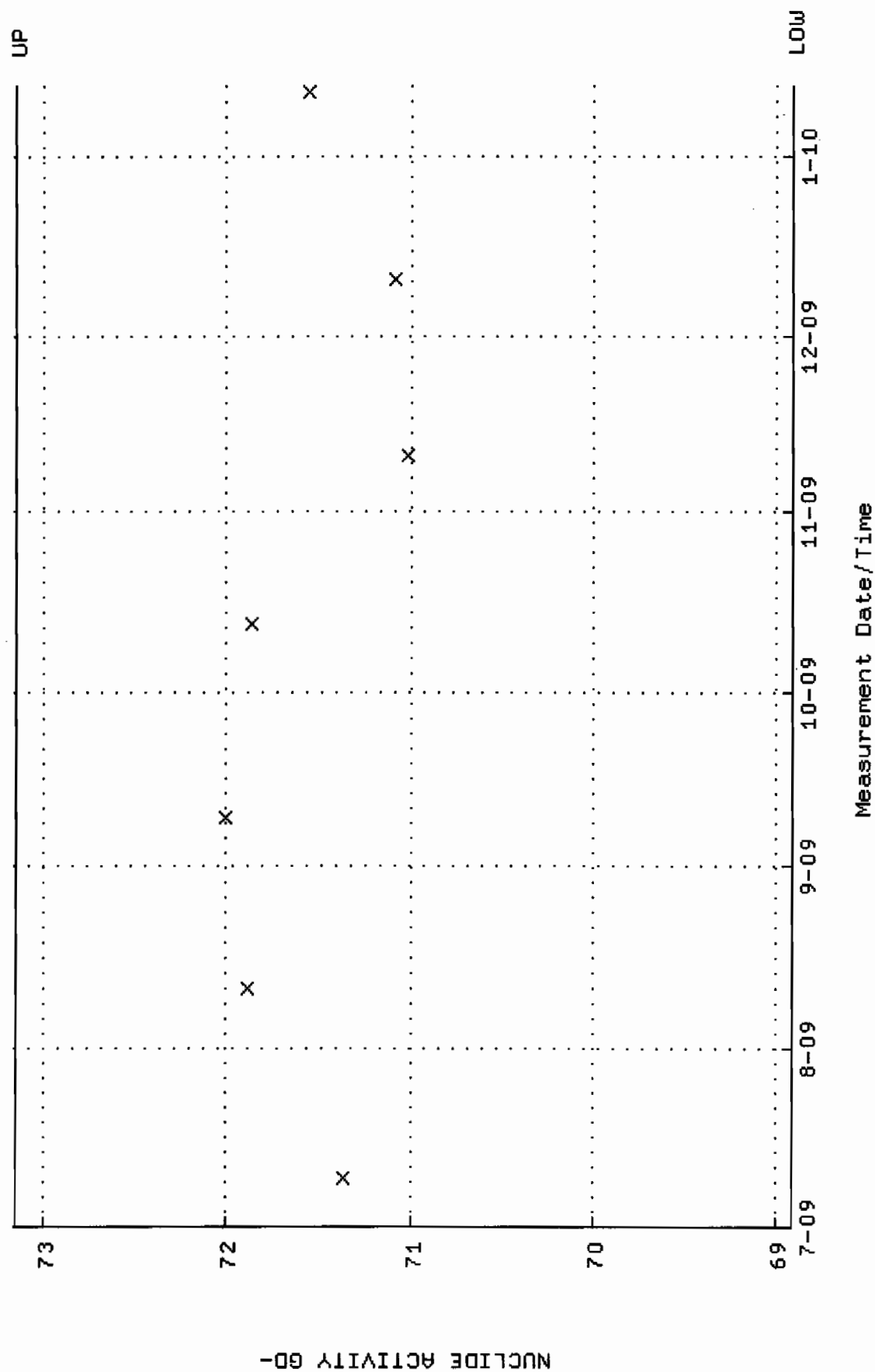
QA filename : DKA100:[ENV\_ALPHA.QA.B]B097.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:05 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



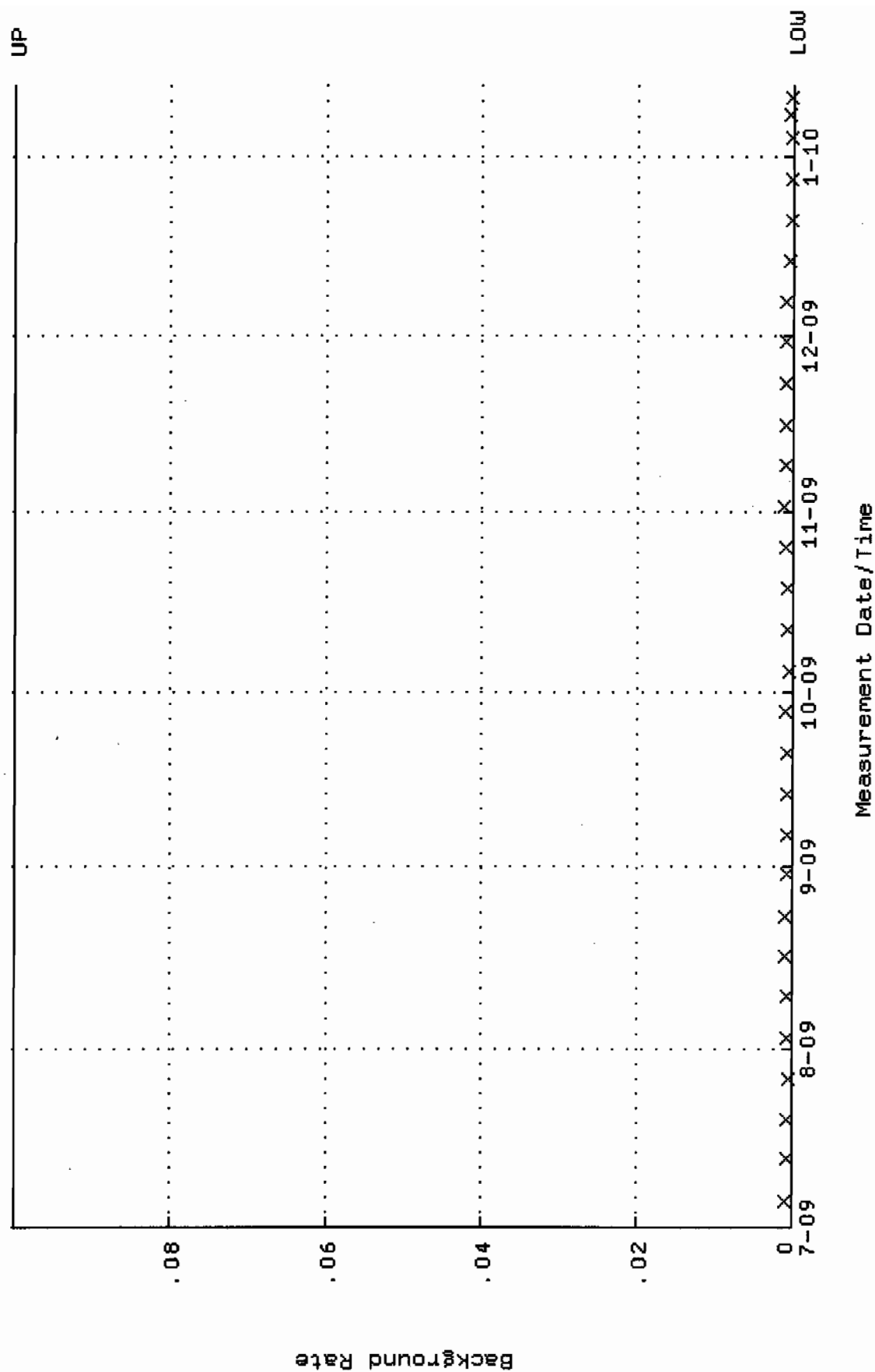
QA filename : DKA100:[ENV\_ALPHA.QA.W]W099.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.330127 through 0.357809



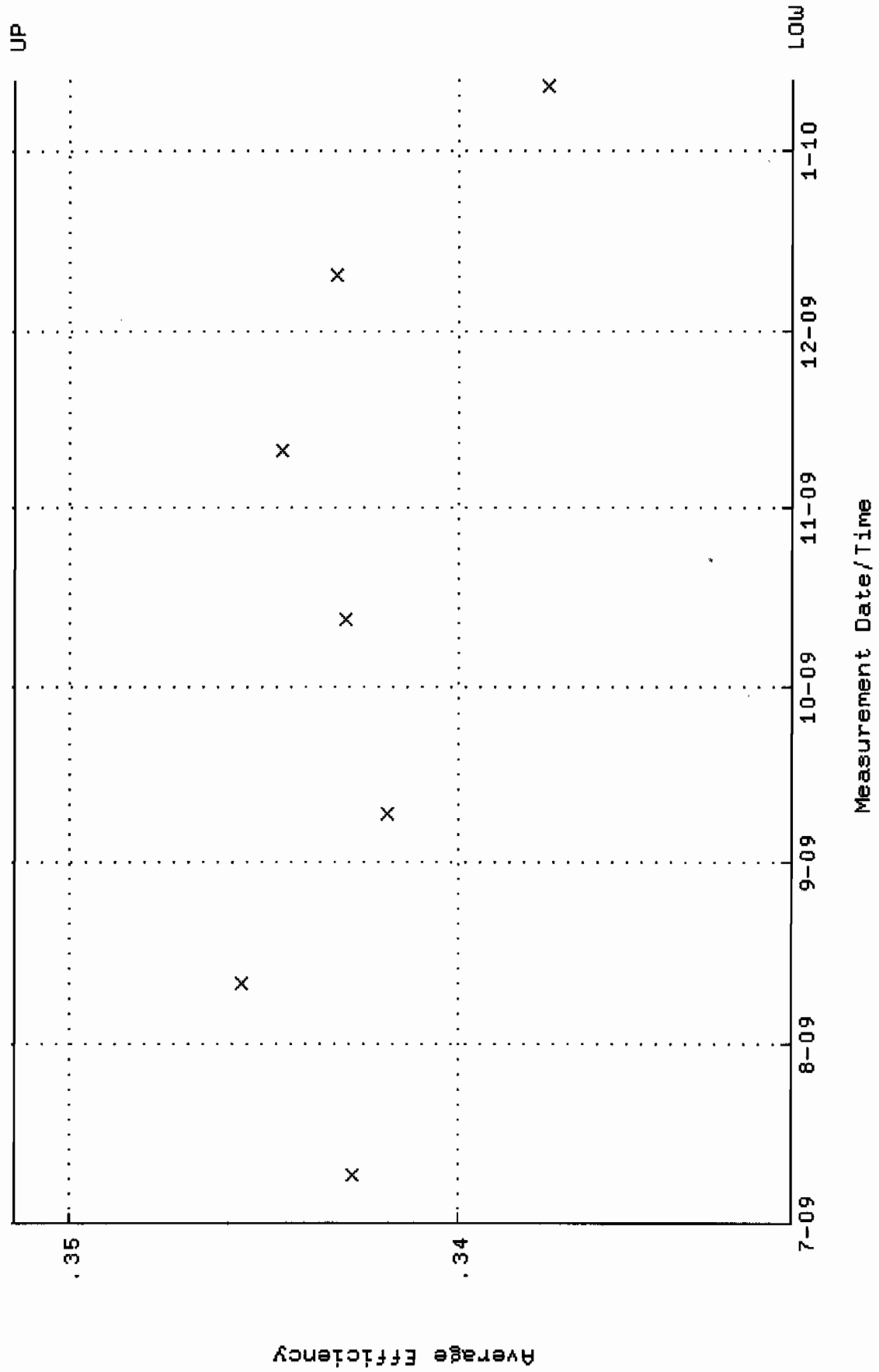
QA filename : DKA100:[ENV\_ALPHA.QA.W]W099.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 68.9116 through 73.1498



QA filename : DKA100:[ENV\_ALPHA.QA.B]B099.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:05 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

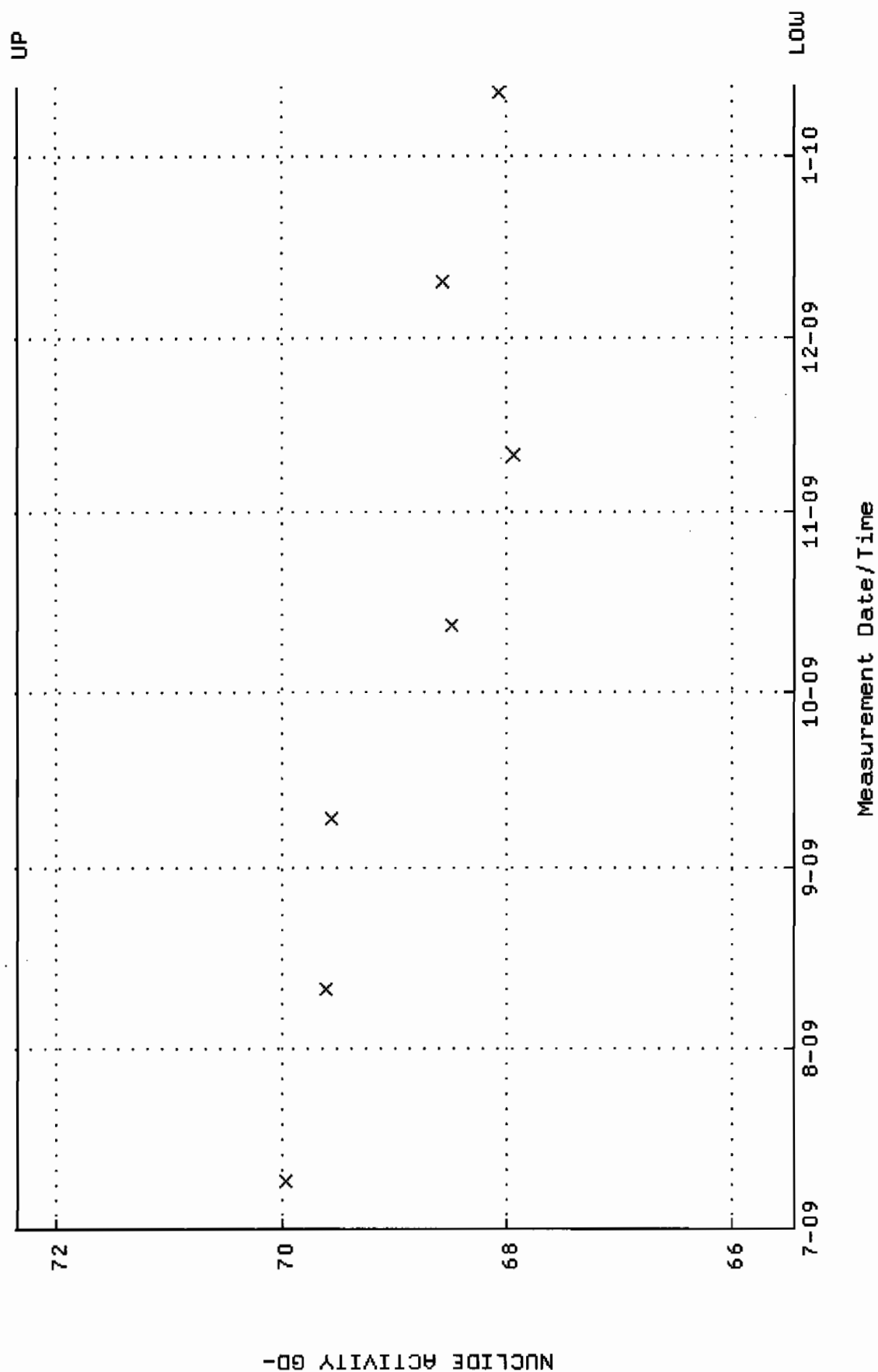


QA filename : DKA100:[ENV\_ALPHA.QA.W]W100.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.331433 through 0.351433

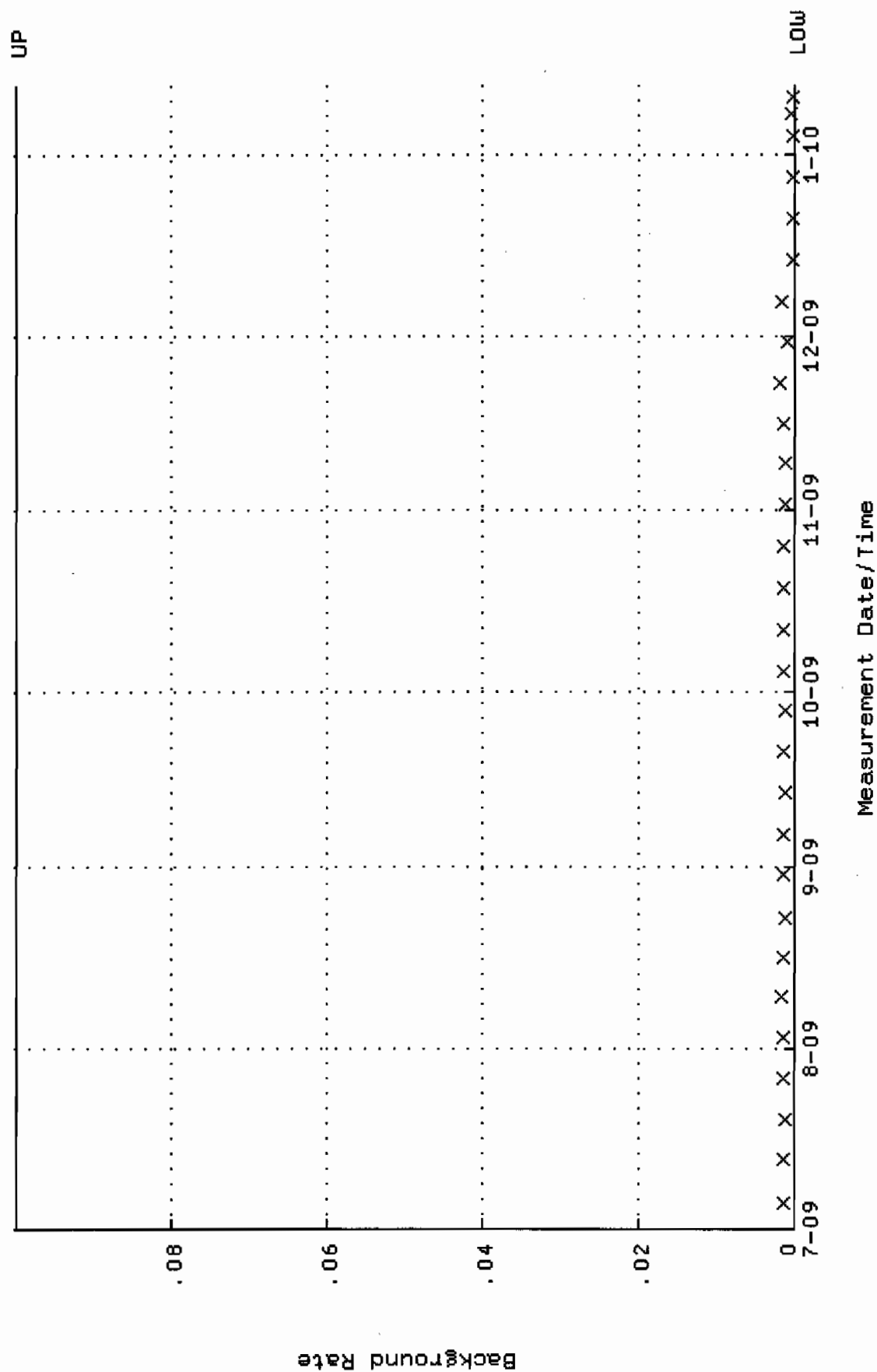




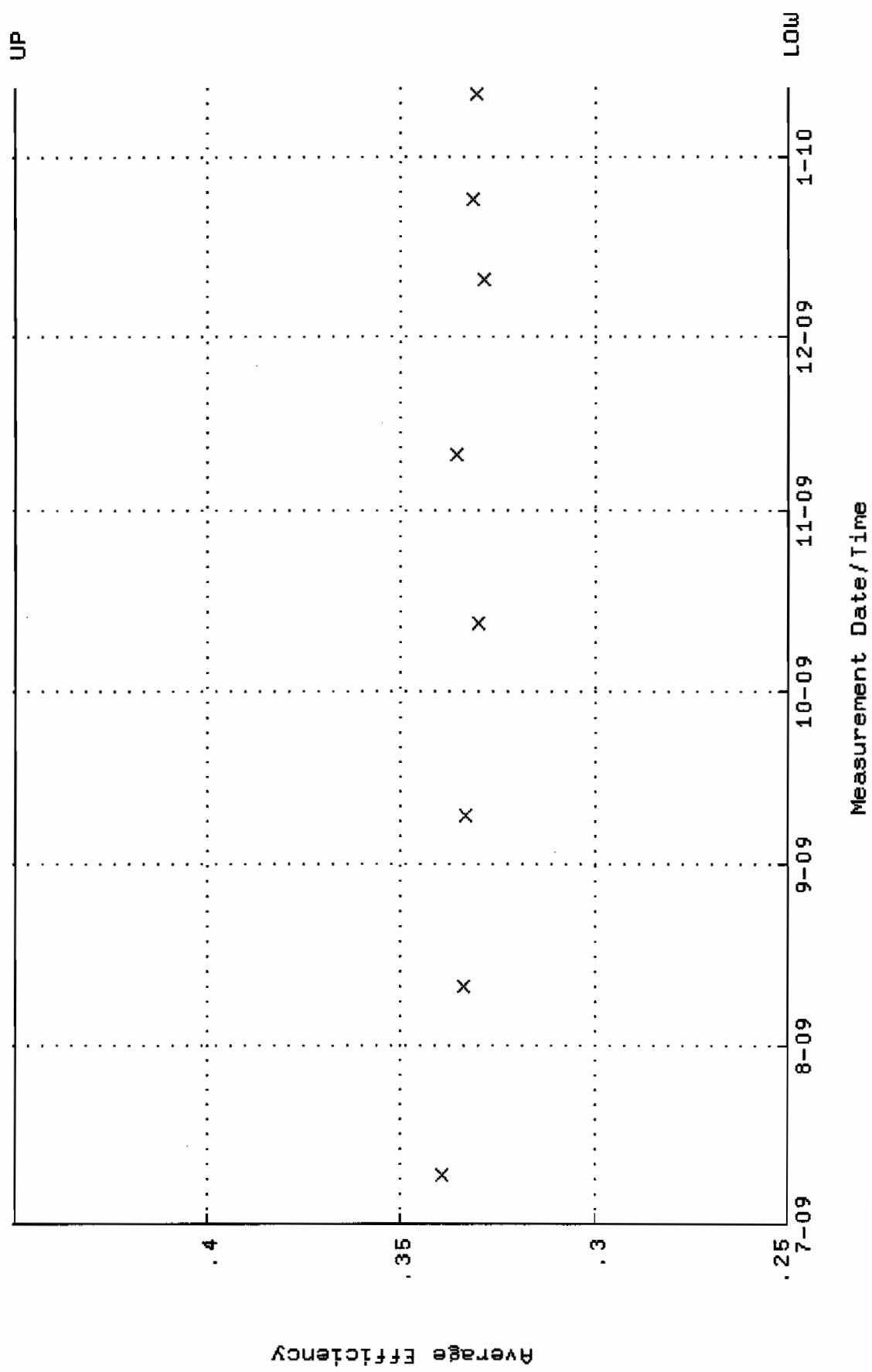
QA filename : DKA100:[ENV\_ALPHA.QA.W]W100.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:14 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 65.4550 through 72.3450



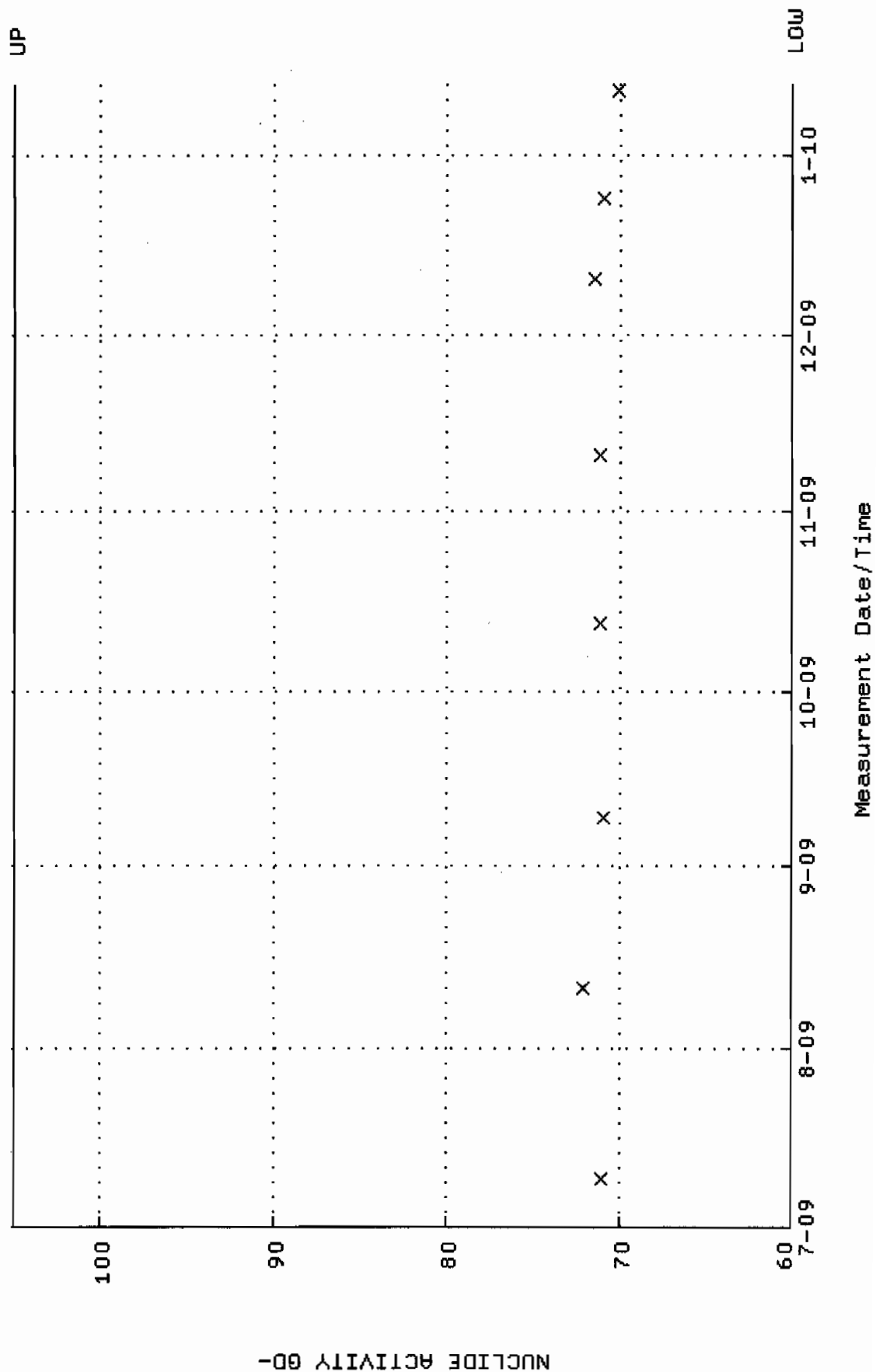
QA filename : DKA100:[ENV\_ALPHA.QA.B]B100.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:05 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



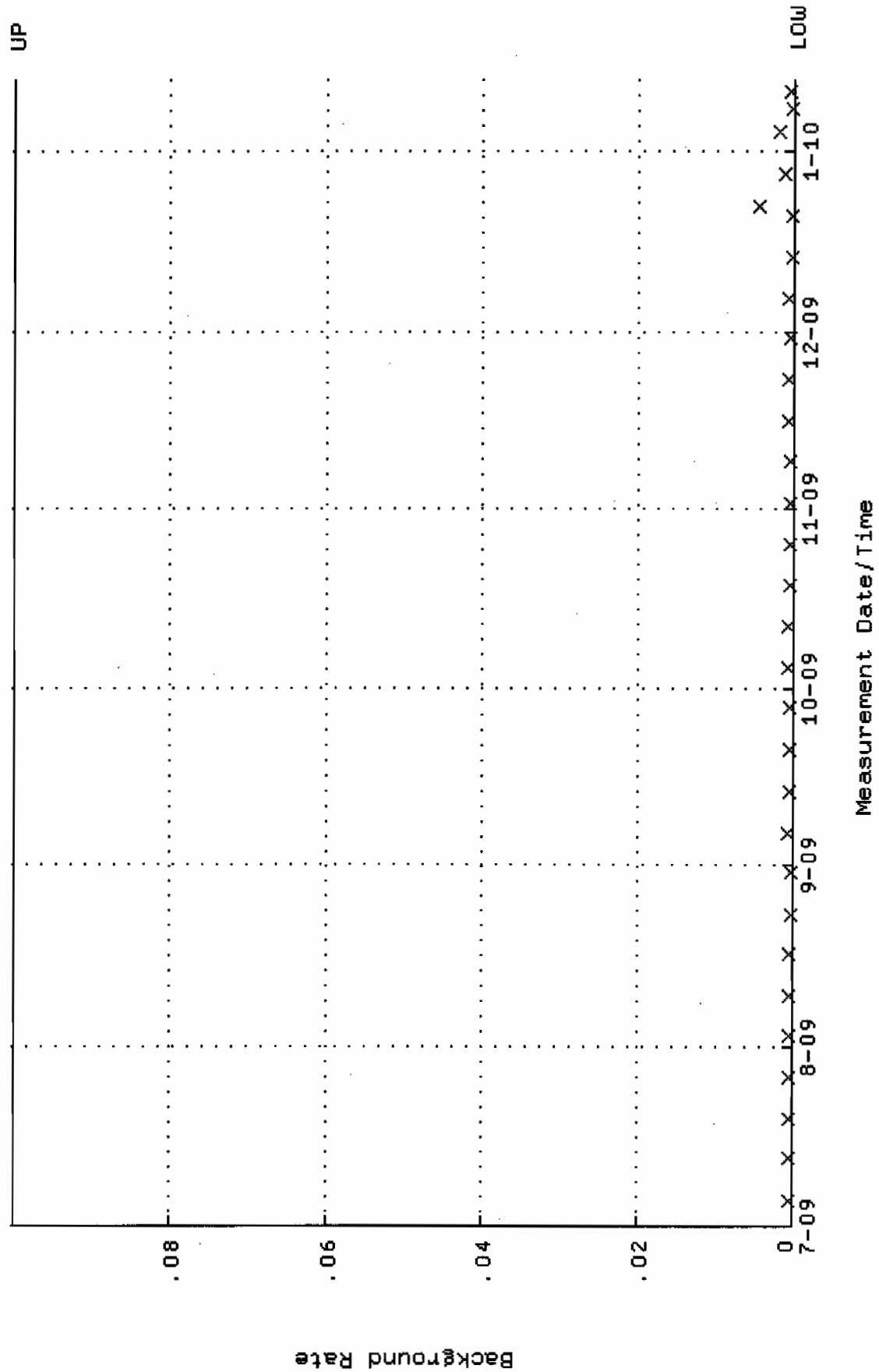
QA filename : DKA100:[ENV\_ALPHA.QA.W]W101.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



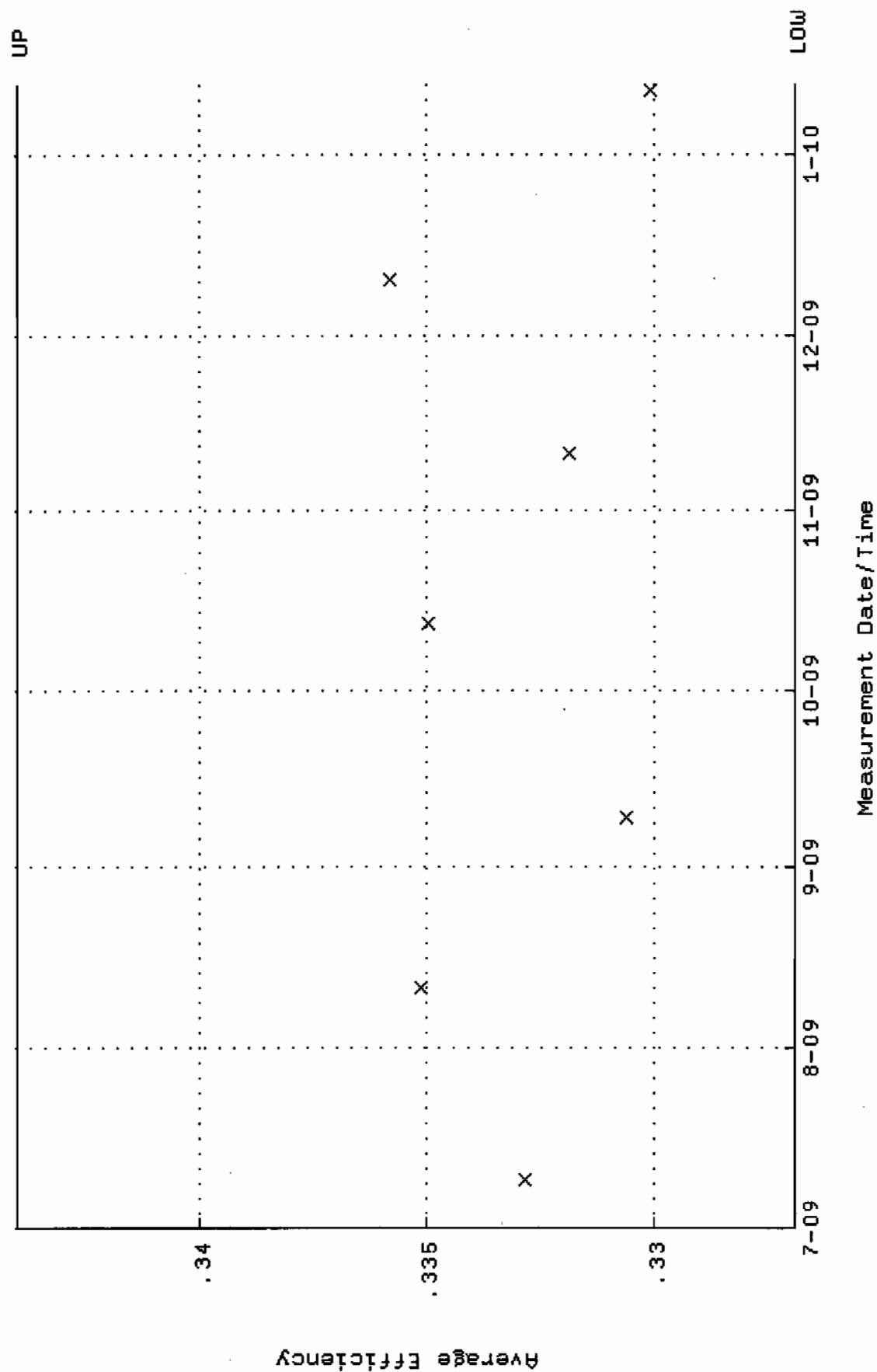
QA filename : DKA100:[ENV\_ALPHA.QA.W]W101.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



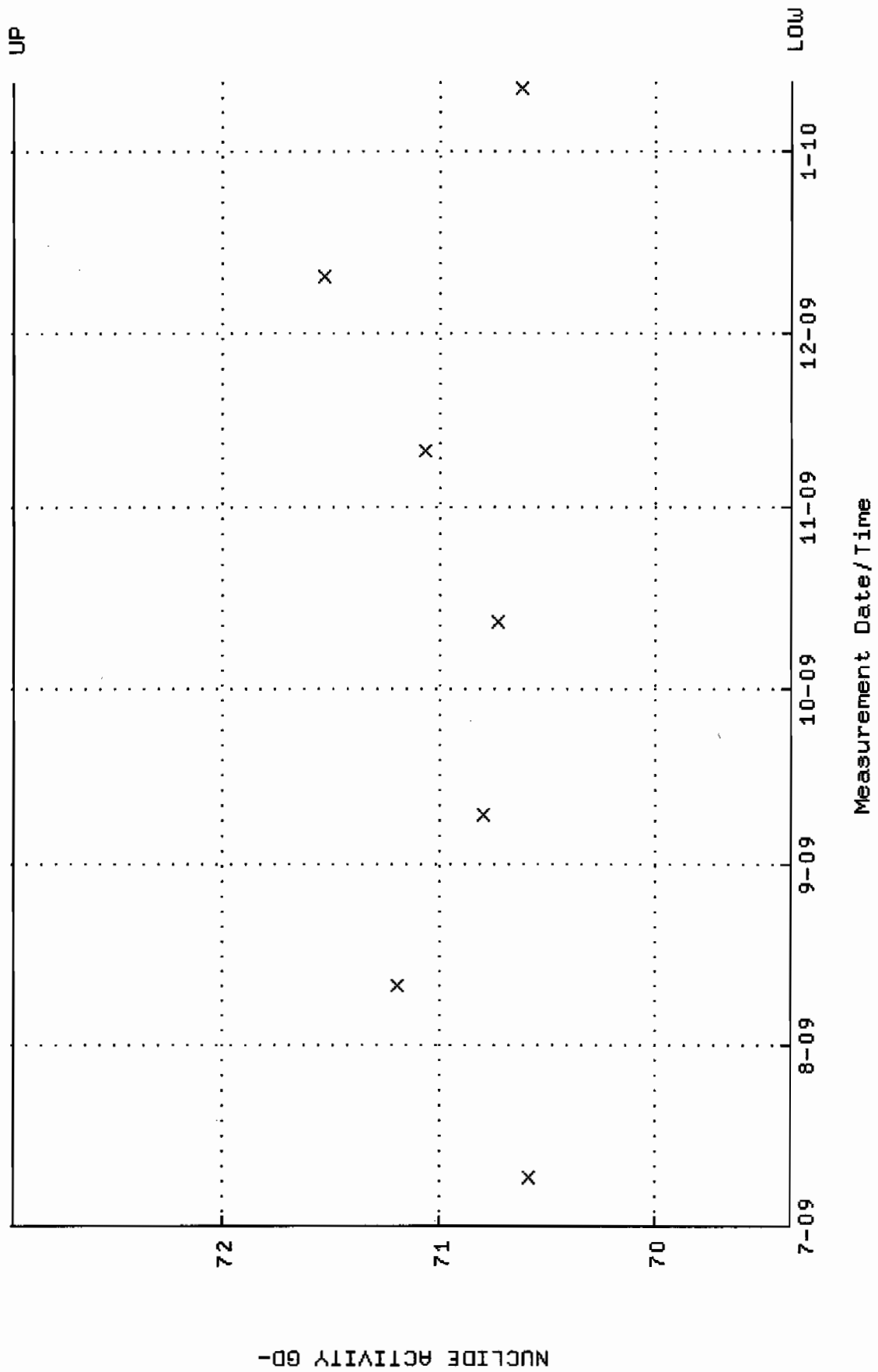
QA filename : DKA100:[ENV\_ALPHA.QA.B]B101.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:06 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W102.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.326915 through 0.344021



QA filename : DKA100:[ENV\_ALPHA.QA.W]W102.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 69.3731 through 72.9663

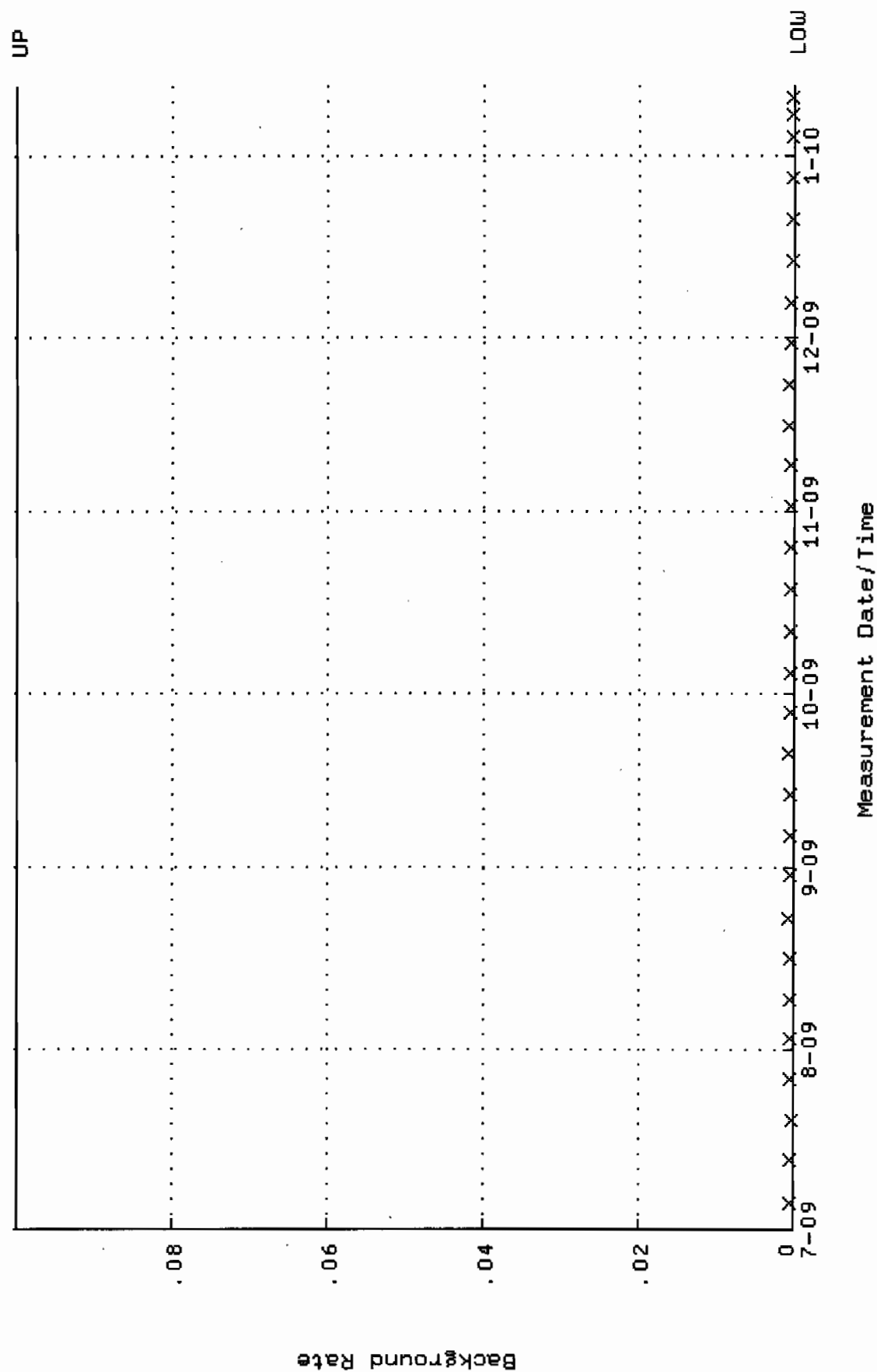


QA filename : DKA100:[ENV\_ALPHA.QA.B]B102.QAF;2

Parameter Name : BACKRATE (Background Rate)

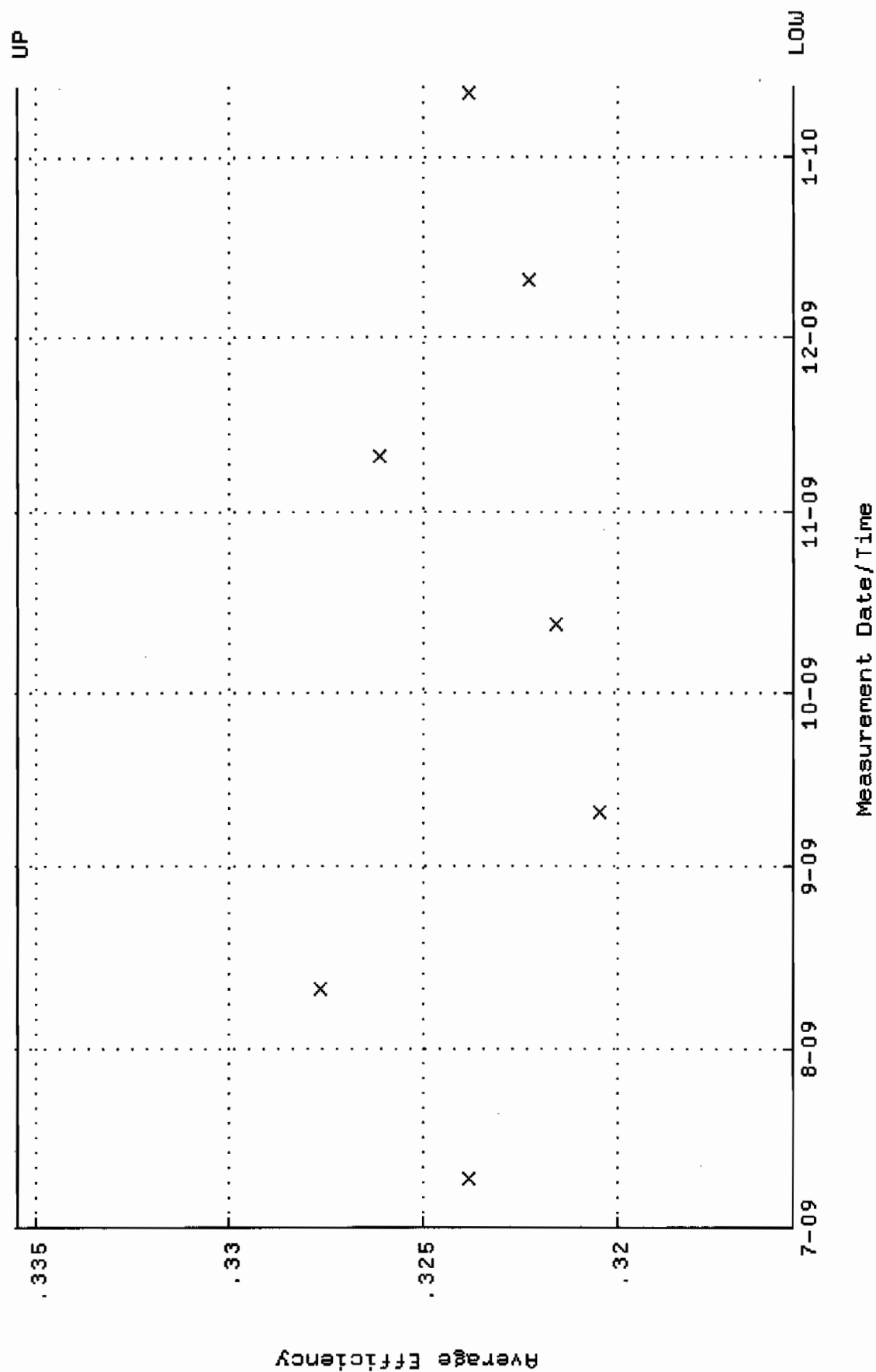
Start/End Dates : 5-JUL-2009 15:12:06 through 12-JAN-2010 12:00:00

Lower/Upper Lmts: 0.000000E+00 through 0.100000

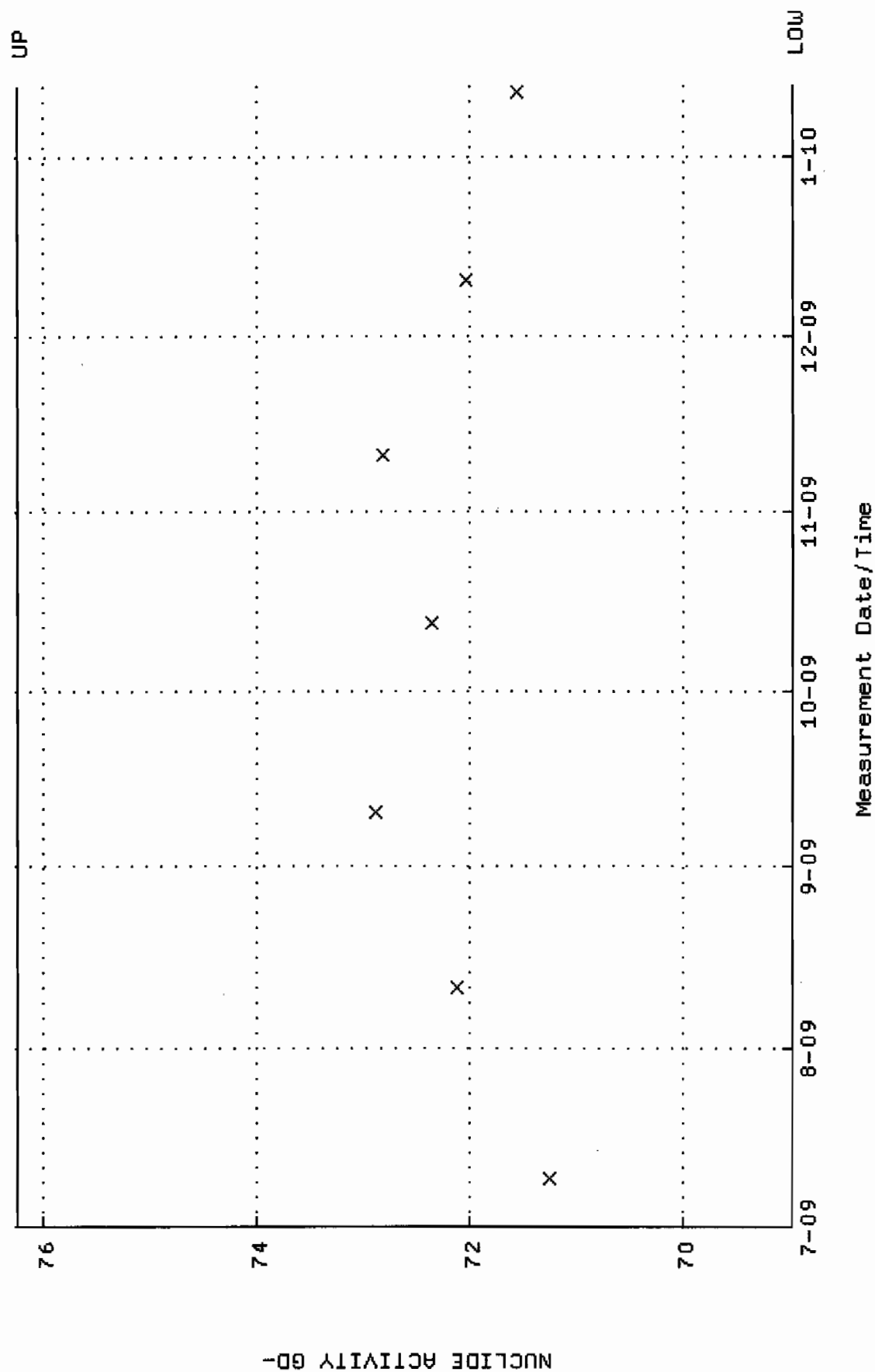




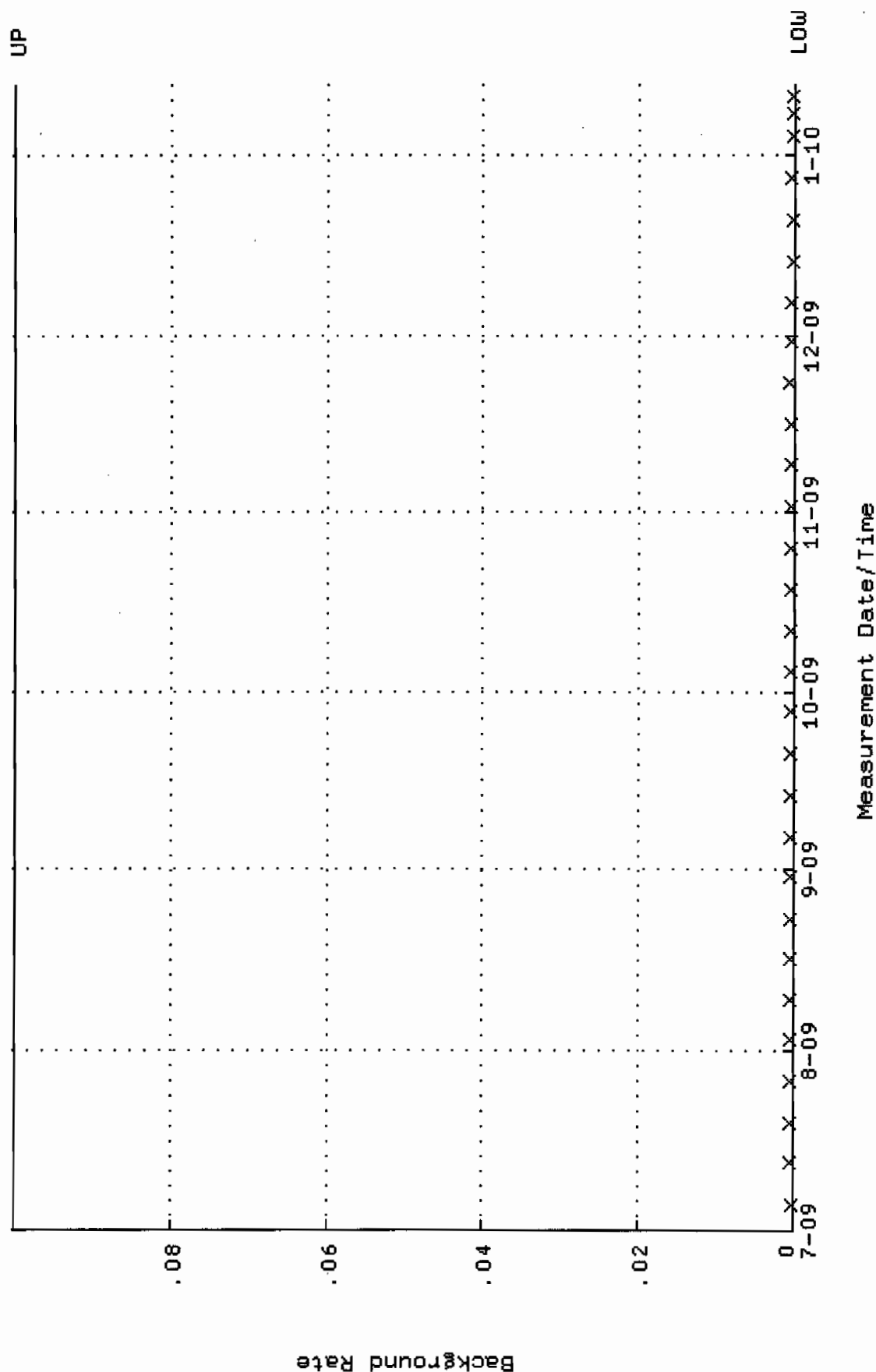
QA filename : DKA100:[ENV\_ALPHA.QA.W]W105.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.315468 through 0.335468



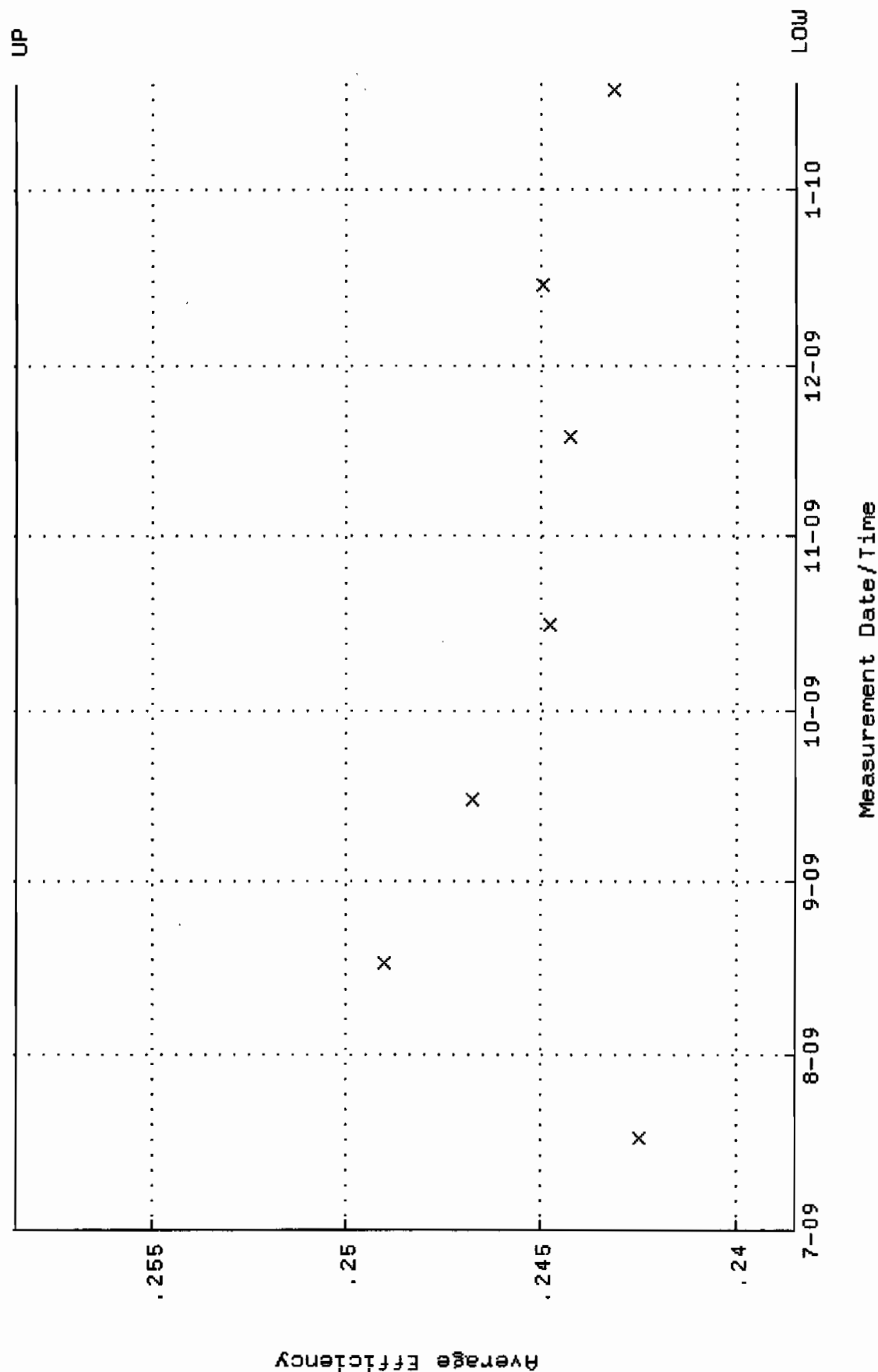
QA filename : DKA100:[ENV\_ALPHA.QA.W]w105.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:15 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 68.9774 through 76.2382



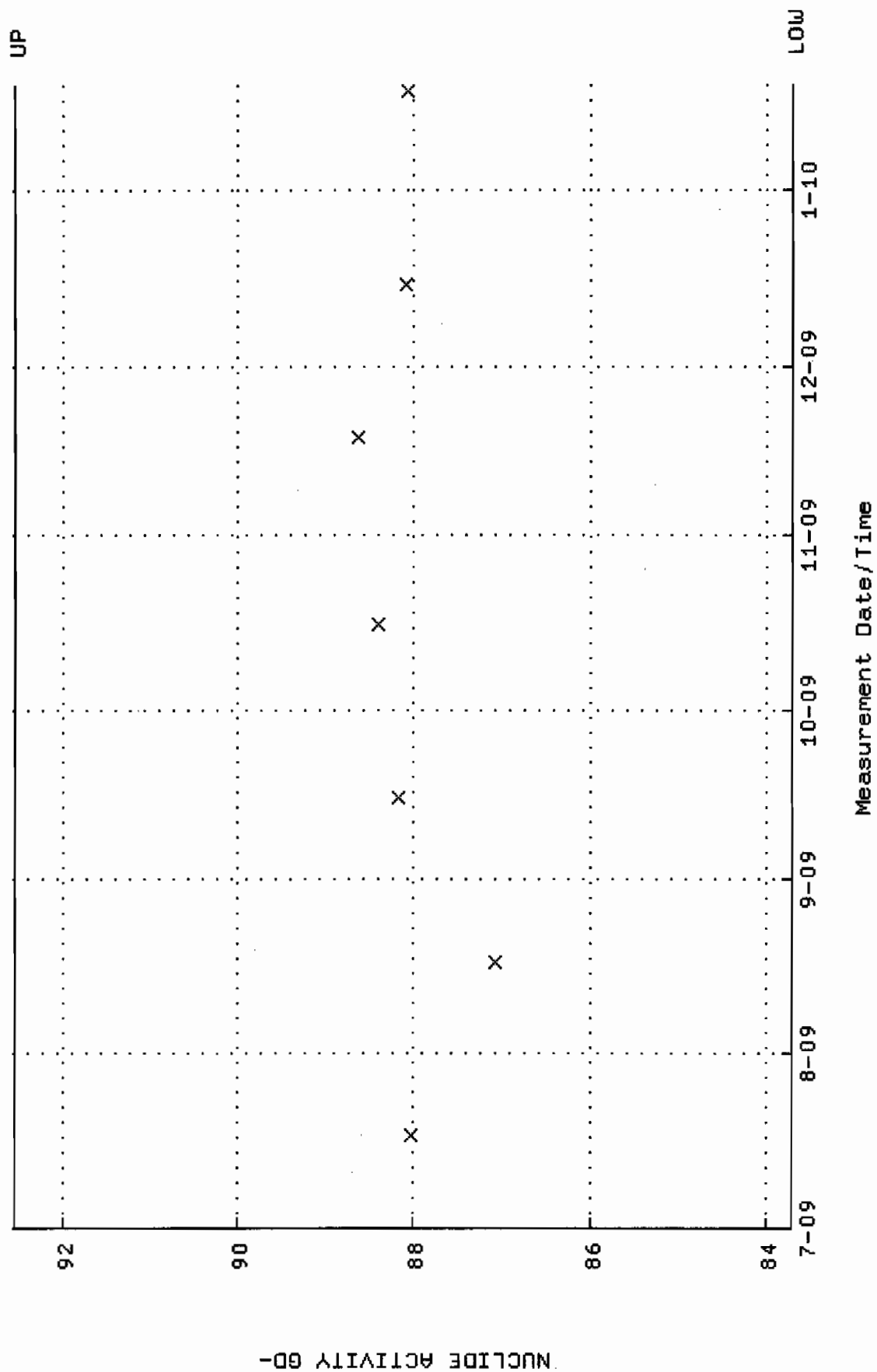
QA filename : DKA100:[ENV\_ALPHA.QA.B]B105.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:06 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



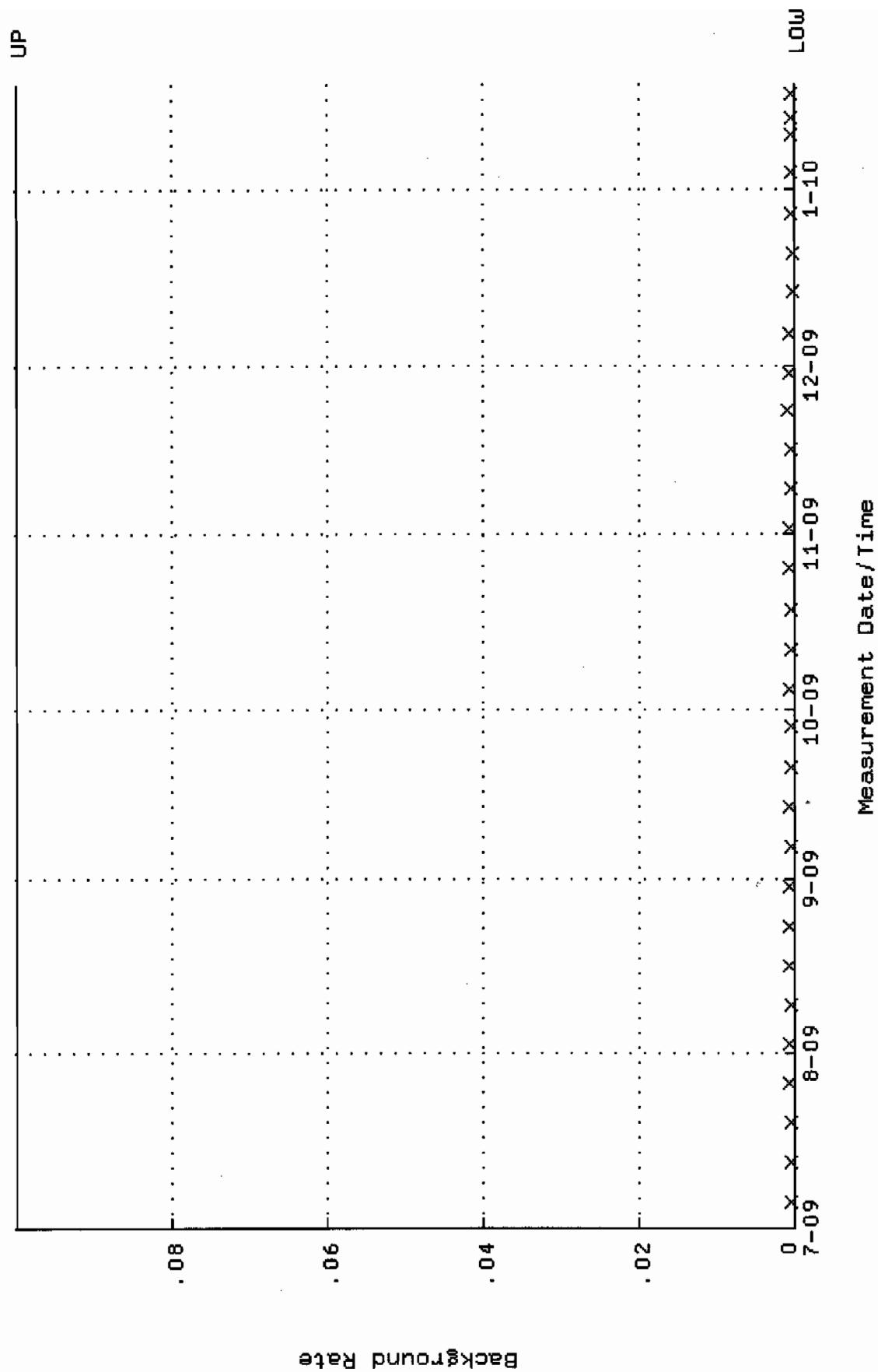
QA filename : DKA100:[ENV\_ALPHA.QA.W]W152.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:13:54 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.238479 through 0.258479



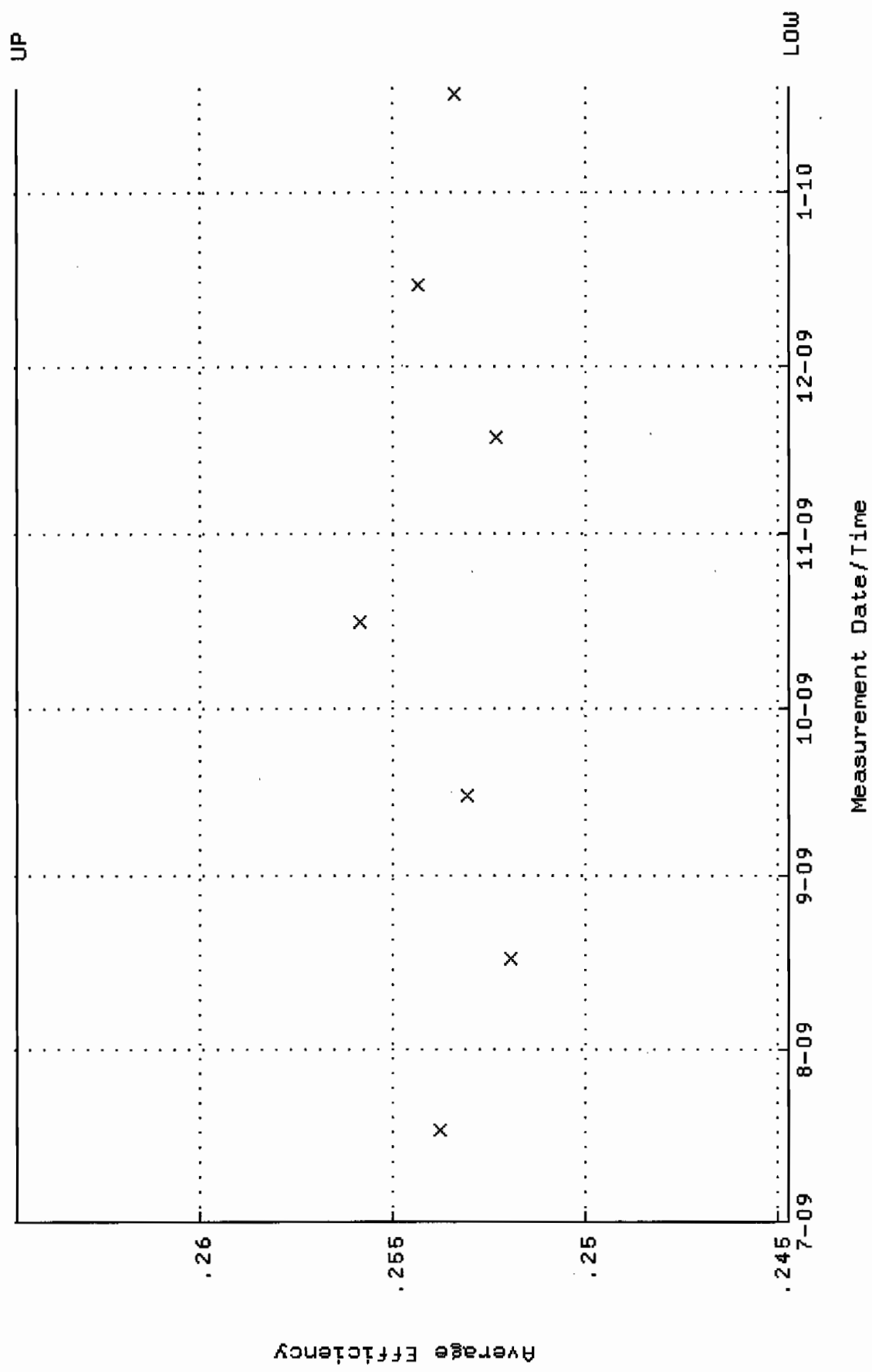
QA filename : DKA100:[ENV\_ALPHA.QA.W]W152.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:13:54 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.7180 through 92.5304



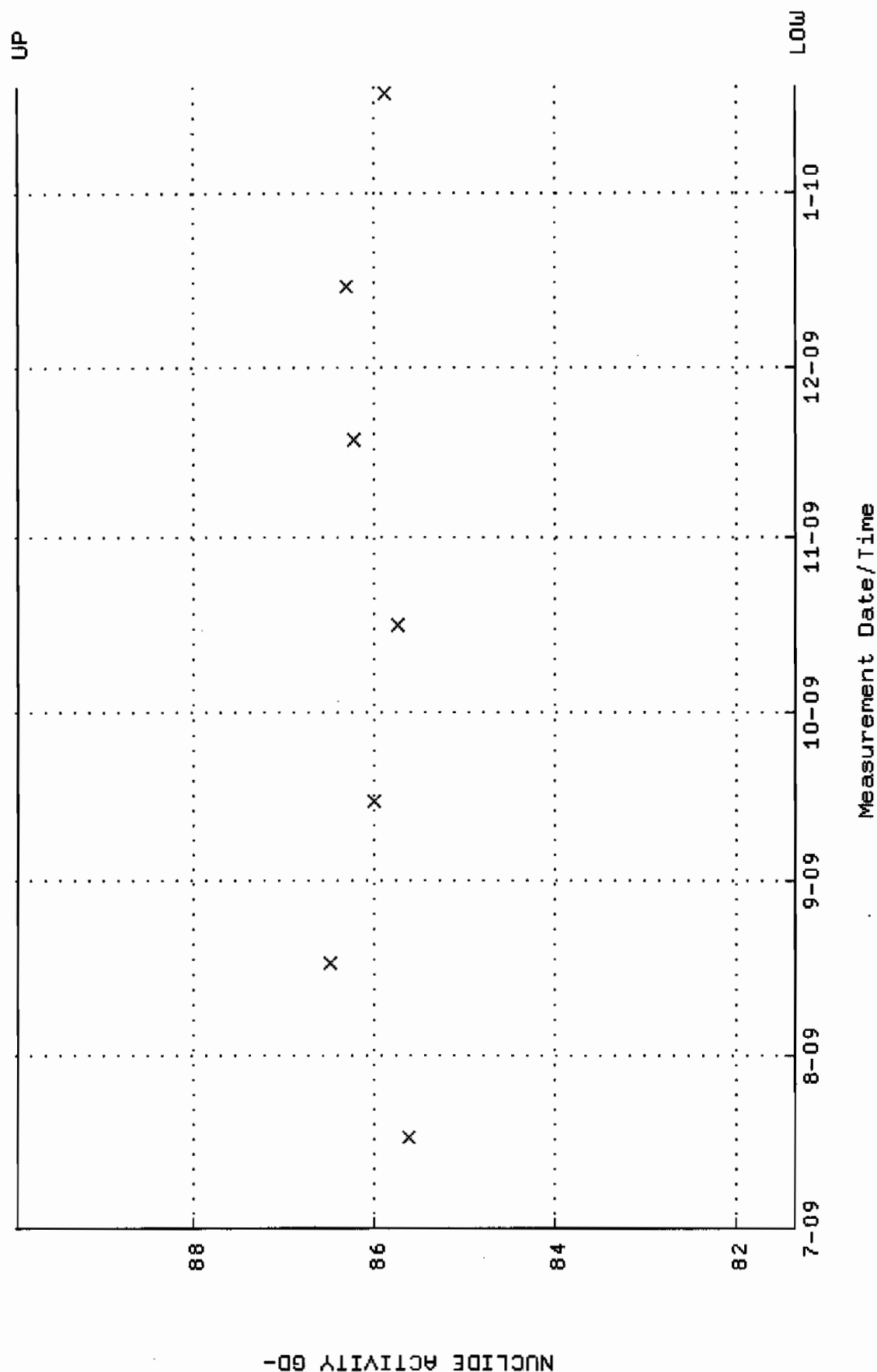
QA filename : DKA100:[ENV\_ALPHA.QA.B]B152.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:57:57 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]w153.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:13:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.244738 through 0.264738

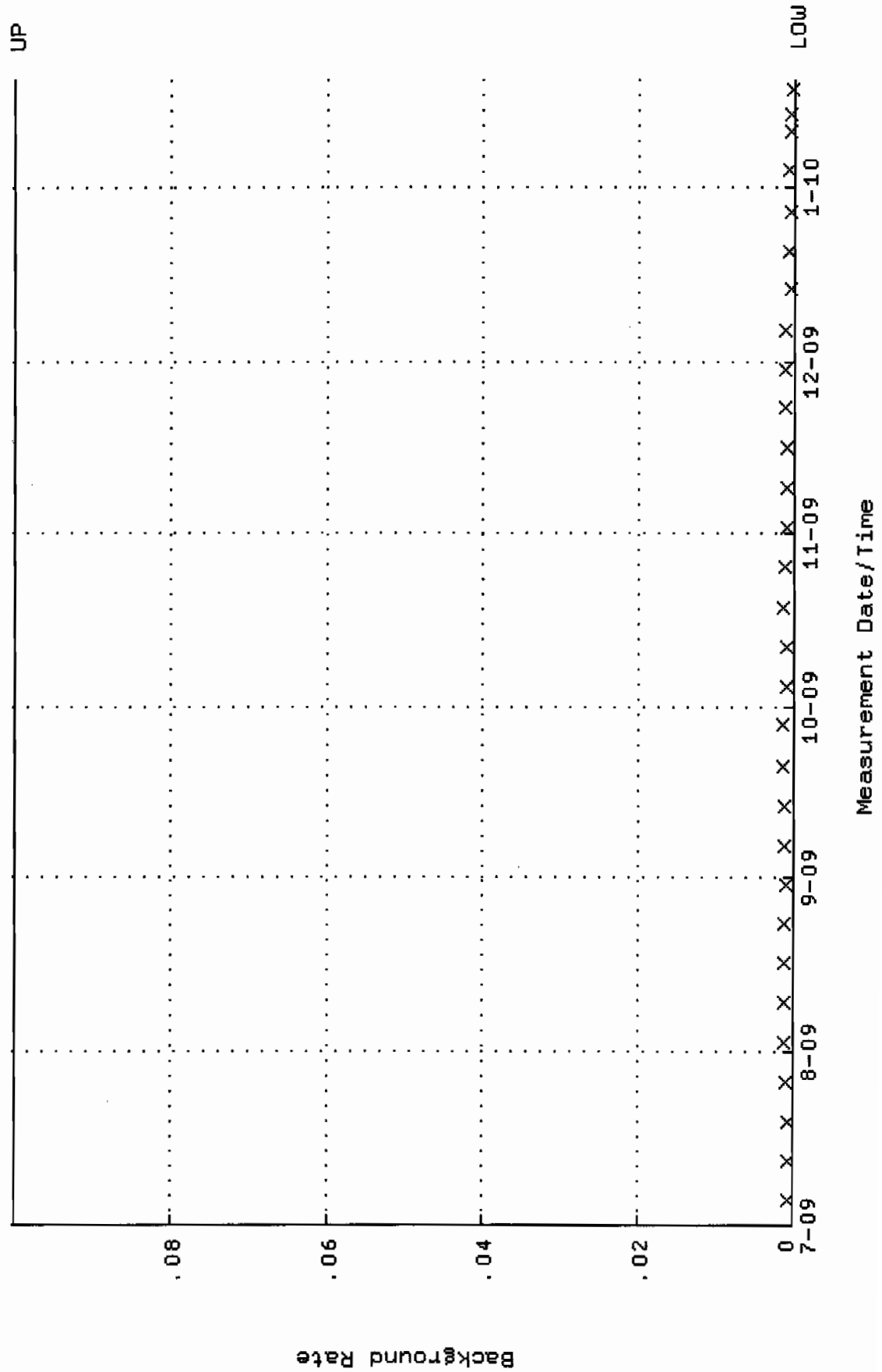


QA filename : DKA100:[ENV\_ALPHA.QA.W]w153.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:13:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 81.3634 through 89.9280

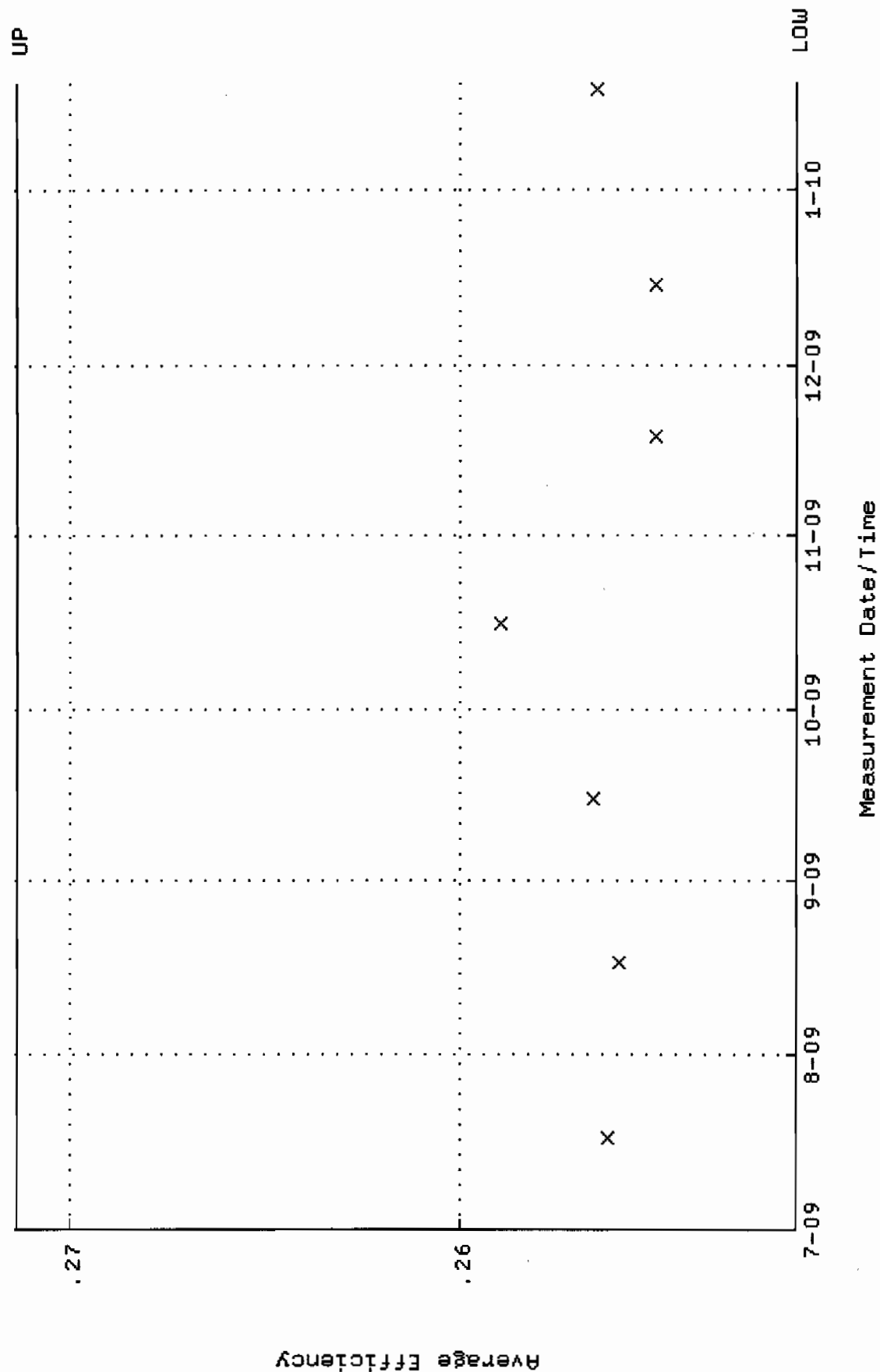




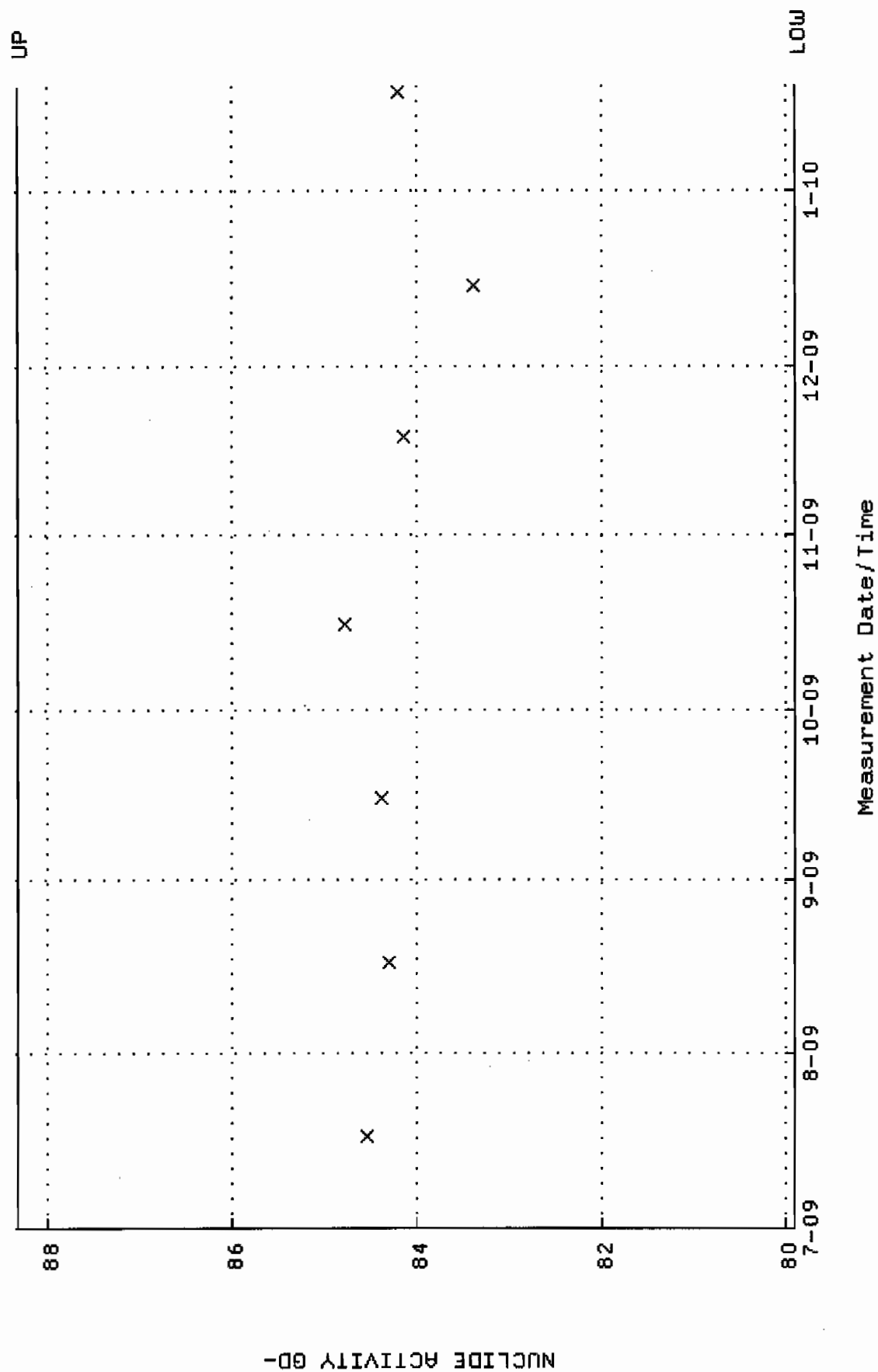
QA filename : DKA100:[ENV\_ALPHA.QA.B]B153.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:02 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W154.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:04 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.251386 through 0.271386



QA filename : DKA100:[ENV\_ALPHA.QA.W]w154.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:04 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 79.9003 through 88.3109

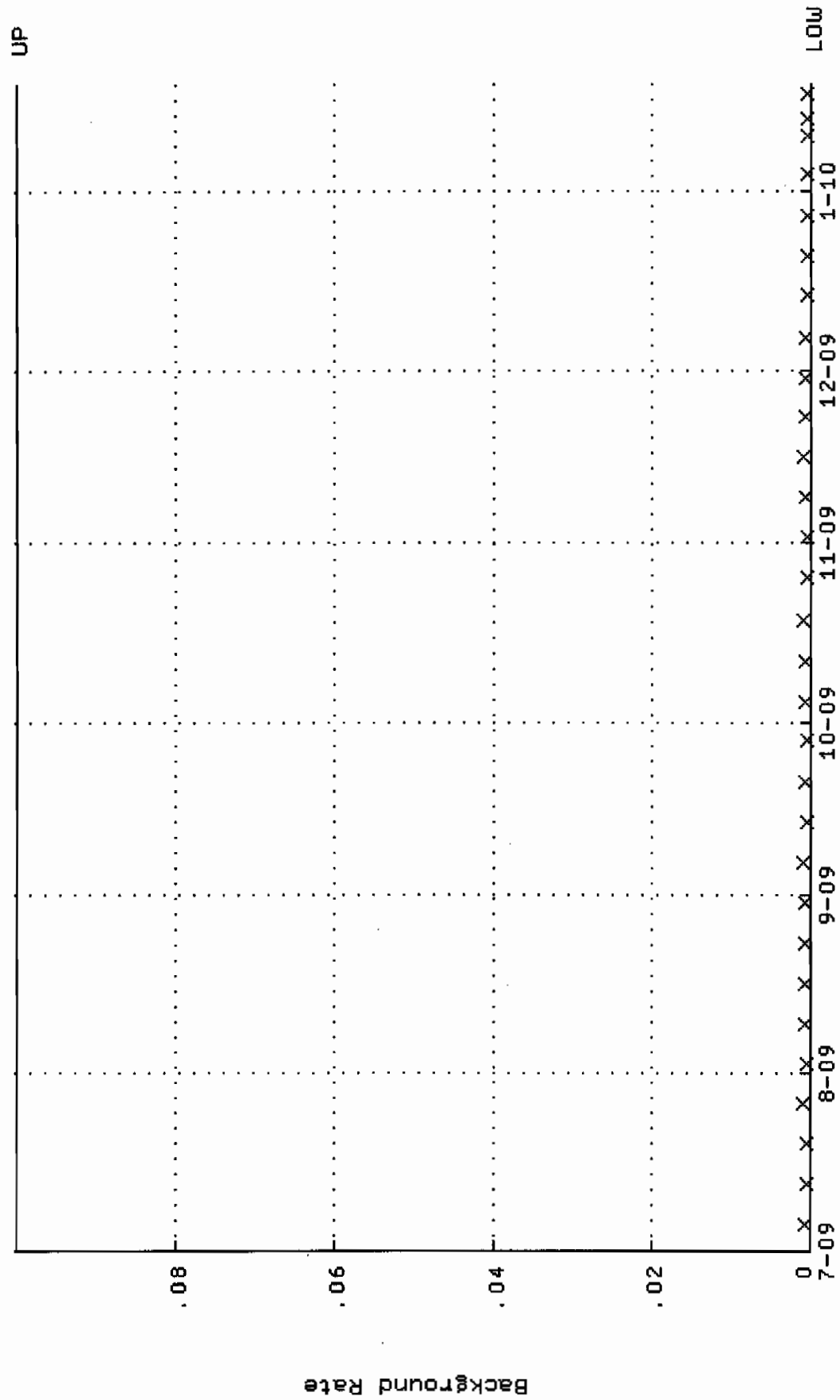


QA filename : DKA100:[ENV\_ALPHA.QA.B]B154.QAF;1

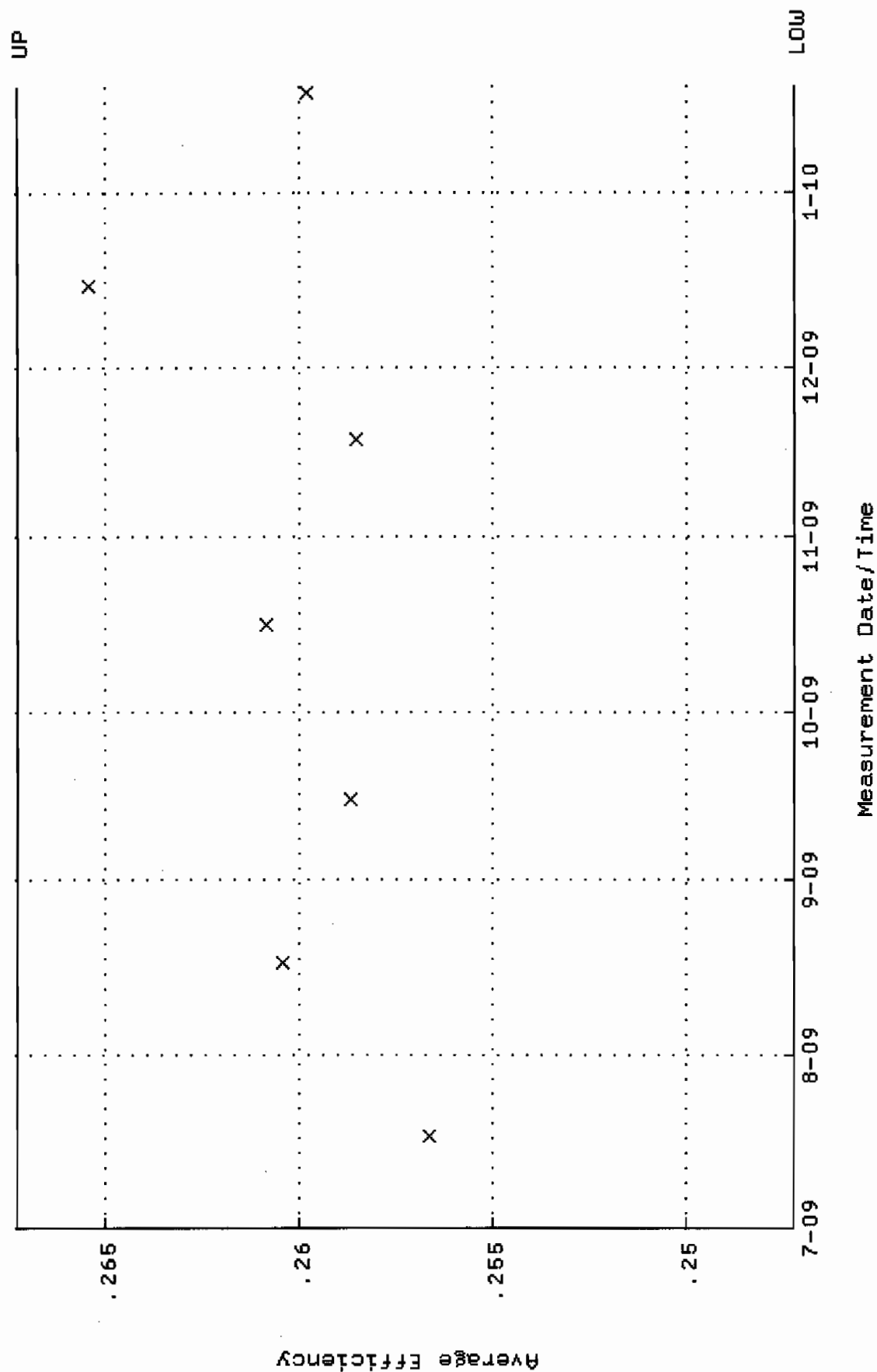
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 5-JUL-2009 14:58:07 through 19-JAN-2010 12:00:00

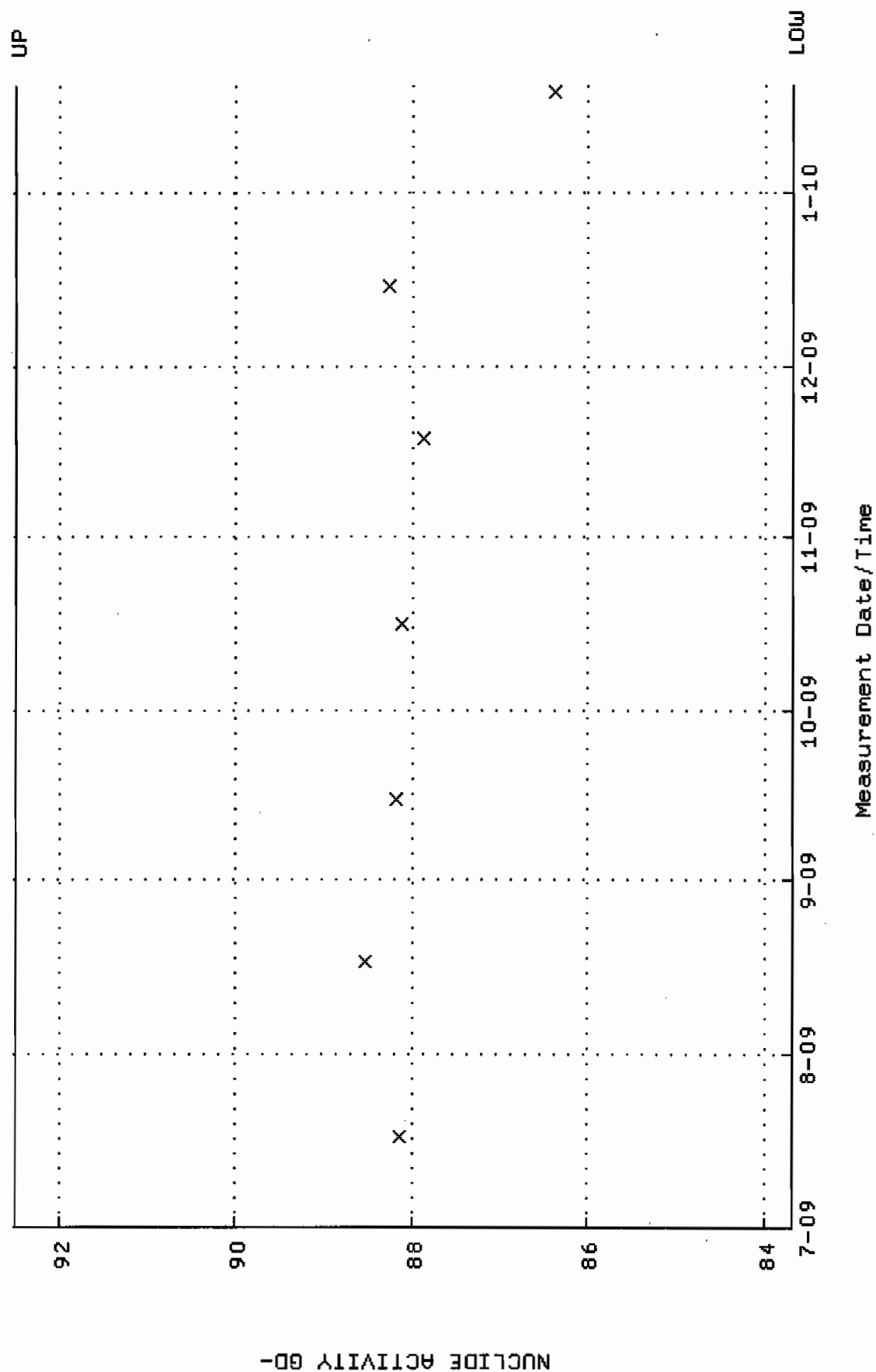
Lower/Upper Lmts: 0.000000E+00 through 0.100000



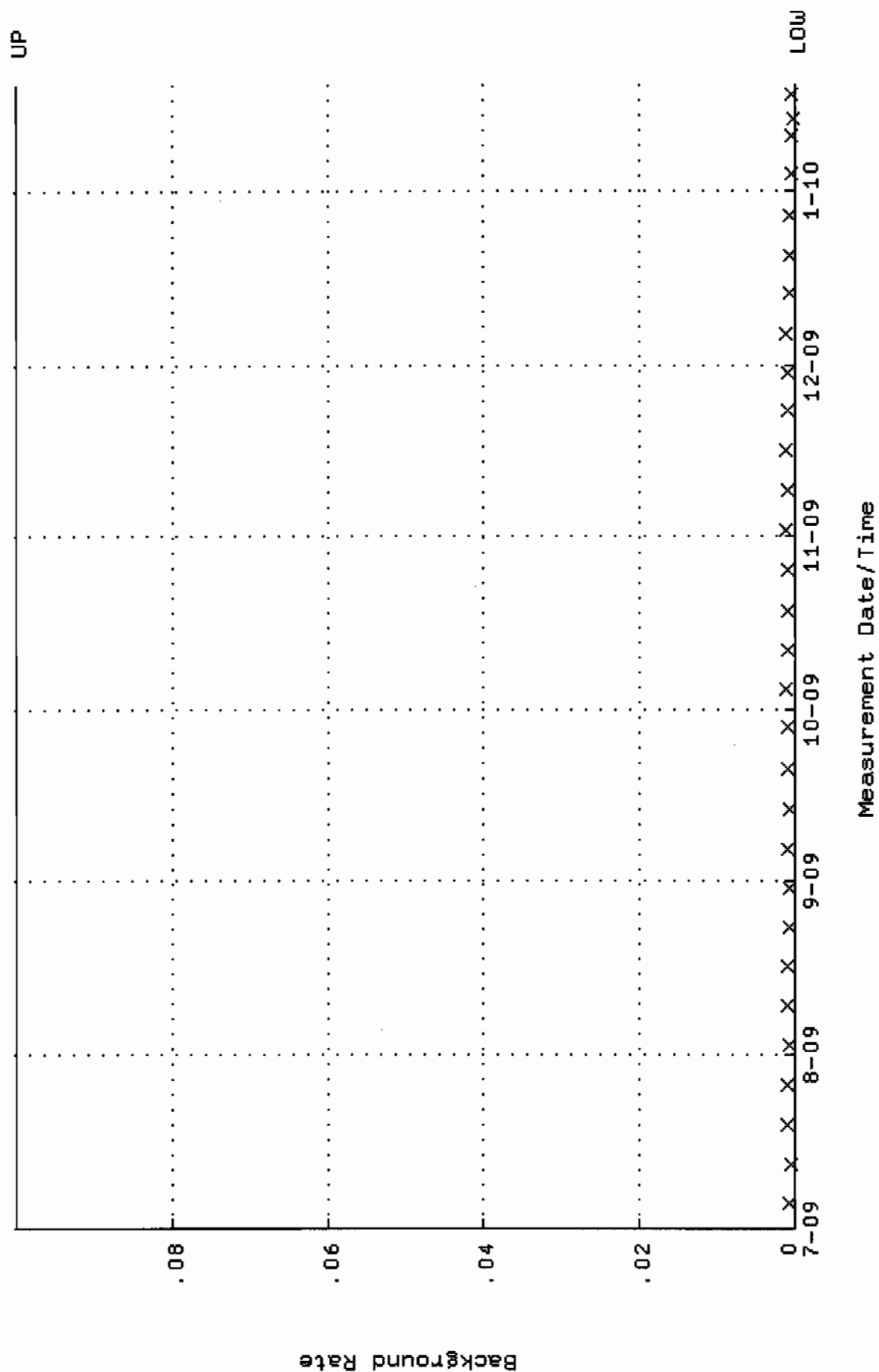
QA filename : DKA100:[ENV\_ALPHA.QA.W]W155.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:09 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.247241 through 0.267241



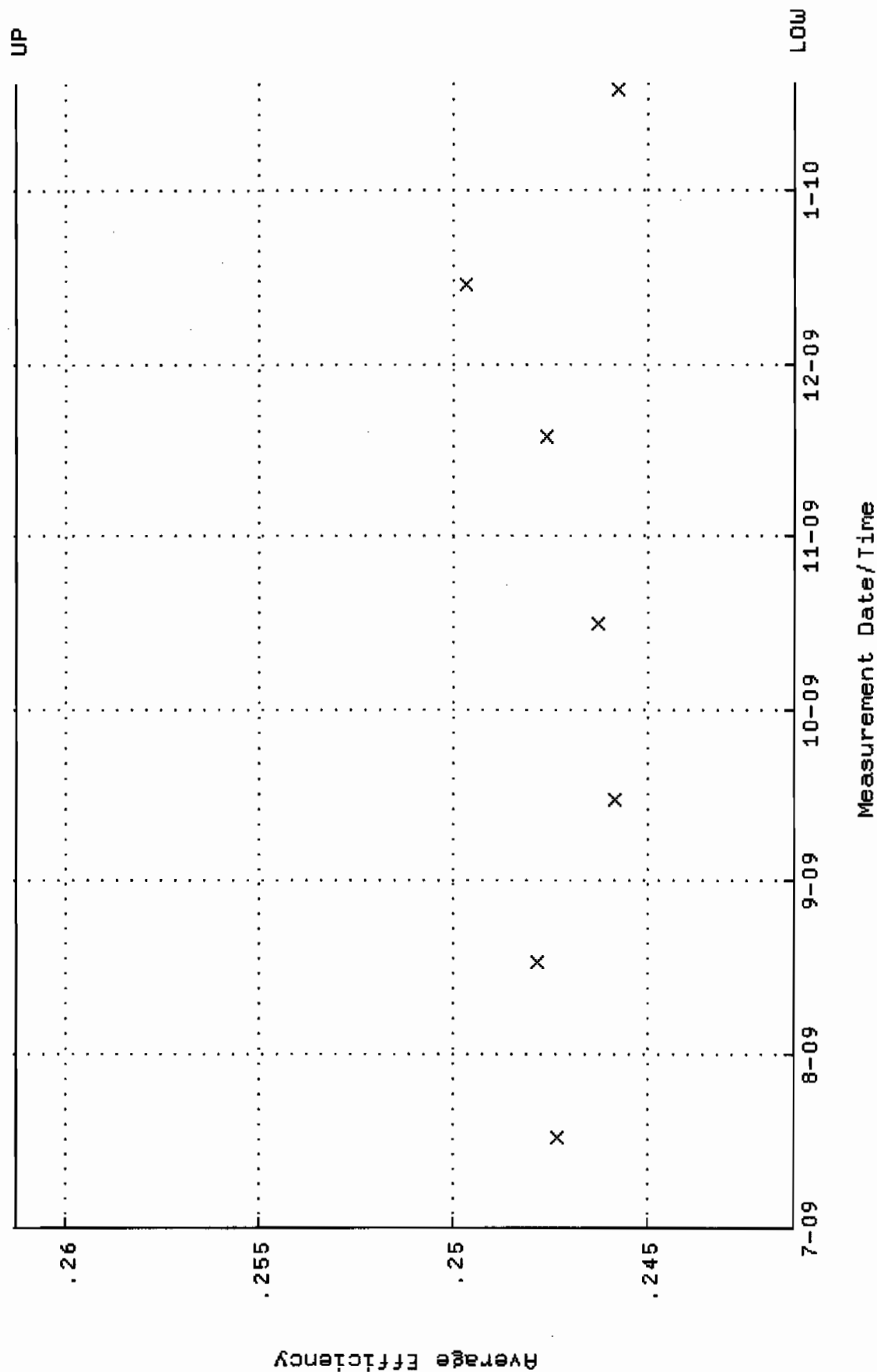
QA filename : DKA100:[ENV\_ALPHA.QA.W]W155.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:09 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.6873 through 92.4965



QA filename : DKA100:[ENV\_ALPHA.QA.B]B155.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

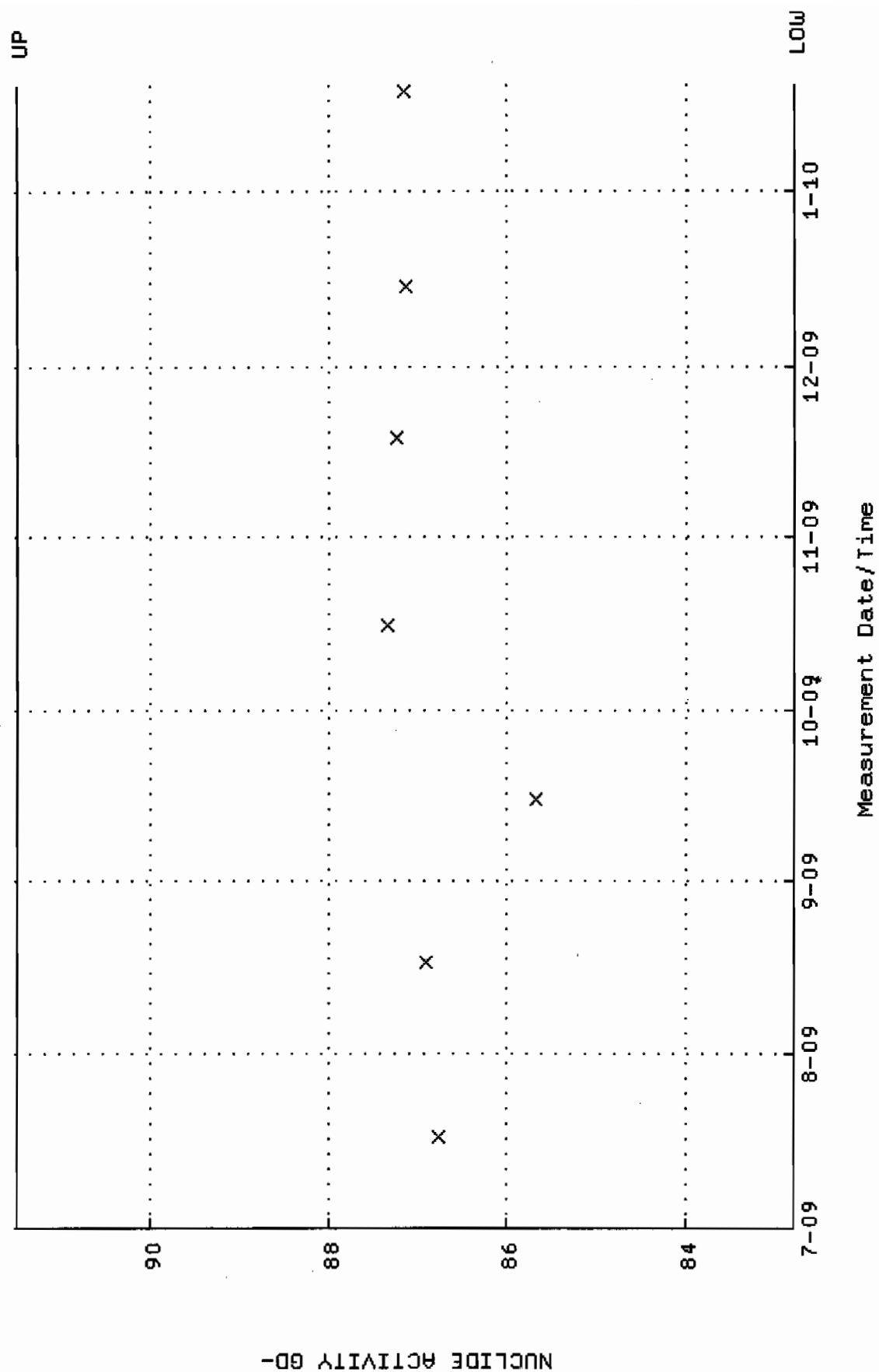


QA filename : DKA100:[ENV\_ALPHA.QA.W]W156.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:14 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.241250 through 0.261250

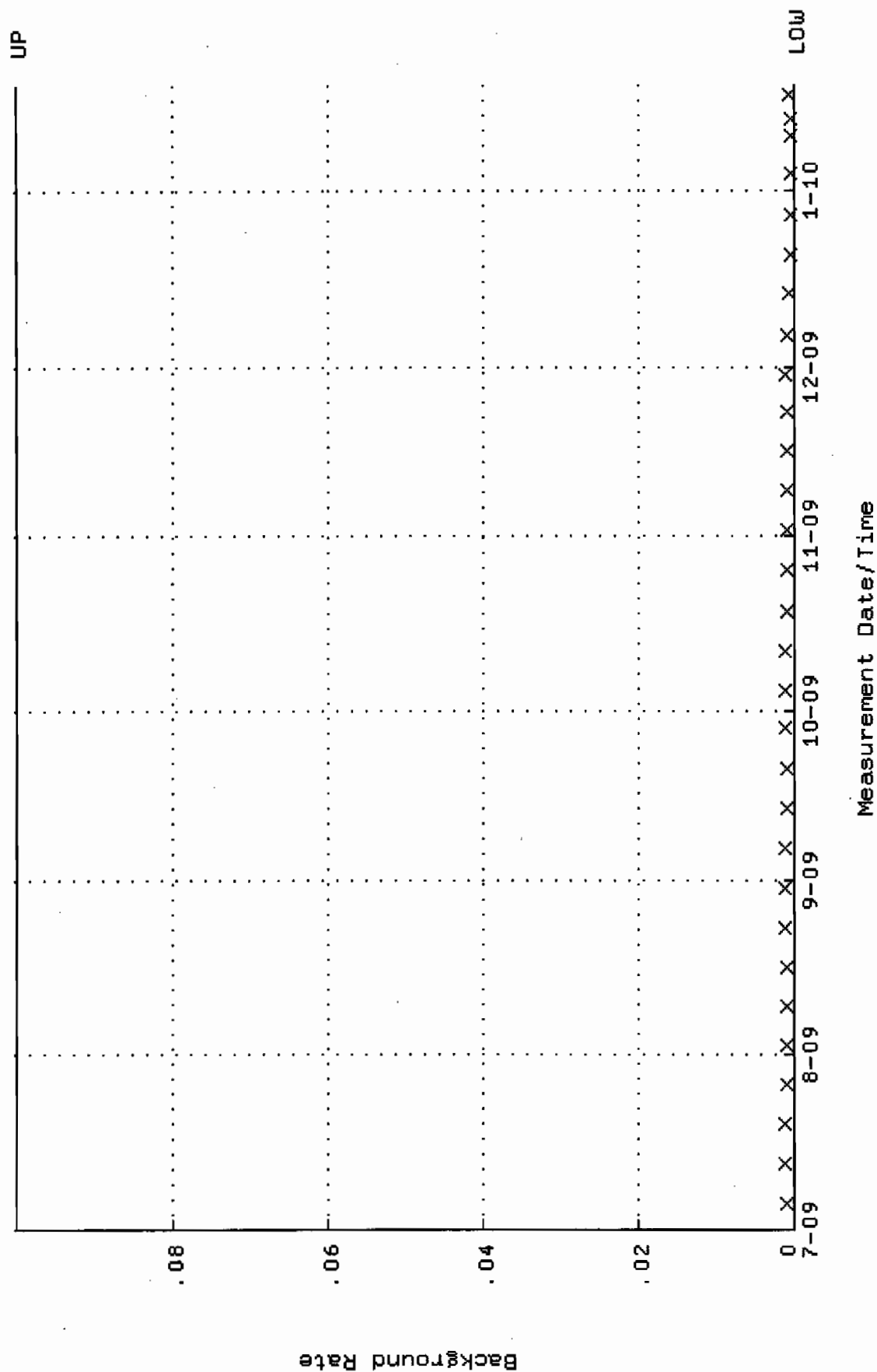




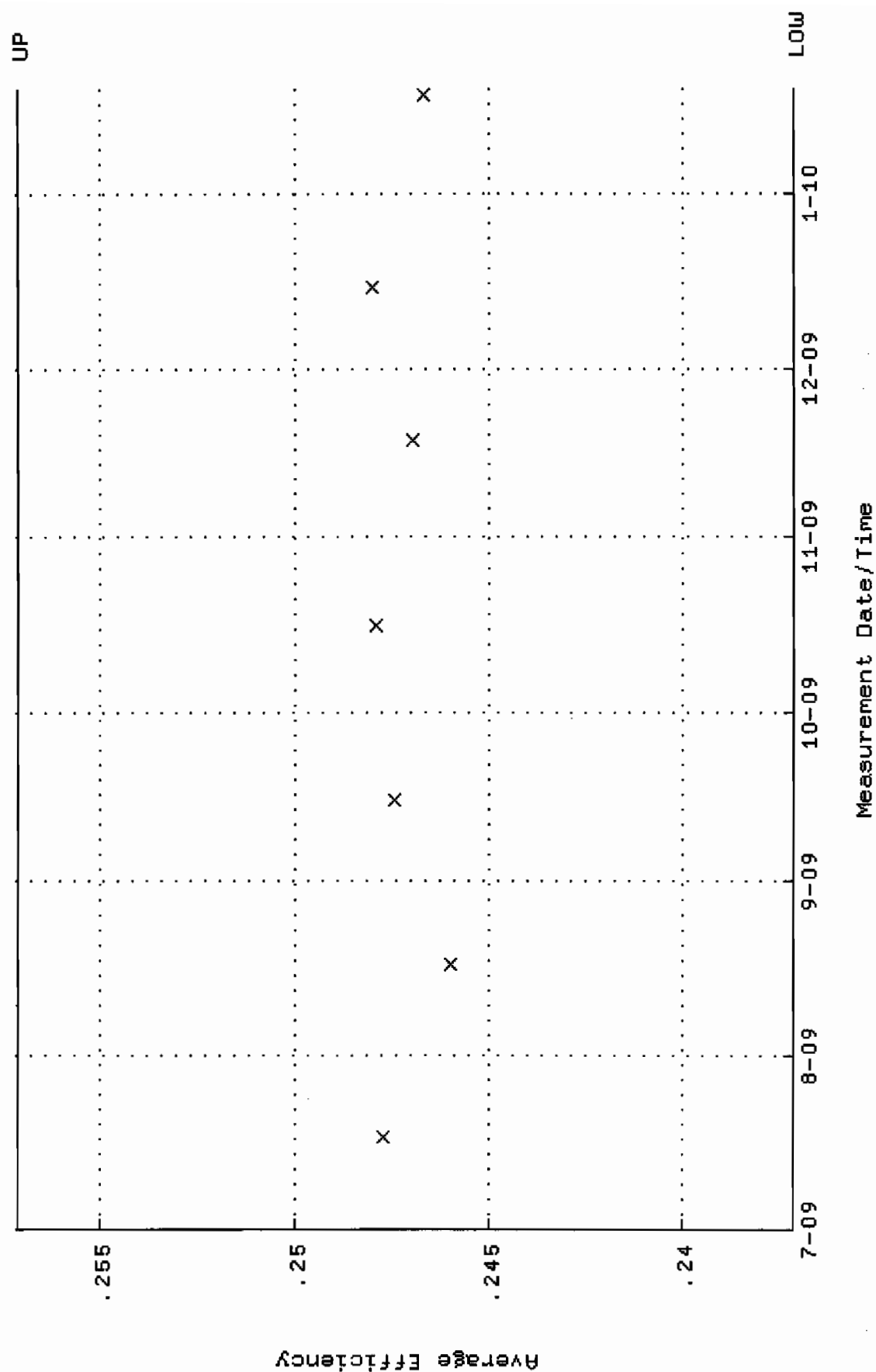
QA filename : DKA100:[ENV\_ALPHA.QA.W]W156.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:14 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.7847 through 91.4989



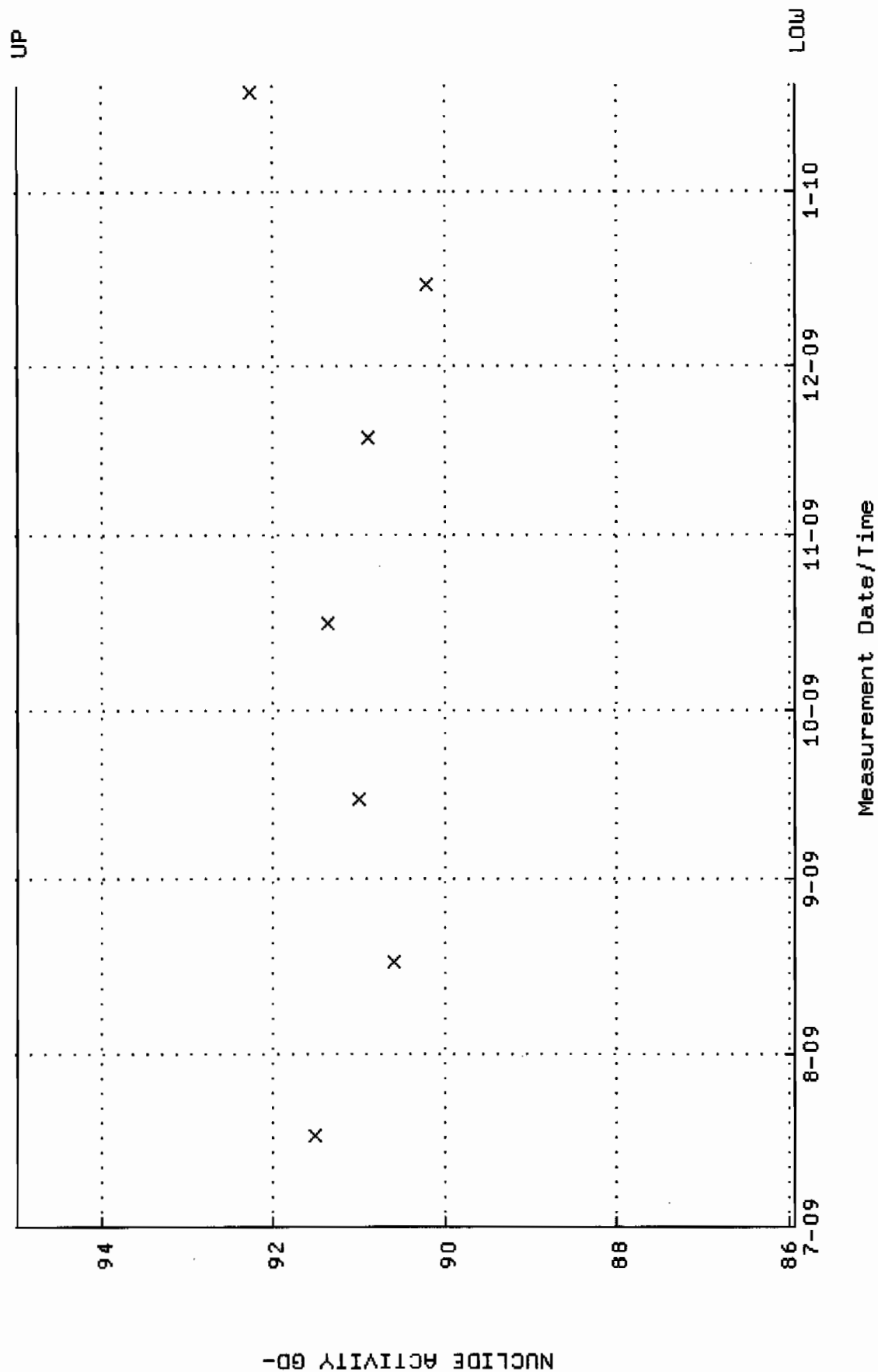
QA filename : DKA100:[ENV\_ALPHA.QA.B]B156.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



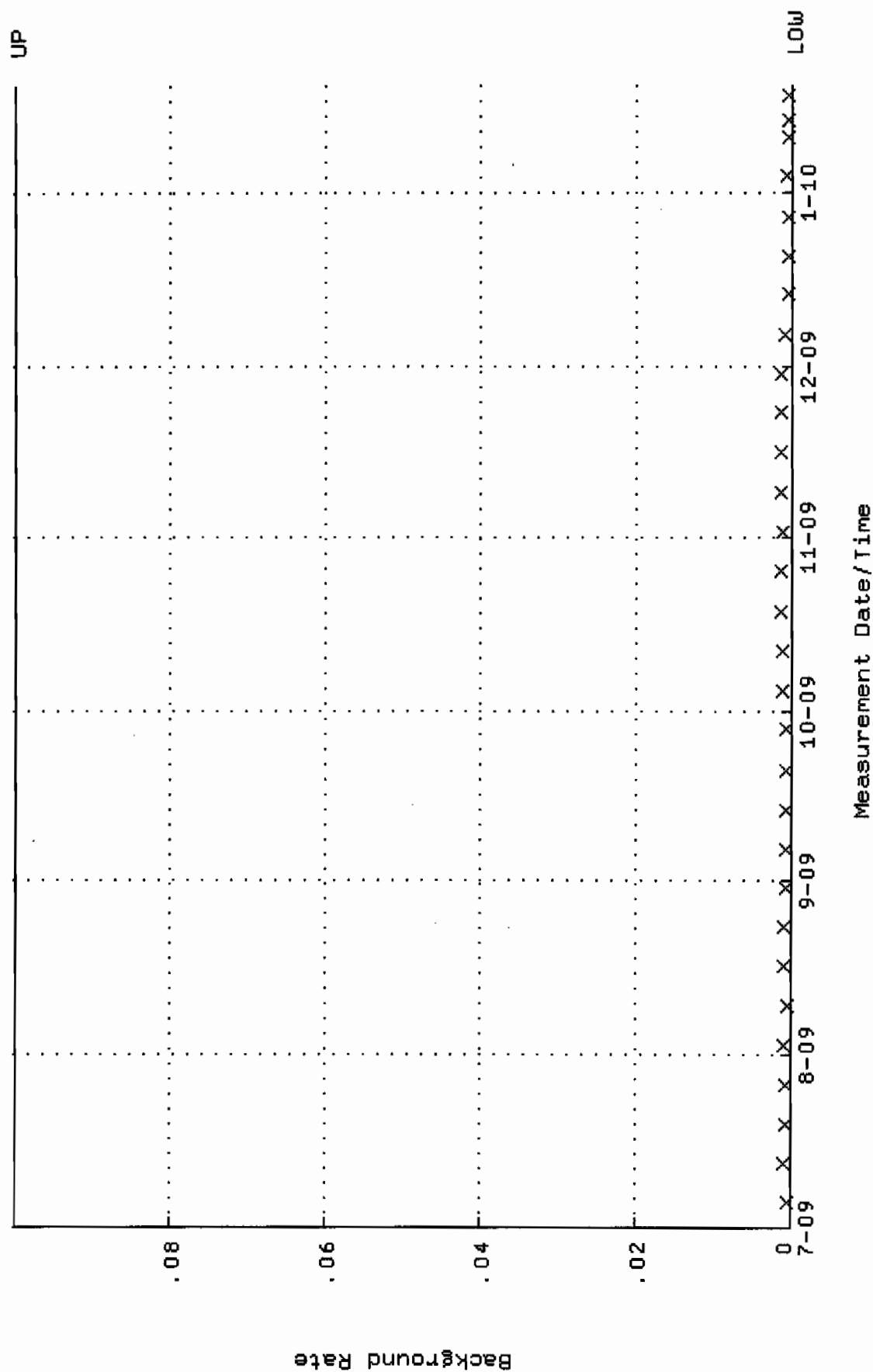
QA filename : DKA100:[ENV\_ALPHA.QA.W]W157.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:19 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.237137 through 0.257137



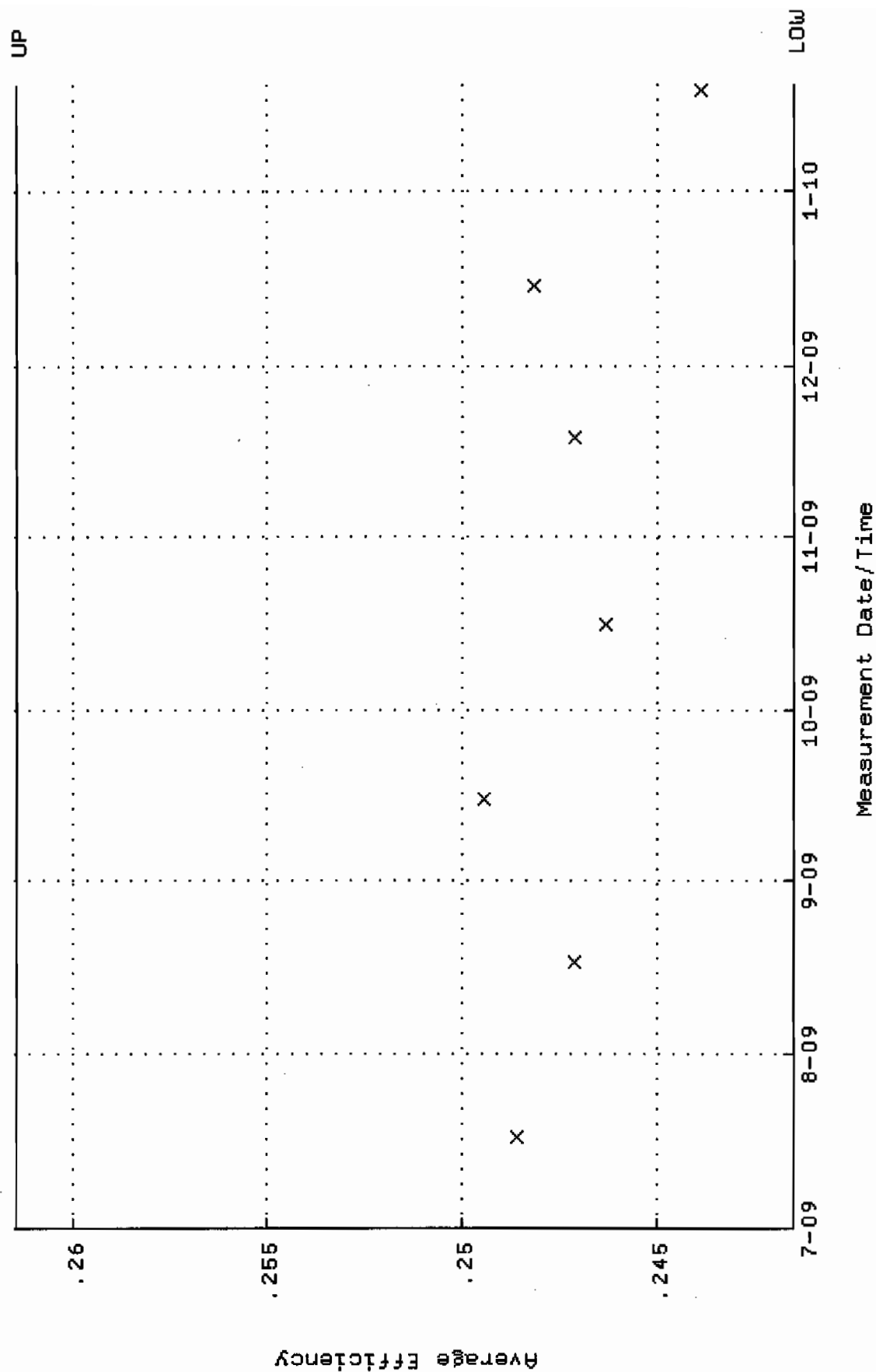
QA filename : DKA100:[ENV\_ALPHA.QA.W]W157.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:19 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.9292 through 94.9744



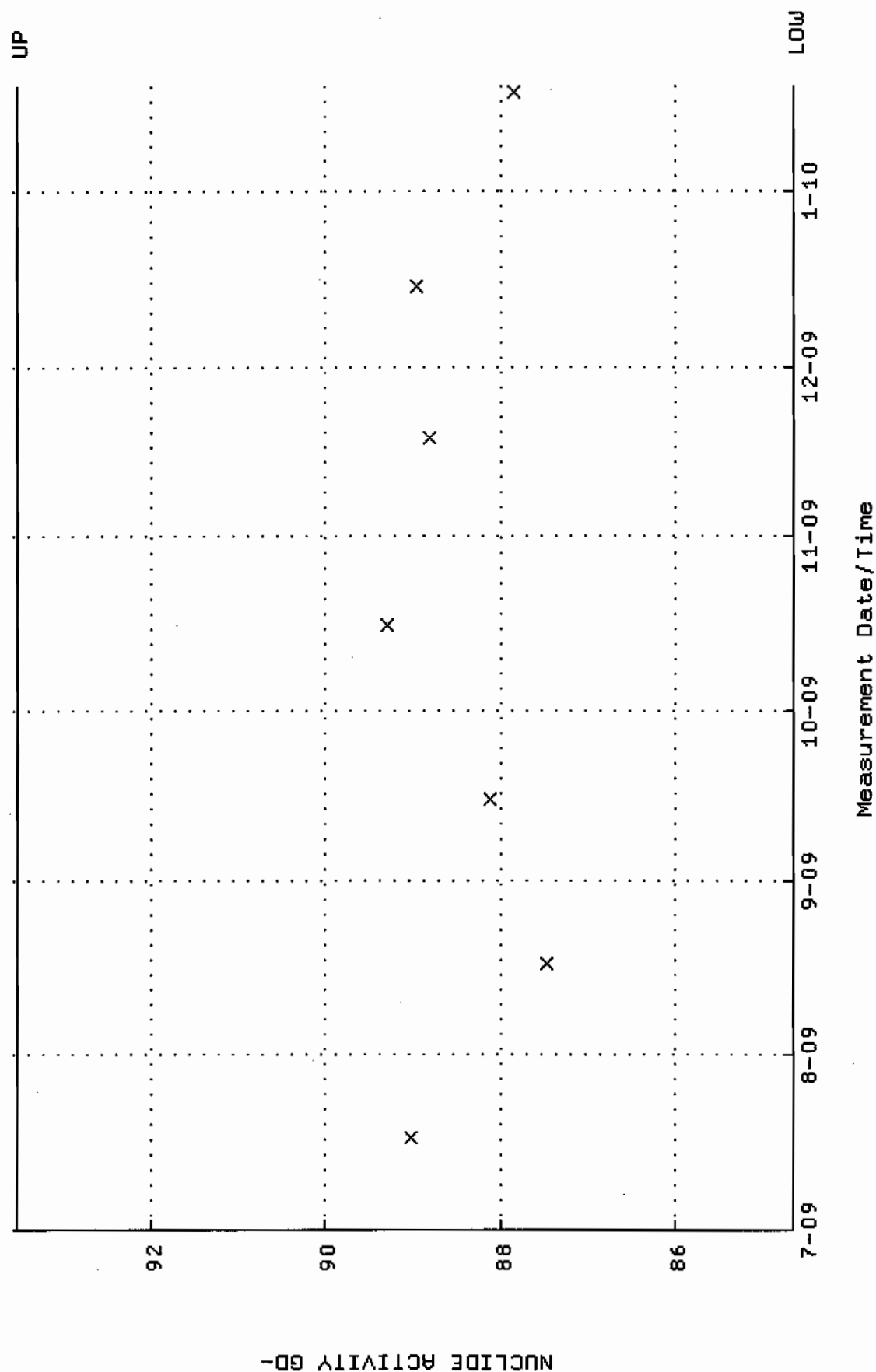
QA filename : DKA100:[ENV\_ALPHA.QA.B]B157.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:21 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



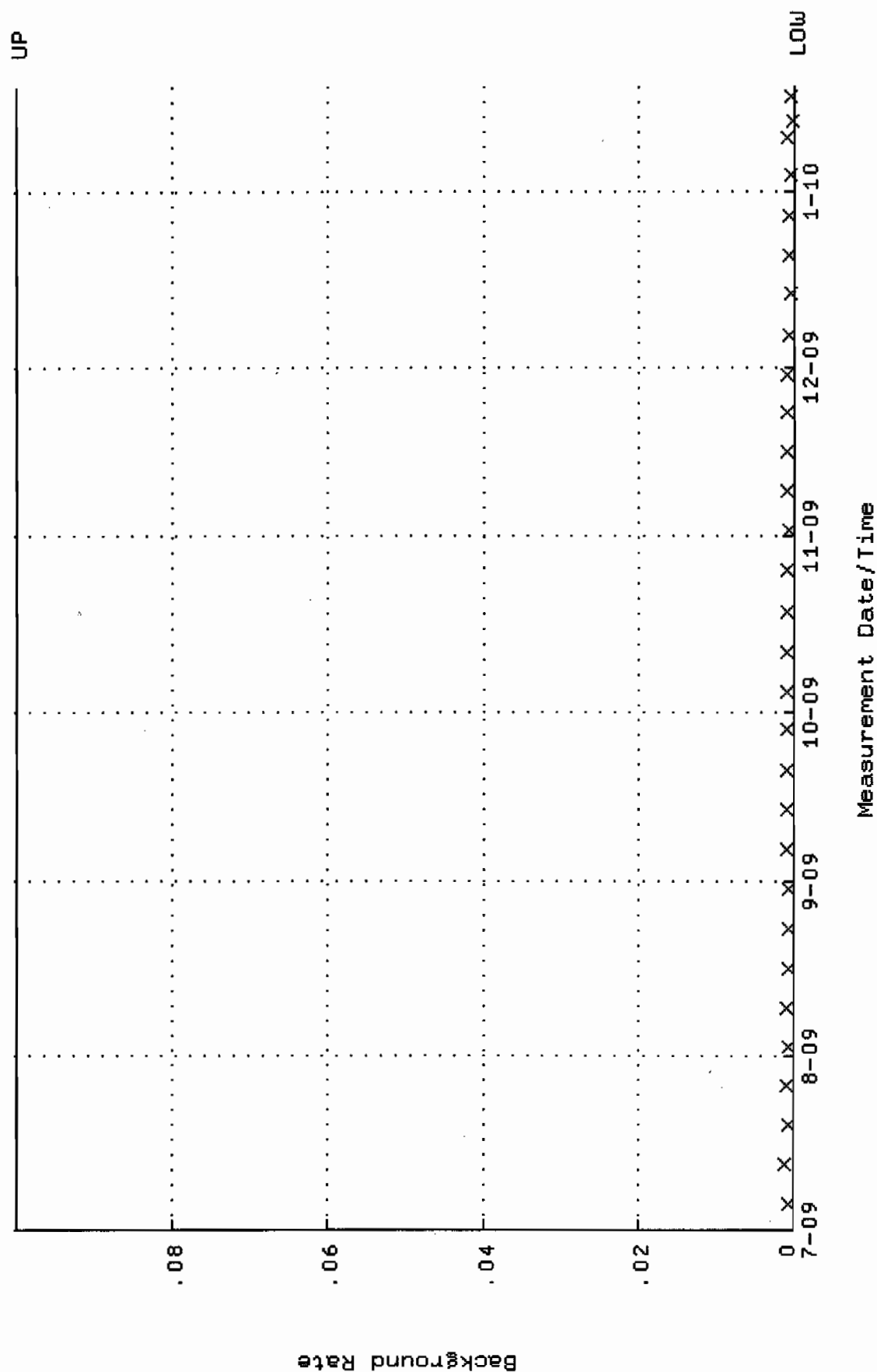
QA filename : DKA100:[ENV\_ALPHA.QA.W]w158.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:24 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.241466 through 0.261466



QA filename : DKA100:[ENV\_ALPHA.QA.W]W158.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:24 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.6414 through 93.5510

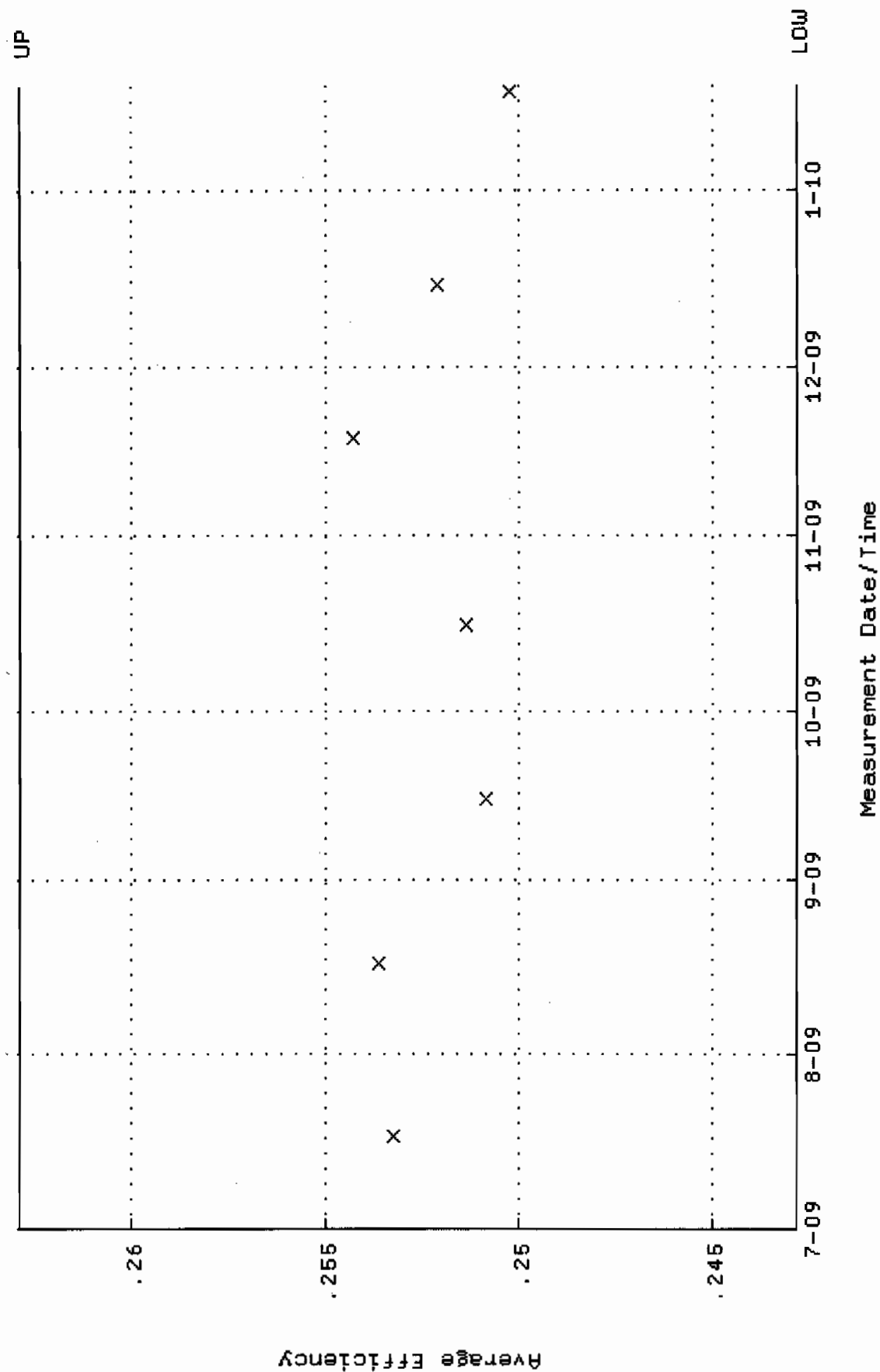


QA filename : DKA100:[ENV\_ALPHA.QA.B]B158.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:26 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

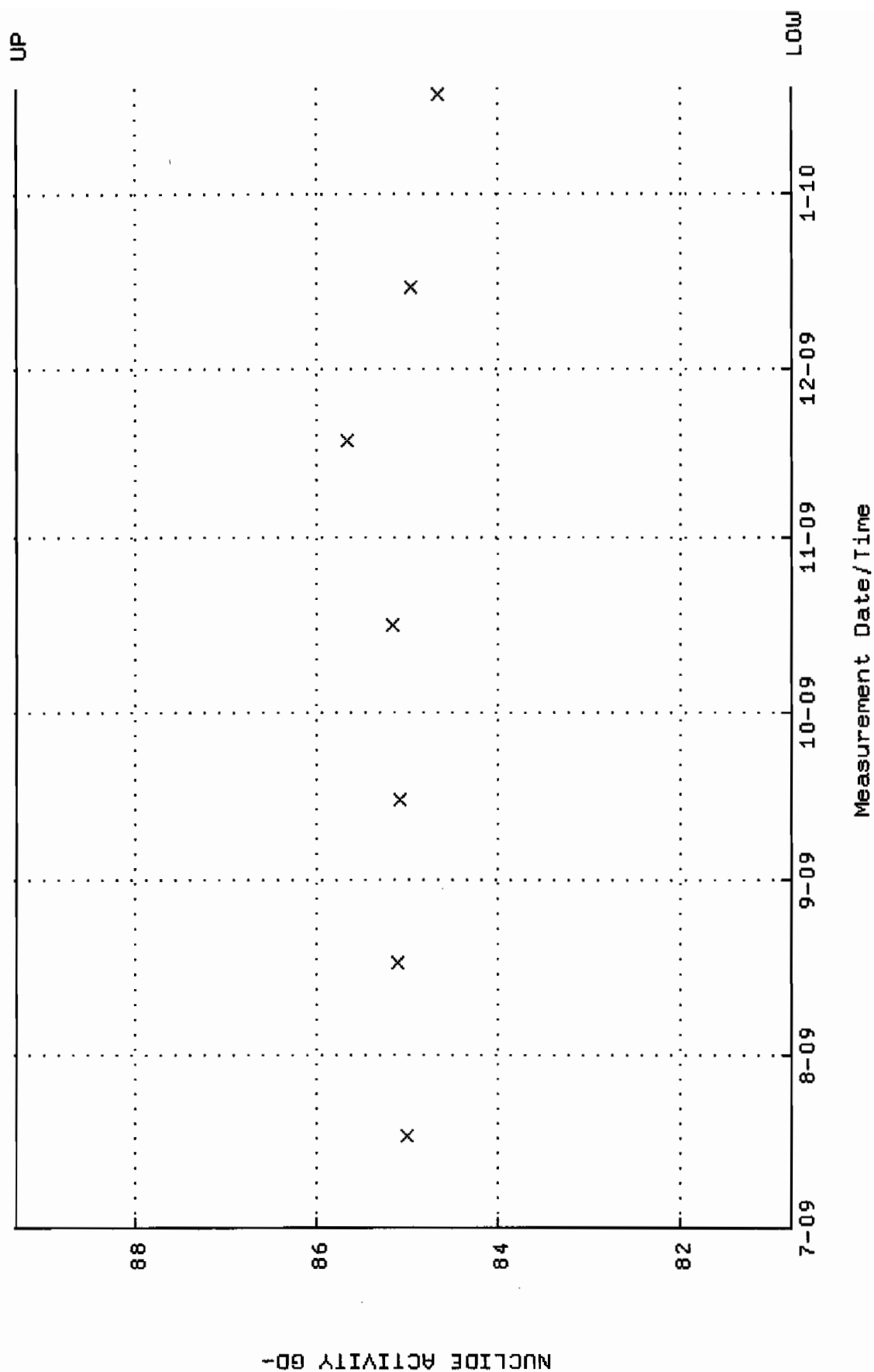




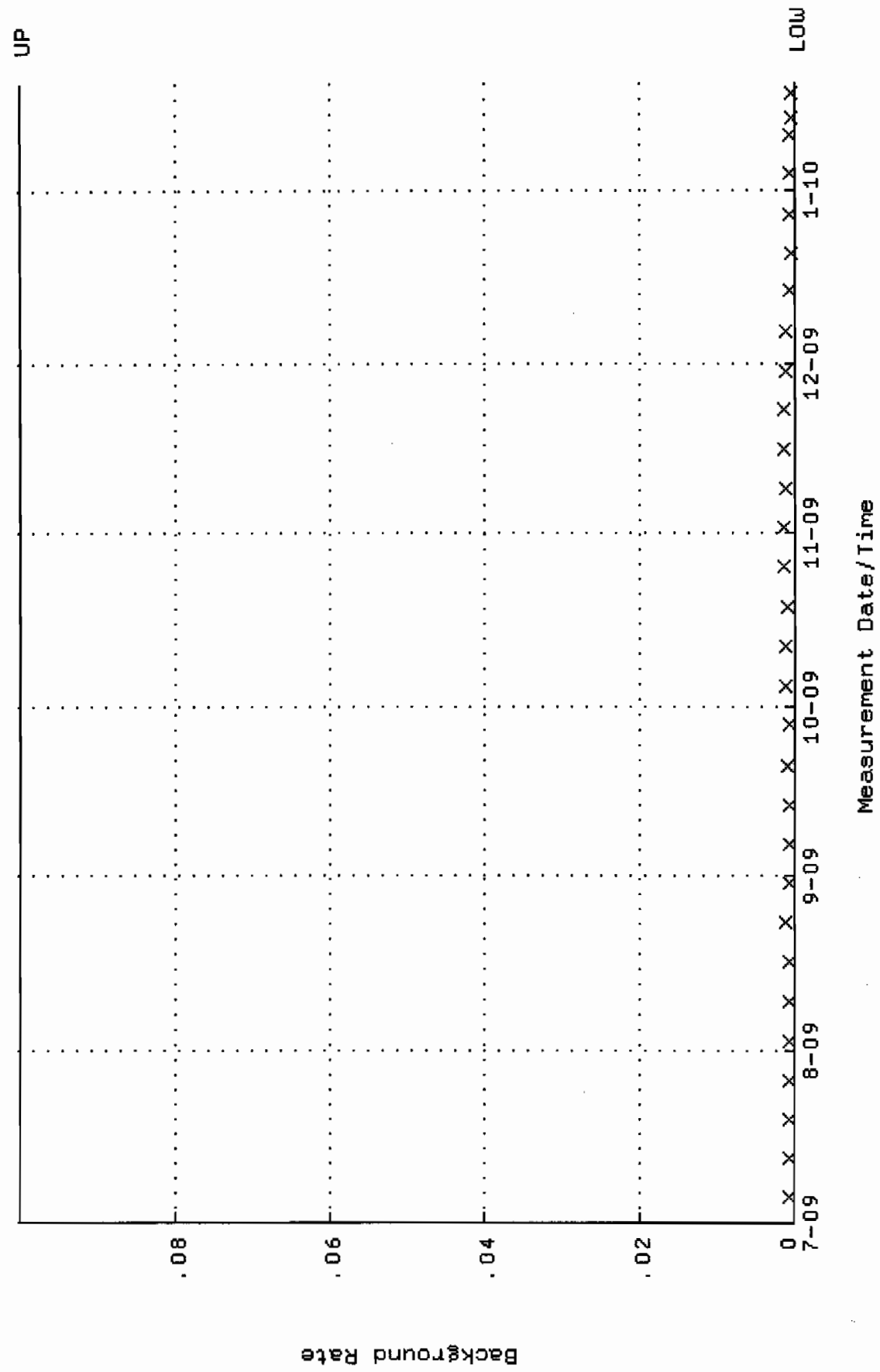
QA filename : DKA100:[ENV\_ALPHA.QA.W]W159.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:28 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.242851 through 0.262851



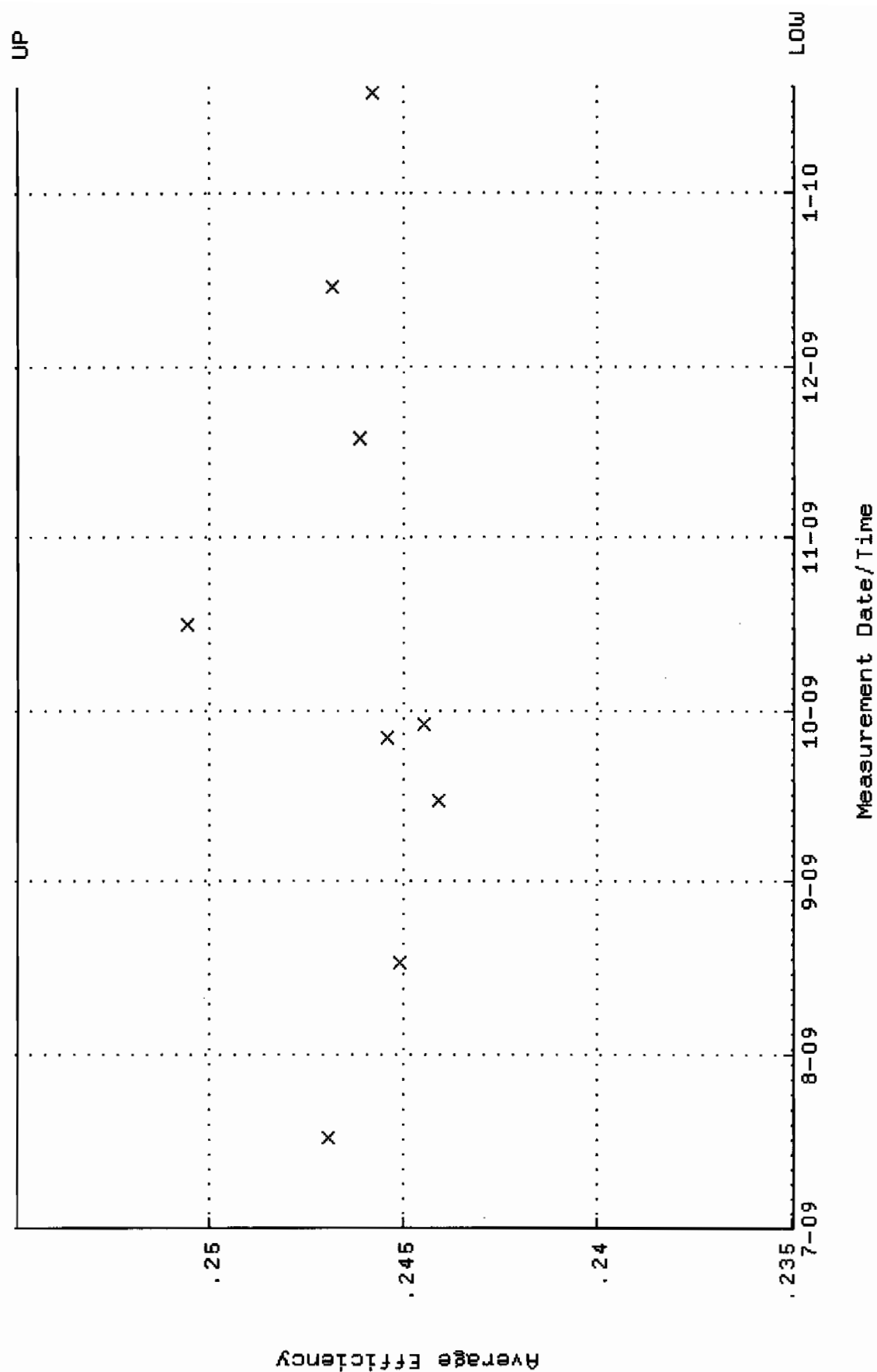
QA filename : DKA100:[ENV\_ALPHA.QA.W]w159.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:28 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.7870 through 89.2909



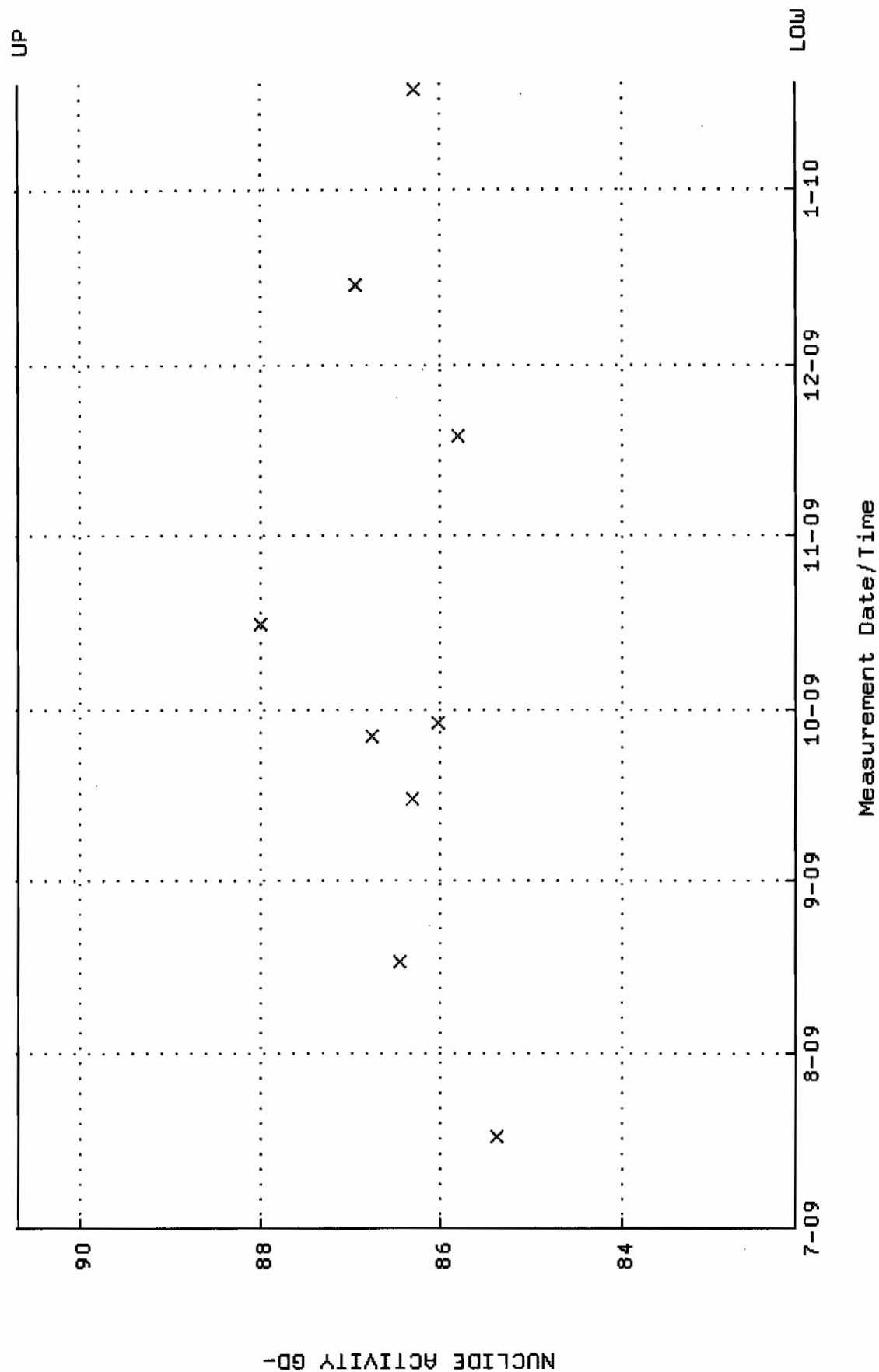
QA filename : DKA100:[ENV\_ALPHA.QA.B]B159.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:31 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



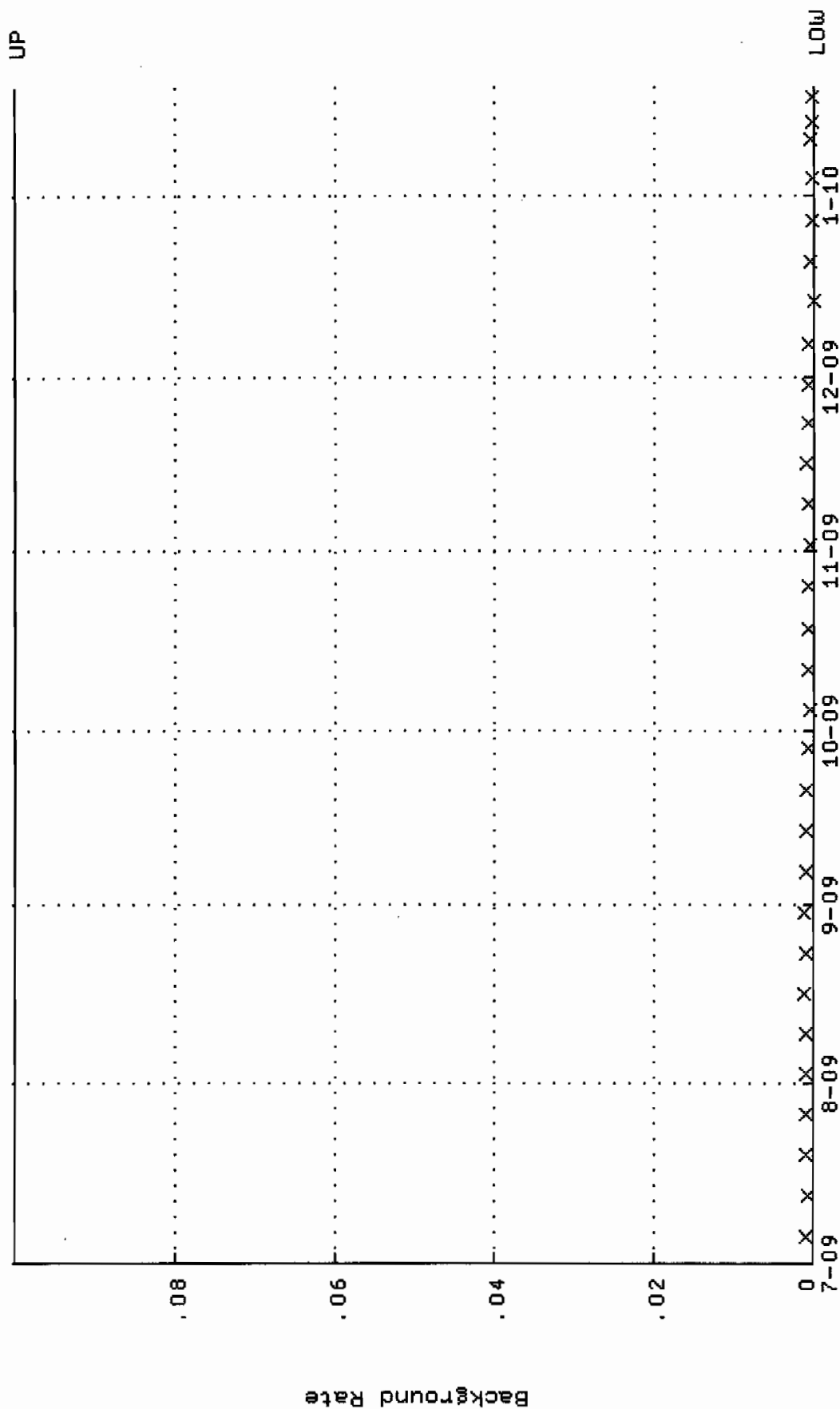
QA filename : DKA100:[ENV\_ALPHA.QA.W]W160.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:14:34 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.234941 through 0.254941



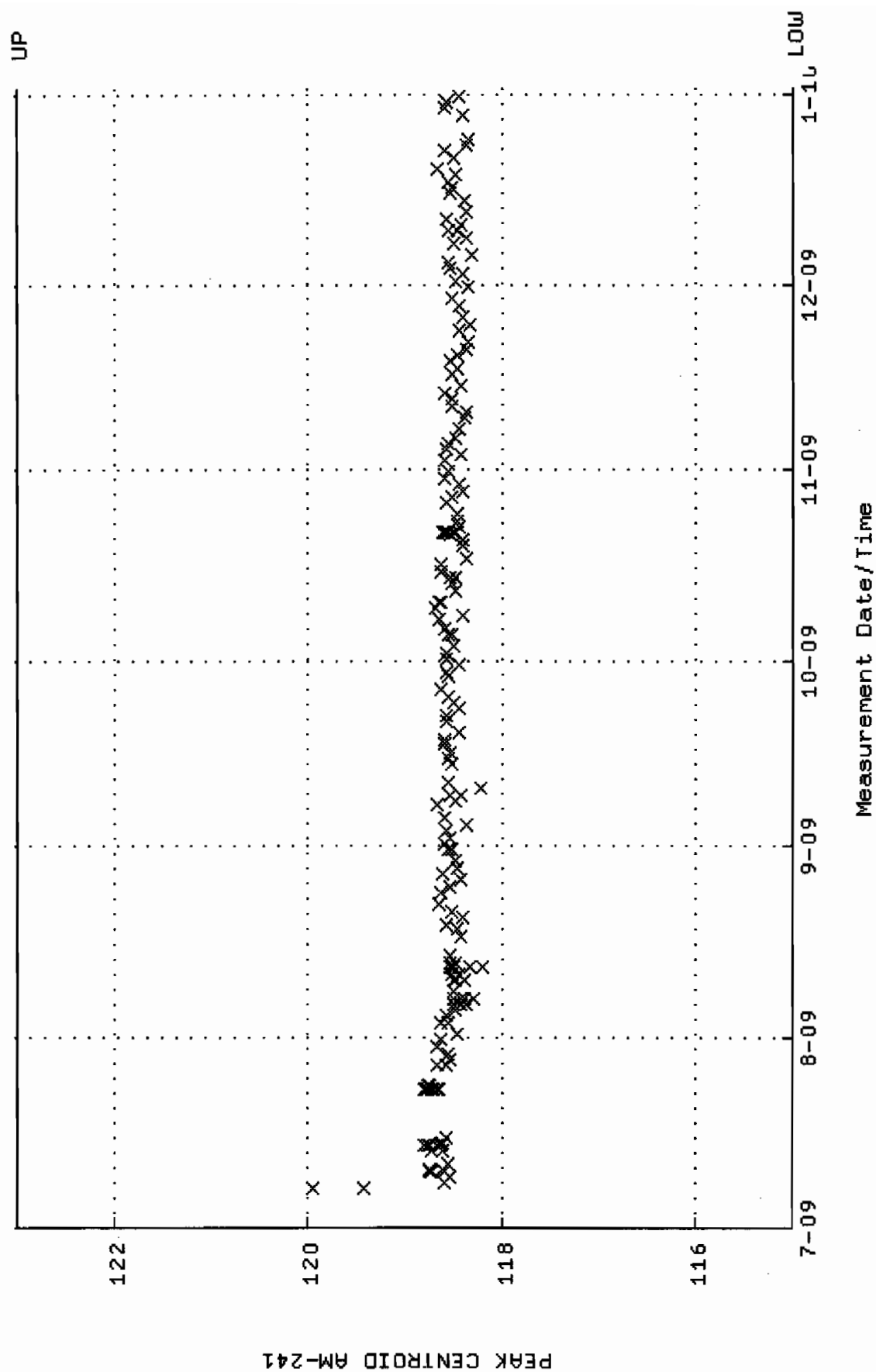
QA filename : DKA100:[ENV\_ALPHA.QA.W]W160.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:14:34 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.0594 through 90.6972



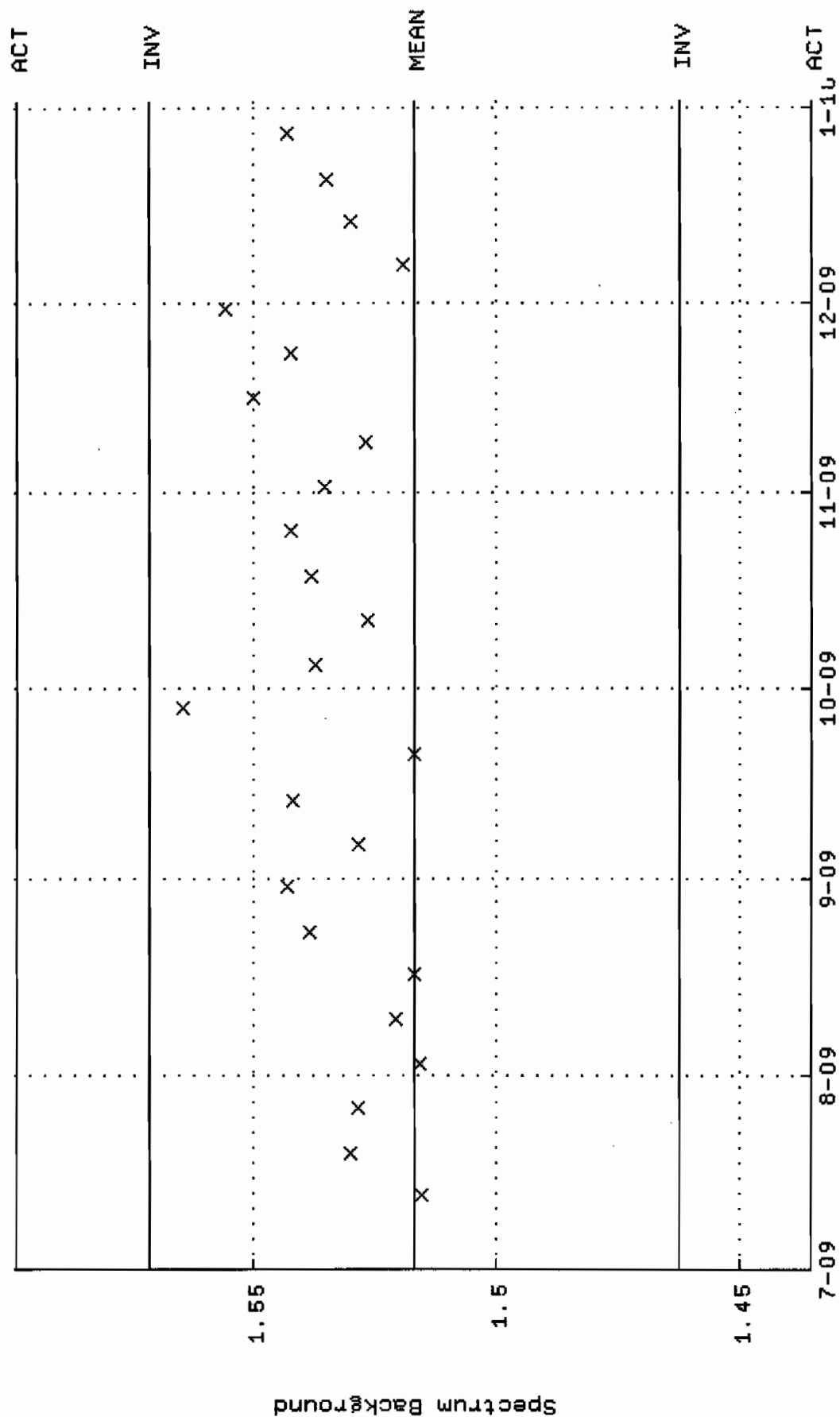
QA filename : DKA100:[ENV\_ALPHA.QA.B]B160.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:58:36 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM07\_JAR.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 7-JUL-2009 09:02:00 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

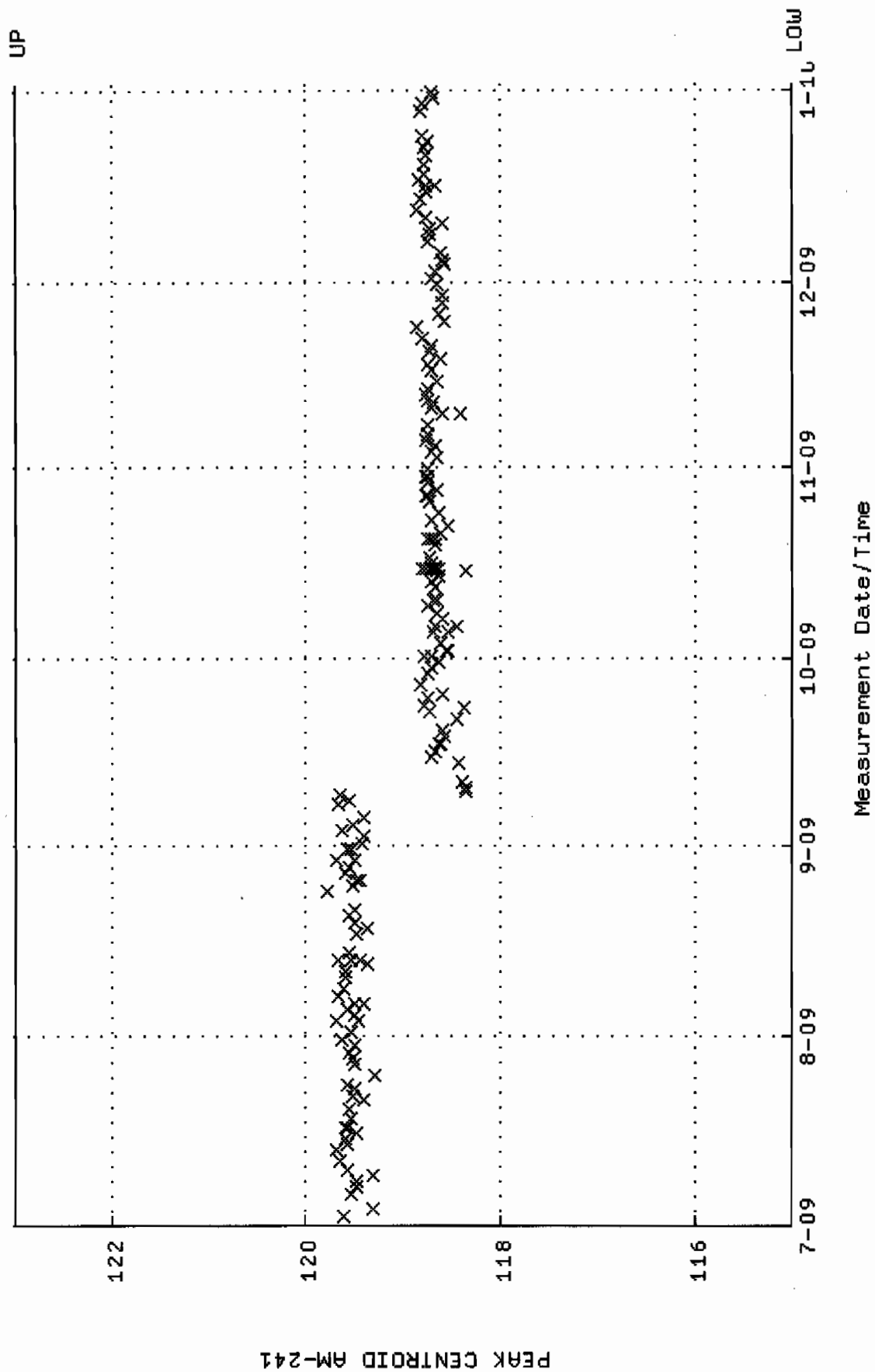


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM07.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 12-JUL-2009 17:17:31 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.51715 +- 2.726376E-02 (1.80 %)

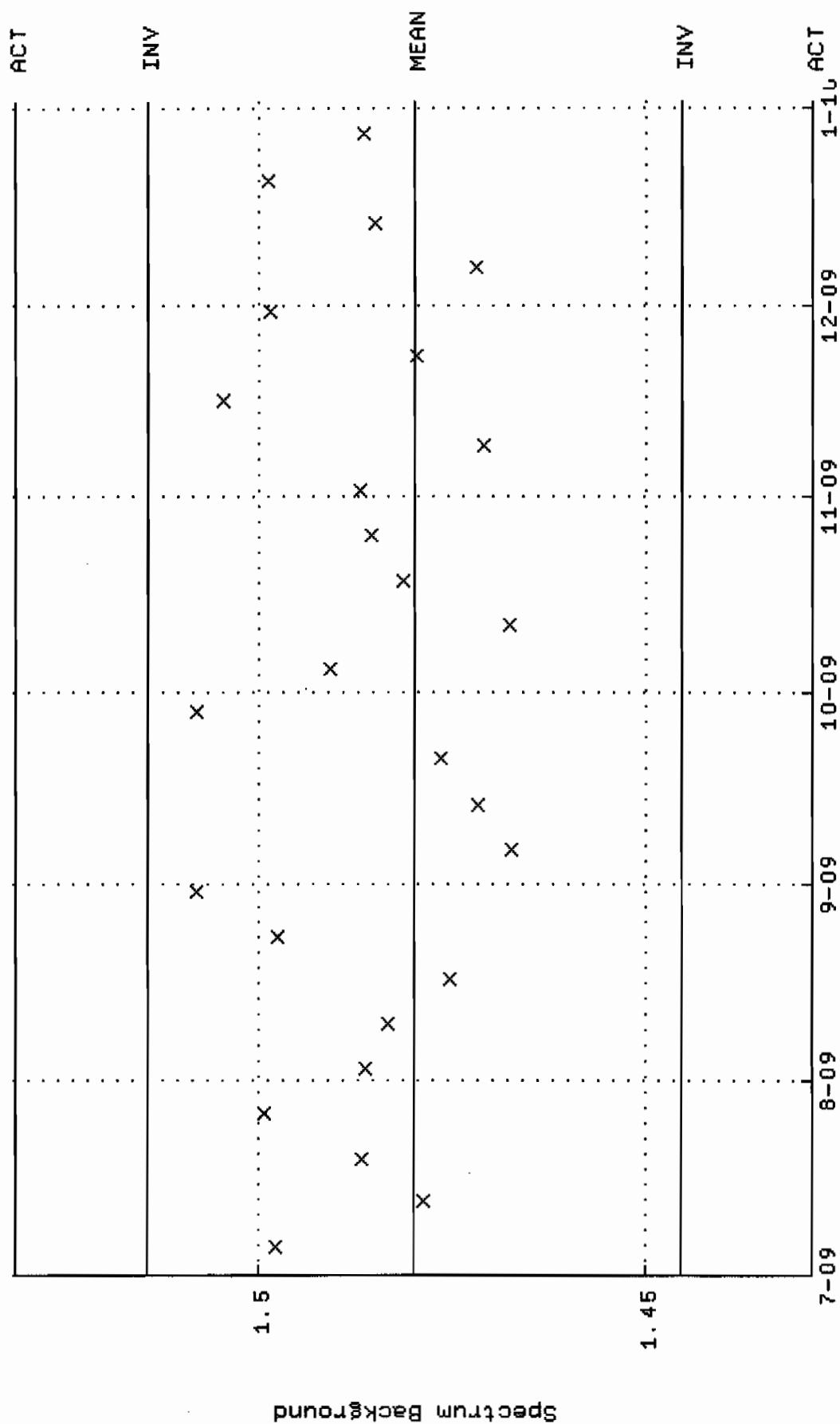




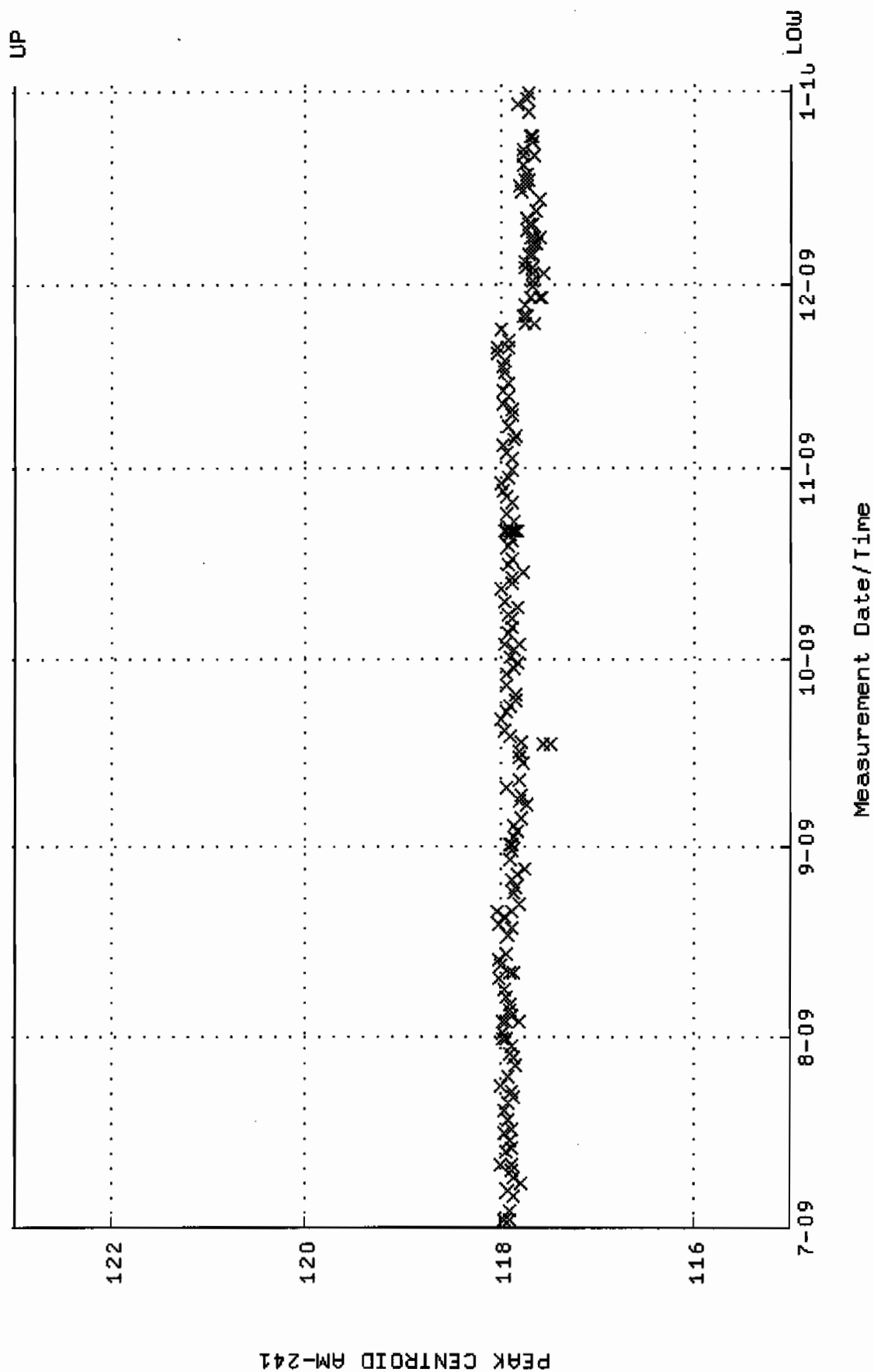
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM10\_500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:17 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



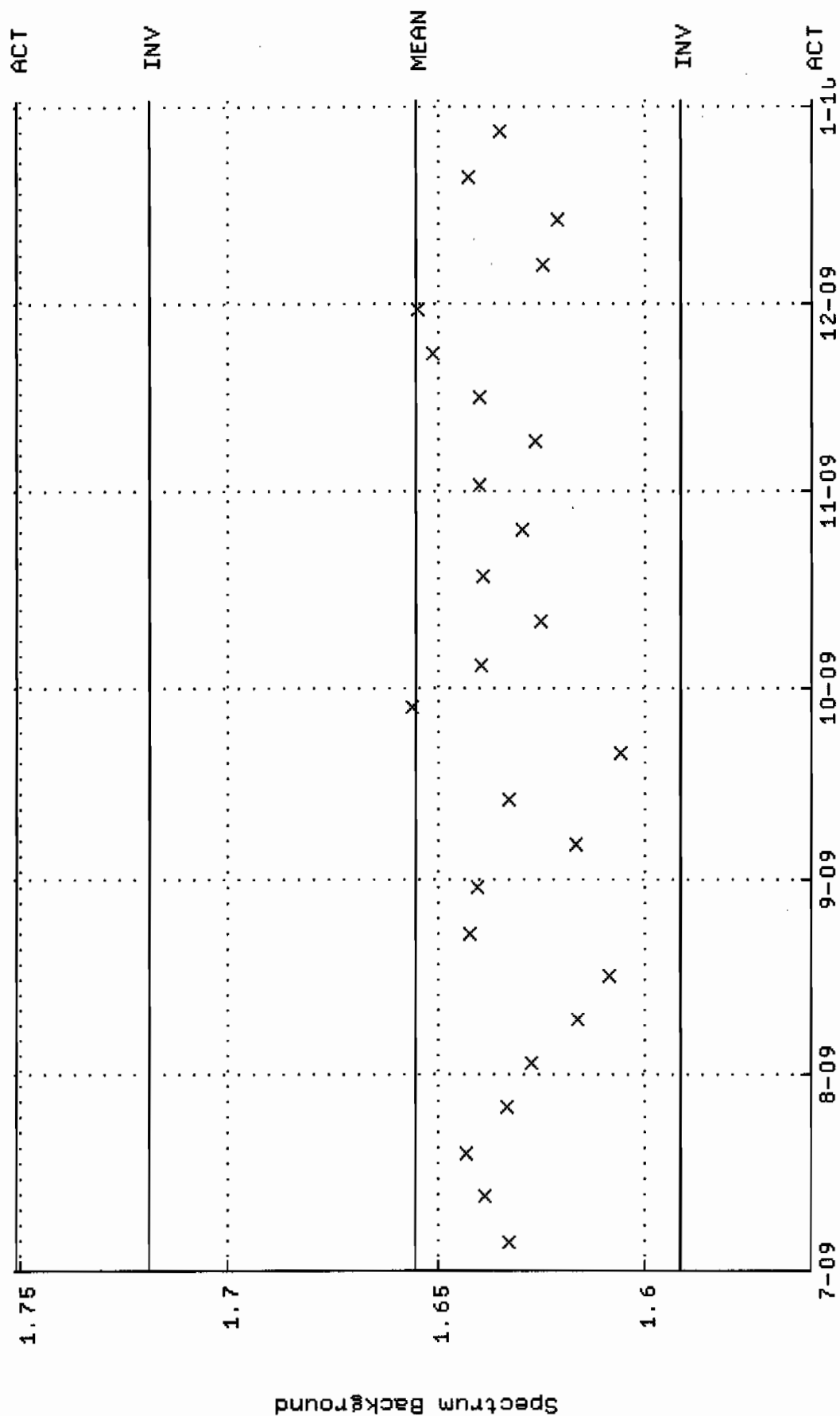
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM10.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:14 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48000 +- 1.723892E-02 (1.16 %)



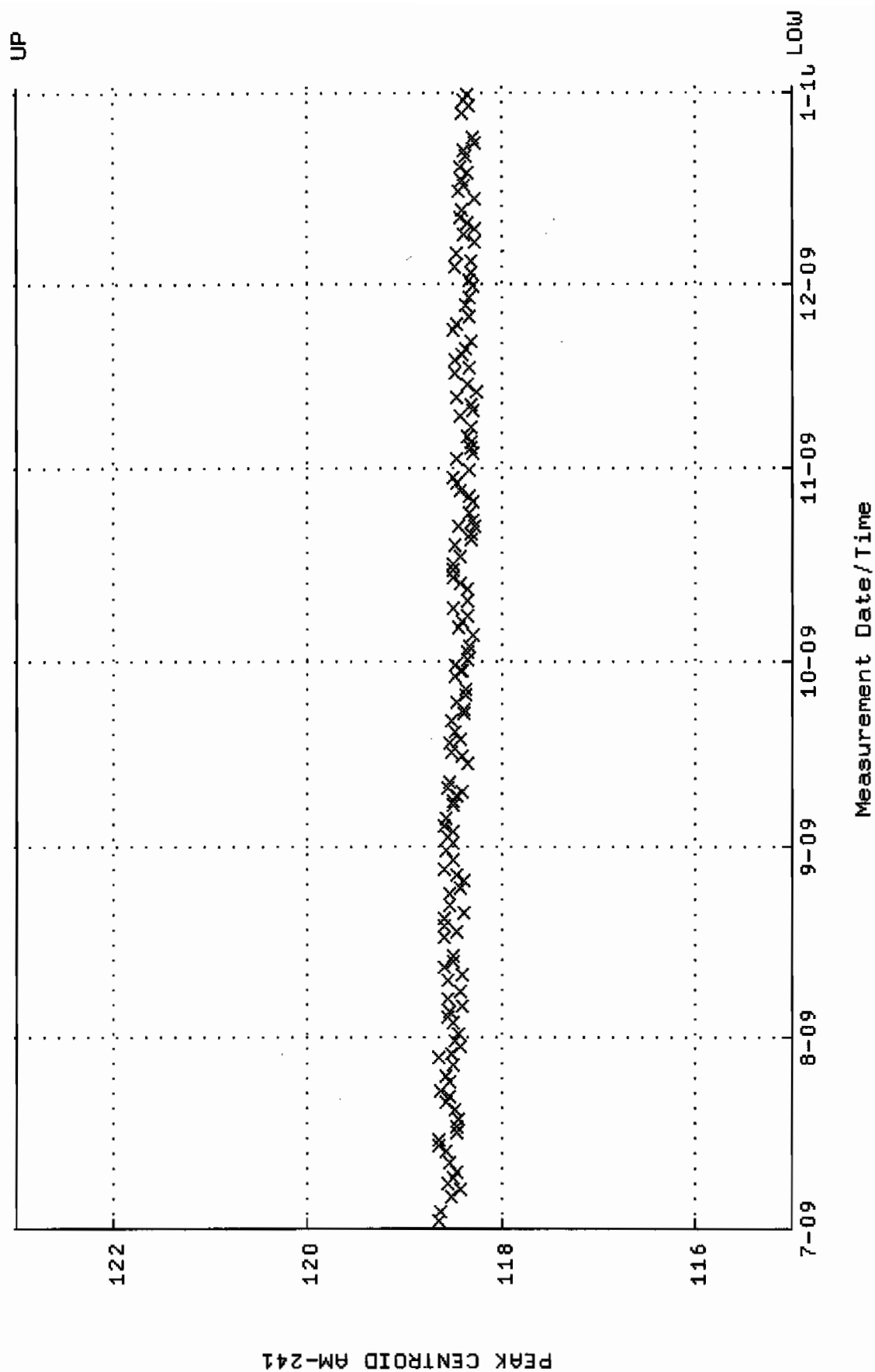
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM11\_JAR.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 05:29:04 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



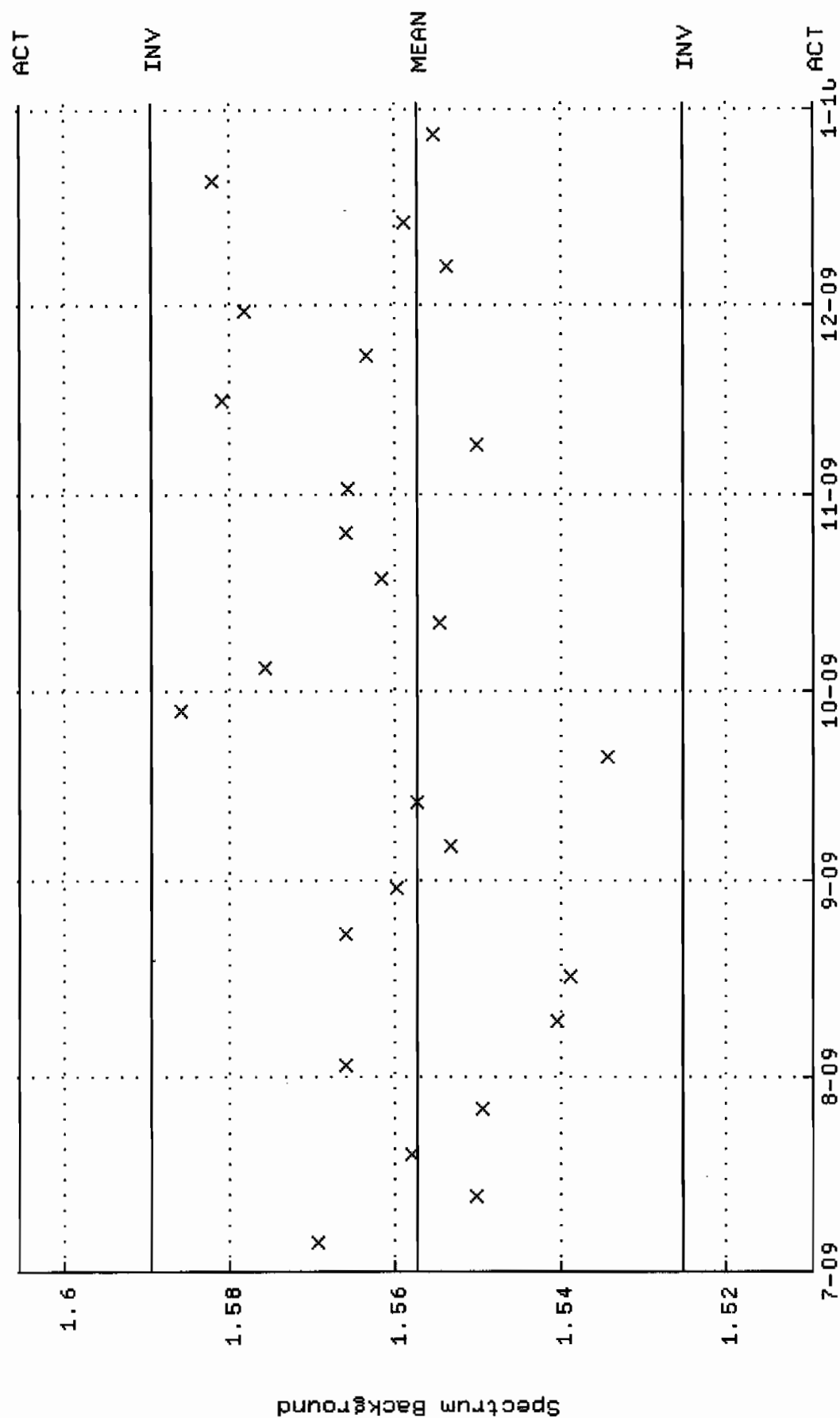
QA filename : DKA100:[CANNBERRA.GAMMA.SCUSR.QA]LBC\_GAM11.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:39 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)



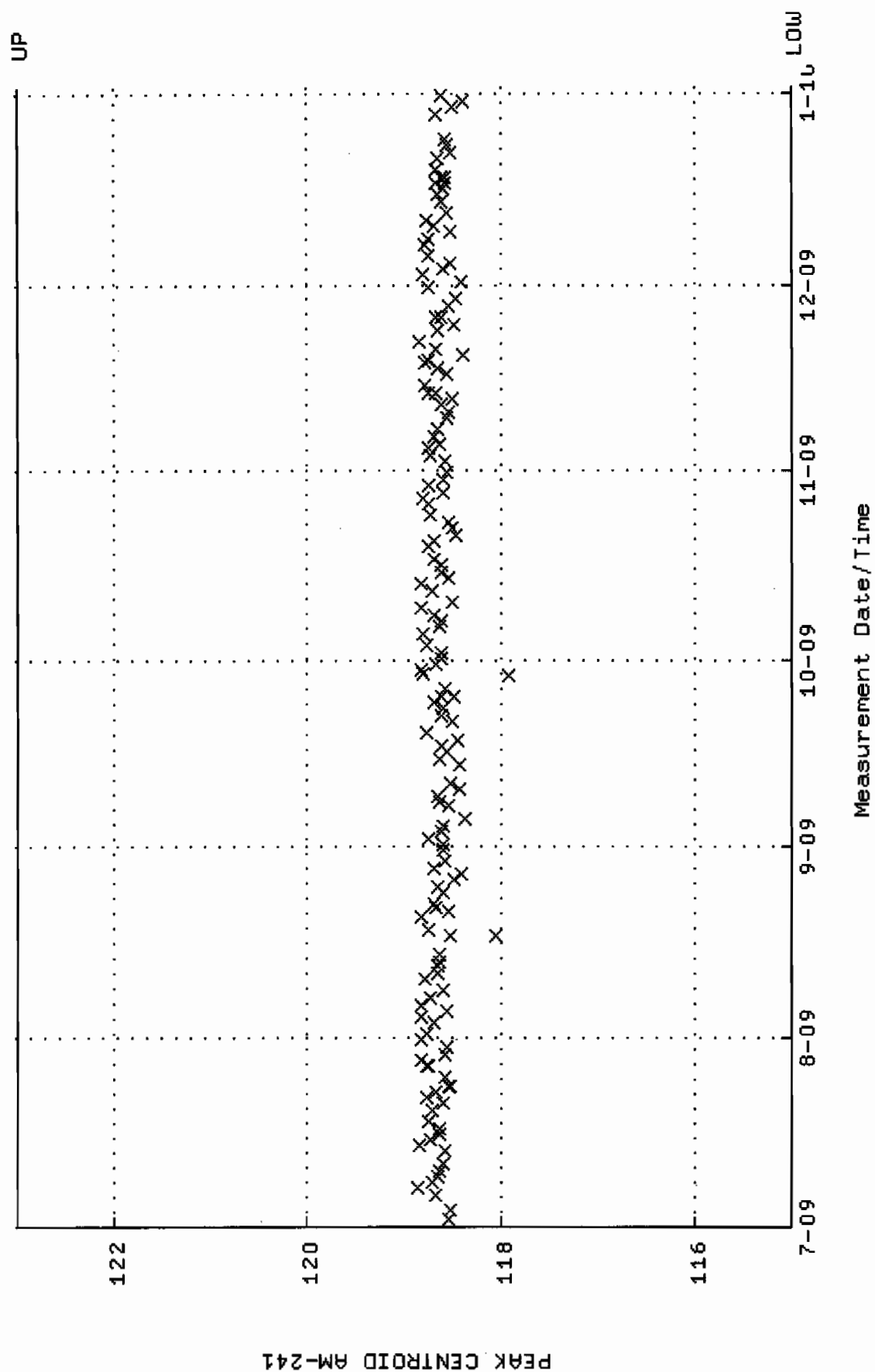
QA filename : DKA100: [CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM12\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:11 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



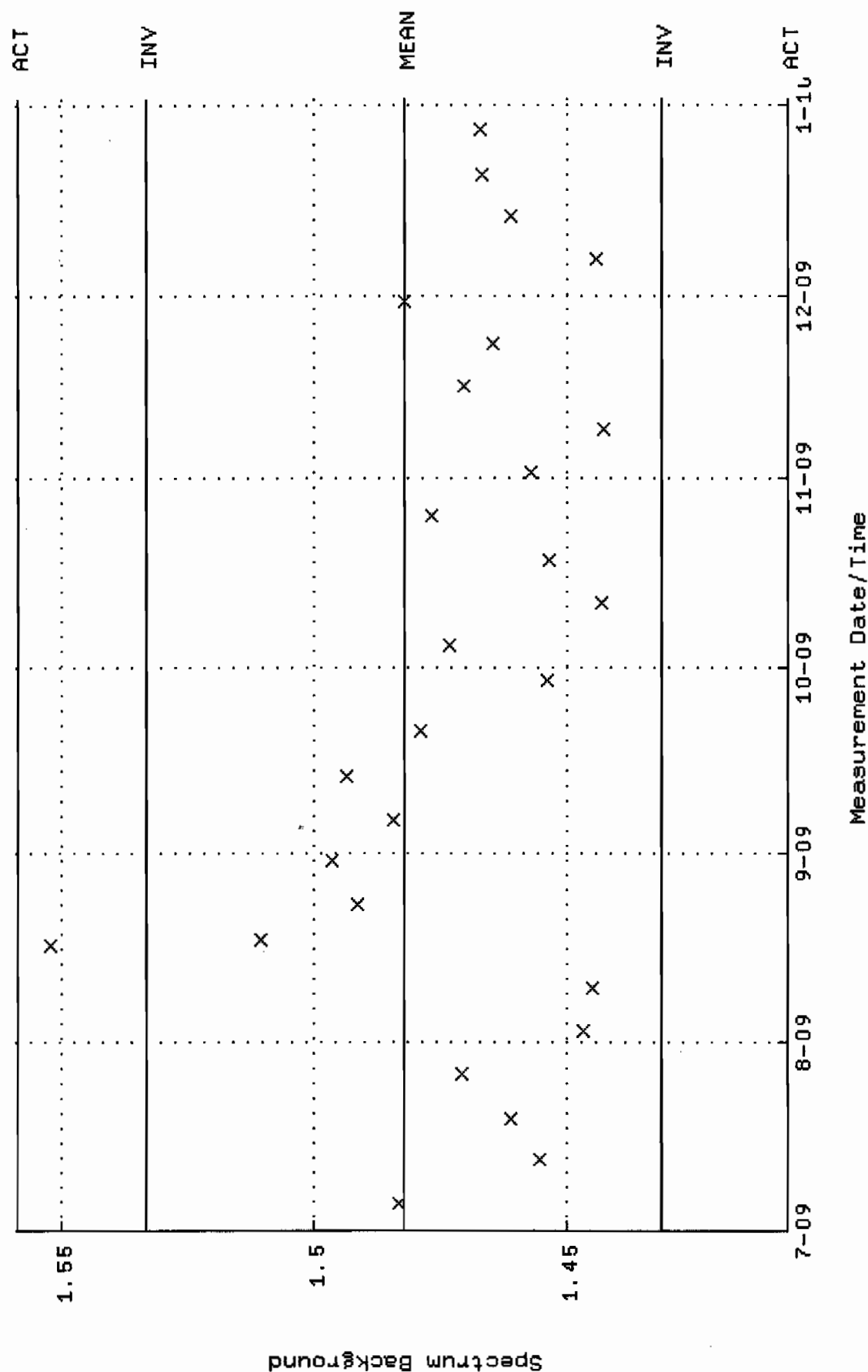
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM12.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:04 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.55746 +- 1.601675E-02 (1.03 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_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

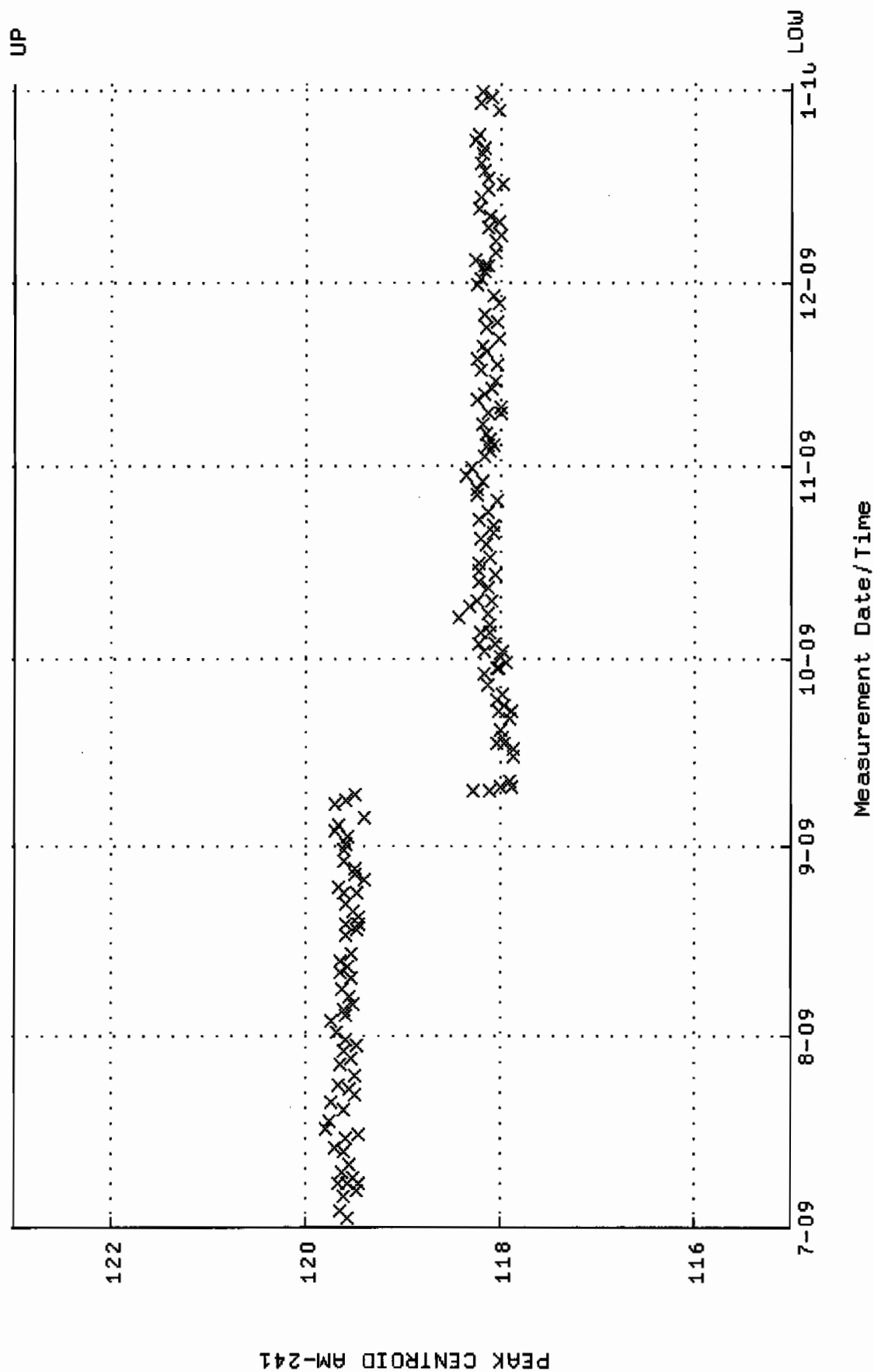


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM14.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:31 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)

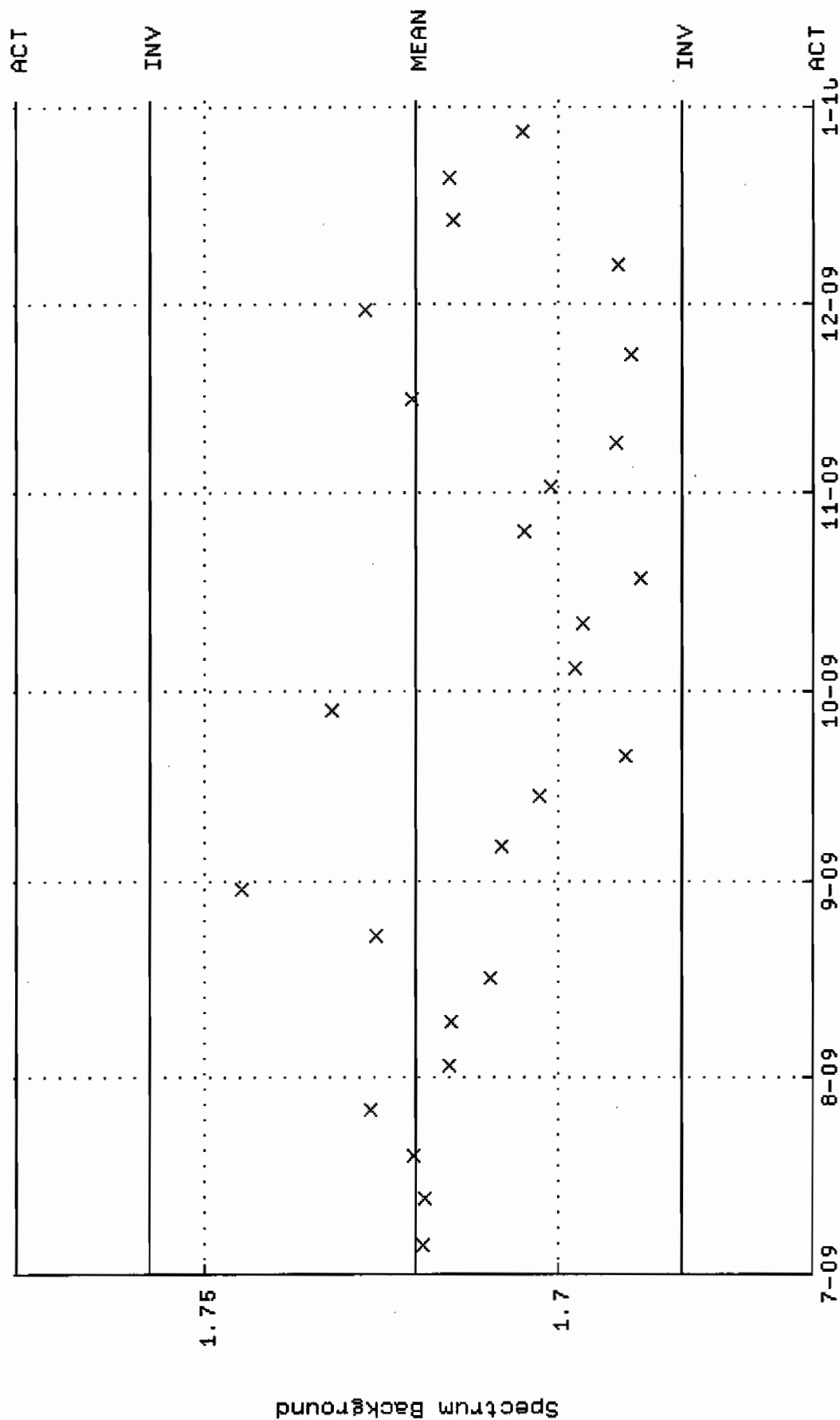




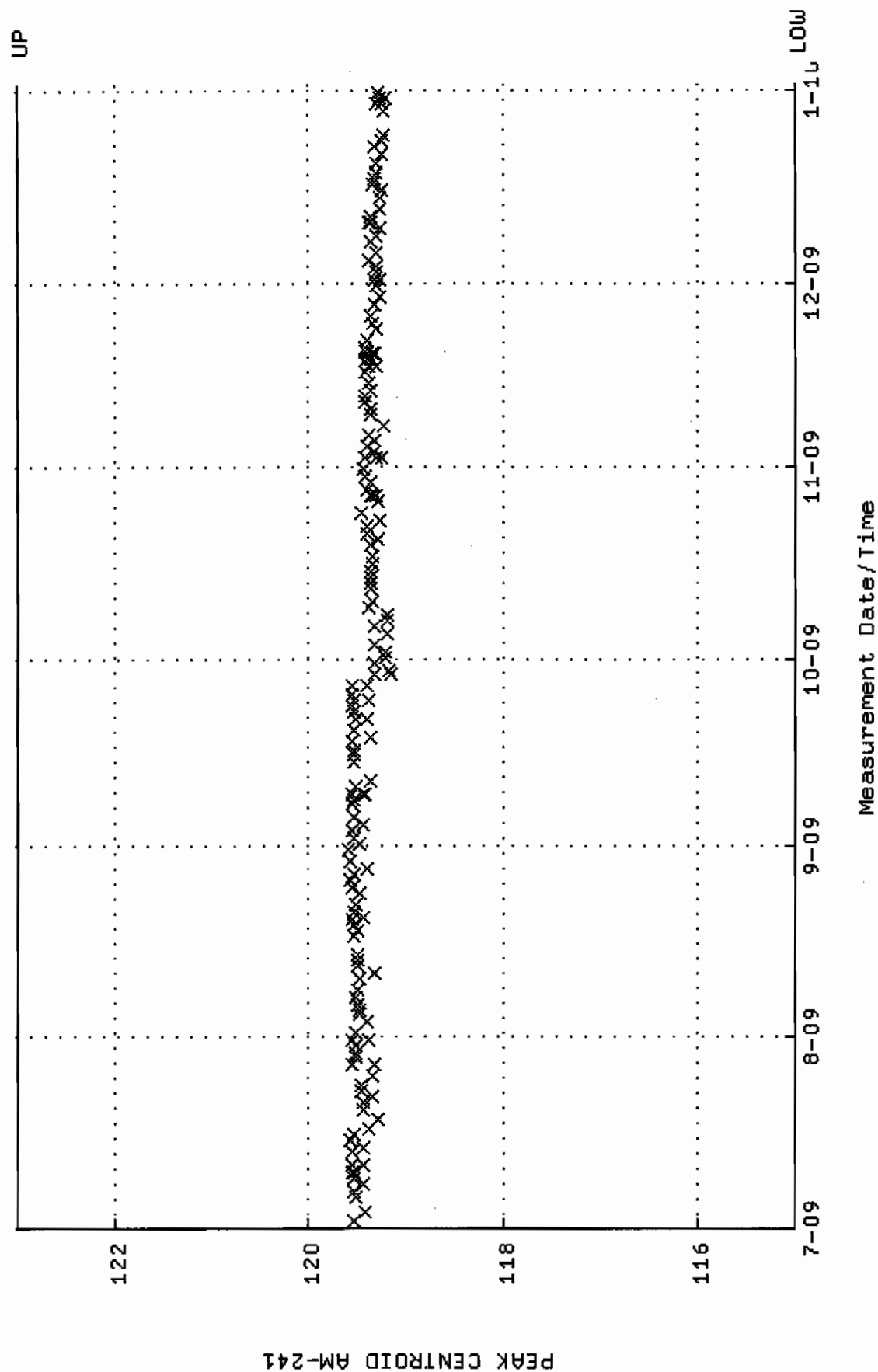
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM15-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:40 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



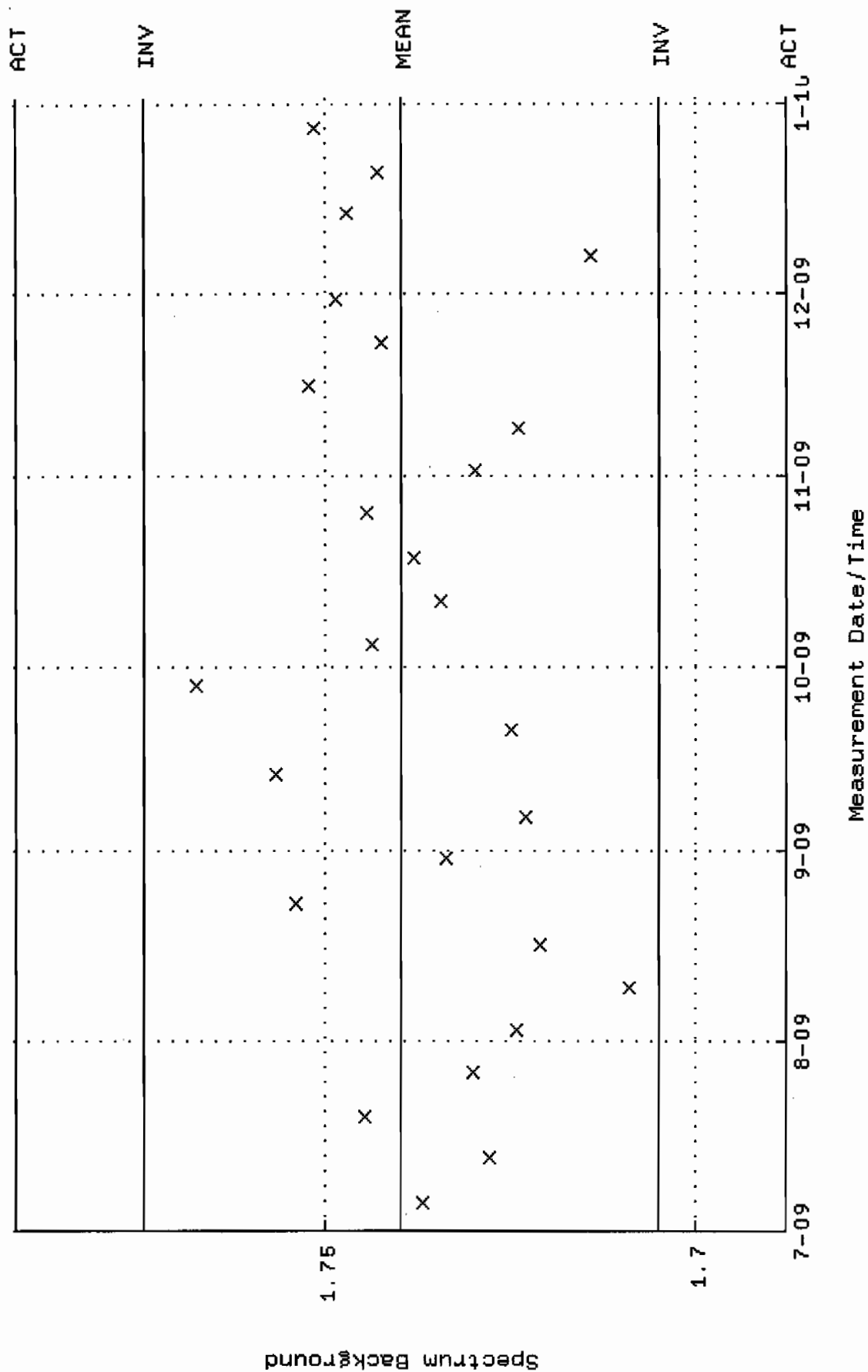
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM15.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:45 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)



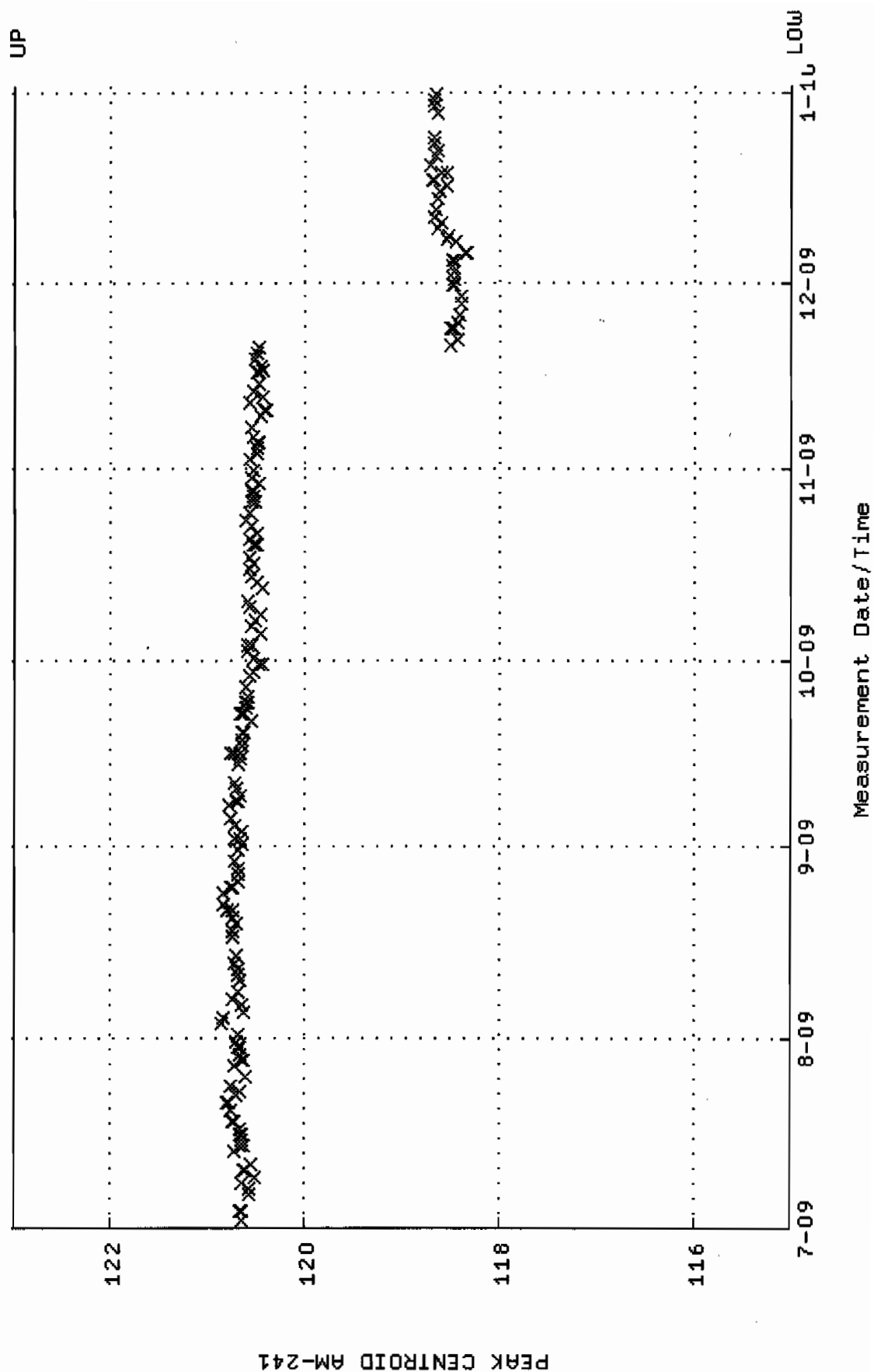
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM16\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:19 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



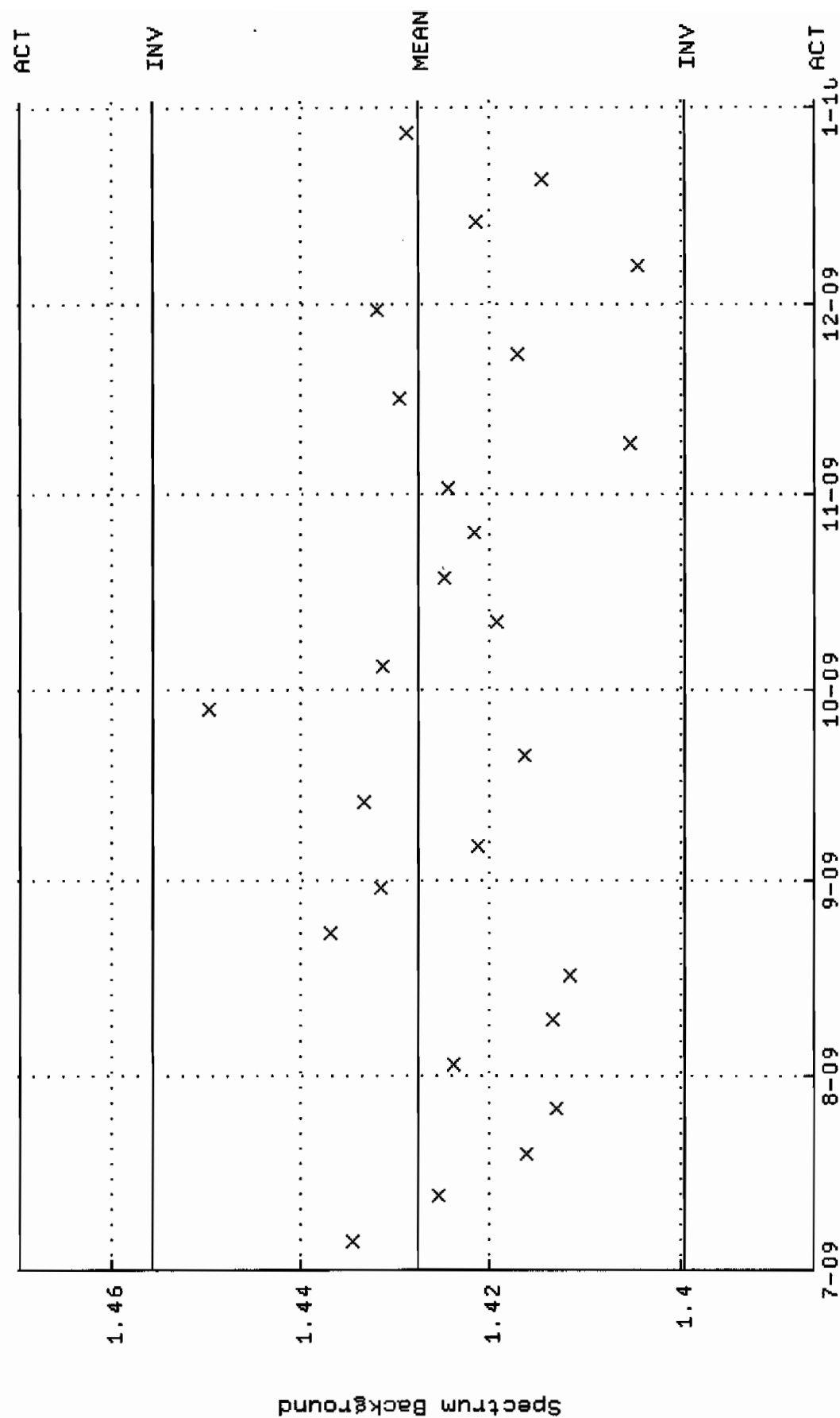
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM16.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:58 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.73980 +- 1.729897E-02 (0.99 %)



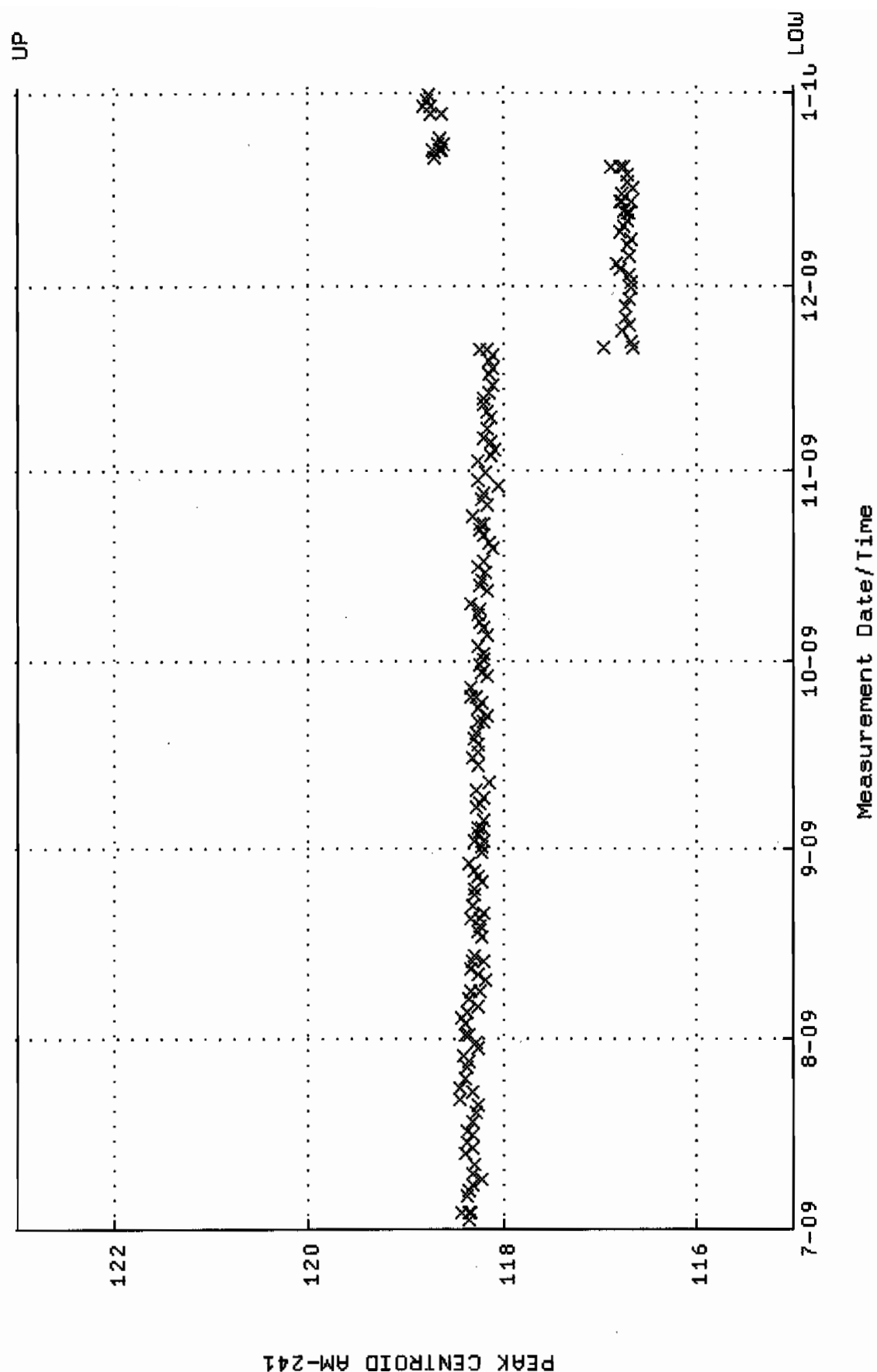
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM17\_CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 05:29:26 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



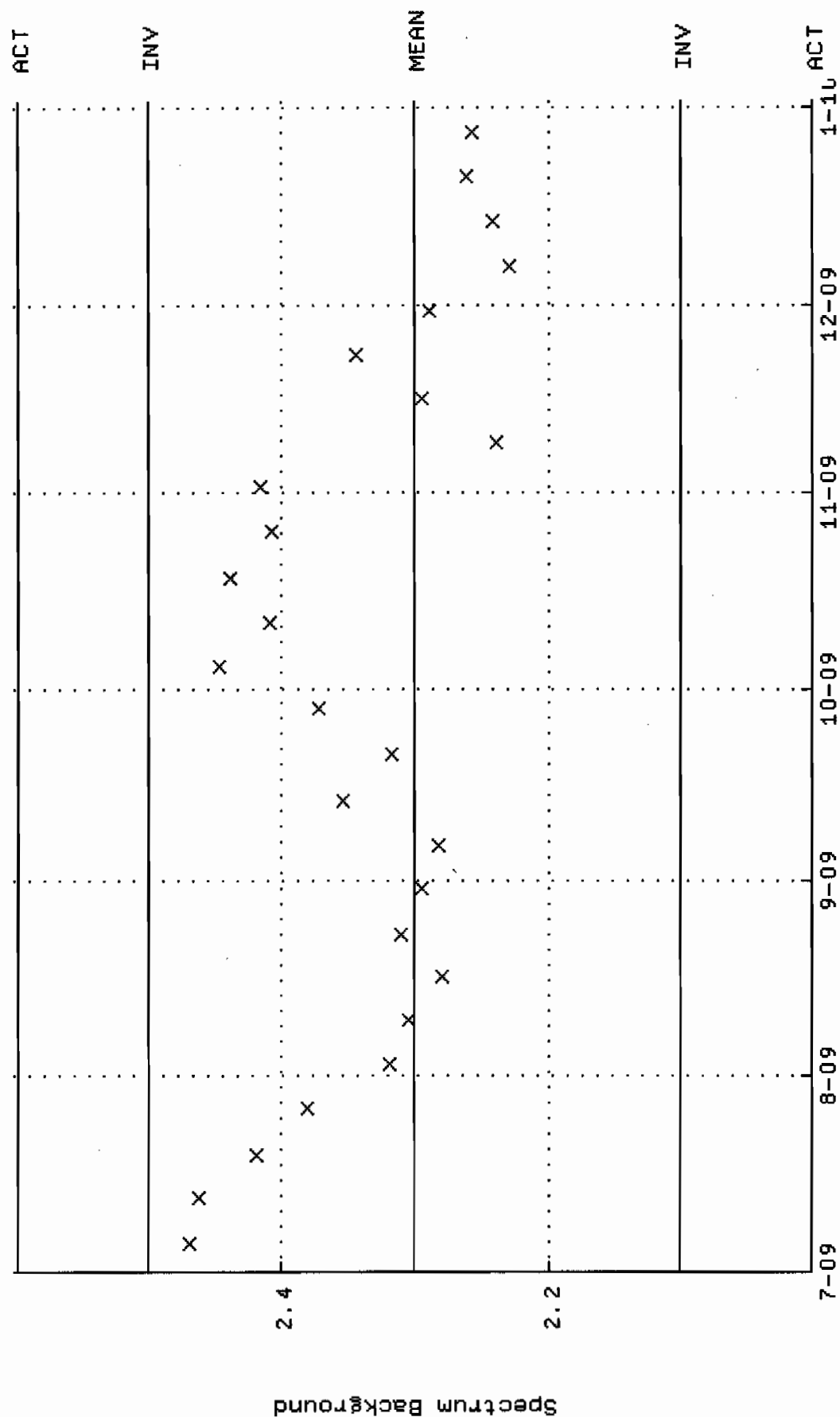
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM17.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:11 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_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

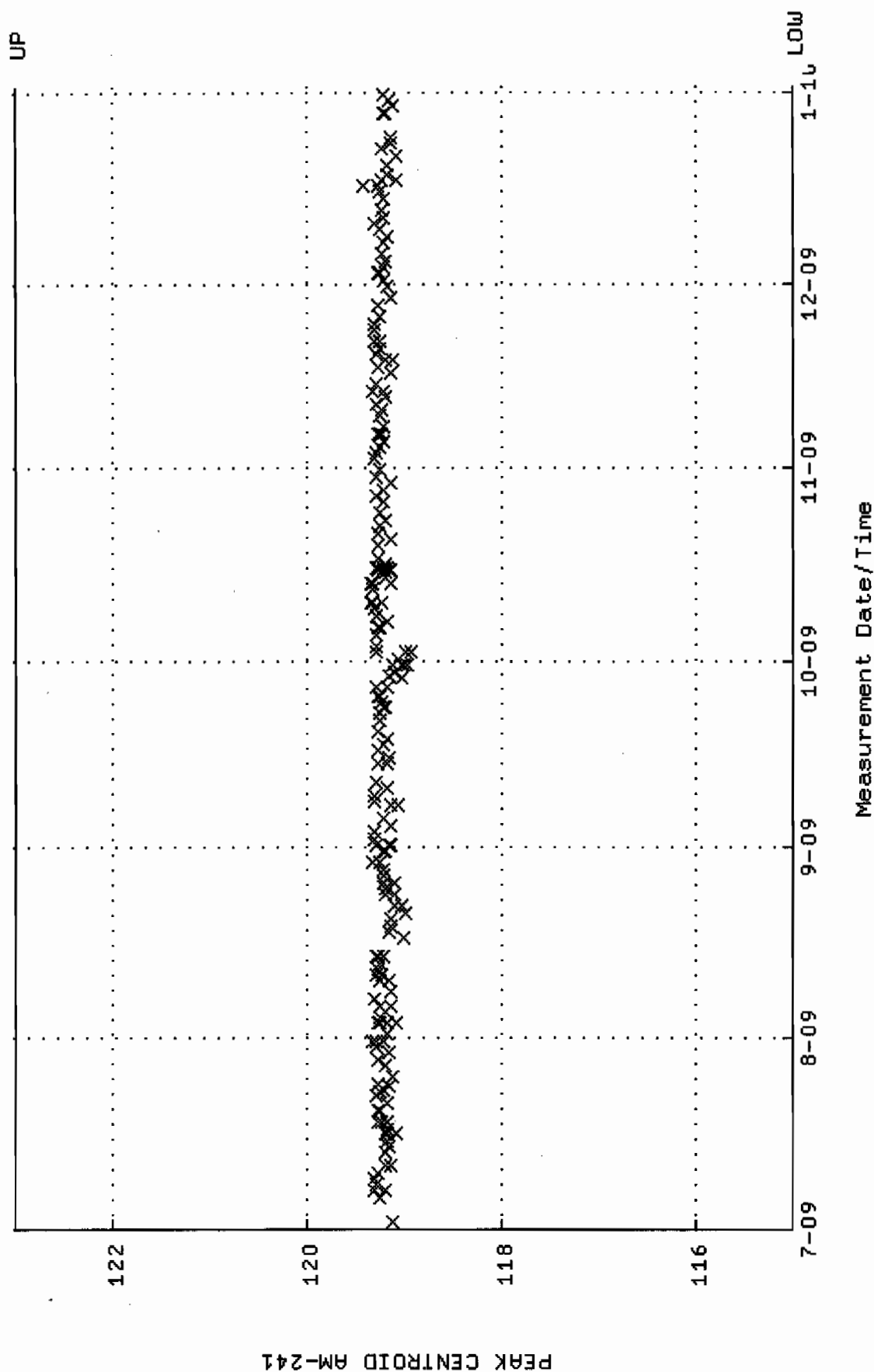


QA filename : DKA100:[CANNBERRA.GAMMA.SCUSR.QA]LBC\_GAM18.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:23 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)

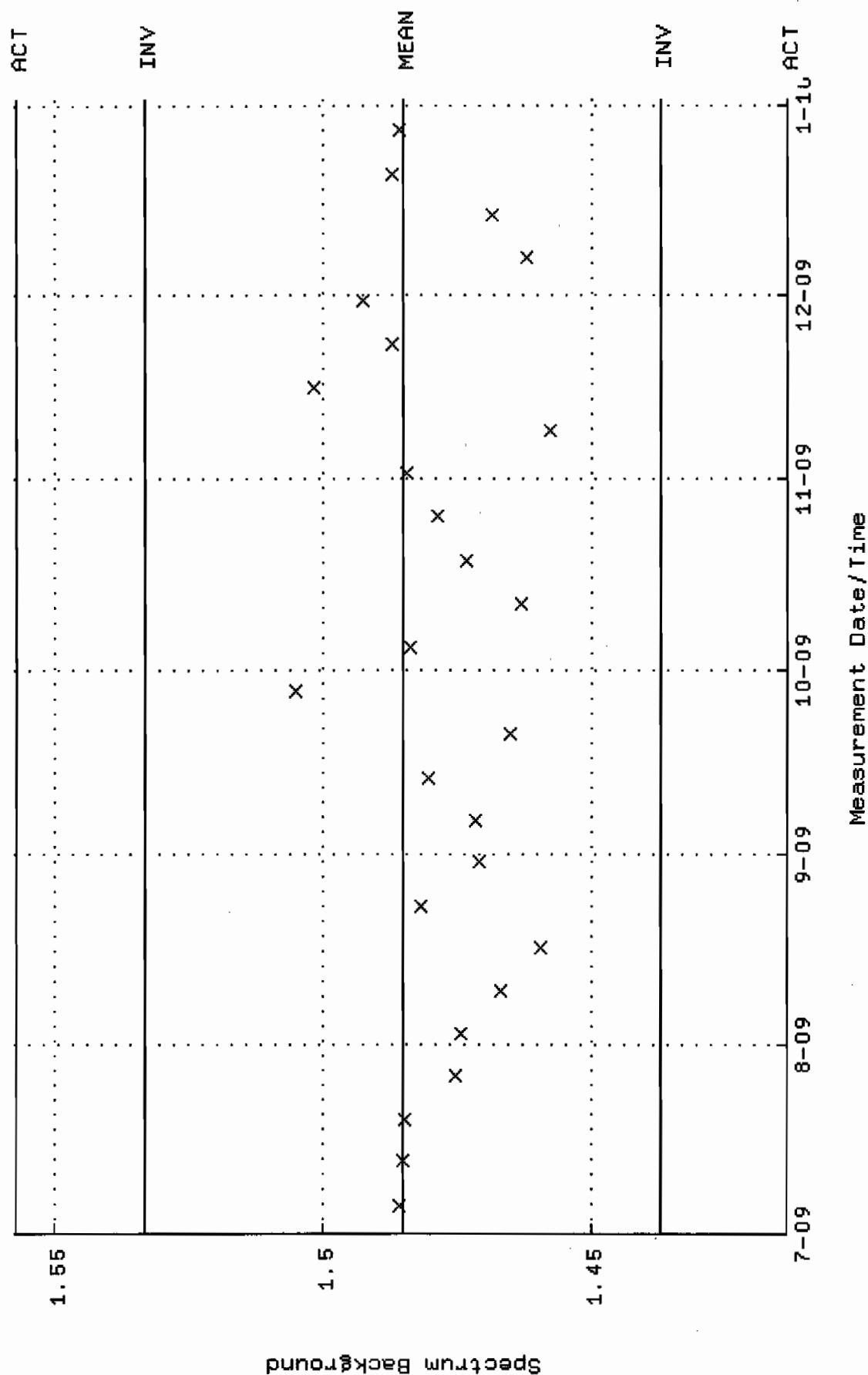




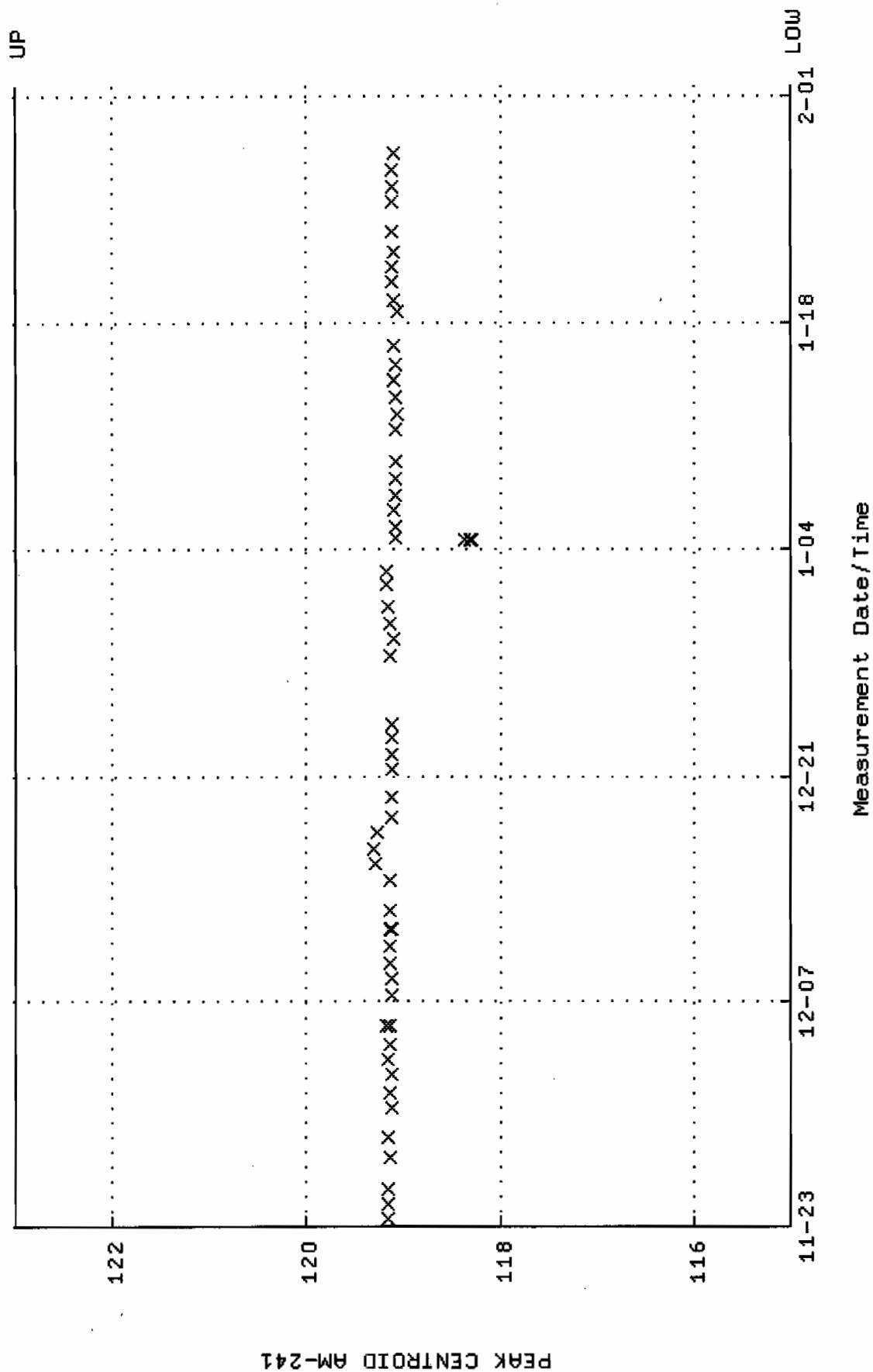
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM20\_500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:34 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



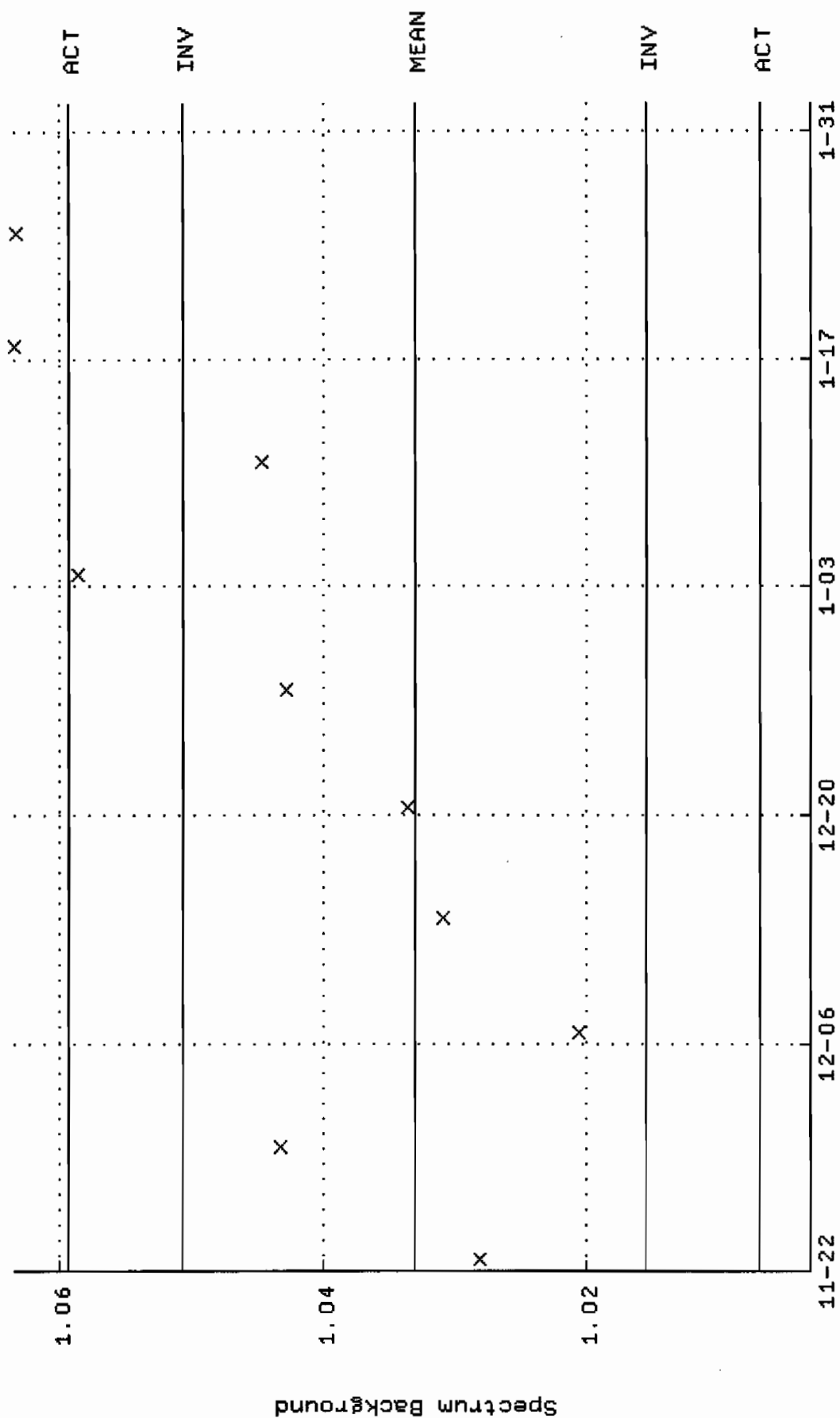
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM20.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:49 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48527 +- 2.388665E-02 (1.61 %)



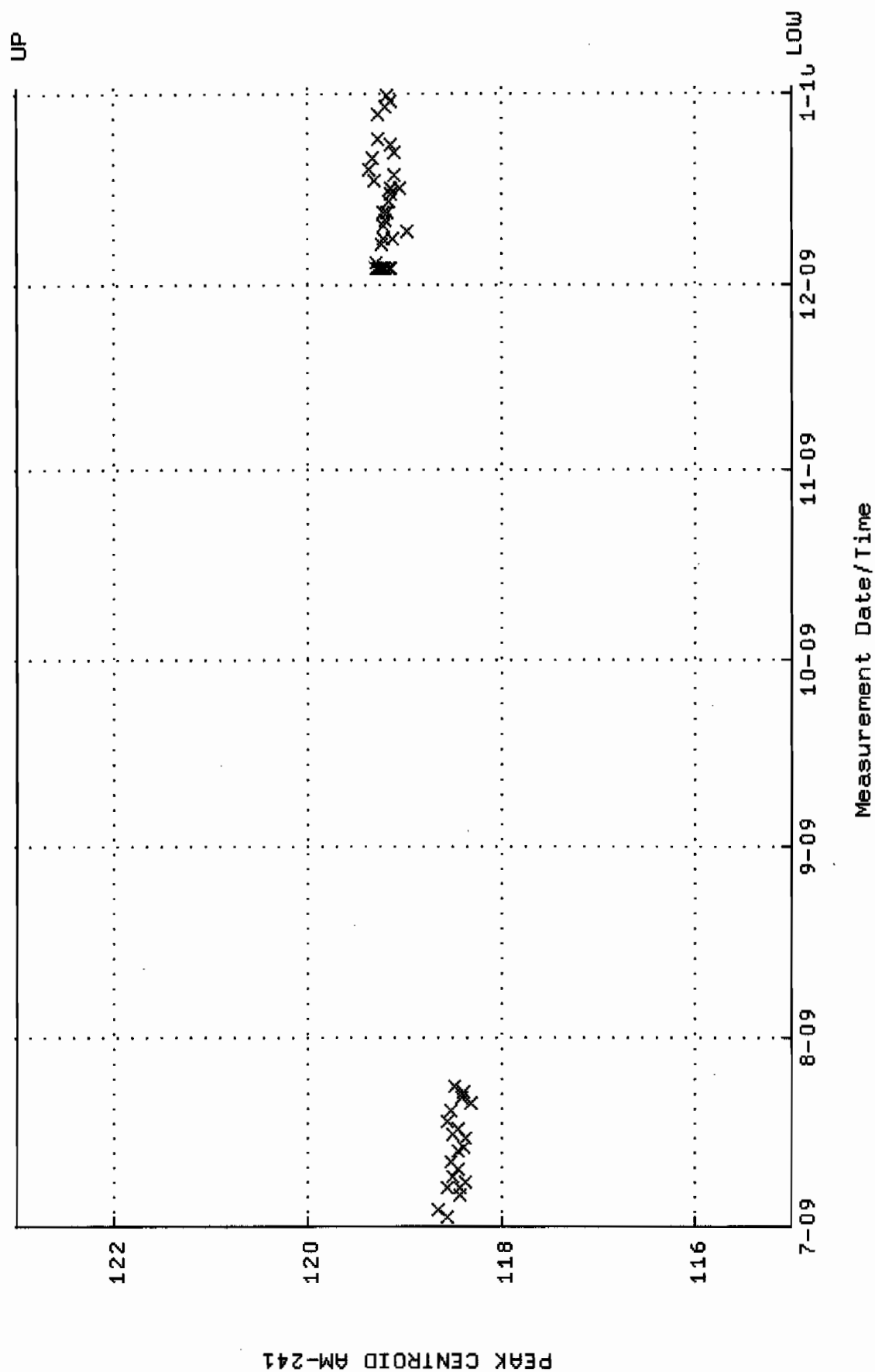
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM21\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 23-NOV-2009 10:56:51 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



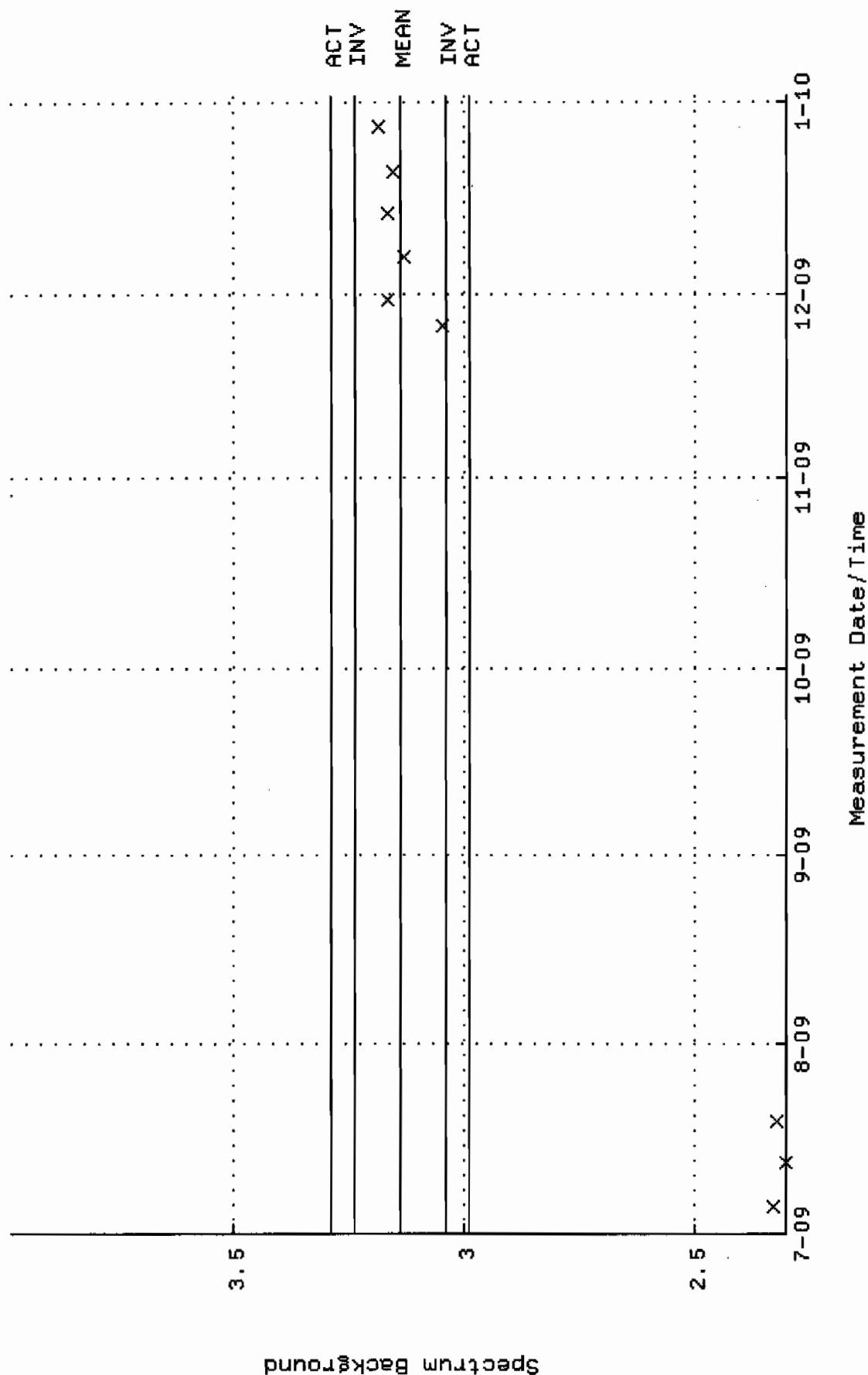
QA filename : DKA100:[CANNBERRA.GAMMA.SCUSR.QA]LBC\_GAM21.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 22-NOV-2009 17:05:16 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.03312 +- 8.784250E-03 (0.85 %)



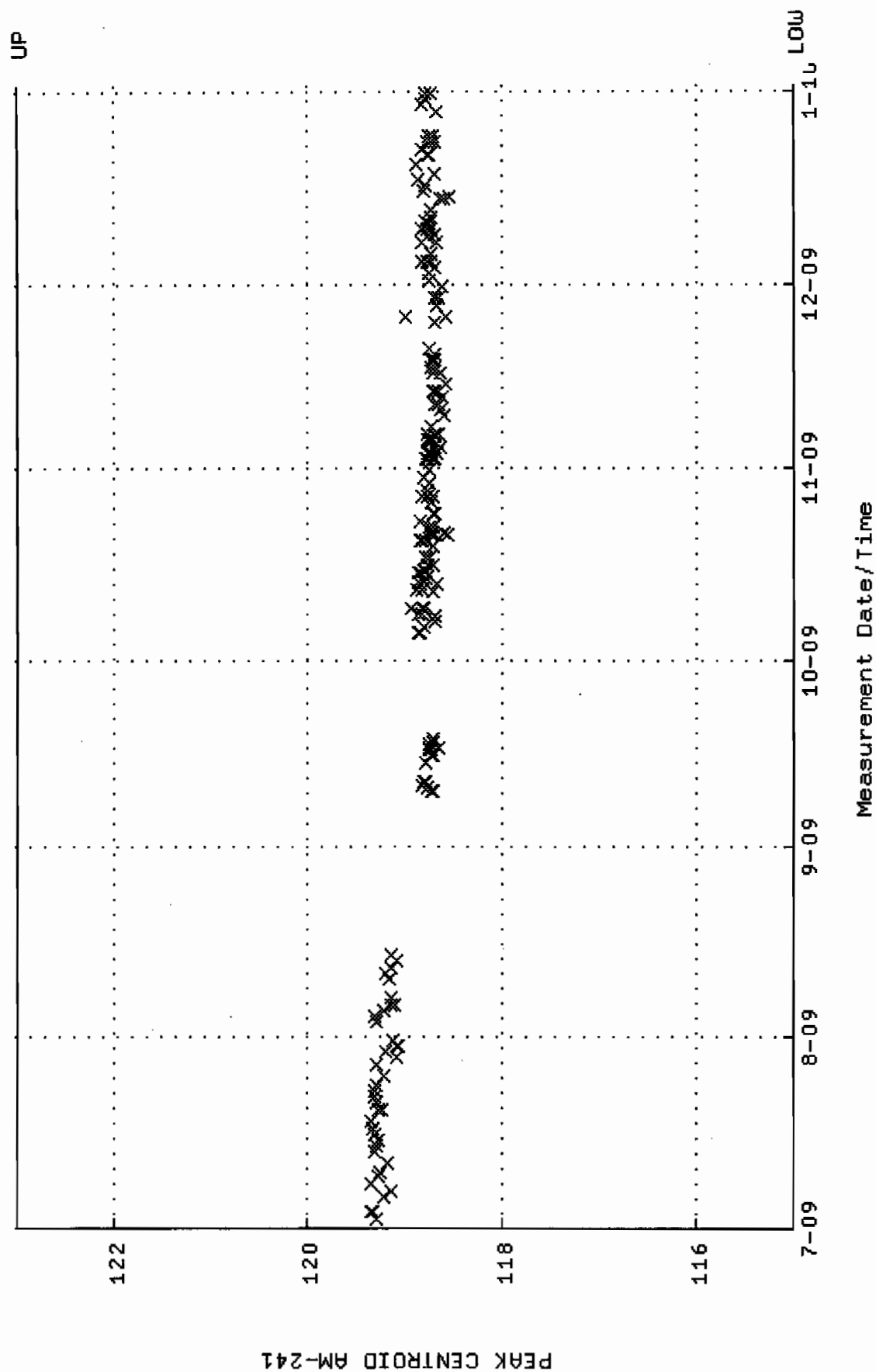
QA filename : DKA100: [CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM22\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:50 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



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:[CANBERRA.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

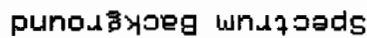


QA filename

Parameter Name : BACKRATE (Spectrum Background Rate)

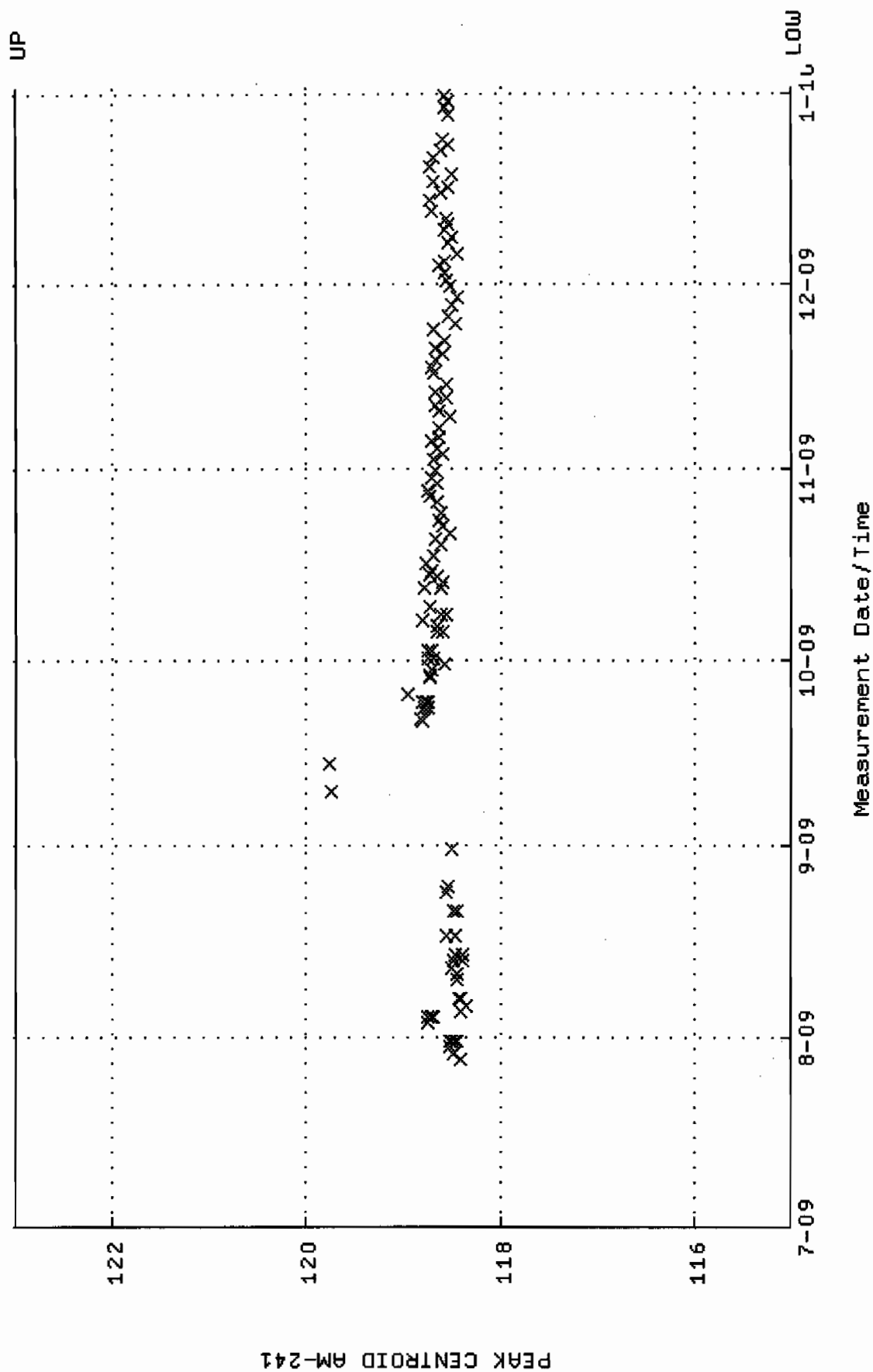
Start/End Dates	5-OCT-2009 15:13:53 through 1-JAN-2010 12:00:00
-----------------	---

Mean	+ -	Std Dev	: 1.61827 +- 0.119991 (7.41 %)
------	-----	---------	--------------------------------

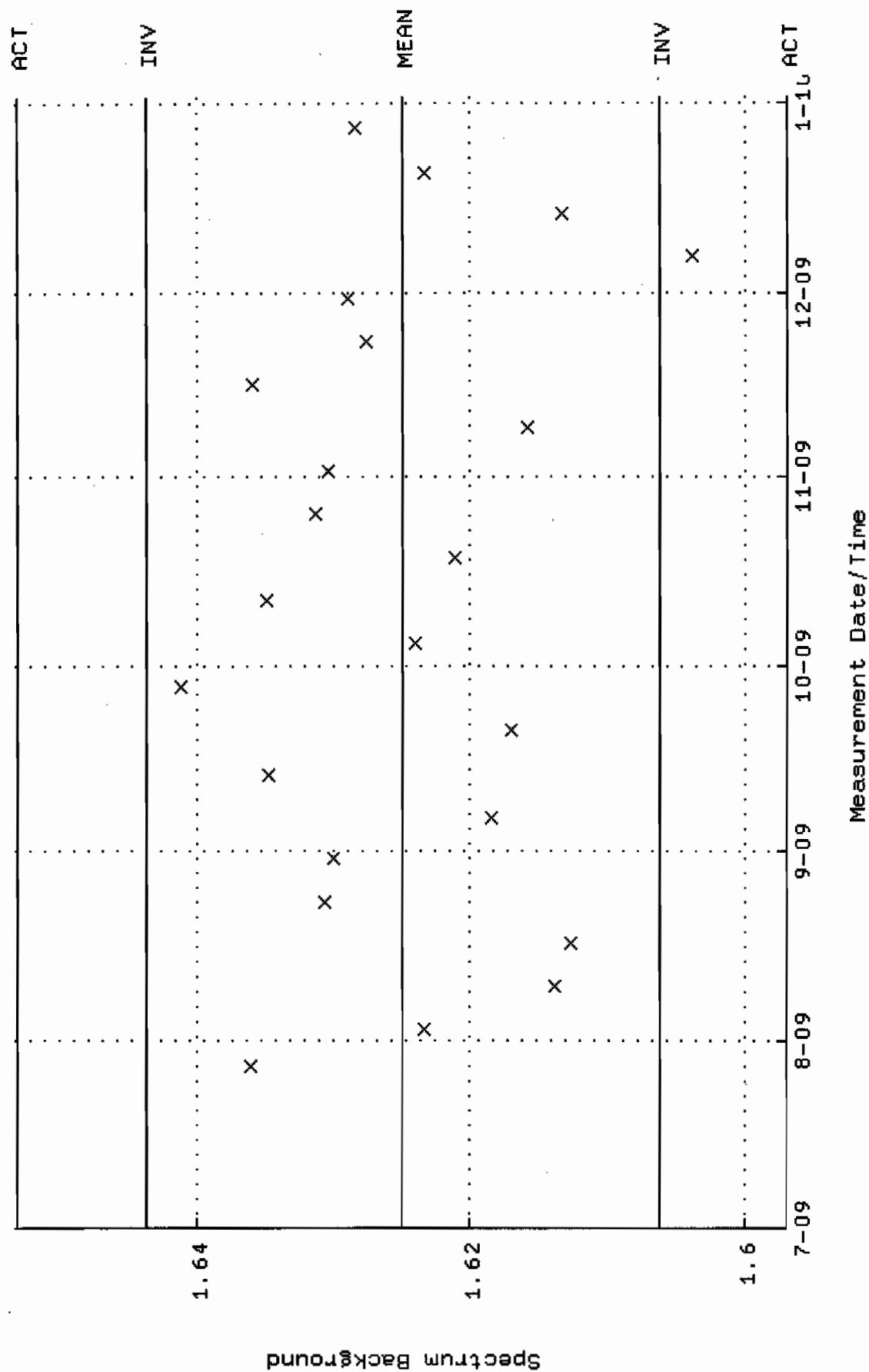




QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM25-2LMB.QAF;1  
 Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)  
 Start/End Dates : 28-JUL-2009 10:32:53 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100:[CANNBERRA.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-a

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>	Weighting	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
-----------	----------	--------------	---------------	------	-------------	-------------------	-----------------

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. Jar. 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 = 84.065  
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 = 248.56666667  
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.

M. Stamps  
12/2/09  
independent

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Cs-137

Isotope	Result	
Mixed Gamma N1	854.2	pC/L - Ver. Tab. 1
Mixed Gamma N2	907.6	pC/L - Ver. Tab. 3
Mixed Gamma N3	898.9	pC/L - Ver. Tab. 2

Mean Value (Counting) =  
Stdev =

886.90  
28.651

95.01  
Rule 3 (Pass/Fail)

Pass  
12/2/09  
12/2/09

Certificate Value =  
Lower Limit =  
Upper Limit =  
Rule 1 (Pass/Fail)  
Two sigma =  
10 % of Mean =  
Rule 2 (Pass/Fail)

933.44144  
829.597644  
944.202356  
Pass  
57.30235597  
88.69000000  
Pass

pC/L  
pC/L  
pC/L

## 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	pC/L - Ver-Tag-5
Mixed Gamma N1	1572	pC/L - Ver-Tag-2
Mixed Gamma N2	1495	pC/L - Ver-Tag-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67 Pass  
Stdev = 42.829 Rule 3 (Pass/Fail)

Certificate Value = 1545.8378  
Lower Limit = 1437.008431  
Upper Limit = 1608.324902  
Rule 1 (Pass/Fail) Pass  
Two sigma = 85.65823564  
10 % of Mean = 152.26868667  
Rule 2 (Pass/Fail) Pass

*U.S. Stamp 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 DATA 4/11/2003 *lett 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 TRM-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	25 ± 1	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

991627-01-202

SF 2001-COC (10-97)

Supervisors (9-97) have

**Internal Lab  
Batch No.**

SARAWR No. N/A

**Press F1 for instructions for each field.**

Page 1 of 1

AR/COC-602945

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 Sample Shipped: <b>11-16-99</b> Date Received: <b>11-16-99</b> Lab Contact: <b>EDIE KENT</b> Lab Destination: <b>G.E.L.</b> SMO Contact/Phone: <b>Doug Salm / 844-3110</b> Send Report to SMO: <b>Suzl Jensen / 844-3184</b>		Contract No.: <b>AJ-2480A</b> Case No.: <b>10204 143</b> SMO Authorization: <i>[Signature]</i> Bill to: <b>Sandia National Laboratories</b> Supplier Services, Dept. P.O. Box 5800 MS 0154	
<b>Location</b> Building <b>N/A</b> Sample No. - Fraction Tech Area <b>VI</b> Room <b>N/A</b>		<b>Reference LOV (available at SMO)</b> Sample Matrix Date/Time Collected Container Type Volume Preservative Sample Collection Method Sample Type		Parameter & Method Requested Lab Sample ID	
050484 - 001 PEM-1 050485 - 001 TRM-2 050486 - 001 TRM-2 <b>N.B.H.D.</b>		N/A N/A N/A N/A N/A N/A		N/A N/A N/A N/A N/A N/A	
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 Date Entered (mm/dd/yy) Entered by Init Company/Organization/Phone Date Time		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 These samples are with the analytical materials being sent to GEL and be held at Hank Hiestand.	
Turnaround Time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Required Report Date Name Douglas E. Perry Signature <i>[Signature]</i>		Date <b>11-16-99</b> Time <b>0900</b>		Abnormal Conditions on Report Values	
1. Relinquished by <i>[Signature]</i> Date <b>11-16-99</b> Time <b>0900</b>		4. Relinquished by		Date	
1. Received by Org.		4. Received by Org.		Date	
2. Relinquished by Org.		5. Relinquished by Org.		Date	
2. Received by Org.		5. Received by Org.		Date	
3. Relinquished by Org.		5. Relinquished by Org.		Date	
3. Received by Org.		5. 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. Fehr 4/30/04  
 fitt & sheld 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 GFL  
Not For Log-In

SF 2001-COC (10-97)

**Internal Lab**

**Batch No.**

SARAWR No. N/A

**Press F1 for instructions for each field.**

Page 1 of 1

AR/COC-

**602945**

[illegible]

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  
Half Life: 7380  $\pm$  40 years  
Catalog No.: 7243  
Source No.: 445-96-2

Customer: GENERAL ENGINEERING LABS  
P.O.No.: 9290-RAD  
Reference Date: January 1 1994 12:00 PST.  
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) integrated 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		A Solution Material Info	
Parent Code:	445-96-2	Isotope:	Americium-243
Prepared By:	Genie Bost	Prepared By:	Angela Johnson
Carrier Conc:	2M HNO3	Prep Date:	01/05/1994
Reference Date:	01/01/1994	Verification Date:	05/11/2009
Ampoule Mass (g):	5.3739 g	Expiration Date:	05/11/2010
Uncertainty:	+/- 3 %	Primary Code:	445-96-2-A
LogBook No:	RC S 005 032	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

$(\text{Mass of parent(g)}) * (\text{Parent Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$

## 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. 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  
2/2/05

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 $\alpha$ 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, $u_c(y)/y$ , (%) [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, $U/y$ , (%)				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  $u_c(y)/y \equiv |\partial y / \partial x_i| \cdot u(x_i)/y = |\partial y / \partial x_i| \cdot (x_i / y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y / \partial x_i| \cdot (x_i / y)$ , and  $u_c(y)/y$ , 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	
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
-----------	----------	--------------	---------------	------	-------------	-------------------	-----------------

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Pu-242 Standard 1374-A

A.Drochter 12/8/2009	Isotope 1374-A 1374-A 1374-A	Value 1.610 1.580 1.530	Uncertainty 0.2480 0.2510 0.2440
Mean Value (Counting) = Stdev =	1.573 0.040414519	103.17	Pass Rule 3 (Pass/Fail)
Target = Lower Limit = Upper Limit = Rule 1 Pass/Fail Two sigma = 10 % of Mean = Rule 2 (Pass/Fail)	1.52 1.492504296 1.654162371 Pass 0.080829038 0.157333333 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  
 12/8/09  
 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 4.18, 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: WLS

W. Mao, Radiochemist

QA Approved: DM

D. M. Montgomery, QA Manager

Date: 12-11-08



# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1283
Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3
Reference Date:	12/09/2008
Ampoule Mass (g):	5.20453 g
Uncertainty:	+/- 5 %
LogBook No:	RC-S-051-002

A Solution Material Info	
Isotope:	Uranium-232
Prepared By:	Daniel Roy
Prep Date:	12/16/2008
Verification Date:	12/30/2008
Expiration Date:	12/30/2009
Primary Code:	1283-A
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

## Verification for Uranium-232 Standard 1283-H

Analyst: A. Drochta

Date: 12/10/09

	Serial #	Value	Uncertainty	
	1283-H N1	2.020	pCi/L	0.238
	1283-H N2	2.000	pCi/L	0.234
	1283-H N3	2.060	pCi/L	0.242
Mean Value (Counting) =	2.027	pCi/L	99.88904	Pass
Stdev =	0.030550505	pCi/L	Rule 3 (Pass/Fail)	
Target =	2.033	pCi/L		
Lower Limit =	1.985565657	pCi/L		
Upper Limit =	2.087767676	pCi/L		
Rule 1 Pass/Fail	Pass			
Two sigma =	0.061101009			
10 % of Mean =	0.202666667			
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 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. Drochta*  
12/14/09

# RUNLOGS

# Instrument Run Log

**Instrument Type: GAMMA SPECTROMETER**

**Batch ID: 941635**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244597001	SAMPLE	MXR1	GAM14	22-JAN-10 07:38	DONE	CAN	06-MAR-09 00:00
244600001	SAMPLE	MXR1	GAM10	22-JAN-10 07:54	DONE	CAN	16-MAR-09 00:00
244600002	SAMPLE	MXR1	GAM11	22-JAN-10 07:55	DONE	CAN	18-NOV-09 00:00
244600003	SAMPLE	MXR1	GAM12	22-JAN-10 07:55	DONE	CAN	10-FEB-09 00:00
244600004	SAMPLE	MXR1	GAM16	22-JAN-10 07:56	DONE	CAN	16-NOV-09 00:00
244600005	SAMPLE	MXR1	GAM20	22-JAN-10 07:57	DONE	CAN	26-AUG-09 00:00
244600006	SAMPLE	MXR1	GAM17	22-JAN-10 08:05	DONE	CAN	06-JAN-10 00:00
244600007	SAMPLE	MXR1	GAM25	22-JAN-10 08:05	DONE	CAN	07-OCT-09 00:00
244600008	SAMPLE	MXR1	GAM15	22-JAN-10 08:35	DONE	CAN	16-FEB-09 00:00
244600009	SAMPLE	MXR1	GAM18	22-JAN-10 08:36	DONE	CAN	23-APR-09 00:00
244600010	SAMPLE	MXR1	GAM21	22-JAN-10 08:37	DONE	CAN	28-JUL-09 00:00
244600011	SAMPLE	MXR1	GAM22	22-JAN-10 08:37	DONE	CAN	02-DEC-09 00:00
244600012	SAMPLE	MXR1	GAM07	22-JAN-10 08:49	DONE	CAN	20-JUL-09 00:00
244600013	SAMPLE	MXR1	GAM23	22-JAN-10 08:50	DONE	CAN	02-JUN-09 00:00
244612001	SAMPLE	MXR1	GAM13	22-JAN-10 09:02	DONE	CAN	02-FEB-09 00:00
244613001	SAMPLE	MXR1	GAM19	22-JAN-10 09:03	DONE	CAN	12-MAR-09 00:00
1202015435	MB	MXR1	GAM14	22-JAN-10 09:49	DONE	CAN	06-MAR-09 00:00
1202015436	DUP	MXR1	GAM20	22-JAN-10 10:24	DONE	CAN	26-AUG-09 00:00
1202015437	LCS	MXR1	GAM25	22-JAN-10 10:25	DONE	CAN	07-OCT-09 00:00

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 941693**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202015579	MB	HAKB	1043	20-JAN-10 12:59	DONE		
1202015581	LCS	HAKB	1048	20-JAN-10 12:59	DONE		
244597001	SAMPLE	HAKB	1087	20-JAN-10 16:41	DONE		
244600001	SAMPLE	HAKB	1088	20-JAN-10 16:41	DONE		
244600002	SAMPLE	HAKB	1089	20-JAN-10 16:41	DONE		
244600003	SAMPLE	HAKB	1090	20-JAN-10 16:41	DONE		
244600004	SAMPLE	HAKB	1091	20-JAN-10 16:41	DONE		
244600005	SAMPLE	HAKB	1092	20-JAN-10 16:41	DONE		
244600006	SAMPLE	HAKB	1093	20-JAN-10 16:41	DONE		
244600007	SAMPLE	HAKB	1094	20-JAN-10 16:41	DONE		
244600008	SAMPLE	HAKB	1095	20-JAN-10 16:41	DONE		
244600009	SAMPLE	HAKB	1097	20-JAN-10 16:41	DONE		
244600010	SAMPLE	HAKB	1099	20-JAN-10 16:41	DONE		
244600011	SAMPLE	HAKB	1100	20-JAN-10 16:41	DONE		
244600012	SAMPLE	HAKB	1101	20-JAN-10 16:41	DONE		
244600013	SAMPLE	HAKB	1102	20-JAN-10 16:41	DONE		
244612001	SAMPLE	HAKB	1103	20-JAN-10 16:41	DONE		
244613001	SAMPLE	HAKB	1104	20-JAN-10 16:41	DONE		
1202015580	DUP	HAKB	1105	20-JAN-10 16:41	DONE		

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 941694**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244597001	SAMPLE	HAKB	1025	19-JAN-10 13:20	DONE		
244600001	SAMPLE	HAKB	1026	19-JAN-10 13:20	DONE		
244600002	SAMPLE	HAKB	1027	19-JAN-10 13:20	DONE		
244600003	SAMPLE	HAKB	1028	19-JAN-10 13:20	DONE		
244600004	SAMPLE	HAKB	1029	19-JAN-10 13:20	DONE		
244600005	SAMPLE	HAKB	1030	19-JAN-10 13:20	DONE		
244600006	SAMPLE	HAKB	1038	19-JAN-10 13:20	DONE		
244600007	SAMPLE	HAKB	1039	19-JAN-10 13:20	DONE		
244600008	SAMPLE	HAKB	1040	19-JAN-10 13:20	DONE		
244600009	SAMPLE	HAKB	1042	19-JAN-10 13:20	DONE		
244600010	SAMPLE	HAKB	1045	19-JAN-10 13:20	DONE		
244600011	SAMPLE	HAKB	1047	19-JAN-10 13:20	DONE		
244600012	SAMPLE	HAKB	1048	19-JAN-10 13:20	DONE		
1202015582	MB	HAKB	1065	19-JAN-10 13:20	DONE		
1202015583	DUP	HAKB	1066	19-JAN-10 13:20	DONE		
1202015584	LCS	HAKB	1067	19-JAN-10 13:20	DONE		
244600013	SAMPLE	HAKB	1068	19-JAN-10 13:20	DONE		
244612001	SAMPLE	HAKB	1069	19-JAN-10 13:20	DONE		
244613001	SAMPLE	HAKB	1070	19-JAN-10 13:20	DONE		

## Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 941697

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244597001	SAMPLE	HAKB	1151	20-JAN-10 20:16	DONE		
244600001	SAMPLE	HAKB	1152	20-JAN-10 20:16	DONE		
244600002	SAMPLE	HAKB	1153	20-JAN-10 20:16	DONE		
244600003	SAMPLE	HAKB	1154	20-JAN-10 20:16	DONE		
244600004	SAMPLE	HAKB	1155	20-JAN-10 20:16	DONE		
244600005	SAMPLE	HAKB	1156	20-JAN-10 20:16	DONE		
244600006	SAMPLE	HAKB	1157	20-JAN-10 20:16	DONE		
244600007	SAMPLE	HAKB	1158	20-JAN-10 20:16	DONE		
244600008	SAMPLE	HAKB	1159	20-JAN-10 20:16	DONE		
244600009	SAMPLE	HAKB	1160	20-JAN-10 20:16	DONE		
244600010	SAMPLE	HAKB	1001	20-JAN-10 20:17	DONE		
244600011	SAMPLE	HAKB	1002	20-JAN-10 20:17	DONE		
244600012	SAMPLE	HAKB	1003	20-JAN-10 20:17	DONE		
244600013	SAMPLE	HAKB	1004	20-JAN-10 20:17	DONE		
244612001	SAMPLE	HAKB	1005	20-JAN-10 20:17	DONE		
244613001	SAMPLE	HAKB	1006	20-JAN-10 20:17	DONE		
1202015590	MB	HAKB	1007	20-JAN-10 20:17	DONE		
1202015591	DUP	HAKB	1008	20-JAN-10 20:17	DONE		
1202015592	LCS	HAKB	1009	20-JAN-10 20:17	DONE		