

Sunday, January 17, 2010

Page 1 of 4  
REQUEST NUMBER: 10-1302

**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: 10-1302  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/18/2010  
TURNAROUND/REPORT DUE: 2/17/2010  
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	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	

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PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
		1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
EPA:906.0		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
HASL-300:AM-241		1	RE15-10-7219	R	1/13/2010	
		1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	

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PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
HASL-300:AM-241						
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
HASL-300:ISOPU						
		1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
HASL-300:ISOU						
		1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	

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REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
HASL-300:ISOU						
1		1	RE15-10-7189	R	1/13/2010	
1		1	RE15-10-7190	R	1/13/2010	
1		1	RE15-10-7191	R	1/13/2010	
1		1	RE15-10-7192	R	1/13/2010	
1		1	RE15-10-7193	R	1/13/2010	
1		1	RE15-10-7194	R	1/13/2010	
1		1	RE15-10-7195	R	1/13/2010	
1		1	RE15-10-7196	R	1/13/2010	
1		1	RE15-10-7197	R	1/13/2010	
1		1	RE15-10-7219	R	1/13/2010	

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LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

**LOS ALAMOS**

REQUEST NUMBER: 10-1302

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/17/2010

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
RE15-10-7194	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7194	1	POLY	H3	Ice	R
RE15-10-7186	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7186	1	POLY	H3	Ice	R
RE15-10-7191	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7191	1	POLY	H3	Ice	R
RE15-10-7195	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7195	1	POLY	H3	Ice	R
RE15-10-7196	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7196	1	POLY	H3	Ice	R
RE15-10-7197	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7197	1	POLY	H3	Ice	R
RE15-10-7193	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7193	1	POLY	H3	Ice	R
RE15-10-7184	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7184	1	POLY	H3	Ice	R
RE15-10-7185	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7185	1	POLY	H3	Ice	R
RE15-10-7189	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7189	1	POLY	H3	Ice	R
RE15-10-7187	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7187	1	POLY	H3	Ice	R
RE15-10-7188	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7188	1	POLY	H3	Ice	R
RE15-10-7190	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7190	1	POLY	H3	Ice	R
RE15-10-7192	1	POLY	AM241+GS+ISOPU+ISO U	None	R

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LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
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RE15-10-7192	1	POLY	H3	Ice	R
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RE15-10-7219	1	POLY	AM241+GS+ISOPU+ISO U	None	R
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RE15-10-7219	1	POLY	H3	Ice	R
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<b>Relinquished By:</b>	<b>Date</b>	<b>Time</b>	<b>Received By:</b>	<b>Date</b>	<b>Time</b>
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	1/18/10	3:06			
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Printed Name	Signature	Printed Name	Signature
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Printed Name	Signature	Printed Name	Signature
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Printed Name	Signature	Printed Name	Signature
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<b>Received for DISPOSAL By:</b>	<b>Date</b>	<b>Time</b>	<b>Remarks:</b>
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Printed Name	Signature
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## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7184

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1133		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-014(h)	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	15-610513			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.7		SCREEN/PORT DESC:			NA
FIELD MATRIX:	R	SED		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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1		H3	500 ML POLY	Ice	Yes	
1		Met+U+CLO4+C N	1 GAE POLY Liter RC 12/17/09	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC:

Brown slightly moist silt/clay

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-21, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

HE neg

Alpha  $\leq$  27 dpmBeta/Gamma  $\leq$  2460 dpmPID  $\frac{\text{Ambient Reading}}{0.0} = 0.0$  ppm

COLLECTED BY (PRINT)

T. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY

(Printed Name) MARIN

(Signature) [Signature]

Date/Time

1/14/10

7:51

RECEIVED BY

(Printed Name) [Signature]

(Signature) [Signature]

Date/Time

1/14/10

7:51

RELINQUISHED BY

(Printed Name)

Date/Time

RECEIVED BY

(Printed Name)

Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7185

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	QBT3		A11h
TIME COLLECTED (HH:MM)		1144		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-014(h)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610513			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Regular	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY <i>Re 12/17/09</i>	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sandy silt, dry, few tuff fragments

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-21, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
 Beta/Gamma  $\leq$  2446 dpm

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

COLLECTED BY (PRINT)

T. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) MARIN (Signature) <i>John R. Marin</i>	Date/Time 1/14/10 7:51	RECEIVED BY (Printed Name) <i>John R. Marin</i> (Signature) <i>John R. Marin</i>	Date/Time 1/14/10 7:51
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7186

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	OBT3		SED
TIME COLLECTED (HH:MM)	7:45 1/13/10	1445 1345		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-014(h)	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	15-610514	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	0.5		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	SED		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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY 2-liter 20 12/17/09	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Wet sand, few roots and rocks

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-15 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

HE negative

Alpha = 33 dpm  
Beta/Gamma = 2070 dpm

PID Ambient Reading 0.0 / 0.0 ppm

COLLECTED BY (PRINT)

TLMcFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) MARIN	1/14/10	(Printed Name) Sherri Greenwood	1/14/10
(Signature) Jen R. Marin	7:52	(Signature) Sherri Greenwood	7:52
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7187

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	OBT3		AHh
TIME COLLECTED (HH:MM)	72m 11/13/10	1455 1355		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-014(h)	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	15-610514			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:			NA
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY Liter 20 12/17/09	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown silty sand,  
some roots and rocks

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-15 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  55 dpm  
Beta/Gamma  $\leq$  2390 dpm

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

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) MAAIN	1/14/10	(Printed Name) Sheri Sherwood	1/14/10
(Signature) Jan R. Maain	7:52	(Signature) Sheri Sherwood	7:52
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7188

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA: QBT3		SED	
TIME COLLECTED (HH:MM)		1344		SUB-MEDIA: TUFF 1		NA	
PRS ID: 15-014(h)		OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID: 15-610515		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		0.0 ft		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		0.8 ft		SCREEN/PORT DESC: NA			
FIELD MATRIX: B		SED		EXCAVATED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NA			
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NA			
BOREHOLE: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY	Ice	Y	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

## SAMPLE DESC:

Brown sandy silt

## SAMPLE COMMENTS:

NA

## LOCATION DESC:

14h - 22 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
 B/g  $\leq$  2280 dpm

HE Negative  
 PID Ambient 0.0  
 Reading 0.0 ppm

## COLLECTED BY (PRINT)

TL McFarland

## REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) MARIN	1/14/10	(Printed Name) [Signature]	1/14/10
(Signature) [Signature]	7:52	(Signature) [Signature]	7:52
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7189

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA: QBT3		A11h	
TIME COLLECTED (HH:MM)		1403		SUB-MEDIA: TUFF 1		NA	
PRS ID:	15-014(h)	ok		SAMPLE TECH CODE: HA		ok	
LOCATION ID:	15-610515	↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE:	GENERIC	↓		FIELD PREP: NA		↓	
TOP DEPTH:	0	1.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH:	0	2.2		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	8260B	125 ML SEPTUM AMBER GLASS	Ice	y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	y	
1		H3	500 ML POLY	Ice	y	
1		Met+U+CLO4+C N	1 GAL POLY Liter RE 12/17/09	Ice	y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	y	

SAMPLE DESC:

Pinkish gray sandy silt, some roots

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-22 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq 38$  dpm  
Beta/Gamma  $\leq 2070$  dpmPID  $\frac{\text{Ambient}}{\text{Reading}} = \frac{0.0}{0.0}$  ppm

COLLECTED BY (PRINT)

T. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) MARIN (Signature) J. R. Marin	Date/Time 1/14/10 7:53	RECEIVED BY (Printed Name) Julie Math (Signature) [Signature]	Date/Time 1/14/10 753
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7190

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/13/2010	MEDIA:		QBT3
TIME COLLECTED (HH:MM)		1424	SUB-MEDIA:		TUFF 1
PRS ID:	15-014(h)	ok	SAMPLE TECH CODE:		HA
LOCATION ID:	15-610516	↓	FIELD QC TYPE:		NA
LOCATION TYPE:	GENERIC	↓	FIELD PREP:		NA
TOP DEPTH:	0	0.0	SAMPLE USAGE:		INV
BOTTOM DEPTH:	0	0.7	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	SED	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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY Liter LC 12/10/09	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: moist silty clay with rocks and roots

SAMPLE COMMENTS:

NA

LOCATION DESC: 14h-23, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  22 dpm  
Beta/Gamma  $\leq$  1962 dpm

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

COLLECTED BY (PRINT)

T. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) MARIN (Signature) <i>Jan B. Marin</i>	Date/Time 1/14/10 7:54	RECEIVED BY (Printed Name) <i>Alise M. ...</i> (Signature) <i>Alise M. ...</i>	Date/Time 1/14/10 7:54
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7191

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/13/2010	MEDIA:		QBT3
TIME COLLECTED (HH:MM)		1450	SUB-MEDIA:		TUFF 1
PRS ID:	15-014(h)	ok	SAMPLE TECH CODE:		HA
LOCATION ID:	15-610516	↓	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	SED	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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAT POLY 6 liter Rc 12/17/09	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sand, slightly moist

FR: RE15-10-7228

SAMPLE COMMENTS:

NA

LOCATION DESC:

14h-23, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 22 dpm  
Beta/Gamma = 2270 dpm

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

COLLECTED BY (PRINT)

T. L. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) MARIN (Signature) J. R. Marin	Date/Time 1/14/10 7:55	RECEIVED BY (Printed Name) Sherril Shewood (Signature) Sherril Shewood	Date/Time 1/14/10 7:55
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7192

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		1424		SUB-MEDIA:		TUFF 1	
PRS ID: 15-014(h)		ok		SAMPLE TECH CODE: HA		ok	
LOCATION ID: 15-610517		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		0.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		0.5		SCREEN/PORT DESC:		NA	
FIELD MATRIX: R		SED		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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1		H3	500 ML POLY	Ice	Yes	
1		Met+U+CLO4+C N	1 GAL POLY 4 liter 20 12/17/09	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: dark brown moist soil, with rocks

SAMPLE COMMENTS:

NA

LOCATION DESC: 14h-26 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

HE negative

Alpha &lt; 11 dpm

Beta/Gamma &lt; 1990 dpm

PID Ambient 0.0  
Reading 0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) T L McFarland

RELINQUISHED BY (Printed Name) MARIN (Signature) Jan R. Marin	Date/Time 1/14/10 7:55	RECEIVED BY (Printed Name) Sheri Sherwood (Signature) Sheri Sherwood	Date/Time 1/14/10 7:55
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AUC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7193

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/13/2010	MEDIA:		OBT3
TIME COLLECTED (HH:MM)		1450	SUB-MEDIA:		TUFF 1
PRS ID:	15-014(h)	ok	SAMPLE TECH CODE:		HA
LOCATION ID:	15-610517	↓	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	SED	EXCAVATED: YES/NO/NA		NA
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA		NO
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA		NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1		H3	500 ML POLY	Ice	Yes	
1		Met+U+CLO4+C N	1 LITER POLY 4 liter LC 12/17/09	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: brown sand, some wood and rocks and <sup>173m 1/13/10</sup> ~~slightly~~ moist slightly

SAMPLE COMMENTS:

NA

LOCATION DESC: 14h-26 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  44 dpm  
Beta/Gamma  $\leq$  2110 dpm

PID  $\frac{\text{Ambient Reading}}{5.0}$  ppm

COLLECTED BY (PRINT)

R. Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) MARIN (Signature) <i>[Signature]</i>	Date/Time 1/14/10 7:55	RECEIVED BY (Printed Name) Sherrif Sherwood (Signature) <i>[Signature]</i>	Date/Time 1/14/10 7:55
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7194

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1540		SUB-MEDIA:	TUFF.1		NA
PRS ID:	15-014(h)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610518	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	1.0		SCREEN/PORT DESC:			NA
FIELD MATRIX:	R	SED		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NO/NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1		H3	500 ML POLY	Ice	Yes	
1		Met+U+CLO4+C N	1 GAE POLY Liter Xc 12/11/09	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: Light brown Silty clay with rocks, some moisture

SAMPLE COMMENTS: NA

LOCATION DESC: 14h-24 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  280 dpm

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

COLLECTED BY (PRINT)

R. Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) MARIN (Signature) Jan R. Marin	Date/Time 4/14/10 7:55	RECEIVED BY (Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	Date/Time 4/14/10 7:55
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7195

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		1616		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-014(h)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610518	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	✓		FIELD PREP:	NA		↓
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:			NA
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1	↓	8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1	↓	AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1	↓	H3	500 ML POLY	Ice	Yes	
1	↓	Met+U+CLO4+C N	1 GALT POLY Liter RC 12/17/09	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: Light brown silty soil, with few rocks

SAMPLE COMMENTS:

NA

LOCATION DESC: 14h-24 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha < 38 dpm  
Beta/Gamma < 2360 dpmPID Ambient 0.0  
Reading 0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT)

TL McFarland

RELINQUISHED BY (Printed Name) MARIN (Signature) [Signature]	Date/Time 1/14/10 7:56	RECEIVED BY (Printed Name) [Signature] (Signature) [Signature]	Date/Time 1/14/10 7:56
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7196

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/13/2010	MEDIA:		QBT3
TIME COLLECTED (HH:MM)		1553	SUB-MEDIA:		TUFF 1
PRS ID:	15-014(h)	ok	SAMPLE TECH CODE:		HA
LOCATION ID:	15-610519	↓	FIELD QC TYPE:		NA
LOCATION TYPE:	GENERIC	↓	FIELD PREP:		NA
TOP DEPTH:	0	0.0	SAMPLE USAGE:		INV
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	SED	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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Yes	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Yes	
1		H3	500 ML POLY	Ice	Yes	
1		Met+U+CLO4+C N	1 GAL POLY 6 liter 20 12/11/09	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: moist sandy clay with some roots + rocks

SAMPLE COMMENTS:

NA

FR RE15-10-7227

LOCATION DESC: 14h-25 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  16 dpm  
Beta/Gamma  $\leq$  2150 dpm

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

COLLECTED BY (PRINT)

Th McFarland

REVIEWED BY (PRINT) R Saunders

RELINQUISHED BY (Printed Name) MARIN (Signature) Jan R. Marin	Date/Time 1/14/10 7:56	RECEIVED BY (Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	Date/Time 1/14/10 7:56
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7197

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/13/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		1617		SUB-MEDIA:		TUFF 1	
PRS ID:	15-014(h)	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	15-610519	↓		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	SED		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	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 GAL POLY Liter LC 12/17/09	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Grayish brown silty sand with rocks

SAMPLE COMMENTS: NA

LOCATION DESC: 14h-25 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2710 dpm

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

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT) J Marin

RELINQUISHED BY (Printed Name) MARIN (Signature) J. R. Marin	Date/Time 1/14/10 7:56	RECEIVED BY (Printed Name) J. R. Marin (Signature) J. R. Marin	Date/Time 1/14/10 7:56
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time



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

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7219

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		07/13/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		1314		SUB-MEDIA:		TUFF 1	
PRS ID:	15-014(h)	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	UNK	15-610506		FIELD QC TYPE:		ED	
LOCATION TYPE:	GENERIC	OK		FIELD PREP:		NA	
TOP DEPTH:	0	0.0		SAMPLE USAGE:		QC	
BOTTOM DEPTH:	0	0.7		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	SED		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		8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		Met+U+CLO4+C N	1 LITER POLY <i>LC 12/17/09</i>	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: QC Sample of RE15-10-7170

*Brown clayey silt, roots and rocks*

SAMPLE COMMENTS:

NA

LOCATION DESC:

*14h-14 drainage*

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leftarrow$  38 dpm  
 Beta/Gamma  $\leftarrow$  2300 dpm

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

COLLECTED BY (PRINT)

*T. McFarland*

REVIEWED BY (PRINT)

*R. Saunders*

RELINQUISHED BY (Printed Name) <i>MARIN</i> (Signature) <i>Jan R. Marin</i>	Date/Time <i>1/14/10</i> <i>7:56</i>	RECEIVED BY (Printed Name) <i>Mike Martin</i> (Signature) <i>Mike Martin</i>	Date/Time <i>1/14/10</i> <i>7:56</i>
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2479

EVENT NAME: 4th Qtr. FY09 - AOC 15-014(h) - Threemile Canyon

SAMPLE ID: RE15-10-7234

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	01/13/2010	MEDIA:	NA
TIME COLLECTED (HH:MM)	0820	SUB-MEDIA:	OTHER
PRS ID: 15-014(h)	ok	SAMPLE TECH CODE:	DC
LOCATION ID: UNK	15-610503	FIELD QC TYPE:	FTB
LOCATION TYPE: GENERIC	ok	FIELD PREP:	NA
TOP DEPTH: 0		SAMPLE USAGE:	QC
BOTTOM DEPTH: 0		SCREEN/PORT DESC:	NA
FIELD MATRIX: 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 2 01-13-10	Normal	8260B Trip Blank	40 ML SEPTUM AMBER GLASS	Ice	Y	

SAMPLE DESC: QC Sample of RE15-10-7164

SAMPLE COMMENTS:

LOCATION DESC: FTB

FIELD SCREENING/MEASUREMENT RESULTS:


NA

COLLECTED BY (PRINT)

TL McFarlane

REVIEWED BY (PRINT) R. Saunders

RELINQUISHED BY (Printed Name) JON MARIN (Signature) Jon R. Marin	Date/Time 1/14/10 7:49	RECEIVED BY (Printed Name) Jennifer Herwood (Signature) Jennifer Herwood	Date/Time 1/14/10 7:49
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

DATA VALIDATION COVER SHEET	
<b>5119-1</b>  <p style="text-align: center;"><b>Data Validation Cover Sheet</b></p>	Records Use only  

Section I.		
REQUEST NUMBER: <u>10-1302</u>	VALIDATION DATE: <u>2/23/10</u>	LAB CODE: <u>GEL</u>
CONTRACT LABORATORY NAME: <u>GEL Laboratories LLC</u>		
VALIDATOR: <u>Eyda Hergenreder</u> ORGANIZATION: <u>Analytical Quality Associates, Inc</u>		
ANALYTICAL SUITE (CHECK ALL THAT APPLY):		
<input type="checkbox"/> TPH-GRO	<input type="checkbox"/> HIGH EXPLOSIVES	<input type="checkbox"/> DIOXIN FURANS
<input type="checkbox"/> TPH-DRO	<input type="checkbox"/> METALS	<input type="checkbox"/> PCB CONGENERS
<input type="checkbox"/> GENERAL CHEMISTRY	<input checked="" type="checkbox"/> RADIOCHEMISTRY	<input type="checkbox"/> LCMSMS HIGH EXPLOSIVES
<input type="checkbox"/> LCMSMS PERCHLORATES		
<input type="checkbox"/> ORGANOCHLORINE 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 results that were rejected by the laboratory due to either high counting uncertainty, high peak width, interference or low abundance were qualified R,R5a. In the duplicate and MB samples several results were also rejected by the laboratory. No data were qualified as a result.
2. The Am-243 tracer %R for sample RE15-10-7195 was < the laboratory LAL. The Am-241 sample result was ND and, thus was not qualified.
3. It should be noted that an MS was not analyzed with tritium. However an LCS was analyzed and met acceptance criteria and, thus, no data were qualified. In addition, it should be noted that the matrix QC for Pu, U and tritium associated with all samples and for Am associated with all samples except sample -7195 were performed on samples from other LANL RNs. No data were qualified as a result.


Reviewed by: Mary DonovanLevel: IDate: 02/24/10

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


  
Eyda Hergenreder
DATE: 2/23/10

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 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 checked="" type="checkbox"/>	<input type="checkbox"/>	9. The sample result is ≤5X the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.	U, R4d	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R4e	R, R4e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

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

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input 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 (Check One)				Assign Qualifier Listed Below If Criterion = Yes	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6	R, R6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6a	J-, R6a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7194  
Sample ID: 245101001  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 20.7%

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	0.00186	0.0209	+/-0.00689	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00188	0.0155	+/-0.00188	0.050	pCi/g		JXD2	01/28/10	1414	944430	2
Plutonium-239/240	U	0.0103	0.0178	+/-0.00316	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.93	0.119	+/-0.161	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.133	0.0739	+/-0.0268	0.100	pCi/g						
Uranium-238		2.26	0.0691	+/-0.185	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.220	0.308	+/-0.0927	0.200	pCi/g		MXR1	02/01/10	1444	944037	4
Bismuth-211	UI	4.07	R,R5a	0.263	+/-0.236	pCi/g						
Bismuth-214		1.09		0.091	+/-0.0817	pCi/g						
Cadmium-109	UI	4.21	R,R5a	1.15	+/-0.617	pCi/g						
Cerium-139	U	-0.024		0.0407	+/-0.0121	pCi/g						
Cesium-134	U	0.0616		0.0692	+/-0.0215	pCi/g						
Cesium-137		0.204		0.0504	+/-0.0283	pCi/g						
Cobalt-60	U	0.0454		0.0554	+/-0.0149	pCi/g						
Europium-152	U	-0.0205		0.131	+/-0.0501	pCi/g						
Lanthanum-140	U	0.00955		0.138	+/-0.041	pCi/g						
Lead-212		1.50		0.0767	+/-0.0707	pCi/g						
Lead-214		1.42		0.0916	+/-0.0899	pCi/g						
Mercury-203	U	0.0308		0.0577	+/-0.0255	pCi/g						
Potassium-40		23.5		0.435	+/-1.09	pCi/g						
Radium-223	U	0.185		0.832	+/-0.282	pCi/g						
Radium-224	UI	3.92	R,R5a	0.872	+/-0.470	pCi/g						
Radium-226		1.09		0.091	+/-0.0817	pCi/g						
Radium-228		1.72		0.167	+/-0.166	pCi/g						
Ruthenium-106	U	-0.0205		0.424	+/-0.130	pCi/g						
Sodium-22	U	0.00777		0.0594	+/-0.0177	pCi/g						
Strontium-85	UI	0.0634	R,R5a	0.058	+/-0.0178	pCi/g						

EH  
2/23/10

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7194  
Sample ID: 245101001

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		0.435	0.0415	+/-0.0372	0.080	pCi/g					
Thorium-227	U	-0.0621	0.518	+/-0.155		pCi/g					
Thorium-231	U	0.185	0.832	+/-0.282		pCi/g					
Thorium-234	U	1.29	2.30	+/-0.898	2.00	pCi/g					
Tin-113	U	0.00585	0.0593	+/-0.0171	0.100	pCi/g					
Uranium-235	U	0.182	0.313	+/-0.0924	0.500	pCi/g					
Yttrium-88	U	-0.0119	0.0346	+/-0.0117	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	12.5	208	+/-61.1	250	pCi/L	KXX2	01/29/10	0456	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	99.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.0	(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



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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7186  
Sample ID: 245101002  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 18.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0108	0.0215	+/-0.00487	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00199	0.0165	+/-0.00141	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00798	0.0188	+/-0.00318	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.15	0.123	+/-0.106	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.0835	0.0764	+/-0.0222	0.100	pCi/g						
Uranium-238		1.53	0.0714	+/-0.133	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.140	0.264	+/-0.0834	0.200	pCi/g		MXR1	02/01/10	1445	944037	4
Bismuth-211	UI	2.98	R,R5a 0.314	+/-0.256		pCi/g						
Bismuth-214		1.07	0.104	+/-0.0926	0.200	pCi/g						
Cadmium-109	UI	2.17	R,R5a 1.31	+/-0.452		pCi/g						
Cerium-139	U	0.0174	0.0533	+/-0.0156	0.050	pCi/g						
Cesium-134	UI	0.0937	R,R5a 0.0858	+/-0.0231	0.100	pCi/g						
Cesium-137		0.152	0.0662	+/-0.0326	0.100	pCi/g						
Cobalt-60	U	0.0187	0.0637	+/-0.0181	0.100	pCi/g						
Europium-152	U	-0.0301	0.151	+/-0.0595	0.200	pCi/g						
Lanthanum-140	U	-0.0159	0.156	+/-0.0488		pCi/g						
Lead-212		1.41	0.0896	+/-0.0729	0.100	pCi/g						
Lead-214		1.04	0.109	+/-0.0932	0.100	pCi/g						
Mercury-203	U	0.0438	0.0768	+/-0.0212	0.100	pCi/g						
Potassium-40		26.3	0.530	+/-1.29	1.00	pCi/g						
Radium-223	U	-0.867	1.09	+/-0.347		pCi/g						
Radium-224	UI	3.66	R,R5a 1.02	+/-0.612		pCi/g						
Radium-226		1.07	0.104	+/-0.0926		pCi/g						
Radium-228		1.13	0.210	+/-0.183	0.500	pCi/g						
Ruthenium-106	U	-0.00662	0.493	+/-0.149	0.800	pCi/g						
Sodium-22	U	-0.044	0.0604	+/-0.0207	0.080	pCi/g						
Strontium-85	UI	0.0924	R,R5a 0.0721	+/-0.0207		pCi/g						
Thallium-208		0.428	0.0544	+/-0.0389	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7186  
Sample ID: 245101002

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	0.0601	0.628	+/-0.190		pCi/g					
Thorium-231	U	-0.867	1.09	+/-0.347		pCi/g					
Thorium-234	U	1.64	2.13	+/-0.991	2.00	pCi/g					
Tin-113	U	-0.00758	0.0754	+/-0.0224	0.100	pCi/g					
Uranium-235	U	0.203	0.364	+/-0.107	0.500	pCi/g					
Yttrium-88	U	-0.0099	0.047	+/-0.0156	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	-10	209	+/-60.8	250	pCi/L		KXK2	01/29/10	0634 945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.2	(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

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7191  
Sample ID: 245101003  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 14.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00181	0.0269	+/-0.00414	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.000989	0.0163	+/-0.00099	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00	0.0187	+/-0.0014	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.950	0.123	+/-0.0917	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236	U	0.0688	0.0765	+/-0.0203	0.100	pCi/g						
Uranium-238		1.05	0.0715	+/-0.0986	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0404	0.186	+/-0.0591	0.200	pCi/g		MXR1	02/02/10	0945	944037	4
Bismuth-211	UI	3.71	R,R5a	0.280	+/-0.312	pCi/g						
Bismuth-214		1.07		0.0932	+/-0.0946	0.200	pCi/g					
Cadmium-109	UI	3.82	R,R5a	0.892	+/-0.473	pCi/g						
Cerium-139	U	0.0124		0.0436	+/-0.0123	0.050	pCi/g					
Cesium-134	UI	0.111	R,R5a	0.0915	+/-0.0315	0.100	pCi/g					
Cesium-137	U	0.0443		0.0585	+/-0.0226	0.100	pCi/g					
Cobalt-60	U	-0.015		0.0623	+/-0.0199	0.100	pCi/g					
Europium-152	U	-0.0607		0.139	+/-0.0451	0.200	pCi/g					
Lanthanum-140	U	0.0468		0.151	+/-0.0413	pCi/g						
Lead-212		1.88		0.080	+/-0.143	0.100	pCi/g					
Lead-214		1.29		0.0982	+/-0.114	0.100	pCi/g					
Mercury-203	U	0.0141		0.0678	+/-0.0203	0.100	pCi/g					
Potassium-40		28.9		0.506	+/-1.51	1.00	pCi/g					
Radium-223	U	0.000118		0.855	+/-0.293	pCi/g						
Radium-224	UI	4.31	R,R5a	0.911	+/-0.699	pCi/g						
Radium-226		1.07		0.0932	+/-0.0946	pCi/g						
Radium-228		1.54		0.198	+/-0.164	0.500	pCi/g					
Ruthenium-106	U	-0.0437		0.464	+/-0.142	0.800	pCi/g					
Sodium-22	U	0.00794		0.0666	+/-0.020	0.080	pCi/g					
Strontium-85	U	0.0313		0.0609	+/-0.0191	pCi/g						
Thallium-208		0.640		0.0456	+/-0.0514	0.080	pCi/g					

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7191  
Sample ID: 245101003

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	-0.022	0.550	+/-0.165		pCi/g					
Thorium-231	U	0.000118	0.855	+/-0.293		pCi/g					
Thorium-234	U	0.945	1.52	+/-0.679	2.00	pCi/g					
Tin-113	U	0.0108	0.0651	+/-0.0185	0.100	pCi/g					
Uranium-235	U	0.0379	0.311	+/-0.0893	0.500	pCi/g					
Yttrium-88	U	0.025	0.0547	+/-0.0141	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	35.0	208	+/-61.6	250	pCi/L		KXK2	01/29/10	0812 945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	76.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.4	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7195  
Sample ID: 245101004  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-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	0.000465	0.0386	+/-0.00338	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00196	0.0162	+/-0.00139	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00098	0.0185	+/-0.000982	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.15	0.154	+/-0.113	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236	U	0.0429	0.0954	+/-0.0165	0.100	pCi/g						
Uranium-238		1.06	0.0892	+/-0.106	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.35	0.500	+/-0.150	0.200	pCi/g		MXR1	02/02/10	0946	944037	4
Bismuth-211	UI	3.89	R,R5a	0.375	+/-0.310	pCi/g						
Bismuth-214		1.29		0.118	+/-0.0914	pCi/g						
Cadmium-109	UI	3.14	R,R5a	1.54	+/-0.564	pCi/g						
Cerium-139	U	0.0178	0.0632	+/-0.0185	0.050	pCi/g						
Cesium-134	U	0.0789	0.0972	+/-0.0292	0.100	pCi/g						
Cesium-137	U	-0.0147	0.0708	+/-0.0223	0.100	pCi/g						
Cobalt-60	U	-0.0345	0.0643	+/-0.0222	0.100	pCi/g						
Europium-152	U	-0.0743	0.184	+/-0.0694	0.200	pCi/g						
Lanthanum-140	U	-0.105	0.171	+/-0.0614		pCi/g						
Lead-212		1.75	0.115	+/-0.0973	0.100	pCi/g						
Lead-214		1.35	0.131	+/-0.113	0.100	pCi/g						
Mercury-203	U	0.0536	0.0959	+/-0.0266	0.100	pCi/g						
Potassium-40		26.6	0.619	+/-1.35	1.00	pCi/g						
Radium-223	U	0.0981	1.27	+/-0.424		pCi/g						
Radium-224	UI	5.24	R,R5a	1.31	+/-0.859	pCi/g						
Radium-226		1.29	0.118	+/-0.0914		pCi/g						
Radium-228		1.59	0.258	+/-0.171	0.500	pCi/g						
Ruthenium-106	U	-0.186	0.514	+/-0.166	0.800	pCi/g						
Sodium-22	U	-0.0452	0.0775	+/-0.0263	0.080	pCi/g						
Strontium-85	U	0.0419	0.0762	+/-0.0245		pCi/g						
Thallium-208		0.557	0.0682	+/-0.0465	0.080	pCi/g						

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7195  
Sample ID: 245101004

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	-0.0505	0.783	+/-0.227		pCi/g					
Thorium-231	U	0.0981	1.27	+/-0.424		pCi/g					
Thorium-234	U	0.358	3.99	+/-1.15	2.00	pCi/g					
Tin-113	U	-0.0654	0.0847	+/-0.0271	0.100	pCi/g					
Uranium-235	U	0.228	0.460	+/-0.134	0.500	pCi/g					
Yttrium-88	U	0.0096	0.0561	+/-0.016	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	-5.01	208	+/-60.8	250	pCi/L		KXK2	01/29/10 0950	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	49.4 *	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	68.8	(50%-105%)

### Notes:

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

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- > 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

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7196  
Sample ID: 245101005  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 23.7%

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	0.0105	0.021	+/-0.00564	0.050	pCi/g		JXD2	01/28/10 2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00	0.0167	+/-0.00101	0.050	pCi/g		JXD2	01/28/10 1415	944430	2
Plutonium-239/240		0.0375	0.0191	+/-0.00643	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		2.50	0.135	+/-0.208	0.100	pCi/g		JXD2	01/28/10 1628	944433	3
Uranium-235/236		0.194	0.0838	+/-0.0368	0.100	pCi/g					
Uranium-238		3.32	0.0783	+/-0.267	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.120	0.239	+/-0.0753	0.200	pCi/g		MXR1	02/02/10 0946	944037	4
Bismuth-211	UI	3.85	R,R5a 0.322	+/-0.299		pCi/g					
Bismuth-214		1.12	0.110	+/-0.0948	0.200	pCi/g					
Cadmium-109	UI	1.98	R,R5a 1.58	+/-0.518		pCi/g					
Cerium-139	U	-0.0199	0.0512	+/-0.0154	0.050	pCi/g					
Cesium-134	UI	0.132	R,R5a 0.0841	+/-0.0231	0.100	pCi/g					
Cesium-137		0.795	0.0579	+/-0.0604	0.100	pCi/g					
Cobalt-60	U	0.00698	0.0601	+/-0.018	0.100	pCi/g					
Europium-152	U	0.0163	0.163	+/-0.0586	0.200	pCi/g					
Lanthanum-140	U	0.0418	0.189	+/-0.055		pCi/g					
Lead-212		1.55	0.0916	+/-0.116	0.100	pCi/g					
Lead-214		1.34	0.109	+/-0.110	0.100	pCi/g					
Mercury-203	U	0.0143	0.0765	+/-0.0233	0.100	pCi/g					
Potassium-40		25.5	0.565	+/-1.40	1.00	pCi/g					
Radium-223	U	-0.914	1.08	+/-0.349		pCi/g					
Radium-224	UI	4.37	R,R5a 1.04	+/-0.630		pCi/g					
Radium-226		1.12	0.110	+/-0.0948		pCi/g					
Radium-228		1.56	0.187	+/-0.161	0.500	pCi/g					
Ruthenium-106	U	0.00196	0.506	+/-0.152	0.800	pCi/g					
Sodium-22	U	-0.0804	0.0577	+/-0.0209	0.080	pCi/g					
Strontium-85	UI	0.125	R,R5a 0.0771	+/-0.0243		pCi/g					
Thallium-208		0.455	0.0547	+/-0.0454	0.080	pCi/g					

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7196  
Sample ID: 245101005

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	-0.0461	0.642	+/-0.197		pCi/g						
Thorium-231	U	-0.914	1.08	+/-0.349		pCi/g						
Thorium-234		4.09	1.93	+/-0.941	2.00	pCi/g						
Tin-113	U	-0.0533	0.0748	+/-0.0239	0.100	pCi/g						
Uranium-235	U	0.321	0.389	+/-0.115	0.500	pCi/g						
Yttrium-88	U	0.0303	0.0569	+/-0.0155	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-59.8	207	+/-59.3	250	pCi/L		KXK2	01/29/10	1129	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	79.0	(50%-105%)

### Notes:

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

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7197  
Sample ID: 245101006  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 14.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00451	0.0228	+/-0.00515	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00202	0.0167	+/-0.00143	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00404	0.0191	+/-0.00248	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.857	0.108	+/-0.0819	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.0815	0.0668	+/-0.0205	0.100	pCi/g						
Uranium-238		1.05	0.0624	+/-0.0957	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0418	0.0798	+/-0.0235	0.200	pCi/g		MXR1	02/02/10	1028	944037	4
Bismuth-211	UI	3.90	R,R5a	0.342	+/-0.291	pCi/g						
Bismuth-214		1.31		0.129	+/-0.124	pCi/g						
Cadmium-109	UI	3.14	R,R5a	0.824	+/-0.352	pCi/g						
Cerium-139	U	-0.00145	0.0439	+/-0.0124	0.050	pCi/g						
Cesium-134	U	0.0713	0.108	+/-0.0419	0.100	pCi/g						
Cesium-137	UI	0.0767	R,R5a	0.075	+/-0.0391	pCi/g						
Cobalt-60	U	0.00999	0.0844	+/-0.0244	0.100	pCi/g						
Europium-152	U	-0.0103	0.152	+/-0.0463	0.200	pCi/g						
Lanthanum-140	U	-0.0505	0.161	+/-0.0551		pCi/g						
Lead-212		1.65	0.0855	+/-0.0985	0.100	pCi/g						
Lead-214		1.36	0.116	+/-0.107	0.100	pCi/g						
Mercury-203	U	0.0223	0.0718	+/-0.0228	0.100	pCi/g						
Potassium-40		32.9	0.680	+/-1.79	1.00	pCi/g						
Radium-223	U	-0.307	1.05	+/-0.370		pCi/g						
Radium-224	UI	5.34	R,R5a	0.975	+/-0.618	pCi/g						
Radium-226		1.31	0.129	+/-0.124		pCi/g						
Radium-228		1.98	0.262	+/-0.220	0.500	pCi/g						
Ruthenium-106	U	0.0572	0.628	+/-0.186	0.800	pCi/g						
Sodium-22	U	-0.0102	0.092	+/-0.0291	0.080	pCi/g						
Strontium-85	U	0.0469	0.068	+/-0.020		pCi/g						
Thallium-208		0.522	0.0702	+/-0.0508	0.080	pCi/g						

EH  
2/23/10

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7197  
Sample ID: 245101006  
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	0.0571	0.608	+/-0.177		pCi/g					
Thorium-231	U	-0.307	1.05	+/-0.370		pCi/g					
Thorium-234		1.58	0.810	+/-0.352	2.00	pCi/g					
Tin-113	U	-0.054	0.071	+/-0.0243	0.100	pCi/g					
Uranium-235	U	0.041	0.274	+/-0.0829	0.500	pCi/g					
Yttrium-88	U	0.0245	0.0756	+/-0.0201	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	-40	208	+/-59.9	250	pCi/L		KXX2	01/29/10	1307 945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	95.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.2	(50%-105%)

### Notes:

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

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

EH  
2/23/10

# 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: February 12, 2010

Client Sample ID: RE15-10-7193  
Sample ID: 245101007  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 19%

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	0.00677	0.0208	+/-0.00644	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00198	0.0163	+/-0.00198	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00791	0.0187	+/-0.00282	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.94	0.127	+/-0.165	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.162	0.079	+/-0.031	0.100	pCi/g						
Uranium-238		1.94	0.0738	+/-0.165	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0156	0.348	+/-0.114	0.200	pCi/g		MXR1	02/02/10	1028	944037	4
Bismuth-211	UI	3.66	R,R5a 0.399	+/-0.267		pCi/g						
Bismuth-214		1.07	0.130	+/-0.0934	0.200	pCi/g						
Cadmium-109	UI	3.34	R,R5a 1.69	+/-0.592		pCi/g						
Cerium-139	U	-0.0136	0.0565	+/-0.0173	0.050	pCi/g						
Cesium-134	U	0.0746	0.100	+/-0.027	0.100	pCi/g						
Cesium-137	U	0.0666	0.0873	+/-0.0243	0.100	pCi/g						
Cobalt-60	U	0.026	0.0821	+/-0.0236	0.100	pCi/g						
Europium-152	U	-0.153	0.178	+/-0.0715	0.200	pCi/g						
Lanthanum-140	U	-0.208	0.187	+/-0.0729		pCi/g						
Lead-212		1.64	0.101	+/-0.0832	0.100	pCi/g						
Lead-214		1.27	0.131	+/-0.0986	0.100	pCi/g						
Mercury-203	U	0.0119	0.0848	+/-0.0245	0.100	pCi/g						
Potassium-40		27.5	0.632	+/-1.45	1.00	pCi/g						
Radium-223	U	0.655	1.32	+/-0.425		pCi/g						
Radium-224	UI	5.84	R,R5a 1.15	+/-0.738		pCi/g						
Radium-226		1.07	0.130	+/-0.0934		pCi/g						
Radium-228		1.69	0.264	+/-0.181	0.500	pCi/g						
Ruthenium-106	U	-0.379	0.572	+/-0.192	0.800	pCi/g						
Sodium-22	U	0.0199	0.0887	+/-0.0262	0.080	pCi/g						
Strontium-85	U	0.074	0.0842	+/-0.026		pCi/g						
Thallium-208		0.449	0.0628	+/-0.0411	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7193  
Sample ID: 245101007

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	0.0955	0.763	+/-0.233		pCi/g					
Thorium-231	U	0.655	1.32	+/-0.425		pCi/g					
Thorium-234		3.19	2.75	+/-1.32	2.00	pCi/g					
Tin-113	U	0.0262	0.088	+/-0.0254	0.100	pCi/g					
Uranium-235	U	0.183	0.430	+/-0.129	0.500	pCi/g					
Yttrium-88	U	-0.0247	0.0487	+/-0.018	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	-84.9	208	+/-58.9	250	pCi/L	KXX2	01/29/10	1445	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.2	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7184  
Sample ID: 245101008  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 17.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00968	0.0217	+/-0.00356	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.001	0.0165	+/-0.001	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.008	0.0189	+/-0.00286	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.61	0.124	+/-0.140	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.114	0.0769	+/-0.025	0.100	pCi/g						
Uranium-238		2.06	0.0718	+/-0.172	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0523	0.191	+/-0.061	0.200	pCi/g		MXR1	02/02/10	1313	944037	4
Bismuth-211	UI	4.07	R,R5a 0.347	+/-0.312		pCi/g						
Bismuth-214		1.34	0.117	+/-0.112	0.200	pCi/g						
Cadmium-109	UI	3.60	R,R5a 1.14	+/-0.535		pCi/g						
Cerium-139	U	0.0171	0.0523	+/-0.0157	0.050	pCi/g						
Cesium-134	U	0.0779	0.0999	+/-0.0276	0.100	pCi/g						
Cesium-137		0.329	0.0656	+/-0.0429	0.100	pCi/g						
Cobalt-60	U	-0.0114	0.0661	+/-0.0208	0.100	pCi/g						
Europium-152	U	-0.117	0.157	+/-0.0562	0.200	pCi/g						
Lanthanum-140	U	0.009	0.198	+/-0.0705		pCi/g						
Lead-212		1.70	0.0929	+/-0.101	0.100	pCi/g						
Lead-214		1.41	0.121	+/-0.115	0.100	pCi/g						
Mercury-203	U	0.0427	0.0816	+/-0.031	0.100	pCi/g						
Potassium-40		23.8	0.552	+/-1.32	1.00	pCi/g						
Radium-223	U	-0.313	1.21	+/-0.374		pCi/g						
Radium-224	UI	4.00	R,R5a 1.06	+/-0.645		pCi/g						
Radium-226		1.34	0.117	+/-0.112		pCi/g						
Radium-228		1.57	0.215	+/-0.164	0.500	pCi/g						
Ruthenium-106	U	0.124	0.591	+/-0.171	0.800	pCi/g						
Sodium-22	U	0.000974	0.0744	+/-0.0225	0.080	pCi/g						
Strontium-85	U	0.0745	0.0758	+/-0.0224		pCi/g						
Thallium-208		0.481	0.0583	+/-0.0438	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7184  
Sample ID: 245101008  
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	-0.226	0.628	+/-0.193		pCi/g						
Thorium-231	U	-0.313	1.21	+/-0.374		pCi/g						
Thorium-234		2.73	1.65	+/-0.823	2.00	pCi/g						
Tin-113	U	-0.0182	0.0786	+/-0.0258	0.100	pCi/g						
Uranium-235	U	-0.111	0.355	+/-0.113	0.500	pCi/g						
Yttrium-88	U	0.0238	0.0582	+/-0.015	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	77.7	208	+/-62.8	250	pCi/L		KXX2	01/29/10	1623	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.5	(50%-105%)

### Notes:

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

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- > 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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7185  
Sample ID: 245101009  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.42%

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	0.00198	0.0214	+/-0.00347	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00103	0.0171	+/-0.00104	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0176	0.0195	+/-0.00435	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.38	0.122	+/-0.122	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.165	0.0754	+/-0.0314	0.100	pCi/g						
Uranium-238		1.56	0.0705	+/-0.136	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0034	0.229	+/-0.0789	0.200	pCi/g		MXR1	02/02/10	1055	944037	4
Bismuth-211	UI	4.64	R,R5a	0.346	+/-0.265	pCi/g						
Bismuth-214		1.32		0.118	+/-0.117	0.200	pCi/g					
Cadmium-109	UI	4.29	R,R5a	1.25	+/-0.562	pCi/g						
Cerium-139	U	-0.0191	0.0537	+/-0.017	0.050	pCi/g						
Cesium-134	U	0.075	0.0908	+/-0.0252	0.100	pCi/g						
Cesium-137		0.288	0.0702	+/-0.0348	0.100	pCi/g						
Cobalt-60	U	-0.0289	0.0584	+/-0.0198	0.100	pCi/g						
Europium-152	U	-0.0672	0.173	+/-0.0592	0.200	pCi/g						
Lanthanum-140	U	-0.0904	0.167	+/-0.063		pCi/g						
Lead-212		1.71	0.0969	+/-0.0863	0.100	pCi/g						
Lead-214		1.61	0.118	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.0531	0.083	+/-0.0235	0.100	pCi/g						
Potassium-40		25.6	0.519	+/-1.29	1.00	pCi/g						
Radium-223	U	-0.15	1.24	+/-0.431		pCi/g						
Radium-224	UI	4.68	R,R5a	1.10	+/-0.678	pCi/g						
Radium-226		1.32	0.118	+/-0.117		pCi/g						
Radium-228		1.83	0.230	+/-0.178	0.500	pCi/g						
Ruthenium-106	U	-0.00191	0.575	+/-0.177	0.800	pCi/g						
Sodium-22	U	0.0171	0.0745	+/-0.0218	0.080	pCi/g						
Strontium-85	UI	0.104	R,R5a	0.0824	+/-0.0248	pCi/g						
Thallium-208		0.580	0.0633	+/-0.0467	0.080	pCi/g						

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Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7185  
Sample ID: 245101009

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	0.0427	0.671	+/-0.197		pCi/g						
Thorium-231	U	-0.15	1.24	+/-0.431		pCi/g						
Thorium-234	U	1.76	2.00	+/-0.806	2.00	pCi/g						
Tin-113	U	-0.0292	0.0774	+/-0.0242	0.100	pCi/g						
Uranium-235	U	0.195	0.406	+/-0.122	0.500	pCi/g						
Yttrium-88	U	0.0107	0.0597	+/-0.0175	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-39.9	208	+/-59.9	250	pCi/L		KXK2	01/29/10	1801	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	91.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.6	(50%-105%)

### Notes:

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

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

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Contact: Ms. Joylene Valdez  
Project: LANLER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7189  
Sample ID: 245101010  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.23%

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	0.00519	0.0238	+/-0.00272	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.007	0.0165	+/-0.00267	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.010	0.0189	+/-0.0032	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.21	0.134	+/-0.114	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.123	0.0833	+/-0.0271	0.100	pCi/g						
Uranium-238		1.39	0.0778	+/-0.127	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0359	0.394	+/-0.113	0.200	pCi/g		MXR1	02/02/10	1119	944037	4
Bismuth-211	UI	3.94	R,R5a	0.310	+/-0.276	pCi/g						
Bismuth-214		1.24		0.122	+/-0.0943	0.200	pCi/g					
Cadmium-109	UI	3.75	R,R5a	1.29	+/-0.616	pCi/g						
Cerium-139	U	-0.0259	0.0466	+/-0.0148	0.050	pCi/g						
Cesium-134	U	0.0309	0.0839	+/-0.024	0.100	pCi/g						
Cesium-137		0.130	0.0575	+/-0.0361	0.100	pCi/g						
Cobalt-60	U	0.0327	0.0701	+/-0.0193	0.100	pCi/g						
Europium-152	U	-0.0105	0.153	+/-0.0521	0.200	pCi/g						
Lanthanum-140	U	-0.154	0.154	+/-0.0605		pCi/g						
Lead-212		1.52	0.0893	+/-0.0802	0.100	pCi/g						
Lead-214		1.37	0.108	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.00911	0.067	+/-0.0219	0.100	pCi/g						
Potassium-40		23.9	0.478	+/-1.31	1.00	pCi/g						
Radium-223	U	-0.306	0.951	+/-0.334		pCi/g						
Radium-224	UI	4.53	R,R5a	1.02	+/-0.592	pCi/g						
Radium-226		1.24	0.122	+/-0.0943		pCi/g						
Radium-228		1.64	0.192	+/-0.160	0.500	pCi/g						
Ruthenium-106	U	-0.267	0.430	+/-0.138	0.800	pCi/g						
Sodium-22	U	0.0189	0.0778	+/-0.0224	0.080	pCi/g						
Strontium-85	U	0.0395	0.0653	+/-0.021		pCi/g						
Thallium-208		0.553	0.0504	+/-0.0404	0.080	pCi/g						

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Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7189  
Sample ID: 245101010

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	0.419	0.670	+/-0.188		pCi/g					
Thorium-231	U	-0.306	0.951	+/-0.334		pCi/g					
Thorium-234	U	2.50	3.23	+/-0.919	2.00	pCi/g					
Tin-113	U	-0.0331	0.0681	+/-0.0216	0.100	pCi/g					
Uranium-235	U	0.0432	0.349	+/-0.104	0.500	pCi/g					
Yttrium-88	U	0.0061	0.0495	+/-0.0146	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	110	208	+/-63.7	250	pCi/L	KXK2	01/29/10	1939	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	76.9	(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

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7187  
Sample ID: 245101011  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.34%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.011	0.0218	+/-0.00382	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00323	0.0267	+/-0.00396	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0145	0.0305	+/-0.00491	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.57	0.120	+/-0.136	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.0955	0.0743	+/-0.0224	0.100	pCi/g						
Uranium-238		2.19	0.0695	+/-0.181	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.056	0.111	+/-0.0336	0.200	pCi/g		MXR1	02/02/10	1120	944037	4
Bismuth-211	UI	3.46	R,R5a 0.400	+/-0.273		pCi/g						
Bismuth-214		1.33	0.153	+/-0.111	0.200	pCi/g						
Cadmium-109	UI	3.32	R,R5a 0.941	+/-0.406		pCi/g						
Cerium-139	U	-0.0328	0.0537	+/-0.0171	0.050	pCi/g						
Cesium-134	U	0.0299	0.108	+/-0.0309	0.100	pCi/g						
Cesium-137		0.334	0.0733	+/-0.0461	0.100	pCi/g						
Cobalt-60	U	0.0394	0.0924	+/-0.026	0.100	pCi/g						
Europium-152	U	0.0396	0.186	+/-0.0592	0.200	pCi/g						
Lanthanum-140	U	-0.0497	0.245	+/-0.0787		pCi/g						
Lead-212		1.48	0.0996	+/-0.0896	0.100	pCi/g						
Lead-214		1.20	0.140	+/-0.100	0.100	pCi/g						
Mercury-203	U	0.025	0.0848	+/-0.0245	0.100	pCi/g						
Potassium-40		23.1	0.634	+/-1.11	1.00	pCi/g						
Radium-223	U	-1.64	1.15	+/-0.415		pCi/g						
Radium-224	UI	3.98	R,R5a 1.13	+/-0.642		pCi/g						
Radium-226		1.33	0.153	+/-0.111		pCi/g						
Radium-228		1.54	0.279	+/-0.184	0.500	pCi/g						
Ruthenium-106	U	-0.0037	0.686	+/-0.207	0.800	pCi/g						
Sodium-22	U	-0.00798	0.095	+/-0.0289	0.080	pCi/g						
Strontium-85	UI	0.0974	R,R5a 0.0863	+/-0.0255		pCi/g						
Thallium-208		0.469	0.0781	+/-0.0577	0.080	pCi/g						

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7187  
Sample ID: 245101011

Project: LANL01004  
Client ID: LANL010

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

*GAMMA SPEC "Dry Weight Corrected"*

Thorium-227	U	0.00587	0.689	+/-0.202		pCi/g						
Thorium-231	U	-1.64	1.15	+/-0.415		pCi/g						
Thorium-234		1.97	1.09	+/-0.712	2.00	pCi/g						
Tin-113	U	-0.092	0.0894	+/-0.0303	0.100	pCi/g						
Uranium-235	U	0.130	0.410	+/-0.122	0.500	pCi/g						
Yttrium-88	U	-0.00204	0.074	+/-0.0226	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

*H3 "As Received"*

Tritium	U	10.0	209	+/-61.3	250	pCi/L	KXK2	01/29/10	2117	945369	5	
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### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	56.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.5	(50%-105%)

### Notes:

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

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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7188  
Sample ID: 245101012  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 12.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.00364	0.0397	+/-0.00837	0.050	pCi/g		MXE1	02/11/10 0903	951264	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00197	0.0163	+/-0.0014	0.050	pCi/g		JXD2	01/28/10 1416	944430	5
Plutonium-239/240	U	0.0158	0.0186	+/-0.00402	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		1.54	0.122	+/-0.135	0.100	pCi/g		JXD2	01/28/10 1629	944433	6
Uranium-235/236		0.107	0.0758	+/-0.0241	0.100	pCi/g					
Uranium-238		2.09	0.0708	+/-0.175	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.0245	0.116	+/-0.0365	0.200	pCi/g		MXR1	02/02/10 1124	944037	7
Bismuth-211	UI	4.24	R,R5a 0.367	+/-0.365		pCi/g					
Bismuth-214		1.09	0.151	+/-0.121	0.200	pCi/g					
Cadmium-109	U	0.809	1.48	+/-0.469		pCi/g					
Cerium-139	U	0.000735	0.0572	+/-0.0174	0.050	pCi/g					
Cesium-134	U	0.0834	0.136	+/-0.0612	0.100	pCi/g					
Cesium-137		0.430	0.097	+/-0.0518	0.100	pCi/g					
Cobalt-60	U	-0.0247	0.0774	+/-0.0254	0.100	pCi/g					
Europium-152	U	-0.0508	0.184	+/-0.0566	0.200	pCi/g					
Lanthanum-140	U	-0.171	0.191	+/-0.0768		pCi/g					
Lead-212		1.55	0.0966	+/-0.102	0.100	pCi/g					
Lead-214		1.48	0.128	+/-0.133	0.100	pCi/g					
Mercury-203	U	-0.0276	0.0862	+/-0.0261	0.100	pCi/g					
Potassium-40		20.7	0.770	+/-1.31	1.00	pCi/g					
Radium-223	U	-0.164	1.31	+/-0.447		pCi/g					
Radium-224	UI	5.12	R,R5a 1.10	+/-0.703		pCi/g					
Radium-226		1.09	0.151	+/-0.121		pCi/g					
Radium-228		1.68	0.277	+/-0.206	0.500	pCi/g					
Ruthenium-106	U	0.017	0.743	+/-0.230	0.800	pCi/g					
Sodium-22	U	-0.0115	0.103	+/-0.0328	0.080	pCi/g					
Strontium-85	U	0.050	0.0913	+/-0.0292		pCi/g					
Thallium-208		0.486	0.0762	+/-0.0574	0.080	pCi/g					

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7188  
Sample ID: 245101012

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	0.0965	0.739	+/-0.228		pCi/g					
Thorium-231	U	-0.164	1.31	+/-0.447		pCi/g					
Thorium-234		2.49	1.09	+/-0.679	2.00	pCi/g					
Tin-113	U	-0.0136	0.0962	+/-0.0294	0.100	pCi/g					
Uranium-235	U	-0.0151	0.395	+/-0.122	0.500	pCi/g					
Yttrium-88	U	-0.0327	0.0783	+/-0.0281	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	137	208	+/-64.3	250	pCi/L		KXX2	01/29/10	2255 945369	8

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Am-05-RC Modified
4	DOE EML HASL-300, Am-05-RC Modified
5	DOE EML HASL-300, Pu-11-RC Modified
6	DOE EML HASL-300, U-02-RC Modified
7	DOE HASL 300, 4.5.2.3/Ga-01-R
8	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	92.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.4	(50%-105%)

### Notes:

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

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- > 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

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7190  
Sample ID: 245101013  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 28.3%

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	0.0101	0.0225	+/-0.00416	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00469	0.0194	+/-0.00236	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240		0.0246	0.0221	+/-0.00551	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.55	0.136	+/-0.212	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.130	0.0846	+/-0.0282	0.100	pCi/g						
Uranium-238		3.05	0.079	+/-0.248	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.175	0.311	+/-0.0976	0.200	pCi/g		MXR1	02/02/10	1130	944037	4
Bismuth-211	UI	3.91	R,R5a	0.291	+/-0.250	pCi/g						
Bismuth-214		1.05		0.102	+/-0.0912	0.200	pCi/g					
Cadmium-109	UI	3.07	R,R5a	1.59	+/-0.570	pCi/g						
Cerium-139	U	0.00457	0.0481	+/-0.014	0.050	pCi/g						
Cesium-134	UI	0.0856	R,R5a	0.0723	+/-0.0268	0.100	pCi/g					
Cesium-137		0.462		0.0569	+/-0.0445	0.100	pCi/g					
Cobalt-60	U	-0.0168		0.0538	+/-0.0174	0.100	pCi/g					
Europium-152	U	0.0155		0.146	+/-0.0553	0.200	pCi/g					
Lanthanum-140	U	0.0125		0.157	+/-0.0468	pCi/g						
Lead-212		1.64		0.0839	+/-0.0775	0.100	pCi/g					
Lead-214		1.36		0.102	+/-0.094	0.100	pCi/g					
Mercury-203	U	0.0288		0.0682	+/-0.0202	0.100	pCi/g					
Potassium-40		24.3		0.374	+/-1.15	1.00	pCi/g					
Radium-223	U	0.228		0.963	+/-0.333	pCi/g						
Radium-224	UI	4.56	R,R5a	0.954	+/-0.501	pCi/g						
Radium-226		1.05		0.102	+/-0.0912	pCi/g						
Radium-228		1.63		0.174	+/-0.175	0.500	pCi/g					
Ruthenium-106	U	0.114		0.509	+/-0.154	0.800	pCi/g					
Sodium-22	U	-0.0251		0.0633	+/-0.0204	0.080	pCi/g					
Strontium-85	UI	0.119	R,R5a	0.071	+/-0.021	pCi/g						
Thallium-208		0.486		0.0525	+/-0.0401	0.080	pCi/g					

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2/23/10

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7190  
Sample ID: 245101013

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	-0.132	0.563	+/-0.200		pCi/g					
Thorium-231	U	0.228	0.963	+/-0.333		pCi/g					
Thorium-234		3.77	2.48	+/-1.37	2.00	pCi/g					
Tin-113	U	-0.00515	0.0653	+/-0.0196	0.100	pCi/g					
Uranium-235		0.339	0.329	+/-0.107	0.500	pCi/g					
Yttrium-88	U	0.000203	0.0444	+/-0.0161	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	39.9	208	+/-61.6	250	pCi/L		KXK2	01/30/10	0033 945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	76.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	82.2	(50%-105%)

### Notes:

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

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



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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7192  
Sample ID: 245101014  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 34.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00205	0.0218	+/-0.00244	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.000937	0.0155	+/-0.00209	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0122	0.0177	+/-0.00343	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.58	0.140	+/-0.215	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.162	0.0872	+/-0.0324	0.100	pCi/g						
Uranium-238		3.22	0.0815	+/-0.261	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.133	0.264	+/-0.0827	0.200	pCi/g		MXR1	02/02/10	1131	944037	4
Bismuth-211	UI	3.73	R,R5a	+/-0.258		pCi/g						
Bismuth-214		1.10		+/-0.0911	0.200	pCi/g						
Cadmium-109	UI	1.70	R,R5a	+/-0.736		pCi/g						
Cerium-139	U	-0.0267	0.0492	+/-0.0151	0.050	pCi/g						
Cesium-134	U	0.0741	0.0843	+/-0.0255	0.100	pCi/g						
Cesium-137		0.191	0.0607	+/-0.035	0.100	pCi/g						
Cobalt-60	U	0.00269	0.0552	+/-0.0164	0.100	pCi/g						
Europium-152	U	0.0472	0.175	+/-0.083	0.200	pCi/g						
Lanthanum-140	U	-0.00578	0.166	+/-0.0508		pCi/g						
Lead-212		1.51	0.096	+/-0.0773	0.100	pCi/g						
Lead-214		1.30	0.119	+/-0.0958	0.100	pCi/g						
Mercury-203	U	0.0367	0.0744	+/-0.0205	0.100	pCi/g						
Potassium-40		23.4	0.463	+/-1.16	1.00	pCi/g						
Radium-223	U	-0.244	1.09	+/-0.370		pCi/g						
Radium-224	UI	4.70	R,R5a	+/-0.568		pCi/g						
Radium-226		1.10	0.102	+/-0.0911		pCi/g						
Radium-228		1.34	0.218	+/-0.156	0.500	pCi/g						
Ruthenium-106	U	0.157	0.505	+/-0.145	0.800	pCi/g						
Sodium-22	U	0.034	0.0718	+/-0.0199	0.080	pCi/g						
Strontium-85	U	0.0536	0.0672	+/-0.0205		pCi/g						
Thallium-208		0.525	0.0529	+/-0.0444	0.080	pCi/g						

EH  
2/23/10

# 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: LANLER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7192  
Sample ID: 245101014  
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	0.105	0.624	+/-0.186		pCi/g						
Thorium-231	U	-0.244	1.09	+/-0.370		pCi/g						
Thorium-234		3.15	2.15	+/-0.918	2.00	pCi/g						
Tin-113	U	-0.0104	0.0756	+/-0.0223	0.100	pCi/g						
Uranium-235	U	0.0342	0.372	+/-0.110	0.500	pCi/g						
Yttrium-88	U	-0.00294	0.0529	+/-0.0166	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	67.5	208	+/-62.4	250	pCi/L		KXK2	01/30/10	0211	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	76.6	(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

# 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: February 12, 2010

Client Sample ID: RE15-10-7219  
Sample ID: 245101015  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 23.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00874	0.0199	+/-0.004	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0032	0.0176	+/-0.00186	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240		0.0363	0.0202	+/-0.00665	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.79	0.150	+/-0.234	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.156	0.0933	+/-0.0337	0.100	pCi/g						
Uranium-238		3.39	0.0872	+/-0.278	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.415	0.551	+/-0.173	0.200	pCi/g		MXR1	02/02/10	1151	944037	4
Bismuth-211	UI	3.76	R,R5a 0.453	+/-0.308		pCi/g						
Bismuth-214		1.35	0.137	+/-0.0996	0.200	pCi/g						
Cadmium-109	U	0.0672	2.33	+/-1.09		pCi/g						
Cerium-139	U	0.0221	0.0693	+/-0.0206	0.050	pCi/g						
Cesium-134	U	0.0318	0.0941	+/-0.0269	0.100	pCi/g						
Cesium-137		0.512	0.0766	+/-0.0576	0.100	pCi/g						
Cobalt-60	U	0.0297	0.0794	+/-0.0226	0.100	pCi/g						
Europium-152	U	-0.289	0.208	+/-0.129	0.200	pCi/g						
Lanthanum-140	U	-0.0234	0.251	+/-0.0775		pCi/g						
Lead-212		1.53	0.123	+/-0.095	0.100	pCi/g						
Lead-214		1.31	0.154	+/-0.112	0.100	pCi/g						
Mercury-203	U	0.0195	0.100	+/-0.0291	0.100	pCi/g						
Potassium-40		22.2	0.665	+/-1.24	1.00	pCi/g						
Radium-223	U	-1.08	1.40	+/-0.453		pCi/g						
Radium-224	UI	4.58	R,R5a 1.39	+/-0.837		pCi/g						
Radium-226		1.35	0.137	+/-0.0996		pCi/g						
Radium-228		1.56	0.233	+/-0.186	0.500	pCi/g						
Ruthenium-106	U	0.351	0.725	+/-0.210	0.800	pCi/g						
Sodium-22	U	-0.0161	0.0844	+/-0.0271	0.080	pCi/g						
Strontium-85	U	0.0197	0.0839	+/-0.0286		pCi/g						
Thallium-208		0.453	0.0667	+/-0.0512	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: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7219  
245101015

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	0.00516	0.849	+/-0.249		pCi/g						
Thorium-231	U	-1.08	1.40	+/-0.453		pCi/g						
Thorium-234		8.08	4.13	+/-2.26	2.00	pCi/g						
Tin-113	U	-0.0129	0.0938	+/-0.0286	0.100	pCi/g						
Uranium-235	U	0.189	0.486	+/-0.145	0.500	pCi/g						
Yttrium-88	U	0.00	0.0737	+/-0.00	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	10.0	209	+/-61.2	250	pCi/L		KXX2	01/30/10	0349	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	95.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	68.5	(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

Sunday, January 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

**LOS ALAMOS**

REQUEST NUMBER: 10-1302

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/17/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2451017.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-7194	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7194	1	POLY	H3	Ice	R
RE15-10-7186	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7186	1	POLY	H3	Ice	R
RE15-10-7191	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7191	1	POLY	H3	Ice	R
RE15-10-7195	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7195	1	POLY	H3	Ice	R
RE15-10-7196	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7196	1	POLY	H3	Ice	R
RE15-10-7197	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7197	1	POLY	H3	Ice	R
RE15-10-7193	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7193	1	POLY	H3	Ice	R
RE15-10-7184	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7184	1	POLY	H3	Ice	R
RE15-10-7185	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7185	1	POLY	H3	Ice	R
RE15-10-7189	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7189	1	POLY	H3	Ice	R
RE15-10-7187	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7187	1	POLY	H3	Ice	R
RE15-10-7188	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7188	1	POLY	H3	Ice	R
RE15-10-7190	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7190	1	POLY	H3	Ice	R
RE15-10-7192	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Sunday, January 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
-----------	------	-----------	-------	---------	--------

RE15-10-7192	1	POLY	H3	Ice	R
--------------	---	------	----	-----	---

RE15-10-7219	1	POLY	AM241+GS+ISOPU+ISO U	None	R
--------------	---	------	-------------------------	------	---

RE15-10-7219	1	POLY	H3	Ice	R
--------------	---	------	----	-----	---

Relinquished By:	Date	Time	Received By:	Date	Time
------------------	------	------	--------------	------	------

	1/18/10	3:00	Greg Tyler	1-20-10	0845
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: 10-1302

Sunday, January 17, 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: 10-1302

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/18/2010

TURNAROUND/REPORT DUE: 2/17/2010

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	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	

Sunday, January 17, 2010

REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	EPA:906.0	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300:AM-241	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	



Sunday, January 17, 2010

REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300:ISOPU	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300:ISOU	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	

REQUEST NUMBER: 10-1302

Sunday, January 17, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOU	1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	

Final Page of REQUEST NUMBER 10-1302



January 22, 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: 245101  
SDG: 10-1302

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on January 20, 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: 10-1302  
Enclosures

**Los Alamos National Laboratory (72733-001-09)**  
**LANL ER Project**  
**Work Order #: 245101**  
**SDG: 10-1302**

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# Case Narrative

**Case Narrative for  
Los Alamos National Laboratory (72733-001-09)  
LANL ER Project  
Workorder #: 245101  
SDG # : 10-1302**

**January 22, 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 20, 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 12-15,17C 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>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101012	RE15-10-7188
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219

**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.

A handwritten signature in black ink, appearing to read "for Valerie Davis".

Valerie Davis

Project Manager



**List of current GEL Certifications as of 22 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**

Sunday, January 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

**LOS ALAMOS**

REQUEST NUMBER: 10-1302

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/17/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2451017.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-7194	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7194	1	POLY	H3	Ice	R
RE15-10-7186	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7186	1	POLY	H3	Ice	R
RE15-10-7191	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7191	1	POLY	H3	Ice	R
RE15-10-7195	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7195	1	POLY	H3	Ice	R
RE15-10-7196	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7196	1	POLY	H3	Ice	R
RE15-10-7197	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7197	1	POLY	H3	Ice	R
RE15-10-7193	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7193	1	POLY	H3	Ice	R
RE15-10-7184	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7184	1	POLY	H3	Ice	R
RE15-10-7185	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7185	1	POLY	H3	Ice	R
RE15-10-7189	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7189	1	POLY	H3	Ice	R
RE15-10-7187	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7187	1	POLY	H3	Ice	R
RE15-10-7188	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7188	1	POLY	H3	Ice	R
RE15-10-7190	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-7190	1	POLY	H3	Ice	R
RE15-10-7192	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Sunday, January 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1302C

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
-----------	------	-----------	-------	---------	--------

RE15-10-7192	1	POLY	H3	Ice	R
--------------	---	------	----	-----	---

RE15-10-7219	1	POLY	AM241+GS+ISOPU+ISO U	None	R
--------------	---	------	-------------------------	------	---

RE15-10-7219	1	POLY	H3	Ice	R
--------------	---	------	----	-----	---

Relinquished By:

Date

Time

Received By:

Date

Time



1/18/10

3:00

Greg Tyler

 1-20-10 0845

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

Sunday, January 17, 2010

**LOS ALAMOS**  
NATIONAL LABORATORY

ATTN: Valerie Davis

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

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/18/2010

TURNAROUND/REPORT DUE: 2/17/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANLER SMO CONTACT:

Signature:



REQUEST NUMBER: 10-1302

These Samples are on:

LANL Request Number: 10-1302  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	

Sunday, January 17, 2010

REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	EPA:906.0	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300-AM-241	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	

Sunday, January 17, 2010

REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300:ISOPU	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	
		1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	
	HASL-300:ISOU	1	RE15-10-7184	R	1/13/2010	
		1	RE15-10-7185	R	1/13/2010	
		1	RE15-10-7186	R	1/13/2010	
		1	RE15-10-7187	R	1/13/2010	
		1	RE15-10-7188	R	1/13/2010	

Sunday, January 17, 2010

REQUEST NUMBER: 10-1302

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOU	1	RE15-10-7189	R	1/13/2010	
		1	RE15-10-7190	R	1/13/2010	
		1	RE15-10-7191	R	1/13/2010	
		1	RE15-10-7192	R	1/13/2010	
		1	RE15-10-7193	R	1/13/2010	
		1	RE15-10-7194	R	1/13/2010	
		1	RE15-10-7195	R	1/13/2010	
		1	RE15-10-7196	R	1/13/2010	
		1	RE15-10-7197	R	1/13/2010	
		1	RE15-10-7219	R	1/13/2010	

Final Page of REQUEST NUMBER 10-1302





## SAMPLE RECEIPT &amp; REVIEW FORM

Client: LANL		SDG/ARCOC/Work Order: 10-1302	
Received By: Greg Tyler		Date Received: 1/20/10	
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*: 80cpm
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 2-5    12-15, 17
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: <b>No time on Chain of Custody.</b>
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 5644 2C    7209 7849 5714 4C    7209 7849 5699 13C  
 7209 7849 5725 2C    7209 7849 5828 4C    7209 7849 5817 14C  
 7209 7849 5736 2C    7209 7849 5839 4C    7209 7849 5872 14C  
 7209 7849 5840 2C    7209 7849 5861 4C    7209 7849 5703 15C  
 7209 7849 5688 3C    7209 7849 5883 4C    7209 7849 5633 17C  
 7209 7849 5850 3C    7209 7849 5747 5C  
 7209 7849 5655 4C    7209 7849 6055 5C  
 7209 7849 5666 4C    7209 7849 5677 12C



SHIP DATE: 19JAN10  
 ACTWGT: 62.0 LB MAN  
 CAD: 0014176/CAFE2449  
 STILL SENDER

SHO  
 SN-05  
 29407 SC 29407

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PRIORITY OVERNIGHT  
 TUE - 19JAN A1

FedEx  
 Express



WED - 20JAN A1  
 PRIORITY OVERNIGHT

3 of 3  
 PSN 7209 7849 5644  
 str# 7209 7849 5622 0201

XX CHSA

29407  
 SC-US  
 CHS



ORIGIN ID: SAFA (505) 665-9968  
 JOYLENE VALDEZ  
 LOS ALAMOS NATL LAB  
 T800 BLDG 1237 DPU 03  
 LOS ALAMOS, NM 87545  
 UNITED STATES US

SHIP DATE: 19JAN10  
 ACTWGT: 62.0 LB MAN  
 CAD: 0014176/CAFE2449  
 BILL SENDER

VALERIE DAVIS  
 GENERAL ENGINEERING LAB  
 2040 SAVAGE RD

CHARLESTON SC 29407  
 (843) 558-8171  
 REF: 68010AMR2A05158YD0

2c

WED - 20JAN A1



2 of 2  
 PSN 7209 7849 5736  
 str# 7209 7849 5725 0201

WED - 20JAN A1  
 PRIORITY OVERNIGHT

XX CHSA

29407  
 SC-US  
 CHS

ORIGIN ID: SAFA (505) 665-9968  
 JOYLENE VALDEZ  
 LOS ALAMOS NATL LAB  
 T800 BLDG 1237 DPU 03

SHIP DATE: 19JAN10  
 ACTWGT: 61.0 LB MAN  
 CAD: 0014176/CAFE2449

LOS ALAMOS, NM 87545  
 UNITED STATES US

BILL SENDER

VALERIE DAVIS  
 GENERAL ENGINEERING LAB  
 2040 SAVAGE RD

CHARLESTON SC 29407  
 (843) 558-8171  
 REF: 68010AMR2A05158YD0

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WED - 20JAN A1



1 of 2  
 PSN 7209 7849 5725  
 str# 7209 7849 5725 0201

WED - 20JAN A1  
 PRIORITY OVERNIGHT

XX CHSA

29407  
 SC-US  
 CHS



ORIGIN ID: SAFA (505) 665-9968  
 JOYLENE VALDEZ  
 LOS ALAMOS NATL LAB  
 T800 BLDG 1237 DPU 03

SHIP DATE: 19JAN10  
 ACTWGT: 53.0 LB MAN  
 CAD: 0014176/CAFE2449

LOS ALAMOS, NM 87545  
 UNITED STATES US

BILL SENDER

VALERIE DAVIS  
 GENERAL ENGINEERING LAB  
 2040 SAVAGE RD

CHARLESTON SC 29407  
 (843) 558-8171  
 REF: 68010AMR3A05529E00

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WED - 20JAN A1



2 of 2  
 PSN 7209 7849 5840  
 str# 7209 7849 5839 0201

WED - 20JAN A1  
 PRIORITY OVERNIGHT

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LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19 JAN 00  
ACTWGT: 62.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 68010AMR3A05529E00

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Express



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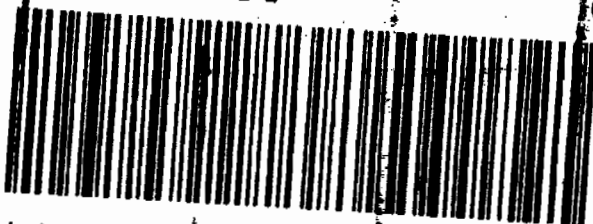
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WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19 JAN 00  
ACTWGT: 62.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 68010AMR3A05529E00

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1 of 2  
MPS# 0201 7209 7849 5655

MN MASTER MN

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19 JAN 00  
ACTWGT: 62.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 68010AMR3A05529E00

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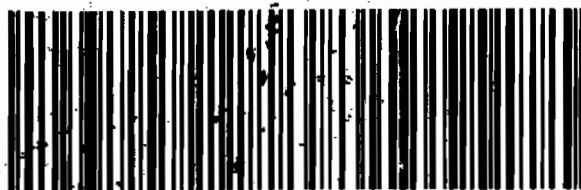
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TRKH 0201 7209 7849 5850

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19 JAN 00  
ACTWGT: 62.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 68010AMR3A05529E00

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2 of 2  
MPS# 0263 7209 7849 5666

Mstr# 7209 7849 5655 0201

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 54.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 51.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR2A0515BYD0

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

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3 of 3

WED - 20JAN A1

MPS# 0263 7209 7849 5714

PRIORITY OVERNIGHT

Matr# 7209 7849 5899 0201

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CHS



3 of 3

WED - 20JAN A1

MPS# 0263 7209 7849 5828

PRIORITY OVERNIGHT

Matr# 7209 7849 5806 0201

XX CHSA

29407  
SC-US  
CHS



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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 54.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 51.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A03529A00

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1 of 2

WED - 20JAN A1

TRKH 0201 7209 7849 5839

PRIORITY OVERNIGHT

MM MASTER MM

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29407  
SC-US  
CHS

WED - 20JAN A1

TRKH 0201 7209 7849 5861

PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTNGT: 37.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 555-8171

REF: 6B010AMR1A0130Y0000

4c

FedEx  
Express



J08200811382223

TRKH 7209 7849 5883  
0201

WED - 20JAN A1  
PRIORITY OVERNIGHT

29407

SC-US

CHS

XX CHSA



ORIGIN ID: SAFA (505) 655-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTNGT: 36.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 555-8171

REF: 6B010AME6L11550000

5c

FedEx  
Express



J08200811382223

TRKH 7209 7849 6055  
0201

WED - 20JAN A1  
PRIORITY OVERNIGHT

29407

SC-US

CHS

XX CHSA

Page 16 of 1258



SHIP DATE: 19JAN10  
ACTNGT: 55.0 LB MAN  
CAD: 0014176/CAFE2449

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 555-8171

REF: 6B010AMR2A0515BYD0

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FedEx  
Express



J08200811382223

TRKH 7209 7849 5747  
0201

WED - 20JAN A1  
PRIORITY OVERNIGHT

29407

SC-US

CHS

XX CHSA



ORIGIN ID: SAFA (505) 655-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTNGT: 61.0 LB MAN  
CAD: 0014176/CAFE2449

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 555-8171

REF: 6B010AMR3A05529E00

12c

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J08200811382223

1 of 2  
TRKH 7209 7849 5677  
0201

WM MASTER WM

WED - 20JAN A1  
PRIORITY OVERNIGHT

29407

XX CHSA



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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTMGT: 41.0 LB MAN  
CAD: 0014176/CAFE2449

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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
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SHIP DATE: 19JAN10  
ACTMGT: 48.0 LB MAN  
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NOT A RETURN ADDRESS



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1 of 3  
TRKH 7209 7849 5699  
0201  
NN MASTER NN

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



Part # 156138-434 NRT V3 04-08

2 of 3  
TRKH 7209 7849 5817  
0201  
Mstr NN 7209 7849 5806

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA



Part # 156138-434 NRT V3 04-08

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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTMGT: 127.0 LB MAN  
CAD: 0014176/CAFE2449

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A0352VA00

14c

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TRKH 7209 7849 5872  
0201

WED - 20 JAN A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

XX CHSA

IN-10: SAFA (505) 865-9968  
JOYLENE VALDEZ  
ALAMOS NATL LAB  
BLDG 1237 DPU 83

ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 48.0 LB HAN  
CRD: 0014176/CAFE2449

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

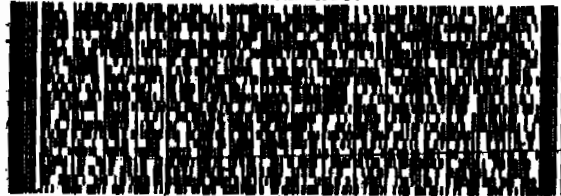
CHARLESTON SC 29407

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REF: 6B010ARR2A0515BYDO

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2 of 3

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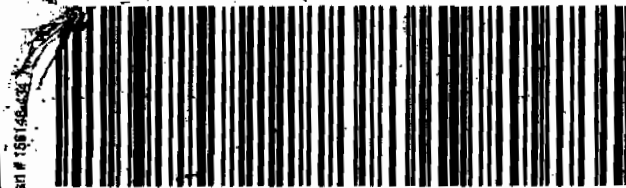
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PRIORITY OVERNIGHT

Matrn 7209 7849 5699 0201

XX CHSA

29407  
SC-US  
CHS



ORIGIN ID: SAFA (505) 865-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGG BLDG 1237 DPU 83  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 19JAN10  
ACTWGT: 67.0 LB HAN  
CRD: 0014176/CAFE2449

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2040 SAVAGE RD

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PRIORITY OVERNIGHT

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CHS

# **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
- U1   Gamma Spectroscopy-Uncertain identification
- X    Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y    QC Samples were not spiked with this compound
- 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 10-1302**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 944429  
**Prep Batch Number:** 943976

<b>Sample ID</b>	<b>Client ID</b>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219
1202022361	Method Blank (MB)
1202022362	245138001(WSTWA-10-11331) Sample Duplicate (DUP)
1202022363	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 1202022361 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 245138001 (WSTWA-10-11331). The QC was from LANL work order 245138.

**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 245101004 (RE15-10-7195) 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:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 951264  
**Prep Batch Number:** 943976

<b>Sample ID</b>	<b>Client ID</b>
245101012	RE15-10-7188
1202038568	Method Blank (MB)
1202038569	245101012(RE15-10-7188) Sample Duplicate (DUP)
1202038570	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 1202038568 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 245101012 (RE15-10-7188). The QC was from LANL work order 245101.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

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

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

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

Sample 245101012 (RE15-10-7188) was reprepared due to low carrier/tracer yield. Samples were reprepared due to low LCS recovery.

**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**

Sample, 1202038570 (LCS), did not meet the client tracer yield requirements, however it is less than 110 percent and does meet the GEL standard tracer yield requirements.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	ISOPU
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	944430
Prep Batch Number:	943976

<b>Sample ID</b>	<b>Client ID</b>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101012	RE15-10-7188
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219
1202022364	Method Blank (MB)
1202022365	245138001(WSTWA-10-11331) Sample Duplicate (DUP)
1202022366	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 1202022364 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 245138001 (WSTWA-10-11331). The QC was from LANL work order 245138.

**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**

<b>Product:</b>	ISOU
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	944433
Prep Batch Number:	943976



<b>Sample ID</b>	<b>Client ID</b>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101012	RE15-10-7188
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219
1202022388	Method Blank (MB)
1202022389	245138001(WSTWA-10-11331) Sample Duplicate (DUP)
1202022390	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 1202022388 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 245138001 (WSTWA-10-11331). The QC was from LANL work order 245138.

##### **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**

<b>Product:</b>	<b>GAMMA SPEC</b>
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	944037
Prep Batch Number:	943976

<b>Sample ID</b>	<b>Client ID</b>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101012	RE15-10-7188
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219
1202021393	Method Blank (MB)
1202021394	245101001(RE15-10-7194) Sample Duplicate (DUP)
1202021395	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in February 2009, March 2009, April 2009, June 2009, July 2009, 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: 245101001 (RE15-10-7194). The QC was from LANL work order 245101.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The method blank, 1202021393 (MB), results for Ra-228 and Sn-113 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 method blank, 1202021393 (MB), result for Ra-228 is 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.	Cesium-137	245101006	RE15-10-7197
UI	Data rejected due to high peak-width.	Cadmium-109	245101014	RE15-10-7192
UI	Data rejected due to interference.	Bismuth-211	245101001	RE15-10-7194
			245101002	RE15-10-7186
			245101003	RE15-10-7191
			245101004	RE15-10-7195

	245101005	RE15-10-7196
	245101006	RE15-10-7197
	245101007	RE15-10-7193
	245101008	RE15-10-7184
	245101009	RE15-10-7185
	245101010	RE15-10-7189
	245101011	RE15-10-7187
	245101012	RE15-10-7188
	245101013	RE15-10-7190
	245101014	RE15-10-7192
	245101015	RE15-10-7219
	1202021394	RE15-10-7194(245101001DUP)
Cadmium-109	245101001	RE15-10-7194
	245101002	RE15-10-7186
	245101003	RE15-10-7191
	245101004	RE15-10-7195
	245101005	RE15-10-7196
	245101006	RE15-10-7197
	245101007	RE15-10-7193
	245101008	RE15-10-7184
	245101009	RE15-10-7185
	245101010	RE15-10-7189
	245101011	RE15-10-7187
	245101013	RE15-10-7190
	1202021394	RE15-10-7194(245101001DUP)
Radium-224	245101001	RE15-10-7194
	245101002	RE15-10-7186
	245101003	RE15-10-7191
	245101004	RE15-10-7195
	245101005	RE15-10-7196

			245101006	RE15-10-7197
			245101007	RE15-10-7193
			245101008	RE15-10-7184
			245101009	RE15-10-7185
			245101010	RE15-10-7189
			245101011	RE15-10-7187
			245101012	RE15-10-7188
			245101013	RE15-10-7190
			245101014	RE15-10-7192
			245101015	RE15-10-7219
			1202021394	RE15-10-7194(245101001DUP)
UI	Data rejected due to low abundance.	Cesium-134	245101002	RE15-10-7186
			245101003	RE15-10-7191
			245101005	RE15-10-7196
			245101013	RE15-10-7190
		Strontium-85	245101001	RE15-10-7194
			245101002	RE15-10-7186
			245101005	RE15-10-7196
			245101009	RE15-10-7185
			245101011	RE15-10-7187
			245101013	RE15-10-7190
			1202021393	MB for batch 944037

#### **Method/Analysis Information**

**Product:** H3  
**Analytical Method:** GL-RAD-A-002  
**Analytical Batch Number:** 945369

<b>Sample ID</b>	<b>Client ID</b>
245101001	RE15-10-7194
245101002	RE15-10-7186
245101003	RE15-10-7191
245101004	RE15-10-7195
245101005	RE15-10-7196
245101006	RE15-10-7197
245101007	RE15-10-7193
245101008	RE15-10-7184
245101009	RE15-10-7185
245101010	RE15-10-7189
245101011	RE15-10-7187
245101012	RE15-10-7188
245101013	RE15-10-7190
245101014	RE15-10-7192
245101015	RE15-10-7219
1202024712	Method Blank (MB)
1202024713	245101001(RE15-10-7194) Sample Duplicate (DUP)
1202024714	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" 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-002 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2009.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 245101001 (RE15-10-7194). The QC was from LANL work order 245101.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

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

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

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

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

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

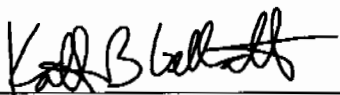
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**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: \_\_\_\_\_

 2/15/10



# 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: 10-1302 GEL Work Order: 245101

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

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

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

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

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

Reviewed by



# GEL LABORATORIES LLC

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: February 12, 2010

Client Sample ID: RE15-10-7194  
Sample ID: 245101001  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 20.7%

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	0.00186	0.0209	+/-0.00689	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00188	0.0155	+/-0.00188	0.050	pCi/g		JXD2	01/28/10	1414	944430	2
Plutonium-239/240	U	0.0103	0.0178	+/-0.00316	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.93	0.119	+/-0.161	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.133	0.0739	+/-0.0268	0.100	pCi/g						
Uranium-238		2.26	0.0691	+/-0.185	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.220	0.308	+/-0.0927	0.200	pCi/g		MXR1	02/01/10	1444	944037	4
Bismuth-211	UI	4.07	0.263	+/-0.236		pCi/g						
Bismuth-214		1.09	0.091	+/-0.0817	0.200	pCi/g						
Cadmium-109	UI	4.21	1.15	+/-0.617		pCi/g						
Cerium-139	U	-0.024	0.0407	+/-0.0121	0.050	pCi/g						
Cesium-134	U	0.0616	0.0692	+/-0.0215	0.100	pCi/g						
Cesium-137		0.204	0.0504	+/-0.0283	0.100	pCi/g						
Cobalt-60	U	0.0454	0.0554	+/-0.0149	0.100	pCi/g						
Europium-152	U	-0.0205	0.131	+/-0.0501	0.200	pCi/g						
Lanthanum-140	U	0.00955	0.138	+/-0.041		pCi/g						
Lead-212		1.50	0.0767	+/-0.0707	0.100	pCi/g						
Lead-214		1.42	0.0916	+/-0.0899	0.100	pCi/g						
Mercury-203	U	0.0308	0.0577	+/-0.0255	0.100	pCi/g						
Potassium-40		23.5	0.435	+/-1.09	1.00	pCi/g						
Radium-223	U	0.185	0.832	+/-0.282		pCi/g						
Radium-224	UI	3.92	0.872	+/-0.470		pCi/g						
Radium-226		1.09	0.091	+/-0.0817		pCi/g						
Radium-228		1.72	0.167	+/-0.166	0.500	pCi/g						
Ruthenium-106	U	-0.0205	0.424	+/-0.130	0.800	pCi/g						
Sodium-22	U	0.00777	0.0594	+/-0.0177	0.080	pCi/g						
Strontium-85	UI	0.0634	0.058	+/-0.0178		pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7194  
Sample ID: 245101001

Project: LANL01004  
Client ID: LANL010

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

#### GAMMA SPEC "Dry Weight Corrected"

Thallium-208		0.435	0.0415	+/-0.0372	0.080	pCi/g						
Thorium-227	U	-0.0621	0.518	+/-0.155		pCi/g						
Thorium-231	U	0.185	0.832	+/-0.282		pCi/g						
Thorium-234	U	1.29	2.30	+/-0.898	2.00	pCi/g						
Tin-113	U	0.00585	0.0593	+/-0.0171	0.100	pCi/g						
Uranium-235	U	0.182	0.313	+/-0.0924	0.500	pCi/g						
Yttrium-88	U	-0.0119	0.0346	+/-0.0117	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

#### H3 "As Received"

Tritium	U	12.5	208	+/-61.1	250	pCi/L	KXK2	01/29/10	0456	945369	5	
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### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	99.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.0	(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

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7194  
Sample ID: 245101001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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H Analytical holding time was exceeded

J Value is estimated

M M if above MDC and less than LLD

M Matrix Related Failure

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

ND Analyte concentration is not detected above the detection limit

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

R Sample results are rejected

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

UI Gamma Spectroscopy--Uncertain identification

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

Y QC Samples were not spiked with this compound

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

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7186  
Sample ID: 245101002  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 18.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0108	0.0215	+/-0.00487	0.050	pCi/g	JXD2	01/28/10	2058	944429	1	
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00199	0.0165	+/-0.00141	0.050	pCi/g	JXD2	01/28/10	1415	944430	2	
Plutonium-239/240	U	0.00798	0.0188	+/-0.00318	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.15	0.123	+/-0.106	0.100	pCi/g	JXD2	01/28/10	1628	944433	3	
Uranium-235/236		0.0835	0.0764	+/-0.0222	0.100	pCi/g						
Uranium-238		1.53	0.0714	+/-0.133	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.140	0.264	+/-0.0834	0.200	pCi/g	MXR1	02/01/10	1445	944037	4	
Bismuth-211	UI	2.98	0.314	+/-0.256		pCi/g						
Bismuth-214		1.07	0.104	+/-0.0926	0.200	pCi/g						
Cadmium-109	UI	2.17	1.31	+/-0.452		pCi/g						
Cerium-139	U	0.0174	0.0533	+/-0.0156	0.050	pCi/g						
Cesium-134	UI	0.0937	0.0858	+/-0.0231	0.100	pCi/g						
Cesium-137		0.152	0.0662	+/-0.0326	0.100	pCi/g						
Cobalt-60	U	0.0187	0.0637	+/-0.0181	0.100	pCi/g						
Europium-152	U	-0.0301	0.151	+/-0.0595	0.200	pCi/g						
Lanthanum-140	U	-0.0159	0.156	+/-0.0488		pCi/g						
Lead-212		1.41	0.0896	+/-0.0729	0.100	pCi/g						
Lead-214		1.04	0.109	+/-0.0932	0.100	pCi/g						
Mercury-203	U	0.0438	0.0768	+/-0.0212	0.100	pCi/g						
Potassium-40		26.3	0.530	+/-1.29	1.00	pCi/g						
Radium-223	U	-0.867	1.09	+/-0.347		pCi/g						
Radium-224	UI	3.66	1.02	+/-0.612		pCi/g						
Radium-226		1.07	0.104	+/-0.0926		pCi/g						
Radium-228		1.13	0.210	+/-0.183	0.500	pCi/g						
Ruthenium-106	U	-0.00662	0.493	+/-0.149	0.800	pCi/g						
Sodium-22	U	-0.044	0.0604	+/-0.0207	0.080	pCi/g						
Strontium-85	UI	0.0924	0.0721	+/-0.0207		pCi/g						
Thallium-208		0.428	0.0544	+/-0.0389	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7186  
245101002

Project: LANL01004  
Client ID: LANL010

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

*GAMMA SPEC "Dry Weight Corrected"*

Thorium-227	U	0.0601	0.628	+/-0.190		pCi/g						
Thorium-231	U	-0.867	1.09	+/-0.347		pCi/g						
Thorium-234	U	1.64	2.13	+/-0.991	2.00	pCi/g						
Tin-113	U	-0.00758	0.0754	+/-0.0224	0.100	pCi/g						
Uranium-235	U	0.203	0.364	+/-0.107	0.500	pCi/g						
Yttrium-88	U	-0.0099	0.047	+/-0.0156	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

*H3 "As Received"*

Tritium	U	-10	209	+/-60.8	250	pCi/L		KXK2	01/29/10	0634	945369	5
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### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.2	(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

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7186 Project: LANL01004  
Sample ID: 245101002 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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  
The above sample is reported on a dry weight basis.



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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7191  
Sample ID: 245101003  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 14.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00181	0.0269	+/-0.00414	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.000989	0.0163	+/-0.00099	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00	0.0187	+/-0.0014	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.950	0.123	+/-0.0917	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236	U	0.0688	0.0765	+/-0.0203	0.100	pCi/g						
Uranium-238		1.05	0.0715	+/-0.0986	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0404	0.186	+/-0.0591	0.200	pCi/g		MXR1	02/02/10	0945	944037	4
Bismuth-211	UI	3.71	0.280	+/-0.312		pCi/g						
Bismuth-214		1.07	0.0932	+/-0.0946	0.200	pCi/g						
Cadmium-109	UI	3.82	0.892	+/-0.473		pCi/g						
Cerium-139	U	0.0124	0.0436	+/-0.0123	0.050	pCi/g						
Cesium-134	UI	0.111	0.0915	+/-0.0315	0.100	pCi/g						
Cesium-137	U	0.0443	0.0585	+/-0.0226	0.100	pCi/g						
Cobalt-60	U	-0.015	0.0623	+/-0.0199	0.100	pCi/g						
Europium-152	U	-0.0607	0.139	+/-0.0451	0.200	pCi/g						
Lanthanum-140	U	0.0468	0.151	+/-0.0413		pCi/g						
Lead-212		1.88	0.080	+/-0.143	0.100	pCi/g						
Lead-214		1.29	0.0982	+/-0.114	0.100	pCi/g						
Mercury-203	U	0.0141	0.0678	+/-0.0203	0.100	pCi/g						
Potassium-40		28.9	0.506	+/-1.51	1.00	pCi/g						
Radium-223	U	0.000118	0.855	+/-0.293		pCi/g						
Radium-224	UI	4.31	0.911	+/-0.699		pCi/g						
Radium-226		1.07	0.0932	+/-0.0946		pCi/g						
Radium-228		1.54	0.198	+/-0.164	0.500	pCi/g						
Ruthenium-106	U	-0.0437	0.464	+/-0.142	0.800	pCi/g						
Sodium-22	U	0.00794	0.0666	+/-0.020	0.080	pCi/g						
Strontium-85	U	0.0313	0.0609	+/-0.0191		pCi/g						
Thallium-208		0.640	0.0456	+/-0.0514	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7191  
Sample ID: 245101003

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	-0.022	0.550	+/-0.165		pCi/g						
Thorium-231	U	0.000118	0.855	+/-0.293		pCi/g						
Thorium-234	U	0.945	1.52	+/-0.679	2.00	pCi/g						
Tin-113	U	0.0108	0.0651	+/-0.0185	0.100	pCi/g						
Uranium-235	U	0.0379	0.311	+/-0.0893	0.500	pCi/g						
Yttrium-88	U	0.025	0.0547	+/-0.0141	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	35.0	208	+/-61.6	250	pCi/L		KXK2	01/29/10	0812	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	76.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.4	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7191  
Sample ID: 245101003

Project: LANL01004  
Client ID: LANL010

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

The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7195  
Sample ID: 245101004  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-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	0.000465	0.0386	+/-0.00338	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00196	0.0162	+/-0.00139	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00098	0.0185	+/-0.000982	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.15	0.154	+/-0.113	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236	U	0.0429	0.0954	+/-0.0165	0.100	pCi/g						
Uranium-238		1.06	0.0892	+/-0.106	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.35	0.500	+/-0.150	0.200	pCi/g		MXR1	02/02/10	0946	944037	4
Bismuth-211	UI	3.89	0.375	+/-0.310		pCi/g						
Bismuth-214		1.29	0.118	+/-0.0914	0.200	pCi/g						
Cadmium-109	UI	3.14	1.54	+/-0.564		pCi/g						
Cerium-139	U	0.0178	0.0632	+/-0.0185	0.050	pCi/g						
Cesium-134	U	0.0789	0.0972	+/-0.0292	0.100	pCi/g						
Cesium-137	U	-0.0147	0.0708	+/-0.0223	0.100	pCi/g						
Cobalt-60	U	-0.0345	0.0643	+/-0.0222	0.100	pCi/g						
Europium-152	U	-0.0743	0.184	+/-0.0694	0.200	pCi/g						
Lanthanum-140	U	-0.105	0.171	+/-0.0614		pCi/g						
Lead-212		1.75	0.115	+/-0.0973	0.100	pCi/g						
Lead-214		1.35	0.131	+/-0.113	0.100	pCi/g						
Mercury-203	U	0.0536	0.0959	+/-0.0266	0.100	pCi/g						
Potassium-40		26.6	0.619	+/-1.35	1.00	pCi/g						
Radium-223	U	0.0981	1.27	+/-0.424		pCi/g						
Radium-224	UI	5.24	1.31	+/-0.859		pCi/g						
Radium-226		1.29	0.118	+/-0.0914		pCi/g						
Radium-228		1.59	0.258	+/-0.171	0.500	pCi/g						
Ruthenium-106	U	-0.186	0.514	+/-0.166	0.800	pCi/g						
Sodium-22	U	-0.0452	0.0775	+/-0.0263	0.080	pCi/g						
Strontium-85	U	0.0419	0.0762	+/-0.0245		pCi/g						
Thallium-208		0.557	0.0682	+/-0.0465	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7195  
Sample ID: 245101004

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	-0.0505	0.783	+/-0.227		pCi/g						
Thorium-231	U	0.0981	1.27	+/-0.424		pCi/g						
Thorium-234	U	0.358	3.99	+/-1.15	2.00	pCi/g						
Tin-113	U	-0.0654	0.0847	+/-0.0271	0.100	pCi/g						
Uranium-235	U	0.228	0.460	+/-0.134	0.500	pCi/g						
Yttrium-88	U	0.0096	0.0561	+/-0.016	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-5.01	208	+/-60.8	250	pCi/L		KXK2	01/29/10	0950	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	49.4 *	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	68.8	(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

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7195 Project: LANL01004  
Sample ID: 245101004 Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7196  
Sample ID: 245101005  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 23.7%

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	0.0105	0.021	+/-0.00564	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0167	+/-0.00101	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240		0.0375	0.0191	+/-0.00643	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.50	0.135	+/-0.208	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.194	0.0838	+/-0.0368	0.100	pCi/g						
Uranium-238		3.32	0.0783	+/-0.267	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.120	0.239	+/-0.0753	0.200	pCi/g		MXR1	02/02/10	0946	944037	4
Bismuth-211	UI	3.85	0.322	+/-0.299		pCi/g						
Bismuth-214		1.12	0.110	+/-0.0948	0.200	pCi/g						
Cadmium-109	UI	1.98	1.58	+/-0.518		pCi/g						
Cerium-139	U	-0.0199	0.0512	+/-0.0154	0.050	pCi/g						
Cesium-134	UI	0.132	0.0841	+/-0.0231	0.100	pCi/g						
Cesium-137		0.795	0.0579	+/-0.0604	0.100	pCi/g						
Cobalt-60	U	0.00698	0.0601	+/-0.018	0.100	pCi/g						
Europium-152	U	0.0163	0.163	+/-0.0586	0.200	pCi/g						
Lanthanum-140	U	0.0418	0.189	+/-0.055		pCi/g						
Lead-212		1.55	0.0916	+/-0.116	0.100	pCi/g						
Lead-214		1.34	0.109	+/-0.110	0.100	pCi/g						
Mercury-203	U	0.0143	0.0765	+/-0.0233	0.100	pCi/g						
Potassium-40		25.5	0.565	+/-1.40	1.00	pCi/g						
Radium-223	U	-0.914	1.08	+/-0.349		pCi/g						
Radium-224	UI	4.37	1.04	+/-0.630		pCi/g						
Radium-226		1.12	0.110	+/-0.0948		pCi/g						
Radium-228		1.56	0.187	+/-0.161	0.500	pCi/g						
Ruthenium-106	U	0.00196	0.506	+/-0.152	0.800	pCi/g						
Sodium-22	U	-0.0804	0.0577	+/-0.0209	0.080	pCi/g						
Strontium-85	UI	0.125	0.0771	+/-0.0243		pCi/g						
Thallium-208		0.455	0.0547	+/-0.0454	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7196  
Sample ID: 245101005

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	-0.0461	0.642	+/-0.197		pCi/g						
Thorium-231	U	-0.914	1.08	+/-0.349		pCi/g						
Thorium-234		4.09	1.93	+/-0.941	2.00	pCi/g						
Tin-113	U	-0.0533	0.0748	+/-0.0239	0.100	pCi/g						
Uranium-235	U	0.321	0.389	+/-0.115	0.500	pCi/g						
Yttrium-88	U	0.0303	0.0569	+/-0.0155	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-59.8	207	+/-59.3	250	pCi/L		KXK2	01/29/10	1129	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	79.0	(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



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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7196  
Sample ID: 245101005  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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  
The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7197  
Sample ID: 245101006  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 14.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00451	0.0228	+/-0.00515	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00202	0.0167	+/-0.00143	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00404	0.0191	+/-0.00248	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.857	0.108	+/-0.0819	0.100	pCi/g		JXD2	01/28/10	1628	944433	3
Uranium-235/236		0.0815	0.0668	+/-0.0205	0.100	pCi/g						
Uranium-238		1.05	0.0624	+/-0.0957	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0418	0.0798	+/-0.0235	0.200	pCi/g		MXR1	02/02/10	1028	944037	4
Bismuth-211	UI	3.90	0.342	+/-0.291		pCi/g						
Bismuth-214		1.31	0.129	+/-0.124	0.200	pCi/g						
Cadmium-109	UI	3.14	0.824	+/-0.352		pCi/g						
Cerium-139	U	-0.00145	0.0439	+/-0.0124	0.050	pCi/g						
Cesium-134	U	0.0713	0.108	+/-0.0419	0.100	pCi/g						
Cesium-137	UI	0.0767	0.075	+/-0.0391	0.100	pCi/g						
Cobalt-60	U	0.00999	0.0844	+/-0.0244	0.100	pCi/g						
Europium-152	U	-0.0103	0.152	+/-0.0463	0.200	pCi/g						
Lanthanum-140	U	-0.0505	0.161	+/-0.0551		pCi/g						
Lead-212		1.65	0.0855	+/-0.0985	0.100	pCi/g						
Lead-214		1.36	0.116	+/-0.107	0.100	pCi/g						
Mercury-203	U	0.0223	0.0718	+/-0.0228	0.100	pCi/g						
Potassium-40		32.9	0.680	+/-1.79	1.00	pCi/g						
Radium-223	U	-0.307	1.05	+/-0.370		pCi/g						
Radium-224	UI	5.34	0.975	+/-0.618		pCi/g						
Radium-226		1.31	0.129	+/-0.124		pCi/g						
Radium-228		1.98	0.262	+/-0.220	0.500	pCi/g						
Ruthenium-106	U	0.0572	0.628	+/-0.186	0.800	pCi/g						
Sodium-22	U	-0.0102	0.092	+/-0.0291	0.080	pCi/g						
Strontium-85	U	0.0469	0.068	+/-0.020		pCi/g						
Thallium-208		0.522	0.0702	+/-0.0508	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7197  
245101006

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	0.0571	0.608	+/-0.177		pCi/g						
Thorium-231	U	-0.307	1.05	+/-0.370		pCi/g						
Thorium-234		1.58	0.810	+/-0.352	2.00	pCi/g						
Tin-113	U	-0.054	0.071	+/-0.0243	0.100	pCi/g						
Uranium-235	U	0.041	0.274	+/-0.0829	0.500	pCi/g						
Yttrium-88	U	0.0245	0.0756	+/-0.0201	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-40	208	+/-59.9	250	pCi/L		KXK2	01/29/10	1307	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	95.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.2	(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

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### Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7197  
Sample ID: 245101006

Project: LANL01004  
Client ID: LANL010

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

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

The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7193  
Sample ID: 245101007  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 19%

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	0.00677	0.0208	+/-0.00644	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00198	0.0163	+/-0.00198	0.050	pCi/g		JXD2	01/28/10	1415	944430	2
Plutonium-239/240	U	0.00791	0.0187	+/-0.00282	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.94	0.127	+/-0.165	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.162	0.079	+/-0.031	0.100	pCi/g						
Uranium-238		1.94	0.0738	+/-0.165	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0156	0.348	+/-0.114	0.200	pCi/g		MXR1	02/02/10	1028	944037	4
Bismuth-211	UI	3.66	0.399	+/-0.267		pCi/g						
Bismuth-214		1.07	0.130	+/-0.0934	0.200	pCi/g						
Cadmium-109	UI	3.34	1.69	+/-0.592		pCi/g						
Cerium-139	U	-0.0136	0.0565	+/-0.0173	0.050	pCi/g						
Cesium-134	U	0.0746	0.100	+/-0.027	0.100	pCi/g						
Cesium-137	U	0.0666	0.0873	+/-0.0243	0.100	pCi/g						
Cobalt-60	U	0.026	0.0821	+/-0.0236	0.100	pCi/g						
Europium-152	U	-0.153	0.178	+/-0.0715	0.200	pCi/g						
Lanthanum-140	U	-0.208	0.187	+/-0.0729		pCi/g						
Lead-212		1.64	0.101	+/-0.0832	0.100	pCi/g						
Lead-214		1.27	0.131	+/-0.0986	0.100	pCi/g						
Mercury-203	U	0.0119	0.0848	+/-0.0245	0.100	pCi/g						
Potassium-40		27.5	0.632	+/-1.45	1.00	pCi/g						
Radium-223	U	0.655	1.32	+/-0.425		pCi/g						
Radium-224	UI	5.84	1.15	+/-0.738		pCi/g						
Radium-226		1.07	0.130	+/-0.0934		pCi/g						
Radium-228		1.69	0.264	+/-0.181	0.500	pCi/g						
Ruthenium-106	U	-0.379	0.572	+/-0.192	0.800	pCi/g						
Sodium-22	U	0.0199	0.0887	+/-0.0262	0.080	pCi/g						
Strontium-85	U	0.074	0.0842	+/-0.026		pCi/g						
Thallium-208		0.449	0.0628	+/-0.0411	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7193  
245101007

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	0.0955	0.763	+/-0.233		pCi/g						
Thorium-231	U	0.655	1.32	+/-0.425		pCi/g						
Thorium-234		3.19	2.75	+/-1.32	2.00	pCi/g						
Tin-113	U	0.0262	0.088	+/-0.0254	0.100	pCi/g						
Uranium-235	U	0.183	0.430	+/-0.129	0.500	pCi/g						
Yttrium-88	U	-0.0247	0.0487	+/-0.018	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-84.9	208	+/-58.9	250	pCi/L		KXK2	01/29/10	1445	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.2	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7193  
Sample ID: 245101007  
Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7184  
Sample ID: 245101008  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 17.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00968	0.0217	+/-0.00356	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.001	0.0165	+/-0.001	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.008	0.0189	+/-0.00286	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.61	0.124	+/-0.140	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.114	0.0769	+/-0.025	0.100	pCi/g						
Uranium-238		2.06	0.0718	+/-0.172	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0523	0.191	+/-0.061	0.200	pCi/g		MXR1	02/02/10	1313	944037	4
Bismuth-211	UI	4.07	0.347	+/-0.312		pCi/g						
Bismuth-214		1.34	0.117	+/-0.112	0.200	pCi/g						
Cadmium-109	UI	3.60	1.14	+/-0.535		pCi/g						
Cerium-139	U	0.0171	0.0523	+/-0.0157	0.050	pCi/g						
Cesium-134	U	0.0779	0.0999	+/-0.0276	0.100	pCi/g						
Cesium-137		0.329	0.0656	+/-0.0429	0.100	pCi/g						
Cobalt-60	U	-0.0114	0.0661	+/-0.0208	0.100	pCi/g						
Europium-152	U	-0.117	0.157	+/-0.0562	0.200	pCi/g						
Lanthanum-140	U	0.009	0.198	+/-0.0705		pCi/g						
Lead-212		1.70	0.0929	+/-0.101	0.100	pCi/g						
Lead-214		1.41	0.121	+/-0.115	0.100	pCi/g						
Mercury-203	U	0.0427	0.0816	+/-0.031	0.100	pCi/g						
Potassium-40		23.8	0.552	+/-1.32	1.00	pCi/g						
Radium-223	U	-0.313	1.21	+/-0.374		pCi/g						
Radium-224	UI	4.00	1.06	+/-0.645		pCi/g						
Radium-226		1.34	0.117	+/-0.112		pCi/g						
Radium-228		1.57	0.215	+/-0.164	0.500	pCi/g						
Ruthenium-106	U	0.124	0.591	+/-0.171	0.800	pCi/g						
Sodium-22	U	0.000974	0.0744	+/-0.0225	0.080	pCi/g						
Strontium-85	U	0.0745	0.0758	+/-0.0224		pCi/g						
Thallium-208		0.481	0.0583	+/-0.0438	0.080	pCi/g						



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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7184  
Sample ID: 245I01008

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.226	0.628	+/-0.193		pCi/g						
Thorium-231	U	-0.313	1.21	+/-0.374		pCi/g						
Thorium-234		2.73	1.65	+/-0.823	2.00	pCi/g						
Tin-113	U	-0.0182	0.0786	+/-0.0258	0.100	pCi/g						
Uranium-235	U	-0.111	0.355	+/-0.113	0.500	pCi/g						
Yttrium-88	U	0.0238	0.0582	+/-0.015	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
H3 "As Received"												
Tritium	U	77.7	208	+/-62.8	250	pCi/L		KXK2	01/29/10	1623	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.5	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7184  
Sample ID: 245101008

Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7185  
Sample ID: 245101009  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.42%

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	0.00198	0.0214	+/-0.00347	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00103	0.0171	+/-0.00104	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0176	0.0195	+/-0.00435	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.38	0.122	+/-0.122	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.165	0.0754	+/-0.0314	0.100	pCi/g						
Uranium-238		1.56	0.0705	+/-0.136	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0034	0.229	+/-0.0789	0.200	pCi/g		MXR1	02/02/10	1055	944037	4
Bismuth-211	UI	4.64	0.346	+/-0.265		pCi/g						
Bismuth-214		1.32	0.118	+/-0.117	0.200	pCi/g						
Cadmium-109	UI	4.29	1.25	+/-0.562		pCi/g						
Cerium-139	U	-0.0191	0.0537	+/-0.017	0.050	pCi/g						
Cesium-134	U	0.075	0.0908	+/-0.0252	0.100	pCi/g						
Cesium-137		0.288	0.0702	+/-0.0348	0.100	pCi/g						
Cobalt-60	U	-0.0289	0.0584	+/-0.0198	0.100	pCi/g						
Europium-152	U	-0.0672	0.173	+/-0.0592	0.200	pCi/g						
Lanthanum-140	U	-0.0904	0.167	+/-0.063		pCi/g						
Lead-212		1.71	0.0969	+/-0.0863	0.100	pCi/g						
Lead-214		1.61	0.118	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.0531	0.083	+/-0.0235	0.100	pCi/g						
Potassium-40		25.6	0.519	+/-1.29	1.00	pCi/g						
Radium-223	U	-0.15	1.24	+/-0.431		pCi/g						
Radium-224	UI	4.68	1.10	+/-0.678		pCi/g						
Radium-226		1.32	0.118	+/-0.117		pCi/g						
Radium-228		1.83	0.230	+/-0.178	0.500	pCi/g						
Ruthenium-106	U	-0.00191	0.575	+/-0.177	0.800	pCi/g						
Sodium-22	U	0.0171	0.0745	+/-0.0218	0.080	pCi/g						
Strontium-85	UI	0.104	0.0824	+/-0.0248		pCi/g						
Thallium-208		0.580	0.0633	+/-0.0467	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7185  
Sample ID: 245101009

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	0.0427	0.671	+/-0.197		pCi/g						
Thorium-231	U	-0.15	1.24	+/-0.431		pCi/g						
Thorium-234	U	1.76	2.00	+/-0.806	2.00	pCi/g						
Tin-113	U	-0.0292	0.0774	+/-0.0242	0.100	pCi/g						
Uranium-235	U	0.195	0.406	+/-0.122	0.500	pCi/g						
Yttrium-88	U	0.0107	0.0597	+/-0.0175	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	-39.9	208	+/-59.9	250	pCi/L		KXK2	01/29/10	1801	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	91.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.6	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7185  
Sample ID: 245101009

Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7189  
Sample ID: 245101010  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.23%

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	0.00519	0.0238	+/-0.00272	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.007	0.0165	+/-0.00267	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.010	0.0189	+/-0.0032	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.21	0.134	+/-0.114	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.123	0.0833	+/-0.0271	0.100	pCi/g						
Uranium-238		1.39	0.0778	+/-0.127	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0359	0.394	+/-0.113	0.200	pCi/g		MXR1	02/02/10	1119	944037	4
Bismuth-211	UI	3.94	0.310	+/-0.276		pCi/g						
Bismuth-214		1.24	0.122	+/-0.0943	0.200	pCi/g						
Cadmium-109	UI	3.75	1.29	+/-0.616		pCi/g						
Cerium-139	U	-0.0259	0.0466	+/-0.0148	0.050	pCi/g						
Cesium-134	U	0.0309	0.0839	+/-0.024	0.100	pCi/g						
Cesium-137		0.130	0.0575	+/-0.0361	0.100	pCi/g						
Cobalt-60	U	0.0327	0.0701	+/-0.0193	0.100	pCi/g						
Europium-152	U	-0.0105	0.153	+/-0.0521	0.200	pCi/g						
Lanthanum-140	U	-0.154	0.154	+/-0.0605		pCi/g						
Lead-212		1.52	0.0893	+/-0.0802	0.100	pCi/g						
Lead-214		1.37	0.108	+/-0.102	0.100	pCi/g						
Mercury-203	U	0.00911	0.067	+/-0.0219	0.100	pCi/g						
Potassium-40		23.9	0.478	+/-1.31	1.00	pCi/g						
Radium-223	U	-0.306	0.951	+/-0.334		pCi/g						
Radium-224	UI	4.53	1.02	+/-0.592		pCi/g						
Radium-226		1.24	0.122	+/-0.0943		pCi/g						
Radium-228		1.64	0.192	+/-0.160	0.500	pCi/g						
Ruthenium-106	U	-0.267	0.430	+/-0.138	0.800	pCi/g						
Sodium-22	U	0.0189	0.0778	+/-0.0224	0.080	pCi/g						
Strontium-85	U	0.0395	0.0653	+/-0.021		pCi/g						
Thallium-208		0.553	0.0504	+/-0.0404	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7189  
Sample ID: 245101010  
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	0.419	0.670	+/-0.188		pCi/g						
Thorium-231	U	-0.306	0.951	+/-0.334		pCi/g						
Thorium-234	U	2.50	3.23	+/-0.919	2.00	pCi/g						
Tin-113	U	-0.0331	0.0681	+/-0.0216	0.100	pCi/g						
Uranium-235	U	0.0432	0.349	+/-0.104	0.500	pCi/g						
Yttrium-88	U	0.0061	0.0495	+/-0.0146	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	110	208	+/-63.7	250	pCi/L		KXK2	01/29/10	1939	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	76.9	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7189  
Sample ID: 245101010

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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  
The above sample is reported on a dry weight basis.



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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7187  
Sample ID: 245101011  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 9.34%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.011	0.0218	+/-0.00382	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00323	0.0267	+/-0.00396	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0145	0.0305	+/-0.00491	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.57	0.120	+/-0.136	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.0955	0.0743	+/-0.0224	0.100	pCi/g						
Uranium-238		2.19	0.0695	+/-0.181	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.056	0.111	+/-0.0336	0.200	pCi/g		MXR1	02/02/10	1120	944037	4
Bismuth-211	UI	3.46	0.400	+/-0.273		pCi/g						
Bismuth-214		1.33	0.153	+/-0.111	0.200	pCi/g						
Cadmium-109	UI	3.32	0.941	+/-0.406		pCi/g						
Cerium-139	U	-0.0328	0.0537	+/-0.0171	0.050	pCi/g						
Cesium-134	U	0.0299	0.108	+/-0.0309	0.100	pCi/g						
Cesium-137		0.334	0.0733	+/-0.0461	0.100	pCi/g						
Cobalt-60	U	0.0394	0.0924	+/-0.026	0.100	pCi/g						
Europium-152	U	0.0396	0.186	+/-0.0592	0.200	pCi/g						
Lanthanum-140	U	-0.0497	0.245	+/-0.0787		pCi/g						
Lead-212		1.48	0.0996	+/-0.0896	0.100	pCi/g						
Lead-214		1.20	0.140	+/-0.100	0.100	pCi/g						
Mercury-203	U	0.025	0.0848	+/-0.0245	0.100	pCi/g						
Potassium-40		23.1	0.634	+/-1.11	1.00	pCi/g						
Radium-223	U	-1.64	1.15	+/-0.415		pCi/g						
Radium-224	UI	3.98	1.13	+/-0.642		pCi/g						
Radium-226		1.33	0.153	+/-0.111		pCi/g						
Radium-228		1.54	0.279	+/-0.184	0.500	pCi/g						
Ruthenium-106	U	-0.0037	0.686	+/-0.207	0.800	pCi/g						
Sodium-22	U	-0.00798	0.095	+/-0.0289	0.080	pCi/g						
Strontium-85	UI	0.0974	0.0863	+/-0.0255		pCi/g						
Thallium-208		0.469	0.0781	+/-0.0577	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7187  
245101011

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	0.00587	0.689	+/-0.202		pCi/g						
Thorium-231	U	-1.64	1.15	+/-0.415		pCi/g						
Thorium-234		1.97	1.09	+/-0.712	2.00	pCi/g						
Tin-113	U	-0.092	0.0894	+/-0.0303	0.100	pCi/g						
Uranium-235	U	0.130	0.410	+/-0.122	0.500	pCi/g						
Yttrium-88	U	-0.00204	0.074	+/-0.0226	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	10.0	209	+/-61.3	250	pCi/L		KXK2	01/29/10	2117	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	56.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.5	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7187  
Sample ID: 245101011

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7188  
Sample ID: 245101012  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 12.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00364	0.0397	+/-0.00837	0.050	pCi/g		MXE1	02/11/10	0903	951264	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00197	0.0163	+/-0.0014	0.050	pCi/g		JXD2	01/28/10	1416	944430	5
Plutonium-239/240	U	0.0158	0.0186	+/-0.00402	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.54	0.122	+/-0.135	0.100	pCi/g		JXD2	01/28/10	1629	944433	6
Uranium-235/236		0.107	0.0758	+/-0.0241	0.100	pCi/g						
Uranium-238		2.09	0.0708	+/-0.175	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0245	0.116	+/-0.0365	0.200	pCi/g		MXR1	02/02/10	1124	944037	7
Bismuth-211	UI	4.24	0.367	+/-0.365		pCi/g						
Bismuth-214		1.09	0.151	+/-0.121	0.200	pCi/g						
Cadmium-109	U	0.809	1.48	+/-0.469		pCi/g						
Cerium-139	U	0.000735	0.0572	+/-0.0174	0.050	pCi/g						
Cesium-134	U	0.0834	0.136	+/-0.0612	0.100	pCi/g						
Cesium-137		0.430	0.097	+/-0.0518	0.100	pCi/g						
Cobalt-60	U	-0.0247	0.0774	+/-0.0254	0.100	pCi/g						
Europium-152	U	-0.0508	0.184	+/-0.0566	0.200	pCi/g						
Lanthanum-140	U	-0.171	0.191	+/-0.0768		pCi/g						
Lead-212		1.55	0.0966	+/-0.102	0.100	pCi/g						
Lead-214		1.48	0.128	+/-0.133	0.100	pCi/g						
Mercury-203	U	-0.0276	0.0862	+/-0.0261	0.100	pCi/g						
Potassium-40		20.7	0.770	+/-1.31	1.00	pCi/g						
Radium-223	U	-0.164	1.31	+/-0.447		pCi/g						
Radium-224	UI	5.12	1.10	+/-0.703		pCi/g						
Radium-226		1.09	0.151	+/-0.121		pCi/g						
Radium-228		1.68	0.277	+/-0.206	0.500	pCi/g						
Ruthenium-106	U	0.017	0.743	+/-0.230	0.800	pCi/g						
Sodium-22	U	-0.0115	0.103	+/-0.0328	0.080	pCi/g						
Strontium-85	U	0.050	0.0913	+/-0.0292		pCi/g						
Thallium-208		0.486	0.0762	+/-0.0574	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7188  
Sample ID: 245101012

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	0.0965	0.739	+/-0.228		pCi/g						
Thorium-231	U	-0.164	1.31	+/-0.447		pCi/g						
Thorium-234		2.49	1.09	+/-0.679	2.00	pCi/g						
Tin-113	U	-0.0136	0.0962	+/-0.0294	0.100	pCi/g						
Uranium-235	U	-0.0151	0.395	+/-0.122	0.500	pCi/g						
Yttrium-88	U	-0.0327	0.0783	+/-0.0281	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	137	208	+/-64.3	250	pCi/L		KXK2	01/29/10	2255	945369	8

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Am-05-RC Modified
4	DOE EML HASL-300, Am-05-RC Modified
5	DOE EML HASL-300, Pu-11-RC Modified
6	DOE EML HASL-300, U-02-RC Modified
7	DOE HASL 300, 4.5.2.3/Ga-01-R
8	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	92.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.4	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7188  
Sample ID: 245101012

Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7190  
Sample ID: 245101013  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 28.3%

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	0.0101	0.0225	+/-0.00416	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00469	0.0194	+/-0.00236	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240		0.0246	0.0221	+/-0.00551	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.55	0.136	+/-0.212	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.130	0.0846	+/-0.0282	0.100	pCi/g						
Uranium-238		3.05	0.079	+/-0.248	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.175	0.311	+/-0.0976	0.200	pCi/g		MXR1	02/02/10	1130	944037	4
Bismuth-211	UI	3.91	0.291	+/-0.250		pCi/g						
Bismuth-214		1.05	0.102	+/-0.0912	0.200	pCi/g						
Cadmium-109	UI	3.07	1.59	+/-0.570		pCi/g						
Cerium-139	U	0.00457	0.0481	+/-0.014	0.050	pCi/g						
Cesium-134	UI	0.0856	0.0723	+/-0.0268	0.100	pCi/g						
Cesium-137		0.462	0.0569	+/-0.0445	0.100	pCi/g						
Cobalt-60	U	-0.0168	0.0538	+/-0.0174	0.100	pCi/g						
Europium-152	U	0.0155	0.146	+/-0.0553	0.200	pCi/g						
Lanthanum-140	U	0.0125	0.157	+/-0.0468		pCi/g						
Lead-212		1.64	0.0839	+/-0.0775	0.100	pCi/g						
Lead-214		1.36	0.102	+/-0.094	0.100	pCi/g						
Mercury-203	U	0.0288	0.0682	+/-0.0202	0.100	pCi/g						
Potassium-40		24.3	0.374	+/-1.15	1.00	pCi/g						
Radium-223	U	0.228	0.963	+/-0.333		pCi/g						
Radium-224	UI	4.56	0.954	+/-0.501		pCi/g						
Radium-226		1.05	0.102	+/-0.0912		pCi/g						
Radium-228		1.63	0.174	+/-0.175	0.500	pCi/g						
Ruthenium-106	U	0.114	0.509	+/-0.154	0.800	pCi/g						
Sodium-22	U	-0.0251	0.0633	+/-0.0204	0.080	pCi/g						
Strontium-85	UI	0.119	0.071	+/-0.021		pCi/g						
Thallium-208		0.486	0.0525	+/-0.0401	0.080	pCi/g						

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7190  
Sample ID: 245101013

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	-0.132	0.563	+/-0.200		pCi/g						
Thorium-231	U	0.228	0.963	+/-0.333		pCi/g						
Thorium-234		3.77	2.48	+/-1.37	2.00	pCi/g						
Tin-113	U	-0.00515	0.0653	+/-0.0196	0.100	pCi/g						
Uranium-235		0.339	0.329	+/-0.107	0.500	pCi/g						
Yttrium-88	U	0.000203	0.0444	+/-0.0161	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	39.9	208	+/-61.6	250	pCi/L		KXK2	01/30/10	0033	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	76.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	82.2	(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



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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7190  
Sample ID: 245101013

Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7192  
Sample ID: 245101014  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 34.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00205	0.0218	+/-0.00244	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.000937	0.0155	+/-0.00209	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240	U	0.0122	0.0177	+/-0.00343	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.58	0.140	+/-0.215	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.162	0.0872	+/-0.0324	0.100	pCi/g						
Uranium-238		3.22	0.0815	+/-0.261	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.133	0.264	+/-0.0827	0.200	pCi/g		MXR1	02/02/10	1131	944037	4
Bismuth-211	UI	3.73	0.340	+/-0.258		pCi/g						
Bismuth-214		1.10	0.102	+/-0.0911	0.200	pCi/g						
Cadmium-109	UI	1.70	1.63	+/-0.736		pCi/g						
Cerium-139	U	-0.0267	0.0492	+/-0.0151	0.050	pCi/g						
Cesium-134	U	0.0741	0.0843	+/-0.0255	0.100	pCi/g						
Cesium-137		0.191	0.0607	+/-0.035	0.100	pCi/g						
Cobalt-60	U	0.00269	0.0552	+/-0.0164	0.100	pCi/g						
Europium-152	U	0.0472	0.175	+/-0.083	0.200	pCi/g						
Lanthanum-140	U	-0.00578	0.166	+/-0.0508		pCi/g						
Lead-212		1.51	0.096	+/-0.0773	0.100	pCi/g						
Lead-214		1.30	0.119	+/-0.0958	0.100	pCi/g						
Mercury-203	U	0.0367	0.0744	+/-0.0205	0.100	pCi/g						
Potassium-40		23.4	0.463	+/-1.16	1.00	pCi/g						
Radium-223	U	-0.244	1.09	+/-0.370		pCi/g						
Radium-224	UI	4.70	1.09	+/-0.568		pCi/g						
Radium-226		1.10	0.102	+/-0.0911		pCi/g						
Radium-228		1.34	0.218	+/-0.156	0.500	pCi/g						
Ruthenium-106	U	0.157	0.505	+/-0.145	0.800	pCi/g						
Sodium-22	U	0.034	0.0718	+/-0.0199	0.080	pCi/g						
Strontium-85	U	0.0536	0.0672	+/-0.0205		pCi/g						
Thallium-208		0.525	0.0529	+/-0.0444	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7192  
245101014

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	0.105	0.624	+/-0.186		pCi/g						
Thorium-231	U	-0.244	1.09	+/-0.370		pCi/g						
Thorium-234		3.15	2.15	+/-0.918	2.00	pCi/g						
Tin-113	U	-0.0104	0.0756	+/-0.0223	0.100	pCi/g						
Uranium-235	U	0.0342	0.372	+/-0.110	0.500	pCi/g						
Yttrium-88	U	-0.00294	0.0529	+/-0.0166	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	67.5	208	+/-62.4	250	pCi/L		KXK2	01/30/10	0211	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	76.6	(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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: February 12, 2010

Client Sample ID: RE15-10-7192  
Sample ID: 245101014

Project: LANL01004  
Client ID: LANL010

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

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.  
U1 Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: February 12, 2010

Client Sample ID: RE15-10-7219  
Sample ID: 245101015  
Matrix: R  
Collect Date: 13-JAN-10  
Receive Date: 20-JAN-10  
Collector: Client  
Moisture: 23.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00874	0.0199	+/-0.004	0.050	pCi/g		JXD2	01/28/10	2058	944429	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0032	0.0176	+/-0.00186	0.050	pCi/g		JXD2	01/28/10	1416	944430	2
Plutonium-239/240		0.0363	0.0202	+/-0.00665	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.79	0.150	+/-0.234	0.100	pCi/g		JXD2	01/28/10	1629	944433	3
Uranium-235/236		0.156	0.0933	+/-0.0337	0.100	pCi/g						
Uranium-238		3.39	0.0872	+/-0.278	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.415	0.551	+/-0.173	0.200	pCi/g		MXR1	02/02/10	1151	944037	4
Bismuth-211	UI	3.76	0.453	+/-0.308		pCi/g						
Bismuth-214		1.35	0.137	+/-0.0996	0.200	pCi/g						
Cadmium-109	U	0.0672	2.33	+/-1.09		pCi/g						
Cerium-139	U	0.0221	0.0693	+/-0.0206	0.050	pCi/g						
Cesium-134	U	0.0318	0.0941	+/-0.0269	0.100	pCi/g						
Cesium-137		0.512	0.0766	+/-0.0576	0.100	pCi/g						
Cobalt-60	U	0.0297	0.0794	+/-0.0226	0.100	pCi/g						
Europium-152	U	-0.289	0.208	+/-0.129	0.200	pCi/g						
Lanthanum-140	U	-0.0234	0.251	+/-0.0775		pCi/g						
Lead-212		1.53	0.123	+/-0.095	0.100	pCi/g						
Lead-214		1.31	0.154	+/-0.112	0.100	pCi/g						
Mercury-203	U	0.0195	0.100	+/-0.0291	0.100	pCi/g						
Potassium-40		22.2	0.665	+/-1.24	1.00	pCi/g						
Radium-223	U	-1.08	1.40	+/-0.453		pCi/g						
Radium-224	UI	4.58	1.39	+/-0.837		pCi/g						
Radium-226		1.35	0.137	+/-0.0996		pCi/g						
Radium-228		1.56	0.233	+/-0.186	0.500	pCi/g						
Ruthenium-106	U	0.351	0.725	+/-0.210	0.800	pCi/g						
Sodium-22	U	-0.0161	0.0844	+/-0.0271	0.080	pCi/g						
Strontium-85	U	0.0197	0.0839	+/-0.0286		pCi/g						
Thallium-208		0.453	0.0667	+/-0.0512	0.080	pCi/g						

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

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7219  
245101015

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	0.00516	0.849	+/-0.249		pCi/g						
Thorium-231	U	-1.08	1.40	+/-0.453		pCi/g						
Thorium-234		8.08	4.13	+/-2.26	2.00	pCi/g						
Tin-113	U	-0.0129	0.0938	+/-0.0286	0.100	pCi/g						
Uranium-235	U	0.189	0.486	+/-0.145	0.500	pCi/g						
Yttrium-88	U	0.00	0.0737	+/-0.00	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	10.0	209	+/-61.2	250	pCi/L		KXK2	01/30/10	0349	945369	5

### 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
5	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	95.7	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	68.5	(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

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

Report Date: February 12, 2010

Client Sample ID:  
Sample ID:

RE15-10-7219  
245101015

Project: LANL01004  
Client ID: LANL010

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

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  
The above sample is reported on a dry weight basis.

# QUALITY CONTROL DATA



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## QC Summary

Report Date: February 12, 2010

Page 1 of 7

Client : Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico  
Contact: Ms. Joylene Valdez  
Workorder: 245101

Parmname	NOM	Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	944429										
QC1202022362	245138001	DUP									
Americium-241		U	-0.000557	U	-0.0018	pCi/g	0.171	(0-1)	JXD2	01/28/10	20:58
		TPU:	+/-0.00177		+/-0.00185						
		Yield:	88.6		85.7						
QC1202022363	LCS										
Americium-241		33.2			33.4	pCi/g		101 (75%-125%)			
		TPU:			+/-2.36						
		Yield:			94.1						
QC1202022361	MB										
Americium-241		U	0.000563	U	0.000563	pCi/g					
		TPU:	+/-0.00143		+/-0.00143						
		Yield:	93.6		93.6						
Batch	944430										
QC1202022365	245138001	DUP									
Plutonium-238		U	0.00103	U	0.00315	pCi/g	0.293	(0-1)	JXD2	01/28/10	14:14
		TPU:	+/-0.00179		+/-0.00182						
		Yield:	91.2		89.6						
Plutonium-239/240		U	0.00	U	0.0021	pCi/g	0.356	(0-1)			
		TPU:	+/-0.00146		+/-0.00149						
		Yield:	91.2		89.6						
QC1202022366	LCS										
Plutonium-238					6.03	pCi/g		(75%-125%)		01/28/10	14:14
		TPU:			+/-0.432						
		Yield:			99.2						
Plutonium-239/240		41.8			35.2	pCi/g		84.3 (75%-125%)			
		TPU:			+/-2.10						
		Yield:			99.2						
QC1202022364	MB										
Plutonium-238		U	-0.00539	U	-0.00539	pCi/g				01/28/10	14:14
		TPU:	+/-0.0033		+/-0.0033						
		Yield:	87.0		87.0						
Plutonium-239/240		U	-0.0121	U	-0.0121	pCi/g					
		TPU:	+/-0.00486		+/-0.00486						
		Yield:	87.0		87.0						
Batch	944433										
QC1202022389	245138001	DUP									
Uranium-233/234			1.12		1.09	pCi/g	0.0538	(0-1)	JXD2	01/28/10	16:29
		TPU:	+/-0.103		+/-0.102						
		Yield:	91.6		91.2						
Uranium-235/236		U	0.0699	U	0.0535	pCi/g	0.216	(0-1)			
		TPU:	+/-0.0187		+/-0.0192						
		Yield:	91.6		91.2						
Uranium-238			0.977		1.11	pCi/g	0.332	(0-1)			
		TPU:	+/-0.0922		+/-0.103						

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## QC Summary

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Parmname		NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec												
Batch	944433											
		Yield:	91.6		91.2							
QC1202022390	LCS				5.83	pCi/g		(75%-125%)			01/28/10	16:29
Uranium-233/234		TPU:			+/-0.547							
		Yield:			98.7							
Uranium-235/236			U		0.254	pCi/g		(75%-125%)				
		TPU:			+/-0.0867							
		Yield:			98.7							
Uranium-238	5.75				5.34	pCi/g		92.8 (75%-125%)				
		TPU:			+/-0.511							
		Yield:			98.7							
QC1202022388	MB											
Uranium-233/234			U		-0.000258	pCi/g					01/28/10	16:29
		TPU:			+/-0.0018							
		Yield:			101							
Uranium-235/236			U		0.00222	pCi/g						
		TPU:			+/-0.00385							
		Yield:			101							
Uranium-238			U		0.00	pCi/g						
		TPU:			+/-0.00359							
		Yield:			101							
Batch	951264											
QC1202038569	245101012	DUP										
Americium-241		U	0.00364	U	0.00831	pCi/g	0.139		(0-1)	MXE1	02/11/10	09:03
		TPU:	+/-0.00837		+/-0.00846							
		Yield:	82.6		85.4							
QC1202038570	LCS											
Americium-241		33.2			31.6	pCi/g		95.2 (75%-125%)				
		TPU:			+/-2.55							
		Yield:			106							
QC1202038568	MB											
Americium-241			U		-0.00243	pCi/g						
		TPU:			+/-0.00763							
		Yield:			97.6							
Rad Gamma Spec												
Batch	944037											
QC1202021394	245101001	DUP										
Americium-241		U	0.220	U	-0.277	pCi/g	2.41		(0-1)	MXR1	02/02/10	11:58
		TPU:	+/-0.0927		+/-0.103							
Bismuth-211		UI	4.07	UI	4.06	pCi/g	0.0218		(0-1)			
		TPU:	+/-0.236		+/-0.275							
Bismuth-214			1.09		1.20	pCi/g	0.505		(0-1)			
		TPU:	+/-0.0817		+/-0.105							
Cadmium-109		UI	4.21	UI	3.82	pCi/g	0.364		(0-1)			
		TPU:	+/-0.617		+/-0.538							
Cerium-139		U	-0.024	U	-0.0185	pCi/g	0.157		(0-1)			
		TPU:	+/-0.0121		+/-0.0175							
Cesium-134		U	0.0616	U	0.0868	pCi/g	0.259		(0-1)			
		TPU:	+/-0.0215		+/-0.0486							

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	944037										
Cesium-137		0.204		0.232	pCi/g	0.434		(0-1)			
	TPU:	+/-0.0283		+/-0.0323							
Cobalt-60	U	0.0454	U	-0.0151	pCi/g	1.43		(0-1)			
	TPU:	+/-0.0149		+/-0.0211							
Europium-152	U	-0.0205	U	-0.0873	pCi/g	0.524		(0-1)			
	TPU:	+/-0.0501		+/-0.0637							
Lanthanum-140	U	0.00955	U	-0.119	pCi/g	1.07		(0-1)			
	TPU:	+/-0.041		+/-0.0597							
Lead-212		1.50		1.51	pCi/g	0.0738		(0-1)			
	TPU:	+/-0.0707		+/-0.0813							
Lead-214		1.42		1.41	pCi/g	0.0195		(0-1)			
	TPU:	+/-0.0899		+/-0.102							
Mercury-203	U	0.0308	U	-0.00668	pCi/g	0.752		(0-1)			
	TPU:	+/-0.0255		+/-0.0249							
Potassium-40		23.5		21.7	pCi/g	0.838		(0-1)			
	TPU:	+/-1.09		+/-1.07							
Radium-223	U	0.185	U	-0.829	pCi/g	1.26		(0-1)			
	TPU:	+/-0.282		+/-0.401							
Radium-224	UI	3.92	UI	4.78	pCi/g	0.549		(0-1)			
	TPU:	+/-0.470		+/-0.784							
Radium-226		1.09		1.20	pCi/g	0.505		(0-1)			
	TPU:	+/-0.0817		+/-0.105							
Radium-228		1.72		1.66	pCi/g	0.173		(0-1)			
	TPU:	+/-0.166		+/-0.176							
Ruthenium-106	U	-0.0205	U	-0.0217	pCi/g	0.00326		(0-1)			
	TPU:	+/-0.130		+/-0.184							
Sodium-22	U	0.00777	U	0.0189	pCi/g	0.245		(0-1)			
	TPU:	+/-0.0177		+/-0.0228							
Strontium-85	UI	0.0634	U	0.0596	pCi/g	0.0769		(0-1)			
	TPU:	+/-0.0178		+/-0.0248							
Thallium-208		0.435		0.454	pCi/g	0.172		(0-1)			
	TPU:	+/-0.0372		+/-0.0545							
Thorium-227	U	-0.0621	U	0.428	pCi/g	1.07		(0-1)			
	TPU:	+/-0.155		+/-0.229							
Thorium-231	U	0.185	U	-0.829	pCi/g	1.26		(0-1)			
	TPU:	+/-0.282		+/-0.401							
Thorium-234	U	1.29	U	2.72	pCi/g	0.803		(0-1)			
	TPU:	+/-0.898		+/-0.886							
Tin-113	U	0.00585	U	-0.0389	pCi/g	0.872		(0-1)			
	TPU:	+/-0.0171		+/-0.0257							
Uranium-235	U	0.182	U	0.0659	pCi/g	0.322		(0-1)			
	TPU:	+/-0.0924		+/-0.180							
Yttrium-88	U	-0.0119	U	-0.0243	pCi/g	0.319		(0-1)			
	TPU:	+/-0.0117		+/-0.0194							
QC1202021395	LCS										
Americium-241		15.9		13.6	pCi/g		85.4 (75%-125%)			02/02/10	13:04
	TPU:			+/-0.629							
Bismuth-211				1.97	pCi/g						
	TPU:			+/-0.322							
Bismuth-214				0.637	pCi/g						
	TPU:			+/-0.120							

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	944037										
Cadmium-109				30.5	pCi/g						
	TPU:			+/- 1.96							
Cerium-139			U	-0.0193	pCi/g						
	TPU:			+/-0.0191							
Cesium-134			U	0.0276	pCi/g						
	TPU:			+/-0.0407							
Cesium-137	5.56			5.98	pCi/g		108	(75%-125%)			
	TPU:			+/-0.295							
Cobalt-60	6.43			6.32	pCi/g		98.3	(75%-125%)			
	TPU:			+/-0.310							
Europium-152			U	-0.121	pCi/g						
	TPU:			+/-0.0775							
Lanthanum-140			U	-0.0403	pCi/g						
	TPU:			+/-0.0363							
Lead-212				1.07	pCi/g						
	TPU:			+/-0.0919							
Lead-214				0.686	pCi/g						
	TPU:			+/-0.113							
Mercury-203			U	0.024	pCi/g						
	TPU:			+/-0.0277							
Potassium-40				1.28	pCi/g						
	TPU:			+/-0.254							
Radium-223			U	-0.887	pCi/g						
	TPU:			+/-0.533							
Radium-224				3.04	pCi/g						
	TPU:			+/-0.911							
Radium-226				0.637	pCi/g						
	TPU:			+/-0.120							
Radium-228				1.37	pCi/g						
	TPU:			+/-0.278							
Ruthenium-106			U	-0.0289	pCi/g						
	TPU:			+/-0.266							
Sodium-22			U	0.0231	pCi/g						
	TPU:			+/-0.0237							
Strontium-85			U	-0.00875	pCi/g						
	TPU:			+/-0.0345							
Thallium-208				0.299	pCi/g						
	TPU:			+/-0.0575							
Thorium-227			U	-0.483	pCi/g						
	TPU:			+/-0.314							
Thorium-231			U	-0.887	pCi/g						
	TPU:			+/-0.533							
Thorium-234			U	0.160	pCi/g						
	TPU:			+/-0.917							
Tin-113			U	0.0249	pCi/g						
	TPU:			+/-0.0361							
Uranium-235			U	-0.0326	pCi/g						
	TPU:			+/-0.143							
Yttrium-88			U	0.0213	pCi/g						
	TPU:			+/-0.0213							
QC1202021393	MB										

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	944037										
Americium-241			U	0.0266	pCi/g						
	TPU:			+/-0.0325							
Bismuth-211			U	-0.0343	pCi/g						
	TPU:			+/-0.0626							
Bismuth-214			U	-0.0045	pCi/g						
	TPU:			+/-0.0241							
Cadmium-109			U	-0.132	pCi/g						
	TPU:			+/-0.195							
Cerium-139			U	-0.0079	pCi/g						
	TPU:			+/-0.0074							
Cesium-134			U	-0.0114	pCi/g						
	TPU:			+/-0.0101							
Cesium-137			U	0.0122	pCi/g						
	TPU:			+/-0.0098							
Cobalt-60			U	-0.0119	pCi/g						
	TPU:			+/-0.00949							
Europium-152			U	0.00694	pCi/g						
	TPU:			+/-0.027							
Lanthanum-140			U	-0.0184	pCi/g						
	TPU:			+/-0.0164							
Lead-212			U	-0.034	pCi/g						
	TPU:			+/-0.0184							
Lead-214			U	-0.0287	pCi/g						
	TPU:			+/-0.0219							
Mercury-203			U	0.0118	pCi/g						
	TPU:			+/-0.0102							
Potassium-40			U	-0.174	pCi/g						
	TPU:			+/-0.125							
Radium-223			U	-0.061	pCi/g						
	TPU:			+/-0.177							
Radium-224			U	0.155	pCi/g						
	TPU:			+/-0.189							
Radium-226			U	-0.0045	pCi/g						
	TPU:			+/-0.0241							
Radium-228			U	0.150	pCi/g						
	TPU:			+/-0.0891							
Ruthenium-106			U	-0.0126	pCi/g						
	TPU:			+/-0.0852							
Sodium-22			U	-0.0104	pCi/g						
	TPU:			+/-0.00913							
Strontium-85			UI	0.070	pCi/g						
	TPU:			+/-0.0131							
Thallium-208			U	-0.00717	pCi/g						
	TPU:			+/-0.0117							
Thorium-227			U	-0.0209	pCi/g						
	TPU:			+/-0.110							
Thorium-231			U	-0.061	pCi/g						
	TPU:			+/-0.177							
Thorium-234			U	0.0131	pCi/g						
	TPU:			+/-0.351							

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	944037										
Tin-113			U	0.0217	pCi/g						
	TPU:			+/-0.0124							
Uranium-235			U	0.0529	pCi/g						
	TPU:			+/-0.0608							
Yttrium-88			U	0.00377	pCi/g						
	TPU:			+/-0.00911							
Rad Liquid Scintillation											
Batch	945369										
QC1202024713	245101001	DUP									
Tritium	U	12.5	U	65.2	pCi/L	0.213		(0-1)	KXXK2	01/30/1007:05	
	TPU:	+/-61.1		+/-62.5							
QC1202024714	LCS										
Tritium	5570			5340	pCi/L		95.9	(75%-125%)		01/30/1008:42	
	TPU:			+/-491							
QC1202024712	MB										
Tritium			U	34.7	pCi/L					01/30/1005:27	
	TPU:			+/-61.1							

### 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
- 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

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### QC Summary

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
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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#

944429

Product:

Am

Date:

1/29/10

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.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			N/A
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (if 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 1/29/10

Secondary Review Performed By:

2-101 1/29/10

2/3

LAWL

# Am/Cm Que Sheet

26-JAN-10

Batch #: 944429 Analyst: JXD2 First Client Due Date: 03-FEB-10 Internal Due Date: 24-JAN-10 Comments:   
 Tracer Code: 445-96-2-55 Expiration Date: 05/11/10 Vol: 0.1   
 LCS Isotope(s): Am241/Cm244 LCS Code(s): 6533-0 Expiration Date: 07/10/10 Vol(s): 0.17   
 Spike Isotope(s): Am241/Cm244 Spike Code(s): Expiration Date: Vol(s):   
 Prep Date: 1/24/20 Initials: Pipet ID: Balance ID: 50410272 Witness: AB21-26-10

Sample ID	Client Description	Type	Hazard	Min	Code	CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry	Aliquot	Am/Cm	Det #
													(G/l/f)		
245096005-1	RE46-10-10830	SAMPLE	.05	pCi/g	SOIL	LANL010	15-JAN-10	1	1	1,268	65				
245101001-1	RE15-10-7194	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	2	2	1,253	66				
245101002-1	RE15-10-7186	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	3	3	1,260	67				
245101003-1	RE15-10-7191	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	4	4	1,259	68				
245101004-1	RE15-10-7195	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	5	5	1,263	69				
245101005-1	RE15-10-7196	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	6	6	1,250	70				
245101006-1	RE15-10-7197	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	7	7	1,256	71				
245101007-1	RE15-10-7193	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	8	8	1,269	72				
245101008-1	RE15-10-7184	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	9	9	1,282	73				
245101009-1	RE15-10-7185	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	10	10	1,267	74				
245101010-1	RE15-10-7189	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	11	11	1,253	75				
245101011-1	RE15-10-7187	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	12	12	1,256	76				
245101012-1	RE15-10-7188	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	13	13	1,280	77				
245101013-1	RE15-10-7190	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	14	14	1,261	79				
245101014-1	RE15-10-7192	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	15	15	1,264	80				
245101015-1	RE15-10-7219	SAMPLE	.05	pCi/g	SOIL	LANL010	13-JAN-10	16	16	1,262	81				
245138001-1	WSTWA-10-11331	SAMPLE	.05	pCi/g	SOIL	LANL010	15-JAN-10	17	17	1,265	82				
245138002-1	WSTWA-10-11330	SAMPLE	.05	pCi/g	SOIL	LANL010	15-JAN-10	18	18	1,258	83				
1202022361-1	MB for batch 944429	MB	.05	pCi/g	SOIL	QC ACCOUNT		19	19	1	84				
1202022362-1	WSTWA-10-11331(245138001DUP)	DUP	.05	pCi/g	SOIL	QC ACCOUNT	15-JAN-10	20	20	1,270	85				
1202022363-1	LCS for batch 944429	LCS	.05	pCi/g	SOIL	QC ACCOUNT		21	21	0.108	86				

\*SRM 0244-B Exp. 4/30/20

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

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: DS 1/29/10

# Blank Correction Report

**Batch ID 944429**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202022362	DUP	Americium-241	1.27 g	-0.0018	0.00185	0.0222	.000443307	pCi/g	YES
1202022363	LCS	Americium-241	0.108 g	33.4	2.36	0.253	.005212963	pCi/g	NO
1202022361	MB	Americium-241	1.00 g	0.000563	0.00143	0.0242	.000563	pCi/g	YES
245096005	RE46-10-10830	Americium-241	1.27 g	0.00504	0.00662	0.0291	.000443307	pCi/g	NO
245101001	RE15-10-7194	Americium-241	1.25 g	0.00186	0.00689	0.0209	.0004504	pCi/g	YES
245101002	RE15-10-7186	Americium-241	1.26 g	0.0108	0.00487	0.0215	.000446825	pCi/g	NO
245101003	RE15-10-7191	Americium-241	1.26 g	-0.00181	0.00414	0.0269	.000446825	pCi/g	YES
245101004	RE15-10-7195	Americium-241	1.26 g	0.000465	0.00338	0.0386	.000446825	pCi/g	YES
245101005	RE15-10-7196	Americium-241	1.25 g	0.0105	0.00564	0.021	.0004504	pCi/g	NO
245101006	RE15-10-7197	Americium-241	1.26 g	-0.00451	0.00515	0.0228	.000446825	pCi/g	YES
245101007	RE15-10-7193	Americium-241	1.27 g	0.00677	0.00644	0.0208	.000443307	pCi/g	NO
245101008	RE15-10-7184	Americium-241	1.25 g	0.00968	0.00356	0.0217	.0004504	pCi/g	NO
245101009	RE15-10-7185	Americium-241	1.27 g	0.00198	0.00347	0.0214	.000443307	pCi/g	YES
245101010	RE15-10-7189	Americium-241	1.25 g	0.00519	0.00272	0.0238	.0004504	pCi/g	NO
245101011	RE15-10-7187	Americium-241	1.26 g	0.011	0.00382	0.0218	.000446825	pCi/g	NO
245101013	RE15-10-7190	Americium-241	1.26 g	0.0101	0.00416	0.0225	.000446825	pCi/g	NO
245101014	RE15-10-7192	Americium-241	1.26 g	0.00205	0.00244	0.0218	.000446825	pCi/g	YES
245101015	RE15-10-7219	Americium-241	1.26 g	0.00874	0.004	0.0199	.000446825	pCi/g	NO
245138001	WSTWA-10-11331	Americium-241	1.27 g	-0.000557	0.00177	0.0212	.000443307	pCi/g	YES
245138002	WSTWA-10-11330	Americium-241	1.26 g	0.00162	0.0053	0.0195	.000446825	pCi/g	YES

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101001\_AM  
SAMPLE QTY: 1.253 G

DETECTOR NUMBER :46-089C1  
AVERAGE %EFFICIENCY :31.1641  
% YIELD : 94.054

COUNT DATE:28-JAN-2010 20:58:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.74317 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B066.CNF;1099  
BKG DATE : 25-JAN-2010  
EFF FILE : W066.CNF;306  
CAL DATE : 11-JAN-2010

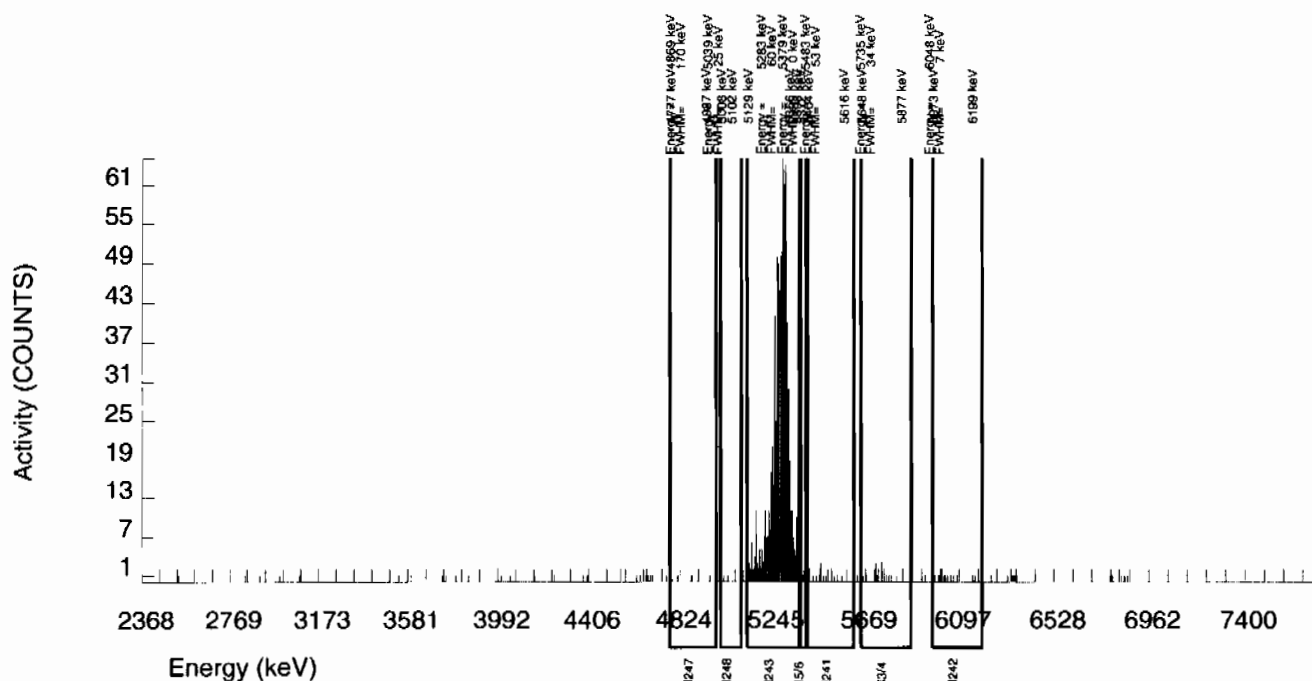
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	18.000	2.000	16.000	5.2338	100.0000	2.46E-03	7.17E-03	1.49E-02	3.32E-02	7.16E-03
CM-5/6	5386.000	16.000	15.000	1.000	19.8463	86.09000	2.14E-02	6.01E-03	6.58E-02	1.35E-01	5.87E-03
AM-241	5479.150	18.000	1.516	15.000	3.0704	99.94000	1.86E-03	6.89E-03	8.77E-03	2.09E-02	6.89E-03
CM-242	6102.000	15.000	8.000	7.000	4.3186	100.0000	1.05E-02	6.20E-03	1.23E-02	2.80E-02	6.16E-03
AM243	5270.000	855.000	853.000	2.000	1.4142	99.78000	1.05E+00	7.25E-02	4.04E-03	1.14E-02	3.60E-02
CM-247	4946.000	5.000	0.000	5.000	15.3366	79.30000	-7.37E-10	4.89E-03	5.52E-02	1.15E-01	4.89E-03
CM-248	5078.600	2.000	0.000	2.000	22.1555	91.00000	-3.21E-10	2.70E-03	6.95E-02	1.43E-01	2.70E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101002\_AM  
SAMPLE QTY: 1.260 G

DETECTOR NUMBER :46-089B4  
AVERAGE %EFFICIENCY :32.5269  
% YIELD : 87.050

COUNT DATE:28-JAN-2010 20:58:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.53888 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B067.CNF;1097  
BKG DATE : 25-JAN-2010  
EFF FILE : W067.CNF;287  
CAL DATE : 11-JAN-2010

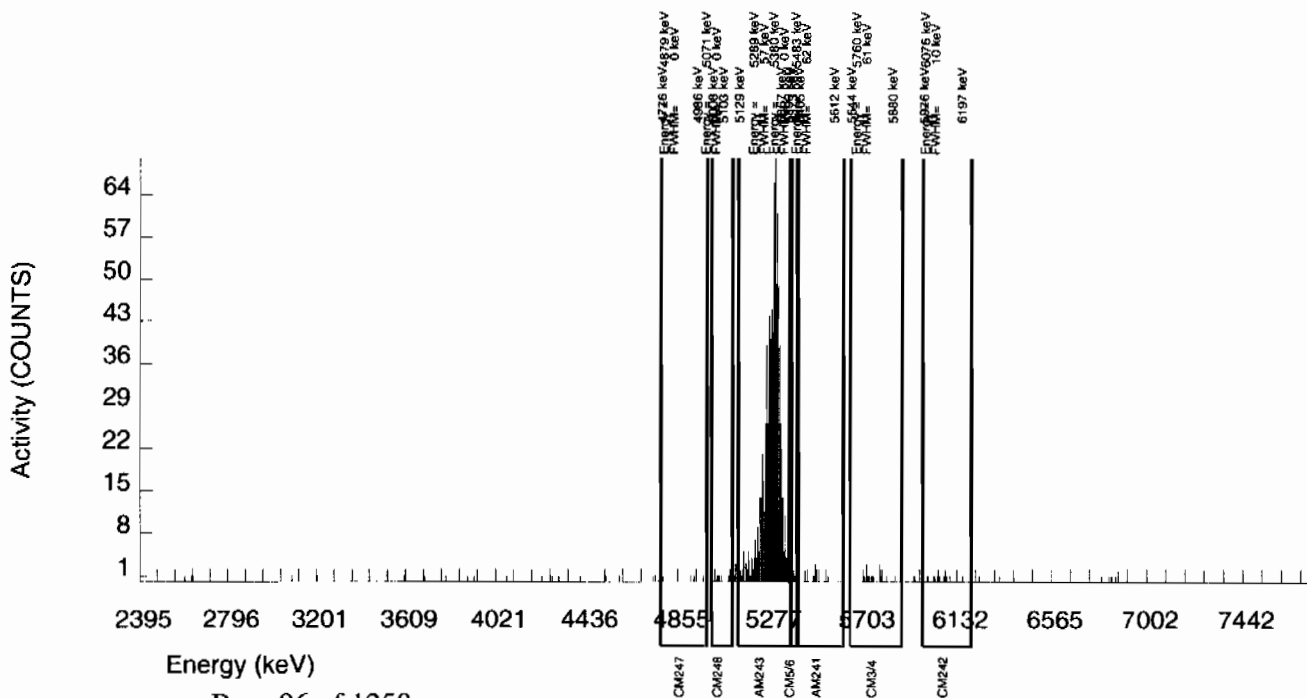
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	17.000	12.000	5.000	5.2338	100.0000	1.52E-02	6.00E-03	1.54E-02	3.42E-02	5.93E-03
CM-5/6	5386.000	16.000	13.000	3.000	19.8463	86.09000	1.91E-02	6.50E-03	6.77E-02	1.39E-01	6.39E-03
AM-241	5479.150	13.000	8.566	3.000	3.0704	99.94000	1.08E-02	4.87E-03	9.02E-03	2.15E-02	4.82E-03
CM-242	6102.000	13.000	11.000	2.000	4.3186	100.0000	1.49E-02	5.32E-03	1.27E-02	2.88E-02	5.24E-03
AM243	5270.000	827.000	824.000	3.000	1.7321	99.78000	1.04E+00	7.28E-02	5.10E-03	1.36E-02	3.65E-02
CM-247	4946.000	5.000	3.000	2.000	15.3366	79.30000	4.78E-03	4.22E-03	5.68E-02	1.18E-01	4.21E-03
CM-248	5078.600	10.000	9.000	1.000	22.1555	91.00000	1.25E-02	4.66E-03	7.15E-02	1.47E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101003\_AM  
SAMPLE QTY: 1.259 G

DETECTOR NUMBER :78794  
AVERAGE %EFFICIENCY :29.6665  
% YIELD : 76.332

COUNT DATE:28-JAN-2010 20:58:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.22627 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B068.CNF;1090  
BKG DATE : 25-JAN-2010  
EFF FILE : W068.CNF;278  
CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

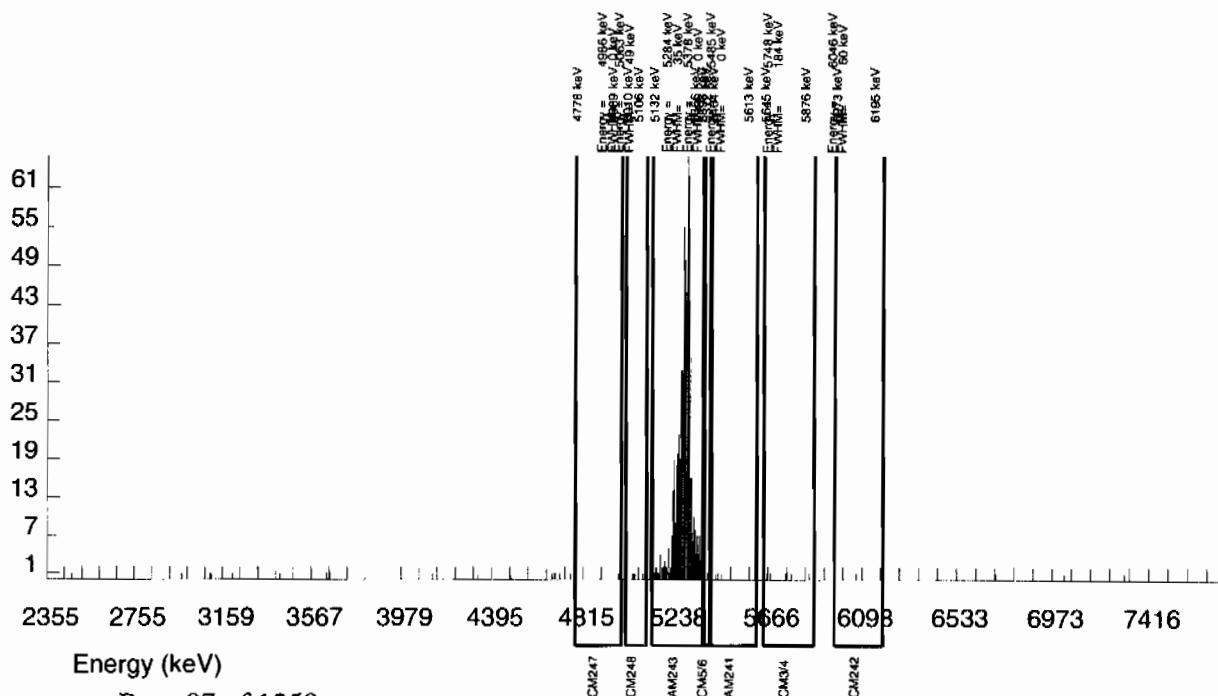
NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	0.000	5.000	5.2338	100.0000	-7.55E-10	5.01E-03	1.92E-02	4.28E-02	5.00E-03
CM-5/6	5386.000	9.000	9.000	0.000	19.8463	86.09000	1.65E-02	5.60E-03	8.47E-02	1.74E-01	5.51E-03
AM-241	5479.150	4.000	-1.147	4.000	3.0704	99.94000	-1.81E-03	4.14E-03	1.13E-02	2.69E-02	4.14E-03
CM-242	6102.000	2.000	2.000	0.000	4.3186	100.0000	3.39E-03	2.40E-03	1.59E-02	3.60E-02	2.39E-03
AM243	5270.000	661.000	659.000	2.000	1.4142	99.78000	1.04E+00	7.73E-02	5.21E-03	1.47E-02	4.08E-02
CM-247	4946.000	2.000	2.000	0.000	15.3366	79.30000	3.98E-03	2.83E-03	7.11E-02	1.48E-01	2.82E-03
CM-248	5078.600	4.000	4.000	0.000	22.1555	91.00000	6.94E-03	3.50E-03	8.95E-02	1.84E-01	3.47E-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

Activity (COUNTS)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101004\_AM  
SAMPLE QTY: 1.263 G

DETECTOR NUMBER : 78795  
AVERAGE %EFFICIENCY : 31.8131  
% YIELD : 49.362

COUNT DATE: 28-JAN-2010 20:58:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 1.43969 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B069.CNF;1092  
BKG DATE : 25-JAN-2010  
EFF FILE : W069.CNF;285  
CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

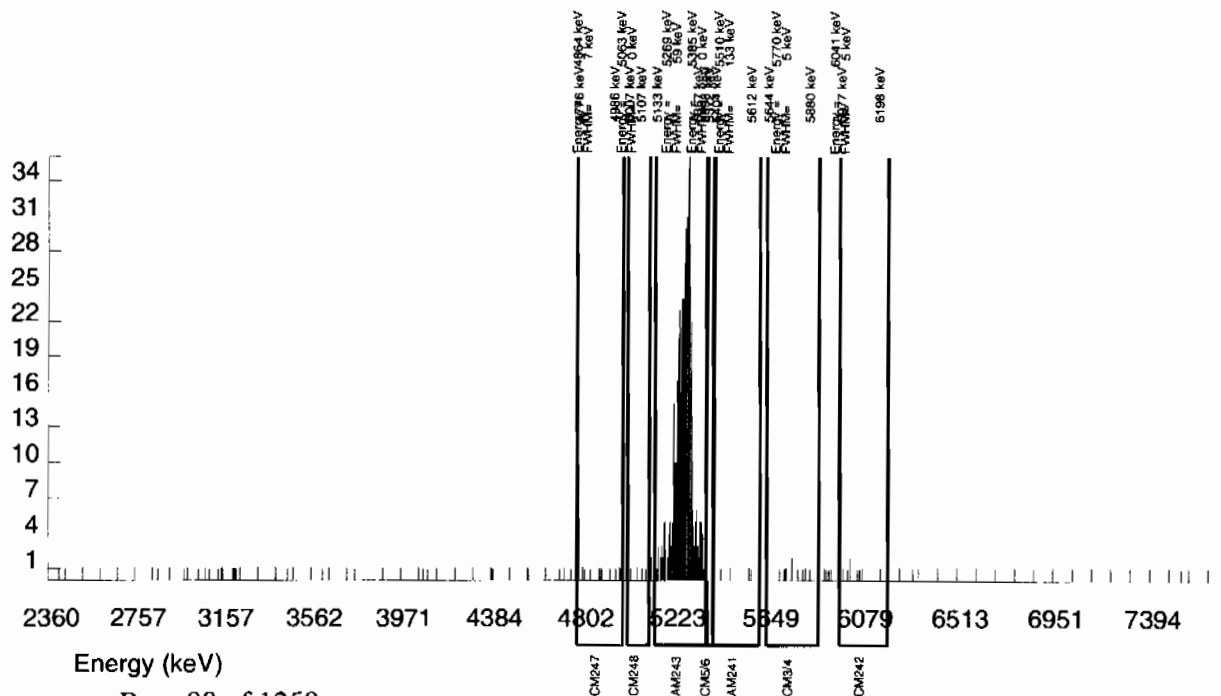
NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	8.000	6.000	2.000	5.2338	100.0000	1.36E-02	7.25E-03	2.77E-02	6.15E-02	7.19E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	2.64E-03	1.22E-01	2.51E-01	2.64E-03
AM-241	5479.150	2.000	0.205	1.000	3.0704	99.94000	4.65E-04	3.38E-03	1.62E-02	3.86E-02	3.37E-03
CM-242	6102.000	7.000	7.000	0.000	4.3186	100.0000	1.70E-02	6.54E-03	2.28E-02	5.18E-02	6.44E-03
AM243	5270.000	458.000	457.000	1.000	1.0000	99.78000	1.04E+00	8.59E-02	5.30E-03	1.68E-02	4.88E-02
CM-247	4946.000	13.000	7.000	6.000	15.3366	79.30000	2.00E-02	1.26E-02	1.02E-01	2.12E-01	1.25E-02
CM-248	5078.600	6.000	6.000	0.000	22.1555	91.00000	1.50E-02	6.20E-03	1.29E-01	2.64E-01	6.11E-03

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

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

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

Activity (COUNTS)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101005\_AM  
SAMPLE QTY: 1.250 G

DETECTOR NUMBER :46-089B2  
AVERAGE %EFFICIENCY :34.9911  
% YIELD : 83.375

COUNT DATE:28-JAN-2010 20:58:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.43169 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B070.CNF;1102  
BKG DATE : 25-JAN-2010  
EFF FILE : W070.CNF;290  
CAL DATE : 11-JAN-2010

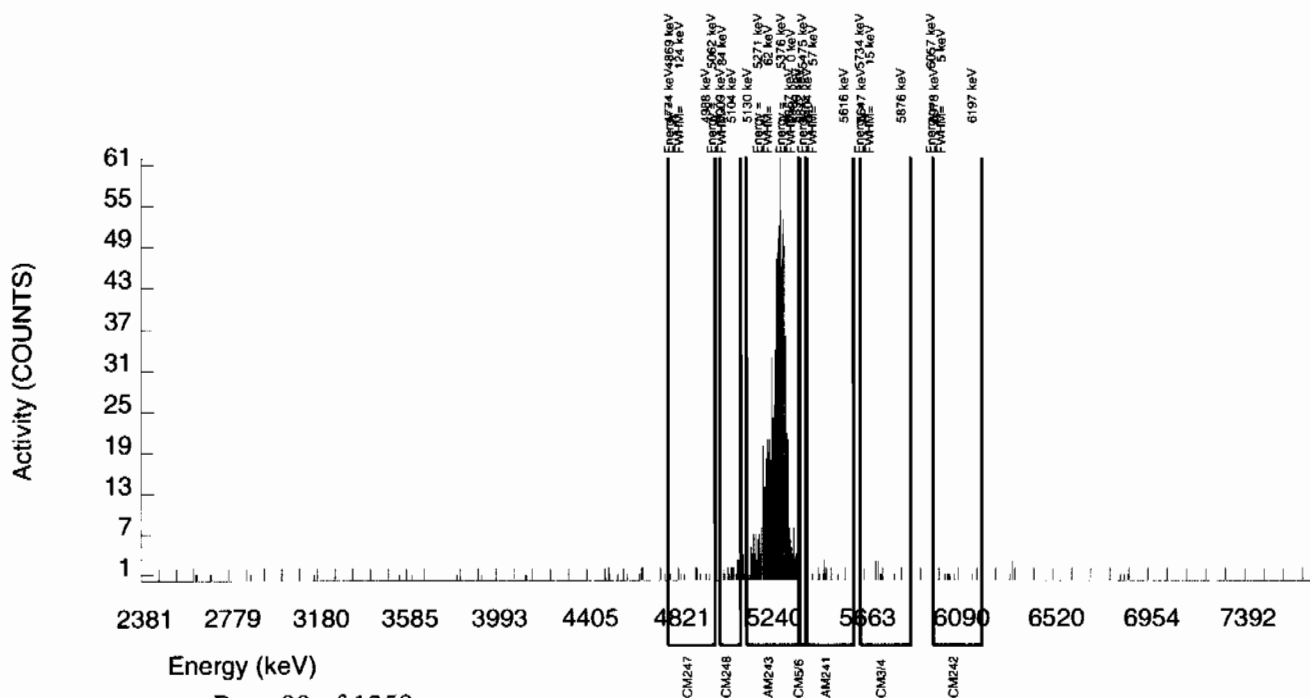
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	11.000	8.000	3.000	5.2338	100.0000	9.90E-03	4.67E-03	1.50E-02	3.34E-02	4.63E-03
CM-5/6	5386.000	7.000	7.000	0.000	19.8463	86.09000	1.00E-02	3.84E-03	6.62E-02	1.36E-01	3.80E-03
AM-241	5479.150	16.000	8.522	6.000	3.0704	99.94000	1.05E-02	5.64E-03	8.83E-03	2.10E-02	5.60E-03
CM-242	6102.000	8.000	7.000	1.000	4.3186	100.0000	9.26E-03	4.01E-03	1.24E-02	2.82E-02	3.97E-03
AM243	5270.000	855.000	849.000	6.000	2.4495	99.78000	1.05E+00	7.29E-02	7.05E-03	1.75E-02	3.63E-02
CM-247	4946.000	10.000	4.000	6.000	15.3366	79.30000	6.23E-03	6.24E-03	5.56E-02	1.15E-01	6.23E-03
CM-248	5078.600	25.000	25.000	0.000	22.1555	91.00000	3.39E-02	7.09E-03	7.00E-02	1.44E-01	6.79E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101006\_AM  
SAMPLE QTY: 1.256 G

DETECTOR NUMBER :64259  
AVERAGE %EFFICIENCY :32.3636  
% YIELD : 82.499

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.40614 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B071.CNF;1095  
BKG DATE : 25-JAN-2010  
EFF FILE : W071.CNF;284  
CAL DATE : 11-JAN-2010

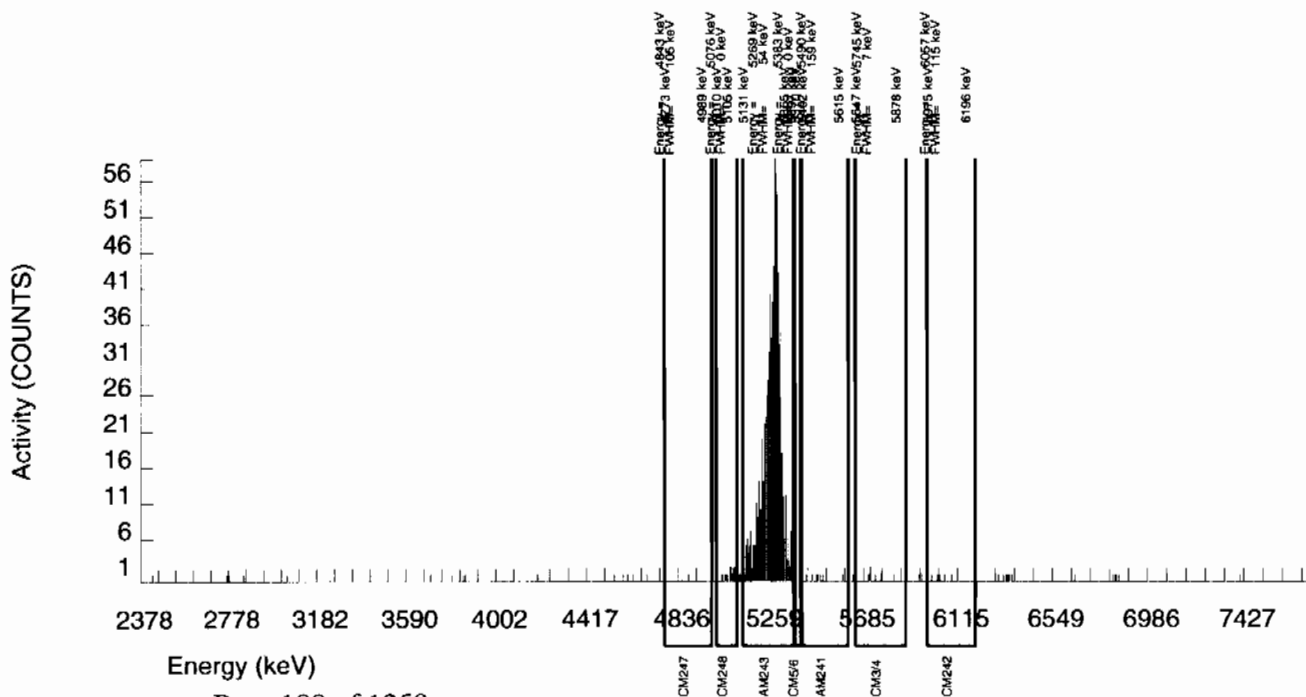
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	7.000	4.000	3.000	5.2338	100.0000	5.38E-03	4.27E-03	1.64E-02	3.64E-02	4.25E-03
CM-5/6	5386.000	3.000	2.000	1.000	19.8463	86.09000	3.12E-03	3.13E-03	7.20E-02	1.48E-01	3.12E-03
AM-241	5479.150	7.000	-3.352	9.000	3.0704	99.94000	-4.51E-03	5.14E-03	9.60E-03	2.28E-02	5.14E-03
CM-242	6102.000	6.000	5.000	1.000	4.3186	100.0000	7.20E-03	3.83E-03	1.35E-02	3.06E-02	3.81E-03
AM243	5270.000	779.000	777.000	2.000	1.4142	99.78000	1.05E+00	7.41E-02	4.43E-03	1.25E-02	3.76E-02
CM-247	4946.000	3.000	2.000	1.000	15.3366	79.30000	3.39E-03	3.39E-03	6.04E-02	1.25E-01	3.39E-03
CM-248	5078.600	16.000	15.000	1.000	22.1555	91.00000	2.21E-02	6.23E-03	7.61E-02	1.56E-01	6.09E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101007\_AM  
SAMPLE QTY: 1.269 G

DETECTOR NUMBER :45-149AA3  
AVERAGE %EFFICIENCY :32.2361  
% YIELD : 89.967

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.62396 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B072.CNF;1093  
BKG DATE : 25-JAN-2010  
EFF FILE : W072.CNF;275  
CAL DATE : 11-JAN-2010

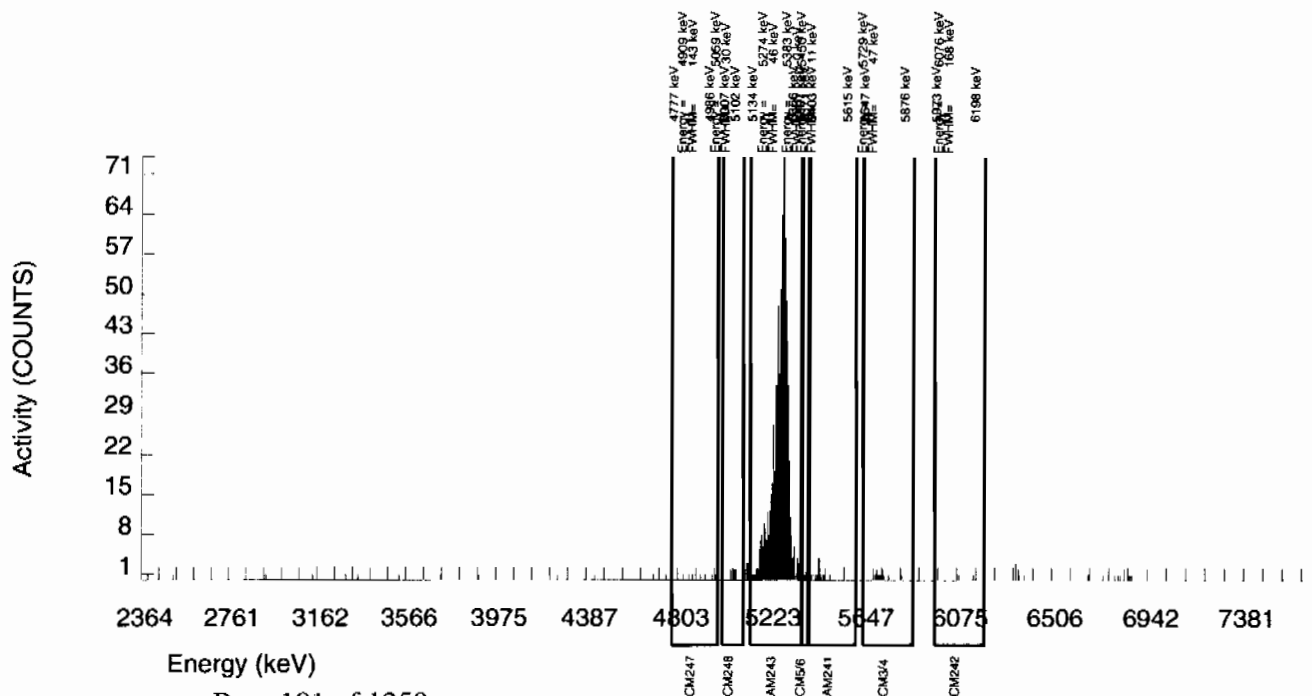
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	15.000	-3.000	18.000	5.2338	100.0000	-3.68E-03	7.04E-03	1.49E-02	3.31E-02	7.04E-03
CM-5/6	5386.000	5.000	3.000	2.000	19.8463	86.09000	4.27E-03	3.77E-03	6.56E-02	1.35E-01	3.76E-03
AM-241	5479.150	18.000	5.531	11.000	3.0704	99.94000	6.77E-03	6.44E-03	8.75E-03	2.08E-02	6.43E-03
CM-242	6102.000	4.000	2.000	2.000	4.3186	100.0000	2.62E-03	3.22E-03	1.23E-02	2.79E-02	3.21E-03
AM243	5270.000	847.000	844.000	3.000	1.7321	99.78000	1.04E+00	7.18E-02	4.94E-03	1.32E-02	3.58E-02
CM-247	4946.000	7.000	4.000	3.000	15.3366	79.30000	6.17E-03	4.89E-03	5.51E-02	1.14E-01	4.88E-03
CM-248	5078.600	12.000	11.000	1.000	22.1555	91.00000	1.48E-02	4.93E-03	6.93E-02	1.42E-01	4.85E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101008\_AM  
SAMPLE QTY: 1.252 G

DETECTOR NUMBER :78775  
AVERAGE %EFFICIENCY :33.5654  
% YIELD : 83.947

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.44839 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B073.CNF;1095  
BKG DATE : 25-JAN-2010  
EFF FILE : W073.CNF;283  
CAL DATE : 11-JAN-2010

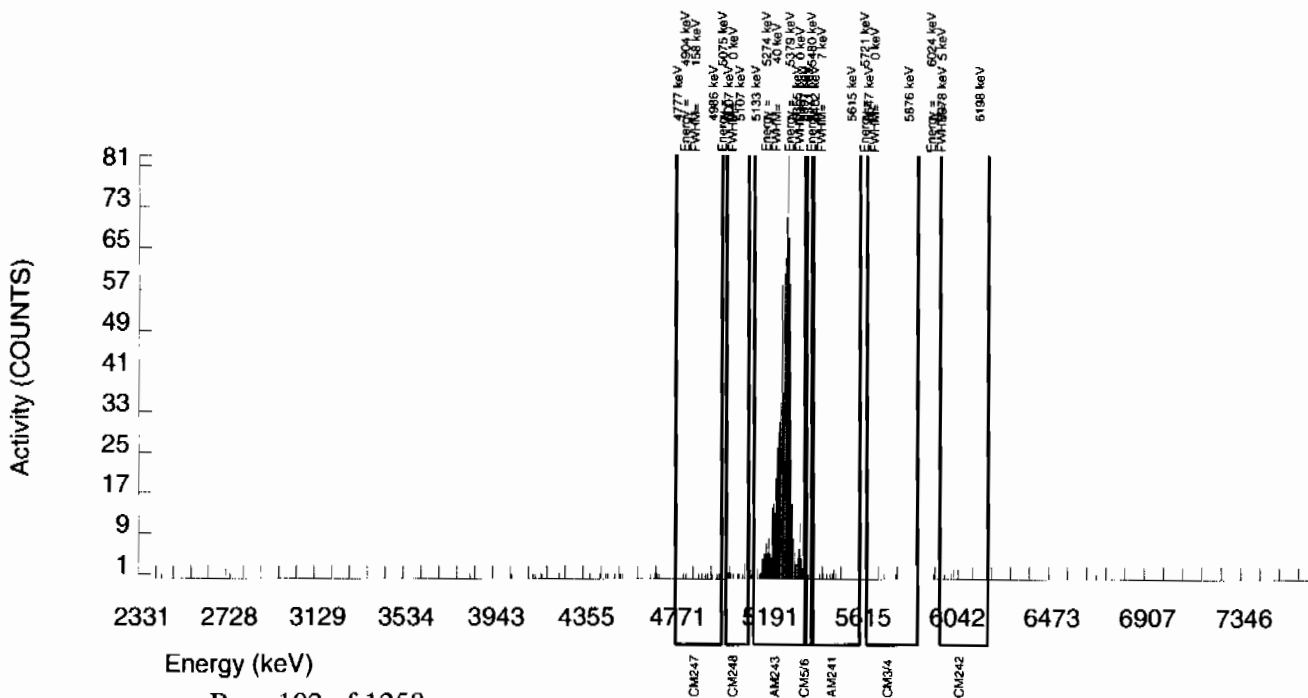
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	3.000	2.000	1.000	5.2338	100.0000	2.56E-03	2.56E-03	1.55E-02	3.46E-02	2.56E-03
CM-5/6	5386.000	4.000	4.000	0.000	19.8463	86.09000	5.93E-03	2.99E-03	6.85E-02	1.41E-01	2.97E-03
AM-241	5479.150	9.000	7.573	0.000	3.0704	99.94000	9.68E-03	3.56E-03	9.13E-03	2.17E-02	3.52E-03
CM-242	6102.000	6.000	5.000	1.000	4.3186	100.0000	6.84E-03	3.64E-03	1.28E-02	2.91E-02	3.62E-03
AM243	5270.000	823.000	820.000	3.000	1.7321	99.78000	1.05E+00	7.33E-02	5.16E-03	1.38E-02	3.68E-02
CM-247	4946.000	10.000	9.000	1.000	15.3366	79.30000	1.45E-02	5.41E-03	5.74E-02	1.19E-01	5.34E-03
CM-248	5078.600	11.000	9.000	2.000	22.1555	91.00000	1.26E-02	5.12E-03	7.23E-02	1.48E-01	5.06E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101009\_AM  
SAMPLE QTY: 1.267 G

DETECTOR NUMBER :78266  
AVERAGE %EFFICIENCY :31.6797  
% YIELD : 89.161

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.60045 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B074.CNF;1117  
BKG DATE : 25-JAN-2010  
EFF FILE : W074.CNF;330  
CAL DATE : 11-JAN-2010

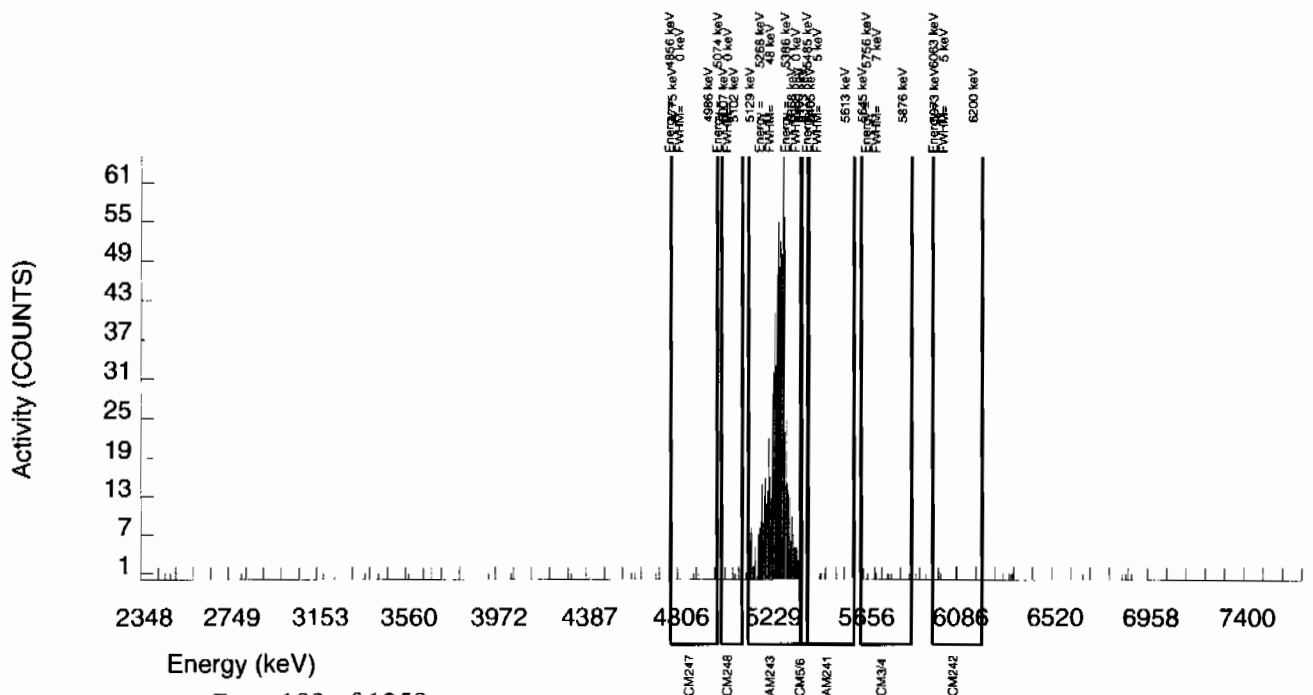
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	8.000	6.000	2.000	5.2338	100.0000	7.56E-03	4.01E-03	1.53E-02	3.41E-02	3.99E-03
CM-5/6	5386.000	3.000	1.000	2.000	19.8463	86.09000	1.46E-03	3.27E-03	6.75E-02	1.39E-01	3.27E-03
AM-241	5479.150	6.000	1.569	3.000	3.0704	99.94000	1.98E-03	3.47E-03	9.00E-03	2.14E-02	3.47E-03
CM-242	6102.000	3.000	-1.000	4.000	4.3186	100.0000	-1.35E-03	3.57E-03	1.26E-02	2.87E-02	3.57E-03
AM243	5270.000	822.000	822.000	0.000	0.0000	99.78000	1.04E+00	7.23E-02	0.00E+00	3.42E-03	3.62E-02
CM-247	4946.000	3.000	0.000	3.000	15.3366	79.30000	0.00E+00	3.89E-03	5.66E-02	1.18E-01	3.89E-03
CM-248	5078.600	7.000	7.000	0.000	22.1555	91.00000	9.68E-03	3.71E-03	7.13E-02	1.46E-01	3.66E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101010\_AM  
SAMPLE QTY: 1.253 G

DETECTOR NUMBER :80010  
AVERAGE %EFFICIENCY :30.2754  
% YIELD : 84.671

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.46948 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B075.CNF;1098  
BKG DATE : 25-JAN-2010  
EFF FILE : W075.CNF;288  
CAL DATE : 12-JAN-2010

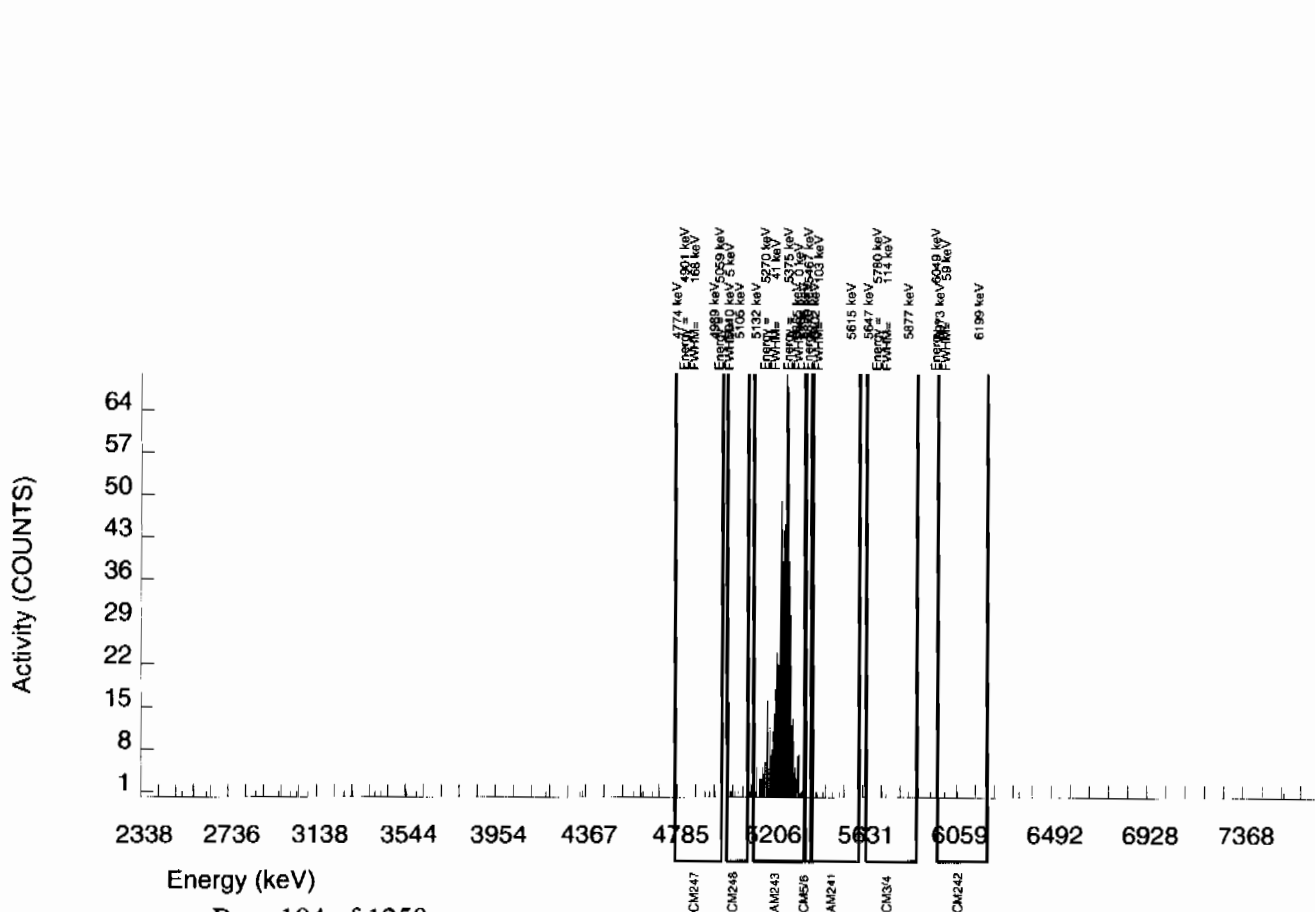
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	4.000	4.000	0.000	5.2338	100.0000	5.62E-03	2.83E-03	1.71E-02	3.80E-02	2.81E-03
CM-5/6	5386.000	3.000	3.000	0.000	19.8463	86.09000	4.89E-03	2.84E-03	7.52E-02	1.55E-01	2.82E-03
AM-241	5479.150	5.000	3.702	0.000	3.0704	99.94000	5.19E-03	2.72E-03	1.00E-02	2.38E-02	2.70E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.51E-03	2.62E-03	1.41E-02	3.20E-02	2.60E-03
AM243	5270.000	746.000	746.000	0.000	0.0000	99.78000	1.05E+00	7.49E-02	0.00E+00	3.81E-03	3.84E-02
CM-247	4946.000	4.000	0.000	4.000	15.3366	79.30000	0.00E+00	5.00E-03	6.31E-02	1.31E-01	5.00E-03
CM-248	5078.600	7.000	6.000	1.000	22.1555	91.00000	9.25E-03	4.40E-03	7.94E-02	1.63E-01	4.36E-03

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

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

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101011\_AM  
SAMPLE QTY: 1.256 G

DETECTOR NUMBER :78779  
AVERAGE %EFFICIENCY :30.8747  
% YIELD : 90.484

COUNT DATE:28-JAN-2010 20:58:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.63904 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B076.CNF;1101  
BKG DATE : 25-JAN-2010  
EFF FILE : W076.CNF;293  
CAL DATE : 11-JAN-2010

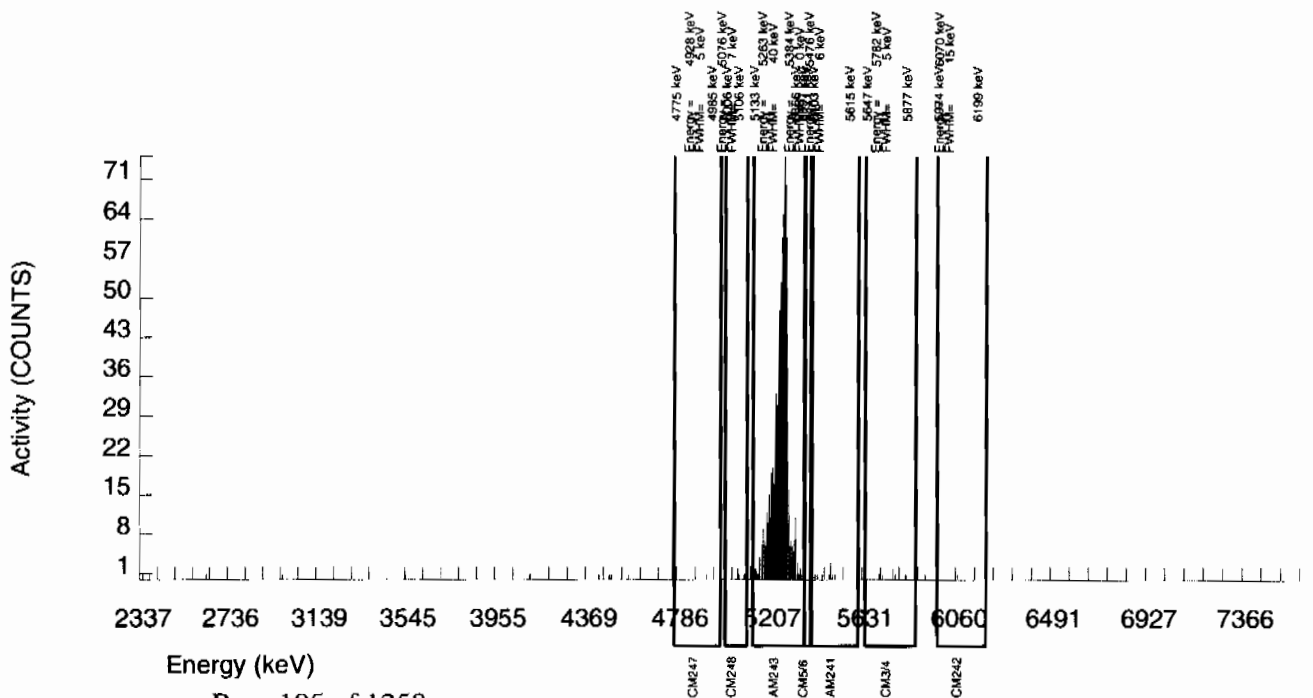
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	7.000	6.000	1.000	5.2338	100.0000	7.72E-03	3.67E-03	1.56E-02	3.47E-02	3.64E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.49E-03	6.88E-02	1.42E-01	1.49E-03
AM-241	5479.150	10.000	8.585	0.000	3.0704	99.94000	1.10E-02	3.82E-03	9.18E-03	2.18E-02	3.76E-03
CM-242	6102.000	2.000	1.000	1.000	4.3186	100.0000	1.38E-03	2.38E-03	1.29E-02	2.93E-02	2.38E-03
AM243	5270.000	815.000	813.000	2.000	1.4142	99.78000	1.05E+00	7.32E-02	4.23E-03	1.20E-02	3.68E-02
CM-247	4946.000	1.000	-3.000	4.000	15.3366	79.30000	-4.86E-03	3.62E-03	5.78E-02	1.20E-01	3.62E-03
CM-248	5078.600	7.000	5.000	2.000	22.1555	91.00000	7.05E-03	4.25E-03	7.27E-02	1.49E-01	4.23E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101013\_AM  
SAMPLE QTY: 1.261 G

DETECTOR NUMBER :79466  
AVERAGE %EFFICIENCY :32.2835  
% YIELD : 83.555

COUNT DATE:28-JAN-2010 20:58:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.43695 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B079.CNF;1012  
BKG DATE : 25-JAN-2010  
EFF FILE : W079.CNF;266  
CAL DATE : 11-JAN-2010

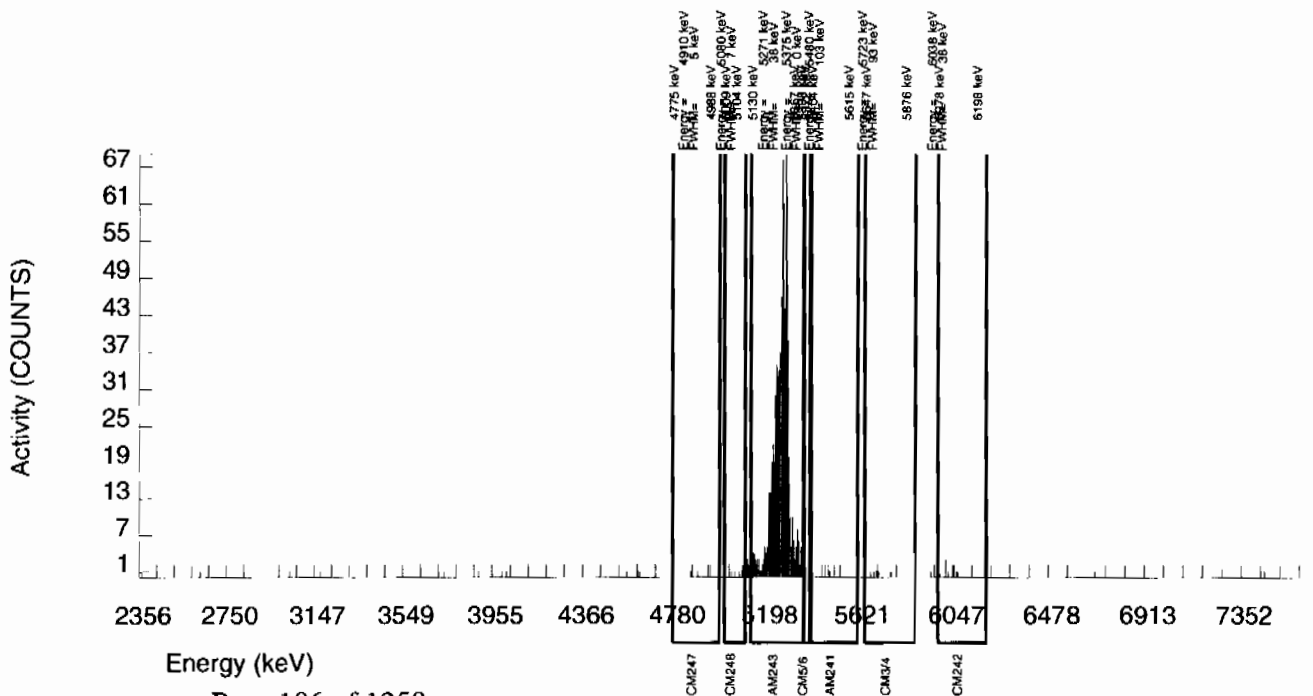
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	6.000	5.000	1.000	5.2338	100.0000	6.63E-03	3.53E-03	1.61E-02	3.58E-02	3.51E-03
CM-5/6	5386.000	2.000	2.000	0.000	19.8463	86.09000	3.08E-03	2.18E-03	7.10E-02	1.46E-01	2.18E-03
AM-241	5479.150	10.000	7.634	1.000	3.0704	99.94000	1.01E-02	4.16E-03	9.46E-03	2.25E-02	4.11E-03
CM-242	6102.000	9.000	9.000	0.000	4.3186	100.0000	1.28E-02	4.33E-03	1.33E-02	3.02E-02	4.26E-03
AM243	5270.000	787.000	785.000	2.000	1.4142	99.78000	1.04E+00	7.36E-02	4.37E-03	1.23E-02	3.73E-02
CM-247	4946.000	4.000	3.000	1.000	15.3366	79.30000	5.01E-03	3.75E-03	5.96E-02	1.24E-01	3.73E-03
CM-248	5078.600	6.000	6.000	0.000	22.1555	91.00000	8.73E-03	3.60E-03	7.50E-02	1.54E-01	3.56E-03

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

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

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101014\_AM  
SAMPLE QTY: 1.264 G

DETECTOR NUMBER :78197  
AVERAGE %EFFICIENCY :33.5773  
% YIELD : 82.689

COUNT DATE:28-JAN-2010 20:58:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.41170 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B080.CNF;1013  
BKG DATE : 25-JAN-2010  
EFF FILE : W080.CNF;274  
CAL DATE : 11-JAN-2010

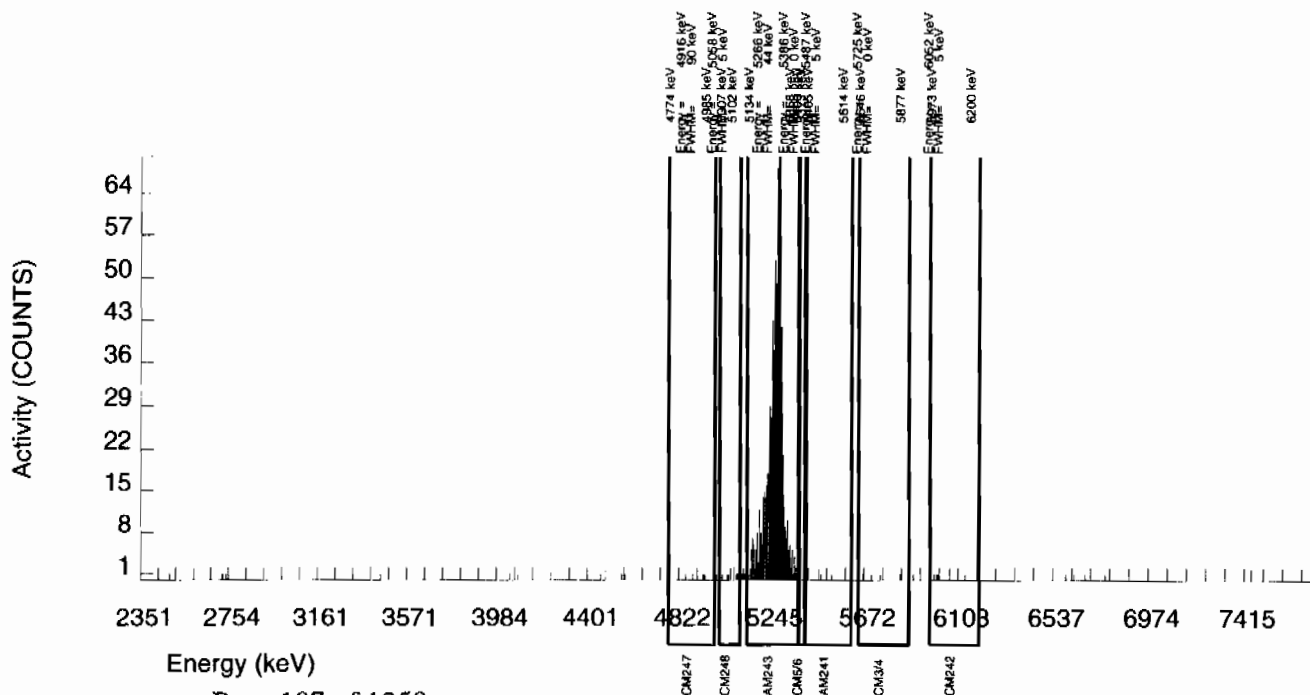
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	5.000	0.000	5.2338	100.0000	6.43E-03	2.90E-03	1.56E-02	3.47E-02	2.87E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.49E-03	6.88E-02	1.42E-01	1.49E-03
AM-241	5479.150	4.000	1.594	1.000	3.0704	99.94000	2.05E-03	2.44E-03	9.17E-03	2.18E-02	2.43E-03
CM-242	6102.000	6.000	4.000	2.000	4.3186	100.0000	5.50E-03	3.90E-03	1.29E-02	2.93E-02	3.89E-03
AM243	5270.000	809.000	808.000	1.000	1.0000	99.78000	1.04E+00	7.28E-02	2.99E-03	9.47E-03	3.66E-02
CM-247	4946.000	5.000	5.000	0.000	15.3366	79.30000	8.09E-03	3.65E-03	5.77E-02	1.20E-01	3.62E-03
CM-248	5078.600	8.000	8.000	0.000	22.1555	91.00000	1.13E-02	4.05E-03	7.27E-02	1.49E-01	3.99E-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: 944429  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101015\_AM  
SAMPLE QTY: 1.262 G

DETECTOR NUMBER : 79996  
AVERAGE %EFFICIENCY : 31.8577  
% YIELD : 95.674

COUNT DATE: 28-JAN-2010 20:58:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.79041 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B081.CNF;1020  
BKG DATE : 25-JAN-2010  
EFF FILE : W081.CNF;272  
CAL DATE : 12-JAN-2010

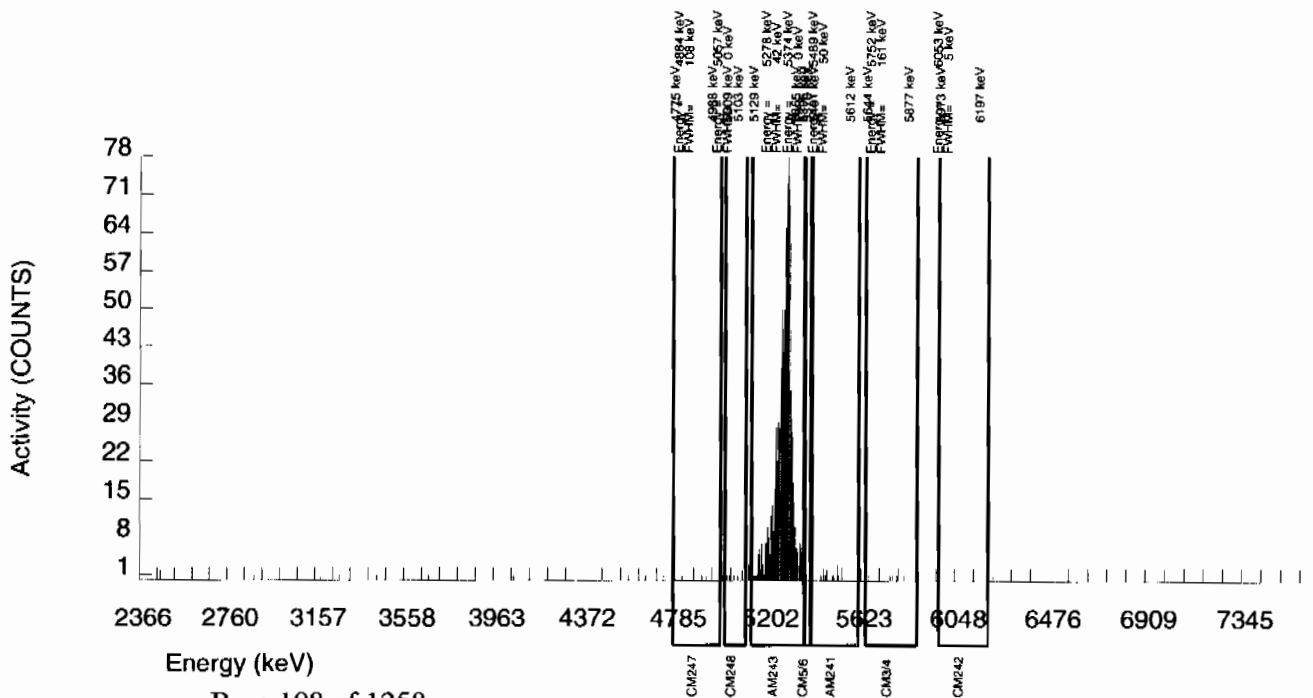
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	7.000	6.000	1.000	5.2338	100.0000	7.04E-03	3.34E-03	1.43E-02	3.17E-02	3.32E-03
CM-5/6	5386.000	9.000	9.000	0.000	19.8463	86.09000	1.22E-02	4.15E-03	6.28E-02	1.29E-01	4.08E-03
AM-241	5479.150	11.000	7.456	2.000	3.0704	99.94000	8.74E-03	4.00E-03	8.37E-03	1.99E-02	3.97E-03
CM-242	6102.000	1.000	1.000	0.000	4.3186	100.0000	1.25E-03	1.26E-03	1.18E-02	2.67E-02	1.25E-03
AM243	5270.000	887.000	887.000	0.000	0.0000	99.78000	1.04E+00	7.12E-02	0.00E+00	3.18E-03	3.50E-02
CM-247	4946.000	4.000	3.000	1.000	15.3366	79.30000	4.43E-03	3.31E-03	5.27E-02	1.09E-01	3.30E-03
CM-248	5078.600	12.000	12.000	0.000	22.1555	91.00000	1.54E-02	4.55E-03	6.63E-02	1.36E-01	4.46E-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: 944429  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S0245138001\_AM  
SAMPLE QTY: 1.265 G

DETECTOR NUMBER :79997  
AVERAGE %EFFICIENCY :32.2248  
% YIELD : 88.612

COUNT DATE:28-JAN-2010 20:58:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.58445 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B082.CNF;1010  
BKG DATE : 25-JAN-2010  
EFF FILE : W082.CNF;255  
CAL DATE : 11-JAN-2010

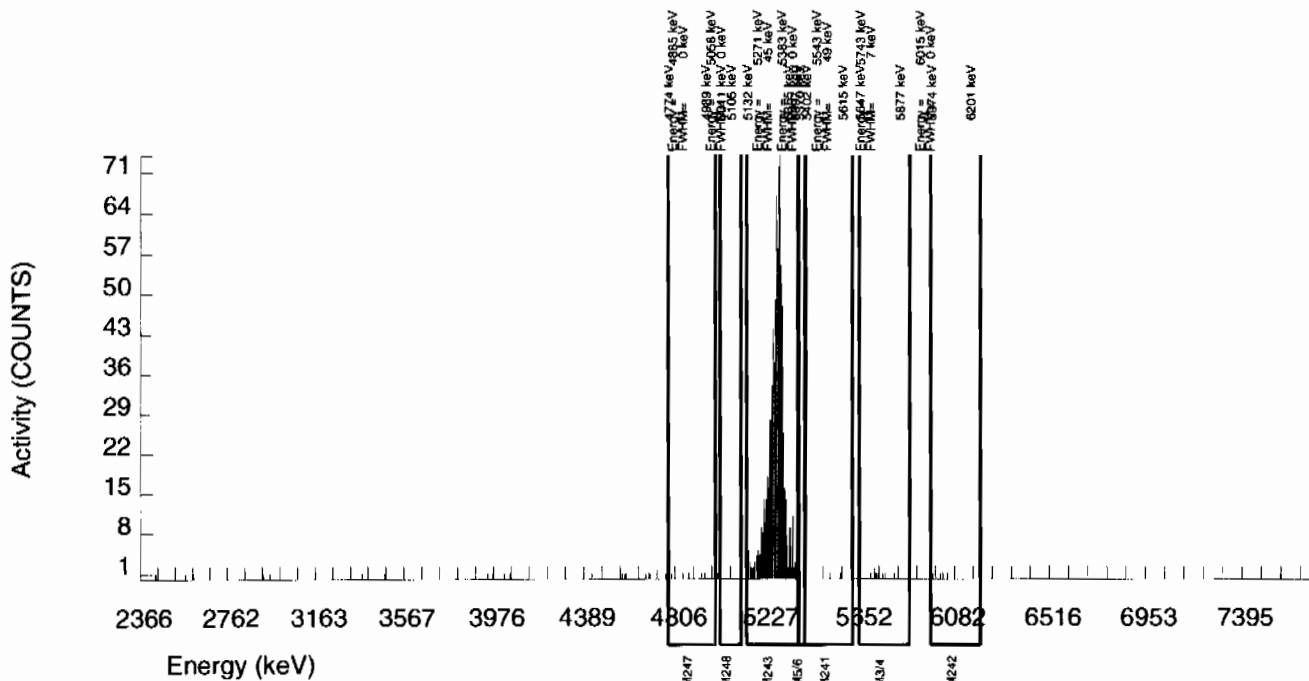
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	9.000	9.000	0.000	5.2338	100.0000	1.12E-02	3.81E-03	1.52E-02	3.37E-02	3.75E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.45E-03	1.45E-03	6.69E-02	1.38E-01	1.45E-03
AM-241	5479.150	2.000	-0.446	1.000	3.0704	99.94000	-5.57E-04	1.77E-03	8.91E-03	2.12E-02	1.76E-03
CM-242	6102.000	5.000	5.000	0.000	4.3186	100.0000	6.62E-03	2.99E-03	1.25E-02	2.84E-02	2.96E-03
AM243	5270.000	831.000	831.000	0.000	0.0000	99.78000	1.04E+00	7.22E-02	0.00E+00	3.39E-03	3.60E-02
CM-247	4946.000	7.000	7.000	0.000	15.3366	79.30000	1.10E-02	4.21E-03	5.61E-02	1.16E-01	4.16E-03
CM-248	5078.600	1.000	1.000	0.000	22.1555	91.00000	1.37E-03	1.37E-03	7.06E-02	1.45E-01	1.37E-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: 944429  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022361\_AM  
SAMPLE QTY: 1.000 G

DETECTOR NUMBER :78265  
AVERAGE %EFFICIENCY :33.8353  
% YIELD : 93.636

COUNT DATE:28-JAN-2010 20:58:33  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91657 dpm  
RESULTS : 2.73097 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B084.CNF;1015  
BKG DATE : 25-JAN-2010  
EFF FILE : W084.CNF;293  
CAL DATE : 11-JAN-2010

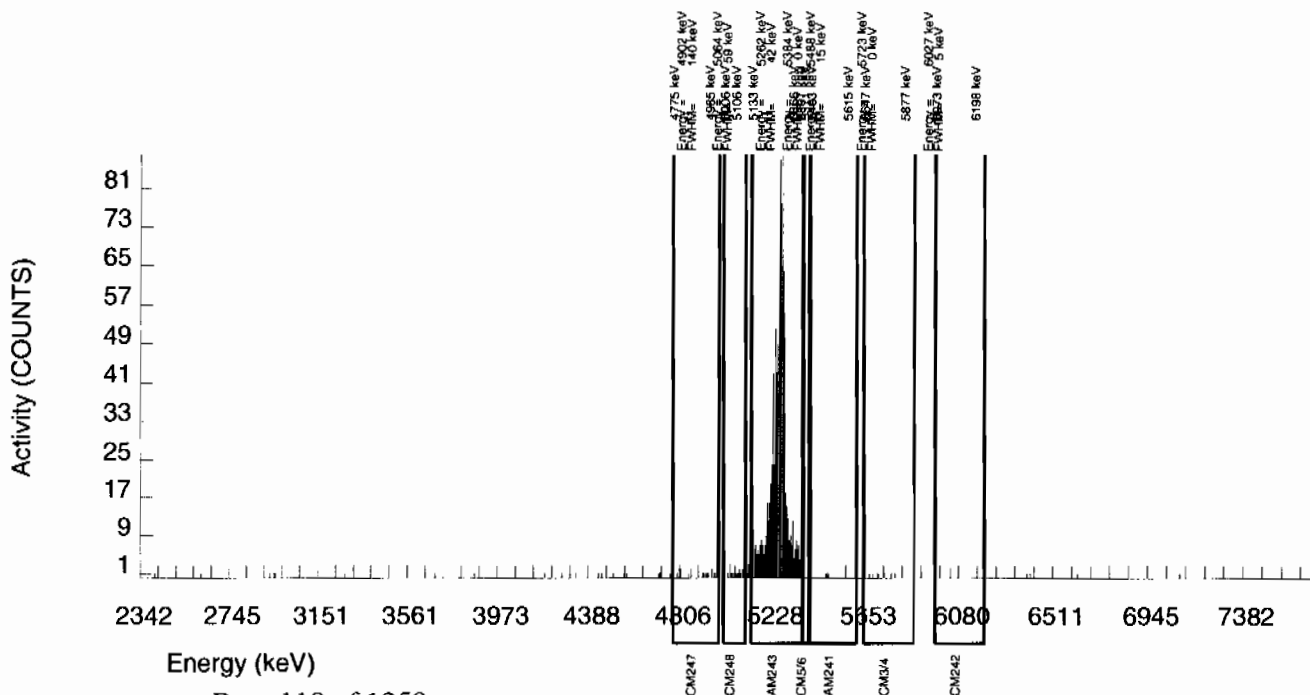
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	8.000	8.000	0.000	5.2338	100.0000	1.14E-02	4.08E-03	1.73E-02	3.85E-02	4.02E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.65E-03	7.63E-02	1.57E-01	1.65E-03
AM-241	5479.150	2.000	0.395	0.000	3.0704	99.94000	5.63E-04	1.43E-03	1.02E-02	2.42E-02	1.42E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.32E-03	2.51E-03	1.43E-02	3.24E-02	2.50E-03
AM243	5270.000	923.000	922.000	1.000	1.0000	99.78000	1.31E+00	8.91E-02	3.31E-03	1.05E-02	4.33E-02
CM-247	4946.000	15.000	10.000	5.000	15.3366	79.30000	1.79E-02	8.09E-03	6.40E-02	1.33E-01	8.02E-03
CM-248	5078.600	16.000	15.000	1.000	22.1555	91.00000	2.34E-02	6.59E-03	8.05E-02	1.65E-01	6.44E-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: 944429  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S1202022362\_AM  
SAMPLE QTY: 1.270 G

DETECTOR NUMBER : 78776  
AVERAGE %EFFICIENCY : 31.6195  
% YIELD : 85.744

COUNT DATE: 28-JAN-2010 20:58:33  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.50080 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B085.CNF;1018  
BKG DATE : 26-JAN-2010  
EFF FILE : W085.CNF;300  
CAL DATE : 11-JAN-2010

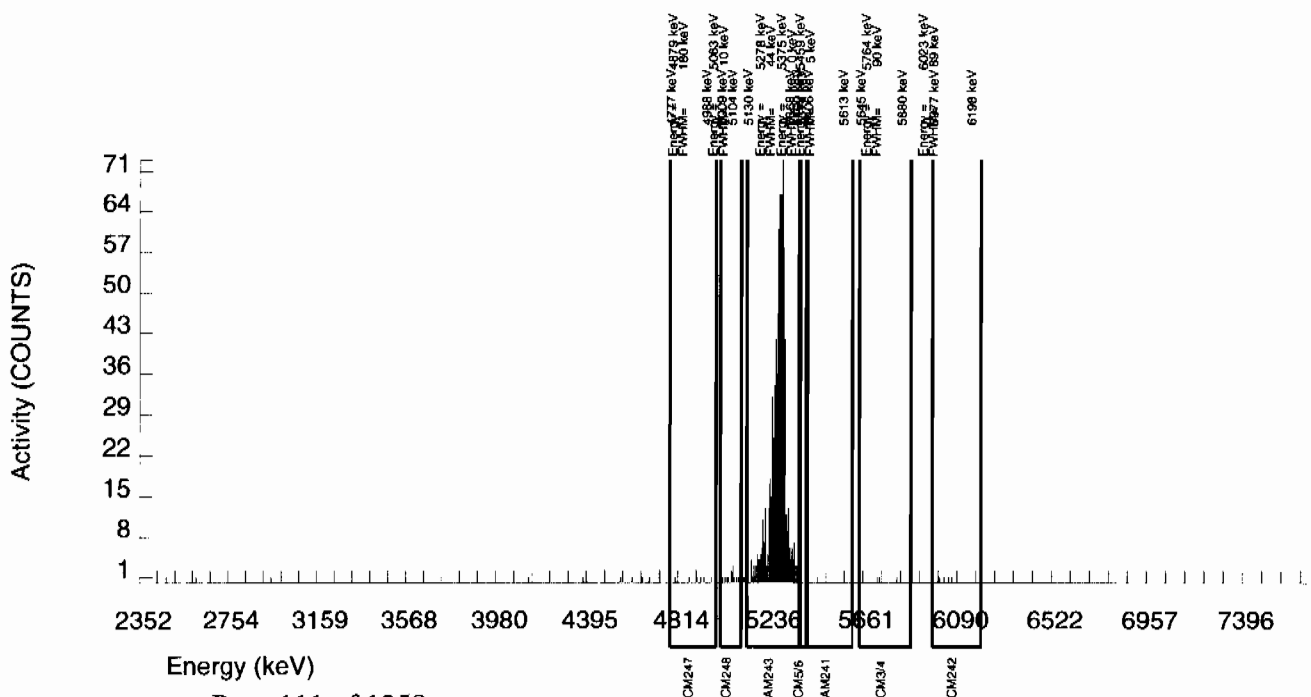
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	3.000	1.000	2.000	5.2338	100.0000	1.31E-03	2.93E-03	1.59E-02	3.54E-02	2.93E-03
CM-5/6	5386.000	4.000	4.000	0.000	19.8463	86.09000	6.08E-03	3.06E-03	7.02E-02	1.44E-01	3.04E-03
AM-241	5479.150	1.000	-1.373	1.000	3.0704	99.94000	-1.80E-03	1.85E-03	9.35E-03	2.22E-02	1.85E-03
CM-242	6102.000	7.000	7.000	0.000	4.3186	100.0000	9.73E-03	3.72E-03	1.31E-02	2.98E-02	3.68E-03
AM243	5270.000	790.000	789.000	1.000	1.0000	99.78000	1.03E+00	7.29E-02	3.05E-03	9.65E-03	3.69E-02
CM-247	4946.000	8.000	7.000	1.000	15.3366	79.30000	1.15E-02	5.00E-03	5.89E-02	1.22E-01	4.95E-03
CM-248	5078.600	14.000	14.000	0.000	22.1555	91.00000	2.01E-02	5.52E-03	7.41E-02	1.52E-01	5.38E-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: 944429  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022363\_AM  
SAMPLE QTY: 0.108 G

DETECTOR NUMBER :78198  
AVERAGE %EFFICIENCY :29.7986  
% YIELD : 94.097

COUNT DATE:28-JAN-2010 20:58:33  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91657 dpm  
RESULTS : 2.74442 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B086.CNF;1017  
BKG DATE : 25-JAN-2010  
EFF FILE : W086.CNF;281  
CAL DATE : 11-JAN-2010

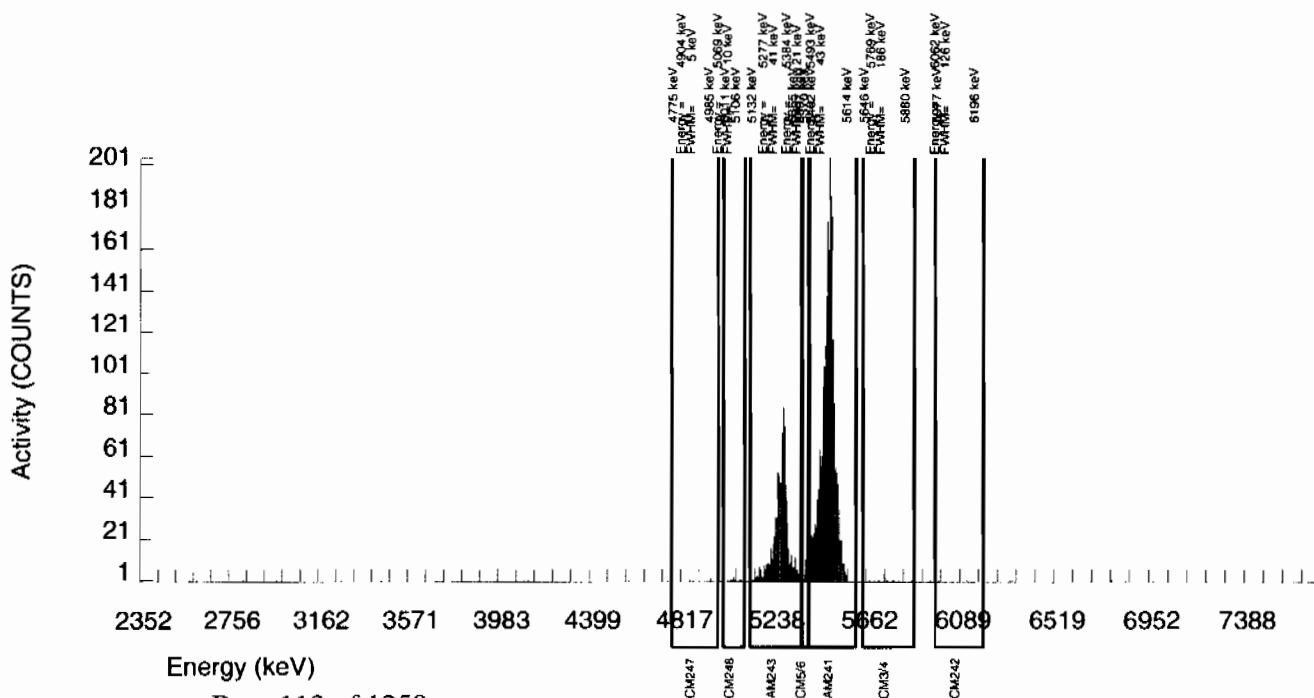
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	8.000	6.000	2.000	5.2338	100.0000	8.93E-02	4.74E-02	1.81E-01	4.03E-01	4.71E-02
CM-5/6	5386.000	36.000	36.000	0.000	19.8463	86.09000	6.22E-01	1.12E-01	7.98E-01	1.64E+00	1.04E-01
AM-241	5479.150	2248.000	2246.580	0.000	3.0704	99.94000	3.34E+01	2.36E+00	1.06E-01	2.53E-01	7.05E-01
CM-242	6102.000	2.000	1.000	1.000	4.3186	100.0000	1.51E-02	2.61E-02	1.49E-01	3.39E-01	2.61E-02
AM243	5270.000	817.000	816.000	1.000	1.0000	99.78000	1.22E+01	9.24E-01	3.47E-02	1.10E-01	4.26E-01
CM-247	4946.000	6.000	3.000	3.000	15.3366	79.30000	5.63E-02	5.64E-02	6.69E-01	1.39E+00	5.63E-02
CM-248	5078.600	11.000	11.000	0.000	22.1555	91.00000	1.80E-01	5.56E-02	8.43E-01	1.73E+00	5.42E-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#

944430

Product:

PU

Date:

1/29/10

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.			MA
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.			MA
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)			MA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			MA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			MA
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 1/29/10

Secondary Review Performed By:

J. L. M. 1/29/10

2/3

LAW

# Plutonium Que Sheet

22-JAN-10

Batch #: 944430 Analyst: JXD2 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: 12/08/10 Vol: 0.1  
 LCS Isotope(s): Pu-239 Pu-238 LCS Code: 0328-BB Expiration Date: 06/28/10 Vol: 0.1  
 Spike Isotope(s): Pu-239 Pu-238 Spike Code: 0328-BB Expiration Date: 06/28/10 Vol: 0.1  
 Prep Date: 1/26/2010 Initials: JXD2 Pipet ID: 2471058 Balance ID: 50410272 Witness: ATB01-222 TD

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g/1/f)	Pu Det #
245096005-1	RE46-10-10830	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	1	1	1.268	233
245101001-1	RE15-10-7194	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	2	2	1.253	234
245101002-1	RE15-10-7186	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	3	3	1.260	235
245101003-1	RE15-10-7191	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	4	4	1.259	236
245101004-1	RE15-10-7195	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	5	5	1.263	241
245101005-1	RE15-10-7196	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	6	6	1.250	242
245101006-1	RE15-10-7197	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	7	7	1.256	243
245101007-1	RE15-10-7193	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	8	8	1.269	244
245101008-1	RE15-10-7184	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	9	9	1.252	245
245101009-1	RE15-10-7185	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	10	10	1.267	246
245101010-1	RE15-10-7189	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	11	11	1.253	247
245101011-1	RE15-10-7187	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	12	12	1.256	248
245101012-1	RE15-10-7188	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	13	13	1.280	249
245101013-1	RE15-10-7190	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	14	14	1.261	250
245101014-1	RE15-10-7192	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	15	15	1.264	251
245101015-1	RE15-10-7219	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	16	16	1.262	255
245138001-1	WSTWA-10-11331	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	17	17	1.265	256
245138002-1	WSTWA-10-11330	SAMPLE	.05 pCi/g		SOIL	LANL010	13-JAN-10	18	18	1.258	240
1282022364-1	MB for batch 944430	MB	.05 pCi/g		SOIL	QC ACCOUNT	13-JAN-10	19	19	1	211
1282022365-1	WSTWA-10-11331(245138001DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT	13-JAN-10	20	20	1.270	212
1282022366-1	LCS for batch 944430	LCS	.05 pCi/g		SOIL	QC ACCOUNT	13-JAN-10	21	21	0.108	213

\* SRM 0244-B Exp. 4/30/20

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

GEL Laboratories LLC, Radiochemistry Division

# Blank Correction Report

**Batch ID 944430**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202022365	DUP	Plutonium-238	1.27 g	0.00315	0.00182	0.0173	-.00424409	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0021	0.00149	0.0198	-.00952756	pCi/g	NO
1202022366	LCS	Plutonium-238	0.108 g	6.03	0.432	0.186	-.04990741	pCi/g	NO
		Plutonium-239/240	0.108 g	35.2	2.10	0.213	-.11203704	pCi/g	NO
1202022364	MB	Plutonium-238	1.00 g	-0.00539	0.0033	0.0223	-.00539	pCi/g	NO
		Plutonium-239/240	1.00 g	-0.0121	0.00486	0.0255	-.0121	pCi/g	NO
245096005	RE46-10-10830	Plutonium-238	1.27 g	0.000981	0.000982	0.0162	-.00424409	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00098	0.0017	0.0185	-.00952756	pCi/g	NO
245101001	RE15-10-7194	Plutonium-238	1.25 g	0.00188	0.00188	0.0155	-.004312	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0103	0.00316	0.0178	-.00968	pCi/g	NO
245101002	RE15-10-7186	Plutonium-238	1.26 g	0.00199	0.00141	0.0165	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00798	0.00318	0.0188	-.00960317	pCi/g	NO
245101003	RE15-10-7191	Plutonium-238	1.26 g	0.000989	0.00099	0.0163	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00	0.0014	0.0187	-.00960317	pCi/g	NO
245101004	RE15-10-7195	Plutonium-238	1.26 g	0.00196	0.00139	0.0162	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00098	0.000982	0.0185	-.00960317	pCi/g	NO
245101005	RE15-10-7196	Plutonium-238	1.25 g	0.00	0.00101	0.0167	-.004312	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0375	0.00643	0.0191	-.00968	pCi/g	NO
245101006	RE15-10-7197	Plutonium-238	1.26 g	0.00202	0.00143	0.0167	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00404	0.00248	0.0191	-.00960317	pCi/g	NO
245101007	RE15-10-7193	Plutonium-238	1.27 g	0.00198	0.00198	0.0163	-.00424409	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00791	0.00282	0.0187	-.00952756	pCi/g	NO
245101008	RE15-10-7184	Plutonium-238	1.25 g	0.001	0.001	0.0165	-.004312	pCi/g	NO
		Plutonium-239/240	1.25 g	0.008	0.00286	0.0189	-.00968	pCi/g	NO
245101009	RE15-10-7185	Plutonium-238	1.27 g	0.00103	0.00104	0.0171	-.00424409	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0176	0.00435	0.0195	-.00952756	pCi/g	NO
245101010	RE15-10-7189	Plutonium-238	1.25 g	0.007	0.00267	0.0165	-.004312	pCi/g	NO
		Plutonium-239/240	1.25 g	0.010	0.0032	0.0189	-.00968	pCi/g	NO
245101011	RE15-10-7187	Plutonium-238	1.26 g	0.00323	0.00396	0.0267	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0145	0.00491	0.0305	-.00960317	pCi/g	NO
245101012	RE15-10-7188	Plutonium-238	1.28 g	0.00197	0.0014	0.0163	-.00421084	pCi/g	NO
		Plutonium-239/240	1.28 g	0.0158	0.00402	0.0186	-.00945313	pCi/g	NO
245101013	RE15-10-7190	Plutonium-238	1.26 g	0.00469	0.00236	0.0194	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0246	0.00551	0.0221	-.00960317	pCi/g	NO
245101014	RE15-10-7192	Plutonium-238	1.26 g	-0.000937	0.00209	0.0155	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0122	0.00343	0.0177	-.00960317	pCi/g	NO
245101015	RE15-10-7219	Plutonium-238	1.26 g	0.0032	0.00186	0.0176	-.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0363	0.00665	0.0202	-.00960317	pCi/g	NO
245138001	WSTWA-10-	Plutonium-238	1.27 g	0.00103	0.00179	0.0171	-.00424409	pCi/g	NO

*Handwritten:* 11/21/10



## Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
245138001	WSTWA-10- 11331	Plutonium-239/240	1.27 g	0.00	0.00146	0.0195	-0.00952756	pCi/g	NO
245138002	WSTWA-10- 11330	Plutonium-238	1.26 g	0.00201	0.00142	0.0166	-0.00427778	pCi/g	NO
		Plutonium-239/240	1.26 g	0.001	0.001	0.019	-0.00960317	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101001\_PU  
SAMPLE QTY: 1.253 G

DETECTOR NUMBER :79427  
AVERAGE %EFFICIENCY :38.3332  
% YIELD : 99.943

COUNT DATE:28-JAN-2010 14:14:58  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.38349 dpm

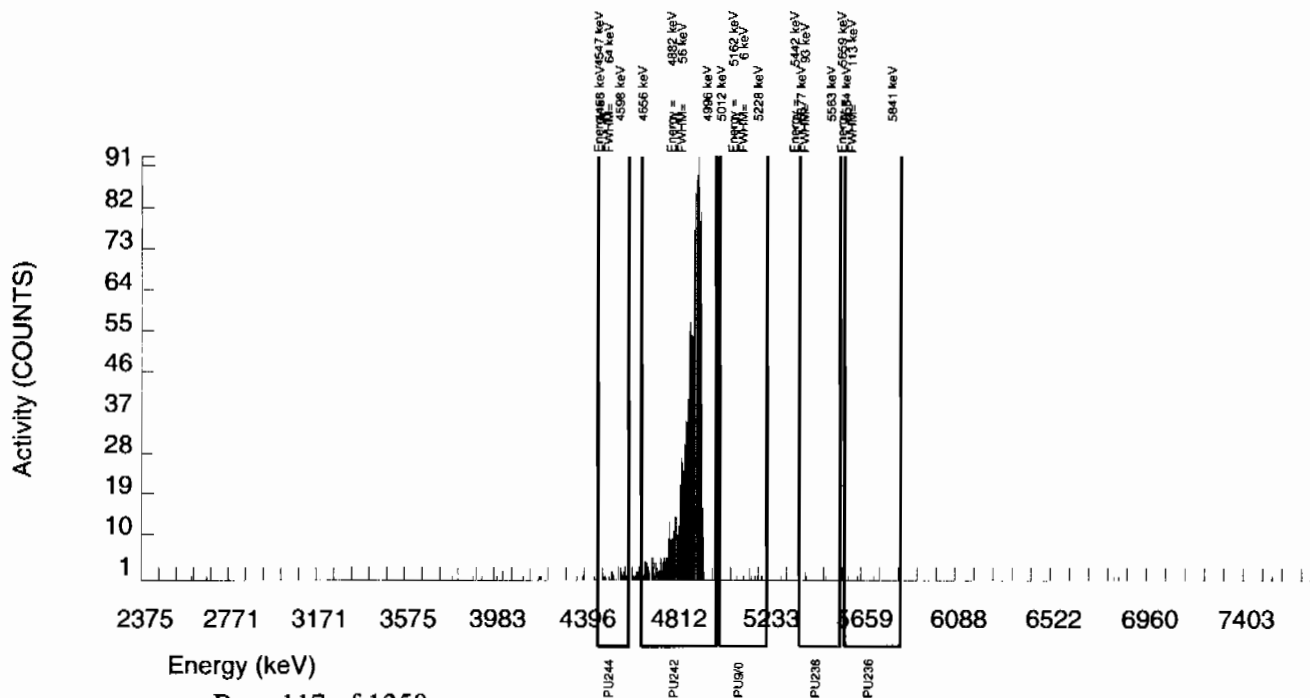
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B234.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W234.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	11.000	11.000	0.000	3.4797	99.90000	1.03E-02	3.16E-03	7.60E-03	1.78E-02	3.12E-03
PU-236	5749.000	3.000	3.000	0.000	2.1286	100.0000	2.85E-03	1.65E-03	4.65E-03	1.18E-02	1.64E-03
PU-238	5499.000	3.000	2.000	1.000	2.9680	99.90000	1.88E-03	1.88E-03	6.49E-03	1.55E-02	1.88E-03
PU242	4890.000	1298.000	1297.000	1.000	1.0000	100.0000	1.22E+00	6.79E-02	2.18E-03	6.91E-03	3.38E-02
PU-244	4589.000	24.000	24.000	0.000	5.2050	99.90000	2.25E-02	4.73E-03	1.14E-02	2.53E-02	4.60E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101002\_PU  
SAMPLE QTY: 1.260 G

DETECTOR NUMBER :79428  
AVERAGE %EFFICIENCY :37.2918  
% YIELD : 96.238

COUNT DATE:28-JAN-2010 14:15:01  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.25808 dpm

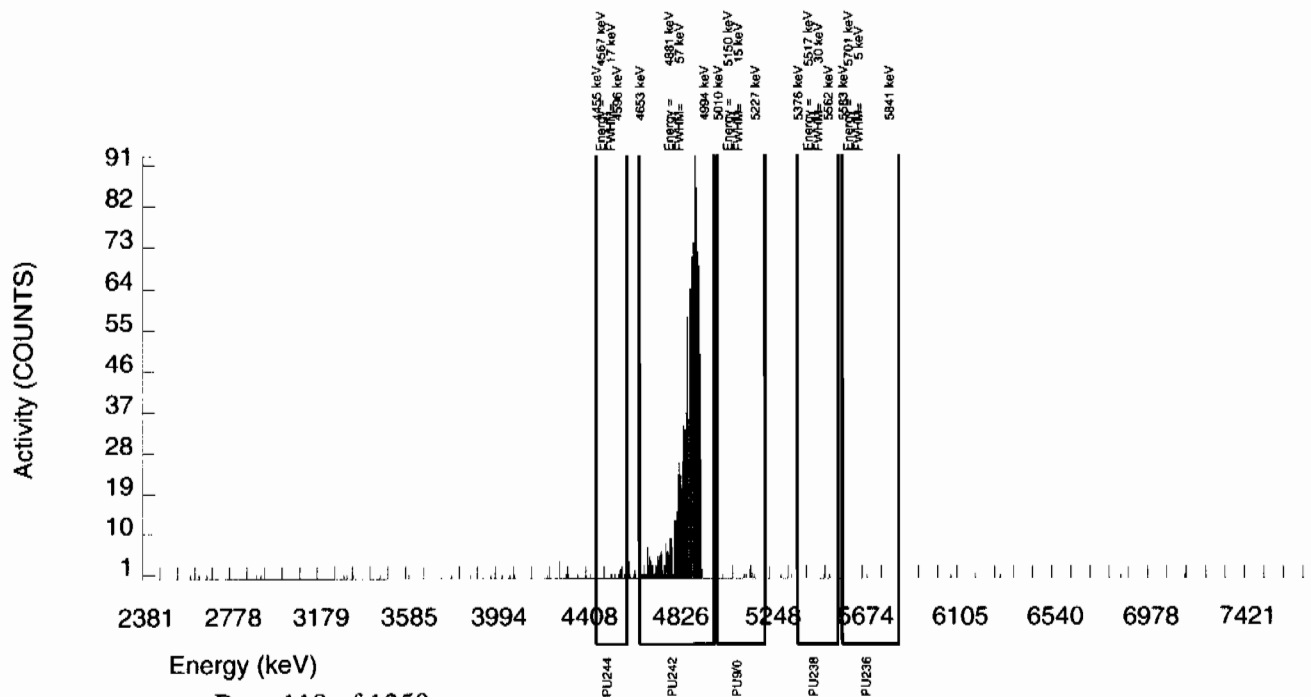
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B235.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W235.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	9.000	8.000	1.000	3.4797	99.90000	7.98E-03	3.18E-03	8.07E-03	1.88E-02	3.15E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.01E-03	1.01E-03	4.93E-03	1.26E-02	1.01E-03
PU-238	5499.000	2.000	2.000	0.000	2.9680	99.90000	1.99E-03	1.41E-03	6.88E-03	1.65E-02	1.41E-03
PU242	4890.000	1216.000	1215.000	1.000	1.0000	100.0000	1.21E+00	7.07E-02	2.32E-03	7.33E-03	3.48E-02
PU-244	4589.000	12.000	11.000	1.000	5.2050	99.90000	1.10E-02	3.64E-03	1.21E-02	2.69E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101003\_PU  
SAMPLE QTY: 1.259 G

DETECTOR NUMBER :79429  
AVERAGE %EFFICIENCY :38.5832  
% YIELD : 93.936

COUNT DATE:28-JAN-2010 14:15:05  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.18014 dpm

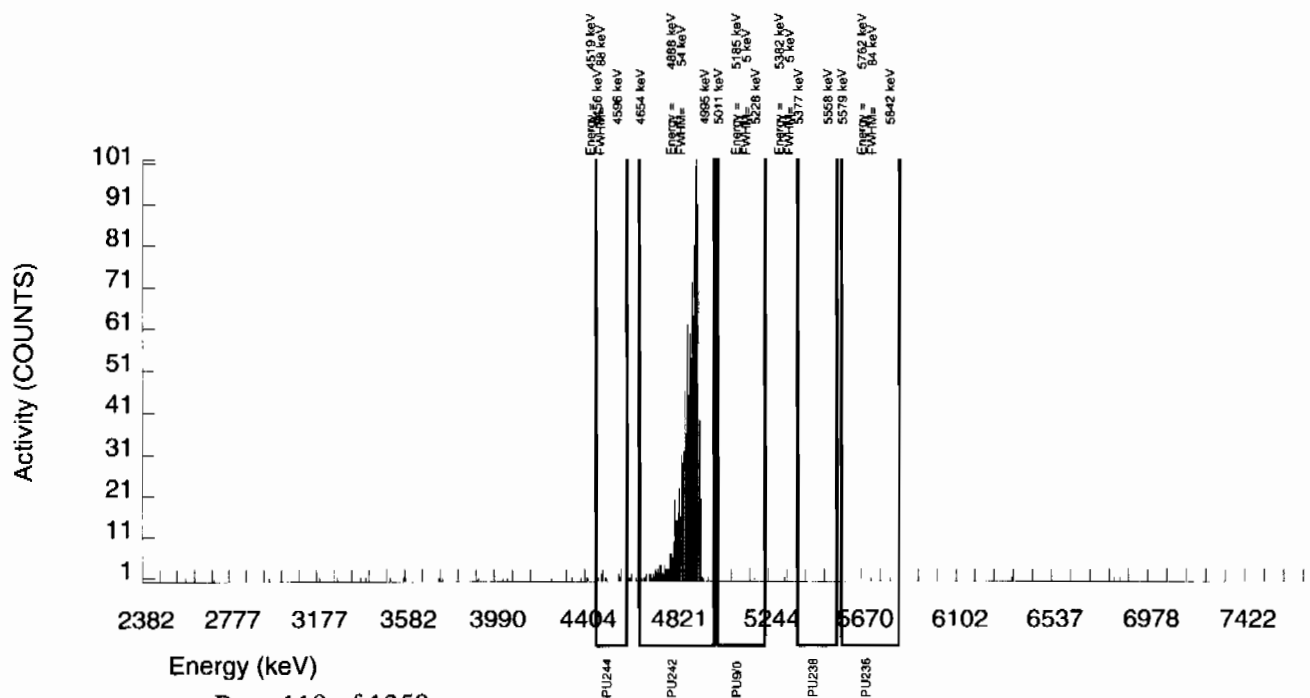
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BKG FILE : B236.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W236.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	1.000	0.000	1.000	3.4797	99.90000	0.00E+00	1.40E-03	8.00E-03	1.87E-02	1.40E-03
PU-236	5749.000	2.000	2.000	0.000	2.1286	100.0000	2.00E-03	1.41E-03	4.89E-03	1.25E-02	1.41E-03
PU-238	5499.000	1.000	1.000	0.000	2.9680	99.90000	9.88E-04	9.90E-04	6.82E-03	1.63E-02	9.88E-04
PU242	4890.000	1228.000	1227.000	1.000	1.0000	100.0000	1.21E+00	6.85E-02	2.30E-03	7.27E-03	3.46E-02
PU-244	4589.000	12.000	12.000	0.000	5.2050	99.90000	1.19E-02	3.47E-03	1.20E-02	2.66E-02	3.42E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101004\_PU  
SAMPLE QTY: 1.263 G

DETECTOR NUMBER :79434  
AVERAGE %EFFICIENCY :37.7240  
% YIELD : 96.545

COUNT DATE:28-JAN-2010 14:15:36  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.26848 dpm

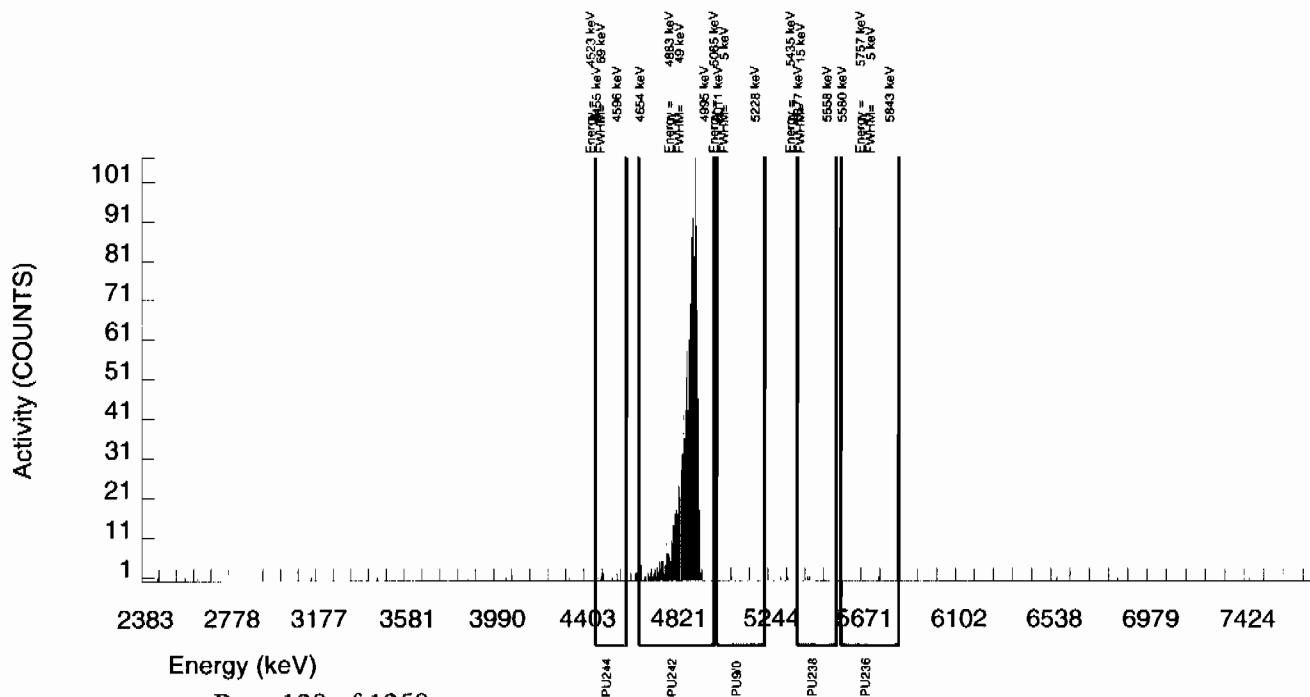
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BKG DATE : 24-JAN-2010  
EFF FILE : W241.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	1.000	1.000	0.000	3.4797	99.90000	9.80E-04	9.81E-04	7.94E-03	1.85E-02	9.80E-04
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	9.90E-04	9.91E-04	4.85E-03	1.24E-02	9.90E-04
PU-238	5499.000	2.000	2.000	0.000	2.9680	99.90000	1.96E-03	1.39E-03	6.77E-03	1.62E-02	1.39E-03
PU242	4890.000	1233.000	1233.000	0.000	0.0000	100.0000	1.21E+00	7.03E-02	0.00E+00	2.65E-03	3.44E-02
PU-244	4589.000	12.000	12.000	0.000	5.2050	99.90000	1.18E-02	3.45E-03	1.19E-02	2.64E-02	3.40E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101005\_PU  
SAMPLE QTY: 1.250 G

DETECTOR NUMBER :79435  
AVERAGE %EFFICIENCY :38.1437  
% YIELD : 93.392

COUNT DATE:28-JAN-2010 14:15:43  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

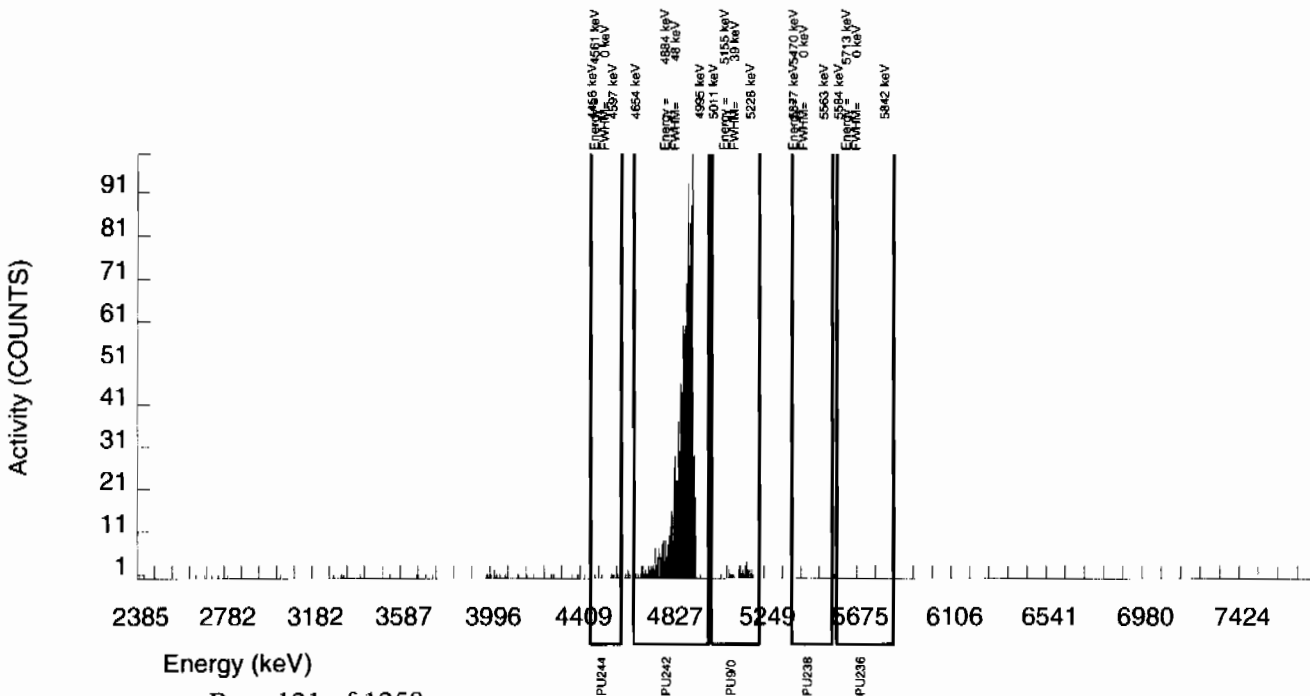
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.16173 dpm

LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B242.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W242.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	37.000	37.000	0.000	3.4797	99.90000	3.75E-02	6.43E-03	8.20E-03	1.91E-02	6.16E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.02E-03	5.01E-03	1.28E-02	1.02E-03
PU-238	5499.000	0.000	0.000	0.000	2.9680	99.90000	0.00E+00	1.01E-03	6.99E-03	1.67E-02	1.01E-03
PU242	4890.000	1206.000	1206.000	0.000	0.0000	100.0000	1.22E+00	6.93E-02	0.00E+00	2.74E-03	3.51E-02
PU-244	4589.000	10.000	10.000	0.000	5.2050	99.90000	1.01E-02	3.24E-03	1.23E-02	2.73E-02	3.20E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101006\_PU  
SAMPLE QTY: 1.256 G

DETECTOR NUMBER :79436  
AVERAGE %EFFICIENCY :37.2411  
% YIELD : 95.497

COUNT DATE:28-JAN-2010 14:15:50  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.23298 dpm

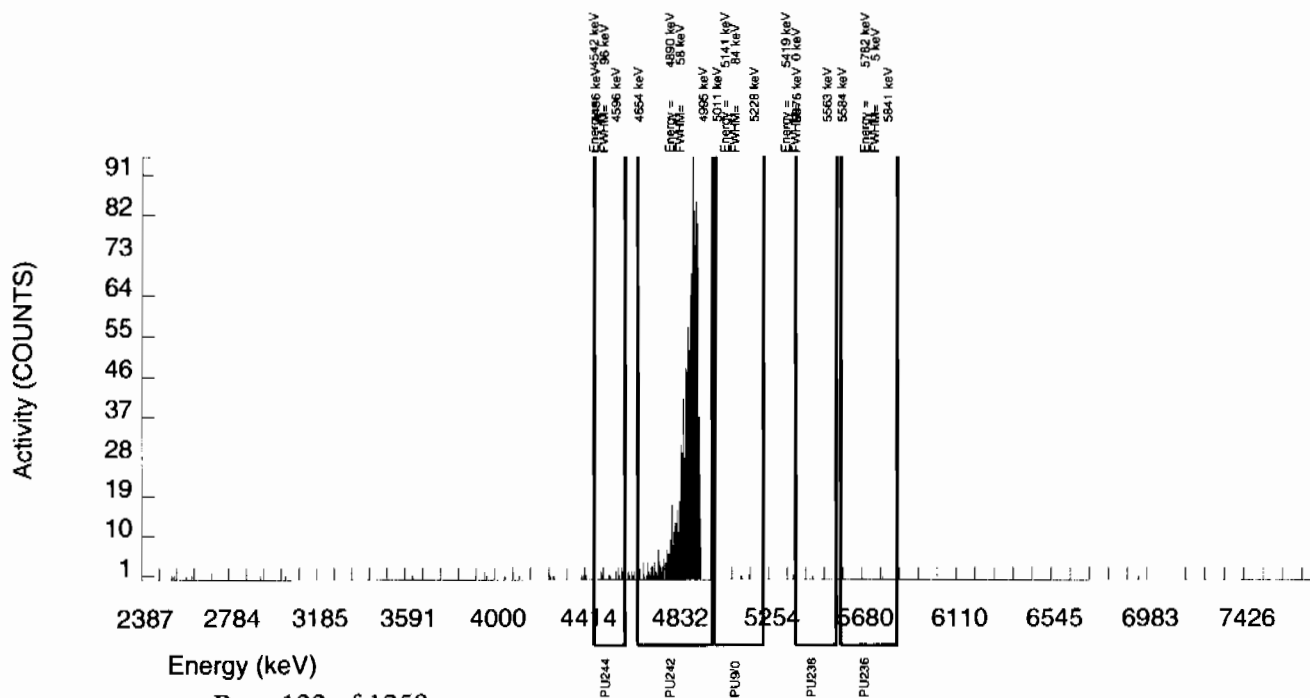
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B243.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W243.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	5.000	4.000	1.000	3.4797	99.90000	4.04E-03	2.48E-03	8.17E-03	1.91E-02	2.47E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.02E-03	1.02E-03	4.99E-03	1.27E-02	1.02E-03
PU-238	5499.000	2.000	2.000	0.000	2.9680	99.90000	2.02E-03	1.43E-03	6.97E-03	1.67E-02	1.43E-03
PU242	4890.000	1204.000	1204.000	0.000	0.0000	100.0000	1.21E+00	7.11E-02	0.00E+00	2.73E-03	3.50E-02
PU-244	4589.000	14.000	14.000	0.000	5.2050	99.90000	1.41E-02	3.85E-03	1.22E-02	2.72E-02	3.78E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101007\_PU  
SAMPLE QTY: 1.269 G

DETECTOR NUMBER :79437  
AVERAGE %EFFICIENCY :37.3769  
% YIELD : 96.177

COUNT DATE:28-JAN-2010 14:15:55  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

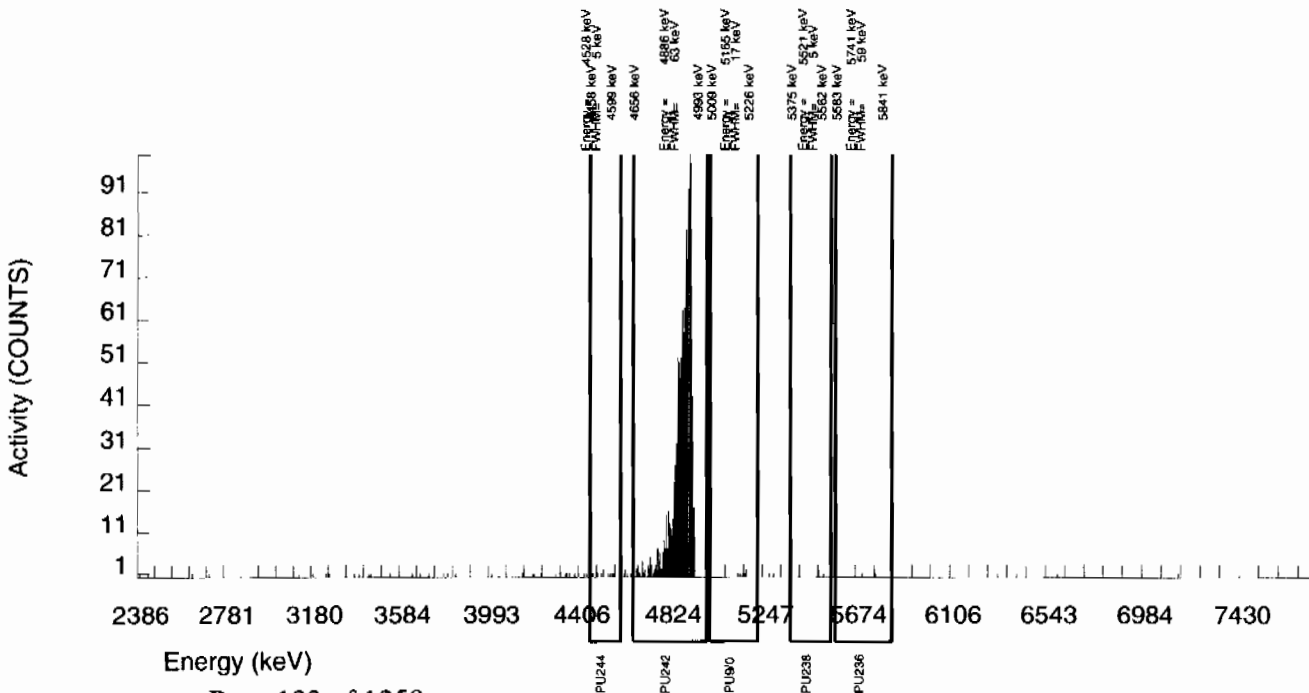
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.25602 dpm

LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B244.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W244.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	8.000	8.000	0.000	3.4797	99.90000	7.91E-03	2.82E-03	8.00E-03	1.87E-02	2.80E-03
PU-236	5749.000	2.000	2.000	0.000	2.1286	100.0000	2.00E-03	1.41E-03	4.89E-03	1.25E-02	1.41E-03
PU-238	5499.000	3.000	2.000	1.000	2.9680	99.90000	1.98E-03	1.98E-03	6.82E-03	1.63E-02	1.98E-03
PU242	4890.000	1218.000	1217.000	1.000	1.0000	100.0000	1.20E+00	6.81E-02	2.30E-03	7.27E-03	3.45E-02
PU-244	4589.000	12.000	12.000	0.000	5.2050	99.90000	1.19E-02	3.47E-03	1.20E-02	2.66E-02	3.42E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101008\_PU  
SAMPLE QTY: 1.252 G

DETECTOR NUMBER :79438  
AVERAGE %EFFICIENCY :38.2426  
% YIELD : 94.155

COUNT DATE:28-JAN-2010 14:16:00  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

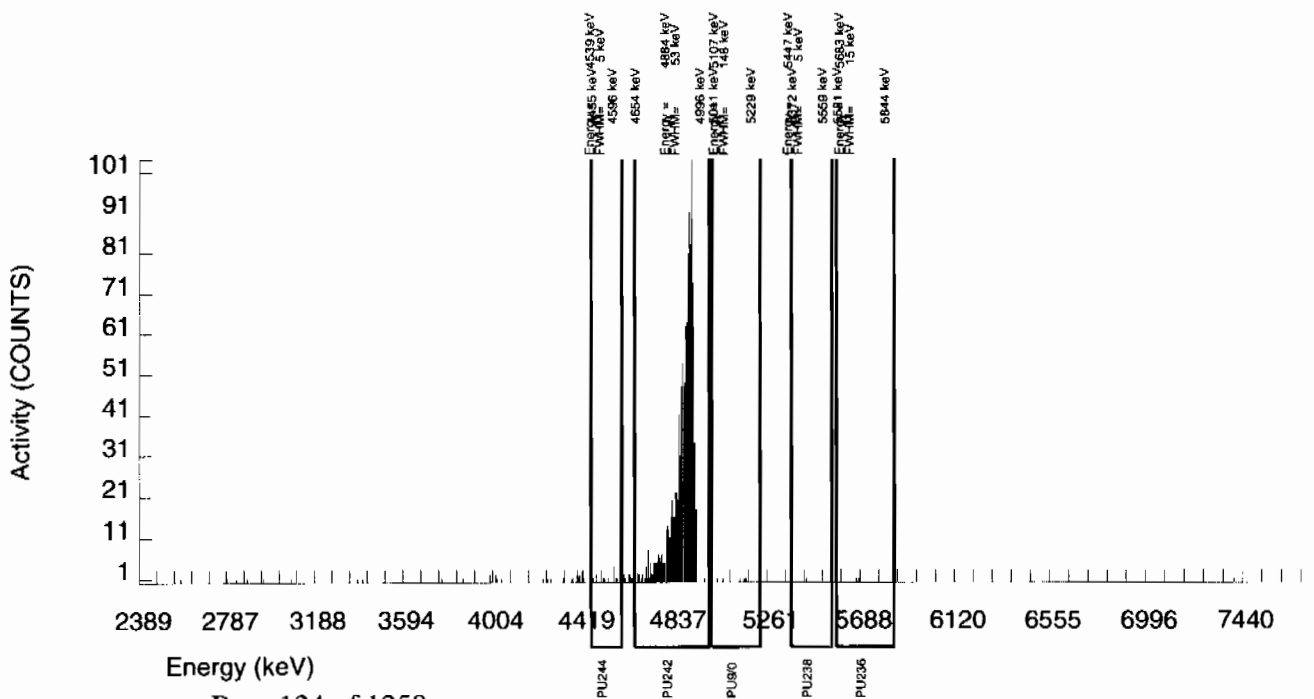
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.18754 dpm

LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B245.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W245.CNF;25  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	8.000	8.000	0.000	3.4797	99.90000	8.00E-03	2.86E-03	8.10E-03	1.89E-02	2.83E-03
PU-236	5749.000	2.000	2.000	0.000	2.1286	100.0000	2.02E-03	1.43E-03	4.95E-03	1.26E-02	1.43E-03
PU-238	5499.000	1.000	1.000	0.000	2.9680	99.90000	1.00E-03	1.00E-03	6.91E-03	1.65E-02	1.00E-03
PU242	4890.000	1221.000	1219.000	2.000	1.4142	100.0000	1.22E+00	6.90E-02	3.29E-03	9.28E-03	3.49E-02
PU-244	4589.000	15.000	15.000	0.000	5.2050	99.90000	1.50E-02	3.94E-03	1.21E-02	2.69E-02	3.87E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101009\_PU  
SAMPLE QTY: 1.267 G

DETECTOR NUMBER :78912  
AVERAGE %EFFICIENCY :37.7449  
% YIELD : 91.170

COUNT DATE:28-JAN-2010 14:16:06  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.08651 dpm

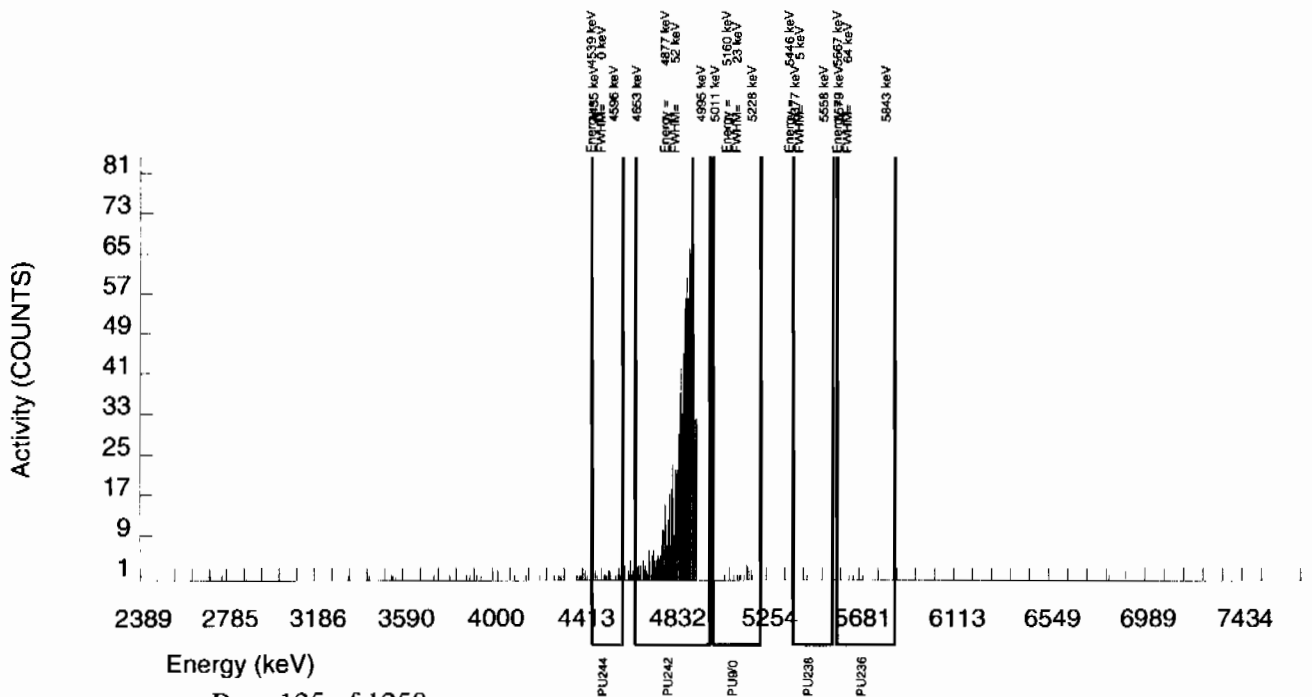
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B246.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W246.CNF;26  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	17.000	17.000	0.000	3.4797	99.90000	1.76E-02	4.35E-03	8.37E-03	1.95E-02	4.26E-03
PU-236	5749.000	3.000	3.000	0.000	2.1286	100.0000	3.13E-03	1.82E-03	5.12E-03	1.30E-02	1.81E-03
PU-238	5499.000	1.000	1.000	0.000	2.9680	99.90000	1.03E-03	1.04E-03	7.14E-03	1.71E-02	1.03E-03
PU242	4890.000	1165.000	1165.000	0.000	0.0000	100.0000	1.20E+00	6.90E-02	0.00E+00	2.80E-03	3.53E-02
PU-244	4589.000	18.000	18.000	0.000	5.2050	99.90000	1.86E-02	4.48E-03	1.25E-02	2.78E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101010\_PU  
SAMPLE QTY: 1.253 G

DETECTOR NUMBER :79440  
AVERAGE %EFFICIENCY :37.2936  
% YIELD : 96.471

COUNT DATE:28-JAN-2010 14:16:13  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.26598 dpm

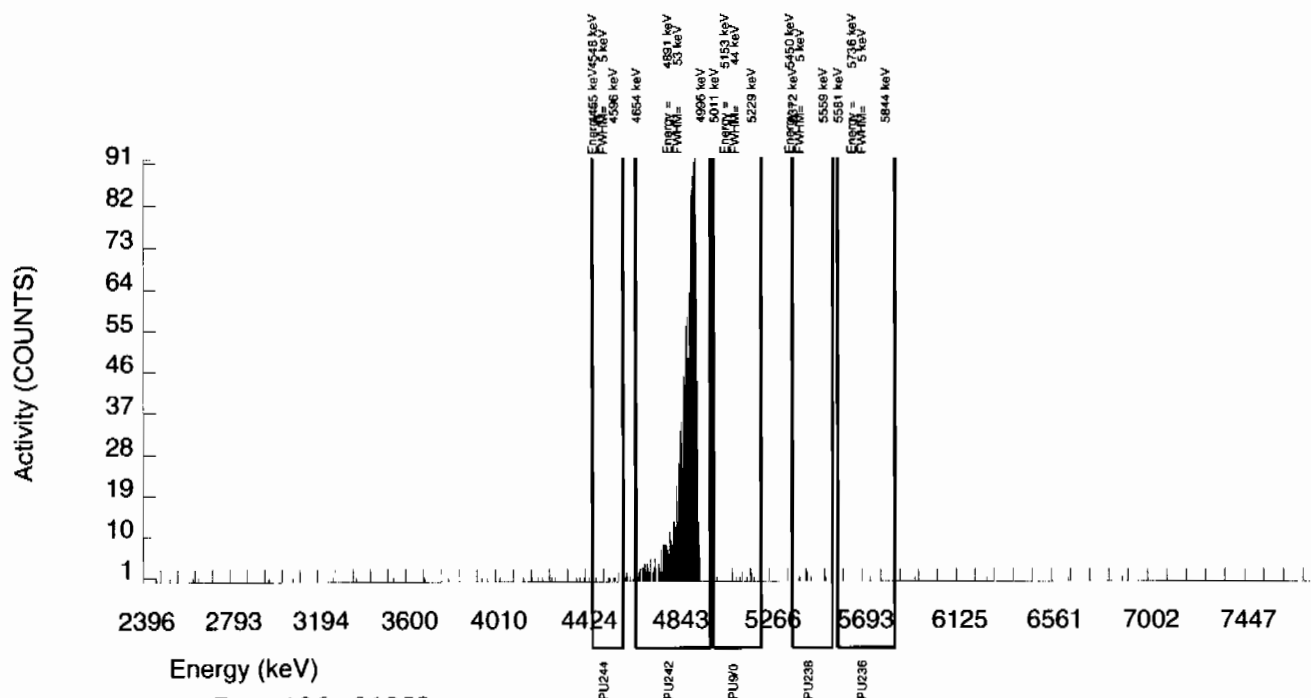
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B247.CNF;75  
BKG DATE : 24-JAN-2010  
EFF FILE : W247.CNF;25  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	10.000	10.000	0.000	3.4797	99.90000	1.00E-02	3.20E-03	8.10E-03	1.89E-02	3.16E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.01E-03	1.01E-03	4.95E-03	1.26E-02	1.01E-03
PU-238	5499.000	7.000	7.000	0.000	2.9680	99.90000	7.00E-03	2.67E-03	6.91E-03	1.65E-02	2.65E-03
PU242	4890.000	1221.000	1218.000	3.000	1.7321	100.0000	1.22E+00	6.90E-02	4.03E-03	1.08E-02	3.50E-02
PU-244	4589.000	7.000	7.000	0.000	5.2050	99.90000	7.00E-03	2.67E-03	1.21E-02	2.69E-02	2.65E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101011\_PU  
SAMPLE QTY: 1.256 G

DETECTOR NUMBER :79441  
AVERAGE %EFFICIENCY :39.1318  
% YIELD : 56.764

COUNT DATE:28-JAN-2010 14:16:19  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 1.92171 dpm

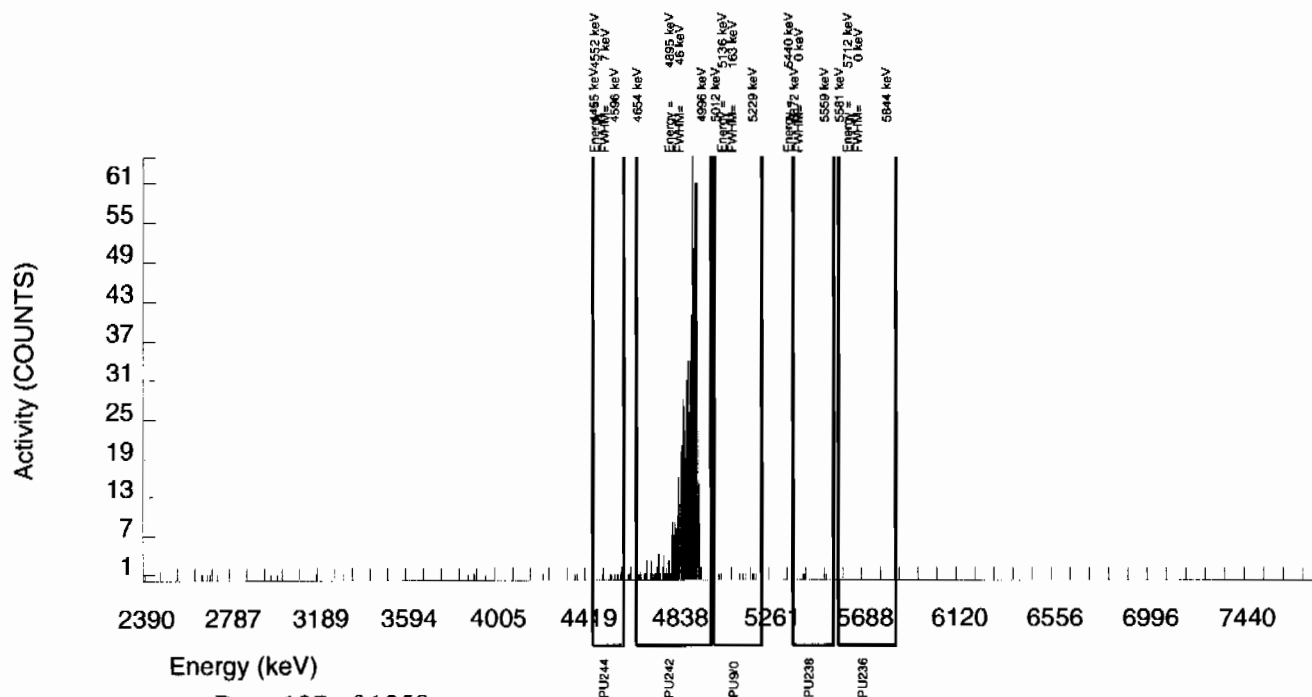
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B248.CNF;77  
BKG DATE : 24-JAN-2010  
EFF FILE : W248.CNF;25  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	9.000	9.000	0.000	3.4797	99.90000	1.45E-02	4.91E-03	1.31E-02	3.05E-02	4.85E-03
PU-236	5749.000	0.000	-2.000	2.000	2.1286	100.0000	-3.26E-03	2.83E-03	8.00E-03	2.04E-02	2.83E-03
PU-238	5499.000	4.000	2.000	2.000	2.9680	99.90000	3.23E-03	3.96E-03	1.12E-02	2.67E-02	3.96E-03
PU242	4890.000	755.000	752.000	3.000	1.7321	100.0000	1.21E+00	7.91E-02	6.51E-03	1.74E-02	4.45E-02
PU-244	4589.000	10.000	10.000	0.000	5.2050	99.90000	1.62E-02	5.18E-03	1.96E-02	4.35E-02	5.11E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101012\_PU  
SAMPLE QTY: 1.280 G

DETECTOR NUMBER :79442  
AVERAGE %EFFICIENCY :38.7607  
% YIELD : 92.134

COUNT DATE:28-JAN-2010 14:16:24  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.11913 dpm

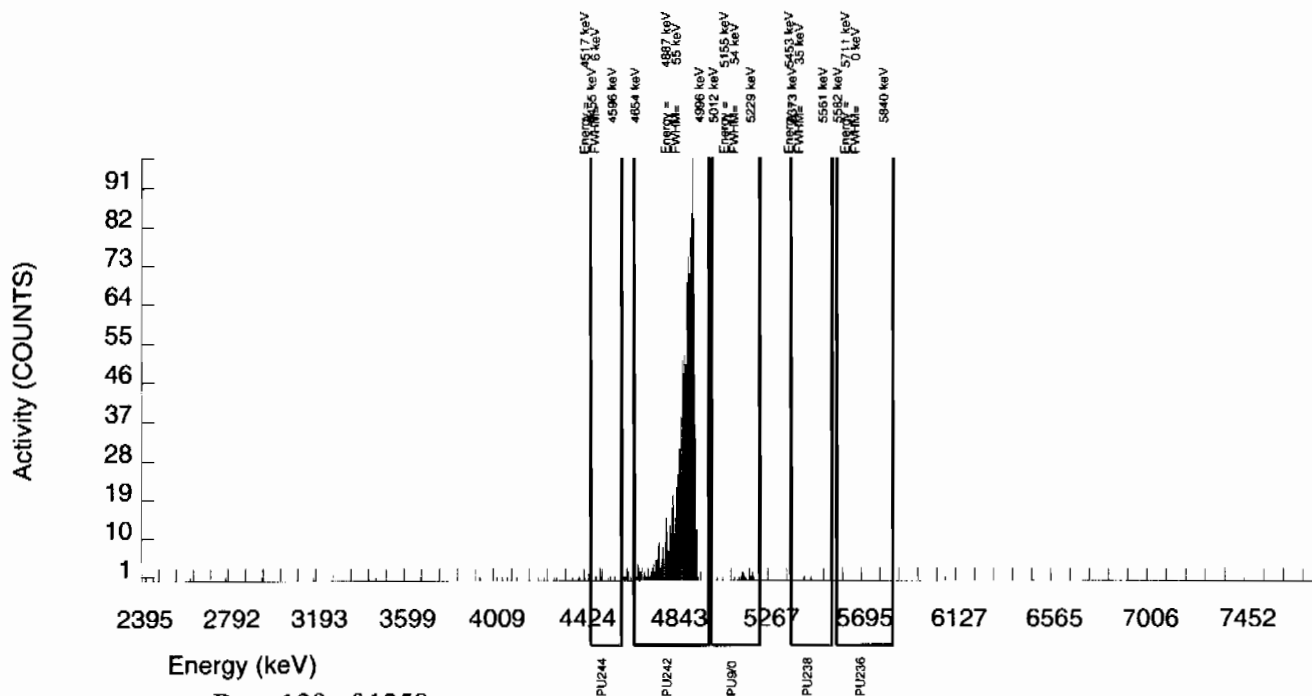
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B249.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W249.CNF;27  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	16.000	16.000	0.000	3.4797	99.90000	1.58E-02	4.02E-03	7.99E-03	1.86E-02	3.95E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	9.97E-04	4.88E-03	1.24E-02	9.96E-04
PU-238	5499.000	2.000	2.000	0.000	2.9680	99.90000	1.97E-03	1.40E-03	6.81E-03	1.63E-02	1.40E-03
PU242	4890.000	1209.000	1209.000	0.000	0.0000	100.0000	1.19E+00	6.76E-02	0.00E+00	2.67E-03	3.43E-02
PU-244	4589.000	11.000	11.000	0.000	5.2050	99.90000	1.09E-02	3.31E-03	1.19E-02	2.66E-02	3.27E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101013\_PU  
SAMPLE QTY: 1.261 G

DETECTOR NUMBER :79443  
AVERAGE %EFFICIENCY :39.8912  
% YIELD : 76.491

COUNT DATE:28-JAN-2010 14:16:30  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 2.58954 dpm

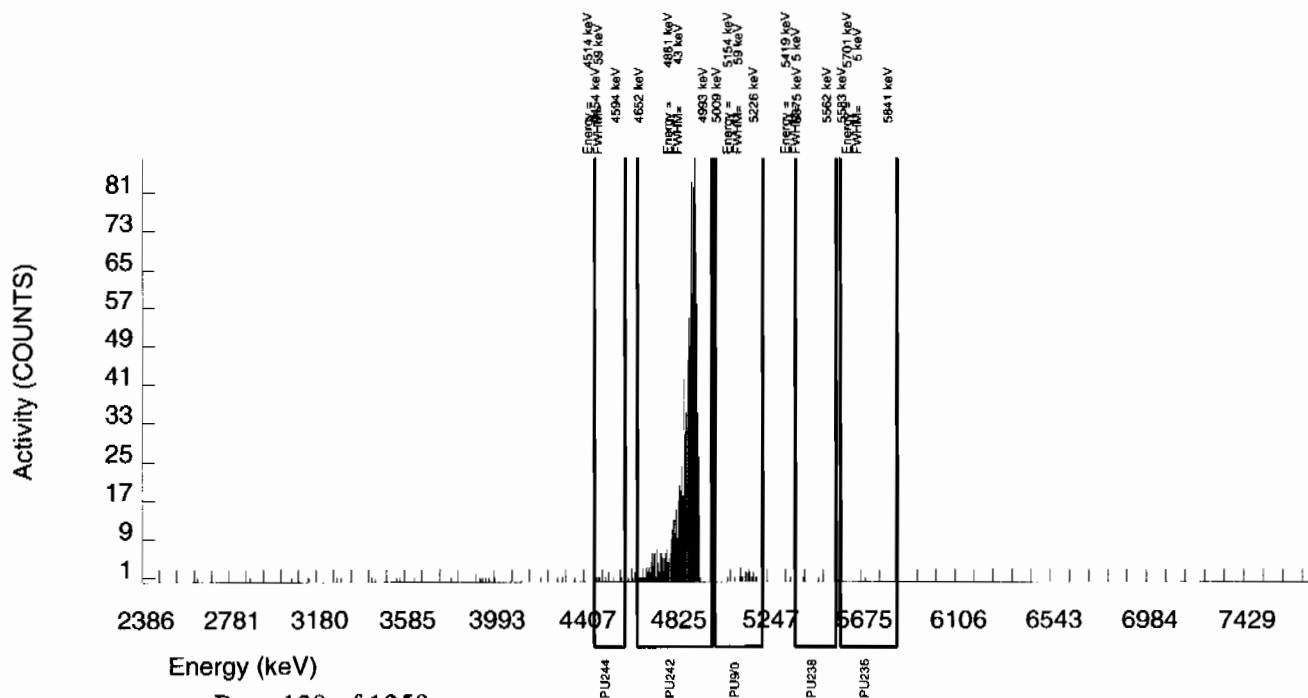
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BKG FILE : B250.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W250.CNF;25  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	21.000	21.000	0.000	3.4797	99.90000	2.46E-02	5.51E-03	9.49E-03	2.21E-02	5.37E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.18E-03	1.18E-03	5.80E-03	1.48E-02	1.18E-03
PU-238	5499.000	4.000	4.000	0.000	2.9680	99.90000	4.69E-03	2.36E-03	8.09E-03	1.94E-02	2.34E-03
PU242	4890.000	1033.000	1033.000	0.000	0.0000	100.0000	1.21E+00	7.16E-02	0.00E+00	3.17E-03	3.76E-02
PU-244	4589.000	11.000	11.000	0.000	5.2050	99.90000	1.29E-02	3.94E-03	1.42E-02	3.16E-02	3.89E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101014\_PU  
SAMPLE QTY: 1.264 G

DETECTOR NUMBER : 79444  
AVERAGE %EFFICIENCY : 38.9937  
% YIELD : 97.719

COUNT DATE: 28-JAN-2010 14:16:35  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.30822 dpm

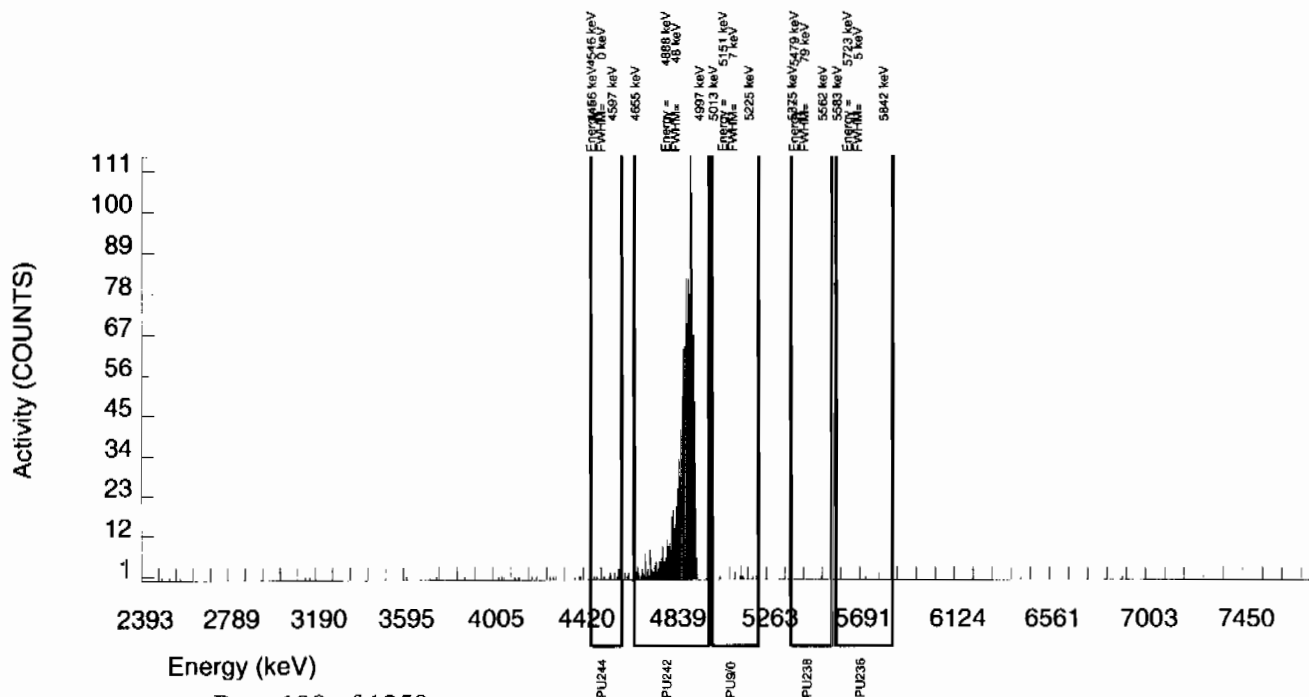
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B251.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W251.CNF;25  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	13.000	13.000	0.000	3.4797	99.90000	1.22E-02	3.43E-03	7.58E-03	1.77E-02	3.38E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	9.45E-04	9.46E-04	4.63E-03	1.18E-02	9.45E-04
PU-238	5499.000	2.000	-1.000	3.000	2.9680	99.90000	-9.37E-04	2.09E-03	6.46E-03	1.55E-02	2.09E-03
PU242	4890.000	1290.000	1290.000	0.000	0.0000	100.0000	1.21E+00	6.74E-02	0.00E+00	2.53E-03	3.36E-02
PU-244	4589.000	18.000	18.000	0.000	5.2050	99.90000	1.69E-02	4.05E-03	1.13E-02	2.52E-02	3.97E-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: 944430  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101015\_PU  
SAMPLE QTY: 1.262 G

DETECTOR NUMBER :79448  
AVERAGE %EFFICIENCY :37.8834  
% YIELD : 88.342

COUNT DATE:28-JAN-2010 14:16:57  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 2.99075 dpm

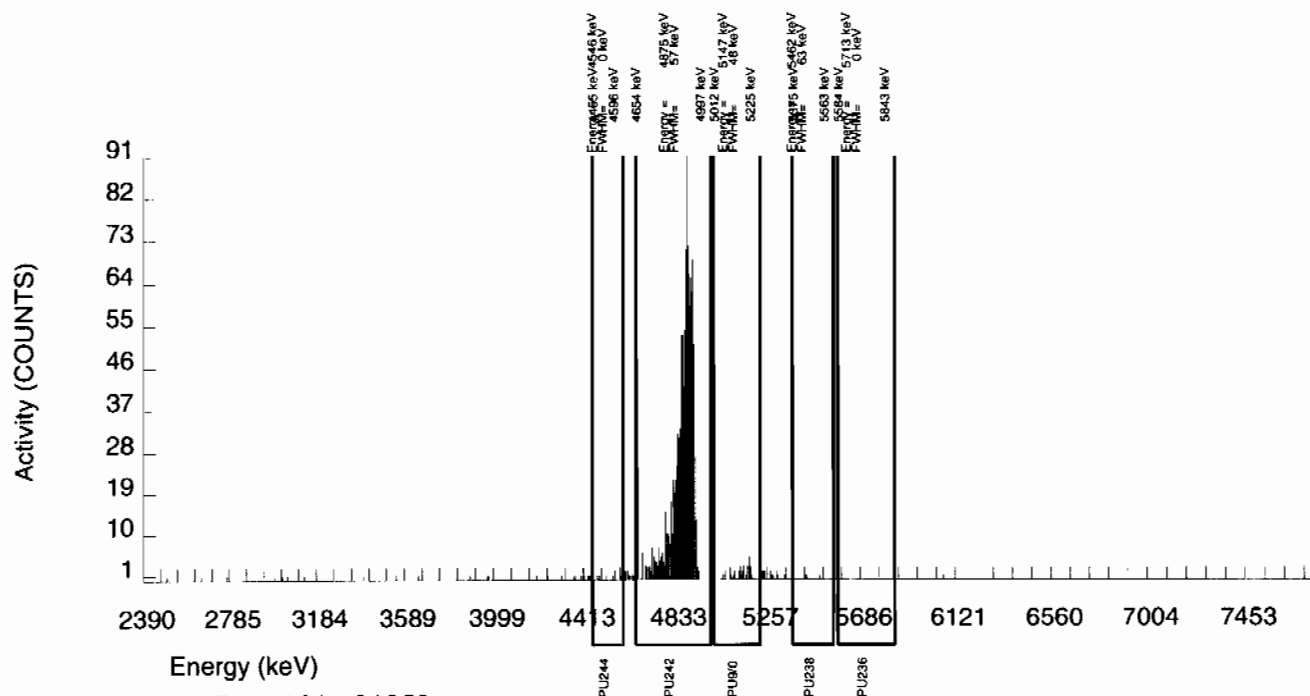
LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B255.CNF;74  
BKG DATE : 24-JAN-2010  
EFF FILE : W255.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	35.000	34.000	1.000	3.4797	99.90000	3.63E-02	6.65E-03	8.64E-03	2.02E-02	6.41E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.08E-03	5.28E-03	1.35E-02	1.08E-03
PU-238	5499.000	3.000	3.000	0.000	2.9680	99.90000	3.20E-03	1.86E-03	7.37E-03	1.76E-02	1.85E-03
PU242	4890.000	1136.000	1133.000	3.000	1.7321	100.0000	1.21E+00	6.99E-02	4.30E-03	1.15E-02	3.60E-02
PU-244	4589.000	14.000	14.000	0.000	5.2050	99.90000	1.49E-02	4.06E-03	1.29E-02	2.87E-02	3.99E-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: 944430  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S0245138001\_PU  
SAMPLE QTY: 1.265 G

DETECTOR NUMBER :79449  
AVERAGE %EFFICIENCY :37.8660  
% YIELD : 91.191

COUNT DATE:28-JAN-2010 14:17:02  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

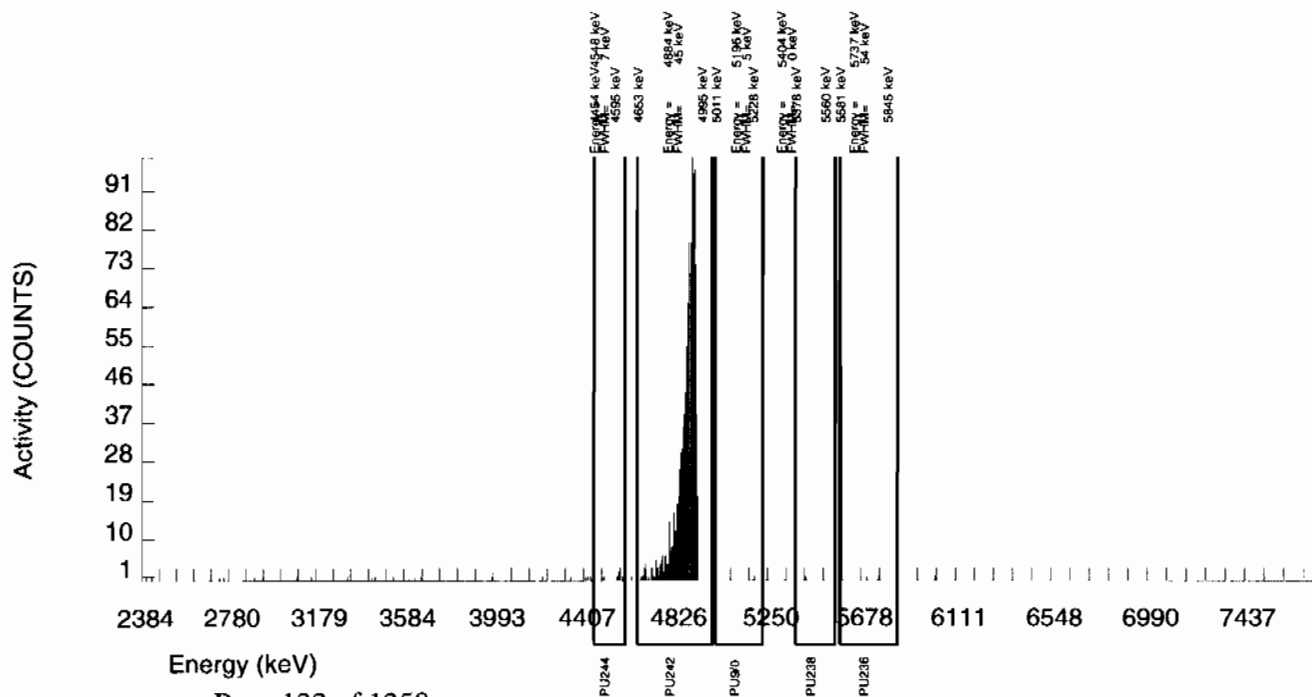
MS/MSD	LCS/LCSD	TRACER	LIB FILE : ENV_ALPHA_PU.N
ID : 0244-B	ID : 0244-B	ID : 1374-A	BKG FILE : B256.CNF;76
ISOTOPE : PU-9/0	ISOTOPE : PU-9/0	ISOTOPE : PU242	BKG DATE : 24-JAN-2010
PCI/G : 4.178E+01	PCI/G : 4.178E+01	NOMINAL : 3.38543 dpm	EFF FILE : W256.CNF;24
		RESULTS : 3.08720 dpm	CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	1.000	0.000	1.000	3.4797	99.90000	0.00E+00	1.46E-03	8.36E-03	1.95E-02	1.46E-03
PU-236	5749.000	2.000	2.000	0.000	2.1286	100.0000	2.08E-03	1.48E-03	5.11E-03	1.30E-02	1.47E-03
PU-238	5499.000	2.000	1.000	1.000	2.9680	99.90000	1.03E-03	1.79E-03	7.13E-03	1.71E-02	1.79E-03
PU242	4890.000	1169.000	1169.000	0.000	0.0000	100.0000	1.21E+00	6.90E-02	0.00E+00	2.79E-03	3.53E-02
PU-244	4589.000	9.000	9.000	0.000	5.2050	99.90000	9.29E-03	3.13E-03	1.25E-02	2.78E-02	3.10E-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: 944430  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022364\_PU  
SAMPLE QTY: 1.000 G

DETECTOR NUMBER : 79190  
AVERAGE %EFFICIENCY : 38.4770  
% YIELD : 86.979

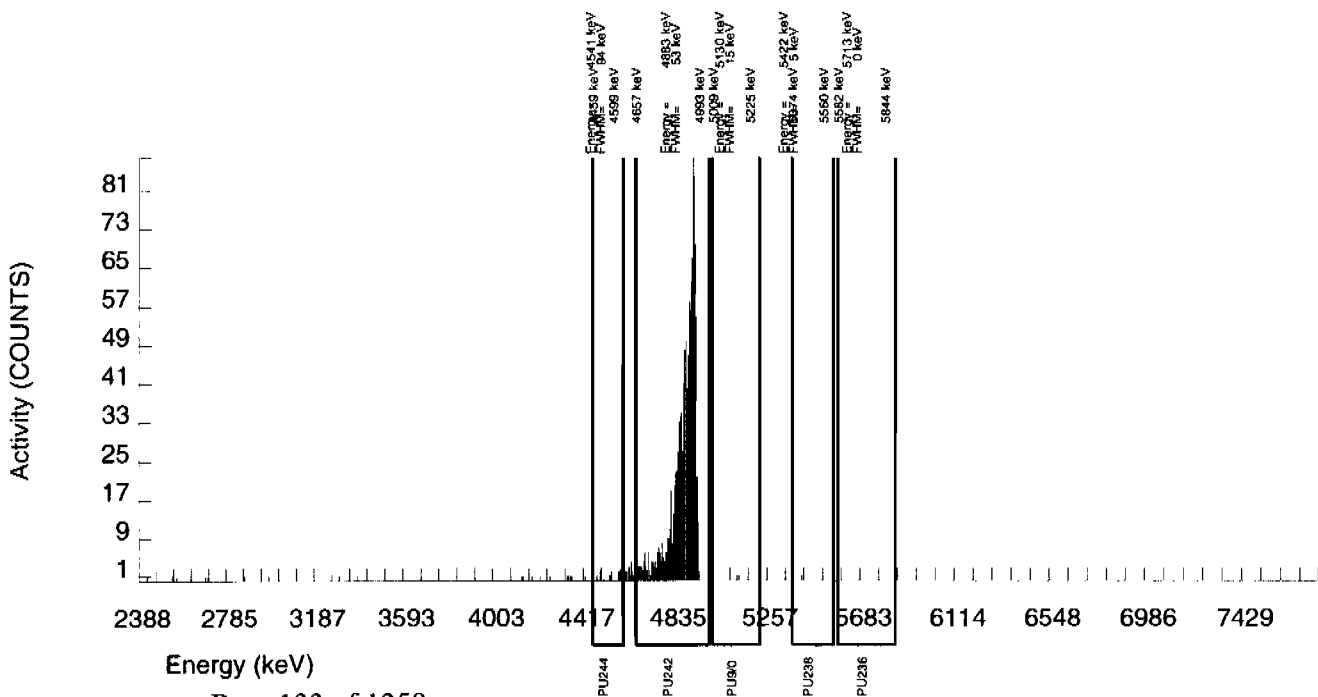
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ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD	LCS/LCSD	TRACER	LIB FILE : ENV_ALPHA_PU.N
ID : 0244-B	ID : 0244-B	ID : 1374-A	BKG FILE : B211.CNF;74
ISOTOPE : PU-9/0	ISOTOPE : PU-9/0	ISOTOPE : PU242	BKG DATE : 26-JAN-2010
PCI/G : 4.178E+01	PCI/G : 4.178E+01	NOMINAL : 3.38543 dpm	EFF FILE : W211.CNF;25
		RESULTS : 2.94462 dpm	CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	-9.000	11.000	3.4797	99.90000	-1.21E-02	4.86E-03	1.09E-02	2.55E-02	4.86E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.35E-03	6.67E-03	1.70E-02	1.35E-03
PU-238	5499.000	1.000	-4.000	5.000	2.9680	99.90000	-5.39E-03	3.30E-03	9.30E-03	2.23E-02	3.30E-03
PU242	4890.000	1139.000	1133.000	6.000	2.4495	100.0000	1.52E+00	8.83E-02	7.67E-03	1.90E-02	4.55E-02
PU-244	4589.000	15.000	13.000	2.000	5.2050	99.90000	1.75E-02	5.62E-03	1.63E-02	3.63E-02	5.56E-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: 944430  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S1202022365\_PU  
SAMPLE QTY: 1.270 G

DETECTOR NUMBER :79191  
AVERAGE %EFFICIENCY :37.7781  
% YIELD : 89.605

COUNT DATE:28-JAN-2010 14:14:28  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01

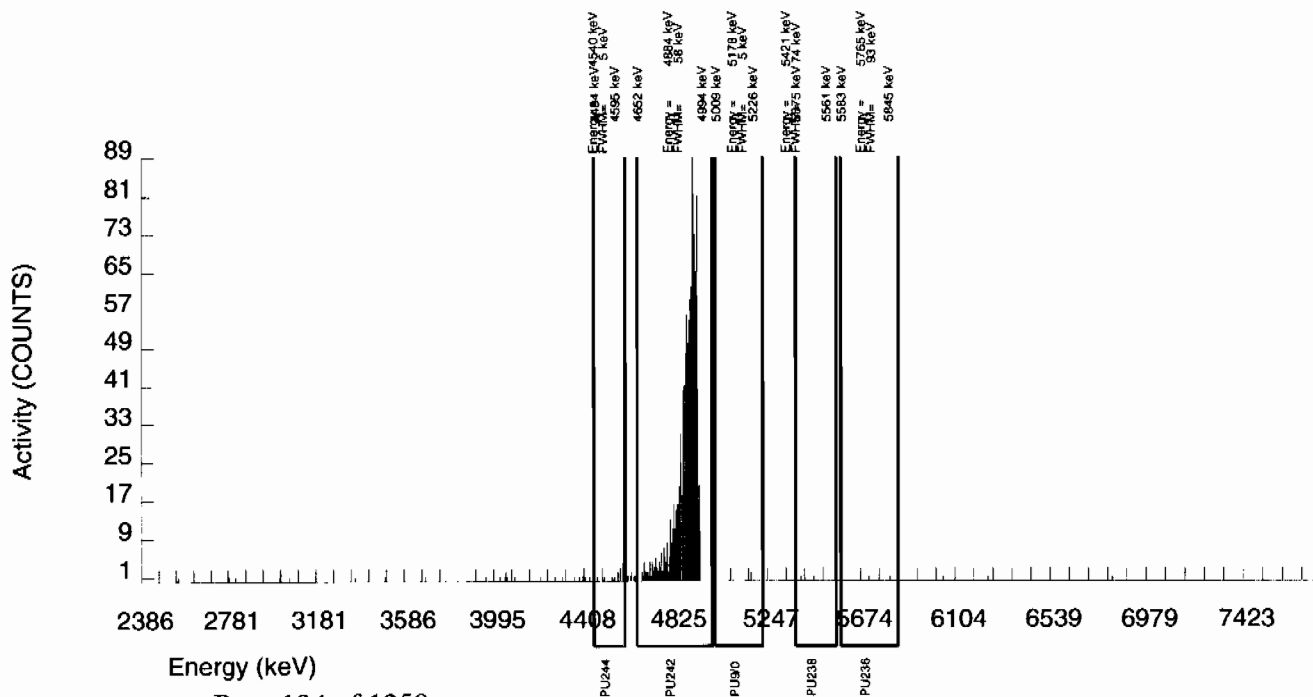
TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.03350 dpm

LIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B212.CNF;74  
BKG DATE : 26-JAN-2010  
EFF FILE : W212.CNF;24  
CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	2.000	0.000	3.4797	99.90000	2.10E-03	1.49E-03	8.49E-03	1.98E-02	1.48E-03
PU-236	5749.000	2.000	0.000	2.000	2.1286	100.0000	0.00E+00	2.12E-03	5.19E-03	1.32E-02	2.12E-03
PU-238	5499.000	3.000	3.000	0.000	2.9680	99.90000	3.15E-03	1.82E-03	7.24E-03	1.73E-02	1.82E-03
PU242	4890.000	1149.000	1146.000	3.000	1.7321	100.0000	1.20E+00	6.92E-02	4.22E-03	1.13E-02	3.56E-02
PU-244	4589.000	12.000	12.000	0.000	5.2050	99.90000	1.26E-02	3.69E-03	1.27E-02	2.82E-02	3.63E-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: 944430  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022366\_PU  
SAMPLE QTY: 0.108 G

DETECTOR NUMBER : 79192  
AVERAGE %EFFICIENCY : 37.2943  
% YIELD : 99.162

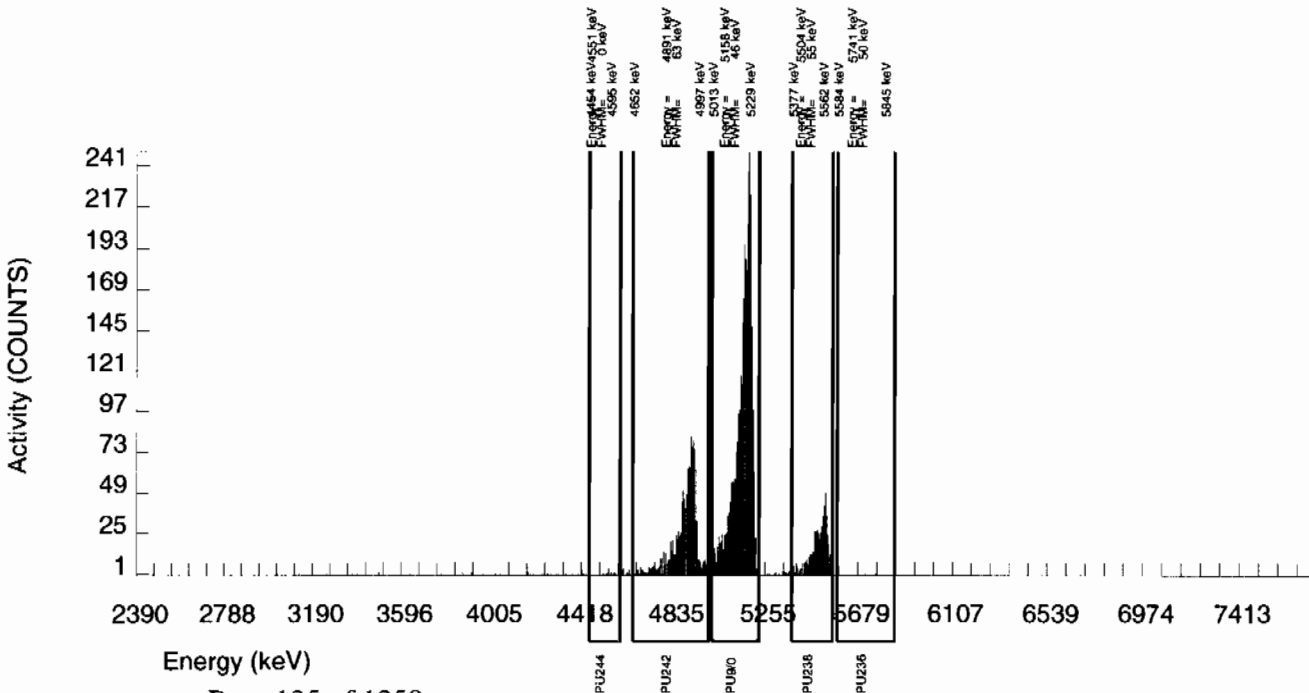
COUNT DATE: 28-JAN-2010 14:14:31  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD	LCS/LCSD	TRACER	LIB FILE : ENV_ALPHA_PU.N
ID : 0244-B	ID : 0244-B	ID : 1374-A	BKG FILE : B213.CNF;74
ISOTOPE : PU-9/0	ISOTOPE : PU-9/0	ISOTOPE : PU242	BKG DATE : 26-JAN-2010
PCI/G : 4.178E+01	PCI/G : 4.178E+01	NOMINAL : 3.38543 dpm	EFF FILE : W213.CNF;24
		RESULTS : 3.35708 dpm	CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	3119.000	3118.000	1.000	3.4797	99.90000	3.52E+01	2.10E+00	9.14E-02	2.13E-01	6.31E-01
PU-236	5749.000	2.000	1.000	1.000	2.1286	100.0000	1.13E-02	1.96E-02	5.58E-02	1.42E-01	1.96E-02
PU-238	5499.000	535.000	534.000	1.000	2.9680	99.90000	6.03E+00	4.32E-01	7.79E-02	1.86E-01	2.61E-01
PU242	4890.000	1252.000	1252.000	0.000	0.0000	100.0000	1.41E+01	8.98E-01	0.00E+00	3.06E-02	3.99E-01
PU-244	4589.000	23.000	22.000	1.000	5.2050	99.90000	2.48E-01	5.71E-02	1.37E-01	3.04E-01	5.53E-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# 944433

Product: U

Date: 1/29/10

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)	X		
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.	X		
Instrument source check is within limits.	X		
Instrument bug check is within limits.	X		
Method RDL/ LLD has been met.	X		
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%.	X		
Or meets the client's required RER acceptance criteria.	X		
Tracer yield is 15-125% . Carrier yield 25-125%.	X		
Or meets the client's contract acceptance criteria.	X		
Method blank is less than the RDL/ LLD.	X		
(If rad samples, < 5% of lowest activity)	X		
Sample was run within hold time.	X		
Sample was correctly preserved if required.	X		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	X		
No blank spaces on data forms.	X		
All line outs Initialed and dated.	X		
No transcription errors are apparent.	X		
Aux data is correct.			N/A
Client Special requirements page has been checked.	X		
Raw Data and/ or spectrum are included and properly stashed.	X		
QC data entered into QC database and batch is in REVW	X		
Hlt notification complete (if necessary)			N/A
Batch entered into Case Narrative.	X		
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.)	X		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

*[Signature]* 1/29/10

Secondary Review Performed By:

*[Signature]* 1/30/10

P.

# Uranium Que Sheet

22-JAN-10

Batch #: 94433 Analyst: JXD2 First Client Due Date: 03-FEB-10 Internal Due Date: 24-JAN-10  
 Tracer Isotope: U-232 U-236 Tracer Code: 1283-H Expiration Date: 12/09/10 Vol: 0.1  
 LCS Isotope: U-238 LCS Code: H63-H Expiration Date: 01/24/10 Vol: 0.1  
 Spike Isotope: U-238 Spike Code: \_\_\_\_\_ Expiration Date: \_\_\_\_\_ Vol: \_\_\_\_\_  
 Prep Date: 1/24/2010 Initials: ME Pipet ID: 111058 Balance ID: 50110272

Witness: 1/24/2010

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Weight Aliquot	U Det #
245101005-1	RE-16-10-1030	SAMPLE		.1 pCi/g	SOIL	LANL010	15-JAN-10	1	1	0.518	113
245101001-1	RE-15-10-7194	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	2	2	0.505	114
245101002-1	RE-15-10-7186	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	3	3	0.500	115
245101003-1	RE-15-10-7191	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	4	4	0.511	117
245101004-1	RE-15-10-7195	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	5	5	0.518	118
245101005-1	RE-15-10-7196	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	6	6	0.510	119
245101006-1	RE-15-10-7197	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	7	7	0.512	120
245101007-1	RE-15-10-7193	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	8	8	0.510	121
245101008-1	RE-15-10-7184	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	9	9	0.510	122
245101009-1	RE-15-10-7185	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	10	10	0.510	123
245101010-1	RE-15-10-7189	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	11	11	0.524	124
245101011-1	RE-15-10-7187	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	12	12	0.515	125
245101012-1	RE-15-10-7188	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	13	13	0.528	126
245101013-1	RE-15-10-7190	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	14	14	0.512	127
245101014-1	RE-15-10-7192	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	15	15	0.505	128
245101015-1	RE-15-10-7219	SAMPLE		.1 pCi/g	SOIL	LANL010	13-JAN-10	16	16	0.513	129
245138601-1	WSTWA-10-11331	SAMPLE		.1 pCi/g	SOIL	LANL010	15-JAN-10	17	17	0.527	130
245138602-1	WSTWA-10-11330	SAMPLE		.1 pCi/g	SOIL	LANL010	15-JAN-10	18	18	0.512	131
1202022308-1	MB for batch 944433	MB		.1 pCi/g	SOIL	QC ACCOUNT		19	19	1	132
1202022309-1	WSTWA-10-11331(245138601DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	15-JAN-10	20	20	0.515	133
1202022390-1	LCS for batch 944433	LCS		.1 pCi/g	SOIL	QC ACCOUNT		21	21	0.109	134

\*SRM 0244-A exp. 10/31/20

*Handwritten signature*

Choose SOP used: GL-RAD-A-01

Solid Sample Dissolution by: LEACH or DIGESTION

Data Reviewed By: \_\_\_\_\_

# Blank Correction Report

**Batch ID 944433**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202022389	DUP	Uranium-233/234	0.515 g	1.09	0.102	0.122	-.00050097	pCi/g	NO
		Uranium-235/236	0.515 g	0.0535	0.0192	0.0758	.004310680	pCi/g	NO
		Uranium-238	0.515 g	1.11	0.103	0.0708	0	pCi/g	NO
1202022390	LCS	Uranium-233/234	0.109 g	5.83	0.547	0.530	-.00236697	pCi/g	NO
		Uranium-235/236	0.109 g	0.254	0.0867	0.329	.020366972	pCi/g	NO
		Uranium-238	0.109 g	5.34	0.511	0.307	0	pCi/g	NO
1202022388	MB	Uranium-233/234	1.00 g	-0.000258	0.0018	0.0556	-.000258	pCi/g	NO
		Uranium-235/236	1.00 g	0.00222	0.00385	0.0345	.00222	pCi/g	YES
		Uranium-238	1.00 g	0.00	0.00359	0.0323	0	pCi/g	NO
245096005	RE46-10-10830	Uranium-233/234	0.518 g	0.944	0.0941	0.138	-.00049807	pCi/g	NO
		Uranium-235/236	0.518 g	0.0605	0.0203	0.0857	.004285714	pCi/g	NO
		Uranium-238	0.518 g	0.895	0.0905	0.080	0	pCi/g	NO
245101001	RE15-10-7194	Uranium-233/234	0.505 g	1.93	0.161	0.119	-.00051089	pCi/g	NO
		Uranium-235/236	0.505 g	0.133	0.0268	0.0739	.004396040	pCi/g	NO
		Uranium-238	0.505 g	2.26	0.185	0.0891	0	pCi/g	NO
245101002	RE15-10-7186	Uranium-233/234	0.500 g	1.15	0.106	0.123	-.000516	pCi/g	NO
		Uranium-235/236	0.500 g	0.0835	0.0222	0.0764	.00444	pCi/g	NO
		Uranium-238	0.500 g	1.53	0.133	0.0714	0	pCi/g	NO
245101003	RE15-10-7191	Uranium-233/234	0.511 g	0.950	0.0917	0.123	-.00050489	pCi/g	NO
		Uranium-235/236	0.511 g	0.0688	0.0203	0.0765	.004344423	pCi/g	NO
		Uranium-238	0.511 g	1.05	0.0986	0.0715	0	pCi/g	NO
245101004	RE15-10-7195	Uranium-233/234	0.518 g	1.15	0.113	0.154	-.00049807	pCi/g	NO
		Uranium-235/236	0.518 g	0.0429	0.0165	0.0954	.004285714	pCi/g	NO
		Uranium-238	0.518 g	1.06	0.106	0.0892	0	pCi/g	NO
245101005	RE15-10-7196	Uranium-233/234	0.510 g	2.50	0.208	0.135	-.00050588	pCi/g	NO
		Uranium-235/236	0.510 g	0.194	0.0368	0.0838	.004352941	pCi/g	NO
		Uranium-238	0.510 g	3.32	0.267	0.0783	0	pCi/g	NO
245101006	RE15-10-7197	Uranium-233/234	0.542 g	0.857	0.0819	0.108	-.00047601	pCi/g	NO
		Uranium-235/236	0.542 g	0.0815	0.0205	0.0668	.004095941	pCi/g	NO
		Uranium-238	0.542 g	1.05	0.0957	0.0624	0	pCi/g	NO
245101007	RE15-10-7193	Uranium-233/234	0.510 g	1.94	0.165	0.127	-.00050588	pCi/g	NO
		Uranium-235/236	0.510 g	0.162	0.031	0.079	.004352941	pCi/g	NO
		Uranium-238	0.510 g	1.94	0.165	0.0738	0	pCi/g	NO
245101008	RE15-10-7184	Uranium-233/234	0.510 g	1.61	0.140	0.124	-.00050588	pCi/g	NO
		Uranium-235/236	0.510 g	0.114	0.025	0.0769	.004352941	pCi/g	NO
		Uranium-238	0.510 g	2.06	0.172	0.0718	0	pCi/g	NO
245101009	RE15-10-7185	Uranium-233/234	0.510 g	1.38	0.122	0.122	-.00050588	pCi/g	NO
		Uranium-235/236	0.510 g	0.165	0.0314	0.0754	.004352941	pCi/g	NO
		Uranium-238	0.510 g	1.56	0.136	0.0705	0	pCi/g	NO
245101010	RE15-10-7189	Uranium-233/234	0.524 g	1.21	0.114	0.134	-.00049237	pCi/g	NO
		Uranium-235/236	0.524 g	0.123	0.0271	0.0833	.004236641	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
245101010	RE15-10-7189	Uranium-238	0.524 g	1.39	0.127	0.0778	0	pCi/g	NO
245101011	RE15-10-7187	Uranium-233/234	0.515 g	1.57	0.136	0.120	-.00050097	pCi/g	NO
		Uranium-235/236	0.515 g	0.0955	0.0224	0.0743	.004310680	pCi/g	NO
		Uranium-238	0.515 g	2.19	0.181	0.0695	0	pCi/g	NO
245101012	RE15-10-7188	Uranium-233/234	0.528 g	1.54	0.135	0.122	-.00048864	pCi/g	NO
		Uranium-235/236	0.528 g	0.107	0.0241	0.0758	.004204545	pCi/g	NO
		Uranium-238	0.528 g	2.09	0.175	0.0708	0	pCi/g	NO
245101013	RE15-10-7190	Uranium-233/234	0.512 g	2.55	0.212	0.136	-.00050391	pCi/g	NO
		Uranium-235/236	0.512 g	0.130	0.0282	0.0846	.004335938	pCi/g	NO
		Uranium-238	0.512 g	3.05	0.248	0.079	0	pCi/g	NO
245101014	RE15-10-7192	Uranium-233/234	0.506 g	2.58	0.215	0.140	-.00050988	pCi/g	NO
		Uranium-235/236	0.506 g	0.162	0.0324	0.0872	.004387352	pCi/g	NO
		Uranium-238	0.506 g	3.22	0.261	0.0815	0	pCi/g	NO
245101015	RE15-10-7219	Uranium-233/234	0.513 g	2.79	0.234	0.150	-.00050292	pCi/g	NO
		Uranium-235/236	0.513 g	0.156	0.0337	0.0933	.004327485	pCi/g	NO
		Uranium-238	0.513 g	3.39	0.278	0.0872	0	pCi/g	NO
245138001	WSTWA-10-11331	Uranium-233/234	0.527 g	1.12	0.103	0.117	-.00048956	pCi/g	NO
		Uranium-235/236	0.527 g	0.0699	0.0187	0.0726	.004212524	pCi/g	NO
		Uranium-238	0.527 g	0.977	0.0922	0.0678	0	pCi/g	NO
245138002	WSTWA-10-11330	Uranium-233/234	0.512 g	1.03	0.0963	0.117	-.00050391	pCi/g	NO
		Uranium-235/236	0.512 g	0.0842	0.0207	0.0728	.004335938	pCi/g	NO
		Uranium-238	0.512 g	0.950	0.0902	0.0681	0	pCi/g	NO



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101001\_UU  
SAMPLE QTY: 0.505 G

DETECTOR NUMBER :78258  
AVERAGE %EFFICIENCY :25.2301  
% YIELD : 92.006

COUNT DATE:28-JAN-2010 16:28:38  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 4.14767 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B114.CNF;441  
BKG DATE : 24-JAN-2010  
EFF FILE : W114.CNF;119  
CAL DATE : 18-JAN-2010

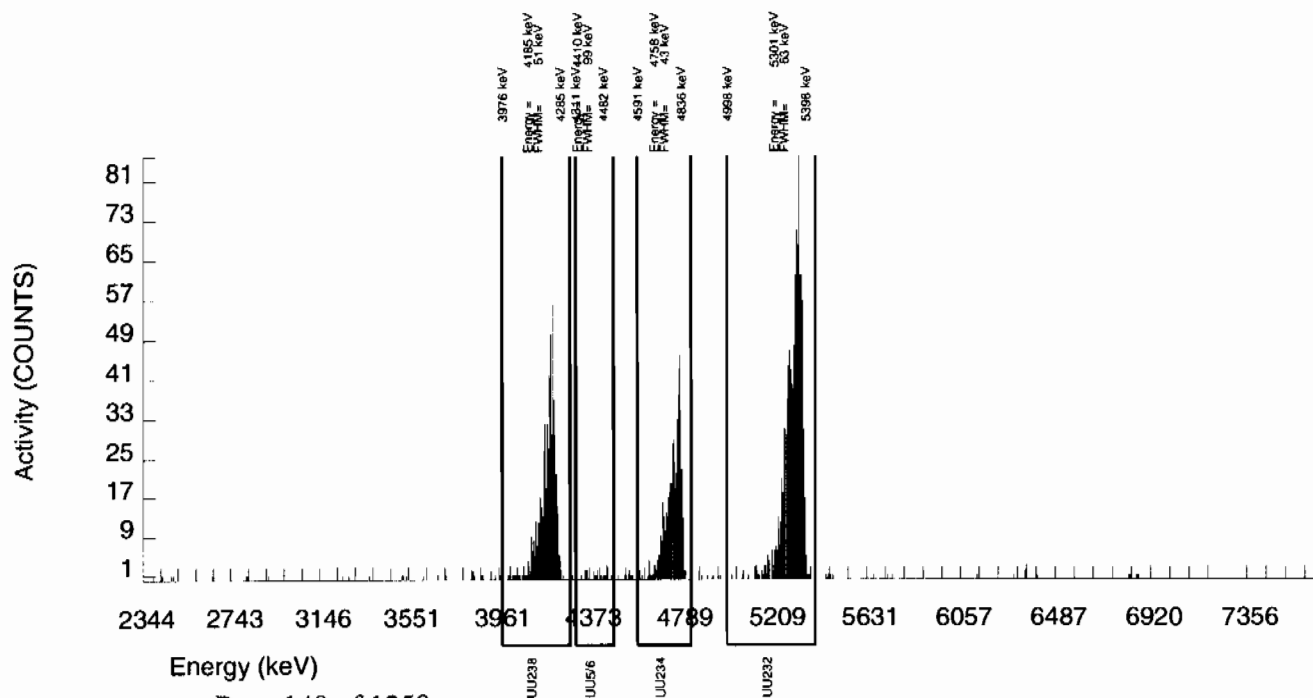
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	503.000	501.942	0.000	6.0782	100.0000	1.93E+00	1.61E-01	5.43E-02	1.19E-01	8.61E-02
U232	5302.100	1046.000	1046.000	0.000	0.0000	100.0000	4.02E+00	3.11E-01	0.00E+00	1.04E-02	1.24E-01
U-235	4391.000	28.000	28.000	0.000	2.7628	80.90000	1.33E-01	2.68E-02	3.05E-02	7.39E-02	2.51E-02
U-238	4184.730	590.000	588.000	2.000	3.2810	100.0000	2.26E+00	1.85E-01	2.93E-02	6.91E-02	9.35E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101002\_UU  
SAMPLE QTY: 0.500 G

DETECTOR NUMBER : 79995  
AVERAGE %EFFICIENCY : 25.9560  
% YIELD : 87.381

COUNT DATE: 28-JAN-2010 16:28:42  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.93917 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B115.CNF;448  
BKG DATE : 24-JAN-2010  
EFF FILE : W115.CNF;147  
CAL DATE : 18-JAN-2010

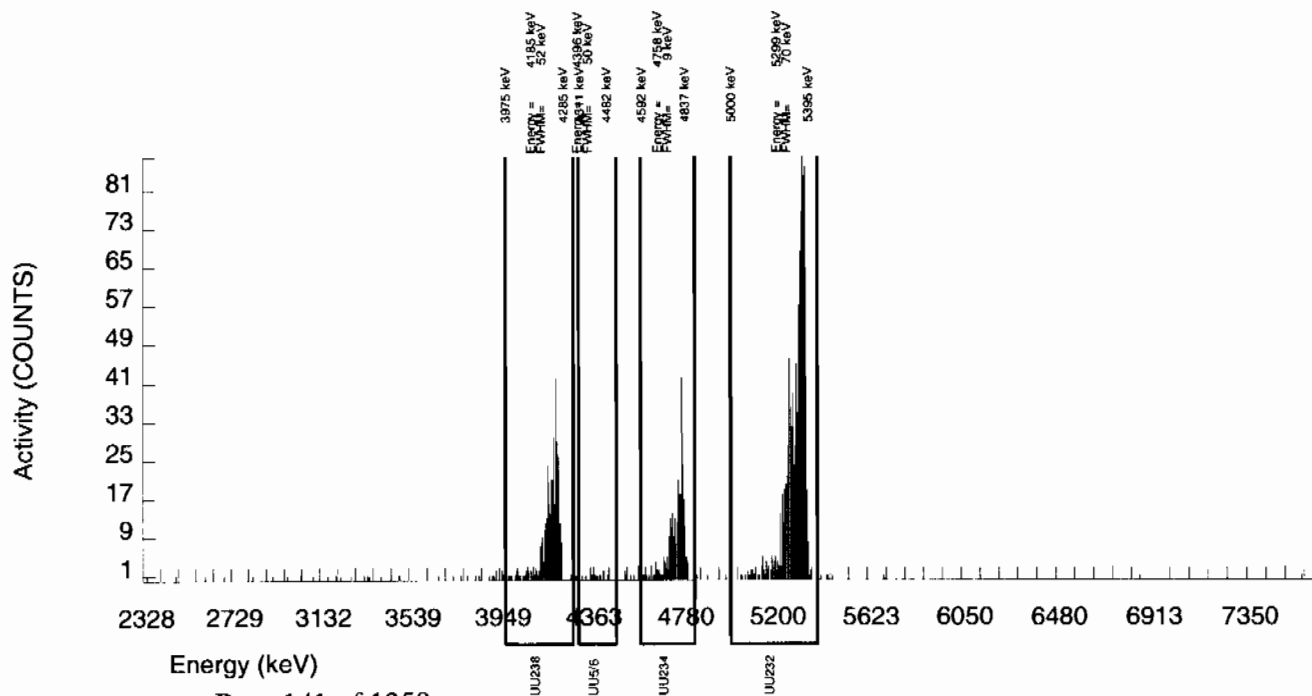
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	292.000	289.966	1.000	6.0782	100.0000	1.15E+00	1.06E-01	5.62E-02	1.23E-01	6.79E-02
U232	5302.100	1024.000	1022.000	2.000	1.4142	100.0000	4.06E+00	3.15E-01	1.31E-02	3.69E-02	1.27E-01
U-235	4391.000	18.000	17.000	1.000	2.7628	80.90000	8.35E-02	2.22E-02	3.16E-02	7.64E-02	2.14E-02
U-238	4184.730	384.000	384.000	0.000	3.2810	100.0000	1.53E+00	1.33E-01	3.03E-02	7.14E-02	7.78E-02

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101003\_UU  
SAMPLE QTY: 0.511 G

DETECTOR NUMBER :33450  
AVERAGE %EFFICIENCY :25.0873  
% YIELD : 88.372

COUNT DATE:28-JAN-2010 16:28:48  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.98385 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B117.CNF;446  
BKG DATE : 24-JAN-2010  
EFF FILE : W117.CNF;119  
CAL DATE : 18-JAN-2010

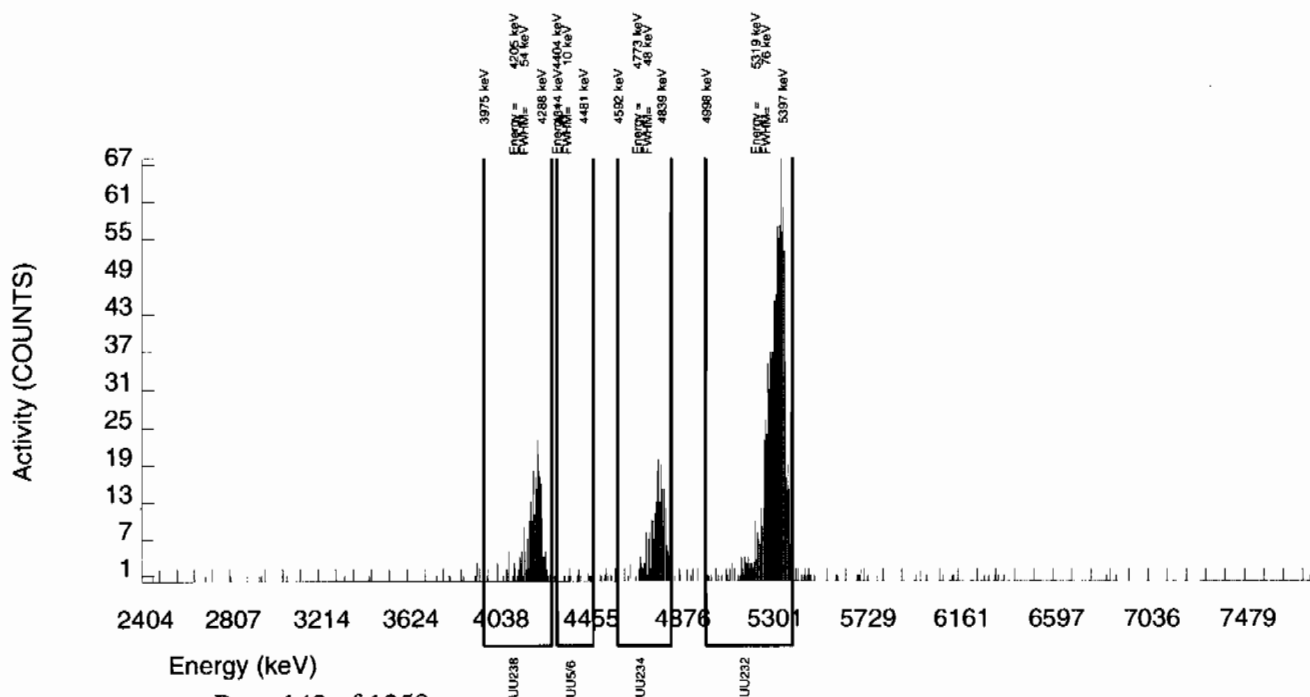
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	242.000	238.989	2.000	6.0782	100.0000	9.50E-01	9.17E-02	5.62E-02	1.23E-01	6.20E-02
U232	5302.100	1002.000	999.000	3.000	1.7321	100.0000	3.97E+00	3.10E-01	1.60E-02	4.28E-02	1.26E-01
U-235	4391.000	15.000	14.000	1.000	2.7628	80.90000	6.88E-02	2.03E-02	3.16E-02	7.65E-02	1.97E-02
U-238	4184.730	264.000	263.000	1.000	3.2810	100.0000	1.05E+00	9.86E-02	3.03E-02	7.15E-02	6.47E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101004\_UU  
SAMPLE QTY: 0.518 G

DETECTOR NUMBER :75544  
AVERAGE %EFFICIENCY :25.4737  
% YIELD : 68.824

COUNT DATE:28-JAN-2010 16:28:51  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.10260 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B118.CNF;445  
BKG DATE : 24-JAN-2010  
EFF FILE : W118.CNF;116  
CAL DATE : 18-JAN-2010

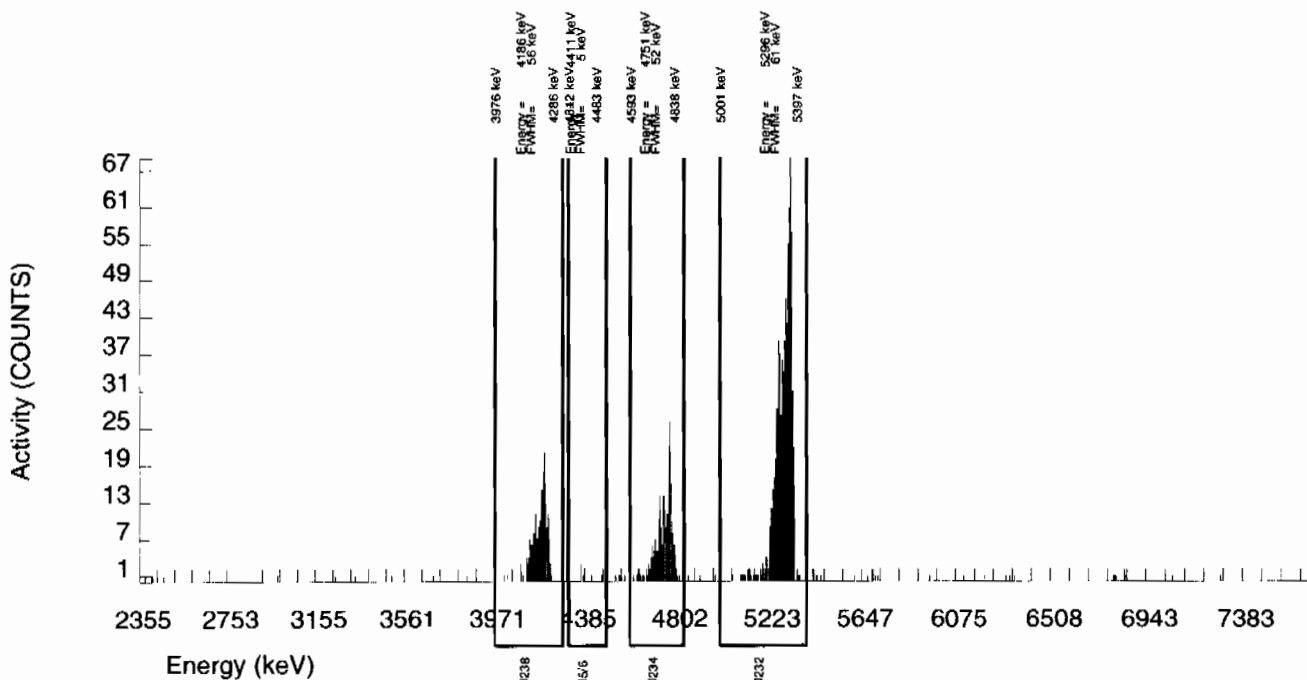
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	233.000	231.201	1.000	6.0782	100.0000	1.15E+00	1.13E-01	7.01E-02	1.54E-01	7.57E-02
U232	5302.100	795.000	790.000	5.000	2.2361	100.0000	3.92E+00	3.19E-01	2.58E-02	6.50E-02	1.40E-01
U-235	4391.000	7.000	7.000	0.000	2.7628	80.90000	4.29E-02	1.65E-02	3.94E-02	9.54E-02	1.62E-02
U-238	4184.730	215.000	214.000	1.000	3.2810	100.0000	1.06E+00	1.06E-01	3.79E-02	8.92E-02	7.29E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101005\_UU  
SAMPLE QTY: 0.510 G

DETECTOR NUMBER :79450  
AVERAGE %EFFICIENCY :25.6819  
% YIELD : 78.981

COUNT DATE:28-JAN-2010 16:28:53  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.56049 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B119.CNF;454  
BKG DATE : 24-JAN-2010  
EFF FILE : W119.CNF;119  
CAL DATE : 18-JAN-2010

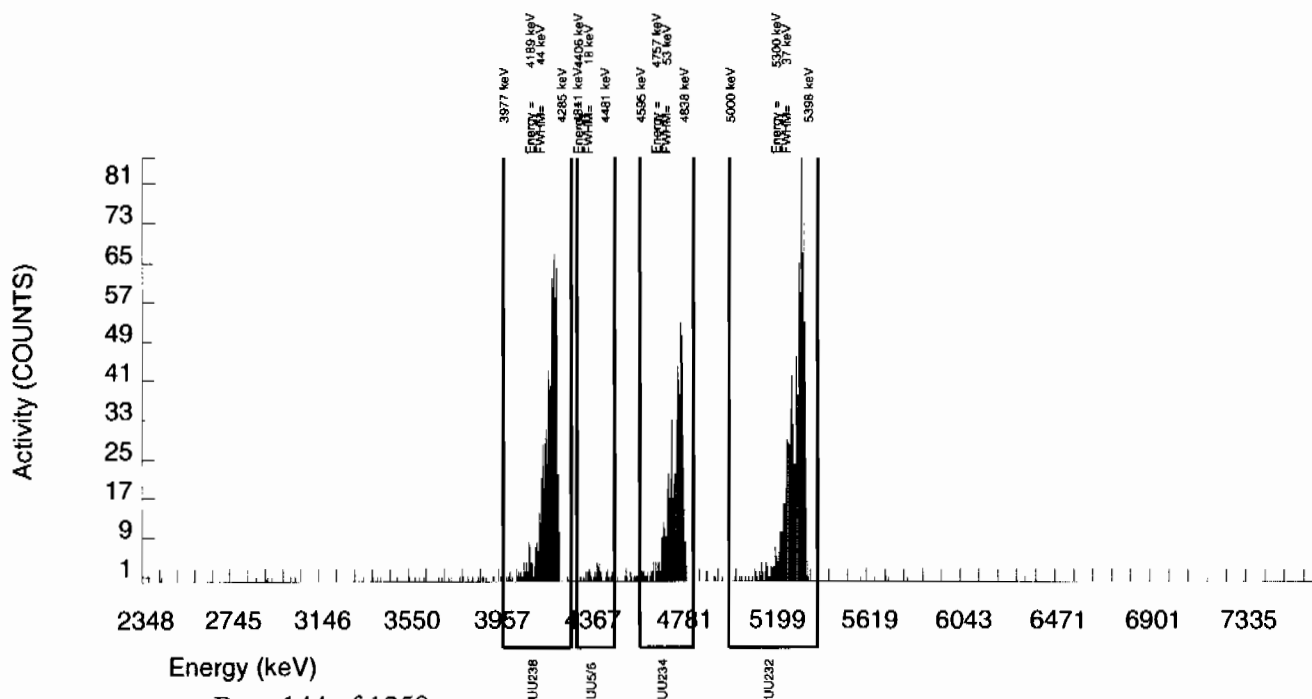
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	575.000	574.075	0.000	6.0782	100.0000	2.50E+00	2.08E-01	6.16E-02	1.35E-01	1.04E-01
U232	5302.100	917.000	914.000	3.000	1.7321	100.0000	3.98E+00	3.15E-01	1.75E-02	4.69E-02	1.32E-01
U-235	4391.000	38.000	36.000	2.000	2.7628	80.90000	1.94E-01	3.68E-02	3.46E-02	8.38E-02	3.40E-02
U-238	4184.730	763.000	763.000	0.000	3.2810	100.0000	3.32E+00	2.67E-01	3.32E-02	7.83E-02	1.20E-01

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101006\_UU  
SAMPLE QTY: 0.542 G

DETECTOR NUMBER :74430  
AVERAGE %EFFICIENCY :25.9820  
% YIELD : 92.162

COUNT DATE:28-JAN-2010 16:28:56  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 4.15471 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B120.CNF;458  
BKG DATE : 24-JAN-2010  
EFF FILE : W120.CNF;126  
CAL DATE : 18-JAN-2010

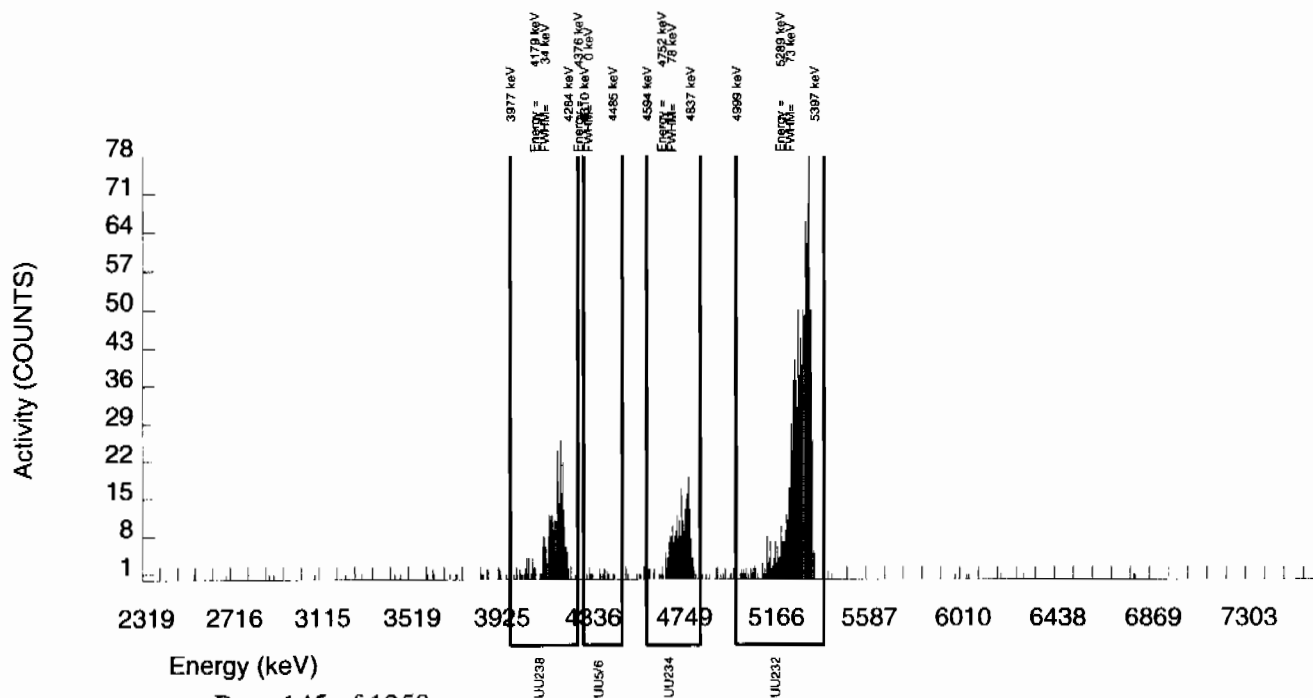
NUCLIDE ACTIVITY SUMMARY

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	251.000	246.909	3.000	6.0782	100.0000	8.57E-01	8.19E-02	4.91E-02	1.08E-01	5.52E-02
U232	5302.100	1080.000	1079.000	1.000	1.0000	100.0000	3.75E+00	2.88E-01	8.07E-03	2.56E-02	1.14E-01
U-235	4391.000	20.000	19.000	1.000	2.7628	80.90000	8.15E-02	2.05E-02	2.76E-02	6.68E-02	1.97E-02
U-238	4184.730	304.000	302.000	2.000	3.2810	100.0000	1.05E+00	9.57E-02	2.65E-02	6.24E-02	6.07E-02

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101007\_UU  
SAMPLE QTY: 0.510 G

DETECTOR NUMBER :75545  
AVERAGE %EFFICIENCY :24.4776  
% YIELD : 87.854

COUNT DATE:28-JAN-2010 16:29:00  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.96048 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B121.CNF;440  
BKG DATE : 24-JAN-2010  
EFF FILE : W121.CNF;117  
CAL DATE : 18-JAN-2010

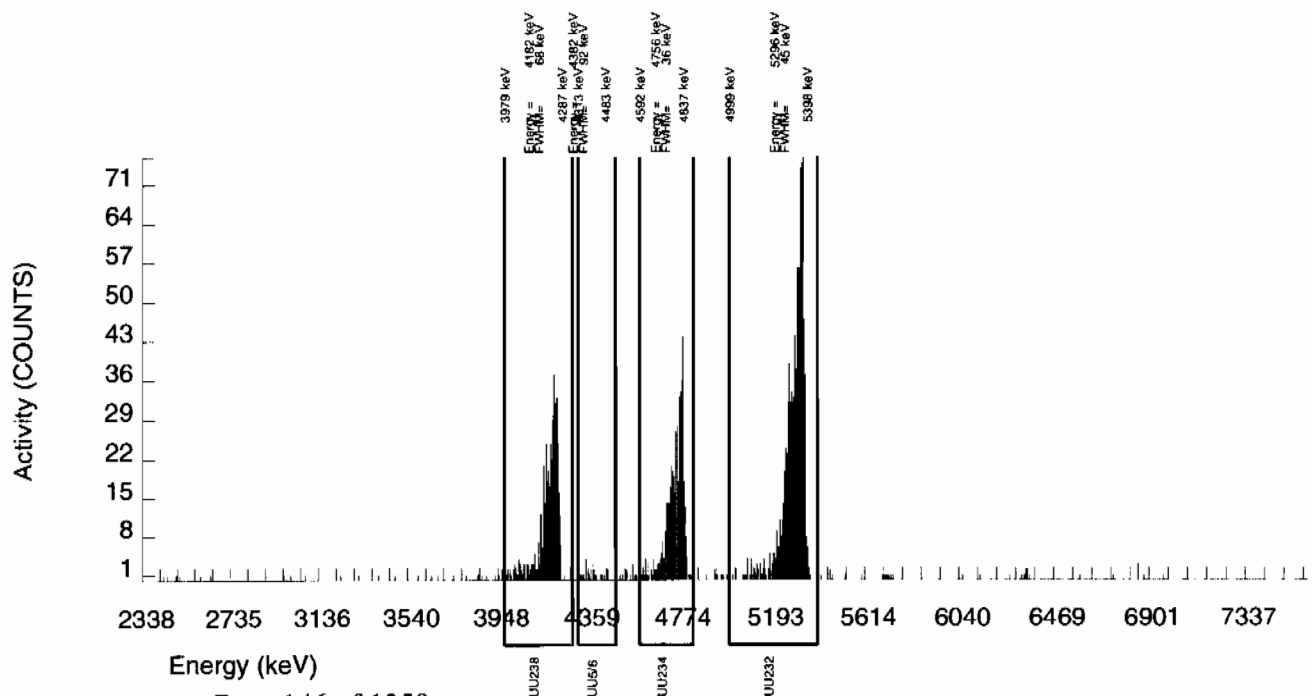
NUCLIDE ACTIVITY SUMMARY

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	475.000	473.020	1.000	6.0782	100.0000	1.94E+00	1.65E-01	5.81E-02	1.27E-01	8.95E-02
U232	5302.100	974.000	969.000	5.000	2.2361	100.0000	3.98E+00	3.12E-01	2.14E-02	5.39E-02	1.29E-01
U-235	4391.000	32.000	32.000	0.000	2.7628	80.90000	1.62E-01	3.10E-02	3.26E-02	7.90E-02	2.87E-02
U-238	4184.730	472.000	472.000	0.000	3.2810	100.0000	1.94E+00	1.65E-01	3.13E-02	7.38E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101008\_UU  
SAMPLE QTY: 0.510 G

DETECTOR NUMBER :75546  
AVERAGE %EFFICIENCY :24.9662  
% YIELD : 88.534

COUNT DATE:28-JAN-2010 16:29:03  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD	LCS/LCSD	TRACER	LIB FILE : ENV_ALPHA_UU.N
ID : 0244-A	ID : 0244-A	ID : 1283-H	BKG FILE : B122.CNF;442
ISOTOPE : U-238	ISOTOPE : U-238	ISOTOPE : U232	BKG DATE : 24-JAN-2010
PCI/G : 5.750E+00	PCI/G : 5.750E+00	NOMINAL : 4.50804 dpm	EFF FILE : W122.CNF;120
		RESULTS : 3.99115 dpm	CAL DATE : 18-JAN-2010

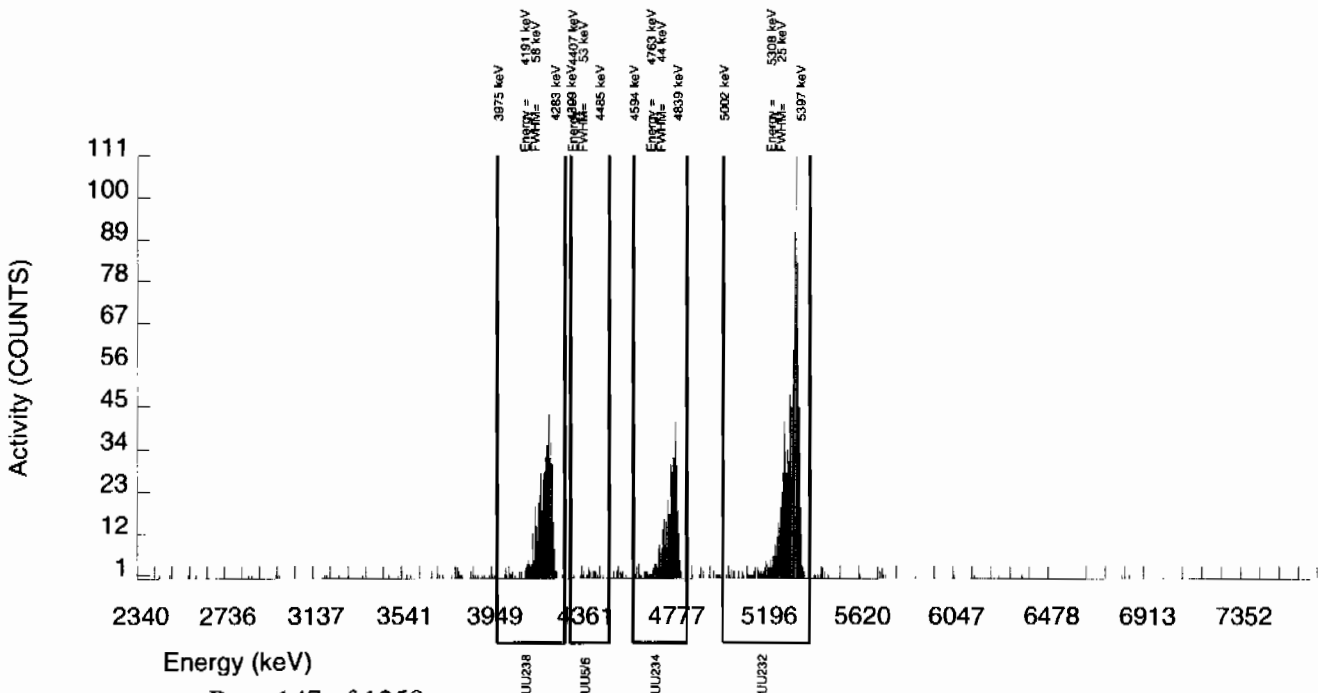
NUCLIDE ACTIVITY SUMMARY

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	405.000	402.993	1.000	6.0782	100.0000	1.61E+00	1.40E-01	5.65E-02	1.24E-01	8.04E-02
U232	5302.100	1001.000	996.000	5.000	2.2361	100.0000	3.98E+00	3.11E-01	2.08E-02	5.24E-02	1.27E-01
U-235	4391.000	23.000	23.000	0.000	2.7628	80.90000	1.14E-01	2.50E-02	3.17E-02	7.69E-02	2.37E-02
U-238	4184.730	515.000	515.000	0.000	3.2810	100.0000	2.06E+00	1.72E-01	3.05E-02	7.18E-02	9.07E-02

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101009\_UU  
SAMPLE QTY: 0.510 G

DETECTOR NUMBER :45-142V3  
AVERAGE %EFFICIENCY :25.9975  
% YIELD : 86.644

COUNT DATE:28-JAN-2010 16:29:05  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.90594 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B123.CNF;440  
BKG DATE : 24-JAN-2010  
EFF FILE : W123.CNF;116  
CAL DATE : 18-JAN-2010

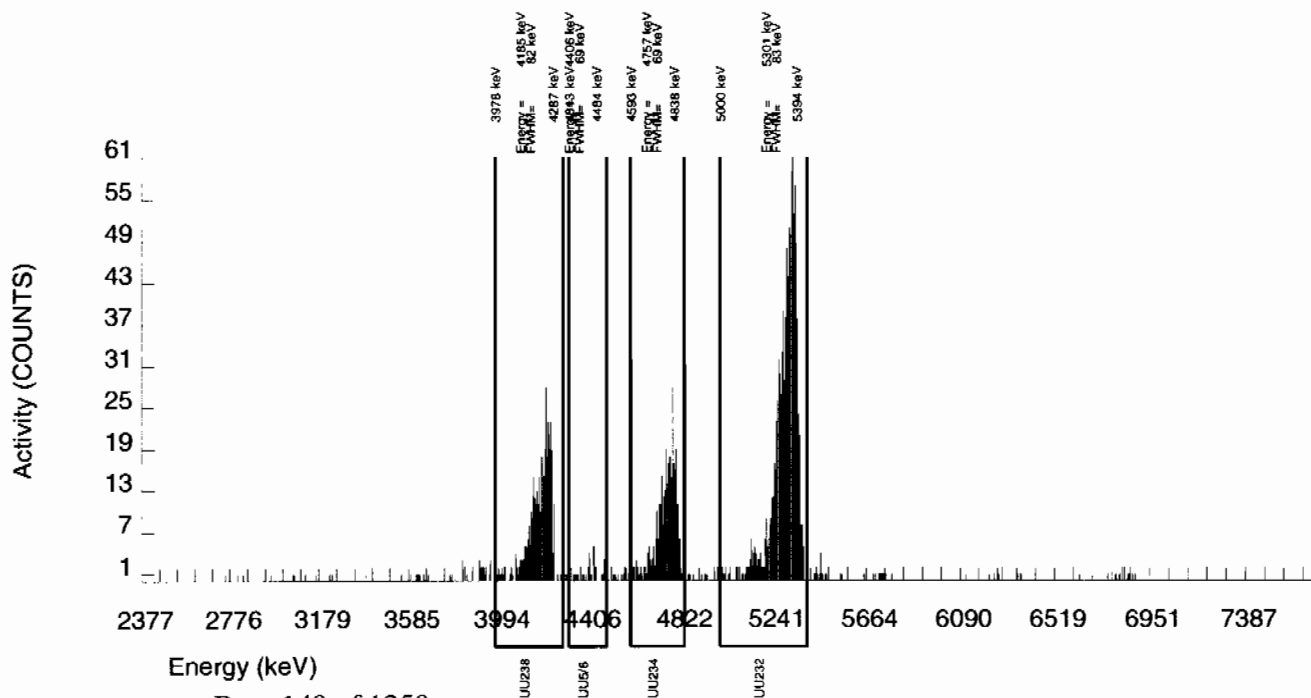
NUCLIDE ACTIVITY SUMMARY

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	353.000	350.973	1.000	6.0782	100.0000	1.38E+00	1.22E-01	5.54E-02	1.22E-01	7.37E-02
U232	5302.100	1020.000	1015.000	5.000	2.2361	100.0000	3.98E+00	3.10E-01	2.04E-02	5.14E-02	1.26E-01
U-235	4391.000	35.000	34.000	1.000	2.7628	80.90000	1.65E-01	3.14E-02	3.12E-02	7.54E-02	2.91E-02
U-238	4184.730	398.000	397.000	1.000	3.2810	100.0000	1.56E+00	1.36E-01	2.99E-02	7.05E-02	7.83E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101010\_UU  
SAMPLE QTY: 0.524 G

DETECTOR NUMBER :45-142V2  
AVERAGE %EFFICIENCY :25.8260  
% YIELD : 76.908

COUNT DATE:28-JAN-2010 16:29:09  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.46703 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B124.CNF;436  
BKG DATE : 24-JAN-2010  
EFF FILE : W124.CNF;112  
CAL DATE : 18-JAN-2010

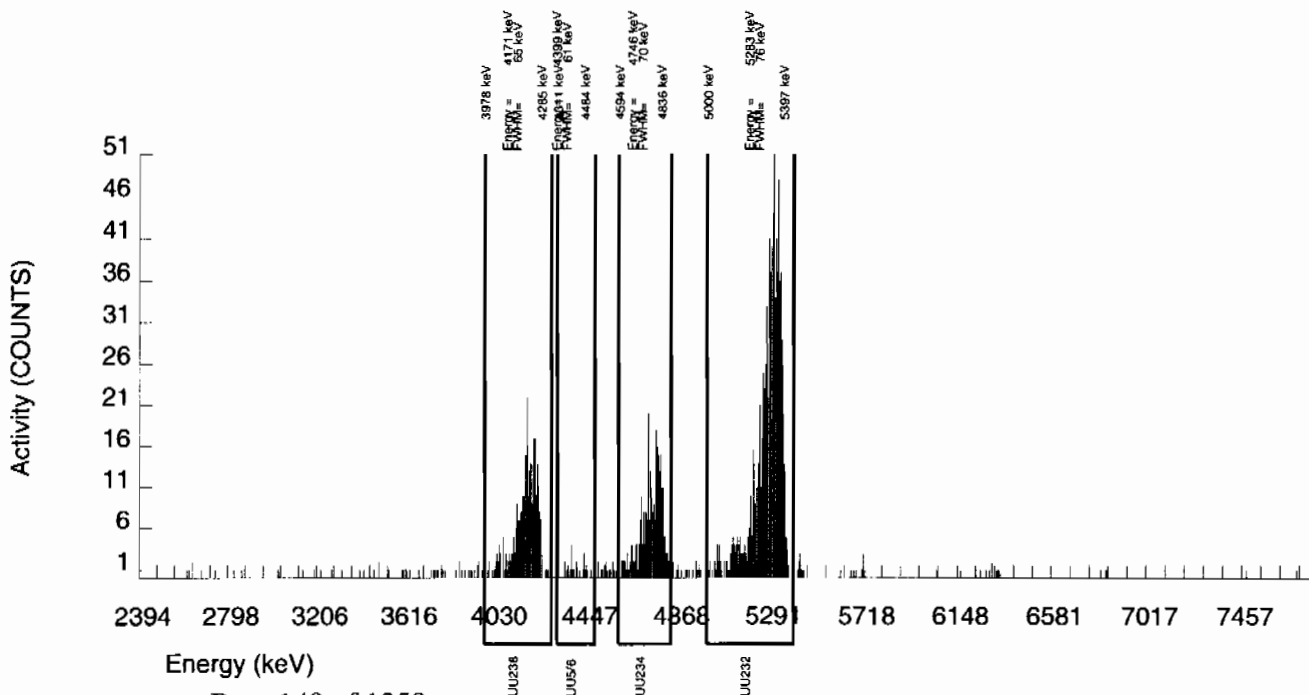
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	283.000	280.095	2.000	6.0782	100.0000	1.21E+00	1.14E-01	6.12E-02	1.34E-01	7.29E-02
U232	5302.100	903.000	895.000	8.000	2.8284	100.0000	3.88E+00	3.08E-01	2.85E-02	6.87E-02	1.31E-01
U-235	4391.000	23.000	23.000	0.000	2.7628	80.90000	1.23E-01	2.71E-02	3.44E-02	8.33E-02	2.57E-02
U-238	4184.730	322.000	322.000	0.000	3.2810	100.0000	1.39E+00	1.27E-01	3.30E-02	7.78E-02	7.77E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101011\_UU  
SAMPLE QTY: 0.515 G

DETECTOR NUMBER :75547  
AVERAGE %EFFICIENCY :25.8749  
% YIELD : 87.483

COUNT DATE:28-JAN-2010 16:29:11  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.94379 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B125.CNF;446  
BKG DATE : 24-JAN-2010  
EFF FILE : W125.CNF;130  
CAL DATE : 18-JAN-2010

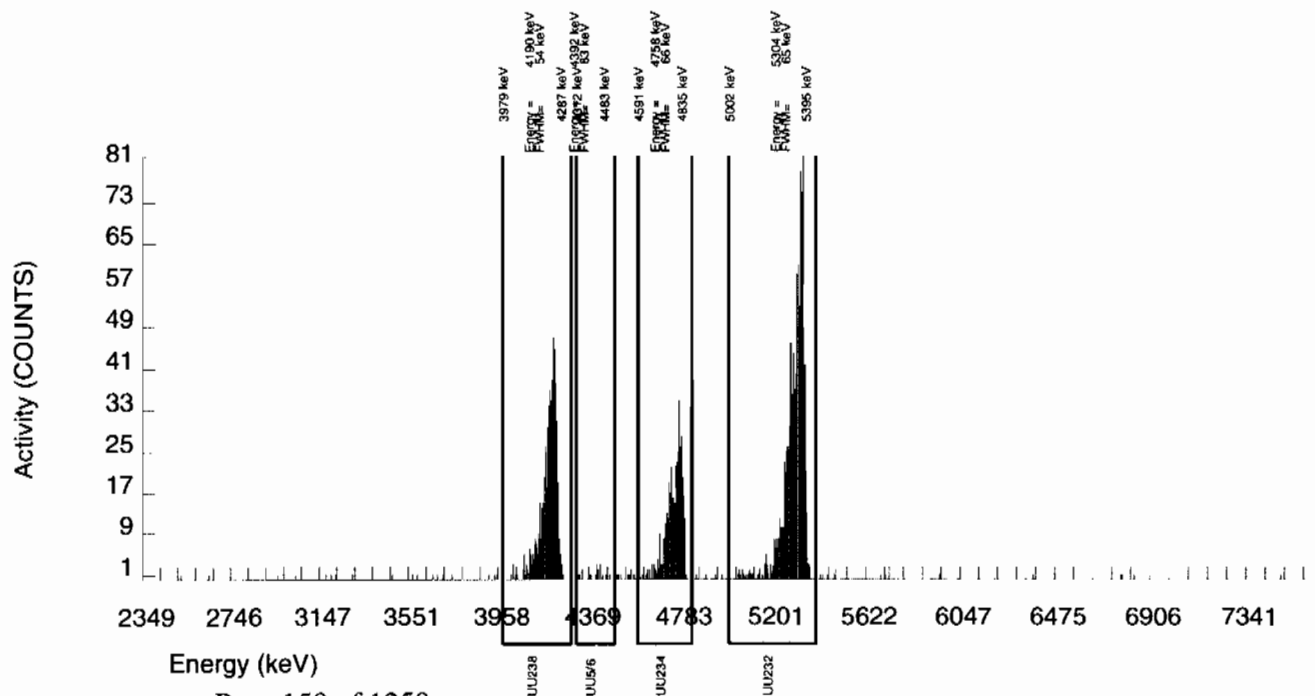
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	410.000	405.968	3.000	6.0782	100.0000	1.57E+00	1.36E-01	5.46E-02	1.20E-01	7.84E-02
U232	5302.100	1021.000	1020.000	1.000	1.0000	100.0000	3.94E+00	3.06E-01	8.99E-03	2.84E-02	1.24E-01
U-235	4391.000	20.000	20.000	0.000	2.7628	80.90000	9.55E-02	2.24E-02	3.07E-02	7.43E-02	2.14E-02
U-238	4184.730	568.000	567.000	1.000	3.2810	100.0000	2.19E+00	1.81E-01	2.95E-02	6.95E-02	9.22E-02

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101012\_UU  
SAMPLE QTY: 0.528 G

DETECTOR NUMBER :75548  
AVERAGE %EFFICIENCY :25.0717  
% YIELD : 86.391

COUNT DATE:28-JAN-2010 16:29:14  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.89455 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B126.CNF;445  
BKG DATE : 24-JAN-2010  
EFF FILE : W126.CNF;132  
CAL DATE : 18-JAN-2010

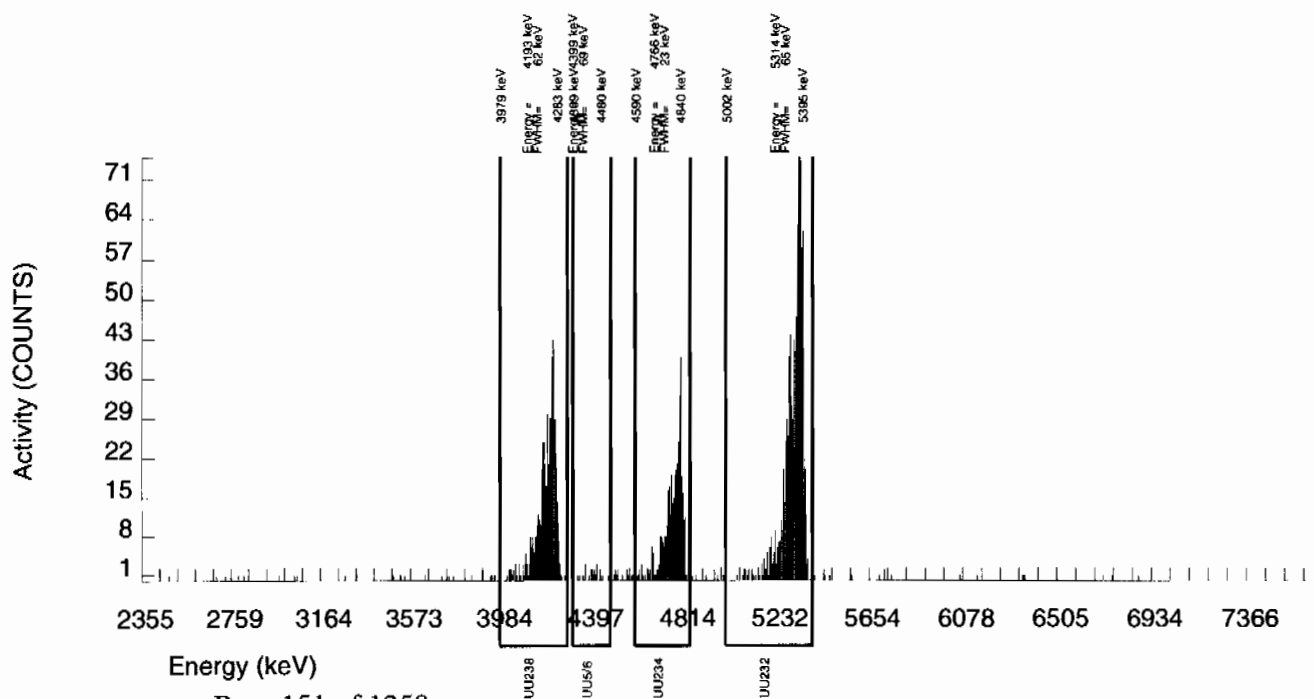
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	393.000	391.013	1.000	6.0782	100.0000	1.54E+00	1.35E-01	5.57E-02	1.22E-01	7.81E-02
U232	5302.100	978.000	976.000	2.000	1.4142	100.0000	3.85E+00	3.01E-01	1.30E-02	3.66E-02	1.23E-01
U-235	4391.000	22.000	22.000	0.000	2.7628	80.90000	1.07E-01	2.41E-02	3.13E-02	7.58E-02	2.28E-02
U-238	4184.730	532.000	531.000	1.000	3.2810	100.0000	2.09E+00	1.75E-01	3.01E-02	7.08E-02	9.09E-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: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101013\_UU  
SAMPLE QTY: 0.512 G

DETECTOR NUMBER :78770  
AVERAGE %EFFICIENCY :24.3481  
% YIELD : 82.214

COUNT DATE:28-JAN-2010 16:29:16  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.70623 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B127.CNF;449  
BKG DATE : 24-JAN-2010  
EFF FILE : W127.CNF;123  
CAL DATE : 18-JAN-2010

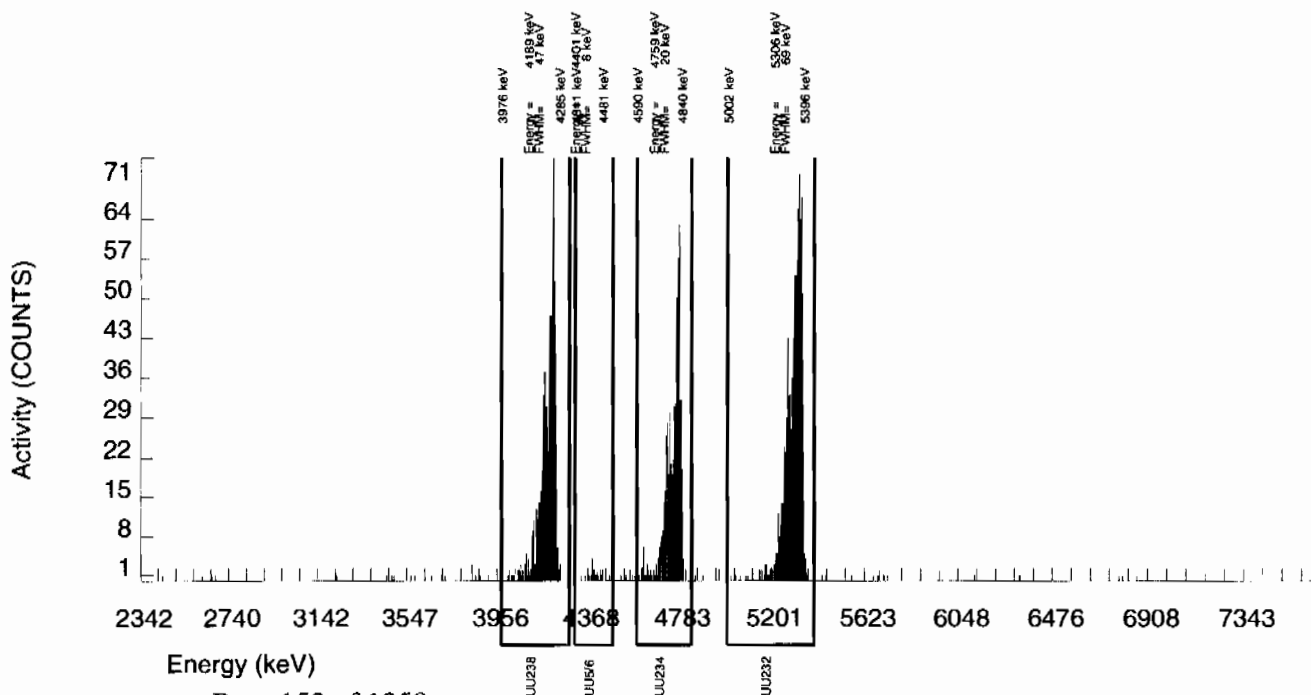
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	582.000	580.088	1.000	6.0782	100.0000	2.55E+00	2.12E-01	6.21E-02	1.36E-01	1.06E-01
U232	5302.100	903.000	902.000	1.000	1.0000	100.0000	3.97E+00	3.14E-01	1.02E-02	3.24E-02	1.32E-01
U-235	4391.000	24.000	24.000	0.000	2.7628	80.90000	1.30E-01	2.82E-02	3.49E-02	8.46E-02	2.66E-02
U-238	4184.730	694.000	694.000	0.000	3.2810	100.0000	3.05E+00	2.48E-01	3.35E-02	7.90E-02	1.16E-01

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101014\_UU  
SAMPLE QTY: 0.506 G

DETECTOR NUMBER :75549  
AVERAGE %EFFICIENCY :25.6524  
% YIELD : 76.563

COUNT DATE:28-JAN-2010 16:29:19  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.45149 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B128.CNF;455  
BKG DATE : 24-JAN-2010  
EFF FILE : W128.CNF;133  
CAL DATE : 18-JAN-2010

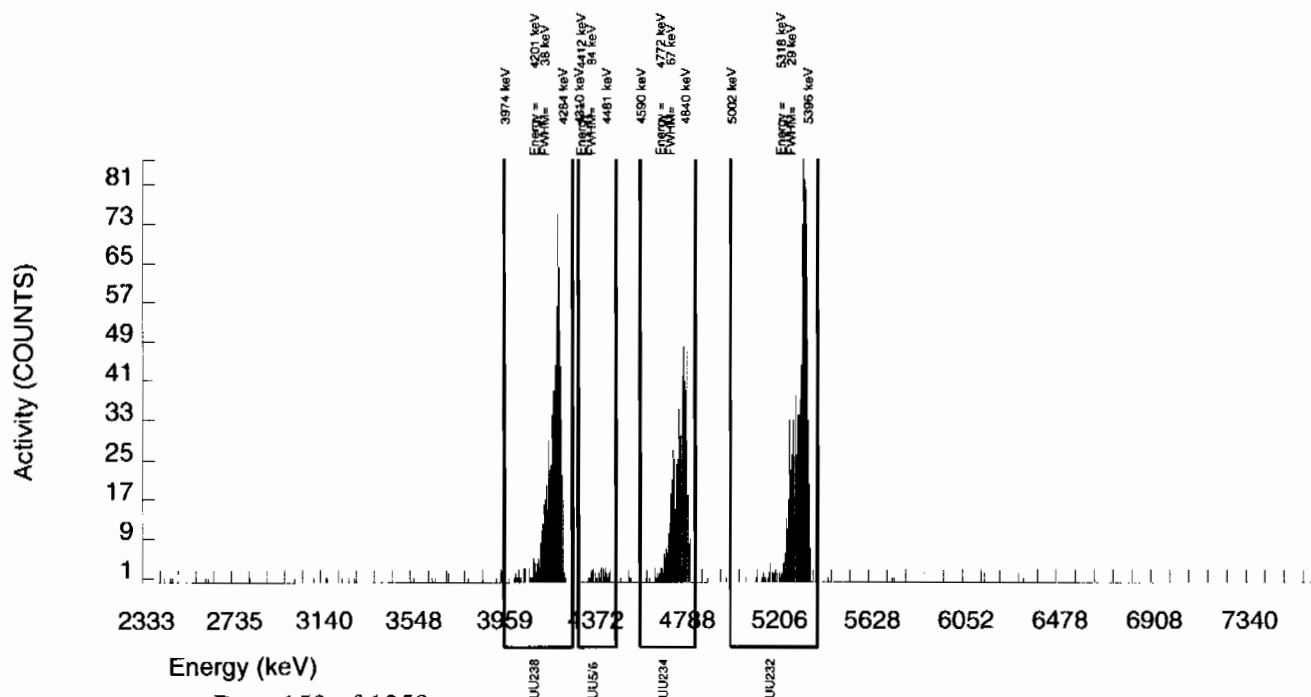
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	570.000	569.105	0.000	6.0782	100.0000	2.58E+00	2.15E-01	6.41E-02	1.40E-01	1.08E-01
U232	5302.100	886.000	885.000	1.000	1.0000	100.0000	4.01E+00	3.19E-01	1.05E-02	3.34E-02	1.35E-01
U-235	4391.000	29.000	29.000	0.000	2.7628	80.90000	1.62E-01	3.24E-02	3.60E-02	8.72E-02	3.02E-02
U-238	4184.730	710.000	710.000	0.000	3.2810	100.0000	3.22E+00	2.61E-01	3.46E-02	8.15E-02	1.21E-01

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 13-JAN-2010 00:00:00

SAMPLE ID : S0245101015\_UU  
SAMPLE QTY: 0.513 G

DETECTOR NUMBER : 76227  
AVERAGE %EFFICIENCY : 26.4183  
% YIELD : 68.547

COUNT DATE: 28-JAN-2010 16:29:21  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50804 dpm  
RESULTS : 3.09014 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B129.CNF;444  
BKG DATE : 24-JAN-2010  
EFF FILE : W129.CNF;128  
CAL DATE : 18-JAN-2010

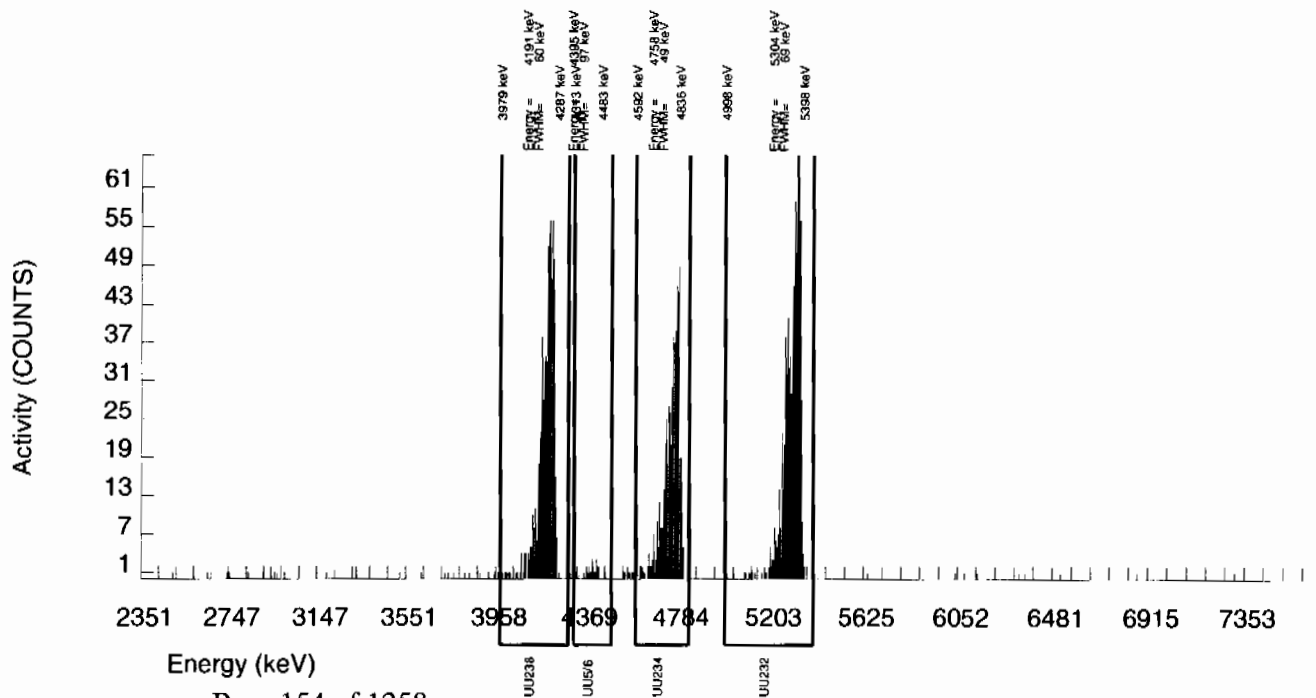
NUCLIDE ACTIVITY SUMMARY

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	576.000	575.175	0.000	6.0782	100.0000	2.79E+00	2.34E-01	6.86E-02	1.50E-01	1.16E-01
U232	5302.100	819.000	816.000	3.000	1.7321	100.0000	3.96E+00	3.20E-01	1.95E-02	5.22E-02	1.39E-01
U-235	4391.000	27.000	26.000	1.000	2.7628	80.90000	1.56E-01	3.37E-02	3.85E-02	9.33E-02	3.17E-02
U-238	4184.730	700.000	700.000	0.000	3.2810	100.0000	3.39E+00	2.78E-01	3.70E-02	8.72E-02	1.28E-01

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S0245138001\_UU  
SAMPLE QTY: 0.527 G

DETECTOR NUMBER : 76228  
AVERAGE %EFFICIENCY : 24.7378  
% YIELD : 91.594

COUNT DATE: 28-JAN-2010 16:29:24  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST : JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50779 dpm  
RESULTS : 4.12888 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B130.CNF;444  
BKG DATE : 24-JAN-2010  
EFF FILE : W130.CNF;130  
CAL DATE : 18-JAN-2010

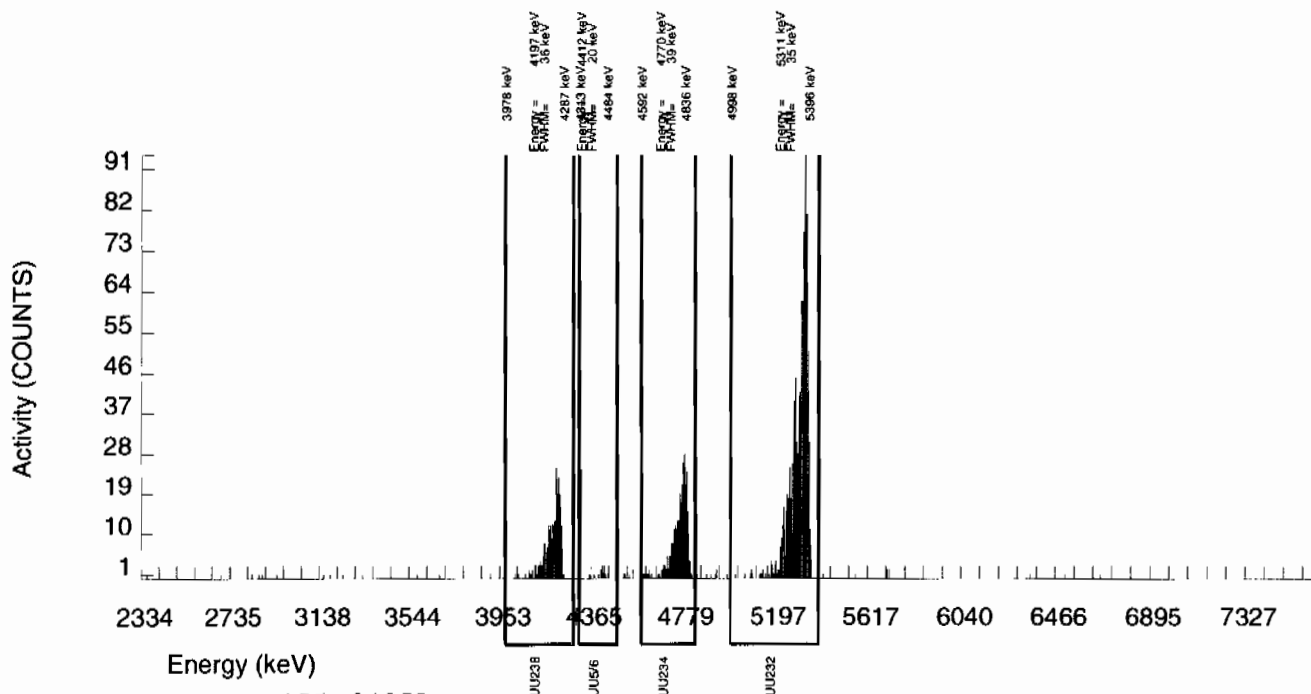
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	298.000	295.967	1.000	6.0782	100.0000	1.12E+00	1.03E-01	5.33E-02	1.17E-01	6.51E-02
U232	5302.100	1022.000	1021.000	1.000	1.0000	100.0000	3.85E+00	2.99E-01	8.78E-03	2.78E-02	1.21E-01
U-235	4391.000	15.000	15.000	0.000	2.7628	80.90000	6.99E-02	1.87E-02	3.00E-02	7.26E-02	1.81E-02
U-238	4184.730	259.000	259.000	0.000	3.2810	100.0000	9.77E-01	9.22E-02	2.88E-02	6.78E-02	6.07E-02

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

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 944433  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022388\_UU  
SAMPLE QTY: 1.000 G

DETECTOR NUMBER :67579  
AVERAGE %EFFICIENCY :24.9091  
% YIELD : 100.765

COUNT DATE:28-JAN-2010 16:29:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50642 dpm  
RESULTS : 4.54089 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B132.CNF;436  
BKG DATE : 24-JAN-2010  
EFF FILE : W132.CNF;130  
CAL DATE : 18-JAN-2010

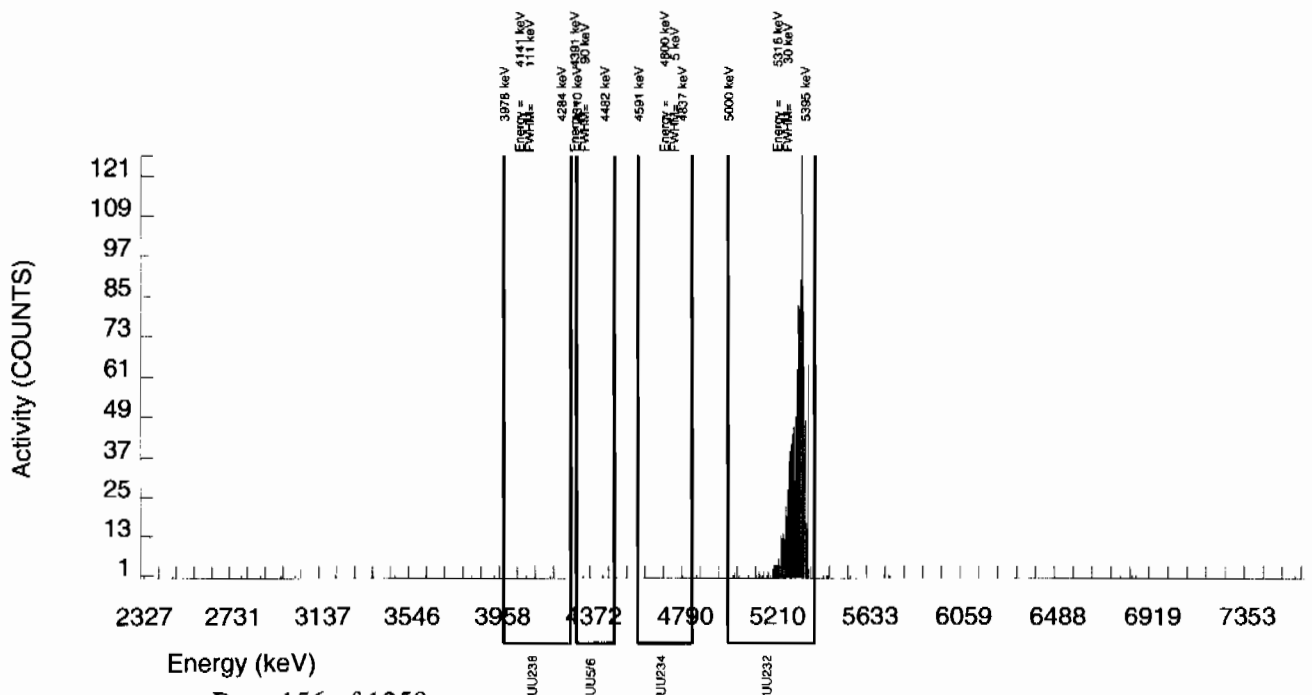
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	1.000	-0.144	0.000	6.0782	100.0000	-2.58E-04	1.80E-03	2.54E-02	5.56E-02	1.79E-03
U232	5302.100	1131.000	1131.000	0.000	0.0000	100.0000	2.03E+00	1.55E-01	0.00E+00	4.86E-03	6.04E-02
U-235	4391.000	2.000	1.000	1.000	2.7628	80.90000	2.22E-03	3.85E-03	1.43E-02	3.45E-02	3.84E-03
U-238	4184.730	2.000	0.000	2.000	3.2810	100.0000	0.00E+00	3.59E-03	1.37E-02	3.23E-02	3.59E-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: 944433  
SAMPLE DATE : 15-JAN-2010 00:00:00

SAMPLE ID : S1202022389\_UU  
SAMPLE QTY: 0.515 G

DETECTOR NUMBER :76229  
AVERAGE %EFFICIENCY :24.3524  
% YIELD : 91.221

COUNT DATE:28-JAN-2010 16:29:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50779 dpm  
RESULTS : 4.11207 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B133.CNF;428  
BKG DATE : 24-JAN-2010  
EFF FILE : W133.CNF;121  
CAL DATE : 18-JAN-2010

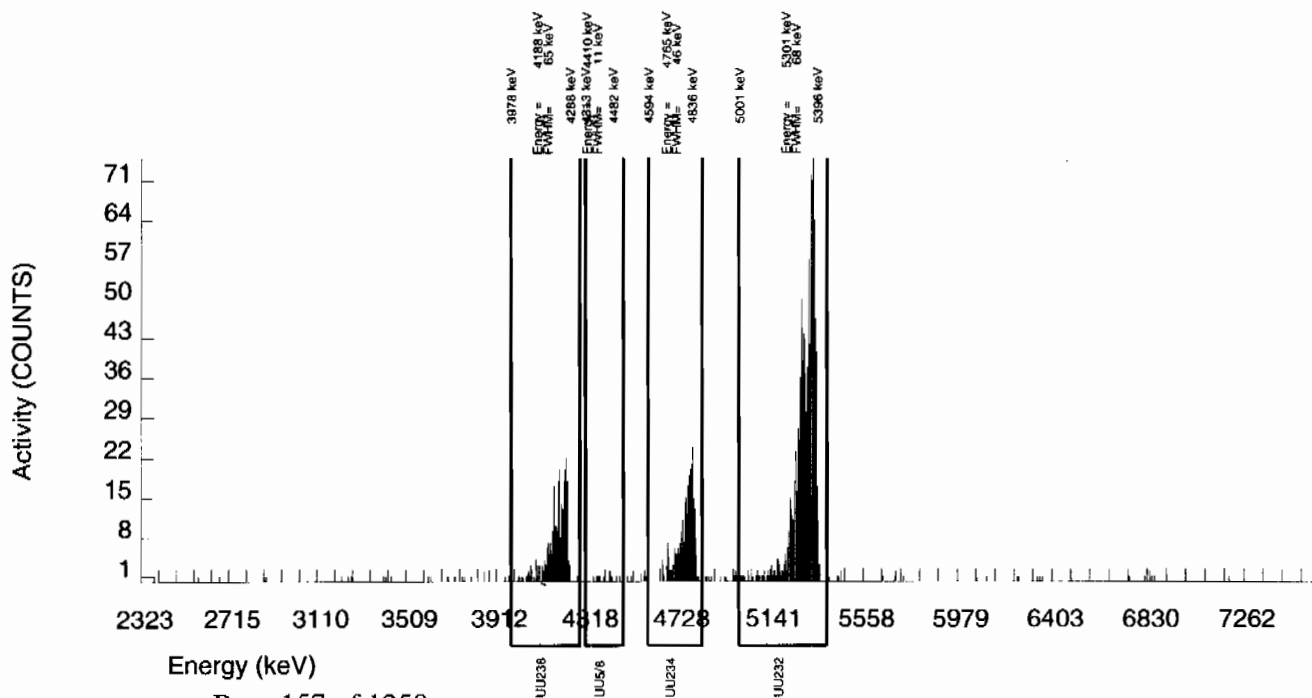
NUCLIDE ACTIVITY SUMMARY

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	279.000	277.987	0.000	6.0782	100.0000	1.09E+00	1.02E-01	5.57E-02	1.22E-01	6.56E-02
U232	5302.100	1005.000	1001.000	4.000	2.0000	100.0000	3.94E+00	3.07E-01	1.83E-02	4.73E-02	1.25E-01
U-235	4391.000	13.000	11.000	2.000	2.7628	80.90000	5.35E-02	1.92E-02	3.13E-02	7.58E-02	1.88E-02
U-238	4184.730	282.000	281.000	1.000	3.2810	100.0000	1.11E+00	1.03E-01	3.01E-02	7.08E-02	6.62E-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: 944433  
SAMPLE DATE : 26-JAN-2010 00:00:00

SAMPLE ID : S1202022390\_UU  
SAMPLE QTY: 0.109 G

DETECTOR NUMBER :76230  
AVERAGE %EFFICIENCY :24.4853  
% YIELD : 98.702

COUNT DATE:28-JAN-2010 16:29:34  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50642 dpm  
RESULTS : 4.44794 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B134.CNF;427  
BKG DATE : 24-JAN-2010  
EFF FILE : W134.CNF;125  
CAL DATE : 18-JAN-2010

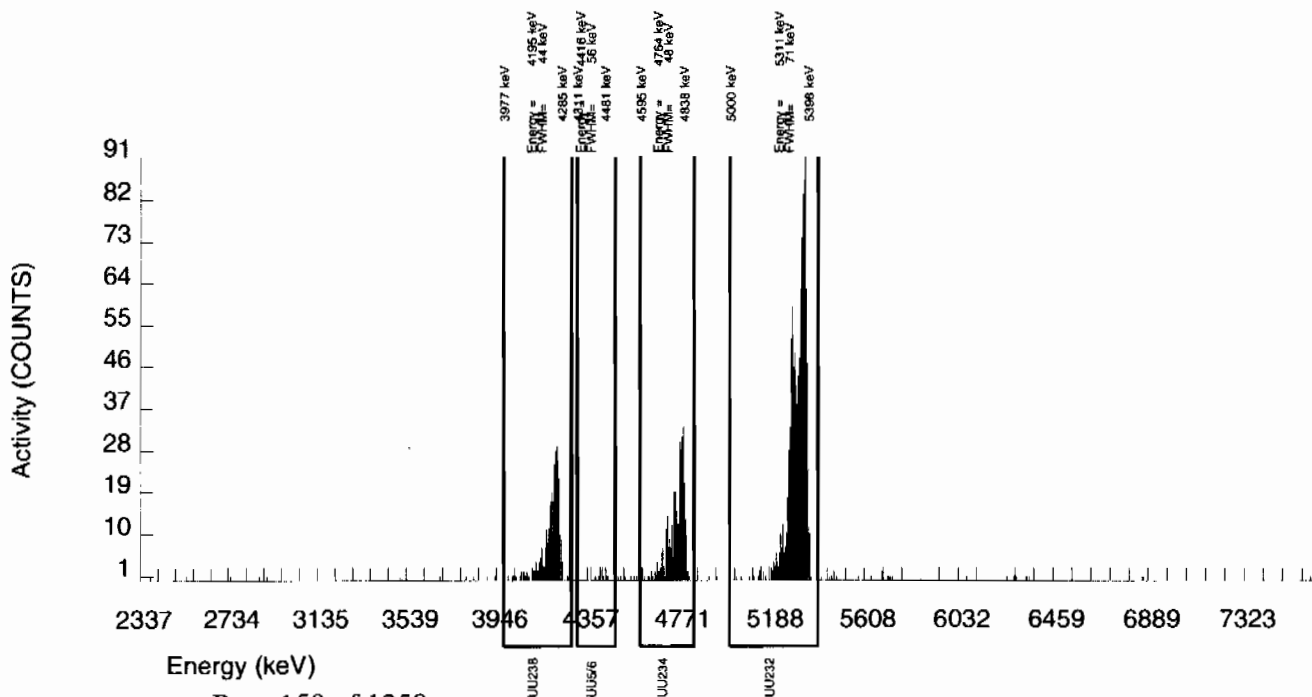
NUCLIDE ACTIVITY SUMMARY

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	345.000	340.898	3.000	6.0782	100.0000	5.83E+00	5.47E-01	2.42E-01	5.30E-01	3.18E-01
U232	5302.100	1097.000	1089.000	8.000	2.8284	100.0000	1.86E+01	1.53E+00	1.13E-01	2.71E-01	5.68E-01
U-235	4391.000	14.000	12.000	2.000	2.7628	80.90000	2.54E-01	8.67E-02	1.36E-01	3.29E-01	8.45E-02
U-238	4184.730	319.000	312.000	7.000	3.2810	100.0000	5.34E+00	5.11E-01	1.31E-01	3.07E-01	3.09E-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# 951264 Product: Am Date: 2/11/10

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.	✓		Case narrative
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: [Signature] 2/11/10Secondary Review Performed By: [Signature] 2/12/10

LANL

P ✓

# Am/Cm Que Sheet

10-FEB-10

Batch #: 951264 Analyst: MXE1 First Client Due Date: 17-FEB-10 Internal Due Date: 1-FEB-10 Comments:  
Tracer(s): Am243/Cm244 Tracer Code: 445-56-2-55 Expiration Date: 05/10/10 Vol: 0.1  
LCS Isotope(s): Am241/Cm244 LCS Code(s): Expiration Date: Vol(s):  
Spike Isotope(s): Am241/Cm244 Spike Code(s): Expiration Date: Vol(s):  
Prep Date: 04/10/10 Initials: JKL Pipet ID: 2971038 Balance ID: 50410272 Witness: GAB 2/10/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g/1/1)	Am/Cm Det #
245101012-4	RE15-10-7188	SAMPLE		.05 pCi/g	SOIL	LANL010	13-JAN-10	1	1	1.251	65
1202038568-1	MB for batch 951264	MB		UCF pCi/g to pCi/soil	SOIL	QC ACCOUNT		2	2	1.00	66
1202038569-4	RE15-10-7188(245101012DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	13-JAN-10	3	3	1.261	67
1202038570-1	LCS for batch 951264	LCS		UCF pCi/g to pCi/soil	SOIL	QC ACCOUNT		4	4	0.102	68

\* SRM 0244-B Exp 4/30/20 0.102 g

010

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

Solid Sample Dissolution by LEACH or DIGESTION  
Circle One

Data Reviewed By: [Signature] 2/11/10

GEL Laboratories LLC, Radiochemistry Division

## Blank Correction Report

**Batch ID 951264**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202038569	DUP	Americium-241	1.26 g	0.00831	0.00846	0.0363	-0.00192857	pCi/g	NO
1202038570	LCS	Americium-241	0.102 g	31.6	2.55	0.395	-0.02382353	pCi/g	NO
1202038568	MB	Americium-241	1.00 g	-0.00243	0.00763	0.0416	-0.00243	pCi/g	NO
245101012	RE15-10-7188	Americium-241	1.25 g	0.00364	0.00837	0.0397	-0.001944	pCi/g	NO

# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 951264	CHAMBER : 065	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S0245101012_AM	DETECTOR S/N : 68551	BKG FILE : B065.CNF;1942
SAMPLE QTY : 1.251 G	AVERAGE %EFFICIENCY : 30.8199	BKG DATE : 7-FEB-2010
SAMPLE DATE : 13-JAN-2010 00:00:00	COUNT DATE : 11-FEB-2010 09:03:42	BKG LIVE TIME(SEC) : 59999.99
ANALYST : MXE1	ELAPSED LIVE TIME(SEC) : 30300.00	EFF FILE : W065.CNF;307
% YIELD : 82.566		CAL DATE : 9-FEB-2010

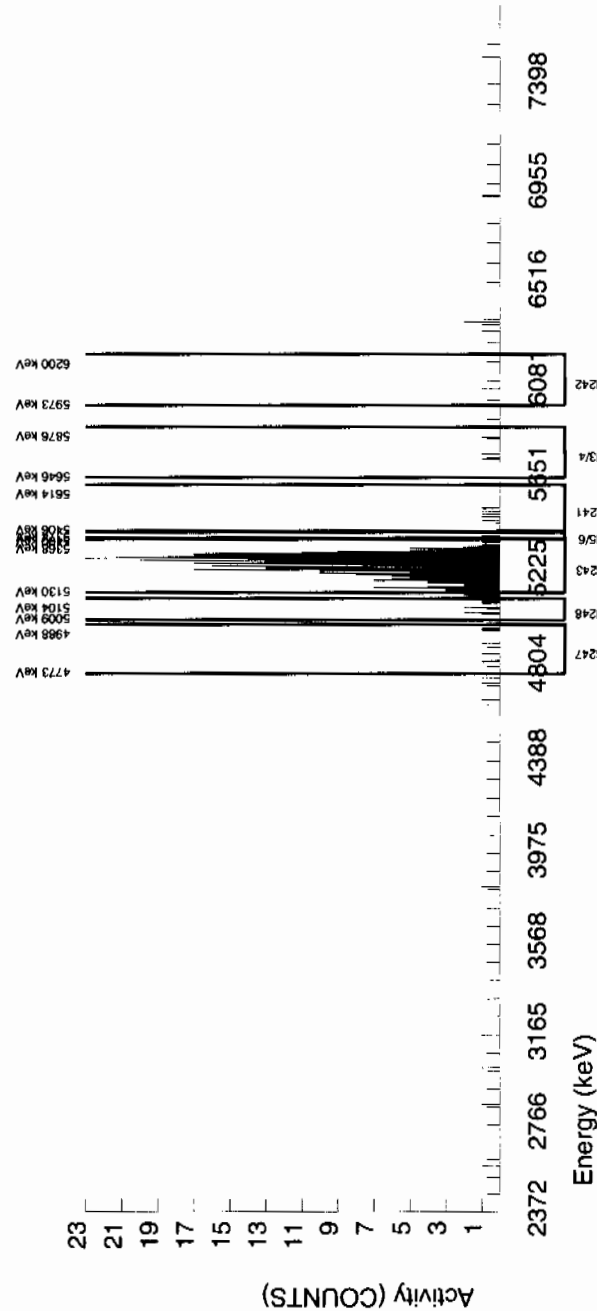
TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9166E+00 dpm	NOMINAL : 3.3158E+01 pCi/G	NOMINAL : 3.3158E+01 pCi/G
RESULTS : 2.4081E+00 dpm		

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5483.981	73.486	7.000	1.299	5.050	2.8409	99.94000	3.64E-03	8.37E-03	1.61E-02	3.97E-02	8.36E-03
AM243	5270.000	5258.917	76.505	377.000	373.970	3.030	1.7407	99.78000	1.05E+00	9.30E-02	9.86E-03	2.73E-02	5.46E-02
CM-242	6102.000	6054.026	4.899	1.000	-0.010	1.010	4.3413	100.00000	-3.18E-05	3.91E-03	2.45E-02	5.67E-02	3.90E-03
CM-3/4	5795.020	5775.933	93.083	3.000	-3.060	6.060	5.1799	100.00000	-8.60E-03	6.92E-03	2.93E-02	6.62E-02	6.92E-03
CM-5/6	5386.000	5383.101	7.196	4.000	2.990	1.010	14.2480	86.09000	9.73E-03	6.95E-03	9.36E-02	1.96E-01	6.91E-03
CM-247	4946.000	4918.284	0.000	8.000	6.990	1.010	13.7917	79.30000	2.47E-02	1.05E-02	9.83E-02	2.06E-01	1.03E-02
CM-248	5078.600	5072.181	0.000	13.000	12.495	0.505	19.5080	91.00000	3.85E-02	1.15E-02	1.21E-01	2.51E-01	1.12E-02

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of AM243 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
AM-241



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 951264	CHAMBER : 066	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S1202038568_AM	DETECTOR S/N : 46-089C1	BKG FILE : B066.CNF;1103
SAMPLE QTY : 1.000 G	AVERAGE %EFFICIENCY : 31.2039	BKG DATE : 7-FEB-2010
SAMPLE DATE : 10-FEB-2010 00:00:00	COUNT DATE : 11-FEB-2010 09:03:42	BKG LIVE TIME(SEC) : 59999.99
ANALYST : MXE1	ELAPSED LIVE TIME(SEC) : 30300.00	EFF FILE : W066.CNF;308
% YIELD : 97.581		CAL DATE : 9-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9166E+00 dpm	NOMINAL : 3.3154E+01 pCi/G	NOMINAL : 3.3154E+01 pCi/G
RESULTS : 2.8460E+00 dpm		

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5468.958	144.369	5.000	-0.829	5.050	2.8409	99.94000	-2.43E-03	7.63E-03	1.68E-02	4.16E-02	7.63E-03
AM243	5270.000	5268.719	30.115	449.000	447.485	1.515	1.2309	99.78000	1.31E+00	1.09E-01	7.29E-03	2.25E-02	6.23E-02
CM-242	6102.000	6018.203	4.978	1.000	0.495	0.505	4.3413	100.0000	1.46E-03	3.31E-03	2.57E-02	5.93E-02	3.30E-03
CM-3/4	5795.020	5722.546	4.978	5.000	-1.565	6.565	5.1799	100.0000	-4.59E-03	8.45E-03	3.06E-02	6.92E-02	8.45E-03
CM-5/6	5386.000	5382.941	14.935	2.000	0.485	1.515	14.2480	86.09000	1.65E-03	5.66E-03	9.78E-02	2.05E-01	5.66E-03
CM-247	4946.000	4863.082	129.435	2.000	-0.525	2.525	13.7917	79.30000	-1.94E-03	6.69E-03	1.03E-01	2.16E-01	6.69E-03
CM-248	5078.600	5057.725	4.978	8.000	7.495	0.505	19.5080	91.00000	2.41E-02	9.40E-03	1.27E-01	2.62E-01	9.25E-03

## NOTES:

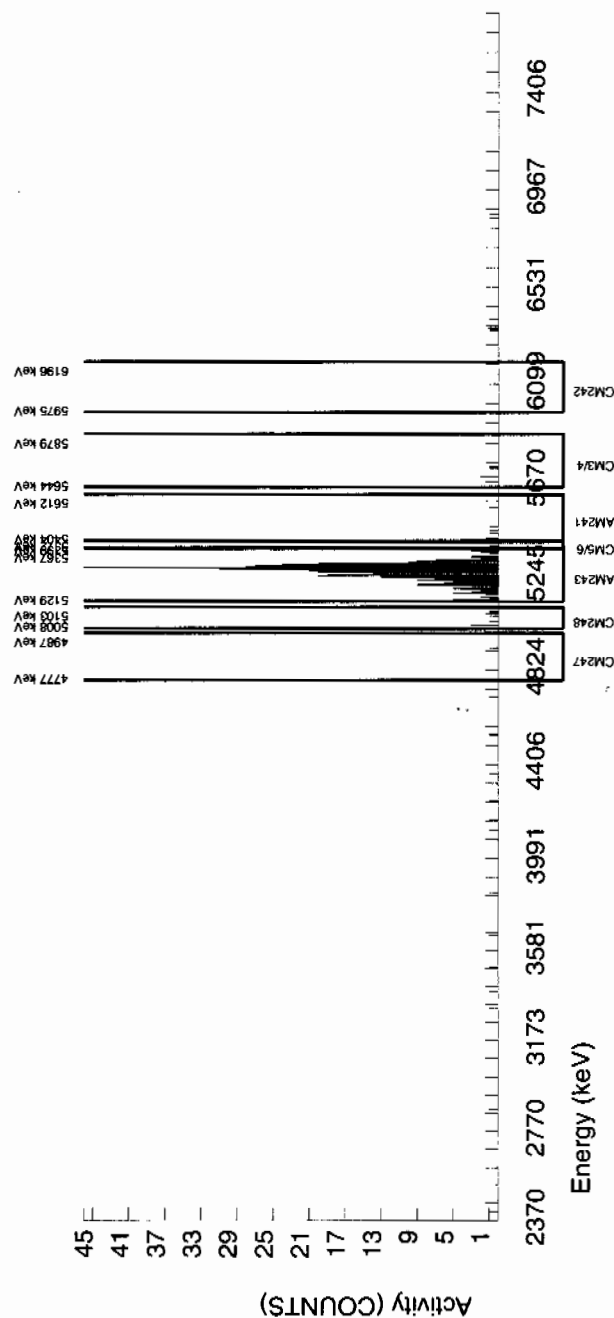
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:

AM-241





# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 951264  
 SAMPLE ID : S1202038569\_AM  
 SAMPLE QTY : 1.261 G  
 SAMPLE DATE : 13-JAN-2010 00:00:00  
 ANALYST : MXE1  
 % YIELD : 85.438

CHAMBER : 067  
 DETECTOR S/N : 46-089B4  
 AVERAGE %EFFICIENCY : 32.3338  
 COUNT DATE : 11-FEB-2010 09:03:42  
 ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV\_ALPHA\_AM  
 BKG FILE : B067.CNF;1101  
 BKG DATE : 7-FEB-2010  
 BKG LIVE TIME(SEC) : 59999.99  
 EFF FILE : W067.CNF;289  
 CAL DATE : 9-FEB-2010

TRACER ID : 445-96-2-SS  
 NUCLIDE : AM243  
 NOMINAL : 2.9166E+00 dpm  
 RESULTS : 2.4919E+00 dpm

MS/MSD ID : 0244-B  
 NUCLIDE : AM-241  
 NOMINAL : 3.3158E+01 pCi/G

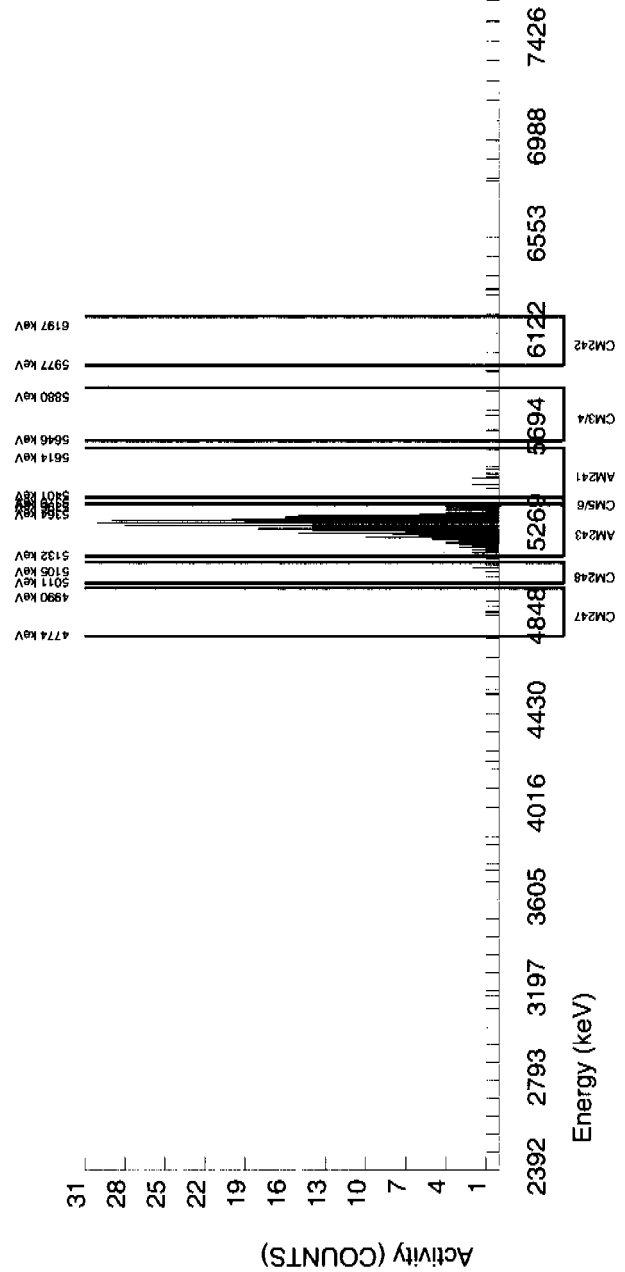
LCS/LCSD ID : 0244-B  
 NUCLIDE : AM-241  
 NOMINAL : 3.3158E+01 pCi/G

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5495.653	32.413	9.000	3.243	5.050	2.8409	99.94000	8.31E-03	8.46E-03	1.47E-02	3.63E-02	8.44E-03
AM243	5270.000	5274.707	51.390	407.000	405.990	1.010	1.0050	99.78000	1.04E+00	8.94E-02	5.20E-03	1.74E-02	5.18E-02
CM-242	6102.000	6003.621	4.987	1.000	0.495	0.505	4.3413	100.0000	1.44E-03	3.26E-03	2.24E-02	5.18E-02	3.25E-03
CM-3/4	5795.020	5759.405	124.665	3.000	0.980	2.020	5.1799	100.0000	2.52E-03	5.15E-03	2.68E-02	6.05E-02	5.15E-03
CM-5/6	5386.000	5377.511	0.000	6.000	6.000	0.000	14.2480	86.09000	1.78E-02	7.39E-03	8.55E-02	1.79E-01	7.29E-03
CM-247	4946.000	4882.458	59.839	5.000	3.990	1.010	13.7917	79.30000	1.29E-02	7.63E-03	8.99E-02	1.88E-01	7.58E-03
CM-248	5078.600	5086.972	0.000	8.000	8.000	0.000	19.5080	91.00000	2.25E-02	8.11E-03	1.11E-01	2.29E-01	7.96E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of AM243 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
AM-241



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<b>BATCH NUMBER :</b> 951264 <b>SAMPLE ID :</b> S1202038570_AM <b>SAMPLE QTY :</b> 0.102 G <b>SAMPLE DATE :</b> 10-FEB-2010 00:00:00 <b>ANALYST :</b> MXE1 <b>% YIELD :</b> 105.987		<b>CHAMBER :</b> 068 <b>DETECTOR S/N :</b> 78794 <b>AVERAGE %EFFICIENCY :</b> 29.5953 <b>COUNT DATE :</b> 11-FEB-2010 09:03:42 <b>ELAPSED LIVE TIME(SEC) :</b> 30300.00	<b>LIB FILE :</b> ENV_ALPHA_AM <b>BKG FILE :</b> B068.CNF;1094 <b>BKG DATE :</b> 7-FEB-2010 <b>BKG LIVE TIME(SEC) :</b> 59999.99 <b>EFF FILE :</b> W068.CNF;280 <b>CAL DATE :</b> 9-FEB-2010
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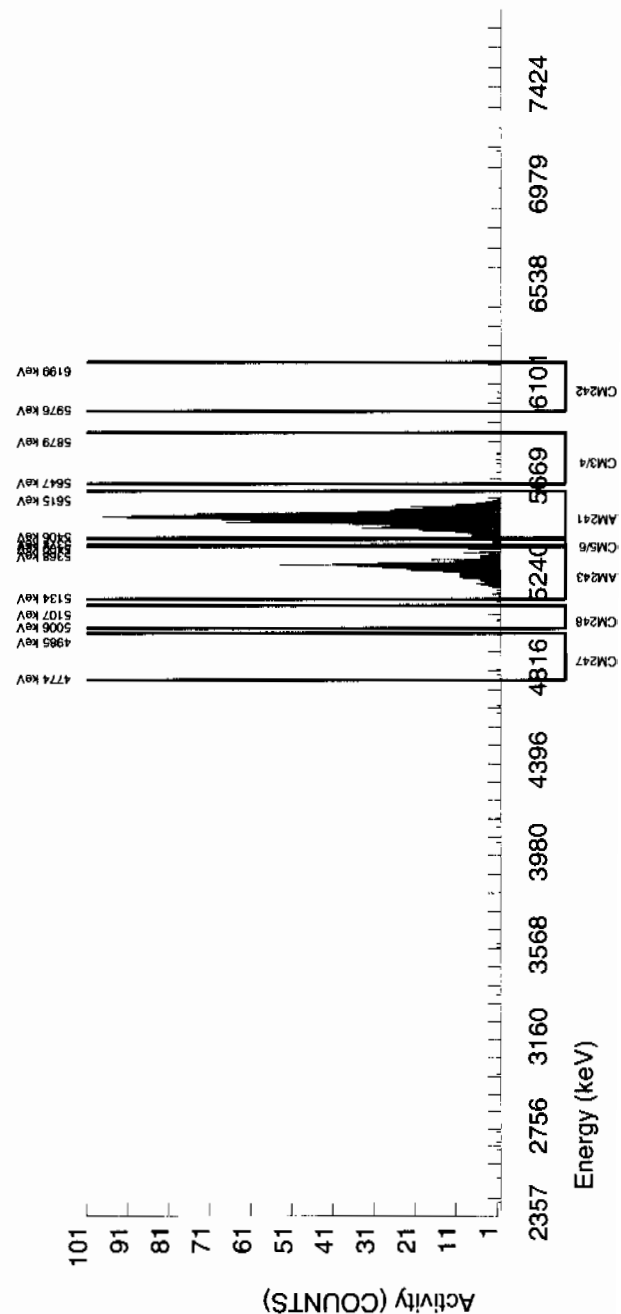
<b>TRACER ID :</b> 445-96-2-SS <b>NUCLIDE :</b> AM243 <b>NOMINAL :</b> 2.9166E+00 dpm <b>RESULTS :</b> 3.0912E+00 dpm	<b>MS/MSD ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3154E+01 pCi/G	<b>LCS/LCSD ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3154E+01 pCi/G
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## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5497.732	45.338	1136.000	1134.188	1.010	2.8409	99.94000	3.16E+01	2.55E+00	1.60E-01	3.95E-01	9.40E-01
AM243	5270.000	5281.089	27.271	463.000	460.980	2.020	1.4213	99.78000	1.29E+01	1.14E+00	8.01E-02	2.36E-01	6.02E-01
CM-242	6102.000	6055.076	29.800	2.000	0.990	1.010	4.3413	100.0000	2.78E-02	4.45E-02	2.44E-01	5.64E-01	4.45E-02
CM-3/4	5795.020	5759.130	84.435	5.000	2.980	2.020	5.1799	100.0000	8.31E-02	6.87E-02	2.91E-01	6.58E-01	6.84E-02
CM-5/6	5386.000	5385.032	0.000	22.000	22.000	0.000	14.2480	86.09000	7.12E-01	1.61E-01	9.31E-01	1.95E+00	1.52E-01
CM-247	4946.000	4828.151	49.667	3.000	1.990	1.010	13.7917	79.30000	7.00E-02	6.61E-02	9.78E-01	2.05E+00	6.59E-02
CM-248	5078.600	5055.775	0.000	3.000	3.000	0.000	19.5080	91.00000	9.19E-02	5.35E-02	1.21E+00	2.50E+00	5.31E-02

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of AM243 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
AM-241



# Radiochemistry Batch Checklist, Rev10

Batch# 944037 Product: Gamma Solid Date: 02/09/10  
LANL

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)			N/A
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%.			N/A
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.	✓		
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (If necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: fi hach 2/9/10

Secondary Review Performed By: Heulan 2/10/10

2/17



# Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
944037	245096005	SAMPLE	01-FEB-10		Americium-241	-0.03987	0.2477	0.200
					Thorium-234	1.689	2.017	2.00
944037	245101001	SAMPLE	01-FEB-10		Americium-241	0.22	0.3083	0.200
					Thorium-234	1.293	2.299	2.00
944037	245101002	SAMPLE	01-FEB-10		Americium-241	0.1398	0.2636	0.200
					Cerium-139	0.01737	0.05331	0.050
					Thorium-234	1.638	2.125	2.00
944037	245101003	SAMPLE	02-FEB-10					
944037	245101004	SAMPLE	02-FEB-10		Americium-241	-0.3504	0.4998	0.200
					Cerium-139	0.0178	0.06323	0.050
					Thorium-234	0.3576	3.991	2.00
944037	245101005	SAMPLE	02-FEB-10		Americium-241	0.1197	0.2392	0.200
					Cerium-139	-0.0199	0.05117	0.050
944037	245101006	SAMPLE	02-FEB-10		Cesium-134	0.0713	0.108	0.100
					Sodium-22	-0.01017	0.09197	0.080
944037	245101007	SAMPLE	02-FEB-10		Americium-241	0.01559	0.3481	0.200
					Cerium-139	-0.01355	0.05647	0.050
					Cesium-134	0.07458	0.1004	0.100
					Sodium-22	0.01986	0.08873	0.080
944037	245101008	SAMPLE	02-FEB-10		Cerium-139	0.01709	0.05226	0.050
944037	245101009	SAMPLE	02-FEB-10		Americium-241	0.0034	0.2293	0.200
					Cerium-139	-0.01906	0.0537	0.050
					Thorium-234	1.759	2.004	2.00
944037	245101010	SAMPLE	02-FEB-10		Americium-241	-0.03593	0.3942	0.200
					Thorium-234	2.499	3.23	2.00
944037	245101011	SAMPLE	02-FEB-10		Cerium-139	-0.03279	0.05371	0.050
					Cesium-134	0.02989	0.1076	0.100
					Sodium-22	-0.00798	0.09495	0.080
944037	245101012	SAMPLE	02-FEB-10		Cerium-139	0.00074	0.05715	0.050
					Cesium-134	0.0834	0.1362	0.100
					Sodium-22	-0.01147	0.1025	0.080
944037	245101013	SAMPLE	02-FEB-10		Americium-241	0.1751	0.3111	0.200
944037	245101014	SAMPLE	02-FEB-10		Americium-241	0.1329	0.2643	0.200
944037	245101015	SAMPLE	02-FEB-10		Americium-241	0.4146	0.5508	0.200
					Cerium-139	0.02205	0.06926	0.050
					Europium-152	-0.2893	0.208	0.200
					Mercury-203	0.01949	0.1003	0.100
					Sodium-22	-0.0161	0.08444	0.080
944037	1202021393	MB	02-FEB-10					
944037	1202021394	DUP	02-FEB-10		Americium-241	-0.2773	0.344	0.200
					Cerium-139	-0.01854	0.0575	0.050
					Cesium-134	0.08676	0.1046	0.100
					Thorium-234	2.716	3.132	2.00

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
944037	1202021395	LCS	02-FEB-10		Cerium-139	-0.01934	0.06565	0.050
					Cesium-134	0.02757	0.1438	0.100
					Europium-152	-0.1214	0.2628	0.200
					Ruthenium-106	-0.02885	0.8887	0.800
					Sodium-22	0.0231	0.08468	0.080
					Thorium-234	0.1602	2.897	2.00
					Tin-113	0.02493	0.1291	0.100
					Uranium-235	-0.03262	0.5072	0.500

# GEL QUALS

Batch ID: 944037

Report run on: February 9, 2010 8:55 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
245096005-1 01-FEB-2010 14:44	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.09			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.158			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1539		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		6.054			
245101001-1 01-FEB-2010 14:44	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.071			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.213			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.921			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.06344			
245101002-1 01-FEB-2010 14:45	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.975			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.174			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.09372		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.658			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.09238			
245101003-1 02-FEB-2010 09:45	Bismuth-211	UI	UI	UI	Data rejected due to interference.		.4255			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		.4384			
	Radium-224	UI	UI	UI	Data rejected due to interference.		.495			
245101004-1 02-FEB-2010 09:46	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.891			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.135			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.241			

Wrong Aliquot entered into Alphabetical

use  
2/10/10

# GEL QUALS

Batch ID: 944037

Report run on: February 9, 2010 8:55 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
245101005-1 02-FEB-2010 09:46	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.852			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.983			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1319		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.372			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1251			
245101006-1 02-FEB-2010 10:28	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.899			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.138			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.336			
	Cesium-137	UI	UI	UI	Data rejected due to interference. Data rejected due to interference.		.07647			
245101007-1 02-FEB-2010 10:28	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.661			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.337			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.841			
245101009-1 02-FEB-2010 10:55	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.635			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.291			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.682			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1035			
245101010-1 02-FEB-2010 11:19	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.941			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.751			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.534			
245101011-1 02-FEB-2010 11:20	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.462			



# GEL QUALS

Batch ID: 944037

Report run on: February 9, 2010 8:55 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
245101011-1 02-FEB-2010 11:20	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.317			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.979			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.09739			
245101012-1 02-FEB-2010 11:24	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.244			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.12			
245101013-1 02-FEB-2010 11:30	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.911			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.072			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.08556		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.556			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1189			
245101014-1 02-FEB-2010 11:31	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.731			
	Cadmium-109	UI	UI	UI	Data rejected due to high peak-width.		1.696			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.704			
245101015-1 02-FEB-2010 11:51	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.763			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.58			
1202021393-1 MB 02-FEB-2010 11:52	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07002			
1202021394-1 DUP 02-FEB-2010 11:58	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.059			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.822			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.782			

# GEL QUALS

Batch ID: 944037

Report run on: February 9, 2010 8:55 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
1202021394-1 DUP 02-FEB-2010 11:58										
245101008-1 02-FEB-2010 13:13	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.066			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.596			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.002			

# GEL QUALS

Batch ID: 944037

Report run on: February 10, 2010 7:06 PM

Samp Id Parmname Cofa Edd Qual Comments Auto Result MDA Uncert SQL

245096005-1  
01-FEB-2010 14:44  
Bismuth-211 UI UI Data rejected due to interference. 4.09  
Cadmium-109 UI UI Data rejected due to interference. 3.158  
Cesium-134 UI UI Data rejected due to low abundance. .1539  
Radium-224 UI UI Data rejected due to interference. 6.054

245101001-1  
01-FEB-2010 14:44  
Bismuth-211 UI UI Data rejected due to interference. 4.071  
Cadmium-109 UI UI Data rejected due to interference. 4.213  
Radium-224 UI UI Data rejected due to interference. 3.921  
Strontium-85 UI UI Data rejected due to low abundance. .06344

245101002-1  
01-FEB-2010 14:45  
Bismuth-211 UI UI Data rejected due to interference. 2.975  
Cadmium-109 UI UI Data rejected due to interference. 2.174  
Cesium-134 UI UI Data rejected due to low abundance. .09372  
Radium-224 UI UI Data rejected due to interference. 3.658  
Strontium-85 UI UI Data rejected due to low abundance. .09238

245101003-1  
02-FEB-2010 09:45  
Bismuth-211 UI UI Data rejected due to interference. 3.705  
Cadmium-109 UI UI Data rejected due to interference. 3.817  
Cesium-134 UI UI Data rejected due to low abundance. .1105  
Radium-224 UI UI Data rejected due to interference. 4.31

245101004-1  
02-FEB-2010 09:46  
Bismuth-211 UI UI Data rejected due to interference. 3.891  
Cadmium-109 UI UI Data rejected due to interference. 3.135  
Radium-224 UI UI Data rejected due to interference. 5.241

335  
8/10/10

# Gamma Review Report based on Result > MDA for Batch:944037

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245096005	15-JAN-10 12:00	01-FEB-10 14:44	17.1	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.679	0.1799	pCi/g	0.2105	N	911.1	3 1.39	IDENTIFIED 8.913	<input type="checkbox"/>	
Americium-243 int nr	0.3626	0.03799	pCi/g	0.08252	N	74.87	1 0.9554	IDENTIFIED 9.621	<input type="checkbox"/>	
Annihilation Rad.	0.1289	0.03396	pCi/g	0.04799	N	510.6	1 1.54	IDENTIFIED 25.91	<input type="checkbox"/>	
Bismuth-211 int	4.09	0.3265	pCi/g	0.3263	Y	351.8	4 1.155	IDENTIFIED 5.827	<input type="checkbox"/>	ui
Bismuth-212 HE	1.004	0.2913	pCi/g	0.7683	N	0	9 0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 ✓	1.237	0.1024	pCi/g	0.1036	0.200	609.2	4 1.198	IDENTIFIED 6.376	<input type="checkbox"/>	
Cadmium-109 int	3.158	0.4906	pCi/g	1.149	Y	87.24	3 0.9506	IDENTIFIED 14.78	<input type="checkbox"/>	ui
Cerium-143	1363	274.3	pCi/g	0	N	0	9 0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134 la	0.1539	0.049	pCi/g	0.1002	0.100	0	9 0	FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma	11.08	1.727	pCi/g	3.753	N	0			<input type="checkbox"/>	
Iodine-123 HE	3.70E+07	3.55E+07	pCi/g	0	N	0	9 0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135	8.68E+16		pCi/g	0	N	0	9 0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212 ✓	1.874	0.1251	pCi/g	0.09206	0.100	238.6	4 1.05	IDENTIFIED 3.086	<input type="checkbox"/>	
Lead-214 ✓	1.423	0.1195	pCi/g	0.1137	0.100	351.8	4 1.155	IDENTIFIED 5.827	<input type="checkbox"/>	
Lutetium-177 HE	3.267	0.8997	pCi/g	2.474	N	0	9 0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237 int nr	0.9087	0.1695	pCi/g	0.3929	N	87.24	3 0.9506	IDENTIFIED 14.78	<input type="checkbox"/>	
Polonium-212 nr	1.874	0.1251	pCi/g	0.09206	N	238.6	4 1.05	IDENTIFIED 3.086	<input type="checkbox"/>	
Polonium-214 nr	1.423	0.1195	pCi/g	0.1137	N	351.8	4 1.155	IDENTIFIED 5.827	<input type="checkbox"/>	
Polonium-216 nr	1.874	0.1251	pCi/g	0.09206	N	238.6	4 1.05	IDENTIFIED 3.086	<input type="checkbox"/>	
Polonium-218 nr	1.423	0.1195	pCi/g	0.1137	N	351.8	4 1.155	IDENTIFIED 5.827	<input type="checkbox"/>	
Potassium-40 ✓	37.8	1.947	pCi/g	0.5583	1.00	1461	1 1.806	IDENTIFIED 2.684	<input type="checkbox"/>	
Radium-224 int	6.054	0.7316	pCi/g	1.048	Y	241.5	1 1.736	IDENTIFIED 10.75	<input type="checkbox"/>	ui
Radium-226 ✓	1.237	0.1024	pCi/g	0.1036	Y	609.2	4 1.198	IDENTIFIED 6.376	<input type="checkbox"/>	
Radium-228 ✓	1.679	0.1799	pCi/g	0.2105	0.500	911.1	3 1.39	IDENTIFIED 8.913	<input type="checkbox"/>	
Sodium-24 HE	3.77E+06	3.51E+06	pCi/g	0	N	0	9 0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208 ✓	0.5735	0.04776	pCi/g	0.06206	0.080	583.1	1 1.383	IDENTIFIED 6.693	<input type="checkbox"/>	
Thorium-228 nr	1.906	0.1272	pCi/g	0.09365	N	238.6	4 1.05	IDENTIFIED 3.086	<input type="checkbox"/>	
Thorium-230 nr	1.237	0.1024	pCi/g	0.1036	N	609.2	4 1.198	IDENTIFIED 6.376	<input type="checkbox"/>	
Thorium-232 nr	1.679	0.1799	pCi/g	0.2105	N	911.1	3 1.39	IDENTIFIED 8.913	<input type="checkbox"/>	
Tin-126 int nr	0.3094	0.04808	pCi/g	0.1131	N	87.24	3 0.9506	IDENTIFIED 14.78	<input type="checkbox"/>	
Titanium-44 la nr	0.4088	0.02832	pCi/g	0.07137	N	0	9 0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	5.1033	2.82E-06	ug/g	3.0034	N	0			<input type="checkbox"/>	
Uranium-234 nr	1.237	0.1024	pCi/g	0.1036	N	609.2	4 1.198	IDENTIFIED 6.376	<input type="checkbox"/>	
Zirconium-97	1.40E+07	6.78E+06	pCi/g	0	N	0	9 0	SHORT_HLIF 0	<input type="checkbox"/>	
*** = Number of isotopes identified with a keyline at this energy.										
Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245101001	13-JAN-10 12:00	01-FEB-10 14:44	19.1	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	1.719	0.1659	pCi/g	0.1669	N	910.7	3	1.744	IDENTIFIED	7.02				
Americium-243	int nr	0.3044	0.03564	pCi/g	0.08964	N	75.03	1	0.9482	IDENTIFIED	10.94				
Annihilation Rad.	HE	0.08352	0.02398	pCi/g	0.03866	N	510.7	1	1.841	IDENTIFIED	28.52				
Barium-137m		0.1928	0.02675	pCi/g	0.04764	N	661.4	2	1.427	IDENTIFIED	13.34				
Bismuth-211	int	4.071	0.2357	pCi/g	0.2629	Y	352	4	1.443	IDENTIFIED	4.818			ui	
Bismuth-212	la nr	1.118	0.1874	pCi/g	0.5332	N	0	11	0	FAIL_ABUND	0				
Bismuth-214	✓	1.092	0.08171	pCi/g	0.09098	0.200	609.2	4	1.495	IDENTIFIED	6				
Cadmium-109	int	4.213	0.617	pCi/g	1.151	Y	87.25	3	1.634	IDENTIFIED	13.91			ui	
Cadmium-115	HE	7.023	14.32	pCi/g	0	N	0	11	0	SHORT_HLIF	0				
Cerium-143		6968	950.2	pCi/g	0	N	0	11	0	SHORT_HLIF	0				
Cesium-137	✓	0.2038	0.02828	pCi/g	0.05036	0.100	661.4	2	1.427	IDENTIFIED	13.34				
Gross Gamma		8.983	1.37	pCi/g	2.902	N	0								
Krypton-85	HE	11.86	3.335	pCi/g	10.84	N	0	11	0	NOT_IDENTI	0				
Lead-212	✓	1.502	0.07074	pCi/g	0.07671	0.100	238.7	4	1.226	IDENTIFIED	3.07				
Lead-214	✓	1.416	0.08993	pCi/g	0.09161	0.100	352	4	1.443	IDENTIFIED	4.818				
Lutetium-177	la nr	4.729	0.9654	pCi/g	2.629	N	0	11	0	FAIL_ABUND	0				
Neptunium-237	int nr	1.209	0.2166	pCi/g	0.3375	N	87.25	3	1.634	IDENTIFIED	13.91				
Niobium-95	HE	0.06534	0.02688	pCi/g	0.05354	N	767.1	1	1.145	IDENTIFIED	40.89				
Niobium-97	HE	4.02E+06	2.40E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0				
Polonium-212	nr	1.502	0.07074	pCi/g	0.07671	N	238.7	4	1.226	IDENTIFIED	3.07				
Polonium-214	nr	1.416	0.08993	pCi/g	0.09161	N	352	4	1.443	IDENTIFIED	4.818				
Polonium-216	nr	1.502	0.07074	pCi/g	0.07671	N	238.7	4	1.226	IDENTIFIED	3.07				
Polonium-218	nr	1.416	0.08993	pCi/g	0.09161	N	352	4	1.443	IDENTIFIED	4.818				
Potassium-40	✓	23.49	1.088	pCi/g	0.4349	1.00	1460	1	2.033	IDENTIFIED	2.651				
Promethium-149	HE	87.29	128	pCi/g	0	N	0	11	0	SHORT_HLIF	0				
Radium-224	int	3.921	0.4697	pCi/g	0.8718	Y	241.7	1	1.607	IDENTIFIED	11.65			ui	
Radium-226	✓	1.092	0.08171	pCi/g	0.09098	Y	609.2	4	1.495	IDENTIFIED	6				
Radium-228	✓	1.719	0.1659	pCi/g	0.1669	0.500	910.7	3	1.744	IDENTIFIED	7.02				
Strontium-85	la	0.06344	0.01783	pCi/g	0.05795	Y	0	11	0	NOT_IDENTI	0			UI	Data rejected due to low abundance.
Thallium-200	HE	3425	2185	pCi/g	0	N	0	11	0	SHORT_HLIF	0				
Thallium-208	✓	0.435	0.03715	pCi/g	0.04153	0.080	582.9	1	1.562	IDENTIFIED	7.589				
Thorium-228	nr	1.531	0.0721	pCi/g	0.07819	N	238.7	4	1.226	IDENTIFIED	3.07				
Thorium-230	nr	1.092	0.0817	pCi/g	0.09097	N	609.2	4	1.495	IDENTIFIED	6				
Thorium-232	nr	1.719	0.1659	pCi/g	0.1669	N	910.7	3	1.744	IDENTIFIED	7.02				
Tin-126	int nr	0.4117	0.06029	pCi/g	0.1132	N	87.25	3	1.634	IDENTIFIED	13.91				
Titanium-44	la nr	0.3734	0.02817	pCi/g	0.07972	N	0	11	0	FAIL_ABUND	0				
Total Uranium		3.931	2.67E-06	ug/g	3.4224	N	0								
Uranium-234	nr	1.092	0.0817	pCi/g	0.09097	N	609.2	4	1.495	IDENTIFIED	6				
Zirconium-97		2.51E+08	4.08E+07	pCi/g	0	N	0	11	0	SHORT_HLIF	0				

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue			
245101002	13-JAN-10 12:00	01-FEB-10 14:45	19.1	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP			
Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	1.125	0.1834	pCi/g	0.21	N	911.8	3	1.932	IDENTIFIED	15.28				
Americium-243	0.2708	0.04658	pCi/g	0.0942	N	74.86	1	1.617	IDENTIFIED	16.74				

Annihilation Rad.	HE	0.1114	0.03597	pCi/g	0.04281	N	510.8	1	2.157	IDENTIFIED	32.16	<input type="checkbox"/>
Barium-137m	W	0.1434	0.03085	pCi/g	0.06259	N	661.7	2	1.524	IDENTIFIED	21.31	<input type="checkbox"/>
Bismuth-211 int		2.975	0.2563	pCi/g	0.3138	Y	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/> ui
Bismuth-212 1a nr		1.254	0.2087	pCi/g	0.6171	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.067	0.09257	pCi/g	0.1043	0.200	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Bromine-77	HE	5.856	15.97	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Cadmium-109 int		2.174	0.4523	pCi/g	1.306	Y	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/> ui
Cerium-143		6646	997.9	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134 1a		0.09372	0.02307	pCi/g	0.08583	0.100	0	16	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.3416	0.08761	pCi/g	0.2948	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Cesium-137	✓	0.1516	0.03261	pCi/g	0.06617	0.100	661.7	2	1.524	IDENTIFIED	21.31	<input type="checkbox"/>
Gross Gamma		7.855	1.435	pCi/g	3.102	N	0					<input type="checkbox"/>
Iodine-123	HE	3.94E+08	4.73E+08	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135		3.24E+19	0	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	HE	17.28	3.87	pCi/g	13.49	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	✓	1.41	0.07292	pCi/g	0.08955	0.100	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Lead-214	✓	1.035	0.09316	pCi/g	0.1094	0.100	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Lutetium-177	HE	3.105	1.398	pCi/g	3.002	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	HE	0.6237	0.1448	pCi/g	0.3998	N	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/>
Niobium-95m	HE	0.3808	0.08254	pCi/g	0.2653	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97	HE	4.11E+06	2.47E+06	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212 nr		1.41	0.07292	pCi/g	0.08955	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Polonium-214 nr		1.035	0.09316	pCi/g	0.1094	N	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Polonium-216 nr		1.41	0.07292	pCi/g	0.08955	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Polonium-218 nr		1.035	0.09316	pCi/g	0.1094	N	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Potassium-40	✓	26.31	1.292	pCi/g	0.5303	1.00	1461	1	2.253	IDENTIFIED	3.204	<input type="checkbox"/>
Promethium-149	HE	219.3	150.7	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Radium-224 int		3.658	0.6116	pCi/g	1.018	Y	241.4	1	1.798	IDENTIFIED	16.48	<input type="checkbox"/> ui
Radium-226	✓	1.067	0.09257	pCi/g	0.1043	Y	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Radium-228	✓	1.125	0.1834	pCi/g	0.21	0.500	911.8	3	1.932	IDENTIFIED	15.28	<input type="checkbox"/>
Sodium-24	HE	2.57E+07	3.11E+07	pCi/g	0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Strontium-85 1a		0.09238	0.02069	pCi/g	0.07212	Y	0	16	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.428	0.03885	pCi/g	0.05441	0.080	583.1	1	1.866	IDENTIFIED	8.417	<input type="checkbox"/>
Thorium-228 nr		1.437	0.07432	pCi/g	0.09127	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Thorium-230 nr		1.067	0.09256	pCi/g	0.1043	N	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Thorium-232 nr		1.125	0.1834	pCi/g	0.21	N	911.8	3	1.932	IDENTIFIED	15.28	<input type="checkbox"/>
Tin-126	HE	0.2124	0.04419	pCi/g	0.1282	N	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/>
Titanium-44 1a nr		0.2833	0.02804	pCi/g	0.08085	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		4.968	2.95E-06	ug/g	3.1632	N	0					<input type="checkbox"/>
Uranium-234 nr		1.067	0.09256	pCi/g	0.1043	N	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Zirconium-97		2.47E+08	5.35E+07	pCi/g	0	N	0	16	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		
245101003	13-JAN-10 12:00	02-FEB-10 09:45	10.9	SAMPLE	LOAD	1	LANL	LANL010041	GEL	N	RGSP		
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	PWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228 nr	0.1766	0.01886	pCi/g	0.03249	N	911.3	3	1.538	IDENTIFIED	8.774			

Americium-243	int	nr	0.04621	0.0039	pCi/g	0.01563	N	74.72	1	0.9203	IDENTIFIED	7.396	□
Annihilation Rad.	HE		0.01452	0.00365	pCi/g	0.00851	N	510.9	1	1.617	IDENTIFIED	24.52	□
Bismuth-211	int		0.4255	0.03587	pCi/g	0.05446	Y	351.8	4	1.199	IDENTIFIED	5.271	□ ui
Bismuth-212	HE		0.1249	0.02547	pCi/g	0.1104	N	0	7	0	FAIL_ABUND	0	□
Bismuth-214	✓		0.1228	0.01086	pCi/g	0.0166	0.200	609.4	4	1.394	IDENTIFIED	6.802	□
Cadmium-109	int		0.4384	0.0543	pCi/g	0.2047	Y	87.25	3	1.138	IDENTIFIED	11.46	□ ui
Cadmium-115	HE		2.935	2.358	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□
Cerium-143			470	104.2	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□
Gross Gamma			1.125	0.1689	pCi/g	0.3943	N		0				□
Iodine-135			1.01E+18	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□
Lead-212	✓		0.2159	0.01643	pCi/g	0.01644	0.100	238.6	4	0.9605	IDENTIFIED	2.985	□
Lead-214	✓		0.148	0.01306	pCi/g	0.01913	0.100	351.8	4	1.199	IDENTIFIED	5.271	□
Neptunium-237	int	nr	0.1256	0.02025	pCi/g	0.05942	N	87.25	3	1.138	IDENTIFIED	11.46	□
Niobium-97	HE		4.85E+05	5.84E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□
Polonium-212	nr		0.2159	0.01643	pCi/g	0.01644	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Polonium-214	nr		0.148	0.01306	pCi/g	0.01913	N	351.8	4	1.199	IDENTIFIED	5.271	□
Polonium-216	nr		0.2159	0.01643	pCi/g	0.01644	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Polonium-218	nr		0.148	0.01306	pCi/g	0.01913	N	351.8	4	1.199	IDENTIFIED	5.271	□
Potassium-40	✓		3.319	0.1729	pCi/g	0.07395	1.00	1461	1	1.947	IDENTIFIED	2.904	□
Radium-224	int		0.495	0.08025	pCi/g	0.1868	Y	241.4	1	1.595	IDENTIFIED	14.76	□ ui
Radium-226	✓		0.1228	0.01086	pCi/g	0.0166	Y	609.4	4	1.394	IDENTIFIED	6.802	□
Radium-228	✓		0.1766	0.01886	pCi/g	0.03249	0.500	911.3	3	1.538	IDENTIFIED	8.774	□
Thallium-208	✓		0.07353	0.00591	pCi/g	0.00819	0.080	583.2	1	1.297	IDENTIFIED	5.944	□
Thorium-228	nr		0.2202	0.01676	pCi/g	0.01676	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Thorium-230	nr		0.1228	0.01086	pCi/g	0.0166	N	609.4	4	1.394	IDENTIFIED	6.802	□
Thorium-232	nr		0.1766	0.01886	pCi/g	0.03249	N	911.3	3	1.538	IDENTIFIED	8.774	□
Tin-126	int	nr	0.04279	0.0053	pCi/g	0.02005	N	87.25	3	1.138	IDENTIFIED	11.46	□
Titanium-44	la	nr	0.04638	0.00307	pCi/g	0.01306	N	0	7	0	FAIL_ABUND	0	□
Uranium-234	nr		0.1228	0.01086	pCi/g	0.0166	N	609.4	4	1.394	IDENTIFIED	6.802	□
Zirconium-97	HE		8.03E+06	1.16E+07	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
245101004	13-JAN-10 12:00	02-FEB-10 09:46	19.9	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.588	0.1713	pCi/g	0.2578	N	910.6	3	1.598	IDENTIFIED	9.244 □
Americium-243	int nr	0.4335	0.06225	pCi/g	0.1253	N	74.03	1	1.581	IDENTIFIED	13.24 □
Annihilation Rad.		0.1515	0.04075	pCi/g	0.05263	N	510.2	1	2.637	IDENTIFIED	26.76 □
Bismuth-211	int	3.891	0.3097	pCi/g	0.3746	Y	351.3	4	1.216	IDENTIFIED	7.179 □ ui
Bismuth-212	HE	1.074	0.2361	pCi/g	0.7472	N	0	9	0	FAIL_ABUND	0 □
Bismuth-214	✓	1.288	0.09135	pCi/g	0.1182	0.200	608.7	4	1.47	IDENTIFIED	6.045 □
Bromine-77	HE	3.666	23.34	pCi/g	0	N	0	9	0	SHORT_HLIF	0 □
Cadmium-109	int	3.135	0.5639	pCi/g	1.544	Y	89.33	1	1.094	IDENTIFIED	17.09 □ ui
Cerium-143		14230	2271	pCi/g	0	N	0	9	0	SHORT_HLIF	0 □
Cesium-135	HE	0.4928	0.1188	pCi/g	0.3013	N	269.5	1	0.8388	IDENTIFIED	23.73 □
Gross Gamma		9.347	1.673	pCi/g	4.243	N	0				□

Iodine-133	HE	2.31E+05	1.50E+05	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135		8.92E+20	0	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-212 ✓		1.753	0.09734	pCi/g	0.115	0.100	238	4	1.333	IDENTIFIED	3.701	<input type="checkbox"/>
Lead-214 ✓		1.354	0.1134	pCi/g	0.1306	0.100	351.3	4	1.216	IDENTIFIED	7.179	<input type="checkbox"/>
Neptunium-237	int nr	1.216	0.2567	pCi/g	0.4548	N	86.58	2	1.608	IDENTIFIED	17.5	<input type="checkbox"/>
Niobium-95m	la nr	1.832	0.1415	pCi/g	0.4616	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>
Polonium-212	nr	1.753	0.09734	pCi/g	0.115	N	238	4	1.333	IDENTIFIED	3.701	<input type="checkbox"/>
Polonium-214	nr	1.354	0.1134	pCi/g	0.1306	N	351.3	4	1.216	IDENTIFIED	7.179	<input type="checkbox"/>
Polonium-216	nr	1.753	0.09734	pCi/g	0.115	N	238	4	1.333	IDENTIFIED	3.701	<input type="checkbox"/>
Polonium-218	nr	1.354	0.1134	pCi/g	0.1306	N	351.3	4	1.216	IDENTIFIED	7.179	<input type="checkbox"/>
Potassium-40 ✓		26.56	1.346	pCi/g	0.6189	1.00	1460	1	1.861	IDENTIFIED	3.33	<input type="checkbox"/>
Radium-224	int	5.241	0.8591	pCi/g	1.308	Y	241	1	2.019	IDENTIFIED	16.02	<input type="checkbox"/> ui
Radium-226 ✓		1.288	0.09135	pCi/g	0.1182	Y	608.7	4	1.47	IDENTIFIED	6.045	<input type="checkbox"/>
Radium-228 ✓		1.588	0.1713	pCi/g	0.2578	0.500	910.6	3	1.598	IDENTIFIED	9.244	<input type="checkbox"/>
Sodium-24	HE	2.22E+07	8.75E+07	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 ✓		0.5567	0.04654	pCi/g	0.06819	0.080	582.6	1	1.515	IDENTIFIED	7.73	<input type="checkbox"/>
Thorium-228	nr	1.788	0.09929	pCi/g	0.1173	N	238	4	1.333	IDENTIFIED	3.701	<input type="checkbox"/>
Thorium-230	nr	1.288	0.09135	pCi/g	0.1182	N	608.7	4	1.47	IDENTIFIED	6.045	<input type="checkbox"/>
Thorium-232	nr	1.588	0.1713	pCi/g	0.2578	N	910.6	3	1.598	IDENTIFIED	9.244	<input type="checkbox"/>
Tin-126	int nr	0.4142	0.07626	pCi/g	0.1519	N	86.58	2	1.608	IDENTIFIED	17.5	<input type="checkbox"/>
Titanium-44	la nr	0.249	0.03773	pCi/g	0.09894	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>
Uranium-234	nr	1.288	0.09135	pCi/g	0.1182	N	608.7	4	1.47	IDENTIFIED	6.045	<input type="checkbox"/>
Zirconium-97		9.31E+08	1.47E+08	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
245101005	13-JAN-10 12:00	02-FEB-10 09:46	19.9	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RCSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.564	0.1607	pCi/g	0.1873	N	911	3	2.248	IDENTIFIED	7.852 <input type="checkbox"/>
Americium-243	int nr	0.3662	0.03835	pCi/g	0.08172	N	74.82	1	1.224	IDENTIFIED	9.644 <input type="checkbox"/>
Annihilation Rad.	HE	0.07163	0.03616	pCi/g	0.0464	N	510.6	1	1.828	IDENTIFIED	50.23 <input type="checkbox"/>
Barium-137m		0.7521	0.05706	pCi/g	0.05481	N	661.5	2	1.703	IDENTIFIED	5.455 <input type="checkbox"/>
Beryllium-7	HE	0.6637	0.1764	pCi/g	0.6203	N	0	15	0	NOT_IDENTI	0 <input type="checkbox"/>
Bismuth-211	int	3.852	0.2987	pCi/g	0.3221	Y	351.9	4	1.444	IDENTIFIED	5.129 <input type="checkbox"/> ui
Bismuth-212	HE	0.8178	0.2145	pCi/g	0.5925	N	0	15	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214 ✓		1.124	0.09475	pCi/g	0.1099	0.200	609.4	4	1.66	IDENTIFIED	6.109 <input type="checkbox"/>
Cadmium-109	int	1.983	0.5179	pCi/g	1.581	Y	86.88	3	1.407	IDENTIFIED	25.69 <input type="checkbox"/> ui
Cadmium-115	HE	35.05	22.28	pCi/g	0	N	0	15	0	SHORT_HLIF	0 <input type="checkbox"/>
Californium-249	HE	0.09176	0.02112	pCi/g	0.07545	N	0	15	0	NOT_IDENTI	0 <input type="checkbox"/>
Cerium-143		9267	1535	pCi/g	0	N	0	15	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-134	la	0.1319	0.02313	pCi/g	0.08414	0.100	0	15	0	NOT_IDENTI	0 <input type="checkbox"/> UI Data rejected due to low abundance.
Cesium-137 ✓		0.795	0.06035	pCi/g	0.05794	0.100	661.5	2	1.703	IDENTIFIED	5.455 <input type="checkbox"/>
Gross Gamma		9.298	1.385	pCi/g	2.495	N	0				<input type="checkbox"/>
Krypton-85	HE	23.2	4.513	pCi/g	14.3	N	0	15	0	NOT_IDENTI	0 <input type="checkbox"/>
Lead-212 ✓		1.554	0.1156	pCi/g	0.09159	0.100	238.6	4	1.272	IDENTIFIED	3.427 <input type="checkbox"/>
Lead-214 ✓		1.34	0.1096	pCi/g	0.1089	0.100	351.9	4	1.444	IDENTIFIED	5.129 <input type="checkbox"/>
Lutetium-177	HE	4.414	1.328	pCi/g	3.345	N	0	15	0	FAIL_ABUND	0 <input type="checkbox"/>



Neptunium-237	HE	0.5683	0.1596	pCi/g	0.408	N	86.88	3	1.407	IDENTIFIED	25.69	<input type="checkbox"/>
Niobium-95m	HE	0.286	0.07545	pCi/g	0.2319	N	0	15	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97		4.54E+07	7.04E+06	pCi/g	0	N	0	15	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	nr	1.554	0.1156	pCi/g	0.09159	N	238.6	4	1.272	IDENTIFIED	3.427	<input type="checkbox"/>
Polonium-214	nr	1.34	0.1096	pCi/g	0.1089	N	351.9	4	1.444	IDENTIFIED	5.129	<input type="checkbox"/>
Polonium-216	nr	1.554	0.1156	pCi/g	0.09159	N	238.6	4	1.272	IDENTIFIED	3.427	<input type="checkbox"/>
Polonium-218	nr	1.34	0.1096	pCi/g	0.1089	N	351.9	4	1.444	IDENTIFIED	5.129	<input type="checkbox"/>
Potassium-40	✓	25.54	1.403	pCi/g	0.5645	1.00	1461	1	2.61	IDENTIFIED	3.033	<input type="checkbox"/>
Promethium-149	HE	65.59	212.8	pCi/g	0	N	0	15	0	SHORT_HLIF	0	<input type="checkbox"/>
Radium-224	int	4.372	0.6296	pCi/g	1.041	Y	241.7	1	1.714	IDENTIFIED	12.96	<input type="checkbox"/> ui
Radium-226	✓	1.124	0.09475	pCi/g	0.1099	Y	609.4	4	1.66	IDENTIFIED	6.109	<input type="checkbox"/>
Radium-228	✓	1.564	0.1607	pCi/g	0.1873	0.500	911	3	2.248	IDENTIFIED	7.852	<input type="checkbox"/>
Silver-110m	HE	0.1138	0.02162	pCi/g	0.07086	N	0	15	0	NOT_IDENTI	0	<input type="checkbox"/>
Strontium-85	la	0.1251	0.02434	pCi/g	0.07712	Y	0	15	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.4554	0.04543	pCi/g	0.05466	0.080	583	1	1.575	IDENTIFIED	8.375	<input type="checkbox"/>
Thorium-228	nr	1.585	0.118	pCi/g	0.09342	N	238.6	4	1.272	IDENTIFIED	3.427	<input type="checkbox"/>
Thorium-230	nr	1.123	0.09475	pCi/g	0.1099	N	609.4	4	1.66	IDENTIFIED	6.109	<input type="checkbox"/>
Thorium-232	nr	1.564	0.1607	pCi/g	0.1873	N	911	3	2.248	IDENTIFIED	7.852	<input type="checkbox"/>
Thorium-234	✓	4.092	0.9414	pCi/g	1.926	2.00	63.39	2	1.052	IDENTIFIED	21.3	<input type="checkbox"/>
Tin-126	HE	0.1935	0.05054	pCi/g	0.1442	N	86.88	3	1.407	IDENTIFIED	25.69	<input type="checkbox"/>
Titanium-44	la nr	0.3626	0.02909	pCi/g	0.07433	N	0	15	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		12.321	2.80E-06	ug/g	2.868	N	0					<input type="checkbox"/>
Uranium-234	nr	1.123	0.09475	pCi/g	0.1099	N	609.4	4	1.66	IDENTIFIED	6.109	<input type="checkbox"/>
Uranium-238	nr	4.092	0.9414	pCi/g	1.926	N	63.39	2	1.052	IDENTIFIED	21.3	<input type="checkbox"/>
Zirconium-97		6.81E+08	1.22E+08	pCi/g	0	N	0	15	0	SHORT_HLIF	0	<input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245101006	13-JAN-10 12:00	02-FEB-10 10:28	19.9	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.982	0.2195	pCi/g	0.2619	N	910.7	3	1.492	IDENTIFIED 9.511 <input type="checkbox"/>
Americium-243	int nr	0.3848	0.02622	pCi/g	0.04642	N	74.86	1	0.8038	IDENTIFIED 5.332 <input type="checkbox"/>
Annihilation Rad.		0.1536	0.03828	pCi/g	0.04676	N	510.7	1	2.102	IDENTIFIED 24.45 <input type="checkbox"/>
Barium-137m	HE	0.07253	0.03698	pCi/g	0.07092	N	661.9	2	1.362	IDENTIFIED 50.69 <input type="checkbox"/>
Bismuth-210	HE	1.201	0.3218	pCi/g	0.6317	N	46.65	3	0.6711	IDENTIFIED 26.37 <input type="checkbox"/>
Bismuth-211	int	3.899	0.2911	pCi/g	0.3422	Y	351.7	4	1.098	IDENTIFIED 5.951 <input type="checkbox"/> ui
Bismuth-212	la nr	1.545	0.32	pCi/g	0.8279	N	0	9	0	FAIL_ABUND 0 <input type="checkbox"/>
Bismuth-214	✓	1.307	0.1238	pCi/g	0.1292	0.200	609	4	1.277	IDENTIFIED 7.413 <input type="checkbox"/>
Bromine-77	HE	14.45	20.66	pCi/g	0	N	0	9	0	SHORT_HLIF 0 <input type="checkbox"/>
Cadmium-109	int	3.138	0.3515	pCi/g	0.8238	Y	87.16	3	0.836	IDENTIFIED 10.18 <input type="checkbox"/> ui
Cerium-143		4535	1026	pCi/g	0	N	0	9	0	SHORT_HLIF 0 <input type="checkbox"/>
Cesium-137	✓	0.07667	0.03909	pCi/g	0.07497	0.100	661.9	2	1.362	IDENTIFIED 50.69 <input checked="" type="checkbox"/> UI
Gross Gamma	✓	10.15	1.403	pCi/g	3.825	N	0			<input type="checkbox"/>
Iodine-123	HE	3.63E+08	1.02E+09	pCi/g	0	N	0	9	0	SHORT_HLIF 0 <input type="checkbox"/>
Iodine-133	HE	2.89E+05	1.53E+05	pCi/g	0	N	0	9	0	SHORT_HLIF 0 <input type="checkbox"/>
Lead-210	HE	1.201	0.3218	pCi/g	0.6317	N	46.65	3	0.6711	IDENTIFIED 26.37 <input type="checkbox"/>
Lead-212	✓	1.652	0.09849	pCi/g	0.08545	0.100	238.5	4	0.8438	IDENTIFIED 3.291 <input type="checkbox"/>

Lead-214	✓	1.356	0.1073	pCi/g	0.1157	0.100	351.7	4	1.098	IDENTIFIED	5.951	□
Lutetium-177	HE	5.615	1.337	pCi/g	3.27	N	0	9	0	FAIL_ABUND	0	□
Neptunium-237	int nr	0.8993	0.1369	pCi/g	0.2228	N	87.16	3	0.836	IDENTIFIED	10.18	□
Polonium-210	HE	1.201	0.3209	pCi/g	0.6317	N	46.65	3	0.6711	IDENTIFIED	26.37	□
Polonium-212	nr	1.652	0.09849	pCi/g	0.08545	N	238.5	4	0.8438	IDENTIFIED	3.291	□
Polonium-214	nr	1.356	0.1073	pCi/g	0.1157	N	351.7	4	1.098	IDENTIFIED	5.951	□
Polonium-216	nr	1.652	0.09849	pCi/g	0.08545	N	238.5	4	0.8438	IDENTIFIED	3.291	□
Polonium-218	nr	1.356	0.1073	pCi/g	0.1157	N	351.7	4	1.098	IDENTIFIED	5.951	□
Potassium-40	✓	32.87	1.793	pCi/g	0.6795	1.00	1460	1	1.839	IDENTIFIED	3.394	□
Radium-224	int	5.336	0.6179	pCi/g	0.975	Y	241.5	1	1.652	IDENTIFIED	10.69	□ ui
Radium-226	✓	1.307	0.1238	pCi/g	0.1292	Y	609	4	1.277	IDENTIFIED	7.413	□
Radium-228	✓	1.982	0.2195	pCi/g	0.2619	0.500	910.7	3	1.492	IDENTIFIED	9.511	□
Technetium-99m		7.82E+21	0	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□
Thallium-208	✓	0.5215	0.0508	pCi/g	0.07021	0.080	583	1	1.362	IDENTIFIED	8.077	□
Thorium-228	nr	1.685	0.1005	pCi/g	0.08716	N	238.5	4	0.8438	IDENTIFIED	3.291	□
Thorium-230	nr	1.306	0.1238	pCi/g	0.1292	N	609	4	1.277	IDENTIFIED	7.413	□
Thorium-232	nr	1.982	0.2195	pCi/g	0.2619	N	910.7	3	1.492	IDENTIFIED	9.511	□
Thorium-234	✓	1.581	0.3524	pCi/g	0.8096	2.00	63.29	2	0.9436	IDENTIFIED	20.47	□
Tin-126	int nr	0.3062	0.0343	pCi/g	0.07637	N	87.16	3	0.836	IDENTIFIED	10.18	□
Titanium-44	la nr	0.3706	0.02136	pCi/g	0.03826	N	0	9	0	FAIL_ABUND	0	□
Total Uranium		4.7224	1.05E-06	ug/g	1.2067	N	0					□
Uranium-234	nr	1.306	0.1238	pCi/g	0.1292	N	609	4	1.277	IDENTIFIED	7.413	□
Uranium-238	nr	1.581	0.3524	pCi/g	0.8096	N	63.29	2	0.9436	IDENTIFIED	20.47	□
Zirconium-97	HE	2.31E+08	1.19E+08	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245101007	13-JAN-10 12:00	02-FEB-10 10:28	19.9	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.693	0.1809	pCi/g	0.2636	N	910.2	3	2.104	IDENTIFIED 8.991 □
Americium-243	int nr	0.44	0.05155	pCi/g	0.1146	N	74.64	1	1.296	IDENTIFIED 10.84 □
Annihilation Rad.		0.1862	0.043	pCi/g	0.05241	N	510.6	1	2.35	IDENTIFIED 22.91 □
Bismuth-211	int	3.661	0.2668	pCi/g	0.3994	Y	351.5	4	1.096	IDENTIFIED 6.517 □ ui
Bismuth-212	HE	1.007	0.2924	pCi/g	0.7459	N	0	8	0	FAIL_ABUND 0 □
Bismuth-214	✓	1.07	0.09336	pCi/g	0.1295	0.200	608.8	4	1.64	IDENTIFIED 7.873 □
Cadmium-109	int	3.337	0.592	pCi/g	1.687	Y	87.11	3	1.14	IDENTIFIED 17.07 □ ui
Cadmium-115	HE	34.95	27.95	pCi/g	0	N	0	8	0	SHORT_HLIF 0 □
Cerium-143		11150	1767	pCi/g	0	N	0	8	0	SHORT_HLIF 0 □
Cesium-135	int nr	0.5366	0.12	pCi/g	0.2921	N	269.7	1	1.425	IDENTIFIED 22.02 □
Gross Gamma		8.349	1.325	pCi/g	2.79	N	0			□
Iodine-135		1.05E+21	0	pCi/g	0	N	0	8	0	SHORT_HLIF 0 □
Lead-212	✓	1.641	0.08317	pCi/g	0.1011	0.100	238.4	4	1.239	IDENTIFIED 3.573 □
Lead-214	✓	1.274	0.09857	pCi/g	0.1312	0.100	351.5	4	1.096	IDENTIFIED 6.517 □
Lutetium-177	HE	5.364	1.323	pCi/g	3.888	N	0	8	0	FAIL_ABUND 0 □
Neptunium-237	int nr	0.9561	0.1962	pCi/g	0.526	N	87.11	3	1.14	IDENTIFIED 17.07 □
Niobium-95m	la nr	0.694	0.09527	pCi/g	0.3192	N	0	8	0	NOT_IDENTI 0 □
Polonium-212	nr	1.641	0.08317	pCi/g	0.1011	N	238.4	4	1.239	IDENTIFIED 3.573 □

Polonium-214	nr	1.274	0.09857	pCi/g	0.1312	N	351.5	4	1.096	IDENTIFIED	6.517	□
Polonium-216	nr	1.641	0.08317	pCi/g	0.1011	N	238.4	4	1.239	IDENTIFIED	3.573	□
Polonium-218	nr	1.274	0.09857	pCi/g	0.1312	N	351.5	4	1.096	IDENTIFIED	6.517	□
Potassium-40	✓	27.53	1.449	pCi/g	0.6317	1.00	1459	1	2.13	IDENTIFIED	3.702	□
Radium-224	int	5.841	0.7376	pCi/g	1.15	Y	241.3	1	1.784	IDENTIFIED	12.31	□ ui
Radium-226	✓	1.07	0.09336	pCi/g	0.1295	Y	608.8	4	1.64	IDENTIFIED	7.873	□
Radium-228	✓	1.693	0.1809	pCi/g	0.2636	0.500	910.2	3	2.104	IDENTIFIED	8.991	□
Thallium-208	✓	0.4494	0.04111	pCi/g	0.06278	0.080	582.6	1	1.629	IDENTIFIED	8.551	□
Thorium-228	nr	1.674	0.08484	pCi/g	0.1031	N	238.4	4	1.239	IDENTIFIED	3.573	□
Thorium-230	nr	1.07	0.09336	pCi/g	0.1295	N	608.8	4	1.64	IDENTIFIED	7.873	□
Thorium-232	nr	1.693	0.1809	pCi/g	0.2636	N	910.2	3	2.104	IDENTIFIED	8.991	□
Thorium-234	✓	3.186	1.318	pCi/g	2.751	2.00	63.3	2	1.56	IDENTIFIED	40.37	□
Tin-126	int nr	0.3256	0.05777	pCi/g	0.1832	N	87.11	3	1.14	IDENTIFIED	17.07	□
Titanium-44	la nr	0.3791	0.03197	pCi/g	0.0983	N	0	8	0	FAIL_ABUND	0	□
Total Uranium		9.5621	3.92E-06	ug/g	4.0956	N		0				□
Uranium-234	nr	1.07	0.09336	pCi/g	0.1295	N	608.8	4	1.64	IDENTIFIED	7.873	□
Uranium-238	HE	3.186	1.318	pCi/g	2.751	N	63.3	2	1.56	IDENTIFIED	40.37	□
Zirconium-97		8.24E+08	1.41E+08	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		
245101008	13-JAN-10 12:00	02-FEB-10 13:13	20.1	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RCSP		
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	1.569	0.1641	pCi/g	0.2147	N	911.3	3	1.718	IDENTIFIED	8.689	□	
Americium-243	int nr	0.332	0.03663	pCi/g	0.08051	N	74.76	1	1.217	IDENTIFIED	10.27	□	
Annihilation Rad.	HE	0.0879	0.03308	pCi/g	0.04433	N	510.9	1	1.676	IDENTIFIED	37.37	□	
Barium-137m		0.3116	0.04054	pCi/g	0.06206	N	661.9	2	1.434	IDENTIFIED	12.24	□	
Bismuth-211	int	4.066	0.3122	pCi/g	0.3465	Y	352	4	1.248	IDENTIFIED	6.235	□	ui
Bismuth-212	HE	1.053	0.2272	pCi/g	0.6547	N	0	11	0	FAIL_ABUND	0	□	
Bismuth-214	✓	1.339	0.1123	pCi/g	0.1173	0.200	609.4	4	1.547	IDENTIFIED	6.601	□	
Bromine-77	HE	22.48	21.89	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Cadmium-109	int	3.596	0.5351	pCi/g	1.142	Y	87.27	3	1.281	IDENTIFIED	14.13	□	ui
Cadmium-115	HE	26.72	26.37	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Cerium-143		6939	1347	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Cesium-137	✓	0.3294	0.04286	pCi/g	0.06561	0.100	661.9	2	1.434	IDENTIFIED	12.24	□	
Gross Gamma		9.195	1.435	pCi/g	3.735	N		0				□	
Iodine-123	HE	5.25E+07	1.53E+09	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Iodine-133	HE	1.17E+05	1.58E+05	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Iodine-135		5.03E+19	0	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□	
Lead-212	✓	1.698	0.1007	pCi/g	0.09292	0.100	238.7	4	1.102	IDENTIFIED	3.511	□	
Lead-214	✓	1.414	0.1147	pCi/g	0.1208	0.100	352	4	1.248	IDENTIFIED	6.235	□	
Lutetium-177	HE	5.199	1.265	pCi/g	3.465	N	0	11	0	FAIL_ABUND	0	□	
Neptunium-237	int nr	1.03	0.1865	pCi/g	0.3298	N	87.27	3	1.281	IDENTIFIED	14.13	□	
Polonium-212	nr	1.698	0.1007	pCi/g	0.09292	N	238.7	4	1.102	IDENTIFIED	3.511	□	
Polonium-214	nr	1.414	0.1147	pCi/g	0.1208	N	352	4	1.248	IDENTIFIED	6.235	□	
Polonium-216	nr	1.698	0.1007	pCi/g	0.09292	N	238.7	4	1.102	IDENTIFIED	3.511	□	
Polonium-218	nr	1.414	0.1147	pCi/g	0.1208	N	352	4	1.248	IDENTIFIED	6.235	□	

Potassium-40 ✓	23.75	1.324	pCi/g	0.5521	1.00	1461	1	2.139	IDENTIFIED	3.557	□
Radium-224 int	4.002	0.6447	pCi/g	1.058	Y	241.9	1	1.663	IDENTIFIED	15.54	□ ui
Radium-226 ✓	1.339	0.1123	pCi/g	0.1173	Y	609.4	4	1.547	IDENTIFIED	6.601	□
Radium-228 ✓	1.569	0.1641	pCi/g	0.2147	0.500	911.3	3	1.718	IDENTIFIED	8.689	□
Technetium-99m	1.69E+22	0	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□
Thallium-208 ✓	0.4806	0.04382	pCi/g	0.05833	0.080	583.3	1	1.492	IDENTIFIED	7.762	□
Thorium-228 nr	1.732	0.1028	pCi/g	0.0948	N	238.7	4	1.102	IDENTIFIED	3.511	□
Thorium-230 nr	1.339	0.1123	pCi/g	0.1173	N	609.4	4	1.547	IDENTIFIED	6.601	□
Thorium-232 nr	1.569	0.1641	pCi/g	0.2147	N	911.3	3	1.718	IDENTIFIED	8.689	□
Thorium-234 ✓	2.734	0.8233	pCi/g	1.654	2.00	63.32	2	1.209	IDENTIFIED	28.83	□
Tin-126 int nr	0.3508	0.05221	pCi/g	0.1117	N	87.27	3	1.281	IDENTIFIED	14.13	□
Titanium-44 la nr	0.3904	0.02757	pCi/g	0.0767	N	0	11	0	FAIL_ABUND	0	□
Total Uranium	8.0816	2.45E-06	ug/g	2.463	N	0					□
Uranium-234 nr	1.339	0.1123	pCi/g	0.1173	N	609.4	4	1.547	IDENTIFIED	6.601	□
Uranium-238 HE	2.734	0.8233	pCi/g	1.654	N	63.32	2	1.209	IDENTIFIED	28.83	□
Zirconium-97	2.74E+08	1.32E+08	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
245101009	13-JAN-10 12:00	02-FEB-10 10:55	20	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.832	0.1775	pCi/g	0.2303	N	911.4	3	1.612	IDENTIFIED	7.706	□
Americium-243 int nr	0.4714	0.04616	pCi/g	0.08989	N	74.81	1	1.536	IDENTIFIED	9.043	□
Annihilation Rad.	0.05547	0.04012	pCi/g	0.05201	N	510.7	1	2.081	IDENTIFIED	72.27	□
Barium-137m	0.2724	0.0329	pCi/g	0.06642	N	661.7	2	1.275	IDENTIFIED	11.71	□
Bismuth-211 int	4.635	0.2654	pCi/g	0.3457	Y	351.8	4	1.561	IDENTIFIED	4.772	□ ui
Bismuth-212 la nr	1.305	0.2626	pCi/g	0.7691	N	0	14	0	FAIL_ABUND	0	□
Bismuth-214 ✓	1.324	0.117	pCi/g	0.1178	0.200	609.4	4	1.756	IDENTIFIED	7.898	□
Cadmium-109 int	4.291	0.5623	pCi/g	1.246	Y	87.31	3	1.432	IDENTIFIED	12.37	□ ui
Cerium-143	14670	2046	pCi/g	0	N	0	14	0	SHORT_HLIF	0	□
Cesium-135 HE	0.3244	0.09819	pCi/g	0.3152	N	0	14	0	NOT_IDENTI	0	□
Cesium-137 ✓	0.288	0.03479	pCi/g	0.07021	0.100	661.7	2	1.275	IDENTIFIED	11.71	□
Gross Gamma	10.01	1.486	pCi/g	4.019	N	0					□
Iodine-123 HE	2.14E+09	1.59E+09	pCi/g	0	N	0	14	0	SHORT_HLIF	0	□
Iodine-135	6.71E+20	0	pCi/g	0	N	0	14	0	SHORT_HLIF	0	□
Krypton-85 HE	19.19	4.595	pCi/g	15.28	N	0	14	0	NOT_IDENTI	0	□
Lead-212 ✓	1.707	0.08629	pCi/g	0.09689	0.100	238.5	4	1.333	IDENTIFIED	3.504	□
Lead-214 ✓	1.612	0.1015	pCi/g	0.1184	0.100	351.8	4	1.561	IDENTIFIED	4.772	□
Lutetium-177 la nr	6.854	1.418	pCi/g	3.805	N	0	14	0	FAIL_ABUND	0	□
Neptunium-237 int nr	1.229	0.2051	pCi/g	0.3612	N	87.31	3	1.432	IDENTIFIED	12.37	□
Niobium-95m la nr	0.8597	0.09485	pCi/g	0.321	N	0	14	0	NOT_IDENTI	0	□
Niobium-97 HE	2.13E+06	7.31E+06	pCi/g	0	N	0	14	0	SHORT_HLIF	0	□
Polonium-212 nr	1.707	0.08629	pCi/g	0.09689	N	238.5	4	1.333	IDENTIFIED	3.504	□
Polonium-214 nr	1.612	0.1015	pCi/g	0.1184	N	351.8	4	1.561	IDENTIFIED	4.772	□
Polonium-216 nr	1.707	0.08629	pCi/g	0.09689	N	238.5	4	1.333	IDENTIFIED	3.504	□
Polonium-218 nr	1.612	0.1015	pCi/g	0.1184	N	351.8	4	1.561	IDENTIFIED	4.772	□
Potassium-40 ✓	25.56	1.291	pCi/g	0.519	1.00	1461	1	2.147	IDENTIFIED	3.514	□

Promethium-149 HE	311.7	215.7	pCi/g	0	N	0	14	0	SHORT_HLIF	0	<input type="checkbox"/>	
Radium-224 int	4.682	0.6781	pCi/g	1.102	Y	241.5	1	1.88	IDENTIFIED	14.19	<input type="checkbox"/>	ui
Radium-226 ✓	1.324	0.117	pCi/g	0.1178	Y	609.4	4	1.756	IDENTIFIED	7.898	<input type="checkbox"/>	
Radium-228 ✓	1.832	0.1775	pCi/g	0.2303	0.500	911.4	3	1.612	IDENTIFIED	7.706	<input type="checkbox"/>	
Sodium-24 HE	3.82E+07	8.40E+07	pCi/g	0	N	0	14	0	SHORT_HLIF	0	<input type="checkbox"/>	
Strontium-85 la	0.1035	0.02479	pCi/g	0.08243	Y	0	14	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208 ✓	0.5804	0.04667	pCi/g	0.06325	0.080	583	1	1.534	IDENTIFIED	7.278	<input type="checkbox"/>	
Thorium-228 nr	1.742	0.08802	pCi/g	0.09883	N	238.5	4	1.333	IDENTIFIED	3.504	<input type="checkbox"/>	
Thorium-230 nr	1.324	0.117	pCi/g	0.1178	N	609.4	4	1.756	IDENTIFIED	7.898	<input type="checkbox"/>	
Thorium-232 nr	1.832	0.1775	pCi/g	0.2303	N	911.4	3	1.612	IDENTIFIED	7.706	<input type="checkbox"/>	
Tin-126 int nr	0.4187	0.05487	pCi/g	0.122	N	87.31	3	1.432	IDENTIFIED	12.37	<input type="checkbox"/>	
Titanium-44 la nr	0.4337	0.03155	pCi/g	0.08902	N	0	14	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	5.3237	2.40E-06	ug/g	2.9849	N			0			<input type="checkbox"/>	
Uranium-234 nr	1.324	0.117	pCi/g	0.1178	N	609.4	4	1.756	IDENTIFIED	7.898	<input type="checkbox"/>	
Zirconium-97	5.92E+08	1.32E+08	pCi/g	0	N	0	14	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
245101010	13-JAN-10 12:00	02-FEB-10 11:19	20	SAMPLE	LOAD	1	LANL	LANL010041GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.639	0.1604	pCi/g	0.1921	N	910.5	3	1.559	IDENTIFIED	7.598	<input type="checkbox"/>
Americium-243 int nr	0.4459	0.04788	pCi/g	0.103	N	74.59	1	1.073	IDENTIFIED	9.238	<input type="checkbox"/>
Annihilation Rad.	0.0765	0.03511	pCi/g	0.04317	N	510.2	1	1.532	IDENTIFIED	45.79	<input type="checkbox"/>
Barium-137m	0.1232	0.03419	pCi/g	0.05442	N	662.1	2	0.7557	IDENTIFIED	27.64	<input type="checkbox"/>
Bismuth-211 int	3.941	0.2755	pCi/g	0.3098	Y	351.6	4	1.351	IDENTIFIED	5.966	<input type="checkbox"/> ui
Bismuth-212 HE	0.7437	0.2113	pCi/g	0.6371	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 ✓	1.244	0.09433	pCi/g	0.1218	0.200	608.8	4	1.424	IDENTIFIED	6.559	<input type="checkbox"/>
Bromine-77 HE	10.13	20.03	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Cadmium-109 int	3.751	0.6159	pCi/g	1.294	Y	86.99	3	1.332	IDENTIFIED	15.42	<input type="checkbox"/> ui
Cadmium-115 HE	24.65	23.93	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Cerium-143	9333	1456	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-137 ✓	0.1302	0.03614	pCi/g	0.05753	0.100	662.1	2	0.7557	IDENTIFIED	27.64	<input type="checkbox"/>
Gross Gamma	8.905	1.38	pCi/g	3.234	N			0			<input type="checkbox"/>
Iodine-135	5.45E+20	0	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-212 ✓	1.524	0.08021	pCi/g	0.08931	0.100	238.3	4	1.106	IDENTIFIED	3.65	<input type="checkbox"/>
Lead-214 ✓	1.371	0.1023	pCi/g	0.108	0.100	351.6	4	1.351	IDENTIFIED	5.966	<input type="checkbox"/>
Lutetium-177 HE	5.628	1.535	pCi/g	3.427	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237 int nr	1.075	0.2084	pCi/g	0.3803	N	86.99	3	1.332	IDENTIFIED	15.42	<input type="checkbox"/>
Niobium-95 HE	0.1122	0.02218	pCi/g	0.07295	N	767.2	1	1.46	IDENTIFIED	19.45	<input type="checkbox"/>
Niobium-97 HE	3.99E+06	5.83E+06	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212 nr	1.524	0.08021	pCi/g	0.08931	N	238.3	4	1.106	IDENTIFIED	3.65	<input type="checkbox"/>
Polonium-214 nr	1.371	0.1023	pCi/g	0.108	N	351.6	4	1.351	IDENTIFIED	5.966	<input type="checkbox"/>
Polonium-216 nr	1.524	0.08021	pCi/g	0.08931	N	238.3	4	1.106	IDENTIFIED	3.65	<input type="checkbox"/>
Polonium-218 nr	1.371	0.1023	pCi/g	0.108	N	351.6	4	1.351	IDENTIFIED	5.966	<input type="checkbox"/>
Potassium-40 ✓	23.89	1.307	pCi/g	0.4777	1.00	1460	1	2.331	IDENTIFIED	3.373	<input type="checkbox"/>
Promethium-149 HE	267.1	198.7	pCi/g	0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Radium-224 int	4.534	0.5922	pCi/g	1.016	Y	241.3	1	1.616	IDENTIFIED	12.69	<input type="checkbox"/> ui

* Radium-226 ✓		1.244	0.09433	pCi/g	0.1218	Y	608.8	4	1.424	IDENTIFIED	6.559	□
/ Radium-228 ✓		1.639	0.1604	pCi/g	0.1921	0.500	910.5	3	1.559	IDENTIFIED	7.598	□
Sodium-24	HE	4.54E+07	6.82E+07	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□
Thallium-200	HE	210.4	4901	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□
/ Thallium-208 ✓		0.5529	0.04036	pCi/g	0.05044	0.080	582.6	1	1.491	IDENTIFIED	6.478	□
Thorium-228	nr	1.555	0.08182	pCi/g	0.09111	N	238.3	4	1.106	IDENTIFIED	3.65	□
Thorium-230	nr	1.244	0.09433	pCi/g	0.1218	N	608.8	4	1.424	IDENTIFIED	6.559	□
Thorium-232	nr	1.639	0.1604	pCi/g	0.1921	N	910.5	3	1.559	IDENTIFIED	7.598	□
Tin-126	int nr	0.3661	0.0601	pCi/g	0.1272	N	86.99	3	1.332	IDENTIFIED	15.42	□
Titanium-44	la nr	0.1289	0.0249	pCi/g	0.07705	N	0	12	0	NOT_IDENTI	0	□
Total Uranium		7.4543	2.74E-06	ug/g	4.8077	N	0					□
Uranium-234	nr	1.244	0.09433	pCi/g	0.1218	N	608.8	4	1.424	IDENTIFIED	6.559	□
Zirconium-97		5.62E+08	1.11E+08	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245101011	13-JAN-10 12:00	02-FEB-10 11:20	20	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	1.536	0.1844	pCi/g	0.2786	N	911.4	3	1.811	IDENTIFIED	10.82	□	
Americium-243	int nr	0.3474	0.03197	pCi/g	0.06551	N	74.75	1	1.219	IDENTIFIED	8.128	□	
Annihilation Rad.	HE	0.0728	0.03921	pCi/g	0.05754	N	511	1	1.791	IDENTIFIED	53.75	□	
Barium-137m		0.3162	0.04359	pCi/g	0.06937	N	661.6	2	1.949	IDENTIFIED	13.17	□	
Bismuth-210	HE	1.237	0.4603	pCi/g	0.8228	N	46.65	3	1.407	IDENTIFIED	36.99	□	
* Bismuth-211	int	3.462	0.273	pCi/g	0.4001	Y	351.9	4	1.409	IDENTIFIED	6.996	□	ui
Bismuth-212	HE	1.309	0.3193	pCi/g	0.8568	N	0	13	0	FAIL_ABUND	0	□	
* Bismuth-214 ✓		1.328	0.1107	pCi/g	0.1526	0.200	609.5	4	1.54	IDENTIFIED	6.904	□	
Bromine-77		61.62	25.53	pCi/g	0	N	0	13	0	SHORT_HLIF	0	□	
* Cadmium-109	int	3.317	0.4061	pCi/g	0.9408	Y	87.16	3	1.283	IDENTIFIED	11.58	□	ui
Cadmium-115	HE	8.846	30.14	pCi/g	0	N	0	13	0	SHORT_HLIF	0	□	
Cerium-143		7486	1403	pCi/g	0	N	0	13	0	SHORT_HLIF	0	□	
* Cesium-137 ✓		0.3342	0.04609	pCi/g	0.07333	0.100	661.6	2	1.949	IDENTIFIED	13.17	□	
Gross Gamma		8.371	1.392	pCi/g	2.95	N	0					□	
Iodine-133	HE	58850	1.84E+05	pCi/g	0	N	0	13	0	SHORT_HLIF	0	□	
Iodine-135		4.79E+20	0	pCi/g	0	N	0	13	0	SHORT_HLIF	0	□	
Krypton-85	HE	18.05	4.731	pCi/g	16	N	0	13	0	NOT_IDENTI	0	□	
Lead-210	HE	1.237	0.4603	pCi/g	0.8228	N	46.65	3	1.407	IDENTIFIED	36.99	□	
* Lead-212 ✓		1.475	0.08962	pCi/g	0.09963	0.100	238.6	4	1.27	IDENTIFIED	4.034	□	
* Lead-214 ✓		1.204	0.1	pCi/g	0.1395	0.100	351.9	4	1.409	IDENTIFIED	6.996	□	
Lutetium-177	HE	5.538	1.366	pCi/g	3.145	N	209.4	1	1.7	IDENTIFIED	24.34	□	
Neptunium-237	int nr	0.9504	0.1522	pCi/g	0.3118	N	87.16	3	1.283	IDENTIFIED	11.58	□	
Niobium-95	HE	0.1323	0.03141	pCi/g	0.1179	N	0	13	0	NOT_IDENTI	0	□	
Polonium-210	HE	1.237	0.4597	pCi/g	0.8228	N	46.65	3	1.407	IDENTIFIED	36.99	□	
Polonium-212	nr	1.475	0.08962	pCi/g	0.09963	N	238.6	4	1.27	IDENTIFIED	4.034	□	
Polonium-214	nr	1.204	0.1	pCi/g	0.1395	N	351.9	4	1.409	IDENTIFIED	6.996	□	
Polonium-216	nr	1.475	0.08962	pCi/g	0.09963	N	238.6	4	1.27	IDENTIFIED	4.034	□	
Polonium-218	nr	1.204	0.1	pCi/g	0.1395	N	351.9	4	1.409	IDENTIFIED	6.996	□	
* Potassium-40 ✓		23.12	1.113	pCi/g	0.634	1.00	1461	1	2.313	IDENTIFIED	3.719	□	

Promethium-149 HE	30.61	224	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Radium-224 int	3.979	0.6415	pCi/g	1.134	Y	241.7	1	1.666	IDENTIFIED	15.63	<input type="checkbox"/>	ui
Radium-226 ✓	1.328	0.1107	pCi/g	0.1526	Y	609.5	4	1.54	IDENTIFIED	6.904	<input type="checkbox"/>	
Radium-228 ✓	1.536	0.1844	pCi/g	0.2786	0.500	911.4	3	1.811	IDENTIFIED	10.82	<input type="checkbox"/>	
Strontium-85 la	0.09739	0.02552	pCi/g	0.08631	Y	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-200 HE	4685	6214	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208 ✓	0.4685	0.0577	pCi/g	0.07809	0.080	583.1	1	1.65	IDENTIFIED	11.6	<input type="checkbox"/>	
Thorium-228 nr	1.505	0.09142	pCi/g	0.1016	N	238.6	4	1.27	IDENTIFIED	4.034	<input type="checkbox"/>	
Thorium-230 nr	1.327	0.1107	pCi/g	0.1526	N	609.5	4	1.54	IDENTIFIED	6.904	<input type="checkbox"/>	
Thorium-232 nr	1.536	0.1844	pCi/g	0.2786	N	911.4	3	1.811	IDENTIFIED	10.82	<input type="checkbox"/>	
Thorium-234 ✓	1.972	0.7117	pCi/g	1.094	2.00	63.21	2	1.182	IDENTIFIED	34.9	<input type="checkbox"/>	
Tin-126 int nr	0.3237	0.03963	pCi/g	0.09168	N	87.16	3	1.283	IDENTIFIED	11.58	<input type="checkbox"/>	
Titanium-44 la nr	0.3785	0.02678	pCi/g	0.06074	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	5.9268	2.12E-06	ug/g	1.6312	N		0				<input type="checkbox"/>	
Uranium-234 nr	1.327	0.1107	pCi/g	0.1526	N	609.5	4	1.54	IDENTIFIED	6.904	<input type="checkbox"/>	
Uranium-238 HE	1.972	0.7117	pCi/g	1.094	N	63.21	2	1.182	IDENTIFIED	34.9	<input type="checkbox"/>	
Zirconium-97 HE	2.48E+08	1.64E+08	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
245101012	13-JAN-10 12:00	02-FEB-10 11:24	20	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.678	0.2056	pCi/g	0.2768	N	910.5	3	1.43	IDENTIFIED	10.86 <input type="checkbox"/>
Americium-243 int nr	0.3861	0.03391	pCi/g	0.06363	N	74.83	1	0.971	IDENTIFIED	7.301 <input type="checkbox"/>
Annihilation Rad.	0.1402	0.04581	pCi/g	0.06802	N	511	1	1.778	IDENTIFIED	32.38 <input type="checkbox"/>
Barium-137m	0.4071	0.04896	pCi/g	0.09175	N	661	2	1.333	IDENTIFIED	11.26 <input type="checkbox"/>
Bismuth-210 nr	1.944	0.4607	pCi/g	0.9017	N	46.46	3	0.9954	IDENTIFIED	23.07 <input type="checkbox"/>
Bismuth-211 int	4.244	0.3648	pCi/g	0.3674	Y	351.9	4	1.206	IDENTIFIED	7.222 <input type="checkbox"/> ui
Bismuth-212 HE	1.209	0.2928	pCi/g	0.9257	N	0	7	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214 ✓	1.085	0.121	pCi/g	0.1512	0.200	608.9	4	1.283	IDENTIFIED	9.929 <input type="checkbox"/>
Cerium-143	6831	1383	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-137 ✓	0.4303	0.05176	pCi/g	0.09699	0.100	661	2	1.333	IDENTIFIED	11.26 <input type="checkbox"/>
Gross Gamma	9.14	1.598	pCi/g	5.327	N	0				<input type="checkbox"/>
Iodine-135	2.29E+21	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Lead-210 nr	1.944	0.4607	pCi/g	0.9017	N	46.46	3	0.9954	IDENTIFIED	23.07 <input type="checkbox"/>
Lead-212 ✓	1.549	0.102	pCi/g	0.09661	0.100	238.6	4	0.9956	IDENTIFIED	4.238 <input type="checkbox"/>
Lead-214 ✓	1.476	0.1326	pCi/g	0.1281	0.100	351.9	4	1.206	IDENTIFIED	7.222 <input type="checkbox"/>
Neptunium-237 int nr	1.425	0.2776	pCi/g	0.3768	N	86.03	1	1.133	IDENTIFIED	15.79 <input type="checkbox"/>
Niobium-97	2.47E+07	8.60E+06	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Polonium-210 nr	1.944	0.4591	pCi/g	0.9017	N	46.46	3	0.9954	IDENTIFIED	23.07 <input type="checkbox"/>
Polonium-212 nr	1.549	0.102	pCi/g	0.09661	N	238.6	4	0.9956	IDENTIFIED	4.238 <input type="checkbox"/>
Polonium-214 nr	1.476	0.1326	pCi/g	0.1281	N	351.9	4	1.206	IDENTIFIED	7.222 <input type="checkbox"/>
Polonium-216 nr	1.549	0.102	pCi/g	0.09661	N	238.6	4	0.9956	IDENTIFIED	4.238 <input type="checkbox"/>
Polonium-218 nr	1.476	0.1326	pCi/g	0.1281	N	351.9	4	1.206	IDENTIFIED	7.222 <input type="checkbox"/>
Potassium-40 ✓	20.69	1.305	pCi/g	0.7697	1.00	1460	1	1.983	IDENTIFIED	4.48 <input type="checkbox"/>
Radium-224 int	5.12	0.7026	pCi/g	1.1	Y	241.3	1	1.82	IDENTIFIED	12.96 <input type="checkbox"/> ui
Radium-226 ✓	1.085	0.121	pCi/g	0.1512	Y	608.9	4	1.283	IDENTIFIED	9.929 <input type="checkbox"/>

Radium-228 ✓	1.678	0.2056	pCi/g	0.2768	0.500	910.5	3	1.43	IDENTIFIED	10.86	□
Thallium-200 HE	1837	5701	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□
Thallium-208 ✓	0.4864	0.05744	pCi/g	0.07624	0.080	583	1	1.21	IDENTIFIED	10.82	□
Thorium-228 nr	1.58	0.104	pCi/g	0.09855	N	238.6	4	0.9956	IDENTIFIED	4.238	□
Thorium-230 nr	1.085	0.121	pCi/g	0.1512	N	608.9	4	1.283	IDENTIFIED	9.929	□
Thorium-232 nr	1.678	0.2056	pCi/g	0.2768	N	910.5	3	1.43	IDENTIFIED	10.86	□
Thorium-234 ✓	2.492	0.6794	pCi/g	1.093	2.00	63.35	2	0.9998	IDENTIFIED	25.62	□
Titanium-44 la nr	0.4274	0.02983	pCi/g	0.06867	N	0	7	0	FAIL_ABUND	0	□
Total Uranium	7.4057	2.02E-06	ug/g	1.6299	N		0				□
Uranium-234 nr	1.085	0.121	pCi/g	0.1512	N	608.9	4	1.283	IDENTIFIED	9.929	□
Uranium-238 nr	2.492	0.6794	pCi/g	1.093	N	63.35	2	0.9998	IDENTIFIED	25.62	□
Zirconium-97	3.56E+08	1.57E+08	pCi/g	0	N	0	7	0	SHORT_HLIF	0	□

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
245101013	13-JAN-10 12:00	02-FEB-10 11:30	20	SAMPLE	LOAD	1	LANL	LANL010041GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.628	0.175	pCi/g	0.1737	N	910.9	3	1.954	IDENTIFIED	8.462	□
Americium-243 int nr	0.4122	0.04571	pCi/g	0.09991	N	74.99	1	1.24	IDENTIFIED	10.27	□
Annihilation Rad.	0.129	0.03212	pCi/g	0.04054	N	510.7	1	1.772	IDENTIFIED	24.68	□
Barium-137m	0.437	0.04204	pCi/g	0.05382	N	661.2	2	1.611	IDENTIFIED	8.836	□
Bismuth-211 int	3.911	0.2501	pCi/g	0.2913	Y	351.8	4	1.481	IDENTIFIED	5.53	□ ui
Bismuth-212 la nr	1.065	0.2047	pCi/g	0.5953	N	0	12	0	FAIL_ABUND	0	□
Bismuth-214 ✓	1.048	0.09118	pCi/g	0.1019	0.200	608.9	4	1.417	IDENTIFIED	7.466	□
Cadmium-109 int	3.072	0.5702	pCi/g	1.59	Y	87.28	3	1.239	IDENTIFIED	17.98	□ ui
Cerium-143	8056	1332	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□
Cesium-134 la	0.08556	0.02679	pCi/g	0.07225	0.100	0	12	0	FAIL_ABUND	0	□ ui Data rejected due to low abundance.
Cesium-137 ✓	0.4619	0.04446	pCi/g	0.05689	0.100	661.2	2	1.611	IDENTIFIED	8.836	□
Gross Gamma	9.396	1.466	pCi/g	3.08	N	0					□
Indium-111 HE	7.016	2.022	pCi/g	5.18	N	0	12	0	NOT_IDENTI	0	□
Iodine-133 HE	1.21E+05	1.40E+05	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□
Krypton-85 la nr	22.04	3.885	pCi/g	13.16	N	0	12	0	NOT_IDENTI	0	□
Lead-212 ✓	1.639	0.07749	pCi/g	0.08393	0.100	238.7	4	1.227	IDENTIFIED	3.099	□
Lead-214 ✓	1.361	0.09395	pCi/g	0.1015	0.100	351.8	4	1.481	IDENTIFIED	5.53	□
Lutetium-177 HE	4.688	1.155	pCi/g	3.21	N	0	12	0	FAIL_ABUND	0	□
Neptunium-237 int nr	0.8803	0.1869	pCi/g	0.4477	N	87.28	3	1.239	IDENTIFIED	17.98	□
Niobium-97	2.73E+07	6.64E+06	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□
Polonium-212 nr	1.639	0.07749	pCi/g	0.08393	N	238.7	4	1.227	IDENTIFIED	3.099	□
Polonium-214 nr	1.361	0.09395	pCi/g	0.1015	N	351.8	4	1.481	IDENTIFIED	5.53	□
Polonium-216 nr	1.639	0.07749	pCi/g	0.08393	N	238.7	4	1.227	IDENTIFIED	3.099	□
Polonium-218 nr	1.361	0.09395	pCi/g	0.1015	N	351.8	4	1.481	IDENTIFIED	5.53	□
Potassium-40 ✓	24.29	1.149	pCi/g	0.3743	1.00	1460	1	2.449	IDENTIFIED	2.824	□
Radium-224 int	4.556	0.5013	pCi/g	0.9538	Y	241.8	1	1.607	IDENTIFIED	10.64	□ ui
Radium-226 ✓	1.048	0.09118	pCi/g	0.1019	Y	608.9	4	1.417	IDENTIFIED	7.466	□
Radium-228 ✓	1.628	0.175	pCi/g	0.1737	0.500	910.9	3	1.954	IDENTIFIED	8.462	□
Strontium-85 la	0.1189	0.02096	pCi/g	0.07104	Y	0	12	0	NOT_IDENTI	0	□ ui Data rejected due to low abundance.
Technetium-99m	2.06E+22	0	pCi/g	0	N	0	12	0	SHORT_HLIF	0	□



Thallium-208 ✓	0.486	0.04012	pCi/g	0.05249	0.080	582.9	1	1.435	IDENTIFIED	7.267	□
Thorium-228 nr	1.671	0.07904	pCi/g	0.08561	N	238.7	4	1.227	IDENTIFIED	3.099	□
Thorium-230 nr	1.048	0.09118	pCi/g	0.1019	N	608.9	4	1.417	IDENTIFIED	7.466	□
Thorium-232 nr	1.628	0.175	pCi/g	0.1737	N	910.9	3	1.954	IDENTIFIED	8.462	□
Thorium-234 ✓	3.769	1.372	pCi/g	2.484	2.00	62.89	2	0.8547	IDENTIFIED	35.33	□
Tin-126 int nr	0.2998	0.05564	pCi/g	0.1465	N	87.28	3	1.239	IDENTIFIED	17.98	□
Titanium-44 la nr	0.385	0.03113	pCi/g	0.08854	N	0	12	0	FAIL_ABUND	0	□
Total Uranium	11.369	4.08E-06	ug/g	3.6977	N	0					□
Uranium-234 nr	1.048	0.09118	pCi/g	0.1019	N	608.9	4	1.417	IDENTIFIED	7.466	□
Uranium-235 ✓	0.3392	0.1073	pCi/g	0.3292	0.500	143.8	1	0.7203	IDENTIFIED	30.58	□
Uranium-238 HE	3.769	1.372	pCi/g	2.484	N	62.89	2	0.8547	IDENTIFIED	35.33	□
Zirconium-97	7.89E+08	1.18E+08	pCi/g	0	N	0	12	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
245101014	13-JAN-10 12:00	02-FEB-10 11:31	20	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228 nr	1.34	0.1556	pCi/g	0.2184	N	911.7	3	1.516	IDENTIFIED	10.14			□	
Americium-243 int nr	0.2478	0.04098	pCi/g	0.09595	N	74.71	1	1.47	IDENTIFIED	16.06			□	
Annihilation Rad.	0.1297	0.03353	pCi/g	0.04563	N	510.9	1	2.174	IDENTIFIED	25.69			□	
Barium-137m	0.181	0.03309	pCi/g	0.0574	N	661.8	2	1.603	IDENTIFIED	18.05			□	
Bismuth-211 int	3.731	0.2576	pCi/g	0.3404	Y	351.7	4	1.327	IDENTIFIED	6.123			□	ui
Bismuth-212 HE	0.9491	0.213	pCi/g	0.5912	N	0	12	0	FAIL_ABUND	0			□	
Bismuth-214 ✓	1.099	0.09106	pCi/g	0.1016	0.200	609.3	4	1.648	IDENTIFIED	7.295			□	
Cadmium-109 pw	1.696	0.7362	pCi/g	1.627	Y	86.54	2	3.266	IDENTIFIED	43.2			□	UI Data rejected due to high peak-width.
Cadmium-115 HE	1.728	22.33	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Cerium-143	10180	1573	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Cesium-135 HE	0.3028	0.08892	pCi/g	0.2964	N	0	12	0	NOT_IDENTI	0			□	
Cesium-137 ✓	0.1913	0.03498	pCi/g	0.06068	0.100	661.8	2	1.603	IDENTIFIED	18.05			□	
Gross Gamma	8.421	1.487	pCi/g	3.355	N	0							□	
Iodine-133 HE	64840	1.33E+05	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Iodine-135	1.29E+20	0	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Lead-212 ✓	1.512	0.07725	pCi/g	0.09597	0.100	238.6	4	1.309	IDENTIFIED	3.616			□	
Lead-214 ✓	1.298	0.0958	pCi/g	0.1186	0.100	351.7	4	1.327	IDENTIFIED	6.123			□	
Neptunium-237 HE	0.4859	0.2168	pCi/g	0.4372	N	86.54	2	3.266	IDENTIFIED	43.2			□	
Niobium-95m	0.5402	0.08415	pCi/g	0.279	N	0	12	0	NOT_IDENTI	0			□	
Niobium-97 HE	4.64E+06	6.28E+06	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Polonium-212 nr	1.512	0.07725	pCi/g	0.09597	N	238.6	4	1.309	IDENTIFIED	3.616			□	
Polonium-214 nr	1.298	0.0958	pCi/g	0.1186	N	351.7	4	1.327	IDENTIFIED	6.123			□	
Polonium-216 nr	1.512	0.07725	pCi/g	0.09597	N	238.6	4	1.309	IDENTIFIED	3.616			□	
Polonium-218 nr	1.298	0.0958	pCi/g	0.1186	N	351.7	4	1.327	IDENTIFIED	6.123			□	
Potassium-40 ✓	23.41	1.161	pCi/g	0.4632	1.00	1461	1	1.986	IDENTIFIED	3.274			□	
Promethium-149 HE	236.4	199.1	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	
Radium-224 int	4.704	0.5676	pCi/g	1.091	Y	241.5	1	1.926	IDENTIFIED	11.73			□	ui
Radium-226 ✓	1.099	0.09106	pCi/g	0.1016	Y	609.3	4	1.648	IDENTIFIED	7.295			□	
Radium-228 ✓	1.34	0.1556	pCi/g	0.2184	0.500	911.7	3	1.516	IDENTIFIED	10.14			□	
Thallium-200	12330	5032	pCi/g	0	N	0	12	0	SHORT_HLIF	0			□	

Thallium-208 ✓	0.5254	0.04438	pCi/g	0.05293	0.080	583	1	1.524	IDENTIFIED	7.733	□
Thorium-228 nr	1.543	0.0788	pCi/g	0.0979	N	238.6	4	1.309	IDENTIFIED	3.616	□
Thorium-230 nr	1.099	0.09106	pCi/g	0.1016	N	609.3	4	1.648	IDENTIFIED	7.295	□
Thorium-232 nr	1.34	0.1556	pCi/g	0.2184	N	911.7	3	1.516	IDENTIFIED	10.14	□
Thorium-234 ✓	3.152	0.9175	pCi/g	2.146	2.00	63.31	2	1.32	IDENTIFIED	27.76	□
Titanium-44 la nr	0.3304	0.02866	pCi/g	0.08238	N	0	12	0	FAIL_ABUND	0	□
Total Uranium	9.3936	2.73E-06	ug/g	3.1946	N	0					□
Uranium-234 nr	1.099	0.09106	pCi/g	0.1016	N	609.3	4	1.648	IDENTIFIED	7.295	□
Uranium-238 HE	3.152	0.9175	pCi/g	2.146	N	63.31	2	1.32	IDENTIFIED	27.76	□
Zirconium-97	5.32E+08	1.17E+08	pCi/g	0	N	0	12	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
245101015	13-JAN-10 12:00	02-FEB-10 11:51	20	SAMPLE	LOAD	1	LANL	LANL010041GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.562	0.1857	pCi/g	0.2332	N	910.5	3	1.89	IDENTIFIED	10.51 □
Americium-243 int nr	0.3185	0.06849	pCi/g	0.1426	N	74.03	1	1.581	IDENTIFIED	20.77 □
Annihilation Rad.	0.1124	0.03998	pCi/g	0.06187	N	510.2	1	2.297	IDENTIFIED	35.45 □
Barium-137m	0.4846	0.0545	pCi/g	0.07249	N	661.2	2	1.657	IDENTIFIED	10.96 □
Bismuth-211 int	3.763	0.3079	pCi/g	0.4533	Y	351.4	4	1.389	IDENTIFIED	7.426 □ ui
Bismuth-212 HE	1.062	0.31	pCi/g	0.79	N	0	11	0	FAIL_ABUND	0 □
Bismuth-214 ✓	1.346	0.09961	pCi/g	0.1369	0.200	608.7	4	1.839	IDENTIFIED	6.403 □
Bromine-77 HE	38.54	26.78	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Cerium-143	18530	2790	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Cesium-137 ✓	0.5122	0.05763	pCi/g	0.07663	0.100	661.2	2	1.657	IDENTIFIED	10.96 □
Gross Gamma	8.965	1.469	pCi/g	3.516	N	0				□
Iodine-133 HE	24520	1.86E+05	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Lead-212 ✓	1.526	0.09496	pCi/g	0.1225	0.100	238	4	1.279	IDENTIFIED	4.648 □
Lead-214 ✓	1.309	0.1124	pCi/g	0.1538	0.100	351.4	4	1.389	IDENTIFIED	7.426 □
Lutetium-177 HE	4.515	1.601	pCi/g	4.294	N	0	11	0	FAIL_ABUND	0 □
Neptunium-237 HE	0.7535	0.2165	pCi/g	0.6343	N	86.38	2	1.175	IDENTIFIED	26.19 □
Niobium-95m la nr	1.722	0.146	pCi/g	0.4787	N	0	11	0	NOT_IDENTI	0 □
Niobium-97	3.88E+07	1.06E+07	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Polonium-212 nr	1.526	0.09496	pCi/g	0.1225	N	238	4	1.279	IDENTIFIED	4.648 □
Polonium-214 nr	1.309	0.1124	pCi/g	0.1538	N	351.4	4	1.389	IDENTIFIED	7.426 □
Polonium-216 nr	1.526	0.09496	pCi/g	0.1225	N	238	4	1.279	IDENTIFIED	4.648 □
Polonium-218 nr	1.309	0.1124	pCi/g	0.1538	N	351.4	4	1.389	IDENTIFIED	7.426 □
Potassium-40 ✓	22.15	1.238	pCi/g	0.6652	1.00	1460	1	2.09	IDENTIFIED	4.078 □
Promethium-149	719.8	282	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Radium-224 int	4.58	0.8367	pCi/g	1.393	Y	241	1	1.914	IDENTIFIED	17.93 □ ui
Radium-226 ✓	1.346	0.09961	pCi/g	0.1369	Y	608.7	4	1.839	IDENTIFIED	6.403 □
Radium-228 ✓	1.562	0.1857	pCi/g	0.2332	0.500	910.5	3	1.89	IDENTIFIED	10.51 □
Thallium-200 HE	4231	6884	pCi/g	0	N	0	11	0	SHORT_HLIF	0 □
Thallium-208 ✓	0.4534	0.05122	pCi/g	0.06672	0.080	582.6	1	1.413	IDENTIFIED	10.84 □
Thorium-228 nr	1.556	0.09687	pCi/g	0.1249	N	238	4	1.279	IDENTIFIED	4.648 □
Thorium-230 nr	1.346	0.09961	pCi/g	0.1369	N	608.7	4	1.839	IDENTIFIED	6.403 □
Thorium-232 nr	1.562	0.1857	pCi/g	0.2332	N	910.5	3	1.89	IDENTIFIED	10.51 □

Thorium-234 ✓		8.083	2.257	pCi/g	4.13	2.00	62.51	2	1.38	IDENTIFIED	26.11	□
Tin-126	HE	0.2566	0.0688	pCi/g	0.2284	N	86.38	2	1.175	IDENTIFIED	26.19	□
Titanium-44	la nr	0.1904	0.03304	pCi/g	0.1053	N	0	11	0	NOT_IDENTI	0	□
Total Uranium		24.133	6.72E-06	ug/g	6.1474	N	0					□
Uranium-234	nr	1.346	0.09961	pCi/g	0.1369	N	608.7	4	1.839	IDENTIFIED	6.403	□
Uranium-238	HE	8.083	2.257	pCi/g	4.13	N	62.51	2	1.38	IDENTIFIED	26.11	□
Zirconium-97		1.28E+09	1.79E+08	pCi/g	0	N	0	11	0	SHORT_HLIF	0	□

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202021393		02-FEB-10 11:52	0	MB	LOAD	1		GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Iodine-133	HE	0.06753	7.517	pCi/g	0	N	0	5	0	SHORT_HLIF	0	□	
Krypton-85	HE	14.64	2.734	pCi/g	9.33	N	0	5	0	NOT_IDENTI	0	□	
Sodium-24	HE	16.82	123	pCi/g	0	N	0	5	0	SHORT_HLIF	0	□	
Strontium-85	la	0.07002	0.01307	pCi/g	0.04462	Y	0	5	0	NOT_IDENTI	0	□	UI Data rejected due to low abundance.
Zirconium-97		3707	915.2	pCi/g	0	N	0	5	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
1202021394	13-JAN-10 12:00	02-FEB-10 11:58	20	DUP	LOAD	1		LANL010041GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	1.658	0.1764	pCi/g	0.238	N	910.9	3	1.527	IDENTIFIED	9.331	□	
Americium-243	int nr	0.4284	0.04951	pCi/g	0.1078	N	74.6	1	1.27	IDENTIFIED	10.64	□	
Annihilation Rad.	HE	0.1224	0.03728	pCi/g	0.052	N	510.6	1	1.812	IDENTIFIED	30.33	□	
Barium-137m		0.2193	0.0305	pCi/g	0.06452	N	661.3	2	1.887	IDENTIFIED	13.69	□	
Bismuth-211	int	4.059	0.2748	pCi/g	0.4055	Y	351.6	4	1.366	IDENTIFIED	5.953	□	ui
Bismuth-212	HE	0.8197	0.2303	pCi/g	0.6826	N	0	9	0	FAIL_ABUND	0	□	
Bismuth-214 ✓		1.198	0.1049	pCi/g	0.1263	0.200	609.1	4	1.478	IDENTIFIED	7.943	□	
Cadmium-109	int	3.822	0.5375	pCi/g	1.672	Y	87.04	3	1.069	IDENTIFIED	13.18	□	ui
Cerium-143		13600	1985	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□	
Cesium-135	HE	0.4047	0.1139	pCi/g	0.3623	N	0	9	0	NOT_IDENTI	0	□	
Cesium-137 ✓		0.2318	0.03225	pCi/g	0.0682	0.100	661.3	2	1.887	IDENTIFIED	13.69	□	
Gross Gamma		8.234	1.616	pCi/g	3.86	N	0					□	
Lead-212 ✓		1.514	0.08132	pCi/g	0.1073	0.100	238.4	4	1.16	IDENTIFIED	3.905	□	
Lead-214 ✓		1.412	0.1024	pCi/g	0.1228	0.100	351.6	4	1.366	IDENTIFIED	5.953	□	
Neptunium-237	int nr	1.095	0.191	pCi/g	0.5043	N	87.04	3	1.069	IDENTIFIED	13.18	□	
Niobium-95m	la nr	0.6304	0.1004	pCi/g	0.3307	N	0	9	0	NOT_IDENTI	0	□	
Niobium-97	HE	1.14E+07	8.22E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□	
Polonium-212	nr	1.514	0.08132	pCi/g	0.1073	N	238.4	4	1.16	IDENTIFIED	3.905	□	
Polonium-214	nr	1.412	0.1024	pCi/g	0.1228	N	351.6	4	1.366	IDENTIFIED	5.953	□	
Polonium-216	nr	1.514	0.08132	pCi/g	0.1073	N	238.4	4	1.16	IDENTIFIED	3.905	□	
Polonium-218	nr	1.412	0.1024	pCi/g	0.1228	N	351.6	4	1.366	IDENTIFIED	5.953	□	
Potassium-40 ✓		21.69	1.074	pCi/g	0.5079	1.00	1460	1	2.377	IDENTIFIED	3.683	□	
Promethium-149	HE	79.41	235.8	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□	
Radium-224	int	4.782	0.7839	pCi/g	1.221	Y	241.5	1	1.952	IDENTIFIED	16.13	□	ui
Radium-226 ✓		1.198	0.1049	pCi/g	0.1263	Y	609.1	4	1.478	IDENTIFIED	7.943	□	

Radium-228 ✓		1.658	0.1764	pCi/g	0.238	0.500	910.9	3	1.527	IDENTIFIED	9.331	□
Thallium-200 HE		725.3	5927	pCi/g	0	N	0	9	0	SHORT_HLIF	0	□
Thallium-208 ✓		0.4537	0.05447	pCi/g	0.0626	0.080	583	1	1.702	IDENTIFIED	11.58	□
Thorium-228 nr		1.545	0.08295	pCi/g	0.1094	N	238.4	4	1.16	IDENTIFIED	3.905	□
Thorium-230 nr		1.198	0.1049	pCi/g	0.1263	N	609.1	4	1.478	IDENTIFIED	7.943	□
Thorium-232 nr		1.658	0.1764	pCi/g	0.238	N	910.9	3	1.527	IDENTIFIED	9.331	□
Tin-126 int nr		0.373	0.05245	pCi/g	0.1797	N	87.04	3	1.069	IDENTIFIED	13.18	□
Titanium-44 la nr		0.4198	0.03461	pCi/g	0.09368	N	0	9	0	FAIL_ABUND	0	□
Total Uranium		8.11	2.64E-06	ug/g	4.662	N	0					□
Uranium-234 nr		1.198	0.1049	pCi/g	0.1263	N	609.1	4	1.478	IDENTIFIED	7.943	□
Zirconium-97		6.76E+08	1.51E+08	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
1202021395		02-FEB-10 13:04	0	LCS	LOAD	1		GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	1.367	0.2782	pCi/g	0.4732	N	911.5	3	1.733	IDENTIFIED	19.46		□	
Americium-241 ✓	13.58	0.6289	pCi/g	0.4808	0.200	59.59	1	0.9723	IDENTIFIED	2.455		□	
Americium-243	0.2658	0.04588	pCi/g	0.1217	N	74.92	1	0.9302	IDENTIFIED	16.75		□	
Barium-137m	5.661	0.2784	pCi/g	0.1025	N	661.6	2	1.353	IDENTIFIED	2.121		□	
Bismuth-211	1.971	0.3215	pCi/g	0.5604	Y	351.8	4	1.318	IDENTIFIED	15.37		□	
Bismuth-214	0.6374	0.1197	pCi/g	0.1976	0.200	609.1	4	1.47	IDENTIFIED	18.02		□	
Cadmium-109	30.54	1.961	pCi/g	1.904	Y	88.03	2	0.9885	IDENTIFIED	4.247		□	
Cesium-137 ✓	5.984	0.2948	pCi/g	0.1084	0.100	661.6	2	1.353	IDENTIFIED	2.121		□	
Cobalt-57	0.2086	0.02913	pCi/g	0.05637	N	122.1	1	0.9066	IDENTIFIED	13.33		□	
Cobalt-60 ✓	6.323	0.3103	pCi/g	0.07012	0.100	1332	1	1.736	IDENTIFIED	2.51		□	
Gross Gamma	27.05	3.053	pCi/g	4.719	N	0						□	
Iodine-133 HE	5.152	28.1	pCi/g	0	N	0	5	0	SHORT_HLIF	0		□	
Lead-212	1.072	0.09189	pCi/g	0.1474	0.100	238.6	4	0.9582	IDENTIFIED	6.203		□	
Lead-214	0.6856	0.1133	pCi/g	0.1953	0.100	351.8	4	1.318	IDENTIFIED	15.37		□	
Neptunium-237	2.584	0.3621	pCi/g	0.8548	N	0	5	0	NOT_IDENTI	0		□	
Niobium-97 HE	160.3	151.4	pCi/g	0	N	0	5	0	SHORT_HLIF	0		□	
Polonium-212	1.072	0.09189	pCi/g	0.1474	N	238.6	4	0.9582	IDENTIFIED	6.203		□	
Polonium-214	0.6856	0.1133	pCi/g	0.1953	N	351.8	4	1.318	IDENTIFIED	15.37		□	
Polonium-216	1.072	0.09189	pCi/g	0.1474	N	238.6	4	0.9582	IDENTIFIED	6.203		□	
Polonium-218	0.6856	0.1133	pCi/g	0.1953	N	351.8	4	1.318	IDENTIFIED	15.37		□	
Potassium-40	1.281	0.2544	pCi/g	0.6538	1.00	1461	1	2.945	IDENTIFIED	19.37		□	
Radium-224	3.041	0.9106	pCi/g	1.678	Y	241.5	1	1.737	IDENTIFIED	29.43		□	
Radium-226	0.6374	0.1197	pCi/g	0.1976	Y	609.1	4	1.47	IDENTIFIED	18.02		□	
Radium-228	1.367	0.2782	pCi/g	0.4732	0.500	911.5	3	1.733	IDENTIFIED	19.46		□	
Sodium-24 HE	151.9	256	pCi/g	0	N	0	5	0	SHORT_HLIF	0		□	
Thallium-208	0.2985	0.05749	pCi/g	0.1011	0.080	583.1	1	1.244	IDENTIFIED	18.61		□	
Thorium-228	1.081	0.09267	pCi/g	0.1487	N	238.6	4	0.9582	IDENTIFIED	6.203		□	
Thorium-230	0.6374	0.1197	pCi/g	0.1976	N	609.1	4	1.47	IDENTIFIED	18.02		□	
Thorium-232	1.367	0.2782	pCi/g	0.4732	N	911.5	3	1.733	IDENTIFIED	19.46		□	
Tin-126	3.031	0.1947	pCi/g	0.1899	N	88.03	2	0.9885	IDENTIFIED	4.247		□	
Titanium-44	0.2232	0.03103	pCi/g	0.09575	N	0	5	0	FAIL_ABUND	0		□	

Uranium-234 0.6374 0.1197 pCi/g 0.1976 N 609.1 4 1.47 IDENTIFIED 18.02 ☐

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

18E  
2/10/10

Bismuth-211		2.975	0.2563	pCi/g 0.3138	Y	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Bismuth-212		1.254	0.2087	pCi/g 0.6171	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214		1.067	0.09257	pCi/g 0.1043	0.200	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Bromine-77	HE	5.856	15.97	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Cadmium-109		2.174	0.4523	pCi/g 1.306	Y	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/>
Cerium-143		6646	997.9	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134		0.09372	0.02307	pCi/g 0.08583	0.100	0	16	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.3416	0.08761	pCi/g 0.2948	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Cesium-137		0.1516	0.03261	pCi/g 0.06617	0.100	661.7	2	1.524	IDENTIFIED	21.31	<input type="checkbox"/>
Gross Gamma		7.855	1.435	pCi/g 3.102	N	0					<input type="checkbox"/>
Iodine-123	HE	3.94E+08	4.73E+08	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135		3.24E+19	0	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	HE	17.28	3.87	pCi/g 13.49	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212		1.41	0.07292	pCi/g 0.08955	0.100	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Lead-214		1.035	0.09316	pCi/g 0.1094	0.100	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Lutetium-177	HE	3.105	1.398	pCi/g 3.002	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	HE	0.6237	0.1448	pCi/g 0.3998	N	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/>
Niobium-95m	HE	0.3808	0.08254	pCi/g 0.2653	N	0	16	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97	HE	4.11E+06	2.47E+06	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212		1.41	0.07292	pCi/g 0.08955	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Polonium-214		1.035	0.09316	pCi/g 0.1094	N	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Polonium-216		1.41	0.07292	pCi/g 0.08955	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Polonium-218		1.035	0.09316	pCi/g 0.1094	N	351.7	4	1.508	IDENTIFIED	8.002	<input type="checkbox"/>
Potassium-40		26.31	1.292	pCi/g 0.5303	1.00	1461	1	2.253	IDENTIFIED	3.204	<input type="checkbox"/>
Promethium-149	HE	219.3	150.7	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Radium-224		3.658	0.6116	pCi/g 1.018	Y	241.4	1	1.798	IDENTIFIED	16.48	<input type="checkbox"/>
Radium-226		1.067	0.09257	pCi/g 0.1043	Y	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Radium-228		1.125	0.1834	pCi/g 0.21	0.500	911.8	3	1.932	IDENTIFIED	15.28	<input type="checkbox"/>
Sodium-24	HE	2.57E+07	2.11E+07	pCi/g 0	N	0	16	0	SHORT_HLIF	0	<input type="checkbox"/>
Strontium-85		0.09235	0.02069	pCi/g 0.07212	Y	0	16	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208		0.428	0.03885	pCi/g 0.05441	0.080	583.1	1	1.866	IDENTIFIED	8.417	<input type="checkbox"/>
Thorium-228		1.437	0.07432	pCi/g 0.09127	N	238.5	4	1.387	IDENTIFIED	3.707	<input type="checkbox"/>
Thorium-230		1.067	0.09256	pCi/g 0.1043	N	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Thorium-232		1.125	0.1834	pCi/g 0.21	N	911.8	3	1.932	IDENTIFIED	15.28	<input type="checkbox"/>
Tin-126	HE	0.2124	0.04419	pCi/g 0.1282	N	87.36	3	1.526	IDENTIFIED	20.32	<input type="checkbox"/>
Titanium-44		0.2833	0.02804	pCi/g 0.08085	N	0	16	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		4.968	2.95E-06	ug/g 3.1632	N	0					<input type="checkbox"/>
Uranium-234		1.067	0.09256	pCi/g 0.1043	N	609.4	4	1.558	IDENTIFIED	7.733	<input type="checkbox"/>
Zirconium-97		2.47E+08	5.35E+07	pCi/g 0	N	0	16	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
245101003	13-JAN-10 12:00	02-FEB-10 09:45	19.9	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>W</i>	1.537	0.1642	pCi/g	0.1976	N	911.3	3	1.538	IDENTIFIED	8.774 <input type="checkbox"/>
Americium-243 <i>W</i>	0.4023	0.03392	pCi/g	0.06703	N	74.72	1	0.9203	IDENTIFIED	7.396 <input type="checkbox"/>
Annihilation Rad.	0.1265	0.03174	pCi/g	0.04633	N	510.9	1	1.617	IDENTIFIED	24.52 <input type="checkbox"/>

Bismuth-211	INT	3.705	0.3123	pCi/g 0.2795	Y	351.8	4	1.199	IDENTIFIED	5.271	✓ UI
Bismuth-212	LA	1.088	0.2217	pCi/g 0.6406	N	0	9	0	FAIL_ABUND	0	□
Bismuth-214	✓	1.069	0.09457	pCi/g 0.09321	0.200	609.4	4	1.394	IDENTIFIED	6.802	□
Cadmium-109	INT	3.817	0.4727	pCi/g 0.8917	Y	87.25	3	1.138	IDENTIFIED	11.46	✓ UI
Cadmium-115	HE	25.56	20.53	pCi/g 0	N	0	9	0	SHORT_HLIF	0	□
Cerium-143		4092	907.4	pCi/g 0	N	0	9	0	SHORT_HLIF	0	□
Cesium-134	LA	0.1105	0.03149	pCi/g 0.09153	0.100	0	9	0	FAIL_ABUND	0	□ UI Data rejected due to low abundance.
Gross Gamma		9.792	1.471	pCi/g 3.433	N	0					□
Iodine-135		8.78E+18	0	pCi/g 0	N	0	9	0	SHORT_HLIF	0	□
Lead-212	✓	1.88	0.1431	pCi/g 0.08001	0.100	238.6	4	0.9605	IDENTIFIED	2.985	□
Lead-214	✓	1.289	0.1137	pCi/g 0.09821	0.100	351.8	4	1.199	IDENTIFIED	5.271	□
Lutetium-177	HE	5.304	1.254	pCi/g 3.153	N	0	9	0	FAIL_ABUND	0	□
Neptunium-237	LA	1.094	0.1763	pCi/g 0.2584	N	87.25	3	1.138	IDENTIFIED	11.46	□
Niobium-97	HE	4.22E+06	5.08E+06	pCi/g 0	N	0	9	0	SHORT_HLIF	0	□
Polonium-212	LA	1.88	0.1431	pCi/g 0.08001	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Polonium-214	LA	1.289	0.1137	pCi/g 0.09821	N	351.8	4	1.199	IDENTIFIED	5.271	□
Polonium-216	LA	1.88	0.1431	pCi/g 0.08001	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Polonium-218	LA	1.289	0.1137	pCi/g 0.09821	N	351.8	4	1.199	IDENTIFIED	5.271	□
Potassium-40	✓	28.9	1.505	pCi/g 0.5058	1.00	1461	1	1.947	IDENTIFIED	2.904	□
Radium-224	INT	4.31	0.6987	pCi/g 0.9107	Y	241.4	1	1.595	IDENTIFIED	14.76	✓ UI
Radium-226	✓	1.069	0.09457	pCi/g 0.09321	Y	609.4	4	1.394	IDENTIFIED	6.802	□
Radium-228	✓	1.537	0.1642	pCi/g 0.1976	0.500	911.3	3	1.538	IDENTIFIED	8.774	□
Thallium-208	✓	0.6402	0.05141	pCi/g 0.04564	0.080	583.2	1	1.297	IDENTIFIED	5.944	□
Thorium-228	LA	1.917	0.1459	pCi/g 0.08161	N	238.6	4	0.9605	IDENTIFIED	2.985	□
Thorium-230	LA	1.069	0.09457	pCi/g 0.09321	N	609.4	4	1.394	IDENTIFIED	6.802	□
Thorium-232	LA	1.537	0.1642	pCi/g 0.1976	N	911.3	3	1.538	IDENTIFIED	8.774	□
Tin-126	LA	0.3725	0.04613	pCi/g 0.0873	N	87.25	3	1.138	IDENTIFIED	11.46	□
Titanium-44	LA	0.4038	0.02675	pCi/g 0.05627	N	0	9	0	FAIL_ABUND	0	□
Total Uranium		2.8277	2.02E-06	ug/g 2.2568	N	0					□
Uranium-234	LA	1.069	0.09457	pCi/g 0.09321	N	609.4	4	1.394	IDENTIFIED	6.802	□
Zirconium-97	HE	6.99E+07	1.01E+08	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	
245101004	13-JAN-10 12:00	02-FEB-10 09:46	19.9	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	1.588	0.1913	pCi/g	0.2578	N	910.6	3	1.598	IDENTIFIED	9.244	☐	
Americium-243	0.4335	0.06225	pCi/g	0.1253	N	74.03	1	1.581	IDENTIFIED	13.24	☐	
Annihilation Rad.	0.1515	0.04075	pCi/g	0.05263	N	510.2	1	2.637	IDENTIFIED	26.76	☐	
Bismuth-211	3.891	0.3097	pCi/g	0.3746	Y	351.3	4	1.216	IDENTIFIED	7.179	☐	
Bismuth-212	HE	1.074	0.2361	pCi/g	0.7472	N	0	9	0	FAIL_ABUND	0	☐
Bismuth-214		1.288	0.09135	pCi/g	0.1182	0.200	608.7	4	1.47	IDENTIFIED	6.045	☐
Bromine-77	HE	3.666	23.34	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Cadmium-109		3.135	0.5639	pCi/g	1.544	Y	89.33	1	1.094	IDENTIFIED	17.09	☐
Cerium-143		14230	2271	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐
Cesium-135	HE	0.4928	0.1188	pCi/g	0.3013	N	269.5	1	0.8388	IDENTIFIED	23.73	☐
Gross Gamma		9.347	1.673	pCi/g	4.243	N	0				☐	

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
944037	245101015	SAMPLE	02-FEB-10	Thallium-200	4231	6884	pCi/g		N
				Thallium-208	0.4534	0.05122	pCi/g	0.03338	0.080
				Thorium-234	8.083	2.257	pCi/g	2.066	2.00
				Uranium-238	8.083	2.257	pCi/g	2.066	N
				Zirconium-97	1.28E+09	1.79E+08	pCi/g	0	N
944037	1202021393	MB	02-FEB-10	Krypton-85	14.64	2.734	pCi/g	4.868	N
				Radium-228	0.1497	0.08906	pCi/g	0.08005	0.500
				Sodium-24	16.82	123	pCi/g	0	N
				Strontium-85	0.07002	0.01307	pCi/g	0.02232	
				Zirconium-97	3707	915.2	pCi/g	0	N
944037	1202021394	DUP	02-FEB-10	Bismuth-211	4.059	0.2748	pCi/g	0.2029	Y
				Bismuth-214	1.188	0.1049	pCi/g	0.06318	0.500
				Cadmium-109	3.822	0.5375	pCi/g	0.8365	Y
				Cerium-143	13600	1985	pCi/g	0	N
				Cesium-134	0.08676	0.04857	pCi/g	0.05234	0.100
				Cesium-137	0.2318	0.03225	pCi/g	0.03412	0.100
				Gross Gamma	8.234	1.616	pCi/g	1.876	N
				Krypton-85	11.05	4.592	pCi/g	7.4	N
				Lead-212	1.514	0.08132	pCi/g	0.05367	0.100
				Lead-214	1.412	0.1024	pCi/g	0.06144	0.100
				Niobium-97	1.14E+07	8.22E+06	pCi/g	0	N
				Potassium-40	21.69	1.074	pCi/g	0.2541	1.00
				Promethium-149	79.41	235.8	pCi/g	0	N
				Radium-224	4.782	0.7839	pCi/g	0.6108	Y
				Radium-226	1.198	0.1049	pCi/g	0.06318	Y
				Radium-228	1.658	0.1764	pCi/g	0.1191	0.500
				Strontium-85	0.05963	0.02478	pCi/g	0.03984	Y
				Thallium-200	725.3	5927	pCi/g	0	N
				Thallium-208	0.4537	0.05447	pCi/g	0.03132	0.080
				Thorium-227	0.4278	0.2289	pCi/g	0.3913	Y
				Thorium-234	2.716	0.8863	pCi/g	1.567	2.00
				Zirconium-97	6.76E+08	1.51E+08	pCi/g	0	N
944037	1202021395	LCS	02-FEB-10	Americium-241	13.58	0.6289	pCi/g	0.2405	0.200
				Barium-137m	5.661	0.2784	pCi/g	0.0513	N
				Bismuth-211	1.971	0.3215	pCi/g	0.2803	Y
				Bismuth-214	0.6374	0.1197	pCi/g	0.09886	0.200
				Cadmium-109	30.54	1.961	pCi/g	0.8525	Y



VAX/VMS Nuclide Identification Report Generated 9-FEB-2010 07:42:38.31

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101001.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:44:41.
Sample ID          : G245101001      Sample quantity      : 1.29830E+02 GRAM
Detector name      : GAM18           Detector geometry    : CAN
Elapsed live time   : 0 02:00:00.00   Elapsed real time  : 0 02:00:01.65  0.0%
Energy tolerance    : 1.50000 keV     Analyst Initials   : MXR1
Abundance limit     : 75.00000        Sensitivity         : 5.00000
Batch ID           : 944037           Detector SN#        :
Matrix Spike ID     :                  LCS ID              : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.28*	52	421	0.66	125.69	122	7	7.27E-03	68.9	
2	2	75.03	343	449	0.95	149.18	145	16	4.77E-02	10.9	8.53E-01
3	2	77.30*	663	380	1.07	153.72	145	16	9.20E-02	6.2	
4	5	87.25	339	519	1.63	173.61	165	27	4.71E-02	13.9	5.24E+00
5	5	90.09	248	449	1.45	179.29	165	27	3.45E-02	17.3	
6	5	92.98*	426	431	1.52	185.05	165	27	5.92E-02	10.9	
7	0	129.26	105	367	1.02	257.60	255	8	1.46E-02	32.9	
8	0	186.01*	373	446	1.50	371.05	365	12	5.18E-02	12.8	
9	0	208.93	181	330	1.47	416.88	412	10	2.51E-02	20.2	
10	2	238.71*	1574	255	1.23	476.43	471	19	2.19E-01	3.1	1.26E+00
11	2	241.75*	361	268	1.61	482.49	471	19	5.02E-02	11.6	
12	0	270.19	127	239	1.73	539.37	535	10	1.76E-02	24.5	
13	0	278.03	39	279	0.95	555.04	549	10	5.38E-03	82.7	
14	1	295.15*	630	163	1.55	589.26	583	22	8.74E-02	5.6	3.21E+00
15	1	300.07	127	169	1.56	599.11	583	22	1.76E-02	20.7	
16	0	327.65	104	184	1.60	654.25	651	9	1.45E-02	25.2	
17	0	338.19*	330	236	1.54	675.32	670	12	4.58E-02	11.0	
18	0	351.96*	993	271	1.44	702.85	696	14	1.38E-01	4.8	
19	0	410.49	56	200	1.59	819.88	811	12	7.74E-03	52.6	
20	0	462.41	96	236	1.59	923.69	915	16	1.33E-02	37.2	
21	0	510.68*	125	176	1.84	1020.20	1013	13	1.73E-02	28.5	
22	0	582.89*	498	169	1.56	1164.58	1157	17	6.92E-02	7.6	
23	0	609.18*	667	195	1.49	1217.13	1210	14	9.26E-02	6.0	
24	0	661.40	215	143	1.43	1321.56	1316	13	2.99E-02	13.3	
25	0	727.09	152	99	1.85	1452.90	1446	14	2.12E-02	16.0	
26	0	767.14	59	129	1.14	1532.98	1527	12	8.15E-03	40.9	
27	0	794.14	83	72	1.49	1586.98	1581	12	1.15E-02	23.2	
28	0	860.93*	26	102	1.65	1720.53	1713	12	3.66E-03	81.6	
29	0	910.73*	458	89	1.74	1820.09	1810	20	6.36E-02	7.0	
30	0	933.97	41	60	1.67	1866.57	1862	9	5.75E-03	37.2	
31	5	964.45	78	83	2.45	1927.52	1922	21	1.09E-02	25.5	1.31E+00
32	5	968.68*	225	86	1.89	1935.99	1922	21	3.12E-02	10.7	
33	0	1119.28	231	63	2.67	2237.14	2230	14	3.21E-02	9.8	
34	0	1237.55*	52	86	1.89	2473.63	2468	13	7.18E-03	39.9	
35	3	1374.77	46	17	3.21	2748.04	2741	19	6.42E-03	27.4	8.50E-01
36	3	1377.25	42	23	2.42	2753.00	2741	19	5.78E-03	32.5	
37	0	1410.06	26	61	0.89	2818.61	2809	23	3.57E-03	85.6	
38	0	1459.92*	1642	39	2.03	2918.33	2907	21	2.28E-01	2.7	

Pk	It'	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1729.32	37	15	2.38	3457.09	3448	16	5.15E-03	29.0	
40	0	1763.85*	127	16	1.80	3526.15	3520	15	1.76E-02	12.2	

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

## VMS Nuclide Identification Report V3.1 Generated 9-FEB-2010 07:42:41

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:44:41
Sample ID        : G245101001 Sample quantity : 129.83 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.65 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.349E+01	2.175E+00	4.347E-01	3.298E-02	54.045
NB-95	+	765.79	*	6.534E-02	5.377E-02	5.294E-02	4.842E-03	1.234
CD-109	+	88.03	*	4.213E+00	1.234E+00	1.100E+00	1.017E-01	3.831
SN-126	+	64.28		5.118E-01	7.093E-01	8.434E-01	1.247E-01	0.607
	+	86.94		1.711E+00	8.547E-01	4.536E-01	1.881E-01	3.773
	+	87.57	*	4.117E-01	1.206E-01	1.081E-01	9.963E-03	3.807
BA-137M	+	661.65	*	1.928E-01	5.349E-02	4.700E-02	3.582E-03	4.102
CS-137	+	661.65	*	2.038E-01	5.656E-02	4.968E-02	3.796E-03	4.102
HG-203		70.83		-5.060E-01	1.171E+00	1.701E+00	2.266E-01	-0.298
		72.87		8.160E-01	6.790E-01	1.048E+00	1.359E-01	0.779
		82.60		1.572E+00	1.403E+00	1.740E+00	2.414E-01	0.903
	+	279.20	*	3.080E-02	5.097E-02	5.618E-02	3.407E-03	0.548
TL-208	+	277.35		2.633E-01	4.363E-01	4.617E-01	4.849E-02	0.570
	+	510.84		3.867E-01	2.244E-01	1.758E-01	1.869E-02	2.200
	+	583.14	*	4.350E-01	7.430E-02	4.088E-02	3.205E-03	10.640
	+	860.37		2.101E-01	3.437E-01	3.629E-01	4.059E-02	0.579
BI-211		72.87		3.866E+00	3.193E+00	4.963E+00	4.098E-01	0.779
	+	351.07	*	4.071E+00	4.714E-01	2.567E-01	1.648E-02	15.861
PB-212	+	74.81		1.877E+00	4.734E-01	5.250E-01	6.581E-02	3.576
	+	77.11		2.023E+00	3.053E-01	2.937E-01	2.490E-02	6.888
	+	87.30		1.904E+00	5.893E-01	5.020E-01	6.819E-02	3.792
	+	238.63	*	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
	+	300.09		1.799E+00	7.575E-01	9.286E-01	7.625E-02	1.937
PO-212	+	74.81		1.877E+00	4.734E-01	5.250E-01	6.581E-02	3.576
	+	77.11		2.023E+00	3.053E-01	2.937E-01	2.490E-02	6.888
	+	87.30		1.904E+00	5.893E-01	5.020E-01	6.819E-02	3.792
		115.19		3.179E+00	3.178E+00	5.314E+00	3.347E-01	0.598
	+	238.63	*	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
	+	300.09		1.799E+00	7.575E-01	9.286E-01	7.625E-02	1.937
BI-214	+	609.31	*	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
	+	1120.29		1.894E+00	4.139E-01	3.455E-01	3.308E-02	5.483
	+	1764.49		1.369E+00	3.433E-01	2.702E-01	1.643E-02	5.067
PB-214	+	74.81		3.235E+00	7.946E-01	9.046E-01	1.010E-01	3.576
	+	77.11		3.468E+00	5.863E-01	5.035E-01	5.739E-02	6.888

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	87.30		3.262E+00	9.879E-01	8.600E-01	1.032E-01	3.792
	+	241.98		2.068E+00	5.088E-01	4.475E-01	3.539E-02	4.621
	+	295.21		1.569E+00	2.193E-01	1.630E-01	1.383E-02	9.629
	+	351.92	*	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
	+	74.81		3.235E+00	7.946E-01	9.046E-01	1.010E-01	3.576
	+	77.11		3.468E+00	5.863E-01	5.035E-01	5.739E-02	6.888
	+	87.30		3.262E+00	9.879E-01	8.600E-01	1.032E-01	3.792
	+	241.98		2.068E+00	5.088E-01	4.475E-01	3.539E-02	4.621
PO-216	+	295.21		1.569E+00	2.193E-01	1.630E-01	1.383E-02	9.629
	+	351.92	*	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
	+	74.81		1.877E+00	4.734E-01	5.250E-01	6.581E-02	3.576
	+	77.11		2.023E+00	3.053E-01	2.937E-01	2.490E-02	6.888
	+	87.30		1.904E+00	5.893E-01	5.020E-01	6.819E-02	3.792
	+	238.63	*	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
	+	300.09		1.799E+00	7.575E-01	9.286E-01	7.625E-02	1.937
	+	74.81		3.235E+00	7.946E-01	9.046E-01	1.010E-01	3.576
PO-218	+	77.11		3.468E+00	5.863E-01	5.035E-01	5.739E-02	6.888
	+	87.30		3.262E+00	9.879E-01	8.600E-01	1.032E-01	3.792
	+	241.98		2.068E+00	5.088E-01	4.475E-01	3.539E-02	4.621
	+	295.21		1.569E+00	2.193E-01	1.630E-01	1.383E-02	9.629
	+	351.92	*	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
	+	240.98	*	3.921E+00	9.393E-01	8.462E-01	4.714E-02	4.634
	+	609.31	*	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
	+	1120.29		1.894E+00	4.139E-01	3.455E-01	3.308E-02	5.483
AC-228	+	1764.49		1.369E+00	3.433E-01	2.702E-01	1.643E-02	5.067
	+	338.32		1.499E+00	6.949E-01	3.043E-01	1.241E-01	4.927
	+	911.07	*	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
	+	969.11		1.482E+00	4.761E-01	2.678E-01	6.412E-02	5.534
	+	338.32		1.499E+00	6.949E-01	3.043E-01	1.241E-01	4.927
	+	911.07	*	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
	+	969.11		1.482E+00	4.761E-01	2.678E-01	6.412E-02	5.534
	+	74.81		1.913E+00	4.486E-01	5.351E-01	4.509E-02	3.576
TH-228	+	77.11		2.062E+00	3.111E-01	2.994E-01	2.537E-02	6.888
	+	87.30		1.941E+00	5.684E-01	5.117E-01	4.703E-02	3.792
	+	238.63	*	1.531E+00	1.442E-01	7.588E-02	5.421E-03	20.172
	+	300.09		1.834E+00	1.319E+00	9.464E-01	5.577E-01	1.937
	+	609.31	*	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
	+	1120.29		1.894E+00	4.139E-01	3.455E-01	3.308E-02	5.483
	+	1764.49		1.369E+00	3.433E-01	2.702E-01	1.643E-02	5.067
	+	338.32		1.499E+00	3.417E-01	3.043E-01	1.760E-02	4.927
TH-232	+	911.07	*	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
	+	969.11		1.482E+00	4.761E-01	2.678E-01	6.412E-02	5.534
	+	63.29	*	1.293E+00	1.796E+00	2.186E+00	3.854E-01	0.592
	+	92.38		3.271E+00	9.231E-01	6.971E-01	1.257E-01	4.693
	+	609.31	*	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
	+	1120.29		1.894E+00	4.139E-01	3.455E-01	3.308E-02	5.483
	+	1764.49		1.369E+00	3.433E-01	2.702E-01	1.643E-02	5.067
	+	86.50	*	1.209E+00	4.331E-01	3.225E-01	7.276E-02	3.749
NP-237	+	95.87		-3.625E-02	9.163E-01	1.330E+00	3.249E-01	-0.027

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	+	63.29	*	1.293E+00	1.796E+00	2.186E+00	3.854E-01	0.592
	+	92.38		3.271E+00	7.627E-01	6.971E-01	5.925E-02	4.693
AM-243	+	74.67	*	3.044E-01	7.128E-02	8.545E-02	7.131E-03	3.562
	+	86.72		4.533E+01	1.328E+01	1.205E+01	1.102E+00	3.761
		117.66		-2.453E+00	3.412E+00	5.317E+00	3.271E-01	-0.461
		142.18		-2.604E+00	1.542E+01	2.432E+01	1.339E+00	-0.107
ANH-511	+	511.00	*	8.352E-02	4.797E-02	3.797E-02	2.508E-03	2.199

---- 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	*	2.576E-02	2.595E-01	4.305E-01	3.119E-02	0.060
NA-22		1274.54	*	7.768E-03	3.544E-02	5.920E-02	4.028E-03	0.131
NA-24		1368.53	*	-1.114E+01	3.544E-02	Half-Life too short		
AL-26		1129.67		6.102E-01	1.310E+00	2.247E+00	1.501E-01	0.272
		1808.65	*	5.777E-03	1.883E-02	3.260E-02	1.903E-03	0.177
TI-44		67.85		-3.481E-03	4.558E-02	7.470E-02	6.007E-03	-0.047
	+	78.38	*	3.734E-01	5.635E-02	7.605E-02	6.503E-03	4.910
SC-46		889.25	*	-4.555E-03	3.079E-02	4.973E-02	5.546E-03	-0.092
	+	1120.51		3.352E-01	6.979E-02	1.143E-01	7.893E-03	2.934
V-48		944.10		-5.840E-01	8.654E-01	1.328E+00	1.405E-01	-0.440
		983.50	*	3.591E-02	6.251E-02	1.060E-01	1.048E-02	0.339
		1312.09		-1.439E-03	7.884E-02	1.289E-01	9.389E-03	-0.011
CR-51		320.08	*	4.003E-02	3.202E-01	5.193E-01	3.343E-02	0.077
MN-52		744.21		2.467E-01	2.919E-01	5.112E-01	4.508E-02	0.483
		848.13		-1.057E+00	8.234E+00	1.338E+01	1.400E+00	-0.079
		935.52		3.332E-01	4.149E-01	6.222E-01	6.674E-02	0.536
		1246.25		-6.641E+00	1.021E+01	1.435E+01	9.228E-01	-0.463
		1333.61		5.567E+00	6.464E+00	1.139E+01	8.601E-01	0.489
		1434.06	*	1.679E-01	3.006E-01	5.176E-01	3.814E-02	0.324
MN-54		834.83	*	1.679E-03	2.953E-02	4.873E-02	4.992E-03	0.034
CO-56		846.75	*	-1.039E-02	3.152E-02	5.044E-02	5.265E-03	-0.206
		977.42		-8.551E-01	2.380E+00	3.536E+00	3.537E-01	-0.242
		1037.82		-4.539E-03	2.358E-01	3.940E-01	3.651E-02	-0.012
		1175.09		-9.570E-01	1.757E+00	2.787E+00	1.547E-01	-0.343
	+	1238.25		1.229E-01	9.839E-02	1.363E-01	9.086E-03	0.901
		1360.21		5.816E-02	7.471E-01	1.229E+00	9.239E-02	0.047
		1771.40		-1.471E-01	2.002E-01	2.445E-01	1.478E-02	-0.601
CO-57		122.06	*	-5.164E-03	2.298E-02	3.653E-02	2.164E-03	-0.141
		136.48		2.538E-02	1.791E-01	2.869E-01	1.878E-02	0.088
CO-58		810.76	*	-7.663E-03	3.098E-02	5.011E-02	4.947E-03	-0.153
FE-59		142.65		4.234E-01	2.558E+00	4.088E+00	2.250E-01	0.104
		192.34		-2.816E-01	8.392E-01	1.338E+00	1.551E-01	-0.211
		1099.22	*	-1.374E-02	7.562E-02	1.242E-01	1.023E-02	-0.111
		1291.56		6.236E-02	1.073E-01	1.839E-01	1.546E-02	0.339
CO-60		1173.22		-2.270E-02	3.391E-02	5.321E-02	2.940E-03	-0.427
		1332.49	*	4.541E-02	2.979E-02	5.526E-02	4.175E-03	0.822
ZN-65		1115.52	*	1.284E-01	8.742E-02	1.406E-01	9.901E-03	0.913

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68	1077.35	*		2.916E-01	9.531E-01	1.626E+00	1.292E-01	0.179
AS-73	53.44	*		-3.378E-01	1.049E+00	1.742E+00	1.381E-01	-0.194
AS-74	595.88	*		3.624E-02	8.559E-02	1.422E-01	1.022E-02	0.255
	634.78			-1.245E-02	3.238E-01	5.196E-01	3.868E-02	-0.024
SE-75	66.05			-3.560E+00	5.550E+00	8.004E+00	7.927E-01	-0.445
	96.73			-4.841E-01	7.767E-01	1.088E+00	1.434E-01	-0.445
	121.11			3.204E-02	1.215E-01	1.971E-01	1.840E-02	0.163
	136.00			3.375E-03	3.427E-02	5.483E-02	3.122E-03	0.062
	198.60			-6.800E-01	1.543E+00	2.533E+00	1.719E-01	-0.268
	264.65	*		8.537E-03	3.748E-02	5.746E-02	3.286E-03	0.149
+	279.53			7.939E-02	1.314E-01	1.476E-01	9.121E-03	0.538
	303.91			2.307E-01	1.925E+00	2.744E+00	2.610E-01	0.084
	400.65			-9.522E-02	2.035E-01	3.318E-01	3.023E-02	-0.287
BR-77	+	87.88		2.904E-03	2.035E-01	Half-Life	too short	
		200.40		3.644E-05	2.035E-01	Half-Life	too short	
+		239.00		7.738E-04	2.035E-01	Half-Life	too short	
		249.79		-1.135E-04	2.035E-01	Half-Life	too short	
		281.68		-4.525E-05	2.035E-01	Half-Life	too short	
		297.23		1.098E-03	2.035E-01	Half-Life	too short	
		303.76		5.519E-05	2.035E-01	Half-Life	too short	
		439.47		-1.493E-04	2.035E-01	Half-Life	too short	
		484.57		-3.903E-04	2.035E-01	Half-Life	too short	
		520.65	*	-2.099E-05	2.035E-01	Half-Life	too short	
		574.64		6.439E-04	2.035E-01	Half-Life	too short	
		578.91		1.281E-05	2.035E-01	Half-Life	too short	
		585.48		4.365E-03	2.035E-01	Half-Life	too short	
		755.35		1.773E-04	2.035E-01	Half-Life	too short	
		817.79		-2.442E-05	2.035E-01	Half-Life	too short	
SR-82		698.33		6.193E+00	3.034E+01	5.126E+01	4.174E+00	0.121
		776.49	*	-4.528E-01	3.303E-01	4.882E-01	4.546E-02	-0.928
	1395.20			-2.760E+00	8.780E+00	1.375E+01	1.025E+00	-0.201
RB-83		520.41	*	-4.383E-02	5.423E-02	8.390E-02	5.596E-03	-0.522
		529.64		4.940E-03	8.229E-02	1.351E-01	9.095E-03	0.037
		552.65		1.324E-02	1.625E-01	2.661E-01	1.834E-02	0.050
RB-84		881.50	*	1.958E-02	6.076E-02	1.017E-01	1.121E-02	0.193
KR-85		513.99	*	1.186E+01	6.670E+00	1.065E+01	7.054E-01	1.114
SR-85		513.99	*	6.344E-02	3.567E-02	5.694E-02	3.772E-03	1.114
RB-86		1076.63	*	7.086E-02	7.071E-01	1.188E+00	9.460E-02	0.060
Y-88		898.02		-1.011E-02	3.282E-02	5.225E-02	5.923E-03	-0.193
		1836.01	*	-1.193E-02	2.334E-02	3.470E-02	1.976E-03	-0.344
ZR-88		392.90	*	1.268E-02	2.368E-02	4.078E-02	2.345E-03	0.311
Y-91		1204.90	*	5.889E+00	1.526E+01	2.587E+01	1.530E+00	0.228
NB-94		702.63	*	1.793E-02	2.687E-02	4.652E-02	3.817E-03	0.385
		871.10		-1.136E-02	2.685E-02	4.249E-02	4.609E-03	-0.267
NB-95M		235.69	*	1.318E-01	1.229E-01	1.873E-01	1.374E-02	0.704
ZR-95		724.18		1.531E-01	8.928E-02	1.448E-01	1.343E-02	1.057
		756.15	*	1.683E-02	5.783E-02	9.771E-02	9.614E-03	0.172
NB-97		657.90	*	4.016E+00	5.783E-02	Half-Life	too short	
		1024.50		-3.235E+02	5.783E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	254.15			8.158E+01	5.783E-02	Half-Life	too short	
	355.39			2.508E+02	5.783E-02	Half-Life	too short	
	507.63	*		2.511E+02	5.783E-02	Half-Life	too short	
	602.52			2.075E+01	5.783E-02	Half-Life	too short	
	1021.30			-1.916E+02	5.783E-02	Half-Life	too short	
	1147.95			-1.896E+02	5.783E-02	Half-Life	too short	
	1362.66			-9.129E-01	5.783E-02	Half-Life	too short	
	1750.46			3.600E+01	5.783E-02	Half-Life	too short	
MO-99	140.51			-4.949E+01	6.800E+01	1.004E+02	2.699E+01	-0.493
	181.06			-5.516E+00	4.060E+01	5.965E+01	1.013E+01	-0.092
	366.43			2.300E+02	1.730E+02	3.100E+02	1.791E+01	0.742
	739.58	*		6.517E+00	2.359E+01	3.991E+01	6.089E+00	0.163
	778.00			-7.657E+01	7.152E+01	1.086E+02	1.014E+01	-0.705
TC-99M	140.51	*		-1.648E+15	7.152E+01	Half-Life	too short	
RH-101	127.23			1.073E-02	3.118E-02	4.523E-02	2.613E-03	0.237
	198.01	*		-1.201E-02	2.765E-02	4.542E-02	2.441E-03	-0.264
	325.23			1.878E-02	1.988E-01	2.811E-01	1.625E-02	0.067
RH-102	418.52			-1.206E-01	2.305E-01	3.679E-01	2.186E-02	-0.328
	475.06	*		-4.875E-03	2.251E-02	3.665E-02	2.328E-03	-0.133
	631.29			-5.294E-03	4.329E-02	6.907E-02	5.127E-03	-0.077
	697.49			1.430E-02	6.050E-02	1.025E-01	8.329E-03	0.140
	766.84	+		1.578E-01	1.299E-01	1.693E-01	1.551E-02	0.932
	1046.59			-6.500E-02	9.162E-02	1.450E-01	1.251E-02	-0.448
	1112.84			4.949E-02	1.874E-01	2.748E-01	1.951E-02	0.180
RU-103	497.08	*		2.907E-02	3.290E-02	5.667E-02	7.359E-03	0.513
	610.33	+		1.266E+01	2.534E+00	2.538E+00	4.069E-01	4.988
RH-106	511.85	+		4.203E-01	2.414E-01	3.561E-01	2.354E-02	1.181
	621.84	*		-2.054E-02	2.606E-01	4.178E-01	5.257E-02	-0.049
	1050.47			6.468E-01	1.814E+00	3.109E+00	2.656E-01	0.208
RU-106	511.85	+		4.203E-01	2.414E-01	3.561E-01	2.354E-02	1.181
	621.84	*		-2.054E-02	2.606E-01	4.178E-01	3.075E-02	-0.049
	1050.47			6.468E-01	1.814E+00	3.109E+00	2.656E-01	0.208
AG-108M	433.93	*		-1.065E-02	2.580E-02	4.188E-02	2.736E-03	-0.254
	614.37			-2.461E-02	3.559E-02	4.611E-02	3.553E-03	-0.534
	722.95			-8.620E-03	3.535E-02	4.948E-02	4.376E-03	-0.174
AG-110M	657.75	*		2.039E-02	3.363E-02	5.110E-02	4.030E-03	0.399
	677.61			-8.578E-02	2.337E-01	3.817E-01	3.097E-02	-0.225
	706.67			-6.084E-02	1.671E-01	2.724E-01	2.318E-02	-0.223
	763.93			2.305E-01	1.474E-01	2.377E-01	2.222E-02	0.970
	884.67			1.035E-02	3.942E-02	6.570E-02	7.420E-03	0.158
	937.48			-1.266E-03	1.031E-01	1.407E-01	1.540E-02	-0.009
	1384.27			1.305E-01	1.388E-01	2.201E-01	1.706E-02	0.593
IN-111	171.28			-1.374E+00	2.183E+00	3.592E+00	1.890E-01	-0.382
	245.39	*		9.189E-01	2.430E+00	3.591E+00	2.007E-01	0.256
IN-113M	391.69	*		5.848E-03	3.428E-02	5.796E-02	3.556E-03	0.101
SN-113	391.69	*		5.848E-03	3.428E-02	5.796E-02	3.556E-03	0.101
IN-114M	190.27	*		1.158E-01	1.668E-01	2.552E-01	1.363E-02	0.454
CD-115	260.90			-5.758E-05	1.668E-01	Half-Life	too short	
	492.35			-9.581E-05	1.668E-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
SN-117M	527.90	*		7.023E-06	1.668E-01	Half-Life	too short	
	156.02			7.943E-01	2.273E+00	3.902E+00	2.084E-01	0.204
	158.56	*		3.522E-04	5.344E-02	9.056E-02	4.813E-03	0.004
SB-122	563.90	*		1.472E+00	4.103E+00	6.837E+00	4.764E-01	0.215
	692.80			-1.261E+01	8.927E+01	1.478E+02	1.192E+01	-0.085
I-123	159.00	*		-5.901E+02	8.927E+01	Half-Life	too short	
	528.96			-1.038E+04	8.927E+01	Half-Life	too short	
TE-123M	159.00	*		-1.884E-02	2.329E-02	3.824E-02	2.063E-03	-0.493
I-124	602.71	*		-3.024E-01	1.247E+00	1.702E+00	1.230E-01	-0.178
	722.78			-1.603E+00	7.174E+00	1.006E+01	8.551E-01	-0.159
	1325.50			-9.855E+01	5.200E+01	6.689E+01	4.991E+00	-1.473
+	1376.25			9.013E+01	5.903E+01	1.073E+02	8.033E+00	0.840
	1509.49			1.694E+01	2.388E+01	4.208E+01	3.015E+00	0.403
	1691.02			-1.450E+00	4.580E+00	7.144E+00	4.608E-01	-0.203
SB-124	602.71			-9.484E-03	3.912E-02	5.337E-02	3.860E-03	-0.178
	645.85			3.139E-01	3.829E-01	6.518E-01	5.283E-02	0.482
	709.31			-4.995E-01	2.280E+00	3.751E+00	3.114E-01	-0.133
+	713.82			-3.191E-01	1.325E+00	2.173E+00	2.577E-01	-0.147
	722.78			-7.287E-02	3.262E-01	4.575E-01	3.974E-02	-0.159
	968.20			1.597E+01	3.787E+00	6.214E+00	6.318E-01	2.571
+	1045.16			-8.445E-01	2.028E+00	3.287E+00	2.846E-01	-0.257
	1325.50			-4.785E+00	2.525E+00	3.248E+00	2.424E-01	-1.473
	1368.21			-3.035E-01	1.569E+00	2.105E+00	2.692E-01	-0.144
SB-125	1436.60			1.145E+00	3.196E+00	5.258E+00	3.871E-01	0.218
	1691.02	*		-1.555E-02	4.912E-02	7.661E-02	5.286E-03	-0.203
	427.89	*		-2.003E-02	6.960E-02	1.139E-01	7.118E-03	-0.176
+	463.38			5.900E-01	4.414E-01	4.446E-01	3.188E-02	1.327
	600.56			4.771E-03	1.510E-01	2.380E-01	1.895E-02	0.020
	635.90			9.542E-02	2.104E-01	3.491E-01	2.880E-02	0.273
TE-125M	109.28	*		-7.601E+00	8.938E+00	1.392E+01	1.225E+00	-0.546
I-126	388.63			-3.707E-02	1.899E-01	3.152E-01	1.812E-02	-0.118
	666.33	*		2.747E-02	1.973E-01	2.890E-01	2.222E-02	0.095
SB-126	753.82			1.551E+00	1.395E+00	2.471E+00	2.215E-01	0.628
	223.80			1.499E-01	4.161E+00	6.897E+00	3.791E-01	0.022
	278.60			2.177E+00	3.602E+00	4.292E+00	2.446E-01	0.507
+	296.50			1.953E+01	2.441E+00	3.955E+00	2.270E-01	4.939
	414.70			-2.035E-02	8.273E-02	1.177E-01	6.958E-03	-0.173
	415.30			1.866E+00	6.426E+00	9.954E+00	5.891E-01	0.187
+	555.20			2.113E+00	3.930E+00	6.615E+00	4.570E-01	0.319
	573.80			1.288E+00	1.046E+00	1.784E+00	1.255E-01	0.722
	593.00			1.163E-01	8.816E-01	1.440E+00	1.032E-01	0.081
+	656.30			3.264E+00	3.590E+00	5.618E+00	4.262E-01	0.581
	666.33			1.158E-02	8.319E-02	1.219E-01	9.369E-03	0.095
	675.00			3.860E-02	1.907E+00	3.199E+00	2.498E-01	0.012
+	695.00			3.931E-03	7.406E-02	1.241E-01	1.005E-02	0.032
	697.00			3.608E-02	2.655E-01	4.471E-01	3.631E-02	0.081
	720.50	*		-1.012E-02	1.548E-01	2.207E-01	1.868E-02	-0.046
+	856.80			5.989E-01	5.165E-01	8.090E-01	8.580E-02	0.740
	989.30			-1.732E-01	1.173E+00	1.874E+00	1.833E-01	-0.092



----- Non-identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		1034.80		-1.066E+01	9.075E+00	1.307E+01	1.161E+00	-0.815
		1213.00		-2.776E+00	4.814E+00	7.629E+00	4.587E-01	-0.364
		61.10		-1.033E+02	1.408E+02	2.029E+02	2.399E+01	-0.509
		252.40		3.193E+00	7.425E+00	1.222E+01	5.117E+00	0.261
		290.80		-2.711E+01	3.745E+01	5.007E+01	5.324E+00	-0.541
	+	411.60		2.977E+01	3.166E+01	3.413E+01	5.262E+00	0.872
		444.90		6.235E+00	1.526E+01	2.588E+01	3.173E+00	0.241
		473.00		8.878E-01	2.652E+00	4.460E+00	5.666E-01	0.199
		543.00		1.819E+01	2.605E+01	4.420E+01	6.397E+00	0.412
		603.60		-8.158E+00	2.346E+01	3.169E+01	4.065E+00	-0.257
XE-127		685.20	*	-1.293E+00	1.984E+00	3.157E+00	3.847E-01	-0.410
		698.50		5.070E+00	2.485E+01	4.197E+01	6.925E+00	0.121
		722.20		-1.938E+01	5.135E+01	7.078E+01	8.736E+00	-0.274
		783.80		9.780E+00	6.021E+00	1.070E+01	1.508E+00	0.914
		57.60		8.816E-01	7.444E+00	1.253E+01	9.655E-01	0.070
		145.22		3.839E-01	6.518E-01	1.058E+00	5.786E-02	0.363
		172.10		-8.650E-03	1.054E-01	1.771E-01	9.325E-03	-0.049
		202.84	*	-8.800E-03	4.322E-02	6.907E-02	3.728E-03	-0.127
		374.96		6.452E-02	1.562E-01	2.683E-01	1.547E-02	0.240
		80.18		-7.846E-01	6.851E+00	9.152E+00	8.008E-01	-0.086
I-131		284.30		8.039E-01	1.700E+00	2.828E+00	1.814E-01	0.284
		364.48	*	5.788E-02	1.237E-01	2.133E-01	1.386E-02	0.271
TE-132		636.97		5.177E-01	1.665E+00	2.738E+00	2.203E-01	0.189
		722.89		-1.989E+00	8.407E+00	1.178E+01	1.011E+00	-0.169
		49.72		-1.320E+00	6.047E+01	1.020E+02	1.163E+01	-0.013
		111.76		-3.979E+01	6.231E+01	9.773E+01	1.035E+01	-0.407
BA-133		116.30		4.186E+01	5.778E+01	9.546E+01	9.936E+00	0.438
		228.16	*	8.000E-01	1.354E+00	2.282E+00	3.454E-01	0.351
		53.15		-5.287E-01	4.411E+00	7.388E+00	5.862E-01	-0.072
		79.62		-6.408E-01	1.276E+00	1.829E+00	2.785E-01	-0.350
		81.00		7.985E-02	1.138E-01	1.390E-01	2.214E-02	0.575
		276.40		2.876E-01	3.767E-01	5.248E-01	6.778E-02	0.548
I-133		302.84		6.643E-02	1.292E-01	1.890E-01	2.198E-02	0.352
		356.01	*	3.201E-02	3.793E-02	5.617E-02	6.489E-03	0.570
		383.85		2.124E-01	2.310E-01	3.987E-01	4.325E-02	0.533
	+	510.53		2.078E+01	2.310E-01	Half-Life	too short	
		529.87	*	-1.275E-03	2.310E-01	Half-Life	too short	
		706.58		-2.770E+00	2.310E-01	Half-Life	too short	
		856.28		1.035E+01	2.310E-01	Half-Life	too short	
		875.33		-1.968E+00	2.310E-01	Half-Life	too short	
	+	1236.41		2.102E+01	2.310E-01	Half-Life	too short	
		1298.22		-1.656E+00	2.310E-01	Half-Life	too short	
CS-134		475.35		-3.168E-01	1.478E+00	2.408E+00	1.530E-01	-0.132
		563.23		1.223E-01	2.554E-01	4.291E-01	3.031E-02	0.285
		569.32		-7.490E-02	1.577E-01	2.416E-01	1.727E-02	-0.310
		604.70		-4.725E-03	3.285E-02	4.521E-02	3.287E-03	-0.105
		795.84	*	6.162E-02	4.303E-02	6.846E-02	6.621E-03	0.900
		801.93		6.032E-02	3.082E-01	4.929E-01	4.808E-02	0.122
		1038.57		1.153E-01	2.861E+00	4.803E+00	4.226E-01	0.024

----- 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	1167.94			1.356E+00	1.883E+00	3.279E+00	1.859E-01	0.414
	1365.15			3.936E-01	9.551E-01	1.538E+00	1.223E-01	0.256
	268.24	*		1.518E-01	1.378E-01	2.107E-01	1.592E-02	0.720
	288.45			-1.642E+14	1.378E-01	Half-Life	too short	
	417.63			-2.115E+14	1.378E-01	Half-Life	too short	
	546.56			-1.962E+14	1.378E-01	Half-Life	too short	
	836.80			1.107E+13	1.378E-01	Half-Life	too short	
	1038.76			7.261E+13	1.378E-01	Half-Life	too short	
	1124.00			8.701E+14	1.378E-01	Half-Life	too short	
	1131.51			4.432E+13	1.378E-01	Half-Life	too short	
	1260.41	*		-1.587E+13	1.378E-01	Half-Life	too short	
	1457.56			2.272E+16	1.378E-01	Half-Life	too short	
	1678.03			4.139E+13	1.378E-01	Half-Life	too short	
	1706.46			1.462E+14	1.378E-01	Half-Life	too short	
CS-136 +	1791.20			7.738E+13	1.378E-01	Half-Life	too short	
	66.91			-1.038E+00	1.092E+00	1.537E+00	2.322E-01	-0.675
	86.29			6.631E+00	2.043E+00	2.308E+00	3.043E-01	2.873
	153.22			1.879E-01	6.628E-01	1.136E+00	7.826E-02	0.165
	163.89			5.119E-01	1.034E+00	1.778E+00	1.216E-01	0.288
	176.55			-1.752E-01	3.747E-01	6.194E-01	3.757E-02	-0.283
	273.65			2.076E-02	6.851E-01	7.057E-01	4.601E-02	0.029
	340.57			3.233E-01	1.604E-01	2.507E-01	1.544E-02	1.289
	818.51			-3.746E-03	6.563E-02	1.076E-01	1.075E-02	-0.035
	1048.07	*		4.411E-02	1.035E-01	1.782E-01	1.598E-02	0.248
	1235.34			6.899E-01	6.802E-01	1.040E+00	1.069E-01	0.664
	165.85	*		-2.403E-02	2.416E-02	3.923E-02	2.059E-03	-0.613
	162.64			2.421E-01	7.412E-01	1.268E+00	7.690E-02	0.191
	304.84			6.887E-01	1.441E+00	2.089E+00	5.698E-01	0.330
BA-140 LA-140	423.70			-7.283E-02	1.800E+00	2.990E+00	9.515E-01	-0.024
	537.32	*		7.073E-03	2.515E-01	4.114E-01	1.346E-01	0.017
	328.77			7.307E-01	3.718E-01	5.645E-01	3.658E-02	1.294
	432.53			-4.381E-01	1.961E+00	3.219E+00	2.134E-01	-0.136
	487.03			1.345E-01	1.247E-01	2.185E-01	1.559E-02	0.616
	751.79			-1.018E+00	1.676E+00	2.662E+00	2.616E-01	-0.382
	815.85			-9.938E-02	2.987E-01	4.792E-01	5.179E-02	-0.207
	867.82			8.433E-01	1.414E+00	2.258E+00	2.520E-01	0.373
	919.63			1.594E+00	3.015E+00	4.616E+00	5.832E-01	0.345
	925.24			-7.468E-01	1.093E+00	1.675E+00	1.897E-01	-0.446
	1596.49	*		9.548E-03	8.208E-02	1.381E-01	9.473E-03	0.069
	145.44	*		2.790E-02	5.942E-02	9.602E-02	5.482E-03	0.291
	57.37			-1.576E-03	5.942E-02	Half-Life	too short	
	231.56			-7.109E-03	5.942E-02	Half-Life	too short	
CE-141 CE-143 + CE-144	293.26	*		6.968E-03	5.942E-02	Half-Life	too short	
	350.59			2.421E-01	5.942E-02	Half-Life	too short	
	490.36			-1.189E-02	5.942E-02	Half-Life	too short	
	664.57			1.831E-02	5.942E-02	Half-Life	too short	
	721.93			-3.726E-03	5.942E-02	Half-Life	too short	
	80.11			-3.295E-01	2.255E+00	3.007E+00	2.604E-01	-0.110
	133.54	*		1.025E-01	1.972E-01	2.872E-01	4.061E-02	0.357

## ---- 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		-4.013E-02	5.272E-02	8.280E-02	6.146E-03	-0.485
		618.01		1.259E-03	2.562E-02	4.146E-02	3.157E-03	0.030
		696.49	*	-3.650E-03	2.733E-02	4.528E-02	3.677E-03	-0.081
		778.57		-1.384E+00	1.796E+00	2.803E+00	2.620E-01	-0.494
PR-144		696.49	*	-2.478E-01	1.856E+00	3.075E+00	2.495E-01	-0.081
	1489.15			1.506E+00	9.539E+00	1.572E+01	1.135E+00	0.096
PM-146		453.90	*	1.812E-02	3.780E-02	5.880E-02	5.231E-03	0.308
		633.02		-1.095E+00	1.201E+00	1.693E+00	6.285E-01	-0.647
		735.90		-5.499E-02	1.187E-01	1.850E-01	5.295E-02	-0.297
		747.13		-4.879E-02	7.123E-02	1.122E-01	1.591E-02	-0.435
ND-147	+	91.11		1.281E+00	4.589E-01	6.016E-01	5.659E-02	2.129
		319.41		-1.345E-01	3.358E+00	5.397E+00	3.118E-01	-0.025
		439.89		-2.875E+00	5.883E+00	9.496E+00	5.795E-01	-0.303
		531.02	*	2.098E-01	5.415E-01	9.064E-01	1.265E-01	0.231
PM-149		285.90	*	8.729E-05	5.415E-01	Half-Life	too short	
EU-152		121.78		1.197E-02	6.523E-02	1.055E-01	8.128E-03	0.113
		244.69		-1.195E-02	2.905E-01	4.180E-01	2.335E-02	-0.029
		344.27	*	-2.049E-02	1.002E-01	1.275E-01	8.318E-03	-0.161
		443.98		1.772E-01	7.316E-01	1.231E+00	7.542E-02	0.144
		778.89		-9.682E-02	2.050E-01	3.277E-01	3.064E-02	-0.295
		867.32		2.383E-01	7.097E-01	1.074E+00	1.158E-01	0.222
	+	964.01		5.957E-01	3.102E-01	4.815E-01	4.932E-02	1.237
		1085.78		9.511E-02	2.885E-01	4.932E-01	3.822E-02	0.193
		1112.02		1.018E-01	2.672E-01	3.965E-01	2.823E-02	0.257
		1407.95		-2.083E-02	2.083E-01	2.844E-01	2.112E-02	-0.073
GD-153		69.67		-8.883E-01	1.589E+00	2.583E+00	2.096E-01	-0.344
		83.37		1.371E+01	1.670E+01	2.313E+01	2.054E+00	0.593
		97.43	*	1.596E-02	7.795E-02	1.145E-01	8.951E-03	0.139
		103.18		-1.215E-01	9.635E-02	1.476E-01	1.064E-02	-0.823
EU-154		123.07		-3.494E-02	4.756E-02	7.378E-02	6.977E-03	-0.474
		247.94		-4.761E-02	3.323E-01	4.743E-01	4.468E-02	-0.100
		591.81		-2.837E-01	4.957E-01	7.173E-01	7.629E-02	-0.395
		723.30		6.793E-03	1.493E-01	2.151E-01	2.028E-02	0.032
		756.87		-3.396E-01	6.176E-01	9.846E-01	1.207E-01	-0.345
		873.19		-2.714E-03	2.258E-01	3.693E-01	5.144E-02	-0.007
		996.32		-9.031E-02	2.843E-01	4.467E-01	8.169E-02	-0.202
		1004.76		-1.913E-01	1.740E-01	2.530E-01	3.111E-02	-0.756
		1274.45	*	7.467E-02	9.513E-02	1.655E-01	1.654E-02	0.451
EU-155		48.70		-2.034E-01	3.313E+00	5.583E+00	4.235E-01	-0.036
		60.01		4.994E+00	5.876E+00	9.163E+00	6.992E-01	0.545
	+	86.54		4.966E-01	1.456E-01	1.733E-01	1.596E-02	2.866
		105.31	*	1.103E-01	9.954E-02	1.676E-01	1.198E-02	0.658
TB-160	+	86.79		1.376E+00	4.031E-01	4.798E-01	4.389E-02	2.868
		197.04		-7.611E-03	4.843E-01	8.086E-01	4.342E-02	-0.009
		215.65		-1.547E-01	6.167E-01	1.013E+00	5.529E-02	-0.153
	+	298.57		2.720E-01	1.134E-01	1.691E-01	9.714E-03	1.608
		879.36	*	2.254E-02	1.117E-01	1.856E-01	2.039E-02	0.121
		962.29		8.564E-01	5.536E-01	8.652E-01	8.888E-02	0.990
		966.15		1.522E+00	2.800E-01	4.842E-01	4.941E-02	3.144

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error (pCi/GRAM)	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1177.93			-4.866E-02	2.833E-01	4.626E-01	-0.105
	1271.85			1.687E-01	5.823E-01	9.785E-01	0.172
	80.57			1.145E-01	3.240E-01	3.875E-01	0.295
	184.41			1.576E-01	3.421E-02	5.888E-02	2.677
	280.46			-1.057E-02	7.473E-02	1.054E-01	-0.100
	410.95			2.898E-01	3.054E-01	3.468E-01	0.836
TM-171	711.68		*	5.445E-03	4.693E-02	7.882E-02	0.069
	752.31			-1.631E-02	2.139E-01	3.531E-01	-0.046
	810.29			-1.030E-02	4.513E-02	7.313E-02	-0.141
	51.35			1.134E+01	3.974E+01	6.766E+01	0.168
	52.39			6.044E+00	2.008E+01	3.417E+01	0.177
	59.40			3.829E+01	3.210E+01	5.079E+01	0.754
LU-176	66.72		*	-2.071E+01	3.172E+01	4.572E+01	-0.453
	88.36			9.764E-01	2.860E-01	3.379E-01	2.890
	201.83			-1.373E-02	2.416E-02	3.941E-02	-0.348
	306.84		*	9.585E-03	2.023E-02	3.242E-02	0.296
	401.10			-2.260E+00	5.332E+00	8.479E+00	-0.267
	112.95			-4.267E-01	2.196E+00	3.514E+00	-0.121
LU-177	208.36		*	4.729E+00	1.931E+00	2.546E+00	1.857
	52.97			-9.532E-02	2.041E+00	3.428E+00	-0.028
	54.07			-1.017E-01	1.042E+00	1.745E+00	-0.058
	61.30			-1.192E+00	1.796E+00	2.603E+00	-0.458
	121.62			7.287E-02	3.406E-01	5.515E-01	0.132
	147.16			-6.516E-01	5.802E-01	8.724E-01	-0.747
LU-177M	171.86			-1.822E-01	4.026E-01	6.671E-01	-0.273
	218.09			3.021E-01	6.846E-01	1.156E+00	0.261
	268.79			1.841E+00	9.074E-01	1.150E+00	1.601
	319.02			-7.559E-02	2.090E-01	3.299E-01	-0.229
	367.43			5.853E-01	6.943E-01	1.218E+00	0.481
	413.65		*	-3.851E-02	1.522E-01	2.162E-01	-0.178
HF-181	56.28			-1.080E+00	1.175E+00	1.898E+00	-0.569
	57.53			-1.112E-02	6.205E-01	1.039E+00	-0.011
	65.20			-7.660E-01	1.140E+00	1.643E+00	-0.466
	133.02			2.524E-02	6.820E-02	9.774E-02	0.258
	136.25			4.640E-02	4.157E-01	6.653E-01	0.070
	345.85			1.169E-01	1.880E-01	2.748E-01	0.425
W-181	482.03		*	-2.546E-02	3.376E-02	5.289E-02	-0.481
	56.28			-4.050E-01	4.409E-01	7.121E-01	-0.569
	57.53			-4.622E-03	2.330E-01	3.902E-01	-0.012
	65.20		*	-2.853E-01	4.244E-01	6.119E-01	-0.466
	67.75			-9.097E-03	1.117E-01	1.830E-01	-0.050
	100.10			3.759E-02	1.634E-01	2.680E-01	0.140
TA-182	152.43			-2.199E-01	3.053E-01	4.670E-01	-0.471
	222.10			-1.272E-02	2.907E-01	4.806E-01	-0.026
	1001.68			-1.406E-01	1.715E+00	2.759E+00	-0.051
	1121.28			7.946E-01	1.680E-01	3.043E-01	2.611
	1189.05			1.487E-01	2.504E-01	4.305E-01	0.345
	1221.42		*	-1.358E-02	1.706E-01	2.799E-01	-0.049
	1230.97			-3.389E-02	4.430E-01	6.179E-01	-0.055

---- 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	1.361E-01	2.343E-01	4.003E-01	3.075E-02	0.340
		59.32	1.638E-01	1.370E-01	2.168E-01	1.648E-02	0.756
		67.20	-2.054E-01	2.173E-01	3.284E-01	2.632E-02	-0.625
		162.32 *	4.130E-02	9.035E-02	1.554E-01	8.200E-03	0.266
	+	208.81	2.927E+00	1.195E+00	1.572E+00	8.530E-02	1.862
RE-184		291.72	2.411E-01	8.197E-01	1.188E+00	6.808E-02	0.203
		57.98	4.900E-01	8.435E-01	1.441E+00	1.107E-01	0.340
		59.32	5.894E-01	4.930E-01	7.801E-01	5.927E-02	0.756
		67.20	-7.392E-01	7.820E-01	1.182E+00	9.474E-02	-0.625
		161.27	-2.554E-02	2.829E-01	4.772E-01	2.524E-02	-0.054
		216.55	-4.783E-02	2.158E-01	3.548E-01	1.938E-02	-0.135
		252.85 *	8.324E-02	1.927E-01	3.223E-01	1.810E-02	0.258
		318.01	-4.723E-02	3.623E-01	5.797E-01	3.346E-02	-0.081
		792.07	1.495E+00	9.527E-01	1.526E+00	1.458E-01	0.980
		903.28	-2.925E-01	9.139E-01	1.230E+00	1.381E-01	-0.238
OS-185		920.93	1.635E-01	3.727E-01	6.005E-01	6.581E-02	0.272
		59.72	3.606E-01	3.624E-01	5.686E-01	4.325E-02	0.634
		61.14	-1.445E-01	2.004E-01	2.896E-01	2.234E-02	-0.499
		69.30	-1.844E-01	2.922E-01	4.735E-01	3.836E-02	-0.390
		592.07	-1.306E+00	2.011E+00	3.003E+00	2.150E-01	-0.435
		646.12 *	1.574E-02	3.199E-02	5.329E-02	4.007E-03	0.295
		717.42	1.696E-01	7.048E-01	1.192E+00	1.004E-01	0.142
		874.81	-4.509E-01	4.724E-01	7.102E-01	7.747E-02	-0.635
		880.27	3.693E-02	6.293E-01	1.034E+00	1.137E-01	0.036
		155.03 *	2.105E-01	1.445E-01	2.566E-01	1.373E-02	0.820
RE-188		477.96	2.427E-01	2.430E+00	4.032E+00	2.569E-01	0.060
		633.10	-2.126E+00	2.358E+00	3.541E+00	2.632E-01	-0.600
	+	63.58	5.409E+01	7.465E+01	9.960E+01	7.825E+00	0.543
W-188		227.08	3.033E+00	1.154E+01	1.890E+01	1.042E+00	0.160
		290.67 *	-4.985E+00	6.549E+00	8.747E+00	5.010E-01	-0.570
	+	295.96	1.242E+00	1.558E-01	2.563E-01	1.495E-02	4.846
IR-192		308.46	-3.666E-02	7.971E-02	1.255E-01	7.314E-03	-0.292
		316.51 *	1.524E-03	2.869E-02	4.639E-02	2.690E-03	0.033
		468.07	-1.907E-02	6.209E-02	8.662E-02	6.173E-03	-0.220
		604.41	-1.598E-01	4.579E-01	6.181E-01	7.511E-02	-0.259
		612.46	2.190E+00	7.318E-01	1.218E+00	1.069E-01	1.797
AU-195		65.12	-1.756E-01	1.959E-01	2.821E-01	2.236E-02	-0.622
		66.83	-1.002E-01	1.073E-01	1.524E-01	1.219E-02	-0.657
	+	75.70	1.000E+00	2.342E-01	4.240E-01	3.561E-02	2.358
		98.88 *	2.307E-01	2.121E-01	3.434E-01	2.628E-02	0.672
	+	129.76	4.884E+00	3.226E+00	4.433E+00	2.536E-01	1.102
TL-200		367.94 *	3.425E-03	3.226E+00	Half-Life	too short	
		579.30	2.829E-02	3.226E+00	Half-Life	too short	
		828.27	-2.862E-03	3.226E+00	Half-Life	too short	
		1205.75	1.004E-02	3.226E+00	Half-Life	too short	
TL-201		68.90	-1.996E+00	1.128E+01	1.860E+01	1.504E+00	-0.107
		70.82	-3.087E+00	7.045E+00	1.024E+01	8.362E-01	-0.301
		80.30	3.580E+00	1.486E+01	1.764E+01	1.529E+00	0.203
		135.34	-5.830E+01	5.448E+01	8.256E+01	4.636E+00	-0.706

---- 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	*	-1.196E+00	1.381E+01	2.324E+01	1.220E+00	-0.051
		68.90		-9.063E-02	5.119E-01	8.445E-01	6.827E-02	-0.107
		70.82		-1.398E-01	3.189E-01	4.637E-01	3.786E-02	-0.301
		80.30		1.621E-01	6.731E-01	7.987E-01	6.925E-02	0.203
BI-207		439.56	*	-2.861E-02	6.754E-02	1.094E-01	6.672E-03	-0.261
		72.80		1.924E-01	1.853E-01	2.865E-01	2.364E-02	0.672
	+	74.97		5.465E-01	1.280E-01	2.111E-01	1.764E-02	2.589
		84.90		4.022E-01	1.781E-01	3.027E-01	2.724E-02	1.329
TL-207		569.67		1.265E-04	2.463E-02	3.903E-02	2.735E-03	0.003
		1063.62	*	2.268E-02	3.895E-02	6.780E-02	5.597E-03	0.334
		1770.23		4.922E-02	3.752E-01	5.395E-01	3.264E-02	0.091
		81.07		1.694E-01	2.495E-01	3.055E-01	2.664E-02	0.555
PO-209		83.78		1.346E-01	1.304E-01	1.971E-01	1.757E-02	0.683
		94.90		5.394E-01	2.323E-01	3.689E-01	3.002E-02	1.462
		122.32		-4.150E-01	1.570E+00	2.491E+00	1.692E-01	-0.167
		144.24		9.194E-01	5.866E-01	9.854E-01	6.876E-02	0.933
BI-210		154.21		3.053E-01	3.221E-01	5.634E-01	3.749E-02	0.542
	+	269.46		4.237E-01	2.089E-01	2.761E-01	1.640E-02	1.535
		323.87	*	1.850E-01	5.636E-01	8.110E-01	1.339E-01	0.228
	+	338.28		6.261E+00	1.529E+00	2.026E+00	2.132E-01	3.091
PB-210		445.03		8.276E-01	1.714E+00	2.920E+00	3.055E-01	0.283
		260.50		-2.727E+00	7.599E+00	1.222E+01	6.897E-01	-0.223
		262.80		-1.060E+00	2.088E+01	3.407E+01	1.926E+00	-0.031
		896.60	*	8.731E-01	5.706E+00	9.429E+00	1.064E+00	0.093
PB-211		46.50	*	-5.086E-01	4.869E+00	8.210E+00	6.352E-01	-0.062
		46.50	*	-5.086E-01	4.869E+00	8.210E+00	6.352E-01	-0.062
		46.50	*	-5.086E-01	4.869E+00	8.210E+00	5.461E-01	-0.062
		404.84	*	-1.124E-01	8.631E-01	1.235E+00	7.698E-01	-0.091
BI-212		427.08		-1.514E+00	1.819E+00	2.450E+00	1.515E+00	-0.618
		831.96		-3.262E-01	9.491E-01	1.485E+00	9.340E-01	-0.220
	+	727.18	*	1.118E+00	3.748E-01	5.268E-01	5.246E-02	2.123
		785.46		8.749E-01	1.475E+00	2.476E+00	2.340E-01	0.353
PO-215		1620.62		1.431E+00	1.009E+00	1.918E+00	1.297E-01	0.746
		81.07		1.694E-01	2.495E-01	3.055E-01	2.664E-02	0.555
		83.78		1.346E-01	1.304E-01	1.971E-01	1.757E-02	0.683
		94.90		5.394E-01	2.323E-01	3.689E-01	3.002E-02	1.462
RN-219		122.32		-4.150E-01	1.570E+00	2.491E+00	1.692E-01	-0.167
		144.24		9.194E-01	5.866E-01	9.854E-01	6.876E-02	0.933
		154.21		3.053E-01	3.221E-01	5.634E-01	3.749E-02	0.542
	+	269.46		4.237E-01	2.089E-01	2.761E-01	1.640E-02	1.535
RA-223		323.87	*	1.850E-01	5.636E-01	8.110E-01	1.339E-01	0.228
	+	338.28		6.261E+00	1.529E+00	2.026E+00	2.132E-01	3.091
		445.03		8.276E-01	1.714E+00	2.920E+00	3.055E-01	0.283
	+	271.23		5.436E-01	2.697E-01	3.584E-01	2.873E-02	1.517
RN-220		401.81	*	-3.165E-02	3.414E-01	5.363E-01	7.302E-02	-0.059
		549.76	*	1.716E+00	2.033E+01	3.331E+01	2.289E+00	0.052
		81.07		1.694E-01	2.495E-01	3.055E-01	2.664E-02	0.555
		83.78		1.346E-01	1.304E-01	1.971E-01	1.757E-02	0.683
RA-223		94.90		5.394E-01	2.323E-01	3.689E-01	3.002E-02	1.462

---- 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		-4.150E-01	1.570E+00	2.491E+00	1.692E-01	-0.167
		144.24		9.194E-01	5.866E-01	9.854E-01	6.876E-02	0.933
		154.21		3.053E-01	3.221E-01	5.634E-01	3.749E-02	0.542
	+	269.46		4.237E-01	2.089E-01	2.761E-01	1.640E-02	1.535
		323.87	*	1.850E-01	5.636E-01	8.110E-01	1.339E-01	0.228
	+	338.28		6.261E+00	1.529E+00	2.026E+00	2.132E-01	3.091
		445.03		8.276E-01	1.714E+00	2.920E+00	3.055E-01	0.283
		79.80		-4.948E-01	1.729E+00	2.282E+00	4.908E-01	-0.217
		236.00		7.031E-01	2.381E-01	3.768E-01	3.887E-02	1.866
		256.20	*	-6.211E-02	3.103E-01	5.036E-01	6.996E-02	-0.123
		286.10		4.063E-01	1.225E+00	2.022E+00	2.329E-01	0.201
	+	299.80		3.334E+00	1.480E+00	2.146E+00	3.491E-01	1.553
TH-227		304.40		3.605E-01	1.680E+00	2.410E+00	4.165E-01	0.150
		334.20		1.136E-01	2.422E+00	3.162E+00	5.794E-01	0.036
		79.80		-4.948E-01	1.729E+00	2.282E+00	4.971E-01	-0.217
	+	94.00		1.264E+01	3.883E+00	3.668E+00	7.938E-01	3.446
		236.00		7.031E-01	2.353E-01	3.768E-01	3.354E-02	1.866
		256.20	*	-6.211E-02	3.103E-01	5.036E-01	8.482E-02	-0.123
		286.10		4.063E-01	1.290E+00	2.022E+00	2.025E+00	0.201
	+	299.80		3.334E+00	1.480E+00	2.146E+00	3.491E-01	1.553
		304.40		3.605E-01	1.680E+00	2.410E+00	4.165E-01	0.150
		334.20		1.136E-01	2.422E+00	3.162E+00	5.794E-01	0.036
		85.43		4.737E-01	1.785E-01	3.043E-01	2.750E-02	1.557
	+	88.47		5.621E-01	1.646E-01	1.946E-01	1.783E-02	2.888
PA-231		100.00		4.203E-02	1.658E-01	2.721E-01	2.049E-02	0.154
		193.63	*	-7.491E-02	4.101E-01	6.809E-01	3.646E-02	-0.110
		210.97		1.141E+00	6.814E-01	1.080E+00	5.872E-02	1.057
		283.67	*	9.075E-01	1.272E+00	2.064E+00	2.836E-01	0.440
	+	301.29		1.334E+00	5.681E-01	8.342E-01	8.696E-02	1.599
		81.07		1.694E-01	2.495E-01	3.055E-01	2.664E-02	0.555
		83.78		1.346E-01	1.304E-01	1.971E-01	1.757E-02	0.683
		94.90		5.394E-01	2.323E-01	3.689E-01	3.002E-02	1.462
		122.32		-4.150E-01	1.570E+00	2.491E+00	1.692E-01	-0.167
		144.24		9.194E-01	5.866E-01	9.854E-01	6.876E-02	0.933
		154.21		3.053E-01	3.221E-01	5.634E-01	3.749E-02	0.542
	+	269.46		4.237E-01	2.089E-01	2.761E-01	1.640E-02	1.535
U-231		323.87	*	1.850E-01	5.636E-01	8.110E-01	1.339E-01	0.228
	+	338.28		6.261E+00	1.529E+00	2.026E+00	2.132E-01	3.091
		445.03		8.276E-01	1.714E+00	2.920E+00	3.055E-01	0.283
		84.21		1.883E+01	9.714E+00	1.645E+01	1.472E+00	1.145
	+	92.29		2.415E+01	5.630E+00	7.405E+00	6.304E-01	3.261
		95.87	*	-7.944E-02	2.008E+00	2.915E+00	2.336E-01	-0.027
		108.00		6.276E-02	3.690E+00	5.972E+00	4.061E-01	0.011
	+	75.28		1.594E+01	4.247E+00	6.276E+00	9.546E-01	2.540
	+	86.59		8.059E+00	3.124E+00	2.814E+00	7.594E-01	2.864
	+	300.12		9.295E-01	4.036E-01	5.998E-01	8.045E-02	1.550
		311.98	*	-3.032E-03	5.029E-02	8.090E-02	4.956E-03	-0.037
		340.50		1.441E+00	7.132E-01	1.007E+00	2.312E-01	1.432
PA-233		398.62		-1.419E+00	1.622E+00	2.516E+00	6.504E-01	-0.564

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		5.171E-01	1.316E+00	2.119E+00	4.370E-01	0.244
		63.00		1.507E+00	2.089E+00	2.858E+00	4.309E-01	0.527
		94.67		5.490E-01	1.808E-01	2.806E-01	3.393E-02	1.957
		98.44		1.162E-01	1.101E-01	1.383E-01	7.697E-02	0.840
		99.86		1.199E-01	4.205E-01	6.909E-01	5.212E-02	0.173
		111.00		-1.223E-02	1.638E-01	2.636E-01	2.828E-02	-0.046
		131.20		6.191E-02	1.061E-01	1.539E-01	8.759E-03	0.402
		152.70		5.615E-02	2.795E-01	4.452E-01	6.971E-02	0.126
	+	186.00		7.054E+00	2.811E+00	2.339E+00	7.126E-01	3.016
		226.40		-3.457E-02	3.495E-01	5.644E-01	6.444E-02	-0.061
		227.20		2.122E-01	3.707E-01	6.141E-01	3.385E-02	0.346
		248.90		-3.579E-01	7.035E-01	1.081E+00	2.317E-01	-0.331
	+	293.70		7.532E+00	1.471E+00	1.493E+00	2.397E-01	5.046
		369.80		-6.819E-01	6.575E-01	1.020E+00	2.123E-01	-0.669
		568.70		-9.555E-01	8.043E-01	1.165E+00	8.158E-02	-0.820
		569.50		-2.571E-02	2.169E-01	3.407E-01	2.387E-02	-0.075
		574.00		1.424E+00	1.203E+00	2.046E+00	1.440E-01	0.696
		699.00		5.774E-02	5.682E-01	9.544E-01	1.801E-01	0.060
		706.10		-2.095E-01	8.389E-01	1.370E+00	6.099E-01	-0.153
		733.00		1.608E-01	3.279E-01	4.892E-01	1.086E-01	0.329
		742.81		3.653E-02	1.044E+00	1.737E+00	1.168E+00	0.021
		796.30		1.366E+00	8.810E-01	1.313E+00	3.595E-01	1.041
		805.60		7.952E-02	7.532E-01	1.251E+00	3.877E-01	0.064
		819.60		-2.016E-01	8.761E-01	1.410E+00	5.409E-01	-0.143
		826.30		-6.581E-02	5.861E-01	9.544E-01	4.300E-01	-0.069
		831.60		-2.280E-01	4.853E-01	7.625E-01	2.313E-01	-0.299
		876.40		-1.967E-01	6.770E-01	1.032E+00	1.063E+00	-0.191
		880.51		-2.258E-02	2.233E-01	3.625E-01	3.989E-02	-0.062
		883.24		3.797E-02	2.268E-01	3.732E-01	2.522E-01	0.102
		899.00		-1.971E-01	6.430E-01	1.014E+00	4.496E-01	-0.194
		925.00		-3.610E-01	9.102E-01	1.433E+00	1.561E-01	-0.252
		926.50		-1.287E-01	1.551E-01	2.086E-01	5.450E-02	-0.617
	*	946.00		4.095E-02	2.405E-01	3.957E-01	7.806E-02	0.103
		949.00		1.021E-02	3.510E-01	5.714E-01	6.001E-02	0.018
		980.50		-3.098E-01	5.626E-01	8.667E-01	8.621E-02	-0.357
		1394.10		-5.090E-01	9.168E-01	1.292E+00	8.394E-01	-0.394
PA-234M	+	766.42		1.656E+01	1.595E+01	1.760E+01	8.946E+00	0.941
		1001.03	*	1.708E+00	3.734E+00	6.248E+00	6.740E-01	0.273
U-235	+	89.95		3.963E+00	1.837E+00	1.782E+00	5.512E-01	2.224
		93.35		3.933E+00	1.393E+00	1.209E+00	3.378E-01	3.254
		105.00		5.595E-01	9.870E-01	1.612E+00	4.743E-01	0.347
		143.76	*	1.816E-01	1.847E-01	3.013E-01	4.879E-02	0.603
NP-236	+	163.35		2.186E-01	3.729E-01	6.406E-01	1.141E-01	0.341
		185.71		2.613E-01	6.853E-02	8.655E-02	4.603E-03	3.019
		205.31		5.276E-03	4.717E-01	6.856E-01	1.225E-01	0.008
		94.67		4.194E-01	1.322E-01	2.131E-01	1.741E-02	1.968
		98.44		8.788E-02	6.773E-02	1.045E-01	8.051E-03	0.841
		111.00		-9.252E-03	1.239E-01	1.994E-01	1.311E-02	-0.046
		160.31	*	-4.056E-02	6.365E-02	1.052E-01	5.573E-03	-0.386



---- 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		1.135E-01	1.387E-01	2.323E-01	1.760E-02	0.489
		117.00	*	3.842E-03	1.703E-01	2.742E-01	1.698E-02	0.014
	+	209.75		2.220E+00	9.062E-01	1.167E+00	6.339E-02	1.901
		228.18		1.118E-01	1.886E-01	3.189E-01	1.759E-02	0.351
	+	277.60		1.270E-01	2.101E-01	2.493E-01	1.420E-02	0.509
AM-241		334.30		3.399E-02	1.371E+00	1.787E+00	1.033E-01	0.019
		59.54	*	2.200E-01	1.854E-01	2.929E-01	2.429E-02	0.751
CM-243		99.55		1.168E-01	1.428E-01	2.391E-01	1.812E-02	0.489
		103.76	*	-5.216E-02	8.754E-02	1.384E-01	9.908E-03	-0.377
		117.00		3.954E-03	1.752E-01	2.822E-01	1.747E-02	0.014
	+	209.75		2.189E+00	8.935E-01	1.151E+00	6.251E-02	1.901
		228.18		1.130E-01	1.906E-01	3.224E-01	1.778E-02	0.351
AM-246	+	277.60		1.281E-01	2.119E-01	2.514E-01	1.432E-02	0.509
		798.80		-6.150E-02	1.195E-01	1.597E-01	1.543E-02	-0.385
		1036.00		-3.100E-01	2.348E-01	3.506E-01	3.104E-02	-0.884
		1062.04		4.363E-03	1.683E-01	2.818E-01	2.336E-02	0.015
		1078.86	*	-4.116E-03	1.118E-01	1.859E-01	1.471E-02	-0.022
CM-247	+	278.00		5.267E-01	8.714E-01	1.037E+00	5.906E-02	0.508
		287.40		2.105E-01	9.550E-01	1.569E+00	8.975E-02	0.134
		402.60	*	8.475E-03	3.310E-02	4.906E-02	2.857E-03	0.173
CF-249		252.85		3.073E-01	7.114E-01	1.190E+00	6.682E-02	0.258
		333.44		7.333E-03	2.350E-01	2.362E-01	1.366E-02	0.031
		387.95	*	-2.088E-02	3.023E-02	4.881E-02	2.806E-03	-0.428
CF-251		176.60	*	-5.126E-02	1.046E-01	1.727E-01	9.122E-03	-0.297
		227.00		8.426E-02	3.326E-01	5.446E-01	3.001E-02	0.155
		285.00		4.138E-01	1.396E+00	2.302E+00	1.316E-01	0.180

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101001
* Acquisition date   : 1-FEB-2010 14:44:41 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 02:00:01.65                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101001                      Analyst initials: MXR1
* Batch Number       : 944037                          Sample Quantity : 1.2983E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight   : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope      :
* MSD DPM            : 0.000                             MSD Isotope      :
* LCS DPM            : 0.000                             LCS Isotope      :
* LCSD DPM           : 0.000                             LCSD Isotope     :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.349E+01	2.132E+00	4.349E-01	0.000E+00
NB-95	6.534E-02	5.269E-02	5.354E-02	0.000E+00
CD-109	4.213E+00	1.209E+00	1.151E+00	0.000E+00
SN-126	4.117E-01	1.182E-01	1.132E-01	0.000E+00
BA-137M	1.928E-01	5.242E-02	4.764E-02	0.000E+00
CS-137	2.038E-01	5.542E-02	5.036E-02	0.000E+00
HG-203	3.080E-02	4.995E-02	5.774E-02	0.000E+00
TL-208	4.350E-01	7.282E-02	4.153E-02	0.000E+00
BI-211	4.071E+00	4.620E-01	2.629E-01	0.000E+00
PB-212	1.502E+00	1.386E-01	7.671E-02	0.000E+00
PO-212	1.502E+00	1.386E-01	7.671E-02	0.000E+00
BI-214	1.092E+00	1.601E-01	9.098E-02	0.000E+00
PB-214	1.416E+00	1.763E-01	9.161E-02	0.000E+00
PO-214	1.416E+00	1.763E-01	9.161E-02	0.000E+00
PO-216	1.502E+00	1.386E-01	7.671E-02	0.000E+00
PO-218	1.416E+00	1.763E-01	9.161E-02	0.000E+00
RA-224	3.921E+00	9.205E-01	8.718E-01	0.000E+00
RA-226	1.092E+00	1.601E-01	9.098E-02	0.000E+00
AC-228	1.719E+00	3.252E-01	1.669E-01	0.000E+00
RA-228	1.719E+00	3.252E-01	1.669E-01	0.000E+00
TH-228	1.531E+00	1.413E-01	7.819E-02	0.000E+00
TH-230	1.092E+00	1.601E-01	9.097E-02	0.000E+00
TH-232	1.719E+00	3.252E-01	1.669E-01	0.000E+00
TH-234	1.293E+00	1.760E+00	2.299E+00	0.000E+00
U-234	1.092E+00	1.601E-01	9.097E-02	0.000E+00
NP-237	1.209E+00	4.245E-01	3.375E-01	0.000E+00
U-238	1.293E+00	1.760E+00	2.299E+00	0.000E+00
AM-243	3.044E-01	6.986E-02	8.964E-02	0.000E+00
ANH-511	8.352E-02	4.701E-02	3.866E-02	0.000E+00

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

Key-Line	Activity	K.L. Act error	MDA
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Nuclide	(pCi/GRAM	) Ided	(pCi/GRAM	)	
BE-7	2.576E-02	2.543E-01	4.387E-01	0.000E+00	NOT IDENT.
NA-22	7.768E-03	3.473E-02	5.937E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.206E+07	0.000E+00	0.000E+00	SHORT HLIF
AL-26	5.777E-03	1.845E-02	3.250E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.522E-02	7.972E-02	0.000E+00	FAIL ABUN
SC-46	-4.555E-03	3.018E-02	5.017E-02	0.000E+00	FAIL ABUN
V-48	3.591E-02	6.126E-02	1.067E-01	0.000E+00	NOT IDENT.
CR-51	4.003E-02	3.138E-01	5.326E-01	0.000E+00	NOT IDENT.
MN-52	1.679E-01	2.946E-01	5.180E-01	0.000E+00	NOT IDENT.
MN-54	1.679E-03	2.894E-02	4.922E-02	0.000E+00	NOT IDENT.
CO-56	-1.039E-02	3.089E-02	5.093E-02	0.000E+00	FAIL ABUN
CO-57	-5.164E-03	2.252E-02	3.803E-02	0.000E+00	NOT IDENT.
CO-58	-7.663E-03	3.036E-02	5.063E-02	0.000E+00	NOT IDENT.
FE-59	-1.374E-02	7.411E-02	1.249E-01	0.000E+00	NOT IDENT.
CO-60	4.541E-02	2.919E-02	5.537E-02	0.000E+00	NOT IDENT.
ZN-65	1.284E-01	8.567E-02	1.413E-01	0.000E+00	NOT IDENT.
GE-68	2.916E-01	9.340E-01	1.635E+00	0.000E+00	NOT IDENT.
AS-73	-3.378E-01	1.028E+00	1.836E+00	0.000E+00	NOT IDENT.
AS-74	3.624E-02	8.387E-02	1.444E-01	0.000E+00	NOT IDENT.
SE-75	8.537E-03	3.673E-02	5.911E-02	0.000E+00	FAIL ABUN
BR-77	0.000E+00	2.496E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-4.528E-01	3.237E-01	4.936E-01	0.000E+00	NOT IDENT.
RB-83	-4.383E-02	5.315E-02	8.539E-02	0.000E+00	NOT IDENT.
RB-84	1.958E-02	5.954E-02	1.026E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	6.537E+00	1.084E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.496E-02	5.795E-02	0.000E+00	NOT IDENT.
RB-86	7.086E-02	6.929E-01	1.195E+00	0.000E+00	NOT IDENT.
Y-88	-1.193E-02	2.287E-02	3.459E-02	0.000E+00	NOT IDENT.
ZR-88	1.268E-02	2.321E-02	4.169E-02	0.000E+00	NOT IDENT.
Y-91	5.889E+00	1.496E+01	2.597E+01	0.000E+00	NOT IDENT.
NB-94	1.793E-02	2.633E-02	4.712E-02	0.000E+00	NOT IDENT.
NB-95M	1.318E-01	1.205E-01	1.930E-01	0.000E+00	NOT IDENT.
ZR-95	1.683E-02	5.667E-02	9.884E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	4.713E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.003E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	6.517E+00	2.311E+01	4.038E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.250E+21	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.201E-02	2.709E-02	4.693E-02	0.000E+00	NOT IDENT.
RH-102	-4.875E-03	2.206E-02	3.735E-02	0.000E+00	FAIL ABUN
RU-103	2.907E-02	3.224E-02	5.772E-02	0.000E+00	FAIL ABUN
RH-106	-2.054E-02	2.554E-01	4.240E-01	0.000E+00	FAIL ABUN
RU-106	-2.054E-02	2.554E-01	4.240E-01	0.000E+00	FAIL ABUN
AG-108M	-1.065E-02	2.528E-02	4.275E-02	0.000E+00	NOT IDENT.
AG-110M	2.039E-02	3.296E-02	5.180E-02	0.000E+00	NOT IDENT.
IN-111	9.189E-01	2.382E+00	3.698E+00	0.000E+00	NOT IDENT.
IN-113M	5.848E-03	3.360E-02	5.926E-02	0.000E+00	NOT IDENT.
SN-113	5.848E-03	3.360E-02	5.926E-02	0.000E+00	NOT IDENT.
IN-114M	1.158E-01	1.635E-01	2.639E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	2.806E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	3.522E-04	5.237E-02	9.391E-02	0.000E+00	NOT IDENT.
SB-122	1.472E+00	4.021E+00	6.949E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	7.148E+08	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.884E-02	2.282E-02	3.965E-02	0.000E+00	NOT IDENT.
I-124	-3.024E-01	1.222E+00	1.728E+00	0.000E+00	FAIL ABUN
SB-124	-1.555E-02	4.814E-02	7.647E-02	0.000E+00	FAIL ABUN
SB-125	-2.003E-02	6.821E-02	1.163E-01	0.000E+00	FAIL ABUN
TE-125M	-7.601E+00	8.760E+00	1.451E+01	0.000E+00	NOT IDENT.
I-126	2.747E-02	1.933E-01	2.929E-01	0.000E+00	NOT IDENT.
SB-126	-1.012E-02	1.517E-01	2.234E-01	0.000E+00	FAIL ABUN
SB-127	-1.293E+00	1.945E+00	3.198E+00	0.000E+00	FAIL ABUN
XE-127	-8.800E-03	4.236E-02	7.135E-02	0.000E+00	NOT IDENT.
I-131	5.788E-02	1.212E-01	2.183E-01	0.000E+00	NOT IDENT.
TE-132	8.000E-01	1.327E+00	2.353E+00	0.000E+00	NOT IDENT.
BA-133	3.201E-02	3.718E-02	5.751E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.098E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.162E-02	4.217E-02	6.919E-02	0.000E+00	NOT IDENT.
CS-135	1.518E-01	1.351E-01	2.167E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	9.376E+19	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.411E-02	1.014E-01	1.793E-01	0.000E+00	FAIL ABUN
CE-139	-2.403E-02	2.367E-02	4.065E-02	0.000E+00	NOT IDENT.
BA-140	7.073E-03	2.465E-01	4.184E-01	0.000E+00	NOT IDENT.
LA-140	9.548E-03	8.043E-02	1.380E-01	0.000E+00	FAIL ABUN
CE-141	2.790E-02	5.823E-02	9.970E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.862E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.025E-01	1.932E-01	2.986E-01	0.000E+00	NOT IDENT.
PM-144	-3.650E-03	2.678E-02	4.586E-02	0.000E+00	NOT IDENT.

PR-144	-2.478E-01	1.818E+00	3.114E+00	0.000E+00	NOT IDENT.
PM-146	1.812E-02	3.704E-02	5.997E-02	0.000E+00	NOT IDENT.
ND-147	2.098E-01	5.306E-01	9.221E-01	0.000E+00	FAIL ABUN
PM-149	0.000E+00	2.509E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.049E-02	9.816E-02	1.306E-01	0.000E+00	FAIL ABUN
GD-153	1.596E-02	7.639E-02	1.196E-01	0.000E+00	NOT IDENT.
EU-154	7.467E-02	9.323E-02	1.660E-01	0.000E+00	NOT IDENT.
EU-155	1.103E-01	9.755E-02	1.748E-01	0.000E+00	FAIL ABUN
TB-160	2.254E-02	1.095E-01	1.873E-01	0.000E+00	FAIL ABUN
HO-166M	5.445E-03	4.599E-02	7.981E-02	0.000E+00	FAIL ABUN
TM-171	-2.071E+01	3.109E+01	4.804E+01	0.000E+00	NOT IDENT.
LU-176	9.585E-03	1.983E-02	3.327E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.892E+00	2.629E+00	0.000E+00	FAIL ABUN
LU-177M	-3.851E-02	1.491E-01	2.209E-01	0.000E+00	FAIL ABUN
HF-181	-2.546E-02	3.309E-02	5.389E-02	0.000E+00	NOT IDENT.
W-181	-2.853E-01	4.160E-01	6.432E-01	0.000E+00	NOT IDENT.
TA-182	-1.358E-02	1.672E-01	2.809E-01	0.000E+00	NOT IDENT.
RE-183	4.130E-02	8.855E-02	1.610E-01	0.000E+00	FAIL ABUN
RE-184	8.324E-02	1.889E-01	3.317E-01	0.000E+00	NOT IDENT.
OS-185	1.574E-02	3.135E-02	5.404E-02	0.000E+00	NOT IDENT.
RE-188	2.105E-01	1.416E-01	2.662E-01	0.000E+00	NOT IDENT.
W-188	-4.985E+00	6.418E+00	8.984E+00	0.000E+00	FAIL ABUN
IR-192	1.524E-03	2.812E-02	4.758E-02	0.000E+00	FAIL ABUN
AU-195	2.307E-01	2.079E-01	3.587E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.282E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.196E+00	1.353E+01	2.408E+01	0.000E+00	NOT IDENT.
TL-202	-2.861E-02	6.619E-02	1.117E-01	0.000E+00	NOT IDENT.
BI-207	2.268E-02	3.817E-02	6.820E-02	0.000E+00	FAIL ABUN
TL-207	1.850E-01	5.523E-01	8.316E-01	0.000E+00	FAIL ABUN
PO-209	8.731E-01	5.592E+00	9.511E+00	0.000E+00	NOT IDENT.
BI-210	-5.086E-01	4.772E+00	8.673E+00	0.000E+00	NOT IDENT.
PB-210	-5.086E-01	4.772E+00	8.673E+00	0.000E+00	NOT IDENT.
PO-210	-5.086E-01	4.772E+00	8.673E+00	0.000E+00	NOT IDENT.
PB-211	-1.124E-01	8.458E-01	1.262E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.673E-01	5.332E-01	0.000E+00	FAIL ABUN
PO-215	1.850E-01	5.523E-01	8.316E-01	0.000E+00	FAIL ABUN
RN-219	-3.165E-02	3.346E-01	5.481E-01	0.000E+00	FAIL ABUN
RN-220	1.716E+00	1.992E+01	3.387E+01	0.000E+00	NOT IDENT.
RA-223	1.850E-01	5.523E-01	8.316E-01	0.000E+00	FAIL ABUN
AC-227	-6.211E-02	3.041E-01	5.183E-01	0.000E+00	FAIL ABUN
TH-227	-6.211E-02	3.041E-01	5.183E-01	0.000E+00	FAIL ABUN
TH-229	-7.491E-02	4.019E-01	7.039E-01	0.000E+00	FAIL ABUN
PA-231	9.075E-01	1.246E+00	2.120E+00	0.000E+00	FAIL ABUN
TH-231	1.850E-01	5.523E-01	8.316E-01	0.000E+00	FAIL ABUN
U-231	-7.944E-02	1.968E+00	3.047E+00	0.000E+00	FAIL ABUN
PA-233	-3.032E-03	4.928E-02	8.300E-02	0.000E+00	FAIL ABUN
PA-234	4.095E-02	2.357E-01	3.988E-01	0.000E+00	FAIL ABUN
PA-234M	1.708E+00	3.659E+00	6.291E+00	0.000E+00	FAIL ABUN
U-235	1.816E-01	1.810E-01	3.129E-01	0.000E+00	FAIL ABUN
NP-236	-4.056E-02	6.238E-02	1.091E-01	0.000E+00	NOT IDENT.
NP-239	3.842E-03	1.669E-01	2.857E-01	0.000E+00	FAIL ABUN
AM-241	2.200E-01	1.817E-01	3.083E-01	0.000E+00	NOT IDENT.
CM-243	-5.216E-02	8.579E-02	1.445E-01	0.000E+00	FAIL ABUN
AM-246	-4.116E-03	1.095E-01	1.870E-01	0.000E+00	NOT IDENT.
CM-247	8.475E-03	3.244E-02	5.013E-02	0.000E+00	FAIL ABUN
CF-249	-2.088E-02	2.963E-02	4.990E-02	0.000E+00	NOT IDENT.
CF-251	-5.126E-02	1.025E-01	1.788E-01	0.000E+00	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101001.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:44:41.
Sample ID          : G245101001 Sample quantity : 1.29830E+02 GRAM
Detector name      : GAM18 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.65 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1642	10.67*	1.894E+00	2.349E+01	2.349E+01	9.26
NB-95	765.79	59	99.81*	3.199E+00	5.310E-02	6.534E-02	82.29
CD-109	88.03	339	3.72*	6.442E+00	4.095E+00	4.213E+00	29.29
SN-126	64.28	52	9.60	3.079E+00	5.118E-01	5.118E-01	138.58
	86.94	339	8.90	6.442E+00	1.711E+00	1.711E+00	49.94
	87.57	339	37.00*	6.442E+00	4.117E-01	4.117E-01	29.29
BA-137M	661.65	215	89.98*	3.588E+00	1.925E-01	1.928E-01	27.75
CS-137	661.65	215	85.12*	3.588E+00	2.035E-01	2.038E-01	27.75
HG-203	70.83	-----	4.75	4.309E+00	-----	Line Not Found	-----
	72.87	-----	8.00	4.622E+00	-----	Line Not Found	-----
	82.60	-----	3.55	5.935E+00	-----	Line Not Found	-----
	279.20	39	77.30*	6.250E+00	2.317E-02	3.080E-02	165.47
TL-208	277.35	39	6.80	6.250E+00	2.633E-01	2.633E-01	165.69
	510.84	125	21.60	4.311E+00	3.867E-01	3.867E-01	58.03
	583.14	498	84.20*	3.935E+00	4.350E-01	4.350E-01	17.08
	860.37	26	12.46	2.913E+00	2.101E-01	2.101E-01	163.61
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	993	12.94*	5.451E+00	4.071E+00	4.071E+00	11.58
PB-212	74.81	343	10.70	4.941E+00	1.877E+00	1.877E+00	25.22
	77.11	663	18.00	5.260E+00	2.023E+00	2.023E+00	15.09
	87.30	339	8.00	6.442E+00	1.904E+00	1.904E+00	30.95
	238.63	1574	44.60*	6.792E+00	1.502E+00	1.502E+00	9.42
	300.09	127	3.41	5.985E+00	1.799E+00	1.799E+00	42.11
PO-212	74.81	343	10.70	4.941E+00	1.877E+00	1.877E+00	25.22
	77.11	663	18.00	5.260E+00	2.023E+00	2.023E+00	15.09
	87.30	339	8.00	6.442E+00	1.904E+00	1.904E+00	30.95
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	1574	44.60*	6.792E+00	1.502E+00	1.502E+00	9.42
	300.09	127	3.41	5.985E+00	1.799E+00	1.799E+00	42.11
BI-214	609.31	667	46.30*	3.812E+00	1.092E+00	1.092E+00	14.96
	1120.29	231	15.10	2.336E+00	1.894E+00	1.894E+00	21.85
	1764.49	127	15.80	1.695E+00	1.369E+00	1.369E+00	25.07

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	74.81	343	6.21	4.941E+00	3.235E+00	3.235E+00	24.56
	77.11	663	10.50	5.260E+00	3.468E+00	3.468E+00	16.90
	87.30	339	4.67	6.442E+00	3.262E+00	3.262E+00	30.29
	241.98	361	7.49	6.747E+00	2.068E+00	2.068E+00	24.60
	295.21	630	19.20	6.042E+00	1.569E+00	1.569E+00	13.97
PO-214	351.92	993	37.20*	5.451E+00	1.416E+00	1.416E+00	12.70
	74.81	343	6.21	4.941E+00	3.235E+00	3.235E+00	24.56
	77.11	663	10.50	5.260E+00	3.468E+00	3.468E+00	16.90
	87.30	339	4.67	6.442E+00	3.262E+00	3.262E+00	30.29
	241.98	361	7.49	6.747E+00	2.068E+00	2.068E+00	24.60
PO-216	295.21	630	19.20	6.042E+00	1.569E+00	1.569E+00	13.97
	351.92	993	37.20*	5.451E+00	1.416E+00	1.416E+00	12.70
	74.81	343	10.70	4.941E+00	1.877E+00	1.877E+00	25.22
	77.11	663	18.00	5.260E+00	2.023E+00	2.023E+00	15.09
	87.30	339	8.00	6.442E+00	1.904E+00	1.904E+00	30.95
PO-218	238.63	1574	44.60*	6.792E+00	1.502E+00	1.502E+00	9.42
	300.09	127	3.41	5.985E+00	1.799E+00	1.799E+00	42.11
	74.81	343	6.21	4.941E+00	3.235E+00	3.235E+00	24.56
	77.11	663	10.50	5.260E+00	3.468E+00	3.468E+00	16.90
	87.30	339	4.67	6.442E+00	3.262E+00	3.262E+00	30.29
RA-224	241.98	361	7.49	6.747E+00	2.068E+00	2.068E+00	24.60
	295.21	630	19.20	6.042E+00	1.569E+00	1.569E+00	13.97
	351.92	993	37.20*	5.451E+00	1.416E+00	1.416E+00	12.70
	240.98	361	3.95*	6.747E+00	3.921E+00	3.921E+00	23.95
	609.31	667	46.30*	3.812E+00	1.092E+00	1.092E+00	14.96
AC-228	1120.29	231	15.10	2.336E+00	1.894E+00	1.894E+00	21.85
	1764.49	127	15.80	1.695E+00	1.369E+00	1.369E+00	25.07
	338.32	330	11.40	5.581E+00	1.499E+00	1.499E+00	46.34
	911.07	458	27.70*	2.780E+00	1.719E+00	1.719E+00	19.31
	969.11	225	16.60	2.639E+00	1.482E+00	1.482E+00	32.13
RA-228	338.32	330	11.40	5.581E+00	1.499E+00	1.499E+00	46.34
	911.07	458	27.70*	2.780E+00	1.719E+00	1.719E+00	19.31
	969.11	225	16.60	2.639E+00	1.482E+00	1.482E+00	32.13
	74.81	343	10.70	4.941E+00	1.877E+00	1.913E+00	23.45
	77.11	663	18.00	5.260E+00	2.023E+00	2.062E+00	15.09
TH-228	87.30	339	8.00	6.442E+00	1.904E+00	1.941E+00	29.29
	238.63	1574	44.60*	6.792E+00	1.502E+00	1.531E+00	9.42
	300.09	127	3.41	5.985E+00	1.799E+00	1.834E+00	71.96
	609.31	667	46.30*	3.812E+00	1.092E+00	1.092E+00	14.96
	1120.29	231	15.10	2.336E+00	1.894E+00	1.894E+00	21.85
TH-232	1764.49	127	15.80	1.695E+00	1.369E+00	1.369E+00	25.07
	338.32	330	11.40	5.581E+00	1.499E+00	1.499E+00	22.79
	911.07	458	27.70*	2.780E+00	1.719E+00	1.719E+00	19.31
	969.11	225	16.60	2.639E+00	1.482E+00	1.482E+00	32.13
	63.29	52	3.80*	3.079E+00	1.293E+00	1.293E+00	138.92
TH-234	92.38	426	5.41	6.960E+00	3.271E+00	3.271E+00	28.22
	609.31	667	46.30*	3.812E+00	1.092E+00	1.092E+00	14.96
	1120.29	231	15.10	2.336E+00	1.894E+00	1.894E+00	21.85
	1764.49	127	15.80	1.695E+00	1.369E+00	1.369E+00	25.07

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NP-237	86.50	339	12.60*	6.442E+00	1.209E+00	1.209E+00	35.83
	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
U-238	63.29	52	3.80*	3.079E+00	1.293E+00	1.293E+00	138.92
	92.38	426	5.41	6.960E+00	3.271E+00	3.271E+00	23.31
AM-243	74.67	343	66.00*	4.941E+00	3.044E-01	3.044E-01	23.42
	86.72	339	0.34	6.442E+00	4.533E+01	4.533E+01	29.29
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
ANH-511	511.00	125	100.00*	4.311E+00	8.352E-02	8.352E-02	57.43

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G245101001

Page : 4  
Acquisition date : 1-FEB-2010 14:44:41

Total number of lines in spectrum 40  
Number of unidentified lines 5  
Number of lines tentatively identified by NID 35 87.50%

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	2.349E+01	2.349E+01	0.218E+01	9.26	
NB-95	64.02D	1.23	5.310E-02	6.534E-02	5.377E-02	82.29	
CD-109	464.00D	1.03	4.095E+00	4.213E+00	1.234E+00	29.29	
SN-126	1.00E+05Y	1.00	4.117E-01	4.117E-01	1.206E-01	29.29	
BA-137M	30.17Y	1.00	1.925E-01	1.928E-01	0.535E-01	27.75	
CS-137	30.17Y	1.00	2.035E-01	2.038E-01	0.566E-01	27.75	
HG-203	46.60D	1.33	2.317E-02	3.080E-02	5.097E-02	165.47	
TL-208	1.41E+10Y	1.00	4.350E-01	4.350E-01	0.743E-01	17.08	
BI-211	7.04E+08Y	1.00	4.071E+00	4.071E+00	0.471E+00	11.58	
PB-212	1.41E+10Y	1.00	1.502E+00	1.502E+00	0.141E+00	9.42	
PO-212	1.41E+10Y	1.00	1.502E+00	1.502E+00	0.141E+00	9.42	
BI-214	1600.00Y	1.00	1.092E+00	1.092E+00	0.163E+00	14.96	
PB-214	1600.00Y	1.00	1.416E+00	1.416E+00	0.180E+00	12.70	
PO-214	1600.00Y	1.00	1.416E+00	1.416E+00	0.180E+00	12.70	
PO-216	1.41E+10Y	1.00	1.502E+00	1.502E+00	0.141E+00	9.42	
PO-218	1600.00Y	1.00	1.416E+00	1.416E+00	0.180E+00	12.70	
RA-224	1.41E+10Y	1.00	3.921E+00	3.921E+00	0.939E+00	23.95	
RA-226	1600.00Y	1.00	1.092E+00	1.092E+00	0.163E+00	14.96	
AC-228	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.332E+00	19.31	
RA-228	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.332E+00	19.31	
TH-228	1.91Y	1.02	1.502E+00	1.531E+00	0.144E+00	9.42	
TH-230	4.47E+09Y	1.00	1.092E+00	1.092E+00	0.163E+00	14.96	
TH-232	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.332E+00	19.31	
TH-234	4.47E+09Y	1.00	1.293E+00	1.293E+00	1.796E+00	138.92	
U-234	4.47E+09Y	1.00	1.092E+00	1.092E+00	0.163E+00	14.96	
NP-237	2.14E+06Y	1.00	1.209E+00	1.209E+00	0.433E+00	35.83	
U-238	4.47E+09Y	1.00	1.293E+00	1.293E+00	1.796E+00	138.92	
AM-243	7380.00Y	1.00	3.044E-01	3.044E-01	0.713E-01	23.42	
ANH-511	1.00E+09Y	1.00	8.352E-02	8.352E-02	4.797E-02	57.43	

Total Activity : 6.086E+01 6.103E+01

Grand Total Activity : 6.086E+01 6.103E+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	90.09	248	449	1.45	179.29	165	27	3.45E-02	34.5	6.71E+00	T
0	129.26	105	367	1.02	257.60	255	8	1.46E-02	65.8	8.25E+00	T
0	186.01	373	446	1.50	371.05	365	12	5.18E-02	25.7	7.65E+00	T
0	208.93	181	330	1.47	416.88	412	10	2.51E-02	40.5	7.26E+00	T
0	270.19	127	239	1.73	539.37	535	10	1.76E-02	49.0	6.35E+00	T
0	327.65	104	184	1.60	654.25	651	9	1.45E-02	50.5	5.69E+00	T
0	410.49	56	200	1.59	819.88	811	12	7.74E-03	****	4.96E+00	T
0	462.41	96	236	1.59	923.69	915	16	1.33E-02	74.5	4.60E+00	T
0	727.09	152	99	1.85	1452.90	1446	14	2.12E-02	32.0	3.34E+00	T
0	794.14	83	72	1.49	1586.98	1581	12	1.15E-02	46.4	3.11E+00	
0	933.97	41	60	1.67	1866.57	1862	9	5.75E-03	74.4	2.72E+00	
5	964.45	78	83	2.45	1927.52	1922	21	1.09E-02	51.1	2.65E+00	T
0	1237.55	52	86	1.89	2473.63	2468	13	7.18E-03	79.8	2.15E+00	T
3	1374.77	46	17	3.21	2748.04	2741	19	6.42E-03	54.8	1.98E+00	
3	1377.25	42	23	2.42	2753.00	2741	19	5.78E-03	65.1	1.98E+00	T
0	1410.06	26	61	0.89	2818.61	2809	23	3.57E-03	****	1.94E+00	
0	1729.32	37	15	2.38	3457.09	3448	16	5.15E-03	58.1	1.71E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101001.CNF;1
* Acquisition date   : 1-FEB-2010 14:44:41.  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 02:00:01.65          Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101001           Analyst initials: MXR1
* Batch Number       : 944037               Sample Quantity : 1.29830E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope      :
* MSD ID             :                      MSD Isotope      :
* LCS ID             : 1032-A               LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.349E+01	2.175E+00	4.347E-01	3.298E-02	54.045
NB-95	6.534E-02	5.377E-02	5.294E-02	4.842E-03	1.234
CD-109	4.213E+00	1.234E+00	1.100E+00	1.017E-01	3.831
SN-126	4.117E-01	1.206E-01	1.081E-01	9.963E-03	3.807
BA-137M	1.928E-01	5.349E-02	4.700E-02	3.582E-03	4.102
CS-137	2.038E-01	5.656E-02	4.968E-02	3.796E-03	4.102
HG-203	3.080E-02	5.097E-02	5.618E-02	3.407E-03	0.548
TL-208	4.350E-01	7.430E-02	4.088E-02	3.205E-03	10.640
BI-211	4.071E+00	4.714E-01	2.567E-01	1.648E-02	15.861
PB-212	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
PO-212	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
BI-214	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
PB-214	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
PO-214	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
PO-216	1.502E+00	1.415E-01	7.445E-02	5.319E-03	20.172
PO-218	1.416E+00	1.799E-01	8.945E-02	7.400E-03	15.832
RA-224	3.921E+00	9.393E-01	8.462E-01	4.714E-02	4.634
RA-226	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-228	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
RA-228	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
TH-228	1.531E+00	1.442E-01	7.588E-02	5.421E-03	20.172
TH-230	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
TH-232	1.719E+00	3.318E-01	1.655E-01	2.193E-02	10.382
TH-234	1.293E+00	1.796E+00	2.186E+00	3.854E-01	0.592
U-234	1.092E+00	1.634E-01	8.962E-02	8.006E-03	12.188
NP-237	1.209E+00	4.331E-01	3.225E-01	7.276E-02	3.749
U-238	1.293E+00	1.796E+00	2.186E+00	3.854E-01	0.592
AM-243	3.044E-01	7.128E-02	8.545E-02	7.131E-03	3.562
ANH-511	8.352E-02	4.797E-02	3.797E-02	2.508E-03	2.199

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.576E-02		2.595E-01	4.305E-01	3.119E-02	0.060
NA-22	7.768E-03		3.544E-02	5.920E-02	4.028E-03	0.131
NA-24	-1.114E+01		2.656E+01	Half-Life too short		
AL-26	5.777E-03		1.883E-02	3.260E-02	1.903E-03	0.177
TI-44	3.734E-01	+	5.635E-02	7.605E-02	6.503E-03	4.910
SC-46	-4.555E-03		3.079E-02	4.973E-02	5.546E-03	-0.092
V-48	3.591E-02		6.251E-02	1.060E-01	1.048E-02	0.339
CR-51	4.003E-02		3.202E-01	5.193E-01	3.343E-02	0.077
MN-52	1.679E-01		3.006E-01	5.176E-01	3.814E-02	0.324
MN-54	1.679E-03		2.953E-02	4.873E-02	4.992E-03	0.034
CO-56	-1.039E-02		3.152E-02	5.044E-02	5.265E-03	-0.206
CO-57	-5.164E-03		2.298E-02	3.653E-02	2.164E-03	-0.141
CO-58	-7.663E-03		3.098E-02	5.011E-02	4.947E-03	-0.153
FE-59	-1.374E-02		7.562E-02	1.242E-01	1.023E-02	-0.111
CO-60	4.541E-02		2.979E-02	5.526E-02	4.175E-03	0.822
ZN-65	1.284E-01		8.742E-02	1.406E-01	9.901E-03	0.913
GE-68	2.916E-01		9.531E-01	1.626E+00	1.292E-01	0.179
AS-73	-3.378E-01		1.049E+00	1.742E+00	1.381E-01	-0.194
AS-74	3.624E-02		8.559E-02	1.422E-01	1.022E-02	0.255
SE-75	8.537E-03		3.748E-02	5.746E-02	3.286E-03	0.149
BR-77	-2.099E-05		1.273E-05	Half-Life too short		
SR-82	-4.528E-01		3.303E-01	4.882E-01	4.546E-02	-0.928
RB-83	-4.383E-02		5.423E-02	8.390E-02	5.596E-03	-0.522
RB-84	1.958E-02		6.076E-02	1.017E-01	1.121E-02	0.193
KR-85	1.186E+01		6.670E+00	1.065E+01	7.054E-01	1.114
SR-85	6.344E-02		3.567E-02	5.694E-02	3.772E-03	1.114
RB-86	7.086E-02		7.071E-01	1.188E+00	9.460E-02	0.060
Y-88	-1.193E-02		2.334E-02	3.470E-02	1.976E-03	-0.344
ZR-88	1.268E-02		2.368E-02	4.078E-02	2.345E-03	0.311
Y-91	5.889E+00		1.526E+01	2.587E+01	1.530E+00	0.228
NB-94	1.793E-02		2.687E-02	4.652E-02	3.817E-03	0.385
NB-95M	1.318E-01		1.229E-01	1.873E-01	1.374E-02	0.704

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	1.683E-02		5.783E-02	9.771E-02	9.614E-03	0.172
NB-97	4.016E+00		2.404E+00	Half-Life too short		
ZR-97	2.511E+02		4.083E+01	Half-Life too short		
MO-99	6.517E+00		2.359E+01	3.991E+01	6.089E+00	0.163
TC-99M	-1.648E+15		1.148E+15	Half-Life too short		
RH-101	-1.201E-02		2.765E-02	4.542E-02	2.441E-03	-0.264
RH-102	-4.875E-03		2.251E-02	3.665E-02	2.328E-03	-0.133
RU-103	2.907E-02		3.290E-02	5.667E-02	7.359E-03	0.513
RH-106	-2.054E-02		2.606E-01	4.178E-01	5.257E-02	-0.049
RU-106	-2.054E-02		2.606E-01	4.178E-01	3.075E-02	-0.049
AG-108M	-1.065E-02		2.580E-02	4.188E-02	2.736E-03	-0.254
AG-110M	2.039E-02		3.363E-02	5.110E-02	4.030E-03	0.399
IN-111	9.189E-01		2.430E+00	3.591E+00	2.007E-01	0.256
IN-113M	5.848E-03		3.428E-02	5.796E-02	3.556E-03	0.101
SN-113	5.848E-03		3.428E-02	5.796E-02	3.556E-03	0.101
IN-114M	1.158E-01		1.668E-01	2.552E-01	1.363E-02	0.454
CD-115	7.023E-06		1.432E-05	Half-Life too short		
SN-117M	3.522E-04		5.344E-02	9.056E-02	4.813E-03	0.004
SB-122	1.472E+00		4.103E+00	6.837E+00	4.764E-01	0.215
I-123	-5.901E+02		3.647E+02	Half-Life too short		
TE-123M	-1.884E-02		2.329E-02	3.824E-02	2.063E-03	-0.493
I-124	-3.024E-01		1.247E+00	1.702E+00	1.230E-01	-0.178
SB-124	-1.555E-02		4.912E-02	7.661E-02	5.286E-03	-0.203
SB-125	-2.003E-02		6.960E-02	1.139E-01	7.118E-03	-0.176
TE-125M	-7.601E+00		8.938E+00	1.392E+01	1.225E+00	-0.546
I-126	2.747E-02		1.973E-01	2.890E-01	2.222E-02	0.095
SB-126	-1.012E-02		1.548E-01	2.207E-01	1.868E-02	-0.046
SB-127	-1.293E+00		1.984E+00	3.157E+00	3.847E-01	-0.410
XE-127	-8.800E-03		4.322E-02	6.907E-02	3.728E-03	-0.127
I-131	5.788E-02		1.237E-01	2.133E-01	1.386E-02	0.271
TE-132	8.000E-01		1.354E+00	2.282E+00	3.454E-01	0.351
BA-133	3.201E-02		3.793E-02	5.617E-02	6.489E-03	0.570
I-133	-1.275E-03		5.602E-02	Half-Life too short		
CS-134	6.162E-02		4.303E-02	6.846E-02	6.621E-03	0.900
CS-135	1.518E-01		1.378E-01	2.107E-01	1.592E-02	0.720
I-135	-1.587E+13		4.784E+13	Half-Life too short		
CS-136	4.411E-02		1.035E-01	1.782E-01	1.598E-02	0.248
CE-139	-2.403E-02		2.416E-02	3.923E-02	2.059E-03	-0.613
BA-140	7.073E-03		2.515E-01	4.114E-01	1.346E-01	0.017
LA-140	9.548E-03		8.208E-02	1.381E-01	9.473E-03	0.069
CE-141	2.790E-02		5.942E-02	9.602E-02	5.482E-03	0.291
CE-143	6.968E-03		9.502E-04	Half-Life too short		
CE-144	1.025E-01		1.972E-01	2.872E-01	4.061E-02	0.357
PM-144	-3.650E-03		2.733E-02	4.528E-02	3.677E-03	-0.081
PR-144	-2.478E-01		1.856E+00	3.075E+00	2.495E-01	-0.081
PM-146	1.812E-02		3.780E-02	5.880E-02	5.231E-03	0.308
ND-147	2.098E-01		5.415E-01	9.064E-01	1.265E-01	0.231
PM-149	8.729E-05		1.280E-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
EU-152	-2.049E-02		1.002E-01	1.275E-01	8.318E-03	-0.161
GD-153	1.596E-02		7.795E-02	1.145E-01	8.951E-03	0.139
EU-154	7.467E-02		9.513E-02	1.655E-01	1.654E-02	0.451
EU-155	1.103E-01		9.954E-02	1.676E-01	1.198E-02	0.658
TB-160	2.254E-02		1.117E-01	1.856E-01	2.039E-02	0.121
HO-166M	5.445E-03		4.693E-02	7.882E-02	6.570E-03	0.069
TM-171	-2.071E+01		3.172E+01	4.572E+01	3.655E+00	-0.453
LU-176	9.585E-03		2.023E-02	3.242E-02	1.866E-03	0.296
LU-177	4.729E+00	+	1.931E+00	2.546E+00	1.381E-01	1.857
LU-177M	-3.851E-02		1.522E-01	2.162E-01	1.277E-02	-0.178
HF-181	-2.546E-02		3.376E-02	5.289E-02	3.385E-03	-0.481
W-181	-2.853E-01		4.244E-01	6.119E-01	4.853E-02	-0.466
TA-182	-1.358E-02		1.706E-01	2.799E-01	1.712E-02	-0.049
RE-183	4.130E-02		9.035E-02	1.554E-01	8.200E-03	0.266
RE-184	8.324E-02		1.927E-01	3.223E-01	1.810E-02	0.258
OS-185	1.574E-02		3.199E-02	5.329E-02	4.007E-03	0.295
RE-188	2.105E-01		1.445E-01	2.566E-01	1.373E-02	0.820
W-188	-4.985E+00		6.549E+00	8.747E+00	5.010E-01	-0.570
IR-192	1.524E-03		2.869E-02	4.639E-02	2.690E-03	0.033
AU-195	2.307E-01		2.121E-01	3.434E-01	2.628E-02	0.672
TL-200	3.425E-03		2.185E-03	Half-Life too short		
TL-201	-1.196E+00		1.381E+01	2.324E+01	1.220E+00	-0.051
TL-202	-2.861E-02		6.754E-02	1.094E-01	6.672E-03	-0.261
BI-207	2.268E-02		3.895E-02	6.780E-02	5.597E-03	0.334
TL-207	1.850E-01		5.636E-01	8.110E-01	1.339E-01	0.228
PO-209	8.731E-01		5.706E+00	9.429E+00	1.064E+00	0.093
BI-210	-5.086E-01		4.869E+00	8.210E+00	6.352E-01	-0.062
PB-210	-5.086E-01		4.869E+00	8.210E+00	6.352E-01	-0.062
PO-210	-5.086E-01		4.869E+00	8.210E+00	5.461E-01	-0.062
PB-211	-1.124E-01		8.631E-01	1.235E+00	7.698E-01	-0.091
BI-212	1.118E+00	+	3.748E-01	5.268E-01	5.246E-02	2.123
PO-215	1.850E-01		5.636E-01	8.110E-01	1.339E-01	0.228
RN-219	-3.165E-02		3.414E-01	5.363E-01	7.302E-02	-0.059
RN-220	1.716E+00		2.033E+01	3.331E+01	2.289E+00	0.052
RA-223	1.850E-01		5.636E-01	8.110E-01	1.339E-01	0.228
AC-227	-6.211E-02		3.103E-01	5.036E-01	6.996E-02	-0.123
TH-227	-6.211E-02		3.103E-01	5.036E-01	8.482E-02	-0.123
TH-229	-7.491E-02		4.101E-01	6.809E-01	3.646E-02	-0.110
PA-231	9.075E-01		1.272E+00	2.064E+00	2.836E-01	0.440
TH-231	1.850E-01		5.636E-01	8.110E-01	1.339E-01	0.228
U-231	-7.944E-02		2.008E+00	2.915E+00	2.336E-01	-0.027
PA-233	-3.032E-03		5.029E-02	8.090E-02	4.956E-03	-0.037
PA-234	4.095E-02		2.405E-01	3.957E-01	7.806E-02	0.103
PA-234M	1.708E+00		3.734E+00	6.248E+00	6.740E-01	0.273
U-235	1.816E-01		1.847E-01	3.013E-01	4.879E-02	0.603
NP-236	-4.056E-02		6.365E-02	1.052E-01	5.573E-03	-0.386
NP-239	3.842E-03		1.703E-01	2.742E-01	1.698E-02	0.014
AM-241	2.200E-01		1.854E-01	2.929E-01	2.429E-02	0.751

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-5.216E-02		8.754E-02	1.384E-01	9.908E-03	-0.377
AM-246	-4.116E-03		1.118E-01	1.859E-01	1.471E-02	-0.022
CM-247	8.475E-03		3.310E-02	4.906E-02	2.857E-03	0.173
CF-249	-2.088E-02		3.023E-02	4.881E-02	2.806E-03	-0.428
CF-251	-5.126E-02		1.046E-01	1.727E-01	9.122E-03	-0.297

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101001
* Acquisition date   : 1-FEB-2010 14:44:41 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 02:00:01.65                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101001                      Analyst initials: MXR1
* Batch Number       : 944037                          Sample Quantity : 1.2983E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight  : 0.00000
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME  : 23-APR-2009 11:59:23 MS Isotope      :
* MSD DPM           : 0.000                               MSD Isotope      :
* LCS DPM           : 0.000                               LCS Isotope      :
* LCSD DPM          : 0.000                               LCSD Isotope     :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.349E+01	2.132E+00	2.176E-01	1.088E+00
NB-95	6.534E-02	5.269E-02	2.678E-02	2.688E-02
CD-109	4.213E+00	1.209E+00	5.757E-01	6.170E-01
SN-126	4.117E-01	1.182E-01	5.661E-02	6.029E-02
BA-137M	1.928E-01	5.242E-02	2.384E-02	2.675E-02
CS-137	2.038E-01	5.542E-02	2.520E-02	2.828E-02
HG-203	3.080E-02	4.995E-02	2.889E-02	2.548E-02
TL-208	4.350E-01	7.282E-02	2.078E-02	3.715E-02
BI-211	4.071E+00	4.620E-01	1.315E-01	2.357E-01
PB-212	1.502E+00	1.386E-01	3.838E-02	7.074E-02
PO-212	1.502E+00	1.386E-01	3.838E-02	7.074E-02
BI-214	1.092E+00	1.601E-01	4.551E-02	8.171E-02
PB-214	1.416E+00	1.763E-01	4.583E-02	8.993E-02
PO-214	1.416E+00	1.763E-01	4.583E-02	8.993E-02
PO-216	1.502E+00	1.386E-01	3.838E-02	7.074E-02
PO-218	1.416E+00	1.763E-01	4.583E-02	8.993E-02
RA-224	3.921E+00	9.205E-01	4.362E-01	4.697E-01
RA-226	1.092E+00	1.601E-01	4.551E-02	8.171E-02
AC-228	1.719E+00	3.252E-01	8.352E-02	1.659E-01
RA-228	1.719E+00	3.252E-01	8.352E-02	1.659E-01
TH-228	1.531E+00	1.413E-01	3.912E-02	7.210E-02
TH-230	1.092E+00	1.601E-01	4.551E-02	8.170E-02
TH-232	1.719E+00	3.252E-01	8.352E-02	1.659E-01
TH-234	1.293E+00	1.760E+00	1.150E+00	8.982E-01
U-234	1.092E+00	1.601E-01	4.551E-02	8.170E-02
NP-237	1.209E+00	4.245E-01	1.689E-01	2.166E-01
U-238	1.293E+00	1.760E+00	1.150E+00	8.982E-01
AM-243	3.044E-01	6.986E-02	4.485E-02	3.564E-02
ANH-511	8.352E-02	4.701E-02	1.934E-02	2.398E-02

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

Key-Line Activity	K.L Act error	DLC	TPU
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Nuclide	(pCi/GRAM )		(pCi/GRAM )		
BE-7	2.576E-02	2.543E-01	2.195E-01	1.297E-01	NOT IDENT.
NA-22	7.768E-03	3.473E-02	2.970E-02	1.772E-02	NOT IDENT.
NA-24	-1.114E+07	5.206E+07	0.000E+00	2.656E+07	SHORT HLIF
AL-26	5.777E-03	1.845E-02	1.626E-02	9.416E-03	NOT IDENT.
TI-44	3.734E-01	5.522E-02	3.988E-02	2.817E-02	FAIL ABUN
SC-46	-4.555E-03	3.018E-02	2.510E-02	1.540E-02	FAIL ABUN
V-48	3.591E-02	6.126E-02	5.339E-02	3.126E-02	NOT IDENT.
CR-51	4.003E-02	3.138E-01	2.664E-01	1.601E-01	NOT IDENT.
MN-52	1.679E-01	2.946E-01	2.592E-01	1.503E-01	NOT IDENT.
MN-54	1.679E-03	2.894E-02	2.462E-02	1.477E-02	NOT IDENT.
CO-56	-1.039E-02	3.089E-02	2.548E-02	1.576E-02	FAIL ABUN
CO-57	-5.164E-03	2.252E-02	1.903E-02	1.149E-02	NOT IDENT.
CO-58	-7.663E-03	3.036E-02	2.533E-02	1.549E-02	NOT IDENT.
FE-59	-1.374E-02	7.411E-02	6.248E-02	3.781E-02	NOT IDENT.
CO-60	4.541E-02	2.919E-02	2.770E-02	1.489E-02	NOT IDENT.
ZN-65	1.284E-01	8.567E-02	7.068E-02	4.371E-02	NOT IDENT.
GE-68	2.916E-01	9.340E-01	8.180E-01	4.765E-01	NOT IDENT.
AS-73	-3.378E-01	1.028E+00	9.186E-01	5.244E-01	NOT IDENT.
AS-74	3.624E-02	8.387E-02	7.225E-02	4.279E-02	NOT IDENT.
SE-75	8.537E-03	3.673E-02	2.957E-02	1.874E-02	FAIL ABUN
BR-77	-2.099E+01	2.496E+01	0.000E+00	1.273E+01	SHORT HLIF
SR-82	-4.528E-01	3.237E-01	2.469E-01	1.652E-01	NOT IDENT.
RB-83	-4.383E-02	5.315E-02	4.272E-02	2.712E-02	NOT IDENT.
RB-84	1.958E-02	5.954E-02	5.134E-02	3.038E-02	NOT IDENT.
KR-85	1.186E+01	6.537E+00	5.422E+00	3.335E+00	NOT IDENT.
SR-85	6.344E-02	3.496E-02	2.899E-02	1.783E-02	NOT IDENT.
RB-86	7.086E-02	6.929E-01	5.979E-01	3.535E-01	NOT IDENT.
Y-88	-1.193E-02	2.287E-02	1.730E-02	1.167E-02	NOT IDENT.
ZR-88	1.268E-02	2.321E-02	2.086E-02	1.184E-02	NOT IDENT.
Y-91	5.889E+00	1.496E+01	1.299E+01	7.632E+00	NOT IDENT.
NB-94	1.793E-02	2.633E-02	2.357E-02	1.344E-02	NOT IDENT.
NB-95M	1.318E-01	1.205E-01	9.658E-02	6.146E-02	NOT IDENT.
ZR-95	1.683E-02	5.667E-02	4.945E-02	2.892E-02	NOT IDENT.
NB-97	4.016E+06	4.713E+06	0.000E+00	2.404E+06	SHORT HLIF
ZR-97	2.511E+08	8.003E+07	0.000E+00	4.083E+07	SHORT HLIF
MO-99	6.517E+00	2.311E+01	2.020E+01	1.179E+01	NOT IDENT.
TC-99M	-1.648E+21	2.250E+21	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.201E-02	2.709E-02	2.348E-02	1.382E-02	NOT IDENT.
RH-102	-4.875E-03	2.206E-02	1.869E-02	1.125E-02	FAIL ABUN
RU-103	2.907E-02	3.224E-02	2.888E-02	1.645E-02	FAIL ABUN
RH-106	-2.054E-02	2.554E-01	2.121E-01	1.303E-01	FAIL ABUN
RU-106	-2.054E-02	2.554E-01	2.121E-01	1.303E-01	FAIL ABUN
AG-108M	-1.065E-02	2.528E-02	2.139E-02	1.290E-02	NOT IDENT.
AG-110M	2.039E-02	3.296E-02	2.592E-02	1.681E-02	NOT IDENT.
IN-111	9.189E-01	2.382E+00	1.850E+00	1.215E+00	NOT IDENT.
IN-113M	5.848E-03	3.360E-02	2.965E-02	1.714E-02	NOT IDENT.
SN-113	5.848E-03	3.360E-02	2.965E-02	1.714E-02	NOT IDENT.
IN-114M	1.158E-01	1.635E-01	1.320E-01	8.342E-02	NOT IDENT.
CD-115	7.023E+00	2.806E+01	0.000E+00	1.432E+01	SHORT HLIF
SN-117M	3.522E-04	5.237E-02	4.698E-02	2.672E-02	NOT IDENT.
SB-122	1.472E+00	4.021E+00	3.476E+00	2.051E+00	NOT IDENT.
I-123	-5.901E+08	7.148E+08	0.000E+00	3.647E+08	SHORT HLIF
TE-123M	-1.884E-02	2.282E-02	1.984E-02	1.164E-02	NOT IDENT.
I-124	-3.024E-01	1.222E+00	8.643E-01	6.237E-01	FAIL ABUN
SB-124	-1.555E-02	4.814E-02	3.826E-02	2.456E-02	FAIL ABUN
SB-125	-2.003E-02	6.821E-02	5.818E-02	3.480E-02	FAIL ABUN
TE-125M	-7.601E+00	8.760E+00	7.261E+00	4.469E+00	NOT IDENT.
I-126	2.747E-02	1.933E-01	1.465E-01	9.863E-02	NOT IDENT.
SB-126	-1.012E-02	1.517E-01	1.118E-01	7.742E-02	FAIL ABUN
SB-127	-1.293E+00	1.945E+00	1.600E+00	9.921E-01	FAIL ABUN
XE-127	-8.800E-03	4.236E-02	3.570E-02	2.161E-02	NOT IDENT.
I-131	5.788E-02	1.212E-01	1.092E-01	6.185E-02	NOT IDENT.
TE-132	8.000E-01	1.327E+00	1.177E+00	6.771E-01	NOT IDENT.
BA-133	3.201E-02	3.718E-02	2.877E-02	1.897E-02	NOT IDENT.
I-133	-1.275E+03	1.098E+05	0.000E+00	5.602E+04	SHORT HLIF
CS-134	6.162E-02	4.217E-02	3.462E-02	2.152E-02	NOT IDENT.
CS-135	1.518E-01	1.351E-01	1.084E-01	6.892E-02	NOT IDENT.
I-135	-1.587E+19	9.376E+19	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.411E-02	1.014E-01	8.970E-02	5.174E-02	FAIL ABUN
CE-139	-2.403E-02	2.367E-02	2.034E-02	1.208E-02	NOT IDENT.
BA-140	7.073E-03	2.465E-01	2.093E-01	1.257E-01	NOT IDENT.
LA-140	9.548E-03	8.043E-02	6.902E-02	4.104E-02	FAIL ABUN
CE-141	2.790E-02	5.823E-02	4.988E-02	2.971E-02	NOT IDENT.
CE-143	6.968E+03	1.862E+03	0.000E+00	9.502E+02	SHORT HLIF
CE-144	1.025E-01	1.932E-01	1.494E-01	9.859E-02	NOT IDENT.
PM-144	-3.650E-03	2.678E-02	2.294E-02	1.366E-02	NOT IDENT.



PR-144	-2.478E-01	1.818E+00	1.558E+00	9.278E-01	NOT IDENT.
PM-146	1.812E-02	3.704E-02	3.000E-02	1.890E-02	NOT IDENT.
ND-147	2.098E-01	5.306E-01	4.613E-01	2.707E-01	FAIL ABUN
PM-149	8.729E+01	2.509E+02	0.000E+00	1.280E+02	SHORT HLIF
EU-152	-2.049E-02	9.816E-02	6.532E-02	5.008E-02	FAIL ABUN
GD-153	1.596E-02	7.639E-02	5.984E-02	3.897E-02	NOT IDENT.
EU-154	7.467E-02	9.323E-02	8.306E-02	4.757E-02	NOT IDENT.
EU-155	1.103E-01	9.755E-02	8.747E-02	4.977E-02	FAIL ABUN
TB-160	2.254E-02	1.095E-01	9.370E-02	5.587E-02	FAIL ABUN
HO-166M	5.445E-03	4.599E-02	3.993E-02	2.347E-02	FAIL ABUN
TM-171	-2.071E+01	3.109E+01	2.403E+01	1.586E+01	NOT IDENT.
LU-176	9.585E-03	1.983E-02	1.664E-02	1.012E-02	FAIL ABUN
LU-177	4.729E+00	1.892E+00	1.315E+00	9.654E-01	FAIL ABUN
LU-177M	-3.851E-02	1.491E-01	1.105E-01	7.609E-02	FAIL ABUN
HF-181	-2.546E-02	3.309E-02	2.696E-02	1.688E-02	NOT IDENT.
W-181	-2.853E-01	4.160E-01	3.218E-01	2.122E-01	NOT IDENT.
TA-182	-1.358E-02	1.672E-01	1.405E-01	8.530E-02	NOT IDENT.
RE-183	4.130E-02	8.855E-02	8.056E-02	4.518E-02	FAIL ABUN
RE-184	8.324E-02	1.889E-01	1.660E-01	9.637E-02	NOT IDENT.
OS-185	1.574E-02	3.135E-02	2.704E-02	1.600E-02	NOT IDENT.
RE-188	2.105E-01	1.416E-01	1.332E-01	7.225E-02	NOT IDENT.
W-188	-4.985E+00	6.418E+00	4.495E+00	3.274E+00	FAIL ABUN
IR-192	1.524E-03	2.812E-02	2.381E-02	1.435E-02	FAIL ABUN
AU-195	2.307E-01	2.079E-01	1.795E-01	1.061E-01	FAIL ABUN
TL-200	3.425E+03	4.282E+03	0.000E+00	2.185E+03	SHORT HLIF
TL-201	-1.196E+00	1.353E+01	1.205E+01	6.904E+00	NOT IDENT.
TL-202	-2.861E-02	6.619E-02	5.587E-02	3.377E-02	NOT IDENT.
BI-207	2.268E-02	3.817E-02	3.412E-02	1.947E-02	FAIL ABUN
TL-207	1.850E-01	5.523E-01	4.160E-01	2.818E-01	FAIL ABUN
PO-209	8.731E-01	5.592E+00	4.758E+00	2.853E+00	NOT IDENT.
BI-210	-5.086E-01	4.772E+00	4.339E+00	2.434E+00	NOT IDENT.
PB-210	-5.086E-01	4.772E+00	4.339E+00	2.434E+00	NOT IDENT.
PO-210	-5.086E-01	4.772E+00	4.339E+00	2.434E+00	NOT IDENT.
PB-211	-1.124E-01	8.458E-01	6.312E-01	4.315E-01	NOT IDENT.
BI-212	1.118E+00	3.673E-01	2.668E-01	1.874E-01	FAIL ABUN
PO-215	1.850E-01	5.523E-01	4.160E-01	2.818E-01	FAIL ABUN
RN-219	-3.165E-02	3.346E-01	2.742E-01	1.707E-01	FAIL ABUN
RN-220	1.716E+00	1.992E+01	1.695E+01	1.017E+01	NOT IDENT.
RA-223	1.850E-01	5.523E-01	4.160E-01	2.818E-01	FAIL ABUN
AC-227	-6.211E-02	3.041E-01	2.593E-01	1.551E-01	FAIL ABUN
TH-227	-6.211E-02	3.041E-01	2.593E-01	1.552E-01	FAIL ABUN
TH-229	-7.491E-02	4.019E-01	3.522E-01	2.051E-01	FAIL ABUN
PA-231	9.075E-01	1.246E+00	1.061E+00	6.358E-01	FAIL ABUN
TH-231	1.850E-01	5.523E-01	4.160E-01	2.818E-01	FAIL ABUN
U-231	-7.944E-02	1.968E+00	1.524E+00	1.004E+00	FAIL ABUN
PA-233	-3.032E-03	4.928E-02	4.152E-02	2.514E-02	FAIL ABUN
PA-234	4.095E-02	2.357E-01	1.995E-01	1.203E-01	FAIL ABUN
PA-234M	1.708E+00	3.659E+00	3.147E+00	1.867E+00	FAIL ABUN
U-235	1.816E-01	1.810E-01	1.565E-01	9.237E-02	FAIL ABUN
NP-236	-4.056E-02	6.238E-02	5.456E-02	3.183E-02	NOT IDENT.
NP-239	3.842E-03	1.669E-01	1.429E-01	8.514E-02	FAIL ABUN
AM-241	2.200E-01	1.817E-01	1.543E-01	9.268E-02	NOT IDENT.
CM-243	-5.216E-02	8.579E-02	7.228E-02	4.377E-02	FAIL ABUN
AM-246	-4.116E-03	1.095E-01	9.355E-02	5.589E-02	NOT IDENT.
CM-247	8.475E-03	3.244E-02	2.508E-02	1.655E-02	FAIL ABUN
CF-249	-2.088E-02	2.963E-02	2.497E-02	1.512E-02	NOT IDENT.
CF-251	-5.126E-02	1.025E-01	8.947E-02	5.229E-02	NOT IDENT.

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*                                     GEL Laboratories LLC                      *
*                                     2040 SAVAGE ROAD                        *
*                                     CHARLESTON ,SC 29417                     *
*                                     GAMMA SPECTROSCOPY BACKGROUND REPORT      *
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ENERGY	MDA COUNTS
46.50	285.3056
46.50	285.3056
46.50	285.3056
48.70	300.4155
49.72	302.5472
51.35	298.1729
52.39	302.0980
52.97	304.5880
53.15	305.7065
53.44	310.5983
54.07	304.0339
56.28	342.4323
56.28	342.4361
57.37	0.0000
57.53	329.1970
57.53	329.1988
57.60	325.5796
57.98	316.7625
57.98	316.7625
59.32	302.9179
59.32	302.9179
59.40	303.0032
59.54	303.1522
59.72	311.7308
60.01	314.8459
61.10	386.2708
61.14	386.3243
61.30	386.5373
63.00	345.8993
63.29	362.2754
63.29	362.2754
63.58	362.6279
64.28	381.9354
65.12	377.3038
65.20	377.4034
65.20	377.4034
66.05	379.8849
66.72	380.7109
66.83	398.0300
66.91	398.1318
67.20	388.7575
67.20	388.7575
67.75	358.0438
67.85	357.2022
68.90	384.3404
68.90	384.3404
69.30	405.9921
69.67	402.6158
70.82	405.9927
70.82	405.9927
70.83	406.0056
72.80	390.9649
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72.87	391.0487
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74.81	420.7365
74.81	420.7365
74.81	420.7365
74.81	420.7365
74.81	420.7365
74.97	420.9367
75.28	421.3260
75.70	421.8509
77.11	423.6006
77.11	423.6006

77.11	423.6006
77.11	423.6006
77.11	423.6006
77.11	423.6006
77.11	423.6006
78.38	425.1643
79.62	401.8730
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79.80	379.2449
80.11	379.5791
80.18	379.6549
80.30	357.9108
80.30	357.9108
80.57	358.1854
81.00	328.7344
81.07	328.7999
81.07	328.7999
81.07	328.7999
81.07	328.7999
82.60	327.2062
83.37	399.0972
83.78	406.5800
83.78	406.5800
83.78	406.5800
83.78	406.5800
84.21	367.8616
84.90	368.5541
85.43	369.0846
86.29	369.9428
86.50	370.1513
86.54	370.1904
86.59	370.2407
86.72	370.3691
86.79	370.4361
86.94	370.5869
87.30	370.9443
87.30	370.9443
87.30	370.9443
87.30	370.9443
87.30	370.9443
87.30	370.9443
87.57	371.2105
87.88	0.0000
88.03	371.6648
88.36	371.9887
88.47	372.0966
89.95	373.5450
91.11	374.6712
92.29	375.8105
92.38	375.8980
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93.35	376.8269
94.00	377.4487
94.67	328.4955
94.67	328.5004
94.90	328.6896
94.90	328.6896
94.90	328.6896
94.90	328.6896
95.87	343.4747
95.87	343.4747
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97.43	326.0810
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98.44	294.0426
98.88	305.6314
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99.55	312.6111
99.86	335.8640
100.00	335.9783
100.10	336.0616
103.18	376.5016
103.76	359.0624
105.00	345.2757
105.31	330.6875
108.00	372.1971
109.28	383.9756

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111.00	341.4398
111.76	365.6788
112.95	352.6234
115.19	314.2596
116.30	319.3606
117.00	335.0719
117.00	335.0719
117.66	354.0670
121.11	307.2740
121.62	320.7845
121.78	320.8914
122.06	339.7715
122.32	339.9538
122.32	339.9538
122.32	339.9538
122.32	339.9538
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131.20	324.2680
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136.25	311.0562
136.48	308.9301
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140.51	0.0000
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143.76	320.0536
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144.24	296.2234
144.24	296.2234
144.24	296.2234
145.22	330.1096
145.44	330.2438
147.16	371.6705
152.43	365.8510
152.70	325.2247
153.22	335.1484
154.21	312.9361
154.21	312.9361
154.21	312.9361
154.21	312.9361
155.03	294.9485
156.02	331.5059
158.56	312.6399
159.00	0.0000
159.00	337.6191
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161.27	306.9763
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162.64	305.9026
163.35	292.9102
163.89	292.2827
165.85	336.1429
167.43	311.0219
171.28	334.6110
171.86	333.1169
172.10	320.6002
176.55	339.2379
176.60	339.2635
181.06	297.4748
184.41	284.2698
185.71	289.6245
186.00	289.7514
190.27	268.9436
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193.63	314.5105
197.04	312.3145
198.01	328.7151
198.60	329.9328
200.40	0.0000
201.83	354.1145
202.84	330.7067
205.31	302.1365

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208.81	312.7576
209.75	285.6635
209.75	285.6635
210.97	266.2484
215.65	288.7253
216.55	290.0368
218.09	264.5637
222.10	293.1454
223.80	292.8224
226.40	303.5710
227.00	293.0603
227.08	293.0901
227.20	278.4790
228.16	282.7359
228.18	282.7425
228.18	282.7425
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235.69	311.3187
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236.00	294.0489
238.63	281.5299
238.63	281.5299
238.63	281.5299
238.63	281.5299
239.00	0.0000
240.98	282.3446
241.98	282.6913
241.98	282.6913
241.98	282.6913
244.69	244.4769
245.39	219.0963
247.94	245.4369
248.90	263.8438
249.79	0.0000
252.40	235.8585
252.85	233.9665
252.85	233.9665
254.15	0.0000
256.20	247.0390
256.20	247.0390
260.50	231.9939
260.90	0.0000
262.80	218.3266
264.65	205.8370
268.24	202.0221
268.79	207.0787
269.46	208.8772
269.46	208.8772
269.46	208.8772
269.46	208.8772
271.23	238.9562
273.65	231.3384
276.40	240.3297
277.35	213.6194
277.60	213.6760
277.60	213.6760
278.00	195.9215
278.60	219.3114
279.20	229.4284
279.53	229.5092
280.46	211.4321
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283.67	199.2794
284.30	206.8764
285.00	205.9879
285.90	0.0000
286.10	205.1815
286.10	205.1815
287.40	196.0338
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290.80	205.3687
291.72	185.3484
293.26	0.0000
293.70	172.2246
295.21	197.6546
295.21	197.6546

295.21	197.6546
295.96	197.8087
296.50	197.9199
297.23	0.0000
298.57	198.3451
299.80	198.5962
299.80	198.5962
300.09	198.6561
300.09	198.6561
300.09	198.6561
300.09	198.6561
300.12	198.6618
301.29	239.9547
302.84	196.0194
303.76	0.0000
303.91	199.6455
304.40	196.3311
304.40	196.3311
304.84	193.0049
306.84	183.3697
308.46	204.6395
311.98	187.0840
316.51	190.0857
318.01	190.3677
319.02	194.8865
319.41	185.2126
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323.87	165.3501
323.87	165.3501
323.87	165.3501
325.23	189.9650
328.77	258.8121
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334.20	228.5093
334.20	228.5093
334.30	228.5315
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338.28	207.3290
338.28	207.3290
338.28	207.3290
338.32	207.3376
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338.32	207.3376
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340.57	205.1212
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350.59	0.0000
351.07	181.8852
351.92	182.0269
351.92	182.0269
351.92	182.0269
355.39	0.0000
356.01	147.0535
364.48	157.1969
366.43	134.8421
367.43	146.7354
367.94	0.0000
369.80	182.4360
374.96	145.8711
383.85	135.9533
387.95	176.0571
388.63	164.1676
391.69	156.2631
391.69	156.2631
392.90	146.2387
398.62	175.7548
400.65	177.9061
401.10	177.0419
401.81	173.6465
402.60	166.3712
404.84	176.0199
410.95	145.5755
411.60	148.7835
413.65	153.7311
414.70	161.7086
415.30	145.4056

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433.93	162.5438
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439.89	161.3575
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444.90	134.0047
445.03	130.1616
445.03	130.1616
445.03	130.1616
445.03	130.1616
453.90	142.8015
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468.07	151.9764
473.00	131.8474
475.06	140.9070
475.35	141.9223
476.78	151.9303
477.59	134.2485
477.96	131.3213
482.03	137.6375
484.57	0.0000
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490.36	0.0000
492.35	0.0000
497.08	110.0551
507.63	0.0000
510.53	0.0000
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511.00	148.1178
511.85	126.3084
511.85	126.3084
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513.99	139.9781
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520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	118.5828
529.87	0.0000
531.02	110.5023
537.32	126.3603
543.00	108.2556
546.56	0.0000
549.76	122.1772
552.65	126.5452
555.20	117.3948
563.23	98.1400
563.90	101.3124
568.70	141.4171
569.32	127.8468
569.50	121.5706
569.67	121.5848
573.80	106.2432
574.00	107.4232
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	101.4375
585.48	0.0000
591.81	118.1542
592.07	119.2060
593.00	110.5305
595.88	121.3643
600.56	142.3307
602.52	0.0000
602.71	153.1980
602.71	153.1980
603.60	163.9686
604.41	160.4810
604.70	158.7232
609.31	138.4010

609.31	138.4010
609.31	138.4010
609.31	138.4010
610.33	107.3511
612.46	107.4805
614.37	139.8770
618.01	120.7582
621.84	124.2595
621.84	124.2595
631.29	115.1430
633.02	134.8228
633.10	131.5668
634.78	109.9238
635.90	101.2783
636.97	100.2499
645.85	83.2178
646.12	87.6113
656.30	97.5324
657.75	127.5202
657.90	0.0000
661.65	126.9998
661.65	126.9998
664.57	0.0000
666.33	117.0342
666.33	117.0342
675.00	113.0694
677.61	113.2233
685.20	104.3551
692.80	110.3753
695.00	117.0553
696.49	128.3901
696.49	128.3901
697.00	125.6114
697.49	122.8312
698.33	127.5719
698.50	127.5830
699.00	128.5546
702.63	119.3906
706.10	131.8425
706.58	0.0000
706.67	130.9403
709.31	123.5668
711.68	112.3808
713.82	116.2834
717.42	105.1284
720.50	105.6953
721.93	0.0000
722.20	109.0386
722.78	110.6992
722.78	110.6992
722.89	110.7040
722.95	110.7063
723.30	109.0993
724.18	101.0008
727.18	110.3949
733.00	96.5314
735.90	112.6047
739.58	92.8735
742.81	102.6092
744.21	85.4039
747.13	115.3149
751.79	118.4606
752.31	108.8572
753.82	86.7627
755.35	0.0000
756.15	103.2666
756.87	120.6792
763.93	89.6710
765.79	104.7085
766.42	134.6648
766.84	137.7387
776.49	122.7726
778.00	115.0567
778.57	114.1126
778.89	109.2520
783.80	87.0136
785.46	111.0078
792.07	95.8973



795.84	92.6917
796.30	82.5969
798.80	99.5666
801.93	88.7238
805.60	91.8326
810.29	95.9837
810.76	95.0156
815.85	90.2706
817.79	0.0000
818.51	79.4531
819.60	79.4922
826.30	79.7282
828.27	0.0000
831.60	103.8879
831.96	101.9066
834.83	106.0345
836.80	0.0000
846.75	96.5293
848.13	85.5205
856.28	0.0000
856.80	76.1729
860.37	96.0843
867.32	82.1651
867.82	77.1102
871.10	94.4891
873.19	82.3694
874.81	99.7247
875.33	0.0000
876.40	89.6077
879.36	82.5820
880.27	87.7129
880.51	91.8018
881.50	86.7380
883.24	85.7791
884.67	84.8085
889.25	83.9469
896.60	82.1468
898.02	89.3878
899.00	87.3675
903.28	91.7853
911.07	89.8639
911.07	89.8639
911.07	89.8639
919.63	77.7359
920.93	77.1549
925.00	87.2522
925.24	91.4160
926.50	98.3915
935.52	94.7704
937.48	82.3177
944.10	99.4280
946.00	85.8855
949.00	85.9872
962.29	104.8013
964.01	104.8721
966.15	87.6167
968.20	87.6843
969.11	76.0913
969.11	76.0913
969.11	76.0913
977.42	77.6052
980.50	84.9137
983.50	65.8826
989.30	74.5473
996.32	85.4215
1001.03	74.8763
1001.68	85.5924
1004.76	103.9012
1021.30	0.0000
1024.50	0.0000
1034.80	100.7197
1036.00	102.1582
1037.82	75.2736
1038.57	75.2934
1038.76	0.0000
1045.16	92.2462
1046.59	98.8205
1048.07	79.2843

1050.47	81.2196
1050.47	81.2196
1062.04	75.9290
1063.62	70.3439
1076.63	81.9752
1077.35	76.3387
1078.86	86.7538
1085.78	69.0027
1099.22	89.2659
1112.02	73.4417
1112.84	73.4631
1115.52	88.5706
1120.29	82.0176
1120.29	82.0176
1120.29	82.0176
1120.29	82.0176
1120.51	82.0236
1121.28	68.6495
1124.00	0.0000
1129.67	81.5581
1131.51	0.0000
1147.95	0.0000
1167.94	75.7937
1173.22	95.3921
1175.09	94.4762
1177.93	89.6897
1189.05	90.0106
1204.90	91.4496
1205.75	0.0000
1213.00	120.2767
1221.42	121.5800
1230.97	105.8341
1235.34	105.9793
1236.41	0.0000
1238.25	89.4287
1246.25	99.0152
1260.41	0.0000
1271.85	72.2838
1274.45	64.3013
1274.54	77.3652
1291.56	68.6712
1298.22	0.0000
1312.09	70.1070
1325.50	75.4814
1325.50	75.4814
1332.49	36.7960
1333.61	47.0316
1360.21	42.2412
1362.66	0.0000
1365.15	38.0805
1368.21	43.3696
1368.53	0.0000
1376.25	46.5742
1384.27	34.4908
1394.10	44.7277
1395.20	41.6197
1407.95	74.9181
1434.06	36.8079
1436.60	37.8859
1457.56	0.0000
1460.81	42.6351
1489.15	36.2863
1509.49	31.9196
1596.49	36.4692
1620.62	24.1356
1678.03	0.0000
1691.02	18.6544
1691.02	18.6544
1706.46	0.0000
1750.46	0.0000
1764.49	28.9575
1764.49	28.9575
1764.49	28.9575
1764.49	28.9575
1770.23	19.5520
1771.40	23.1132
1791.20	0.0000
1808.65	13.1095

1836.01

20.2899

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101001

Total Uranium Activity	3.9310E+00	ug/g
Total Uranium Counting Unc.	5.2379E+00	ug/g
Total Uranium Tpu	2.6724E-06	ug/g
Total Uranium Mda	3.4224E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037                      SAMPLE ID   : G245101001
*  ANALYST       : MXR1                        DETECTOR    : GAM18
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00    COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 1-FEB-2010 14:44:41.44    SAMPLE ALQT  : 129.830 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.983E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.370E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.902E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.407E+00

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VAX/VMS Nuclide Identification Report Generated 9-FEB-2010 07:43:31.76

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101002.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:45:04.
Sample ID          : G245101002          Sample quantity   : 1.28600E+02 GRAM
Detector name      : GAM19              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.42  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 944037             Detector SN#      :
Matrix Spike ID    :                    LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.46*	78	540	1.24	126.78	120	11	1.08E-02	59.8	
2	2	74.86	311	605	1.62	149.56	143	16	4.31E-02	16.7	8.49E-01
3	2	77.19	502	449	1.28	154.21	143	16	6.98E-02	9.0	
4	4	87.36	164	379	1.53	174.55	171	22	2.28E-02	20.3	1.73E+00
5	4	89.99	133	378	1.32	179.79	171	22	1.85E-02	27.0	
6	4	92.89*	311	439	1.78	185.59	171	22	4.32E-02	15.5	
7	0	129.17	47	317	1.05	258.11	254	9	6.49E-03	70.4	
8	0	185.89*	161	274	1.51	371.45	367	10	2.23E-02	21.9	
9	0	209.51	88	352	1.14	418.65	413	13	1.23E-02	44.9	
10	2	238.49*	1081	162	1.39	476.58	468	21	1.50E-01	3.7	1.78E+00
11	2	241.39	246	200	1.80	482.38	468	21	3.42E-02	16.5	
12	0	270.09	108	159	1.43	539.74	535	9	1.49E-02	23.3	
13	0	294.76*	338	181	1.28	589.05	582	14	4.69E-02	10.2	
14	0	300.16	83	150	1.88	599.84	595	10	1.15E-02	29.8	
15	0	338.32	170	184	1.37	676.11	671	11	2.35E-02	17.5	
16	0	351.74*	500	228	1.51	702.95	697	15	6.94E-02	8.0	
17	0	408.58	44	161	4.48	816.55	809	13	6.06E-03	62.0	
18	0	462.10	93	102	1.29	923.55	917	12	1.29E-02	24.1	
19	0	510.76*	108	152	2.16	1020.83	1012	19	1.51E-02	32.2	
20	0	568.08*	87	114	2.25	1135.42	1128	13	1.20E-02	29.0	
21	0	583.13*	315	79	1.87	1165.51	1158	15	4.38E-02	8.4	
22	0	609.38*	417	108	1.56	1217.98	1209	18	5.79E-02	7.7	
23	0	661.70*	102	90	1.52	1322.60	1316	12	1.41E-02	21.3	
24	0	727.84	108	38	2.37	1454.85	1447	15	1.49E-02	16.1	
25	0	794.89	48	26	1.40	1588.92	1585	9	6.63E-03	24.3	
26	0	862.16	26	94	1.48	1723.45	1718	16	3.55E-03	86.5	
27	0	911.82*	186	114	1.93	1822.76	1815	19	2.59E-02	15.3	
28	3	964.80	49	31	1.79	1928.72	1925	21	6.78E-03	22.8	2.54E+00
29	3	969.23	101	63	2.43	1937.58	1925	21	1.40E-02	20.3	
30	0	1120.74	58	82	1.56	2240.63	2233	13	8.12E-03	34.4	
31	0	1461.03*	1124	32	2.25	2921.42	2914	16	1.56E-01	3.2	
32	0	1764.80*	68	9	2.48	3529.32	3523	12	9.47E-03	15.5	

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

## VMS Nuclide Identification Report V3.1 Generated 9-FEB-2010 07:43:34

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:45:04
Sample ID        : G245101002 Sample quantity : 128.60 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA19 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.42 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.631E+01	2.584E+00	5.301E-01	3.948E-02	49.621
CD-109	+	88.03	*	2.174E+00	9.045E-01	1.251E+00	1.120E-01	1.738
SN-126	+	64.28		6.485E-01	7.820E-01	7.448E-01	1.088E-01	0.871
	+	86.94		8.829E-01	5.124E-01	5.698E-01	2.359E-01	1.550
	+	87.57	*	2.124E-01	8.837E-02	1.227E-01	1.095E-02	1.730
BA-137M	+	661.65	*	1.434E-01	6.169E-02	6.180E-02	3.598E-03	2.321
CS-137	+	661.65	*	1.516E-01	6.522E-02	6.532E-02	3.820E-03	2.321
TL-208		277.35		3.954E-01	3.647E-01	6.411E-01	6.764E-02	0.617
	+	510.84		5.156E-01	3.358E-01	1.948E-01	1.989E-02	2.647
	+	583.14	*	4.280E-01	7.771E-02	5.361E-02	3.646E-03	7.983
		860.37		3.657E-01	3.555E-01	5.549E-01	4.969E-02	0.659
BI-211		72.87		7.832E+00	3.646E+00	5.638E+00	4.418E-01	1.389
	+	351.07	*	2.975E+00	5.126E-01	3.068E-01	1.959E-02	9.699
PB-212	+	74.81		1.670E+00	5.954E-01	5.534E-01	6.786E-02	3.018
	+	77.11		1.535E+00	3.038E-01	3.149E-01	2.544E-02	4.875
	+	87.30		9.823E-01	4.204E-01	6.317E-01	8.454E-02	1.555
	+	238.63	*	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
	+	300.09		1.661E+00	1.000E+00	1.193E+00	9.851E-02	1.393
PO-212	+	74.81		1.670E+00	5.954E-01	5.534E-01	6.786E-02	3.018
	+	77.11		1.535E+00	3.038E-01	3.149E-01	2.544E-02	4.875
	+	87.30		9.823E-01	4.204E-01	6.317E-01	8.454E-02	1.555
		115.19		-2.582E+00	3.475E+00	5.477E+00	3.487E-01	-0.471
	+	238.63	*	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
	+	300.09		1.661E+00	1.000E+00	1.193E+00	9.851E-02	1.393
BI-214	+	609.31	*	1.067E+00	1.851E-01	1.028E-01	8.085E-03	10.378
	+	1120.29		7.764E-01	5.388E-01	4.591E-01	4.200E-02	1.691
	+	1764.49		1.224E+00	3.867E-01	2.394E-01	1.451E-02	5.111
PB-214	+	74.81		2.878E+00	1.013E+00	9.535E-01	1.035E-01	3.018
	+	77.11		2.632E+00	5.581E-01	5.399E-01	5.995E-02	4.875
	+	87.30		1.683E+00	7.121E-01	1.082E+00	1.274E-01	1.555
	+	241.98		1.929E+00	6.541E-01	5.236E-01	4.176E-02	3.684
	+	295.21		1.190E+00	2.627E-01	1.939E-01	1.655E-02	6.139
	+	351.92	*	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
PO-214	+	74.81		2.878E+00	1.013E+00	9.535E-01	1.035E-01	3.018

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		2.632E+00	5.581E-01	5.399E-01	5.995E-02	4.875
	+	87.30		1.683E+00	7.121E-01	1.082E+00	1.274E-01	1.555
	+	241.98		1.929E+00	6.541E-01	5.236E-01	4.176E-02	3.684
	+	295.21		1.190E+00	2.627E-01	1.939E-01	1.655E-02	6.139
	+	351.92	*	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
	+	74.81		1.670E+00	5.954E-01	5.534E-01	6.786E-02	3.018
	+	77.11		1.535E+00	3.038E-01	3.149E-01	2.544E-02	4.875
	+	87.30		9.823E-01	4.204E-01	6.317E-01	8.454E-02	1.555
PO-218	+	238.63	*	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
	+	300.09		1.661E+00	1.000E+00	1.193E+00	9.851E-02	1.393
	+	74.81		2.878E+00	1.013E+00	9.535E-01	1.035E-01	3.018
	+	77.11		2.632E+00	5.581E-01	5.399E-01	5.995E-02	4.875
	+	87.30		1.683E+00	7.121E-01	1.082E+00	1.274E-01	1.555
	+	241.98		1.929E+00	6.541E-01	5.236E-01	4.176E-02	3.684
	+	295.21		1.190E+00	2.627E-01	1.939E-01	1.655E-02	6.139
	+	351.92	*	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
RA-224	+	240.98	*	3.658E+00	1.223E+00	9.899E-01	5.609E-02	3.695
RA-226	+	609.31	*	1.067E+00	1.851E-01	1.028E-01	8.085E-03	10.378
AC-228	+	1120.29		7.764E-01	5.388E-01	4.591E-01	4.200E-02	1.691
	+	1764.49		1.224E+00	3.867E-01	2.394E-01	1.451E-02	5.111
	+	338.32		1.113E+00	5.974E-01	3.685E-01	1.502E-01	3.020
	+	911.07	*	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402
	+	969.11		1.071E+00	5.008E-01	3.620E-01	8.390E-02	2.960
	+	338.32		1.113E+00	5.974E-01	3.685E-01	1.502E-01	3.020
	+	911.07	*	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402
	+	969.11		1.071E+00	5.008E-01	3.620E-01	8.390E-02	2.960
TH-228	+	74.81		1.702E+00	5.859E-01	5.640E-01	4.522E-02	3.018
TH-230	+	77.11		1.565E+00	3.097E-01	3.210E-01	2.593E-02	4.875
	+	87.30		1.001E+00	4.166E-01	6.438E-01	5.726E-02	1.555
	+	238.63	*	1.437E+00	1.486E-01	8.870E-02	6.402E-03	16.196
	+	300.09		1.693E+00	1.420E+00	1.216E+00	7.165E-01	1.393
	+	609.31	*	1.067E+00	1.851E-01	1.028E-01	8.084E-03	10.378
	+	1120.29		7.764E-01	5.388E-01	4.591E-01	4.200E-02	1.691
	+	1764.49		1.223E+00	3.867E-01	2.394E-01	1.451E-02	5.111
	+	338.32		1.113E+00	3.939E-01	3.685E-01	2.130E-02	3.020
TH-232	+	911.07	*	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402
TH-234	+	969.11		1.071E+00	5.008E-01	3.620E-01	8.390E-02	2.960
U-234	+	63.29	*	1.638E+00	1.982E+00	2.024E+00	3.542E-01	0.809
	+	92.38		2.626E+00	9.414E-01	8.074E-01	1.450E-01	3.253
	+	609.31	*	1.067E+00	1.851E-01	1.028E-01	8.084E-03	10.378
	+	1120.29		7.764E-01	5.388E-01	4.591E-01	4.200E-02	1.691
	+	1764.49		1.223E+00	3.867E-01	2.394E-01	1.451E-02	5.111
	+	86.50	*	6.237E-01	2.897E-01	3.827E-01	8.588E-02	1.630
	+	95.87		-6.243E-01	1.079E+00	1.483E+00	3.619E-01	-0.421
	+	63.29	*	1.638E+00	1.982E+00	2.024E+00	3.542E-01	0.809
U-238	+	92.38		2.626E+00	8.437E-01	8.074E-01	6.743E-02	3.253
AM-243	+	74.67	*	2.708E-01	9.315E-02	8.997E-02	7.136E-03	3.009
	+	86.72		2.339E+01	9.732E+00	1.432E+01	1.266E+00	1.633
	+	117.66		8.468E-01	3.712E+00	6.105E+00	3.793E-01	0.139



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	142.18	*	1.954E+00	1.778E+01	2.897E+01	1.613E+00	0.067
		511.00	*	1.114E-01	7.193E-02	4.209E-02	2.484E-03	2.646

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	4.231E-02	3.384E-01	5.649E-01	3.835E-02	0.075
NA-22		1274.54	*	-4.398E-02	4.136E-02	6.027E-02	4.020E-03	-0.730
NA-24		1368.53	*	2.566E+01	4.136E-02	Half-Life too short		
AL-26		1129.67		-1.090E+00	1.611E+00	2.511E+00	1.549E-01	-0.434
		1808.65	*	2.783E-02	2.594E-02	5.159E-02	3.012E-03	0.539
TI-44		67.85		-5.427E-02	6.195E-02	7.110E-02	5.427E-03	-0.763
	+	78.38	*	2.833E-01	5.607E-02	7.728E-02	6.308E-03	3.666
SC-46		889.25	*	-1.665E-02	4.141E-02	6.404E-02	5.565E-03	-0.260
	+	1120.51		1.374E-01	9.490E-02	1.258E-01	7.937E-03	1.092
V-48		944.10		-3.443E-01	1.010E+00	1.562E+00	1.316E-01	-0.220
		983.50	*	1.419E-02	8.585E-02	1.402E-01	1.127E-02	0.101
		1312.09		5.786E-02	9.851E-02	1.731E-01	1.232E-02	0.334
CR-51		320.08	*	-8.636E-02	3.946E-01	6.538E-01	4.231E-02	-0.132
MN-52		744.21		1.032E-01	3.556E-01	5.945E-01	4.042E-02	0.174
		848.13		-7.470E+00	1.019E+01	1.510E+01	1.228E+00	-0.495
		935.52		4.667E-01	4.540E-01	7.779E-01	6.613E-02	0.600
		1246.25		1.684E+00	1.195E+01	2.012E+01	1.272E+00	0.084
		1333.61		7.245E+00	7.318E+00	1.357E+01	1.000E+00	0.534
		1434.06	*	-4.698E-02	3.234E-01	5.210E-01	3.758E-02	-0.090
MN-54		834.83	*	-5.080E-03	3.789E-02	6.056E-02	4.817E-03	-0.084
CO-56		846.75	*	1.795E-02	3.798E-02	6.433E-02	5.219E-03	0.279
		977.42		1.026E+00	3.346E+00	5.059E+00	4.099E-01	0.203
		1037.82		7.655E-02	3.148E-01	5.394E-01	4.291E-02	0.142
		1175.09		-1.336E+00	2.538E+00	4.045E+00	2.225E-01	-0.330
		1238.25		1.406E-01	9.277E-02	1.712E-01	1.124E-02	0.821
		1360.21		-4.625E-02	1.063E+00	1.751E+00	1.284E-01	-0.026
		1771.40		-5.870E-01	3.232E-01	3.635E-01	2.191E-02	-1.615
CO-57		122.06	*	-5.800E-03	2.565E-02	4.109E-02	2.452E-03	-0.141
		136.48		1.697E-01	2.132E-01	3.571E-01	2.357E-02	0.475
CO-58		810.76	*	-3.223E-02	3.942E-02	5.838E-02	4.474E-03	-0.552
FE-59		142.65		2.383E+00	2.895E+00	4.850E+00	2.697E-01	0.491
		192.34		1.085E+00	1.079E+00	1.748E+00	2.030E-01	0.621
		1099.22	*	-4.352E-02	9.938E-02	1.595E-01	1.197E-02	-0.273
		1291.56		-4.294E-02	1.240E-01	1.978E-01	1.638E-02	-0.217
CO-60		1173.22		-2.469E-02	4.861E-02	7.687E-02	4.213E-03	-0.321
		1332.49	*	1.873E-02	3.613E-02	6.360E-02	4.687E-03	0.294
ZN-65		1115.52	*	-8.937E-02	1.127E-01	1.461E-01	9.339E-03	-0.612
GE-68		1077.35	*	9.157E-01	1.416E+00	2.489E+00	1.722E-01	0.368
AS-73		53.44	*	1.281E-01	7.849E-01	1.305E+00	9.653E-02	0.098
AS-74		595.88	*	2.675E-02	1.010E-01	1.694E-01	1.003E-02	0.158
		634.78		9.730E-02	4.377E-01	7.289E-01	4.284E-02	0.133
SE-75		66.05		-3.309E+00	5.401E+00	7.546E+00	7.243E-01	-0.439

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		96.73		-3.930E-01	8.895E-01	1.242E+00	1.634E-01	-0.316
		121.11		-4.060E-02	1.412E-01	2.257E-01	2.114E-02	-0.180
		136.00		6.245E-03	4.073E-02	6.655E-02	3.833E-03	0.094
		198.60		3.752E-01	1.856E+00	3.013E+00	2.057E-01	0.125
		264.65	*	-6.484E-03	4.761E-02	6.929E-02	4.029E-03	-0.094
		279.53		6.623E-02	1.090E-01	1.887E-01	1.181E-02	0.351
		303.91		2.322E-01	2.321E+00	3.421E+00	3.268E-01	0.068
		400.65		-3.207E-01	2.701E-01	3.835E-01	3.443E-02	-0.836
BR-77	+	87.88		1.498E-03	2.701E-01	Half-Life	too short	
		200.40		-1.863E-04	2.701E-01	Half-Life	too short	
	+	239.00		7.263E-04	2.701E-01	Half-Life	too short	
		249.79		-5.781E-05	2.701E-01	Half-Life	too short	
		281.68		-2.248E-04	2.701E-01	Half-Life	too short	
		297.23		9.631E-04	2.701E-01	Half-Life	too short	
		303.76		8.639E-05	2.701E-01	Half-Life	too short	
		439.47		4.300E-04	2.701E-01	Half-Life	too short	
		484.57		-2.843E-04	2.701E-01	Half-Life	too short	
		520.65	*	5.856E-06	2.701E-01	Half-Life	too short	
		574.64		-2.739E-04	2.701E-01	Half-Life	too short	
		578.91		3.408E-04	2.701E-01	Half-Life	too short	
		585.48		3.330E-03	2.701E-01	Half-Life	too short	
		755.35		-3.849E-05	2.701E-01	Half-Life	too short	
		817.79		-7.260E-05	2.701E-01	Half-Life	too short	
SR-82		698.33		-5.150E+01	3.881E+01	5.592E+01	3.494E+00	-0.921
		776.49	*	-4.453E-01	4.721E-01	7.031E-01	5.063E-02	-0.633
		1395.20		2.265E-01	1.099E+01	1.823E+01	1.328E+00	0.012
RB-83		520.41	*	-3.778E-03	7.088E-02	1.134E-01	6.702E-03	-0.033
		529.64		-6.063E-03	1.015E-01	1.667E-01	9.867E-03	-0.036
		552.65		-4.690E-02	1.859E-01	2.995E-01	1.778E-02	-0.157
RB-84		881.50	*	4.219E-02	7.981E-02	1.351E-01	1.160E-02	0.312
KR-85		513.99	*	1.728E+01	7.740E+00	1.326E+01	7.831E-01	1.302
SR-85		513.99	*	9.238E-02	4.139E-02	7.092E-02	4.188E-03	1.302
RB-86		1076.63	*	9.547E-01	1.043E+00	1.867E+00	1.293E-01	0.511
Y-88		898.02		-2.355E-02	4.598E-02	7.042E-02	6.233E-03	-0.334
		1836.01	*	-9.901E-03	3.124E-02	4.720E-02	2.694E-03	-0.210
ZR-88		392.90	*	6.843E-03	3.156E-02	5.328E-02	2.967E-03	0.128
Y-91		1204.90	*	1.123E+01	1.928E+01	3.369E+01	1.967E+00	0.333
NB-94		702.63	*	-8.919E-04	3.229E-02	5.252E-02	3.308E-03	-0.017
		871.10		-3.473E-02	3.779E-02	4.796E-02	4.049E-03	-0.724
NB-95		765.79	*	3.835E-03	4.757E-02	7.776E-02	5.495E-03	0.049
NB-95M		235.69	*	3.808E-01	1.651E-01	2.578E-01	1.910E-02	1.477
ZR-95		724.18		5.287E-02	1.086E-01	1.615E-01	1.213E-02	0.327
		756.15	*	-2.813E-02	7.278E-02	1.140E-01	9.126E-03	-0.247
NB-97		657.90	*	4.114E+00	7.278E-02	Half-Life	too short	
		1024.50		-2.816E+01	7.278E-02	Half-Life	too short	
ZR-97		254.15		2.982E+00	7.278E-02	Half-Life	too short	
		355.39		1.188E+02	7.278E-02	Half-Life	too short	
		507.63	*	2.470E+02	7.278E-02	Half-Life	too short	
		602.52		-1.169E+02	7.278E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1021.30		-2.186E+01	7.278E-02	Half-Life	too short	
		1147.95		-9.144E+01	7.278E-02	Half-Life	too short	
		1362.66		3.556E+01	7.278E-02	Half-Life	too short	
		1750.46		-1.067E+02	7.278E-02	Half-Life	too short	
MO-99		140.51		-1.249E+02	8.164E+01	1.122E+02	3.018E+01	-1.113
		181.06		1.963E+01	5.124E+01	7.379E+01	1.253E+01	0.266
		366.43		1.612E+01	2.311E+02	3.876E+02	2.207E+01	0.042
		739.58	*	-1.377E+01	3.033E+01	4.711E+01	6.690E+00	-0.292
		778.00		-4.188E+01	9.801E+01	1.530E+02	1.105E+01	-0.274
TC-99M		140.51	*	-4.159E+15	9.801E+01	Half-Life	too short	
RH-101		127.23		1.108E-02	3.679E-02	5.323E-02	3.106E-03	0.208
		198.01	*	6.532E-04	3.332E-02	5.363E-02	2.909E-03	0.012
		325.23		-1.107E-02	2.227E-01	3.724E-01	2.162E-02	-0.030
RH-102		418.52		2.182E-01	2.900E-01	5.039E-01	2.858E-02	0.433
		475.06	*	2.476E-03	2.852E-02	4.751E-02	2.773E-03	0.052
		631.29		-1.150E-03	5.705E-02	9.328E-02	5.487E-03	-0.012
		697.49		-2.878E-02	8.209E-02	1.246E-01	7.772E-03	-0.231
		766.84		-2.874E-02	1.177E-01	1.876E-01	1.328E-02	-0.153
		1046.59		1.112E-01	1.117E-01	2.034E-01	1.489E-02	0.547
		1112.84		1.638E-01	2.488E-01	4.012E-01	2.576E-02	0.408
RU-103		497.08	*	-3.417E-03	3.912E-02	6.421E-02	8.143E-03	-0.053
	+	610.33		1.236E+01	2.704E+00	3.033E+00	4.689E-01	4.076
RH-106		511.85	+	5.605E-01	3.620E-01	4.435E-01	2.618E-02	1.264
		621.84	*	-6.623E-03	2.973E-01	4.862E-01	5.730E-02	-0.014
		1050.47		-7.461E-01	2.193E+00	3.552E+00	2.582E-01	-0.210
RU-106		511.85	+	5.605E-01	3.620E-01	4.435E-01	2.618E-02	1.264
		621.84	*	-6.623E-03	2.973E-01	4.862E-01	2.867E-02	-0.014
		1050.47		-7.461E-01	2.193E+00	3.552E+00	2.582E-01	-0.210
AG-108M		433.93	*	1.297E-02	3.308E-02	5.629E-02	3.506E-03	0.230
		614.37		1.399E-03	4.069E-02	5.797E-02	3.704E-03	0.024
		722.95		-2.258E-02	4.648E-02	6.129E-02	4.278E-03	-0.368
AG-110M		657.75	*	2.535E-02	3.475E-02	5.382E-02	3.339E-03	0.471
		677.61		5.751E-02	3.089E-01	5.123E-01	3.253E-02	0.112
		706.67		-1.845E-01	2.185E-01	3.305E-01	2.203E-02	-0.558
		763.93		4.800E-02	1.770E-01	2.938E-01	2.156E-02	0.163
		884.67		-1.100E-02	5.144E-02	8.122E-02	7.232E-03	-0.135
		937.48		-6.137E-03	1.207E-01	1.933E-01	1.702E-02	-0.032
		1384.27		-2.133E-01	1.656E-01	2.247E-01	1.705E-02	-0.949
IN-111		171.28		-9.638E-01	2.655E+00	4.212E+00	2.211E-01	-0.229
		245.39	*	-2.034E+00	3.280E+00	4.349E+00	2.473E-01	-0.468
IN-113M		391.69	*	-7.577E-03	4.475E-02	7.380E-02	4.403E-03	-0.103
SN-113		391.69	*	-7.577E-03	4.475E-02	7.380E-02	4.403E-03	-0.103
IN-114M		190.27	*	-6.019E-02	2.252E-01	3.110E-01	1.671E-02	-0.194
CD-115		260.90		-1.096E-04	2.252E-01	Half-Life	too short	
		492.35		1.352E-05	2.252E-01	Half-Life	too short	
		527.90	*	-2.625E-05	2.252E-01	Half-Life	too short	
SN-117M		156.02		-1.891E-01	2.884E+00	4.655E+00	2.495E-01	-0.041
		158.56	*	1.800E-02	7.058E-02	1.154E-01	6.142E-03	0.156
SB-122		563.90	*	6.990E+00	6.990E+00	1.092E+01	6.480E-01	0.640

---- 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		1.522E+02	1.183E+02	2.124E+02	1.313E+01	0.716
		159.00	*	3.936E+02	1.183E+02	Half-Life	too short	
		528.96		-3.787E+04	1.183E+02	Half-Life	too short	
TE-123M		159.00	*	1.256E-02	3.022E-02	4.974E-02	2.686E-03	0.253
I-124		602.71	*	2.568E-01	1.360E+00	1.974E+00	1.169E-01	0.130
		722.78		-4.806E+00	9.403E+00	1.235E+01	8.078E-01	-0.389
		1325.50		1.188E+01	5.531E+01	9.433E+01	6.869E+00	0.126
SB-124		1376.25		1.153E+02	5.770E+01	1.151E+02	8.422E+00	1.001
		1509.49		1.302E+01	2.731E+01	4.811E+01	3.384E+00	0.271
		1691.02		-3.085E+00	6.166E+00	8.920E+00	5.705E-01	-0.346
		602.71		8.053E-03	4.266E-02	6.192E-02	3.666E-03	0.130
		645.85		-7.798E-02	4.946E-01	7.980E-01	5.262E-02	-0.098
		709.31		2.722E+00	2.933E+00	5.128E+00	3.271E-01	0.531
		713.82		-6.664E-01	1.848E+00	2.922E+00	3.092E-01	-0.228
		722.78		-2.185E-01	4.275E-01	5.617E-01	3.809E-02	-0.389
	+	968.20		1.155E+01	4.782E+00	6.605E+00	5.413E-01	1.748
		1045.16		2.716E+00	2.443E+00	4.496E+00	3.298E-01	0.604
		1325.50		5.769E-01	2.686E+00	4.580E+00	3.336E-01	0.126
		1368.21		8.320E-01	1.844E+00	3.213E+00	4.077E-01	0.259
SB-125		1436.60		2.246E-01	3.148E+00	5.258E+00	3.790E-01	0.043
		1691.02	*	-3.308E-02	6.613E-02	9.566E-02	6.551E-03	-0.346
		427.89	*	7.251E-04	9.038E-02	1.503E-01	8.946E-03	0.005
	+	463.38		8.647E-01	4.201E-01	5.237E-01	3.546E-02	1.651
		600.56		-4.944E-04	1.798E-01	2.780E-01	1.894E-02	-0.002
TE-125M		635.90		3.186E-02	2.907E-01	4.799E-01	3.290E-02	0.066
		109.28	*	1.287E-01	9.978E+00	1.629E+01	1.442E+00	0.008
I-126		388.63		-2.630E-01	2.507E-01	3.900E-01	2.176E-02	-0.674
		666.33	*	5.343E-02	2.676E-01	3.865E-01	2.271E-02	0.138
		753.82		6.225E-01	1.827E+00	3.057E+00	2.115E-01	0.204
SB-126		223.80		-4.054E+00	5.148E+00	7.911E+00	4.415E-01	-0.512
		278.60		4.245E+00	3.023E+00	5.403E+00	3.128E-01	0.786
		296.50		1.440E+01	2.527E+00	4.095E+00	2.381E-01	3.517
		414.70		-5.246E-02	1.068E-01	1.552E-01	8.777E-03	-0.338
		415.30		-2.033E+00	8.487E+00	1.310E+01	7.411E-01	-0.155
		555.20		-9.881E-02	4.556E+00	7.485E+00	4.442E-01	-0.013
		573.80		-6.873E-02	1.321E+00	1.868E+00	1.109E-01	-0.037
		593.00		-3.666E-02	1.127E+00	1.846E+00	1.094E-01	-0.020
		656.30		-7.765E-01	4.381E+00	6.050E+00	3.530E-01	-0.128
		666.33		2.253E-02	1.129E-01	1.630E-01	9.578E-03	0.138
		675.00		-1.335E-03	2.574E+00	4.204E+00	2.512E-01	0.000
		695.00		9.333E-02	1.037E-01	1.737E-01	1.078E-02	0.537
		697.00		3.764E-04	3.554E-01	5.558E-01	3.463E-02	0.001
		720.50	*	-1.103E-01	2.128E-01	2.800E-01	1.823E-02	-0.394
		856.80		4.659E-01	6.040E-01	9.356E-01	7.717E-02	0.498
		989.30		9.670E-01	1.614E+00	2.747E+00	2.191E-01	0.352
		1034.80		5.792E+00	1.098E+01	1.927E+01	1.438E+00	0.301
		1213.00		3.353E+00	5.804E+00	1.012E+01	6.005E-01	0.331
SB-127		61.10		3.903E+01	1.287E+02	1.889E+02	2.210E+01	0.207
		252.40		-5.868E+00	9.493E+00	1.412E+01	5.913E+00	-0.416

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-6.592E+00	4.692E+01	6.802E+01	7.262E+00	-0.097
	411.60			6.997E+00	2.800E+01	4.134E+01	6.336E+00	0.169
	444.90			-1.796E+01	1.851E+01	2.827E+01	3.415E+00	-0.635
	473.00			-1.890E+00	3.407E+00	5.406E+00	6.736E-01	-0.350
	543.00			-3.590E+00	3.121E+01	5.092E+01	7.166E+00	-0.071
	603.60			1.433E+01	2.474E+01	3.738E+01	4.535E+00	0.383
	685.20	*		2.542E+00	2.626E+00	4.622E+00	5.114E-01	0.550
	698.50			-4.467E+01	3.224E+01	4.505E+01	7.051E+00	-0.992
	722.20			-4.308E+01	6.958E+01	8.995E+01	9.972E+00	-0.479
	783.80			7.214E+00	7.805E+00	1.354E+01	1.729E+00	0.533
XE-127	57.60			2.421E+00	7.059E+00	1.040E+01	7.794E-01	0.233
	145.22			4.734E-01	7.763E-01	1.266E+00	6.987E-02	0.374
	172.10			-4.511E-02	1.271E-01	2.017E-01	1.060E-02	-0.224
	202.84	*		6.121E-03	5.543E-02	8.274E-02	4.514E-03	0.074
	374.96			6.867E-02	2.067E-01	3.518E-01	1.989E-02	0.195
I-131	80.18			2.891E+00	7.171E+00	1.051E+01	8.807E-01	0.275
	284.30			-5.677E-01	2.029E+00	3.366E+00	2.185E-01	-0.169
	364.48	*		5.741E-02	1.616E-01	2.755E-01	1.772E-02	0.208
	636.97			5.909E-01	2.321E+00	3.873E+00	2.557E-01	0.153
	722.89			-5.462E+00	1.104E+01	1.454E+01	9.677E-01	-0.376
TE-132	49.72			-3.913E+01	4.144E+01	6.563E+01	7.208E+00	-0.596
	111.76			-2.471E+01	7.057E+01	1.126E+02	1.197E+01	-0.219
	116.30			-2.988E+01	6.375E+01	1.017E+02	1.062E+01	-0.294
	228.16	*		-3.988E-01	1.766E+00	2.797E+00	4.243E-01	-0.143
BA-133	53.15			1.116E+00	3.242E+00	5.428E+00	4.009E-01	0.206
	79.62			3.636E+00	1.542E+00	2.305E+00	3.461E-01	1.578
	81.00			-8.586E-02	1.123E-01	1.547E-01	2.435E-02	-0.555
	276.40			2.547E-01	3.694E-01	6.251E-01	8.099E-02	0.407
	302.84			1.095E-01	1.564E-01	2.399E-01	2.799E-02	0.457
	356.01	*		4.377E-02	4.653E-02	7.261E-02	8.369E-03	0.603
	383.85			1.070E-01	2.935E-01	4.999E-01	5.384E-02	0.214
I-133	510.53	+		2.772E+01	2.935E-01	Half-Life	too short	
	529.87	*		-1.075E-02	2.935E-01	Half-Life	too short	
	706.58			-9.043E+00	2.935E-01	Half-Life	too short	
	856.28			7.479E+00	2.935E-01	Half-Life	too short	
	875.33			-1.942E-01	2.935E-01	Half-Life	too short	
	1236.41			1.653E+01	2.935E-01	Half-Life	too short	
	1298.22			-6.887E+00	2.935E-01	Half-Life	too short	
CS-134	475.35			4.320E-01	1.877E+00	3.156E+00	1.843E-01	0.137
	563.23			1.186E-01	4.323E-01	6.332E-01	3.834E-02	0.187
	569.32	+		6.396E-01	3.728E-01	4.458E-01	2.721E-02	1.435
	604.70			-1.981E-02	3.514E-02	4.645E-02	2.763E-03	-0.426
	795.84	*		9.372E-02	4.614E-02	8.498E-02	6.390E-03	1.103
	801.93			6.197E-02	4.215E-01	6.646E-01	5.038E-02	0.093
	1038.57			-2.526E+00	3.899E+00	6.134E+00	4.549E-01	-0.412
	1167.94			4.104E-01	2.664E+00	4.498E+00	2.504E-01	0.091
	1365.15			4.042E-01	1.332E+00	2.280E+00	1.776E-01	0.177
CS-135	268.24	*		3.416E-01	1.752E-01	2.870E-01	2.190E-02	1.190
I-135	288.45			8.645E+13	1.752E-01	Half-Life	too short	

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

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		417.63		4.312E+14	1.752E-01	Half-Life	too short	
		546.56		-5.899E+13	1.752E-01	Half-Life	too short	
		836.80		-1.508E+14	1.752E-01	Half-Life	too short	
		1038.76		-2.874E+14	1.752E-01	Half-Life	too short	
		1124.00		8.545E+14	1.752E-01	Half-Life	too short	
		1131.51		-1.702E+14	1.752E-01	Half-Life	too short	
		1260.41	*	3.239E+13	1.752E-01	Half-Life	too short	
		1457.56		8.148E+15	1.752E-01	Half-Life	too short	
		1678.03		-5.682E+13	1.752E-01	Half-Life	too short	
		1706.46		-9.108E+14	1.752E-01	Half-Life	too short	
		1791.20		6.945E+13	1.752E-01	Half-Life	too short	
CS-136		66.91		-1.317E+00	1.081E+00	1.441E+00	2.146E-01	-0.914
	+	86.29		3.421E+00	1.460E+00	2.485E+00	3.225E-01	1.377
		153.22		-2.593E-01	8.347E-01	1.333E+00	9.215E-02	-0.194
		163.89		-8.076E-01	1.404E+00	2.212E+00	1.509E-01	-0.365
		176.55		9.982E-02	4.419E-01	7.205E-01	4.372E-02	0.139
		273.65		-5.868E-01	6.135E-01	8.383E-01	5.534E-02	-0.700
		340.57		3.638E-01	1.735E-01	2.883E-01	1.773E-02	1.262
		818.51		1.548E-03	8.854E-02	1.437E-01	1.114E-02	0.011
		1048.07	*	3.788E-02	1.270E-01	2.187E-01	1.691E-02	0.173
		1235.34		1.005E-02	7.196E-01	1.198E+00	1.225E-01	0.008
CE-139		165.85	*	1.737E-02	3.115E-02	5.153E-02	2.690E-03	0.337
BA-140		162.64		1.769E-01	9.818E-01	1.599E+00	9.678E-02	0.111
		304.84		5.229E-01	1.706E+00	2.546E+00	6.950E-01	0.205
		423.70		-1.916E+00	2.328E+00	3.515E+00	1.117E+00	-0.545
		537.32	*	-2.132E-01	3.057E-01	4.615E-01	1.502E-01	-0.462
LA-140		328.77		6.116E-01	3.655E-01	6.595E-01	4.284E-02	0.927
		432.53		2.277E+00	2.495E+00	4.382E+00	2.776E-01	0.520
		487.03		1.107E-01	1.604E-01	2.784E-01	1.843E-02	0.398
		751.79		1.863E+00	2.054E+00	3.599E+00	2.885E-01	0.518
		815.85		-1.017E-01	3.829E-01	6.031E-01	5.309E-02	-0.169
		867.82		1.660E+00	1.839E+00	2.893E+00	2.564E-01	0.574
		919.63		9.162E-01	3.873E+00	5.567E+00	5.935E-01	0.165
		925.24		-6.005E-01	1.333E+00	2.035E+00	1.859E-01	-0.295
		1596.49	*	-1.588E-02	9.762E-02	1.559E-01	1.055E-02	-0.102
CE-141		145.44	*	1.269E-02	7.137E-02	1.144E-01	6.589E-03	0.111
CE-143		57.37		1.528E-03	7.137E-02	Half-Life	too short	
		231.56		-3.974E-03	7.137E-02	Half-Life	too short	
		293.26	*	6.646E-03	7.137E-02	Half-Life	too short	
	+	350.59		1.770E-01	7.137E-02	Half-Life	too short	
		490.36		-1.602E-02	7.137E-02	Half-Life	too short	
		664.57		6.725E-03	7.137E-02	Half-Life	too short	
		721.93		-7.790E-03	7.137E-02	Half-Life	too short	
CE-144		80.11		1.221E+00	2.371E+00	3.489E+00	2.891E-01	0.350
		133.54	*	-1.114E-01	2.397E-01	3.304E-01	4.681E-02	-0.337
PM-144		476.78		-8.220E-03	6.728E-02	1.104E-01	7.707E-03	-0.074
		618.01		-1.211E-02	3.213E-02	4.773E-02	2.982E-03	-0.254
		696.49	*	1.191E-02	3.618E-02	5.804E-02	3.617E-03	0.205
		778.57		-4.261E-01	2.407E+00	3.846E+00	2.782E-01	-0.111

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PR-144	696.49	*		8.085E-01	2.457E+00	3.941E+00	2.454E-01	0.205
	1489.15			2.662E+00	9.486E+00	1.641E+01	1.163E+00	0.162
PM-146	453.90	*		1.637E-02	4.181E-02	6.949E-02	5.984E-03	0.236
	633.02			-2.832E-01	1.467E+00	2.359E+00	8.691E-01	-0.120
	735.90			-3.933E-02	1.486E-01	2.283E-01	6.411E-02	-0.172
	747.13			-1.001E-01	8.898E-02	1.271E-01	1.655E-02	-0.787
ND-147	91.11	+		7.441E-01	4.083E-01	6.846E-01	6.324E-02	1.087
	319.41			-1.676E+00	4.093E+00	6.706E+00	3.900E-01	-0.250
	439.89			5.449E+00	7.164E+00	1.249E+01	7.177E-01	0.436
	531.02	*		3.161E-01	6.764E-01	1.154E+00	1.566E-01	0.274
PM-149	285.90	*		2.193E-04	6.764E-01	Half-Life	too short	
EU-152	121.78			-2.938E-02	7.400E-02	1.176E-01	9.107E-03	-0.250
	244.69			-6.507E-02	3.695E-01	5.079E-01	2.886E-02	-0.128
	344.27	*		-3.009E-02	1.190E-01	1.474E-01	9.594E-03	-0.204
	443.98			-6.861E-01	8.896E-01	1.392E+00	8.010E-02	-0.493
	778.89			7.229E-02	2.716E-01	4.510E-01	3.261E-02	0.160
	867.32			6.297E-01	9.006E-01	1.380E+00	1.158E-01	0.456
	964.01	+		5.975E-01	2.771E-01	5.407E-01	4.454E-02	1.105
	1085.78			-2.138E-02	3.975E-01	6.617E-01	4.503E-02	-0.032
	1112.02			2.849E-01	3.407E-01	5.743E-01	3.694E-02	0.496
	1407.95			-2.145E-02	1.941E-01	3.164E-01	2.298E-02	-0.068
GD-153	69.67			4.727E-03	1.840E+00	2.656E+00	2.044E-01	0.002
	83.37			-9.658E+00	1.735E+01	2.423E+01	2.070E+00	-0.399
	97.43	*		2.907E-02	8.793E-02	1.282E-01	9.972E-03	0.227
	103.18			-2.174E-02	1.101E-01	1.785E-01	1.292E-02	-0.122
EU-154	123.07			-9.505E-03	5.374E-02	8.331E-02	7.904E-03	-0.114
	247.94			2.816E-01	3.913E-01	6.034E-01	5.719E-02	0.467
	591.81			-4.573E-02	5.834E-01	9.517E-01	9.374E-02	-0.048
	723.30			-7.635E-02	1.934E-01	2.582E-01	1.989E-02	-0.296
	756.87			-3.604E-01	7.663E-01	1.190E+00	1.290E-01	-0.303
	873.19			1.692E-03	2.815E-01	4.548E-01	5.521E-02	0.004
	996.32			1.422E-01	3.739E-01	6.220E-01	1.084E-01	0.229
	1004.76			-1.156E-01	2.062E-01	3.273E-01	3.618E-02	-0.353
	1274.45	*		-7.420E-02	1.113E-01	1.703E-01	1.686E-02	-0.436
EU-155	48.70			-3.517E-01	2.177E+00	3.579E+00	2.510E-01	-0.098
	60.01			2.137E+00	5.373E+00	7.927E+00	5.964E-01	0.270
	86.54	+		2.562E-01	1.066E-01	1.846E-01	1.645E-02	1.388
	105.31	*		9.815E-03	1.100E-01	1.802E-01	1.296E-02	0.054
TB-160	86.79	+		7.099E-01	2.954E-01	5.066E-01	4.481E-02	1.401
	197.04			-2.136E-01	6.015E-01	9.516E-01	5.156E-02	-0.224
	215.65			4.914E-01	9.113E-01	1.321E+00	7.310E-02	0.372
	298.57			4.234E-01	1.437E-01	2.054E-01	1.194E-02	2.062
	879.36	*		7.090E-03	1.573E-01	2.549E-01	2.181E-02	0.028
	962.29			7.653E-01	6.071E-01	9.741E-01	8.039E-02	0.786
	966.15	+		4.261E-01	1.976E-01	4.558E-01	3.745E-02	0.935
	1177.93			-2.306E-02	3.919E-01	6.499E-01	3.596E-02	-0.035
	1271.85			-1.731E-01	6.794E-01	1.096E+00	7.265E-02	-0.158
HO-166M	80.57			-2.070E-01	3.075E-01	4.280E-01	3.561E-02	-0.484
	184.41	+		1.108E-01	4.881E-02	6.761E-02	3.607E-03	1.639

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		280.46		-1.181E-02	8.362E-02	1.398E-01	8.100E-03	-0.084
		410.95		1.286E-01	2.843E-01	4.265E-01	2.407E-02	0.302
		711.68	*	1.585E-02	6.355E-02	1.056E-01	6.765E-03	0.150
		752.31		1.912E-01	2.666E-01	4.605E-01	3.177E-02	0.415
		810.29		-3.578E-02	5.419E-02	8.146E-02	6.218E-03	-0.439
TM-171		51.35		-3.037E+01	2.782E+01	4.383E+01	3.196E+00	-0.693
		52.39		-2.927E+00	1.433E+01	2.349E+01	1.727E+00	-0.125
		59.40		2.597E+01	2.890E+01	4.360E+01	3.280E+00	0.596
		66.72	*	-3.644E+01	3.135E+01	4.248E+01	3.229E+00	-0.858
LU-176	+	88.36		5.037E-01	2.096E-01	3.676E-01	3.274E-02	1.370
		201.83		2.943E-03	2.943E-02	4.752E-02	2.590E-03	0.062
		306.84	*	-3.491E-03	2.458E-02	3.990E-02	2.321E-03	-0.088
		401.10		-2.915E+00	7.002E+00	1.023E+01	5.733E-01	-0.285
LU-177		112.95		-8.534E-01	2.451E+00	3.910E+00	2.546E-01	-0.218
	+	208.36	*	3.105E+00	2.796E+00	2.912E+00	1.599E-01	1.066
LU-177M		52.97		4.593E-01	1.490E+00	2.491E+00	1.838E-01	0.184
		54.07		1.616E-01	7.999E-01	1.332E+00	9.876E-02	0.121
		61.30		9.336E-01	1.663E+00	2.469E+00	1.857E-01	0.378
		121.62		-1.132E-01	3.874E-01	6.190E-01	3.700E-02	-0.183
		147.16		-6.636E-01	6.854E-01	1.064E+00	5.840E-02	-0.624
		171.86		-2.462E-01	4.849E-01	7.637E-01	4.012E-02	-0.322
		218.09		-9.237E-02	8.991E-01	1.435E+00	7.962E-02	-0.064
	+	268.79		2.183E+00	1.023E+00	1.526E+00	8.802E-02	1.430
		319.02		-4.986E-02	2.490E-01	4.129E-01	2.399E-02	-0.121
		367.43		-1.572E-02	9.224E-01	1.539E+00	8.751E-02	-0.010
		413.65	*	4.587E-02	1.972E-01	2.910E-01	1.645E-02	0.158
HF-181		56.28		-7.154E-02	9.866E-01	1.569E+00	1.172E-01	-0.046
		57.53		1.728E-01	5.867E-01	8.627E-01	6.462E-02	0.200
		65.20		9.490E-01	1.099E+00	1.645E+00	1.245E-01	0.577
		133.02		-8.173E-02	8.267E-02	1.104E-01	6.318E-03	-0.740
		136.25		1.305E-01	4.978E-01	8.170E-01	4.628E-02	0.160
		345.85		-4.928E-02	2.152E-01	3.070E-01	1.769E-02	-0.161
		482.03	*	-3.556E-02	4.558E-02	7.114E-02	4.163E-03	-0.500
W-181		56.28		-1.636E-01	3.759E-01	5.888E-01	4.397E-02	-0.278
		57.53		6.456E-02	2.203E-01	3.239E-01	2.426E-02	0.199
		65.20	*	3.535E-01	4.093E-01	6.127E-01	4.637E-02	0.577
TA-182		67.75		-1.160E-01	1.358E-01	1.738E-01	1.326E-02	-0.668
		100.10		1.534E-01	1.907E-01	3.107E-01	2.335E-02	0.494
		152.43		-1.636E-01	3.580E-01	5.683E-01	3.076E-02	-0.288
		222.10		-1.109E-01	3.574E-01	5.639E-01	3.141E-02	-0.197
		1001.68		4.711E-01	1.988E+00	3.384E+00	2.655E-01	0.139
	+	1121.28		3.761E-01	2.598E-01	3.458E-01	2.177E-02	1.087
		1189.05		4.064E-02	3.124E-01	5.265E-01	2.979E-02	0.077
		1221.42	*	-6.913E-02	1.905E-01	3.064E-01	1.848E-02	-0.226
		1230.97		1.854E-01	4.807E-01	8.249E-01	5.065E-02	0.225
RE-183		57.98		2.151E-02	2.282E-01	3.322E-01	2.491E-02	0.065
		59.32		1.131E-01	1.233E-01	1.861E-01	1.400E-02	0.608
		67.20		-2.435E-01	2.313E-01	3.156E-01	2.403E-02	-0.772
		162.32	*	3.338E-02	1.196E-01	1.957E-01	1.031E-02	0.171



---- 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		1.922E+00	1.731E+00	1.800E+00	9.889E-02	1.067
		291.72		3.619E-01	1.039E+00	1.561E+00	9.067E-02	0.232
		57.98		7.744E-02	8.216E-01	1.196E+00	8.967E-02	0.065
		59.32		4.069E-01	4.436E-01	6.697E-01	5.037E-02	0.608
		67.20		-8.765E-01	8.323E-01	1.136E+00	8.650E-02	-0.772
		161.27		1.394E-01	3.803E-01	6.242E-01	3.298E-02	0.223
		216.55		2.379E-01	3.003E-01	4.647E-01	2.574E-02	0.512
	*	252.85		-1.407E-01	2.431E-01	3.754E-01	2.146E-02	-0.375
		318.01		-1.230E-01	4.350E-01	7.182E-01	4.174E-02	-0.171
		792.07		5.222E-01	1.099E+00	1.634E+00	1.209E-01	0.320
OS-185		903.28		3.137E-01	1.111E+00	1.739E+00	1.525E-01	0.180
		920.93		-1.073E-01	4.923E-01	6.951E-01	5.996E-02	-0.154
		59.72		2.470E-01	3.248E-01	4.871E-01	3.665E-02	0.507
		61.14		6.639E-02	1.839E-01	2.706E-01	2.036E-02	0.245
		69.30		-5.782E-02	3.595E-01	4.788E-01	3.678E-02	-0.121
		592.07		-3.458E-02	2.464E+00	4.041E+00	2.395E-01	-0.009
	*	646.12		2.168E-03	4.023E-02	6.614E-02	3.874E-03	0.033
		717.42		3.399E-01	9.345E-01	1.568E+00	1.015E-01	0.217
		874.81		-2.515E-01	6.060E-01	9.362E-01	7.949E-02	-0.269
		880.27		6.970E-01	8.627E-01	1.492E+00	1.278E-01	0.467
RE-188	*	155.03		8.931E-02	1.803E-01	2.978E-01	1.600E-02	0.300
		477.96		1.041E+00	3.219E+00	5.444E+00	3.181E-01	0.191
		633.10		-5.198E-01	3.079E+00	4.975E+00	2.925E-01	-0.104
W-188	+	63.58		6.853E+01	8.219E+01	8.976E+01	6.769E+00	0.764
		227.08		2.607E+00	1.414E+01	2.285E+01	1.279E+00	0.114
IR-192	*	290.67		-2.107E+00	8.263E+00	1.187E+01	6.897E-01	-0.177
	+	295.96		9.422E-01	1.996E-01	2.683E-01	1.584E-02	3.512
		308.46		-1.763E-02	9.757E-02	1.623E-01	9.545E-03	-0.109
	*	316.51		-2.857E-02	3.467E-02	5.541E-02	3.238E-03	-0.516
		468.07		2.264E-02	6.768E-02	1.051E-01	7.049E-03	0.215
AU-195		604.41		5.938E-02	4.654E-01	6.712E-01	7.658E-02	0.088
		612.46		1.587E+00	9.089E-01	1.486E+00	1.138E-01	1.068
		65.12		1.785E-01	1.887E-01	2.834E-01	2.144E-02	0.630
		66.83		-1.230E-01	1.047E-01	1.418E-01	1.079E-02	-0.867
	+	75.70		8.895E-01	3.061E-01	4.483E-01	3.582E-02	1.984
	*	98.88		1.712E-01	2.617E-01	3.875E-01	2.957E-02	0.442
TL-200	+	129.76		2.658E+00	3.744E+00	4.928E+00	2.850E-01	0.539
	*	367.94		-5.349E-04	3.744E+00	Half-Life	too short	
		579.30		6.182E-02	3.744E+00	Half-Life	too short	
		828.27		-5.082E-03	3.744E+00	Half-Life	too short	
TL-201		1205.75		2.476E-02	3.744E+00	Half-Life	too short	
		68.90		-4.537E+00	1.393E+01	1.838E+01	1.409E+00	-0.247
		70.82		7.680E+00	7.327E+00	1.104E+01	8.547E-01	0.696
		80.30		2.864E+00	1.367E+01	1.986E+01	1.649E+00	0.144
		135.34		5.994E+00	6.673E+01	1.050E+02	5.966E+00	0.057
TL-202	*	167.43		4.511E-01	1.775E+01	2.870E+01	1.500E+00	0.016
		68.90		-2.060E-01	6.323E-01	8.344E-01	6.398E-02	-0.247
		70.82		3.477E-01	3.317E-01	4.999E-01	3.870E-02	0.696
		80.30		1.297E-01	6.191E-01	8.995E-01	7.466E-02	0.144

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	8.137E-02	8.234E-02	1.455E-01	8.356E-03	0.559
		70.83		1.475E+00	1.218E+00	1.833E+00	2.395E-01	0.805
		72.87		1.653E+00	7.872E-01	1.190E+00	1.512E-01	1.389
		82.60		-4.007E-01	1.592E+00	1.895E+00	2.587E-01	-0.212
BI-207		279.20	*	4.377E-02	4.244E-02	7.477E-02	4.598E-03	0.585
		72.80		4.771E-01	2.101E-01	3.263E-01	2.556E-02	1.462
	+	74.97		4.861E-01	1.672E-01	2.256E-01	1.793E-02	2.155
		84.90		2.327E-01	2.172E-01	3.248E-01	2.818E-02	0.716
TL-207		569.67		7.636E-02	3.969E-02	6.709E-02	3.982E-03	1.138
		1063.62	*	1.277E-02	5.340E-02	9.130E-02	6.483E-03	0.140
		1770.23		1.248E-01	4.162E-01	6.411E-01	3.867E-02	0.195
		81.07		-1.835E-01	2.466E-01	3.418E-01	2.857E-02	-0.537
PO-209		83.78		-9.435E-02	1.452E-01	2.018E-01	1.731E-02	-0.468
		94.90		5.533E-01	2.663E-01	4.141E-01	3.333E-02	1.336
		122.32		-6.511E-01	1.776E+00	2.828E+00	1.932E-01	-0.230
		144.24		6.549E-01	6.985E-01	1.152E+00	8.091E-02	0.568
BI-210		154.21		3.804E-03	4.005E-01	6.486E-01	4.329E-02	0.006
	+	269.46		5.023E-01	2.356E-01	3.557E-01	2.146E-02	1.412
		323.87	*	-8.665E-01	6.932E-01	1.061E+00	1.752E-01	-0.817
	+	338.28		4.648E+00	1.695E+00	2.302E+00	2.422E-01	2.019
PB-210		445.03		-1.331E+00	2.031E+00	3.195E+00	3.273E-01	-0.417
		260.50		-1.683E+00	9.433E+00	1.489E+01	8.550E-01	-0.113
		262.80		-1.466E+01	2.596E+01	3.996E+01	2.297E+00	-0.367
		896.60	*	2.479E-01	8.087E+00	1.308E+01	1.150E+00	0.019
PO-210		46.50	*	2.973E+00	3.196E+00	5.394E+00	4.111E-01	0.551
PB-211		46.50	*	2.973E+00	3.196E+00	5.394E+00	4.111E-01	0.551
BI-212		46.50	*	2.973E+00	3.194E+00	5.394E+00	3.515E-01	0.551
		404.84	*	3.668E-01	1.081E+00	1.574E+00	9.810E-01	0.233
		427.08		7.711E-02	1.951E+00	3.250E+00	2.009E+00	0.024
		831.96		5.502E-01	1.226E+00	1.989E+00	1.244E+00	0.277
PO-215		727.18	*	1.254E+00	4.174E-01	6.102E-01	5.080E-02	2.054
		785.46		1.376E+00	1.817E+00	3.131E+00	2.290E-01	0.440
		1620.62		6.703E-01	1.129E+00	2.034E+00	1.358E-01	0.330
		81.07		-1.835E-01	2.466E-01	3.418E-01	2.857E-02	-0.537
RN-219		83.78		-9.435E-02	1.452E-01	2.018E-01	1.731E-02	-0.468
		94.90		5.533E-01	2.663E-01	4.141E-01	3.333E-02	1.336
		122.32		-6.511E-01	1.776E+00	2.828E+00	1.932E-01	-0.230
		144.24		6.549E-01	6.985E-01	1.152E+00	8.091E-02	0.568
RA-223		154.21		3.804E-03	4.005E-01	6.486E-01	4.329E-02	0.006
	+	269.46		5.023E-01	2.356E-01	3.557E-01	2.146E-02	1.412
		323.87	*	-8.665E-01	6.932E-01	1.061E+00	1.752E-01	-0.817
	+	338.28		4.648E+00	1.695E+00	2.302E+00	2.422E-01	2.019
RN-220		445.03		-1.331E+00	2.031E+00	3.195E+00	3.273E-01	-0.417
	+	271.23		6.445E-01	3.043E-01	4.524E-01	3.658E-02	1.425
		401.81	*	1.941E-01	4.366E-01	6.568E-01	8.883E-02	0.296
		549.76	*	2.146E+00	2.399E+01	3.980E+01	2.361E+00	0.054
RA-223		81.07		-1.835E-01	2.466E-01	3.418E-01	2.857E-02	-0.537
		83.78		-9.435E-02	1.452E-01	2.018E-01	1.731E-02	-0.468
		94.90		5.533E-01	2.663E-01	4.141E-01	3.333E-02	1.336

---- 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		-6.511E-01	1.776E+00	2.828E+00	1.932E-01	-0.230
		144.24		6.549E-01	6.985E-01	1.152E+00	8.091E-02	0.568
		154.21		3.804E-03	4.005E-01	6.486E-01	4.329E-02	0.006
	+	269.46		5.023E-01	2.356E-01	3.557E-01	2.146E-02	1.412
		323.87	*	-8.665E-01	6.932E-01	1.061E+00	1.752E-01	-0.817
	+	338.28		4.648E+00	1.695E+00	2.302E+00	2.422E-01	2.019
		445.03		-1.331E+00	2.031E+00	3.195E+00	3.273E-01	-0.417
		79.80		3.332E+00	1.926E+00	2.793E+00	5.968E-01	1.193
		236.00		1.671E+00	3.644E-01	5.623E-01	5.829E-02	2.971
		256.20	*	6.013E-02	3.795E-01	6.111E-01	8.513E-02	0.098
		286.10		1.133E+00	1.446E+00	2.521E+00	2.915E-01	0.449
	+	299.80		3.078E+00	1.904E+00	2.583E+00	4.208E-01	1.192
TH-227		304.40		9.479E-02	2.018E+00	2.963E+00	5.128E-01	0.032
		334.20		3.906E-01	2.577E+00	3.799E+00	6.964E-01	0.103
		79.80		3.332E+00	1.929E+00	2.793E+00	6.045E-01	1.193
	+	94.00		1.015E+01	3.841E+00	3.851E+00	8.317E-01	2.636
		236.00		1.671E+00	3.538E-01	5.623E-01	5.036E-02	2.971
		256.20	*	6.013E-02	3.795E-01	6.111E-01	1.031E-01	0.098
		286.10		1.133E+00	1.833E+00	2.521E+00	2.525E+00	0.449
	+	299.80		3.078E+00	1.904E+00	2.583E+00	4.208E-01	1.192
		304.40		9.479E-02	2.018E+00	2.963E+00	5.128E-01	0.032
		334.20		3.906E-01	2.577E+00	3.799E+00	6.964E-01	0.103
		85.43		3.537E-01	2.168E-01	3.296E-01	2.875E-02	1.073
	+	88.47		2.900E-01	1.207E-01	2.109E-01	1.875E-02	1.375
PA-231		100.00		1.643E-01	1.936E-01	3.159E-01	2.377E-02	0.520
		193.63	*	1.447E-01	5.432E-01	8.793E-01	4.745E-02	0.165
	+	210.97		1.446E+00	1.303E+00	1.339E+00	7.372E-02	1.080
		283.67	*	-1.702E+00	1.514E+00	2.370E+00	3.266E-01	-0.718
TH-231	+	301.29		1.231E+00	7.458E-01	1.053E+00	1.102E-01	1.169
		81.07		-1.835E-01	2.466E-01	3.418E-01	2.857E-02	-0.537
		83.78		-9.435E-02	1.452E-01	2.018E-01	1.731E-02	-0.468
		94.90		5.533E-01	2.663E-01	4.141E-01	3.333E-02	1.336
U-231		122.32		-6.511E-01	1.776E+00	2.828E+00	1.932E-01	-0.230
		144.24		6.549E-01	6.985E-01	1.152E+00	8.091E-02	0.568
		154.21		3.804E-03	4.005E-01	6.486E-01	4.329E-02	0.006
	+	269.46		5.023E-01	2.356E-01	3.557E-01	2.146E-02	1.412
		323.87	*	-8.665E-01	6.932E-01	1.061E+00	1.752E-01	-0.817
	+	338.28		4.648E+00	1.695E+00	2.302E+00	2.422E-01	2.019
		445.03		-1.331E+00	2.031E+00	3.195E+00	3.273E-01	-0.417
		84.21		-5.469E+00	1.221E+01	1.714E+01	1.477E+00	-0.319
	+	92.29		1.939E+01	6.228E+00	7.791E+00	6.515E-01	2.489
		95.87	*	-1.368E+00	2.344E+00	3.250E+00	2.582E-01	-0.421
		108.00		7.746E-02	4.085E+00	6.671E+00	4.576E-01	0.012
	+	75.28		1.418E+01	5.201E+00	6.879E+00	1.031E+00	2.062
PA-233	+	86.59		4.158E+00	2.027E+00	2.990E+00	8.040E-01	1.390
	+	300.12		8.581E-01	5.248E-01	7.248E-01	9.744E-02	1.184
		311.98	*	1.783E-02	6.238E-02	1.063E-01	6.563E-03	0.168
		340.50		1.574E+00	7.728E-01	1.156E+00	2.653E-01	1.362
		398.62		-1.770E+00	2.019E+00	3.080E+00	7.950E-01	-0.575

Sample ID : G245101002

Acquisition date : 1-FEB-2010 14:45:04

## ---- 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		-2.576E-01	1.725E+00	2.766E+00	5.683E-01	-0.093
		63.00		1.910E+00	2.304E+00	2.571E+00	3.837E-01	0.743
		94.67		5.931E-01	2.017E-01	3.098E-01	3.728E-02	1.914
		98.44		9.625E-02	1.156E-01	1.542E-01	8.579E-02	0.624
		99.86		4.504E-01	5.109E-01	8.028E-01	6.052E-02	0.561
		111.00		1.730E-01	1.850E-01	3.114E-01	3.353E-02	0.556
		131.20		6.111E-02	1.188E-01	1.738E-01	1.001E-02	0.352
		152.70		-6.104E-02	3.322E-01	5.335E-01	8.359E-02	-0.114
		186.00		3.990E+00	2.126E+00	2.462E+00	7.503E-01	1.621
		226.40		2.388E-01	4.147E-01	6.819E-01	7.814E-02	0.350
		227.20		5.210E-02	4.615E-01	7.433E-01	4.162E-02	0.070
		248.90		6.007E-01	8.297E-01	1.363E+00	2.924E-01	0.441
		293.70		5.713E+00	1.482E+00	1.664E+00	2.677E-01	3.433
		369.80		1.739E-02	8.434E-01	1.410E+00	2.932E-01	0.012
		568.70		3.232E+00	1.883E+00	2.326E+00	1.381E-01	1.389
		569.50		8.814E-01	5.136E-01	6.052E-01	3.592E-02	1.456
		574.00		-1.465E-01	1.512E+00	2.126E+00	1.262E-01	-0.069
		699.00		-1.092E+00	7.435E-01	1.014E+00	1.838E-01	-1.077
		706.10		-8.410E-01	1.112E+00	1.591E+00	7.034E-01	-0.529
		733.00		2.467E-01	3.681E-01	5.617E-01	1.208E-01	0.439
		742.81		7.180E-02	1.247E+00	2.038E+00	1.366E+00	0.035
		796.30		1.815E+00	1.007E+00	1.659E+00	4.430E-01	1.094
		805.60		6.720E-01	9.785E-01	1.654E+00	5.023E-01	0.406
		819.60		-9.533E-02	1.171E+00	1.880E+00	7.115E-01	-0.051
		826.30		-7.874E-01	8.824E-01	1.179E+00	5.257E-01	-0.668
		831.60		2.780E-01	6.142E-01	1.028E+00	3.046E-01	0.271
		876.40		4.317E-01	9.564E-01	1.436E+00	1.476E+00	0.301
		880.51		2.559E-01	2.987E-01	5.188E-01	4.446E-02	0.493
		883.24		4.393E-02	3.030E-01	4.935E-01	3.317E-01	0.089
		899.00		-3.220E-02	9.097E-01	1.462E+00	6.397E-01	-0.022
		925.00		-4.755E-01	1.118E+00	1.713E+00	1.472E-01	-0.278
		926.50		-9.072E-02	1.910E-01	2.602E-01	6.573E-02	-0.349
		946.00	*	-4.705E-02	2.868E-01	4.528E-01	8.452E-02	-0.104
		949.00		2.305E-01	4.291E-01	7.285E-01	6.104E-02	0.316
		980.50		-3.901E-01	7.359E-01	1.112E+00	8.975E-02	-0.351
		1394.10		-2.624E-01	1.057E+00	1.659E+00	1.077E+00	-0.158
PA-234M	+	766.42		-2.443E+00	1.231E+01	1.958E+01	9.887E+00	-0.125
		1001.03	*	-1.893E-01	4.504E+00	7.482E+00	6.965E-01	-0.025
U-235	+	89.95		2.303E+00	1.433E+00	1.936E+00	5.977E-01	1.189
		93.35		3.158E+00	1.318E+00	1.231E+00	3.435E-01	2.566
		105.00		1.517E-01	1.088E+00	1.784E+00	5.252E-01	0.085
		143.76	*	2.029E-01	2.145E-01	3.507E-01	5.687E-02	0.578
		163.35		-6.996E-03	4.955E-01	8.005E-01	1.426E-01	-0.009
NP-236	+	185.71		1.478E-01	6.508E-02	9.134E-02	4.881E-03	1.618
		205.31		-5.356E-02	5.965E-01	8.312E-01	1.486E-01	-0.064
		94.67		4.522E-01	1.478E-01	2.352E-01	1.900E-02	1.922
		98.44		7.275E-02	7.763E-02	1.165E-01	8.944E-03	0.624
		111.00		1.308E-01	1.395E-01	2.355E-01	1.565E-02	0.556
		160.31	*	-2.345E-02	8.455E-02	1.351E-01	7.157E-03	-0.174

---- 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		1.746E-01	1.691E-01	2.674E-01	2.024E-02	0.653
		117.00	*	-3.514E-02	1.884E-01	3.044E-01	1.904E-02	-0.115
	+	209.75		1.457E+00	1.312E+00	1.362E+00	7.489E-02	1.070
		228.18		-5.489E-02	2.467E-01	3.910E-01	2.191E-02	-0.140
		277.60		1.977E-01	1.756E-01	3.105E-01	1.797E-02	0.637
		334.30		2.359E-01	1.461E+00	2.155E+00	1.248E-01	0.109
AM-241		59.54	*	1.398E-01	1.668E-01	2.510E-01	2.066E-02	0.557
CM-243		99.55		1.797E-01	1.741E-01	2.753E-01	2.083E-02	0.653
		103.76	*	-2.644E-02	9.991E-02	1.615E-01	1.161E-02	-0.164
		117.00		-3.616E-02	1.938E-01	3.133E-01	1.959E-02	-0.115
	+	209.75		1.437E+00	1.294E+00	1.343E+00	7.385E-02	1.070
		228.18		-5.548E-02	2.494E-01	3.952E-01	2.215E-02	-0.140
		277.60		1.994E-01	1.770E-01	3.131E-01	1.812E-02	0.637
AM-246		798.80		-1.091E-01	1.640E-01	2.086E-01	1.561E-02	-0.523
		1036.00		3.298E-01	2.777E-01	5.153E-01	3.838E-02	0.640
		1062.04		-7.303E-02	2.382E-01	3.880E-01	2.763E-02	-0.188
		1078.86	*	2.952E-02	1.623E-01	2.756E-01	1.901E-02	0.107
CM-247		278.00		9.702E-01	7.270E-01	1.296E+00	7.503E-02	0.748
		287.40		8.666E-01	1.251E+00	2.006E+00	1.164E-01	0.432
		402.60	*	1.958E-02	3.952E-02	5.976E-02	3.352E-03	0.328
CF-249		252.85		-5.193E-01	8.975E-01	1.386E+00	7.921E-02	-0.375
		333.44		-8.723E-02	1.953E-01	2.749E-01	1.592E-02	-0.317
		387.95	*	-2.804E-02	3.947E-02	6.287E-02	3.511E-03	-0.446
CF-251		176.60	*	2.015E-02	1.239E-01	2.014E-01	1.064E-02	0.100
		227.00		6.492E-02	4.071E-01	6.573E-01	3.679E-02	0.099
		285.00		2.967E-01	1.668E+00	2.833E+00	1.643E-01	0.105

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101002      *
* Acquisition date   : 1-FEB-2010 14:45:04 Detector SN#      :              *
* Detector ID        : GAM19                      Sensitivity   : 5.000        *
* Geometry           : CAN                        Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.42             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101002             Analyst initials: MXR1          *
* Batch Number       : 944037                  Sample Quantity : 1.2860E+02 GRAM   *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                                         *
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope      :                *
* MSD DPM             : 0.000                      MSD Isotope :                *
* LCS DPM             : 0.000                      LCS Isotope  :                *
* LCSD DPM            : 0.000                      LCSD Isotope :                *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.631E+01	2.532E+00	5.303E-01	0.000E+00
CD-109	2.174E+00	8.864E-01	1.306E+00	0.000E+00
SN-126	2.124E-01	8.661E-02	1.282E-01	0.000E+00
BA-137M	1.434E-01	6.046E-02	6.259E-02	0.000E+00
CS-137	1.516E-01	6.391E-02	6.617E-02	0.000E+00
TL-208	4.280E-01	7.616E-02	5.441E-02	0.000E+00
BI-211	2.975E+00	5.024E-01	3.138E-01	0.000E+00
PB-212	1.410E+00	1.429E-01	8.955E-02	0.000E+00
PO-212	1.410E+00	1.429E-01	8.955E-02	0.000E+00
BI-214	1.067E+00	1.814E-01	1.043E-01	0.000E+00
PB-214	1.035E+00	1.826E-01	1.094E-01	0.000E+00
PO-214	1.035E+00	1.826E-01	1.094E-01	0.000E+00
PO-216	1.410E+00	1.429E-01	8.955E-02	0.000E+00
PO-218	1.035E+00	1.826E-01	1.094E-01	0.000E+00
RA-224	3.658E+00	1.199E+00	1.018E+00	0.000E+00
RA-226	1.067E+00	1.814E-01	1.043E-01	0.000E+00
AC-228	1.125E+00	3.594E-01	2.100E-01	0.000E+00
RA-228	1.125E+00	3.594E-01	2.100E-01	0.000E+00
TH-228	1.437E+00	1.457E-01	9.127E-02	0.000E+00
TH-230	1.067E+00	1.814E-01	1.043E-01	0.000E+00
TH-232	1.125E+00	3.594E-01	2.100E-01	0.000E+00
TH-234	1.638E+00	1.942E+00	2.125E+00	0.000E+00
U-234	1.067E+00	1.814E-01	1.043E-01	0.000E+00
NP-237	6.237E-01	2.839E-01	3.998E-01	0.000E+00
U-238	1.638E+00	1.942E+00	2.125E+00	0.000E+00
AM-243	2.708E-01	9.129E-02	9.420E-02	0.000E+00
ANH-511	1.114E-01	7.049E-02	4.281E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	4.231E-02	3.316E-01	5.751E-01	0.000E+00	NOT IDENT.
NA-22	-4.398E-02	4.053E-02	6.041E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.096E+07	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.783E-02	2.542E-02	5.142E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.495E-02	8.085E-02	0.000E+00	FAIL ABUN
SC-46	-1.665E-02	4.059E-02	6.457E-02	0.000E+00	FAIL ABUN
V-48	1.419E-02	8.413E-02	1.411E-01	0.000E+00	NOT IDENT.
CR-51	-8.636E-02	3.867E-01	6.698E-01	0.000E+00	NOT IDENT.
MN-52	-4.698E-02	3.169E-01	5.213E-01	0.000E+00	NOT IDENT.
MN-54	-5.080E-03	3.713E-02	6.112E-02	0.000E+00	NOT IDENT.
CO-56	1.795E-02	3.722E-02	6.490E-02	0.000E+00	NOT IDENT.
CO-57	-5.800E-03	2.514E-02	4.271E-02	0.000E+00	NOT IDENT.
CO-58	-3.223E-02	3.864E-02	5.894E-02	0.000E+00	NOT IDENT.
FE-59	-4.352E-02	9.739E-02	1.603E-01	0.000E+00	NOT IDENT.
CO-60	1.873E-02	3.541E-02	6.371E-02	0.000E+00	NOT IDENT.
ZN-65	-8.937E-02	1.104E-01	1.467E-01	0.000E+00	NOT IDENT.
GE-68	9.157E-01	1.387E+00	2.501E+00	0.000E+00	NOT IDENT.
AS-73	1.281E-01	7.692E-01	1.373E+00	0.000E+00	NOT IDENT.
AS-74	2.675E-02	9.901E-02	1.718E-01	0.000E+00	NOT IDENT.
SE-75	-6.484E-03	4.666E-02	7.119E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	3.130E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-4.453E-01	4.627E-01	7.104E-01	0.000E+00	NOT IDENT.
RB-83	-3.778E-03	6.947E-02	1.153E-01	0.000E+00	NOT IDENT.
RB-84	4.219E-02	7.821E-02	1.362E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.585E+00	1.349E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.056E-02	7.212E-02	0.000E+00	NOT IDENT.
RB-86	9.547E-01	1.023E+00	1.876E+00	0.000E+00	NOT IDENT.
Y-88	-9.901E-03	3.062E-02	4.704E-02	0.000E+00	NOT IDENT.
ZR-88	6.843E-03	3.093E-02	5.441E-02	0.000E+00	NOT IDENT.
Y-91	1.123E+01	1.889E+01	3.380E+01	0.000E+00	NOT IDENT.
NB-94	-8.919E-04	3.164E-02	5.315E-02	0.000E+00	NOT IDENT.
NB-95	3.835E-03	4.662E-02	7.858E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.618E-01	2.653E-01	0.000E+00	NOT IDENT.
ZR-95	-2.813E-02	7.133E-02	1.152E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	4.849E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.048E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.377E+01	2.973E+01	4.763E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.830E+21	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.532E-04	3.265E-02	5.534E-02	0.000E+00	NOT IDENT.
RH-102	2.476E-03	2.795E-02	4.837E-02	0.000E+00	NOT IDENT.
RU-103	-3.417E-03	3.834E-02	6.533E-02	0.000E+00	FAIL ABUN
RH-106	-6.623E-03	2.913E-01	4.930E-01	0.000E+00	FAIL ABUN
RU-106	-6.623E-03	2.913E-01	4.930E-01	0.000E+00	FAIL ABUN
AG-108M	1.297E-02	3.242E-02	5.739E-02	0.000E+00	NOT IDENT.
AG-110M	2.535E-02	3.405E-02	5.452E-02	0.000E+00	NOT IDENT.
IN-111	-2.034E+00	3.215E+00	4.474E+00	0.000E+00	NOT IDENT.
IN-113M	-7.577E-03	4.385E-02	7.536E-02	0.000E+00	NOT IDENT.
SN-113	-7.577E-03	4.385E-02	7.536E-02	0.000E+00	NOT IDENT.
IN-114M	-6.019E-02	2.207E-01	3.211E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	3.530E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	1.800E-02	6.917E-02	1.195E-01	0.000E+00	NOT IDENT.
SB-122	6.990E+00	6.850E+00	1.108E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	9.278E+08	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.256E-02	2.962E-02	5.149E-02	0.000E+00	NOT IDENT.
I-124	2.568E-01	1.333E+00	2.003E+00	0.000E+00	NOT IDENT.
SB-124	-3.308E-02	6.480E-02	9.545E-02	0.000E+00	FAIL ABUN
SB-125	7.251E-04	8.857E-02	1.532E-01	0.000E+00	FAIL ABUN
TE-125M	1.287E-01	9.779E+00	1.696E+01	0.000E+00	NOT IDENT.
I-126	5.343E-02	2.622E-01	3.915E-01	0.000E+00	NOT IDENT.
SB-126	-1.103E-01	2.086E-01	2.833E-01	0.000E+00	NOT IDENT.
SB-127	2.542E+00	2.573E+00	4.680E+00	0.000E+00	NOT IDENT.
XE-127	6.121E-03	5.432E-02	8.535E-02	0.000E+00	NOT IDENT.
I-131	5.741E-02	1.584E-01	2.817E-01	0.000E+00	NOT IDENT.
TE-132	-3.988E-01	1.731E+00	2.880E+00	0.000E+00	NOT IDENT.
BA-133	4.377E-02	4.560E-02	7.426E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.348E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	4.522E-02	8.583E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.717E-01	2.948E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.380E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.788E-02	1.244E-01	2.199E-01	0.000E+00	FAIL ABUN
CE-139	1.737E-02	3.052E-02	5.331E-02	0.000E+00	NOT IDENT.
BA-140	-2.132E-01	2.995E-01	4.690E-01	0.000E+00	NOT IDENT.
LA-140	-1.588E-02	9.567E-02	1.557E-01	0.000E+00	NOT IDENT.
CE-141	1.269E-02	6.995E-02	1.186E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.956E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.114E-01	2.349E-01	3.430E-01	0.000E+00	NOT IDENT.
PM-144	1.191E-02	3.546E-02	5.874E-02	0.000E+00	NOT IDENT.
PR-144	8.085E-01	2.408E+00	3.989E+00	0.000E+00	NOT IDENT.

PM-146	1.637E-02	4.097E-02	7.080E-02	0.000E+00	NOT IDENT.
ND-147	3.161E-01	6.629E-01	1.173E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	2.954E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-3.009E-02	1.167E-01	1.508E-01	0.000E+00	FAIL ABUN
GD-153	2.907E-02	8.617E-02	1.337E-01	0.000E+00	NOT IDENT.
EU-154	-7.420E-02	1.091E-01	1.708E-01	0.000E+00	NOT IDENT.
EU-155	9.815E-03	1.078E-01	1.877E-01	0.000E+00	FAIL ABUN
TB-160	7.090E-03	1.541E-01	2.571E-01	0.000E+00	FAIL ABUN
HO-166M	1.585E-02	6.228E-02	1.069E-01	0.000E+00	FAIL ABUN
TM-171	-3.644E+01	3.072E+01	4.455E+01	0.000E+00	NOT IDENT.
LU-176	-3.491E-03	2.409E-02	4.089E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.740E+00	3.002E+00	0.000E+00	FAIL ABUN
LU-177M	4.587E-02	1.932E-01	2.969E-01	0.000E+00	FAIL ABUN
HF-181	-3.556E-02	4.467E-02	7.242E-02	0.000E+00	NOT IDENT.
W-181	3.535E-01	4.011E-01	6.428E-01	0.000E+00	NOT IDENT.
TA-182	-6.913E-02	1.867E-01	3.074E-01	0.000E+00	FAIL ABUN
RE-183	3.338E-02	1.172E-01	2.025E-01	0.000E+00	FAIL ABUN
RE-184	-1.407E-01	2.383E-01	3.860E-01	0.000E+00	NOT IDENT.
OS-185	2.168E-03	3.943E-02	6.702E-02	0.000E+00	NOT IDENT.
RE-188	8.931E-02	1.766E-01	3.084E-01	0.000E+00	NOT IDENT.
W-188	-2.107E+00	8.098E+00	1.218E+01	0.000E+00	FAIL ABUN
IR-192	-2.857E-02	3.397E-02	5.677E-02	0.000E+00	FAIL ABUN
AU-195	1.712E-01	2.565E-01	4.040E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	5.760E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	4.511E-01	1.739E+01	2.969E+01	0.000E+00	NOT IDENT.
TL-202	8.137E-02	8.069E-02	1.483E-01	0.000E+00	NOT IDENT.
HG-203	4.377E-02	4.159E-02	7.675E-02	0.000E+00	NOT IDENT.
BI-207	1.277E-02	5.233E-02	9.179E-02	0.000E+00	FAIL ABUN
TL-207	-8.665E-01	6.793E-01	1.087E+00	0.000E+00	FAIL ABUN
PO-209	2.479E-01	7.926E+00	1.319E+01	0.000E+00	NOT IDENT.
BI-210	2.973E+00	3.132E+00	5.686E+00	0.000E+00	NOT IDENT.
PB-210	2.973E+00	3.132E+00	5.686E+00	0.000E+00	NOT IDENT.
PO-210	2.973E+00	3.130E+00	5.686E+00	0.000E+00	NOT IDENT.
PB-211	3.668E-01	1.059E+00	1.607E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.090E-01	6.171E-01	0.000E+00	FAIL ABUN
PO-215	-8.665E-01	6.793E-01	1.087E+00	0.000E+00	FAIL ABUN
RN-219	1.941E-01	4.279E-01	6.704E-01	0.000E+00	FAIL ABUN
RN-220	2.146E+00	2.351E+01	4.043E+01	0.000E+00	NOT IDENT.
RA-223	-8.665E-01	6.793E-01	1.087E+00	0.000E+00	FAIL ABUN
AC-227	6.013E-02	3.719E-01	6.281E-01	0.000E+00	FAIL ABUN
TH-227	6.013E-02	3.719E-01	6.281E-01	0.000E+00	FAIL ABUN
TH-229	1.447E-01	5.324E-01	9.076E-01	0.000E+00	FAIL ABUN
PA-231	-1.702E+00	1.483E+00	2.432E+00	0.000E+00	FAIL ABUN
TH-231	-8.665E-01	6.793E-01	1.087E+00	0.000E+00	FAIL ABUN
U-231	-1.368E+00	2.297E+00	3.390E+00	0.000E+00	FAIL ABUN
PA-233	1.783E-02	6.114E-02	1.089E-01	0.000E+00	FAIL ABUN
PA-234	-4.705E-02	2.810E-01	4.560E-01	0.000E+00	FAIL ABUN
PA-234M	-1.893E-01	4.414E+00	7.529E+00	0.000E+00	NOT IDENT.
U-235	2.029E-01	2.102E-01	3.636E-01	0.000E+00	FAIL ABUN
NP-236	-2.345E-02	8.286E-02	1.399E-01	0.000E+00	NOT IDENT.
NP-239	-3.514E-02	1.846E-01	3.166E-01	0.000E+00	FAIL ABUN
AM-241	1.398E-01	1.635E-01	2.636E-01	0.000E+00	NOT IDENT.
CM-243	-2.644E-02	9.791E-02	1.682E-01	0.000E+00	FAIL ABUN
AM-246	2.952E-02	1.591E-01	2.770E-01	0.000E+00	NOT IDENT.
CM-247	1.958E-02	3.873E-02	6.100E-02	0.000E+00	NOT IDENT.
CF-249	-2.804E-02	3.868E-02	6.421E-02	0.000E+00	NOT IDENT.
CF-251	2.015E-02	1.214E-01	2.082E-01	0.000E+00	NOT IDENT.



```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101002.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 1-FEB-2010 14:45:04.
Sample ID          : G245101002      Sample quantity   : 1.28600E+02 GRAM
Detector name      : GAM19            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.42  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity      : 5.00000
Batch ID           : 944037           Detector SN#     :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1124	10.67*	1.168E+00	2.631E+01	2.631E+01	9.82
CD-109	88.03	164	3.72*	6.101E+00	2.112E+00	2.174E+00	41.61
SN-126	64.28	78	9.60	3.649E+00	6.485E-01	6.485E-01	120.58
	86.94	164	8.90	6.101E+00	8.829E-01	8.829E-01	58.03
	87.57	164	37.00*	6.101E+00	2.124E-01	2.124E-01	41.61
BA-137M	661.65	102	89.98*	2.301E+00	1.433E-01	1.434E-01	43.01
CS-137	661.65	102	85.12*	2.301E+00	1.515E-01	1.516E-01	43.01
TL-208	277.35	-----	6.80	4.511E+00	-----	Line Not Found	-----
	510.84	108	21.60	2.842E+00	5.156E-01	5.156E-01	65.12
	583.14	315	84.20*	2.555E+00	4.280E-01	4.280E-01	18.16
	860.37	-----	12.46	1.837E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	4.857E+00	-----	Line Not Found	-----
	351.07	500	12.94*	3.788E+00	2.975E+00	2.975E+00	17.23
PB-212	74.81	311	10.70	5.073E+00	1.670E+00	1.670E+00	35.65
	77.11	502	18.00	5.307E+00	1.535E+00	1.535E+00	19.79
	87.30	164	8.00	6.101E+00	9.823E-01	9.823E-01	42.80
	238.63	1081	44.60*	5.018E+00	1.410E+00	1.410E+00	10.35
	300.09	83	3.41	4.260E+00	1.661E+00	1.661E+00	60.23
PO-212	74.81	311	10.70	5.073E+00	1.670E+00	1.670E+00	35.65
	77.11	502	18.00	5.307E+00	1.535E+00	1.535E+00	19.79
	87.30	164	8.00	6.101E+00	9.823E-01	9.823E-01	42.80
	115.19	-----	0.60	6.866E+00	-----	Line Not Found	-----
	238.63	1081	44.60*	5.018E+00	1.410E+00	1.410E+00	10.35
	300.09	83	3.41	4.260E+00	1.661E+00	1.661E+00	60.23
BI-214	609.31	417	46.30*	2.464E+00	1.067E+00	1.067E+00	17.35
	1120.29	58	15.10	1.455E+00	7.764E-01	7.764E-01	69.40
	1764.49	68	15.80	1.030E+00	1.223E+00	1.224E+00	31.61
PB-214	74.81	311	6.21	5.073E+00	2.878E+00	2.878E+00	35.19
	77.11	502	10.50	5.307E+00	2.632E+00	2.632E+00	21.21
	87.30	164	4.67	6.101E+00	1.683E+00	1.683E+00	42.32
	241.98	246	7.49	4.976E+00	1.929E+00	1.929E+00	33.91
	295.21	338	19.20	4.317E+00	1.190E+00	1.190E+00	22.07

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	500	37.20*	3.788E+00	1.035E+00	1.035E+00	18.00
	74.81	311	6.21	5.073E+00	2.878E+00	2.878E+00	35.19
	77.11	502	10.50	5.307E+00	2.632E+00	2.632E+00	21.21
	87.30	164	4.67	6.101E+00	1.683E+00	1.683E+00	42.32
	241.98	246	7.49	4.976E+00	1.929E+00	1.929E+00	33.91
PO-216	295.21	338	19.20	4.317E+00	1.190E+00	1.190E+00	22.07
	351.92	500	37.20*	3.788E+00	1.035E+00	1.035E+00	18.00
	74.81	311	10.70	5.073E+00	1.670E+00	1.670E+00	35.65
	77.11	502	18.00	5.307E+00	1.535E+00	1.535E+00	19.79
	87.30	164	8.00	6.101E+00	9.823E-01	9.823E-01	42.80
PO-218	238.63	1081	44.60*	5.018E+00	1.410E+00	1.410E+00	10.35
	300.09	83	3.41	4.260E+00	1.661E+00	1.661E+00	60.23
	74.81	311	6.21	5.073E+00	2.878E+00	2.878E+00	35.19
	77.11	502	10.50	5.307E+00	2.632E+00	2.632E+00	21.21
	87.30	164	4.67	6.101E+00	1.683E+00	1.683E+00	42.32
RA-224	241.98	246	7.49	4.976E+00	1.929E+00	1.929E+00	33.91
	295.21	338	19.20	4.317E+00	1.190E+00	1.190E+00	22.07
	351.92	500	37.20*	3.788E+00	1.035E+00	1.035E+00	18.00
	240.98	246	3.95*	4.976E+00	3.658E+00	3.658E+00	33.44
	609.31	417	46.30*	2.464E+00	1.067E+00	1.067E+00	17.35
RA-226	1120.29	58	15.10	1.455E+00	7.764E-01	7.764E-01	69.40
	1764.49	68	15.80	1.030E+00	1.223E+00	1.224E+00	31.61
	338.32	170	11.40	3.900E+00	1.113E+00	1.113E+00	53.67
	911.07	186	27.70*	1.745E+00	1.125E+00	1.125E+00	32.58
	969.11	101	16.60	1.653E+00	1.071E+00	1.071E+00	46.75
RA-228	338.32	170	11.40	3.900E+00	1.113E+00	1.113E+00	53.67
	911.07	186	27.70*	1.745E+00	1.125E+00	1.125E+00	32.58
	969.11	101	16.60	1.653E+00	1.071E+00	1.071E+00	46.75
	74.81	311	10.70	5.073E+00	1.670E+00	1.702E+00	34.42
	77.11	502	18.00	5.307E+00	1.535E+00	1.565E+00	19.79
TH-228	87.30	164	8.00	6.101E+00	9.823E-01	1.001E+00	41.61
	238.63	1081	44.60*	5.018E+00	1.410E+00	1.437E+00	10.35
	300.09	83	3.41	4.260E+00	1.661E+00	1.693E+00	83.86
	609.31	417	46.30*	2.464E+00	1.067E+00	1.067E+00	17.35
	1120.29	58	15.10	1.455E+00	7.764E-01	7.764E-01	69.40
TH-230	1764.49	68	15.80	1.030E+00	1.223E+00	1.223E+00	31.61
	338.32	170	11.40	3.900E+00	1.113E+00	1.113E+00	35.39
	911.07	186	27.70*	1.745E+00	1.125E+00	1.125E+00	32.58
	969.11	101	16.60	1.653E+00	1.071E+00	1.071E+00	46.75
	63.29	78	3.80*	3.649E+00	1.638E+00	1.638E+00	120.97
TH-234	92.38	311	5.41	6.393E+00	2.626E+00	2.626E+00	35.84
	609.31	417	46.30*	2.464E+00	1.067E+00	1.067E+00	17.35
	1120.29	58	15.10	1.455E+00	7.764E-01	7.764E-01	69.40
	1764.49	68	15.80	1.030E+00	1.223E+00	1.223E+00	31.61
	86.50	164	12.60*	6.101E+00	6.237E-01	6.237E-01	46.45
NP-237	95.87	-----	2.60	6.515E+00	-----	Line Not Found	-----
	63.29	78	3.80*	3.649E+00	1.638E+00	1.638E+00	120.97
	92.38	311	5.41	6.393E+00	2.626E+00	2.626E+00	32.12
	74.67	311	66.00*	5.073E+00	2.707E-01	2.708E-01	34.41

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	164	0.34	6.101E+00	2.339E+01	2.339E+01	41.61
	117.66	-----	0.55	6.871E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.659E+00	-----	Line Not Found	-----
ANH-511	511.00	108	100.00*	2.842E+00	1.114E-01	1.114E-01	64.59

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G245101002

Page : 4  
Acquisition date : 1-FEB-2010 14:45:04

Total number of lines in spectrum 32  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 30 93.75%

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	2.631E+01	2.631E+01	0.258E+01	9.82	
CD-109	464.00D	1.03	2.112E+00	2.174E+00	0.905E+00	41.61	
SN-126	1.00E+05Y	1.00	2.124E-01	2.124E-01	0.884E-01	41.61	
BA-137M	30.17Y	1.00	1.433E-01	1.434E-01	0.617E-01	43.01	
CS-137	30.17Y	1.00	1.515E-01	1.516E-01	0.652E-01	43.01	
TL-208	1.41E+10Y	1.00	4.280E-01	4.280E-01	0.777E-01	18.16	
BI-211	7.04E+08Y	1.00	2.975E+00	2.975E+00	0.513E+00	17.23	
PB-212	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.146E+00	10.35	
PO-212	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.146E+00	10.35	
BI-214	1600.00Y	1.00	1.067E+00	1.067E+00	0.185E+00	17.35	
PB-214	1600.00Y	1.00	1.035E+00	1.035E+00	0.186E+00	18.00	
PO-214	1600.00Y	1.00	1.035E+00	1.035E+00	0.186E+00	18.00	
PO-216	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.146E+00	10.35	
PO-218	1600.00Y	1.00	1.035E+00	1.035E+00	0.186E+00	18.00	
RA-224	1.41E+10Y	1.00	3.658E+00	3.658E+00	1.223E+00	33.44	
RA-226	1600.00Y	1.00	1.067E+00	1.067E+00	0.185E+00	17.35	
AC-228	1.41E+10Y	1.00	1.125E+00	1.125E+00	0.367E+00	32.58	
RA-228	1.41E+10Y	1.00	1.125E+00	1.125E+00	0.367E+00	32.58	
TH-228	1.91Y	1.02	1.410E+00	1.437E+00	0.149E+00	10.35	
TH-230	4.47E+09Y	1.00	1.067E+00	1.067E+00	0.185E+00	17.35	
TH-232	1.41E+10Y	1.00	1.125E+00	1.125E+00	0.367E+00	32.58	
TH-234	4.47E+09Y	1.00	1.638E+00	1.638E+00	1.982E+00	120.97	
U-234	4.47E+09Y	1.00	1.067E+00	1.067E+00	0.185E+00	17.35	
NP-237	2.14E+06Y	1.00	6.237E-01	6.237E-01	2.897E-01	46.45	
U-238	4.47E+09Y	1.00	1.638E+00	1.638E+00	1.982E+00	120.97	
AM-243	7380.00Y	1.00	2.707E-01	2.708E-01	0.932E-01	34.41	
ANH-511	1.00E+09Y	1.00	1.114E-01	1.114E-01	0.719E-01	64.59	
Total Activity :			5.666E+01	5.674E+01			

Grand Total Activity : 5.666E+01 5.674E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	89.99	133	378	1.32	179.79	171	22	1.85E-02	54.1	6.25E+00	T
0	129.17	47	317	1.05	258.11	254	9	6.49E-03	****	6.82E+00	T
0	185.89	161	274	1.51	371.45	367	10	2.23E-02	43.7	5.88E+00	T
0	209.51	88	352	1.14	418.65	413	13	1.23E-02	89.9	5.47E+00	T
0	270.09	108	159	1.43	539.74	535	9	1.49E-02	46.5	4.60E+00	T
0	408.58	44	161	4.48	816.55	809	13	6.06E-03	****	3.38E+00	
0	462.10	93	102	1.29	923.55	917	12	1.29E-02	48.1	3.08E+00	T
0	568.08	87	114	2.25	1135.42	1128	13	1.20E-02	58.0	2.61E+00	T
0	727.84	108	38	2.37	1454.85	1447	15	1.49E-02	32.2	2.12E+00	T
0	794.89	48	26	1.40	1588.92	1585	9	6.63E-03	48.7	1.97E+00	T
0	862.16	26	94	1.48	1723.45	1718	16	3.55E-03	****	1.83E+00	
3	964.80	49	31	1.79	1928.72	1925	21	6.78E-03	45.6	1.66E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101002.CNF;1
* Acquisition date   : 1-FEB-2010 14:45:04.  Detector SN#      :
* Detector ID        : GAM19                      Sensitivity    : 5.00000
* Geometry           : CAN                          Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:01.42              Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101002           Analyst initials: MXR1
* Batch Number       : 944037               Sample Quantity : 1.28600E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID             :                      MSD Isotope      :
* LCS ID             : 1032-A               LCS Isotope      :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.631E+01	2.584E+00	5.301E-01	3.948E-02	49.621
CD-109	2.174E+00	9.045E-01	1.251E+00	1.120E-01	1.738
SN-126	2.124E-01	8.837E-02	1.227E-01	1.095E-02	1.730
BA-137M	1.434E-01	6.169E-02	6.180E-02	3.598E-03	2.321
CS-137	1.516E-01	6.522E-02	6.532E-02	3.820E-03	2.321
TL-208	4.280E-01	7.771E-02	5.361E-02	3.646E-03	7.983
BI-211	2.975E+00	5.126E-01	3.068E-01	1.959E-02	9.699
PB-212	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
PO-212	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
BI-214	1.067E+00	1.851E-01	1.028E-01	8.085E-03	10.378
PB-214	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
PO-214	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
PO-216	1.410E+00	1.458E-01	8.703E-02	6.281E-03	16.196
PO-218	1.035E+00	1.863E-01	1.069E-01	8.815E-03	9.680
RA-224	3.658E+00	1.223E+00	9.899E-01	5.609E-02	3.695
RA-226	1.067E+00	1.851E-01	1.028E-01	8.085E-03	10.378
AC-228	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402
RA-228	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.437E+00	1.486E-01	8.870E-02	6.402E-03	16.196
TH-230	1.067E+00	1.851E-01	1.028E-01	8.084E-03	10.378
TH-232	1.125E+00	3.667E-01	2.084E-01	2.357E-02	5.402
TH-234	1.638E+00	1.982E+00	2.024E+00	3.542E-01	0.809
U-234	1.067E+00	1.851E-01	1.028E-01	8.084E-03	10.378
NP-237	6.237E-01	2.897E-01	3.827E-01	8.588E-02	1.630
U-238	1.638E+00	1.982E+00	2.024E+00	3.542E-01	0.809
AM-243	2.708E-01	9.315E-02	8.997E-02	7.136E-03	3.009
ANH-511	1.114E-01	7.193E-02	4.209E-02	2.484E-03	2.646

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.231E-02		3.384E-01	5.649E-01	3.835E-02	0.075
NA-22	-4.398E-02		4.136E-02	6.027E-02	4.020E-03	-0.730
NA-24	2.566E+01		3.110E+01	Half-Life	too short	
AL-26	2.783E-02		2.594E-02	5.159E-02	3.012E-03	0.539
TI-44	2.833E-01	+	5.607E-02	7.728E-02	6.308E-03	3.666
SC-46	-1.665E-02		4.141E-02	6.404E-02	5.565E-03	-0.260
V-48	1.419E-02		8.585E-02	1.402E-01	1.127E-02	0.101
CR-51	-8.636E-02		3.946E-01	6.538E-01	4.231E-02	-0.132
MN-52	-4.698E-02		3.234E-01	5.210E-01	3.758E-02	-0.090
MN-54	-5.080E-03		3.789E-02	6.056E-02	4.817E-03	-0.084
CO-56	1.795E-02		3.798E-02	6.433E-02	5.219E-03	0.279
CO-57	-5.800E-03		2.565E-02	4.109E-02	2.452E-03	-0.141
CO-58	-3.223E-02		3.942E-02	5.838E-02	4.474E-03	-0.552
FE-59	-4.352E-02		9.938E-02	1.595E-01	1.197E-02	-0.273
CO-60	1.873E-02		3.613E-02	6.360E-02	4.687E-03	0.294
ZN-65	-8.937E-02		1.127E-01	1.461E-01	9.339E-03	-0.612
GE-68	9.157E-01		1.416E+00	2.489E+00	1.722E-01	0.368
AS-73	1.281E-01		7.849E-01	1.305E+00	9.653E-02	0.098
AS-74	2.675E-02		1.010E-01	1.694E-01	1.003E-02	0.158
SE-75	-6.484E-03		4.761E-02	6.929E-02	4.029E-03	-0.094
BR-77	5.856E-06		1.597E-05	Half-Life	too short	
SR-82	-4.453E-01		4.721E-01	7.031E-01	5.063E-02	-0.633
RB-83	-3.778E-03		7.088E-02	1.134E-01	6.702E-03	-0.033
RB-84	4.219E-02		7.981E-02	1.351E-01	1.160E-02	0.312
KR-85	1.728E+01		7.740E+00	1.326E+01	7.831E-01	1.302
SR-85	9.238E-02		4.139E-02	7.092E-02	4.188E-03	1.302
RB-86	9.547E-01		1.043E+00	1.867E+00	1.293E-01	0.511
Y-88	-9.901E-03		3.124E-02	4.720E-02	2.694E-03	-0.210
ZR-88	6.843E-03		3.156E-02	5.328E-02	2.967E-03	0.128
Y-91	1.123E+01		1.928E+01	3.369E+01	1.967E+00	0.333
NB-94	-8.919E-04		3.229E-02	5.252E-02	3.308E-03	-0.017
NB-95	3.835E-03		4.757E-02	7.776E-02	5.495E-03	0.049
NB-95M	3.808E-01		1.651E-01	2.578E-01	1.910E-02	1.477
ZR-95	-2.813E-02		7.278E-02	1.140E-01	9.126E-03	-0.247

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	4.114E+00		2.474E+00	Half-Life too short		
ZR-97	2.470E+02		5.347E+01	Half-Life too short		
MO-99	-1.377E+01		3.033E+01	4.711E+01	6.690E+00	-0.292
TC-99M	-4.159E+15		1.444E+15	Half-Life too short		
RH-101	6.532E-04		3.332E-02	5.363E-02	2.909E-03	0.012
RH-102	2.476E-03		2.852E-02	4.751E-02	2.773E-03	0.052
RU-103	-3.417E-03		3.912E-02	6.421E-02	8.143E-03	-0.053
RH-106	-6.623E-03		2.973E-01	4.862E-01	5.730E-02	-0.014
RU-106	-6.623E-03		2.973E-01	4.862E-01	2.867E-02	-0.014
AG-108M	1.297E-02		3.308E-02	5.629E-02	3.506E-03	0.230
AG-110M	2.535E-02		3.475E-02	5.382E-02	3.339E-03	0.471
IN-111	-2.034E+00		3.280E+00	4.349E+00	2.473E-01	-0.468
IN-113M	-7.577E-03		4.475E-02	7.380E-02	4.403E-03	-0.103
SN-113	-7.577E-03		4.475E-02	7.380E-02	4.403E-03	-0.103
IN-114M	-6.019E-02		2.252E-01	3.110E-01	1.671E-02	-0.194
CD-115	-2.625E-05		1.801E-05	Half-Life too short		
SN-117M	1.800E-02		7.058E-02	1.154E-01	6.142E-03	0.156
SB-122	6.990E+00		6.990E+00	1.092E+01	6.480E-01	0.640
I-123	3.936E+02		4.734E+02	Half-Life too short		
TE-123M	1.256E-02		3.022E-02	4.974E-02	2.686E-03	0.253
I-124	2.568E-01		1.360E+00	1.974E+00	1.169E-01	0.130
SB-124	-3.308E-02		6.613E-02	9.566E-02	6.551E-03	-0.346
SB-125	7.251E-04		9.038E-02	1.503E-01	8.946E-03	0.005
TE-125M	1.287E-01		9.978E+00	1.629E+01	1.442E+00	0.008
I-126	5.343E-02		2.676E-01	3.865E-01	2.271E-02	0.138
SB-126	-1.103E-01		2.128E-01	2.800E-01	1.823E-02	-0.394
SB-127	2.542E+00		2.626E+00	4.622E+00	5.114E-01	0.550
XE-127	6.121E-03		5.543E-02	8.274E-02	4.514E-03	0.074
I-131	5.741E-02		1.616E-01	2.755E-01	1.772E-02	0.208
TE-132	-3.988E-01		1.766E+00	2.797E+00	4.243E-01	-0.143
BA-133	4.377E-02		4.653E-02	7.261E-02	8.369E-03	0.603
I-133	-1.075E-02		6.878E-02	Half-Life too short		
CS-134	9.372E-02	+	4.614E-02	8.498E-02	6.390E-03	1.103
CS-135	3.416E-01		1.752E-01	2.870E-01	2.190E-02	1.190
I-135	3.239E+13		7.043E+13	Half-Life too short		
CS-136	3.788E-02		1.270E-01	2.187E-01	1.691E-02	0.173
CE-139	1.737E-02		3.115E-02	5.153E-02	2.690E-03	0.337
BA-140	-2.132E-01		3.057E-01	4.615E-01	1.502E-01	-0.462
LA-140	-1.588E-02		9.762E-02	1.559E-01	1.055E-02	-0.102
CE-141	1.269E-02		7.137E-02	1.144E-01	6.589E-03	0.111
CE-143	6.646E-03		9.979E-04	Half-Life too short		
CE-144	-1.114E-01		2.397E-01	3.304E-01	4.681E-02	-0.337
PM-144	1.191E-02		3.618E-02	5.804E-02	3.617E-03	0.205
PR-144	8.085E-01		2.457E+00	3.941E+00	2.454E-01	0.205
PM-146	1.637E-02		4.181E-02	6.949E-02	5.984E-03	0.236
ND-147	3.161E-01		6.764E-01	1.154E+00	1.566E-01	0.274
PM-149	2.193E-04		1.507E-04	Half-Life too short		
EU-152	-3.009E-02		1.190E-01	1.474E-01	9.594E-03	-0.204



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	2.907E-02		8.793E-02	1.282E-01	9.972E-03	0.227
EU-154	-7.420E-02		1.113E-01	1.703E-01	1.686E-02	-0.436
EU-155	9.815E-03		1.100E-01	1.802E-01	1.296E-02	0.054
TB-160	7.090E-03		1.573E-01	2.549E-01	2.181E-02	0.028
HO-166M	1.585E-02		6.355E-02	1.056E-01	6.765E-03	0.150
TM-171	-3.644E+01		3.135E+01	4.248E+01	3.229E+00	-0.858
LU-176	-3.491E-03		2.458E-02	3.990E-02	2.321E-03	-0.088
LU-177	3.105E+00	+	2.796E+00	2.912E+00	1.599E-01	1.066
LU-177M	4.587E-02		1.972E-01	2.910E-01	1.645E-02	0.158
HF-181	-3.556E-02		4.558E-02	7.114E-02	4.163E-03	-0.500
W-181	3.535E-01		4.093E-01	6.127E-01	4.637E-02	0.577
TA-182	-6.913E-02		1.905E-01	3.064E-01	1.848E-02	-0.226
RE-183	3.338E-02		1.196E-01	1.957E-01	1.031E-02	0.171
RE-184	-1.407E-01		2.431E-01	3.754E-01	2.146E-02	-0.375
OS-185	2.168E-03		4.023E-02	6.614E-02	3.874E-03	0.033
RE-188	8.931E-02		1.803E-01	2.978E-01	1.600E-02	0.300
W-188	-2.107E+00		8.263E+00	1.187E+01	6.897E-01	-0.177
IR-192	-2.857E-02		3.467E-02	5.541E-02	3.238E-03	-0.516
AU-195	1.712E-01		2.617E-01	3.875E-01	2.957E-02	0.442
TL-200	-5.349E-04		2.939E-03	Half-Life too short		
TL-201	4.511E-01		1.775E+01	2.870E+01	1.500E+00	0.016
TL-202	8.137E-02		8.234E-02	1.455E-01	8.356E-03	0.559
HG-203	4.377E-02		4.244E-02	7.477E-02	4.598E-03	0.585
BI-207	1.277E-02		5.340E-02	9.130E-02	6.483E-03	0.140
TL-207	-8.665E-01		6.932E-01	1.061E+00	1.752E-01	-0.817
PO-209	2.479E-01		8.087E+00	1.308E+01	1.150E+00	0.019
BI-210	2.973E+00		3.196E+00	5.394E+00	4.111E-01	0.551
PB-210	2.973E+00		3.196E+00	5.394E+00	4.111E-01	0.551
PO-210	2.973E+00		3.194E+00	5.394E+00	3.515E-01	0.551
PB-211	3.668E-01		1.081E+00	1.574E+00	9.810E-01	0.233
BI-212	1.254E+00	+	4.174E-01	6.102E-01	5.080E-02	2.054
PO-215	-8.665E-01		6.932E-01	1.061E+00	1.752E-01	-0.817
RN-219	1.941E-01		4.366E-01	6.568E-01	8.883E-02	0.296
RN-220	2.146E+00		2.399E+01	3.980E+01	2.361E+00	0.054
RA-223	-8.665E-01		6.932E-01	1.061E+00	1.752E-01	-0.817
AC-227	6.013E-02		3.795E-01	6.111E-01	8.513E-02	0.098
TH-227	6.013E-02		3.795E-01	6.111E-01	1.031E-01	0.098
TH-229	1.447E-01		5.432E-01	8.793E-01	4.745E-02	0.165
PA-231	-1.702E+00		1.514E+00	2.370E+00	3.266E-01	-0.718
TH-231	-8.665E-01		6.932E-01	1.061E+00	1.752E-01	-0.817
U-231	-1.368E+00		2.344E+00	3.250E+00	2.582E-01	-0.421
PA-233	1.783E-02		6.238E-02	1.063E-01	6.563E-03	0.168
PA-234	-4.705E-02		2.868E-01	4.528E-01	8.452E-02	-0.104
PA-234M	-1.893E-01		4.504E+00	7.482E+00	6.965E-01	-0.025
U-235	2.029E-01		2.145E-01	3.507E-01	5.687E-02	0.578
NP-236	-2.345E-02		8.455E-02	1.351E-01	7.157E-03	-0.174
NP-239	-3.514E-02		1.884E-01	3.044E-01	1.904E-02	-0.115
AM-241	1.398E-01		1.668E-01	2.510E-01	2.066E-02	0.557

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-2.644E-02		9.991E-02	1.615E-01	1.161E-02	-0.164
AM-246	2.952E-02		1.623E-01	2.756E-01	1.901E-02	0.107
CM-247	1.958E-02		3.952E-02	5.976E-02	3.352E-03	0.328
CF-249	-2.804E-02		3.947E-02	6.287E-02	3.511E-03	-0.446
CF-251	2.015E-02		1.239E-01	2.014E-01	1.064E-02	0.100

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101002          *
* Acquisition date   : 1-FEB-2010 14:45:04 Detector SN#      :              *
* Detector ID        : GAM19 Sensitivity      : 5.000          *
* Geometry           : CAN Energy tolerance: 1.500          *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000   *
* Elapsed real time  : 0 02:00:01.42 Half life ratio : 8.000   *
*****
*
*                                     SAMPLE DATA                          *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101002 Analyst initials: MXR1          *
* Batch Number       : 944037 Sample Quantity : 1.2860E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight  : 0.00000          *
*****
*
*                                     QC DATA                              *
*
* CALIB. DATE/TIME  : 12-MAR-2009 10:24:54 MS Isotope      :              *
* MSD DPM           : 0.000 MSD Isotope      :              *
* LCS DPM           : 0.000 LCS Isotope      :              *
* LCSD DPM          : 0.000 LCSD Isotope     :              *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.631E+01	2.532E+00	2.653E-01	1.292E+00
CD-109	2.174E+00	8.864E-01	6.536E-01	4.523E-01
SN-126	2.124E-01	8.661E-02	6.414E-02	4.419E-02
BA-137M	1.434E-01	6.046E-02	3.131E-02	3.085E-02
CS-137	1.516E-01	6.391E-02	3.310E-02	3.261E-02
TL-208	4.280E-01	7.616E-02	2.722E-02	3.885E-02
BI-211	2.975E+00	5.024E-01	1.570E-01	2.563E-01
PB-212	1.410E+00	1.429E-01	4.480E-02	7.292E-02
PO-212	1.410E+00	1.429E-01	4.480E-02	7.292E-02
BI-214	1.067E+00	1.814E-01	5.217E-02	9.257E-02
PB-214	1.035E+00	1.826E-01	5.471E-02	9.316E-02
PO-214	1.035E+00	1.826E-01	5.471E-02	9.316E-02
PO-216	1.410E+00	1.429E-01	4.480E-02	7.292E-02
PO-218	1.035E+00	1.826E-01	5.471E-02	9.316E-02
RA-224	3.658E+00	1.199E+00	5.095E-01	6.116E-01
RA-226	1.067E+00	1.814E-01	5.217E-02	9.257E-02
AC-228	1.125E+00	3.594E-01	1.051E-01	1.834E-01
RA-228	1.125E+00	3.594E-01	1.051E-01	1.834E-01
TH-228	1.437E+00	1.457E-01	4.566E-02	7.432E-02
TH-230	1.067E+00	1.814E-01	5.217E-02	9.256E-02
TH-232	1.125E+00	3.594E-01	1.051E-01	1.834E-01
TH-234	1.638E+00	1.942E+00	1.063E+00	9.909E-01
U-234	1.067E+00	1.814E-01	5.217E-02	9.256E-02
NP-237	6.237E-01	2.839E-01	2.000E-01	1.448E-01
U-238	1.638E+00	1.942E+00	1.063E+00	9.909E-01
AM-243	2.708E-01	9.129E-02	4.713E-02	4.658E-02
ANH-511	1.114E-01	7.049E-02	2.142E-02	3.597E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	4.231E-02	3.316E-01	2.877E-01	1.692E-01	NOT IDENT.
NA-22	-4.398E-02	4.053E-02	3.023E-02	2.068E-02	NOT IDENT.
NA-24	2.566E+07	6.096E+07	0.000E+00	3.110E+07	SHORT HLIF
AL-26	2.783E-02	2.542E-02	2.573E-02	1.297E-02	NOT IDENT.
TI-44	2.833E-01	5.495E-02	4.045E-02	2.804E-02	FAIL ABUN
SC-46	-1.665E-02	4.059E-02	3.230E-02	2.071E-02	FAIL ABUN
V-48	1.419E-02	8.413E-02	7.061E-02	4.292E-02	NOT IDENT.
CR-51	-8.636E-02	3.867E-01	3.351E-01	1.973E-01	NOT IDENT.
MN-52	-4.698E-02	3.169E-01	2.608E-01	1.617E-01	NOT IDENT.
MN-54	-5.080E-03	3.713E-02	3.058E-02	1.895E-02	NOT IDENT.
CO-56	1.795E-02	3.722E-02	3.247E-02	1.899E-02	NOT IDENT.
CO-57	-5.800E-03	2.514E-02	2.137E-02	1.283E-02	NOT IDENT.
CO-58	-3.223E-02	3.864E-02	2.949E-02	1.971E-02	NOT IDENT.
FE-59	-4.352E-02	9.739E-02	8.020E-02	4.969E-02	NOT IDENT.
CO-60	1.873E-02	3.541E-02	3.187E-02	1.807E-02	NOT IDENT.
ZN-65	-8.937E-02	1.104E-01	7.341E-02	5.634E-02	NOT IDENT.
GE-68	9.157E-01	1.387E+00	1.251E+00	7.079E-01	NOT IDENT.
AS-73	1.281E-01	7.692E-01	6.870E-01	3.925E-01	NOT IDENT.
AS-74	2.675E-02	9.901E-02	8.596E-02	5.051E-02	NOT IDENT.
SE-75	-6.484E-03	4.666E-02	3.561E-02	2.380E-02	NOT IDENT.
BR-77	5.856E+00	3.130E+01	0.000E+00	1.597E+01	SHORT HLIF
SR-82	-4.453E-01	4.627E-01	3.554E-01	2.361E-01	NOT IDENT.
RB-83	-3.778E-03	6.947E-02	5.766E-02	3.544E-02	NOT IDENT.
RB-84	4.219E-02	7.821E-02	6.816E-02	3.990E-02	NOT IDENT.
KR-85	1.728E+01	7.585E+00	6.748E+00	3.870E+00	NOT IDENT.
SR-85	9.238E-02	4.056E-02	3.608E-02	2.069E-02	NOT IDENT.
RB-86	9.547E-01	1.023E+00	9.387E-01	5.217E-01	NOT IDENT.
Y-88	-9.901E-03	3.062E-02	2.353E-02	1.562E-02	NOT IDENT.
ZR-88	6.843E-03	3.093E-02	2.722E-02	1.578E-02	NOT IDENT.
Y-91	1.123E+01	1.889E+01	1.691E+01	9.640E+00	NOT IDENT.
NB-94	-8.919E-04	3.164E-02	2.659E-02	1.614E-02	NOT IDENT.
NB-95	3.835E-03	4.662E-02	3.931E-02	2.379E-02	NOT IDENT.
NB-95M	3.808E-01	1.618E-01	1.327E-01	8.254E-02	NOT IDENT.
ZR-95	-2.813E-02	7.133E-02	5.765E-02	3.639E-02	NOT IDENT.
NB-97	4.114E+06	4.849E+06	0.000E+00	2.474E+06	SHORT HLIF
ZR-97	2.470E+08	1.048E+08	0.000E+00	5.347E+07	SHORT HLIF
MO-99	-1.377E+01	2.973E+01	2.383E+01	1.517E+01	NOT IDENT.
TC-99M	-4.159E+21	2.830E+21	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.532E-04	3.265E-02	2.769E-02	1.666E-02	NOT IDENT.
RH-102	2.476E-03	2.795E-02	2.420E-02	1.426E-02	NOT IDENT.
RU-103	-3.417E-03	3.834E-02	3.268E-02	1.956E-02	FAIL ABUN
RH-106	-6.623E-03	2.913E-01	2.466E-01	1.486E-01	FAIL ABUN
RU-106	-6.623E-03	2.913E-01	2.466E-01	1.486E-01	FAIL ABUN
AG-108M	1.297E-02	3.242E-02	2.871E-02	1.654E-02	NOT IDENT.
AG-110M	2.535E-02	3.405E-02	2.727E-02	1.737E-02	NOT IDENT.
IN-111	-2.034E+00	3.215E+00	2.238E+00	1.640E+00	NOT IDENT.
IN-113M	-7.577E-03	4.385E-02	3.770E-02	2.237E-02	NOT IDENT.
SN-113	-7.577E-03	4.385E-02	3.770E-02	2.237E-02	NOT IDENT.
IN-114M	-6.019E-02	2.207E-01	1.606E-01	1.126E-01	NOT IDENT.
CD-115	-2.625E+01	3.530E+01	0.000E+00	1.801E+01	SHORT HLIF
SN-117M	1.800E-02	6.917E-02	5.977E-02	3.529E-02	NOT IDENT.
SB-122	6.990E+00	6.850E+00	5.546E+00	3.495E+00	NOT IDENT.
I-123	3.936E+08	9.278E+08	0.000E+00	4.734E+08	SHORT HLIF
TE-123M	1.256E-02	2.962E-02	2.576E-02	1.511E-02	NOT IDENT.
I-124	2.568E-01	1.333E+00	1.002E+00	6.802E-01	NOT IDENT.
SB-124	-3.308E-02	6.480E-02	4.775E-02	3.306E-02	FAIL ABUN
SB-125	7.251E-04	8.857E-02	7.666E-02	4.519E-02	FAIL ABUN
TE-125M	1.287E-01	9.779E+00	8.484E+00	4.989E+00	NOT IDENT.
I-126	5.343E-02	2.622E-01	1.959E-01	1.338E-01	NOT IDENT.
SB-126	-1.103E-01	2.086E-01	1.417E-01	1.064E-01	NOT IDENT.
SB-127	2.542E+00	2.573E+00	2.341E+00	1.313E+00	NOT IDENT.
XE-127	6.121E-03	5.432E-02	4.270E-02	2.771E-02	NOT IDENT.
I-131	5.741E-02	1.584E-01	1.409E-01	8.082E-02	NOT IDENT.
TE-132	-3.988E-01	1.731E+00	1.441E+00	8.831E-01	NOT IDENT.
BA-133	4.377E-02	4.560E-02	3.715E-02	2.326E-02	NOT IDENT.
I-133	-1.075E+04	1.348E+05	0.000E+00	6.878E+04	SHORT HLIF
CS-134	9.372E-02	4.522E-02	4.294E-02	2.307E-02	FAIL ABUN
CS-135	3.416E-01	1.717E-01	1.475E-01	8.761E-02	NOT IDENT.
I-135	3.239E+19	1.380E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.788E-02	1.244E-01	1.100E-01	6.348E-02	FAIL ABUN
CE-139	1.737E-02	3.052E-02	2.667E-02	1.557E-02	NOT IDENT.
BA-140	-2.132E-01	2.995E-01	2.346E-01	1.528E-01	NOT IDENT.
LA-140	-1.588E-02	9.567E-02	7.791E-02	4.881E-02	NOT IDENT.
CE-141	1.269E-02	6.995E-02	5.934E-02	3.569E-02	NOT IDENT.
CE-143	6.646E+03	1.956E+03	0.000E+00	9.979E+02	SHORT HLIF
CE-144	-1.114E-01	2.349E-01	1.716E-01	1.199E-01	NOT IDENT.
PM-144	1.191E-02	3.546E-02	2.939E-02	1.809E-02	NOT IDENT.
PR-144	8.085E-01	2.408E+00	1.996E+00	1.228E+00	NOT IDENT.

PM-146	1.637E-02	4.097E-02	3.542E-02	2.091E-02	NOT IDENT.
ND-147	3.161E-01	6.629E-01	5.866E-01	3.382E-01	FAIL ABUN
PM-149	2.193E+02	2.954E+02	0.000E+00	1.507E+02	SHORT HLIF
EU-152	-3.009E-02	1.167E-01	7.545E-02	5.952E-02	FAIL ABUN
GD-153	2.907E-02	8.617E-02	6.690E-02	4.396E-02	NOT IDENT.
EU-154	-7.420E-02	1.091E-01	8.543E-02	5.564E-02	NOT IDENT.
EU-155	9.815E-03	1.078E-01	9.389E-02	5.498E-02	FAIL ABUN
TB-160	7.090E-03	1.541E-01	1.286E-01	7.864E-02	FAIL ABUN
HO-166M	1.585E-02	6.228E-02	5.346E-02	3.177E-02	FAIL ABUN
TM-171	-3.644E+01	3.072E+01	2.229E+01	1.567E+01	NOT IDENT.
LU-176	-3.491E-03	2.409E-02	2.046E-02	1.229E-02	FAIL ABUN
LU-177	3.105E+00	2.740E+00	1.502E+00	1.398E+00	FAIL ABUN
LU-177M	4.587E-02	1.932E-01	1.486E-01	9.859E-02	FAIL ABUN
HF-181	-3.556E-02	4.467E-02	3.623E-02	2.279E-02	NOT IDENT.
W-181	3.535E-01	4.011E-01	3.216E-01	2.046E-01	NOT IDENT.
TA-182	-6.913E-02	1.867E-01	1.538E-01	9.525E-02	FAIL ABUN
RE-183	3.338E-02	1.172E-01	1.013E-01	5.981E-02	FAIL ABUN
RE-184	-1.407E-01	2.383E-01	1.931E-01	1.216E-01	NOT IDENT.
OS-185	2.168E-03	3.943E-02	3.353E-02	2.012E-02	NOT IDENT.
RE-188	8.931E-02	1.766E-01	1.543E-01	9.013E-02	NOT IDENT.
W-188	-2.107E+00	8.098E+00	6.095E+00	4.132E+00	FAIL ABUN
IR-192	-2.857E-02	3.397E-02	2.840E-02	1.733E-02	FAIL ABUN
AU-195	1.712E-01	2.565E-01	2.021E-01	1.309E-01	FAIL ABUN
TL-200	-5.349E+02	5.760E+03	0.000E+00	2.939E+03	SHORT HLIF
TL-201	4.511E-01	1.739E+01	1.486E+01	8.874E+00	NOT IDENT.
TL-202	8.137E-02	8.069E-02	7.421E-02	4.117E-02	NOT IDENT.
HG-203	4.377E-02	4.159E-02	3.840E-02	2.122E-02	NOT IDENT.
BI-207	1.277E-02	5.233E-02	4.592E-02	2.670E-02	FAIL ABUN
TL-207	-8.665E-01	6.793E-01	5.436E-01	3.466E-01	FAIL ABUN
PO-209	2.479E-01	7.926E+00	6.597E+00	4.044E+00	NOT IDENT.
BI-210	2.973E+00	3.132E+00	2.845E+00	1.598E+00	NOT IDENT.
PB-210	2.973E+00	3.132E+00	2.845E+00	1.598E+00	NOT IDENT.
PO-210	2.973E+00	3.130E+00	2.845E+00	1.597E+00	NOT IDENT.
PB-211	3.668E-01	1.059E+00	8.038E-01	5.404E-01	NOT IDENT.
BI-212	1.254E+00	4.090E-01	3.088E-01	2.087E-01	FAIL ABUN
PO-215	-8.665E-01	6.793E-01	5.436E-01	3.466E-01	FAIL ABUN
RN-219	1.941E-01	4.279E-01	3.354E-01	2.183E-01	FAIL ABUN
RN-220	2.146E+00	2.351E+01	2.023E+01	1.200E+01	NOT IDENT.
RA-223	-8.665E-01	6.793E-01	5.436E-01	3.466E-01	FAIL ABUN
AC-227	6.013E-02	3.719E-01	3.142E-01	1.897E-01	FAIL ABUN
TH-227	6.013E-02	3.719E-01	3.142E-01	1.897E-01	FAIL ABUN
TH-229	1.447E-01	5.324E-01	4.541E-01	2.716E-01	FAIL ABUN
PA-231	-1.702E+00	1.483E+00	1.217E+00	7.568E-01	FAIL ABUN
TH-231	-8.665E-01	6.793E-01	5.436E-01	3.466E-01	FAIL ABUN
U-231	-1.368E+00	2.297E+00	1.696E+00	1.172E+00	FAIL ABUN
PA-233	1.783E-02	6.114E-02	5.450E-02	3.119E-02	FAIL ABUN
PA-234	-4.705E-02	2.810E-01	2.281E-01	1.434E-01	FAIL ABUN
PA-234M	-1.893E-01	4.414E+00	3.767E+00	2.252E+00	NOT IDENT.
U-235	2.029E-01	2.102E-01	1.819E-01	1.072E-01	FAIL ABUN
NP-236	-2.345E-02	8.286E-02	6.998E-02	4.227E-02	NOT IDENT.
NP-239	-3.514E-02	1.846E-01	1.584E-01	9.418E-02	FAIL ABUN
AM-241	1.398E-01	1.635E-01	1.319E-01	8.342E-02	NOT IDENT.
CM-243	-2.644E-02	9.791E-02	8.417E-02	4.996E-02	FAIL ABUN
AM-246	2.952E-02	1.591E-01	1.386E-01	8.117E-02	NOT IDENT.
CM-247	1.958E-02	3.873E-02	3.052E-02	1.976E-02	NOT IDENT.
CF-249	-2.804E-02	3.868E-02	3.212E-02	1.973E-02	NOT IDENT.
CF-251	2.015E-02	1.214E-01	1.042E-01	6.196E-02	NOT IDENT.

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*                                     GEL Laboratories LLC                      *
*                                     2040 SAVAGE ROAD                        *
*                                     CHARLESTON ,SC 29417                     *
*                                     GAMMA SPECTROSCOPY BACKGROUND REPORT      *
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ENERGY	MDA COUNTS
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46.50	290.5739
46.50	290.5739
46.50	290.5739
48.70	317.6574
49.72	345.3594
51.35	339.1769
52.39	319.0328
52.97	304.5551
53.15	304.6179
53.44	316.4758
54.07	321.6038
56.28	354.9724
56.28	375.1938
57.37	0.0000
57.53	354.3348
57.53	354.3359
57.60	354.3620
57.98	379.7177
57.98	379.7177
59.32	362.9091
59.32	362.9091
59.40	362.9400
59.54	362.9947
59.72	363.0642
60.01	383.7039
61.10	411.0211
61.14	411.0377
61.30	412.6879
63.00	421.7362
63.29	421.8626
63.29	421.8626
63.58	420.0074
64.28	393.3458
65.12	398.4445
65.20	398.4767
65.20	398.4767
66.05	440.1314
66.72	459.5072
66.83	459.5583
66.91	467.5468
67.20	467.6814
67.20	467.6814
67.75	465.5488
67.85	474.8824
68.90	454.1283
68.90	454.1283
69.30	454.3075
69.67	454.4727
70.82	424.6470
70.82	424.6470
70.83	413.4768
72.80	471.8398
72.87	491.0670
72.87	491.0670
74.67	488.6981
74.81	488.7632
74.81	488.7632
74.81	488.7632
74.81	488.7632
74.81	488.7632
74.81	488.7632
74.81	488.7632
74.97	488.8358
75.28	488.9773
75.70	489.1691
77.11	489.8094
77.11	489.8094

77.11	489.8094
77.11	489.8094
77.11	489.8094
77.11	489.8094
77.11	489.8094
78.38	429.2843
79.62	394.3567
79.80	394.4210
79.80	394.4210
80.11	442.8416
80.18	442.8685
80.30	442.9172
80.30	442.9172
80.57	496.1875
81.00	502.8258
81.07	502.8563
81.07	502.8563
81.07	502.8563
81.07	502.8563
82.60	484.1766
83.37	499.0395
83.78	499.2206
83.78	499.2206
83.78	499.2206
83.78	499.2206
84.21	509.1064
84.90	447.9609
85.43	443.3134
86.29	412.8809
86.50	461.5386
86.54	461.5542
86.59	461.5751
86.72	461.6273
86.79	461.6534
86.94	515.1759
87.30	515.3351
87.30	515.3351
87.30	515.3351
87.30	515.3351
87.30	515.3351
87.30	515.3351
87.57	418.4023
87.88	0.0000
88.03	418.5661
88.36	418.6843
88.47	418.7237
89.95	419.2499
91.11	419.6579
92.29	420.0723
92.38	420.1038
92.38	420.1038
93.35	420.4409
94.00	420.6662
94.67	331.0099
94.67	331.0112
94.90	352.2762
94.90	352.2762
94.90	352.2762
94.90	352.2762
95.87	378.6695
95.87	378.6695
96.73	360.9676
97.43	318.6805
98.44	307.4897
98.44	307.4908
98.88	327.2327
99.55	311.0369
99.55	311.0369
99.86	320.6651
100.00	321.6758
100.10	321.7021
103.18	356.0488
103.76	353.1307
105.00	341.1389
105.31	336.0824
108.00	343.9839
109.28	339.1620

111.00	295.2146
111.00	295.2146
111.76	330.4980
112.95	316.3177
115.19	314.7687
116.30	310.8776
117.00	301.7045
117.00	301.7045
117.66	282.1404
121.11	298.4365
121.62	296.4633
121.78	296.4970
122.06	290.3124
122.32	300.7730
122.32	300.7730
122.32	300.7730
122.32	300.7730
123.07	290.3712
127.23	307.4453
129.76	299.6103
131.20	286.5002
133.02	340.5330
133.54	315.4806
135.34	307.2188
136.00	299.3987
136.25	299.4487
136.48	280.5790
140.51	369.8284
140.51	0.0000
142.18	310.1050
142.65	289.0973
143.76	269.2430
144.24	277.7761
144.24	277.7761
144.24	277.7761
144.24	277.7761
145.22	291.6897
145.44	305.4706
147.16	341.7804
152.43	324.8635
152.70	310.0517
153.22	315.4628
154.21	296.5248
154.21	296.5248
154.21	296.5248
154.21	296.5248
155.03	282.8503
156.02	310.6866
158.56	299.4458
159.00	0.0000
159.00	288.8658
160.31	318.9627
161.27	297.7998
162.32	296.9191
162.64	302.3176
163.35	305.6512
163.89	326.0614
165.85	272.9239
167.43	280.6777
171.28	266.2757
171.86	266.3646
172.10	261.0296
176.55	242.3103
176.60	245.5481
181.06	240.1211
184.41	275.1833
185.71	257.6270
186.00	257.6687
190.27	276.0684
192.34	244.5924
193.63	272.8729
197.04	280.9947
198.01	260.4344
198.60	256.1563
200.40	0.0000
201.83	262.0514
202.84	253.4509
205.31	259.0271



208.36	259.4354
208.81	253.1391
209.75	253.2608
209.75	253.2608
210.97	252.7611
215.65	232.2472
216.55	225.8977
218.09	246.6252
222.10	232.7758
223.80	246.2201
226.40	220.0004
227.00	243.2887
227.08	243.2988
227.20	247.7361
228.16	264.4496
228.18	264.4514
228.18	264.4514
231.56	0.0000
235.69	246.9744
236.00	247.0117
236.00	247.0117
238.63	205.7298
238.63	205.7298
238.63	205.7298
238.63	205.7298
239.00	0.0000
240.98	205.9570
241.98	206.0544
241.98	206.0544
241.98	206.0544
244.69	198.0629
245.39	214.1909
247.94	172.7468
248.90	172.0786
249.79	0.0000
252.40	204.8125
252.85	203.7350
252.85	203.7350
254.15	0.0000
256.20	177.1388
256.20	177.1388
260.50	174.1125
260.90	0.0000
262.80	175.4143
264.65	168.0570
268.24	157.8033
268.79	166.8613
269.46	164.2043
269.46	164.2043
269.46	164.2043
269.46	164.2043
271.23	188.1078
273.65	210.9029
276.40	177.9747
277.35	168.3899
277.60	168.4081
277.60	168.4081
278.00	163.0042
278.60	163.0459
279.20	167.6179
279.53	174.8909
280.46	188.5584
281.68	0.0000
283.67	195.1718
284.30	172.5238
285.00	160.7671
285.90	0.0000
286.10	144.4858
286.10	144.4858
287.40	142.8759
288.45	0.0000
290.67	168.4354
290.80	165.4094
291.72	157.8831
293.26	0.0000
293.70	139.7800
295.21	139.8680
295.21	139.8680

295.21	139.8680
295.96	72.9971
296.50	73.0137
297.23	0.0000
298.57	73.0762
299.80	162.9817
299.80	162.9817
300.09	163.0013
300.09	163.0013
300.09	163.0013
300.09	163.0013
300.12	163.0035
301.29	158.5094
302.84	147.9333
303.76	0.0000
303.91	154.1014
304.40	152.6062
304.40	152.6062
304.84	146.5273
306.84	156.8303
308.46	159.5821
311.98	146.9512
316.51	161.9385
318.01	148.2253
319.02	144.6002
319.41	151.9915
320.08	149.2666
323.87	195.6290
323.87	195.6290
323.87	195.6290
323.87	195.6290
325.23	167.1113
328.77	136.8313
333.44	171.3486
334.20	154.4128
334.20	154.4128
334.30	154.4189
338.28	145.6850
338.28	145.6850
338.28	145.6850
338.28	145.6850
338.32	145.6869
338.32	145.6869
338.32	145.6869
340.50	126.9238
340.57	126.9272
344.27	132.5292
345.85	127.1807
350.59	0.0000
351.07	123.0781
351.92	123.1167
351.92	123.1167
351.92	123.1167
355.39	0.0000
356.01	110.5374
364.48	124.6226
366.43	130.3380
367.43	132.2598
367.94	0.0000
369.80	128.6181
374.96	117.5690
383.85	116.9977
387.95	137.9532
388.63	143.6560
391.69	125.8337
391.69	125.8337
392.90	122.0996
398.62	125.1857
400.65	136.4239
401.10	120.6817
401.81	101.2708
402.60	102.8810
404.84	118.8004
410.95	123.8079
411.60	115.8967
413.65	109.6206
414.70	136.2235
415.30	129.9498

415.76	126.1276
417.63	0.0000
418.52	107.8907
423.70	117.6398
427.08	102.4507
427.89	109.1823
432.53	92.0824
433.93	107.4787
439.47	0.0000
439.56	84.6022
439.89	89.4183
443.98	103.9777
444.90	104.0080
445.03	94.3812
445.03	94.3812
445.03	94.3812
445.03	94.3812
453.90	87.9947
463.38	77.4941
468.07	80.3781
473.00	106.8713
475.06	95.2737
475.35	94.3098
476.78	101.1601
477.59	99.2383
477.96	97.3035
482.03	111.0637
484.57	0.0000
487.03	77.0819
490.36	0.0000
492.35	0.0000
497.08	78.2939
507.63	0.0000
510.53	0.0000
510.84	77.6301
511.00	77.6335
511.85	77.6523
511.85	77.6523
513.99	70.4887
513.99	70.4887
520.41	86.4963
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	79.0410
529.87	0.0000
531.02	72.1534
537.32	85.1560
543.00	75.3747
546.56	0.0000
549.76	72.5366
552.65	74.5825
555.20	72.6453
563.23	93.0872
563.90	86.4530
568.70	79.9082
569.32	74.9268
569.50	74.9304
569.67	66.6081
573.80	68.3500
574.00	68.3534
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	72.1986
585.48	0.0000
591.81	74.3758
592.07	74.3812
593.00	78.4209
595.88	72.4447
600.56	80.5938
602.52	0.0000
602.71	73.9188
602.71	73.9188
603.60	68.8956
604.41	67.2298
604.70	82.3625
609.31	74.7208

609.31	74.7208
609.31	74.7208
609.31	74.7208
610.33	74.7407
612.46	84.2122
614.37	72.4593
618.01	75.9009
621.84	67.8718
621.84	67.8718
631.29	83.2692
633.02	87.3689
633.10	87.3710
634.78	81.3086
635.90	85.3986
636.97	82.3724
645.85	68.2873
646.12	62.1765
656.30	64.7188
657.75	49.4083
657.90	0.0000
661.65	88.6810
661.65	88.6810
664.57	0.0000
666.33	81.9531
666.33	81.9531
675.00	79.0472
677.61	69.8527
685.20	52.4854
692.80	56.7053
695.00	66.0195
696.49	70.1715
696.49	70.1715
697.00	77.4042
697.49	83.6064
698.33	98.0754
698.50	98.0801
699.00	98.0917
702.63	72.3396
706.10	86.8793
706.58	0.0000
706.67	92.0637
709.31	64.1736
711.68	76.6377
713.82	88.0734
717.42	68.4444
720.50	81.2938
721.93	0.0000
722.20	79.5959
722.78	76.1442
722.78	76.1442
722.89	76.1460
722.95	76.1478
723.30	74.4224
724.18	67.5137
727.18	67.5613
733.00	43.3665
735.90	65.9619
739.58	65.6701
742.81	55.2864
744.21	52.1741
747.13	74.1375
751.79	52.2644
752.31	55.4067
753.82	63.7924
755.35	0.0000
756.15	69.0567
756.87	71.1609
763.93	79.6590
765.79	87.0325
766.42	93.3370
766.84	95.4434
776.49	92.4967
778.00	76.7551
778.57	72.5595
778.89	65.2029
783.80	63.1670
785.46	63.1904
792.07	56.2513

795.84	51.0202
796.30	54.5439
798.80	73.9375
801.93	59.8957
805.60	49.7172
810.29	57.1799
810.76	64.5995
815.85	56.1883
817.79	0.0000
818.51	54.0991
819.60	53.0505
826.30	66.9390
828.27	0.0000
831.60	54.2498
831.96	54.2547
834.83	68.1250
836.80	0.0000
846.75	45.8870
848.13	55.5064
856.28	0.0000
856.80	40.9921
860.37	58.8591
867.32	42.8682
867.82	39.2994
871.10	62.8199
873.19	48.2849
874.81	59.0337
875.33	0.0000
876.40	50.4642
879.36	63.3861
880.27	53.7268
880.51	51.5813
881.50	53.7402
883.24	58.0605
884.67	59.1532
889.25	60.2848
896.60	63.6079
898.02	69.0188
899.00	64.7183
903.28	56.6772
911.07	55.1425
911.07	55.1425
911.07	55.1425
919.63	46.9335
920.93	51.0722
925.00	50.9587
925.24	50.9610
926.50	50.9737
935.52	45.6319
937.48	63.0396
944.10	50.0609
946.00	48.9913
949.00	43.5732
962.29	47.3250
964.01	54.6240
966.15	53.5531
968.20	53.5746
969.11	53.5842
969.11	53.5842
969.11	53.5842
977.42	46.9399
980.50	55.8921
983.50	50.4405
989.30	46.1046
996.32	49.4637
1001.03	52.2570
1001.68	46.7625
1004.76	58.7161
1021.30	0.0000
1024.50	0.0000
1034.80	47.0488
1036.00	34.1410
1037.82	48.9219
1038.57	60.9297
1038.76	0.0000
1045.16	36.9710
1046.59	40.6789
1048.07	46.2382

1050.47	51.8096
1050.47	51.8096
1062.04	62.1146
1063.62	53.7874
1076.63	58.5575
1077.35	60.4244
1078.86	67.8820
1085.78	53.9998
1099.22	62.5262
1112.02	48.6357
1112.84	50.5129
1115.52	78.6133
1120.29	55.2621
1120.29	55.2621
1120.29	55.2621
1120.29	55.2621
1120.51	61.0184
1121.28	61.0264
1124.00	0.0000
1129.67	58.1654
1131.51	0.0000
1147.95	0.0000
1167.94	64.2093
1173.22	68.0479
1175.09	76.5769
1177.93	65.2631
1189.05	57.8031
1204.90	53.2041
1205.75	0.0000
1213.00	56.1287
1221.42	61.9214
1230.97	61.0651
1235.34	71.6095
1236.41	0.0000
1238.25	54.4487
1246.25	56.4336
1260.41	0.0000
1271.85	42.2580
1274.45	45.1564
1274.54	51.8840
1291.56	42.3887
1298.22	0.0000
1312.09	36.7259
1325.50	23.2432
1325.50	23.2432
1332.49	26.1760
1333.61	20.3625
1360.21	34.0757
1362.66	0.0000
1365.15	33.1270
1368.21	27.2936
1368.53	0.0000
1376.25	16.5912
1384.27	42.0149
1394.10	24.4639
1395.20	23.4883
1407.95	35.2998
1434.06	19.6859
1436.60	16.7392
1457.56	0.0000
1460.81	23.7148
1489.15	12.8974
1509.49	17.9092
1596.49	20.1383
1620.62	13.1322
1678.03	0.0000
1691.02	13.2539
1691.02	13.2539
1706.46	0.0000
1750.46	0.0000
1764.49	8.2331
1764.49	8.2331
1764.49	8.2331
1764.49	8.2331
1770.23	7.0619
1771.40	39.1396
1791.20	0.0000
1808.65	5.1740

1836.01

12.4590

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101002

Total Uranium Activity	4.9680E+00	ug/g
Total Uranium Counting Unc.	5.7790E+00	ug/g
Total Uranium Tpu	2.9484E-06	ug/g
Total Uranium Mda	3.1632E+00	ug/g



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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 944037          SAMPLE ID   : G245101002
*  ANALYST       : MXR1           DETECTOR    : GAM19
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 1-FEB-2010 14:45:04.87  SAMPLE ALQT: 128.600 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.855E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.435E+00
GROSS GAMMA MDA (pCi/GRAM ) : 3.102E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.506E+00

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VAX/VMS Nuclide Identification Report Generated 10-FEB-2010 17:52:03.18

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101003.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:45:29.
Sample ID          : G245101003      Sample quantity   : 1.29760E+02 GRAM
Detector name      : GAM11           Detector geometry: CAN
Elapsed live time   : 0 02:00:00.00 Elapsed real time: 0 02:00:01.76 0.0%
Energy tolerance    : 1.50000 keV    Analyst Initials  : MXR1
Abundance limit     : 75.00000        Sensitivity      : 5.00000
Batch ID            : 944037          Detector SN#      :
Matrix Spike ID     :                 LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.96*	53	462	0.90	124.79	122	7	7.29E-03	71.3	
2	2	74.72	530	398	0.92	148.33	142	15	7.37E-02	7.4	3.17E+00
3	2	77.05	819	365	0.93	153.00	142	15	1.14E-01	5.2	
4	5	84.06*	106	306	0.87	167.02	164	28	1.47E-02	26.4	1.89E+00
5	5	87.25	324	393	1.14	173.42	164	28	4.49E-02	11.5	
6	5	89.88*	231	364	1.12	178.69	164	28	3.21E-02	15.6	
7	5	92.71*	285	379	1.33	184.35	164	28	3.96E-02	14.8	
8	0	129.38*	37	351	0.86	257.74	254	7	5.16E-03	86.7	
9	0	153.96*	54	277	1.14	306.94	304	7	7.51E-03	53.7	
10	0	185.91*	261	451	1.19	370.89	365	13	3.63E-02	18.3	
11	0	209.52	146	294	1.23	418.14	414	9	2.03E-02	22.9	
12	5	238.60*	1510	195	0.96	476.33	472	16	2.10E-01	3.0	2.29E+00
13	5	241.39	304	297	1.60	481.93	472	16	4.22E-02	14.8	
14	0	270.00	96	173	1.10	539.19	535	8	1.34E-02	25.7	
15	0	295.21*	395	199	1.18	589.63	583	12	5.49E-02	8.8	
16	0	299.97	99	159	1.17	599.16	595	9	1.38E-02	25.0	
17	0	327.98	103	192	1.47	655.22	649	12	1.43E-02	28.7	
18	0	338.18	290	137	1.24	675.63	671	9	4.02E-02	9.4	
19	0	351.85*	650	141	1.20	702.99	697	10	9.03E-02	5.3	
20	0	409.37	61	62	1.44	818.12	815	7	8.48E-03	25.0	
21	0	463.00	57	141	1.02	925.43	922	10	7.89E-03	41.4	
22	0	510.88*	129	156	1.62	1021.25	1014	13	1.79E-02	24.5	
23	0	583.20*	496	77	1.30	1165.97	1159	14	6.89E-02	5.9	
24	0	609.38*	440	100	1.39	1218.38	1213	13	6.11E-02	6.8	
25	0	662.43	31	74	1.17	1324.53	1318	8	4.35E-03	50.8	
26	0	727.32	99	69	1.16	1454.37	1449	12	1.37E-02	19.6	
27	0	795.06	59	63	0.83	1589.92	1584	10	8.25E-03	28.1	
28	0	861.18*	79	75	2.04	1722.23	1714	16	1.10E-02	27.2	
29	0	911.34*	270	62	1.54	1822.60	1816	13	3.75E-02	8.8	
30	1	964.47	62	43	1.73	1928.91	1924	23	8.59E-03	23.3	1.59E+00
31	1	969.10*	201	39	1.69	1938.17	1924	23	2.80E-02	9.3	
32	0	1120.94*	86	82	1.67	2241.97	2236	15	1.20E-02	26.0	
33	0	1238.13	54	44	1.49	2476.43	2473	9	7.51E-03	25.8	
34	0	1408.77	26	10	0.63	2817.81	2813	10	3.61E-03	30.0	
35	0	1461.01*	1306	21	1.95	2922.32	2914	17	1.81E-01	2.9	
36	0	1630.94	21	0	0.84	3262.24	3256	13	2.92E-03	21.8	
37	0	1730.20	30	7	2.18	3460.78	3454	14	4.17E-03	26.1	
38	0	1764.83	101	3	2.37	3530.05	3523	15	1.40E-02	10.8	

Peak Search Report (continued)  
Sample ID : G245101003

Page : 2  
Acquisition date : 2-FEB-2010 09:45:29

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
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Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 10-FEB-2010 17:52:06

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:45:29
Sample ID         : G245101003 Sample quantity : 129.76 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA11 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.76 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type   : Empirical Efficiencies at : Peak Energy
Abundance limit   : 75.00 WTM error limit : 3.00
  
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Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.890E+01	3.010E+00	5.055E-01	4.371E-02	57.165
CD-109	+	88.03	*	3.817E+00	9.455E-01	8.523E-01	8.082E-02	4.479
SN-126	+	64.28		3.739E-01	5.360E-01	6.014E-01	8.724E-02	0.622
	+	86.94		1.549E+00	7.345E-01	3.485E-01	1.447E-01	4.444
	+	87.57	*	3.725E-01	9.227E-02	8.344E-02	7.870E-03	4.465
BA-137M	+	661.65	*	4.194E-02	4.283E-02	5.455E-02	5.161E-03	0.769
CS-137	+	661.65	*	4.434E-02	4.528E-02	5.766E-02	5.465E-03	0.769
RE-188	+	155.03	*	1.865E-01	2.012E-01	2.475E-01	2.308E-02	0.754
		477.96		-2.768E+00	2.912E+00	4.451E+00	4.796E-01	-0.622
		633.10		-5.074E-01	2.448E+00	3.918E+00	3.839E-01	-0.130
TL-208		277.35		1.640E-01	3.398E-01	5.620E-01	9.965E-02	0.292
	+	510.84		5.855E-01	2.979E-01	2.106E-01	2.856E-02	2.779
	+	583.14	*	6.402E-01	1.028E-01	4.493E-02	4.853E-03	14.248
	+	860.37		9.565E-01	5.305E-01	4.174E-01	4.347E-02	2.292
BI-211		72.87		2.955E+00	2.298E+00	3.793E+00	3.013E-01	0.779
	+	351.07	*	3.705E+00	6.246E-01	2.729E-01	3.601E-02	13.573
PB-212	+	74.81		2.481E+00	4.784E-01	3.932E-01	4.865E-02	6.310
	+	77.11		2.188E+00	2.899E-01	2.254E-01	1.873E-02	9.707
	+	87.30		1.723E+00	4.602E-01	3.866E-01	5.306E-02	4.456
	+	238.63	*	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
	+	300.09		1.904E+00	9.988E-01	9.983E-01	1.600E-01	1.907
PO-212	+	74.81		2.481E+00	4.784E-01	3.932E-01	4.865E-02	6.310
	+	77.11		2.188E+00	2.899E-01	2.254E-01	1.873E-02	9.707
	+	87.30		1.723E+00	4.602E-01	3.866E-01	5.306E-02	4.456
		115.19		-6.497E-01	2.829E+00	4.775E+00	4.045E-01	-0.136
	+	238.63	*	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
	+	300.09		1.904E+00	9.988E-01	9.983E-01	1.600E-01	1.907
BI-214	+	609.31	*	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
	+	1120.29		1.083E+00	5.746E-01	4.309E-01	4.653E-02	2.512
	+	1764.49		1.719E+00	3.977E-01	2.612E-01	2.152E-02	6.583
PB-214	+	74.81		4.276E+00	7.875E-01	6.776E-01	7.440E-02	6.310
	+	77.11		3.751E+00	5.733E-01	3.864E-01	4.356E-02	9.707
	+	87.30		2.952E+00	7.656E-01	6.624E-01	8.052E-02	4.456
	+	241.98		2.273E+00	7.479E-01	4.679E-01	6.816E-02	4.858

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.333E+00	3.200E-01	1.665E-01	2.716E-02	8.007
	+	351.92	*	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
	+	74.81		4.276E+00	7.875E-01	6.776E-01	7.440E-02	6.310
	+	77.11		3.751E+00	5.733E-01	3.864E-01	4.356E-02	9.707
	+	87.30		2.952E+00	7.656E-01	6.624E-01	8.052E-02	4.456
	+	241.98		2.273E+00	7.479E-01	4.679E-01	6.816E-02	4.858
PO-216	+	295.21		1.333E+00	3.200E-01	1.665E-01	2.716E-02	8.007
	+	351.92	*	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
	+	74.81		2.481E+00	4.784E-01	3.932E-01	4.865E-02	6.310
	+	77.11		2.188E+00	2.899E-01	2.254E-01	1.873E-02	9.707
	+	87.30		1.723E+00	4.602E-01	3.866E-01	5.306E-02	4.456
	+	238.63	*	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
PO-218	+	300.09		1.904E+00	9.988E-01	9.983E-01	1.600E-01	1.907
	+	74.81		4.276E+00	7.875E-01	6.776E-01	7.440E-02	6.310
	+	77.11		3.751E+00	5.733E-01	3.864E-01	4.356E-02	9.707
	+	87.30		2.952E+00	7.656E-01	6.624E-01	8.052E-02	4.456
	+	241.98		2.273E+00	7.479E-01	4.679E-01	6.816E-02	4.858
	+	295.21		1.333E+00	3.200E-01	1.665E-01	2.716E-02	8.007
RA-224	+	351.92	*	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
RA-226	+	240.98	*	4.310E+00	1.397E+00	8.841E-01	1.184E-01	4.875
	+	609.31	*	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
AC-228	+	1120.29		1.083E+00	5.746E-01	4.309E-01	4.653E-02	2.512
	+	1764.49		1.719E+00	3.977E-01	2.612E-01	2.152E-02	6.583
	+	338.32		1.820E+00	8.459E-01	3.290E-01	1.400E-01	5.531
RA-228	+	911.07	*	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847
	+	969.11		2.019E+00	6.073E-01	3.045E-01	7.217E-02	6.631
	+	338.32		1.820E+00	8.459E-01	3.290E-01	1.400E-01	5.531
TH-228	+	911.07	*	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847
	+	969.11		2.019E+00	6.073E-01	3.045E-01	7.217E-02	6.631
	+	74.81		2.531E+00	4.278E-01	4.011E-01	3.282E-02	6.310
TH-230	+	77.11		2.232E+00	2.957E-01	2.299E-01	1.910E-02	9.707
	+	87.30		1.757E+00	4.353E-01	3.944E-01	3.707E-02	4.456
	+	238.63	*	1.917E+00	2.919E-01	7.921E-02	1.109E-02	24.204
TH-232	+	300.09		1.942E+00	1.524E+00	1.018E+00	6.162E-01	1.907
	+	609.31	*	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
	+	1120.29		1.083E+00	5.745E-01	4.309E-01	4.653E-02	2.512
TH-234	+	1764.49		1.719E+00	3.977E-01	2.612E-01	2.152E-02	6.583
	+	338.32		1.820E+00	4.200E-01	3.290E-01	4.436E-02	5.531
	+	911.07	*	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847
U-234	+	969.11		2.019E+00	6.073E-01	3.045E-01	7.217E-02	6.631
	+	63.29	*	9.446E-01	1.357E+00	1.441E+00	2.507E-01	0.655
	+	92.38		2.158E+00	7.504E-01	5.548E-01	1.018E-01	3.891
NP-237	+	609.31	*	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
	+	1120.29		1.083E+00	5.745E-01	4.309E-01	4.653E-02	2.512
	+	1764.49		1.719E+00	3.977E-01	2.612E-01	2.152E-02	6.583
U-238	+	86.50	*	1.094E+00	3.527E-01	2.470E-01	5.590E-02	4.430
	+	95.87		-1.201E-02	7.513E-01	1.070E+00	2.649E-01	-0.011
	+	63.29	*	9.446E-01	1.357E+00	1.441E+00	2.507E-01	0.655
	+	92.38		2.158E+00	6.673E-01	5.548E-01	5.080E-02	3.891

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	4.023E-01	6.784E-02	6.391E-02	5.172E-03	6.295
	+	86.72		4.102E+01	1.016E+01	9.245E+00	8.626E-01	4.437
		117.66		-1.399E+00	2.984E+00	4.975E+00	4.208E-01	-0.281
		142.18		-2.204E+00	1.469E+01	2.427E+01	2.164E+00	-0.091
ANH-511	+	511.00	*	1.265E-01	6.348E-02	4.551E-02	4.867E-03	2.779

---- 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	*	-2.406E-01	3.054E-01	4.734E-01	5.358E-02	-0.508
NA-22		1274.54	*	7.941E-03	3.998E-02	6.643E-02	5.456E-03	0.120
NA-24		1368.53	*	-2.557E+01	3.998E-02	Half-Life too short		
AL-26		1129.67		-1.481E+00	1.661E+00	2.289E+00	1.933E-01	-0.647
		1808.65	*	5.443E-04	1.906E-02	3.167E-02	2.585E-03	0.017
TI-44		67.85		3.253E-02	3.378E-02	5.548E-02	4.204E-03	0.586
	+	78.38	*	4.038E-01	5.351E-02	5.368E-02	4.525E-03	7.523
SC-46		889.25	*	-1.647E-02	3.657E-02	5.870E-02	5.782E-03	-0.281
	+	1120.51		1.928E-01	1.015E-01	1.301E-01	1.110E-02	1.482
V-48		944.10		-3.508E-01	9.626E-01	1.548E+00	1.498E-01	-0.227
		983.50	*	5.092E-03	7.936E-02	1.328E-01	1.260E-02	0.038
		1312.09		-3.922E-02	8.871E-02	1.356E-01	1.118E-02	-0.289
CR-51		320.08	*	1.637E-01	3.597E-01	5.924E-01	8.597E-02	0.276
MN-52		744.21		-2.424E-01	3.933E-01	5.936E-01	5.767E-02	-0.408
		848.13		4.308E+00	1.049E+01	1.830E+01	1.803E+00	0.235
		935.52		3.481E-01	4.360E-01	7.753E-01	7.528E-02	0.449
		1246.25		-2.328E+00	1.281E+01	2.051E+01	1.674E+00	-0.114
		1333.61		-1.236E-01	9.135E+00	1.489E+01	1.231E+00	-0.008
		1434.06	*	9.720E-02	3.683E-01	6.172E-01	5.171E-02	0.157
MN-54		834.83	*	8.398E-03	3.425E-02	5.888E-02	5.798E-03	0.143
CO-56		846.75	*	1.177E-02	3.589E-02	6.217E-02	6.126E-03	0.189
		977.42		-1.139E+00	2.975E+00	4.467E+00	4.251E-01	-0.255
		1037.82		7.816E-02	2.900E-01	4.930E-01	4.731E-02	0.159
		1175.09		2.909E+00	2.111E+00	3.883E+00	3.121E-01	0.749
	+	1238.25		1.981E-01	1.035E-01	1.743E-01	1.467E-02	1.136
		1360.21		-4.581E-01	8.176E-01	1.194E+00	9.913E-02	-0.384
		1771.40		-4.258E-03	2.334E-01	3.294E-01	2.710E-02	-0.013
CO-57		122.06	*	1.225E-02	2.006E-02	3.490E-02	2.953E-03	0.351
		136.48		1.473E-01	1.578E-01	2.766E-01	2.598E-02	0.533
CO-58		810.76	*	3.133E-02	3.749E-02	6.473E-02	6.374E-03	0.484
FE-59		142.65		6.944E-01	2.486E+00	4.180E+00	3.734E-01	0.166
		192.34		-1.550E-01	8.475E-01	1.390E+00	2.085E-01	-0.112
		1099.22	*	-4.866E-03	8.944E-02	1.466E-01	1.378E-02	-0.033
		1291.56		5.556E-03	1.402E-01	2.287E-01	2.158E-02	0.024
CO-60		1173.22		4.151E-03	4.083E-02	6.755E-02	5.427E-03	0.061
		1332.49	*	-1.499E-02	3.986E-02	6.214E-02	5.135E-03	-0.241
ZN-65		1115.52	*	-4.819E-02	1.039E-01	1.378E-01	1.183E-02	-0.350
GE-68		1077.35	*	-1.984E-01	1.070E+00	1.731E+00	1.537E-01	-0.115
AS-73		53.44	*	2.443E-01	6.067E-01	9.825E-01	7.378E-02	0.249

---- 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	*	-3.131E-02	1.062E-01	1.702E-01	1.730E-02	-0.184
		634.78		-2.454E-01	3.805E-01	5.831E-01	5.704E-02	-0.421
SE-75		66.05		6.323E-01	3.905E+00	5.742E+00	5.457E-01	0.110
		96.73		-5.166E-01	6.606E-01	8.851E-01	1.223E-01	-0.584
		121.11		6.724E-02	1.086E-01	1.889E-01	2.095E-02	0.356
		136.00		1.339E-02	3.050E-02	5.248E-02	4.620E-03	0.255
		198.60		7.250E-01	1.632E+00	2.689E+00	3.216E-01	0.270
		264.65	*	2.079E-02	4.031E-02	6.428E-02	9.448E-03	0.324
		279.53		-3.247E-02	1.060E-01	1.663E-01	2.603E-02	-0.195
		303.91		-3.168E-01	2.124E+00	2.995E+00	4.978E-01	-0.106
		400.65		3.607E-02	2.168E-01	3.704E-01	4.739E-02	0.097
BR-77	+	87.88		3.310E-03	2.168E-01	Half-Life	too short	
		200.40		-4.551E-06	2.168E-01	Half-Life	too short	
	+	239.00		1.220E-03	2.168E-01	Half-Life	too short	
		249.79		1.555E-04	2.168E-01	Half-Life	too short	
		281.68		-4.630E-05	2.168E-01	Half-Life	too short	
		297.23		4.957E-04	2.168E-01	Half-Life	too short	
		303.76		-2.406E-04	2.168E-01	Half-Life	too short	
		439.47		8.505E-05	2.168E-01	Half-Life	too short	
		484.57		-6.196E-04	2.168E-01	Half-Life	too short	
		520.65	*	-1.065E-05	2.168E-01	Half-Life	too short	
		574.64		3.646E-04	2.168E-01	Half-Life	too short	
		578.91		-3.189E-04	2.168E-01	Half-Life	too short	
		585.48		3.692E-03	2.168E-01	Half-Life	too short	
		755.35		1.390E-04	2.168E-01	Half-Life	too short	
		817.79		-3.220E-04	2.168E-01	Half-Life	too short	
SR-82		698.33		-1.236E+01	3.374E+01	5.274E+01	5.058E+00	-0.234
		776.49	*	-4.333E-01	4.061E-01	5.774E-01	5.647E-02	-0.750
		1395.20		-7.596E+00	9.211E+00	1.239E+01	1.033E+00	-0.613
RB-83		520.41	*	-4.470E-03	5.806E-02	9.566E-02	1.019E-02	-0.047
		529.64		-1.391E-02	9.298E-02	1.521E-01	1.614E-02	-0.091
		552.65		-5.297E-02	1.914E-01	3.091E-01	3.242E-02	-0.171
RB-84		881.50	*	-3.174E-02	6.261E-02	9.946E-02	9.800E-03	-0.319
KR-85		513.99	*	5.802E+00	7.082E+00	1.110E+01	1.186E+00	0.523
SR-85		513.99	*	3.128E-02	3.819E-02	5.987E-02	6.395E-03	0.523
RB-86		1076.63	*	-5.996E-01	8.451E-01	1.288E+00	1.144E-01	-0.466
Y-88		898.02		-5.622E-03	4.006E-02	6.495E-02	6.418E-03	-0.087
		1836.01	*	2.495E-02	2.828E-02	5.484E-02	4.452E-03	0.455
ZR-88		392.90	*	2.990E-02	2.636E-02	4.751E-02	5.068E-03	0.629
Y-91		1204.90	*	-1.527E+01	2.054E+01	3.133E+01	2.536E+00	-0.487
NB-94		702.63	*	9.455E-03	2.960E-02	4.927E-02	4.732E-03	0.192
		871.10		-5.043E-03	3.144E-02	5.135E-02	5.060E-03	-0.098
NB-95		765.79	*	2.056E-03	4.475E-02	7.217E-02	7.045E-03	0.028
NB-95M		235.69	*	-6.453E-02	1.229E-01	1.723E-01	2.406E-02	-0.374
ZR-95		724.18		-3.359E-02	1.033E-01	1.396E-01	1.443E-02	-0.241
		756.15	*	2.766E-02	7.001E-02	1.166E-01	1.227E-02	0.237
NB-97		657.90	*	4.223E+00	7.001E-02	Half-Life	too short	
		1024.50		6.790E+02	7.001E-02	Half-Life	too short	
ZR-97		254.15		-2.045E+02	7.001E-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		2.229E+02	7.001E-02	Half-Life	too short	
		507.63	*	6.989E+01	7.001E-02	Half-Life	too short	
		602.52		-4.301E+02	7.001E-02	Half-Life	too short	
		1021.30		1.934E+02	7.001E-02	Half-Life	too short	
		1147.95		2.496E+02	7.001E-02	Half-Life	too short	
		1362.66		7.838E+01	7.001E-02	Half-Life	too short	
		1750.46		3.269E+02	7.001E-02	Half-Life	too short	
MO-99		140.51		-8.334E+00	7.245E+01	1.193E+02	3.314E+01	-0.070
		181.06		2.566E+01	5.295E+01	8.084E+01	1.551E+01	0.317
		366.43		-1.159E+02	2.548E+02	3.883E+02	4.705E+01	-0.298
		739.58	*	-2.090E+01	3.608E+01	5.463E+01	8.646E+00	-0.382
		778.00		-2.742E+01	9.871E+01	1.537E+02	1.504E+01	-0.178
TC-99M		140.51	*	-2.029E+15	9.871E+01	Half-Life	too short	
RH-101		127.23		3.093E-03	2.907E-02	4.402E-02	3.760E-03	0.070
		198.01	*	2.463E-03	2.868E-02	4.650E-02	5.205E-03	0.053
		325.23		3.929E-02	1.951E-01	2.827E-01	3.967E-02	0.139
RH-102		418.52		-1.551E-02	2.411E-01	4.045E-01	4.349E-02	-0.038
		475.06	*	2.859E-03	2.536E-02	4.268E-02	4.602E-03	0.067
		631.29		4.377E-03	4.443E-02	7.325E-02	7.193E-03	0.060
		697.49		-1.175E-02	6.637E-02	1.057E-01	1.014E-02	-0.111
		766.84		1.818E-01	1.096E-01	1.962E-01	1.916E-02	0.926
		1046.59		4.033E-02	1.051E-01	1.802E-01	1.640E-02	0.224
		1112.84		7.234E-03	2.168E-01	3.485E-01	2.995E-02	0.021
RU-103		497.08	*	-3.431E-02	3.883E-02	5.952E-02	9.250E-03	-0.576
	+	610.33		1.256E+01	2.781E+00	2.983E+00	5.208E-01	4.212
RH-106	+	511.85		6.374E-01	3.200E-01	4.265E-01	4.559E-02	1.495
		621.84	*	-4.367E-02	2.837E-01	4.575E-01	6.512E-02	-0.095
		1050.47		1.479E+00	2.132E+00	3.753E+00	3.406E-01	0.394
RU-106	+	511.85		6.374E-01	3.200E-01	4.265E-01	4.559E-02	1.495
		621.84	*	-4.367E-02	2.837E-01	4.575E-01	4.539E-02	-0.095
		1050.47		1.479E+00	2.132E+00	3.753E+00	3.406E-01	0.394
AG-108M		433.93	*	2.260E-02	2.759E-02	4.879E-02	5.393E-03	0.463
		614.37		-7.092E-03	3.829E-02	5.370E-02	5.525E-03	-0.132
		722.95		4.051E-03	4.178E-02	5.966E-02	5.946E-03	0.068
AG-110M		657.75	*	1.473E-02	3.320E-02	4.998E-02	4.871E-03	0.295
		677.61		-1.606E-01	2.808E-01	4.309E-01	4.197E-02	-0.373
		706.67		-2.004E-01	1.931E-01	2.803E-01	2.755E-02	-0.715
		763.93		-1.002E-01	1.657E-01	2.517E-01	2.510E-02	-0.398
		884.67		1.456E-02	4.317E-02	7.471E-02	7.542E-03	0.195
		937.48		3.184E-02	1.074E-01	1.839E-01	1.835E-02	0.173
		1384.27		1.151E-01	1.568E-01	2.765E-01	2.373E-02	0.416
IN-111		171.28		9.533E-01	2.675E+00	4.530E+00	4.507E-01	0.210
		245.39	*	7.897E-01	3.108E+00	4.610E+00	6.282E-01	0.171
IN-113M		391.69	*	1.075E-02	3.692E-02	6.368E-02	6.926E-03	0.169
SN-113		391.69	*	1.075E-02	3.692E-02	6.368E-02	6.926E-03	0.169
IN-114M		190.27	*	-6.372E-02	1.803E-01	2.612E-01	2.826E-02	-0.244
CD-115		260.90		-2.130E-04	1.803E-01	Half-Life	too short	
		492.35		2.592E-05	1.803E-01	Half-Life	too short	
		527.90	*	2.556E-05	1.803E-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
SN-117M		156.02		1.028E+00	2.593E+00	3.991E+00	3.736E-01	0.258
		158.56	*	-5.291E-03	6.046E-02	9.625E-02	9.097E-03	-0.055
SB-122		563.90	*	1.622E+00	6.119E+00	1.030E+01	1.073E+00	0.158
		692.80		6.394E+00	1.278E+02	2.081E+02	1.992E+01	0.031
I-123		159.00	*	-1.074E+02	1.278E+02	Half-Life	too short	
		528.96		3.429E+04	1.278E+02	Half-Life	too short	
TE-123M		159.00	*	-1.263E-03	2.371E-02	3.959E-02	3.767E-03	-0.032
I-124		602.71	*	-9.199E-01	1.386E+00	2.061E+00	2.083E-01	-0.446
		722.78		9.364E-01	9.655E+00	1.379E+01	1.332E+00	0.068
		1325.50		-4.777E+01	7.543E+01	1.124E+02	9.280E+00	-0.425
		1376.25		9.253E+01	6.144E+01	1.167E+02	9.712E+00	0.793
		1509.49		1.967E+01	2.970E+01	5.416E+01	4.559E+00	0.363
		1691.02		-3.668E+00	7.146E+00	1.061E+01	8.844E-01	-0.346
SB-124		602.71		-2.553E-02	3.848E-02	5.720E-02	5.782E-03	-0.446
		645.85		-1.278E-01	4.749E-01	7.551E-01	7.641E-02	-0.169
		709.31		-5.598E-01	2.699E+00	4.282E+00	4.121E-01	-0.131
		713.82		-6.631E-01	1.557E+00	2.411E+00	3.083E-01	-0.275
		722.78		3.768E-02	3.885E-01	5.548E-01	5.453E-02	0.068
	+	968.20		2.197E+01	4.577E+00	7.784E+00	7.444E-01	2.822
		1045.16		-3.128E-01	2.349E+00	3.836E+00	3.496E-01	-0.082
		1325.50		-2.053E+00	3.241E+00	4.830E+00	3.988E-01	-0.425
		1368.21		6.834E-02	1.543E+00	2.510E+00	3.333E-01	0.027
		1436.60		-9.280E-01	3.510E+00	5.398E+00	4.524E-01	-0.172
		1691.02		-3.481E-02	6.783E-02	1.007E-01	8.747E-03	-0.346
SB-125		427.89	*	7.179E-02	7.628E-02	1.360E-01	1.482E-02	0.528
	+	463.38		5.051E-01	4.225E-01	5.402E-01	6.125E-02	0.935
		600.56		7.159E-02	1.653E-01	2.797E-01	2.985E-02	0.256
		635.90		1.060E-02	2.403E-01	3.937E-01	4.091E-02	0.027
TE-125M		109.28	*	5.036E-01	7.307E+00	1.252E+01	1.286E+00	0.040
I-126		388.63		-1.704E-01	2.063E-01	3.277E-01	3.555E-02	-0.520
		666.33	*	-9.777E-02	2.455E-01	3.538E-01	3.354E-02	-0.276
		753.82		6.631E-01	1.711E+00	2.854E+00	2.779E-01	0.232
SB-126		223.80		5.250E+00	4.628E+00	7.941E+00	9.919E-01	0.661
		278.60		3.465E+00	2.940E+00	4.937E+00	7.627E-01	0.702
	+	296.50		1.735E+01	4.020E+00	4.091E+00	6.146E-01	4.241
		414.70		1.421E-02	8.439E-02	1.394E-01	1.497E-02	0.102
		415.30		-1.579E-01	6.792E+00	1.143E+01	1.228E+00	-0.014
		555.20		1.993E+00	4.556E+00	7.775E+00	8.143E-01	0.256
		573.80		-1.318E-01	1.289E+00	2.105E+00	2.178E-01	-0.063
		593.00		1.104E-01	1.118E+00	1.850E+00	1.886E-01	0.060
		656.30		1.629E+00	4.042E+00	6.064E+00	5.779E-01	0.269
		666.33		-4.130E-02	1.037E-01	1.495E-01	1.417E-02	-0.276
		675.00		-1.453E+00	2.338E+00	3.571E+00	3.396E-01	-0.407
		695.00		2.270E-02	8.688E-02	1.441E-01	1.381E-02	0.157
		697.00		4.572E-02	3.015E-01	4.951E-01	4.746E-02	0.092
		720.50	*	6.807E-02	1.751E-01	2.834E-01	2.737E-02	0.240
		856.80		2.212E-01	5.658E-01	8.729E-01	8.602E-02	0.253
		989.30		-1.392E-01	1.469E+00	2.420E+00	2.288E-01	-0.058
		1034.80		-1.779E+00	1.105E+01	1.802E+01	1.655E+00	-0.099

---- 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			-1.814E+00	5.988E+00	9.512E+00	7.714E-01	-0.191
	61.10			8.985E+01	1.014E+02	1.550E+02	1.826E+01	0.580
	252.40			7.078E-01	8.592E+00	1.403E+01	6.158E+00	0.050
	290.80			-2.481E+01	4.757E+01	6.474E+01	1.154E+01	-0.383
	411.60			1.445E+01	2.678E+01	4.167E+01	7.511E+00	0.347
	444.90			1.165E+01	1.887E+01	3.294E+01	5.059E+00	0.354
	473.00			-1.354E+00	3.642E+00	5.914E+00	9.243E-01	-0.229
	543.00			2.235E+01	3.538E+01	6.098E+01	1.022E+01	0.366
	603.60			3.046E+00	2.686E+01	3.909E+01	5.810E+00	0.078
	685.20	*		-6.128E-01	2.960E+00	4.710E+00	6.374E-01	-0.130
XE-127	698.50			-9.126E+00	3.138E+01	4.940E+01	8.622E+00	-0.185
	722.20			5.990E+01	6.683E+01	1.047E+02	1.406E+01	0.572
	783.80			8.190E+00	8.045E+00	1.395E+01	2.033E+00	0.587
	57.60			1.860E+00	4.500E+00	7.310E+00	5.262E-01	0.254
	145.22			2.519E-01	6.238E-01	1.066E+00	9.606E-02	0.236
	172.10			1.742E-03	1.076E-01	1.794E-01	1.792E-02	0.010
	202.84	*		2.215E-02	4.288E-02	7.239E-02	8.273E-03	0.306
	374.96			-9.146E-02	1.890E-01	2.863E-01	3.334E-02	-0.319
	80.18			1.582E+00	6.402E+00	8.216E+00	7.150E-01	0.193
	284.30			4.642E-01	1.944E+00	3.181E+00	4.973E-01	0.146
I-131	364.48	*		1.904E-01	1.576E-01	2.689E-01	3.383E-02	0.708
	636.97			8.066E-01	2.114E+00	3.561E+00	3.639E-01	0.227
	722.89			1.031E+00	1.063E+01	1.518E+01	1.480E+00	0.068
	49.72			-1.438E+01	3.217E+01	5.033E+01	5.923E+00	-0.286
TE-132	111.76			-3.030E+01	6.449E+01	1.053E+02	1.280E+01	-0.288
	116.30			3.205E+01	6.049E+01	1.050E+02	1.273E+01	0.305
	228.16	*		-7.446E-01	1.671E+00	2.662E+00	5.095E-01	-0.280
	53.15			1.598E+00	2.483E+00	4.062E+00	3.062E-01	0.393
BA-133	79.62			3.080E-01	1.011E+00	1.482E+00	2.251E-01	0.208
	81.00			1.064E-02	7.825E-02	1.136E-01	1.808E-02	0.094
	276.40			1.682E-01	3.282E-01	5.435E-01	1.044E-01	0.309
	302.84			3.111E-02	1.389E-01	2.023E-01	3.631E-02	0.154
I-133	356.01	*		8.513E-03	4.297E-02	6.170E-02	9.951E-03	0.138
	383.85			-2.294E-01	2.515E-01	3.969E-01	5.732E-02	-0.578
	510.53	+		5.930E+01	2.515E-01	Half-Life	too short	
	529.87	*		-6.722E-02	2.515E-01	Half-Life	too short	
	706.58			-1.840E+01	2.515E-01	Half-Life	too short	
	856.28			1.168E+01	2.515E-01	Half-Life	too short	
	875.33			2.833E+00	2.515E-01	Half-Life	too short	
	1236.41			5.036E+01	2.515E-01	Half-Life	too short	
	1298.22			-3.304E+00	2.515E-01	Half-Life	too short	
	475.35			-1.307E-01	1.671E+00	2.775E+00	2.991E-01	-0.047
CS-134	563.23			1.235E-03	3.166E-01	5.220E-01	5.476E-02	0.002
	569.32			-1.275E-01	1.730E-01	2.665E-01	2.792E-02	-0.478
	604.70			-3.986E-03	3.296E-02	4.614E-02	4.664E-03	-0.086
	795.84	*		1.105E-01	6.298E-02	9.056E-02	8.934E-03	1.220
	801.93			9.722E-03	3.321E-01	5.332E-01	5.257E-02	0.018
	1038.57			-1.935E-01	3.574E+00	5.888E+00	5.392E-01	-0.033
	1167.94			-1.282E+00	2.132E+00	3.262E+00	2.638E-01	-0.393

---- 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			7.193E-01	1.032E+00	1.837E+00	1.601E-01	0.392
	268.24	*		4.024E-02	1.501E-01	2.198E-01	3.449E-02	0.183
	288.45			2.550E+15	1.501E-01	Half-Life	too short	
	417.63			-2.286E+14	1.501E-01	Half-Life	too short	
	546.56			-9.892E+14	1.501E-01	Half-Life	too short	
	836.80			4.114E+15	1.501E-01	Half-Life	too short	
	1038.76			1.792E+14	1.501E-01	Half-Life	too short	
	1124.00			3.755E+15	1.501E-01	Half-Life	too short	
	1131.51			4.312E+14	1.501E-01	Half-Life	too short	
	1260.41	*		8.782E+12	1.501E-01	Half-Life	too short	
	1457.56			4.240E+16	1.501E-01	Half-Life	too short	
	1678.03			3.562E+14	1.501E-01	Half-Life	too short	
	1706.46			-2.813E+15	1.501E-01	Half-Life	too short	
	1791.20			-1.508E+15	1.501E-01	Half-Life	too short	
CS-136	66.91			-1.931E-01	8.281E-01	1.191E+00	1.769E-01	-0.162
	+	86.29		6.256E+00	1.660E+00	2.047E+00	2.723E-01	3.057
	+	153.22		8.787E-01	9.486E-01	1.246E+00	1.274E-01	0.705
		163.89		-3.062E-01	1.159E+00	1.862E+00	1.971E-01	-0.164
		176.55		1.481E-02	4.016E-01	6.693E-01	7.104E-02	0.022
		273.65		-4.838E-02	5.536E-01	7.926E-01	1.229E-01	-0.061
		340.57		1.359E-01	1.714E-01	2.526E-01	3.423E-02	0.538
		818.51		-8.374E-02	8.692E-02	1.231E-01	1.213E-02	-0.680
		1048.07	*	-3.932E-02	1.303E-01	2.093E-01	1.977E-02	-0.188
		1235.34		7.290E-01	8.629E-01	1.328E+00	1.529E-01	0.549
	CE-139	165.85	*	1.243E-02	2.464E-02	4.205E-02	4.086E-03	0.296
	BA-140	162.64		-1.769E-01	7.965E-01	1.281E+00	1.287E-01	-0.138
		304.84		1.282E+00	1.536E+00	2.415E+00	7.361E-01	0.531
		423.70		5.073E-02	2.069E+00	3.490E+00	1.153E+00	0.015
LA-140	+	537.32	*	-1.440E-01	2.866E-01	4.471E-01	1.507E-01	-0.322
		328.77		1.034E+00	6.121E-01	6.741E-01	9.569E-02	1.534
		432.53		1.309E-01	2.258E+00	3.812E+00	4.237E-01	0.034
		487.03		5.272E-02	1.598E-01	2.725E-01	3.050E-02	0.193
		751.79		-2.329E+00	2.133E+00	3.046E+00	3.216E-01	-0.765
		815.85		-1.798E-01	3.666E-01	5.526E-01	5.921E-02	-0.325
		867.82		-8.798E-01	1.866E+00	2.557E+00	2.622E-01	-0.344
		919.63		-2.279E+00	3.283E+00	5.110E+00	5.927E-01	-0.446
		925.24		-5.635E-01	1.352E+00	2.172E+00	2.222E-01	-0.260
	CE-141	1596.49	*	4.676E-02	8.266E-02	1.509E-01	1.269E-02	0.310
	CE-143	145.44	*	1.325E-02	5.698E-02	9.678E-02	8.870E-03	0.137
		57.37		7.277E-04	5.698E-02	Half-Life	too short	
		231.56		1.345E-02	5.698E-02	Half-Life	too short	
		293.26	*	4.092E-03	5.698E-02	Half-Life	too short	
CE-144	+	350.59		3.284E-01	5.698E-02	Half-Life	too short	
		490.36		-2.533E-02	5.698E-02	Half-Life	too short	
		664.57		-6.248E-03	5.698E-02	Half-Life	too short	
		721.93		1.145E-02	5.698E-02	Half-Life	too short	
		80.11		5.090E-01	1.974E+00	2.535E+00	2.180E-01	0.201
		133.54	*	-1.814E-01	1.672E-01	2.511E-01	3.917E-02	-0.722
	PM-144	476.78		-4.021E-02	6.149E-02	9.659E-02	1.105E-02	-0.416

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		618.01		-1.153E-02	2.848E-02	4.491E-02	4.567E-03	-0.257
		696.49	*	1.528E-02	2.963E-02	5.021E-02	4.814E-03	0.304
		778.57		3.463E-01	2.009E+00	3.280E+00	3.211E-01	0.106
PR-144		696.49	*	1.038E+00	2.013E+00	3.411E+00	3.269E-01	0.304
		1489.15		2.526E+00	8.843E+00	1.555E+01	1.308E+00	0.162
PM-146		453.90	*	-2.720E-03	3.832E-02	6.389E-02	8.011E-03	-0.043
		633.02		-2.737E-01	1.158E+00	1.840E+00	6.930E-01	-0.149
		735.90		9.683E-04	1.325E-01	2.139E-01	6.190E-02	0.005
		747.13		6.847E-02	8.204E-02	1.416E-01	2.087E-02	0.484
ND-147	+	91.11		1.212E+00	3.974E-01	5.349E-01	5.301E-02	2.266
		319.41		1.623E+00	3.897E+00	6.401E+00	9.127E-01	0.254
		439.89		-2.843E+00	6.619E+00	1.076E+01	1.161E+00	-0.264
		531.02	*	-5.312E-01	6.724E-01	1.032E+00	1.670E-01	-0.515
PM-149		285.90	*	-6.170E-05	6.724E-01	Half-Life too short		
EU-152		121.78		4.286E-02	5.754E-02	1.005E-01	9.832E-03	0.426
		244.69		2.210E-01	3.011E-01	4.555E-01	6.190E-02	0.485
		344.27	*	-6.074E-02	9.016E-02	1.359E-01	1.842E-02	-0.447
		443.98		5.624E-01	7.760E-01	1.367E+00	1.475E-01	0.411
		778.89		3.182E-02	2.316E-01	3.767E-01	3.686E-02	0.084
		867.32		-2.134E-01	8.380E-01	1.185E+00	1.168E-01	-0.180
	+	964.01		7.136E-01	3.399E-01	5.547E-01	5.316E-02	1.286
		1085.78		-1.726E-01	3.396E-01	5.283E-01	4.657E-02	-0.327
		1112.02		1.104E-01	2.847E-01	4.861E-01	4.181E-02	0.227
	+	1407.95		2.889E-01	1.752E-01	3.194E-01	2.669E-02	0.904
GD-153		69.67		-4.485E-01	1.358E+00	1.939E+00	1.493E-01	-0.231
	+	83.37		2.229E+01	1.194E+01	1.974E+01	1.766E+00	1.129
		97.43	*	-8.932E-02	7.205E-02	9.364E-02	8.319E-03	-0.954
		103.18		-4.166E-02	8.118E-02	1.361E-01	1.181E-02	-0.306
EU-154		123.07		7.155E-03	4.010E-02	6.859E-02	7.715E-03	0.104
		247.94		-1.363E-01	3.004E-01	4.743E-01	7.453E-02	-0.287
		591.81		2.103E-01	5.423E-01	9.181E-01	1.183E-01	0.229
		723.30		7.881E-03	1.742E-01	2.471E-01	2.590E-02	0.032
		756.87		4.376E-01	7.018E-01	1.192E+00	1.526E-01	0.367
		873.19		1.273E-01	2.715E-01	4.742E-01	6.232E-02	0.268
		996.32		-2.021E-01	3.501E-01	5.470E-01	9.937E-02	-0.369
		1004.76		-1.141E-01	1.961E-01	3.063E-01	3.738E-02	-0.372
		1274.45	*	2.105E-02	1.113E-01	1.847E-01	2.031E-02	0.114
EU-155		48.70		-1.286E+00	1.482E+00	2.267E+00	1.833E-01	-0.567
		60.01		1.170E+00	3.822E+00	5.696E+00	4.064E-01	0.205
	+	86.54		4.495E-01	1.115E-01	1.547E-01	1.453E-02	2.906
		105.31	*	4.577E-02	8.700E-02	1.466E-01	1.279E-02	0.312
TB-160	+	86.79		1.255E+00	3.108E-01	4.378E-01	4.088E-02	2.866
		197.04		-2.727E-01	5.185E-01	8.152E-01	9.085E-02	-0.335
		215.65		-1.900E-01	6.302E-01	1.018E+00	1.229E-01	-0.187
	+	298.57		2.900E-01	1.512E-01	1.770E-01	2.648E-02	1.639
		879.36	*	-7.299E-02	1.191E-01	1.870E-01	1.842E-02	-0.390
		962.29		5.888E-01	5.594E-01	9.074E-01	8.704E-02	0.649
		966.15		8.004E-01	2.353E-01	4.553E-01	4.359E-02	1.758
		1177.93		-1.511E-01	3.665E-01	5.767E-01	4.639E-02	-0.262

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

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HO-166M	1271.85			9.782E-02	7.002E-01	1.156E+00	9.477E-02	0.085
	80.57			3.451E-02	2.490E-01	3.171E-01	2.742E-02	0.109
	184.41			4.230E-02	3.195E-02	5.600E-02	5.905E-03	0.755
	280.46			-1.076E-02	7.875E-02	1.247E-01	1.927E-02	-0.086
	410.95			2.811E-01	2.268E-01	3.723E-01	3.995E-02	0.755
	711.68	*		4.150E-02	5.405E-02	9.323E-02	8.979E-03	0.445
TM-171	752.31			-2.106E-01	2.561E-01	3.775E-01	3.675E-02	-0.558
	810.29			3.534E-02	5.397E-02	9.178E-02	9.019E-03	0.385
	51.35			-9.283E+00	1.973E+01	3.085E+01	2.386E+00	-0.301
	52.39			5.070E+00	1.077E+01	1.752E+01	1.334E+00	0.289
	59.40			7.866E+00	2.021E+01	3.028E+01	2.154E+00	0.260
	66.72	*		-8.315E+00	2.339E+01	3.344E+01	2.510E+00	-0.249
LU-176	88.36		+	8.835E-01	2.188E-01	2.862E-01	2.705E-02	3.088
	201.83			5.779E-03	2.409E-02	4.021E-02	4.575E-03	0.144
	306.84	*		-3.190E-03	2.173E-02	3.451E-02	5.072E-03	-0.092
LU-177	401.10			2.599E+00	5.540E+00	9.637E+00	1.031E+00	0.270
	112.95			-1.951E-01	2.130E+00	3.540E+00	3.006E-01	-0.055
LU-177M	208.36	*	+	5.304E+00	2.508E+00	3.054E+00	3.574E-01	1.737
	52.97			6.848E-01	1.142E+00	1.866E+00	1.410E-01	0.367
	54.07			3.296E-01	6.043E-01	9.842E-01	7.333E-02	0.335
	61.30			9.426E-01	1.124E+00	1.719E+00	1.238E-01	0.548
	121.62			2.382E-01	3.015E-01	5.279E-01	4.460E-02	0.451
	147.16			-1.847E-01	5.248E-01	8.683E-01	7.874E-02	-0.213
	171.86			1.120E-01	4.093E-01	6.904E-01	6.887E-02	0.162
	218.09			2.607E-01	7.099E-01	1.187E+00	1.448E-01	0.220
	268.79		+	1.874E+00	1.003E+00	1.270E+00	1.893E-01	1.475
	319.02			7.340E-02	2.309E-01	3.770E-01	5.380E-02	0.195
	367.43			-2.062E-01	7.938E-01	1.229E+00	1.482E-01	-0.168
	413.65	*		1.008E-01	1.654E-01	2.597E-01	2.789E-02	0.388
	56.28			-4.382E-01	6.877E-01	1.062E+00	7.727E-02	-0.413
	57.53			1.447E-01	3.732E-01	6.057E-01	4.362E-02	0.239
HF-181	65.20			-3.720E-01	8.000E-01	1.137E+00	8.430E-02	-0.327
	133.02			-4.201E-02	6.363E-02	9.160E-02	7.942E-03	-0.459
	136.25			3.081E-01	3.719E-01	6.495E-01	5.684E-02	0.474
	345.85			-1.280E-02	1.903E-01	2.860E-01	3.759E-02	-0.045
	482.03	*		2.675E-02	3.996E-02	6.971E-02	7.508E-03	0.384
	56.28			-1.627E-01	2.559E-01	3.950E-01	2.875E-02	-0.412
W-181	57.53			5.377E-02	1.390E-01	2.255E-01	1.624E-02	0.238
	65.20	*		-1.374E-01	2.955E-01	4.201E-01	3.114E-02	-0.327
TA-182	67.75			8.334E-02	8.309E-02	1.367E-01	1.035E-02	0.610
	100.10			1.122E-01	1.384E-01	2.442E-01	2.143E-02	0.459
	152.43			3.208E-02	3.120E-01	4.680E-01	4.324E-02	0.069
	222.10			-2.751E-01	3.102E-01	4.820E-01	5.977E-02	-0.571
	1001.68			1.123E+00	1.990E+00	3.464E+00	3.251E-01	0.324
	1121.28		+	5.269E-01	2.774E-01	3.536E-01	3.013E-02	1.490
	1189.05			2.508E-01	3.010E-01	5.284E-01	4.262E-02	0.475
	1221.42	*		3.456E-02	1.896E-01	3.146E-01	2.556E-02	0.110
	1230.97			-2.723E-01	4.858E-01	7.527E-01	6.127E-02	-0.362
	57.98			3.200E-03	1.451E-01	2.314E-01	1.661E-02	0.014
RE-183								

## ---- 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		3.010E-02	8.658E-02	1.294E-01	9.212E-03	0.233
		67.20		1.037E-01	1.539E-01	2.502E-01	1.885E-02	0.415
		162.32	*	-6.249E-02	9.602E-02	1.511E-01	1.449E-02	-0.414
	+	208.81		3.049E+00	1.441E+00	1.775E+00	2.082E-01	1.717
		291.72		-4.881E-01	9.296E-01	1.267E+00	1.921E-01	-0.385
		57.98		1.147E-02	5.200E-01	8.293E-01	5.953E-02	0.014
		59.32		1.078E-01	3.100E-01	4.635E-01	3.299E-02	0.233
		67.20		3.717E-01	5.515E-01	8.963E-01	6.754E-02	0.415
		161.27		-1.095E-01	2.912E-01	4.783E-01	4.567E-02	-0.229
		216.55		-1.919E-02	2.196E-01	3.591E-01	4.351E-02	-0.053
		252.85	*	-3.530E-03	1.968E-01	3.197E-01	4.486E-02	-0.011
		318.01		-1.604E-01	4.099E-01	6.370E-01	9.114E-02	-0.252
		792.07		5.792E-01	9.770E-01	1.476E+00	1.447E-01	0.392
		903.28		8.898E-02	9.609E-01	1.583E+00	1.555E-01	0.056
OS-185		920.93		5.900E-02	4.126E-01	6.994E-01	6.830E-02	0.084
		59.72		-6.449E-03	2.394E-01	3.506E-01	2.496E-02	-0.018
		61.14		1.084E-01	1.257E-01	1.925E-01	1.384E-02	0.563
		69.30		1.707E-02	2.456E-01	3.586E-01	2.752E-02	0.048
		592.07		6.699E-01	2.304E+00	3.873E+00	3.951E-01	0.173
		646.12	*	-1.612E-02	3.979E-02	6.243E-02	6.026E-03	-0.258
		717.42		-5.452E-01	8.254E-01	1.244E+00	1.201E-01	-0.438
		874.81		1.572E-01	5.366E-01	9.251E-01	9.116E-02	0.170
		880.27		-4.973E-01	6.405E-01	9.826E-01	9.682E-02	-0.506
	+	63.58		3.983E+01	5.687E+01	6.831E+01	5.001E+00	0.583
W-188		227.08		-1.613E+00	1.183E+01	1.924E+01	2.436E+00	-0.084
		290.67	*	-3.867E+00	7.328E+00	9.983E+00	1.516E+00	-0.387
IR-192	+	295.96		1.063E+00	2.466E-01	2.738E-01	4.128E-02	3.883
		308.46		-8.166E-02	8.954E-02	1.331E-01	1.953E-02	-0.613
		316.51	*	5.359E-03	3.103E-02	5.025E-02	7.223E-03	0.107
		468.07		-5.242E-02	7.323E-02	9.993E-02	1.128E-02	-0.525
AU-195		604.41		9.730E-02	4.553E-01	6.624E-01	9.297E-02	0.147
		612.46		2.221E-01	7.239E-01	1.074E+00	1.196E-01	0.207
		65.12		-1.064E-01	1.377E-01	1.923E-01	1.425E-02	-0.553
		66.83		-2.232E-02	7.856E-02	1.128E-01	8.471E-03	-0.198
	+	75.70		1.326E+00	2.236E-01	3.513E-01	2.874E-02	3.774
		98.88	*	2.545E-01	1.782E-01	3.086E-01	2.723E-02	0.825
	+	129.76		1.965E+00	3.410E+00	4.413E+00	3.793E-01	0.445
TL-200		367.94	*	-3.947E-03	3.410E+00	Half-Life	too short	
		579.30		-8.645E-02	3.410E+00	Half-Life	too short	
		828.27		-9.113E-03	3.410E+00	Half-Life	too short	
TL-201		1205.75		-1.948E-02	3.410E+00	Half-Life	too short	
		68.90		-2.076E-01	1.061E+01	1.675E+01	1.281E+00	-0.012
		70.82		-3.361E+00	6.527E+00	9.213E+00	7.172E-01	-0.365
		80.30		3.140E+00	1.373E+01	1.760E+01	1.517E+00	0.178
TL-202		135.34		3.747E+00	5.649E+01	9.570E+01	8.353E+00	0.039
		167.43	*	1.111E+00	1.699E+01	2.844E+01	2.782E+00	0.039
		68.90		-8.230E-03	4.207E-01	6.641E-01	5.079E-02	-0.012
		70.82		-1.329E-01	2.581E-01	3.643E-01	2.836E-02	-0.365
		80.30		1.242E-01	5.431E-01	6.960E-01	6.000E-02	0.178

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	8.572E-03	7.496E-02	1.269E-01	1.369E-02	0.068
		70.83		-4.680E-01	9.169E-01	1.293E+00	1.692E-01	-0.362
		72.87		6.312E-01	4.950E-01	8.101E-01	1.035E-01	0.779
+ BI-207		82.60		1.755E+00	9.591E-01	1.405E+00	1.953E-01	1.249
		279.20	*	1.411E-02	4.053E-02	6.596E-02	1.030E-02	0.214
		72.80		1.598E-01	1.337E-01	2.200E-01	1.746E-02	0.726
+ +		74.97		7.223E-01	1.218E-01	1.844E-01	1.497E-02	3.917
		84.90		2.845E-01	1.524E-01	2.485E-01	2.266E-02	1.145
		569.67		-1.862E-02	2.730E-02	4.234E-02	4.393E-03	-0.440
TL-207		1063.62	*	1.936E-02	4.665E-02	8.023E-02	7.207E-03	0.241
		1770.23		1.730E-01	4.117E-01	6.588E-01	5.422E-02	0.263
		81.07		2.562E-02	1.726E-01	2.508E-01	2.181E-02	0.102
+ +		83.78		1.875E-01	1.005E-01	1.682E-01	1.512E-02	1.115
		94.90		1.418E-01	1.771E-01	2.853E-01	2.570E-02	0.497
		122.32		7.344E-01	1.387E+00	2.404E+00	2.186E-01	0.306
+ +		144.24		3.231E-01	5.815E-01	9.866E-01	9.830E-02	0.327
		154.21		4.108E-01	4.434E-01	5.935E-01	5.995E-02	0.692
		269.46		4.296E-01	2.302E-01	3.169E-01	4.768E-02	1.356
+ +		323.87	*	1.178E-04	5.867E-01	8.337E-01	1.744E-01	0.000
		338.28		7.599E+00	1.877E+00	2.407E+00	3.875E-01	3.157
		445.03		1.185E+00	1.858E+00	3.249E+00	4.458E-01	0.365
PO-209		260.50		-3.213E+00	8.262E+00	1.307E+01	1.888E+00	-0.246
		262.80		1.122E+00	2.219E+01	3.610E+01	5.260E+00	0.031
		896.60	*	-7.900E-01	6.462E+00	1.071E+01	1.054E+00	-0.074
BI-210		46.50	*	2.050E+00	2.184E+00	3.601E+00	3.353E-01	0.569
PB-210		46.50	*	2.050E+00	2.184E+00	3.601E+00	3.353E-01	0.569
PO-210		46.50	*	2.050E+00	2.183E+00	3.601E+00	3.036E-01	0.569
PB-211		404.84	*	-2.404E-01	9.168E-01	1.316E+00	8.288E-01	-0.183
+ BI-212		427.08		8.618E-01	1.774E+00	2.946E+00	1.840E+00	0.293
		831.96		-1.271E+00	1.385E+00	1.576E+00	9.903E-01	-0.806
		727.18	*	1.088E+00	4.435E-01	6.329E-01	6.917E-02	1.719
+ PO-215		785.46		2.306E+00	1.694E+00	3.014E+00	2.952E-01	0.765
		1620.62		2.035E+00	1.110E+00	2.307E+00	1.937E-01	0.882
		81.07		2.562E-02	1.726E-01	2.508E-01	2.181E-02	0.102
+ +		83.78		1.875E-01	1.005E-01	1.682E-01	1.512E-02	1.115
		94.90		1.418E-01	1.771E-01	2.853E-01	2.570E-02	0.497
		122.32		7.344E-01	1.387E+00	2.404E+00	2.186E-01	0.306
+ +		144.24		3.231E-01	5.815E-01	9.866E-01	9.830E-02	0.327
		154.21		4.108E-01	4.434E-01	5.935E-01	5.995E-02	0.692
		269.46		4.296E-01	2.302E-01	3.169E-01	4.768E-02	1.356
+ +		323.87	*	1.178E-04	5.867E-01	8.337E-01	1.744E-01	0.000
		338.28		7.599E+00	1.877E+00	2.407E+00	3.875E-01	3.157
		445.03		1.185E+00	1.858E+00	3.249E+00	4.458E-01	0.365
+ RN-219		271.23		5.512E-01	2.968E-01	4.094E-01	6.578E-02	1.347
		401.81	*	1.664E-01	3.548E-01	6.154E-01	1.004E-01	0.270
		549.76	*	4.097E+00	2.458E+01	4.109E+01	4.318E+00	0.100
RN-220		81.07		2.562E-02	1.726E-01	2.508E-01	2.181E-02	0.102
+ RA-223		83.78		1.875E-01	1.005E-01	1.682E-01	1.512E-02	1.115
		94.90		1.418E-01	1.771E-01	2.853E-01	2.570E-02	0.497

---- 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		7.344E-01	1.387E+00	2.404E+00	2.186E-01	0.306
		144.24		3.231E-01	5.815E-01	9.866E-01	9.830E-02	0.327
	+	154.21		4.108E-01	4.434E-01	5.935E-01	5.995E-02	0.692
	+	269.46		4.296E-01	2.302E-01	3.169E-01	4.768E-02	1.356
		323.87	*	1.178E-04	5.867E-01	8.337E-01	1.744E-01	0.000
	+	338.28		7.599E+00	1.877E+00	2.407E+00	3.875E-01	3.157
		445.03		1.185E+00	1.858E+00	3.249E+00	4.458E-01	0.365
		79.80		5.654E-01	1.292E+00	1.902E+00	4.085E-01	0.297
		236.00		3.941E-02	2.084E-01	3.081E-01	4.851E-02	0.128
		256.20	*	-2.204E-02	3.304E-01	5.346E-01	1.019E-01	-0.041
		286.10		-1.592E-01	1.343E+00	2.148E+00	3.928E-01	-0.074
	+	299.80		3.528E+00	1.916E+00	2.429E+00	5.178E-01	1.452
TH-227		304.40		1.340E-01	1.829E+00	2.630E+00	5.787E-01	0.051
		334.20		-4.413E-01	2.229E+00	3.096E+00	6.848E-01	-0.143
		79.80		5.654E-01	1.292E+00	1.902E+00	4.138E-01	0.297
	+	94.00		8.341E+00	3.071E+00	2.974E+00	6.530E-01	2.804
		236.00		3.941E-02	2.084E-01	3.081E-01	4.577E-02	0.128
		256.20	*	-2.204E-02	3.304E-01	5.346E-01	1.139E-01	-0.041
		286.10		-1.592E-01	1.352E+00	2.148E+00	2.173E+00	-0.074
	+	299.80		3.528E+00	1.916E+00	2.429E+00	5.178E-01	1.452
		304.40		1.340E-01	1.829E+00	2.630E+00	5.787E-01	0.051
		334.20		-4.413E-01	2.229E+00	3.096E+00	6.848E-01	-0.143
	+	85.43		2.807E-01	1.504E-01	2.371E-01	2.176E-02	1.184
	+	88.47		5.086E-01	1.260E-01	1.633E-01	1.543E-02	3.114
TH-229		100.00		1.503E-01	1.388E-01	2.469E-01	2.168E-02	0.609
		193.63	*	2.942E-01	4.160E-01	7.098E-01	7.794E-02	0.414
	+	210.97		2.277E+00	1.076E+00	1.121E+00	1.327E-01	2.031
		283.67	*	3.832E-01	1.319E+00	2.164E+00	4.287E-01	0.177
PA-231	+	301.29		1.411E+00	7.459E-01	9.546E-01	1.645E-01	1.478
TH-231		81.07		2.562E-02	1.726E-01	2.508E-01	2.181E-02	0.102
	+	83.78		1.875E-01	1.005E-01	1.682E-01	1.512E-02	1.115
		94.90		1.418E-01	1.771E-01	2.853E-01	2.570E-02	0.497
		122.32		7.344E-01	1.387E+00	2.404E+00	2.186E-01	0.306
U-231		144.24		3.231E-01	5.815E-01	9.866E-01	9.830E-02	0.327
	+	154.21		4.108E-01	4.434E-01	5.935E-01	5.995E-02	0.692
	+	269.46		4.296E-01	2.302E-01	3.169E-01	4.768E-02	1.356
		323.87	*	1.178E-04	5.867E-01	8.337E-01	1.744E-01	0.000
	+	338.28		7.599E+00	1.877E+00	2.407E+00	3.875E-01	3.157
		445.03		1.185E+00	1.858E+00	3.249E+00	4.458E-01	0.365
	+	84.21		1.780E+01	9.537E+00	1.592E+01	1.439E+00	1.118
	+	92.29		1.816E+01	5.614E+00	7.539E+00	6.908E-01	2.408
		95.87	*	-3.001E-02	1.877E+00	2.673E+00	2.394E-01	-0.011
		108.00		-2.262E+00	3.386E+00	5.620E+00	4.812E-01	-0.402
	+	75.28		2.107E+01	4.448E+00	5.455E+00	8.230E-01	3.863
	+	86.59		7.293E+00	2.587E+00	2.527E+00	6.835E-01	2.886
PA-233	+	300.12		9.835E-01	5.265E-01	6.759E-01	1.299E-01	1.455
		311.98	*	2.279E-02	5.721E-02	9.393E-02	1.378E-02	0.243
		340.50		6.127E-01	6.664E-01	9.699E-01	2.516E-01	0.632
		398.62		-1.409E+00	1.792E+00	2.801E+00	7.667E-01	-0.503



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-5.590E-01	1.408E+00	2.302E+00	5.175E-01	-0.243
		63.00		1.101E+00	1.579E+00	1.938E+00	2.868E-01	0.568
		94.67		1.856E-01	1.317E-01	2.150E-01	2.727E-02	0.863
		98.44		7.557E-02	8.510E-02	1.206E-01	6.732E-02	0.627
		99.86		3.986E-01	3.524E-01	6.276E-01	5.513E-02	0.635
		111.00		-1.078E-01	1.450E-01	2.334E-01	2.805E-02	-0.462
		131.20		5.316E-02	9.397E-02	1.454E-01	1.255E-02	0.366
		152.70		3.371E-01	3.670E-01	4.521E-01	7.855E-02	0.746
		186.00		6.134E+00	2.976E+00	2.413E+00	7.679E-01	2.542
		226.40		-7.711E-02	3.551E-01	5.749E-01	9.260E-02	-0.134
		227.20		-3.133E-02	3.811E-01	6.216E-01	7.873E-02	-0.050
		248.90		1.481E-01	6.750E-01	1.112E+00	2.766E-01	0.133
		293.70		3.787E+00	1.097E+00	1.398E+00	2.976E-01	2.709
		369.80		-1.910E-01	7.381E-01	1.141E+00	2.656E-01	-0.167
		568.70		-4.161E-01	8.551E-01	1.349E+00	1.401E-01	-0.309
		569.50		-1.717E-01	2.417E-01	3.737E-01	3.878E-02	-0.460
		574.00		4.258E-01	1.396E+00	2.349E+00	2.430E-01	0.181
		699.00		-1.245E-01	6.338E-01	1.007E+00	1.968E-01	-0.124
		706.10		-8.076E-01	9.998E-01	1.385E+00	6.202E-01	-0.583
		733.00		-2.238E-01	3.895E-01	5.003E-01	1.132E-01	-0.447
		742.81		-2.229E-01	1.241E+00	1.949E+00	1.313E+00	-0.114
		796.30		2.138E+00	1.336E+00	1.702E+00	4.671E-01	1.257
		805.60		-6.208E-01	9.309E-01	1.352E+00	4.192E-01	-0.459
		819.60		-3.194E-01	1.126E+00	1.733E+00	6.641E-01	-0.184
		826.30		-3.788E-03	8.016E-01	1.279E+00	5.754E-01	-0.003
		831.60		-5.451E-01	6.179E-01	8.536E-01	2.580E-01	-0.639
		876.40		1.706E-01	7.426E-01	1.239E+00	1.275E+00	0.138
		880.51		-1.495E-01	2.260E-01	3.523E-01	3.471E-02	-0.424
		883.24		8.337E-03	2.313E-01	3.897E-01	2.626E-01	0.021
		899.00		-1.457E-01	7.826E-01	1.259E+00	5.535E-01	-0.116
		925.00		-1.178E-01	1.049E+00	1.736E+00	1.693E-01	-0.068
		926.50		-1.787E-02	1.618E-01	2.678E-01	6.877E-02	-0.067
		946.00	*	-1.487E-01	2.610E-01	4.078E-01	7.857E-02	-0.365
		949.00		3.363E-01	3.925E-01	7.047E-01	6.802E-02	0.477
		980.50		2.693E-01	6.572E-01	1.136E+00	1.079E-01	0.237
		1394.10		-9.860E-01	1.043E+00	9.730E-01	6.329E-01	-1.013
PA-234M	+	766.42		9.190E+00	1.239E+01	1.959E+01	9.978E+00	0.469
		1001.03	*	5.944E+00	4.320E+00	7.952E+00	8.459E-01	0.747
U-235	+	89.95		3.568E+00	1.572E+00	1.588E+00	4.931E-01	2.248
		93.35		2.595E+00	1.059E+00	1.060E+00	2.987E-01	2.448
		105.00		6.483E-01	8.592E-01	1.425E+00	4.252E-01	0.455
		143.76	*	3.785E-02	1.786E-01	2.993E-01	5.291E-02	0.126
		163.35		-1.490E-01	3.907E-01	6.220E-01	1.216E-01	-0.240
		185.71		2.272E-01	8.662E-02	8.873E-02	9.410E-03	2.560
NP-236	+	205.31		-1.714E-01	4.798E-01	6.814E-01	1.402E-01	-0.252
		94.67		1.421E-01	9.913E-02	1.632E-01	1.473E-02	0.871
		98.44		5.704E-02	5.609E-02	9.115E-02	8.058E-03	0.626
		111.00		-8.152E-02	1.095E-01	1.766E-01	1.504E-02	-0.462
		160.31	*	3.475E-02	6.406E-02	1.097E-01	1.043E-02	0.317

---- 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		1.464E-01	1.183E-01	2.112E-01	1.858E-02	0.693
		117.00	*	9.360E-02	1.463E-01	2.552E-01	2.160E-02	0.367
	+	209.75		2.294E+00	1.084E+00	1.345E+00	1.583E-01	1.706
		228.18		-3.041E-02	1.938E-01	3.146E-01	4.000E-02	-0.097
		277.60		1.069E-01	1.652E-01	2.753E-01	4.237E-02	0.388
AM-241		334.30		-2.781E-01	1.261E+00	1.748E+00	2.388E-01	-0.159
		59.54	*	4.038E-02	1.182E-01	1.766E-01	1.388E-02	0.229
CM-243		99.55		1.507E-01	1.218E-01	2.174E-01	1.912E-02	0.693
		103.76	*	2.026E-02	7.364E-02	1.274E-01	1.103E-02	0.159
		117.00		9.633E-02	1.506E-01	2.627E-01	2.223E-02	0.367
	+	209.75		2.262E+00	1.069E+00	1.326E+00	1.561E-01	1.706
		228.18		-3.074E-02	1.959E-01	3.179E-01	4.044E-02	-0.097
AM-246		277.60		1.078E-01	1.666E-01	2.776E-01	4.273E-02	0.388
		798.80		-6.016E-02	1.379E-01	1.795E-01	1.762E-02	-0.335
		1036.00		4.356E-02	2.761E-01	4.643E-01	4.260E-02	0.094
		1062.04		-2.880E-02	2.046E-01	3.333E-01	2.998E-02	-0.086
		1078.86	*	5.588E-02	1.211E-01	2.094E-01	1.857E-02	0.267
CM-247		278.00		4.148E-01	6.957E-01	1.145E+00	1.765E-01	0.362
		287.40		-1.281E-01	1.053E+00	1.684E+00	2.572E-01	-0.076
		402.60	*	1.051E-02	3.144E-02	5.422E-02	5.803E-03	0.194
CF-249		252.85		-1.299E-02	7.242E-01	1.176E+00	1.651E-01	-0.011
		333.44		2.430E-02	1.816E-01	2.375E-01	3.253E-02	0.102
		387.95	*	1.305E-02	3.082E-02	5.367E-02	5.844E-03	0.243
CF-251		176.60	*	5.251E-03	1.077E-01	1.796E-01	1.829E-02	0.029
		227.00		-5.451E-02	3.381E-01	5.491E-01	6.950E-02	-0.099
		285.00		-4.439E-03	1.509E+00	2.433E+00	3.733E-01	-0.002

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                                     DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101003
* Acquisition date   : 2-FEB-2010 09:45:29 Detector SN#      :
* Detector ID        : GAM11 Sensitivity                    : 5.000
* Geometry           : CAN Energy tolerance                : 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit       : 75.000
* Elapsed real time  : 0 02:00:01.76 Half life ratio      : 8.000
*****
*
*                                     SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101003 Analyst initials       : MXR1
* Batch Number       : 944037 Sample Quantity          : 1.2976E+02 GRAM
* Recovery           : 1.00000 Carrier Weight          : 0.00000
*****
*
*                                     QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope     :
* MSD DPM             : 0.000 MSD Isotope                  :
* LCS DPM             : 0.000 LCS Isotope                   :
* LCSD DPM            : 0.000 LCSD Isotope                  :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.890E+01	2.950E+00	5.058E-01	0.000E+00
CD-109	3.817E+00	9.266E-01	8.917E-01	0.000E+00
SN-126	3.725E-01	9.042E-02	8.730E-02	0.000E+00
BA-137M	4.194E-02	4.198E-02	5.529E-02	0.000E+00
CS-137	4.434E-02	4.437E-02	5.845E-02	0.000E+00
RE-188	1.865E-01	1.972E-01	2.567E-01	0.000E+00
TL-208	6.402E-01	1.008E-01	4.564E-02	0.000E+00
BI-211	3.705E+00	6.121E-01	2.795E-01	0.000E+00
PB-212	1.880E+00	2.804E-01	8.001E-02	0.000E+00
PO-212	1.880E+00	2.804E-01	8.001E-02	0.000E+00
BI-214	1.069E+00	1.854E-01	9.321E-02	0.000E+00
PB-214	1.289E+00	2.229E-01	9.821E-02	0.000E+00
PO-214	1.289E+00	2.229E-01	9.821E-02	0.000E+00
PO-216	1.880E+00	2.804E-01	8.001E-02	0.000E+00
PO-218	1.289E+00	2.229E-01	9.821E-02	0.000E+00
RA-224	4.310E+00	1.369E+00	9.107E-01	0.000E+00
RA-226	1.069E+00	1.854E-01	9.321E-02	0.000E+00
AC-228	1.537E+00	3.218E-01	1.976E-01	0.000E+00
RA-228	1.537E+00	3.218E-01	1.976E-01	0.000E+00
TH-228	1.917E+00	2.860E-01	8.161E-02	0.000E+00
TH-230	1.069E+00	1.854E-01	9.321E-02	0.000E+00
TH-232	1.537E+00	3.218E-01	1.976E-01	0.000E+00
TH-234	9.446E-01	1.330E+00	1.515E+00	0.000E+00
U-234	1.069E+00	1.854E-01	9.321E-02	0.000E+00
NP-237	1.094E+00	3.456E-01	2.584E-01	0.000E+00
U-238	9.446E-01	1.330E+00	1.515E+00	0.000E+00
AM-243	4.023E-01	6.649E-02	6.703E-02	0.000E+00
ANH-511	1.265E-01	6.222E-02	4.633E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-2.406E-01	2.993E-01	4.824E-01	0.000E+00	NOT IDENT.
NA-22	7.941E-03	3.918E-02	6.662E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.237E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	5.443E-04	1.868E-02	3.158E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.244E-02	5.627E-02	0.000E+00	FAIL ABUN
SC-46	-1.647E-02	3.584E-02	5.922E-02	0.000E+00	FAIL ABUN
V-48	5.092E-03	7.777E-02	1.338E-01	0.000E+00	NOT IDENT.
CR-51	1.637E-01	3.525E-01	6.075E-01	0.000E+00	NOT IDENT.
MN-52	9.720E-02	3.609E-01	6.177E-01	0.000E+00	NOT IDENT.
MN-54	8.398E-03	3.357E-02	5.946E-02	0.000E+00	NOT IDENT.
CO-56	1.177E-02	3.518E-02	6.277E-02	0.000E+00	FAIL ABUN
CO-57	1.225E-02	1.966E-02	3.633E-02	0.000E+00	NOT IDENT.
CO-58	3.133E-02	3.674E-02	6.540E-02	0.000E+00	NOT IDENT.
FE-59	-4.866E-03	8.765E-02	1.474E-01	0.000E+00	NOT IDENT.
CO-60	-1.499E-02	3.906E-02	6.227E-02	0.000E+00	NOT IDENT.
ZN-65	-4.819E-02	1.018E-01	1.385E-01	0.000E+00	NOT IDENT.
GE-68	-1.984E-01	1.049E+00	1.740E+00	0.000E+00	NOT IDENT.
AS-73	2.443E-01	5.946E-01	1.036E+00	0.000E+00	NOT IDENT.
AS-74	-3.131E-02	1.041E-01	1.728E-01	0.000E+00	NOT IDENT.
SE-75	2.079E-02	3.951E-02	6.612E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	3.402E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-4.333E-01	3.980E-01	5.838E-01	0.000E+00	NOT IDENT.
RB-83	-4.470E-03	5.690E-02	9.735E-02	0.000E+00	NOT IDENT.
RB-84	-3.174E-02	6.136E-02	1.004E-01	0.000E+00	NOT IDENT.
KR-85	5.802E+00	6.941E+00	1.130E+01	0.000E+00	NOT IDENT.
SR-85	3.128E-02	3.742E-02	6.093E-02	0.000E+00	NOT IDENT.
RB-86	-5.996E-01	8.282E-01	1.295E+00	0.000E+00	NOT IDENT.
Y-88	2.495E-02	2.771E-02	5.467E-02	0.000E+00	NOT IDENT.
ZR-88	2.990E-02	2.584E-02	4.857E-02	0.000E+00	NOT IDENT.
Y-91	-1.527E+01	2.013E+01	3.144E+01	0.000E+00	NOT IDENT.
NB-94	9.455E-03	2.901E-02	4.990E-02	0.000E+00	NOT IDENT.
NB-95	2.056E-03	4.385E-02	7.299E-02	0.000E+00	NOT IDENT.
NB-95M	-6.453E-02	1.204E-01	1.776E-01	0.000E+00	NOT IDENT.
ZR-95	2.766E-02	6.861E-02	1.180E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	9.962E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.974E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.090E+01	3.536E+01	5.528E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.729E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.463E-03	2.811E-02	4.805E-02	0.000E+00	NOT IDENT.
RH-102	2.859E-03	2.485E-02	4.350E-02	0.000E+00	NOT IDENT.
RU-103	-3.431E-02	3.805E-02	6.061E-02	0.000E+00	FAIL ABUN
RH-106	-4.367E-02	2.780E-01	4.643E-01	0.000E+00	FAIL ABUN
RU-106	-4.367E-02	2.780E-01	4.643E-01	0.000E+00	FAIL ABUN
AG-108M	2.260E-02	2.704E-02	4.979E-02	0.000E+00	NOT IDENT.
AG-110M	1.473E-02	3.253E-02	5.067E-02	0.000E+00	NOT IDENT.
IN-111	7.897E-01	3.046E+00	4.747E+00	0.000E+00	NOT IDENT.
IN-113M	1.075E-02	3.618E-02	6.509E-02	0.000E+00	NOT IDENT.
SN-113	1.075E-02	3.618E-02	6.509E-02	0.000E+00	NOT IDENT.
IN-114M	-6.372E-02	1.767E-01	2.701E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.025E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-5.291E-03	5.925E-02	9.980E-02	0.000E+00	NOT IDENT.
SB-122	1.622E+00	5.997E+00	1.046E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.976E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.263E-03	2.323E-02	4.105E-02	0.000E+00	NOT IDENT.
I-124	-9.199E-01	1.359E+00	2.092E+00	0.000E+00	NOT IDENT.
SB-124	-3.481E-02	6.647E-02	1.005E-01	0.000E+00	FAIL ABUN
SB-125	7.179E-02	7.475E-02	1.388E-01	0.000E+00	FAIL ABUN
TE-125M	5.036E-01	7.161E+00	1.305E+01	0.000E+00	NOT IDENT.
I-126	-9.777E-02	2.406E-01	3.586E-01	0.000E+00	NOT IDENT.
SB-126	6.807E-02	1.716E-01	2.869E-01	0.000E+00	FAIL ABUN
SB-127	-6.128E-01	2.901E+00	4.771E+00	0.000E+00	NOT IDENT.
XE-127	2.215E-02	4.202E-02	7.477E-02	0.000E+00	NOT IDENT.
I-131	1.904E-01	1.544E-01	2.752E-01	0.000E+00	NOT IDENT.
TE-132	-7.446E-01	1.638E+00	2.745E+00	0.000E+00	NOT IDENT.
BA-133	8.513E-03	4.211E-02	6.317E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.291E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.172E-02	9.153E-02	0.000E+00	FAIL ABUN
CS-135	4.024E-02	1.471E-01	2.261E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	8.179E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.932E-02	1.277E-01	2.105E-01	0.000E+00	FAIL ABUN
CE-139	1.243E-02	2.415E-02	4.357E-02	0.000E+00	NOT IDENT.
BA-140	-1.440E-01	2.809E-01	4.548E-01	0.000E+00	NOT IDENT.
LA-140	4.676E-02	8.101E-02	1.508E-01	0.000E+00	FAIL ABUN
CE-141	1.325E-02	5.584E-02	1.005E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.779E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.814E-01	1.639E-01	2.610E-01	0.000E+00	NOT IDENT.
PM-144	1.528E-02	2.903E-02	5.085E-02	0.000E+00	NOT IDENT.

PR-144	1.038E+00	1.972E+00	3.455E+00	0.000E+00	NOT IDENT.
PM-146	-2.720E-03	3.756E-02	6.516E-02	0.000E+00	NOT IDENT.
ND-147	-5.312E-01	6.590E-01	1.050E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	3.485E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-6.074E-02	8.836E-02	1.392E-01	0.000E+00	FAIL ABUN
GD-153	-8.932E-02	7.061E-02	9.782E-02	0.000E+00	FAIL ABUN
EU-154	2.105E-02	1.091E-01	1.853E-01	0.000E+00	NOT IDENT.
EU-155	4.577E-02	8.526E-02	1.530E-01	0.000E+00	FAIL ABUN
TB-160	-7.299E-02	1.167E-01	1.886E-01	0.000E+00	FAIL ABUN
HO-166M	4.150E-02	5.297E-02	9.439E-02	0.000E+00	NOT IDENT.
TM-171	-8.315E+00	2.292E+01	3.514E+01	0.000E+00	NOT IDENT.
LU-176	-3.190E-03	2.130E-02	3.541E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.457E+00	3.153E+00	0.000E+00	FAIL ABUN
LU-177M	1.008E-01	1.621E-01	2.653E-01	0.000E+00	FAIL ABUN
HF-181	2.675E-02	3.916E-02	7.103E-02	0.000E+00	NOT IDENT.
W-181	-1.374E-01	2.896E-01	4.415E-01	0.000E+00	NOT IDENT.
TA-182	3.456E-02	1.858E-01	3.157E-01	0.000E+00	FAIL ABUN
RE-183	-6.249E-02	9.410E-02	1.566E-01	0.000E+00	FAIL ABUN
RE-184	-3.530E-03	1.929E-01	3.291E-01	0.000E+00	NOT IDENT.
OS-185	-1.612E-02	3.899E-02	6.331E-02	0.000E+00	NOT IDENT.
W-188	-3.867E+00	7.182E+00	1.025E+01	0.000E+00	FAIL ABUN
IR-192	5.359E-03	3.041E-02	5.154E-02	0.000E+00	FAIL ABUN
AU-195	2.545E-01	1.746E-01	3.223E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.250E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.111E+00	1.665E+01	2.946E+01	0.000E+00	NOT IDENT.
TL-202	8.572E-03	7.346E-02	1.295E-01	0.000E+00	NOT IDENT.
HG-203	1.411E-02	3.972E-02	6.779E-02	0.000E+00	FAIL ABUN
BI-207	1.936E-02	4.572E-02	8.070E-02	0.000E+00	FAIL ABUN
TL-207	1.178E-04	5.749E-01	8.548E-01	0.000E+00	FAIL ABUN
PO-209	-7.900E-01	6.333E+00	1.080E+01	0.000E+00	NOT IDENT.
BI-210	2.050E+00	2.140E+00	3.804E+00	0.000E+00	NOT IDENT.
PB-210	2.050E+00	2.140E+00	3.804E+00	0.000E+00	NOT IDENT.
PO-210	2.050E+00	2.139E+00	3.804E+00	0.000E+00	NOT IDENT.
PB-211	-2.404E-01	8.985E-01	1.344E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.346E-01	6.406E-01	0.000E+00	FAIL ABUN
PO-215	1.178E-04	5.749E-01	8.548E-01	0.000E+00	FAIL ABUN
RN-219	1.664E-01	3.477E-01	6.289E-01	0.000E+00	FAIL ABUN
RN-220	4.097E+00	2.409E+01	4.178E+01	0.000E+00	NOT IDENT.
RA-223	1.178E-04	5.749E-01	8.548E-01	0.000E+00	FAIL ABUN
AC-227	-2.204E-02	3.238E-01	5.502E-01	0.000E+00	FAIL ABUN
TH-227	-2.204E-02	3.238E-01	5.502E-01	0.000E+00	FAIL ABUN
TH-229	2.942E-01	4.076E-01	7.337E-01	0.000E+00	FAIL ABUN
PA-231	3.832E-01	1.293E+00	2.223E+00	0.000E+00	FAIL ABUN
TH-231	1.178E-04	5.749E-01	8.548E-01	0.000E+00	FAIL ABUN
U-231	-3.001E-02	1.839E+00	2.793E+00	0.000E+00	FAIL ABUN
PA-233	2.279E-02	5.606E-02	9.636E-02	0.000E+00	FAIL ABUN
PA-234	-1.487E-01	2.557E-01	4.110E-01	0.000E+00	FAIL ABUN
PA-234M	5.944E+00	4.234E+00	8.007E+00	0.000E+00	NOT IDENT.
U-235	3.785E-02	1.751E-01	3.108E-01	0.000E+00	FAIL ABUN
NP-236	3.475E-02	6.278E-02	1.137E-01	0.000E+00	NOT IDENT.
NP-239	9.360E-02	1.434E-01	2.659E-01	0.000E+00	FAIL ABUN
AM-241	4.038E-02	1.159E-01	1.859E-01	0.000E+00	NOT IDENT.
CM-243	2.026E-02	7.216E-02	1.330E-01	0.000E+00	FAIL ABUN
AM-246	5.588E-02	1.187E-01	2.105E-01	0.000E+00	NOT IDENT.
CM-247	1.051E-02	3.081E-02	5.540E-02	0.000E+00	NOT IDENT.
CF-249	1.305E-02	3.021E-02	5.487E-02	0.000E+00	NOT IDENT.
CF-251	5.251E-03	1.055E-01	1.859E-01	0.000E+00	NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-FEB-2010 17:52:04.20

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101003.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:45:29.
Sample ID          : G245101003 Sample quantity   : 1.29760E+02 GRAM
Detector name      : GAM11 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.76 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity        : 5.00000
Batch ID           : 944037 Detector SN#       :
Matrix Spike ID    : LCS ID                   : 1032-A
*****

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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1306	10.67*	1.225E+00	2.890E+01	2.890E+01	10.42
CD-109	88.03	324	3.72*	6.792E+00	3.705E+00	3.817E+00	24.77
SN-126	64.28	53	9.60	4.231E+00	3.739E-01	3.739E-01	143.34
	86.94	324	8.90	6.792E+00	1.549E+00	1.549E+00	47.43
	87.57	324	37.00*	6.792E+00	3.725E-01	3.725E-01	24.77
BA-137M	661.65	31	89.98*	2.401E+00	4.189E-02	4.194E-02	102.12
CS-137	661.65	31	85.12*	2.401E+00	4.428E-02	4.434E-02	102.12
RE-188	155.03	54	15.00*	6.828E+00	1.528E-01	1.865E-01	107.87
	477.96	-----	1.04	3.110E+00	-----	Line Not Found	-----
	633.10	-----	1.26	2.491E+00	-----	Line Not Found	-----
TL-208	277.35	-----	6.80	4.676E+00	-----	Line Not Found	-----
	510.84	129	21.60	2.954E+00	5.855E-01	5.855E-01	50.89
	583.14	496	84.20*	2.661E+00	6.402E-01	6.402E-01	16.06
	860.37	79	12.46	1.925E+00	9.565E-01	9.565E-01	55.47
BI-211	72.87	-----	1.27	5.576E+00	-----	Line Not Found	-----
	351.07	650	12.94*	3.922E+00	3.705E+00	3.705E+00	16.86
PB-212	74.81	530	10.70	5.780E+00	2.481E+00	2.481E+00	19.28
	77.11	819	18.00	6.016E+00	2.188E+00	2.188E+00	13.25
	87.30	324	8.00	6.792E+00	1.723E+00	1.723E+00	26.71
	238.63	1510	44.60*	5.211E+00	1.880E+00	1.880E+00	15.22
	300.09	99	3.41	4.415E+00	1.904E+00	1.904E+00	52.47
PO-212	74.81	530	10.70	5.780E+00	2.481E+00	2.481E+00	19.28
	77.11	819	18.00	6.016E+00	2.188E+00	2.188E+00	13.25
	87.30	324	8.00	6.792E+00	1.723E+00	1.723E+00	26.71
	115.19	-----	0.60	7.407E+00	-----	Line Not Found	-----
	238.63	1510	44.60*	5.211E+00	1.880E+00	1.880E+00	15.22
	300.09	99	3.41	4.415E+00	1.904E+00	1.904E+00	52.47
BI-214	609.31	440	46.30*	2.569E+00	1.069E+00	1.069E+00	17.69
	1120.29	86	15.10	1.530E+00	1.083E+00	1.083E+00	53.07
	1764.49	101	15.80	1.071E+00	1.719E+00	1.719E+00	23.13
PB-214	74.81	530	6.21	5.780E+00	4.276E+00	4.276E+00	18.42
	77.11	819	10.50	6.016E+00	3.751E+00	3.751E+00	15.28

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	324	4.67	6.792E+00	2.951E+00	2.952E+00	25.94
	241.98	304	7.49	5.168E+00	2.273E+00	2.273E+00	32.91
	295.21	395	19.20	4.467E+00	1.333E+00	1.333E+00	24.00
	351.92	650	37.20*	3.922E+00	1.289E+00	1.289E+00	17.65
	74.81	530	6.21	5.780E+00	4.276E+00	4.276E+00	18.42
	77.11	819	10.50	6.016E+00	3.751E+00	3.751E+00	15.28
	87.30	324	4.67	6.792E+00	2.951E+00	2.952E+00	25.94
	241.98	304	7.49	5.168E+00	2.273E+00	2.273E+00	32.91
	295.21	395	19.20	4.467E+00	1.333E+00	1.333E+00	24.00
	351.92	650	37.20*	3.922E+00	1.289E+00	1.289E+00	17.65
PO-216	74.81	530	10.70	5.780E+00	2.481E+00	2.481E+00	19.28
	77.11	819	18.00	6.016E+00	2.188E+00	2.188E+00	13.25
	87.30	324	8.00	6.792E+00	1.723E+00	1.723E+00	26.71
	238.63	1510	44.60*	5.211E+00	1.880E+00	1.880E+00	15.22
	300.09	99	3.41	4.415E+00	1.904E+00	1.904E+00	52.47
PO-218	74.81	530	6.21	5.780E+00	4.276E+00	4.276E+00	18.42
	77.11	819	10.50	6.016E+00	3.751E+00	3.751E+00	15.28
	87.30	324	4.67	6.792E+00	2.951E+00	2.952E+00	25.94
	241.98	304	7.49	5.168E+00	2.273E+00	2.273E+00	32.91
	295.21	395	19.20	4.467E+00	1.333E+00	1.333E+00	24.00
RA-224	351.92	650	37.20*	3.922E+00	1.289E+00	1.289E+00	17.65
	240.98	304	3.95*	5.168E+00	4.310E+00	4.310E+00	32.42
	609.31	440	46.30*	2.569E+00	1.069E+00	1.069E+00	17.69
	1120.29	86	15.10	1.530E+00	1.083E+00	1.083E+00	53.07
	1764.49	101	15.80	1.071E+00	1.719E+00	1.719E+00	23.13
AC-228	338.32	290	11.40	4.040E+00	1.820E+00	1.820E+00	46.49
	911.07	270	27.70*	1.833E+00	1.537E+00	1.537E+00	21.36
	969.11	201	16.60	1.738E+00	2.019E+00	2.019E+00	30.07
RA-228	338.32	290	11.40	4.040E+00	1.820E+00	1.820E+00	46.49
	911.07	270	27.70*	1.833E+00	1.537E+00	1.537E+00	21.36
	969.11	201	16.60	1.738E+00	2.019E+00	2.019E+00	30.07
TH-228	74.81	530	10.70	5.780E+00	2.481E+00	2.531E+00	16.90
	77.11	819	18.00	6.016E+00	2.188E+00	2.232E+00	13.25
	87.30	324	8.00	6.792E+00	1.723E+00	1.757E+00	24.77
	238.63	1510	44.60*	5.211E+00	1.880E+00	1.917E+00	15.22
	300.09	99	3.41	4.415E+00	1.904E+00	1.942E+00	78.48
TH-230	609.31	440	46.30*	2.569E+00	1.069E+00	1.069E+00	17.69
	1120.29	86	15.10	1.530E+00	1.083E+00	1.083E+00	53.07
	1764.49	101	15.80	1.071E+00	1.719E+00	1.719E+00	23.13
TH-232	338.32	290	11.40	4.040E+00	1.820E+00	1.820E+00	23.08
	911.07	270	27.70*	1.833E+00	1.537E+00	1.537E+00	21.36
	969.11	201	16.60	1.738E+00	2.019E+00	2.019E+00	30.07
TH-234	63.29	53	3.80*	4.231E+00	9.446E-01	9.446E-01	143.67
	92.38	285	5.41	7.056E+00	2.158E+00	2.158E+00	34.76
U-234	609.31	440	46.30*	2.569E+00	1.069E+00	1.069E+00	17.69
	1120.29	86	15.10	1.530E+00	1.083E+00	1.083E+00	53.07
	1764.49	101	15.80	1.071E+00	1.719E+00	1.719E+00	23.13
NP-237	86.50	324	12.60*	6.792E+00	1.094E+00	1.094E+00	32.24
	95.87	-----	2.60	7.169E+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	53	3.80*	4.231E+00	9.446E-01	9.446E-01	143.67
	92.38	285	5.41	7.056E+00	2.158E+00	2.158E+00	30.92
AM-243	74.67	530	66.00*	5.780E+00	4.023E-01	4.023E-01	16.86
	86.72	324	0.34	6.792E+00	4.102E+01	4.102E+01	24.77
	117.66	-----	0.55	7.397E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.065E+00	-----	Line Not Found	-----
ANH-511	511.00	129	100.00*	2.954E+00	1.265E-01	1.265E-01	50.20

Flag: "\*" = Keyline



Total number of lines in spectrum 38  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 35 92.11%

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	2.890E+01	2.890E+01	0.301E+01	10.42	
CD-109	464.00D	1.03	3.705E+00	3.817E+00	0.945E+00	24.77	
SN-126	1.00E+05Y	1.00	3.725E-01	3.725E-01	0.923E-01	24.77	
BA-137M	30.17Y	1.00	4.189E-02	4.194E-02	4.283E-02	102.12	
CS-137	30.17Y	1.00	4.428E-02	4.434E-02	4.528E-02	102.12	
RE-188	69.40D	1.22	1.528E-01	1.865E-01	2.012E-01	107.87	
TL-208	1.41E+10Y	1.00	6.402E-01	6.402E-01	1.028E-01	16.06	
BI-211	7.04E+08Y	1.00	3.705E+00	3.705E+00	0.625E+00	16.86	
PB-212	1.41E+10Y	1.00	1.880E+00	1.880E+00	0.286E+00	15.22	
PO-212	1.41E+10Y	1.00	1.880E+00	1.880E+00	0.286E+00	15.22	
BI-214	1600.00Y	1.00	1.069E+00	1.069E+00	0.189E+00	17.69	
PB-214	1600.00Y	1.00	1.289E+00	1.289E+00	0.227E+00	17.65	
PO-214	1600.00Y	1.00	1.289E+00	1.289E+00	0.227E+00	17.65	
PO-216	1.41E+10Y	1.00	1.880E+00	1.880E+00	0.286E+00	15.22	
PO-218	1600.00Y	1.00	1.289E+00	1.289E+00	0.227E+00	17.65	
RA-224	1.41E+10Y	1.00	4.310E+00	4.310E+00	1.397E+00	32.42	
RA-226	1600.00Y	1.00	1.069E+00	1.069E+00	0.189E+00	17.69	
AC-228	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.328E+00	21.36	
RA-228	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.328E+00	21.36	
TH-228	1.91Y	1.02	1.880E+00	1.917E+00	0.292E+00	15.22	
TH-230	4.47E+09Y	1.00	1.069E+00	1.069E+00	0.189E+00	17.69	
TH-232	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.328E+00	21.36	
TH-234	4.47E+09Y	1.00	9.446E-01	9.446E-01	13.57E-01	143.67	
U-234	4.47E+09Y	1.00	1.069E+00	1.069E+00	0.189E+00	17.69	
NP-237	2.14E+06Y	1.00	1.094E+00	1.094E+00	0.353E+00	32.24	
U-238	4.47E+09Y	1.00	9.446E-01	9.446E-01	13.57E-01	143.67	
AM-243	7380.00Y	1.00	4.023E-01	4.023E-01	0.678E-01	16.86	
ANH-511	1.00E+09Y	1.00	1.265E-01	1.265E-01	0.635E-01	50.20	

Total Activity : 6.566E+01 6.584E+01

Grand Total Activity : 6.566E+01 6.584E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101003

Page : 5  
Acquisition date : 2-FEB-2010 09:45:29

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	84.06	106	306	0.87	167.02	164	28	1.47E-02	52.8	6.59E+00	T
5	89.88	231	364	1.12	178.69	164	28	3.21E-02	31.2	6.93E+00	T
0	129.38	37	351	0.86	257.74	254	7	5.16E-03	****	7.28E+00	T
0	185.91	261	451	1.19	370.89	365	13	3.63E-02	36.6	6.16E+00	T
0	209.52	146	294	1.23	418.14	414	9	2.03E-02	45.8	5.70E+00	T
0	270.00	96	173	1.10	539.19	535	8	1.34E-02	51.4	4.77E+00	T
0	327.98	103	192	1.47	655.22	649	12	1.43E-02	57.4	4.13E+00	T
0	409.37	61	62	1.44	818.12	815	7	8.48E-03	50.0	3.50E+00	
0	463.00	57	141	1.02	925.43	922	10	7.89E-03	82.9	3.19E+00	T
0	727.32	99	69	1.16	1454.37	1449	12	1.37E-02	39.3	2.22E+00	T
0	795.06	59	63	0.83	1589.92	1584	10	8.25E-03	56.1	2.06E+00	T
1	964.47	62	43	1.73	1928.91	1924	23	8.59E-03	46.7	1.75E+00	T
0	1238.13	54	44	1.49	2476.43	2473	9	7.51E-03	51.6	1.40E+00	T
0	1408.77	26	10	0.63	2817.81	2813	10	3.61E-03	60.1	1.26E+00	T
0	1630.94	21	0	0.84	3262.24	3256	13	2.92E-03	43.6	1.13E+00	
0	1730.20	30	7	2.18	3460.78	3454	14	4.17E-03	52.3	1.08E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101003.CNF;1
* Acquisition date   : 2-FEB-2010 09:45:29.   Detector SN#      :
* Detector ID        : GAM11                  Sensitivity         : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.76          Half life ratio   : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G245101003             Analyst initials: MXR1
* Batch Number       : 944037                 Sample Quantity  : 1.29760E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22.2MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.890E+01	3.010E+00	5.055E-01	4.371E-02	57.165
CD-109	3.817E+00	9.455E-01	8.523E-01	8.082E-02	4.479
SN-126	3.725E-01	9.227E-02	8.344E-02	7.870E-03	4.465
BA-137M	4.194E-02	4.283E-02	5.455E-02	5.161E-03	0.769
CS-137	4.434E-02	4.528E-02	5.766E-02	5.465E-03	0.769
RE-188	1.865E-01	2.012E-01	2.475E-01	2.308E-02	0.754
TL-208	6.402E-01	1.028E-01	4.493E-02	4.853E-03	14.248
BI-211	3.705E+00	6.246E-01	2.729E-01	3.601E-02	13.573
PB-212	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
PO-212	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
BI-214	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
PB-214	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
PO-214	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
PO-216	1.880E+00	2.861E-01	7.766E-02	1.088E-02	24.204
PO-218	1.289E+00	2.274E-01	9.591E-02	1.357E-02	13.436
RA-224	4.310E+00	1.397E+00	8.841E-01	1.184E-01	4.875
RA-226	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
AC-228	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847
TH-228	1.917E+00	2.919E-01	7.921E-02	1.109E-02	24.204
TH-230	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
TH-232	1.537E+00	3.283E-01	1.959E-01	2.385E-02	7.847
TH-234	9.446E-01	1.357E+00	1.441E+00	2.507E-01	0.655
U-234	1.069E+00	1.891E-01	9.183E-02	1.038E-02	11.646
NP-237	1.094E+00	3.527E-01	2.470E-01	5.590E-02	4.430
U-238	9.446E-01	1.357E+00	1.441E+00	2.507E-01	0.655
AM-243	4.023E-01	6.784E-02	6.391E-02	5.172E-03	6.295
ANH-511	1.265E-01	6.348E-02	4.551E-02	4.867E-03	2.779

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.406E-01		3.054E-01	4.734E-01	5.358E-02	-0.508
NA-22	7.941E-03		3.998E-02	6.643E-02	5.456E-03	0.120
NA-24	-2.557E+01		6.310E+01	Half-Life	too short	
AL-26	5.443E-04		1.906E-02	3.167E-02	2.585E-03	0.017
TI-44	4.038E-01	+	5.351E-02	5.368E-02	4.525E-03	7.523
SC-46	-1.647E-02		3.657E-02	5.870E-02	5.782E-03	-0.281
V-48	5.092E-03		7.936E-02	1.328E-01	1.260E-02	0.038
CR-51	1.637E-01		3.597E-01	5.924E-01	8.597E-02	0.276
MN-52	9.720E-02		3.683E-01	6.172E-01	5.171E-02	0.157
MN-54	8.398E-03		3.425E-02	5.888E-02	5.798E-03	0.143
CO-56	1.177E-02		3.589E-02	6.217E-02	6.126E-03	0.189
CO-57	1.225E-02		2.006E-02	3.490E-02	2.953E-03	0.351
CO-58	3.133E-02		3.749E-02	6.473E-02	6.374E-03	0.484
FE-59	-4.866E-03		8.944E-02	1.466E-01	1.378E-02	-0.033
CO-60	-1.499E-02		3.986E-02	6.214E-02	5.135E-03	-0.241
ZN-65	-4.819E-02		1.039E-01	1.378E-01	1.183E-02	-0.350
GE-68	-1.984E-01		1.070E+00	1.731E+00	1.537E-01	-0.115
AS-73	2.443E-01		6.067E-01	9.825E-01	7.378E-02	0.249
AS-74	-3.131E-02		1.062E-01	1.702E-01	1.730E-02	-0.184
SE-75	2.079E-02		4.031E-02	6.428E-02	9.448E-03	0.324
BR-77	-1.065E-05		1.736E-05	Half-Life	too short	
SR-82	-4.333E-01		4.061E-01	5.774E-01	5.647E-02	-0.750
RB-83	-4.470E-03		5.806E-02	9.566E-02	1.019E-02	-0.047
RB-84	-3.174E-02		6.261E-02	9.946E-02	9.800E-03	-0.319
KR-85	5.802E+00		7.082E+00	1.110E+01	1.186E+00	0.523
SR-85	3.128E-02		3.819E-02	5.987E-02	6.395E-03	0.523
RB-86	-5.996E-01		8.451E-01	1.288E+00	1.144E-01	-0.466
Y-88	2.495E-02		2.828E-02	5.484E-02	4.452E-03	0.455
ZR-88	2.990E-02		2.636E-02	4.751E-02	5.068E-03	0.629
Y-91	-1.527E+01		2.054E+01	3.133E+01	2.536E+00	-0.487
NB-94	9.455E-03		2.960E-02	4.927E-02	4.732E-03	0.192
NB-95	2.056E-03		4.475E-02	7.217E-02	7.045E-03	0.028
NB-95M	-6.453E-02		1.229E-01	1.723E-01	2.406E-02	-0.374

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	2.766E-02		7.001E-02	1.166E-01	1.227E-02	0.237
NB-97	4.223E+00		5.083E+00	Half-Life	too short	
ZR-97	6.989E+01		1.007E+02	Half-Life	too short	
MO-99	-2.090E+01		3.608E+01	5.463E+01	8.646E+00	-0.382
TC-99M	-2.029E+15		8.823E+15	Half-Life	too short	
RH-101	2.463E-03		2.868E-02	4.650E-02	5.205E-03	0.053
RH-102	2.859E-03		2.536E-02	4.268E-02	4.602E-03	0.067
RU-103	-3.431E-02		3.883E-02	5.952E-02	9.250E-03	-0.576
RH-106	-4.367E-02		2.837E-01	4.575E-01	6.512E-02	-0.095
RU-106	-4.367E-02		2.837E-01	4.575E-01	4.539E-02	-0.095
AG-108M	2.260E-02		2.759E-02	4.879E-02	5.393E-03	0.463
AG-110M	1.473E-02		3.320E-02	4.998E-02	4.871E-03	0.295
IN-111	7.897E-01		3.108E+00	4.610E+00	6.282E-01	0.171
IN-113M	1.075E-02		3.692E-02	6.368E-02	6.926E-03	0.169
SN-113	1.075E-02		3.692E-02	6.368E-02	6.926E-03	0.169
IN-114M	-6.372E-02		1.803E-01	2.612E-01	2.826E-02	-0.244
CD-115	2.556E-05		2.053E-05	Half-Life	too short	
SN-117M	-5.291E-03		6.046E-02	9.625E-02	9.097E-03	-0.055
SB-122	1.622E+00		6.119E+00	1.030E+01	1.073E+00	0.158
I-123	-1.074E+02		1.008E+03	Half-Life	too short	
TE-123M	-1.263E-03		2.371E-02	3.959E-02	3.767E-03	-0.032
I-124	-9.199E-01		1.386E+00	2.061E+00	2.083E-01	-0.446
SB-124	-3.481E-02		6.783E-02	1.007E-01	8.747E-03	-0.346
SB-125	7.179E-02		7.628E-02	1.360E-01	1.482E-02	0.528
TE-125M	5.036E-01		7.307E+00	1.252E+01	1.286E+00	0.040
I-126	-9.777E-02		2.455E-01	3.538E-01	3.354E-02	-0.276
SB-126	6.807E-02		1.751E-01	2.834E-01	2.737E-02	0.240
SB-127	-6.128E-01		2.960E+00	4.710E+00	6.374E-01	-0.130
XE-127	2.215E-02		4.288E-02	7.239E-02	8.273E-03	0.306
I-131	1.904E-01		1.576E-01	2.689E-01	3.383E-02	0.708
TE-132	-7.446E-01		1.671E+00	2.662E+00	5.095E-01	-0.280
BA-133	8.513E-03		4.297E-02	6.170E-02	9.951E-03	0.138
I-133	-6.722E-02		1.169E-01	Half-Life	too short	
CS-134	1.105E-01	+	6.298E-02	9.056E-02	8.934E-03	1.220
CS-135	4.024E-02		1.501E-01	2.198E-01	3.449E-02	0.183
I-135	8.782E+12		4.173E+14	Half-Life	too short	
CS-136	-3.932E-02		1.303E-01	2.093E-01	1.977E-02	-0.188
CE-139	1.243E-02		2.464E-02	4.205E-02	4.086E-03	0.296
BA-140	-1.440E-01		2.866E-01	4.471E-01	1.507E-01	-0.322
LA-140	4.676E-02		8.266E-02	1.509E-01	1.269E-02	0.310
CE-141	1.325E-02		5.698E-02	9.678E-02	8.870E-03	0.137
CE-143	4.092E-03		9.074E-04	Half-Life	too short	
CE-144	-1.814E-01		1.672E-01	2.511E-01	3.917E-02	-0.722
PM-144	1.528E-02		2.963E-02	5.021E-02	4.814E-03	0.304
PR-144	1.038E+00		2.013E+00	3.411E+00	3.269E-01	0.304
PM-146	-2.720E-03		3.832E-02	6.389E-02	8.011E-03	-0.043
ND-147	-5.312E-01		6.724E-01	1.032E+00	1.670E-01	-0.515
PM-149	-6.170E-05		1.778E-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
EU-152	-6.074E-02		9.016E-02	1.359E-01	1.842E-02	-0.447
GD-153	-8.932E-02		7.205E-02	9.364E-02	8.319E-03	-0.954
EU-154	2.105E-02		1.113E-01	1.847E-01	2.031E-02	0.114
EU-155	4.577E-02		8.700E-02	1.466E-01	1.279E-02	0.312
TB-160	-7.299E-02		1.191E-01	1.870E-01	1.842E-02	-0.390
HO-166M	4.150E-02		5.405E-02	9.323E-02	8.979E-03	0.445
TM-171	-8.315E+00		2.339E+01	3.344E+01	2.510E+00	-0.249
LU-176	-3.190E-03		2.173E-02	3.451E-02	5.072E-03	-0.092
LU-177	5.304E+00	+	2.508E+00	3.054E+00	3.574E-01	1.737
LU-177M	1.008E-01		1.654E-01	2.597E-01	2.789E-02	0.388
HF-181	2.675E-02		3.996E-02	6.971E-02	7.508E-03	0.384
W-181	-1.374E-01		2.955E-01	4.201E-01	3.114E-02	-0.327
TA-182	3.456E-02		1.896E-01	3.146E-01	2.556E-02	0.110
RE-183	-6.249E-02		9.602E-02	1.511E-01	1.449E-02	-0.414
RE-184	-3.530E-03		1.968E-01	3.197E-01	4.486E-02	-0.011
OS-185	-1.612E-02		3.979E-02	6.243E-02	6.026E-03	-0.258
W-188	-3.867E+00		7.328E+00	9.983E+00	1.516E+00	-0.387
IR-192	5.359E-03		3.103E-02	5.025E-02	7.223E-03	0.107
AU-195	2.545E-01		1.782E-01	3.086E-01	2.723E-02	0.825
TL-200	-3.947E-03		4.209E-03	Half-Life	too short	
TL-201	1.111E+00		1.699E+01	2.844E+01	2.782E+00	0.039
TL-202	8.572E-03		7.496E-02	1.269E-01	1.369E-02	0.068
HG-203	1.411E-02		4.053E-02	6.596E-02	1.030E-02	0.214
BI-207	1.936E-02		4.665E-02	8.023E-02	7.207E-03	0.241
TL-207	1.178E-04		5.867E-01	8.337E-01	1.744E-01	0.000
PO-209	-7.900E-01		6.462E+00	1.071E+01	1.054E+00	-0.074
BI-210	2.050E+00		2.184E+00	3.601E+00	3.353E-01	0.569
PB-210	2.050E+00		2.184E+00	3.601E+00	3.353E-01	0.569
PO-210	2.050E+00		2.183E+00	3.601E+00	3.036E-01	0.569
PB-211	-2.404E-01		9.168E-01	1.316E+00	8.288E-01	-0.183
BI-212	1.088E+00	+	4.435E-01	6.329E-01	6.917E-02	1.719
PO-215	1.178E-04		5.867E-01	8.337E-01	1.744E-01	0.000
RN-219	1.664E-01		3.548E-01	6.154E-01	1.004E-01	0.270
RN-220	4.097E+00		2.458E+01	4.109E+01	4.318E+00	0.100
RA-223	1.178E-04		5.867E-01	8.337E-01	1.744E-01	0.000
AC-227	-2.204E-02		3.304E-01	5.346E-01	1.019E-01	-0.041
TH-227	-2.204E-02		3.304E-01	5.346E-01	1.139E-01	-0.041
TH-229	2.942E-01		4.160E-01	7.098E-01	7.794E-02	0.414
PA-231	3.832E-01		1.319E+00	2.164E+00	4.287E-01	0.177
TH-231	1.178E-04		5.867E-01	8.337E-01	1.744E-01	0.000
U-231	-3.001E-02		1.877E+00	2.673E+00	2.394E-01	-0.011
PA-233	2.279E-02		5.721E-02	9.393E-02	1.378E-02	0.243
PA-234	-1.487E-01		2.610E-01	4.078E-01	7.857E-02	-0.365
PA-234M	5.944E+00		4.320E+00	7.952E+00	8.459E-01	0.747
U-235	3.785E-02		1.786E-01	2.993E-01	5.291E-02	0.126
NP-236	3.475E-02		6.406E-02	1.097E-01	1.043E-02	0.317
NP-239	9.360E-02		1.463E-01	2.552E-01	2.160E-02	0.367
AM-241	4.038E-02		1.182E-01	1.766E-01	1.388E-02	0.229

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.026E-02		7.364E-02	1.274E-01	1.103E-02	0.159
AM-246	5.588E-02		1.211E-01	2.094E-01	1.857E-02	0.267
CM-247	1.051E-02		3.144E-02	5.422E-02	5.803E-03	0.194
CF-249	1.305E-02		3.082E-02	5.367E-02	5.844E-03	0.243
CF-251	5.251E-03		1.077E-01	1.796E-01	1.829E-02	0.029

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     *
*                               GEL Laboratories LLC                       *
*                               2040 Savage Road                           *
*                               Charleston, SC 29414                       *
*                               *                                           *
*****
*                               DETECTOR DATA                           *
*                               *                                           *
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101003        *
* Acquisition date   : 2-FEB-2010 09:45:29 Detector SN# :                *
* Detector ID        : GAM11 Sensitivity : 5.000                        *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000           *
* Elapsed real time  : 0 02:00:01.76 Half life ratio : 8.000            *
*****
*                               SAMPLE DATA                               *
*                               *                                           *
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID         : G245101003 Analyst initials: MXR1                 *
* Batch Number      : 944037 Sample Quantity : 1.2976E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*                               QC DATA                                   *
*                               *                                           *
* CALIB. DATE/TIME  : 18-NOV-2009 15:33:22 MS Isotope :                 *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.890E+01	2.950E+00	2.531E-01	1.505E+00
CD-109	3.817E+00	9.266E-01	4.461E-01	4.727E-01
SN-126	3.725E-01	9.042E-02	4.368E-02	4.613E-02
BA-137M	4.194E-02	4.198E-02	2.766E-02	2.142E-02
CS-137	4.434E-02	4.437E-02	2.924E-02	2.264E-02
RE-188	1.865E-01	1.972E-01	1.284E-01	1.006E-01
TL-208	6.402E-01	1.008E-01	2.283E-02	5.141E-02
BI-211	3.705E+00	6.121E-01	1.398E-01	3.123E-01
PB-212	1.880E+00	2.804E-01	4.003E-02	1.431E-01
PO-212	1.880E+00	2.804E-01	4.003E-02	1.431E-01
BI-214	1.069E+00	1.854E-01	4.663E-02	9.457E-02
PB-214	1.289E+00	2.229E-01	4.914E-02	1.137E-01
PO-214	1.289E+00	2.229E-01	4.914E-02	1.137E-01
PO-216	1.880E+00	2.804E-01	4.003E-02	1.431E-01
PO-218	1.289E+00	2.229E-01	4.914E-02	1.137E-01
RA-224	4.310E+00	1.369E+00	4.556E-01	6.987E-01
RA-226	1.069E+00	1.854E-01	4.663E-02	9.457E-02
AC-228	1.537E+00	3.218E-01	9.885E-02	1.642E-01
RA-228	1.537E+00	3.218E-01	9.885E-02	1.642E-01
TH-228	1.917E+00	2.860E-01	4.083E-02	1.459E-01
TH-230	1.069E+00	1.854E-01	4.663E-02	9.457E-02
TH-232	1.537E+00	3.218E-01	9.885E-02	1.642E-01
TH-234	9.446E-01	1.330E+00	7.582E-01	6.785E-01
U-234	1.069E+00	1.854E-01	4.663E-02	9.457E-02
NP-237	1.094E+00	3.456E-01	1.293E-01	1.763E-01
U-238	9.446E-01	1.330E+00	7.582E-01	6.785E-01
AM-243	4.023E-01	6.649E-02	3.353E-02	3.392E-02
ANH-511	1.265E-01	6.222E-02	2.318E-02	3.174E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-2.406E-01	2.993E-01	2.414E-01	1.527E-01	NOT IDENT.
NA-22	7.941E-03	3.918E-02	3.333E-02	1.999E-02	NOT IDENT.
NA-24	-2.557E+07	1.237E+08	0.000E+00	6.310E+07	SHORT HLIF
AL-26	5.443E-04	1.868E-02	1.580E-02	9.532E-03	NOT IDENT.
TI-44	4.038E-01	5.244E-02	2.815E-02	2.675E-02	FAIL ABUN
SC-46	-1.647E-02	3.584E-02	2.963E-02	1.828E-02	FAIL ABUN
V-48	5.092E-03	7.777E-02	6.694E-02	3.968E-02	NOT IDENT.
CR-51	1.637E-01	3.525E-01	3.039E-01	1.799E-01	NOT IDENT.
MN-52	9.720E-02	3.609E-01	3.090E-01	1.841E-01	NOT IDENT.
MN-54	8.398E-03	3.357E-02	2.975E-02	1.713E-02	NOT IDENT.
CO-56	1.177E-02	3.518E-02	3.140E-02	1.795E-02	FAIL ABUN
CO-57	1.225E-02	1.966E-02	1.818E-02	1.003E-02	NOT IDENT.
CO-58	3.133E-02	3.674E-02	3.272E-02	1.874E-02	NOT IDENT.
FE-59	-4.866E-03	8.765E-02	7.372E-02	4.472E-02	NOT IDENT.
CO-60	-1.499E-02	3.906E-02	3.115E-02	1.993E-02	NOT IDENT.
ZN-65	-4.819E-02	1.018E-01	6.930E-02	5.195E-02	NOT IDENT.
GE-68	-1.984E-01	1.049E+00	8.708E-01	5.350E-01	NOT IDENT.
AS-73	2.443E-01	5.946E-01	5.182E-01	3.034E-01	NOT IDENT.
AS-74	-3.131E-02	1.041E-01	8.645E-02	5.309E-02	NOT IDENT.
SE-75	2.079E-02	3.951E-02	3.308E-02	2.016E-02	NOT IDENT.
BR-77	-1.065E+01	3.402E+01	0.000E+00	1.736E+01	SHORT HLIF
SR-82	-4.333E-01	3.980E-01	2.921E-01	2.031E-01	NOT IDENT.
RB-83	-4.470E-03	5.690E-02	4.870E-02	2.903E-02	NOT IDENT.
RB-84	-3.174E-02	6.136E-02	5.021E-02	3.131E-02	NOT IDENT.
KR-85	5.802E+00	6.941E+00	5.654E+00	3.541E+00	NOT IDENT.
SR-85	3.128E-02	3.742E-02	3.049E-02	1.909E-02	NOT IDENT.
RB-86	-5.996E-01	8.282E-01	6.479E-01	4.225E-01	NOT IDENT.
Y-88	2.495E-02	2.771E-02	2.735E-02	1.414E-02	NOT IDENT.
ZR-88	2.990E-02	2.584E-02	2.430E-02	1.318E-02	NOT IDENT.
Y-91	-1.527E+01	2.013E+01	1.573E+01	1.027E+01	NOT IDENT.
NB-94	9.455E-03	2.901E-02	2.496E-02	1.480E-02	NOT IDENT.
NB-95	2.056E-03	4.385E-02	3.651E-02	2.237E-02	NOT IDENT.
NB-95M	-6.453E-02	1.204E-01	8.884E-02	6.145E-02	NOT IDENT.
ZR-95	2.766E-02	6.861E-02	5.902E-02	3.500E-02	NOT IDENT.
NB-97	4.223E+06	9.962E+06	0.000E+00	5.083E+06	SHORT HLIF
ZR-97	6.989E+07	1.974E+08	0.000E+00	1.007E+08	SHORT HLIF
MO-99	-2.090E+01	3.536E+01	2.766E+01	1.804E+01	NOT IDENT.
TC-99M	-2.029E+21	1.729E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.463E-03	2.811E-02	2.404E-02	1.434E-02	NOT IDENT.
RH-102	2.859E-03	2.485E-02	2.176E-02	1.268E-02	NOT IDENT.
RU-103	-3.431E-02	3.805E-02	3.032E-02	1.941E-02	FAIL ABUN
RH-106	-4.367E-02	2.780E-01	2.323E-01	1.419E-01	FAIL ABUN
RU-106	-4.367E-02	2.780E-01	2.323E-01	1.418E-01	FAIL ABUN
AG-108M	2.260E-02	2.704E-02	2.491E-02	1.380E-02	NOT IDENT.
AG-110M	1.473E-02	3.253E-02	2.535E-02	1.660E-02	NOT IDENT.
IN-111	7.897E-01	3.046E+00	2.375E+00	1.554E+00	NOT IDENT.
IN-113M	1.075E-02	3.618E-02	3.257E-02	1.846E-02	NOT IDENT.
SN-113	1.075E-02	3.618E-02	3.257E-02	1.846E-02	NOT IDENT.
IN-114M	-6.372E-02	1.767E-01	1.351E-01	9.016E-02	NOT IDENT.
CD-115	2.556E+01	4.025E+01	0.000E+00	2.053E+01	SHORT HLIF
SN-117M	-5.291E-03	5.925E-02	4.993E-02	3.023E-02	NOT IDENT.
SB-122	1.622E+00	5.997E+00	5.235E+00	3.060E+00	NOT IDENT.
I-123	-1.074E+08	1.976E+09	0.000E+00	1.008E+09	SHORT HLIF
TE-123M	-1.263E-03	2.323E-02	2.054E-02	1.185E-02	NOT IDENT.
I-124	-9.199E-01	1.359E+00	1.047E+00	6.932E-01	NOT IDENT.
SB-124	-3.481E-02	6.647E-02	5.072E-02	3.391E-02	FAIL ABUN
SB-125	7.179E-02	7.475E-02	6.943E-02	3.814E-02	FAIL ABUN
TE-125M	5.036E-01	7.161E+00	6.530E+00	3.653E+00	NOT IDENT.
I-126	-9.777E-02	2.406E-01	1.794E-01	1.228E-01	NOT IDENT.
SB-126	6.807E-02	1.716E-01	1.435E-01	8.755E-02	FAIL ABUN
SB-127	-6.128E-01	2.901E+00	2.387E+00	1.480E+00	NOT IDENT.
XE-127	2.215E-02	4.202E-02	3.741E-02	2.144E-02	NOT IDENT.
I-131	1.904E-01	1.544E-01	1.377E-01	7.878E-02	NOT IDENT.
TE-132	-7.446E-01	1.638E+00	1.373E+00	8.356E-01	NOT IDENT.
BA-133	8.513E-03	4.211E-02	3.160E-02	2.149E-02	NOT IDENT.
I-133	-6.722E+04	2.291E+05	0.000E+00	1.169E+05	SHORT HLIF
CS-134	1.105E-01	6.172E-02	4.579E-02	3.149E-02	FAIL ABUN
CS-135	4.024E-02	1.471E-01	1.131E-01	7.506E-02	NOT IDENT.
I-135	8.782E+18	8.179E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.932E-02	1.277E-01	1.053E-01	6.517E-02	FAIL ABUN
CE-139	1.243E-02	2.415E-02	2.180E-02	1.232E-02	NOT IDENT.
BA-140	-1.440E-01	2.809E-01	2.275E-01	1.433E-01	NOT IDENT.
LA-140	4.676E-02	8.101E-02	7.544E-02	4.133E-02	FAIL ABUN
CE-141	1.325E-02	5.584E-02	5.027E-02	2.849E-02	NOT IDENT.
CE-143	4.092E+03	1.779E+03	0.000E+00	9.074E+02	SHORT HLIF
CE-144	-1.814E-01	1.639E-01	1.306E-01	8.361E-02	NOT IDENT.
PM-144	1.528E-02	2.903E-02	2.544E-02	1.481E-02	NOT IDENT.

PR-144	1.038E+00	1.972E+00	1.728E+00	1.006E+00	NOT IDENT.
PM-146	-2.720E-03	3.756E-02	3.260E-02	1.916E-02	NOT IDENT.
ND-147	-5.312E-01	6.590E-01	5.254E-01	3.362E-01	FAIL ABUN
PM-149	-6.170E+01	3.485E+02	0.000E+00	1.778E+02	SHORT HLIF
EU-152	-6.074E-02	8.836E-02	6.964E-02	4.508E-02	FAIL ABUN
GD-153	-8.932E-02	7.061E-02	4.894E-02	3.603E-02	FAIL ABUN
EU-154	2.105E-02	1.091E-01	9.269E-02	5.565E-02	NOT IDENT.
EU-155	4.577E-02	8.526E-02	7.652E-02	4.350E-02	FAIL ABUN
TB-160	-7.299E-02	1.167E-01	9.437E-02	5.955E-02	FAIL ABUN
HO-166M	4.150E-02	5.297E-02	4.722E-02	2.703E-02	NOT IDENT.
TM-171	-8.315E+00	2.292E+01	1.758E+01	1.169E+01	NOT IDENT.
LU-176	-3.190E-03	2.130E-02	1.772E-02	1.087E-02	FAIL ABUN
LU-177	5.304E+00	2.457E+00	1.577E+00	1.254E+00	FAIL ABUN
LU-177M	1.008E-01	1.621E-01	1.327E-01	8.269E-02	FAIL ABUN
HF-181	2.675E-02	3.916E-02	3.553E-02	1.998E-02	NOT IDENT.
W-181	-1.374E-01	2.896E-01	2.209E-01	1.477E-01	NOT IDENT.
TA-182	3.456E-02	1.858E-01	1.579E-01	9.479E-02	FAIL ABUN
RE-183	-6.249E-02	9.410E-02	7.836E-02	4.801E-02	FAIL ABUN
RE-184	-3.530E-03	1.929E-01	1.647E-01	9.842E-02	NOT IDENT.
OS-185	-1.612E-02	3.899E-02	3.167E-02	1.989E-02	NOT IDENT.
W-188	-3.867E+00	7.182E+00	5.130E+00	3.664E+00	FAIL ABUN
IR-192	5.359E-03	3.041E-02	2.579E-02	1.552E-02	FAIL ABUN
AU-195	2.545E-01	1.746E-01	1.613E-01	8.909E-02	FAIL ABUN
TL-200	-3.947E+03	8.250E+03	0.000E+00	4.209E+03	SHORT HLIF
TL-201	1.111E+00	1.665E+01	1.474E+01	8.494E+00	NOT IDENT.
TL-202	8.572E-03	7.346E-02	6.478E-02	3.748E-02	NOT IDENT.
HG-203	1.411E-02	3.972E-02	3.391E-02	2.027E-02	FAIL ABUN
BI-207	1.936E-02	4.572E-02	4.037E-02	2.333E-02	FAIL ABUN
TL-207	1.178E-04	5.749E-01	4.277E-01	2.933E-01	FAIL ABUN
PO-209	-7.900E-01	6.333E+00	5.404E+00	3.231E+00	NOT IDENT.
BI-210	2.050E+00	2.140E+00	1.903E+00	1.092E+00	NOT IDENT.
PB-210	2.050E+00	2.140E+00	1.903E+00	1.092E+00	NOT IDENT.
PO-210	2.050E+00	2.139E+00	1.903E+00	1.091E+00	NOT IDENT.
PB-211	-2.404E-01	8.985E-01	6.726E-01	4.584E-01	NOT IDENT.
BI-212	1.088E+00	4.346E-01	3.205E-01	2.217E-01	FAIL ABUN
PO-215	1.178E-04	5.749E-01	4.277E-01	2.933E-01	FAIL ABUN
RN-219	1.664E-01	3.477E-01	3.146E-01	1.774E-01	FAIL ABUN
RN-220	4.097E+00	2.409E+01	2.090E+01	1.229E+01	NOT IDENT.
RA-223	1.178E-04	5.749E-01	4.277E-01	2.933E-01	FAIL ABUN
AC-227	-2.204E-02	3.238E-01	2.753E-01	1.652E-01	FAIL ABUN
TH-227	-2.204E-02	3.238E-01	2.753E-01	1.652E-01	FAIL ABUN
TH-229	2.942E-01	4.076E-01	3.670E-01	2.080E-01	FAIL ABUN
PA-231	3.832E-01	1.293E+00	1.112E+00	6.595E-01	FAIL ABUN
TH-231	1.178E-04	5.749E-01	4.277E-01	2.933E-01	FAIL ABUN
U-231	-3.001E-02	1.839E+00	1.397E+00	9.383E-01	FAIL ABUN
PA-233	2.279E-02	5.606E-02	4.821E-02	2.860E-02	FAIL ABUN
PA-234	-1.487E-01	2.557E-01	2.056E-01	1.305E-01	FAIL ABUN
PA-234M	5.944E+00	4.234E+00	4.006E+00	2.160E+00	NOT IDENT.
U-235	3.785E-02	1.751E-01	1.555E-01	8.931E-02	FAIL ABUN
NP-236	3.475E-02	6.278E-02	5.688E-02	3.203E-02	NOT IDENT.
NP-239	9.360E-02	1.434E-01	1.330E-01	7.315E-02	FAIL ABUN
AM-241	4.038E-02	1.159E-01	9.300E-02	5.911E-02	NOT IDENT.
CM-243	2.026E-02	7.216E-02	6.653E-02	3.682E-02	FAIL ABUN
AM-246	5.588E-02	1.187E-01	1.053E-01	6.055E-02	NOT IDENT.
CM-247	1.051E-02	3.081E-02	2.772E-02	1.572E-02	NOT IDENT.
CF-249	1.305E-02	3.021E-02	2.745E-02	1.541E-02	NOT IDENT.
CF-251	5.251E-03	1.055E-01	9.299E-02	5.384E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417   *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	199.0093
46.50	199.0093
46.50	199.0093
48.70	241.0958
49.72	221.0445
51.35	244.3752
52.39	236.3399
52.97	239.0126
53.15	239.1529
53.44	251.6248
54.07	240.9804
56.28	265.1426
56.28	265.1453
57.37	0.0000
57.53	248.1303
57.53	248.1319
57.60	248.1840
57.98	272.1924
57.98	272.1924
59.32	275.1939
59.32	275.1939
59.40	275.2606
59.54	282.9416
59.72	308.8306
60.01	290.9175
61.10	267.5414
61.14	267.5727
61.30	267.6989
63.00	303.8093
63.29	304.0640
63.29	304.0640
63.58	304.3188
64.28	362.0814
65.12	352.1821
65.20	335.3410
65.20	335.3410
66.05	322.2679
66.72	361.4903
66.83	361.6046
66.91	361.6831
67.20	315.5687
67.20	315.5687
67.75	299.7809
67.85	299.8636
68.90	342.6897
68.90	342.6897
69.30	331.3933
69.67	348.8607
70.82	357.7496
70.82	357.7496
70.83	357.7589
72.80	326.2599
72.87	326.3191
72.87	326.3191
74.67	327.8491
74.81	327.9675
74.81	327.9675
74.81	327.9675
74.81	327.9675
74.81	327.9675
74.81	327.9675
74.81	327.9675
74.97	328.1027
75.28	328.3648
75.70	328.7177
77.11	329.8948
77.11	329.8948

77.11	329.8948
77.11	329.8948
77.11	329.8948
77.11	329.8948
77.11	329.8948
78.38	288.3343
79.62	289.2218
79.80	289.3507
79.80	289.3507
80.11	309.5697
80.18	309.6228
80.30	309.7134
80.30	309.7134
80.57	309.9181
81.00	304.6332
81.07	304.6854
81.07	304.6854
81.07	304.6854
81.07	304.6854
82.60	333.1764
83.37	325.7267
83.78	242.1143
83.78	242.1143
83.78	242.1143
83.78	242.1143
84.21	242.3615
84.90	242.7582
85.43	243.0603
86.29	243.5501
86.50	243.6691
86.54	243.6920
86.59	243.7210
86.72	243.7943
86.79	243.8324
86.94	243.9178
87.30	244.1223
87.30	244.1223
87.30	244.1223
87.30	244.1223
87.30	244.1223
87.30	244.1223
87.57	244.2734
87.88	0.0000
88.03	244.5328
88.36	244.7189
88.47	244.7800
89.95	245.6070
91.11	246.2494
92.29	246.8994
92.38	246.9482
92.38	246.9482
93.35	247.4792
94.00	247.8333
94.67	248.1949
94.67	248.1979
94.90	248.3215
94.90	248.3215
94.90	248.3215
94.90	248.3215
95.87	220.6438
95.87	220.6438
96.73	245.9862
97.43	286.3027
98.44	223.9467
98.44	223.9480
98.88	218.3965
99.55	227.3999
99.55	227.3999
99.86	227.5493
100.00	227.6157
100.10	237.7096
103.18	264.5031
103.76	243.7350
105.00	227.4408
105.31	241.9671
108.00	254.3343
109.28	232.8070

111.00	248.9962
111.00	248.9962
111.76	244.2232
112.95	243.0678
115.19	260.4990
116.30	235.9799
117.00	216.3836
117.00	216.3836
117.66	249.5830
121.11	211.9341
121.62	212.1319
121.78	212.1936
122.06	215.7971
122.32	222.8915
122.32	222.8915
122.32	222.8915
122.32	222.8915
123.07	221.4445
127.23	246.0251
129.76	255.0916
131.20	222.4314
133.02	244.5073
133.54	238.5735
135.34	205.6790
136.00	200.5368
136.25	188.9779
136.48	183.6750
140.51	244.4414
140.51	0.0000
142.18	252.3442
142.65	253.4452
143.76	252.0874
144.24	245.0226
144.24	245.0226
144.24	245.0226
144.24	245.0226
145.22	241.7741
145.44	243.6765
147.16	235.2297
152.43	217.8768
152.70	220.7275
153.22	209.8605
154.21	224.9276
154.21	224.9276
154.21	224.9276
154.21	224.9276
155.03	236.7493
156.02	217.6957
158.56	230.5048
159.00	0.0000
159.00	221.9279
160.31	204.6857
161.27	223.6133
162.32	227.6951
162.64	210.0632
163.35	217.7596
163.89	223.5446
165.85	202.6121
167.43	214.3577
171.28	205.1461
171.86	210.0446
172.10	210.1168
176.55	222.8599
176.60	222.8765
181.06	211.3103
184.41	215.6396
185.71	216.0179
186.00	216.0999
190.27	216.8407
192.34	209.1605
193.63	183.1998
197.04	220.2209
198.01	199.9139
198.60	199.0826
200.40	0.0000
201.83	201.8678
202.84	192.2646
205.31	201.7588

208.36	214.4312
208.81	202.6304
209.75	202.8628
209.75	202.8628
210.97	180.7578
215.65	179.2750
216.55	176.4601
218.09	167.7441
222.10	209.9149
223.80	169.8833
226.40	200.8218
227.00	198.9309
227.08	198.9489
227.20	197.9616
228.16	198.1798
228.18	187.0042
228.18	187.0042
231.56	0.0000
235.69	207.5613
236.00	183.0250
236.00	183.0250
238.63	179.9614
238.63	179.9614
238.63	179.9614
238.63	179.9614
239.00	0.0000
240.98	180.4278
241.98	180.6272
241.98	180.6272
241.98	180.6272
244.69	133.5417
245.39	144.5207
247.94	153.7496
248.90	139.3489
249.79	0.0000
252.40	143.0010
252.85	143.0693
252.85	143.0693
254.15	0.0000
256.20	156.1511
256.20	156.1511
260.50	154.7460
260.90	0.0000
262.80	136.1203
264.65	133.2059
268.24	138.4677
268.79	136.9523
269.46	151.9200
269.46	151.9200
269.46	151.9200
269.46	151.9200
271.23	156.4477
273.65	155.2243
276.40	150.8366
277.35	158.4725
277.60	157.4406
277.60	157.4406
278.00	153.2176
278.60	130.7941
279.20	152.3253
279.53	171.6895
280.46	157.8832
281.68	0.0000
283.67	130.3645
284.30	130.4433
285.00	134.8470
285.90	0.0000
286.10	140.3890
286.10	140.3890
287.40	134.0785
288.45	0.0000
290.67	139.9206
290.80	138.3118
291.72	141.6883
293.26	0.0000
293.70	112.5840
295.21	112.7441
295.21	112.7441

295.21	112.7441
295.96	112.8241
296.50	98.1573
297.23	0.0000
298.57	98.3478
299.80	124.7153
299.80	124.7153
300.09	124.7501
300.09	124.7501
300.09	124.7501
300.09	124.7501
300.12	124.7524
301.29	152.8222
302.84	128.3568
303.76	0.0000
303.91	136.7190
304.40	130.1904
304.40	130.1904
304.84	113.4272
306.84	128.8281
308.46	141.1484
311.98	120.5804
316.51	113.2953
318.01	131.2399
319.02	114.6596
319.41	111.3586
320.08	108.0810
323.87	100.6165
323.87	100.6165
323.87	100.6165
323.87	100.6165
325.23	97.3776
328.77	111.1494
333.44	119.4872
334.20	123.5128
334.20	123.5128
334.30	123.5239
338.28	126.7702
338.28	126.7702
338.28	126.7702
338.28	126.7702
338.32	126.7747
338.32	126.7747
338.32	126.7747
340.50	130.9761
340.57	130.9855
344.27	135.3736
345.85	112.0854
350.59	0.0000
351.07	106.3922
351.92	108.1832
351.92	108.1832
351.92	108.1832
355.39	0.0000
356.01	106.8217
364.48	86.7340
366.43	111.1914
367.43	98.5285
367.94	0.0000
369.80	99.8749
374.96	103.7772
383.85	113.5915
387.95	81.2637
388.63	99.8647
391.69	89.4661
391.69	89.4661
392.90	79.7937
398.62	111.2995
400.65	94.5227
401.10	90.9869
401.81	98.1752
402.60	98.2323
404.84	108.7694
410.95	79.0652
411.60	87.7322
413.65	83.5407
414.70	91.6354
415.30	93.7343

415.76	102.7820
417.63	0.0000
418.52	93.9517
423.70	91.5775
427.08	79.9796
427.89	73.6596
432.53	88.4953
433.93	76.7095
439.47	0.0000
439.56	82.5087
439.89	92.6147
443.98	69.8851
444.90	71.7694
445.03	71.7753
445.03	71.7753
445.03	71.7753
453.90	93.4977
463.38	83.8394
468.07	110.6351
473.00	100.3027
475.06	83.5407
475.35	87.3110
476.78	94.9094
477.59	94.0186
477.96	97.8031
482.03	74.4856
484.57	0.0000
487.03	83.2345
490.36	0.0000
492.35	0.0000
497.08	92.3273
507.63	0.0000
510.53	0.0000
510.84	99.8304
511.00	99.8399
511.85	86.0610
511.85	86.0610
513.99	84.6330
513.99	84.6330
520.41	67.5818
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	73.7781
529.87	0.0000
531.02	86.4686
537.32	76.0624
543.00	70.4443
546.56	0.0000
549.76	83.4877
552.65	86.5767
555.20	67.9829
563.23	76.2081
563.90	71.2859
568.70	78.4286
569.32	84.4138
569.50	86.4079
569.67	86.4159
573.80	88.6062
574.00	80.6490
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	56.0393
585.48	0.0000
591.81	65.3511
592.07	67.3721
593.00	76.4592
595.88	90.6839
600.56	78.7903
602.52	0.0000
602.71	91.3052
602.71	91.3052
603.60	74.4647
604.41	66.4008
604.70	72.8899
609.31	65.9641



609.31	65.9641
609.31	65.9641
609.31	65.9641
610.33	65.9978
612.46	73.1887
614.37	74.8893
618.01	74.4191
621.84	69.4609
621.84	69.4609
631.29	54.4023
633.02	60.6151
633.10	60.6169
634.78	73.0086
635.90	64.8188
636.97	63.8240
645.85	69.2819
646.12	71.3584
656.30	51.5572
657.75	53.2578
657.90	0.0000
661.65	76.7063
661.65	76.7063
664.57	0.0000
666.33	86.3525
666.33	86.3525
675.00	72.3818
677.61	71.4220
685.20	69.5751
692.80	61.3630
695.00	59.3086
696.49	56.1702
696.49	56.1702
697.00	61.4852
697.49	65.7407
698.33	68.9494
698.50	68.9534
699.00	70.0303
702.63	62.7109
706.10	76.6516
706.58	0.0000
706.67	80.9309
709.31	71.4349
711.68	54.4365
713.82	68.3789
717.42	68.4941
720.50	60.0161
721.93	0.0000
722.20	48.0512
722.78	63.5125
722.78	63.5125
722.89	63.5161
722.95	63.5179
723.30	63.5269
724.18	75.5756
727.18	55.8990
733.00	67.2560
735.90	58.2797
739.58	69.1855
742.81	61.7088
744.21	67.1635
747.13	48.8109
751.79	79.3447
752.31	72.8416
753.82	55.4824
755.35	0.0000
756.15	59.8961
756.87	53.3784
763.93	86.3267
765.79	83.1157
766.42	76.5753
766.84	63.4587
776.49	73.6125
778.00	56.0707
778.57	51.6859
778.89	52.7930
783.80	52.9043
785.46	51.8380
792.07	47.7813

795.84	47.8578
796.30	51.4127
798.80	56.7906
801.93	47.7582
805.60	63.4048
810.29	47.9249
810.76	45.7046
815.85	53.6206
817.79	0.0000
818.51	61.5074
819.60	54.8229
826.30	60.5836
828.27	0.0000
831.60	68.5840
831.96	68.5952
834.83	63.0461
836.80	0.0000
846.75	50.6789
848.13	47.0856
856.28	0.0000
856.80	43.9165
860.37	55.5046
867.32	54.7441
867.82	59.3173
871.10	54.8247
873.19	49.3831
874.81	48.4984
875.33	0.0000
876.40	46.6981
879.36	49.5018
880.27	48.6019
880.51	48.6064
881.50	47.7077
883.24	42.2311
884.67	45.0104
889.25	57.0518
896.60	50.7542
898.02	54.4742
899.00	54.4943
903.28	56.5367
911.07	54.7450
911.07	54.7450
911.07	54.7450
919.63	59.5750
920.93	49.3588
925.00	51.2993
925.24	57.8344
926.50	55.0619
935.52	50.5630
937.48	56.2222
944.10	51.6619
946.00	52.6381
949.00	40.4626
962.29	50.4284
964.01	47.3059
966.15	42.6072
968.20	42.6390
969.11	42.6533
969.11	42.6533
969.11	42.6533
977.42	54.6629
980.50	44.7292
983.50	49.5409
989.30	48.6866
996.32	62.2054
1001.03	41.2185
1001.68	52.7334
1004.76	58.5487
1021.30	0.0000
1024.50	0.0000
1034.80	55.2744
1036.00	48.5059
1037.82	44.6523
1038.57	50.4893
1038.76	0.0000
1045.16	49.6304
1046.59	45.7584
1048.07	55.5221

1050.47	42.8936
1050.47	42.8936
1062.04	48.9307
1063.62	43.0805
1076.63	54.0815
1077.35	44.2595
1078.86	38.3773
1085.78	47.3391
1099.22	50.5169
1112.02	46.7453
1112.84	55.2707
1115.52	66.3802
1120.29	54.8469
1120.29	54.8469
1120.29	54.8469
1120.29	54.8469
1120.51	54.8496
1121.28	54.8630
1124.00	0.0000
1129.67	61.2590
1131.51	0.0000
1147.95	0.0000
1167.94	51.6151
1173.22	51.6973
1175.09	37.5275
1177.93	64.9688
1189.05	49.9092
1204.90	80.8477
1205.75	0.0000
1213.00	69.7564
1221.42	59.6454
1230.97	78.3750
1235.34	67.1169
1236.41	0.0000
1238.25	76.4751
1246.25	61.1146
1260.41	0.0000
1271.85	43.8252
1274.45	40.7253
1274.54	40.7253
1291.56	52.4634
1298.22	0.0000
1312.09	37.9898
1325.50	43.4264
1325.50	43.4264
1332.49	39.2637
1333.61	35.0303
1360.21	24.5902
1362.66	0.0000
1365.15	18.1995
1368.21	22.5001
1368.53	0.0000
1376.25	19.3271
1384.27	24.7475
1394.10	21.5752
1395.20	21.5820
1407.95	15.1573
1434.06	19.6198
1436.60	23.9948
1457.56	0.0000
1460.81	24.1431
1489.15	12.8937
1509.49	17.5868
1596.49	11.3403
1620.62	6.6522
1678.03	0.0000
1691.02	15.4479
1691.02	15.4479
1706.46	0.0000
1750.46	0.0000
1764.49	10.7914
1764.49	10.7914
1764.49	10.7914
1764.49	10.7914
1770.23	8.4194
1771.40	11.7900
1791.20	0.0000
1808.65	5.9414

1836.01

5.9751

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101003

Total Uranium Activity	2.8277E+00	ug/g
Total Uranium Counting Unc.	3.9574E+00	ug/g
Total Uranium Tpu	2.0191E-06	ug/g
Total Uranium Mda	2.2568E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101003
*  ANALYST       : MXR1                             DETECTOR    : GAM11
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 09:45:29.37          SAMPLE ALQT  : 129.760 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.792E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.471E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.433E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.660E+00

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## VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 11:46:55.00

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101004.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:19.
Sample ID          : G245101004      Sample quantity   : 1.33790E+02 GRAM
Detector name      : GAM15            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.31  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 944037            Detector SN#       :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.03*	319	416	1.58	148.55	142	19	4.43E-02	13.2	3.20E+00
2	2	76.48*	492	439	1.59	153.45	142	19	6.83E-02	9.8	
3	2	86.58	240	416	1.61	173.63	161	32	3.34E-02	17.5	3.44E+00
4	2	89.33	186	290	1.09	179.14	161	32	2.59E-02	17.1	
5	2	92.08*	174	371	1.50	184.63	161	32	2.42E-02	23.9	
6	0	128.94	122	535	1.60	258.31	252	14	1.69E-02	41.3	
7	0	185.28*	145	361	1.23	370.95	366	11	2.02E-02	28.2	
8	0	209.23	71	320	1.50	418.83	412	10	9.86E-03	48.6	
9	3	238.00*	1176	190	1.33	476.35	468	22	1.63E-01	3.7	1.69E+00
10	3	240.96*	309	262	2.02	482.25	468	22	4.29E-02	16.0	
11	0	269.50	109	171	0.84	539.32	535	9	1.51E-02	23.7	
12	0	294.69	332	249	1.44	589.68	584	11	4.61E-02	10.7	
13	0	298.87*	45	212	1.29	598.04	595	10	6.31E-03	62.6	
14	0	328.13	54	274	0.86	656.53	648	15	7.56E-03	67.7	
15	0	337.61	211	182	1.27	675.49	670	11	2.93E-02	14.1	
16	0	351.29*	575	253	1.22	702.84	697	13	7.99E-02	7.2	
17	0	462.31	84	92	1.17	924.78	919	10	1.17E-02	24.0	
18	0	510.24*	133	157	2.64	1020.61	1011	19	1.85E-02	26.8	
19	0	582.61*	373	99	1.51	1165.30	1160	13	5.18E-02	7.7	
20	0	608.71*	458	66	1.47	1217.48	1212	11	6.36E-02	6.0	
21	0	726.68	84	68	1.17	1453.36	1449	11	1.17E-02	21.6	
22	0	793.99	53	55	0.85	1587.95	1581	13	7.32E-03	32.2	
23	0	910.59*	240	50	1.60	1821.08	1813	14	3.34E-02	9.2	
24	0	935.41	24	63	1.27	1870.71	1863	14	3.33E-03	73.1	
25	1	963.93	51	50	2.18	1927.74	1921	24	7.07E-03	31.5	4.69E-01
26	1	968.41*	149	40	2.00	1936.70	1921	24	2.07E-02	12.2	
27	0	1120.24*	94	66	1.72	2240.30	2232	18	1.31E-02	23.3	
28	0	1154.78	21	46	1.41	2309.36	2301	12	2.85E-03	70.8	
29	0	1238.01*	51	58	1.67	2475.79	2470	14	7.13E-03	35.0	
30	0	1376.86	39	30	2.13	2753.46	2745	15	5.43E-03	34.5	
31	0	1460.11	1009	20	1.86	2919.95	2910	20	1.40E-01	3.3	
32	0	1587.59	21	12	1.20	3174.89	3170	10	2.89E-03	38.5	
33	0	1730.03	11	17	0.87	3459.75	3454	11	1.48E-03	84.2	
34	0	1764.09*	66	3	1.46	3527.87	3522	13	9.18E-03	14.9	

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

## VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 11:46:58

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101004.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:19  
 Sample ID : G245101004 Sample quantity : 133.79 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA15 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.31 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

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

Nuclide	Line	Energy	Activity	Act error	MDA	MDA error	Act/MDA
	Ided	(keV) Key	(pCi/GRAM)		(pCi/GRAM)		
K-40	+	1460.81 *	2.656E+01	2.693E+00	6.177E-01	4.722E-02	42.994
CD-109	+	88.03 *	3.135E+00	1.128E+00	1.467E+00	1.697E-01	2.136
SN-126		64.28	1.016E+00	8.476E-01	1.433E+00	2.457E-01	0.709
	+	86.94	1.722E+00	9.418E-01	6.067E-01	2.551E-01	2.838
	+	87.57 *	4.142E-01	1.525E-01	1.443E-01	1.665E-02	2.870
CS-135	+	268.24 *	4.928E-01	2.376E-01	2.918E-01	2.495E-02	1.689
TL-208		277.35	3.030E-01	4.631E-01	7.949E-01	8.906E-02	0.381
	+	510.84	7.012E-01	3.818E-01	2.386E-01	2.401E-02	2.940
	+	583.14 *	5.567E-01	9.308E-02	6.693E-02	4.262E-03	8.317
		860.37	5.690E-01	3.632E-01	6.637E-01	5.704E-02	0.857
BI-211	+	72.87	2.253E+01	6.470E+00	6.599E+00	7.358E-01	3.414
	+	351.07 *	3.891E+00	6.193E-01	3.645E-01	2.504E-02	10.677
PB-212	+	74.81	2.674E+00	8.075E-01	7.286E-01	1.058E-01	3.670
	+	77.11	2.247E+00	5.057E-01	4.013E-01	4.456E-02	5.600
	+	87.30	1.915E+00	7.309E-01	6.706E-01	1.023E-01	2.856
	+	238.63 *	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
	+	300.09	1.041E+00	1.305E+00	1.526E+00	1.368E-01	0.682
PO-212	+	74.81	2.674E+00	8.075E-01	7.286E-01	1.058E-01	3.670
	+	77.11	2.247E+00	5.057E-01	4.013E-01	4.456E-02	5.600
	+	87.30	1.915E+00	7.309E-01	6.706E-01	1.023E-01	2.856
		115.19	-8.707E-01	4.170E+00	6.749E+00	5.163E-01	-0.129
	+	238.63 *	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
	+	300.09	1.041E+00	1.305E+00	1.526E+00	1.368E-01	0.682
BI-214	+	609.31 *	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
	+	1120.29	1.385E+00	6.567E-01	5.145E-01	4.746E-02	2.691
	+	1764.49	1.331E+00	4.057E-01	3.846E-01	2.394E-02	3.460
PB-214	+	74.81	4.608E+00	1.366E+00	1.255E+00	1.676E-01	3.670
	+	77.11	3.852E+00	9.153E-01	6.880E-01	9.265E-02	5.600
	+	87.30	3.281E+00	1.235E+00	1.149E+00	1.592E-01	2.856
	+	241.98	2.764E+00	9.193E-01	6.687E-01	5.978E-02	4.133
	+	295.21	1.336E+00	3.124E-01	2.602E-01	2.406E-02	5.134
	+	351.92 *	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
PO-214	+	74.81	4.608E+00	1.366E+00	1.255E+00	1.676E-01	3.670
	+	77.11	3.852E+00	9.153E-01	6.880E-01	9.265E-02	5.600



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	87.30		3.281E+00	1.235E+00	1.149E+00	1.592E-01	2.856
	+	241.98		2.764E+00	9.193E-01	6.687E-01	5.978E-02	4.133
	+	295.21		1.336E+00	3.124E-01	2.602E-01	2.406E-02	5.134
	+	351.92	*	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
	+	74.81		2.674E+00	8.075E-01	7.286E-01	1.058E-01	3.670
	+	77.11		2.247E+00	5.057E-01	4.013E-01	4.456E-02	5.600
	+	87.30		1.915E+00	7.309E-01	6.706E-01	1.023E-01	2.856
PO-218	+	238.63	*	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
	+	300.09		1.041E+00	1.305E+00	1.526E+00	1.368E-01	0.682
	+	74.81		4.608E+00	1.366E+00	1.255E+00	1.676E-01	3.670
	+	77.11		3.852E+00	9.153E-01	6.880E-01	9.265E-02	5.600
	+	87.30		3.281E+00	1.235E+00	1.149E+00	1.592E-01	2.856
	+	241.98		2.764E+00	9.193E-01	6.687E-01	5.978E-02	4.133
	+	295.21		1.336E+00	3.124E-01	2.602E-01	2.406E-02	5.134
RA-224	+	351.92	*	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
	+	240.98	*	5.241E+00	1.718E+00	1.264E+00	8.797E-02	4.146
RA-226	+	609.31	*	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
	+	1120.29		1.385E+00	6.567E-01	5.145E-01	4.746E-02	2.691
AC-228	+	1764.49		1.331E+00	4.057E-01	3.846E-01	2.394E-02	3.460
	+	338.32		1.576E+00	7.833E-01	4.718E-01	1.928E-01	3.341
	+	911.07	*	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
RA-228	+	969.11		1.743E+00	5.865E-01	3.790E-01	8.764E-02	4.599
	+	338.32		1.576E+00	7.833E-01	4.718E-01	1.928E-01	3.341
	+	911.07	*	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
TH-228	+	969.11		1.743E+00	5.865E-01	3.790E-01	8.764E-02	4.599
	+	74.81		2.728E+00	7.839E-01	7.432E-01	8.299E-02	3.670
	+	77.11		2.292E+00	5.159E-01	4.093E-01	4.545E-02	5.600
TH-230	+	87.30		1.954E+00	7.195E-01	6.841E-01	7.880E-02	2.856
	+	238.63	*	1.788E+00	1.986E-01	1.133E-01	9.380E-03	15.782
	+	300.09		1.061E+00	1.468E+00	1.556E+00	9.188E-01	0.682
	+	609.31	*	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
	+	1120.29		1.385E+00	6.566E-01	5.145E-01	4.746E-02	2.691
TH-232	+	1764.49		1.331E+00	4.056E-01	3.846E-01	2.394E-02	3.460
	+	338.32		1.576E+00	4.573E-01	4.718E-01	3.037E-02	3.341
	+	911.07	*	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
U-234	+	969.11		1.743E+00	5.865E-01	3.790E-01	8.764E-02	4.599
	+	609.31	*	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
	+	1120.29		1.385E+00	6.566E-01	5.145E-01	4.746E-02	2.691
NP-237	+	1764.49		1.331E+00	4.056E-01	3.846E-01	2.394E-02	3.460
	+	86.50	*	1.216E+00	5.134E-01	4.319E-01	1.020E-01	2.816
AM-243	+	95.87		-3.668E-01	1.320E+00	1.867E+00	4.685E-01	-0.196
	+	74.67	*	4.335E-01	1.245E-01	1.187E-01	1.319E-02	3.652
	+	86.72		4.561E+01	1.680E+01	1.613E+01	1.852E+00	2.827
ANH-511	+	117.66		-1.708E+00	4.539E+00	7.289E+00	5.445E-01	-0.234
	+	142.18		-2.599E+00	2.213E+01	3.550E+01	2.418E+00	-0.073
	+	511.00	*	1.515E-01	8.151E-02	5.154E-02	2.910E-03	2.939

---- 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	*	-1.337E-01	3.912E-01	6.236E-01	4.155E-02	-0.214

---- 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	*		-4.524E-02	5.263E-02	7.718E-02	5.297E-03	-0.586
NA-24	1368.53	*		2.223E+01	5.263E-02	Half-Life too short		
AL-26	1129.67			-4.106E-01	1.957E+00	2.874E+00	1.810E-01	-0.143
	1808.65	*		9.664E-03	3.093E-02	5.407E-02	3.235E-03	0.179
TI-44	67.85			-7.373E-03	7.968E-02	1.154E-01	1.316E-02	-0.064
	78.38	*		2.490E-01	7.546E-02	9.382E-02	1.043E-02	2.654
SC-46	889.25	*		5.578E-03	4.281E-02	7.173E-02	6.017E-03	0.078
+	1120.51			2.466E-01	1.158E-01	1.483E-01	9.518E-03	1.663
V-48	944.10			4.521E-01	1.233E+00	2.061E+00	1.694E-01	0.219
	983.50	*		6.913E-02	9.922E-02	1.734E-01	1.370E-02	0.399
	1312.09			2.776E-02	1.178E-01	1.954E-01	1.426E-02	0.142
CR-51	320.08	*		-1.290E-01	5.372E-01	7.992E-01	5.763E-02	-0.161
MN-52	744.21			-1.707E-01	4.621E-01	7.484E-01	4.591E-02	-0.228
	848.13			2.953E+00	1.280E+01	2.168E+01	1.671E+00	0.136
+	935.52			5.654E-01	8.276E-01	9.882E-01	8.185E-02	0.572
	1246.25			-2.730E+00	1.700E+01	2.408E+01	1.570E+00	-0.113
	1333.61			-4.663E-01	1.007E+01	1.616E+01	1.219E+00	-0.029
	1434.06	*		2.141E-01	4.819E-01	8.488E-01	6.293E-02	0.252
MN-54	834.83	*		7.160E-03	4.373E-02	7.355E-02	5.513E-03	0.097
CO-56	846.75	*		-7.205E-03	4.249E-02	6.939E-02	5.333E-03	-0.104
	977.42			-1.595E-01	3.628E+00	5.667E+00	4.507E-01	-0.028
	1037.82			-1.584E-01	3.560E-01	5.570E-01	4.408E-02	-0.284
	1175.09			1.396E+00	2.797E+00	4.751E+00	2.716E-01	0.294
+	1238.25			2.225E-01	1.566E-01	2.107E-01	1.424E-02	1.056
	1360.21			7.310E-01	1.156E+00	2.018E+00	1.518E-01	0.362
	1771.40			-3.381E-01	3.243E-01	4.413E-01	2.730E-02	-0.766
CO-57	122.06	*		2.692E-03	3.397E-02	5.139E-02	3.695E-03	0.052
	136.48			-7.250E-02	2.702E-01	4.147E-01	3.183E-02	-0.175
CO-58	810.76	*		3.019E-02	4.236E-02	7.481E-02	5.344E-03	0.404
FE-59	142.65			-5.307E-01	3.718E+00	5.959E+00	4.058E-01	-0.089
	192.34			-7.819E-02	1.271E+00	2.034E+00	2.508E-01	-0.038
	1099.22	*		4.143E-03	1.021E-01	1.676E-01	1.268E-02	0.025
	1291.56			1.816E-02	1.362E-01	2.240E-01	1.890E-02	0.081
CO-60	1173.22			-3.033E-02	5.526E-02	8.546E-02	4.867E-03	-0.355
	1332.49	*		-3.454E-02	4.439E-02	6.406E-02	4.835E-03	-0.539
ZN-65	1115.52	*		-1.039E-02	1.213E-01	1.677E-01	1.090E-02	-0.062
GE-68	1077.35	*		-3.462E-01	1.263E+00	2.002E+00	1.391E-01	-0.173
AS-73	53.44	*		-9.832E-01	2.131E+00	3.475E+00	4.749E-01	-0.283
AS-74	595.88	*		6.826E-02	1.297E-01	2.178E-01	1.171E-02	0.313
	634.78			-3.617E-01	4.941E-01	7.449E-01	3.863E-02	-0.486
SE-75	66.05			-1.299E+00	7.989E+00	1.316E+01	1.707E+00	-0.099
	96.73			7.097E-01	1.072E+00	1.591E+00	2.281E-01	0.446
	121.11			-2.881E-02	1.711E-01	2.769E-01	2.824E-02	-0.104
	136.00			-3.580E-02	5.480E-02	7.900E-02	5.501E-03	-0.453
	198.60			1.548E-01	2.352E+00	3.780E+00	3.017E-01	0.041
	264.65	*		4.704E-04	5.894E-02	8.607E-02	6.020E-03	0.005
	279.53			5.271E-02	1.366E-01	2.325E-01	1.696E-02	0.227
	303.91			1.592E+00	2.864E+00	4.312E+00	4.377E-01	0.369
	400.65			2.766E-02	3.099E-01	5.134E-01	4.636E-02	0.054

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	87.88		3.681E-03	3.099E-01	Half-Life	too short	
		200.40		1.678E-04	3.099E-01	Half-Life	too short	
	+	239.00		1.138E-03	3.099E-01	Half-Life	too short	
		249.79		-1.635E-04	3.099E-01	Half-Life	too short	
		281.68		-3.376E-04	3.099E-01	Half-Life	too short	
		297.23		9.645E-04	3.099E-01	Half-Life	too short	
		303.76		5.876E-04	3.099E-01	Half-Life	too short	
		439.47		6.761E-05	3.099E-01	Half-Life	too short	
		484.57		1.730E-04	3.099E-01	Half-Life	too short	
		520.65	*	3.666E-06	3.099E-01	Half-Life	too short	
		574.64		4.081E-04	3.099E-01	Half-Life	too short	
		578.91		3.419E-04	3.099E-01	Half-Life	too short	
		585.48		3.533E-03	3.099E-01	Half-Life	too short	
		755.35		2.449E-04	3.099E-01	Half-Life	too short	
		817.79		7.486E-04	3.099E-01	Half-Life	too short	
SR-82		698.33		-3.676E+01	4.458E+01	7.026E+01	3.868E+00	-0.523
		776.49	*	-2.131E-01	5.093E-01	8.215E-01	5.423E-02	-0.259
RB-83		1395.20		-4.403E+00	1.430E+01	2.301E+01	1.721E+00	-0.191
		520.41	*	4.574E-03	7.966E-02	1.302E-01	7.326E-03	0.035
		529.64		5.229E-02	1.182E-01	1.989E-01	1.115E-02	0.263
RB-84		552.65		7.321E-02	2.346E-01	3.897E-01	2.159E-02	0.188
		881.50	*	-2.578E-03	8.619E-02	1.423E-01	1.175E-02	-0.018
KR-85		513.99	*	7.770E+00	9.096E+00	1.384E+01	7.808E-01	0.561
SR-85		513.99	*	4.190E-02	4.905E-02	7.464E-02	4.210E-03	0.561
RB-86		1076.63	*	2.054E-01	9.386E-01	1.573E+00	1.094E-01	0.131
Y-88		898.02		-4.959E-02	4.773E-02	7.082E-02	6.076E-03	-0.700
ZR-88		1836.01	*	9.597E-03	3.207E-02	5.622E-02	3.284E-03	0.171
		392.90	*	1.136E-03	3.756E-02	6.206E-02	3.520E-03	0.018
Y-91		1204.90	*	-1.854E+01	2.415E+01	3.647E+01	2.206E+00	-0.508
NB-94		702.63	*	2.482E-02	3.847E-02	6.730E-02	3.743E-03	0.369
		871.10		-1.380E-02	3.855E-02	6.179E-02	4.995E-03	-0.223
NB-95		765.79	*	3.524E-02	5.611E-02	9.734E-02	6.273E-03	0.362
NB-95M		235.69	*	1.832E+00	2.829E-01	4.460E-01	3.768E-02	4.107
ZR-95		724.18		1.992E-01	1.394E-01	2.266E-01	1.565E-02	0.879
NB-97		756.15	*	-5.662E-03	8.974E-02	1.492E-01	1.112E-02	-0.038
		657.90	*	-3.864E+00	8.974E-02	Half-Life	too short	
ZR-97		1024.50		8.435E+02	8.974E-02	Half-Life	too short	
		254.15		2.555E+02	8.974E-02	Half-Life	too short	
		355.39		-1.879E+01	8.974E-02	Half-Life	too short	
		507.63	*	9.309E+02	8.974E-02	Half-Life	too short	
		602.52		1.476E+01	8.974E-02	Half-Life	too short	
		1021.30		1.307E+02	8.974E-02	Half-Life	too short	
		1147.95		2.825E+02	8.974E-02	Half-Life	too short	
		1362.66		-1.734E+02	8.974E-02	Half-Life	too short	
		1750.46		2.500E+02	8.974E-02	Half-Life	too short	
		140.51		-8.181E+01	1.113E+02	1.712E+02	4.655E+01	-0.478
MO-99		181.06		-7.053E+01	8.153E+01	1.071E+02	1.872E+01	-0.658
		366.43		9.775E+01	3.258E+02	5.485E+02	3.332E+01	0.178
		739.58	*	2.175E+01	4.209E+01	7.104E+01	9.873E+00	0.306

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

	Line Energy Nuclide Ided (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	778.00	-7.743E+01	1.301E+02	2.064E+02	1.367E+01	-0.375
TC-99M	140.51 *	-1.995E+16	1.301E+02	Half-Life	too short	
RH-101	127.23	3.980E-02	4.652E-02	6.904E-02	4.864E-03	0.577
	198.01 *	1.935E-02	4.194E-02	6.851E-02	4.674E-03	0.282
	325.23	1.602E-01	3.076E-01	4.607E-01	3.029E-02	0.348
RH-102	418.52	2.080E-01	3.434E-01	5.852E-01	3.338E-02	0.355
	475.06 *	7.135E-03	3.236E-02	5.374E-02	3.063E-03	0.133
	631.29	1.077E-02	6.174E-02	1.009E-01	5.253E-03	0.107
	697.49	-6.715E-02	8.709E-02	1.377E-01	7.566E-03	-0.488
	766.84	1.262E-01	1.353E-01	2.387E-01	1.542E-02	0.529
	1046.59	6.615E-02	1.231E-01	2.125E-01	1.549E-02	0.311
	1112.84	-1.455E-01	3.219E-01	4.233E-01	2.759E-02	-0.344
RU-103	497.08 *	2.595E-03	4.977E-02	8.150E-02	1.026E-02	0.032
	610.33	1.305E+01	2.651E+00	3.484E+00	5.309E-01	3.747
RH-106	511.85	3.478E-01	2.540E-01	4.708E-01	2.657E-02	0.739
	621.84 *	-1.861E-01	3.317E-01	5.055E-01	5.802E-02	-0.368
	1050.47	-6.940E-01	2.641E+00	4.216E+00	3.056E-01	-0.165
RU-106	511.85	3.478E-01	2.540E-01	4.708E-01	2.657E-02	0.739
	621.84 *	-1.861E-01	3.312E-01	5.055E-01	2.656E-02	-0.368
	1050.47	-6.940E-01	2.641E+00	4.216E+00	3.056E-01	-0.165
AG-108M	433.93 *	7.286E-03	3.935E-02	6.536E-02	4.064E-03	0.111
	614.37	6.372E-02	4.251E-02	6.987E-02	4.071E-03	0.912
	722.95	1.061E-02	5.259E-02	7.759E-02	4.909E-03	0.137
AG-110M	657.75 *	-1.304E-02	4.092E-02	6.401E-02	3.508E-03	-0.204
	677.61	-1.928E-01	3.669E-01	5.618E-01	3.160E-02	-0.343
	706.67	9.264E-02	2.512E-01	4.315E-01	2.578E-02	0.215
	763.93	-1.930E-01	2.060E-01	3.204E-01	2.160E-02	-0.602
	884.67	-1.371E-02	5.490E-02	8.876E-02	7.631E-03	-0.154
	937.48	-7.656E-02	1.449E-01	1.899E-01	1.632E-02	-0.403
	1384.27	1.297E-02	1.986E-01	2.984E-01	2.319E-02	0.043
IN-111	171.28	1.962E+00	4.018E+00	6.605E+00	4.409E-01	0.297
	245.39 *	1.086E+00	4.446E+00	6.615E+00	4.605E-01	0.164
IN-113M	391.69 *	-6.540E-02	5.424E-02	8.252E-02	5.006E-03	-0.793
SN-113	391.69 *	-6.540E-02	5.424E-02	8.252E-02	5.006E-03	-0.793
IN-114M	190.27 *	-5.035E-02	2.744E-01	3.799E-01	2.576E-02	-0.133
CD-115	260.90	2.339E-04	2.744E-01	Half-Life	too short	
	492.35	-5.006E-05	2.744E-01	Half-Life	too short	
	527.90 *	-1.878E-05	2.744E-01	Half-Life	too short	
SN-117M	156.02	2.113E+00	3.575E+00	5.912E+00	3.962E-01	0.357
	158.56 *	-5.362E-03	8.581E-02	1.383E-01	9.247E-03	-0.039
SB-122	563.90 *	2.000E+00	8.162E+00	1.347E+01	7.410E-01	0.148
	692.80	9.983E+01	1.665E+02	2.910E+02	1.581E+01	0.343
I-123	159.00 *	-1.027E+03	1.665E+02	Half-Life	too short	
	528.96	-2.104E+04	1.665E+02	Half-Life	too short	
TE-123M	159.00 *	-1.206E-02	3.613E-02	5.756E-02	3.886E-03	-0.210
I-124	602.71 *	-1.406E-01	1.954E+00	2.699E+00	1.443E-01	-0.052
	722.78	1.305E+00	1.207E+01	1.764E+01	1.029E+00	0.074
	1325.50	-8.261E-01	7.968E+01	1.285E+02	9.588E+00	-0.006
+	1376.25	1.764E+02	1.224E+02	1.737E+02	1.303E+01	1.015

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

Nuclide	Line Ided	Energy (keV)	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124		1509.49	7.333E+01	3.910E+01	7.905E+01	5.726E+00	0.928
		1691.02	-1.999E+00	8.386E+00	1.319E+01	8.681E-01	-0.152
		602.71	-3.901E-03	5.423E-02	7.492E-02	4.007E-03	-0.052
		645.85	-8.129E-01	6.503E-01	9.339E-01	5.560E-02	-0.870
		709.31	1.308E+00	3.405E+00	5.857E+00	3.310E-01	0.223
		713.82	-1.633E+00	1.926E+00	3.000E+00	3.049E-01	-0.544
		722.78	5.250E-02	4.857E-01	7.097E-01	4.335E-02	0.074
	+	968.20	1.896E+01	4.879E+00	8.304E+00	6.668E-01	2.283
		1045.16	1.050E+00	2.745E+00	4.673E+00	3.414E-01	0.225
		1325.50	-3.550E-02	3.423E+00	5.521E+00	4.120E-01	-0.006
SB-125		1368.21	4.452E-01	2.182E+00	3.138E+00	4.016E-01	0.142
		1436.60	-4.433E+00	4.756E+00	6.970E+00	5.164E-01	-0.636
		1691.02 *	-1.897E-02	7.958E-02	1.251E-01	8.789E-03	-0.152
	+	427.89 *	-2.887E-02	1.050E-01	1.694E-01	1.009E-02	-0.170
		463.38	8.736E-01	4.236E-01	6.293E-01	4.207E-02	1.388
		600.56	-4.997E-04	2.106E-01	3.307E-01	2.093E-02	-0.002
TE-125M		635.90	-1.959E-01	3.243E-01	4.957E-01	3.108E-02	-0.395
I-126		109.28 *	1.272E+00	1.179E+01	1.935E+01	1.926E+00	0.066
		388.63	-1.361E-01	2.995E-01	4.799E-01	2.746E-02	-0.284
SB-126		666.33 *	1.832E-01	2.729E-01	4.613E-01	2.348E-02	0.397
		753.82	3.213E+00	2.259E+00	4.136E+00	2.594E-01	0.777
		223.80	-7.342E-02	6.602E+00	1.053E+01	7.293E-01	-0.007
		278.60	3.653E+00	3.941E+00	6.849E+00	4.727E-01	0.533
		296.50	1.530E+01	4.059E+00	5.381E+00	3.664E-01	2.844
		414.70	-9.338E-03	1.165E-01	1.908E-01	1.088E-02	-0.049
		415.30	2.653E+00	9.636E+00	1.612E+01	9.191E-01	0.165
		555.20	2.175E+00	6.102E+00	1.016E+01	5.618E-01	0.214
		573.80	-9.347E-01	1.585E+00	2.448E+00	1.338E-01	-0.382
		593.00	4.086E-01	1.427E+00	2.357E+00	1.270E-01	0.173
SB-127		656.30	-4.190E-01	5.103E+00	8.148E+00	4.126E-01	-0.051
		666.33	7.739E-02	1.153E-01	1.949E-01	9.919E-03	0.397
		675.00	6.879E-01	2.864E+00	4.693E+00	2.441E-01	0.147
		695.00	4.598E-02	1.148E-01	1.980E-01	1.081E-02	0.232
		697.00	-2.339E-01	3.925E-01	6.292E-01	3.453E-02	-0.372
		720.50 *	1.076E-01	2.357E-01	3.575E-01	2.075E-02	0.301
		856.80	-1.493E-01	7.277E-01	1.187E+00	9.315E-02	-0.126
		989.30	-1.056E+00	1.910E+00	2.973E+00	2.333E-01	-0.355
		1034.80	1.515E+01	1.270E+01	2.310E+01	1.713E+00	0.656
		1213.00	-1.345E+00	7.321E+00	1.170E+01	7.182E-01	-0.115
SB-127		61.10	6.328E+01	2.442E+02	4.088E+02	6.245E+01	0.155
		252.40	1.566E+00	1.211E+01	2.043E+01	8.613E+00	0.077
		290.80	4.907E+00	6.907E+01	1.008E+02	1.166E+01	0.049
		411.60	-2.824E+01	3.369E+01	5.204E+01	8.099E+00	-0.543
		444.90	1.101E+01	2.665E+01	4.485E+01	5.533E+00	0.245
		473.00	3.739E-01	4.346E+00	7.150E+00	9.058E-01	0.052
		543.00	2.501E+01	4.374E+01	7.393E+01	1.047E+01	0.338
		603.60	6.260E+00	3.457E+01	4.910E+01	5.962E+00	0.127
		685.20 *	1.242E+00	3.494E+00	6.018E+00	6.606E-01	0.206
		698.50	-2.927E+01	4.133E+01	6.537E+01	1.019E+01	-0.448

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	722.20			3.348E+00	8.745E+01	1.268E+02	1.395E+01	0.026
	783.80			9.671E+00	9.869E+00	1.751E+01	2.226E+00	0.552
	57.60			1.822E+00	1.341E+01	2.240E+01	2.853E+00	0.081
	145.22			5.726E-01	9.492E-01	1.572E+00	1.067E-01	0.364
	172.10			3.712E-02	1.642E-01	2.670E-01	1.783E-02	0.139
I-131	202.84	*		-1.808E-02	7.634E-02	1.051E-01	7.194E-03	-0.172
	374.96			9.434E-02	2.529E-01	4.271E-01	2.538E-02	0.221
	80.18			9.707E+00	1.301E+01	1.449E+01	1.627E+00	0.670
	284.30			-1.757E+00	2.718E+00	4.397E+00	3.288E-01	-0.400
	364.48	*		2.098E-02	2.095E-01	3.487E-01	2.370E-02	0.060
TE-132	636.97			-1.919E+00	2.842E+00	4.320E+00	2.592E-01	-0.444
	722.89			2.254E+00	1.335E+01	1.964E+01	1.173E+00	0.115
	49.72			1.678E+01	1.587E+02	2.657E+02	4.258E+01	0.063
	111.76			3.953E+00	9.736E+01	1.593E+02	1.873E+01	0.025
	116.30			-3.289E+01	9.039E+01	1.452E+02	1.672E+01	-0.226
BA-133	228.16	*		-1.468E+00	2.303E+00	3.762E+00	5.981E-01	-0.390
	53.15			-3.138E+00	8.935E+00	1.465E+01	2.009E+00	-0.214
	79.62			2.306E+00	2.472E+00	2.772E+00	4.652E-01	0.832
	81.00			1.261E-01	1.824E-01	2.013E-01	3.503E-02	0.627
	276.40			2.544E-01	4.686E-01	7.816E-01	1.055E-01	0.325
I-133	302.84			1.108E-01	1.906E-01	2.872E-01	3.494E-02	0.386
	356.01	*		-3.908E-02	5.838E-02	7.891E-02	9.292E-03	-0.495
	383.85			-2.432E-02	3.571E-01	5.873E-01	6.385E-02	-0.041
	510.53	+		7.106E+01	3.571E-01	Half-Life	too short	
	529.87	*		2.312E-01	3.571E-01	Half-Life	too short	
CS-134	706.58			7.277E+00	3.571E-01	Half-Life	too short	
	856.28			-1.881E+01	3.571E-01	Half-Life	too short	
	875.33			-3.226E+00	3.571E-01	Half-Life	too short	
	1236.41			4.571E+01	3.571E-01	Half-Life	too short	
	1298.22			-1.020E+01	3.571E-01	Half-Life	too short	
I-135	475.35			-2.602E-01	2.155E+00	3.492E+00	1.990E-01	-0.075
	563.23			7.964E-02	4.183E-01	6.876E-01	3.872E-02	0.116
	569.32			-5.171E-02	2.238E-01	3.560E-01	2.016E-02	-0.145
	604.70			1.309E-02	4.515E-02	6.477E-02	3.479E-03	0.202
	795.84	*		7.888E-02	5.830E-02	9.594E-02	6.685E-03	0.822
I-135	801.93			-6.983E-02	4.390E-01	6.567E-01	4.625E-02	-0.106
	1038.57			-1.970E+00	4.222E+00	6.587E+00	4.857E-01	-0.299
	1167.94			1.113E+00	2.948E+00	4.963E+00	2.864E-01	0.224
	1365.15			-1.707E-01	1.257E+00	1.982E+00	1.579E-01	-0.086
	288.45			-7.438E+14	1.257E+00	Half-Life	too short	
I-135	417.63			4.283E+15	1.257E+00	Half-Life	too short	
	546.56			-3.346E+15	1.257E+00	Half-Life	too short	
	836.80			1.197E+15	1.257E+00	Half-Life	too short	
	1038.76			-1.746E+15	1.257E+00	Half-Life	too short	
	1124.00			4.156E+15	1.257E+00	Half-Life	too short	
I-135	1131.51			-1.857E+14	1.257E+00	Half-Life	too short	
	1260.41	*		8.919E+14	1.257E+00	Half-Life	too short	
	1457.56			1.662E+17	1.257E+00	Half-Life	too short	
	1678.03			-7.527E+14	1.257E+00	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1706.46		2.881E+15	1.257E+00	Half-Life	too short	
		1791.20		-5.186E+14	1.257E+00	Half-Life	too short	
		66.91		-4.524E-02	1.637E+00	2.618E+00	4.504E-01	-0.017
	+	86.29		6.956E+00	2.646E+00	3.291E+00	4.904E-01	2.113
		153.22		-2.549E-01	1.061E+00	1.701E+00	1.358E-01	-0.150
		163.89		1.238E+00	1.688E+00	2.748E+00	2.187E-01	0.451
		176.55		3.788E-01	5.947E-01	9.817E-01	7.205E-02	0.386
		273.65		-9.408E-01	8.338E-01	1.123E+00	8.556E-02	-0.838
		340.57		3.316E-01	2.083E-01	3.336E-01	2.253E-02	0.994
		818.51		1.527E-01	1.058E-01	1.958E-01	1.420E-02	0.780
BA-137M		1048.07	*	4.784E-02	1.530E-01	2.584E-01	1.993E-02	0.185
		1235.34		1.622E+00	1.080E+00	1.729E+00	1.789E-01	0.938
		661.65	*	-1.391E-02	4.216E-02	6.592E-02	3.316E-03	-0.211
		661.65	*	-1.470E-02	4.457E-02	6.968E-02	3.525E-03	-0.211
CS-137		661.65	*	-1.470E-02	4.457E-02	6.968E-02	3.525E-03	-0.211
CE-139		165.85	*	1.780E-02	3.691E-02	6.072E-02	4.038E-03	0.293
BA-140		162.64		-4.951E-01	1.211E+00	1.882E+00	1.374E-01	-0.263
		304.84		2.260E+00	2.166E+00	3.255E+00	8.954E-01	0.694
LA-140		423.70		-1.243E+00	2.844E+00	4.495E+00	1.428E+00	-0.277
	+	537.32	*	1.422E-02	3.890E-01	6.337E-01	2.058E-01	0.022
		328.77		6.525E-01	8.841E-01	8.742E-01	6.264E-02	0.746
		432.53		8.468E-01	3.172E+00	5.296E+00	3.351E-01	0.160
		487.03		1.495E-01	1.980E-01	3.405E-01	2.201E-02	0.439
		751.79		1.567E+00	2.669E+00	4.641E+00	3.464E-01	0.338
		815.85		-2.147E-02	4.738E-01	7.849E-01	6.562E-02	-0.027
		867.82		-2.894E+00	2.080E+00	2.982E+00	2.540E-01	-0.970
		919.63		-3.230E+00	4.305E+00	6.612E+00	6.920E-01	-0.489
		925.24		6.643E-01	1.677E+00	2.866E+00	2.555E-01	0.232
CE-141		1596.49	*	-1.048E-01	1.228E-01	1.707E-01	1.190E-02	-0.614
		145.44	*	3.044E-02	8.674E-02	1.424E-01	9.941E-03	0.214
CE-143		57.37		7.431E-03	8.674E-02	Half-Life	too short	
		231.56		2.398E-02	8.674E-02	Half-Life	too short	
	+	293.26	*	1.423E-02	8.674E-02	Half-Life	too short	
	+	350.59		3.451E-01	8.674E-02	Half-Life	too short	
		490.36		-3.624E-02	8.674E-02	Half-Life	too short	
		664.57		2.841E-03	8.674E-02	Half-Life	too short	
		721.93		3.146E-03	8.674E-02	Half-Life	too short	
CE-144		80.11		3.041E+00	4.015E+00	4.474E+00	4.991E-01	0.680
		133.54	*	-9.372E-02	2.867E-01	3.996E-01	5.873E-02	-0.235
PM-144		476.78		-1.141E-02	7.722E-02	1.249E-01	8.567E-03	-0.091
		618.01		-2.071E-02	3.488E-02	5.370E-02	3.038E-03	-0.386
		696.49	*	-2.902E-02	3.995E-02	6.345E-02	3.483E-03	-0.457
		778.57		-1.315E+00	2.649E+00	4.239E+00	2.814E-01	-0.310
PR-144		696.49	*	-1.972E+00	2.714E+00	4.310E+00	2.362E-01	-0.457
		1489.15		-9.353E+00	1.242E+01	1.813E+01	1.323E+00	-0.516
PM-146		453.90	*	4.611E-02	5.224E-02	9.016E-02	7.721E-03	0.511
		633.02		-1.036E+00	1.628E+00	2.405E+00	8.833E-01	-0.431
		735.90		-2.025E-01	1.779E-01	2.548E-01	7.117E-02	-0.795
		747.13		-1.826E-02	1.004E-01	1.653E-01	2.097E-02	-0.110
ND-147	+	91.11		1.280E+00	6.275E-01	9.460E-01	1.076E-01	1.353

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		319.41	-1.475E+00	5.501E+00	8.493E+00	5.636E-01	-0.174
		439.89	1.953E+00	9.305E+00	1.547E+01	8.850E-01	0.126
		531.02 *	1.975E-01	8.509E-01	1.407E+00	1.891E-01	0.140
PM-149		285.90 *	-2.208E-04	8.509E-01	Half-Life too short		
EU-152		121.78	-2.648E-03	9.347E-02	1.469E-01	1.281E-02	-0.018
		244.69	4.313E-01	4.232E-01	6.584E-01	4.584E-02	0.655
		344.27 *	-7.434E-02	1.388E-01	1.791E-01	1.262E-02	-0.415
		443.98	-3.907E-01	1.114E+00	1.783E+00	1.019E-01	-0.219
		778.89	-8.421E-02	3.028E-01	4.937E-01	3.276E-02	-0.171
		867.32	-8.271E-01	9.616E-01	1.468E+00	1.178E-01	-0.563
	+	964.01	6.843E-01	4.352E-01	6.499E-01	5.241E-02	1.053
		1085.78	8.382E-02	4.209E-01	7.025E-01	4.812E-02	0.119
		1112.02	-2.162E-01	4.481E-01	5.859E-01	3.825E-02	-0.369
		1407.95	3.337E-01	2.023E-01	3.984E-01	2.972E-02	0.838
GD-153		69.67	-1.686E+00	2.826E+00	3.976E+00	4.488E-01	-0.424
		83.37	4.528E+01	2.140E+01	3.315E+01	3.740E+00	1.366
		97.43 *	8.900E-02	1.083E-01	1.622E-01	1.557E-02	0.549
		103.18	1.267E-01	1.289E-01	2.183E-01	1.921E-02	0.580
EU-154		123.07	3.849E-02	7.135E-02	1.046E-01	1.077E-02	0.368
		247.94	1.595E-01	4.614E-01	7.204E-01	7.412E-02	0.221
		591.81	-2.264E-01	7.138E-01	1.124E+00	1.072E-01	-0.201
		723.30	8.761E-02	2.253E-01	3.385E-01	2.409E-02	0.259
		756.87	-8.647E-01	9.210E-01	1.420E+00	1.483E-01	-0.609
		873.19	4.147E-01	3.308E-01	6.013E-01	7.153E-02	0.690
		996.32	-9.708E-02	4.342E-01	6.989E-01	1.214E-01	-0.139
		1004.76	-2.212E-01	2.249E-01	3.287E-01	3.610E-02	-0.673
		1274.45 *	-1.260E-01	1.469E-01	2.151E-01	2.157E-02	-0.586
EU-155		48.70	-3.498E+00	7.733E+00	1.264E+01	1.627E+00	-0.277
		60.01	-8.054E+00	9.347E+00	1.493E+01	1.825E+00	-0.540
	+	86.54	4.997E-01	1.841E-01	2.358E-01	2.720E-02	2.119
		105.31 *	9.210E-02	1.319E-01	2.213E-01	1.916E-02	0.416
TB-160	+	86.79	1.395E+00	5.137E-01	6.627E-01	7.610E-02	2.105
		197.04	3.554E-01	7.430E-01	1.215E+00	8.281E-02	0.293
		215.65	-5.012E-01	9.715E-01	1.513E+00	1.044E-01	-0.331
	+	298.57	1.585E-01	1.986E-01	2.609E-01	1.773E-02	0.608
		879.36 *	-8.364E-02	1.633E-01	2.574E-01	2.116E-02	-0.325
		962.29	1.148E+00	7.286E-01	1.208E+00	9.754E-02	0.950
		966.15	1.634E+00	3.418E-01	6.635E-01	5.339E-02	2.462
		1177.93	2.201E-01	4.396E-01	7.475E-01	4.296E-02	0.294
		1271.85	1.487E-01	8.625E-01	1.422E+00	9.697E-02	0.105
HO-166M		80.57	3.465E-01	5.041E-01	5.586E-01	6.240E-02	0.620
	+	184.41	1.135E-01	6.453E-02	8.188E-02	5.525E-03	1.386
		280.46	-1.077E-02	1.043E-01	1.736E-01	1.197E-02	-0.062
		410.95	-1.070E-01	2.854E-01	4.588E-01	2.614E-02	-0.233
		711.68 *	1.726E-02	6.933E-02	1.182E-01	6.720E-03	0.146
		752.31	3.408E-01	3.305E-01	5.908E-01	3.692E-02	0.577
		810.29	7.769E-03	6.249E-02	1.051E-01	7.473E-03	0.074
TM-171		51.35	4.144E+01	8.335E+01	1.413E+02	1.951E+01	0.293
		52.39	-4.384E+00	4.090E+01	6.782E+01	9.355E+00	-0.065



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	59.40		-5.554E+01	5.201E+01	8.212E+01	1.011E+01	-0.676
		66.72	*	1.204E+00	4.677E+01	7.495E+01	8.619E+00	0.016
		88.36		7.255E-01	2.611E-01	4.771E-01	5.474E-02	1.521
		201.83		2.499E-03	3.819E-02	5.918E-02	4.048E-03	0.042
		306.84	*	-1.964E-02	2.962E-02	4.620E-02	3.112E-03	-0.425
LU-177	+	401.10		-1.351E+00	7.953E+00	1.297E+01	7.373E-01	-0.104
		112.95		5.874E-01	3.131E+00	5.153E+00	4.034E-01	0.114
		208.36	*	3.083E+00	3.005E+00	3.819E+00	2.624E-01	0.807
LU-177M	+	52.97		-9.128E-01	4.149E+00	6.845E+00	9.401E-01	-0.133
		54.07		-1.577E-01	2.083E+00	3.455E+00	4.684E-01	-0.046
		61.30		-2.845E-01	2.798E+00	4.566E+00	5.512E-01	-0.062
		121.62		-2.544E-02	4.887E-01	7.674E-01	5.529E-02	-0.033
		147.16		-4.698E-01	8.292E-01	1.312E+00	8.879E-02	-0.358
HF-181	+	171.86		3.287E-01	6.105E-01	1.005E+00	6.713E-02	0.327
		218.09		-5.899E-02	1.085E+00	1.728E+00	1.194E-01	-0.034
		268.79		2.528E+00	1.213E+00	1.839E+00	1.275E-01	1.375
		319.02		-1.224E-01	3.112E-01	4.925E-01	3.268E-02	-0.249
		367.43		-3.196E-02	1.072E+00	1.770E+00	1.072E-01	-0.018
		413.65	*	-2.148E-01	2.137E-01	3.288E-01	1.874E-02	-0.653
		56.28		-1.146E-01	2.199E+00	3.650E+00	4.767E-01	-0.031
		57.53		2.879E-01	1.114E+00	1.870E+00	2.385E-01	0.154
		65.20		4.387E-01	1.671E+00	2.794E+00	3.252E-01	0.157
		133.02		-2.483E-02	9.806E-02	1.374E-01	9.529E-03	-0.181
W-181	+	136.25		-3.557E-01	6.403E-01	9.699E-01	6.679E-02	-0.367
		345.85		-2.602E-01	2.848E-01	3.786E-01	2.403E-02	-0.687
		482.03	*	-2.191E-02	5.414E-02	8.589E-02	4.890E-03	-0.255
		56.28		-4.225E-02	8.182E-01	1.358E+00	1.773E-01	-0.031
		57.53		1.075E-01	4.150E-01	6.962E-01	8.879E-02	0.154
TA-182	+	65.20	*	1.620E-01	6.173E-01	1.032E+00	1.201E-01	0.157
		67.75		-6.669E-03	1.966E-01	2.854E-01	3.259E-02	-0.023
		100.10		-9.759E-02	2.263E-01	3.646E-01	3.353E-02	-0.268
		152.43		6.489E-02	4.290E-01	6.982E-01	4.696E-02	0.093
		222.10		-1.658E-01	4.532E-01	7.106E-01	4.920E-02	-0.233
RE-183	+	1001.68		1.189E-01	2.280E+00	3.695E+00	2.859E-01	0.032
		1121.28		6.738E-01	3.164E-01	4.009E-01	2.570E-02	1.681
		1189.05		2.047E-03	3.739E-01	6.084E-01	3.571E-02	0.003
		1221.42	*	-2.495E-02	2.313E-01	3.718E-01	2.318E-02	-0.067
		1230.97		-2.627E-01	6.837E-01	9.019E-01	5.722E-02	-0.291
		57.98		-3.229E-02	4.149E-01	6.874E-01	8.691E-02	-0.047
		59.32		-2.371E-01	2.239E-01	3.538E-01	4.361E-02	-0.670
RE-184	+	67.20		7.162E-02	3.483E-01	5.392E-01	6.179E-02	0.133
		162.32	*	-1.387E-01	1.447E-01	2.192E-01	1.461E-02	-0.633
		208.81		1.772E+00	1.727E+00	2.205E+00	1.515E-01	0.804
		291.72		1.549E+00	1.421E+00	2.200E+00	1.504E-01	0.704
		57.98		-1.157E-01	1.487E+00	2.463E+00	3.115E-01	-0.047
RE-184	+	59.32		-8.489E-01	8.019E-01	1.267E+00	1.562E-01	-0.670
		67.20		2.566E-01	1.248E+00	1.932E+00	2.214E-01	0.133
		161.27		-4.420E-01	4.543E-01	6.877E-01	4.588E-02	-0.643
		216.55		3.307E-02	3.329E-01	5.342E-01	3.688E-02	0.062

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		252.85	*	1.551E-02	2.795E-01	4.706E-01	3.276E-02	0.033
		318.01		-3.695E-01	5.410E-01	8.665E-01	5.757E-02	-0.426
		792.07		1.525E+00	1.318E+00	2.122E+00	1.450E-01	0.719
		903.28		1.725E+00	1.254E+00	2.084E+00	1.772E-01	0.828
		920.93		-2.414E-02	5.460E-01	8.984E-01	7.535E-02	-0.027
		59.72		-6.131E-01	5.841E-01	9.233E-01	1.132E-01	-0.664
		61.14		8.693E-02	3.037E-01	5.089E-01	6.154E-02	0.171
		69.30		-5.143E-01	5.300E-01	7.285E-01	8.240E-02	-0.706
		592.07		-3.411E-01	2.987E+00	4.783E+00	2.579E-01	-0.071
		646.12	*	-5.175E-02	5.338E-02	7.879E-02	4.037E-03	-0.657
		717.42		4.121E-02	1.026E+00	1.723E+00	9.926E-02	0.024
		874.81		-2.521E-01	7.020E-01	1.126E+00	9.169E-02	-0.224
RE-188		880.27		-1.391E-01	9.080E-01	1.483E+00	1.221E-01	-0.094
		155.03	*	2.277E-01	2.239E-01	3.757E-01	2.520E-02	0.606
		477.96		1.156E+00	3.625E+00	6.057E+00	3.451E-01	0.191
W-188		633.10		-2.131E+00	3.357E+00	5.107E+00	2.653E-01	-0.417
		63.58		6.004E+01	9.416E+01	1.572E+02	1.857E+01	0.382
		227.08		-9.794E+00	1.625E+01	2.671E+01	1.853E+00	-0.367
IR-192		290.67	*	5.497E-01	1.058E+01	1.543E+01	1.056E+00	0.036
	+	295.96		1.065E+00	2.403E-01	3.495E-01	2.408E-02	3.048
		308.46		-7.418E-02	1.161E-01	1.866E-01	1.265E-02	-0.398
AU-195		316.51	*	-2.286E-02	4.222E-02	6.819E-02	4.557E-03	-0.335
		468.07		8.598E-03	8.305E-02	1.244E-01	8.216E-03	0.069
		604.41		-2.296E-02	6.231E-01	8.639E-01	9.608E-02	-0.027
		612.46		5.374E-01	9.128E-01	1.353E+00	9.735E-02	0.397
		65.12		8.520E-02	2.844E-01	4.759E-01	5.543E-02	0.179
		66.83		-8.382E-04	1.561E-01	2.498E-01	2.871E-02	-0.003
	+	75.70		2.020E+00	4.545E-01	6.337E-01	7.037E-02	3.187
TL-200		98.88	*	9.280E-02	3.134E-01	4.575E-01	4.289E-02	0.203
	+	129.76		7.938E+00	6.583E+00	6.329E+00	4.426E-01	1.254
		367.94	*	-4.249E-03	6.583E+00	Half-Life	too short	
TL-201		579.30		2.035E-01	6.583E+00	Half-Life	too short	
		828.27		-1.306E-02	6.583E+00	Half-Life	too short	
		1205.75		4.995E-03	6.583E+00	Half-Life	too short	
TL-202		68.90		-2.263E+01	2.469E+01	3.406E+01	3.861E+00	-0.664
		70.82		3.509E+00	1.297E+01	1.908E+01	2.142E+00	0.184
		80.30		2.024E+01	2.787E+01	3.098E+01	3.457E+00	0.653
		135.34		-7.173E+01	1.078E+02	1.467E+02	1.012E+01	-0.489
TL-202		167.43	*	-1.768E+01	2.575E+01	4.028E+01	2.680E+00	-0.439
		68.90		-8.969E-01	9.787E-01	1.350E+00	1.531E-01	-0.664
		70.82		1.387E-01	5.126E-01	7.543E-01	8.469E-02	0.184
		80.30		8.004E-01	1.102E+00	1.225E+00	1.367E-01	0.653
HG-203		439.56	*	6.874E-03	1.102E-01	1.773E-01	1.013E-02	0.039
		70.83		4.978E-01	1.819E+00	2.676E+00	4.118E-01	0.186
	+	72.87		4.812E+00	1.463E+00	1.872E+00	2.804E-01	2.570
BI-207		82.60		3.624E+00	1.757E+00	2.656E+00	4.123E-01	1.365
		279.20	*	5.363E-02	5.326E-02	9.287E-02	6.689E-03	0.577
	+	72.80		1.314E+00	3.773E-01	5.090E-01	5.676E-02	2.582
	+	74.97		7.784E-01	2.235E-01	3.484E-01	3.870E-02	2.234

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207		84.90		1.054E+00	2.972E-01	4.594E-01	5.220E-02	2.295
		569.67		-1.320E-02	3.519E-02	5.533E-02	3.032E-03	-0.239
		1063.62	*	-2.651E-02	6.135E-02	9.627E-02	6.840E-03	-0.275
		1770.23		3.242E-01	4.760E-01	8.089E-01	5.009E-02	0.401
		81.07		2.943E-01	4.006E-01	4.454E-01	4.982E-02	0.661
		83.78		4.280E-01	1.814E-01	2.817E-01	3.184E-02	1.519
		94.90		1.981E-01	3.231E-01	4.783E-01	4.796E-02	0.414
		122.32		2.336E-01	2.326E+00	3.522E+00	2.789E-01	0.066
		144.24		9.900E-01	8.542E-01	1.430E+00	1.151E-01	0.692
		154.21		2.978E-01	4.958E-01	8.198E-01	6.382E-02	0.363
	+	269.46		5.797E-01	2.783E-01	4.193E-01	2.999E-02	1.383
		323.87	*	9.813E-02	8.477E-01	1.236E+00	2.077E-01	0.079
	+	338.28		6.582E+00	1.995E+00	2.826E+00	3.080E-01	2.329
		445.03		9.449E-01	2.610E+00	4.381E+00	4.478E-01	0.216
PO-209		260.50		7.356E-01	1.119E+01	1.884E+01	1.309E+00	0.039
		262.80		-2.558E+01	3.306E+01	5.002E+01	3.475E+00	-0.511
		896.60	*	-5.672E+00	8.163E+00	1.259E+01	1.072E+00	-0.451
		46.50	*	-1.005E+01	1.318E+01	2.082E+01	2.163E+00	-0.483
BI-210		46.50	*	-1.005E+01	1.318E+01	2.082E+01	2.163E+00	-0.483
PB-210		46.50	*	-1.005E+01	1.318E+01	2.082E+01	2.000E+00	-0.483
PO-210		46.50	*	-1.005E+01	1.318E+01	2.082E+01	2.000E+00	-0.483
PB-211		404.84	*	4.589E-02	1.112E+00	1.836E+00	1.144E+00	0.025
		427.08		4.091E-01	2.314E+00	3.824E+00	2.364E+00	0.107
BI-212		831.96		2.488E-02	1.346E+00	2.240E+00	1.400E+00	0.011
	+	727.18	*	1.074E+00	4.722E-01	7.364E-01	5.734E-02	1.458
		785.46		3.746E-02	2.153E+00	3.333E+00	2.245E-01	0.011
		1620.62		7.167E-01	1.565E+00	2.749E+00	1.891E-01	0.261
PO-215		81.07		2.943E-01	4.006E-01	4.454E-01	4.982E-02	0.661
		83.78		4.280E-01	1.814E-01	2.817E-01	3.184E-02	1.519
		94.90		1.981E-01	3.231E-01	4.783E-01	4.796E-02	0.414
		122.32		2.336E-01	2.326E+00	3.522E+00	2.789E-01	0.066
		144.24		9.900E-01	8.542E-01	1.430E+00	1.151E-01	0.692
		154.21		2.978E-01	4.958E-01	8.198E-01	6.382E-02	0.363
	+	269.46		5.797E-01	2.783E-01	4.193E-01	2.999E-02	1.383
		323.87	*	9.813E-02	8.477E-01	1.236E+00	2.077E-01	0.079
	+	338.28		6.582E+00	1.995E+00	2.826E+00	3.080E-01	2.329
		445.03		9.449E-01	2.610E+00	4.381E+00	4.478E-01	0.216
		271.23		6.434E-01	3.386E-01	5.428E-01	4.856E-02	1.185
		401.81	*	-2.307E-02	4.814E-01	7.908E-01	1.072E-01	-0.029
		549.76	*	-4.129E+00	2.936E+01	4.712E+01	2.614E+00	-0.088
		81.07		2.943E-01	4.006E-01	4.454E-01	4.982E-02	0.661
RN-219		83.78		4.280E-01	1.814E-01	2.817E-01	3.184E-02	1.519
		94.90		1.981E-01	3.231E-01	4.783E-01	4.796E-02	0.414
		122.32		2.336E-01	2.326E+00	3.522E+00	2.789E-01	0.066
		144.24		9.900E-01	8.542E-01	1.430E+00	1.151E-01	0.692
		154.21		2.978E-01	4.958E-01	8.198E-01	6.382E-02	0.363
	+	269.46		5.797E-01	2.783E-01	4.193E-01	2.999E-02	1.383
		323.87	*	9.813E-02	8.477E-01	1.236E+00	2.077E-01	0.079
	+	338.28		6.582E+00	1.995E+00	2.826E+00	3.080E-01	2.329
		445.03		9.449E-01	2.610E+00	4.381E+00	4.478E-01	0.216
		271.23		6.434E-01	3.386E-01	5.428E-01	4.856E-02	1.185
		401.81	*	-2.307E-02	4.814E-01	7.908E-01	1.072E-01	-0.029
		549.76	*	-4.129E+00	2.936E+01	4.712E+01	2.614E+00	-0.088
		81.07		2.943E-01	4.006E-01	4.454E-01	4.982E-02	0.661
		83.78		4.280E-01	1.814E-01	2.817E-01	3.184E-02	1.519
		94.90		1.981E-01	3.231E-01	4.783E-01	4.796E-02	0.414
		122.32		2.336E-01	2.326E+00	3.522E+00	2.789E-01	0.066
		144.24		9.900E-01	8.542E-01	1.430E+00	1.151E-01	0.692
		154.21		2.978E-01	4.958E-01	8.198E-01	6.382E-02	0.363
	+	269.46		5.797E-01	2.783E-01	4.193E-01	2.999E-02	1.383
		323.87	*	9.813E-02	8.477E-01	1.236E+00	2.077E-01	0.079
	+	338.28		6.582E+00	1.995E+00	2.826E+00	3.080E-01	2.329
		445.03		9.449E-01	2.610E+00	4.381E+00	4.478E-01	0.216

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		79.80		2.689E+00	3.142E+00	3.479E+00	7.874E-01	0.773
		236.00		4.898E+00	6.887E-01	8.893E-01	9.902E-02	5.507
		256.20	*	-5.045E-02	4.535E-01	7.575E-01	1.097E-01	-0.067
		286.10		-8.185E-01	1.831E+00	2.989E+00	3.626E-01	-0.274
	+	299.80		1.928E+00	2.434E+00	3.141E+00	5.233E-01	0.614
		304.40		1.112E+00	2.522E+00	3.761E+00	6.634E-01	0.296
		334.20		-2.816E+00	4.965E+00	4.363E+00	8.098E-01	-0.646
TH-227		79.80		2.689E+00	3.143E+00	3.479E+00	7.965E-01	0.773
		94.00		8.471E+00	3.291E+00	4.421E+00	9.925E-01	1.916
		236.00		4.898E+00	6.395E-01	8.893E-01	8.748E-02	5.507
		256.20	*	-5.045E-02	4.536E-01	7.575E-01	1.313E-01	-0.067
		286.10		-8.185E-01	2.004E+00	2.989E+00	2.996E+00	-0.274
	+	299.80		1.928E+00	2.434E+00	3.141E+00	5.233E-01	0.614
		304.40		1.112E+00	2.522E+00	3.761E+00	6.634E-01	0.296
TH-229		334.20		-2.816E+00	4.965E+00	4.363E+00	8.098E-01	-0.646
	+	85.43		9.287E-01	3.420E-01	4.563E-01	5.200E-02	2.035
	+	88.47		4.176E-01	1.503E-01	2.714E-01	3.106E-02	1.539
		100.00		-9.105E-02	2.378E-01	3.702E-01	3.410E-02	-0.246
		193.63	*	-8.474E-02	6.331E-01	1.010E+00	6.865E-02	-0.084
		210.97		1.463E+00	1.063E+00	1.599E+00	1.100E-01	0.915
		283.67	*	1.089E-01	1.810E+00	3.036E+00	4.332E-01	0.036
PA-231		301.29		1.012E+00	8.070E-01	1.254E+00	1.382E-01	0.807
TH-231		81.07		2.943E-01	4.006E-01	4.454E-01	4.982E-02	0.661
		83.78		4.280E-01	1.814E-01	2.817E-01	3.184E-02	1.519
		94.90		1.981E-01	3.231E-01	4.783E-01	4.796E-02	0.414
		122.32		2.336E-01	2.326E+00	3.522E+00	2.789E-01	0.066
		144.24		9.900E-01	8.542E-01	1.430E+00	1.151E-01	0.692
		154.21		2.978E-01	4.958E-01	8.198E-01	6.382E-02	0.363
	+	269.46		5.797E-01	2.783E-01	4.193E-01	2.999E-02	1.383
U-231		323.87	*	9.813E-02	8.477E-01	1.236E+00	2.077E-01	0.079
	+	338.28		6.582E+00	1.995E+00	2.826E+00	3.080E-01	2.329
		445.03		9.449E-01	2.610E+00	4.381E+00	4.478E-01	0.216
		84.21		4.853E+01	1.759E+01	2.735E+01	3.098E+00	1.774
	+	92.29		1.582E+01	7.735E+00	1.098E+01	1.157E+00	1.441
		95.87	*	-9.163E-01	3.291E+00	4.664E+00	4.596E-01	-0.196
		108.00		-3.257E+00	5.537E+00	8.838E+00	7.311E-01	-0.368
PA-233	+	75.28		3.210E+01	8.295E+00	1.025E+01	1.730E+00	3.131
	+	86.59		8.108E+00	3.627E+00	3.831E+00	1.068E+00	2.116
	+	300.12		5.376E-01	6.768E-01	8.812E-01	1.224E-01	0.610
		311.98	*	2.492E-02	7.467E-02	1.265E-01	8.869E-03	0.197
		340.50		1.377E+00	8.486E-01	1.278E+00	2.956E-01	1.078
		398.62		-6.083E-01	2.530E+00	4.103E+00	1.060E+00	-0.148
		415.76		1.281E+00	1.963E+00	3.329E+00	6.845E-01	0.385
PA-234		63.00		-5.324E-01	2.728E+00	4.437E+00	7.773E-01	-0.120
		94.67		2.424E-01	2.360E-01	3.533E-01	4.752E-02	0.686
		98.44		8.747E-02	1.322E-01	1.835E-01	1.026E-01	0.477
		99.86		-4.463E-02	5.930E-01	9.359E-01	8.640E-02	-0.048
		111.00		1.277E-01	2.185E-01	3.645E-01	4.247E-02	0.350
		131.20		1.096E-01	1.439E-01	2.130E-01	1.483E-02	0.515

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		152.70	-4.735E-02	4.029E-01	6.487E-01	1.049E-01	-0.073
	+	186.00	4.086E+00	2.626E+00	2.979E+00	9.162E-01	1.371
		226.40	3.834E-02	4.801E-01	8.123E-01	9.885E-02	0.047
		227.20	-3.371E-01	5.223E-01	8.570E-01	5.945E-02	-0.393
		248.90	-5.261E-01	9.854E-01	1.560E+00	3.405E-01	-0.337
	+	293.70	6.411E+00	1.736E+00	2.098E+00	3.458E-01	3.055
		369.80	-1.361E-01	9.824E-01	1.610E+00	3.364E-01	-0.085
		568.70	-1.440E-01	1.157E+00	1.856E+00	1.018E-01	-0.078
		569.50	-1.037E-01	3.113E-01	4.912E-01	2.693E-02	-0.211
		574.00	-1.481E-01	1.696E+00	2.727E+00	1.491E-01	-0.054
		699.00	-1.135E-01	8.029E-01	1.332E+00	2.384E-01	-0.085
		706.10	-3.031E-01	1.249E+00	2.047E+00	9.027E-01	-0.148
		733.00	1.271E-01	4.798E-01	7.117E-01	1.517E-01	0.179
		742.81	-2.728E-01	1.442E+00	2.353E+00	1.575E+00	-0.116
		796.30	1.886E+00	1.194E+00	1.862E+00	4.944E-01	1.013
		805.60	3.149E-01	1.053E+00	1.790E+00	5.413E-01	0.176
		819.60	1.692E+00	1.537E+00	2.550E+00	9.624E-01	0.663
		826.30	3.922E-01	9.069E-01	1.535E+00	6.835E-01	0.255
		831.60	-2.912E-01	7.243E-01	1.155E+00	3.411E-01	-0.252
		876.40	6.706E-02	9.403E-01	1.563E+00	1.606E+00	0.043
		880.51	-6.136E-02	3.233E-01	5.263E-01	4.337E-02	-0.117
		883.24	-1.113E-01	3.194E-01	4.967E-01	3.337E-01	-0.224
		899.00	-5.150E-01	9.748E-01	1.491E+00	6.517E-01	-0.345
		925.00	5.919E-01	1.350E+00	2.314E+00	1.934E-01	0.256
		926.50	-2.575E-02	2.080E-01	3.134E-01	7.894E-02	-0.082
		946.00 *	1.010E-02	3.294E-01	5.449E-01	1.012E-01	0.019
		949.00	-3.347E-02	5.032E-01	8.246E-01	6.747E-02	-0.041
		980.50	-1.567E-01	8.494E-01	1.374E+00	1.089E-01	-0.114
PA-234M		1394.10	-1.073E+00	1.517E+00	2.026E+00	1.316E+00	-0.530
		766.42	1.323E+01	1.553E+01	2.482E+01	1.252E+01	0.533
TH-234		1001.03 *	-5.249E-01	5.174E+00	8.272E+00	7.624E-01	-0.063
		63.29 *	3.576E-01	2.290E+00	3.771E+00	7.443E-01	0.095
	+	92.38	1.881E+00	9.668E-01	1.303E+00	2.485E-01	1.443
U-235	+	89.95	4.192E+00	1.954E+00	2.660E+00	8.412E-01	1.576
	+	93.35	2.261E+00	1.259E+00	1.509E+00	4.315E-01	1.498
		105.00	1.018E+00	1.332E+00	2.186E+00	6.521E-01	0.466
		143.76 *	2.280E-01	2.676E-01	4.407E-01	7.352E-02	0.517
		163.35	1.179E-01	5.808E-01	9.260E-01	1.693E-01	0.127
	+	185.71	1.513E-01	8.603E-02	1.106E-01	7.470E-03	1.368
		205.31	-6.124E-01	7.596E-01	9.955E-01	1.827E-01	-0.615
NP-236		94.67	1.855E-01	1.783E-01	2.682E-01	2.701E-02	0.692
		98.44	6.617E-02	9.304E-02	1.387E-01	1.309E-02	0.477
		111.00	9.663E-02	1.651E-01	2.757E-01	2.204E-02	0.350
		160.31 *	-4.733E-02	9.671E-02	1.529E-01	1.021E-02	-0.310
U-238		63.29 *	3.576E-01	2.290E+00	3.771E+00	7.443E-01	0.095
	+	92.38	1.881E+00	9.194E-01	1.303E+00	1.371E-01	1.443
NP-239		99.55	-2.852E-02	1.976E-01	3.110E-01	2.885E-02	-0.092
		117.00 *	-1.041E-01	2.260E-01	3.616E-01	2.718E-02	-0.288
	+	209.75	1.333E+00	1.299E+00	1.710E+00	1.176E-01	0.779

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		228.18		-1.764E-01	2.707E-01	4.437E-01	3.079E-02	-0.398
		277.60		1.569E-01	2.219E-01	3.823E-01	2.640E-02	0.410
		334.30		-1.420E+00	2.805E+00	2.504E+00	1.623E-01	-0.567
AM-241		59.54	*	-3.504E-01	3.007E-01	4.718E-01	6.004E-02	-0.743
CM-243		99.55		-2.936E-02	2.034E-01	3.201E-01	2.969E-02	-0.092
		103.76	*	1.243E-01	1.173E-01	1.991E-01	1.738E-02	0.625
		117.00		-1.071E-01	2.326E-01	3.722E-01	2.798E-02	-0.288
	+	209.75		1.315E+00	1.281E+00	1.687E+00	1.160E-01	0.779
		228.18		-1.783E-01	2.736E-01	4.485E-01	3.112E-02	-0.398
		277.60		1.582E-01	2.237E-01	3.855E-01	2.662E-02	0.410
AM-246		798.80		-3.782E-02	1.576E-01	2.186E-01	1.516E-02	-0.173
		1036.00		3.294E-01	3.314E-01	5.934E-01	4.392E-02	0.555
		1062.04		2.090E-01	2.535E-01	4.471E-01	3.185E-02	0.467
		1078.86	*	-1.125E-01	1.534E-01	2.309E-01	1.601E-02	-0.487
CM-247		278.00		6.906E-01	9.195E-01	1.587E+00	1.095E-01	0.435
		287.40		-1.920E-01	1.558E+00	2.443E+00	1.676E-01	-0.079
		402.60	*	-2.757E-03	4.329E-02	7.104E-02	4.040E-03	-0.039
CF-249		252.85		5.708E-02	1.028E+00	1.732E+00	1.205E-01	0.033
		333.44		-2.055E-01	3.660E-01	3.237E-01	2.101E-02	-0.635
		387.95	*	-5.528E-03	4.618E-02	7.565E-02	4.337E-03	-0.073
CF-251		176.60	*	1.046E-01	1.595E-01	2.634E-01	1.766E-02	0.397
		227.00		-2.667E-01	4.653E-01	7.660E-01	5.313E-02	-0.348
		285.00		-1.267E+00	2.067E+00	3.348E+00	2.301E-01	-0.379

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101004      *
* Acquisition date   : 2-FEB-2010 09:46:19 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 02:00:01.31 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G245101004 Analyst initials: MXR1                  *
* Batch Number      : 944037 Sample Quantity : 1.3379E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME  : 16-FEB-2009 10:54:12 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.656E+01	2.639E+00	6.189E-01	0.000E+00
CD-109	3.135E+00	1.105E+00	1.544E+00	0.000E+00 )
SN-126	4.142E-01	1.495E-01	1.519E-01	0.000E+00
CS-135	4.928E-01	2.329E-01	3.013E-01	0.000E+00
TL-208	5.567E-01	9.122E-02	6.819E-02	0.000E+00
BI-211	3.891E+00	6.069E-01	3.746E-01	0.000E+00
PB-212	1.753E+00	1.908E-01	1.150E-01	0.000E+00
PO-212	1.753E+00	1.908E-01	1.150E-01	0.000E+00
BI-214	1.288E+00	1.790E-01	1.182E-01	0.000E+00
PB-214	1.354E+00	2.222E-01	1.306E-01	0.000E+00
PO-214	1.354E+00	2.222E-01	1.306E-01	0.000E+00
PO-216	1.753E+00	1.908E-01	1.150E-01	0.000E+00
PO-218	1.354E+00	2.222E-01	1.306E-01	0.000E+00
RA-224	5.241E+00	1.684E+00	1.308E+00	0.000E+00
RA-226	1.288E+00	1.790E-01	1.182E-01	0.000E+00
AC-228	1.588E+00	3.357E-01	2.578E-01	0.000E+00
RA-228	1.588E+00	3.357E-01	2.578E-01	0.000E+00
TH-228	1.788E+00	1.946E-01	1.173E-01	0.000E+00
TH-230	1.288E+00	1.790E-01	1.182E-01	0.000E+00
TH-232	1.588E+00	3.357E-01	2.578E-01	0.000E+00
U-234	1.288E+00	1.790E-01	1.182E-01	0.000E+00
NP-237	1.216E+00	5.031E-01	4.548E-01	0.000E+00
AM-243	4.335E-01	1.220E-01	1.253E-01	0.000E+00
ANH-511	1.515E-01	7.988E-02	5.263E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-1.337E-01	3.834E-01	6.375E-01	0.000E+00 NOT IDENT.
NA-22	-4.524E-02	5.158E-02	7.752E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	1.714E+08	0.000E+00	0.000E+00 SHORT HLIF

AL-26	9.664E-03	3.031E-02	5.396E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	7.395E-02	9.894E-02	0.000E+00	NOT IDENT.
SC-46	5.578E-03	4.196E-02	7.252E-02	0.000E+00	FAIL ABUN
V-48	6.913E-02	9.723E-02	1.750E-01	0.000E+00	NOT IDENT.
CR-51	-1.290E-01	5.264E-01	8.228E-01	0.000E+00	NOT IDENT.
MN-52	2.141E-01	4.723E-01	8.506E-01	0.000E+00	FAIL ABUN
MN-54	7.160E-03	4.286E-02	7.445E-02	0.000E+00	NOT IDENT.
CO-56	-7.205E-03	4.164E-02	7.021E-02	0.000E+00	FAIL ABUN
CO-57	2.692E-03	3.329E-02	5.379E-02	0.000E+00	NOT IDENT.
CO-58	3.019E-02	4.152E-02	7.576E-02	0.000E+00	NOT IDENT.
FE-59	4.143E-03	1.001E-01	1.688E-01	0.000E+00	NOT IDENT.
CO-60	-3.454E-02	4.350E-02	6.429E-02	0.000E+00	NOT IDENT.
ZN-65	-1.039E-02	1.189E-01	1.689E-01	0.000E+00	NOT IDENT.
GE-68	-3.462E-01	1.237E+00	2.017E+00	0.000E+00	NOT IDENT.
AS-73	-9.832E-01	2.088E+00	3.689E+00	0.000E+00	NOT IDENT.
AS-74	6.826E-02	1.271E-01	2.218E-01	0.000E+00	NOT IDENT.
SE-75	4.704E-04	5.777E-02	8.891E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	4.574E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-2.131E-01	4.991E-01	8.326E-01	0.000E+00	NOT IDENT.
RB-83	4.574E-03	7.806E-02	1.329E-01	0.000E+00	NOT IDENT.
RB-84	-2.578E-03	8.447E-02	1.439E-01	0.000E+00	NOT IDENT.
KR-85	7.770E+00	8.914E+00	1.413E+01	0.000E+00	NOT IDENT.
SR-85	4.190E-02	4.807E-02	7.620E-02	0.000E+00	NOT IDENT.
RB-86	2.054E-01	9.199E-01	1.584E+00	0.000E+00	NOT IDENT.
Y-88	9.597E-03	3.143E-02	5.608E-02	0.000E+00	NOT IDENT.
ZR-88	1.136E-03	3.681E-02	6.367E-02	0.000E+00	NOT IDENT.
Y-91	-1.854E+01	2.366E+01	3.667E+01	0.000E+00	NOT IDENT.
NB-94	2.482E-02	3.770E-02	6.833E-02	0.000E+00	NOT IDENT.
NB-95	3.524E-02	5.499E-02	9.867E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.773E-01	4.616E-01	0.000E+00	NOT IDENT.
ZR-95	-5.662E-03	8.794E-02	1.512E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.233E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.885E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.175E+01	4.125E+01	7.207E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.706E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.935E-02	4.110E-02	7.112E-02	0.000E+00	NOT IDENT.
RH-102	7.135E-03	3.171E-02	5.494E-02	0.000E+00	NOT IDENT.
RU-103	2.595E-03	4.878E-02	8.326E-02	0.000E+00	NOT IDENT.
RH-106	-1.861E-01	3.251E-01	5.143E-01	0.000E+00	NOT IDENT.
RU-106	-1.861E-01	3.245E-01	5.143E-01	0.000E+00	NOT IDENT.
AG-108M	7.286E-03	3.856E-02	6.693E-02	0.000E+00	NOT IDENT.
AG-110M	-1.304E-02	4.011E-02	6.507E-02	0.000E+00	NOT IDENT.
IN-111	1.086E+00	4.357E+00	6.842E+00	0.000E+00	NOT IDENT.
IN-113M	-6.540E-02	5.315E-02	8.466E-02	0.000E+00	NOT IDENT.
SN-113	-6.540E-02	5.315E-02	8.466E-02	0.000E+00	NOT IDENT.
IN-114M	-5.035E-02	2.689E-01	3.947E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.312E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-5.362E-03	8.409E-02	1.441E-01	0.000E+00	NOT IDENT.
SB-122	2.000E+00	7.999E+00	1.373E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.014E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.206E-02	3.541E-02	5.998E-02	0.000E+00	NOT IDENT.
I-124	-1.406E-01	1.915E+00	2.748E+00	0.000E+00	FAIL ABUN
SB-124	-1.897E-02	7.799E-02	1.250E-01	0.000E+00	FAIL ABUN
SB-125	-2.887E-02	1.029E-01	1.735E-01	0.000E+00	FAIL ABUN
TE-125M	1.272E+00	1.155E+01	2.029E+01	0.000E+00	NOT IDENT.
I-126	1.832E-01	2.674E-01	4.688E-01	0.000E+00	NOT IDENT.
SB-126	1.076E-01	2.310E-01	3.628E-01	0.000E+00	NOT IDENT.
SB-127	1.242E+00	3.424E+00	6.113E+00	0.000E+00	NOT IDENT.
XE-127	-1.808E-02	7.482E-02	1.090E-01	0.000E+00	NOT IDENT.
I-131	2.098E-02	2.053E-01	3.582E-01	0.000E+00	NOT IDENT.
TE-132	-1.468E+00	2.257E+00	3.897E+00	0.000E+00	NOT IDENT.
BA-133	-3.908E-02	5.721E-02	8.109E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.948E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.888E-02	5.713E-02	9.719E-02	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.072E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.784E-02	1.500E-01	2.605E-01	0.000E+00	FAIL ABUN
BA-137M	-1.391E-02	4.132E-02	6.700E-02	0.000E+00	NOT IDENT.
CS-137	-1.470E-02	4.368E-02	7.082E-02	0.000E+00	NOT IDENT.
CE-139	1.780E-02	3.617E-02	6.323E-02	0.000E+00	NOT IDENT.
BA-140	1.422E-02	3.812E-01	6.465E-01	0.000E+00	NOT IDENT.
LA-140	-1.048E-01	1.204E-01	1.708E-01	0.000E+00	FAIL ABUN
CE-141	3.044E-02	8.500E-02	1.486E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.452E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-9.372E-02	2.810E-01	4.176E-01	0.000E+00	NOT IDENT.
PM-144	-2.902E-02	3.915E-02	6.443E-02	0.000E+00	NOT IDENT.
PR-144	-1.972E+00	2.659E+00	4.377E+00	0.000E+00	NOT IDENT.
PM-146	4.611E-02	5.120E-02	9.226E-02	0.000E+00	NOT IDENT.
ND-147	1.975E-01	8.339E-01	1.436E+00	0.000E+00	FAIL ABUN



PM-149	0.000E+00	4.807E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-7.434E-02	1.361E-01	1.842E-01	0.000E+00	FAIL ABUN
GD-153	8.900E-02	1.062E-01	1.705E-01	0.000E+00	NOT IDENT.
EU-154	-1.260E-01	1.440E-01	2.160E-01	0.000E+00	NOT IDENT.
EU-155	9.210E-02	1.293E-01	2.323E-01	0.000E+00	FAIL ABUN
TB-160	-8.364E-02	1.600E-01	2.603E-01	0.000E+00	FAIL ABUN
HO-166M	1.726E-02	6.795E-02	1.200E-01	0.000E+00	FAIL ABUN
TM-171	1.204E+00	4.583E+01	7.925E+01	0.000E+00	NOT IDENT.
LU-176	-1.964E-02	2.902E-02	4.760E-02	0.000E+00	FAIL ABUN
LU-177	3.083E+00	2.944E+00	3.961E+00	0.000E+00	FAIL ABUN
LU-177M	-2.148E-01	2.094E-01	3.370E-01	0.000E+00	FAIL ABUN
HF-181	-2.191E-02	5.305E-02	8.780E-02	0.000E+00	NOT IDENT.
W-181	1.620E-01	6.049E-01	1.092E+00	0.000E+00	NOT IDENT.
TA-182	-2.495E-02	2.267E-01	3.737E-01	0.000E+00	FAIL ABUN
RE-183	-1.387E-01	1.418E-01	2.283E-01	0.000E+00	FAIL ABUN
RE-184	1.551E-02	2.739E-01	4.866E-01	0.000E+00	NOT IDENT.
OS-185	-5.175E-02	5.231E-02	8.011E-02	0.000E+00	NOT IDENT.
RE-188	2.277E-01	2.194E-01	3.916E-01	0.000E+00	NOT IDENT.
W-188	5.497E-01	1.037E+01	1.591E+01	0.000E+00	NOT IDENT.
IR-192	-2.286E-02	4.138E-02	7.022E-02	0.000E+00	FAIL ABUN
AU-195	9.280E-02	3.071E-01	4.806E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.111E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.768E+01	2.524E+01	4.194E+01	0.000E+00	NOT IDENT.
TL-202	6.874E-03	1.080E-01	1.815E-01	0.000E+00	NOT IDENT.
HG-203	5.363E-02	5.220E-02	9.585E-02	0.000E+00	FAIL ABUN
BI-207	-2.651E-02	6.012E-02	9.701E-02	0.000E+00	FAIL ABUN
TL-207	9.813E-02	8.308E-01	1.272E+00	0.000E+00	FAIL ABUN
PO-209	-5.672E+00	8.000E+00	1.272E+01	0.000E+00	NOT IDENT.
BI-210	-1.005E+01	1.292E+01	2.215E+01	0.000E+00	NOT IDENT.
PB-210	-1.005E+01	1.292E+01	2.215E+01	0.000E+00	NOT IDENT.
PO-210	-1.005E+01	1.291E+01	2.215E+01	0.000E+00	NOT IDENT.
PB-211	4.589E-02	1.090E+00	1.882E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.628E-01	7.472E-01	0.000E+00	FAIL ABUN
PO-215	9.813E-02	8.308E-01	1.272E+00	0.000E+00	FAIL ABUN
RN-219	-2.307E-02	4.717E-01	8.109E-01	0.000E+00	NOT IDENT.
RN-220	-4.129E+00	2.878E+01	4.805E+01	0.000E+00	NOT IDENT.
RA-223	9.813E-02	8.308E-01	1.272E+00	0.000E+00	FAIL ABUN
AC-227	-5.045E-02	4.445E-01	7.829E-01	0.000E+00	FAIL ABUN
TH-227	-5.045E-02	4.445E-01	7.829E-01	0.000E+00	FAIL ABUN
TH-229	-8.474E-02	6.204E-01	1.049E+00	0.000E+00	FAIL ABUN
PA-231	1.089E-01	1.774E+00	3.132E+00	0.000E+00	NOT IDENT.
TH-231	9.813E-02	8.308E-01	1.272E+00	0.000E+00	FAIL ABUN
U-231	-9.163E-01	3.225E+00	4.902E+00	0.000E+00	FAIL ABUN
PA-233	2.492E-02	7.318E-02	1.303E-01	0.000E+00	FAIL ABUN
PA-234	1.010E-02	3.228E-01	5.502E-01	0.000E+00	FAIL ABUN
PA-234M	-5.249E-01	5.070E+00	8.344E+00	0.000E+00	NOT IDENT.
TH-234	3.576E-01	2.244E+00	3.991E+00	0.000E+00	FAIL ABUN
U-235	2.280E-01	2.623E-01	4.600E-01	0.000E+00	FAIL ABUN
NP-236	-4.733E-02	9.478E-02	1.593E-01	0.000E+00	NOT IDENT.
U-238	3.576E-01	2.244E+00	3.991E+00	0.000E+00	FAIL ABUN
NP-239	-1.041E-01	2.215E-01	3.788E-01	0.000E+00	FAIL ABUN
AM-241	-3.504E-01	2.947E-01	4.998E-01	0.000E+00	NOT IDENT.
CM-243	1.243E-01	1.149E-01	2.090E-01	0.000E+00	FAIL ABUN
AM-246	-1.125E-01	1.503E-01	2.327E-01	0.000E+00	NOT IDENT.
CM-247	-2.757E-03	4.242E-02	7.285E-02	0.000E+00	NOT IDENT.
CF-249	-5.528E-03	4.525E-02	7.762E-02	0.000E+00	NOT IDENT.
CF-251	1.046E-01	1.563E-01	2.740E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                          *
*                                     Charleston, SC 29414                      *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101004.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:19.
Sample ID          : G245101004          Sample quantity   : 1.33790E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time : 0 02:00:01.31 0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 944037             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	1009	10.67*	9.991E-01	2.656E+01	2.656E+01	10.14
CD-109	88.03	186	3.72*	4.619E+00	3.043E+00	3.135E+00	35.98
SN-126	64.28	-----	9.60	1.930E+00	-----	Line Not Found	-----
	86.94	240	8.90	4.402E+00	1.722E+00	1.722E+00	54.70
	87.57	240	37.00*	4.402E+00	4.142E-01	4.142E-01	36.83
CS-135	268.24	109	16.00*	3.866E+00	4.928E-01	4.928E-01	48.22
TL-208	277.35	-----	6.80	3.788E+00	-----	Line Not Found	-----
	510.84	133	21.60	2.462E+00	7.012E-01	7.012E-01	54.45
	583.14	373	84.20*	2.230E+00	5.567E-01	5.567E-01	16.72
	860.37	-----	12.46	1.613E+00	-----	Line Not Found	-----
BI-211	72.87	319	1.27	3.130E+00	2.253E+01	2.253E+01	28.72
	351.07	575	12.94*	3.207E+00	3.891E+00	3.891E+00	15.92
PB-212	74.81	319	10.70	3.130E+00	2.674E+00	2.674E+00	30.20
	77.11	492	18.00	3.412E+00	2.247E+00	2.247E+00	22.50
	87.30	240	8.00	4.402E+00	1.915E+00	1.915E+00	38.16
	238.63	1176	44.60*	4.221E+00	1.753E+00	1.753E+00	11.10
	300.09	45	3.41	3.593E+00	1.041E+00	1.041E+00	125.44
PO-212	74.81	319	10.70	3.130E+00	2.674E+00	2.674E+00	30.20
	77.11	492	18.00	3.412E+00	2.247E+00	2.247E+00	22.50
	87.30	240	8.00	4.402E+00	1.915E+00	1.915E+00	38.16
	115.19	-----	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	1176	44.60*	4.221E+00	1.753E+00	1.753E+00	11.10
	300.09	45	3.41	3.593E+00	1.041E+00	1.041E+00	125.44
BI-214	609.31	458	46.30*	2.156E+00	1.288E+00	1.288E+00	14.19
	1120.29	94	15.10	1.263E+00	1.385E+00	1.385E+00	47.43
	1764.49	66	15.80	8.816E-01	1.331E+00	1.331E+00	30.48
PB-214	74.81	319	6.21	3.130E+00	4.607E+00	4.608E+00	29.66
	77.11	492	10.50	3.412E+00	3.852E+00	3.852E+00	23.76
	87.30	240	4.67	4.402E+00	3.281E+00	3.281E+00	37.62
	241.98	309	7.49	4.185E+00	2.764E+00	2.764E+00	33.26
	295.21	332	19.20	3.629E+00	1.336E+00	1.336E+00	23.39
	351.92	575	37.20*	3.207E+00	1.354E+00	1.354E+00	16.75

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	74.81	319	6.21	3.130E+00	4.607E+00	4.608E+00	29.66
	77.11	492	10.50	3.412E+00	3.852E+00	3.852E+00	23.76
	87.30	240	4.67	4.402E+00	3.281E+00	3.281E+00	37.62
	241.98	309	7.49	4.185E+00	2.764E+00	2.764E+00	33.26
	295.21	332	19.20	3.629E+00	1.336E+00	1.336E+00	23.39
PO-216	351.92	575	37.20*	3.207E+00	1.354E+00	1.354E+00	16.75
	74.81	319	10.70	3.130E+00	2.674E+00	2.674E+00	30.20
	77.11	492	18.00	3.412E+00	2.247E+00	2.247E+00	22.50
	87.30	240	8.00	4.402E+00	1.915E+00	1.915E+00	38.16
	238.63	1176	44.60*	4.221E+00	1.753E+00	1.753E+00	11.10
PO-218	300.09	45	3.41	3.593E+00	1.041E+00	1.041E+00	125.44
	74.81	319	6.21	3.130E+00	4.607E+00	4.608E+00	29.66
	77.11	492	10.50	3.412E+00	3.852E+00	3.852E+00	23.76
	87.30	240	4.67	4.402E+00	3.281E+00	3.281E+00	37.62
	241.98	309	7.49	4.185E+00	2.764E+00	2.764E+00	33.26
RA-224	295.21	332	19.20	3.629E+00	1.336E+00	1.336E+00	23.39
	351.92	575	37.20*	3.207E+00	1.354E+00	1.354E+00	16.75
	240.98	309	3.95*	4.185E+00	5.241E+00	5.241E+00	32.78
	609.31	458	46.30*	2.156E+00	1.288E+00	1.288E+00	14.19
	1120.29	94	15.10	1.263E+00	1.385E+00	1.385E+00	47.43
AC-228	1764.49	66	15.80	8.816E-01	1.331E+00	1.331E+00	30.48
	338.32	211	11.40	3.297E+00	1.576E+00	1.576E+00	49.70
	911.07	240	27.70*	1.532E+00	1.588E+00	1.588E+00	21.57
	969.11	149	16.60	1.447E+00	1.743E+00	1.743E+00	33.65
	338.32	211	11.40	3.297E+00	1.576E+00	1.576E+00	49.70
RA-228	911.07	240	27.70*	1.532E+00	1.588E+00	1.588E+00	21.57
	969.11	149	16.60	1.447E+00	1.743E+00	1.743E+00	33.65
	74.81	319	10.70	3.130E+00	2.674E+00	2.728E+00	28.74
	77.11	492	18.00	3.412E+00	2.247E+00	2.292E+00	22.50
	87.30	240	8.00	4.402E+00	1.915E+00	1.954E+00	36.83
TH-228	238.63	1176	44.60*	4.221E+00	1.753E+00	1.788E+00	11.10
	300.09	45	3.41	3.593E+00	1.041E+00	1.061E+00	138.35
	609.31	458	46.30*	2.156E+00	1.288E+00	1.288E+00	14.19
	1120.29	94	15.10	1.263E+00	1.385E+00	1.385E+00	47.43
	1764.49	66	15.80	8.816E-01	1.331E+00	1.331E+00	30.48
TH-232	338.32	211	11.40	3.297E+00	1.576E+00	1.576E+00	29.02
	911.07	240	27.70*	1.532E+00	1.588E+00	1.588E+00	21.57
	969.11	149	16.60	1.447E+00	1.743E+00	1.743E+00	33.65
	609.31	458	46.30*	2.156E+00	1.288E+00	1.288E+00	14.19
	1120.29	94	15.10	1.263E+00	1.385E+00	1.385E+00	47.43
U-234	1764.49	66	15.80	8.816E-01	1.331E+00	1.331E+00	30.48
	86.50	240	12.60*	4.402E+00	1.216E+00	1.216E+00	42.21
	95.87	-----	2.60	5.041E+00	-----	Line Not Found	-----
	74.67	319	66.00*	3.130E+00	4.335E-01	4.335E-01	28.72
	86.72	240	0.34	4.402E+00	4.561E+01	4.561E+01	36.83
AM-243	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----
	511.00	133	100.00*	2.462E+00	1.515E-01	1.515E-01	53.81

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	2.656E+01	2.656E+01	0.269E+01	10.14	
CD-109	464.00D	1.03	3.043E+00	3.135E+00	1.128E+00	35.98	
SN-126	1.00E+05Y	1.00	4.142E-01	4.142E-01	1.525E-01	36.83	
CS-135	2.30E+06Y	1.00	4.928E-01	4.928E-01	2.376E-01	48.22	
TL-208	1.41E+10Y	1.00	5.567E-01	5.567E-01	0.931E-01	16.72	
BI-211	7.04E+08Y	1.00	3.891E+00	3.891E+00	0.619E+00	15.92	
PB-212	1.41E+10Y	1.00	1.753E+00	1.753E+00	0.195E+00	11.10	
PO-212	1.41E+10Y	1.00	1.753E+00	1.753E+00	0.195E+00	11.10	
BI-214	1600.00Y	1.00	1.288E+00	1.288E+00	0.183E+00	14.19	
PB-214	1600.00Y	1.00	1.354E+00	1.354E+00	0.227E+00	16.75	
PO-214	1600.00Y	1.00	1.354E+00	1.354E+00	0.227E+00	16.75	
PO-216	1.41E+10Y	1.00	1.753E+00	1.753E+00	0.195E+00	11.10	
PO-218	1600.00Y	1.00	1.354E+00	1.354E+00	0.227E+00	16.75	
RA-224	1.41E+10Y	1.00	5.241E+00	5.241E+00	1.718E+00	32.78	
RA-226	1600.00Y	1.00	1.288E+00	1.288E+00	0.183E+00	14.19	
AC-228	1.41E+10Y	1.00	1.588E+00	1.588E+00	0.343E+00	21.57	
RA-228	1.41E+10Y	1.00	1.588E+00	1.588E+00	0.343E+00	21.57	
TH-228	1.91Y	1.02	1.753E+00	1.788E+00	0.199E+00	11.10	
TH-230	4.47E+09Y	1.00	1.288E+00	1.288E+00	0.183E+00	14.19	
TH-232	1.41E+10Y	1.00	1.588E+00	1.588E+00	0.343E+00	21.57	
U-234	4.47E+09Y	1.00	1.288E+00	1.288E+00	0.183E+00	14.19	
NP-237	2.14E+06Y	1.00	1.216E+00	1.216E+00	0.513E+00	42.21	
AM-243	7380.00Y	1.00	4.335E-01	4.335E-01	1.245E-01	28.72	
ANH-511	1.00E+09Y	1.00	1.515E-01	1.515E-01	0.815E-01	53.81	
Total Activity :			6.299E+01	6.311E+01			

Grand Total Activity : 6.299E+01 6.311E+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	92.08	174	371	1.50	184.63	161	32	2.42E-02	47.7	4.81E+00	T
0	128.94	122	535	1.60	258.31	252	14	1.69E-02	82.6	5.73E+00	T
0	185.28	145	361	1.23	370.95	366	11	2.02E-02	56.5	4.99E+00	T
0	209.23	71	320	1.50	418.83	412	10	9.86E-03	97.2	4.61E+00	T
0	328.13	54	274	0.86	656.53	648	15	7.56E-03	****	3.36E+00	T
0	462.31	84	92	1.17	924.78	919	10	1.17E-02	48.0	2.64E+00	T
0	726.68	84	68	1.17	1453.36	1449	11	1.17E-02	43.3	1.87E+00	T
0	793.99	53	55	0.85	1587.95	1581	13	7.32E-03	64.3	1.73E+00	
0	935.41	24	63	1.27	1870.71	1863	14	3.33E-03	****	1.49E+00	T
1	963.93	51	50	2.18	1927.74	1921	24	7.07E-03	63.1	1.45E+00	T
0	1154.78	21	46	1.41	2309.36	2301	12	2.85E-03	****	1.23E+00	
0	1238.01	51	58	1.67	2475.79	2470	14	7.13E-03	70.1	1.15E+00	T
0	1376.86	39	30	2.13	2753.46	2745	15	5.43E-03	69.0	1.05E+00	T
0	1587.59	21	12	1.20	3174.89	3170	10	2.89E-03	77.0	9.39E-01	
0	1730.03	11	17	0.87	3459.75	3454	11	1.48E-03	****	8.91E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101004.CNF;1
* Acquisition date   : 2-FEB-2010 09:46:19. 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 02:00:01.31 Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101004 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.33790E+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	2.656E+01	2.693E+00	6.177E-01	4.722E-02	42.994
CD-109	3.135E+00	1.128E+00	1.467E+00	1.697E-01	2.136
SN-126	4.142E-01	1.525E-01	1.443E-01	1.665E-02	2.870
CS-135	4.928E-01	2.376E-01	2.918E-01	2.495E-02	1.689
TL-208	5.567E-01	9.308E-02	6.693E-02	4.262E-03	8.317
BI-211	3.891E+00	6.193E-01	3.645E-01	2.504E-02	10.677
PB-212	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
PO-212	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
BI-214	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
PB-214	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
PO-214	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
PO-216	1.753E+00	1.947E-01	1.111E-01	9.196E-03	15.782
PO-218	1.354E+00	2.267E-01	1.270E-01	1.095E-02	10.656
RA-224	5.241E+00	1.718E+00	1.264E+00	8.797E-02	4.146
RA-226	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
AC-228	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
RA-228	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
TH-228	1.788E+00	1.986E-01	1.133E-01	9.380E-03	15.782

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
TH-232	1.588E+00	3.426E-01	2.551E-01	2.836E-02	6.224
U-234	1.288E+00	1.827E-01	1.161E-01	8.622E-03	11.087
NP-237	1.216E+00	5.134E-01	4.319E-01	1.020E-01	2.816
AM-243	4.335E-01	1.245E-01	1.187E-01	1.319E-02	3.652
ANH-511	1.515E-01	8.151E-02	5.154E-02	2.910E-03	2.939

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.337E-01		3.912E-01	6.236E-01	4.155E-02	-0.214
NA-22	-4.524E-02		5.263E-02	7.718E-02	5.297E-03	-0.586
NA-24	2.223E+01		8.746E+01	Half-Life	too short	
AL-26	9.664E-03		3.093E-02	5.407E-02	3.235E-03	0.179
TI-44	2.490E-01		7.546E-02	9.382E-02	1.043E-02	2.654
SC-46	5.578E-03		4.281E-02	7.173E-02	6.017E-03	0.078
V-48	6.913E-02		9.922E-02	1.734E-01	1.370E-02	0.399
CR-51	-1.290E-01		5.372E-01	7.992E-01	5.763E-02	-0.161
MN-52	2.141E-01		4.819E-01	8.488E-01	6.293E-02	0.252
MN-54	7.160E-03		4.373E-02	7.355E-02	5.513E-03	0.097
CO-56	-7.205E-03		4.249E-02	6.939E-02	5.333E-03	-0.104
CO-57	2.692E-03		3.397E-02	5.139E-02	3.695E-03	0.052
CO-58	3.019E-02		4.236E-02	7.481E-02	5.344E-03	0.404
FE-59	4.143E-03		1.021E-01	1.676E-01	1.268E-02	0.025
CO-60	-3.454E-02		4.439E-02	6.406E-02	4.835E-03	-0.539
ZN-65	-1.039E-02		1.213E-01	1.677E-01	1.090E-02	-0.062
GE-68	-3.462E-01		1.263E+00	2.002E+00	1.391E-01	-0.173
AS-73	-9.832E-01		2.131E+00	3.475E+00	4.749E-01	-0.283
AS-74	6.826E-02		1.297E-01	2.178E-01	1.171E-02	0.313
SE-75	4.704E-04		5.894E-02	8.607E-02	6.020E-03	0.005
BR-77	3.666E-06		2.334E-05	Half-Life	too short	
SR-82	-2.131E-01		5.093E-01	8.215E-01	5.423E-02	-0.259
RB-83	4.574E-03		7.966E-02	1.302E-01	7.326E-03	0.035
RB-84	-2.578E-03		8.619E-02	1.423E-01	1.175E-02	-0.018
KR-85	7.770E+00		9.096E+00	1.384E+01	7.808E-01	0.561
SR-85	4.190E-02		4.905E-02	7.464E-02	4.210E-03	0.561
RB-86	2.054E-01		9.386E-01	1.573E+00	1.094E-01	0.131
Y-88	9.597E-03		3.207E-02	5.622E-02	3.284E-03	0.171
ZR-88	1.136E-03		3.756E-02	6.206E-02	3.520E-03	0.018
Y-91	-1.854E+01		2.415E+01	3.647E+01	2.206E+00	-0.508
NB-94	2.482E-02		3.847E-02	6.730E-02	3.743E-03	0.369
NB-95	3.524E-02		5.611E-02	9.734E-02	6.273E-03	0.362
NB-95M	1.832E+00		2.829E-01	4.460E-01	3.768E-02	4.107
ZR-95	-5.662E-03		8.974E-02	1.492E-01	1.112E-02	-0.038
NB-97	-3.864E+00		6.291E+00	Half-Life	too short	
ZR-97	9.309E+02		1.472E+02	Half-Life	too short	
MO-99	2.175E+01		4.209E+01	7.104E+01	9.873E+00	0.306



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	-1.995E+16		1.380E+16	Half-Life too short		
RH-101	1.935E-02		4.194E-02	6.851E-02	4.674E-03	0.282
RH-102	7.135E-03		3.236E-02	5.374E-02	3.063E-03	0.133
RU-103	2.595E-03		4.977E-02	8.150E-02	1.026E-02	0.032
RH-106	-1.861E-01		3.317E-01	5.055E-01	5.802E-02	-0.368
RU-106	-1.861E-01		3.312E-01	5.055E-01	2.656E-02	-0.368
AG-108M	7.286E-03		3.935E-02	6.536E-02	4.064E-03	0.111
AG-110M	-1.304E-02		4.092E-02	6.401E-02	3.508E-03	-0.204
IN-111	1.086E+00		4.446E+00	6.615E+00	4.605E-01	0.164
IN-113M	-6.540E-02		5.424E-02	8.252E-02	5.006E-03	-0.793
SN-113	-6.540E-02		5.424E-02	8.252E-02	5.006E-03	-0.793
IN-114M	-5.035E-02		2.744E-01	3.799E-01	2.576E-02	-0.133
CD-115	-1.878E-05		2.710E-05	Half-Life too short		
SN-117M	-5.362E-03		8.581E-02	1.383E-01	9.247E-03	-0.039
SB-122	2.000E+00		8.162E+00	1.347E+01	7.410E-01	0.148
I-123	-1.027E+03		1.538E+03	Half-Life too short		
TE-123M	-1.206E-02		3.613E-02	5.756E-02	3.886E-03	-0.210
I-124	-1.406E-01		1.954E+00	2.699E+00	1.443E-01	-0.052
SB-124	-1.897E-02		7.958E-02	1.251E-01	8.789E-03	-0.152
SB-125	-2.887E-02		1.050E-01	1.694E-01	1.009E-02	-0.170
TE-125M	1.272E+00		1.179E+01	1.935E+01	1.926E+00	0.066
I-126	1.832E-01		2.729E-01	4.613E-01	2.348E-02	0.397
SB-126	1.076E-01		2.357E-01	3.575E-01	2.075E-02	0.301
SB-127	1.242E+00		3.494E+00	6.018E+00	6.606E-01	0.206
XE-127	-1.808E-02		7.634E-02	1.051E-01	7.194E-03	-0.172
I-131	2.098E-02		2.095E-01	3.487E-01	2.370E-02	0.060
TE-132	-1.468E+00		2.303E+00	3.762E+00	5.981E-01	-0.390
BA-133	-3.908E-02		5.838E-02	7.891E-02	9.292E-03	-0.495
I-133	2.312E-01		1.504E-01	Half-Life too short		
CS-134	7.888E-02		5.830E-02	9.594E-02	6.685E-03	0.822
I-135	8.919E+14		5.470E+14	Half-Life too short		
CS-136	4.784E-02		1.530E-01	2.584E-01	1.993E-02	0.185
BA-137M	-1.391E-02		4.216E-02	6.592E-02	3.316E-03	-0.211
CS-137	-1.470E-02		4.457E-02	6.968E-02	3.525E-03	-0.211
CE-139	1.780E-02		3.691E-02	6.072E-02	4.038E-03	0.293
BA-140	1.422E-02		3.890E-01	6.337E-01	2.058E-01	0.022
LA-140	-1.048E-01		1.228E-01	1.707E-01	1.190E-02	-0.614
CE-141	3.044E-02		8.674E-02	1.424E-01	9.941E-03	0.214
CE-143	1.423E-02	+	2.271E-03	Half-Life too short		
CE-144	-9.372E-02		2.867E-01	3.996E-01	5.873E-02	-0.235
PM-144	-2.902E-02		3.995E-02	6.345E-02	3.483E-03	-0.457
PR-144	-1.972E+00		2.714E+00	4.310E+00	2.362E-01	-0.457
PM-146	4.611E-02		5.224E-02	9.016E-02	7.721E-03	0.511
ND-147	1.975E-01		8.509E-01	1.407E+00	1.891E-01	0.140
PM-149	-2.208E-04		2.452E-04	Half-Life too short		
EU-152	-7.434E-02		1.388E-01	1.791E-01	1.262E-02	-0.415
GD-153	8.900E-02		1.083E-01	1.622E-01	1.557E-02	0.549
EU-154	-1.260E-01		1.469E-01	2.151E-01	2.157E-02	-0.586

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	9.210E-02		1.319E-01	2.213E-01	1.916E-02	0.416
TB-160	-8.364E-02		1.633E-01	2.574E-01	2.116E-02	-0.325
HO-166M	1.726E-02		6.933E-02	1.182E-01	6.720E-03	0.146
TM-171	1.204E+00		4.677E+01	7.495E+01	8.619E+00	0.016
LU-176	-1.964E-02		2.962E-02	4.620E-02	3.112E-03	-0.425
LU-177	3.083E+00	+	3.005E+00	3.819E+00	2.624E-01	0.807
LU-177M	-2.148E-01		2.137E-01	3.288E-01	1.874E-02	-0.653
HF-181	-2.191E-02		5.414E-02	8.589E-02	4.890E-03	-0.255
W-181	1.620E-01		6.173E-01	1.032E+00	1.201E-01	0.157
TA-182	-2.495E-02		2.313E-01	3.718E-01	2.318E-02	-0.067
RE-183	-1.387E-01		1.447E-01	2.192E-01	1.461E-02	-0.633
RE-184	1.551E-02		2.795E-01	4.706E-01	3.276E-02	0.033
OS-185	-5.175E-02		5.338E-02	7.879E-02	4.037E-03	-0.657
RE-188	2.277E-01		2.239E-01	3.757E-01	2.520E-02	0.606
W-188	5.497E-01		1.058E+01	1.543E+01	1.056E+00	0.036
IR-192	-2.286E-02		4.222E-02	6.819E-02	4.557E-03	-0.335
AU-195	9.280E-02		3.134E-01	4.575E-01	4.289E-02	0.203
TL-200	-4.249E-03		5.670E-03	Half-Life too short		
TL-201	-1.768E+01		2.575E+01	4.028E+01	2.680E+00	-0.439
TL-202	6.874E-03		1.102E-01	1.773E-01	1.013E-02	0.039
HG-203	5.363E-02		5.326E-02	9.287E-02	6.689E-03	0.577
BI-207	-2.651E-02		6.135E-02	9.627E-02	6.840E-03	-0.275
TL-207	9.813E-02		8.477E-01	1.236E+00	2.077E-01	0.079
PO-209	-5.672E+00		8.163E+00	1.259E+01	1.072E+00	-0.451
BI-210	-1.005E+01		1.318E+01	2.082E+01	2.163E+00	-0.483
PB-210	-1.005E+01		1.318E+01	2.082E+01	2.163E+00	-0.483
PO-210	-1.005E+01		1.318E+01	2.082E+01	2.000E+00	-0.483
PB-211	4.589E-02		1.112E+00	1.836E+00	1.144E+00	0.025
BI-212	1.074E+00	+	4.722E-01	7.364E-01	5.734E-02	1.458
PO-215	9.813E-02		8.477E-01	1.236E+00	2.077E-01	0.079
RN-219	-2.307E-02		4.814E-01	7.908E-01	1.072E-01	-0.029
RN-220	-4.129E+00		2.936E+01	4.712E+01	2.614E+00	-0.088
RA-223	9.813E-02		8.477E-01	1.236E+00	2.077E-01	0.079
AC-227	-5.045E-02		4.535E-01	7.575E-01	1.097E-01	-0.067
TH-227	-5.045E-02		4.536E-01	7.575E-01	1.313E-01	-0.067
TH-229	-8.474E-02		6.331E-01	1.010E+00	6.865E-02	-0.084
PA-231	1.089E-01		1.810E+00	3.036E+00	4.332E-01	0.036
TH-231	9.813E-02		8.477E-01	1.236E+00	2.077E-01	0.079
U-231	-9.163E-01		3.291E+00	4.664E+00	4.596E-01	-0.196
PA-233	2.492E-02		7.467E-02	1.265E-01	8.869E-03	0.197
PA-234	1.010E-02		3.294E-01	5.449E-01	1.012E-01	0.019
PA-234M	-5.249E-01		5.174E+00	8.272E+00	7.624E-01	-0.063
TH-234	3.576E-01		2.290E+00	3.771E+00	7.443E-01	0.095
U-235	2.280E-01		2.676E-01	4.407E-01	7.352E-02	0.517
NP-236	-4.733E-02		9.671E-02	1.529E-01	1.021E-02	-0.310
U-238	3.576E-01		2.290E+00	3.771E+00	7.443E-01	0.095
NP-239	-1.041E-01		2.260E-01	3.616E-01	2.718E-02	-0.288
AM-241	-3.504E-01		3.007E-01	4.718E-01	6.004E-02	-0.743

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.243E-01		1.173E-01	1.991E-01	1.738E-02	0.625
AM-246	-1.125E-01		1.534E-01	2.309E-01	1.601E-02	-0.487
CM-247	-2.757E-03		4.329E-02	7.104E-02	4.040E-03	-0.039
CF-249	-5.528E-03		4.618E-02	7.565E-02	4.337E-03	-0.073
CF-251	1.046E-01		1.595E-01	2.634E-01	1.766E-02	0.397

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                                     DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101004
* Acquisition date   : 2-FEB-2010 09:46:19 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 02:00:01.31 Half life ratio       : 8.000
*****
*
*                                     SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101004 Analyst initials       : MXR1
* Batch Number       : 944037 Sample Quantity          : 1.3379E+02 GRAM
* Recovery           : 1.00000 Carrier Weight           : 0.00000
*****
*
*                                     QC DATA
*
* CALIB. DATE/TIME  : 16-FEB-2009 10:54:12 MS Isotope      :
* MSD DPM           : 0.000 MSD Isotope                   :
* LCS DPM           : 0.000 LCS Isotope                   :
* LCSD DPM          : 0.000 LCSD Isotope                  :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.656E+01	2.639E+00	3.096E-01	1.346E+00
CD-109	3.135E+00	1.105E+00	7.727E-01	5.639E-01
SN-126	4.142E-01	1.495E-01	7.601E-02	7.626E-02
CS-135	4.928E-01	2.329E-01	1.507E-01	1.188E-01
TL-208	5.567E-01	9.122E-02	3.411E-02	4.654E-02
BI-211	3.891E+00	6.069E-01	1.874E-01	3.097E-01
PB-212	1.753E+00	1.908E-01	5.752E-02	9.734E-02
PO-212	1.753E+00	1.908E-01	5.752E-02	9.734E-02
BI-214	1.288E+00	1.790E-01	5.914E-02	9.135E-02
PB-214	1.354E+00	2.222E-01	6.532E-02	1.134E-01
PO-214	1.354E+00	2.222E-01	6.532E-02	1.134E-01
PO-216	1.753E+00	1.908E-01	5.752E-02	9.734E-02
PO-218	1.354E+00	2.222E-01	6.532E-02	1.134E-01
RA-224	5.241E+00	1.684E+00	6.543E-01	8.591E-01
RA-226	1.288E+00	1.790E-01	5.914E-02	9.135E-02
AC-228	1.588E+00	3.357E-01	1.290E-01	1.713E-01
RA-228	1.588E+00	3.357E-01	1.290E-01	1.713E-01
TH-228	1.788E+00	1.946E-01	5.867E-02	9.929E-02
TH-230	1.288E+00	1.790E-01	5.914E-02	9.135E-02
TH-232	1.588E+00	3.357E-01	1.290E-01	1.713E-01
U-234	1.288E+00	1.790E-01	5.914E-02	9.135E-02
NP-237	1.216E+00	5.031E-01	2.275E-01	2.567E-01
AM-243	4.335E-01	1.220E-01	6.268E-02	6.225E-02
ANH-511	1.515E-01	7.988E-02	2.633E-02	4.075E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.337E-01	3.834E-01	3.189E-01	1.956E-01 NOT IDENT.
NA-22	-4.524E-02	5.158E-02	3.878E-02	2.632E-02 NOT IDENT.
NA-24	2.223E+07	1.714E+08	0.000E+00	8.746E+07 SHORT HLIF

AL-26	9.664E-03	3.031E-02	2.699E-02	1.547E-02	NOT IDENT.
TI-44	2.490E-01	7.395E-02	4.950E-02	3.773E-02	NOT IDENT.
SC-46	5.578E-03	4.196E-02	3.628E-02	2.141E-02	FAIL ABUN
V-48	6.913E-02	9.723E-02	8.753E-02	4.961E-02	NOT IDENT.
CR-51	-1.290E-01	5.264E-01	4.116E-01	2.686E-01	NOT IDENT.
MN-52	2.141E-01	4.723E-01	4.256E-01	2.409E-01	FAIL ABUN
MN-54	7.160E-03	4.286E-02	3.725E-02	2.187E-02	NOT IDENT.
CO-56	-7.205E-03	4.164E-02	3.513E-02	2.124E-02	FAIL ABUN
CO-57	2.692E-03	3.329E-02	2.691E-02	1.699E-02	NOT IDENT.
CO-58	3.019E-02	4.152E-02	3.790E-02	2.118E-02	NOT IDENT.
FE-59	4.143E-03	1.001E-01	8.443E-02	5.105E-02	NOT IDENT.
CO-60	-3.454E-02	4.350E-02	3.216E-02	2.219E-02	NOT IDENT.
ZN-65	-1.039E-02	1.189E-01	8.450E-02	6.065E-02	NOT IDENT.
GE-68	-3.462E-01	1.237E+00	1.009E+00	6.313E-01	NOT IDENT.
AS-73	-9.832E-01	2.088E+00	1.845E+00	1.066E+00	NOT IDENT.
AS-74	6.826E-02	1.271E-01	1.110E-01	6.485E-02	NOT IDENT.
SE-75	4.704E-04	5.777E-02	4.448E-02	2.947E-02	NOT IDENT.
BR-77	3.666E+00	4.574E+01	0.000E+00	2.334E+01	SHORT HLIF
SR-82	-2.131E-01	4.991E-01	4.165E-01	2.546E-01	NOT IDENT.
RB-83	4.574E-03	7.806E-02	6.649E-02	3.983E-02	NOT IDENT.
RB-84	-2.578E-03	8.447E-02	7.200E-02	4.310E-02	NOT IDENT.
KR-85	7.770E+00	8.914E+00	7.070E+00	4.548E+00	NOT IDENT.
SR-85	4.190E-02	4.807E-02	3.812E-02	2.452E-02	NOT IDENT.
RB-86	2.054E-01	9.199E-01	7.927E-01	4.693E-01	NOT IDENT.
Y-88	9.597E-03	3.143E-02	2.806E-02	1.603E-02	NOT IDENT.
ZR-88	1.136E-03	3.681E-02	3.185E-02	1.878E-02	NOT IDENT.
Y-91	-1.854E+01	2.366E+01	1.835E+01	1.207E+01	NOT IDENT.
NB-94	2.482E-02	3.770E-02	3.418E-02	1.923E-02	NOT IDENT.
NB-95	3.524E-02	5.499E-02	4.937E-02	2.805E-02	NOT IDENT.
NB-95M	1.832E+00	2.773E-01	2.309E-01	1.415E-01	NOT IDENT.
ZR-95	-5.662E-03	8.794E-02	7.567E-02	4.487E-02	NOT IDENT.
NB-97	-3.864E+06	1.233E+07	0.000E+00	6.291E+06	SHORT HLIF
ZR-97	9.309E+08	2.885E+08	0.000E+00	1.472E+08	SHORT HLIF
MO-99	2.175E+01	4.125E+01	3.605E+01	2.105E+01	NOT IDENT.
TC-99M	-1.995E+22	2.706E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.935E-02	4.110E-02	3.558E-02	2.097E-02	NOT IDENT.
RH-102	7.135E-03	3.171E-02	2.749E-02	1.618E-02	NOT IDENT.
RU-103	2.595E-03	4.878E-02	4.165E-02	2.489E-02	NOT IDENT.
RH-106	-1.861E-01	3.251E-01	2.573E-01	1.659E-01	NOT IDENT.
RU-106	-1.861E-01	3.245E-01	2.573E-01	1.656E-01	NOT IDENT.
AG-108M	7.286E-03	3.856E-02	3.348E-02	1.967E-02	NOT IDENT.
AG-110M	-1.304E-02	4.011E-02	3.255E-02	2.046E-02	NOT IDENT.
IN-111	1.086E+00	4.357E+00	3.423E+00	2.223E+00	NOT IDENT.
IN-113M	-6.540E-02	5.315E-02	4.235E-02	2.712E-02	NOT IDENT.
SN-113	-6.540E-02	5.315E-02	4.235E-02	2.712E-02	NOT IDENT.
IN-114M	-5.035E-02	2.689E-01	1.975E-01	1.372E-01	NOT IDENT.
CD-115	-1.878E+01	5.312E+01	0.000E+00	2.710E+01	SHORT HLIF
SN-117M	-5.362E-03	8.409E-02	7.211E-02	4.291E-02	NOT IDENT.
SB-122	2.000E+00	7.999E+00	6.869E+00	4.081E+00	NOT IDENT.
I-123	-1.027E+09	3.014E+09	0.000E+00	1.538E+09	SHORT HLIF
TE-123M	-1.206E-02	3.541E-02	3.001E-02	1.807E-02	NOT IDENT.
I-124	-1.406E-01	1.915E+00	1.375E+00	9.770E-01	FAIL ABUN
SB-124	-1.897E-02	7.799E-02	6.255E-02	3.979E-02	FAIL ABUN
SB-125	-2.887E-02	1.029E-01	8.679E-02	5.252E-02	FAIL ABUN
TE-125M	1.272E+00	1.155E+01	1.015E+01	5.893E+00	NOT IDENT.
I-126	1.832E-01	2.674E-01	2.345E-01	1.364E-01	NOT IDENT.
SB-126	1.076E-01	2.310E-01	1.815E-01	1.178E-01	NOT IDENT.
SB-127	1.242E+00	3.424E+00	3.058E+00	1.747E+00	NOT IDENT.
XE-127	-1.808E-02	7.482E-02	5.456E-02	3.817E-02	NOT IDENT.
I-131	2.098E-02	2.053E-01	1.792E-01	1.048E-01	NOT IDENT.
TE-132	-1.468E+00	2.257E+00	1.949E+00	1.152E+00	NOT IDENT.
BA-133	-3.908E-02	5.721E-02	4.057E-02	2.919E-02	NOT IDENT.
I-133	2.312E+05	2.948E+05	0.000E+00	1.504E+05	SHORT HLIF
CS-134	7.888E-02	5.713E-02	4.862E-02	2.915E-02	NOT IDENT.
I-135	8.919E+20	1.072E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.784E-02	1.500E-01	1.303E-01	7.652E-02	FAIL ABUN
BA-137M	-1.391E-02	4.132E-02	3.352E-02	2.108E-02	NOT IDENT.
CS-137	-1.470E-02	4.368E-02	3.543E-02	2.229E-02	NOT IDENT.
CE-139	1.780E-02	3.617E-02	3.164E-02	1.845E-02	NOT IDENT.
BA-140	1.422E-02	3.812E-01	3.234E-01	1.945E-01	NOT IDENT.
LA-140	-1.048E-01	1.204E-01	8.543E-02	6.141E-02	FAIL ABUN
CE-141	3.044E-02	8.500E-02	7.436E-02	4.337E-02	NOT IDENT.
CE-143	1.423E+04	4.452E+03	0.000E+00	2.271E+03	SHORT HLIF
CE-144	-9.372E-02	2.810E-01	2.089E-01	1.434E-01	NOT IDENT.
PM-144	-2.902E-02	3.915E-02	3.223E-02	1.997E-02	NOT IDENT.
PR-144	-1.972E+00	2.659E+00	2.190E+00	1.357E+00	NOT IDENT.
PM-146	4.611E-02	5.120E-02	4.616E-02	2.612E-02	NOT IDENT.
ND-147	1.975E-01	8.339E-01	7.185E-01	4.255E-01	FAIL ABUN

PM-149	-2.208E+02	4.807E+02	0.000E+00	2.452E+02	SHORT HLIF
EU-152	-7.434E-02	1.361E-01	9.213E-02	6.942E-02	FAIL ABUN
GD-153	8.900E-02	1.062E-01	8.528E-02	5.416E-02	NOT IDENT.
EU-154	-1.260E-01	1.440E-01	1.081E-01	7.347E-02	NOT IDENT.
EU-155	9.210E-02	1.293E-01	1.162E-01	6.597E-02	FAIL ABUN
TB-160	-8.364E-02	1.600E-01	1.302E-01	8.163E-02	FAIL ABUN
HO-166M	1.726E-02	6.795E-02	6.004E-02	3.467E-02	FAIL ABUN
TM-171	1.204E+00	4.583E+01	3.965E+01	2.338E+01	NOT IDENT.
LU-176	-1.964E-02	2.902E-02	2.382E-02	1.481E-02	FAIL ABUN
LU-177	3.083E+00	2.944E+00	1.982E+00	1.502E+00	FAIL ABUN
LU-177M	-2.148E-01	2.094E-01	1.686E-01	1.068E-01	FAIL ABUN
HF-181	-2.191E-02	5.305E-02	4.392E-02	2.707E-02	NOT IDENT.
W-181	1.620E-01	6.049E-01	5.461E-01	3.086E-01	NOT IDENT.
TA-182	-2.495E-02	2.267E-01	1.870E-01	1.156E-01	FAIL ABUN
RE-183	-1.387E-01	1.418E-01	1.142E-01	7.234E-02	FAIL ABUN
RE-184	1.551E-02	2.739E-01	2.434E-01	1.398E-01	NOT IDENT.
OS-185	-5.175E-02	5.231E-02	4.008E-02	2.669E-02	NOT IDENT.
RE-188	2.277E-01	2.194E-01	1.959E-01	1.120E-01	NOT IDENT.
W-188	5.497E-01	1.037E+01	7.960E+00	5.291E+00	NOT IDENT.
IR-192	-2.286E-02	4.138E-02	3.513E-02	2.111E-02	FAIL ABUN
AU-195	9.280E-02	3.071E-01	2.405E-01	1.567E-01	FAIL ABUN
TL-200	-4.249E+03	1.111E+04	0.000E+00	5.670E+03	SHORT HLIF
TL-201	-1.768E+01	2.524E+01	2.098E+01	1.288E+01	NOT IDENT.
TL-202	6.874E-03	1.080E-01	9.080E-02	5.509E-02	NOT IDENT.
HG-203	5.363E-02	5.220E-02	4.795E-02	2.663E-02	FAIL ABUN
BI-207	-2.651E-02	6.012E-02	4.853E-02	3.067E-02	FAIL ABUN
TL-207	9.813E-02	8.308E-01	6.364E-01	4.239E-01	FAIL ABUN
PO-209	-5.672E+00	8.000E+00	6.366E+00	4.081E+00	NOT IDENT.
BI-210	-1.005E+01	1.292E+01	1.108E+01	6.591E+00	NOT IDENT.
PB-210	-1.005E+01	1.292E+01	1.108E+01	6.591E+00	NOT IDENT.
PO-210	-1.005E+01	1.291E+01	1.108E+01	6.588E+00	NOT IDENT.
PB-211	4.589E-02	1.090E+00	9.416E-01	5.560E-01	NOT IDENT.
BI-212	1.074E+00	4.628E-01	3.738E-01	2.361E-01	FAIL ABUN
PO-215	9.813E-02	8.308E-01	6.364E-01	4.239E-01	FAIL ABUN
RN-219	-2.307E-02	4.717E-01	4.057E-01	2.407E-01	NOT IDENT.
RN-220	-4.129E+00	2.878E+01	2.404E+01	1.468E+01	NOT IDENT.
RA-223	9.813E-02	8.308E-01	6.364E-01	4.239E-01	FAIL ABUN
AC-227	-5.045E-02	4.445E-01	3.917E-01	2.268E-01	FAIL ABUN
TH-227	-5.045E-02	4.445E-01	3.917E-01	2.268E-01	FAIL ABUN
TH-229	-8.474E-02	6.204E-01	5.246E-01	3.166E-01	FAIL ABUN
PA-231	1.089E-01	1.774E+00	1.567E+00	9.052E-01	NOT IDENT.
TH-231	9.813E-02	8.308E-01	6.364E-01	4.239E-01	FAIL ABUN
U-231	-9.163E-01	3.225E+00	2.452E+00	1.646E+00	FAIL ABUN
PA-233	2.492E-02	7.318E-02	6.520E-02	3.733E-02	FAIL ABUN
PA-234	1.010E-02	3.228E-01	2.753E-01	1.647E-01	FAIL ABUN
PA-234M	-5.249E-01	5.070E+00	4.175E+00	2.587E+00	NOT IDENT.
TH-234	3.576E-01	2.244E+00	1.997E+00	1.145E+00	FAIL ABUN
U-235	2.280E-01	2.623E-01	2.301E-01	1.338E-01	FAIL ABUN
NP-236	-4.733E-02	9.478E-02	7.971E-02	4.836E-02	NOT IDENT.
U-238	3.576E-01	2.244E+00	1.997E+00	1.145E+00	FAIL ABUN
NP-239	-1.041E-01	2.215E-01	1.895E-01	1.130E-01	FAIL ABUN
AM-241	-3.504E-01	2.947E-01	2.500E-01	1.503E-01	NOT IDENT.
CM-243	1.243E-01	1.149E-01	1.046E-01	5.864E-02	FAIL ABUN
AM-246	-1.125E-01	1.503E-01	1.164E-01	7.668E-02	NOT IDENT.
CM-247	-2.757E-03	4.242E-02	3.644E-02	2.164E-02	NOT IDENT.
CF-249	-5.528E-03	4.525E-02	3.884E-02	2.309E-02	NOT IDENT.
CF-251	1.046E-01	1.563E-01	1.371E-01	7.973E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	310.1045
46.50	310.1045
46.50	310.1045
48.70	305.6355
49.72	287.2689
51.35	277.6343
52.39	298.9949
52.97	302.1300
53.15	306.9710
53.44	311.8699
54.07	304.5746
56.28	308.5155
56.28	308.5167
57.37	0.0000
57.53	299.5520
57.53	299.5532
57.60	304.3705
57.98	312.2117
57.98	312.2117
59.32	368.5188
59.32	368.5188
59.40	368.5642
59.54	373.4426
59.72	368.7444
60.01	363.1428
61.10	344.4963
61.14	344.5168
61.30	344.5995
63.00	370.5634
63.29	359.1362
63.29	359.1362
63.58	339.0073
64.28	347.0897
65.12	381.3940
65.20	381.4380
65.20	381.4380
66.05	397.4143
66.72	393.6362
66.83	393.6997
66.91	393.7446
67.20	375.4138
67.20	375.4138
67.75	377.7787
67.85	377.8321
68.90	423.5490
68.90	423.5490
69.30	426.9025
69.67	408.4171
70.82	377.8399
70.82	377.8399
70.83	377.8459
72.80	369.4702
72.87	369.5048
72.87	369.5048
74.67	370.4007
74.81	370.4699
74.81	370.4699
74.81	370.4699
74.81	370.4699
74.81	370.4699
74.81	370.4699
74.81	370.4699
74.97	370.5491
75.28	370.7018
75.70	370.9078
77.11	371.5963
77.11	371.5963

77.11	371.5963
77.11	371.5963
77.11	371.5963
77.11	371.5963
77.11	371.5963
78.38	331.2050
79.62	331.7357
79.80	331.8126
79.80	331.8126
80.11	331.9446
80.18	331.9741
80.30	332.0253
80.30	332.0253
80.57	332.1394
81.00	332.3214
81.07	332.3509
81.07	332.3509
81.07	332.3509
81.07	332.3509
82.60	334.5787
83.37	334.9007
83.78	335.0733
83.78	335.0733
83.78	335.0733
83.78	335.0733
84.21	335.2523
84.90	335.5395
85.43	335.7584
86.29	336.1125
86.50	336.1988
86.54	336.2156
86.59	336.2362
86.72	336.2890
86.79	336.3173
86.94	336.3791
87.30	336.5272
87.30	336.5272
87.30	336.5272
87.30	336.5272
87.30	336.5272
87.30	336.5272
87.57	336.6367
87.88	0.0000
88.03	336.8247
88.36	336.9586
88.47	337.0037
89.95	337.6013
91.11	338.0675
92.29	338.5376
92.38	338.5736
92.38	338.5736
93.35	338.9574
94.00	339.2150
94.67	379.6987
94.67	379.7002
94.90	379.8010
94.90	379.8010
94.90	379.8010
94.90	379.8010
95.87	368.9480
95.87	368.9480
96.73	316.0925
97.43	306.6591
98.44	300.5471
98.44	300.5471
98.88	321.7122
99.55	343.2185
99.55	343.2185
99.86	343.3376
100.00	361.8899
100.10	359.1859
103.18	304.5731
103.76	302.7347
105.00	324.5064
105.31	323.5971
108.00	363.3157
109.28	332.1299



111.00	310.2090
111.00	310.2090
111.76	328.8994
112.95	319.0471
115.19	321.8416
116.30	328.3834
117.00	329.6478
117.00	329.6478
117.66	329.8682
121.11	335.1484
121.62	334.7275
121.78	334.7806
122.06	331.3232
122.32	332.7884
122.32	332.7884
122.32	332.7884
122.32	332.7884
123.07	311.7537
127.23	361.3042
129.76	340.0669
131.20	317.5496
133.02	343.2073
133.54	343.3750
135.34	357.3730
136.00	358.1511
136.25	351.4375
136.48	335.9155
140.51	371.9250
140.51	0.0000
142.18	362.9883
142.65	374.7540
143.76	338.1421
144.24	322.4290
144.24	322.4290
144.24	322.4290
144.24	322.4290
145.22	350.2203
145.44	354.5216
147.16	374.1387
152.43	342.8497
152.70	352.5158
153.22	362.2617
154.21	336.9747
154.21	336.9747
154.21	336.9747
154.21	336.9747
155.03	320.1370
156.02	324.6792
158.56	325.3773
159.00	0.0000
159.00	337.2734
160.31	329.0685
161.27	342.2036
162.32	343.5742
162.64	323.2618
163.35	300.8838
163.89	283.8173
165.85	297.1940
167.43	336.3905
171.28	298.4995
171.86	297.5565
172.10	311.6821
176.55	301.9203
176.60	301.9309
181.06	336.5485
184.41	283.2172
185.71	279.9980
186.00	308.0645
190.27	305.5450
192.34	303.3785
193.63	303.6680
197.04	302.2232
198.01	304.6461
198.60	315.8171
200.40	0.0000
201.83	314.9756
202.84	326.0901
205.31	328.4427

208.36	295.3471
208.81	295.4403
209.75	263.5798
209.75	263.5798
210.97	258.4565
215.65	282.7701
216.55	261.6950
218.09	269.8085
222.10	281.7718
223.80	262.9893
226.40	262.9978
227.00	286.5299
227.08	286.5455
227.20	286.5668
228.16	279.5374
228.18	279.5411
228.18	279.5411
231.56	0.0000
235.69	297.5381
236.00	255.6021
236.00	255.6021
238.63	256.0376
238.63	256.0376
238.63	256.0376
238.63	256.0376
239.00	0.0000
240.98	256.4248
241.98	256.5883
241.98	256.5883
241.98	256.5883
244.69	195.9644
245.39	209.7290
247.94	206.1530
248.90	223.3942
249.79	0.0000
252.40	209.7382
252.85	212.5454
252.85	212.5454
254.15	0.0000
256.20	219.4120
256.20	219.4120
260.50	201.5818
260.90	0.0000
262.80	216.6119
264.65	189.1696
268.24	192.6600
268.79	206.2913
269.46	205.4503
269.46	205.4503
269.46	205.4503
269.46	205.4503
271.23	194.5474
273.65	269.0465
276.40	220.9545
277.35	218.4938
277.60	214.8058
277.60	214.8058
278.00	212.9963
278.60	204.6978
279.20	196.3933
279.53	211.3245
280.46	219.8211
281.68	0.0000
283.67	190.3685
284.30	210.0421
285.00	201.7222
285.90	0.0000
286.10	201.8487
286.10	201.8487
287.40	196.3879
288.45	0.0000
290.67	198.3135
290.80	198.3290
291.72	204.6822
293.26	0.0000
293.70	201.7830
295.21	192.5604
295.21	192.5604

295.21	192.5604
295.96	192.6404
296.50	192.7005
297.23	0.0000
298.57	192.9232
299.80	193.0533
299.80	193.0533
300.09	204.0745
300.09	204.0745
300.09	204.0745
300.09	204.0745
300.12	204.0771
301.29	190.0718
302.84	168.2237
303.76	0.0000
303.91	166.7507
304.40	171.5144
304.40	171.5144
304.84	138.5044
306.84	180.6737
308.46	175.9961
311.98	158.3198
316.51	172.9622
318.01	178.8065
319.02	163.8886
319.41	164.1866
320.08	165.9459
323.87	151.0603
323.87	151.0603
323.87	151.0603
323.87	151.0603
325.23	171.8547
328.77	172.1733
333.44	201.3560
334.20	201.4354
334.20	201.4354
334.30	201.4457
338.28	184.2358
338.28	184.2358
338.28	184.2358
338.28	184.2358
338.32	184.2405
338.32	184.2405
338.32	184.2405
340.50	136.3282
340.57	136.3334
344.27	161.9789
345.85	173.6873
350.59	0.0000
351.07	134.4781
351.92	134.5341
351.92	134.5341
351.92	134.5341
355.39	0.0000
356.01	158.4066
364.48	144.1338
366.43	128.6742
367.43	135.5640
367.94	0.0000
369.80	135.7184
374.96	130.1815
383.85	140.5614
387.95	134.9212
388.63	134.9647
391.69	156.8611
391.69	156.8611
392.90	134.2452
398.62	145.4855
400.65	133.7327
401.10	140.6965
401.81	133.8036
402.60	134.8445
404.84	138.9507
410.95	140.3305
411.60	144.3522
413.65	150.4636
414.70	132.5892
415.30	124.6475

415.76	117.6917
417.63	0.0000
418.52	119.8330
423.70	124.1105
427.08	108.2571
427.89	118.3227
432.53	117.5570
433.93	121.6484
439.47	0.0000
439.56	115.8970
439.89	115.9139
443.98	119.1451
444.90	105.0499
445.03	105.0562
445.03	105.0562
445.03	105.0562
445.03	105.0562
453.90	105.4498
463.38	95.0081
468.07	96.1629
473.00	94.0215
475.06	94.1001
475.35	102.2949
476.78	104.4018
477.59	108.5310
477.96	95.2353
482.03	113.8536
484.57	0.0000
487.03	84.2772
490.36	0.0000
492.35	0.0000
497.08	94.9323
507.63	0.0000
510.53	0.0000
510.84	94.4047
511.00	94.4108
511.85	94.4419
511.85	94.4419
513.99	96.9427
513.99	96.9427
520.41	88.5050
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	77.3206
529.87	0.0000
531.02	85.7236
537.32	94.3088
543.00	78.7573
546.56	0.0000
549.76	89.4803
552.65	85.3605
555.20	89.6588
563.23	93.0939
563.90	92.0573
568.70	97.5164
569.32	94.3582
569.50	97.5434
569.67	98.6104
573.80	103.0033
574.00	91.3288
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	92.6903
585.48	0.0000
591.81	91.9041
592.07	87.6355
593.00	87.6655
595.88	86.6815
600.56	94.0868
602.52	0.0000
602.71	96.5413
602.71	96.5413
603.60	85.8398
604.41	96.5973
604.70	96.6072
609.31	78.8405

609.31	78.8405
609.31	78.8405
609.31	78.8405
610.33	87.8315
612.46	78.9246
614.37	48.4629
618.01	76.5573
621.84	73.4171
621.84	73.4171
631.29	75.8157
633.02	87.7810
633.10	87.7830
634.78	90.0011
635.90	94.3725
636.97	98.7470
645.85	106.6540
646.12	100.1331
656.30	85.1773
657.75	87.4023
657.90	0.0000
661.65	92.9812
661.65	92.9812
664.57	0.0000
666.33	77.7828
666.33	77.7828
675.00	69.2093
677.61	87.9590
685.20	70.7181
692.80	76.4109
695.00	81.9907
696.49	100.4622
696.49	100.4622
697.00	94.0250
697.49	98.6493
698.33	102.3620
698.50	100.5243
699.00	89.4712
702.63	81.2611
706.10	98.9106
706.58	0.0000
706.67	89.6824
709.31	83.2782
711.68	80.5607
713.82	88.9512
717.42	76.0625
720.50	70.0329
721.93	0.0000
722.20	76.4381
722.78	78.0442
722.78	78.0442
722.89	78.0476
722.95	78.0493
723.30	79.6509
724.18	84.4521
727.18	87.4518
733.00	71.8945
735.90	91.4104
739.58	56.9616
742.81	67.2979
744.21	72.0011
747.13	72.9980
751.79	77.7838
752.31	72.1718
753.82	64.7029
755.35	0.0000
756.15	86.3286
756.87	95.7329
763.93	111.9184
765.79	96.9229
766.42	91.2927
766.84	93.1871
776.49	84.9518
778.00	82.1555
778.57	81.2234
778.89	78.3985
783.80	66.2118
785.46	76.9682
792.07	63.3872

795.84	55.3188
796.30	47.1897
798.80	56.9934
801.93	52.4800
805.60	57.1021
810.29	58.1295
810.76	48.6073
815.85	66.8099
817.79	0.0000
818.51	45.8457
819.60	51.5918
826.30	55.5161
828.27	0.0000
831.60	77.6431
831.96	68.0648
834.83	75.7935
836.80	0.0000
846.75	56.7877
848.13	52.9579
856.28	0.0000
856.80	77.2087
860.37	63.7576
867.32	75.4879
867.82	80.3387
871.10	64.9076
873.19	43.6185
874.81	67.8794
875.33	0.0000
876.40	59.1769
879.36	65.0480
880.27	62.1510
880.51	65.0685
881.50	59.2563
883.24	59.2836
884.67	59.3060
889.25	50.6162
896.60	64.3658
898.02	70.2422
899.00	67.3337
903.28	41.8675
911.07	68.8000
911.07	68.8000
911.07	68.8000
919.63	73.5748
920.93	64.7673
925.00	55.0111
925.24	55.0145
926.50	56.3419
935.52	38.8350
937.48	62.5033
944.10	50.6082
946.00	54.3130
949.00	59.2944
962.29	52.6909
964.01	48.6032
966.15	48.6292
968.20	48.6531
969.11	48.6640
969.11	48.6640
969.11	48.6640
977.42	56.1269
980.50	60.7493
983.50	48.8345
989.30	63.8724
996.32	64.9802
1001.03	50.0407
1001.68	45.0439
1004.76	59.1008
1021.30	0.0000
1024.50	0.0000
1034.80	38.3340
1036.00	41.3720
1037.82	55.5237
1038.57	54.5229
1038.76	0.0000
1045.16	43.4829
1046.59	43.4969
1048.07	48.5703

1050.47	57.7097
1050.47	57.7097
1062.04	43.6509
1063.62	62.9612
1076.63	39.7220
1077.35	44.8218
1078.86	56.0451
1085.78	44.9059
1099.22	46.0657
1112.02	70.3934
1112.84	72.1675
1115.52	63.4018
1120.29	56.5643
1120.29	56.5643
1120.29	56.5643
1120.29	56.5643
1120.51	56.5666
1121.28	56.5755
1124.00	0.0000
1129.67	52.2150
1131.51	0.0000
1147.95	0.0000
1167.94	58.1875
1173.22	74.8975
1175.09	59.3170
1177.93	56.2280
1189.05	64.7095
1204.90	79.5842
1205.75	0.0000
1213.00	72.3748
1221.42	66.1967
1230.97	77.6046
1235.34	65.0290
1236.41	0.0000
1238.25	66.4248
1246.25	60.1960
1260.41	0.0000
1271.85	46.7070
1274.45	60.5370
1274.54	60.5370
1291.56	34.1016
1298.22	0.0000
1312.09	40.6580
1325.50	30.0360
1325.50	30.0360
1332.49	40.8188
1333.61	33.3071
1360.21	24.8371
1362.66	0.0000
1365.15	24.8605
1368.21	22.2480
1368.53	0.0000
1376.25	29.2445
1384.27	28.9269
1394.10	37.2600
1395.20	33.5416
1407.95	16.8103
1434.06	24.3977
1436.60	38.4918
1457.56	0.0000
1460.81	25.4585
1489.15	24.6398
1509.49	12.3643
1596.49	27.0303
1620.62	22.2925
1678.03	0.0000
1691.02	13.7261
1691.02	13.7261
1706.46	0.0000
1750.46	0.0000
1764.49	16.8619
1764.49	16.8619
1764.49	16.8619
1764.49	16.8619
1770.23	6.9492
1771.40	28.7947
1791.20	0.0000
1808.65	9.9860

1836.01

8.0220



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101004

Total Uranium Activity	1.1693E+00	ug/g
Total Uranium Counting Unc.	6.6785E+00	ug/g
Total Uranium Tpu	3.4074E-06	ug/g
Total Uranium Mda	5.9417E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101004
*  ANALYST       : MXR1                             DETECTOR    : GAM15
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 09:46:19.36          SAMPLE ALQT  : 133.790 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.347E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.673E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 4.243E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 2.057E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 11:48:01.72

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101005.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:46.
Sample ID          : G245101005      Sample quantity   : 1.16860E+02 GRAM
Detector name      : GAM22            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:02.11  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 944037            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.10*	45	467	1.57	92.49	90	9	6.32E-03	88.2	
2	0	63.39*	211	560	1.05	127.04	123	8	2.93E-02	21.3	
3	2	74.82	464	550	1.22	149.86	143	16	6.44E-02	9.6	1.61E+00
4	2	77.10*	711	541	1.13	154.43	143	16	9.88E-02	6.8	
5	0	86.88*	166	588	1.41	173.96	172	7	2.31E-02	25.7	
6	0	93.11*	497	902	1.11	186.41	181	11	6.91E-02	13.2	
7	0	131.04	337	1000	7.84	262.20	252	22	4.68E-02	24.6	
8	0	185.71*	387	514	1.43	371.44	367	11	5.38E-02	12.9	
9	0	209.02*	138	418	1.10	418.02	413	10	1.92E-02	29.5	
10	2	238.64*	1448	292	1.27	477.21	470	21	2.01E-01	3.4	1.16E+00
11	2	241.75	358	315	1.71	483.41	470	21	4.98E-02	13.0	
12	0	270.46	103	381	1.31	540.78	534	12	1.43E-02	39.2	
13	0	295.40*	519	304	1.26	590.63	585	12	7.21E-02	8.2	
14	0	300.17*	104	224	1.25	600.16	597	10	1.44E-02	29.3	
15	0	338.30*	214	361	1.25	676.36	670	13	2.97E-02	20.0	
16	0	351.92*	838	246	1.44	703.56	698	11	1.16E-01	5.1	
17	0	463.11	106	146	1.45	925.78	920	11	1.47E-02	24.1	
18	0	510.61*	96	315	1.83	1020.72	1012	19	1.33E-02	50.2	
19	0	583.00*	469	197	1.58	1165.42	1156	16	6.52E-02	8.4	
20	0	609.45*	617	150	1.66	1218.28	1211	15	8.57E-02	6.1	
21	0	661.46	755	185	1.70	1322.25	1315	17	1.05E-01	5.5	
22	0	727.35*	100	132	1.18	1453.96	1449	12	1.39E-02	25.5	
23	0	768.87	35	141	1.88	1536.97	1528	12	4.85E-03	65.8	
24	0	911.00*	376	84	2.25	1821.11	1813	16	5.22E-02	7.9	
25	0	934.06	36	46	3.27	1867.22	1862	11	5.00E-03	41.0	
26	3	964.71*	92	84	2.63	1928.51	1917	27	1.28E-02	26.3	1.50E+00
27	3	969.02*	205	62	2.19	1937.12	1917	27	2.84E-02	11.3	
28	0	1120.33*	146	141	2.42	2239.68	2230	24	2.03E-02	23.4	
29	0	1460.61*	1619	101	2.61	2920.24	2911	23	2.25E-01	3.0	
30	0	1729.71*	26	21	1.06	3458.59	3450	14	3.59E-03	45.5	
31	0	1764.47*	140	18	2.35	3528.14	3516	25	1.94E-02	12.9	

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

## VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 11:48:05

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101005.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:46  
 Sample ID : G245101005 Sample quantity : 116.86 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA22 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.11 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	*	2.554E+01	2.806E+00	5.664E-01	5.189E-02	45.080
CD-109	+	88.03	*	1.983E+00	1.036E+00	1.541E+00	1.463E-01	1.287
SN-126	+	64.28		1.620E+00	7.287E-01	7.194E-01	1.045E-01	2.251
	+	86.94		8.045E-01	5.315E-01	5.641E-01	2.342E-01	1.426
	+	87.57	*	1.935E-01	1.011E-01	1.405E-01	1.327E-02	1.377
BA-137M	+	661.65	*	7.521E-01	1.141E-01	5.454E-02	5.751E-03	13.790
CS-137	+	661.65	*	7.950E-01	1.207E-01	5.765E-02	6.087E-03	13.790
TL-208		277.35		6.420E-01	4.019E-01	6.640E-01	1.095E-01	0.967
	+	510.84		3.316E-01	3.360E-01	2.131E-01	2.777E-02	1.556
	+	583.14	*	4.554E-01	9.087E-02	5.432E-02	5.890E-03	8.384
		860.37		5.295E-01	2.824E-01	5.094E-01	5.936E-02	1.039
BI-210	+	46.50	*	2.914E+00	5.146E+00	4.801E+00	4.461E-01	0.607
PB-210	+	46.50	*	2.914E+00	5.146E+00	4.801E+00	4.461E-01	0.607
PO-210	+	46.50	*	2.914E+00	5.145E+00	4.801E+00	4.037E-01	0.607
BI-211		72.87		6.455E+00	2.866E+00	4.943E+00	3.956E-01	1.306
	+	351.07	*	3.852E+00	5.973E-01	3.184E-01	3.715E-02	12.097
PB-212	+	74.81		2.259E+00	5.181E-01	4.892E-01	6.070E-02	4.618
	+	77.11		1.964E+00	3.152E-01	2.785E-01	2.329E-02	7.053
	+	87.30		8.951E-01	4.760E-01	6.515E-01	8.946E-02	1.374
	+	238.63	*	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
	+	300.09		1.654E+00	9.997E-01	1.036E+00	1.511E-01	1.596
PO-212	+	74.81		2.259E+00	5.181E-01	4.892E-01	6.070E-02	4.618
	+	77.11		1.964E+00	3.152E-01	2.785E-01	2.329E-02	7.053
	+	87.30		8.951E-01	4.760E-01	6.515E-01	8.946E-02	1.374
		115.19		-1.214E+00	3.718E+00	5.844E+00	4.841E-01	-0.208
	+	238.63	*	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
	+	300.09		1.654E+00	9.997E-01	1.036E+00	1.511E-01	1.596
BI-214	+	609.31	*	1.124E+00	1.895E-01	1.093E-01	1.271E-02	10.279
	+	1120.29		1.326E+00	6.367E-01	3.925E-01	4.337E-02	3.379
	+	1764.49		1.655E+00	4.482E-01	2.449E-01	2.040E-02	6.757
PB-214	+	74.81		3.892E+00	8.647E-01	8.429E-01	9.291E-02	4.618
	+	77.11		3.368E+00	5.982E-01	4.775E-01	5.402E-02	7.053
	+	87.30		1.533E+00	8.096E-01	1.116E+00	1.358E-01	1.374
	+	241.98		2.306E+00	6.765E-01	5.423E-01	7.457E-02	4.252

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.454E+00	3.217E-01	2.013E-01	2.997E-02	7.226
	+	351.92	*	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
	+	74.81		3.892E+00	8.647E-01	8.429E-01	9.291E-02	4.618
	+	77.11		3.368E+00	5.982E-01	4.775E-01	5.402E-02	7.053
	+	87.30		1.533E+00	8.096E-01	1.116E+00	1.358E-01	1.374
	+	241.98		2.306E+00	6.765E-01	5.423E-01	7.457E-02	4.252
PO-216	+	295.21		1.454E+00	3.217E-01	2.013E-01	2.997E-02	7.226
	+	351.92	*	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
	+	74.81		2.259E+00	5.181E-01	4.892E-01	6.070E-02	4.618
	+	77.11		1.964E+00	3.152E-01	2.785E-01	2.329E-02	7.053
	+	87.30		8.951E-01	4.760E-01	6.515E-01	8.946E-02	1.374
	+	238.63	*	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
PO-218	+	300.09		1.654E+00	9.997E-01	1.036E+00	1.511E-01	1.596
	+	74.81		3.892E+00	8.647E-01	8.429E-01	9.291E-02	4.618
	+	77.11		3.368E+00	5.982E-01	4.775E-01	5.402E-02	7.053
	+	87.30		1.533E+00	8.096E-01	1.116E+00	1.358E-01	1.374
	+	241.98		2.306E+00	6.765E-01	5.423E-01	7.457E-02	4.252
	+	295.21		1.454E+00	3.217E-01	2.013E-01	2.997E-02	7.226
RA-224	+	351.92	*	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
RA-226	+	240.98	*	4.372E+00	1.259E+00	1.025E+00	1.283E-01	4.265
	+	609.31	*	1.124E+00	1.895E-01	1.093E-01	1.271E-02	10.279
	+	1120.29		1.326E+00	6.367E-01	3.925E-01	4.337E-02	3.379
AC-228	+	1764.49		1.655E+00	4.482E-01	2.449E-01	2.040E-02	6.757
	+	338.32		1.091E+00	6.330E-01	3.652E-01	1.536E-01	2.989
	+	911.07	*	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
RA-228	+	969.11		1.494E+00	4.949E-01	3.142E-01	7.588E-02	4.755
	+	338.32		1.091E+00	6.330E-01	3.652E-01	1.536E-01	2.989
	+	911.07	*	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
TH-228	+	969.11		1.494E+00	4.949E-01	3.142E-01	7.588E-02	4.755
	+	74.81		2.304E+00	4.833E-01	4.990E-01	4.111E-02	4.618
	+	77.11		2.004E+00	3.216E-01	2.841E-01	2.376E-02	7.053
TH-230	+	87.30		9.130E-01	4.769E-01	6.645E-01	6.254E-02	1.374
	+	238.63	*	1.585E+00	2.359E-01	9.199E-02	1.215E-02	17.229
	+	300.09		1.688E+00	1.418E+00	1.057E+00	6.359E-01	1.596
	+	609.31	*	1.123E+00	1.895E-01	1.093E-01	1.271E-02	10.279
	+	1120.29		1.326E+00	6.367E-01	3.925E-01	4.337E-02	3.379
	+	1764.49		1.655E+00	4.482E-01	2.449E-01	2.040E-02	6.757
TH-232	+	338.32		1.091E+00	4.546E-01	3.652E-01	4.343E-02	2.989
	+	911.07	*	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
	+	969.11		1.494E+00	4.949E-01	3.142E-01	7.588E-02	4.755
TH-234	+	63.29	*	4.092E+00	1.883E+00	1.871E+00	3.257E-01	2.187
	+	92.38		3.745E+00	1.205E+00	7.958E-01	1.458E-01	4.705
U-234	+	609.31	*	1.123E+00	1.895E-01	1.093E-01	1.271E-02	10.279
	+	1120.29		1.326E+00	6.367E-01	3.925E-01	4.337E-02	3.379
	+	1764.49		1.655E+00	4.482E-01	2.449E-01	2.040E-02	6.757
NP-237	+	86.50	*	5.683E-01	3.192E-01	3.976E-01	9.003E-02	1.429
	+	95.87		-7.473E-01	1.034E+00	1.408E+00	3.482E-01	-0.531
U-238	+	63.29	*	4.092E+00	1.883E+00	1.871E+00	3.257E-01	2.187
	+	92.38		3.745E+00	1.047E+00	7.958E-01	7.252E-02	4.705

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.662E-01	7.670E-02	7.953E-02	6.482E-03	4.605
	+	86.72		2.131E+01	1.113E+01	1.488E+01	1.390E+00	1.432
		117.66		-2.014E+00	3.924E+00	6.104E+00	5.042E-01	-0.330
		142.18		-1.463E+00	1.846E+01	3.022E+01	2.669E+00	-0.048
ANH-511	+	511.00	*	7.163E-02	7.233E-02	4.604E-02	4.613E-03	1.556

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	6.637E-01	3.528E-01	6.152E-01	6.421E-02	1.079
NA-22		1274.54	*	-8.036E-02	4.183E-02	5.778E-02	4.980E-03	-1.391
NA-24		1368.53	*	-1.782E+02	4.183E-02	Half-Life too short		
AL-26		1129.67		1.902E-01	1.715E+00	2.391E+00	2.082E-01	0.080
		1808.65	*	-1.711E-02	2.541E-02	3.729E-02	3.050E-03	-0.459
TI-44		67.85		-2.210E-02	4.292E-02	6.592E-02	5.031E-03	-0.335
	+	78.38	*	3.626E-01	5.819E-02	7.237E-02	6.136E-03	5.010
SC-46		889.25	*	-3.009E-02	3.948E-02	6.190E-02	6.929E-03	-0.486
	+	1120.51		2.362E-01	1.123E-01	1.175E-01	1.038E-02	2.011
V-48		944.10		-4.864E-02	9.516E-01	1.563E+00	1.696E-01	-0.031
		983.50	*	4.907E-02	8.141E-02	1.391E-01	1.459E-02	0.353
		1312.09		3.623E-02	9.719E-02	1.648E-01	1.452E-02	0.220
CR-51		320.08	*	-3.885E-02	4.119E-01	6.862E-01	8.886E-02	-0.057
MN-52		744.21		3.508E-01	4.089E-01	6.978E-01	7.583E-02	0.503
		848.13		7.229E+00	1.143E+01	1.976E+01	2.200E+00	0.366
	+	935.52		5.315E-01	4.398E-01	6.707E-01	7.323E-02	0.793
		1246.25		-1.622E+00	1.237E+01	2.034E+01	1.720E+00	-0.080
		1333.61		3.478E+00	8.275E+00	1.412E+01	1.259E+00	0.246
		1434.06	*	3.295E-01	4.057E-01	7.134E-01	6.375E-02	0.462
MN-54		834.83	*	-9.097E-03	3.620E-02	5.949E-02	6.609E-03	-0.153
CO-56		846.75	*	2.243E-02	3.924E-02	6.755E-02	7.520E-03	0.332
		977.42		1.103E+00	3.016E+00	4.677E+00	4.933E-01	0.236
		1037.82		-2.521E-01	3.057E-01	4.665E-01	4.810E-02	-0.540
		1175.09		1.816E+00	2.112E+00	3.711E+00	2.988E-01	0.489
		1238.25		1.100E-01	9.078E-02	1.566E-01	1.357E-02	0.703
		1360.21		-4.498E-01	9.483E-01	1.487E+00	1.328E-01	-0.302
		1771.40		8.692E-02	2.243E-01	3.392E-01	2.818E-02	0.256
CO-57		122.06	*	7.293E-03	2.647E-02	4.241E-02	3.497E-03	0.172
		136.48		-6.877E-02	2.371E-01	3.491E-01	3.239E-02	-0.197
CO-58		810.76	*	-4.123E-02	3.583E-02	5.463E-02	6.049E-03	-0.755
FE-59		142.65		1.085E-01	3.090E+00	5.080E+00	4.495E-01	0.021
		192.34		-9.644E-01	1.080E+00	1.645E+00	2.442E-01	-0.586
		1099.22	*	-6.270E-02	9.264E-02	1.424E-01	1.396E-02	-0.440
		1291.56		-1.140E-01	1.173E-01	1.770E-01	1.745E-02	-0.644
CO-60		1173.22		1.360E-03	4.165E-02	6.964E-02	5.600E-03	0.020
		1332.49	*	6.980E-03	3.598E-02	6.027E-02	5.375E-03	0.116
ZN-65		1115.52	*	1.352E-01	9.751E-02	1.522E-01	1.358E-02	0.888
GE-68		1077.35	*	1.161E+00	1.134E+00	1.978E+00	1.865E-01	0.587
AS-73		53.44	*	-9.472E-03	7.785E-01	1.252E+00	9.460E-02	-0.008

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74		595.88	*	-5.684E-02	1.034E-01	1.658E-01	1.718E-02	-0.343
		634.78		-1.872E-01	4.070E-01	6.514E-01	6.827E-02	-0.287
SE-75		66.05		-1.533E+00	4.769E+00	6.949E+00	6.630E-01	-0.221
		96.73		-9.246E-01	8.614E-01	1.156E+00	1.591E-01	-0.800
		121.11		-2.534E-02	1.481E-01	2.332E-01	2.550E-02	-0.109
		136.00		2.666E-03	4.514E-02	6.758E-02	5.865E-03	0.039
		198.60		-7.406E-01	1.946E+00	3.093E+00	3.615E-01	-0.239
		264.65	*	-1.477E-02	5.237E-02	7.206E-02	9.699E-03	-0.205
		279.53		1.674E-03	1.178E-01	1.886E-01	2.677E-02	0.009
		303.91		9.155E-01	2.277E+00	3.408E+00	5.194E-01	0.269
		400.65		-2.550E-01	2.575E-01	3.986E-01	4.665E-02	-0.640
BR-77	+	87.88		1.720E-03	2.575E-01	Half-Life	too short	
		200.40		-2.281E-04	2.575E-01	Half-Life	too short	
	+	239.00		1.009E-03	2.575E-01	Half-Life	too short	
		249.79		-1.772E-05	2.575E-01	Half-Life	too short	
		281.68		-3.077E-04	2.575E-01	Half-Life	too short	
		297.23		1.874E-03	2.575E-01	Half-Life	too short	
		303.76		3.300E-04	2.575E-01	Half-Life	too short	
		439.47		-1.985E-04	2.575E-01	Half-Life	too short	
		484.57		1.087E-04	2.575E-01	Half-Life	too short	
		520.65	*	-1.317E-05	2.575E-01	Half-Life	too short	
		574.64		-5.940E-04	2.575E-01	Half-Life	too short	
		578.91		3.617E-04	2.575E-01	Half-Life	too short	
		585.48		6.471E-03	2.575E-01	Half-Life	too short	
		755.35		4.393E-04	2.575E-01	Half-Life	too short	
		817.79		1.680E-04	2.575E-01	Half-Life	too short	
SR-82		698.33		-1.464E+01	3.668E+01	5.839E+01	6.248E+00	-0.251
		776.49	*	-4.276E-01	4.146E-01	6.175E-01	6.772E-02	-0.692
		1395.20		-2.448E+00	1.161E+01	1.865E+01	1.667E+00	-0.131
RB-83		520.41	*	-2.237E-02	7.188E-02	1.130E-01	1.137E-02	-0.198
		529.64		-5.185E-02	1.004E-01	1.631E-01	1.649E-02	-0.318
		552.65		1.324E-01	1.972E-01	3.401E-01	3.471E-02	0.389
RB-84		881.50	*	2.130E-02	7.214E-02	1.221E-01	1.365E-02	0.174
KR-85		513.99	*	2.320E+01	9.027E+00	1.419E+01	1.424E+00	1.634
SR-85		513.99	*	1.251E-01	4.867E-02	7.654E-02	7.680E-03	1.634
RB-86		1076.63	*	5.044E-01	8.288E-01	1.411E+00	1.331E-01	0.358
Y-88		898.02		1.769E-02	4.108E-02	6.988E-02	7.852E-03	0.253
		1836.01	*	3.028E-02	3.093E-02	5.724E-02	4.628E-03	0.529
ZR-88		392.90	*	-5.666E-02	3.299E-02	4.895E-02	4.558E-03	-1.158
Y-91		1204.90	*	1.366E+00	1.827E+01	3.055E+01	2.512E+00	0.045
NB-94		702.63	*	2.260E-02	3.111E-02	5.287E-02	5.666E-03	0.427
		871.10		-3.962E-03	3.100E-02	5.106E-02	5.704E-03	-0.078
NB-95		765.79	*	6.875E-02	5.093E-02	7.782E-02	8.510E-03	0.883
NB-95M		235.69	*	2.860E-01	1.509E-01	2.283E-01	3.018E-02	1.252
ZR-95		724.18		2.409E-01	1.124E-01	1.793E-01	2.044E-02	1.344
		756.15	*	2.531E-02	7.198E-02	1.192E-01	1.384E-02	0.212
NB-97		657.90	*	4.537E+01	7.198E-02	Half-Life	too short	
		1024.50		7.258E+02	7.198E-02	Half-Life	too short	
ZR-97		254.15		-2.574E+02	7.198E-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		4.058E+02	7.198E-02	Half-Life	too short	
		507.63	*	6.805E+02	7.198E-02	Half-Life	too short	
		602.52		5.744E+02	7.198E-02	Half-Life	too short	
		1021.30		-8.457E+01	7.198E-02	Half-Life	too short	
		1147.95		-1.647E+02	7.198E-02	Half-Life	too short	
		1362.66		1.408E+02	7.198E-02	Half-Life	too short	
		1750.46		-7.436E+02	7.198E-02	Half-Life	too short	
MO-99		140.51		-1.042E+02	9.382E+01	1.411E+02	3.913E+01	-0.739
		181.06		-6.557E+00	6.288E+01	9.104E+01	1.743E+01	-0.072
		366.43		7.136E+01	2.650E+02	4.441E+02	4.711E+01	0.161
		739.58	*	-1.550E+01	3.619E+01	5.691E+01	9.421E+00	-0.272
		778.00		-1.103E+02	1.075E+02	1.599E+02	1.754E+01	-0.690
TC-99M		140.51	*	-2.543E+16	1.075E+02	Half-Life	too short	
RH-101		127.23		1.381E-02	3.728E-02	5.328E-02	4.453E-03	0.259
		198.01	*	6.415E-03	3.447E-02	5.595E-02	6.104E-03	0.115
		325.23		-1.262E-01	2.265E-01	3.690E-01	4.586E-02	-0.342
RH-102		418.52		-5.367E-02	2.861E-01	4.633E-01	4.397E-02	-0.116
		475.06	*	-2.455E-03	2.996E-02	4.821E-02	4.741E-03	-0.051
		631.29		1.904E-02	5.045E-02	8.503E-02	8.903E-03	0.224
		697.49		-6.217E-03	7.353E-02	1.195E-01	1.278E-02	-0.052
		766.84		1.302E-01	1.113E-01	1.904E-01	2.083E-02	0.684
		1046.59		-1.570E-02	1.108E-01	1.791E-01	1.756E-02	-0.088
		1112.84		-5.170E-02	2.344E-01	3.148E-01	2.817E-02	-0.164
RU-103		497.08	*	1.379E-02	4.526E-02	7.402E-02	1.111E-02	0.186
	+	610.33		1.320E+01	2.836E+00	2.745E+00	4.852E-01	4.809
RH-106	+	511.85		3.610E-01	3.645E-01	4.089E-01	4.099E-02	0.883
		621.84	*	1.955E-03	3.046E-01	5.032E-01	7.348E-02	0.004
		1050.47		-9.433E-01	2.344E+00	3.716E+00	3.627E-01	-0.254
RU-106	+	511.85		3.610E-01	3.645E-01	4.089E-01	4.099E-02	0.883
		621.84	*	1.955E-03	3.046E-01	5.032E-01	5.256E-02	0.004
		1050.47		-9.433E-01	2.344E+00	3.716E+00	3.627E-01	-0.254
AG-108M		433.93	*	-5.737E-04	3.338E-02	5.436E-02	5.381E-03	-0.011
		614.37		2.781E-02	3.906E-02	5.877E-02	6.291E-03	0.473
		722.95		3.201E-02	4.344E-02	6.449E-02	7.135E-03	0.496
AG-110M		657.75	*	1.138E-01	4.324E-02	7.050E-02	7.577E-03	1.614
		677.61		-1.161E-01	2.892E-01	4.611E-01	4.985E-02	-0.252
		706.67		-8.483E-02	1.946E-01	3.083E-01	3.368E-02	-0.275
		763.93		1.676E-01	1.752E-01	2.632E-01	2.927E-02	0.637
		884.67		1.332E-02	4.750E-02	8.024E-02	9.150E-03	0.166
		937.48		6.016E-02	1.056E-01	1.583E-01	1.765E-02	0.380
		1384.27		-2.564E-01	1.646E-01	2.278E-01	2.090E-02	-1.125
IN-111		171.28		-4.382E-01	3.245E+00	5.373E+00	5.363E-01	-0.082
		245.39	*	-2.818E-01	3.792E+00	5.334E+00	6.768E-01	-0.053
IN-113M		391.69	*	-5.329E-02	4.778E-02	7.398E-02	7.065E-03	-0.720
SN-113		391.69	*	-5.329E-02	4.778E-02	7.398E-02	7.065E-03	-0.720
IN-114M		190.27	*	-9.839E-02	2.222E-01	3.143E-01	3.342E-02	-0.313
CD-115		260.90		2.002E-04	2.222E-01	Half-Life	too short	
		492.35		-1.110E-04	2.222E-01	Half-Life	too short	
		527.90	*	3.505E-05	2.222E-01	Half-Life	too short	



Sample ID : G245101005

Acquisition date : 2-FEB-2010 09:46:46

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M		156.02		1.400E+00	2.880E+00	4.896E+00	4.591E-01	0.286
		158.56	*	-1.869E-02	7.016E-02	1.163E-01	1.103E-02	-0.161
SB-122		563.90	*	1.765E+00	7.025E+00	1.185E+01	1.215E+00	0.149
		692.80		1.342E+02	1.391E+02	2.394E+02	2.556E+01	0.561
I-123		159.00	*	-6.521E+02	1.391E+02	Half-Life	too short	
		528.96		8.790E+04	1.391E+02	Half-Life	too short	
TE-123M		159.00	*	-7.658E-03	2.929E-02	4.854E-02	4.636E-03	-0.158
I-124		602.71	*	9.571E-01	1.623E+00	2.414E+00	2.507E-01	0.396
		722.78		7.124E+00	1.002E+01	1.485E+01	1.603E+00	0.480
		1325.50		-2.215E+01	6.995E+01	1.121E+02	9.952E+00	-0.198
		1376.25		1.004E+02	6.848E+01	1.241E+02	1.109E+01	0.809
		1509.49		3.562E+01	3.156E+01	5.696E+01	5.062E+00	0.625
		1691.02		-2.236E-02	7.400E+00	1.225E+01	1.048E+00	-0.002
SB-124		602.71		2.656E-02	4.505E-02	6.699E-02	6.959E-03	0.396
		645.85		-2.206E-01	5.012E-01	8.015E-01	8.766E-02	-0.275
		709.31		-1.544E+00	2.669E+00	4.178E+00	4.488E-01	-0.369
		713.82		4.300E-01	1.540E+00	2.555E+00	3.488E-01	0.168
		722.78		2.866E-01	4.032E-01	5.976E-01	6.538E-02	0.480
	+	968.20		1.625E+01	4.070E+00	6.925E+00	7.363E-01	2.347
		1045.16		4.589E-01	2.415E+00	3.997E+00	3.927E-01	0.115
		1325.50		-9.517E-01	3.005E+00	4.815E+00	4.276E-01	-0.198
		1368.21		-2.504E+00	1.848E+00	2.594E+00	3.548E-01	-0.965
		1436.60		-2.381E-01	3.745E+00	6.085E+00	5.438E-01	-0.039
		1691.02	*	-2.121E-04	7.022E-02	1.162E-01	1.034E-02	-0.002
SB-125		427.89	*	2.641E-02	9.312E-02	1.541E-01	1.495E-02	0.171
	+	463.38		7.292E-01	3.592E-01	5.122E-01	5.311E-02	1.424
		600.56		4.630E-02	1.797E-01	2.884E-01	3.147E-02	0.161
		635.90		5.531E-03	2.581E-01	4.258E-01	4.711E-02	0.013
TE-125M		109.28	*	-6.263E-01	1.019E+01	1.625E+01	1.648E+00	-0.039
I-126		388.63		5.129E-01	2.769E-01	4.861E-01	4.602E-02	1.055
		666.33	*	3.160E-02	2.596E-01	3.692E-01	3.900E-02	0.086
		753.82		2.128E+00	1.787E+00	3.096E+00	3.374E-01	0.687
SB-126		223.80		-1.589E+00	5.297E+00	8.525E+00	1.011E+00	-0.186
		278.60		2.476E+00	3.405E+00	5.589E+00	7.812E-01	0.443
	+	296.50		1.893E+01	4.016E+00	4.580E+00	6.170E-01	4.133
		414.70		-1.551E-02	9.896E-02	1.607E-01	1.521E-02	-0.097
		415.30		3.407E+00	8.086E+00	1.350E+01	1.278E+00	0.252
		555.20		-3.396E+00	5.100E+00	8.184E+00	8.360E-01	-0.415
		573.80		-1.022E+00	1.475E+00	2.082E+00	2.142E-01	-0.491
		593.00		-3.587E-01	1.121E+00	1.824E+00	1.889E-01	-0.197
		656.30		-3.993E-01	4.616E+00	6.457E+00	6.801E-01	-0.062
		666.33		1.335E-02	1.097E-01	1.560E-01	1.648E-02	0.086
		675.00		-1.907E+00	2.432E+00	3.771E+00	3.999E-01	-0.506
		695.00		7.996E-02	9.464E-02	1.619E-01	1.730E-02	0.494
		697.00		-4.646E-02	3.369E-01	5.458E-01	5.837E-02	-0.085
		720.50	*	-6.208E-02	2.005E-01	2.836E-01	3.058E-02	-0.219
		856.80		5.853E-03	5.829E-01	9.709E-01	1.082E-01	0.006
		989.30		-3.290E-01	1.581E+00	2.556E+00	2.666E-01	-0.129
		1034.80		-1.653E+00	1.091E+01	1.762E+01	1.753E+00	-0.094

---- 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			2.570E+00	5.309E+00	9.105E+00	7.528E-01	0.282
	61.10			4.974E+01	1.342E+02	2.028E+02	2.387E+01	0.245
	252.40			7.642E+00	1.122E+01	1.781E+01	7.757E+00	0.429
	290.80			-2.675E+01	5.620E+01	8.006E+01	1.324E+01	-0.334
	411.60			-3.449E+00	2.873E+01	4.677E+01	8.087E+00	-0.074
	444.90			1.366E+00	2.344E+01	3.824E+01	5.579E+00	0.036
	473.00			-6.176E+00	4.181E+00	6.030E+00	9.034E-01	-1.024
	543.00			1.824E+01	3.787E+01	6.358E+01	1.051E+01	0.287
	603.60			1.371E+00	3.050E+01	4.358E+01	6.564E+00	0.031
	685.20	*		1.685E-01	3.040E+00	4.992E+00	7.154E-01	0.034
	698.50			-1.521E+01	3.387E+01	5.361E+01	9.697E+00	-0.284
	722.20			6.509E+01	7.317E+01	1.097E+02	1.564E+01	0.594
	783.80			1.378E+01	8.306E+00	1.439E+01	2.217E+00	0.958
XE-127	57.60			-3.136E+00	5.868E+00	9.579E+00	6.881E-01	-0.327
	145.22			1.542E+00	7.793E-01	1.370E+00	1.226E-01	1.125
	172.10			-1.224E-01	1.335E-01	2.140E-01	2.142E-02	-0.572
	202.84	*		1.326E-02	5.601E-02	8.604E-02	9.538E-03	0.154
	374.96			1.230E-01	2.162E-01	3.658E-01	3.724E-02	0.336
I-131	80.18			-2.981E+00	7.011E+00	1.002E+01	8.765E-01	-0.297
	284.30			7.304E-01	2.299E+00	3.723E+00	5.273E-01	0.196
	364.48	*		5.468E-03	1.598E-01	2.649E-01	2.944E-02	0.021
	636.97			6.726E-01	2.187E+00	3.668E+00	4.005E-01	0.183
	722.89			8.040E+00	1.105E+01	1.639E+01	1.782E+00	0.490
TE-132	49.72			-4.120E+01	5.074E+01	7.295E+01	8.617E+00	-0.565
	111.76			6.282E+01	8.618E+01	1.407E+02	1.693E+01	0.447
	116.30			-4.295E+01	7.894E+01	1.226E+02	1.471E+01	-0.350
BA-133	228.16	*		5.574E-01	1.913E+00	3.144E+00	5.876E-01	0.177
	53.15			5.871E-02	3.254E+00	5.242E+00	3.978E-01	0.011
	79.62			4.065E-01	1.310E+00	1.935E+00	2.943E-01	0.210
	81.00			-1.058E-01	1.028E-01	1.409E-01	2.245E-02	-0.751
	276.40			4.407E-01	4.229E-01	6.474E-01	1.172E-01	0.681
	302.84			1.059E-01	1.532E-01	2.320E-01	3.869E-02	0.456
	356.01	*		1.285E-02	4.520E-02	6.630E-02	9.908E-03	0.194
I-133	383.85			-5.364E-01	3.231E-01	4.773E-01	6.387E-02	-1.124
	510.53	+		3.362E+01	3.231E-01	Half-Life too short		
	529.87	*		-1.555E-01	3.231E-01	Half-Life too short		
	706.58			-7.342E+00	3.231E-01	Half-Life too short		
	856.28			-1.264E+01	3.231E-01	Half-Life too short		
	875.33			-3.118E+00	3.231E-01	Half-Life too short		
	1236.41			4.016E+01	3.231E-01	Half-Life too short		
	1298.22			-8.317E+00	3.231E-01	Half-Life too short		
CS-134	475.35			8.001E-01	1.933E+00	3.192E+00	3.139E-01	0.251
	563.23			3.018E-01	3.556E-01	6.157E-01	6.352E-02	0.490
	569.32			4.855E-02	1.890E-01	3.188E-01	3.306E-02	0.152
	604.70			1.851E-02	3.781E-02	5.576E-02	5.805E-03	0.332
	795.84	*		1.319E-01	4.627E-02	8.389E-02	9.285E-03	1.573
	801.93			-9.891E-02	3.853E-01	6.098E-01	6.752E-02	-0.162
	1038.57			-1.639E+00	3.622E+00	5.709E+00	5.653E-01	-0.287
	1167.94			-7.144E-01	2.315E+00	3.784E+00	3.075E-01	-0.189

---- 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			-4.744E-01	1.114E+00	1.752E+00	1.632E-01	-0.271
	268.24	*		2.451E-01	1.873E-01	2.777E-01	4.016E-02	0.883
	288.45			3.488E+15	1.873E-01	Half-Life	too short	
	417.63			-9.629E+14	1.873E-01	Half-Life	too short	
	546.56			-4.250E+14	1.873E-01	Half-Life	too short	
	836.80			3.631E+15	1.873E-01	Half-Life	too short	
	1038.76			-1.969E+15	1.873E-01	Half-Life	too short	
	1124.00			1.900E+16	1.873E-01	Half-Life	too short	
	1131.51			6.132E+14	1.873E-01	Half-Life	too short	
	1260.41	*		-4.544E+12	1.873E-01	Half-Life	too short	
	1457.56			1.732E+17	1.873E-01	Half-Life	too short	
	1678.03			-1.321E+15	1.873E-01	Half-Life	too short	
	1706.46			2.586E+15	1.873E-01	Half-Life	too short	
	1791.20			-1.362E+15	1.873E-01	Half-Life	too short	
CS-136 +	66.91			-3.195E-01	9.734E-01	1.416E+00	2.106E-01	-0.226
	86.29			3.250E+00	1.726E+00	2.447E+00	3.258E-01	1.328
	153.22			7.913E-01	8.475E-01	1.458E+00	1.489E-01	0.543
	163.89			5.540E-01	1.354E+00	2.290E+00	2.439E-01	0.242
	176.55			5.273E-01	4.839E-01	8.278E-01	8.764E-02	0.637
	273.65			-1.071E+00	7.412E-01	9.251E-01	1.309E-01	-1.158
	340.57			4.870E-01	2.085E-01	3.256E-01	3.902E-02	1.496
	818.51			-4.069E-02	8.372E-02	1.351E-01	1.497E-02	-0.301
	1048.07	*		-9.128E-02	1.372E-01	2.127E-01	2.152E-02	-0.429
	1235.34			8.440E-01	7.305E-01	1.279E+00	1.495E-01	0.660
	165.85	*		-1.990E-02	3.085E-02	5.020E-02	4.923E-03	-0.396
	162.64			2.190E-01	9.666E-01	1.626E+00	1.645E-01	0.135
	304.84			2.270E-02	1.784E+00	2.612E+00	7.770E-01	0.009
	423.70			-3.597E-01	2.441E+00	3.953E+00	1.291E+00	-0.091
CE-139 BA-140	537.32	*		1.439E-01	3.019E-01	5.122E-01	1.719E-01	0.281
	328.77			7.215E-01	3.997E-01	6.958E-01	8.790E-02	1.037
	432.53			-2.206E+00	2.749E+00	4.280E+00	4.263E-01	-0.516
	487.03			2.566E-01	1.732E-01	2.995E-01	3.105E-02	0.857
	751.79			-7.900E-01	2.182E+00	3.452E+00	4.017E-01	-0.229
	815.85			1.913E-01	3.554E-01	6.149E-01	7.291E-02	0.311
	867.82			-5.193E-01	1.679E+00	2.732E+00	3.148E-01	-0.190
	919.63			-2.797E-01	3.181E+00	4.762E+00	6.043E-01	-0.059
	925.24			-2.650E-01	1.250E+00	1.948E+00	2.226E-01	-0.136
	1596.49	*		4.181E-02	1.100E-01	1.896E-01	1.662E-02	0.221
	145.44	*		1.033E-01	7.085E-02	1.236E-01	1.125E-02	0.836
	57.37			-5.726E-03	7.085E-02	Half-Life	too short	
	231.56			-1.397E-02	7.085E-02	Half-Life	too short	
	293.26	*		9.267E-03	7.085E-02	Half-Life	too short	
CE-143 +	350.59			3.417E-01	7.085E-02	Half-Life	too short	
	490.36			-5.408E-02	7.085E-02	Half-Life	too short	
	664.57			1.573E-01	7.085E-02	Half-Life	too short	
	721.93			1.381E-02	7.085E-02	Half-Life	too short	
	80.11			-8.671E-01	2.162E+00	3.094E+00	2.675E-01	-0.280
	133.54	*		9.411E-02	2.017E-01	3.458E-01	5.368E-02	0.272
	476.78			1.025E-01	7.047E-02	1.212E-01	1.280E-02	0.846
CE-144								
PM-144								

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		4.925E-03	3.147E-02	5.011E-02	5.328E-03	0.098
		696.49	*	9.476E-04	3.304E-02	5.407E-02	5.784E-03	0.018
		778.57		-9.827E-01	2.145E+00	3.350E+00	3.678E-01	-0.293
PR-144		696.49	*	6.438E-02	2.245E+00	3.673E+00	3.928E-01	0.018
	1489.15			4.018E+00	1.029E+01	1.752E+01	1.561E+00	0.229
PM-146		453.90	*	4.152E-02	4.569E-02	7.714E-02	8.965E-03	0.538
		633.02		-2.230E-02	1.310E+00	2.157E+00	8.163E-01	-0.010
		735.90		-8.999E-02	1.464E-01	2.118E-01	6.217E-02	-0.425
		747.13		3.439E-03	8.909E-02	1.449E-01	2.250E-02	0.024
ND-147		91.11		1.602E+00	6.083E-01	7.632E-01	7.542E-02	2.100
		319.41		2.708E-01	4.458E+00	7.478E+00	9.467E-01	0.036
		439.89		-5.846E+00	8.295E+00	1.292E+01	1.245E+00	-0.452
		531.02	*	-1.495E-01	6.909E-01	1.142E+00	1.812E-01	-0.131
PM-149		285.90	*	6.559E-05	6.909E-01	Half-Life too short		
EU-152		121.78		1.187E-02	7.671E-02	1.224E-01	1.175E-02	0.097
		244.69		4.696E-01	3.628E-01	5.456E-01	6.907E-02	0.861
		344.27	*	1.627E-02	1.173E-01	1.614E-01	1.940E-02	0.101
		443.98		3.073E-01	9.554E-01	1.580E+00	1.525E-01	0.195
		778.89		-7.497E-02	2.455E-01	3.881E-01	4.258E-02	-0.193
		867.32		-5.248E-01	7.887E-01	1.250E+00	1.396E-01	-0.420
	+	964.01		7.762E-01	4.169E-01	5.305E-01	5.662E-02	1.463
		1085.78		-3.329E-01	3.664E-01	5.509E-01	5.133E-02	-0.604
		1112.02		-3.189E-02	3.269E-01	4.456E-01	3.993E-02	-0.072
		1407.95		7.851E-03	1.750E-01	2.880E-01	2.575E-02	0.027
GD-153		69.67		-6.486E-02	1.638E+00	2.410E+00	1.871E-01	-0.027
		83.37		1.403E+01	1.604E+01	2.395E+01	2.150E+00	0.586
		97.43	*	-3.341E-02	8.903E-02	1.244E-01	1.094E-02	-0.269
		103.18		-9.511E-02	1.065E-01	1.645E-01	1.406E-02	-0.578
EU-154		123.07		-3.079E-05	6.137E-02	8.635E-02	9.579E-03	0.000
		247.94		-4.334E-01	4.328E-01	5.667E-01	8.422E-02	-0.765
		591.81		-7.642E-02	5.949E-01	9.577E-01	1.245E-01	-0.080
		723.30		1.766E-01	1.846E-01	2.781E-01	3.207E-02	0.635
		756.87		-3.093E-01	7.532E-01	1.186E+00	1.626E-01	-0.261
		873.19		-2.025E-03	2.725E-01	4.525E-01	6.407E-02	-0.004
		996.32		-2.580E-01	3.859E-01	6.005E-01	1.121E-01	-0.430
		1004.76		-1.379E-01	2.138E-01	3.339E-01	4.311E-02	-0.413
		1274.45	*	-2.216E-01	1.178E-01	1.617E-01	1.827E-02	-1.370
EU-155		48.70		-9.830E-01	2.276E+00	3.359E+00	2.736E-01	-0.293
		60.01		3.075E+00	4.868E+00	7.453E+00	5.293E-01	0.413
	+	86.54		2.335E-01	1.220E-01	1.769E-01	1.663E-02	1.320
		105.31	*	3.871E-02	1.076E-01	1.747E-01	1.500E-02	0.222
TB-160	+	86.79		6.519E-01	3.405E-01	4.911E-01	4.593E-02	1.327
		197.04		1.307E-01	6.161E-01	1.002E+00	1.089E-01	0.130
		215.65		-2.219E-01	7.988E-01	1.291E+00	1.492E-01	-0.172
		298.57		3.142E-01	1.768E-01	2.049E-01	2.746E-02	1.534
		879.36	*	-4.610E-02	1.368E-01	2.218E-01	2.480E-02	-0.208
		962.29		8.869E-01	5.210E-01	9.305E-01	9.944E-02	0.953
	+	966.15		5.576E-01	2.995E-01	5.214E-01	5.553E-02	1.070
		1177.93		1.319E-01	3.440E-01	5.879E-01	4.743E-02	0.224

---- 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		-2.004E-01	6.631E-01	1.071E+00	9.208E-02	-0.187
		80.57		-1.075E-01	2.736E-01	3.916E-01	3.403E-02	-0.275
	+	184.41		2.270E-01	6.319E-02	7.539E-02	7.860E-03	3.011
		280.46		-5.466E-02	9.011E-02	1.397E-01	1.951E-02	-0.391
		410.95		2.936E-02	2.409E-01	3.969E-01	3.747E-02	0.074
		711.68	*	-2.597E-02	5.438E-02	8.568E-02	9.211E-03	-0.303
TM-171		752.31		2.546E-02	2.647E-01	4.320E-01	4.705E-02	0.059
		810.29		-8.031E-02	5.241E-02	7.700E-02	8.513E-03	-1.043
		51.35		-1.559E+01	2.994E+01	4.386E+01	3.421E+00	-0.355
		52.39		3.154E+00	1.442E+01	2.343E+01	1.798E+00	0.135
		59.40		1.857E+01	2.598E+01	3.996E+01	2.825E+00	0.465
		66.72	*	-7.777E+00	2.764E+01	4.034E+01	3.048E+00	-0.193
LU-176	+	88.36		4.590E-01	2.398E-01	3.401E-01	3.216E-02	1.350
		201.83		-3.683E-02	2.951E-02	4.579E-02	5.059E-03	-0.804
		306.84	*	-9.554E-04	2.614E-02	3.990E-02	5.234E-03	-0.024
		401.10		-5.324E+00	6.450E+00	1.011E+01	9.471E-01	-0.527
LU-177		112.95		1.184E+00	2.812E+00	4.550E+00	3.782E-01	0.260
	+	208.36	*	4.414E+00	2.655E+00	3.289E+00	3.713E-01	1.342
LU-177M		52.97		4.624E-01	1.494E+00	2.433E+00	1.851E-01	0.190
		54.07		3.921E-02	7.933E-01	1.279E+00	9.583E-02	0.031
		61.30		8.728E-01	1.503E+00	2.291E+00	1.648E-01	0.381
		121.62		7.108E-02	4.017E-01	6.413E-01	5.282E-02	0.111
		147.16		-6.730E-01	6.743E-01	1.093E+00	9.855E-02	-0.616
		171.86		-4.379E-01	5.021E-01	8.064E-01	8.064E-02	-0.543
		218.09		6.163E-01	8.957E-01	1.496E+00	1.743E-01	0.412
		268.79		1.621E+00	9.930E-01	1.485E+00	2.018E-01	1.092
		319.02		7.647E-02	2.613E-01	4.423E-01	5.605E-02	0.173
		367.43		1.332E-01	8.622E-01	1.437E+00	1.517E-01	0.093
		413.65	*	-6.985E-02	1.799E-01	2.887E-01	2.730E-02	-0.242
		56.28		-5.174E-01	8.998E-01	1.468E+00	1.069E-01	-0.352
		57.53		-2.537E-01	4.865E-01	7.947E-01	5.712E-02	-0.319
		65.20		4.385E-01	1.012E+00	1.526E+00	1.138E-01	0.287
HF-181		133.02		4.062E-02	6.908E-02	1.190E-01	1.015E-02	0.341
		136.25		-2.467E-02	5.521E-01	8.227E-01	7.096E-02	-0.030
		345.85		-9.401E-02	2.549E-01	3.377E-01	3.906E-02	-0.278
		482.03	*	-1.036E-01	4.910E-02	6.792E-02	6.705E-03	-1.525
		56.28		-1.924E-01	3.348E-01	5.462E-01	3.979E-02	-0.352
		57.53		-9.451E-02	1.811E-01	2.959E-01	2.127E-02	-0.319
W-181		65.20	*	1.620E-01	3.739E-01	5.637E-01	4.202E-02	0.287
		67.75		-5.634E-02	1.054E-01	1.617E-01	1.233E-02	-0.348
		100.10		2.318E-01	1.809E-01	3.029E-01	2.625E-02	0.765
TA-182		152.43		1.785E-01	3.424E-01	5.837E-01	5.385E-02	0.306
		222.10		-7.185E-02	3.608E-01	5.836E-01	6.887E-02	-0.123
		1001.68		3.303E+00	2.161E+00	3.788E+00	3.903E-01	0.872
	+	1121.28		6.454E-01	3.069E-01	3.206E-01	2.831E-02	2.013
		1189.05		1.612E-02	2.884E-01	4.824E-01	3.923E-02	0.033
		1221.42	*	-5.293E-02	1.728E-01	2.811E-01	2.337E-02	-0.188
		1230.97		-2.593E-01	4.807E-01	7.721E-01	6.461E-02	-0.336
RE-183		57.98		-5.060E-02	1.854E-01	3.056E-01	2.187E-02	-0.166

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		7.447E-02	1.114E-01	1.710E-01	1.209E-02	0.436
		67.20		-1.521E-01	2.064E-01	2.944E-01	2.234E-02	-0.517
		162.32	*	2.624E-02	1.136E-01	1.912E-01	1.844E-02	0.137
	+	208.81		2.537E+00	1.526E+00	1.896E+00	2.143E-01	1.338
		291.72		-2.551E-01	1.070E+00	1.549E+00	2.110E-01	-0.165
		57.98		-1.814E-01	6.643E-01	1.095E+00	7.838E-02	-0.166
		59.32		2.667E-01	3.988E-01	6.122E-01	4.330E-02	0.436
		67.20		-5.448E-01	7.393E-01	1.055E+00	8.003E-02	-0.517
		161.27		-1.751E-01	3.599E-01	5.907E-01	5.671E-02	-0.296
		216.55		1.316E-01	2.765E-01	4.593E-01	5.324E-02	0.287
		252.85	*	4.759E-02	2.480E-01	4.033E-01	5.233E-02	0.118
		318.01		1.571E-01	4.541E-01	7.705E-01	9.793E-02	0.204
		792.07		-9.734E-01	1.004E+00	1.507E+00	1.659E-01	-0.646
		903.28		-6.749E-01	1.111E+00	1.471E+00	1.642E-01	-0.459
OS-185		920.93		-1.133E-01	3.860E-01	5.966E-01	6.583E-02	-0.190
		59.72		1.757E-01	2.997E-01	4.581E-01	3.243E-02	0.383
		61.14		6.126E-02	1.668E-01	2.522E-01	1.811E-02	0.243
		69.30		-4.671E-02	2.988E-01	4.374E-01	3.383E-02	-0.107
		592.07		-5.614E-01	2.446E+00	4.002E+00	4.143E-01	-0.140
		646.12	*	-1.382E-02	4.130E-02	6.651E-02	6.990E-03	-0.208
		717.42		-1.385E-01	8.587E-01	1.384E+00	1.491E-01	-0.100
		874.81		-4.631E-02	5.511E-01	9.102E-01	1.017E-01	-0.051
		880.27		-9.144E-02	7.691E-01	1.267E+00	1.417E-01	-0.072
		155.03	*	1.148E-01	1.808E-01	3.087E-01	2.881E-02	0.372
RE-188		477.96		6.490E+00	3.313E+00	5.804E+00	5.716E-01	1.118
		633.10		1.742E-01	2.746E+00	4.544E+00	4.760E-01	0.038
	+	63.58		1.725E+02	7.456E+01	9.893E+01	7.269E+00	1.744
W-188		227.08		-9.449E-01	1.342E+01	2.179E+01	2.612E+00	-0.043
		290.67	*	-4.144E+00	8.608E+00	1.227E+01	1.676E+00	-0.338
IR-192	+	295.96		1.160E+00	2.464E-01	2.841E-01	3.844E-02	4.083
		308.46		-6.795E-02	9.799E-02	1.589E-01	2.080E-02	-0.428
		316.51	*	6.698E-04	3.594E-02	6.023E-02	7.698E-03	0.011
		468.07		3.258E-02	7.683E-02	1.109E-01	1.147E-02	0.294
AU-195		604.41		2.243E-01	5.258E-01	7.718E-01	1.100E-01	0.291
		612.46		4.360E+00	1.089E+00	1.736E+00	1.997E-01	2.511
		65.12		6.714E-02	1.736E-01	2.612E-01	1.946E-02	0.257
		66.83		-2.858E-02	9.253E-02	1.348E-01	1.020E-02	-0.212
	+	75.70		1.207E+00	2.528E-01	4.275E-01	3.522E-02	2.823
		98.88	*	3.506E-01	2.305E-01	3.834E-01	3.343E-02	0.914
	+	129.76		1.691E+01	8.432E+00	5.193E+00	4.376E-01	3.256
TL-200		367.94	*	-6.140E-04	8.432E+00	Half-Life	too short	
		579.30		1.281E-01	8.432E+00	Half-Life	too short	
		828.27		2.193E-02	8.432E+00	Half-Life	too short	
		1205.75		1.909E-02	8.432E+00	Half-Life	too short	
TL-201		68.90		-4.964E-01	1.371E+01	2.018E+01	1.555E+00	-0.025
		70.82		4.545E+00	7.786E+00	1.174E+01	9.213E-01	0.387
		80.30		-6.263E+00	1.505E+01	2.152E+01	1.864E+00	-0.291
		135.34		6.674E+01	8.237E+01	1.273E+02	1.094E+01	0.524
		167.43	*	3.555E+00	2.087E+01	3.498E+01	3.448E+00	0.102

---- 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		-1.968E-02	5.433E-01	8.000E-01	6.165E-02	-0.025
		70.82		1.797E-01	3.078E-01	4.642E-01	3.642E-02	0.387
		80.30		-2.477E-01	5.951E-01	8.510E-01	7.372E-02	-0.291
		439.56	*	-3.863E-02	9.588E-02	1.521E-01	1.464E-02	-0.254
HG-203		70.83		6.390E-01	1.094E+00	1.647E+00	2.162E-01	0.388
		72.87		1.379E+00	6.274E-01	1.056E+00	1.352E-01	1.306
		82.60		-2.796E-01	1.178E+00	1.793E+00	2.495E-01	-0.156
		279.20	*	1.433E-02	4.658E-02	7.543E-02	1.068E-02	0.190
BI-207		72.80		3.412E-01	1.658E-01	2.854E-01	2.282E-02	1.196
	+	74.97		6.575E-01	1.377E-01	2.086E-01	1.706E-02	3.152
		84.90		2.882E-01	2.047E-01	3.099E-01	2.832E-02	0.930
		569.67		1.508E-02	2.955E-02	5.043E-02	5.180E-03	0.299
		1063.62	*	-2.126E-02	5.115E-02	7.792E-02	7.480E-03	-0.273
		1770.23		4.296E-01	4.768E-01	7.762E-01	6.452E-02	0.553
TL-207		81.07		-2.371E-01	2.243E-01	3.102E-01	2.710E-02	-0.764
		83.78		1.683E-01	1.338E-01	2.021E-01	1.823E-02	0.833
		94.90		6.161E-01	2.407E-01	3.784E-01	3.383E-02	1.628
		122.32		3.855E-01	1.804E+00	2.883E+00	2.566E-01	0.134
		144.24		1.403E+00	7.303E-01	1.246E+00	1.234E-01	1.125
		154.21		2.998E-01	4.014E-01	6.871E-01	6.941E-02	0.436
	+	269.46		3.877E-01	3.086E-01	3.474E-01	4.772E-02	1.116
		323.87	*	-9.139E-01	6.985E-01	1.064E+00	2.114E-01	-0.859
	+	338.28		4.558E+00	1.940E+00	2.246E+00	3.322E-01	2.029
		445.03		2.861E-01	2.313E+00	3.785E+00	4.864E-01	0.076
PO-209		260.50		4.150E+00	9.756E+00	1.597E+01	2.120E+00	0.260
		262.80		-3.747E+01	2.895E+01	4.129E+01	5.517E+00	-0.907
		896.60	*	6.230E+00	7.180E+00	1.250E+01	1.400E+00	0.498
PB-211		404.84	*	-4.251E-01	9.439E-01	1.450E+00	9.102E-01	-0.293
		427.08		1.922E+00	2.341E+00	3.444E+00	2.145E+00	0.558
		831.96		-8.853E-01	1.272E+00	1.817E+00	1.146E+00	-0.487
BI-212	+	727.18	*	8.178E-01	4.290E-01	5.902E-01	7.050E-02	1.386
		785.46		2.587E+00	1.656E+00	2.906E+00	3.194E-01	0.890
		1620.62		1.104E+00	1.174E+00	2.133E+00	1.859E-01	0.518
PO-215		81.07		-2.371E-01	2.243E-01	3.102E-01	2.710E-02	-0.764
		83.78		1.683E-01	1.338E-01	2.021E-01	1.823E-02	0.833
		94.90		6.161E-01	2.407E-01	3.784E-01	3.383E-02	1.628
		122.32		3.855E-01	1.804E+00	2.883E+00	2.566E-01	0.134
		144.24		1.403E+00	7.303E-01	1.246E+00	1.234E-01	1.125
		154.21		2.998E-01	4.014E-01	6.871E-01	6.941E-02	0.436
	+	269.46		3.877E-01	3.086E-01	3.474E-01	4.772E-02	1.116
		323.87	*	-9.139E-01	6.985E-01	1.064E+00	2.114E-01	-0.859
	+	338.28		4.558E+00	1.940E+00	2.246E+00	3.322E-01	2.029
		445.03		2.861E-01	2.313E+00	3.785E+00	4.864E-01	0.076
RN-219	+	271.23		4.974E-01	3.969E-01	4.532E-01	6.713E-02	1.098
		401.81	*	-2.288E-01	3.959E-01	6.279E-01	9.715E-02	-0.364
RN-220		549.76	*	6.567E+00	2.519E+01	4.262E+01	4.344E+00	0.154
RA-223		81.07		-2.371E-01	2.243E-01	3.102E-01	2.710E-02	-0.764
		83.78		1.683E-01	1.338E-01	2.021E-01	1.823E-02	0.833
		94.90		6.161E-01	2.407E-01	3.784E-01	3.383E-02	1.628

---- 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		3.855E-01	1.804E+00	2.883E+00	2.566E-01	0.134
		144.24		1.403E+00	7.303E-01	1.246E+00	1.234E-01	1.125
		154.21		2.998E-01	4.014E-01	6.871E-01	6.941E-02	0.436
	+	269.46		3.877E-01	3.086E-01	3.474E-01	4.772E-02	1.116
		323.87	*	-9.139E-01	6.985E-01	1.064E+00	2.114E-01	-0.859
	+	338.28		4.558E+00	1.940E+00	2.246E+00	3.322E-01	2.029
		445.03		2.861E-01	2.313E+00	3.785E+00	4.864E-01	0.076
		79.80		9.813E-02	1.646E+00	2.407E+00	5.176E-01	0.041
		236.00		1.116E+00	3.326E-01	4.778E-01	7.209E-02	2.335
		256.20	*	-4.607E-02	3.946E-01	6.326E-01	1.154E-01	-0.073
		286.10		-6.726E-02	1.602E+00	2.552E+00	4.350E-01	-0.026
	+	299.80		3.066E+00	1.902E+00	2.455E+00	4.971E-01	1.249
TH-227		304.40		5.163E-01	1.987E+00	2.949E+00	6.186E-01	0.175
		334.20		-2.598E+00	2.687E+00	3.577E+00	7.572E-01	-0.726
		79.80		9.813E-02	1.646E+00	2.407E+00	5.242E-01	0.041
	+	94.00		1.447E+01	4.975E+00	4.156E+00	9.114E-01	3.482
		236.00		1.116E+00	3.274E-01	4.778E-01	6.764E-02	2.335
		256.20	*	-4.607E-02	3.946E-01	6.326E-01	1.302E-01	-0.073
		286.10		-6.726E-02	1.603E+00	2.552E+00	2.577E+00	-0.026
	+	299.80		3.066E+00	1.902E+00	2.455E+00	4.971E-01	1.249
		304.40		5.163E-01	1.987E+00	2.949E+00	6.186E-01	0.175
		334.20		-2.598E+00	2.687E+00	3.577E+00	7.572E-01	-0.726
	+	85.43		4.340E-01	2.267E-01	3.153E-01	2.900E-02	1.376
		88.47		9.052E-02	1.665E-01	1.955E-01	1.847E-02	0.463
PA-231		100.00		2.284E-01	1.839E-01	3.075E-01	2.666E-02	0.743
		193.63	*	-8.206E-02	5.119E-01	8.389E-01	9.019E-02	-0.098
		210.97		1.391E+00	8.739E-01	1.333E+00	1.518E-01	1.043
		283.67	*	-4.791E-01	1.583E+00	2.489E+00	4.647E-01	-0.192
	+	301.29		1.226E+00	7.453E-01	9.722E-01	1.546E-01	1.261
		81.07		-2.371E-01	2.243E-01	3.102E-01	2.710E-02	-0.764
		83.78		1.683E-01	1.338E-01	2.021E-01	1.823E-02	0.833
		94.90		6.161E-01	2.407E-01	3.784E-01	3.383E-02	1.628
		122.32		3.855E-01	1.804E+00	2.883E+00	2.566E-01	0.134
		144.24		1.403E+00	7.303E-01	1.246E+00	1.234E-01	1.125
		154.21		2.998E-01	4.014E-01	6.871E-01	6.941E-02	0.436
	+	269.46		3.877E-01	3.086E-01	3.474E-01	4.772E-02	1.116
U-231		323.87	*	-9.139E-01	6.985E-01	1.064E+00	2.114E-01	-0.859
	+	338.28		4.558E+00	1.940E+00	2.246E+00	3.322E-01	2.029
		445.03		2.861E-01	2.313E+00	3.785E+00	4.864E-01	0.076
		84.21		1.898E+01	1.262E+01	1.918E+01	1.739E+00	0.989
	+	92.29		3.150E+01	8.812E+00	1.020E+01	9.303E-01	3.088
		95.87	*	-1.867E+00	2.546E+00	3.518E+00	3.124E-01	-0.531
		108.00		-2.189E+00	4.571E+00	7.172E+00	6.029E-01	-0.305
	+	75.28		1.918E+01	4.699E+00	6.338E+00	9.581E-01	3.027
	+	86.59		3.789E+00	2.200E+00	2.870E+00	7.766E-01	1.320
	+	300.12		8.548E-01	5.244E-01	6.793E-01	1.225E-01	1.258
		311.98	*	-6.474E-03	6.197E-02	1.034E-01	1.355E-02	-0.063
		340.50		1.998E+00	9.111E-01	1.245E+00	3.134E-01	1.604
		398.62		-1.075E-01	2.037E+00	3.336E+00	8.966E-01	-0.032



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		5.219E-01	1.632E+00	2.708E+00	5.931E-01	0.193
		63.00		4.769E+00	2.151E+00	2.816E+00	4.171E-01	1.694
		94.67		6.324E-01	1.907E-01	2.894E-01	3.657E-02	2.185
		98.44		1.125E-01	1.140E-01	1.514E-01	8.449E-02	0.743
		99.86		5.426E-01	4.773E-01	7.855E-01	6.815E-02	0.691
	+	111.00		1.389E-01	1.928E-01	3.148E-01	3.744E-02	0.441
		131.20		6.224E-01	3.104E-01	1.802E-01	1.526E-02	3.455
		152.70		1.435E-01	3.248E-01	5.512E-01	9.572E-02	0.260
		186.00		8.172E+00	3.344E+00	2.855E+00	9.072E-01	2.862
		226.40		-1.743E-01	4.027E-01	6.427E-01	1.002E-01	-0.271
		227.20		-1.896E-02	4.313E-01	7.008E-01	8.405E-02	-0.027
		248.90		-3.186E-01	9.006E-01	1.313E+00	3.196E-01	-0.243
		293.70		5.672E+00	1.446E+00	1.631E+00	3.298E-01	3.478
		369.80		-9.326E-01	8.668E-01	1.315E+00	2.966E-01	-0.709
		568.70		-1.868E-01	9.570E-01	1.576E+00	1.618E-01	-0.119
		569.50		1.114E-01	2.608E-01	4.434E-01	4.554E-02	0.251
		574.00		-1.214E+00	1.631E+00	2.292E+00	2.358E-01	-0.529
		699.00		-4.077E-01	6.799E-01	1.061E+00	2.134E-01	-0.384
		706.10		2.730E-02	9.551E-01	1.561E+00	7.033E-01	0.017
		733.00		3.470E-01	3.806E-01	5.665E-01	1.311E-01	0.612
		742.81		1.063E+00	1.465E+00	2.185E+00	1.476E+00	0.487
		796.30		2.384E+00	1.094E+00	1.634E+00	4.561E-01	1.459
		805.60		8.479E-01	9.132E-01	1.552E+00	4.876E-01	0.546
		819.60		-9.823E-01	1.148E+00	1.697E+00	6.561E-01	-0.579
		826.30		-6.435E-02	7.392E-01	1.227E+00	5.554E-01	-0.052
		831.60		-2.908E-01	5.891E-01	9.417E-01	2.887E-01	-0.309
		876.40		-5.036E-02	7.735E-01	1.276E+00	1.315E+00	-0.039
		880.51		-1.094E-01	2.716E-01	4.385E-01	4.904E-02	-0.249
		883.24		2.152E-01	3.066E-01	4.712E-01	3.185E-01	0.457
		899.00		3.136E-01	8.156E-01	1.365E+00	6.047E-01	0.230
		925.00		-4.036E-01	1.003E+00	1.533E+00	1.687E-01	-0.263
		926.50		4.905E-02	1.597E-01	2.407E-01	6.302E-02	0.204
		946.00	*	1.870E-02	2.663E-01	4.413E-01	8.772E-02	0.042
		949.00		-5.289E-02	4.081E-01	6.665E-01	7.201E-02	-0.079
		980.50		-4.445E-01	6.884E-01	1.075E+00	1.131E-01	-0.413
		1394.10		-7.106E-01	1.177E+00	1.657E+00	1.079E+00	-0.429
	PA-234M	766.42		1.396E+01	1.529E+01	2.027E+01	1.037E+01	0.689
		1001.03	*	7.221E+00	4.809E+00	8.394E+00	9.620E-01	0.860
	U-235	89.95		-2.762E+00	1.936E+00	1.787E+00	5.551E-01	-1.546
		93.35		4.502E+00	1.740E+00	1.439E+00	4.051E-01	3.129
		105.00		4.267E-01	1.050E+00	1.697E+00	5.057E-01	0.251
		143.76	*	3.208E-01	2.293E-01	3.808E-01	6.718E-02	0.842
		163.35		1.433E-01	4.690E-01	7.897E-01	1.547E-01	0.181
	NP-236	185.71		3.027E-01	8.424E-02	1.057E-01	1.107E-02	2.864
		205.31		2.896E-01	6.101E-01	8.808E-01	1.794E-01	0.329
		94.67		4.846E-01	1.385E-01	2.200E-01	1.970E-02	2.203
		98.44		8.498E-02	7.231E-02	1.144E-01	1.000E-02	0.743
		111.00		1.051E-01	1.455E-01	2.381E-01	1.987E-02	0.441
		160.31	*	-3.839E-02	7.902E-02	1.298E-01	1.240E-02	-0.296

---- 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		2.110E-01	1.593E-01	2.635E-01	2.290E-02	0.801
		117.00	*	-1.034E-01	1.953E-01	3.037E-01	2.510E-02	-0.340
	+	209.75		1.909E+00	1.148E+00	1.409E+00	1.597E-01	1.355
		228.18		6.702E-02	2.257E-01	3.713E-01	4.467E-02	0.180
		277.60		3.033E-01	1.919E-01	3.201E-01	4.462E-02	0.948
		334.30		-1.109E+00	1.470E+00	2.021E+00	2.437E-01	-0.549
AM-241		59.54	*	1.197E-01	1.506E-01	2.323E-01	1.816E-02	0.515
CM-243		99.55		2.172E-01	1.640E-01	2.712E-01	2.357E-02	0.801
		103.76	*	-1.601E-02	9.542E-02	1.521E-01	1.296E-02	-0.105
		117.00		-1.064E-01	2.010E-01	3.126E-01	2.583E-02	-0.340
	+	209.75		1.882E+00	1.132E+00	1.389E+00	1.575E-01	1.355
		228.18		6.774E-02	2.281E-01	3.753E-01	4.515E-02	0.180
		277.60		3.059E-01	1.935E-01	3.228E-01	4.500E-02	0.948
AM-246		798.80		-1.176E-01	1.412E-01	2.142E-01	2.362E-02	-0.549
		1036.00		-6.994E-02	2.755E-01	4.414E-01	4.383E-02	-0.158
		1062.04		-1.319E-01	2.286E-01	3.443E-01	3.313E-02	-0.383
		1078.86	*	1.832E-02	1.304E-01	2.145E-01	2.017E-02	0.085
		278.00		8.005E-01	7.910E-01	1.308E+00	1.825E-01	0.612
CM-247		287.40		9.819E-01	1.258E+00	2.069E+00	2.846E-01	0.475
		402.60	*	-1.189E-02	3.528E-02	5.686E-02	5.334E-03	-0.209
CF-249		252.85		1.751E-01	9.126E-01	1.484E+00	1.925E-01	0.118
		333.44		-2.719E-01	2.041E-01	2.680E-01	3.242E-02	-1.014
CF-251		387.95	*	9.176E-02	4.225E-02	7.466E-02	7.096E-03	1.229
		176.60	*	1.418E-01	1.296E-01	2.219E-01	2.254E-02	0.639
		227.00		-2.342E-02	3.841E-01	6.238E-01	7.476E-02	-0.038
		285.00		-3.920E-01	1.824E+00	2.883E+00	3.987E-01	-0.136

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                               2040 Savage Road
*                               Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101005
* Acquisition date   : 2-FEB-2010 09:46:46 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 02:00:02.11                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101005                      Analyst initials: MXR1
* Batch Number       : 944037                          Sample Quantity : 1.1686E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight   : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope      :
* MSD DPM            : 0.000                             MSD Isotope      :
* LCS DPM            : 0.000                             LCS Isotope      :
* LCSD DPM           : 0.000                             LCSD Isotope     :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.554E+01	2.749E+00	5.645E-01	0.000E+00
CD-109	1.983E+00	1.015E+00	1.581E+00	0.000E+00
SN-126	1.935E-01	9.906E-02	1.442E-01	0.000E+00
BA-137M	7.521E-01	1.118E-01	5.481E-02	0.000E+00
CS-137	7.950E-01	1.183E-01	5.794E-02	0.000E+00
TL-208	4.554E-01	8.905E-02	5.466E-02	0.000E+00
BI-210	2.914E+00	5.043E+00	4.957E+00	0.000E+00
PB-210	2.914E+00	5.043E+00	4.957E+00	0.000E+00
PO-210	2.914E+00	5.042E+00	4.957E+00	0.000E+00
BI-211	3.852E+00	5.854E-01	3.221E-01	0.000E+00
PB-212	1.554E+00	2.267E-01	9.159E-02	0.000E+00
PO-212	1.554E+00	2.267E-01	9.159E-02	0.000E+00
BI-214	1.124E+00	1.857E-01	1.099E-01	0.000E+00
PB-214	1.340E+00	2.148E-01	1.089E-01	0.000E+00
PO-214	1.340E+00	2.148E-01	1.089E-01	0.000E+00
PO-216	1.554E+00	2.267E-01	9.159E-02	0.000E+00
PO-218	1.340E+00	2.148E-01	1.089E-01	0.000E+00
RA-224	4.372E+00	1.234E+00	1.041E+00	0.000E+00
RA-226	1.124E+00	1.857E-01	1.099E-01	0.000E+00
AC-228	1.564E+00	3.150E-01	1.873E-01	0.000E+00
RA-228	1.564E+00	3.150E-01	1.873E-01	0.000E+00
TH-228	1.585E+00	2.312E-01	9.342E-02	0.000E+00
TH-230	1.123E+00	1.857E-01	1.099E-01	0.000E+00
TH-232	1.564E+00	3.150E-01	1.873E-01	0.000E+00
TH-234	4.092E+00	1.845E+00	1.926E+00	0.000E+00
U-234	1.123E+00	1.857E-01	1.099E-01	0.000E+00
NP-237	5.683E-01	3.128E-01	4.080E-01	0.000E+00
U-238	4.092E+00	1.845E+00	1.926E+00	0.000E+00
AM-243	3.662E-01	7.517E-02	8.172E-02	0.000E+00
ANH-511	7.163E-02	7.088E-02	4.640E-02	0.000E+00

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

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	0.000E+00	3.458E-01	6.203E-01	0.000E+00	NOT IDENT.
NA-22	-8.036E-02	4.100E-02	5.767E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.463E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.711E-02	2.490E-02	3.708E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.702E-02	7.433E-02	0.000E+00	FAIL ABUN
SC-46	-3.009E-02	3.869E-02	6.201E-02	0.000E+00	FAIL ABUN
V-48	4.907E-02	7.978E-02	1.393E-01	0.000E+00	NOT IDENT.
CR-51	-3.885E-02	4.036E-01	6.948E-01	0.000E+00	NOT IDENT.
MN-52	3.295E-01	3.976E-01	7.111E-01	0.000E+00	FAIL ABUN
MN-54	-9.097E-03	3.548E-02	5.964E-02	0.000E+00	NOT IDENT.
CO-56	2.243E-02	3.845E-02	6.771E-02	0.000E+00	NOT IDENT.
CO-57	7.293E-03	2.594E-02	4.336E-02	0.000E+00	NOT IDENT.
CO-58	-4.123E-02	3.511E-02	5.478E-02	0.000E+00	NOT IDENT.
FE-59	-6.270E-02	9.079E-02	1.424E-01	0.000E+00	NOT IDENT.
CO-60	6.980E-03	3.526E-02	6.013E-02	0.000E+00	NOT IDENT.
ZN-65	1.352E-01	9.556E-02	1.522E-01	0.000E+00	NOT IDENT.
GE-68	1.161E+00	1.111E+00	1.978E+00	0.000E+00	NOT IDENT.
AS-73	-9.472E-03	7.630E-01	1.291E+00	0.000E+00	NOT IDENT.
AS-74	-5.684E-02	1.014E-01	1.668E-01	0.000E+00	NOT IDENT.
SE-75	-1.477E-02	5.132E-02	7.311E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	4.146E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-4.276E-01	4.063E-01	6.195E-01	0.000E+00	NOT IDENT.
RB-83	-2.237E-02	7.044E-02	1.138E-01	0.000E+00	NOT IDENT.
RB-84	2.130E-02	7.070E-02	1.223E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	8.846E+00	1.430E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.770E-02	7.712E-02	0.000E+00	NOT IDENT.
RB-86	5.044E-01	8.122E-01	1.410E+00	0.000E+00	NOT IDENT.
Y-88	3.028E-02	3.031E-02	5.691E-02	0.000E+00	NOT IDENT.
ZR-88	-5.666E-02	3.233E-02	4.946E-02	0.000E+00	NOT IDENT.
Y-91	1.366E+00	1.790E+01	3.051E+01	0.000E+00	NOT IDENT.
NB-94	2.260E-02	3.049E-02	5.310E-02	0.000E+00	NOT IDENT.
NB-95	6.875E-02	4.992E-02	7.808E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.479E-01	2.319E-01	0.000E+00	NOT IDENT.
ZR-95	2.531E-02	7.054E-02	1.196E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.379E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.383E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.550E+01	3.546E+01	5.712E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.332E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.415E-03	3.378E-02	5.693E-02	0.000E+00	NOT IDENT.
RH-102	-2.455E-03	2.936E-02	4.861E-02	0.000E+00	NOT IDENT.
RU-103	1.379E-02	4.435E-02	7.461E-02	0.000E+00	FAIL ABUN
RH-106	1.955E-03	2.986E-01	5.061E-01	0.000E+00	FAIL ABUN
RU-106	1.955E-03	2.986E-01	5.061E-01	0.000E+00	FAIL ABUN
AG-108M	-5.737E-04	3.271E-02	5.486E-02	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	4.237E-02	7.086E-02	0.000E+00	NOT IDENT.
IN-111	-2.818E-01	3.716E+00	5.416E+00	0.000E+00	NOT IDENT.
IN-113M	-5.329E-02	4.683E-02	7.475E-02	0.000E+00	NOT IDENT.
SN-113	-5.329E-02	4.683E-02	7.475E-02	0.000E+00	NOT IDENT.
IN-114M	-9.839E-02	2.177E-01	3.200E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.366E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-1.869E-02	6.876E-02	1.186E-01	0.000E+00	NOT IDENT.
SB-122	1.765E+00	6.885E+00	1.193E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.444E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-7.658E-03	2.870E-02	4.950E-02	0.000E+00	NOT IDENT.
I-124	9.571E-01	1.591E+00	2.428E+00	0.000E+00	NOT IDENT.
SB-124	-2.121E-04	6.881E-02	1.157E-01	0.000E+00	FAIL ABUN
SB-125	2.641E-02	9.125E-02	1.556E-01	0.000E+00	FAIL ABUN
TE-125M	-6.263E-01	9.989E+00	1.664E+01	0.000E+00	NOT IDENT.
I-126	3.160E-02	2.544E-01	3.710E-01	0.000E+00	NOT IDENT.
SB-126	-6.208E-02	1.965E-01	2.848E-01	0.000E+00	FAIL ABUN
SB-127	1.685E-01	2.979E+00	5.015E+00	0.000E+00	NOT IDENT.
XE-127	1.326E-02	5.489E-02	8.753E-02	0.000E+00	NOT IDENT.
I-131	5.468E-03	1.566E-01	2.678E-01	0.000E+00	NOT IDENT.
TE-132	5.574E-01	1.874E+00	3.194E+00	0.000E+00	NOT IDENT.
BA-133	1.285E-02	4.429E-02	6.706E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.499E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	4.534E-02	8.414E-02	0.000E+00	NOT IDENT.
CS-135	2.451E-01	1.835E-01	2.817E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	9.122E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.128E-02	1.344E-01	2.127E-01	0.000E+00	FAIL ABUN
CE-139	-1.990E-02	3.023E-02	5.117E-02	0.000E+00	NOT IDENT.
BA-140	1.439E-01	2.959E-01	5.159E-01	0.000E+00	NOT IDENT.
LA-140	4.181E-02	1.078E-01	1.887E-01	0.000E+00	NOT IDENT.
CE-141	1.033E-01	6.943E-02	1.261E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.009E+03	0.000E+00	0.000E+00	SHORT HLIF

CE-144	9.411E-02	1.977E-01	3.533E-01	0.000E+00	NOT IDENT.
PM-144	9.476E-04	3.238E-02	5.431E-02	0.000E+00	NOT IDENT.
PR-144	6.438E-02	2.200E+00	3.690E+00	0.000E+00	NOT IDENT.
PM-146	4.152E-02	4.477E-02	7.783E-02	0.000E+00	NOT IDENT.
ND-147	-1.495E-01	6.770E-01	1.151E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	4.171E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	1.627E-02	1.149E-01	1.633E-01	0.000E+00	FAIL ABUN
GD-153	-3.341E-02	8.725E-02	1.275E-01	0.000E+00	NOT IDENT.
EU-154	-2.216E-01	1.155E-01	1.614E-01	0.000E+00	NOT IDENT.
EU-155	3.871E-02	1.054E-01	1.789E-01	0.000E+00	FAIL ABUN
TB-160	-4.610E-02	1.341E-01	2.223E-01	0.000E+00	FAIL ABUN
HO-166M	-2.597E-02	5.329E-02	8.604E-02	0.000E+00	FAIL ABUN
TM-171	-7.777E+00	2.709E+01	4.150E+01	0.000E+00	NOT IDENT.
LU-176	-9.554E-04	2.562E-02	4.041E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.602E+00	3.345E+00	0.000E+00	FAIL ABUN
LU-177M	-6.985E-02	1.763E-01	2.915E-01	0.000E+00	NOT IDENT.
HF-181	-1.036E-01	4.812E-02	6.848E-02	0.000E+00	NOT IDENT.
W-181	1.620E-01	3.664E-01	5.801E-01	0.000E+00	NOT IDENT.
TA-182	-5.293E-02	1.693E-01	2.806E-01	0.000E+00	FAIL ABUN
RE-183	2.624E-02	1.113E-01	1.949E-01	0.000E+00	FAIL ABUN
RE-184	4.759E-02	2.431E-01	4.093E-01	0.000E+00	NOT IDENT.
OS-185	-1.382E-02	4.048E-02	6.685E-02	0.000E+00	NOT IDENT.
RE-188	1.148E-01	1.772E-01	3.149E-01	0.000E+00	NOT IDENT.
W-188	-4.144E+00	8.435E+00	1.244E+01	0.000E+00	FAIL ABUN
IR-192	6.698E-04	3.522E-02	6.100E-02	0.000E+00	FAIL ABUN
AU-195	3.506E-01	2.259E-01	3.928E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.017E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	3.555E+00	2.046E+01	3.566E+01	0.000E+00	NOT IDENT.
TL-202	-3.863E-02	9.396E-02	1.535E-01	0.000E+00	NOT IDENT.
HG-203	1.433E-02	4.565E-02	7.649E-02	0.000E+00	NOT IDENT.
BI-207	-2.126E-02	5.013E-02	7.791E-02	0.000E+00	FAIL ABUN
TL-207	-9.139E-01	6.845E-01	1.077E+00	0.000E+00	FAIL ABUN
PO-209	6.230E+00	7.037E+00	1.252E+01	0.000E+00	NOT IDENT.
PB-211	-4.251E-01	9.250E-01	1.464E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.204E-01	5.925E-01	0.000E+00	FAIL ABUN
PO-215	-9.139E-01	6.845E-01	1.077E+00	0.000E+00	FAIL ABUN
RN-219	-2.288E-01	3.880E-01	6.343E-01	0.000E+00	FAIL ABUN
RN-220	6.567E+00	2.468E+01	4.291E+01	0.000E+00	NOT IDENT.
RA-223	-9.139E-01	6.845E-01	1.077E+00	0.000E+00	FAIL ABUN
AC-227	-4.607E-02	3.867E-01	6.420E-01	0.000E+00	FAIL ABUN
TH-227	-4.607E-02	3.867E-01	6.420E-01	0.000E+00	FAIL ABUN
TH-229	-8.206E-02	5.017E-01	8.537E-01	0.000E+00	FAIL ABUN
PA-231	-4.791E-01	1.551E+00	2.523E+00	0.000E+00	FAIL ABUN
TH-231	-9.139E-01	6.845E-01	1.077E+00	0.000E+00	FAIL ABUN
U-231	-1.867E+00	2.495E+00	3.606E+00	0.000E+00	FAIL ABUN
PA-233	-6.474E-03	6.073E-02	1.047E-01	0.000E+00	FAIL ABUN
PA-234	1.870E-02	2.610E-01	4.418E-01	0.000E+00	FAIL ABUN
PA-234M	7.221E+00	4.713E+00	8.399E+00	0.000E+00	NOT IDENT.
U-235	3.208E-01	2.247E-01	3.888E-01	0.000E+00	FAIL ABUN
NP-236	-3.839E-02	7.744E-02	1.323E-01	0.000E+00	NOT IDENT.
NP-239	-1.034E-01	1.914E-01	3.107E-01	0.000E+00	FAIL ABUN
AM-241	1.197E-01	1.476E-01	2.392E-01	0.000E+00	NOT IDENT.
CM-243	-1.601E-02	9.351E-02	1.557E-01	0.000E+00	FAIL ABUN
AM-246	1.832E-02	1.278E-01	2.144E-01	0.000E+00	NOT IDENT.
CM-247	-1.189E-02	3.457E-02	5.743E-02	0.000E+00	NOT IDENT.
CF-249	0.000E+00	4.140E-02	7.545E-02	0.000E+00	NOT IDENT.
CF-251	1.418E-01	1.270E-01	2.260E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101005.CNF;1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 09:46:46.
Sample ID        : G245101005 Sample quantity   : 1.16860E+02 GRAM
Detector name    : GAM22 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.11 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity       : 5.00000
Batch ID        : 944037 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	1619	10.67*	1.909E+00	2.554E+01	2.554E+01	10.99
CD-109	88.03	166	3.72*	7.453E+00	1.925E+00	1.983E+00	52.23
SN-126	64.28	211	9.60	4.353E+00	1.620E+00	1.620E+00	44.99
	86.94	166	8.90	7.453E+00	8.045E-01	8.045E-01	66.06
	87.57	166	37.00*	7.453E+00	1.935E-01	1.935E-01	52.23
BA-137M	661.65	755	89.98*	3.591E+00	7.511E-01	7.521E-01	15.17
CS-137	661.65	755	85.12*	3.591E+00	7.940E-01	7.950E-01	15.18
TL-208	277.35	-----	6.80	6.182E+00	-----	Line Not Found	-----
	510.84	96	21.60	4.300E+00	3.316E-01	3.316E-01	101.31
	583.14	469	84.20*	3.931E+00	4.554E-01	4.554E-01	19.95
	860.37	-----	12.46	2.924E+00	-----	Line Not Found	-----
BI-210	46.50	45	4.05*	1.240E+00	2.909E+00	2.914E+00	176.60
PB-210	46.50	45	4.05*	1.240E+00	2.909E+00	2.914E+00	176.60
PO-210	46.50	45	4.05*	1.240E+00	2.909E+00	2.914E+00	176.55
BI-211	72.87	-----	1.27	5.897E+00	-----	Line Not Found	-----
	351.07	838	12.94*	5.401E+00	3.852E+00	3.852E+00	15.51
PB-212	74.81	464	10.70	6.166E+00	2.259E+00	2.259E+00	22.94
	77.11	711	18.00	6.460E+00	1.964E+00	1.964E+00	16.05
	87.30	166	8.00	7.453E+00	8.951E-01	8.951E-01	53.18
	238.63	1448	44.60*	6.710E+00	1.554E+00	1.554E+00	14.89
	300.09	104	3.41	5.915E+00	1.654E+00	1.654E+00	60.43
PO-212	74.81	464	10.70	6.166E+00	2.259E+00	2.259E+00	22.94
	77.11	711	18.00	6.460E+00	1.964E+00	1.964E+00	16.05
	87.30	166	8.00	7.453E+00	8.951E-01	8.951E-01	53.18
	115.19	-----	0.60	8.535E+00	-----	Line Not Found	-----
	238.63	1448	44.60*	6.710E+00	1.554E+00	1.554E+00	14.89
	300.09	104	3.41	5.915E+00	1.654E+00	1.654E+00	60.43
BI-214	609.31	617	46.30*	3.810E+00	1.123E+00	1.124E+00	16.87
	1120.29	146	15.10	2.346E+00	1.326E+00	1.326E+00	48.01
	1764.49	140	15.80	1.716E+00	1.655E+00	1.655E+00	27.09
PB-214	74.81	464	6.21	6.166E+00	3.892E+00	3.892E+00	22.22
	77.11	711	10.50	6.460E+00	3.368E+00	3.368E+00	17.76

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	166	4.67	7.453E+00	1.533E+00	1.533E+00	52.80
	241.98	358	7.49	6.664E+00	2.306E+00	2.306E+00	29.34
	295.21	519	19.20	5.968E+00	1.454E+00	1.454E+00	22.12
	351.92	838	37.20*	5.401E+00	1.340E+00	1.340E+00	16.36
	74.81	464	6.21	6.166E+00	3.892E+00	3.892E+00	22.22
	77.11	711	10.50	6.460E+00	3.368E+00	3.368E+00	17.76
	87.30	166	4.67	7.453E+00	1.533E+00	1.533E+00	52.80
	241.98	358	7.49	6.664E+00	2.306E+00	2.306E+00	29.34
PO-216	295.21	519	19.20	5.968E+00	1.454E+00	1.454E+00	22.12
	351.92	838	37.20*	5.401E+00	1.340E+00	1.340E+00	16.36
	74.81	464	10.70	6.166E+00	2.259E+00	2.259E+00	22.94
	77.11	711	18.00	6.460E+00	1.964E+00	1.964E+00	16.05
	87.30	166	8.00	7.453E+00	8.951E-01	8.951E-01	53.18
	238.63	1448	44.60*	6.710E+00	1.554E+00	1.554E+00	14.89
	300.09	104	3.41	5.915E+00	1.654E+00	1.654E+00	60.43
	74.81	464	6.21	6.166E+00	3.892E+00	3.892E+00	22.22
PO-218	77.11	711	10.50	6.460E+00	3.368E+00	3.368E+00	17.76
	87.30	166	4.67	7.453E+00	1.533E+00	1.533E+00	52.80
	241.98	358	7.49	6.664E+00	2.306E+00	2.306E+00	29.34
	295.21	519	19.20	5.968E+00	1.454E+00	1.454E+00	22.12
	351.92	838	37.20*	5.401E+00	1.340E+00	1.340E+00	16.36
	240.98	358	3.95*	6.664E+00	4.372E+00	4.372E+00	28.80
	609.31	617	46.30*	3.810E+00	1.123E+00	1.124E+00	16.87
	1120.29	146	15.10	2.346E+00	1.326E+00	1.326E+00	48.01
AC-228	1764.49	140	15.80	1.716E+00	1.655E+00	1.655E+00	27.09
	338.32	214	11.40	5.526E+00	1.091E+00	1.091E+00	57.99
	911.07	376	27.70*	2.789E+00	1.564E+00	1.564E+00	20.55
	969.11	205	16.60	2.649E+00	1.494E+00	1.494E+00	33.13
	338.32	214	11.40	5.526E+00	1.091E+00	1.091E+00	57.99
	911.07	376	27.70*	2.789E+00	1.564E+00	1.564E+00	20.55
	969.11	205	16.60	2.649E+00	1.494E+00	1.494E+00	33.13
	74.81	464	10.70	6.166E+00	2.259E+00	2.304E+00	20.97
TH-228	77.11	711	18.00	6.460E+00	1.964E+00	2.004E+00	16.05
	87.30	166	8.00	7.453E+00	8.951E-01	9.130E-01	52.23
	238.63	1448	44.60*	6.710E+00	1.554E+00	1.585E+00	14.89
	300.09	104	3.41	5.915E+00	1.654E+00	1.688E+00	84.01
	609.31	617	46.30*	3.810E+00	1.123E+00	1.123E+00	16.87
	1120.29	146	15.10	2.346E+00	1.326E+00	1.326E+00	48.01
	1764.49	140	15.80	1.716E+00	1.655E+00	1.655E+00	27.09
	338.32	214	11.40	5.526E+00	1.091E+00	1.091E+00	41.65
TH-232	911.07	376	27.70*	2.789E+00	1.564E+00	1.564E+00	20.55
	969.11	205	16.60	2.649E+00	1.494E+00	1.494E+00	33.13
	63.29	211	3.80*	4.353E+00	4.092E+00	4.092E+00	46.02
	92.38	497	5.41	7.884E+00	3.745E+00	3.745E+00	32.17
	609.31	617	46.30*	3.810E+00	1.123E+00	1.123E+00	16.87
	1120.29	146	15.10	2.346E+00	1.326E+00	1.326E+00	48.01
	1764.49	140	15.80	1.716E+00	1.655E+00	1.655E+00	27.09
	86.50	166	12.60*	7.453E+00	5.683E-01	5.683E-01	56.16
NP-237	95.87	-----	2.60	8.032E+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	211	3.80*	4.353E+00	4.092E+00	4.092E+00	46.02
	92.38	497	5.41	7.884E+00	3.745E+00	3.745E+00	27.97
AM-243	74.67	464	66.00*	6.166E+00	3.662E-01	3.662E-01	20.94
	86.72	166	0.34	7.453E+00	2.131E+01	2.131E+01	52.23
	117.66	-----	0.55	8.550E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.387E+00	-----	Line Not Found	-----
ANH-511	511.00	96	100.00*	4.300E+00	7.163E-02	7.163E-02	100.97

Flag: "\*" = Keyline



Total number of lines in spectrum 31  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 29 93.55%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.554E+01	2.554E+01	0.281E+01	10.99	
CD-109	464.00D	1.03	1.925E+00	1.983E+00	1.036E+00	52.23	
SN-126	1.00E+05Y	1.00	1.935E-01	1.935E-01	1.011E-01	52.23	
BA-137M	30.17Y	1.00	7.511E-01	7.521E-01	1.141E-01	15.17	
CS-137	30.17Y	1.00	7.940E-01	7.950E-01	1.207E-01	15.18	
TL-208	1.41E+10Y	1.00	4.554E-01	4.554E-01	0.909E-01	19.95	
BI-210	22.26Y	1.00	2.909E+00	2.914E+00	5.146E+00	176.60	
PB-210	22.26Y	1.00	2.909E+00	2.914E+00	5.146E+00	176.60	
PO-210	22.26Y	1.00	2.909E+00	2.914E+00	5.145E+00	176.55	
BI-211	7.04E+08Y	1.00	3.852E+00	3.852E+00	0.597E+00	15.51	
PB-212	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.231E+00	14.89	
PO-212	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.231E+00	14.89	
BI-214	1600.00Y	1.00	1.123E+00	1.124E+00	0.190E+00	16.87	
PB-214	1600.00Y	1.00	1.340E+00	1.340E+00	0.219E+00	16.36	
PO-214	1600.00Y	1.00	1.340E+00	1.340E+00	0.219E+00	16.36	
PO-216	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.231E+00	14.89	
PO-218	1600.00Y	1.00	1.340E+00	1.340E+00	0.219E+00	16.36	
RA-224	1.41E+10Y	1.00	4.372E+00	4.372E+00	1.259E+00	28.80	
RA-226	1600.00Y	1.00	1.123E+00	1.124E+00	0.190E+00	16.87	
AC-228	1.41E+10Y	1.00	1.564E+00	1.564E+00	0.321E+00	20.55	
RA-228	1.41E+10Y	1.00	1.564E+00	1.564E+00	0.321E+00	20.55	
TH-228	1.91Y	1.02	1.554E+00	1.585E+00	0.236E+00	14.89	
TH-230	4.47E+09Y	1.00	1.123E+00	1.123E+00	0.189E+00	16.87	
TH-232	1.41E+10Y	1.00	1.564E+00	1.564E+00	0.321E+00	20.55	
TH-234	4.47E+09Y	1.00	4.092E+00	4.092E+00	1.883E+00	46.02	
U-234	4.47E+09Y	1.00	1.123E+00	1.123E+00	0.189E+00	16.87	
NP-237	2.14E+06Y	1.00	5.683E-01	5.683E-01	3.192E-01	56.16	
U-238	4.47E+09Y	1.00	4.092E+00	4.092E+00	1.883E+00	46.02	
AM-243	7380.00Y	1.00	3.662E-01	3.662E-01	0.767E-01	20.94	
ANH-511	1.00E+09Y	1.00	7.163E-02	7.163E-02	7.233E-02	100.97	

Total Activity : 7.522E+01 7.532E+01

Grand Total Activity : 7.522E+01 7.532E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101005

Page : 5  
Acquisition date : 2-FEB-2010 09:46:46

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	131.04	337	1000	7.84	262.20	252	22	4.68E-02	49.1	8.52E+00	T
0	185.71	387	514	1.43	371.44	367	11	5.38E-02	25.8	7.61E+00	T
0	209.02	138	418	1.10	418.02	413	10	1.92E-02	59.1	7.19E+00	T
0	270.46	103	381	1.31	540.78	534	12	1.43E-02	78.4	6.27E+00	T
0	463.11	106	146	1.45	925.78	920	11	1.47E-02	48.2	4.58E+00	T
0	727.35	100	132	1.18	1453.96	1449	12	1.39E-02	51.1	3.34E+00	T
0	768.87	35	141	1.88	1536.97	1528	12	4.85E-03	****	3.20E+00	
0	934.06	36	46	3.27	1867.22	1862	11	5.00E-03	82.0	2.73E+00	T
3	964.71	92	84	2.63	1928.51	1917	27	1.28E-02	52.6	2.66E+00	T
0	1729.71	26	21	1.06	3458.59	3450	14	3.59E-03	91.0	1.73E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101005.CNF;1
* Acquisition date   : 2-FEB-2010 09:46:46.   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 02:00:02.11          Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G245101005             Analyst initials: MXR1
* Batch Number       : 944037                 Sample Quantity : 1.16860E+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	2.554E+01	2.806E+00	5.664E-01	5.189E-02	45.080
CD-109	1.983E+00	1.036E+00	1.541E+00	1.463E-01	1.287
SN-126	1.935E-01	1.011E-01	1.405E-01	1.327E-02	1.377
BA-137M	7.521E-01	1.141E-01	5.454E-02	5.751E-03	13.790
CS-137	7.950E-01	1.207E-01	5.765E-02	6.087E-03	13.790
TL-208	4.554E-01	9.087E-02	5.432E-02	5.890E-03	8.384
BI-210	2.914E+00	5.146E+00	4.801E+00	4.461E-01	0.607
PB-210	2.914E+00	5.146E+00	4.801E+00	4.461E-01	0.607
PO-210	2.914E+00	5.145E+00	4.801E+00	4.037E-01	0.607
BI-211	3.852E+00	5.973E-01	3.184E-01	3.715E-02	12.097
PB-212	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
PO-212	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
BI-214	1.124E+00	1.895E-01	1.093E-01	1.271E-02	10.279
PB-214	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
PO-214	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
PO-216	1.554E+00	2.313E-01	9.018E-02	1.192E-02	17.229
PO-218	1.340E+00	2.192E-01	1.076E-01	1.372E-02	12.448
RA-224	4.372E+00	1.259E+00	1.025E+00	1.283E-01	4.265

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.124E+00	1.895E-01	1.093E-01	1.271E-02	10.279
AC-228	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
RA-228	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
TH-228	1.585E+00	2.359E-01	9.199E-02	1.215E-02	17.229
TH-230	1.123E+00	1.895E-01	1.093E-01	1.271E-02	10.279
TH-232	1.564E+00	3.214E-01	1.870E-01	2.477E-02	8.367
TH-234	4.092E+00	1.883E+00	1.871E+00	3.257E-01	2.187
U-234	1.123E+00	1.895E-01	1.093E-01	1.271E-02	10.279
NP-237	5.683E-01	3.192E-01	3.976E-01	9.003E-02	1.429
U-238	4.092E+00	1.883E+00	1.871E+00	3.257E-01	2.187
AM-243	3.662E-01	7.670E-02	7.953E-02	6.482E-03	4.605
ANH-511	7.163E-02	7.233E-02	4.604E-02	4.613E-03	1.556

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	6.637E-01		3.528E-01	6.152E-01	6.421E-02	1.079
NA-22	-8.036E-02		4.183E-02	5.778E-02	4.980E-03	-1.391
NA-24	-1.782E+02		7.464E+01	Half-Life	too short	
AL-26	-1.711E-02		2.541E-02	3.729E-02	3.050E-03	-0.459
TI-44	3.626E-01	+	5.819E-02	7.237E-02	6.136E-03	5.010
SC-46	-3.009E-02		3.948E-02	6.190E-02	6.929E-03	-0.486
V-48	4.907E-02		8.141E-02	1.391E-01	1.459E-02	0.353
CR-51	-3.885E-02		4.119E-01	6.862E-01	8.886E-02	-0.057
MN-52	3.295E-01		4.057E-01	7.134E-01	6.375E-02	0.462
MN-54	-9.097E-03		3.620E-02	5.949E-02	6.609E-03	-0.153
CO-56	2.243E-02		3.924E-02	6.755E-02	7.520E-03	0.332
CO-57	7.293E-03		2.647E-02	4.241E-02	3.497E-03	0.172
CO-58	-4.123E-02		3.583E-02	5.463E-02	6.049E-03	-0.755
FE-59	-6.270E-02		9.264E-02	1.424E-01	1.396E-02	-0.440
CO-60	6.980E-03		3.598E-02	6.027E-02	5.375E-03	0.116
ZN-65	1.352E-01		9.751E-02	1.522E-01	1.358E-02	0.888
GE-68	1.161E+00		1.134E+00	1.978E+00	1.865E-01	0.587
AS-73	-9.472E-03		7.785E-01	1.252E+00	9.460E-02	-0.008
AS-74	-5.684E-02		1.034E-01	1.658E-01	1.718E-02	-0.343
SE-75	-1.477E-02		5.237E-02	7.206E-02	9.699E-03	-0.205
BR-77	-1.317E-05		2.115E-05	Half-Life	too short	
SR-82	-4.276E-01		4.146E-01	6.175E-01	6.772E-02	-0.692
RB-83	-2.237E-02		7.188E-02	1.130E-01	1.137E-02	-0.198
RB-84	2.130E-02		7.214E-02	1.221E-01	1.365E-02	0.174
KR-85	2.320E+01		9.027E+00	1.419E+01	1.424E+00	1.634
SR-85	1.251E-01		4.867E-02	7.654E-02	7.680E-03	1.634
RB-86	5.044E-01		8.288E-01	1.411E+00	1.331E-01	0.358
Y-88	3.028E-02		3.093E-02	5.724E-02	4.628E-03	0.529
ZR-88	-5.666E-02		3.299E-02	4.895E-02	4.558E-03	-1.158
Y-91	1.366E+00		1.827E+01	3.055E+01	2.512E+00	0.045
NB-94	2.260E-02		3.111E-02	5.287E-02	5.666E-03	0.427

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	6.875E-02		5.093E-02	7.782E-02	8.510E-03	0.883
NB-95M	2.860E-01		1.509E-01	2.283E-01	3.018E-02	1.252
ZR-95	2.531E-02		7.198E-02	1.192E-01	1.384E-02	0.212
NB-97	4.537E+01		7.036E+00	Half-Life	too short	
ZR-97	6.805E+02		1.216E+02	Half-Life	too short	
MO-99	-1.550E+01		3.619E+01	5.691E+01	9.421E+00	-0.272
TC-99M	-2.543E+16		1.190E+16	Half-Life	too short	
RH-101	6.415E-03		3.447E-02	5.595E-02	6.104E-03	0.115
RH-102	-2.455E-03		2.996E-02	4.821E-02	4.741E-03	-0.051
RU-103	1.379E-02		4.526E-02	7.402E-02	1.111E-02	0.186
RH-106	1.955E-03		3.046E-01	5.032E-01	7.348E-02	0.004
RU-106	1.955E-03		3.046E-01	5.032E-01	5.256E-02	0.004
AG-108M	-5.737E-04		3.338E-02	5.436E-02	5.381E-03	-0.011
AG-110M	1.138E-01		4.324E-02	7.050E-02	7.577E-03	1.614
IN-111	-2.818E-01		3.792E+00	5.334E+00	6.768E-01	-0.053
IN-113M	-5.329E-02		4.778E-02	7.398E-02	7.065E-03	-0.720
SN-113	-5.329E-02		4.778E-02	7.398E-02	7.065E-03	-0.720
IN-114M	-9.839E-02		2.222E-01	3.143E-01	3.342E-02	-0.313
CD-115	3.505E-05		2.228E-05	Half-Life	too short	
SN-117M	-1.869E-02		7.016E-02	1.163E-01	1.103E-02	-0.161
SB-122	1.765E+00		7.025E+00	1.185E+01	1.215E+00	0.149
I-123	-6.521E+02		1.247E+03	Half-Life	too short	
TE-123M	-7.658E-03		2.929E-02	4.854E-02	4.636E-03	-0.158
I-124	9.571E-01		1.623E+00	2.414E+00	2.507E-01	0.396
SB-124	-2.121E-04		7.022E-02	1.162E-01	1.034E-02	-0.002
SB-125	2.641E-02		9.312E-02	1.541E-01	1.495E-02	0.171
TE-125M	-6.263E-01		1.019E+01	1.625E+01	1.648E+00	-0.039
I-126	3.160E-02		2.596E-01	3.692E-01	3.900E-02	0.086
SB-126	-6.208E-02		2.005E-01	2.836E-01	3.058E-02	-0.219
SB-127	1.685E-01		3.040E+00	4.992E+00	7.154E-01	0.034
XE-127	1.326E-02		5.601E-02	8.604E-02	9.538E-03	0.154
I-131	5.468E-03		1.598E-01	2.649E-01	2.944E-02	0.021
TE-132	5.574E-01		1.913E+00	3.144E+00	5.876E-01	0.177
BA-133	1.285E-02		4.520E-02	6.630E-02	9.908E-03	0.194
I-133	-1.555E-01		1.275E-01	Half-Life	too short	
CS-134	1.319E-01		4.627E-02	8.389E-02	9.285E-03	1.573
CS-135	2.451E-01		1.873E-01	2.777E-01	4.016E-02	0.883
I-135	-4.544E+12		4.654E+14	Half-Life	too short	
CS-136	-9.128E-02		1.372E-01	2.127E-01	2.152E-02	-0.429
CE-139	-1.990E-02		3.085E-02	5.020E-02	4.923E-03	-0.396
BA-140	1.439E-01		3.019E-01	5.122E-01	1.719E-01	0.281
LA-140	4.181E-02		1.100E-01	1.896E-01	1.662E-02	0.221
CE-141	1.033E-01		7.085E-02	1.236E-01	1.125E-02	0.836
CE-143	9.267E-03		1.535E-03	Half-Life	too short	
CE-144	9.411E-02		2.017E-01	3.458E-01	5.368E-02	0.272
PM-144	9.476E-04		3.304E-02	5.407E-02	5.784E-03	0.018
PR-144	6.438E-02		2.245E+00	3.673E+00	3.928E-01	0.018
PM-146	4.152E-02		4.569E-02	7.714E-02	8.965E-03	0.538

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-1.495E-01		6.909E-01	1.142E+00	1.812E-01	-0.131
PM-149	6.559E-05		2.128E-04	Half-Life too short		
EU-152	1.627E-02		1.173E-01	1.614E-01	1.940E-02	0.101
GD-153	-3.341E-02		8.903E-02	1.244E-01	1.094E-02	-0.269
EU-154	-2.216E-01		1.178E-01	1.617E-01	1.827E-02	-1.370
EU-155	3.871E-02		1.076E-01	1.747E-01	1.500E-02	0.222
TB-160	-4.610E-02		1.368E-01	2.218E-01	2.480E-02	-0.208
HO-166M	-2.597E-02		5.438E-02	8.568E-02	9.211E-03	-0.303
TM-171	-7.777E+00		2.764E+01	4.034E+01	3.048E+00	-0.193
LU-176	-9.554E-04		2.614E-02	3.990E-02	5.234E-03	-0.024
LU-177	4.414E+00	+	2.655E+00	3.289E+00	3.713E-01	1.342
LU-177M	-6.985E-02		1.799E-01	2.887E-01	2.730E-02	-0.242
HF-181	-1.036E-01		4.910E-02	6.792E-02	6.705E-03	-1.525
W-181	1.620E-01		3.739E-01	5.637E-01	4.202E-02	0.287
TA-182	-5.293E-02		1.728E-01	2.811E-01	2.337E-02	-0.188
RE-183	2.624E-02		1.136E-01	1.912E-01	1.844E-02	0.137
RE-184	4.759E-02		2.480E-01	4.033E-01	5.233E-02	0.118
OS-185	-1.382E-02		4.130E-02	6.651E-02	6.990E-03	-0.208
RE-188	1.148E-01		1.808E-01	3.087E-01	2.881E-02	0.372
W-188	-4.144E+00		8.608E+00	1.227E+01	1.676E+00	-0.338
IR-192	6.698E-04		3.594E-02	6.023E-02	7.698E-03	0.011
AU-195	3.506E-01		2.305E-01	3.834E-01	3.343E-02	0.914
TL-200	-6.140E-04		4.600E-03	Half-Life too short		
TL-201	3.555E+00		2.087E+01	3.498E+01	3.448E+00	0.102
TL-202	-3.863E-02		9.588E-02	1.521E-01	1.464E-02	-0.254
HG-203	1.433E-02		4.658E-02	7.543E-02	1.068E-02	0.190
BI-207	-2.126E-02		5.115E-02	7.792E-02	7.480E-03	-0.273
TL-207	-9.139E-01		6.985E-01	1.064E+00	2.114E-01	-0.859
PO-209	6.230E+00		7.180E+00	1.250E+01	1.400E+00	0.498
PB-211	-4.251E-01		9.439E-01	1.450E+00	9.102E-01	-0.293
BI-212	8.178E-01	+	4.290E-01	5.902E-01	7.050E-02	1.386
PO-215	-9.139E-01		6.985E-01	1.064E+00	2.114E-01	-0.859
RN-219	-2.288E-01		3.959E-01	6.279E-01	9.715E-02	-0.364
RN-220	6.567E+00		2.519E+01	4.262E+01	4.344E+00	0.154
RA-223	-9.139E-01		6.985E-01	1.064E+00	2.114E-01	-0.859
AC-227	-4.607E-02		3.946E-01	6.326E-01	1.154E-01	-0.073
TH-227	-4.607E-02		3.946E-01	6.326E-01	1.302E-01	-0.073
TH-229	-8.206E-02		5.119E-01	8.389E-01	9.019E-02	-0.098
PA-231	-4.791E-01		1.583E+00	2.489E+00	4.647E-01	-0.192
TH-231	-9.139E-01		6.985E-01	1.064E+00	2.114E-01	-0.859
U-231	-1.867E+00		2.546E+00	3.518E+00	3.124E-01	-0.531
PA-233	-6.474E-03		6.197E-02	1.034E-01	1.355E-02	-0.063
PA-234	1.870E-02		2.663E-01	4.413E-01	8.772E-02	0.042
PA-234M	7.221E+00		4.809E+00	8.394E+00	9.620E-01	0.860
U-235	3.208E-01		2.293E-01	3.808E-01	6.718E-02	0.842
NP-236	-3.839E-02		7.902E-02	1.298E-01	1.240E-02	-0.296
NP-239	-1.034E-01		1.953E-01	3.037E-01	2.510E-02	-0.340
AM-241	1.197E-01		1.506E-01	2.323E-01	1.816E-02	0.515

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.601E-02		9.542E-02	1.521E-01	1.296E-02	-0.105
AM-246	1.832E-02		1.304E-01	2.145E-01	2.017E-02	0.085
CM-247	-1.189E-02		3.528E-02	5.686E-02	5.334E-03	-0.209
CF-249	9.176E-02		4.225E-02	7.466E-02	7.096E-03	1.229
CF-251	1.418E-01		1.296E-01	2.219E-01	2.254E-02	0.639

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101005
* Acquisition date   : 2-FEB-2010 09:46:46 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 02:00:02.11 Half life ratio : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101005 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.1686E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope
* MSD DPM             : 0.000 MSD Isotope
* LCS DPM             : 0.000 LCS Isotope
* LCSD DPM            : 0.000 LCSD Isotope
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.554E+01	2.749E+00	2.824E-01	1.403E+00
CD-109	1.983E+00	1.015E+00	7.911E-01	5.179E-01
SN-126	1.935E-01	9.906E-02	7.212E-02	5.054E-02
BA-137M	7.521E-01	1.118E-01	2.742E-02	5.706E-02
CS-137	7.950E-01	1.183E-01	2.898E-02	6.035E-02
TL-208	4.554E-01	8.905E-02	2.735E-02	4.543E-02
BI-210	2.914E+00	5.043E+00	2.480E+00	2.573E+00
PB-210	2.914E+00	5.043E+00	2.480E+00	2.573E+00
PO-210	2.914E+00	5.042E+00	2.480E+00	2.572E+00
BI-211	3.852E+00	5.854E-01	1.611E-01	2.987E-01
PB-212	1.554E+00	2.267E-01	4.582E-02	1.156E-01
PO-212	1.554E+00	2.267E-01	4.582E-02	1.156E-01
BI-214	1.124E+00	1.857E-01	5.500E-02	9.475E-02
PB-214	1.340E+00	2.148E-01	5.447E-02	1.096E-01
PO-214	1.340E+00	2.148E-01	5.447E-02	1.096E-01
PO-216	1.554E+00	2.267E-01	4.582E-02	1.156E-01
PO-218	1.340E+00	2.148E-01	5.447E-02	1.096E-01
RA-224	4.372E+00	1.234E+00	5.209E-01	6.296E-01
RA-226	1.124E+00	1.857E-01	5.500E-02	9.475E-02
AC-228	1.564E+00	3.150E-01	9.369E-02	1.607E-01
RA-228	1.564E+00	3.150E-01	9.369E-02	1.607E-01
TH-228	1.585E+00	2.312E-01	4.674E-02	1.180E-01
TH-230	1.123E+00	1.857E-01	5.500E-02	9.475E-02
TH-232	1.564E+00	3.150E-01	9.369E-02	1.607E-01
TH-234	4.092E+00	1.845E+00	9.636E-01	9.414E-01
U-234	1.123E+00	1.857E-01	5.500E-02	9.475E-02
NP-237	5.683E-01	3.128E-01	2.041E-01	1.596E-01
U-238	4.092E+00	1.845E+00	9.636E-01	9.414E-01
AM-243	3.662E-01	7.517E-02	4.088E-02	3.835E-02
ANH-511	7.163E-02	7.088E-02	2.321E-02	3.616E-02

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

Key-Line



Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	6.637E-01	3.458E-01	3.103E-01	1.764E-01 NOT IDENT.
NA-22	-8.036E-02	4.100E-02	2.885E-02	2.092E-02 NOT IDENT.
NA-24	-1.782E+08	1.463E+08	0.000E+00	7.464E+07 SHORT HLIF
AL-26	-1.711E-02	2.490E-02	1.855E-02	1.270E-02 NOT IDENT.
TI-44	3.626E-01	5.702E-02	3.719E-02	2.909E-02 FAIL ABUN
SC-46	-3.009E-02	3.869E-02	3.102E-02	1.974E-02 FAIL ABUN
V-48	4.907E-02	7.978E-02	6.967E-02	4.070E-02 NOT IDENT.
CR-51	-3.885E-02	4.036E-01	3.476E-01	2.059E-01 NOT IDENT.
MN-52	3.295E-01	3.976E-01	3.558E-01	2.029E-01 FAIL ABUN
MN-54	-9.097E-03	3.548E-02	2.984E-02	1.810E-02 NOT IDENT.
CO-56	2.243E-02	3.845E-02	3.388E-02	1.962E-02 NOT IDENT.
CO-57	7.293E-03	2.594E-02	2.170E-02	1.323E-02 NOT IDENT.
CO-58	-4.123E-02	3.511E-02	2.741E-02	1.791E-02 NOT IDENT.
FE-59	-6.270E-02	9.079E-02	7.123E-02	4.632E-02 NOT IDENT.
CO-60	6.980E-03	3.526E-02	3.008E-02	1.799E-02 NOT IDENT.
ZN-65	1.352E-01	9.556E-02	7.612E-02	4.875E-02 NOT IDENT.
GE-68	1.161E+00	1.111E+00	9.896E-01	5.668E-01 NOT IDENT.
AS-73	-9.472E-03	7.630E-01	6.457E-01	3.893E-01 NOT IDENT.
AS-74	-5.684E-02	1.014E-01	8.344E-02	5.172E-02 NOT IDENT.
SE-75	-1.477E-02	5.132E-02	3.658E-02	2.618E-02 NOT IDENT.
BR-77	-1.317E+01	4.146E+01	0.000E+00	2.115E+01 SHORT HLIF
SR-82	-4.276E-01	4.063E-01	3.099E-01	2.073E-01 NOT IDENT.
RB-83	-2.237E-02	7.044E-02	5.696E-02	3.594E-02 NOT IDENT.
RB-84	2.130E-02	7.070E-02	6.118E-02	3.607E-02 NOT IDENT.
KR-85	2.320E+01	8.846E+00	7.155E+00	4.513E+00 NOT IDENT.
SR-85	1.251E-01	4.770E-02	3.858E-02	2.434E-02 NOT IDENT.
RB-86	5.044E-01	8.122E-01	7.057E-01	4.144E-01 NOT IDENT.
Y-88	3.028E-02	3.031E-02	2.847E-02	1.546E-02 NOT IDENT.
ZR-88	-5.666E-02	3.233E-02	2.474E-02	1.649E-02 NOT IDENT.
Y-91	1.366E+00	1.790E+01	1.526E+01	9.134E+00 NOT IDENT.
NB-94	2.260E-02	3.049E-02	2.657E-02	1.556E-02 NOT IDENT.
NB-95	6.875E-02	4.992E-02	3.907E-02	2.547E-02 NOT IDENT.
NB-95M	2.860E-01	1.479E-01	1.160E-01	7.545E-02 NOT IDENT.
ZR-95	2.531E-02	7.054E-02	5.986E-02	3.599E-02 NOT IDENT.
NB-97	4.537E+07	1.379E+07	0.000E+00	7.036E+06 SHORT HLIF
ZR-97	6.805E+08	2.383E+08	0.000E+00	1.216E+08 SHORT HLIF
MO-99	-1.550E+01	3.546E+01	2.858E+01	1.809E+01 NOT IDENT.
TC-99M	-2.543E+22	2.332E+22	0.000E+00	0.000E+00 SHORT HLIF
RH-101	6.415E-03	3.378E-02	2.848E-02	1.723E-02 NOT IDENT.
RH-102	-2.455E-03	2.936E-02	2.432E-02	1.498E-02 NOT IDENT.
RU-103	1.379E-02	4.435E-02	3.733E-02	2.263E-02 FAIL ABUN
RH-106	1.955E-03	2.986E-01	2.532E-01	1.523E-01 FAIL ABUN
RU-106	1.955E-03	2.986E-01	2.532E-01	1.523E-01 FAIL ABUN
AG-108M	-5.737E-04	3.271E-02	2.745E-02	1.669E-02 NOT IDENT.
AG-110M	1.138E-01	4.237E-02	3.545E-02	2.162E-02 NOT IDENT.
IN-111	-2.818E-01	3.716E+00	2.710E+00	1.896E+00 NOT IDENT.
IN-113M	-5.329E-02	4.683E-02	3.740E-02	2.389E-02 NOT IDENT.
SN-113	-5.329E-02	4.683E-02	3.740E-02	2.389E-02 NOT IDENT.
IN-114M	-9.839E-02	2.177E-01	1.601E-01	1.111E-01 NOT IDENT.
CD-115	3.505E+01	4.366E+01	0.000E+00	2.228E+01 SHORT HLIF
SN-117M	-1.869E-02	6.876E-02	5.933E-02	3.508E-02 NOT IDENT.
SB-122	1.765E+00	6.885E+00	5.967E+00	3.513E+00 NOT IDENT.
I-123	-6.521E+08	2.444E+09	0.000E+00	1.247E+09 SHORT HLIF
TE-123M	-7.658E-03	2.870E-02	2.476E-02	1.464E-02 NOT IDENT.
I-124	9.571E-01	1.591E+00	1.215E+00	8.117E-01 NOT IDENT.
SB-124	-2.121E-04	6.881E-02	5.786E-02	3.511E-02 FAIL ABUN
SB-125	2.641E-02	9.125E-02	7.783E-02	4.656E-02 FAIL ABUN
TE-125M	-6.263E-01	9.989E+00	8.324E+00	5.097E+00 NOT IDENT.
I-126	3.160E-02	2.544E-01	1.856E-01	1.298E-01 NOT IDENT.
SB-126	-6.208E-02	1.965E-01	1.425E-01	1.002E-01 FAIL ABUN
SB-127	1.685E-01	2.979E+00	2.509E+00	1.520E+00 NOT IDENT.
XE-127	1.326E-02	5.489E-02	4.379E-02	2.801E-02 NOT IDENT.
I-131	5.468E-03	1.566E-01	1.340E-01	7.988E-02 NOT IDENT.
TE-132	5.574E-01	1.874E+00	1.598E+00	9.563E-01 NOT IDENT.
BA-133	1.285E-02	4.429E-02	3.355E-02	2.260E-02 NOT IDENT.
I-133	-1.555E+05	2.499E+05	0.000E+00	1.275E+05 SHORT HLIF
CS-134	1.319E-01	4.534E-02	4.209E-02	2.313E-02 NOT IDENT.
CS-135	2.451E-01	1.835E-01	1.409E-01	9.365E-02 NOT IDENT.
I-135	-4.544E+18	9.122E+20	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-9.128E-02	1.344E-01	1.064E-01	6.859E-02 FAIL ABUN
CE-139	-1.990E-02	3.023E-02	2.560E-02	1.542E-02 NOT IDENT.
BA-140	1.439E-01	2.959E-01	2.581E-01	1.510E-01 NOT IDENT.
LA-140	4.181E-02	1.078E-01	9.443E-02	5.499E-02 NOT IDENT.
CE-141	1.033E-01	6.943E-02	6.310E-02	3.543E-02 NOT IDENT.
CE-143	9.267E+03	3.009E+03	0.000E+00	1.535E+03 SHORT HLIF

CE-144	9.411E-02	1.977E-01	1.767E-01	1.009E-01	NOT IDENT.
PM-144	9.476E-04	3.238E-02	2.717E-02	1.652E-02	NOT IDENT.
PR-144	6.438E-02	2.200E+00	1.846E+00	1.122E+00	NOT IDENT.
PM-146	4.152E-02	4.477E-02	3.894E-02	2.284E-02	NOT IDENT.
ND-147	-1.495E-01	6.770E-01	5.757E-01	3.454E-01	NOT IDENT.
PM-149	6.559E+01	4.171E+02	0.000E+00	2.128E+02	SHORT HLIF
EU-152	1.627E-02	1.149E-01	8.170E-02	5.863E-02	FAIL ABUN
GD-153	-3.341E-02	8.725E-02	6.376E-02	4.451E-02	NOT IDENT.
EU-154	-2.216E-01	1.155E-01	8.072E-02	5.891E-02	NOT IDENT.
EU-155	3.871E-02	1.054E-01	8.950E-02	5.380E-02	FAIL ABUN
TB-160	-4.610E-02	1.341E-01	1.112E-01	6.840E-02	FAIL ABUN
HO-166M	-2.597E-02	5.329E-02	4.304E-02	2.719E-02	FAIL ABUN
TM-171	-7.777E+00	2.709E+01	2.076E+01	1.382E+01	NOT IDENT.
LU-176	-9.554E-04	2.562E-02	2.022E-02	1.307E-02	FAIL ABUN
LU-177	4.414E+00	2.602E+00	1.673E+00	1.328E+00	FAIL ABUN
LU-177M	-6.985E-02	1.763E-01	1.458E-01	8.997E-02	NOT IDENT.
HF-181	-1.036E-01	4.812E-02	3.426E-02	2.455E-02	NOT IDENT.
W-181	1.620E-01	3.664E-01	2.902E-01	1.869E-01	NOT IDENT.
TA-182	-5.293E-02	1.693E-01	1.404E-01	8.640E-02	FAIL ABUN
RE-183	2.624E-02	1.113E-01	9.750E-02	5.679E-02	FAIL ABUN
RE-184	4.759E-02	2.431E-01	2.048E-01	1.240E-01	NOT IDENT.
OS-185	-1.382E-02	4.048E-02	3.345E-02	2.065E-02	NOT IDENT.
RE-188	1.148E-01	1.772E-01	1.575E-01	9.040E-02	NOT IDENT.
W-188	-4.144E+00	8.435E+00	6.222E+00	4.304E+00	FAIL ABUN
IR-192	6.698E-04	3.522E-02	3.052E-02	1.797E-02	FAIL ABUN
AU-195	3.506E-01	2.259E-01	1.965E-01	1.153E-01	FAIL ABUN
TL-200	-6.140E+02	9.017E+03	0.000E+00	4.600E+03	SHORT HLIF
TL-201	3.555E+00	2.046E+01	1.784E+01	1.044E+01	NOT IDENT.
TL-202	-3.863E-02	9.396E-02	7.680E-02	4.794E-02	NOT IDENT.
HG-203	1.433E-02	4.565E-02	3.827E-02	2.329E-02	NOT IDENT.
BI-207	-2.126E-02	5.013E-02	3.898E-02	2.557E-02	FAIL ABUN
TL-207	-9.139E-01	6.845E-01	5.387E-01	3.492E-01	FAIL ABUN
PO-209	6.230E+00	7.037E+00	6.266E+00	3.590E+00	NOT IDENT.
PB-211	-4.251E-01	9.250E-01	7.327E-01	4.719E-01	NOT IDENT.
BI-212	8.178E-01	4.204E-01	2.965E-01	2.145E-01	FAIL ABUN
PO-215	-9.139E-01	6.845E-01	5.387E-01	3.492E-01	FAIL ABUN
RN-219	-2.288E-01	3.880E-01	3.173E-01	1.980E-01	FAIL ABUN
RN-220	6.567E+00	2.468E+01	2.147E+01	1.259E+01	NOT IDENT.
RA-223	-9.139E-01	6.845E-01	5.387E-01	3.492E-01	FAIL ABUN
AC-227	-4.607E-02	3.867E-01	3.212E-01	1.973E-01	FAIL ABUN
TH-227	-4.607E-02	3.867E-01	3.212E-01	1.973E-01	FAIL ABUN
TH-229	-8.206E-02	5.017E-01	4.271E-01	2.560E-01	FAIL ABUN
PA-231	-4.791E-01	1.551E+00	1.262E+00	7.914E-01	FAIL ABUN
TH-231	-9.139E-01	6.845E-01	5.387E-01	3.492E-01	FAIL ABUN
U-231	-1.867E+00	2.495E+00	1.804E+00	1.273E+00	FAIL ABUN
PA-233	-6.474E-03	6.073E-02	5.240E-02	3.098E-02	FAIL ABUN
PA-234	1.870E-02	2.610E-01	2.211E-01	1.332E-01	FAIL ABUN
PA-234M	7.221E+00	4.713E+00	4.202E+00	2.405E+00	NOT IDENT.
U-235	3.208E-01	2.247E-01	1.945E-01	1.147E-01	FAIL ABUN
NP-236	-3.839E-02	7.744E-02	6.620E-02	3.951E-02	NOT IDENT.
NP-239	-1.034E-01	1.914E-01	1.554E-01	9.764E-02	FAIL ABUN
AM-241	1.197E-01	1.476E-01	1.197E-01	7.531E-02	NOT IDENT.
CM-243	-1.601E-02	9.351E-02	7.791E-02	4.771E-02	FAIL ABUN
AM-246	1.832E-02	1.278E-01	1.073E-01	6.519E-02	NOT IDENT.
CM-247	-1.189E-02	3.457E-02	2.873E-02	1.764E-02	NOT IDENT.
CF-249	9.176E-02	4.140E-02	3.775E-02	2.112E-02	NOT IDENT.
CF-251	1.418E-01	1.270E-01	1.131E-01	6.481E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417   *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	285.4026
46.50	285.4026
46.50	285.4026
48.70	309.3430
49.72	323.1645
51.35	338.0001
52.39	314.4994
52.97	307.8528
53.15	320.1931
53.44	316.8651
54.07	326.1313
56.28	369.7271
56.28	369.7311
57.37	0.0000
57.53	380.1666
57.53	380.1697
57.60	382.1723
57.98	383.7125
57.98	383.7125
59.32	363.8208
59.32	363.8208
59.40	363.9361
59.54	364.1386
59.72	380.1803
60.01	380.6170
61.10	412.5400
61.14	412.6039
61.30	412.8608
63.00	425.2584
63.29	425.7284
63.29	425.7284
63.58	426.1962
64.28	435.1093
65.12	430.6187
65.20	419.0261
65.20	419.0261
66.05	412.9953
66.72	421.3761
66.83	421.5463
66.91	421.6707
67.20	447.2066
67.20	447.2066
67.75	440.1107
67.85	440.2708
68.90	438.0707
68.90	438.0707
69.30	450.5909
69.67	452.6741
70.82	435.0680
70.82	435.0680
70.83	435.0836
72.80	463.6472
72.87	463.7600
72.87	463.7600
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74.81	466.8148
74.81	466.8148
74.81	466.8148
74.81	466.8148
74.81	466.8148
74.81	466.8148
74.97	467.0663
75.28	467.5504
75.70	468.2036
77.11	470.3866
77.11	470.3866

77.11	470.3866
77.11	470.3866
77.11	470.3866
77.11	470.3866
77.11	470.3866
78.38	475.4041
79.62	472.6866
79.80	472.9583
79.80	472.9583
80.11	490.3899
80.18	490.4991
80.30	490.6859
80.30	490.6859
80.57	491.1056
81.00	533.5297
81.07	533.6482
81.07	533.6482
81.07	533.6482
81.07	533.6482
82.60	497.3560
83.37	481.4027
83.78	463.2966
83.78	463.2966
83.78	463.2966
83.78	463.2966
84.21	451.4148
84.90	478.9771
85.43	496.9958
86.29	619.3224
86.50	619.7131
86.54	619.7883
86.59	619.8815
86.72	620.1249
86.79	628.1224
86.94	628.4086
87.30	682.3752
87.30	682.3752
87.30	682.3752
87.30	682.3752
87.30	682.3752
87.30	682.3752
87.57	682.9233
87.88	0.0000
88.03	790.0391
88.36	664.2801
88.47	664.4980
89.95	794.5099
91.11	685.5848
92.29	510.6562
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92.38	510.7877
93.35	512.1978
94.00	513.1402
94.67	341.4463
94.67	341.4511
94.90	341.6711
94.90	341.6711
94.90	341.6711
94.90	341.6711
95.87	436.3255
95.87	436.3255
96.73	430.8883
97.43	410.6173
98.44	355.4398
98.44	355.4415
98.88	346.5244
99.55	360.2130
99.55	360.2130
99.86	367.0477
100.00	367.1865
100.10	359.6602
103.18	420.8465
103.76	389.5732
105.00	375.3752
105.31	384.5155
108.00	417.2115
109.28	425.2570

111.00	402.4252
111.00	402.4252
111.76	407.6753
112.95	421.2598
115.19	423.5577
116.30	413.3343
117.00	402.6505
117.00	402.6505
117.66	404.4217
121.11	405.4092
121.62	385.1917
121.78	385.3331
122.06	374.0720
122.32	374.2952
122.32	374.2952
122.32	374.2952
122.32	374.2952
123.07	398.0148
127.23	394.7853
129.76	380.3153
131.20	381.5145
133.02	383.0209
133.54	383.4504
135.34	365.5474
136.00	404.5163
136.25	404.7312
136.48	414.9095
140.51	450.2242
140.51	0.0000
142.18	437.3444
142.65	444.0807
143.76	396.2324
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144.24	374.8843
144.24	374.8843
144.24	374.8843
145.22	376.5338
145.44	391.2251
147.16	460.8827
152.43	388.3648
152.70	400.5377
153.22	384.3487
154.21	399.8557
154.21	399.8557
154.21	399.8557
154.21	399.8557
155.03	395.8589
156.02	390.1201
158.56	405.0314
159.00	0.0000
159.00	404.4314
160.31	402.6190
161.27	403.3358
162.32	378.7993
162.64	383.7152
163.35	381.3963
163.89	370.4872
165.85	416.1628
167.43	384.2274
171.28	380.1964
171.86	413.0137
172.10	413.1888
176.55	357.7355
176.60	357.7668
181.06	370.5696
184.41	349.2644
185.71	384.7837
186.00	384.9700
190.27	390.4183
192.34	405.0363
193.63	378.8828
197.04	365.0232
198.01	361.5931
198.60	384.8574
200.40	0.0000
201.83	418.8643
202.84	369.3336
205.31	361.0605

208.36	376.4956
208.81	376.7510
209.75	308.3163
209.75	308.3163
210.97	333.2626
215.65	366.2650
216.55	343.1838
218.09	338.8195
222.10	346.9768
223.80	341.6066
226.40	339.7460
227.00	331.7141
227.08	331.7505
227.20	329.7263
228.16	318.7119
228.18	318.7212
228.18	318.7212
231.56	0.0000
235.69	311.5123
236.00	347.0215
236.00	347.0215
238.63	326.4902
238.63	326.4902
238.63	326.4902
238.63	326.4902
239.00	0.0000
240.98	327.5204
241.98	327.9589
241.98	327.9589
241.98	327.9589
244.69	253.9366
245.39	284.8765
247.94	326.9080
248.90	298.4688
249.79	0.0000
252.40	286.1948
252.85	301.4307
252.85	301.4307
254.15	0.0000
256.20	302.7242
256.20	302.7242
260.50	271.7590
260.90	0.0000
262.80	317.7050
264.65	281.4709
268.24	273.9331
268.79	281.1484
269.46	286.8746
269.46	286.8746
269.46	286.8746
269.46	286.8746
271.23	297.8460
273.65	383.5592
276.40	282.2644
277.35	265.1990
277.60	266.3855
277.60	266.3855
278.00	285.3917
278.60	292.2632
279.20	303.5925
279.53	303.7092
280.46	315.1795
281.68	0.0000
283.67	279.4762
284.30	256.1889
285.00	281.0307
285.90	0.0000
286.10	278.0275
286.10	278.0275
287.40	244.7610
288.45	0.0000
290.67	287.0052
290.80	287.0479
291.72	275.3154
293.26	0.0000
293.70	260.8551
295.21	238.6458
295.21	238.6458

295.21	238.6458
295.96	238.8484
296.50	195.1272
297.23	0.0000
298.57	195.5812
299.80	195.8489
299.80	195.8489
300.09	195.9146
300.09	195.9146
300.09	195.9146
300.09	195.9146
300.12	195.9198
301.29	260.0451
302.84	228.5034
303.76	0.0000
303.91	228.7720
304.40	231.9491
304.40	231.9491
304.84	244.2741
306.84	245.2484
308.46	263.0244
311.98	243.7166
316.51	252.3238
318.01	242.5083
319.02	242.7663
319.41	250.3125
320.08	248.6242
323.87	307.5821
323.87	307.5821
323.87	307.5821
323.87	307.5821
325.23	291.1639
328.77	243.3721
333.44	313.1521
334.20	286.6226
334.20	286.6226
334.30	272.4771
338.28	237.2040
338.28	237.2040
338.28	237.2040
338.28	237.2040
338.32	237.2162
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338.32	237.2162
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340.57	272.6203
344.27	236.7201
345.85	254.3008
350.59	0.0000
351.07	222.6172
351.92	209.6573
351.92	209.6573
351.92	209.6573
355.39	0.0000
356.01	189.8918
364.48	184.9462
366.43	188.2127
367.43	188.3894
367.94	0.0000
369.80	237.7200
374.96	206.4265
383.85	276.4900
387.95	186.9971
388.63	193.0835
391.69	257.4835
391.69	257.4835
392.90	260.7579
398.62	204.8417
400.65	224.3175
401.10	216.3569
401.81	209.4422
402.60	203.5412
404.84	215.0411
410.95	210.0853
411.60	217.3098
413.65	219.7231
414.70	213.8119
415.30	193.5463

415.76	193.6228
417.63	0.0000
418.52	204.2871
423.70	199.0205
427.08	170.7741
427.89	194.5648
432.53	219.0753
433.93	200.7043
439.47	0.0000
439.56	210.9768
439.89	215.1921
443.98	181.4808
444.90	192.0522
445.03	192.0725
445.03	192.0725
445.03	192.0725
445.03	192.0725
453.90	185.0148
463.38	183.5615
468.07	162.9672
473.00	217.6315
475.06	189.1212
475.35	174.2023
476.78	159.4111
477.59	146.6612
477.96	143.4906
482.03	233.0763
484.57	0.0000
487.03	133.6814
490.36	0.0000
492.35	0.0000
497.08	172.6815
507.63	0.0000
510.53	0.0000
510.84	175.4922
511.00	175.5117
511.85	175.6162
511.85	175.6162
513.99	175.8828
513.99	175.8828
520.41	170.0504
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	157.4347
529.87	0.0000
531.02	149.2440
537.32	130.3357
543.00	138.3134
546.56	0.0000
549.76	155.8378
552.65	144.8512
555.20	176.1875
563.23	155.3315
563.90	171.5103
568.70	167.2917
569.32	157.8472
569.50	155.0145
569.67	155.0311
573.80	175.9454
574.00	178.8292
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	144.8589
585.48	0.0000
591.81	148.3698
592.07	148.5671
593.00	146.7243
595.88	158.5914
600.56	160.6036
602.52	0.0000
602.71	154.8227
602.71	154.8227
603.60	169.8980
604.41	163.3174
604.70	166.6783
609.31	166.7313



609.31	166.7313
609.31	166.7313
609.31	166.7313
610.33	140.4932
612.46	154.0724
614.37	122.3931
618.01	138.7941
621.84	142.4541
621.84	142.4541
631.29	124.4824
633.02	137.4672
633.10	133.5168
634.78	145.5286
635.90	137.6991
636.97	128.8654
645.85	142.4850
646.12	137.5255
656.30	128.8801
657.75	116.9485
657.90	0.0000
661.65	138.7524
661.65	138.7524
664.57	0.0000
666.33	143.4407
666.33	143.4407
675.00	142.8359
677.61	133.9121
685.20	130.4010
692.80	118.6668
695.00	121.8811
696.49	142.4812
696.49	142.4812
697.00	148.6728
697.49	146.6600
698.33	148.7790
698.50	148.7937
699.00	152.9378
702.63	123.4131
706.10	129.8247
706.58	0.0000
706.67	138.1112
709.31	134.1762
711.68	126.0781
713.82	111.7375
717.42	126.4628
720.50	138.6089
721.93	0.0000
722.20	108.6690
722.78	114.0491
722.78	114.0491
722.89	114.0558
722.95	114.0580
723.30	114.0804
724.18	112.3484
727.18	134.4039
733.00	91.3667
735.90	125.5957
739.58	124.7839
742.81	107.1361
744.21	108.2619
747.13	128.4237
751.79	138.2254
752.31	126.6528
753.82	101.3984
755.35	0.0000
756.15	121.6096
756.87	136.4641
763.93	107.3758
765.79	125.6906
766.42	149.4172
766.84	144.5885
776.49	136.7357
778.00	132.5598
778.57	120.8350
778.89	118.7144
783.80	96.4874
785.46	95.4932
792.07	152.8482

795.84	77.6411
796.30	86.2874
798.80	150.1054
801.93	125.4566
805.60	91.0068
810.29	124.7160
810.76	116.3657
815.85	85.8505
817.79	0.0000
818.51	105.5789
819.60	112.1756
826.30	105.9651
828.27	0.0000
831.60	127.8463
831.96	136.3294
834.83	138.3944
836.80	0.0000
846.75	108.8614
848.13	101.3518
856.28	0.0000
856.80	120.7700
860.37	94.2938
867.32	121.3414
867.82	111.8115
871.10	101.4472
873.19	100.5835
874.81	100.6549
875.33	0.0000
876.40	103.6042
879.36	110.4637
880.27	111.4688
880.51	118.2082
881.50	99.9919
883.24	94.2949
884.67	103.0200
889.25	122.5219
896.60	97.7504
898.02	104.5892
899.00	105.6013
903.28	115.5033
911.07	93.4905
911.07	93.4905
911.07	93.4905
919.63	76.6295
920.93	78.7256
925.00	82.2891
925.24	80.0118
926.50	71.6679
935.52	74.0440
937.48	70.6577
944.10	86.8982
946.00	89.9320
949.00	99.9379
962.29	83.5708
964.01	83.6279
966.15	83.7012
968.20	83.7700
969.11	85.5481
969.11	85.5481
969.11	85.5481
977.42	85.4834
980.50	107.2370
983.50	88.3008
989.30	104.5967
996.32	135.1450
1001.03	91.9474
1001.68	89.9498
1004.76	124.4629
1021.30	0.0000
1024.50	0.0000
1034.80	98.2768
1036.00	95.2478
1037.82	107.6111
1038.57	100.4678
1038.76	0.0000
1045.16	91.4677
1046.59	103.8568
1048.07	116.2633

1050.47	117.3955
1050.47	117.3955
1062.04	104.4592
1063.62	97.2785
1076.63	75.9101
1077.35	73.8502
1078.86	89.5033
1085.78	103.2919
1099.22	107.9934
1112.02	90.3198
1112.84	94.0344
1115.52	84.8967
1120.29	86.6245
1120.29	86.6245
1120.29	86.6245
1120.29	86.6245
1120.51	86.6331
1121.28	86.6560
1124.00	0.0000
1129.67	83.4686
1131.51	0.0000
1147.95	0.0000
1167.94	111.8421
1173.22	108.2758
1175.09	90.4453
1177.93	99.9637
1189.05	106.9651
1204.90	112.2923
1205.75	0.0000
1213.00	96.3735
1221.42	106.2101
1230.97	148.7750
1235.34	123.9964
1236.41	0.0000
1238.25	117.3796
1246.25	111.8936
1260.41	0.0000
1271.85	84.6105
1274.45	116.7993
1274.54	116.8030
1291.56	85.1362
1298.22	0.0000
1312.09	77.8018
1325.50	69.2224
1325.50	69.2224
1332.49	62.4328
1333.61	58.4886
1360.21	61.9565
1362.66	0.0000
1365.15	58.0443
1368.21	79.1326
1368.53	0.0000
1376.25	59.2395
1384.27	84.5409
1394.10	59.5510
1395.20	56.5400
1407.95	59.7904
1434.06	43.9028
1436.60	52.1097
1457.56	0.0000
1460.81	59.6674
1489.15	33.1787
1509.49	35.4485
1596.49	47.4162
1620.62	32.4431
1678.03	0.0000
1691.02	28.1622
1691.02	28.1622
1706.46	0.0000
1750.46	0.0000
1764.49	19.7673
1764.49	19.7673
1764.49	19.7673
1764.49	19.7673
1770.23	21.3773
1771.40	19.6013
1791.20	0.0000
1808.65	26.9612

1836.01

18.0869

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101005

Total Uranium Activity	1.2321E+01	ug/g
Total Uranium Counting Unc.	5.4903E+00	ug/g
Total Uranium Tpu	2.8012E-06	ug/g
Total Uranium Mda	2.8680E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 944037          SAMPLE ID   : G245101005
*  ANALYST       : MXR1            DETECTOR    : GAM22
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 2-FEB-2010 09:46:46.96  SAMPLE ALQT: 116.860 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.298E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.385E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.495E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.211E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 12:29:11.23

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101006.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:15.
Sample ID          : G245101006 Sample quantity : 1.35140E+02 GRAM
Detector name      : GAM21 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:25.76 0.4%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.65*	129	363	0.67	93.29	90	7	1.79E-02	26.4	
2	0	63.29*	177	450	0.94	126.55	124	6	2.46E-02	20.5	
3	3	74.86*	757	380	0.80	149.68	144	14	1.05E-01	5.3	4.22E+00
4	3	77.09*	1075	293	0.69	154.13	144	14	1.49E-01	3.8	
5	3	84.10	93	143	0.93	168.15	167	10	1.29E-02	18.0	2.44E+00
6	3	87.16	332	361	0.84	174.26	167	10	4.61E-02	10.2	
7	0	89.89	199	289	0.89	179.72	178	5	2.77E-02	14.7	
8	0	92.87*	430	403	1.57	185.67	183	8	5.97E-02	9.5	
9	0	128.93	63	323	0.60	257.75	255	7	8.73E-03	49.2	
10	0	185.80*	169	210	1.06	371.45	369	6	2.35E-02	15.8	
11	0	208.85	140	264	1.13	417.54	413	10	1.94E-02	23.4	
12	8	238.46*	1164	128	0.84	476.73	472	25	1.62E-01	3.3	1.98E+00
13	8	241.51	329	206	1.65	482.84	472	25	4.57E-02	10.7	
14	0	269.85	100	148	0.88	539.50	536	8	1.38E-02	23.4	
15	0	277.23	47	150	0.73	554.25	550	7	6.49E-03	45.9	
16	0	295.10*	382	171	1.02	589.97	584	11	5.31E-02	8.4	
17	0	299.99	118	146	1.34	599.76	595	11	1.64E-02	21.9	
18	0	327.00	70	116	0.82	653.76	650	9	9.73E-03	30.1	
19	0	338.08	210	145	0.94	675.91	671	11	2.92E-02	13.0	
20	0	351.71*	544	137	1.10	703.16	697	10	7.56E-02	6.0	
21	0	462.91	67	85	0.98	925.53	922	10	9.24E-03	28.4	
22	0	510.71*	113	96	2.10	1021.13	1013	17	1.57E-02	24.5	
23	0	582.97*	281	58	1.36	1165.63	1161	10	3.90E-02	8.1	
24	0	608.98*	370	91	1.28	1217.64	1212	12	5.14E-02	7.4	
25	0	661.94	37	81	1.36	1323.57	1318	11	5.09E-03	50.7	
26	0	727.07*	93	48	1.67	1453.84	1447	16	1.29E-02	19.8	
27	0	767.83	35	55	1.44	1535.37	1529	11	4.86E-03	44.4	
28	0	795.68	25	48	1.40	1591.09	1582	12	3.49E-03	58.6	
29	0	860.63	35	61	1.57	1721.01	1716	14	4.89E-03	48.5	
30	0	910.66	224	49	1.49	1821.10	1814	15	3.12E-02	9.5	
31	0	964.87	29	47	1.59	1929.55	1924	10	4.00E-03	48.5	
32	0	968.57	123	35	1.31	1936.96	1933	11	1.71E-02	13.0	
33	0	1119.88	88	42	1.58	2239.69	2231	17	1.22E-02	20.0	
34	0	1460.10*	910	8	1.84	2920.57	2914	15	1.26E-01	3.4	
35	0	1763.70	50	4	2.09	3528.33	3520	14	6.95E-03	16.3	

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

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101006.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:15
Sample ID        : G245101006 Sample quantity : 135.14 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA21 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:25.76 0.4%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.287E+01	3.585E+00	6.780E-01	5.788E-02	48.484
CD-109	+	88.03	*	3.138E+00	7.030E-01	7.811E-01	7.350E-02	4.017
SN-126	+	64.28		6.258E-01	2.724E-01	2.966E-01	4.395E-02	2.110
	+	86.94		1.273E+00	5.887E-01	2.995E-01	1.243E-01	4.250
	+	87.57	*	3.062E-01	6.860E-02	7.240E-02	6.787E-03	4.230
BA-137M	+	661.65	*	7.253E-02	7.396E-02	6.972E-02	7.699E-03	1.040
CS-137	+	661.65	*	7.667E-02	7.819E-02	7.370E-02	8.149E-03	1.040
TL-208	+	277.35		5.019E-01	4.652E-01	6.127E-01	7.687E-02	0.819
	+	510.84		7.113E-01	3.594E-01	2.117E-01	2.689E-02	3.360
	+	583.14	*	5.215E-01	1.016E-01	6.886E-02	7.501E-03	7.573
	+	860.37		6.541E-01	6.378E-01	5.185E-01	5.148E-02	1.261
BI-210	+	46.50	*	1.201E+00	6.435E-01	5.925E-01	5.650E-02	2.027
PB-210	+	46.50	*	1.201E+00	6.435E-01	5.925E-01	5.650E-02	2.027
PO-210	+	46.50	*	1.201E+00	6.418E-01	5.925E-01	5.142E-02	2.027
BI-211		72.87		1.431E+00	1.444E+00	2.446E+00	2.047E-01	0.585
	+	351.07	*	3.899E+00	5.822E-01	3.325E-01	3.001E-02	11.726
PB-212	+	74.81		2.373E+00	3.922E-01	2.708E-01	3.418E-02	8.765
	+	77.11		2.008E+00	2.314E-01	1.618E-01	1.396E-02	12.406
	+	87.30		1.416E+00	3.475E-01	3.345E-01	4.580E-02	4.234
	+	238.63	*	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
	+	300.09		2.730E+00	1.229E+00	1.042E+00	1.112E-01	2.621
PO-212	+	74.81		2.373E+00	3.922E-01	2.708E-01	3.418E-02	8.765
	+	77.11		2.008E+00	2.314E-01	1.618E-01	1.396E-02	12.406
	+	87.30		1.416E+00	3.475E-01	3.345E-01	4.580E-02	4.234
	+	115.19		1.664E+00	2.674E+00	4.371E+00	4.802E-01	0.381
	+	238.63	*	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
	+	300.09		2.730E+00	1.229E+00	1.042E+00	1.112E-01	2.621
BI-214	+	609.31	*	1.307E+00	2.477E-01	1.268E-01	1.499E-02	10.301
	+	1120.29		1.742E+00	7.220E-01	5.905E-01	6.341E-02	2.949
	+	1764.49		1.470E+00	4.935E-01	4.073E-01	3.386E-02	3.608
PB-214	+	74.81		4.089E+00	6.343E-01	4.666E-01	5.255E-02	8.765
	+	77.11		3.442E+00	4.755E-01	2.774E-01	3.193E-02	12.406
	+	87.30		2.426E+00	5.748E-01	5.731E-01	6.946E-02	4.234
	+	241.98		2.814E+00	6.705E-01	4.985E-01	5.240E-02	5.645



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.547E+00	3.106E-01	1.860E-01	2.027E-02	8.314
	+	351.92	*	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
	+	74.81		4.089E+00	6.343E-01	4.666E-01	5.255E-02	8.765
	+	77.11		3.442E+00	4.755E-01	2.774E-01	3.193E-02	12.406
	+	87.30		2.426E+00	5.748E-01	5.731E-01	6.946E-02	4.234
	+	241.98		2.814E+00	6.705E-01	4.985E-01	5.240E-02	5.645
PO-216	+	295.21		1.547E+00	3.106E-01	1.860E-01	2.027E-02	8.314
	+	351.92	*	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
	+	74.81		2.373E+00	3.922E-01	2.708E-01	3.418E-02	8.765
	+	77.11		2.008E+00	2.314E-01	1.618E-01	1.396E-02	12.406
	+	87.30		1.416E+00	3.475E-01	3.345E-01	4.580E-02	4.234
	+	238.63	*	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
PO-218	+	300.09		2.730E+00	1.229E+00	1.042E+00	1.112E-01	2.621
	+	74.81		4.089E+00	6.343E-01	4.666E-01	5.255E-02	8.765
	+	77.11		3.442E+00	4.755E-01	2.774E-01	3.193E-02	12.406
	+	87.30		2.426E+00	5.748E-01	5.731E-01	6.946E-02	4.234
	+	241.98		2.814E+00	6.705E-01	4.985E-01	5.240E-02	5.645
	+	295.21		1.547E+00	3.106E-01	1.860E-01	2.027E-02	8.314
RA-224	+	351.92	*	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
RA-226	+	240.98	*	5.336E+00	1.236E+00	9.410E-01	8.361E-02	5.671
AC-228	+	609.31	*	1.307E+00	2.477E-01	1.268E-01	1.499E-02	10.301
	+	1120.29		1.742E+00	7.220E-01	5.905E-01	6.341E-02	2.949
	+	1764.49		1.470E+00	4.935E-01	4.073E-01	3.386E-02	3.608
	+	338.32		1.642E+00	8.014E-01	3.550E-01	1.466E-01	4.626
	+	911.07	*	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
	+	969.11		1.923E+00	6.731E-01	4.439E-01	1.038E-01	4.331
TH-228	+	338.32		1.642E+00	8.014E-01	3.550E-01	1.466E-01	4.626
	+	911.07	*	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
	+	969.11		1.923E+00	6.731E-01	4.439E-01	1.038E-01	4.331
	+	74.81		2.421E+00	3.311E-01	2.762E-01	2.364E-02	8.765
	+	77.11		2.048E+00	2.360E-01	1.651E-01	1.424E-02	12.406
	+	87.30		1.445E+00	3.237E-01	3.412E-01	3.191E-02	4.234
TH-230	+	238.63	*	1.685E+00	2.009E-01	8.410E-02	8.363E-03	20.035
	+	300.09		2.785E+00	2.052E+00	1.063E+00	6.305E-01	2.621
	+	609.31	*	1.306E+00	2.477E-01	1.268E-01	1.499E-02	10.301
	+	1120.29		1.742E+00	7.220E-01	5.905E-01	6.341E-02	2.949
	+	1764.49		1.470E+00	4.935E-01	4.073E-01	3.386E-02	3.608
	+	338.32		1.642E+00	4.505E-01	3.550E-01	3.095E-02	4.626
TH-232	+	911.07	*	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
	+	969.11		1.923E+00	6.731E-01	4.439E-01	1.038E-01	4.331
	+	63.29	*	1.581E+00	7.048E-01	7.633E-01	1.348E-01	2.071
	+	92.38		2.753E+00	7.330E-01	4.318E-01	8.022E-02	6.376
	+	609.31	*	1.306E+00	2.477E-01	1.268E-01	1.499E-02	10.301
	+	1120.29		1.742E+00	7.220E-01	5.905E-01	6.341E-02	2.949
U-234	+	1764.49		1.470E+00	4.935E-01	4.073E-01	3.386E-02	3.608
	+	86.50	*	8.993E-01	2.739E-01	2.112E-01	4.780E-02	4.257
	+	95.87		4.470E-02	5.929E-01	8.848E-01	2.218E-01	0.051
	+	63.29	*	1.581E+00	7.048E-01	7.633E-01	1.348E-01	2.071
	+	92.38		2.753E+00	5.880E-01	4.318E-01	4.151E-02	6.376

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.848E-01	5.244E-02	4.389E-02	3.719E-03	8.767
	+	86.72		3.372E+01	7.555E+00	7.928E+00	7.378E-01	4.254
		117.66		1.557E+00	2.853E+00	4.646E+00	5.185E-01	0.335
		142.18		-1.143E+01	1.390E+01	2.052E+01	2.080E+00	-0.557
ANH-511	+	511.00	*	1.536E-01	7.657E-02	4.574E-02	4.385E-03	3.359

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-4.091E-02	3.917E-01	6.517E-01	6.386E-02	-0.063
NA-22		1274.54	*	-1.017E-02	5.817E-02	9.152E-02	7.508E-03	-0.111
NA-24		1368.53	*	-2.308E+01	5.817E-02	Half-Life too short		
AL-26		1129.67		1.333E+00	2.300E+00	3.975E+00	3.346E-01	0.335
		1808.65	*	-3.870E-03	3.858E-02	6.104E-02	5.051E-03	-0.063
TI-44		67.85		-3.624E-03	1.809E-02	2.957E-02	2.398E-03	-0.123
	+	78.38	*	3.706E-01	4.271E-02	3.621E-02	3.153E-03	10.235
SC-46		889.25	*	-1.082E-02	5.035E-02	8.216E-02	7.306E-03	-0.132
	+	1120.51		3.103E-01	1.270E-01	1.712E-01	1.447E-02	1.812
V-48		944.10		5.254E-01	1.471E+00	2.529E+00	2.217E-01	0.208
		983.50	*	3.503E-02	1.087E-01	1.862E-01	1.629E-02	0.188
		1312.09		-3.492E-02	1.359E-01	2.125E-01	1.732E-02	-0.164
CR-51		320.08	*	8.790E-02	4.056E-01	6.667E-01	6.198E-02	0.132
MN-52		744.21		3.403E-01	5.179E-01	8.895E-01	9.454E-02	0.383
		848.13		1.716E+01	1.433E+01	2.675E+01	2.545E+00	0.642
		935.52		9.504E-01	6.646E-01	1.232E+00	1.080E-01	0.771
		1246.25		1.634E+01	1.898E+01	3.323E+01	2.731E+00	0.492
		1333.61		-2.916E-02	1.146E+01	1.922E+01	1.561E+00	-0.002
		1434.06	*	-1.171E-01	4.181E-01	6.547E-01	5.407E-02	-0.179
MN-54		834.83	*	-1.300E-02	4.602E-02	7.523E-02	7.291E-03	-0.173
CO-56		846.75	*	2.717E-02	4.609E-02	8.201E-02	7.817E-03	0.331
		977.42		1.536E-02	3.610E+00	5.977E+00	5.232E-01	0.003
		1037.82		-7.184E-02	4.291E-01	6.926E-01	6.324E-02	-0.104
		1175.09		5.683E-01	3.059E+00	5.070E+00	4.178E-01	0.112
		1238.25		2.705E-01	1.369E-01	2.554E-01	2.167E-02	1.059
		1360.21		-2.691E-02	1.194E+00	1.991E+00	1.625E-01	-0.014
		1771.40		9.660E-02	3.175E-01	5.526E-01	4.591E-02	0.175
CO-57		122.06	*	1.382E-03	1.994E-02	3.161E-02	3.632E-03	0.044
		136.48		-1.282E-01	1.757E-01	2.626E-01	2.910E-02	-0.488
CO-58		810.76	*	-2.478E-02	4.412E-02	6.950E-02	6.956E-03	-0.357
FE-59		142.65		-8.379E-01	2.271E+00	3.460E+00	3.495E-01	-0.242
		192.34		5.701E-01	8.543E-01	1.483E+00	1.977E-01	0.385
		1099.22	*	-1.372E-01	1.366E-01	1.970E-01	1.818E-02	-0.696
		1291.56		1.153E-02	1.973E-01	3.194E-01	3.001E-02	0.036
CO-60		1173.22		5.755E-02	5.891E-02	1.054E-01	8.682E-03	0.546
		1332.49	*	9.992E-03	4.878E-02	8.404E-02	6.821E-03	0.119
ZN-65		1115.52	*	-9.886E-03	1.355E-01	1.891E-01	1.603E-02	-0.052
GE-68		1077.35	*	-1.152E-01	1.786E+00	2.906E+00	2.495E-01	-0.040
AS-73		53.44	*	2.619E-01	1.811E-01	3.189E-01	2.582E-02	0.821

---- 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	*	-1.155E-02	1.234E-01	2.009E-01	2.108E-02	-0.057
		634.78		1.028E-01	4.633E-01	7.667E-01	8.309E-02	0.134
SE-75		66.05		6.436E-01	1.995E+00	3.097E+00	3.083E-01	0.208
		96.73		-5.144E-01	5.465E-01	7.548E-01	1.089E-01	-0.682
		121.11		6.651E-02	1.043E-01	1.701E-01	2.294E-02	0.391
		136.00		-4.088E-03	3.257E-02	5.061E-02	5.379E-03	-0.081
		198.60		1.489E+00	1.519E+00	2.669E+00	2.535E-01	0.558
		264.65	*	-1.240E-02	4.073E-02	6.567E-02	5.896E-03	-0.189
		279.53		8.898E-02	1.132E-01	1.764E-01	1.628E-02	0.505
		303.91		8.521E-01	2.152E+00	3.240E+00	3.790E-01	0.263
		400.65		-1.794E-01	2.836E-01	4.235E-01	4.534E-02	-0.424
BR-77	+	87.88		2.745E-03	2.836E-01	Half-Life too short		
		200.40		-3.204E-04	2.836E-01	Half-Life too short		
	+	239.00		1.082E-03	2.836E-01	Half-Life too short		
		249.79		1.338E-04	2.836E-01	Half-Life too short		
		281.68		-2.620E-04	2.836E-01	Half-Life too short		
		297.23		3.153E-04	2.836E-01	Half-Life too short		
		303.76		1.772E-04	2.836E-01	Half-Life too short		
		439.47		5.734E-05	2.836E-01	Half-Life too short		
		484.57		-3.923E-04	2.836E-01	Half-Life too short		
		520.65	*	1.445E-05	2.836E-01	Half-Life too short		
		574.64		3.135E-04	2.836E-01	Half-Life too short		
		578.91		-7.746E-05	2.836E-01	Half-Life too short		
		585.48		1.635E-03	2.836E-01	Half-Life too short		
		755.35		6.715E-04	2.836E-01	Half-Life too short		
		817.79		-1.851E-04	2.836E-01	Half-Life too short		
SR-82		698.33		-1.653E+01	5.117E+01	8.026E+01	8.757E+00	-0.206
		776.49	*	1.338E-01	5.480E-01	8.997E-01	9.313E-02	0.149
		1395.20		6.124E+00	1.346E+01	2.418E+01	1.986E+00	0.253
RB-83		520.41	*	1.143E-02	7.094E-02	1.198E-01	1.162E-02	0.095
		529.64		7.429E-02	1.188E-01	2.076E-01	2.036E-02	0.358
		552.65		8.220E-02	2.239E-01	3.826E-01	3.849E-02	0.215
RB-84		881.50	*	5.268E-02	9.780E-02	1.720E-01	1.551E-02	0.306
KR-85		513.99	*	8.693E+00	7.401E+00	1.233E+01	1.187E+00	0.705
SR-85		513.99	*	4.689E-02	3.992E-02	6.651E-02	6.400E-03	0.705
RB-86		1076.63	*	7.445E-01	1.295E+00	2.247E+00	1.929E-01	0.331
Y-88		898.02		-7.976E-03	5.652E-02	9.298E-02	8.173E-03	-0.086
		1836.01	*	2.454E-02	4.012E-02	7.572E-02	6.252E-03	0.324
ZR-88		392.90	*	-8.984E-03	3.399E-02	5.273E-02	4.200E-03	-0.170
Y-91		1204.90	*	9.992E+00	3.085E+01	5.143E+01	4.237E+00	0.194
NB-94		702.63	*	4.270E-02	4.492E-02	7.821E-02	8.518E-03	0.546
		871.10		1.313E-02	4.443E-02	7.645E-02	7.017E-03	0.172
NB-95		765.79	*	1.873E-02	6.945E-02	1.004E-01	1.049E-02	0.187
NB-95M		235.69	*	4.476E-02	1.183E-01	1.810E-01	1.824E-02	0.247
ZR-95		724.18		3.249E-02	1.279E-01	1.866E-01	2.122E-02	0.174
		756.15	*	9.037E-02	9.006E-02	1.590E-01	1.791E-02	0.568
NB-97		657.90	*	-1.881E+00	9.006E-02	Half-Life too short		
		1024.50		-2.483E+02	9.006E-02	Half-Life too short		
ZR-97		254.15		1.912E+02	9.006E-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			1.845E+02	9.006E-02	Half-Life	too short	
	507.63	*		2.314E+02	9.006E-02	Half-Life	too short	
	602.52			3.697E+02	9.006E-02	Half-Life	too short	
	1021.30			-5.197E+02	9.006E-02	Half-Life	too short	
	1147.95			1.398E+02	9.006E-02	Half-Life	too short	
	1362.66			-2.643E+02	9.006E-02	Half-Life	too short	
	1750.46			-4.466E+02	9.006E-02	Half-Life	too short	
MO-99	140.51			2.978E+01	7.087E+01	1.125E+02	3.179E+01	0.265
	181.06			-1.947E+00	4.483E+01	7.588E+01	1.378E+01	-0.026
	366.43			2.321E+02	2.693E+02	4.615E+02	3.870E+01	0.503
	739.58	*		-1.126E+01	4.833E+01	7.569E+01	1.244E+01	-0.149
	778.00			5.935E+01	1.462E+02	2.438E+02	2.521E+01	0.243
TC-99M	140.51	*		7.815E+15	1.462E+02	Half-Life	too short	
RH-101	127.23			1.448E-03	2.855E-02	4.149E-02	4.632E-03	0.035
	198.01	*		3.349E-02	2.688E-02	4.778E-02	4.081E-03	0.701
	325.23			9.682E-02	2.309E-01	3.464E-01	3.055E-02	0.280
RH-102	418.52			-2.312E-02	2.958E-01	4.990E-01	4.166E-02	-0.046
	475.06	*		1.835E-02	3.226E-02	5.637E-02	5.149E-03	0.326
	631.29			1.896E-02	5.996E-02	1.011E-01	1.093E-02	0.187
	697.49			2.770E-02	9.672E-02	1.606E-01	1.753E-02	0.172
+	766.84			2.155E-01	1.925E-01	2.522E-01	2.633E-02	0.854
	1046.59			-9.129E-02	1.524E-01	2.331E-01	2.018E-02	-0.392
	1112.84			-2.419E-02	3.522E-01	4.921E-01	4.171E-02	-0.049
RU-103	497.08	*		4.882E-02	4.847E-02	8.659E-02	1.269E-02	0.564
+	610.33			1.536E+01	3.558E+00	3.896E+00	6.937E-01	3.942
RH-106	511.85	+		7.744E-01	3.859E-01	4.353E-01	4.178E-02	1.779
	621.84	*		5.716E-02	3.715E-01	6.167E-01	9.131E-02	0.093
	1050.47			-1.102E-01	2.773E+00	4.533E+00	3.921E-01	-0.024
RU-106	511.85	+		7.744E-01	3.859E-01	4.353E-01	4.178E-02	1.779
	621.84	*		5.716E-02	3.714E-01	6.167E-01	6.616E-02	0.093
	1050.47			-1.102E-01	2.773E+00	4.533E+00	3.921E-01	-0.024
AG-108M	433.93	*		-9.124E-03	3.441E-02	5.703E-02	5.085E-03	-0.160
	614.37			-7.067E-03	4.636E-02	6.509E-02	7.121E-03	-0.109
	722.95			-2.853E-03	5.016E-02	6.995E-02	7.728E-03	-0.041
AG-110M	657.75	*		-8.245E-03	4.870E-02	6.773E-02	7.597E-03	-0.122
	677.61			-5.370E-02	3.699E-01	5.910E-01	6.612E-02	-0.091
	706.67			-2.490E-01	2.738E-01	4.002E-01	4.426E-02	-0.622
	763.93			1.118E-01	2.216E-01	3.327E-01	3.550E-02	0.336
	884.67			-9.822E-03	6.416E-02	1.055E-01	9.744E-03	-0.093
	937.48			-1.222E-01	1.702E-01	2.638E-01	2.393E-02	-0.463
	1384.27			6.604E-02	1.887E-01	3.322E-01	2.807E-02	0.199
IN-111	171.28			4.801E-01	2.494E+00	4.287E+00	3.515E-01	0.112
	245.39	*		-4.315E+00	3.018E+00	4.510E+00	4.015E-01	-0.957
IN-113M	391.69	*		-5.399E-02	4.858E-02	6.914E-02	5.695E-03	-0.781
SN-113	391.69	*		-5.399E-02	4.858E-02	6.914E-02	5.695E-03	-0.781
IN-114M	190.27	*		-7.356E-02	1.630E-01	2.693E-01	2.275E-02	-0.273
CD-115	260.90			8.296E-05	1.630E-01	Half-Life	too short	
	492.35			-1.351E-04	1.630E-01	Half-Life	too short	
	527.90	*		-3.261E-08	1.630E-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
SN-117M		156.02		-1.323E+00	2.278E+00	3.802E+00	3.432E-01	-0.348
		158.56	*	5.448E-02	5.472E-02	9.746E-02	8.578E-03	0.559
SB-122		563.90	*	4.534E+00	8.099E+00	1.400E+01	1.425E+00	0.324
		692.80		3.241E+01	1.962E+02	3.223E+02	3.525E+01	0.101
I-123		159.00	*	3.626E+02	1.962E+02	Half-Life	too short	
		528.96		1.015E+05	1.962E+02	Half-Life	too short	
TE-123M		159.00	*	4.106E-03	2.313E-02	3.991E-02	3.518E-03	0.103
I-124		602.71	*	8.036E-01	1.897E+00	3.006E+00	3.174E-01	0.267
		722.78		-8.507E-01	1.163E+01	1.618E+01	1.743E+00	-0.053
		1325.50		-6.930E+01	9.222E+01	1.376E+02	1.118E+01	-0.504
		1376.25		1.217E+02	8.004E+01	1.596E+02	1.306E+01	0.763
		1509.49		2.619E+01	3.982E+01	7.339E+01	6.109E+00	0.357
		1691.02		-5.078E+00	1.039E+01	1.489E+01	1.244E+00	-0.341
SB-124		602.71		2.220E-02	5.241E-02	8.305E-02	8.771E-03	0.267
		645.85		-2.877E-02	6.325E-01	1.026E+00	1.164E-01	-0.028
		709.31		-1.102E+00	3.570E+00	5.578E+00	6.055E-01	-0.198
		713.82		-8.775E-01	2.108E+00	3.246E+00	4.450E-01	-0.270
		722.78		-3.407E-02	4.659E-01	6.479E-01	7.079E-02	-0.053
	+	968.20		2.092E+01	5.750E+00	9.817E+00	8.599E-01	2.131
		1045.16		6.356E-01	3.414E+00	5.726E+00	4.959E-01	0.111
		1325.50		-2.964E+00	3.945E+00	5.884E+00	4.782E-01	-0.504
		1368.21		-5.244E-01	2.090E+00	3.349E+00	4.419E-01	-0.157
		1436.60		-2.334E+00	3.788E+00	5.418E+00	4.476E-01	-0.431
		1691.02	*	-4.797E-02	9.815E-02	1.406E-01	1.224E-02	-0.341
SB-125		427.89	*	6.936E-03	1.053E-01	1.791E-01	1.551E-02	0.039
	+	463.38		8.024E-01	4.629E-01	6.333E-01	6.099E-02	1.267
		600.56		1.232E-01	2.067E-01	3.563E-01	3.942E-02	0.346
		635.90		4.137E-03	2.973E-01	4.814E-01	5.491E-02	0.009
TE-125M		109.28	*	4.165E+00	6.781E+00	1.113E+01	1.340E+00	0.374
I-126		388.63		4.225E-01	2.671E-01	4.768E-01	3.819E-02	0.886
		666.33	*	2.344E-01	3.026E-01	4.744E-01	5.233E-02	0.494
		753.82		-9.027E-01	2.433E+00	3.747E+00	3.955E-01	-0.241
SB-126		223.80		-1.322E+00	4.472E+00	7.336E+00	6.444E-01	-0.180
	+	278.60		4.344E+00	4.008E+00	5.533E+00	4.934E-01	0.785
	+	296.50		2.016E+01	3.848E+00	4.400E+00	3.927E-01	4.582
		414.70		-8.457E-02	9.498E-02	1.497E-01	1.242E-02	-0.565
		415.30		-1.291E+00	7.927E+00	1.329E+01	1.103E+00	-0.097
		555.20		-8.182E-01	5.554E+00	9.057E+00	9.137E-01	-0.090
		573.80		1.083E+00	1.447E+00	2.544E+00	2.615E-01	0.426
		593.00		-1.540E-01	1.357E+00	2.206E+00	2.310E-01	-0.070
		656.30		-5.871E+00	5.954E+00	7.181E+00	7.902E-01	-0.818
		666.33		9.903E-02	1.279E-01	2.004E-01	2.211E-02	0.494
		675.00		-4.018E-01	3.043E+00	4.870E+00	5.360E-01	-0.083
		695.00		-7.440E-02	1.373E-01	2.108E-01	2.304E-02	-0.353
		697.00		2.854E-01	4.377E-01	7.496E-01	8.184E-02	0.381
		720.50	*	8.892E-02	2.376E-01	3.538E-01	3.817E-02	0.251
		856.80		4.410E-01	7.729E-01	1.224E+00	1.150E-01	0.360
		989.30		1.513E-01	2.264E+00	3.767E+00	3.294E-01	0.040
		1034.80		2.728E+00	1.540E+01	2.582E+01	2.241E+00	0.106

---- 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			4.067E+00	9.023E+00	1.522E+01	1.254E+00	0.267
	61.10			1.061E+01	4.518E+01	7.026E+01	8.570E+00	0.151
	252.40			-7.581E+00	9.921E+00	1.472E+01	6.262E+00	-0.515
	290.80			1.358E+00	5.131E+01	7.499E+01	9.690E+00	0.018
	411.60			-7.384E+00	3.135E+01	4.849E+01	8.085E+00	-0.152
	444.90			-2.463E+00	2.400E+01	4.018E+01	5.624E+00	-0.061
	473.00			-1.170E+00	4.240E+00	6.951E+00	1.010E+00	-0.168
	543.00			1.838E+01	4.469E+01	7.651E+01	1.255E+01	0.240
	603.60			3.384E+01	3.403E+01	5.450E+01	8.280E+00	0.621
	685.20	*		-2.318E+00	4.034E+00	6.132E+00	8.941E-01	-0.378
	698.50			-1.466E+01	4.759E+01	7.468E+01	1.361E+01	-0.196
	722.20			2.230E+01	8.097E+01	1.192E+02	1.700E+01	0.187
XE-127	783.80			2.866E+00	1.130E+01	1.851E+01	2.762E+00	0.155
	57.60			1.762E+00	1.811E+00	3.123E+00	2.459E-01	0.564
	145.22			-2.215E-01	6.281E-01	9.574E-01	9.483E-02	-0.231
	172.10			-4.194E-02	9.952E-02	1.658E-01	1.361E-02	-0.253
	202.84	*		1.254E-02	4.310E-02	7.351E-02	6.317E-03	0.171
I-131	374.96			4.014E-03	2.232E-01	3.565E-01	2.942E-02	0.011
	80.18			1.573E+00	3.776E+00	5.809E+00	5.183E-01	0.271
	284.30			1.246E+00	2.069E+00	3.514E+00	3.302E-01	0.354
	364.48	*		-3.161E-02	1.750E-01	2.754E-01	2.460E-02	-0.115
TE-132	636.97			-2.154E+00	2.521E+00	3.650E+00	4.114E-01	-0.590
	722.89			-8.008E-01	1.279E+01	1.782E+01	1.934E+00	-0.045
	49.72			9.206E+00	8.586E+00	1.406E+01	1.697E+00	0.655
	111.76			3.620E+01	5.769E+01	9.454E+01	1.307E+01	0.383
	116.30			5.841E+00	5.855E+01	9.331E+01	1.313E+01	0.063
BA-133	228.16	*		-6.166E-02	1.712E+00	2.847E+00	4.785E-01	-0.022
	53.15			9.629E-01	7.328E-01	1.286E+00	1.044E-01	0.749
	79.62			-1.523E-01	7.166E-01	1.068E+00	1.636E-01	-0.143
	81.00			-1.588E-02	5.038E-02	8.083E-02	1.295E-02	-0.196
	+ 276.40			4.964E-01	4.616E-01	6.623E-01	9.690E-02	0.750
I-133	302.84			4.493E-02	1.425E-01	2.130E-01	2.871E-02	0.211
	356.01	*		1.905E-02	4.559E-02	6.796E-02	8.932E-03	0.280
	383.85			-1.840E-01	3.066E-01	4.604E-01	5.641E-02	-0.400
	+ 510.53			7.378E+01	3.066E-01	Half-Life	too short	
	529.87	*		2.891E-01	3.066E-01	Half-Life	too short	
	706.58			-2.132E+01	3.066E-01	Half-Life	too short	
	856.28			1.563E+01	3.066E-01	Half-Life	too short	
	875.33			1.573E+00	3.066E-01	Half-Life	too short	
	1236.41			2.888E+01	3.066E-01	Half-Life	too short	
	1298.22			-4.202E-01	3.066E-01	Half-Life	too short	
CS-134	475.35			1.213E+00	2.087E+00	3.651E+00	3.337E-01	0.332
	563.23			3.290E-01	4.111E-01	7.229E-01	7.404E-02	0.455
	569.32			1.378E-01	2.239E-01	3.884E-01	4.014E-02	0.355
	604.70			-2.613E-02	4.479E-02	5.952E-02	6.307E-03	-0.439
	+ 795.84	*		7.130E-02	8.389E-02	1.065E-01	1.087E-02	0.669
	801.93			1.426E-01	4.625E-01	8.029E-01	8.134E-02	0.178
	1038.57			-5.366E+00	5.352E+00	7.778E+00	6.745E-01	-0.690
	1167.94			7.578E-01	3.534E+00	5.869E+00	4.850E-01	0.129

---- 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			1.311E+00	1.382E+00	2.640E+00	2.266E-01	0.497
	268.24	*		1.147E-01	1.602E-01	2.485E-01	2.544E-02	0.462
	288.45			-8.128E+14	1.602E-01	Half-Life	too short	
	417.63			2.807E+15	1.602E-01	Half-Life	too short	
	546.56			-2.487E+15	1.602E-01	Half-Life	too short	
	836.80			3.680E+14	1.602E-01	Half-Life	too short	
	1038.76			-4.382E+15	1.602E-01	Half-Life	too short	
	1124.00			-4.910E+15	1.602E-01	Half-Life	too short	
	1131.51			1.009E+15	1.602E-01	Half-Life	too short	
	1260.41	*		-1.095E+15	1.602E-01	Half-Life	too short	
	1457.56			1.855E+17	1.602E-01	Half-Life	too short	
	1678.03			-3.871E+14	1.602E-01	Half-Life	too short	
	1706.46			1.388E+15	1.602E-01	Half-Life	too short	
	1791.20			3.076E+15	1.602E-01	Half-Life	too short	
CS-136 +	66.91			3.766E-02	3.903E-01	6.460E-01	9.779E-02	0.058
	86.29			5.151E+00	1.254E+00	1.641E+00	2.183E-01	3.139
	153.22			4.489E-01	6.591E-01	1.161E+00	1.187E-01	0.386
	163.89			1.934E-01	1.117E+00	1.923E+00	1.805E-01	0.101
	176.55			2.072E-01	3.619E-01	6.316E-01	5.555E-02	0.328
	273.65			1.522E-01	7.088E-01	8.456E-01	8.020E-02	0.180
	340.57			7.024E-02	1.688E-01	2.519E-01	2.255E-02	0.279
	818.51			-2.560E-02	1.074E-01	1.761E-01	1.745E-02	-0.145
	1048.07	*		-8.574E-02	1.780E-01	2.757E-01	2.488E-02	-0.311
	1235.34			2.773E-01	1.220E+00	2.008E+00	2.323E-01	0.138
CE-139 BA-140	165.85	*		-1.446E-03	2.472E-02	4.210E-02	3.423E-03	-0.034
	162.64			2.261E-01	7.764E-01	1.344E+00	1.202E-01	0.168
	304.84			-5.346E-02	1.752E+00	2.534E+00	7.125E-01	-0.021
	423.70			-1.491E+00	2.847E+00	4.586E+00	1.484E+00	-0.325
	537.32	*		1.194E-01	3.806E-01	6.448E-01	2.160E-01	0.185
LA-140	328.77			3.744E-01	4.326E-01	6.687E-01	6.198E-02	0.560
	432.53			1.742E+00	2.790E+00	4.924E+00	4.419E-01	0.354
	487.03			1.862E-02	1.929E-01	3.255E-01	3.185E-02	0.057
	751.79			-1.137E+00	2.806E+00	4.303E+00	4.876E-01	-0.264
	815.85			-1.557E-01	4.850E-01	7.887E-01	8.520E-02	-0.197
	867.82			3.011E-01	2.599E+00	3.849E+00	3.717E-01	0.078
	919.63			1.153E+00	4.331E+00	7.417E+00	7.983E-01	0.155
	925.24			6.463E-01	1.726E+00	2.989E+00	2.779E-01	0.216
	1596.49	*		-5.051E-02	1.101E-01	1.604E-01	1.342E-02	-0.315
	145.44	*		-2.033E-02	5.768E-02	8.790E-02	8.813E-03	-0.231
CE-141 CE-143 +	57.37			1.983E-03	5.768E-02	Half-Life	too short	
	231.56			3.498E-03	5.768E-02	Half-Life	too short	
	293.26	*		4.535E-03	5.768E-02	Half-Life	too short	
	350.59			3.509E-01	5.768E-02	Half-Life	too short	
	490.36			-2.914E-03	5.768E-02	Half-Life	too short	
	664.57			1.333E-02	5.768E-02	Half-Life	too short	
	721.93			6.188E-03	5.768E-02	Half-Life	too short	
	80.11			4.921E-01	1.160E+00	1.785E+00	1.575E-01	0.276
CE-144 PM-144	133.54	*		2.059E-02	1.650E-01	2.604E-01	4.386E-02	0.079
	476.78			-3.046E-03	7.634E-02	1.276E-01	1.267E-02	-0.024

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		1.648E-02	3.635E-02	6.202E-02	6.754E-03	0.266
		696.49	*	2.925E-02	4.306E-02	7.392E-02	8.076E-03	0.396
		778.57		3.044E+00	2.880E+00	5.096E+00	5.267E-01	0.597
PR-144		696.49	*	1.987E+00	2.925E+00	5.022E+00	5.484E-01	0.396
		1489.15		-8.756E+00	1.451E+01	2.121E+01	1.762E+00	-0.413
PM-146		453.90	*	6.696E-05	4.853E-02	8.175E-02	8.920E-03	0.001
		633.02		2.888E-01	1.571E+00	2.607E+00	9.892E-01	0.111
		735.90		9.566E-02	1.677E-01	2.838E-01	8.313E-02	0.337
		747.13		-5.152E-02	1.154E-01	1.759E-01	2.698E-02	-0.293
ND-147	+	91.11		8.624E-01	2.688E-01	3.775E-01	3.851E-02	2.285
		319.41		4.069E-01	4.235E+00	6.904E+00	6.115E-01	0.059
		439.89		-1.223E+00	8.093E+00	1.351E+01	1.170E+00	-0.091
		531.02	*	2.599E-01	7.832E-01	1.339E+00	2.099E-01	0.194
PM-149		285.90	*	-1.032E-04	7.832E-01	Half-Life too short		
EU-152		121.78		4.456E-03	5.664E-02	8.987E-02	1.121E-02	0.050
		244.69		-4.268E-01	2.828E-01	4.195E-01	3.734E-02	-1.018
		344.27	*	-1.031E-02	9.258E-02	1.475E-01	1.352E-02	-0.070
		443.98		2.763E-01	9.692E-01	1.671E+00	1.456E-01	0.165
		778.89		1.691E-01	3.372E-01	5.675E-01	5.861E-02	0.298
		867.32		3.254E-01	1.126E+00	1.712E+00	1.581E-01	0.190
	+	964.01		5.183E-01	5.048E-01	7.340E-01	6.431E-02	0.706
		1085.78		3.731E-02	5.562E-01	9.171E-01	7.851E-02	0.041
		1112.02		-3.278E-02	5.249E-01	7.345E-01	6.228E-02	-0.045
		1407.95		1.951E-01	2.289E-01	4.267E-01	3.510E-02	0.457
GD-153		69.67		-1.195E-01	7.108E-01	1.162E+00	9.523E-02	-0.103
	+	83.37		1.521E+01	5.657E+00	1.437E+01	1.301E+00	1.058
		97.43	*	-5.965E-02	5.152E-02	7.724E-02	7.630E-03	-0.772
		103.18		-7.582E-02	7.017E-02	1.048E-01	1.070E-02	-0.724
EU-154		123.07		-4.214E-03	4.124E-02	6.472E-02	8.812E-03	-0.065
		247.94		3.406E-02	3.534E-01	5.278E-01	6.174E-02	0.065
		591.81		-7.219E-02	7.041E-01	1.146E+00	1.500E-01	-0.063
		723.30		-1.580E-02	2.096E-01	2.914E-01	3.355E-02	-0.054
		756.87		6.581E-01	9.459E-01	1.623E+00	2.178E-01	0.405
		873.19		2.671E-01	4.061E-01	7.181E-01	9.063E-02	0.372
		996.32		-1.540E-01	4.709E-01	7.484E-01	1.334E-01	-0.206
		1004.76		2.421E-02	2.730E-01	4.549E-01	5.330E-02	0.053
		1274.45	*	-9.502E-03	1.592E-01	2.542E-01	2.794E-02	-0.037
EU-155		48.70		-4.775E-01	3.586E-01	5.137E-01	4.346E-02	-0.929
		60.01		-1.021E+00	1.642E+00	2.448E+00	1.912E-01	-0.417
	+	86.54		3.695E-01	8.290E-02	1.252E-01	1.174E-02	2.952
		105.31	*	1.281E-01	7.120E-02	1.227E-01	1.279E-02	1.044
TB-160	+	86.79		1.032E+00	2.311E-01	3.644E-01	3.394E-02	2.831
		197.04		2.045E-01	4.868E-01	8.367E-01	7.137E-02	0.244
		215.65		-2.191E-01	6.645E-01	1.092E+00	9.521E-02	-0.201
	+	298.57		4.161E-01	1.856E-01	2.045E-01	1.825E-02	2.035
		879.36	*	-1.475E-02	1.853E-01	3.074E-01	2.782E-02	-0.048
		962.29		5.936E-01	8.110E-01	1.276E+00	1.118E-01	0.465
	+	966.15		3.725E-01	3.628E-01	6.981E-01	6.115E-02	0.534
		1177.93		-3.089E-01	4.815E-01	7.206E-01	5.938E-02	-0.429



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HO-166M		1271.85		-5.680E-02	1.091E+00	1.746E+00	1.431E-01	-0.033
		80.57		-5.273E-02	1.512E-01	2.236E-01	1.980E-02	-0.236
	+	184.41		1.199E-01	3.922E-02	5.287E-02	4.428E-03	2.267
		280.46		2.053E-02	8.727E-02	1.303E-01	1.162E-02	0.158
		410.95		2.611E-01	2.654E-01	4.521E-01	3.724E-02	0.578
		711.68	*	6.752E-02	7.088E-02	1.250E-01	1.356E-02	0.540
		752.31		-2.018E-01	3.440E-01	5.154E-01	5.445E-02	-0.392
TM-171		810.29		-4.807E-02	6.271E-02	9.596E-02	9.591E-03	-0.501
		51.35		-9.845E+00	5.627E+00	8.612E+00	7.098E-01	-1.143
		52.39		2.827E-01	3.016E+00	5.071E+00	4.142E-01	0.056
		59.40		-6.444E+00	8.107E+00	1.302E+01	1.016E+00	-0.495
		66.72	*	8.880E+00	1.150E+01	1.820E+01	1.467E+00	0.488
LU-176	+	88.36		7.263E-01	1.627E-01	2.127E-01	2.005E-02	3.414
		201.83		-2.847E-02	2.413E-02	3.793E-02	3.256E-03	-0.750
		306.84	*	1.059E-02	2.357E-02	3.948E-02	3.516E-03	0.268
		401.10		-5.791E+00	7.313E+00	1.077E+01	8.710E-01	-0.538
LU-177		112.95		-1.977E+00	1.994E+00	2.981E+00	3.230E-01	-0.663
LU-177M	+	208.36	*	5.615E+00	2.673E+00	3.147E+00	2.722E-01	1.784
		52.97		4.175E-01	3.331E-01	5.836E-01	4.744E-02	0.715
		54.07		1.982E-01	1.874E-01	3.260E-01	2.627E-02	0.608
		61.30		5.350E-02	5.030E-01	7.774E-01	6.102E-02	0.069
HF-181		121.62		1.239E-01	2.892E-01	4.674E-01	5.351E-02	0.265
		147.16		9.250E-02	5.662E-01	8.885E-01	8.668E-02	0.104
		171.86		-4.025E-02	3.711E-01	6.284E-01	5.157E-02	-0.064
		218.09		-6.035E-03	7.453E-01	1.246E+00	1.089E-01	-0.005
	+	268.79		2.271E+00	1.084E+00	1.498E+00	1.338E-01	1.516
		319.02		-6.196E-02	2.467E-01	3.914E-01	3.466E-02	-0.158
		367.43		1.386E-01	8.715E-01	1.412E+00	1.182E-01	0.098
		413.65	*	-2.023E-01	1.888E-01	2.667E-01	2.208E-02	-0.758
		56.28		-3.176E-01	2.514E-01	3.940E-01	3.128E-02	-0.806
		57.53		1.298E-01	1.491E-01	2.564E-01	2.020E-02	0.506
		65.20		-6.651E-02	4.061E-01	6.167E-01	4.929E-02	-0.108
		133.02		-1.017E-02	5.726E-02	8.889E-02	9.585E-03	-0.114
W-181		136.25		-2.779E-01	4.118E-01	6.182E-01	6.529E-02	-0.449
		345.85		-1.016E-01	2.264E-01	3.078E-01	2.661E-02	-0.330
		482.03	*	-2.535E-03	5.144E-02	8.585E-02	7.920E-03	-0.030
		56.28		-1.181E-01	9.353E-02	1.466E-01	1.163E-02	-0.806
TA-182		57.53		4.812E-02	5.548E-02	9.538E-02	7.514E-03	0.504
		65.20	*	-2.456E-02	1.500E-01	2.277E-01	1.820E-02	-0.108
		67.75		-2.928E-02	4.526E-02	7.257E-02	5.882E-03	-0.403
		100.10		1.564E-01	1.195E-01	2.027E-01	2.033E-02	0.771
RE-183		152.43		-1.175E-01	2.998E-01	4.539E-01	4.234E-02	-0.259
		222.10		1.696E-01	2.989E-01	5.138E-01	4.507E-02	0.330
		1001.68		2.366E+00	2.611E+00	4.704E+00	4.107E-01	0.503
	+	1121.28		8.478E-01	3.469E-01	4.456E-01	3.765E-02	1.903
		1189.05		-5.570E-02	4.776E-01	7.657E-01	6.310E-02	-0.073
		1221.42	*	5.144E-02	2.970E-01	4.882E-01	4.019E-02	0.105
		1230.97		3.667E-01	8.064E-01	1.352E+00	1.112E-01	0.271
		57.98		8.840E-02	5.829E-02	1.021E-01	8.024E-03	0.866

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		-2.576E-02	3.474E-02	5.596E-02	4.366E-03	-0.460
		67.20		2.192E-03	8.184E-02	1.351E-01	1.092E-02	0.016
		162.32	*	1.815E-02	9.211E-02	1.588E-01	1.344E-02	0.114
	+	208.81		3.218E+00	1.532E+00	1.823E+00	1.577E-01	1.766
		291.72		-5.574E-01	1.023E+00	1.415E+00	1.263E-01	-0.394
		57.98		3.168E-01	2.089E-01	3.659E-01	2.875E-02	0.866
		59.32		-9.224E-02	1.244E-01	2.003E-01	1.563E-02	-0.460
		67.20		7.853E-03	2.932E-01	4.839E-01	3.910E-02	0.016
		161.27		-1.629E-01	2.883E-01	4.801E-01	4.109E-02	-0.339
		216.55		1.555E-01	2.252E-01	3.899E-01	3.402E-02	0.399
OS-185		252.85	*	-7.927E-02	2.109E-01	3.399E-01	3.034E-02	-0.233
		318.01		-3.166E-01	4.344E-01	6.622E-01	5.867E-02	-0.478
		792.07		8.621E-02	1.407E+00	1.976E+00	2.015E-01	0.044
		903.28		-4.109E-01	1.390E+00	2.024E+00	1.771E-01	-0.203
		920.93		7.574E-02	5.448E-01	9.209E-01	8.069E-02	0.082
		59.72		-9.368E-02	9.277E-02	1.474E-01	1.150E-02	-0.636
		61.14		1.184E-02	5.595E-02	8.693E-02	6.819E-03	0.136
		69.30		-6.644E-02	1.273E-01	2.049E-01	1.676E-02	-0.324
		592.07		2.792E-01	2.926E+00	4.853E+00	5.076E-01	0.058
		646.12	*	-9.195E-03	5.264E-02	8.430E-02	9.211E-03	-0.109
RE-188		717.42		-5.447E-01	1.059E+00	1.605E+00	1.735E-01	-0.339
		874.81		5.305E-01	8.006E-01	1.420E+00	1.296E-01	0.374
		880.27		3.141E-01	1.012E+00	1.744E+00	1.576E-01	0.180
		155.03	*	-4.361E-02	1.412E-01	2.389E-01	2.176E-02	-0.183
		477.96		9.059E-01	3.700E+00	6.314E+00	5.792E-01	0.143
W-188	+	633.10		4.272E-01	3.300E+00	5.461E+00	5.910E-01	0.078
		63.58		6.668E+01	2.780E+01	3.846E+01	3.049E+00	1.734
IR-192		227.08		-2.863E+00	1.158E+01	1.904E+01	1.677E+00	-0.150
		290.67	*	8.198E-01	7.865E+00	1.157E+01	1.033E+00	0.071
	+	295.96		1.234E+00	2.358E-01	3.221E-01	2.894E-02	3.831
		308.46		-1.042E-02	9.507E-02	1.531E-01	1.369E-02	-0.068
		316.51	*	-8.228E-04	3.217E-02	5.201E-02	4.622E-03	-0.016
AU-195		468.07		5.752E-02	8.073E-02	1.286E-01	1.239E-02	0.447
		604.41		-2.736E-01	6.302E-01	8.551E-01	1.230E-01	-0.320
		612.46		-1.541E-02	9.419E-01	1.350E+00	1.580E-01	-0.011
		65.12		-8.022E-03	6.875E-02	1.046E-01	8.360E-03	-0.077
		66.83		4.279E-03	3.699E-02	6.128E-02	4.941E-03	0.070
	+	75.70		1.268E+00	1.728E-01	2.338E-01	1.996E-02	5.423
		98.88	*	1.851E-01	1.498E-01	2.534E-01	2.524E-02	0.730
TL-200	+	129.76		3.316E+00	3.283E+00	4.066E+00	4.472E-01	0.816
		367.94	*	-4.565E-03	3.283E+00	Half-Life	too short	
		579.30		9.827E-03	3.283E+00	Half-Life	too short	
		828.27		3.497E-02	3.283E+00	Half-Life	too short	
TL-201		1205.75		1.070E-02	3.283E+00	Half-Life	too short	
		68.90		-5.834E+00	5.943E+00	9.370E+00	7.646E-01	-0.623
		70.82		-7.596E-01	3.831E+00	5.773E+00	4.767E-01	-0.132
		80.30		2.064E+00	8.197E+00	1.251E+01	1.105E+00	0.165
		135.34		5.359E+01	5.883E+01	9.659E+01	1.026E+01	0.555
	167.43	*	2.333E+00	1.653E+01	2.839E+01	2.312E+00	0.082	

---- 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	-2.301E-01	2.344E-01	3.696E-01	3.016E-02	-0.623
		70.82	-2.988E-02	1.507E-01	2.271E-01	1.875E-02	-0.132
		80.30	8.123E-02	3.225E-01	4.922E-01	4.349E-02	0.165
HG-203		439.56 *	8.946E-03	9.345E-02	1.590E-01	1.376E-02	0.056
		70.83	-1.053E-01	5.342E-01	8.047E-01	1.077E-01	-0.131
		72.87	3.059E-01	3.101E-01	5.227E-01	6.816E-02	0.585
		82.60	2.979E-01	6.651E-01	1.022E+00	1.429E-01	0.292
BI-207		279.20 *	2.229E-02	4.563E-02	6.948E-02	6.359E-03	0.321
		72.80	7.787E-02	8.397E-02	1.420E-01	1.188E-02	0.548
	+	74.97	6.909E-01	9.415E-02	1.372E-01	1.165E-02	5.037
	+	84.90	1.940E-01	7.218E-02	1.842E-01	1.689E-02	1.053
		569.67	1.780E-02	3.499E-02	6.018E-02	6.162E-03	0.296
TL-207		1063.62 *	-8.020E-03	7.086E-02	1.148E-01	9.897E-03	-0.070
		1770.23	-1.509E+00	8.853E-01	9.511E-01	7.903E-02	-1.586
		81.07	-3.252E-02	1.112E-01	1.788E-01	1.589E-02	-0.182
	+	83.78	1.279E-01	4.758E-02	1.251E-01	1.136E-02	1.022
		94.90	1.020E-01	1.384E-01	2.149E-01	2.094E-02	0.475
		122.32	-5.336E-01	1.393E+00	2.152E+00	2.572E-01	-0.248
		144.24	2.329E-01	5.366E-01	8.565E-01	9.315E-02	0.272
		154.21	1.364E-01	3.114E-01	5.438E-01	5.434E-02	0.251
	+	269.46	5.207E-01	2.486E-01	3.566E-01	3.248E-02	1.460
	+	323.87 *	-3.070E-01	7.400E-01	1.020E+00	1.817E-01	-0.301
PO-209		338.28	6.858E+00	1.976E+00	2.585E+00	3.200E-01	2.653
		445.03	-2.673E-01	2.346E+00	3.924E+00	4.774E-01	-0.068
		260.50	6.095E-01	9.054E+00	1.498E+01	1.339E+00	0.041
		262.80	4.110E+00	2.414E+01	4.018E+01	3.591E+00	0.102
		896.60 *	3.948E+00	9.424E+00	1.638E+01	1.436E+00	0.241
PB-211		404.84 *	3.184E-01	1.007E+00	1.605E+00	1.005E+00	0.198
		427.08	1.943E+00	2.615E+00	4.142E+00	2.573E+00	0.469
		831.96	-1.152E+00	1.580E+00	2.159E+00	1.356E+00	-0.534
BI-212	+	727.18 *	1.545E+00	6.400E-01	8.153E-01	9.694E-02	1.895
		785.46	2.076E+00	2.202E+00	3.848E+00	3.950E-01	0.540
		1620.62	6.205E-01	1.389E+00	2.499E+00	2.090E-01	0.248
PO-215		81.07	-3.252E-02	1.112E-01	1.788E-01	1.589E-02	-0.182
	+	83.78	1.279E-01	4.758E-02	1.251E-01	1.136E-02	1.022
		94.90	1.020E-01	1.384E-01	2.149E-01	2.094E-02	0.475
		122.32	-5.336E-01	1.393E+00	2.152E+00	2.572E-01	-0.248
		144.24	2.329E-01	5.366E-01	8.565E-01	9.315E-02	0.272
		154.21	1.364E-01	3.114E-01	5.438E-01	5.434E-02	0.251
	+	269.46	5.207E-01	2.486E-01	3.566E-01	3.248E-02	1.460
	+	323.87 *	-3.070E-01	7.400E-01	1.020E+00	1.817E-01	-0.301
	+	338.28	6.858E+00	1.976E+00	2.585E+00	3.200E-01	2.653
	+	445.03	-2.673E-01	2.346E+00	3.924E+00	4.774E-01	-0.068
RN-219	+	271.23	6.681E-01	3.210E-01	4.241E-01	4.485E-02	1.575
		401.81 *	-1.782E-01	4.341E-01	6.613E-01	9.745E-02	-0.269
RN-220		549.76 *	1.196E+01	2.665E+01	4.596E+01	4.610E+00	0.260
RA-223		81.07	-3.252E-02	1.112E-01	1.788E-01	1.589E-02	-0.182
	+	83.78	1.279E-01	4.758E-02	1.251E-01	1.136E-02	1.022
		94.90	1.020E-01	1.384E-01	2.149E-01	2.094E-02	0.475

----- 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		-5.336E-01	1.393E+00	2.152E+00	2.572E-01	-0.248
		144.24		2.329E-01	5.366E-01	8.565E-01	9.315E-02	0.272
		154.21		1.364E-01	3.114E-01	5.438E-01	5.434E-02	0.251
	+	269.46		5.207E-01	2.486E-01	3.566E-01	3.248E-02	1.460
		323.87	*	-3.070E-01	7.400E-01	1.020E+00	1.817E-01	-0.301
	+	338.28		6.858E+00	1.976E+00	2.585E+00	3.200E-01	2.653
		445.03		-2.673E-01	2.346E+00	3.924E+00	4.774E-01	-0.068
		79.80		4.283E-03	9.035E-01	1.362E+00	2.939E-01	0.003
		236.00		2.247E-01	2.078E-01	3.312E-01	4.111E-02	0.679
		256.20	*	5.707E-02	3.529E-01	5.877E-01	9.125E-02	0.097
		286.10		-4.954E-01	1.428E+00	2.277E+00	3.052E-01	-0.218
	+	299.80		5.060E+00	2.385E+00	2.707E+00	4.774E-01	1.870
TH-227		304.40		1.280E-01	1.928E+00	2.814E+00	5.228E-01	0.045
		334.20		4.762E-01	2.433E+00	3.561E+00	6.933E-01	0.134
		79.80		4.283E-03	9.035E-01	1.362E+00	2.977E-01	0.003
	+	94.00		1.064E+01	3.113E+00	2.347E+00	5.216E-01	4.534
		236.00		2.247E-01	2.075E-01	3.312E-01	3.731E-02	0.679
		256.20	*	5.707E-02	3.529E-01	5.877E-01	1.070E-01	0.097
		286.10		-4.954E-01	1.511E+00	2.277E+00	2.286E+00	-0.218
	+	299.80		5.060E+00	2.385E+00	2.707E+00	4.774E-01	1.870
		304.40		1.280E-01	1.928E+00	2.814E+00	5.228E-01	0.045
		334.20		4.762E-01	2.433E+00	3.561E+00	6.933E-01	0.134
	+	85.43		1.915E-01	7.122E-02	1.749E-01	1.610E-02	1.095
	+	88.47		4.181E-01	9.367E-02	1.208E-01	1.139E-02	3.462
TH-229		100.00		1.670E-01	1.209E-01	2.057E-01	2.061E-02	0.812
		193.63	*	1.889E-02	4.241E-01	7.172E-01	6.089E-02	0.026
		210.97		3.185E-01	6.676E-01	1.038E+00	9.007E-02	0.307
	+	283.67	*	-1.228E-01	1.404E+00	2.283E+00	3.507E-01	-0.054
	+	301.29		2.024E+00	9.201E-01	9.908E-01	1.234E-01	2.043
	+	81.07		-3.252E-02	1.112E-01	1.788E-01	1.589E-02	-0.182
	+	83.78		1.279E-01	4.758E-02	1.251E-01	1.136E-02	1.022
		94.90		1.020E-01	1.384E-01	2.149E-01	2.094E-02	0.475
		122.32		-5.336E-01	1.393E+00	2.152E+00	2.572E-01	-0.248
		144.24		2.329E-01	5.366E-01	8.565E-01	9.315E-02	0.272
		154.21		1.364E-01	3.114E-01	5.438E-01	5.434E-02	0.251
	+	269.46		5.207E-01	2.486E-01	3.566E-01	3.248E-02	1.460
U-231		323.87	*	-3.070E-01	7.400E-01	1.020E+00	1.817E-01	-0.301
	+	338.28		6.858E+00	1.976E+00	2.585E+00	3.200E-01	2.653
		445.03		-2.673E-01	2.346E+00	3.924E+00	4.774E-01	-0.068
	+	84.21		1.220E+01	4.539E+00	1.205E+01	1.098E+00	1.013
	+	92.29		2.327E+01	4.971E+00	6.017E+00	5.782E-01	3.868
		95.87	*	1.122E-01	1.488E+00	2.221E+00	2.175E-01	0.051
		108.00		-1.274E-01	3.085E+00	4.909E+00	5.158E-01	-0.026
	+	75.28		2.015E+01	3.754E+00	3.988E+00	6.097E-01	5.054
	+	86.59		5.995E+00	2.030E+00	2.055E+00	5.557E-01	2.918
	+	300.12		1.411E+00	6.522E-01	7.559E-01	1.138E-01	1.866
		311.98	*	2.646E-02	6.066E-02	1.014E-01	9.257E-03	0.261
		340.50		3.043E-01	6.413E-01	9.567E-01	2.283E-01	0.318
		398.62		1.029E+00	2.263E+00	3.698E+00	9.781E-01	0.278
PA-233		122.32		-5.336E-01	1.393E+00	2.152E+00	2.572E-01	-0.248
		144.24		2.329E-01	5.366E-01	8.565E-01	9.315E-02	0.272
		154.21		1.364E-01	3.114E-01	5.438E-01	5.434E-02	0.251
	+	269.46		5.207E-01	2.486E-01	3.566E-01	3.248E-02	1.460
		323.87	*	-3.070E-01	7.400E-01	1.020E+00	1.817E-01	-0.301
	+	338.28		6.858E+00	1.976E+00	2.585E+00	3.200E-01	2.653
		445.03		-2.673E-01	2.346E+00	3.924E+00	4.774E-01	-0.068
	+	84.21		1.220E+01	4.539E+00	1.205E+01	1.098E+00	1.013
	+	92.29		2.327E+01	4.971E+00	6.017E+00	5.782E-01	3.868
		95.87	*	1.122E-01	1.488E+00	2.221E+00	2.175E-01	0.051
		108.00		-1.274E-01	3.085E+00	4.909E+00	5.158E-01	-0.026
	+	75.28		2.015E+01	3.754E+00	3.988E+00	6.097E-01	5.054
	+	86.59		5.995E+00	2.030E+00	2.055E+00	5.557E-01	2.918

---- 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		1.191E+00	1.586E+00	2.807E+00	6.015E-01	0.424
		63.00		1.843E+00	8.042E-01	1.058E+00	1.599E-01	1.742
		94.67		1.577E-01	1.042E-01	1.659E-01	2.190E-02	0.951
		98.44		4.977E-02	6.492E-02	9.820E-02	5.500E-02	0.507
		99.86		4.643E-01	3.068E-01	5.240E-01	5.248E-02	0.886
		111.00		-3.317E-02	1.313E-01	2.060E-01	2.812E-02	-0.161
		131.20		4.965E-02	8.959E-02	1.341E-01	1.462E-02	0.370
		152.70		-1.077E-01	2.836E-01	4.291E-01	7.468E-02	-0.251
		186.00		4.315E+00	1.915E+00	2.289E+00	7.132E-01	1.885
		226.40		8.276E-02	3.437E-01	5.803E-01	7.730E-02	0.143
		227.20		-6.917E-02	3.743E-01	6.174E-01	5.438E-02	-0.112
		248.90		4.031E-01	8.186E-01	1.253E+00	2.823E-01	0.322
		293.70		7.424E+00	1.802E+00	1.732E+00	3.023E-01	4.287
		369.80		-5.178E-01	8.176E-01	1.216E+00	2.636E-01	-0.426
		568.70		7.052E-01	1.121E+00	1.948E+00	1.992E-01	0.362
		569.50		1.532E-01	3.099E-01	5.325E-01	5.452E-02	0.288
		574.00		1.074E+00	1.575E+00	2.756E+00	2.834E-01	0.390
		699.00		-4.696E-01	9.221E-01	1.411E+00	2.853E-01	-0.333
		706.10		-4.764E-01	1.367E+00	2.108E+00	9.503E-01	-0.226
		733.00		-2.672E-01	4.877E-01	6.164E-01	1.423E-01	-0.433
		742.81		1.319E+00	1.823E+00	2.789E+00	1.883E+00	0.473
		796.30		1.380E+00	1.661E+00	1.936E+00	5.339E-01	0.713
		805.60		-4.092E-01	1.054E+00	1.686E+00	5.239E-01	-0.243
		819.60		1.461E-01	1.378E+00	2.343E+00	8.983E-01	0.062
		826.30		1.132E+00	1.105E+00	1.831E+00	8.234E-01	0.618
		831.60		-7.777E-01	7.885E-01	1.132E+00	3.416E-01	-0.687
		876.40		-1.253E+00	1.701E+00	1.643E+00	1.690E+00	-0.763
		880.51		1.189E-01	3.541E-01	6.117E-01	5.525E-02	0.194
		883.24		7.278E-02	3.604E-01	6.092E-01	4.098E-01	0.119
		899.00		3.733E-03	1.078E+00	1.799E+00	7.868E-01	0.002
		925.00		-1.144E-01	1.414E+00	2.332E+00	2.044E-01	-0.049
		926.50		5.260E-03	2.077E-01	3.466E-01	8.777E-02	0.015
		946.00	*	-1.328E-01	4.017E-01	6.429E-01	1.211E-01	-0.207
		949.00		0.000E+00	5.423E-01	9.001E-01	7.890E-02	0.000
		980.50		-9.213E-01	9.017E-01	1.300E+00	1.138E-01	-0.709
		1394.10		4.903E-01	1.333E+00	2.298E+00	1.494E+00	0.213
PA-234M	+	766.42		2.259E+01	2.314E+01	2.607E+01	1.332E+01	0.867
		1001.03	*	3.334E+00	5.880E+00	1.026E+01	1.033E+00	0.325
U-235	+	89.95		2.534E+00	1.086E+00	1.254E+00	3.900E-01	2.021
		93.35		3.310E+00	1.131E+00	8.687E-01	2.464E-01	3.810
		105.00		9.384E-01	7.554E-01	1.197E+00	3.637E-01	0.784
		143.76	*	4.097E-02	1.657E-01	2.618E-01	4.774E-02	0.156
		163.35		1.963E-01	3.818E-01	6.641E-01	1.259E-01	0.296
NP-236	+	185.71		1.598E-01	5.229E-02	8.458E-02	7.099E-03	1.890
		205.31		4.369E-02	4.854E-01	7.369E-01	1.406E-01	0.059
		94.67		1.213E-01	7.843E-02	1.261E-01	1.227E-02	0.962
		98.44		3.759E-02	4.447E-02	7.423E-02	7.374E-03	0.506
		111.00		-2.509E-02	9.930E-02	1.558E-01	1.667E-02	-0.161
		160.31	*	-3.263E-02	6.411E-02	1.072E-01	9.263E-03	-0.305

---- 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		1.102E-01	1.044E-01	1.753E-01	1.752E-02	0.629
		117.00	*	-1.833E-02	1.458E-01	2.295E-01	2.551E-02	-0.080
	+	209.75		2.421E+00	1.152E+00	1.350E+00	1.170E-01	1.793
		228.18		-9.503E-03	2.008E-01	3.337E-01	2.941E-02	-0.028
	+	277.60		2.420E-01	2.233E-01	3.264E-01	2.912E-02	0.742
AM-241		334.30		2.185E-01	1.375E+00	2.006E+00	1.756E-01	0.109
		59.54	*	-4.177E-02	4.703E-02	7.515E-02	6.375E-03	-0.556
		99.55		1.134E-01	1.074E-01	1.804E-01	1.804E-02	0.629
		103.76	*	-1.469E-02	6.278E-02	9.907E-02	1.015E-02	-0.148
		117.00		-1.887E-02	1.501E-01	2.362E-01	2.625E-02	-0.080
CM-243	+	209.75		2.387E+00	1.136E+00	1.331E+00	1.153E-01	1.793
		228.18		-9.606E-03	2.029E-01	3.372E-01	2.973E-02	-0.028
	+	277.60		2.441E-01	2.252E-01	3.292E-01	2.936E-02	0.742
		798.80		-6.069E-02	2.079E-01	2.760E-01	2.794E-02	-0.220
		1036.00		2.010E-01	3.978E-01	6.890E-01	5.979E-02	0.292
AM-246		1062.04		-3.723E-02	3.092E-01	5.007E-01	4.317E-02	-0.074
		1078.86	*	-1.138E-01	2.110E-01	3.262E-01	2.799E-02	-0.349
	+	278.00		1.004E+00	9.262E-01	1.355E+00	1.209E-01	0.741
		287.40		-9.595E-01	1.140E+00	1.747E+00	1.560E-01	-0.549
		402.60	*	2.697E-03	3.920E-02	6.246E-02	5.067E-03	0.043
CF-249		252.85		-2.916E-01	7.757E-01	1.250E+00	1.116E-01	-0.233
		333.44		1.571E-01	1.775E-01	2.766E-01	2.423E-02	0.568
		387.95	*	4.539E-02	4.074E-02	7.051E-02	5.655E-03	0.644
CF-251		176.60	*	5.157E-02	9.659E-02	1.683E-01	1.392E-02	0.306
		227.00		-9.606E-02	3.304E-01	5.417E-01	4.770E-02	-0.177
		285.00		1.612E+00	1.582E+00	2.753E+00	2.457E-01	0.585

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101006      *
* Acquisition date   : 2-FEB-2010 10:28:15 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 02:00:25.76 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G245101006 Analyst initials: MXR1                   *
* Batch Number      : 944037 Sample Quantity : 1.3514E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME : 28-JUL-2009 10:09:51 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.287E+01	3.513E+00	6.795E-01	0.000E+00
CD-109	3.138E+00	6.890E-01	8.238E-01	0.000E+00
SN-126	3.062E-01	6.723E-02	7.637E-02	0.000E+00
BA-137M	7.253E-02	7.248E-02	7.092E-02	0.000E+00
CS-137	7.667E-02	7.662E-02	7.497E-02	0.000E+00
TL-208	5.215E-01	9.957E-02	7.021E-02	0.000E+00
BI-210	1.201E+00	6.306E-01	6.317E-01	0.000E+00
PB-210	1.201E+00	6.306E-01	6.317E-01	0.000E+00
PO-210	1.201E+00	6.289E-01	6.317E-01	0.000E+00
BI-211	3.899E+00	5.706E-01	3.422E-01	0.000E+00
PB-212	1.652E+00	1.930E-01	8.545E-02	0.000E+00
PO-212	1.652E+00	1.930E-01	8.545E-02	0.000E+00
BI-214	1.307E+00	2.427E-01	1.292E-01	0.000E+00
PB-214	1.356E+00	2.102E-01	1.157E-01	0.000E+00
PO-214	1.356E+00	2.102E-01	1.157E-01	0.000E+00
PO-216	1.652E+00	1.930E-01	8.545E-02	0.000E+00
PO-218	1.356E+00	2.102E-01	1.157E-01	0.000E+00
RA-224	5.336E+00	1.211E+00	9.750E-01	0.000E+00
RA-226	1.307E+00	2.427E-01	1.292E-01	0.000E+00
AC-228	1.982E+00	4.301E-01	2.619E-01	0.000E+00
RA-228	1.982E+00	4.301E-01	2.619E-01	0.000E+00
TH-228	1.685E+00	1.969E-01	8.716E-02	0.000E+00
TH-230	1.306E+00	2.427E-01	1.292E-01	0.000E+00
TH-232	1.982E+00	4.301E-01	2.619E-01	0.000E+00
TH-234	1.581E+00	6.907E-01	8.096E-01	0.000E+00
U-234	1.306E+00	2.427E-01	1.292E-01	0.000E+00
NP-237	8.993E-01	2.684E-01	2.228E-01	0.000E+00
U-238	1.581E+00	6.907E-01	8.096E-01	0.000E+00
AM-243	3.848E-01	5.139E-02	4.642E-02	0.000E+00
ANH-511	1.536E-01	7.503E-02	4.676E-02	0.000E+00

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

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-4.091E-02	3.839E-01	6.670E-01	0.000E+00	NOT IDENT.
NA-22	-1.017E-02	5.701E-02	9.197E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.700E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.870E-03	3.781E-02	6.092E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.186E-02	3.826E-02	0.000E+00	FAIL ABUN
SC-46	-1.082E-02	4.934E-02	8.312E-02	0.000E+00	FAIL ABUN
V-48	3.503E-02	1.066E-01	1.880E-01	0.000E+00	NOT IDENT.
CR-51	8.790E-02	3.975E-01	6.873E-01	0.000E+00	NOT IDENT.
MN-52	-1.171E-01	4.097E-01	6.564E-01	0.000E+00	NOT IDENT.
MN-54	-1.300E-02	4.510E-02	7.620E-02	0.000E+00	NOT IDENT.
CO-56	2.717E-02	4.516E-02	8.305E-02	0.000E+00	NOT IDENT.
CO-57	1.382E-03	1.954E-02	3.315E-02	0.000E+00	NOT IDENT.
CO-58	-2.478E-02	4.324E-02	7.044E-02	0.000E+00	NOT IDENT.
FE-59	-1.372E-01	1.338E-01	1.986E-01	0.000E+00	NOT IDENT.
CO-60	9.992E-03	4.781E-02	8.438E-02	0.000E+00	NOT IDENT.
ZN-65	-9.886E-03	1.328E-01	1.905E-01	0.000E+00	NOT IDENT.
GE-68	-1.152E-01	1.750E+00	2.930E+00	0.000E+00	NOT IDENT.
AS-73	2.619E-01	1.775E-01	3.392E-01	0.000E+00	NOT IDENT.
AS-74	-1.155E-02	1.209E-01	2.047E-01	0.000E+00	NOT IDENT.
SE-75	-1.240E-02	3.991E-02	6.793E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	4.049E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	1.338E-01	5.370E-01	9.125E-01	0.000E+00	NOT IDENT.
RB-83	1.143E-02	6.952E-02	1.224E-01	0.000E+00	NOT IDENT.
RB-84	5.268E-02	9.585E-02	1.741E-01	0.000E+00	NOT IDENT.
KR-85	8.693E+00	7.253E+00	1.260E+01	0.000E+00	NOT IDENT.
SR-85	4.689E-02	3.912E-02	6.798E-02	0.000E+00	NOT IDENT.
RB-86	7.445E-01	1.269E+00	2.265E+00	0.000E+00	NOT IDENT.
Y-88	2.454E-02	3.932E-02	7.556E-02	0.000E+00	NOT IDENT.
ZR-88	-8.984E-03	3.331E-02	5.415E-02	0.000E+00	NOT IDENT.
Y-91	9.992E+00	3.023E+01	5.174E+01	0.000E+00	NOT IDENT.
NB-94	4.270E-02	4.402E-02	7.948E-02	0.000E+00	NOT IDENT.
NB-95	1.873E-02	6.806E-02	1.018E-01	0.000E+00	NOT IDENT.
NB-95M	4.476E-02	1.159E-01	1.876E-01	0.000E+00	NOT IDENT.
ZR-95	9.037E-02	8.825E-02	1.614E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.515E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.328E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.126E+01	4.736E+01	7.685E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.833E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.349E-02	2.634E-02	4.969E-02	0.000E+00	NOT IDENT.
RH-102	1.835E-02	3.161E-02	5.769E-02	0.000E+00	FAIL ABUN
RU-103	4.882E-02	4.750E-02	8.855E-02	0.000E+00	FAIL ABUN
RH-106	5.716E-02	3.641E-01	6.281E-01	0.000E+00	FAIL ABUN
RU-106	5.716E-02	3.640E-01	6.281E-01	0.000E+00	FAIL ABUN
AG-108M	-9.124E-03	3.372E-02	5.846E-02	0.000E+00	NOT IDENT.
AG-110M	-8.245E-03	4.773E-02	6.890E-02	0.000E+00	NOT IDENT.
IN-111	-4.315E+00	2.958E+00	4.671E+00	0.000E+00	NOT IDENT.
IN-113M	-5.399E-02	4.761E-02	7.102E-02	0.000E+00	NOT IDENT.
SN-113	-5.399E-02	4.761E-02	7.102E-02	0.000E+00	NOT IDENT.
IN-114M	-7.356E-02	1.597E-01	2.802E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.048E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	5.448E-02	5.363E-02	1.017E-01	0.000E+00	NOT IDENT.
SB-122	4.534E+00	7.937E+00	1.428E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.002E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	4.106E-03	2.266E-02	4.166E-02	0.000E+00	NOT IDENT.
I-124	8.036E-01	1.859E+00	3.063E+00	0.000E+00	NOT IDENT.
SB-124	-4.797E-02	9.618E-02	1.406E-01	0.000E+00	FAIL ABUN
SB-125	6.936E-03	1.032E-01	1.837E-01	0.000E+00	FAIL ABUN
TE-125M	4.165E+00	6.646E+00	1.170E+01	0.000E+00	NOT IDENT.
I-126	2.344E-01	2.966E-01	4.825E-01	0.000E+00	NOT IDENT.
SB-126	8.892E-02	2.328E-01	3.593E-01	0.000E+00	FAIL ABUN
SB-127	-2.318E+00	3.954E+00	6.234E+00	0.000E+00	NOT IDENT.
XE-127	1.254E-02	4.224E-02	7.640E-02	0.000E+00	NOT IDENT.
I-131	-3.161E-02	1.715E-01	2.833E-01	0.000E+00	NOT IDENT.
TE-132	-6.166E-02	1.678E+00	2.953E+00	0.000E+00	NOT IDENT.
BA-133	1.905E-02	4.468E-02	6.993E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.007E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.130E-02	8.221E-02	1.080E-01	0.000E+00	FAIL ABUN
CS-135	1.147E-01	1.570E-01	2.570E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.342E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.574E-02	1.744E-01	2.781E-01	0.000E+00	FAIL ABUN
CE-139	-1.446E-03	2.423E-02	4.392E-02	0.000E+00	NOT IDENT.
BA-140	1.194E-01	3.730E-01	6.585E-01	0.000E+00	NOT IDENT.
LA-140	-5.051E-02	1.079E-01	1.605E-01	0.000E+00	NOT IDENT.
CE-141	-2.033E-02	5.653E-02	9.190E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.011E+03	0.000E+00	0.000E+00	SHORT HLIF



CE-144	2.059E-02	1.617E-01	2.727E-01	0.000E+00	NOT IDENT.
PM-144	2.925E-02	4.220E-02	7.513E-02	0.000E+00	NOT IDENT.
PR-144	1.987E+00	2.867E+00	5.104E+00	0.000E+00	NOT IDENT.
PM-146	6.696E-05	4.756E-02	8.374E-02	0.000E+00	NOT IDENT.
ND-147	2.599E-01	7.675E-01	1.368E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	3.800E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.031E-02	9.073E-02	1.518E-01	0.000E+00	FAIL ABUN
GD-153	-5.965E-02	5.049E-02	8.132E-02	0.000E+00	FAIL ABUN
EU-154	-9.502E-03	1.560E-01	2.555E-01	0.000E+00	NOT IDENT.
EU-155	1.281E-01	6.977E-02	1.290E-01	0.000E+00	FAIL ABUN
TB-160	-1.475E-02	1.816E-01	3.110E-01	0.000E+00	FAIL ABUN
HO-166M	6.752E-02	6.946E-02	1.270E-01	0.000E+00	FAIL ABUN
TM-171	8.880E+00	1.127E+01	1.929E+01	0.000E+00	NOT IDENT.
LU-176	1.059E-02	2.310E-02	4.073E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.620E+00	3.270E+00	0.000E+00	FAIL ABUN
LU-177M	-2.023E-01	1.851E-01	2.736E-01	0.000E+00	FAIL ABUN
HF-181	-2.535E-03	5.041E-02	8.785E-02	0.000E+00	NOT IDENT.
W-181	-2.456E-02	1.470E-01	2.414E-01	0.000E+00	NOT IDENT.
TA-182	5.144E-02	2.910E-01	4.910E-01	0.000E+00	FAIL ABUN
RE-183	1.815E-02	9.026E-02	1.657E-01	0.000E+00	FAIL ABUN
RE-184	-7.927E-02	2.066E-01	3.519E-01	0.000E+00	NOT IDENT.
OS-185	-9.195E-03	5.158E-02	8.579E-02	0.000E+00	NOT IDENT.
RE-188	-4.361E-02	1.383E-01	2.494E-01	0.000E+00	NOT IDENT.
W-188	8.198E-01	7.708E+00	1.195E+01	0.000E+00	FAIL ABUN
IR-192	-8.228E-04	3.153E-02	5.363E-02	0.000E+00	FAIL ABUN
AU-195	1.851E-01	1.468E-01	2.667E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.301E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.333E+00	1.620E+01	2.961E+01	0.000E+00	NOT IDENT.
TL-202	8.946E-03	9.158E-02	1.630E-01	0.000E+00	NOT IDENT.
HG-203	2.229E-02	4.472E-02	7.180E-02	0.000E+00	NOT IDENT.
BI-207	-8.020E-03	6.944E-02	1.158E-01	0.000E+00	FAIL ABUN
TL-207	-3.070E-01	7.252E-01	1.052E+00	0.000E+00	FAIL ABUN
PO-209	3.948E+00	9.236E+00	1.657E+01	0.000E+00	NOT IDENT.
PB-211	3.184E-01	9.864E-01	1.647E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.272E-01	8.279E-01	0.000E+00	FAIL ABUN
PO-215	-3.070E-01	7.252E-01	1.052E+00	0.000E+00	FAIL ABUN
RN-219	-1.782E-01	4.254E-01	6.790E-01	0.000E+00	FAIL ABUN
RN-220	1.196E+01	2.611E+01	4.692E+01	0.000E+00	NOT IDENT.
RA-223	-3.070E-01	7.252E-01	1.052E+00	0.000E+00	FAIL ABUN
AC-227	5.707E-02	3.458E-01	6.083E-01	0.000E+00	FAIL ABUN
TH-227	5.707E-02	3.459E-01	6.083E-01	0.000E+00	FAIL ABUN
TH-229	1.889E-02	4.156E-01	7.461E-01	0.000E+00	FAIL ABUN
PA-231	-1.228E-01	1.376E+00	2.359E+00	0.000E+00	FAIL ABUN
TH-231	-3.070E-01	7.252E-01	1.052E+00	0.000E+00	FAIL ABUN
U-231	1.122E-01	1.458E+00	2.339E+00	0.000E+00	FAIL ABUN
PA-233	2.646E-02	5.944E-02	1.046E-01	0.000E+00	FAIL ABUN
PA-234	-1.328E-01	3.937E-01	6.497E-01	0.000E+00	FAIL ABUN
PA-234M	3.334E+00	5.762E+00	1.036E+01	0.000E+00	FAIL ABUN
U-235	4.097E-02	1.624E-01	2.738E-01	0.000E+00	FAIL ABUN
NP-236	-3.263E-02	6.282E-02	1.118E-01	0.000E+00	NOT IDENT.
NP-239	-1.833E-02	1.429E-01	2.409E-01	0.000E+00	FAIL ABUN
AM-241	-4.177E-02	4.609E-02	7.979E-02	0.000E+00	NOT IDENT.
CM-243	-1.469E-02	6.152E-02	1.042E-01	0.000E+00	FAIL ABUN
AM-246	-1.138E-01	2.068E-01	3.288E-01	0.000E+00	NOT IDENT.
CM-247	2.697E-03	3.842E-02	6.412E-02	0.000E+00	FAIL ABUN
CF-249	4.539E-02	3.992E-02	7.243E-02	0.000E+00	NOT IDENT.
CF-251	5.157E-02	9.466E-02	1.754E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101006.CNF;1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:15.
Sample ID        : G245101006          Sample quantity   : 1.35140E+02 GRAM
Detector name    : GAM21              Detector geometry  : CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:25.76  0.4%
Energy tolerance : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit  : 75.00000           Sensitivity      : 5.00000
Batch ID        : 944037              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	910	10.67*	7.206E-01	3.287E+01	3.287E+01	10.91
CD-109	88.03	332	3.72*	8.137E+00	3.046E+00	3.138E+00	22.40
SN-126	64.28	177	9.60	8.182E+00	6.258E-01	6.258E-01	43.53
	86.94	332	8.90	8.137E+00	1.273E+00	1.273E+00	46.24
	87.57	332	37.00*	8.137E+00	3.062E-01	3.062E-01	22.40
BA-137M	661.65	37	89.98*	1.561E+00	7.244E-02	7.253E-02	101.98
CS-137	661.65	37	85.12*	1.561E+00	7.657E-02	7.667E-02	101.98
TL-208	277.35	47	6.80	3.803E+00	5.019E-01	5.019E-01	92.69
	510.84	113	21.60	2.038E+00	7.113E-01	7.113E-01	50.53
	583.14	281	84.20*	1.778E+00	5.215E-01	5.215E-01	19.48
	860.37	35	12.46	1.201E+00	6.541E-01	6.541E-01	97.51
BI-210	46.50	129	4.05*	7.361E+00	1.199E+00	1.201E+00	53.58
PB-210	46.50	129	4.05*	7.361E+00	1.199E+00	1.201E+00	53.58
PO-210	46.50	129	4.05*	7.361E+00	1.199E+00	1.201E+00	53.44
BI-211	72.87	-----	1.27	8.278E+00	-----	Line Not Found	-----
	351.07	544	12.94*	2.998E+00	3.899E+00	3.899E+00	14.93
PB-212	74.81	757	10.70	8.275E+00	2.373E+00	2.373E+00	16.53
	77.11	1075	18.00	8.264E+00	2.008E+00	2.008E+00	11.53
	87.30	332	8.00	8.137E+00	1.416E+00	1.416E+00	24.53
	238.63	1164	44.60*	4.388E+00	1.652E+00	1.652E+00	11.92
	300.09	118	3.41	3.519E+00	2.730E+00	2.730E+00	45.00
PO-212	74.81	757	10.70	8.275E+00	2.373E+00	2.373E+00	16.53
	77.11	1075	18.00	8.264E+00	2.008E+00	2.008E+00	11.53
	87.30	332	8.00	8.137E+00	1.416E+00	1.416E+00	24.53
	115.19	-----	0.60	7.423E+00	-----	Line Not Found	-----
	238.63	1164	44.60*	4.388E+00	1.652E+00	1.652E+00	11.92
	300.09	118	3.41	3.519E+00	2.730E+00	2.730E+00	45.00
BI-214	609.31	370	46.30*	1.700E+00	1.306E+00	1.307E+00	18.96
	1120.29	88	15.10	9.298E-01	1.742E+00	1.742E+00	41.45
	1764.49	50	15.80	5.985E-01	1.470E+00	1.470E+00	33.58
PB-214	74.81	757	6.21	8.275E+00	4.089E+00	4.089E+00	15.51
	77.11	1075	10.50	8.264E+00	3.442E+00	3.442E+00	13.82

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	332	4.67	8.137E+00	2.426E+00	2.426E+00	23.69
	241.98	329	7.49	4.336E+00	2.814E+00	2.814E+00	23.83
	295.21	382	19.20	3.577E+00	1.547E+00	1.547E+00	20.09
	351.92	544	37.20*	2.998E+00	1.356E+00	1.356E+00	15.82
	74.81	757	6.21	8.275E+00	4.089E+00	4.089E+00	15.51
	77.11	1075	10.50	8.264E+00	3.442E+00	3.442E+00	13.82
	87.30	332	4.67	8.137E+00	2.426E+00	2.426E+00	23.69
	241.98	329	7.49	4.336E+00	2.814E+00	2.814E+00	23.83
	295.21	382	19.20	3.577E+00	1.547E+00	1.547E+00	20.09
	351.92	544	37.20*	2.998E+00	1.356E+00	1.356E+00	15.82
PO-216	74.81	757	10.70	8.275E+00	2.373E+00	2.373E+00	16.53
	77.11	1075	18.00	8.264E+00	2.008E+00	2.008E+00	11.53
	87.30	332	8.00	8.137E+00	1.416E+00	1.416E+00	24.53
	238.63	1164	44.60*	4.388E+00	1.652E+00	1.652E+00	11.92
	300.09	118	3.41	3.519E+00	2.730E+00	2.730E+00	45.00
	74.81	757	6.21	8.275E+00	4.089E+00	4.089E+00	15.51
	77.11	1075	10.50	8.264E+00	3.442E+00	3.442E+00	13.82
	87.30	332	4.67	8.137E+00	2.426E+00	2.426E+00	23.69
	241.98	329	7.49	4.336E+00	2.814E+00	2.814E+00	23.83
	295.21	382	19.20	3.577E+00	1.547E+00	1.547E+00	20.09
RA-224	351.92	544	37.20*	2.998E+00	1.356E+00	1.356E+00	15.82
	240.98	329	3.95*	4.336E+00	5.336E+00	5.336E+00	23.16
	609.31	370	46.30*	1.700E+00	1.306E+00	1.307E+00	18.96
	1120.29	88	15.10	9.298E-01	1.742E+00	1.742E+00	41.45
	1764.49	50	15.80	5.985E-01	1.470E+00	1.470E+00	33.58
	338.32	210	11.40	3.121E+00	1.642E+00	1.642E+00	48.79
	911.07	224	27.70*	1.136E+00	1.982E+00	1.982E+00	22.15
	969.11	123	16.60	1.070E+00	1.923E+00	1.923E+00	35.01
	338.32	210	11.40	3.121E+00	1.642E+00	1.642E+00	48.79
	911.07	224	27.70*	1.136E+00	1.982E+00	1.982E+00	22.15
TH-228	969.11	123	16.60	1.070E+00	1.923E+00	1.923E+00	35.01
	74.81	757	10.70	8.275E+00	2.373E+00	2.421E+00	13.67
	77.11	1075	18.00	8.264E+00	2.008E+00	2.048E+00	11.53
	87.30	332	8.00	8.137E+00	1.416E+00	1.445E+00	22.40
	238.63	1164	44.60*	4.388E+00	1.652E+00	1.685E+00	11.92
	300.09	118	3.41	3.519E+00	2.730E+00	2.785E+00	73.69
	609.31	370	46.30*	1.700E+00	1.306E+00	1.306E+00	18.96
	1120.29	88	15.10	9.298E-01	1.742E+00	1.742E+00	41.45
	1764.49	50	15.80	5.985E-01	1.470E+00	1.470E+00	33.58
	338.32	210	11.40	3.121E+00	1.642E+00	1.642E+00	27.43
TH-232	911.07	224	27.70*	1.136E+00	1.982E+00	1.982E+00	22.15
	969.11	123	16.60	1.070E+00	1.923E+00	1.923E+00	35.01
	63.29	177	3.80*	8.182E+00	1.581E+00	1.581E+00	44.58
	92.38	430	5.41	8.022E+00	2.753E+00	2.753E+00	26.63
	609.31	370	46.30*	1.700E+00	1.306E+00	1.306E+00	18.96
	1120.29	88	15.10	9.298E-01	1.742E+00	1.742E+00	41.45
	1764.49	50	15.80	5.985E-01	1.470E+00	1.470E+00	33.58
	86.50	332	12.60*	8.137E+00	8.993E-01	8.993E-01	30.46
	95.87	-----	2.60	7.953E+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	177	3.80*	8.182E+00	1.581E+00	1.581E+00	44.58
	92.38	430	5.41	8.022E+00	2.753E+00	2.753E+00	21.36
AM-243	74.67	757	66.00*	8.275E+00	3.848E-01	3.848E-01	13.63
	86.72	332	0.34	8.137E+00	3.372E+01	3.372E+01	22.40
	117.66	-----	0.55	7.349E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.613E+00	-----	Line Not Found	-----
ANH-511	511.00	113	100.00*	2.038E+00	1.536E-01	1.536E-01	49.84

Flag: "\*" = Keyline

Total number of lines in spectrum 35  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 34 97.14%

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	3.287E+01	3.287E+01	0.359E+01	10.91	
CD-109	464.00D	1.03	3.046E+00	3.138E+00	0.703E+00	22.40	
SN-126	1.00E+05Y	1.00	3.062E-01	3.062E-01	0.686E-01	22.40	
BA-137M	30.17Y	1.00	7.244E-02	7.253E-02	7.396E-02	101.98	
CS-137	30.17Y	1.00	7.657E-02	7.667E-02	7.819E-02	101.98	
TL-208	1.41E+10Y	1.00	5.215E-01	5.215E-01	1.016E-01	19.48	
BI-210	22.26Y	1.00	1.199E+00	1.201E+00	0.644E+00	53.58	
PB-210	22.26Y	1.00	1.199E+00	1.201E+00	0.644E+00	53.58	
PO-210	22.26Y	1.00	1.199E+00	1.201E+00	0.642E+00	53.44	
BI-211	7.04E+08Y	1.00	3.899E+00	3.899E+00	0.582E+00	14.93	
PB-212	1.41E+10Y	1.00	1.652E+00	1.652E+00	0.197E+00	11.92	
PO-212	1.41E+10Y	1.00	1.652E+00	1.652E+00	0.197E+00	11.92	
BI-214	1600.00Y	1.00	1.306E+00	1.307E+00	0.248E+00	18.96	
PB-214	1600.00Y	1.00	1.356E+00	1.356E+00	0.215E+00	15.82	
PO-214	1600.00Y	1.00	1.356E+00	1.356E+00	0.215E+00	15.82	
PO-216	1.41E+10Y	1.00	1.652E+00	1.652E+00	0.197E+00	11.92	
PO-218	1600.00Y	1.00	1.356E+00	1.356E+00	0.215E+00	15.82	
RA-224	1.41E+10Y	1.00	5.336E+00	5.336E+00	1.236E+00	23.16	
RA-226	1600.00Y	1.00	1.306E+00	1.307E+00	0.248E+00	18.96	
AC-228	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.439E+00	22.15	
RA-228	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.439E+00	22.15	
TH-228	1.91Y	1.02	1.652E+00	1.685E+00	0.201E+00	11.92	
TH-230	4.47E+09Y	1.00	1.306E+00	1.306E+00	0.248E+00	18.96	
TH-232	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.439E+00	22.15	
TH-234	4.47E+09Y	1.00	1.581E+00	1.581E+00	0.705E+00	44.58	
U-234	4.47E+09Y	1.00	1.306E+00	1.306E+00	0.248E+00	18.96	
NP-237	2.14E+06Y	1.00	8.993E-01	8.993E-01	2.739E-01	30.46	
U-238	4.47E+09Y	1.00	1.581E+00	1.581E+00	0.705E+00	44.58	
AM-243	7380.00Y	1.00	3.848E-01	3.848E-01	0.524E-01	13.63	
ANH-511	1.00E+09Y	1.00	1.536E-01	1.536E-01	0.766E-01	49.84	
Total Activity :			7.617E+01	7.630E+01			

Grand Total Activity : 7.617E+01 7.630E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	84.10	93	143	0.93	168.15	167	10	1.29E-02	36.1	8.19E+00	T
0	89.89	199	289	0.89	179.72	178	5	2.77E-02	29.5	8.09E+00	T
0	128.93	63	323	0.60	257.75	255	7	8.73E-03	98.4	7.01E+00	T
0	185.80	169	210	1.06	371.45	369	6	2.35E-02	31.6	5.45E+00	T
0	208.85	140	264	1.13	417.54	413	10	1.94E-02	46.8	4.94E+00	T
0	269.85	100	148	0.88	539.50	536	8	1.38E-02	46.9	3.90E+00	T
0	327.00	70	116	0.82	653.76	650	9	9.73E-03	60.2	3.23E+00	
0	462.91	67	85	0.98	925.53	922	10	9.24E-03	56.9	2.26E+00	T
0	727.07	93	48	1.67	1453.84	1447	16	1.29E-02	39.7	1.42E+00	T
0	767.83	35	55	1.44	1535.37	1529	11	4.86E-03	88.8	1.34E+00	T
0	795.68	25	48	1.40	1591.09	1582	12	3.49E-03	****	1.30E+00	T
0	964.87	29	47	1.59	1929.55	1924	10	4.00E-03	97.0	1.07E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101006.CNF;1
* Acquisition date   : 2-FEB-2010 10:28:15.   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 02:00:25.76           Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G245101006             Analyst initials: MXR1
* Batch Number       : 944037                 Sample Quantity : 1.35140E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51.9MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.287E+01	3.585E+00	6.780E-01	5.788E-02	48.484
CD-109	3.138E+00	7.030E-01	7.811E-01	7.350E-02	4.017
SN-126	3.062E-01	6.860E-02	7.240E-02	6.787E-03	4.230
BA-137M	7.253E-02	7.396E-02	6.972E-02	7.699E-03	1.040
CS-137	7.667E-02	7.819E-02	7.370E-02	8.149E-03	1.040
TL-208	5.215E-01	1.016E-01	6.886E-02	7.501E-03	7.573
BI-210	1.201E+00	6.435E-01	5.925E-01	5.650E-02	2.027
PB-210	1.201E+00	6.435E-01	5.925E-01	5.650E-02	2.027
PO-210	1.201E+00	6.418E-01	5.925E-01	5.142E-02	2.027
BI-211	3.899E+00	5.822E-01	3.325E-01	3.001E-02	11.726
PB-212	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
PO-212	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
BI-214	1.307E+00	2.477E-01	1.268E-01	1.499E-02	10.301
PB-214	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
PO-214	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
PO-216	1.652E+00	1.970E-01	8.245E-02	8.198E-03	20.035
PO-218	1.356E+00	2.145E-01	1.124E-01	1.171E-02	12.062
RA-224	5.336E+00	1.236E+00	9.410E-01	8.361E-02	5.671

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.307E+00	2.477E-01	1.268E-01	1.499E-02	10.301
AC-228	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
RA-228	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
TH-228	1.685E+00	2.009E-01	8.410E-02	8.363E-03	20.035
TH-230	1.306E+00	2.477E-01	1.268E-01	1.499E-02	10.301
TH-232	1.982E+00	4.389E-01	2.590E-01	2.939E-02	7.652
TH-234	1.581E+00	7.048E-01	7.633E-01	1.348E-01	2.071
U-234	1.306E+00	2.477E-01	1.268E-01	1.499E-02	10.301
NP-237	8.993E-01	2.739E-01	2.112E-01	4.780E-02	4.257
U-238	1.581E+00	7.048E-01	7.633E-01	1.348E-01	2.071
AM-243	3.848E-01	5.244E-02	4.389E-02	3.719E-03	8.767
ANH-511	1.536E-01	7.657E-02	4.574E-02	4.385E-03	3.359

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-4.091E-02		3.917E-01	6.517E-01	6.386E-02	-0.063
NA-22	-1.017E-02		5.817E-02	9.152E-02	7.508E-03	-0.111
NA-24	-2.308E+01		8.675E+01	Half-Life	too short	
AL-26	-3.870E-03		3.858E-02	6.104E-02	5.051E-03	-0.063
TI-44	3.706E-01	+	4.271E-02	3.621E-02	3.153E-03	10.235
SC-46	-1.082E-02		5.035E-02	8.216E-02	7.306E-03	-0.132
V-48	3.503E-02		1.087E-01	1.862E-01	1.629E-02	0.188
CR-51	8.790E-02		4.056E-01	6.667E-01	6.198E-02	0.132
MN-52	-1.171E-01		4.181E-01	6.547E-01	5.407E-02	-0.179
MN-54	-1.300E-02		4.602E-02	7.523E-02	7.291E-03	-0.173
CO-56	2.717E-02		4.609E-02	8.201E-02	7.817E-03	0.331
CO-57	1.382E-03		1.994E-02	3.161E-02	3.632E-03	0.044
CO-58	-2.478E-02		4.412E-02	6.950E-02	6.956E-03	-0.357
FE-59	-1.372E-01		1.366E-01	1.970E-01	1.818E-02	-0.696
CO-60	9.992E-03		4.878E-02	8.404E-02	6.821E-03	0.119
ZN-65	-9.886E-03		1.355E-01	1.891E-01	1.603E-02	-0.052
GE-68	-1.152E-01		1.786E+00	2.906E+00	2.495E-01	-0.040
AS-73	2.619E-01		1.811E-01	3.189E-01	2.582E-02	0.821
AS-74	-1.155E-02		1.234E-01	2.009E-01	2.108E-02	-0.057
SE-75	-1.240E-02		4.073E-02	6.567E-02	5.896E-03	-0.189
BR-77	1.445E-05		2.066E-05	Half-Life	too short	
SR-82	1.338E-01		5.480E-01	8.997E-01	9.313E-02	0.149
RB-83	1.143E-02		7.094E-02	1.198E-01	1.162E-02	0.095
RB-84	5.268E-02		9.780E-02	1.720E-01	1.551E-02	0.306
KR-85	8.693E+00		7.401E+00	1.233E+01	1.187E+00	0.705
SR-85	4.689E-02		3.992E-02	6.651E-02	6.400E-03	0.705
RB-86	7.445E-01		1.295E+00	2.247E+00	1.929E-01	0.331
Y-88	2.454E-02		4.012E-02	7.572E-02	6.252E-03	0.324
ZR-88	-8.984E-03		3.399E-02	5.273E-02	4.200E-03	-0.170
Y-91	9.992E+00		3.085E+01	5.143E+01	4.237E+00	0.194
NB-94	4.270E-02		4.492E-02	7.821E-02	8.518E-03	0.546



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	1.873E-02		6.945E-02	1.004E-01	1.049E-02	0.187
NB-95M	4.476E-02		1.183E-01	1.810E-01	1.824E-02	0.247
ZR-95	9.037E-02		9.006E-02	1.590E-01	1.791E-02	0.568
NB-97	-1.881E+00		7.727E+00	Half-Life	too short	
ZR-97	2.314E+02		1.188E+02	Half-Life	too short	
MO-99	-1.126E+01		4.833E+01	7.569E+01	1.244E+01	-0.149
TC-99M	7.815E+15		9.351E+15	Half-Life	too short	
RH-101	3.349E-02		2.688E-02	4.778E-02	4.081E-03	0.701
RH-102	1.835E-02		3.226E-02	5.637E-02	5.149E-03	0.326
RU-103	4.882E-02		4.847E-02	8.659E-02	1.269E-02	0.564
RH-106	5.716E-02		3.715E-01	6.167E-01	9.131E-02	0.093
RU-106	5.716E-02		3.714E-01	6.167E-01	6.616E-02	0.093
AG-108M	-9.124E-03		3.441E-02	5.703E-02	5.085E-03	-0.160
AG-110M	-8.245E-03		4.870E-02	6.773E-02	7.597E-03	-0.122
IN-111	-4.315E+00		3.018E+00	4.510E+00	4.015E-01	-0.957
IN-113M	-5.399E-02		4.858E-02	6.914E-02	5.695E-03	-0.781
SN-113	-5.399E-02		4.858E-02	6.914E-02	5.695E-03	-0.781
IN-114M	-7.356E-02		1.630E-01	2.693E-01	2.275E-02	-0.273
CD-115	-3.261E-08		2.575E-05	Half-Life	too short	
SN-117M	5.448E-02		5.472E-02	9.746E-02	8.578E-03	0.559
SB-122	4.534E+00		8.099E+00	1.400E+01	1.425E+00	0.324
I-123	3.626E+02		1.021E+03	Half-Life	too short	
TE-123M	4.106E-03		2.313E-02	3.991E-02	3.518E-03	0.103
I-124	8.036E-01		1.897E+00	3.006E+00	3.174E-01	0.267
SB-124	-4.797E-02		9.815E-02	1.406E-01	1.224E-02	-0.341
SB-125	6.936E-03		1.053E-01	1.791E-01	1.551E-02	0.039
TE-125M	4.165E+00		6.781E+00	1.113E+01	1.340E+00	0.374
I-126	2.344E-01		3.026E-01	4.744E-01	5.233E-02	0.494
SB-126	8.892E-02		2.376E-01	3.538E-01	3.817E-02	0.251
SB-127	-2.318E+00		4.034E+00	6.132E+00	8.941E-01	-0.378
XE-127	1.254E-02		4.310E-02	7.351E-02	6.317E-03	0.171
I-131	-3.161E-02		1.750E-01	2.754E-01	2.460E-02	-0.115
TE-132	-6.166E-02		1.712E+00	2.847E+00	4.785E-01	-0.022
BA-133	1.905E-02		4.559E-02	6.796E-02	8.932E-03	0.280
I-133	2.891E-01		1.534E-01	Half-Life	too short	
CS-134	7.130E-02	+	8.389E-02	1.065E-01	1.087E-02	0.669
CS-135	1.147E-01		1.602E-01	2.485E-01	2.544E-02	0.462
I-135	-1.095E+15		6.848E+14	Half-Life	too short	
CS-136	-8.574E-02		1.780E-01	2.757E-01	2.488E-02	-0.311
CE-139	-1.446E-03		2.472E-02	4.210E-02	3.423E-03	-0.034
BA-140	1.194E-01		3.806E-01	6.448E-01	2.160E-01	0.185
LA-140	-5.051E-02		1.101E-01	1.604E-01	1.342E-02	-0.315
CE-141	-2.033E-02		5.768E-02	8.790E-02	8.813E-03	-0.231
CE-143	4.535E-03		1.026E-03	Half-Life	too short	
CE-144	2.059E-02		1.650E-01	2.604E-01	4.386E-02	0.079
PM-144	2.925E-02		4.306E-02	7.392E-02	8.076E-03	0.396
PR-144	1.987E+00		2.925E+00	5.022E+00	5.484E-01	0.396
PM-146	6.696E-05		4.853E-02	8.175E-02	8.920E-03	0.001

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	2.599E-01		7.832E-01	1.339E+00	2.099E-01	0.194
PM-149	-1.032E-04		1.939E-04	Half-Life too short		
EU-152	-1.031E-02		9.258E-02	1.475E-01	1.352E-02	-0.070
GD-153	-5.965E-02		5.152E-02	7.724E-02	7.630E-03	-0.772
EU-154	-9.502E-03		1.592E-01	2.542E-01	2.794E-02	-0.037
EU-155	1.281E-01		7.120E-02	1.227E-01	1.279E-02	1.044
TB-160	-1.475E-02		1.853E-01	3.074E-01	2.782E-02	-0.048
HO-166M	6.752E-02		7.088E-02	1.250E-01	1.356E-02	0.540
TM-171	8.880E+00		1.150E+01	1.820E+01	1.467E+00	0.488
LU-176	1.059E-02		2.357E-02	3.948E-02	3.516E-03	0.268
LU-177	5.615E+00	+	2.673E+00	3.147E+00	2.722E-01	1.784
LU-177M	-2.023E-01		1.888E-01	2.667E-01	2.208E-02	-0.758
HF-181	-2.535E-03		5.144E-02	8.585E-02	7.920E-03	-0.030
W-181	-2.456E-02		1.500E-01	2.277E-01	1.820E-02	-0.108
TA-182	5.144E-02		2.970E-01	4.882E-01	4.019E-02	0.105
RE-183	1.815E-02		9.211E-02	1.588E-01	1.344E-02	0.114
RE-184	-7.927E-02		2.109E-01	3.399E-01	3.034E-02	-0.233
OS-185	-9.195E-03		5.264E-02	8.430E-02	9.211E-03	-0.109
RE-188	-4.361E-02		1.412E-01	2.389E-01	2.176E-02	-0.183
W-188	8.198E-01		7.865E+00	1.157E+01	1.033E+00	0.071
IR-192	-8.228E-04		3.217E-02	5.201E-02	4.622E-03	-0.016
AU-195	1.851E-01		1.498E-01	2.534E-01	2.524E-02	0.730
TL-200	-4.565E-03		4.745E-03	Half-Life too short		
TL-201	2.333E+00		1.653E+01	2.839E+01	2.312E+00	0.082
TL-202	8.946E-03		9.345E-02	1.590E-01	1.376E-02	0.056
HG-203	2.229E-02		4.563E-02	6.948E-02	6.359E-03	0.321
BI-207	-8.020E-03		7.086E-02	1.148E-01	9.897E-03	-0.070
TL-207	-3.070E-01		7.400E-01	1.020E+00	1.817E-01	-0.301
PO-209	3.948E+00		9.424E+00	1.638E+01	1.436E+00	0.241
PB-211	3.184E-01		1.007E+00	1.605E+00	1.005E+00	0.198
BI-212	1.545E+00	+	6.400E-01	8.153E-01	9.694E-02	1.895
PO-215	-3.070E-01		7.400E-01	1.020E+00	1.817E-01	-0.301
RN-219	-1.782E-01		4.341E-01	6.613E-01	9.745E-02	-0.269
RN-220	1.196E+01		2.665E+01	4.596E+01	4.610E+00	0.260
RA-223	-3.070E-01		7.400E-01	1.020E+00	1.817E-01	-0.301
AC-227	5.707E-02		3.529E-01	5.877E-01	9.125E-02	0.097
TH-227	5.707E-02		3.529E-01	5.877E-01	1.070E-01	0.097
TH-229	1.889E-02		4.241E-01	7.172E-01	6.089E-02	0.026
PA-231	-1.228E-01		1.404E+00	2.283E+00	3.507E-01	-0.054
TH-231	-3.070E-01		7.400E-01	1.020E+00	1.817E-01	-0.301
U-231	1.122E-01		1.488E+00	2.221E+00	2.175E-01	0.051
PA-233	2.646E-02		6.066E-02	1.014E-01	9.257E-03	0.261
PA-234	-1.328E-01		4.017E-01	6.429E-01	1.211E-01	-0.207
PA-234M	3.334E+00		5.880E+00	1.026E+01	1.033E+00	0.325
U-235	4.097E-02		1.657E-01	2.618E-01	4.774E-02	0.156
NP-236	-3.263E-02		6.411E-02	1.072E-01	9.263E-03	-0.305
NP-239	-1.833E-02		1.458E-01	2.295E-01	2.551E-02	-0.080
AM-241	-4.177E-02		4.703E-02	7.515E-02	6.375E-03	-0.556

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.469E-02		6.278E-02	9.907E-02	1.015E-02	-0.148
AM-246	-1.138E-01		2.110E-01	3.262E-01	2.799E-02	-0.349
CM-247	2.697E-03		3.920E-02	6.246E-02	5.067E-03	0.043
CF-249	4.539E-02		4.074E-02	7.051E-02	5.655E-03	0.644
CF-251	5.157E-02		9.659E-02	1.683E-01	1.392E-02	0.306

## VAX/VMS Nuclide Identification Report Generated

```
*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101006
* Acquisition date   : 2-FEB-2010 10:28:15 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 02:00:25.76 Half life ratio        : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101006 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.3514E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME  : 28-JUL-2009 10:09:51 MS Isotope      :
* MSD DPM           : 0.000 MSD Isotope                    :
* LCS DPM           : 0.000 LCS Isotope                     :
* LCSD DPM          : 0.000 LCSD Isotope                    :
*****
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.287E+01	3.513E+00	3.400E-01	1.793E+00
CD-109	3.138E+00	6.890E-01	4.122E-01	3.515E-01
SN-126	3.062E-01	6.723E-02	3.821E-02	3.430E-02
BA-137M	7.253E-02	7.248E-02	3.548E-02	3.698E-02
CS-137	7.667E-02	7.662E-02	3.751E-02	3.909E-02
TL-208	5.215E-01	9.957E-02	3.513E-02	5.080E-02
BI-210	1.201E+00	6.306E-01	3.161E-01	3.218E-01
PB-210	1.201E+00	6.306E-01	3.161E-01	3.218E-01
PO-210	1.201E+00	6.289E-01	3.161E-01	3.209E-01
BI-211	3.899E+00	5.706E-01	1.712E-01	2.911E-01
PB-212	1.652E+00	1.930E-01	4.275E-02	9.849E-02
PO-212	1.652E+00	1.930E-01	4.275E-02	9.849E-02
BI-214	1.307E+00	2.427E-01	6.465E-02	1.238E-01
PB-214	1.356E+00	2.102E-01	5.789E-02	1.073E-01
PO-214	1.356E+00	2.102E-01	5.789E-02	1.073E-01
PO-216	1.652E+00	1.930E-01	4.275E-02	9.849E-02
PO-218	1.356E+00	2.102E-01	5.789E-02	1.073E-01
RA-224	5.336E+00	1.211E+00	4.878E-01	6.179E-01
RA-226	1.307E+00	2.427E-01	6.465E-02	1.238E-01
AC-228	1.982E+00	4.301E-01	1.310E-01	2.195E-01
RA-228	1.982E+00	4.301E-01	1.310E-01	2.195E-01
TH-228	1.685E+00	1.969E-01	4.361E-02	1.005E-01
TH-230	1.306E+00	2.427E-01	6.465E-02	1.238E-01
TH-232	1.982E+00	4.301E-01	1.310E-01	2.195E-01
TH-234	1.581E+00	6.907E-01	4.051E-01	3.524E-01
U-234	1.306E+00	2.427E-01	6.465E-02	1.238E-01
NP-237	8.993E-01	2.684E-01	1.115E-01	1.369E-01
U-238	1.581E+00	6.907E-01	4.051E-01	3.524E-01
AM-243	3.848E-01	5.139E-02	2.322E-02	2.622E-02
ANH-511	1.536E-01	7.503E-02	2.339E-02	3.828E-02

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

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-4.091E-02	3.839E-01	3.337E-01	1.959E-01 NOT IDENT.
NA-22	-1.017E-02	5.701E-02	4.601E-02	2.909E-02 NOT IDENT.
NA-24	-2.308E+07	1.700E+08	0.000E+00	8.675E+07 SHORT HLIF
AL-26	-3.870E-03	3.781E-02	3.048E-02	1.929E-02 NOT IDENT.
TI-44	3.706E-01	4.186E-02	1.914E-02	2.136E-02 FAIL ABUN
SC-46	-1.082E-02	4.934E-02	4.158E-02	2.517E-02 FAIL ABUN
V-48	3.503E-02	1.066E-01	9.405E-02	5.436E-02 NOT IDENT.
CR-51	8.790E-02	3.975E-01	3.439E-01	2.028E-01 NOT IDENT.
MN-52	-1.171E-01	4.097E-01	3.284E-01	2.090E-01 NOT IDENT.
MN-54	-1.300E-02	4.510E-02	3.812E-02	2.301E-02 NOT IDENT.
CO-56	2.717E-02	4.516E-02	4.155E-02	2.304E-02 NOT IDENT.
CO-57	1.382E-03	1.954E-02	1.659E-02	9.970E-03 NOT IDENT.
CO-58	-2.478E-02	4.324E-02	3.524E-02	2.206E-02 NOT IDENT.
FE-59	-1.372E-01	1.338E-01	9.934E-02	6.828E-02 NOT IDENT.
CO-60	9.992E-03	4.781E-02	4.221E-02	2.439E-02 NOT IDENT.
ZN-65	-9.886E-03	1.328E-01	9.531E-02	6.776E-02 NOT IDENT.
GE-68	-1.152E-01	1.750E+00	1.466E+00	8.928E-01 NOT IDENT.
AS-73	2.619E-01	1.775E-01	1.697E-01	9.055E-02 NOT IDENT.
AS-74	-1.155E-02	1.209E-01	1.024E-01	6.168E-02 NOT IDENT.
SE-75	-1.240E-02	3.991E-02	3.399E-02	2.036E-02 NOT IDENT.
BR-77	1.445E+01	4.049E+01	0.000E+00	2.066E+01 SHORT HLIF
SR-82	1.338E-01	5.370E-01	4.565E-01	2.740E-01 NOT IDENT.
RB-83	1.143E-02	6.952E-02	6.125E-02	3.547E-02 NOT IDENT.
RB-84	5.268E-02	9.585E-02	8.710E-02	4.890E-02 NOT IDENT.
KR-85	8.693E+00	7.253E+00	6.305E+00	3.700E+00 NOT IDENT.
SR-85	4.689E-02	3.912E-02	3.401E-02	1.996E-02 NOT IDENT.
RB-86	7.445E-01	1.269E+00	1.133E+00	6.473E-01 NOT IDENT.
Y-88	2.454E-02	3.932E-02	3.780E-02	2.006E-02 NOT IDENT.
ZR-88	-8.984E-03	3.331E-02	2.709E-02	1.700E-02 NOT IDENT.
Y-91	9.992E+00	3.023E+01	2.588E+01	1.542E+01 NOT IDENT.
NB-94	4.270E-02	4.402E-02	3.976E-02	2.246E-02 NOT IDENT.
NB-95	1.873E-02	6.806E-02	5.095E-02	3.473E-02 NOT IDENT.
NB-95M	4.476E-02	1.159E-01	9.387E-02	5.914E-02 NOT IDENT.
ZR-95	9.037E-02	8.825E-02	8.074E-02	4.503E-02 NOT IDENT.
NB-97	-1.881E+06	1.515E+07	0.000E+00	7.727E+06 SHORT HLIF
ZR-97	2.314E+08	2.328E+08	0.000E+00	1.188E+08 SHORT HLIF
MO-99	-1.126E+01	4.736E+01	3.845E+01	2.417E+01 NOT IDENT.
TC-99M	7.815E+21	1.833E+22	0.000E+00	0.000E+00 SHORT HLIF
RH-101	3.349E-02	2.634E-02	2.486E-02	1.344E-02 NOT IDENT.
RH-102	1.835E-02	3.161E-02	2.886E-02	1.613E-02 FAIL ABUN
RU-103	4.882E-02	4.750E-02	4.430E-02	2.424E-02 FAIL ABUN
RH-106	5.716E-02	3.641E-01	3.142E-01	1.857E-01 FAIL ABUN
RU-106	5.716E-02	3.640E-01	3.142E-01	1.857E-01 FAIL ABUN
AG-108M	-9.124E-03	3.372E-02	2.925E-02	1.720E-02 NOT IDENT.
AG-110M	-8.245E-03	4.773E-02	3.447E-02	2.435E-02 NOT IDENT.
IN-111	-4.315E+00	2.958E+00	2.337E+00	1.509E+00 NOT IDENT.
IN-113M	-5.399E-02	4.761E-02	3.553E-02	2.429E-02 NOT IDENT.
SN-113	-5.399E-02	4.761E-02	3.553E-02	2.429E-02 NOT IDENT.
IN-114M	-7.356E-02	1.597E-01	1.402E-01	8.149E-02 NOT IDENT.
CD-115	-3.261E-02	5.048E+01	0.000E+00	2.575E+01 SHORT HLIF
SN-117M	5.448E-02	5.363E-02	5.090E-02	2.736E-02 NOT IDENT.
SB-122	4.534E+00	7.937E+00	7.144E+00	4.050E+00 NOT IDENT.
I-123	3.626E+08	2.002E+09	0.000E+00	1.021E+09 SHORT HLIF
TE-123M	4.106E-03	2.266E-02	2.084E-02	1.156E-02 NOT IDENT.
I-124	8.036E-01	1.859E+00	1.533E+00	9.485E-01 NOT IDENT.
SB-124	-4.797E-02	9.618E-02	7.032E-02	4.907E-02 FAIL ABUN
SB-125	6.936E-03	1.032E-01	9.190E-02	5.267E-02 FAIL ABUN
TE-125M	4.165E+00	6.646E+00	5.852E+00	3.391E+00 NOT IDENT.
I-126	2.344E-01	2.966E-01	2.414E-01	1.513E-01 NOT IDENT.
SB-126	8.892E-02	2.328E-01	1.798E-01	1.188E-01 FAIL ABUN
SB-127	-2.318E+00	3.954E+00	3.119E+00	2.017E+00 NOT IDENT.
XE-127	1.254E-02	4.224E-02	3.822E-02	2.155E-02 NOT IDENT.
I-131	-3.161E-02	1.715E-01	1.417E-01	8.748E-02 NOT IDENT.
TE-132	-6.166E-02	1.678E+00	1.477E+00	8.562E-01 NOT IDENT.
BA-133	1.905E-02	4.468E-02	3.498E-02	2.280E-02 FAIL ABUN
I-133	2.891E+05	3.007E+05	0.000E+00	1.534E+05 SHORT HLIF
CS-134	7.130E-02	8.221E-02	5.402E-02	4.194E-02 FAIL ABUN
CS-135	1.147E-01	1.570E-01	1.286E-01	8.009E-02 NOT IDENT.
I-135	-1.095E+21	1.342E+21	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-8.574E-02	1.744E-01	1.391E-01	8.900E-02 FAIL ABUN
CE-139	-1.446E-03	2.423E-02	2.197E-02	1.236E-02 NOT IDENT.
BA-140	1.194E-01	3.730E-01	3.295E-01	1.903E-01 NOT IDENT.
LA-140	-5.051E-02	1.079E-01	8.032E-02	5.505E-02 NOT IDENT.
CE-141	-2.033E-02	5.653E-02	4.598E-02	2.884E-02 NOT IDENT.
CE-143	4.535E+03	2.011E+03	0.000E+00	1.026E+03 SHORT HLIF

CE-144	2.059E-02	1.617E-01	1.364E-01	8.248E-02	NOT IDENT.
PM-144	2.925E-02	4.220E-02	3.759E-02	2.153E-02	NOT IDENT.
PR-144	1.987E+00	2.867E+00	2.554E+00	1.463E+00	NOT IDENT.
PM-146	6.696E-05	4.756E-02	4.190E-02	2.426E-02	NOT IDENT.
ND-147	2.599E-01	7.675E-01	6.842E-01	3.916E-01	FAIL ABUN
PM-149	-1.032E+02	3.800E+02	0.000E+00	1.939E+02	SHORT HLIF
EU-152	-1.031E-02	9.073E-02	7.596E-02	4.629E-02	FAIL ABUN
GD-153	-5.965E-02	5.049E-02	4.068E-02	2.576E-02	FAIL ABUN
EU-154	-9.502E-03	1.560E-01	1.278E-01	7.958E-02	NOT IDENT.
EU-155	1.281E-01	6.977E-02	6.452E-02	3.560E-02	FAIL ABUN
TB-160	-1.475E-02	1.816E-01	1.556E-01	9.267E-02	FAIL ABUN
HO-166M	6.752E-02	6.946E-02	6.355E-02	3.544E-02	FAIL ABUN
TM-171	8.880E+00	1.127E+01	9.650E+00	5.750E+00	NOT IDENT.
LU-176	1.059E-02	2.310E-02	2.038E-02	1.179E-02	FAIL ABUN
LU-177	5.615E+00	2.620E+00	1.636E+00	1.337E+00	FAIL ABUN
LU-177M	-2.023E-01	1.851E-01	1.369E-01	9.441E-02	FAIL ABUN
HF-181	-2.535E-03	5.041E-02	4.395E-02	2.572E-02	NOT IDENT.
W-181	-2.456E-02	1.470E-01	1.208E-01	7.498E-02	NOT IDENT.
TA-182	5.144E-02	2.910E-01	2.457E-01	1.485E-01	FAIL ABUN
RE-183	1.815E-02	9.026E-02	8.292E-02	4.605E-02	FAIL ABUN
RE-184	-7.927E-02	2.066E-01	1.760E-01	1.054E-01	NOT IDENT.
OS-185	-9.195E-03	5.158E-02	4.292E-02	2.632E-02	NOT IDENT.
RE-188	-4.361E-02	1.383E-01	1.248E-01	7.059E-02	NOT IDENT.
W-188	8.198E-01	7.708E+00	5.980E+00	3.933E+00	FAIL ABUN
IR-192	-8.228E-04	3.153E-02	2.683E-02	1.609E-02	FAIL ABUN
AU-195	1.851E-01	1.468E-01	1.335E-01	7.488E-02	FAIL ABUN
TL-200	-4.565E+03	9.301E+03	0.000E+00	4.745E+03	SHORT HLIF
TL-201	2.333E+00	1.620E+01	1.481E+01	8.266E+00	NOT IDENT.
TL-202	8.946E-03	9.158E-02	8.153E-02	4.672E-02	NOT IDENT.
HG-203	2.229E-02	4.472E-02	3.592E-02	2.282E-02	NOT IDENT.
BI-207	-8.020E-03	6.944E-02	5.793E-02	3.543E-02	FAIL ABUN
TL-207	-3.070E-01	7.252E-01	5.262E-01	3.700E-01	FAIL ABUN
PO-209	3.948E+00	9.236E+00	8.288E+00	4.712E+00	NOT IDENT.
PB-211	3.184E-01	9.864E-01	8.242E-01	5.033E-01	NOT IDENT.
BI-212	1.545E+00	6.272E-01	4.142E-01	3.200E-01	FAIL ABUN
PO-215	-3.070E-01	7.252E-01	5.262E-01	3.700E-01	FAIL ABUN
RN-219	-1.782E-01	4.254E-01	3.397E-01	2.170E-01	FAIL ABUN
RN-220	1.196E+01	2.611E+01	2.347E+01	1.332E+01	NOT IDENT.
RA-223	-3.070E-01	7.252E-01	5.262E-01	3.700E-01	FAIL ABUN
AC-227	5.707E-02	3.458E-01	3.043E-01	1.764E-01	FAIL ABUN
TH-227	5.707E-02	3.459E-01	3.043E-01	1.765E-01	FAIL ABUN
TH-229	1.889E-02	4.156E-01	3.733E-01	2.120E-01	FAIL ABUN
PA-231	-1.228E-01	1.376E+00	1.180E+00	7.021E-01	FAIL ABUN
TH-231	-3.070E-01	7.252E-01	5.262E-01	3.700E-01	FAIL ABUN
U-231	1.122E-01	1.458E+00	1.170E+00	7.441E-01	FAIL ABUN
PA-233	2.646E-02	5.944E-02	5.234E-02	3.033E-02	FAIL ABUN
PA-234	-1.328E-01	3.937E-01	3.250E-01	2.009E-01	FAIL ABUN
PA-234M	3.334E+00	5.762E+00	5.183E+00	2.940E+00	FAIL ABUN
U-235	4.097E-02	1.624E-01	1.370E-01	8.287E-02	FAIL ABUN
NP-236	-3.263E-02	6.282E-02	5.595E-02	3.205E-02	NOT IDENT.
NP-239	-1.833E-02	1.429E-01	1.205E-01	7.292E-02	FAIL ABUN
AM-241	-4.177E-02	4.609E-02	3.992E-02	2.351E-02	NOT IDENT.
CM-243	-1.469E-02	6.152E-02	5.213E-02	3.139E-02	FAIL ABUN
AM-246	-1.138E-01	2.068E-01	1.645E-01	1.055E-01	NOT IDENT.
CM-247	2.697E-03	3.842E-02	3.208E-02	1.960E-02	FAIL ABUN
CF-249	4.539E-02	3.992E-02	3.624E-02	2.037E-02	NOT IDENT.
CF-251	5.157E-02	9.466E-02	8.773E-02	4.829E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	185.7422
46.50	185.7422
46.50	185.7422
48.70	245.5413
49.72	191.7965
51.35	290.8761
52.39	237.5537
52.97	216.7950
53.15	216.9754
53.44	216.3336
54.07	221.6351
56.28	283.3466
56.28	283.3500
57.37	0.0000
57.53	255.4681
57.53	255.4712
57.60	255.5461
57.98	245.5008
57.98	245.5008
59.32	328.2657
59.32	328.2657
59.40	328.3769
59.54	328.5731
59.72	328.8230
60.01	318.6678
61.10	284.1286
61.14	284.1758
61.30	285.6513
63.00	337.2152
63.29	337.6130
63.29	337.6130
63.58	338.0088
64.28	326.9148
65.12	326.7034
65.20	326.8077
65.20	326.8077
66.05	304.2947
66.72	282.7343
66.83	318.7097
66.91	318.8082
67.20	319.1656
67.20	319.1656
67.75	334.6967
67.85	311.0534
68.90	352.0878
68.90	352.0878
69.30	333.6965
69.67	334.1642
70.82	341.9479
70.82	341.9479
70.83	341.9609
72.80	342.0959
72.87	342.1812
72.87	342.1812
74.67	344.4107
74.81	344.5840
74.81	344.5840
74.81	344.5840
74.81	344.5840
74.81	344.5840
74.81	344.5840
74.81	344.5840
74.97	344.7805
75.28	345.1607
75.70	345.6728
77.11	347.3876
77.11	347.3876

77.11	347.3876
77.11	347.3876
77.11	347.3876
77.11	347.3876
77.11	347.3876
78.38	284.0775
79.62	311.4696
79.80	302.0072
79.80	302.0072
80.11	278.8576
80.18	278.9233
80.30	285.9432
80.30	285.9432
80.57	309.7090
81.00	302.1940
81.07	302.2651
81.07	302.2651
81.07	302.2651
81.07	302.2651
82.60	270.0536
83.37	266.5478
83.78	266.9092
83.78	266.9092
83.78	266.9092
83.78	266.9092
84.21	274.2812
84.90	280.5074
85.43	280.9875
86.29	281.7627
86.50	281.9519
86.54	281.9885
86.59	282.0333
86.72	282.1492
86.79	282.2103
86.94	282.3486
87.30	284.0834
87.30	284.0834
87.30	284.0834
87.30	284.0834
87.30	284.0834
87.30	284.0834
87.30	284.0834
87.57	284.3268
87.88	0.0000
88.03	314.4887
88.36	314.8139
88.47	314.9223
89.95	271.4854
91.11	225.2607
92.29	226.0714
92.38	211.0583
92.38	211.0583
93.35	211.6759
94.00	212.0901
94.67	187.9343
94.67	187.9369
94.90	188.0652
94.90	188.0652
94.90	188.0652
94.90	188.0652
95.87	197.3109
95.87	197.3109
96.73	242.8995
97.43	245.9444
98.44	196.2346
98.44	196.2353
98.88	190.9962
99.55	200.1608
99.55	200.1608
99.86	179.4241
100.00	181.6974
100.10	181.7515
103.18	218.8851
103.76	195.8677
105.00	170.8538
105.31	153.1164
108.00	199.2681
109.28	187.5238



111.00	212.2083
111.00	212.2083
111.76	185.3411
112.95	240.6622
115.19	201.8994
116.30	213.9741
117.00	216.6564
117.00	216.6564
117.66	191.6196
121.11	175.8011
121.62	183.0141
121.78	199.4115
122.06	203.0487
122.32	220.6913
122.32	220.6913
122.32	220.6913
122.32	220.6913
123.07	215.2446
127.23	229.9934
129.76	223.4336
131.20	190.7886
133.02	210.7402
133.54	197.8031
135.34	167.3107
136.00	202.5146
136.25	224.3375
136.48	224.4539
140.51	188.7099
140.51	0.0000
142.18	206.5000
142.65	193.2520
143.76	185.1303
144.24	180.4101
144.24	180.4101
144.24	180.4101
144.24	180.4101
145.22	211.5330
145.44	211.6301
147.16	208.6945
152.43	215.9702
152.70	219.8362
153.22	190.8916
154.21	199.6262
154.21	199.6262
154.21	199.6262
154.21	199.6262
155.03	213.3430
156.02	217.1191
158.56	171.8781
159.00	0.0000
159.00	194.7935
160.31	214.7388
161.27	210.0598
162.32	196.0577
162.64	191.9336
163.35	191.3452
163.89	200.0574
165.85	200.8081
167.43	183.4121
171.28	163.1544
171.86	164.1935
172.10	172.0460
176.55	152.5304
176.60	152.5446
181.06	175.7304
184.41	205.4928
185.71	195.7693
186.00	182.5739
190.27	196.4142
192.34	167.5360
193.63	178.6737
197.04	169.7573
198.01	145.6098
198.60	153.8965
200.40	0.0000
201.83	198.3919
202.84	169.5464
205.31	177.0817

208.36	171.9626
208.81	172.0844
209.75	172.3393
209.75	172.3393
210.97	146.8143
215.65	166.4814
216.55	139.7003
218.09	159.6324
222.10	138.0592
223.80	154.4156
226.40	145.5578
227.00	157.0384
227.08	157.0570
227.20	157.0840
228.16	161.0957
228.18	161.1009
228.18	161.1009
231.56	0.0000
235.69	142.2566
236.00	129.3819
236.00	129.3819
238.63	155.8367
238.63	155.8367
238.63	155.8367
238.63	155.8367
239.00	0.0000
240.98	156.3508
241.98	156.5684
241.98	156.5684
241.98	156.5684
244.69	157.1567
245.39	157.3083
247.94	125.7023
248.90	122.9392
249.79	0.0000
252.40	145.0883
252.85	132.4251
252.85	132.4251
254.15	0.0000
256.20	133.0170
256.20	133.0170
260.50	134.7632
260.90	0.0000
262.80	120.2590
264.65	125.5283
268.24	120.1025
268.79	117.1833
269.46	125.3026
269.46	125.3026
269.46	125.3026
269.46	125.3026
271.23	125.0800
273.65	114.8813
276.40	126.4013
277.35	150.3399
277.60	150.3883
277.60	150.3883
278.00	135.2627
278.60	120.1539
279.20	118.7210
279.53	106.5872
280.46	115.8578
281.68	0.0000
283.67	113.2515
284.30	101.0847
285.00	91.9739
285.90	0.0000
286.10	118.7022
286.10	118.7022
287.40	124.0132
288.45	0.0000
290.67	109.5811
290.80	109.5963
291.72	125.1708
293.26	0.0000
293.70	97.5839
295.21	97.7569
295.21	97.7569

295.21	97.7569
295.96	80.7596
296.50	80.8104
297.23	0.0000
298.57	81.0072
299.80	93.6035
299.80	93.6035
300.09	93.6346
300.09	93.6346
300.09	93.6346
300.09	93.6346
300.12	93.6383
301.29	93.7646
302.84	93.9331
303.76	0.0000
303.91	92.4810
304.40	101.9434
304.40	101.9434
304.84	108.2715
306.84	97.5089
308.46	102.9407
311.98	92.8053
316.51	85.8549
318.01	106.1706
319.02	96.7227
319.41	93.5734
320.08	96.8356
323.87	113.7998
323.87	113.7998
323.87	113.7998
323.87	113.7998
325.23	89.8892
328.77	103.1250
333.44	82.5871
334.20	93.9987
334.20	93.9987
334.30	94.0093
338.28	95.4891
338.28	95.4891
338.28	95.4891
338.28	95.4891
338.32	95.4927
338.32	95.4927
338.32	95.4927
340.50	91.3606
340.57	91.3674
344.27	88.4421
345.85	95.1492
350.59	0.0000
351.07	100.0552
351.92	94.0897
351.92	94.0897
351.92	94.0897
355.39	0.0000
356.01	74.5876
364.48	84.6898
366.43	62.5215
367.43	70.4059
367.94	0.0000
369.80	80.6499
374.96	84.4299
383.85	87.4161
387.95	66.0984
388.63	58.1584
391.69	98.3492
391.69	98.3492
392.90	88.1555
398.62	79.4106
400.65	93.3942
401.10	98.0461
401.81	86.5662
402.60	82.0085
404.84	78.7011
410.95	73.3129
411.60	87.3276
413.65	89.8192
414.70	84.9401
415.30	76.2232

415.76	61.3536
417.63	0.0000
418.52	82.5885
423.70	105.0256
427.08	82.3173
427.89	94.7744
432.53	69.3616
433.93	81.9080
439.47	0.0000
439.56	72.4570
439.89	75.1624
443.98	66.4398
444.90	73.6781
445.03	73.6869
445.03	73.6869
445.03	73.6869
445.03	73.6869
453.90	82.3716
463.38	76.6185
468.07	60.0586
473.00	72.6087
475.06	67.2022
475.35	65.3762
476.78	77.4324
477.59	81.1707
477.96	76.5802
482.03	74.9710
484.57	0.0000
487.03	66.8979
490.36	0.0000
492.35	0.0000
497.08	54.3015
507.63	0.0000
510.53	0.0000
510.84	52.0216
511.00	52.0283
511.85	52.0606
511.85	52.0606
513.99	42.4717
513.99	42.4717
520.41	49.5276
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	52.7324
529.87	0.0000
531.02	49.9053
537.32	59.7673
543.00	58.0701
546.56	0.0000
549.76	45.7005
552.65	52.6124
555.20	55.6310
563.23	53.9728
563.90	56.9415
568.70	54.1708
569.32	55.1780
569.50	57.1557
569.67	57.1628
573.80	45.4609
574.00	45.4666
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	63.6387
585.48	0.0000
591.81	57.9982
592.07	54.0066
593.00	56.0410
595.88	57.1479
600.56	56.3127
602.52	0.0000
602.71	63.1027
602.71	63.1027
603.60	46.7498
604.41	70.9672
604.70	72.5933
609.31	59.6590

609.31	59.6590
609.31	59.6590
609.31	59.6590
610.33	58.2803
612.46	61.5997
614.37	51.9359
618.01	48.7998
621.84	52.9918
621.84	52.9918
631.29	44.0747
633.02	48.2263
633.10	48.2278
634.78	41.0876
635.90	44.1994
636.97	50.3982
645.85	54.8051
646.12	55.8474
656.30	63.2603
657.75	58.3157
657.90	0.0000
661.65	57.4052
661.65	57.4052
664.57	0.0000
666.33	43.5373
666.33	43.5373
675.00	51.5391
677.61	52.6703
685.20	61.3613
692.80	62.6875
695.00	75.5307
696.49	51.1055
696.49	51.1055
697.00	52.1851
697.49	57.5266
698.33	70.3425
698.50	70.3486
699.00	69.3025
702.63	56.6230
706.10	66.3651
706.58	0.0000
706.67	71.7396
709.31	56.8317
711.68	38.6521
713.82	55.8975
717.42	49.5446
720.50	39.7020
721.93	0.0000
722.20	34.5547
722.78	41.4785
722.78	41.4785
722.89	41.4814
722.95	41.4832
723.30	41.4902
724.18	46.6989
727.18	35.7302
733.00	46.9204
735.90	34.8096
739.58	51.2270
742.81	36.0293
744.21	39.3333
747.13	54.7134
751.79	54.8462
752.31	55.9587
753.82	56.0023
755.35	0.0000
756.15	36.2811
756.87	40.6940
763.93	42.3879
765.79	63.6434
766.42	53.0522
766.84	54.1695
776.49	46.6604
778.00	45.5832
778.57	36.7000
778.89	44.4922
783.80	52.4074
785.46	40.1759
792.07	46.5791

795.84	53.8447
796.30	53.8579
798.80	53.9238
801.93	41.4056
805.60	38.7756
810.29	41.5752
810.76	40.6813
815.85	43.5012
817.79	0.0000
818.51	39.9266
819.60	36.3164
826.30	31.8794
828.27	0.0000
831.60	56.6159
831.96	51.1451
834.83	53.0439
836.80	0.0000
846.75	32.1896
848.13	28.5297
856.28	0.0000
856.80	32.3408
860.37	36.0969
867.32	37.1406
867.82	43.3410
871.10	43.7160
873.19	43.7584
874.81	40.9954
875.33	0.0000
876.40	59.6719
879.36	44.8148
880.27	40.1624
880.51	40.1676
881.50	38.3164
883.24	40.2170
884.67	45.8585
889.25	43.1396
896.60	39.5175
898.02	48.9569
899.00	45.2109
903.28	45.8357
911.07	39.7708
911.07	39.7708
911.07	39.7708
919.63	35.1681
920.93	35.1879
925.00	38.1084
925.24	32.3955
926.50	36.2262
935.52	40.1953
937.48	68.9643
944.10	42.2641
946.00	49.0265
949.00	38.5020
962.29	43.5575
964.01	38.7451
966.15	19.3896
968.20	19.4063
969.11	37.2094
969.11	37.2094
969.11	37.2094
977.42	34.0908
980.50	45.8376
983.50	35.1527
989.30	45.0241
996.32	44.1705
1001.03	37.3710
1001.68	32.4618
1004.76	40.3814
1021.30	0.0000
1024.50	0.0000
1034.80	39.8691
1036.00	36.8952
1037.82	42.9097
1038.57	53.9024
1038.76	0.0000
1045.16	39.0286
1046.59	47.0620
1048.07	43.0819

1050.47	34.0963
1050.47	34.0963
1062.04	44.3201
1063.62	44.3480
1076.63	38.4898
1077.35	47.6173
1078.86	56.7684
1085.78	44.7197
1099.22	55.1602
1112.02	51.3159
1112.84	46.1975
1115.52	44.5309
1120.29	41.1758
1120.29	41.1758
1120.29	41.1758
1120.29	41.1758
1120.51	41.1797
1121.28	34.3262
1124.00	0.0000
1129.67	39.2506
1131.51	0.0000
1147.95	0.0000
1167.94	47.1182
1173.22	33.5688
1175.09	40.9386
1177.93	46.2322
1189.05	59.0680
1204.90	59.3906
1205.75	0.0000
1213.00	53.1738
1221.42	56.5247
1230.97	70.6148
1235.34	76.0754
1236.41	0.0000
1238.25	41.8279
1246.25	40.8630
1260.41	0.0000
1271.85	42.2925
1274.45	33.6459
1274.54	35.8166
1291.56	39.2871
1298.22	0.0000
1312.09	30.7563
1325.50	28.4961
1325.50	28.4961
1332.49	23.0316
1333.61	24.8818
1360.21	18.5832
1362.66	0.0000
1365.15	11.1665
1368.21	18.6279
1368.53	0.0000
1376.25	11.2041
1384.27	15.9112
1394.10	13.1415
1395.20	12.2071
1407.95	15.0807
1434.06	12.3472
1436.60	13.3073
1457.56	0.0000
1460.81	16.2716
1489.15	17.3679
1509.49	10.6742
1596.49	10.9279
1620.62	7.9980
1678.03	0.0000
1691.02	11.1960
1691.02	11.1960
1706.46	0.0000
1750.46	0.0000
1764.49	8.8825
1764.49	8.8825
1764.49	8.8825
1764.49	8.8825
1770.23	31.1316
1771.40	8.3040
1791.20	0.0000
1808.65	8.3779

1836.01

4.2157



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101006

Total Uranium Activity	4.7224E+00	ug/g
Total Uranium Counting Unc.	2.0563E+00	ug/g
Total Uranium Tpu	1.0491E-06	ug/g
Total Uranium Mda	1.2067E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 944037                SAMPLE ID   : G245101006                *
*  ANALYST       : MXR1                  DETECTOR    : GAM21                  *
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE:  2-FEB-2010 10:28:15.72  SAMPLE ALQT: 135.140 GRAM          *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.015E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.403E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.825E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.851E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 12:30:13.39

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101007.CNF;1
Sample date   : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:43.
Sample ID     : G245101007      Sample quantity  : 1.16940E+02 GRAM
Detector name : GAM23           Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.60 0.0%
Energy tolerance: 1.50000 keV   Analyst Initials : MXR1
Abundance limit : 75.00000      Sensitivity    : 5.00000
Batch ID       : 944037         Detector SN#   :
Matrix Spike ID :               LCS ID        : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.30*	98	393	1.56	126.61	121	10	1.36E-02	40.4	
2	2	74.64*	365	407	1.30	149.27	144	15	5.07E-02	10.8	2.83E+00
3	2	77.00	495	286	1.05	154.00	144	15	6.87E-02	7.1	
4	0	87.11	196	333	1.14	174.22	171	7	2.72E-02	17.1	
5	0	92.77*	160	436	1.32	185.54	182	9	2.22E-02	26.1	
6	0	129.59	89	297	1.07	259.19	255	9	1.23E-02	36.7	
7	0	185.55*	173	299	1.43	371.09	367	10	2.40E-02	20.9	
8	0	208.96	119	223	1.06	417.91	414	9	1.65E-02	24.5	
9	3	238.36*	1057	117	1.24	476.73	469	20	1.47E-01	3.6	2.79E+00
10	3	241.35	330	194	1.78	482.69	469	20	4.59E-02	12.3	
11	0	269.73	113	145	1.42	539.46	534	10	1.57E-02	22.0	
12	2	294.85	308	134	1.41	589.70	584	20	4.28E-02	8.7	1.18E+00
13	2	299.48	77	191	1.83	598.97	584	20	1.07E-02	35.5	
14	0	326.76	73	143	1.31	653.51	648	11	1.01E-02	34.0	
15	0	337.89	183	196	1.17	675.77	669	14	2.54E-02	17.8	
16	0	351.47	508	157	1.10	702.94	698	11	7.06E-02	6.5	
17	0	462.48	75	104	1.03	924.96	919	12	1.04E-02	29.7	
18	0	510.63*	148	131	2.35	1021.26	1011	21	2.05E-02	22.9	
19	0	582.56*	269	57	1.63	1165.12	1160	13	3.73E-02	8.6	
20	0	608.76*	339	81	1.64	1217.53	1211	13	4.70E-02	7.9	
21	0	726.94	69	73	1.65	1453.87	1446	14	9.65E-03	28.8	
22	0	910.23	223	42	2.10	1820.45	1813	13	3.10E-02	9.0	
23	0	969.11*	6	40	1.52	1938.22	1937	4	8.26E-04	179.1	
24	0	1050.95	10	22	1.24	2101.90	2099	7	1.44E-03	76.3	
25	0	1119.54*	70	56	1.95	2239.08	2232	15	9.70E-03	24.8	
26	0	1459.42	913	36	2.13	2918.84	2908	21	1.27E-01	3.7	
27	0	1763.05*	49	0	2.00	3526.09	3520	12	6.82E-03	15.4	

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

VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 12:30:16

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101007.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:43
Sample ID         : G245101007 Sample quantity : 116.94 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA23 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.60 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	*	2.753E+01	2.898E+00	6.338E-01	4.741E-02	43.432
CD-109	+	88.03	*	3.337E+00	1.184E+00	1.645E+00	1.606E-01	2.029
SN-126	+	64.28		1.261E+00	1.036E+00	1.068E+00	1.625E-01	1.181
	+	86.94		1.354E+00	7.284E-01	7.516E-01	3.126E-01	1.801
	+	87.57	*	3.256E-01	1.155E-01	1.786E-01	1.738E-02	1.823
CS-135	+	268.24	*	5.366E-01	2.399E-01	2.880E-01	2.200E-02	1.864
TL-208		277.35		-6.128E-02	4.471E-01	7.074E-01	7.474E-02	-0.087
	+	510.84		8.619E-01	4.046E-01	2.407E-01	2.445E-02	3.581
	+	583.14	*	4.494E-01	8.222E-02	6.238E-02	4.050E-03	7.205
		860.37		3.702E-01	3.702E-01	6.639E-01	6.001E-02	0.558
BI-211		72.87		1.199E+01	4.719E+00	7.436E+00	6.559E-01	1.613
	+	351.07	*	3.661E+00	5.335E-01	3.948E-01	2.573E-02	9.273
PB-212	+	74.81		2.714E+00	6.847E-01	6.851E-01	8.838E-02	3.962
	+	77.11		2.054E+00	3.464E-01	3.839E-01	3.454E-02	5.351
	+	87.30		1.506E+00	5.552E-01	8.328E-01	1.161E-01	1.808
	+	238.63	*	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
	+	300.09		1.865E+00	1.333E+00	1.413E+00	1.173E-01	1.320
PO-212	+	74.81		2.714E+00	6.847E-01	6.851E-01	8.838E-02	3.962
	+	77.11		2.054E+00	3.464E-01	3.839E-01	3.454E-02	5.351
	+	87.30		1.506E+00	5.552E-01	8.328E-01	1.161E-01	1.808
		115.19		-3.075E-01	4.153E+00	6.822E+00	4.352E-01	-0.045
	+	238.63	*	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
	+	300.09		1.865E+00	1.333E+00	1.413E+00	1.173E-01	1.320
BI-214	+	609.31	*	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
	+	1120.29		1.179E+00	5.950E-01	6.006E-01	5.581E-02	1.963
	+	1764.49		1.140E+00	3.594E-01	3.447E-01	2.143E-02	3.308
PB-214	+	74.81		4.677E+00	1.149E+00	1.181E+00	1.366E-01	3.962
	+	77.11		3.521E+00	6.517E-01	6.581E-01	7.759E-02	5.351
	+	87.30		2.580E+00	9.367E-01	1.427E+00	1.768E-01	1.808
	+	241.98		3.080E+00	7.969E-01	5.994E-01	4.767E-02	5.139
	+	295.21		1.304E+00	2.522E-01	2.457E-01	2.106E-02	5.305
	+	351.92	*	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
PO-214	+	74.81		4.677E+00	1.149E+00	1.181E+00	1.366E-01	3.962
	+	77.11		3.521E+00	6.517E-01	6.581E-01	7.759E-02	5.351

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	87.30		2.580E+00	9.367E-01	1.427E+00	1.768E-01	1.808
	+	241.98		3.080E+00	7.969E-01	5.994E-01	4.767E-02	5.139
	+	295.21		1.304E+00	2.522E-01	2.457E-01	2.106E-02	5.305
	+	351.92	*	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
	+	74.81		2.714E+00	6.847E-01	6.851E-01	8.838E-02	3.962
	+	77.11		2.054E+00	3.464E-01	3.839E-01	3.454E-02	5.351
	+	87.30		1.506E+00	5.552E-01	8.328E-01	1.161E-01	1.808
PO-218	+	238.63	*	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
	+	300.09		1.865E+00	1.333E+00	1.413E+00	1.173E-01	1.320
	+	74.81		4.677E+00	1.149E+00	1.181E+00	1.366E-01	3.962
	+	77.11		3.521E+00	6.517E-01	6.581E-01	7.759E-02	5.351
	+	87.30		2.580E+00	9.367E-01	1.427E+00	1.768E-01	1.808
	+	241.98		3.080E+00	7.969E-01	5.994E-01	4.767E-02	5.139
	+	295.21		1.304E+00	2.522E-01	2.457E-01	2.106E-02	5.305
RA-224	+	351.92	*	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
	+	240.98	*	5.841E+00	1.475E+00	1.133E+00	6.382E-02	5.156
	+	609.31	*	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
RA-226	+	1120.29		1.179E+00	5.950E-01	6.006E-01	5.581E-02	1.963
	+	1764.49		1.140E+00	3.594E-01	3.447E-01	2.143E-02	3.308
	+	338.32		1.451E+00	7.863E-01	3.918E-01	1.598E-01	3.704
AC-228	+	911.07	*	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
	+	969.11		7.983E-02	2.866E-01	5.594E-01	1.302E-01	0.143
	+	338.32		1.451E+00	7.863E-01	3.918E-01	1.598E-01	3.704
RA-228	+	911.07	*	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
	+	969.11		7.983E-02	2.866E-01	5.594E-01	1.302E-01	0.143
	+	74.81		2.769E+00	6.494E-01	6.989E-01	6.264E-02	3.962
TH-228	+	77.11		2.095E+00	3.534E-01	3.916E-01	3.523E-02	5.351
	+	87.30		1.536E+00	5.450E-01	8.495E-01	8.246E-02	1.808
	+	238.63	*	1.674E+00	1.697E-01	1.015E-01	7.299E-03	16.489
TH-230	+	300.09		1.902E+00	1.756E+00	1.441E+00	8.494E-01	1.320
	+	609.31	*	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
	+	1120.29		1.179E+00	5.950E-01	6.006E-01	5.581E-02	1.963
TH-232	+	1764.49		1.140E+00	3.594E-01	3.447E-01	2.143E-02	3.308
	+	338.32		1.451E+00	5.247E-01	3.918E-01	2.314E-02	3.704
	+	911.07	*	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
TH-234	+	969.11		7.983E-02	2.866E-01	5.594E-01	1.302E-01	0.143
	+	63.29	*	3.186E+00	2.635E+00	2.672E+00	4.816E-01	1.192
	+	92.38		1.699E+00	9.390E-01	1.183E+00	2.157E-01	1.436
U-234	+	609.31	*	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
	+	1120.29		1.179E+00	5.950E-01	6.006E-01	5.581E-02	1.963
	+	1764.49		1.140E+00	3.594E-01	3.447E-01	2.143E-02	3.308
NP-237	+	86.50	*	9.561E-01	3.925E-01	5.126E-01	1.167E-01	1.865
	+	95.87		-1.134E+00	1.290E+00	1.744E+00	4.281E-01	-0.650
U-238	+	63.29	*	3.186E+00	2.635E+00	2.672E+00	4.816E-01	1.192
	+	92.38		1.699E+00	8.993E-01	1.183E+00	1.057E-01	1.436
	+	74.67	*	4.400E-01	1.031E-01	1.115E-01	9.909E-03	3.946
AM-243	+	86.72		3.586E+01	1.272E+01	1.954E+01	1.887E+00	1.835
	+	117.66		-3.832E+00	4.496E+00	7.131E+00	4.416E-01	-0.537
	+	142.18		1.324E+01	2.184E+01	3.575E+01	1.946E+00	0.370

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	1.862E-01	8.600E-02	5.201E-02	3.021E-03	3.580

---- 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	*	2.619E-01	3.921E-01	6.767E-01	4.599E-02	0.387
NA-22		1274.54	*	1.986E-02	5.233E-02	8.890E-02	5.970E-03	0.223
NA-24		1368.53	*	-6.550E+01	5.233E-02	Half-Life too short		
AL-26		1129.67		-1.213E+00	2.005E+00	3.079E+00	1.961E-01	-0.394
		1808.65	*	-4.096E-02	3.170E-02	3.318E-02	1.994E-03	-1.235
TI-44		67.85		-1.138E-02	6.721E-02	9.806E-02	8.539E-03	-0.116
	+	78.38	*	3.791E-01	6.394E-02	9.570E-02	8.675E-03	3.962
SC-46		889.25	*	3.001E-02	5.058E-02	8.859E-02	7.915E-03	0.339
	+	1120.51		2.101E-01	1.051E-01	1.502E-01	9.789E-03	1.398
V-48		944.10		4.471E-01	1.237E+00	2.128E+00	1.854E-01	0.210
		983.50	*	-4.747E-03	1.078E-01	1.778E-01	1.479E-02	-0.027
		1312.09		-3.639E-02	1.142E-01	1.778E-01	1.265E-02	-0.205
CR-51		320.08	*	3.063E-02	5.438E-01	8.338E-01	5.468E-02	0.037
MN-52		744.21		2.341E-01	4.959E-01	8.345E-01	5.312E-02	0.281
		848.13		-5.081E-01	1.379E+01	2.296E+01	1.874E+00	-0.022
		935.52		-1.182E-01	5.507E-01	8.959E-01	7.876E-02	-0.132
		1246.25		-1.347E+01	1.626E+01	2.419E+01	1.548E+00	-0.557
		1333.61		1.665E+00	1.108E+01	1.836E+01	1.347E+00	0.091
		1434.06	*	4.382E-01	5.185E-01	9.407E-01	6.806E-02	0.466
MN-54		834.83	*	-2.153E-02	4.567E-02	7.326E-02	5.801E-03	-0.294
CO-56		846.75	*	2.434E-02	4.632E-02	8.109E-02	6.597E-03	0.300
		977.42		4.063E-01	3.653E+00	6.119E+00	5.131E-01	0.066
		1037.82		-3.386E-04	3.867E-01	6.383E-01	5.232E-02	-0.001
		1175.09		2.692E+00	2.863E+00	5.102E+00	2.888E-01	0.528
		1238.25		2.372E-01	1.168E-01	2.205E-01	1.467E-02	1.076
		1360.21		-1.710E-01	1.084E+00	1.712E+00	1.254E-01	-0.100
		1771.40		-1.278E-01	2.552E-01	3.742E-01	2.315E-02	-0.342
CO-57		122.06	*	3.299E-03	3.106E-02	5.130E-02	3.025E-03	0.064
		136.48		-3.230E-02	2.513E-01	4.097E-01	2.664E-02	-0.079
CO-58		810.76	*	3.765E-02	4.837E-02	8.629E-02	6.483E-03	0.436
FE-59		142.65		2.073E+00	3.609E+00	5.899E+00	3.208E-01	0.351
		192.34		1.158E+00	1.226E+00	1.997E+00	2.310E-01	0.580
		1099.22	*	3.607E-02	1.232E-01	2.084E-01	1.605E-02	0.173
		1291.56		-6.523E-02	1.681E-01	2.612E-01	2.168E-02	-0.250
CO-60		1173.22		4.784E-02	5.780E-02	1.017E-01	5.737E-03	0.470
		1332.49	*	2.598E-02	4.725E-02	8.228E-02	6.040E-03	0.316
ZN-65		1115.52	*	4.416E-03	1.358E-01	1.923E-01	1.270E-02	0.023
GE-68		1077.35	*	-1.401E-01	1.638E+00	2.677E+00	1.916E-01	-0.052
AS-73		53.44	*	5.695E-01	1.294E+00	2.212E+00	1.953E-01	0.257
AS-74		595.88	*	1.993E-02	1.308E-01	2.156E-01	1.189E-02	0.092
		634.78		4.394E-01	5.267E-01	8.996E-01	4.762E-02	0.488
SE-75		66.05		-4.799E+00	7.199E+00	1.019E+01	1.070E+00	-0.471
		96.73		-1.460E+00	1.099E+00	1.458E+00	1.955E-01	-1.001

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		121.11		-1.560E-02	1.680E-01	2.752E-01	2.567E-02	-0.057
		136.00		-6.052E-04	4.745E-02	7.773E-02	4.389E-03	-0.008
		198.60		-2.827E-02	2.203E+00	3.445E+00	2.326E-01	-0.008
		264.65	*	1.289E-02	6.102E-02	8.646E-02	5.033E-03	0.149
		279.53		2.102E-02	1.242E-01	2.113E-01	1.329E-02	0.100
		303.91		1.734E+00	2.729E+00	4.183E+00	4.013E-01	0.414
		400.65		4.237E-02	3.002E-01	5.031E-01	4.578E-02	0.084
BR-77	+	87.88		2.919E-03	3.002E-01	Half-Life	too short	
		200.40		-2.064E-04	3.002E-01	Half-Life	too short	
	+	239.00		1.075E-03	3.002E-01	Half-Life	too short	
		249.79		-1.841E-04	3.002E-01	Half-Life	too short	
		281.68		-2.682E-05	3.002E-01	Half-Life	too short	
		297.23		1.029E-03	3.002E-01	Half-Life	too short	
		303.76		5.355E-04	3.002E-01	Half-Life	too short	
		439.47		2.510E-04	3.002E-01	Half-Life	too short	
		484.57		-7.493E-04	3.002E-01	Half-Life	too short	
		520.65	*	-1.620E-05	3.002E-01	Half-Life	too short	
		574.64		9.309E-04	3.002E-01	Half-Life	too short	
		578.91		-3.688E-05	3.002E-01	Half-Life	too short	
		585.48		2.544E-03	3.002E-01	Half-Life	too short	
		755.35		6.848E-04	3.002E-01	Half-Life	too short	
		817.79		-1.924E-05	3.002E-01	Half-Life	too short	
SR-82		698.33		-9.812E+00	5.075E+01	8.061E+01	4.553E+00	-0.122
		776.49	*	-5.062E-01	4.969E-01	7.549E-01	5.208E-02	-0.671
		1395.20		-4.004E+00	1.542E+01	2.400E+01	1.749E+00	-0.167
RB-83		520.41	*	-2.573E-02	8.613E-02	1.339E-01	7.750E-03	-0.192
		529.64		1.434E-02	1.251E-01	2.068E-01	1.193E-02	0.069
		552.65		-1.257E-01	2.385E-01	3.722E-01	2.121E-02	-0.338
RB-84		881.50	*	-7.809E-02	9.155E-02	1.393E-01	1.223E-02	-0.561
KR-85		513.99	*	1.371E+01	9.624E+00	1.549E+01	8.990E-01	0.885
SR-85		513.99	*	7.397E-02	5.191E-02	8.356E-02	4.849E-03	0.885
RB-86		1076.63	*	-8.875E-01	1.222E+00	1.864E+00	1.336E-01	-0.476
Y-88		898.02		-3.494E-03	5.520E-02	9.142E-02	8.359E-03	-0.038
		1836.01	*	-2.474E-02	3.601E-02	4.897E-02	2.883E-03	-0.505
ZR-88		392.90	*	-7.739E-03	3.670E-02	6.016E-02	3.473E-03	-0.129
Y-91		1204.90	*	-1.096E+01	2.636E+01	4.147E+01	2.474E+00	-0.264
NB-94		702.63	*	-3.195E-03	4.360E-02	6.990E-02	3.994E-03	-0.046
		871.10		2.098E-02	3.854E-02	6.758E-02	5.804E-03	0.310
NB-95		765.79	*	5.807E-02	5.926E-02	1.023E-01	6.878E-03	0.567
NB-95M		235.69	*	6.940E-01	1.905E-01	3.142E-01	2.318E-02	2.209
ZR-95		724.18		2.060E-01	1.461E-01	2.336E-01	1.651E-02	0.882
		756.15	*	2.898E-02	8.955E-02	1.483E-01	1.138E-02	0.195
NB-97		657.90	*	-8.064E+00	8.955E-02	Half-Life	too short	
		1024.50		2.187E+02	8.955E-02	Half-Life	too short	
ZR-97		254.15		1.101E+03	8.955E-02	Half-Life	too short	
		355.39		7.165E+01	8.955E-02	Half-Life	too short	
		507.63	*	8.237E+02	8.955E-02	Half-Life	too short	
		602.52		4.970E+02	8.955E-02	Half-Life	too short	
		1021.30		-5.070E+02	8.955E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1147.95			-3.770E+01	8.955E-02	Half-Life	too short	
	1362.66			1.899E+02	8.955E-02	Half-Life	too short	
	1750.46			-3.089E+02	8.955E-02	Half-Life	too short	
MO-99	140.51			-3.687E+01	1.082E+02	1.740E+02	4.677E+01	-0.212
	181.06			4.695E+01	7.578E+01	1.111E+02	1.883E+01	0.423
	366.43			1.255E+01	3.296E+02	5.508E+02	3.228E+01	0.023
	739.58	*		2.579E+00	4.687E+01	7.578E+01	1.061E+01	0.034
	778.00			-1.902E+02	1.279E+02	1.827E+02	1.265E+01	-1.041
TC-99M	140.51	*		-9.680E+15	1.279E+02	Half-Life	too short	
RH-101	127.23			2.307E-02	4.488E-02	6.639E-02	3.812E-03	0.347
	198.01	*		-1.121E-02	3.960E-02	6.115E-02	3.260E-03	-0.183
	325.23			2.838E-01	2.916E-01	4.564E-01	2.696E-02	0.622
RH-102	418.52			-2.863E-01	3.470E-01	5.428E-01	3.163E-02	-0.527
	475.06	*		9.166E-03	3.468E-02	5.820E-02	3.407E-03	0.157
	631.29			-8.023E-02	6.255E-02	8.847E-02	4.703E-03	-0.907
	697.49			-2.297E-02	1.029E-01	1.631E-01	9.190E-03	-0.141
	766.84			4.198E-02	1.501E-01	2.461E-01	1.658E-02	0.171
	1046.59			3.847E-02	1.527E-01	2.249E-01	1.703E-02	0.171
	1112.84			1.637E-02	3.211E-01	4.564E-01	3.028E-02	0.036
RU-103	497.08	*		-9.143E-03	4.919E-02	7.960E-02	1.008E-02	-0.115
	610.33			1.079E+01	2.409E+00	3.413E+00	5.217E-01	3.162
RH-106	511.85	+		9.384E-01	4.335E-01	4.893E-01	2.841E-02	1.918
	621.84	*		-3.786E-01	3.866E-01	5.685E-01	6.556E-02	-0.666
	1050.47	+		1.497E+00	2.287E+00	4.837E+00	3.638E-01	0.310
RU-106	511.85	+		9.384E-01	4.335E-01	4.893E-01	2.841E-02	1.918
	621.84	*		-3.786E-01	3.847E-01	5.685E-01	3.055E-02	-0.666
	1050.47	+		1.497E+00	2.287E+00	4.837E+00	3.638E-01	0.310
AG-108M	433.93	*		2.811E-02	3.833E-02	6.647E-02	4.214E-03	0.423
	614.37			2.534E-02	5.161E-02	7.661E-02	4.551E-03	0.331
	722.95			-3.126E-03	5.886E-02	8.113E-02	5.275E-03	-0.039
AG-110M	657.75	*		-3.129E-02	4.519E-02	6.882E-02	3.824E-03	-0.455
	677.61			8.259E-02	3.704E-01	6.108E-01	3.496E-02	0.135
	706.67			-2.824E-02	2.606E-01	4.162E-01	2.549E-02	-0.068
	763.93			-1.653E-01	2.256E-01	3.390E-01	2.373E-02	-0.488
	884.67			9.601E-03	6.040E-02	1.021E-01	9.312E-03	0.094
	937.48			-1.640E-01	1.341E-01	1.933E-01	1.755E-02	-0.849
	1384.27			1.196E-01	1.734E-01	3.108E-01	2.357E-02	0.385
IN-111	171.28			2.119E+00	3.741E+00	6.237E+00	3.200E-01	0.340
	245.39	*		-8.250E-01	4.460E+00	6.145E+00	3.478E-01	-0.134
IN-113M	391.69	*		2.623E-02	5.069E-02	8.709E-02	5.365E-03	0.301
SN-113	391.69	*		2.623E-02	5.069E-02	8.709E-02	5.365E-03	0.301
IN-114M	190.27	*		-9.673E-03	2.609E-01	3.684E-01	1.942E-02	-0.026
CD-115	260.90			-1.057E-04	2.609E-01	Half-Life	too short	
	492.35			-1.066E-04	2.609E-01	Half-Life	too short	
	527.90	*		3.495E-05	2.609E-01	Half-Life	too short	
SN-117M	156.02			3.394E-01	3.408E+00	5.584E+00	2.922E-01	0.061
	158.56	*		-9.658E-03	8.216E-02	1.333E-01	6.925E-03	-0.072
SB-122	563.90	*		5.828E+00	8.807E+00	1.508E+01	8.531E-01	0.386
	692.80			1.011E+02	1.855E+02	3.132E+02	1.743E+01	0.323



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123	159.00	*		-1.545E+02	1.855E+02	Half-Life	too short	
	528.96			1.734E+05	1.855E+02	Half-Life	too short	
TE-123M	159.00	*		-1.749E-03	3.393E-02	5.519E-02	2.912E-03	-0.032
I-124	602.71	*		3.736E-01	2.001E+00	2.873E+00	1.574E-01	0.130
	722.78			-2.037E+00	1.358E+01	1.848E+01	1.113E+00	-0.110
	1325.50			-4.374E+01	9.572E+01	1.462E+02	1.062E+01	-0.299
	1376.25			6.084E+01	8.178E+01	1.451E+02	1.060E+01	0.419
	1509.49			1.096E+01	4.143E+01	6.955E+01	4.933E+00	0.158
	1691.02			4.295E+00	6.724E+00	1.299E+01	8.483E-01	0.331
SB-124	602.71			1.032E-02	5.527E-02	7.936E-02	4.351E-03	0.130
	645.85			4.726E-02	6.722E-01	1.072E+00	6.471E-02	0.044
	709.31			-2.536E-01	3.751E+00	6.013E+00	3.497E-01	-0.042
	713.82			7.204E-01	2.180E+00	3.612E+00	3.706E-01	0.199
	722.78			-8.159E-02	5.438E-01	7.401E-01	4.654E-02	-0.110
+	968.20			8.687E-01	3.113E+00	8.183E+00	6.939E-01	0.106
	1045.16			5.485E-01	3.500E+00	5.280E+00	4.008E-01	0.104
	1325.50			-1.871E+00	4.094E+00	6.252E+00	4.541E-01	-0.299
	1368.21			-2.021E-01	2.084E+00	3.329E+00	4.221E-01	-0.061
	1436.60			2.427E+00	5.020E+00	8.677E+00	6.275E-01	0.280
	1691.02	*		4.057E-02	6.352E-02	1.228E-01	8.558E-03	0.331
SB-125	427.89	*		-7.384E-02	1.091E-01	1.720E-01	1.046E-02	-0.429
+	463.38			8.508E-01	5.095E-01	6.507E-01	4.433E-02	1.308
	600.56			-3.414E-03	2.206E-01	3.487E-01	2.247E-02	-0.010
	635.90			2.730E-01	3.289E-01	5.702E-01	3.626E-02	0.479
TE-125M	109.28	*		-1.517E+01	1.199E+01	1.867E+01	1.668E+00	-0.813
I-126	388.63			-1.592E-01	3.066E-01	4.927E-01	2.849E-02	-0.323
	666.33	*		-1.309E-01	3.026E-01	4.721E-01	2.443E-02	-0.277
	753.82			1.559E+00	2.204E+00	3.781E+00	2.466E-01	0.412
SB-126	223.80			1.854E+00	6.248E+00	1.020E+01	5.635E-01	0.182
	278.60			1.853E+00	3.629E+00	6.269E+00	3.647E-01	0.296
	296.50			1.447E+01	2.753E+00	5.261E+00	3.088E-01	2.751
	414.70			6.841E-02	1.136E-01	1.956E-01	1.138E-02	0.350
	415.30			4.739E+00	9.447E+00	1.617E+01	9.413E-01	0.293
	555.20			2.169E+00	5.988E+00	1.008E+01	5.731E-01	0.215
	573.80			2.583E-01	1.682E+00	2.777E+00	1.560E-01	0.093
	593.00			3.091E-01	1.404E+00	2.329E+00	1.288E-01	0.133
	656.30			-6.726E+00	5.807E+00	8.474E+00	4.362E-01	-0.794
	666.33			-5.532E-02	1.279E-01	1.995E-01	1.032E-02	-0.277
	675.00			8.131E-01	3.187E+00	5.267E+00	2.792E-01	0.154
	695.00			6.499E-02	1.293E-01	2.173E-01	1.216E-02	0.299
	697.00			-1.867E-01	4.644E-01	7.246E-01	4.079E-02	-0.258
	720.50	*		-1.191E-01	2.587E-01	3.360E-01	2.013E-02	-0.354
	856.80			-1.354E-01	7.725E-01	1.271E+00	1.057E-01	-0.107
	989.30			-2.079E-01	2.095E+00	3.436E+00	2.837E-01	-0.060
	1034.80			-4.148E-01	1.411E+01	2.322E+01	1.794E+00	-0.018
	1213.00			4.453E-01	7.036E+00	1.158E+01	7.004E-01	0.038
SB-127	61.10			1.671E+02	2.028E+02	3.105E+02	3.961E+01	0.538
	252.40			4.122E+00	1.304E+01	2.106E+01	8.840E+00	0.196
	290.80			7.814E+00	6.657E+01	9.849E+01	1.086E+01	0.079

Sample ID : G245101007

Acquisition date : 2-FEB-2010 10:28:43

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		411.60		-3.100E+01	3.322E+01	5.100E+01	7.964E+00	-0.608
		444.90		4.608E+00	2.698E+01	4.511E+01	5.599E+00	0.102
		473.00		-8.684E-01	4.721E+00	7.671E+00	9.780E-01	-0.113
		543.00		1.080E+01	4.649E+01	7.742E+01	1.102E+01	0.140
		603.60		-7.187E+00	3.799E+01	5.222E+01	6.377E+00	-0.138
		685.20	*	1.696E+00	3.786E+00	6.362E+00	7.027E-01	0.267
		698.50		-1.241E+01	4.748E+01	7.493E+01	1.173E+01	-0.166
		722.20		-3.950E+01	9.824E+01	1.289E+02	1.432E+01	-0.307
		783.80		1.063E+01	9.552E+00	1.737E+01	2.239E+00	0.612
XE-127		57.60		-5.835E-01	1.033E+01	1.522E+01	1.334E+00	-0.038
		145.22		4.966E-01	9.002E-01	1.504E+00	8.115E-02	0.330
		172.10		3.932E-02	1.529E-01	2.514E-01	1.291E-02	0.156
		202.84	*	1.660E-02	6.327E-02	9.997E-02	5.367E-03	0.166
		374.96		2.088E-01	2.499E-01	4.370E-01	2.550E-02	0.478
I-131		80.18		-1.069E+01	9.468E+00	1.301E+01	1.205E+00	-0.822
		284.30		-2.533E+00	2.613E+00	4.172E+00	2.727E-01	-0.607
		364.48	*	1.390E-02	2.029E-01	3.398E-01	2.238E-02	0.041
		636.97		2.055E+00	2.874E+00	4.936E+00	3.007E-01	0.416
		722.89		-1.306E+00	1.498E+01	2.056E+01	1.267E+00	-0.064
TE-132		49.72		-5.934E+01	8.876E+01	1.448E+02	1.751E+01	-0.410
		111.76		-7.532E+00	9.836E+01	1.617E+02	1.771E+01	-0.047
		116.30		-7.993E+01	9.066E+01	1.432E+02	1.537E+01	-0.558
		228.16	*	-1.595E+00	2.281E+00	3.514E+00	5.393E-01	-0.454
BA-133		53.15		3.615E+00	5.307E+00	9.149E+00	8.070E-01	0.395
		79.62		1.687E-01	1.708E+00	2.513E+00	3.901E-01	0.067
		81.00		-2.262E-01	1.399E-01	1.814E-01	2.940E-02	-1.247
		276.40		1.210E-01	4.380E-01	7.093E-01	9.198E-02	0.171
		302.84		4.683E-02	1.831E-01	2.732E-01	3.196E-02	0.171
		356.01	*	-7.209E-03	5.752E-02	8.258E-02	9.581E-03	-0.087
		383.85		2.539E-01	3.542E-01	6.132E-01	6.668E-02	0.414
I-133	+	510.53		8.943E+01	3.542E-01	Half-Life	too short	
		529.87	*	-8.439E-02	3.542E-01	Half-Life	too short	
		706.58		-2.950E+00	3.542E-01	Half-Life	too short	
		856.28		-1.889E+01	3.542E-01	Half-Life	too short	
		875.33		1.865E+00	3.542E-01	Half-Life	too short	
		1236.41		4.401E+01	3.542E-01	Half-Life	too short	
		1298.22		-7.938E+00	3.542E-01	Half-Life	too short	
CS-134		475.35		3.584E-01	2.312E+00	3.849E+00	2.253E-01	0.093
		563.23		1.485E-01	4.437E-01	7.428E-01	4.296E-02	0.200
		569.32		-2.060E-01	2.544E-01	3.893E-01	2.263E-02	-0.529
		604.70		8.505E-03	4.598E-02	6.596E-02	3.631E-03	0.129
		795.84	*	7.458E-02	5.398E-02	1.001E-01	7.307E-03	0.745
		801.93		7.977E-02	4.718E-01	7.858E-01	5.808E-02	0.102
		1038.57		5.678E-01	4.698E+00	7.850E+00	6.025E-01	0.072
		1167.94		-2.602E+00	3.497E+00	5.342E+00	3.063E-01	-0.487
		1365.15		-7.993E-02	1.331E+00	2.138E+00	1.663E-01	-0.037
I-135		288.45		2.810E+15	1.331E+00	Half-Life	too short	
		417.63		-2.283E+15	1.331E+00	Half-Life	too short	
		546.56		-1.315E+14	1.331E+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
		836.80		2.531E+15	1.331E+00	Half-Life	too short	
		1038.76		2.295E+15	1.331E+00	Half-Life	too short	
		1124.00		5.787E+15	1.331E+00	Half-Life	too short	
		1131.51		3.585E+14	1.331E+00	Half-Life	too short	
		1260.41	*	1.048E+15	1.331E+00	Half-Life	too short	
		1457.56		2.133E+17	1.331E+00	Half-Life	too short	
		1678.03		1.282E+15	1.331E+00	Half-Life	too short	
		1706.46		-8.794E+14	1.331E+00	Half-Life	too short	
		1791.20		2.365E+14	1.331E+00	Half-Life	too short	
CS-136		66.91		-1.061E+00	1.473E+00	2.072E+00	3.209E-01	-0.512
	+	86.29		5.477E+00	2.012E+00	3.178E+00	4.304E-01	1.724
		153.22		8.904E-01	9.929E-01	1.678E+00	1.144E-01	0.531
		163.89		6.598E-01	1.559E+00	2.586E+00	1.740E-01	0.255
		176.55		-3.645E-01	5.529E-01	8.700E-01	5.193E-02	-0.419
		273.65		-6.358E-01	8.123E-01	1.058E+00	7.005E-02	-0.601
		340.57		8.099E-02	2.139E-01	3.202E-01	2.008E-02	0.253
		818.51		3.262E-02	1.050E-01	1.810E-01	1.383E-02	0.180
		1048.07	*	1.730E-01	1.860E-01	2.990E-01	2.385E-02	0.578
		1235.34		1.533E-01	9.924E-01	1.641E+00	1.687E-01	0.093
BA-137M		661.65	*	6.302E-02	4.603E-02	8.218E-02	4.198E-03	0.767
CS-137		661.65	*	6.661E-02	4.866E-02	8.687E-02	4.462E-03	0.767
CE-139		165.85	*	-1.355E-02	3.466E-02	5.540E-02	2.824E-03	-0.245
BA-140		162.64		1.959E-02	1.123E+00	1.830E+00	1.088E-01	0.011
		304.84		1.459E+00	2.107E+00	3.196E+00	8.728E-01	0.457
		423.70		2.216E+00	3.053E+00	5.155E+00	1.639E+00	0.430
		537.32	*	-7.219E-02	3.883E-01	6.247E-01	2.031E-01	-0.116
LA-140		328.77		7.792E-01	4.991E-01	8.087E-01	5.333E-02	0.964
		432.53		1.557E+00	3.164E+00	5.406E+00	3.485E-01	0.288
		487.03		2.021E-01	1.978E-01	3.501E-01	2.312E-02	0.577
		751.79		-1.295E+00	2.614E+00	3.986E+00	3.057E-01	-0.325
		815.85		-2.015E-01	4.709E-01	7.554E-01	6.566E-02	-0.267
		867.82		-2.342E-01	2.013E+00	3.319E+00	2.983E-01	-0.071
		919.63		6.434E-01	4.187E+00	7.068E+00	7.704E-01	0.091
		925.24		1.419E-01	1.751E+00	2.934E+00	2.760E-01	0.048
		1596.49	*	-2.077E-01	1.458E-01	1.881E-01	1.290E-02	-1.104
CE-141		145.44	*	4.185E-02	8.177E-02	1.364E-01	7.696E-03	0.307
CE-143		57.37		-1.134E-02	8.177E-02	Half-Life	too short	
		231.56		3.960E-03	8.177E-02	Half-Life	too short	
		293.26	*	1.115E-02	8.177E-02	Half-Life	too short	
	+	350.59		3.296E-01	8.177E-02	Half-Life	too short	
		490.36		-9.909E-03	8.177E-02	Half-Life	too short	
		664.57		-2.369E-02	8.177E-02	Half-Life	too short	
		721.93		-1.003E-02	8.177E-02	Half-Life	too short	
CE-144		80.11		-3.162E+00	2.914E+00	4.017E+00	3.682E-01	-0.787
		133.54	*	-1.577E-01	2.770E-01	3.835E-01	5.415E-02	-0.411
PM-144		476.78		-1.032E-02	7.748E-02	1.263E-01	8.827E-03	-0.082
		618.01		4.405E-03	3.782E-02	6.206E-02	3.582E-03	0.071
		696.49	*	5.207E-03	4.546E-02	7.405E-02	4.168E-03	0.070
		778.57		-3.499E+00	2.525E+00	3.641E+00	2.527E-01	-0.961

----- 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	*		3.538E-01	3.088E+00	5.031E+00	2.828E-01	0.070
	1489.15			-9.149E+00	1.258E+01	1.712E+01	1.221E+00	-0.534
PM-146	453.90	*		2.638E-02	5.046E-02	8.629E-02	7.474E-03	0.306
	633.02			-5.715E-01	1.694E+00	2.598E+00	9.547E-01	-0.220
	735.90			-2.645E-02	1.827E-01	2.897E-01	8.105E-02	-0.091
	747.13			-4.682E-02	1.034E-01	1.580E-01	2.023E-02	-0.296
ND-147	91.11			1.289E+00	7.289E-01	8.898E-01	8.749E-02	1.449
	319.41			-1.791E-01	5.335E+00	8.701E+00	5.143E-01	-0.021
	439.89			4.452E+00	9.358E+00	1.596E+01	9.348E-01	0.279
	531.02	*		-7.887E-01	8.704E-01	1.304E+00	1.761E-01	-0.605
PM-149	285.90	*		-2.833E-04	8.704E-01	Half-Life too short		
EU-152	121.78			-5.572E-03	8.850E-02	1.452E-01	1.116E-02	-0.038
	244.69			-6.762E-04	4.253E-01	5.947E-01	3.364E-02	-0.001
	344.27	*		-1.530E-01	1.430E-01	1.757E-01	1.165E-02	-0.870
	443.98			1.032E-01	1.102E+00	1.834E+00	1.074E-01	0.056
	778.89			-4.004E-01	2.890E-01	4.168E-01	2.892E-02	-0.961
	867.32			-1.324E-01	9.220E-01	1.516E+00	1.291E-01	-0.087
	964.01			-5.418E-01	5.097E-01	6.795E-01	5.790E-02	-0.797
	1085.78			-5.200E-01	5.273E-01	7.814E-01	5.499E-02	-0.665
	1112.02			3.813E-01	4.315E-01	6.848E-01	4.552E-02	0.557
	1407.95			2.665E-01	2.296E-01	4.267E-01	3.103E-02	0.625
GD-153	69.67			3.049E-01	2.378E+00	3.519E+00	3.074E-01	0.087
	83.37			1.972E+00	2.029E+01	2.959E+01	2.778E+00	0.067
	97.43	*		-8.055E-02	1.091E-01	1.516E-01	1.238E-02	-0.531
	103.18			-2.235E-01	1.320E-01	2.019E-01	1.509E-02	-1.107
EU-154	123.07			-1.487E-02	6.288E-02	1.024E-01	9.664E-03	-0.145
	247.94			-7.562E-02	4.553E-01	6.653E-01	6.298E-02	-0.114
	591.81			-3.066E-01	7.136E-01	1.117E+00	1.075E-01	-0.274
	723.30			8.500E-02	2.471E-01	3.575E-01	2.600E-02	0.238
	756.87			8.048E-02	9.316E-01	1.509E+00	1.599E-01	0.053
	873.19			5.433E-02	3.405E-01	5.766E-01	7.064E-02	0.094
	996.32			-2.247E-01	4.508E-01	7.064E-01	1.240E-01	-0.318
	1004.76			-2.478E-01	2.556E-01	3.775E-01	4.246E-02	-0.657
	1274.45	*		5.680E-02	1.460E-01	2.482E-01	2.464E-02	0.229
EU-155	48.70			2.361E+00	4.037E+00	6.948E+00	5.604E-01	0.340
	60.01			-2.465E+00	7.420E+00	1.075E+01	9.340E-01	-0.229
	86.54	+		3.929E-01	1.395E-01	2.258E-01	2.195E-02	1.740
	105.31	*		4.168E-02	1.294E-01	2.163E-01	1.595E-02	0.193
TB-160	86.79	+		1.097E+00	3.893E-01	6.242E-01	6.031E-02	1.758
	197.04			-5.358E-02	6.636E-01	1.069E+00	5.692E-02	-0.050
	215.65			-3.844E-01	9.184E-01	1.449E+00	7.918E-02	-0.265
	298.57	+		2.842E-01	2.025E-01	2.464E-01	1.448E-02	1.154
	879.36	*		3.001E-02	1.657E-01	2.811E-01	2.458E-02	0.107
	962.29			-7.395E-01	8.351E-01	1.294E+00	1.105E-01	-0.572
	966.15			7.536E-01	4.102E-01	6.687E-01	5.684E-02	1.127
	1177.93			-5.148E-01	4.768E-01	6.940E-01	3.948E-02	-0.742
	1271.85			-3.562E-01	9.389E-01	1.465E+00	9.778E-02	-0.243
HO-166M	80.57			-6.472E-01	3.773E-01	4.988E-01	4.587E-02	-1.297
	184.41	+		1.404E-01	5.913E-02	8.181E-02	4.276E-03	1.716

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46		1.825E-02	9.488E-02	1.615E-01	9.407E-03	0.113
		410.95		-2.004E-01	2.786E-01	4.394E-01	2.554E-02	-0.456
		711.68	*	1.321E-02	7.831E-02	1.280E-01	7.495E-03	0.103
		752.31		4.777E-02	3.134E-01	5.113E-01	3.322E-02	0.093
		810.29		5.122E-02	7.029E-02	1.248E-01	9.338E-03	0.410
		51.35		-6.804E+01	4.837E+01	7.597E+01	6.603E+00	-0.896
		52.39		-4.619E+00	2.400E+01	4.003E+01	3.516E+00	-0.115
		59.40		2.285E+00	3.951E+01	5.855E+01	5.087E+00	0.039
		66.72	*	-2.525E+01	4.114E+01	5.846E+01	5.084E+00	-0.432
		88.36		7.723E-01	2.740E-01	4.508E-01	4.370E-02	1.713
LU-176	+	201.83		-9.017E-03	3.428E-02	5.472E-02	2.933E-03	-0.165
		306.84	*	9.505E-03	2.760E-02	4.723E-02	2.783E-03	0.201
		401.10		-2.384E+00	7.792E+00	1.268E+01	7.347E-01	-0.188
LU-177		112.95		2.852E+00	3.104E+00	5.294E+00	3.471E-01	0.539
	+	208.36	*	5.364E+00	2.646E+00	3.823E+00	2.068E-01	1.403
LU-177M		52.97		5.115E-01	2.477E+00	4.198E+00	3.700E-01	0.122
		54.07		4.043E-01	1.273E+00	2.166E+00	1.914E-01	0.187
		61.30		1.774E+00	2.297E+00	3.505E+00	3.044E-01	0.506
		121.62		-1.125E-01	4.659E-01	7.587E-01	4.485E-02	-0.148
		147.16		-7.180E-01	7.751E-01	1.215E+00	6.520E-02	-0.591
		171.86		1.238E-01	5.729E-01	9.404E-01	4.828E-02	0.132
		218.09		4.947E-01	9.984E-01	1.648E+00	9.036E-02	0.300
	+	268.79		2.753E+00	1.223E+00	1.734E+00	1.002E-01	1.588
		319.02		2.004E-02	3.172E-01	5.204E-01	3.073E-02	0.039
		367.43		-6.048E-01	1.051E+00	1.686E+00	9.872E-02	-0.359
HF-181		413.65	*	-5.828E-02	2.111E-01	3.437E-01	2.000E-02	-0.170
		56.28		-1.949E-01	1.453E+00	2.426E+00	2.136E-01	-0.080
		57.53		-5.323E-01	8.847E-01	1.263E+00	1.106E-01	-0.422
		65.20		2.836E-01	1.492E+00	2.213E+00	1.922E-01	0.128
		133.02		-4.591E-02	9.412E-02	1.314E-01	7.375E-03	-0.349
		136.25		-8.783E-02	5.871E-01	9.562E-01	5.307E-02	-0.092
		345.85		3.053E-01	2.728E-01	4.141E-01	2.443E-02	0.737
		482.03	*	-3.034E-02	5.123E-02	8.028E-02	4.695E-03	-0.378
		56.28		-7.185E-02	5.405E-01	9.023E-01	7.945E-02	-0.080
		57.53		-1.984E-01	3.293E-01	4.699E-01	4.117E-02	-0.422
TA-182		65.20	*	1.047E-01	5.508E-01	8.170E-01	7.097E-02	0.128
		67.75		-6.096E-02	1.670E-01	2.407E-01	2.096E-02	-0.253
		100.10		2.895E-01	2.167E-01	3.749E-01	2.934E-02	0.772
		152.43		4.940E-01	4.006E-01	6.864E-01	3.628E-02	0.720
		222.10		-3.148E-01	4.209E-01	6.510E-01	3.587E-02	-0.484
RE-183		1001.68		1.223E+00	2.391E+00	4.152E+00	3.371E-01	0.294
		1121.28		5.675E-01	2.250E-01	4.013E-01	2.610E-02	1.414
		1189.05		-1.629E-02	4.229E-01	6.899E-01	4.003E-02	-0.024
		1221.42	*	1.383E-01	2.453E-01	4.218E-01	2.589E-02	0.328
		1230.97		-6.984E-01	6.248E-01	9.097E-01	5.675E-02	-0.768
		57.98		9.909E-02	3.162E-01	4.755E-01	4.158E-02	0.208
		59.32		9.302E-03	1.699E-01	2.517E-01	2.187E-02	0.037
		67.20		-1.574E-01	3.047E-01	4.355E-01	3.789E-02	-0.361
		162.32	*	-2.601E-02	1.336E-01	2.158E-01	1.110E-02	-0.121

---- 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		3.074E+00	1.517E+00	2.190E+00	1.185E-01	1.404
		291.72		-5.643E-01	1.363E+00	1.941E+00	1.137E-01	-0.291
		57.98		3.551E-01	1.133E+00	1.704E+00	1.490E-01	0.208
		59.32		3.330E-02	6.082E-01	9.012E-01	7.832E-02	0.037
		67.20		-5.638E-01	1.091E+00	1.560E+00	1.357E-01	-0.361
		161.27		-3.566E-02	4.191E-01	6.804E-01	3.510E-02	-0.052
		216.55		-9.295E-02	3.180E-01	5.049E-01	2.762E-02	-0.184
		252.85	*	1.862E-01	2.930E-01	4.849E-01	2.765E-02	0.384
		318.01		2.825E-01	5.423E-01	9.345E-01	5.518E-02	0.302
		792.07		5.950E-01	1.128E+00	1.976E+00	1.415E-01	0.301
OS-185		903.28		-8.844E-02	1.487E+00	2.139E+00	1.939E-01	-0.041
		920.93		-1.768E-01	5.615E-01	9.050E-01	8.071E-02	-0.195
		59.72		-1.729E-01	4.588E-01	6.633E-01	5.760E-02	-0.261
		61.14		2.734E-01	2.483E-01	3.858E-01	3.351E-02	0.709
		69.30		1.314E-01	4.324E-01	6.451E-01	5.632E-02	0.204
		592.07		-7.828E-01	3.012E+00	4.793E+00	2.653E-01	-0.163
		646.12	*	2.801E-03	5.599E-02	8.913E-02	4.651E-03	0.031
		717.42		-3.412E-01	1.143E+00	1.791E+00	1.064E-01	-0.190
		874.81		3.549E-01	6.844E-01	1.197E+00	1.037E-01	0.296
		880.27		-1.430E-01	9.095E-01	1.492E+00	1.307E-01	-0.096
RE-188		155.03	*	1.224E-01	2.131E-01	3.559E-01	1.867E-02	0.344
		477.96		3.253E+00	3.701E+00	6.477E+00	3.790E-01	0.502
		633.10		-1.257E+00	3.555E+00	5.487E+00	2.910E-01	-0.229
W-188	+	63.58		1.344E+02	1.091E+02	1.281E+02	1.112E+01	1.049
		227.08		7.014E+00	1.568E+01	2.579E+01	1.430E+00	0.272
IR-192		290.67	*	1.514E+00	1.017E+01	1.508E+01	8.834E-01	0.100
	+	295.96		1.040E+00	1.907E-01	3.297E-01	1.965E-02	3.154
		308.46		1.859E-02	1.077E-01	1.826E-01	1.088E-02	0.102
		316.51	*	4.581E-02	4.062E-02	7.223E-02	4.285E-03	0.634
		468.07		-9.107E-04	8.950E-02	1.277E-01	8.602E-03	-0.007
AU-195		604.41		-8.231E-03	6.389E-01	8.965E-01	1.003E-01	-0.009
		612.46		4.637E-01	1.027E+00	1.512E+00	1.103E-01	0.307
		65.12		6.151E-02	2.535E-01	3.770E-01	3.275E-02	0.163
		66.83		-7.840E-02	1.378E-01	1.964E-01	1.708E-02	-0.399
	+	75.70		1.450E+00	3.398E-01	5.995E-01	5.354E-02	2.419
		98.88	*	2.537E-01	2.854E-01	4.690E-01	3.742E-02	0.541
	+	129.76		5.990E+00	4.415E+00	5.989E+00	3.404E-01	1.000
TL-200		367.94	*	-9.208E-03	4.415E+00	Half-Life	too short	
		579.30		5.650E-02	4.415E+00	Half-Life	too short	
		828.27		-3.061E-03	4.415E+00	Half-Life	too short	
		1205.75		5.859E-03	4.415E+00	Half-Life	too short	
TL-201		68.90		1.010E+01	2.140E+01	3.013E+01	2.628E+00	0.335
		70.82		3.257E+00	1.145E+01	1.704E+01	1.493E+00	0.191
		80.30		-2.402E+01	2.036E+01	2.789E+01	2.560E+00	-0.861
		135.34		-2.928E+00	9.146E+01	1.446E+02	8.051E+00	-0.020
TL-202		167.43	*	-2.690E+00	2.394E+01	3.876E+01	1.978E+00	-0.069
		68.90		3.983E-01	8.442E-01	1.188E+00	1.037E-01	0.335
		70.82		1.281E-01	4.502E-01	6.704E-01	5.874E-02	0.191
		80.30		-9.452E-01	8.012E-01	1.097E+00	1.007E-01	-0.861

---- 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	*	3.983E-02	1.085E-01	1.838E-01	1.076E-02	0.217
		70.83		4.569E-01	1.596E+00	2.375E+00	3.253E-01	0.192
		72.87		2.563E+00	1.041E+00	1.589E+00	2.119E-01	1.613
		82.60		-4.827E-01	1.902E+00	2.307E+00	3.276E-01	-0.209
BI-207		279.20	*	1.187E-02	4.898E-02	8.358E-02	5.163E-03	0.142
		72.80		6.300E-01	2.725E-01	4.278E-01	3.772E-02	1.473
	+	74.97		7.901E-01	1.851E-01	2.965E-01	2.639E-02	2.664
		84.90		5.594E-01	2.574E-01	4.025E-01	3.827E-02	1.390
TL-207		569.67		-1.088E-02	3.893E-02	6.217E-02	3.503E-03	-0.175
		1063.62	*	4.221E-03	6.680E-02	1.108E-01	8.139E-03	0.038
		1770.23		-7.652E-01	6.430E-01	8.306E-01	5.142E-02	-0.921
		81.07		-4.864E-01	3.012E-01	4.012E-01	3.702E-02	-1.212
PO-209		83.78		4.205E-02	1.684E-01	2.473E-01	2.329E-02	0.170
		94.90		3.737E-01	2.971E-01	4.578E-01	3.906E-02	0.816
		122.32		3.358E-01	2.132E+00	3.529E+00	2.387E-01	0.095
		144.24		5.557E-01	8.317E-01	1.363E+00	9.435E-02	0.408
BI-210		154.21		2.631E-01	4.703E-01	7.848E-01	5.158E-02	0.335
	+	269.46		6.313E-01	2.807E-01	4.076E-01	2.464E-02	1.549
		323.87	*	6.545E-01	8.500E-01	1.306E+00	2.162E-01	0.501
	+	338.28		6.061E+00	2.255E+00	2.739E+00	2.901E-01	2.212
PB-210		445.03		4.257E-01	2.637E+00	4.407E+00	4.539E-01	0.097
		260.50		-2.259E+00	1.140E+01	1.802E+01	1.035E+00	-0.125
		262.80		2.082E+01	3.283E+01	5.260E+01	3.026E+00	0.396
		896.60	*	5.588E+00	9.063E+00	1.591E+01	1.444E+00	0.351
PO-210		46.50	*	9.554E-01	6.226E+00	1.035E+01	8.058E-01	0.092
		46.50	*	9.554E-01	6.226E+00	1.035E+01	8.058E-01	0.092
		46.50	*	9.554E-01	6.226E+00	1.035E+01	6.943E-01	0.092
		404.84	*	-2.868E-01	1.138E+00	1.784E+00	1.112E+00	-0.161
PB-211		427.08		4.626E-02	2.427E+00	4.023E+00	2.487E+00	0.012
		831.96		6.380E-01	1.447E+00	2.419E+00	1.514E+00	0.264
	+	727.18	*	1.007E+00	5.848E-01	7.429E-01	5.897E-02	1.356
		785.46		1.877E+00	1.913E+00	3.473E+00	2.449E-01	0.541
PO-215		1620.62		6.180E-01	1.402E+00	2.506E+00	1.699E-01	0.247
		81.07		-4.864E-01	3.012E-01	4.012E-01	3.702E-02	-1.212
		83.78		4.205E-02	1.684E-01	2.473E-01	2.329E-02	0.170
		94.90		3.737E-01	2.971E-01	4.578E-01	3.906E-02	0.816
RN-219		122.32		3.358E-01	2.132E+00	3.529E+00	2.387E-01	0.095
		144.24		5.557E-01	8.317E-01	1.363E+00	9.435E-02	0.408
		154.21		2.631E-01	4.703E-01	7.848E-01	5.158E-02	0.335
	+	269.46		6.313E-01	2.807E-01	4.076E-01	2.464E-02	1.549
RN-220		323.87	*	6.545E-01	8.500E-01	1.306E+00	2.162E-01	0.501
	+	338.28		6.061E+00	2.255E+00	2.739E+00	2.901E-01	2.212
		445.03		4.257E-01	2.637E+00	4.407E+00	4.539E-01	0.097
	+	271.23		8.100E-01	3.628E-01	5.248E-01	4.249E-02	1.543
RA-223		401.81	*	-2.330E-01	4.836E-01	7.762E-01	1.056E-01	-0.300
		549.76	*	-7.452E-01	2.949E+01	4.811E+01	2.746E+00	-0.015
		81.07		-4.864E-01	3.012E-01	4.012E-01	3.702E-02	-1.212
		83.78		4.205E-02	1.684E-01	2.473E-01	2.329E-02	0.170
		94.90		3.737E-01	2.971E-01	4.578E-01	3.906E-02	0.816

---- 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		3.358E-01	2.132E+00	3.529E+00	2.387E-01	0.095
		144.24		5.557E-01	8.317E-01	1.363E+00	9.435E-02	0.408
		154.21		2.631E-01	4.703E-01	7.848E-01	5.158E-02	0.335
	+	269.46		6.313E-01	2.807E-01	4.076E-01	2.464E-02	1.549
		323.87	*	6.545E-01	8.500E-01	1.306E+00	2.162E-01	0.501
	+	338.28		6.061E+00	2.255E+00	2.739E+00	2.901E-01	2.212
		445.03		4.257E-01	2.637E+00	4.407E+00	4.539E-01	0.097
		79.80		-1.368E-01	2.151E+00	3.139E+00	6.817E-01	-0.044
		236.00		2.296E+00	4.334E-01	6.685E-01	6.915E-02	3.435
		256.20	*	9.554E-02	4.648E-01	7.521E-01	1.047E-01	0.127
		286.10		-3.796E-01	1.756E+00	2.925E+00	3.387E-01	-0.130
	+	299.80		3.456E+00	2.518E+00	3.050E+00	4.975E-01	1.133
TH-227		304.40		1.932E+00	2.360E+00	3.639E+00	6.305E-01	0.531
		334.20		-2.030E+00	2.968E+00	4.039E+00	7.418E-01	-0.503
		79.80		-1.368E-01	2.151E+00	3.139E+00	6.903E-01	-0.044
	+	94.00		6.566E+00	3.715E+00	4.386E+00	9.561E-01	1.497
		236.00		2.296E+00	4.165E-01	6.685E-01	5.971E-02	3.435
		256.20	*	9.554E-02	4.649E-01	7.521E-01	1.269E-01	0.127
		286.10		-3.796E-01	1.796E+00	2.925E+00	2.930E+00	-0.130
	+	299.80		3.456E+00	2.518E+00	3.050E+00	4.975E-01	1.133
		304.40		1.932E+00	2.360E+00	3.639E+00	6.305E-01	0.531
		334.20		-2.030E+00	2.968E+00	4.039E+00	7.418E-01	-0.503
		85.43		7.374E-01	2.676E-01	4.210E-01	4.020E-02	1.752
	+	88.47		4.446E-01	1.577E-01	2.579E-01	2.494E-02	1.724
TH-229		100.00		2.956E-01	2.187E-01	3.785E-01	2.967E-02	0.781
		193.63	*	1.118E-01	5.997E-01	9.790E-01	5.186E-02	0.114
		210.97		1.453E+00	1.020E+00	1.555E+00	8.441E-02	0.935
		283.67	*	-8.720E-01	1.757E+00	2.878E+00	3.970E-01	-0.303
PA-231		301.29		7.068E-01	7.752E-01	1.201E+00	1.261E-01	0.589
TH-231		81.07		-4.864E-01	3.012E-01	4.012E-01	3.702E-02	-1.212
		83.78		4.205E-02	1.684E-01	2.473E-01	2.329E-02	0.170
U-231		94.90		3.737E-01	2.971E-01	4.578E-01	3.906E-02	0.816
		122.32		3.358E-01	2.132E+00	3.529E+00	2.387E-01	0.095
		144.24		5.557E-01	8.317E-01	1.363E+00	9.435E-02	0.408
		154.21		2.631E-01	4.703E-01	7.848E-01	5.158E-02	0.335
	+	269.46		6.313E-01	2.807E-01	4.076E-01	2.464E-02	1.549
		323.87	*	6.545E-01	8.500E-01	1.306E+00	2.162E-01	0.501
	+	338.28		6.061E+00	2.255E+00	2.739E+00	2.901E-01	2.212
		445.03		4.257E-01	2.637E+00	4.407E+00	4.539E-01	0.097
		84.21		1.339E+01	1.585E+01	2.384E+01	2.254E+00	0.562
	+	92.29		1.437E+01	7.603E+00	1.052E+01	9.420E-01	1.365
		95.87	*	-2.847E+00	3.171E+00	4.377E+00	3.671E-01	-0.650
		108.00		1.555E-01	5.349E+00	8.839E+00	6.177E-01	0.018
PA-233	+	75.28		2.305E+01	6.143E+00	9.212E+00	1.429E+00	2.502
	+	86.59		6.374E+00	2.781E+00	3.656E+00	9.932E-01	1.744
	+	300.12		9.636E-01	6.964E-01	8.568E-01	1.154E-01	1.125
		311.98	*	-3.942E-02	6.933E-02	1.124E-01	7.027E-03	-0.351
		340.50		5.282E-01	8.246E-01	1.244E+00	2.861E-01	0.424
		398.62		1.620E+00	2.399E+00	4.097E+00	1.059E+00	0.395



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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76	1.485E+00	1.928E+00	3.316E+00	6.828E-01	0.448
		63.00	3.713E+00	3.053E+00	3.688E+00	5.730E-01	1.007
		94.67	4.432E-01	2.216E-01	3.444E-01	4.259E-02	1.287
		98.44	7.779E-02	1.249E-01	1.844E-01	1.027E-01	0.422
		99.86	6.457E-01	5.631E-01	9.601E-01	7.543E-02	0.673
		111.00	-8.027E-02	2.186E-01	3.550E-01	3.840E-02	-0.226
		131.20	1.277E-01	1.356E-01	2.054E-01	1.161E-02	0.622
		152.70	4.391E-01	3.852E-01	6.484E-01	1.013E-01	0.677
		186.00	5.054E+00	2.613E+00	2.935E+00	8.939E-01	1.722
		226.40	2.395E-01	4.706E-01	7.754E-01	8.865E-02	0.309
		227.20	1.696E-01	5.021E-01	8.215E-01	4.556E-02	0.206
		248.90	-3.936E-01	9.782E-01	1.526E+00	3.274E-01	-0.258
		293.70	6.257E+00	1.481E+00	1.995E+00	3.213E-01	3.136
		369.80	-5.067E-01	1.001E+00	1.607E+00	3.348E-01	-0.315
		568.70	-9.837E-01	1.294E+00	1.989E+00	1.122E-01	-0.494
		569.50	-1.264E-01	3.432E-01	5.441E-01	3.066E-02	-0.232
		574.00	4.588E-01	1.859E+00	3.089E+00	1.735E-01	0.149
		699.00	-1.417E-01	9.409E-01	1.499E+00	2.689E-01	-0.094
		706.10	-3.786E-01	1.340E+00	2.093E+00	9.235E-01	-0.181
		733.00	5.755E-02	5.275E-01	7.418E-01	1.585E-01	0.078
		742.81	8.084E-01	1.671E+00	2.669E+00	1.787E+00	0.303
		796.30	1.096E+00	1.087E+00	1.903E+00	5.069E-01	0.576
		805.60	2.181E-01	1.193E+00	2.026E+00	6.145E-01	0.108
		819.60	2.361E-01	1.298E+00	2.208E+00	8.349E-01	0.107
		826.30	-4.745E-01	9.508E-01	1.474E+00	6.573E-01	-0.322
		831.60	1.660E-01	7.354E-01	1.251E+00	3.708E-01	0.133
		876.40	-5.963E-04	9.670E-01	1.612E+00	1.658E+00	0.000
		880.51	-2.078E-01	3.268E-01	5.094E-01	4.466E-02	-0.408
		883.24	-5.028E-02	3.425E-01	5.602E-01	3.767E-01	-0.090
		899.00	-4.079E-01	1.080E+00	1.712E+00	7.502E-01	-0.238
		925.00	2.933E-02	1.406E+00	2.342E+00	2.081E-01	0.013
		926.50	-8.464E-02	2.172E-01	3.458E-01	8.770E-02	-0.245
		946.00 *	-2.285E-01	3.860E-01	5.691E-01	1.070E-01	-0.402
		949.00	4.367E-01	5.353E-01	9.538E-01	8.266E-02	0.458
		980.50	-2.882E-01	9.043E-01	1.451E+00	1.211E-01	-0.199
		1394.10	-4.600E-01	1.415E+00	2.123E+00	1.378E+00	-0.217
PA-234M		766.42	9.301E+00	1.604E+01	2.579E+01	1.301E+01	0.361
		1001.03 *	1.913E+00	5.403E+00	9.242E+00	8.819E-01	0.207
U-235		89.95	1.440E+00	2.114E+00	2.302E+00	7.153E-01	0.626
+		93.35	2.043E+00	1.211E+00	1.435E+00	4.028E-01	1.424
		105.00	5.773E-01	1.262E+00	2.103E+00	6.200E-01	0.275
		143.76 *	1.825E-01	2.582E-01	4.214E-01	6.815E-02	0.433
		163.35	3.423E-01	5.369E-01	8.937E-01	1.589E-01	0.383
+		185.71	1.872E-01	7.884E-02	1.090E-01	5.708E-03	1.717
		205.31	8.412E-02	6.998E-01	9.948E-01	1.776E-01	0.085
NP-236		94.67	3.389E-01	1.655E-01	2.615E-01	2.241E-02	1.296
		98.44	5.875E-02	8.871E-02	1.394E-01	1.120E-02	0.421
		111.00	-6.072E-02	1.653E-01	2.685E-01	1.805E-02	-0.226
		160.31 *	6.168E-04	9.221E-02	1.503E-01	7.776E-03	0.004

## ---- 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		1.839E-01	1.888E-01	3.203E-01	2.528E-02	0.574
		117.00	*	-1.693E-01	2.253E-01	3.591E-01	2.242E-02	-0.471
	+	209.75		2.312E+00	1.141E+00	1.638E+00	8.877E-02	1.412
		228.18		-1.852E-01	2.664E-01	4.126E-01	2.291E-02	-0.449
		277.60		5.065E-02	2.125E-01	3.435E-01	1.997E-02	0.147
		334.30		-1.132E+00	1.671E+00	2.292E+00	1.354E-01	-0.494
AM-241		59.54	*	1.559E-02	2.279E-01	3.379E-01	3.144E-02	0.046
CM-243		99.55		1.892E-01	1.943E-01	3.297E-01	2.603E-02	0.574
		103.76	*	-5.967E-02	1.158E-01	1.873E-01	1.388E-02	-0.319
		117.00		-1.742E-01	2.319E-01	3.696E-01	2.307E-02	-0.471
	+	209.75		2.280E+00	1.125E+00	1.615E+00	8.754E-02	1.412
		228.18		-1.872E-01	2.693E-01	4.170E-01	2.315E-02	-0.449
		277.60		5.107E-02	2.143E-01	3.464E-01	2.014E-02	0.147
AM-246		798.80		-1.882E-01	1.692E-01	2.555E-01	1.860E-02	-0.737
		1036.00		-2.587E-01	3.690E-01	5.642E-01	4.349E-02	-0.458
		1062.04		-7.544E-02	2.909E-01	4.672E-01	3.443E-02	-0.161
		1078.86	*	1.607E-01	1.856E-01	3.292E-01	2.349E-02	0.488
CM-247		278.00		2.032E-02	8.650E-01	1.461E+00	8.494E-02	0.014
		287.40		6.284E-01	1.458E+00	2.449E+00	1.432E-01	0.257
		402.60	*	-1.840E-02	4.475E-02	7.027E-02	4.073E-03	-0.262
CF-249		252.85		6.850E-01	1.078E+00	1.784E+00	1.017E-01	0.384
		333.44		-1.132E-01	2.515E-01	3.049E-01	1.801E-02	-0.371
		387.95	*	-7.365E-04	4.570E-02	7.592E-02	4.393E-03	-0.010
CF-251		176.60	*	-1.001E-01	1.478E-01	2.324E-01	1.201E-02	-0.431
		227.00		2.499E-01	4.497E-01	7.434E-01	4.121E-02	0.336
		285.00		-2.171E+00	1.954E+00	3.088E+00	1.803E-01	-0.703

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101007
* Acquisition date   : 2-FEB-2010 10:28:43 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 02:00:01.60                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101007                      Analyst initials: MXR1
* Batch Number       : 944037                          Sample Quantity : 1.1694E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight   : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00 MS Isotope      :
* MSD DPM            : 0.000                             MSD Isotope      :
* LCS DPM            : 0.000                             LCS Isotope      :
* LCSD DPM           : 0.000                             LCSD Isotope     :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.753E+01	2.840E+00	6.317E-01	0.000E+00
CD-109	3.337E+00	1.160E+00	1.687E+00	0.000E+00
SN-126	3.256E-01	1.132E-01	1.832E-01	0.000E+00
CS-135	5.366E-01	2.351E-01	2.921E-01	0.000E+00
TL-208	4.494E-01	8.057E-02	6.278E-02	0.000E+00
BI-211	3.661E+00	5.229E-01	3.994E-01	0.000E+00
PB-212	1.641E+00	1.630E-01	1.011E-01	0.000E+00
PO-212	1.641E+00	1.630E-01	1.011E-01	0.000E+00
BI-214	1.070E+00	1.830E-01	1.295E-01	0.000E+00
PB-214	1.274E+00	1.932E-01	1.312E-01	0.000E+00
PO-214	1.274E+00	1.932E-01	1.312E-01	0.000E+00
PO-216	1.641E+00	1.630E-01	1.011E-01	0.000E+00
PO-218	1.274E+00	1.932E-01	1.312E-01	0.000E+00
RA-224	5.841E+00	1.446E+00	1.150E+00	0.000E+00
RA-226	1.070E+00	1.830E-01	1.295E-01	0.000E+00
AC-228	1.693E+00	3.545E-01	2.636E-01	0.000E+00
RA-228	1.693E+00	3.545E-01	2.636E-01	0.000E+00
TH-228	1.674E+00	1.663E-01	1.031E-01	0.000E+00
TH-230	1.070E+00	1.830E-01	1.295E-01	0.000E+00
TH-232	1.693E+00	3.545E-01	2.636E-01	0.000E+00
TH-234	3.186E+00	2.583E+00	2.751E+00	0.000E+00
U-234	1.070E+00	1.830E-01	1.295E-01	0.000E+00
NP-237	9.561E-01	3.846E-01	5.260E-01	0.000E+00
U-238	3.186E+00	2.583E+00	2.751E+00	0.000E+00
AM-243	4.400E-01	1.010E-01	1.146E-01	0.000E+00
ANH-511	1.862E-01	8.428E-02	5.241E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	2.619E-01	3.842E-01	6.823E-01	0.000E+00 NOT IDENT.

NA-22	1.986E-02	5.128E-02	8.873E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.720E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-4.096E-02	3.106E-02	3.299E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.267E-02	9.830E-02	0.000E+00	FAIL ABUN
SC-46	3.001E-02	4.957E-02	8.876E-02	0.000E+00	FAIL ABUN
V-48	-4.747E-03	1.057E-01	1.780E-01	0.000E+00	NOT IDENT.
CR-51	3.063E-02	5.329E-01	8.443E-01	0.000E+00	NOT IDENT.
MN-52	4.382E-01	5.082E-01	9.377E-01	0.000E+00	NOT IDENT.
MN-54	-2.153E-02	4.476E-02	7.345E-02	0.000E+00	NOT IDENT.
CO-56	2.434E-02	4.540E-02	8.129E-02	0.000E+00	NOT IDENT.
CO-57	3.299E-03	3.044E-02	5.246E-02	0.000E+00	NOT IDENT.
CO-58	3.765E-02	4.740E-02	8.653E-02	0.000E+00	NOT IDENT.
FE-59	3.607E-02	1.208E-01	2.083E-01	0.000E+00	NOT IDENT.
CO-60	2.598E-02	4.630E-02	8.208E-02	0.000E+00	NOT IDENT.
ZN-65	4.416E-03	1.330E-01	1.922E-01	0.000E+00	NOT IDENT.
GE-68	-1.401E-01	1.606E+00	2.676E+00	0.000E+00	NOT IDENT.
AS-73	5.695E-01	1.269E+00	2.281E+00	0.000E+00	NOT IDENT.
AS-74	1.993E-02	1.282E-01	2.169E-01	0.000E+00	NOT IDENT.
SE-75	1.289E-02	5.980E-02	8.772E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	5.003E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-5.062E-01	4.870E-01	7.574E-01	0.000E+00	NOT IDENT.
RB-83	-2.573E-02	8.441E-02	1.349E-01	0.000E+00	NOT IDENT.
RB-84	-7.809E-02	8.972E-02	1.395E-01	0.000E+00	NOT IDENT.
KR-85	1.371E+01	9.431E+00	1.561E+01	0.000E+00	NOT IDENT.
SR-85	7.397E-02	5.087E-02	8.420E-02	0.000E+00	NOT IDENT.
RB-86	-8.875E-01	1.197E+00	1.864E+00	0.000E+00	NOT IDENT.
Y-88	-2.474E-02	3.529E-02	4.868E-02	0.000E+00	NOT IDENT.
ZR-88	-7.739E-03	3.597E-02	6.079E-02	0.000E+00	NOT IDENT.
Y-91	-1.096E+01	2.583E+01	4.141E+01	0.000E+00	NOT IDENT.
NB-94	-3.195E-03	4.272E-02	7.021E-02	0.000E+00	NOT IDENT.
NB-95	5.807E-02	5.808E-02	1.027E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.867E-01	3.192E-01	0.000E+00	NOT IDENT.
ZR-95	2.898E-02	8.776E-02	1.488E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.414E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.756E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.579E+00	4.593E+01	7.607E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.794E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.121E-02	3.881E-02	6.222E-02	0.000E+00	NOT IDENT.
RH-102	9.166E-03	3.398E-02	5.869E-02	0.000E+00	NOT IDENT.
RU-103	-9.143E-03	4.820E-02	8.023E-02	0.000E+00	NOT IDENT.
RH-106	-3.786E-01	3.789E-01	5.717E-01	0.000E+00	FAIL ABUN
RU-106	-3.786E-01	3.770E-01	5.717E-01	0.000E+00	FAIL ABUN
AG-108M	2.811E-02	3.756E-02	6.709E-02	0.000E+00	NOT IDENT.
AG-110M	-3.129E-02	4.429E-02	6.917E-02	0.000E+00	NOT IDENT.
IN-111	-8.250E-01	4.371E+00	6.239E+00	0.000E+00	NOT IDENT.
IN-113M	2.623E-02	4.968E-02	8.800E-02	0.000E+00	NOT IDENT.
SN-113	2.623E-02	4.968E-02	8.800E-02	0.000E+00	NOT IDENT.
IN-114M	-9.673E-03	2.556E-01	3.751E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.478E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-9.658E-03	8.051E-02	1.359E-01	0.000E+00	NOT IDENT.
SB-122	5.828E+00	8.631E+00	1.518E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.937E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.749E-03	3.325E-02	5.629E-02	0.000E+00	NOT IDENT.
I-124	3.736E-01	1.961E+00	2.890E+00	0.000E+00	NOT IDENT.
SB-124	4.057E-02	6.225E-02	1.221E-01	0.000E+00	FAIL ABUN
SB-125	-7.384E-02	1.069E-01	1.736E-01	0.000E+00	FAIL ABUN
TE-125M	-1.517E+01	1.175E+01	1.911E+01	0.000E+00	NOT IDENT.
I-126	-1.309E-01	2.966E-01	4.744E-01	0.000E+00	NOT IDENT.
SB-126	-1.191E-01	2.535E-01	3.374E-01	0.000E+00	NOT IDENT.
SB-127	1.696E+00	3.711E+00	6.391E+00	0.000E+00	NOT IDENT.
XE-127	1.660E-02	6.201E-02	1.017E-01	0.000E+00	NOT IDENT.
I-131	1.390E-02	1.988E-01	3.436E-01	0.000E+00	NOT IDENT.
TE-132	-1.595E+00	2.236E+00	3.570E+00	0.000E+00	NOT IDENT.
BA-133	-7.209E-03	5.637E-02	8.353E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.221E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.458E-02	5.290E-02	1.004E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.326E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.730E-01	1.823E-01	2.991E-01	0.000E+00	FAIL ABUN
BA-137M	6.302E-02	4.511E-02	8.259E-02	0.000E+00	NOT IDENT.
CS-137	6.661E-02	4.768E-02	8.730E-02	0.000E+00	NOT IDENT.
CE-139	-1.355E-02	3.396E-02	5.647E-02	0.000E+00	NOT IDENT.
BA-140	-7.219E-02	3.805E-01	6.292E-01	0.000E+00	NOT IDENT.
LA-140	-2.077E-01	1.429E-01	1.873E-01	0.000E+00	NOT IDENT.
CE-141	4.185E-02	8.013E-02	1.393E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.463E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.577E-01	2.714E-01	3.918E-01	0.000E+00	NOT IDENT.
PM-144	5.207E-03	4.455E-02	7.438E-02	0.000E+00	NOT IDENT.
PR-144	3.538E-01	3.026E+00	5.053E+00	0.000E+00	NOT IDENT.

PM-146	2.638E-02	4.946E-02	8.706E-02	0.000E+00	NOT IDENT.
ND-147	-7.887E-01	8.530E-01	1.314E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	4.681E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.530E-01	1.402E-01	1.778E-01	0.000E+00	NOT IDENT.
GD-153	-8.055E-02	1.069E-01	1.554E-01	0.000E+00	NOT IDENT.
EU-154	5.680E-02	1.431E-01	2.477E-01	0.000E+00	NOT IDENT.
EU-155	4.168E-02	1.268E-01	2.216E-01	0.000E+00	FAIL ABUN
TB-160	3.001E-02	1.624E-01	2.816E-01	0.000E+00	FAIL ABUN
HO-166M	1.321E-02	7.675E-02	1.286E-01	0.000E+00	FAIL ABUN
TM-171	-2.525E+01	4.031E+01	6.015E+01	0.000E+00	NOT IDENT.
LU-176	9.505E-03	2.705E-02	4.785E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.593E+00	3.888E+00	0.000E+00	FAIL ABUN
LU-177M	-5.828E-02	2.069E-01	3.471E-01	0.000E+00	FAIL ABUN
HF-181	-3.034E-02	5.021E-02	8.094E-02	0.000E+00	NOT IDENT.
W-181	1.047E-01	5.398E-01	8.408E-01	0.000E+00	NOT IDENT.
TA-182	1.383E-01	2.404E-01	4.212E-01	0.000E+00	NOT IDENT.
RE-183	-2.601E-02	1.310E-01	2.201E-01	0.000E+00	FAIL ABUN
RE-184	1.862E-01	2.871E-01	4.922E-01	0.000E+00	NOT IDENT.
OS-185	2.801E-03	5.487E-02	8.959E-02	0.000E+00	NOT IDENT.
RE-188	1.224E-01	2.089E-01	3.631E-01	0.000E+00	NOT IDENT.
W-188	1.514E+00	9.969E+00	1.529E+01	0.000E+00	FAIL ABUN
IR-192	4.581E-02	3.981E-02	7.315E-02	0.000E+00	FAIL ABUN
AU-195	2.537E-01	2.797E-01	4.806E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.116E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.690E+00	2.346E+01	3.951E+01	0.000E+00	NOT IDENT.
TL-202	3.983E-02	1.064E-01	1.855E-01	0.000E+00	NOT IDENT.
HG-203	1.187E-02	4.800E-02	8.475E-02	0.000E+00	NOT IDENT.
BI-207	4.221E-03	6.547E-02	1.108E-01	0.000E+00	FAIL ABUN
TL-207	6.545E-01	8.330E-01	1.322E+00	0.000E+00	FAIL ABUN
PO-209	5.588E+00	8.882E+00	1.594E+01	0.000E+00	NOT IDENT.
BI-210	9.554E-01	6.101E+00	1.069E+01	0.000E+00	NOT IDENT.
PB-210	9.554E-01	6.101E+00	1.069E+01	0.000E+00	NOT IDENT.
PO-210	9.554E-01	6.101E+00	1.069E+01	0.000E+00	NOT IDENT.
PB-211	-2.868E-01	1.115E+00	1.802E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.731E-01	7.459E-01	0.000E+00	FAIL ABUN
PO-215	6.545E-01	8.330E-01	1.322E+00	0.000E+00	FAIL ABUN
RN-219	-2.330E-01	4.739E-01	7.841E-01	0.000E+00	FAIL ABUN
RN-220	-7.452E-01	2.890E+01	4.844E+01	0.000E+00	NOT IDENT.
RA-223	6.545E-01	8.330E-01	1.322E+00	0.000E+00	FAIL ABUN
AC-227	9.554E-02	4.555E-01	7.633E-01	0.000E+00	FAIL ABUN
TH-227	9.554E-02	4.556E-01	7.633E-01	0.000E+00	FAIL ABUN
TH-229	1.118E-01	5.877E-01	9.964E-01	0.000E+00	FAIL ABUN
PA-231	-8.720E-01	1.721E+00	2.918E+00	0.000E+00	NOT IDENT.
TH-231	6.545E-01	8.330E-01	1.322E+00	0.000E+00	FAIL ABUN
U-231	-2.847E+00	3.108E+00	4.487E+00	0.000E+00	FAIL ABUN
PA-233	-3.942E-02	6.795E-02	1.138E-01	0.000E+00	FAIL ABUN
PA-234	-2.285E-01	3.783E-01	5.698E-01	0.000E+00	FAIL ABUN
PA-234M	1.913E+00	5.295E+00	9.248E+00	0.000E+00	NOT IDENT.
U-235	1.825E-01	2.530E-01	4.302E-01	0.000E+00	FAIL ABUN
NP-236	6.168E-04	9.037E-02	1.533E-01	0.000E+00	NOT IDENT.
NP-239	-1.693E-01	2.208E-01	3.674E-01	0.000E+00	FAIL ABUN
AM-241	1.559E-02	2.234E-01	3.481E-01	0.000E+00	NOT IDENT.
CM-243	-5.967E-02	1.135E-01	1.919E-01	0.000E+00	FAIL ABUN
AM-246	1.607E-01	1.818E-01	3.292E-01	0.000E+00	NOT IDENT.
CM-247	-1.840E-02	4.385E-02	7.099E-02	0.000E+00	NOT IDENT.
CF-249	-7.365E-04	4.478E-02	7.672E-02	0.000E+00	NOT IDENT.
CF-251	-1.001E-01	1.448E-01	2.367E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101007.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:28:43.
Sample ID          : G245101007 Sample quantity : 1.16940E+02 GRAM
Detector name      : GAM23 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.60 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	913	10.67*	9.974E-01	2.753E+01	2.753E+01	10.53
CD-109	88.03	196	3.72*	5.218E+00	3.239E+00	3.337E+00	35.48
SN-126	64.28	98	9.60	2.591E+00	1.261E+00	1.261E+00	82.16
	86.94	196	8.90	5.218E+00	1.354E+00	1.354E+00	53.81
	87.57	196	37.00*	5.218E+00	3.256E-01	3.256E-01	35.48
CS-135	268.24	113	16.00*	4.228E+00	5.366E-01	5.366E-01	44.71
TL-208	277.35	-----	6.80	4.140E+00	-----	Line Not Found	-----
	510.84	148	21.60	2.545E+00	8.619E-01	8.619E-01	46.94
	583.14	269	84.20*	2.278E+00	4.494E-01	4.494E-01	18.29
	860.37	-----	12.46	1.609E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.829E+00	-----	Line Not Found	-----
	351.07	508	12.94*	3.442E+00	3.661E+00	3.661E+00	14.57
PB-212	74.81	365	10.70	4.036E+00	2.714E+00	2.714E+00	25.23
	77.11	495	18.00	4.298E+00	2.054E+00	2.054E+00	16.87
	87.30	196	8.00	5.218E+00	1.506E+00	1.506E+00	36.86
	238.63	1057	44.60*	4.638E+00	1.641E+00	1.641E+00	10.14
	300.09	77	3.41	3.902E+00	1.865E+00	1.865E+00	71.49
PO-212	74.81	365	10.70	4.036E+00	2.714E+00	2.714E+00	25.23
	77.11	495	18.00	4.298E+00	2.054E+00	2.054E+00	16.87
	87.30	196	8.00	5.218E+00	1.506E+00	1.506E+00	36.86
	115.19	-----	0.60	6.293E+00	-----	Line Not Found	-----
	238.63	1057	44.60*	4.638E+00	1.641E+00	1.641E+00	10.14
	300.09	77	3.41	3.902E+00	1.865E+00	1.865E+00	71.49
BI-214	609.31	339	46.30*	2.194E+00	1.070E+00	1.070E+00	17.45
	1120.29	70	15.10	1.259E+00	1.179E+00	1.179E+00	50.45
	1764.49	49	15.80	8.744E-01	1.140E+00	1.140E+00	31.51
PB-214	74.81	365	6.21	4.036E+00	4.677E+00	4.677E+00	24.57
	77.11	495	10.50	4.298E+00	3.521E+00	3.521E+00	18.51
	87.30	196	4.67	5.218E+00	2.580E+00	2.580E+00	36.31
	241.98	330	7.49	4.596E+00	3.080E+00	3.080E+00	25.87
	295.21	308	19.20	3.949E+00	1.304E+00	1.304E+00	19.35
	351.92	508	37.20*	3.442E+00	1.274E+00	1.274E+00	15.48

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	74.81	365	6.21	4.036E+00	4.677E+00	4.677E+00	24.57
	77.11	495	10.50	4.298E+00	3.521E+00	3.521E+00	18.51
	87.30	196	4.67	5.218E+00	2.580E+00	2.580E+00	36.31
	241.98	330	7.49	4.596E+00	3.080E+00	3.080E+00	25.87
	295.21	308	19.20	3.949E+00	1.304E+00	1.304E+00	19.35
PO-216	351.92	508	37.20*	3.442E+00	1.274E+00	1.274E+00	15.48
	74.81	365	10.70	4.036E+00	2.714E+00	2.714E+00	25.23
	77.11	495	18.00	4.298E+00	2.054E+00	2.054E+00	16.87
	87.30	196	8.00	5.218E+00	1.506E+00	1.506E+00	36.86
	238.63	1057	44.60*	4.638E+00	1.641E+00	1.641E+00	10.14
PO-218	300.09	77	3.41	3.902E+00	1.865E+00	1.865E+00	71.49
	74.81	365	6.21	4.036E+00	4.677E+00	4.677E+00	24.57
	77.11	495	10.50	4.298E+00	3.521E+00	3.521E+00	18.51
	87.30	196	4.67	5.218E+00	2.580E+00	2.580E+00	36.31
	241.98	330	7.49	4.596E+00	3.080E+00	3.080E+00	25.87
RA-224	295.21	308	19.20	3.949E+00	1.304E+00	1.304E+00	19.35
	351.92	508	37.20*	3.442E+00	1.274E+00	1.274E+00	15.48
	240.98	330	3.95*	4.596E+00	5.841E+00	5.841E+00	25.26
	609.31	339	46.30*	2.194E+00	1.070E+00	1.070E+00	17.45
	1120.29	70	15.10	1.259E+00	1.179E+00	1.179E+00	50.45
AC-228	1764.49	49	15.80	8.744E-01	1.140E+00	1.140E+00	31.51
	338.32	183	11.40	3.550E+00	1.451E+00	1.451E+00	54.18
	911.07	223	27.70*	1.527E+00	1.693E+00	1.693E+00	21.37
	969.11	6	16.60	1.440E+00	7.983E-02	7.983E-02	358.99
	338.32	183	11.40	3.550E+00	1.451E+00	1.451E+00	54.18
RA-228	911.07	223	27.70*	1.527E+00	1.693E+00	1.693E+00	21.37
	969.11	6	16.60	1.440E+00	7.983E-02	7.983E-02	358.99
	74.81	365	10.70	4.036E+00	2.714E+00	2.769E+00	23.46
	77.11	495	18.00	4.298E+00	2.054E+00	2.095E+00	16.87
	87.30	196	8.00	5.218E+00	1.506E+00	1.536E+00	35.48
TH-228	238.63	1057	44.60*	4.638E+00	1.641E+00	1.674E+00	10.14
	300.09	77	3.41	3.902E+00	1.865E+00	1.902E+00	92.29
	609.31	339	46.30*	2.194E+00	1.070E+00	1.070E+00	17.45
	1120.29	70	15.10	1.259E+00	1.179E+00	1.179E+00	50.45
	1764.49	49	15.80	8.744E-01	1.140E+00	1.140E+00	31.51
TH-232	338.32	183	11.40	3.550E+00	1.451E+00	1.451E+00	36.15
	911.07	223	27.70*	1.527E+00	1.693E+00	1.693E+00	21.37
	969.11	6	16.60	1.440E+00	7.983E-02	7.983E-02	358.99
	63.29	98	3.80*	2.591E+00	3.186E+00	3.186E+00	82.72
	92.38	160	5.41	5.592E+00	1.699E+00	1.699E+00	55.26
U-234	609.31	339	46.30*	2.194E+00	1.070E+00	1.070E+00	17.45
	1120.29	70	15.10	1.259E+00	1.179E+00	1.179E+00	50.45
	1764.49	49	15.80	8.744E-01	1.140E+00	1.140E+00	31.51
	86.50	196	12.60*	5.218E+00	9.561E-01	9.561E-01	41.05
	95.87	-----	2.60	5.757E+00	-----	Line Not Found	-----
U-238	63.29	98	3.80*	2.591E+00	3.186E+00	3.186E+00	82.72
	92.38	160	5.41	5.592E+00	1.699E+00	1.699E+00	52.92
	74.67	365	66.00*	4.036E+00	4.400E-01	4.400E-01	23.43
	86.72	196	0.34	5.218E+00	3.586E+01	3.586E+01	35.48

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	6.314E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.209E+00	-----	Line Not Found	-----
ANH-511	511.00	148	100.00*	2.545E+00	1.862E-01	1.862E-01	46.19

Flag: "\*" = Keyline



Total number of lines in spectrum 27  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 26 96.30%

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	2.753E+01	2.753E+01	0.290E+01	10.53	
CD-109	464.00D	1.03	3.239E+00	3.337E+00	1.184E+00	35.48	
SN-126	1.00E+05Y	1.00	3.256E-01	3.256E-01	1.155E-01	35.48	
CS-135	2.30E+06Y	1.00	5.366E-01	5.366E-01	2.399E-01	44.71	
TL-208	1.41E+10Y	1.00	4.494E-01	4.494E-01	0.822E-01	18.29	
BI-211	7.04E+08Y	1.00	3.661E+00	3.661E+00	0.534E+00	14.57	
PB-212	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.166E+00	10.14	
PO-212	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.166E+00	10.14	
BI-214	1600.00Y	1.00	1.070E+00	1.070E+00	0.187E+00	17.45	
PB-214	1600.00Y	1.00	1.274E+00	1.274E+00	0.197E+00	15.48	
PO-214	1600.00Y	1.00	1.274E+00	1.274E+00	0.197E+00	15.48	
PO-216	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.166E+00	10.14	
PO-218	1600.00Y	1.00	1.274E+00	1.274E+00	0.197E+00	15.48	
RA-224	1.41E+10Y	1.00	5.841E+00	5.841E+00	1.475E+00	25.26	
RA-226	1600.00Y	1.00	1.070E+00	1.070E+00	0.187E+00	17.45	
AC-228	1.41E+10Y	1.00	1.693E+00	1.693E+00	0.362E+00	21.37	
RA-228	1.41E+10Y	1.00	1.693E+00	1.693E+00	0.362E+00	21.37	
TH-228	1.91Y	1.02	1.641E+00	1.674E+00	0.170E+00	10.14	
TH-230	4.47E+09Y	1.00	1.070E+00	1.070E+00	0.187E+00	17.45	
TH-232	1.41E+10Y	1.00	1.693E+00	1.693E+00	0.362E+00	21.37	
TH-234	4.47E+09Y	1.00	3.186E+00	3.186E+00	2.635E+00	82.72	
U-234	4.47E+09Y	1.00	1.070E+00	1.070E+00	0.187E+00	17.45	
NP-237	2.14E+06Y	1.00	9.561E-01	9.561E-01	3.925E-01	41.05	
U-238	4.47E+09Y	1.00	3.186E+00	3.186E+00	2.635E+00	82.72	
AM-243	7380.00Y	1.00	4.400E-01	4.400E-01	1.031E-01	23.43	
ANH-511	1.00E+09Y	1.00	1.862E-01	1.862E-01	0.860E-01	46.19	

Total Activity : 6.928E+01 6.941E+01

Grand Total Activity : 6.928E+01 6.941E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101007

Page : 5  
Acquisition date : 2-FEB-2010 10:28:43

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.59	89	297	1.07	259.19	255	9	1.23E-02	73.5	6.32E+00	T
0	185.55	173	299	1.43	371.09	367	10	2.40E-02	41.8	5.49E+00	T
0	208.96	119	223	1.06	417.91	414	9	1.65E-02	49.0	5.09E+00	T
0	326.76	73	143	1.31	653.51	648	11	1.01E-02	68.0	3.65E+00	
0	462.48	75	104	1.03	924.96	919	12	1.04E-02	59.5	2.76E+00	T
0	726.94	69	73	1.65	1453.87	1446	14	9.65E-03	57.5	1.88E+00	T
0	1050.95	10	22	1.24	2101.90	2099	7	1.44E-03	****	1.33E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101007.CNF;1
* Acquisition date   : 2-FEB-2010 10:28:43.   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 02:00:01.60           Half life ratio     : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library      : SOLID
* Sample ID          : G245101007             Analyst initials     : MXR1
* Batch Number       : 944037                 Sample Quantity      : 1.16940E+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	2.753E+01	2.898E+00	6.338E-01	4.741E-02	43.432
CD-109	3.337E+00	1.184E+00	1.645E+00	1.606E-01	2.029
SN-126	3.256E-01	1.155E-01	1.786E-01	1.738E-02	1.823
CS-135	5.366E-01	2.399E-01	2.880E-01	2.200E-02	1.864
TL-208	4.494E-01	8.222E-02	6.238E-02	4.050E-03	7.205
BI-211	3.661E+00	5.335E-01	3.948E-01	2.573E-02	9.273
PB-212	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
PO-212	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
BI-214	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
PB-214	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
PO-214	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
PO-216	1.641E+00	1.663E-01	9.952E-02	7.155E-03	16.489
PO-218	1.274E+00	1.971E-01	1.297E-01	1.082E-02	9.822
RA-224	5.841E+00	1.475E+00	1.133E+00	6.382E-02	5.156
RA-226	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
AC-228	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
RA-228	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
TH-228	1.674E+00	1.697E-01	1.015E-01	7.299E-03	16.489

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
TH-232	1.693E+00	3.618E-01	2.632E-01	3.037E-02	6.433
TH-234	3.186E+00	2.635E+00	2.672E+00	4.816E-01	1.192
U-234	1.070E+00	1.867E-01	1.287E-01	9.676E-03	8.314
NP-237	9.561E-01	3.925E-01	5.126E-01	1.167E-01	1.865
U-238	3.186E+00	2.635E+00	2.672E+00	4.816E-01	1.192
AM-243	4.400E-01	1.031E-01	1.115E-01	9.909E-03	3.946
ANH-511	1.862E-01	8.600E-02	5.201E-02	3.021E-03	3.580

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.619E-01		3.921E-01	6.767E-01	4.599E-02	0.387
NA-22	1.986E-02		5.233E-02	8.890E-02	5.970E-03	0.223
NA-24	-6.550E+01		8.773E+01	Half-Life	too short	
AL-26	-4.096E-02		3.170E-02	3.318E-02	1.994E-03	-1.235
TI-44	3.791E-01	+	6.394E-02	9.570E-02	8.675E-03	3.962
SC-46	3.001E-02		5.058E-02	8.859E-02	7.915E-03	0.339
V-48	-4.747E-03		1.078E-01	1.778E-01	1.479E-02	-0.027
CR-51	3.063E-02		5.438E-01	8.338E-01	5.468E-02	0.037
MN-52	4.382E-01		5.185E-01	9.407E-01	6.806E-02	0.466
MN-54	-2.153E-02		4.567E-02	7.326E-02	5.801E-03	-0.294
CO-56	2.434E-02		4.632E-02	8.109E-02	6.597E-03	0.300
CO-57	3.299E-03		3.106E-02	5.130E-02	3.025E-03	0.064
CO-58	3.765E-02		4.837E-02	8.629E-02	6.483E-03	0.436
FE-59	3.607E-02		1.232E-01	2.084E-01	1.605E-02	0.173
CO-60	2.598E-02		4.725E-02	8.228E-02	6.040E-03	0.316
ZN-65	4.416E-03		1.358E-01	1.923E-01	1.270E-02	0.023
GE-68	-1.401E-01		1.638E+00	2.677E+00	1.916E-01	-0.052
AS-73	5.695E-01		1.294E+00	2.212E+00	1.953E-01	0.257
AS-74	1.993E-02		1.308E-01	2.156E-01	1.189E-02	0.092
SE-75	1.289E-02		6.102E-02	8.646E-02	5.033E-03	0.149
BR-77	-1.620E-05		2.552E-05	Half-Life	too short	
SR-82	-5.062E-01		4.969E-01	7.549E-01	5.208E-02	-0.671
RB-83	-2.573E-02		8.613E-02	1.339E-01	7.750E-03	-0.192
RB-84	-7.809E-02		9.155E-02	1.393E-01	1.223E-02	-0.561
KR-85	1.371E+01		9.624E+00	1.549E+01	8.990E-01	0.885
SR-85	7.397E-02		5.191E-02	8.356E-02	4.849E-03	0.885
RB-86	-8.875E-01		1.222E+00	1.864E+00	1.336E-01	-0.476
Y-88	-2.474E-02		3.601E-02	4.897E-02	2.883E-03	-0.505
ZR-88	-7.739E-03		3.670E-02	6.016E-02	3.473E-03	-0.129
Y-91	-1.096E+01		2.636E+01	4.147E+01	2.474E+00	-0.264
NB-94	-3.195E-03		4.360E-02	6.990E-02	3.994E-03	-0.046
NB-95	5.807E-02		5.926E-02	1.023E-01	6.878E-03	0.567
NB-95M	6.940E-01		1.905E-01	3.142E-01	2.318E-02	2.209
ZR-95	2.898E-02		8.955E-02	1.483E-01	1.138E-02	0.195
NB-97	-8.064E+00		7.213E+00	Half-Life	too short	

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	8.237E+02		1.406E+02	Half-Life too short		
MO-99	2.579E+00		4.687E+01	7.578E+01	1.061E+01	0.034
TC-99M	-9.680E+15		1.426E+16	Half-Life too short		
RH-101	-1.121E-02		3.960E-02	6.115E-02	3.260E-03	-0.183
RH-102	9.166E-03		3.468E-02	5.820E-02	3.407E-03	0.157
RU-103	-9.143E-03		4.919E-02	7.960E-02	1.008E-02	-0.115
RH-106	-3.786E-01		3.866E-01	5.685E-01	6.556E-02	-0.666
RU-106	-3.786E-01		3.847E-01	5.685E-01	3.055E-02	-0.666
AG-108M	2.811E-02		3.833E-02	6.647E-02	4.214E-03	0.423
AG-110M	-3.129E-02		4.519E-02	6.882E-02	3.824E-03	-0.455
IN-111	-8.250E-01		4.460E+00	6.145E+00	3.478E-01	-0.134
IN-113M	2.623E-02		5.069E-02	8.709E-02	5.365E-03	0.301
SN-113	2.623E-02		5.069E-02	8.709E-02	5.365E-03	0.301
IN-114M	-9.673E-03		2.609E-01	3.684E-01	1.942E-02	-0.026
CD-115	3.495E-05		2.795E-05	Half-Life too short		
SN-117M	-9.658E-03		8.216E-02	1.333E-01	6.925E-03	-0.072
SB-122	5.828E+00		8.807E+00	1.508E+01	8.531E-01	0.386
I-123	-1.545E+02		1.499E+03	Half-Life too short		
TE-123M	-1.749E-03		3.393E-02	5.519E-02	2.912E-03	-0.032
I-124	3.736E-01		2.001E+00	2.873E+00	1.574E-01	0.130
SB-124	4.057E-02		6.352E-02	1.228E-01	8.558E-03	0.331
SB-125	-7.384E-02		1.091E-01	1.720E-01	1.046E-02	-0.429
TE-125M	-1.517E+01		1.199E+01	1.867E+01	1.668E+00	-0.813
I-126	-1.309E-01		3.026E-01	4.721E-01	2.443E-02	-0.277
SB-126	-1.191E-01		2.587E-01	3.360E-01	2.013E-02	-0.354
SB-127	1.696E+00		3.786E+00	6.362E+00	7.027E-01	0.267
XE-127	1.660E-02		6.327E-02	9.997E-02	5.367E-03	0.166
I-131	1.390E-02		2.029E-01	3.398E-01	2.238E-02	0.041
TE-132	-1.595E+00		2.281E+00	3.514E+00	5.393E-01	-0.454
BA-133	-7.209E-03		5.752E-02	8.258E-02	9.581E-03	-0.087
I-133	-8.439E-02		1.643E-01	Half-Life too short		
CS-134	7.458E-02		5.398E-02	1.001E-01	7.307E-03	0.745
I-135	1.048E+15		6.765E+14	Half-Life too short		
CS-136	1.730E-01		1.860E-01	2.990E-01	2.385E-02	0.578
BA-137M	6.302E-02		4.603E-02	8.218E-02	4.198E-03	0.767
CS-137	6.661E-02		4.866E-02	8.687E-02	4.462E-03	0.767
CE-139	-1.355E-02		3.466E-02	5.540E-02	2.824E-03	-0.245
BA-140	-7.219E-02		3.883E-01	6.247E-01	2.031E-01	-0.116
LA-140	-2.077E-01		1.458E-01	1.881E-01	1.290E-02	-1.104
CE-141	4.185E-02		8.177E-02	1.364E-01	7.696E-03	0.307
CE-143	1.115E-02		1.767E-03	Half-Life too short		
CE-144	-1.577E-01		2.770E-01	3.835E-01	5.415E-02	-0.411
PM-144	5.207E-03		4.546E-02	7.405E-02	4.168E-03	0.070
PR-144	3.538E-01		3.088E+00	5.031E+00	2.828E-01	0.070
PM-146	2.638E-02		5.046E-02	8.629E-02	7.474E-03	0.306
ND-147	-7.887E-01		8.704E-01	1.304E+00	1.761E-01	-0.605
PM-149	-2.833E-04		2.388E-04	Half-Life too short		
EU-152	-1.530E-01		1.430E-01	1.757E-01	1.165E-02	-0.870

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-8.055E-02		1.091E-01	1.516E-01	1.238E-02	-0.531
EU-154	5.680E-02		1.460E-01	2.482E-01	2.464E-02	0.229
EU-155	4.168E-02		1.294E-01	2.163E-01	1.595E-02	0.193
TB-160	3.001E-02		1.657E-01	2.811E-01	2.458E-02	0.107
HO-166M	1.321E-02		7.831E-02	1.280E-01	7.495E-03	0.103
TM-171	-2.525E+01		4.114E+01	5.846E+01	5.084E+00	-0.432
LU-176	9.505E-03		2.760E-02	4.723E-02	2.783E-03	0.201
LU-177	5.364E+00	+	2.646E+00	3.823E+00	2.068E-01	1.403
LU-177M	-5.828E-02		2.111E-01	3.437E-01	2.000E-02	-0.170
HF-181	-3.034E-02		5.123E-02	8.028E-02	4.695E-03	-0.378
W-181	1.047E-01		5.508E-01	8.170E-01	7.097E-02	0.128
TA-182	1.383E-01		2.453E-01	4.218E-01	2.589E-02	0.328
RE-183	-2.601E-02		1.336E-01	2.158E-01	1.110E-02	-0.121
RE-184	1.862E-01		2.930E-01	4.849E-01	2.765E-02	0.384
OS-185	2.801E-03		5.599E-02	8.913E-02	4.651E-03	0.031
RE-188	1.224E-01		2.131E-01	3.559E-01	1.867E-02	0.344
W-188	1.514E+00		1.017E+01	1.508E+01	8.834E-01	0.100
IR-192	4.581E-02		4.062E-02	7.223E-02	4.285E-03	0.634
AU-195	2.537E-01		2.854E-01	4.690E-01	3.742E-02	0.541
TL-200	-9.208E-03		5.692E-03	Half-Life	too short	
TL-201	-2.690E+00		2.394E+01	3.876E+01	1.978E+00	-0.069
TL-202	3.983E-02		1.085E-01	1.838E-01	1.076E-02	0.217
HG-203	1.187E-02		4.898E-02	8.358E-02	5.163E-03	0.142
BI-207	4.221E-03		6.680E-02	1.108E-01	8.139E-03	0.038
TL-207	6.545E-01		8.500E-01	1.306E+00	2.162E-01	0.501
PO-209	5.588E+00		9.063E+00	1.591E+01	1.444E+00	0.351
BI-210	9.554E-01		6.226E+00	1.035E+01	8.058E-01	0.092
PB-210	9.554E-01		6.226E+00	1.035E+01	8.058E-01	0.092
PO-210	9.554E-01		6.226E+00	1.035E+01	6.943E-01	0.092
PB-211	-2.868E-01		1.138E+00	1.784E+00	1.112E+00	-0.161
BI-212	1.007E+00	+	5.848E-01	7.429E-01	5.897E-02	1.356
PO-215	6.545E-01		8.500E-01	1.306E+00	2.162E-01	0.501
RN-219	-2.330E-01		4.836E-01	7.762E-01	1.056E-01	-0.300
RN-220	-7.452E-01		2.949E+01	4.811E+01	2.746E+00	-0.015
RA-223	6.545E-01		8.500E-01	1.306E+00	2.162E-01	0.501
AC-227	9.554E-02		4.648E-01	7.521E-01	1.047E-01	0.127
TH-227	9.554E-02		4.649E-01	7.521E-01	1.269E-01	0.127
TH-229	1.118E-01		5.997E-01	9.790E-01	5.186E-02	0.114
PA-231	-8.720E-01		1.757E+00	2.878E+00	3.970E-01	-0.303
TH-231	6.545E-01		8.500E-01	1.306E+00	2.162E-01	0.501
U-231	-2.847E+00		3.171E+00	4.377E+00	3.671E-01	-0.650
PA-233	-3.942E-02		6.933E-02	1.124E-01	7.027E-03	-0.351
PA-234	-2.285E-01		3.860E-01	5.691E-01	1.070E-01	-0.402
PA-234M	1.913E+00		5.403E+00	9.242E+00	8.819E-01	0.207
U-235	1.825E-01		2.582E-01	4.214E-01	6.815E-02	0.433
NP-236	6.168E-04		9.221E-02	1.503E-01	7.776E-03	0.004
NP-239	-1.693E-01		2.253E-01	3.591E-01	2.242E-02	-0.471
AM-241	1.559E-02		2.279E-01	3.379E-01	3.144E-02	0.046

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-5.967E-02		1.158E-01	1.873E-01	1.388E-02	-0.319
AM-246	1.607E-01		1.856E-01	3.292E-01	2.349E-02	0.488
CM-247	-1.840E-02		4.475E-02	7.027E-02	4.073E-03	-0.262
CF-249	-7.365E-04		4.570E-02	7.592E-02	4.393E-03	-0.010
CF-251	-1.001E-01		1.478E-01	2.324E-01	1.201E-02	-0.431

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101007
* Acquisition date   : 2-FEB-2010 10:28:43 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 02:00:01.60 Half life ratio        : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101007 Analyst initials       : MXR1
* Batch Number       : 944037 Sample Quantity           : 1.1694E+02 GRAM
* Recovery           : 1.00000 Carrier Weight            : 0.00000
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME  : 2-JUN-2009 11:17:00 MS Isotope      :
* MSD DPM            : 0.000 MSD Isotope                  :
* LCS DPM            : 0.000 LCS Isotope                   :
* LCSD DPM           : 0.000 LCSD Isotope                  :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.753E+01	2.840E+00	3.160E-01	1.449E+00
CD-109	3.337E+00	1.160E+00	8.442E-01	5.920E-01
SN-126	3.256E-01	1.132E-01	9.167E-02	5.777E-02
CS-135	5.366E-01	2.351E-01	1.461E-01	1.200E-01
TL-208	4.494E-01	8.057E-02	3.141E-02	4.111E-02
BI-211	3.661E+00	5.229E-01	1.998E-01	2.668E-01
PB-212	1.641E+00	1.630E-01	5.057E-02	8.317E-02
PO-212	1.641E+00	1.630E-01	5.057E-02	8.317E-02
BI-214	1.070E+00	1.830E-01	6.477E-02	9.336E-02
PB-214	1.274E+00	1.932E-01	6.563E-02	9.857E-02
PO-214	1.274E+00	1.932E-01	6.563E-02	9.857E-02
PO-216	1.641E+00	1.630E-01	5.057E-02	8.317E-02
PO-218	1.274E+00	1.932E-01	6.563E-02	9.857E-02
RA-224	5.841E+00	1.446E+00	5.755E-01	7.376E-01
RA-226	1.070E+00	1.830E-01	6.477E-02	9.336E-02
AC-228	1.693E+00	3.545E-01	1.319E-01	1.809E-01
RA-228	1.693E+00	3.545E-01	1.319E-01	1.809E-01
TH-228	1.674E+00	1.663E-01	5.158E-02	8.484E-02
TH-230	1.070E+00	1.830E-01	6.477E-02	9.336E-02
TH-232	1.693E+00	3.545E-01	1.319E-01	1.809E-01
TH-234	3.186E+00	2.583E+00	1.376E+00	1.318E+00
U-234	1.070E+00	1.830E-01	6.477E-02	9.336E-02
NP-237	9.561E-01	3.846E-01	2.632E-01	1.962E-01
U-238	3.186E+00	2.583E+00	1.376E+00	1.318E+00
AM-243	4.400E-01	1.010E-01	5.733E-02	5.155E-02
ANH-511	1.862E-01	8.428E-02	2.622E-02	4.300E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.619E-01	3.842E-01	3.414E-01	1.960E-01 NOT IDENT.



NA-22	1.986E-02	5.128E-02	4.439E-02	2.616E-02	NOT IDENT.
NA-24	-6.550E+07	1.720E+08	0.000E+00	8.773E+07	SHORT HLIF
AL-26	-4.096E-02	3.106E-02	1.650E-02	1.585E-02	NOT IDENT.
TI-44	3.791E-01	6.267E-02	4.918E-02	3.197E-02	FAIL ABUN
SC-46	3.001E-02	4.957E-02	4.440E-02	2.529E-02	FAIL ABUN
V-48	-4.747E-03	1.057E-01	8.904E-02	5.391E-02	NOT IDENT.
CR-51	3.063E-02	5.329E-01	4.224E-01	2.719E-01	NOT IDENT.
MN-52	4.382E-01	5.082E-01	4.691E-01	2.593E-01	NOT IDENT.
MN-54	-2.153E-02	4.476E-02	3.675E-02	2.284E-02	NOT IDENT.
CO-56	2.434E-02	4.540E-02	4.067E-02	2.316E-02	NOT IDENT.
CO-57	3.299E-03	3.044E-02	2.625E-02	1.553E-02	NOT IDENT.
CO-58	3.765E-02	4.740E-02	4.329E-02	2.419E-02	NOT IDENT.
FE-59	3.607E-02	1.208E-01	1.042E-01	6.161E-02	NOT IDENT.
CO-60	2.598E-02	4.630E-02	4.106E-02	2.362E-02	NOT IDENT.
ZN-65	4.416E-03	1.330E-01	9.618E-02	6.788E-02	NOT IDENT.
GE-68	-1.401E-01	1.606E+00	1.339E+00	8.192E-01	NOT IDENT.
AS-73	5.695E-01	1.269E+00	1.141E+00	6.472E-01	NOT IDENT.
AS-74	1.993E-02	1.282E-01	1.085E-01	6.540E-02	NOT IDENT.
SE-75	1.289E-02	5.980E-02	4.389E-02	3.051E-02	NOT IDENT.
BR-77	-1.620E+01	5.003E+01	0.000E+00	2.552E+01	SHORT HLIF
SR-82	-5.062E-01	4.870E-01	3.789E-01	2.485E-01	NOT IDENT.
RB-83	-2.573E-02	8.441E-02	6.748E-02	4.307E-02	NOT IDENT.
RB-84	-7.809E-02	8.972E-02	6.980E-02	4.577E-02	NOT IDENT.
KR-85	1.371E+01	9.431E+00	7.810E+00	4.812E+00	NOT IDENT.
SR-85	7.397E-02	5.087E-02	4.213E-02	2.595E-02	NOT IDENT.
RB-86	-8.875E-01	1.197E+00	9.326E-01	6.108E-01	NOT IDENT.
Y-88	-2.474E-02	3.529E-02	2.436E-02	1.801E-02	NOT IDENT.
ZR-88	-7.739E-03	3.597E-02	3.041E-02	1.835E-02	NOT IDENT.
Y-91	-1.096E+01	2.583E+01	2.072E+01	1.318E+01	NOT IDENT.
NB-94	-3.195E-03	4.272E-02	3.512E-02	2.180E-02	NOT IDENT.
NB-95	5.807E-02	5.808E-02	5.138E-02	2.963E-02	NOT IDENT.
NB-95M	6.940E-01	1.867E-01	1.597E-01	9.527E-02	NOT IDENT.
ZR-95	2.898E-02	8.776E-02	7.444E-02	4.478E-02	NOT IDENT.
NB-97	-8.064E+06	1.414E+07	0.000E+00	7.213E+06	SHORT HLIF
ZR-97	8.237E+08	2.756E+08	0.000E+00	1.406E+08	SHORT HLIF
MO-99	2.579E+00	4.593E+01	3.806E+01	2.343E+01	NOT IDENT.
TC-99M	-9.680E+21	2.794E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.121E-02	3.881E-02	3.113E-02	1.980E-02	NOT IDENT.
RH-102	9.166E-03	3.398E-02	2.936E-02	1.734E-02	NOT IDENT.
RU-103	-9.143E-03	4.820E-02	4.014E-02	2.459E-02	NOT IDENT.
RH-106	-3.786E-01	3.789E-01	2.860E-01	1.933E-01	FAIL ABUN
RU-106	-3.786E-01	3.770E-01	2.860E-01	1.923E-01	FAIL ABUN
AG-108M	2.811E-02	3.756E-02	3.357E-02	1.916E-02	NOT IDENT.
AG-110M	-3.129E-02	4.429E-02	3.461E-02	2.260E-02	NOT IDENT.
IN-111	-8.250E-01	4.371E+00	3.122E+00	2.230E+00	NOT IDENT.
IN-113M	2.623E-02	4.968E-02	4.403E-02	2.535E-02	NOT IDENT.
SN-113	2.623E-02	4.968E-02	4.403E-02	2.535E-02	NOT IDENT.
IN-114M	-9.673E-03	2.556E-01	1.877E-01	1.304E-01	NOT IDENT.
CD-115	3.495E+01	5.478E+01	0.000E+00	2.795E+01	SHORT HLIF
SN-117M	-9.658E-03	8.051E-02	6.800E-02	4.108E-02	NOT IDENT.
SB-122	5.828E+00	8.631E+00	7.596E+00	4.404E+00	NOT IDENT.
I-123	-1.545E+08	2.937E+09	0.000E+00	1.499E+09	SHORT HLIF
TE-123M	-1.749E-03	3.325E-02	2.816E-02	1.696E-02	NOT IDENT.
I-124	3.736E-01	1.961E+00	1.446E+00	1.000E+00	NOT IDENT.
SB-124	4.057E-02	6.225E-02	6.111E-02	3.176E-02	FAIL ABUN
SB-125	-7.384E-02	1.069E-01	8.687E-02	5.454E-02	FAIL ABUN
TE-125M	-1.517E+01	1.175E+01	9.561E+00	5.993E+00	NOT IDENT.
I-126	-1.309E-01	2.966E-01	2.373E-01	1.513E-01	NOT IDENT.
SB-126	-1.191E-01	2.535E-01	1.688E-01	1.294E-01	NOT IDENT.
SB-127	1.696E+00	3.711E+00	3.197E+00	1.893E+00	NOT IDENT.
XE-127	1.660E-02	6.201E-02	5.088E-02	3.164E-02	NOT IDENT.
I-131	1.390E-02	1.988E-01	1.719E-01	1.015E-01	NOT IDENT.
TE-132	-1.595E+00	2.236E+00	1.786E+00	1.141E+00	NOT IDENT.
BA-133	-7.209E-03	5.637E-02	4.179E-02	2.876E-02	NOT IDENT.
I-133	-8.439E+04	3.221E+05	0.000E+00	1.643E+05	SHORT HLIF
CS-134	7.458E-02	5.290E-02	5.021E-02	2.699E-02	NOT IDENT.
I-135	1.048E+21	1.326E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.730E-01	1.823E-01	1.496E-01	9.300E-02	FAIL ABUN
BA-137M	6.302E-02	4.511E-02	4.132E-02	2.301E-02	NOT IDENT.
CS-137	6.661E-02	4.768E-02	4.368E-02	2.433E-02	NOT IDENT.
CE-139	-1.355E-02	3.396E-02	2.825E-02	1.733E-02	NOT IDENT.
BA-140	-7.219E-02	3.805E-01	3.148E-01	1.941E-01	NOT IDENT.
LA-140	-2.077E-01	1.429E-01	9.369E-02	7.288E-02	NOT IDENT.
CE-141	4.185E-02	8.013E-02	6.968E-02	4.088E-02	NOT IDENT.
CE-143	1.115E+04	3.463E+03	0.000E+00	1.767E+03	SHORT HLIF
CE-144	-1.577E-01	2.714E-01	1.960E-01	1.385E-01	NOT IDENT.
PM-144	5.207E-03	4.455E-02	3.721E-02	2.273E-02	NOT IDENT.
PR-144	3.538E-01	3.026E+00	2.528E+00	1.544E+00	NOT IDENT.

PM-146	2.638E-02	4.946E-02	4.356E-02	2.523E-02	NOT IDENT.
ND-147	-7.887E-01	8.530E-01	6.572E-01	4.352E-01	NOT IDENT.
PM-149	-2.833E+02	4.681E+02	0.000E+00	2.388E+02	SHORT HLIF
EU-152	-1.530E-01	1.402E-01	8.896E-02	7.151E-02	NOT IDENT.
GD-153	-8.055E-02	1.069E-01	7.772E-02	5.457E-02	NOT IDENT.
EU-154	5.680E-02	1.431E-01	1.239E-01	7.301E-02	NOT IDENT.
EU-155	4.168E-02	1.268E-01	1.108E-01	6.469E-02	FAIL ABUN
TB-160	3.001E-02	1.624E-01	1.409E-01	8.284E-02	FAIL ABUN
HO-166M	1.321E-02	7.675E-02	6.433E-02	3.916E-02	FAIL ABUN
TM-171	-2.525E+01	4.031E+01	3.009E+01	2.057E+01	NOT IDENT.
LU-176	9.505E-03	2.705E-02	2.394E-02	1.380E-02	FAIL ABUN
LU-177	5.364E+00	2.593E+00	1.945E+00	1.323E+00	FAIL ABUN
LU-177M	-5.828E-02	2.069E-01	1.737E-01	1.056E-01	FAIL ABUN
HF-181	-3.034E-02	5.021E-02	4.050E-02	2.562E-02	NOT IDENT.
W-181	1.047E-01	5.398E-01	4.206E-01	2.754E-01	NOT IDENT.
TA-182	1.383E-01	2.404E-01	2.107E-01	1.227E-01	NOT IDENT.
RE-183	-2.601E-02	1.310E-01	1.101E-01	6.681E-02	FAIL ABUN
RE-184	1.862E-01	2.871E-01	2.462E-01	1.465E-01	NOT IDENT.
OS-185	2.801E-03	5.487E-02	4.482E-02	2.799E-02	NOT IDENT.
RE-188	1.224E-01	2.089E-01	1.816E-01	1.066E-01	NOT IDENT.
W-188	1.514E+00	9.969E+00	7.649E+00	5.086E+00	FAIL ABUN
IR-192	4.581E-02	3.981E-02	3.660E-02	2.031E-02	FAIL ABUN
AU-195	2.537E-01	2.797E-01	2.405E-01	1.427E-01	FAIL ABUN
TL-200	-9.208E+03	1.116E+04	0.000E+00	5.692E+03	SHORT HLIF
TL-201	-2.690E+00	2.346E+01	1.977E+01	1.197E+01	NOT IDENT.
TL-202	3.983E-02	1.064E-01	9.282E-02	5.426E-02	NOT IDENT.
HG-203	1.187E-02	4.800E-02	4.240E-02	2.449E-02	NOT IDENT.
BI-207	4.221E-03	6.547E-02	5.543E-02	3.340E-02	FAIL ABUN
TL-207	6.545E-01	8.330E-01	6.616E-01	4.250E-01	FAIL ABUN
PO-209	5.588E+00	8.882E+00	7.973E+00	4.532E+00	NOT IDENT.
BI-210	9.554E-01	6.101E+00	5.346E+00	3.113E+00	NOT IDENT.
PB-210	9.554E-01	6.101E+00	5.346E+00	3.113E+00	NOT IDENT.
PO-210	9.554E-01	6.101E+00	5.346E+00	3.113E+00	NOT IDENT.
PB-211	-2.868E-01	1.115E+00	9.015E-01	5.691E-01	NOT IDENT.
BI-212	1.007E+00	5.731E-01	3.732E-01	2.924E-01	FAIL ABUN
PO-215	6.545E-01	8.330E-01	6.616E-01	4.250E-01	FAIL ABUN
RN-219	-2.330E-01	4.739E-01	3.923E-01	2.418E-01	FAIL ABUN
RN-220	-7.452E-01	2.890E+01	2.424E+01	1.474E+01	NOT IDENT.
RA-223	6.545E-01	8.330E-01	6.616E-01	4.250E-01	FAIL ABUN
AC-227	9.554E-02	4.555E-01	3.819E-01	2.324E-01	FAIL ABUN
TH-227	9.554E-02	4.556E-01	3.819E-01	2.325E-01	FAIL ABUN
TH-229	1.118E-01	5.877E-01	4.985E-01	2.998E-01	FAIL ABUN
PA-231	-8.720E-01	1.721E+00	1.460E+00	8.783E-01	NOT IDENT.
TH-231	6.545E-01	8.330E-01	6.616E-01	4.250E-01	FAIL ABUN
U-231	-2.847E+00	3.108E+00	2.245E+00	1.585E+00	FAIL ABUN
PA-233	-3.942E-02	6.795E-02	5.696E-02	3.467E-02	FAIL ABUN
PA-234	-2.285E-01	3.783E-01	2.851E-01	1.930E-01	FAIL ABUN
PA-234M	1.913E+00	5.295E+00	4.627E+00	2.702E+00	NOT IDENT.
U-235	1.825E-01	2.530E-01	2.152E-01	1.291E-01	FAIL ABUN
NP-236	6.168E-04	9.037E-02	7.670E-02	4.611E-02	NOT IDENT.
NP-239	-1.693E-01	2.208E-01	1.838E-01	1.126E-01	FAIL ABUN
AM-241	1.559E-02	2.234E-01	1.741E-01	1.140E-01	NOT IDENT.
CM-243	-5.967E-02	1.135E-01	9.601E-02	5.790E-02	FAIL ABUN
AM-246	1.607E-01	1.818E-01	1.647E-01	9.278E-02	NOT IDENT.
CM-247	-1.840E-02	4.385E-02	3.551E-02	2.237E-02	NOT IDENT.
CF-249	-7.365E-04	4.478E-02	3.838E-02	2.285E-02	NOT IDENT.
CF-251	-1.001E-01	1.448E-01	1.184E-01	7.390E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
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46.50	251.1533
46.50	251.1533
46.50	251.1533
48.70	251.2436
49.72	288.0431
51.35	297.9729
52.39	266.5543
52.97	257.6790
53.15	242.2190
53.44	257.8834
54.07	256.3252
56.28	282.9876
56.28	282.9887
57.37	0.0000
57.53	307.8687
57.53	307.8694
57.60	279.9120
57.98	263.8677
57.98	263.8677
59.32	282.1587
59.32	282.1587
59.40	282.1942
59.54	282.2566
59.72	307.4665
60.01	307.6068
61.10	297.7613
61.14	285.9278
61.30	285.9990
63.00	310.1487
63.29	310.2853
63.29	310.2853
63.58	358.3801
64.28	349.8279
65.12	345.7981
65.20	345.8392
65.20	345.8392
66.05	367.1742
66.72	369.0301
66.83	369.0919
66.91	381.0915
67.20	376.7680
67.20	376.7680
67.75	383.0562
67.85	383.1125
68.90	350.3496
68.90	350.3496
69.30	364.4243
69.67	378.1246
70.82	386.2592
70.82	386.2592
70.83	386.2655
72.80	400.9060
72.87	400.9450
72.87	400.9450
74.67	396.6595
74.81	396.7365
74.81	396.7365
74.81	396.7365
74.81	396.7365
74.81	396.7365
74.81	396.7365
74.81	396.7365
74.97	396.8230
75.28	396.9928
75.70	397.2203
77.11	397.9829
77.11	397.9829

77.11	397.9829
77.11	397.9829
77.11	397.9829
77.11	397.9829
77.11	397.9829
78.38	332.5995
79.62	375.7433
79.80	375.8323
79.80	375.8323
80.11	427.7429
80.18	427.7824
80.30	427.8493
80.30	427.8493
80.57	459.9878
81.00	461.7717
81.07	461.8142
81.07	461.8142
81.07	461.8142
81.07	461.8142
82.60	409.7947
83.37	395.9330
83.78	386.9662
83.78	386.9662
83.78	386.9662
83.78	386.9662
84.21	364.2254
84.90	340.0391
85.43	360.1937
86.29	435.7729
86.50	500.7352
86.54	500.7591
86.59	500.7910
86.72	521.0247
86.79	521.0682
86.94	544.0656
87.30	545.4095
87.30	545.4095
87.30	545.4095
87.30	545.4095
87.30	545.4095
87.30	545.4095
87.57	540.4707
87.88	0.0000
88.03	442.1085
88.36	407.6753
88.47	407.7319
89.95	443.1613
91.11	428.3568
92.29	570.0298
92.38	570.0928
92.38	570.0928
93.35	290.9915
94.00	294.3168
94.67	302.3018
94.67	302.3036
94.90	310.1404
94.90	310.1404
94.90	310.1404
94.90	310.1404
95.87	358.6252
95.87	358.6252
96.73	376.0852
97.43	339.0656
98.44	293.2685
98.44	293.2696
98.88	292.6772
99.55	288.4505
99.55	288.4505
99.86	280.7545
100.00	280.7996
100.10	280.8336
103.18	382.6130
103.76	331.9457
105.00	302.9919
105.31	314.8676
108.00	312.8566
109.28	364.5265

111.00	324.7404
111.00	324.7404
111.76	323.0308
112.95	280.9113
115.19	303.3946
116.30	323.6024
117.00	320.8598
117.00	320.8598
117.66	321.0815
121.11	306.2669
121.62	315.4106
121.78	307.4748
122.06	307.5629
122.32	309.6417
122.32	309.6417
122.32	309.6417
122.32	309.6417
123.07	318.8747
127.23	327.6370
129.76	321.0103
131.20	262.8136
133.02	305.2724
133.54	308.6590
135.34	292.5423
136.00	297.6427
136.25	305.8156
136.48	306.8952
140.51	340.5973
140.51	0.0000
142.18	306.5046
142.65	305.6190
143.76	292.6755
144.24	292.8047
144.24	292.8047
144.24	292.8047
144.24	292.8047
145.22	297.1520
145.44	292.1053
147.16	318.1372
152.43	254.8929
152.70	264.2058
153.22	270.4984
154.21	286.1742
154.21	286.1742
154.21	286.1742
154.21	286.1742
155.03	283.2916
156.02	288.6923
158.56	282.0978
159.00	0.0000
159.00	274.9680
160.31	272.1739
161.27	273.4343
162.32	277.8247
162.64	268.5679
163.35	244.8658
163.89	249.1306
165.85	266.1797
167.43	260.2844
171.28	238.1378
171.86	253.9271
172.10	253.9772
176.55	273.7800
176.60	273.7899
181.06	247.6085
184.41	271.9076
185.71	272.6074
186.00	272.6704
190.27	259.5771
192.34	224.5461
193.63	250.8886
197.04	238.7468
198.01	246.3874
198.60	236.8912
200.40	0.0000
201.83	265.2729
202.84	249.5677
205.31	253.9432

208.36	240.7515
208.81	255.8820
209.75	220.3359
209.75	220.3359
210.97	211.9153
215.65	237.6910
216.55	233.5177
218.09	204.5500
222.10	237.6850
223.80	215.1470
226.40	203.5582
227.00	203.6424
227.08	204.7429
227.20	204.7601
228.16	229.9603
228.18	229.9635
228.18	229.9635
231.56	0.0000
235.69	189.2887
236.00	194.5874
236.00	194.5874
238.63	189.8800
238.63	189.8800
238.63	189.8800
238.63	189.8800
239.00	0.0000
240.98	190.1757
241.98	190.3011
241.98	190.3011
241.98	190.3011
244.69	183.3660
245.39	181.6859
247.94	181.1029
248.90	193.3703
249.79	0.0000
252.40	194.9130
252.85	183.8916
252.85	183.8916
254.15	0.0000
256.20	186.5032
256.20	186.5032
260.50	179.2162
260.90	0.0000
262.80	161.7974
264.65	166.0649
268.24	171.8016
268.79	170.0699
269.46	167.9008
269.46	167.9008
269.46	167.9008
269.46	167.9008
271.23	170.3251
273.65	208.2817
276.40	173.1067
277.35	183.3277
277.60	170.9814
277.60	170.9814
278.00	188.1255
278.60	166.5813
279.20	166.6423
279.53	164.8720
280.46	163.1607
281.68	0.0000
283.67	175.2133
284.30	185.2182
285.00	176.2546
285.90	0.0000
286.10	168.2287
286.10	168.2287
287.40	158.9043
288.45	0.0000
290.67	167.7737
290.80	167.7850
291.72	199.6355
293.26	0.0000
293.70	172.6119
295.21	155.4843
295.21	155.4843

295.21	155.4843
295.96	155.5532
296.50	155.6012
297.23	0.0000
298.57	155.7849
299.80	156.5033
299.80	156.5033
300.09	158.0482
300.09	158.0482
300.09	158.0482
300.09	158.0482
300.12	158.0503
301.29	167.2805
302.84	147.6412
303.76	0.0000
303.91	137.0691
304.40	129.4905
304.40	129.4905
304.84	131.0454
306.84	135.4655
308.46	126.4270
311.98	138.6078
316.51	117.7891
318.01	142.7544
319.02	147.4395
319.41	145.4225
320.08	150.1598
323.87	126.2715
323.87	126.2715
323.87	126.2715
323.87	126.2715
325.23	132.5273
328.77	125.0612
333.44	148.5898
334.20	150.1988
334.20	150.1988
334.30	150.2067
338.28	112.6591
338.28	112.6591
338.28	112.6591
338.28	112.6591
338.32	112.6606
338.32	112.6606
338.32	112.6606
340.50	149.1445
340.57	149.1484
344.27	162.5133
345.85	102.8215
350.59	0.0000
351.07	139.0281
351.92	123.4600
351.92	123.4600
351.92	123.4600
355.39	0.0000
356.01	131.5474
364.48	119.8423
366.43	119.0156
367.43	123.7992
367.94	0.0000
369.80	129.6215
374.96	104.3402
383.85	108.6034
387.95	114.5449
388.63	125.0849
391.69	97.5363
391.69	97.5363
392.90	115.7712
398.62	97.8562
400.65	108.5128
401.10	120.0623
401.81	123.9452
402.60	121.1074
404.84	118.3470
410.95	121.5765
411.60	122.5786
413.65	117.8628
414.70	98.5884
415.30	99.5826

415.76	94.7688
417.63	0.0000
418.52	126.8391
423.70	100.9328
427.08	105.9464
427.89	115.7083
432.53	96.4609
433.93	90.6705
439.47	0.0000
439.56	98.7154
439.89	95.7976
443.98	94.0102
444.90	94.0477
445.03	94.0535
445.03	94.0535
445.03	94.0535
445.03	94.0535
453.90	87.5301
463.38	88.8728
468.07	87.3995
473.00	96.1735
475.06	90.3013
475.35	95.2746
476.78	88.3796
477.59	78.4764
477.96	75.5074
482.03	88.5719
484.57	0.0000
487.03	65.8179
490.36	0.0000
492.35	0.0000
497.08	80.1055
507.63	0.0000
510.53	0.0000
510.84	78.5327
511.00	78.5375
511.85	78.5646
511.85	78.5646
513.99	82.3266
513.99	82.3266
520.41	85.3413
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	75.0551
529.87	0.0000
531.02	86.2576
537.32	79.3444
543.00	76.4575
546.56	0.0000
549.76	72.5653
552.65	81.8516
555.20	69.6402
563.23	83.2010
563.90	80.1404
568.70	98.8078
569.32	97.8018
569.50	96.7791
569.67	96.7837
573.80	84.5565
574.00	84.5625
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	64.1494
585.48	0.0000
591.81	75.7660
592.07	73.6972
593.00	68.5298
595.88	74.8354
600.56	83.2891
602.52	0.0000
602.71	78.1421
602.71	78.1421
603.60	86.8530
604.41	81.6648
604.70	81.6724
609.31	76.5828



609.31	76.5828
609.31	76.5828
609.31	76.5828
610.33	87.0565
612.46	81.8943
614.37	69.7445
618.01	70.1815
621.84	83.9082
621.84	83.9082
631.29	77.8680
633.02	69.4901
633.10	69.4917
634.78	56.8898
635.90	61.1266
636.97	64.3121
645.85	70.8489
646.12	70.8554
656.30	100.8076
657.75	89.1782
657.90	0.0000
661.65	65.9068
661.65	65.9068
664.57	0.0000
666.33	89.4305
666.33	89.4305
675.00	67.2620
677.61	63.0447
685.20	57.8430
692.80	67.6481
695.00	73.0685
696.49	82.7788
696.49	82.7788
697.00	91.3937
697.49	91.4082
698.33	87.1284
698.50	89.2858
699.00	88.2241
702.63	84.0157
706.10	81.9505
706.58	0.0000
706.67	74.4159
709.31	77.7164
711.68	74.5338
713.82	68.0972
717.42	71.4205
720.50	68.5998
721.93	0.0000
722.20	72.2485
722.78	72.2607
722.78	72.2607
722.89	72.2640
722.95	72.2656
723.30	68.6601
724.18	65.0640
727.18	66.9330
733.00	63.4275
735.90	65.2983
739.58	59.9226
742.81	51.2571
744.21	50.1878
747.13	57.8769
751.79	63.4248
752.31	53.5914
753.82	49.2396
755.35	0.0000
756.15	56.9385
756.87	60.2368
763.93	93.2883
765.79	71.3778
766.42	81.2753
766.84	90.0739
776.49	69.7672
778.00	70.7165
778.57	67.0533
778.89	67.0592
783.80	44.1572
785.46	44.1787
792.07	52.5631

795.84	46.1578
796.30	50.7803
798.80	78.5358
801.93	52.7127
805.60	58.3217
810.29	50.0570
810.76	48.2094
815.85	54.7783
817.79	0.0000
818.51	44.5986
819.60	41.8240
826.30	55.8704
828.27	0.0000
831.60	55.9534
831.96	51.2962
834.83	70.9392
836.80	0.0000
846.75	44.9512
848.13	49.6530
856.28	0.0000
856.80	66.6737
860.37	56.3989
867.32	48.0294
867.82	48.0356
871.10	41.4792
873.19	46.2186
874.81	41.5212
875.33	0.0000
876.40	49.0907
879.36	45.3506
880.27	48.1974
880.51	55.7614
881.50	59.5573
883.24	52.9637
884.67	51.0919
889.25	49.2599
896.60	47.4579
898.02	61.7177
899.00	63.6331
903.28	57.0496
911.07	55.5322
911.07	55.5322
911.07	55.5322
919.63	45.8340
920.93	55.4016
925.00	49.7223
925.24	48.7692
926.50	57.3950
935.52	54.6517
937.48	63.3118
944.10	40.3577
946.00	52.8751
949.00	42.3323
962.29	111.9762
964.01	124.5777
966.15	99.3855
968.20	77.3389
969.11	80.2576
969.11	80.2576
969.11	80.2576
977.42	46.5098
980.50	54.3024
983.50	51.4322
989.30	54.4209
996.32	56.4613
1001.03	45.8057
1001.68	41.9135
1004.76	58.5278
1021.30	0.0000
1024.50	0.0000
1034.80	48.1447
1036.00	56.0189
1037.82	46.2121
1038.57	46.2197
1038.76	0.0000
1045.16	45.7999
1046.59	40.5368
1048.07	35.4814

1050.47	53.2529
1050.47	53.2529
1062.04	55.3756
1063.62	52.4285
1076.63	61.5156
1077.35	55.5716
1078.86	45.6631
1085.78	66.6156
1099.22	48.8684
1112.02	39.4366
1112.84	51.4495
1115.52	60.0586
1120.29	58.4067
1120.29	58.4067
1120.29	58.4067
1120.29	58.4067
1120.51	58.4090
1121.28	39.5184
1124.00	0.0000
1129.67	53.2200
1131.51	0.0000
1147.95	0.0000
1167.94	75.9460
1173.22	48.6621
1175.09	42.5964
1177.93	66.9775
1189.05	64.0869
1204.90	69.4056
1205.75	0.0000
1213.00	49.0762
1221.42	50.1883
1230.97	76.9714
1235.34	71.9055
1236.41	0.0000
1238.25	43.1689
1246.25	59.7134
1260.41	0.0000
1271.85	47.6078
1274.45	36.2419
1274.54	36.2433
1291.56	44.6797
1298.22	0.0000
1312.09	33.3867
1325.50	36.6136
1325.50	36.6136
1332.49	23.0465
1333.61	29.3376
1360.21	21.0645
1362.66	0.0000
1365.15	21.0840
1368.21	23.2067
1368.53	0.0000
1376.25	24.2990
1384.27	15.8716
1394.10	25.4414
1395.20	27.5679
1407.95	19.1309
1434.06	17.0885
1436.60	21.3704
1457.56	0.0000
1460.81	20.3931
1489.15	18.3406
1509.49	19.4897
1596.49	33.9220
1620.62	13.2461
1678.03	0.0000
1691.02	3.8291
1691.02	3.8291
1706.46	0.0000
1750.46	0.0000
1764.49	10.1708
1764.49	10.1708
1764.49	10.1708
1764.49	10.1708
1770.23	25.2074
1771.40	12.6060
1791.20	0.0000
1808.65	14.6306

1836.01

11.7539

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101007

Total Uranium Activity	9.5621E+00	ug/g
Total Uranium Counting Unc.	7.6840E+00	ug/g
Total Uranium Tpu	3.9204E-06	ug/g
Total Uranium Mda	4.0956E+00	ug/g

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*****
*
*               GEL Laboratories LLC                      *
*               2040 SAVAGE ROAD                          *
*               CHARLESTON , SC 29417                     *
*               GROSS GAMMA REPORT                        *
*
*****
*
*  BATCH ID      : 944037                                *
*  ANALYST       : MXR1                                    *
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00              *
*  ANALYSIS DATE : 2-FEB-2010 10:28:43.21              *
*  SAMPLE ID     : G245101007                            *
*  DETECTOR      : GAM23                                  *
*  COUNT TIME    : 0 02:00:00.00                        *
*  SAMPLE ALQT   : 116.940 GRAM                          *
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.349E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.325E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.790E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.348E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 15:13:54.00

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101008.CNF;2
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 13:13:29.
Sample ID          : G245101008 Sample quantity : 1.18370E+02 GRAM
Detector name      : GAM07 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.24 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.66*	52	279	0.97	92.98	90	7	7.21E-03	58.7	
2	0	63.32*	157	559	1.21	126.30	122	9	2.18E-02	28.8	
3	2	74.76*	419	493	1.22	149.17	143	15	5.82E-02	10.3	3.22E+00
4	2	77.16*	752	401	0.97	153.97	143	15	1.04E-01	5.7	
5	3	84.27*	112	424	1.20	168.18	163	29	1.56E-02	30.8	1.86E+00
6	3	87.27	280	453	1.28	174.19	163	29	3.89E-02	14.1	
7	3	89.97	153	313	1.02	179.59	163	29	2.13E-02	20.2	
8	3	92.83*	395	382	1.35	185.31	163	29	5.49E-02	10.7	
9	0	128.83	118	305	1.49	257.28	252	10	1.64E-02	29.2	
10	0	185.93*	214	295	1.28	371.47	367	9	2.97E-02	16.7	
11	0	209.59	122	222	1.12	418.79	415	9	1.69E-02	24.0	
12	3	238.73*	1172	164	1.10	477.04	470	18	1.63E-01	3.5	2.35E+00
13	3	241.93	242	216	1.66	483.45	470	18	3.37E-02	15.5	
14	0	270.23	130	260	1.63	540.03	533	14	1.81E-02	27.6	
15	0	278.14	34	174	1.03	555.86	550	9	4.70E-03	72.5	
16	0	295.44	370	199	1.10	590.45	585	11	5.14E-02	9.0	
17	0	300.17	96	135	1.19	599.92	597	9	1.33E-02	24.1	
18	0	338.26	197	197	1.17	676.08	671	11	2.74E-02	15.5	
19	0	351.98*	611	189	1.25	703.51	697	13	8.48E-02	6.2	
20	0	462.90	61	124	1.11	925.31	920	11	8.42E-03	37.8	
21	0	510.88*	76	109	1.68	1021.26	1014	14	1.06E-02	37.4	
22	0	583.30*	316	68	1.49	1166.09	1161	11	4.39E-02	7.8	
23	0	609.43*	467	98	1.55	1218.34	1212	15	6.48E-02	6.6	
24	0	661.85	197	96	1.43	1323.17	1317	12	2.74E-02	12.2	
25	0	728.19	81	46	1.46	1455.82	1451	13	1.12E-02	20.9	
26	0	769.47	20	94	0.52	1538.37	1529	13	2.77E-03	102.9	
27	0	911.33*	232	35	1.72	1822.07	1816	13	3.23E-02	8.7	
28	4	964.30	58	21	2.63	1927.99	1921	31	8.11E-03	22.8	1.84E+00
29	4	969.27*	139	18	1.94	1937.93	1921	31	1.93E-02	11.2	
30	0	1120.63	86	53	1.87	2240.62	2235	11	1.19E-02	19.9	
31	0	1460.91*	902	19	2.14	2921.11	2910	19	1.25E-01	3.6	
32	0	1590.89	50	6	5.54	3181.06	3169	22	6.98E-03	18.5	
33	0	1729.78	22	2	1.93	3458.83	3454	9	3.02E-03	24.8	
34	0	1764.56*	87	6	1.93	3528.37	3521	13	1.21E-02	12.9	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101008.CNF;2
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 13:13:29
Sample ID        : G245101008 Sample quantity : 118.37 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA7 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.24 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.375E+01	2.648E+00	5.537E-01	4.755E-02	42.890
CD-109	+	88.03	*	3.596E+00	1.070E+00	1.111E+00	1.046E-01	3.237
SN-126	+	64.28		1.082E+00	6.434E-01	6.422E-01	9.315E-02	1.685
	+	86.94		1.458E+00	7.324E-01	4.530E-01	1.880E-01	3.220
	+	87.57	*	3.508E-01	1.044E-01	1.086E-01	1.018E-02	3.230
BA-137M	+	661.65	*	3.116E-01	8.108E-02	6.170E-02	5.460E-03	5.050
CS-137	+	661.65	*	3.294E-01	8.573E-02	6.522E-02	5.782E-03	5.050
HG-203		70.83		1.729E-01	1.054E+00	1.562E+00	2.041E-01	0.111
		72.87		6.126E-01	6.403E-01	9.717E-01	1.238E-01	0.630
		82.60		-6.605E-01	1.211E+00	1.713E+00	2.374E-01	-0.386
	+	279.20	*	4.265E-02	6.196E-02	8.037E-02	7.021E-03	0.531
TL-208	+	277.35		3.596E-01	5.233E-01	6.037E-01	7.392E-02	0.596
	+	510.84		4.069E-01	3.082E-01	2.034E-01	2.477E-02	2.001
	+	583.14	*	4.806E-01	8.764E-02	5.790E-02	5.538E-03	8.301
		860.37		5.480E-01	3.347E-01	6.127E-01	5.992E-02	0.894
BI-210	+	46.50	*	1.942E+00	2.287E+00	2.857E+00	2.680E-01	0.680
PB-210	+	46.50	*	1.942E+00	2.287E+00	2.857E+00	2.680E-01	0.680
PO-210	+	46.50	*	1.942E+00	2.285E+00	2.857E+00	2.431E-01	0.680
BI-211		72.87		2.862E+00	2.978E+00	4.540E+00	3.583E-01	0.630
	+	351.07	*	4.066E+00	6.245E-01	3.420E-01	3.068E-02	11.887
PB-212	+	74.81		2.048E+00	4.908E-01	4.812E-01	5.936E-02	4.256
	+	77.11		2.115E+00	2.987E-01	2.783E-01	2.297E-02	7.602
	+	87.30		1.623E+00	5.094E-01	5.030E-01	6.882E-02	3.226
	+	238.63	*	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
	+	300.09		2.141E+00	1.055E+00	1.151E+00	1.193E-01	1.861
PO-212	+	74.81		2.048E+00	4.908E-01	4.812E-01	5.936E-02	4.256
	+	77.11		2.115E+00	2.987E-01	2.783E-01	2.297E-02	7.602
	+	87.30		1.623E+00	5.094E-01	5.030E-01	6.882E-02	3.226
		115.19		-3.892E-01	3.523E+00	5.652E+00	4.868E-01	-0.069
	+	238.63	*	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
	+	300.09		2.141E+00	1.055E+00	1.151E+00	1.193E-01	1.861
BI-214	+	609.31	*	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
	+	1120.29		1.271E+00	5.243E-01	4.876E-01	5.235E-02	2.607
	+	1764.49		1.777E+00	4.805E-01	3.434E-01	2.824E-02	5.174



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-214	+	74.81		3.529E+00	8.214E-01	8.292E-01	9.071E-02	4.256
	+	77.11		3.626E+00	5.818E-01	4.770E-01	5.358E-02	7.602
	+	87.30		2.780E+00	8.546E-01	8.617E-01	1.043E-01	3.226
	+	241.98		2.111E+00	6.902E-01	5.502E-01	5.585E-02	3.836
	+	295.21		1.455E+00	3.051E-01	2.334E-01	2.470E-02	6.236
PO-214	+	351.92	*	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862
	+	74.81		3.529E+00	8.214E-01	8.292E-01	9.071E-02	4.256
	+	77.11		3.626E+00	5.818E-01	4.770E-01	5.358E-02	7.602
	+	87.30		2.780E+00	8.546E-01	8.617E-01	1.043E-01	3.226
	+	241.98		2.111E+00	6.902E-01	5.502E-01	5.585E-02	3.836
PO-216	+	295.21		1.455E+00	3.051E-01	2.334E-01	2.470E-02	6.236
	+	351.92	*	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862
	+	74.81		2.048E+00	4.908E-01	4.812E-01	5.936E-02	4.256
	+	77.11		2.115E+00	2.987E-01	2.783E-01	2.297E-02	7.602
	+	87.30		1.623E+00	5.094E-01	5.030E-01	6.882E-02	3.226
PO-218	+	238.63	*	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
	+	300.09		2.141E+00	1.055E+00	1.151E+00	1.193E-01	1.861
	+	74.81		3.529E+00	8.214E-01	8.292E-01	9.071E-02	4.256
	+	77.11		3.626E+00	5.818E-01	4.770E-01	5.358E-02	7.602
	+	87.30		2.780E+00	8.546E-01	8.617E-01	1.043E-01	3.226
RA-224	+	241.98		2.111E+00	6.902E-01	5.502E-01	5.585E-02	3.836
	+	295.21		1.455E+00	3.051E-01	2.334E-01	2.470E-02	6.236
	+	351.92	*	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862
	+	240.98	*	4.002E+00	1.289E+00	1.040E+00	8.793E-02	3.849
	+	609.31	*	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
AC-228	+	1120.29		1.271E+00	5.243E-01	4.876E-01	5.235E-02	2.607
	+	1764.49		1.777E+00	4.805E-01	3.434E-01	2.824E-02	5.174
	+	338.32		1.445E+00	7.453E-01	4.088E-01	1.686E-01	3.535
	+	911.07	*	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
	+	969.11		1.653E+00	5.366E-01	3.398E-01	7.983E-02	4.864
TH-228	+	338.32		1.445E+00	7.453E-01	4.088E-01	1.686E-01	3.535
	+	911.07	*	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
	+	969.11		1.653E+00	5.366E-01	3.398E-01	7.983E-02	4.864
	+	74.81		2.089E+00	4.616E-01	4.909E-01	3.990E-02	4.256
	+	77.11		2.158E+00	3.047E-01	2.839E-01	2.343E-02	7.602
TH-230	+	87.30		1.655E+00	4.926E-01	5.131E-01	4.791E-02	3.226
	+	238.63	*	1.732E+00	2.055E-01	9.319E-02	8.913E-03	18.587
	+	300.09		2.184E+00	1.668E+00	1.174E+00	6.957E-01	1.861
	+	609.31	*	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
	+	1120.29		1.271E+00	5.243E-01	4.875E-01	5.235E-02	2.607
TH-232	+	1764.49		1.776E+00	4.805E-01	3.434E-01	2.824E-02	5.174
	+	338.32		1.445E+00	4.643E-01	4.088E-01	3.499E-02	3.535
	+	911.07	*	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
	+	969.11		1.653E+00	5.366E-01	3.398E-01	7.983E-02	4.864
	+	63.29	*	2.734E+00	1.647E+00	1.603E+00	2.789E-01	1.706
U-234	+	92.38		3.300E+00	9.309E-01	7.292E-01	1.338E-01	4.525
	+	609.31	*	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
	+	1120.29		1.271E+00	5.243E-01	4.875E-01	5.235E-02	2.607
	+	1764.49		1.776E+00	4.805E-01	3.434E-01	2.824E-02	5.174

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	1.030E+00	3.731E-01	3.207E-01	7.251E-02	3.212
		95.87		1.148E-01	9.573E-01	1.397E+00	3.461E-01	0.082
U-238	+	63.29	*	2.734E+00	1.647E+00	1.603E+00	2.789E-01	1.706
	+	92.38		3.300E+00	7.691E-01	7.292E-01	6.680E-02	4.525
AM-243	+	74.67	*	3.320E-01	7.327E-02	7.816E-02	6.283E-03	4.248
	+	86.72		3.863E+01	1.150E+01	1.201E+01	1.113E+00	3.216
		117.66		9.612E-03	3.839E+00	6.185E+00	5.320E-01	0.002
		142.18		-1.215E+01	1.903E+01	2.925E+01	2.414E+00	-0.416
ANH-511	+	511.00	*	8.790E-02	6.616E-02	4.394E-02	3.904E-03	2.000

---- 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	*	2.747E-01	3.728E-01	6.308E-01	5.953E-02	0.435
NA-22		1274.54	*	9.744E-04	4.496E-02	7.448E-02	6.114E-03	0.013
NA-24		1368.53	*	-1.191E+02	4.496E-02	Half-Life too short		
AL-26		1129.67		9.380E-02	1.669E+00	2.800E+00	2.352E-01	0.033
		1808.65	*	4.948E-03	3.072E-02	5.111E-02	4.168E-03	0.097
TI-44		67.85		-8.885E-03	4.225E-02	6.169E-02	4.654E-03	-0.144
	+	78.38	*	3.904E-01	5.513E-02	7.449E-02	6.237E-03	5.241
SC-46		889.25	*	-7.003E-03	4.329E-02	6.907E-02	6.329E-03	-0.101
	+	1120.51		2.266E-01	9.227E-02	1.458E-01	1.232E-02	1.554
V-48		944.10		6.126E-01	1.210E+00	2.055E+00	1.869E-01	0.298
		983.50	*	-2.926E-02	9.353E-02	1.453E-01	1.308E-02	-0.201
		1312.09		-5.604E-02	9.613E-02	1.458E-01	1.195E-02	-0.384
CR-51		320.08	*	2.830E-02	4.636E-01	7.652E-01	6.915E-02	0.037
MN-52		744.21		4.771E-01	4.676E-01	8.337E-01	7.568E-02	0.572
		848.13		-5.738E+00	1.374E+01	2.145E+01	1.969E+00	-0.267
		935.52		5.935E-01	5.216E-01	9.304E-01	8.472E-02	0.638
		1246.25		1.135E+01	1.431E+01	2.538E+01	2.079E+00	0.447
		1333.61		5.426E-01	9.619E+00	1.601E+01	1.312E+00	0.034
		1434.06	*	4.721E-01	4.495E-01	8.421E-01	7.003E-02	0.561
MN-54		834.83	*	3.537E-03	4.027E-02	6.622E-02	6.079E-03	0.053
CO-56		846.75	*	-3.371E-03	4.438E-02	7.177E-02	6.589E-03	-0.047
		977.42		-2.963E-01	3.577E+00	4.897E+00	4.416E-01	-0.060
		1037.82		1.049E-01	3.360E-01	5.808E-01	5.388E-02	0.181
		1175.09		-9.510E-01	2.609E+00	4.193E+00	3.413E-01	-0.227
		1238.25		8.613E-02	9.544E-02	1.698E-01	1.435E-02	0.507
		1360.21		9.019E-01	1.088E+00	1.976E+00	1.627E-01	0.456
		1771.40		-1.029E+00	4.006E-01	4.007E-01	3.291E-02	-2.567
CO-57		122.06	*	-1.054E-02	2.499E-02	3.934E-02	3.385E-03	-0.268
		136.48		-8.715E-02	2.168E-01	3.398E-01	3.060E-02	-0.256
CO-58		810.76	*	-4.286E-02	4.098E-02	5.896E-02	5.417E-03	-0.727
FE-59		142.65		-1.896E+00	3.147E+00	4.846E+00	3.996E-01	-0.391
		192.34		-1.795E-01	9.750E-01	1.634E+00	2.145E-01	-0.110
		1099.22	*	-8.116E-02	1.033E-01	1.585E-01	1.469E-02	-0.512
		1291.56		-3.301E-02	1.305E-01	2.087E-01	1.965E-02	-0.158
CO-60		1173.22		9.160E-03	4.979E-02	8.417E-02	6.849E-03	0.109

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-1.144E-02	4.156E-02	6.626E-02	5.428E-03	-0.173
ZN-65	1115.52	*		-4.091E-03	1.143E-01	1.637E-01	1.389E-02	-0.025
GE-68	1077.35	*		1.088E+00	1.335E+00	2.399E+00	2.079E-01	0.454
AS-73	53.44	*		5.182E-02	5.565E-01	9.129E-01	6.855E-02	0.057
AS-74	595.88	*		9.666E-03	1.170E-01	1.967E-01	1.763E-02	0.049
	634.78			3.636E-01	4.405E-01	7.804E-01	6.957E-02	0.466
SE-75	66.05			5.332E-01	4.331E+00	6.428E+00	6.098E-01	0.083
	96.73			-5.146E-01	8.147E-01	1.133E+00	1.570E-01	-0.454
	121.11			-5.213E-02	1.358E-01	2.142E-01	2.400E-02	-0.243
	136.00			-5.558E-03	4.099E-02	6.515E-02	5.477E-03	-0.085
	198.60			4.325E-01	1.877E+00	3.145E+00	2.891E-01	0.137
	264.65	*		-1.366E-02	5.048E-02	7.218E-02	6.164E-03	-0.189
+	279.53			1.090E-01	1.583E-01	1.920E-01	1.693E-02	0.568
	303.91			4.960E-01	2.469E+00	3.633E+00	4.153E-01	0.137
	400.65			1.235E-01	2.695E-01	4.510E-01	4.931E-02	0.274
BR-77	87.88			3.252E-03	2.695E-01	Half-Life	too short	
	200.40			-3.524E-04	2.695E-01	Half-Life	too short	
+	239.00			1.150E-03	2.695E-01	Half-Life	too short	
	249.79			-7.465E-05	2.695E-01	Half-Life	too short	
	281.68			1.438E-04	2.695E-01	Half-Life	too short	
	297.23			1.347E-03	2.695E-01	Half-Life	too short	
	303.76			2.144E-04	2.695E-01	Half-Life	too short	
	439.47			-1.917E-04	2.695E-01	Half-Life	too short	
	484.57			-1.789E-03	2.695E-01	Half-Life	too short	
	520.65	*		2.248E-05	2.695E-01	Half-Life	too short	
	574.64			-2.402E-05	2.695E-01	Half-Life	too short	
	578.91			-2.250E-04	2.695E-01	Half-Life	too short	
	585.48			4.416E-03	2.695E-01	Half-Life	too short	
	755.35			-5.818E-04	2.695E-01	Half-Life	too short	
	817.79			3.716E-04	2.695E-01	Half-Life	too short	
SR-82	698.33			3.079E+00	4.334E+01	7.202E+01	6.458E+00	0.043
	776.49	*		-5.211E-02	4.438E-01	7.195E-01	6.570E-02	-0.072
	1395.20			-7.982E-01	1.166E+01	1.892E+01	1.566E+00	-0.042
RB-83	520.41	*		4.096E-02	7.180E-02	1.259E-01	1.122E-02	0.325
	529.64			1.284E-02	1.125E-01	1.910E-01	1.705E-02	0.067
	552.65			-1.542E-01	2.103E-01	3.318E-01	2.971E-02	-0.465
RB-84	881.50	*		-1.446E-02	8.352E-02	1.332E-01	1.222E-02	-0.109
KR-85	513.99	*		1.379E+01	8.296E+00	1.391E+01	1.237E+00	0.992
SR-85	513.99	*		7.448E-02	4.480E-02	7.510E-02	6.678E-03	0.992
RB-86	1076.63	*		6.508E-01	9.763E-01	1.736E+00	1.505E-01	0.375
Y-88	898.02			-4.480E-02	4.458E-02	6.375E-02	5.862E-03	-0.703
	1836.01	*		2.375E-02	2.991E-02	5.848E-02	4.747E-03	0.406
ZR-88	392.90	*		1.155E-02	3.285E-02	5.467E-02	4.554E-03	0.211
Y-91	1204.90	*		3.110E+00	2.318E+01	3.890E+01	3.176E+00	0.080
NB-94	702.63	*		-1.122E-02	3.751E-02	6.007E-02	5.393E-03	-0.187
	871.10			-2.270E-03	3.629E-02	5.794E-02	5.316E-03	-0.039
NB-95	765.79	*		1.884E-02	5.700E-02	8.406E-02	7.663E-03	0.224
NB-95M	235.69	*		1.388E-02	1.431E-01	2.122E-01	2.060E-02	0.065
ZR-95	724.18			-3.040E-02	1.101E-01	1.514E-01	1.475E-02	-0.201

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

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NB-97	756.15	*		-3.960E-02	8.016E-02	1.256E-01	1.247E-02	-0.315
	657.90	*		-2.852E+00	8.016E-02	Half-Life	too short	
	1024.50			-6.040E+02	8.016E-02	Half-Life	too short	
ZR-97	254.15			4.102E+02	8.016E-02	Half-Life	too short	
	355.39			1.913E+02	8.016E-02	Half-Life	too short	
	507.63	*		2.744E+02	8.016E-02	Half-Life	too short	
	602.52			-6.521E+02	8.016E-02	Half-Life	too short	
	1021.30			9.990E+01	8.016E-02	Half-Life	too short	
	1147.95			2.602E+02	8.016E-02	Half-Life	too short	
	1362.66			-6.725E+01	8.016E-02	Half-Life	too short	
MO-99	1750.46			2.666E+02	8.016E-02	Half-Life	too short	
	140.51			4.834E+01	9.720E+01	1.567E+02	4.323E+01	0.309
	181.06			-1.864E+01	6.735E+01	9.913E+01	1.787E+01	-0.188
	366.43			1.254E+02	2.982E+02	5.004E+02	4.239E+01	0.251
	739.58	*		-2.910E+01	4.176E+01	6.376E+01	9.846E+00	-0.457
	778.00			-6.153E+00	1.148E+02	1.872E+02	1.710E+01	-0.033
	140.51	*		1.692E+16	1.148E+02	Half-Life	too short	
RH-101	127.23			1.544E-02	3.397E-02	4.992E-02	4.240E-03	0.309
	198.01	*		1.806E-02	3.344E-02	5.674E-02	4.654E-03	0.318
	325.23			-2.854E-01	2.638E-01	4.059E-01	3.481E-02	-0.703
RH-102	418.52			-7.865E-02	3.328E-01	5.295E-01	4.499E-02	-0.149
	475.06	*		-2.303E-02	3.228E-02	4.864E-02	4.267E-03	-0.473
	631.29			-5.995E-03	5.826E-02	9.614E-02	8.577E-03	-0.062
	697.49			6.797E-02	8.499E-02	1.487E-01	1.333E-02	0.457
	766.84			1.048E-01	1.424E-01	2.182E-01	1.989E-02	0.480
	1046.59			1.034E-01	1.053E-01	1.943E-01	1.709E-02	0.532
	1112.84			-6.010E-02	2.499E-01	3.760E-01	3.192E-02	-0.160
RU-103	497.08	*		-4.363E-03	4.665E-02	7.396E-02	1.058E-02	-0.059
RH-106	610.33	+		1.577E+01	3.376E+00	3.608E+00	6.083E-01	4.370
	511.85	+		4.432E-01	3.336E-01	4.622E-01	4.108E-02	0.959
	621.84	*		1.241E-01	3.430E-01	5.869E-01	7.961E-02	0.211
RU-106	1050.47			-3.249E+00	2.149E+00	2.912E+00	2.557E-01	-1.116
	511.85	+		4.432E-01	3.336E-01	4.622E-01	4.108E-02	0.959
	621.84	*		1.241E-01	3.428E-01	5.869E-01	5.245E-02	0.211
AG-108M	1050.47			-3.249E+00	2.149E+00	2.912E+00	2.557E-01	-1.116
	433.93	*		-1.145E-02	3.655E-02	5.759E-02	5.141E-03	-0.199
	614.37			-1.871E-03	4.291E-02	6.185E-02	5.736E-03	-0.030
AG-110M	722.95			-2.155E-02	4.790E-02	6.211E-02	5.810E-03	-0.347
	657.75	*		-1.139E-02	4.454E-02	6.225E-02	5.671E-03	-0.183
	677.61			-1.352E-01	3.206E-01	5.106E-01	4.667E-02	-0.265
	706.67			1.110E-01	2.128E-01	3.668E-01	3.381E-02	0.303
	763.93			-2.978E-02	2.190E-01	3.063E-01	2.862E-02	-0.097
	884.67			-7.808E-03	5.373E-02	8.593E-02	8.102E-03	-0.091
	937.48			-1.442E-01	1.290E-01	1.829E-01	1.719E-02	-0.789
IN-111	1384.27			-2.736E-02	1.756E-01	2.822E-01	2.404E-02	-0.097
	171.28			-8.469E-01	3.364E+00	5.244E+00	4.174E-01	-0.161
	245.39	*		-1.524E+00	3.947E+00	5.631E+00	4.769E-01	-0.271
IN-113M	391.69	*		-1.823E-02	5.159E-02	7.768E-02	6.678E-03	-0.235
SN-113	391.69	*		-1.823E-02	5.159E-02	7.768E-02	6.678E-03	-0.235

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IN-114M	190.27	*		2.994E-02	2.077E-01	3.130E-01	2.547E-02	0.096
CD-115	260.90			2.847E-04	2.077E-01	Half-Life too short		
	492.35			-4.292E-05	2.077E-01	Half-Life too short		
	527.90	*		2.672E-05	2.077E-01	Half-Life too short		
SN-117M	156.02			-6.361E-01	3.098E+00	4.873E+00	3.925E-01	-0.131
	158.56	*		-4.743E-02	7.489E-02	1.150E-01	9.219E-03	-0.412
SB-122	563.90	*		-2.117E+00	7.674E+00	1.260E+01	1.130E+00	-0.168
	692.80			-1.137E+02	1.668E+02	2.596E+02	2.323E+01	-0.438
I-123	159.00	*		5.248E+01	1.668E+02	Half-Life too short		
	528.96			6.470E+04	1.668E+02	Half-Life too short		
TE-123M	159.00	*		5.142E-04	3.002E-02	4.769E-02	3.847E-03	0.011
I-124	602.71	*		-1.219E+00	1.991E+00	2.706E+00	2.425E-01	-0.450
	722.78			-5.251E+00	1.133E+01	1.465E+01	1.323E+00	-0.358
	1325.50			3.761E+01	8.077E+01	1.406E+02	1.152E+01	0.267
	1376.25			1.016E+02	8.119E+01	1.506E+02	1.243E+01	0.675
	1509.49			1.512E+01	3.376E+01	5.903E+01	4.935E+00	0.256
	1691.02			-1.716E+00	9.031E+00	1.399E+01	1.162E+00	-0.123
SB-124	602.71			-3.308E-02	5.405E-02	7.346E-02	6.582E-03	-0.450
	645.85			-3.464E-02	5.510E-01	9.107E-01	8.555E-02	-0.038
	709.31			5.753E-01	2.875E+00	4.831E+00	4.346E-01	0.119
	713.82			1.277E+00	1.643E+00	2.896E+00	3.567E-01	0.441
	722.78			-2.066E-01	4.457E-01	5.766E-01	5.310E-02	-0.358
	+ 968.20			1.801E+01	4.351E+00	8.102E+00	7.325E-01	2.223
	1045.16			2.534E+00	2.474E+00	4.566E+00	4.018E-01	0.555
	1325.50			1.581E+00	3.394E+00	5.910E+00	4.843E-01	0.267
	1368.21			-1.513E+00	1.991E+00	2.899E+00	3.838E-01	-0.522
	1436.60			4.957E+00	4.128E+00	7.858E+00	6.536E-01	0.631
	1691.02	*		-1.592E-02	8.381E-02	1.298E-01	1.125E-02	-0.123
SB-125	427.89	*		-2.249E-03	9.773E-02	1.576E-01	1.374E-02	-0.014
	+ 463.38			6.321E-01	4.817E-01	6.133E-01	5.761E-02	1.031
	600.56			6.235E-02	1.992E-01	3.397E-01	3.253E-02	0.184
	635.90			8.258E-02	2.786E-01	4.746E-01	4.550E-02	0.174
TE-125M	109.28	*		6.180E+00	9.685E+00	1.605E+01	1.666E+00	0.385
I-126	388.63			2.418E-01	2.712E-01	4.671E-01	3.897E-02	0.518
	666.33	*		9.165E-02	2.712E-01	4.061E-01	3.601E-02	0.226
	753.82			9.249E-02	1.995E+00	3.292E+00	2.994E-01	0.028
SB-126	223.80			-5.245E-01	5.398E+00	9.013E+00	7.554E-01	-0.058
	+ 278.60			3.132E+00	4.550E+00	5.849E+00	4.964E-01	0.536
	+ 296.50			1.909E+01	3.820E+00	5.340E+00	4.564E-01	3.575
	414.70			-5.664E-03	1.102E-01	1.777E-01	1.506E-02	-0.032
	415.30			3.105E-02	9.225E+00	1.493E+01	1.266E+00	0.002
	555.20			-2.557E+00	5.272E+00	8.499E+00	7.614E-01	-0.301
	573.80			2.929E-01	1.350E+00	2.300E+00	2.062E-01	0.127
	593.00			-1.332E+00	1.296E+00	1.977E+00	1.773E-01	-0.674
	656.30			7.507E-01	5.427E+00	7.945E+00	7.043E-01	0.094
	666.33			3.873E-02	1.146E-01	1.716E-01	1.522E-02	0.226
	675.00			-1.485E-01	2.663E+00	4.389E+00	3.904E-01	-0.034
	695.00			8.573E-03	1.116E-01	1.856E-01	1.662E-02	0.046
	697.00			3.501E-01	3.893E-01	6.858E-01	6.147E-02	0.511

----- 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	*		-5.033E-02	1.832E-01	2.940E-01	2.654E-02	-0.171
	856.80			-9.850E-01	7.098E-01	9.888E-01	9.077E-02	-0.996
	989.30			-1.076E-01	1.719E+00	2.747E+00	2.468E-01	-0.039
	1034.80			2.521E+00	1.185E+01	2.031E+01	1.795E+00	0.124
	1213.00			-7.086E+00	7.087E+00	1.068E+01	8.729E-01	-0.664
	61.10			1.043E+01	1.111E+02	1.652E+02	1.959E+01	0.063
	252.40			3.958E+00	1.051E+01	1.765E+01	7.494E+00	0.224
	290.80			-8.504E+00	6.310E+01	9.070E+01	1.151E+01	-0.094
	411.60			8.728E+00	3.289E+01	5.415E+01	9.102E+00	0.161
	444.90			-1.543E-01	2.483E+01	3.997E+01	5.588E+00	-0.004
	473.00			-3.103E+00	4.509E+00	6.793E+00	9.751E-01	-0.457
	543.00			1.399E+01	4.227E+01	7.266E+01	1.151E+01	0.193
	603.60			-1.944E+00	3.482E+01	5.023E+01	7.112E+00	-0.039
	685.20	*		1.575E-01	3.704E+00	6.150E+00	8.089E-01	0.026
XE-127	698.50			3.694E-01	4.098E+01	6.776E+01	1.163E+01	0.005
	722.20			-2.283E+01	8.018E+01	1.061E+02	1.383E+01	-0.215
	783.80			5.491E+00	9.108E+00	1.568E+01	2.226E+00	0.350
	57.60			2.519E-01	4.570E+00	7.588E+00	5.500E-01	0.033
	145.22			8.281E-01	7.821E-01	1.304E+00	1.070E-01	0.635
	172.10			-3.773E-02	1.304E-01	2.028E-01	1.616E-02	-0.186
	202.84	*		-2.092E-03	5.208E-02	8.764E-02	7.223E-03	-0.024
I-131	374.96			2.767E-02	2.289E-01	3.759E-01	3.167E-02	0.074
	80.18			-2.555E+00	8.936E+00	1.013E+01	8.756E-01	-0.252
	284.30			9.287E-01	2.491E+00	4.204E+00	3.784E-01	0.221
	364.48	*		4.711E-02	1.806E-01	3.000E-01	2.698E-02	0.157
TE-132	636.97			-1.052E+00	2.516E+00	4.037E+00	3.801E-01	-0.261
	722.89			-5.611E+00	1.234E+01	1.599E+01	1.458E+00	-0.351
	49.72			-1.862E+01	3.439E+01	4.969E+01	5.868E+00	-0.375
	111.76			3.340E+01	8.187E+01	1.344E+02	1.652E+01	0.248
	116.30			3.613E+01	7.872E+01	1.293E+02	1.586E+01	0.279
BA-133	228.16	*		5.872E-01	1.923E+00	3.266E+00	5.427E-01	0.180
	53.15			5.019E-01	2.281E+00	3.761E+00	2.834E-01	0.133
	79.62			1.240E-01	1.603E+00	1.863E+00	2.824E-01	0.067
	81.00			-5.445E-02	1.250E-01	1.396E-01	2.218E-02	-0.390
	276.40			3.711E-01	5.135E-01	6.744E-01	9.692E-02	0.550
I-133	302.84			2.017E-01	1.666E-01	2.613E-01	3.462E-02	0.772
	356.01	*		-1.334E-02	5.119E-02	7.257E-02	9.530E-03	-0.184
	383.85			-2.098E-01	3.030E-01	4.653E-01	5.787E-02	-0.451
	510.53			4.627E+01	3.030E-01	Half-Life	too short	
	529.87	*		1.168E-01	3.030E-01	Half-Life	too short	
	706.58			1.258E+01	3.030E-01	Half-Life	too short	
	856.28			-4.151E+01	3.030E-01	Half-Life	too short	
	875.33			2.947E+00	3.030E-01	Half-Life	too short	
	1236.41			2.668E+01	3.030E-01	Half-Life	too short	
	1298.22			-3.110E+00	3.030E-01	Half-Life	too short	
CS-134	475.35			-9.396E-01	2.113E+00	3.265E+00	2.864E-01	-0.288
	563.23			-8.038E-02	3.760E-01	6.202E-01	5.609E-02	-0.130
	569.32			1.032E-01	2.018E-01	3.507E-01	3.184E-02	0.294
	604.70			-7.540E-03	4.158E-02	5.917E-02	5.313E-03	-0.127

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135		795.84	*	7.786E-02	5.521E-02	9.950E-02	9.167E-03	0.783
		801.93		-2.577E-01	4.420E-01	6.758E-01	6.222E-02	-0.381
		1038.57		4.281E-01	3.978E+00	6.747E+00	5.955E-01	0.063
		1167.94		-6.893E-01	2.877E+00	4.685E+00	3.828E-01	-0.147
		1365.15		8.123E-02	1.321E+00	2.189E+00	1.893E-01	0.037
		268.24	*	2.636E-01	1.773E-01	2.842E-01	2.802E-02	0.928
		288.45		-4.078E+15	1.773E-01	Half-Life	too short	
		417.63		1.191E+15	1.773E-01	Half-Life	too short	
		546.56		1.620E+15	1.773E-01	Half-Life	too short	
		836.80		2.583E+15	1.773E-01	Half-Life	too short	
		1038.76		1.172E+14	1.773E-01	Half-Life	too short	
		1124.00		9.788E+15	1.773E-01	Half-Life	too short	
		1131.51		-9.094E+13	1.773E-01	Half-Life	too short	
		1260.41	*	5.025E+13	1.773E-01	Half-Life	too short	
		1457.56		9.503E+16	1.773E-01	Half-Life	too short	
		1678.03		-1.409E+13	1.773E-01	Half-Life	too short	
		1706.46		-4.393E+14	1.773E-01	Half-Life	too short	
		1791.20		-3.782E+14	1.773E-01	Half-Life	too short	
		66.91		2.245E-02	8.980E-01	1.326E+00	1.968E-01	0.017
	+	86.29		5.937E+00	1.855E+00	2.382E+00	3.159E-01	2.493
		153.22		4.506E-01	9.119E-01	1.482E+00	1.360E-01	0.304
CS-136		163.89		-1.272E+00	1.471E+00	2.222E+00	2.013E-01	-0.573
		176.55		1.008E-01	4.685E-01	8.021E-01	6.857E-02	0.126
		273.65		-1.529E-01	9.153E-01	9.437E-01	8.565E-02	-0.162
		340.57		5.788E-01	2.144E-01	3.578E-01	3.154E-02	1.618
		818.51		3.719E-02	9.695E-02	1.645E-01	1.511E-02	0.226
		1048.07	*	-3.856E-02	1.275E-01	2.065E-01	1.890E-02	-0.187
		1235.34		2.420E-01	7.998E-01	1.358E+00	1.568E-01	0.178
		165.85	*	1.709E-02	3.147E-02	5.117E-02	4.047E-03	0.334
		162.64		4.442E-01	9.824E-01	1.593E+00	1.354E-01	0.279
		304.84		-1.676E-01	1.957E+00	2.812E+00	7.877E-01	-0.060
CE-139 BA-140		423.70		-1.154E+00	2.748E+00	4.262E+00	1.381E+00	-0.271
		537.32	*	1.408E-01	3.302E-01	5.683E-01	1.888E-01	0.248
		328.77		6.818E-01	4.465E-01	7.841E-01	7.103E-02	0.870
		432.53		7.459E-01	2.945E+00	4.840E+00	4.355E-01	0.154
		487.03		1.018E-01	1.731E-01	2.915E-01	2.722E-02	0.349
		751.79		4.772E-01	2.347E+00	3.929E+00	3.917E-01	0.121
		815.85		1.747E-01	4.285E-01	7.283E-01	7.363E-02	0.240
		867.82		-2.409E-01	1.828E+00	2.930E+00	2.815E-01	-0.082
		919.63		2.046E-01	4.110E+00	6.508E+00	7.201E-01	0.031
		925.24		-1.143E+00	1.642E+00	2.453E+00	2.363E-01	-0.466
LA-140		1596.49	*	9.001E-03	1.410E-01	1.986E-01	1.662E-02	0.045
		145.44	*	8.307E-02	7.063E-02	1.183E-01	9.905E-03	0.702
		57.37		-4.599E-03	7.063E-02	Half-Life	too short	
		231.56		1.353E-02	7.063E-02	Half-Life	too short	
		293.26	*	6.939E-03	7.063E-02	Half-Life	too short	
	+	350.59		3.877E-01	7.063E-02	Half-Life	too short	
		490.36		-1.420E-02	7.063E-02	Half-Life	too short	
		664.57		4.219E-02	7.063E-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			-6.447E-03	7.063E-02	Half-Life	too short	
CE-144	80.11			-8.178E-01	2.719E+00	3.078E+00	2.629E-01	-0.266
	133.54	*		3.508E-03	2.269E-01	3.237E-01	4.997E-02	0.011
PM-144	476.78			5.189E-02	7.374E-02	1.245E-01	1.192E-02	0.417
	618.01			-3.721E-03	3.397E-02	5.461E-02	5.010E-03	-0.068
	696.49	*		2.424E-02	3.841E-02	6.647E-02	5.960E-03	0.365
	778.57			-1.296E-01	2.250E+00	3.667E+00	3.352E-01	-0.035
PR-144	696.49	*		1.647E+00	2.609E+00	4.516E+00	4.047E-01	0.365
	1489.15			-6.957E-01	1.179E+01	1.903E+01	1.590E+00	-0.037
PM-146	453.90	*		2.901E-02	4.512E-02	7.612E-02	8.202E-03	0.381
	633.02			3.125E-02	1.484E+00	2.473E+00	9.258E-01	0.013
	735.90			1.630E-02	1.598E-01	2.418E-01	6.948E-02	0.067
	747.13			-7.551E-02	1.039E-01	1.591E-01	2.279E-02	-0.475
ND-147	91.11	+		8.888E-01	3.704E-01	6.743E-01	6.674E-02	1.318
	319.41			-1.026E+00	4.981E+00	8.093E+00	6.943E-01	-0.127
	439.89			-6.143E+00	8.634E+00	1.312E+01	1.131E+00	-0.468
	531.02	*		-1.201E-01	7.950E-01	1.323E+00	2.001E-01	-0.091
PM-149	285.90	*		-1.224E-04	7.950E-01	Half-Life	too short	
EU-152	121.78			-2.930E-02	7.152E-02	1.126E-01	1.116E-02	-0.260
	244.69			-1.688E-02	3.825E-01	5.605E-01	4.746E-02	-0.030
	344.27	*		-1.172E-01	1.125E-01	1.552E-01	1.407E-02	-0.755
	443.98			4.130E-01	1.000E+00	1.663E+00	1.436E-01	0.248
	778.89			-3.949E-02	2.550E-01	4.114E-01	3.758E-02	-0.096
	867.32			-2.308E-01	8.506E-01	1.343E+00	1.232E-01	-0.172
	964.01	+		7.989E-01	3.718E-01	6.045E-01	5.470E-02	1.322
	1085.78			8.450E-02	3.765E-01	6.449E-01	5.563E-02	0.131
	1112.02			9.909E-02	3.380E-01	5.686E-01	4.830E-02	0.174
	1407.95			7.142E-03	2.140E-01	3.522E-01	2.920E-02	0.020
GD-153	69.67			2.666E-01	1.540E+00	2.285E+00	1.751E-01	0.117
	83.37	+		2.558E+01	1.591E+01	2.307E+01	2.050E+00	1.109
	97.43	*		-7.249E-03	8.028E-02	1.157E-01	1.035E-02	-0.063
	103.18			-8.141E-02	1.002E-01	1.559E-01	1.368E-02	-0.522
EU-154	123.07			-5.722E-03	5.162E-02	7.845E-02	8.889E-03	-0.073
	247.94			1.242E-01	3.594E-01	6.100E-01	6.935E-02	0.204
	591.81			2.392E-02	6.257E-01	1.049E+00	1.251E-01	0.023
	723.30			-1.255E-01	2.058E-01	2.610E-01	2.585E-02	-0.481
	756.87			-2.341E-01	8.233E-01	1.317E+00	1.623E-01	-0.178
	873.19			-4.813E-02	3.207E-01	5.132E-01	6.488E-02	-0.094
	996.32			-4.897E-01	3.955E-01	5.256E-01	9.427E-02	-0.932
	1004.76			-2.138E-02	2.214E-01	3.563E-01	4.232E-02	-0.060
	1274.45	*		-4.626E-03	1.260E-01	2.074E-01	2.280E-02	-0.022
EU-155	48.70			-1.149E+00	1.441E+00	2.050E+00	1.659E-01	-0.560
	60.01			2.071E+00	3.878E+00	5.895E+00	4.245E-01	0.351
	86.54	+		4.233E-01	1.261E-01	1.701E-01	1.587E-02	2.488
	105.31	*		6.106E-02	1.057E-01	1.751E-01	1.547E-02	0.349
TB-160	86.79	+		1.183E+00	3.522E-01	4.778E-01	4.432E-02	2.477
	197.04			6.129E-02	5.921E-01	9.871E-01	8.089E-02	0.062
	215.65			-2.100E-01	8.228E-01	1.320E+00	1.100E-01	-0.159
	298.57			2.436E-01	1.752E-01	2.179E-01	1.863E-02	1.118



---- 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	*	-1.883E-06	1.581E-01	2.569E-01	2.356E-02	0.000
		962.29		7.215E-01	6.455E-01	1.031E+00	9.333E-02	0.700
		966.15		8.603E-01	2.655E-01	5.127E-01	4.637E-02	1.678
		1177.93		3.091E-02	4.172E-01	6.982E-01	5.685E-02	0.044
		1271.85		1.342E-01	7.402E-01	1.248E+00	1.023E-01	0.107
		80.57		2.184E-01	3.222E-01	3.914E-01	3.362E-02	0.558
		184.41		8.099E-02	4.381E-02	7.212E-02	5.830E-03	1.123
		280.46		-7.934E-03	9.845E-02	1.425E-01	1.210E-02	-0.056
		410.95		1.039E-01	2.659E-01	4.418E-01	3.733E-02	0.235
		711.68	*	-6.777E-02	6.108E-02	8.961E-02	8.067E-03	-0.756
TM-171		752.31		1.079E-01	2.850E-01	4.842E-01	4.403E-02	0.223
		810.29		-4.719E-02	5.760E-02	8.537E-02	7.826E-03	-0.553
		51.35		1.030E+01	1.900E+01	3.089E+01	2.385E+00	0.333
		52.39		-1.113E+00	9.981E+00	1.625E+01	1.236E+00	-0.069
LU-176		59.40		1.499E+01	2.076E+01	3.184E+01	2.289E+00	0.471
		66.72	*	-2.433E-01	2.527E+01	3.727E+01	2.787E+00	-0.007
	+	88.36		8.321E-01	2.476E-01	3.430E-01	3.224E-02	2.426
		201.83		-1.910E-02	2.850E-02	4.656E-02	3.833E-03	-0.410
LU-177		306.84	*	-2.744E-02	2.643E-02	3.892E-02	3.334E-03	-0.705
		401.10		-1.131E+00	6.970E+00	1.117E+01	9.367E-01	-0.101
		112.95		-2.079E+00	2.687E+00	4.176E+00	3.603E-01	-0.498
	+	208.36	*	5.199E+00	2.529E+00	3.401E+00	2.817E-01	1.529
LU-177M		52.97		1.214E-01	1.055E+00	1.733E+00	1.309E-01	0.070
		54.07		-2.949E-02	5.690E-01	9.278E-01	6.918E-02	-0.032
		61.30		2.677E-01	1.213E+00	1.816E+00	1.314E-01	0.147
		121.62		-1.533E-01	3.742E-01	5.895E-01	5.066E-02	-0.260
		147.16		-4.190E-01	6.876E-01	1.062E+00	8.690E-02	-0.394
		171.86		-1.081E-01	4.903E-01	7.656E-01	6.097E-02	-0.141
		218.09		7.100E-02	9.009E-01	1.518E+00	1.268E-01	0.047
	+	268.79		2.959E+00	1.652E+00	1.591E+00	1.352E-01	1.860
		319.02		-1.194E-01	2.872E-01	4.603E-01	3.948E-02	-0.259
		367.43		-3.524E-01	9.743E-01	1.548E+00	1.311E-01	-0.228
		413.65	*	1.015E-01	2.009E-01	3.360E-01	2.845E-02	0.302
		56.28		-3.859E-01	6.823E-01	1.105E+00	8.082E-02	-0.349
		57.53		-2.415E-03	3.782E-01	6.265E-01	4.543E-02	-0.004
		65.20		4.031E-01	9.046E-01	1.362E+00	1.008E-01	0.296
		133.02		3.057E-02	7.582E-02	1.109E-01	9.306E-03	0.276
		136.25		-2.067E-01	5.080E-01	7.964E-01	6.643E-02	-0.260
HF-181		345.85		-6.865E-02	2.438E-01	3.404E-01	2.908E-02	-0.202
		482.03	*	1.026E-02	4.586E-02	7.491E-02	6.591E-03	0.137
		56.28		-1.432E-01	2.535E-01	4.107E-01	3.002E-02	-0.349
		57.53		-1.153E-03	1.406E-01	2.329E-01	1.689E-02	-0.005
		65.20	*	1.486E-01	3.336E-01	5.022E-01	3.716E-02	0.296
		67.75		-2.022E-02	1.038E-01	1.517E-01	1.144E-02	-0.133
W-181		100.10		8.457E-02	1.657E-01	2.747E-01	2.433E-02	0.308
		122.43		1.045E-01	3.716E-01	5.987E-01	4.854E-02	0.175
		252.10		1.830E-01	3.698E-01	6.338E-01	5.306E-02	0.289
		1001.68		1.498E-01	2.188E+00	3.582E+00	3.206E-01	0.042
	+	1121.28		6.191E-01	2.521E-01	3.985E-01	3.366E-02	1.553

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		1189.05		-2.415E-01	3.273E-01	5.029E-01	4.100E-02	-0.480
		1221.42	*	6.431E-02	2.330E-01	3.951E-01	3.231E-02	0.163
		1230.97		7.445E-02	5.055E-01	8.488E-01	6.946E-02	0.088
		57.98		1.186E-01	1.493E-01	2.438E-01	1.764E-02	0.487
		59.32		8.774E-02	8.794E-02	1.366E-01	9.821E-03	0.643
		67.20		-4.539E-03	1.881E-01	2.771E-01	2.080E-02	-0.016
		162.32	*	5.211E-02	1.153E-01	1.871E-01	1.489E-02	0.279
	+	208.81		2.948E+00	1.434E+00	1.945E+00	1.612E-01	1.516
		291.72		-3.993E-01	1.185E+00	1.675E+00	1.429E-01	-0.238
		57.98		4.248E-01	5.348E-01	8.730E-01	6.315E-02	0.487
RE-184		59.32		3.139E-01	3.146E-01	4.886E-01	3.514E-02	0.643
		67.20		-1.625E-02	6.733E-01	9.920E-01	7.446E-02	-0.016
		161.27		-2.443E-01	3.789E-01	5.805E-01	4.631E-02	-0.421
		216.55		2.264E-02	2.768E-01	4.668E-01	3.893E-02	0.049
		252.85	*	1.286E-01	2.365E-01	4.051E-01	3.438E-02	0.318
		318.01		-1.228E-01	5.057E-01	8.200E-01	7.032E-02	-0.150
		792.07		-7.328E-01	1.123E+00	1.729E+00	1.582E-01	-0.424
		903.28		1.385E+00	1.064E+00	1.905E+00	1.743E-01	0.727
		920.93		4.030E-01	4.888E-01	8.564E-01	7.818E-02	0.471
		59.72		1.001E-01	2.404E-01	3.634E-01	2.614E-02	0.275
OS-185		61.14		1.611E-02	1.349E-01	2.010E-01	1.454E-02	0.080
		69.30		-6.671E-02	2.849E-01	4.151E-01	3.169E-02	-0.161
		592.07		-9.596E-01	2.627E+00	4.257E+00	3.817E-01	-0.225
		646.12	*	1.163E-02	4.557E-02	7.732E-02	6.874E-03	0.150
		717.42		5.564E-01	8.882E-01	1.548E+00	1.396E-01	0.359
		874.81		1.715E-01	6.390E-01	1.067E+00	9.790E-02	0.161
		880.27		-2.501E-01	8.838E-01	1.394E+00	1.278E-01	-0.179
		155.03	*	1.646E-01	1.921E-01	3.168E-01	2.556E-02	0.520
		477.96		3.373E+00	3.495E+00	6.006E+00	5.275E-01	0.562
		633.10		1.299E-01	3.150E+00	5.258E+00	4.689E-01	0.025
W-188	+	63.58		1.154E+02	6.709E+01	8.094E+01	5.929E+00	1.426
		227.08		-5.977E+00	1.337E+01	2.192E+01	1.841E+00	-0.273
IR-192	+	290.67	*	-1.033E+00	9.453E+00	1.362E+01	1.161E+00	-0.076
		295.96		1.162E+00	2.329E-01	3.321E-01	2.858E-02	3.500
		308.46		3.427E-02	9.857E-02	1.660E-01	1.429E-02	0.207
		316.51	*	2.387E-02	3.889E-02	6.620E-02	5.690E-03	0.361
AU-195		468.07		-4.581E-03	9.310E-02	1.297E-01	1.214E-02	-0.035
		604.41		-1.375E-01	5.842E-01	8.262E-01	1.094E-01	-0.166
		612.46		2.058E+00	9.301E-01	1.595E+00	1.625E-01	1.290
		65.12		9.130E-02	1.537E-01	2.328E-01	1.722E-02	0.392
		66.83		-2.348E-04	8.480E-02	1.251E-01	9.363E-03	-0.002
	+	75.70		1.095E+00	2.416E-01	4.230E-01	3.438E-02	2.588
		98.88	*	1.812E-01	2.142E-01	3.445E-01	3.064E-02	0.526
	+	129.76		7.134E+00	4.216E+00	4.926E+00	4.161E-01	1.448
TL-200		367.94	*	-4.079E-03	4.216E+00	Half-Life	too short	
		579.30		-4.238E-02	4.216E+00	Half-Life	too short	
		828.27		-5.205E-02	4.216E+00	Half-Life	too short	
TL-201		1205.75		9.526E-03	4.216E+00	Half-Life	too short	
		68.90		3.284E-02	1.258E+01	1.975E+01	1.503E+00	0.002

---- 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		1.227E+00	7.748E+00	1.148E+01	8.886E-01	0.107
		80.30		-5.102E+00	1.959E+01	2.225E+01	1.905E+00	-0.229
		135.34		9.393E+00	7.736E+01	1.245E+02	1.040E+01	0.075
		167.43	*	1.122E+01	2.250E+01	3.649E+01	2.890E+00	0.307
		68.90		1.270E-03	4.865E-01	7.640E-01	5.814E-02	0.002
		70.82		4.733E-02	2.989E-01	4.428E-01	3.427E-02	0.107
BI-207		80.30		-1.968E-01	7.560E-01	8.584E-01	7.349E-02	-0.229
		439.56	*	-3.665E-02	9.834E-02	1.539E-01	1.325E-02	-0.238
		72.80		1.504E-01	1.733E-01	2.634E-01	2.077E-02	0.571
	+	74.97		5.962E-01	1.316E-01	1.987E-01	1.607E-02	3.001
	+	84.90		3.263E-01	2.030E-01	2.927E-01	2.651E-02	1.115
		569.67		1.334E-02	3.110E-02	5.376E-02	4.821E-03	0.248
TL-207		1063.62	*	1.541E-02	5.188E-02	8.950E-02	7.809E-03	0.172
		1770.23		2.340E-01	5.259E-01	8.454E-01	6.945E-02	0.277
		81.07		-1.288E-01	2.749E-01	3.069E-01	2.652E-02	-0.420
	+	83.78		2.151E-01	1.338E-01	1.946E-01	1.738E-02	1.105
		94.90		5.768E-01	2.319E-01	3.715E-01	3.359E-02	1.552
		122.32		-8.255E-03	1.661E+00	2.670E+00	2.463E-01	-0.003
PO-209		144.24		-3.646E-02	7.229E-01	1.143E+00	1.061E-01	-0.032
		154.21		2.313E-01	4.258E-01	6.932E-01	6.233E-02	0.334
	+	269.46		6.780E-01	3.789E-01	3.881E-01	3.368E-02	1.747
		323.87	*	-3.134E-01	7.476E-01	1.196E+00	2.115E-01	-0.262
	+	338.28		6.034E+00	2.010E+00	2.643E+00	3.244E-01	2.283
		445.03		-1.442E-02	2.379E+00	3.830E+00	4.636E-01	-0.004
PB-211		260.50		1.975E+00	9.730E+00	1.636E+01	1.390E+00	0.121
		262.80		5.419E+00	2.752E+01	4.477E+01	3.805E+00	0.121
		896.60	*	-9.115E-01	7.565E+00	1.211E+01	1.109E+00	-0.075
		404.84	*	7.411E-02	9.915E-01	1.614E+00	1.011E+00	0.046
		427.08		-1.986E+00	2.556E+00	3.371E+00	2.094E+00	-0.589
		831.96		-7.517E-01	1.351E+00	1.943E+00	1.219E+00	-0.387
BI-212	+	727.18	*	1.053E+00	4.544E-01	6.515E-01	6.758E-02	1.617
		785.46		1.979E+00	1.849E+00	3.300E+00	3.017E-01	0.600
		1620.62		2.472E+00	1.718E+00	3.267E+00	2.729E-01	0.757
		81.07		-1.288E-01	2.749E-01	3.069E-01	2.652E-02	-0.420
	+	83.78		2.151E-01	1.338E-01	1.946E-01	1.738E-02	1.105
		94.90		5.768E-01	2.319E-01	3.715E-01	3.359E-02	1.552
PO-215		122.32		-8.255E-03	1.661E+00	2.670E+00	2.463E-01	-0.003
		144.24		-3.646E-02	7.229E-01	1.143E+00	1.061E-01	-0.032
		154.21		2.313E-01	4.258E-01	6.932E-01	6.233E-02	0.334
	+	269.46		6.780E-01	3.789E-01	3.881E-01	3.368E-02	1.747
		323.87	*	-3.134E-01	7.476E-01	1.196E+00	2.115E-01	-0.262
	+	338.28		6.034E+00	2.010E+00	2.643E+00	3.244E-01	2.283
RN-219		445.03		-1.442E-02	2.379E+00	3.830E+00	4.636E-01	-0.004
	+	271.23		8.699E-01	4.883E-01	4.949E-01	5.053E-02	1.758
		401.81	*	-4.036E-02	4.402E-01	7.092E-01	1.056E-01	-0.057
		549.76	*	2.073E+01	2.712E+01	4.799E+01	4.297E+00	0.432
		81.07		-1.288E-01	2.749E-01	3.069E-01	2.652E-02	-0.420
	+	83.78		2.151E-01	1.338E-01	1.946E-01	1.738E-02	1.105
RA-223		94.90		5.768E-01	2.319E-01	3.715E-01	3.359E-02	1.552

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32	-8.255E-03	1.661E+00	2.670E+00	2.463E-01	-0.003
		144.24	-3.646E-02	7.229E-01	1.143E+00	1.061E-01	-0.032
		154.21	2.313E-01	4.258E-01	6.932E-01	6.233E-02	0.334
	+	269.46	6.780E-01	3.789E-01	3.881E-01	3.368E-02	1.747
		323.87	* -3.134E-01	7.476E-01	1.196E+00	2.115E-01	-0.262
	+	338.28	6.034E+00	2.010E+00	2.643E+00	3.244E-01	2.283
		445.03	-1.442E-02	2.379E+00	3.830E+00	4.636E-01	-0.004
		79.80	-1.570E-01	2.044E+00	2.353E+00	5.050E-01	-0.067
		236.00	1.412E-01	2.536E-01	3.862E-01	4.679E-02	0.366
		256.20	* -2.260E-01	3.849E-01	6.181E-01	9.442E-02	-0.366
		286.10	2.915E-01	1.705E+00	2.847E+00	3.739E-01	0.102
	+	299.80	3.968E+00	2.033E+00	2.822E+00	4.925E-01	1.406
TH-227		304.40	-8.298E-01	2.213E+00	3.096E+00	5.699E-01	-0.268
		334.20	-9.332E-01	2.781E+00	3.877E+00	7.515E-01	-0.241
		79.80	-1.570E-01	2.044E+00	2.353E+00	5.115E-01	-0.067
	+	94.00	1.275E+01	3.916E+00	3.853E+00	8.464E-01	3.309
		236.00	1.412E-01	2.535E-01	3.862E-01	4.223E-02	0.366
		256.20	* -2.260E-01	3.855E-01	6.181E-01	1.113E-01	-0.366
		286.10	2.915E-01	1.730E+00	2.847E+00	2.857E+00	0.102
	+	299.80	3.968E+00	2.033E+00	2.822E+00	4.925E-01	1.406
		304.40	-8.298E-01	2.213E+00	3.096E+00	5.699E-01	-0.268
		334.20	-9.332E-01	2.781E+00	3.877E+00	7.515E-01	-0.241
	+	85.43	3.220E-01	2.003E-01	2.975E-01	2.712E-02	1.082
	+	88.47	4.790E-01	1.426E-01	1.978E-01	1.857E-02	2.422
TH-229		100.00	9.420E-02	1.680E-01	2.790E-01	2.472E-02	0.338
		193.63	* -2.660E-01	5.008E-01	8.133E-01	6.641E-02	-0.327
	+	210.97	2.199E+00	1.070E+00	1.405E+00	1.166E-01	1.565
	PA-231	283.67	* 6.243E-01	1.679E+00	2.831E+00	4.280E-01	0.221
	+	301.29	1.587E+00	7.887E-01	1.158E+00	1.413E-01	1.370
	TH-231	81.07	-1.288E-01	2.749E-01	3.069E-01	2.652E-02	-0.420
	+	83.78	2.151E-01	1.338E-01	1.946E-01	1.738E-02	1.105
		94.90	5.768E-01	2.319E-01	3.715E-01	3.359E-02	1.552
		122.32	-8.255E-03	1.661E+00	2.670E+00	2.463E-01	-0.003
		144.24	-3.646E-02	7.229E-01	1.143E+00	1.061E-01	-0.032
		154.21	2.313E-01	4.258E-01	6.932E-01	6.233E-02	0.334
	+	269.46	6.780E-01	3.789E-01	3.881E-01	3.368E-02	1.747
U-231		323.87	* -3.134E-01	7.476E-01	1.196E+00	2.115E-01	-0.262
	+	338.28	6.034E+00	2.010E+00	2.643E+00	3.244E-01	2.283
		445.03	-1.442E-02	2.379E+00	3.830E+00	4.636E-01	-0.004
	+	84.21	2.091E+01	1.300E+01	1.872E+01	1.681E+00	1.117
	+	92.29	2.843E+01	6.626E+00	9.299E+00	8.522E-01	3.057
		95.87	* 2.937E-01	2.448E+00	3.574E+00	3.218E-01	0.082
		108.00	-1.632E+00	4.683E+00	7.456E+00	6.476E-01	-0.219
	PA-233	75.28	1.739E+01	4.428E+00	6.118E+00	9.211E-01	2.843
	+	86.59	6.868E+00	2.687E+00	2.763E+00	7.468E-01	2.486
	+	300.12	1.106E+00	5.576E-01	7.921E-01	1.175E-01	1.397
		311.98	* -1.616E-02	6.611E-02	1.072E-01	9.456E-03	-0.151
		340.50	2.352E+00	9.665E-01	1.366E+00	3.253E-01	1.722
		398.62	-4.936E-01	2.143E+00	3.411E+00	9.056E-01	-0.145

----- 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	-5.951E-01	1.897E+00	2.996E+00	6.440E-01	-0.199
		63.00	3.187E+00	1.897E+00	2.274E+00	3.367E-01	1.402
		94.67	5.965E-01	1.847E-01	2.869E-01	3.645E-02	2.079
		98.44	8.011E-02	1.007E-01	1.376E-01	7.681E-02	0.582
		99.86	2.765E-01	4.270E-01	7.115E-01	6.306E-02	0.389
		111.00	5.584E-02	1.790E-01	2.929E-01	3.547E-02	0.191
		131.20	-2.482E-03	1.132E-01	1.613E-01	1.358E-02	-0.015
		152.70	2.079E-01	3.479E-01	5.659E-01	9.502E-02	0.367
		186.00	5.835E+00	2.666E+00	2.857E+00	8.876E-01	2.043
		226.40	-2.818E-01	4.029E-01	6.497E-01	8.483E-02	-0.434
		227.20	-1.646E-01	4.284E-01	7.042E-01	5.915E-02	-0.234
		248.90	3.771E-01	8.168E-01	1.388E+00	3.104E-01	0.272
		293.70	4.937E+00	1.295E+00	1.796E+00	3.100E-01	2.749
		369.80	-5.890E-02	8.825E-01	1.432E+00	3.109E-01	-0.041
		568.70	5.333E-01	1.025E+00	1.782E+00	1.598E-01	0.299
		569.50	1.299E-01	2.769E-01	4.799E-01	4.303E-02	0.271
		574.00	4.526E-01	1.464E+00	2.511E+00	2.252E-01	0.180
		699.00	5.582E-01	7.915E-01	1.367E+00	2.630E-01	0.408
		706.10	3.805E-01	1.086E+00	1.825E+00	8.150E-01	0.209
		733.00	3.097E-02	4.202E-01	6.055E-01	1.354E-01	0.051
		742.81	9.564E-01	1.612E+00	2.566E+00	1.727E+00	0.373
		796.30	1.264E+00	1.122E+00	1.909E+00	5.198E-01	0.662
		805.60	3.809E-01	9.875E-01	1.667E+00	5.134E-01	0.229
		819.60	1.924E-01	1.283E+00	2.123E+00	8.102E-01	0.091
		826.30	-4.292E-01	8.348E-01	1.250E+00	5.604E-01	-0.344
		831.60	-3.466E-01	6.553E-01	9.986E-01	2.997E-01	-0.347
		876.40	9.494E-02	8.993E-01	1.469E+00	1.511E+00	0.065
		880.51	-1.623E-01	3.103E-01	4.764E-01	4.368E-02	-0.341
		883.24	-2.321E-02	3.062E-01	4.927E-01	3.315E-01	-0.047
		899.00	-6.660E-01	9.168E-01	1.289E+00	5.650E-01	-0.517
		925.00	-7.511E-01	1.306E+00	1.982E+00	1.808E-01	-0.379
		926.50	-2.128E-01	1.998E-01	2.730E-01	6.949E-02	-0.780
		946.00	* -5.295E-02	3.543E-01	5.638E-01	1.070E-01	-0.094
		949.00	2.065E-01	5.201E-01	8.716E-01	7.916E-02	0.237
		980.50	1.947E-01	7.997E-01	1.251E+00	1.127E-01	0.156
		1394.10	-8.743E-02	1.069E+00	1.728E+00	1.124E+00	-0.051
PA-234M	+	766.42	8.714E+00	1.568E+01	2.273E+01	1.155E+01	0.383
		1001.03	* -1.816E+00	4.883E+00	7.609E+00	7.802E-01	-0.239
U-235	+	89.95	2.593E+00	1.322E+00	1.750E+00	5.433E-01	1.482
		93.35	3.967E+00	1.405E+00	1.282E+00	3.613E-01	3.094
		105.00	9.516E-01	1.046E+00	1.697E+00	5.070E-01	0.561
		143.76	* -1.105E-01	2.251E-01	3.473E-01	6.015E-02	-0.318
		163.35	-2.865E-02	4.807E-01	7.596E-01	1.427E-01	-0.038
NP-236	+	185.71	2.161E-01	7.446E-02	1.066E-01	8.632E-03	2.027
		205.31	3.696E-01	5.944E-01	9.107E-01	1.723E-01	0.406
		94.67	4.556E-01	1.344E-01	2.179E-01	1.973E-02	2.090
		98.44	6.058E-02	6.839E-02	1.040E-01	9.263E-03	0.583
		111.00	4.224E-02	1.354E-01	2.216E-01	1.916E-02	0.191
		160.31	* 1.347E-02	8.182E-02	1.309E-01	1.046E-02	0.103

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.744E-01	1.406E-01	2.393E-01	2.123E-02	0.729
		117.00	*	1.355E-01	1.886E-01	3.132E-01	2.694E-02	0.433
	+	209.75		2.215E+00	1.078E+00	1.480E+00	1.227E-01	1.497
		228.18		7.027E-02	2.201E-01	3.744E-01	3.147E-02	0.188
	+	277.60		1.734E-01	2.519E-01	3.249E-01	2.758E-02	0.534
		334.30		-5.533E-01	1.572E+00	2.192E+00	1.878E-01	-0.252
AM-241		59.54	*	5.232E-02	1.220E-01	1.845E-01	1.463E-02	0.284
CM-243		99.55		1.796E-01	1.447E-01	2.464E-01	2.186E-02	0.729
		103.76	*	-1.643E-02	9.188E-02	1.476E-01	1.294E-02	-0.111
		117.00		1.394E-01	1.941E-01	3.223E-01	2.773E-02	0.433
	+	209.75		2.184E+00	1.063E+00	1.459E+00	1.210E-01	1.497
		228.18		7.103E-02	2.225E-01	3.785E-01	3.180E-02	0.188
	+	277.60		1.749E-01	2.540E-01	3.276E-01	2.781E-02	0.534
AM-246		798.80		-1.279E-01	1.637E-01	2.491E-01	2.281E-02	-0.513
		1036.00		2.091E-01	3.042E-01	5.437E-01	4.804E-02	0.385
		1062.04		-2.289E-01	2.363E-01	3.549E-01	3.099E-02	-0.645
		1078.86	*	-2.222E-02	1.454E-01	2.397E-01	2.075E-02	-0.093
	+	278.00		7.191E-01	1.045E+00	1.352E+00	1.147E-01	0.532
		287.40		5.021E-01	1.334E+00	2.251E+00	1.918E-01	0.223
		402.60	*	-1.145E-02	3.935E-02	6.247E-02	5.245E-03	-0.183
CF-249		252.85		4.730E-01	8.696E-01	1.490E+00	1.264E-01	0.318
		333.44		-1.819E-01	2.141E-01	2.852E-01	2.443E-02	-0.638
		387.95	*	3.648E-02	4.047E-02	6.978E-02	5.824E-03	0.523
CF-251		176.60	*	3.039E-02	1.248E-01	2.138E-01	1.713E-02	0.142
		227.00		-1.740E-01	3.819E-01	6.255E-01	5.253E-02	-0.278
		285.00		-1.042E+00	1.956E+00	3.144E+00	2.676E-01	-0.331

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101008      *
* Acquisition date   : 2-FEB-2010 13:13:29 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 02:00:01.24             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101008             Analyst initials: MXR1          *
* Batch Number       : 944037                  Sample Quantity : 1.1837E+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 :                *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.375E+01	2.595E+00	5.521E-01	0.000E+00
CD-109	3.596E+00	1.049E+00	1.142E+00	0.000E+00
SN-126	3.508E-01	1.023E-01	1.117E-01	0.000E+00
BA-137M	3.116E-01	7.946E-02	6.206E-02	0.000E+00
CS-137	3.294E-01	8.401E-02	6.561E-02	0.000E+00
HG-203	4.265E-02	6.072E-02	8.162E-02	0.000E+00
TL-208	4.806E-01	8.589E-02	5.833E-02	0.000E+00
BI-210	1.942E+00	2.241E+00	2.957E+00	0.000E+00
PB-210	1.942E+00	2.241E+00	2.957E+00	0.000E+00
PO-210	1.942E+00	2.240E+00	2.957E+00	0.000E+00
BI-211	4.066E+00	6.120E-01	3.465E-01	0.000E+00
PB-212	1.698E+00	1.974E-01	9.292E-02	0.000E+00
PO-212	1.698E+00	1.974E-01	9.292E-02	0.000E+00
BI-214	1.339E+00	2.200E-01	1.173E-01	0.000E+00
PB-214	1.414E+00	2.248E-01	1.208E-01	0.000E+00
PO-214	1.414E+00	2.248E-01	1.208E-01	0.000E+00
PO-216	1.698E+00	1.974E-01	9.292E-02	0.000E+00
PO-218	1.414E+00	2.248E-01	1.208E-01	0.000E+00
RA-224	4.002E+00	1.264E+00	1.058E+00	0.000E+00
RA-226	1.339E+00	2.200E-01	1.173E-01	0.000E+00
AC-228	1.569E+00	3.216E-01	2.147E-01	0.000E+00
RA-228	1.569E+00	3.216E-01	2.147E-01	0.000E+00
TH-228	1.732E+00	2.014E-01	9.480E-02	0.000E+00
TH-230	1.339E+00	2.200E-01	1.173E-01	0.000E+00
TH-232	1.569E+00	3.216E-01	2.147E-01	0.000E+00
TH-234	2.734E+00	1.614E+00	1.654E+00	0.000E+00
U-234	1.339E+00	2.200E-01	1.173E-01	0.000E+00
NP-237	1.030E+00	3.656E-01	3.298E-01	0.000E+00
U-238	2.734E+00	1.614E+00	1.654E+00	0.000E+00
AM-243	3.320E-01	7.180E-02	8.051E-02	0.000E+00
ANH-511	8.790E-02	6.484E-02	4.433E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Idd	MDA (pCi/GRAM	)	
BE-7	2.747E-01	3.654E-01	6.368E-01	0.000E+00	NOT IDENT.
NA-22	9.744E-04	4.406E-02	7.438E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.880E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	4.948E-03	3.011E-02	5.083E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.403E-02	7.670E-02	0.000E+00	FAIL ABUN
SC-46	-7.003E-03	4.243E-02	6.925E-02	0.000E+00	FAIL ABUN
V-48	-2.926E-02	9.166E-02	1.455E-01	0.000E+00	NOT IDENT.
CR-51	2.830E-02	4.544E-01	7.759E-01	0.000E+00	NOT IDENT.
MN-52	4.721E-01	4.405E-01	8.398E-01	0.000E+00	NOT IDENT.
MN-54	3.537E-03	3.947E-02	6.645E-02	0.000E+00	NOT IDENT.
CO-56	-3.371E-03	4.349E-02	7.200E-02	0.000E+00	NOT IDENT.
CO-57	-1.054E-02	2.449E-02	4.031E-02	0.000E+00	NOT IDENT.
CO-58	-4.286E-02	4.016E-02	5.918E-02	0.000E+00	NOT IDENT.
FE-59	-8.116E-02	1.012E-01	1.586E-01	0.000E+00	NOT IDENT.
CO-60	-1.144E-02	4.073E-02	6.614E-02	0.000E+00	NOT IDENT.
ZN-65	-4.091E-03	1.120E-01	1.637E-01	0.000E+00	NOT IDENT.
GE-68	1.088E+00	1.308E+00	2.400E+00	0.000E+00	NOT IDENT.
AS-73	5.182E-02	5.454E-01	9.437E-01	0.000E+00	NOT IDENT.
AS-74	9.666E-03	1.147E-01	1.981E-01	0.000E+00	NOT IDENT.
SE-75	-1.366E-02	4.947E-02	7.335E-02	0.000E+00	FAIL ABUN
BR-77	0.000E+00	4.291E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-5.211E-02	4.349E-01	7.225E-01	0.000E+00	NOT IDENT.
RB-83	4.096E-02	7.036E-02	1.270E-01	0.000E+00	NOT IDENT.
RB-84	-1.446E-02	8.185E-02	1.336E-01	0.000E+00	NOT IDENT.
KR-85	1.379E+01	8.130E+00	1.403E+01	0.000E+00	NOT IDENT.
SR-85	7.448E-02	4.390E-02	7.576E-02	0.000E+00	NOT IDENT.
RB-86	6.508E-01	9.568E-01	1.737E+00	0.000E+00	NOT IDENT.
Y-88	2.375E-02	2.931E-02	5.816E-02	0.000E+00	NOT IDENT.
ZR-88	1.155E-02	3.219E-02	5.531E-02	0.000E+00	NOT IDENT.
Y-91	3.110E+00	2.271E+01	3.887E+01	0.000E+00	NOT IDENT.
NB-94	-1.122E-02	3.676E-02	6.038E-02	0.000E+00	NOT IDENT.
NB-95	1.884E-02	5.586E-02	8.442E-02	0.000E+00	NOT IDENT.
NB-95M	1.388E-02	1.403E-01	2.159E-01	0.000E+00	NOT IDENT.
ZR-95	-3.960E-02	7.856E-02	1.262E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.552E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.577E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.910E+01	4.093E+01	6.406E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.360E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.806E-02	3.277E-02	5.784E-02	0.000E+00	NOT IDENT.
RH-102	-2.303E-02	3.163E-02	4.911E-02	0.000E+00	NOT IDENT.
RU-103	-4.363E-03	4.571E-02	7.464E-02	0.000E+00	FAIL ABUN
RH-106	1.241E-01	3.362E-01	5.908E-01	0.000E+00	FAIL ABUN
RU-106	1.241E-01	3.360E-01	5.908E-01	0.000E+00	FAIL ABUN
AG-108M	-1.145E-02	3.582E-02	5.820E-02	0.000E+00	NOT IDENT.
AG-110M	-1.139E-02	4.365E-02	6.262E-02	0.000E+00	NOT IDENT.
IN-111	-1.524E+00	3.869E+00	5.726E+00	0.000E+00	NOT IDENT.
IN-113M	-1.823E-02	5.056E-02	7.860E-02	0.000E+00	NOT IDENT.
SN-113	-1.823E-02	5.056E-02	7.860E-02	0.000E+00	NOT IDENT.
IN-114M	2.994E-02	2.036E-01	3.192E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.168E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-4.743E-02	7.339E-02	1.175E-01	0.000E+00	NOT IDENT.
SB-122	-2.117E+00	7.521E+00	1.270E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.002E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.142E-04	2.942E-02	4.873E-02	0.000E+00	NOT IDENT.
I-124	-1.219E+00	1.951E+00	2.725E+00	0.000E+00	NOT IDENT.
SB-124	-1.592E-02	8.214E-02	1.292E-01	0.000E+00	FAIL ABUN
SB-125	-2.249E-03	9.578E-02	1.593E-01	0.000E+00	FAIL ABUN
TE-125M	6.180E+00	9.491E+00	1.647E+01	0.000E+00	NOT IDENT.
I-126	9.165E-02	2.658E-01	4.085E-01	0.000E+00	NOT IDENT.
SB-126	-5.033E-02	1.795E-01	2.955E-01	0.000E+00	FAIL ABUN
SB-127	1.575E-01	3.630E+00	6.184E+00	0.000E+00	NOT IDENT.
XE-127	-2.092E-03	5.104E-02	8.932E-02	0.000E+00	NOT IDENT.
I-131	4.711E-02	1.770E-01	3.037E-01	0.000E+00	NOT IDENT.
TE-132	5.872E-01	1.884E+00	3.324E+00	0.000E+00	NOT IDENT.
BA-133	-1.334E-02	5.017E-02	7.350E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.101E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.786E-02	5.410E-02	9.988E-02	0.000E+00	NOT IDENT.
CS-135	2.636E-01	1.737E-01	2.887E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.453E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.856E-02	1.249E-01	2.067E-01	0.000E+00	FAIL ABUN
CE-139	1.709E-02	3.084E-02	5.226E-02	0.000E+00	NOT IDENT.
BA-140	1.408E-01	3.236E-01	5.730E-01	0.000E+00	NOT IDENT.
LA-140	9.001E-03	1.382E-01	1.978E-01	0.000E+00	NOT IDENT.
CE-141	8.307E-02	6.922E-02	1.210E-01	0.000E+00	NOT IDENT.



CE-143	0.000E+00	2.640E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	3.508E-03	2.224E-01	3.313E-01	0.000E+00	NOT IDENT.
PM-144	2.424E-02	3.764E-02	6.683E-02	0.000E+00	NOT IDENT.
PR-144	1.647E+00	2.557E+00	4.541E+00	0.000E+00	NOT IDENT.
PM-146	2.901E-02	4.422E-02	7.689E-02	0.000E+00	NOT IDENT.
ND-147	-1.201E-01	7.791E-01	1.334E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.745E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.172E-01	1.102E-01	1.573E-01	0.000E+00	FAIL ABUN
GD-153	-7.249E-03	7.868E-02	1.189E-01	0.000E+00	FAIL ABUN
EU-154	-4.626E-03	1.235E-01	2.071E-01	0.000E+00	NOT IDENT.
EU-155	6.106E-02	1.036E-01	1.797E-01	0.000E+00	FAIL ABUN
TB-160	-1.883E-06	1.550E-01	2.576E-01	0.000E+00	FAIL ABUN
HO-166M	-6.777E-02	5.986E-02	9.007E-02	0.000E+00	NOT IDENT.
TM-171	-2.433E-01	2.477E+01	3.843E+01	0.000E+00	NOT IDENT.
LU-176	-2.744E-02	2.590E-02	3.948E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.479E+00	3.465E+00	0.000E+00	FAIL ABUN
LU-177M	1.015E-01	1.969E-01	3.398E-01	0.000E+00	FAIL ABUN
HF-181	1.026E-02	4.495E-02	7.562E-02	0.000E+00	NOT IDENT.
W-181	1.486E-01	3.269E-01	5.181E-01	0.000E+00	NOT IDENT.
TA-182	6.431E-02	2.284E-01	3.947E-01	0.000E+00	FAIL ABUN
RE-183	5.211E-02	1.130E-01	1.911E-01	0.000E+00	FAIL ABUN
RE-184	1.286E-01	2.318E-01	4.118E-01	0.000E+00	NOT IDENT.
OS-185	1.163E-02	4.466E-02	7.780E-02	0.000E+00	NOT IDENT.
RE-188	1.646E-01	1.882E-01	3.238E-01	0.000E+00	NOT IDENT.
W-188	-1.033E+00	9.264E+00	1.382E+01	0.000E+00	FAIL ABUN
IR-192	2.387E-02	3.811E-02	6.714E-02	0.000E+00	FAIL ABUN
AU-195	1.812E-01	2.099E-01	3.538E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.077E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.122E+01	2.205E+01	3.726E+01	0.000E+00	NOT IDENT.
TL-202	-3.665E-02	9.637E-02	1.555E-01	0.000E+00	NOT IDENT.
BI-207	1.541E-02	5.084E-02	8.956E-02	0.000E+00	FAIL ABUN
TL-207	-3.134E-01	7.327E-01	1.213E+00	0.000E+00	FAIL ABUN
PO-209	-9.115E-01	7.414E+00	1.214E+01	0.000E+00	NOT IDENT.
PB-211	7.411E-02	9.717E-01	1.632E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.454E-01	6.547E-01	0.000E+00	FAIL ABUN
PO-215	-3.134E-01	7.327E-01	1.213E+00	0.000E+00	FAIL ABUN
RN-219	-4.036E-02	4.314E-01	7.174E-01	0.000E+00	FAIL ABUN
RN-220	2.073E+01	2.658E+01	4.837E+01	0.000E+00	NOT IDENT.
RA-223	-3.134E-01	7.327E-01	1.213E+00	0.000E+00	FAIL ABUN
AC-227	-2.260E-01	3.772E-01	6.283E-01	0.000E+00	FAIL ABUN
TH-227	-2.260E-01	3.778E-01	6.283E-01	0.000E+00	FAIL ABUN
TH-229	-2.660E-01	4.908E-01	8.293E-01	0.000E+00	FAIL ABUN
PA-231	6.243E-01	1.646E+00	2.874E+00	0.000E+00	FAIL ABUN
TH-231	-3.134E-01	7.327E-01	1.213E+00	0.000E+00	FAIL ABUN
U-231	2.937E-01	2.399E+00	3.672E+00	0.000E+00	FAIL ABUN
PA-233	-1.616E-02	6.479E-02	1.088E-01	0.000E+00	FAIL ABUN
PA-234	-5.295E-02	3.472E-01	5.649E-01	0.000E+00	FAIL ABUN
PA-234M	-1.816E+00	4.786E+00	7.619E+00	0.000E+00	NOT IDENT.
U-235	-1.105E-01	2.206E-01	3.553E-01	0.000E+00	FAIL ABUN
NP-236	1.347E-02	8.019E-02	1.337E-01	0.000E+00	NOT IDENT.
NP-239	1.355E-01	1.848E-01	3.210E-01	0.000E+00	FAIL ABUN
AM-241	5.232E-02	1.195E-01	1.905E-01	0.000E+00	NOT IDENT.
CM-243	-1.643E-02	9.005E-02	1.515E-01	0.000E+00	FAIL ABUN
AM-246	-2.222E-02	1.425E-01	2.398E-01	0.000E+00	NOT IDENT.
CM-247	-1.145E-02	3.857E-02	6.319E-02	0.000E+00	FAIL ABUN
CF-249	3.648E-02	3.966E-02	7.061E-02	0.000E+00	NOT IDENT.
CF-251	3.039E-02	1.223E-01	2.182E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101008.CNF;2
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 13:13:29.
Sample ID          : G245101008 Sample quantity : 1.18370E+02 GRAM
Detector name      : GAM07 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.24 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 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	902	10.67*	1.129E+00	2.375E+01	2.375E+01	11.15
CD-109	88.03	280	3.72*	6.838E+00	3.489E+00	3.596E+00	29.76
SN-126	64.28	157	9.60	4.802E+00	1.082E+00	1.082E+00	59.45
	86.94	280	8.90	6.838E+00	1.458E+00	1.458E+00	50.22
	87.57	280	37.00*	6.838E+00	3.508E-01	3.508E-01	29.76
BA-137M	661.65	197	89.98*	2.231E+00	3.112E-01	3.116E-01	26.02
CS-137	661.65	197	85.12*	2.231E+00	3.290E-01	3.294E-01	26.03
HG-203	70.83	-----	4.75	5.700E+00	-----	Line Not Found	-----
	72.87	-----	8.00	5.899E+00	-----	Line Not Found	-----
	82.60	-----	3.55	6.615E+00	-----	Line Not Found	-----
	279.20	34	77.30*	4.392E+00	3.163E-02	4.265E-02	145.27
TL-208	277.35	34	6.80	4.392E+00	3.596E-01	3.596E-01	145.52
	510.84	76	21.60	2.755E+00	4.069E-01	4.069E-01	75.73
	583.14	316	84.20*	2.476E+00	4.806E-01	4.806E-01	18.23
	860.37	-----	12.46	1.783E+00	-----	Line Not Found	-----
BI-210	46.50	52	4.05*	2.096E+00	1.939E+00	1.942E+00	117.73
PB-210	46.50	52	4.05*	2.096E+00	1.939E+00	1.942E+00	117.73
PO-210	46.50	52	4.05*	2.096E+00	1.939E+00	1.942E+00	117.66
BI-211	72.87	-----	1.27	5.899E+00	-----	Line Not Found	-----
	351.07	611	12.94*	3.681E+00	4.066E+00	4.066E+00	15.36
PB-212	74.81	419	10.70	6.068E+00	2.048E+00	2.048E+00	23.96
	77.11	752	18.00	6.261E+00	2.115E+00	2.115E+00	14.12
	87.30	280	8.00	6.838E+00	1.623E+00	1.623E+00	31.40
	238.63	1172	44.60*	4.909E+00	1.698E+00	1.698E+00	11.87
	300.09	96	3.41	4.150E+00	2.141E+00	2.141E+00	49.28
PO-212	74.81	419	10.70	6.068E+00	2.048E+00	2.048E+00	23.96
	77.11	752	18.00	6.261E+00	2.115E+00	2.115E+00	14.12
	87.30	280	8.00	6.838E+00	1.623E+00	1.623E+00	31.40
	115.19	-----	0.60	7.150E+00	-----	Line Not Found	-----
	238.63	1172	44.60*	4.909E+00	1.698E+00	1.698E+00	11.87
	300.09	96	3.41	4.150E+00	2.141E+00	2.141E+00	49.28
BI-214	609.31	467	46.30*	2.389E+00	1.339E+00	1.339E+00	16.77

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	1120.29	86	15.10	1.414E+00	1.271E+00	1.271E+00	41.25
	1764.49	87	15.80	9.833E-01	1.776E+00	1.777E+00	27.05
	74.81	419	6.21	6.068E+00	3.529E+00	3.529E+00	23.28
	77.11	752	10.50	6.261E+00	3.626E+00	3.626E+00	16.05
	87.30	280	4.67	6.838E+00	2.779E+00	2.780E+00	30.74
PO-214	241.98	242	7.49	4.862E+00	2.111E+00	2.111E+00	32.70
	295.21	370	19.20	4.200E+00	1.455E+00	1.455E+00	20.96
	351.92	611	37.20*	3.681E+00	1.414E+00	1.414E+00	16.22
	74.81	419	6.21	6.068E+00	3.529E+00	3.529E+00	23.28
	77.11	752	10.50	6.261E+00	3.626E+00	3.626E+00	16.05
PO-216	87.30	280	4.67	6.838E+00	2.779E+00	2.780E+00	30.74
	241.98	242	7.49	4.862E+00	2.111E+00	2.111E+00	32.70
	295.21	370	19.20	4.200E+00	1.455E+00	1.455E+00	20.96
	351.92	611	37.20*	3.681E+00	1.414E+00	1.414E+00	16.22
	74.81	419	10.70	6.068E+00	2.048E+00	2.048E+00	23.96
PO-218	77.11	752	18.00	6.261E+00	2.115E+00	2.115E+00	14.12
	87.30	280	8.00	6.838E+00	1.623E+00	1.623E+00	31.40
	238.63	1172	44.60*	4.909E+00	1.698E+00	1.698E+00	11.87
	300.09	96	3.41	4.150E+00	2.141E+00	2.141E+00	49.28
	74.81	419	6.21	6.068E+00	3.529E+00	3.529E+00	23.28
RA-224	77.11	752	10.50	6.261E+00	3.626E+00	3.626E+00	16.05
	87.30	280	4.67	6.838E+00	2.779E+00	2.780E+00	30.74
	241.98	242	7.49	4.862E+00	2.111E+00	2.111E+00	32.70
	295.21	370	19.20	4.200E+00	1.455E+00	1.455E+00	20.96
	351.92	611	37.20*	3.681E+00	1.414E+00	1.414E+00	16.22
RA-226	240.98	242	3.95*	4.862E+00	4.002E+00	4.002E+00	32.21
	609.31	467	46.30*	2.389E+00	1.339E+00	1.339E+00	16.77
	1120.29	86	15.10	1.414E+00	1.271E+00	1.271E+00	41.25
	1764.49	87	15.80	9.833E-01	1.776E+00	1.777E+00	27.05
	338.32	197	11.40	3.793E+00	1.445E+00	1.445E+00	51.58
AC-228	911.07	232	27.70*	1.696E+00	1.569E+00	1.569E+00	20.92
	969.11	139	16.60	1.606E+00	1.653E+00	1.653E+00	32.47
	338.32	197	11.40	3.793E+00	1.445E+00	1.445E+00	51.58
	911.07	232	27.70*	1.696E+00	1.569E+00	1.569E+00	20.92
	969.11	139	16.60	1.606E+00	1.653E+00	1.653E+00	32.47
TH-228	74.81	419	10.70	6.068E+00	2.048E+00	2.089E+00	22.09
	77.11	752	18.00	6.261E+00	2.115E+00	2.158E+00	14.12
	87.30	280	8.00	6.838E+00	1.623E+00	1.655E+00	29.76
	238.63	1172	44.60*	4.909E+00	1.698E+00	1.732E+00	11.87
	300.09	96	3.41	4.150E+00	2.141E+00	2.184E+00	76.38
TH-230	609.31	467	46.30*	2.389E+00	1.339E+00	1.339E+00	16.77
	1120.29	86	15.10	1.414E+00	1.271E+00	1.271E+00	41.25
	1764.49	87	15.80	9.833E-01	1.776E+00	1.776E+00	27.05
	338.32	197	11.40	3.793E+00	1.445E+00	1.445E+00	32.13
	911.07	232	27.70*	1.696E+00	1.569E+00	1.569E+00	20.92
TH-232	969.11	139	16.60	1.606E+00	1.653E+00	1.653E+00	32.47
	63.29	157	3.80*	4.802E+00	2.734E+00	2.734E+00	60.23
	92.38	395	5.41	7.020E+00	3.300E+00	3.300E+00	28.21
	609.31	467	46.30*	2.389E+00	1.339E+00	1.339E+00	16.77

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	1120.29	86	15.10	1.414E+00	1.271E+00	1.271E+00	41.25
	1764.49	87	15.80	9.833E-01	1.776E+00	1.776E+00	27.05
NP-237	86.50	280	12.60*	6.838E+00	1.030E+00	1.030E+00	36.22
	95.87	-----	2.60	7.087E+00	-----	Line Not Found	-----
U-238	63.29	157	3.80*	4.802E+00	2.734E+00	2.734E+00	60.23
	92.38	395	5.41	7.020E+00	3.300E+00	3.300E+00	23.31
AM-243	74.67	419	66.00*	6.068E+00	3.320E-01	3.320E-01	22.07
	86.72	280	0.34	6.838E+00	3.863E+01	3.863E+01	29.76
	117.66	-----	0.55	7.126E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.723E+00	-----	Line Not Found	-----
ANH-511	511.00	76	100.00*	2.755E+00	8.790E-02	8.790E-02	75.27

Flag: "\*" = Keyline

Total number of lines in spectrum 34  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 31 91.18%

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	2.375E+01	2.375E+01	0.265E+01	11.15	
CD-109	464.00D	1.03	3.489E+00	3.596E+00	1.070E+00	29.76	
SN-126	1.00E+05Y	1.00	3.508E-01	3.508E-01	1.044E-01	29.76	
BA-137M	30.17Y	1.00	3.112E-01	3.116E-01	0.811E-01	26.02	
CS-137	30.17Y	1.00	3.290E-01	3.294E-01	0.857E-01	26.03	
HG-203	46.60D	1.35	3.163E-02	4.265E-02	6.196E-02	145.27	
TL-208	1.41E+10Y	1.00	4.806E-01	4.806E-01	0.876E-01	18.23	
BI-210	22.26Y	1.00	1.939E+00	1.942E+00	2.287E+00	117.73	
PB-210	22.26Y	1.00	1.939E+00	1.942E+00	2.287E+00	117.73	
PO-210	22.26Y	1.00	1.939E+00	1.942E+00	2.285E+00	117.66	
BI-211	7.04E+08Y	1.00	4.066E+00	4.066E+00	0.624E+00	15.36	
PB-212	1.41E+10Y	1.00	1.698E+00	1.698E+00	0.201E+00	11.87	
PO-212	1.41E+10Y	1.00	1.698E+00	1.698E+00	0.201E+00	11.87	
BI-214	1600.00Y	1.00	1.339E+00	1.339E+00	0.225E+00	16.77	
PB-214	1600.00Y	1.00	1.414E+00	1.414E+00	0.229E+00	16.22	
PO-214	1600.00Y	1.00	1.414E+00	1.414E+00	0.229E+00	16.22	
PO-216	1.41E+10Y	1.00	1.698E+00	1.698E+00	0.201E+00	11.87	
PO-218	1600.00Y	1.00	1.414E+00	1.414E+00	0.229E+00	16.22	
RA-224	1.41E+10Y	1.00	4.002E+00	4.002E+00	1.289E+00	32.21	
RA-226	1600.00Y	1.00	1.339E+00	1.339E+00	0.225E+00	16.77	
AC-228	1.41E+10Y	1.00	1.569E+00	1.569E+00	0.328E+00	20.92	
RA-228	1.41E+10Y	1.00	1.569E+00	1.569E+00	0.328E+00	20.92	
TH-228	1.91Y	1.02	1.698E+00	1.732E+00	0.206E+00	11.87	
TH-230	4.47E+09Y	1.00	1.339E+00	1.339E+00	0.225E+00	16.77	
TH-232	1.41E+10Y	1.00	1.569E+00	1.569E+00	0.328E+00	20.92	
TH-234	4.47E+09Y	1.00	2.734E+00	2.734E+00	1.647E+00	60.23	
U-234	4.47E+09Y	1.00	1.339E+00	1.339E+00	0.225E+00	16.77	
NP-237	2.14E+06Y	1.00	1.030E+00	1.030E+00	0.373E+00	36.22	
U-238	4.47E+09Y	1.00	2.734E+00	2.734E+00	1.647E+00	60.23	
AM-243	7380.00Y	1.00	3.320E-01	3.320E-01	0.733E-01	22.07	
ANH-511	1.00E+09Y	1.00	8.790E-02	8.790E-02	6.616E-02	75.27	

Total Activity : 7.064E+01 7.080E+01

Grand Total Activity : 7.064E+01 7.080E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101008

Page : 5  
Acquisition date : 2-FEB-2010 13:13:29

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	84.27	112	424	1.20	168.18	163	29	1.56E-02	61.6	6.70E+00	T
3	89.97	153	313	1.02	179.59	163	29	2.13E-02	40.5	6.94E+00	T
0	128.83	118	305	1.49	257.28	252	10	1.64E-02	58.5	6.97E+00	T
0	185.93	214	295	1.28	371.47	367	9	2.97E-02	33.5	5.82E+00	T
0	209.59	122	222	1.12	418.79	415	9	1.69E-02	47.9	5.38E+00	T
0	270.23	130	260	1.63	540.03	533	14	1.81E-02	55.2	4.49E+00	T
0	462.90	61	124	1.11	925.31	920	11	8.42E-03	75.6	2.98E+00	T
0	728.19	81	46	1.46	1455.82	1451	13	1.12E-02	41.9	2.06E+00	T
0	769.47	20	94	0.52	1538.37	1529	13	2.77E-03	****	1.96E+00	
4	964.30	58	21	2.63	1927.99	1921	31	8.11E-03	45.6	1.61E+00	T
0	1590.89	50	6	5.54	3181.06	3169	22	6.98E-03	36.9	1.06E+00	
0	1729.78	22	2	1.93	3458.83	3454	9	3.02E-03	49.6	9.96E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101008.CNF;2
* Acquisition date   : 2-FEB-2010 13:13:29. 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 02:00:01.24 Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101008 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.18370E+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	2.375E+01	2.648E+00	5.537E-01	4.755E-02	42.890
CD-109	3.596E+00	1.070E+00	1.111E+00	1.046E-01	3.237
SN-126	3.508E-01	1.044E-01	1.086E-01	1.018E-02	3.230
BA-137M	3.116E-01	8.108E-02	6.170E-02	5.460E-03	5.050
CS-137	3.294E-01	8.573E-02	6.522E-02	5.782E-03	5.050
HG-203	4.265E-02	6.196E-02	8.037E-02	7.021E-03	0.531
TL-208	4.806E-01	8.764E-02	5.790E-02	5.538E-03	8.301
BI-210	1.942E+00	2.287E+00	2.857E+00	2.680E-01	0.680
PB-210	1.942E+00	2.287E+00	2.857E+00	2.680E-01	0.680
PO-210	1.942E+00	2.285E+00	2.857E+00	2.431E-01	0.680
BI-211	4.066E+00	6.245E-01	3.420E-01	3.068E-02	11.887
PB-212	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
PO-212	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
BI-214	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
PB-214	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862
PO-214	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862
PO-216	1.698E+00	2.015E-01	9.134E-02	8.737E-03	18.587
PO-218	1.414E+00	2.294E-01	1.192E-01	1.237E-02	11.862

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-224	4.002E+00	1.289E+00	1.040E+00	8.793E-02	3.849
RA-226	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
AC-228	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
RA-228	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
TH-228	1.732E+00	2.055E-01	9.319E-02	8.913E-03	18.587
TH-230	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
TH-232	1.569E+00	3.282E-01	2.142E-01	2.496E-02	7.322
TH-234	2.734E+00	1.647E+00	1.603E+00	2.789E-01	1.706
U-234	1.339E+00	2.245E-01	1.165E-01	1.205E-02	11.493
NP-237	1.030E+00	3.731E-01	3.207E-01	7.251E-02	3.212
U-238	2.734E+00	1.647E+00	1.603E+00	2.789E-01	1.706
AM-243	3.320E-01	7.327E-02	7.816E-02	6.283E-03	4.248
ANH-511	8.790E-02	6.616E-02	4.394E-02	3.904E-03	2.000

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.747E-01		3.728E-01	6.308E-01	5.953E-02	0.435
NA-22	9.744E-04		4.496E-02	7.448E-02	6.114E-03	0.013
NA-24	-1.191E+02		9.590E+01	Half-Life	too short	
AL-26	4.948E-03		3.072E-02	5.111E-02	4.168E-03	0.097
TI-44	3.904E-01	+	5.513E-02	7.449E-02	6.237E-03	5.241
SC-46	-7.003E-03		4.329E-02	6.907E-02	6.329E-03	-0.101
V-48	-2.926E-02		9.353E-02	1.453E-01	1.308E-02	-0.201
CR-51	2.830E-02		4.636E-01	7.652E-01	6.915E-02	0.037
MN-52	4.721E-01		4.495E-01	8.421E-01	7.003E-02	0.561
MN-54	3.537E-03		4.027E-02	6.622E-02	6.079E-03	0.053
CO-56	-3.371E-03		4.438E-02	7.177E-02	6.589E-03	-0.047
CO-57	-1.054E-02		2.499E-02	3.934E-02	3.385E-03	-0.268
CO-58	-4.286E-02		4.098E-02	5.896E-02	5.417E-03	-0.727
FE-59	-8.116E-02		1.033E-01	1.585E-01	1.469E-02	-0.512
CO-60	-1.144E-02		4.156E-02	6.626E-02	5.428E-03	-0.173
ZN-65	-4.091E-03		1.143E-01	1.637E-01	1.389E-02	-0.025
GE-68	1.088E+00		1.335E+00	2.399E+00	2.079E-01	0.454
AS-73	5.182E-02		5.565E-01	9.129E-01	6.855E-02	0.057
AS-74	9.666E-03		1.170E-01	1.967E-01	1.763E-02	0.049
SE-75	-1.366E-02		5.048E-02	7.218E-02	6.164E-03	-0.189
BR-77	2.248E-05		2.189E-05	Half-Life	too short	
SR-82	-5.211E-02		4.438E-01	7.195E-01	6.570E-02	-0.072
RB-83	4.096E-02		7.180E-02	1.259E-01	1.122E-02	0.325
RB-84	-1.446E-02		8.352E-02	1.332E-01	1.222E-02	-0.109
KR-85	1.379E+01		8.296E+00	1.391E+01	1.237E+00	0.992
SR-85	7.448E-02		4.480E-02	7.510E-02	6.678E-03	0.992
RB-86	6.508E-01		9.763E-01	1.736E+00	1.505E-01	0.375
Y-88	2.375E-02		2.991E-02	5.848E-02	4.747E-03	0.406
ZR-88	1.155E-02		3.285E-02	5.467E-02	4.554E-03	0.211
Y-91	3.110E+00		2.318E+01	3.890E+01	3.176E+00	0.080



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94	-1.122E-02		3.751E-02	6.007E-02	5.393E-03	-0.187
NB-95	1.884E-02		5.700E-02	8.406E-02	7.663E-03	0.224
NB-95M	1.388E-02		1.431E-01	2.122E-01	2.060E-02	0.065
ZR-95	-3.960E-02		8.016E-02	1.256E-01	1.247E-02	-0.315
NB-97	-2.852E+00		7.920E+00	Half-Life	too short	
ZR-97	2.744E+02		1.315E+02	Half-Life	too short	
MO-99	-2.910E+01		4.176E+01	6.376E+01	9.846E+00	-0.457
TC-99M	1.692E+16		1.714E+16	Half-Life	too short	
RH-101	1.806E-02		3.344E-02	5.674E-02	4.654E-03	0.318
RH-102	-2.303E-02		3.228E-02	4.864E-02	4.267E-03	-0.473
RU-103	-4.363E-03		4.665E-02	7.396E-02	1.058E-02	-0.059
RH-106	1.241E-01		3.430E-01	5.869E-01	7.961E-02	0.211
RU-106	1.241E-01		3.428E-01	5.869E-01	5.245E-02	0.211
AG-108M	-1.145E-02		3.655E-02	5.759E-02	5.141E-03	-0.199
AG-110M	-1.139E-02		4.454E-02	6.225E-02	5.671E-03	-0.183
IN-111	-1.524E+00		3.947E+00	5.631E+00	4.769E-01	-0.271
IN-113M	-1.823E-02		5.159E-02	7.768E-02	6.678E-03	-0.235
SN-113	-1.823E-02		5.159E-02	7.768E-02	6.678E-03	-0.235
IN-114M	2.994E-02		2.077E-01	3.130E-01	2.547E-02	0.096
CD-115	2.672E-05		2.637E-05	Half-Life	too short	
SN-117M	-4.743E-02		7.489E-02	1.150E-01	9.219E-03	-0.412
SB-122	-2.117E+00		7.674E+00	1.260E+01	1.130E+00	-0.168
I-123	5.248E+01		1.532E+03	Half-Life	too short	
TE-123M	5.142E-04		3.002E-02	4.769E-02	3.847E-03	0.011
I-124	-1.219E+00		1.991E+00	2.706E+00	2.425E-01	-0.450
SB-124	-1.592E-02		8.381E-02	1.298E-01	1.125E-02	-0.123
SB-125	-2.249E-03		9.773E-02	1.576E-01	1.374E-02	-0.014
TE-125M	6.180E+00		9.685E+00	1.605E+01	1.666E+00	0.385
I-126	9.165E-02		2.712E-01	4.061E-01	3.601E-02	0.226
SB-126	-5.033E-02		1.832E-01	2.940E-01	2.654E-02	-0.171
SB-127	1.575E-01		3.704E+00	6.150E+00	8.089E-01	0.026
XE-127	-2.092E-03		5.208E-02	8.764E-02	7.223E-03	-0.024
I-131	4.711E-02		1.806E-01	3.000E-01	2.698E-02	0.157
TE-132	5.872E-01		1.923E+00	3.266E+00	5.427E-01	0.180
BA-133	-1.334E-02		5.119E-02	7.257E-02	9.530E-03	-0.184
I-133	1.168E-01		1.582E-01	Half-Life	too short	
CS-134	7.786E-02		5.521E-02	9.950E-02	9.167E-03	0.783
CS-135	2.636E-01		1.773E-01	2.842E-01	2.802E-02	0.928
I-135	5.025E+13		7.415E+14	Half-Life	too short	
CS-136	-3.856E-02		1.275E-01	2.065E-01	1.890E-02	-0.187
CE-139	1.709E-02		3.147E-02	5.117E-02	4.047E-03	0.334
BA-140	1.408E-01		3.302E-01	5.683E-01	1.888E-01	0.248
LA-140	9.001E-03		1.410E-01	1.986E-01	1.662E-02	0.045
CE-141	8.307E-02		7.063E-02	1.183E-01	9.905E-03	0.702
CE-143	6.939E-03		1.347E-03	Half-Life	too short	
CE-144	3.508E-03		2.269E-01	3.237E-01	4.997E-02	0.011
PM-144	2.424E-02		3.841E-02	6.647E-02	5.960E-03	0.365
PR-144	1.647E+00		2.609E+00	4.516E+00	4.047E-01	0.365

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-146	2.901E-02		4.512E-02	7.612E-02	8.202E-03	0.381
ND-147	-1.201E-01		7.950E-01	1.323E+00	2.001E-01	-0.091
PM-149	-1.224E-04		2.421E-04	Half-Life too short		
EU-152	-1.172E-01		1.125E-01	1.552E-01	1.407E-02	-0.755
GD-153	-7.249E-03		8.028E-02	1.157E-01	1.035E-02	-0.063
EU-154	-4.626E-03		1.260E-01	2.074E-01	2.280E-02	-0.022
EU-155	6.106E-02		1.057E-01	1.751E-01	1.547E-02	0.349
TB-160	-1.883E-06		1.581E-01	2.569E-01	2.356E-02	0.000
HO-166M	-6.777E-02		6.108E-02	8.961E-02	8.067E-03	-0.756
TM-171	-2.433E-01		2.527E+01	3.727E+01	2.787E+00	-0.007
LU-176	-2.744E-02		2.643E-02	3.892E-02	3.334E-03	-0.705
LU-177	5.199E+00	+	2.529E+00	3.401E+00	2.817E-01	1.529
LU-177M	1.015E-01		2.009E-01	3.360E-01	2.845E-02	0.302
HF-181	1.026E-02		4.586E-02	7.491E-02	6.591E-03	0.137
W-181	1.486E-01		3.336E-01	5.022E-01	3.716E-02	0.296
TA-182	6.431E-02		2.330E-01	3.951E-01	3.231E-02	0.163
RE-183	5.211E-02		1.153E-01	1.871E-01	1.489E-02	0.279
RE-184	1.286E-01		2.365E-01	4.051E-01	3.438E-02	0.318
OS-185	1.163E-02		4.557E-02	7.732E-02	6.874E-03	0.150
RE-188	1.646E-01		1.921E-01	3.168E-01	2.556E-02	0.520
W-188	-1.033E+00		9.453E+00	1.362E+01	1.161E+00	-0.076
IR-192	2.387E-02		3.889E-02	6.620E-02	5.690E-03	0.361
AU-195	1.812E-01		2.142E-01	3.445E-01	3.064E-02	0.526
TL-200	-4.079E-03		5.496E-03	Half-Life too short		
TL-201	1.122E+01		2.250E+01	3.649E+01	2.890E+00	0.307
TL-202	-3.665E-02		9.834E-02	1.539E-01	1.325E-02	-0.238
BI-207	1.541E-02		5.188E-02	8.950E-02	7.809E-03	0.172
TL-207	-3.134E-01		7.476E-01	1.196E+00	2.115E-01	-0.262
PO-209	-9.115E-01		7.565E+00	1.211E+01	1.109E+00	-0.075
PB-211	7.411E-02		9.915E-01	1.614E+00	1.011E+00	0.046
BI-212	1.053E+00	+	4.544E-01	6.515E-01	6.758E-02	1.617
PO-215	-3.134E-01		7.476E-01	1.196E+00	2.115E-01	-0.262
RN-219	-4.036E-02		4.402E-01	7.092E-01	1.056E-01	-0.057
RN-220	2.073E+01		2.712E+01	4.799E+01	4.297E+00	0.432
RA-223	-3.134E-01		7.476E-01	1.196E+00	2.115E-01	-0.262
AC-227	-2.260E-01		3.849E-01	6.181E-01	9.442E-02	-0.366
TH-227	-2.260E-01		3.855E-01	6.181E-01	1.113E-01	-0.366
TH-229	-2.660E-01		5.008E-01	8.133E-01	6.641E-02	-0.327
PA-231	6.243E-01		1.679E+00	2.831E+00	4.280E-01	0.221
TH-231	-3.134E-01		7.476E-01	1.196E+00	2.115E-01	-0.262
U-231	2.937E-01		2.448E+00	3.574E+00	3.218E-01	0.082
PA-233	-1.616E-02		6.611E-02	1.072E-01	9.456E-03	-0.151
PA-234	-5.295E-02		3.543E-01	5.638E-01	1.070E-01	-0.094
PA-234M	-1.816E+00		4.883E+00	7.609E+00	7.802E-01	-0.239
U-235	-1.105E-01		2.251E-01	3.473E-01	6.015E-02	-0.318
NP-236	1.347E-02		8.182E-02	1.309E-01	1.046E-02	0.103
NP-239	1.355E-01		1.886E-01	3.132E-01	2.694E-02	0.433
AM-241	5.232E-02		1.220E-01	1.845E-01	1.463E-02	0.284

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.643E-02		9.188E-02	1.476E-01	1.294E-02	-0.111
AM-246	-2.222E-02		1.454E-01	2.397E-01	2.075E-02	-0.093
CM-247	-1.145E-02		3.935E-02	6.247E-02	5.245E-03	-0.183
CF-249	3.648E-02		4.047E-02	6.978E-02	5.824E-03	0.523
CF-251	3.039E-02		1.248E-01	2.138E-01	1.713E-02	0.142

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101008          *
* Acquisition date   : 2-FEB-2010 13:13:29 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 02:00:01.24 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                          *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101008 Analyst initials: MXR1                 *
* Batch Number       : 944037 Sample Quantity : 1.1837E+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 :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.375E+01	2.595E+00	2.762E-01	1.324E+00
CD-109	3.596E+00	1.049E+00	5.714E-01	5.351E-01
SN-126	3.508E-01	1.023E-01	5.588E-02	5.221E-02
BA-137M	3.116E-01	7.946E-02	3.105E-02	4.054E-02
CS-137	3.294E-01	8.401E-02	3.282E-02	4.286E-02
HG-203	4.265E-02	6.072E-02	4.083E-02	3.098E-02
TL-208	4.806E-01	8.589E-02	2.918E-02	4.382E-02
BI-210	1.942E+00	2.241E+00	1.480E+00	1.143E+00
PB-210	1.942E+00	2.241E+00	1.480E+00	1.143E+00
PO-210	1.942E+00	2.240E+00	1.480E+00	1.143E+00
BI-211	4.066E+00	6.120E-01	1.733E-01	3.122E-01
PB-212	1.698E+00	1.974E-01	4.649E-02	1.007E-01
PO-212	1.698E+00	1.974E-01	4.649E-02	1.007E-01
BI-214	1.339E+00	2.200E-01	5.867E-02	1.123E-01
PB-214	1.414E+00	2.248E-01	6.043E-02	1.147E-01
PO-214	1.414E+00	2.248E-01	6.043E-02	1.147E-01
PO-216	1.698E+00	1.974E-01	4.649E-02	1.007E-01
PO-218	1.414E+00	2.248E-01	6.043E-02	1.147E-01
RA-224	4.002E+00	1.264E+00	5.291E-01	6.447E-01
RA-226	1.339E+00	2.200E-01	5.867E-02	1.123E-01
AC-228	1.569E+00	3.216E-01	1.074E-01	1.641E-01
RA-228	1.569E+00	3.216E-01	1.074E-01	1.641E-01
TH-228	1.732E+00	2.014E-01	4.743E-02	1.028E-01
TH-230	1.339E+00	2.200E-01	5.867E-02	1.123E-01
TH-232	1.569E+00	3.216E-01	1.074E-01	1.641E-01
TH-234	2.734E+00	1.614E+00	8.274E-01	8.233E-01
U-234	1.339E+00	2.200E-01	5.867E-02	1.123E-01
NP-237	1.030E+00	3.656E-01	1.650E-01	1.865E-01
U-238	2.734E+00	1.614E+00	8.274E-01	8.233E-01
AM-243	3.320E-01	7.180E-02	4.028E-02	3.663E-02
ANH-511	8.790E-02	6.484E-02	2.218E-02	3.308E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.747E-01	3.654E-01	3.186E-01	1.864E-01 NOT IDENT.
NA-22	9.744E-04	4.406E-02	3.721E-02	2.248E-02 NOT IDENT.
NA-24	-1.191E+08	1.880E+08	0.000E+00	9.590E+07 SHORT HLIF
AL-26	4.948E-03	3.011E-02	2.543E-02	1.536E-02 NOT IDENT.
TI-44	3.904E-01	5.403E-02	3.837E-02	2.757E-02 FAIL ABUN
SC-46	-7.003E-03	4.243E-02	3.465E-02	2.165E-02 FAIL ABUN
V-48	-2.926E-02	9.166E-02	7.278E-02	4.676E-02 NOT IDENT.
CR-51	2.830E-02	4.544E-01	3.882E-01	2.318E-01 NOT IDENT.
MN-52	4.721E-01	4.405E-01	4.202E-01	2.248E-01 NOT IDENT.
MN-54	3.537E-03	3.947E-02	3.324E-02	2.014E-02 NOT IDENT.
CO-56	-3.371E-03	4.349E-02	3.602E-02	2.219E-02 NOT IDENT.
CO-57	-1.054E-02	2.449E-02	2.017E-02	1.250E-02 NOT IDENT.
CO-58	-4.286E-02	4.016E-02	2.961E-02	2.049E-02 NOT IDENT.
FE-59	-8.116E-02	1.012E-01	7.934E-02	5.165E-02 NOT IDENT.
CO-60	-1.144E-02	4.073E-02	3.309E-02	2.078E-02 NOT IDENT.
ZN-65	-4.091E-03	1.120E-01	8.192E-02	5.715E-02 NOT IDENT.
GE-68	1.088E+00	1.308E+00	1.201E+00	6.676E-01 NOT IDENT.
AS-73	5.182E-02	5.454E-01	4.721E-01	2.783E-01 NOT IDENT.
AS-74	9.666E-03	1.147E-01	9.911E-02	5.850E-02 NOT IDENT.
SE-75	-1.366E-02	4.947E-02	3.670E-02	2.524E-02 FAIL ABUN
BR-77	2.248E+01	4.291E+01	0.000E+00	2.189E+01 SHORT HLIF
SR-82	-5.211E-02	4.349E-01	3.615E-01	2.219E-01 NOT IDENT.
RB-83	4.096E-02	7.036E-02	6.355E-02	3.590E-02 NOT IDENT.
RB-84	-1.446E-02	8.185E-02	6.683E-02	4.176E-02 NOT IDENT.
KR-85	1.379E+01	8.130E+00	7.019E+00	4.148E+00 NOT IDENT.
SR-85	7.448E-02	4.390E-02	3.790E-02	2.240E-02 NOT IDENT.
RB-86	6.508E-01	9.568E-01	8.692E-01	4.882E-01 NOT IDENT.
Y-88	2.375E-02	2.931E-02	2.910E-02	1.496E-02 NOT IDENT.
ZR-88	1.155E-02	3.219E-02	2.767E-02	1.642E-02 NOT IDENT.
Y-91	3.110E+00	2.271E+01	1.944E+01	1.159E+01 NOT IDENT.
NB-94	-1.122E-02	3.676E-02	3.021E-02	1.875E-02 NOT IDENT.
NB-95	1.884E-02	5.586E-02	4.224E-02	2.850E-02 NOT IDENT.
NB-95M	1.388E-02	1.403E-01	1.080E-01	7.157E-02 NOT IDENT.
ZR-95	-3.960E-02	7.856E-02	6.312E-02	4.008E-02 NOT IDENT.
NB-97	-2.852E+06	1.552E+07	0.000E+00	7.920E+06 SHORT HLIF
ZR-97	2.744E+08	2.577E+08	0.000E+00	1.315E+08 SHORT HLIF
MO-99	-2.910E+01	4.093E+01	3.205E+01	2.088E+01 NOT IDENT.
TC-99M	1.692E+22	3.360E+22	0.000E+00	0.000E+00 SHORT HLIF
RH-101	1.806E-02	3.277E-02	2.894E-02	1.672E-02 NOT IDENT.
RH-102	-2.303E-02	3.163E-02	2.457E-02	1.614E-02 NOT IDENT.
RU-103	-4.363E-03	4.571E-02	3.734E-02	2.332E-02 FAIL ABUN
RH-106	1.241E-01	3.362E-01	2.956E-01	1.715E-01 FAIL ABUN
RU-106	1.241E-01	3.360E-01	2.956E-01	1.714E-01 FAIL ABUN
AG-108M	-1.145E-02	3.582E-02	2.912E-02	1.828E-02 NOT IDENT.
AG-110M	-1.139E-02	4.365E-02	3.133E-02	2.227E-02 NOT IDENT.
IN-111	-1.524E+00	3.869E+00	2.865E+00	1.974E+00 NOT IDENT.
IN-113M	-1.823E-02	5.056E-02	3.932E-02	2.580E-02 NOT IDENT.
SN-113	-1.823E-02	5.056E-02	3.932E-02	2.580E-02 NOT IDENT.
IN-114M	2.994E-02	2.036E-01	1.597E-01	1.039E-01 NOT IDENT.
CD-115	2.672E+01	5.168E+01	0.000E+00	2.637E+01 SHORT HLIF
SN-117M	-4.743E-02	7.339E-02	5.878E-02	3.744E-02 NOT IDENT.
SB-122	-2.117E+00	7.521E+00	6.352E+00	3.837E+00 NOT IDENT.
I-123	5.248E+07	3.002E+09	0.000E+00	1.532E+09 SHORT HLIF
TE-123M	5.142E-04	2.942E-02	2.438E-02	1.501E-02 NOT IDENT.
I-124	-1.219E+00	1.951E+00	1.363E+00	9.956E-01 NOT IDENT.
SB-124	-1.592E-02	8.214E-02	6.466E-02	4.191E-02 FAIL ABUN
SB-125	-2.249E-03	9.578E-02	7.968E-02	4.887E-02 FAIL ABUN
TE-125M	6.180E+00	9.491E+00	8.238E+00	4.842E+00 NOT IDENT.
I-126	9.165E-02	2.658E-01	2.044E-01	1.356E-01 NOT IDENT.
SB-126	-5.033E-02	1.795E-01	1.478E-01	9.159E-02 FAIL ABUN
SB-127	1.575E-01	3.630E+00	3.094E+00	1.852E+00 NOT IDENT.
XE-127	-2.092E-03	5.104E-02	4.468E-02	2.604E-02 NOT IDENT.
I-131	4.711E-02	1.770E-01	1.520E-01	9.030E-02 NOT IDENT.
TE-132	5.872E-01	1.884E+00	1.663E+00	9.613E-01 NOT IDENT.
BA-133	-1.334E-02	5.017E-02	3.677E-02	2.560E-02 NOT IDENT.
I-133	1.168E+05	3.101E+05	0.000E+00	1.582E+05 SHORT HLIF
CS-134	7.786E-02	5.410E-02	4.997E-02	2.760E-02 NOT IDENT.
CS-135	2.636E-01	1.737E-01	1.444E-01	8.863E-02 NOT IDENT.
I-135	5.025E+19	1.453E+21	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-3.856E-02	1.249E-01	1.034E-01	6.375E-02 FAIL ABUN
CE-139	1.709E-02	3.084E-02	2.615E-02	1.573E-02 NOT IDENT.
BA-140	1.408E-01	3.236E-01	2.867E-01	1.651E-01 NOT IDENT.
LA-140	9.001E-03	1.382E-01	9.898E-02	7.051E-02 NOT IDENT.
CE-141	8.307E-02	6.922E-02	6.054E-02	3.532E-02 NOT IDENT.

CE-143	6.939E+03	2.640E+03	0.000E+00	1.347E+03	SHORT HLIF
CE-144	3.508E-03	2.224E-01	1.658E-01	1.135E-01	NOT IDENT.
PM-144	2.424E-02	3.764E-02	3.344E-02	1.920E-02	NOT IDENT.
PR-144	1.647E+00	2.557E+00	2.272E+00	1.305E+00	NOT IDENT.
PM-146	2.901E-02	4.422E-02	3.847E-02	2.256E-02	NOT IDENT.
ND-147	-1.201E-01	7.791E-01	6.674E-01	3.975E-01	FAIL ABUN
PM-149	-1.224E+02	4.745E+02	0.000E+00	2.421E+02	SHORT HLIF
EU-152	-1.172E-01	1.102E-01	7.869E-02	5.623E-02	FAIL ABUN
GD-153	-7.249E-03	7.868E-02	5.947E-02	4.014E-02	FAIL ABUN
EU-154	-4.626E-03	1.235E-01	1.036E-01	6.300E-02	NOT IDENT.
EU-155	6.106E-02	1.036E-01	8.990E-02	5.284E-02	FAIL ABUN
TB-160	-1.883E-06	1.550E-01	1.289E-01	7.906E-02	FAIL ABUN
HO-166M	-6.777E-02	5.986E-02	4.506E-02	3.054E-02	NOT IDENT.
TM-171	-2.433E-01	2.477E+01	1.923E+01	1.264E+01	NOT IDENT.
LU-176	-2.744E-02	2.590E-02	1.975E-02	1.322E-02	FAIL ABUN
LU-177	5.199E+00	2.479E+00	1.733E+00	1.265E+00	FAIL ABUN
LU-177M	1.015E-01	1.969E-01	1.700E-01	1.005E-01	FAIL ABUN
HF-181	1.026E-02	4.495E-02	3.783E-02	2.293E-02	NOT IDENT.
W-181	1.486E-01	3.269E-01	2.592E-01	1.668E-01	NOT IDENT.
TA-182	6.431E-02	2.284E-01	1.975E-01	1.165E-01	FAIL ABUN
RE-183	5.211E-02	1.130E-01	9.560E-02	5.767E-02	FAIL ABUN
RE-184	1.286E-01	2.318E-01	2.060E-01	1.182E-01	NOT IDENT.
OS-185	1.163E-02	4.466E-02	3.892E-02	2.279E-02	NOT IDENT.
RE-188	1.646E-01	1.882E-01	1.620E-01	9.604E-02	NOT IDENT.
W-188	-1.033E+00	9.264E+00	6.915E+00	4.727E+00	FAIL ABUN
IR-192	2.387E-02	3.811E-02	3.359E-02	1.945E-02	FAIL ABUN
AU-195	1.812E-01	2.099E-01	1.770E-01	1.071E-01	FAIL ABUN
TL-200	-4.079E+03	1.077E+04	0.000E+00	5.496E+03	SHORT HLIF
TL-201	1.122E+01	2.205E+01	1.864E+01	1.125E+01	NOT IDENT.
TL-202	-3.665E-02	9.637E-02	7.779E-02	4.917E-02	NOT IDENT.
BI-207	1.541E-02	5.084E-02	4.481E-02	2.594E-02	FAIL ABUN
TL-207	-3.134E-01	7.327E-01	6.067E-01	3.738E-01	FAIL ABUN
PO-209	-9.115E-01	7.414E+00	6.074E+00	3.783E+00	NOT IDENT.
PB-211	7.411E-02	9.717E-01	8.166E-01	4.957E-01	NOT IDENT.
BI-212	1.053E+00	4.454E-01	3.275E-01	2.272E-01	FAIL ABUN
PO-215	-3.134E-01	7.327E-01	6.067E-01	3.738E-01	FAIL ABUN
RN-219	-4.036E-02	4.314E-01	3.589E-01	2.201E-01	FAIL ABUN
RN-220	2.073E+01	2.658E+01	2.420E+01	1.356E+01	NOT IDENT.
RA-223	-3.134E-01	7.327E-01	6.067E-01	3.738E-01	FAIL ABUN
AC-227	-2.260E-01	3.772E-01	3.143E-01	1.925E-01	FAIL ABUN
TH-227	-2.260E-01	3.778E-01	3.143E-01	1.928E-01	FAIL ABUN
TH-229	-2.660E-01	4.908E-01	4.149E-01	2.504E-01	FAIL ABUN
PA-231	6.243E-01	1.646E+00	1.438E+00	8.396E-01	FAIL ABUN
TH-231	-3.134E-01	7.327E-01	6.067E-01	3.738E-01	FAIL ABUN
U-231	2.937E-01	2.399E+00	1.837E+00	1.224E+00	FAIL ABUN
PA-233	-1.616E-02	6.479E-02	5.441E-02	3.305E-02	FAIL ABUN
PA-234	-5.295E-02	3.472E-01	2.826E-01	1.772E-01	FAIL ABUN
PA-234M	-1.816E+00	4.786E+00	3.812E+00	2.442E+00	NOT IDENT.
U-235	-1.105E-01	2.206E-01	1.777E-01	1.125E-01	FAIL ABUN
NP-236	1.347E-02	8.019E-02	6.691E-02	4.091E-02	NOT IDENT.
NP-239	1.355E-01	1.848E-01	1.606E-01	9.430E-02	FAIL ABUN
AM-241	5.232E-02	1.195E-01	9.533E-02	6.099E-02	NOT IDENT.
CM-243	-1.643E-02	9.005E-02	7.582E-02	4.594E-02	FAIL ABUN
AM-246	-2.222E-02	1.425E-01	1.200E-01	7.272E-02	NOT IDENT.
CM-247	-1.145E-02	3.857E-02	3.161E-02	1.968E-02	FAIL ABUN
CF-249	3.648E-02	3.966E-02	3.532E-02	2.023E-02	NOT IDENT.
CF-251	3.039E-02	1.223E-01	1.092E-01	6.238E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT             *
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ENERGY	MDA COUNTS
46.50	262.6701
46.50	262.6701
46.50	262.6701
48.70	281.2850
49.72	287.7435
51.35	272.3737
52.39	294.5197
52.97	289.2078
53.15	283.5906
53.44	290.5091
54.07	297.6896
56.28	329.2441
56.28	329.2458
57.37	0.0000
57.53	327.3361
57.53	327.3378
57.60	327.3911
57.98	303.6451
57.98	303.6451
59.32	306.3619
59.32	306.3619
59.40	322.4693
59.54	340.0909
59.72	340.2349
60.01	331.6978
61.10	361.8371
61.14	361.8701
61.30	362.0039
63.00	392.3467
63.29	392.6041
63.29	392.6041
63.58	392.8609
64.28	424.9556
65.12	418.3589
65.20	418.4329
65.20	418.4329
66.05	408.8473
66.72	421.3133
66.83	421.4173
66.91	420.0069
67.20	427.6956
67.20	427.6956
67.75	440.0999
67.85	440.1948
68.90	431.6492
68.90	431.6492
69.30	449.0244
69.67	428.4790
70.82	441.4894
70.82	441.4894
70.83	441.4984
72.80	464.3487
72.87	464.4171
72.87	464.4171
74.67	449.5350
74.81	449.6624
74.81	449.6624
74.81	449.6624
74.81	449.6624
74.81	449.6624
74.81	449.6624
74.81	449.6624
74.97	449.8079
75.28	450.0898
75.70	450.4695
77.11	451.7404
77.11	451.7404

77.11	451.7404
77.11	451.7404
77.11	451.7404
77.11	451.7404
77.11	451.7404
78.38	437.6777
79.62	420.4582
79.80	420.6056
79.80	420.6056
80.11	439.1565
80.18	439.2158
80.30	439.3169
80.30	439.3169
80.57	363.2354
81.00	439.9102
81.07	439.9695
81.07	439.9695
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81.07	439.9695
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83.78	346.0130
83.78	346.0130
84.21	346.2932
84.90	346.7385
85.43	347.0806
86.29	347.6342
86.50	347.7682
86.54	347.7940
86.59	347.8267
86.72	347.9092
86.79	347.9522
86.94	348.0502
87.30	348.2788
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87.30	348.2788
87.30	348.2788
87.30	348.2788
87.30	348.2788
87.57	348.4507
87.88	0.0000
88.03	348.7430
88.36	348.9527
88.47	349.0232
89.95	349.9550
91.11	350.6822
92.29	351.4146
92.38	351.4713
92.38	351.4713
93.35	352.0696
94.00	352.4701
94.67	256.8281
94.67	256.8306
94.90	253.7998
94.90	253.7998
94.90	253.7998
94.90	253.7998
95.87	298.1651
95.87	298.1651
96.73	309.6071
97.43	276.9323
98.44	239.5793
98.44	239.5793
98.88	242.2805
99.55	232.6577
99.55	232.6577
99.86	254.8983
100.00	254.9574
100.10	252.8943
103.18	291.2531
103.76	280.9290
105.00	256.0012
105.31	278.4483
108.00	315.9408
109.28	271.6604



111.00	268.1046
111.00	268.1046
111.76	264.1264
112.95	303.3370
115.19	277.3958
116.30	263.8071
117.00	248.9339
117.00	248.9339
117.66	274.0988
121.11	251.5483
121.62	252.8272
121.78	252.8862
122.06	254.0805
122.32	232.3588
122.32	232.3588
122.32	232.3588
122.32	232.3588
123.07	234.5791
127.23	230.7124
129.76	226.5765
131.20	240.2912
133.02	222.6225
133.54	241.0700
135.34	244.4430
136.00	260.2317
136.25	270.3321
136.48	270.4161
140.51	264.0500
140.51	0.0000
142.18	294.9092
142.65	291.7277
143.76	283.1616
144.24	268.7242
144.24	268.7242
144.24	268.7242
144.24	268.7242
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145.44	228.6021
147.16	276.5122
152.43	268.1456
152.70	259.1440
153.22	261.5880
154.21	261.9109
154.21	261.9109
154.21	261.9109
154.21	261.9109
155.03	248.4988
156.02	269.3483
158.56	267.9012
159.00	0.0000
159.00	237.1159
160.31	234.0530
161.27	258.4465
162.32	215.0698
162.64	215.1516
163.35	233.7585
163.89	268.4795
165.85	221.7520
167.43	226.7945
171.28	215.0298
171.86	211.6853
172.10	211.7446
176.55	227.1487
176.60	227.1625
181.06	256.6862
184.41	253.3947
185.71	237.4525
186.00	237.5282
190.27	206.5754
192.34	213.2806
193.63	222.5103
197.04	212.5518
198.01	204.6872
198.60	212.8971
200.40	0.0000
201.83	237.9489
202.84	231.8808
205.31	206.9590

208.36	242.4436
208.81	242.5536
209.75	219.8849
209.75	219.8849
210.97	195.0459
215.65	219.3512
216.55	213.1419
218.09	216.2121
222.10	203.2589
223.80	205.4335
226.40	208.7145
227.00	202.3651
227.08	202.3819
227.20	199.6309
228.16	177.6108
228.18	177.6152
228.18	177.6152
231.56	0.0000
235.69	201.2245
236.00	196.8092
236.00	196.8092
238.63	184.0202
238.63	184.0202
238.63	184.0202
238.63	184.0202
239.00	0.0000
240.98	184.4155
241.98	184.5830
241.98	184.5830
241.98	184.5830
244.69	189.3553
245.39	174.4376
247.94	156.3722
248.90	152.7340
249.79	0.0000
252.40	148.4787
252.85	149.4835
252.85	149.4835
254.15	0.0000
256.20	172.6953
256.20	172.6953
260.50	156.1949
260.90	0.0000
262.80	149.4137
264.65	151.3980
268.24	133.4503
268.79	142.5004
269.46	142.5820
269.46	142.5820
269.46	142.5820
269.46	142.5820
271.23	142.7928
273.65	165.6434
276.40	157.0125
277.35	150.1422
277.60	151.4980
277.60	151.4980
278.00	151.5483
278.60	184.1130
279.20	187.2989
279.53	174.9624
280.46	156.5007
281.68	0.0000
283.67	163.1243
284.30	160.2919
285.00	185.6549
285.90	0.0000
286.10	170.2522
286.10	170.2522
287.40	157.7705
288.45	0.0000
290.67	168.7263
290.80	168.7447
291.72	170.4323
293.26	0.0000
293.70	159.7361
295.21	163.0611
295.21	163.0611

295.21	163.0611
295.96	163.1576
296.50	86.3215
297.23	0.0000
298.57	117.9016
299.80	118.0151
299.80	118.0151
300.09	121.9755
300.09	121.9755
300.09	121.9755
300.09	121.9755
300.12	121.9792
301.29	157.5342
302.84	121.4461
303.76	0.0000
303.91	134.1738
304.40	150.0170
304.40	150.0170
304.84	143.7493
306.84	151.4277
308.46	115.8324
311.98	135.9945
316.51	130.4803
318.01	152.5634
319.02	150.6820
319.41	150.7258
320.08	146.8049
323.87	167.2446
323.87	167.2446
323.87	167.2446
323.87	167.2446
325.23	198.4864
328.77	144.7273
333.44	166.1906
334.20	146.9086
334.20	146.9086
334.30	146.9197
338.28	143.6944
338.28	143.6944
338.28	143.6944
338.28	143.6944
338.32	143.6987
338.32	143.6987
338.32	143.6987
340.50	121.6223
340.57	121.6278
344.27	144.9807
345.85	123.7078
350.59	0.0000
351.07	122.5232
351.92	122.5964
351.92	122.5964
351.92	122.5964
355.39	0.0000
356.01	111.4662
364.48	102.0092
366.43	98.0166
367.43	116.6657
367.94	0.0000
369.80	108.5777
374.96	108.9478
383.85	108.5370
387.95	87.8965
388.63	88.9818
391.69	112.2311
391.69	112.2311
392.90	96.5722
398.62	103.2427
400.65	93.8808
401.10	106.5681
401.81	110.8383
402.60	113.0050
404.84	107.8754
410.95	108.2832
411.60	113.6369
413.65	108.4622
414.70	113.8524
415.30	113.8932

415.76	123.5084
417.63	0.0000
418.52	122.6490
423.70	111.2633
427.08	114.7047
427.89	96.5273
432.53	96.7937
433.93	108.7134
439.47	0.0000
439.56	100.4331
439.89	106.9338
443.98	83.3681
444.90	88.8292
445.03	88.8367
445.03	88.8367
445.03	88.8367
445.03	88.8367
453.90	77.3117
463.38	113.8531
468.07	108.8830
473.00	101.2567
475.06	101.3718
475.35	98.0825
476.78	79.4092
477.59	79.4443
477.96	75.0463
482.03	70.7891
484.57	0.0000
487.03	60.9997
490.36	0.0000
492.35	0.0000
497.08	80.2848
507.63	0.0000
510.53	0.0000
510.84	67.3901
511.00	67.3956
511.85	77.3144
511.85	77.3144
513.99	73.5000
513.99	73.5000
520.41	68.6264
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	77.1163
529.87	0.0000
531.02	81.7097
537.32	63.7537
543.00	75.8064
546.56	0.0000
549.76	67.8141
552.65	83.5107
555.20	78.1021
563.23	83.0193
563.90	84.8911
568.70	71.2137
569.32	70.3111
569.50	70.3167
569.67	70.3223
573.80	67.6801
574.00	65.8310
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	67.0482
585.48	0.0000
591.81	69.1907
592.07	72.9384
593.00	88.8746
595.88	76.8149
600.56	87.3078
602.52	0.0000
602.71	106.5018
602.71	106.5018
603.60	89.3107
604.41	90.9106
604.70	90.9224
609.31	76.3469

609.31	76.3469
609.31	76.3469
609.31	76.3469
610.33	76.3824
612.46	61.3533
614.37	67.7054
618.01	71.4956
621.84	69.1967
621.84	69.1967
631.29	72.3429
633.02	71.4459
633.10	71.4478
634.78	55.2940
635.90	61.9976
636.97	75.3875
645.85	67.0588
646.12	62.2753
656.30	70.5690
657.75	78.6361
657.90	0.0000
661.65	70.4086
661.65	70.4086
664.57	0.0000
666.33	61.2073
666.33	61.2073
675.00	63.0481
677.61	67.9714
685.20	74.0313
692.80	81.1033
695.00	74.3319
696.49	69.4833
696.49	69.4833
697.00	65.5818
697.49	67.5530
698.33	78.3496
698.50	79.3349
699.00	68.5747
702.63	78.4883
706.10	61.8957
706.58	0.0000
706.67	56.9960
709.31	56.0732
711.68	71.8825
713.82	44.3496
717.42	46.3873
720.50	58.3028
721.93	0.0000
722.20	54.3864
722.78	60.9922
722.78	60.9922
722.89	60.9952
722.95	60.9967
723.30	65.9521
724.18	62.6762
727.18	46.2371
733.00	52.9635
735.90	51.1310
739.58	65.7116
742.81	56.8233
744.21	49.8718
747.13	77.8876
751.79	58.0212
752.31	55.0309
753.82	59.0677
755.35	0.0000
756.15	68.1395
756.87	65.1508
763.93	78.7273
765.79	72.0778
766.42	77.1252
766.84	73.7827
776.49	56.5496
778.00	50.5188
778.57	50.5298
778.89	50.5359
783.80	52.6538
785.46	48.6340
792.07	76.1774

795.84	58.9926
796.30	63.0717
798.80	82.4753
801.93	61.1631
805.60	44.9131
810.29	54.1917
810.76	58.2914
815.85	45.0807
817.79	0.0000
818.51	44.0981
819.60	49.2457
826.30	51.4209
828.27	0.0000
831.60	59.7601
831.96	61.8296
834.83	59.8295
836.80	0.0000
846.75	55.9380
848.13	61.1462
856.28	0.0000
856.80	79.0040
860.37	46.8369
867.32	50.0789
867.82	46.9567
871.10	47.0099
873.19	52.2705
874.81	46.0238
875.33	0.0000
876.40	49.1882
879.36	51.3328
880.27	55.5413
880.51	58.6893
881.50	52.4194
883.24	50.3520
884.67	51.4261
889.25	50.4539
896.60	46.3644
898.02	56.9281
899.00	54.8387
903.28	34.0292
911.07	46.5878
911.07	46.5878
911.07	46.5878
919.63	50.7312
920.93	39.3035
925.00	57.4383
925.24	58.5073
926.50	61.7241
935.52	42.6934
937.48	68.3516
944.10	44.9521
946.00	59.9730
949.00	53.5986
962.29	43.0605
964.01	37.6985
966.15	37.7241
968.20	37.7480
969.11	37.7592
969.11	37.7592
969.11	37.7592
977.42	41.4629
980.50	40.6009
983.50	48.7661
989.30	43.4258
996.32	57.6647
1001.03	46.8517
1001.68	41.4122
1004.76	41.4512
1021.30	0.0000
1024.50	0.0000
1034.80	42.1966
1036.00	37.6234
1037.82	43.1522
1038.57	44.0801
1038.76	0.0000
1045.16	29.4440
1046.59	27.6160
1048.07	38.6794

1050.47	49.7659
1050.47	49.7659
1062.04	55.4834
1063.62	39.7806
1076.63	39.0024
1077.35	39.9398
1078.86	46.4620
1085.78	36.3134
1099.22	56.0815
1112.02	47.0740
1112.84	51.2923
1115.52	57.9501
1120.29	49.8341
1120.29	49.8341
1120.29	49.8341
1120.29	49.8341
1120.51	50.7766
1121.28	41.9199
1124.00	0.0000
1129.67	43.3646
1131.51	0.0000
1147.95	0.0000
1167.94	63.8294
1173.22	55.3332
1175.09	62.0430
1177.93	56.3592
1189.05	58.4434
1204.90	65.4240
1205.75	0.0000
1213.00	78.0963
1221.42	64.7427
1230.97	55.2164
1235.34	60.1281
1236.41	0.0000
1238.25	50.4660
1246.25	43.7640
1260.41	0.0000
1271.85	35.2397
1274.45	40.1609
1274.54	39.1813
1291.56	35.4141
1298.22	0.0000
1312.09	33.6168
1325.50	26.7836
1325.50	26.7836
1332.49	29.8108
1333.61	25.8424
1360.21	21.0068
1362.66	0.0000
1365.15	27.0406
1368.21	33.0739
1368.53	0.0000
1376.25	27.1121
1384.27	29.1758
1394.10	19.1593
1395.20	20.1725
1407.95	32.3724
1434.06	15.2661
1436.60	14.2563
1457.56	0.0000
1460.81	20.4785
1489.15	17.5174
1509.49	15.5261
1596.49	19.8846
1620.62	18.0168
1678.03	0.0000
1691.02	13.9754
1691.02	13.9754
1706.46	0.0000
1750.46	0.0000
1764.49	13.0874
1764.49	13.0874
1764.49	13.0874
1764.49	13.0874
1770.23	9.8262
1771.40	53.3560
1791.20	0.0000
1808.65	8.4843

1836.01

4.7377



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101008

Total Uranium Activity	8.0816E+00	ug/g
Total Uranium Counting Unc.	4.8017E+00	ug/g
Total Uranium Tpu	2.4498E-06	ug/g
Total Uranium Mda	2.4630E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*   BATCH ID      : 944037                      SAMPLE ID : G245101008
*   ANALYST       : MXR1                        DETECTOR  : GAM07
*   SAMPLE DATE   : 13-JAN-2010 12:00:00.00    COUNT TIME : 0 02:00:00.00
*   ANALYSIS DATE : 2-FEB-2010 13:13:29.13    SAMPLE ALQT: 118.370 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.195E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.435E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.735E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.811E+00

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## VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 12:55:39.75

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101009.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:55:07.
Sample ID          : G245101009 Sample quantity : 1.14280E+02 GRAM
Detector name      : GAM14 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           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.19*	94	500	1.14	125.94	122	9	1.30E-02	45.0	
2	1	74.81	576	560	1.54	149.15	141	19	8.00E-02	9.0	2.65E+00
3	1	77.19	813	477	1.29	153.90	141	19	1.13E-01	6.2	
4	3	84.27*	143	367	1.87	168.05	164	29	1.98E-02	22.8	2.36E+00
5	3	87.31	333	420	1.43	174.13	164	29	4.62E-02	12.4	
6	3	89.99	256	379	1.58	179.48	164	29	3.55E-02	16.0	
7	3	92.85*	443	398	1.81	185.20	164	29	6.15E-02	11.2	
8	0	129.37	54	361	1.21	258.15	254	8	7.45E-03	62.9	
9	0	185.97*	305	433	1.48	371.26	365	14	4.24E-02	15.9	
10	0	209.26	177	304	1.63	417.79	413	11	2.45E-02	20.5	
11	3	238.49*	1291	219	1.33	476.21	468	20	1.79E-01	3.5	9.93E-01
12	3	241.48	311	294	1.88	482.18	468	20	4.32E-02	14.2	
13	0	269.89	107	238	1.77	538.96	534	11	1.48E-02	29.5	
14	0	295.09	424	181	1.43	589.31	585	10	5.89E-02	7.7	
15	0	299.88	91	161	1.60	598.88	595	10	1.26E-02	28.3	
16	0	328.00	65	175	1.88	655.08	649	10	9.05E-03	40.1	
17	0	338.09	264	155	1.40	675.25	670	10	3.67E-02	10.8	
18	0	351.78*	763	158	1.56	702.61	697	10	1.06E-01	4.8	
19	0	462.90	100	90	1.15	924.71	919	11	1.39E-02	21.0	
20	0	510.72*	52	215	2.08	1020.30	1014	17	7.25E-03	72.3	
21	0	568.28*	105	173	2.37	1135.37	1127	19	1.46E-02	32.3	
22	0	583.04*	410	107	1.53	1164.88	1158	13	5.70E-02	7.3	
23	0	609.40*	495	178	1.76	1217.57	1210	18	6.88E-02	7.9	
24	0	661.66	184	80	1.28	1322.05	1317	10	2.56E-02	11.7	
25	0	727.63	106	88	1.02	1453.95	1447	13	1.48E-02	19.7	
26	0	770.46	79	87	5.15	1539.59	1532	17	1.10E-02	30.0	
27	0	911.43	285	42	1.61	1821.52	1816	15	3.96E-02	7.7	
28	1	964.49	66	41	2.08	1927.62	1918	28	9.16E-03	22.4	1.08E+00
29	1	968.87	153	38	1.96	1936.38	1918	28	2.12E-02	11.7	
30	0	1120.52	145	55	1.85	2239.72	2231	18	2.02E-02	14.5	
31	0	1378.49	17	29	1.43	2755.86	2750	9	2.43E-03	60.5	
32	0	1461.17	1005	40	2.15	2921.31	2913	19	1.40E-01	3.5	
33	0	1588.04	23	17	3.53	3175.24	3169	13	3.21E-03	41.7	
34	0	1764.81*	68	20	1.71	3529.09	3522	16	9.40E-03	19.9	

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

VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 12:55:42

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101009.CNF;1  
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
Sample title : MXR1  
Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:55:07  
Sample ID : G245101009 Sample quantity : 114.28 GRAM  
Sample type : SOLID Sample geometry :  
Detector name : GAMMA14 Detector geometry: CAN  
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.40 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 Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.556E+01	2.583E+00	5.212E-01	3.785E-02	49.037
CD-109	+	88.03	*	4.291E+00	1.125E+00	1.219E+00	1.066E-01	3.518
SN-126	+	64.28		6.963E-01	6.342E-01	7.747E-01	1.104E-01	0.899
	+	86.94		1.741E+00	8.389E-01	4.987E-01	2.063E-01	3.490
	+	87.57	*	4.187E-01	1.097E-01	1.194E-01	1.039E-02	3.507
BA-137M	+	661.65	*	2.724E-01	6.581E-02	6.621E-02	3.937E-03	4.115
CS-137	+	661.65	*	2.880E-01	6.958E-02	6.999E-02	4.178E-03	4.115
TL-208		277.35		2.920E-01	4.132E-01	6.924E-01	7.322E-02	0.422
	+	510.84		2.568E-01	3.721E-01	2.394E-01	2.441E-02	1.073
	+	583.14	*	5.804E-01	9.333E-02	6.298E-02	4.307E-03	9.215
		860.37		6.696E-01	3.410E-01	6.401E-01	6.021E-02	1.046
BI-211		72.87		1.692E+01	3.595E+00	6.188E+00	4.560E-01	2.734
	+	351.07	*	4.635E+00	5.309E-01	3.426E-01	2.171E-02	13.528
PB-212	+	74.81		2.908E+00	6.310E-01	5.406E-01	6.484E-02	5.378
	+	77.11		2.350E+00	3.419E-01	3.103E-01	2.389E-02	7.573
	+	87.30		1.936E+00	5.432E-01	5.533E-01	7.324E-02	3.500
	+	238.63	*	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
	+	300.09		1.850E+00	1.058E+00	1.231E+00	1.018E-01	1.503
PO-212	+	74.81		2.908E+00	6.310E-01	5.406E-01	6.484E-02	5.378
	+	77.11		2.350E+00	3.419E-01	3.103E-01	2.389E-02	7.573
	+	87.30		1.936E+00	5.432E-01	5.533E-01	7.324E-02	3.500
	+	115.19		5.668E+00	3.897E+00	6.598E+00	4.801E-01	0.859
	+	238.63	*	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
	+	300.09		1.850E+00	1.058E+00	1.231E+00	1.018E-01	1.503
BI-214	+	609.31	*	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
	+	1120.29		2.076E+00	6.311E-01	4.718E-01	4.371E-02	4.400
	+	1764.49		1.329E+00	5.337E-01	2.980E-01	1.788E-02	4.458
PB-214	+	74.81		5.010E+00	1.049E+00	9.316E-01	9.830E-02	5.378
	+	77.11		4.029E+00	6.616E-01	5.320E-01	5.762E-02	7.573
	+	87.30		3.317E+00	9.063E-01	9.479E-01	1.100E-01	3.500
	+	241.98		2.469E+00	7.285E-01	5.540E-01	4.450E-02	4.457
	+	295.21		1.519E+00	2.670E-01	2.286E-01	1.955E-02	6.644
	+	351.92	*	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
PO-214	+	74.81		5.010E+00	1.049E+00	9.316E-01	9.830E-02	5.378

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		4.029E+00	6.616E-01	5.320E-01	5.762E-02	7.573
	+	87.30		3.317E+00	9.063E-01	9.479E-01	1.100E-01	3.500
	+	241.98		2.469E+00	7.285E-01	5.540E-01	4.450E-02	4.457
	+	295.21		1.519E+00	2.670E-01	2.286E-01	1.955E-02	6.644
	+	351.92	*	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
	+	74.81		2.908E+00	6.310E-01	5.406E-01	6.484E-02	5.378
	+	77.11		2.350E+00	3.419E-01	3.103E-01	2.389E-02	7.573
	+	87.30		1.936E+00	5.432E-01	5.533E-01	7.324E-02	3.500
PO-218	+	238.63	*	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
	+	300.09		1.850E+00	1.058E+00	1.231E+00	1.018E-01	1.503
	+	74.81		5.010E+00	1.049E+00	9.316E-01	9.830E-02	5.378
	+	77.11		4.029E+00	6.616E-01	5.320E-01	5.762E-02	7.573
	+	87.30		3.317E+00	9.063E-01	9.479E-01	1.100E-01	3.500
	+	241.98		2.469E+00	7.285E-01	5.540E-01	4.450E-02	4.457
	+	295.21		1.519E+00	2.670E-01	2.286E-01	1.955E-02	6.644
	+	351.92	*	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
RA-224	+	240.98	*	4.682E+00	1.356E+00	1.088E+00	6.256E-02	4.302
RA-226	+	609.31	*	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
AC-228	+	1120.29		2.076E+00	6.311E-01	4.718E-01	4.371E-02	4.400
	+	1764.49		1.329E+00	5.337E-01	2.980E-01	1.788E-02	4.458
	+	338.32		1.765E+00	8.136E-01	4.103E-01	1.672E-01	4.303
	+	911.07	*	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956
RA-228	+	969.11		1.737E+00	5.752E-01	3.669E-01	8.568E-02	4.735
	+	338.32		1.765E+00	8.136E-01	4.103E-01	1.672E-01	4.303
	+	911.07	*	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956
	+	969.11		1.737E+00	5.752E-01	3.669E-01	8.568E-02	4.735
TH-228	+	74.81		2.966E+00	5.819E-01	5.515E-01	4.191E-02	5.378
	+	77.11		2.397E+00	3.487E-01	3.165E-01	2.437E-02	7.573
	+	87.30		1.975E+00	5.177E-01	5.644E-01	4.895E-02	3.500
	+	238.63	*	1.742E+00	1.760E-01	9.761E-02	7.109E-03	17.845
TH-230	+	300.09		1.887E+00	1.542E+00	1.256E+00	7.402E-01	1.503
	+	609.31	*	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
	+	1120.29		2.076E+00	6.311E-01	4.718E-01	4.371E-02	4.400
	+	1764.49		1.329E+00	5.337E-01	2.980E-01	1.788E-02	4.458
TH-232	+	338.32		1.765E+00	3.931E-01	4.103E-01	2.357E-02	4.303
	+	911.07	*	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956
	+	969.11		1.737E+00	5.752E-01	3.669E-01	8.568E-02	4.735
	+	63.29	*	1.759E+00	1.611E+00	1.956E+00	3.362E-01	0.899
U-234	+	92.38		3.673E+00	1.053E+00	7.924E-01	1.424E-01	4.635
	+	609.31	*	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
	+	1120.29		2.076E+00	6.311E-01	4.718E-01	4.371E-02	4.400
	+	1764.49		1.329E+00	5.337E-01	2.980E-01	1.788E-02	4.458
NP-237	+	86.50	*	1.229E+00	4.101E-01	3.535E-01	7.900E-02	3.478
	+	95.87		3.686E-01	1.153E+00	1.652E+00	4.041E-01	0.223
	+	63.29	*	1.759E+00	1.611E+00	1.956E+00	3.362E-01	0.899
	+	92.38		3.673E+00	8.762E-01	7.924E-01	6.630E-02	4.635
AM-243	+	74.67	*	4.714E-01	9.233E-02	8.785E-02	6.593E-03	5.366
	+	86.72		4.611E+01	1.208E+01	1.323E+01	1.139E+00	3.484
	+	117.66		-4.910E+00	4.292E+00	6.575E+00	4.740E-01	-0.747

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	142.18			1.835E+01	2.002E+01	3.306E+01	2.079E+00	0.555
ANH-511	+	511.00	*	5.547E-02	8.024E-02	5.172E-02	3.039E-03	1.072

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	5.123E-02	3.777E-01	6.246E-01	4.210E-02	0.082
NA-22		1274.54	*	1.707E-02	4.354E-02	7.473E-02	4.881E-03	0.228
NA-24		1368.53	*	3.824E+01	4.354E-02	Half-Life too short		
AL-26		1129.67		2.857E-01	2.186E+00	3.398E+00	2.146E-01	0.084
		1808.65	*	3.247E-02	2.925E-02	5.804E-02	3.365E-03	0.559
TI-44		67.85		4.164E-03	7.231E-02	7.436E-02	5.233E-03	0.056
	+	78.38	*	4.337E-01	6.310E-02	8.704E-02	6.796E-03	4.983
SC-46		889.25	*	8.611E-03	4.557E-02	7.742E-02	7.154E-03	0.111
	+	1120.51		3.699E-01	1.097E-01	1.586E-01	1.027E-02	2.332
V-48		944.10		4.328E-01	1.166E+00	2.009E+00	1.796E-01	0.215
		983.50	*	-2.725E-03	8.458E-02	1.404E-01	1.192E-02	-0.019
		1312.09		2.903E-03	1.047E-01	1.727E-01	1.193E-02	0.017
CR-51		320.08	*	3.102E-01	4.881E-01	8.153E-01	5.268E-02	0.380
MN-52		744.21		-4.623E-02	4.998E-01	7.986E-01	5.636E-02	-0.058
		848.13		4.044E+00	1.325E+01	2.276E+01	1.956E+00	0.178
		935.52		4.572E-01	4.628E-01	8.382E-01	7.565E-02	0.545
		1246.25		1.567E+00	1.391E+01	2.316E+01	1.443E+00	0.068
		1333.61		-2.350E+00	8.899E+00	1.408E+01	1.004E+00	-0.167
		1434.06	*	-2.222E-01	4.543E-01	6.887E-01	4.827E-02	-0.323
MN-54		834.83	*	-8.982E-03	3.879E-02	6.382E-02	5.353E-03	-0.141
CO-56		846.75	*	1.412E-02	4.492E-02	7.719E-02	6.616E-03	0.183
		977.42		2.440E+00	3.430E+00	5.579E+00	4.778E-01	0.437
		1037.82		-2.104E-01	3.325E-01	5.163E-01	4.277E-02	-0.408
		1175.09		-1.671E+00	2.767E+00	4.322E+00	2.389E-01	-0.387
		1238.25		1.722E-01	1.065E-01	1.956E-01	1.271E-02	0.880
		1360.21		3.602E-02	1.076E+00	1.773E+00	1.260E-01	0.020
		1771.40		2.391E-02	2.916E-01	4.129E-01	2.464E-02	0.058
CO-57		122.06	*	-2.690E-03	2.854E-02	4.576E-02	3.256E-03	-0.059
		136.48		7.103E-02	2.344E-01	3.808E-01	2.796E-02	0.187
CO-58		810.76	*	-6.115E-03	4.744E-02	7.522E-02	6.053E-03	-0.081
FE-59		142.65		3.738E+00	3.345E+00	5.560E+00	3.487E-01	0.672
		192.34		6.514E-02	1.236E+00	1.819E+00	2.123E-01	0.036
		1099.22	*	1.686E-02	1.082E-01	1.819E-01	1.400E-02	0.093
		1291.56		6.655E-02	1.421E-01	2.452E-01	1.996E-02	0.271
CO-60		1173.22		-2.941E-02	5.230E-02	8.194E-02	4.514E-03	-0.359
		1332.49	*	-2.893E-02	3.963E-02	5.857E-02	4.174E-03	-0.494
ZN-65		1115.52	*	1.719E-02	1.013E-01	1.479E-01	9.720E-03	0.116
GE-68		1077.35	*	1.841E+00	1.451E+00	2.654E+00	1.908E-01	0.694
AS-73		53.44	*	-2.842E-01	7.260E-01	1.169E+00	7.624E-02	-0.243
AS-74		595.88	*	6.709E-02	1.106E-01	1.886E-01	1.128E-02	0.356
		634.78		-3.345E-01	4.657E-01	7.083E-01	4.231E-02	-0.472
SE-75		66.05		7.212E-01	5.462E+00	7.831E+00	7.121E-01	0.092

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		96.73		-1.255E-01	9.252E-01	1.298E+00	1.724E-01	-0.097
		121.11		-6.969E-02	1.559E-01	2.463E-01	2.492E-02	-0.283
		136.00		-1.431E-03	4.520E-02	7.249E-02	4.788E-03	-0.020
		198.60		-3.105E-01	1.978E+00	3.309E+00	2.291E-01	-0.094
		264.65	*	-1.033E-03	5.329E-02	7.729E-02	4.538E-03	-0.013
		279.53		1.390E-01	1.190E-01	2.085E-01	1.313E-02	0.667
		303.91		1.681E-01	2.505E+00	3.637E+00	3.477E-01	0.046
		400.65		1.366E-01	2.938E-01	4.969E-01	4.426E-02	0.275
BR-77	+	87.88		3.773E-03	2.938E-01	Half-Life	too short	
		200.40		3.463E-05	2.938E-01	Half-Life	too short	
	+	239.00		1.124E-03	2.938E-01	Half-Life	too short	
		249.79		1.252E-04	2.938E-01	Half-Life	too short	
		281.68		-2.575E-04	2.938E-01	Half-Life	too short	
		297.23		1.722E-03	2.938E-01	Half-Life	too short	
		303.76		2.372E-04	2.938E-01	Half-Life	too short	
		439.47		1.697E-04	2.938E-01	Half-Life	too short	
		484.57		-4.883E-04	2.938E-01	Half-Life	too short	
		520.65	*	-3.750E-05	2.938E-01	Half-Life	too short	
		574.64		-8.004E-05	2.938E-01	Half-Life	too short	
		578.91		-1.188E-04	2.938E-01	Half-Life	too short	
		585.48		7.318E-03	2.938E-01	Half-Life	too short	
		755.35		3.639E-05	2.938E-01	Half-Life	too short	
		817.79		-2.615E-04	2.938E-01	Half-Life	too short	
SR-82		698.33		4.058E-01	4.405E+01	7.119E+01	4.576E+00	0.006
		776.49	*	3.383E-02	5.183E-01	7.243E-01	5.445E-02	0.047
		1395.20		6.841E+00	1.162E+01	2.070E+01	1.462E+00	0.330
RB-83		520.41	*	-5.624E-02	7.924E-02	1.186E-01	6.990E-03	-0.474
		529.64		-2.760E-02	1.182E-01	1.897E-01	1.121E-02	-0.146
		552.65		4.425E-03	2.256E-01	3.683E-01	2.191E-02	0.012
RB-84		881.50	*	4.897E-02	8.015E-02	1.412E-01	1.287E-02	0.347
KR-85		513.99	*	1.919E+01	9.190E+00	1.520E+01	8.937E-01	1.263
SR-85		513.99	*	1.035E-01	4.958E-02	8.198E-02	4.822E-03	1.263
RB-86		1076.63	*	1.038E+00	1.090E+00	1.950E+00	1.404E-01	0.532
Y-88		898.02		-2.482E-02	4.771E-02	7.613E-02	7.172E-03	-0.326
		1836.01	*	1.071E-02	3.491E-02	6.010E-02	3.413E-03	0.178
ZR-88		392.90	*	-3.754E-03	3.282E-02	5.376E-02	2.928E-03	-0.070
Y-91		1204.90	*	1.994E-02	2.054E+01	3.389E+01	1.972E+00	0.001
NB-94		702.63	*	-1.629E-02	3.767E-02	5.865E-02	3.804E-03	-0.278
		871.10		3.146E-02	3.647E-02	6.532E-02	5.847E-03	0.482
NB-95		765.79	*	5.650E-02	5.732E-02	8.811E-02	6.489E-03	0.641
NB-95M		235.69	*	8.597E-01	1.897E-01	3.170E-01	2.369E-02	2.712
ZR-95		724.18		1.887E-01	1.174E-01	1.923E-01	1.482E-02	0.981
		756.15	*	7.120E-02	8.095E-02	1.400E-01	1.154E-02	0.509
NB-97		657.90	*	2.130E+00	8.095E-02	Half-Life	too short	
		1024.50		7.622E+02	8.095E-02	Half-Life	too short	
ZR-97		254.15		-3.310E+02	8.095E-02	Half-Life	too short	
		355.39		2.525E+02	8.095E-02	Half-Life	too short	
		507.63	*	5.916E+02	8.095E-02	Half-Life	too short	
		602.52		-4.175E+02	8.095E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1021.30			-4.593E+02	8.095E-02	Half-Life	too short	
	1147.95			-2.268E+02	8.095E-02	Half-Life	too short	
	1362.66			-4.081E+02	8.095E-02	Half-Life	too short	
	1750.46			3.527E+02	8.095E-02	Half-Life	too short	
MO-99	140.51			-1.327E+02	1.098E+02	1.554E+02	4.207E+01	-0.854
	181.06			2.631E+01	6.901E+01	1.033E+02	1.759E+01	0.255
	366.43			-1.972E+02	3.025E+02	4.803E+02	2.696E+01	-0.411
	739.58	*		-2.189E+01	4.286E+01	6.563E+01	9.401E+00	-0.334
	778.00			-3.643E+01	1.408E+02	1.879E+02	1.417E+01	-0.194
TC-99M	140.51	*		-3.648E+16	1.408E+02	Half-Life	too short	
RH-101	127.23			3.013E-02	4.232E-02	6.153E-02	4.233E-03	0.490
	198.01	*		5.995E-03	3.493E-02	5.916E-02	3.282E-03	0.101
	325.23			3.213E-02	2.899E-01	4.210E-01	2.436E-02	0.076
RH-102	418.52			1.198E-01	3.308E-01	5.453E-01	3.035E-02	0.220
	475.06	*		1.771E-03	3.190E-02	5.250E-02	3.034E-03	0.034
	631.29			4.034E-04	5.734E-02	9.305E-02	5.560E-03	0.004
	697.49			4.104E-02	8.554E-02	1.433E-01	9.197E-03	0.286
	766.84			2.481E-01	1.470E-01	2.377E-01	1.754E-02	1.044
	1046.59			-3.928E-02	1.188E-01	1.908E-01	1.460E-02	-0.206
	1112.84			1.899E-01	2.582E-01	4.053E-01	2.678E-02	0.469
RU-103	497.08	*		3.091E-02	4.484E-02	7.685E-02	9.732E-03	0.402
+	610.33			1.557E+01	3.444E+00	3.599E+00	5.573E-01	4.326
RH-106	511.85	+		2.796E-01	4.044E-01	4.520E-01	2.656E-02	0.619
	621.84	*		-1.905E-03	3.530E-01	5.725E-01	6.771E-02	-0.003
	1050.47			5.593E-01	2.400E+00	4.075E+00	3.095E-01	0.137
RU-106	511.85	+		2.796E-01	4.044E-01	4.520E-01	2.656E-02	0.619
	621.84	*		-1.905E-03	3.530E-01	5.725E-01	3.423E-02	-0.003
	1050.47			5.593E-01	2.400E+00	4.075E+00	3.095E-01	0.137
AG-108M	433.93	*		1.111E-02	3.437E-02	5.771E-02	3.545E-03	0.193
	614.37			1.336E-02	4.805E-02	6.939E-02	4.483E-03	0.193
	722.95			6.996E-03	4.967E-02	7.026E-02	5.050E-03	0.100
AG-110M	657.75	*		-6.732E-03	4.455E-02	6.112E-02	3.861E-03	-0.110
	677.61			1.253E-01	3.373E-01	5.623E-01	3.648E-02	0.223
	706.67			1.058E-01	2.334E-01	3.904E-01	2.674E-02	0.271
	763.93			-1.582E-02	2.143E-01	2.944E-01	2.244E-02	-0.054
	884.67			-3.029E-02	5.515E-02	8.774E-02	8.273E-03	-0.345
	937.48			-6.756E-03	1.136E-01	1.885E-01	1.754E-02	-0.036
	1384.27			8.419E-02	2.026E-01	3.169E-01	2.336E-02	0.266
IN-111	171.28			7.968E-01	3.582E+00	5.777E+00	3.116E-01	0.138
	245.39	*		-3.441E-01	4.119E+00	5.965E+00	3.438E-01	-0.058
IN-113M	391.69	*		-2.916E-02	4.832E-02	7.673E-02	4.490E-03	-0.380
SN-113	391.69	*		-2.916E-02	4.832E-02	7.673E-02	4.490E-03	-0.380
IN-114M	190.27	*		6.918E-02	2.313E-01	3.451E-01	1.899E-02	0.200
CD-115	260.90			1.164E-04	2.313E-01	Half-Life	too short	
	492.35			6.579E-05	2.313E-01	Half-Life	too short	
	527.90	*		-2.074E-05	2.313E-01	Half-Life	too short	
SN-117M	156.02			3.159E+00	3.366E+00	5.578E+00	3.211E-01	0.566
	158.56	*		4.757E-02	8.421E-02	1.376E-01	7.785E-03	0.346
SB-122	563.90	*		9.174E+00	8.886E+00	1.381E+01	8.233E-01	0.664



---- 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			2.728E+01	1.682E+02	2.753E+02	1.749E+01	0.099
	159.00	*		2.140E+03	1.682E+02	Half-Life too short		
	528.96			-5.811E+03	1.682E+02	Half-Life too short		
TE-123M	159.00	*		2.367E-02	3.510E-02	5.758E-02	3.293E-03	0.411
I-124	602.71	*		-6.580E-01	1.818E+00	2.446E+00	1.463E-01	-0.269
	722.78			7.958E-01	1.151E+01	1.614E+01	1.091E+00	0.049
	1325.50			2.464E+01	8.322E+01	1.414E+02	9.971E+00	0.174
SB-124	1376.25			1.365E+02	8.726E+01	1.520E+02	1.077E+01	0.898
	1509.49			8.663E+00	3.285E+01	5.588E+01	3.834E+00	0.155
	1691.02			7.153E-01	8.882E+00	1.463E+01	9.217E-01	0.049
	602.71			-1.813E-02	5.008E-02	6.739E-02	4.033E-03	-0.269
	645.85			5.612E-02	5.505E-01	8.998E-01	6.020E-02	0.062
	709.31			7.152E-01	3.281E+00	5.390E+00	3.544E-01	0.133
	713.82			-7.064E-01	1.856E+00	2.891E+00	3.096E-01	-0.244
	722.78			3.178E-02	4.597E-01	6.447E-01	4.510E-02	0.049
	+	968.20		1.891E+01	4.730E+00	8.175E+00	7.089E-01	2.313
	1045.16			-1.549E+00	2.708E+00	4.237E+00	3.251E-01	-0.366
	1325.50			1.051E+00	3.550E+00	6.030E+00	4.253E-01	0.174
	1368.21			6.708E-02	2.021E+00	3.329E+00	4.179E-01	0.020
	1436.60			-1.579E+00	4.193E+00	6.474E+00	4.535E-01	-0.244
	1691.02	*		6.738E-03	8.367E-02	1.378E-01	9.315E-03	0.049
SB-125	427.89	*		-3.497E-02	1.027E-01	1.654E-01	9.693E-03	-0.211
	+	463.38		9.598E-01	4.075E-01	6.036E-01	4.052E-02	1.590
	600.56			-1.595E-01	1.939E-01	2.841E-01	1.951E-02	-0.561
	635.90			-3.775E-03	2.914E-01	4.720E-01	3.275E-02	-0.008
TE-125M	109.28	*		-5.664E+00	1.059E+01	1.670E+01	1.570E+00	-0.339
I-126	388.63			2.425E-01	2.707E-01	4.705E-01	2.570E-02	0.515
	666.33	*		2.185E-01	3.011E-01	4.535E-01	2.724E-02	0.482
	753.82			-6.883E-01	2.135E+00	3.338E+00	2.401E-01	-0.206
SB-126	223.80			1.353E+00	5.707E+00	9.664E+00	5.489E-01	0.140
	278.60			4.836E+00	3.441E+00	6.080E+00	3.545E-01	0.795
	+	296.50		1.982E+01	3.256E+00	5.259E+00	3.068E-01	3.768
	414.70			-1.235E-01	1.134E-01	1.744E-01	9.677E-03	-0.708
	415.30			-2.615E+00	9.033E+00	1.461E+01	8.114E-01	-0.179
	555.20			-4.790E+00	5.817E+00	8.877E+00	5.283E-01	-0.540
	573.80			6.247E-01	1.722E+00	2.514E+00	1.501E-01	0.248
	593.00			-4.536E-01	1.211E+00	1.905E+00	1.139E-01	-0.238
	656.30			-1.052E+00	5.529E+00	7.549E+00	4.494E-01	-0.139
	666.33			9.230E-02	1.272E-01	1.916E-01	1.151E-02	0.482
	675.00			-9.090E-01	2.846E+00	4.478E+00	2.740E-01	-0.203
	695.00			6.677E-02	1.153E-01	1.945E-01	1.241E-02	0.343
	697.00			2.960E-01	3.998E-01	6.817E-01	4.369E-02	0.434
	720.50	*		-2.956E-02	2.264E-01	3.094E-01	2.082E-02	-0.096
	856.80			-1.007E+00	6.977E-01	1.019E+00	8.897E-02	-0.987
SB-127	989.30			-6.029E-01	1.684E+00	2.704E+00	2.277E-01	-0.223
	1034.80			3.151E-01	1.166E+01	1.942E+01	1.519E+00	0.016
	1213.00			-3.890E+00	6.809E+00	1.066E+01	6.287E-01	-0.365
	61.10			7.825E+01	1.420E+02	2.058E+02	2.367E+01	0.380
	252.40			-5.338E+00	1.070E+01	1.707E+01	7.169E+00	-0.313

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-7.917E+00	6.117E+01	8.771E+01	9.668E+00	-0.090
	411.60			1.331E+01	3.298E+01	5.548E+01	8.610E+00	0.240
	444.90			8.532E+00	2.497E+01	4.191E+01	5.170E+00	0.204
	473.00			1.950E-01	4.319E+00	7.103E+00	9.033E-01	0.027
	543.00			4.960E+00	4.205E+01	6.921E+01	9.916E+00	0.072
	603.60			1.965E+01	3.278E+01	4.888E+01	6.087E+00	0.402
	685.20	*		4.179E-01	3.486E+00	5.693E+00	6.530E-01	0.073
	698.50			1.403E+00	4.106E+01	6.650E+01	1.061E+01	0.021
	722.20			-3.432E+01	9.037E+01	1.197E+02	1.380E+01	-0.287
	783.80			6.397E+00	9.918E+00	1.632E+01	2.160E+00	0.392
XE-127	57.60			1.869E+00	6.420E+00	9.809E+00	6.460E-01	0.191
	145.22			4.895E-01	8.642E-01	1.415E+00	8.735E-02	0.346
	172.10			-2.142E-02	1.449E-01	2.299E-01	1.241E-02	-0.093
	202.84	*		-2.488E-02	6.144E-02	9.228E-02	5.144E-03	-0.270
	374.96			1.715E-01	2.354E-01	4.048E-01	2.250E-02	0.424
I-131	80.18			5.590E+00	1.081E+01	1.147E+01	9.257E-01	0.487
	284.30			-1.523E+00	2.402E+00	3.874E+00	2.531E-01	-0.393
	364.48	*		2.398E-02	1.861E-01	3.101E-01	1.976E-02	0.077
	636.97			5.581E-01	2.496E+00	4.121E+00	2.761E-01	0.135
	722.89			1.465E+00	1.267E+01	1.787E+01	1.230E+00	0.082
TE-132	49.72			-3.374E+01	4.353E+01	6.870E+01	7.440E+00	-0.491
	111.76			-6.355E+01	9.066E+01	1.417E+02	1.617E+01	-0.448
	116.30			7.203E+01	8.434E+01	1.398E+02	1.584E+01	0.515
	228.16	*		1.304E+00	2.135E+00	3.650E+00	5.623E-01	0.357
BA-133	53.15			-1.367E+00	2.994E+00	4.811E+00	3.134E-01	-0.284
	79.62			4.755E+00	2.204E+00	2.485E+00	3.687E-01	1.913
	81.00			2.749E-02	1.511E-01	1.562E-01	2.433E-02	0.176
	276.40			7.157E-02	4.384E-01	6.715E-01	8.714E-02	0.107
	302.84			8.570E-02	1.640E-01	2.458E-01	2.869E-02	0.349
	356.01	*		-8.159E-03	5.206E-02	7.379E-02	8.482E-03	-0.111
	383.85			-3.907E-02	3.183E-01	5.217E-01	5.589E-02	-0.075
I-133	510.53	+		2.704E+01	3.183E-01	Half-Life	too short	
	529.87	*		-4.885E-02	3.183E-01	Half-Life	too short	
	706.58			6.587E+00	3.183E-01	Half-Life	too short	
	856.28			-4.959E+01	3.183E-01	Half-Life	too short	
	875.33			-3.936E+00	3.183E-01	Half-Life	too short	
	1236.41			4.477E+01	3.183E-01	Half-Life	too short	
	1298.22			4.173E+00	3.183E-01	Half-Life	too short	
CS-134	475.35			-3.464E-01	2.114E+00	3.428E+00	1.981E-01	-0.101
	563.23			7.500E-02	4.610E-01	6.600E-01	4.012E-02	0.114
	569.32	+		8.105E-01	5.259E-01	5.212E-01	3.197E-02	1.555
	604.70			2.781E-02	3.918E-02	5.921E-02	3.561E-03	0.470
	795.84	*		7.501E-02	5.035E-02	9.064E-02	7.134E-03	0.828
	801.93			-2.276E-01	4.625E-01	6.949E-01	5.521E-02	-0.328
	1038.57			1.509E+00	3.885E+00	6.701E+00	5.206E-01	0.225
	1167.94			2.287E-01	2.776E+00	4.621E+00	2.592E-01	0.049
	1365.15			8.461E-01	1.317E+00	2.334E+00	1.767E-01	0.363
CS-135	268.24	*		3.244E-01	1.964E-01	3.116E-01	2.390E-02	1.041
I-135	288.45			-3.994E+15	1.964E-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		417.63		1.755E+15	1.964E-01	Half-Life	too short	
		546.56		-1.605E+15	1.964E-01	Half-Life	too short	
		836.80		-3.793E+14	1.964E-01	Half-Life	too short	
		1038.76		1.414E+15	1.964E-01	Half-Life	too short	
		1124.00		8.860E+15	1.964E-01	Half-Life	too short	
		1131.51		9.066E+14	1.964E-01	Half-Life	too short	
		1260.41	*	6.709E+14	1.964E-01	Half-Life	too short	
		1457.56		6.919E+16	1.964E-01	Half-Life	too short	
		1678.03		6.259E+14	1.964E-01	Half-Life	too short	
		1706.46		4.577E+15	1.964E-01	Half-Life	too short	
		1791.20		-3.303E+15	1.964E-01	Half-Life	too short	
	+	66.91		-5.145E-01	1.346E+00	1.572E+00	2.293E-01	-0.327
		86.29		7.050E+00	1.966E+00	2.821E+00	3.616E-01	2.499
		153.22		-6.201E-02	9.586E-01	1.531E+00	1.115E-01	-0.041
		163.89		-5.932E-01	1.551E+00	2.438E+00	1.701E-01	-0.243
		176.55		-2.394E-01	5.402E-01	8.451E-01	5.233E-02	-0.283
		273.65		-6.230E-01	7.291E-01	9.969E-01	6.623E-02	-0.625
		340.57		5.579E-01	2.141E-01	3.553E-01	2.173E-02	1.570
		818.51		-3.467E-02	1.028E-01	1.677E-01	1.367E-02	-0.207
	*	1048.07		1.259E-01	1.408E-01	2.533E-01	2.039E-02	0.497
		1235.34		-2.710E-01	8.440E-01	1.354E+00	1.379E-01	-0.200
CE-139		165.85	*	-1.906E-02	3.392E-02	5.286E-02	2.838E-03	-0.361
BA-140		162.64		-9.670E-02	1.125E+00	1.793E+00	1.121E-01	-0.054
LA-140	+	304.84		-7.664E-01	1.971E+00	2.747E+00	7.499E-01	-0.279
		423.70		1.555E+00	2.882E+00	4.822E+00	1.531E+00	0.322
		537.32	*	-2.350E-01	3.548E-01	5.348E-01	1.740E-01	-0.439
		328.77		6.996E-01	5.634E-01	7.559E-01	4.896E-02	0.926
		432.53		9.200E-01	2.796E+00	4.699E+00	2.936E-01	0.196
		487.03		-3.814E-02	1.947E-01	3.145E-01	2.069E-02	-0.121
		751.79		-1.599E+00	2.472E+00	3.741E+00	3.086E-01	-0.427
		815.85		-5.262E-02	4.376E-01	7.273E-01	6.654E-02	-0.072
		867.82		-7.958E-01	1.913E+00	3.085E+00	2.882E-01	-0.258
		919.63		-3.187E+00	4.655E+00	6.072E+00	6.745E-01	-0.525
		925.24		1.271E+00	1.670E+00	2.957E+00	2.851E-01	0.430
		1596.49	*	-9.041E-02	1.260E-01	1.681E-01	1.115E-02	-0.538
CE-141		145.44	*	2.067E-02	7.957E-02	1.289E-01	8.223E-03	0.160
CE-143		57.37		4.277E-03	7.957E-02	Half-Life	too short	
CE-144	+	231.56		9.841E-03	7.957E-02	Half-Life	too short	
		293.26	*	1.467E-02	7.957E-02	Half-Life	too short	
		350.59		4.210E-01	7.957E-02	Half-Life	too short	
		490.36		8.851E-03	7.957E-02	Half-Life	too short	
		664.57		4.527E-02	7.957E-02	Half-Life	too short	
		721.93		-6.907E-03	7.957E-02	Half-Life	too short	
		80.11		1.936E+00	3.322E+00	3.542E+00	2.820E-01	0.546
		133.54	*	2.351E-03	2.657E-01	3.727E-01	5.425E-02	0.006
PM-144		476.78		4.788E-02	7.352E-02	1.257E-01	8.711E-03	0.381
		618.01		8.563E-03	3.942E-02	5.958E-02	3.767E-03	0.144
		696.49	*	3.582E-02	3.862E-02	6.679E-02	4.281E-03	0.536
		778.57		-7.607E-01	2.867E+00	3.824E+00	2.889E-01	-0.199

## ---- 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	*		2.433E+00	2.624E+00	4.538E+00	2.905E-01	0.536
	1489.15			5.272E-01	1.156E+01	1.902E+01	1.314E+00	0.028
PM-146	453.90	*		2.799E-02	4.717E-02	8.033E-02	6.877E-03	0.348
	633.02			6.974E-01	1.491E+00	2.475E+00	9.121E-01	0.282
	735.90			-1.716E-02	1.608E-01	2.564E-01	7.216E-02	-0.067
	747.13			5.846E-02	1.039E-01	1.748E-01	2.300E-02	0.334
ND-147	91.11	+		1.475E+00	4.908E-01	8.062E-01	7.411E-02	1.830
	319.41			1.863E+00	5.084E+00	8.596E+00	4.991E-01	0.217
	439.89			4.056E+00	8.552E+00	1.448E+01	8.196E-01	0.280
	531.90	*		8.332E-01	7.901E-01	1.379E+00	1.871E-01	0.604
PM-149	285.90	*		3.117E-04	7.901E-01	Half-Life	too short	
EU-152	121.78			-2.446E-02	8.200E-02	1.304E-01	1.128E-02	-0.188
	244.69			2.945E-01	4.036E-01	6.131E-01	3.532E-02	0.480
	344.27	*		-6.717E-02	1.184E-01	1.711E-01	1.107E-02	-0.393
	443.98			-2.798E-01	1.060E+00	1.713E+00	9.715E-02	-0.163
	778.89			6.801E-02	3.006E-01	4.490E-01	3.391E-02	0.151
	867.32			-6.414E-01	9.077E-01	1.424E+00	1.266E-01	-0.450
	964.01	+		8.623E-01	3.934E-01	6.012E-01	5.242E-02	1.434
	1085.78			-1.442E-01	4.151E-01	6.643E-01	4.687E-02	-0.217
	1112.02			3.132E-01	3.625E-01	5.781E-01	3.828E-02	0.542
	1407.95			2.399E-01	2.045E-01	3.805E-01	2.682E-02	0.631
GD-153	69.67	+		3.929E-01	1.889E+00	2.713E+00	1.940E-01	0.145
	83.37			3.287E+01	1.525E+01	2.607E+01	2.155E+00	1.261
	97.43	*		5.526E-02	9.232E-02	1.346E-01	1.079E-02	0.411
	103.18			-5.631E-02	1.179E-01	1.868E-01	1.441E-02	-0.301
EU-154	123.07			4.330E-02	5.966E-02	9.532E-02	9.753E-03	0.454
	247.94			1.264E-02	4.034E-01	6.157E-01	5.863E-02	0.021
	591.81			-6.747E-01	6.316E-01	9.252E-01	9.143E-02	-0.729
	723.30			9.655E-02	2.075E-01	3.049E-01	2.406E-02	0.317
	756.87			1.005E+00	8.382E-01	1.477E+00	1.628E-01	0.681
	873.19			4.613E-02	3.195E-01	5.415E-01	6.771E-02	0.085
	996.32			6.323E-02	4.041E-01	6.818E-01	1.202E-01	0.093
	1004.76			-7.779E-02	2.257E-01	3.632E-01	4.123E-02	-0.214
	1274.45	*		4.757E-02	1.214E-01	2.082E-01	2.041E-02	0.228
EU-155	48.70			-6.484E-01	1.878E+00	3.021E+00	1.936E-01	-0.215
	60.01			4.132E-01	5.057E+00	7.188E+00	4.778E-01	0.057
	86.54	+		5.052E-01	1.326E-01	2.004E-01	1.739E-02	2.521
	105.31	*		7.559E-02	1.171E-01	1.935E-01	1.498E-02	0.391
TB-160	86.79	+		1.411E+00	3.698E-01	5.548E-01	4.781E-02	2.543
	197.04			1.622E-01	6.244E-01	1.061E+00	5.880E-02	0.153
	215.65			1.973E-02	8.862E-01	1.357E+00	7.657E-02	0.015
	298.57	+		2.820E-01	1.604E-01	2.323E-01	1.354E-02	1.214
	879.36	*		4.229E-02	1.510E-01	2.590E-01	2.353E-02	0.163
	962.29			9.700E-01	5.859E-01	1.091E+00	9.538E-02	0.889
	966.15			1.136E+00	2.929E-01	5.689E-01	4.947E-02	1.997
	1177.93			-1.641E-01	4.454E-01	7.178E-01	3.987E-02	-0.229
	1271.85			5.864E-01	7.466E-01	1.330E+00	8.638E-02	0.441
HO-166M	80.57			6.962E-02	4.169E-01	4.306E-01	3.446E-02	0.162
	184.41			1.362E-01	4.735E-02	7.809E-02	4.271E-03	1.744

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		280.46		-3.477E-02	9.141E-02	1.497E-01	8.727E-03	-0.232
		410.95		3.332E-01	2.803E-01	4.907E-01	2.715E-02	0.679
		711.68	*	2.219E-02	6.649E-02	1.103E-01	7.287E-03	0.201
		752.31		-1.290E-01	3.028E-01	4.685E-01	3.360E-02	-0.275
		810.29		-4.619E-03	6.790E-02	1.083E-01	8.681E-03	-0.043
TM-171		51.35		-1.624E+01	2.471E+01	3.940E+01	2.555E+00	-0.412
		52.39		-7.477E+00	1.311E+01	2.098E+01	1.364E+00	-0.356
		59.40		2.847E+00	2.714E+01	3.862E+01	2.558E+00	0.074
		66.72	*	-1.265E+01	3.419E+01	4.445E+01	3.099E+00	-0.285
LU-176	+	88.36		9.930E-01	2.603E-01	4.094E-01	3.567E-02	2.425
		201.83		-1.254E-02	3.199E-02	5.160E-02	2.874E-03	-0.243
		306.84	*	-1.602E-03	2.731E-02	4.271E-02	2.487E-03	-0.038
		401.10		1.299E+00	7.433E+00	1.238E+01	6.791E-01	0.105
LU-177		112.95		1.521E+00	2.916E+00	4.793E+00	3.520E-01	0.317
	+	208.36	*	6.854E+00	2.836E+00	3.753E+00	2.103E-01	1.826
LU-177M		52.97		-6.664E-01	1.376E+00	2.209E+00	1.439E-01	-0.302
		54.07		2.943E-01	7.380E-01	1.222E+00	7.980E-02	0.241
		61.30		1.214E+00	1.579E+00	2.311E+00	1.549E-01	0.526
		121.62		-1.920E-01	4.314E-01	6.818E-01	4.849E-02	-0.282
		147.16		-9.414E-01	7.651E-01	1.162E+00	7.085E-02	-0.810
		171.86		6.996E-03	5.474E-01	8.745E-01	4.719E-02	0.008
		218.09		-1.342E-01	9.062E-01	1.512E+00	8.548E-02	-0.089
	+	268.79		2.205E+00	1.309E+00	1.671E+00	9.725E-02	1.319
		319.02		9.897E-02	2.977E-01	5.025E-01	2.916E-02	0.197
		367.43		-5.210E-01	9.856E-01	1.578E+00	8.845E-02	-0.330
		413.65	*	-3.722E-01	2.099E-01	3.075E-01	1.705E-02	-1.211
HF-181		56.28		-1.301E-01	9.060E-01	1.472E+00	9.659E-02	-0.088
		57.53		1.584E-01	5.331E-01	8.147E-01	5.364E-02	0.194
		65.20		1.215E+00	1.125E+00	1.674E+00	1.153E-01	0.726
		133.02		-3.997E-02	9.306E-02	1.273E-01	8.459E-03	-0.314
		136.25		5.063E-02	5.514E-01	8.887E-01	5.792E-02	0.057
		345.85		-9.931E-02	2.600E-01	3.624E-01	2.071E-02	-0.274
		482.03	*	-3.597E-03	4.941E-02	8.056E-02	4.672E-03	-0.045
W-181		56.28		-4.853E-02	3.369E-01	5.473E-01	3.592E-02	-0.089
		57.53		5.900E-02	1.984E-01	3.032E-01	1.996E-02	0.195
		65.20	*	4.487E-01	4.155E-01	6.180E-01	4.258E-02	0.726
TA-182		67.75		2.149E-03	1.774E-01	1.818E-01	1.279E-02	0.012
		100.10		2.924E-01	2.080E-01	3.289E-01	2.588E-02	0.889
		152.43		4.550E-02	3.856E-01	6.205E-01	3.658E-02	0.073
		222.10		-1.384E-02	3.796E-01	6.361E-01	3.608E-02	-0.022
		1001.68		-1.607E+00	2.252E+00	3.529E+00	2.917E-01	-0.455
	+	1121.28		1.011E+00	2.998E-01	4.292E-01	2.774E-02	2.354
		1189.05		-1.321E-01	3.482E-01	5.550E-01	3.143E-02	-0.238
		1221.42	*	-5.816E-02	2.446E-01	3.958E-01	2.368E-02	-0.147
		1230.97		-3.966E-01	5.262E-01	8.080E-01	4.910E-02	-0.491
RE-183		57.98		5.329E-02	2.122E-01	3.069E-01	2.023E-02	0.174
		59.32		1.679E-02	1.166E-01	1.662E-01	1.101E-02	0.101
		67.20		-9.675E-02	2.806E-01	3.288E-01	2.302E-02	-0.294
		162.32	*	3.487E-02	1.327E-01	2.145E-01	1.182E-02	0.163

----- 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		3.922E+00	1.623E+00	2.160E+00	1.211E-01	1.816
		291.72		2.458E-01	1.200E+00	1.760E+00	1.027E-01	0.140
		57.98		1.909E-01	7.603E-01	1.099E+00	7.249E-02	0.174
		59.32		6.009E-02	4.175E-01	5.951E-01	3.942E-02	0.101
		67.20		-3.465E-01	1.005E+00	1.178E+00	8.244E-02	-0.294
		161.27		1.148E-02	4.245E-01	6.797E-01	3.772E-02	0.017
		216.55		-1.039E-01	2.903E-01	4.673E-01	2.638E-02	-0.222
		252.85	*	-1.330E-01	2.405E-01	3.913E-01	2.263E-02	-0.340
		318.01		3.438E-01	5.108E-01	8.762E-01	5.086E-02	0.392
		792.07		-8.437E-01	1.143E+00	1.712E+00	1.326E-01	-0.493
OS-185		903.28		7.626E-01	1.175E+00	1.986E+00	1.854E-01	0.384
		920.93		1.765E-01	5.048E-01	8.339E-01	7.647E-02	0.212
		59.72		1.315E-02	3.107E-01	4.408E-01	2.925E-02	0.030
		61.14		1.044E-01	1.753E-01	2.548E-01	1.706E-02	0.410
		69.30		8.836E-02	3.695E-01	4.952E-01	3.529E-02	0.178
		592.07		-2.427E+00	2.620E+00	3.905E+00	2.335E-01	-0.622
		646.12	*	2.675E-03	4.643E-02	7.560E-02	4.508E-03	0.035
		717.42		-3.660E-01	9.883E-01	1.541E+00	1.030E-01	-0.238
		874.81		-1.755E-01	6.703E-01	1.097E+00	9.883E-02	-0.160
		880.27		7.471E-02	8.387E-01	1.415E+00	1.287E-01	0.053
RE-188		155.03	*	-1.381E-03	2.091E-01	3.346E-01	1.939E-02	-0.004
		477.96		1.040E+00	3.525E+00	5.891E+00	3.410E-01	0.177
		633.10		1.299E+00	3.097E+00	5.196E+00	3.104E-01	0.250
W-188	+	63.58		7.421E+01	6.694E+01	8.957E+01	6.098E+00	0.828
		227.08		6.717E+00	1.465E+01	2.501E+01	1.424E+00	0.269
IR-192		290.67	*	-1.150E+00	9.306E+00	1.335E+01	7.790E-01	-0.086
	+	295.96		1.212E+00	1.995E-01	3.235E-01	1.917E-02	3.746
		308.46		-5.157E-02	1.052E-01	1.703E-01	1.002E-02	-0.303
		316.51	*	4.156E-03	4.016E-02	6.707E-02	3.915E-03	0.062
		468.07		3.887E-02	8.054E-02	1.199E-01	7.971E-03	0.324
AU-195		604.41		3.522E-01	5.615E-01	8.395E-01	9.607E-02	0.420
		612.46		3.085E+00	1.078E+00	1.834E+00	1.414E-01	1.682
		65.12		2.198E-01	1.910E-01	2.848E-01	1.961E-02	0.772
		66.83		-4.242E-02	1.146E-01	1.490E-01	1.040E-02	-0.285
	+	75.70		1.554E+00	3.043E-01	5.177E-01	3.927E-02	3.001
TL-200		98.88	*	1.137E-01	2.761E-01	3.984E-01	3.161E-02	0.285
	+	129.76		3.092E+00	3.895E+00	5.656E+00	3.832E-01	0.547
		367.94	*	-6.094E-03	3.895E+00	Half-Life	too short	
		579.30		2.352E-02	3.895E+00	Half-Life	too short	
		828.27		-3.112E-02	3.895E+00	Half-Life	too short	
TL-201		1205.75		2.232E-02	3.895E+00	Half-Life	too short	
		68.90		3.981E+00	1.903E+01	2.306E+01	1.637E+00	0.173
		70.82		4.514E+00	9.275E+00	1.347E+01	9.731E-01	0.335
		80.30		9.424E+00	2.330E+01	2.452E+01	1.956E+00	0.384
		135.34		2.094E+01	8.520E+01	1.382E+02	9.053E+00	0.152
TL-202		167.43	*	1.460E+00	2.296E+01	3.679E+01	1.976E+00	0.040
		68.90		1.565E-01	7.481E-01	9.065E-01	6.438E-02	0.173
		70.82		1.770E-01	3.637E-01	5.280E-01	3.816E-02	0.335
		80.30		3.696E-01	9.138E-01	9.616E-01	7.672E-02	0.384

---- 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	*	2.980E-02	9.823E-02	1.646E-01	9.308E-03	0.181
		70.83		6.388E-01	1.290E+00	1.870E+00	2.388E-01	0.341
		72.87		3.616E+00	8.492E-01	1.323E+00	1.643E-01	2.734
		82.60		2.157E+00	1.872E+00	2.059E+00	2.775E-01	1.048
BI-207		279.20	*	5.314E-02	4.695E-02	8.210E-02	5.080E-03	0.647
		72.80		9.180E-01	2.065E-01	3.559E-01	2.621E-02	2.579
	+	74.97		8.464E-01	1.658E-01	2.599E-01	1.957E-02	3.257
	+	84.90		4.194E-01	1.946E-01	3.518E-01	2.963E-02	1.192
TL-207	+	569.67		1.258E-01	8.160E-02	8.016E-02	4.782E-03	1.569
		1063.62	*	3.867E-02	5.475E-02	9.676E-02	7.161E-03	0.400
		1770.23		3.441E-01	5.263E-01	8.646E-01	5.164E-02	0.398
		81.07		6.201E-02	3.332E-01	3.446E-01	2.774E-02	0.180
PO-209	+	83.78		2.765E-01	1.283E-01	2.187E-01	1.817E-02	1.264
		94.90		9.733E-01	3.003E-01	4.693E-01	3.840E-02	2.074
		122.32		4.396E-01	1.945E+00	3.159E+00	2.479E-01	0.139
		144.24		5.477E-01	7.898E-01	1.293E+00	9.782E-02	0.424
BI-210		154.21		-2.052E-01	4.603E-01	7.235E-01	5.090E-02	-0.284
	+	269.46		5.054E-01	3.003E-01	3.865E-01	2.350E-02	1.308
		323.87	*	-1.499E-01	8.613E-01	1.226E+00	2.024E-01	-0.122
	+	338.28		7.372E+00	1.765E+00	2.658E+00	2.792E-01	2.773
PB-210		445.03		7.688E-01	2.429E+00	4.073E+00	4.154E-01	0.189
		260.50		3.316E+00	1.015E+01	1.721E+01	9.989E-01	0.193
		262.80		-2.344E+01	2.893E+01	4.505E+01	2.616E+00	-0.520
		896.60	*	9.893E-01	8.052E+00	1.361E+01	1.274E+00	0.073
PB-211		46.50	*	-1.067E+00	2.589E+00	4.213E+00	3.124E-01	-0.253
		46.50	*	-1.067E+00	2.589E+00	4.213E+00	3.124E-01	-0.253
		46.50	*	-1.067E+00	2.588E+00	4.213E+00	2.643E-01	-0.253
		404.84	*	-8.687E-01	1.217E+00	1.716E+00	1.069E+00	-0.506
BI-212		427.08		-2.692E-01	2.284E+00	3.721E+00	2.300E+00	-0.072
		831.96		-1.469E-01	1.200E+00	1.986E+00	1.244E+00	-0.074
	+	727.18	*	1.305E+00	5.252E-01	7.673E-01	6.528E-02	1.701
		785.46		4.725E-01	2.010E+00	3.206E+00	2.452E-01	0.147
PO-215		1620.62		7.075E-01	1.328E+00	2.343E+00	1.535E-01	0.302
		81.07		6.201E-02	3.332E-01	3.446E-01	2.774E-02	0.180
	+	83.78		2.765E-01	1.283E-01	2.187E-01	1.817E-02	1.264
		94.90		9.733E-01	3.003E-01	4.693E-01	3.840E-02	2.074
RN-219		122.32		4.396E-01	1.945E+00	3.159E+00	2.479E-01	0.139
		144.24		5.477E-01	7.898E-01	1.293E+00	9.782E-02	0.424
		154.21		-2.052E-01	4.603E-01	7.235E-01	5.090E-02	-0.284
	+	269.46		5.054E-01	3.003E-01	3.865E-01	2.350E-02	1.308
RA-223		323.87	*	-1.499E-01	8.613E-01	1.226E+00	2.024E-01	-0.122
	+	338.28		7.372E+00	1.765E+00	2.658E+00	2.792E-01	2.773
		445.03		7.688E-01	2.429E+00	4.073E+00	4.154E-01	0.189
	+	271.23		6.485E-01	3.868E-01	5.026E-01	4.081E-02	1.290
RN-220		401.81	*	5.135E-02	4.626E-01	7.676E-01	1.035E-01	0.067
		549.76	*	1.736E+01	2.863E+01	4.871E+01	2.895E+00	0.356
RA-223		81.07		6.201E-02	3.332E-01	3.446E-01	2.774E-02	0.180
	+	83.78		2.765E-01	1.283E-01	2.187E-01	1.817E-02	1.264
		94.90		9.733E-01	3.003E-01	4.693E-01	3.840E-02	2.074

---- 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		4.396E-01	1.945E+00	3.159E+00	2.479E-01	0.139
		144.24		5.477E-01	7.898E-01	1.293E+00	9.782E-02	0.424
		154.21		-2.052E-01	4.603E-01	7.235E-01	5.090E-02	-0.284
	+	269.46		5.054E-01	3.003E-01	3.865E-01	2.350E-02	1.308
		323.87	*	-1.499E-01	8.613E-01	1.226E+00	2.024E-01	-0.122
	+	338.28		7.372E+00	1.765E+00	2.658E+00	2.792E-01	2.773
		445.03		7.688E-01	2.429E+00	4.073E+00	4.154E-01	0.189
		79.80		4.224E+00	2.763E+00	2.991E+00	6.351E-01	1.412
		236.00		2.728E+00	4.496E-01	6.636E-01	6.911E-02	4.110
		256.20	*	4.273E-02	3.948E-01	6.632E-01	9.256E-02	0.064
		286.10		9.730E-01	1.590E+00	2.723E+00	3.153E-01	0.357
	+	299.80		3.429E+00	2.019E+00	2.770E+00	4.515E-01	1.238
TH-227		304.40		-6.570E-01	2.210E+00	3.117E+00	5.395E-01	-0.211
		334.20		-4.166E-01	2.995E+00	4.019E+00	7.363E-01	-0.104
		79.80		4.224E+00	2.766E+00	2.991E+00	6.435E-01	1.412
	+	94.00		1.419E+01	4.419E+00	4.296E+00	9.294E-01	3.304
		236.00		2.728E+00	4.265E-01	6.636E-01	5.981E-02	4.110
		256.20	*	4.273E-02	3.948E-01	6.632E-01	1.121E-01	0.064
		286.10		9.730E-01	1.862E+00	2.723E+00	2.728E+00	0.357
	+	299.80		3.429E+00	2.019E+00	2.770E+00	4.515E-01	1.238
		304.40		-6.570E-01	2.210E+00	3.117E+00	5.395E-01	-0.211
		334.20		-4.166E-01	2.995E+00	4.019E+00	7.363E-01	-0.104
	+	85.43		4.139E-01	1.920E-01	3.716E-01	3.150E-02	1.114
	+	88.47		5.716E-01	1.498E-01	2.358E-01	2.052E-02	2.424
TH-229		100.00		2.874E-01	2.093E-01	3.307E-01	2.604E-02	0.869
		193.63	*	-1.145E-01	5.756E-01	9.080E-01	5.015E-02	-0.126
		210.97		2.261E+00	9.263E-01	1.515E+00	8.509E-02	1.493
		283.67	*	-1.065E+00	1.632E+00	2.621E+00	3.616E-01	-0.406
PA-231	+	301.29		1.372E+00	7.894E-01	1.096E+00	1.147E-01	1.252
TH-231		81.07		6.201E-02	3.332E-01	3.446E-01	2.774E-02	0.180
	+	83.78		2.765E-01	1.283E-01	2.187E-01	1.817E-02	1.264
		94.90		9.733E-01	3.003E-01	4.693E-01	3.840E-02	2.074
U-231		122.32		4.396E-01	1.945E+00	3.159E+00	2.479E-01	0.139
		144.24		5.477E-01	7.898E-01	1.293E+00	9.782E-02	0.424
		154.21		-2.052E-01	4.603E-01	7.235E-01	5.090E-02	-0.284
	+	269.46		5.054E-01	3.003E-01	3.865E-01	2.350E-02	1.308
		323.87	*	-1.499E-01	8.613E-01	1.226E+00	2.024E-01	-0.122
	+	338.28		7.372E+00	1.765E+00	2.658E+00	2.792E-01	2.773
		445.03		7.688E-01	2.429E+00	4.073E+00	4.154E-01	0.189
	+	84.21		2.645E+01	1.228E+01	2.116E+01	1.767E+00	1.250
	+	92.29		3.115E+01	7.430E+00	1.007E+01	8.434E-01	3.092
		95.87	*	9.281E-01	2.896E+00	4.159E+00	3.376E-01	0.223
		108.00		1.031E+00	4.840E+00	7.876E+00	5.918E-01	0.131
	+	75.28		2.469E+01	5.764E+00	7.921E+00	1.170E+00	3.117
PA-233	+	86.59		8.196E+00	2.991E+00	3.245E+00	8.702E-01	2.526
	+	300.12		9.559E-01	5.561E-01	7.685E-01	1.034E-01	1.244
		311.98	*	-5.648E-03	6.805E-02	1.126E-01	6.954E-03	-0.050
		340.50		2.302E+00	9.614E-01	1.363E+00	3.129E-01	1.688
		398.62		-2.493E-01	2.353E+00	3.856E+00	9.943E-01	-0.065



---- 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		4.254E-01	1.832E+00	3.055E+00	6.269E-01	0.139
		63.00		2.051E+00	1.869E+00	2.477E+00	3.606E-01	0.828
		94.67		1.015E+00	2.407E-01	3.533E-01	4.280E-02	2.874
		98.44		4.897E-02	1.112E-01	1.560E-01	8.688E-02	0.314
		99.86		5.267E-01	5.361E-01	8.345E-01	6.577E-02	0.631
		111.00		-2.004E-01	2.010E-01	3.093E-01	3.482E-02	-0.648
		131.20		1.431E-01	1.374E-01	2.029E-01	1.363E-02	0.706
		152.70		1.222E-01	3.640E-01	5.901E-01	9.347E-02	0.207
		186.00		7.684E+00	3.386E+00	2.942E+00	8.973E-01	2.612
		226.40		9.676E-02	4.482E-01	7.577E-01	8.718E-02	0.128
		227.20		2.234E-01	4.719E-01	8.059E-01	4.589E-02	0.277
		248.90		-3.662E-01	8.693E-01	1.381E+00	2.966E-01	-0.265
		293.70		7.291E+00	1.622E+00	1.935E+00	3.114E-01	3.769
		369.80		-1.431E-01	9.229E-01	1.511E+00	3.139E-01	-0.095
		568.70		4.093E+00	2.655E+00	2.661E+00	1.587E-01	1.538
		569.50		1.116E+00	7.241E-01	7.134E-01	4.256E-02	1.564
		574.00		6.846E-01	1.887E+00	2.755E+00	1.645E-01	0.248
		699.00		-1.666E-01	8.203E-01	1.303E+00	2.371E-01	-0.128
		706.10		4.241E-01	1.179E+00	1.935E+00	8.557E-01	0.219
		733.00		2.214E-01	4.534E-01	6.658E-01	1.437E-01	0.333
		742.81		2.093E-01	1.525E+00	2.476E+00	1.660E+00	0.085
		796.30		1.257E+00	1.024E+00	1.728E+00	4.631E-01	0.727
		805.60		4.883E-01	1.159E+00	1.913E+00	5.830E-01	0.255
		819.60		4.150E-01	1.308E+00	2.239E+00	8.491E-01	0.185
		826.30		-6.159E-01	8.632E-01	1.278E+00	5.707E-01	-0.482
		831.60		-1.548E-01	6.235E-01	1.020E+00	3.037E-01	-0.152
		876.40		-4.882E-01	1.019E+00	1.411E+00	1.451E+00	-0.346
		880.51		3.957E-02	2.939E-01	4.978E-01	4.530E-02	0.079
		883.24		-7.017E-02	3.062E-01	4.958E-01	3.336E-01	-0.142
		899.00		-1.687E-01	9.492E-01	1.559E+00	6.840E-01	-0.108
		925.00		8.719E-01	1.331E+00	2.339E+00	2.136E-01	0.373
		926.50		9.640E-02	1.976E-01	3.410E-01	8.678E-02	0.283
		946.00	*	-6.402E-03	3.345E-01	5.572E-01	1.053E-01	-0.011
		949.00		2.434E-01	4.867E-01	8.461E-01	7.517E-02	0.288
		980.50		-4.568E-01	7.518E-01	1.175E+00	1.002E-01	-0.389
		1394.10		3.263E-01	1.171E+00	1.965E+00	1.275E+00	0.166
PA-234M	+	766.42		2.302E+01	1.906E+01	2.429E+01	1.228E+01	0.948
		1001.03	*	-3.519E+00	5.047E+00	7.924E+00	7.661E-01	-0.444
U-235	+	89.95		4.329E+00	1.923E+00	2.132E+00	6.576E-01	2.031
		93.35		4.416E+00	1.580E+00	1.370E+00	3.825E-01	3.224
		105.00		6.603E-01	1.166E+00	1.897E+00	5.611E-01	0.348
		143.76	*	1.950E-01	2.447E-01	3.994E-01	6.574E-02	0.488
		163.35		-2.068E-01	5.332E-01	8.364E-01	1.495E-01	-0.247
		185.71		2.846E-01	9.185E-02	1.085E-01	5.941E-03	2.624
NP-236	+	205.31		-1.735E-01	6.501E-01	9.373E-01	1.679E-01	-0.185
		94.67		7.735E-01	1.694E-01	2.683E-01	2.200E-02	2.883
		98.44		3.699E-02	8.152E-02	1.179E-01	9.388E-03	0.314
		111.00		-1.515E-01	1.515E-01	2.340E-01	1.733E-02	-0.648
		160.31	*	1.258E-02	9.487E-02	1.525E-01	8.524E-03	0.082

---- 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		1.424E-01	1.891E-01	2.773E-01	2.190E-02	0.514
		117.00	*	-7.702E-02	2.110E-01	3.350E-01	2.421E-02	-0.230
	+	209.75		2.949E+00	1.220E+00	1.593E+00	8.936E-02	1.852
		228.18		1.515E-01	2.485E-01	4.264E-01	2.430E-02	0.355
		277.60		1.691E-01	1.936E-01	3.351E-01	1.953E-02	0.505
AM-241		334.30		-2.658E-01	1.695E+00	2.272E+00	1.309E-01	-0.117
		59.54	*	3.395E-03	1.578E-01	2.236E-01	1.660E-02	0.015
	CM-243	99.55		1.466E-01	1.947E-01	2.854E-01	2.254E-02	0.514
		103.76	*	7.658E-02	1.053E-01	1.745E-01	1.342E-02	0.439
		117.00		-7.926E-02	2.172E-01	3.447E-01	2.491E-02	-0.230
AM-246	+	209.75		2.908E+00	1.203E+00	1.570E+00	8.812E-02	1.852
		228.18		1.532E-01	2.512E-01	4.310E-01	2.456E-02	0.355
		277.60		1.705E-01	1.953E-01	3.379E-01	1.970E-02	0.505
		798.80		-3.046E-01	1.622E-01	2.109E-01	1.654E-02	-1.445
		1036.00		8.644E-02	3.025E-01	5.168E-01	4.034E-02	0.167
CM-247		1062.04		1.415E-01	2.340E-01	4.106E-01	3.048E-02	0.345
		1078.86	*	1.817E-01	1.627E-01	2.946E-01	2.111E-02	0.617
		278.00		9.367E-01	7.937E-01	1.391E+00	8.108E-02	0.673
		287.40		2.728E-01	1.289E+00	2.171E+00	1.267E-01	0.126
		402.60	*	7.191E-03	4.150E-02	6.911E-02	3.796E-03	0.104
CF-249		252.85		-4.894E-01	8.847E-01	1.439E+00	8.326E-02	-0.340
		333.44		1.281E-01	2.558E-01	3.068E-01	1.768E-02	0.418
		387.95	*	5.086E-02	4.126E-02	7.295E-02	3.989E-03	0.697
CF-251		176.60	*	-6.095E-02	1.445E-01	2.263E-01	1.227E-02	-0.269
		227.00		1.876E-01	4.187E-01	7.144E-01	4.068E-02	0.263
		285.00		-8.369E-01	1.844E+00	3.003E+00	1.752E-01	-0.279

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101009      *
* Acquisition date   : 2-FEB-2010 10:55:07 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 02:00:01.40 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G245101009 Analyst initials: MXR1                  *
* Batch Number      : 944037 Sample Quantity : 1.1428E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME  : 6-MAR-2009 11:43:06 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.556E+01	2.531E+00	5.190E-01	0.000E+00
CD-109	4.291E+00	1.102E+00	1.246E+00	0.000E+00
SN-126	4.187E-01	1.075E-01	1.220E-01	0.000E+00
BA-137M	2.724E-01	6.449E-02	6.642E-02	0.000E+00
CS-137	2.880E-01	6.819E-02	7.021E-02	0.000E+00
TL-208	5.804E-01	9.147E-02	6.325E-02	0.000E+00
BI-211	4.635E+00	5.202E-01	3.457E-01	0.000E+00
PB-212	1.707E+00	1.691E-01	9.689E-02	0.000E+00
PO-212	1.707E+00	1.691E-01	9.689E-02	0.000E+00
BI-214	1.324E+00	2.292E-01	1.178E-01	0.000E+00
PB-214	1.612E+00	1.989E-01	1.184E-01	0.000E+00
PO-214	1.612E+00	1.989E-01	1.184E-01	0.000E+00
PO-216	1.707E+00	1.691E-01	9.689E-02	0.000E+00
PO-218	1.612E+00	1.989E-01	1.184E-01	0.000E+00
RA-224	4.682E+00	1.329E+00	1.102E+00	0.000E+00
RA-226	1.324E+00	2.292E-01	1.178E-01	0.000E+00
AC-228	1.832E+00	3.479E-01	2.303E-01	0.000E+00
RA-228	1.832E+00	3.479E-01	2.303E-01	0.000E+00
TH-228	1.742E+00	1.725E-01	9.883E-02	0.000E+00
TH-230	1.324E+00	2.292E-01	1.178E-01	0.000E+00
TH-232	1.832E+00	3.479E-01	2.303E-01	0.000E+00
TH-234	1.759E+00	1.579E+00	2.004E+00	0.000E+00
U-234	1.324E+00	2.292E-01	1.178E-01	0.000E+00
NP-237	1.229E+00	4.019E-01	3.612E-01	0.000E+00
U-238	1.759E+00	1.579E+00	2.004E+00	0.000E+00
AM-243	4.714E-01	9.048E-02	8.989E-02	0.000E+00
ANH-511	5.547E-02	7.863E-02	5.201E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	5.123E-02	3.701E-01	6.285E-01	0.000E+00	NOT IDENT.
NA-22	1.707E-02	4.267E-02	7.451E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.647E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	3.247E-02	2.866E-02	5.768E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.184E-02	8.902E-02	0.000E+00	FAIL ABUN
SC-46	8.611E-03	4.465E-02	7.746E-02	0.000E+00	FAIL ABUN
V-48	-2.725E-03	8.288E-02	1.403E-01	0.000E+00	NOT IDENT.
CR-51	3.102E-01	4.783E-01	8.234E-01	0.000E+00	NOT IDENT.
MN-52	-2.222E-01	4.452E-01	6.859E-01	0.000E+00	NOT IDENT.
MN-54	-8.982E-03	3.802E-02	6.389E-02	0.000E+00	NOT IDENT.
CO-56	1.412E-02	4.402E-02	7.725E-02	0.000E+00	NOT IDENT.
CO-57	-2.690E-03	2.797E-02	4.662E-02	0.000E+00	NOT IDENT.
CO-58	-6.115E-03	4.649E-02	7.532E-02	0.000E+00	NOT IDENT.
FE-59	1.686E-02	1.060E-01	1.816E-01	0.000E+00	NOT IDENT.
CO-60	-2.893E-02	3.884E-02	5.837E-02	0.000E+00	NOT IDENT.
ZN-65	1.719E-02	9.928E-02	1.476E-01	0.000E+00	NOT IDENT.
GE-68	1.841E+00	1.422E+00	2.650E+00	0.000E+00	NOT IDENT.
AS-73	-2.842E-01	7.115E-01	1.200E+00	0.000E+00	NOT IDENT.
AS-74	6.709E-02	1.084E-01	1.893E-01	0.000E+00	NOT IDENT.
SE-75	-1.033E-03	5.223E-02	7.819E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	4.607E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	3.383E-02	5.080E-01	7.255E-01	0.000E+00	NOT IDENT.
RB-83	-5.624E-02	7.766E-02	1.192E-01	0.000E+00	NOT IDENT.
RB-84	4.897E-02	7.855E-02	1.412E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	9.006E+00	1.528E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.859E-02	8.243E-02	0.000E+00	NOT IDENT.
RB-86	1.038E+00	1.068E+00	1.947E+00	0.000E+00	NOT IDENT.
Y-88	1.071E-02	3.422E-02	5.971E-02	0.000E+00	NOT IDENT.
ZR-88	-3.754E-03	3.216E-02	5.419E-02	0.000E+00	NOT IDENT.
Y-91	1.994E-02	2.012E+01	3.381E+01	0.000E+00	NOT IDENT.
NB-94	-1.629E-02	3.691E-02	5.881E-02	0.000E+00	NOT IDENT.
NB-95	5.650E-02	5.617E-02	8.827E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.859E-01	3.210E-01	0.000E+00	NOT IDENT.
ZR-95	7.120E-02	7.933E-02	1.402E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.433E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.577E+08	0.000E+00	0.000E+00	SHORT HLIF
MQ-99	-2.189E+01	4.201E+01	6.577E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.096E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	5.995E-03	3.423E-02	6.001E-02	0.000E+00	NOT IDENT.
RH-102	1.771E-03	3.126E-02	5.282E-02	0.000E+00	NOT IDENT.
RU-103	3.091E-02	4.394E-02	7.730E-02	0.000E+00	FAIL ABUN
RH-106	-1.905E-03	3.459E-01	5.747E-01	0.000E+00	FAIL ABUN
RU-106	-1.905E-03	3.459E-01	5.747E-01	0.000E+00	FAIL ABUN
AG-108M	1.111E-02	3.368E-02	5.812E-02	0.000E+00	NOT IDENT.
AG-110M	-6.732E-03	4.366E-02	6.131E-02	0.000E+00	NOT IDENT.
IN-111	-3.441E-01	4.037E+00	6.039E+00	0.000E+00	NOT IDENT.
IN-113M	-2.916E-02	4.736E-02	7.735E-02	0.000E+00	NOT IDENT.
SN-113	-2.916E-02	4.736E-02	7.735E-02	0.000E+00	NOT IDENT.
IN-114M	6.918E-02	2.267E-01	3.502E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.185E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	4.757E-02	8.253E-02	1.399E-01	0.000E+00	NOT IDENT.
SB-122	9.174E+00	8.708E+00	1.388E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.109E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	2.367E-02	3.439E-02	5.852E-02	0.000E+00	NOT IDENT.
I-124	-6.580E-01	1.781E+00	2.456E+00	0.000E+00	NOT IDENT.
SB-124	6.738E-03	8.200E-02	1.370E-01	0.000E+00	FAIL ABUN
SB-125	-3.497E-02	1.007E-01	1.666E-01	0.000E+00	FAIL ABUN
TE-125M	-5.664E+00	1.038E+01	1.703E+01	0.000E+00	NOT IDENT.
I-126	2.185E-01	2.950E-01	4.549E-01	0.000E+00	NOT IDENT.
SB-126	-2.956E-02	2.219E-01	3.101E-01	0.000E+00	FAIL ABUN
SB-127	4.179E-01	3.417E+00	5.709E+00	0.000E+00	NOT IDENT.
XE-127	-2.488E-02	6.021E-02	9.358E-02	0.000E+00	NOT IDENT.
I-131	2.398E-02	1.823E-01	3.128E-01	0.000E+00	NOT IDENT.
TE-132	1.304E+00	2.092E+00	3.697E+00	0.000E+00	NOT IDENT.
BA-133	-8.159E-03	5.102E-02	7.445E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.058E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.501E-02	4.934E-02	9.077E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.924E-01	3.152E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.116E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.259E-01	1.380E-01	2.530E-01	0.000E+00	FAIL ABUN
CE-139	-1.906E-02	3.324E-02	5.370E-02	0.000E+00	NOT IDENT.
BA-140	-2.350E-01	3.477E-01	5.375E-01	0.000E+00	NOT IDENT.
LA-140	-9.041E-02	1.235E-01	1.673E-01	0.000E+00	FAIL ABUN
CE-141	2.067E-02	7.798E-02	1.311E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.011E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.351E-03	2.604E-01	3.794E-01	0.000E+00	NOT IDENT.
PM-144	3.582E-02	3.785E-02	6.697E-02	0.000E+00	NOT IDENT.
PR-144	2.433E+00	2.572E+00	4.550E+00	0.000E+00	NOT IDENT.

PM-146	2.799E-02	4.623E-02	8.087E-02	0.000E+00	NOT IDENT.
ND-147	8.332E-01	7.743E-01	1.386E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.228E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-6.717E-02	1.160E-01	1.727E-01	0.000E+00	FAIL ABUN
GD-153	5.526E-02	9.047E-02	1.374E-01	0.000E+00	FAIL ABUN
EU-154	4.757E-02	1.189E-01	2.076E-01	0.000E+00	NOT IDENT.
EU-155	7.559E-02	1.148E-01	1.974E-01	0.000E+00	FAIL ABUN
TB-160	4.229E-02	1.480E-01	2.592E-01	0.000E+00	FAIL ABUN
HO-166M	2.219E-02	6.516E-02	1.105E-01	0.000E+00	NOT IDENT.
TM-171	-1.265E+01	3.351E+01	4.553E+01	0.000E+00	NOT IDENT.
LU-176	-1.602E-03	2.676E-02	4.315E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.779E+00	3.805E+00	0.000E+00	FAIL ABUN
LU-177M	-3.722E-01	2.057E-01	3.098E-01	0.000E+00	FAIL ABUN
HF-181	-3.597E-03	4.843E-02	8.105E-02	0.000E+00	NOT IDENT.
W-181	4.487E-01	4.072E-01	6.331E-01	0.000E+00	NOT IDENT.
TA-182	-5.816E-02	2.397E-01	3.948E-01	0.000E+00	FAIL ABUN
RE-183	3.487E-02	1.301E-01	2.180E-01	0.000E+00	FAIL ABUN
RE-184	-1.330E-01	2.357E-01	3.960E-01	0.000E+00	NOT IDENT.
OS-185	2.675E-03	4.550E-02	7.586E-02	0.000E+00	NOT IDENT.
RE-188	-1.381E-03	2.049E-01	3.402E-01	0.000E+00	NOT IDENT.
W-188	-1.150E+00	9.120E+00	1.350E+01	0.000E+00	FAIL ABUN
IR-192	4.156E-03	3.936E-02	6.774E-02	0.000E+00	FAIL ABUN
AU-195	1.137E-01	2.706E-01	4.066E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.061E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.460E+00	2.250E+01	3.737E+01	0.000E+00	NOT IDENT.
TL-202	2.980E-02	9.626E-02	1.658E-01	0.000E+00	NOT IDENT.
HG-203	5.314E-02	4.601E-02	8.302E-02	0.000E+00	NOT IDENT.
BI-207	3.867E-02	5.365E-02	9.664E-02	0.000E+00	FAIL ABUN
TL-207	-1.499E-01	8.441E-01	1.238E+00	0.000E+00	FAIL ABUN
PO-209	9.893E-01	7.891E+00	1.361E+01	0.000E+00	NOT IDENT.
BI-210	-1.067E+00	2.537E+00	4.329E+00	0.000E+00	NOT IDENT.
PB-210	-1.067E+00	2.537E+00	4.329E+00	0.000E+00	NOT IDENT.
PO-210	-1.067E+00	2.536E+00	4.329E+00	0.000E+00	NOT IDENT.
PB-211	-8.687E-01	1.192E+00	1.729E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.147E-01	7.691E-01	0.000E+00	FAIL ABUN
PO-215	-1.499E-01	8.441E-01	1.238E+00	0.000E+00	FAIL ABUN
RN-219	5.135E-02	4.534E-01	7.736E-01	0.000E+00	FAIL ABUN
RN-220	1.736E+01	2.806E+01	4.895E+01	0.000E+00	NOT IDENT.
RA-223	-1.499E-01	8.441E-01	1.238E+00	0.000E+00	FAIL ABUN
AC-227	4.273E-02	3.869E-01	6.711E-01	0.000E+00	FAIL ABUN
TH-227	4.273E-02	3.869E-01	6.711E-01	0.000E+00	FAIL ABUN
TH-229	-1.145E-01	5.640E-01	9.212E-01	0.000E+00	FAIL ABUN
PA-231	-1.065E+00	1.599E+00	2.650E+00	0.000E+00	FAIL ABUN
TH-231	-1.499E-01	8.441E-01	1.238E+00	0.000E+00	FAIL ABUN
U-231	9.281E-01	2.838E+00	4.246E+00	0.000E+00	FAIL ABUN
PA-233	-5.648E-03	6.669E-02	1.138E-01	0.000E+00	FAIL ABUN
PA-234	-6.402E-03	3.278E-01	5.571E-01	0.000E+00	FAIL ABUN
PA-234M	-3.519E+00	4.946E+00	7.919E+00	0.000E+00	NOT IDENT.
U-235	1.950E-01	2.398E-01	4.063E-01	0.000E+00	FAIL ABUN
NP-236	1.258E-02	9.298E-02	1.550E-01	0.000E+00	NOT IDENT.
NP-239	-7.702E-02	2.068E-01	3.414E-01	0.000E+00	FAIL ABUN
AM-241	3.395E-03	1.546E-01	2.293E-01	0.000E+00	NOT IDENT.
CM-243	7.658E-02	1.032E-01	1.780E-01	0.000E+00	FAIL ABUN
AM-246	1.817E-01	1.594E-01	2.942E-01	0.000E+00	NOT IDENT.
CM-247	7.191E-03	4.067E-02	6.965E-02	0.000E+00	NOT IDENT.
CF-249	5.086E-02	4.044E-02	7.354E-02	0.000E+00	NOT IDENT.
CF-251	-6.095E-02	1.416E-01	2.297E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101009.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 10:55:07.
Sample ID          : G245101009 Sample quantity : 1.14280E+02 GRAM
Detector name      : GAM14 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           : 944037 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	1005	10.67*	1.211E+00	2.556E+01	2.556E+01	10.10
CD-109	88.03	333	3.72*	7.054E+00	4.164E+00	4.291E+00	26.21
SN-126	64.28	94	9.60	4.613E+00	6.963E-01	6.963E-01	91.07
	86.94	333	8.90	7.054E+00	1.741E+00	1.741E+00	48.20
	87.57	333	37.00*	7.054E+00	4.187E-01	4.187E-01	26.21
BA-137M	661.65	184	89.98*	2.469E+00	2.721E-01	2.724E-01	24.16
CS-137	661.65	184	85.12*	2.469E+00	2.876E-01	2.880E-01	24.16
TL-208	277.35	-----	6.80	5.002E+00	-----	Line Not Found	-----
	510.84	52	21.60	3.089E+00	2.568E-01	2.568E-01	144.89
	583.14	410	84.20*	2.759E+00	5.804E-01	5.804E-01	16.08
	860.37	-----	12.46	1.944E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	5.875E+00	-----	Line Not Found	-----
	351.07	763	12.94*	4.178E+00	4.635E+00	4.635E+00	11.45
PB-212	74.81	576	10.70	6.081E+00	2.908E+00	2.908E+00	21.70
	77.11	813	18.00	6.312E+00	2.350E+00	2.350E+00	14.55
	87.30	333	8.00	7.054E+00	1.936E+00	1.936E+00	28.05
	238.63	1291	44.60*	5.569E+00	1.707E+00	1.707E+00	10.11
	300.09	91	3.41	4.720E+00	1.850E+00	1.850E+00	57.20
PO-212	74.81	576	10.70	6.081E+00	2.908E+00	2.908E+00	21.70
	77.11	813	18.00	6.312E+00	2.350E+00	2.350E+00	14.55
	87.30	333	8.00	7.054E+00	1.936E+00	1.936E+00	28.05
	115.19	-----	0.60	7.689E+00	-----	Line Not Found	-----
	238.63	1291	44.60*	5.569E+00	1.707E+00	1.707E+00	10.11
	300.09	91	3.41	4.720E+00	1.850E+00	1.850E+00	57.20
BI-214	609.31	495	46.30*	2.655E+00	1.324E+00	1.324E+00	17.67
	1120.29	145	15.10	1.523E+00	2.076E+00	2.076E+00	30.40
	1764.49	68	15.80	1.059E+00	1.329E+00	1.329E+00	40.17
PB-214	74.81	576	6.21	6.081E+00	5.010E+00	5.010E+00	20.94
	77.11	813	10.50	6.312E+00	4.028E+00	4.029E+00	16.42
	87.30	333	4.67	7.054E+00	3.317E+00	3.317E+00	27.32
	241.98	311	7.49	5.522E+00	2.469E+00	2.469E+00	29.50
	295.21	424	19.20	4.778E+00	1.519E+00	1.519E+00	17.58

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	763	37.20*	4.178E+00	1.612E+00	1.612E+00	12.59
	74.81	576	6.21	6.081E+00	5.010E+00	5.010E+00	20.94
	77.11	813	10.50	6.312E+00	4.028E+00	4.029E+00	16.42
	87.30	333	4.67	7.054E+00	3.317E+00	3.317E+00	27.32
	241.98	311	7.49	5.522E+00	2.469E+00	2.469E+00	29.50
PO-216	295.21	424	19.20	4.778E+00	1.519E+00	1.519E+00	17.58
	351.92	763	37.20*	4.178E+00	1.612E+00	1.612E+00	12.59
	74.81	576	10.70	6.081E+00	2.908E+00	2.908E+00	21.70
	77.11	813	18.00	6.312E+00	2.350E+00	2.350E+00	14.55
	87.30	333	8.00	7.054E+00	1.936E+00	1.936E+00	28.05
PO-218	238.63	1291	44.60*	5.569E+00	1.707E+00	1.707E+00	10.11
	300.09	91	3.41	4.720E+00	1.850E+00	1.850E+00	57.20
	74.81	576	6.21	6.081E+00	5.010E+00	5.010E+00	20.94
	77.11	813	10.50	6.312E+00	4.028E+00	4.029E+00	16.42
	87.30	333	4.67	7.054E+00	3.317E+00	3.317E+00	27.32
RA-224	241.98	311	7.49	5.522E+00	2.469E+00	2.469E+00	29.50
	295.21	424	19.20	4.778E+00	1.519E+00	1.519E+00	17.58
	351.92	763	37.20*	4.178E+00	1.612E+00	1.612E+00	12.59
	240.98	311	3.95*	5.522E+00	4.682E+00	4.682E+00	28.96
	609.31	495	46.30*	2.655E+00	1.324E+00	1.324E+00	17.67
RA-226	1120.29	145	15.10	1.523E+00	2.076E+00	2.076E+00	30.40
	1764.49	68	15.80	1.059E+00	1.329E+00	1.329E+00	40.17
	338.32	264	11.40	4.309E+00	1.765E+00	1.765E+00	46.09
	911.07	285	27.70*	1.843E+00	1.832E+00	1.832E+00	19.38
	969.11	153	16.60	1.742E+00	1.737E+00	1.737E+00	33.11
RA-228	338.32	264	11.40	4.309E+00	1.765E+00	1.765E+00	46.09
	911.07	285	27.70*	1.843E+00	1.832E+00	1.832E+00	19.38
	969.11	153	16.60	1.742E+00	1.737E+00	1.737E+00	33.11
	74.81	576	10.70	6.081E+00	2.908E+00	2.966E+00	19.62
	77.11	813	18.00	6.312E+00	2.350E+00	2.397E+00	14.55
TH-228	87.30	333	8.00	7.054E+00	1.936E+00	1.975E+00	26.21
	238.63	1291	44.60*	5.569E+00	1.707E+00	1.742E+00	10.11
	300.09	91	3.41	4.720E+00	1.850E+00	1.887E+00	81.71
	609.31	495	46.30*	2.655E+00	1.324E+00	1.324E+00	17.67
	1120.29	145	15.10	1.523E+00	2.076E+00	2.076E+00	30.40
TH-230	1764.49	68	15.80	1.059E+00	1.329E+00	1.329E+00	40.17
	338.32	264	11.40	4.309E+00	1.765E+00	1.765E+00	22.27
	911.07	285	27.70*	1.843E+00	1.832E+00	1.832E+00	19.38
	969.11	153	16.60	1.742E+00	1.737E+00	1.737E+00	33.11
	63.29	94	3.80*	4.613E+00	1.759E+00	1.759E+00	91.58
TH-232	92.38	443	5.41	7.317E+00	3.673E+00	3.673E+00	28.67
	609.31	495	46.30*	2.655E+00	1.324E+00	1.324E+00	17.67
	1120.29	145	15.10	1.523E+00	2.076E+00	2.076E+00	30.40
	1764.49	68	15.80	1.059E+00	1.329E+00	1.329E+00	40.17
	86.50	333	12.60*	7.054E+00	1.229E+00	1.229E+00	33.36
NP-237	95.87	-----	2.60	7.425E+00	-----	Line Not Found	-----
	63.29	94	3.80*	4.613E+00	1.759E+00	1.759E+00	91.58
	92.38	443	5.41	7.317E+00	3.673E+00	3.673E+00	23.85
	74.67	576	66.00*	6.081E+00	4.714E-01	4.714E-01	19.59

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	333	0.34	7.054E+00	4.611E+01	4.611E+01	26.21
	117.66	-----	0.55	7.685E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.399E+00	-----	Line Not Found	-----
ANH-511	511.00	52	100.00*	3.089E+00	5.547E-02	5.547E-02	144.65

Flag: "\*" = Keyline



Total number of lines in spectrum 34  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 31 91.18%

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	2.556E+01	2.556E+01	0.258E+01	10.10	
CD-109	464.00D	1.03	4.164E+00	4.291E+00	1.125E+00	26.21	
SN-126	1.00E+05Y	1.00	4.187E-01	4.187E-01	1.097E-01	26.21	
BA-137M	30.17Y	1.00	2.721E-01	2.724E-01	0.658E-01	24.16	
CS-137	30.17Y	1.00	2.876E-01	2.880E-01	0.696E-01	24.16	
TL-208	1.41E+10Y	1.00	5.804E-01	5.804E-01	0.933E-01	16.08	
BI-211	7.04E+08Y	1.00	4.635E+00	4.635E+00	0.531E+00	11.45	
PB-212	1.41E+10Y	1.00	1.707E+00	1.707E+00	0.173E+00	10.11	
PO-212	1.41E+10Y	1.00	1.707E+00	1.707E+00	0.173E+00	10.11	
BI-214	1600.00Y	1.00	1.324E+00	1.324E+00	0.234E+00	17.67	
PB-214	1600.00Y	1.00	1.612E+00	1.612E+00	0.203E+00	12.59	
PO-214	1600.00Y	1.00	1.612E+00	1.612E+00	0.203E+00	12.59	
PO-216	1.41E+10Y	1.00	1.707E+00	1.707E+00	0.173E+00	10.11	
PO-218	1600.00Y	1.00	1.612E+00	1.612E+00	0.203E+00	12.59	
RA-224	1.41E+10Y	1.00	4.682E+00	4.682E+00	1.356E+00	28.96	
RA-226	1600.00Y	1.00	1.324E+00	1.324E+00	0.234E+00	17.67	
AC-228	1.41E+10Y	1.00	1.832E+00	1.832E+00	0.355E+00	19.38	
RA-228	1.41E+10Y	1.00	1.832E+00	1.832E+00	0.355E+00	19.38	
TH-228	1.91Y	1.02	1.707E+00	1.742E+00	0.176E+00	10.11	
TH-230	4.47E+09Y	1.00	1.324E+00	1.324E+00	0.234E+00	17.67	
TH-232	1.41E+10Y	1.00	1.832E+00	1.832E+00	0.355E+00	19.38	
TH-234	4.47E+09Y	1.00	1.759E+00	1.759E+00	1.611E+00	91.58	
U-234	4.47E+09Y	1.00	1.324E+00	1.324E+00	0.234E+00	17.67	
NP-237	2.14E+06Y	1.00	1.229E+00	1.229E+00	0.410E+00	33.36	
U-238	4.47E+09Y	1.00	1.759E+00	1.759E+00	1.611E+00	91.58	
AM-243	7380.00Y	1.00	4.714E-01	4.714E-01	0.923E-01	19.59	
ANH-511	1.00E+09Y	1.00	5.547E-02	5.547E-02	8.024E-02	144.65	

Total Activity : 6.833E+01 6.850E+01

Grand Total Activity : 6.833E+01 6.850E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101009

Page : 5  
Acquisition date : 2-FEB-2010 10:55:07

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	84.27	143	367	1.87	168.05	164	29	1.98E-02	45.6	6.87E+00	T
3	89.99	256	379	1.58	179.48	164	29	3.55E-02	31.9	7.19E+00	T
0	129.37	54	361	1.21	258.15	254	8	7.45E-03	****	7.59E+00	T
0	185.97	305	433	1.48	371.26	365	14	4.24E-02	31.8	6.53E+00	T
0	209.26	177	304	1.63	417.79	413	11	2.45E-02	41.0	6.08E+00	T
0	269.89	107	238	1.77	538.96	534	11	1.48E-02	59.1	5.10E+00	T
0	328.00	65	175	1.88	655.08	649	10	9.05E-03	80.3	4.41E+00	T
0	462.90	100	90	1.15	924.71	919	11	1.39E-02	41.9	3.35E+00	T
0	568.28	105	173	2.37	1135.37	1127	19	1.46E-02	64.6	2.82E+00	T
0	727.63	106	88	1.02	1453.95	1447	13	1.48E-02	39.3	2.27E+00	T
0	770.46	79	87	5.15	1539.59	1532	17	1.10E-02	59.9	2.15E+00	
1	964.49	66	41	2.08	1927.62	1918	28	9.16E-03	44.8	1.75E+00	T
0	1378.49	17	29	1.43	2755.86	2750	9	2.43E-03	****	1.27E+00	
0	1588.04	23	17	3.53	3175.24	3169	13	3.21E-03	83.3	1.14E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101009.CNF;1
* Acquisition date   : 2-FEB-2010 10:55:07.  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 02:00:01.40                Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101009             Analyst initials: MXR1
* Batch Number       : 944037                 Sample Quantity : 1.14280E+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
K-40	2.556E+01	2.583E+00	5.212E-01	3.785E-02	49.037
CD-109	4.291E+00	1.125E+00	1.219E+00	1.066E-01	3.518
SN-126	4.187E-01	1.097E-01	1.194E-01	1.039E-02	3.507
BA-137M	2.724E-01	6.581E-02	6.621E-02	3.937E-03	4.115
CS-137	2.880E-01	6.958E-02	6.999E-02	4.178E-03	4.115
TL-208	5.804E-01	9.333E-02	6.298E-02	4.307E-03	9.215
BI-211	4.635E+00	5.309E-01	3.426E-01	2.171E-02	13.528
PB-212	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
PO-212	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
BI-214	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
PB-214	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
PO-214	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
PO-216	1.707E+00	1.726E-01	9.569E-02	6.970E-03	17.845
PO-218	1.612E+00	2.029E-01	1.173E-01	9.625E-03	13.744
RA-224	4.682E+00	1.356E+00	1.088E+00	6.256E-02	4.302
RA-226	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
AC-228	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956
RA-228	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.742E+00	1.760E-01	9.761E-02	7.109E-03	17.845
TH-230	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
TH-232	1.832E+00	3.550E-01	2.303E-01	2.705E-02	7.956
TH-234	1.759E+00	1.611E+00	1.956E+00	3.362E-01	0.899
U-234	1.324E+00	2.339E-01	1.174E-01	9.289E-03	11.282
NP-237	1.229E+00	4.101E-01	3.535E-01	7.900E-02	3.478
U-238	1.759E+00	1.611E+00	1.956E+00	3.362E-01	0.899
AM-243	4.714E-01	9.233E-02	8.785E-02	6.593E-03	5.366
ANH-511	5.547E-02	8.024E-02	5.172E-02	3.039E-03	1.072

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.123E-02		3.777E-01	6.246E-01	4.210E-02	0.082
NA-22	1.707E-02		4.354E-02	7.473E-02	4.881E-03	0.228
NA-24	3.824E+01		8.402E+01	Half-Life	too short	
AL-26	3.247E-02		2.925E-02	5.804E-02	3.365E-03	0.559
TI-44	4.337E-01	+	6.310E-02	8.704E-02	6.796E-03	4.983
SC-46	8.611E-03		4.557E-02	7.742E-02	7.154E-03	0.111
V-48	-2.725E-03		8.458E-02	1.404E-01	1.192E-02	-0.019
CR-51	3.102E-01		4.881E-01	8.153E-01	5.268E-02	0.380
MN-52	-2.222E-01		4.543E-01	6.887E-01	4.827E-02	-0.323
MN-54	-8.982E-03		3.879E-02	6.382E-02	5.353E-03	-0.141
CO-56	1.412E-02		4.492E-02	7.719E-02	6.616E-03	0.183
CO-57	-2.690E-03		2.854E-02	4.576E-02	3.256E-03	-0.059
CO-58	-6.115E-03		4.744E-02	7.522E-02	6.053E-03	-0.081
FE-59	1.686E-02		1.082E-01	1.819E-01	1.400E-02	0.093
CO-60	-2.893E-02		3.963E-02	5.857E-02	4.174E-03	-0.494
ZN-65	1.719E-02		1.013E-01	1.479E-01	9.720E-03	0.116
GE-68	1.841E+00		1.451E+00	2.654E+00	1.908E-01	0.694
AS-73	-2.842E-01		7.260E-01	1.169E+00	7.624E-02	-0.243
AS-74	6.709E-02		1.106E-01	1.886E-01	1.128E-02	0.356
SE-75	-1.033E-03		5.329E-02	7.729E-02	4.538E-03	-0.013
BR-77	-3.750E-05		2.350E-05	Half-Life	too short	
SR-82	3.383E-02		5.183E-01	7.243E-01	5.445E-02	0.047
RB-83	-5.624E-02		7.924E-02	1.186E-01	6.990E-03	-0.474
RB-84	4.897E-02		8.015E-02	1.412E-01	1.287E-02	0.347
KR-85	1.919E+01		9.190E+00	1.520E+01	8.937E-01	1.263
SR-85	1.035E-01		4.958E-02	8.198E-02	4.822E-03	1.263
RB-86	1.038E+00		1.090E+00	1.950E+00	1.404E-01	0.532
Y-88	1.071E-02		3.491E-02	6.010E-02	3.413E-03	0.178
ZR-88	-3.754E-03		3.282E-02	5.376E-02	2.928E-03	-0.070
Y-91	1.994E-02		2.054E+01	3.389E+01	1.972E+00	0.001
NB-94	-1.629E-02		3.767E-02	5.865E-02	3.804E-03	-0.278
NB-95	5.650E-02		5.732E-02	8.811E-02	6.489E-03	0.641
NB-95M	8.597E-01		1.897E-01	3.170E-01	2.369E-02	2.712
ZR-95	7.120E-02		8.095E-02	1.400E-01	1.154E-02	0.509

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	2.130E+00		7.313E+00	Half-Life too short		
ZR-97	5.916E+02		1.315E+02	Half-Life too short		
MO-99	-2.189E+01		4.286E+01	6.563E+01	9.401E+00	-0.334
TC-99M	-3.648E+16		1.579E+16	Half-Life too short		
RH-101	5.995E-03		3.493E-02	5.916E-02	3.282E-03	0.101
RH-102	1.771E-03		3.190E-02	5.250E-02	3.034E-03	0.034
RU-103	3.091E-02		4.484E-02	7.685E-02	9.732E-03	0.402
RH-106	-1.905E-03		3.530E-01	5.725E-01	6.771E-02	-0.003
RU-106	-1.905E-03		3.530E-01	5.725E-01	3.423E-02	-0.003
AG-108M	1.111E-02		3.437E-02	5.771E-02	3.545E-03	0.193
AG-110M	-6.732E-03		4.455E-02	6.112E-02	3.861E-03	-0.110
IN-111	-3.441E-01		4.119E+00	5.965E+00	3.438E-01	-0.058
IN-113M	-2.916E-02		4.832E-02	7.673E-02	4.490E-03	-0.380
SN-113	-2.916E-02		4.832E-02	7.673E-02	4.490E-03	-0.380
IN-114M	6.918E-02		2.313E-01	3.451E-01	1.899E-02	0.200
CD-115	-2.074E-05		2.645E-05	Half-Life too short		
SN-117M	4.757E-02		8.421E-02	1.376E-01	7.785E-03	0.346
SB-122	9.174E+00		8.886E+00	1.381E+01	8.233E-01	0.664
I-123	2.140E+03		1.586E+03	Half-Life too short		
TE-123M	2.367E-02		3.510E-02	5.758E-02	3.293E-03	0.411
I-124	-6.580E-01		1.818E+00	2.446E+00	1.463E-01	-0.269
SB-124	6.738E-03		8.367E-02	1.378E-01	9.315E-03	0.049
SB-125	-3.497E-02		1.027E-01	1.654E-01	9.693E-03	-0.211
TE-125M	-5.664E+00		1.059E+01	1.670E+01	1.570E+00	-0.339
I-126	2.185E-01		3.011E-01	4.535E-01	2.724E-02	0.482
SB-126	-2.956E-02		2.264E-01	3.094E-01	2.082E-02	-0.096
SB-127	4.179E-01		3.486E+00	5.693E+00	6.530E-01	0.073
XE-127	-2.488E-02		6.144E-02	9.228E-02	5.144E-03	-0.270
I-131	2.398E-02		1.861E-01	3.101E-01	1.976E-02	0.077
TE-132	1.304E+00		2.135E+00	3.650E+00	5.623E-01	0.357
BA-133	-8.159E-03		5.206E-02	7.379E-02	8.482E-03	-0.111
I-133	-4.885E-02		1.560E-01	Half-Life too short		
CS-134	7.501E-02		5.035E-02	9.064E-02	7.134E-03	0.828
CS-135	3.244E-01		1.964E-01	3.116E-01	2.390E-02	1.041
I-135	6.709E+14		5.696E+14	Half-Life too short		
CS-136	1.259E-01		1.408E-01	2.533E-01	2.039E-02	0.497
CE-139	-1.906E-02		3.392E-02	5.286E-02	2.838E-03	-0.361
BA-140	-2.350E-01		3.548E-01	5.348E-01	1.740E-01	-0.439
LA-140	-9.041E-02		1.260E-01	1.681E-01	1.115E-02	-0.538
CE-141	2.067E-02		7.957E-02	1.289E-01	8.223E-03	0.160
CE-143	1.467E-02		2.046E-03	Half-Life too short		
CE-144	2.351E-03		2.657E-01	3.727E-01	5.425E-02	0.006
PM-144	3.582E-02		3.862E-02	6.679E-02	4.281E-03	0.536
PR-144	2.433E+00		2.624E+00	4.538E+00	2.905E-01	0.536
PM-146	2.799E-02		4.717E-02	8.033E-02	6.877E-03	0.348
ND-147	8.332E-01		7.901E-01	1.379E+00	1.871E-01	0.604
PM-149	3.117E-04		2.157E-04	Half-Life too short		
EU-152	-6.717E-02		1.184E-01	1.711E-01	1.107E-02	-0.393

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	5.526E-02		9.232E-02	1.346E-01	1.079E-02	0.411
EU-154	4.757E-02		1.214E-01	2.082E-01	2.041E-02	0.228
EU-155	7.559E-02		1.171E-01	1.935E-01	1.498E-02	0.391
TB-160	4.229E-02		1.510E-01	2.590E-01	2.353E-02	0.163
HO-166M	2.219E-02		6.649E-02	1.103E-01	7.287E-03	0.201
TM-171	-1.265E+01		3.419E+01	4.445E+01	3.099E+00	-0.285
LU-176	-1.602E-03		2.731E-02	4.271E-02	2.487E-03	-0.038
LU-177	6.854E+00	+	2.836E+00	3.753E+00	2.103E-01	1.826
LU-177M	-3.722E-01		2.099E-01	3.075E-01	1.705E-02	-1.211
HF-181	-3.597E-03		4.941E-02	8.056E-02	4.672E-03	-0.045
W-181	4.487E-01		4.155E-01	6.180E-01	4.258E-02	0.726
TA-182	-5.816E-02		2.446E-01	3.958E-01	2.368E-02	-0.147
RE-183	3.487E-02		1.327E-01	2.145E-01	1.182E-02	0.163
RE-184	-1.330E-01		2.405E-01	3.913E-01	2.263E-02	-0.340
OS-185	2.675E-03		4.643E-02	7.560E-02	4.508E-03	0.035
RE-188	-1.381E-03		2.091E-01	3.346E-01	1.939E-02	-0.004
W-188	-1.150E+00		9.306E+00	1.335E+01	7.790E-01	-0.086
IR-192	4.156E-03		4.016E-02	6.707E-02	3.915E-03	0.062
AU-195	1.137E-01		2.761E-01	3.984E-01	3.161E-02	0.285
TL-200	-6.094E-03		5.411E-03	Half-Life too short		
TL-201	1.460E+00		2.296E+01	3.679E+01	1.976E+00	0.040
TL-202	2.980E-02		9.823E-02	1.646E-01	9.308E-03	0.181
HG-203	5.314E-02		4.695E-02	8.210E-02	5.080E-03	0.647
BI-207	3.867E-02		5.475E-02	9.676E-02	7.161E-03	0.400
TL-207	-1.499E-01		8.613E-01	1.226E+00	2.024E-01	-0.122
PO-209	9.893E-01		8.052E+00	1.361E+01	1.274E+00	0.073
BI-210	-1.067E+00		2.589E+00	4.213E+00	3.124E-01	-0.253
PB-210	-1.067E+00		2.589E+00	4.213E+00	3.124E-01	-0.253
PO-210	-1.067E+00		2.588E+00	4.213E+00	2.643E-01	-0.253
PB-211	-8.687E-01		1.217E+00	1.716E+00	1.069E+00	-0.506
BI-212	1.305E+00	+	5.252E-01	7.673E-01	6.528E-02	1.701
PO-215	-1.499E-01		8.613E-01	1.226E+00	2.024E-01	-0.122
RN-219	5.135E-02		4.626E-01	7.676E-01	1.035E-01	0.067
RN-220	1.736E+01		2.863E+01	4.871E+01	2.895E+00	0.356
RA-223	-1.499E-01		8.613E-01	1.226E+00	2.024E-01	-0.122
AC-227	4.273E-02		3.948E-01	6.632E-01	9.256E-02	0.064
TH-227	4.273E-02		3.948E-01	6.632E-01	1.121E-01	0.064
TH-229	-1.145E-01		5.756E-01	9.080E-01	5.015E-02	-0.126
PA-231	-1.065E+00		1.632E+00	2.621E+00	3.616E-01	-0.406
TH-231	-1.499E-01		8.613E-01	1.226E+00	2.024E-01	-0.122
U-231	9.281E-01		2.896E+00	4.159E+00	3.376E-01	0.223
PA-233	-5.648E-03		6.805E-02	1.126E-01	6.954E-03	-0.050
PA-234	-6.402E-03		3.345E-01	5.572E-01	1.053E-01	-0.011
PA-234M	-3.519E+00		5.047E+00	7.924E+00	7.661E-01	-0.444
U-235	1.950E-01		2.447E-01	3.994E-01	6.574E-02	0.488
NP-236	1.258E-02		9.487E-02	1.525E-01	8.524E-03	0.082
NP-239	-7.702E-02		2.110E-01	3.350E-01	2.421E-02	-0.230
AM-241	3.395E-03		1.578E-01	2.236E-01	1.660E-02	0.015

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	7.658E-02		1.053E-01	1.745E-01	1.342E-02	0.439
AM-246	1.817E-01		1.627E-01	2.946E-01	2.111E-02	0.617
CM-247	7.191E-03		4.150E-02	6.911E-02	3.796E-03	0.104
CF-249	5.086E-02		4.126E-02	7.295E-02	3.989E-03	0.697
CF-251	-6.095E-02		1.445E-01	2.263E-01	1.227E-02	-0.269

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101009          *
* Acquisition date   : 2-FEB-2010 10:55:07 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 02:00:01.40 Half life ratio : 8.000     *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101009 Analyst initials: MXR1         *
* Batch Number       : 944037 Sample Quantity : 1.1428E+02 GRAM    *
* Recovery           : 1.00000 Carrier Weight : 0.00000          *
*****
*
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope      :             *
* MSD DPM             : 0.000 MSD Isotope      :                 *
* LCS DPM             : 0.000 LCS Isotope      :                 *
* LCSD DPM            : 0.000 LCSD Isotope     :                 *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.556E+01	2.531E+00	2.597E-01	1.291E+00
CD-109	4.291E+00	1.102E+00	6.233E-01	5.623E-01
SN-126	4.187E-01	1.075E-01	6.103E-02	5.487E-02
BA-137M	2.724E-01	6.449E-02	3.323E-02	3.290E-02
CS-137	2.880E-01	6.819E-02	3.513E-02	3.479E-02
TL-208	5.804E-01	9.147E-02	3.165E-02	4.667E-02
BI-211	4.635E+00	5.202E-01	1.729E-01	2.654E-01
PB-212	1.707E+00	1.691E-01	4.847E-02	8.629E-02
PO-212	1.707E+00	1.691E-01	4.847E-02	8.629E-02
BI-214	1.324E+00	2.292E-01	5.894E-02	1.170E-01
PB-214	1.612E+00	1.989E-01	5.922E-02	1.015E-01
PO-214	1.612E+00	1.989E-01	5.922E-02	1.015E-01
PO-216	1.707E+00	1.691E-01	4.847E-02	8.629E-02
PO-218	1.612E+00	1.989E-01	5.922E-02	1.015E-01
RA-224	4.682E+00	1.329E+00	5.513E-01	6.781E-01
RA-226	1.324E+00	2.292E-01	5.894E-02	1.170E-01
AC-228	1.832E+00	3.479E-01	1.152E-01	1.775E-01
RA-228	1.832E+00	3.479E-01	1.152E-01	1.775E-01
TH-228	1.742E+00	1.725E-01	4.945E-02	8.802E-02
TH-230	1.324E+00	2.292E-01	5.894E-02	1.170E-01
TH-232	1.832E+00	3.479E-01	1.152E-01	1.775E-01
TH-234	1.759E+00	1.579E+00	1.003E+00	8.055E-01
U-234	1.324E+00	2.292E-01	5.894E-02	1.170E-01
NP-237	1.229E+00	4.019E-01	1.807E-01	2.051E-01
U-238	1.759E+00	1.579E+00	1.003E+00	8.055E-01
AM-243	4.714E-01	9.048E-02	4.497E-02	4.616E-02
ANH-511	5.547E-02	7.863E-02	2.602E-02	4.012E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	5.123E-02	3.701E-01	3.144E-01	1.888E-01	NOT IDENT.
NA-22	1.707E-02	4.267E-02	3.728E-02	2.177E-02	NOT IDENT.
NA-24	3.824E+07	1.647E+08	0.000E+00	8.402E+07	SHORT HLIF
AL-26	3.247E-02	2.866E-02	2.886E-02	1.462E-02	NOT IDENT.
TI-44	4.337E-01	6.184E-02	4.454E-02	3.155E-02	FAIL ABUN
SC-46	8.611E-03	4.465E-02	3.875E-02	2.278E-02	FAIL ABUN
V-48	-2.725E-03	8.288E-02	7.022E-02	4.229E-02	NOT IDENT.
CR-51	3.102E-01	4.783E-01	4.119E-01	2.441E-01	NOT IDENT.
MN-52	-2.222E-01	4.452E-01	3.432E-01	2.271E-01	NOT IDENT.
MN-54	-8.982E-03	3.802E-02	3.196E-02	1.940E-02	NOT IDENT.
CO-56	1.412E-02	4.402E-02	3.865E-02	2.246E-02	NOT IDENT.
CO-57	-2.690E-03	2.797E-02	2.332E-02	1.427E-02	NOT IDENT.
CO-58	-6.115E-03	4.649E-02	3.768E-02	2.372E-02	NOT IDENT.
FE-59	1.686E-02	1.060E-01	9.085E-02	5.411E-02	NOT IDENT.
CO-60	-2.893E-02	3.884E-02	2.920E-02	1.982E-02	NOT IDENT.
ZN-65	1.719E-02	9.928E-02	7.385E-02	5.065E-02	NOT IDENT.
GE-68	1.841E+00	1.422E+00	1.326E+00	7.256E-01	NOT IDENT.
AS-73	-2.842E-01	7.115E-01	6.005E-01	3.630E-01	NOT IDENT.
AS-74	6.709E-02	1.084E-01	9.472E-02	5.529E-02	NOT IDENT.
SE-75	-1.033E-03	5.223E-02	3.912E-02	2.665E-02	NOT IDENT.
BR-77	-3.750E+01	4.607E+01	0.000E+00	2.350E+01	SHORT HLIF
SR-82	3.383E-02	5.080E-01	3.630E-01	2.592E-01	NOT IDENT.
RB-83	-5.624E-02	7.766E-02	5.964E-02	3.962E-02	NOT IDENT.
RB-84	4.897E-02	7.855E-02	7.065E-02	4.008E-02	NOT IDENT.
KR-85	1.919E+01	9.006E+00	7.644E+00	4.595E+00	NOT IDENT.
SR-85	1.035E-01	4.859E-02	4.124E-02	2.479E-02	NOT IDENT.
RB-86	1.038E+00	1.068E+00	9.740E-01	5.448E-01	NOT IDENT.
Y-88	1.071E-02	3.422E-02	2.987E-02	1.746E-02	NOT IDENT.
ZR-88	-3.754E-03	3.216E-02	2.711E-02	1.641E-02	NOT IDENT.
Y-91	1.994E-02	2.012E+01	1.691E+01	1.027E+01	NOT IDENT.
NB-94	-1.629E-02	3.691E-02	2.942E-02	1.883E-02	NOT IDENT.
NB-95	5.650E-02	5.617E-02	4.416E-02	2.866E-02	NOT IDENT.
NB-95M	8.597E-01	1.859E-01	1.606E-01	9.485E-02	NOT IDENT.
ZR-95	7.120E-02	7.933E-02	7.015E-02	4.047E-02	NOT IDENT.
NB-97	2.130E+06	1.433E+07	0.000E+00	7.313E+06	SHORT HLIF
ZR-97	5.916E+08	2.577E+08	0.000E+00	1.315E+08	SHORT HLIF
MO-99	-2.189E+01	4.201E+01	3.291E+01	2.143E+01	NOT IDENT.
TC-99M	-3.648E+22	3.096E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	5.995E-03	3.423E-02	3.002E-02	1.747E-02	NOT IDENT.
RH-102	1.771E-03	3.126E-02	2.643E-02	1.595E-02	NOT IDENT.
RU-103	3.091E-02	4.394E-02	3.867E-02	2.242E-02	FAIL ABUN
RH-106	-1.905E-03	3.459E-01	2.875E-01	1.765E-01	FAIL ABUN
RU-106	-1.905E-03	3.459E-01	2.875E-01	1.765E-01	FAIL ABUN
AG-108M	1.111E-02	3.368E-02	2.908E-02	1.718E-02	NOT IDENT.
AG-110M	-6.732E-03	4.366E-02	3.068E-02	2.228E-02	NOT IDENT.
IN-111	-3.441E-01	4.037E+00	3.021E+00	2.060E+00	NOT IDENT.
IN-113M	-2.916E-02	4.736E-02	3.870E-02	2.416E-02	NOT IDENT.
SN-113	-2.916E-02	4.736E-02	3.870E-02	2.416E-02	NOT IDENT.
IN-114M	6.918E-02	2.267E-01	1.752E-01	1.157E-01	NOT IDENT.
CD-115	-2.074E+01	5.185E+01	0.000E+00	2.645E+01	SHORT HLIF
SN-117M	4.757E-02	8.253E-02	6.998E-02	4.210E-02	NOT IDENT.
SB-122	9.174E+00	8.708E+00	6.943E+00	4.443E+00	NOT IDENT.
I-123	2.140E+09	3.109E+09	0.000E+00	1.586E+09	SHORT HLIF
TE-123M	2.367E-02	3.439E-02	2.928E-02	1.755E-02	NOT IDENT.
I-124	-6.580E-01	1.781E+00	1.229E+00	9.089E-01	NOT IDENT.
SB-124	6.738E-03	8.200E-02	6.855E-02	4.183E-02	FAIL ABUN
SB-125	-3.497E-02	1.007E-01	8.334E-02	5.135E-02	FAIL ABUN
TE-125M	-5.664E+00	1.038E+01	8.520E+00	5.293E+00	NOT IDENT.
I-126	2.185E-01	2.950E-01	2.276E-01	1.505E-01	NOT IDENT.
SB-126	-2.956E-02	2.219E-01	1.552E-01	1.132E-01	FAIL ABUN
SB-127	4.179E-01	3.417E+00	2.856E+00	1.743E+00	NOT IDENT.
XE-127	-2.488E-02	6.021E-02	4.682E-02	3.072E-02	NOT IDENT.
I-131	2.398E-02	1.823E-01	1.565E-01	9.303E-02	NOT IDENT.
TE-132	1.304E+00	2.092E+00	1.850E+00	1.067E+00	NOT IDENT.
BA-133	-8.159E-03	5.102E-02	3.725E-02	2.603E-02	NOT IDENT.
I-133	-4.885E+04	3.058E+05	0.000E+00	1.560E+05	SHORT HLIF
CS-134	7.501E-02	4.934E-02	4.541E-02	2.517E-02	FAIL ABUN
CS-135	3.244E-01	1.924E-01	1.577E-01	9.819E-02	NOT IDENT.
I-135	6.709E+20	1.116E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.259E-01	1.380E-01	1.266E-01	7.040E-02	FAIL ABUN
CE-139	-1.906E-02	3.324E-02	2.687E-02	1.696E-02	NOT IDENT.
BA-140	-2.350E-01	3.477E-01	2.689E-01	1.774E-01	NOT IDENT.
LA-140	-9.041E-02	1.235E-01	8.370E-02	6.300E-02	FAIL ABUN
CE-141	2.067E-02	7.798E-02	6.557E-02	3.978E-02	NOT IDENT.
CE-143	1.467E+04	4.011E+03	0.000E+00	2.046E+03	SHORT HLIF
CE-144	2.351E-03	2.604E-01	1.898E-01	1.329E-01	NOT IDENT.
PM-144	3.582E-02	3.785E-02	3.351E-02	1.931E-02	NOT IDENT.
PR-144	2.433E+00	2.572E+00	2.276E+00	1.312E+00	NOT IDENT.

PM-146	2.799E-02	4.623E-02	4.046E-02	2.358E-02	NOT IDENT.
ND-147	8.332E-01	7.743E-01	6.933E-01	3.950E-01	FAIL ABUN
PM-149	3.117E+02	4.228E+02	0.000E+00	2.157E+02	SHORT HLIF
EU-152	-6.717E-02	1.160E-01	8.640E-02	5.919E-02	FAIL ABUN
GD-153	5.526E-02	9.047E-02	6.872E-02	4.616E-02	FAIL ABUN
EU-154	4.757E-02	1.189E-01	1.039E-01	6.069E-02	NOT IDENT.
EU-155	7.559E-02	1.148E-01	9.875E-02	5.855E-02	FAIL ABUN
TB-160	4.229E-02	1.480E-01	1.297E-01	7.551E-02	FAIL ABUN
HO-166M	2.219E-02	6.516E-02	5.531E-02	3.325E-02	NOT IDENT.
TM-171	-1.265E+01	3.351E+01	2.278E+01	1.710E+01	NOT IDENT.
LU-176	-1.602E-03	2.676E-02	2.159E-02	1.365E-02	FAIL ABUN
LU-177	6.854E+00	2.779E+00	1.903E+00	1.418E+00	FAIL ABUN
LU-177M	-3.722E-01	2.057E-01	1.550E-01	1.049E-01	FAIL ABUN
HF-181	-3.597E-03	4.843E-02	4.055E-02	2.471E-02	NOT IDENT.
W-181	4.487E-01	4.072E-01	3.168E-01	2.077E-01	NOT IDENT.
TA-182	-5.816E-02	2.397E-01	1.975E-01	1.223E-01	FAIL ABUN
RE-183	3.487E-02	1.301E-01	1.091E-01	6.637E-02	FAIL ABUN
RE-184	-1.330E-01	2.357E-01	1.981E-01	1.202E-01	NOT IDENT.
OS-185	2.675E-03	4.550E-02	3.795E-02	2.321E-02	NOT IDENT.
RE-188	-1.381E-03	2.049E-01	1.702E-01	1.045E-01	NOT IDENT.
W-188	-1.150E+00	9.120E+00	6.752E+00	4.653E+00	FAIL ABUN
IR-192	4.156E-03	3.936E-02	3.389E-02	2.008E-02	FAIL ABUN
AU-195	1.137E-01	2.706E-01	2.034E-01	1.381E-01	FAIL ABUN
TL-200	-6.094E+03	1.061E+04	0.000E+00	5.411E+03	SHORT HLIF
TL-201	1.460E+00	2.250E+01	1.870E+01	1.148E+01	NOT IDENT.
TL-202	2.980E-02	9.626E-02	8.292E-02	4.911E-02	NOT IDENT.
HG-203	5.314E-02	4.601E-02	4.153E-02	2.347E-02	NOT IDENT.
BI-207	3.867E-02	5.365E-02	4.835E-02	2.737E-02	FAIL ABUN
TL-207	-1.499E-01	8.441E-01	6.192E-01	4.307E-01	FAIL ABUN
PO-209	9.893E-01	7.891E+00	6.811E+00	4.026E+00	NOT IDENT.
BI-210	-1.067E+00	2.537E+00	2.166E+00	1.294E+00	NOT IDENT.
PB-210	-1.067E+00	2.537E+00	2.166E+00	1.294E+00	NOT IDENT.
PO-210	-1.067E+00	2.536E+00	2.166E+00	1.294E+00	NOT IDENT.
PB-211	-8.687E-01	1.192E+00	8.649E-01	6.083E-01	NOT IDENT.
BI-212	1.305E+00	5.147E-01	3.848E-01	2.626E-01	FAIL ABUN
PO-215	-1.499E-01	8.441E-01	6.192E-01	4.307E-01	FAIL ABUN
RN-219	5.135E-02	4.534E-01	3.870E-01	2.313E-01	FAIL ABUN
RN-220	1.736E+01	2.806E+01	2.449E+01	1.431E+01	NOT IDENT.
RA-223	-1.499E-01	8.441E-01	6.192E-01	4.307E-01	FAIL ABUN
AC-227	4.273E-02	3.869E-01	3.358E-01	1.974E-01	FAIL ABUN
TH-227	4.273E-02	3.869E-01	3.358E-01	1.974E-01	FAIL ABUN
TH-229	-1.145E-01	5.640E-01	4.609E-01	2.878E-01	FAIL ABUN
PA-231	-1.065E+00	1.599E+00	1.326E+00	8.159E-01	FAIL ABUN
TH-231	-1.499E-01	8.441E-01	6.192E-01	4.307E-01	FAIL ABUN
U-231	9.281E-01	2.838E+00	2.124E+00	1.448E+00	FAIL ABUN
PA-233	-5.648E-03	6.669E-02	5.692E-02	3.403E-02	FAIL ABUN
PA-234	-6.402E-03	3.278E-01	2.787E-01	1.672E-01	FAIL ABUN
PA-234M	-3.519E+00	4.946E+00	3.962E+00	2.524E+00	NOT IDENT.
U-235	1.950E-01	2.398E-01	2.033E-01	1.223E-01	FAIL ABUN
NP-236	1.258E-02	9.298E-02	7.756E-02	4.744E-02	NOT IDENT.
NP-239	-7.702E-02	2.068E-01	1.708E-01	1.055E-01	FAIL ABUN
AM-241	3.395E-03	1.546E-01	1.147E-01	7.889E-02	NOT IDENT.
CM-243	7.658E-02	1.032E-01	8.906E-02	5.265E-02	FAIL ABUN
AM-246	1.817E-01	1.594E-01	1.472E-01	8.133E-02	NOT IDENT.
CM-247	7.191E-03	4.067E-02	3.484E-02	2.075E-02	NOT IDENT.
CF-249	5.086E-02	4.044E-02	3.679E-02	2.063E-02	NOT IDENT.
CF-251	-6.095E-02	1.416E-01	1.149E-01	7.224E-02	NOT IDENT.

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

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46.50	388.1400
46.50	388.1400
46.50	388.1400
48.70	403.4096
49.72	429.3841
51.35	414.8551
52.39	425.5699
52.97	420.7269
53.15	421.8346
53.44	421.9698
54.07	401.7647
56.28	445.8780
56.28	445.8792
57.37	0.0000
57.53	438.9298
57.53	438.9307
57.60	438.9624
57.98	438.0412
57.98	438.0412
59.32	435.3591
59.32	435.3591
59.40	435.3954
59.54	442.0569
59.72	442.1395
60.01	442.2720
61.10	455.9862
61.14	456.0048
61.30	456.0797
63.00	514.1821
63.29	507.0883
63.29	507.0883
63.58	546.5721
64.28	540.3255
65.12	514.2346
65.20	514.2757
65.20	514.2757
66.05	537.9505
66.72	562.8080
66.83	562.8700
66.91	567.7602
67.20	567.9208
67.20	567.9208
67.75	548.8204
67.85	548.8727
68.90	535.5542
68.90	535.5542
69.30	539.2283
69.67	546.5012
70.82	555.4356
70.82	555.4356
70.83	555.4397
72.80	529.5191
72.87	529.5530
72.87	529.5530
74.67	530.4330
74.81	530.5007
74.81	530.5007
74.81	530.5007
74.81	530.5007
74.81	530.5007
74.81	530.5007
74.97	530.5780
75.28	530.7279
75.70	530.9300
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77.11	531.6069

77.11	531.6069
77.11	531.6069
77.11	531.6069
77.11	531.6069
77.11	531.6069
78.38	505.9673
79.62	487.6085
79.80	487.6864
79.80	487.6864
80.11	479.4085
80.18	479.4380
80.30	479.4885
80.30	479.4885
80.57	479.6016
81.00	479.7825
81.07	479.8120
81.07	479.8120
81.07	479.8120
81.07	479.8120
82.60	459.3781
83.37	517.3165
83.78	508.3594
83.78	508.3594
83.78	508.3594
83.78	508.3594
84.21	416.7552
84.90	417.0009
85.43	417.1877
86.29	417.4906
86.50	417.5644
86.54	417.5795
86.59	417.5961
86.72	417.6428
86.79	417.6654
86.94	417.7196
87.30	417.8447
87.30	417.8447
87.30	417.8447
87.30	417.8447
87.30	417.8447
87.30	417.8447
87.57	417.9396
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88.03	418.0993
88.36	418.2154
88.47	418.2530
89.95	418.7654
91.11	419.1631
92.29	419.5655
92.38	419.5971
92.38	419.5971
93.35	419.9256
94.00	420.1456
94.67	360.9849
94.67	360.9862
94.90	401.9260
94.90	401.9260
94.90	401.9260
94.90	401.9260
95.87	414.1678
95.87	414.1678
96.73	378.6344
97.43	341.2988
98.44	350.1078
98.44	350.1078
98.88	365.6038
99.55	355.5386
99.55	355.5386
99.86	347.6449
100.00	327.7343
100.10	327.7600
103.18	407.0971
103.76	357.9749
105.00	363.6739
105.31	358.3928
108.00	352.6616
109.28	378.8246

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111.00	392.2320
111.76	390.2923
112.95	353.9397
115.19	319.9222
116.30	329.9102
117.00	370.1160
117.00	370.1160
117.66	399.5215
121.11	362.4980
121.62	366.9695
121.78	359.4087
122.06	352.9619
122.32	343.2491
122.32	343.2491
122.32	343.2491
122.32	343.2491
123.07	330.3848
127.23	378.4017
129.76	366.8156
131.20	353.1794
133.02	385.1128
133.54	357.2241
135.34	346.2494
136.00	354.0698
136.25	346.4519
136.48	337.7327
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140.51	0.0000
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142.65	332.4576
143.76	347.0114
144.24	351.5226
144.24	351.5226
144.24	351.5226
144.24	351.5226
145.22	357.2498
145.44	368.3271
147.16	406.2538
152.43	340.0066
152.70	340.0628
153.22	355.6808
154.21	384.7202
154.21	384.7202
154.21	384.7202
154.21	384.7202
155.03	371.5997
156.02	341.8520
158.56	364.5982
159.00	0.0000
159.00	361.3577
160.31	370.5372
161.27	360.7278
162.32	343.1233
162.64	352.1006
163.35	344.4448
163.89	341.2057
165.85	333.7790
167.43	303.9144
171.28	291.1412
171.86	306.9184
172.10	306.9602
176.55	332.4332
176.60	332.4422
181.06	303.2343
184.41	332.3610
185.71	320.5552
186.00	320.6050
190.27	289.6543
192.34	299.0323
193.63	312.8373
197.04	301.5863
198.01	300.8284
198.60	316.3754
200.40	0.0000
201.83	325.8040
202.84	325.3937
205.31	329.9303

208.36	307.5967
208.81	309.1897
209.75	297.1437
209.75	297.1437
210.97	247.0078
215.65	261.9908
216.55	275.2112
218.09	266.2375
222.10	270.4373
223.80	268.8168
226.40	284.8217
227.00	267.3845
227.08	267.3951
227.20	267.4092
228.16	265.6863
228.18	265.6898
228.18	265.6898
231.56	0.0000
235.69	254.5932
236.00	250.0005
236.00	250.0005
238.63	241.9619
238.63	241.9619
238.63	241.9619
238.63	241.9619
239.00	0.0000
240.98	242.2247
241.98	224.3854
241.98	224.3854
241.98	224.3854
244.69	232.4097
245.39	227.8347
247.94	204.8226
248.90	218.3650
249.79	0.0000
252.40	208.0308
252.85	210.8722
252.85	210.8722
254.15	0.0000
256.20	205.5793
256.20	205.5793
260.50	204.0956
260.90	0.0000
262.80	223.8767
264.65	195.3990
268.24	198.8328
268.79	189.4859
269.46	187.9736
269.46	187.9736
269.46	187.9736
269.46	187.9736
271.23	199.0886
273.65	254.2192
276.40	222.1964
277.35	207.4639
277.60	202.7724
277.60	202.7724
278.00	190.5438
278.60	184.9296
279.20	189.6962
279.53	185.0013
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281.68	0.0000
283.67	208.0144
284.30	205.2308
285.00	199.6155
285.90	0.0000
286.10	171.3115
286.10	171.3115
287.40	183.7151
288.45	0.0000
290.67	195.9726
290.80	195.9827
291.72	199.2180
293.26	0.0000
293.70	172.4791
295.21	188.4191
295.21	188.4191

295.21	188.4191
295.96	161.5498
296.50	161.5851
297.23	0.0000
298.57	161.7220
299.80	161.8009
299.80	161.8009
300.09	168.1654
300.09	168.1654
300.09	168.1654
300.09	168.1654
300.12	168.1676
301.29	171.4219
302.84	157.2334
303.76	0.0000
303.91	168.4221
304.40	177.9919
304.40	177.9919
304.84	179.6110
306.84	170.6068
308.46	178.5950
311.98	173.1056
316.51	182.9911
318.01	172.5535
319.02	183.1684
319.41	183.1963
320.08	179.0856
323.87	200.1648
323.87	200.1648
323.87	200.1648
323.87	200.1648
325.23	198.6669
328.77	186.0999
333.44	157.4994
334.20	179.4087
334.20	179.4087
334.30	179.4155
338.28	177.1051
338.28	177.1051
338.28	177.1051
338.28	177.1051
338.32	173.8894
338.32	173.8894
338.32	173.8894
340.50	161.1389
340.57	161.1430
344.27	181.1873
345.85	171.1437
350.59	0.0000
351.07	147.5302
351.92	142.3984
351.92	142.3984
351.92	142.3984
355.39	0.0000
356.01	149.0901
364.48	138.4899
366.43	149.3226
367.43	149.3748
367.94	0.0000
369.80	147.5457
374.96	132.1507
383.85	137.4673
387.95	109.1450
388.63	112.1213
391.69	142.7592
391.69	142.7592
392.90	127.0584
398.62	150.9885
400.65	139.2410
401.10	143.2123
401.81	147.1975
402.60	146.2494
404.84	177.0138
410.95	134.7632
411.60	143.7132
413.65	186.4555
414.70	167.6694
415.30	140.9097

415.76	132.9924
417.63	0.0000
418.52	129.1383
423.70	133.3359
427.08	132.4837
427.89	136.5050
432.53	107.7693
433.93	108.8150
439.47	0.0000
439.56	114.0111
439.89	112.0219
443.98	127.1891
444.90	109.1929
445.03	109.1982
445.03	109.1982
445.03	109.1982
445.03	109.1982
453.90	106.4852
463.38	104.1091
468.07	92.4869
473.00	108.1181
475.06	110.2082
475.35	116.2845
476.78	99.1365
477.59	111.3025
477.96	106.2561
482.03	106.3843
484.57	0.0000
487.03	109.5860
490.36	0.0000
492.35	0.0000
497.08	80.3974
507.63	0.0000
510.53	0.0000
510.84	109.3269
511.00	109.3321
511.85	109.3583
511.85	109.3583
513.99	97.1529
513.99	97.1529
520.41	105.8687
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	98.6109
529.87	0.0000
531.02	71.9312
537.32	94.7043
543.00	88.6665
546.56	0.0000
549.76	86.7665
552.65	94.0704
555.20	108.6196
563.23	96.7604
563.90	81.2230
568.70	106.9379
569.32	106.9555
569.50	106.9606
569.67	106.9656
573.80	90.1029
574.00	90.1071
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	91.7147
585.48	0.0000
591.81	89.8339
592.07	85.6616
593.00	78.3673
595.88	69.0148
600.56	100.0417
602.52	0.0000
602.71	96.0240
602.71	96.0240
603.60	80.3297
604.41	80.3465
604.70	76.8586
609.31	89.1919



609.31	89.1919
609.31	89.1919
609.31	89.1919
610.33	89.2147
612.46	87.5122
614.37	87.5549
618.01	82.6285
621.84	85.2656
621.84	85.2656
631.29	74.9157
633.02	70.7246
633.10	70.7262
634.78	88.7086
635.90	78.1697
636.97	73.9648
645.85	70.9503
646.12	73.0733
656.30	83.1641
657.75	83.1928
657.90	0.0000
661.65	92.4864
661.65	92.4864
664.57	0.0000
666.33	78.0456
666.33	78.0456
675.00	82.1170
677.61	71.4983
685.20	72.6966
692.80	82.4648
695.00	80.3650
696.49	72.8892
696.49	72.8892
697.00	79.3296
697.49	79.3386
698.33	89.0062
698.50	89.0102
699.00	94.3830
702.63	92.3156
706.10	79.4976
706.58	0.0000
706.67	76.2851
709.31	79.5572
711.68	73.1465
713.82	77.4879
717.42	75.3970
720.50	70.0607
721.93	0.0000
722.20	84.4665
722.78	70.0972
722.78	70.0972
722.89	70.1003
722.95	70.1003
723.30	66.5115
724.18	55.7372
727.18	78.8047
733.00	61.2528
735.90	70.3066
739.58	75.7781
742.81	71.4995
744.21	79.1077
747.13	68.3156
751.79	80.3269
752.31	77.0790
753.82	78.1910
755.35	0.0000
756.15	58.6736
756.87	54.3359
763.93	79.8180
765.79	70.7764
766.42	72.6009
766.84	72.6074
776.49	60.0273
778.00	65.5063
778.57	67.3335
778.89	57.7196
783.80	63.4021
785.46	67.7989
792.07	85.4172

795.84	51.5107
796.30	53.7086
798.80	98.7012
801.93	63.6499
805.60	66.9943
810.29	70.3594
810.76	71.4651
815.85	62.3693
817.79	0.0000
818.51	67.9116
819.60	57.8295
826.30	63.4255
828.27	0.0000
831.60	61.6552
831.96	59.8200
834.83	69.0628
836.80	0.0000
846.75	62.7719
848.13	60.0197
856.28	0.0000
856.80	90.6508
860.37	53.6894
867.32	71.3776
867.82	63.9688
871.10	49.1678
873.19	57.5410
874.81	65.9154
875.33	0.0000
876.40	64.0797
879.36	52.0374
880.27	54.8348
880.51	54.8372
881.50	48.3406
883.24	59.5169
884.67	67.9058
889.25	61.4507
896.60	58.7433
898.02	69.9509
899.00	68.0989
903.28	57.1397
911.07	59.3107
911.07	59.3107
911.07	59.3107
919.63	67.4385
920.93	50.5909
925.00	55.3197
925.24	54.3844
926.50	56.2732
935.52	41.3386
937.48	52.6333
944.10	50.8173
946.00	61.1914
949.00	53.6903
962.29	48.1601
964.01	48.1757
966.15	48.1943
968.20	48.2130
969.11	48.2213
969.11	48.2213
969.11	48.2213
977.42	41.1937
980.50	55.9043
983.50	44.5588
989.30	52.1992
996.32	57.0190
1001.03	60.8724
1001.68	58.9771
1004.76	58.0587
1021.30	0.0000
1024.50	0.0000
1034.80	45.9336
1036.00	44.0291
1037.82	54.5763
1038.57	42.1344
1038.76	0.0000
1045.16	55.6069
1046.59	52.7441
1048.07	38.3691

1050.47	47.0221
1050.47	47.0221
1062.04	42.3099
1063.62	43.2843
1076.63	50.1317
1077.35	46.2813
1078.86	47.2574
1085.78	53.1089
1099.22	55.1677
1112.02	39.9074
1112.84	41.5754
1115.52	46.5859
1120.29	50.5083
1120.29	50.5083
1120.29	50.5083
1120.29	50.5083
1120.51	50.5104
1121.28	50.5168
1124.00	0.0000
1129.67	67.4516
1131.51	0.0000
1147.95	0.0000
1167.94	59.7242
1173.22	68.5958
1175.09	71.5594
1177.93	70.6113
1189.05	65.8277
1204.90	56.1465
1205.75	0.0000
1213.00	72.9853
1221.42	82.9609
1230.97	74.1852
1235.34	80.1760
1236.41	0.0000
1238.25	59.4165
1246.25	52.5514
1260.41	0.0000
1271.85	32.8523
1274.45	35.8535
1274.54	35.8535
1291.56	37.9443
1298.22	0.0000
1312.09	37.0617
1325.50	33.1222
1325.50	33.1222
1332.49	36.1714
1333.61	30.1489
1360.21	28.2507
1362.66	0.0000
1365.15	24.2324
1368.21	30.3040
1368.53	0.0000
1376.25	24.2725
1384.27	28.8572
1394.10	21.2939
1395.20	17.2407
1407.95	22.3527
1434.06	28.5560
1436.60	27.5460
1457.56	0.0000
1460.81	19.4507
1489.15	17.4725
1509.49	17.5216
1596.49	26.2797
1620.62	15.6927
1678.03	0.0000
1691.02	13.7242
1691.02	13.7242
1706.46	0.0000
1750.46	0.0000
1764.49	10.6547
1764.49	10.6547
1764.49	10.6547
1764.49	10.6547
1770.23	9.1389
1771.40	12.7964
1791.20	0.0000
1808.65	5.3562

1836.01

9.6727

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101009

Total Uranium Activity	5.3237E+00	ug/g
Total Uranium Counting Unc.	4.6984E+00	ug/g
Total Uranium Tpu	2.3972E-06	ug/g
Total Uranium Mda	2.9849E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 944037                SAMPLE ID   : G245101009
*  ANALYST       : MXR1                  DETECTOR    : GAM14
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00  COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 10:55:07.95  SAMPLE ALQT  : 114.280 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.001E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.486E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 4.019E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.957E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:19:50.58

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101010.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:19:21.
Sample ID          : G245101010 Sample quantity : 1.27830E+02 GRAM
Detector name      : GAM10 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.01 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	74.59*	387	329	1.07	149.32	142	16	5.38E-02	9.2	1.31E+00
2	3	76.81*	507	364	1.12	153.76	142	16	7.04E-02	8.2	
3	3	84.11*	96	391	1.33	168.34	163	29	1.33E-02	37.4	2.19E+00
4	3	86.99*	242	371	1.33	174.11	163	29	3.36E-02	15.4	
5	3	89.73	156	263	1.01	179.57	163	29	2.17E-02	18.5	
6	3	92.45*	183	294	1.20	185.01	163	29	2.54E-02	18.9	
7	0	185.52*	225	430	1.42	370.99	365	12	3.12E-02	20.1	
8	0	208.76	149	373	1.37	417.44	413	12	2.07E-02	27.1	
9	3	238.33*	1185	239	1.11	476.53	472	16	1.65E-01	3.6	1.41E+00
10	3	241.29	310	261	1.62	482.45	472	16	4.30E-02	12.7	
11	0	270.40	75	202	1.36	540.62	536	9	1.05E-02	36.0	
12	0	277.29	55	172	1.71	554.40	550	9	7.65E-03	45.3	
13	1	294.98*	402	128	1.31	589.75	584	21	5.59E-02	7.1	1.32E+00
14	1	299.63	90	128	1.28	599.03	584	21	1.25E-02	24.2	
15	0	327.18	78	121	1.42	654.09	649	9	1.08E-02	27.9	
16	0	337.88	232	201	1.10	675.48	670	11	3.22E-02	13.5	
17	0	351.60*	675	205	1.35	702.90	695	14	9.38E-02	6.0	
18	0	408.97	25	115	1.19	817.57	814	8	3.48E-03	76.6	
19	0	462.56	81	118	1.43	924.69	919	13	1.12E-02	29.8	
20	0	510.18*	76	180	1.53	1019.88	1012	17	1.06E-02	45.8	
21	0	582.56*	417	70	1.49	1164.57	1157	13	5.79E-02	6.5	
22	0	608.83*	497	126	1.42	1217.09	1212	13	6.90E-02	6.6	
23	0	662.07	89	97	0.76	1323.52	1316	17	1.23E-02	27.6	
24	0	726.81*	65	71	1.65	1452.94	1448	10	8.97E-03	28.1	
25	0	767.21	63	27	1.46	1533.73	1529	9	8.77E-03	19.5	
26	0	859.95	55	37	1.43	1719.15	1713	10	7.63E-03	24.8	
27	0	910.49*	269	32	1.56	1820.21	1815	13	3.74E-02	7.6	
28	1	963.75	70	36	1.92	1926.73	1921	21	9.67E-03	20.8	1.46E+00
29	1	968.23	162	33	1.84	1935.68	1921	21	2.24E-02	10.3	
30	0	1119.51*	131	56	2.05	2238.23	2230	19	1.82E-02	16.5	
31	0	1237.52*	24	84	1.38	2474.26	2469	13	3.28E-03	82.8	
32	0	1459.61*	962	13	2.33	2918.53	2909	17	1.34E-01	3.4	
33	0	1629.38	21	8	2.47	3258.20	3253	11	2.93E-03	34.0	
34	0	1763.15*	98	0	3.17	3525.88	3520	13	1.36E-02	10.9	

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

## VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 13:19:53

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101010.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:19:21
Sample ID         : G245101010 Sample quantity : 127.83 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA10 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.01 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	*	2.389E+01	2.615E+00	4.777E-01	4.115E-02	50.009
NB-95	+	765.79	*	1.122E-01	4.435E-02	7.222E-02	5.040E-03	1.554
CD-109	+	88.03	*	3.751E+00	1.232E+00	1.241E+00	1.407E-01	3.024
SN-126		64.28		2.874E-01	6.689E-01	1.121E+00	1.917E-01	0.256
	+	86.94		1.522E+00	7.929E-01	5.122E-01	2.151E-01	2.971
	+	87.57	*	3.661E-01	1.202E-01	1.219E-01	1.380E-02	3.002
BA-137M	+	661.65	*	1.232E-01	6.837E-02	5.376E-02	2.652E-03	2.291
CS-137	+	661.65	*	1.302E-01	7.228E-02	5.683E-02	2.820E-03	2.291
TL-208	+	277.35		5.160E-01	4.706E-01	5.551E-01	6.054E-02	0.929
	+	510.84		3.542E-01	3.265E-01	1.966E-01	2.067E-02	1.802
	+	583.14	*	5.529E-01	8.072E-02	4.972E-02	3.341E-03	11.120
	+	860.37		7.028E-01	3.555E-01	3.866E-01	3.776E-02	1.818
BI-211		72.87		9.746E+00	3.882E+00	6.636E+00	7.298E-01	1.469
	+	351.07	*	3.941E+00	5.510E-01	3.030E-01	2.209E-02	13.003
PB-212	+	74.81		2.750E+00	6.442E-01	6.046E-01	8.703E-02	4.549
	+	77.11		1.994E+00	3.937E-01	3.350E-01	3.663E-02	5.952
	+	87.30		1.693E+00	5.812E-01	5.664E-01	8.547E-02	2.989
	+	238.63	*	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
	+	300.09		1.769E+00	8.696E-01	1.122E+00	9.857E-02	1.577
PO-212	+	74.81		2.750E+00	6.442E-01	6.046E-01	8.703E-02	4.549
	+	77.11		1.994E+00	3.937E-01	3.350E-01	3.663E-02	5.952
	+	87.30		1.693E+00	5.812E-01	5.664E-01	8.547E-02	2.989
		115.19		3.165E+00	3.511E+00	5.866E+00	4.197E-01	0.540
	+	238.63	*	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
	+	300.09		1.769E+00	8.696E-01	1.122E+00	9.857E-02	1.577
BI-214	+	609.31	*	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
	+	1120.29		1.804E+00	6.209E-01	4.441E-01	4.340E-02	4.062
	+	1764.49		1.864E+00	4.243E-01	2.670E-01	1.783E-02	6.980
PB-214	+	74.81		4.739E+00	1.077E+00	1.042E+00	1.377E-01	4.549
	+	77.11		3.418E+00	7.234E-01	5.743E-01	7.653E-02	5.952
	+	87.30		2.900E+00	9.783E-01	9.703E-01	1.327E-01	2.989
	+	241.98		2.391E+00	6.389E-01	5.230E-01	4.351E-02	4.572
	+	295.21		1.394E+00	2.339E-01	1.965E-01	1.775E-02	7.095
	+	351.92	*	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		4.739E+00	1.077E+00	1.042E+00	1.377E-01	4.549
	+	77.11		3.418E+00	7.234E-01	5.743E-01	7.653E-02	5.952
	+	87.30		2.900E+00	9.783E-01	9.703E-01	1.327E-01	2.989
	+	241.98		2.391E+00	6.389E-01	5.230E-01	4.351E-02	4.572
	+	295.21		1.394E+00	2.339E-01	1.965E-01	1.775E-02	7.095
	+	351.92	*	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977
PO-216	+	74.81		2.750E+00	6.442E-01	6.046E-01	8.703E-02	4.549
	+	77.11		1.994E+00	3.937E-01	3.350E-01	3.663E-02	5.952
	+	87.30		1.693E+00	5.812E-01	5.664E-01	8.547E-02	2.989
	+	238.63	*	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
	+	300.09		1.769E+00	8.696E-01	1.122E+00	9.857E-02	1.577
PO-218	+	74.81		4.739E+00	1.077E+00	1.042E+00	1.377E-01	4.549
	+	77.11		3.418E+00	7.234E-01	5.743E-01	7.653E-02	5.952
	+	87.30		2.900E+00	9.783E-01	9.703E-01	1.327E-01	2.989
	+	241.98		2.391E+00	6.389E-01	5.230E-01	4.351E-02	4.572
	+	295.21		1.394E+00	2.339E-01	1.965E-01	1.775E-02	7.095
	+	351.92	*	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977
RA-224	+	240.98	*	4.534E+00	1.184E+00	9.885E-01	6.067E-02	4.587
RA-226	+	609.31	*	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
	+	1120.29		1.804E+00	6.209E-01	4.441E-01	4.340E-02	4.062
	+	1764.49		1.864E+00	4.243E-01	2.670E-01	1.783E-02	6.980
AC-228	+	338.32		1.491E+00	7.315E-01	3.451E-01	1.411E-01	4.321
	+	911.07	*	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591
	+	969.11		1.746E+00	5.487E-01	3.519E-01	8.319E-02	4.962
RA-228	+	338.32		1.491E+00	7.315E-01	3.451E-01	1.411E-01	4.321
	+	911.07	*	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591
	+	969.11		1.746E+00	5.487E-01	3.519E-01	8.319E-02	4.962
TH-228	+	74.81		2.806E+00	6.034E-01	6.167E-01	6.788E-02	4.549
	+	77.11		2.034E+00	4.016E-01	3.417E-01	3.736E-02	5.952
	+	87.30		1.727E+00	5.671E-01	5.778E-01	6.529E-02	2.989
	+	238.63	*	1.555E+00	1.636E-01	8.862E-02	6.722E-03	17.544
	+	300.09		1.805E+00	1.377E+00	1.144E+00	6.752E-01	1.577
TH-230	+	609.31	*	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
	+	1120.29		1.804E+00	6.209E-01	4.441E-01	4.340E-02	4.062
	+	1764.49		1.863E+00	4.243E-01	2.670E-01	1.783E-02	6.980
TH-232	+	338.32		1.491E+00	4.161E-01	3.451E-01	2.313E-02	4.321
	+	911.07	*	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591
	+	969.11		1.746E+00	5.487E-01	3.519E-01	8.319E-02	4.962
U-234	+	609.31	*	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
	+	1120.29		1.804E+00	6.209E-01	4.441E-01	4.340E-02	4.062
	+	1764.49		1.863E+00	4.243E-01	2.670E-01	1.783E-02	6.980
NP-237	+	86.50	*	1.075E+00	4.169E-01	3.644E-01	8.565E-02	2.950
		95.87		2.429E-03	1.013E+00	1.482E+00	3.704E-01	0.002
AM-243	+	74.67	*	4.459E-01	9.577E-02	9.846E-02	1.078E-02	4.528
	+	86.72		4.031E+01	1.324E+01	1.362E+01	1.533E+00	2.961
		117.66		-3.422E+00	3.723E+00	5.775E+00	4.007E-01	-0.593
		142.18		2.250E+00	1.758E+01	2.829E+01	1.689E+00	0.080
ANH-511	+	511.00	*	7.650E-02	7.023E-02	4.248E-02	2.721E-03	1.801

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-7.356E-02	3.405E-01	5.409E-01	4.022E-02	-0.136

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		1.887E-02	4.481E-02	7.763E-02	6.013E-03	0.243
NA-24	1368.53	*		4.536E+01	4.481E-02	Half-Life too short		
AL-26	1129.67			-1.365E+00	1.728E+00	2.523E+00	1.770E-01	-0.541
	1808.65	*		1.545E-03	2.440E-02	4.009E-02	2.542E-03	0.039
TI-44	67.85			6.803E-03	5.721E-02	9.108E-02	1.028E-02	0.075
	78.38	*		1.289E-01	4.979E-02	7.374E-02	8.069E-03	1.749
SC-46	889.25	*		-1.135E-02	3.924E-02	6.221E-02	6.156E-03	-0.182
+	1120.51			3.215E-01	1.086E-01	1.369E-01	9.835E-03	2.348
V-48	944.10			2.101E-01	1.037E+00	1.724E+00	1.670E-01	0.122
	983.50	*		1.104E-02	8.201E-02	1.350E-01	1.248E-02	0.082
	1312.09			-7.153E-02	1.023E-01	1.557E-01	1.300E-02	-0.459
CR-51	320.08	*		8.345E-02	3.926E-01	6.582E-01	4.754E-02	0.127
MN-52	744.21			-8.945E-02	4.250E-01	6.913E-01	4.510E-02	-0.129
	848.13			-1.145E+01	1.189E+01	1.753E+01	1.554E+00	-0.653
	935.52			-9.782E-02	3.927E-01	6.206E-01	6.068E-02	-0.158
	1246.25			-6.413E-01	1.463E+01	2.317E+01	1.687E+00	-0.028
	1333.61			-5.360E-01	8.793E+00	1.443E+01	1.253E+00	-0.037
	1434.06	*		-5.830E-02	4.119E-01	6.641E-01	5.612E-02	-0.088
MN-54	834.83	*		-8.749E-03	3.933E-02	6.340E-02	5.416E-03	-0.138
CO-56	846.75	*		-2.561E-02	3.932E-02	6.023E-02	5.319E-03	-0.425
	977.42			-3.084E-01	2.932E+00	4.704E+00	4.384E-01	-0.066
	1037.82			1.622E-01	3.429E-01	5.795E-01	5.211E-02	0.280
	1175.09			-2.074E+00	2.398E+00	3.690E+00	2.286E-01	-0.562
+	1238.25			9.620E-02	1.594E-01	1.904E-01	1.420E-02	0.505
	1360.21			2.405E-01	1.085E+00	1.844E+00	1.593E-01	0.130
	1771.40			-9.729E-02	2.069E-01	2.949E-01	1.954E-02	-0.330
CO-57	122.06	*		1.514E-02	2.566E-02	4.262E-02	2.811E-03	0.355
	136.48			2.488E-02	2.115E-01	3.426E-01	2.396E-02	0.073
CO-58	810.76	*		-1.345E-02	3.828E-02	6.083E-02	4.867E-03	-0.221
FE-59	142.65			4.117E-01	2.927E+00	4.712E+00	2.808E-01	0.087
	192.34			2.180E-01	1.036E+00	1.657E+00	1.949E-01	0.132
	1099.22	*		5.821E-02	1.043E-01	1.769E-01	1.477E-02	0.329
	1291.56			-7.597E-02	1.298E-01	2.008E-01	1.858E-02	-0.378
CO-60	1173.22			-2.365E-02	4.497E-02	7.158E-02	4.414E-03	-0.330
	1332.49	*		3.269E-02	3.851E-02	6.995E-02	6.078E-03	0.467
ZN-65	1115.52	*		7.644E-02	1.064E-01	1.619E-01	1.179E-02	0.472
GE-68	1077.35	*		9.184E-01	1.263E+00	2.186E+00	1.732E-01	0.420
AS-73	53.44	*		-1.516E-01	1.501E+00	2.502E+00	3.310E-01	-0.061
AS-74	595.88	*		-1.926E-02	1.107E-01	1.840E-01	1.051E-02	-0.105
	634.78			-3.548E-01	3.825E-01	5.887E-01	3.107E-02	-0.603
SE-75	66.05			-8.262E+00	6.400E+00	9.855E+00	1.269E+00	-0.838
	96.73			-8.124E-02	8.502E-01	1.237E+00	1.751E-01	-0.066
	121.11			1.113E-01	1.382E-01	2.313E-01	2.265E-02	0.481
	136.00			2.265E-02	3.996E-02	6.600E-02	4.099E-03	0.343
	198.60			-6.703E-01	1.854E+00	2.865E+00	2.030E-01	-0.234
	264.65	*		-2.531E-02	4.262E-02	6.348E-02	4.049E-03	-0.399
	279.53			6.940E-03	1.095E-01	1.617E-01	1.108E-02	0.043
	303.91			1.009E+00	2.230E+00	3.369E+00	3.377E-01	0.299
	400.65			3.244E-02	2.627E-01	4.325E-01	4.223E-02	0.075

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	87.88		3.315E-03	2.627E-01	Half-Life	too short	
		200.40		1.041E-04	2.627E-01	Half-Life	too short	
	+	239.00		1.008E-03	2.627E-01	Half-Life	too short	
		249.79		3.790E-05	2.627E-01	Half-Life	too short	
		281.68		-1.904E-04	2.627E-01	Half-Life	too short	
		297.23		4.076E-04	2.627E-01	Half-Life	too short	
		303.76		3.005E-04	2.627E-01	Half-Life	too short	
		439.47		1.104E-04	2.627E-01	Half-Life	too short	
		484.57		-3.678E-04	2.627E-01	Half-Life	too short	
		520.65	*	1.013E-05	2.627E-01	Half-Life	too short	
		574.64		-1.208E-04	2.627E-01	Half-Life	too short	
		578.91		-3.685E-05	2.627E-01	Half-Life	too short	
		585.48		1.483E-03	2.627E-01	Half-Life	too short	
		755.35		2.348E-04	2.627E-01	Half-Life	too short	
		817.79		-3.173E-04	2.627E-01	Half-Life	too short	
SR-82		698.33		-1.234E+01	3.815E+01	6.189E+01	3.472E+00	-0.199
		776.49	*	-2.896E-01	4.295E-01	6.664E-01	4.805E-02	-0.435
		1395.20		-1.082E+01	1.412E+01	2.100E+01	1.797E+00	-0.515
RB-83		520.41	*	2.189E-02	6.722E-02	1.108E-01	7.033E-03	0.198
		529.64		-7.980E-02	1.127E-01	1.702E-01	1.069E-02	-0.469
		552.65		-1.016E-01	2.096E-01	3.214E-01	1.963E-02	-0.316
RB-84		881.50	*	1.258E-02	7.136E-02	1.189E-01	1.153E-02	0.106
KR-85		513.99	*	7.325E+00	7.767E+00	1.190E+01	7.601E-01	0.616
SR-85		513.99	*	3.953E-02	4.191E-02	6.421E-02	4.102E-03	0.616
RB-86		1076.63	*	9.277E-01	9.403E-01	1.667E+00	1.322E-01	0.557
Y-88		898.02		-1.865E-02	3.996E-02	6.195E-02	6.293E-03	-0.301
		1836.01	*	6.103E-03	2.924E-02	4.965E-02	3.046E-03	0.123
ZR-88		392.90	*	-7.366E-04	2.989E-02	4.881E-02	3.317E-03	-0.015
Y-91		1204.90	*	2.786E+00	2.131E+01	3.599E+01	2.391E+00	0.077
NB-94		702.63	*	1.222E-03	3.305E-02	5.512E-02	3.138E-03	0.022
		871.10		-1.791E-02	3.419E-02	5.302E-02	5.002E-03	-0.338
NB-95M		235.69	*	1.808E-01	1.479E-01	2.333E-01	1.809E-02	0.775
ZR-95		724.18		1.067E-01	1.099E-01	1.744E-01	1.243E-02	0.612
		756.15	*	2.974E-02	7.238E-02	1.238E-01	9.726E-03	0.240
NB-97		657.90	*	3.990E+00	7.238E-02	Half-Life	too short	
		1024.50		-7.545E+02	7.238E-02	Half-Life	too short	
ZR-97		254.15		-7.390E+01	7.238E-02	Half-Life	too short	
		355.39		3.075E+02	7.238E-02	Half-Life	too short	
		507.63	*	5.622E+02	7.238E-02	Half-Life	too short	
		602.52		3.127E+01	7.238E-02	Half-Life	too short	
		1021.30		7.804E+02	7.238E-02	Half-Life	too short	
		1147.95		-1.208E+02	7.238E-02	Half-Life	too short	
		1362.66		-1.578E+03	7.238E-02	Half-Life	too short	
		1750.46		3.956E+02	7.238E-02	Half-Life	too short	
MO-99		140.51		-2.687E+01	8.969E+01	1.420E+02	3.833E+01	-0.189
		181.06		8.084E+00	6.138E+01	8.740E+01	1.492E+01	0.093
		366.43		1.837E+02	2.751E+02	4.704E+02	3.186E+01	0.390
		739.58	*	2.645E+01	3.913E+01	6.809E+01	9.571E+00	0.388
		778.00		-4.876E+01	1.131E+02	1.795E+02	1.300E+01	-0.272

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

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TC-99M	140.51	*		-7.706E+15	1.131E+02	Half-Life	too short	
RH-101	127.23			2.678E-02	3.193E-02	5.341E-02	3.413E-03	0.501
	198.01	*		-1.326E-03	3.310E-02	5.201E-02	2.988E-03	-0.026
	325.23			-4.280E-02	2.295E-01	3.284E-01	2.186E-02	-0.130
RH-102	418.52			1.592E-01	2.876E-01	4.853E-01	3.285E-02	0.328
	475.06	*		-9.426E-03	2.720E-02	4.271E-02	2.817E-03	-0.221
	631.29			-2.594E-03	4.916E-02	8.200E-02	4.363E-03	-0.032
	697.49			-6.544E-02	7.680E-02	1.192E-01	6.671E-03	-0.549
	766.84			2.687E-01	1.062E-01	1.910E-01	1.337E-02	1.407
	1046.59			-3.634E-04	1.049E-01	1.693E-01	1.422E-02	-0.002
	1112.84			-3.320E-01	3.012E-01	3.485E-01	2.551E-02	-0.953
RU-103	497.08	*		2.718E-02	4.248E-02	7.161E-02	9.291E-03	0.380
	610.33			1.463E+01	2.952E+00	3.260E+00	4.998E-01	4.488
RH-106	511.85			1.798E-01	2.073E-01	3.857E-01	2.469E-02	0.466
	621.84	*		-2.674E-01	2.782E-01	4.247E-01	4.909E-02	-0.630
	1050.47			2.050E+00	2.039E+00	3.665E+00	3.057E-01	0.559
RU-106	511.85			1.798E-01	2.073E-01	3.857E-01	2.469E-02	0.466
	621.84	*		-2.674E-01	2.769E-01	4.247E-01	2.307E-02	-0.630
	1050.47			2.050E+00	2.039E+00	3.665E+00	3.057E-01	0.559
AG-108M	433.93	*		-3.741E-03	3.127E-02	5.039E-02	3.613E-03	-0.074
	614.37			1.536E-02	4.275E-02	6.451E-02	3.890E-03	0.238
	722.95			4.412E-03	4.343E-02	6.334E-02	4.156E-03	0.070
AG-110M	657.75	*		1.302E-02	3.572E-02	5.413E-02	2.933E-03	0.241
	677.61			1.052E-01	3.010E-01	5.154E-01	2.893E-02	0.204
	706.67			2.648E-02	2.147E-01	3.603E-01	2.205E-02	0.073
	763.93			7.974E-02	1.828E-01	2.754E-01	1.994E-02	0.290
	884.67			-4.297E-03	4.708E-02	7.626E-02	7.644E-03	-0.056
	937.48			-8.042E-02	9.655E-02	1.407E-01	1.411E-02	-0.572
	1384.27			-5.508E-02	1.705E-01	2.748E-01	2.426E-02	-0.200
IN-111	171.28			-2.520E+00	3.240E+00	4.957E+00	2.727E-01	-0.508
	245.39	*		-4.742E-01	3.457E+00	5.073E+00	3.133E-01	-0.093
IN-113M	391.69	*		-3.309E-02	4.315E-02	6.676E-02	4.760E-03	-0.496
SN-113	391.69	*		-3.309E-02	4.315E-02	6.676E-02	4.760E-03	-0.496
IN-114M	190.27	*		4.703E-02	2.179E-01	3.109E-01	1.763E-02	0.151
CD-115	260.90			-1.754E-04	2.179E-01	Half-Life	too short	
	492.35			-8.303E-05	2.179E-01	Half-Life	too short	
	527.90	*		2.465E-05	2.179E-01	Half-Life	too short	
SN-117M	156.02			1.917E+00	2.857E+00	4.711E+00	2.667E-01	0.407
	158.56	*		-2.448E-02	7.006E-02	1.102E-01	6.183E-03	-0.222
SB-122	563.90	*		-3.561E+00	6.833E+00	1.040E+01	6.256E-01	-0.342
	692.80			1.040E+02	1.489E+02	2.606E+02	1.434E+01	0.399
I-123	159.00	*		-6.000E+02	1.489E+02	Half-Life	too short	
	528.96			-6.042E+04	1.489E+02	Half-Life	too short	
TE-123M	159.00	*		-6.497E-03	2.904E-02	4.597E-02	2.611E-03	-0.141
I-124	602.71	*		5.670E-02	1.610E+00	2.473E+00	1.395E-01	0.023
	722.78			1.161E+00	1.016E+01	1.484E+01	9.032E-01	0.078
	1325.50			-2.804E+01	8.379E+01	1.336E+02	1.146E+01	-0.210
	1376.25			1.084E+02	6.831E+01	1.323E+02	1.138E+01	0.819
	1509.49			9.331E+01	4.644E+01	9.093E+01	7.434E+00	1.026

---- 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			1.236E+00	7.705E+00	1.295E+01	9.317E-01	0.095
	602.71			1.558E-03	4.424E-02	6.795E-02	3.835E-03	0.023
	645.85			-1.600E-01	4.747E-01	7.627E-01	4.551E-02	-0.210
	709.31			1.570E+00	2.957E+00	5.107E+00	2.974E-01	0.307
	713.82			-1.061E+00	1.647E+00	2.580E+00	2.651E-01	-0.411
	722.78			4.626E-02	4.045E-01	5.909E-01	3.752E-02	0.078
	+ 968.20			1.901E+01	4.323E+00	7.491E+00	7.061E-01	2.537
	1045.16			-1.746E+00	2.353E+00	3.437E+00	2.894E-01	-0.508
	1325.50			-1.193E+00	3.564E+00	5.685E+00	4.874E-01	-0.210
	1368.21			5.221E-01	1.790E+00	2.726E+00	3.675E-01	0.192
SB-125	1436.60			1.694E+00	3.808E+00	6.676E+00	5.637E-01	0.254
	1691.02 *			1.162E-02	7.239E-02	1.217E-01	9.247E-03	0.095
	427.89 *			-4.958E-02	8.333E-02	1.292E-01	8.997E-03	-0.384
	+ 463.38			7.339E-01	4.406E-01	5.080E-01	3.810E-02	1.445
	600.56			-2.685E-02	1.790E-01	2.978E-01	1.963E-02	-0.090
TE-125M	635.90			1.697E-01	2.342E-01	4.153E-01	2.633E-02	0.408
	109.28 *			1.176E+00	9.707E+00	1.589E+01	1.528E+00	0.074
	I-126			1.264E-01	2.484E-01	4.199E-01	2.853E-02	0.301
SB-126	666.33 *			1.062E-01	2.507E-01	3.809E-01	1.911E-02	0.279
	753.82			3.675E-01	1.833E+00	3.085E+00	2.074E-01	0.119
	+ 223.80			-1.365E+00	4.894E+00	8.161E+00	4.886E-01	-0.167
	278.60			4.475E+00	4.062E+00	5.022E+00	3.224E-01	0.891
	296.50			1.187E+01	2.270E+00	4.278E+00	2.791E-01	2.776
	414.70			-7.535E-02	1.016E-01	1.509E-01	1.022E-02	-0.499
	415.30			-1.340E+00	8.119E+00	1.309E+01	8.866E-01	-0.102
	555.20			2.857E+00	5.518E+00	9.166E+00	5.580E-01	0.312
	573.80			7.856E-01	1.337E+00	2.292E+00	1.358E-01	0.343
	593.00			-3.431E-01	1.218E+00	2.009E+00	1.154E-01	-0.171
SB-127	656.30			3.184E+00	4.355E+00	6.874E+00	3.441E-01	0.463
	666.33			4.486E-02	1.059E-01	1.610E-01	8.074E-03	0.279
	675.00			-2.847E+00	2.438E+00	3.651E+00	1.889E-01	-0.780
	695.00			3.008E-02	1.001E-01	1.703E-01	9.447E-03	0.177
	697.00			-1.883E-01	3.482E-01	5.550E-01	3.100E-02	-0.339
	720.50 *			6.749E-02	1.931E-01	3.023E-01	1.827E-02	0.223
	856.80			5.089E-01	6.776E-01	1.054E+00	9.566E-02	0.483
	989.30			-5.021E-01	1.580E+00	2.469E+00	2.266E-01	-0.203
	1034.80			-2.684E+00	1.260E+01	1.991E+01	1.707E+00	-0.135
	1213.00			-3.881E+00	5.986E+00	9.385E+00	6.350E-01	-0.413
SB-127	61.10			-3.151E+02	2.011E+02	3.049E+02	4.671E+01	-1.033
	252.40			-8.583E+00	1.041E+01	1.567E+01	6.588E+00	-0.548
	290.80			-7.845E+00	5.078E+01	7.347E+01	8.368E+00	-0.107
	411.60			8.728E+00	3.164E+01	4.630E+01	7.412E+00	0.189
	444.90			6.265E+00	2.223E+01	3.679E+01	4.728E+00	0.170
	473.00			-1.519E+00	3.785E+00	5.913E+00	7.759E-01	-0.257
	543.00			5.317E+00	3.898E+01	6.308E+01	9.109E+00	0.084
	603.60			1.580E+00	3.056E+01	4.495E+01	5.527E+00	0.035
	685.20 *			-2.986E-01	3.129E+00	5.174E+00	5.700E-01	-0.058
	698.50			-1.660E+01	3.569E+01	5.710E+01	8.933E+00	-0.291
	722.20			3.846E+01	7.444E+01	1.137E+02	1.268E+01	0.338

---- 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		7.900E+00	8.942E+00	1.567E+01	2.053E+00	0.504
		57.60		1.018E+01	1.051E+01	1.807E+01	2.298E+00	0.563
		145.22		-1.428E-01	7.359E-01	1.172E+00	6.912E-02	-0.122
		172.10		-1.618E-02	1.268E-01	2.007E-01	1.105E-02	-0.081
I-131		202.84	*	1.075E-02	4.750E-02	7.888E-02	4.568E-03	0.136
		374.96		1.150E-01	2.056E-01	3.492E-01	2.368E-02	0.329
		80.18		-1.254E+00	9.945E+00	1.150E+01	1.270E+00	-0.109
		284.30		4.206E-01	2.124E+00	3.579E+00	2.539E-01	0.118
TE-132		364.48	*	4.521E-02	1.664E-01	2.782E-01	2.059E-02	0.162
		636.97		9.097E-01	2.034E+00	3.533E+00	2.144E-01	0.258
		722.89		1.180E+00	1.112E+01	1.623E+01	1.010E+00	0.073
		49.72		-4.392E+01	1.128E+02	1.858E+02	2.855E+01	-0.236
BA-133		111.76		1.665E+01	8.080E+01	1.326E+02	1.522E+01	0.126
		116.30		5.867E+00	7.761E+01	1.254E+02	1.406E+01	0.047
		228.16	*	-4.401E-01	1.835E+00	3.061E+00	4.756E-01	-0.144
		53.15		1.350E+00	6.286E+00	1.061E+01	1.405E+00	0.127
I-133		79.62		1.593E+00	1.741E+00	2.170E+00	3.615E-01	0.734
		81.00		-2.440E-02	1.384E-01	1.591E-01	2.750E-02	-0.153
	+	276.40		5.103E-01	4.670E-01	6.160E-01	8.159E-02	0.828
		302.84		-4.727E-03	1.489E-01	2.170E-01	2.615E-02	-0.022
CS-134		356.01	*	1.169E-02	4.281E-02	6.336E-02	7.645E-03	0.184
		383.85		1.770E-01	2.920E-01	4.956E-01	5.665E-02	0.357
	+	510.53		3.780E+01	2.920E-01	Half-Life too short		
		529.87	*	-1.845E-01	2.920E-01	Half-Life too short		
I-135		706.58		2.078E+00	2.920E-01	Half-Life too short		
		856.28		2.766E+00	2.920E-01	Half-Life too short		
		875.33		3.599E+00	2.920E-01	Half-Life too short		
	+	1236.41		3.244E+01	2.920E-01	Half-Life too short		
CS-135		1298.22		7.548E+00	2.920E-01	Half-Life too short		
		475.35		-6.174E-01	1.824E+00	2.867E+00	1.891E-01	-0.215
		563.23		1.467E-01	3.299E-01	5.471E-01	3.358E-02	0.268
		569.32		2.754E-02	2.007E-01	3.236E-01	1.985E-02	0.085
I-135		604.70		-1.875E-02	3.776E-02	5.250E-02	2.968E-03	-0.357
		795.84	*	3.090E-02	4.801E-02	8.306E-02	6.403E-03	0.372
		801.93		2.031E-01	4.174E-01	7.041E-01	5.513E-02	0.288
		1038.57		2.233E+00	4.015E+00	6.845E+00	5.830E-01	0.326
CS-135		1167.94		3.883E-01	2.507E+00	4.258E+00	2.671E-01	0.091
		1365.15		5.488E-01	1.078E+00	1.915E+00	1.727E-01	0.287
		268.24	*	2.263E-01	1.580E-01	2.547E-01	2.058E-02	0.889
		288.45		-1.531E+15	1.580E-01	Half-Life too short		
I-135		417.63		1.819E+15	1.580E-01	Half-Life too short		
		546.56		1.841E+15	1.580E-01	Half-Life too short		
		836.80		4.791E+15	1.580E-01	Half-Life too short		
		1038.76		1.868E+15	1.580E-01	Half-Life too short		
I-135		1124.00		1.876E+15	1.580E-01	Half-Life too short		
		1131.51		-6.426E+14	1.580E-01	Half-Life too short		
		1260.41	*	5.451E+14	1.580E-01	Half-Life too short		
		1457.56		1.885E+17	1.580E-01	Half-Life too short		
I-135		1678.03		-1.143E+15	1.580E-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		-3.710E+14	1.580E-01	Half-Life	too short	
		1791.20		-1.648E+15	1.580E-01	Half-Life	too short	
		66.91		-1.055E+00	1.238E+00	1.944E+00	3.329E-01	-0.543
	+	86.29		6.169E+00	2.109E+00	2.761E+00	4.068E-01	2.235
		153.22		2.434E-01	8.117E-01	1.319E+00	9.451E-02	0.185
		163.89		5.531E-01	1.357E+00	2.207E+00	1.550E-01	0.251
		176.55		-4.158E-01	4.691E-01	7.119E-01	4.485E-02	-0.584
		273.65		-2.651E-02	8.342E-01	8.869E-01	6.334E-02	-0.030
		340.57		1.306E-01	1.684E-01	2.586E-01	1.819E-02	0.505
		818.51		-4.447E-02	9.072E-02	1.419E-01	1.160E-02	-0.313
CE-139		1048.07	*	-3.428E-02	1.269E-01	1.981E-01	1.735E-02	-0.173
		1235.34		1.653E+00	9.720E-01	1.619E+00	1.749E-01	1.021
		165.85	*	-2.593E-02	2.957E-02	4.510E-02	2.463E-03	-0.575
	BA-140	162.64		1.323E-01	9.651E-01	1.552E+00	9.746E-02	0.085
LA-140		304.84		-4.032E-01	1.820E+00	2.607E+00	7.161E-01	-0.155
		423.70		1.335E+00	2.495E+00	4.146E+00	1.326E+00	0.322
		537.32	*	9.466E-02	3.201E-01	5.233E-01	1.706E-01	0.181
		328.77		6.568E-01	4.094E-01	6.622E-01	4.824E-02	0.992
		432.53		2.460E+00	2.396E+00	4.182E+00	3.040E-01	0.588
		487.03		8.097E-02	1.781E-01	2.968E-01	2.145E-02	0.273
		751.79		7.315E-02	2.095E+00	3.479E+00	2.725E-01	0.021
		815.85		-2.821E-01	4.090E-01	6.269E-01	5.734E-02	-0.450
		867.82		1.345E+00	1.659E+00	2.928E+00	2.862E-01	0.459
		919.63		6.663E-01	3.686E+00	6.115E+00	7.176E-01	0.109
CE-141		925.24		-8.457E-02	1.352E+00	2.188E+00	2.266E-01	-0.039
		1596.49	*	-1.541E-01	1.209E-01	1.543E-01	1.197E-02	-0.999
		145.44	*	-5.400E-02	6.843E-02	1.059E-01	6.480E-03	-0.510
	CE-143	57.37		1.782E-02	6.843E-02	Half-Life	too short	
CE-144		231.56		-4.061E-03	6.843E-02	Half-Life	too short	
		293.26	*	9.333E-03	6.843E-02	Half-Life	too short	
	+	350.59		3.610E-01	6.843E-02	Half-Life	too short	
		490.36		-3.411E-02	6.843E-02	Half-Life	too short	
		664.57		3.121E-03	6.843E-02	Half-Life	too short	
		721.93		9.356E-03	6.843E-02	Half-Life	too short	
		80.11		-3.248E-01	3.052E+00	3.534E+00	3.878E-01	-0.092
PM-144		133.54	*	-7.035E-02	2.054E-01	3.259E-01	4.682E-02	-0.216
		476.78		-1.136E-03	6.669E-02	1.076E-01	8.194E-03	-0.011
		618.01		3.764E-03	2.938E-02	4.978E-02	2.910E-03	0.076
		696.49	*	-1.019E-02	3.407E-02	5.539E-02	3.092E-03	-0.184
PR-144		778.57		2.271E-01	2.212E+00	3.685E+00	2.676E-01	0.062
		696.49	*	-6.922E-01	2.315E+00	3.763E+00	2.098E-01	-0.184
PM-146		1489.15		3.885E+00	1.283E+01	2.200E+01	1.816E+00	0.177
		453.90	*	3.006E-02	4.306E-02	7.307E-02	6.749E-03	0.411
		633.02		-6.968E-01	1.286E+00	2.015E+00	7.405E-01	-0.346
ND-147		735.90		9.805E-03	1.386E-01	2.311E-01	6.471E-02	0.042
		747.13		4.347E-02	8.338E-02	1.441E-01	1.858E-02	0.302
	+	91.11		1.188E+00	4.681E-01	7.008E-01	7.813E-02	1.696
		319.41		-4.959E-01	4.261E+00	7.010E+00	4.654E-01	-0.071
		439.89		-6.781E-01	7.552E+00	1.218E+01	8.194E-01	-0.056

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	531.02	*		1.029E-01	7.251E-01	1.176E+00	1.615E-01	0.087
PM-149	285.90	*		2.671E-04	7.251E-01	Half-Life	too short	
EU-152	121.78			6.215E-02	7.381E-02	1.237E-01	1.019E-02	0.502
	244.69			-2.340E-02	3.209E-01	4.731E-01	2.919E-02	-0.049
	344.27	*		-1.048E-02	1.042E-01	1.495E-01	1.102E-02	-0.070
	443.98			4.042E-02	9.261E-01	1.508E+00	1.012E-01	0.027
	778.89			5.515E-02	2.538E-01	4.270E-01	3.101E-02	0.129
	867.32			5.411E-01	7.602E-01	1.331E+00	1.243E-01	0.407
	964.01	+		8.656E-01	3.695E-01	5.691E-01	5.392E-02	1.521
	1085.78			3.069E-01	3.639E-01	6.412E-01	4.992E-02	0.479
	1112.02			-1.944E-01	4.099E-01	5.341E-01	3.917E-02	-0.364
	1407.95			6.693E-02	1.994E-01	3.423E-01	2.919E-02	0.196
GD-153	69.67			1.343E+00	2.158E+00	3.299E+00	3.679E-01	0.407
	83.37	+		2.727E+01	2.063E+01	2.752E+01	3.050E+00	0.991
	97.43	*		1.099E-02	8.759E-02	1.290E-01	1.201E-02	0.085
	103.18			-5.383E-02	1.029E-01	1.639E-01	1.386E-02	-0.328
EU-154	123.07			9.151E-03	5.107E-02	8.337E-02	8.239E-03	0.110
	247.94			8.897E-02	3.289E-01	5.597E-01	5.478E-02	0.159
	591.81			-2.470E-01	6.173E-01	1.009E+00	9.831E-02	-0.245
	723.30			2.449E-02	1.844E-01	2.699E-01	1.977E-02	0.091
	756.87			-1.380E-01	7.640E-01	1.245E+00	1.336E-01	-0.111
	873.19			2.077E-01	2.908E-01	5.067E-01	6.521E-02	0.410
	996.32			-2.316E-01	3.783E-01	5.700E-01	1.026E-01	-0.406
	1004.76			-1.037E-01	2.086E-01	3.189E-01	3.798E-02	-0.325
	1274.45	*		4.204E-02	1.251E-01	2.149E-01	2.289E-02	0.196
EU-155	48.70			2.599E-01	5.346E+00	8.990E+00	1.080E+00	0.029
	60.01			-6.749E+00	7.360E+00	1.176E+01	1.448E+00	-0.574
	86.54	+		4.417E-01	1.451E-01	1.967E-01	2.226E-02	2.245
	105.31	*		6.156E-02	1.071E-01	1.787E-01	1.483E-02	0.344
TB-160	86.79	+		1.234E+00	4.051E-01	5.474E-01	6.167E-02	2.254
	197.04			-1.830E-02	5.960E-01	9.360E-01	5.368E-02	-0.020
	215.65			2.314E-01	7.533E-01	1.252E+00	7.399E-02	0.185
	298.57	+		2.697E-01	1.316E-01	1.983E-01	1.296E-02	1.360
	879.36	*		-7.347E-02	1.391E-01	2.147E-01	2.070E-02	-0.342
	962.29	+		1.673E+00	7.142E-01	1.109E+00	1.053E-01	1.509
	966.15			1.229E+00	3.056E-01	5.768E-01	5.451E-02	2.131
	1177.93			1.694E-02	3.790E-01	6.369E-01	3.972E-02	0.027
	1271.85			-1.574E-01	7.259E-01	1.179E+00	9.072E-02	-0.133
HO-166M	80.57			-3.950E-02	3.844E-01	4.452E-01	4.890E-02	-0.089
	184.41	+		1.532E-01	6.221E-02	6.793E-02	3.815E-03	2.255
	280.46			-6.963E-03	8.287E-02	1.209E-01	7.775E-03	-0.058
	410.95			2.007E-01	2.727E-01	4.144E-01	2.810E-02	0.484
	711.68	*		2.125E-02	5.902E-02	1.008E-01	5.918E-03	0.211
	752.31			1.243E-02	2.621E-01	4.355E-01	2.915E-02	0.029
	810.29			-4.548E-02	5.554E-02	8.382E-02	6.679E-03	-0.543
TM-171	51.35			-6.028E+00	5.846E+01	9.752E+01	1.283E+01	-0.062
	52.39			1.851E+00	2.886E+01	4.846E+01	6.418E+00	0.038
	59.40			-4.884E+00	3.946E+01	6.547E+01	8.134E+00	-0.075
	66.72	*		-3.570E+01	3.514E+01	5.504E+01	6.270E+00	-0.649



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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	88.36		8.682E-01	2.851E-01	3.722E-01	4.186E-02	2.333
		201.83		-1.530E-02	2.616E-02	4.330E-02	2.503E-03	-0.353
		306.84	*	1.821E-02	2.328E-02	4.028E-02	2.649E-03	0.452
		401.10		-1.075E+00	6.797E+00	1.099E+01	7.465E-01	-0.098
LU-177	+	112.95		-2.011E+00	2.689E+00	4.224E+00	3.110E-01	-0.476
		208.36	*	5.628E+00	3.070E+00	3.326E+00	1.944E-01	1.692
LU-177M	+	52.97		8.222E-01	2.944E+00	4.982E+00	6.601E-01	0.165
		54.07		-8.208E-01	1.507E+00	2.458E+00	3.241E-01	-0.334
		61.30		-2.232E+00	2.131E+00	3.378E+00	4.087E-01	-0.661
		121.62		3.702E-01	3.851E-01	6.490E-01	4.294E-02	0.570
		147.16		1.939E-02	6.334E-01	1.019E+00	5.962E-02	0.019
		171.86		-2.400E-01	4.814E-01	7.475E-01	4.115E-02	-0.321
		218.09		-4.048E-01	8.067E-01	1.334E+00	7.914E-02	-0.304
		268.79		1.530E+00	8.447E-01	1.387E+00	8.811E-02	1.103
		319.02		1.004E-02	2.477E-01	4.114E-01	2.729E-02	0.024
		367.43		1.043E-01	9.123E-01	1.509E+00	1.022E-01	0.069
		413.65	*	-1.215E-01	2.044E-01	2.751E-01	1.864E-02	-0.442
HF-181		56.28		-4.130E-02	1.667E+00	2.782E+00	3.594E-01	-0.015
		57.53		9.388E-01	8.693E-01	1.499E+00	1.907E-01	0.626
		65.20		-1.363E+00	1.330E+00	2.086E+00	2.411E-01	-0.653
		133.02		9.289E-05	6.951E-02	1.122E-01	6.966E-03	0.001
		136.25		1.995E-01	4.929E-01	8.086E-01	4.948E-02	0.247
W-181		345.85		-2.335E-02	2.176E-01	3.119E-01	2.097E-02	-0.075
		482.03	*	1.731E-02	4.813E-02	7.964E-02	5.228E-03	0.217
		56.28		-1.463E-02	6.196E-01	1.034E+00	1.336E-01	-0.014
		57.53		3.486E-01	3.234E-01	5.575E-01	7.094E-02	0.625
TA-182		65.20	*	-5.030E-01	4.908E-01	7.701E-01	8.898E-02	-0.653
		67.75		1.023E-02	1.406E-01	2.234E-01	2.524E-02	0.046
		100.10		1.048E-01	1.781E-01	2.981E-01	2.649E-02	0.352
		152.43		-4.754E-03	3.282E-01	5.257E-01	3.016E-02	-0.009
RE-183		222.10		1.885E-02	3.313E-01	5.612E-01	3.351E-02	0.034
		1001.68		-2.268E-02	2.224E+00	3.591E+00	3.239E-01	-0.006
		1121.28		5.470E-01	1.910E-01	3.643E-01	2.612E-02	1.502
		1189.05		-3.670E-02	3.023E-01	4.999E-01	3.200E-02	-0.073
		1221.42	*	-4.231E-02	1.960E-01	3.207E-01	2.212E-02	-0.132
		1230.97		1.873E-01	5.734E-01	8.572E-01	6.038E-02	0.218
		57.98		3.341E-01	3.250E-01	5.594E-01	7.077E-02	0.597
		59.32		-1.768E-02	1.700E-01	2.823E-01	3.511E-02	-0.063
		67.20		-1.768E-01	2.551E-01	4.064E-01	4.611E-02	-0.435
		162.32	*	5.727E-02	1.122E-01	1.835E-01	1.015E-02	0.312
RE-184	+	208.81		3.215E+00	1.754E+00	1.907E+00	1.115E-01	1.686
		291.72		-2.625E-02	9.772E-01	1.428E+00	9.281E-02	-0.018
		57.98		1.197E+00	1.164E+00	2.004E+00	2.535E-01	0.597
		59.32		-6.330E-02	6.085E-01	1.011E+00	1.257E-01	-0.063
		67.20		-6.333E-01	9.137E-01	1.456E+00	1.651E-01	-0.435
		161.27		1.549E-01	3.556E-01	5.798E-01	3.220E-02	0.267
		216.55		-3.376E-02	2.553E-01	4.295E-01	2.543E-02	-0.079
		252.85	*	-1.881E-01	2.255E-01	3.623E-01	2.259E-02	-0.519
		318.01		-2.460E-02	4.458E-01	7.363E-01	4.881E-02	-0.033

---- 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		4.846E-01	1.035E+00	1.770E+00	1.337E-01	0.274
		903.28		6.886E-01	9.374E-01	1.570E+00	1.583E-01	0.438
		920.93		1.750E-01	4.565E-01	7.721E-01	7.658E-02	0.227
		59.72		-7.254E-02	4.435E-01	7.346E-01	9.085E-02	-0.099
		61.14		-3.823E-01	2.445E-01	3.753E-01	4.551E-02	-1.018
		69.30		1.239E-01	4.009E-01	6.046E-01	6.758E-02	0.205
		592.07		-8.377E-01	2.624E+00	4.316E+00	2.482E-01	-0.194
		646.12	*	-1.632E-02	4.073E-02	6.517E-02	3.348E-03	-0.250
		717.42		-5.056E-01	8.630E-01	1.359E+00	8.130E-02	-0.372
		874.81		2.452E-01	5.897E-01	1.004E+00	9.561E-02	0.244
RE-188		880.27		-1.446E-02	7.424E-01	1.212E+00	1.172E-01	-0.012
		155.03	*	-1.601E-02	1.789E-01	2.854E-01	1.621E-02	-0.056
		477.96		1.954E-01	3.209E+00	5.205E+00	3.426E-01	0.038
		633.10		-1.550E+00	2.665E+00	4.246E+00	2.250E-01	-0.365
W-188		63.58		1.011E+02	7.430E+01	1.274E+02	1.498E+01	0.794
		227.08		-2.984E+00	1.274E+01	2.128E+01	1.280E+00	-0.140
IR-192		290.67	*	-1.987E+00	7.780E+00	1.117E+01	7.250E-01	-0.178
	+	295.96		1.113E+00	1.736E-01	2.866E-01	1.893E-02	3.882
		308.46		6.121E-03	9.114E-02	1.519E-01	1.009E-02	0.040
		316.51	*	1.058E-02	3.450E-02	5.816E-02	3.867E-03	0.182
		468.07		3.025E-02	7.263E-02	1.072E-01	7.948E-03	0.282
AU-195		604.41		-2.739E-01	5.319E-01	7.371E-01	8.301E-02	-0.372
		612.46		5.687E-01	8.216E-01	1.275E+00	9.401E-02	0.446
		65.12		-2.258E-01	2.258E-01	3.548E-01	4.103E-02	-0.636
		66.83		-1.024E-01	1.168E-01	1.842E-01	2.097E-02	-0.556
	+	75.70		1.470E+00	3.157E-01	5.489E-01	6.004E-02	2.678
		98.88	*	1.841E-01	2.251E-01	3.800E-01	3.448E-02	0.484
TL-200		129.76		3.812E+00	2.924E+00	4.963E+00	3.131E-01	0.768
		367.94	*	2.104E-04	2.924E+00	Half-Life	too short	
		579.30		5.653E-02	2.924E+00	Half-Life	too short	
		828.27		2.754E-03	2.924E+00	Half-Life	too short	
		1205.75		2.137E-02	2.924E+00	Half-Life	too short	
TL-201		68.90		1.004E+01	1.851E+01	2.823E+01	3.164E+00	0.356
		70.82		6.764E+00	1.050E+01	1.604E+01	1.778E+00	0.422
		80.30		-2.693E+00	2.151E+01	2.487E+01	2.730E+00	-0.108
		135.34		2.753E+01	7.574E+01	1.241E+02	7.624E+00	0.222
TL-202		167.43	*	-4.504E+00	1.977E+01	3.117E+01	1.705E+00	-0.145
		68.90		3.937E-01	7.258E-01	1.107E+00	1.240E-01	0.356
		70.82		2.645E-01	4.104E-01	6.269E-01	6.950E-02	0.422
		80.30		-1.053E-01	8.413E-01	9.726E-01	1.068E-01	-0.108
HG-203		439.56	*	-1.009E-02	8.862E-02	1.427E-01	9.596E-03	-0.071
		70.83		9.365E-01	1.455E+00	2.218E+00	3.390E-01	0.422
		72.87		2.084E+00	8.557E-01	1.419E+00	2.109E-01	1.469
		82.60		2.855E-01	1.368E+00	2.037E+00	3.134E-01	0.140
BI-207		279.20	*	9.111E-03	4.375E-02	6.530E-02	4.406E-03	0.140
		72.80		4.905E-01	2.221E-01	3.797E-01	4.177E-02	1.292
	+	74.97		8.006E-01	1.720E-01	2.769E-01	3.031E-02	2.892
	+	84.90		3.479E-01	2.632E-01	3.468E-01	3.869E-02	1.003
		569.67		9.777E-03	3.156E-02	5.157E-02	3.075E-03	0.190

---- 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	*	-5.689E-03	5.058E-02	8.050E-02	6.553E-03	-0.071
		1770.23		-8.525E-01	5.744E-01	6.616E-01	4.390E-02	-1.289
		81.07		-5.971E-02	3.046E-01	3.498E-01	3.847E-02	-0.171
	+	83.78		2.293E-01	1.735E-01	2.321E-01	2.576E-02	0.988
		94.90		2.484E-01	2.413E-01	3.716E-01	3.629E-02	0.668
		122.32		2.165E-01	1.760E+00	2.866E+00	2.116E-01	0.076
		144.24		2.174E-01	6.722E-01	1.090E+00	7.989E-02	0.199
		154.21		-1.435E-01	3.915E-01	6.164E-01	4.272E-02	-0.233
	+	269.46		3.464E-01	2.502E-01	3.275E-01	2.161E-02	1.058
		323.87	*	-3.060E-01	6.679E-01	9.292E-01	1.564E-01	-0.329
PO-209	+	338.28		6.226E+00	1.822E+00	2.439E+00	2.697E-01	2.552
		445.03		5.092E-01	2.153E+00	3.553E+00	3.841E-01	0.143
		260.50		-2.748E+00	8.782E+00	1.447E+01	9.108E-01	-0.190
		262.80		1.218E+00	2.328E+01	3.909E+01	2.467E+00	0.031
		896.60	*	-2.389E+00	7.190E+00	1.134E+01	1.144E+00	-0.211
BI-210		46.50	*	3.952E+00	8.523E+00	1.458E+01	1.430E+00	0.271
PB-210		46.50	*	3.952E+00	8.523E+00	1.458E+01	1.430E+00	0.271
PO-210		46.50	*	3.952E+00	8.521E+00	1.458E+01	1.308E+00	0.271
PB-211		404.84	*	5.271E-01	1.062E+00	1.513E+00	9.445E-01	0.348
BI-212		427.08		-1.663E+00	2.197E+00	2.957E+00	1.830E+00	-0.563
		831.96		-5.614E-01	1.218E+00	1.829E+00	1.146E+00	-0.307
	+	727.18	*	7.437E-01	4.227E-01	6.303E-01	5.042E-02	1.180
		785.46		6.324E-01	1.847E+00	3.108E+00	2.302E-01	0.203
		1620.62		5.471E-01	1.336E+00	2.278E+00	1.737E-01	0.240
PO-215		81.07		-5.971E-02	3.046E-01	3.498E-01	3.847E-02	-0.171
	+	83.78		2.293E-01	1.735E-01	2.321E-01	2.576E-02	0.988
		94.90		2.484E-01	2.413E-01	3.716E-01	3.629E-02	0.668
		122.32		2.165E-01	1.760E+00	2.866E+00	2.116E-01	0.076
		144.24		2.174E-01	6.722E-01	1.090E+00	7.989E-02	0.199
		154.21		-1.435E-01	3.915E-01	6.164E-01	4.272E-02	-0.233
	+	269.46		3.464E-01	2.502E-01	3.275E-01	2.161E-02	1.058
		323.87	*	-3.060E-01	6.679E-01	9.292E-01	1.564E-01	-0.329
	+	338.28		6.226E+00	1.822E+00	2.439E+00	2.697E-01	2.552
		445.03		5.092E-01	2.153E+00	3.553E+00	3.841E-01	0.143
RN-219	+	271.23		4.444E-01	3.218E-01	4.322E-01	3.683E-02	1.028
		401.81	*	-1.853E-01	4.206E-01	6.665E-01	9.369E-02	-0.278
		549.76	*	-9.952E-01	2.529E+01	4.030E+01	2.471E+00	-0.025
RN-220		81.07		-5.971E-02	3.046E-01	3.498E-01	3.847E-02	-0.171
RA-223	+	83.78		2.293E-01	1.735E-01	2.321E-01	2.576E-02	0.988
		94.90		2.484E-01	2.413E-01	3.716E-01	3.629E-02	0.668
		122.32		2.165E-01	1.760E+00	2.866E+00	2.116E-01	0.076
		144.24		2.174E-01	6.722E-01	1.090E+00	7.989E-02	0.199
		154.21		-1.435E-01	3.915E-01	6.164E-01	4.272E-02	-0.233
	+	269.46		3.464E-01	2.502E-01	3.275E-01	2.161E-02	1.058
		323.87	*	-3.060E-01	6.679E-01	9.292E-01	1.564E-01	-0.329
	+	338.28		6.226E+00	1.822E+00	2.439E+00	2.697E-01	2.552
		445.03		5.092E-01	2.153E+00	3.553E+00	3.841E-01	0.143
		79.80		-4.641E-02	2.348E+00	2.739E+00	6.176E-01	-0.017
AC-227		236.00		7.657E-01	2.865E-01	4.639E-01	4.926E-02	1.651

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		256.20	*	4.186E-01	3.745E-01	6.527E-01	9.241E-02	0.641
		286.10		8.352E-01	1.452E+00	2.487E+00	2.962E-01	0.336
	+	299.80		3.278E+00	1.676E+00	2.465E+00	4.084E-01	1.330
		304.40		1.070E+00	1.962E+00	2.973E+00	5.223E-01	0.360
		334.20		-3.089E-01	2.340E+00	3.356E+00	6.253E-01	-0.092
		79.80		-4.641E-02	2.348E+00	2.739E+00	6.248E-01	-0.017
		94.00		4.762E+00	2.253E+00	3.532E+00	7.887E-01	1.348
		236.00		7.657E-01	2.837E-01	4.639E-01	4.290E-02	1.651
		256.20	*	4.186E-01	3.766E-01	6.527E-01	1.114E-01	0.641
	+	286.10		8.352E-01	1.673E+00	2.487E+00	2.492E+00	0.336
TH-229	+	299.80		3.278E+00	1.676E+00	2.465E+00	4.084E-01	1.330
		304.40		1.070E+00	1.962E+00	2.973E+00	5.223E-01	0.360
		334.20		-3.089E-01	2.340E+00	3.356E+00	6.253E-01	-0.092
	+	85.43		3.433E-01	2.597E-01	3.551E-01	3.973E-02	0.967
	+	88.47		3.080E-01	1.191E-01	2.124E-01	2.382E-02	1.450
		100.00		1.089E-01	1.797E-01	3.010E-01	2.680E-02	0.362
		193.63	*	-9.108E-02	5.143E-01	8.069E-01	4.601E-02	-0.113
		210.97		5.884E-01	8.067E-01	1.255E+00	7.366E-02	0.469
	PA-231	283.67	*	3.698E-01	1.417E+00	2.394E+00	3.368E-01	0.154
		301.29		4.033E-01	6.190E-01	9.444E-01	1.028E-01	0.427
TH-231		81.07		-5.971E-02	3.046E-01	3.498E-01	3.847E-02	-0.171
	+	83.78		2.293E-01	1.735E-01	2.321E-01	2.576E-02	0.988
		94.90		2.484E-01	2.413E-01	3.716E-01	3.629E-02	0.668
		122.32		2.165E-01	1.760E+00	2.866E+00	2.116E-01	0.076
		144.24		2.174E-01	6.722E-01	1.090E+00	7.989E-02	0.199
		154.21		-1.435E-01	3.915E-01	6.164E-01	4.272E-02	-0.233
	+	269.46		3.464E-01	2.502E-01	3.275E-01	2.161E-02	1.058
		323.87	*	-3.060E-01	6.679E-01	9.292E-01	1.564E-01	-0.329
	+	338.28		6.226E+00	1.822E+00	2.439E+00	2.697E-01	2.552
		445.03		5.092E-01	2.153E+00	3.553E+00	3.841E-01	0.143
U-231	+	84.21		2.201E+01	1.664E+01	2.228E+01	2.478E+00	0.988
	+	92.29		1.478E+01	5.800E+00	8.758E+00	9.016E-01	1.688
		95.87	*	6.133E-03	2.557E+00	3.743E+00	3.587E-01	0.002
		108.00		-1.100E+00	4.621E+00	7.451E+00	5.865E-01	-0.148
	PA-233	75.28		2.336E+01	5.828E+00	8.383E+00	1.405E+00	2.786
	+	86.59		7.166E+00	2.975E+00	3.188E+00	8.857E-01	2.248
	+	300.12		9.140E-01	4.596E-01	6.922E-01	9.535E-02	1.320
		311.98	*	-6.204E-02	5.793E-02	8.944E-02	6.190E-03	-0.694
		340.50		5.685E-01	6.490E-01	9.852E-01	2.287E-01	0.577
		398.62		1.663E+00	2.088E+00	3.510E+00	9.161E-01	0.474
PA-234		415.76		5.261E-02	1.609E+00	2.629E+00	5.490E-01	0.020
		63.00		2.656E+00	2.153E+00	3.638E+00	6.366E-01	0.730
		94.67		2.309E-01	1.763E-01	2.726E-01	3.613E-02	0.847
		98.44		5.025E-02	9.831E-02	1.507E-01	8.420E-02	0.333
		99.86		2.867E-01	4.557E-01	7.640E-01	6.818E-02	0.375
		111.00		-6.674E-02	1.822E-01	2.915E-01	3.309E-02	-0.229
		131.20		-1.006E-01	1.090E-01	1.687E-01	1.057E-02	-0.596
		152.70		5.633E-02	3.090E-01	4.993E-01	7.880E-02	0.113
	+	186.00		5.515E+00	2.784E+00	2.589E+00	7.901E-01	2.130

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		226.40		3.612E-02	3.738E-01	6.336E-01	7.393E-02	0.057
		227.20		1.025E-02	4.052E-01	6.846E-01	4.120E-02	0.015
		248.90		3.400E-01	7.527E-01	1.286E+00	2.779E-01	0.264
	+	293.70		6.693E+00	1.447E+00	1.695E+00	2.771E-01	3.950
		369.80		2.769E-02	8.072E-01	1.328E+00	2.805E-01	0.021
		568.70		1.502E-01	1.007E+00	1.625E+00	9.707E-02	0.092
		569.50		6.303E-02	2.783E-01	4.518E-01	2.695E-02	0.140
		574.00		6.837E-01	1.450E+00	2.467E+00	1.461E-01	0.277
		699.00		-2.124E-01	6.935E-01	1.125E+00	2.016E-01	-0.189
		706.10		-2.439E-01	1.058E+00	1.720E+00	7.589E-01	-0.142
		733.00		-2.597E-01	3.818E-01	5.230E-01	1.119E-01	-0.496
		742.81		1.358E-01	1.359E+00	2.265E+00	1.517E+00	0.060
		796.30		4.877E-02	9.323E-01	1.543E+00	4.129E-01	0.032
		805.60		2.644E-01	9.467E-01	1.593E+00	4.851E-01	0.166
		819.60		-6.170E-01	1.166E+00	1.776E+00	6.736E-01	-0.347
		826.30		-2.574E-01	7.829E-01	1.232E+00	5.503E-01	-0.209
		831.60		-5.794E-01	6.362E-01	9.162E-01	2.730E-01	-0.632
		876.40		1.122E-01	8.063E-01	1.325E+00	1.363E+00	0.085
		880.51		2.057E-02	2.616E-01	4.314E-01	4.173E-02	0.048
		883.24		-6.722E-03	2.707E-01	4.416E-01	2.976E-01	-0.015
		899.00		4.473E-01	7.788E-01	1.307E+00	5.757E-01	0.342
		925.00		-3.692E-01	1.112E+00	1.746E+00	1.725E-01	-0.212
		926.50		-8.077E-02	1.621E-01	2.472E-01	6.360E-02	-0.327
		946.00	*	2.178E-01	2.888E-01	5.013E-01	9.659E-02	0.435
		949.00		9.063E-02	4.356E-01	7.235E-01	6.973E-02	0.125
		980.50		-3.344E-01	6.909E-01	1.058E+00	9.822E-02	-0.316
		1394.10		-5.975E-01	1.321E+00	1.954E+00	1.272E+00	-0.306
PA-234M	+	766.42		2.818E+01	1.796E+01	2.032E+01	1.026E+01	1.387
		1001.03	*	1.177E+00	4.881E+00	8.068E+00	8.327E-01	0.146
TH-234		63.29	*	2.499E+00	1.839E+00	3.081E+00	6.073E-01	0.811
	+	92.38		1.738E+00	7.359E-01	1.032E+00	1.953E-01	1.685
U-235	+	89.95		3.092E+00	1.506E+00	1.913E+00	6.036E-01	1.616
	+	93.35		2.090E+00	9.914E-01	1.220E+00	3.478E-01	1.713
		105.00		5.704E-01	1.064E+00	1.753E+00	5.211E-01	0.325
		143.76	*	4.316E-02	2.086E-01	3.365E-01	5.502E-02	0.128
		163.35		4.656E-02	4.675E-01	7.502E-01	1.342E-01	0.062
	+	185.71		2.043E-01	8.294E-02	9.637E-02	5.424E-03	2.119
		205.31		1.184E-01	5.130E-01	7.791E-01	1.401E-01	0.152
NP-236		94.67		1.769E-01	1.329E-01	2.070E-01	2.030E-02	0.855
		98.44		3.795E-02	7.131E-02	1.139E-01	1.042E-02	0.333
		111.00		-5.049E-02	1.377E-01	2.205E-01	1.665E-02	-0.229
		160.31	*	-6.059E-02	8.101E-02	1.249E-01	6.961E-03	-0.485
U-238		63.29	*	2.499E+00	1.839E+00	3.081E+00	6.073E-01	0.811
	+	92.38		1.738E+00	6.820E-01	1.032E+00	1.060E-01	1.685
NP-239		99.55		6.550E-02	1.542E-01	2.566E-01	2.302E-02	0.255
		117.00	*	-7.113E-02	1.855E-01	2.958E-01	2.069E-02	-0.240
	+	209.75		2.417E+00	1.319E+00	1.427E+00	8.356E-02	1.694
		228.18		-4.958E-02	2.136E-01	3.567E-01	2.150E-02	-0.139
	+	277.60		2.488E-01	2.259E-01	2.935E-01	1.882E-02	0.848

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-241		334.30		-1.392E-01	1.328E+00	1.909E+00	1.277E-01	-0.073
		59.54	*	-3.593E-02	2.268E-01	3.758E-01	4.826E-02	-0.096
CM-243		99.55		6.742E-02	1.588E-01	2.641E-01	2.369E-02	0.255
		103.76	*	5.292E-02	9.459E-02	1.580E-01	1.324E-02	0.335
		117.00		-7.321E-02	1.909E-01	3.044E-01	2.129E-02	-0.240
	+	209.75		2.384E+00	1.300E+00	1.407E+00	8.239E-02	1.694
		228.18		-5.011E-02	2.159E-01	3.606E-01	2.173E-02	-0.139
	+	277.60		2.509E-01	2.278E-01	2.960E-01	1.898E-02	0.848
AM-246		798.80		-1.704E-01	1.476E-01	2.185E-01	1.684E-02	-0.780
		1036.00		7.069E-02	3.187E-01	5.263E-01	4.502E-02	0.134
		1062.04		-1.119E-01	2.228E-01	3.381E-01	2.761E-02	-0.331
		1078.86	*	5.434E-02	1.374E-01	2.309E-01	1.824E-02	0.235
CM-247	+	278.00		1.032E+00	9.367E-01	1.209E+00	7.755E-02	0.854
		287.40		-7.569E-02	1.148E+00	1.907E+00	1.234E-01	-0.040
		402.60	*	-1.646E-02	3.724E-02	5.907E-02	4.011E-03	-0.279
CF-249		252.85		-6.917E-01	8.295E-01	1.333E+00	8.309E-02	-0.519
		333.44		-8.321E-02	1.741E-01	2.421E-01	1.619E-02	-0.344
		387.95	*	6.694E-03	3.838E-02	6.353E-02	4.317E-03	0.105
CF-251		176.60	*	-6.383E-02	1.229E-01	1.903E-01	1.055E-02	-0.335
		227.00		-8.984E-02	3.639E-01	6.075E-01	3.655E-02	-0.148
		285.00		3.625E-01	1.650E+00	2.783E+00	1.798E-01	0.130

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101010      *
* Acquisition date   : 2-FEB-2010 11:19:21 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 02:00:01.01             Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101010             Analyst initials: MXR1         *
* Batch Number       : 944037                 Sample Quantity : 1.2783E+02 GRAM *
* Recovery           : 1.00000                Carrier Weight   : 0.00000      *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope       :
* MSD DPM             : 0.000                      MSD Isotope   :
* LCS DPM             : 0.000                      LCS Isotope   :
* LCSD DPM            : 0.000                      LCSD Isotope  :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.389E+01	2.562E+00	4.777E-01	0.000E+00
NB-95	1.122E-01	4.346E-02	7.295E-02	0.000E+00
CD-109	3.751E+00	1.207E+00	1.294E+00	0.000E+00
SN-126	3.661E-01	1.178E-01	1.272E-01	0.000E+00
BA-137M	1.232E-01	6.700E-02	5.442E-02	0.000E+00
CS-137	1.302E-01	7.083E-02	5.753E-02	0.000E+00
TL-208	5.529E-01	7.910E-02	5.044E-02	0.000E+00
BI-211	3.941E+00	5.400E-01	3.098E-01	0.000E+00
PB-212	1.524E+00	1.572E-01	8.931E-02	0.000E+00
PO-212	1.524E+00	1.572E-01	8.931E-02	0.000E+00
BI-214	1.244E+00	1.849E-01	1.218E-01	0.000E+00
PB-214	1.371E+00	2.005E-01	1.080E-01	0.000E+00
PO-214	1.371E+00	2.005E-01	1.080E-01	0.000E+00
PO-216	1.524E+00	1.572E-01	8.931E-02	0.000E+00
PO-218	1.371E+00	2.005E-01	1.080E-01	0.000E+00
RA-224	4.534E+00	1.161E+00	1.016E+00	0.000E+00
RA-226	1.244E+00	1.849E-01	1.218E-01	0.000E+00
AC-228	1.639E+00	3.144E-01	1.921E-01	0.000E+00
RA-228	1.639E+00	3.144E-01	1.921E-01	0.000E+00
TH-228	1.555E+00	1.604E-01	9.111E-02	0.000E+00
TH-230	1.244E+00	1.849E-01	1.218E-01	0.000E+00
TH-232	1.639E+00	3.144E-01	1.921E-01	0.000E+00
U-234	1.244E+00	1.849E-01	1.218E-01	0.000E+00
NP-237	1.075E+00	4.086E-01	3.803E-01	0.000E+00
AM-243	4.459E-01	9.385E-02	1.030E-01	0.000E+00
ANH-511	7.650E-02	6.882E-02	4.317E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-7.356E-02	3.337E-01	5.503E-01	0.000E+00 NOT IDENT.

NA-22	1.887E-02	4.391E-02	7.780E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.337E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.545E-03	2.392E-02	3.996E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.880E-02	7.705E-02	0.000E+00	NOT IDENT.
SC-46	-1.135E-02	3.845E-02	6.269E-02	0.000E+00	FAIL ABUN
V-48	1.104E-02	8.037E-02	1.358E-01	0.000E+00	NOT IDENT.
CR-51	8.345E-02	3.848E-01	6.738E-01	0.000E+00	NOT IDENT.
MN-52	-5.830E-02	4.036E-01	6.643E-01	0.000E+00	NOT IDENT.
MN-54	-8.749E-03	3.854E-02	6.395E-02	0.000E+00	NOT IDENT.
CO-56	-2.561E-02	3.853E-02	6.075E-02	0.000E+00	FAIL ABUN
CO-57	1.514E-02	2.515E-02	4.425E-02	0.000E+00	NOT IDENT.
CO-58	-1.345E-02	3.751E-02	6.139E-02	0.000E+00	NOT IDENT.
FE-59	5.821E-02	1.022E-01	1.777E-01	0.000E+00	NOT IDENT.
CO-60	3.269E-02	3.774E-02	7.005E-02	0.000E+00	NOT IDENT.
ZN-65	7.644E-02	1.043E-01	1.625E-01	0.000E+00	NOT IDENT.
GE-68	9.184E-01	1.238E+00	2.197E+00	0.000E+00	NOT IDENT.
AS-73	-1.516E-01	1.471E+00	2.629E+00	0.000E+00	NOT IDENT.
AS-74	-1.926E-02	1.085E-01	1.866E-01	0.000E+00	NOT IDENT.
SE-75	-2.531E-02	4.177E-02	6.517E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	3.925E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-2.896E-01	4.209E-01	6.730E-01	0.000E+00	NOT IDENT.
RB-83	2.189E-02	6.587E-02	1.126E-01	0.000E+00	NOT IDENT.
RB-84	1.258E-02	6.993E-02	1.198E-01	0.000E+00	NOT IDENT.
KR-85	7.325E+00	7.611E+00	1.209E+01	0.000E+00	NOT IDENT.
SR-85	3.953E-02	4.107E-02	6.526E-02	0.000E+00	NOT IDENT.
RB-86	9.277E-01	9.215E-01	1.675E+00	0.000E+00	NOT IDENT.
Y-88	6.103E-03	2.865E-02	4.947E-02	0.000E+00	NOT IDENT.
ZR-88	-7.366E-04	2.929E-02	4.981E-02	0.000E+00	NOT IDENT.
Y-91	2.786E+00	2.089E+01	3.610E+01	0.000E+00	NOT IDENT.
NB-94	1.222E-03	3.239E-02	5.575E-02	0.000E+00	NOT IDENT.
NB-95M	1.808E-01	1.449E-01	2.399E-01	0.000E+00	NOT IDENT.
ZR-95	2.974E-02	7.093E-02	1.251E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.144E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.168E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.645E+01	3.834E+01	6.881E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.528E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.326E-03	3.244E-02	5.362E-02	0.000E+00	NOT IDENT.
RH-102	-9.426E-03	2.666E-02	4.346E-02	0.000E+00	FAIL ABUN
RU-103	2.718E-02	4.163E-02	7.281E-02	0.000E+00	FAIL ABUN
RH-106	-2.674E-01	2.727E-01	4.304E-01	0.000E+00	NOT IDENT.
RU-106	-2.674E-01	2.714E-01	4.304E-01	0.000E+00	NOT IDENT.
AG-108M	-3.741E-03	3.065E-02	5.134E-02	0.000E+00	NOT IDENT.
AG-110M	1.302E-02	3.500E-02	5.481E-02	0.000E+00	NOT IDENT.
IN-111	-4.742E-01	3.388E+00	5.214E+00	0.000E+00	NOT IDENT.
IN-113M	-3.309E-02	4.229E-02	6.813E-02	0.000E+00	NOT IDENT.
SN-113	-3.309E-02	4.229E-02	6.813E-02	0.000E+00	NOT IDENT.
IN-114M	4.703E-02	2.135E-01	3.207E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.690E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-2.448E-02	6.866E-02	1.140E-01	0.000E+00	NOT IDENT.
SB-122	-3.561E+00	6.697E+00	1.056E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.628E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-6.497E-03	2.846E-02	4.754E-02	0.000E+00	NOT IDENT.
I-124	5.670E-02	1.578E+00	2.507E+00	0.000E+00	NOT IDENT.
SB-124	1.162E-02	7.095E-02	1.214E-01	0.000E+00	FAIL ABUN
SB-125	-4.958E-02	8.166E-02	1.317E-01	0.000E+00	FAIL ABUN
TE-125M	1.176E+00	9.513E+00	1.652E+01	0.000E+00	NOT IDENT.
I-126	1.062E-01	2.457E-01	3.856E-01	0.000E+00	NOT IDENT.
SB-126	6.749E-02	1.893E-01	3.057E-01	0.000E+00	FAIL ABUN
SB-127	-2.986E-01	3.067E+00	5.235E+00	0.000E+00	NOT IDENT.
XE-127	1.075E-02	4.655E-02	8.129E-02	0.000E+00	NOT IDENT.
I-131	4.521E-02	1.631E-01	2.842E-01	0.000E+00	NOT IDENT.
TE-132	-4.401E-01	1.798E+00	3.149E+00	0.000E+00	NOT IDENT.
BA-133	1.169E-02	4.196E-02	6.475E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.934E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.090E-02	4.705E-02	8.385E-02	0.000E+00	NOT IDENT.
CS-135	2.263E-01	1.549E-01	2.614E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.126E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.428E-02	1.243E-01	1.991E-01	0.000E+00	FAIL ABUN
CE-139	-2.593E-02	2.898E-02	4.662E-02	0.000E+00	NOT IDENT.
BA-140	9.466E-02	3.137E-01	5.314E-01	0.000E+00	NOT IDENT.
LA-140	-1.541E-01	1.185E-01	1.541E-01	0.000E+00	NOT IDENT.
CE-141	-5.400E-02	6.707E-02	1.096E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.855E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.035E-02	2.012E-01	3.379E-01	0.000E+00	NOT IDENT.
PM-144	-1.019E-02	3.339E-02	5.603E-02	0.000E+00	NOT IDENT.
PR-144	-6.922E-01	2.268E+00	3.806E+00	0.000E+00	NOT IDENT.
PM-146	3.006E-02	4.220E-02	7.440E-02	0.000E+00	NOT IDENT.
ND-147	1.029E-01	7.106E-01	1.195E+00	0.000E+00	FAIL ABUN



PM-149	0.000E+00	3.895E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.048E-02	1.021E-01	1.529E-01	0.000E+00	FAIL ABUN
GD-153	1.099E-02	8.584E-02	1.344E-01	0.000E+00	FAIL ABUN
EU-154	4.204E-02	1.226E-01	2.154E-01	0.000E+00	NOT IDENT.
EU-155	6.156E-02	1.049E-01	1.860E-01	0.000E+00	FAIL ABUN
TB-160	-7.347E-02	1.363E-01	2.164E-01	0.000E+00	FAIL ABUN
HO-166M	2.125E-02	5.784E-02	1.020E-01	0.000E+00	FAIL ABUN
TM-171	-3.570E+01	3.443E+01	5.765E+01	0.000E+00	NOT IDENT.
LU-176	1.821E-02	2.281E-02	4.125E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	3.009E+00	3.427E+00	0.000E+00	FAIL ABUN
LU-177M	-1.215E-01	2.003E-01	2.805E-01	0.000E+00	NOT IDENT.
HF-181	1.731E-02	4.717E-02	8.102E-02	0.000E+00	NOT IDENT.
W-181	-5.030E-01	4.810E-01	8.069E-01	0.000E+00	NOT IDENT.
TA-182	-4.231E-02	1.921E-01	3.216E-01	0.000E+00	NOT IDENT.
RE-183	5.727E-02	1.100E-01	1.898E-01	0.000E+00	FAIL ABUN
RE-184	-1.881E-01	2.210E-01	3.722E-01	0.000E+00	NOT IDENT.
OS-185	-1.632E-02	3.992E-02	6.600E-02	0.000E+00	NOT IDENT.
RE-188	-1.601E-02	1.753E-01	2.953E-01	0.000E+00	NOT IDENT.
W-188	-1.987E+00	7.625E+00	1.145E+01	0.000E+00	NOT IDENT.
IR-192	1.058E-02	3.381E-02	5.954E-02	0.000E+00	FAIL ABUN
AU-195	1.841E-01	2.206E-01	3.958E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.605E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-4.504E+00	1.937E+01	3.221E+01	0.000E+00	NOT IDENT.
TL-202	-1.009E-02	8.685E-02	1.454E-01	0.000E+00	NOT IDENT.
HG-203	9.111E-03	4.288E-02	6.697E-02	0.000E+00	NOT IDENT.
BI-207	-5.689E-03	4.957E-02	8.090E-02	0.000E+00	FAIL ABUN
TL-207	-3.060E-01	6.545E-01	9.510E-01	0.000E+00	FAIL ABUN
PO-209	-2.389E+00	7.046E+00	1.143E+01	0.000E+00	NOT IDENT.
BI-210	3.952E+00	8.352E+00	1.535E+01	0.000E+00	NOT IDENT.
PB-210	3.952E+00	8.352E+00	1.535E+01	0.000E+00	NOT IDENT.
PO-210	3.952E+00	8.351E+00	1.535E+01	0.000E+00	NOT IDENT.
PB-211	5.271E-01	1.041E+00	1.543E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.142E-01	6.371E-01	0.000E+00	FAIL ABUN
PO-215	-3.060E-01	6.545E-01	9.510E-01	0.000E+00	FAIL ABUN
RN-219	-1.853E-01	4.122E-01	6.799E-01	0.000E+00	FAIL ABUN
RN-220	-9.952E-01	2.478E+01	4.092E+01	0.000E+00	NOT IDENT.
RA-223	-3.060E-01	6.545E-01	9.510E-01	0.000E+00	FAIL ABUN
AC-227	4.186E-01	3.670E-01	6.704E-01	0.000E+00	FAIL ABUN
TH-227	4.186E-01	3.690E-01	6.704E-01	0.000E+00	FAIL ABUN
TH-229	-9.108E-02	5.040E-01	8.321E-01	0.000E+00	FAIL ABUN
PA-231	3.698E-01	1.388E+00	2.455E+00	0.000E+00	NOT IDENT.
TH-231	-3.060E-01	6.545E-01	9.510E-01	0.000E+00	FAIL ABUN
U-231	6.133E-03	2.506E+00	3.900E+00	0.000E+00	FAIL ABUN
PA-233	-6.204E-02	5.677E-02	9.159E-02	0.000E+00	FAIL ABUN
PA-234	2.178E-01	2.830E-01	5.047E-01	0.000E+00	FAIL ABUN
PA-234M	1.177E+00	4.784E+00	8.115E+00	0.000E+00	FAIL ABUN
TH-234	2.499E+00	1.802E+00	3.230E+00	0.000E+00	FAIL ABUN
U-235	4.316E-02	2.044E-01	3.485E-01	0.000E+00	FAIL ABUN
NP-236	-6.059E-02	7.939E-02	1.292E-01	0.000E+00	NOT IDENT.
U-238	2.499E+00	1.802E+00	3.230E+00	0.000E+00	FAIL ABUN
NP-239	-7.113E-02	1.818E-01	3.073E-01	0.000E+00	FAIL ABUN
AM-241	-3.593E-02	2.223E-01	3.942E-01	0.000E+00	NOT IDENT.
CM-243	5.292E-02	9.270E-02	1.644E-01	0.000E+00	FAIL ABUN
AM-246	5.434E-02	1.347E-01	2.320E-01	0.000E+00	NOT IDENT.
CM-247	-1.646E-02	3.650E-02	6.026E-02	0.000E+00	FAIL ABUN
CF-249	6.694E-03	3.761E-02	6.484E-02	0.000E+00	NOT IDENT.
CF-251	-6.383E-02	1.204E-01	1.965E-01	0.000E+00	NOT IDENT.

# VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:19:51.65

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                          *
*                                     Charleston, SC 29414                      *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101010.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:19:21.
Sample ID          : G245101010 Sample quantity : 1.27830E+02 GRAM
Detector name      : GAM10 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.01 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

### Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	962	10.67*	1.108E+00	2.389E+01	2.389E+01	10.94
NB-95	765.79	63	99.81*	2.056E+00	9.034E-02	1.122E-01	39.53
CD-109	88.03	242	3.72*	5.253E+00	3.641E+00	3.751E+00	32.84
SN-126	64.28	-----	9.60	2.419E+00	-----	Line Not Found	-----
	86.94	242	8.90	5.253E+00	1.522E+00	1.522E+00	52.10
	87.57	242	37.00*	5.253E+00	3.661E-01	3.661E-01	32.84
BA-137M	661.65	89	89.98*	2.353E+00	1.230E-01	1.232E-01	55.51
CS-137	661.65	89	85.12*	2.353E+00	1.300E-01	1.302E-01	55.51
TL-208	277.35	55	6.80	4.610E+00	5.160E-01	5.160E-01	91.20
	510.84	76	21.60	2.932E+00	3.542E-01	3.542E-01	92.17
	583.14	417	84.20*	2.630E+00	5.529E-01	5.529E-01	14.60
	860.37	55	12.46	1.842E+00	7.028E-01	7.028E-01	50.58
BI-211	72.87	-----	1.27	3.633E+00	-----	Line Not Found	-----
	351.07	675	12.94*	3.889E+00	3.941E+00	3.941E+00	13.98
PB-212	74.81	387	10.70	3.862E+00	2.750E+00	2.750E+00	23.42
	77.11	507	18.00	4.147E+00	1.994E+00	1.994E+00	19.75
	87.30	242	8.00	5.253E+00	1.693E+00	1.693E+00	34.33
	238.63	1185	44.60*	5.118E+00	1.524E+00	1.524E+00	10.53
	300.09	90	3.41	4.364E+00	1.769E+00	1.769E+00	49.15
PO-212	74.81	387	10.70	3.862E+00	2.750E+00	2.750E+00	23.42
	77.11	507	18.00	4.147E+00	1.994E+00	1.994E+00	19.75
	87.30	242	8.00	5.253E+00	1.693E+00	1.693E+00	34.33
	115.19	-----	0.60	6.657E+00	-----	Line Not Found	-----
	238.63	1185	44.60*	5.118E+00	1.524E+00	1.524E+00	10.53
	300.09	90	3.41	4.364E+00	1.769E+00	1.769E+00	49.15
BI-214	609.31	497	46.30*	2.533E+00	1.244E+00	1.244E+00	15.17
	1120.29	131	15.10	1.416E+00	1.804E+00	1.804E+00	34.41
	1764.49	98	15.80	9.768E-01	1.863E+00	1.864E+00	22.77
PB-214	74.81	387	6.21	3.862E+00	4.739E+00	4.739E+00	22.72
	77.11	507	10.50	4.147E+00	3.418E+00	3.418E+00	21.16
	87.30	242	4.67	5.253E+00	2.900E+00	2.900E+00	33.73
	241.98	310	7.49	5.076E+00	2.391E+00	2.391E+00	26.72

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	402	19.20	4.413E+00	1.394E+00	1.394E+00	16.77
	351.92	675	37.20*	3.889E+00	1.371E+00	1.371E+00	14.93
	74.81	387	6.21	3.862E+00	4.739E+00	4.739E+00	22.72
	77.11	507	10.50	4.147E+00	3.418E+00	3.418E+00	21.16
	87.30	242	4.67	5.253E+00	2.900E+00	2.900E+00	33.73
PO-216	241.98	310	7.49	5.076E+00	2.391E+00	2.391E+00	26.72
	295.21	402	19.20	4.413E+00	1.394E+00	1.394E+00	16.77
	351.92	675	37.20*	3.889E+00	1.371E+00	1.371E+00	14.93
	74.81	387	10.70	3.862E+00	2.750E+00	2.750E+00	23.42
	77.11	507	18.00	4.147E+00	1.994E+00	1.994E+00	19.75
PO-218	87.30	242	8.00	5.253E+00	1.693E+00	1.693E+00	34.33
	238.63	1185	44.60*	5.118E+00	1.524E+00	1.524E+00	10.53
	300.09	90	3.41	4.364E+00	1.769E+00	1.769E+00	49.15
	74.81	387	6.21	3.862E+00	4.739E+00	4.739E+00	22.72
	77.11	507	10.50	4.147E+00	3.418E+00	3.418E+00	21.16
RA-224	87.30	242	4.67	5.253E+00	2.900E+00	2.900E+00	33.73
	241.98	310	7.49	5.076E+00	2.391E+00	2.391E+00	26.72
	295.21	402	19.20	4.413E+00	1.394E+00	1.394E+00	16.77
	351.92	675	37.20*	3.889E+00	1.371E+00	1.371E+00	14.93
	240.98	310	3.95*	5.076E+00	4.534E+00	4.534E+00	26.12
RA-226	609.31	497	46.30*	2.533E+00	1.244E+00	1.244E+00	15.17
	1120.29	131	15.10	1.416E+00	1.804E+00	1.804E+00	34.41
	1764.49	98	15.80	9.768E-01	1.863E+00	1.864E+00	22.77
	338.32	232	11.40	4.004E+00	1.491E+00	1.491E+00	49.06
	911.07	269	27.70*	1.741E+00	1.639E+00	1.639E+00	19.58
AC-228	969.11	162	16.60	1.637E+00	1.746E+00	1.746E+00	31.43
	338.32	232	11.40	4.004E+00	1.491E+00	1.491E+00	49.06
	911.07	269	27.70*	1.741E+00	1.639E+00	1.639E+00	19.58
	969.11	162	16.60	1.637E+00	1.746E+00	1.746E+00	31.43
	74.81	387	10.70	3.862E+00	2.750E+00	2.806E+00	21.51
TH-228	77.11	507	18.00	4.147E+00	1.994E+00	2.034E+00	19.75
	87.30	242	8.00	5.253E+00	1.693E+00	1.727E+00	32.84
	238.63	1185	44.60*	5.118E+00	1.524E+00	1.555E+00	10.53
	300.09	90	3.41	4.364E+00	1.769E+00	1.805E+00	76.30
	609.31	497	46.30*	2.533E+00	1.244E+00	1.244E+00	15.17
TH-230	1120.29	131	15.10	1.416E+00	1.804E+00	1.804E+00	34.41
	1764.49	98	15.80	9.768E-01	1.863E+00	1.863E+00	22.77
	338.32	232	11.40	4.004E+00	1.491E+00	1.491E+00	27.90
	911.07	269	27.70*	1.741E+00	1.639E+00	1.639E+00	19.58
	969.11	162	16.60	1.637E+00	1.746E+00	1.746E+00	31.43
TH-232	609.31	497	46.30*	2.533E+00	1.244E+00	1.244E+00	15.17
	1120.29	131	15.10	1.416E+00	1.804E+00	1.804E+00	34.41
	1764.49	98	15.80	9.768E-01	1.863E+00	1.863E+00	22.77
	86.50	242	12.60*	5.253E+00	1.075E+00	1.075E+00	38.78
	95.87	-----	2.60	5.933E+00	-----	Line Not Found	-----
NP-237	74.67	387	66.00*	3.862E+00	4.459E-01	4.459E-01	21.48
	86.72	242	0.34	5.253E+00	4.031E+01	4.031E+01	32.84
	117.66	-----	0.55	6.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.676E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
ANH-511	511.00	76	100.00*	2.932E+00	7.650E-02	7.650E-02	91.80

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G245101010

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Acquisition date : 2-FEB-2010 11:19:21

Total number of lines in spectrum 34  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 31 91.18%

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	2.389E+01	2.389E+01	0.261E+01	10.94	
NB-95	64.02D	1.24	9.034E-02	1.122E-01	0.444E-01	39.53	
CD-109	464.00D	1.03	3.641E+00	3.751E+00	1.232E+00	32.84	
SN-126	1.00E+05Y	1.00	3.661E-01	3.661E-01	1.202E-01	32.84	
BA-137M	30.17Y	1.00	1.230E-01	1.232E-01	0.684E-01	55.51	
CS-137	30.17Y	1.00	1.300E-01	1.302E-01	0.723E-01	55.51	
TL-208	1.41E+10Y	1.00	5.529E-01	5.529E-01	0.807E-01	14.60	
BI-211	7.04E+08Y	1.00	3.941E+00	3.941E+00	0.551E+00	13.98	
PB-212	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.160E+00	10.53	
PO-212	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.160E+00	10.53	
BI-214	1600.00Y	1.00	1.244E+00	1.244E+00	0.189E+00	15.17	
PB-214	1600.00Y	1.00	1.371E+00	1.371E+00	0.205E+00	14.93	
PO-214	1600.00Y	1.00	1.371E+00	1.371E+00	0.205E+00	14.93	
PO-216	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.160E+00	10.53	
PO-218	1600.00Y	1.00	1.371E+00	1.371E+00	0.205E+00	14.93	
RA-224	1.41E+10Y	1.00	4.534E+00	4.534E+00	1.184E+00	26.12	
RA-226	1600.00Y	1.00	1.244E+00	1.244E+00	0.189E+00	15.17	
AC-228	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.321E+00	19.58	
RA-228	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.321E+00	19.58	
TH-228	1.91Y	1.02	1.524E+00	1.555E+00	0.164E+00	10.53	
TH-230	4.47E+09Y	1.00	1.244E+00	1.244E+00	0.189E+00	15.17	
TH-232	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.321E+00	19.58	
U-234	4.47E+09Y	1.00	1.244E+00	1.244E+00	0.189E+00	15.17	
NP-237	2.14E+06Y	1.00	1.075E+00	1.075E+00	0.417E+00	38.78	
AM-243	7380.00Y	1.00	4.459E-01	4.459E-01	0.958E-01	21.48	
ANH-511	1.00E+09Y	1.00	7.650E-02	7.650E-02	7.023E-02	91.80	

Total Activity : 5.897E+01 5.913E+01

Grand Total Activity : 5.897E+01 5.913E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101010

Page : 5  
Acquisition date : 2-FEB-2010 11:19:21

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	84.11	96	391	1.33	168.34	163	29	1.33E-02	74.8	4.97E+00	T
3	89.73	156	263	1.01	179.57	163	29	2.17E-02	37.1	5.49E+00	T
3	92.45	183	294	1.20	185.01	163	29	2.54E-02	37.9	5.70E+00	T
0	185.52	225	430	1.42	370.99	365	12	3.12E-02	40.2	5.98E+00	T
0	208.76	149	373	1.37	417.44	413	12	2.07E-02	54.2	5.58E+00	T
0	270.40	75	202	1.36	540.62	536	9	1.05E-02	71.9	4.69E+00	T
0	327.18	78	121	1.42	654.09	649	9	1.08E-02	55.9	4.10E+00	
0	408.97	25	115	1.19	817.57	814	8	3.48E-03	****	3.48E+00	
0	462.56	81	118	1.43	924.69	919	13	1.12E-02	59.6	3.17E+00	T
0	726.81	65	71	1.65	1452.94	1448	10	8.97E-03	56.3	2.16E+00	T
1	963.75	70	36	1.92	1926.73	1921	21	9.67E-03	41.6	1.65E+00	T
0	1237.52	24	84	1.38	2474.26	2469	13	3.28E-03	****	1.28E+00	T
0	1629.38	21	8	2.47	3258.20	3253	11	2.93E-03	68.1	1.02E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101010.CNF;1 *
* Acquisition date   : 2-FEB-2010 11:19:21.  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 02:00:01.01             Half life ratio: 8.00000      *
*****
*                                     SAMPLE DATA                            *
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID           : G245101010             Analyst initials: MXR1         *
* Batch Number        : 944037                 Sample Quantity : 1.27830E+02 GRAM *
*****
*                                     QC DATA                              *
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08.8MS Isotope      :             *
* MSD ID              :                      MSD Isotope      :             *
* LCS ID              : 1032-A                 LCS Isotope     :             *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.389E+01	2.615E+00	4.777E-01	4.115E-02	50.009
NB-95	1.122E-01	4.435E-02	7.222E-02	5.040E-03	1.554
CD-109	3.751E+00	1.232E+00	1.241E+00	1.407E-01	3.024
SN-126	3.661E-01	1.202E-01	1.219E-01	1.380E-02	3.002
BA-137M	1.232E-01	6.837E-02	5.376E-02	2.652E-03	2.291
CS-137	1.302E-01	7.228E-02	5.683E-02	2.820E-03	2.291
TL-208	5.529E-01	8.072E-02	4.972E-02	3.341E-03	11.120
BI-211	3.941E+00	5.510E-01	3.030E-01	2.209E-02	13.003
PB-212	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
PO-212	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
BI-214	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
PB-214	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977
PO-214	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977
PO-216	1.524E+00	1.604E-01	8.687E-02	6.590E-03	17.544
PO-218	1.371E+00	2.046E-01	1.056E-01	9.473E-03	12.977
RA-224	4.534E+00	1.184E+00	9.885E-01	6.067E-02	4.587
RA-226	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
AC-228	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591
TH-228	1.555E+00	1.636E-01	8.862E-02	6.722E-03	17.544
TH-230	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
TH-232	1.639E+00	3.208E-01	1.907E-01	2.354E-02	8.591
U-234	1.244E+00	1.887E-01	1.202E-01	9.143E-03	10.352
NP-237	1.075E+00	4.169E-01	3.644E-01	8.565E-02	2.950
AM-243	4.459E-01	9.577E-02	9.846E-02	1.078E-02	4.528
ANH-511	7.650E-02	7.023E-02	4.248E-02	2.721E-03	1.801

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-7.356E-02		3.405E-01	5.409E-01	4.022E-02	-0.136
NA-22	1.887E-02		4.481E-02	7.763E-02	6.013E-03	0.243
NA-24	4.536E+01		6.822E+01	Half-Life too short		
AL-26	1.545E-03		2.440E-02	4.009E-02	2.542E-03	0.039
TI-44	1.289E-01		4.979E-02	7.374E-02	8.069E-03	1.749
SC-46	-1.135E-02		3.924E-02	6.221E-02	6.156E-03	-0.182
V-48	1.104E-02		8.201E-02	1.350E-01	1.248E-02	0.082
CR-51	8.345E-02		3.926E-01	6.582E-01	4.754E-02	0.127
MN-52	-5.830E-02		4.119E-01	6.641E-01	5.612E-02	-0.088
MN-54	-8.749E-03		3.933E-02	6.340E-02	5.416E-03	-0.138
CO-56	-2.561E-02		3.932E-02	6.023E-02	5.319E-03	-0.425
CO-57	1.514E-02		2.566E-02	4.262E-02	2.811E-03	0.355
CO-58	-1.345E-02		3.828E-02	6.083E-02	4.867E-03	-0.221
FE-59	5.821E-02		1.043E-01	1.769E-01	1.477E-02	0.329
CO-60	3.269E-02		3.851E-02	6.995E-02	6.078E-03	0.467
ZN-65	7.644E-02		1.064E-01	1.619E-01	1.179E-02	0.472
GE-68	9.184E-01		1.263E+00	2.186E+00	1.732E-01	0.420
AS-73	-1.516E-01		1.501E+00	2.502E+00	3.310E-01	-0.061
AS-74	-1.926E-02		1.107E-01	1.840E-01	1.051E-02	-0.105
SE-75	-2.531E-02		4.262E-02	6.348E-02	4.049E-03	-0.399
BR-77	1.013E-05		2.003E-05	Half-Life too short		
SR-82	-2.896E-01		4.295E-01	6.664E-01	4.805E-02	-0.435
RB-83	2.189E-02		6.722E-02	1.108E-01	7.033E-03	0.198
RB-84	1.258E-02		7.136E-02	1.189E-01	1.153E-02	0.106
KR-85	7.325E+00		7.767E+00	1.190E+01	7.601E-01	0.616
SR-85	3.953E-02		4.191E-02	6.421E-02	4.102E-03	0.616
RB-86	9.277E-01		9.403E-01	1.667E+00	1.322E-01	0.557
Y-88	6.103E-03		2.924E-02	4.965E-02	3.046E-03	0.123
ZR-88	-7.366E-04		2.989E-02	4.881E-02	3.317E-03	-0.015
Y-91	2.786E+00		2.131E+01	3.599E+01	2.391E+00	0.077
NB-94	1.222E-03		3.305E-02	5.512E-02	3.138E-03	0.022
NB-95M	1.808E-01		1.479E-01	2.333E-01	1.809E-02	0.775
ZR-95	2.974E-02		7.238E-02	1.238E-01	9.726E-03	0.240
NB-97	3.990E+00		5.834E+00	Half-Life too short		
ZR-97	5.622E+02		1.106E+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
MO-99	2.645E+01		3.913E+01	6.809E+01	9.571E+00	0.388
TC-99M	-7.706E+15		1.290E+16	Half-Life too short		
RH-101	-1.326E-03		3.310E-02	5.201E-02	2.988E-03	-0.026
RH-102	-9.426E-03		2.720E-02	4.271E-02	2.817E-03	-0.221
RU-103	2.718E-02		4.248E-02	7.161E-02	9.291E-03	0.380
RH-106	-2.674E-01		2.782E-01	4.247E-01	4.909E-02	-0.630
RU-106	-2.674E-01		2.769E-01	4.247E-01	2.307E-02	-0.630
AG-108M	-3.741E-03		3.127E-02	5.039E-02	3.613E-03	-0.074
AG-110M	1.302E-02		3.572E-02	5.413E-02	2.933E-03	0.241
IN-111	-4.742E-01		3.457E+00	5.073E+00	3.133E-01	-0.093
IN-113M	-3.309E-02		4.315E-02	6.676E-02	4.760E-03	-0.496
SN-113	-3.309E-02		4.315E-02	6.676E-02	4.760E-03	-0.496
IN-114M	4.703E-02		2.179E-01	3.109E-01	1.763E-02	0.151
CD-115	2.465E-05		2.393E-05	Half-Life too short		
SN-117M	-2.448E-02		7.006E-02	1.102E-01	6.183E-03	-0.222
SB-122	-3.561E+00		6.833E+00	1.040E+01	6.256E-01	-0.342
I-123	-6.000E+02		1.341E+03	Half-Life too short		
TE-123M	-6.497E-03		2.904E-02	4.597E-02	2.611E-03	-0.141
I-124	5.670E-02		1.610E+00	2.473E+00	1.395E-01	0.023
SB-124	1.162E-02		7.239E-02	1.217E-01	9.247E-03	0.095
SB-125	-4.958E-02		8.333E-02	1.292E-01	8.997E-03	-0.384
TE-125M	1.176E+00		9.707E+00	1.589E+01	1.528E+00	0.074
I-126	1.062E-01		2.507E-01	3.809E-01	1.911E-02	0.279
SB-126	6.749E-02		1.931E-01	3.023E-01	1.827E-02	0.223
SB-127	-2.986E-01		3.129E+00	5.174E+00	5.700E-01	-0.058
XE-127	1.075E-02		4.750E-02	7.888E-02	4.568E-03	0.136
I-131	4.521E-02		1.664E-01	2.782E-01	2.059E-02	0.162
TE-132	-4.401E-01		1.835E+00	3.061E+00	4.756E-01	-0.144
BA-133	1.169E-02		4.281E-02	6.336E-02	7.645E-03	0.184
I-133	-1.845E-01		1.497E-01	Half-Life too short		
CS-134	3.090E-02		4.801E-02	8.306E-02	6.403E-03	0.372
CS-135	2.263E-01		1.580E-01	2.547E-01	2.058E-02	0.889
I-135	5.451E+14		5.747E+14	Half-Life too short		
CS-136	-3.428E-02		1.269E-01	1.981E-01	1.735E-02	-0.173
CE-139	-2.593E-02		2.957E-02	4.510E-02	2.463E-03	-0.575
BA-140	9.466E-02		3.201E-01	5.233E-01	1.706E-01	0.181
LA-140	-1.541E-01		1.209E-01	1.543E-01	1.197E-02	-0.999
CE-141	-5.400E-02		6.843E-02	1.059E-01	6.480E-03	-0.510
CE-143	9.333E-03		1.456E-03	Half-Life too short		
CE-144	-7.035E-02		2.054E-01	3.259E-01	4.682E-02	-0.216
PM-144	-1.019E-02		3.407E-02	5.539E-02	3.092E-03	-0.184
PR-144	-6.922E-01		2.315E+00	3.763E+00	2.098E-01	-0.184
PM-146	3.006E-02		4.306E-02	7.307E-02	6.749E-03	0.411
ND-147	1.029E-01		7.251E-01	1.176E+00	1.615E-01	0.087
PM-149	2.671E-04		1.987E-04	Half-Life too short		
EU-152	-1.048E-02		1.042E-01	1.495E-01	1.102E-02	-0.070
GD-153	1.099E-02		8.759E-02	1.290E-01	1.201E-02	0.085
EU-154	4.204E-02		1.251E-01	2.149E-01	2.289E-02	0.196

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	6.156E-02		1.071E-01	1.787E-01	1.483E-02	0.344
TB-160	-7.347E-02		1.391E-01	2.147E-01	2.070E-02	-0.342
HO-166M	2.125E-02		5.902E-02	1.008E-01	5.918E-03	0.211
TM-171	-3.570E+01		3.514E+01	5.504E+01	6.270E+00	-0.649
LU-176	1.821E-02		2.328E-02	4.028E-02	2.649E-03	0.452
LU-177	5.628E+00	+	3.070E+00	3.326E+00	1.944E-01	1.692
LU-177M	-1.215E-01		2.044E-01	2.751E-01	1.864E-02	-0.442
HF-181	1.731E-02		4.813E-02	7.964E-02	5.228E-03	0.217
W-181	-5.030E-01		4.908E-01	7.701E-01	8.898E-02	-0.653
TA-182	-4.231E-02		1.960E-01	3.207E-01	2.212E-02	-0.132
RE-183	5.727E-02		1.122E-01	1.835E-01	1.015E-02	0.312
RE-184	-1.881E-01		2.255E-01	3.623E-01	2.259E-02	-0.519
OS-185	-1.632E-02		4.073E-02	6.517E-02	3.348E-03	-0.250
RE-188	-1.601E-02		1.789E-01	2.854E-01	1.621E-02	-0.056
W-188	-1.987E+00		7.780E+00	1.117E+01	7.250E-01	-0.178
IR-192	1.058E-02		3.450E-02	5.816E-02	3.867E-03	0.182
AU-195	1.841E-01		2.251E-01	3.800E-01	3.448E-02	0.484
TL-200	2.104E-04		4.901E-03	Half-Life too short		
TL-201	-4.504E+00		1.977E+01	3.117E+01	1.705E+00	-0.145
TL-202	-1.009E-02		8.862E-02	1.427E-01	9.596E-03	-0.071
HG-203	9.111E-03		4.375E-02	6.530E-02	4.406E-03	0.140
BI-207	-5.689E-03		5.058E-02	8.050E-02	6.553E-03	-0.071
TL-207	-3.060E-01		6.679E-01	9.292E-01	1.564E-01	-0.329
PO-209	-2.389E+00		7.190E+00	1.134E+01	1.144E+00	-0.211
BI-210	3.952E+00		8.523E+00	1.458E+01	1.430E+00	0.271
PB-210	3.952E+00		8.523E+00	1.458E+01	1.430E+00	0.271
PO-210	3.952E+00		8.521E+00	1.458E+01	1.308E+00	0.271
PB-211	5.271E-01		1.062E+00	1.513E+00	9.445E-01	0.348
BI-212	7.437E-01	+	4.227E-01	6.303E-01	5.042E-02	1.180
PO-215	-3.060E-01		6.679E-01	9.292E-01	1.564E-01	-0.329
RN-219	-1.853E-01		4.206E-01	6.665E-01	9.369E-02	-0.278
RN-220	-9.952E-01		2.529E+01	4.030E+01	2.471E+00	-0.025
RA-223	-3.060E-01		6.679E-01	9.292E-01	1.564E-01	-0.329
AC-227	4.186E-01		3.745E-01	6.527E-01	9.241E-02	0.641
TH-227	4.186E-01		3.766E-01	6.527E-01	1.114E-01	0.641
TH-229	-9.108E-02		5.143E-01	8.069E-01	4.601E-02	-0.113
PA-231	3.698E-01		1.417E+00	2.394E+00	3.368E-01	0.154
TH-231	-3.060E-01		6.679E-01	9.292E-01	1.564E-01	-0.329
U-231	6.133E-03		2.557E+00	3.743E+00	3.587E-01	0.002
PA-233	-6.204E-02		5.793E-02	8.944E-02	6.190E-03	-0.694
PA-234	2.178E-01		2.888E-01	5.013E-01	9.659E-02	0.435
PA-234M	1.177E+00		4.881E+00	8.068E+00	8.327E-01	0.146
TH-234	2.499E+00		1.839E+00	3.081E+00	6.073E-01	0.811
U-235	4.316E-02		2.086E-01	3.365E-01	5.502E-02	0.128
NP-236	-6.059E-02		8.101E-02	1.249E-01	6.961E-03	-0.485
U-238	2.499E+00		1.839E+00	3.081E+00	6.073E-01	0.811
NP-239	-7.113E-02		1.855E-01	2.958E-01	2.069E-02	-0.240
AM-241	-3.593E-02		2.268E-01	3.758E-01	4.826E-02	-0.096

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	5.292E-02		9.459E-02	1.580E-01	1.324E-02	0.335
AM-246	5.434E-02		1.374E-01	2.309E-01	1.824E-02	0.235
CM-247	-1.646E-02		3.724E-02	5.907E-02	4.011E-03	-0.279
CF-249	6.694E-03		3.838E-02	6.353E-02	4.317E-03	0.105
CF-251	-6.383E-02		1.229E-01	1.903E-01	1.055E-02	-0.335

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101010          *
* Acquisition date   : 2-FEB-2010 11:19:21 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 02:00:01.01             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101010             Analyst initials: MXR1          *
* Batch Number       : 944037                  Sample Quantity : 1.2783E+02 GRAM *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 16-MAR-2009 13:18:08 MS Isotope      :              *
* MSD DPM           : 0.000                     MSD Isotope   :              *
* LCS DPM           : 0.000                     LCS Isotope   :              *
* LCSD DPM          : 0.000                     LCSD Isotope  :              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.389E+01	2.562E+00	2.390E-01	1.307E+00
NB-95	1.122E-01	4.346E-02	3.650E-02	2.218E-02
CD-109	3.751E+00	1.207E+00	6.475E-01	6.159E-01
SN-126	3.661E-01	1.178E-01	6.365E-02	6.010E-02
BA-137M	1.232E-01	6.700E-02	2.723E-02	3.419E-02
CS-137	1.302E-01	7.083E-02	2.878E-02	3.614E-02
TL-208	5.529E-01	7.910E-02	2.523E-02	4.036E-02
BI-211	3.941E+00	5.400E-01	1.550E-01	2.755E-01
PB-212	1.524E+00	1.572E-01	4.468E-02	8.021E-02
PO-212	1.524E+00	1.572E-01	4.468E-02	8.021E-02
BI-214	1.244E+00	1.849E-01	6.093E-02	9.433E-02
PB-214	1.371E+00	2.005E-01	5.402E-02	1.023E-01
PO-214	1.371E+00	2.005E-01	5.402E-02	1.023E-01
PO-216	1.524E+00	1.572E-01	4.468E-02	8.021E-02
PO-218	1.371E+00	2.005E-01	5.402E-02	1.023E-01
RA-224	4.534E+00	1.161E+00	5.084E-01	5.922E-01
RA-226	1.244E+00	1.849E-01	6.093E-02	9.433E-02
AC-228	1.639E+00	3.144E-01	9.613E-02	1.604E-01
RA-228	1.639E+00	3.144E-01	9.613E-02	1.604E-01
TH-228	1.555E+00	1.604E-01	4.558E-02	8.182E-02
TH-230	1.244E+00	1.849E-01	6.093E-02	9.433E-02
TH-232	1.639E+00	3.144E-01	9.613E-02	1.604E-01
U-234	1.244E+00	1.849E-01	6.093E-02	9.433E-02
NP-237	1.075E+00	4.086E-01	1.903E-01	2.084E-01
AM-243	4.459E-01	9.385E-02	5.151E-02	4.788E-02
ANH-511	7.650E-02	6.882E-02	2.160E-02	3.511E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-7.356E-02	3.337E-01	2.753E-01	1.702E-01 NOT IDENT.

NA-22	1.887E-02	4.391E-02	3.892E-02	2.240E-02	NOT IDENT.
NA-24	4.536E+07	1.337E+08	0.000E+00	6.822E+07	SHORT HLIF
AL-26	1.545E-03	2.392E-02	1.999E-02	1.220E-02	NOT IDENT.
TI-44	1.289E-01	4.880E-02	3.855E-02	2.490E-02	NOT IDENT.
SC-46	-1.135E-02	3.845E-02	3.137E-02	1.962E-02	FAIL ABUN
V-48	1.104E-02	8.037E-02	6.797E-02	4.101E-02	NOT IDENT.
CR-51	8.345E-02	3.848E-01	3.371E-01	1.963E-01	NOT IDENT.
MN-52	-5.830E-02	4.036E-01	3.323E-01	2.059E-01	NOT IDENT.
MN-54	-8.749E-03	3.854E-02	3.199E-02	1.967E-02	NOT IDENT.
CO-56	-2.561E-02	3.853E-02	3.039E-02	1.966E-02	FAIL ABUN
CO-57	1.514E-02	2.515E-02	2.214E-02	1.283E-02	NOT IDENT.
CO-58	-1.345E-02	3.751E-02	3.071E-02	1.914E-02	NOT IDENT.
FE-59	5.821E-02	1.022E-01	8.891E-02	5.216E-02	NOT IDENT.
CO-60	3.269E-02	3.774E-02	3.504E-02	1.926E-02	NOT IDENT.
ZN-65	7.644E-02	1.043E-01	8.132E-02	5.321E-02	NOT IDENT.
GE-68	9.184E-01	1.238E+00	1.099E+00	6.314E-01	NOT IDENT.
AS-73	-1.516E-01	1.471E+00	1.315E+00	7.507E-01	NOT IDENT.
AS-74	-1.926E-02	1.085E-01	9.335E-02	5.537E-02	NOT IDENT.
SE-75	-2.531E-02	4.177E-02	3.260E-02	2.131E-02	NOT IDENT.
BR-77	1.013E+01	3.925E+01	0.000E+00	2.003E+01	SHORT HLIF
SR-82	-2.896E-01	4.209E-01	3.367E-01	2.148E-01	NOT IDENT.
RB-83	2.189E-02	6.587E-02	5.634E-02	3.361E-02	NOT IDENT.
RB-84	1.258E-02	6.993E-02	5.994E-02	3.568E-02	NOT IDENT.
KR-85	7.325E+00	7.611E+00	6.051E+00	3.883E+00	NOT IDENT.
SR-85	3.953E-02	4.107E-02	3.265E-02	2.095E-02	NOT IDENT.
RB-86	9.277E-01	9.215E-01	8.378E-01	4.701E-01	NOT IDENT.
Y-88	6.103E-03	2.865E-02	2.475E-02	1.462E-02	NOT IDENT.
ZR-88	-7.366E-04	2.929E-02	2.492E-02	1.495E-02	NOT IDENT.
Y-91	2.786E+00	2.089E+01	1.806E+01	1.066E+01	NOT IDENT.
NB-94	1.222E-03	3.239E-02	2.789E-02	1.652E-02	NOT IDENT.
NB-95M	1.808E-01	1.449E-01	1.200E-01	7.395E-02	NOT IDENT.
ZR-95	2.974E-02	7.093E-02	6.258E-02	3.619E-02	NOT IDENT.
NB-97	3.990E+06	1.144E+07	0.000E+00	5.834E+06	SHORT HLIF
ZR-97	5.622E+08	2.168E+08	0.000E+00	1.106E+08	SHORT HLIF
MO-99	2.645E+01	3.834E+01	3.443E+01	1.956E+01	NOT IDENT.
TC-99M	-7.706E+21	2.528E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.326E-03	3.244E-02	2.683E-02	1.655E-02	NOT IDENT.
RH-102	-9.426E-03	2.666E-02	2.174E-02	1.360E-02	FAIL ABUN
RU-103	2.718E-02	4.163E-02	3.643E-02	2.124E-02	FAIL ABUN
RH-106	-2.674E-01	2.727E-01	2.153E-01	1.391E-01	NOT IDENT.
RU-106	-2.674E-01	2.714E-01	2.153E-01	1.384E-01	NOT IDENT.
AG-108M	-3.741E-03	3.065E-02	2.568E-02	1.564E-02	NOT IDENT.
AG-110M	1.302E-02	3.500E-02	2.742E-02	1.786E-02	NOT IDENT.
IN-111	-4.742E-01	3.388E+00	2.608E+00	1.728E+00	NOT IDENT.
IN-113M	-3.309E-02	4.229E-02	3.408E-02	2.158E-02	NOT IDENT.
SN-113	-3.309E-02	4.229E-02	3.408E-02	2.158E-02	NOT IDENT.
IN-114M	4.703E-02	2.135E-01	1.604E-01	1.089E-01	NOT IDENT.
CD-115	2.465E+01	4.690E+01	0.000E+00	2.393E+01	SHORT HLIF
SN-117M	-2.448E-02	6.866E-02	5.705E-02	3.503E-02	NOT IDENT.
SB-122	-3.561E+00	6.697E+00	5.281E+00	3.417E+00	NOT IDENT.
I-123	-6.000E+08	2.628E+09	0.000E+00	1.341E+09	SHORT HLIF
TE-123M	-6.497E-03	2.846E-02	2.378E-02	1.452E-02	NOT IDENT.
I-124	5.670E-02	1.578E+00	1.254E+00	8.051E-01	NOT IDENT.
SB-124	1.162E-02	7.095E-02	6.075E-02	3.620E-02	FAIL ABUN
SB-125	-4.958E-02	8.166E-02	6.587E-02	4.166E-02	FAIL ABUN
TE-125M	1.176E+00	9.513E+00	8.267E+00	4.854E+00	NOT IDENT.
I-126	1.062E-01	2.457E-01	1.929E-01	1.253E-01	NOT IDENT.
SB-126	6.749E-02	1.893E-01	1.529E-01	9.657E-02	FAIL ABUN
SB-127	-2.986E-01	3.067E+00	2.619E+00	1.565E+00	NOT IDENT.
XE-127	1.075E-02	4.655E-02	4.067E-02	2.375E-02	NOT IDENT.
I-131	4.521E-02	1.631E-01	1.422E-01	8.321E-02	NOT IDENT.
TE-132	-4.401E-01	1.798E+00	1.576E+00	9.175E-01	NOT IDENT.
BA-133	1.169E-02	4.196E-02	3.240E-02	2.141E-02	FAIL ABUN
I-133	-1.845E+05	2.934E+05	0.000E+00	1.497E+05	SHORT HLIF
CS-134	3.090E-02	4.705E-02	4.195E-02	2.400E-02	NOT IDENT.
CS-135	2.263E-01	1.549E-01	1.308E-01	7.901E-02	NOT IDENT.
I-135	5.451E+20	1.126E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.428E-02	1.243E-01	9.960E-02	6.344E-02	FAIL ABUN
CE-139	-2.593E-02	2.898E-02	2.332E-02	1.479E-02	NOT IDENT.
BA-140	9.466E-02	3.137E-01	2.659E-01	1.601E-01	NOT IDENT.
LA-140	-1.541E-01	1.185E-01	7.708E-02	6.047E-02	NOT IDENT.
CE-141	-5.400E-02	6.707E-02	5.486E-02	3.422E-02	NOT IDENT.
CE-143	9.333E+03	2.855E+03	0.000E+00	1.456E+03	SHORT HLIF
CE-144	-7.035E-02	2.012E-01	1.691E-01	1.027E-01	NOT IDENT.
PM-144	-1.019E-02	3.339E-02	2.803E-02	1.704E-02	NOT IDENT.
PR-144	-6.922E-01	2.268E+00	1.904E+00	1.157E+00	NOT IDENT.
PM-146	3.006E-02	4.220E-02	3.722E-02	2.153E-02	NOT IDENT.
ND-147	1.029E-01	7.106E-01	5.977E-01	3.626E-01	FAIL ABUN

PM-149	2.671E+02	3.895E+02	0.000E+00	1.987E+02	SHORT HLIF
EU-152	-1.048E-02	1.021E-01	7.648E-02	5.210E-02	FAIL ABUN
GD-153	1.099E-02	8.584E-02	6.723E-02	4.379E-02	FAIL ABUN
EU-154	4.204E-02	1.226E-01	1.077E-01	6.253E-02	NOT IDENT.
EU-155	6.156E-02	1.049E-01	9.304E-02	5.354E-02	FAIL ABUN
TB-160	-7.347E-02	1.363E-01	1.083E-01	6.954E-02	FAIL ABUN
HO-166M	2.125E-02	5.784E-02	5.102E-02	2.951E-02	FAIL ABUN
TM-171	-3.570E+01	3.443E+01	2.884E+01	1.757E+01	NOT IDENT.
LU-176	1.821E-02	2.281E-02	2.064E-02	1.164E-02	FAIL ABUN
LU-177	5.628E+00	3.009E+00	1.714E+00	1.535E+00	FAIL ABUN
LU-177M	-1.215E-01	2.003E-01	1.403E-01	1.022E-01	NOT IDENT.
HF-181	1.731E-02	4.717E-02	4.053E-02	2.407E-02	NOT IDENT.
W-181	-5.030E-01	4.810E-01	4.037E-01	2.454E-01	NOT IDENT.
TA-182	-4.231E-02	1.921E-01	1.609E-01	9.802E-02	NOT IDENT.
RE-183	5.727E-02	1.100E-01	9.494E-02	5.610E-02	FAIL ABUN
RE-184	-1.881E-01	2.210E-01	1.862E-01	1.128E-01	NOT IDENT.
OS-185	-1.632E-02	3.992E-02	3.302E-02	2.037E-02	NOT IDENT.
RE-188	-1.601E-02	1.753E-01	1.477E-01	8.945E-02	NOT IDENT.
W-188	-1.987E+00	7.625E+00	5.727E+00	3.890E+00	NOT IDENT.
IR-192	1.058E-02	3.381E-02	2.979E-02	1.725E-02	FAIL ABUN
AU-195	1.841E-01	2.206E-01	1.980E-01	1.126E-01	FAIL ABUN
TL-200	2.104E+02	9.605E+03	0.000E+00	4.901E+03	SHORT HLIF
TL-201	-4.504E+00	1.937E+01	1.612E+01	9.884E+00	NOT IDENT.
TL-202	-1.009E-02	8.685E-02	7.274E-02	4.431E-02	NOT IDENT.
HG-203	9.111E-03	4.288E-02	3.351E-02	2.188E-02	NOT IDENT.
BI-207	-5.689E-03	4.957E-02	4.047E-02	2.529E-02	FAIL ABUN
TL-207	-3.060E-01	6.545E-01	4.758E-01	3.339E-01	FAIL ABUN
PO-209	-2.389E+00	7.046E+00	5.717E+00	3.595E+00	NOT IDENT.
BI-210	3.952E+00	8.352E+00	7.678E+00	4.261E+00	NOT IDENT.
PB-210	3.952E+00	8.352E+00	7.678E+00	4.261E+00	NOT IDENT.
PO-210	3.952E+00	8.351E+00	7.678E+00	4.261E+00	NOT IDENT.
PB-211	5.271E-01	1.041E+00	7.719E-01	5.309E-01	NOT IDENT.
BI-212	7.437E-01	4.142E-01	3.188E-01	2.113E-01	FAIL ABUN
PO-215	-3.060E-01	6.545E-01	4.758E-01	3.339E-01	FAIL ABUN
RN-219	-1.853E-01	4.122E-01	3.401E-01	2.103E-01	FAIL ABUN
RN-220	-9.952E-01	2.478E+01	2.047E+01	1.264E+01	NOT IDENT.
RA-223	-3.060E-01	6.545E-01	4.758E-01	3.339E-01	FAIL ABUN
AC-227	4.186E-01	3.670E-01	3.354E-01	1.872E-01	FAIL ABUN
TH-227	4.186E-01	3.690E-01	3.354E-01	1.883E-01	FAIL ABUN
TH-229	-9.108E-02	5.040E-01	4.163E-01	2.571E-01	FAIL ABUN
PA-231	3.698E-01	1.388E+00	1.228E+00	7.083E-01	NOT IDENT.
TH-231	-3.060E-01	6.545E-01	4.758E-01	3.339E-01	FAIL ABUN
U-231	6.133E-03	2.506E+00	1.951E+00	1.279E+00	FAIL ABUN
PA-233	-6.204E-02	5.677E-02	4.582E-02	2.896E-02	FAIL ABUN
PA-234	2.178E-01	2.830E-01	2.525E-01	1.444E-01	FAIL ABUN
PA-234M	1.177E+00	4.784E+00	4.060E+00	2.441E+00	FAIL ABUN
TH-234	2.499E+00	1.802E+00	1.616E+00	9.194E-01	FAIL ABUN
U-235	4.316E-02	2.044E-01	1.744E-01	1.043E-01	FAIL ABUN
NP-236	-6.059E-02	7.939E-02	6.463E-02	4.050E-02	NOT IDENT.
U-238	2.499E+00	1.802E+00	1.616E+00	9.194E-01	FAIL ABUN
NP-239	-7.113E-02	1.818E-01	1.537E-01	9.274E-02	FAIL ABUN
AM-241	-3.593E-02	2.223E-01	1.972E-01	1.134E-01	NOT IDENT.
CM-243	5.292E-02	9.270E-02	8.225E-02	4.730E-02	FAIL ABUN
AM-246	5.434E-02	1.347E-01	1.161E-01	6.871E-02	NOT IDENT.
CM-247	-1.646E-02	3.650E-02	3.015E-02	1.862E-02	FAIL ABUN
CF-249	6.694E-03	3.761E-02	3.244E-02	1.919E-02	NOT IDENT.
CF-251	-6.383E-02	1.204E-01	9.832E-02	6.145E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
46.50	254.8581
46.50	254.8581
46.50	254.8581
48.70	265.5767
49.72	269.9849
51.35	255.4075
52.39	253.3090
52.97	248.1084
53.15	246.3625
53.44	254.9162
54.07	275.8213
56.28	282.9545
56.28	282.9568
57.37	0.0000
57.53	260.3222
57.53	260.3233
57.60	267.8855
57.98	266.2488
57.98	266.2488
59.32	307.6836
59.32	307.6836
59.40	307.7416
59.54	307.8436
59.72	307.9745
60.01	343.1623
61.10	370.5738
61.14	370.6076
61.30	348.9363
63.00	284.6190
63.29	280.9963
63.29	280.9963
63.58	281.1809
64.28	314.0835
65.12	361.5406
65.20	361.6045
65.20	361.6045
66.05	369.9540
66.72	345.5420
66.83	338.9057
66.91	338.9650
67.20	337.2587
67.20	337.2587
67.75	316.3058
67.85	316.3743
68.90	305.2298
68.90	305.2298
69.30	327.2096
69.67	314.4291
70.82	331.1716
70.82	331.1716
70.83	331.1786
72.80	338.3799
72.87	338.4295
72.87	338.4295
74.67	339.6827
74.81	339.7800
74.81	339.7800
74.81	339.7800
74.81	339.7800
74.81	339.7800
74.81	339.7800
74.81	339.7800
74.97	339.8898
75.28	340.1039
75.70	340.3925
77.11	341.3571
77.11	341.3571

77.11	341.3571
77.11	341.3571
77.11	341.3571
77.11	341.3571
77.11	341.3571
78.38	336.3188
79.62	266.1617
79.80	328.3812
79.80	328.3812
80.11	328.5811
80.18	328.6251
80.30	328.7013
80.30	328.7013
80.57	328.8741
81.00	329.1485
81.07	329.1925
81.07	329.1925
81.07	329.1925
81.07	329.1925
82.60	346.5189
83.37	304.8264
83.78	305.0653
83.78	305.0653
83.78	305.0653
83.78	305.0653
84.21	305.3120
84.90	305.7086
85.43	306.0116
86.29	306.5003
86.50	306.6206
86.54	306.6424
86.59	306.6705
86.72	306.7455
86.79	306.7830
86.94	306.8688
87.30	307.0734
87.30	307.0734
87.30	307.0734
87.30	307.0734
87.30	307.0734
87.30	307.0734
87.57	307.2249
87.88	0.0000
88.03	307.4841
88.36	307.6699
88.47	307.7308
89.95	308.5584
91.11	309.2017
92.29	309.8513
92.38	309.9012
92.38	309.9012
93.35	310.4322
94.00	310.7866
94.67	264.5259
94.67	264.5285
94.90	264.6347
94.90	264.6347
94.90	264.6347
94.90	264.6347
95.87	280.3139
95.87	280.3139
96.73	276.1537
97.43	276.4837
98.44	264.4128
98.44	264.4128
98.88	256.2394
99.55	267.7715
99.55	267.7715
99.86	255.6407
100.00	255.7017
100.10	255.7462
103.18	276.5922
103.76	257.3013
105.00	270.1982
105.31	268.2718
108.00	302.5968
109.28	280.3683



111.00	291.5399
111.00	291.5399
111.76	271.0383
112.95	311.2261
115.19	242.0854
116.30	268.7383
117.00	276.3795
117.00	276.3795
117.66	289.2781
121.11	249.5340
121.62	253.9551
121.78	258.2485
122.06	263.6481
122.32	277.5182
122.32	277.5182
122.32	277.5182
122.32	277.5182
123.07	267.2206
127.23	274.1651
129.76	274.0807
131.20	336.8575
133.02	277.4818
133.54	290.5966
135.34	271.8951
136.00	266.7416
136.25	273.3138
136.48	283.1271
140.51	306.3979
140.51	0.0000
142.18	280.9461
142.65	283.2985
143.76	274.9841
144.24	268.6046
144.24	268.6046
144.24	268.6046
144.24	268.6046
145.22	282.0694
145.44	302.9293
147.16	264.1478
152.43	257.1049
152.70	256.0888
153.22	255.1518
154.21	287.5382
154.21	287.5382
154.21	287.5382
154.21	287.5382
155.03	283.4063
156.02	258.2616
158.56	280.1982
159.00	0.0000
159.00	274.7870
160.31	299.7408
161.27	253.2367
162.32	247.9750
162.64	263.7139
163.35	266.1763
163.89	254.0380
165.85	271.4598
167.43	238.2541
171.28	266.4267
171.86	257.5692
172.10	244.0811
176.55	270.3188
176.60	253.2955
181.06	234.5970
184.41	239.4834
185.71	239.8257
186.00	239.9022
190.27	249.0930
192.34	253.1163
193.63	259.2529
197.04	245.0913
198.01	245.3403
198.60	252.4735
200.40	0.0000
201.83	251.2827
202.84	223.3733
205.31	217.9158

208.36	243.2730
208.81	243.3846
209.75	243.6162
209.75	243.6162
210.97	240.3802
215.65	222.2233
216.55	235.4980
218.09	233.1838
222.10	218.0143
223.80	221.0566
226.40	213.5340
227.00	229.8145
227.08	229.8320
227.20	219.0847
228.16	226.4735
228.18	226.4774
228.18	226.4774
231.56	0.0000
235.69	250.5248
236.00	250.5987
236.00	250.5987
238.63	210.5491
238.63	210.5491
238.63	210.5491
238.63	210.5491
239.00	0.0000
240.98	211.0023
241.98	211.1952
241.98	211.1952
241.98	211.1952
244.69	172.2927
245.39	175.3228
247.94	170.2327
248.90	167.6309
249.79	0.0000
252.40	199.3946
252.85	203.1510
252.85	203.1510
254.15	0.0000
256.20	171.4801
256.20	171.4801
260.50	173.9723
260.90	0.0000
262.80	150.2089
264.65	160.9739
268.24	140.1004
268.79	146.1315
269.46	152.1807
269.46	152.1807
269.46	152.1807
269.46	152.1807
271.23	188.6414
273.65	179.6660
276.40	190.5806
277.35	162.3828
277.60	139.6975
277.60	139.6975
278.00	151.7639
278.60	159.3571
279.20	150.4102
279.53	145.9381
280.46	144.5438
281.68	0.0000
283.67	152.8465
284.30	156.7015
285.00	158.6792
285.90	0.0000
286.10	152.2027
286.10	152.2027
287.40	159.9306
288.45	0.0000
290.67	151.8115
290.80	147.2714
291.72	147.3803
293.26	0.0000
293.70	153.6995
295.21	148.5494
295.21	148.5494

295.21	148.5494
295.96	148.6375
296.50	148.6994
297.23	0.0000
298.57	148.9422
299.80	149.0850
299.80	149.0850
300.09	149.1183
300.09	149.1183
300.09	149.1183
300.09	149.1183
300.12	149.1207
301.29	163.7993
302.84	150.2037
303.76	0.0000
303.91	139.5904
304.40	139.6415
304.40	139.6415
304.84	165.7863
306.84	133.5618
308.46	134.6893
311.98	149.5200
316.51	140.3515
318.01	152.1369
319.02	139.6450
319.41	144.5347
320.08	135.8728
323.87	135.4745
323.87	135.4745
323.87	135.4745
323.87	135.4745
325.23	140.2866
328.77	125.0234
333.44	141.1260
334.20	134.9293
334.20	134.9293
334.30	134.9377
338.28	132.7650
338.28	132.7650
338.28	132.7650
338.28	132.7650
338.32	132.7691
338.32	132.7691
338.32	132.7691
340.50	132.3841
340.57	132.3902
344.27	134.3170
345.85	128.1386
350.59	0.0000
351.07	125.0329
351.92	125.1079
351.92	125.1079
351.92	125.1079
355.39	0.0000
356.01	105.1472
364.48	116.1699
366.43	111.3100
367.43	127.4399
367.94	0.0000
369.80	118.5960
374.96	109.9264
383.85	112.5955
387.95	117.9807
388.63	106.8393
391.69	125.4005
391.69	125.4005
392.90	112.2324
398.62	108.5442
400.65	125.0883
401.10	134.3542
401.81	139.5444
402.60	136.5332
404.84	108.5568
410.95	112.2714
411.60	110.6645
413.65	130.6490
414.70	131.2066
415.30	121.0562

415.76	113.8454
417.63	0.0000
418.52	109.8899
423.70	107.1146
427.08	114.6259
427.89	101.1295
432.53	75.2728
433.93	103.5847
439.47	0.0000
439.56	106.0287
439.89	101.8488
443.98	101.0405
444.90	93.7219
445.03	93.7300
445.03	93.7300
445.03	93.7300
445.03	93.7300
453.90	94.2094
463.38	81.9464
468.07	83.6565
473.00	95.2279
475.06	92.1230
475.35	96.4229
476.78	97.5706
477.59	102.9771
477.96	98.7074
482.03	103.2290
484.57	0.0000
487.03	90.5715
490.36	0.0000
492.35	0.0000
497.08	79.1364
507.63	0.0000
510.53	0.0000
510.84	82.9899
511.00	82.9969
511.85	83.0328
511.85	83.0328
513.99	89.2506
513.99	89.2506
520.41	75.7214
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	103.6444
529.87	0.0000
531.02	78.3388
537.32	75.2673
543.00	82.1412
546.56	0.0000
549.76	81.3041
552.65	94.8027
555.20	88.2216
563.23	68.3886
563.90	86.3548
568.70	87.6786
569.32	88.8292
569.50	88.8364
569.67	88.8437
573.80	80.1302
574.00	80.1367
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	64.8919
585.48	0.0000
591.81	95.4613
592.07	95.4741
593.00	94.6055
595.88	95.6433
600.56	100.4126
602.52	0.0000
602.71	96.5959
602.71	96.5959
603.60	92.9371
604.41	103.6408
604.70	103.6546
609.31	106.3173

609.31	106.3173
609.31	106.3173
609.31	106.3173
610.33	100.8638
612.46	84.1337
614.37	81.1455
618.01	71.7710
621.84	74.6600
621.84	74.6600
631.29	67.5696
633.02	75.0318
633.10	75.0357
634.78	76.0182
635.90	52.8683
636.97	56.6052
645.85	66.1413
646.12	70.8065
656.30	54.5878
657.75	60.8645
657.90	0.0000
661.65	69.4075
661.65	69.4075
664.57	0.0000
666.33	68.9183
666.33	68.9183
675.00	83.0070
677.61	68.9330
685.20	72.9413
692.80	70.3199
695.00	76.0918
696.49	83.7504
696.49	83.7504
697.00	88.5294
697.49	94.2579
698.33	84.7673
698.50	86.6788
699.00	82.8858
702.63	80.1466
706.10	85.9922
706.58	0.0000
706.67	82.1892
709.31	73.6670
711.68	68.9484
713.82	76.6758
717.42	71.9879
720.50	63.1529
721.93	0.0000
722.20	60.9058
722.78	65.7291
722.78	65.7291
722.89	65.7325
722.95	65.7341
723.30	67.3477
724.18	67.3699
727.18	54.6025
733.00	68.9854
735.90	60.9159
739.58	61.0036
742.81	68.8367
744.21	69.8449
747.13	52.4430
751.79	62.2672
752.31	64.2259
753.82	63.2893
755.35	0.0000
756.15	61.3973
756.87	71.1625
763.93	65.1644
765.79	76.6217
766.42	65.5524
766.84	70.4549
776.49	74.6418
778.00	69.7710
778.57	60.9404
778.89	59.9635
783.80	64.0145
785.46	69.9669
792.07	69.1506

795.84	67.2695
796.30	75.1947
798.80	90.1202
801.93	61.4717
805.60	54.6039
810.29	63.6484
810.76	57.6913
815.85	64.7731
817.79	0.0000
818.51	58.8516
819.60	56.8789
826.30	57.0153
828.27	0.0000
831.60	72.1564
831.96	65.1492
834.83	76.2523
836.80	0.0000
846.75	61.4617
848.13	64.5156
856.28	0.0000
856.80	48.8702
860.37	42.1824
867.32	40.5928
867.82	39.5846
871.10	60.9683
873.19	44.7423
874.81	47.8193
875.33	0.0000
876.40	48.8637
879.36	55.0270
880.27	46.8895
880.51	46.8928
881.50	44.8690
883.24	48.9773
884.67	49.0008
889.25	53.1667
896.60	54.3237
898.02	52.2987
899.00	38.9806
903.28	35.9545
911.07	45.3170
911.07	45.3170
911.07	45.3170
919.63	52.6759
920.93	47.5318
925.00	49.6652
925.24	44.4949
926.50	48.6535
935.52	41.5293
937.48	46.7501
944.10	43.7278
946.00	39.5874
949.00	47.9676
962.29	52.3596
964.01	54.4845
966.15	54.5213
968.20	54.5568
969.11	48.9749
969.11	48.9749
969.11	48.9749
977.42	46.2978
980.50	48.4482
983.50	42.1689
989.30	47.5258
996.32	59.2717
1001.03	46.6383
1001.68	49.8273
1004.76	53.0579
1021.30	0.0000
1024.50	0.0000
1034.80	57.8259
1036.00	51.4195
1037.82	48.2322
1038.57	45.0270
1038.76	0.0000
1045.16	45.1151
1046.59	39.7624
1048.07	41.9288

1050.47	27.9729
1050.47	27.9729
1062.04	49.6589
1063.62	45.3612
1076.63	36.8605
1077.35	40.1219
1078.86	40.1399
1085.78	31.5233
1099.22	48.0133
1112.02	63.8847
1112.84	76.6787
1115.52	47.5037
1120.29	48.2990
1120.29	48.2990
1120.29	48.2990
1120.29	48.2990
1120.51	48.3033
1121.28	48.3141
1124.00	0.0000
1129.67	58.3324
1131.51	0.0000
1147.95	0.0000
1167.94	52.8322
1173.22	60.3345
1175.09	66.8643
1177.93	54.8348
1189.05	52.2015
1204.90	64.5920
1205.75	0.0000
1213.00	62.8534
1221.42	58.2915
1230.97	59.7817
1235.34	59.8514
1236.41	0.0000
1238.25	63.2678
1246.25	59.0459
1260.41	0.0000
1271.85	42.8595
1274.45	41.9357
1274.54	40.9826
1291.56	43.0737
1298.22	0.0000
1312.09	44.2555
1325.50	41.5058
1325.50	41.5058
1332.49	22.2382
1333.61	28.0477
1360.21	29.2017
1362.66	0.0000
1365.15	17.5415
1368.21	17.5547
1368.53	0.0000
1376.25	18.5647
1384.27	29.3689
1394.10	33.3622
1395.20	39.2594
1407.95	29.5325
1434.06	22.7782
1436.60	18.8276
1457.56	0.0000
1460.81	17.0815
1489.15	21.0573
1509.49	21.1521
1596.49	31.8136
1620.62	16.8777
1678.03	0.0000
1691.02	10.4626
1691.02	10.4626
1706.46	0.0000
1750.46	0.0000
1764.49	9.0981
1764.49	9.0981
1764.49	9.0981
1764.49	9.0981
1770.23	29.7534
1771.40	11.6915
1791.20	0.0000
1808.65	7.4930

1836.01

7.5315



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101010

Total Uranium Activity	7.4543E+00	ug/g
Total Uranium Counting Unc.	5.3618E+00	ug/g
Total Uranium Tpu	2.7356E-06	ug/g
Total Uranium Mda	4.8077E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101010
*  ANALYST       : MXR1                             DETECTOR    : GAM10
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:19:21.92          SAMPLE ALQT  : 127.830 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.905E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.380E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.234E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.564E+00

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## VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:20:54.08

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101011.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:20:06.
Sample ID          : G245101011 Sample quantity : 1.26860E+02 GRAM
Detector name      : GAM13 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.62 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.65*	123	539	1.41	93.06	89	9	1.71E-02	37.0	
2	0	63.21*	187	955	1.18	126.18	121	11	2.60E-02	34.9	
3	3	74.75	570	561	1.22	149.27	142	22	7.92E-02	8.1	2.45E+00
4	3	77.05*	916	507	1.18	153.88	142	22	1.27E-01	5.7	
5	3	80.31*	81	448	1.23	160.40	142	22	1.13E-02	48.3	
6	0	83.94*	91	405	1.52	167.66	165	6	1.26E-02	39.1	
7	4	87.16	293	392	1.28	174.11	171	23	4.07E-02	11.6	5.06E+00
8	4	89.92	252	465	1.34	179.62	171	23	3.50E-02	16.2	
9	4	92.58*	478	389	1.34	184.95	171	23	6.64E-02	10.6	
10	0	112.42*	66	386	1.46	224.63	222	8	9.19E-03	54.6	
11	0	185.79*	232	384	1.31	371.41	367	11	3.22E-02	19.2	
12	0	209.39	134	286	1.70	418.62	415	9	1.86E-02	24.3	
13	3	238.63*	1048	206	1.27	477.12	469	31	1.46E-01	4.0	1.79E+00
14	3	241.66	248	238	1.67	483.17	469	31	3.45E-02	15.6	
15	0	269.96	95	250	1.62	539.79	535	11	1.32E-02	33.6	
16	0	295.21	312	283	1.43	590.30	586	11	4.33E-02	11.8	
17	0	338.35*	190	245	1.16	676.62	670	12	2.63E-02	18.4	
18	0	351.95*	529	203	1.41	703.81	698	11	7.35E-02	7.0	
19	0	463.36	59	145	1.59	926.70	921	11	8.17E-03	41.8	
20	0	510.98*	62	171	1.79	1021.96	1015	14	8.67E-03	53.7	
21	0	583.11*	301	168	1.65	1166.28	1158	16	4.18E-02	11.6	
22	0	609.50*	451	101	1.54	1219.08	1213	14	6.26E-02	6.9	
23	0	661.63	194	102	1.95	1323.37	1317	14	2.69E-02	13.2	
24	0	727.75	97	102	1.53	1455.65	1450	13	1.35E-02	23.9	
25	0	860.39	67	87	1.31	1721.03	1714	14	9.26E-03	32.2	
26	0	911.42*	220	66	1.81	1823.13	1817	15	3.05E-02	10.8	
27	0	969.60	106	117	1.85	1939.54	1931	15	1.48E-02	24.7	
28	0	1119.96	88	76	3.43	2240.39	2233	15	1.23E-02	23.9	
29	0	1460.84	868	32	2.31	2922.47	2914	18	1.21E-01	3.7	
30	0	1765.12*	59	28	1.08	3531.34	3522	19	8.26E-03	26.0	

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

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101011.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:20:06  
 Sample ID : G245101011 Sample quantity : 126.86 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA13 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.62 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	*	2.312E+01	2.226E+00	6.342E-01	3.877E-02	36.457
CD-109	+	88.03	*	3.317E+00	8.123E-01	9.031E-01	7.126E-02	3.673
SN-126	+	64.28		7.806E-01	5.584E-01	4.145E-01	6.454E-02	1.883
	+	86.94		1.346E+00	6.362E-01	3.652E-01	1.505E-01	3.685
	+	87.57	*	3.237E-01	7.926E-02	8.800E-02	6.961E-03	3.678
BA-137M	+	661.65	*	3.162E-01	8.718E-02	6.857E-02	5.592E-03	4.611
CS-137	+	661.65	*	3.342E-01	9.217E-02	7.248E-02	5.924E-03	4.611
LU-177	+	112.95		3.518E+00	3.862E+00	4.492E+00	5.061E-01	0.783
	+	208.36	*	5.538E+00	2.732E+00	3.056E+00	2.424E-01	1.812
TL-208		277.35		2.736E-01	4.222E-01	7.172E-01	8.400E-02	0.381
	+	510.84		3.370E-01	3.642E-01	2.622E-01	2.850E-02	1.286
	+	583.14	*	4.685E-01	1.154E-01	7.704E-02	6.377E-03	6.081
	+	860.37		9.861E-01	6.401E-01	5.557E-01	4.686E-02	1.774
BI-210	+	46.50	*	1.237E+00	9.207E-01	7.828E-01	6.381E-02	1.580
PB-210	+	46.50	*	1.237E+00	9.207E-01	7.828E-01	6.381E-02	1.580
PO-210	+	46.50	*	1.237E+00	9.194E-01	7.828E-01	5.581E-02	1.580
BI-211		72.87		4.029E+00	2.291E+00	3.647E+00	3.189E-01	1.105
	+	351.07	*	3.462E+00	5.460E-01	3.917E-01	2.855E-02	8.839
PB-212	+	74.81		2.143E+00	4.423E-01	3.871E-01	4.924E-02	5.535
	+	77.11		2.051E+00	2.902E-01	2.314E-01	1.966E-02	8.862
	+	87.30		1.497E+00	3.960E-01	4.067E-01	5.189E-02	3.681
	+	238.63	*	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
		300.09		1.619E+00	1.024E+00	1.612E+00	1.534E-01	1.005
PO-212	+	74.81		2.143E+00	4.423E-01	3.871E-01	4.924E-02	5.535
	+	77.11		2.051E+00	2.902E-01	2.314E-01	1.966E-02	8.862
	+	87.30		1.497E+00	3.960E-01	4.067E-01	5.189E-02	3.681
		115.19		2.436E+00	3.969E+00	5.986E+00	6.941E-01	0.407
	+	238.63	*	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
		300.09		1.619E+00	1.024E+00	1.612E+00	1.534E-01	1.005
BI-214	+	609.31	*	1.328E+00	2.214E-01	1.506E-01	1.408E-02	8.813
	+	1120.29		1.346E+00	6.536E-01	6.480E-01	5.797E-02	2.077
	+	1764.49		1.240E+00	6.492E-01	4.432E-01	2.517E-02	2.797
PB-214	+	74.81		3.692E+00	7.326E-01	6.670E-01	7.586E-02	5.535
	+	77.11		3.516E+00	5.650E-01	3.967E-01	4.527E-02	8.862

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	87.30		2.564E+00	6.584E-01	6.967E-01	7.702E-02	3.681
	+	241.98		2.099E+00	6.868E-01	5.845E-01	5.659E-02	3.590
	+	295.21		1.194E+00	3.061E-01	2.748E-01	2.692E-02	4.346
	+	351.92	*	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817
	+	74.81		3.692E+00	7.326E-01	6.670E-01	7.586E-02	5.535
	+	77.11		3.516E+00	5.650E-01	3.967E-01	4.527E-02	8.862
	+	87.30		2.564E+00	6.584E-01	6.967E-01	7.702E-02	3.681
	+	241.98		2.099E+00	6.868E-01	5.845E-01	5.659E-02	3.590
PO-216	+	295.21		1.194E+00	3.061E-01	2.748E-01	2.692E-02	4.346
	+	351.92	*	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817
	+	74.81		2.143E+00	4.423E-01	3.871E-01	4.924E-02	5.535
	+	77.11		2.051E+00	2.902E-01	2.314E-01	1.966E-02	8.862
	+	87.30		1.497E+00	3.960E-01	4.067E-01	5.189E-02	3.681
	+	238.63	*	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
	+	300.09		1.619E+00	1.024E+00	1.612E+00	1.534E-01	1.005
	+	74.81		3.692E+00	7.326E-01	6.670E-01	7.586E-02	5.535
PO-218	+	77.11		3.516E+00	5.650E-01	3.967E-01	4.527E-02	8.862
	+	87.30		2.564E+00	6.584E-01	6.967E-01	7.702E-02	3.681
	+	241.98		2.099E+00	6.868E-01	5.845E-01	5.659E-02	3.590
	+	295.21		1.194E+00	3.061E-01	2.748E-01	2.692E-02	4.346
	+	351.92	*	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817
	+	240.98	*	3.979E+00	1.283E+00	1.104E+00	8.719E-02	3.603
	+	609.31	*	1.328E+00	2.214E-01	1.506E-01	1.408E-02	8.813
	+	1120.29		1.346E+00	6.536E-01	6.480E-01	5.797E-02	2.077
AC-228	+	1764.49		1.240E+00	6.492E-01	4.432E-01	2.517E-02	2.797
	+	338.32		1.363E+00	7.506E-01	4.614E-01	1.889E-01	2.954
	+	911.07	*	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
	+	969.11		1.306E+00	7.098E-01	5.488E-01	1.253E-01	2.379
	+	338.32		1.363E+00	7.506E-01	4.614E-01	1.889E-01	2.954
	+	911.07	*	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
	+	969.11		1.306E+00	7.098E-01	5.488E-01	1.253E-01	2.379
	+	74.81		2.186E+00	4.031E-01	3.949E-01	3.436E-02	5.535
TH-228	+	77.11		2.092E+00	2.960E-01	2.361E-01	2.005E-02	8.862
	+	87.30		1.527E+00	3.739E-01	4.149E-01	3.288E-02	3.681
	+	238.63	*	1.505E+00	1.828E-01	9.896E-02	8.990E-03	15.208
	+	300.09		1.652E+00	1.422E+00	1.644E+00	9.723E-01	1.005
	+	609.31	*	1.327E+00	2.214E-01	1.506E-01	1.408E-02	8.813
	+	1120.29		1.346E+00	6.535E-01	6.480E-01	5.797E-02	2.077
	+	1764.49		1.240E+00	6.492E-01	4.432E-01	2.517E-02	2.797
	+	338.32		1.363E+00	5.108E-01	4.614E-01	3.213E-02	2.954
TH-232	+	911.07	*	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
	+	969.11		1.306E+00	7.098E-01	5.488E-01	1.253E-01	2.379
	+	63.29	*	1.972E+00	1.423E+00	1.045E+00	1.918E-01	1.886
	+	92.38		3.643E+00	1.011E+00	6.108E-01	1.099E-01	5.964
	+	609.31	*	1.327E+00	2.214E-01	1.506E-01	1.408E-02	8.813
	+	1120.29		1.346E+00	6.535E-01	6.480E-01	5.797E-02	2.077
	+	1764.49		1.240E+00	6.492E-01	4.432E-01	2.517E-02	2.797
	+	86.50	*	9.504E-01	3.044E-01	2.993E-01	6.620E-02	3.176
NP-237	+	95.87		4.385E-01	8.831E-01	1.334E+00	3.299E-01	0.329

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	+	63.29	*	1.972E+00	1.423E+00	1.045E+00	1.918E-01	1.886
	+	92.38		3.643E+00	8.286E-01	6.108E-01	5.156E-02	5.964
AM-243	+	74.67	*	3.474E-01	6.394E-02	6.274E-02	5.419E-03	5.537
	+	86.72		3.564E+01	8.728E+00	1.123E+01	8.935E-01	3.174
		117.66		-7.865E-01	4.016E+00	6.195E+00	7.414E-01	-0.127
		142.18		-2.147E+01	2.043E+01	3.099E+01	3.284E+00	-0.693
ANH-511	+	511.00	*	7.280E-02	7.842E-02	5.665E-02	3.954E-03	1.285

---- 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	*	-1.759E-01	4.194E-01	6.825E-01	5.132E-02	-0.258
NA-22		1274.54	*	-7.977E-03	5.769E-02	9.478E-02	5.349E-03	-0.084
NA-24		1368.53	*	-8.921E+01	5.769E-02	Half-Life too short		
AL-26		1129.67		-2.192E+00	2.360E+00	3.396E+00	2.013E-01	-0.646
		1808.65	*	3.498E-03	3.868E-02	6.519E-02	3.678E-03	0.054
TI-44		67.85		-3.495E-02	2.994E-02	4.306E-02	3.899E-03	-0.812
	+	78.38	*	3.785E-01	5.357E-02	5.821E-02	4.903E-03	6.502
SC-46		889.25	*	-9.793E-04	5.803E-02	9.596E-02	7.267E-03	-0.010
	+	1120.51		2.398E-01	1.154E-01	1.561E-01	9.384E-03	1.537
V-48		944.10		7.137E-01	1.463E+00	2.504E+00	1.828E-01	0.285
		983.50	*	3.653E-02	1.170E-01	1.969E-01	1.393E-02	0.186
		1312.09		6.898E-02	1.177E-01	2.067E-01	1.172E-02	0.334
CR-51		320.08	*	3.364E-01	5.061E-01	8.548E-01	6.653E-02	0.394
MN-52		744.21		-1.498E-01	6.021E-01	9.484E-01	7.699E-02	-0.158
		848.13		4.342E+00	1.537E+01	2.613E+01	2.035E+00	0.166
		935.52		3.610E-01	6.307E-01	1.084E+00	7.965E-02	0.333
		1246.25		1.184E+01	1.846E+01	3.214E+01	1.799E+00	0.369
		1333.61		1.588E+01	1.216E+01	2.256E+01	1.283E+00	0.704
		1434.06	*	3.062E-01	5.965E-01	1.035E+00	5.949E-02	0.296
MN-54		834.83	*	-8.022E-03	4.946E-02	8.139E-02	6.387E-03	-0.099
CO-56		846.75	*	1.553E-02	5.058E-02	8.618E-02	6.717E-03	0.180
		977.42		-2.980E-01	4.636E+00	6.997E+00	4.976E-01	-0.043
		1037.82		-3.659E-01	4.135E-01	6.162E-01	4.489E-02	-0.594
		1175.09		-3.155E-01	3.042E+00	4.859E+00	2.672E-01	-0.065
		1238.25		4.561E-02	1.254E-01	2.141E-01	1.277E-02	0.213
		1360.21		5.020E-01	1.404E+00	2.404E+00	1.372E-01	0.209
		1771.40		3.469E-02	3.480E-01	5.051E-01	2.866E-02	0.069
CO-57		122.06	*	-5.663E-03	2.647E-02	4.276E-02	5.408E-03	-0.132
		136.48		1.082E-01	2.344E-01	3.860E-01	4.518E-02	0.280
CO-58		810.76	*	7.635E-03	5.548E-02	9.354E-02	7.450E-03	0.082
FE-59		142.65		-1.889E+00	3.380E+00	5.263E+00	5.550E-01	-0.359
		192.34		-3.751E-01	1.121E+00	1.814E+00	2.354E-01	-0.207
		1099.22	*	-1.142E-01	1.282E-01	1.902E-01	1.359E-02	-0.600
		1291.56		-1.419E-01	1.760E-01	2.699E-01	1.972E-02	-0.526
CO-60		1173.22		1.070E-02	5.941E-02	9.727E-02	5.346E-03	0.110
		1332.49	*	3.937E-02	5.204E-02	9.234E-02	5.252E-03	0.426
ZN-65		1115.52	*	-7.099E-02	1.514E-01	1.981E-01	1.203E-02	-0.358

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68		1077.35	*	4.651E-02	1.789E+00	2.916E+00	1.864E-01	0.016
AS-73		53.44	*	1.971E-01	2.573E-01	4.343E-01	3.669E-02	0.454
AS-74		595.88	*	3.077E-02	1.501E-01	2.495E-01	1.916E-02	0.123
		634.78		-1.883E-01	5.673E-01	9.023E-01	7.190E-02	-0.209
SE-75		66.05		-1.823E-01	2.913E+00	4.419E+00	4.814E-01	-0.041
		96.73		-4.920E-01	7.741E-01	1.104E+00	1.533E-01	-0.446
		121.11		-7.399E-02	1.438E-01	2.288E-01	3.298E-02	-0.323
		136.00		-8.746E-03	4.526E-02	7.266E-02	8.209E-03	-0.120
		198.60		-1.643E+00	2.050E+00	3.238E+00	2.893E-01	-0.507
		264.65	*	5.944E-03	5.447E-02	8.002E-02	6.269E-03	0.074
		279.53		5.692E-02	1.258E-01	2.122E-01	1.707E-02	0.268
		303.91		-4.591E+00	2.594E+00	3.781E+00	4.017E-01	-1.214
		400.65		2.731E-01	3.352E-01	5.624E-01	5.169E-02	0.486
BR-77	+	87.88		2.932E-03	3.352E-01	Half-Life	too short	
		200.40		-2.714E-04	3.352E-01	Half-Life	too short	
	+	239.00		9.763E-04	3.352E-01	Half-Life	too short	
		249.79		9.691E-05	3.352E-01	Half-Life	too short	
		281.68		-3.141E-05	3.352E-01	Half-Life	too short	
		297.23		4.951E-04	3.352E-01	Half-Life	too short	
		303.76		-1.670E-03	3.352E-01	Half-Life	too short	
		439.47		3.271E-06	3.352E-01	Half-Life	too short	
		484.57		-7.598E-04	3.352E-01	Half-Life	too short	
		520.65	*	6.162E-05	3.352E-01	Half-Life	too short	
		574.64		-6.773E-04	3.352E-01	Half-Life	too short	
		578.91		2.745E-04	3.352E-01	Half-Life	too short	
		585.48		6.680E-03	3.352E-01	Half-Life	too short	
		755.35		5.017E-04	3.352E-01	Half-Life	too short	
		817.79		9.455E-05	3.352E-01	Half-Life	too short	
SR-82		698.33		1.363E+01	5.397E+01	8.880E+01	7.249E+00	0.153
		776.49	*	-3.166E-01	5.660E-01	9.090E-01	7.317E-02	-0.348
		1395.20		-5.046E+00	1.647E+01	2.619E+01	1.500E+00	-0.193
RB-83		520.41	*	8.541E-02	8.627E-02	1.521E-01	1.074E-02	0.561
		529.64		6.430E-02	1.329E-01	2.273E-01	1.623E-02	0.283
		552.65		-1.569E-01	2.695E-01	4.274E-01	3.135E-02	-0.367
RB-84		881.50	*	-4.740E-02	1.080E-01	1.728E-01	1.317E-02	-0.274
KR-85		513.99	*	1.805E+01	9.461E+00	1.575E+01	1.103E+00	1.146
SR-85		513.99	*	9.739E-02	5.105E-02	8.499E-02	5.953E-03	1.146
RB-86		1076.63	*	-1.289E-01	1.366E+00	2.204E+00	1.410E-01	-0.058
Y-88		898.02		-3.378E-02	5.812E-02	9.156E-02	6.930E-03	-0.369
		1836.01	*	-2.037E-03	4.516E-02	7.431E-02	4.185E-03	-0.027
ZR-88		392.90	*	-1.263E-02	4.008E-02	6.313E-02	3.698E-03	-0.200
Y-91		1204.90	*	1.637E+01	2.478E+01	4.346E+01	2.409E+00	0.377
NB-94		702.63	*	2.053E-02	4.673E-02	7.778E-02	6.348E-03	0.264
		871.10		2.008E-02	4.551E-02	7.804E-02	5.988E-03	0.257
NB-95		765.79	*	1.323E-01	6.282E-02	1.168E-01	9.428E-03	1.133
NB-95M		235.69	*	6.422E-02	1.539E-01	2.321E-01	2.147E-02	0.277
ZR-95		724.18		7.886E-03	1.627E-01	2.270E-01	2.028E-02	0.035
		756.15	*	7.427E-02	1.055E-01	1.780E-01	1.605E-02	0.417
NB-97		657.90	*	-6.264E+00	1.055E-01	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error (pCi/GRAM)	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	1024.50			1.055E-01	Half-Life	too short	
	254.15			1.055E-01	Half-Life	too short	
	355.39			1.055E-01	Half-Life	too short	
	507.63	*		1.055E-01	Half-Life	too short	
	602.52			1.055E-01	Half-Life	too short	
	1021.30			1.055E-01	Half-Life	too short	
	1147.95			1.055E-01	Half-Life	too short	
MO-99	1362.66			1.055E-01	Half-Life	too short	
	1750.46			1.055E-01	Half-Life	too short	
	140.51			1.049E+02	1.499E+02	4.261E+01	-0.859
	181.06			7.054E+01	1.038E+02	1.863E+01	0.619
	366.43			3.579E+02	5.715E+02	3.677E+01	-0.126
	739.58	*		5.652E+01	8.946E+01	1.334E+01	-0.128
	778.00			1.526E+02	2.551E+02	2.053E+01	-0.019
TC-99M	140.51	*		1.526E+02	Half-Life	too short	
RH-101	127.23			3.422E-02	5.318E-02	6.458E-03	-0.589
	198.01	*		3.641E-02	5.822E-02	4.610E-03	-0.338
	325.23			2.747E-01	3.842E-01	2.754E-02	-1.668
RH-102	418.52			3.846E-01	5.934E-01	3.628E-02	-0.077
	475.06	*		3.435E-02	5.878E-02	3.911E-03	0.218
	631.29			6.892E-02	1.142E-01	9.072E-03	0.125
	697.49			1.078E-01	1.700E-01	1.388E-02	-0.218
	766.84			1.490E-01	2.755E-01	2.224E-02	1.050
	1046.59			1.499E-01	2.477E-01	1.644E-02	0.093
	1112.84			3.501E-01	5.203E-01	3.165E-02	0.401
RU-103	497.08	*		5.551E-02	8.595E-02	1.131E-02	-0.625
RH-106	610.33	+		3.332E+00	3.749E+00	6.100E-01	4.165
	511.85	+		3.953E-01	4.989E-01	3.485E-02	0.736
	621.84	*		4.147E-01	6.773E-01	8.730E-02	-0.005
RU-106	1050.47			3.236E+00	5.609E+00	3.706E-01	0.461
	511.85	+		3.953E-01	4.989E-01	3.485E-02	0.736
	621.84	*		4.147E-01	6.773E-01	5.334E-02	-0.005
AG-108M	1050.47			3.236E+00	5.609E+00	3.706E-01	0.461
	433.93	*		3.971E-02	6.644E-02	4.469E-03	-0.073
	614.37			5.576E-02	8.521E-02	6.979E-03	0.547
AG-110M	722.95			6.853E-02	8.803E-02	7.485E-03	-0.541
	657.75	*		5.076E-02	6.813E-02	5.724E-03	-0.284
	677.61			4.182E-01	6.426E-01	5.411E-02	-0.431
	706.67			2.861E-01	4.569E-01	3.843E-02	-0.095
	763.93			2.352E-01	3.857E-01	3.216E-02	-0.222
	884.67			7.038E-02	1.151E-01	9.107E-03	-0.101
	937.48			1.499E-01	2.327E-01	1.792E-02	-0.436
IN-111	1384.27			2.412E-01	3.770E-01	2.293E-02	-0.334
	171.28			3.654E+00	5.797E+00	4.551E-01	-0.048
	245.39	*		3.844E+00	6.474E+00	5.101E-01	0.131
IN-113M	391.69	*		6.049E-02	8.772E-02	5.466E-03	-1.048
SN-113	391.69	*		6.049E-02	8.772E-02	5.466E-03	-1.048
IN-114M	190.27	*		2.424E-01	3.471E-01	2.743E-02	0.231
CD-115	260.90			2.424E-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
		492.35		-8.812E-05	2.424E-01	Half-Life	too short	
		527.90	*	8.846E-06	2.424E-01	Half-Life	too short	
SN-117M		156.02		-3.625E+00	3.318E+00	5.039E+00	4.552E-01	-0.719
		158.56	*	-4.691E-02	7.869E-02	1.225E-01	1.069E-02	-0.383
SB-122		563.90	*	-7.027E+00	9.072E+00	1.413E+01	1.049E+00	-0.497
		692.80		7.601E+01	1.989E+02	3.308E+02	2.701E+01	0.230
I-123		159.00	*	-2.197E+02	1.989E+02	Half-Life	too short	
		528.96		9.805E+04	1.989E+02	Half-Life	too short	
TE-123M		159.00	*	-2.377E-03	3.258E-02	5.199E-02	4.540E-03	-0.046
I-124		602.71	*	1.060E+00	2.185E+00	3.240E+00	2.505E-01	0.327
		722.78		-9.861E+00	1.595E+01	2.068E+01	1.685E+00	-0.477
		1325.50		-8.174E+01	9.184E+01	1.362E+02	7.741E+00	-0.600
		1376.25		1.173E+02	9.524E+01	1.744E+02	9.971E+00	0.673
		1509.49		2.256E+01	4.966E+01	8.529E+01	4.917E+00	0.264
		1691.02		1.109E+01	8.117E+00	1.671E+01	9.566E-01	0.664
SB-124		602.71		2.912E-02	6.004E-02	8.902E-02	6.884E-03	0.327
		645.85		-3.213E-01	7.244E-01	1.141E+00	9.810E-02	-0.282
		709.31		1.192E+00	3.955E+00	6.526E+00	5.325E-01	0.183
		713.82		-1.582E+00	2.391E+00	3.650E+00	4.275E-01	-0.433
		722.78		-3.927E-01	6.351E-01	8.235E-01	6.871E-02	-0.477
	+	968.20		1.422E+01	7.085E+00	9.004E+00	6.453E-01	1.579
		1045.16		-1.545E-01	3.421E+00	5.556E+00	3.694E-01	-0.028
		1325.50		-3.477E+00	3.907E+00	5.796E+00	3.293E-01	-0.600
		1368.21		2.812E-01	2.509E+00	4.192E+00	4.959E-01	0.067
		1436.60		2.011E+00	5.703E+00	9.724E+00	5.589E-01	0.207
		1691.02	*	1.042E-01	7.630E-02	1.569E-01	9.774E-03	0.664
SB-125		427.89	*	6.865E-02	1.117E-01	1.946E-01	1.252E-02	0.353
	+	463.38		6.169E-01	5.179E-01	6.615E-01	4.903E-02	0.933
		600.56		-3.260E-02	2.395E-01	3.892E-01	3.277E-02	-0.084
		635.90		3.216E-01	3.536E-01	6.126E-01	5.345E-02	0.525
TE-125M		109.28	*	-7.289E-02	1.074E+01	1.577E+01	1.918E+00	-0.005
I-126		388.63		5.222E-01	3.371E-01	5.881E-01	3.483E-02	0.888
		666.33	*	1.534E-01	3.263E-01	4.813E-01	3.927E-02	0.319
		753.82		2.204E+00	2.781E+00	4.712E+00	3.817E-01	0.468
SB-126		223.80		-2.852E+00	5.735E+00	9.419E+00	7.466E-01	-0.303
		278.60		1.931E+00	3.605E+00	6.105E+00	4.697E-01	0.316
	+	296.50		1.560E+01	3.877E+00	5.177E+00	3.898E-01	3.013
		414.70		-5.636E-02	1.262E-01	1.959E-01	1.190E-02	-0.288
		415.30		-3.077E+00	1.042E+01	1.634E+01	9.935E-01	-0.188
		555.20		7.314E+00	6.488E+00	1.148E+01	8.442E-01	0.637
		573.80		-1.124E+00	1.821E+00	2.783E+00	2.089E-01	-0.404
		593.00		4.293E-01	1.642E+00	2.740E+00	2.098E-01	0.157
		656.30		-1.623E+00	6.368E+00	8.685E+00	7.052E-01	-0.187
		666.33		6.481E-02	1.379E-01	2.034E-01	1.659E-02	0.319
		675.00		-6.354E-01	3.383E+00	5.407E+00	4.414E-01	-0.118
		695.00		-7.256E-02	1.398E-01	2.173E-01	1.774E-02	-0.334
		697.00		-4.565E-01	4.973E-01	7.488E-01	6.114E-02	-0.610
		720.50	*	5.620E-02	2.906E-01	4.315E-01	3.516E-02	0.130
		856.80		7.901E-01	8.721E-01	1.374E+00	1.064E-01	0.575

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		989.30		-2.105E+00	2.200E+00	3.289E+00	2.314E-01	-0.640
		1034.80		2.717E+00	1.463E+01	2.428E+01	1.633E+00	0.112
		1213.00		-9.651E-01	7.346E+00	1.214E+01	6.743E-01	-0.079
		61.10		6.070E+01	6.613E+01	1.041E+02	1.388E+01	0.583
		252.40		7.686E+00	1.279E+01	1.889E+01	7.993E+00	0.407
		290.80		3.562E+01	6.246E+01	9.380E+01	1.130E+01	0.380
		411.60		-5.206E+00	3.706E+01	5.878E+01	9.235E+00	-0.089
		444.90		1.185E+01	2.776E+01	4.777E+01	6.054E+00	0.248
		473.00		-2.203E+00	4.968E+00	8.072E+00	1.060E+00	-0.273
		543.00		1.201E+01	5.251E+01	8.804E+01	1.314E+01	0.136
		603.60		2.272E+01	4.095E+01	6.094E+01	8.162E+00	0.373
		685.20	*	5.127E-01	4.301E+00	7.030E+00	8.873E-01	0.073
		698.50		2.395E+01	4.979E+01	8.297E+01	1.388E+01	0.289
		722.20		-2.758E+01	1.150E+02	1.557E+02	1.932E+01	-0.177
XE-127		783.80		2.365E+00	1.109E+01	1.883E+01	2.539E+00	0.126
		57.60		-1.003E+00	2.477E+00	3.969E+00	3.668E-01	-0.253
		145.22		1.077E+00	8.424E-01	1.417E+00	1.455E-01	0.760
		172.10		1.224E-02	1.426E-01	2.280E-01	1.790E-02	0.054
I-131		202.84	*	-4.450E-03	5.476E-02	9.229E-02	7.314E-03	-0.048
		374.96		1.214E-02	2.578E-01	4.171E-01	2.604E-02	0.029
	+	80.18		7.050E+00	6.835E+00	8.741E+00	7.359E-01	0.807
		284.30		-2.344E+00	2.480E+00	3.870E+00	3.170E-01	-0.606
TE-132		364.48	*	1.179E-01	2.119E-01	3.537E-01	2.523E-02	0.333
		636.97		1.649E+00	3.038E+00	5.145E+00	4.396E-01	0.320
		722.89		-1.202E+01	1.755E+01	2.257E+01	1.862E+00	-0.532
		49.72		-4.827E+00	1.160E+01	1.757E+01	2.048E+00	-0.275
BA-133	+	111.76		1.088E+02	1.198E+02	1.452E+02	2.048E+01	0.749
		116.30		1.806E+01	8.794E+01	1.299E+02	1.902E+01	0.139
		228.16	*	1.069E+00	2.111E+00	3.604E+00	5.897E-01	0.297
		53.15		5.937E-01	1.037E+00	1.741E+00	1.461E-01	0.341
I-133	+	79.62		1.295E+00	1.265E+00	1.598E+00	2.408E-01	0.810
	+	81.00		1.000E-01	9.789E-02	1.206E-01	1.892E-02	0.830
		276.40		1.165E-01	4.298E-01	6.960E-01	9.691E-02	0.167
		302.84		-2.048E-01	1.750E-01	2.672E-01	3.358E-02	-0.766
CS-134		356.01	*	-4.316E-02	6.409E-02	8.516E-02	1.022E-02	-0.507
		383.85		-2.071E-01	3.893E-01	6.058E-01	6.665E-02	-0.342
	+	510.53		3.598E+01	3.893E-01	Half-Life	too short	
		529.87	*	5.885E-02	3.893E-01	Half-Life	too short	
		706.58		-3.454E+00	3.893E-01	Half-Life	too short	
		856.28		2.511E+01	3.893E-01	Half-Life	too short	
		875.33		-1.908E+00	3.893E-01	Half-Life	too short	
		1236.41		3.938E+01	3.893E-01	Half-Life	too short	
		1298.22		2.100E+00	3.893E-01	Half-Life	too short	
		475.35		3.761E-01	2.300E+00	3.886E+00	2.587E-01	0.097
		563.23		-2.382E-01	4.514E-01	7.164E-01	5.385E-02	-0.332
		569.32		2.451E-01	2.690E-01	4.525E-01	3.442E-02	0.542
		604.70		1.768E-02	4.890E-02	7.169E-02	5.571E-03	0.247
		795.84	*	2.989E-02	6.177E-02	1.066E-01	8.593E-03	0.280
		801.93		-2.844E-01	6.058E-01	8.960E-01	7.191E-02	-0.317

---- 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		-4.499E+00	4.948E+00	7.354E+00	4.925E-01	-0.612
		1167.94		-4.936E-01	3.426E+00	5.459E+00	3.030E-01	-0.090
		1365.15		-2.953E-01	1.714E+00	2.780E+00	1.748E-01	-0.106
		268.24	*	8.223E-02	1.913E-01	2.865E-01	2.647E-02	0.287
		288.45		4.307E+14	1.913E-01	Half-Life	too short	
		417.63		-6.209E+15	1.913E-01	Half-Life	too short	
		546.56		2.275E+15	1.913E-01	Half-Life	too short	
		836.80		2.905E+15	1.913E-01	Half-Life	too short	
		1038.76		-4.533E+15	1.913E-01	Half-Life	too short	
		1124.00		1.075E+16	1.913E-01	Half-Life	too short	
		1131.51		-2.154E+14	1.913E-01	Half-Life	too short	
		1260.41	*	4.792E+14	1.913E-01	Half-Life	too short	
		1457.56		1.211E+17	1.913E-01	Half-Life	too short	
		1678.03		-1.021E+15	1.913E-01	Half-Life	too short	
CS-136 +		1706.46		-3.758E+15	1.913E-01	Half-Life	too short	
		1791.20		4.858E+14	1.913E-01	Half-Life	too short	
		66.91		-3.333E-01	6.204E-01	9.191E-01	1.445E-01	-0.363
		86.29		5.454E+00	1.433E+00	2.136E+00	2.656E-01	2.554
		153.22		1.101E+00	9.810E-01	1.637E+00	1.687E-01	0.672
		163.89		-5.380E-01	1.646E+00	2.514E+00	2.309E-01	-0.214
		176.55		-2.899E-01	5.272E-01	8.144E-01	6.854E-02	-0.356
		273.65		-1.677E-01	7.359E-01	1.053E+00	8.807E-02	-0.159
		340.57		2.565E-01	2.204E-01	3.384E-01	2.451E-02	0.758
		818.51		-1.189E-02	1.258E-01	2.084E-01	1.652E-02	-0.057
		1048.07	*	2.912E-02	1.941E-01	3.204E-01	2.275E-02	0.091
		1235.34		7.722E-01	9.977E-01	1.745E+00	1.722E-01	0.442
		165.85	*	-3.279E-02	3.422E-02	5.203E-02	4.079E-03	-0.630
CE-139 BA-140		162.64		5.530E-01	1.144E+00	1.810E+00	1.586E-01	0.305
		304.84		-1.852E+00	1.972E+00	2.960E+00	8.195E-01	-0.626
		423.70		-7.506E-01	3.175E+00	4.975E+00	1.585E+00	-0.151
		537.32	*	6.651E-03	4.331E-01	7.176E-01	2.354E-01	0.009
LA-140		328.77		6.461E-01	4.707E-01	8.153E-01	6.273E-02	0.793
		432.53		-4.975E-01	3.250E+00	5.430E+00	3.702E-01	-0.092
		487.03		2.136E-01	2.212E-01	3.898E-01	2.896E-02	0.548
		751.79		1.066E+00	3.247E+00	5.337E+00	4.846E-01	0.200
		815.85		-4.839E-01	5.641E-01	8.764E-01	7.882E-02	-0.552
		867.82		-1.119E+00	2.665E+00	3.780E+00	3.099E-01	-0.296
		919.63		2.278E+00	4.609E+00	7.222E+00	7.008E-01	0.315
		925.24		-1.361E+00	1.857E+00	2.856E+00	2.291E-01	-0.477
		1596.49	*	-4.968E-02	1.573E-01	2.455E-01	1.415E-02	-0.202
CE-141 CE-143		145.44	*	9.088E-02	7.614E-02	1.279E-01	1.326E-02	0.711
		57.37		-1.961E-03	7.614E-02	Half-Life	too short	
+		231.56		5.806E-03	7.614E-02	Half-Life	too short	
		293.26	*	7.486E-03	7.614E-02	Half-Life	too short	
		350.59		3.173E-01	7.614E-02	Half-Life	too short	
		490.36		-3.080E-02	7.614E-02	Half-Life	too short	
		664.57		6.178E-02	7.614E-02	Half-Life	too short	
		721.93		-1.221E-03	7.614E-02	Half-Life	too short	
		80.11		2.159E+00	2.093E+00	2.678E+00	2.229E-01	0.806

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-144		133.54	*	4.313E-02	2.228E-01	3.638E-01	6.306E-02	0.119
		476.78		-4.052E-02	8.478E-02	1.375E-01	1.057E-02	-0.295
		618.01		-9.714E-03	4.445E-02	6.956E-02	5.641E-03	-0.140
		696.49	*	-4.472E-02	4.872E-02	7.332E-02	5.990E-03	-0.610
PR-144		778.57		-3.127E-01	3.051E+00	5.075E+00	4.085E-01	-0.062
		696.49	*	-3.038E+00	3.310E+00	4.981E+00	4.067E-01	-0.610
		1489.15		-1.600E+01	1.427E+01	1.917E+01	1.105E+00	-0.835
PM-146		453.90	*	2.453E-02	5.332E-02	9.180E-02	8.332E-03	0.267
		633.02		5.702E-01	1.838E+00	2.997E+00	1.115E+00	0.190
		735.90		1.025E-01	2.203E-01	3.544E-01	1.009E-01	0.289
		747.13		-3.600E-02	1.290E-01	2.025E-01	2.781E-02	-0.178
ND-147	+	91.11		1.308E+00	4.385E-01	7.392E-01	6.667E-02	1.769
		319.41		4.479E+00	5.462E+00	9.293E+00	6.743E-01	0.482
		439.89		4.666E-01	9.662E+00	1.630E+01	1.031E+00	0.029
		531.02	*	1.540E-01	9.638E-01	1.613E+00	2.284E-01	0.095
PM-149		285.90	*	3.061E-05	9.638E-01	Half-Life	too short	
EU-152		121.78		-2.036E-02	7.623E-02	1.228E-01	1.662E-02	-0.166
		244.69		6.005E-02	3.576E-01	6.011E-01	4.738E-02	0.100
		344.27	*	3.960E-02	1.184E-01	1.821E-01	1.365E-02	0.217
		443.98		1.007E-01	1.144E+00	1.934E+00	1.230E-01	0.052
		778.89		-9.963E-02	3.498E-01	5.741E-01	4.617E-02	-0.174
		867.32		-8.492E-01	1.307E+00	1.722E+00	1.324E-01	-0.493
		964.01		2.496E-01	4.605E-01	6.852E-01	4.927E-02	0.364
		1085.78		2.338E-02	5.906E-01	9.626E-01	6.084E-02	0.024
		1112.02		2.938E-01	5.067E-01	7.505E-01	4.571E-02	0.391
		1407.95		4.325E-02	2.370E-01	3.982E-01	2.284E-02	0.109
GD-153		69.67		3.210E-01	1.109E+00	1.700E+00	1.520E-01	0.189
	+	83.37		1.774E+01	1.394E+01	2.047E+01	1.666E+00	0.867
		97.43	*	-7.366E-04	7.880E-02	1.140E-01	1.038E-02	-0.006
		103.18		-7.401E-02	1.015E-01	1.620E-01	1.600E-02	-0.457
EU-154		123.07		1.981E-02	5.329E-02	8.810E-02	1.284E-02	0.225
		247.94		1.082E-01	4.397E-01	6.553E-01	7.159E-02	0.165
		591.81		-5.274E-01	8.424E-01	1.321E+00	1.449E-01	-0.399
		723.30		-1.899E-01	2.874E-01	3.707E-01	3.374E-02	-0.512
		756.87		6.769E-01	1.073E+00	1.800E+00	2.089E-01	0.376
		873.19		1.277E-01	4.194E-01	7.109E-01	8.239E-02	0.180
		996.32		-6.313E-01	5.401E-01	7.823E-01	1.333E-01	-0.807
		1004.76		-2.409E-01	3.144E-01	4.818E-01	5.037E-02	-0.500
EU-155		1274.45	*	-1.831E-02	1.611E-01	2.652E-01	2.450E-02	-0.069
		48.70		-1.657E-01	4.664E-01	7.099E-01	5.358E-02	-0.233
		60.01		1.066E+00	2.238E+00	3.490E+00	3.341E-01	0.305
	+	86.54		3.905E-01	9.576E-02	1.560E-01	1.258E-02	2.503
TB-160	+	105.31	*	7.416E-02	1.057E-01	1.783E-01	1.830E-02	0.416
		86.79		1.091E+00	2.671E-01	4.394E-01	3.495E-02	2.483
		197.04		1.565E-02	6.437E-01	1.054E+00	8.347E-02	0.015
		215.65		5.149E-01	8.294E-01	1.431E+00	1.135E-01	0.360
		298.57		9.401E-02	1.619E-01	2.418E-01	1.815E-02	0.389
		879.36	*	2.268E-02	2.037E-01	3.405E-01	2.597E-02	0.067
		962.29		5.611E-01	8.290E-01	1.254E+00	9.033E-02	0.447

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	+	966.15		7.677E-01	3.753E-01	6.171E-01	4.430E-02	1.244
		1177.93		-4.264E-01	4.938E-01	7.318E-01	4.027E-02	-0.583
		1271.85		-6.266E-01	9.520E-01	1.487E+00	8.368E-02	-0.421
		80.57		2.748E-01	2.664E-01	3.357E-01	2.786E-02	0.819
		184.41		1.721E-01	6.741E-02	8.056E-02	6.356E-03	2.137
		280.46		-1.023E-02	9.560E-02	1.570E-01	1.206E-02	-0.065
		410.95		-1.588E-01	3.211E-01	4.983E-01	3.009E-02	-0.319
		711.68	*	-2.691E-02	8.183E-02	1.287E-01	1.050E-02	-0.209
		752.31		1.242E-01	3.989E-01	6.550E-01	5.308E-02	0.190
		810.29		2.778E-02	7.878E-02	1.348E-01	1.071E-02	0.206
TM-171		51.35		-5.732E+00	7.528E+00	1.195E+01	9.618E-01	-0.480
		52.39		2.758E+00	4.311E+00	7.253E+00	5.982E-01	0.380
		59.40		9.301E+00	1.153E+01	1.822E+01	1.747E+00	0.511
		66.72	*	-1.055E+01	1.737E+01	2.571E+01	2.346E+00	-0.410
LU-176	+	88.36		7.676E-01	1.880E-01	3.071E-01	2.436E-02	2.500
		201.83		-1.022E-02	2.997E-02	4.997E-02	3.960E-03	-0.204
		306.84	*	1.548E-02	2.800E-02	4.725E-02	3.503E-03	0.328
		401.10		4.237E+00	8.681E+00	1.432E+01	8.505E-01	0.296
LU-177M		52.97		3.447E-01	4.727E-01	7.970E-01	6.661E-02	0.433
		54.07		3.025E-01	2.682E-01	4.563E-01	3.909E-02	0.663
		61.30		1.069E+00	7.533E-01	1.205E+00	1.143E-01	0.887
		121.62		-1.274E-01	3.980E-01	6.397E-01	8.044E-02	-0.199
		147.16		-5.305E-01	7.222E-01	1.122E+00	1.128E-01	-0.473
		171.86		7.731E-02	5.364E-01	8.598E-01	6.751E-02	0.090
		218.09		-4.907E-01	9.326E-01	1.533E+00	1.215E-01	-0.320
		268.79		2.095E+00	1.419E+00	1.577E+00	1.224E-01	1.329
		319.02		2.068E-01	3.214E-01	5.423E-01	3.936E-02	0.381
		367.43		6.025E-01	1.130E+00	1.883E+00	1.207E-01	0.320
HF-181	+	413.65	*	-4.707E-02	2.272E-01	3.586E-01	2.175E-02	-0.131
		56.28		-3.682E-01	3.360E-01	5.487E-01	4.932E-02	-0.671
		57.53		-7.688E-02	1.953E-01	3.279E-01	3.026E-02	-0.234
		65.20		3.367E-01	5.941E-01	9.232E-01	8.515E-02	0.365
		133.02		-2.542E-02	7.695E-02	1.229E-01	1.421E-02	-0.207
		136.25		-9.169E-02	5.565E-01	8.946E-01	1.004E-01	-0.102
		345.85		-1.308E-01	2.763E-01	3.768E-01	2.575E-02	-0.347
		482.03	*	-1.564E-02	5.802E-02	9.532E-02	6.404E-03	-0.164
		56.28		-1.368E-01	1.250E-01	2.040E-01	1.834E-02	-0.671
		57.53		-2.866E-02	7.264E-02	1.220E-01	1.126E-02	-0.235
W-181		65.20	*	1.243E-01	2.193E-01	3.408E-01	3.143E-02	0.365
		67.75		-8.279E-02	7.339E-02	1.058E-01	9.586E-03	-0.782
		100.10		1.216E-01	1.762E-01	2.883E-01	2.727E-02	0.422
		152.43		5.947E-01	3.881E-01	6.568E-01	6.209E-02	0.905
TA-182		222.10		2.767E-01	3.765E-01	6.513E-01	5.164E-02	0.425
		1001.68		4.929E+00	2.994E+00	5.458E+00	3.797E-01	0.903
		1121.28		6.552E-01	3.152E-01	4.258E-01	2.557E-02	1.539
		1189.05		-8.442E-03	3.947E-01	6.594E-01	3.640E-02	-0.013
		1221.42	*	-4.205E-03	2.613E-01	4.356E-01	2.424E-02	-0.010
		1230.97		-3.202E-01	6.653E-01	1.072E+00	5.978E-02	-0.299
RE-183		57.98		-1.183E-02	7.921E-02	1.282E-01	1.194E-02	-0.092

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		3.900E-02	4.931E-02	7.784E-02	7.452E-03	0.501
		67.20		-4.943E-02	1.302E-01	1.947E-01	1.771E-02	-0.254
		162.32	*	7.252E-02	1.347E-01	2.136E-01	1.768E-02	0.340
	+	208.81		3.164E+00	1.560E+00	2.063E+00	1.636E-01	1.533
		291.72		3.695E-01	1.194E+00	1.763E+00	1.336E-01	0.210
		57.98		-4.238E-02	2.838E-01	4.594E-01	4.279E-02	-0.092
		59.32		1.396E-01	1.765E-01	2.787E-01	2.667E-02	0.501
		67.20		-1.770E-01	4.663E-01	6.973E-01	6.342E-02	-0.254
		161.27		1.840E-01	4.088E-01	6.664E-01	5.601E-02	0.276
		216.55		8.346E-02	2.920E-01	4.972E-01	3.944E-02	0.168
OS-185		252.85	*	8.500E-02	2.730E-01	4.292E-01	3.369E-02	0.198
		318.01		2.937E-01	5.637E-01	9.458E-01	6.877E-02	0.311
		792.07		1.408E-01	1.336E+00	2.251E+00	1.802E-01	0.063
		903.28		-7.244E-02	1.496E+00	2.282E+00	1.711E-01	-0.032
		920.93		8.987E-02	5.585E-01	8.942E-01	6.633E-02	0.100
		59.72		5.454E-02	1.357E-01	2.111E-01	2.025E-02	0.258
		61.14		8.537E-02	8.161E-02	1.294E-01	1.229E-02	0.660
		69.30		1.288E-01	1.981E-01	3.078E-01	2.759E-02	0.419
		592.07		-2.230E+00	3.557E+00	5.584E+00	4.272E-01	-0.399
		646.12	*	-2.565E-02	5.959E-02	9.391E-02	7.558E-03	-0.273
RE-188		717.42		7.121E-01	1.308E+00	2.190E+00	1.786E-01	0.325
		874.81		-3.294E-01	8.466E-01	1.361E+00	1.042E-01	-0.242
		880.27		2.367E-01	1.107E+00	1.863E+00	1.421E-01	0.127
		155.03	*	-1.834E-02	2.063E-01	3.296E-01	3.016E-02	-0.056
		477.96		-1.961E-01	3.964E+00	6.606E+00	4.413E-01	-0.030
		633.10		1.099E+00	3.861E+00	6.321E+00	5.030E-01	0.174
	+	63.58		8.320E+01	5.860E+01	6.585E+01	6.143E+00	1.264
		227.08		3.535E-01	1.452E+01	2.438E+01	1.932E+00	0.014
		290.67	*	6.877E-02	9.752E+00	1.410E+01	1.070E+00	0.005
	+	295.96		9.530E-01	2.371E-01	3.266E-01	2.484E-02	2.918
IR-192		308.46		4.011E-02	1.155E-01	1.928E-01	1.435E-02	0.208
		316.51	*	1.206E-02	4.427E-02	7.343E-02	5.372E-03	0.164
		468.07		-9.455E-03	9.441E-02	1.363E-01	1.006E-02	-0.069
		604.41		3.052E-01	6.927E-01	1.022E+00	1.273E-01	0.299
		612.46		2.066E+00	1.281E+00	2.022E+00	1.860E-01	1.022
	AU-195	65.12		9.948E-02	1.019E-01	1.603E-01	1.479E-02	0.621
		66.83		-3.317E-02	5.847E-02	8.671E-02	7.907E-03	-0.383
		75.70	+	1.145E+00	2.108E-01	3.453E-01	2.962E-02	3.316
		98.88	*	2.646E-01	2.367E-01	3.608E-01	3.353E-02	0.733
	TL-200	129.76		3.100E+00	3.086E+00	5.179E+00	6.158E-01	0.599
		367.94	*	4.685E-03	3.086E+00	Half-Life	too short	
		579.30		1.218E-01	3.086E+00	Half-Life	too short	
		828.27		1.112E-01	3.086E+00	Half-Life	too short	
TL-201		1205.75		1.220E-02	3.086E+00	Half-Life	too short	
		68.90		-4.162E+00	9.469E+00	1.410E+01	1.267E+00	-0.295
		70.82		3.483E+00	5.598E+00	8.672E+00	7.691E-01	0.402
	+	80.30		1.529E+01	1.482E+01	1.891E+01	1.572E+00	0.809
		135.34		1.040E+01	8.506E+01	1.384E+02	1.567E+01	0.075
		167.43	*	-5.441E+00	2.324E+01	3.665E+01	2.872E+00	-0.148

## ---- 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		-1.632E-01	3.712E-01	5.528E-01	4.968E-02	-0.295
		70.82		1.362E-01	2.189E-01	3.390E-01	3.007E-02	0.402
	+	80.30		5.981E-01	5.798E-01	7.396E-01	6.149E-02	0.809
		439.56	*	2.142E-02	1.123E-01	1.910E-01	1.207E-02	0.112
HG-203		70.83		4.780E-01	7.759E-01	1.199E+00	1.651E-01	0.399
		72.87		8.613E-01	4.973E-01	7.796E-01	1.036E-01	1.105
	+	82.60		1.398E+00	1.109E+00	1.507E+00	2.031E-01	0.928
		279.20	*	2.496E-02	4.892E-02	8.275E-02	6.589E-03	0.302
BI-207		72.80		2.155E-01	1.328E-01	2.108E-01	1.844E-02	1.022
	+	74.97		6.238E-01	1.148E-01	1.663E-01	1.433E-02	3.751
	+	84.90		2.264E-01	1.779E-01	2.615E-01	2.106E-02	0.866
		569.67		3.622E-02	4.165E-02	6.990E-02	5.224E-03	0.518
		1063.62	*	-5.508E-02	7.295E-02	1.108E-01	7.207E-03	-0.497
		1770.23		1.302E-02	7.734E-01	1.100E+00	6.241E-02	0.012
TL-207	+	81.07		2.208E-01	2.140E-01	2.659E-01	2.199E-02	0.830
	+	83.78		1.492E-01	1.172E-01	1.739E-01	1.412E-02	0.858
		94.90		5.748E-01	2.263E-01	3.666E-01	3.214E-02	1.568
		122.32		-1.386E-01	1.793E+00	2.914E+00	3.807E-01	-0.048
		144.24		8.589E-01	7.888E-01	1.304E+00	1.465E-01	0.659
		154.21		2.584E-01	4.491E-01	7.370E-01	7.408E-02	0.351
	+	269.46		4.803E-01	3.255E-01	3.787E-01	3.013E-02	1.268
		323.87	*	-1.636E+00	8.298E-01	1.124E+00	1.916E-01	-1.456
	+	338.28		5.692E+00	2.191E+00	2.679E+00	3.004E-01	2.125
		445.03		1.627E+00	2.681E+00	4.658E+00	4.939E-01	0.349
PO-209		260.50		-3.846E+00	1.042E+01	1.697E+01	1.326E+00	-0.227
		262.80		1.055E+00	2.880E+01	4.732E+01	3.691E+00	0.022
		896.60	*	-4.014E+00	1.014E+01	1.625E+01	1.223E+00	-0.247
PB-211		404.84	*	-3.480E-01	1.260E+00	1.956E+00	1.219E+00	-0.178
		427.08		6.174E-01	2.651E+00	4.249E+00	2.628E+00	0.145
		831.96		-7.695E-01	1.674E+00	2.575E+00	1.611E+00	-0.299
BI-212	+	727.18	*	1.309E+00	6.387E-01	8.481E-01	8.141E-02	1.544
		785.46		-2.688E-01	2.306E+00	3.829E+00	3.073E-01	-0.070
		1620.62		-1.153E-01	1.979E+00	2.965E+00	1.706E-01	-0.039
PO-215	+	81.07		2.208E-01	2.140E-01	2.659E-01	2.199E-02	0.830
	+	83.78		1.492E-01	1.172E-01	1.739E-01	1.412E-02	0.858
		94.90		5.748E-01	2.263E-01	3.666E-01	3.214E-02	1.568
		122.32		-1.386E-01	1.793E+00	2.914E+00	3.807E-01	-0.048
		144.24		8.589E-01	7.888E-01	1.304E+00	1.465E-01	0.659
		154.21		2.584E-01	4.491E-01	7.370E-01	7.408E-02	0.351
	+	269.46		4.803E-01	3.255E-01	3.787E-01	3.013E-02	1.268
		323.87	*	-1.636E+00	8.298E-01	1.124E+00	1.916E-01	-1.456
	+	338.28		5.692E+00	2.191E+00	2.679E+00	3.004E-01	2.125
		445.03		1.627E+00	2.681E+00	4.658E+00	4.939E-01	0.349
RN-219	+	271.23		6.162E-01	4.189E-01	4.981E-01	4.779E-02	1.237
		401.81	*	2.493E-01	5.355E-01	8.806E-01	1.204E-01	0.283
RN-220		549.76	*	-4.940E+00	3.467E+01	5.674E+01	4.148E+00	-0.087
RA-223	+	81.07		2.208E-01	2.140E-01	2.659E-01	2.199E-02	0.830
	+	83.78		1.492E-01	1.172E-01	1.739E-01	1.412E-02	0.858
		94.90		5.748E-01	2.263E-01	3.666E-01	3.214E-02	1.568

---- 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		-1.386E-01	1.793E+00	2.914E+00	3.807E-01	-0.048
		144.24		8.589E-01	7.888E-01	1.304E+00	1.465E-01	0.659
		154.21		2.584E-01	4.491E-01	7.370E-01	7.408E-02	0.351
	+	269.46		4.803E-01	3.255E-01	3.787E-01	3.013E-02	1.268
		323.87	*	-1.636E+00	8.298E-01	1.124E+00	1.916E-01	-1.456
	+	338.28		5.692E+00	2.191E+00	2.679E+00	3.004E-01	2.125
		445.03		1.627E+00	2.681E+00	4.658E+00	4.939E-01	0.349
	+	79.80		1.645E+00	1.627E+00	2.025E+00	4.333E-01	0.812
		236.00		3.869E-01	2.839E-01	4.445E-01	5.225E-02	0.870
		256.20	*	5.867E-03	4.034E-01	6.712E-01	1.002E-01	0.009
		286.10		1.658E-01	1.643E+00	2.723E+00	3.425E-01	0.061
		299.80		2.285E+00	1.955E+00	2.975E+00	5.047E-01	0.768
TH-227		304.40		-2.485E+00	2.196E+00	3.309E+00	5.929E-01	-0.751
		334.20		2.298E+00	3.131E+00	4.661E+00	8.743E-01	0.493
	+	79.80		1.645E+00	1.628E+00	2.025E+00	4.389E-01	0.812
	+	94.00		1.408E+01	4.264E+00	4.051E+00	8.827E-01	3.475
		236.00		3.869E-01	2.832E-01	4.445E-01	4.682E-02	0.870
		256.20	*	5.867E-03	4.034E-01	6.712E-01	1.188E-01	0.009
		286.10		1.658E-01	1.651E+00	2.723E+00	2.731E+00	0.061
		299.80		2.285E+00	1.955E+00	2.975E+00	5.047E-01	0.768
		304.40		-2.485E+00	2.196E+00	3.309E+00	5.929E-01	-0.751
		334.20		2.298E+00	3.131E+00	4.661E+00	8.743E-01	0.493
	+	85.43		2.234E-01	1.755E-01	2.615E-01	2.099E-02	0.854
	+	88.47		4.419E-01	1.082E-01	1.756E-01	1.395E-02	2.517
TH-229		100.00		1.358E-01	1.780E-01	2.920E-01	2.758E-02	0.465
		193.63	*	-1.803E-01	5.397E-01	9.032E-01	7.145E-02	-0.200
		210.97		9.790E-01	9.212E-01	1.445E+00	1.146E-01	0.678
	PA-231	283.67	*	-1.349E+00	1.672E+00	2.618E+00	3.837E-01	-0.515
		301.29		1.403E+00	7.412E-01	1.179E+00	1.352E-01	1.190
	TH-231	81.07		2.208E-01	2.140E-01	2.659E-01	2.199E-02	0.830
	+	83.78		1.492E-01	1.172E-01	1.739E-01	1.412E-02	0.858
		94.90		5.748E-01	2.263E-01	3.666E-01	3.214E-02	1.568
		122.32		-1.386E-01	1.793E+00	2.914E+00	3.807E-01	-0.048
		144.24		8.589E-01	7.888E-01	1.304E+00	1.465E-01	0.659
		154.21		2.584E-01	4.491E-01	7.370E-01	7.408E-02	0.351
	+	269.46		4.803E-01	3.255E-01	3.787E-01	3.013E-02	1.268
U-231		323.87	*	-1.636E+00	8.298E-01	1.124E+00	1.916E-01	-1.456
	+	338.28		5.692E+00	2.191E+00	2.679E+00	3.004E-01	2.125
		445.03		1.627E+00	2.681E+00	4.658E+00	4.939E-01	0.349
	+	84.21		1.432E+01	1.125E+01	1.675E+01	1.356E+00	0.855
	+	92.29		3.098E+01	7.046E+00	1.064E+01	8.966E-01	2.913
		95.87	*	1.107E+00	2.215E+00	3.368E+00	2.996E-01	0.329
		108.00		-1.462E+00	4.760E+00	7.353E+00	7.758E-01	-0.199
	PA-233	75.28		1.820E+01	4.069E+00	5.130E+00	7.868E-01	3.547
	+	86.59		6.336E+00	2.235E+00	2.535E+00	6.748E-01	2.499
		300.12		8.387E-01	5.368E-01	8.332E-01	1.187E-01	1.007
		311.98	*	-2.575E-02	7.584E-02	1.219E-01	9.309E-03	-0.211
		340.50		1.135E+00	8.732E-01	1.297E+00	3.020E-01	0.875
		398.62		-3.056E+00	2.875E+00	4.136E+00	1.071E+00	-0.739



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-5.523E-01	2.166E+00	3.306E+00	6.833E-01	-0.167
		63.00		2.299E+00	1.646E+00	1.816E+00	2.892E-01	1.266
		94.67		6.006E-01	1.799E-01	2.814E-01	3.513E-02	2.134
		98.44		3.242E-02	9.740E-02	1.412E-01	7.890E-02	0.230
	+	99.86		4.952E-01	4.491E-01	7.440E-01	7.013E-02	0.666
		111.00		2.414E-01	2.658E-01	3.066E-01	4.253E-02	0.787
		131.20		-1.113E-01	1.148E-01	1.775E-01	2.084E-02	-0.627
		152.70		6.698E-01	3.790E-01	6.236E-01	1.089E-01	1.074
	+	186.00		6.196E+00	3.057E+00	3.197E+00	9.919E-01	1.938
		226.40		-7.002E-02	4.361E-01	7.265E-01	9.270E-02	-0.096
		227.20		7.216E-02	4.657E-01	7.863E-01	6.230E-02	0.092
		248.90		7.650E-02	9.923E-01	1.462E+00	3.237E-01	0.052
		293.70		4.529E+00	1.270E+00	1.805E+00	3.031E-01	2.510
		369.80		-3.776E-01	1.063E+00	1.675E+00	3.516E-01	-0.225
		568.70		1.134E+00	1.371E+00	2.296E+00	1.714E-01	0.494
		569.50		3.293E-01	3.700E-01	6.217E-01	4.645E-02	0.530
		574.00		-1.231E+00	1.994E+00	3.046E+00	2.287E-01	-0.404
		699.00		3.674E-01	9.952E-01	1.647E+00	3.108E-01	0.223
		706.10		-2.780E-01	1.425E+00	2.260E+00	1.006E+00	-0.123
		733.00		6.859E-02	6.032E-01	8.466E-01	1.864E-01	0.081
		742.81		6.745E-01	1.920E+00	3.085E+00	2.072E+00	0.219
		796.30		6.834E-01	1.181E+00	2.031E+00	5.454E-01	0.337
		805.60		5.122E-02	1.356E+00	2.272E+00	6.922E-01	0.023
		819.60		-2.509E-01	1.636E+00	2.692E+00	1.020E+00	-0.093
		826.30		9.069E-01	1.208E+00	2.003E+00	8.935E-01	0.453
		831.60		-3.438E-01	8.492E-01	1.363E+00	4.038E-01	-0.252
		876.40		4.365E-01	1.232E+00	1.957E+00	2.011E+00	0.223
		880.51		7.519E-02	3.854E-01	6.481E-01	4.940E-02	0.116
		883.24		-4.174E-01	4.905E-01	6.127E-01	4.111E-01	-0.681
		899.00		-3.326E-01	1.177E+00	1.889E+00	8.221E-01	-0.176
		925.00		-1.457E+00	1.508E+00	2.266E+00	1.676E-01	-0.643
		926.50		1.272E-01	2.261E-01	3.868E-01	9.627E-02	0.329
		946.00	*	-3.562E-01	4.224E-01	6.389E-01	1.162E-01	-0.557
		949.00		3.339E-01	6.502E-01	1.080E+00	7.855E-02	0.309
		980.50		-6.746E-02	1.016E+00	1.658E+00	1.176E-01	-0.041
		1394.10		-1.281E+00	1.751E+00	2.289E+00	1.483E+00	-0.559
PA-234M		766.42		3.119E+01	2.212E+01	2.904E+01	1.471E+01	1.074
		1001.03	*	5.010E+00	7.099E+00	1.209E+01	1.036E+00	0.414
U-235	+	89.95		3.833E+00	1.710E+00	1.704E+00	5.236E-01	2.249
		93.35		4.380E+00	1.535E+00	1.475E+00	4.132E-01	2.969
	+	105.00		7.126E-01	1.052E+00	1.741E+00	5.277E-01	0.409
		143.76	*	1.296E-01	2.443E-01	3.963E-01	7.317E-02	0.327
NP-236	+	163.35		-1.626E-01	5.599E-01	8.555E-01	1.615E-01	-0.190
		185.71		2.295E-01	8.987E-02	1.181E-01	9.326E-03	1.942
		205.31		1.019E-02	6.380E-01	9.361E-01	1.758E-01	0.011
	+	94.67		4.597E-01	1.305E-01	2.138E-01	1.868E-02	2.150
		98.44		2.447E-02	7.238E-02	1.067E-01	9.855E-03	0.229
		111.00		1.826E-01	2.004E-01	2.319E-01	2.547E-02	0.787
		160.31	*	-3.719E-02	9.059E-02	1.422E-01	1.212E-02	-0.261

---- 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		2.030E-01	1.546E-01	2.488E-01	2.335E-02	0.816
		117.00	*	-2.513E-02	2.156E-01	3.130E-01	3.714E-02	-0.080
	+	209.75		2.379E+00	1.173E+00	1.569E+00	1.244E-01	1.516
		228.18		1.346E-01	2.447E-01	4.195E-01	3.324E-02	0.321
		277.60		5.640E-02	2.033E-01	3.404E-01	2.621E-02	0.166
AM-241		334.30		1.290E+00	1.759E+00	2.639E+00	1.855E-01	0.489
		59.54	*	5.601E-02	6.722E-02	1.062E-01	1.080E-02	0.527
		99.55		2.090E-01	1.591E-01	2.561E-01	2.403E-02	0.816
		103.76	*	2.686E-02	9.352E-02	1.557E-01	1.551E-02	0.172
		117.00		-2.586E-02	2.219E-01	3.221E-01	3.823E-02	-0.080
CM-243	+	209.75		2.346E+00	1.157E+00	1.547E+00	1.227E-01	1.516
		228.18		1.361E-01	2.473E-01	4.241E-01	3.359E-02	0.321
		277.60		5.688E-02	2.050E-01	3.433E-01	2.643E-02	0.166
		798.80		-2.001E-01	1.854E-01	2.842E-01	2.269E-02	-0.704
		1036.00		2.404E-01	3.765E-01	6.493E-01	4.361E-02	0.370
AM-246		1062.04		1.216E-02	3.076E-01	5.026E-01	3.275E-02	0.024
		1078.86	*	6.841E-02	2.071E-01	3.455E-01	2.204E-02	0.198
		278.00		2.891E-01	8.374E-01	1.406E+00	1.082E-01	0.206
		287.40		-8.097E-02	1.328E+00	2.181E+00	1.661E-01	-0.037
		402.60	*	1.978E-03	4.945E-02	7.947E-02	4.733E-03	0.025
CF-249		252.85		3.127E-01	1.004E+00	1.579E+00	1.239E-01	0.198
		333.44		1.540E-01	2.332E-01	3.481E-01	2.452E-02	0.442
		387.95	*	5.519E-02	5.178E-02	8.817E-02	5.236E-03	0.626
CF-251		176.60	*	-5.816E-02	1.397E-01	2.174E-01	1.710E-02	-0.268
		227.00		3.823E-03	4.148E-01	6.961E-01	5.516E-02	0.005
		285.00		-5.265E-01	1.886E+00	3.063E+00	2.340E-01	-0.172

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101011
* Acquisition date   : 2-FEB-2010 11:20:06 Detector SN#      :
* Detector ID        : GAM13 Sensitivity                    : 5.000
* Geometry           : CAN Energy tolerance                : 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit       : 75.000
* Elapsed real time  : 0 02:00:01.62 Half life ratio      : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101011 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.2686E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope      :
* MSD DPM             : 0.000 MSD Isotope                  :
* LCS DPM             : 0.000 LCS Isotope                   :
* LCSD DPM            : 0.000 LCSD Isotope                  :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.312E+01	2.182E+00	6.340E-01	0.000E+00
CD-109	3.317E+00	7.960E-01	9.408E-01	0.000E+00
SN-126	3.237E-01	7.767E-02	9.168E-02	0.000E+00
BA-137M	3.162E-01	8.544E-02	6.937E-02	0.000E+00
CS-137	3.342E-01	9.033E-02	7.333E-02	0.000E+00
LU-177	5.538E+00	2.677E+00	3.145E+00	0.000E+00
TL-208	4.685E-01	1.131E-01	7.809E-02	0.000E+00
BI-210	1.237E+00	9.023E-01	8.228E-01	0.000E+00
PB-210	1.237E+00	9.023E-01	8.228E-01	0.000E+00
PO-210	1.237E+00	9.010E-01	8.228E-01	0.000E+00
BI-211	3.462E+00	5.351E-01	4.001E-01	0.000E+00
PB-212	1.475E+00	1.757E-01	9.963E-02	0.000E+00
PO-212	1.475E+00	1.757E-01	9.963E-02	0.000E+00
BI-214	1.328E+00	2.170E-01	1.526E-01	0.000E+00
PB-214	1.204E+00	1.961E-01	1.395E-01	0.000E+00
PO-214	1.204E+00	1.961E-01	1.395E-01	0.000E+00
PO-216	1.475E+00	1.757E-01	9.963E-02	0.000E+00
PO-218	1.204E+00	1.961E-01	1.395E-01	0.000E+00
RA-224	3.979E+00	1.257E+00	1.134E+00	0.000E+00
RA-226	1.328E+00	2.170E-01	1.526E-01	0.000E+00
AC-228	1.536E+00	3.615E-01	2.786E-01	0.000E+00
RA-228	1.536E+00	3.615E-01	2.786E-01	0.000E+00
TH-228	1.505E+00	1.792E-01	1.016E-01	0.000E+00
TH-230	1.327E+00	2.170E-01	1.526E-01	0.000E+00
TH-232	1.536E+00	3.615E-01	2.786E-01	0.000E+00
TH-234	1.972E+00	1.395E+00	1.094E+00	0.000E+00
U-234	1.327E+00	2.170E-01	1.526E-01	0.000E+00
NP-237	9.504E-01	2.983E-01	3.118E-01	0.000E+00
U-238	1.972E+00	1.395E+00	1.094E+00	0.000E+00
AM-243	3.474E-01	6.266E-02	6.551E-02	0.000E+00
ANH-511	7.280E-02	7.685E-02	5.754E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-1.759E-01	4.110E-01	6.939E-01	0.000E+00	NOT IDENT.
NA-22	-7.977E-03	5.654E-02	9.495E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.237E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	3.498E-03	3.790E-02	6.495E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.249E-02	6.074E-02	0.000E+00	FAIL ABUN
SC-46	-9.793E-04	5.687E-02	9.666E-02	0.000E+00	FAIL ABUN
V-48	3.653E-02	1.146E-01	1.980E-01	0.000E+00	NOT IDENT.
CR-51	3.364E-01	4.960E-01	8.742E-01	0.000E+00	NOT IDENT.
MN-52	3.062E-01	5.846E-01	1.035E+00	0.000E+00	NOT IDENT.
MN-54	-8.022E-03	4.848E-02	8.206E-02	0.000E+00	NOT IDENT.
CO-56	1.553E-02	4.957E-02	8.687E-02	0.000E+00	NOT IDENT.
CO-57	-5.663E-03	2.594E-02	4.433E-02	0.000E+00	NOT IDENT.
CO-58	7.635E-03	5.437E-02	9.435E-02	0.000E+00	NOT IDENT.
FE-59	-1.142E-01	1.256E-01	1.909E-01	0.000E+00	NOT IDENT.
CO-60	3.937E-02	5.100E-02	9.244E-02	0.000E+00	NOT IDENT.
ZN-65	-7.099E-02	1.484E-01	1.989E-01	0.000E+00	NOT IDENT.
GE-68	4.651E-02	1.754E+00	2.928E+00	0.000E+00	NOT IDENT.
AS-73	1.971E-01	2.522E-01	4.556E-01	0.000E+00	NOT IDENT.
AS-74	3.077E-02	1.471E-01	2.528E-01	0.000E+00	NOT IDENT.
SE-75	5.944E-03	5.338E-02	8.206E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	5.004E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-3.166E-01	5.547E-01	9.175E-01	0.000E+00	NOT IDENT.
RB-83	8.541E-02	8.454E-02	1.545E-01	0.000E+00	NOT IDENT.
RB-84	-4.740E-02	1.059E-01	1.741E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	9.272E+00	1.600E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.003E-02	8.631E-02	0.000E+00	NOT IDENT.
RB-86	-1.289E-01	1.339E+00	2.213E+00	0.000E+00	NOT IDENT.
Y-88	-2.037E-03	4.426E-02	7.403E-02	0.000E+00	NOT IDENT.
ZR-88	-1.263E-02	3.928E-02	6.436E-02	0.000E+00	NOT IDENT.
Y-91	1.637E+01	2.428E+01	4.358E+01	0.000E+00	NOT IDENT.
NB-94	2.053E-02	4.579E-02	7.862E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	6.156E-02	1.179E-01	0.000E+00	NOT IDENT.
NB-95M	6.422E-02	1.508E-01	2.384E-01	0.000E+00	NOT IDENT.
ZR-95	7.427E-02	1.034E-01	1.797E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.661E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.207E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.142E+01	5.539E+01	9.035E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.094E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.970E-02	3.568E-02	5.996E-02	0.000E+00	NOT IDENT.
RH-102	1.282E-02	3.367E-02	5.976E-02	0.000E+00	NOT IDENT.
RU-103	-5.372E-02	5.440E-02	8.733E-02	0.000E+00	FAIL ABUN
RH-106	-3.700E-03	4.064E-01	6.859E-01	0.000E+00	FAIL ABUN
RU-106	-3.700E-03	4.064E-01	6.859E-01	0.000E+00	FAIL ABUN
AG-108M	-4.873E-03	3.892E-02	6.764E-02	0.000E+00	NOT IDENT.
AG-110M	-1.934E-02	4.975E-02	6.894E-02	0.000E+00	NOT IDENT.
IN-111	8.500E-01	3.767E+00	6.646E+00	0.000E+00	NOT IDENT.
IN-113M	-9.197E-02	5.928E-02	8.944E-02	0.000E+00	NOT IDENT.
SN-113	-9.197E-02	5.928E-02	8.944E-02	0.000E+00	NOT IDENT.
IN-114M	8.021E-02	2.376E-01	3.576E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.908E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-4.691E-02	7.712E-02	1.265E-01	0.000E+00	NOT IDENT.
SB-122	-7.027E+00	8.891E+00	1.433E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.950E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.377E-03	3.193E-02	5.370E-02	0.000E+00	NOT IDENT.
I-124	1.060E+00	2.141E+00	3.282E+00	0.000E+00	NOT IDENT.
SB-124	1.042E-01	7.477E-02	1.565E-01	0.000E+00	FAIL ABUN
SB-125	6.865E-02	1.094E-01	1.981E-01	0.000E+00	FAIL ABUN
TE-125M	-7.289E-02	1.053E+01	1.638E+01	0.000E+00	NOT IDENT.
I-126	1.534E-01	3.198E-01	4.869E-01	0.000E+00	NOT IDENT.
SB-126	5.620E-02	2.848E-01	4.360E-01	0.000E+00	FAIL ABUN
SB-127	5.127E-01	4.215E+00	7.108E+00	0.000E+00	NOT IDENT.
XE-127	-4.450E-03	5.367E-02	9.501E-02	0.000E+00	NOT IDENT.
I-131	1.179E-01	2.076E-01	3.610E-01	0.000E+00	FAIL ABUN
TE-132	1.069E+00	2.069E+00	3.703E+00	0.000E+00	FAIL ABUN
BA-133	-4.316E-02	6.281E-02	8.695E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.601E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	2.989E-02	6.053E-02	1.076E-01	0.000E+00	NOT IDENT.
CS-135	8.223E-02	1.875E-01	2.937E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.481E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.912E-02	1.902E-01	3.219E-01	0.000E+00	FAIL ABUN
CE-139	-3.279E-02	3.353E-02	5.371E-02	0.000E+00	NOT IDENT.
BA-140	6.651E-03	4.245E-01	7.283E-01	0.000E+00	NOT IDENT.
LA-140	-4.968E-02	1.542E-01	2.451E-01	0.000E+00	NOT IDENT.
CE-141	9.088E-02	7.461E-02	1.323E-01	0.000E+00	NOT IDENT.

CE-143	0.000E+00	2.749E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	4.313E-02	2.183E-01	3.767E-01	0.000E+00	FAIL ABUN
PM-144	-4.472E-02	4.775E-02	7.412E-02	0.000E+00	NOT IDENT.
PR-144	-3.038E+00	3.244E+00	5.035E+00	0.000E+00	NOT IDENT.
PM-146	2.453E-02	5.226E-02	9.339E-02	0.000E+00	NOT IDENT.
ND-147	1.540E-01	9.445E-01	1.637E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.390E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	3.960E-02	1.160E-01	1.860E-01	0.000E+00	NOT IDENT.
GD-153	-7.366E-04	7.722E-02	1.186E-01	0.000E+00	FAIL ABUN
EU-154	-1.831E-02	1.579E-01	2.657E-01	0.000E+00	NOT IDENT.
EU-155	7.416E-02	1.036E-01	1.853E-01	0.000E+00	FAIL ABUN
TB-160	2.268E-02	1.996E-01	3.430E-01	0.000E+00	FAIL ABUN
HO-166M	-2.691E-02	8.020E-02	1.301E-01	0.000E+00	FAIL ABUN
TM-171	-1.055E+01	1.702E+01	2.689E+01	0.000E+00	NOT IDENT.
LU-176	1.548E-02	2.744E-02	4.835E-02	0.000E+00	FAIL ABUN
LU-177M	-4.707E-02	2.277E-01	3.654E-01	0.000E+00	FAIL ABUN
HF-181	-1.564E-02	5.686E-02	9.689E-02	0.000E+00	NOT IDENT.
W-181	1.243E-01	2.149E-01	3.565E-01	0.000E+00	NOT IDENT.
TA-182	-4.205E-03	2.561E-01	4.367E-01	0.000E+00	FAIL ABUN
RE-183	7.252E-02	1.320E-01	2.206E-01	0.000E+00	FAIL ABUN
RE-184	8.500E-02	2.675E-01	4.404E-01	0.000E+00	NOT IDENT.
OS-185	-2.565E-02	5.839E-02	9.504E-02	0.000E+00	NOT IDENT.
RE-188	-1.834E-02	2.021E-01	3.406E-01	0.000E+00	NOT IDENT.
W-188	6.877E-02	9.557E+00	1.444E+01	0.000E+00	FAIL ABUN
IR-192	1.206E-02	4.339E-02	7.511E-02	0.000E+00	FAIL ABUN
AU-195	2.646E-01	2.319E-01	3.753E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.218E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-5.441E+00	2.277E+01	3.783E+01	0.000E+00	FAIL ABUN
TL-202	2.142E-02	1.100E-01	1.944E-01	0.000E+00	FAIL ABUN
HG-203	2.496E-02	4.794E-02	8.479E-02	0.000E+00	FAIL ABUN
BI-207	-5.508E-02	7.149E-02	1.113E-01	0.000E+00	FAIL ABUN
TL-207	-1.636E+00	8.132E-01	1.149E+00	0.000E+00	FAIL ABUN
PO-209	-4.014E+00	9.942E+00	1.636E+01	0.000E+00	NOT IDENT.
PB-211	-3.480E-01	1.234E+00	1.993E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.259E-01	8.568E-01	0.000E+00	FAIL ABUN
PO-215	-1.636E+00	8.132E-01	1.149E+00	0.000E+00	FAIL ABUN
RN-219	2.493E-01	5.248E-01	8.976E-01	0.000E+00	FAIL ABUN
RN-220	-4.940E+00	3.397E+01	5.756E+01	0.000E+00	NOT IDENT.
RA-223	-1.636E+00	8.132E-01	1.149E+00	0.000E+00	FAIL ABUN
AC-227	5.867E-03	3.953E-01	6.886E-01	0.000E+00	FAIL ABUN
TH-227	5.867E-03	3.953E-01	6.886E-01	0.000E+00	FAIL ABUN
TH-229	-1.803E-01	5.289E-01	9.304E-01	0.000E+00	FAIL ABUN
PA-231	-1.349E+00	1.638E+00	2.682E+00	0.000E+00	NOT IDENT.
TH-231	-1.636E+00	8.132E-01	1.149E+00	0.000E+00	FAIL ABUN
U-231	1.107E+00	2.171E+00	3.504E+00	0.000E+00	FAIL ABUN
PA-233	-2.575E-02	7.432E-02	1.247E-01	0.000E+00	FAIL ABUN
PA-234	-3.562E-01	4.140E-01	6.430E-01	0.000E+00	FAIL ABUN
PA-234M	5.010E+00	6.957E+00	1.215E+01	0.000E+00	NOT IDENT.
U-235	1.296E-01	2.394E-01	4.100E-01	0.000E+00	FAIL ABUN
NP-236	-3.719E-02	8.878E-02	1.469E-01	0.000E+00	FAIL ABUN
NP-239	-2.513E-02	2.113E-01	3.247E-01	0.000E+00	FAIL ABUN
AM-241	5.601E-02	6.587E-02	1.112E-01	0.000E+00	NOT IDENT.
CM-243	2.686E-02	9.165E-02	1.619E-01	0.000E+00	FAIL ABUN
AM-246	6.841E-02	2.030E-01	3.470E-01	0.000E+00	NOT IDENT.
CM-247	1.978E-03	4.846E-02	8.100E-02	0.000E+00	NOT IDENT.
CF-249	5.519E-02	5.074E-02	8.991E-02	0.000E+00	NOT IDENT.
CF-251	-5.816E-02	1.369E-01	2.242E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101011.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:20:06.
Sample ID          : G245101011 Sample quantity : 1.26860E+02 GRAM
Detector name      : GAM13 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.62 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	868	10.67*	1.041E+00	2.312E+01	2.312E+01	9.63
CD-109	88.03	293	3.72*	7.247E+00	3.219E+00	3.317E+00	24.49
SN-126	64.28	187	9.60	7.391E+00	7.806E-01	7.806E-01	71.53
	86.94	293	8.90	7.247E+00	1.346E+00	1.346E+00	47.28
	87.57	293	37.00*	7.247E+00	3.237E-01	3.237E-01	24.49
BA-137M	661.65	194	89.98*	2.018E+00	3.158E-01	3.162E-01	27.57
CS-137	661.65	194	85.12*	2.018E+00	3.338E-01	3.342E-01	27.58
LU-177	112.95	66	6.40	6.871E+00	4.451E-01	3.518E+00	109.78
	208.36	134	11.00*	5.143E+00	7.006E-01	5.538E+00	49.32
TL-208	277.35	-----	6.80	4.225E+00	-----	Line Not Found	-----
	510.84	62	21.60	2.536E+00	3.370E-01	3.370E-01	108.04
	583.14	301	84.20*	2.256E+00	4.685E-01	4.685E-01	24.63
	860.37	67	12.46	1.606E+00	9.861E-01	9.861E-01	64.91
BI-210	46.50	123	4.05*	7.299E+00	1.235E+00	1.237E+00	74.43
PB-210	46.50	123	4.05*	7.299E+00	1.235E+00	1.237E+00	74.43
PO-210	46.50	123	4.05*	7.299E+00	1.235E+00	1.237E+00	74.33
BI-211	72.87	-----	1.27	7.369E+00	-----	Line Not Found	-----
	351.07	529	12.94*	3.496E+00	3.462E+00	3.462E+00	15.77
PB-212	74.81	570	10.70	7.359E+00	2.143E+00	2.143E+00	20.64
	77.11	916	18.00	7.343E+00	2.051E+00	2.051E+00	14.15
	87.30	293	8.00	7.247E+00	1.497E+00	1.497E+00	26.45
	238.63	1048	44.60*	4.713E+00	1.475E+00	1.475E+00	12.15
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
PO-212	74.81	570	10.70	7.359E+00	2.143E+00	2.143E+00	20.64
	77.11	916	18.00	7.343E+00	2.051E+00	2.051E+00	14.15
	87.30	293	8.00	7.247E+00	1.497E+00	1.497E+00	26.45
	115.19	-----	0.60	6.822E+00	-----	Line Not Found	-----
	238.63	1048	44.60*	4.713E+00	1.475E+00	1.475E+00	12.15
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
BI-214	609.31	451	46.30*	2.170E+00	1.327E+00	1.328E+00	16.68
	1120.29	88	15.10	1.287E+00	1.346E+00	1.346E+00	48.56
	1764.49	59	15.80	8.985E-01	1.240E+00	1.240E+00	52.36

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	74.81	570	6.21	7.359E+00	3.692E+00	3.692E+00	19.84
	77.11	916	10.50	7.343E+00	3.516E+00	3.516E+00	16.07
	87.30	293	4.67	7.247E+00	2.564E+00	2.564E+00	25.67
	241.98	248	7.49	4.672E+00	2.099E+00	2.099E+00	32.73
	295.21	312	19.20	4.027E+00	1.194E+00	1.194E+00	25.63
PO-214	351.92	529	37.20*	3.496E+00	1.204E+00	1.204E+00	16.61
	74.81	570	6.21	7.359E+00	3.692E+00	3.692E+00	19.84
	77.11	916	10.50	7.343E+00	3.516E+00	3.516E+00	16.07
	87.30	293	4.67	7.247E+00	2.564E+00	2.564E+00	25.67
	241.98	248	7.49	4.672E+00	2.099E+00	2.099E+00	32.73
PO-216	295.21	312	19.20	4.027E+00	1.194E+00	1.194E+00	25.63
	351.92	529	37.20*	3.496E+00	1.204E+00	1.204E+00	16.61
	74.81	570	10.70	7.359E+00	2.143E+00	2.143E+00	20.64
	77.11	916	18.00	7.343E+00	2.051E+00	2.051E+00	14.15
	87.30	293	8.00	7.247E+00	1.497E+00	1.497E+00	26.45
PO-218	238.63	1048	44.60*	4.713E+00	1.475E+00	1.475E+00	12.15
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
	74.81	570	6.21	7.359E+00	3.692E+00	3.692E+00	19.84
	77.11	916	10.50	7.343E+00	3.516E+00	3.516E+00	16.07
	87.30	293	4.67	7.247E+00	2.564E+00	2.564E+00	25.67
RA-224	241.98	248	7.49	4.672E+00	2.099E+00	2.099E+00	32.73
	295.21	312	19.20	4.027E+00	1.194E+00	1.194E+00	25.63
	351.92	529	37.20*	3.496E+00	1.204E+00	1.204E+00	16.61
	240.98	248	3.95*	4.672E+00	3.979E+00	3.979E+00	32.24
	609.31	451	46.30*	2.170E+00	1.327E+00	1.328E+00	16.68
AC-228	1120.29	88	15.10	1.287E+00	1.346E+00	1.346E+00	48.56
	1764.49	59	15.80	8.985E-01	1.240E+00	1.240E+00	52.36
	338.32	190	11.40	3.612E+00	1.363E+00	1.363E+00	55.07
	911.07	220	27.70*	1.529E+00	1.536E+00	1.536E+00	24.01
	969.11	106	16.60	1.451E+00	1.306E+00	1.306E+00	54.36
TH-228	338.32	190	11.40	3.612E+00	1.363E+00	1.363E+00	55.07
	911.07	220	27.70*	1.529E+00	1.536E+00	1.536E+00	24.01
	969.11	106	16.60	1.451E+00	1.306E+00	1.306E+00	54.36
	74.81	570	10.70	7.359E+00	2.143E+00	2.186E+00	18.44
	77.11	916	18.00	7.343E+00	2.051E+00	2.092E+00	14.15
TH-230	87.30	293	8.00	7.247E+00	1.497E+00	1.527E+00	24.49
	238.63	1048	44.60*	4.713E+00	1.475E+00	1.505E+00	12.15
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
	609.31	451	46.30*	2.170E+00	1.327E+00	1.327E+00	16.68
	1120.29	88	15.10	1.287E+00	1.346E+00	1.346E+00	48.56
TH-232	1764.49	59	15.80	8.985E-01	1.240E+00	1.240E+00	52.36
	338.32	190	11.40	3.612E+00	1.363E+00	1.363E+00	37.48
	911.07	220	27.70*	1.529E+00	1.536E+00	1.536E+00	24.01
	969.11	106	16.60	1.451E+00	1.306E+00	1.306E+00	54.36
	63.29	187	3.80*	7.391E+00	1.972E+00	1.972E+00	72.18
U-234	92.38	478	5.41	7.180E+00	3.643E+00	3.643E+00	27.75
	609.31	451	46.30*	2.170E+00	1.327E+00	1.327E+00	16.68
	1120.29	88	15.10	1.287E+00	1.346E+00	1.346E+00	48.56
	1764.49	59	15.80	8.985E-01	1.240E+00	1.240E+00	52.36

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NP-237	86.50	293	12.60*	7.247E+00	9.504E-01	9.504E-01	32.02
	95.87	-----	2.60	7.135E+00	-----	Line Not Found	-----
U-238	63.29	187	3.80*	7.391E+00	1.972E+00	1.972E+00	72.18
	92.38	478	5.41	7.180E+00	3.643E+00	3.643E+00	22.74
AM-243	74.67	570	66.00*	7.359E+00	3.474E-01	3.474E-01	18.41
	86.72	293	0.34	7.247E+00	3.564E+01	3.564E+01	24.49
	117.66	-----	0.55	6.778E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.323E+00	-----	Line Not Found	-----
ANH-511	511.00	62	100.00*	2.536E+00	7.280E-02	7.280E-02	107.72

Flag: "\*" = Keyline



Total number of lines in spectrum 30  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 30 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.312E+01	2.312E+01	0.223E+01	9.63	
CD-109	464.00D	1.03	3.219E+00	3.317E+00	0.812E+00	24.49	
SN-126	1.00E+05Y	1.00	3.237E-01	3.237E-01	0.793E-01	24.49	
BA-137M	30.17Y	1.00	3.158E-01	3.162E-01	0.872E-01	27.57	
CS-137	30.17Y	1.00	3.338E-01	3.342E-01	0.922E-01	27.58	
LU-177	6.71D	7.90	7.006E-01	5.538E+00	2.732E+00	49.32	
TL-208	1.41E+10Y	1.00	4.685E-01	4.685E-01	1.154E-01	24.63	
BI-210	22.26Y	1.00	1.235E+00	1.237E+00	0.921E+00	74.43	
PB-210	22.26Y	1.00	1.235E+00	1.237E+00	0.921E+00	74.43	
PO-210	22.26Y	1.00	1.235E+00	1.237E+00	0.919E+00	74.33	
BI-211	7.04E+08Y	1.00	3.462E+00	3.462E+00	0.546E+00	15.77	
PB-212	1.41E+10Y	1.00	1.475E+00	1.475E+00	0.179E+00	12.15	
PO-212	1.41E+10Y	1.00	1.475E+00	1.475E+00	0.179E+00	12.15	
BI-214	1600.00Y	1.00	1.327E+00	1.328E+00	0.221E+00	16.68	
PB-214	1600.00Y	1.00	1.204E+00	1.204E+00	0.200E+00	16.61	
PO-214	1600.00Y	1.00	1.204E+00	1.204E+00	0.200E+00	16.61	
PO-216	1.41E+10Y	1.00	1.475E+00	1.475E+00	0.179E+00	12.15	
PO-218	1600.00Y	1.00	1.204E+00	1.204E+00	0.200E+00	16.61	
RA-224	1.41E+10Y	1.00	3.979E+00	3.979E+00	1.283E+00	32.24	
RA-226	1600.00Y	1.00	1.327E+00	1.328E+00	0.221E+00	16.68	
AC-228	1.41E+10Y	1.00	1.536E+00	1.536E+00	0.369E+00	24.01	
RA-228	1.41E+10Y	1.00	1.536E+00	1.536E+00	0.369E+00	24.01	
TH-228	1.91Y	1.02	1.475E+00	1.505E+00	0.183E+00	12.15	
TH-230	4.47E+09Y	1.00	1.327E+00	1.327E+00	0.221E+00	16.68	
TH-232	1.41E+10Y	1.00	1.536E+00	1.536E+00	0.369E+00	24.01	
TH-234	4.47E+09Y	1.00	1.972E+00	1.972E+00	1.423E+00	72.18	
U-234	4.47E+09Y	1.00	1.327E+00	1.327E+00	0.221E+00	16.68	
NP-237	2.14E+06Y	1.00	9.504E-01	9.504E-01	3.044E-01	32.02	
U-238	4.47E+09Y	1.00	1.972E+00	1.972E+00	1.423E+00	72.18	
AM-243	7380.00Y	1.00	3.474E-01	3.474E-01	0.639E-01	18.41	
ANH-511	1.00E+09Y	1.00	7.280E-02	7.280E-02	7.842E-02	107.72	

Total Activity : 6.438E+01 6.935E+01

Grand Total Activity : 6.438E+01 6.935E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101011

Page : 5  
Acquisition date : 2-FEB-2010 11:20:06

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	80.31	81	448	1.23	160.40	142	22	1.13E-02	96.6	7.32E+00	T
0	83.94	91	405	1.52	167.66	165	6	1.26E-02	78.1	7.28E+00	T
4	89.92	252	465	1.34	179.62	171	23	3.50E-02	32.3	7.21E+00	T
0	185.79	232	384	1.31	371.41	367	11	3.22E-02	38.4	5.53E+00	T
0	269.96	95	250	1.62	539.79	535	11	1.32E-02	67.3	4.31E+00	T
0	463.36	59	145	1.59	926.70	921	11	8.17E-03	83.6	2.76E+00	T
0	727.75	97	102	1.53	1455.65	1450	13	1.35E-02	47.8	1.86E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101011.CNF;1
* Acquisition date   : 2-FEB-2010 11:20:06.  Detector SN#      :
* Detector ID        : GAM13                      Sensitivity    : 5.00000
* Geometry           : CAN                        Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:01.62              Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101011           Analyst initials: MXR1
* Batch Number       : 944037               Sample Quantity : 1.26860E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22.03MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A              LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.312E+01	2.226E+00	6.342E-01	3.877E-02	36.457
CD-109	3.317E+00	8.123E-01	9.031E-01	7.126E-02	3.673
SN-126	3.237E-01	7.926E-02	8.800E-02	6.961E-03	3.678
BA-137M	3.162E-01	8.718E-02	6.857E-02	5.592E-03	4.611
CS-137	3.342E-01	9.217E-02	7.248E-02	5.924E-03	4.611
LU-177	5.538E+00	2.732E+00	3.056E+00	2.424E-01	1.812
TL-208	4.685E-01	1.154E-01	7.704E-02	6.377E-03	6.081
BI-210	1.237E+00	9.207E-01	7.828E-01	6.381E-02	1.580
PB-210	1.237E+00	9.207E-01	7.828E-01	6.381E-02	1.580
PO-210	1.237E+00	9.194E-01	7.828E-01	5.581E-02	1.580
BI-211	3.462E+00	5.460E-01	3.917E-01	2.855E-02	8.839
PB-212	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
PO-212	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
BI-214	1.328E+00	2.214E-01	1.506E-01	1.408E-02	8.813
PB-214	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817
PO-214	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817
PO-216	1.475E+00	1.792E-01	9.701E-02	8.813E-03	15.208
PO-218	1.204E+00	2.001E-01	1.366E-01	1.223E-02	8.817

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-224	3.979E+00	1.283E+00	1.104E+00	8.719E-02	3.603
RA-226	1.328E+00	2.214E-01	1.506E-01	1.408E-02	8.813
AC-228	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
RA-228	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
TH-228	1.505E+00	1.828E-01	9.896E-02	8.990E-03	15.208
TH-230	1.327E+00	2.214E-01	1.506E-01	1.408E-02	8.813
TH-232	1.536E+00	3.688E-01	2.767E-01	2.874E-02	5.551
TH-234	1.972E+00	1.423E+00	1.045E+00	1.918E-01	1.886
U-234	1.327E+00	2.214E-01	1.506E-01	1.408E-02	8.813
NP-237	9.504E-01	3.044E-01	2.993E-01	6.620E-02	3.176
U-238	1.972E+00	1.423E+00	1.045E+00	1.918E-01	1.886
AM-243	3.474E-01	6.394E-02	6.274E-02	5.419E-03	5.537
ANH-511	7.280E-02	7.842E-02	5.665E-02	3.954E-03	1.285

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.759E-01		4.194E-01	6.825E-01	5.132E-02	-0.258
NA-22	-7.977E-03		5.769E-02	9.478E-02	5.349E-03	-0.084
NA-24	-8.921E+01		1.141E+02	Half-Life too short		
AL-26	3.498E-03		3.868E-02	6.519E-02	3.678E-03	0.054
TI-44	3.785E-01	+	5.357E-02	5.821E-02	4.903E-03	6.502
SC-46	-9.793E-04		5.803E-02	9.596E-02	7.267E-03	-0.010
V-48	3.653E-02		1.170E-01	1.969E-01	1.393E-02	0.186
CR-51	3.364E-01		5.061E-01	8.548E-01	6.653E-02	0.394
MN-52	3.062E-01		5.965E-01	1.035E+00	5.949E-02	0.296
MN-54	-8.022E-03		4.946E-02	8.139E-02	6.387E-03	-0.099
CO-56	1.553E-02		5.058E-02	8.618E-02	6.717E-03	0.180
CO-57	-5.663E-03		2.647E-02	4.276E-02	5.408E-03	-0.132
CO-58	7.635E-03		5.548E-02	9.354E-02	7.450E-03	0.082
FE-59	-1.142E-01		1.282E-01	1.902E-01	1.359E-02	-0.600
CO-60	3.937E-02		5.204E-02	9.234E-02	5.252E-03	0.426
ZN-65	-7.099E-02		1.514E-01	1.981E-01	1.203E-02	-0.358
GE-68	4.651E-02		1.789E+00	2.916E+00	1.864E-01	0.016
AS-73	1.971E-01		2.573E-01	4.343E-01	3.669E-02	0.454
AS-74	3.077E-02		1.501E-01	2.495E-01	1.916E-02	0.123
SE-75	5.944E-03		5.447E-02	8.002E-02	6.269E-03	0.074
BR-77	6.162E-05		2.553E-05	Half-Life too short		
SR-82	-3.166E-01		5.660E-01	9.090E-01	7.317E-02	-0.348
RB-83	8.541E-02		8.627E-02	1.521E-01	1.074E-02	0.561
RB-84	-4.740E-02		1.080E-01	1.728E-01	1.317E-02	-0.274
KR-85	1.805E+01		9.461E+00	1.575E+01	1.103E+00	1.146
SR-85	9.739E-02		5.105E-02	8.499E-02	5.953E-03	1.146
RB-86	-1.289E-01		1.366E+00	2.204E+00	1.410E-01	-0.058
Y-88	-2.037E-03		4.516E-02	7.431E-02	4.185E-03	-0.027
ZR-88	-1.263E-02		4.008E-02	6.313E-02	3.698E-03	-0.200
Y-91	1.637E+01		2.478E+01	4.346E+01	2.409E+00	0.377

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94	2.053E-02		4.673E-02	7.778E-02	6.348E-03	0.264
NB-95	1.323E-01		6.282E-02	1.168E-01	9.428E-03	1.133
NB-95M	6.422E-02		1.539E-01	2.321E-01	2.147E-02	0.277
ZR-95	7.427E-02		1.055E-01	1.780E-01	1.605E-02	0.417
NB-97	-6.264E+00		8.476E+00	Half-Life	too short	
ZR-97	2.482E+02		1.636E+02	Half-Life	too short	
MO-99	-1.142E+01		5.652E+01	8.946E+01	1.334E+01	-0.128
TC-99M	-3.697E+16		1.578E+16	Half-Life	too short	
RH-101	-1.970E-02		3.641E-02	5.822E-02	4.610E-03	-0.338
RH-102	1.282E-02		3.435E-02	5.878E-02	3.911E-03	0.218
RU-103	-5.372E-02		5.551E-02	8.595E-02	1.131E-02	-0.625
RH-106	-3.700E-03		4.147E-01	6.773E-01	8.730E-02	-0.005
RU-106	-3.700E-03		4.147E-01	6.773E-01	5.334E-02	-0.005
AG-108M	-4.873E-03		3.971E-02	6.644E-02	4.469E-03	-0.073
AG-110M	-1.934E-02		5.076E-02	6.813E-02	5.724E-03	-0.284
IN-111	8.500E-01		3.844E+00	6.474E+00	5.101E-01	0.131
IN-113M	-9.197E-02		6.049E-02	8.772E-02	5.466E-03	-1.048
SN-113	-9.197E-02		6.049E-02	8.772E-02	5.466E-03	-1.048
IN-114M	8.021E-02		2.424E-01	3.471E-01	2.743E-02	0.231
CD-115	8.846E-06		3.014E-05	Half-Life	too short	
SN-117M	-4.691E-02		7.869E-02	1.225E-01	1.069E-02	-0.383
SB-122	-7.027E+00		9.072E+00	1.413E+01	1.049E+00	-0.497
I-123	-2.197E+02		1.505E+03	Half-Life	too short	
TE-123M	-2.377E-03		3.258E-02	5.199E-02	4.540E-03	-0.046
I-124	1.060E+00		2.185E+00	3.240E+00	2.505E-01	0.327
SB-124	1.042E-01		7.630E-02	1.569E-01	9.774E-03	0.664
SB-125	6.865E-02		1.117E-01	1.946E-01	1.252E-02	0.353
TE-125M	-7.289E-02		1.074E+01	1.577E+01	1.918E+00	-0.005
I-126	1.534E-01		3.263E-01	4.813E-01	3.927E-02	0.319
SB-126	5.620E-02		2.906E-01	4.315E-01	3.516E-02	0.130
SB-127	5.127E-01		4.301E+00	7.030E+00	8.873E-01	0.073
XE-127	-4.450E-03		5.476E-02	9.229E-02	7.314E-03	-0.048
I-131	1.179E-01		2.119E-01	3.537E-01	2.523E-02	0.333
TE-132	1.069E+00		2.111E+00	3.604E+00	5.897E-01	0.297
BA-133	-4.316E-02		6.409E-02	8.516E-02	1.022E-02	-0.507
I-133	5.885E-02		1.837E-01	Half-Life	too short	
CS-134	2.989E-02		6.177E-02	1.066E-01	8.593E-03	0.280
CS-135	8.223E-02		1.913E-01	2.865E-01	2.647E-02	0.287
I-135	4.792E+14		7.554E+14	Half-Life	too short	
CS-136	2.912E-02		1.941E-01	3.204E-01	2.275E-02	0.091
CE-139	-3.279E-02		3.422E-02	5.203E-02	4.079E-03	-0.630
BA-140	6.651E-03		4.331E-01	7.176E-01	2.354E-01	0.009
LA-140	-4.968E-02		1.573E-01	2.455E-01	1.415E-02	-0.202
CE-141	9.088E-02		7.614E-02	1.279E-01	1.326E-02	0.711
CE-143	7.486E-03		1.403E-03	Half-Life	too short	
CE-144	4.313E-02		2.228E-01	3.638E-01	6.306E-02	0.119
PM-144	-4.472E-02		4.872E-02	7.332E-02	5.990E-03	-0.610
PR-144	-3.038E+00		3.310E+00	4.981E+00	4.067E-01	-0.610

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-146	2.453E-02		5.332E-02	9.180E-02	8.332E-03	0.267
ND-147	1.540E-01		9.638E-01	1.613E+00	2.284E-01	0.095
PM-149	3.061E-05		2.240E-04	Half-Life too short		
EU-152	3.960E-02		1.184E-01	1.821E-01	1.365E-02	0.217
GD-153	-7.366E-04		7.880E-02	1.140E-01	1.038E-02	-0.006
EU-154	-1.831E-02		1.611E-01	2.652E-01	2.450E-02	-0.069
EU-155	7.416E-02		1.057E-01	1.783E-01	1.830E-02	0.416
TB-160	2.268E-02		2.037E-01	3.405E-01	2.597E-02	0.067
HO-166M	-2.691E-02		8.183E-02	1.287E-01	1.050E-02	-0.209
TM-171	-1.055E+01		1.737E+01	2.571E+01	2.346E+00	-0.410
LU-176	1.548E-02		2.800E-02	4.725E-02	3.503E-03	0.328
LU-177M	-4.707E-02		2.272E-01	3.586E-01	2.175E-02	-0.131
HF-181	-1.564E-02		5.802E-02	9.532E-02	6.404E-03	-0.164
W-181	1.243E-01		2.193E-01	3.408E-01	3.143E-02	0.365
TA-182	-4.205E-03		2.613E-01	4.356E-01	2.424E-02	-0.010
RE-183	7.252E-02		1.347E-01	2.136E-01	1.768E-02	0.340
RE-184	8.500E-02		2.730E-01	4.292E-01	3.369E-02	0.198
OS-185	-2.565E-02		5.959E-02	9.391E-02	7.558E-03	-0.273
RE-188	-1.834E-02		2.063E-01	3.296E-01	3.016E-02	-0.056
W-188	6.877E-02		9.752E+00	1.410E+01	1.070E+00	0.005
IR-192	1.206E-02		4.427E-02	7.343E-02	5.372E-03	0.164
AU-195	2.646E-01		2.367E-01	3.608E-01	3.353E-02	0.733
TL-200	4.685E-03		6.214E-03	Half-Life too short		
TL-201	-5.441E+00		2.324E+01	3.665E+01	2.872E+00	-0.148
TL-202	2.142E-02		1.123E-01	1.910E-01	1.207E-02	0.112
HG-203	2.496E-02		4.892E-02	8.275E-02	6.589E-03	0.302
BI-207	-5.508E-02		7.295E-02	1.108E-01	7.207E-03	-0.497
TL-207	-1.636E+00		8.298E-01	1.124E+00	1.916E-01	-1.456
PO-209	-4.014E+00		1.014E+01	1.625E+01	1.223E+00	-0.247
PB-211	-3.480E-01		1.260E+00	1.956E+00	1.219E+00	-0.178
BI-212	1.309E+00	+	6.387E-01	8.481E-01	8.141E-02	1.544
PO-215	-1.636E+00		8.298E-01	1.124E+00	1.916E-01	-1.456
RN-219	2.493E-01		5.355E-01	8.806E-01	1.204E-01	0.283
RN-220	-4.940E+00		3.467E+01	5.674E+01	4.148E+00	-0.087
RA-223	-1.636E+00		8.298E-01	1.124E+00	1.916E-01	-1.456
AC-227	5.867E-03		4.034E-01	6.712E-01	1.002E-01	0.009
TH-227	5.867E-03		4.034E-01	6.712E-01	1.188E-01	0.009
TH-229	-1.803E-01		5.397E-01	9.032E-01	7.145E-02	-0.200
PA-231	-1.349E+00		1.672E+00	2.618E+00	3.837E-01	-0.515
TH-231	-1.636E+00		8.298E-01	1.124E+00	1.916E-01	-1.456
U-231	1.107E+00		2.215E+00	3.368E+00	2.996E-01	0.329
PA-233	-2.575E-02		7.584E-02	1.219E-01	9.309E-03	-0.211
PA-234	-3.562E-01		4.224E-01	6.389E-01	1.162E-01	-0.557
PA-234M	5.010E+00		7.099E+00	1.209E+01	1.036E+00	0.414
U-235	1.296E-01		2.443E-01	3.963E-01	7.317E-02	0.327
NP-236	-3.719E-02		9.059E-02	1.422E-01	1.212E-02	-0.261
NP-239	-2.513E-02		2.156E-01	3.130E-01	3.714E-02	-0.080
AM-241	5.601E-02		6.722E-02	1.062E-01	1.080E-02	0.527

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.686E-02		9.352E-02	1.557E-01	1.551E-02	0.172
AM-246	6.841E-02		2.071E-01	3.455E-01	2.204E-02	0.198
CM-247	1.978E-03		4.945E-02	7.947E-02	4.733E-03	0.025
CF-249	5.519E-02		5.178E-02	8.817E-02	5.236E-03	0.626
CF-251	-5.816E-02		1.397E-01	2.174E-01	1.710E-02	-0.268

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101011          *
* Acquisition date   : 2-FEB-2010 11:20:06 Detector SN#                   *
* Detector ID        : GAM13 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.62 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101011 Analyst initials: MXR1                 *
* Batch Number       : 944037 Sample Quantity: 1.2686E+02 GRAM            *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.312E+01	2.182E+00	3.172E-01	1.113E+00
CD-109	3.317E+00	7.960E-01	4.707E-01	4.061E-01
SN-126	3.237E-01	7.767E-02	4.587E-02	3.963E-02
BA-137M	3.162E-01	8.544E-02	3.471E-02	4.359E-02
CS-137	3.342E-01	9.033E-02	3.669E-02	4.609E-02
LU-177	5.538E+00	2.677E+00	1.573E+00	1.366E+00
TL-208	4.685E-01	1.131E-01	3.907E-02	5.770E-02
BI-210	1.237E+00	9.023E-01	4.116E-01	4.603E-01
PB-210	1.237E+00	9.023E-01	4.116E-01	4.603E-01
PO-210	1.237E+00	9.010E-01	4.116E-01	4.597E-01
BI-211	3.462E+00	5.351E-01	2.002E-01	2.730E-01
PB-212	1.475E+00	1.757E-01	4.984E-02	8.962E-02
PO-212	1.475E+00	1.757E-01	4.984E-02	8.962E-02
BI-214	1.328E+00	2.170E-01	7.633E-02	1.107E-01
PB-214	1.204E+00	1.961E-01	6.979E-02	1.000E-01
PO-214	1.204E+00	1.961E-01	6.979E-02	1.000E-01
PO-216	1.475E+00	1.757E-01	4.984E-02	8.962E-02
PO-218	1.204E+00	1.961E-01	6.979E-02	1.000E-01
RA-224	3.979E+00	1.257E+00	5.674E-01	6.415E-01
RA-226	1.328E+00	2.170E-01	7.633E-02	1.107E-01
AC-228	1.536E+00	3.615E-01	1.394E-01	1.844E-01
RA-228	1.536E+00	3.615E-01	1.394E-01	1.844E-01
TH-228	1.505E+00	1.792E-01	5.084E-02	9.142E-02
TH-230	1.327E+00	2.170E-01	7.633E-02	1.107E-01
TH-232	1.536E+00	3.615E-01	1.394E-01	1.844E-01
TH-234	1.972E+00	1.395E+00	5.474E-01	7.117E-01
U-234	1.327E+00	2.170E-01	7.633E-02	1.107E-01
NP-237	9.504E-01	2.983E-01	1.560E-01	1.522E-01
U-238	1.972E+00	1.395E+00	5.474E-01	7.117E-01
AM-243	3.474E-01	6.266E-02	3.277E-02	3.197E-02
ANH-511	7.280E-02	7.685E-02	2.879E-02	3.921E-02

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



Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.759E-01	4.110E-01	3.471E-01	2.097E-01 NOT IDENT.
NA-22	-7.977E-03	5.654E-02	4.750E-02	2.885E-02 NOT IDENT.
NA-24	-8.921E+07	2.237E+08	0.000E+00	1.141E+08 SHORT HLIF
AL-26	3.498E-03	3.790E-02	3.250E-02	1.934E-02 NOT IDENT.
TI-44	3.785E-01	5.249E-02	3.039E-02	2.678E-02 FAIL ABUN
SC-46	-9.793E-04	5.687E-02	4.836E-02	2.902E-02 FAIL ABUN
V-48	3.653E-02	1.146E-01	9.905E-02	5.849E-02 NOT IDENT.
CR-51	3.364E-01	4.960E-01	4.373E-01	2.530E-01 NOT IDENT.
MN-52	3.062E-01	5.846E-01	5.179E-01	2.982E-01 NOT IDENT.
MN-54	-8.022E-03	4.848E-02	4.105E-02	2.473E-02 NOT IDENT.
CO-56	1.553E-02	4.957E-02	4.346E-02	2.529E-02 NOT IDENT.
CO-57	-5.663E-03	2.594E-02	2.218E-02	1.324E-02 NOT IDENT.
CO-58	7.635E-03	5.437E-02	4.720E-02	2.774E-02 NOT IDENT.
FE-59	-1.142E-01	1.256E-01	9.553E-02	6.409E-02 NOT IDENT.
CO-60	3.937E-02	5.100E-02	4.625E-02	2.602E-02 NOT IDENT.
ZN-65	-7.099E-02	1.484E-01	9.950E-02	7.570E-02 NOT IDENT.
GE-68	4.651E-02	1.754E+00	1.465E+00	8.947E-01 NOT IDENT.
AS-73	1.971E-01	2.522E-01	2.279E-01	1.287E-01 NOT IDENT.
AS-74	3.077E-02	1.471E-01	1.265E-01	7.506E-02 NOT IDENT.
SE-75	5.944E-03	5.338E-02	4.105E-02	2.723E-02 NOT IDENT.
BR-77	6.162E+01	5.004E+01	0.000E+00	2.553E+01 SHORT HLIF
SR-82	-3.166E-01	5.547E-01	4.590E-01	2.830E-01 NOT IDENT.
RB-83	8.541E-02	8.454E-02	7.728E-02	4.313E-02 NOT IDENT.
RB-84	-4.740E-02	1.059E-01	8.711E-02	5.402E-02 NOT IDENT.
KR-85	1.805E+01	9.272E+00	8.002E+00	4.731E+00 NOT IDENT.
SR-85	9.739E-02	5.003E-02	4.318E-02	2.552E-02 NOT IDENT.
RB-86	-1.289E-01	1.339E+00	1.107E+00	6.829E-01 NOT IDENT.
Y-88	-2.037E-03	4.426E-02	3.704E-02	2.258E-02 NOT IDENT.
ZR-88	-1.263E-02	3.928E-02	3.220E-02	2.004E-02 NOT IDENT.
Y-91	1.637E+01	2.428E+01	2.180E+01	1.239E+01 NOT IDENT.
NB-94	2.053E-02	4.579E-02	3.933E-02	2.336E-02 NOT IDENT.
NB-95	1.323E-01	6.156E-02	5.897E-02	3.141E-02 NOT IDENT.
NB-95M	6.422E-02	1.508E-01	1.193E-01	7.693E-02 NOT IDENT.
ZR-95	7.427E-02	1.034E-01	8.989E-02	5.275E-02 NOT IDENT.
NB-97	-6.264E+06	1.661E+07	0.000E+00	8.476E+06 SHORT HLIF
ZR-97	2.482E+08	3.207E+08	0.000E+00	1.636E+08 SHORT HLIF
MO-99	-1.142E+01	5.539E+01	4.520E+01	2.826E+01 NOT IDENT.
TC-99M	-3.697E+22	3.094E+22	0.000E+00	0.000E+00 SHORT HLIF
RH-101	-1.970E-02	3.568E-02	3.000E-02	1.821E-02 NOT IDENT.
RH-102	1.282E-02	3.367E-02	2.990E-02	1.718E-02 NOT IDENT.
RU-103	-5.372E-02	5.440E-02	4.369E-02	2.776E-02 FAIL ABUN
RH-106	-3.700E-03	4.064E-01	3.432E-01	2.074E-01 FAIL ABUN
RU-106	-3.700E-03	4.064E-01	3.432E-01	2.074E-01 FAIL ABUN
AG-108M	-4.873E-03	3.892E-02	3.384E-02	1.986E-02 NOT IDENT.
AG-110M	-1.934E-02	4.975E-02	3.449E-02	2.538E-02 NOT IDENT.
IN-111	8.500E-01	3.767E+00	3.325E+00	1.922E+00 NOT IDENT.
IN-113M	-9.197E-02	5.928E-02	4.475E-02	3.025E-02 NOT IDENT.
SN-113	-9.197E-02	5.928E-02	4.475E-02	3.025E-02 NOT IDENT.
IN-114M	8.021E-02	2.376E-01	1.789E-01	1.212E-01 NOT IDENT.
CD-115	8.846E+00	5.908E+01	0.000E+00	3.014E+01 SHORT HLIF
SN-117M	-4.691E-02	7.712E-02	6.329E-02	3.935E-02 NOT IDENT.
SB-122	-7.027E+00	8.891E+00	7.170E+00	4.536E+00 NOT IDENT.
I-123	-2.197E+08	2.950E+09	0.000E+00	1.505E+09 SHORT HLIF
TE-123M	-2.377E-03	3.193E-02	2.687E-02	1.629E-02 NOT IDENT.
I-124	1.060E+00	2.141E+00	1.642E+00	1.093E+00 NOT IDENT.
SB-124	1.042E-01	7.477E-02	7.831E-02	3.815E-02 FAIL ABUN
SB-125	6.865E-02	1.094E-01	9.911E-02	5.584E-02 FAIL ABUN
TE-125M	-7.289E-02	1.053E+01	8.196E+00	5.372E+00 NOT IDENT.
I-126	1.534E-01	3.198E-01	2.436E-01	1.631E-01 NOT IDENT.
SB-126	5.620E-02	2.848E-01	2.181E-01	1.453E-01 FAIL ABUN
SB-127	5.127E-01	4.215E+00	3.556E+00	2.151E+00 NOT IDENT.
XE-127	-4.450E-03	5.367E-02	4.753E-02	2.738E-02 NOT IDENT.
I-131	1.179E-01	2.076E-01	1.806E-01	1.059E-01 FAIL ABUN
TE-132	1.069E+00	2.069E+00	1.853E+00	1.055E+00 FAIL ABUN
BA-133	-4.316E-02	6.281E-02	4.350E-02	3.205E-02 FAIL ABUN
I-133	5.885E+04	3.601E+05	0.000E+00	1.837E+05 SHORT HLIF
CS-134	2.989E-02	6.053E-02	5.381E-02	3.088E-02 NOT IDENT.
CS-135	8.223E-02	1.875E-01	1.470E-01	9.566E-02 NOT IDENT.
I-135	4.792E+20	1.481E+21	0.000E+00	0.000E+00 SHORT HLIF
CS-136	2.912E-02	1.902E-01	1.610E-01	9.705E-02 FAIL ABUN
CE-139	-3.279E-02	3.353E-02	2.687E-02	1.711E-02 NOT IDENT.
BA-140	6.651E-03	4.245E-01	3.644E-01	2.166E-01 NOT IDENT.
LA-140	-4.968E-02	1.542E-01	1.226E-01	7.866E-02 NOT IDENT.
CE-141	9.088E-02	7.461E-02	6.616E-02	3.807E-02 NOT IDENT.

CE-143	7.486E+03	2.749E+03	0.000E+00	1.403E+03	SHORT HLIF
CE-144	4.313E-02	2.183E-01	1.885E-01	1.114E-01	FAIL ABUN
PM-144	-4.472E-02	4.775E-02	3.708E-02	2.436E-02	NOT IDENT.
PR-144	-3.038E+00	3.244E+00	2.519E+00	1.655E+00	NOT IDENT.
PM-146	2.453E-02	5.226E-02	4.672E-02	2.666E-02	NOT IDENT.
ND-147	1.540E-01	9.445E-01	8.192E-01	4.819E-01	FAIL ABUN
PM-149	3.061E+01	4.390E+02	0.000E+00	2.240E+02	SHORT HLIF
EU-152	3.960E-02	1.160E-01	9.307E-02	5.920E-02	NOT IDENT.
GD-153	-7.366E-04	7.722E-02	5.935E-02	3.940E-02	FAIL ABUN
EU-154	-1.831E-02	1.579E-01	1.329E-01	8.055E-02	NOT IDENT.
EU-155	7.416E-02	1.036E-01	9.269E-02	5.287E-02	FAIL ABUN
TB-160	2.268E-02	1.996E-01	1.716E-01	1.019E-01	FAIL ABUN
HO-166M	-2.691E-02	8.020E-02	6.507E-02	4.092E-02	FAIL ABUN
TM-171	-1.055E+01	1.702E+01	1.345E+01	8.683E+00	NOT IDENT.
LU-176	1.548E-02	2.744E-02	2.419E-02	1.400E-02	FAIL ABUN
LU-177M	-4.707E-02	2.227E-01	1.828E-01	1.136E-01	FAIL ABUN
HF-181	-1.564E-02	5.686E-02	4.848E-02	2.901E-02	NOT IDENT.
W-181	1.243E-01	2.149E-01	1.783E-01	1.096E-01	NOT IDENT.
TA-182	-4.205E-03	2.561E-01	2.185E-01	1.306E-01	FAIL ABUN
RE-183	7.252E-02	1.320E-01	1.103E-01	6.733E-02	FAIL ABUN
RE-184	8.500E-02	2.675E-01	2.203E-01	1.365E-01	NOT IDENT.
OS-185	-2.565E-02	5.839E-02	4.755E-02	2.979E-02	NOT IDENT.
RE-188	-1.834E-02	2.021E-01	1.704E-01	1.031E-01	NOT IDENT.
W-188	6.877E-02	9.557E+00	7.223E+00	4.876E+00	FAIL ABUN
IR-192	1.206E-02	4.339E-02	3.758E-02	2.214E-02	FAIL ABUN
AU-195	2.646E-01	2.319E-01	1.877E-01	1.183E-01	FAIL ABUN
TL-200	4.685E+03	1.218E+04	0.000E+00	6.214E+03	SHORT HLIF
TL-201	-5.441E+00	2.277E+01	1.893E+01	1.162E+01	FAIL ABUN
TL-202	2.142E-02	1.100E-01	9.725E-02	5.614E-02	FAIL ABUN
HG-203	2.496E-02	4.794E-02	4.242E-02	2.446E-02	FAIL ABUN
BI-207	-5.508E-02	7.149E-02	5.569E-02	3.647E-02	FAIL ABUN
TL-207	-1.636E+00	8.132E-01	5.749E-01	4.149E-01	FAIL ABUN
PO-209	-4.014E+00	9.942E+00	8.187E+00	5.072E+00	NOT IDENT.
PB-211	-3.480E-01	1.234E+00	9.971E-01	6.298E-01	NOT IDENT.
BI-212	1.309E+00	6.259E-01	4.287E-01	3.193E-01	FAIL ABUN
PO-215	-1.636E+00	8.132E-01	5.749E-01	4.149E-01	FAIL ABUN
RN-219	2.493E-01	5.248E-01	4.490E-01	2.677E-01	FAIL ABUN
RN-220	-4.940E+00	3.397E+01	2.880E+01	1.733E+01	NOT IDENT.
RA-223	-1.636E+00	8.132E-01	5.749E-01	4.149E-01	FAIL ABUN
AC-227	5.867E-03	3.953E-01	3.445E-01	2.017E-01	FAIL ABUN
TH-227	5.867E-03	3.953E-01	3.445E-01	2.017E-01	FAIL ABUN
TH-229	-1.803E-01	5.289E-01	4.655E-01	2.699E-01	FAIL ABUN
PA-231	-1.349E+00	1.638E+00	1.342E+00	8.358E-01	NOT IDENT.
TH-231	-1.636E+00	8.132E-01	5.749E-01	4.149E-01	FAIL ABUN
U-231	1.107E+00	2.171E+00	1.753E+00	1.108E+00	FAIL ABUN
PA-233	-2.575E-02	7.432E-02	6.239E-02	3.792E-02	FAIL ABUN
PA-234	-3.562E-01	4.140E-01	3.217E-01	2.112E-01	FAIL ABUN
PA-234M	5.010E+00	6.957E+00	6.080E+00	3.549E+00	NOT IDENT.
U-235	1.296E-01	2.394E-01	2.051E-01	1.222E-01	FAIL ABUN
NP-236	-3.719E-02	8.878E-02	7.350E-02	4.530E-02	FAIL ABUN
NP-239	-2.513E-02	2.113E-01	1.625E-01	1.078E-01	FAIL ABUN
AM-241	5.601E-02	6.587E-02	5.565E-02	3.361E-02	NOT IDENT.
CM-243	2.686E-02	9.165E-02	8.098E-02	4.676E-02	FAIL ABUN
AM-246	6.841E-02	2.030E-01	1.736E-01	1.036E-01	NOT IDENT.
CM-247	1.978E-03	4.846E-02	4.052E-02	2.473E-02	NOT IDENT.
CF-249	5.519E-02	5.074E-02	4.498E-02	2.589E-02	NOT IDENT.
CF-251	-5.816E-02	1.369E-01	1.122E-01	6.985E-02	NOT IDENT.

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

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46.50	281.7566
46.50	281.7566
46.50	281.7566
48.70	315.7133
49.72	323.3372
51.35	368.7966
52.39	330.6494
52.97	332.2549
53.15	337.5917
53.44	337.9744
54.07	319.1740
56.28	388.9996
56.28	389.0042
57.37	0.0000
57.53	382.1750
57.53	382.1784
57.60	385.0416
57.98	380.3851
57.98	380.3851
59.32	368.1510
59.32	368.1510
59.40	368.2575
59.54	368.4436
59.72	396.1387
60.01	396.5525
61.10	408.6075
61.14	408.6656
61.30	415.4709
63.00	454.9860
63.29	455.4427
63.29	455.4427
63.58	455.8994
64.28	456.9957
65.12	468.9609
65.20	469.0878
65.20	469.0878
66.05	469.0962
66.72	498.2715
66.83	498.4588
66.91	498.5893
67.20	496.3858
67.20	496.3858
67.75	530.8867
67.85	531.0645
68.90	503.2108
68.90	503.2108
69.30	444.4256
69.67	470.6584
70.82	472.3934
70.82	472.3934
70.83	472.4094
72.80	487.6474
72.87	487.7537
72.87	487.7537
74.67	490.4774
74.81	490.6871
74.81	490.6871
74.81	490.6871
74.81	490.6871
74.81	490.6871
74.81	490.6871
74.97	490.9295
75.28	491.3925
75.70	492.0217
77.11	494.1189
77.11	494.1189

77.11	494.1189
77.11	494.1189
77.11	494.1189
77.11	494.1189
77.11	494.1189
78.38	495.9901
79.62	497.8041
79.80	498.0656
79.80	498.0656
80.11	498.5150
80.18	498.6185
80.30	498.7901
80.30	498.7901
80.57	363.5501
81.00	352.8023
81.07	352.8744
81.07	352.8744
81.07	352.8744
81.07	352.8744
82.60	354.4269
83.37	349.5598
83.78	381.0141
83.78	381.0141
83.78	381.0141
83.78	381.0141
84.21	367.3468
84.90	393.5378
85.43	394.1190
86.29	395.0586
86.50	395.2876
86.54	395.3300
86.59	395.3852
86.72	395.5252
86.79	293.1420
86.94	293.2646
87.30	293.5538
87.30	293.5538
87.30	293.5538
87.30	293.5538
87.30	293.5538
87.30	293.5538
87.57	293.7707
87.88	0.0000
88.03	294.1384
88.36	294.4025
88.47	294.4905
89.95	295.6645
91.11	296.5792
92.29	297.5034
92.38	297.5741
92.38	297.5741
93.35	298.3285
94.00	298.8314
94.67	299.3453
94.67	299.3500
94.90	299.5261
94.90	299.5261
94.90	299.5261
94.90	299.5261
95.87	295.8982
95.87	295.8982
96.73	337.4519
97.43	282.4366
98.44	300.7591
98.44	300.7591
98.88	267.3097
99.55	261.2823
99.55	261.2823
99.86	271.8871
100.00	284.7460
100.10	284.8183
103.18	337.4323
103.76	318.0857
105.00	310.0878
105.31	310.3163
108.00	336.3110
109.28	313.2188

111.00	293.2942
111.00	293.2942
111.76	310.4607
112.95	329.0152
115.19	285.3936
116.30	299.8648
117.00	300.3269
117.00	300.3269
117.66	295.8516
121.11	300.9542
121.62	300.2506
121.78	300.3528
122.06	296.4008
122.32	288.2977
122.32	288.2977
122.32	288.2977
122.32	288.2977
123.07	279.4414
127.23	341.3859
129.76	291.7354
131.20	345.2101
133.02	321.1198
133.54	301.3600
135.34	319.4145
136.00	331.5159
136.25	331.6777
136.48	306.3018
140.51	355.8571
140.51	0.0000
142.18	332.2574
142.65	320.7144
143.76	291.1899
144.24	270.9413
144.24	270.9413
144.24	270.9413
144.24	270.9413
145.22	283.3323
145.44	276.9583
147.16	317.9979
152.43	267.3690
152.70	262.0165
153.22	298.4712
154.21	302.2946
154.21	302.2946
154.21	302.2946
154.21	302.2946
155.03	324.7539
156.02	341.8628
158.56	307.9424
159.00	0.0000
159.00	292.6575
160.31	312.2089
161.27	286.0165
162.32	262.0036
162.64	264.3781
163.35	291.5010
163.89	295.1228
165.85	308.4378
167.43	278.8915
171.28	270.4869
171.86	256.0179
172.10	256.1168
176.55	279.6525
176.60	272.8257
181.06	237.9729
184.41	263.4858
185.71	258.2249
186.00	258.3405
190.27	255.3619
192.34	280.7202
193.63	279.5043
197.04	249.9979
198.01	267.1601
198.60	276.2444
200.40	0.0000
201.83	268.6462
202.84	271.7081
205.31	258.9016

208.36	254.2733
208.81	275.9953
209.75	258.1866
209.75	258.1866
210.97	252.3187
215.65	231.2766
216.55	246.0900
218.09	258.4367
222.10	217.7484
223.80	255.8366
226.40	246.5963
227.00	241.2654
227.08	241.2914
227.20	236.7219
228.16	229.6419
228.18	227.8030
228.18	227.8030
231.56	0.0000
235.69	239.8924
236.00	239.9867
236.00	239.9867
238.63	219.6617
238.63	219.6617
238.63	219.6617
238.63	219.6617
239.00	0.0000
240.98	220.3116
241.98	220.5868
241.98	220.5868
241.98	220.5868
244.69	221.3309
245.39	221.5209
247.94	195.1723
248.90	195.4007
249.79	0.0000
252.40	174.9342
252.85	187.7130
252.85	187.7130
254.15	0.0000
256.20	189.1032
256.20	189.1032
260.50	200.6286
260.90	0.0000
262.80	176.1420
264.65	179.0297
268.24	189.0702
268.79	170.5833
269.46	188.1714
269.46	188.1714
269.46	188.1714
269.46	188.1714
271.23	205.2703
273.65	218.3091
276.40	205.5753
277.35	197.6848
277.60	205.5716
277.60	205.5716
278.00	200.7677
278.60	193.0622
279.20	190.2494
279.53	193.2606
280.46	201.3183
281.68	0.0000
283.67	190.2052
284.30	193.2934
285.00	176.6647
285.90	0.0000
286.10	166.9937
286.10	166.9937
287.40	172.1786
288.45	0.0000
290.67	185.8946
290.80	165.2638
291.72	170.1995
293.26	0.0000
293.70	202.4404
295.21	238.4894
295.21	238.4894

295.21	238.4894
295.96	238.6791
296.50	268.5908
297.23	0.0000
298.57	217.9088
299.80	194.1229
299.80	194.1229
300.09	178.1339
300.09	178.1339
300.09	178.1339
300.09	178.1339
300.12	178.1393
301.29	157.4699
302.84	233.3665
303.76	0.0000
303.91	233.6249
304.40	207.5497
304.40	207.5497
304.84	202.6040
306.84	159.5912
308.46	166.9386
311.98	186.8301
316.51	184.6263
318.01	180.8162
319.02	173.8417
319.41	168.7942
320.08	169.9286
323.87	220.9183
323.87	220.9183
323.87	220.9183
323.87	220.9183
325.23	241.7915
328.77	174.4850
333.44	175.8963
334.20	169.3833
334.20	169.3833
334.30	169.4007
338.28	190.6734
338.28	190.6734
338.28	190.6734
338.28	190.6734
338.32	190.6818
338.32	190.6818
338.32	190.6818
340.50	170.4017
340.57	170.4142
344.27	142.5057
345.85	164.5448
350.59	0.0000
351.07	166.6069
351.92	166.7371
351.92	166.7371
351.92	166.7371
355.39	0.0000
356.01	167.7876
364.48	139.8271
366.43	161.4559
367.43	142.3353
367.94	0.0000
369.80	163.0099
374.96	141.1264
383.85	173.6987
387.95	145.9818
388.63	130.8051
391.69	194.5300
391.69	194.5300
392.90	156.4390
398.62	185.7669
400.65	139.8326
401.10	152.0019
401.81	152.0914
402.60	169.8357
404.84	174.5676
410.95	173.2172
411.60	154.4216
413.65	150.2250
414.70	154.8076
415.30	149.3105

415.76	143.7924
417.63	0.0000
418.52	145.2264
423.70	144.7018
427.08	133.8405
427.89	126.9465
432.53	137.3455
433.93	136.5894
439.47	0.0000
439.56	133.5489
439.89	133.5830
443.98	124.8837
444.90	116.7609
445.03	112.2105
445.03	112.2105
445.03	112.2105
445.03	112.2105
453.90	122.1434
463.38	123.0006
468.07	120.6388
473.00	131.3131
475.06	106.3253
475.35	114.7419
476.78	133.5371
477.59	128.0077
477.96	122.4335
482.03	130.2870
484.57	0.0000
487.03	103.4688
490.36	0.0000
492.35	0.0000
497.08	132.6104
507.63	0.0000
510.53	0.0000
510.84	109.0000
511.00	109.0118
511.85	109.0751
511.85	109.0751
513.99	89.4294
513.99	89.4294
520.41	88.5298
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	95.8458
529.87	0.0000
531.02	108.5301
537.32	113.8408
543.00	115.2315
546.56	0.0000
549.76	120.6337
552.65	122.8180
555.20	85.6194
563.23	114.7341
563.90	120.7163
568.70	97.2583
569.32	93.3230
569.50	93.3345
569.67	93.3437
573.80	121.6762
574.00	121.6911
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	113.1352
585.48	0.0000
591.81	124.7932
592.07	124.8113
593.00	109.7744
595.88	115.0075
600.56	123.4178
602.52	0.0000
602.71	104.6654
602.71	104.6654
603.60	106.4099
604.41	106.4586
604.70	106.4766
609.31	120.9988



609.31	120.9988
609.31	120.9988
609.31	120.9988
610.33	121.0715
612.46	130.7271
614.37	91.7798
618.01	112.4089
621.84	98.3180
621.84	98.3180
631.29	87.5193
633.02	83.4818
633.10	83.4858
634.78	103.1665
635.90	82.5859
636.97	86.7665
645.85	110.0319
646.12	106.9329
656.30	92.2195
657.75	92.2928
657.90	0.0000
661.65	81.6696
661.65	81.6696
664.57	0.0000
666.33	78.7262
666.33	78.7262
675.00	93.8563
677.61	105.6006
685.20	91.1818
692.80	91.5451
695.00	114.0271
696.49	124.7810
696.49	124.7810
697.00	126.9488
697.49	117.3772
698.33	106.7529
698.50	100.3546
699.00	105.7216
702.63	103.7801
706.10	106.1084
706.58	0.0000
706.67	103.9932
709.31	94.4711
711.68	101.0362
713.82	108.6761
717.42	94.8621
720.50	100.2522
721.93	0.0000
722.20	109.8576
722.78	118.8972
722.78	118.8972
722.89	120.7041
722.95	120.7096
723.30	120.7287
724.18	115.3750
727.18	101.1035
733.00	95.9655
735.90	93.0814
739.58	102.4522
742.81	86.2404
744.21	96.1318
747.13	99.5490
751.79	98.6792
752.31	98.7034
753.82	92.1908
755.35	0.0000
756.15	86.8016
756.87	84.6323
763.93	121.3142
765.79	82.7875
766.42	83.7333
766.84	83.7499
776.49	95.2276
778.00	89.7435
778.57	90.6927
778.89	93.4834
783.80	85.3497
785.46	93.7710
792.07	93.1295

795.84	87.6947
796.30	82.1133
798.80	105.5628
801.93	88.8750
805.60	89.9609
810.29	79.8241
810.76	84.5380
815.85	94.1467
817.79	0.0000
818.51	80.1216
819.60	82.0457
826.30	77.5640
828.27	0.0000
831.60	94.8120
831.96	92.9317
834.83	91.1504
836.80	0.0000
846.75	65.8583
848.13	66.8540
856.28	0.0000
856.80	60.8064
860.37	65.2884
867.32	87.4947
867.82	80.9102
871.10	70.4128
873.19	80.1293
874.81	87.9137
875.33	0.0000
876.40	75.4054
879.36	81.3083
880.27	77.4658
880.51	77.4740
881.50	88.1618
883.24	96.9523
884.67	85.3700
889.25	85.5347
896.60	83.8479
898.02	85.8480
899.00	86.8579
903.28	82.1235
911.07	72.5803
911.07	72.5803
911.07	72.5803
919.63	48.7195
920.93	53.1771
925.00	77.9247
925.24	73.0003
926.50	60.2057
935.52	72.3124
937.48	83.2737
944.10	65.6025
946.00	89.5239
949.00	71.7056
962.29	77.2292
964.01	91.0198
966.15	94.5332
968.20	92.3145
969.11	92.3481
969.11	92.3481
969.11	92.3481
977.42	77.8761
980.50	76.6231
983.50	66.6190
989.30	79.9177
996.32	99.4036
1001.03	69.0957
1001.68	64.0318
1004.76	97.6855
1021.30	0.0000
1024.50	0.0000
1034.80	58.6514
1036.00	53.5298
1037.82	72.1077
1038.57	72.1277
1038.76	0.0000
1045.16	67.1370
1046.59	64.0712
1048.07	73.4123

1050.47	65.1969
1050.47	65.1969
1062.04	69.6254
1063.62	84.2201
1076.63	81.4785
1077.35	77.3182
1078.86	77.3604
1085.78	83.8379
1099.22	76.8615
1112.02	70.7065
1112.84	67.0986
1115.52	94.3878
1120.29	83.7864
1120.29	83.7864
1120.29	83.7864
1120.29	83.7864
1120.51	85.4596
1121.28	87.3013
1124.00	0.0000
1129.67	85.8910
1131.51	0.0000
1147.95	0.0000
1167.94	79.7481
1173.22	71.2502
1175.09	72.3734
1177.93	82.1725
1189.05	72.5483
1204.90	66.3768
1205.75	0.0000
1213.00	72.1714
1221.42	83.6424
1230.97	102.7501
1235.34	85.8997
1236.41	0.0000
1238.25	97.3169
1246.25	77.6672
1260.41	0.0000
1271.85	66.8262
1274.45	64.9690
1274.54	64.9714
1291.56	68.1894
1298.22	0.0000
1312.09	37.6860
1325.50	47.5371
1325.50	47.5371
1332.49	40.8311
1333.61	35.0093
1360.21	41.1606
1362.66	0.0000
1365.15	47.1077
1368.21	42.2366
1368.53	0.0000
1376.25	40.3651
1384.27	57.2333
1394.10	45.5171
1395.20	41.5723
1407.95	37.7482
1434.06	35.0195
1436.60	39.0490
1457.56	0.0000
1460.81	26.2049
1489.15	32.4978
1509.49	35.7361
1596.49	36.5393
1620.62	27.3058
1678.03	0.0000
1691.02	4.2729
1691.02	4.2729
1706.46	0.0000
1750.46	0.0000
1764.49	20.9177
1764.49	20.9177
1764.49	20.9177
1764.49	20.9177
1770.23	23.6949
1771.40	16.9298
1791.20	0.0000
1808.65	16.3250

1836.01

17.3903

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101011

Total Uranium Activity	5.9268E+00	ug/g
Total Uranium Counting Unc.	4.1513E+00	ug/g
Total Uranium Tpu	2.1180E-06	ug/g
Total Uranium Mda	1.6312E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101011
*  ANALYST       : MXR1                             DETECTOR    : GAM13
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:20:06.48          SAMPLE ALQT  : 126.860 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.371E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.392E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.950E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.433E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:24:43.00

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101012.CNF;1
Sample date     : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:24:08.
Sample ID      : G245101012 Sample quantity : 1.09960E+02 GRAM
Detector name   : GAM17 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:09.46 0.1%
Energy tolerance: 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 5.00000
Batch ID       : 944037 Detector SN# :
Matrix Spike ID : LCS ID : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.46*	145	282	1.00	92.55	89	8	2.02E-02	23.1	
2	0	63.35*	188	580	1.00	126.35	122	10	2.61E-02	25.6	
3	2	74.83*	507	333	0.97	149.30	142	15	7.05E-02	7.3	2.39E+00
4	2	77.11*	828	325	0.95	153.87	142	15	1.15E-01	5.0	
5	0	86.03*	352	638	1.13	171.72	165	13	4.89E-02	15.8	
6	0	93.00*	430	433	1.36	185.65	182	11	5.98E-02	11.1	
7	0	128.57*	50	278	1.02	256.83	254	9	6.95E-03	62.1	
8	0	185.74*	176	206	1.19	371.21	367	9	2.44E-02	17.4	
9	0	208.73	59	208	1.31	417.21	415	8	8.21E-03	44.0	
10	5	238.56*	814	121	1.00	476.88	471	16	1.13E-01	4.2	2.29E+00
11	5	241.30	236	117	1.82	482.38	471	16	3.28E-02	13.0	
12	0	270.52	31	152	1.11	540.85	535	9	4.36E-03	73.4	
13	0	295.07*	267	164	1.19	589.96	584	13	3.70E-02	11.7	
14	0	300.38*	64	106	1.11	600.58	596	9	8.93E-03	32.1	
15	0	327.88*	48	114	1.11	655.61	651	10	6.68E-03	44.8	
16	0	338.26*	121	130	0.91	676.38	672	8	1.68E-02	19.3	
17	0	351.87*	468	141	1.21	703.60	697	14	6.50E-02	7.2	
18	0	409.35	40	62	1.14	818.63	814	8	5.59E-03	37.3	
19	0	462.61	69	72	1.75	925.20	918	11	9.57E-03	26.7	
20	0	510.99*	84	94	1.78	1022.01	1015	16	1.17E-02	32.4	
21	0	582.95*	217	75	1.21	1166.01	1160	12	3.02E-02	10.8	
22	0	608.94*	256	93	1.28	1218.02	1213	12	3.55E-02	9.9	
23	0	661.01	172	52	1.33	1322.20	1316	11	2.39E-02	11.3	
24	0	726.90	61	43	0.72	1454.07	1449	10	8.50E-03	23.7	
25	0	795.04	25	72	1.30	1590.44	1583	13	3.44E-03	73.3	
26	0	859.95*	36	16	0.77	1720.34	1716	8	4.96E-03	27.2	
27	0	910.50*	161	35	1.43	1821.50	1816	11	2.24E-02	10.9	
28	0	965.01	29	38	0.80	1930.59	1922	12	4.04E-03	46.6	
29	0	968.60*	106	28	1.53	1937.78	1933	14	1.47E-02	14.9	
30	0	1119.74	62	62	1.63	2240.29	2233	17	8.58E-03	31.4	
31	0	1237.90	47	53	1.84	2476.79	2467	18	6.49E-03	39.6	
32	0	1346.45	18	12	2.27	2694.07	2685	16	2.51E-03	48.8	
33	0	1459.55*	503	0	1.98	2920.46	2912	14	6.99E-02	4.5	
34	0	1587.61	13	9	1.05	3176.82	3169	12	1.85E-03	52.6	
35	0	1763.53*	40	10	2.06	3529.00	3523	14	5.51E-03	24.0	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101012.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:24:08
Sample ID         : G245101012 Sample quantity : 109.96 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA17 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:09.46 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

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.069E+01	2.610E+00	7.740E-01	6.872E-02	26.734
BA-137M	+	661.65	*	4.071E-01	9.791E-02	9.173E-02	7.727E-03	4.438
CS-137	+	661.65	*	4.303E-01	1.035E-01	9.697E-02	8.185E-03	4.438
TL-208		277.35		4.243E-01	4.476E-01	7.929E-01	1.009E-01	0.535
	+	510.84		6.489E-01	4.276E-01	3.142E-01	3.837E-02	2.066
	+	583.14	*	4.864E-01	1.149E-01	7.615E-02	7.203E-03	6.387
	+	860.37		7.848E-01	4.336E-01	6.263E-01	5.893E-02	1.253
BI-210	+	46.50	*	1.944E+00	9.214E-01	8.846E-01	9.596E-02	2.198
PB-210	+	46.50	*	1.944E+00	9.214E-01	8.846E-01	9.596E-02	2.198
PO-210	+	46.50	*	1.944E+00	9.182E-01	8.846E-01	8.937E-02	2.198
BI-211		72.87		2.711E+00	2.045E+00	3.584E+00	3.504E-01	0.756
	+	351.07	*	4.244E+00	7.296E-01	3.656E-01	3.412E-02	11.606
PB-212	+	74.81		2.382E+00	4.739E-01	3.864E-01	5.222E-02	6.164
	+	77.11		2.316E+00	3.232E-01	2.251E-01	2.194E-02	10.289
	+	87.30		2.244E+00	7.749E-01	5.861E-01	8.189E-02	3.829
	+	238.63	*	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
	+	300.09		1.928E+00	1.254E+00	1.375E+00	1.497E-01	1.402
PO-212	+	74.81		2.382E+00	4.739E-01	3.864E-01	5.222E-02	6.164
	+	77.11		2.316E+00	3.232E-01	2.251E-01	2.194E-02	10.289
	+	87.30		2.244E+00	7.749E-01	5.861E-01	8.189E-02	3.829
	+	115.19		5.574E-01	3.697E+00	6.172E+00	6.950E-01	0.090
	+	238.63	*	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
	+	300.09		1.928E+00	1.254E+00	1.375E+00	1.497E-01	1.402
BI-214	+	609.31	*	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
	+	1120.29		1.429E+00	9.111E-01	6.035E-01	6.452E-02	2.368
	+	1764.49		1.275E+00	6.212E-01	4.425E-01	3.742E-02	2.882
PB-214	+	74.81		4.104E+00	7.823E-01	6.658E-01	8.159E-02	6.164
	+	77.11		3.970E+00	6.313E-01	3.858E-01	4.774E-02	10.289
	+	87.30		3.845E+00	1.305E+00	1.004E+00	1.249E-01	3.829
	+	241.98		2.700E+00	7.564E-01	5.148E-01	5.481E-02	5.245
	+	295.21		1.400E+00	3.623E-01	2.403E-01	2.670E-02	5.823
	+	351.92	*	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
PO-214	+	74.81		4.104E+00	7.823E-01	6.658E-01	8.159E-02	6.164
	+	77.11		3.970E+00	6.313E-01	3.858E-01	4.774E-02	10.289



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	87.30		3.845E+00	1.305E+00	1.004E+00	1.249E-01	3.829
	+	241.98		2.700E+00	7.564E-01	5.148E-01	5.481E-02	5.245
	+	295.21		1.400E+00	3.623E-01	2.403E-01	2.670E-02	5.823
	+	351.92	*	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
PO-216	+	74.81		2.382E+00	4.739E-01	3.864E-01	5.222E-02	6.164
	+	77.11		2.316E+00	3.232E-01	2.251E-01	2.194E-02	10.289
	+	87.30		2.244E+00	7.749E-01	5.861E-01	8.189E-02	3.829
	+	238.63	*	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
	+	300.09		1.928E+00	1.254E+00	1.375E+00	1.497E-01	1.402
PO-218	+	74.81		4.104E+00	7.823E-01	6.658E-01	8.159E-02	6.164
	+	77.11		3.970E+00	6.313E-01	3.858E-01	4.774E-02	10.289
	+	87.30		3.845E+00	1.305E+00	1.004E+00	1.249E-01	3.829
	+	241.98		2.700E+00	7.564E-01	5.148E-01	5.481E-02	5.245
	+	295.21		1.400E+00	3.623E-01	2.403E-01	2.670E-02	5.823
	+	351.92	*	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
RA-224	+	240.98	*	5.120E+00	1.405E+00	1.092E+00	9.875E-02	4.688
RA-226	+	609.31	*	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
	+	1120.29		1.429E+00	9.111E-01	6.035E-01	6.452E-02	2.368
	+	1764.49		1.275E+00	6.212E-01	4.425E-01	3.742E-02	2.882
AC-228	+	338.32		1.206E+00	6.815E-01	5.056E-01	2.090E-01	2.385
	+	911.07	*	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050
	+	969.11		1.947E+00	7.376E-01	4.698E-01	1.098E-01	4.145
RA-228	+	338.32		1.206E+00	6.815E-01	5.056E-01	2.090E-01	2.385
	+	911.07	*	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050
	+	969.11		1.947E+00	7.376E-01	4.698E-01	1.098E-01	4.145
TH-228	+	74.81		2.430E+00	4.276E-01	3.942E-01	3.873E-02	6.164
	+	77.11		2.362E+00	3.297E-01	2.296E-01	2.238E-02	10.289
	+	87.30		2.289E+00	7.566E-01	5.979E-01	5.834E-02	3.829
	+	238.63	*	1.580E+00	2.081E-01	9.780E-02	9.860E-03	16.151
	+	300.09		1.966E+00	1.719E+00	1.403E+00	8.326E-01	1.402
TH-230	+	609.31	*	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
	+	1120.29		1.429E+00	9.111E-01	6.035E-01	6.452E-02	2.368
	+	1764.49		1.275E+00	6.212E-01	4.425E-01	3.742E-02	2.882
TH-232	+	338.32		1.206E+00	4.771E-01	5.056E-01	4.556E-02	2.385
	+	911.07	*	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050
	+	969.11		1.947E+00	7.376E-01	4.698E-01	1.098E-01	4.145
TH-234	+	63.29	*	2.492E+00	1.359E+00	1.075E+00	2.006E-01	2.318
	+	92.38		4.120E+00	1.199E+00	7.932E-01	1.488E-01	5.194
U-234	+	609.31	*	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
	+	1120.29		1.429E+00	9.111E-01	6.035E-01	6.452E-02	2.368
	+	1764.49		1.275E+00	6.212E-01	4.425E-01	3.742E-02	2.882
NP-237	+	86.50	*	1.425E+00	5.552E-01	3.712E-01	8.473E-02	3.838
	+	95.87		2.365E-01	8.717E-01	1.327E+00	3.346E-01	0.178
U-238	+	63.29	*	2.492E+00	1.359E+00	1.075E+00	2.006E-01	2.318
	+	92.38		4.120E+00	1.004E+00	7.932E-01	7.906E-02	5.194
AM-243	+	74.67	*	3.861E-01	6.782E-02	6.263E-02	6.114E-03	6.166
	+	86.72		5.343E+01	1.766E+01	1.393E+01	1.359E+00	3.836
	+	117.66		-2.457E+00	3.907E+00	6.247E+00	7.133E-01	-0.393
	+	142.18		-1.548E+01	2.017E+01	3.091E+01	3.187E+00	-0.501

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	1.402E-01	9.162E-02	6.788E-02	6.062E-03	2.065

---- 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	*	2.605E-01	4.842E-01	8.267E-01	7.866E-02	0.315
NA-22		1274.54	*	-1.147E-02	6.563E-02	1.030E-01	8.674E-03	-0.111
NA-24		1368.53	*	-6.152E+01	6.563E-02	Half-Life too short		
AL-26		1129.67		1.690E+00	2.328E+00	4.107E+00	3.432E-01	0.412
		1808.65	*	-1.211E-03	4.213E-02	6.826E-02	5.721E-03	-0.018
TI-44		67.85		1.256E-03	3.041E-02	4.543E-02	4.474E-03	0.028
	+	78.38	*	4.274E-01	5.966E-02	6.762E-02	6.588E-03	6.322
SC-46		889.25	*	2.031E-02	4.908E-02	8.551E-02	7.486E-03	0.238
	+	1120.51		2.547E-01	1.615E-01	1.905E-01	1.598E-02	1.337
V-48		944.10		2.263E-01	1.575E+00	2.637E+00	2.307E-01	0.086
		983.50	*	2.403E-02	1.162E-01	1.958E-01	1.708E-02	0.123
		1312.09		1.807E-02	1.232E-01	2.114E-01	1.794E-02	0.085
CR-51		320.08	*	7.570E-04	5.035E-01	8.472E-01	8.091E-02	0.001
MN-52		744.21		1.902E-01	6.045E-01	1.044E+00	9.075E-02	0.182
		848.13		8.956E+00	1.532E+01	2.717E+01	2.388E+00	0.330
		935.52		5.006E-01	6.649E-01	1.182E+00	1.035E-01	0.423
		1246.25		4.284E+00	1.921E+01	3.007E+01	2.512E+00	0.142
		1333.61		4.475E+00	1.193E+01	2.106E+01	1.795E+00	0.213
		1434.06	*	1.499E-01	4.786E-01	8.463E-01	7.297E-02	0.177
MN-54		834.83	*	-6.208E-03	5.522E-02	9.085E-02	7.988E-03	-0.068
CO-56		846.75	*	-4.011E-02	5.401E-02	8.155E-02	7.169E-03	-0.492
		977.42		5.356E+00	3.758E+00	7.074E+00	6.175E-01	0.757
		1037.82		-1.899E-01	4.491E-01	6.933E-01	6.305E-02	-0.274
		1175.09		1.667E+00	3.489E+00	5.946E+00	4.861E-01	0.280
	+	1238.25		3.173E-01	2.531E-01	2.833E-01	2.435E-02	1.120
		1360.21		-4.381E-01	1.231E+00	1.926E+00	1.648E-01	-0.227
		1771.40		-2.205E-01	3.438E-01	4.697E-01	3.966E-02	-0.469
CO-57		122.06	*	-2.406E-03	2.598E-02	4.275E-02	5.009E-03	-0.056
		136.48		4.857E-02	2.260E-01	3.756E-01	4.228E-02	0.129
CO-58		810.76	*	-3.541E-03	5.111E-02	8.451E-02	7.442E-03	-0.042
FE-59		142.65		-1.631E+00	3.378E+00	5.272E+00	5.419E-01	-0.309
		192.34		-8.691E-01	1.143E+00	1.749E+00	2.350E-01	-0.497
		1099.22	*	-4.395E-02	1.199E-01	1.844E-01	1.692E-02	-0.238
		1291.56		-9.106E-02	1.608E-01	2.312E-01	2.228E-02	-0.394
CO-60		1173.22		2.681E-02	6.467E-02	1.097E-01	8.961E-03	0.244
		1332.49	*	-2.468E-02	5.081E-02	7.782E-02	6.633E-03	-0.317
ZN-65		1115.52	*	2.368E-02	1.445E-01	2.085E-01	1.756E-02	0.114
GE-68		1077.35	*	1.462E+00	1.756E+00	3.143E+00	2.683E-01	0.465
AS-73		53.44	*	1.917E-01	2.543E-01	4.464E-01	4.467E-02	0.429
AS-74		595.88	*	-1.166E-01	1.525E-01	2.260E-01	1.991E-02	-0.516
		634.78		3.615E-02	6.256E-01	1.010E+00	8.700E-02	0.036
SE-75		66.05		-1.188E+00	3.133E+00	4.587E+00	5.276E-01	-0.259
		96.73		-5.173E-01	7.838E-01	1.121E+00	1.644E-01	-0.462

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error (pCi/GRAM)	MDA (pCi/GRAM)	MDA error	Act/MDA
		121.11	-5.000E-02	1.430E-01	2.319E-01	3.174E-02	-0.216
		136.00	5.446E-03	4.344E-02	7.190E-02	7.775E-03	0.076
		198.60	1.755E-02	2.197E+00	3.542E+00	3.413E-01	0.005
	*	264.65	-4.512E-02	6.065E-02	7.852E-02	7.214E-03	-0.575
		279.53	-7.072E-02	1.335E-01	2.192E-01	2.079E-02	-0.323
		303.91	-9.705E-01	2.788E+00	4.017E+00	4.778E-01	-0.242
		400.65	1.512E-01	3.288E-01	5.636E-01	6.205E-02	0.268
BR-77		87.88	8.925E-04	3.288E-01	Half-Life too short		
		200.40	-3.500E-04	3.288E-01	Half-Life too short		
	+	239.00	1.026E-03	3.288E-01	Half-Life too short		
		249.79	-8.212E-05	3.288E-01	Half-Life too short		
		281.68	8.782E-05	3.288E-01	Half-Life too short		
		297.23	7.711E-04	3.288E-01	Half-Life too short		
		303.76	-4.397E-04	3.288E-01	Half-Life too short		
		439.47	7.746E-04	3.288E-01	Half-Life too short		
		484.57	-7.586E-04	3.288E-01	Half-Life too short		
	*	520.65	-2.531E-05	3.288E-01	Half-Life too short		
		574.64	-3.051E-04	3.288E-01	Half-Life too short		
		578.91	2.595E-04	3.288E-01	Half-Life too short		
		585.48	1.613E-03	3.288E-01	Half-Life too short		
		755.35	8.775E-04	3.288E-01	Half-Life too short		
		817.79	2.029E-04	3.288E-01	Half-Life too short		
SR-82		698.33	-3.798E+01	5.580E+01	8.831E+01	7.562E+00	-0.430
	*	776.49	-1.553E-01	5.795E-01	9.417E-01	8.241E-02	-0.165
		1395.20	-1.489E+01	1.806E+01	2.606E+01	2.239E+00	-0.571
RB-83	*	520.41	-2.974E-02	9.526E-02	1.505E-01	1.346E-02	-0.198
		529.64	-1.191E-01	1.439E-01	2.139E-01	1.913E-02	-0.557
		552.65	1.332E-02	2.544E-01	4.150E-01	3.703E-02	0.032
RB-84	*	881.50	-1.034E-01	9.349E-02	1.296E-01	1.136E-02	-0.798
KR-85	*	513.99	9.270E+00	1.081E+01	1.688E+01	1.508E+00	0.549
SR-85	*	513.99	5.002E-02	5.833E-02	9.109E-02	8.138E-03	0.549
RB-86	*	1076.63	1.565E+00	1.274E+00	2.377E+00	2.030E-01	0.658
Y-88		898.02	1.853E-02	6.318E-02	1.077E-01	9.460E-03	0.172
	*	1836.01	-3.270E-02	5.623E-02	7.890E-02	6.579E-03	-0.414
ZR-88	*	392.90	-8.123E-03	3.962E-02	6.477E-02	5.457E-03	-0.125
Y-91	*	1204.90	-3.682E+00	2.616E+01	4.145E+01	3.421E+00	-0.089
NB-94	*	702.63	1.988E-02	4.710E-02	8.214E-02	7.046E-03	0.242
		871.10	4.116E-02	4.523E-02	8.245E-02	7.236E-03	0.499
NB-95	*	765.79	5.084E-02	6.613E-02	1.175E-01	1.027E-02	0.433
NB-95M	*	235.69	-5.524E-02	1.708E-01	2.356E-01	2.405E-02	-0.234
ZR-95		724.18	1.182E-01	1.460E-01	2.358E-01	2.213E-02	0.501
	*	756.15	6.583E-02	1.096E-01	1.932E-01	1.851E-02	0.341
NB-97	*	657.90	2.465E+01	1.096E-01	Half-Life too short		
		1024.50	7.178E+02	1.096E-01	Half-Life too short		
ZR-97		254.15	4.222E+00	1.096E-01	Half-Life too short		
		355.39	3.437E+02	1.096E-01	Half-Life too short		
	*	507.63	3.556E+02	1.096E-01	Half-Life too short		
		602.52	-6.388E+02	1.096E-01	Half-Life too short		
		1021.30	-4.364E+02	1.096E-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
	1147.95			-5.019E+02	1.096E-01	Half-Life	too short	
	1362.66			2.004E+02	1.096E-01	Half-Life	too short	
	1750.46			-4.418E+02	1.096E-01	Half-Life	too short	
MO-99	140.51			-8.849E+00	1.001E+02	1.586E+02	4.490E+01	-0.056
	181.06			1.778E+01	7.181E+01	1.056E+02	1.926E+01	0.168
	366.43			-2.057E+02	3.376E+02	5.354E+02	4.686E+01	-0.384
	739.58	*		5.152E+01	5.668E+01	1.020E+02	1.553E+01	0.505
	778.00			-9.066E+01	1.515E+02	2.364E+02	2.070E+01	-0.384
TC-99M	140.51	*		-2.559E+15	1.515E+02	Half-Life	too short	
RH-101	+	127.23		4.304E-02	5.370E-02	5.504E-02	6.260E-03	0.782
	198.01	*		1.078E-02	3.906E-02	6.391E-02	5.556E-03	0.169
	325.23			-2.018E-02	2.966E-01	4.368E-01	3.971E-02	-0.046
RH-102		418.52		-3.118E-02	3.769E-01	5.992E-01	5.152E-02	-0.052
	475.06	*		2.539E-03	3.960E-02	6.529E-02	5.783E-03	0.039
	631.29			3.085E-02	7.205E-02	1.211E-01	1.045E-02	0.255
	697.49			1.002E-02	1.075E-01	1.826E-01	1.563E-02	0.055
	766.84			1.551E-01	1.630E-01	2.929E-01	2.559E-02	0.530
	1046.59			-7.617E-02	1.724E-01	2.665E-01	2.296E-02	-0.286
	1112.84			2.694E-01	3.449E-01	5.495E-01	4.627E-02	0.490
RU-103		497.08	*	2.097E-02	5.906E-02	9.946E-02	1.426E-02	0.211
	+	610.33		1.276E+01	3.316E+00	4.174E+00	6.992E-01	3.057
RH-106	+	511.85		7.065E-01	4.618E-01	5.667E-01	5.062E-02	1.247
		621.84	*	1.702E-02	4.599E-01	7.422E-01	9.947E-02	0.023
	1050.47			1.173E+00	3.420E+00	5.806E+00	4.996E-01	0.202
RU-106	+	511.85		7.065E-01	4.618E-01	5.667E-01	5.062E-02	1.247
		621.84	*	1.702E-02	4.599E-01	7.422E-01	6.448E-02	0.023
	1050.47			1.173E+00	3.420E+00	5.806E+00	4.996E-01	0.202
AG-108M		433.93	*	-1.093E-02	4.136E-02	6.672E-02	6.022E-03	-0.164
		614.37		4.603E-03	5.915E-02	8.401E-02	7.612E-03	0.055
		722.95		1.168E-03	6.273E-02	9.208E-02	8.265E-03	0.013
CD-109		88.03	*	8.092E-01	9.385E-01	1.458E+00	1.423E-01	0.555
AG-110M		657.75	*	7.270E-02	5.217E-02	8.722E-02	7.602E-03	0.833
		677.61		1.555E-02	4.757E-01	7.623E-01	6.658E-02	0.020
		706.67		-2.154E-03	2.801E-01	4.714E-01	4.162E-02	-0.005
		763.93		-2.596E-01	2.504E-01	3.780E-01	3.391E-02	-0.687
		884.67		-3.846E-03	5.943E-02	9.755E-02	8.812E-03	-0.039
		937.48		-2.658E-01	1.701E-01	2.283E-01	2.068E-02	-1.164
	1384.27			-1.028E-01	2.089E-01	3.191E-01	2.817E-02	-0.322
IN-111		171.28		-1.140E+00	3.523E+00	5.610E+00	4.710E-01	-0.203
		245.39	*	2.497E+00	4.150E+00	6.209E+00	5.631E-01	0.402
IN-113M		391.69	*	-1.364E-02	5.871E-02	9.584E-02	8.327E-03	-0.142
SN-113		391.69	*	-1.364E-02	5.871E-02	9.584E-02	8.327E-03	-0.142
IN-114M		190.27	*	-6.916E-02	2.412E-01	3.392E-01	2.921E-02	-0.204
CD-115		260.90		-3.830E-05	2.412E-01	Half-Life	too short	
		492.35		3.883E-05	2.412E-01	Half-Life	too short	
		527.90	*	-1.013E-05	2.412E-01	Half-Life	too short	
SN-117M		156.02		-1.597E+00	3.408E+00	5.426E+00	4.995E-01	-0.294
		158.56	*	-3.852E-02	7.762E-02	1.230E-01	1.106E-02	-0.313
SB-122		563.90	*	8.983E+00	9.722E+00	1.704E+01	1.517E+00	0.527

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123		692.80		-8.565E+01	2.083E+02	3.380E+02	2.888E+01	-0.253
		159.00	*	-1.071E+03	2.083E+02	Half-Life	too short	
		528.96		-9.570E+04	2.083E+02	Half-Life	too short	
TE-123M		159.00	*	-1.154E-02	3.150E-02	5.029E-02	4.527E-03	-0.230
I-124		602.71	*	-1.061E+00	2.262E+00	3.175E+00	2.788E-01	-0.334
		722.78		9.026E-01	1.449E+01	2.140E+01	1.849E+00	0.042
		1325.50		-2.397E+01	1.007E+02	1.627E+02	1.385E+01	-0.147
		1376.25		7.916E+01	1.038E+02	1.894E+02	1.624E+01	0.418
		1509.49		3.306E+00	5.460E+01	9.135E+01	7.900E+00	0.036
		1691.02		1.768E+00	1.249E+01	2.113E+01	1.807E+00	0.084
SB-124		602.71		-2.912E-02	6.213E-02	8.719E-02	7.658E-03	-0.334
		645.85		1.754E-01	7.702E-01	1.263E+00	1.145E-01	0.139
		709.31		-2.349E+00	3.697E+00	5.809E+00	4.995E-01	-0.404
		713.82		-2.901E-02	2.139E+00	3.594E+00	4.325E-01	-0.008
		722.78		3.593E-02	5.769E-01	8.519E-01	7.518E-02	0.042
	+	968.20		2.120E+01	6.584E+00	1.026E+01	8.961E-01	2.066
		1045.16		-6.650E-01	3.818E+00	6.106E+00	5.262E-01	-0.109
		1325.50		-1.019E+00	4.281E+00	6.920E+00	5.889E-01	-0.147
		1368.21		-6.373E-01	2.334E+00	3.718E+00	4.997E-01	-0.171
		1436.60		-1.559E+00	4.555E+00	7.045E+00	6.075E-01	-0.221
		1691.02	*	1.660E-02	1.173E-01	1.984E-01	1.765E-02	0.084
SB-125		427.89	*	-1.940E-02	1.179E-01	1.922E-01	1.695E-02	-0.101
	+	463.38		1.019E+00	5.523E-01	7.125E-01	6.755E-02	1.431
		600.56		2.398E-02	2.476E-01	4.029E-01	3.793E-02	0.060
		635.90		5.187E-02	3.948E-01	6.422E-01	5.974E-02	0.081
TE-125M		109.28	*	4.413E+00	9.800E+00	1.661E+01	2.043E+00	0.266
I-126		388.63		1.488E-01	3.373E-01	5.782E-01	4.893E-02	0.257
		666.33	*	1.513E-02	3.751E-01	5.260E-01	4.441E-02	0.029
		753.82		3.207E+00	2.778E+00	5.106E+00	4.448E-01	0.628
SB-126		223.80		1.151E-01	6.011E+00	9.630E+00	8.595E-01	0.012
		278.60		2.917E+00	3.857E+00	6.798E+00	6.240E-01	0.429
	+	296.50		1.828E+01	4.592E+00	5.531E+00	5.078E-01	3.305
		414.70		-2.641E-02	1.310E-01	2.060E-01	1.766E-02	-0.128
		415.30		-3.892E-01	1.072E+01	1.769E+01	1.517E+00	-0.022
		555.20		-4.522E+00	6.700E+00	1.006E+01	8.977E-01	-0.449
		573.80		-5.473E-01	1.690E+00	2.636E+00	2.341E-01	-0.208
		593.00		2.120E-01	1.554E+00	2.544E+00	2.244E-01	0.083
		656.30		1.149E+00	6.906E+00	9.881E+00	8.364E-01	0.116
		666.33		6.392E-03	1.585E-01	2.223E-01	1.877E-02	0.029
		675.00		2.599E+00	3.918E+00	6.663E+00	5.649E-01	0.390
		695.00		1.585E-02	1.373E-01	2.339E-01	2.000E-02	0.068
		697.00		7.772E-02	4.914E-01	8.396E-01	7.186E-02	0.093
		720.50	*	1.990E-01	2.664E-01	4.449E-01	3.840E-02	0.447
		856.80		1.842E-01	8.870E-01	1.323E+00	1.162E-01	0.139
		989.30		3.925E-01	2.342E+00	3.921E+00	3.417E-01	0.100
		1034.80		1.228E+01	1.596E+01	2.849E+01	2.462E+00	0.431
		1213.00		7.127E-01	9.045E+00	1.472E+01	1.218E+00	0.048
SN-126	+	64.28		9.863E-01	5.294E-01	5.570E-01	8.890E-02	1.771
	+	86.94		2.017E+00	1.054E+00	6.052E-01	2.518E-01	3.333

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	87.57	*		1.080E-01	9.259E-02	1.451E-01	1.416E-02	0.744
	61.10			-2.558E+01	6.949E+01	1.045E+02	1.433E+01	-0.245
	252.40			2.025E+00	1.183E+01	1.897E+01	8.078E+00	0.107
	290.80			-3.283E+01	6.476E+01	9.213E+01	1.208E+01	-0.356
	411.60			4.283E+00	4.197E+01	6.172E+01	1.039E+01	0.069
	444.90			-1.759E+01	3.180E+01	4.898E+01	6.867E+00	-0.359
	473.00			-4.381E+00	5.567E+00	8.458E+00	1.217E+00	-0.518
	543.00			-4.926E+01	4.912E+01	6.979E+01	1.104E+01	-0.706
	603.60			-1.237E+01	4.423E+01	5.985E+01	8.391E+00	-0.207
	685.20	*		-1.146E-01	4.786E+00	7.618E+00	9.791E-01	-0.015
XE-127	698.50			-2.395E+01	5.127E+01	8.260E+01	1.398E+01	-0.290
	722.20			-2.241E+01	1.091E+02	1.552E+02	1.977E+01	-0.144
	783.80			6.083E+00	1.113E+01	1.959E+01	2.729E+00	0.310
	57.60			1.223E+00	2.552E+00	4.427E+00	4.446E-01	0.276
	145.22			1.094E+00	8.565E-01	1.480E+00	1.492E-01	0.739
	172.10			-1.208E-01	1.428E-01	2.194E-01	1.845E-02	-0.551
	202.84	*		6.337E-03	6.147E-02	9.951E-02	8.699E-03	0.064
	374.96			-4.874E-02	2.732E-01	4.493E-01	3.886E-02	-0.108
	80.18			8.346E+00	6.816E+00	8.993E+00	8.835E-01	0.928
	284.30			7.599E-01	2.530E+00	4.366E+00	4.211E-01	0.174
I-131	364.48	*		-6.418E-02	2.098E-01	3.419E-01	3.170E-02	-0.188
	636.97			1.164E+00	3.278E+00	5.454E+00	4.974E-01	0.213
	722.89			1.226E+00	1.589E+01	2.352E+01	2.054E+00	0.052
	49.72			-1.378E+00	1.275E+01	1.959E+01	2.602E+00	-0.070
	111.76			2.521E+01	8.673E+01	1.458E+02	2.051E+01	0.173
	116.30			1.049E+01	7.848E+01	1.309E+02	1.871E+01	0.080
	228.16	*		1.156E+00	2.232E+00	3.674E+00	6.205E-01	0.315
	53.15			1.014E+00	1.040E+00	1.838E+00	1.839E-01	0.552
	79.62			2.811E-01	1.137E+00	1.600E+00	2.542E-01	0.176
	81.00			-1.316E-02	9.022E-02	1.239E-01	2.045E-02	-0.106
TE-132	276.40			4.300E-01	4.375E-01	7.746E-01	1.145E-01	0.555
	302.84			-1.206E-01	1.925E-01	2.697E-01	3.682E-02	-0.447
	356.01	*		7.977E-03	5.372E-02	8.033E-02	1.073E-02	0.099
	383.85			-2.653E-01	3.771E-01	5.911E-01	7.415E-02	-0.449
	510.53	+		6.943E+01	3.771E-01	Half-Life	too short	
	529.87	*		-3.960E-01	3.771E-01	Half-Life	too short	
	706.58			4.199E-02	3.771E-01	Half-Life	too short	
	856.28			1.488E+01	3.771E-01	Half-Life	too short	
	875.33			1.921E+00	3.771E-01	Half-Life	too short	
	1236.41	+		1.073E+02	3.771E-01	Half-Life	too short	
BA-133	1298.22			-3.691E+00	3.771E-01	Half-Life	too short	
	475.35			1.410E-02	2.652E+00	4.351E+00	3.854E-01	0.003
	563.23			3.334E-01	4.726E-01	8.160E-01	7.332E-02	0.409
	569.32			-2.767E-02	2.571E-01	4.116E-01	3.707E-02	-0.067
	604.70			-2.994E-04	5.238E-02	7.364E-02	6.476E-03	-0.004
	795.84	*		8.340E-02	1.224E-01	1.363E-01	1.205E-02	0.612
	801.93			5.264E-02	5.920E-01	9.526E-01	8.409E-02	0.055
	1038.57			-4.066E+00	5.511E+00	8.127E+00	7.017E-01	-0.500
	1167.94			-2.618E+00	3.662E+00	5.389E+00	4.415E-01	-0.486

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1365.15			2.229E-01	1.489E+00	2.554E+00	2.288E-01	0.087
	268.24	*		1.874E-01	2.086E-01	3.163E-01	3.301E-02	0.592
	288.45			3.891E+15	2.086E-01	Half-Life	too short	
	417.63			5.921E+13	2.086E-01	Half-Life	too short	
	546.56			1.397E+15	2.086E-01	Half-Life	too short	
	836.80			-1.611E+15	2.086E-01	Half-Life	too short	
	1038.76			-3.337E+15	2.086E-01	Half-Life	too short	
	1124.00			-5.543E+15	2.086E-01	Half-Life	too short	
	1131.51			-6.373E+14	2.086E-01	Half-Life	too short	
	1260.41	*		2.290E+15	2.086E-01	Half-Life	too short	
	1457.56			1.540E+17	2.086E-01	Half-Life	too short	
	1678.03			2.727E+15	2.086E-01	Half-Life	too short	
	1706.46			1.822E+15	2.086E-01	Half-Life	too short	
	1791.20			-3.065E+14	2.086E-01	Half-Life	too short	
CS-136	66.91			-1.374E-02	6.429E-01	9.580E-01	1.549E-01	-0.014
	86.29	+		8.179E+00	2.813E+00	2.353E+00	3.209E-01	3.476
	153.22			9.429E-01	9.554E-01	1.632E+00	1.694E-01	0.578
	163.89			-4.634E-01	1.539E+00	2.464E+00	2.358E-01	-0.188
	176.55			4.723E-01	5.328E-01	9.047E-01	8.116E-02	0.522
	273.65			-6.103E-01	8.174E-01	1.061E+00	1.031E-01	-0.575
	340.57			3.059E-01	2.231E-01	3.653E-01	3.375E-02	0.837
	818.51			3.124E-02	1.214E-01	2.081E-01	1.832E-02	0.150
	1048.07	*		-1.497E-01	2.111E-01	3.145E-01	2.826E-02	-0.476
	1235.34			1.652E+00	1.333E+00	2.151E+00	2.505E-01	0.768
CE-139 BA-140	165.85	*		7.350E-04	3.471E-02	5.657E-02	4.717E-03	0.013
	162.64			1.350E-01	1.044E+00	1.714E+00	1.565E-01	0.079
	304.84			3.135E-01	2.139E+00	3.226E+00	9.096E-01	0.097
	423.70			3.831E-01	3.051E+00	5.091E+00	1.651E+00	0.075
LA-140	537.32	*		3.195E-01	4.646E-01	7.832E-01	2.602E-01	0.408
	328.77	+		7.660E-01	6.908E-01	8.482E-01	8.085E-02	0.903
	432.53			2.157E-01	3.379E+00	5.607E+00	5.100E-01	0.038
	487.03			1.026E-01	2.381E-01	4.040E-01	3.801E-02	0.254
	751.79			-3.144E-01	3.140E+00	5.213E+00	5.016E-01	-0.060
	815.85			-1.466E-01	5.162E-01	8.298E-01	8.102E-02	-0.177
	867.82			-1.175E+00	2.393E+00	3.728E+00	3.440E-01	-0.315
	919.63			3.826E+00	4.935E+00	8.843E+00	9.510E-01	0.433
	925.24			-6.071E-01	2.151E+00	3.434E+00	3.189E-01	-0.177
	1596.49	*		-1.708E-01	1.536E-01	1.920E-01	1.657E-02	-0.889
CE-141 CE-143	145.44	*		6.826E-02	7.924E-02	1.348E-01	1.375E-02	0.506
	57.37			1.518E-03	7.924E-02	Half-Life	too short	
	231.56			1.182E-02	7.924E-02	Half-Life	too short	
	293.26	*		6.831E-03	7.924E-02	Half-Life	too short	
	350.59	+		3.895E-01	7.924E-02	Half-Life	too short	
	490.36			-7.684E-03	7.924E-02	Half-Life	too short	
	664.57			2.337E-02	7.924E-02	Half-Life	too short	
	721.93			-5.635E-03	7.924E-02	Half-Life	too short	
	80.11			2.587E+00	2.087E+00	2.757E+00	2.685E-01	0.938
CE-144	133.54	*		-1.182E-01	2.509E-01	3.563E-01	6.044E-02	-0.332
PM-144	476.78			1.725E-04	9.684E-02	1.588E-01	1.533E-02	0.001

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		2.015E-02	4.357E-02	7.336E-02	6.563E-03	0.275
		696.49	*	1.977E-02	4.782E-02	8.345E-02	7.145E-03	0.237
		778.57		-1.016E+00	3.045E+00	4.908E+00	4.299E-01	-0.207
PR-144		696.49	*	1.343E+00	3.249E+00	5.669E+00	4.851E-01	0.237
		1489.15		-3.963E-01	1.596E+01	2.637E+01	2.280E+00	-0.015
PM-146		453.90	*	1.954E-02	5.794E-02	9.786E-02	1.062E-02	0.200
		633.02		-1.027E+00	2.003E+00	2.980E+00	1.114E+00	-0.345
		735.90		-1.441E-01	2.075E-01	3.170E-01	9.073E-02	-0.455
		747.13		-1.077E-01	1.278E-01	1.862E-01	2.623E-02	-0.578
ND-147		91.11		1.098E+00	4.951E-01	6.674E-01	7.029E-02	1.645
		319.41		6.795E-01	5.546E+00	9.406E+00	8.579E-01	0.072
		439.89		1.074E+01	1.014E+01	1.806E+01	1.575E+00	0.595
		531.02	*	-2.528E-01	9.837E-01	1.558E+00	2.359E-01	-0.162
PM-149		285.90	*	-3.621E-04	9.837E-01	Half-Life	too short	
EU-152		121.78		-2.206E-02	7.492E-02	1.219E-01	1.546E-02	-0.181
		244.69		-2.511E-04	3.914E-01	5.535E-01	5.018E-02	0.000
		344.27	*	-5.075E-02	1.133E-01	1.834E-01	1.735E-02	-0.277
		443.98		-7.238E-01	1.278E+00	1.968E+00	1.719E-01	-0.368
		778.89		4.145E-03	3.460E-01	5.792E-01	5.071E-02	0.007
		867.32		-6.490E-01	1.114E+00	1.716E+00	1.507E-01	-0.378
	+	964.01		6.181E-01	5.786E-01	7.782E-01	6.801E-02	0.794
		1085.78		6.236E-02	5.324E-01	8.805E-01	7.492E-02	0.071
		1112.02		2.996E-01	4.754E-01	7.682E-01	6.470E-02	0.390
		1407.95		1.283E-01	2.817E-01	4.981E-01	4.286E-02	0.258
GD-153		69.67		-3.404E-01	1.116E+00	1.674E+00	1.643E-01	-0.203
		83.37		9.725E+00	1.411E+01	2.188E+01	2.132E+00	0.445
		97.43	*	-1.431E-01	8.610E-02	1.122E-01	1.147E-02	-1.275
		103.18		-6.951E-02	1.028E-01	1.654E-01	1.743E-02	-0.420
EU-154		123.07		1.755E-02	5.369E-02	9.012E-02	1.244E-02	0.195
		247.94		7.009E-02	4.095E-01	6.590E-01	7.794E-02	0.106
		591.81		1.981E-01	7.901E-01	1.309E+00	1.547E-01	0.151
		723.30		2.146E-02	2.641E-01	3.909E-01	3.731E-02	0.055
		756.87		1.478E-01	1.118E+00	1.896E+00	2.284E-01	0.078
		873.19		-1.238E-01	4.199E-01	6.722E-01	8.303E-02	-0.184
		996.32		-2.863E-01	4.990E-01	7.534E-01	1.342E-01	-0.380
		1004.76		-2.535E-01	2.601E-01	3.611E-01	4.223E-02	-0.702
		1274.45	*	-2.059E-02	1.812E-01	2.866E-01	3.197E-02	-0.072
EU-155		48.70		-1.732E-01	5.072E-01	7.689E-01	7.724E-02	-0.225
		60.01		1.957E-01	2.405E+00	3.704E+00	3.726E-01	0.053
	+	86.54		5.855E-01	1.936E-01	1.739E-01	1.710E-02	3.366
		105.31	*	9.300E-02	1.052E-01	1.814E-01	1.949E-02	0.513
TB-160	+	86.79		1.636E+00	5.405E-01	4.889E-01	4.769E-02	3.345
		197.04		2.196E-01	6.825E-01	1.120E+00	9.727E-02	0.196
		215.65		-4.119E-01	9.465E-01	1.476E+00	1.308E-01	-0.279
		298.57		2.964E-01	1.787E-01	2.464E-01	2.261E-02	1.203
		879.36	*	1.023E-01	1.661E-01	2.974E-01	2.608E-02	0.344
		962.29		6.397E-01	9.222E-01	1.440E+00	1.259E-01	0.444
	+	966.15		4.444E-01	4.160E-01	8.089E-01	7.068E-02	0.549
		1177.93		1.784E-01	5.449E-01	9.152E-01	7.488E-02	0.195



----- 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		-4.691E-01	1.064E+00	1.599E+00	1.345E-01	-0.293
		80.57		5.436E-02	2.846E-01	3.484E-01	3.393E-02	0.156
	+	184.41		1.733E-01	6.199E-02	7.957E-02	6.802E-03	2.178
		280.46		-1.177E-01	1.029E-01	1.619E-01	1.486E-02	-0.727
		410.95		3.168E-01	3.564E-01	5.636E-01	4.819E-02	0.562
		711.68	*	2.025E-02	7.358E-02	1.273E-01	1.096E-02	0.159
TM-171		752.31		1.554E-01	3.882E-01	6.746E-01	5.875E-02	0.230
		810.29		1.115E-02	7.433E-02	1.260E-01	1.107E-02	0.088
		51.35		-2.379E+00	7.701E+00	1.301E+01	1.303E+00	-0.183
		52.39		5.450E+00	4.339E+00	7.731E+00	7.735E-01	0.705
		59.40		3.330E+00	1.250E+01	1.944E+01	1.959E+00	0.171
		66.72	*	-2.086E+00	1.801E+01	2.671E+01	2.637E+00	-0.078
LU-176		88.36		2.845E-01	2.290E-01	3.341E-01	3.266E-02	0.852
		201.83		4.567E-03	3.477E-02	5.638E-02	4.924E-03	0.081
		306.84	*	2.715E-02	2.947E-02	5.237E-02	4.798E-03	0.518
		401.10		2.852E+00	8.370E+00	1.424E+01	1.208E+00	0.200
LU-177		112.95		-8.161E-01	2.844E+00	4.655E+00	5.176E-01	-0.175
	+	208.36	*	3.265E+00	2.886E+00	3.943E+00	3.467E-01	0.828
LU-177M		52.97		4.747E-01	4.751E-01	8.402E-01	8.406E-02	0.565
		54.07		6.300E-02	2.659E-01	4.586E-01	4.589E-02	0.137
		61.30		-1.189E-01	7.794E-01	1.186E+00	1.188E-01	-0.100
		121.62		-1.220E-01	3.915E-01	6.364E-01	7.432E-02	-0.192
		147.16		-5.006E-02	7.392E-01	1.207E+00	1.198E-01	-0.041
		171.86		-3.093E-01	5.265E-01	8.235E-01	6.921E-02	-0.376
		218.09		-4.233E-01	1.010E+00	1.575E+00	1.398E-01	-0.269
		268.79		1.604E+00	1.105E+00	1.739E+00	1.593E-01	0.922
		319.02		8.000E-02	3.236E-01	5.530E-01	5.043E-02	0.145
		367.43		-1.950E-01	1.084E+00	1.784E+00	1.559E-01	-0.109
		413.65	*	1.007E-01	2.573E-01	3.896E-01	3.338E-02	0.258
		56.28		-1.167E-01	3.579E-01	6.026E-01	6.041E-02	-0.194
HF-181		57.53		9.158E-02	2.108E-01	3.651E-01	3.666E-02	0.251
		65.20		-6.275E-02	6.126E-01	9.318E-01	9.229E-02	-0.067
		133.02		-3.111E-03	8.442E-02	1.240E-01	1.362E-02	-0.025
		136.25		5.988E-02	5.334E-01	8.821E-01	9.482E-02	0.068
		345.85		8.813E-02	2.622E-01	4.001E-01	3.582E-02	0.220
		482.03	*	-4.350E-02	6.299E-02	9.677E-02	8.591E-03	-0.449
W-181		56.28		-4.301E-02	1.331E-01	2.241E-01	2.247E-02	-0.192
		57.53		3.396E-02	7.841E-02	1.358E-01	1.364E-02	0.250
		65.20	*	-2.316E-02	2.261E-01	3.439E-01	3.406E-02	-0.067
TA-182		67.75		3.439E-02	7.305E-02	1.112E-01	1.096E-02	0.309
		100.10		1.348E-01	1.759E-01	2.973E-01	3.082E-02	0.453
		152.43		7.035E-02	3.829E-01	6.320E-01	6.008E-02	0.111
		222.10		-6.520E-02	3.998E-01	6.329E-01	5.641E-02	-0.103
		1001.68		-2.551E-01	2.598E+00	4.174E+00	3.631E-01	-0.061
		1121.28		6.368E-01	2.537E-01	4.917E-01	4.125E-02	1.295
RE-183		1189.05		-3.138E-01	4.589E-01	6.774E-01	5.563E-02	-0.463
		1221.42	*	-3.086E-02	3.090E-01	4.928E-01	4.088E-02	-0.063
		1230.97		2.614E-01	7.569E-01	1.113E+00	9.261E-02	0.235
		57.98		6.682E-02	8.268E-02	1.448E-01	1.455E-02	0.462

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		1.209E-02	5.340E-02	8.289E-02	8.352E-03	0.146
		67.20		2.616E-02	1.353E-01	2.036E-01	2.008E-02	0.128
		162.32	*	9.542E-02	1.210E-01	2.055E-01	1.779E-02	0.464
	+	208.81		1.865E+00	1.648E+00	2.255E+00	1.984E-01	0.827
		291.72		-8.125E-01	1.259E+00	1.769E+00	1.625E-01	-0.459
		57.98		2.394E-01	2.962E-01	5.186E-01	5.212E-02	0.462
		59.32		4.326E-02	1.912E-01	2.967E-01	2.989E-02	0.146
		67.20		9.369E-02	4.844E-01	7.293E-01	7.191E-02	0.128
		161.27		-3.368E-01	3.911E-01	6.039E-01	5.284E-02	-0.558
		216.55		-3.979E-02	3.149E-01	5.008E-01	4.441E-02	-0.079
		252.85	*	2.485E-02	2.702E-01	4.320E-01	3.933E-02	0.058
		318.01		5.018E-02	5.614E-01	9.503E-01	8.670E-02	0.053
OS-185		792.07		1.630E+00	1.747E+00	2.821E+00	2.474E-01	0.578
		903.28		-8.334E-01	1.743E+00	2.526E+00	2.209E-01	-0.330
		920.93		4.720E-02	6.280E-01	1.046E+00	9.151E-02	0.045
		59.72		1.258E-02	1.470E-01	2.265E-01	2.281E-02	0.056
		61.14		-2.954E-02	8.560E-02	1.289E-01	1.292E-02	-0.229
		69.30		1.703E-03	2.008E-01	3.063E-01	3.009E-02	0.006
		592.07		1.752E-01	3.422E+00	5.553E+00	4.900E-01	0.032
		646.12	*	7.824E-03	6.360E-02	1.033E-01	8.816E-03	0.076
		717.42		4.560E-02	1.213E+00	2.048E+00	1.766E-01	0.022
		874.81		2.265E-01	8.443E-01	1.441E+00	1.264E-01	0.157
		880.27		-6.937E-01	9.690E-01	1.443E+00	1.265E-01	-0.481
		155.03	*	1.632E-01	2.063E-01	3.497E-01	3.248E-02	0.467
RE-188		477.96		2.246E+00	4.585E+00	7.802E+00	6.917E-01	0.288
		633.10		-2.081E+00	4.177E+00	6.345E+00	5.471E-01	-0.328
W-188	+	63.58		1.051E+02	5.487E+01	6.128E+01	6.095E+00	1.715
IR-192		227.08		8.300E+00	1.534E+01	2.535E+01	2.269E+00	0.327
		290.67	*	-4.816E+00	9.814E+00	1.400E+01	1.286E+00	-0.344
	+	295.96		1.117E+00	2.808E-01	3.676E-01	3.396E-02	3.039
		308.46		3.815E-02	1.142E-01	1.968E-01	1.810E-02	0.194
AU-195		316.51	*	1.637E-02	4.453E-02	7.666E-02	7.013E-03	0.213
		468.07		6.291E-02	9.240E-02	1.555E-01	1.468E-02	0.405
		604.41		-9.109E-02	7.312E-01	1.011E+00	1.327E-01	-0.090
		612.46		-5.930E-01	1.173E+00	1.532E+00	1.532E-01	-0.387
		65.12		1.715E-02	1.045E-01	1.609E-01	1.594E-02	0.107
		66.83		-4.261E-03	6.067E-02	9.018E-02	8.899E-03	-0.047
	+	75.70		1.273E+00	2.236E-01	3.885E-01	3.790E-02	3.276
		98.88	*	3.293E-01	2.248E-01	3.755E-01	3.867E-02	0.877
TL-200	+	129.76		3.853E+00	4.808E+00	5.612E+00	6.287E-01	0.687
		367.94	*	1.837E-03	4.808E+00	Half-Life	too short	
		579.30		6.604E-02	4.808E+00	Half-Life	too short	
		828.27		9.440E-02	4.808E+00	Half-Life	too short	
TL-201		1205.75		-2.192E-02	4.808E+00	Half-Life	too short	
		68.90		-1.679E+00	9.510E+00	1.438E+01	1.413E+00	-0.117
		70.82		-2.688E+00	5.566E+00	8.264E+00	8.100E-01	-0.325
		80.30		8.158E+00	1.551E+01	1.947E+01	1.897E+00	0.419
		135.34		2.951E+01	8.213E+01	1.375E+02	1.487E+01	0.215
		167.43	*	1.365E+01	2.300E+01	3.863E+01	3.226E+00	0.353

---- 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	-6.580E-02	3.727E-01	5.633E-01	5.537E-02	-0.117
		70.82	-1.051E-01	2.175E-01	3.229E-01	3.165E-02	-0.325
		80.30	3.189E-01	6.062E-01	7.611E-01	7.413E-02	0.419
HG-203		439.56 *	1.242E-01	1.152E-01	2.057E-01	1.792E-02	0.604
		70.83	-3.697E-01	7.706E-01	1.143E+00	1.644E-01	-0.324
		72.87	5.796E-01	4.411E-01	7.663E-01	1.072E-01	0.756
		82.60	1.083E+00	1.032E+00	1.623E+00	2.350E-01	0.667
		279.20 *	-2.763E-02	5.212E-02	8.560E-02	8.056E-03	-0.323
BI-207		72.80	1.342E-01	1.180E-01	2.061E-01	2.016E-02	0.651
	+	74.97	6.933E-01	1.218E-01	1.838E-01	1.794E-02	3.773
	+	84.90	1.103E+00	3.644E-01	2.774E-01	2.704E-02	3.975
		569.67	4.930E-04	3.920E-02	6.352E-02	5.649E-03	0.008
		1063.62 *	2.145E-02	7.218E-02	1.221E-01	1.047E-02	0.176
TL-207		1770.23	-1.145E-01	7.085E-01	9.320E-01	7.873E-02	-0.123
		81.07	5.345E-03	1.961E-01	2.722E-01	2.651E-02	0.020
		83.78	1.119E-01	1.201E-01	1.878E-01	1.830E-02	0.596
		94.90	-1.307E-01	2.261E-01	3.691E-01	3.725E-02	-0.354
		122.32	8.634E-03	1.785E+00	2.952E+00	3.593E-01	0.003
		144.24	4.236E-01	7.969E-01	1.308E+00	1.443E-01	0.324
		154.21	4.712E-01	4.547E-01	7.775E-01	7.896E-02	0.606
	+	269.46	2.166E-01	3.187E-01	4.011E-01	3.743E-02	0.540
		323.87 *	-1.638E-01	8.944E-01	1.303E+00	2.337E-01	-0.126
	+	338.28	5.036E+00	2.041E+00	3.093E+00	3.894E-01	1.628
PO-209		445.03	-1.547E+00	3.099E+00	4.804E+00	5.849E-01	-0.322
		260.50	-4.276E+00	1.125E+01	1.731E+01	1.581E+00	-0.247
		262.80	4.857E+00	2.994E+01	4.802E+01	4.391E+00	0.101
		896.60 *	8.428E+00	1.043E+01	1.872E+01	1.637E+00	0.450
PB-211		404.84 *	-1.299E+00	1.578E+00	1.759E+00	1.102E+00	-0.739
		427.08	-7.763E-01	2.686E+00	4.260E+00	2.648E+00	-0.182
		831.96	6.575E-01	1.810E+00	3.038E+00	1.905E+00	0.216
BI-212	+	727.18 *	1.209E+00	5.856E-01	9.261E-01	9.293E-02	1.306
		785.46	3.068E-01	2.435E+00	4.118E+00	3.609E-01	0.074
		1620.62	1.068E+00	1.551E+00	2.916E+00	2.513E-01	0.366
PO-215		81.07	5.345E-03	1.961E-01	2.722E-01	2.651E-02	0.020
		83.78	1.119E-01	1.201E-01	1.878E-01	1.830E-02	0.596
		94.90	-1.307E-01	2.261E-01	3.691E-01	3.725E-02	-0.354
		122.32	8.634E-03	1.785E+00	2.952E+00	3.593E-01	0.003
		144.24	4.236E-01	7.969E-01	1.308E+00	1.443E-01	0.324
		154.21	4.712E-01	4.547E-01	7.775E-01	7.896E-02	0.606
	+	269.46	2.166E-01	3.187E-01	4.011E-01	3.743E-02	0.540
		323.87 *	-1.638E-01	8.944E-01	1.303E+00	2.337E-01	-0.126
	+	338.28	5.036E+00	2.041E+00	3.093E+00	3.894E-01	1.628
		445.03	-1.547E+00	3.099E+00	4.804E+00	5.849E-01	-0.322
RN-219	+	271.23	2.779E-01	4.092E-01	4.975E-01	5.360E-02	0.559
		401.81 *	2.061E-01	5.162E-01	8.803E-01	1.316E-01	0.234
RN-220		549.76 *	1.061E+01	3.195E+01	5.363E+01	4.788E+00	0.198
RA-223		81.07	5.345E-03	1.961E-01	2.722E-01	2.651E-02	0.020
		83.78	1.119E-01	1.201E-01	1.878E-01	1.830E-02	0.596
		94.90	-1.307E-01	2.261E-01	3.691E-01	3.725E-02	-0.354

---- 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		8.634E-03	1.785E+00	2.952E+00	3.593E-01	0.003
		144.24		4.236E-01	7.969E-01	1.308E+00	1.443E-01	0.324
		154.21		4.712E-01	4.547E-01	7.775E-01	7.896E-02	0.606
	+	269.46		2.166E-01	3.187E-01	4.011E-01	3.743E-02	0.540
		323.87	*	-1.638E-01	8.944E-01	1.303E+00	2.337E-01	-0.126
	+	338.28		5.036E+00	2.041E+00	3.093E+00	3.894E-01	1.628
		445.03		-1.547E+00	3.099E+00	4.804E+00	5.849E-01	-0.322
		79.80		1.320E+00	1.439E+00	2.071E+00	4.551E-01	0.638
		236.00		5.319E-02	3.066E-01	4.407E-01	5.519E-02	0.121
		256.20	*	9.648E-02	4.558E-01	7.336E-01	1.147E-01	0.132
		286.10		-1.644E+00	1.770E+00	2.797E+00	3.798E-01	-0.588
	+	299.80		3.572E+00	2.378E+00	3.196E+00	5.680E-01	1.118
		304.40		-9.498E-01	2.481E+00	3.557E+00	6.651E-01	-0.267
		334.20		3.524E-01	2.999E+00	4.484E+00	8.789E-01	0.079
TH-227		79.80		1.320E+00	1.440E+00	2.071E+00	4.607E-01	0.638
	+	94.00		1.592E+01	5.020E+00	4.026E+00	9.010E-01	3.955
		236.00		5.319E-02	3.066E-01	4.407E-01	5.017E-02	0.121
		256.20	*	9.648E-02	4.559E-01	7.336E-01	1.343E-01	0.132
		286.10		-1.644E+00	2.411E+00	2.797E+00	2.809E+00	-0.588
	+	299.80		3.572E+00	2.378E+00	3.196E+00	5.680E-01	1.118
		304.40		-9.498E-01	2.481E+00	3.557E+00	6.651E-01	-0.267
		334.20		3.524E-01	2.999E+00	4.484E+00	8.789E-01	0.079
	+	85.43		1.088E+00	3.596E-01	2.795E-01	2.724E-02	3.894
		88.47		1.406E-01	1.310E-01	1.899E-01	1.858E-02	0.741
TH-229		100.00		1.025E-01	1.780E-01	2.986E-01	3.094E-02	0.343
		193.63	*	2.696E-01	5.579E-01	9.258E-01	8.007E-02	0.291
		210.97		-2.217E-02	1.079E+00	1.540E+00	1.358E-01	-0.014
	+	283.67	*	7.303E-01	1.754E+00	3.041E+00	4.717E-01	0.240
	+	301.29		1.429E+00	9.345E-01	1.299E+00	1.642E-01	1.100
		81.07		5.345E-03	1.961E-01	2.722E-01	2.651E-02	0.020
PA-231		83.78		1.119E-01	1.201E-01	1.878E-01	1.830E-02	0.596
		94.90		-1.307E-01	2.261E-01	3.691E-01	3.725E-02	-0.354
		122.32		8.634E-03	1.785E+00	2.952E+00	3.593E-01	0.003
		144.24		4.236E-01	7.969E-01	1.308E+00	1.443E-01	0.324
U-231		154.21		4.712E-01	4.547E-01	7.775E-01	7.896E-02	0.606
	+	269.46		2.166E-01	3.187E-01	4.011E-01	3.743E-02	0.540
		323.87	*	-1.638E-01	8.944E-01	1.303E+00	2.337E-01	-0.126
	+	338.28		5.036E+00	2.041E+00	3.093E+00	3.894E-01	1.628
		445.03		-1.547E+00	3.099E+00	4.804E+00	5.849E-01	-0.322
		84.21		-3.023E+00	1.096E+01	1.808E+01	1.762E+00	-0.167
	+	92.29		3.505E+01	8.544E+00	1.004E+01	1.000E+00	3.491
		95.87	*	5.974E-01	2.198E+00	3.354E+00	3.401E-01	0.178
		108.00		-3.733E+00	4.658E+00	7.425E+00	8.031E-01	-0.503
	+	75.28		2.023E+01	4.384E+00	5.663E+00	9.069E-01	3.572
PA-233	+	86.59		9.499E+00	3.959E+00	2.827E+00	7.691E-01	3.360
	+	300.12		9.959E-01	6.567E-01	9.067E-01	1.378E-01	1.098
		311.98	*	-5.041E-03	7.423E-02	1.245E-01	1.168E-02	-0.040
		340.50		1.294E+00	8.951E-01	1.400E+00	3.357E-01	0.924
		398.62		-1.711E+00	2.682E+00	4.167E+00	1.108E+00	-0.411

---- 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		4.383E-01	2.142E+00	3.597E+00	7.747E-01	0.122
		63.00		2.904E+00	1.562E+00	1.697E+00	2.764E-01	1.711
		94.67		7.733E-02	1.681E-01	2.854E-01	3.840E-02	0.271
		98.44		4.025E-02	9.718E-02	1.435E-01	8.045E-02	0.281
		99.86		2.474E-01	4.495E-01	7.535E-01	7.800E-02	0.328
		111.00		-8.144E-03	1.902E-01	3.152E-01	4.376E-02	-0.026
		131.20		-9.787E-04	1.254E-01	1.848E-01	2.052E-02	-0.005
		152.70		1.733E-01	3.600E-01	6.013E-01	1.052E-01	0.288
		186.00		6.240E+00	2.913E+00	3.180E+00	9.920E-01	1.962
		226.40		-9.583E-02	4.651E-01	7.332E-01	9.838E-02	-0.131
	+	227.20		2.675E-01	4.957E-01	8.191E-01	7.333E-02	0.327
		248.90		-6.104E-01	9.487E-01	1.419E+00	3.206E-01	-0.430
		293.70		6.718E+00	1.965E+00	2.041E+00	3.591E-01	3.291
		369.80		-3.720E-01	1.026E+00	1.657E+00	3.615E-01	-0.224
		568.70		-3.845E-01	1.324E+00	2.081E+00	1.851E-01	-0.185
		569.50		6.348E-02	3.428E-01	5.653E-01	5.027E-02	0.112
		574.00		-6.363E-01	1.846E+00	2.872E+00	2.551E-01	-0.222
		699.00		-2.538E-01	1.003E+00	1.651E+00	3.145E-01	-0.154
		706.10		-1.279E-01	1.394E+00	2.326E+00	1.037E+00	-0.055
		733.00		-1.070E-02	5.151E-01	8.156E-01	1.812E-01	-0.013
	+	742.81		9.794E-01	2.090E+00	3.476E+00	2.337E+00	0.282
		796.30		1.614E+00	2.404E+00	2.435E+00	6.598E-01	0.663
		805.60		1.482E-01	1.421E+00	2.394E+00	7.349E-01	0.062
		819.60		-7.623E-01	1.644E+00	2.547E+00	9.694E-01	-0.299
		826.30		4.069E-02	1.218E+00	2.033E+00	9.104E-01	0.020
		831.60		-1.753E-01	9.420E-01	1.537E+00	4.593E-01	-0.114
		876.40		3.228E-01	1.151E+00	1.890E+00	1.943E+00	0.171
		880.51		-2.258E-01	3.341E-01	5.003E-01	4.385E-02	-0.451
		883.24		-2.367E-01	3.590E-01	4.743E-01	3.189E-01	-0.499
		899.00		1.290E-02	1.282E+00	2.122E+00	9.283E-01	0.006
		925.00		-7.445E-02	1.654E+00	2.715E+00	2.376E-01	-0.027
		926.50		1.026E-01	2.407E-01	4.145E-01	1.050E-01	0.248
		946.00	*	-5.250E-02	4.148E-01	6.726E-01	1.266E-01	-0.078
		949.00		2.564E-01	5.535E-01	9.649E-01	8.440E-02	0.266
		980.50		-1.002E+00	9.807E-01	1.379E+00	1.203E-01	-0.727
PA-234M		1394.10		-1.033E+00	1.772E+00	2.451E+00	1.596E+00	-0.422
		766.42		1.553E+01	1.882E+01	3.069E+01	1.558E+01	0.506
U-235		1001.03	*	-1.568E+00	5.793E+00	9.087E+00	9.119E-01	-0.173
	+	89.95		1.223E+00	1.403E+00	1.727E+00	5.392E-01	0.708
		93.35		4.953E+00	1.789E+00	1.433E+00	4.083E-01	3.455
		105.00		1.130E+00	1.090E+00	1.807E+00	5.509E-01	0.625
		143.76	*	-1.505E-02	2.448E-01	3.908E-01	7.165E-02	-0.038
	+	163.35		-5.229E-02	5.225E-01	8.463E-01	1.613E-01	-0.062
		185.71		2.311E-01	8.266E-02	1.185E-01	1.015E-02	1.950
		205.31		1.112E-01	6.802E-01	9.860E-01	1.888E-01	0.113
		94.67		6.198E-02	1.275E-01	2.168E-01	2.186E-02	0.286
		98.44		3.035E-02	7.152E-02	1.085E-01	1.115E-02	0.280
NP-236		111.00		-6.160E-03	1.438E-01	2.384E-01	2.622E-02	-0.026
		160.31	*	-4.294E-02	8.542E-02	1.351E-01	1.194E-02	-0.318

---- 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		1.554E-01	1.497E-01	2.553E-01	2.639E-02	0.609
		117.00	*	2.564E-02	1.927E-01	3.213E-01	3.655E-02	0.080
	+	209.75		1.402E+00	1.239E+00	1.704E+00	1.501E-01	0.823
		228.18		1.321E-01	2.589E-01	4.270E-01	3.826E-02	0.309
		277.60		2.277E-01	2.169E-01	3.871E-01	3.553E-02	0.588
AM-241		334.30		2.108E-01	1.700E+00	2.544E+00	2.299E-01	0.083
		59.54	*	2.452E-02	7.294E-02	1.137E-01	1.208E-02	0.216
	CM-243	99.55		1.599E-01	1.541E-01	2.628E-01	2.717E-02	0.609
		103.76	*	5.371E-02	9.085E-02	1.553E-01	1.642E-02	0.346
		117.00		2.639E-02	1.983E-01	3.307E-01	3.761E-02	0.080
		209.75	+	1.383E+00	1.222E+00	1.681E+00	1.480E-01	0.823
AM-246		228.18		1.335E-01	2.617E-01	4.316E-01	3.867E-02	0.309
		277.60		2.296E-01	2.188E-01	3.904E-01	3.583E-02	0.588
		798.80		-1.689E-01	2.339E-01	3.028E-01	2.658E-02	-0.558
		1036.00		1.111E-01	4.241E-01	7.153E-01	6.180E-02	0.155
		1062.04		1.479E-01	3.220E-01	5.543E-01	4.755E-02	0.267
CM-247		1078.86	*	1.043E-01	2.061E-01	3.558E-01	3.035E-02	0.293
		278.00		9.074E-01	8.893E-01	1.586E+00	1.456E-01	0.572
		287.40		2.174E-01	1.393E+00	2.381E+00	2.187E-01	0.091
		402.60	*	2.870E-02	4.432E-02	7.710E-02	6.549E-03	0.372
	CF-249	252.85		9.142E-02	9.940E-01	1.589E+00	1.447E-01	0.058
		333.44		-4.716E-02	2.631E-01	3.212E-01	2.905E-02	-0.147
CF-251		387.95	*	4.236E-02	5.044E-02	8.869E-02	7.514E-03	0.478
		176.60	*	1.234E-01	1.420E-01	2.411E-01	2.039E-02	0.512
		227.00		1.968E-02	4.503E-01	7.218E-01	6.461E-02	0.027
		285.00		-1.709E+00	2.025E+00	3.238E+00	2.974E-01	-0.528

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101012      *
* Acquisition date   : 2-FEB-2010 11:24:08 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 02:00:09.46 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G245101012 Analyst initials: MXR1                 *
* Batch Number       : 944037 Sample Quantity : 1.0996E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.069E+01	2.558E+00	7.697E-01	0.000E+00
BA-137M	4.071E-01	9.596E-02	9.175E-02	0.000E+00
CS-137	4.303E-01	1.015E-01	9.699E-02	0.000E+00
TL-208	4.864E-01	1.126E-01	7.624E-02	0.000E+00
BI-210	1.944E+00	9.029E-01	9.017E-01	0.000E+00
PB-210	1.944E+00	9.029E-01	9.017E-01	0.000E+00
PO-210	1.944E+00	8.998E-01	9.017E-01	0.000E+00
BI-211	4.244E+00	7.150E-01	3.674E-01	0.000E+00
PB-212	1.549E+00	1.999E-01	9.661E-02	0.000E+00
PO-212	1.549E+00	1.999E-01	9.661E-02	0.000E+00
BI-214	1.085E+00	2.372E-01	1.512E-01	0.000E+00
PB-214	1.476E+00	2.599E-01	1.281E-01	0.000E+00
PO-214	1.476E+00	2.599E-01	1.281E-01	0.000E+00
PO-216	1.549E+00	1.999E-01	9.661E-02	0.000E+00
PO-218	1.476E+00	2.599E-01	1.281E-01	0.000E+00
RA-224	5.120E+00	1.377E+00	1.100E+00	0.000E+00
RA-226	1.085E+00	2.372E-01	1.512E-01	0.000E+00
AC-228	1.678E+00	4.030E-01	2.768E-01	0.000E+00
RA-228	1.678E+00	4.030E-01	2.768E-01	0.000E+00
TH-228	1.580E+00	2.039E-01	9.855E-02	0.000E+00
TH-230	1.085E+00	2.372E-01	1.512E-01	0.000E+00
TH-232	1.678E+00	4.030E-01	2.768E-01	0.000E+00
TH-234	2.492E+00	1.332E+00	1.093E+00	0.000E+00
U-234	1.085E+00	2.372E-01	1.512E-01	0.000E+00
NP-237	1.425E+00	5.440E-01	3.768E-01	0.000E+00
U-238	2.492E+00	1.332E+00	1.093E+00	0.000E+00
AM-243	3.861E-01	6.646E-02	6.363E-02	0.000E+00
ANH-511	1.402E-01	8.978E-02	6.802E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	2.605E-01	4.746E-01	8.288E-01	0.000E+00	NOT IDENT.
NA-22	-1.147E-02	6.432E-02	1.025E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.985E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.211E-03	4.129E-02	6.777E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.847E-02	6.867E-02	0.000E+00	FAIL ABUN
SC-46	2.031E-02	4.810E-02	8.534E-02	0.000E+00	FAIL ABUN
V-48	2.403E-02	1.139E-01	1.953E-01	0.000E+00	NOT IDENT.
CR-51	7.570E-04	4.934E-01	8.519E-01	0.000E+00	NOT IDENT.
MN-52	1.499E-01	4.690E-01	8.417E-01	0.000E+00	NOT IDENT.
MN-54	-6.208E-03	5.412E-02	9.071E-02	0.000E+00	NOT IDENT.
CO-56	-4.011E-02	5.293E-02	8.142E-02	0.000E+00	FAIL ABUN
CO-57	-2.406E-03	2.546E-02	4.328E-02	0.000E+00	NOT IDENT.
CO-58	-3.541E-03	5.009E-02	8.440E-02	0.000E+00	NOT IDENT.
FE-59	-4.395E-02	1.175E-01	1.837E-01	0.000E+00	NOT IDENT.
CO-60	-2.468E-02	4.979E-02	7.744E-02	0.000E+00	NOT IDENT.
ZN-65	2.368E-02	1.416E-01	2.078E-01	0.000E+00	NOT IDENT.
GE-68	1.462E+00	1.721E+00	3.133E+00	0.000E+00	NOT IDENT.
AS-73	1.917E-01	2.492E-01	4.546E-01	0.000E+00	NOT IDENT.
AS-74	-1.166E-01	1.494E-01	2.262E-01	0.000E+00	NOT IDENT.
SE-75	-4.512E-02	5.943E-02	7.906E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	5.537E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-1.553E-01	5.679E-01	9.408E-01	0.000E+00	NOT IDENT.
RB-83	-2.974E-02	9.335E-02	1.508E-01	0.000E+00	NOT IDENT.
RB-84	-1.034E-01	9.162E-02	1.294E-01	0.000E+00	NOT IDENT.
KR-85	9.270E+00	1.059E+01	1.692E+01	0.000E+00	NOT IDENT.
SR-85	5.002E-02	5.716E-02	9.128E-02	0.000E+00	NOT IDENT.
RB-86	1.565E+00	1.248E+00	2.370E+00	0.000E+00	NOT IDENT.
Y-88	-3.270E-02	5.511E-02	7.833E-02	0.000E+00	NOT IDENT.
ZR-88	-8.123E-03	3.883E-02	6.503E-02	0.000E+00	NOT IDENT.
Y-91	-3.682E+00	2.563E+01	4.128E+01	0.000E+00	NOT IDENT.
NB-94	1.988E-02	4.616E-02	8.212E-02	0.000E+00	NOT IDENT.
NB-95	5.084E-02	6.481E-02	1.174E-01	0.000E+00	NOT IDENT.
NB-95M	-5.524E-02	1.674E-01	2.374E-01	0.000E+00	NOT IDENT.
ZR-95	6.583E-02	1.074E-01	1.930E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.686E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.071E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	5.152E+01	5.554E+01	1.020E+02	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.837E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.078E-02	3.828E-02	6.448E-02	0.000E+00	FAIL ABUN
RH-102	2.539E-03	3.880E-02	6.546E-02	0.000E+00	NOT IDENT.
RU-103	2.097E-02	5.788E-02	9.969E-02	0.000E+00	FAIL ABUN
RH-106	1.702E-02	4.507E-01	7.427E-01	0.000E+00	FAIL ABUN
RU-106	1.702E-02	4.507E-01	7.427E-01	0.000E+00	FAIL ABUN
AG-108M	-1.093E-02	4.053E-02	6.694E-02	0.000E+00	NOT IDENT.
CD-109	8.092E-01	9.197E-01	1.479E+00	0.000E+00	NOT IDENT.
AG-110M	7.270E-02	5.113E-02	8.725E-02	0.000E+00	NOT IDENT.
IN-111	2.497E+00	4.067E+00	6.255E+00	0.000E+00	NOT IDENT.
IN-113M	-1.364E-02	5.753E-02	9.623E-02	0.000E+00	NOT IDENT.
SN-113	-1.364E-02	5.753E-02	9.623E-02	0.000E+00	NOT IDENT.
IN-114M	-6.916E-02	2.364E-01	3.423E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	6.402E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-3.852E-02	7.606E-02	1.243E-01	0.000E+00	NOT IDENT.
SB-122	8.983E+00	9.528E+00	1.706E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.863E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.154E-02	3.087E-02	5.082E-02	0.000E+00	NOT IDENT.
I-124	-1.061E+00	2.217E+00	3.178E+00	0.000E+00	NOT IDENT.
SB-124	1.660E-02	1.149E-01	1.971E-01	0.000E+00	FAIL ABUN
SB-125	-1.940E-02	1.156E-01	1.928E-01	0.000E+00	FAIL ABUN
TE-125M	4.413E+00	9.604E+00	1.683E+01	0.000E+00	NOT IDENT.
I-126	1.513E-02	3.676E-01	5.261E-01	0.000E+00	NOT IDENT.
SB-126	1.990E-01	2.611E-01	4.447E-01	0.000E+00	FAIL ABUN
SN-126	1.080E-01	9.073E-02	1.472E-01	0.000E+00	FAIL ABUN
SB-127	-1.146E-01	4.690E+00	7.618E+00	0.000E+00	NOT IDENT.
XE-127	6.337E-03	6.024E-02	1.004E-01	0.000E+00	NOT IDENT.
I-131	-6.418E-02	2.056E-01	3.435E-01	0.000E+00	NOT IDENT.
TE-132	1.156E+00	2.188E+00	3.703E+00	0.000E+00	NOT IDENT.
BA-133	7.977E-03	5.264E-02	8.071E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.867E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.340E-02	1.200E-01	1.362E-01	0.000E+00	FAIL ABUN
CS-135	1.874E-01	2.044E-01	3.184E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.644E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.497E-01	2.068E-01	3.136E-01	0.000E+00	FAIL ABUN
CE-139	7.350E-04	3.402E-02	5.715E-02	0.000E+00	NOT IDENT.
BA-140	3.195E-01	4.553E-01	7.845E-01	0.000E+00	NOT IDENT.
LA-140	-1.708E-01	1.505E-01	1.908E-01	0.000E+00	FAIL ABUN
CE-141	6.826E-02	7.765E-02	1.363E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.710E+03	0.000E+00	0.000E+00	SHORT HLIF



CE-144	-1.182E-01	2.459E-01	3.605E-01	0.000E+00	NOT IDENT.
PM-144	1.977E-02	4.687E-02	8.344E-02	0.000E+00	NOT IDENT.
PR-144	1.343E+00	3.184E+00	5.668E+00	0.000E+00	NOT IDENT.
PM-146	1.954E-02	5.678E-02	9.814E-02	0.000E+00	NOT IDENT.
ND-147	-2.528E-01	9.640E-01	1.561E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	4.761E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-5.075E-02	1.110E-01	1.843E-01	0.000E+00	FAIL ABUN
GD-153	-1.431E-01	8.438E-02	1.138E-01	0.000E+00	NOT IDENT.
EU-154	-2.059E-02	1.775E-01	2.852E-01	0.000E+00	NOT IDENT.
EU-155	9.300E-02	1.030E-01	1.839E-01	0.000E+00	FAIL ABUN
TB-160	1.023E-01	1.628E-01	2.969E-01	0.000E+00	FAIL ABUN
HO-166M	2.025E-02	7.211E-02	1.273E-01	0.000E+00	FAIL ABUN
TM-171	-2.086E+00	1.765E+01	2.716E+01	0.000E+00	NOT IDENT.
LU-176	2.715E-02	2.888E-02	5.267E-02	0.000E+00	NOT IDENT.
LU-177	3.265E+00	2.828E+00	3.976E+00	0.000E+00	FAIL ABUN
LU-177M	1.007E-01	2.521E-01	3.910E-01	0.000E+00	NOT IDENT.
HF-181	-4.350E-02	6.173E-02	9.702E-02	0.000E+00	NOT IDENT.
W-181	-2.316E-02	2.216E-01	3.498E-01	0.000E+00	NOT IDENT.
TA-182	-3.086E-02	3.028E-01	4.907E-01	0.000E+00	NOT IDENT.
RE-183	9.542E-02	1.185E-01	2.077E-01	0.000E+00	FAIL ABUN
RE-184	2.485E-02	2.648E-01	4.351E-01	0.000E+00	NOT IDENT.
OS-185	7.824E-03	6.232E-02	1.033E-01	0.000E+00	NOT IDENT.
RE-188	1.632E-01	2.022E-01	3.534E-01	0.000E+00	NOT IDENT.
W-188	-4.816E+00	9.618E+00	1.409E+01	0.000E+00	FAIL ABUN
IR-192	1.637E-02	4.364E-02	7.708E-02	0.000E+00	FAIL ABUN
AU-195	3.293E-01	2.203E-01	3.807E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.117E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.365E+01	2.254E+01	3.902E+01	0.000E+00	NOT IDENT.
TL-202	1.242E-01	1.129E-01	2.063E-01	0.000E+00	NOT IDENT.
HG-203	-2.763E-02	5.108E-02	8.616E-02	0.000E+00	NOT IDENT.
BI-207	2.145E-02	7.073E-02	1.217E-01	0.000E+00	FAIL ABUN
TL-207	-1.638E-01	8.765E-01	1.310E+00	0.000E+00	FAIL ABUN
PO-209	8.428E+00	1.022E+01	1.869E+01	0.000E+00	NOT IDENT.
PB-211	-1.299E+00	1.546E+00	1.765E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.739E-01	9.257E-01	0.000E+00	FAIL ABUN
PO-215	-1.638E-01	8.765E-01	1.310E+00	0.000E+00	FAIL ABUN
RN-219	2.061E-01	5.058E-01	8.837E-01	0.000E+00	FAIL ABUN
RN-220	1.061E+01	3.131E+01	5.372E+01	0.000E+00	NOT IDENT.
RA-223	-1.638E-01	8.765E-01	1.310E+00	0.000E+00	FAIL ABUN
AC-227	9.648E-02	4.467E-01	7.388E-01	0.000E+00	FAIL ABUN
TH-227	9.648E-02	4.468E-01	7.388E-01	0.000E+00	FAIL ABUN
TH-229	2.696E-01	5.467E-01	9.342E-01	0.000E+00	FAIL ABUN
PA-231	7.303E-01	1.719E+00	3.060E+00	0.000E+00	FAIL ABUN
TH-231	-1.638E-01	8.765E-01	1.310E+00	0.000E+00	FAIL ABUN
U-231	5.974E-01	2.154E+00	3.401E+00	0.000E+00	FAIL ABUN
PA-233	-5.041E-03	7.274E-02	1.252E-01	0.000E+00	FAIL ABUN
PA-234	-5.250E-02	4.065E-01	6.710E-01	0.000E+00	FAIL ABUN
PA-234M	-1.568E+00	5.677E+00	9.061E+00	0.000E+00	NOT IDENT.
U-235	-1.505E-02	2.399E-01	3.952E-01	0.000E+00	FAIL ABUN
NP-236	-4.294E-02	8.371E-02	1.365E-01	0.000E+00	NOT IDENT.
NP-239	2.564E-02	1.888E-01	3.254E-01	0.000E+00	FAIL ABUN
AM-241	2.452E-02	7.148E-02	1.157E-01	0.000E+00	NOT IDENT.
CM-243	5.371E-02	8.904E-02	1.574E-01	0.000E+00	FAIL ABUN
AM-246	1.043E-01	2.020E-01	3.546E-01	0.000E+00	NOT IDENT.
CM-247	2.870E-02	4.343E-02	7.739E-02	0.000E+00	NOT IDENT.
CF-249	4.236E-02	4.943E-02	8.906E-02	0.000E+00	NOT IDENT.
CF-251	1.234E-01	1.392E-01	2.434E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                      *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101012.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:24:08.
Sample ID          : G245101012 Sample quantity : 1.09960E+02 GRAM
Detector name      : GAM17 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:09.46 0.1%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	503	10.67*	7.783E-01	2.069E+01	2.069E+01	12.61
BA-137M	661.65	172	89.98*	1.605E+00	4.066E-01	4.071E-01	24.05
CS-137	661.65	172	85.12*	1.605E+00	4.298E-01	4.303E-01	24.06
TL-208	277.35	-----	6.80	3.568E+00	-----	Line Not Found	-----
	510.84	84	21.60	2.056E+00	6.489E-01	6.489E-01	65.89
	583.14	217	84.20*	1.812E+00	4.864E-01	4.864E-01	23.62
	860.37	36	12.46	1.247E+00	7.848E-01	7.848E-01	55.25
BI-210	46.50	145	4.05*	6.310E+00	1.941E+00	1.944E+00	47.39
PB-210	46.50	145	4.05*	6.310E+00	1.941E+00	1.944E+00	47.39
PO-210	46.50	145	4.05*	6.310E+00	1.941E+00	1.944E+00	47.23
BI-211	72.87	-----	1.27	6.803E+00	-----	Line Not Found	-----
	351.07	468	12.94*	2.908E+00	4.244E+00	4.244E+00	17.19
PB-212	74.81	507	10.70	6.795E+00	2.382E+00	2.382E+00	19.90
	77.11	828	18.00	6.782E+00	2.316E+00	2.316E+00	13.96
	87.30	352	8.00	6.691E+00	2.244E+00	2.244E+00	34.53
	238.63	814	44.60*	4.023E+00	1.549E+00	1.549E+00	13.17
	300.09	64	3.41	3.338E+00	1.928E+00	1.928E+00	65.08
PO-212	74.81	507	10.70	6.795E+00	2.382E+00	2.382E+00	19.90
	77.11	828	18.00	6.782E+00	2.316E+00	2.316E+00	13.96
	87.30	352	8.00	6.691E+00	2.244E+00	2.244E+00	34.53
	115.19	-----	0.60	6.177E+00	-----	Line Not Found	-----
	238.63	814	44.60*	4.023E+00	1.549E+00	1.549E+00	13.17
	300.09	64	3.41	3.338E+00	1.928E+00	1.928E+00	65.08
BI-214	609.31	256	46.30*	1.737E+00	1.085E+00	1.085E+00	22.31
	1120.29	62	15.10	9.773E-01	1.429E+00	1.429E+00	63.74
	1764.49	40	15.80	6.717E-01	1.275E+00	1.275E+00	48.70
PB-214	74.81	507	6.21	6.795E+00	4.104E+00	4.104E+00	19.06
	77.11	828	10.50	6.782E+00	3.970E+00	3.970E+00	15.90
	87.30	352	4.67	6.691E+00	3.845E+00	3.845E+00	33.93
	241.98	236	7.49	3.987E+00	2.700E+00	2.700E+00	28.01
	295.21	267	19.20	3.388E+00	1.400E+00	1.400E+00	25.88
	351.92	468	37.20*	2.908E+00	1.476E+00	1.476E+00	17.97

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	74.81	507	6.21	6.795E+00	4.104E+00	4.104E+00	19.06
	77.11	828	10.50	6.782E+00	3.970E+00	3.970E+00	15.90
	87.30	352	4.67	6.691E+00	3.845E+00	3.845E+00	33.93
	241.98	236	7.49	3.987E+00	2.700E+00	2.700E+00	28.01
	295.21	267	19.20	3.388E+00	1.400E+00	1.400E+00	25.88
PO-216	351.92	468	37.20*	2.908E+00	1.476E+00	1.476E+00	17.97
	74.81	507	10.70	6.795E+00	2.382E+00	2.382E+00	19.90
	77.11	828	18.00	6.782E+00	2.316E+00	2.316E+00	13.96
	87.30	352	8.00	6.691E+00	2.244E+00	2.244E+00	34.53
	238.63	814	44.60*	4.023E+00	1.549E+00	1.549E+00	13.17
PO-218	300.09	64	3.41	3.338E+00	1.928E+00	1.928E+00	65.08
	74.81	507	6.21	6.795E+00	4.104E+00	4.104E+00	19.06
	77.11	828	10.50	6.782E+00	3.970E+00	3.970E+00	15.90
	87.30	352	4.67	6.691E+00	3.845E+00	3.845E+00	33.93
	241.98	236	7.49	3.987E+00	2.700E+00	2.700E+00	28.01
RA-224	295.21	267	19.20	3.388E+00	1.400E+00	1.400E+00	25.88
	351.92	468	37.20*	2.908E+00	1.476E+00	1.476E+00	17.97
	240.98	236	3.95*	3.987E+00	5.120E+00	5.120E+00	27.45
	609.31	256	46.30*	1.737E+00	1.085E+00	1.085E+00	22.31
	1120.29	62	15.10	9.773E-01	1.429E+00	1.429E+00	63.74
AC-228	1764.49	40	15.80	6.717E-01	1.275E+00	1.275E+00	48.70
	338.32	121	11.40	3.011E+00	1.206E+00	1.206E+00	56.51
	911.07	161	27.70*	1.182E+00	1.678E+00	1.678E+00	24.51
	969.11	106	16.60	1.116E+00	1.947E+00	1.947E+00	37.88
	338.32	121	11.40	3.011E+00	1.206E+00	1.206E+00	56.51
TH-228	911.07	161	27.70*	1.182E+00	1.678E+00	1.678E+00	24.51
	969.11	106	16.60	1.116E+00	1.947E+00	1.947E+00	37.88
	74.81	507	10.70	6.795E+00	2.382E+00	2.430E+00	17.60
	77.11	828	18.00	6.782E+00	2.316E+00	2.362E+00	13.96
	87.30	352	8.00	6.691E+00	2.244E+00	2.289E+00	33.05
TH-230	238.63	814	44.60*	4.023E+00	1.549E+00	1.580E+00	13.17
	300.09	64	3.41	3.338E+00	1.928E+00	1.966E+00	87.41
	609.31	256	46.30*	1.737E+00	1.085E+00	1.085E+00	22.31
	1120.29	62	15.10	9.773E-01	1.429E+00	1.429E+00	63.74
	1764.49	40	15.80	6.717E-01	1.275E+00	1.275E+00	48.70
TH-232	338.32	121	11.40	3.011E+00	1.206E+00	1.206E+00	39.56
	911.07	161	27.70*	1.182E+00	1.678E+00	1.678E+00	24.51
	969.11	106	16.60	1.116E+00	1.947E+00	1.947E+00	37.88
	63.29	188	3.80*	6.777E+00	2.492E+00	2.492E+00	54.53
	92.38	430	5.41	6.590E+00	4.120E+00	4.120E+00	29.10
U-234	609.31	256	46.30*	1.737E+00	1.085E+00	1.085E+00	22.31
	1120.29	62	15.10	9.773E-01	1.429E+00	1.429E+00	63.74
	1764.49	40	15.80	6.717E-01	1.275E+00	1.275E+00	48.70
	86.50	352	12.60*	6.691E+00	1.425E+00	1.425E+00	38.96
	95.87	-----	2.60	6.543E+00	-----	Line Not Found	-----
U-238	63.29	188	3.80*	6.777E+00	2.492E+00	2.492E+00	54.53
	92.38	430	5.41	6.590E+00	4.120E+00	4.120E+00	24.37
	74.67	507	66.00*	6.795E+00	3.861E-01	3.861E-01	17.56
	86.72	352	0.34	6.691E+00	5.343E+01	5.343E+01	33.05

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	6.127E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.624E+00	-----	Line Not Found	-----
ANH-511	511.00	84	100.00*	2.056E+00	1.402E-01	1.402E-01	65.36

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G245101012

Page : 4  
Acquisition date : 2-FEB-2010 11:24:08

Total number of lines in spectrum 35  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 32 91.43%

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	2.069E+01	2.069E+01	0.261E+01	12.61	
BA-137M	30.17Y	1.00	4.066E-01	4.071E-01	0.979E-01	24.05	
CS-137	30.17Y	1.00	4.298E-01	4.303E-01	1.035E-01	24.06	
TL-208	1.41E+10Y	1.00	4.864E-01	4.864E-01	1.149E-01	23.62	
BI-210	22.26Y	1.00	1.941E+00	1.944E+00	0.921E+00	47.39	
PB-210	22.26Y	1.00	1.941E+00	1.944E+00	0.921E+00	47.39	
PO-210	22.26Y	1.00	1.941E+00	1.944E+00	0.918E+00	47.23	
BI-211	7.04E+08Y	1.00	4.244E+00	4.244E+00	0.730E+00	17.19	
PB-212	1.41E+10Y	1.00	1.549E+00	1.549E+00	0.204E+00	13.17	
PO-212	1.41E+10Y	1.00	1.549E+00	1.549E+00	0.204E+00	13.17	
BI-214	1600.00Y	1.00	1.085E+00	1.085E+00	0.242E+00	22.31	
PB-214	1600.00Y	1.00	1.476E+00	1.476E+00	0.265E+00	17.97	
PO-214	1600.00Y	1.00	1.476E+00	1.476E+00	0.265E+00	17.97	
PO-216	1.41E+10Y	1.00	1.549E+00	1.549E+00	0.204E+00	13.17	
PO-218	1600.00Y	1.00	1.476E+00	1.476E+00	0.265E+00	17.97	
RA-224	1.41E+10Y	1.00	5.120E+00	5.120E+00	1.405E+00	27.45	
RA-226	1600.00Y	1.00	1.085E+00	1.085E+00	0.242E+00	22.31	
AC-228	1.41E+10Y	1.00	1.678E+00	1.678E+00	0.411E+00	24.51	
RA-228	1.41E+10Y	1.00	1.678E+00	1.678E+00	0.411E+00	24.51	
TH-228	1.91Y	1.02	1.549E+00	1.580E+00	0.208E+00	13.17	
TH-230	4.47E+09Y	1.00	1.085E+00	1.085E+00	0.242E+00	22.31	
TH-232	1.41E+10Y	1.00	1.678E+00	1.678E+00	0.411E+00	24.51	
TH-234	4.47E+09Y	1.00	2.492E+00	2.492E+00	1.359E+00	54.53	
U-234	4.47E+09Y	1.00	1.085E+00	1.085E+00	0.242E+00	22.31	
NP-237	2.14E+06Y	1.00	1.425E+00	1.425E+00	0.555E+00	38.96	
U-238	4.47E+09Y	1.00	2.492E+00	2.492E+00	1.359E+00	54.53	
AM-243	7380.00Y	1.00	3.861E-01	3.861E-01	0.678E-01	17.56	
ANH-511	1.00E+09Y	1.00	1.402E-01	1.402E-01	0.916E-01	65.36	

Total Activity : 6.413E+01 6.417E+01

Grand Total Activity : 6.413E+01 6.417E+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	128.57	50	278	1.02	256.83	254	9	6.95E-03	****	5.90E+00	T
0	185.74	176	206	1.19	371.21	367	9	2.44E-02	34.7	4.81E+00	T
0	208.73	59	208	1.31	417.21	415	8	8.21E-03	87.9	4.44E+00	T
0	270.52	31	152	1.11	540.85	535	9	4.36E-03	****	3.64E+00	T
0	327.88	48	114	1.11	655.61	651	10	6.68E-03	89.7	3.09E+00	T
0	409.35	40	62	1.14	818.63	814	8	5.59E-03	74.7	2.53E+00	
0	462.61	69	72	1.75	925.20	918	11	9.57E-03	53.3	2.26E+00	T
0	726.90	61	43	0.72	1454.07	1449	10	8.50E-03	47.4	1.46E+00	T
0	795.04	25	72	1.30	1590.44	1583	13	3.44E-03	****	1.34E+00	T
0	965.01	29	38	0.80	1930.59	1922	12	4.04E-03	93.2	1.12E+00	T
0	1237.90	47	53	1.84	2476.79	2467	18	6.49E-03	79.3	8.94E-01	T
0	1346.45	18	12	2.27	2694.07	2685	16	2.51E-03	97.6	8.32E-01	
0	1587.61	13	9	1.05	3176.82	3169	12	1.85E-03	****	7.28E-01	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101012.CNF;1
* Acquisition date   : 2-FEB-2010 11:24:08.  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 02:00:09.46      Half life ratio     : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library   : SOLID
* Sample ID          : G245101012          Analyst initials  : MXR1
* Batch Number       : 944037              Sample Quantity   : 1.09960E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36.18MS Isotope       :
* MSD ID             :                      MSD Isotope        :
* LCS ID             : 1032-A              LCS Isotope         :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.069E+01	2.610E+00	7.740E-01	6.872E-02	26.734
BA-137M	4.071E-01	9.791E-02	9.173E-02	7.727E-03	4.438
CS-137	4.303E-01	1.035E-01	9.697E-02	8.185E-03	4.438
TL-208	4.864E-01	1.149E-01	7.615E-02	7.203E-03	6.387
BI-210	1.944E+00	9.214E-01	8.846E-01	9.596E-02	2.198
PB-210	1.944E+00	9.214E-01	8.846E-01	9.596E-02	2.198
PO-210	1.944E+00	9.182E-01	8.846E-01	8.937E-02	2.198
BI-211	4.244E+00	7.296E-01	3.656E-01	3.412E-02	11.606
PB-212	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
PO-212	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
BI-214	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
PB-214	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
PO-214	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
PO-216	1.549E+00	2.040E-01	9.588E-02	9.666E-03	16.151
PO-218	1.476E+00	2.652E-01	1.275E-01	1.362E-02	11.577
RA-224	5.120E+00	1.405E+00	1.092E+00	9.875E-02	4.688
RA-226	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
AC-228	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050
TH-228	1.580E+00	2.081E-01	9.780E-02	9.860E-03	16.151
TH-230	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
TH-232	1.678E+00	4.113E-01	2.774E-01	3.146E-02	6.050
TH-234	2.492E+00	1.359E+00	1.075E+00	2.006E-01	2.318
U-234	1.085E+00	2.421E-01	1.511E-01	1.537E-02	7.179
NP-237	1.425E+00	5.552E-01	3.712E-01	8.473E-02	3.838
U-238	2.492E+00	1.359E+00	1.075E+00	2.006E-01	2.318
AM-243	3.861E-01	6.782E-02	6.263E-02	6.114E-03	6.166
ANH-511	1.402E-01	9.162E-02	6.788E-02	6.062E-03	2.065

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.605E-01		4.842E-01	8.267E-01	7.866E-02	0.315
NA-22	-1.147E-02		6.563E-02	1.030E-01	8.674E-03	-0.111
NA-24	-6.152E+01		1.013E+02	Half-Life	too short	
AL-26	-1.211E-03		4.213E-02	6.826E-02	5.721E-03	-0.018
TI-44	4.274E-01	+	5.966E-02	6.762E-02	6.588E-03	6.322
SC-46	2.031E-02		4.908E-02	8.551E-02	7.486E-03	0.238
V-48	2.403E-02		1.162E-01	1.958E-01	1.708E-02	0.123
CR-51	7.570E-04		5.035E-01	8.472E-01	8.091E-02	0.001
MN-52	1.499E-01		4.786E-01	8.463E-01	7.297E-02	0.177
MN-54	-6.208E-03		5.522E-02	9.085E-02	7.988E-03	-0.068
CO-56	-4.011E-02		5.401E-02	8.155E-02	7.169E-03	-0.492
CO-57	-2.406E-03		2.598E-02	4.275E-02	5.009E-03	-0.056
CO-58	-3.541E-03		5.111E-02	8.451E-02	7.442E-03	-0.042
FE-59	-4.395E-02		1.199E-01	1.844E-01	1.692E-02	-0.238
CO-60	-2.468E-02		5.081E-02	7.782E-02	6.633E-03	-0.317
ZN-65	2.368E-02		1.445E-01	2.085E-01	1.756E-02	0.114
GE-68	1.462E+00		1.756E+00	3.143E+00	2.683E-01	0.465
AS-73	1.917E-01		2.543E-01	4.464E-01	4.467E-02	0.429
AS-74	-1.166E-01		1.525E-01	2.260E-01	1.991E-02	-0.516
SE-75	-4.512E-02		6.065E-02	7.852E-02	7.214E-03	-0.575
BR-77	-2.531E-05		2.825E-05	Half-Life	too short	
SR-82	-1.553E-01		5.795E-01	9.417E-01	8.241E-02	-0.165
RB-83	-2.974E-02		9.526E-02	1.505E-01	1.346E-02	-0.198
RB-84	-1.034E-01		9.349E-02	1.296E-01	1.136E-02	-0.798
KR-85	9.270E+00		1.081E+01	1.688E+01	1.508E+00	0.549
SR-85	5.002E-02		5.833E-02	9.109E-02	8.138E-03	0.549
RB-86	1.565E+00		1.274E+00	2.377E+00	2.030E-01	0.658
Y-88	-3.270E-02		5.623E-02	7.890E-02	6.579E-03	-0.414
ZR-88	-8.123E-03		3.962E-02	6.477E-02	5.457E-03	-0.125
Y-91	-3.682E+00		2.616E+01	4.145E+01	3.421E+00	-0.089
NB-94	1.988E-02		4.710E-02	8.214E-02	7.046E-03	0.242
NB-95	5.084E-02		6.613E-02	1.175E-01	1.027E-02	0.433
NB-95M	-5.524E-02		1.708E-01	2.356E-01	2.405E-02	-0.234



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	6.583E-02		1.096E-01	1.932E-01	1.851E-02	0.341
NB-97	2.465E+01		8.601E+00	Half-Life too short		
ZR-97	3.556E+02		1.567E+02	Half-Life too short		
MO-99	5.152E+01		5.668E+01	1.020E+02	1.553E+01	0.505
TC-99M	-2.559E+15		1.447E+16	Half-Life too short		
RH-101	1.078E-02		3.906E-02	6.391E-02	5.556E-03	0.169
RH-102	2.539E-03		3.960E-02	6.529E-02	5.783E-03	0.039
RU-103	2.097E-02		5.906E-02	9.946E-02	1.426E-02	0.211
RH-106	1.702E-02		4.599E-01	7.422E-01	9.947E-02	0.023
RU-106	1.702E-02		4.599E-01	7.422E-01	6.448E-02	0.023
AG-108M	-1.093E-02		4.136E-02	6.672E-02	6.022E-03	-0.164
CD-109	8.092E-01		9.385E-01	1.458E+00	1.423E-01	0.555
AG-110M	7.270E-02		5.217E-02	8.722E-02	7.602E-03	0.833
IN-111	2.497E+00		4.150E+00	6.209E+00	5.631E-01	0.402
IN-113M	-1.364E-02		5.871E-02	9.584E-02	8.327E-03	-0.142
SN-113	-1.364E-02		5.871E-02	9.584E-02	8.327E-03	-0.142
IN-114M	-6.916E-02		2.412E-01	3.392E-01	2.921E-02	-0.204
CD-115	-1.013E-05		3.266E-05	Half-Life too short		
SN-117M	-3.852E-02		7.762E-02	1.230E-01	1.106E-02	-0.313
SB-122	8.983E+00		9.722E+00	1.704E+01	1.517E+00	0.527
I-123	-1.071E+03		1.461E+03	Half-Life too short		
TE-123M	-1.154E-02		3.150E-02	5.029E-02	4.527E-03	-0.230
I-124	-1.061E+00		2.262E+00	3.175E+00	2.788E-01	-0.334
SB-124	1.660E-02		1.173E-01	1.984E-01	1.765E-02	0.084
SB-125	-1.940E-02		1.179E-01	1.922E-01	1.695E-02	-0.101
TE-125M	4.413E+00		9.800E+00	1.661E+01	2.043E+00	0.266
I-126	1.513E-02		3.751E-01	5.260E-01	4.441E-02	0.029
SB-126	1.990E-01		2.664E-01	4.449E-01	3.840E-02	0.447
SN-126	1.080E-01		9.259E-02	1.451E-01	1.416E-02	0.744
SB-127	-1.146E-01		4.786E+00	7.618E+00	9.791E-01	-0.015
XE-127	6.337E-03		6.147E-02	9.951E-02	8.699E-03	0.064
I-131	-6.418E-02		2.098E-01	3.419E-01	3.170E-02	-0.188
TE-132	1.156E+00		2.232E+00	3.674E+00	6.205E-01	0.315
BA-133	7.977E-03		5.372E-02	8.033E-02	1.073E-02	0.099
I-133	-3.960E-01		1.973E-01	Half-Life too short		
CS-134	8.340E-02	+	1.224E-01	1.363E-01	1.205E-02	0.612
CS-135	1.874E-01		2.086E-01	3.163E-01	3.301E-02	0.592
I-135	2.290E+15		8.389E+14	Half-Life too short		
CS-136	-1.497E-01		2.111E-01	3.145E-01	2.826E-02	-0.476
CE-139	7.350E-04		3.471E-02	5.657E-02	4.717E-03	0.013
BA-140	3.195E-01		4.646E-01	7.832E-01	2.602E-01	0.408
LA-140	-1.708E-01		1.536E-01	1.920E-01	1.657E-02	-0.889
CE-141	6.826E-02		7.924E-02	1.348E-01	1.375E-02	0.506
CE-143	6.831E-03		1.383E-03	Half-Life too short		
CE-144	-1.182E-01		2.509E-01	3.563E-01	6.044E-02	-0.332
PM-144	1.977E-02		4.782E-02	8.345E-02	7.145E-03	0.237
PR-144	1.343E+00		3.249E+00	5.669E+00	4.851E-01	0.237
PM-146	1.954E-02		5.794E-02	9.786E-02	1.062E-02	0.200

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-2.528E-01		9.837E-01	1.558E+00	2.359E-01	-0.162
PM-149	-3.621E-04		2.429E-04	Half-Life too short		
EU-152	-5.075E-02		1.133E-01	1.834E-01	1.735E-02	-0.277
GD-153	-1.431E-01		8.610E-02	1.122E-01	1.147E-02	-1.275
EU-154	-2.059E-02		1.812E-01	2.866E-01	3.197E-02	-0.072
EU-155	9.300E-02		1.052E-01	1.814E-01	1.949E-02	0.513
TB-160	1.023E-01		1.661E-01	2.974E-01	2.608E-02	0.344
HO-166M	2.025E-02		7.358E-02	1.273E-01	1.096E-02	0.159
TM-171	-2.086E+00		1.801E+01	2.671E+01	2.637E+00	-0.078
LU-176	2.715E-02		2.947E-02	5.237E-02	4.798E-03	0.518
LU-177	3.265E+00	+	2.886E+00	3.943E+00	3.467E-01	0.828
LU-177M	1.007E-01		2.573E-01	3.896E-01	3.338E-02	0.258
HF-181	-4.350E-02		6.299E-02	9.677E-02	8.591E-03	-0.449
W-181	-2.316E-02		2.261E-01	3.439E-01	3.406E-02	-0.067
TA-182	-3.086E-02		3.090E-01	4.928E-01	4.088E-02	-0.063
RE-183	9.542E-02		1.210E-01	2.055E-01	1.779E-02	0.464
RE-184	2.485E-02		2.702E-01	4.320E-01	3.933E-02	0.058
OS-185	7.824E-03		6.360E-02	1.033E-01	8.816E-03	0.076
RE-188	1.632E-01		2.063E-01	3.497E-01	3.248E-02	0.467
W-188	-4.816E+00		9.814E+00	1.400E+01	1.286E+00	-0.344
IR-192	1.637E-02		4.453E-02	7.666E-02	7.013E-03	0.213
AU-195	3.293E-01		2.248E-01	3.755E-01	3.867E-02	0.877
TL-200	1.837E-03		5.701E-03	Half-Life too short		
TL-201	1.365E+01		2.300E+01	3.863E+01	3.226E+00	0.353
TL-202	1.242E-01		1.152E-01	2.057E-01	1.792E-02	0.604
HG-203	-2.763E-02		5.212E-02	8.560E-02	8.056E-03	-0.323
BI-207	2.145E-02		7.218E-02	1.221E-01	1.047E-02	0.176
TL-207	-1.638E-01		8.944E-01	1.303E+00	2.337E-01	-0.126
PO-209	8.428E+00		1.043E+01	1.872E+01	1.637E+00	0.450
PB-211	-1.299E+00		1.578E+00	1.759E+00	1.102E+00	-0.739
BI-212	1.209E+00	+	5.856E-01	9.261E-01	9.293E-02	1.306
PO-215	-1.638E-01		8.944E-01	1.303E+00	2.337E-01	-0.126
RN-219	2.061E-01		5.162E-01	8.803E-01	1.316E-01	0.234
RN-220	1.061E+01		3.195E+01	5.363E+01	4.788E+00	0.198
RA-223	-1.638E-01		8.944E-01	1.303E+00	2.337E-01	-0.126
AC-227	9.648E-02		4.558E-01	7.336E-01	1.147E-01	0.132
TH-227	9.648E-02		4.559E-01	7.336E-01	1.343E-01	0.132
TH-229	2.696E-01		5.579E-01	9.258E-01	8.007E-02	0.291
PA-231	7.303E-01		1.754E+00	3.041E+00	4.717E-01	0.240
TH-231	-1.638E-01		8.944E-01	1.303E+00	2.337E-01	-0.126
U-231	5.974E-01		2.198E+00	3.354E+00	3.401E-01	0.178
PA-233	-5.041E-03		7.423E-02	1.245E-01	1.168E-02	-0.040
PA-234	-5.250E-02		4.148E-01	6.726E-01	1.266E-01	-0.078
PA-234M	-1.568E+00		5.793E+00	9.087E+00	9.119E-01	-0.173
U-235	-1.505E-02		2.448E-01	3.908E-01	7.165E-02	-0.038
NP-236	-4.294E-02		8.542E-02	1.351E-01	1.194E-02	-0.318
NP-239	2.564E-02		1.927E-01	3.213E-01	3.655E-02	0.080
AM-241	2.452E-02		7.294E-02	1.137E-01	1.208E-02	0.216

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	5.371E-02		9.085E-02	1.553E-01	1.642E-02	0.346
AM-246	1.043E-01		2.061E-01	3.558E-01	3.035E-02	0.293
CM-247	2.870E-02		4.432E-02	7.710E-02	6.549E-03	0.372
CF-249	4.236E-02		5.044E-02	8.869E-02	7.514E-03	0.478
CF-251	1.234E-01		1.420E-01	2.411E-01	2.039E-02	0.512

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101012          *
* Acquisition date   : 2-FEB-2010 11:24:08 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 02:00:09.46 Half life ratio         : 8.000          *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library   : SOLID          *
* Sample ID          : G245101012 Analyst initials:         : MXR1           *
* Batch Number       : 944037 Sample Quantity:              : 1.0996E+02 GRAM *
* Recovery           : 1.00000 Carrier Weight:              : 0.00000         *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope        :              *
* MSD DPM             : 0.000 MSD Isotope                    :              *
* LCS DPM             : 0.000 LCS Isotope                    :              *
* LCSD DPM           : 0.000 LCSD Isotope                    :              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.069E+01	2.558E+00	3.851E-01	1.305E+00
BA-137M	4.071E-01	9.596E-02	4.590E-02	4.896E-02
CS-137	4.303E-01	1.015E-01	4.852E-02	5.176E-02
TL-208	4.864E-01	1.126E-01	3.814E-02	5.744E-02
BI-210	1.944E+00	9.029E-01	4.511E-01	4.607E-01
PB-210	1.944E+00	9.029E-01	4.511E-01	4.607E-01
PO-210	1.944E+00	8.998E-01	4.511E-01	4.591E-01
BI-211	4.244E+00	7.150E-01	1.838E-01	3.648E-01
PB-212	1.549E+00	1.999E-01	4.833E-02	1.020E-01
PO-212	1.549E+00	1.999E-01	4.833E-02	1.020E-01
BI-214	1.085E+00	2.372E-01	7.566E-02	1.210E-01
PB-214	1.476E+00	2.599E-01	6.410E-02	1.326E-01
PO-214	1.476E+00	2.599E-01	6.410E-02	1.326E-01
PO-216	1.549E+00	1.999E-01	4.833E-02	1.020E-01
PO-218	1.476E+00	2.599E-01	6.410E-02	1.326E-01
RA-224	5.120E+00	1.377E+00	5.504E-01	7.026E-01
RA-226	1.085E+00	2.372E-01	7.566E-02	1.210E-01
AC-228	1.678E+00	4.030E-01	1.385E-01	2.056E-01
RA-228	1.678E+00	4.030E-01	1.385E-01	2.056E-01
TH-228	1.580E+00	2.039E-01	4.930E-02	1.040E-01
TH-230	1.085E+00	2.372E-01	7.566E-02	1.210E-01
TH-232	1.678E+00	4.030E-01	1.385E-01	2.056E-01
TH-234	2.492E+00	1.332E+00	5.470E-01	6.794E-01
U-234	1.085E+00	2.372E-01	7.566E-02	1.210E-01
NP-237	1.425E+00	5.440E-01	1.885E-01	2.776E-01
U-238	2.492E+00	1.332E+00	5.470E-01	6.794E-01
AM-243	3.861E-01	6.646E-02	3.183E-02	3.391E-02
ANH-511	1.402E-01	8.978E-02	3.403E-02	4.581E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.605E-01	4.746E-01	4.147E-01	2.421E-01	NOT IDENT.
NA-22	-1.147E-02	6.432E-02	5.128E-02	3.282E-02	NOT IDENT.
NA-24	-6.152E+07	1.985E+08	0.000E+00	1.013E+08	SHORT HLIF
AL-26	-1.211E-03	4.129E-02	3.391E-02	2.106E-02	NOT IDENT.
TI-44	4.274E-01	5.847E-02	3.436E-02	2.983E-02	FAIL ABUN
SC-46	2.031E-02	4.810E-02	4.270E-02	2.454E-02	FAIL ABUN
V-48	2.403E-02	1.139E-01	9.770E-02	5.812E-02	NOT IDENT.
CR-51	7.570E-04	4.934E-01	4.262E-01	2.517E-01	NOT IDENT.
MN-52	1.499E-01	4.690E-01	4.211E-01	2.393E-01	NOT IDENT.
MN-54	-6.208E-03	5.412E-02	4.538E-02	2.761E-02	NOT IDENT.
CO-56	-4.011E-02	5.293E-02	4.074E-02	2.700E-02	FAIL ABUN
CO-57	-2.406E-03	2.546E-02	2.165E-02	1.299E-02	NOT IDENT.
CO-58	-3.541E-03	5.009E-02	4.222E-02	2.556E-02	NOT IDENT.
FE-59	-4.395E-02	1.175E-01	9.192E-02	5.995E-02	NOT IDENT.
CO-60	-2.468E-02	4.979E-02	3.874E-02	2.540E-02	NOT IDENT.
ZN-65	2.368E-02	1.416E-01	1.040E-01	7.227E-02	NOT IDENT.
GE-68	1.462E+00	1.721E+00	1.567E+00	8.780E-01	NOT IDENT.
AS-73	1.917E-01	2.492E-01	2.275E-01	1.271E-01	NOT IDENT.
AS-74	-1.166E-01	1.494E-01	1.132E-01	7.625E-02	NOT IDENT.
SE-75	-4.512E-02	5.943E-02	3.955E-02	3.032E-02	NOT IDENT.
BR-77	-2.531E+01	5.537E+01	0.000E+00	2.825E+01	SHORT HLIF
SR-82	-1.553E-01	5.679E-01	4.707E-01	2.898E-01	NOT IDENT.
RB-83	-2.974E-02	9.335E-02	7.546E-02	4.763E-02	NOT IDENT.
RB-84	-1.034E-01	9.162E-02	6.473E-02	4.674E-02	NOT IDENT.
KR-85	9.270E+00	1.059E+01	8.463E+00	5.405E+00	NOT IDENT.
SR-85	5.002E-02	5.716E-02	4.567E-02	2.916E-02	NOT IDENT.
RB-86	1.565E+00	1.248E+00	1.185E+00	6.369E-01	NOT IDENT.
Y-88	-3.270E-02	5.511E-02	3.919E-02	2.812E-02	NOT IDENT.
ZR-88	-8.123E-03	3.883E-02	3.253E-02	1.981E-02	NOT IDENT.
Y-91	-3.682E+00	2.563E+01	2.065E+01	1.308E+01	NOT IDENT.
NB-94	1.988E-02	4.616E-02	4.108E-02	2.355E-02	NOT IDENT.
NB-95	5.084E-02	6.481E-02	5.875E-02	3.306E-02	NOT IDENT.
NB-95M	-5.524E-02	1.674E-01	1.188E-01	8.542E-02	NOT IDENT.
ZR-95	6.583E-02	1.074E-01	9.658E-02	5.479E-02	NOT IDENT.
NB-97	2.465E+07	1.686E+07	0.000E+00	8.601E+06	SHORT HLIF
ZR-97	3.556E+08	3.071E+08	0.000E+00	1.567E+08	SHORT HLIF
MO-99	5.152E+01	5.554E+01	5.101E+01	2.834E+01	NOT IDENT.
TC-99M	-2.559E+21	2.837E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.078E-02	3.828E-02	3.226E-02	1.953E-02	FAIL ABUN
RH-102	2.539E-03	3.880E-02	3.275E-02	1.980E-02	NOT IDENT.
RU-103	2.097E-02	5.788E-02	4.987E-02	2.953E-02	FAIL ABUN
RH-106	1.702E-02	4.507E-01	3.716E-01	2.299E-01	FAIL ABUN
RU-106	1.702E-02	4.507E-01	3.716E-01	2.299E-01	FAIL ABUN
AG-108M	-1.093E-02	4.053E-02	3.349E-02	2.068E-02	NOT IDENT.
CD-109	8.092E-01	9.197E-01	7.401E-01	4.692E-01	NOT IDENT.
AG-110M	7.270E-02	5.113E-02	4.365E-02	2.608E-02	NOT IDENT.
IN-111	2.497E+00	4.067E+00	3.130E+00	2.075E+00	NOT IDENT.
IN-113M	-1.364E-02	5.753E-02	4.814E-02	2.935E-02	NOT IDENT.
SN-113	-1.364E-02	5.753E-02	4.814E-02	2.935E-02	NOT IDENT.
IN-114M	-6.916E-02	2.364E-01	1.712E-01	1.206E-01	NOT IDENT.
CD-115	-1.013E+01	6.402E+01	0.000E+00	3.266E+01	SHORT HLIF
SN-117M	-3.852E-02	7.606E-02	6.219E-02	3.881E-02	NOT IDENT.
SB-122	8.983E+00	9.528E+00	8.537E+00	4.861E+00	NOT IDENT.
I-123	-1.071E+09	2.863E+09	0.000E+00	1.461E+09	SHORT HLIF
TE-123M	-1.154E-02	3.087E-02	2.543E-02	1.575E-02	NOT IDENT.
I-124	-1.061E+00	2.217E+00	1.590E+00	1.131E+00	NOT IDENT.
SB-124	1.660E-02	1.149E-01	9.859E-02	5.864E-02	FAIL ABUN
SB-125	-1.940E-02	1.156E-01	9.647E-02	5.897E-02	FAIL ABUN
TE-125M	4.413E+00	9.604E+00	8.419E+00	4.900E+00	NOT IDENT.
I-126	1.513E-02	3.676E-01	2.632E-01	1.876E-01	NOT IDENT.
SB-126	1.990E-01	2.611E-01	2.225E-01	1.332E-01	FAIL ABUN
SN-126	1.080E-01	9.073E-02	7.367E-02	4.629E-02	FAIL ABUN
SB-127	-1.146E-01	4.690E+00	3.811E+00	2.393E+00	NOT IDENT.
XE-127	6.337E-03	6.024E-02	5.022E-02	3.074E-02	NOT IDENT.
I-131	-6.418E-02	2.056E-01	1.718E-01	1.049E-01	NOT IDENT.
TE-132	1.156E+00	2.188E+00	1.852E+00	1.116E+00	NOT IDENT.
BA-133	7.977E-03	5.264E-02	4.038E-02	2.686E-02	NOT IDENT.
I-133	-3.960E+05	3.867E+05	0.000E+00	1.973E+05	SHORT HLIF
CS-134	8.340E-02	1.200E-01	6.813E-02	6.121E-02	FAIL ABUN
CS-135	1.874E-01	2.044E-01	1.593E-01	1.043E-01	NOT IDENT.
I-135	2.290E+21	1.644E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.497E-01	2.068E-01	1.569E-01	1.055E-01	FAIL ABUN
CE-139	7.350E-04	3.402E-02	2.859E-02	1.736E-02	NOT IDENT.
BA-140	3.195E-01	4.553E-01	3.925E-01	2.323E-01	NOT IDENT.
LA-140	-1.708E-01	1.505E-01	9.548E-02	7.679E-02	FAIL ABUN
CE-141	6.826E-02	7.765E-02	6.821E-02	3.962E-02	NOT IDENT.
CE-143	6.831E+03	2.710E+03	0.000E+00	1.383E+03	SHORT HLIF

CE-144	-1.182E-01	2.459E-01	1.804E-01	1.255E-01	NOT IDENT.
PM-144	1.977E-02	4.687E-02	4.174E-02	2.391E-02	NOT IDENT.
PR-144	1.343E+00	3.184E+00	2.836E+00	1.625E+00	NOT IDENT.
PM-146	1.954E-02	5.678E-02	4.910E-02	2.897E-02	NOT IDENT.
ND-147	-2.528E-01	9.640E-01	7.810E-01	4.918E-01	NOT IDENT.
PM-149	-3.621E+02	4.761E+02	0.000E+00	2.429E+02	SHORT HLIF
EU-152	-5.075E-02	1.110E-01	9.220E-02	5.663E-02	FAIL ABUN
GD-153	-1.431E-01	8.438E-02	5.693E-02	4.305E-02	NOT IDENT.
EU-154	-2.059E-02	1.775E-01	1.427E-01	9.058E-02	NOT IDENT.
EU-155	9.300E-02	1.030E-01	9.200E-02	5.258E-02	FAIL ABUN
TB-160	1.023E-01	1.628E-01	1.485E-01	8.307E-02	FAIL ABUN
HO-166M	2.025E-02	7.211E-02	6.367E-02	3.679E-02	FAIL ABUN
TM-171	-2.086E+00	1.765E+01	1.359E+01	9.007E+00	NOT IDENT.
LU-176	2.715E-02	2.888E-02	2.635E-02	1.473E-02	NOT IDENT.
LU-177	3.265E+00	2.828E+00	1.989E+00	1.443E+00	FAIL ABUN
LU-177M	1.007E-01	2.521E-01	1.956E-01	1.286E-01	NOT IDENT.
HF-181	-4.350E-02	6.173E-02	4.854E-02	3.150E-02	NOT IDENT.
W-181	-2.316E-02	2.216E-01	1.750E-01	1.130E-01	NOT IDENT.
TA-182	-3.086E-02	3.028E-01	2.455E-01	1.545E-01	NOT IDENT.
RE-183	9.542E-02	1.185E-01	1.039E-01	6.048E-02	FAIL ABUN
RE-184	2.485E-02	2.648E-01	2.177E-01	1.351E-01	NOT IDENT.
OS-185	7.824E-03	6.232E-02	5.168E-02	3.180E-02	NOT IDENT.
RE-188	1.632E-01	2.022E-01	1.768E-01	1.032E-01	NOT IDENT.
W-188	-4.816E+00	9.618E+00	7.049E+00	4.907E+00	FAIL ABUN
IR-192	1.637E-02	4.364E-02	3.856E-02	2.226E-02	FAIL ABUN
AU-195	3.293E-01	2.203E-01	1.905E-01	1.124E-01	FAIL ABUN
TL-200	1.837E+03	1.117E+04	0.000E+00	5.701E+03	SHORT HLIF
TL-201	1.365E+01	2.254E+01	1.952E+01	1.150E+01	NOT IDENT.
TL-202	1.242E-01	1.129E-01	1.032E-01	5.761E-02	NOT IDENT.
HG-203	-2.763E-02	5.108E-02	4.310E-02	2.606E-02	NOT IDENT.
BI-207	2.145E-02	7.073E-02	6.088E-02	3.609E-02	FAIL ABUN
TL-207	-1.638E-01	8.765E-01	6.553E-01	4.472E-01	FAIL ABUN
PO-209	8.428E+00	1.022E+01	9.349E+00	5.214E+00	NOT IDENT.
PB-211	-1.299E+00	1.546E+00	8.832E-01	7.889E-01	NOT IDENT.
BI-212	1.209E+00	5.739E-01	4.631E-01	2.928E-01	FAIL ABUN
PO-215	-1.638E-01	8.765E-01	6.553E-01	4.472E-01	FAIL ABUN
RN-219	2.061E-01	5.058E-01	4.421E-01	2.581E-01	FAIL ABUN
RN-220	1.061E+01	3.131E+01	2.687E+01	1.597E+01	NOT IDENT.
RA-223	-1.638E-01	8.765E-01	6.553E-01	4.472E-01	FAIL ABUN
AC-227	9.648E-02	4.467E-01	3.696E-01	2.279E-01	FAIL ABUN
TH-227	9.648E-02	4.468E-01	3.696E-01	2.279E-01	FAIL ABUN
TH-229	2.696E-01	5.467E-01	4.674E-01	2.789E-01	FAIL ABUN
PA-231	7.303E-01	1.719E+00	1.531E+00	8.769E-01	FAIL ABUN
TH-231	-1.638E-01	8.765E-01	6.553E-01	4.472E-01	FAIL ABUN
U-231	5.974E-01	2.154E+00	1.702E+00	1.099E+00	FAIL ABUN
PA-233	-5.041E-03	7.274E-02	6.265E-02	3.711E-02	FAIL ABUN
PA-234	-5.250E-02	4.065E-01	3.357E-01	2.074E-01	FAIL ABUN
PA-234M	-1.568E+00	5.677E+00	4.533E+00	2.896E+00	NOT IDENT.
U-235	-1.505E-02	2.399E-01	1.977E-01	1.224E-01	FAIL ABUN
NP-236	-4.294E-02	8.371E-02	6.831E-02	4.271E-02	NOT IDENT.
NP-239	2.564E-02	1.888E-01	1.628E-01	9.633E-02	FAIL ABUN
AM-241	2.452E-02	7.148E-02	5.791E-02	3.647E-02	NOT IDENT.
CM-243	5.371E-02	8.904E-02	7.877E-02	4.543E-02	FAIL ABUN
AM-246	1.043E-01	2.020E-01	1.774E-01	1.031E-01	NOT IDENT.
CM-247	2.870E-02	4.343E-02	3.872E-02	2.216E-02	NOT IDENT.
CF-249	4.236E-02	4.943E-02	4.455E-02	2.522E-02	NOT IDENT.
CF-251	1.234E-01	1.392E-01	1.218E-01	7.102E-02	NOT IDENT.

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

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46.50	202.2367
46.50	202.2367
46.50	202.2367
48.70	216.1331
49.72	223.0784
51.35	243.9613
52.39	211.6591
52.97	222.1786
53.15	222.2892
53.44	225.8649
54.07	238.1655
56.28	260.1306
56.28	260.1321
57.37	0.0000
57.53	257.5630
57.53	257.5645
57.60	257.6103
57.98	257.0086
57.98	257.0086
59.32	282.0585
59.32	282.0585
59.40	282.1167
59.54	282.2190
59.72	297.8917
60.01	295.5214
61.10	314.5407
61.14	314.5721
61.30	317.3004
63.00	303.8551
63.29	304.0734
63.29	304.0734
63.58	304.2917
64.28	304.8159
65.12	333.4482
65.20	333.5126
65.20	333.5126
66.05	332.8828
66.72	313.6497
66.83	313.7332
66.91	313.7932
67.20	310.0529
67.20	310.0529
67.75	286.6767
67.85	310.5316
68.90	323.2211
68.90	323.2211
69.30	307.6135
69.67	319.8244
70.82	324.6656
70.82	324.6656
70.83	324.6731
72.80	311.8772
72.87	311.9252
72.87	311.9252
74.67	313.1856
74.81	313.2817
74.81	313.2817
74.81	313.2817
74.81	313.2817
74.81	313.2817
74.81	313.2817
74.97	313.3939
75.28	313.6075
75.70	313.8995
77.11	299.5743
77.11	299.5743

77.11	299.5743
77.11	299.5743
77.11	299.5743
77.11	299.5743
77.11	299.5743
78.38	316.6352
79.62	285.8189
79.80	258.7831
79.80	258.7831
80.11	241.7501
80.18	241.7868
80.30	282.6088
80.30	282.6088
80.57	301.8016
81.00	308.4259
81.07	295.7691
81.07	295.7691
81.07	295.7691
81.07	295.7691
82.60	273.0515
83.37	314.5075
83.78	314.7760
83.78	314.7760
83.78	314.7760
83.78	314.7760
84.21	386.2827
84.90	386.8270
85.43	387.2444
86.29	387.9200
86.50	388.0835
86.54	388.1136
86.59	388.1545
86.72	388.2556
86.79	388.3073
86.94	388.4256
87.30	388.7074
87.30	388.7074
87.30	388.7074
87.30	388.7074
87.30	388.7074
87.30	388.7074
87.57	420.6362
87.88	0.0000
88.03	421.0225
88.36	381.2393
88.47	381.3235
89.95	315.9266
91.11	316.6415
92.29	424.5455
92.38	318.3490
92.38	318.3490
93.35	318.9421
94.00	319.3364
94.67	319.7394
94.67	319.7429
94.90	319.8825
94.90	319.8825
94.90	319.8825
94.90	319.8825
95.87	190.5984
95.87	190.5984
96.73	225.9997
97.43	260.0264
98.44	197.1442
98.44	197.1442
98.88	171.3729
99.55	185.3177
99.55	185.3177
99.86	197.6590
100.00	197.7092
100.10	191.1550
103.18	223.4659
103.76	183.8860
105.00	188.0903
105.31	188.1931
108.00	235.8704
109.28	197.1526



111.00	216.9293
111.00	216.9293
111.76	213.3643
112.95	230.1637
115.19	202.9921
116.30	188.8378
117.00	185.1770
117.00	185.1770
117.66	202.8472
121.11	186.4117
121.62	183.6339
121.78	183.6808
122.06	177.8973
122.32	177.9704
122.32	177.9704
122.32	177.9704
122.32	177.9704
123.07	177.2034
127.23	184.7639
129.76	183.0089
131.20	193.3238
133.02	187.8887
133.54	199.9736
135.34	178.5630
136.00	183.7305
136.25	183.7979
136.48	178.8634
140.51	191.9773
140.51	0.0000
142.18	211.5829
142.65	210.7157
143.76	203.9809
144.24	191.9927
144.24	191.9927
144.24	191.9927
144.24	191.9927
145.22	174.0454
145.44	187.2564
147.16	194.8105
152.43	180.9000
152.70	175.8545
153.22	169.8400
154.21	175.1905
154.21	175.1905
154.21	175.1905
154.21	175.1905
155.03	179.4861
156.02	212.5886
158.56	182.3944
159.00	0.0000
159.00	171.1588
160.31	171.4543
161.27	178.9078
162.32	140.8380
162.64	158.5081
163.35	174.2087
163.89	179.5185
165.85	177.8919
167.43	150.1055
171.28	155.0278
171.86	159.3322
172.10	168.8171
176.55	146.5535
176.60	146.5634
181.06	159.0195
184.41	174.0281
185.71	167.3667
186.00	167.4242
190.27	159.1529
192.34	166.5181
193.63	139.8680
197.04	162.0132
198.01	168.6794
198.60	175.2825
200.40	0.0000
201.83	175.9186
202.84	170.6806
205.31	165.1506

208.36	170.6234
208.81	162.5004
209.75	203.7440
209.75	203.7440
210.97	195.7864
215.65	168.6573
216.55	150.0615
218.09	152.5154
222.10	135.3996
223.80	134.5249
226.40	141.5740
227.00	141.6606
227.08	126.0548
227.20	127.1866
228.16	126.1939
228.18	126.1962
228.18	126.1962
231.56	0.0000
235.69	160.3473
236.00	160.3980
236.00	160.3980
238.63	117.3671
238.63	117.3671
238.63	117.3671
238.63	117.3671
239.00	0.0000
240.98	117.6379
241.98	93.4092
241.98	93.4092
241.98	93.4092
244.69	105.5758
245.39	95.4229
247.94	108.1835
248.90	121.9609
249.79	0.0000
252.40	105.2126
252.85	107.5458
252.85	107.5458
254.15	0.0000
256.20	115.9182
256.20	115.9182
260.50	116.3826
260.90	0.0000
262.80	98.1533
264.65	121.4532
268.24	104.4434
268.79	102.7531
269.46	106.8804
269.46	106.8804
269.46	106.8804
269.46	106.8804
271.23	123.9228
273.65	141.6833
276.40	113.0974
277.35	116.7017
277.60	116.7281
277.60	116.7281
278.00	114.1348
278.60	118.5864
279.20	137.1070
279.53	137.1451
280.46	147.8152
281.68	0.0000
283.67	103.2301
284.30	98.8733
285.00	123.6664
285.90	0.0000
286.10	122.8997
286.10	122.8997
287.40	103.5640
288.45	0.0000
290.67	113.6172
290.80	113.6289
291.72	119.4047
293.26	0.0000
293.70	96.8236
295.21	96.9465
295.21	96.9465

295.21	96.9465
295.96	97.0079
296.50	97.0511
297.23	0.0000
298.57	64.3370
299.80	97.3184
299.80	97.3184
300.09	97.3433
300.09	97.3433
300.09	97.3433
300.09	97.3433
300.12	97.3449
301.29	84.5431
302.84	120.5203
303.76	0.0000
303.91	107.7026
304.40	112.0564
304.40	112.0564
304.84	99.1622
306.84	90.8686
308.46	90.0864
311.98	97.5718
316.51	101.5547
318.01	104.3995
319.02	101.7581
319.41	104.5153
320.08	100.9325
323.87	105.0662
323.87	105.0662
323.87	105.0662
323.87	105.0662
325.23	102.2571
328.77	90.8203
333.44	98.0078
334.20	94.1422
334.20	94.1422
334.30	94.1500
338.28	119.5205
338.28	119.5205
338.28	119.5205
338.28	119.5205
338.32	119.5244
338.32	119.5244
338.32	119.5244
340.50	90.1612
340.57	90.1656
344.27	93.5671
345.85	75.6844
350.59	0.0000
351.07	75.4196
351.92	75.4666
351.92	75.4666
351.92	75.4666
355.39	0.0000
356.01	71.7680
364.48	84.6208
366.43	84.7389
367.43	79.1461
367.94	0.0000
369.80	84.9422
374.96	89.9888
383.85	93.4063
387.95	74.5532
388.63	81.2815
391.69	90.0757
391.69	90.0757
392.90	83.4370
398.62	91.4601
400.65	75.1959
401.10	77.1472
401.81	76.2190
402.60	66.6058
404.84	95.9002
410.95	74.5441
411.60	80.7904
413.65	74.6766
414.70	83.4006
415.30	83.7114

415.76	78.8680
417.63	0.0000
418.52	70.2301
423.70	69.4854
427.08	79.4427
427.89	76.5396
432.53	69.8755
433.93	73.8773
439.47	0.0000
439.56	56.3442
439.89	58.3338
443.98	73.3496
444.90	75.3749
445.03	75.3807
445.03	75.3807
445.03	75.3807
445.03	75.3807
453.90	69.8067
463.38	49.7453
468.07	59.7695
473.00	83.7194
475.06	70.6911
475.35	74.7441
476.78	78.8498
477.59	70.7957
477.96	71.8223
482.03	79.0902
484.57	0.0000
487.03	61.0144
490.36	0.0000
492.35	0.0000
497.08	60.3414
507.63	0.0000
510.53	0.0000
510.84	77.2974
511.00	77.3043
511.85	77.3409
511.85	77.3409
513.99	64.4228
513.99	64.4228
520.41	63.2004
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	65.5994
529.87	0.0000
531.02	57.3112
537.32	51.2311
543.00	57.6772
546.56	0.0000
549.76	44.2007
552.65	47.4294
555.20	58.0464
563.23	47.6889
563.90	48.7655
568.70	59.5120
569.32	55.2786
569.50	48.9045
569.67	52.0984
573.80	51.1421
574.00	51.1465
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	53.5233
585.48	0.0000
591.81	45.1531
592.07	49.4590
593.00	46.2544
595.88	64.6326
600.56	59.3825
602.52	0.0000
602.71	67.7308
602.71	67.7308
603.60	65.7411
604.41	60.5750
604.70	60.5835
609.31	58.5500

609.31	58.5500
609.31	58.5500
609.31	58.5500
610.33	52.0693
612.46	67.7606
614.37	53.9094
618.01	46.8174
621.84	55.6287
621.84	55.6287
631.29	41.6332
633.02	58.1143
633.10	58.1176
634.78	54.8706
635.90	53.8016
636.97	47.2373
645.85	51.8437
646.12	51.8495
656.30	47.8789
657.75	31.9403
657.90	0.0000
661.65	69.3259
661.65	69.3259
664.57	0.0000
666.33	51.6591
666.33	51.6591
675.00	49.1764
677.61	57.0653
685.20	52.7660
692.80	58.5730
695.00	51.4141
696.49	50.5436
696.49	50.5436
697.00	55.0698
697.49	55.9832
698.33	67.7472
698.50	63.2358
699.00	60.5372
702.63	52.4875
706.10	51.6604
706.58	0.0000
706.67	49.8599
709.31	49.9149
711.68	37.2473
713.82	40.9186
717.42	44.6240
720.50	37.7773
721.93	0.0000
722.20	51.7097
722.78	47.1584
722.78	47.1584
722.89	47.1610
722.95	48.6823
723.30	48.6901
724.18	41.0977
727.18	42.6733
733.00	43.5409
735.90	53.2294
739.58	40.4422
742.81	46.9384
744.21	44.2031
747.13	47.0219
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752.31	45.2736
753.82	39.7540
755.35	0.0000
756.15	46.2695
756.87	49.9856
763.93	71.4788
765.79	52.0229
766.42	53.8950
766.84	52.9741
776.49	44.7820
778.00	45.7425
778.57	43.8846
778.89	40.1550
783.80	35.5545
785.46	45.8765
792.07	46.9336

795.84	42.3029
796.30	45.4447
798.80	56.4683
801.93	42.9263
805.60	44.3494
810.29	33.0859
810.76	34.0374
815.85	34.1033
817.79	0.0000
818.51	31.2936
819.60	39.8446
826.30	45.6516
828.27	0.0000
831.60	52.4138
831.96	43.8426
834.83	51.5228
836.80	0.0000
846.75	42.1674
848.13	26.8475
856.28	0.0000
856.80	32.0638
860.37	37.5632
867.32	40.5552
867.82	38.6309
871.10	26.1068
873.19	40.6414
874.81	34.8557
875.33	0.0000
876.40	31.0008
879.36	20.3658
880.27	32.9840
880.51	32.0163
881.50	35.9097
883.24	29.1343
884.67	27.2057
889.25	24.3304
896.60	30.2485
898.02	39.0498
899.00	44.9230
903.28	51.3477
911.07	32.6904
911.07	32.6904
911.07	32.6904
919.63	27.5413
920.93	33.4580
925.00	36.4616
925.24	41.3919
926.50	30.5648
935.52	32.6375
937.48	51.4630
944.10	35.7082
946.00	35.7311
949.00	24.8383
962.29	41.5812
964.01	109.8389
966.15	9.9924
968.20	9.9990
969.11	30.0066
969.11	30.0066
969.11	30.0066
977.42	13.7906
980.50	39.1552
983.50	29.1437
989.30	33.2264
996.32	37.3387
1001.03	26.2780
1001.68	24.2619
1004.76	33.3932
1021.30	0.0000
1024.50	0.0000
1034.80	25.5396
1036.00	31.6812
1037.82	35.7896
1038.57	39.8893
1038.76	0.0000
1045.16	37.9214
1046.59	42.0390
1048.07	45.1365

1050.47	33.8782
1050.47	33.8782
1062.04	29.8779
1063.62	29.8921
1076.63	20.6973
1077.35	25.8777
1078.86	31.0664
1085.78	29.0568
1099.22	28.1312
1112.02	28.3887
1112.84	26.1536
1115.52	34.8991
1120.29	31.4531
1120.29	31.4531
1120.29	31.4531
1120.29	31.4531
1120.51	31.4546
1121.28	31.4619
1124.00	0.0000
1129.67	27.3343
1131.51	0.0000
1147.95	0.0000
1167.94	44.6435
1173.22	34.0656
1175.09	36.2130
1177.93	35.1769
1189.05	44.9101
1204.90	34.3672
1205.75	0.0000
1213.00	41.9802
1221.42	47.4697
1230.97	34.2535
1235.34	39.7085
1236.41	0.0000
1238.25	36.8505
1246.25	31.2277
1260.41	0.0000
1271.85	32.8081
1274.45	32.8301
1274.54	33.9259
1291.56	23.0846
1298.22	0.0000
1312.09	18.4188
1325.50	22.1787
1325.50	22.1787
1332.49	21.2920
1333.61	17.5945
1360.21	16.7805
1362.66	0.0000
1365.15	14.0009
1368.21	17.7476
1368.53	0.0000
1376.25	21.5269
1384.27	19.6943
1394.10	22.5615
1395.20	25.3894
1407.95	20.7512
1434.06	9.4922
1436.60	13.2970
1457.56	0.0000
1460.81	16.3756
1489.15	13.4622
1509.49	20.2874
1596.49	19.7005
1620.62	6.9314
1678.03	0.0000
1691.02	10.0505
1691.02	10.0505
1706.46	0.0000
1750.46	0.0000
1764.49	8.7448
1764.49	8.7448
1764.49	8.7448
1764.49	8.7448
1770.23	8.7549
1771.40	12.2598
1791.20	0.0000
1808.65	8.2334

1836.01

13.4512



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101012

Total Uranium Activity	7.4057E+00	ug/g
Total Uranium Counting Unc.	3.9632E+00	ug/g
Total Uranium Tpu	2.0220E-06	ug/g
Total Uranium Mda	1.6299E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101012
*  ANALYST       : MXR1                             DETECTOR    : GAM17
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE: 2-FEB-2010 11:24:08.66           SAMPLE ALQT: 109.960 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.140E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.598E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 5.327E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 2.576E+00

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## VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:31:03.17

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101013.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:30:32.
Sample ID          : G245101013      Sample quantity   : 1.08230E+02 GRAM
Detector name      : GAM18            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.53  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity      : 5.00000
Batch ID           : 944037            Detector SN#     :
Matrix Spike ID    :                   LCS ID          : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.89*	124	493	0.85	124.91	120	10	1.73E-02	35.3	
2	3	74.99	387	437	1.24	149.10	143	17	5.38E-02	10.3	9.51E-01
3	3	77.33*	570	350	1.06	153.77	143	17	7.91E-02	6.9	
4	0	87.28	206	427	1.24	173.68	171	7	2.86E-02	18.0	
5	0	93.08*	310	670	1.34	185.26	181	10	4.31E-02	17.3	
6	0	129.58	63	388	1.32	258.24	254	9	8.75E-03	57.8	
7	0	143.81	84	234	0.72	286.69	284	6	1.17E-02	30.6	
8	0	185.72*	287	380	1.33	370.49	364	11	3.99E-02	15.0	
9	0	209.37	136	300	1.00	417.77	414	9	1.89E-02	24.5	
10	2	238.73*	1431	170	1.23	476.47	470	20	1.99E-01	3.1	2.38E+00
11	2	241.80*	350	179	1.61	482.60	470	20	4.86E-02	10.6	
12	0	249.77	161	407	6.09	498.53	490	21	2.23E-02	32.3	
13	0	270.22	119	254	1.37	539.41	534	11	1.66E-02	27.4	
14	0	295.26*	406	285	1.21	589.49	584	11	5.63E-02	9.6	
15	0	300.28	49	209	1.09	599.53	596	9	6.74E-03	55.8	
16	0	329.35	114	292	1.78	657.65	650	17	1.58E-02	35.7	
17	0	338.39*	225	225	1.10	675.72	670	12	3.13E-02	15.3	
18	0	351.81*	796	237	1.48	702.55	696	14	1.11E-01	5.5	
19	0	463.07	107	147	1.12	925.00	919	12	1.48E-02	24.7	
20	0	510.71*	160	213	1.77	1020.25	1013	15	2.23E-02	24.7	
21	0	582.91*	464	137	1.44	1164.62	1158	14	6.45E-02	7.3	
22	0	608.93*	534	200	1.42	1216.65	1209	16	7.41E-02	7.5	
23	0	661.22	406	179	1.61	1321.19	1314	16	5.64E-02	8.8	
24	0	727.04	121	95	1.25	1452.81	1448	12	1.68E-02	18.6	
25	0	794.51	58	65	1.56	1587.70	1581	12	8.04E-03	30.9	
26	0	859.64*	59	53	3.31	1717.95	1712	13	8.26E-03	29.6	
27	0	910.89*	362	88	1.95	1820.41	1811	20	5.02E-02	8.5	
28	1	964.70	81	69	2.32	1928.02	1923	24	1.12E-02	21.0	1.20E+00
29	1	968.60*	216	70	2.15	1935.82	1923	24	2.99E-02	11.0	
30	0	1001.90*	19	65	2.48	2002.42	1992	13	2.67E-03	93.2	
31	0	1120.38*	172	73	1.98	2239.34	2231	19	2.39E-02	14.5	
32	0	1237.88*	48	75	1.94	2474.30	2469	13	6.61E-03	40.9	
33	0	1377.74	36	47	0.76	2753.98	2748	11	4.98E-03	41.3	
34	0	1459.86	1415	32	2.45	2918.21	2906	20	1.97E-01	2.8	
35	0	1727.98	47	8	4.05	3454.41	3447	16	6.47E-03	20.0	
36	0	1763.40*	123	9	2.48	3525.26	3516	18	1.70E-02	11.4	
37	0	1847.94	19	24	2.61	3694.32	3681	19	2.68E-03	64.6	
38	0	1946.80	23	0	2.81	3892.04	3884	17	3.19E-03	20.9	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
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Flag: "\*" = Peak area was modified by background subtraction

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101013.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:30:32
Sample ID        : G245101013 Sample quantity : 108.23 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.53 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.429E+01	2.298E+00	3.766E-01	2.858E-02	64.485
CD-109	+	88.03	*	3.072E+00	1.140E+00	1.571E+00	1.453E-01	1.955
SN-126	+	64.28		1.492E+00	1.077E+00	9.335E-01	1.380E-01	1.598
	+	86.94		1.246E+00	6.842E-01	5.881E-01	2.439E-01	2.119
	+	87.57	*	2.998E-01	1.113E-01	1.448E-01	1.334E-02	2.070
BA-137M	+	661.65	*	4.370E-01	8.409E-02	5.387E-02	4.107E-03	8.111
CS-137	+	661.65	*	4.619E-01	8.892E-02	5.695E-02	4.352E-03	8.111
TL-208		277.35		3.182E-01	3.404E-01	5.771E-01	6.061E-02	0.551
	+	510.84		5.973E-01	3.016E-01	1.875E-01	1.994E-02	3.185
	+	583.14	*	4.860E-01	8.025E-02	5.250E-02	4.115E-03	9.257
	+	860.37		5.677E-01	3.422E-01	4.051E-01	4.531E-02	1.402
BI-211		72.87		2.212E+00	3.773E+00	5.736E+00	4.736E-01	0.386
	+	351.07	*	3.911E+00	5.001E-01	2.904E-01	1.864E-02	13.468
PB-212	+	74.81		2.543E+00	6.120E-01	6.059E-01	7.594E-02	4.197
	+	77.11		2.086E+00	3.373E-01	3.390E-01	2.873E-02	6.153
	+	87.30		1.386E+00	5.330E-01	6.722E-01	9.130E-02	2.062
	+	238.63	*	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
	+	300.09		8.250E-01	9.237E-01	1.117E+00	9.171E-02	0.739
PO-212	+	74.81		2.543E+00	6.120E-01	6.059E-01	7.594E-02	4.197
	+	77.11		2.086E+00	3.373E-01	3.390E-01	2.873E-02	6.153
	+	87.30		1.386E+00	5.330E-01	6.722E-01	9.130E-02	2.062
		115.19		-1.978E-01	3.456E+00	5.553E+00	3.498E-01	-0.036
	+	238.63	*	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
	+	300.09		8.250E-01	9.237E-01	1.117E+00	9.171E-02	0.739
BI-214	+	609.31	*	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
	+	1120.29		1.697E+00	5.171E-01	4.222E-01	4.043E-02	4.019
	+	1764.49		1.588E+00	3.753E-01	2.538E-01	1.543E-02	6.256
PB-214	+	74.81		4.381E+00	1.024E+00	1.044E+00	1.166E-01	4.197
	+	77.11		3.576E+00	6.393E-01	5.811E-01	6.623E-02	6.153
	+	87.30		2.375E+00	9.005E-01	1.152E+00	1.381E-01	2.062
	+	241.98		2.403E+00	5.456E-01	5.017E-01	3.967E-02	4.789
	+	295.21		1.213E+00	2.557E-01	2.038E-01	1.729E-02	5.953
	+	351.92	*	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
PO-214	+	74.81		4.381E+00	1.024E+00	1.044E+00	1.166E-01	4.197

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.576E+00	6.393E-01	5.811E-01	6.623E-02	6.153
	+	87.30		2.375E+00	9.005E-01	1.152E+00	1.381E-01	2.062
	+	241.98		2.403E+00	5.456E-01	5.017E-01	3.967E-02	4.789
	+	295.21		1.213E+00	2.557E-01	2.038E-01	1.729E-02	5.953
	+	351.92	*	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
PO-216	+	74.81		2.543E+00	6.120E-01	6.059E-01	7.594E-02	4.197
	+	77.11		2.086E+00	3.373E-01	3.390E-01	2.873E-02	6.153
	+	87.30		1.386E+00	5.330E-01	6.722E-01	9.130E-02	2.062
	+	238.63	*	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
	+	300.09		8.250E-01	9.237E-01	1.117E+00	9.171E-02	0.739
PO-218	+	74.81		4.381E+00	1.024E+00	1.044E+00	1.166E-01	4.197
	+	77.11		3.576E+00	6.393E-01	5.811E-01	6.623E-02	6.153
	+	87.30		2.375E+00	9.005E-01	1.152E+00	1.381E-01	2.062
	+	241.98		2.403E+00	5.456E-01	5.017E-01	3.967E-02	4.789
	+	295.21		1.213E+00	2.557E-01	2.038E-01	1.729E-02	5.953
	+	351.92	*	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
RA-224	+	240.98	*	4.556E+00	1.003E+00	9.486E-01	5.284E-02	4.802
RA-226	+	609.31	*	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
	+	1120.29		1.697E+00	5.171E-01	4.222E-01	4.043E-02	4.019
	+	1764.49		1.588E+00	3.753E-01	2.538E-01	1.543E-02	6.256
AC-228	+	338.32		1.228E+00	6.252E-01	3.498E-01	1.426E-01	3.511
	+	911.07	*	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344
	+	969.11		1.706E+00	5.548E-01	3.386E-01	8.107E-02	5.040
RA-228	+	338.32		1.228E+00	6.252E-01	3.498E-01	1.426E-01	3.511
	+	911.07	*	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344
	+	969.11		1.706E+00	5.548E-01	3.386E-01	8.107E-02	5.040
TH-228	+	74.81		2.594E+00	5.760E-01	6.181E-01	5.209E-02	4.197
	+	77.11		2.128E+00	3.441E-01	3.458E-01	2.931E-02	6.153
	+	87.30		1.414E+00	5.250E-01	6.857E-01	6.303E-02	2.062
	+	238.63	*	1.671E+00	1.581E-01	8.513E-02	6.082E-03	19.633
	+	300.09		8.416E-01	1.063E+00	1.139E+00	6.714E-01	0.739
TH-230	+	609.31	*	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
	+	1120.29		1.697E+00	5.171E-01	4.222E-01	4.042E-02	4.019
	+	1764.49		1.588E+00	3.753E-01	2.538E-01	1.543E-02	6.256
TH-232	+	338.32		1.228E+00	3.812E-01	3.498E-01	2.023E-02	3.511
	+	911.07	*	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344
	+	969.11		1.706E+00	5.548E-01	3.386E-01	8.107E-02	5.040
TH-234	+	63.29	*	3.769E+00	2.745E+00	2.449E+00	4.318E-01	1.539
	+	92.38		2.854E+00	1.114E+00	8.731E-01	1.574E-01	3.269
U-234	+	609.31	*	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
	+	1120.29		1.697E+00	5.171E-01	4.222E-01	4.042E-02	4.019
	+	1764.49		1.588E+00	3.753E-01	2.538E-01	1.543E-02	6.256
U-235		89.95		5.329E-01	1.671E+00	1.961E+00	6.067E-01	0.272
	+	93.35		3.432E+00	1.528E+00	1.039E+00	2.904E-01	3.302
		105.00		1.480E+00	1.111E+00	1.759E+00	5.175E-01	0.842
	+	143.76	*	3.392E-01	2.146E-01	3.263E-01	5.285E-02	1.040
		163.35		1.686E-01	4.255E-01	7.287E-01	1.298E-01	0.231
	+	185.71		2.410E-01	7.328E-02	6.716E-02	3.572E-03	3.589
		205.31		1.081E-01	5.273E-01	7.737E-01	1.382E-01	0.140

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	8.803E-01	3.739E-01	4.423E-01	9.980E-02	1.990
		95.87		-3.064E-01	1.083E+00	1.547E+00	3.780E-01	-0.198
U-238	+	63.29	*	3.769E+00	2.745E+00	2.449E+00	4.318E-01	1.539
	+	92.38		2.854E+00	1.018E+00	8.731E-01	7.421E-02	3.269
AM-243	+	74.67	*	4.122E-01	9.142E-02	9.862E-02	8.230E-03	4.180
	+	86.72		3.301E+01	1.225E+01	1.563E+01	1.429E+00	2.112
		117.66		-2.568E+00	3.629E+00	5.637E+00	3.467E-01	-0.456
		142.18		-3.048E+00	1.990E+01	2.783E+01	1.533E+00	-0.110
ANH-511	+	511.00	*	1.290E-01	6.424E-02	4.051E-02	2.675E-03	3.185

---- 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	*	1.399E-01	2.958E-01	5.021E-01	3.639E-02	0.279
NA-22		1274.54	*	-2.513E-02	4.089E-02	6.359E-02	4.327E-03	-0.395
NA-24		1368.53	*	-1.215E+02	4.089E-02	Half-Life too short		
AL-26		1129.67		2.261E+00	1.680E+00	2.735E+00	1.826E-01	0.827
		1808.65	*	1.063E-02	2.609E-02	4.549E-02	2.656E-03	0.234
TI-44		67.85		-9.017E-02	5.640E-02	8.206E-02	6.599E-03	-1.099
	+	78.38	*	3.850E-01	6.226E-02	8.743E-02	7.475E-03	4.403
SC-46		889.25	*	-1.432E-02	3.583E-02	5.653E-02	6.305E-03	-0.253
	+	1120.51		3.024E-01	8.995E-02	1.195E-01	8.254E-03	2.531
V-48		944.10		-5.801E-01	1.056E+00	1.638E+00	1.734E-01	-0.354
		983.50	*	5.108E-02	7.842E-02	1.336E-01	1.322E-02	0.382
		1312.09		-2.165E-02	8.657E-02	1.382E-01	1.007E-02	-0.157
CR-51		320.08	*	3.215E-02	3.723E-01	6.027E-01	3.880E-02	0.053
MN-52		744.21		-2.611E-01	3.983E-01	6.302E-01	5.557E-02	-0.414
		848.13		2.272E+00	1.075E+01	1.794E+01	1.877E+00	0.127
		935.52		4.298E-01	4.461E-01	7.731E-01	8.292E-02	0.556
		1246.25		2.312E+00	1.326E+01	1.967E+01	1.265E+00	0.118
		1333.61		-1.912E+00	7.862E+00	1.252E+01	9.457E-01	-0.153
		1434.06	*	3.351E-01	3.559E-01	6.422E-01	4.732E-02	0.522
MN-54		834.83	*	1.719E-02	3.623E-02	6.136E-02	6.285E-03	0.280
CO-56		846.75	*	-2.717E-03	3.648E-02	5.955E-02	6.216E-03	-0.046
		977.42		-7.728E-01	3.170E+00	4.251E+00	4.252E-01	-0.182
		1037.82		-2.323E-01	2.701E-01	4.176E-01	3.869E-02	-0.556
		1175.09		-4.240E-01	2.213E+00	3.612E+00	2.004E-01	-0.117
	+	1238.25		1.367E-01	1.122E-01	1.532E-01	1.021E-02	0.892
		1360.21		4.815E-02	8.897E-01	1.461E+00	1.098E-01	0.033
		1771.40		-4.626E-02	2.281E-01	3.217E-01	1.944E-02	-0.144
CO-57		122.06	*	5.643E-03	2.459E-02	3.988E-02	2.362E-03	0.142
		136.48		-1.121E-02	2.024E-01	3.214E-01	2.104E-02	-0.035
CO-58		810.76	*	-9.156E-03	3.646E-02	5.893E-02	5.817E-03	-0.155
FE-59	+	142.65		4.720E+00	2.898E+00	4.850E+00	2.669E-01	0.973
		192.34		5.120E-01	9.257E-01	1.580E+00	1.832E-01	0.324
		1099.22	*	-1.157E-02	8.771E-02	1.446E-01	1.190E-02	-0.080
		1291.56		-3.461E-02	1.093E-01	1.735E-01	1.458E-02	-0.199
CO-60		1173.22		2.788E-02	4.056E-02	7.044E-02	3.893E-03	0.396

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-1.676E-02	3.483E-02	5.406E-02	4.085E-03	-0.310
ZN-65	1115.52	*		1.057E-01	9.040E-02	1.444E-01	1.017E-02	0.732
GE-68	1077.35	*		4.934E-01	1.082E+00	1.868E+00	1.484E-01	0.264
AS-73	53.44	*		1.110E+00	1.202E+00	2.089E+00	1.656E-01	0.531
AS-74	595.88	*		-3.928E-02	9.993E-02	1.572E-01	1.129E-02	-0.250
	634.78			-2.058E-01	3.975E-01	6.144E-01	4.574E-02	-0.335
SE-75	66.05			-3.392E-01	6.196E+00	9.204E+00	9.116E-01	-0.037
	96.73			-6.441E-01	9.201E-01	1.281E+00	1.689E-01	-0.503
	121.11			1.590E-02	1.345E-01	2.172E-01	2.027E-02	0.073
	136.00			-1.157E-02	3.872E-02	6.079E-02	3.462E-03	-0.190
	198.60			2.521E-01	1.666E+00	2.798E+00	1.899E-01	0.090
	264.65	*		7.131E-03	4.719E-02	6.829E-02	3.905E-03	0.104
	279.53			3.686E-02	1.019E-01	1.689E-01	1.043E-02	0.218
	303.91			-1.198E+00	2.329E+00	3.162E+00	3.008E-01	-0.379
	400.65			2.918E-01	2.434E-01	4.295E-01	3.913E-02	0.679
BR-77	+	87.88		2.721E-03	2.434E-01	Half-Life	too short	
	+	200.40		1.581E-04	2.434E-01	Half-Life	too short	
	+	239.00		1.087E-03	2.434E-01	Half-Life	too short	
	+	249.79		9.682E-04	2.434E-01	Half-Life	too short	
		281.68		-1.398E-04	2.434E-01	Half-Life	too short	
		297.23		1.120E-03	2.434E-01	Half-Life	too short	
		303.76		-4.544E-04	2.434E-01	Half-Life	too short	
		439.47		-1.484E-04	2.434E-01	Half-Life	too short	
		484.57		-1.265E-04	2.434E-01	Half-Life	too short	
		520.65	*	-3.559E-05	2.434E-01	Half-Life	too short	
		574.64		2.118E-04	2.434E-01	Half-Life	too short	
		578.91		3.137E-04	2.434E-01	Half-Life	too short	
		585.48		5.439E-03	2.434E-01	Half-Life	too short	
		755.35		3.498E-04	2.434E-01	Half-Life	too short	
		817.79		-1.078E-04	2.434E-01	Half-Life	too short	
SR-82		698.33		-9.379E+00	3.688E+01	6.063E+01	4.937E+00	-0.155
		776.49	*	-5.854E-01	3.946E-01	5.743E-01	5.349E-02	-1.019
		1395.20		-1.059E+01	1.183E+01	1.728E+01	1.288E+00	-0.613
RB-83		520.41	*	-6.424E-02	6.204E-02	9.388E-02	6.261E-03	-0.684
		529.64		4.703E-02	1.033E-01	1.736E-01	1.169E-02	0.271
		552.65		-5.309E-02	1.776E-01	2.831E-01	1.951E-02	-0.188
RB-84		881.50	*	3.541E-02	6.594E-02	1.125E-01	1.240E-02	0.315
KR-85		513.99	*	2.204E+01	7.770E+00	1.316E+01	8.715E-01	1.675
SR-85		513.99	*	1.189E-01	4.193E-02	7.099E-02	4.703E-03	1.675
RB-86		1076.63	*	3.094E-01	8.279E-01	1.420E+00	1.131E-01	0.218
Y-88		898.02		-5.365E-04	3.829E-02	6.245E-02	7.079E-03	-0.009
		1836.01	*	2.031E-04	3.219E-02	4.478E-02	2.551E-03	0.005
ZR-88		392.90	*	-4.785E-03	2.715E-02	4.503E-02	2.590E-03	-0.106
Y-91		1204.90	*	3.385E+00	1.754E+01	2.937E+01	1.737E+00	0.115
NB-94		702.63	*	2.074E-03	3.021E-02	5.064E-02	4.154E-03	0.041
		871.10		-4.509E-03	2.964E-02	4.791E-02	5.196E-03	-0.094
NB-95		765.79	*	2.576E-02	4.102E-02	7.052E-02	6.451E-03	0.365
NB-95M		235.69	*	7.462E-02	1.360E-01	2.029E-01	1.489E-02	0.368
ZR-95		724.18		1.948E-01	1.046E-01	1.718E-01	1.593E-02	1.134



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	756.15	*		3.080E-02	6.392E-02	1.096E-01	1.078E-02	0.281
	657.90	*		2.732E+01	6.392E-02	Half-Life	too short	
	1024.50			7.880E+02	6.392E-02	Half-Life	too short	
ZR-97	254.15			2.216E+02	6.392E-02	Half-Life	too short	
	355.39			-2.719E+00	6.392E-02	Half-Life	too short	
	507.63	*		7.885E+02	6.392E-02	Half-Life	too short	
	602.52			7.743E+02	6.392E-02	Half-Life	too short	
	1021.30			-2.439E+02	6.392E-02	Half-Life	too short	
	1147.95			-5.608E+02	6.392E-02	Half-Life	too short	
	1362.66			-2.158E+02	6.392E-02	Half-Life	too short	
MO-99	1750.46			2.009E+02	6.392E-02	Half-Life	too short	
	140.51			7.043E+01	9.862E+01	1.403E+02	3.774E+01	0.502
	181.06			2.043E+01	5.990E+01	9.019E+01	1.531E+01	0.227
	366.43			9.371E+00	2.527E+02	4.265E+02	2.464E+01	0.022
	739.58	*		2.746E+01	3.565E+01	6.190E+01	9.444E+00	0.444
	778.00			-1.121E+02	1.021E+02	1.540E+02	1.437E+01	-0.728
TC-99M	140.51	*		2.060E+16	1.021E+02	Half-Life	too short	
RH-101	127.23			4.022E-03	3.519E-02	5.044E-02	2.914E-03	0.080
	198.01	*		-3.294E-03	2.972E-02	4.941E-02	2.656E-03	-0.067
	325.23			6.182E-02	2.201E-01	3.161E-01	1.826E-02	0.196
RH-102	418.52			1.717E-01	2.505E-01	4.264E-01	2.534E-02	0.403
	475.06	*		6.001E-03	2.536E-02	4.246E-02	2.697E-03	0.141
	631.29			8.318E-03	4.988E-02	8.127E-02	6.032E-03	0.102
	697.49			3.954E-03	7.442E-02	1.247E-01	1.014E-02	0.032
	766.84			9.896E-02	1.010E-01	1.766E-01	1.618E-02	0.560
	1046.59			-2.252E-02	9.914E-02	1.628E-01	1.405E-02	-0.138
RU-103	1112.84			1.099E-01	2.029E-01	3.081E-01	2.188E-02	0.357
	497.08	*		-5.727E-03	3.912E-02	6.369E-02	8.269E-03	-0.090
RH-106	610.33	+		1.233E+01	2.701E+00	2.781E+00	4.459E-01	4.435
	511.85	+		6.503E-01	3.238E-01	4.373E-01	2.890E-02	1.487
RU-106	621.84	*		1.136E-01	3.083E-01	5.088E-01	6.402E-02	0.223
	1050.47			-6.779E-01	1.934E+00	3.139E+00	2.682E-01	-0.216
	511.85	+		6.503E-01	3.238E-01	4.373E-01	2.890E-02	1.487
	621.84	*		1.136E-01	3.081E-01	5.088E-01	3.745E-02	0.223
AG-108M	1050.47			-6.779E-01	1.934E+00	3.139E+00	2.682E-01	-0.216
	433.93	*		-1.113E-02	2.887E-02	4.688E-02	3.063E-03	-0.237
	614.37			-1.961E-03	3.893E-02	5.388E-02	4.151E-03	-0.036
AG-110M	722.95			1.303E-04	4.041E-02	5.798E-02	5.127E-03	0.002
	657.75	*		6.340E-02	3.902E-02	6.363E-02	5.018E-03	0.996
	677.61			-1.303E-01	2.455E-01	3.943E-01	3.198E-02	-0.330
	706.67			-3.758E-02	1.884E-01	3.102E-01	2.640E-02	-0.121
	763.93			-1.256E-01	1.517E-01	2.366E-01	2.212E-02	-0.531
	884.67			-2.331E-02	4.381E-02	6.828E-02	7.711E-03	-0.341
	937.48			5.064E-03	1.110E-01	1.761E-01	1.928E-02	0.029
IN-111	1384.27			-1.553E-02	1.651E-01	2.251E-01	1.745E-02	-0.069
	171.28			6.069E-01	2.994E+00	5.087E+00	2.677E-01	0.119
	245.39	*		7.016E+00	4.045E+00	5.152E+00	2.879E-01	1.362
IN-113M	391.69	*		-5.148E-03	3.914E-02	6.511E-02	3.994E-03	-0.079
SN-113	391.69	*		-5.148E-03	3.914E-02	6.511E-02	3.994E-03	-0.079

---- 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	*	2.820E-02	1.998E-01	2.969E-01	1.585E-02	0.095
CD-115		260.90		4.376E-05	1.998E-01	Half-Life	too short	
		492.35		4.296E-05	1.998E-01	Half-Life	too short	
		527.90	*	-4.201E-05	1.998E-01	Half-Life	too short	
SN-117M		156.02		5.305E-01	2.679E+00	4.577E+00	2.444E-01	0.116
		158.56	*	3.055E-02	6.263E-02	1.081E-01	5.744E-03	0.283
SB-122		563.90	*	3.650E+00	6.759E+00	1.136E+01	7.915E-01	0.321
		692.80		8.480E+01	1.419E+02	2.454E+02	1.979E+01	0.345
I-123		159.00	*	-2.671E+02	1.419E+02	Half-Life	too short	
		528.96		2.416E+04	1.419E+02	Half-Life	too short	
TE-123M		159.00	*	-2.865E-03	2.614E-02	4.409E-02	2.379E-03	-0.065
I-124		602.71	*	1.195E+00	1.609E+00	2.391E+00	1.729E-01	0.500
		722.78		-7.018E-02	9.447E+00	1.354E+01	1.151E+00	-0.005
		1325.50		2.317E+01	6.930E+01	1.170E+02	8.733E+00	0.198
	+	1376.25		1.075E+02	8.913E+01	1.387E+02	1.039E+01	0.775
		1509.49		2.833E+01	3.292E+01	5.877E+01	4.210E+00	0.482
		1691.02		2.129E+00	6.679E+00	1.158E+01	7.471E-01	0.184
SB-124		602.71		3.280E-02	4.415E-02	6.562E-02	4.746E-03	0.500
		645.85		9.780E-02	4.929E-01	8.031E-01	6.510E-02	0.122
		709.31		4.500E-01	2.576E+00	4.345E+00	3.607E-01	0.104
		713.82		-7.712E-03	1.534E+00	2.557E+00	3.032E-01	-0.003
		722.78		-2.792E-03	3.758E-01	5.386E-01	4.679E-02	-0.005
	+	968.20		1.858E+01	4.501E+00	7.005E+00	7.123E-01	2.652
		1045.16		2.258E+00	2.231E+00	4.007E+00	3.470E-01	0.564
		1325.50		9.846E-01	2.945E+00	4.973E+00	3.711E-01	0.198
		1368.21		-1.544E+00	1.662E+00	2.253E+00	2.881E-01	-0.686
		1436.60		-1.432E-01	3.468E+00	5.423E+00	3.993E-01	-0.026
		1691.02	*	1.998E-02	6.268E-02	1.087E-01	7.499E-03	0.184
SB-125		427.89	*	8.121E-02	8.419E-02	1.472E-01	9.201E-03	0.552
	+	463.38		7.897E-01	3.937E-01	5.177E-01	3.711E-02	1.525
		600.56		7.857E-02	1.802E-01	2.829E-01	2.254E-02	0.278
		635.90		-1.302E-01	2.503E-01	3.865E-01	3.188E-02	-0.337
TE-125M		109.28	*	-4.378E+00	1.014E+01	1.607E+01	1.415E+00	-0.272
I-126		388.63		6.589E-02	2.334E-01	3.972E-01	2.283E-02	0.166
		666.33	*	8.177E-02	2.490E-01	3.706E-01	2.849E-02	0.221
		753.82		-1.424E-01	1.677E+00	2.765E+00	2.479E-01	-0.051
SB-126		223.80		-1.656E+00	4.974E+00	8.114E+00	4.460E-01	-0.204
		278.60		3.669E+00	2.921E+00	5.037E+00	2.870E-01	0.728
	+	296.50		1.585E+01	3.190E+00	4.506E+00	2.587E-01	3.517
		414.70		-5.486E-02	8.780E-02	1.412E-01	8.352E-03	-0.388
		415.30		-2.537E+00	7.159E+00	1.170E+01	6.924E-01	-0.217
		555.20		1.259E-01	4.457E+00	7.271E+00	5.024E-01	0.017
		573.80		7.937E-03	1.227E+00	1.994E+00	1.403E-01	0.004
		593.00		-4.568E-01	1.065E+00	1.668E+00	1.195E-01	-0.274
		656.30		2.586E+00	4.356E+00	6.661E+00	5.054E-01	0.388
		666.33		3.455E-02	1.052E-01	1.566E-01	1.204E-02	0.221
		675.00		-1.661E+00	2.047E+00	3.210E+00	2.507E-01	-0.517
		695.00		9.677E-02	9.626E-02	1.698E-01	1.374E-02	0.570
		697.00		2.271E-02	3.365E-01	5.643E-01	4.584E-02	0.040

---- 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	*	-1.222E-01	1.840E-01	2.573E-01	2.178E-02	-0.475
		856.80		4.191E-01	5.921E-01	8.991E-01	9.536E-02	0.466
		989.30		5.182E-01	1.484E+00	2.471E+00	2.417E-01	0.210
		1034.80		4.236E+00	9.084E+00	1.530E+01	1.358E+00	0.277
		1213.00		1.109E+00	5.273E+00	8.838E+00	5.314E-01	0.125
		61.10		3.628E+01	1.758E+02	2.664E+02	3.231E+01	0.136
		252.40		1.092E+01	1.146E+01	1.619E+01	6.793E+00	0.674
		290.80		2.213E+00	5.539E+01	7.884E+01	8.653E+00	0.028
		411.60		1.889E+01	2.602E+01	4.484E+01	7.021E+00	0.421
		444.90		7.134E+00	2.084E+01	3.524E+01	4.427E+00	0.202
		473.00		-2.930E+00	3.516E+00	5.454E+00	7.086E-01	-0.537
		543.00		2.954E+01	3.477E+01	5.954E+01	8.769E+00	0.496
		603.60		2.253E+01	3.026E+01	4.479E+01	5.873E+00	0.503
		685.20	*	1.680E+00	2.807E+00	4.870E+00	6.082E-01	0.345
		698.50		-9.876E+00	3.441E+01	5.640E+01	9.432E+00	-0.175
XE-127		722.20		-4.592E+01	7.268E+01	9.728E+01	1.229E+01	-0.472
		783.80		8.239E+00	7.854E+00	1.375E+01	1.974E+00	0.599
		57.60		-3.772E+00	8.579E+00	1.344E+01	1.036E+00	-0.281
	+	145.22		1.230E+00	7.553E-01	1.294E+00	7.072E-02	0.951
		172.10		4.573E-03	1.170E-01	1.975E-01	1.040E-02	0.023
I-131		202.84	*	-2.580E-02	4.607E-02	7.495E-02	4.046E-03	-0.344
		374.96		5.480E-02	1.873E-01	3.199E-01	1.845E-02	0.171
		80.18		7.799E+00	7.603E+00	1.174E+01	1.028E+00	0.664
		284.30		-8.058E-01	2.041E+00	3.246E+00	2.086E-01	-0.248
TE-132		364.48	*	6.765E-02	1.523E-01	2.626E-01	1.710E-02	0.258
		636.97		-1.455E-01	2.130E+00	3.408E+00	2.745E-01	-0.043
		722.89		-5.528E-03	1.035E+01	1.484E+01	1.276E+00	0.000
		49.72		-5.859E+01	8.084E+01	1.319E+02	1.541E+01	-0.444
		111.76		2.036E+01	8.513E+01	1.387E+02	1.510E+01	0.147
BA-133		116.30		-4.581E+01	7.569E+01	1.182E+02	1.266E+01	-0.388
		228.16	*	1.266E+00	1.858E+00	3.142E+00	4.822E-01	0.403
		53.15		3.485E+00	5.126E+00	8.838E+00	7.013E-01	0.394
		79.62		1.345E+00	1.442E+00	2.203E+00	3.355E-01	0.610
		81.00		-1.592E-01	1.177E-01	1.577E-01	2.512E-02	-1.010
I-133		276.40		2.550E-01	3.470E-01	5.652E-01	7.300E-02	0.451
		302.84		-3.869E-02	1.542E-01	2.139E-01	2.489E-02	-0.181
		356.01	*	-2.350E-02	4.674E-02	6.216E-02	7.181E-03	-0.378
		383.85		-1.375E-01	2.718E-01	4.365E-01	4.735E-02	-0.315
	+	510.53		6.413E+01	2.718E-01	Half-Life	too short	
		529.87	*	1.211E-01	2.718E-01	Half-Life	too short	
		706.58		-3.469E+00	2.718E-01	Half-Life	too short	
		856.28		8.769E+00	2.718E-01	Half-Life	too short	
CS-134		875.33		-2.461E+00	2.718E-01	Half-Life	too short	
	+	1236.41		4.636E+01	2.718E-01	Half-Life	too short	
		1298.22		-2.705E+00	2.718E-01	Half-Life	too short	
		475.35		6.970E-01	1.653E+00	2.798E+00	1.778E-01	0.249
		563.23		2.386E-01	3.416E-01	5.792E-01	4.092E-02	0.412
		569.32		1.110E-01	1.852E-01	3.044E-01	2.176E-02	0.365
		604.70		1.625E-02	3.800E-02	5.491E-02	3.992E-03	0.296

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	+	795.84 *	8.556E-02	5.359E-02	7.241E-02	7.003E-03	1.182
		801.93	9.685E-02	3.718E-01	5.975E-01	5.829E-02	0.162
		1038.57	-1.725E+00	3.236E+00	5.168E+00	4.548E-01	-0.334
		1167.94	-1.652E+00	2.091E+00	3.230E+00	1.831E-01	-0.511
		1365.15	7.031E-02	9.804E-01	1.613E+00	1.283E-01	0.044
		268.24 *	1.524E-01	1.658E-01	2.508E-01	1.896E-02	0.608
		288.45	4.428E+15	1.658E-01	Half-Life	too short	
		417.63	1.163E+15	1.658E-01	Half-Life	too short	
		546.56	9.442E+14	1.658E-01	Half-Life	too short	
		836.80	6.344E+15	1.658E-01	Half-Life	too short	
		1038.76	-1.153E+15	1.658E-01	Half-Life	too short	
		1124.00	1.484E+15	1.658E-01	Half-Life	too short	
		1131.51	1.234E+15	1.658E-01	Half-Life	too short	
		1260.41 *	-5.736E+13	1.658E-01	Half-Life	too short	
		1457.56	2.066E+17	1.658E-01	Half-Life	too short	
		1678.03	8.013E+14	1.658E-01	Half-Life	too short	
		1706.46	8.644E+14	1.658E-01	Half-Life	too short	
		1791.20	8.500E+14	1.658E-01	Half-Life	too short	
CS-136	+	66.91	-7.298E-02	1.264E+00	1.875E+00	2.833E-01	-0.039
		86.29	5.054E+00	1.937E+00	2.655E+00	3.500E-01	1.904
		153.22	1.291E-01	7.839E-01	1.339E+00	9.226E-02	0.096
		163.89	2.578E-01	1.262E+00	2.149E+00	1.470E-01	0.120
		176.55	-5.046E-02	4.288E-01	7.181E-01	4.357E-02	-0.070
		273.65	-6.647E-01	6.256E-01	8.259E-01	5.386E-02	-0.805
		340.57	3.697E-01	1.937E-01	3.025E-01	1.864E-02	1.222
		818.51	1.717E-03	8.545E-02	1.409E-01	1.408E-02	0.012
		1048.07 *	-5.449E-02	1.195E-01	1.923E-01	1.725E-02	-0.283
		1235.34	7.011E-01	8.243E-01	1.248E+00	1.284E-01	0.562
CE-139 BA-140		165.85 *	4.571E-03	2.805E-02	4.768E-02	2.503E-03	0.096
		162.64	1.569E-01	8.780E-01	1.495E+00	9.065E-02	0.105
		304.84	2.408E-01	1.731E+00	2.470E+00	6.738E-01	0.097
		423.70	-1.588E+00	2.253E+00	3.503E+00	1.114E+00	-0.453
LA-140	+	537.32 *	-1.534E-01	3.047E-01	4.736E-01	1.549E-01	-0.324
		328.77	1.005E+00	7.210E-01	6.305E-01	4.085E-02	1.594
		432.53	-1.013E+00	2.439E+00	3.956E+00	2.623E-01	-0.256
		487.03	2.001E-02	1.570E-01	2.607E-01	1.859E-02	0.077
		751.79	2.890E-01	1.935E+00	3.245E+00	3.188E-01	0.089
		815.85	2.169E-01	3.740E-01	6.416E-01	6.934E-02	0.338
		867.82	1.515E+00	1.669E+00	2.742E+00	3.060E-01	0.552
		919.63	-2.658E-01	3.377E+00	4.660E+00	5.887E-01	-0.057
		925.24	7.407E-01	1.189E+00	2.040E+00	2.310E-01	0.363
		1596.49 *	1.245E-02	9.354E-02	1.579E-01	1.083E-02	0.079
CE-141 CE-143		145.44 *	6.308E-02	7.966E-02	1.171E-01	6.686E-03	0.539
		57.37	-1.401E-03	7.966E-02	Half-Life	too short	
		231.56	-1.467E-02	7.966E-02	Half-Life	too short	
		293.26 *	8.056E-03	7.966E-02	Half-Life	too short	
	+	350.59	3.598E-01	7.966E-02	Half-Life	too short	
		490.36	-5.420E-03	7.966E-02	Half-Life	too short	
		664.57	6.480E-02	7.966E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			-1.088E-02	7.966E-02	Half-Life too short		
CE-144	80.11			2.361E+00	2.329E+00	3.594E+00	3.111E-01	0.657
	133.54	*		5.289E-02	2.201E-01	3.166E-01	4.476E-02	0.167
PM-144	476.78			1.475E-02	5.906E-02	9.893E-02	7.344E-03	0.149
	618.01			-1.409E-02	3.074E-02	4.647E-02	3.539E-03	-0.303
	696.49	*		1.244E-02	3.319E-02	5.664E-02	4.599E-03	0.220
	778.57			-1.690E+00	2.031E+00	3.139E+00	2.935E-01	-0.538
PR-144	696.49	*		8.452E-01	2.255E+00	3.848E+00	3.122E-01	0.220
	1489.15			6.583E-02	1.110E+01	1.796E+01	1.298E+00	0.004
PM-146	453.90	*		9.391E-03	3.930E-02	6.599E-02	5.780E-03	0.142
	633.02			1.196E+00	1.285E+00	2.083E+00	7.732E-01	0.574
	735.90			-1.694E-02	1.318E-01	2.122E-01	6.073E-02	-0.080
	747.13			-7.943E-03	7.990E-02	1.317E-01	1.869E-02	-0.060
ND-147	91.11			9.991E-01	5.882E-01	7.434E-01	6.993E-02	1.344
	319.41			-3.550E+00	4.096E+00	6.252E+00	3.613E-01	-0.568
	439.89			-4.549E+00	6.890E+00	1.097E+01	6.694E-01	-0.415
	531.02	*		6.299E-01	7.138E-01	1.222E+00	1.706E-01	0.515
PM-149	285.90	*		-2.937E-04	7.138E-01	Half-Life too short		
EU-152	121.78			-3.518E-03	7.102E-02	1.137E-01	8.763E-03	-0.031
	244.69			7.042E-01	3.789E-01	4.879E-01	2.725E-02	1.443
	344.27	*		1.547E-02	1.106E-01	1.453E-01	9.481E-03	0.106
	443.98			4.655E-02	8.526E-01	1.419E+00	8.698E-02	0.033
	778.89			-1.740E-01	2.325E-01	3.622E-01	3.386E-02	-0.480
	867.32			7.043E-01	7.902E-01	1.262E+00	1.360E-01	0.558
+	964.01			7.365E-01	3.189E-01	5.591E-01	5.727E-02	1.317
	1085.78			-3.287E-01	3.479E-01	5.332E-01	4.132E-02	-0.616
	1112.02			6.101E-02	2.944E-01	4.298E-01	3.060E-02	0.142
	1407.95			5.093E-02	1.633E-01	2.744E-01	2.038E-02	0.186
GD-153	69.67			-1.749E-01	2.032E+00	3.009E+00	2.442E-01	-0.058
	83.37			8.824E+00	1.768E+01	2.621E+01	2.328E+00	0.337
	97.43	*		-1.677E-02	9.159E-02	1.317E-01	1.030E-02	-0.127
	103.18			-1.993E-01	1.067E-01	1.569E-01	1.131E-02	-1.270
EU-154	123.07			-1.248E-04	4.998E-02	8.014E-02	7.579E-03	-0.002
	247.94			3.742E-01	3.616E-01	5.553E-01	5.231E-02	0.674
	591.81			-3.104E-01	5.448E-01	8.434E-01	8.970E-02	-0.368
	723.30			3.119E-02	1.738E-01	2.536E-01	2.391E-02	0.123
	756.87			2.867E-01	6.657E-01	1.136E+00	1.393E-01	0.252
	873.19			7.294E-03	2.563E-01	4.205E-01	5.857E-02	0.017
	996.32			-1.762E-02	3.621E-01	4.971E-01	9.091E-02	-0.035
	1004.76			1.170E-01	2.028E-01	3.007E-01	3.697E-02	0.389
	1274.45	*		-5.170E-02	1.123E-01	1.770E-01	1.768E-02	-0.292
EU-155	48.70			-3.440E+00	3.697E+00	5.990E+00	4.544E-01	-0.574
	60.01			3.861E+00	6.296E+00	9.754E+00	7.444E-01	0.396
+	86.54			3.617E-01	1.344E-01	1.938E-01	1.785E-02	1.866
	105.31	*		1.158E-01	1.069E-01	1.806E-01	1.292E-02	0.641
TB-160	86.79			1.010E+00	3.751E-01	5.475E-01	5.009E-02	1.846
	197.04			-3.715E-01	5.424E-01	8.806E-01	4.729E-02	-0.422
	215.65			5.652E-01	7.684E-01	1.272E+00	6.945E-02	0.444
	298.57			1.663E-02	1.828E-01	1.877E-01	1.078E-02	0.089

---- 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	*	2.568E-02	1.309E-01	2.175E-01	2.389E-02	0.118
		962.29		1.615E+00	5.902E-01	1.007E+00	1.034E-01	1.604
	+	966.15		5.295E-01	2.293E-01	5.446E-01	5.558E-02	0.972
		1177.93		-7.956E-02	3.616E-01	5.888E-01	3.288E-02	-0.135
		1271.85		1.191E-01	6.435E-01	1.074E+00	7.258E-02	0.111
		80.57		-3.197E-02	3.065E-01	4.490E-01	3.901E-02	-0.071
	+	184.41		1.808E-01	5.496E-02	6.655E-02	3.536E-03	2.716
		280.46		-8.788E-02	7.965E-02	1.221E-01	6.962E-03	-0.720
		410.95		2.446E-01	2.186E-01	3.855E-01	2.269E-02	0.634
		711.68	*	-1.242E-02	5.454E-02	8.955E-02	7.465E-03	-0.139
TM-171		752.31		-5.777E-02	2.397E-01	3.908E-01	3.494E-02	-0.148
		810.29		-4.250E-02	5.351E-02	8.259E-02	8.132E-03	-0.515
		51.35		8.223E+00	4.455E+01	7.563E+01	5.994E+00	0.109
		52.39		2.693E+01	2.278E+01	3.994E+01	3.173E+00	0.674
		59.40		2.693E+01	3.367E+01	5.272E+01	4.003E+00	0.511
LU-176		66.72	*	8.848E+00	3.531E+01	5.320E+01	4.254E+00	0.166
	+	88.36		7.110E-01	2.639E-01	3.746E-01	3.440E-02	1.898
		201.83		1.160E-02	2.555E-02	4.339E-02	2.340E-03	0.267
		306.84	*	-2.525E-03	2.397E-02	3.715E-02	2.139E-03	-0.068
LU-177		401.10		4.822E+00	6.199E+00	1.077E+01	6.260E-01	0.448
		112.95		1.019E+00	2.707E+00	4.434E+00	2.857E-01	0.230
	+	208.36	*	4.688E+00	2.309E+00	3.189E+00	1.730E-01	1.470
LU-177M		52.97		1.893E+00	2.390E+00	4.136E+00	3.283E-01	0.458
		54.07		6.354E-01	1.196E+00	2.051E+00	1.622E-01	0.310
HF-181		61.30		6.103E-01	1.934E+00	2.946E+00	2.277E-01	0.207
		121.62		-3.846E-02	3.710E-01	5.925E-01	3.514E-02	-0.065
		147.16		4.735E-01	7.249E-01	1.059E+00	5.764E-02	0.447
		171.86		1.114E-01	4.387E-01	7.469E-01	3.931E-02	0.149
		218.09		-8.535E-01	8.295E-01	1.314E+00	7.186E-02	-0.650
	+	268.79		2.088E+00	1.152E+00	1.364E+00	7.735E-02	1.530
		319.02		-1.681E-01	2.366E-01	3.647E-01	2.105E-02	-0.461
		367.43		-1.409E-01	7.953E-01	1.326E+00	7.660E-02	-0.106
		413.65	*	-1.676E-01	1.636E-01	2.570E-01	1.518E-02	-0.652
		56.28		-1.155E+00	1.318E+00	2.127E+00	1.657E-01	-0.543
		57.53		-6.226E-02	6.999E-01	1.116E+00	8.602E-02	-0.056
		65.20		-3.672E-01	1.313E+00	1.930E+00	1.531E-01	-0.190
		133.02		-6.160E-02	7.986E-02	1.065E-01	6.027E-03	-0.578
		136.25		-1.830E-01	4.805E-01	7.515E-01	4.208E-02	-0.243
		345.85		-2.170E-01	2.330E-01	3.003E-01	1.737E-02	-0.723
W-181		482.03	*	1.277E-02	4.090E-02	6.870E-02	4.397E-03	0.186
		56.28		-4.300E-01	4.899E-01	7.904E-01	6.157E-02	-0.544
		57.53		-2.317E-02	2.604E-01	4.150E-01	3.200E-02	-0.056
TA-182		65.20	*	-1.355E-01	4.846E-01	7.123E-01	5.650E-02	-0.190
		67.75		-2.013E-01	1.378E-01	2.021E-01	1.624E-02	-0.996
		100.10		2.402E-01	1.807E-01	3.087E-01	2.321E-02	0.778
		152.43		2.401E-02	3.423E-01	5.426E-01	2.919E-02	0.044
		222.10		3.303E-03	3.316E-01	5.494E-01	3.016E-02	0.006
	+	1001.68		1.404E+00	2.620E+00	3.384E+00	3.231E-01	0.415
	+	1121.28		8.263E-01	2.458E-01	3.250E-01	2.239E-02	2.542

Sample ID : G245101013

Acquisition date : 2-FEB-2010 11:30:32

## ---- 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		-5.073E-02	2.718E-01	4.427E-01	2.531E-02	-0.115
		1221.42	*	-8.038E-02	1.826E-01	2.913E-01	1.782E-02	-0.276
		1230.97		3.738E-02	5.072E-01	7.187E-01	4.483E-02	0.052
		57.98		-7.443E-02	2.878E-01	4.267E-01	3.278E-02	-0.174
		59.32		1.074E-01	1.444E-01	2.256E-01	1.714E-02	0.476
		67.20		-4.982E-02	2.619E-01	3.860E-01	3.094E-02	-0.129
		162.32	*	1.296E-02	1.039E-01	1.766E-01	9.321E-03	0.073
	+	208.81		2.676E+00	1.318E+00	1.810E+00	9.824E-02	1.478
		291.72		-2.805E-01	1.077E+00	1.500E+00	8.596E-02	-0.187
		57.98		-2.666E-01	1.031E+00	1.529E+00	1.174E-01	-0.174
RE-184		59.32		3.844E-01	5.170E-01	8.075E-01	6.135E-02	0.476
		67.20		-1.784E-01	9.378E-01	1.382E+00	1.108E-01	-0.129
		161.27		-2.912E-01	3.247E-01	5.295E-01	2.800E-02	-0.550
		216.55		7.155E-02	2.547E-01	4.274E-01	2.335E-02	0.167
		252.85	*	2.509E-01	2.396E-01	3.687E-01	2.071E-02	0.681
		318.01		-1.987E-01	4.041E-01	6.318E-01	3.647E-02	-0.314
		792.07		8.329E-01	1.064E+00	1.621E+00	1.549E-01	0.514
		903.28		-8.247E-01	1.084E+00	1.371E+00	1.539E-01	-0.602
		920.93		-4.133E-02	3.932E-01	5.849E-01	6.409E-02	-0.071
		59.72		2.370E-01	3.899E-01	6.041E-01	4.595E-02	0.392
OS-185		61.14		4.844E-02	2.159E-01	3.275E-01	2.527E-02	0.148
		69.30		-4.540E-02	3.728E-01	5.512E-01	4.465E-02	-0.082
		592.07		-9.418E-01	2.278E+00	3.574E+00	2.559E-01	-0.263
		646.12	*	1.027E-02	4.126E-02	6.745E-02	5.073E-03	0.152
		717.42		4.665E-01	8.015E-01	1.387E+00	1.167E-01	0.336
		874.81		-1.337E-01	5.310E-01	8.507E-01	9.279E-02	-0.157
		880.27		2.591E-01	7.089E-01	1.193E+00	1.312E-01	0.217
		155.03	*	9.047E-02	1.636E-01	2.831E-01	1.515E-02	0.320
		477.96		1.815E+00	2.803E+00	4.807E+00	3.063E-01	0.378
		633.10		1.921E+00	2.601E+00	4.408E+00	3.277E-01	0.436
W-188	+	63.58		1.590E+02	1.130E+02	1.186E+02	9.317E+00	1.341
		227.08		8.494E+00	1.303E+01	2.163E+01	1.192E+00	0.393
IR-192	+	290.67	*	3.804E-01	8.392E+00	1.195E+01	6.844E-01	0.032
		295.96		9.681E-01	1.951E-01	2.805E-01	1.636E-02	3.452
		308.46		1.848E-02	9.117E-02	1.489E-01	8.678E-03	0.124
		316.51	*	-2.467E-02	3.191E-02	4.900E-02	2.842E-03	-0.503
AU-195		468.07		4.427E-02	6.640E-02	1.008E-01	7.182E-03	0.439
		604.41		2.946E-01	5.264E-01	7.681E-01	9.333E-02	0.383
		612.46		1.936E+00	8.514E-01	1.379E+00	1.210E-01	1.404
		65.12		-1.119E-01	2.233E-01	3.283E-01	2.603E-02	-0.341
		66.83		-5.929E-03	1.199E-01	1.780E-01	1.424E-02	-0.033
	+	75.70		1.359E+00	3.014E-01	4.866E-01	4.086E-02	2.793
		98.88	*	2.292E-01	2.336E-01	3.941E-01	3.016E-02	0.582
	+	129.76		3.529E+00	4.085E+00	4.937E+00	2.825E-01	0.715
TL-200		367.94	*	-4.499E-03	4.085E+00	Half-Life	too short	
		579.30		1.310E-01	4.085E+00	Half-Life	too short	
		828.27		2.305E-02	4.085E+00	Half-Life	too short	
TL-201		1205.75		-1.026E-02	4.085E+00	Half-Life	too short	
		68.90		-9.674E+00	1.664E+01	2.568E+01	2.076E+00	-0.377

---- 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		7.030E+00	9.751E+00	1.496E+01	1.222E+00	0.470
		80.30		-7.496E-02	1.723E+01	2.538E+01	2.201E+00	-0.003
		135.34		-6.187E+00	7.319E+01	1.162E+02	6.523E+00	-0.053
		167.43	*	-1.870E+00	1.981E+01	3.333E+01	1.750E+00	-0.056
		68.90		-3.788E-01	6.513E-01	1.005E+00	8.129E-02	-0.377
		70.82		2.745E-01	3.807E-01	5.843E-01	4.771E-02	0.470
		80.30		-2.928E-03	6.731E-01	9.913E-01	8.595E-02	-0.003
HG-203		439.56	*	-2.738E-02	7.970E-02	1.296E-01	7.900E-03	-0.211
		70.83		9.738E-01	1.350E+00	2.067E+00	2.753E-01	0.471
		72.87		4.729E-01	8.081E-01	1.226E+00	1.590E-01	0.386
BI-207		82.60		7.569E-02	1.396E+00	2.029E+00	2.815E-01	0.037
		279.20	*	2.882E-02	4.034E-02	6.793E-02	4.120E-03	0.424
		72.80		9.385E-02	2.193E-01	3.313E-01	2.734E-02	0.283
	+	74.97		7.402E-01	1.642E-01	2.470E-01	2.065E-02	2.997
		84.90		3.291E-01	2.135E-01	3.288E-01	2.959E-02	1.001
		569.67		1.078E-02	2.928E-02	4.747E-02	3.326E-03	0.227
		1063.62	*	3.654E-02	4.554E-02	8.054E-02	6.648E-03	0.454
TL-207		1770.23		8.962E-02	4.342E-01	6.357E-01	3.846E-02	0.141
		81.07		-3.656E-01	2.549E-01	3.456E-01	3.014E-02	-1.058
		83.78		1.563E-01	1.453E-01	2.203E-01	1.963E-02	0.710
		94.90		7.216E-01	2.675E-01	4.308E-01	3.507E-02	1.675
		122.32		5.885E-01	1.688E+00	2.751E+00	1.868E-01	0.214
	+	144.24		1.099E+00	6.768E-01	1.154E+00	8.056E-02	0.952
		154.21		-1.030E-02	3.647E-01	6.183E-01	4.114E-02	-0.017
PO-209	+	269.46		4.786E-01	2.641E-01	3.224E-01	1.915E-02	1.485
		323.87	*	2.276E-01	6.660E-01	9.596E-01	1.584E-01	0.237
	+	338.28		5.128E+00	1.654E+00	2.164E+00	2.278E-01	2.369
		445.03		7.034E-01	2.023E+00	3.423E+00	3.581E-01	0.206
		260.50		3.394E+00	8.762E+00	1.461E+01	8.247E-01	0.232
		262.80		-7.599E+00	2.457E+01	3.956E+01	2.236E+00	-0.192
		896.60	*	5.868E+00	6.658E+00	1.157E+01	1.305E+00	0.507
BI-210		46.50	*	4.749E+00	5.632E+00	9.831E+00	7.606E-01	0.483
PB-210		46.50	*	4.749E+00	5.632E+00	9.831E+00	7.606E-01	0.483
PO-210		46.50	*	4.749E+00	5.629E+00	9.831E+00	6.539E-01	0.483
PB-211		404.84	*	-7.023E-01	1.002E+00	1.431E+00	8.919E-01	-0.491
BI-212		427.08		2.932E+00	2.607E+00	3.380E+00	2.090E+00	0.867
		831.96		-2.249E-01	1.132E+00	1.821E+00	1.145E+00	-0.123
	+	727.18	*	1.065E+00	4.094E-01	5.962E-01	5.938E-02	1.787
		785.46		9.961E-02	1.664E+00	2.703E+00	2.555E-01	0.037
		1620.62		3.686E-01	1.237E+00	2.119E+00	1.433E-01	0.174
		81.07		-3.656E-01	2.549E-01	3.456E-01	3.014E-02	-1.058
		83.78		1.563E-01	1.453E-01	2.203E-01	1.963E-02	0.710
PO-215		94.90		7.216E-01	2.675E-01	4.308E-01	3.507E-02	1.675
		122.32		5.885E-01	1.688E+00	2.751E+00	1.868E-01	0.214
	+	144.24		1.099E+00	6.768E-01	1.154E+00	8.056E-02	0.952
		154.21		-1.030E-02	3.647E-01	6.183E-01	4.114E-02	-0.017
	+	269.46		4.786E-01	2.641E-01	3.224E-01	1.915E-02	1.485
		323.87	*	2.276E-01	6.660E-01	9.596E-01	1.584E-01	0.237
	+	338.28		5.128E+00	1.654E+00	2.164E+00	2.278E-01	2.369



---- 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		7.034E-01	2.023E+00	3.423E+00	3.581E-01	0.206
		271.23		6.140E-01	3.405E-01	4.197E-01	3.365E-02	1.463
		401.81	*	1.609E-01	3.842E-01	6.554E-01	8.922E-02	0.245
RN-220		549.76	*	-8.862E+00	2.317E+01	3.673E+01	2.524E+00	-0.241
RA-223		81.07		-3.656E-01	2.549E-01	3.456E-01	3.014E-02	-1.058
		83.78		1.563E-01	1.453E-01	2.203E-01	1.963E-02	0.710
		94.90		7.216E-01	2.675E-01	4.308E-01	3.507E-02	1.675
		122.32		5.885E-01	1.688E+00	2.751E+00	1.868E-01	0.214
		144.24		1.099E+00	6.768E-01	1.154E+00	8.056E-02	0.952
		154.21		-1.030E-02	3.647E-01	6.183E-01	4.114E-02	-0.017
	+	269.46		4.786E-01	2.641E-01	3.224E-01	1.915E-02	1.485
		323.87	*	2.276E-01	6.660E-01	9.596E-01	1.584E-01	0.237
		338.28		5.128E+00	1.654E+00	2.164E+00	2.278E-01	2.369
AC-227		445.03		7.034E-01	2.023E+00	3.423E+00	3.581E-01	0.206
		79.80		1.712E+00	1.813E+00	2.744E+00	5.903E-01	0.624
		236.00		5.047E-01	2.593E-01	4.058E-01	4.186E-02	1.244
		256.20	*	-1.317E-01	3.994E-01	5.600E-01	7.779E-02	-0.235
		286.10		-1.030E+00	1.417E+00	2.206E+00	2.541E-01	-0.467
		299.80		1.529E+00	1.725E+00	2.340E+00	3.807E-01	0.653
	+	304.40		-6.273E-01	1.989E+00	2.739E+00	4.734E-01	-0.229
		334.20		-4.362E-01	3.332E+00	3.273E+00	5.998E-01	-0.133
		79.80		1.712E+00	1.814E+00	2.744E+00	5.978E-01	0.624
TH-227	+	94.00		1.103E+01	4.509E+00	4.370E+00	9.456E-01	2.524
		236.00		5.047E-01	2.580E-01	4.058E-01	3.612E-02	1.244
		256.20	*	-1.317E-01	3.996E-01	5.600E-01	9.432E-02	-0.235
		286.10		-1.030E+00	1.749E+00	2.206E+00	2.210E+00	-0.467
		299.80		1.529E+00	1.725E+00	2.340E+00	3.807E-01	0.653
		304.40		-6.273E-01	1.989E+00	2.739E+00	4.734E-01	-0.229
TH-229		334.20		-4.362E-01	3.332E+00	3.273E+00	5.998E-01	-0.133
		85.43		2.068E-01	2.198E-01	3.309E-01	2.992E-02	0.625
		88.47		4.093E-01	1.519E-01	2.144E-01	1.964E-02	1.909
	+	100.00		2.437E-01	1.823E-01	3.115E-01	2.345E-02	0.783
		193.63	*	-1.528E-01	4.579E-01	7.550E-01	4.043E-02	-0.202
		210.97		3.541E-01	8.605E-01	1.284E+00	6.982E-02	0.276
PA-231		283.67	*	-2.767E-01	1.369E+00	2.201E+00	3.025E-01	-0.126
TH-231	+	301.29		6.116E-01	6.858E-01	9.351E-01	9.747E-02	0.654
		81.07		-3.656E-01	2.549E-01	3.456E-01	3.014E-02	-1.058
		83.78		1.563E-01	1.453E-01	2.203E-01	1.963E-02	0.710
		94.90		7.216E-01	2.675E-01	4.308E-01	3.507E-02	1.675
		122.32		5.885E-01	1.688E+00	2.751E+00	1.868E-01	0.214
		144.24		1.099E+00	6.768E-01	1.154E+00	8.056E-02	0.952
	+	154.21		-1.030E-02	3.647E-01	6.183E-01	4.114E-02	-0.017
		269.46		4.786E-01	2.641E-01	3.224E-01	1.915E-02	1.485
		323.87	*	2.276E-01	6.660E-01	9.596E-01	1.584E-01	0.237
	+	338.28		5.128E+00	1.654E+00	2.164E+00	2.278E-01	2.369
		445.03		7.034E-01	2.023E+00	3.423E+00	3.581E-01	0.206
		84.21		2.024E+01	1.384E+01	2.127E+01	1.903E+00	0.951
U-231	+	92.29		2.430E+01	8.665E+00	1.051E+01	8.947E-01	2.312
		95.87	*	-7.746E-01	2.731E+00	3.912E+00	3.134E-01	-0.198

---- 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		-3.847E+00	4.715E+00	7.350E+00	4.998E-01	-0.523
	+	75.28		2.159E+01	5.518E+00	7.282E+00	1.108E+00	2.965
	+	86.59		5.868E+00	2.640E+00	3.156E+00	8.519E-01	1.859
	+	300.12		4.262E-01	4.794E-01	6.534E-01	8.765E-02	0.652
		311.98	*	-4.910E-03	5.648E-02	9.068E-02	5.555E-03	-0.054
		340.50		1.584E+00	8.153E-01	1.161E+00	2.666E-01	1.364
PA-234		398.62		-2.292E-01	1.859E+00	3.088E+00	7.984E-01	-0.074
		415.76		-3.202E-01	1.443E+00	2.374E+00	4.895E-01	-0.135
	+	63.00		4.393E+00	3.174E+00	3.393E+00	5.115E-01	1.295
		94.67		6.997E-01	2.103E-01	3.275E-01	3.961E-02	2.136
		98.44		4.799E-02	1.014E-01	1.550E-01	8.629E-02	0.310
		99.86		6.225E-01	4.620E-01	7.896E-01	5.957E-02	0.788
		111.00		1.741E-02	1.882E-01	3.050E-01	3.271E-02	0.057
		131.20		9.429E-02	1.167E-01	1.715E-01	9.763E-03	0.550
		152.70		2.957E-01	3.124E-01	5.096E-01	7.980E-02	0.580
	+	186.00		6.508E+00	2.780E+00	2.555E+00	7.784E-01	2.547
		226.40		1.758E-01	3.908E-01	6.429E-01	7.340E-02	0.273
		227.20		2.174E-01	4.205E-01	6.944E-01	3.827E-02	0.313
	+	248.90		2.897E+00	1.972E+00	1.229E+00	2.635E-01	2.357
		293.70		5.410E+00	1.243E+00	1.624E+00	2.609E-01	3.330
		369.80		-3.316E-01	7.357E-01	1.202E+00	2.503E-01	-0.276
		568.70		1.782E-01	9.592E-01	1.538E+00	1.077E-01	0.116
		569.50		9.024E-02	2.594E-01	4.200E-01	2.943E-02	0.215
		574.00		-1.887E-01	1.361E+00	2.188E+00	1.540E-01	-0.086
		699.00		-1.843E-01	6.737E-01	1.105E+00	2.085E-01	-0.167
		706.10		-2.965E-01	9.337E-01	1.510E+00	6.722E-01	-0.196
		733.00		-1.871E-01	3.761E-01	5.067E-01	1.125E-01	-0.369
		742.81		-2.844E-02	1.235E+00	2.048E+00	1.377E+00	-0.014
		796.30		8.817E-01	9.179E-01	1.386E+00	3.796E-01	0.636
		805.60		9.547E-01	9.512E-01	1.601E+00	4.962E-01	0.596
		819.60		2.043E-01	1.098E+00	1.829E+00	7.018E-01	0.112
		826.30		-1.584E-01	7.215E-01	1.161E+00	5.229E-01	-0.136
		831.60		-1.708E-01	5.829E-01	9.346E-01	2.835E-01	-0.183
		876.40		-3.366E-01	8.160E-01	1.163E+00	1.198E+00	-0.289
		880.51		1.128E-01	2.459E-01	4.166E-01	4.585E-02	0.271
		883.24		5.535E-02	2.510E-01	4.133E-01	2.793E-01	0.134
		899.00		-2.561E-01	7.617E-01	1.196E+00	5.300E-01	-0.214
		925.00		8.148E-01	9.391E-01	1.642E+00	1.789E-01	0.496
		926.50		-7.223E-02	1.467E-01	2.260E-01	5.906E-02	-0.320
		946.00	*	6.429E-03	2.799E-01	4.556E-01	8.988E-02	0.014
		949.00		2.548E-01	4.040E-01	6.880E-01	7.226E-02	0.370
		980.50		-3.074E-01	6.659E-01	1.034E+00	1.029E-01	-0.297
		1394.10		-1.086E+00	1.300E+00	1.574E+00	1.022E+00	-0.690
PA-234M		766.42		1.194E+01	1.215E+01	1.863E+01	9.468E+00	0.641
NP-236	+	1001.03	*	3.096E+00	5.778E+00	7.448E+00	8.035E-01	0.416
		94.67		5.346E-01	1.526E-01	2.488E-01	2.033E-02	2.149
		98.44		3.620E-02	7.398E-02	1.172E-01	9.025E-03	0.309
		111.00		1.317E-02	1.423E-01	2.307E-01	1.517E-02	0.057
		160.31	*	-8.600E-02	7.270E-02	1.172E-01	6.207E-03	-0.734

----- 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		1.570E-01	1.566E-01	2.645E-01	2.004E-02	0.594
		117.00	*	-1.209E-01	1.808E-01	2.814E-01	1.742E-02	-0.430
	+	209.75		2.012E+00	9.910E-01	1.356E+00	7.363E-02	1.484
		228.18		1.478E-01	2.150E-01	3.654E-01	2.015E-02	0.404
		277.60		1.692E-01	1.645E-01	2.809E-01	1.600E-02	0.603
		334.30		-2.592E-01	1.888E+00	1.852E+00	1.071E-01	-0.140
AM-241		59.54	*	1.751E-01	1.951E-01	3.067E-01	2.543E-02	0.571
CM-243		99.55		1.616E-01	1.612E-01	2.723E-01	2.063E-02	0.594
		103.76	*	-1.079E-01	9.585E-02	1.471E-01	1.053E-02	-0.734
		117.00		-1.244E-01	1.860E-01	2.896E-01	1.793E-02	-0.430
	+	209.75		1.984E+00	9.772E-01	1.337E+00	7.261E-02	1.484
		228.18		1.494E-01	2.173E-01	3.693E-01	2.037E-02	0.404
		277.60		1.707E-01	1.659E-01	2.833E-01	1.613E-02	0.603
AM-246		798.80		-1.677E-01	1.407E-01	1.703E-01	1.646E-02	-0.984
		1036.00		-1.351E-01	2.350E-01	3.729E-01	3.301E-02	-0.362
		1062.04		2.046E-01	1.992E-01	3.573E-01	2.962E-02	0.573
		1078.86	*	9.732E-02	1.227E-01	2.168E-01	1.714E-02	0.449
CM-247		278.00		8.618E-01	6.813E-01	1.175E+00	6.692E-02	0.734
		287.40		6.020E-01	1.127E+00	1.881E+00	1.076E-01	0.320
		402.60	*	1.629E-02	3.442E-02	5.894E-02	3.432E-03	0.276
CF-249		252.85		9.229E-01	8.815E-01	1.356E+00	7.617E-02	0.681
		333.44		7.307E-03	2.480E-01	2.493E-01	1.442E-02	0.029
		387.95	*	2.673E-02	3.519E-02	6.132E-02	3.525E-03	0.436
CF-251		176.60	*	-1.248E-02	1.145E-01	1.918E-01	1.013E-02	-0.065
		227.00		2.506E-01	3.729E-01	6.195E-01	3.414E-02	0.404
		285.00		-1.173E+00	1.607E+00	2.507E+00	1.433E-01	-0.468

# VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*                               *                                         *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101013  *
* Acquisition date   : 2-FEB-2010 11:30:32 Detector SN#      :          *
* Detector ID        : GAM18                                           *
* Geometry           : CAN                                             *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000          *
* Elapsed real time  : 0 02:00:01.53 Half life ratio : 8.000          *
*****
*                               SAMPLE DATA                             *
*                               *                                         *
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID      *
* Sample ID         : G245101013 Analyst initials: MXR1              *
* Batch Number      : 944037 Sample Quantity : 1.0823E+02 GRAM        *
* Recovery          : 1.00000 Carrier Weight : 0.00000               *
*****
*                               QC DATA                                 *
*                               *                                         *
* Standard Weight   : 0.00000                                          *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23 MS Isotope           :      *
* MSD DPM           : 0.000 MSD Isotope           :                    *
* LCS DPM           : 0.000 LCS Isotope           :                    *
* LCSD DPM          : 0.000 LCSD Isotope          :                    *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.429E+01	2.252E+00	3.743E-01	0.000E+00
CD-109	3.072E+00	1.118E+00	1.590E+00	0.000E+00
SN-126	2.998E-01	1.091E-01	1.465E-01	0.000E+00
BA-137M	4.370E-01	8.241E-02	5.382E-02	0.000E+00
CS-137	4.619E-01	8.715E-02	5.689E-02	0.000E+00
TL-208	4.860E-01	7.864E-02	5.249E-02	0.000E+00
BI-211	3.911E+00	4.901E-01	2.913E-01	0.000E+00
PB-212	1.639E+00	1.519E-01	8.393E-02	0.000E+00
PO-212	1.639E+00	1.519E-01	8.393E-02	0.000E+00
BI-214	1.048E+00	1.787E-01	1.019E-01	0.000E+00
PB-214	1.361E+00	1.842E-01	1.015E-01	0.000E+00
PO-214	1.361E+00	1.842E-01	1.015E-01	0.000E+00
PO-216	1.639E+00	1.519E-01	8.393E-02	0.000E+00
PO-218	1.361E+00	1.842E-01	1.015E-01	0.000E+00
RA-224	4.556E+00	9.825E-01	9.538E-01	0.000E+00
RA-226	1.048E+00	1.787E-01	1.019E-01	0.000E+00
AC-228	1.628E+00	3.430E-01	1.737E-01	0.000E+00
RA-228	1.628E+00	3.430E-01	1.737E-01	0.000E+00
TH-228	1.671E+00	1.549E-01	8.561E-02	0.000E+00
TH-230	1.048E+00	1.787E-01	1.019E-01	0.000E+00
TH-232	1.628E+00	3.430E-01	1.737E-01	0.000E+00
TH-234	3.769E+00	2.690E+00	2.484E+00	0.000E+00
U-234	1.048E+00	1.787E-01	1.019E-01	0.000E+00
U-235	3.392E-01	2.103E-01	3.292E-01	0.000E+00
NP-237	8.803E-01	3.664E-01	4.477E-01	0.000E+00
U-238	3.769E+00	2.690E+00	2.484E+00	0.000E+00
AM-243	4.122E-01	8.960E-02	9.991E-02	0.000E+00
ANH-511	1.290E-01	6.296E-02	4.054E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	1.399E-01	2.899E-01	5.027E-01	0.000E+00	NOT IDENT.
NA-22	-2.513E-02	4.007E-02	6.326E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.466E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.063E-02	2.556E-02	4.515E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.102E-02	8.854E-02	0.000E+00	FAIL ABUN
SC-46	-1.432E-02	3.511E-02	5.637E-02	0.000E+00	FAIL ABUN
V-48	5.108E-02	7.685E-02	1.331E-01	0.000E+00	NOT IDENT.
CR-51	3.215E-02	3.649E-01	6.049E-01	0.000E+00	NOT IDENT.
MN-52	3.351E-01	3.487E-01	6.383E-01	0.000E+00	NOT IDENT.
MN-54	1.719E-02	3.551E-02	6.121E-02	0.000E+00	NOT IDENT.
CO-56	-2.717E-03	3.575E-02	5.939E-02	0.000E+00	FAIL ABUN
CO-57	5.643E-03	2.410E-02	4.027E-02	0.000E+00	NOT IDENT.
CO-58	-9.156E-03	3.573E-02	5.879E-02	0.000E+00	NOT IDENT.
FE-59	-1.157E-02	8.595E-02	1.439E-01	0.000E+00	FAIL ABUN
CO-60	-1.676E-02	3.413E-02	5.376E-02	0.000E+00	NOT IDENT.
ZN-65	1.057E-01	8.860E-02	1.437E-01	0.000E+00	NOT IDENT.
GE-68	4.934E-01	1.060E+00	1.860E+00	0.000E+00	NOT IDENT.
AS-73	1.110E+00	1.178E+00	2.121E+00	0.000E+00	NOT IDENT.
AS-74	-3.928E-02	9.793E-02	1.571E-01	0.000E+00	NOT IDENT.
SE-75	7.131E-03	4.624E-02	6.863E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	3.671E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-5.854E-01	3.867E-01	5.732E-01	0.000E+00	NOT IDENT.
RB-83	-6.424E-02	6.080E-02	9.393E-02	0.000E+00	NOT IDENT.
RB-84	3.541E-02	6.462E-02	1.122E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.614E+00	1.316E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.109E-02	7.104E-02	0.000E+00	NOT IDENT.
RB-86	3.094E-01	8.114E-01	1.415E+00	0.000E+00	NOT IDENT.
Y-88	2.031E-04	3.155E-02	4.444E-02	0.000E+00	NOT IDENT.
ZR-88	-4.785E-03	2.661E-02	4.514E-02	0.000E+00	NOT IDENT.
Y-91	3.385E+00	1.719E+01	2.923E+01	0.000E+00	NOT IDENT.
NB-94	2.074E-03	2.960E-02	5.057E-02	0.000E+00	NOT IDENT.
NB-95	2.576E-02	4.020E-02	7.039E-02	0.000E+00	NOT IDENT.
NB-95M	7.462E-02	1.333E-01	2.041E-01	0.000E+00	NOT IDENT.
ZR-95	3.080E-02	6.264E-02	1.093E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.301E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.311E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.746E+01	3.493E+01	6.179E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.873E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.294E-03	2.912E-02	4.974E-02	0.000E+00	NOT IDENT.
RH-102	6.001E-03	2.485E-02	4.251E-02	0.000E+00	NOT IDENT.
RU-103	-5.727E-03	3.834E-02	6.374E-02	0.000E+00	FAIL ABUN
RU-106	1.136E-01	3.021E-01	5.086E-01	0.000E+00	FAIL ABUN
RU-106	1.136E-01	3.019E-01	5.086E-01	0.000E+00	FAIL ABUN
AG-108M	-1.113E-02	2.829E-02	4.696E-02	0.000E+00	NOT IDENT.
AG-110M	6.340E-02	3.824E-02	6.357E-02	0.000E+00	NOT IDENT.
IN-111	0.000E+00	3.964E+00	5.180E+00	0.000E+00	NOT IDENT.
IN-113M	-5.148E-03	3.836E-02	6.527E-02	0.000E+00	NOT IDENT.
SN-113	-5.148E-03	3.836E-02	6.527E-02	0.000E+00	NOT IDENT.
IN-114M	2.820E-02	1.958E-01	2.990E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.434E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	3.055E-02	6.137E-02	1.090E-01	0.000E+00	NOT IDENT.
SB-122	3.650E+00	6.624E+00	1.136E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.389E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.865E-03	2.561E-02	4.445E-02	0.000E+00	NOT IDENT.
I-124	1.195E+00	1.577E+00	2.390E+00	0.000E+00	FAIL ABUN
SB-124	1.998E-02	6.143E-02	1.079E-01	0.000E+00	FAIL ABUN
SB-125	8.121E-02	8.250E-02	1.475E-01	0.000E+00	FAIL ABUN
TE-125M	-4.378E+00	9.932E+00	1.624E+01	0.000E+00	NOT IDENT.
I-126	8.177E-02	2.440E-01	3.703E-01	0.000E+00	NOT IDENT.
SB-126	-1.222E-01	1.803E-01	2.569E-01	0.000E+00	FAIL ABUN
SB-127	1.680E+00	2.751E+00	4.865E+00	0.000E+00	NOT IDENT.
XE-127	-2.580E-02	4.515E-02	7.545E-02	0.000E+00	FAIL ABUN
I-131	6.765E-02	1.493E-01	2.634E-01	0.000E+00	NOT IDENT.
TE-132	1.266E+00	1.821E+00	3.161E+00	0.000E+00	NOT IDENT.
BA-133	-2.350E-02	4.581E-02	6.235E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.748E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.252E-02	7.225E-02	0.000E+00	FAIL ABUN
CS-135	1.524E-01	1.625E-01	2.521E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	9.867E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.449E-02	1.171E-01	1.916E-01	0.000E+00	FAIL ABUN
CE-139	4.571E-03	2.749E-02	4.805E-02	0.000E+00	NOT IDENT.
BA-140	-1.534E-01	2.986E-01	4.737E-01	0.000E+00	NOT IDENT.
LA-140	1.245E-02	9.167E-02	1.568E-01	0.000E+00	FAIL ABUN
CE-141	6.308E-02	7.807E-02	1.181E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.611E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	5.289E-02	2.157E-01	3.195E-01	0.000E+00	NOT IDENT.
PM-144	1.244E-02	3.253E-02	5.656E-02	0.000E+00	NOT IDENT.

PR-144	8.452E-01	2.210E+00	3.843E+00	0.000E+00	NOT IDENT.
PM-146	9.391E-03	3.851E-02	6.608E-02	0.000E+00	NOT IDENT.
ND-147	6.299E-01	6.995E-01	1.223E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	3.808E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	1.547E-02	1.084E-01	1.458E-01	0.000E+00	FAIL ABUN
GD-153	-1.677E-02	8.975E-02	1.332E-01	0.000E+00	NOT IDENT.
EU-154	-5.170E-02	1.101E-01	1.761E-01	0.000E+00	NOT IDENT.
EU-155	1.158E-01	1.048E-01	1.826E-01	0.000E+00	FAIL ABUN
TB-160	2.568E-02	1.283E-01	2.169E-01	0.000E+00	FAIL ABUN
HO-166M	-1.242E-02	5.345E-02	8.942E-02	0.000E+00	FAIL ABUN
TM-171	8.848E+00	3.460E+01	5.394E+01	0.000E+00	NOT IDENT.
LU-176	-2.525E-03	2.349E-02	3.729E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.263E+00	3.210E+00	0.000E+00	FAIL ABUN
LU-177M	-1.676E-01	1.603E-01	2.575E-01	0.000E+00	FAIL ABUN
HF-181	1.277E-02	4.008E-02	6.877E-02	0.000E+00	NOT IDENT.
W-181	-1.355E-01	4.749E-01	7.222E-01	0.000E+00	NOT IDENT.
TA-182	-8.038E-02	1.790E-01	2.898E-01	0.000E+00	FAIL ABUN
RE-183	1.296E-02	1.018E-01	1.780E-01	0.000E+00	FAIL ABUN
RE-184	2.509E-01	2.348E-01	3.706E-01	0.000E+00	NOT IDENT.
OS-185	1.027E-02	4.043E-02	6.740E-02	0.000E+00	NOT IDENT.
RE-188	9.047E-02	1.603E-01	2.855E-01	0.000E+00	NOT IDENT.
W-188	3.804E-01	8.224E+00	1.200E+01	0.000E+00	FAIL ABUN
IR-192	-2.467E-02	3.128E-02	4.918E-02	0.000E+00	FAIL ABUN
AU-195	2.292E-01	2.290E-01	3.986E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.633E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.870E+00	1.941E+01	3.359E+01	0.000E+00	NOT IDENT.
TL-202	-2.738E-02	7.811E-02	1.298E-01	0.000E+00	NOT IDENT.
HG-203	2.882E-02	3.954E-02	6.824E-02	0.000E+00	NOT IDENT.
BI-207	3.654E-02	4.463E-02	8.021E-02	0.000E+00	FAIL ABUN
TL-207	2.276E-01	6.526E-01	9.631E-01	0.000E+00	FAIL ABUN
PO-209	5.868E+00	6.525E+00	1.154E+01	0.000E+00	NOT IDENT.
BI-210	4.749E+00	5.520E+00	9.988E+00	0.000E+00	NOT IDENT.
PE-210	4.749E+00	5.520E+00	9.988E+00	0.000E+00	NOT IDENT.
PO-210	4.749E+00	5.517E+00	9.988E+00	0.000E+00	NOT IDENT.
PE-211	-7.023E-01	9.820E-01	1.434E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.012E-01	5.953E-01	0.000E+00	FAIL ABUN
PO-215	2.276E-01	6.526E-01	9.631E-01	0.000E+00	FAIL ABUN
RN-219	1.609E-01	3.766E-01	6.568E-01	0.000E+00	FAIL ABUN
RN-220	-8.862E+00	2.270E+01	3.674E+01	0.000E+00	NOT IDENT.
RA-223	2.276E-01	6.526E-01	9.631E-01	0.000E+00	FAIL ABUN
AC-227	-1.317E-01	3.914E-01	5.629E-01	0.000E+00	FAIL ABUN
TH-227	-1.317E-01	3.916E-01	5.629E-01	0.000E+00	FAIL ABUN
TH-229	-1.528E-01	4.487E-01	7.602E-01	0.000E+00	FAIL ABUN
PA-231	-2.767E-01	1.342E+00	2.211E+00	0.000E+00	FAIL ABUN
TH-231	2.276E-01	6.526E-01	9.631E-01	0.000E+00	FAIL ABUN
U-231	-7.746E-01	2.677E+00	3.956E+00	0.000E+00	FAIL ABUN
PA-233	-4.910E-03	5.535E-02	9.104E-02	0.000E+00	FAIL ABUN
PA-234	6.429E-03	2.743E-01	4.541E-01	0.000E+00	FAIL ABUN
PA-234M	3.096E+00	5.663E+00	7.421E+00	0.000E+00	FAIL ABUN
NP-236	-8.600E-02	7.124E-02	1.181E-01	0.000E+00	NOT IDENT.
NP-239	-1.209E-01	1.771E-01	2.843E-01	0.000E+00	FAIL ABUN
AM-241	1.751E-01	1.912E-01	3.111E-01	0.000E+00	NOT IDENT.
CM-243	-1.079E-01	9.394E-02	1.487E-01	0.000E+00	FAIL ABUN
AM-246	9.732E-02	1.202E-01	2.159E-01	0.000E+00	NOT IDENT.
CM-247	1.629E-02	3.374E-02	5.907E-02	0.000E+00	NOT IDENT.
CF-249	2.673E-02	3.448E-02	6.147E-02	0.000E+00	NOT IDENT.
CF-251	-1.248E-02	1.122E-01	1.933E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101013.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:30:32.
Sample ID          : G245101013          Sample quantity  : 1.08230E+02 GRAM
Detector name      : GAM18              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.53  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 944037              Detector SN#      :
Matrix Spike ID    :                     LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1415	10.67*	1.894E+00	2.429E+01	2.429E+01	9.46
CD-109	88.03	206	3.72*	6.446E+00	2.982E+00	3.072E+00	37.12
SN-126	64.28	124	9.60	3.015E+00	1.492E+00	1.492E+00	72.18
	86.94	206	8.90	6.446E+00	1.246E+00	1.246E+00	54.90
	87.57	206	37.00*	6.446E+00	2.998E-01	2.998E-01	37.12
BA-137M	661.65	406	89.98*	3.589E+00	4.364E-01	4.370E-01	19.24
CS-137	661.65	406	85.12*	3.589E+00	4.613E-01	4.619E-01	19.25
TL-208	277.35	-----	6.80	6.258E+00	-----	Line Not Found	-----
	510.84	160	21.60	4.311E+00	5.973E-01	5.973E-01	50.49
	583.14	464	84.20*	3.935E+00	4.860E-01	4.860E-01	16.51
	860.37	59	12.46	2.917E+00	5.677E-01	5.677E-01	60.27
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	796	12.94*	5.452E+00	3.911E+00	3.911E+00	12.79
PB-212	74.81	387	10.70	4.935E+00	2.543E+00	2.543E+00	24.07
	77.11	570	18.00	5.264E+00	2.086E+00	2.086E+00	16.17
	87.30	206	8.00	6.446E+00	1.386E+00	1.386E+00	38.45
	238.63	1431	44.60*	6.792E+00	1.639E+00	1.639E+00	9.46
	300.09	49	3.41	5.982E+00	8.250E-01	8.250E-01	111.96
PO-212	74.81	387	10.70	4.935E+00	2.543E+00	2.543E+00	24.07
	77.11	570	18.00	5.264E+00	2.086E+00	2.086E+00	16.17
	87.30	206	8.00	6.446E+00	1.386E+00	1.386E+00	38.45
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	1431	44.60*	6.792E+00	1.639E+00	1.639E+00	9.46
	300.09	49	3.41	5.982E+00	8.250E-01	8.250E-01	111.96
BI-214	609.31	534	46.30*	3.813E+00	1.048E+00	1.048E+00	17.40
	1120.29	172	15.10	2.334E+00	1.697E+00	1.697E+00	30.47
	1764.49	123	15.80	1.695E+00	1.588E+00	1.588E+00	23.63
PB-214	74.81	387	6.21	4.935E+00	4.381E+00	4.381E+00	23.38
	77.11	570	10.50	5.264E+00	3.575E+00	3.576E+00	17.88
	87.30	206	4.67	6.446E+00	2.375E+00	2.375E+00	37.92
	241.98	350	7.49	6.746E+00	2.402E+00	2.403E+00	22.71
	295.21	406	19.20	6.040E+00	1.213E+00	1.213E+00	21.08

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	796	37.20*	5.452E+00	1.361E+00	1.361E+00	13.81
	74.81	387	6.21	4.935E+00	4.381E+00	4.381E+00	23.38
	77.11	570	10.50	5.264E+00	3.575E+00	3.576E+00	17.88
	87.30	206	4.67	6.446E+00	2.375E+00	2.375E+00	37.92
	241.98	350	7.49	6.746E+00	2.402E+00	2.403E+00	22.71
PO-216	295.21	406	19.20	6.040E+00	1.213E+00	1.213E+00	21.08
	351.92	796	37.20*	5.452E+00	1.361E+00	1.361E+00	13.81
	74.81	387	10.70	4.935E+00	2.543E+00	2.543E+00	24.07
	77.11	570	18.00	5.264E+00	2.086E+00	2.086E+00	16.17
	87.30	206	8.00	6.446E+00	1.386E+00	1.386E+00	38.45
PO-218	238.63	1431	44.60*	6.792E+00	1.639E+00	1.639E+00	9.46
	300.09	49	3.41	5.982E+00	8.250E-01	8.250E-01	111.96
	74.81	387	6.21	4.935E+00	4.381E+00	4.381E+00	23.38
	77.11	570	10.50	5.264E+00	3.575E+00	3.576E+00	17.88
	87.30	206	4.67	6.446E+00	2.375E+00	2.375E+00	37.92
RA-224	241.98	350	7.49	6.746E+00	2.402E+00	2.403E+00	22.71
	295.21	406	19.20	6.040E+00	1.213E+00	1.213E+00	21.08
	351.92	796	37.20*	5.452E+00	1.361E+00	1.361E+00	13.81
	240.98	350	3.95*	6.746E+00	4.556E+00	4.556E+00	22.01
	609.31	534	46.30*	3.813E+00	1.048E+00	1.048E+00	17.40
AC-228	1120.29	172	15.10	2.334E+00	1.697E+00	1.697E+00	30.47
	1764.49	123	15.80	1.695E+00	1.588E+00	1.588E+00	23.63
	338.32	225	11.40	5.580E+00	1.228E+00	1.228E+00	50.91
	911.07	362	27.70*	2.780E+00	1.628E+00	1.628E+00	21.49
	969.11	216	16.60	2.640E+00	1.706E+00	1.706E+00	32.51
RA-228	338.32	225	11.40	5.580E+00	1.228E+00	1.228E+00	50.91
	911.07	362	27.70*	2.780E+00	1.628E+00	1.628E+00	21.49
	969.11	216	16.60	2.640E+00	1.706E+00	1.706E+00	32.51
	74.81	387	10.70	4.935E+00	2.543E+00	2.594E+00	22.21
	77.11	570	18.00	5.264E+00	2.086E+00	2.128E+00	16.17
TH-228	87.30	206	8.00	6.446E+00	1.386E+00	1.414E+00	37.12
	238.63	1431	44.60*	6.792E+00	1.639E+00	1.671E+00	9.46
	300.09	49	3.41	5.982E+00	8.250E-01	8.416E-01	126.26
	609.31	534	46.30*	3.813E+00	1.048E+00	1.048E+00	17.40
	1120.29	172	15.10	2.334E+00	1.697E+00	1.697E+00	30.47
TH-232	1764.49	123	15.80	1.695E+00	1.588E+00	1.588E+00	23.63
	338.32	225	11.40	5.580E+00	1.228E+00	1.228E+00	31.05
	911.07	362	27.70*	2.780E+00	1.628E+00	1.628E+00	21.49
	969.11	216	16.60	2.640E+00	1.706E+00	1.706E+00	32.51
	63.29	124	3.80*	3.015E+00	3.769E+00	3.769E+00	72.83
U-234	92.38	310	5.41	6.969E+00	2.854E+00	2.854E+00	39.04
	609.31	534	46.30*	3.813E+00	1.048E+00	1.048E+00	17.40
	1120.29	172	15.10	2.334E+00	1.697E+00	1.697E+00	30.47
	1764.49	123	15.80	1.695E+00	1.588E+00	1.588E+00	23.63
	89.95	-----	2.70	6.701E+00	-----	Line Not Found	-----
U-235	93.35	310	4.50	6.969E+00	3.432E+00	3.432E+00	44.53
	105.00	-----	2.10	7.709E+00	-----	Line Not Found	-----
	143.76	84	10.50*	8.222E+00	3.392E-01	3.392E-01	63.27
	163.35	-----	4.70	8.004E+00	-----	Line Not Found	-----



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.71	287	54.00	7.652E+00	2.410E-01	2.410E-01	30.41
	205.31	-----	4.70	7.323E+00	-----	Line Not Found	-----
NP-237	86.50	206	12.60*	6.446E+00	8.803E-01	8.803E-01	42.47
	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
U-238	63.29	124	3.80*	3.015E+00	3.769E+00	3.769E+00	72.83
	92.38	310	5.41	6.969E+00	2.854E+00	2.854E+00	35.66
AM-243	74.67	387	66.00*	4.935E+00	4.122E-01	4.122E-01	22.18
	86.72	206	0.34	6.446E+00	3.301E+01	3.301E+01	37.12
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
ANH-511	511.00	160	100.00*	4.311E+00	1.290E-01	1.290E-01	49.80

Flag: "\*" = Keyline

Total number of lines in spectrum 38  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 35 92.11%

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	2.429E+01	2.429E+01	0.230E+01	9.46	
CD-109	464.00D	1.03	2.982E+00	3.072E+00	1.140E+00	37.12	
SN-126	1.00E+05Y	1.00	2.998E-01	2.998E-01	1.113E-01	37.12	
BA-137M	30.17Y	1.00	4.364E-01	4.370E-01	0.841E-01	19.24	
CS-137	30.17Y	1.00	4.613E-01	4.619E-01	0.889E-01	19.25	
TL-208	1.41E+10Y	1.00	4.860E-01	4.860E-01	0.802E-01	16.51	
BI-211	7.04E+08Y	1.00	3.911E+00	3.911E+00	0.500E+00	12.79	
PB-212	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.155E+00	9.46	
PO-212	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.155E+00	9.46	
BI-214	1600.00Y	1.00	1.048E+00	1.048E+00	0.182E+00	17.40	
PB-214	1600.00Y	1.00	1.361E+00	1.361E+00	0.188E+00	13.81	
PO-214	1600.00Y	1.00	1.361E+00	1.361E+00	0.188E+00	13.81	
PO-216	1.41E+10Y	1.00	1.639E+00	1.639E+00	0.155E+00	9.46	
PO-218	1600.00Y	1.00	1.361E+00	1.361E+00	0.188E+00	13.81	
RA-224	1.41E+10Y	1.00	4.556E+00	4.556E+00	1.003E+00	22.01	
RA-226	1600.00Y	1.00	1.048E+00	1.048E+00	0.182E+00	17.40	
AC-228	1.41E+10Y	1.00	1.628E+00	1.628E+00	0.350E+00	21.49	
RA-228	1.41E+10Y	1.00	1.628E+00	1.628E+00	0.350E+00	21.49	
TH-228	1.91Y	1.02	1.639E+00	1.671E+00	0.158E+00	9.46	
TH-230	4.47E+09Y	1.00	1.048E+00	1.048E+00	0.182E+00	17.40	
TH-232	1.41E+10Y	1.00	1.628E+00	1.628E+00	0.350E+00	21.49	
TH-234	4.47E+09Y	1.00	3.769E+00	3.769E+00	2.745E+00	72.83	
U-234	4.47E+09Y	1.00	1.048E+00	1.048E+00	0.182E+00	17.40	
U-235	7.04E+08Y	1.00	3.392E-01	3.392E-01	2.146E-01	63.27	
NP-237	2.14E+06Y	1.00	8.803E-01	8.803E-01	3.739E-01	42.47	
U-238	4.47E+09Y	1.00	3.769E+00	3.769E+00	2.745E+00	72.83	
AM-243	7380.00Y	1.00	4.122E-01	4.122E-01	0.914E-01	22.18	
ANH-511	1.00E+09Y	1.00	1.290E-01	1.290E-01	0.642E-01	49.80	

Total Activity : 6.643E+01 6.656E+01

Grand Total Activity : 6.643E+01 6.656E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.58	63	388	1.32	258.24	254	9	8.75E-03	****	8.25E+00	T
0	209.37	136	300	1.00	417.77	414	9	1.89E-02	49.0	7.26E+00	T
0	249.77	161	407	6.09	498.53	490	21	2.23E-02	64.6	6.63E+00	T
0	270.22	119	254	1.37	539.41	534	11	1.66E-02	54.9	6.35E+00	T
0	329.35	114	292	1.78	657.65	650	17	1.58E-02	71.4	5.67E+00	T
0	463.07	107	147	1.12	925.00	919	12	1.48E-02	49.3	4.60E+00	T
0	727.04	121	95	1.25	1452.81	1448	12	1.68E-02	37.1	3.34E+00	T
0	794.51	58	65	1.56	1587.70	1581	12	8.04E-03	61.9	3.11E+00	T
1	964.70	81	69	2.32	1928.02	1923	24	1.12E-02	42.1	2.65E+00	T
0	1001.90	19	65	2.48	2002.42	1992	13	2.67E-03	****	2.57E+00	T
0	1237.88	48	75	1.94	2474.30	2469	13	6.61E-03	81.8	2.15E+00	T
0	1377.74	36	47	0.76	2753.98	2748	11	4.98E-03	82.5	1.98E+00	T
0	1727.98	47	8	4.05	3454.41	3447	16	6.47E-03	40.0	1.71E+00	
0	1847.94	19	24	2.61	3694.32	3681	19	2.68E-03	****	1.66E+00	
0	1946.80	23	0	2.81	3892.04	3884	17	3.19E-03	41.7	1.64E+00	

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101013.CNF;1
* Acquisition date   : 2-FEB-2010 11:30:32.   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 02:00:01.53          Half life ratio    : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library   : SOLID
* Sample ID          : G245101013             Analyst initials  : MXR1
* Batch Number       : 944037                 Sample Quantity   : 1.08230E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope      :
* MSD ID             :                        MSD Isotope     :
* LCS ID             : 1032-A                 LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.429E+01	2.298E+00	3.766E-01	2.858E-02	64.485
CD-109	3.072E+00	1.140E+00	1.571E+00	1.453E-01	1.955
SN-126	2.998E-01	1.113E-01	1.448E-01	1.334E-02	2.070
BA-137M	4.370E-01	8.409E-02	5.387E-02	4.107E-03	8.111
CS-137	4.619E-01	8.892E-02	5.695E-02	4.352E-03	8.111
TL-208	4.860E-01	8.025E-02	5.250E-02	4.115E-03	9.257
BI-211	3.911E+00	5.001E-01	2.904E-01	1.864E-02	13.468
PB-212	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
PO-212	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
BI-214	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
PB-214	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
PO-214	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
PO-216	1.639E+00	1.550E-01	8.346E-02	5.962E-03	19.633
PO-218	1.361E+00	1.879E-01	1.012E-01	8.372E-03	13.443
RA-224	4.556E+00	1.003E+00	9.486E-01	5.284E-02	4.802
RA-226	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
AC-228	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344
RA-228	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.671E+00	1.581E-01	8.513E-02	6.082E-03	19.633
TH-230	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
TH-232	1.628E+00	3.500E-01	1.743E-01	2.309E-02	9.344
TH-234	3.769E+00	2.745E+00	2.449E+00	4.318E-01	1.539
U-234	1.048E+00	1.824E-01	1.019E-01	9.107E-03	10.282
U-235	3.392E-01	2.146E-01	3.263E-01	5.285E-02	1.040
NP-237	8.803E-01	3.739E-01	4.423E-01	9.980E-02	1.990
U-238	3.769E+00	2.745E+00	2.449E+00	4.318E-01	1.539
AM-243	4.122E-01	9.142E-02	9.862E-02	8.230E-03	4.180
ANH-511	1.290E-01	6.424E-02	4.051E-02	2.675E-03	3.185

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.399E-01		2.958E-01	5.021E-01	3.639E-02	0.279
NA-22	-2.513E-02		4.089E-02	6.359E-02	4.327E-03	-0.395
NA-24	-1.215E+02		7.482E+01	Half-Life too short		
AL-26	1.063E-02		2.609E-02	4.549E-02	2.656E-03	0.234
TI-44	3.850E-01	+	6.226E-02	8.743E-02	7.475E-03	4.403
SC-46	-1.432E-02		3.583E-02	5.653E-02	6.305E-03	-0.253
V-48	5.108E-02		7.842E-02	1.336E-01	1.322E-02	0.382
CR-51	3.215E-02		3.723E-01	6.027E-01	3.880E-02	0.053
MN-52	3.351E-01		3.559E-01	6.422E-01	4.732E-02	0.522
MN-54	1.719E-02		3.623E-02	6.136E-02	6.285E-03	0.280
CO-56	-2.717E-03		3.648E-02	5.955E-02	6.216E-03	-0.046
CO-57	5.643E-03		2.459E-02	3.988E-02	2.362E-03	0.142
CO-58	-9.156E-03		3.646E-02	5.893E-02	5.817E-03	-0.155
FE-59	-1.157E-02		8.771E-02	1.446E-01	1.190E-02	-0.080
CO-60	-1.676E-02		3.483E-02	5.406E-02	4.085E-03	-0.310
ZN-65	1.057E-01		9.040E-02	1.444E-01	1.017E-02	0.732
GE-68	4.934E-01		1.082E+00	1.868E+00	1.484E-01	0.264
AS-73	1.110E+00		1.202E+00	2.089E+00	1.656E-01	0.531
AS-74	-3.928E-02		9.993E-02	1.572E-01	1.129E-02	-0.250
SE-75	7.131E-03		4.719E-02	6.829E-02	3.905E-03	0.104
BR-77	-3.559E-05		1.873E-05	Half-Life too short		
SR-82	-5.854E-01		3.946E-01	5.743E-01	5.349E-02	-1.019
RB-83	-6.424E-02		6.204E-02	9.388E-02	6.261E-03	-0.684
RB-84	3.541E-02		6.594E-02	1.125E-01	1.240E-02	0.315
KR-85	2.204E+01		7.770E+00	1.316E+01	8.715E-01	1.675
SR-85	1.189E-01		4.193E-02	7.099E-02	4.703E-03	1.675
RB-86	3.094E-01		8.279E-01	1.420E+00	1.131E-01	0.218
Y-88	2.031E-04		3.219E-02	4.478E-02	2.551E-03	0.005
ZR-88	-4.785E-03		2.715E-02	4.503E-02	2.590E-03	-0.106
Y-91	3.385E+00		1.754E+01	2.937E+01	1.737E+00	0.115
NB-94	2.074E-03		3.021E-02	5.064E-02	4.154E-03	0.041
NB-95	2.576E-02		4.102E-02	7.052E-02	6.451E-03	0.365
NB-95M	7.462E-02		1.360E-01	2.029E-01	1.489E-02	0.368

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	3.080E-02		6.392E-02	1.096E-01	1.078E-02	0.281
NB-97	2.732E+01		6.639E+00	Half-Life too short		
ZR-97	7.885E+02		1.179E+02	Half-Life too short		
MO-99	2.746E+01		3.565E+01	6.190E+01	9.444E+00	0.444
TC-99M	2.060E+16		1.466E+16	Half-Life too short		
RH-101	-3.294E-03		2.972E-02	4.941E-02	2.656E-03	-0.067
RH-102	6.001E-03		2.536E-02	4.246E-02	2.697E-03	0.141
RU-103	-5.727E-03		3.912E-02	6.369E-02	8.269E-03	-0.090
RH-106	1.136E-01		3.083E-01	5.088E-01	6.402E-02	0.223
RU-106	1.136E-01		3.081E-01	5.088E-01	3.745E-02	0.223
AG-108M	-1.113E-02		2.887E-02	4.688E-02	3.063E-03	-0.237
AG-110M	6.340E-02		3.902E-02	6.363E-02	5.018E-03	0.996
IN-111	7.016E+00		4.045E+00	5.152E+00	2.879E-01	1.362
IN-113M	-5.148E-03		3.914E-02	6.511E-02	3.994E-03	-0.079
SN-113	-5.148E-03		3.914E-02	6.511E-02	3.994E-03	-0.079
IN-114M	2.820E-02		1.998E-01	2.969E-01	1.585E-02	0.095
CD-115	-4.201E-05		2.262E-05	Half-Life too short		
SN-117M	3.055E-02		6.263E-02	1.081E-01	5.744E-03	0.283
SB-122	3.650E+00		6.759E+00	1.136E+01	7.915E-01	0.321
I-123	-2.671E+02		1.219E+03	Half-Life too short		
TE-123M	-2.865E-03		2.614E-02	4.409E-02	2.379E-03	-0.065
I-124	1.195E+00		1.609E+00	2.391E+00	1.729E-01	0.500
SB-124	1.998E-02		6.268E-02	1.087E-01	7.499E-03	0.184
SB-125	8.121E-02		8.419E-02	1.472E-01	9.201E-03	0.552
TE-125M	-4.378E+00		1.014E+01	1.607E+01	1.415E+00	-0.272
I-126	8.177E-02		2.490E-01	3.706E-01	2.849E-02	0.221
SB-126	-1.222E-01		1.840E-01	2.573E-01	2.178E-02	-0.475
SB-127	1.680E+00		2.807E+00	4.870E+00	6.082E-01	0.345
XE-127	-2.580E-02		4.607E-02	7.495E-02	4.046E-03	-0.344
I-131	6.765E-02		1.523E-01	2.626E-01	1.710E-02	0.258
TE-132	1.266E+00		1.858E+00	3.142E+00	4.822E-01	0.403
BA-133	-2.350E-02		4.674E-02	6.216E-02	7.181E-03	-0.378
I-133	1.211E-01		1.402E-01	Half-Life too short		
CS-134	8.556E-02	+	5.359E-02	7.241E-02	7.003E-03	1.182
CS-135	1.524E-01		1.658E-01	2.508E-01	1.896E-02	0.608
I-135	-5.736E+13		5.034E+14	Half-Life too short		
CS-136	-5.449E-02		1.195E-01	1.923E-01	1.725E-02	-0.283
CE-139	4.571E-03		2.805E-02	4.768E-02	2.503E-03	0.096
BA-140	-1.534E-01		3.047E-01	4.736E-01	1.549E-01	-0.324
LA-140	1.245E-02		9.354E-02	1.579E-01	1.083E-02	0.079
CE-141	6.308E-02		7.966E-02	1.171E-01	6.686E-03	0.539
CE-143	8.056E-03		1.332E-03	Half-Life too short		
CE-144	5.289E-02		2.201E-01	3.166E-01	4.476E-02	0.167
PM-144	1.244E-02		3.319E-02	5.664E-02	4.599E-03	0.220
PR-144	8.452E-01		2.255E+00	3.848E+00	3.122E-01	0.220
PM-146	9.391E-03		3.930E-02	6.599E-02	5.870E-03	0.142
ND-147	6.299E-01		7.138E-01	1.222E+00	1.706E-01	0.515
PM-149	-2.937E-04		1.943E-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
EU-152	1.547E-02		1.106E-01	1.453E-01	9.481E-03	0.106
GD-153	-1.677E-02		9.159E-02	1.317E-01	1.030E-02	-0.127
EU-154	-5.170E-02		1.123E-01	1.770E-01	1.768E-02	-0.292
EU-155	1.158E-01		1.069E-01	1.806E-01	1.292E-02	0.641
TB-160	2.568E-02		1.309E-01	2.175E-01	2.389E-02	0.118
HO-166M	-1.242E-02		5.454E-02	8.955E-02	7.465E-03	-0.139
TM-171	8.848E+00		3.531E+01	5.320E+01	4.254E+00	0.166
LU-176	-2.525E-03		2.397E-02	3.715E-02	2.139E-03	-0.068
LU-177	4.688E+00	+	2.309E+00	3.189E+00	1.730E-01	1.470
LU-177M	-1.676E-01		1.636E-01	2.570E-01	1.518E-02	-0.652
HF-181	1.277E-02		4.090E-02	6.870E-02	4.397E-03	0.186
W-181	-1.355E-01		4.846E-01	7.123E-01	5.650E-02	-0.190
TA-182	-8.038E-02		1.826E-01	2.913E-01	1.782E-02	-0.276
RE-183	1.296E-02		1.039E-01	1.766E-01	9.321E-03	0.073
RE-184	2.509E-01		2.396E-01	3.687E-01	2.071E-02	0.681
OS-185	1.027E-02		4.126E-02	6.745E-02	5.073E-03	0.152
RE-188	9.047E-02		1.636E-01	2.831E-01	1.515E-02	0.320
W-188	3.804E-01		8.392E+00	1.195E+01	6.844E-01	0.032
IR-192	-2.467E-02		3.191E-02	4.900E-02	2.842E-03	-0.503
AU-195	2.292E-01		2.336E-01	3.941E-01	3.016E-02	0.582
TL-200	-4.499E-03		4.404E-03	Half-Life	too short	
TL-201	-1.870E+00		1.981E+01	3.333E+01	1.750E+00	-0.056
TL-202	-2.738E-02		7.970E-02	1.296E-01	7.900E-03	-0.211
HG-203	2.882E-02		4.034E-02	6.793E-02	4.120E-03	0.424
BI-207	3.654E-02		4.554E-02	8.054E-02	6.648E-03	0.454
TL-207	2.276E-01		6.660E-01	9.596E-01	1.584E-01	0.237
PO-209	5.868E+00		6.658E+00	1.157E+01	1.305E+00	0.507
BI-210	4.749E+00		5.632E+00	9.831E+00	7.606E-01	0.483
PB-210	4.749E+00		5.632E+00	9.831E+00	7.606E-01	0.483
PO-210	4.749E+00		5.629E+00	9.831E+00	6.539E-01	0.483
PB-211	-7.023E-01		1.002E+00	1.431E+00	8.919E-01	-0.491
BI-212	1.065E+00	+	4.094E-01	5.962E-01	5.938E-02	1.787
PO-215	2.276E-01		6.660E-01	9.596E-01	1.584E-01	0.237
RN-219	1.609E-01		3.842E-01	6.554E-01	8.922E-02	0.245
RN-220	-8.862E+00		2.317E+01	3.673E+01	2.524E+00	-0.241
RA-223	2.276E-01		6.660E-01	9.596E-01	1.584E-01	0.237
AC-227	-1.317E-01		3.994E-01	5.600E-01	7.779E-02	-0.235
TH-227	-1.317E-01		3.996E-01	5.600E-01	9.432E-02	-0.235
TH-229	-1.528E-01		4.579E-01	7.550E-01	4.043E-02	-0.202
PA-231	-2.767E-01		1.369E+00	2.201E+00	3.025E-01	-0.126
TH-231	2.276E-01		6.660E-01	9.596E-01	1.584E-01	0.237
U-231	-7.746E-01		2.731E+00	3.912E+00	3.134E-01	-0.198
PA-233	-4.910E-03		5.648E-02	9.068E-02	5.555E-03	-0.054
PA-234	6.429E-03		2.799E-01	4.556E-01	8.988E-02	0.014
PA-234M	3.096E+00	+	5.778E+00	7.448E+00	8.035E-01	0.416
NP-236	-8.600E-02		7.270E-02	1.172E-01	6.207E-03	-0.734
NP-239	-1.209E-01		1.808E-01	2.814E-01	1.742E-02	-0.430
AM-241	1.751E-01		1.951E-01	3.067E-01	2.543E-02	0.571

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.079E-01		9.585E-02	1.471E-01	1.053E-02	-0.734
AM-246	9.732E-02		1.227E-01	2.168E-01	1.714E-02	0.449
CM-247	1.629E-02		3.442E-02	5.894E-02	3.432E-03	0.276
CF-249	2.673E-02		3.519E-02	6.132E-02	3.525E-03	0.436
CF-251	-1.248E-02		1.145E-01	1.918E-01	1.013E-02	-0.065



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101013          *
* Acquisition date   : 2-FEB-2010 11:30:32 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 02:00:01.53 Half life ratio        : 8.000          *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library   : SOLID          *
* Sample ID          : G245101013 Analyst initials: MXR1          *
* Batch Number       : 944037 Sample Quantity: 1.0823E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000          *
*****
*                                     QC DATA                              *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope       :              *
* MSD DPM             : 0.000 MSD Isotope                     :              *
* LCS DPM             : 0.000 LCS Isotope                     :              *
* LCSD DPM            : 0.000 LCSD Isotope                    :              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.429E+01	2.252E+00	1.873E-01	1.149E+00
CD-109	3.072E+00	1.118E+00	7.956E-01	5.702E-01
SN-126	2.998E-01	1.091E-01	7.331E-02	5.564E-02
BA-137M	4.370E-01	8.241E-02	2.693E-02	4.204E-02
CS-137	4.619E-01	8.715E-02	2.846E-02	4.446E-02
TL-208	4.860E-01	7.864E-02	2.626E-02	4.012E-02
BI-211	3.911E+00	4.901E-01	1.457E-01	2.501E-01
PB-212	1.639E+00	1.519E-01	4.199E-02	7.749E-02
PO-212	1.639E+00	1.519E-01	4.199E-02	7.749E-02
BI-214	1.048E+00	1.787E-01	5.098E-02	9.118E-02
PB-214	1.361E+00	1.842E-01	5.079E-02	9.395E-02
PO-214	1.361E+00	1.842E-01	5.079E-02	9.395E-02
PO-216	1.639E+00	1.519E-01	4.199E-02	7.749E-02
PO-218	1.361E+00	1.842E-01	5.079E-02	9.395E-02
RA-224	4.556E+00	9.825E-01	4.772E-01	5.013E-01
RA-226	1.048E+00	1.787E-01	5.098E-02	9.118E-02
AC-228	1.628E+00	3.430E-01	8.692E-02	1.750E-01
RA-228	1.628E+00	3.430E-01	8.692E-02	1.750E-01
TH-228	1.671E+00	1.549E-01	4.283E-02	7.904E-02
TH-230	1.048E+00	1.787E-01	5.098E-02	9.118E-02
TH-232	1.628E+00	3.430E-01	8.692E-02	1.750E-01
TH-234	3.769E+00	2.690E+00	1.243E+00	1.372E+00
U-234	1.048E+00	1.787E-01	5.098E-02	9.118E-02
U-235	3.392E-01	2.103E-01	1.647E-01	1.073E-01
NP-237	8.803E-01	3.664E-01	2.240E-01	1.869E-01
U-238	3.769E+00	2.690E+00	1.243E+00	1.372E+00
AM-243	4.122E-01	8.960E-02	4.998E-02	4.571E-02
ANH-511	1.290E-01	6.296E-02	2.028E-02	3.212E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.399E-01	2.899E-01	2.515E-01	1.479E-01	NOT IDENT.
NA-22	-2.513E-02	4.007E-02	3.165E-02	2.044E-02	NOT IDENT.
NA-24	-1.215E+08	1.466E+08	0.000E+00	7.482E+07	SHORT HLIF
AL-26	1.063E-02	2.556E-02	2.259E-02	1.304E-02	NOT IDENT.
TI-44	3.850E-01	6.102E-02	4.430E-02	3.113E-02	FAIL ABUN
SC-46	-1.432E-02	3.511E-02	2.820E-02	1.791E-02	FAIL ABUN
V-48	5.108E-02	7.685E-02	6.661E-02	3.921E-02	NOT IDENT.
CR-51	3.215E-02	3.649E-01	3.027E-01	1.862E-01	NOT IDENT.
MN-52	3.351E-01	3.487E-01	3.194E-01	1.779E-01	NOT IDENT.
MN-54	1.719E-02	3.551E-02	3.062E-02	1.812E-02	NOT IDENT.
CO-56	-2.717E-03	3.575E-02	2.971E-02	1.824E-02	FAIL ABUN
CO-57	5.643E-03	2.410E-02	2.015E-02	1.230E-02	NOT IDENT.
CO-58	-9.156E-03	3.573E-02	2.941E-02	1.823E-02	NOT IDENT.
FE-59	-1.157E-02	8.595E-02	7.201E-02	4.385E-02	FAIL ABUN
CO-60	-1.676E-02	3.413E-02	2.690E-02	1.741E-02	NOT IDENT.
ZN-65	1.057E-01	8.860E-02	7.192E-02	4.520E-02	NOT IDENT.
GE-68	4.934E-01	1.060E+00	9.307E-01	5.409E-01	NOT IDENT.
AS-73	1.110E+00	1.178E+00	1.061E+00	6.009E-01	NOT IDENT.
AS-74	-3.928E-02	9.793E-02	7.860E-02	4.997E-02	NOT IDENT.
SE-75	7.131E-03	4.624E-02	3.433E-02	2.359E-02	NOT IDENT.
BR-77	-3.559E+01	3.671E+01	0.000E+00	1.873E+01	SHORT HLIF
SR-82	-5.854E-01	3.867E-01	2.868E-01	1.973E-01	NOT IDENT.
RB-83	-6.424E-02	6.080E-02	4.699E-02	3.102E-02	NOT IDENT.
RB-84	3.541E-02	6.462E-02	5.611E-02	3.297E-02	NOT IDENT.
KR-85	2.204E+01	7.614E+00	6.586E+00	3.885E+00	NOT IDENT.
SR-85	1.189E-01	4.109E-02	3.554E-02	2.096E-02	NOT IDENT.
RB-86	3.094E-01	8.114E-01	7.077E-01	4.140E-01	NOT IDENT.
Y-88	2.031E-04	3.155E-02	2.223E-02	1.610E-02	NOT IDENT.
ZR-88	-4.785E-03	2.661E-02	2.258E-02	1.358E-02	NOT IDENT.
Y-91	3.385E+00	1.719E+01	1.462E+01	8.771E+00	NOT IDENT.
NB-94	2.074E-03	2.960E-02	2.530E-02	1.510E-02	NOT IDENT.
NB-95	2.576E-02	4.020E-02	3.521E-02	2.051E-02	NOT IDENT.
NB-95M	7.462E-02	1.333E-01	1.021E-01	6.800E-02	NOT IDENT.
ZR-95	3.080E-02	6.264E-02	5.471E-02	3.196E-02	NOT IDENT.
NB-97	2.732E+07	1.301E+07	0.000E+00	6.639E+06	SHORT HLIF
ZR-97	7.885E+08	2.311E+08	0.000E+00	1.179E+08	SHORT HLIF
MO-99	2.746E+01	3.493E+01	3.091E+01	1.782E+01	NOT IDENT.
TC-99M	2.060E+22	2.873E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.294E-03	2.912E-02	2.489E-02	1.486E-02	NOT IDENT.
RH-102	6.001E-03	2.485E-02	2.127E-02	1.268E-02	NOT IDENT.
RU-103	-5.727E-03	3.834E-02	3.189E-02	1.956E-02	FAIL ABUN
RH-106	1.136E-01	3.021E-01	2.544E-01	1.542E-01	FAIL ABUN
RU-106	1.136E-01	3.019E-01	2.544E-01	1.540E-01	FAIL ABUN
AG-108M	-1.113E-02	2.829E-02	2.349E-02	1.444E-02	NOT IDENT.
AG-110M	6.340E-02	3.824E-02	3.180E-02	1.951E-02	NOT IDENT.
IN-111	7.016E+00	3.964E+00	2.592E+00	2.022E+00	NOT IDENT.
IN-113M	-5.148E-03	3.836E-02	3.265E-02	1.957E-02	NOT IDENT.
SN-113	-5.148E-03	3.836E-02	3.265E-02	1.957E-02	NOT IDENT.
IN-114M	2.820E-02	1.958E-01	1.496E-01	9.989E-02	NOT IDENT.
CD-115	-4.201E+01	4.434E+01	0.000E+00	2.262E+01	SHORT HLIF
SN-117M	3.055E-02	6.137E-02	5.451E-02	3.131E-02	NOT IDENT.
SB-122	3.650E+00	6.624E+00	5.683E+00	3.379E+00	NOT IDENT.
I-123	-2.671E+08	2.389E+09	0.000E+00	1.219E+09	SHORT HLIF
TE-123M	-2.865E-03	2.561E-02	2.224E-02	1.307E-02	NOT IDENT.
I-124	1.195E+00	1.577E+00	1.196E+00	8.044E-01	FAIL ABUN
SB-124	1.998E-02	6.143E-02	5.399E-02	3.134E-02	FAIL ABUN
SB-125	8.121E-02	8.250E-02	7.380E-02	4.209E-02	FAIL ABUN
TE-125M	-4.378E+00	9.932E+00	8.125E+00	5.068E+00	NOT IDENT.
I-126	8.177E-02	2.440E-01	1.852E-01	1.245E-01	NOT IDENT.
SB-126	-1.222E-01	1.803E-01	1.285E-01	9.201E-02	FAIL ABUN
SB-127	1.680E+00	2.751E+00	2.434E+00	1.404E+00	NOT IDENT.
XE-127	-2.580E-02	4.515E-02	3.775E-02	2.304E-02	FAIL ABUN
I-131	6.765E-02	1.493E-01	1.318E-01	7.617E-02	NOT IDENT.
TE-132	1.266E+00	1.821E+00	1.581E+00	9.290E-01	NOT IDENT.
BA-133	-2.350E-02	4.581E-02	3.119E-02	2.337E-02	NOT IDENT.
I-133	1.211E+05	2.748E+05	0.000E+00	1.402E+05	SHORT HLIF
CS-134	8.556E-02	5.252E-02	3.615E-02	2.679E-02	FAIL ABUN
CS-135	1.524E-01	1.625E-01	1.261E-01	8.289E-02	NOT IDENT.
I-135	-5.736E+19	9.867E+20	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.449E-02	1.171E-01	9.584E-02	5.975E-02	FAIL ABUN
CE-139	4.571E-03	2.749E-02	2.404E-02	1.402E-02	NOT IDENT.
BA-140	-1.534E-01	2.986E-01	2.370E-01	1.523E-01	NOT IDENT.
LA-140	1.245E-02	9.167E-02	7.846E-02	4.677E-02	FAIL ABUN
CE-141	6.308E-02	7.807E-02	5.910E-02	3.983E-02	NOT IDENT.
CE-143	8.056E+03	2.611E+03	0.000E+00	1.332E+03	SHORT HLIF
CE-144	5.289E-02	2.157E-01	1.599E-01	1.100E-01	NOT IDENT.
PM-144	1.244E-02	3.253E-02	2.830E-02	1.659E-02	NOT IDENT.

PR-144	8.452E-01	2.210E+00	1.922E+00	1.127E+00	NOT IDENT.
PM-146	9.391E-03	3.851E-02	3.306E-02	1.965E-02	NOT IDENT.
ND-147	6.299E-01	6.995E-01	6.118E-01	3.569E-01	NOT IDENT.
PM-149	-2.937E+02	3.808E+02	0.000E+00	1.943E+02	SHORT HLIF
EU-152	1.547E-02	1.084E-01	7.292E-02	5.532E-02	FAIL ABUN
GD-153	-1.677E-02	8.975E-02	6.665E-02	4.579E-02	NOT IDENT.
EU-154	-5.170E-02	1.101E-01	8.811E-02	5.617E-02	NOT IDENT.
EU-155	1.158E-01	1.048E-01	9.136E-02	5.346E-02	FAIL ABUN
TB-160	2.568E-02	1.283E-01	1.085E-01	6.547E-02	FAIL ABUN
HO-166M	-1.242E-02	5.345E-02	4.474E-02	2.727E-02	FAIL ABUN
TM-171	8.848E+00	3.460E+01	2.698E+01	1.765E+01	NOT IDENT.
LU-176	-2.525E-03	2.349E-02	1.866E-02	1.199E-02	FAIL ABUN
LU-177	4.688E+00	2.263E+00	1.606E+00	1.155E+00	FAIL ABUN
LU-177M	-1.676E-01	1.603E-01	1.288E-01	8.180E-02	FAIL ABUN
HF-181	1.277E-02	4.008E-02	3.441E-02	2.045E-02	NOT IDENT.
W-181	-1.355E-01	4.749E-01	3.613E-01	2.423E-01	NOT IDENT.
TA-182	-8.038E-02	1.790E-01	1.450E-01	9.130E-02	FAIL ABUN
RE-183	1.296E-02	1.018E-01	8.906E-02	5.194E-02	FAIL ABUN
RE-184	2.509E-01	2.348E-01	1.854E-01	1.198E-01	NOT IDENT.
OS-185	1.027E-02	4.043E-02	3.372E-02	2.063E-02	NOT IDENT.
RE-188	9.047E-02	1.603E-01	1.428E-01	8.180E-02	NOT IDENT.
W-188	3.804E-01	8.224E+00	6.004E+00	4.196E+00	FAIL ABUN
IR-192	-2.467E-02	3.128E-02	2.460E-02	1.596E-02	FAIL ABUN
AU-195	2.292E-01	2.290E-01	1.994E-01	1.168E-01	FAIL ABUN
TL-200	-4.499E+03	8.633E+03	0.000E+00	4.404E+03	SHORT HLIF
TL-201	-1.870E+00	1.941E+01	1.681E+01	9.905E+00	NOT IDENT.
TL-202	-2.738E-02	7.811E-02	6.494E-02	3.985E-02	NOT IDENT.
HG-203	2.882E-02	3.954E-02	3.414E-02	2.017E-02	NOT IDENT.
BI-207	3.654E-02	4.463E-02	4.013E-02	2.277E-02	FAIL ABUN
TL-207	2.276E-01	6.526E-01	4.818E-01	3.330E-01	FAIL ABUN
PO-209	5.868E+00	6.525E+00	5.772E+00	3.329E+00	NOT IDENT.
BI-210	4.749E+00	5.520E+00	4.997E+00	2.816E+00	NOT IDENT.
PB-210	4.749E+00	5.520E+00	4.997E+00	2.816E+00	NOT IDENT.
PO-210	4.749E+00	5.517E+00	4.997E+00	2.815E+00	NOT IDENT.
PB-211	-7.023E-01	9.820E-01	7.173E-01	5.010E-01	NOT IDENT.
BI-212	1.065E+00	4.012E-01	2.978E-01	2.047E-01	FAIL ABUN
PO-215	2.276E-01	6.526E-01	4.818E-01	3.330E-01	FAIL ABUN
RN-219	1.609E-01	3.766E-01	3.286E-01	1.921E-01	FAIL ABUN
RN-220	-8.862E+00	2.270E+01	1.838E+01	1.158E+01	NOT IDENT.
RA-223	2.276E-01	6.526E-01	4.818E-01	3.330E-01	FAIL ABUN
AC-227	-1.317E-01	3.914E-01	2.816E-01	1.997E-01	FAIL ABUN
TH-227	-1.317E-01	3.916E-01	2.816E-01	1.998E-01	FAIL ABUN
TH-229	-1.528E-01	4.487E-01	3.803E-01	2.289E-01	FAIL ABUN
PA-231	-2.767E-01	1.342E+00	1.106E+00	6.846E-01	FAIL ABUN
TH-231	2.276E-01	6.526E-01	4.818E-01	3.330E-01	FAIL ABUN
U-231	-7.746E-01	2.677E+00	1.979E+00	1.366E+00	FAIL ABUN
PA-233	-4.910E-03	5.535E-02	4.554E-02	2.824E-02	FAIL ABUN
PA-234	6.429E-03	2.743E-01	2.272E-01	1.399E-01	FAIL ABUN
PA-234M	3.096E+00	5.663E+00	3.713E+00	2.889E+00	FAIL ABUN
NP-236	-8.600E-02	7.124E-02	5.909E-02	3.635E-02	NOT IDENT.
NP-239	-1.209E-01	1.771E-01	1.422E-01	9.038E-02	FAIL ABUN
AM-241	1.751E-01	1.912E-01	1.556E-01	9.756E-02	NOT IDENT.
CM-243	-1.079E-01	9.394E-02	7.439E-02	4.793E-02	FAIL ABUN
AM-246	9.732E-02	1.202E-01	1.080E-01	6.133E-02	NOT IDENT.
CM-247	1.629E-02	3.374E-02	2.955E-02	1.721E-02	NOT IDENT.
CF-249	2.673E-02	3.448E-02	3.075E-02	1.759E-02	NOT IDENT.
CF-251	-1.248E-02	1.122E-01	9.669E-02	5.725E-02	NOT IDENT.

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

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46.50	241.8895
46.50	241.8895
46.50	241.8895
48.70	278.9573
49.72	274.7164
51.35	262.0307
52.39	245.8515
52.97	266.4008
53.15	266.5834
53.44	248.6608
54.07	261.1222
56.28	291.8039
56.28	291.8071
57.37	0.0000
57.53	259.6587
57.53	259.6602
57.60	277.4826
57.98	282.0297
57.98	282.0297
59.32	237.3090
59.32	237.3090
59.40	237.3758
59.54	237.4925
59.72	254.4170
60.01	254.6753
61.10	289.3520
61.14	289.3920
61.30	289.5515
63.00	315.7391
63.29	316.0475
63.29	316.0475
63.58	316.3551
64.28	325.1420
65.12	327.4713
65.20	327.5577
65.20	327.5577
66.05	309.9061
66.72	303.4237
66.83	320.7148
66.91	320.7969
67.20	323.9646
67.20	323.9646
67.75	374.5100
67.85	382.6756
68.90	366.6607
68.90	366.6607
69.30	352.1164
69.67	353.9745
70.82	336.3940
70.82	336.3940
70.83	336.4046
72.80	398.2590
72.87	398.3444
72.87	398.3444
74.67	389.2630
74.81	389.4260
74.81	389.4260
74.81	389.4260
74.81	389.4260
74.81	389.4260
74.81	389.4260
74.97	389.6112
75.28	389.9715
75.70	390.4573
77.11	392.0768
77.11	392.0768

77.11	392.0768
77.11	392.0768
77.11	392.0768
77.11	392.0768
77.11	392.0768
78.38	393.5242
79.62	318.5216
79.80	306.7714
79.80	306.7714
80.11	307.0417
80.18	307.1030
80.30	365.3672
80.30	365.3672
80.57	365.6476
81.00	427.3548
81.07	427.4399
81.07	427.4399
81.07	427.4399
81.07	427.4399
82.60	376.7375
83.37	374.5297
83.78	344.8401
83.78	344.8401
83.78	344.8401
83.78	344.8401
84.21	331.6785
84.90	320.2191
85.43	379.6731
86.29	483.6548
86.50	483.9273
86.54	483.9784
86.59	484.0442
86.72	432.6033
86.79	432.6815
86.94	432.8577
87.30	462.1602
87.30	462.1602
87.30	462.1602
87.30	462.1602
87.30	462.1602
87.30	462.1602
87.57	462.4918
87.88	0.0000
88.03	526.0173
88.36	454.3141
88.47	454.4459
89.95	456.2148
91.11	460.6613
92.29	409.6950
92.38	409.7904
92.38	409.7904
93.35	410.8031
94.00	411.4809
94.67	286.6588
94.67	286.6631
94.90	286.8282
94.90	286.8282
94.90	286.8282
94.90	286.8282
95.87	337.2579
95.87	337.2579
96.73	345.7690
97.43	319.8402
98.44	296.5451
98.44	296.5451
98.88	282.8761
99.55	270.7902
99.55	270.7902
99.86	253.2059
100.00	253.2920
100.10	253.3548
103.18	333.2620
103.76	311.5394
105.00	242.5403
105.31	262.8542
108.00	337.0037
109.28	328.3580

111.00	309.2285
111.00	309.2285
111.76	308.6759
112.95	297.6271
115.19	281.7500
116.30	293.2903
117.00	277.4134
117.00	277.4134
117.66	279.9853
121.11	262.2803
121.62	269.1513
121.78	269.2411
122.06	259.5018
122.32	259.6411
122.32	259.6411
122.32	259.6411
122.32	259.6411
123.07	269.9626
127.23	293.3765
129.76	299.3320
131.20	263.7828
133.02	301.8194
133.54	264.9902
135.34	276.6418
136.00	283.7742
136.25	291.8273
136.48	277.2450
140.51	249.7167
140.51	0.0000
142.18	324.2699
142.65	305.6632
143.76	305.1407
144.24	291.6308
144.24	291.6308
144.24	291.6308
144.24	291.6308
145.22	307.1054
145.44	307.2303
147.16	278.7529
152.43	299.4386
152.70	258.7809
153.22	300.1459
154.21	303.2938
154.21	303.2938
154.21	303.2938
154.21	303.2938
155.03	280.0255
156.02	296.3328
158.56	261.4164
159.00	0.0000
159.00	277.5193
160.31	315.3378
161.27	298.1041
162.32	278.1877
162.64	274.7788
163.35	270.6526
163.89	283.3716
165.85	285.1851
167.43	300.2661
171.28	267.8692
171.86	257.2854
172.10	262.8018
176.55	274.6644
176.60	274.6852
181.06	279.8901
184.41	295.5006
185.71	296.0811
186.00	280.5237
190.27	273.4013
192.34	258.0264
193.63	276.2466
197.04	280.4266
198.01	252.6411
198.60	247.2146
200.40	0.0000
201.83	253.0739
202.84	278.9662
205.31	256.5883

208.36	266.8237
208.81	292.9242
209.75	290.2463
209.75	290.2463
210.97	328.9852
215.65	262.8775
216.55	266.9109
218.09	302.2206
222.10	261.1130
223.80	272.3929
226.40	246.9564
227.00	242.2632
227.08	242.2878
227.20	247.2112
228.16	252.4078
228.18	252.4137
228.18	252.4137
231.56	0.0000
235.69	270.2309
236.00	276.6589
236.00	276.6589
238.63	245.8430
238.63	245.8430
238.63	245.8430
238.63	245.8430
239.00	0.0000
240.98	246.5544
241.98	246.8572
241.98	246.8572
241.98	246.8572
244.69	127.8311
245.39	127.9395
247.94	179.6662
248.90	179.8727
249.79	0.0000
252.40	180.6232
252.85	180.7189
252.85	180.7189
254.15	0.0000
256.20	220.3102
256.20	220.3102
260.50	199.4333
260.90	0.0000
262.80	215.2660
264.65	202.8381
268.24	206.9495
268.79	205.4352
269.46	206.6157
269.46	206.6157
269.46	206.6157
269.46	206.6157
271.23	192.8129
273.65	256.1246
276.40	196.5258
277.35	192.8796
277.60	192.9307
277.60	192.9307
278.00	186.7896
278.60	181.7211
279.20	197.4248
279.53	199.5732
280.46	237.2368
281.68	0.0000
283.67	190.0314
284.30	194.3384
285.00	209.1248
285.90	0.0000
286.10	210.4157
286.10	210.4157
287.40	183.4541
288.45	0.0000
290.67	215.4375
290.80	215.4688
291.72	229.1580
293.26	0.0000
293.70	217.8135
295.21	214.7776
295.21	214.7776

295.21	214.7776
295.96	211.5601
296.50	237.0806
297.23	0.0000
298.57	237.5898
299.80	237.8906
299.80	237.8906
300.09	199.7184
300.09	199.7184
300.09	199.7184
300.09	199.7184
300.12	199.7242
301.29	190.6023
302.84	207.9510
303.76	0.0000
303.91	211.5901
304.40	199.7455
304.40	199.7455
304.84	184.4648
306.84	189.4820
308.46	171.4258
311.98	164.5049
316.51	174.9652
318.01	169.8166
319.02	178.6459
319.41	186.2957
320.08	161.4887
323.87	160.1285
323.87	160.1285
323.87	160.1285
323.87	160.1285
325.23	158.5946
328.77	167.3785
333.44	180.0432
334.20	180.1708
334.20	180.1708
334.30	180.1883
338.28	190.3141
338.28	190.3141
338.28	190.3141
338.28	190.3141
338.32	190.3220
338.32	190.3220
338.32	190.3220
340.50	189.1936
340.57	189.2066
344.27	166.3445
345.85	204.3440
350.59	0.0000
351.07	161.7997
351.92	161.9258
351.92	161.9258
351.92	161.9258
355.39	0.0000
356.01	177.5402
364.48	142.7420
366.43	152.9417
367.43	150.3585
367.94	0.0000
369.80	155.2067
374.96	143.1360
383.85	157.0812
387.95	140.1083
388.63	148.4887
391.69	145.1675
391.69	145.1675
392.90	143.4620
398.62	155.2966
400.65	142.5111
401.10	152.8151
401.81	161.2931
402.60	160.4626
404.84	187.8584
410.95	137.1227
411.60	140.0131
413.65	176.0065
414.70	159.1967
415.30	147.9637



415.76	145.1890
417.63	0.0000
418.52	115.2686
423.70	154.6311
427.08	120.7942
427.89	130.3875
432.53	150.9081
433.93	141.5087
439.47	0.0000
439.56	137.3111
439.89	141.1878
443.98	133.9131
444.90	128.2203
445.03	128.2333
445.03	128.2333
445.03	128.2333
445.03	128.2333
453.90	132.9579
463.38	130.2930
468.07	106.2201
473.00	134.7992
475.06	117.2583
475.35	113.3407
476.78	117.4006
477.59	112.5319
477.96	110.5863
482.03	119.8139
484.57	0.0000
487.03	118.2432
490.36	0.0000
492.35	0.0000
497.08	122.0611
507.63	0.0000
510.53	0.0000
510.84	117.1357
511.00	117.1477
511.85	129.6767
511.85	129.6767
513.99	111.3079
513.99	111.3079
520.41	124.9879
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	121.6496
529.87	0.0000
531.02	110.5023
537.32	122.2510
543.00	94.8525
546.56	0.0000
549.76	117.0002
552.65	108.9119
555.20	101.8114
563.23	119.0209
563.90	120.1127
568.70	118.3714
569.32	104.7925
569.50	113.1864
569.67	113.1996
573.80	115.5833
574.00	120.8511
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	116.2305
585.48	0.0000
591.81	112.5784
592.07	108.3476
593.00	109.4677
595.88	119.2352
600.56	125.4290
602.52	0.0000
602.71	119.3519
602.71	119.3519
603.60	122.9764
604.41	131.9510
604.70	139.1057
609.31	124.4536

609.31	124.4536
609.31	124.4536
609.31	124.4536
610.33	112.7186
612.46	112.8545
614.37	109.3910
618.01	120.9978
621.84	113.4543
621.84	113.4543
631.29	102.1080
633.02	81.5460
633.10	88.0737
634.78	114.2772
635.90	113.2574
636.97	103.5189
645.85	104.0222
646.12	104.0385
656.30	94.3862
657.75	102.3310
657.90	0.0000
661.65	115.9563
661.65	115.9563
664.57	0.0000
666.33	115.4526
666.33	115.4526
675.00	92.6798
677.61	89.0938
685.20	88.5155
692.80	112.2461
695.00	108.6273
696.49	122.7672
696.49	122.7672
697.00	128.4236
697.49	132.2076
698.33	132.2621
698.50	132.2736
699.00	131.3696
702.63	113.7501
706.10	113.9495
706.58	0.0000
706.67	113.0420
709.31	101.8718
711.68	110.4921
713.82	103.0479
717.42	88.0806
720.50	109.5572
721.93	0.0000
722.20	113.9209
722.78	97.6758
722.78	97.6758
722.89	97.6800
722.95	97.6821
723.30	100.9576
724.18	91.2266
727.18	90.4096
733.00	99.8037
735.90	93.8372
739.58	87.1287
742.81	100.6912
744.21	111.3130
747.13	94.1739
751.79	90.5308
752.31	97.2972
753.82	96.4030
755.35	0.0000
756.15	82.9993
756.87	84.9582
763.93	123.0209
765.79	107.6171
766.42	104.7393
766.84	107.6690
776.49	117.9007
778.00	106.2812
778.57	102.4088
778.89	101.4482
783.80	85.0583
785.46	105.6709
792.07	92.5324

795.84	74.1533
796.30	77.5400
798.80	102.9418
801.93	88.7238
805.60	78.9958
810.29	100.9313
810.76	90.0669
815.85	77.3748
817.79	0.0000
818.51	84.4189
819.60	81.4795
826.30	84.7112
828.27	0.0000
831.60	102.8889
831.96	101.9066
834.83	104.0339
836.80	0.0000
846.75	85.4687
848.13	77.4715
856.28	0.0000
856.80	67.5168
860.37	83.2249
867.32	63.9062
867.82	63.5821
871.10	77.2169
873.19	73.2173
874.81	79.3727
875.33	0.0000
876.40	83.4981
879.36	77.4844
880.27	72.4142
880.51	70.3813
881.50	65.3086
883.24	71.4825
884.67	81.7432
889.25	80.8757
896.60	67.7711
898.02	80.1407
899.00	85.3117
903.28	93.5504
911.07	69.2055
911.07	69.2055
911.07	69.2055
919.63	62.1887
920.93	60.8390
925.00	50.8971
925.24	55.0574
926.50	71.7150
935.52	79.2734
937.48	87.6863
944.10	94.1949
946.00	82.7433
949.00	71.3065
962.29	59.6283
964.01	61.4768
966.15	84.4499
968.20	84.5150
969.11	84.5459
969.11	84.5459
969.11	84.5459
977.42	74.5156
980.50	81.7295
983.50	65.8826
989.30	69.2225
996.32	67.7271
1001.03	75.1819
1001.68	77.0332
1004.76	56.9238
1021.30	0.0000
1024.50	0.0000
1034.80	49.8184
1036.00	65.9385
1037.82	77.1322
1038.57	73.4343
1038.76	0.0000
1045.16	58.7021
1046.59	75.5137
1048.07	77.4188

1050.47	71.8840
1050.47	71.8840
1062.04	60.9307
1063.62	63.7785
1076.63	69.7260
1077.35	65.9717
1078.86	62.2364
1085.78	85.0718
1099.22	80.7192
1112.02	63.4269
1112.84	56.7670
1115.52	66.8457
1120.29	85.1261
1120.29	85.1261
1120.29	85.1261
1120.29	85.1261
1120.51	85.1323
1121.28	85.1541
1124.00	0.0000
1129.67	58.7698
1131.51	0.0000
1147.95	0.0000
1167.94	82.5957
1173.22	76.8977
1175.09	97.3982
1177.93	100.4135
1189.05	82.1836
1204.90	84.5663
1205.75	0.0000
1213.00	81.8276
1221.42	100.8225
1230.97	93.6892
1235.34	100.7672
1236.41	0.0000
1238.25	79.4922
1246.25	79.0262
1260.41	0.0000
1271.85	61.2404
1274.45	77.3625
1274.54	81.3842
1291.56	56.5527
1298.22	0.0000
1312.09	56.8984
1325.50	48.9609
1325.50	48.9609
1332.49	55.1941
1333.61	49.0765
1360.21	41.2109
1362.66	0.0000
1365.15	34.0474
1368.21	48.1885
1368.53	0.0000
1376.25	34.1544
1384.27	41.7521
1394.10	54.0893
1395.20	55.1461
1407.95	40.7220
1434.06	25.2397
1436.60	32.6240
1457.56	0.0000
1460.81	22.2444
1489.15	35.2190
1509.49	30.0420
1596.49	29.7512
1620.62	35.7207
1678.03	0.0000
1691.02	16.6908
1691.02	16.6908
1706.46	0.0000
1750.46	0.0000
1764.49	17.7517
1764.49	17.7517
1764.49	17.7517
1764.49	17.7517
1770.23	17.7745
1771.40	17.7794
1791.20	0.0000
1808.65	17.1432

1836.01

16.2319

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101013

Total Uranium Activity	1.1369E+01	ug/g
Total Uranium Counting Unc.	8.0023E+00	ug/g
Total Uranium Tpu	4.0828E-06	ug/g
Total Uranium Mda	3.6977E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GROSS GAMMA REPORT                            *
*
*****
*
*  BATCH ID      : 944037                SAMPLE ID   : G245101013                *
*  ANALYST       : MXR1                  DETECTOR    : GAM18                    *
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE:  2-FEB-2010 11:30:32.95  SAMPLE ALQT: 108.230 GRAM          *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.396E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.466E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.080E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.489E+00

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## VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:32:01.94

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101014.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:31:04.
Sample ID          : G245101014 Sample quantity : 1.38100E+02 GRAM
Detector name      : GAM19 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.51 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.31*	160	537	1.32	126.48	122	9	2.22E-02	27.8	
2	1	74.71	304	592	1.47	149.27	145	15	4.23E-02	16.1	5.43E+00
3	1	77.17	629	485	1.33	154.18	145	15	8.73E-02	7.7	
4	0	86.54	136	835	3.27	172.90	167	12	1.89E-02	43.2	
5	0	92.98*	384	496	1.48	185.78	182	9	5.33E-02	12.2	
6	0	129.10	79	423	1.38	257.95	253	10	1.09E-02	50.3	
7	0	186.06*	313	342	1.49	371.78	367	12	4.35E-02	13.5	
8	0	210.51	20	320	1.14	420.66	414	9	2.74E-03	165.4	
9	4	238.56*	1245	251	1.31	476.71	471	17	1.73E-01	3.6	1.83E+00
10	4	241.48	340	213	1.93	482.55	471	17	4.72E-02	11.7	
11	0	270.04	111	232	1.54	539.63	536	12	1.55E-02	29.0	
12	0	295.05*	344	207	1.25	589.64	585	10	4.78E-02	9.6	
13	0	300.72	105	244	3.57	600.95	595	15	1.46E-02	34.1	
14	0	328.20	188	250	3.17	655.90	647	20	2.61E-02	22.0	
15	0	338.11	254	204	1.24	675.69	670	12	3.53E-02	12.9	
16	0	351.73*	673	210	1.33	702.92	695	15	9.34E-02	6.1	
17	0	462.08	90	99	1.29	923.50	918	12	1.24E-02	24.6	
18	0	510.88*	136	144	2.17	1021.06	1013	19	1.88E-02	25.7	
19	0	569.49*	161	188	3.03	1138.23	1129	25	2.24E-02	24.9	
20	0	583.01*	416	115	1.52	1165.27	1157	17	5.78E-02	7.7	
21	0	609.35*	461	130	1.65	1217.93	1211	16	6.41E-02	7.3	
22	0	661.82*	138	105	1.60	1322.84	1315	14	1.91E-02	18.0	
23	0	727.46	88	64	1.95	1454.09	1449	14	1.22E-02	22.1	
24	0	769.32	21	62	0.88	1537.79	1532	9	2.87E-03	72.7	
25	0	793.13	97	169	11.63	1585.40	1564	30	1.34E-02	40.9	
26	0	911.65*	238	74	1.52	1822.42	1815	14	3.31E-02	10.1	
27	0	969.60	118	126	1.45	1938.32	1930	13	1.64E-02	21.5	
28	0	1121.07	119	57	1.77	2241.29	2235	16	1.66E-02	17.7	
29	0	1378.41	38	30	1.01	2756.11	2746	17	5.29E-03	36.6	
30	0	1461.09*	1074	25	1.99	2921.54	2911	20	1.49E-01	3.3	
31	0	1765.00*	87	10	2.51	3529.72	3523	14	1.21E-02	13.7	
32	0	1847.34	16	2	1.86	3694.54	3688	11	2.18E-03	32.2	

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



## VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 13:32:05

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101014.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:31:04  
 Sample ID : G245101014 Sample quantity : 138.10 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA19 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.51 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	*	2.341E+01	2.321E+00	4.618E-01	3.439E-02	50.700
CD-109	+	88.03	*	1.696E+00	1.472E+00	1.536E+00	1.375E-01	1.104
SN-126	+	64.28		1.248E+00	7.163E-01	7.842E-01	1.145E-01	1.591
	+	86.94		6.878E-01	6.590E-01	5.816E-01	2.408E-01	1.183
	+	87.57	*	1.655E-01	1.437E-01	1.572E-01	1.402E-02	1.052
BA-137M	+	661.65	*	1.810E-01	6.617E-02	5.632E-02	3.279E-03	3.213
CS-137	+	661.65	*	1.913E-01	6.996E-02	5.953E-02	3.481E-03	3.213
TL-208		277.35		2.427E-01	3.872E-01	6.148E-01	6.487E-02	0.395
	+	510.84		6.004E-01	3.145E-01	2.061E-01	2.105E-02	2.912
	+	583.14	*	5.254E-01	8.877E-02	5.180E-02	3.522E-03	10.144
		860.37		3.678E-01	2.913E-01	5.172E-01	4.631E-02	0.711
BI-211		72.87		8.187E+00	3.533E+00	5.468E+00	4.284E-01	1.497
	+	351.07	*	3.731E+00	5.152E-01	3.298E-01	2.106E-02	11.311
PB-212	+	74.81		1.528E+00	5.253E-01	5.555E-01	6.811E-02	2.751
	+	77.11		1.790E+00	3.106E-01	3.161E-01	2.554E-02	5.663
	+	87.30		7.652E-01	6.689E-01	6.448E-01	8.630E-02	1.187
	+	238.63	*	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
	+	300.09		1.974E+00	1.356E+00	1.063E+00	8.779E-02	1.857
PO-212	+	74.81		1.528E+00	5.253E-01	5.555E-01	6.811E-02	2.751
	+	77.11		1.790E+00	3.106E-01	3.161E-01	2.554E-02	5.663
	+	87.30		7.652E-01	6.689E-01	6.448E-01	8.630E-02	1.187
		115.19		1.977E+00	3.611E+00	6.001E+00	3.821E-01	0.329
	+	238.63	*	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
	+	300.09		1.974E+00	1.356E+00	1.063E+00	8.779E-02	1.857
BI-214	+	609.31	*	1.099E+00	1.821E-01	9.956E-02	7.828E-03	11.037
	+	1120.29		1.478E+00	5.410E-01	4.186E-01	3.830E-02	3.532
	+	1764.49		1.451E+00	4.073E-01	2.614E-01	1.584E-02	5.550
PB-214	+	74.81		2.633E+00	8.927E-01	9.571E-01	1.039E-01	2.751
	+	77.11		3.069E+00	5.815E-01	5.419E-01	6.017E-02	5.663
	+	87.30		1.311E+00	1.143E+00	1.105E+00	1.300E-01	1.187
	+	241.98		2.481E+00	6.147E-01	4.756E-01	3.793E-02	5.216
	+	295.21		1.130E+00	2.378E-01	2.053E-01	1.753E-02	5.504
	+	351.92	*	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
PO-214	+	74.81		2.633E+00	8.927E-01	9.571E-01	1.039E-01	2.751

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		3.069E+00	5.815E-01	5.419E-01	6.017E-02	5.663
	+	87.30		1.311E+00	1.143E+00	1.105E+00	1.300E-01	1.187
	+	241.98		2.481E+00	6.147E-01	4.756E-01	3.793E-02	5.216
	+	295.21		1.130E+00	2.378E-01	2.053E-01	1.753E-02	5.504
	+	351.92	*	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
	+	74.81		1.528E+00	5.253E-01	5.555E-01	6.811E-02	2.751
	+	77.11		1.790E+00	3.106E-01	3.161E-01	2.554E-02	5.663
PO-218	+	87.30		7.652E-01	6.689E-01	6.448E-01	8.630E-02	1.187
	+	238.63	*	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
	+	300.09		1.974E+00	1.356E+00	1.063E+00	8.779E-02	1.857
	+	74.81		2.633E+00	8.927E-01	9.571E-01	1.039E-01	2.751
	+	77.11		3.069E+00	5.815E-01	5.419E-01	6.017E-02	5.663
	+	87.30		1.311E+00	1.143E+00	1.105E+00	1.300E-01	1.187
	+	241.98		2.481E+00	6.147E-01	4.756E-01	3.793E-02	5.216
RA-224	+	295.21		1.130E+00	2.378E-01	2.053E-01	1.753E-02	5.504
	+	351.92	*	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
	+	240.98	*	4.704E+00	1.135E+00	1.050E+00	5.949E-02	4.481
	+	609.31	*	1.099E+00	1.821E-01	9.956E-02	7.828E-03	11.037
	+	1120.29		1.478E+00	5.410E-01	4.186E-01	3.830E-02	3.532
	+	1764.49		1.451E+00	4.073E-01	2.614E-01	1.584E-02	5.550
	+	338.32		1.552E+00	7.485E-01	3.837E-01	1.564E-01	4.046
AC-228	+	911.07	*	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215
	+	969.11		1.170E+00	5.717E-01	4.029E-01	9.338E-02	2.904
	+	338.32		1.552E+00	7.485E-01	3.837E-01	1.564E-01	4.046
	+	911.07	*	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215
	+	969.11		1.170E+00	5.717E-01	4.029E-01	9.338E-02	2.904
	+	74.81		1.559E+00	5.160E-01	5.666E-01	4.543E-02	2.751
	+	77.11		1.826E+00	3.168E-01	3.225E-01	2.605E-02	5.663
TH-228	+	87.30		7.806E-01	6.779E-01	6.578E-01	5.850E-02	1.187
	+	238.63	*	1.543E+00	1.576E-01	9.416E-02	6.796E-03	16.382
	+	300.09		2.014E+00	1.815E+00	1.084E+00	6.391E-01	1.857
	+	609.31	*	1.099E+00	1.821E-01	9.955E-02	7.827E-03	11.037
	+	1120.29		1.478E+00	5.410E-01	4.186E-01	3.829E-02	3.532
	+	1764.49		1.451E+00	4.073E-01	2.614E-01	1.584E-02	5.550
	+	338.32		1.552E+00	4.098E-01	3.837E-01	2.218E-02	4.046
TH-232	+	911.07	*	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215
	+	969.11		1.170E+00	5.717E-01	4.029E-01	9.338E-02	2.904
	+	63.29	*	3.152E+00	1.835E+00	2.013E+00	3.523E-01	1.566
	+	92.38		3.014E+00	9.108E-01	1.034E+00	1.857E-01	2.915
	+	609.31	*	1.099E+00	1.821E-01	9.955E-02	7.827E-03	11.037
	+	1120.29		1.478E+00	5.410E-01	4.186E-01	3.829E-02	3.532
	+	1764.49		1.451E+00	4.073E-01	2.614E-01	1.584E-02	5.550
NP-237	+	86.50	*	4.859E-01	4.337E-01	4.126E-01	9.260E-02	1.177
	+	95.87		-1.771E+00	1.174E+00	1.438E+00	3.508E-01	-1.232
	+	63.29	*	3.152E+00	1.835E+00	2.013E+00	3.523E-01	1.566
	+	92.38		3.014E+00	7.746E-01	1.034E+00	8.636E-02	2.915
	+	74.67	*	2.478E-01	8.196E-02	9.031E-02	7.162E-03	2.744
	+	86.72		1.822E+01	1.582E+01	1.544E+01	1.365E+00	1.180
	+	117.66		-2.789E+00	3.778E+00	5.967E+00	3.707E-01	-0.467

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	142.18	*	2.542E+01	1.817E+01	3.091E+01	1.720E+00	0.822
		511.00	*	1.297E-01	6.706E-02	4.454E-02	2.628E-03	2.912

---- 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	*	1.498E-01	3.482E-01	5.916E-01	4.016E-02	0.253
NA-22		1274.54	*	3.399E-02	3.971E-02	7.139E-02	4.762E-03	0.476
NA-24		1368.53	*	-6.496E+01	3.971E-02	Half-Life too short		
AL-26		1129.67		1.321E-01	1.674E+00	2.533E+00	1.563E-01	0.052
		1808.65	*	1.318E-02	3.242E-02	5.638E-02	3.292E-03	0.234
TI-44		67.85		-6.554E-02	5.310E-02	7.214E-02	5.507E-03	-0.908
	+	78.38	*	3.304E-01	5.732E-02	7.761E-02	6.335E-03	4.257
SC-46		889.25	*	9.062E-03	3.850E-02	6.357E-02	5.524E-03	0.143
	+	1120.51		2.635E-01	9.482E-02	1.287E-01	8.115E-03	2.048
V-48		944.10		1.149E-01	1.021E+00	1.661E+00	1.399E-01	0.069
		983.50	*	-2.501E-02	8.454E-02	1.315E-01	1.057E-02	-0.190
		1312.09		-2.665E-02	7.934E-02	1.258E-01	8.949E-03	-0.212
CR-51		320.08	*	1.251E-01	4.415E-01	6.870E-01	4.445E-02	0.182
MN-52		744.21		5.634E-02	4.039E-01	6.650E-01	4.522E-02	0.085
		848.13		-6.281E-01	1.134E+01	1.823E+01	1.482E+00	-0.034
		935.52		7.073E-01	4.800E-01	8.480E-01	7.209E-02	0.834
		1246.25		4.515E+00	1.105E+01	1.910E+01	1.207E+00	0.236
		1333.61		-7.756E-02	7.854E+00	1.300E+01	9.575E-01	-0.006
		1434.06	*	3.567E-01	4.042E-01	7.405E-01	5.342E-02	0.482
MN-54		834.83	*	1.075E-02	3.498E-02	5.817E-02	4.627E-03	0.185
CO-56		846.75	*	-3.436E-02	3.951E-02	5.826E-02	4.727E-03	-0.590
		977.42		-2.239E+00	3.131E+00	4.656E+00	3.773E-01	-0.481
		1037.82		-5.041E-02	3.015E-01	4.977E-01	3.959E-02	-0.101
		1175.09		1.096E+00	2.101E+00	3.665E+00	2.016E-01	0.299
		1238.25		7.401E-02	8.701E-02	1.539E-01	1.011E-02	0.481
		1360.21		-5.057E-01	9.994E-01	1.550E+00	1.137E-01	-0.326
		1771.40		-1.638E-03	2.462E-01	3.439E-01	2.073E-02	-0.005
CO-57		122.06	*	-1.205E-02	2.500E-02	3.965E-02	2.366E-03	-0.304
		136.48		3.450E-03	2.176E-01	3.535E-01	2.334E-02	0.010
CO-58		810.76	*	-2.451E-02	3.888E-02	5.908E-02	4.528E-03	-0.415
FE-59		142.65		4.290E+00	3.003E+00	5.114E+00	2.844E-01	0.839
		192.34		-5.160E-01	1.174E+00	1.602E+00	1.861E-01	-0.322
		1099.22	*	1.026E-02	8.618E-02	1.457E-01	1.094E-02	0.070
		1291.56		5.053E-02	1.216E-01	2.104E-01	1.742E-02	0.240
CO-60		1173.22		-6.889E-03	4.286E-02	6.978E-02	3.824E-03	-0.099
		1332.49	*	2.688E-03	3.279E-02	5.490E-02	4.045E-03	0.049
ZN-65		1115.52	*	-1.044E-02	9.565E-02	1.358E-01	8.684E-03	-0.077
GE-68		1077.35	*	3.485E-01	1.198E+00	2.057E+00	1.423E-01	0.169
AS-73		53.44	*	-2.134E-01	8.117E-01	1.328E+00	9.825E-02	-0.161
AS-74		595.88	*	4.513E-02	1.062E-01	1.798E-01	1.065E-02	0.251
		634.78		-1.319E-03	4.089E-01	6.694E-01	3.934E-02	-0.002
SE-75		66.05		-1.728E+00	5.512E+00	7.839E+00	7.525E-01	-0.220

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		96.73		-1.502E+00	9.329E-01	1.196E+00	1.574E-01	-1.256
		121.11		-1.049E-01	1.376E-01	2.152E-01	2.016E-02	-0.487
		136.00		1.210E-02	4.128E-02	6.778E-02	3.903E-03	0.178
		198.60		-1.682E+00	1.819E+00	2.796E+00	1.909E-01	-0.602
		264.65	*	4.715E-02	4.659E-02	7.577E-02	4.406E-03	0.622
		279.53		5.724E-02	1.051E-01	1.814E-01	1.136E-02	0.316
		303.91		-4.054E-01	2.267E+00	3.272E+00	3.125E-01	-0.124
		400.65		-7.170E-02	2.547E-01	4.170E-01	3.744E-02	-0.172
BR-77	+	87.88		1.502E-03	2.547E-01	Half-Life	too short	
		200.40		-1.380E-04	2.547E-01	Half-Life	too short	
	+	239.00		1.003E-03	2.547E-01	Half-Life	too short	
		249.79		-1.368E-04	2.547E-01	Half-Life	too short	
		281.68		-5.367E-04	2.547E-01	Half-Life	too short	
		297.23		1.166E-03	2.547E-01	Half-Life	too short	
		303.76		-1.334E-04	2.547E-01	Half-Life	too short	
		439.47		4.170E-04	2.547E-01	Half-Life	too short	
		484.57		1.315E-04	2.547E-01	Half-Life	too short	
		520.65	*	-5.442E-06	2.547E-01	Half-Life	too short	
		574.64		8.749E-04	2.547E-01	Half-Life	too short	
		578.91		4.280E-04	2.547E-01	Half-Life	too short	
		585.48		5.732E-03	2.547E-01	Half-Life	too short	
		755.35		-5.960E-04	2.547E-01	Half-Life	too short	
		817.79		-3.715E-04	2.547E-01	Half-Life	too short	
SR-82		698.33		-2.242E+01	3.758E+01	5.829E+01	3.642E+00	-0.385
		776.49	*	-3.088E-01	4.229E-01	6.406E-01	4.613E-02	-0.482
		1395.20		-2.288E+00	1.139E+01	1.831E+01	1.334E+00	-0.125
RB-83		520.41	*	1.105E-02	6.858E-02	1.083E-01	6.400E-03	0.102
		529.64		3.287E-02	9.944E-02	1.680E-01	9.947E-03	0.196
		552.65		-1.511E-01	1.979E-01	3.067E-01	1.820E-02	-0.493
RB-84		881.50	*	2.749E-02	7.381E-02	1.234E-01	1.059E-02	0.223
KR-85		513.99	*	9.940E+00	7.609E+00	1.215E+01	7.172E-01	0.818
SR-85		513.99	*	5.364E-02	4.106E-02	6.555E-02	3.870E-03	0.818
RB-86		1076.63	*	1.218E-01	8.783E-01	1.489E+00	1.031E-01	0.082
Y-88		898.02		2.264E-02	4.219E-02	7.138E-02	6.318E-03	0.317
		1836.01	*	-2.937E-03	3.310E-02	5.297E-02	3.024E-03	-0.055
ZR-88		392.90	*	1.378E-02	3.073E-02	5.252E-02	2.924E-03	0.262
Y-91		1204.90	*	1.808E+00	1.714E+01	2.882E+01	1.683E+00	0.063
NB-94		702.63	*	-4.125E-03	3.108E-02	5.011E-02	3.156E-03	-0.082
		871.10		-1.314E-02	3.251E-02	5.034E-02	4.249E-03	-0.261
NB-95		765.79	*	4.351E-02	4.474E-02	7.011E-02	4.954E-03	0.621
NB-95M		235.69	*	5.402E-01	1.683E-01	2.683E-01	1.987E-02	2.013
ZR-95		724.18		-1.974E-02	1.101E-01	1.517E-01	1.139E-02	-0.130
		756.15	*	-2.633E-02	7.006E-02	1.100E-01	8.802E-03	-0.239
NB-97		657.90	*	4.640E+00	7.006E-02	Half-Life	too short	
		1024.50		6.565E+02	7.006E-02	Half-Life	too short	
ZR-97		254.15		3.351E+02	7.006E-02	Half-Life	too short	
		355.39		4.306E+02	7.006E-02	Half-Life	too short	
		507.63	*	5.323E+02	7.006E-02	Half-Life	too short	
		602.52		-5.743E+02	7.006E-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			3.502E+02	7.006E-02	Half-Life	too short	
	1147.95			-4.938E+01	7.006E-02	Half-Life	too short	
	1362.66			5.989E+02	7.006E-02	Half-Life	too short	
	1750.46			2.020E+02	7.006E-02	Half-Life	too short	
MO-99	140.51			-5.309E+01	9.475E+01	1.487E+02	4.001E+01	-0.357
	181.06			3.922E+01	6.221E+01	9.052E+01	1.537E+01	0.433
	366.43			-2.503E+01	2.871E+02	4.773E+02	2.717E+01	-0.052
	739.58	*		1.589E+01	3.788E+01	6.371E+01	9.049E+00	0.249
	778.00			-1.167E+02	1.200E+02	1.635E+02	1.181E+01	-0.713
TC-99M	140.51	*		-1.554E+16	1.200E+02	Half-Life	too short	
RH-101	127.23			3.536E-02	3.675E-02	5.484E-02	3.200E-03	0.645
	198.01	*		-2.276E-02	3.249E-02	5.056E-02	2.743E-03	-0.450
	325.23			1.956E-01	2.501E-01	3.844E-01	2.231E-02	0.509
RH-102	418.52			3.151E-02	2.727E-01	4.567E-01	2.590E-02	0.069
	475.06	*		3.576E-03	2.897E-02	4.834E-02	2.822E-03	0.074
	631.29			2.641E-02	5.237E-02	8.911E-02	5.242E-03	0.296
	697.49			-2.618E-02	7.785E-02	1.186E-01	7.395E-03	-0.221
	766.84			6.565E-02	1.193E-01	1.776E-01	1.257E-02	0.370
	1046.59			-7.760E-02	1.017E-01	1.572E-01	1.151E-02	-0.494
	1112.84			-1.693E-01	2.224E-01	3.264E-01	2.095E-02	-0.519
RU-103	497.08	*		1.735E-02	4.170E-02	7.082E-02	8.981E-03	0.245
	610.33	+		1.293E+01	2.748E+00	3.078E+00	4.759E-01	4.200
RH-106	511.85	+		6.537E-01	3.380E-01	4.252E-01	2.510E-02	1.537
	621.84	*		1.573E-01	2.896E-01	4.946E-01	5.829E-02	0.318
	1050.47			-1.129E-01	2.234E+00	3.726E+00	2.709E-01	-0.030
RU-106	511.85	+		6.537E-01	3.380E-01	4.252E-01	2.510E-02	1.537
	621.84	*		1.573E-01	2.891E-01	4.946E-01	2.916E-02	0.318
	1050.47			-1.129E-01	2.234E+00	3.726E+00	2.709E-01	-0.030
AG-108M	433.93	*		-2.640E-02	3.086E-02	4.828E-02	3.007E-03	-0.547
	614.37			-5.859E-03	4.118E-02	5.750E-02	3.674E-03	-0.102
	722.95			1.041E-02	4.289E-02	6.214E-02	4.337E-03	0.168
AG-110M	657.75	*		7.747E-03	3.759E-02	5.444E-02	3.378E-03	0.142
	677.61			-2.951E-02	2.876E-01	4.655E-01	2.956E-02	-0.063
	706.67			-6.666E-02	2.002E-01	3.172E-01	2.114E-02	-0.210
	763.93			-1.145E-01	1.783E-01	2.291E-01	1.681E-02	-0.500
	884.67			-1.563E-02	4.799E-02	7.487E-02	6.666E-03	-0.209
	937.48			1.408E-02	1.134E-01	1.847E-01	1.625E-02	0.076
	1384.27			3.071E-02	1.467E-01	2.180E-01	1.654E-02	0.141
IN-111	171.28			2.882E-01	3.231E+00	5.237E+00	2.749E-01	0.055
	245.39	*		-1.399E-01	3.816E+00	5.302E+00	3.014E-01	-0.026
IN-113M	391.69	*		-1.035E-02	4.464E-02	7.340E-02	4.380E-03	-0.141
SN-113	391.69	*		-1.035E-02	4.464E-02	7.340E-02	4.380E-03	-0.141
IN-114M	190.27	*		-2.645E-02	2.153E-01	3.003E-01	1.614E-02	-0.088
CD-115	260.90			-1.809E-05	2.153E-01	Half-Life	too short	
	492.35			7.879E-05	2.153E-01	Half-Life	too short	
	527.90	*		1.728E-06	2.153E-01	Half-Life	too short	
SN-117M	156.02			4.511E+00	2.979E+00	5.087E+00	2.726E-01	0.887
	158.56	*		1.806E-03	7.284E-02	1.179E-01	6.278E-03	0.015
SB-122	563.90	*		1.779E+00	8.268E+00	1.203E+01	7.143E-01	0.148

---- 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			1.354E+02	1.472E+02	2.568E+02	1.588E+01	0.527
	159.00	*		-1.845E+03	1.472E+02	Half-Life	too short	
	528.96			9.148E+04	1.472E+02	Half-Life	too short	
TE-123M	159.00	*		-1.977E-02	3.071E-02	4.836E-02	2.612E-03	-0.409
I-124	602.71	*		-3.975E-01	1.542E+00	2.126E+00	1.258E-01	-0.187
	722.78			2.066E+00	1.001E+01	1.444E+01	9.440E-01	0.143
	1325.50			-1.461E+01	6.243E+01	1.002E+02	7.296E+00	-0.146
SB-124	1376.25			1.112E+02	6.809E+01	1.304E+02	9.538E+00	0.853
	1509.49			-9.171E+00	3.495E+01	5.554E+01	3.907E+00	-0.165
	1691.02			5.890E+00	7.037E+00	1.332E+01	8.521E-01	0.442
	602.71			-1.091E-02	4.232E-02	5.835E-02	3.455E-03	-0.187
	645.85			4.145E-02	4.819E-01	7.943E-01	5.238E-02	0.052
	709.31			6.249E-01	2.730E+00	4.533E+00	2.891E-01	0.138
	713.82			-5.705E-01	1.608E+00	2.537E+00	2.685E-01	-0.225
	722.78			8.221E-02	3.981E-01	5.743E-01	3.895E-02	0.143
	968.20	+		1.274E+01	5.578E+00	7.589E+00	6.219E-01	1.678
	1045.16			3.002E-01	2.231E+00	3.788E+00	2.779E-01	0.079
	1325.50			-6.207E-01	2.652E+00	4.257E+00	3.100E-01	-0.146
	1368.21			-6.699E-01	1.956E+00	2.841E+00	3.604E-01	-0.236
	1436.60			2.152E+00	3.712E+00	6.582E+00	4.744E-01	0.327
SB-125	1691.02	*		5.527E-02	6.604E-02	1.250E-01	8.562E-03	0.442
	427.89	*		-1.079E-02	8.635E-02	1.423E-01	8.475E-03	-0.076
	463.38	+		7.749E-01	3.853E-01	5.220E-01	3.535E-02	1.484
	600.56			-3.757E-02	1.656E-01	2.671E-01	1.820E-02	-0.141
TE-125M	635.90			-3.822E-01	2.679E-01	3.846E-01	2.637E-02	-0.994
	109.28	*		4.464E+00	9.918E+00	1.644E+01	1.455E+00	0.272
	388.63			1.717E-04	2.600E-01	4.334E-01	2.419E-02	0.000
I-126	666.33	*		4.528E-02	2.497E-01	3.603E-01	2.117E-02	0.126
	753.82			2.268E-01	1.817E+00	2.986E+00	2.066E-01	0.076
	223.80			1.838E-01	5.034E+00	8.084E+00	4.511E-01	0.023
SB-126	278.60			3.472E+00	3.109E+00	5.370E+00	3.108E-01	0.647
	296.50	+		1.477E+01	2.966E+00	4.573E+00	2.659E-01	3.229
	414.70			-6.534E-02	9.101E-02	1.443E-01	8.163E-03	-0.453
	415.30			-3.165E+00	7.523E+00	1.217E+01	6.889E-01	-0.260
	555.20			2.696E+00	4.964E+00	8.491E+00	5.039E-01	0.317
	573.80			2.096E-01	1.418E+00	2.225E+00	1.320E-01	0.094
	593.00			-7.261E-01	1.153E+00	1.797E+00	1.065E-01	-0.404
	656.30			-1.635E+00	4.818E+00	6.538E+00	3.815E-01	-0.250
	666.33			1.913E-02	1.055E-01	1.523E-01	8.947E-03	0.126
	675.00			-8.193E-01	2.348E+00	3.716E+00	2.221E-01	-0.220
	695.00			2.736E-02	1.058E-01	1.694E-01	1.052E-02	0.161
	697.00			-9.179E-02	3.588E-01	5.506E-01	3.431E-02	-0.167
	720.50	*		1.273E-01	1.833E-01	3.003E-01	1.955E-02	0.424
	856.80			-2.932E-01	6.430E-01	9.971E-01	8.224E-02	-0.294
	989.30			-1.093E+00	1.583E+00	2.346E+00	1.872E-01	-0.466
	1034.80			8.538E+00	1.121E+01	1.998E+01	1.491E+00	0.427
	1213.00			-6.490E+00	5.659E+00	8.413E+00	4.991E-01	-0.771
SB-127	61.10			1.517E+02	1.517E+02	2.276E+02	2.733E+01	0.666
	252.40			-2.638E+00	1.036E+01	1.623E+01	6.813E+00	-0.163

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-7.719E+00	5.492E+01	7.968E+01	8.779E+00	-0.097
	411.60			1.349E+00	2.662E+01	4.442E+01	6.915E+00	0.030
	444.90			-4.402E+00	2.285E+01	3.745E+01	4.637E+00	-0.118
	473.00			-3.628E+00	4.036E+00	6.241E+00	7.959E-01	-0.581
	543.00			4.192E+00	3.484E+01	5.794E+01	8.305E+00	0.072
	603.60			-1.422E+01	2.866E+01	3.831E+01	4.763E+00	-0.371
	685.20	*		1.480E+00	3.069E+00	5.201E+00	5.926E-01	0.284
	698.50			-2.094E+01	3.524E+01	5.445E+01	8.650E+00	-0.385
	722.20			4.991E+01	7.179E+01	1.094E+02	1.249E+01	0.456
	783.80			1.435E+01	1.021E+01	1.628E+01	2.125E+00	0.881
XE-127	57.60			2.818E+00	6.844E+00	1.064E+01	7.970E-01	0.265
	145.22			5.368E-02	7.921E-01	1.267E+00	6.992E-02	0.042
	172.10			-3.816E-02	1.294E-01	2.061E-01	1.083E-02	-0.185
	202.84	*		1.861E-02	5.184E-02	8.181E-02	4.463E-03	0.228
	374.96			-9.903E-02	2.058E-01	3.336E-01	1.886E-02	-0.297
I-131	80.18			7.208E+00	8.886E+00	1.128E+01	9.463E-01	0.639
	284.30			-4.234E-02	2.181E+00	3.668E+00	2.385E-01	-0.012
	364.48	*		-6.688E-02	1.737E-01	2.839E-01	1.829E-02	-0.236
	636.97			-1.002E+00	2.234E+00	3.520E+00	2.328E-01	-0.285
	722.89			2.524E+00	1.097E+01	1.588E+01	1.058E+00	0.159
TE-132	49.72			-6.083E+01	4.995E+01	7.813E+01	8.807E+00	-0.779
	111.76			-3.263E+01	8.722E+01	1.394E+02	1.523E+01	-0.234
	116.30			4.763E+01	7.789E+01	1.296E+02	1.393E+01	0.368
	228.16	*		2.373E-01	1.877E+00	3.025E+00	4.651E-01	0.078
BA-133	53.15			-6.945E-01	3.330E+00	5.461E+00	4.033E-01	-0.127
	79.62			3.399E+00	1.630E+00	2.291E+00	3.441E-01	1.484
	81.00			7.299E-02	1.421E-01	1.530E-01	2.407E-02	0.477
	276.40			4.668E-01	3.852E-01	6.041E-01	7.827E-02	0.773
	302.84			9.362E-02	1.437E-01	2.200E-01	2.567E-02	0.426
	356.01	*		4.143E-02	4.418E-02	6.884E-02	7.934E-03	0.602
	383.85			-7.714E-02	2.887E-01	4.738E-01	5.103E-02	-0.163
I-133	510.53	+		6.448E+01	2.887E-01	Half-Life	too short	
	529.87	*		6.484E-02	2.887E-01	Half-Life	too short	
	706.58			-7.031E+00	2.887E-01	Half-Life	too short	
	856.28			-2.563E+01	2.887E-01	Half-Life	too short	
	875.33			9.903E-01	2.887E-01	Half-Life	too short	
	1236.41			2.360E+01	2.887E-01	Half-Life	too short	
	1298.22			-9.773E+00	2.887E-01	Half-Life	too short	
CS-134	475.35			4.801E-01	1.921E+00	3.230E+00	1.885E-01	0.149
	563.23			1.656E-01	4.063E-01	6.026E-01	3.649E-02	0.275
	569.32	+		1.111E+00	5.572E-01	4.719E-01	2.880E-02	2.355
	604.70			-1.442E-02	3.373E-02	4.548E-02	2.705E-03	-0.317
	795.84	*		7.413E-02	5.095E-02	8.305E-02	6.245E-03	0.893
	801.93			-1.815E-01	3.834E-01	5.654E-01	4.286E-02	-0.321
	1038.57			-2.065E+00	3.692E+00	5.867E+00	4.352E-01	-0.352
	1167.94			-1.627E-01	2.416E+00	4.005E+00	2.229E-01	-0.041
	1365.15			2.448E-01	1.208E+00	2.047E+00	1.594E-01	0.120
CS-135	268.24	*		3.028E-01	1.778E-01	2.857E-01	2.180E-02	1.060
I-135	288.45			-5.658E+15	1.778E-01	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
CS-136		417.63	-1.450E+15	1.778E-01	Half-Life	too short	
		546.56	1.182E+15	1.778E-01	Half-Life	too short	
		836.80	-2.535E+14	1.778E-01	Half-Life	too short	
		1038.76	-2.216E+15	1.778E-01	Half-Life	too short	
		1124.00	4.760E+15	1.778E-01	Half-Life	too short	
		1131.51	-6.845E+14	1.778E-01	Half-Life	too short	
		1260.41 *	1.290E+14	1.778E-01	Half-Life	too short	
		1457.56	5.432E+16	1.778E-01	Half-Life	too short	
		1678.03	1.252E+14	1.778E-01	Half-Life	too short	
		1706.46	-1.311E+15	1.778E-01	Half-Life	too short	
		1791.20	-2.011E+14	1.778E-01	Half-Life	too short	
	+	66.91	-1.011E+00	1.142E+00	1.569E+00	2.338E-01	-0.644
		86.29	2.789E+00	2.437E+00	2.562E+00	3.324E-01	1.089
		153.22	1.985E-01	8.488E-01	1.387E+00	9.589E-02	0.143
		163.89	1.844E+00	1.319E+00	2.249E+00	1.535E-01	0.820
		176.55	9.230E-02	4.533E-01	7.380E-01	4.479E-02	0.125
		273.65	-8.134E-01	6.378E-01	8.533E-01	5.634E-02	-0.953
		340.57	4.023E-01	1.961E-01	3.197E-01	1.967E-02	1.258
		818.51	-4.559E-02	9.025E-02	1.388E-01	1.076E-02	-0.328
		1048.07 *	-1.459E-01	1.263E-01	1.866E-01	1.444E-02	-0.782
		1235.34	1.628E-01	7.279E-01	1.231E+00	1.259E-01	0.132
CE-139		165.85 *	-2.671E-02	3.025E-02	4.697E-02	2.452E-03	-0.569
BA-140		162.64	6.082E-01	9.527E-01	1.581E+00	9.565E-02	0.385
		304.84	1.336E-01	1.739E+00	2.558E+00	6.982E-01	0.052
		423.70	-2.342E+00	2.459E+00	3.645E+00	1.158E+00	-0.642
LA-140	+	537.32 *	4.344E-02	2.730E-01	4.555E-01	1.482E-01	0.095
		328.77	1.851E+00	8.232E-01	7.122E-01	4.626E-02	2.598
		432.53	-1.308E+00	2.462E+00	3.942E+00	2.497E-01	-0.332
		487.03	-3.819E-02	1.670E-01	2.717E-01	1.799E-02	-0.141
		751.79	5.684E-01	2.072E+00	3.449E+00	2.764E-01	0.165
		815.85	1.834E-01	3.858E-01	6.528E-01	5.747E-02	0.281
		867.82	8.763E-01	1.638E+00	2.784E+00	2.468E-01	0.315
		919.63	-2.031E+00	3.617E+00	5.302E+00	5.653E-01	-0.383
		925.24	-5.460E-01	1.349E+00	2.076E+00	1.896E-01	-0.263
		1596.49 *	-5.779E-03	1.016E-01	1.653E-01	1.119E-02	-0.035
CE-141		145.44 *	1.383E-02	7.189E-02	1.155E-01	6.652E-03	0.120
CE-143		57.37	4.951E-03	7.189E-02	Half-Life	too short	
		231.56	-1.884E-02	7.189E-02	Half-Life	too short	
		293.26 *	1.018E-02	7.189E-02	Half-Life	too short	
	+	350.59	3.432E-01	7.189E-02	Half-Life	too short	
		490.36	-1.065E-02	7.189E-02	Half-Life	too short	
		664.57	1.582E-02	7.189E-02	Half-Life	too short	
		721.93	1.113E-02	7.189E-02	Half-Life	too short	
CE-144		80.11	2.418E+00	2.728E+00	3.476E+00	2.880E-01	0.696
		133.54 *	6.874E-02	2.387E-01	3.442E-01	4.876E-02	0.200
PM-144		476.78	5.113E-02	6.778E-02	1.174E-01	8.192E-03	0.436
		618.01	-2.352E-03	3.167E-02	4.858E-02	3.035E-03	-0.048
		696.49 *	-1.521E-02	3.541E-02	5.352E-02	3.336E-03	-0.284
		778.57	-1.755E+00	2.567E+00	3.264E+00	2.361E-01	-0.538



---- 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	*		-1.033E+00	2.406E+00	3.636E+00	2.264E-01	-0.284
	1489.15			4.032E+00	9.429E+00	1.664E+01	1.179E+00	0.242
PM-146	453.90	*		2.447E-02	3.943E-02	6.803E-02	5.858E-03	0.360
	633.02			7.168E-02	1.314E+00	2.161E+00	7.961E-01	0.033
	735.90			9.580E-02	1.521E-01	2.440E-01	6.852E-02	0.393
	747.13			5.239E-02	8.612E-02	1.470E-01	1.913E-02	0.356
ND-147	91.11			1.006E+00	6.839E-01	7.650E-01	7.066E-02	1.316
	319.41			3.512E+00	4.525E+00	7.499E+00	4.361E-01	0.468
	439.89			6.963E+00	8.126E+00	1.414E+01	8.131E-01	0.492
	531.02	*		9.727E-03	6.774E-01	1.118E+00	1.518E-01	0.009
PM-149	285.90	*		2.364E-04	6.774E-01	Half-Life too short		
EU-152	121.78			-4.051E-02	7.151E-02	1.129E-01	8.741E-03	-0.359
	244.69			2.987E-01	3.535E-01	5.222E-01	2.967E-02	0.572
	344.27	*		4.724E-02	1.659E-01	1.690E-01	1.100E-02	0.279
	443.98			-4.438E-01	9.526E-01	1.534E+00	8.831E-02	-0.289
	778.89			-1.666E-01	2.887E-01	3.726E-01	2.694E-02	-0.447
	867.32			3.812E-01	7.561E-01	1.282E+00	1.075E-01	0.297
	964.01			5.123E-01	3.117E-01	5.140E-01	4.234E-02	0.997
	1085.78			1.274E-01	3.621E-01	6.253E-01	4.255E-02	0.204
	1112.02			-2.294E-01	3.064E-01	4.643E-01	2.987E-02	-0.494
	1407.95			-2.128E-02	1.806E-01	2.942E-01	2.136E-02	-0.072
GD-153	69.67			1.009E+00	1.832E+00	2.705E+00	2.081E-01	0.373
	83.37			-6.787E+00	1.830E+01	2.402E+01	2.052E+00	-0.283
	97.43	*		-6.651E-03	8.961E-02	1.279E-01	9.945E-03	-0.052
	103.18			-8.408E-02	1.087E-01	1.722E-01	1.247E-02	-0.488
EU-154	123.07			3.065E-02	5.375E-02	8.280E-02	7.856E-03	0.370
	247.94			2.468E-01	3.614E-01	5.780E-01	5.479E-02	0.427
	591.81			-3.644E-01	5.858E-01	8.832E-01	8.699E-02	-0.413
	723.30			4.508E-02	1.796E-01	2.605E-01	2.006E-02	0.173
	756.87			-9.438E-02	7.223E-01	1.160E+00	1.257E-01	-0.081
	873.19			-1.969E-01	2.887E-01	4.324E-01	5.248E-02	-0.455
	996.32			-1.444E-01	3.749E-01	5.774E-01	1.006E-01	-0.250
	1004.76			2.964E-03	2.101E-01	3.531E-01	3.904E-02	0.008
	1274.45	*		9.486E-02	1.109E-01	1.989E-01	1.969E-02	0.477
EU-155	48.70			-1.627E-01	2.133E+00	3.519E+00	2.468E-01	-0.046
	60.01			3.021E+00	5.331E+00	7.911E+00	5.952E-01	0.382
	86.54	+		1.996E-01	1.734E-01	1.820E-01	1.621E-02	1.097
	105.31	*		-1.359E-02	1.069E-01	1.737E-01	1.250E-02	-0.078
TB-160	86.79	+		5.577E-01	4.843E-01	5.028E-01	4.448E-02	1.109
	197.04			3.562E-01	5.692E-01	9.406E-01	5.096E-02	0.379
	215.65			2.593E-01	7.636E-01	1.245E+00	6.888E-02	0.208
	298.57			1.766E-01	1.870E-01	2.068E-01	1.202E-02	0.854
	879.36	*		-4.298E-02	1.459E-01	2.288E-01	1.957E-02	-0.188
	962.29			4.585E-03	6.146E-01	8.517E-01	7.029E-02	0.005
	966.15			7.512E-01	2.799E-01	4.784E-01	3.930E-02	1.570
	1177.93			-5.742E-02	3.305E-01	5.418E-01	2.998E-02	-0.106
	1271.85			-3.120E-01	6.518E-01	1.025E+00	6.794E-02	-0.304
HO-166M	80.57			6.032E-02	4.068E-01	4.268E-01	3.551E-02	0.141
	184.41			1.354E-01	4.294E-02	6.989E-02	3.728E-03	1.937

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46	-2.575E-02	8.175E-02	1.356E-01	7.856E-03	-0.190
		410.95	-3.046E-02	2.256E-01	3.723E-01	2.101E-02	-0.082
		711.68 *	1.459E-02	5.600E-02	9.327E-02	5.974E-03	0.156
		752.31	1.387E-01	2.508E-01	4.274E-01	2.948E-02	0.325
		810.29	-3.888E-02	5.690E-02	8.609E-02	6.571E-03	-0.452
		51.35	9.013E+00	2.777E+01	4.645E+01	3.387E+00	0.194
		52.39	1.723E+00	1.452E+01	2.411E+01	1.773E+00	0.071
		59.40	2.227E+01	2.858E+01	4.280E+01	3.220E+00	0.520
		66.72 *	-1.824E+01	3.157E+01	4.433E+01	3.370E+00	-0.412
		88.36	4.361E-01	3.248E-01	3.641E-01	3.243E-02	1.198
LU-176		201.83	-7.820E-04	2.776E-02	4.457E-02	2.429E-03	-0.018
		306.84 *	5.741E-03	2.565E-02	3.815E-02	2.219E-03	0.150
		401.10	-1.241E+00	6.368E+00	1.048E+01	5.873E-01	-0.118
LU-177		112.95	2.211E+00	2.767E+00	4.611E+00	3.003E-01	0.479
		208.36 *	1.610E+00	2.098E+00	3.068E+00	1.684E-01	0.525
LU-177M		52.97	-3.711E-01	1.536E+00	2.516E+00	1.856E-01	-0.147
		54.07	-2.489E-01	8.236E-01	1.346E+00	9.982E-02	-0.185
		61.30	1.779E+00	1.695E+00	2.556E+00	1.923E-01	0.696
HF-181		121.62	-2.120E-01	3.741E-01	5.910E-01	3.533E-02	-0.359
		147.16	-4.731E-01	6.678E-01	1.051E+00	5.767E-02	-0.450
		171.86	-1.863E-01	4.863E-01	7.717E-01	4.054E-02	-0.241
		218.09	4.111E-01	8.169E-01	1.342E+00	7.448E-02	0.306
	+	268.79	2.111E+00	1.232E+00	1.509E+00	8.704E-02	1.399
		319.02	1.942E-01	2.560E-01	4.357E-01	2.532E-02	0.446
		367.43	8.673E-01	9.170E-01	1.607E+00	9.139E-02	0.540
		413.65 *	-8.452E-02	1.631E-01	2.622E-01	1.482E-02	-0.322
		56.28	-2.911E-01	9.811E-01	1.603E+00	1.197E-01	-0.182
		57.53	2.304E-01	5.683E-01	8.832E-01	6.616E-02	0.261
		65.20	1.167E+00	1.160E+00	1.739E+00	1.316E-01	0.671
		133.02	-4.103E-02	8.468E-02	1.172E-01	6.704E-03	-0.350
		136.25	1.439E-01	5.067E-01	8.317E-01	4.711E-02	0.173
		345.85	-1.780E-01	2.452E-01	3.374E-01	1.944E-02	-0.528
		482.03 *	-2.161E-02	4.665E-02	7.485E-02	4.380E-03	-0.289
W-181		56.28	-7.682E-02	3.636E-01	5.959E-01	4.450E-02	-0.129
		57.53	8.567E-02	2.114E-01	3.286E-01	2.461E-02	0.261
		65.20 *	4.309E-01	4.281E-01	6.417E-01	4.856E-02	0.671
TA-182		67.75	-1.565E-01	1.302E-01	1.772E-01	1.352E-02	-0.883
		100.10	3.653E-01	1.841E-01	3.188E-01	2.395E-02	1.146
		152.43	-6.335E-02	3.441E-01	5.530E-01	2.993E-02	-0.115
		222.10	-4.570E-03	3.350E-01	5.367E-01	2.990E-02	-0.009
		1001.68	2.396E+00	2.218E+00	3.986E+00	3.127E-01	0.601
RE-183	+	1121.28	7.198E-01	2.591E-01	3.487E-01	2.196E-02	2.064
		1189.05	3.622E-01	2.906E-01	5.340E-01	3.021E-02	0.678
		1221.42 *	-2.474E-01	2.000E-01	2.970E-01	1.791E-02	-0.833
		1230.97	3.355E-02	5.089E-01	8.506E-01	5.224E-02	0.039
		57.98	1.303E-01	2.253E-01	3.350E-01	2.512E-02	0.389
		59.32	9.458E-02	1.227E-01	1.838E-01	1.382E-02	0.515
		67.20	-2.121E-01	2.359E-01	3.261E-01	2.483E-02	-0.650
		162.32 *	3.147E-02	1.143E-01	1.869E-01	9.847E-03	0.168

----- 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		1.455E+00	1.023E+00	1.737E+00	9.541E-02	0.838
		291.72		-5.303E-02	1.069E+00	1.561E+00	9.070E-02	-0.034
		57.98		4.667E-01	8.071E-01	1.200E+00	8.998E-02	0.389
		59.32		3.386E-01	4.393E-01	6.578E-01	4.948E-02	0.515
		67.20		-7.596E-01	8.449E-01	1.168E+00	8.893E-02	-0.650
		161.27		-2.832E-01	3.692E-01	5.775E-01	3.051E-02	-0.490
		216.55		1.398E-01	2.593E-01	4.266E-01	2.363E-02	0.328
		252.85	*	-1.022E-01	2.389E-01	3.727E-01	2.130E-02	-0.274
		318.01		1.509E-01	4.335E-01	7.401E-01	4.302E-02	0.204
	+	792.07		3.832E+00	3.148E+00	1.721E+00	1.273E-01	2.227
OS-185		903.28		-2.728E-01	1.038E+00	1.526E+00	1.338E-01	-0.179
		920.93		-6.611E-02	4.392E-01	6.965E-01	6.009E-02	-0.095
		59.72		2.717E-01	3.252E-01	4.881E-01	3.672E-02	0.557
		61.14		1.987E-01	1.859E-01	2.808E-01	2.112E-02	0.708
		69.30		-7.931E-02	3.430E-01	4.901E-01	3.765E-02	-0.162
		592.07		-1.737E+00	2.459E+00	3.679E+00	2.181E-01	-0.472
		646.12	*	-6.027E-03	4.027E-02	6.504E-02	3.809E-03	-0.093
		717.42		-3.869E-01	8.741E-01	1.368E+00	8.860E-02	-0.283
		874.81		2.286E-01	5.670E-01	9.515E-01	8.080E-02	0.240
		880.27		-5.106E-01	7.956E-01	1.201E+00	1.029E-01	-0.425
RE-188		155.03	*	1.240E-01	1.863E-01	3.092E-01	1.661E-02	0.401
		477.96		2.340E+00	3.284E+00	5.671E+00	3.314E-01	0.413
		633.10		9.888E-02	2.779E+00	4.564E+00	2.684E-01	0.022
W-188	+	63.58		1.330E+02	7.452E+01	9.816E+01	7.403E+00	1.355
		227.08		-3.675E+00	1.319E+01	2.084E+01	1.166E+00	-0.176
IR-192		290.67	*	-2.042E+00	8.379E+00	1.207E+01	7.009E-01	-0.169
	+	295.96		9.019E-01	1.814E-01	2.835E-01	1.674E-02	3.182
		308.46		8.037E-02	1.001E-01	1.613E-01	9.488E-03	0.498
		316.51	*	-8.287E-03	3.398E-02	5.628E-02	3.288E-03	-0.147
		468.07		3.456E-02	7.351E-02	1.104E-01	7.402E-03	0.313
AU-195		604.41		-3.148E-01	4.883E-01	6.399E-01	7.301E-02	-0.492
		612.46		2.585E+00	8.857E-01	1.542E+00	1.181E-01	1.676
		65.12		2.244E-01	1.974E-01	2.971E-01	2.248E-02	0.755
		66.83		-5.926E-02	1.058E-01	1.487E-01	1.131E-02	-0.399
	+	75.70		8.167E-01	2.702E-01	4.510E-01	3.604E-02	1.811
		98.88	*	1.651E-01	2.462E-01	3.829E-01	2.922E-02	0.431
	+	129.76		4.170E+00	4.199E+00	5.224E+00	3.022E-01	0.798
TL-200		367.94	*	1.233E-02	4.199E+00	Half-Life	too short	
		579.30		1.214E-01	4.199E+00	Half-Life	too short	
		828.27		-1.047E-01	4.199E+00	Half-Life	too short	
		1205.75		-9.746E-03	4.199E+00	Half-Life	too short	
TL-201		68.90		-4.424E+00	1.613E+01	2.301E+01	1.764E+00	-0.192
		70.82		6.477E+00	8.950E+00	1.329E+01	1.029E+00	0.487
		80.30		1.308E+01	1.919E+01	2.419E+01	2.008E+00	0.541
		135.34		-1.047E+01	8.235E+01	1.284E+02	7.293E+00	-0.082
TL-202		167.43	*	-1.012E+01	2.090E+01	3.305E+01	1.727E+00	-0.306
		68.90		-1.732E-01	6.316E-01	9.009E-01	6.908E-02	-0.192
		70.82		2.529E-01	3.494E-01	5.189E-01	4.017E-02	0.487
		80.30		5.107E-01	7.495E-01	9.449E-01	7.842E-02	0.541

---- 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	*	6.542E-02	9.366E-02	1.617E-01	9.285E-03	0.405
		70.83		6.354E-01	1.248E+00	1.836E+00	2.399E-01	0.346
		72.87		1.751E+00	7.754E-01	1.169E+00	1.485E-01	1.497
		82.60		5.383E-01	1.805E+00	1.913E+00	2.612E-01	0.281
BI-207		279.20	*	3.673E-02	4.101E-02	7.179E-02	4.415E-03	0.512
		72.80		4.477E-01	2.044E-01	3.156E-01	2.472E-02	1.418
	+	74.97		4.449E-01	1.472E-01	2.242E-01	1.782E-02	1.984
		84.90		1.620E-01	2.142E-01	3.163E-01	2.744E-02	0.512
	+	569.67		1.725E-01	8.643E-02	7.135E-02	4.235E-03	2.417
		1063.62	*	-1.140E-03	4.804E-02	8.027E-02	5.700E-03	-0.014
TL-207		1770.23		6.507E-02	4.796E-01	6.965E-01	4.202E-02	0.093
		81.07		1.614E-01	3.125E-01	3.373E-01	2.820E-02	0.478
		83.78		-7.389E-02	1.528E-01	1.992E-01	1.709E-02	-0.371
		94.90		8.353E-01	2.788E-01	4.387E-01	3.531E-02	1.904
		122.32		-2.049E-01	1.765E+00	2.746E+00	1.876E-01	-0.075
		144.24		3.232E-02	7.143E-01	1.142E+00	8.019E-02	0.028
		154.21		4.244E-02	4.070E-01	6.616E-01	4.416E-02	0.064
	+	269.46		4.840E-01	2.825E-01	3.438E-01	2.074E-02	1.408
		323.87	*	-2.439E-01	7.393E-01	1.051E+00	1.736E-01	-0.232
	+	338.28		6.482E+00	1.803E+00	2.406E+00	2.531E-01	2.694
		445.03		-1.043E+00	2.243E+00	3.608E+00	3.697E-01	-0.289
		260.50		-1.960E+00	9.351E+00	1.475E+01	8.467E-01	-0.133
PO-209		262.80		-6.271E+00	2.716E+01	4.279E+01	2.460E+00	-0.147
		896.60	*	1.654E+00	7.205E+00	1.188E+01	1.044E+00	0.139
BI-210		46.50	*	-8.992E-01	3.105E+00	5.025E+00	3.830E-01	-0.179
PB-210		46.50	*	-8.992E-01	3.105E+00	5.025E+00	3.830E-01	-0.179
PO-210		46.50	*	-8.992E-01	3.105E+00	5.025E+00	3.275E-01	-0.179
PB-211		404.84	*	-8.772E-01	1.055E+00	1.414E+00	8.812E-01	-0.620
		427.08		9.732E-01	1.981E+00	3.239E+00	2.002E+00	0.300
		831.96		-2.404E-01	1.117E+00	1.754E+00	1.097E+00	-0.137
BI-212	+	727.18	*	9.491E-01	4.260E-01	5.811E-01	4.837E-02	1.633
		785.46		3.178E+00	1.796E+00	3.286E+00	2.404E-01	0.967
PO-215		1620.62		2.678E+00	1.160E+00	2.486E+00	1.660E-01	1.077
		81.07		1.614E-01	3.125E-01	3.373E-01	2.820E-02	0.478
		83.78		-7.389E-02	1.528E-01	1.992E-01	1.709E-02	-0.371
		94.90		8.353E-01	2.788E-01	4.387E-01	3.531E-02	1.904
		122.32		-2.049E-01	1.765E+00	2.746E+00	1.876E-01	-0.075
		144.24		3.232E-02	7.143E-01	1.142E+00	8.019E-02	0.028
		154.21		4.244E-02	4.070E-01	6.616E-01	4.416E-02	0.064
	+	269.46		4.840E-01	2.825E-01	3.438E-01	2.074E-02	1.408
		323.87	*	-2.439E-01	7.393E-01	1.051E+00	1.736E-01	-0.232
	+	338.28		6.482E+00	1.803E+00	2.406E+00	2.531E-01	2.694
		445.03		-1.043E+00	2.243E+00	3.608E+00	3.697E-01	-0.289
	+	271.23		6.210E-01	3.640E-01	4.339E-01	3.508E-02	1.431
RN-219		401.81	*	1.021E-01	3.898E-01	6.587E-01	8.908E-02	0.155
RN-220		549.76	*	1.028E+00	2.330E+01	3.849E+01	2.284E+00	0.027
RA-223		81.07		1.614E-01	3.125E-01	3.373E-01	2.820E-02	0.478
		83.78		-7.389E-02	1.528E-01	1.992E-01	1.709E-02	-0.371
		94.90		8.353E-01	2.788E-01	4.387E-01	3.531E-02	1.904

---- 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		-2.049E-01	1.765E+00	2.746E+00	1.876E-01	-0.075
		144.24		3.232E-02	7.143E-01	1.142E+00	8.019E-02	0.028
		154.21		4.244E-02	4.070E-01	6.616E-01	4.416E-02	0.064
	+	269.46		4.840E-01	2.825E-01	3.438E-01	2.074E-02	1.408
		323.87	*	-2.439E-01	7.393E-01	1.051E+00	1.736E-01	-0.232
	+	338.28		6.482E+00	1.803E+00	2.406E+00	2.531E-01	2.694
		445.03		-1.043E+00	2.243E+00	3.608E+00	3.697E-01	-0.289
		79.80		2.767E+00	2.011E+00	2.758E+00	5.892E-01	1.003
		236.00		1.990E+00	3.796E-01	5.713E-01	5.923E-02	3.482
		256.20	*	1.048E-01	3.710E-01	6.009E-01	8.371E-02	0.174
		286.10		9.093E-01	1.455E+00	2.515E+00	2.907E-01	0.362
	+	299.80		3.658E+00	2.566E+00	2.455E+00	4.000E-01	1.490
TH-227		304.40		-3.780E-03	1.966E+00	2.876E+00	4.977E-01	-0.001
		334.20		1.214E+00	3.299E+00	3.419E+00	6.268E-01	0.355
		79.80		2.767E+00	2.013E+00	2.758E+00	5.969E-01	1.003
	+	94.00		1.165E+01	3.793E+00	4.128E+00	8.916E-01	2.822
		236.00		1.990E+00	3.651E-01	5.713E-01	5.118E-02	3.482
		256.20	*	1.048E-01	3.711E-01	6.009E-01	1.014E-01	0.174
		286.10		9.093E-01	1.713E+00	2.515E+00	2.519E+00	0.362
	+	299.80		3.658E+00	2.566E+00	2.455E+00	4.000E-01	1.490
		304.40		-3.780E-03	1.966E+00	2.876E+00	4.977E-01	-0.001
		334.20		1.214E+00	3.299E+00	3.419E+00	6.268E-01	0.355
	+	85.43		3.710E-01	3.222E-01	3.269E-01	2.851E-02	1.135
		88.47		2.519E-01	1.868E-01	2.095E-01	1.862E-02	1.203
PA-231		100.00		3.723E-01	1.858E-01	3.218E-01	2.421E-02	1.157
		193.63	*	4.170E-01	5.064E-01	8.387E-01	4.525E-02	0.497
	+	210.97		3.012E-01	9.965E-01	1.290E+00	7.101E-02	0.234
		283.67	*	2.859E-01	1.461E+00	2.482E+00	3.420E-01	0.115
	+	301.29		1.463E+00	1.010E+00	9.821E-01	1.027E-01	1.490
	TH-231	81.07		1.614E-01	3.125E-01	3.373E-01	2.820E-02	0.478
		83.78		-7.389E-02	1.528E-01	1.992E-01	1.709E-02	-0.371
		94.90		8.353E-01	2.788E-01	4.387E-01	3.531E-02	1.904
		122.32		-2.049E-01	1.765E+00	2.746E+00	1.876E-01	-0.075
		144.24		3.232E-02	7.143E-01	1.142E+00	8.019E-02	0.028
		154.21		4.244E-02	4.070E-01	6.616E-01	4.416E-02	0.064
	+	269.46		4.840E-01	2.825E-01	3.438E-01	2.074E-02	1.408
U-231		323.87	*	-2.439E-01	7.393E-01	1.051E+00	1.736E-01	-0.232
	+	338.28		6.482E+00	1.803E+00	2.406E+00	2.531E-01	2.694
		445.03		-1.043E+00	2.243E+00	3.608E+00	3.697E-01	-0.289
		84.21		-3.294E+00	1.362E+01	1.934E+01	1.666E+00	-0.170
	+	92.29		2.566E+01	6.596E+00	9.716E+00	8.125E-01	2.642
		95.87	*	-4.478E+00	2.783E+00	3.634E+00	2.887E-01	-1.232
		108.00		-1.419E+00	4.615E+00	7.443E+00	5.105E-01	-0.191
	PA-233	75.28		1.298E+01	4.599E+00	6.845E+00	1.026E+00	1.896
	+	86.59		3.239E+00	2.931E+00	2.946E+00	7.920E-01	1.100
	+	300.12		1.020E+00	7.091E-01	6.803E-01	9.146E-02	1.499
		311.98	*	-1.528E-02	5.971E-02	9.887E-02	6.104E-03	-0.155
		340.50		1.697E+00	8.348E-01	1.226E+00	2.815E-01	1.384
		398.62		7.808E-01	1.978E+00	3.354E+00	8.657E-01	0.233

---- 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		-5.026E-01	1.524E+00	2.475E+00	5.087E-01	-0.203
		63.00		3.674E+00	2.112E+00	2.795E+00	4.171E-01	1.315
		94.67		9.113E-01	2.221E-01	3.306E-01	3.978E-02	2.756
		98.44		5.970E-02	1.033E-01	1.519E-01	8.453E-02	0.393
		99.86		7.229E-01	4.763E-01	8.149E-01	6.143E-02	0.887
		111.00		-8.618E-02	1.930E-01	3.093E-01	3.331E-02	-0.279
		131.20		7.467E-02	1.236E-01	1.811E-01	1.043E-02	0.412
		152.70		8.442E-03	3.238E-01	5.249E-01	8.224E-02	0.016
		186.00		7.230E+00	2.946E+00	2.641E+00	8.049E-01	2.737
		226.40		-9.775E-02	3.884E-01	6.143E-01	7.039E-02	-0.159
		227.20		-3.092E-02	4.204E-01	6.712E-01	3.758E-02	-0.046
		248.90		2.265E-01	7.999E-01	1.295E+00	2.779E-01	0.175
		293.70		5.425E+00	1.360E+00	1.689E+00	2.718E-01	3.211
		369.80		7.582E-01	8.405E-01	1.448E+00	3.011E-01	0.524
		568.70		5.612E+00	2.812E+00	2.440E+00	1.448E-01	2.300
		569.50		1.530E+00	7.670E-01	6.407E-01	3.803E-02	2.389
		574.00		2.504E-01	1.553E+00	2.439E+00	1.448E-01	0.103
		699.00		-2.396E-01	6.734E-01	1.064E+00	1.929E-01	-0.225
		706.10		-2.515E-01	9.591E-01	1.518E+00	6.709E-01	-0.166
		733.00		-4.170E-01	4.323E-01	5.194E-01	1.117E-01	-0.803
		742.81		-6.470E-01	1.390E+00	2.056E+00	1.377E+00	-0.315
		796.30		1.390E+00	1.033E+00	1.582E+00	4.224E-01	0.879
		805.60		7.736E-01	8.945E-01	1.520E+00	4.616E-01	0.509
		819.60		-4.639E-01	1.176E+00	1.809E+00	6.845E-01	-0.256
		826.30		-3.487E-01	7.630E-01	1.152E+00	5.138E-01	-0.303
		831.60		-2.459E-01	5.866E-01	9.040E-01	2.680E-01	-0.272
		876.40		2.887E-01	8.613E-01	1.350E+00	1.388E+00	0.214
		880.51		-3.507E-02	2.650E-01	4.221E-01	3.617E-02	-0.083
		883.24		2.383E-02	2.746E-01	4.462E-01	2.999E-01	0.053
		899.00		8.181E-02	8.289E-01	1.348E+00	5.897E-01	0.061
		925.00		-2.844E-01	1.091E+00	1.708E+00	1.468E-01	-0.167
		926.50		-1.942E-01	1.844E-01	2.240E-01	5.659E-02	-0.867
		946.00	*	-1.439E-01	2.880E-01	4.371E-01	8.160E-02	-0.329
		949.00		1.424E-01	4.228E-01	7.027E-01	5.888E-02	0.203
		980.50		4.714E-01	6.703E-01	1.154E+00	9.315E-02	0.408
		1394.10		1.463E-01	1.032E+00	1.732E+00	1.124E+00	0.084
PA-234M		766.42		1.481E+01	1.384E+01	1.876E+01	9.475E+00	0.789
		1001.03	*	6.070E+00	4.730E+00	8.610E+00	8.015E-01	0.705
U-235	+	89.95		-1.009E+00	1.962E+00	1.931E+00	5.961E-01	-0.523
		93.35		3.624E+00	1.342E+00	1.317E+00	3.675E-01	2.752
		105.00		-1.754E-01	1.043E+00	1.690E+00	4.976E-01	-0.104
		143.76	*	3.423E-02	2.208E-01	3.544E-01	5.746E-02	0.097
		163.35		3.799E-01	4.600E-01	7.614E-01	1.356E-01	0.499
NP-236	+	185.71		2.678E-01	7.385E-02	9.780E-02	5.226E-03	2.738
		205.31		8.267E-02	5.825E-01	8.237E-01	1.473E-01	0.100
		94.67		6.943E-01	1.569E-01	2.511E-01	2.028E-02	2.766
		98.44		4.512E-02	7.399E-02	1.148E-01	8.813E-03	0.393
		111.00		-6.519E-02	1.459E-01	2.340E-01	1.555E-02	-0.279
		160.31	*	-8.098E-02	8.157E-02	1.263E-01	6.691E-03	-0.641

---- 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		2.174E-01	1.569E-01	2.677E-01	2.026E-02	0.812
		117.00	*	-4.522E-02	1.896E-01	3.060E-01	1.913E-02	-0.148
	+	209.75		3.034E-01	1.004E+00	1.306E+00	7.181E-02	0.232
		228.18		2.797E-02	2.181E-01	3.517E-01	1.971E-02	0.080
		277.60		1.235E-01	1.869E-01	2.977E-01	1.723E-02	0.415
AM-241		334.30		7.626E-01	1.868E+00	1.952E+00	1.130E-01	0.391
		59.54	*	1.329E-01	1.653E-01	2.478E-01	2.040E-02	0.536
	CM-243	99.55		2.238E-01	1.615E-01	2.756E-01	2.085E-02	0.812
		103.76	*	-4.927E-02	9.757E-02	1.562E-01	1.124E-02	-0.315
		117.00		-4.653E-02	1.951E-01	3.149E-01	1.969E-02	-0.148
AM-246	+	209.75		2.992E-01	9.899E-01	1.288E+00	7.081E-02	0.232
		228.18		2.827E-02	2.205E-01	3.554E-01	1.992E-02	0.080
		277.60		1.246E-01	1.885E-01	3.002E-01	1.737E-02	0.415
		798.80		-9.467E-03	1.387E-01	1.923E-01	1.439E-02	-0.049
		1036.00		1.317E-01	2.891E-01	5.034E-01	3.750E-02	0.262
CM-247		1062.04		-1.305E-01	2.087E-01	3.283E-01	2.338E-02	-0.398
		1078.86	*	1.095E-01	1.355E-01	2.423E-01	1.672E-02	0.452
		278.00		7.211E-01	7.428E-01	1.242E+00	7.186E-02	0.581
		287.40		5.630E-01	1.174E+00	2.019E+00	1.172E-01	0.279
		402.60	*	1.188E-02	3.511E-02	5.961E-02	3.344E-03	0.199
CF-249		252.85		-3.759E-01	8.786E-01	1.371E+00	7.834E-02	-0.274
		333.44		8.776E-02	2.437E-01	2.529E-01	1.464E-02	0.347
		387.95	*	7.270E-03	3.854E-02	6.493E-02	3.626E-03	0.112
CF-251		176.60	*	8.596E-03	1.218E-01	1.970E-01	1.041E-02	0.044
		227.00		-1.105E-01	3.767E-01	5.948E-01	3.330E-02	-0.186
		285.00		-4.476E-01	1.675E+00	2.783E+00	1.614E-01	-0.161

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101014
* Acquisition date   : 2-FEB-2010 11:31:04 Detector SN#      :
* Detector ID        : GAM19 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.51 Half life ratio : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G245101014 Analyst initials: MXR1
* Batch Number       : 944037 Sample Quantity : 1.3810E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope      :
* MSD DPM            : 0.000 MSD Isotope      :
* LCS DPM            : 0.000 LCS Isotope      :
* LCSD DPM           : 0.000 LCSD Isotope     :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.341E+01	2.275E+00	4.632E-01	0.000E+00
CD-109	1.696E+00	1.443E+00	1.627E+00	0.000E+00
SN-126	1.655E-01	1.408E-01	1.665E-01	0.000E+00
BA-137M	1.810E-01	6.485E-02	5.740E-02	0.000E+00
CS-137	1.913E-01	6.856E-02	6.068E-02	0.000E+00
TL-208	5.254E-01	8.699E-02	5.293E-02	0.000E+00
BI-211	3.731E+00	5.049E-01	3.404E-01	0.000E+00
PB-212	1.512E+00	1.514E-01	9.597E-02	0.000E+00
PO-212	1.512E+00	1.514E-01	9.597E-02	0.000E+00
BI-214	1.099E+00	1.785E-01	1.016E-01	0.000E+00
PB-214	1.298E+00	1.878E-01	1.186E-01	0.000E+00
PO-214	1.298E+00	1.878E-01	1.186E-01	0.000E+00
PO-216	1.512E+00	1.514E-01	9.597E-02	0.000E+00
PO-218	1.298E+00	1.878E-01	1.186E-01	0.000E+00
RA-224	4.704E+00	1.113E+00	1.091E+00	0.000E+00
RA-226	1.099E+00	1.785E-01	1.016E-01	0.000E+00
AC-228	1.340E+00	3.049E-01	2.184E-01	0.000E+00
RA-228	1.340E+00	3.049E-01	2.184E-01	0.000E+00
TH-228	1.543E+00	1.544E-01	9.790E-02	0.000E+00
TH-230	1.099E+00	1.785E-01	1.016E-01	0.000E+00
TH-232	1.340E+00	3.049E-01	2.184E-01	0.000E+00
TH-234	3.152E+00	1.798E+00	2.146E+00	0.000E+00
U-234	1.099E+00	1.785E-01	1.016E-01	0.000E+00
NP-237	4.859E-01	4.250E-01	4.372E-01	0.000E+00
U-238	3.152E+00	1.798E+00	2.146E+00	0.000E+00
AM-243	2.478E-01	8.032E-02	9.595E-02	0.000E+00
ANH-511	1.297E-01	6.572E-02	4.563E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	1.498E-01	3.413E-01	6.069E-01	0.000E+00	NOT IDENT.
NA-22	3.399E-02	3.892E-02	7.181E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.674E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.318E-02	3.177E-02	5.632E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.617E-02	8.238E-02	0.000E+00	FAIL ABUN
SC-46	9.062E-03	3.773E-02	6.441E-02	0.000E+00	FAIL ABUN
V-48	-2.501E-02	8.285E-02	1.330E-01	0.000E+00	NOT IDENT.
CR-51	1.251E-01	4.326E-01	7.102E-01	0.000E+00	NOT IDENT.
MN-52	3.567E-01	3.962E-01	7.432E-01	0.000E+00	NOT IDENT.
MN-54	1.075E-02	3.428E-02	5.902E-02	0.000E+00	NOT IDENT.
CO-56	-3.436E-02	3.872E-02	5.909E-02	0.000E+00	NOT IDENT.
CO-57	-1.205E-02	2.450E-02	4.174E-02	0.000E+00	NOT IDENT.
CO-58	-2.451E-02	3.810E-02	5.998E-02	0.000E+00	NOT IDENT.
FE-59	1.026E-02	8.446E-02	1.471E-01	0.000E+00	NOT IDENT.
CO-60	2.688E-03	3.214E-02	5.517E-02	0.000E+00	NOT IDENT.
ZN-65	-1.044E-02	9.370E-02	1.370E-01	0.000E+00	NOT IDENT.
GE-68	3.485E-01	1.174E+00	2.076E+00	0.000E+00	NOT IDENT.
AS-73	-2.134E-01	7.954E-01	1.420E+00	0.000E+00	NOT IDENT.
AS-74	4.513E-02	1.041E-01	1.837E-01	0.000E+00	NOT IDENT.
SE-75	4.715E-02	4.566E-02	7.862E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	3.964E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-3.088E-01	4.145E-01	6.509E-01	0.000E+00	NOT IDENT.
RB-83	1.105E-02	6.721E-02	1.109E-01	0.000E+00	NOT IDENT.
RB-84	2.749E-02	7.233E-02	1.251E-01	0.000E+00	NOT IDENT.
KR-85	9.940E+00	7.457E+00	1.244E+01	0.000E+00	NOT IDENT.
SR-85	5.364E-02	4.024E-02	6.715E-02	0.000E+00	NOT IDENT.
RB-86	1.218E-01	8.607E-01	1.503E+00	0.000E+00	NOT IDENT.
Y-88	-2.937E-03	3.244E-02	5.289E-02	0.000E+00	NOT IDENT.
ZR-88	1.378E-02	3.012E-02	5.408E-02	0.000E+00	NOT IDENT.
Y-91	1.808E+00	1.680E+01	2.903E+01	0.000E+00	NOT IDENT.
NB-94	-4.125E-03	3.045E-02	5.101E-02	0.000E+00	NOT IDENT.
NB-95	4.351E-02	4.384E-02	7.125E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.649E-01	2.790E-01	0.000E+00	NOT IDENT.
ZR-95	-2.633E-02	6.866E-02	1.118E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.230E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.298E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.589E+01	3.712E+01	6.480E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.746E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.276E-02	3.184E-02	5.276E-02	0.000E+00	NOT IDENT.
RH-102	3.576E-03	2.839E-02	4.960E-02	0.000E+00	NOT IDENT.
RU-103	1.735E-02	4.087E-02	7.259E-02	0.000E+00	FAIL ABUN
RH-106	1.573E-01	2.838E-01	5.047E-01	0.000E+00	FAIL ABUN
RU-106	1.573E-01	2.833E-01	5.047E-01	0.000E+00	FAIL ABUN
AG-108M	-2.640E-02	3.024E-02	4.962E-02	0.000E+00	NOT IDENT.
AG-110M	7.747E-03	3.684E-02	5.550E-02	0.000E+00	NOT IDENT.
IN-111	-1.399E-01	3.739E+00	5.509E+00	0.000E+00	NOT IDENT.
IN-113M	-1.035E-02	4.375E-02	7.559E-02	0.000E+00	NOT IDENT.
SN-113	-1.035E-02	4.375E-02	7.559E-02	0.000E+00	NOT IDENT.
IN-114M	-2.645E-02	2.110E-01	3.136E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.376E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	1.806E-03	7.138E-02	1.236E-01	0.000E+00	NOT IDENT.
SB-122	1.779E+00	8.103E+00	1.230E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.807E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.977E-02	3.009E-02	5.066E-02	0.000E+00	NOT IDENT.
I-124	-3.975E-01	1.511E+00	2.171E+00	0.000E+00	NOT IDENT.
SB-124	5.527E-02	6.472E-02	1.250E-01	0.000E+00	FAIL ABUN
SB-125	-1.079E-02	8.463E-02	1.463E-01	0.000E+00	FAIL ABUN
TE-125M	4.464E+00	9.720E+00	1.734E+01	0.000E+00	NOT IDENT.
I-126	4.528E-02	2.447E-01	3.672E-01	0.000E+00	NOT IDENT.
SB-126	1.273E-01	1.797E-01	3.056E-01	0.000E+00	FAIL ABUN
SB-127	1.480E+00	3.008E+00	5.298E+00	0.000E+00	NOT IDENT.
XE-127	1.861E-02	5.080E-02	8.531E-02	0.000E+00	NOT IDENT.
I-131	-6.688E-02	1.703E-01	2.928E-01	0.000E+00	NOT IDENT.
TE-132	2.373E-01	1.839E+00	3.147E+00	0.000E+00	NOT IDENT.
BA-133	4.143E-02	4.330E-02	7.103E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.606E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.413E-02	4.993E-02	8.434E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.743E-01	2.964E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.121E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.459E-01	1.238E-01	1.885E-01	0.000E+00	FAIL ABUN
CE-139	-2.671E-02	2.965E-02	4.917E-02	0.000E+00	NOT IDENT.
BA-140	4.344E-02	2.676E-01	4.662E-01	0.000E+00	NOT IDENT.
LA-140	-5.779E-03	9.960E-02	1.656E-01	0.000E+00	FAIL ABUN
CE-141	1.383E-02	7.045E-02	1.212E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.083E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	6.874E-02	2.339E-01	3.618E-01	0.000E+00	NOT IDENT.
PM-144	-1.521E-02	3.470E-02	5.449E-02	0.000E+00	NOT IDENT.
PR-144	-1.033E+00	2.358E+00	3.702E+00	0.000E+00	NOT IDENT.

PM-146	2.447E-02	3.864E-02	6.985E-02	0.000E+00	NOT IDENT.
ND-147	9.727E-03	6.639E-01	1.145E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	3.902E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	4.724E-02	1.626E-01	1.745E-01	0.000E+00	NOT IDENT.
GD-153	-6.651E-03	8.781E-02	1.352E-01	0.000E+00	NOT IDENT.
EU-154	9.486E-02	1.087E-01	2.001E-01	0.000E+00	NOT IDENT.
EU-155	-1.359E-02	1.048E-01	1.834E-01	0.000E+00	FAIL ABUN
TB-160	-4.298E-02	1.430E-01	2.319E-01	0.000E+00	FAIL ABUN
HO-166M	1.459E-02	5.488E-02	9.493E-02	0.000E+00	NOT IDENT.
TM-171	-1.824E+01	3.094E+01	4.719E+01	0.000E+00	NOT IDENT.
LU-176	5.741E-03	2.514E-02	3.947E-02	0.000E+00	NOT IDENT.
LU-177	1.610E+00	2.056E+00	3.198E+00	0.000E+00	NOT IDENT.
LU-177M	-8.452E-02	1.598E-01	2.697E-01	0.000E+00	FAIL ABUN
HF-181	-2.161E-02	4.572E-02	7.677E-02	0.000E+00	NOT IDENT.
W-181	4.309E-01	4.195E-01	6.835E-01	0.000E+00	NOT IDENT.
TA-182	-2.474E-01	1.960E-01	2.991E-01	0.000E+00	FAIL ABUN
RE-183	3.147E-02	1.120E-01	1.958E-01	0.000E+00	NOT IDENT.
RE-184	-1.022E-01	2.341E-01	3.870E-01	0.000E+00	FAIL ABUN
OS-185	-6.027E-03	3.946E-02	6.633E-02	0.000E+00	NOT IDENT.
RE-188	1.240E-01	1.826E-01	3.241E-01	0.000E+00	NOT IDENT.
W-188	-2.042E+00	8.211E+00	1.250E+01	0.000E+00	FAIL ABUN
IR-192	-8.287E-03	3.330E-02	5.820E-02	0.000E+00	FAIL ABUN
AU-195	1.651E-01	2.412E-01	4.047E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.862E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.012E+01	2.049E+01	3.460E+01	0.000E+00	NOT IDENT.
TL-202	6.542E-02	9.178E-02	1.661E-01	0.000E+00	NOT IDENT.
HG-203	3.673E-02	4.019E-02	7.442E-02	0.000E+00	NOT IDENT.
BI-207	-1.140E-03	4.708E-02	8.105E-02	0.000E+00	FAIL ABUN
TL-207	-2.439E-01	7.245E-01	1.087E+00	0.000E+00	FAIL ABUN
PO-209	1.654E+00	7.061E+00	1.203E+01	0.000E+00	NOT IDENT.
BI-210	-8.992E-01	3.043E+00	5.384E+00	0.000E+00	NOT IDENT.
PB-210	-8.992E-01	3.043E+00	5.384E+00	0.000E+00	NOT IDENT.
PO-210	-8.992E-01	3.043E+00	5.384E+00	0.000E+00	NOT IDENT.
PB-211	-8.772E-01	1.033E+00	1.455E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.175E-01	5.912E-01	0.000E+00	FAIL ABUN
PO-215	-2.439E-01	7.245E-01	1.087E+00	0.000E+00	FAIL ABUN
RN-219	1.021E-01	3.820E-01	6.780E-01	0.000E+00	FAIL ABUN
RN-220	1.028E+00	2.283E+01	3.938E+01	0.000E+00	NOT IDENT.
RA-223	-2.439E-01	7.245E-01	1.087E+00	0.000E+00	FAIL ABUN
AC-227	1.048E-01	3.636E-01	6.239E-01	0.000E+00	FAIL ABUN
TH-227	1.048E-01	3.637E-01	6.239E-01	0.000E+00	FAIL ABUN
TH-229	4.170E-01	4.962E-01	8.754E-01	0.000E+00	FAIL ABUN
PA-231	2.859E-01	1.432E+00	2.572E+00	0.000E+00	FAIL ABUN
TH-231	-2.439E-01	7.245E-01	1.087E+00	0.000E+00	FAIL ABUN
U-231	-4.478E+00	2.727E+00	3.844E+00	0.000E+00	FAIL ABUN
PA-233	-1.528E-02	5.852E-02	1.023E-01	0.000E+00	FAIL ABUN
PA-234	-1.439E-01	2.823E-01	4.424E-01	0.000E+00	FAIL ABUN
PA-234M	6.070E+00	4.636E+00	8.704E+00	0.000E+00	NOT IDENT.
U-235	3.423E-02	2.163E-01	3.720E-01	0.000E+00	FAIL ABUN
NP-236	-8.098E-02	7.994E-02	1.323E-01	0.000E+00	NOT IDENT.
NP-239	-4.522E-02	1.858E-01	3.224E-01	0.000E+00	FAIL ABUN
AM-241	1.329E-01	1.620E-01	2.643E-01	0.000E+00	NOT IDENT.
CM-243	-4.927E-02	9.562E-02	1.650E-01	0.000E+00	FAIL ABUN
AM-246	1.095E-01	1.328E-01	2.446E-01	0.000E+00	NOT IDENT.
CM-247	1.188E-02	3.441E-02	6.136E-02	0.000E+00	NOT IDENT.
CF-249	7.270E-03	3.777E-02	6.688E-02	0.000E+00	NOT IDENT.
CF-251	8.596E-03	1.193E-01	2.060E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101014.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:31:04.
Sample ID          : G245101014 Sample quantity : 1.38100E+02 GRAM
Detector name      : GAM19 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.51 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1074	10.67*	1.168E+00	2.341E+01	2.341E+01	9.92
CD-109	88.03	136	3.72*	6.050E+00	1.646E+00	1.696E+00	86.84
SN-126	64.28	160	9.60	3.627E+00	1.248E+00	1.248E+00	57.41
	86.94	136	8.90	6.050E+00	6.878E-01	6.878E-01	95.80
	87.57	136	37.00*	6.050E+00	1.655E-01	1.655E-01	86.84
BA-137M	661.65	138	89.98*	2.301E+00	1.807E-01	1.810E-01	36.57
CS-137	661.65	138	85.12*	2.301E+00	1.911E-01	1.913E-01	36.57
TL-208	277.35	-----	6.80	4.511E+00	-----	Line Not Found	-----
	510.84	136	21.60	2.842E+00	6.004E-01	6.004E-01	52.38
	583.14	416	84.20*	2.555E+00	5.254E-01	5.254E-01	16.90
	860.37	-----	12.46	1.837E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	4.857E+00	-----	Line Not Found	-----
	351.07	673	12.94*	3.788E+00	3.731E+00	3.731E+00	13.81
PB-212	74.81	304	10.70	5.057E+00	1.528E+00	1.528E+00	34.37
	77.11	629	18.00	5.305E+00	1.790E+00	1.790E+00	17.35
	87.30	136	8.00	6.050E+00	7.652E-01	7.652E-01	87.42
	238.63	1245	44.60*	5.017E+00	1.512E+00	1.512E+00	10.22
	300.09	105	3.41	4.254E+00	1.974E+00	1.974E+00	68.71
PO-212	74.81	304	10.70	5.057E+00	1.528E+00	1.528E+00	34.37
	77.11	629	18.00	5.305E+00	1.790E+00	1.790E+00	17.35
	87.30	136	8.00	6.050E+00	7.652E-01	7.652E-01	87.42
	115.19	-----	0.60	6.866E+00	-----	Line Not Found	-----
	238.63	1245	44.60*	5.017E+00	1.512E+00	1.512E+00	10.22
	300.09	105	3.41	4.254E+00	1.974E+00	1.974E+00	68.71
BI-214	609.31	461	46.30*	2.464E+00	1.099E+00	1.099E+00	16.57
	1120.29	119	15.10	1.455E+00	1.478E+00	1.478E+00	36.59
	1764.49	87	15.80	1.029E+00	1.451E+00	1.451E+00	28.08
PB-214	74.81	304	6.21	5.057E+00	2.633E+00	2.633E+00	33.90
	77.11	629	10.50	5.305E+00	3.069E+00	3.069E+00	18.95
	87.30	136	4.67	6.050E+00	1.311E+00	1.311E+00	87.18
	241.98	340	7.49	4.975E+00	2.481E+00	2.481E+00	24.77
	295.21	344	19.20	4.314E+00	1.130E+00	1.130E+00	21.04

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	673	37.20*	3.788E+00	1.298E+00	1.298E+00	14.76
	74.81	304	6.21	5.057E+00	2.633E+00	2.633E+00	33.90
	77.11	629	10.50	5.305E+00	3.069E+00	3.069E+00	18.95
	87.30	136	4.67	6.050E+00	1.311E+00	1.311E+00	87.18
	241.98	340	7.49	4.975E+00	2.481E+00	2.481E+00	24.77
PO-216	295.21	344	19.20	4.314E+00	1.130E+00	1.130E+00	21.04
	351.92	673	37.20*	3.788E+00	1.298E+00	1.298E+00	14.76
	74.81	304	10.70	5.057E+00	1.528E+00	1.528E+00	34.37
	77.11	629	18.00	5.305E+00	1.790E+00	1.790E+00	17.35
	87.30	136	8.00	6.050E+00	7.652E-01	7.652E-01	87.42
PO-218	238.63	1245	44.60*	5.017E+00	1.512E+00	1.512E+00	10.22
	300.09	105	3.41	4.254E+00	1.974E+00	1.974E+00	68.71
	74.81	304	6.21	5.057E+00	2.633E+00	2.633E+00	33.90
	77.11	629	10.50	5.305E+00	3.069E+00	3.069E+00	18.95
	87.30	136	4.67	6.050E+00	1.311E+00	1.311E+00	87.18
RA-224	241.98	340	7.49	4.975E+00	2.481E+00	2.481E+00	24.77
	295.21	344	19.20	4.314E+00	1.130E+00	1.130E+00	21.04
	351.92	673	37.20*	3.788E+00	1.298E+00	1.298E+00	14.76
	240.98	340	3.95*	4.975E+00	4.704E+00	4.704E+00	24.13
	609.31	461	46.30*	2.464E+00	1.099E+00	1.099E+00	16.57
RA-226	1120.29	119	15.10	1.455E+00	1.478E+00	1.478E+00	36.59
	1764.49	87	15.80	1.029E+00	1.451E+00	1.451E+00	28.08
	338.32	254	11.40	3.902E+00	1.552E+00	1.552E+00	48.22
	911.07	238	27.70*	1.745E+00	1.340E+00	1.340E+00	23.21
	969.11	118	16.60	1.653E+00	1.170E+00	1.170E+00	48.87
RA-228	338.32	254	11.40	3.902E+00	1.552E+00	1.552E+00	48.22
	911.07	238	27.70*	1.745E+00	1.340E+00	1.340E+00	23.21
	969.11	118	16.60	1.653E+00	1.170E+00	1.170E+00	48.87
	74.81	304	10.70	5.057E+00	1.528E+00	1.559E+00	33.10
	77.11	629	18.00	5.305E+00	1.790E+00	1.826E+00	17.35
TH-228	87.30	136	8.00	6.050E+00	7.652E-01	7.806E-01	86.84
	238.63	1245	44.60*	5.017E+00	1.512E+00	1.543E+00	10.22
	300.09	105	3.41	4.254E+00	1.974E+00	2.014E+00	90.15
	609.31	461	46.30*	2.464E+00	1.099E+00	1.099E+00	16.57
	1120.29	119	15.10	1.455E+00	1.478E+00	1.478E+00	36.59
TH-230	1764.49	87	15.80	1.029E+00	1.451E+00	1.451E+00	28.08
	338.32	254	11.40	3.902E+00	1.552E+00	1.552E+00	26.40
	911.07	238	27.70*	1.745E+00	1.340E+00	1.340E+00	23.21
	969.11	118	16.60	1.653E+00	1.170E+00	1.170E+00	48.87
	63.29	160	3.80*	3.627E+00	3.152E+00	3.152E+00	58.21
TH-232	92.38	384	5.41	6.397E+00	3.014E+00	3.014E+00	30.22
	609.31	461	46.30*	2.464E+00	1.099E+00	1.099E+00	16.57
	1120.29	119	15.10	1.455E+00	1.478E+00	1.478E+00	36.59
	1764.49	87	15.80	1.029E+00	1.451E+00	1.451E+00	28.08
	86.50	136	12.60*	6.050E+00	4.859E-01	4.859E-01	89.26
NP-237	95.87	-----	2.60	6.515E+00	-----	Line Not Found	-----
	63.29	160	3.80*	3.627E+00	3.152E+00	3.152E+00	58.21
	92.38	384	5.41	6.397E+00	3.014E+00	3.014E+00	25.70
	74.67	304	66.00*	5.057E+00	2.478E-01	2.478E-01	33.08

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	136	0.34	6.050E+00	1.822E+01	1.822E+01	86.84
	117.66	-----	0.55	6.871E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.659E+00	-----	Line Not Found	-----
ANH-511	511.00	136	100.00*	2.842E+00	1.297E-01	1.297E-01	51.71

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
K-40	1.28E+09Y	1.00	2.341E+01	2.341E+01	0.232E+01	9.92	
CD-109	464.00D	1.03	1.646E+00	1.696E+00	1.472E+00	86.84	
SN-126	1.00E+05Y	1.00	1.655E-01	1.655E-01	1.437E-01	86.84	
BA-137M	30.17Y	1.00	1.807E-01	1.810E-01	0.662E-01	36.57	
CS-137	30.17Y	1.00	1.911E-01	1.913E-01	0.700E-01	36.57	
TL-208	1.41E+10Y	1.00	5.254E-01	5.254E-01	0.888E-01	16.90	
BI-211	7.04E+08Y	1.00	3.731E+00	3.731E+00	0.515E+00	13.81	
PB-212	1.41E+10Y	1.00	1.512E+00	1.512E+00	0.154E+00	10.22	
PO-212	1.41E+10Y	1.00	1.512E+00	1.512E+00	0.154E+00	10.22	
BI-214	1600.00Y	1.00	1.099E+00	1.099E+00	0.182E+00	16.57	
PB-214	1600.00Y	1.00	1.298E+00	1.298E+00	0.192E+00	14.76	
PO-214	1600.00Y	1.00	1.298E+00	1.298E+00	0.192E+00	14.76	
PO-216	1.41E+10Y	1.00	1.512E+00	1.512E+00	0.154E+00	10.22	
PO-218	1600.00Y	1.00	1.298E+00	1.298E+00	0.192E+00	14.76	
RA-224	1.41E+10Y	1.00	4.704E+00	4.704E+00	1.135E+00	24.13	
RA-226	1600.00Y	1.00	1.099E+00	1.099E+00	0.182E+00	16.57	
AC-228	1.41E+10Y	1.00	1.340E+00	1.340E+00	0.311E+00	23.21	
RA-228	1.41E+10Y	1.00	1.340E+00	1.340E+00	0.311E+00	23.21	
TH-228	1.91Y	1.02	1.512E+00	1.543E+00	0.158E+00	10.22	
TH-230	4.47E+09Y	1.00	1.099E+00	1.099E+00	0.182E+00	16.57	
TH-232	1.41E+10Y	1.00	1.340E+00	1.340E+00	0.311E+00	23.21	
TH-234	4.47E+09Y	1.00	3.152E+00	3.152E+00	1.835E+00	58.21	
U-234	4.47E+09Y	1.00	1.099E+00	1.099E+00	0.182E+00	16.57	
NP-237	2.14E+06Y	1.00	4.859E-01	4.859E-01	4.337E-01	89.26	
U-238	4.47E+09Y	1.00	3.152E+00	3.152E+00	1.835E+00	58.21	
AM-243	7380.00Y	1.00	2.478E-01	2.478E-01	0.820E-01	33.08	
ANH-511	1.00E+09Y	1.00	1.297E-01	1.297E-01	0.671E-01	51.71	
Total Activity :			6.008E+01	6.016E+01			

Grand Total Activity : 6.008E+01 6.016E+01

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

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

Unidentified Energy Lines  
Sample ID : G245101014

Page : 5  
Acquisition date : 2-FEB-2010 11:31:04

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.10	79	423	1.38	257.95	253	10	1.09E-02	****	6.82E+00	T
0	186.06	313	342	1.49	371.78	367	12	4.35E-02	27.1	5.88E+00	T
0	210.51	20	320	1.14	420.66	414	9	2.74E-03	****	5.45E+00	T
0	270.04	111	232	1.54	539.63	536	12	1.55E-02	58.1	4.60E+00	T
0	328.20	188	250	3.17	655.90	647	20	2.61E-02	44.0	3.99E+00	T
0	462.08	90	99	1.29	923.50	918	12	1.24E-02	49.3	3.08E+00	T
0	569.49	161	188	3.03	1138.23	1129	25	2.24E-02	49.8	2.60E+00	T
0	727.46	88	64	1.95	1454.09	1449	14	1.22E-02	44.1	2.12E+00	T
0	769.32	21	62	0.88	1537.79	1532	9	2.87E-03	****	2.02E+00	
0	793.13	97	169	11.63	1585.40	1564	30	1.34E-02	81.8	1.97E+00	T
0	1378.41	38	30	1.01	2756.11	2746	17	5.29E-03	73.2	1.22E+00	
0	1847.34	16	2	1.86	3694.54	3688	11	2.18E-03	64.4	1.00E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101014.CNF;1
* Acquisition date   : 2-FEB-2010 11:31:04.  Detector SN#      :
* Detector ID        : GAM19                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.51          Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101014           Analyst initials: MXR1
* Batch Number       : 944037               Sample Quantity : 1.38100E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID             :                      MSD Isotope      :
* LCS ID             : 1032-A              LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.341E+01	2.321E+00	4.618E-01	3.439E-02	50.700
CD-109	1.696E+00	1.472E+00	1.536E+00	1.375E-01	1.104
SN-126	1.655E-01	1.437E-01	1.572E-01	1.402E-02	1.052
BA-137M	1.810E-01	6.617E-02	5.632E-02	3.279E-03	3.213
CS-137	1.913E-01	6.996E-02	5.953E-02	3.481E-03	3.213
TL-208	5.254E-01	8.877E-02	5.180E-02	3.522E-03	10.144
BI-211	3.731E+00	5.152E-01	3.298E-01	2.106E-02	11.311
PB-212	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
PO-212	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
BI-214	1.099E+00	1.821E-01	9.956E-02	7.828E-03	11.037
PB-214	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
PO-214	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
PO-216	1.512E+00	1.545E-01	9.231E-02	6.662E-03	16.382
PO-218	1.298E+00	1.916E-01	1.150E-01	9.478E-03	11.289
RA-224	4.704E+00	1.135E+00	1.050E+00	5.949E-02	4.481
RA-226	1.099E+00	1.821E-01	9.956E-02	7.828E-03	11.037
AC-228	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215
RA-228	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.543E+00	1.576E-01	9.416E-02	6.796E-03	16.382
TH-230	1.099E+00	1.821E-01	9.955E-02	7.827E-03	11.037
TH-232	1.340E+00	3.111E-01	2.157E-01	2.439E-02	6.215
TH-234	3.152E+00	1.835E+00	2.013E+00	3.523E-01	1.566
U-234	1.099E+00	1.821E-01	9.955E-02	7.827E-03	11.037
NP-237	4.859E-01	4.337E-01	4.126E-01	9.260E-02	1.177
U-238	3.152E+00	1.835E+00	2.013E+00	3.523E-01	1.566
AM-243	2.478E-01	8.196E-02	9.031E-02	7.162E-03	2.744
ANH-511	1.297E-01	6.706E-02	4.454E-02	2.628E-03	2.912

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.498E-01		3.482E-01	5.916E-01	4.016E-02	0.253
NA-22	3.399E-02		3.971E-02	7.139E-02	4.762E-03	0.476
NA-24	-6.496E+01		8.543E+01	Half-Life	too short	
AL-26	1.318E-02		3.242E-02	5.638E-02	3.292E-03	0.234
TI-44	3.304E-01	+	5.732E-02	7.761E-02	6.335E-03	4.257
SC-46	9.062E-03		3.850E-02	6.357E-02	5.524E-03	0.143
V-48	-2.501E-02		8.454E-02	1.315E-01	1.057E-02	-0.190
CR-51	1.251E-01		4.415E-01	6.870E-01	4.445E-02	0.182
MN-52	3.567E-01		4.042E-01	7.405E-01	5.342E-02	0.482
MN-54	1.075E-02		3.498E-02	5.817E-02	4.627E-03	0.185
CO-56	-3.436E-02		3.951E-02	5.826E-02	4.727E-03	-0.590
CO-57	-1.205E-02		2.500E-02	3.965E-02	2.366E-03	-0.304
CO-58	-2.451E-02		3.888E-02	5.908E-02	4.528E-03	-0.415
FE-59	1.026E-02		8.618E-02	1.457E-01	1.094E-02	0.070
CO-60	2.688E-03		3.279E-02	5.490E-02	4.045E-03	0.049
ZN-65	-1.044E-02		9.565E-02	1.358E-01	8.684E-03	-0.077
GE-68	3.485E-01		1.198E+00	2.057E+00	1.423E-01	0.169
AS-73	-2.134E-01		8.117E-01	1.328E+00	9.825E-02	-0.161
AS-74	4.513E-02		1.062E-01	1.798E-01	1.065E-02	0.251
SE-75	4.715E-02		4.659E-02	7.577E-02	4.406E-03	0.622
BR-77	-5.442E-06		2.022E-05	Half-Life	too short	
SR-82	-3.088E-01		4.229E-01	6.406E-01	4.613E-02	-0.482
RB-83	1.105E-02		6.858E-02	1.083E-01	6.400E-03	0.102
RB-84	2.749E-02		7.381E-02	1.234E-01	1.059E-02	0.223
KR-85	9.940E+00		7.609E+00	1.215E+01	7.172E-01	0.818
SR-85	5.364E-02		4.106E-02	6.555E-02	3.870E-03	0.818
RB-86	1.218E-01		8.783E-01	1.489E+00	1.031E-01	0.082
Y-88	-2.937E-03		3.310E-02	5.297E-02	3.024E-03	-0.055
ZR-88	1.378E-02		3.073E-02	5.252E-02	2.924E-03	0.262
Y-91	1.808E+00		1.714E+01	2.882E+01	1.683E+00	0.063
NB-94	-4.125E-03		3.108E-02	5.011E-02	3.156E-03	-0.082
NB-95	4.351E-02		4.474E-02	7.011E-02	4.954E-03	0.621
NB-95M	5.402E-01		1.683E-01	2.683E-01	1.987E-02	2.013
ZR-95	-2.633E-02		7.006E-02	1.100E-01	8.802E-03	-0.239

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	4.640E+00		6.275E+00	Half-Life too short		
ZR-97	5.323E+02		1.173E+02	Half-Life too short		
MO-99	1.589E+01		3.788E+01	6.371E+01	9.049E+00	0.249
TC-99M	-1.554E+16		1.401E+16	Half-Life too short		
RH-101	-2.276E-02		3.249E-02	5.056E-02	2.743E-03	-0.450
RH-102	3.576E-03		2.897E-02	4.834E-02	2.822E-03	0.074
RU-103	1.735E-02		4.170E-02	7.082E-02	8.981E-03	0.245
RH-106	1.573E-01		2.896E-01	4.946E-01	5.829E-02	0.318
RU-106	1.573E-01		2.891E-01	4.946E-01	2.916E-02	0.318
AG-108M	-2.640E-02		3.086E-02	4.828E-02	3.007E-03	-0.547
AG-110M	7.747E-03		3.759E-02	5.444E-02	3.378E-03	0.142
IN-111	-1.399E-01		3.816E+00	5.302E+00	3.014E-01	-0.026
IN-113M	-1.035E-02		4.464E-02	7.340E-02	4.380E-03	-0.141
SN-113	-1.035E-02		4.464E-02	7.340E-02	4.380E-03	-0.141
IN-114M	-2.645E-02		2.153E-01	3.003E-01	1.614E-02	-0.088
CD-115	1.728E-06		2.233E-05	Half-Life too short		
SN-117M	1.806E-03		7.284E-02	1.179E-01	6.278E-03	0.015
SB-122	1.779E+00		8.268E+00	1.203E+01	7.143E-01	0.148
I-123	-1.845E+03		1.432E+03	Half-Life too short		
TE-123M	-1.977E-02		3.071E-02	4.836E-02	2.612E-03	-0.409
I-124	-3.975E-01		1.542E+00	2.126E+00	1.258E-01	-0.187
SB-124	5.527E-02		6.604E-02	1.250E-01	8.562E-03	0.442
SB-125	-1.079E-02		8.635E-02	1.423E-01	8.475E-03	-0.076
TE-125M	4.464E+00		9.918E+00	1.644E+01	1.455E+00	0.272
I-126	4.528E-02		2.497E-01	3.603E-01	2.117E-02	0.126
SB-126	1.273E-01		1.833E-01	3.003E-01	1.955E-02	0.424
SB-127	1.480E+00		3.069E+00	5.201E+00	5.926E-01	0.284
XE-127	1.861E-02		5.184E-02	8.181E-02	4.463E-03	0.228
I-131	-6.688E-02		1.737E-01	2.839E-01	1.829E-02	-0.236
TE-132	2.373E-01		1.877E+00	3.025E+00	4.651E-01	0.078
BA-133	4.143E-02		4.418E-02	6.884E-02	7.934E-03	0.602
I-133	6.484E-02		1.330E-01	Half-Life too short		
CS-134	7.413E-02		5.095E-02	8.305E-02	6.245E-03	0.893
CS-135	3.028E-01		1.778E-01	2.857E-01	2.180E-02	1.060
I-135	1.290E+14		5.719E+14	Half-Life too short		
CS-136	-1.459E-01		1.263E-01	1.866E-01	1.444E-02	-0.782
CE-139	-2.671E-02		3.025E-02	4.697E-02	2.452E-03	-0.569
BA-140	4.344E-02		2.730E-01	4.555E-01	1.482E-01	0.095
LA-140	-5.779E-03		1.016E-01	1.653E-01	1.119E-02	-0.035
CE-141	1.383E-02		7.189E-02	1.155E-01	6.652E-03	0.120
CE-143	1.018E-02		1.573E-03	Half-Life too short		
CE-144	6.874E-02		2.387E-01	3.442E-01	4.876E-02	0.200
PM-144	-1.521E-02		3.541E-02	5.352E-02	3.336E-03	-0.284
PR-144	-1.033E+00		2.406E+00	3.636E+00	2.264E-01	-0.284
PM-146	2.447E-02		3.943E-02	6.803E-02	5.858E-03	0.360
ND-147	9.727E-03		6.774E-01	1.118E+00	1.518E-01	0.009
PM-149	2.364E-04		1.991E-04	Half-Life too short		
EU-152	4.724E-02		1.659E-01	1.690E-01	1.100E-02	0.279

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-6.651E-03		8.961E-02	1.279E-01	9.945E-03	-0.052
EU-154	9.486E-02		1.109E-01	1.989E-01	1.969E-02	0.477
EU-155	-1.359E-02		1.069E-01	1.737E-01	1.250E-02	-0.078
TB-160	-4.298E-02		1.459E-01	2.288E-01	1.957E-02	-0.188
HO-166M	1.459E-02		5.600E-02	9.327E-02	5.974E-03	0.156
TM-171	-1.824E+01		3.157E+01	4.433E+01	3.370E+00	-0.412
LU-176	5.741E-03		2.565E-02	3.815E-02	2.219E-03	0.150
LU-177	1.610E+00		2.098E+00	3.068E+00	1.684E-01	0.525
LU-177M	-8.452E-02		1.631E-01	2.622E-01	1.482E-02	-0.322
HF-181	-2.161E-02		4.665E-02	7.485E-02	4.380E-03	-0.289
W-181	4.309E-01		4.281E-01	6.417E-01	4.856E-02	0.671
TA-182	-2.474E-01		2.000E-01	2.970E-01	1.791E-02	-0.833
RE-183	3.147E-02		1.143E-01	1.869E-01	9.847E-03	0.168
RE-184	-1.022E-01		2.389E-01	3.727E-01	2.130E-02	-0.274
OS-185	-6.027E-03		4.027E-02	6.504E-02	3.809E-03	-0.093
RE-188	1.240E-01		1.863E-01	3.092E-01	1.661E-02	0.401
W-188	-2.042E+00		8.379E+00	1.207E+01	7.009E-01	-0.169
IR-192	-8.287E-03		3.398E-02	5.628E-02	3.288E-03	-0.147
AU-195	1.651E-01		2.462E-01	3.829E-01	2.922E-02	0.431
TL-200	1.233E-02		5.032E-03	Half-Life	too short	
TL-201	-1.012E+01		2.090E+01	3.305E+01	1.727E+00	-0.306
TL-202	6.542E-02		9.366E-02	1.617E-01	9.285E-03	0.405
HG-203	3.673E-02		4.101E-02	7.179E-02	4.415E-03	0.512
BI-207	-1.140E-03		4.804E-02	8.027E-02	5.700E-03	-0.014
TL-207	-2.439E-01		7.393E-01	1.051E+00	1.736E-01	-0.232
PO-209	1.654E+00		7.205E+00	1.188E+01	1.044E+00	0.139
BI-210	-8.992E-01		3.105E+00	5.025E+00	3.830E-01	-0.179
PB-210	-8.992E-01		3.105E+00	5.025E+00	3.830E-01	-0.179
PO-210	-8.992E-01		3.105E+00	5.025E+00	3.275E-01	-0.179
PB-211	-8.772E-01		1.055E+00	1.414E+00	8.812E-01	-0.620
BI-212	9.491E-01	+	4.260E-01	5.811E-01	4.837E-02	1.633
PO-215	-2.439E-01		7.393E-01	1.051E+00	1.736E-01	-0.232
RN-219	1.021E-01		3.898E-01	6.587E-01	8.908E-02	0.155
RN-220	1.028E+00		2.330E+01	3.849E+01	2.284E+00	0.027
RA-223	-2.439E-01		7.393E-01	1.051E+00	1.736E-01	-0.232
AC-227	1.048E-01		3.710E-01	6.009E-01	8.371E-02	0.174
TH-227	1.048E-01		3.711E-01	6.009E-01	1.014E-01	0.174
TH-229	4.170E-01		5.064E-01	8.387E-01	4.525E-02	0.497
PA-231	2.859E-01		1.461E+00	2.482E+00	3.420E-01	0.115
TH-231	-2.439E-01		7.393E-01	1.051E+00	1.736E-01	-0.232
U-231	-4.478E+00		2.783E+00	3.634E+00	2.887E-01	-1.232
PA-233	-1.528E-02		5.971E-02	9.887E-02	6.104E-03	-0.155
PA-234	-1.439E-01		2.880E-01	4.371E-01	8.160E-02	-0.329
PA-234M	6.070E+00		4.730E+00	8.610E+00	8.015E-01	0.705
U-235	3.423E-02		2.208E-01	3.544E-01	5.746E-02	0.097
NP-236	-8.098E-02		8.157E-02	1.263E-01	6.691E-03	-0.641
NP-239	-4.522E-02		1.896E-01	3.060E-01	1.913E-02	-0.148
AM-241	1.329E-01		1.653E-01	2.478E-01	2.040E-02	0.536

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-4.927E-02		9.757E-02	1.562E-01	1.124E-02	-0.315
AM-246	1.095E-01		1.355E-01	2.423E-01	1.672E-02	0.452
CM-247	1.188E-02		3.511E-02	5.961E-02	3.344E-03	0.199
CF-249	7.270E-03		3.854E-02	6.493E-02	3.626E-03	0.112
CF-251	8.596E-03		1.218E-01	1.970E-01	1.041E-02	0.044

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101014            *
* Acquisition date   : 2-FEB-2010 11:31:04 Detector SN#      :              *
* Detector ID        : GAM19 Sensitivity      : 5.000          *
* Geometry           : CAN Energy tolerance: 1.500          *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000   *
* Elapsed real time  : 0 02:00:01.51 Half life ratio : 8.000   *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G245101014 Analyst initials: MXR1         *
* Batch Number       : 944037 Sample Quantity : 1.3810E+02 GRAM *
* Recovery           : 1.00000 Carrier Weight : 0.00000         *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 12-MAR-2009 10:24:54 MS Isotope       :              *
* MSD DPM           : 0.000 MSD Isotope       :                  *
* LCS DPM           : 0.000 LCS Isotope       :                  *
* LCSD DPM          : 0.000 LCSD Isotope      :                  *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.341E+01	2.275E+00	2.318E-01	1.161E+00
CD-109	1.696E+00	1.443E+00	8.138E-01	7.362E-01
SN-126	1.655E-01	1.408E-01	8.331E-02	7.184E-02
BA-137M	1.810E-01	6.485E-02	2.872E-02	3.309E-02
CS-137	1.913E-01	6.856E-02	3.036E-02	3.498E-02
TL-208	5.254E-01	8.699E-02	2.648E-02	4.438E-02
BI-211	3.731E+00	5.049E-01	1.703E-01	2.576E-01
PB-212	1.512E+00	1.514E-01	4.801E-02	7.725E-02
PO-212	1.512E+00	1.514E-01	4.801E-02	7.725E-02
BI-214	1.099E+00	1.785E-01	5.085E-02	9.106E-02
PB-214	1.298E+00	1.878E-01	5.936E-02	9.580E-02
PO-214	1.298E+00	1.878E-01	5.936E-02	9.580E-02
PO-216	1.512E+00	1.514E-01	4.801E-02	7.725E-02
PO-218	1.298E+00	1.878E-01	5.936E-02	9.580E-02
RA-224	4.704E+00	1.113E+00	5.460E-01	5.676E-01
RA-226	1.099E+00	1.785E-01	5.085E-02	9.106E-02
AC-228	1.340E+00	3.049E-01	1.093E-01	1.556E-01
RA-228	1.340E+00	3.049E-01	1.093E-01	1.556E-01
TH-228	1.543E+00	1.544E-01	4.898E-02	7.880E-02
TH-230	1.099E+00	1.785E-01	5.085E-02	9.106E-02
TH-232	1.340E+00	3.049E-01	1.093E-01	1.556E-01
TH-234	3.152E+00	1.798E+00	1.073E+00	9.175E-01
U-234	1.099E+00	1.785E-01	5.085E-02	9.106E-02
NP-237	4.859E-01	4.250E-01	2.187E-01	2.168E-01
U-238	3.152E+00	1.798E+00	1.073E+00	9.175E-01
AM-243	2.478E-01	8.032E-02	4.800E-02	4.098E-02
ANH-511	1.297E-01	6.572E-02	2.283E-02	3.353E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.498E-01	3.413E-01	3.036E-01	1.741E-01	NOT IDENT.
NA-22	3.399E-02	3.892E-02	3.593E-02	1.986E-02	NOT IDENT.
NA-24	-6.496E+07	1.674E+08	0.000E+00	8.543E+07	SHORT HLIF
AL-26	1.318E-02	3.177E-02	2.817E-02	1.621E-02	NOT IDENT.
TI-44	3.304E-01	5.617E-02	4.121E-02	2.866E-02	FAIL ABUN
SC-46	9.062E-03	3.773E-02	3.223E-02	1.925E-02	FAIL ABUN
V-48	-2.501E-02	8.285E-02	6.653E-02	4.227E-02	NOT IDENT.
CR-51	1.251E-01	4.326E-01	3.553E-01	2.207E-01	NOT IDENT.
MN-52	3.567E-01	3.962E-01	3.718E-01	2.021E-01	NOT IDENT.
MN-54	1.075E-02	3.428E-02	2.953E-02	1.749E-02	NOT IDENT.
CO-56	-3.436E-02	3.872E-02	2.956E-02	1.976E-02	NOT IDENT.
CO-57	-1.205E-02	2.450E-02	2.088E-02	1.250E-02	NOT IDENT.
CO-58	-2.451E-02	3.810E-02	3.001E-02	1.944E-02	NOT IDENT.
FE-59	1.026E-02	8.446E-02	7.357E-02	4.309E-02	NOT IDENT.
CO-60	2.688E-03	3.214E-02	2.760E-02	1.640E-02	NOT IDENT.
ZN-65	-1.044E-02	9.374E-02	6.855E-02	4.783E-02	NOT IDENT.
GE-68	3.485E-01	1.174E+00	1.039E+00	5.991E-01	NOT IDENT.
AS-73	-2.134E-01	7.954E-01	7.104E-01	4.058E-01	NOT IDENT.
AS-74	4.513E-02	1.041E-01	9.188E-02	5.312E-02	NOT IDENT.
SE-75	4.715E-02	4.566E-02	3.934E-02	2.329E-02	NOT IDENT.
BR-77	-5.442E+00	3.964E+01	0.000E+00	2.022E+01	SHORT HLIF
SR-82	-3.088E-01	4.145E-01	3.256E-01	2.115E-01	NOT IDENT.
RB-83	1.105E-02	6.721E-02	5.547E-02	3.429E-02	NOT IDENT.
RB-84	2.749E-02	7.233E-02	6.257E-02	3.691E-02	NOT IDENT.
KR-85	9.940E+00	7.457E+00	6.225E+00	3.805E+00	NOT IDENT.
SR-85	5.364E-02	4.024E-02	3.359E-02	2.053E-02	NOT IDENT.
RB-86	1.218E-01	8.607E-01	7.517E-01	4.391E-01	NOT IDENT.
Y-88	-2.937E-03	3.244E-02	2.646E-02	1.655E-02	NOT IDENT.
ZR-88	1.378E-02	3.012E-02	2.706E-02	1.537E-02	NOT IDENT.
Y-91	1.808E+00	1.680E+01	1.452E+01	8.572E+00	NOT IDENT.
NB-94	-4.125E-03	3.045E-02	2.552E-02	1.554E-02	NOT IDENT.
NB-95	4.351E-02	4.384E-02	3.565E-02	2.237E-02	NOT IDENT.
NB-95M	5.402E-01	1.649E-01	1.396E-01	8.415E-02	NOT IDENT.
ZR-95	-2.633E-02	6.866E-02	5.592E-02	3.503E-02	NOT IDENT.
NB-97	4.640E+06	1.230E+07	0.000E+00	6.275E+06	SHORT HLIF
ZR-97	5.323E+08	2.298E+08	0.000E+00	1.173E+08	SHORT HLIF
MO-99	1.589E+01	3.712E+01	3.242E+01	1.894E+01	NOT IDENT.
TC-99M	-1.554E+22	2.746E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.276E-02	3.184E-02	2.639E-02	1.625E-02	NOT IDENT.
RH-102	3.576E-03	2.839E-02	2.481E-02	1.449E-02	NOT IDENT.
RU-103	1.735E-02	4.087E-02	3.632E-02	2.085E-02	FAIL ABUN
RH-106	1.573E-01	2.838E-01	2.525E-01	1.448E-01	FAIL ABUN
RU-106	1.573E-01	2.833E-01	2.525E-01	1.446E-01	FAIL ABUN
AG-108M	-2.640E-02	3.024E-02	2.483E-02	1.543E-02	NOT IDENT.
AG-110M	7.747E-03	3.684E-02	2.777E-02	1.880E-02	NOT IDENT.
IN-111	-1.399E-01	3.739E+00	2.756E+00	1.908E+00	NOT IDENT.
IN-113M	-1.035E-02	4.375E-02	3.782E-02	2.232E-02	NOT IDENT.
SN-113	-1.035E-02	4.375E-02	3.782E-02	2.232E-02	NOT IDENT.
IN-114M	-2.645E-02	2.110E-01	1.569E-01	1.077E-01	NOT IDENT.
CD-115	1.728E+00	4.376E+01	0.000E+00	2.233E+01	SHORT HLIF
SN-117M	1.806E-03	7.138E-02	6.183E-02	3.642E-02	NOT IDENT.
SB-122	1.779E+00	8.103E+00	6.156E+00	4.134E+00	NOT IDENT.
I-123	-1.845E+09	2.807E+09	0.000E+00	1.432E+09	SHORT HLIF
TE-123M	-1.977E-02	3.009E-02	2.535E-02	1.535E-02	NOT IDENT.
I-124	-3.975E-01	1.511E+00	1.086E+00	7.711E-01	NOT IDENT.
SB-124	5.527E-02	6.472E-02	6.255E-02	3.302E-02	FAIL ABUN
SB-125	-1.079E-02	8.463E-02	7.321E-02	4.318E-02	FAIL ABUN
TE-125M	4.464E+00	9.720E+00	8.676E+00	4.959E+00	NOT IDENT.
I-126	4.528E-02	2.447E-01	1.837E-01	1.249E-01	NOT IDENT.
SB-126	1.273E-01	1.797E-01	1.529E-01	9.167E-02	FAIL ABUN
SB-127	1.480E+00	3.008E+00	2.651E+00	1.535E+00	NOT IDENT.
XE-127	1.861E-02	5.080E-02	4.268E-02	2.592E-02	NOT IDENT.
I-131	-6.688E-02	1.703E-01	1.465E-01	8.687E-02	NOT IDENT.
TE-132	2.373E-01	1.839E+00	1.575E+00	9.383E-01	NOT IDENT.
BA-133	4.143E-02	4.330E-02	3.553E-02	2.209E-02	NOT IDENT.
I-133	6.484E+04	2.606E+05	0.000E+00	1.330E+05	SHORT HLIF
CS-134	7.413E-02	4.993E-02	4.219E-02	2.547E-02	FAIL ABUN
CS-135	3.028E-01	1.743E-01	1.483E-01	8.892E-02	NOT IDENT.
I-135	1.290E+20	1.121E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.459E-01	1.238E-01	9.431E-02	6.316E-02	FAIL ABUN
CE-139	-2.671E-02	2.965E-02	2.460E-02	1.513E-02	NOT IDENT.
BA-140	4.344E-02	2.676E-01	2.332E-01	1.365E-01	NOT IDENT.
LA-140	-5.779E-03	9.960E-02	8.283E-02	5.082E-02	FAIL ABUN
CE-141	1.383E-02	7.045E-02	6.064E-02	3.595E-02	NOT IDENT.
CE-143	1.018E+04	3.083E+03	0.000E+00	1.573E+03	SHORT HLIF
CE-144	6.874E-02	2.339E-01	1.810E-01	1.194E-01	NOT IDENT.
PM-144	-1.521E-02	3.470E-02	2.726E-02	1.771E-02	NOT IDENT.
PR-144	-1.033E+00	2.358E+00	1.852E+00	1.203E+00	NOT IDENT.

PM-146	2.447E-02	3.864E-02	3.495E-02	1.972E-02	NOT IDENT.
ND-147	9.727E-03	6.639E-01	5.727E-01	3.387E-01	NOT IDENT.
PM-149	2.364E+02	3.902E+02	0.000E+00	1.991E+02	SHORT HLIF
EU-152	4.724E-02	1.626E-01	8.731E-02	8.296E-02	NOT IDENT.
GD-153	-6.651E-03	8.781E-02	6.764E-02	4.480E-02	NOT IDENT.
EU-154	9.486E-02	1.087E-01	1.001E-01	5.544E-02	NOT IDENT.
EU-155	-1.359E-02	1.048E-01	9.175E-02	5.345E-02	FAIL ABUN
TB-160	-4.298E-02	1.430E-01	1.160E-01	7.294E-02	FAIL ABUN
HO-166M	1.459E-02	5.488E-02	4.749E-02	2.800E-02	NOT IDENT.
TM-171	-1.824E+01	3.094E+01	2.361E+01	1.578E+01	NOT IDENT.
LU-176	5.741E-03	2.514E-02	1.975E-02	1.282E-02	NOT IDENT.
LU-177	1.610E+00	2.056E+00	1.600E+00	1.049E+00	NOT IDENT.
LU-177M	-8.452E-02	1.598E-01	1.349E-01	8.154E-02	FAIL ABUN
HF-181	-2.161E-02	4.572E-02	3.841E-02	2.333E-02	NOT IDENT.
W-181	4.309E-01	4.195E-01	3.419E-01	2.141E-01	NOT IDENT.
TA-182	-2.474E-01	1.960E-01	1.496E-01	9.999E-02	FAIL ABUN
RE-183	3.147E-02	1.120E-01	9.794E-02	5.716E-02	NOT IDENT.
RE-184	-1.022E-01	2.341E-01	1.936E-01	1.194E-01	FAIL ABUN
OS-185	-6.027E-03	3.946E-02	3.318E-02	2.013E-02	NOT IDENT.
RE-188	1.240E-01	1.826E-01	1.621E-01	9.316E-02	NOT IDENT.
W-188	-2.042E+00	8.211E+00	6.254E+00	4.189E+00	FAIL ABUN
IR-192	-8.287E-03	3.330E-02	2.912E-02	1.699E-02	FAIL ABUN
AU-195	1.651E-01	2.412E-01	2.025E-01	1.231E-01	FAIL ABUN
TL-200	1.233E+04	9.862E+03	0.000E+00	5.032E+03	SHORT HLIF
TL-201	-1.012E+01	2.049E+01	1.731E+01	1.045E+01	NOT IDENT.
TL-202	6.542E-02	9.178E-02	8.311E-02	4.683E-02	NOT IDENT.
HG-203	3.673E-02	4.019E-02	3.723E-02	2.051E-02	NOT IDENT.
BI-207	-1.140E-03	4.708E-02	4.055E-02	2.402E-02	FAIL ABUN
TL-207	-2.439E-01	7.245E-01	5.436E-01	3.697E-01	FAIL ABUN
PO-209	1.654E+00	7.061E+00	6.019E+00	3.602E+00	NOT IDENT.
BI-210	-8.992E-01	3.043E+00	2.694E+00	1.553E+00	NOT IDENT.
PB-210	-8.992E-01	3.043E+00	2.694E+00	1.553E+00	NOT IDENT.
PO-210	-8.992E-01	3.043E+00	2.694E+00	1.553E+00	NOT IDENT.
PB-211	-8.772E-01	1.033E+00	7.281E-01	5.273E-01	NOT IDENT.
BI-212	9.491E-01	4.175E-01	2.958E-01	2.130E-01	FAIL ABUN
PO-215	-2.439E-01	7.245E-01	5.436E-01	3.697E-01	FAIL ABUN
RN-219	1.021E-01	3.820E-01	3.392E-01	1.949E-01	FAIL ABUN
RN-220	1.028E+00	2.283E+01	1.970E+01	1.165E+01	NOT IDENT.
RA-223	-2.439E-01	7.245E-01	5.436E-01	3.697E-01	FAIL ABUN
AC-227	1.048E-01	3.636E-01	3.121E-01	1.855E-01	FAIL ABUN
TH-227	1.048E-01	3.637E-01	3.121E-01	1.856E-01	FAIL ABUN
TH-229	4.170E-01	4.962E-01	4.380E-01	2.532E-01	FAIL ABUN
PA-231	2.859E-01	1.432E+00	1.287E+00	7.307E-01	FAIL ABUN
TH-231	-2.439E-01	7.245E-01	5.436E-01	3.697E-01	FAIL ABUN
U-231	-4.478E+00	2.727E+00	1.923E+00	1.391E+00	FAIL ABUN
PA-233	-1.528E-02	5.852E-02	5.116E-02	2.986E-02	FAIL ABUN
PA-234	-1.439E-01	2.823E-01	2.213E-01	1.440E-01	FAIL ABUN
PA-234M	6.070E+00	4.636E+00	4.355E+00	2.365E+00	NOT IDENT.
U-235	3.423E-02	2.163E-01	1.861E-01	1.104E-01	FAIL ABUN
NP-236	-8.098E-02	7.994E-02	6.620E-02	4.079E-02	NOT IDENT.
NP-239	-4.522E-02	1.858E-01	1.613E-01	9.481E-02	FAIL ABUN
AM-241	1.329E-01	1.620E-01	1.322E-01	8.266E-02	NOT IDENT.
CM-243	-4.927E-02	9.562E-02	8.255E-02	4.879E-02	FAIL ABUN
AM-246	1.095E-01	1.328E-01	1.224E-01	6.777E-02	NOT IDENT.
CM-247	1.188E-02	3.441E-02	3.070E-02	1.756E-02	NOT IDENT.
CF-249	7.270E-03	3.777E-02	3.346E-02	1.927E-02	NOT IDENT.
CF-251	8.596E-03	1.193E-01	1.031E-01	6.088E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	354.7139
46.50	354.7139
46.50	354.7139
48.70	348.8385
49.72	402.9193
51.35	350.9064
52.39	367.9642
52.97	386.8143
53.15	386.8941
53.44	396.8195
54.07	404.9462
56.28	427.5676
56.28	422.6547
57.37	0.0000
57.53	412.0783
57.53	412.0795
57.60	412.1098
57.98	406.5027
57.98	406.5027
59.32	413.4008
59.32	413.4008
59.40	413.4360
59.54	413.4984
59.72	413.5775
60.01	431.0747
61.10	456.8657
61.14	456.8842
61.30	475.9351
63.00	481.1357
63.29	481.2799
63.29	481.2799
63.58	508.7636
64.28	502.7848
65.12	500.0399
65.20	500.0803
65.20	500.0803
66.05	517.9886
66.72	523.1068
66.83	523.1650
66.91	548.6519
67.20	548.8099
67.20	548.8099
67.75	571.3915
67.85	574.6342
68.90	544.9540
68.90	544.9540
69.30	545.1689
69.67	500.7173
70.82	506.0643
70.82	506.0643
70.83	522.0344
72.80	521.4229
72.87	526.2574
72.87	526.2574
74.67	567.8111
74.81	567.8868
74.81	567.8868
74.81	567.8868
74.81	567.8868
74.81	567.8868
74.81	567.8868
74.81	567.8868
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77.11	569.1024



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77.11	569.1024
77.11	569.1024
77.11	569.1024
77.11	569.1024
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79.80	472.9027
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80.18	469.7090
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80.30	469.7606
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81.07	455.3105
81.07	455.3105
81.07	455.3105
81.07	455.3105
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83.37	549.1050
83.78	549.3042
83.78	549.3042
83.78	549.3042
83.78	549.3042
84.21	544.6631
84.90	517.5000
85.43	618.2813
86.29	618.7430
86.50	618.8550
86.54	618.8760
86.59	618.9040
86.72	618.9739
86.79	619.0089
86.94	619.0906
87.30	619.2819
87.30	619.2819
87.30	619.2819
87.30	619.2819
87.30	619.2819
87.30	619.2819
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88.47	612.3707
89.95	726.8351
91.11	727.5426
92.29	728.2609
92.38	794.7726
92.38	794.7726
93.35	516.5708
94.00	338.9775
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94.67	365.2537
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94.90	410.9889
94.90	410.9889
94.90	410.9889
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95.87	481.4978
96.73	463.8678
97.43	390.5879
98.44	369.3693
98.44	369.3707
98.88	369.5002
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99.55	348.8933
99.86	354.0962
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100.10	327.5513
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103.76	394.1924
105.00	369.9097
105.31	372.0545
108.00	389.2992
109.28	365.9651

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111.00	415.9842
111.76	404.8601
112.95	357.6665
115.19	355.1502
116.30	339.8929
117.00	353.5437
117.00	353.5437
117.66	362.0111
121.11	334.8312
121.62	323.5091
121.78	323.5459
122.06	323.6099
122.32	314.0053
122.32	314.0053
122.32	314.0053
122.32	314.0053
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136.25	347.7808
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144.24	367.5516
144.24	367.5516
144.24	367.5516
145.22	358.2710
145.44	346.6932
147.16	364.0014
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152.70	334.4736
153.22	329.2709
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154.21	350.7282
154.21	350.7282
154.21	350.7282
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162.64	287.3620
163.35	276.7960
163.89	254.4348
165.85	329.6492
167.43	314.9590
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171.86	302.8824
172.10	299.7007
176.55	269.2337
176.60	275.7031
181.06	257.3960
184.41	287.2983
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186.00	284.7347
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205.31	280.0293

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208.81	265.1934
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209.75	254.3571
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216.55	231.0317
218.09	220.2011
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223.80	229.6582
226.40	241.0055
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227.08	249.9342
227.20	241.1003
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228.18	231.2566
228.18	231.2566
231.56	0.0000
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236.00	264.7824
236.00	264.7824
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238.63	266.8927
238.63	266.8927
238.63	266.8927
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241.98	196.0302
241.98	196.0302
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245.39	208.8361
247.94	186.3624
248.90	197.7787
249.79	0.0000
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252.85	221.6457
252.85	221.6457
254.15	0.0000
256.20	192.8347
256.20	192.8347
260.50	197.7019
260.90	0.0000
262.80	213.6456
264.65	178.7749
268.24	196.8785
268.79	178.8874
269.46	201.4962
269.46	201.4962
269.46	201.4962
269.46	201.4962
271.23	203.1564
273.65	244.0448
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277.60	195.3120
277.60	195.3120
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285.90	0.0000
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286.10	173.5647
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295.21	180.9162

295.21	180.9162
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300.12	149.2929
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304.40	167.8668
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306.84	151.2292
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316.51	165.6189
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319.41	149.6886
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323.87	183.0177
323.87	183.0177
323.87	183.0177
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334.20	129.7068
334.30	129.7119
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338.28	182.1062
338.28	182.1062
338.32	182.1086
338.32	182.1086
338.32	182.1086
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351.92	164.1557
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391.69	143.8100
391.69	143.8100
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400.65	141.4063
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401.81	126.2721
402.60	126.3062
404.84	153.9653
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413.65	124.8722
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432.53	116.0622
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445.03	128.0888
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477.59	113.8322
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511.85	100.2599
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513.99	93.4385
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569.67	94.9165
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602.71	87.3586
603.60	90.7405
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604.70	85.7242
609.31	80.7793

609.31	80.7793
609.31	80.7793
609.31	80.7793
610.33	80.8008
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618.01	80.9609
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621.84	66.8588
631.29	74.1299
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661.65	84.9291
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666.33	75.1237
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696.49	88.7463
697.00	86.6927
697.49	86.7029
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722.89	67.4930
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785.46	57.9246
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880.51	56.9543
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898.02	54.9993
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911.07	68.1172
911.07	68.1172
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968.20	89.6555
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969.11	76.5488
969.11	76.5488
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1001.68	57.7654
1004.76	63.3033
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1024.50	0.0000
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1038.76	0.0000
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1046.59	56.3957
1048.07	62.8839

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1050.47	58.2858
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1063.62	52.8600
1076.63	52.0511
1077.35	52.9875
1078.86	47.4244
1085.78	47.4825
1099.22	47.5946
1112.02	67.3418
1112.84	67.3506
1115.52	59.3610
1120.29	52.9874
1120.29	52.9874
1120.29	52.9874
1120.29	52.9874
1120.51	55.2645
1121.28	55.2717
1124.00	0.0000
1129.67	50.6602
1131.51	0.0000
1147.95	0.0000
1167.94	63.2651
1173.22	56.7065
1175.09	49.1605
1177.93	53.9130
1189.05	44.5368
1204.90	52.2540
1205.75	0.0000
1213.00	75.1554
1221.42	87.6426
1230.97	83.0104
1235.34	74.4739
1236.41	0.0000
1238.25	63.0459
1246.25	42.0861
1260.41	0.0000
1271.85	46.0996
1274.45	36.5094
1274.54	36.5110
1291.56	38.5352
1298.22	0.0000
1312.09	31.8936
1325.50	29.0540
1325.50	29.0540
1332.49	28.1150
1333.61	30.0590
1360.21	37.9701
1362.66	0.0000
1365.15	32.1527
1368.21	36.3915
1368.53	0.0000
1376.25	25.3748
1384.27	20.1002
1394.10	24.4639
1395.20	29.3604
1407.95	35.2998
1434.06	20.6702
1436.60	22.6472
1457.56	0.0000
1460.81	20.7505
1489.15	13.8895
1509.49	31.8385
1596.49	22.1522
1620.62	5.0509
1678.03	0.0000
1691.02	8.1563
1691.02	8.1563
1706.46	0.0000
1750.46	0.0000
1764.49	11.3205
1764.49	11.3205
1764.49	11.3205
1764.49	11.3205
1770.23	12.3584
1771.40	12.3599
1791.20	0.0000
1808.65	15.5219



1836.01

14.5355

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101014

Total Uranium Activity	9.3936E+00	ug/g
Total Uranium Counting Unc.	5.3506E+00	ug/g
Total Uranium Tpu	2.7299E-06	ug/g
Total Uranium Mda	3.1946E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G245101014
*  ANALYST       : MXR1                             DETECTOR    : GAM19
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:31:04.17          SAMPLE ALQT  : 138.100 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.421E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.487E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.355E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.632E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:52:01.04

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101015.CNF;1
Sample date   : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:51:24.
Sample ID     : G245101015 Sample quantity : 1.16730E+02 GRAM
Detector name : GAM15 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.17 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 5.00000
Batch ID       : 944037 Detector SN# :
Matrix Spike ID : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.51*	164	401	1.38	125.51	121	12	2.27E-02	26.1	
2	2	74.03*	205	443	1.58	148.55	143	18	2.84E-02	20.8	3.80E+00
3	2	76.48*	420	435	1.52	153.45	143	18	5.83E-02	10.7	
4	0	86.38	129	375	1.17	173.24	171	7	1.80E-02	26.2	
5	0	92.79*	274	686	1.44	186.04	180	14	3.80E-02	22.6	
6	0	185.14*	266	339	1.58	370.66	365	12	3.69E-02	16.0	
7	0	208.98	90	262	1.38	418.33	413	10	1.25E-02	35.3	
8	3	238.01*	893	218	1.28	476.37	471	17	1.24E-01	4.6	1.49E+00
9	3	240.97*	235	253	1.91	482.27	471	17	3.27E-02	17.9	
10	0	269.81	75	155	1.35	539.93	536	9	1.04E-02	32.2	
11	0	294.67	361	193	1.44	589.65	584	12	5.01E-02	9.3	
12	0	299.46*	56	165	1.37	599.22	596	9	7.71E-03	44.9	
13	0	337.33	190	237	1.34	674.92	669	14	2.64E-02	18.6	
14	0	351.37*	486	179	1.39	703.00	696	13	6.74E-02	7.4	
15	0	462.48	60	106	1.67	925.13	921	10	8.39E-03	34.3	
16	0	510.18*	86	136	2.30	1020.50	1013	14	1.20E-02	35.5	
17	0	582.56*	265	109	1.41	1165.21	1158	15	3.68E-02	10.8	
18	0	608.70*	418	62	1.84	1217.48	1212	11	5.80E-02	6.4	
19	0	661.16	273	120	1.66	1322.37	1314	17	3.80E-02	11.0	
20	0	727.45	73	76	1.39	1454.89	1449	14	1.01E-02	28.9	
21	0	860.75	46	59	1.40	1721.44	1714	14	6.36E-03	38.7	
22	0	910.49*	206	49	1.89	1820.88	1813	15	2.86E-02	10.5	
23	0	933.27	26	25	1.53	1866.43	1862	9	3.63E-03	41.4	
24	1	963.86	56	35	2.18	1927.60	1921	22	7.72E-03	24.8	1.18E+00
25	1	968.26*	142	26	2.16	1936.40	1921	22	1.97E-02	12.0	
26	0	1119.55*	91	39	1.76	2238.91	2231	17	1.26E-02	19.4	
27	0	1460.14	734	25	2.09	2920.00	2910	21	1.02E-01	4.1	
28	0	1508.78	26	8	2.71	3017.27	3010	16	3.57E-03	31.6	
29	0	1764.68*	35	32	2.33	3529.06	3517	18	4.83E-03	43.3	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101015.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:51:24
Sample ID         : G245101015 Sample quantity : 116.73 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA15 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.17 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.215E+01	2.477E+00	6.675E-01	5.103E-02	33.189
SN-126		64.28		5.717E-02	1.094E+00	1.597E+00	2.738E-01	0.036
	+	86.94		1.067E+00	7.165E-01	8.839E-01	3.717E-01	1.207
	+	87.57	*	2.566E-01	1.376E-01	2.227E-01	2.570E-02	1.152
BA-137M	+	661.65	*	4.846E-01	1.090E-01	7.214E-02	3.629E-03	6.717
CS-137	+	661.65	*	5.122E-01	1.153E-01	7.626E-02	3.858E-03	6.717
TL-208		277.35		7.042E-01	5.050E-01	8.879E-01	9.949E-02	0.793
	+	510.84		5.204E-01	3.727E-01	2.842E-01	2.861E-02	1.831
	+	583.14	*	4.534E-01	1.024E-01	6.631E-02	4.222E-03	6.837
	+	860.37		7.325E-01	5.701E-01	5.067E-01	4.355E-02	1.446
BI-211	+	72.87		1.655E+01	7.118E+00	7.579E+00	8.451E-01	2.184
	+	351.07	*	3.763E+00	6.158E-01	4.482E-01	3.079E-02	8.397
PB-212	+	74.81		1.964E+00	8.646E-01	8.519E-01	1.237E-01	2.306
	+	77.11		2.200E+00	5.292E-01	4.692E-01	5.211E-02	4.688
	+	87.30		1.187E+00	6.474E-01	9.613E-01	1.466E-01	1.235
	+	238.63	*	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
	+	300.09		1.460E+00	1.317E+00	1.608E+00	1.443E-01	0.908
PO-212	+	74.81		1.964E+00	8.646E-01	8.519E-01	1.237E-01	2.306
	+	77.11		2.200E+00	5.292E-01	4.692E-01	5.211E-02	4.688
	+	87.30		1.187E+00	6.474E-01	9.613E-01	1.466E-01	1.235
	+	115.19		2.391E+00	4.690E+00	7.811E+00	5.976E-01	0.306
	+	238.63	*	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
	+	300.09		1.460E+00	1.317E+00	1.608E+00	1.443E-01	0.908
BI-214	+	609.31	*	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
	+	1120.29		1.527E+00	6.081E-01	5.214E-01	4.810E-02	2.928
	+	1764.49		8.025E-01	6.966E-01	2.829E-01	1.760E-02	2.837
PB-214	+	74.81		3.385E+00	1.477E+00	1.468E+00	1.960E-01	2.306
	+	77.11		3.771E+00	9.517E-01	8.044E-01	1.083E-01	4.688
	+	87.30		2.033E+00	1.101E+00	1.647E+00	2.283E-01	1.235
	+	241.98		2.416E+00	8.928E-01	6.693E-01	5.982E-02	3.609
	+	295.21		1.665E+00	3.464E-01	2.755E-01	2.548E-02	6.045
	+	351.92	*	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
PO-214	+	74.81		3.385E+00	1.477E+00	1.468E+00	1.960E-01	2.306
	+	77.11		3.771E+00	9.517E-01	8.044E-01	1.083E-01	4.688

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	87.30		2.033E+00	1.101E+00	1.647E+00	2.283E-01	1.235
	+	241.98		2.416E+00	8.928E-01	6.693E-01	5.982E-02	3.609
	+	295.21		1.665E+00	3.464E-01	2.755E-01	2.548E-02	6.045
	+	351.92	*	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
	+	74.81		1.964E+00	8.646E-01	8.519E-01	1.237E-01	2.306
	+	77.11		2.200E+00	5.292E-01	4.692E-01	5.211E-02	4.688
	+	87.30		1.187E+00	6.474E-01	9.613E-01	1.466E-01	1.235
PO-218	+	238.63	*	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
	+	300.09		1.460E+00	1.317E+00	1.608E+00	1.443E-01	0.908
	+	74.81		3.385E+00	1.477E+00	1.468E+00	1.960E-01	2.306
	+	77.11		3.771E+00	9.517E-01	8.044E-01	1.083E-01	4.688
	+	87.30		2.033E+00	1.101E+00	1.647E+00	2.283E-01	1.235
	+	241.98		2.416E+00	8.928E-01	6.693E-01	5.982E-02	3.609
	+	295.21		1.665E+00	3.464E-01	2.755E-01	2.548E-02	6.045
RA-224	+	351.92	*	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
	+	240.98	*	4.580E+00	1.673E+00	1.372E+00	9.550E-02	3.338
	+	609.31	*	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
RA-226	+	1120.29		1.527E+00	6.081E-01	5.214E-01	4.810E-02	2.928
	+	1764.49		8.025E-01	6.966E-01	2.829E-01	1.760E-02	2.837
	+	338.32		1.625E+00	8.976E-01	5.152E-01	2.105E-01	3.153
AC-228	+	911.07	*	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
	+	969.11		1.899E+00	6.317E-01	3.897E-01	9.011E-02	4.872
	+	338.32		1.625E+00	8.976E-01	5.152E-01	2.105E-01	3.153
RA-228	+	911.07	*	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
	+	969.11		1.899E+00	6.317E-01	3.897E-01	9.011E-02	4.872
	+	74.81		2.004E+00	8.622E-01	8.691E-01	9.705E-02	2.306
TH-228	+	77.11		2.244E+00	5.399E-01	4.787E-01	5.315E-02	4.688
	+	87.30		1.211E+00	6.492E-01	9.806E-01	1.130E-01	1.235
	+	238.63	*	1.556E+00	1.937E-01	1.230E-01	1.018E-02	12.651
TH-230	+	300.09		1.489E+00	1.600E+00	1.641E+00	9.687E-01	0.908
	+	609.31	*	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
	+	1120.29		1.527E+00	6.081E-01	5.214E-01	4.810E-02	2.928
TH-232	+	1764.49		8.024E-01	6.966E-01	2.829E-01	1.760E-02	2.837
	+	338.32		1.625E+00	6.131E-01	5.152E-01	3.317E-02	3.153
	+	911.07	*	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
TH-234	+	969.11		1.899E+00	6.317E-01	3.897E-01	9.011E-02	4.872
	+	63.29	*	8.083E+00	4.514E+00	4.013E+00	7.920E-01	2.014
	+	92.38		3.349E+00	1.645E+00	1.165E+00	2.220E-01	2.875
U-234	+	609.31	*	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
	+	1120.29		1.527E+00	6.081E-01	5.214E-01	4.810E-02	2.928
	+	1764.49		8.024E-01	6.966E-01	2.829E-01	1.760E-02	2.837
NP-237	+	86.50	*	7.535E-01	4.329E-01	6.183E-01	1.460E-01	1.219
	+	95.87		-6.552E-01	1.460E+00	2.035E+00	5.105E-01	-0.322
U-238	+	63.29	*	8.083E+00	4.514E+00	4.013E+00	7.920E-01	2.014
	+	92.38		3.349E+00	1.557E+00	1.165E+00	1.225E-01	2.875
AM-243	+	74.67	*	3.185E-01	1.370E-01	1.388E-01	1.543E-02	2.295
	+	86.72		2.826E+01	1.515E+01	2.351E+01	2.698E+00	1.202
	+	117.66		-7.966E+00	5.081E+00	7.673E+00	5.731E-01	-1.038
		142.18		1.793E+01	2.378E+01	3.940E+01	2.685E+00	0.455

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	1.124E-01	7.995E-02	6.141E-02	3.468E-03	1.830

---- 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	*	8.476E-02	4.563E-01	7.553E-01	5.033E-02	0.112
NA-22		1274.54	*	-1.610E-02	5.414E-02	8.461E-02	5.807E-03	-0.190
NA-24		1368.53	*	-7.219E+01	5.414E-02	Half-Life too short		
AL-26		1129.67		-1.730E+00	1.957E+00	2.772E+00	1.746E-01	-0.624
		1808.65	*	-1.663E-02	3.428E-02	5.011E-02	2.998E-03	-0.332
TI-44		67.85		-2.588E-02	1.088E-01	1.311E-01	1.496E-02	-0.197
		78.38	*	1.904E-01	6.608E-02	1.025E-01	1.140E-02	1.857
SC-46		889.25	*	-1.174E-02	4.870E-02	7.867E-02	6.599E-03	-0.149
	+	1120.51		2.721E-01	1.069E-01	1.553E-01	9.972E-03	1.752
V-48		944.10		4.060E-01	1.297E+00	2.205E+00	1.812E-01	0.184
		983.50	*	-4.212E-02	9.609E-02	1.501E-01	1.186E-02	-0.281
		1312.09		-2.044E-02	1.021E-01	1.600E-01	1.168E-02	-0.128
CR-51		320.08	*	-1.208E-02	5.331E-01	8.861E-01	6.390E-02	-0.014
MN-52		744.21		3.750E-01	4.874E-01	8.683E-01	5.326E-02	0.432
		848.13		1.663E+00	1.602E+01	2.683E+01	2.068E+00	0.062
		935.52		-1.580E-01	6.553E-01	8.969E-01	7.430E-02	-0.176
		1246.25		4.040E-01	1.550E+01	2.521E+01	1.644E+00	0.016
		1333.61		3.633E+00	1.039E+01	1.760E+01	1.329E+00	0.206
		1434.06	*	-1.326E-01	4.930E-01	7.904E-01	5.860E-02	-0.168
MN-54		834.83	*	3.186E-02	4.505E-02	7.917E-02	5.934E-03	0.402
CO-56		846.75	*	-1.458E-02	5.187E-02	8.393E-02	6.451E-03	-0.174
		977.42		7.384E-02	3.235E+00	5.340E+00	4.246E-01	0.014
		1037.82		-3.116E-01	4.000E-01	6.004E-01	4.752E-02	-0.519
		1175.09		-2.837E+00	2.617E+00	3.703E+00	2.116E-01	-0.766
		1238.25		1.489E-01	1.145E-01	2.060E-01	1.392E-02	0.723
		1360.21		-9.579E-01	1.315E+00	1.891E+00	1.422E-01	-0.507
		1771.40		-6.978E-01	3.425E-01	3.190E-01	1.973E-02	-2.188
CO-57		122.06	*	1.253E-02	3.382E-02	5.595E-02	4.022E-03	0.224
		136.48		-1.282E-01	2.857E-01	4.495E-01	3.450E-02	-0.285
CO-58		810.76	*	-7.412E-02	4.577E-02	6.253E-02	4.467E-03	-1.185
FE-59		142.65		1.957E+00	4.009E+00	6.577E+00	4.479E-01	0.298
		192.34		9.184E-01	1.373E+00	2.264E+00	2.791E-01	0.406
		1099.22	*	6.349E-02	1.074E-01	1.870E-01	1.415E-02	0.340
		1291.56		-3.952E-02	1.611E-01	2.526E-01	2.131E-02	-0.156
CO-60		1173.22		-2.914E-02	4.928E-02	7.461E-02	4.249E-03	-0.391
		1332.49	*	2.973E-02	4.528E-02	7.957E-02	6.005E-03	0.374
ZN-65		1115.52	*	-7.072E-02	1.325E-01	1.709E-01	1.110E-02	-0.414
GE-68		1077.35	*	1.131E+00	1.542E+00	2.705E+00	1.879E-01	0.418
AS-73		53.44	*	2.396E-02	2.269E+00	3.778E+00	5.163E-01	0.006
AS-74		595.88	*	-7.102E-02	1.443E-01	2.238E-01	1.203E-02	-0.317
		634.78		1.290E-01	5.285E-01	8.695E-01	4.510E-02	0.148
SE-75		66.05		-1.059E+00	9.835E+00	1.423E+01	1.846E+00	-0.074
		96.73		7.754E-01	1.173E+00	1.743E+00	2.500E-01	0.445

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		121.11		6.668E-02	1.824E-01	3.018E-01	3.078E-02	0.221
		136.00		-1.416E-02	5.517E-02	8.761E-02	6.101E-03	-0.162
		198.60		2.231E-01	2.494E+00	4.014E+00	3.204E-01	0.056
		264.65	*	2.794E-02	6.555E-02	9.852E-02	6.891E-03	0.284
		279.53		-7.508E-02	1.500E-01	2.448E-01	1.786E-02	-0.307
		303.91		-2.199E-01	3.271E+00	4.717E+00	4.789E-01	-0.047
		400.65		2.559E-01	3.435E-01	5.907E-01	5.334E-02	0.433
BR-77	+	87.88		2.339E-03	3.435E-01	Half-Life	too short	
		200.40		-4.404E-04	3.435E-01	Half-Life	too short	
	+	239.00		1.016E-03	3.435E-01	Half-Life	too short	
		249.79		6.292E-05	3.435E-01	Half-Life	too short	
		281.68		-5.562E-04	3.435E-01	Half-Life	too short	
		297.23		1.203E-03	3.435E-01	Half-Life	too short	
		303.76		-7.553E-05	3.435E-01	Half-Life	too short	
		439.47		-7.666E-04	3.435E-01	Half-Life	too short	
		484.57		1.926E-04	3.435E-01	Half-Life	too short	
		520.65	*	3.854E-05	3.435E-01	Half-Life	too short	
		574.64		-2.306E-04	3.435E-01	Half-Life	too short	
		578.91		4.379E-04	3.435E-01	Half-Life	too short	
		585.48		3.056E-03	3.435E-01	Half-Life	too short	
		755.35		2.088E-04	3.435E-01	Half-Life	too short	
		817.79		4.617E-04	3.435E-01	Half-Life	too short	
SR-82		698.33		-2.163E+01	4.714E+01	7.623E+01	4.196E+00	-0.284
		776.49	*	-4.726E-01	5.527E-01	8.544E-01	5.640E-02	-0.553
		1395.20		-5.610E+00	1.336E+01	2.091E+01	1.564E+00	-0.268
RB-83		520.41	*	5.282E-02	9.013E-02	1.532E-01	8.618E-03	0.345
		529.64		7.202E-03	1.349E-01	2.203E-01	1.235E-02	0.033
		552.65		-1.893E-01	2.649E-01	4.045E-01	2.240E-02	-0.468
RB-84		881.50	*	-1.890E-02	9.062E-02	1.469E-01	1.213E-02	-0.129
KR-85		513.99	*	3.642E+00	1.061E+01	1.542E+01	8.699E-01	0.236
SR-85		513.99	*	1.965E-02	5.726E-02	8.323E-02	4.695E-03	0.236
RB-86		1076.63	*	1.075E+00	1.193E+00	2.119E+00	1.474E-01	0.507
Y-88		898.02		-1.015E-02	5.154E-02	8.363E-02	7.175E-03	-0.121
		1836.01	*	0.000E+00	4.514E-02	7.417E-02	4.332E-03	0.000
ZR-88		392.90	*	5.367E-03	4.007E-02	6.666E-02	3.780E-03	0.081
Y-91		1204.90	*	-4.673E-01	2.257E+01	3.659E+01	2.213E+00	-0.013
NB-94		702.63	*	1.817E-02	4.140E-02	7.163E-02	3.984E-03	0.254
		871.10		3.932E-02	3.959E-02	7.155E-02	5.784E-03	0.550
NB-95		765.79	*	6.099E-02	5.722E-02	1.025E-01	6.605E-03	0.595
NB-95M		235.69	*	1.722E+00	2.920E-01	4.714E-01	3.983E-02	3.654
ZR-95		724.18		1.484E-01	1.532E-01	2.414E-01	1.667E-02	0.615
		756.15	*	-5.654E-03	9.102E-02	1.512E-01	1.127E-02	-0.037
NB-97		657.90	*	3.882E+01	9.102E-02	Half-Life	too short	
		1024.50		-1.014E+02	9.102E-02	Half-Life	too short	
ZR-97		254.15		-2.035E+02	9.102E-02	Half-Life	too short	
		355.39		9.049E+01	9.102E-02	Half-Life	too short	
		507.63	*	1.279E+03	9.102E-02	Half-Life	too short	
		602.52		8.452E+01	9.102E-02	Half-Life	too short	
		1021.30		2.740E+02	9.102E-02	Half-Life	too short	



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1147.95			3.445E+01	9.102E-02	Half-Life	too short	
	1362.66			2.646E+02	9.102E-02	Half-Life	too short	
	1750.46			4.036E+02	9.102E-02	Half-Life	too short	
MO-99	140.51			-7.653E+01	1.255E+02	1.952E+02	5.307E+01	-0.392
	181.06			5.417E+00	8.895E+01	1.253E+02	2.190E+01	0.043
	366.43			1.324E+02	3.883E+02	6.551E+02	3.979E+01	0.202
	739.58	*		-4.293E+00	5.058E+01	8.157E+01	1.134E+01	-0.053
	778.00			-1.415E+02	1.453E+02	2.215E+02	1.468E+01	-0.639
TC-99M	140.51	*		-2.321E+16	1.453E+02	Half-Life	too short	
RH-101	127.23			4.737E-02	4.209E-02	7.141E-02	5.031E-03	0.663
	198.01	*		-5.425E-04	4.479E-02	7.176E-02	4.895E-03	-0.008
	325.23			2.066E-01	2.985E-01	5.135E-01	3.377E-02	0.402
RH-102	418.52			1.066E-01	3.882E-01	6.493E-01	3.704E-02	0.164
	475.06	*		-5.271E-03	3.845E-02	6.224E-02	3.548E-03	-0.085
	631.29			5.723E-02	6.841E-02	1.179E-01	6.138E-03	0.485
	697.49			-4.449E-02	9.373E-02	1.514E-01	8.319E-03	-0.294
	766.84			1.330E-01	1.407E-01	2.497E-01	1.613E-02	0.532
	1046.59			7.131E-02	1.235E-01	2.155E-01	1.571E-02	0.331
	1112.84			2.613E-01	2.730E-01	4.405E-01	2.871E-02	0.593
RU-103	497.08	*		1.505E-02	5.523E-02	9.189E-02	1.157E-02	0.164
	610.33			1.362E+01	2.860E+00	3.864E+00	5.889E-01	3.525
RH-106	511.85			3.921E-01	3.022E-01	5.302E-01	2.993E-02	0.739
	621.84	*		3.513E-01	4.210E-01	7.211E-01	8.276E-02	0.487
	1050.47			2.200E-01	2.590E+00	4.285E+00	3.106E-01	0.051
RU-106	511.85			3.921E-01	3.022E-01	5.302E-01	2.993E-02	0.739
	621.84	*		3.513E-01	4.195E-01	7.211E-01	3.789E-02	0.487
	1050.47			2.200E-01	2.590E+00	4.285E+00	3.106E-01	0.051
AG-108M	433.93	*		1.771E-02	4.311E-02	7.267E-02	4.518E-03	0.244
	614.37			2.312E-02	5.479E-02	7.995E-02	4.658E-03	0.289
	722.95			1.236E-02	5.722E-02	8.466E-02	5.356E-03	0.146
CD-109	88.03	*		6.718E-02	2.177E+00	2.271E+00	2.626E-01	0.030
AG-110M	657.75	*		7.556E-02	6.106E-02	9.479E-02	5.195E-03	0.797
	677.61			-4.034E-01	3.635E-01	5.151E-01	2.897E-02	-0.783
	706.67			6.494E-03	2.672E-01	4.486E-01	2.681E-02	0.014
	763.93			-1.255E-01	2.160E-01	3.444E-01	2.322E-02	-0.364
	884.67			5.462E-02	5.996E-02	1.074E-01	9.231E-03	0.509
	937.48			-1.457E-01	1.591E-01	1.934E-01	1.662E-02	-0.754
	1384.27			9.467E-02	1.797E-01	3.218E-01	2.501E-02	0.294
IN-111	171.28			1.402E+00	4.457E+00	7.281E+00	4.860E-01	0.193
	245.39	*		-1.339E+00	5.073E+00	7.297E+00	5.080E-01	-0.183
IN-113M	391.69	*		-1.289E-02	5.711E-02	9.280E-02	5.629E-03	-0.139
SN-113	391.69	*		-1.289E-02	5.711E-02	9.280E-02	5.629E-03	-0.139
IN-114M	190.27	*		-1.144E-01	3.017E-01	4.121E-01	2.794E-02	-0.278
CD-115	260.90			-2.402E-04	3.017E-01	Half-Life	too short	
	492.35			-4.717E-05	3.017E-01	Half-Life	too short	
	527.90	*		-3.990E-05	3.017E-01	Half-Life	too short	
SN-117M	156.02			2.288E-01	3.770E+00	6.111E+00	4.095E-01	0.037
	158.56	*		1.499E-02	9.273E-02	1.509E-01	1.009E-02	0.099
SB-122	563.90	*		4.020E+00	9.036E+00	1.515E+01	8.336E-01	0.265

----- 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		3.113E+01	1.779E+02	3.026E+02	1.644E+01	0.103
		159.00	*	-9.914E+02	1.779E+02	Half-Life	too short	
		528.96		-3.182E+04	1.779E+02	Half-Life	too short	
TE-123M		159.00	*	-1.044E-02	3.899E-02	6.225E-02	4.203E-03	-0.168
I-124		602.71	*	-1.060E-01	2.211E+00	3.062E+00	1.637E-01	-0.035
		722.78		2.565E+00	1.339E+01	1.976E+01	1.153E+00	0.130
		1325.50		-3.976E+01	9.439E+01	1.435E+02	1.071E+01	-0.277
		1376.25		6.070E+01	8.373E+01	1.474E+02	1.106E+01	0.412
	+	1509.49		8.077E+01	5.145E+01	8.337E+01	6.038E+00	0.969
		1691.02		5.734E-01	9.567E+00	1.600E+01	1.053E+00	0.036
SB-124		602.71		-2.903E-03	6.055E-02	8.386E-02	4.485E-03	-0.035
		645.85		-3.437E-01	6.664E-01	1.022E+00	6.082E-02	-0.336
		709.31		-2.872E+00	3.647E+00	5.727E+00	3.237E-01	-0.501
		713.82		6.146E-01	2.061E+00	3.533E+00	3.590E-01	0.174
		722.78		1.018E-01	5.316E-01	7.845E-01	4.791E-02	0.130
	+	968.20		2.068E+01	5.217E+00	8.972E+00	7.204E-01	2.304
		1045.16		6.981E-02	2.885E+00	4.743E+00	3.465E-01	0.015
		1325.50		-1.686E+00	4.002E+00	6.084E+00	4.540E-01	-0.277
		1368.21		-4.188E-01	2.241E+00	3.509E+00	4.490E-01	-0.119
		1436.60		1.654E+00	4.602E+00	8.067E+00	5.977E-01	0.205
		1691.02	*	5.369E-03	8.958E-02	1.498E-01	1.052E-02	0.036
SB-125		427.89	*	-9.767E-03	1.245E-01	2.035E-01	1.213E-02	-0.048
	+	463.38		7.201E-01	4.958E-01	7.260E-01	4.854E-02	0.992
		600.56		6.792E-02	2.306E-01	3.714E-01	2.350E-02	0.183
		635.90		1.408E-02	3.389E-01	5.477E-01	3.435E-02	0.026
TE-125M		109.28	*	3.289E+00	1.297E+01	2.141E+01	2.131E+00	0.154
I-126		388.63		1.284E-01	3.277E-01	5.543E-01	3.171E-02	0.232
		666.33	*	3.511E-01	3.265E-01	5.105E-01	2.598E-02	0.688
		753.82		1.528E+00	2.204E+00	3.893E+00	2.441E-01	0.393
SB-126		223.80		-3.527E+00	7.259E+00	1.129E+01	7.821E-01	-0.312
		278.60		6.479E+00	4.289E+00	7.635E+00	5.269E-01	0.849
		296.50		1.754E+01	4.456E+00	6.036E+00	4.109E-01	2.906
		414.70		-4.609E-02	1.315E-01	2.115E-01	1.206E-02	-0.218
		415.30		-2.695E-01	1.097E+01	1.803E+01	1.028E+00	-0.015
		555.20		1.112E+00	6.765E+00	1.111E+01	6.146E-01	0.100
		573.80		-9.382E-03	1.749E+00	2.753E+00	1.505E-01	-0.003
		593.00		4.839E-01	1.556E+00	2.578E+00	1.389E-01	0.188
		656.30		-5.877E+00	6.875E+00	8.501E+00	4.304E-01	-0.691
		666.33		1.484E-01	1.380E-01	2.157E-01	1.098E-02	0.688
		675.00		4.194E-01	2.890E+00	4.707E+00	2.448E-01	0.089
		695.00		3.156E-02	1.180E-01	2.021E-01	1.103E-02	0.156
		697.00		-1.080E-01	4.091E-01	6.716E-01	3.685E-02	-0.161
		720.50	*	1.890E-02	2.577E-01	3.754E-01	2.179E-02	0.050
		856.80		4.261E-02	8.969E-01	1.288E+00	1.011E-01	0.033
		989.30		-9.308E-02	1.744E+00	2.850E+00	2.237E-01	-0.033
		1034.80		6.259E+00	1.277E+01	2.207E+01	1.636E+00	0.284
		1213.00		3.322E+00	7.022E+00	1.195E+01	7.339E-01	0.278
SB-127	+	61.10		7.973E+02	4.336E+02	4.862E+02	7.439E+01	1.640
		252.40		5.264E-02	1.387E+01	2.329E+01	9.824E+00	0.002

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-6.296E+01	7.500E+01	1.014E+02	1.176E+01	-0.621
	411.60			8.022E-01	3.890E+01	6.411E+01	9.993E+00	0.013
	444.90			-1.651E+01	3.078E+01	4.849E+01	5.997E+00	-0.340
	473.00			-1.733E+00	5.204E+00	8.296E+00	1.053E+00	-0.209
	543.00			1.412E+01	4.870E+01	8.088E+01	1.148E+01	0.175
	603.60			-9.428E-01	4.133E+01	5.740E+01	6.988E+00	-0.016
	685.20	*		-7.184E-01	3.667E+00	6.052E+00	6.663E-01	-0.119
	698.50			-1.875E+01	4.459E+01	7.222E+01	1.128E+01	-0.260
	722.20			3.152E+01	9.630E+01	1.443E+02	1.592E+01	0.218
	783.80			1.747E+01	1.150E+01	2.094E+01	2.668E+00	0.834
XE-127	57.60			3.595E+00	1.685E+01	2.491E+01	3.172E+00	0.144
	145.22			2.489E-01	1.032E+00	1.688E+00	1.145E-01	0.147
	172.10			1.863E-01	1.726E-01	2.908E-01	1.942E-02	0.641
	202.84	*		4.160E-02	7.621E-02	1.160E-01	7.939E-03	0.359
	374.96			3.154E-02	2.834E-01	4.716E-01	2.803E-02	0.067
I-131	80.18			-2.874E+01	1.284E+01	1.596E+01	1.793E+00	-1.801
	284.30			-1.085E+00	3.004E+00	4.929E+00	3.686E-01	-0.220
	364.48	*		2.383E-02	2.370E-01	3.945E-01	2.682E-02	0.060
	636.97			3.429E-01	2.820E+00	4.591E+00	2.756E-01	0.075
	722.89			3.041E+00	1.466E+01	2.168E+01	1.296E+00	0.140
TE-132	49.72			1.235E+02	1.795E+02	3.058E+02	4.906E+01	0.404
	111.76			-4.147E+01	1.134E+02	1.824E+02	2.150E+01	-0.227
	116.30			-1.531E+01	1.021E+02	1.655E+02	1.911E+01	-0.093
	228.16	*		1.829E+00	2.653E+00	4.570E+00	7.273E-01	0.400
BA-133	53.15			1.323E+00	9.531E+00	1.596E+01	2.188E+00	0.083
	79.62			-3.766E+00	2.360E+00	3.025E+00	5.077E-01	-1.245
	81.00			-3.467E-01	1.816E-01	2.234E-01	3.887E-02	-1.552
	276.40			6.353E-01	5.329E-01	8.847E-01	1.194E-01	0.718
	302.84			4.117E-02	2.169E-01	3.187E-01	3.877E-02	0.129
	356.01	*		1.068E-02	6.552E-02	9.544E-02	1.124E-02	0.112
	383.85			-3.063E-01	3.814E-01	5.943E-01	6.462E-02	-0.515
I-133	510.53	+		5.653E+01	3.814E-01	Half-Life	too short	
	529.87	*		2.452E-02	3.814E-01	Half-Life	too short	
	706.58			1.366E+00	3.814E-01	Half-Life	too short	
	856.28			-9.711E+00	3.814E-01	Half-Life	too short	
	875.33			2.814E-01	3.814E-01	Half-Life	too short	
	1236.41			6.438E+01	3.814E-01	Half-Life	too short	
	1298.22			8.839E+00	3.814E-01	Half-Life	too short	
CS-134	475.35			3.461E-01	2.490E+00	4.110E+00	2.343E-01	0.084
	563.23			3.818E-01	4.521E-01	7.799E-01	4.392E-02	0.490
	569.32			-6.967E-02	2.467E-01	3.903E-01	2.211E-02	-0.178
	604.70			3.807E-02	4.941E-02	7.444E-02	3.999E-03	0.511
	795.84	*		3.178E-02	5.369E-02	9.384E-02	6.539E-03	0.339
	801.93			1.023E-01	4.922E-01	7.944E-01	5.595E-02	0.129
	1038.57			-1.592E+00	4.449E+00	7.001E+00	5.163E-01	-0.227
	1167.94			-7.152E-02	2.715E+00	4.407E+00	2.544E-01	-0.016
	1365.15			1.293E+00	1.427E+00	2.597E+00	2.069E-01	0.498
CS-135	268.24	*		3.020E-01	2.396E-01	3.758E-01	3.213E-02	0.804
I-135	288.45			-4.235E+15	2.396E-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		-5.223E+14	2.396E-01	Half-Life	too short	
		546.56		-1.827E+15	2.396E-01	Half-Life	too short	
		836.80		2.306E+15	2.396E-01	Half-Life	too short	
		1038.76		-1.114E+15	2.396E-01	Half-Life	too short	
		1124.00		5.623E+15	2.396E-01	Half-Life	too short	
		1131.51		-3.091E+14	2.396E-01	Half-Life	too short	
		1260.41	*	-5.174E+14	2.396E-01	Half-Life	too short	
		1457.56		1.719E+17	2.396E-01	Half-Life	too short	
		1678.03		-1.375E+15	2.396E-01	Half-Life	too short	
		1706.46		6.714E+14	2.396E-01	Half-Life	too short	
		1791.20		2.107E+15	2.396E-01	Half-Life	too short	
CS-136		66.91		-4.515E-01	1.994E+00	2.865E+00	4.929E-01	-0.158
	+	86.29		4.330E+00	2.358E+00	3.694E+00	5.504E-01	1.172
		153.22		-2.965E-01	1.125E+00	1.799E+00	1.437E-01	-0.165
		163.89		3.229E-01	1.923E+00	3.062E+00	2.438E-01	0.105
		176.55		-3.225E-01	6.457E-01	1.015E+00	7.451E-02	-0.318
		273.65		-1.295E+00	9.257E-01	1.214E+00	9.253E-02	-1.067
		340.57		1.768E-01	2.509E-01	3.796E-01	2.563E-02	0.466
		818.51		3.975E-02	1.072E-01	1.845E-01	1.338E-02	0.215
		1048.07	*	-2.295E-02	1.572E-01	2.534E-01	1.954E-02	-0.091
		1235.34		1.403E+00	9.218E-01	1.677E+00	1.736E-01	0.837
CE-139		165.85	*	2.205E-02	4.120E-02	6.796E-02	4.519E-03	0.324
BA-140		162.64		2.152E-02	1.345E+00	2.128E+00	1.554E-01	0.010
		304.84		1.278E-01	2.494E+00	3.628E+00	9.979E-01	0.035
		423.70		-2.402E-01	3.348E+00	5.477E+00	1.740E+00	-0.044
		537.32	*	-1.366E-01	4.157E-01	6.532E-01	2.122E-01	-0.209
LA-140		328.77		6.364E-01	5.175E-01	9.096E-01	6.518E-02	0.700
		432.53		-1.560E-01	3.563E+00	5.835E+00	3.692E-01	-0.027
		487.03		1.055E-01	2.279E-01	3.845E-01	2.486E-02	0.274
		751.79		6.941E-01	2.452E+00	4.199E+00	3.134E-01	0.165
		815.85		-1.487E-02	4.472E-01	7.412E-01	6.197E-02	-0.020
		867.82		-2.313E+00	2.494E+00	3.240E+00	2.760E-01	-0.714
		919.63		6.402E-01	4.119E+00	6.770E+00	7.086E-01	0.095
		925.24		-5.775E-01	1.700E+00	2.639E+00	2.352E-01	-0.219
		1596.49	*	-2.338E-02	1.550E-01	2.519E-01	1.756E-02	-0.093
CE-141		145.44	*	1.459E-02	9.435E-02	1.539E-01	1.074E-02	0.095
CE-143		57.37		1.862E-02	9.435E-02	Half-Life	too short	
		231.56		-4.315E-02	9.435E-02	Half-Life	too short	
	+	293.26	*	1.853E-02	9.435E-02	Half-Life	too short	
	+	350.59		3.487E-01	9.435E-02	Half-Life	too short	
		490.36		-1.707E-02	9.435E-02	Half-Life	too short	
		664.57		3.256E-02	9.435E-02	Half-Life	too short	
		721.93		1.512E-02	9.435E-02	Half-Life	too short	
CE-144		80.11		-8.708E+00	3.931E+00	4.898E+00	5.465E-01	-1.778
		133.54	*	-4.431E-02	2.727E-01	4.400E-01	6.466E-02	-0.101
PM-144		476.78		3.182E-02	8.901E-02	1.491E-01	1.023E-02	0.213
		618.01		-3.924E-02	4.475E-02	6.749E-02	3.818E-03	-0.581
		696.49	*	-1.038E-02	4.172E-02	6.862E-02	3.767E-03	-0.151
		778.57		-2.833E+00	2.828E+00	4.290E+00	2.848E-01	-0.660

----- 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	*		-7.055E-01	2.835E+00	4.662E+00	2.555E-01	-0.151
	1489.15			-1.735E+01	1.353E+01	1.717E+01	1.253E+00	-1.010
PM-146	453.90	*		-6.765E-03	5.942E-02	9.662E-02	8.274E-03	-0.070
	633.02			1.135E+00	1.770E+00	2.929E+00	1.076E+00	0.388
	735.90			6.199E-02	1.903E-01	3.041E-01	8.493E-02	0.204
	747.13			-5.604E-02	1.016E-01	1.607E-01	2.038E-02	-0.349
ND-147	91.11			6.568E-01	1.001E+00	1.139E+00	1.296E-01	0.576
	319.41			2.529E+00	5.606E+00	9.565E+00	6.347E-01	0.264
	439.89			-8.005E+00	1.029E+01	1.595E+01	9.120E-01	-0.502
	531.02	*		2.165E-01	9.623E-01	1.591E+00	2.138E-01	0.136
PM-149	285.90	*		7.198E-04	9.623E-01	Half-Life too short		
EU-152	121.78			5.473E-02	9.597E-02	1.600E-01	1.395E-02	0.342
	244.69			1.907E-01	4.584E-01	6.902E-01	4.805E-02	0.276
	344.27	*		-2.893E-01	2.585E-01	2.056E-01	1.449E-02	-1.407
	443.98			-3.170E-01	1.245E+00	2.006E+00	1.146E-01	-0.158
	778.89			-2.846E-01	3.247E-01	4.991E-01	3.312E-02	-0.570
	867.32			-7.836E-01	1.176E+00	1.513E+00	1.214E-01	-0.518
	964.01	+		8.559E-01	4.303E-01	6.944E-01	5.600E-02	1.233
	1085.78			3.871E-01	4.487E-01	8.010E-01	5.487E-02	0.483
	1112.02			6.154E-01	3.839E-01	6.688E-01	4.366E-02	0.920
	1407.95			1.231E-01	2.392E-01	4.233E-01	3.157E-02	0.291
GD-153	69.67			3.547E-01	3.403E+00	4.635E+00	5.232E-01	0.077
	83.37			7.314E+00	2.972E+01	3.677E+01	4.148E+00	0.199
	97.43	*		1.723E-01	1.173E-01	1.810E-01	1.737E-02	0.952
	103.18			1.049E-02	1.402E-01	2.304E-01	2.027E-02	0.046
EU-154	123.07			3.858E-03	6.783E-02	1.108E-01	1.140E-02	0.035
	247.94			-5.894E-02	4.845E-01	7.887E-01	8.115E-02	-0.075
	591.81			3.562E-01	7.627E-01	1.280E+00	1.221E-01	0.278
	723.30			7.819E-02	2.492E-01	3.721E-01	2.647E-02	0.210
	756.87			1.083E-01	9.488E-01	1.599E+00	1.669E-01	0.068
	873.19			1.929E-01	3.480E-01	6.060E-01	7.210E-02	0.318
	996.32			-3.787E-01	3.907E-01	5.566E-01	9.671E-02	-0.680
	1004.76			1.078E-01	2.431E-01	4.174E-01	4.584E-02	0.258
	1274.45	*		-4.048E-02	1.513E-01	2.374E-01	2.380E-02	-0.171
EU-155	48.70			1.142E+00	8.549E+00	1.433E+01	1.845E+00	0.080
	60.01			9.186E+00	1.091E+01	1.660E+01	2.029E+00	0.553
	86.54	+		3.096E-01	1.661E-01	2.608E-01	3.008E-02	1.187
	105.31	*		3.141E-02	1.423E-01	2.349E-01	2.034E-02	0.134
TB-160	86.79	+		8.651E-01	4.639E-01	7.334E-01	8.422E-02	1.180
	197.04			-1.231E-01	8.045E-01	1.281E+00	8.730E-02	-0.096
	215.65			1.223E-01	9.733E-01	1.565E+00	1.080E-01	0.078
	298.57	+		2.226E-01	2.004E-01	2.882E-01	1.958E-02	0.772
	879.36	*		-5.163E-02	1.673E-01	2.682E-01	2.205E-02	-0.192
	962.29			5.748E-01	8.162E-01	1.254E+00	1.013E-01	0.458
	966.15			1.639E+00	3.661E-01	7.159E-01	5.760E-02	2.290
	1177.93			1.129E-01	4.311E-01	7.211E-01	4.144E-02	0.157
	1271.85			1.653E-01	8.978E-01	1.485E+00	1.013E-01	0.111
HO-166M	80.57			-1.053E+00	4.874E-01	6.091E-01	6.804E-02	-1.729
	184.41	+		2.382E-01	7.777E-02	1.011E-01	6.819E-03	2.357

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Act error (pCi/GRAM)	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46		-1.702E-01	1.167E-01	1.804E-01	-0.944
		410.95		7.738E-02	3.235E-01	5.402E-01	0.143
		711.68	*	7.931E-03	7.155E-02	1.209E-01	0.066
		752.31		1.927E-01	3.041E-01	5.359E-01	0.360
		810.29		-7.534E-02	6.483E-02	9.441E-02	-0.798
		51.35		-7.500E+01	9.271E+01	1.482E+02	-0.506
		52.39		-2.099E+01	4.468E+01	7.278E+01	-0.288
		59.40		8.101E+01	6.010E+01	9.328E+01	0.869
		66.72	*	-1.210E+01	5.659E+01	8.142E+01	-0.149
		88.36		-1.282E-01	4.988E-01	5.091E-01	-0.252
LU-176		201.83		-1.003E-02	3.985E-02	6.308E-02	-0.159
		306.84	*	-1.031E-02	3.467E-02	5.535E-02	-0.186
		401.10		9.618E+00	8.682E+00	1.524E+01	0.631
LU-177		112.95		3.073E+00	3.585E+00	6.042E+00	0.509
LU-177M	+	208.36	*	4.515E+00	3.202E+00	4.223E+00	1.069
		52.97		1.133E+00	4.434E+00	7.458E+00	0.152
		54.07		-6.669E-01	2.245E+00	3.687E+00	-0.181
	+	61.30		8.815E+00	4.723E+00	5.379E+00	1.639
		121.62		2.666E-01	5.013E-01	8.349E-01	0.319
		147.16		-5.665E-01	9.024E-01	1.422E+00	-0.398
		171.86		5.967E-01	6.530E-01	1.093E+00	0.546
		218.09		5.009E-01	1.078E+00	1.764E+00	0.284
	+	268.79		2.006E+00	1.298E+00	1.905E+00	1.053
		319.02		1.209E-01	3.331E-01	5.655E-01	0.214
		367.43		2.737E-01	1.239E+00	2.077E+00	0.132
		413.65	*	-1.559E-01	2.402E-01	3.788E-01	-0.412
HF-181		56.28		2.053E+00	2.423E+00	4.023E+00	0.510
		57.53		5.442E-01	1.391E+00	2.075E+00	0.262
		65.20		-7.074E-01	2.071E+00	2.960E+00	-0.239
		133.02		-4.634E-02	9.379E-02	1.492E-01	-0.311
		136.25		-3.727E-01	6.779E-01	1.062E+00	-0.351
		345.85		-1.297E-01	3.492E-01	4.583E-01	-0.283
		482.03	*	-2.234E-02	6.232E-02	9.923E-02	-0.225
		56.28		7.649E-01	9.007E-01	1.495E+00	0.512
		57.53		2.024E-01	5.173E-01	7.719E-01	0.262
		65.20	*	-2.610E-01	7.643E-01	1.092E+00	-0.239
W-181		67.75		-7.912E-02	2.676E-01	3.212E-01	-0.246
		100.10		2.877E-02	2.536E-01	4.036E-01	0.071
		152.43		-2.678E-02	4.591E-01	7.410E-01	-0.036
TA-182		222.10		-2.787E-01	4.749E-01	7.342E-01	-0.380
		1001.68		4.763E-01	2.503E+00	4.108E+00	0.116
		1121.28		5.692E-01	2.418E-01	4.205E-01	1.354
		1189.05		-2.438E-01	3.648E-01	5.490E-01	-0.444
		1221.42	*	8.860E-02	2.469E-01	4.146E-01	0.214
		1230.97		-1.156E-01	5.727E-01	9.103E-01	-0.127
		57.98		8.164E-02	5.150E-01	7.591E-01	0.108
		59.32		3.530E-01	2.592E-01	4.024E-01	0.877
		67.20		-2.447E-01	4.515E-01	5.912E-01	-0.414
		162.32	*	-2.323E-02	1.582E-01	2.484E-01	-0.094
RE-183							

---- 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		2.574E+00	1.825E+00	2.389E+00	1.642E-01	1.077
		291.72		5.063E-01	1.525E+00	2.265E+00	1.549E-01	0.224
		57.98		2.925E-01	1.845E+00	2.719E+00	3.438E-01	0.108
		59.32		1.263E+00	9.276E-01	1.440E+00	1.775E-01	0.877
		67.20		-8.763E-01	1.617E+00	2.117E+00	2.426E-01	-0.414
		161.27		-5.783E-02	4.991E-01	7.850E-01	5.237E-02	-0.074
		216.55		1.107E-01	3.414E-01	5.545E-01	3.829E-02	0.200
		252.85	*	-4.798E-02	3.130E-01	5.220E-01	3.634E-02	-0.092
		318.01		1.244E-01	5.778E-01	9.734E-01	6.467E-02	0.128
		792.07		3.283E-01	1.208E+00	2.057E+00	1.405E-01	0.160
OS-185		903.28		-5.950E-01	1.413E+00	1.886E+00	1.603E-01	-0.316
		920.93		1.813E-01	5.155E-01	8.822E-01	7.399E-02	0.206
		59.72		7.896E-01	6.758E-01	1.042E+00	1.278E-01	0.758
	+	61.14		9.787E-01	5.244E-01	5.969E-01	7.218E-02	1.640
		69.30		1.931E-01	6.890E-01	8.609E-01	9.736E-02	0.224
		592.07		1.437E+00	3.262E+00	5.463E+00	2.946E-01	0.263
		646.12	*	-2.478E-02	5.630E-02	8.701E-02	4.458E-03	-0.285
		717.42		-4.496E-01	1.097E+00	1.774E+00	1.022E-01	-0.253
		874.81		-3.938E-01	7.180E-01	1.123E+00	9.148E-02	-0.351
		880.27		-3.507E-02	9.107E-01	1.502E+00	1.237E-01	-0.023
RE-188		155.03	*	8.590E-02	2.360E-01	3.874E-01	2.599E-02	0.222
		477.96		4.094E-01	4.345E+00	7.146E+00	4.071E-01	0.057
		633.10		2.477E+00	3.653E+00	6.223E+00	3.233E-01	0.398
W-188	+	63.58		3.411E+02	1.827E+02	1.862E+02	2.199E+01	1.832
		227.08		1.742E+01	1.800E+01	3.146E+01	2.183E+00	0.554
IR-192		290.67	*	-9.505E+00	1.130E+01	1.532E+01	1.049E+00	-0.620
	+	295.96		1.329E+00	2.641E-01	3.871E-01	2.667E-02	3.434
		308.46		2.150E-02	1.332E-01	2.239E-01	1.519E-02	0.096
		316.51	*	2.299E-03	4.584E-02	7.654E-02	5.115E-03	0.030
		468.07		3.899E-03	9.715E-02	1.381E-01	9.120E-03	0.028
AU-195		604.41		3.657E-01	6.860E-01	1.010E+00	1.123E-01	0.362
		612.46		1.286E+00	9.934E-01	1.580E+00	1.137E-01	0.814
		65.12		-1.070E-01	3.519E-01	5.040E-01	5.870E-02	-0.212
		66.83		-4.183E-02	1.891E-01	2.719E-01	3.124E-02	-0.154
	+	75.70		1.978E+00	4.758E-01	6.878E-01	7.637E-02	2.875
		98.88	*	3.764E-01	3.395E-01	5.161E-01	4.837E-02	0.729
TL-200		129.76		3.891E-01	3.803E+00	6.212E+00	4.344E-01	0.063
		367.94	*	4.231E-03	3.803E+00	Half-Life	too short	
		579.30		2.230E-01	3.803E+00	Half-Life	too short	
		828.27		-8.790E-02	3.803E+00	Half-Life	too short	
TL-201		1205.75		-5.301E-02	3.803E+00	Half-Life	too short	
		68.90		1.860E+01	3.744E+01	4.108E+01	4.656E+00	0.453
		70.82		4.244E-01	1.564E+01	2.275E+01	2.555E+00	0.019
		80.30		-6.348E+01	2.785E+01	3.448E+01	3.848E+00	-1.841
TL-202		135.34		-3.316E+01	1.039E+02	1.645E+02	1.135E+01	-0.202
		167.43	*	-5.369E+00	2.850E+01	4.557E+01	3.033E+00	-0.118
		68.90		7.266E-01	1.462E+00	1.604E+00	1.819E-01	0.453
		70.82		1.653E-02	6.092E-01	8.862E-01	9.950E-02	0.019
		80.30		-2.474E+00	1.085E+00	1.343E+00	1.499E-01	-1.841

---- 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	*	-1.137E-01	1.229E-01	1.834E-01	1.048E-02	-0.620
		70.83		6.704E-02	2.153E+00	3.132E+00	4.821E-01	0.021
	+	72.87		3.540E+00	1.563E+00	2.108E+00	3.157E-01	1.680
		82.60		-1.430E-01	2.815E+00	2.925E+00	4.541E-01	-0.049
BI-207		279.20	*	1.949E-02	5.822E-02	9.893E-02	7.125E-03	0.197
	+	72.80		9.653E-01	4.152E-01	5.728E-01	6.388E-02	1.685
	+	74.97		5.718E-01	2.459E-01	3.822E-01	4.246E-02	1.496
	+	84.90		5.832E-01	3.127E-01	5.119E-01	5.817E-02	1.139
TL-207		569.67		5.784E-03	3.738E-02	6.131E-02	3.361E-03	0.094
		1063.62	*	1.505E-02	5.813E-02	9.793E-02	6.958E-03	0.154
		1770.23		-2.068E-01	5.803E-01	7.162E-01	4.435E-02	-0.289
		81.07		-5.952E-01	4.066E-01	4.947E-01	5.533E-02	-1.203
PO-209		83.78		1.722E-01	2.224E-01	3.109E-01	3.514E-02	0.554
		94.90		4.334E-01	3.558E-01	5.400E-01	5.415E-02	0.803
		122.32		5.801E-01	2.309E+00	3.802E+00	3.010E-01	0.153
		144.24		2.081E-01	9.364E-01	1.521E+00	1.224E-01	0.137
BI-210		154.21		-5.890E-02	5.199E-01	8.368E-01	6.514E-02	-0.070
	+	269.46		4.597E-01	2.977E-01	4.415E-01	3.158E-02	1.041
		323.87	*	-1.075E+00	9.061E-01	1.380E+00	2.319E-01	-0.779
	+	338.28		6.785E+00	2.629E+00	3.135E+00	3.416E-01	2.164
PB-210		445.03		-1.730E+00	2.970E+00	4.664E+00	4.767E-01	-0.371
		260.50		-5.603E-01	1.252E+01	2.096E+01	1.457E+00	-0.027
		262.80		-1.985E+01	3.593E+01	5.696E+01	3.958E+00	-0.349
		896.60	*	5.204E+00	8.495E+00	1.488E+01	1.267E+00	0.350
PO-210		46.50	*	-6.482E+00	1.478E+01	2.369E+01	2.460E+00	-0.274
		46.50	*	-6.482E+00	1.478E+01	2.369E+01	2.460E+00	-0.274
		46.50	*	-6.482E+00	1.478E+01	2.369E+01	2.275E+00	-0.274
		404.84	*	-8.615E-01	1.361E+00	1.972E+00	1.229E+00	-0.437
PB-211		427.08		8.466E-01	2.759E+00	4.540E+00	2.806E+00	0.186
		831.96		7.921E-01	1.515E+00	2.493E+00	1.559E+00	0.318
	+	727.18	*	1.062E+00	6.200E-01	7.869E-01	6.127E-02	1.349
		785.46		3.255E+00	2.318E+00	4.241E+00	2.856E-01	0.767
BI-212		1620.62		1.241E+00	1.447E+00	2.720E+00	1.871E-01	0.456
		81.07		-5.952E-01	4.066E-01	4.947E-01	5.533E-02	-1.203
		83.78		1.722E-01	2.224E-01	3.109E-01	3.514E-02	0.554
		94.90		4.334E-01	3.558E-01	5.400E-01	5.415E-02	0.803
PO-215		122.32		5.801E-01	2.309E+00	3.802E+00	3.010E-01	0.153
		144.24		2.081E-01	9.364E-01	1.521E+00	1.224E-01	0.137
		154.21		-5.890E-02	5.199E-01	8.368E-01	6.514E-02	-0.070
	+	269.46		4.597E-01	2.977E-01	4.415E-01	3.158E-02	1.041
RN-219		323.87	*	-1.075E+00	9.061E-01	1.380E+00	2.319E-01	-0.779
	+	338.28		6.785E+00	2.629E+00	3.135E+00	3.416E-01	2.164
		445.03		-1.730E+00	2.970E+00	4.664E+00	4.767E-01	-0.371
	+	271.23		5.898E-01	3.833E-01	5.602E-01	5.011E-02	1.053
RN-220		401.81	*	2.936E-01	5.419E-01	9.200E-01	1.247E-01	0.319
		549.76	*	1.694E+01	3.264E+01	5.513E+01	3.058E+00	0.307
		81.07		-5.952E-01	4.066E-01	4.947E-01	5.533E-02	-1.203
		83.78		1.722E-01	2.224E-01	3.109E-01	3.514E-02	0.554
RA-223		94.90		4.334E-01	3.558E-01	5.400E-01	5.415E-02	0.803



---- 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		5.801E-01	2.309E+00	3.802E+00	3.010E-01	0.153
		144.24		2.081E-01	9.364E-01	1.521E+00	1.224E-01	0.137
		154.21		-5.890E-02	5.199E-01	8.368E-01	6.514E-02	-0.070
	+	269.46		4.597E-01	2.977E-01	4.415E-01	3.158E-02	1.041
		323.87	*	-1.075E+00	9.061E-01	1.380E+00	2.319E-01	-0.779
	+	338.28		6.785E+00	2.629E+00	3.135E+00	3.416E-01	2.164
		445.03		-1.730E+00	2.970E+00	4.664E+00	4.767E-01	-0.371
		79.80		-4.961E+00	3.081E+00	3.801E+00	8.603E-01	-1.305
		236.00		4.253E+00	6.767E-01	9.315E-01	1.037E-01	4.566
		256.20	*	5.162E-03	4.982E-01	8.368E-01	1.212E-01	0.006
		286.10		2.834E+00	2.023E+00	3.566E+00	4.325E-01	0.795
	+	299.80		2.705E+00	2.471E+00	3.462E+00	5.768E-01	0.782
TH-227		304.40		1.115E-01	2.840E+00	4.128E+00	7.283E-01	0.027
		334.20		3.723E+00	3.410E+00	5.231E+00	9.710E-01	0.712
		79.80		-4.961E+00	3.086E+00	3.801E+00	8.702E-01	-1.305
	+	94.00		1.294E+01	6.548E+00	5.472E+00	1.228E+00	2.365
		236.00		4.253E+00	6.393E-01	9.315E-01	9.162E-02	4.566
		256.20	*	5.162E-03	4.982E-01	8.368E-01	1.450E-01	0.006
		286.10		2.834E+00	3.471E+00	3.566E+00	3.574E+00	0.795
	+	299.80		2.705E+00	2.471E+00	3.462E+00	5.768E-01	0.782
		304.40		1.115E-01	2.840E+00	4.128E+00	7.283E-01	0.027
		334.20		3.723E+00	3.410E+00	5.231E+00	9.710E-01	0.712
	+	85.43		5.754E-01	3.086E-01	5.070E-01	5.777E-02	1.135
		88.47		-1.012E-01	2.863E-01	2.898E-01	3.317E-02	-0.349
PA-231		100.00		1.007E-01	2.650E-01	4.093E-01	3.771E-02	0.246
		193.63	*	-3.273E-02	6.859E-01	1.098E+00	7.465E-02	-0.030
		210.97		1.450E+00	1.094E+00	1.654E+00	1.139E-01	0.877
		283.67	*	-1.311E+00	2.034E+00	3.275E+00	4.673E-01	-0.400
		301.29		1.197E+00	8.862E-01	1.387E+00	1.529E-01	0.863
		81.07		-5.952E-01	4.066E-01	4.947E-01	5.533E-02	-1.203
		83.78		1.722E-01	2.224E-01	3.109E-01	3.514E-02	0.554
		94.90		4.334E-01	3.558E-01	5.400E-01	5.415E-02	0.803
		122.32		5.801E-01	2.309E+00	3.802E+00	3.010E-01	0.153
		144.24		2.081E-01	9.364E-01	1.521E+00	1.224E-01	0.137
		154.21		-5.890E-02	5.199E-01	8.368E-01	6.514E-02	-0.070
	+	269.46		4.597E-01	2.977E-01	4.415E-01	3.158E-02	1.041
U-231		323.87	*	-1.075E+00	9.061E-01	1.380E+00	2.319E-01	-0.779
	+	338.28		6.785E+00	2.629E+00	3.135E+00	3.416E-01	2.164
		445.03		-1.730E+00	2.970E+00	4.664E+00	4.767E-01	-0.371
		84.21		2.799E+01	2.019E+01	3.068E+01	3.474E+00	0.912
	+	92.29		2.858E+01	1.328E+01	1.387E+01	1.461E+00	2.061
		95.87	*	-1.660E+00	3.679E+00	5.156E+00	5.081E-01	-0.322
		108.00		-3.246E+00	6.187E+00	9.895E+00	8.186E-01	-0.328
	+	75.28		3.142E+01	8.549E+00	1.116E+01	1.882E+00	2.817
	+	86.59		5.024E+00	2.981E+00	4.237E+00	1.181E+00	1.186
	+	300.12		7.543E-01	6.853E-01	9.698E-01	1.347E-01	0.778
		311.98	*	-7.408E-03	8.353E-02	1.385E-01	9.706E-03	-0.054
		340.50		7.888E-01	9.633E-01	1.444E+00	3.341E-01	0.546
PA-233		398.62		-4.588E-01	2.787E+00	4.544E+00	1.174E+00	-0.101

---- 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		-1.088E-01	2.192E+00	3.594E+00	7.389E-01	-0.030
		63.00		9.421E+00	5.191E+00	5.334E+00	9.345E-01	1.766
		94.67		4.990E-01	2.672E-01	4.074E-01	5.480E-02	1.225
		98.44		1.886E-01	1.693E-01	2.059E-01	1.151E-01	0.916
		99.86		6.861E-01	6.557E-01	1.043E+00	9.624E-02	0.658
		111.00		-1.288E-01	2.494E-01	3.984E-01	4.641E-02	-0.323
		131.20		-9.332E-02	1.401E-01	2.212E-01	1.541E-02	-0.422
		152.70		3.647E-02	4.265E-01	6.924E-01	1.120E-01	0.053
	+	186.00		8.575E+00	3.802E+00	3.615E+00	1.112E+00	2.372
		226.40		6.174E-01	5.359E-01	9.371E-01	1.140E-01	0.659
		227.20		5.479E-01	5.785E-01	1.011E+00	7.010E-02	0.542
		248.90		-1.793E-01	1.067E+00	1.778E+00	3.882E-01	-0.101
	+	293.70		7.993E+00	1.988E+00	2.290E+00	3.773E-01	3.491
		369.80		-1.506E-01	1.139E+00	1.867E+00	3.900E-01	-0.081
		568.70		-5.332E-01	1.246E+00	1.948E+00	1.068E-01	-0.274
		569.50		-9.386E-03	3.334E-01	5.389E-01	2.954E-02	-0.017
		574.00		4.533E-02	1.903E+00	3.002E+00	1.641E-01	0.015
		699.00		-1.329E-01	8.804E-01	1.459E+00	2.611E-01	-0.091
		706.10		7.909E-01	1.334E+00	2.255E+00	9.947E-01	0.351
		733.00		4.140E-02	4.917E-01	7.167E-01	1.527E-01	0.058
		742.81		1.501E+00	1.880E+00	2.863E+00	1.917E+00	0.524
		796.30		4.749E-01	1.049E+00	1.802E+00	4.786E-01	0.263
		805.60		9.710E-01	1.236E+00	2.136E+00	6.458E-01	0.455
		819.60		2.059E-01	1.377E+00	2.319E+00	8.751E-01	0.089
		826.30		6.360E-02	9.327E-01	1.560E+00	6.942E-01	0.041
		831.60		3.901E-01	7.482E-01	1.285E+00	3.794E-01	0.304
		876.40		-5.711E-01	1.122E+00	1.487E+00	1.528E+00	-0.384
		880.51		-1.093E-01	3.306E-01	5.293E-01	4.362E-02	-0.207
		883.24		-4.881E-02	3.461E-01	5.626E-01	3.780E-01	-0.087
		899.00		9.286E-02	1.018E+00	1.697E+00	7.415E-01	0.055
		925.00		-5.969E-01	1.342E+00	2.054E+00	1.717E-01	-0.291
		926.50		-1.479E-01	2.282E-01	3.010E-01	7.580E-02	-0.491
		946.00	*	-4.294E-01	3.603E-01	5.023E-01	9.331E-02	-0.855
		949.00		-3.934E-02	4.811E-01	7.862E-01	6.433E-02	-0.050
		980.50		-3.730E-02	7.770E-01	1.272E+00	1.008E-01	-0.029
		1394.10		-2.464E-01	1.169E+00	1.869E+00	1.214E+00	-0.132
PA-234M		766.42		1.410E+01	1.628E+01	2.609E+01	1.315E+01	0.540
		1001.03	*	-1.536E+00	5.584E+00	8.736E+00	8.052E-01	-0.176
U-235	+	89.95		-2.141E-01	2.822E+00	2.917E+00	9.227E-01	-0.073
		93.35		4.026E+00	2.157E+00	1.867E+00	5.338E-01	2.157
		105.00		4.828E-01	1.392E+00	2.299E+00	6.858E-01	0.210
		143.76	*	1.893E-01	2.896E-01	4.756E-01	7.936E-02	0.398
	+	163.35		1.387E-02	6.572E-01	1.040E+00	1.901E-01	0.013
		185.71		3.176E-01	1.037E-01	1.348E-01	9.104E-03	2.356
		205.31		1.102E-01	7.902E-01	1.113E+00	2.042E-01	0.099
		94.67		3.816E-01	2.000E-01	3.094E-01	3.116E-02	1.234
NP-236		98.44		1.426E-01	1.010E-01	1.557E-01	1.469E-02	0.916
		111.00		-9.741E-02	1.885E-01	3.014E-01	2.409E-02	-0.323
		160.31	*	-6.577E-02	1.068E-01	1.677E-01	1.120E-02	-0.392

---- 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		2.603E-01	2.206E-01	3.524E-01	3.269E-02	0.739
		117.00	*	-1.556E-01	2.487E-01	3.945E-01	2.966E-02	-0.394
	+	209.75		1.935E+00	1.372E+00	1.816E+00	1.249E-01	1.065
		228.18		2.119E-01	3.060E-01	5.296E-01	3.675E-02	0.400
		277.60		3.510E-01	2.420E-01	4.294E-01	2.965E-02	0.817
		334.30		2.320E+00	1.909E+00	3.001E+00	1.945E-01	0.773
AM-241		59.54	*	4.146E-01	3.468E-01	5.349E-01	6.807E-02	0.775
CM-243		99.55		2.680E-01	2.270E-01	3.627E-01	3.365E-02	0.739
		103.76	*	6.793E-02	1.255E-01	2.099E-01	1.832E-02	0.324
		117.00		-1.601E-01	2.560E-01	4.060E-01	3.052E-02	-0.394
	+	209.75		1.908E+00	1.353E+00	1.791E+00	1.232E-01	1.065
		228.18		2.142E-01	3.093E-01	5.353E-01	3.715E-02	0.400
		277.60		3.539E-01	2.440E-01	4.330E-01	2.990E-02	0.817
AM-246		798.80		-2.809E-01	1.686E-01	2.356E-01	1.634E-02	-1.192
		1036.00		-8.420E-02	3.590E-01	5.741E-01	4.249E-02	-0.147
		1062.04		1.829E-01	2.511E-01	4.437E-01	3.160E-02	0.412
		1078.86	*	3.591E-02	1.793E-01	2.992E-01	2.074E-02	0.120
		278.00		1.794E+00	9.948E-01	1.788E+00	1.234E-01	1.003
CM-247		287.40		9.884E-01	1.670E+00	2.728E+00	1.872E-01	0.362
		402.60	*	4.053E-03	4.913E-02	8.136E-02	4.626E-03	0.050
		252.85		-1.765E-01	1.151E+00	1.920E+00	1.336E-01	-0.092
CF-249		333.44		7.327E-02	2.515E-01	3.710E-01	2.408E-02	0.197
		387.95	*	3.601E-02	4.896E-02	8.453E-02	4.846E-03	0.426
		176.60	*	-8.426E-02	1.723E-01	2.710E-01	1.817E-02	-0.311
CF-251		227.00		5.055E-01	5.148E-01	9.004E-01	6.245E-02	0.561
		285.00		1.093E+00	2.302E+00	3.938E+00	2.706E-01	0.278

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101015      *
* Acquisition date   : 2-FEB-2010 11:51:24 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 02:00:01.17 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 13-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID        : G245101015 Analyst initials: MXR1                   *
* Batch Number     : 944037 Sample Quantity : 1.1673E+02 GRAM             *
* Recovery         : 1.00000 Carrier Weight : 0.00000                    *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME  : 16-FEB-2009 10:54:12 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.215E+01	2.427E+00	6.652E-01	0.000E+00
SN-126	2.566E-01	1.348E-01	2.284E-01	0.000E+00
BA-137M	4.846E-01	1.068E-01	7.249E-02	0.000E+00
CS-137	5.122E-01	1.130E-01	7.663E-02	0.000E+00
TL-208	4.534E-01	1.004E-01	6.672E-02	0.000E+00
BI-211	3.763E+00	6.034E-01	4.533E-01	0.000E+00
PB-212	1.526E+00	1.861E-01	1.225E-01	0.000E+00
PO-212	1.526E+00	1.861E-01	1.225E-01	0.000E+00
BI-214	1.346E+00	1.952E-01	1.369E-01	0.000E+00
PB-214	1.309E+00	2.203E-01	1.538E-01	0.000E+00
PO-214	1.309E+00	2.203E-01	1.538E-01	0.000E+00
PO-216	1.526E+00	1.861E-01	1.225E-01	0.000E+00
PO-218	1.309E+00	2.203E-01	1.538E-01	0.000E+00
RA-224	4.580E+00	1.640E+00	1.393E+00	0.000E+00
RA-226	1.346E+00	1.952E-01	1.369E-01	0.000E+00
AC-228	1.562E+00	3.639E-01	2.332E-01	0.000E+00
RA-228	1.562E+00	3.639E-01	2.332E-01	0.000E+00
TH-228	1.556E+00	1.899E-01	1.249E-01	0.000E+00
TH-230	1.346E+00	1.952E-01	1.369E-01	0.000E+00
TH-232	1.562E+00	3.639E-01	2.332E-01	0.000E+00
TH-234	8.083E+00	4.424E+00	4.130E+00	0.000E+00
U-234	1.346E+00	1.952E-01	1.369E-01	0.000E+00
NP-237	7.535E-01	4.243E-01	6.343E-01	0.000E+00
U-238	8.083E+00	4.424E+00	4.130E+00	0.000E+00
AM-243	3.185E-01	1.342E-01	1.426E-01	0.000E+00
ANH-511	1.124E-01	7.835E-02	6.187E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	8.476E-02	4.472E-01	7.615E-01	0.000E+00 NOT IDENT.

NA-22	-1.610E-02	5.306E-02	8.444E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.910E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.663E-02	3.359E-02	4.982E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.475E-02	1.053E-01	0.000E+00	NOT IDENT.
SC-46	-1.174E-02	4.772E-02	7.881E-02	0.000E+00	FAIL ABUN
V-48	-4.212E-02	9.417E-02	1.502E-01	0.000E+00	NOT IDENT.
CR-51	-1.208E-02	5.225E-01	8.970E-01	0.000E+00	NOT IDENT.
MN-52	-1.326E-01	4.831E-01	7.878E-01	0.000E+00	NOT IDENT.
MN-54	3.186E-02	4.415E-02	7.936E-02	0.000E+00	NOT IDENT.
CO-56	-1.458E-02	5.083E-02	8.412E-02	0.000E+00	NOT IDENT.
CO-57	1.253E-02	3.314E-02	5.720E-02	0.000E+00	NOT IDENT.
CO-58	-7.412E-02	4.485E-02	6.270E-02	0.000E+00	NOT IDENT.
FE-59	6.349E-02	1.053E-01	1.869E-01	0.000E+00	NOT IDENT.
CO-60	2.973E-02	4.438E-02	7.937E-02	0.000E+00	NOT IDENT.
ZN-65	-7.072E-02	1.299E-01	1.708E-01	0.000E+00	NOT IDENT.
GE-68	1.131E+00	1.511E+00	2.704E+00	0.000E+00	NOT IDENT.
AS-73	2.396E-02	2.223E+00	3.894E+00	0.000E+00	NOT IDENT.
AS-74	-7.102E-02	1.414E-01	2.251E-01	0.000E+00	NOT IDENT.
SE-75	2.794E-02	6.424E-02	9.994E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	5.250E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-4.726E-01	5.416E-01	8.571E-01	0.000E+00	NOT IDENT.
RB-83	5.282E-02	8.833E-02	1.543E-01	0.000E+00	NOT IDENT.
RB-84	-1.890E-02	8.881E-02	1.472E-01	0.000E+00	NOT IDENT.
KR-85	3.642E+00	1.040E+01	1.554E+01	0.000E+00	NOT IDENT.
SR-85	1.965E-02	5.611E-02	8.385E-02	0.000E+00	NOT IDENT.
RB-86	1.075E+00	1.170E+00	2.118E+00	0.000E+00	NOT IDENT.
Y-88	0.000E+00	4.424E-02	7.373E-02	0.000E+00	NOT IDENT.
ZR-88	5.367E-03	3.927E-02	6.734E-02	0.000E+00	NOT IDENT.
Y-91	-4.673E-01	2.212E+01	3.654E+01	0.000E+00	NOT IDENT.
NB-94	1.817E-02	4.057E-02	7.193E-02	0.000E+00	NOT IDENT.
NB-95	6.099E-02	5.607E-02	1.028E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.861E-01	4.787E-01	0.000E+00	NOT IDENT.
ZR-95	-5.654E-03	8.920E-02	1.517E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.082E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.506E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-4.293E+00	4.956E+01	8.187E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.776E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-5.425E-04	4.389E-02	7.300E-02	0.000E+00	NOT IDENT.
RH-102	-5.271E-03	3.768E-02	6.276E-02	0.000E+00	NOT IDENT.
RU-103	1.505E-02	5.412E-02	9.260E-02	0.000E+00	NOT IDENT.
RH-106	3.513E-01	4.126E-01	7.250E-01	0.000E+00	NOT IDENT.
RU-106	3.513E-01	4.111E-01	7.250E-01	0.000E+00	NOT IDENT.
AG-108M	1.771E-02	4.225E-02	7.334E-02	0.000E+00	NOT IDENT.
CD-109	6.718E-02	2.134E+00	2.329E+00	0.000E+00	NOT IDENT.
AG-110M	7.556E-02	5.984E-02	9.525E-02	0.000E+00	NOT IDENT.
IN-111	-1.339E+00	4.972E+00	7.407E+00	0.000E+00	NOT IDENT.
IN-113M	-1.289E-02	5.596E-02	9.376E-02	0.000E+00	NOT IDENT.
SN-113	-1.289E-02	5.596E-02	9.376E-02	0.000E+00	NOT IDENT.
IN-114M	-1.144E-01	2.957E-01	4.194E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.865E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	1.499E-02	9.088E-02	1.539E-01	0.000E+00	NOT IDENT.
SB-122	4.020E+00	8.856E+00	1.525E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.629E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.044E-02	3.821E-02	6.347E-02	0.000E+00	NOT IDENT.
I-124	-1.060E-01	2.167E+00	3.080E+00	0.000E+00	FAIL ABUN
SB-124	5.369E-03	8.779E-02	1.490E-01	0.000E+00	FAIL ABUN
SB-125	-9.767E-03	1.220E-01	2.054E-01	0.000E+00	FAIL ABUN
TE-125M	3.289E+00	1.271E+01	2.191E+01	0.000E+00	NOT IDENT.
I-126	3.511E-01	3.200E-01	5.129E-01	0.000E+00	NOT IDENT.
SB-126	1.890E-02	2.525E-01	3.769E-01	0.000E+00	NOT IDENT.
SB-127	-7.184E-01	3.594E+00	6.079E+00	0.000E+00	FAIL ABUN
XE-127	4.160E-02	7.469E-02	1.179E-01	0.000E+00	NOT IDENT.
I-131	2.383E-02	2.323E-01	3.989E-01	0.000E+00	NOT IDENT.
TE-132	1.829E+00	2.600E+00	4.642E+00	0.000E+00	NOT IDENT.
BA-133	1.068E-02	6.421E-02	9.652E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.648E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.178E-02	5.262E-02	9.412E-02	0.000E+00	NOT IDENT.
CS-135	3.020E-01	2.348E-01	3.811E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.268E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.295E-02	1.540E-01	2.534E-01	0.000E+00	FAIL ABUN
CE-139	2.205E-02	4.037E-02	6.926E-02	0.000E+00	NOT IDENT.
BA-140	-1.366E-01	4.074E-01	6.578E-01	0.000E+00	NOT IDENT.
LA-140	-2.338E-02	1.519E-01	2.508E-01	0.000E+00	NOT IDENT.
CE-141	1.459E-02	9.246E-02	1.570E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	5.468E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-4.431E-02	2.672E-01	4.494E-01	0.000E+00	NOT IDENT.
PM-144	-1.038E-02	4.089E-02	6.892E-02	0.000E+00	NOT IDENT.
PR-144	-7.055E-01	2.778E+00	4.682E+00	0.000E+00	NOT IDENT.

PM-146	-6.765E-03	5.823E-02	9.746E-02	0.000E+00	NOT IDENT.
ND-147	2.165E-01	9.431E-01	1.603E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	5.528E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.893E-01	2.533E-01	2.080E-01	0.000E+00	FAIL ABUN
GD-153	1.723E-01	1.150E-01	1.855E-01	0.000E+00	NOT IDENT.
EU-154	-4.048E-02	1.483E-01	2.369E-01	0.000E+00	NOT IDENT.
EU-155	3.141E-02	1.394E-01	2.405E-01	0.000E+00	FAIL ABUN
TB-160	-5.163E-02	1.639E-01	2.687E-01	0.000E+00	FAIL ABUN
HO-166M	7.931E-03	7.012E-02	1.214E-01	0.000E+00	FAIL ABUN
TM-171	-1.210E+01	5.545E+01	8.374E+01	0.000E+00	NOT IDENT.
LU-176	-1.031E-02	3.398E-02	5.606E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	3.138E+00	4.294E+00	0.000E+00	FAIL ABUN
LU-177M	-1.559E-01	2.354E-01	3.824E-01	0.000E+00	FAIL ABUN
HF-181	-2.234E-02	6.108E-02	1.000E-01	0.000E+00	NOT IDENT.
W-181	-2.610E-01	7.490E-01	1.124E+00	0.000E+00	NOT IDENT.
TA-182	8.860E-02	2.420E-01	4.140E-01	0.000E+00	NOT IDENT.
RE-183	-2.323E-02	1.551E-01	2.533E-01	0.000E+00	FAIL ABUN
RE-184	-4.798E-02	3.068E-01	5.297E-01	0.000E+00	NOT IDENT.
OS-185	-2.478E-02	5.518E-02	8.745E-02	0.000E+00	FAIL ABUN
RE-188	8.590E-02	2.312E-01	3.951E-01	0.000E+00	NOT IDENT.
W-188	-9.505E+00	1.107E+01	1.553E+01	0.000E+00	FAIL ABUN
IR-192	2.299E-03	4.493E-02	7.749E-02	0.000E+00	FAIL ABUN
AU-195	3.764E-01	3.327E-01	5.287E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.349E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-5.369E+00	2.793E+01	4.644E+01	0.000E+00	NOT IDENT.
TL-202	-1.137E-01	1.205E-01	1.850E-01	0.000E+00	NOT IDENT.
HG-203	1.949E-02	5.706E-02	1.003E-01	0.000E+00	FAIL ABUN
BI-207	1.505E-02	5.697E-02	9.792E-02	0.000E+00	FAIL ABUN
TL-207	-1.075E+00	8.880E-01	1.397E+00	0.000E+00	FAIL ABUN
PO-209	5.204E+00	8.325E+00	1.490E+01	0.000E+00	NOT IDENT.
BI-210	-6.482E+00	1.449E+01	2.445E+01	0.000E+00	NOT IDENT.
PB-210	-6.482E+00	1.449E+01	2.445E+01	0.000E+00	NOT IDENT.
PO-210	-6.482E+00	1.448E+01	2.445E+01	0.000E+00	NOT IDENT.
PO-211	-8.615E-01	1.334E+00	1.992E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.076E-01	7.900E-01	0.000E+00	FAIL ABUN
PO-215	-1.075E+00	8.880E-01	1.397E+00	0.000E+00	FAIL ABUN
RN-219	2.936E-01	5.311E-01	9.293E-01	0.000E+00	FAIL ABUN
RN-220	1.694E+01	3.199E+01	5.550E+01	0.000E+00	NOT IDENT.
RA-223	-1.075E+00	8.880E-01	1.397E+00	0.000E+00	FAIL ABUN
AC-227	5.162E-03	4.883E-01	8.491E-01	0.000E+00	FAIL ABUN
TH-227	5.162E-03	4.883E-01	8.491E-01	0.000E+00	FAIL ABUN
TH-229	-3.273E-02	6.722E-01	1.117E+00	0.000E+00	FAIL ABUN
PA-231	-1.311E+00	1.993E+00	3.320E+00	0.000E+00	NOT IDENT.
TH-231	-1.075E+00	8.880E-01	1.397E+00	0.000E+00	FAIL ABUN
U-231	-1.660E+00	3.605E+00	5.284E+00	0.000E+00	FAIL ABUN
PA-233	-7.408E-03	8.186E-02	1.402E-01	0.000E+00	FAIL ABUN
PA-234	-4.294E-01	3.531E-01	5.028E-01	0.000E+00	FAIL ABUN
PA-234M	-1.536E+00	5.472E+00	8.740E+00	0.000E+00	NOT IDENT.
U-235	1.893E-01	2.838E-01	4.855E-01	0.000E+00	FAIL ABUN
NP-236	-6.577E-02	1.047E-01	1.710E-01	0.000E+00	NOT IDENT.
NP-239	-1.556E-01	2.437E-01	4.035E-01	0.000E+00	FAIL ABUN
AM-241	4.146E-01	3.398E-01	5.508E-01	0.000E+00	NOT IDENT.
CM-243	6.793E-02	1.230E-01	2.149E-01	0.000E+00	FAIL ABUN
AM-246	3.591E-02	1.757E-01	2.991E-01	0.000E+00	NOT IDENT.
CM-247	4.053E-03	4.815E-02	8.217E-02	0.000E+00	NOT IDENT.
CF-249	3.601E-02	4.798E-02	8.541E-02	0.000E+00	NOT IDENT.
CF-251	-8.426E-02	1.688E-01	2.761E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101015.CNF;1
Sample date        : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:51:24.
Sample ID          : G245101015 Sample quantity : 1.16730E+02 GRAM
Detector name      : GAM15 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.17 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	734	10.67*	9.991E-01	2.215E+01	2.215E+01	11.18
SN-126	64.28	-----	9.60	1.930E+00	-----	Line Not Found	-----
	86.94	129	8.90	4.386E+00	1.067E+00	1.067E+00	67.17
	87.57	129	37.00*	4.386E+00	2.566E-01	2.566E-01	53.62
BA-137M	661.65	273	89.98*	2.020E+00	4.839E-01	4.846E-01	22.49
CS-137	661.65	273	85.12*	2.020E+00	5.116E-01	5.122E-01	22.50
TL-208	277.35	-----	6.80	3.788E+00	-----	Line Not Found	-----
	510.84	86	21.60	2.462E+00	5.204E-01	5.204E-01	71.62
	583.14	265	84.20*	2.230E+00	4.534E-01	4.534E-01	22.59
	860.37	46	12.46	1.612E+00	7.325E-01	7.325E-01	77.83
BI-211	72.87	205	1.27	3.130E+00	1.655E+01	1.655E+01	43.01
	351.07	486	12.94*	3.206E+00	3.763E+00	3.763E+00	16.36
PB-212	74.81	205	10.70	3.130E+00	1.964E+00	1.964E+00	44.01
	77.11	420	18.00	3.412E+00	2.200E+00	2.200E+00	24.06
	87.30	129	8.00	4.386E+00	1.187E+00	1.187E+00	54.54
	238.63	893	44.60*	4.221E+00	1.526E+00	1.526E+00	12.45
	300.09	56	3.41	3.588E+00	1.460E+00	1.460E+00	90.24
PO-212	74.81	205	10.70	3.130E+00	1.964E+00	1.964E+00	44.01
	77.11	420	18.00	3.412E+00	2.200E+00	2.200E+00	24.06
	87.30	129	8.00	4.386E+00	1.187E+00	1.187E+00	54.54
	115.19	-----	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	893	44.60*	4.221E+00	1.526E+00	1.526E+00	12.45
	300.09	56	3.41	3.588E+00	1.460E+00	1.460E+00	90.24
BI-214	609.31	418	46.30*	2.156E+00	1.346E+00	1.346E+00	14.80
	1120.29	91	15.10	1.264E+00	1.527E+00	1.527E+00	39.83
	1764.49	35	15.80	8.815E-01	8.024E-01	8.025E-01	86.80
PB-214	74.81	205	6.21	3.130E+00	3.385E+00	3.385E+00	43.64
	77.11	420	10.50	3.412E+00	3.771E+00	3.771E+00	25.24
	87.30	129	4.67	4.386E+00	2.033E+00	2.033E+00	54.17
	241.98	235	7.49	4.185E+00	2.416E+00	2.416E+00	36.96
	295.21	361	19.20	3.629E+00	1.665E+00	1.665E+00	20.80
	351.92	486	37.20*	3.206E+00	1.309E+00	1.309E+00	17.17

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	74.81	205	6.21	3.130E+00	3.385E+00	3.385E+00	43.64
	77.11	420	10.50	3.412E+00	3.771E+00	3.771E+00	25.24
	87.30	129	4.67	4.386E+00	2.033E+00	2.033E+00	54.17
	241.98	235	7.49	4.185E+00	2.416E+00	2.416E+00	36.96
	295.21	361	19.20	3.629E+00	1.665E+00	1.665E+00	20.80
PO-216	351.92	486	37.20*	3.206E+00	1.309E+00	1.309E+00	17.17
	74.81	205	6.21	3.130E+00	1.964E+00	1.964E+00	44.01
	77.11	420	18.00	3.412E+00	2.200E+00	2.200E+00	24.06
	87.30	129	8.00	4.386E+00	1.187E+00	1.187E+00	54.54
	238.63	893	44.60*	4.221E+00	1.526E+00	1.526E+00	12.45
PO-218	300.09	56	3.41	3.588E+00	1.460E+00	1.460E+00	90.24
	74.81	205	6.21	3.130E+00	3.385E+00	3.385E+00	43.64
	77.11	420	10.50	3.412E+00	3.771E+00	3.771E+00	25.24
	87.30	129	4.67	4.386E+00	2.033E+00	2.033E+00	54.17
	241.98	235	7.49	4.185E+00	2.416E+00	2.416E+00	36.96
RA-224	295.21	361	19.20	3.629E+00	1.665E+00	1.665E+00	20.80
	351.92	486	37.20*	3.206E+00	1.309E+00	1.309E+00	17.17
	240.98	235	3.95*	4.185E+00	4.580E+00	4.580E+00	36.53
	609.31	418	46.30*	2.156E+00	1.346E+00	1.346E+00	14.80
	1120.29	91	15.10	1.264E+00	1.527E+00	1.527E+00	39.83
AC-228	1764.49	35	15.80	8.815E-01	8.024E-01	8.025E-01	86.80
	338.32	190	11.40	3.299E+00	1.625E+00	1.625E+00	55.24
	911.07	206	27.70*	1.532E+00	1.562E+00	1.562E+00	23.78
	969.11	142	16.60	1.448E+00	1.899E+00	1.899E+00	33.27
	338.32	190	11.40	3.299E+00	1.625E+00	1.625E+00	55.24
RA-228	911.07	206	27.70*	1.532E+00	1.562E+00	1.562E+00	23.78
	969.11	142	16.60	1.448E+00	1.899E+00	1.899E+00	33.27
	74.81	205	10.70	3.130E+00	1.964E+00	2.004E+00	43.02
	77.11	420	18.00	3.412E+00	2.200E+00	2.244E+00	24.06
	87.30	129	8.00	4.386E+00	1.187E+00	1.211E+00	53.62
TH-228	238.63	893	44.60*	4.221E+00	1.526E+00	1.556E+00	12.45
	300.09	56	3.41	3.588E+00	1.460E+00	1.489E+00	107.46
	609.31	418	46.30*	2.156E+00	1.346E+00	1.346E+00	14.80
	1120.29	91	15.10	1.264E+00	1.527E+00	1.527E+00	39.83
	1764.49	35	15.80	8.815E-01	8.024E-01	8.024E-01	86.80
TH-232	338.32	190	11.40	3.299E+00	1.625E+00	1.625E+00	37.73
	911.07	206	27.70*	1.532E+00	1.562E+00	1.562E+00	23.78
	969.11	142	16.60	1.448E+00	1.899E+00	1.899E+00	33.27
	TH-234	63.29	164	3.80*	1.712E+00	8.083E+00	55.85
	92.38	274	5.41	4.858E+00	3.349E+00	3.349E+00	49.12
U-234	609.31	418	46.30*	2.156E+00	1.346E+00	1.346E+00	14.80
	1120.29	91	15.10	1.264E+00	1.527E+00	1.527E+00	39.83
	1764.49	35	15.80	8.815E-01	8.024E-01	8.024E-01	86.80
	NP-237	86.50	129	12.60*	4.386E+00	7.535E-01	57.45
	95.87	-----	2.60	5.041E+00	-----	Line Not Found	-----
U-238	63.29	164	3.80*	1.712E+00	8.083E+00	8.083E+00	55.85
	92.38	274	5.41	4.858E+00	3.349E+00	3.349E+00	46.48
	AM-243	74.67	205	66.00*	3.130E+00	3.185E-01	43.01
	86.72	129	0.34	4.386E+00	2.826E+01	2.826E+01	53.62



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----
ANH-511	511.00	86	100.00*	2.462E+00	1.124E-01	1.124E-01	71.13

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 28 96.55%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.215E+01	2.215E+01	0.248E+01	11.18	
SN-126	1.00E+05Y	1.00	2.566E-01	2.566E-01	1.376E-01	53.62	
BA-137M	30.17Y	1.00	4.839E-01	4.846E-01	1.090E-01	22.49	
CS-137	30.17Y	1.00	5.116E-01	5.122E-01	1.153E-01	22.50	
TL-208	1.41E+10Y	1.00	4.534E-01	4.534E-01	1.024E-01	22.59	
BI-211	7.04E+08Y	1.00	3.763E+00	3.763E+00	0.616E+00	16.36	
PB-212	1.41E+10Y	1.00	1.526E+00	1.526E+00	0.190E+00	12.45	
PO-212	1.41E+10Y	1.00	1.526E+00	1.526E+00	0.190E+00	12.45	
BI-214	1600.00Y	1.00	1.346E+00	1.346E+00	0.199E+00	14.80	
PB-214	1600.00Y	1.00	1.309E+00	1.309E+00	0.225E+00	17.17	
PO-214	1600.00Y	1.00	1.309E+00	1.309E+00	0.225E+00	17.17	
PO-216	1.41E+10Y	1.00	1.526E+00	1.526E+00	0.190E+00	12.45	
PO-218	1600.00Y	1.00	1.309E+00	1.309E+00	0.225E+00	17.17	
RA-224	1.41E+10Y	1.00	4.580E+00	4.580E+00	1.673E+00	36.53	
RA-226	1600.00Y	1.00	1.346E+00	1.346E+00	0.199E+00	14.80	
AC-228	1.41E+10Y	1.00	1.562E+00	1.562E+00	0.371E+00	23.78	
RA-228	1.41E+10Y	1.00	1.562E+00	1.562E+00	0.371E+00	23.78	
TH-228	1.91Y	1.02	1.526E+00	1.556E+00	0.194E+00	12.45	
TH-230	4.47E+09Y	1.00	1.346E+00	1.346E+00	0.199E+00	14.80	
TH-232	1.41E+10Y	1.00	1.562E+00	1.562E+00	0.371E+00	23.78	
TH-234	4.47E+09Y	1.00	8.083E+00	8.083E+00	4.514E+00	55.85	
U-234	4.47E+09Y	1.00	1.346E+00	1.346E+00	0.199E+00	14.80	
NP-237	2.14E+06Y	1.00	7.535E-01	7.535E-01	4.329E-01	57.45	
U-238	4.47E+09Y	1.00	8.083E+00	8.083E+00	4.514E+00	55.85	
AM-243	7380.00Y	1.00	3.185E-01	3.185E-01	1.370E-01	43.01	
ANH-511	1.00E+09Y	1.00	1.124E-01	1.124E-01	0.800E-01	71.13	
Total Activity :			6.965E+01	6.968E+01			

Grand Total Activity : 6.965E+01 6.968E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G245101015

Page : 5  
Acquisition date : 2-FEB-2010 11:51:24

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.14	266	339	1.58	370.66	365	12	3.69E-02	31.9	4.99E+00	T
0	208.98	90	262	1.38	418.33	413	10	1.25E-02	70.6	4.62E+00	T
0	269.81	75	155	1.35	539.93	536	9	1.04E-02	64.4	3.86E+00	T
0	462.48	60	106	1.67	925.13	921	10	8.39E-03	68.5	2.64E+00	T
0	727.45	73	76	1.39	1454.89	1449	14	1.01E-02	57.9	1.87E+00	T
0	933.27	26	25	1.53	1866.43	1862	9	3.63E-03	82.8	1.50E+00	
1	963.86	56	35	2.18	1927.60	1921	22	7.72E-03	49.6	1.45E+00	T
0	1508.78	26	8	2.71	3017.27	3010	16	3.57E-03	63.3	9.74E-01	T

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G245101015.CNF;1
* Acquisition date   : 2-FEB-2010 11:51:24.  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 02:00:01.17             Half life ratio : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 13-JAN-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G245101015             Analyst initials: MXR1
* Batch Number       : 944037                 Sample Quantity : 1.16730E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12.9MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A                 LCS Isotope     :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.215E+01	2.477E+00	6.675E-01	5.103E-02	33.189
SN-126	2.566E-01	1.376E-01	2.227E-01	2.570E-02	1.152
BA-137M	4.846E-01	1.090E-01	7.214E-02	3.629E-03	6.717
CS-137	5.122E-01	1.153E-01	7.626E-02	3.858E-03	6.717
TL-208	4.534E-01	1.024E-01	6.631E-02	4.222E-03	6.837
BI-211	3.763E+00	6.158E-01	4.482E-01	3.079E-02	8.397
PB-212	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
PO-212	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
BI-214	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
PB-214	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
PO-214	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
PO-216	1.526E+00	1.899E-01	1.206E-01	9.983E-03	12.651
PO-218	1.309E+00	2.248E-01	1.521E-01	1.311E-02	8.608
RA-224	4.580E+00	1.673E+00	1.372E+00	9.550E-02	3.338
RA-226	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
AC-228	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
RA-228	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
TH-228	1.556E+00	1.937E-01	1.230E-01	1.018E-02	12.651

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
TH-232	1.562E+00	3.713E-01	2.329E-01	2.589E-02	6.706
TH-234	8.083E+00	4.514E+00	4.013E+00	7.920E-01	2.014
U-234	1.346E+00	1.992E-01	1.361E-01	1.010E-02	9.889
NP-237	7.535E-01	4.329E-01	6.183E-01	1.460E-01	1.219
U-238	8.083E+00	4.514E+00	4.013E+00	7.920E-01	2.014
AM-243	3.185E-01	1.370E-01	1.388E-01	1.543E-02	2.295
ANH-511	1.124E-01	7.995E-02	6.141E-02	3.468E-03	1.830

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	8.476E-02		4.563E-01	7.553E-01	5.033E-02	0.112
NA-22	-1.610E-02		5.414E-02	8.461E-02	5.807E-03	-0.190
NA-24	-7.219E+01		9.746E+01	Half-Life too short		
AL-26	-1.663E-02		3.428E-02	5.011E-02	2.998E-03	-0.332
TI-44	1.904E-01		6.608E-02	1.025E-01	1.140E-02	1.857
SC-46	-1.174E-02		4.870E-02	7.867E-02	6.599E-03	-0.149
V-48	-4.212E-02		9.609E-02	1.501E-01	1.186E-02	-0.281
CR-51	-1.208E-02		5.331E-01	8.861E-01	6.390E-02	-0.014
MN-52	-1.326E-01		4.930E-01	7.904E-01	5.860E-02	-0.168
MN-54	3.186E-02		4.505E-02	7.917E-02	5.934E-03	0.402
CO-56	-1.458E-02		5.187E-02	8.393E-02	6.451E-03	-0.174
CO-57	1.253E-02		3.382E-02	5.595E-02	4.022E-03	0.224
CO-58	-7.412E-02		4.577E-02	6.253E-02	4.467E-03	-1.185
FE-59	6.349E-02		1.074E-01	1.870E-01	1.415E-02	0.340
CO-60	2.973E-02		4.528E-02	7.957E-02	6.005E-03	0.374
ZN-65	-7.072E-02		1.325E-01	1.709E-01	1.110E-02	-0.414
GE-68	1.131E+00		1.542E+00	2.705E+00	1.879E-01	0.418
AS-73	2.396E-02		2.269E+00	3.778E+00	5.163E-01	0.006
AS-74	-7.102E-02		1.443E-01	2.238E-01	1.203E-02	-0.317
SE-75	2.794E-02		6.555E-02	9.852E-02	6.891E-03	0.284
BR-77	3.854E-05		2.678E-05	Half-Life too short		
SR-82	-4.726E-01		5.527E-01	8.544E-01	5.640E-02	-0.553
RB-83	5.282E-02		9.013E-02	1.532E-01	8.618E-03	0.345
RB-84	-1.890E-02		9.062E-02	1.469E-01	1.213E-02	-0.129
KR-85	3.642E+00		1.061E+01	1.542E+01	8.699E-01	0.236
SR-85	1.965E-02		5.726E-02	8.323E-02	4.695E-03	0.236
RB-86	1.075E+00		1.193E+00	2.119E+00	1.474E-01	0.507
Y-88	0.000E+00		4.514E-02	7.417E-02	4.332E-03	0.000
ZR-88	5.367E-03		4.007E-02	6.666E-02	3.780E-03	0.081
Y-91	-4.673E-01		2.257E+01	3.659E+01	2.213E+00	-0.013
NB-94	1.817E-02		4.140E-02	7.163E-02	3.984E-03	0.254
NB-95	6.099E-02		5.722E-02	1.025E-01	6.605E-03	0.595
NB-95M	1.722E+00		2.920E-01	4.714E-01	3.983E-02	3.654
ZR-95	-5.654E-03		9.102E-02	1.512E-01	1.127E-02	-0.037
NB-97	3.882E+01		1.062E+01	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	1.279E+03		1.789E+02	Half-Life too short		
MO-99	-4.293E+00		5.058E+01	8.157E+01	1.134E+01	-0.053
TC-99M	-2.321E+16		1.927E+16	Half-Life too short		
RH-101	-5.425E-04		4.479E-02	7.176E-02	4.895E-03	-0.008
RH-102	-5.271E-03		3.845E-02	6.224E-02	3.548E-03	-0.085
RU-103	1.505E-02		5.523E-02	9.189E-02	1.157E-02	0.164
RH-106	3.513E-01		4.210E-01	7.211E-01	8.276E-02	0.487
RU-106	3.513E-01		4.195E-01	7.211E-01	3.789E-02	0.487
AG-108M	1.771E-02		4.311E-02	7.267E-02	4.518E-03	0.244
CD-109	6.718E-02		2.177E+00	2.271E+00	2.626E-01	0.030
AG-110M	7.556E-02		6.106E-02	9.479E-02	5.195E-03	0.797
IN-111	-1.339E+00		5.073E+00	7.297E+00	5.080E-01	-0.183
IN-113M	-1.289E-02		5.711E-02	9.280E-02	5.629E-03	-0.139
SN-113	-1.289E-02		5.711E-02	9.280E-02	5.629E-03	-0.139
IN-114M	-1.144E-01		3.017E-01	4.121E-01	2.794E-02	-0.278
CD-115	-3.990E-05		2.992E-05	Half-Life too short		
SN-117M	1.499E-02		9.273E-02	1.509E-01	1.009E-02	0.099
SB-122	4.020E+00		9.036E+00	1.515E+01	8.336E-01	0.265
I-123	-9.914E+02		1.852E+03	Half-Life too short		
TE-123M	-1.044E-02		3.899E-02	6.225E-02	4.203E-03	-0.168
I-124	-1.060E-01		2.211E+00	3.062E+00	1.637E-01	-0.035
SB-124	5.369E-03		8.958E-02	1.498E-01	1.052E-02	0.036
SB-125	-9.767E-03		1.245E-01	2.035E-01	1.213E-02	-0.048
TE-125M	3.289E+00		1.297E+01	2.141E+01	2.131E+00	0.154
I-126	3.511E-01		3.265E-01	5.105E-01	2.598E-02	0.688
SB-126	1.890E-02		2.577E-01	3.754E-01	2.179E-02	0.050
SB-127	-7.184E-01		3.667E+00	6.052E+00	6.663E-01	-0.119
XE-127	4.160E-02		7.621E-02	1.160E-01	7.939E-03	0.359
I-131	2.383E-02		2.370E-01	3.945E-01	2.682E-02	0.060
TE-132	1.829E+00		2.653E+00	4.570E+00	7.273E-01	0.400
BA-133	1.068E-02		6.552E-02	9.544E-02	1.124E-02	0.112
I-133	2.452E-02		1.861E-01	Half-Life too short		
CS-134	3.178E-02		5.369E-02	9.384E-02	6.539E-03	0.339
CS-135	3.020E-01		2.396E-01	3.758E-01	3.213E-02	0.804
I-135	-5.174E+14		6.467E+14	Half-Life too short		
CS-136	-2.295E-02		1.572E-01	2.534E-01	1.954E-02	-0.091
CE-139	2.205E-02		4.120E-02	6.796E-02	4.519E-03	0.324
BA-140	-1.366E-01		4.157E-01	6.532E-01	2.122E-01	-0.209
LA-140	-2.338E-02		1.550E-01	2.519E-01	1.756E-02	-0.093
CE-141	1.459E-02		9.435E-02	1.539E-01	1.074E-02	0.095
CE-143	1.853E-02	+	2.790E-03	Half-Life too short		
CE-144	-4.431E-02		2.727E-01	4.400E-01	6.466E-02	-0.101
PM-144	-1.038E-02		4.172E-02	6.862E-02	3.767E-03	-0.151
PR-144	-7.055E-01		2.835E+00	4.662E+00	2.555E-01	-0.151
PM-146	-6.765E-03		5.942E-02	9.662E-02	8.274E-03	-0.070
ND-147	2.165E-01		9.623E-01	1.591E+00	2.138E-01	0.136
PM-149	7.198E-04		2.820E-04	Half-Life too short		
EU-152	-2.893E-01		2.585E-01	2.056E-01	1.449E-02	-1.407

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	1.723E-01		1.173E-01	1.810E-01	1.737E-02	0.952
EU-154	-4.048E-02		1.513E-01	2.374E-01	2.380E-02	-0.171
EU-155	3.141E-02		1.423E-01	2.349E-01	2.034E-02	0.134
TB-160	-5.163E-02		1.673E-01	2.682E-01	2.205E-02	-0.192
HO-166M	7.931E-03		7.155E-02	1.209E-01	6.874E-03	0.066
TM-171	-1.210E+01		5.659E+01	8.142E+01	9.363E+00	-0.149
LU-176	-1.031E-02		3.467E-02	5.535E-02	3.729E-03	-0.186
LU-177	4.515E+00	+	3.202E+00	4.223E+00	2.902E-01	1.069
LU-177M	-1.559E-01		2.402E-01	3.788E-01	2.159E-02	-0.412
HF-181	-2.234E-02		6.232E-02	9.923E-02	5.649E-03	-0.225
W-181	-2.610E-01		7.643E-01	1.092E+00	1.271E-01	-0.239
TA-182	8.860E-02		2.469E-01	4.146E-01	2.585E-02	0.214
RE-183	-2.323E-02		1.582E-01	2.484E-01	1.656E-02	-0.094
RE-184	-4.798E-02		3.130E-01	5.220E-01	3.634E-02	-0.092
OS-185	-2.478E-02		5.630E-02	8.701E-02	4.458E-03	-0.285
RE-188	8.590E-02		2.360E-01	3.874E-01	2.599E-02	0.222
W-188	-9.505E+00		1.130E+01	1.532E+01	1.049E+00	-0.620
IR-192	2.299E-03		4.584E-02	7.654E-02	5.115E-03	0.030
AU-195	3.764E-01		3.395E-01	5.161E-01	4.837E-02	0.729
TL-200	4.231E-03		6.884E-03	Half-Life too short		
TL-201	-5.369E+00		2.850E+01	4.557E+01	3.033E+00	-0.118
TL-202	-1.137E-01		1.229E-01	1.834E-01	1.048E-02	-0.620
HG-203	1.949E-02		5.822E-02	9.893E-02	7.125E-03	0.197
BI-207	1.505E-02		5.813E-02	9.793E-02	6.958E-03	0.154
TL-207	-1.075E+00		9.061E-01	1.380E+00	2.319E-01	-0.779
PO-209	5.204E+00		8.495E+00	1.488E+01	1.267E+00	0.350
BI-210	-6.482E+00		1.478E+01	2.369E+01	2.460E+00	-0.274
PB-210	-6.482E+00		1.478E+01	2.369E+01	2.460E+00	-0.274
PO-210	-6.482E+00		1.478E+01	2.369E+01	2.275E+00	-0.274
PB-211	-8.615E-01		1.361E+00	1.972E+00	1.229E+00	-0.437
BI-212	1.062E+00	+	6.200E-01	7.869E-01	6.127E-02	1.349
PO-215	-1.075E+00		9.061E-01	1.380E+00	2.319E-01	-0.779
RN-219	2.936E-01		5.419E-01	9.200E-01	1.247E-01	0.319
RN-220	1.694E+01		3.264E+01	5.513E+01	3.058E+00	0.307
RA-223	-1.075E+00		9.061E-01	1.380E+00	2.319E-01	-0.779
AC-227	5.162E-03		4.982E-01	8.368E-01	1.212E-01	0.006
TH-227	5.162E-03		4.982E-01	8.368E-01	1.450E-01	0.006
TH-229	-3.273E-02		6.859E-01	1.098E+00	7.465E-02	-0.030
PA-231	-1.311E+00		2.034E+00	3.275E+00	4.673E-01	-0.400
TH-231	-1.075E+00		9.061E-01	1.380E+00	2.319E-01	-0.779
U-231	-1.660E+00		3.679E+00	5.156E+00	5.081E-01	-0.322
PA-233	-7.408E-03		8.353E-02	1.385E-01	9.706E-03	-0.054
PA-234	-4.294E-01		3.603E-01	5.023E-01	9.331E-02	-0.855
PA-234M	-1.536E+00		5.584E+00	8.736E+00	8.052E-01	-0.176
U-235	1.893E-01		2.896E-01	4.756E-01	7.936E-02	0.398
NP-236	-6.577E-02		1.068E-01	1.677E-01	1.120E-02	-0.392
NP-239	-1.556E-01		2.487E-01	3.945E-01	2.966E-02	-0.394
AM-241	4.146E-01		3.468E-01	5.349E-01	6.807E-02	0.775

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	6.793E-02		1.255E-01	2.099E-01	1.832E-02	0.324
AM-246	3.591E-02		1.793E-01	2.992E-01	2.074E-02	0.120
CM-247	4.053E-03		4.913E-02	8.136E-02	4.626E-03	0.050
CF-249	3.601E-02		4.896E-02	8.453E-02	4.846E-03	0.426
CF-251	-8.426E-02		1.723E-01	2.710E-01	1.817E-02	-0.311



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G245101015           *
* Acquisition date   : 2-FEB-2010 11:51:24 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 02:00:01.17             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID          : G245101015              Analyst initials: MXR1          *
* Batch Number       : 944037                  Sample Quantity : 1.1673E+02 GRAM  *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12 MS Isotope       :              *
* MSD DPM             : 0.000                     MSD Isotope   :              *
* LCS DPM             : 0.000                     LCS Isotope    :              *
* LCSD DPM            : 0.000                     LCSD Isotope   :              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.215E+01	2.427E+00	3.328E-01	1.238E+00
SN-126	2.566E-01	1.348E-01	1.143E-01	6.880E-02
BA-137M	4.846E-01	1.068E-01	3.627E-02	5.450E-02
CS-137	5.122E-01	1.130E-01	3.834E-02	5.763E-02
TL-208	4.534E-01	1.004E-01	3.338E-02	5.122E-02
BI-211	3.763E+00	6.034E-01	2.268E-01	3.079E-01
PB-212	1.526E+00	1.861E-01	6.127E-02	9.496E-02
PO-212	1.526E+00	1.861E-01	6.127E-02	9.496E-02
BI-214	1.346E+00	1.952E-01	6.848E-02	9.961E-02
PB-214	1.309E+00	2.203E-01	7.695E-02	1.124E-01
PO-214	1.309E+00	2.203E-01	7.695E-02	1.124E-01
PO-216	1.526E+00	1.861E-01	6.127E-02	9.496E-02
PO-218	1.309E+00	2.203E-01	7.695E-02	1.124E-01
RA-224	4.580E+00	1.640E+00	6.970E-01	8.367E-01
RA-226	1.346E+00	1.952E-01	6.848E-02	9.961E-02
AC-228	1.562E+00	3.639E-01	1.167E-01	1.857E-01
RA-228	1.562E+00	3.639E-01	1.167E-01	1.857E-01
TH-228	1.556E+00	1.899E-01	6.250E-02	9.687E-02
TH-230	1.346E+00	1.952E-01	6.847E-02	9.961E-02
TH-232	1.562E+00	3.639E-01	1.167E-01	1.857E-01
TH-234	8.083E+00	4.424E+00	2.066E+00	2.257E+00
U-234	1.346E+00	1.952E-01	6.847E-02	9.961E-02
NP-237	7.535E-01	4.243E-01	3.173E-01	2.165E-01
U-238	8.083E+00	4.424E+00	2.066E+00	2.257E+00
AM-243	3.185E-01	1.342E-01	7.134E-02	6.849E-02
ANH-511	1.124E-01	7.835E-02	3.095E-02	3.998E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	8.476E-02	4.472E-01	3.810E-01	2.282E-01 NOT IDENT.

NA-22	-1.610E-02	5.306E-02	4.224E-02	2.707E-02	NOT IDENT.
NA-24	-7.219E+07	1.910E+08	0.000E+00	9.746E+07	SHORT HLIF
AL-26	-1.663E-02	3.359E-02	2.493E-02	1.714E-02	NOT IDENT.
TI-44	1.904E-01	6.475E-02	5.267E-02	3.304E-02	NOT IDENT.
SC-46	-1.174E-02	4.772E-02	3.943E-02	2.435E-02	FAIL ABUN
V-48	-4.212E-02	9.417E-02	7.513E-02	4.804E-02	NOT IDENT.
CR-51	-1.208E-02	5.225E-01	4.488E-01	2.666E-01	NOT IDENT.
MN-52	-1.326E-01	4.831E-01	3.941E-01	2.465E-01	NOT IDENT.
MN-54	3.186E-02	4.415E-02	3.970E-02	2.253E-02	NOT IDENT.
CO-56	-1.458E-02	5.083E-02	4.209E-02	2.593E-02	NOT IDENT.
CO-57	1.253E-02	3.314E-02	2.861E-02	1.691E-02	NOT IDENT.
CO-58	-7.412E-02	4.485E-02	3.137E-02	2.288E-02	NOT IDENT.
FE-59	6.349E-02	1.053E-01	9.351E-02	5.372E-02	NOT IDENT.
CO-60	2.973E-02	4.438E-02	3.971E-02	2.264E-02	NOT IDENT.
ZN-65	-7.072E-02	1.299E-01	8.543E-02	6.627E-02	NOT IDENT.
GE-68	1.131E+00	1.511E+00	1.353E+00	7.709E-01	NOT IDENT.
AS-73	2.396E-02	2.223E+00	1.948E+00	1.134E+00	NOT IDENT.
AS-74	-7.102E-02	1.414E-01	1.126E-01	7.215E-02	NOT IDENT.
SE-75	2.794E-02	6.424E-02	5.000E-02	3.277E-02	NOT IDENT.
BR-77	3.854E+01	5.250E+01	0.000E+00	2.678E+01	SHORT HLIF
SR-82	-4.726E-01	5.416E-01	4.288E-01	2.763E-01	NOT IDENT.
RB-83	5.282E-02	8.833E-02	7.719E-02	4.506E-02	NOT IDENT.
RB-84	-1.890E-02	8.881E-02	7.364E-02	4.531E-02	NOT IDENT.
KR-85	3.642E+00	1.040E+01	7.773E+00	5.305E+00	NOT IDENT.
SR-85	1.965E-02	5.611E-02	4.195E-02	2.863E-02	NOT IDENT.
RB-86	1.075E+00	1.170E+00	1.060E+00	5.967E-01	NOT IDENT.
Y-88	0.000E+00	4.424E-02	3.689E-02	0.000E+00	NOT IDENT.
ZR-88	5.367E-03	3.927E-02	3.369E-02	2.003E-02	NOT IDENT.
Y-91	-4.673E-01	2.212E+01	1.828E+01	1.128E+01	NOT IDENT.
NB-94	1.817E-02	4.057E-02	3.599E-02	2.070E-02	NOT IDENT.
NB-95	6.099E-02	5.607E-02	5.145E-02	2.861E-02	NOT IDENT.
NB-95M	1.722E+00	2.861E-01	2.395E-01	1.460E-01	NOT IDENT.
ZR-95	-5.654E-03	8.920E-02	7.592E-02	4.551E-02	NOT IDENT.
NB-97	3.882E+07	2.082E+07	0.000E+00	1.062E+07	SHORT HLIF
ZR-97	1.279E+09	3.506E+08	0.000E+00	1.789E+08	SHORT HLIF
MO-99	-4.293E+00	4.956E+01	4.096E+01	2.529E+01	NOT IDENT.
TC-99M	-2.321E+22	3.776E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-5.425E-04	4.389E-02	3.652E-02	2.240E-02	NOT IDENT.
RH-102	-5.271E-03	3.768E-02	3.140E-02	1.922E-02	NOT IDENT.
RU-103	1.505E-02	5.412E-02	4.633E-02	2.761E-02	NOT IDENT.
RH-106	3.513E-01	4.126E-01	3.627E-01	2.105E-01	NOT IDENT.
RU-106	3.513E-01	4.111E-01	3.627E-01	2.098E-01	NOT IDENT.
AG-108M	1.771E-02	4.225E-02	3.669E-02	2.156E-02	NOT IDENT.
CD-109	6.718E-02	2.134E+00	1.165E+00	1.089E+00	NOT IDENT.
AG-110M	7.556E-02	5.984E-02	4.765E-02	3.053E-02	NOT IDENT.
IN-111	-1.339E+00	4.972E+00	3.706E+00	2.537E+00	NOT IDENT.
IN-113M	-1.289E-02	5.596E-02	4.691E-02	2.855E-02	NOT IDENT.
SN-113	-1.289E-02	5.596E-02	4.691E-02	2.855E-02	NOT IDENT.
IN-114M	-1.144E-01	2.957E-01	2.098E-01	1.508E-01	NOT IDENT.
CD-115	-3.990E+01	5.865E+01	0.000E+00	2.992E+01	SHORT HLIF
SN-117M	1.499E-02	9.088E-02	7.697E-02	4.637E-02	NOT IDENT.
SB-122	4.020E+00	8.856E+00	7.630E+00	4.518E+00	NOT IDENT.
I-123	-9.914E+08	3.629E+09	0.000E+00	1.852E+09	SHORT HLIF
TE-123M	-1.044E-02	3.821E-02	3.176E-02	1.950E-02	NOT IDENT.
I-124	-1.060E-01	2.167E+00	1.541E+00	1.106E+00	FAIL ABUN
SB-124	5.369E-03	8.779E-02	7.455E-02	4.479E-02	FAIL ABUN
SB-125	-9.767E-03	1.220E-01	1.028E-01	6.225E-02	FAIL ABUN
TE-125M	3.289E+00	1.271E+01	1.096E+01	6.483E+00	NOT IDENT.
I-126	3.511E-01	3.200E-01	2.566E-01	1.633E-01	NOT IDENT.
SB-126	1.890E-02	2.525E-01	1.886E-01	1.288E-01	NOT IDENT.
SB-127	-7.184E-01	3.594E+00	3.041E+00	1.834E+00	FAIL ABUN
XE-127	4.160E-02	7.469E-02	5.901E-02	3.811E-02	NOT IDENT.
I-131	2.383E-02	2.323E-01	1.996E-01	1.185E-01	NOT IDENT.
TE-132	1.829E+00	2.600E+00	2.323E+00	1.326E+00	NOT IDENT.
BA-133	1.068E-02	6.421E-02	4.829E-02	3.276E-02	NOT IDENT.
I-133	2.452E+04	3.648E+05	0.000E+00	1.861E+05	SHORT HLIF
CS-134	3.178E-02	5.262E-02	4.709E-02	2.685E-02	NOT IDENT.
CS-135	3.020E-01	2.348E-01	1.907E-01	1.198E-01	NOT IDENT.
I-135	-5.174E+20	1.268E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.295E-02	1.540E-01	1.268E-01	7.858E-02	FAIL ABUN
CE-139	2.205E-02	4.037E-02	3.465E-02	2.060E-02	NOT IDENT.
BA-140	-1.366E-01	4.074E-01	3.291E-01	2.079E-01	NOT IDENT.
LA-140	-2.338E-02	1.519E-01	1.255E-01	7.752E-02	NOT IDENT.
CE-141	1.459E-02	9.246E-02	7.855E-02	4.717E-02	NOT IDENT.
CE-143	1.853E+04	5.468E+03	0.000E+00	2.790E+03	SHORT HLIF
CE-144	-4.431E-02	2.672E-01	2.248E-01	1.363E-01	NOT IDENT.
PM-144	-1.038E-02	4.089E-02	3.448E-02	2.086E-02	NOT IDENT.
PR-144	-7.055E-01	2.778E+00	2.343E+00	1.417E+00	NOT IDENT.

PM-146	-6.765E-03	5.823E-02	4.876E-02	2.971E-02	NOT IDENT.
ND-147	2.165E-01	9.431E-01	8.018E-01	4.812E-01	NOT IDENT.
PM-149	7.198E+02	5.528E+02	0.000E+00	2.820E+02	SHORT HLIF
EU-152	-2.893E-01	2.533E-01	1.040E-01	1.292E-01	FAIL ABUN
GD-153	1.723E-01	1.150E-01	9.281E-02	5.866E-02	NOT IDENT.
EU-154	-4.048E-02	1.483E-01	1.185E-01	7.567E-02	NOT IDENT.
EU-155	3.141E-02	1.394E-01	1.203E-01	7.114E-02	FAIL ABUN
TB-160	-5.163E-02	1.639E-01	1.344E-01	8.364E-02	FAIL ABUN
HO-166M	7.931E-03	7.012E-02	6.075E-02	3.578E-02	FAIL ABUN
TM-171	-1.210E+01	5.545E+01	4.189E+01	2.829E+01	NOT IDENT.
LU-176	-1.031E-02	3.398E-02	2.805E-02	1.734E-02	NOT IDENT.
LU-177	4.515E+00	3.138E+00	2.148E+00	1.601E+00	FAIL ABUN
LU-177M	-1.559E-01	2.354E-01	1.913E-01	1.201E-01	FAIL ABUN
HF-181	-2.234E-02	6.108E-02	5.005E-02	3.116E-02	NOT IDENT.
W-181	-2.610E-01	7.490E-01	5.622E-01	3.822E-01	NOT IDENT.
TA-182	8.860E-02	2.420E-01	2.071E-01	1.235E-01	NOT IDENT.
RE-183	-2.323E-02	1.551E-01	1.267E-01	7.912E-02	FAIL ABUN
RE-184	-4.798E-02	3.068E-01	2.650E-01	1.565E-01	NOT IDENT.
OS-185	-2.478E-02	5.518E-02	4.375E-02	2.815E-02	FAIL ABUN
RE-188	8.590E-02	2.312E-01	1.977E-01	1.180E-01	NOT IDENT.
W-188	-9.505E+00	1.107E+01	7.769E+00	5.649E+00	FAIL ABUN
IR-192	2.299E-03	4.493E-02	3.877E-02	2.292E-02	FAIL ABUN
AU-195	3.764E-01	3.327E-01	2.645E-01	1.697E-01	FAIL ABUN
TL-200	4.231E+03	1.349E+04	0.000E+00	6.884E+03	SHORT HLIF
TL-201	-5.369E+00	2.793E+01	2.323E+01	1.425E+01	NOT IDENT.
TL-202	-1.137E-01	1.205E-01	9.257E-02	6.145E-02	NOT IDENT.
HG-203	1.949E-02	5.706E-02	5.017E-02	2.911E-02	FAIL ABUN
BI-207	1.505E-02	5.697E-02	4.899E-02	2.906E-02	FAIL ABUN
TL-207	-1.075E+00	8.880E-01	6.987E-01	4.530E-01	FAIL ABUN
PO-209	5.204E+00	8.325E+00	7.457E+00	4.247E+00	NOT IDENT.
BI-210	-6.482E+00	1.449E+01	1.223E+01	7.391E+00	NOT IDENT.
PB-210	-6.482E+00	1.449E+01	1.223E+01	7.391E+00	NOT IDENT.
PO-210	-6.482E+00	1.448E+01	1.223E+01	7.390E+00	NOT IDENT.
PB-211	-8.615E-01	1.334E+00	9.966E-01	6.806E-01	NOT IDENT.
BI-212	1.062E+00	6.076E-01	3.952E-01	3.100E-01	FAIL ABUN
PO-215	-1.075E+00	8.880E-01	6.987E-01	4.530E-01	FAIL ABUN
RN-219	2.936E-01	5.311E-01	4.649E-01	2.709E-01	FAIL ABUN
RN-220	1.694E+01	3.199E+01	2.777E+01	1.632E+01	NOT IDENT.
RA-223	-1.075E+00	8.880E-01	6.987E-01	4.530E-01	FAIL ABUN
AC-227	5.162E-03	4.883E-01	4.248E-01	2.491E-01	FAIL ABUN
TH-227	5.162E-03	4.883E-01	4.248E-01	2.491E-01	FAIL ABUN
TH-229	-3.273E-02	6.722E-01	5.590E-01	3.430E-01	FAIL ABUN
PA-231	-1.311E+00	1.993E+00	1.661E+00	1.017E+00	NOT IDENT.
TH-231	-1.075E+00	8.880E-01	6.987E-01	4.530E-01	FAIL ABUN
U-231	-1.660E+00	3.605E+00	2.644E+00	1.839E+00	FAIL ABUN
PA-233	-7.408E-03	8.186E-02	7.015E-02	4.176E-02	FAIL ABUN
PA-234	-4.294E-01	3.531E-01	2.516E-01	1.802E-01	FAIL ABUN
PA-234M	-1.536E+00	5.472E+00	4.373E+00	2.792E+00	NOT IDENT.
U-235	1.893E-01	2.838E-01	2.429E-01	1.448E-01	FAIL ABUN
NP-236	-6.577E-02	1.047E-01	8.553E-02	5.340E-02	NOT IDENT.
NP-239	-1.556E-01	2.437E-01	2.019E-01	1.244E-01	FAIL ABUN
AM-241	4.146E-01	3.398E-01	2.755E-01	1.734E-01	NOT IDENT.
CM-243	6.793E-02	1.230E-01	1.075E-01	6.274E-02	FAIL ABUN
AM-246	3.591E-02	1.757E-01	1.496E-01	8.965E-02	NOT IDENT.
CM-247	4.053E-03	4.815E-02	4.111E-02	2.457E-02	NOT IDENT.
CF-249	3.601E-02	4.798E-02	4.273E-02	2.448E-02	NOT IDENT.
CF-251	-8.426E-02	1.688E-01	1.381E-01	8.614E-02	NOT IDENT.

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

46.50	289.4309
46.50	289.4309
46.50	289.4309
48.70	271.6760
49.72	252.3052
51.35	289.9526
52.39	279.0619
52.97	251.7750
53.15	255.6508
53.44	259.5746
54.07	274.1171
56.28	242.3368
56.28	242.3378
57.37	0.0000
57.53	271.0323
57.53	271.0334
57.60	280.2506
57.98	277.3512
57.98	277.3512
59.32	236.4662
59.32	236.4662
59.40	236.4954
59.54	242.6897
59.72	242.7567
60.01	255.1607
61.10	314.0883
61.14	314.1070
61.30	314.1823
63.00	339.6831
63.29	339.8278
63.29	339.8278
63.58	339.9731
64.28	388.2764
65.12	357.7747
65.20	357.8159
65.20	357.8159
66.05	352.0509
66.72	367.9113
66.83	367.9706
66.91	368.0125
67.20	390.3009
67.20	390.3009
67.75	383.4790
67.85	383.5332
68.90	346.4693
68.90	346.4693
69.30	366.1390
69.67	376.0711
70.82	409.0664
70.82	409.0664
70.83	409.0728
72.80	371.0358
72.87	371.0705
72.87	371.0705
74.67	385.5071
74.81	385.5791
74.81	385.5791
74.81	385.5791
74.81	385.5791
74.81	385.5791
74.81	385.5791
74.81	385.5791
74.97	385.6615
75.28	385.8204
75.70	386.0348
77.11	386.7514
77.11	386.7514

77.11	386.7514
77.11	386.7514
77.11	386.7514
77.11	386.7514
77.11	386.7514
78.38	376.9428
79.62	483.3863
79.80	483.4983
79.80	483.4983
80.11	516.8851
80.18	516.9310
80.30	517.0109
80.30	517.0109
80.57	502.9539
81.00	503.2296
81.07	476.7653
81.07	476.7653
81.07	476.7653
81.07	476.7653
82.60	440.0265
83.37	423.2552
83.78	400.9763
83.78	400.9763
83.78	400.9763
83.78	400.9763
84.21	394.0406
84.90	357.8027
85.43	378.7227
86.29	524.3462
86.50	524.4808
86.54	543.3626
86.59	543.3959
86.72	543.4812
86.79	543.5270
86.94	543.6269
87.30	526.3222
87.30	526.3222
87.30	526.3222
87.30	526.3222
87.30	526.3222
87.30	526.3222
87.57	610.2537
87.88	0.0000
88.03	610.5946
88.36	610.8374
88.47	610.9191
89.95	612.0023
91.11	612.8475
92.29	414.4812
92.38	414.5254
92.38	414.5254
93.35	414.9952
94.00	415.3106
94.67	331.4319
94.67	331.4332
94.90	331.5212
94.90	331.5212
94.90	331.5212
94.90	331.5212
95.87	344.7811
95.87	344.7811
96.73	287.0636
97.43	255.0113
98.44	250.4559
98.44	250.4559
98.88	266.7463
99.55	265.5995
99.55	265.5995
99.86	265.6917
100.00	296.7574
100.10	307.5845
103.18	297.4664
103.76	276.3216
105.00	290.9368
105.31	298.1571
108.00	334.7403
109.28	301.4718

111.00	335.8039
111.00	335.8039
111.76	337.0962
112.95	294.4261
115.19	292.0224
116.30	302.6480
117.00	308.0147
117.00	308.0147
117.66	340.1765
121.11	277.2215
121.62	273.2228
121.78	273.2661
122.06	284.7309
122.32	287.9102
122.32	287.9102
122.32	287.9102
122.32	287.9102
123.07	290.1962
127.23	282.0088
129.76	313.9881
131.20	332.1736
133.02	318.0946
133.54	306.7344
135.34	306.1999
136.00	311.6334
136.25	319.0525
136.48	308.6224
140.51	345.5847
140.51	0.0000
142.18	294.4004
142.65	312.4709
143.76	306.4413
144.24	319.2575
144.24	319.2575
144.24	319.2575
144.24	319.2575
145.22	322.7105
145.44	322.7734
147.16	339.1626
152.43	303.4539
152.70	296.0707
153.22	307.9224
154.21	298.5852
154.21	298.5852
154.21	298.5852
154.21	298.5852
155.03	284.9220
156.02	284.0943
158.56	281.4942
159.00	0.0000
159.00	297.6572
160.31	308.7026
161.27	293.9304
162.32	293.1118
162.64	289.9690
163.35	297.6600
163.89	292.4178
165.85	279.9654
167.43	291.1071
171.28	271.4615
171.86	248.8654
172.10	240.2550
176.55	294.3180
176.60	294.3283
181.06	280.7477
184.41	266.6088
185.71	266.8731
186.00	252.0527
190.27	284.4730
192.34	250.6170
193.63	269.5604
197.04	283.4721
198.01	274.8438
198.60	269.4384
200.40	0.0000
201.83	287.7789
202.84	259.9269
205.31	259.2035

208.36	256.8719
208.81	256.9530
209.75	222.6181
209.75	222.6181
210.97	206.7652
215.65	204.5333
216.55	204.6589
218.09	192.5604
222.10	240.2357
223.80	249.5027
226.40	219.7653
227.00	230.6656
227.08	230.6781
227.20	230.6953
228.16	240.7628
228.18	240.7661
228.18	240.7661
231.56	0.0000
235.69	268.8415
236.00	279.4704
236.00	279.4704
238.63	229.7074
238.63	229.7074
238.63	229.7074
238.63	229.7074
239.00	0.0000
240.98	230.0549
241.98	195.6259
241.98	195.6259
241.98	195.6259
244.69	185.3307
245.39	208.2092
247.94	207.0229
248.90	205.6242
249.79	0.0000
252.40	206.0747
252.85	207.0485
252.85	207.0485
254.15	0.0000
256.20	199.2151
256.20	199.2151
260.50	194.2181
260.90	0.0000
262.80	203.8098
264.65	170.7140
268.24	184.9536
268.79	183.4729
269.46	190.6431
269.46	190.6431
269.46	190.6431
269.46	190.6431
271.23	194.5474
273.65	255.1303
276.40	187.0112
277.35	177.5843
277.60	176.6801
277.60	176.6801
278.00	164.6303
278.60	168.4104
279.20	191.7394
279.53	211.3245
280.46	235.6557
281.68	0.0000
283.67	195.0343
284.30	187.6376
285.00	169.9696
285.90	0.0000
286.10	147.6486
286.10	147.6486
287.40	158.9807
288.45	0.0000
290.67	185.8213
290.80	185.8358
291.72	192.1825
293.26	0.0000
293.70	159.5493
295.21	164.3808
295.21	164.3808

295.21	164.3808
295.96	169.1477
296.50	169.2004
297.23	0.0000
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299.80	180.4970
299.80	180.4970
300.09	172.6784
300.09	172.6784
300.09	172.6784
300.09	172.6784
300.12	172.6807
301.29	171.2217
302.84	172.9403
303.76	0.0000
303.91	176.1895
304.40	173.0880
304.40	173.0880
304.84	168.4088
306.84	181.7241
308.46	161.8029
311.98	158.3198
316.51	145.4023
318.01	140.7626
319.02	137.9836
319.41	132.3011
320.08	146.6309
323.87	191.7671
323.87	191.7671
323.87	191.7671
323.87	191.7671
325.23	158.4883
328.77	153.9995
333.44	151.8160
334.20	134.2903
334.20	134.2903
334.30	134.2971
338.28	167.2541
338.28	167.2541
338.28	167.2541
338.28	167.2541
338.32	167.2583
338.32	167.2583
338.32	167.2583
340.50	166.8016
340.57	166.8080
344.27	216.9360
345.85	167.8977
350.59	0.0000
351.07	154.7949
351.92	146.7938
351.92	146.7938
351.92	146.7938
355.39	0.0000
356.01	140.6263
364.48	138.2905
366.43	132.5734
367.43	133.6135
367.94	0.0000
369.80	138.6476
374.96	128.2239
383.85	132.6978
387.95	102.4220
388.63	109.3510
391.69	119.3723
391.69	119.3723
392.90	114.5033
398.62	133.6091
400.65	113.9205
401.10	107.0086
401.81	118.9365
402.60	129.8870
404.84	145.8982
410.95	127.3922
411.60	130.4147
413.65	139.5027
414.70	131.5923
415.30	126.6419



415.76	124.6735
417.63	0.0000
418.52	121.8302
423.70	126.1123
427.08	112.2666
427.89	123.3363
432.53	116.5523
433.93	107.5734
439.47	0.0000
439.56	122.9516
439.89	120.9536
443.98	112.0772
444.90	117.1711
445.03	117.1781
445.03	117.1781
445.03	117.1781
445.03	117.1781
453.90	119.6450
463.38	96.7047
468.07	91.7919
473.00	105.2632
475.06	106.3740
475.35	100.2490
476.78	98.2606
477.59	104.4354
477.96	107.5237
482.03	113.8536
484.57	0.0000
487.03	88.3883
490.36	0.0000
492.35	0.0000
497.08	85.6454
507.63	0.0000
510.53	0.0000
510.84	102.0124
511.00	102.0190
511.85	84.7556
511.85	84.7556
513.99	107.3294
513.99	107.3294
520.41	79.1339
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527.90	0.0000
528.96	0.0000
529.64	81.5001
529.87	0.0000
531.02	82.5874
537.32	84.8780
543.00	75.6070
546.56	0.0000
549.76	75.7951
552.65	95.8988
555.20	85.4396
563.23	74.0520
563.90	79.3597
568.70	90.0967
569.32	87.9970
569.50	81.6395
569.67	78.4642
573.80	82.5914
574.00	81.4172
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	69.2513
585.48	0.0000
591.81	70.5311
592.07	72.6733
593.00	78.0437
595.88	94.1725
600.56	82.1771
602.52	0.0000
602.71	91.1779
602.71	91.1779
603.60	92.9932
604.41	82.2866
604.70	82.2950
609.31	82.4241

609.31	82.4241
609.31	82.4241
609.31	82.4241
610.33	89.6240
612.46	62.7810
614.37	75.3867
618.01	100.2793
621.84	71.2578
621.84	71.2578
631.29	62.8187
633.02	63.9392
633.10	63.9407
634.78	67.2297
635.90	71.5929
636.97	65.1079
645.85	78.3580
646.12	79.4534
656.30	94.6414
657.75	89.2232
657.90	0.0000
661.65	76.5728
661.65	76.5728
664.57	0.0000
666.33	58.4284
666.33	58.4284
675.00	53.8294
677.61	72.5662
685.20	63.3707
692.80	68.1254
695.00	66.3296
696.49	78.3421
696.49	78.3421
697.00	73.7451
697.49	83.8980
698.33	82.9962
698.50	83.9240
699.00	82.0921
702.63	73.8737
706.10	70.2542
706.58	0.0000
706.67	81.3613
709.31	86.9795
711.68	66.6709
713.82	64.8602
717.42	71.4246
720.50	66.8496
721.93	0.0000
722.20	65.2908
722.78	70.0805
722.78	70.0805
722.89	70.0836
722.95	70.0851
723.30	74.8718
724.18	82.8587
727.18	66.9844
733.00	59.1133
735.90	59.6966
739.58	68.1672
742.81	50.4734
744.21	47.6890
747.13	60.8317
751.79	51.5435
752.31	48.7394
753.82	52.5125
755.35	0.0000
756.15	67.5615
756.87	66.6376
763.93	90.2871
765.79	69.6339
766.42	74.3518
766.84	75.3027
776.49	81.1761
778.00	79.3225
778.57	76.5011
778.89	75.5648
783.80	57.6988
785.46	60.5651
792.07	62.5746

795.84	54.0985
796.30	56.0039
798.80	82.6404
801.93	50.3884
805.60	51.3918
810.29	60.0353
810.76	65.7628
815.85	44.8581
817.79	0.0000
818.51	44.8906
819.60	46.8148
826.30	49.7730
828.27	0.0000
831.60	52.7206
831.96	52.7262
834.83	54.6865
836.80	0.0000
846.75	65.4503
848.13	63.5494
856.28	0.0000
856.80	62.8699
860.37	46.3691
867.32	61.3858
867.82	65.3357
871.10	38.7508
873.19	43.6185
874.81	56.2430
875.33	0.0000
876.40	53.3562
879.36	50.4850
880.27	46.6133
880.51	53.4144
881.50	51.4850
883.24	53.4525
884.67	41.8058
889.25	53.5364
896.60	40.9601
898.02	54.6328
899.00	52.6959
903.28	56.9398
911.07	43.6293
911.07	43.6293
911.07	43.6293
919.63	41.7370
920.93	40.2343
925.00	47.1523
925.24	47.1553
926.50	51.5921
935.52	55.7197
937.48	60.8140
944.10	44.4168
946.00	59.2505
949.00	41.5061
962.29	59.4897
964.01	44.6356
966.15	44.6594
968.20	44.6814
969.11	39.1582
969.11	39.1582
969.11	39.1582
977.42	36.8208
980.50	37.8438
983.50	43.8514
989.30	36.9262
996.32	45.9860
1001.03	45.0366
1001.68	39.0381
1004.76	40.0684
1021.30	0.0000
1024.50	0.0000
1034.80	34.2988
1036.00	48.4355
1037.82	56.5332
1038.57	45.4358
1038.76	0.0000
1045.16	39.4380
1046.59	32.3698
1048.07	42.4990

1050.47	39.4856
1050.47	39.4856
1062.04	32.4844
1063.62	37.5736
1076.63	41.7591
1077.35	40.7471
1078.86	48.9121
1085.78	32.6589
1099.22	33.7815
1112.02	24.6377
1112.84	29.9231
1115.52	61.6406
1120.29	44.2230
1120.29	44.2230
1120.29	44.2230
1120.29	44.2230
1120.51	44.2248
1121.28	45.8482
1124.00	0.0000
1129.67	50.5910
1131.51	0.0000
1147.95	0.0000
1167.94	40.5234
1173.22	46.8109
1175.09	53.0731
1177.93	42.6917
1189.05	53.2288
1204.90	47.1222
1205.75	0.0000
1213.00	44.0542
1221.42	52.5370
1230.97	55.7971
1235.34	44.2559
1236.41	0.0000
1238.25	46.3919
1246.25	45.4110
1260.41	0.0000
1271.85	38.2148
1274.45	44.6062
1274.54	44.6062
1291.56	39.4299
1298.22	0.0000
1312.09	25.6787
1325.50	34.3268
1325.50	34.3268
1332.49	22.5577
1333.61	23.6373
1360.21	34.5560
1362.66	0.0000
1365.15	17.2943
1368.21	27.0376
1368.53	0.0000
1376.25	24.9120
1384.27	19.5256
1394.10	18.6300
1395.20	23.2928
1407.95	28.0172
1434.06	23.4593
1436.60	19.7153
1457.56	0.0000
1460.81	22.6297
1489.15	25.5875
1509.49	18.0709
1596.49	27.9956
1620.62	11.6309
1678.03	0.0000
1691.02	11.7652
1691.02	11.7652
1706.46	0.0000
1750.46	0.0000
1764.49	6.9431
1764.49	6.9431
1764.49	6.9431
1764.49	6.9431
1770.23	12.1611
1771.40	30.7805
1791.20	0.0000
1808.65	12.9819

1836.01

14.0386

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G245101015

Total Uranium Activity	2.4133E+01	ug/g
Total Uranium Counting Unc.	1.3162E+01	ug/g
Total Uranium Tpu	6.7155E-06	ug/g
Total Uranium Mda	6.1474E+00	ug/g

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*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
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*
*  BATCH ID      : 944037                      SAMPLE ID   : G245101015
*  ANALYST       : MXR1                        DETECTOR    : GAM15
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00    COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:51:24.06    SAMPLE ALQT  : 116.730 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.965E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.469E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.516E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.698E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:53:06.03

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021393.CNF;1
Sample date        : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 11:52:12.
Sample ID          : G1202021393 Sample quantity : 1.38100E+02 GRAM
Detector name      : GAM22 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:00.96 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 944037 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.27*	1	122	1.24	126.80	123	7	1.10E-04	*****	
2	0	92.70*	66	262	1.20	185.60	179	14	9.10E-03	59.5	
3	0	185.74*	12	175	1.08	371.49	367	10	1.61E-03	246.6	
4	0	511.08*	3	103	1.97	1021.65	1013	18	3.68E-04	*****	
5	0	912.51	42	82	2.52	1824.14	1812	26	5.90E-03	59.1	

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



## VMS Nuclide Identification Report V3.1 Generated 2-FEB-2010 13:53:09

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021393.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 11:52:12
Sample ID         : G1202021393 Sample quantity : 138.10 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA22 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:00.96 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
TH-234	+	63.29	*	1.310E-02	7.022E-01	9.022E-01	1.570E-01	0.015
	+	92.38		4.189E-01	5.043E-01	3.357E-01	6.152E-02	1.248
U-238	+	63.29	*	1.310E-02	7.022E-01	9.022E-01	1.570E-01	0.015
	+	92.38		4.189E-01	4.999E-01	3.357E-01	3.059E-02	1.248
ANH-511	+	511.00	*	1.677E-03	3.982E-02	2.632E-02	2.637E-03	0.064

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	5.514E-03	1.644E-01	2.664E-01	2.780E-02	0.021
NA-22		1274.54	*	-1.044E-02	1.827E-02	2.771E-02	2.388E-03	-0.377
NA-24		1368.53	*	1.682E-05	1.827E-02	Half-Life too short		
AL-26		1129.67		-6.533E-01	8.249E-01	1.199E+00	1.044E-01	-0.545
		1808.65	*	-7.946E-03	1.603E-02	2.359E-02	1.929E-03	-0.337
K-40		1460.81	*	-1.743E-01	2.504E-01	4.258E-01	3.901E-02	-0.409
TI-44		67.85		-1.330E-02	1.940E-02	2.997E-02	2.288E-03	-0.444
		78.38	*	2.665E-03	1.441E-02	2.302E-02	1.951E-03	0.116
SC-46		889.25	*	1.789E-03	1.784E-02	2.992E-02	3.349E-03	0.060
		1120.51		4.502E-03	2.781E-02	4.110E-02	3.634E-03	0.110
V-48		944.10		-1.289E-02	3.091E-01	5.072E-01	5.501E-02	-0.025
		983.50	*	-2.200E-03	2.425E-02	3.937E-02	4.129E-03	-0.056
		1312.09		1.272E-02	2.913E-02	5.073E-02	4.470E-03	0.251
CR-51		320.08	*	4.958E-02	1.791E-01	3.046E-01	3.944E-02	0.163
MN-52		744.21		2.644E-02	5.323E-02	9.067E-02	9.853E-03	0.292
		848.13		-1.425E+00	1.560E+00	2.343E+00	2.609E-01	-0.608
		935.52		8.225E-03	5.396E-02	9.055E-02	9.887E-03	0.091
		1246.25		3.919E-01	1.201E+00	2.080E+00	1.758E-01	0.188
		1333.61		-9.173E-01	1.065E+00	1.520E+00	1.356E-01	-0.603
		1434.06	*	-2.005E-02	5.775E-02	8.958E-02	8.005E-03	-0.224
MN-54		834.83	*	-3.363E-03	1.804E-02	2.954E-02	3.282E-03	-0.114
CO-56		846.75	*	-9.217E-04	1.928E-02	3.198E-02	3.560E-03	-0.029
		977.42		-1.114E-01	1.301E+00	2.116E+00	2.231E-01	-0.053
		1037.82		-8.619E-03	1.307E-01	2.117E-01	2.183E-02	-0.041

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

	Line Energy Nuclide Ided (keV) Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1175.09	-6.607E-01	9.352E-01	1.425E+00	1.148E-01	-0.464
	1238.25	-4.280E-03	3.697E-02	5.550E-02	4.809E-03	-0.077
	1360.21	3.402E-02	4.021E-01	6.705E-01	5.989E-02	0.051
	1771.40	-2.495E-01	1.577E-01	1.918E-01	1.594E-02	-1.301
CO-57	122.06 *	-5.653E-03	1.347E-02	2.075E-02	1.711E-03	-0.272
	136.48	6.839E-02	1.051E-01	1.833E-01	1.701E-02	0.373
CO-58	810.76 *	1.183E-02	1.685E-02	3.016E-02	3.339E-03	0.392
FE-59	142.65	9.684E-02	1.421E+00	2.254E+00	1.994E-01	0.043
	192.34	-9.393E-02	4.442E-01	7.230E-01	1.074E-01	-0.130
	1099.22 *	2.850E-02	3.305E-02	5.990E-02	5.870E-03	0.476
	1291.56	-3.518E-02	5.806E-02	8.879E-02	8.751E-03	-0.396
CO-60	1173.22	-3.947E-03	1.992E-02	3.248E-02	2.612E-03	-0.122
	1332.49 *	-1.186E-02	1.899E-02	2.837E-02	2.530E-03	-0.418
ZN-65	1115.52 *	-1.725E-02	4.321E-02	6.677E-02	5.957E-03	-0.258
GE-68	1077.35 *	7.811E-02	6.255E-01	1.033E+00	9.736E-02	0.076
AS-73	53.44 *	-4.729E-01	3.587E-01	4.748E-01	3.587E-02	-0.996
AS-74	595.88 *	7.365E-03	4.094E-02	6.880E-02	7.130E-03	0.107
	634.78	8.065E-02	1.377E-01	2.390E-01	2.504E-02	0.338
SE-75	66.05	-1.950E-02	2.121E+00	3.135E+00	2.991E-01	-0.006
	96.73	-1.106E-02	3.957E-01	5.671E-01	7.805E-02	-0.020
	121.11	2.286E-02	6.984E-02	1.131E-01	1.236E-02	0.202
	136.00	5.575E-03	1.910E-02	3.279E-02	2.845E-03	0.170
	198.60	-7.747E-01	1.054E+00	1.584E+00	1.851E-01	-0.489
	264.65 *	7.004E-03	2.455E-02	4.017E-02	5.406E-03	0.174
	279.53	4.316E-02	5.843E-02	9.770E-02	1.387E-02	0.442
	303.91	6.162E-01	1.079E+00	1.870E+00	2.850E-01	0.329
BR-77	400.65	-1.147E-01	1.419E-01	2.180E-01	2.552E-02	-0.526
	87.88	-3.449E+00	1.240E+01	1.712E+01	1.622E+00	-0.202
	200.40	-3.478E+00	1.338E+01	2.167E+01	2.383E+00	-0.160
	239.00	-6.534E-01	8.545E-01	1.327E+00	1.651E-01	-0.493
	249.79	-4.065E+00	5.535E+00	8.460E+00	1.088E+00	-0.481
	281.68	-1.724E+00	7.624E+00	1.199E+01	1.670E+00	-0.144
	297.23	2.744E+00	4.008E+00	6.990E+00	9.399E-01	0.393
	303.76	7.622E+00	1.381E+01	2.394E+01	3.166E+00	0.318
	439.47	1.109E+01	1.230E+01	2.126E+01	2.047E+00	0.522
	484.57	-1.835E+01	2.013E+01	2.991E+01	2.957E+00	-0.614
	520.65 *	7.559E-01	8.662E-01	1.486E+00	1.496E-01	0.509
	574.64	-7.437E+00	1.612E+01	2.574E+01	2.648E+00	-0.289
	578.91	-4.481E+00	6.633E+00	1.038E+01	1.069E+00	-0.432
	585.48	2.494E+01	1.339E+01	2.484E+01	2.566E+00	1.004
	755.35	2.011E+00	1.135E+01	1.877E+01	2.046E+00	0.107
	817.79	-4.528E+00	9.456E+00	1.499E+01	1.660E+00	-0.302
SR-82	698.33	5.512E+00	1.525E+01	2.569E+01	2.748E+00	0.215
	776.49 *	-1.745E-02	1.689E-01	2.702E-01	2.963E-02	-0.065
	1395.20	-3.397E+00	4.493E+00	6.435E+00	5.754E-01	-0.528
RB-83	520.41 *	3.198E-02	3.740E-02	6.408E-02	6.449E-03	0.499
	529.64	7.881E-03	4.966E-02	8.430E-02	8.519E-03	0.093
	552.65	3.901E-02	9.911E-02	1.706E-01	1.741E-02	0.229
RB-84	881.50 *	-2.070E-02	2.866E-02	4.336E-02	4.850E-03	-0.477

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
KR-85	513.99	*		1.464E+01	5.468E+00	9.108E+00	9.138E-01	1.608
SR-85	513.99	*		7.002E-02	2.615E-02	4.356E-02	4.370E-03	1.608
RB-86	1076.63	*		1.893E-02	3.210E-01	5.260E-01	4.964E-02	0.036
Y-88	898.02			1.445E-02	1.979E-02	3.516E-02	3.951E-03	0.411
	1836.01	*		3.765E-03	1.822E-02	3.106E-02	2.511E-03	0.121
ZR-88	392.90	*		-1.101E-03	1.716E-02	2.809E-02	2.615E-03	-0.039
Y-91	1204.90	*		-1.098E+00	7.286E+00	1.191E+01	9.790E-01	-0.092
NB-94	702.63	*		5.640E-03	1.779E-02	2.986E-02	3.200E-03	0.189
	871.10			6.837E-03	1.853E-02	3.186E-02	3.559E-03	0.215
NB-95	765.79	*		-3.105E-03	1.817E-02	2.885E-02	3.155E-03	-0.108
NB-95M	235.69	*		-8.026E-02	5.988E-02	8.704E-02	1.151E-02	-0.922
ZR-95	724.18			5.161E-04	4.596E-02	7.489E-02	8.538E-03	0.007
	756.15	*		1.257E-03	3.077E-02	5.010E-02	5.816E-03	0.025
NB-97	657.90	*		-4.915E-05	3.077E-02	Half-Life too short		
	1024.50			2.327E-03	3.077E-02	Half-Life too short		
ZR-97	254.15			2.937E-03	3.077E-02	Half-Life too short		
	355.39			-3.983E-03	3.077E-02	Half-Life too short		
	507.63	*		3.707E-03	3.077E-02	Half-Life too short		
	602.52			2.998E-03	3.077E-02	Half-Life too short		
	1021.30			-2.834E-03	3.077E-02	Half-Life too short		
	1147.95			-8.113E-04	3.077E-02	Half-Life too short		
	1362.66			4.104E-03	3.077E-02	Half-Life too short		
	1750.46			-3.527E-03	3.077E-02	Half-Life too short		
MO-99	140.51			-2.362E+00	2.914E+00	4.311E+00	1.196E+00	-0.548
	181.06			1.597E+00	1.914E+00	2.932E+00	5.613E-01	0.545
	366.43			-2.089E+00	8.590E+00	1.395E+01	1.480E+00	-0.150
	739.58	*		-8.196E-01	1.156E+00	1.724E+00	2.854E-01	-0.475
	778.00			3.575E-01	3.511E+00	5.732E+00	6.289E-01	0.062
TC-99M	140.51	*		-2.055E+02	3.511E+00	Half-Life too short		
RH-101	127.23			9.669E-03	1.632E-02	2.677E-02	2.237E-03	0.361
	198.01	*		-7.739E-03	1.971E-02	3.029E-02	3.305E-03	-0.255
	325.23			2.709E-02	1.186E-01	2.011E-01	2.499E-02	0.135
RH-102	418.52			1.792E-01	1.539E-01	2.724E-01	2.585E-02	0.658
	475.06	*		-3.623E-03	1.571E-02	2.488E-02	2.447E-03	-0.146
	631.29			-3.346E-05	2.755E-02	4.543E-02	4.757E-03	-0.001
	697.49			3.095E-03	4.210E-02	6.922E-02	7.404E-03	0.045
	766.84			1.462E-02	4.852E-02	8.106E-02	8.867E-03	0.180
	1046.59			2.135E-02	5.549E-02	9.462E-02	9.279E-03	0.226
	1112.84			-4.498E-02	1.056E-01	1.621E-01	1.451E-02	-0.277
RU-103	497.08	*		4.946E-03	2.011E-02	3.303E-02	4.958E-03	0.150
	610.33			-6.291E-02	4.607E-01	7.737E-01	1.368E-01	-0.081
RH-106	511.85	+		8.273E-03	1.965E-01	2.623E-01	2.629E-02	0.032
	621.84	*		-1.260E-02	1.703E-01	2.795E-01	4.081E-02	-0.045
	1050.47			-3.456E-01	1.142E+00	1.795E+00	1.753E-01	-0.192
RU-106	511.85	+		8.273E-03	1.965E-01	2.623E-01	2.629E-02	0.032
	621.84	*		-1.260E-02	1.703E-01	2.795E-01	2.919E-02	-0.045
	1050.47			-3.456E-01	1.142E+00	1.795E+00	1.753E-01	-0.192
AG-108M	433.93	*		3.980E-03	1.901E-02	3.147E-02	3.115E-03	0.127
	614.37			-2.030E-02	2.420E-02	3.738E-02	4.002E-03	-0.543

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	722.95			-2.308E-03	2.205E-02	3.554E-02	3.932E-03	-0.065
CD-109	88.03	*		-1.324E-01	3.906E-01	5.358E-01	5.085E-02	-0.247
AG-110M	657.75	*		-1.197E-02	1.841E-02	2.835E-02	3.047E-03	-0.422
	677.61			1.551E-01	1.462E-01	2.629E-01	2.842E-02	0.590
	706.67			-7.151E-02	1.133E-01	1.737E-01	1.898E-02	-0.412
	763.93			-1.187E-02	7.502E-02	1.193E-01	1.327E-02	-0.099
	884.67			3.515E-03	2.286E-02	3.858E-02	4.400E-03	0.091
	937.48			1.890E-03	5.306E-02	8.792E-02	9.803E-03	0.021
	1384.27			-2.704E-02	8.497E-02	1.332E-01	1.222E-02	-0.203
IN-111	171.28			9.074E-02	1.071E-01	1.856E-01	1.853E-02	0.489
	245.39	*		-6.921E-02	1.197E-01	1.859E-01	2.359E-02	-0.372
IN-113M	391.69	*		2.166E-02	2.482E-02	4.311E-02	4.117E-03	0.502
SN-113	391.69	*		2.166E-02	2.482E-02	4.311E-02	4.117E-03	0.502
IN-114M	190.27	*		-1.429E-03	9.717E-02	1.406E-01	1.495E-02	-0.010
CD-115	260.90			-4.250E+00	9.624E+00	1.500E+01	1.993E+00	-0.283
	492.35			-1.891E+00	2.748E+00	4.160E+00	4.130E-01	-0.455
	527.90	*		-2.196E-01	6.762E-01	1.100E+00	1.111E-01	-0.200
SN-117M	156.02			-2.197E-01	8.243E-01	1.360E+00	1.275E-01	-0.162
	158.56	*		1.344E-03	2.014E-02	3.381E-02	3.207E-03	0.040
SB-122	563.90	*		5.414E-02	1.925E-01	3.282E-01	3.363E-02	0.165
	692.80			3.178E+00	4.098E+00	7.153E+00	7.637E-01	0.444
I-123	159.00	*		-3.745E-04	4.098E+00	Half-Life	too short	
	528.96			2.798E-02	4.098E+00	Half-Life	too short	
TE-123M	159.00	*		-7.843E-03	1.469E-02	2.384E-02	2.277E-03	-0.329
I-124	602.71	*		2.379E-02	1.418E-01	2.374E-01	2.466E-02	0.100
	722.78			-1.156E-01	7.650E-01	1.228E+00	1.325E-01	-0.094
	1325.50			1.126E+00	5.190E+00	8.826E+00	7.838E-01	0.128
	1376.25			2.430E+00	5.070E+00	8.851E+00	7.911E-01	0.274
	1509.49			1.445E+00	3.085E+00	5.333E+00	4.740E-01	0.271
	1691.02			-5.298E-01	6.945E-01	9.796E-01	8.377E-02	-0.541
SB-124	602.71			3.842E-03	2.289E-02	3.834E-02	3.982E-03	0.100
	645.85			2.776E-01	2.475E-01	4.441E-01	4.857E-02	0.625
	709.31			6.571E-01	1.382E+00	2.348E+00	2.522E-01	0.280
	713.82			3.858E-01	8.365E-01	1.417E+00	1.935E-01	0.272
	722.78			-2.706E-02	1.791E-01	2.874E-01	3.144E-02	-0.094
	968.20			-1.564E-01	1.323E+00	2.206E+00	2.346E-01	-0.071
	1045.16			1.130E-01	1.121E+00	1.852E+00	1.819E-01	0.061
	1325.50			2.814E-01	1.298E+00	2.207E+00	1.960E-01	0.128
	1368.21			2.876E-01	8.015E-01	1.384E+00	1.894E-01	0.208
	1436.60			5.473E-01	1.835E+00	3.132E+00	2.799E-01	0.175
	1691.02	*		-2.925E-02	3.835E-02	5.409E-02	4.811E-03	-0.541
SB-125	427.89	*		-8.355E-03	4.916E-02	7.911E-02	7.676E-03	-0.106
	463.38			1.698E-01	1.511E-01	2.646E-01	2.744E-02	0.642
	600.56			6.744E-02	1.099E-01	1.893E-01	2.066E-02	0.356
	635.90			1.036E-01	1.329E-01	2.343E-01	2.592E-02	0.442
TE-125M	109.28	*		4.002E+00	4.432E+00	7.449E+00	7.533E-01	0.537
I-126	388.63			1.433E-02	8.021E-02	1.337E-01	1.266E-02	0.107
	666.33	*		-1.291E-02	6.308E-02	1.014E-01	1.072E-02	-0.127
	753.82			-7.304E-02	4.933E-01	7.864E-01	8.570E-02	-0.093

Sample ID : G1202021393

Acquisition date : 2-FEB-2010 11:52:12

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126	223.80		-7.156E-01		1.508E+00	2.380E+00	2.824E-01	-0.301
	278.60		-3.269E-01		9.271E-01	1.444E+00	2.018E-01	-0.226
	296.50		1.468E-01		5.399E-01	8.721E-01	1.175E-01	0.168
	414.70		-1.546E-02		2.905E-02	4.554E-02	4.310E-03	-0.339
	415.30		-1.137E-01		2.384E+00	3.888E+00	3.681E-01	-0.029
	555.20		4.962E-01		1.415E+00	2.429E+00	2.481E-01	0.204
	573.80		-1.137E-01		3.819E-01	6.193E-01	6.370E-02	-0.184
	593.00		-9.868E-02		3.504E-01	5.672E-01	5.873E-02	-0.174
	656.30		-5.171E-01		1.200E+00	1.889E+00	1.990E-01	-0.274
	666.33		-5.312E-03		2.596E-02	4.175E-02	4.411E-03	-0.127
	675.00		-1.062E-01		6.857E-01	1.106E+00	1.173E-01	-0.096
	695.00		1.390E-02		2.845E-02	4.847E-02	5.180E-03	0.287
	697.00		1.027E-03		1.017E-01	1.664E-01	1.779E-02	0.006
	720.50	*	-1.162E-02		5.301E-02	8.450E-02	9.112E-03	-0.138
	856.80		-2.537E-02		1.574E-01	2.577E-01	2.873E-02	-0.098
	989.30		2.725E-01		3.953E-01	7.014E-01	7.316E-02	0.388
	1034.80		-3.555E+00		2.919E+00	3.954E+00	3.932E-01	-0.899
	1213.00		-3.707E-01		1.379E+00	2.220E+00	1.836E-01	-0.167
	64.28		5.186E-03		2.780E-01	3.745E-01	5.439E-02	0.014
	86.94		-1.379E-02		1.623E-01	2.276E-01	9.451E-02	-0.061
SN-126	87.57	*	-1.666E-03		3.868E-02	5.445E-02	5.142E-03	-0.031
	61.10		5.871E-01		7.540E+00	1.129E+01	9.277E-01	0.052
SB-127	252.40		1.120E-01		7.565E-01	1.230E+00	5.257E-01	0.091
	290.80		-2.039E+00		3.569E+00	5.793E+00	8.241E-01	-0.352
	411.60		-2.941E-02		1.984E+00	3.245E+00	4.898E-01	-0.009
	444.90		-1.581E+00		1.633E+00	2.417E+00	2.878E-01	-0.654
	473.00		-1.274E-01		2.782E-01	4.311E-01	5.339E-02	-0.296
	543.00		-2.465E+00		2.595E+00	3.717E+00	5.282E-01	-0.663
	603.60		-5.720E-01		2.243E+00	3.648E+00	4.553E-01	-0.157
	685.20	*	-4.903E-02		1.897E-01	3.014E-01	3.493E-02	-0.163
	698.50		8.958E-01		2.480E+00	4.172E+00	6.677E-01	0.215
	722.20		-2.434E+00		4.841E+00	7.494E+00	8.621E-01	-0.325
	783.80		1.643E-01		5.679E-01	9.436E-01	1.217E-01	0.174
	57.60		-3.614E-01		2.062E+00	3.393E+00	2.437E-01	-0.106
XE-127	145.22		-2.068E-03		3.269E-01	5.501E-01	4.920E-02	-0.004
	172.10		6.340E-02		5.715E-02	1.001E-01	1.002E-02	0.633
	202.84	*	2.362E-02		2.282E-02	3.938E-02	4.365E-03	0.600
	374.96		3.170E-02		9.796E-02	1.653E-01	1.683E-02	0.192
I-131	80.18		3.440E-01		1.027E+00	1.711E+00	1.483E-01	0.201
	284.30		-1.903E-01		5.014E-01	7.786E-01	1.099E-01	-0.244
	364.48	*	5.398E-04		3.495E-02	5.792E-02	6.401E-03	0.009
	636.97		1.549E-01		4.322E-01	7.360E-01	7.990E-02	0.211
TE-132	722.89		-2.536E-01		2.095E+00	3.372E+00	3.644E-01	-0.075
	49.72		1.340E-01		1.993E+00	3.362E+00	2.968E-01	0.040
	111.76		-8.971E-01		3.903E+00	6.139E+00	5.600E-01	-0.146
	116.30		-3.826E+00		3.588E+00	5.276E+00	4.785E-01	-0.725
BA-133	228.16	*	2.177E-02		9.042E-02	1.492E-01	2.531E-02	0.146
	53.15		-1.871E+00		1.621E+00	2.171E+00	1.648E-01	-0.861
	79.62		6.006E-02		5.093E-01	8.379E-01	1.275E-01	0.072

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	81.00		1.636E-02	3.773E-02	6.313E-02	1.006E-02	0.259
		276.40		-5.557E-02	1.933E-01	3.026E-01	5.475E-02	-0.184
		302.84		2.389E-02	7.549E-02	1.292E-01	2.154E-02	0.185
		356.01	*	-2.554E-02	2.419E-02	3.660E-02	5.469E-03	-0.698
		383.85		-1.217E-01	1.539E-01	2.358E-01	3.156E-02	-0.516
		510.53		8.547E-05	1.539E-01	Half-Life	too short	
		529.87	*	6.753E-08	1.539E-01	Half-Life	too short	
		706.58		-7.122E-04	1.539E-01	Half-Life	too short	
		856.28		2.250E-04	1.539E-01	Half-Life	too short	
		875.33		1.842E-04	1.539E-01	Half-Life	too short	
CS-134		1236.41		-5.647E-04	1.539E-01	Half-Life	too short	
		1298.22		1.103E-04	1.539E-01	Half-Life	too short	
		475.35		-5.809E-01	1.072E+00	1.651E+00	1.624E-01	-0.352
		563.23		1.468E-02	1.845E-01	3.094E-01	3.192E-02	0.047
		569.32		6.415E-02	1.042E-01	1.815E-01	1.882E-02	0.353
		604.70		-1.911E-02	2.189E-02	3.395E-02	3.535E-03	-0.563
		795.84	*	-1.141E-02	2.019E-02	3.015E-02	3.337E-03	-0.378
		801.93		8.571E-02	1.796E-01	3.055E-01	3.383E-02	0.281
		1038.57		5.098E-02	1.737E+00	2.848E+00	2.820E-01	0.018
		1167.94		7.898E-01	1.066E+00	1.927E+00	1.566E-01	0.410
CS-135 I-135		1365.15		-1.352E-01	5.903E-01	9.356E-01	8.714E-02	-0.144
		268.24	*	-1.067E-03	8.810E-02	1.413E-01	2.044E-02	-0.008
		288.45		-3.016E+02	8.810E-02	Half-Life	too short	
		417.63		9.855E+02	8.810E-02	Half-Life	too short	
		546.56		-6.637E+01	8.810E-02	Half-Life	too short	
		836.80		2.685E+01	8.810E-02	Half-Life	too short	
		1038.76		1.225E+02	8.810E-02	Half-Life	too short	
		1124.00		-4.228E+02	8.810E-02	Half-Life	too short	
		1131.51		-7.602E+01	8.810E-02	Half-Life	too short	
		1260.41	*	-4.565E+01	8.810E-02	Half-Life	too short	
CS-136		1457.56		7.752E+02	8.810E-02	Half-Life	too short	
		1678.03		-1.346E+02	8.810E-02	Half-Life	too short	
		1706.46		3.888E+02	8.810E-02	Half-Life	too short	
		1791.20		-2.724E+02	8.810E-02	Half-Life	too short	
		66.91		-1.686E-01	2.609E-01	3.640E-01	5.413E-02	-0.463
		86.29		4.759E-02	3.382E-01	5.108E-01	6.799E-02	0.093
		153.22		-1.113E-01	2.466E-01	4.032E-01	4.116E-02	-0.276
		163.89		3.024E-01	4.089E-01	7.066E-01	7.521E-02	0.428
		176.55		-2.518E-02	1.362E-01	2.236E-01	2.366E-02	-0.113
		273.65		-4.865E-02	1.675E-01	2.626E-01	3.714E-02	-0.185
BA-137M CS-137 CE-139 BA-140		340.57		-9.393E-03	4.681E-02	7.687E-02	9.207E-03	-0.122
		818.51		-2.668E-03	2.531E-02	4.184E-02	4.634E-03	-0.064
		1048.07	*	2.503E-02	3.675E-02	6.461E-02	6.531E-03	0.387
		1235.34		-2.310E-02	1.641E-01	2.679E-01	3.129E-02	-0.086
		661.65	*	1.155E-02	1.853E-02	3.205E-02	3.380E-03	0.360
		661.65	*	1.221E-02	1.959E-02	3.388E-02	3.577E-03	0.360
		165.85	*	-7.900E-03	1.480E-02	2.390E-02	2.344E-03	-0.331
		162.64		1.452E-01	2.837E-01	4.858E-01	4.913E-02	0.299
		304.84		5.007E-02	4.825E-01	8.152E-01	2.425E-01	0.061

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140		423.70		-5.953E-01	7.218E-01	1.052E+00	3.438E-01	-0.566
		537.32	*	-1.237E-02	8.591E-02	1.417E-01	4.757E-02	-0.087
		328.77		-1.034E-01	1.125E-01	1.753E-01	2.215E-02	-0.590
		432.53		-2.267E-01	8.339E-01	1.331E+00	1.325E-01	-0.170
		487.03		2.581E-02	5.641E-02	9.423E-02	9.768E-03	0.274
		751.79		-9.038E-02	5.724E-01	9.117E-01	1.061E-01	-0.099
		815.85		-1.048E-01	1.059E-01	1.561E-01	1.851E-02	-0.671
		867.82		-8.374E-02	5.323E-01	8.715E-01	1.004E-01	-0.096
		919.63		-4.037E-01	1.153E+00	1.533E+00	1.945E-01	-0.263
		925.24		1.136E-01	4.025E-01	6.847E-01	7.826E-02	0.166
CE-141		1596.49	*	-1.838E-02	3.273E-02	4.979E-02	4.365E-03	-0.369
		145.44	*	-6.788E-03	2.910E-02	4.839E-02	4.405E-03	-0.140
CE-143		57.37		-4.741E+00	1.456E+01	2.370E+01	2.107E+00	-0.200
		231.56		3.455E+01	4.819E+01	7.974E+01	2.615E+01	0.433
CE-144		293.26	*	1.201E+00	2.467E+00	4.246E+00	1.018E+00	0.283
		350.59		-3.470E+00	3.555E+01	5.634E+01	1.800E+01	-0.062
		490.36		1.378E+01	6.033E+01	9.878E+01	3.163E+01	0.140
		664.57		6.763E+00	2.331E+01	3.911E+01	1.288E+01	0.173
		721.93		-1.431E+01	2.683E+01	4.092E+01	1.226E+01	-0.350
		80.11		2.759E-01	8.233E-01	1.372E+00	1.186E-01	0.201
		133.54	*	-1.417E-01	1.016E-01	1.545E-01	2.398E-02	-0.918
		476.78		-5.966E-03	3.752E-02	5.981E-02	6.313E-03	-0.100
		618.01		-8.046E-03	1.823E-02	2.900E-02	3.083E-03	-0.277
		696.49	*	2.834E-03	1.863E-02	3.085E-02	3.298E-03	0.092
PR-144		778.57		4.268E-01	1.232E+00	2.057E+00	2.258E-01	0.207
		696.49	*	1.914E-01	1.258E+00	2.083E+00	2.227E-01	0.092
PM-146		1489.15		-2.535E+00	6.628E+00	1.014E+01	9.029E-01	-0.250
		453.90	*	3.784E-02	2.421E-02	4.344E-02	5.048E-03	0.871
ND-147		633.02		3.736E-01	6.949E-01	1.180E+00	4.465E-01	0.317
		735.90		3.659E-02	7.470E-02	1.263E-01	3.706E-02	0.290
		747.13		-1.808E-02	4.677E-02	7.264E-02	1.128E-02	-0.249
		91.11		2.503E-01	8.693E-02	1.555E-01	1.536E-02	1.610
		319.41		8.017E-01	1.225E+00	2.126E+00	2.692E-01	0.377
		439.89		1.561E+00	2.270E+00	3.839E+00	3.696E-01	0.407
		531.02	*	1.072E-01	1.852E-01	3.239E-01	5.136E-02	0.331
		285.90	*	3.950E+00	6.562E+00	1.085E+01	2.051E+00	0.364
		121.78		1.263E-02	3.804E-02	6.163E-02	5.915E-03	0.205
		244.69		-1.163E-01	1.843E-01	2.850E-01	3.609E-02	-0.408
EU-152		344.27	*	6.944E-03	5.403E-02	9.061E-02	1.089E-02	0.077
		443.98		-1.800E-01	5.312E-01	8.395E-01	8.104E-02	-0.214
		778.89		1.618E-02	1.462E-01	2.388E-01	2.621E-02	0.068
		867.32		-1.046E-01	4.631E-01	7.533E-01	8.411E-02	-0.139
		964.01		-1.016E-01	1.494E-01	2.312E-01	2.467E-02	-0.440
		1085.78		5.505E-02	1.905E-01	3.206E-01	2.987E-02	0.172
		1112.02		1.527E-02	1.416E-01	2.328E-01	2.087E-02	0.066
		1407.95		2.281E-02	9.329E-02	1.582E-01	1.414E-02	0.144
		69.67		2.515E-01	6.279E-01	1.060E+00	8.224E-02	0.237
		83.37		-6.176E+00	6.216E+00	8.961E+00	8.042E-01	-0.689
GD-153		97.43	*	1.430E-02	4.291E-02	6.191E-02	5.444E-03	0.231

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	103.18		-1.074E-02	4.954E-02	7.832E-02	6.693E-03	-0.137
	123.07		-3.574E-02	2.827E-02	4.052E-02	4.494E-03	-0.882
	247.94		6.341E-02	2.019E-01	3.327E-01	4.944E-02	0.191
	591.81		-2.504E-01	3.399E-01	5.257E-01	6.835E-02	-0.476
	723.30		-8.305E-03	9.218E-02	1.488E-01	1.716E-02	-0.056
	756.87		8.136E-03	3.586E-01	5.826E-01	7.991E-02	0.014
	873.19		1.931E-02	1.511E-01	2.543E-01	3.601E-02	0.076
	996.32		-1.393E-01	1.909E-01	2.842E-01	5.306E-02	-0.490
EU-155	1004.76		-1.892E-02	1.088E-01	1.748E-01	2.257E-02	-0.108
	1274.45	*	-2.925E-02	5.125E-02	7.766E-02	8.777E-03	-0.377
	48.70		-6.506E-01	1.049E+00	1.692E+00	1.378E-01	-0.384
	60.01		5.142E-01	2.110E+00	3.210E+00	2.280E-01	0.160
	86.54		4.424E-03	4.393E-02	6.614E-02	6.220E-03	0.067
TB-160	105.31	*	2.784E-02	5.027E-02	8.350E-02	7.168E-03	0.333
	86.79		-1.004E-02	1.179E-01	1.656E-01	1.548E-02	-0.061
	197.04		4.351E-04	3.147E-01	4.952E-01	5.385E-02	0.001
	215.65		4.092E-01	3.683E-01	6.378E-01	7.372E-02	0.642
	298.57		-5.417E-02	5.973E-02	8.781E-02	1.177E-02	-0.617
	879.36	*	-6.018E-02	6.532E-02	9.665E-02	1.081E-02	-0.623
	962.29		-3.271E-01	2.679E-01	3.841E-01	4.104E-02	-0.852
	966.15		6.431E-03	9.627E-02	1.608E-01	1.713E-02	0.040
HO-166M	1177.93		1.690E-02	1.539E-01	2.599E-01	2.097E-02	0.065
	1271.85		-5.538E-02	2.621E-01	4.200E-01	3.610E-02	-0.132
	80.57		3.923E-02	1.069E-01	1.784E-01	1.550E-02	0.220
	184.41	+	5.751E-03	2.837E-02	3.567E-02	3.719E-03	0.161
	280.46		2.010E-02	4.784E-02	7.860E-02	1.098E-02	0.256
	410.95		1.015E-01	1.303E-01	2.252E-01	2.126E-02	0.451
	711.68	*	1.962E-02	3.280E-02	5.628E-02	6.050E-03	0.349
	752.31		-9.016E-03	1.308E-01	2.105E-01	2.293E-02	-0.043
TM-171	810.29		1.426E-02	2.712E-02	4.779E-02	5.283E-03	0.298
	51.35		3.448E+00	1.223E+01	2.088E+01	1.629E+00	0.165
	52.39		-5.141E+00	7.293E+00	1.030E+01	7.904E-01	-0.499
	59.40		3.649E+00	1.105E+01	1.696E+01	1.198E+00	0.215
LU-176	66.72	*	-8.901E+00	1.330E+01	1.858E+01	1.404E+00	-0.479
	88.36		-3.987E-02	9.226E-02	1.255E-01	1.187E-02	-0.318
	201.83		-3.962E-03	1.641E-02	2.660E-02	2.939E-03	-0.149
	306.84	*	-2.128E-03	1.410E-02	2.345E-02	3.077E-03	-0.091
LU-177	401.10		-3.286E+00	3.816E+00	5.843E+00	5.475E-01	-0.562
	112.95		2.174E-01	4.329E-01	7.110E-01	5.911E-02	0.306
LU-177M	208.36	*	-3.753E-01	3.000E-01	4.219E-01	4.762E-02	-0.890
	52.97		-6.318E-01	7.041E-01	9.621E-01	7.320E-02	-0.657
	54.07		-2.379E-01	3.729E-01	5.243E-01	3.927E-02	-0.454
	61.30		2.169E-01	6.335E-01	9.690E-01	6.971E-02	0.224
	121.62		7.184E-02	1.902E-01	3.091E-01	2.546E-02	0.232
	147.16		-2.963E-01	3.429E-01	5.494E-01	4.954E-02	-0.539
	171.86		2.992E-01	2.551E-01	4.479E-01	4.479E-02	0.668
	218.09		-2.123E-01	4.493E-01	7.111E-01	8.284E-02	-0.299
	268.79		2.634E-02	4.438E-01	7.151E-01	9.722E-02	0.037
	319.02		2.971E-02	1.421E-01	2.409E-01	3.053E-02	0.123



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HF-181		367.43		-1.279E-01	4.816E-01	7.808E-01	8.243E-02	-0.164
		413.65	*	-4.768E-02	9.447E-02	1.484E-01	1.404E-02	-0.321
		56.28		9.966E-02	3.250E-01	5.535E-01	4.032E-02	0.180
		57.53		-4.301E-02	1.775E-01	2.907E-01	2.090E-02	-0.148
		65.20		8.077E-02	3.809E-01	5.736E-01	4.276E-02	0.141
		133.02		-3.281E-02	2.883E-02	4.547E-02	3.876E-03	-0.721
		136.25		8.841E-02	2.095E-01	3.618E-01	3.121E-02	0.244
W-181		345.85		-1.763E-03	9.409E-02	1.562E-01	1.807E-02	-0.011
		482.03	*	9.012E-03	2.228E-02	3.711E-02	3.664E-03	0.243
		56.28		4.185E-02	1.365E-01	2.324E-01	1.693E-02	0.180
		57.53		-1.815E-02	7.461E-02	1.222E-01	8.782E-03	-0.149
TA-182		65.20	*	3.368E-02	1.588E-01	2.392E-01	1.783E-02	0.141
		67.75		-2.814E-02	4.464E-02	6.926E-02	5.282E-03	-0.406
		100.10		2.682E-02	8.266E-02	1.357E-01	1.176E-02	0.198
		152.43		-3.144E-02	1.752E-01	2.912E-01	2.687E-02	-0.108
RE-183		222.10		1.152E-02	1.751E-01	2.867E-01	3.383E-02	0.040
		1001.68		1.359E+00	1.071E+00	1.903E+00	1.961E-01	0.714
		1121.28		6.084E-02	6.366E-02	1.137E-01	1.004E-02	0.535
		1189.05		-7.018E-02	1.371E-01	2.151E-01	1.749E-02	-0.326
		1221.42	*	4.896E-02	8.419E-02	1.484E-01	1.234E-02	0.330
		1230.97		-3.583E-02	1.921E-01	3.122E-01	2.613E-02	-0.115
		57.98		-2.425E-02	7.212E-02	1.173E-01	8.392E-03	-0.207
		59.32		1.216E-02	4.270E-02	6.531E-02	4.619E-03	0.186
		67.20		-4.469E-02	8.269E-02	1.239E-01	9.399E-03	-0.361
		162.32	*	3.106E-02	5.574E-02	9.568E-02	9.230E-03	0.325
RE-184		208.81		-4.528E-01	5.024E-01	7.298E-01	8.249E-02	-0.620
		291.72		-2.497E-01	4.837E-01	7.885E-01	1.074E-01	-0.317
		57.98		-9.286E-02	2.762E-01	4.490E-01	3.214E-02	-0.207
		59.32		4.653E-02	1.634E-01	2.499E-01	1.767E-02	0.186
OS-185		67.20		-1.711E-01	3.165E-01	4.741E-01	3.598E-02	-0.361
		161.27		1.174E-01	1.866E-01	3.214E-01	3.086E-02	0.365
		216.55		4.238E-02	1.370E-01	2.279E-01	2.642E-02	0.186
		252.85	*	3.783E-02	1.298E-01	2.132E-01	2.766E-02	0.177
		318.01		-2.691E-02	2.477E-01	4.118E-01	5.234E-02	-0.065
		792.07		1.473E-01	4.450E-01	7.445E-01	8.196E-02	0.198
		903.28		-7.479E-02	5.771E-01	8.001E-01	8.934E-02	-0.093
		920.93		-1.965E-01	2.733E-01	3.392E-01	3.742E-02	-0.580
		59.72		3.157E-02	1.202E-01	1.833E-01	1.297E-02	0.172
		61.14		7.986E-03	6.743E-02	1.013E-01	7.279E-03	0.079
RE-188		69.30		-7.861E-02	1.151E-01	1.814E-01	1.403E-02	-0.433
		592.07		-7.622E-01	1.319E+00	2.077E+00	2.150E-01	-0.367
		646.12	*	2.563E-02	2.159E-02	3.893E-02	4.092E-03	0.658
		717.42		-2.972E-01	4.713E-01	7.198E-01	7.754E-02	-0.413
		874.81		1.458E-01	2.829E-01	4.938E-01	5.518E-02	0.295
		880.27		-2.395E-01	3.540E-01	5.401E-01	6.040E-02	-0.443
		155.03	*	3.970E-02	8.358E-02	1.434E-01	1.339E-02	0.277
W-188		477.96		3.012E-01	1.627E+00	2.668E+00	2.628E-01	0.113
		633.10		5.844E-01	1.316E+00	2.257E+00	2.364E-01	0.259
W-188	+	63.58		4.929E-01	2.642E+01	3.864E+01	2.839E+00	0.013

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IR-192	227.08			2.399E+00	6.463E+00	1.075E+01	1.289E+00	0.223
	290.67	*		-2.210E+00	3.809E+00	6.180E+00	8.441E-01	-0.358
	295.96			5.555E-03	5.665E-02	9.069E-02	1.227E-02	0.061
	308.46			1.753E-02	5.102E-02	8.732E-02	1.143E-02	0.201
	316.51	*		4.610E-03	1.846E-02	3.137E-02	4.010E-03	0.147
AU-195	468.07			-3.128E-03	3.451E-02	5.544E-02	5.735E-03	-0.056
	604.41			-2.167E-01	2.798E-01	4.363E-01	6.219E-02	-0.497
	612.46			1.711E-01	4.162E-01	7.065E-01	8.124E-02	0.242
	65.12			1.369E-03	7.580E-02	1.124E-01	8.374E-03	0.012
	66.83			-2.837E-02	4.317E-02	6.039E-02	4.568E-03	-0.470
TL-200	75.70			-1.172E-03	6.439E-02	1.054E-01	8.682E-03	-0.011
	98.88	*		8.413E-02	1.176E-01	1.833E-01	1.599E-02	0.459
	129.76			7.755E-01	1.333E+00	2.328E+00	1.962E-01	0.333
	367.94	*		-6.292E-02	3.651E+00	6.030E+00	6.351E-01	-0.010
	579.30			-4.457E+01	2.963E+01	4.271E+01	4.402E+00	-1.044
TL-201	828.27			-1.493E+01	3.629E+01	5.799E+01	6.435E+00	-0.257
	1205.75			6.604E+00	1.525E+01	2.663E+01	2.191E+00	0.248
	68.90			-4.235E-01	4.337E-01	6.696E-01	5.160E-02	-0.632
	70.82			1.519E-01	2.346E-01	4.007E-01	3.144E-02	0.379
	80.30			1.607E-01	4.376E-01	7.304E-01	6.327E-02	0.220
TL-202	135.34			-2.055E-01	2.776E+00	4.678E+00	4.021E-01	-0.044
	167.43	*		-1.267E+00	8.114E-01	1.211E+00	1.194E-01	-1.046
	68.90			-1.182E-01	1.210E-01	1.869E-01	1.440E-02	-0.632
	70.82			4.228E-02	6.529E-02	1.115E-01	8.751E-03	0.379
	80.30			4.476E-02	1.218E-01	2.034E-01	1.762E-02	0.220
HG-203	439.56	*		2.171E-02	2.865E-02	4.864E-02	4.682E-03	0.446
	70.83			2.409E-01	3.740E-01	6.373E-01	8.368E-02	0.378
	72.87			9.402E-02	2.087E-01	3.519E-01	4.507E-02	0.267
	82.60			-6.037E-01	4.475E-01	6.215E-01	8.650E-02	-0.971
	279.20	*		1.180E-02	2.031E-02	3.369E-02	4.769E-03	0.350
BI-207	72.80			3.280E-02	6.769E-02	1.144E-01	9.154E-03	0.287
	74.97			-1.357E-02	3.801E-02	6.086E-02	4.976E-03	-0.223
	84.90			-2.789E-02	8.130E-02	1.234E-01	1.128E-02	-0.226
	569.67			1.399E-02	1.592E-02	2.828E-02	2.905E-03	0.495
	1063.62	*		-2.347E-02	3.056E-02	4.191E-02	4.024E-03	-0.560
TL-207	1770.23			-5.062E-01	3.211E-01	3.861E-01	3.209E-02	-1.311
	81.07			3.319E-02	8.302E-02	1.389E-01	1.213E-02	0.239
	83.78			-4.400E-02	5.388E-02	7.882E-02	7.109E-03	-0.558
	94.90			9.619E-02	1.190E-01	1.818E-01	1.625E-02	0.529
	122.32			-4.531E-01	9.447E-01	1.448E+00	1.289E-01	-0.313
TL-208	144.24			5.339E-02	3.954E-01	6.284E-01	6.221E-02	0.085
	154.21			-4.559E-02	2.052E-01	3.398E-01	3.433E-02	-0.134
	269.46			5.370E-02	1.054E-01	1.744E-01	2.395E-02	0.308
	323.87	*		-6.103E-02	3.542E-01	5.850E-01	1.163E-01	-0.104
	338.28			-5.154E-02	6.004E-01	9.253E-01	1.369E-01	-0.056
+ TL-208	445.03			-1.175E+00	1.257E+00	1.866E+00	2.398E-01	-0.630
	277.35			-5.955E-02	2.021E-01	3.162E-01	5.215E-02	-0.188
	510.84	*		7.764E-03	1.844E-01	2.491E-01	3.247E-02	0.031
	583.14	*		-7.170E-03	2.343E-02	3.724E-02	4.038E-03	-0.193

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-209		860.37	5.392E-02	1.467E-01	2.525E-01	2.942E-02	0.214
		260.50	-1.757E+00	5.481E+00	8.621E+00	1.144E+00	-0.204
		262.80	2.678E+00	1.526E+01	2.482E+01	3.316E+00	0.108
BI-210		896.60	8.706E-02	3.757E+00	6.242E+00	6.992E-01	0.014
		46.50 *	-1.486E-01	1.609E+00	2.499E+00	2.322E-01	-0.059
PB-210		46.50 *	-1.486E-01	1.609E+00	2.499E+00	2.322E-01	-0.059
PO-210		46.50 *	-1.486E-01	1.609E+00	2.499E+00	2.101E-01	-0.059
BI-211		72.87	5.216E-01	1.157E+00	1.952E+00	1.563E-01	0.267
		351.07 *	-3.430E-02	1.251E-01	1.958E-01	2.284E-02	-0.175
PB-211		404.84 *	-1.805E-01	5.254E-01	8.191E-01	5.142E-01	-0.220
		427.08	-1.493E-01	1.079E+00	1.734E+00	1.080E+00	-0.086
		831.96	-1.588E-01	5.936E-01	9.497E-01	5.988E-01	-0.167
BI-212		727.18 *	4.722E-02	1.670E-01	2.655E-01	3.171E-02	0.178
		785.46	-6.194E-01	9.424E-01	1.414E+00	1.554E-01	-0.438
PB-212		1620.62	1.520E-01	6.660E-01	1.147E+00	9.997E-02	0.133
		74.81	-4.021E-02	1.315E-01	2.113E-01	2.621E-02	-0.190
		77.11	-8.635E-02	8.201E-02	1.205E-01	1.007E-02	-0.717
		87.30	-1.017E-02	1.792E-01	2.520E-01	3.460E-02	-0.040
		238.63 *	-3.402E-02	3.678E-02	5.640E-02	7.452E-03	-0.603
PO-212		300.09	-4.159E-01	4.404E-01	6.442E-01	9.394E-02	-0.646
		74.81	-4.021E-02	1.315E-01	2.113E-01	2.621E-02	-0.190
		77.11	-8.635E-02	8.201E-02	1.205E-01	1.007E-02	-0.717
		87.30	-1.017E-02	1.792E-01	2.520E-01	3.460E-02	-0.040
		115.19	3.957E-01	1.810E+00	2.922E+00	2.421E-01	0.135
BI-214		238.63 *	-3.402E-02	3.678E-02	5.640E-02	7.452E-03	-0.603
		300.09	-4.159E-01	4.404E-01	6.442E-01	9.394E-02	-0.646
		609.31 *	-4.500E-03	4.818E-02	8.114E-02	9.434E-03	-0.055
		1120.29	3.677E-02	1.724E-01	2.565E-01	2.834E-02	0.143
		1764.49	-6.936E-02	1.598E-01	2.865E-01	2.387E-02	-0.242
PB-214		74.81	-6.929E-02	2.266E-01	3.640E-01	4.012E-02	-0.190
		77.11	-1.480E-01	1.410E-01	2.065E-01	2.336E-02	-0.717
		87.30	-1.742E-02	3.069E-01	4.317E-01	5.252E-02	-0.040
		241.98	-1.364E-01	2.019E-01	3.126E-01	4.299E-02	-0.436
		295.21	3.783E-03	7.890E-02	1.260E-01	1.875E-02	0.030
PO-214		351.92 *	-2.869E-02	4.381E-02	6.656E-02	8.484E-03	-0.431
		74.81	-6.929E-02	2.266E-01	3.640E-01	4.012E-02	-0.190
		77.11	-1.480E-01	1.410E-01	2.065E-01	2.336E-02	-0.717
		87.30	-1.742E-02	3.069E-01	4.317E-01	5.252E-02	-0.040
		241.98	-1.364E-01	2.019E-01	3.126E-01	4.299E-02	-0.436
PO-215		295.21	3.783E-03	7.890E-02	1.260E-01	1.875E-02	0.030
		351.92 *	-2.869E-02	4.381E-02	6.656E-02	8.484E-03	-0.431
		81.07	3.319E-02	8.302E-02	1.389E-01	1.213E-02	0.239
		83.78	-4.400E-02	5.388E-02	7.882E-02	7.109E-03	-0.558
		94.90	9.619E-02	1.190E-01	1.818E-01	1.625E-02	0.529
		122.32	-4.531E-01	9.447E-01	1.448E+00	1.289E-01	-0.313
		144.24	5.339E-02	3.954E-01	6.284E-01	6.221E-02	0.085
		154.21	-4.559E-02	2.052E-01	3.398E-01	3.433E-02	-0.134
		269.46	5.370E-02	1.054E-01	1.744E-01	2.395E-02	0.308
		323.87 *	-6.103E-02	3.542E-01	5.850E-01	1.163E-01	-0.104

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	338.28			-5.154E-02	6.004E-01	9.253E-01	1.369E-01	-0.056
	445.03			-1.175E+00	1.257E+00	1.866E+00	2.398E-01	-0.630
	74.81			-4.021E-02	1.315E-01	2.113E-01	2.621E-02	-0.190
	77.11			-8.635E-02	8.201E-02	1.205E-01	1.007E-02	-0.717
	87.30			-1.017E-02	1.792E-01	2.520E-01	3.460E-02	-0.040
PO-218	238.63		*	-3.402E-02	3.678E-02	5.640E-02	7.452E-03	-0.603
	300.09			-4.159E-01	4.404E-01	6.442E-01	9.394E-02	-0.646
	74.81			-6.929E-02	2.266E-01	3.640E-01	4.012E-02	-0.190
	77.11			-1.480E-01	1.410E-01	2.065E-01	2.336E-02	-0.717
	87.30			-1.742E-02	3.069E-01	4.317E-01	5.252E-02	-0.040
RN-219	241.98			-1.364E-01	2.019E-01	3.126E-01	4.299E-02	-0.436
	295.21			3.783E-03	7.890E-02	1.260E-01	1.875E-02	0.030
	351.92		*	-2.869E-02	4.381E-02	6.656E-02	8.484E-03	-0.431
	271.23			5.662E-02	1.322E-01	2.177E-01	3.225E-02	0.260
	401.81		*	-1.683E-01	2.335E-01	3.602E-01	5.573E-02	-0.467
RN-220	549.76		*	4.118E+00	1.331E+01	2.280E+01	2.324E+00	0.181
RA-223	81.07			3.319E-02	8.302E-02	1.389E-01	1.213E-02	0.239
	83.78			-4.400E-02	5.388E-02	7.882E-02	7.109E-03	-0.558
	94.90			9.619E-02	1.190E-01	1.818E-01	1.625E-02	0.529
	122.32			-4.531E-01	9.447E-01	1.448E+00	1.289E-01	-0.313
	144.24			5.339E-02	3.954E-01	6.284E-01	6.221E-02	0.085
RA-224	154.21			-4.559E-02	2.052E-01	3.398E-01	3.433E-02	-0.134
	269.46			5.370E-02	1.054E-01	1.744E-01	2.395E-02	0.308
	323.87		*	-6.103E-02	3.542E-01	5.850E-01	1.163E-01	-0.104
	338.28			-5.154E-02	6.004E-01	9.253E-01	1.369E-01	-0.056
	445.03			-1.175E+00	1.257E+00	1.866E+00	2.398E-01	-0.630
RA-226	240.98		*	1.553E-01	3.772E-01	6.247E-01	7.820E-02	0.249
AC-227	609.31		*	-4.500E-03	4.818E-02	8.114E-02	9.434E-03	-0.055
	1120.29			3.677E-02	1.724E-01	2.565E-01	2.834E-02	0.143
	1764.49			-6.936E-02	1.598E-01	2.865E-01	2.387E-02	-0.242
	79.80			1.281E-01	6.478E-01	1.070E+00	2.301E-01	0.120
	236.00			-1.370E-01	1.227E-01	1.821E-01	2.748E-02	-0.752
TH-227	256.20		*	-2.093E-02	2.202E-01	3.525E-01	6.433E-02	-0.059
	286.10			5.725E-01	8.704E-01	1.445E+00	2.463E-01	0.396
	299.80			-6.253E-01	8.132E-01	1.200E+00	2.430E-01	-0.521
	304.40			3.828E-01	1.013E+00	1.735E+00	3.639E-01	0.221
	334.20			-4.435E-01	1.298E+00	2.111E+00	4.469E-01	-0.210
AC-228	79.80			1.281E-01	6.479E-01	1.070E+00	2.330E-01	0.120
	94.00		+	1.619E+00	1.959E+00	1.860E+00	4.080E-01	0.870
	236.00			-1.370E-01	1.225E-01	1.821E-01	2.578E-02	-0.752
	256.20		*	-2.093E-02	2.202E-01	3.525E-01	7.257E-02	-0.059
	286.10			5.725E-01	1.040E+00	1.445E+00	1.459E+00	0.396
RA-228	299.80			-6.253E-01	8.132E-01	1.200E+00	2.430E-01	-0.521
	304.40			3.828E-01	1.013E+00	1.735E+00	3.639E-01	0.221
	334.20			-4.435E-01	1.298E+00	2.111E+00	4.469E-01	-0.210
	338.32			-8.890E-03	1.440E-01	2.223E-01	9.353E-02	-0.040
	911.07		+	1.497E-01	1.781E-01	1.580E-01	2.093E-02	0.948
RA-228	969.11			-6.545E-03	1.353E-01	2.272E-01	5.486E-02	-0.029
	338.32			-8.890E-03	1.440E-01	2.223E-01	9.353E-02	-0.040

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	911.07	*	1.497E-01	1.781E-01	1.580E-01	2.093E-02	0.948
		969.11		-6.545E-03	1.353E-01	2.272E-01	5.486E-02	-0.029
		74.81		-4.055E-02	1.326E-01	2.131E-01	1.755E-02	-0.190
		77.11		-8.708E-02	8.270E-02	1.215E-01	1.016E-02	-0.717
		87.30		-1.025E-02	1.807E-01	2.541E-01	2.392E-02	-0.040
TH-229		238.63	*	-3.431E-02	3.709E-02	5.688E-02	7.516E-03	-0.603
		300.09		-4.194E-01	5.071E-01	6.497E-01	3.908E-01	-0.646
		85.43		-5.930E-03	8.020E-02	1.240E-01	1.141E-02	-0.048
		88.47		-6.223E-03	5.045E-02	7.223E-02	6.823E-03	-0.086
		100.00		3.617E-02	8.938E-02	1.474E-01	1.278E-02	0.245
TH-230		193.63	*	-3.101E-01	2.721E-01	4.144E-01	4.455E-02	-0.748
		210.97		-1.393E-01	3.790E-01	6.056E-01	6.894E-02	-0.230
		609.31	*	-4.500E-03	4.818E-02	8.114E-02	9.434E-03	-0.055
		1120.29		3.677E-02	1.724E-01	2.565E-01	2.834E-02	0.143
		1764.49		-6.936E-02	1.598E-01	2.865E-01	2.387E-02	-0.242
PA-231		283.67	*	-3.629E-01	8.904E-01	1.377E+00	2.572E-01	-0.264
TH-231		301.29		-1.388E-01	3.161E-01	4.803E-01	7.637E-02	-0.289
		81.07		3.319E-02	8.302E-02	1.389E-01	1.213E-02	0.239
		83.78		-4.400E-02	5.388E-02	7.882E-02	7.109E-03	-0.558
		94.90		9.619E-02	1.190E-01	1.818E-01	1.625E-02	0.529
		122.32		-4.531E-01	9.447E-01	1.448E+00	1.289E-01	-0.313
U-231		144.24		5.339E-02	3.954E-01	6.284E-01	6.221E-02	0.085
		154.21		-4.559E-02	2.052E-01	3.398E-01	3.433E-02	-0.134
		269.46		5.370E-02	1.054E-01	1.744E-01	2.395E-02	0.308
		323.87	*	-6.103E-02	3.542E-01	5.850E-01	1.163E-01	-0.104
		338.28		-5.154E-02	6.004E-01	9.253E-01	1.369E-01	-0.056
TH-232		445.03		-1.175E+00	1.257E+00	1.866E+00	2.398E-01	-0.630
		84.21		-6.500E-01	7.864E-01	1.152E+00	1.045E-01	-0.564
	+	92.29		5.359E-01	6.395E-01	6.811E-01	6.210E-02	0.787
		95.87	*	-1.751E-01	1.984E-01	2.632E-01	2.337E-02	-0.665
		108.00		-6.594E-02	3.493E-01	5.518E-01	4.639E-02	-0.119
PA-233		338.32		-8.890E-03	1.440E-01	2.223E-01	2.644E-02	-0.040
	+	911.07	*	1.497E-01	1.781E-01	1.580E-01	2.093E-02	0.948
		969.11		-6.545E-03	1.353E-01	2.272E-01	5.486E-02	-0.029
		75.28		-4.895E-01	1.104E+00	1.753E+00	2.650E-01	-0.279
		86.59		1.528E-01	7.502E-01	1.076E+00	2.912E-01	0.142
PA-234		300.12		-2.165E-01	2.287E-01	3.325E-01	5.995E-02	-0.651
		311.98	*	-2.438E-03	3.652E-02	6.098E-02	7.988E-03	-0.040
		340.50		-6.612E-02	3.220E-01	5.281E-01	1.329E-01	-0.125
		398.62		1.599E-01	1.173E+00	1.944E+00	5.225E-01	0.082
		415.76		-1.951E-01	9.197E-01	1.479E+00	3.239E-01	-0.132
PA-234	+	63.00		1.527E-02	8.185E-01	1.220E+00	1.807E-01	0.013
		94.67		1.101E-01	8.796E-02	1.371E-01	1.733E-02	0.803
		98.44		2.711E-02	5.379E-02	7.562E-02	4.220E-02	0.359
		99.86		2.740E-02	2.416E-01	3.769E-01	3.270E-02	0.073
		111.00		-1.674E-02	1.006E-01	1.589E-01	1.890E-02	-0.105
PA-234		131.20		1.696E-02	5.044E-02	8.702E-02	7.370E-03	0.195
		152.70		-1.888E-02	1.730E-01	2.885E-01	5.010E-02	-0.065
	+	186.00		2.070E-01	1.023E+00	1.314E+00	4.176E-01	0.158

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		226.40		1.209E-01	2.185E-01	3.665E-01	5.715E-02	0.330
		227.20		1.102E-01	2.321E-01	3.884E-01	4.658E-02	0.284
		248.90		-2.645E-01	4.757E-01	7.333E-01	1.785E-01	-0.361
		293.70		1.725E-01	3.477E-01	5.998E-01	1.213E-01	0.288
		369.80		3.305E-02	4.633E-01	7.697E-01	1.737E-01	0.043
		568.70		2.078E-01	5.273E-01	9.050E-01	9.292E-02	0.230
		569.50		1.305E-01	1.420E-01	2.527E-01	2.595E-02	0.516
		574.00		-3.426E-01	7.965E-01	1.276E+00	1.313E-01	-0.268
		699.00		-5.968E-02	3.974E-01	6.402E-01	1.287E-01	-0.093
		706.10		-2.901E-01	5.827E-01	8.828E-01	3.977E-01	-0.329
		733.00		3.007E-02	2.008E-01	3.310E-01	7.661E-02	0.091
		742.81		1.467E-01	6.852E-01	1.126E+00	7.606E-01	0.130
		796.30		-2.935E-01	4.059E-01	5.808E-01	1.621E-01	-0.505
		805.60		1.074E-01	4.734E-01	8.087E-01	2.541E-01	0.133
		819.60		1.837E-01	5.953E-01	1.020E+00	3.942E-01	0.180
		826.30		2.573E-02	4.085E-01	6.863E-01	3.108E-01	0.037
		831.60		-5.522E-02	2.999E-01	4.904E-01	1.503E-01	-0.113
		876.40		-3.674E-03	3.938E-01	6.534E-01	6.733E-01	-0.006
		880.51		-6.639E-02	1.320E-01	2.060E-01	2.304E-02	-0.322
		883.24		4.146E-02	1.383E-01	2.325E-01	1.571E-01	0.178
		899.00		3.709E-01	4.446E-01	7.478E-01	3.313E-01	0.496
		925.00		2.587E-01	5.879E-01	1.016E+00	1.118E-01	0.255
		926.50		2.197E-02	8.888E-02	1.504E-01	3.938E-02	0.146
		946.00	*	5.658E-02	1.343E-01	2.319E-01	4.610E-02	0.244
		949.00		-4.865E-02	1.962E-01	3.132E-01	3.384E-02	-0.155
		980.50		-1.189E-01	3.383E-01	5.309E-01	5.583E-02	-0.224
		1394.10		-5.100E-01	6.843E-01	8.467E-01	5.515E-01	-0.602
PA-234M		766.42		1.024E+00	5.033E+00	8.288E+00	4.242E+00	0.124
		1001.03	*	3.225E+00	2.537E+00	4.499E+00	5.156E-01	0.717
U-234		609.31	*	-4.500E-03	4.818E-02	8.114E-02	9.434E-03	-0.055
		1120.29		3.677E-02	1.724E-01	2.565E-01	2.834E-02	0.143
		1764.49		-6.936E-02	1.598E-01	2.865E-01	2.387E-02	-0.242
U-235		89.95		1.458E-01	5.083E-01	7.486E-01	2.325E-01	0.195
	+	93.35		5.036E-01	6.158E-01	6.264E-01	1.764E-01	0.804
		105.00		2.673E-01	5.039E-01	8.265E-01	2.463E-01	0.323
		143.76	*	5.288E-02	1.216E-01	1.956E-01	3.451E-02	0.270
		163.35		2.257E-01	2.538E-01	4.371E-01	8.562E-02	0.516
	+	185.71		7.668E-03	3.783E-02	4.908E-02	5.139E-03	0.156
		205.31		3.626E-02	3.036E-01	4.733E-01	9.638E-02	0.077
NP-236		94.67		8.455E-02	6.636E-02	1.042E-01	9.330E-03	0.811
		98.44		2.048E-02	3.906E-02	5.716E-02	4.997E-03	0.358
		111.00		-1.267E-02	7.607E-02	1.202E-01	1.003E-02	-0.105
		160.31	*	-1.428E-02	4.327E-02	7.104E-02	6.791E-03	-0.201
NP-237		86.50	*	1.151E-02	1.075E-01	1.619E-01	3.665E-02	0.071
		95.87		-4.609E-01	5.330E-01	6.928E-01	1.713E-01	-0.665
NP-239		99.55		5.474E-02	7.986E-02	1.289E-01	1.120E-02	0.425
		117.00	*	-8.881E-02	1.011E-01	1.509E-01	1.247E-02	-0.589
		209.75		-3.790E-01	4.194E-01	6.075E-01	6.888E-02	-0.624
		228.18		2.854E-02	1.209E-01	1.996E-01	2.401E-02	0.143

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	277.60			-4.149E-03	9.617E-02	1.535E-01	2.139E-02	-0.027
	334.30			-3.356E-01	7.377E-01	1.193E+00	1.439E-01	-0.281
AM-241	59.54	*		2.657E-02	6.489E-02	1.002E-01	7.836E-03	0.265
AM-243	74.67	*		-5.602E-03	2.143E-02	3.454E-02	2.816E-03	-0.162
	86.72			8.313E-01	4.208E+00	6.042E+00	5.646E-01	0.138
	117.66			-6.729E-01	2.013E+00	3.129E+00	2.584E-01	-0.215
	142.18			-6.542E-01	1.017E+01	1.601E+01	1.414E+00	-0.041
CM-243	99.55			5.631E-02	8.214E-02	1.325E-01	1.152E-02	0.425
	103.76	*		-3.523E-03	4.604E-02	7.347E-02	6.263E-03	-0.048
	117.00			-9.133E-02	1.039E-01	1.551E-01	1.282E-02	-0.589
	209.75			-3.734E-01	4.133E-01	5.986E-01	6.788E-02	-0.624
	228.18			2.883E-02	1.221E-01	2.016E-01	2.425E-02	0.143
	277.60			-4.181E-03	9.692E-02	1.546E-01	2.156E-02	-0.027
AM-246	798.80			-5.648E-02	6.456E-02	9.215E-02	1.016E-02	-0.613
	1036.00			-4.973E-02	1.331E-01	2.063E-01	2.049E-02	-0.241
	1062.04			-4.846E-02	1.292E-01	1.859E-01	1.789E-02	-0.261
	1078.86	*		2.302E-02	7.134E-02	1.204E-01	1.133E-02	0.191
CM-247	278.00			-1.485E-01	4.051E-01	6.303E-01	8.796E-02	-0.236
	287.40			-5.502E-02	7.294E-01	1.158E+00	1.593E-01	-0.048
	402.60	*		3.220E-03	1.993E-02	3.309E-02	3.104E-03	0.097
CF-249	252.85			1.459E-01	5.003E-01	8.220E-01	1.067E-01	0.177
	333.44			2.658E-02	9.449E-02	1.602E-01	1.938E-02	0.166
	387.95	*		1.782E-03	2.195E-02	3.634E-02	3.454E-03	0.049
CF-251	176.60	*		-1.329E-02	6.651E-02	1.091E-01	1.108E-02	-0.122
	227.00			7.588E-02	2.071E-01	3.446E-01	4.130E-02	0.220
	285.00			-7.535E-01	1.063E+00	1.607E+00	2.223E-01	-0.469

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021393      *
* Acquisition date   : 2-FEB-2010 11:52:12 Detector SN#      :                *
* Detector ID        : GAM22                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:00.96           Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 25-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202021393           Analyst initials: MXR1          *
* Batch Number       : 944037                Sample Quantity : 1.3810E+02 GRAM   *
* Recovery           : 1.00000               Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope       :
* MSD DPM             : 0.000                  MSD Isotope    :
* LCS DPM             : 0.000                  LCS Isotope     :
* LCSD DPM            : 0.000                  LCSD Isotope    :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
TH-234	1.310E-02	6.882E-01	9.614E-01	0.000E+00
U-238	1.310E-02	6.882E-01	9.614E-01	0.000E+00
ANH-511	1.677E-03	3.903E-02	2.696E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	5.514E-03	1.611E-01	2.733E-01	0.000E+00 NOT IDENT.
NA-22	-1.044E-02	1.790E-02	2.787E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.412E+02	0.000E+00	0.000E+00 SHORT HLIF
AL-26	-7.946E-03	1.571E-02	2.357E-02	0.000E+00 NOT IDENT.
K-40	-1.743E-01	2.454E-01	4.271E-01	0.000E+00 NOT IDENT.
TI-44	2.665E-03	1.412E-02	2.443E-02	0.000E+00 NOT IDENT.
SC-46	1.789E-03	1.748E-02	3.032E-02	0.000E+00 NOT IDENT.
V-48	-2.200E-03	2.376E-02	3.981E-02	0.000E+00 NOT IDENT.
CR-51	4.958E-02	1.755E-01	3.149E-01	0.000E+00 NOT IDENT.
MN-52	-2.005E-02	5.659E-02	8.989E-02	0.000E+00 NOT IDENT.
MN-54	-3.363E-03	1.768E-02	2.998E-02	0.000E+00 NOT IDENT.
CO-56	-9.217E-04	1.890E-02	3.244E-02	0.000E+00 NOT IDENT.
CO-57	-5.653E-03	1.320E-02	2.185E-02	0.000E+00 NOT IDENT.
CO-58	1.183E-02	1.651E-02	3.062E-02	0.000E+00 NOT IDENT.
FE-59	2.850E-02	3.239E-02	6.044E-02	0.000E+00 NOT IDENT.
CO-60	-1.186E-02	1.861E-02	2.852E-02	0.000E+00 NOT IDENT.
ZN-65	-1.725E-02	4.234E-02	6.735E-02	0.000E+00 NOT IDENT.
GE-68	7.811E-02	6.130E-01	1.042E+00	0.000E+00 NOT IDENT.
AS-73	-4.729E-01	3.516E-01	5.075E-01	0.000E+00 NOT IDENT.
AS-74	7.365E-03	4.012E-02	7.027E-02	0.000E+00 NOT IDENT.
SE-75	7.004E-03	2.405E-02	4.168E-02	0.000E+00 NOT IDENT.
BR-77	7.559E-01	8.489E-01	1.522E+00	0.000E+00 NOT IDENT.
SR-82	-1.745E-02	1.655E-01	2.745E-01	0.000E+00 NOT IDENT.
RB-83	3.198E-02	3.665E-02	6.563E-02	0.000E+00 NOT IDENT.



RB-84	-2.070E-02	2.808E-02	4.395E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	5.358E+00	9.330E+00	0.000E+00	NOT IDENT.
SR-85	0.000E+00	2.563E-02	4.462E-02	0.000E+00	NOT IDENT.
RB-86	1.893E-02	3.146E-01	5.310E-01	0.000E+00	NOT IDENT.
Y-88	3.765E-03	1.786E-02	3.102E-02	0.000E+00	NOT IDENT.
ZR-88	-1.101E-03	1.682E-02	2.893E-02	0.000E+00	NOT IDENT.
Y-91	-1.098E+00	7.140E+00	1.199E+01	0.000E+00	NOT IDENT.
NB-94	5.640E-03	1.744E-02	3.040E-02	0.000E+00	NOT IDENT.
NB-95	-3.105E-03	1.780E-02	2.933E-02	0.000E+00	NOT IDENT.
NB-95M	-8.026E-02	5.868E-02	9.051E-02	0.000E+00	NOT IDENT.
ZR-95	1.257E-03	3.015E-02	5.093E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.566E+01	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.794E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-8.196E-01	1.132E+00	1.754E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.447E+08	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-7.739E-03	1.932E-02	3.161E-02	0.000E+00	NOT IDENT.
RH-102	-3.623E-03	1.540E-02	2.553E-02	0.000E+00	NOT IDENT.
RU-103	4.946E-03	1.970E-02	3.386E-02	0.000E+00	NOT IDENT.
RH-106	-1.260E-02	1.669E-01	2.852E-01	0.000E+00	FAIL ABUN
RU-106	-1.260E-02	1.669E-01	2.852E-01	0.000E+00	FAIL ABUN
AG-108M	3.980E-03	1.863E-02	3.234E-02	0.000E+00	NOT IDENT.
CD-109	-1.324E-01	3.828E-01	5.675E-01	0.000E+00	NOT IDENT.
AG-110M	-1.197E-02	1.804E-02	2.890E-02	0.000E+00	NOT IDENT.
IN-111	-6.921E-02	1.173E-01	1.932E-01	0.000E+00	NOT IDENT.
IN-113M	2.166E-02	2.432E-02	4.440E-02	0.000E+00	NOT IDENT.
SN-113	2.166E-02	2.432E-02	4.440E-02	0.000E+00	NOT IDENT.
IN-114M	-1.429E-03	9.522E-02	1.468E-01	0.000E+00	NOT IDENT.
CD-115	-2.196E-01	6.626E-01	1.126E+00	0.000E+00	NOT IDENT.
SN-117M	1.344E-03	1.973E-02	3.543E-02	0.000E+00	NOT IDENT.
SB-122	5.414E-02	1.887E-01	3.355E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.877E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-7.843E-03	1.440E-02	2.498E-02	0.000E+00	NOT IDENT.
I-124	2.379E-02	1.389E-01	2.424E-01	0.000E+00	NOT IDENT.
SB-124	-2.925E-02	3.759E-02	5.410E-02	0.000E+00	NOT IDENT.
SB-125	-8.355E-03	4.818E-02	8.133E-02	0.000E+00	NOT IDENT.
TE-125M	4.002E+00	4.343E+00	7.859E+00	0.000E+00	NOT IDENT.
I-126	-1.291E-02	6.182E-02	1.034E-01	0.000E+00	NOT IDENT.
SB-126	-1.162E-02	5.195E-02	8.598E-02	0.000E+00	NOT IDENT.
SN-126	-1.666E-03	3.791E-02	5.769E-02	0.000E+00	FAIL ABUN
SB-127	-4.903E-02	1.859E-01	3.070E-01	0.000E+00	NOT IDENT.
XE-127	2.362E-02	2.236E-02	4.107E-02	0.000E+00	NOT IDENT.
I-131	5.398E-04	3.426E-02	5.973E-02	0.000E+00	NOT IDENT.
TE-132	2.177E-02	8.861E-02	1.553E-01	0.000E+00	NOT IDENT.
BA-133	-2.554E-02	2.370E-02	3.776E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.473E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	-1.141E-02	1.978E-02	3.062E-02	0.000E+00	NOT IDENT.
CS-135	-1.067E-03	8.634E-02	1.466E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.223E+08	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.503E-02	3.602E-02	6.525E-02	0.000E+00	NOT IDENT.
BA-137M	1.155E-02	1.816E-02	3.267E-02	0.000E+00	NOT IDENT.
CS-137	1.221E-02	1.920E-02	3.453E-02	0.000E+00	NOT IDENT.
CE-139	-7.900E-03	1.451E-02	2.502E-02	0.000E+00	NOT IDENT.
BA-140	-1.237E-02	8.419E-02	1.450E-01	0.000E+00	NOT IDENT.
LA-140	-1.838E-02	3.207E-02	4.986E-02	0.000E+00	NOT IDENT.
CE-141	-6.788E-03	2.851E-02	5.078E-02	0.000E+00	NOT IDENT.
CE-143	1.201E+00	2.418E+00	4.397E+00	0.000E+00	NOT IDENT.
CE-144	-1.417E-01	9.959E-02	1.624E-01	0.000E+00	NOT IDENT.
PM-144	2.834E-03	1.826E-02	3.141E-02	0.000E+00	NOT IDENT.
PR-144	1.914E-01	1.233E+00	2.121E+00	0.000E+00	NOT IDENT.
PM-146	3.784E-02	2.372E-02	4.460E-02	0.000E+00	NOT IDENT.
ND-147	1.072E-01	1.815E-01	3.316E-01	0.000E+00	NOT IDENT.
PM-149	3.950E+00	6.431E+00	1.124E+01	0.000E+00	NOT IDENT.
EU-152	6.944E-03	5.295E-02	9.354E-02	0.000E+00	NOT IDENT.
GD-153	1.430E-02	4.205E-02	6.545E-02	0.000E+00	NOT IDENT.
EU-154	-2.925E-02	5.022E-02	7.812E-02	0.000E+00	NOT IDENT.
EU-155	2.784E-02	4.926E-02	8.815E-02	0.000E+00	NOT IDENT.
TB-160	-6.018E-02	6.402E-02	9.796E-02	0.000E+00	NOT IDENT.
HO-166M	1.962E-02	3.214E-02	5.728E-02	0.000E+00	FAIL ABUN
TM-171	-8.901E+00	1.303E+01	1.979E+01	0.000E+00	NOT IDENT.
LU-176	-2.128E-03	1.382E-02	2.427E-02	0.000E+00	NOT IDENT.
LU-177	-3.753E-01	2.940E-01	4.398E-01	0.000E+00	NOT IDENT.
LU-177M	-4.768E-02	9.258E-02	1.527E-01	0.000E+00	NOT IDENT.
HF-181	9.012E-03	2.184E-02	3.806E-02	0.000E+00	NOT IDENT.
W-181	3.368E-02	1.556E-01	2.547E-01	0.000E+00	NOT IDENT.
TA-182	4.896E-02	8.250E-02	1.495E-01	0.000E+00	NOT IDENT.
RE-183	3.106E-02	5.463E-02	1.002E-01	0.000E+00	NOT IDENT.
RE-184	3.783E-02	1.272E-01	2.214E-01	0.000E+00	NOT IDENT.
OS-185	2.563E-02	2.116E-02	3.970E-02	0.000E+00	NOT IDENT.

RE-188	3.970E-02	8.191E-02	1.503E-01	0.000E+00	NOT IDENT.
W-188	-2.210E+00	3.733E+00	6.401E+00	0.000E+00	FAIL ABUN
IR-192	4.610E-03	1.809E-02	3.244E-02	0.000E+00	NOT IDENT.
AU-195	8.413E-02	1.152E-01	1.938E-01	0.000E+00	NOT IDENT.
TL-200	-6.292E-02	3.578E+00	6.218E+00	0.000E+00	NOT IDENT.
TL-201	-1.267E+00	7.952E-01	1.268E+00	0.000E+00	NOT IDENT.
TL-202	2.171E-02	2.808E-02	4.998E-02	0.000E+00	NOT IDENT.
HG-203	1.180E-02	1.990E-02	3.493E-02	0.000E+00	NOT IDENT.
BI-207	-2.347E-02	2.995E-02	4.232E-02	0.000E+00	NOT IDENT.
TL-207	-6.103E-02	3.471E-01	6.046E-01	0.000E+00	NOT IDENT.
TL-208	-7.170E-03	2.296E-02	3.805E-02	0.000E+00	FAIL ABUN
PO-209	8.706E-02	3.682E+00	6.324E+00	0.000E+00	NOT IDENT.
BI-210	-1.486E-01	1.577E+00	2.678E+00	0.000E+00	NOT IDENT.
PB-210	-1.486E-01	1.577E+00	2.678E+00	0.000E+00	NOT IDENT.
PO-210	-1.486E-01	1.577E+00	2.678E+00	0.000E+00	NOT IDENT.
BI-211	-3.430E-02	1.226E-01	2.020E-01	0.000E+00	NOT IDENT.
PB-211	-1.805E-01	5.148E-01	8.430E-01	0.000E+00	NOT IDENT.
BI-212	4.722E-02	1.637E-01	2.701E-01	0.000E+00	NOT IDENT.
PB-212	-3.402E-02	3.604E-02	5.864E-02	0.000E+00	NOT IDENT.
PO-212	-3.402E-02	3.604E-02	5.864E-02	0.000E+00	NOT IDENT.
BI-214	-4.500E-03	4.722E-02	8.284E-02	0.000E+00	NOT IDENT.
PB-214	-2.869E-02	4.293E-02	6.869E-02	0.000E+00	NOT IDENT.
PO-214	-2.869E-02	4.293E-02	6.869E-02	0.000E+00	NOT IDENT.
PO-215	-6.103E-02	3.471E-01	6.046E-01	0.000E+00	NOT IDENT.
PO-216	-3.402E-02	3.604E-02	5.864E-02	0.000E+00	NOT IDENT.
PO-218	-2.869E-02	4.293E-02	6.869E-02	0.000E+00	NOT IDENT.
RN-219	-1.683E-01	2.288E-01	3.708E-01	0.000E+00	NOT IDENT.
RN-220	4.118E+00	1.305E+01	2.332E+01	0.000E+00	NOT IDENT.
RA-223	-6.103E-02	3.471E-01	6.046E-01	0.000E+00	NOT IDENT.
RA-224	1.553E-01	3.697E-01	6.494E-01	0.000E+00	NOT IDENT.
RA-226	-4.500E-03	4.722E-02	8.284E-02	0.000E+00	NOT IDENT.
AC-227	-2.093E-02	2.158E-01	3.660E-01	0.000E+00	NOT IDENT.
TH-227	-2.093E-02	2.158E-01	3.660E-01	0.000E+00	FAIL ABUN
AC-228	1.497E-01	1.746E-01	1.600E-01	0.000E+00	FAIL ABUN
RA-228	1.497E-01	1.746E-01	1.600E-01	0.000E+00	FAIL ABUN
TH-228	-3.431E-02	3.635E-02	5.914E-02	0.000E+00	NOT IDENT.
TH-229	-3.101E-01	2.666E-01	4.325E-01	0.000E+00	NOT IDENT.
TH-230	-4.500E-03	4.722E-02	8.284E-02	0.000E+00	NOT IDENT.
PA-231	-3.629E-01	8.726E-01	1.427E+00	0.000E+00	NOT IDENT.
TH-231	-6.103E-02	3.471E-01	6.046E-01	0.000E+00	NOT IDENT.
U-231	-1.751E-01	1.944E-01	2.783E-01	0.000E+00	FAIL ABUN
TH-232	1.497E-01	1.746E-01	1.600E-01	0.000E+00	FAIL ABUN
PA-233	-2.438E-03	3.579E-02	6.308E-02	0.000E+00	NOT IDENT.
PA-234	5.658E-02	1.316E-01	2.347E-01	0.000E+00	FAIL ABUN
PA-234M	3.225E+00	2.486E+00	4.548E+00	0.000E+00	NOT IDENT.
U-234	-4.500E-03	4.722E-02	8.284E-02	0.000E+00	NOT IDENT.
U-235	5.288E-02	1.192E-01	2.053E-01	0.000E+00	FAIL ABUN
NP-236	-1.428E-02	4.241E-02	7.442E-02	0.000E+00	NOT IDENT.
NP-237	1.151E-02	1.053E-01	1.715E-01	0.000E+00	NOT IDENT.
NP-239	-8.881E-02	9.903E-02	1.590E-01	0.000E+00	NOT IDENT.
AM-241	2.657E-02	6.360E-02	1.069E-01	0.000E+00	NOT IDENT.
AM-243	-5.602E-03	2.100E-02	3.670E-02	0.000E+00	NOT IDENT.
CM-243	-3.523E-03	4.512E-02	7.758E-02	0.000E+00	NOT IDENT.
AM-246	2.302E-02	6.991E-02	1.215E-01	0.000E+00	NOT IDENT.
CM-247	3.220E-03	1.953E-02	3.406E-02	0.000E+00	NOT IDENT.
CF-249	1.782E-03	2.151E-02	3.744E-02	0.000E+00	NOT IDENT.
CF-251	-1.329E-02	6.518E-02	1.141E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021393.CNF;1
Sample date        : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 11:52:12.
Sample ID          : G1202021393 Sample quantity   : 1.38100E+02 GRAM
Detector name      : GAM22 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:00.96 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity         : 5.00000
Batch ID           : 944037 Detector SN#         :
Matrix Spike ID    : LCS ID                       : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-234	63.29	1	3.80*	4.331E+00	1.310E-02	1.310E-02	5359.65
	92.38	66	5.41	7.860E+00	4.189E-01	4.189E-01	120.38
U-238	63.29	1	3.80*	4.331E+00	1.310E-02	1.310E-02	5359.65
	92.38	66	5.41	7.860E+00	4.189E-01	4.189E-01	119.33
ANH-511	511.00	3	100.00*	4.297E+00	1.677E-03	1.677E-03	2374.60

Flag: "\*" = Keyline

Total number of lines in spectrum 5  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 5 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.310E-02	1.310E-02	70.22E-02	5359.65	
U-238	4.47E+09Y	1.00	1.310E-02	1.310E-02	70.22E-02	5359.65	
ANH-511	1.00E+09Y	1.00	1.677E-03	1.677E-03	39.82E-03	2374.60	
Total Activity :			2.788E-02	2.788E-02			

Grand Total Activity : 2.788E-02 2.788E-02

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

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

Unidentified Energy Lines  
Sample ID : G1202021393

Page : 3  
Acquisition date : 2-FEB-2010 11:52:12

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.74	12	175	1.08	371.49	367	10	1.61E-03	****	7.61E+00	T
0	912.51	42	82	2.52	1824.14	1812	26	5.90E-03	****	2.78E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021393.CNF;1
* Acquisition date   : 2-FEB-2010 11:52:12.   Detector SN#      :
* Detector ID        : GAM22                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit   : 75.00000
* Elapsed real time  : 0 02:00:00.96          Half life ratio   : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 25-JAN-2010 00:00:00   Nuclide Library  : SOLID
* Sample ID          : G1202021393           Analyst initials: MXR1
* Batch Number       : 944037                Sample Quantity  : 1.38100E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28.08MS Isotope      :
* MSD ID             :                      MSD Isotope      :
* LCS ID             : 1032-A               LCS Isotope      :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-234	1.310E-02	7.022E-01	9.022E-01	1.570E-01	0.015
U-238	1.310E-02	7.022E-01	9.022E-01	1.570E-01	0.015
ANH-511	1.677E-03	3.982E-02	2.632E-02	2.637E-03	0.064

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.514E-03		1.644E-01	2.664E-01	2.780E-02	0.021
NA-22	-1.044E-02		1.827E-02	2.771E-02	2.388E-03	-0.377
NA-24	1.682E-05		1.230E-04	Half-Life too short		
AL-26	-7.946E-03		1.603E-02	2.359E-02	1.929E-03	-0.337
K-40	-1.743E-01		2.504E-01	4.258E-01	3.901E-02	-0.409
TI-44	2.665E-03		1.441E-02	2.302E-02	1.951E-03	0.116
SC-46	1.789E-03		1.784E-02	2.992E-02	3.349E-03	0.060
V-48	-2.200E-03		2.425E-02	3.937E-02	4.129E-03	-0.056
CR-51	4.958E-02		1.791E-01	3.046E-01	3.944E-02	0.163

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MN-52	-2.005E-02		5.775E-02	8.958E-02	8.005E-03	-0.224
MN-54	-3.363E-03		1.804E-02	2.954E-02	3.282E-03	-0.114
CO-56	-9.217E-04		1.928E-02	3.198E-02	3.560E-03	-0.029
CO-57	-5.653E-03		1.347E-02	2.075E-02	1.711E-03	-0.272
CO-58	1.183E-02		1.685E-02	3.016E-02	3.339E-03	0.392
FE-59	2.850E-02		3.305E-02	5.990E-02	5.870E-03	0.476
CO-60	-1.186E-02		1.899E-02	2.837E-02	2.530E-03	-0.418
ZN-65	-1.725E-02		4.321E-02	6.677E-02	5.957E-03	-0.258
GE-68	7.811E-02		6.255E-01	1.033E+00	9.736E-02	0.076
AS-73	-4.729E-01		3.587E-01	4.748E-01	3.587E-02	-0.996
AS-74	7.365E-03		4.094E-02	6.880E-02	7.130E-03	0.107
SE-75	7.004E-03		2.455E-02	4.017E-02	5.406E-03	0.174
BR-77	7.559E-01		8.662E-01	1.486E+00	1.496E-01	0.509
SR-82	-1.745E-02		1.689E-01	2.702E-01	2.963E-02	-0.065
RB-83	3.198E-02		3.740E-02	6.408E-02	6.449E-03	0.499
RB-84	-2.070E-02		2.866E-02	4.336E-02	4.850E-03	-0.477
KR-85	1.464E+01		5.468E+00	9.108E+00	9.138E-01	1.608
SR-85	7.002E-02		2.615E-02	4.356E-02	4.370E-03	1.608
RB-86	1.893E-02		3.210E-01	5.260E-01	4.964E-02	0.036
Y-88	3.765E-03		1.822E-02	3.106E-02	2.511E-03	0.121
ZR-88	-1.101E-03		1.716E-02	2.809E-02	2.615E-03	-0.039
Y-91	-1.098E+00		7.286E+00	1.191E+01	9.790E-01	-0.092
NB-94	5.640E-03		1.779E-02	2.986E-02	3.200E-03	0.189
NB-95	-3.105E-03		1.817E-02	2.885E-02	3.155E-03	-0.108
NB-95M	-8.026E-02		5.988E-02	8.704E-02	1.151E-02	-0.922
ZR-95	1.257E-03		3.077E-02	5.010E-02	5.816E-03	0.025
NB-97	-4.915E-05		3.860E-05	Half-Life	too short	
ZR-97	3.707E-03		9.152E-04	Half-Life	too short	
MO-99	-8.196E-01		1.156E+00	1.724E+00	2.854E-01	-0.475
TC-99M	-2.055E+02		1.249E+02	Half-Life	too short	
RH-101	-7.739E-03		1.971E-02	3.029E-02	3.305E-03	-0.255
RH-102	-3.623E-03		1.571E-02	2.488E-02	2.447E-03	-0.146
RU-103	4.946E-03		2.011E-02	3.303E-02	4.958E-03	0.150
RH-106	-1.260E-02		1.703E-01	2.795E-01	4.081E-02	-0.045
RU-106	-1.260E-02		1.703E-01	2.795E-01	2.919E-02	-0.045
AG-108M	3.980E-03		1.901E-02	3.147E-02	3.115E-03	0.127
CD-109	-1.324E-01		3.906E-01	5.358E-01	5.085E-02	-0.247
AG-110M	-1.197E-02		1.841E-02	2.835E-02	3.047E-03	-0.422
IN-111	-6.921E-02		1.197E-01	1.859E-01	2.359E-02	-0.372
IN-113M	2.166E-02		2.482E-02	4.311E-02	4.117E-03	0.502
SN-113	2.166E-02		2.482E-02	4.311E-02	4.117E-03	0.502
IN-114M	-1.429E-03		9.717E-02	1.406E-01	1.495E-02	-0.010
CD-115	-2.196E-01		6.762E-01	1.100E+00	1.111E-01	-0.200
SN-117M	1.344E-03		2.014E-02	3.381E-02	3.207E-03	0.040
SB-122	5.414E-02		1.925E-01	3.282E-01	3.363E-02	0.165
I-123	-3.745E-04		3.508E-04	Half-Life	too short	
TE-123M	-7.843E-03		1.469E-02	2.384E-02	2.277E-03	-0.329
I-124	2.379E-02		1.418E-01	2.374E-01	2.466E-02	0.100

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	-2.925E-02		3.835E-02	5.409E-02	4.811E-03	-0.541
SB-125	-8.355E-03		4.916E-02	7.911E-02	7.676E-03	-0.106
TE-125M	4.002E+00		4.432E+00	7.449E+00	7.533E-01	0.537
I-126	-1.291E-02		6.308E-02	1.014E-01	1.072E-02	-0.127
SB-126	-1.162E-02		5.301E-02	8.450E-02	9.112E-03	-0.138
SN-126	-1.666E-03		3.868E-02	5.445E-02	5.142E-03	-0.031
SB-127	-4.903E-02		1.897E-01	3.014E-01	3.493E-02	-0.163
XE-127	2.362E-02		2.282E-02	3.938E-02	4.365E-03	0.600
I-131	5.398E-04		3.495E-02	5.792E-02	6.401E-03	0.009
TE-132	2.177E-02		9.042E-02	1.492E-01	2.531E-02	0.146
BA-133	-2.554E-02		2.419E-02	3.660E-02	5.469E-03	-0.698
I-133	6.753E-08		7.517E-06	Half-Life	too short	
CS-134	-1.141E-02		2.019E-02	3.015E-02	3.337E-03	-0.378
CS-135	-1.067E-03		8.810E-02	1.413E-01	2.044E-02	-0.008
I-135	-4.565E+01		6.242E+01	Half-Life	too short	
CS-136	2.503E-02		3.675E-02	6.461E-02	6.531E-03	0.387
BA-137M	1.155E-02		1.853E-02	3.205E-02	3.380E-03	0.360
CS-137	1.221E-02		1.959E-02	3.388E-02	3.577E-03	0.360
CE-139	-7.900E-03		1.480E-02	2.390E-02	2.344E-03	-0.331
BA-140	-1.237E-02		8.591E-02	1.417E-01	4.757E-02	-0.087
LA-140	-1.838E-02		3.273E-02	4.979E-02	4.365E-03	-0.369
CE-141	-6.788E-03		2.910E-02	4.839E-02	4.405E-03	-0.140
CE-143	1.201E+00		2.467E+00	4.246E+00	1.018E+00	0.283
CE-144	-1.417E-01		1.016E-01	1.545E-01	2.398E-02	-0.918
PM-144	2.834E-03		1.863E-02	3.085E-02	3.298E-03	0.092
PR-144	1.914E-01		1.258E+00	2.083E+00	2.227E-01	0.092
PM-146	3.784E-02		2.421E-02	4.344E-02	5.048E-03	0.871
ND-147	1.072E-01		1.852E-01	3.239E-01	5.136E-02	0.331
PM-149	3.950E+00		6.562E+00	1.085E+01	2.051E+00	0.364
EU-152	6.944E-03		5.403E-02	9.061E-02	1.089E-02	0.077
GD-153	1.430E-02		4.291E-02	6.191E-02	5.444E-03	0.231
EU-154	-2.925E-02		5.125E-02	7.766E-02	8.777E-03	-0.377
EU-155	2.784E-02		5.027E-02	8.350E-02	7.168E-03	0.333
TB-160	-6.018E-02		6.532E-02	9.665E-02	1.081E-02	-0.623
HO-166M	1.962E-02		3.280E-02	5.628E-02	6.050E-03	0.349
TM-171	-8.901E+00		1.330E+01	1.858E+01	1.404E+00	-0.479
LU-176	-2.128E-03		1.410E-02	2.345E-02	3.077E-03	-0.091
LU-177	-3.753E-01		3.000E-01	4.219E-01	4.762E-02	-0.890
LU-177M	-4.768E-02		9.447E-02	1.484E-01	1.404E-02	-0.321
HF-181	9.012E-03		2.228E-02	3.711E-02	3.664E-03	0.243
W-181	3.368E-02		1.588E-01	2.392E-01	1.783E-02	0.141
TA-182	4.896E-02		8.419E-02	1.484E-01	1.234E-02	0.330
RE-183	3.106E-02		5.574E-02	9.568E-02	9.230E-03	0.325
RE-184	3.783E-02		1.298E-01	2.132E-01	2.766E-02	0.177
OS-185	2.563E-02		2.159E-02	3.893E-02	4.092E-03	0.658
RE-188	3.970E-02		8.358E-02	1.434E-01	1.339E-02	0.277
W-188	-2.210E+00		3.809E+00	6.180E+00	8.441E-01	-0.358
IR-192	4.610E-03		1.846E-02	3.137E-02	4.010E-03	0.147



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AU-195	8.413E-02		1.176E-01	1.833E-01	1.599E-02	0.459
TL-200	-6.292E-02		3.651E+00	6.030E+00	6.351E-01	-0.010
TL-201	-1.267E+00		8.114E-01	1.211E+00	1.194E-01	-1.046
TL-202	2.171E-02		2.865E-02	4.864E-02	4.682E-03	0.446
HG-203	1.180E-02		2.031E-02	3.369E-02	4.769E-03	0.350
BI-207	-2.347E-02		3.056E-02	4.191E-02	4.024E-03	-0.560
TL-207	-6.103E-02		3.542E-01	5.850E-01	1.163E-01	-0.104
TL-208	-7.170E-03		2.343E-02	3.724E-02	4.038E-03	-0.193
PO-209	8.706E-02		3.757E+00	6.242E+00	6.992E-01	0.014
BI-210	-1.486E-01		1.609E+00	2.499E+00	2.322E-01	-0.059
PB-210	-1.486E-01		1.609E+00	2.499E+00	2.322E-01	-0.059
PO-210	-1.486E-01		1.609E+00	2.499E+00	2.101E-01	-0.059
BI-211	-3.430E-02		1.251E-01	1.958E-01	2.284E-02	-0.175
PB-211	-1.805E-01		5.254E-01	8.191E-01	5.142E-01	-0.220
BI-212	4.722E-02		1.670E-01	2.655E-01	3.171E-02	0.178
PB-212	-3.402E-02		3.678E-02	5.640E-02	7.452E-03	-0.603
PO-212	-3.402E-02		3.678E-02	5.640E-02	7.452E-03	-0.603
BI-214	-4.500E-03		4.818E-02	8.114E-02	9.434E-03	-0.055
PB-214	-2.869E-02		4.381E-02	6.656E-02	8.484E-03	-0.431
PO-214	-2.869E-02		4.381E-02	6.656E-02	8.484E-03	-0.431
PO-215	-6.103E-02		3.542E-01	5.850E-01	1.163E-01	-0.104
PO-216	-3.402E-02		3.678E-02	5.640E-02	7.452E-03	-0.603
PO-218	-2.869E-02		4.381E-02	6.656E-02	8.484E-03	-0.431
RN-219	-1.683E-01		2.335E-01	3.602E-01	5.573E-02	-0.467
RN-220	4.118E+00		1.331E+01	2.280E+01	2.324E+00	0.181
RA-223	-6.103E-02		3.542E-01	5.850E-01	1.163E-01	-0.104
RA-224	1.553E-01		3.772E-01	6.247E-01	7.820E-02	0.249
RA-226	-4.500E-03		4.818E-02	8.114E-02	9.434E-03	-0.055
AC-227	-2.093E-02		2.202E-01	3.525E-01	6.433E-02	-0.059
TH-227	-2.093E-02		2.202E-01	3.525E-01	7.257E-02	-0.059
AC-228	1.497E-01	+	1.781E-01	1.580E-01	2.093E-02	0.948
RA-228	1.497E-01	+	1.781E-01	1.580E-01	2.093E-02	0.948
TH-228	-3.431E-02		3.709E-02	5.688E-02	7.516E-03	-0.603
TH-229	-3.101E-01		2.721E-01	4.144E-01	4.455E-02	-0.748
TH-230	-4.500E-03		4.818E-02	8.114E-02	9.434E-03	-0.055
PA-231	-3.629E-01		8.904E-01	1.377E+00	2.572E-01	-0.264
TH-231	-6.103E-02		3.542E-01	5.850E-01	1.163E-01	-0.104
U-231	-1.751E-01		1.984E-01	2.632E-01	2.337E-02	-0.665
TH-232	1.497E-01	+	1.781E-01	1.580E-01	2.093E-02	0.948
PA-233	-2.438E-03		3.652E-02	6.098E-02	7.988E-03	-0.040
PA-234	5.658E-02		1.343E-01	2.319E-01	4.610E-02	0.244
PA-234M	3.225E+00		2.537E+00	4.499E+00	5.156E-01	0.717
U-234	-4.500E-03		4.818E-02	8.114E-02	9.434E-03	-0.055
U-235	5.288E-02		1.216E-01	1.956E-01	3.451E-02	0.270
NP-236	-1.428E-02		4.327E-02	7.104E-02	6.791E-03	-0.201
NP-237	1.151E-02		1.075E-01	1.619E-01	3.665E-02	0.071
NP-239	-8.881E-02		1.011E-01	1.509E-01	1.247E-02	-0.589
AM-241	2.657E-02		6.489E-02	1.002E-01	7.836E-03	0.265

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	-5.602E-03		2.143E-02	3.454E-02	2.816E-03	-0.162
CM-243	-3.523E-03		4.604E-02	7.347E-02	6.263E-03	-0.048
AM-246	2.302E-02		7.134E-02	1.204E-01	1.133E-02	0.191
CM-247	3.220E-03		1.993E-02	3.309E-02	3.104E-03	0.097
CF-249	1.782E-03		2.195E-02	3.634E-02	3.454E-03	0.049
CF-251	-1.329E-02		6.651E-02	1.091E-01	1.108E-02	-0.122

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202021393          *
* Acquisition date   : 2-FEB-2010 11:52:12 Detector SN#      :              *
* Detector ID        : GAM22 Sensitivity      : 5.000          *
* Geometry           : CAN Energy tolerance: 1.500          *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000  *
* Elapsed real time  : 0 02:00:00.96 Half life ratio : 8.000  *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 25-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202021393 Analyst initials: MXR1          *
* Batch Number       : 944037 Sample Quantity : 1.3810E+02 GRAM  *
* Recovery           : 1.00000 Carrier Weight  : 0.00000          *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 2-DEC-2009 16:47:28 MS Isotope          :              *
* MSD DPM           : 0.000 MSD Isotope          :              *
* LCS DPM           : 0.000 LCS Isotope          :              *
* LCSD DPM          : 0.000 LCSD Isotope         :              *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
TH-234	1.310E-02	6.882E-01	4.810E-01	3.511E-01
U-238	1.310E-02	6.882E-01	4.810E-01	3.511E-01
ANH-511	1.677E-03	3.903E-02	1.349E-02	1.991E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	5.514E-03	1.611E-01	1.367E-01	8.221E-02 NOT IDENT.
NA-22	-1.044E-02	1.790E-02	1.395E-02	9.134E-03 NOT IDENT.
NA-24	1.682E+01	2.412E+02	0.000E+00	1.230E+02 SHORT HLIF
AL-26	-7.946E-03	1.571E-02	1.179E-02	8.017E-03 NOT IDENT.
K-40	-1.743E-01	2.454E-01	2.137E-01	1.252E-01 NOT IDENT.
TI-44	2.665E-03	1.412E-02	1.222E-02	7.206E-03 NOT IDENT.
SC-46	1.789E-03	1.748E-02	1.517E-02	8.920E-03 NOT IDENT.
V-48	-2.200E-03	2.376E-02	1.992E-02	1.212E-02 NOT IDENT.
CR-51	4.958E-02	1.755E-01	1.575E-01	8.954E-02 NOT IDENT.
MN-52	-2.005E-02	5.659E-02	4.497E-02	2.887E-02 NOT IDENT.
MN-54	-3.363E-03	1.768E-02	1.500E-02	9.019E-03 NOT IDENT.
CO-56	-9.217E-04	1.890E-02	1.623E-02	9.641E-03 NOT IDENT.
CO-57	-5.653E-03	1.320E-02	1.093E-02	6.735E-03 NOT IDENT.
CO-58	1.183E-02	1.651E-02	1.532E-02	8.424E-03 NOT IDENT.
FE-59	2.850E-02	3.239E-02	3.024E-02	1.652E-02 NOT IDENT.
CO-60	-1.186E-02	1.861E-02	1.427E-02	9.493E-03 NOT IDENT.
ZN-65	-1.725E-02	4.234E-02	3.370E-02	2.160E-02 NOT IDENT.
GE-68	7.811E-02	6.130E-01	5.215E-01	3.128E-01 NOT IDENT.
AS-73	-4.729E-01	3.516E-01	2.539E-01	1.794E-01 NOT IDENT.
AS-74	7.365E-03	4.012E-02	3.516E-02	2.047E-02 NOT IDENT.
SE-75	7.004E-03	2.405E-02	2.085E-02	1.227E-02 NOT IDENT.
BR-77	7.559E-01	8.489E-01	7.614E-01	4.331E-01 NOT IDENT.
SR-82	-1.745E-02	1.655E-01	1.373E-01	8.446E-02 NOT IDENT.
RB-83	3.198E-02	3.665E-02	3.283E-02	1.870E-02 NOT IDENT.

RB-84	-2.070E-02	2.808E-02	2.199E-02	1.433E-02	NOT IDENT.
KR-85	1.464E+01	5.358E+00	4.668E+00	2.734E+00	NOT IDENT.
SR-85	7.002E-02	2.563E-02	2.232E-02	1.307E-02	NOT IDENT.
RB-86	1.893E-02	3.146E-01	2.656E-01	1.605E-01	NOT IDENT.
Y-88	3.765E-03	1.786E-02	1.552E-02	9.111E-03	NOT IDENT.
ZR-88	-1.101E-03	1.682E-02	1.447E-02	8.579E-03	NOT IDENT.
Y-91	-1.098E+00	7.140E+00	5.999E+00	3.643E+00	NOT IDENT.
NB-94	5.640E-03	1.744E-02	1.521E-02	8.897E-03	NOT IDENT.
NB-95	-3.105E-03	1.780E-02	1.467E-02	9.084E-03	NOT IDENT.
NB-95M	-8.026E-02	5.868E-02	4.528E-02	2.994E-02	NOT IDENT.
ZR-95	1.257E-03	3.015E-02	2.548E-02	1.538E-02	NOT IDENT.
NB-97	-4.915E+01	7.566E+01	0.000E+00	3.860E+01	SHORT HLIF
ZR-97	3.707E+03	1.794E+03	0.000E+00	9.152E+02	SHORT HLIF
MO-99	-8.196E-01	1.132E+00	8.774E-01	5.778E-01	NOT IDENT.
TC-99M	-2.055E+08	2.447E+08	0.000E+00	1.249E+08	SHORT HLIF
RH-101	-7.739E-03	1.932E-02	1.581E-02	9.855E-03	NOT IDENT.
RH-102	-3.623E-03	1.540E-02	1.277E-02	7.857E-03	NOT IDENT.
RU-103	4.946E-03	1.970E-02	1.694E-02	1.005E-02	NOT IDENT.
RH-106	-1.260E-02	1.669E-01	1.427E-01	8.517E-02	FAIL ABUN
RU-106	-1.260E-02	1.669E-01	1.427E-01	8.517E-02	FAIL ABUN
AG-108M	3.980E-03	1.863E-02	1.618E-02	9.504E-03	NOT IDENT.
CD-109	-1.324E-01	3.828E-01	2.839E-01	1.953E-01	NOT IDENT.
AG-110M	-1.197E-02	1.804E-02	1.446E-02	9.203E-03	NOT IDENT.
IN-111	-6.921E-02	1.173E-01	9.664E-02	5.985E-02	NOT IDENT.
IN-113M	2.166E-02	2.432E-02	2.221E-02	1.241E-02	NOT IDENT.
SN-113	2.166E-02	2.432E-02	2.221E-02	1.241E-02	NOT IDENT.
IN-114M	-1.429E-03	9.522E-02	7.346E-02	4.858E-02	NOT IDENT.
CD-115	-2.196E-01	6.626E-01	5.635E-01	3.381E-01	NOT IDENT.
SN-117M	1.344E-03	1.973E-02	1.772E-02	1.007E-02	NOT IDENT.
SB-122	5.414E-02	1.887E-01	1.679E-01	9.627E-02	NOT IDENT.
I-123	-3.745E+02	6.877E+02	0.000E+00	3.508E+02	SHORT HLIF
TE-123M	-7.843E-03	1.440E-02	1.250E-02	7.347E-03	NOT IDENT.
I-124	2.379E-02	1.389E-01	1.213E-01	7.089E-02	NOT IDENT.
SB-124	-2.925E-02	3.759E-02	2.706E-02	1.918E-02	NOT IDENT.
SB-125	-8.355E-03	4.818E-02	4.069E-02	2.458E-02	NOT IDENT.
TE-125M	4.002E+00	4.343E+00	3.932E+00	2.216E+00	NOT IDENT.
I-126	-1.291E-02	6.182E-02	5.172E-02	3.154E-02	NOT IDENT.
SB-126	-1.162E-02	5.195E-02	4.302E-02	2.651E-02	NOT IDENT.
SN-126	-1.666E-03	3.791E-02	2.886E-02	1.934E-02	FAIL ABUN
SB-127	-4.903E-02	1.859E-01	1.536E-01	9.484E-02	NOT IDENT.
XE-127	2.362E-02	2.236E-02	2.055E-02	1.141E-02	NOT IDENT.
I-131	5.398E-04	3.426E-02	2.988E-02	1.748E-02	NOT IDENT.
TE-132	2.177E-02	8.861E-02	7.770E-02	4.521E-02	NOT IDENT.
BA-133	-2.554E-02	2.370E-02	1.889E-02	1.209E-02	NOT IDENT.
I-133	6.753E-02	1.473E+01	0.000E+00	7.517E+00	SHORT HLIF
CS-134	-1.141E-02	1.978E-02	1.532E-02	1.009E-02	NOT IDENT.
CS-135	-1.067E-03	8.634E-02	7.335E-02	4.405E-02	NOT IDENT.
I-135	-4.565E+07	1.223E+08	0.000E+00	6.242E+07	SHORT HLIF
CS-136	2.503E-02	3.602E-02	3.265E-02	1.838E-02	NOT IDENT.
BA-137M	1.155E-02	1.816E-02	1.634E-02	9.266E-03	NOT IDENT.
CS-137	1.221E-02	1.920E-02	1.728E-02	9.795E-03	NOT IDENT.
CE-139	-7.900E-03	1.451E-02	1.252E-02	7.402E-03	NOT IDENT.
BA-140	-1.237E-02	8.419E-02	7.256E-02	4.296E-02	NOT IDENT.
LA-140	-1.838E-02	3.207E-02	2.495E-02	1.636E-02	NOT IDENT.
CE-141	-6.788E-03	2.851E-02	2.541E-02	1.455E-02	NOT IDENT.
CE-143	1.201E+00	2.418E+00	2.200E+00	1.234E+00	NOT IDENT.
CE-144	-1.417E-01	9.959E-02	8.123E-02	5.081E-02	NOT IDENT.
PM-144	2.834E-03	1.826E-02	1.571E-02	9.317E-03	NOT IDENT.
PR-144	1.914E-01	1.233E+00	1.061E+00	6.291E-01	NOT IDENT.
PM-146	3.784E-02	2.372E-02	2.232E-02	1.210E-02	NOT IDENT.
ND-147	1.072E-01	1.815E-01	1.659E-01	9.261E-02	NOT IDENT.
PM-149	3.950E+00	6.431E+00	5.625E+00	3.281E+00	NOT IDENT.
EU-152	6.944E-03	5.295E-02	4.680E-02	2.702E-02	NOT IDENT.
GD-153	1.430E-02	4.205E-02	3.274E-02	2.145E-02	NOT IDENT.
EU-154	-2.925E-02	5.022E-02	3.908E-02	2.562E-02	NOT IDENT.
EU-155	2.784E-02	4.926E-02	4.410E-02	2.513E-02	NOT IDENT.
TB-160	-6.018E-02	6.402E-02	4.901E-02	3.266E-02	NOT IDENT.
HO-166M	1.962E-02	3.214E-02	2.866E-02	1.640E-02	FAIL ABUN
TM-171	-8.901E+00	1.303E+01	9.898E+00	6.649E+00	NOT IDENT.
LU-176	-2.128E-03	1.382E-02	1.214E-02	7.052E-03	NOT IDENT.
LU-177	-3.753E-01	2.940E-01	2.200E-01	1.500E-01	NOT IDENT.
LU-177M	-4.768E-02	9.258E-02	7.640E-02	4.723E-02	NOT IDENT.
HF-181	9.012E-03	2.184E-02	1.904E-02	1.114E-02	NOT IDENT.
W-181	3.368E-02	1.556E-01	1.274E-01	7.940E-02	NOT IDENT.
TA-182	4.896E-02	8.250E-02	7.477E-02	4.209E-02	NOT IDENT.
RE-183	3.106E-02	5.463E-02	5.013E-02	2.787E-02	NOT IDENT.
RE-184	3.783E-02	1.272E-01	1.108E-01	6.488E-02	NOT IDENT.
OS-185	2.563E-02	2.116E-02	1.986E-02	1.080E-02	NOT IDENT.

RE-188	3.970E-02	8.191E-02	7.522E-02	4.179E-02	NOT IDENT.
W-188	-2.210E+00	3.733E+00	3.202E+00	1.904E+00	FAIL ABUN
IR-192	4.610E-03	1.809E-02	1.623E-02	9.230E-03	NOT IDENT.
AU-195	8.413E-02	1.152E-01	9.693E-02	5.878E-02	NOT IDENT.
TL-200	-6.292E-02	3.578E+00	3.111E+00	1.825E+00	NOT IDENT.
TL-201	-1.267E+00	7.952E-01	6.343E-01	4.057E-01	NOT IDENT.
TL-202	2.171E-02	2.808E-02	2.501E-02	1.433E-02	NOT IDENT.
HG-203	1.180E-02	1.990E-02	1.747E-02	1.015E-02	NOT IDENT.
BI-207	-2.347E-02	2.995E-02	2.117E-02	1.528E-02	NOT IDENT.
TL-207	-6.103E-02	3.471E-01	3.025E-01	1.771E-01	NOT IDENT.
TL-208	-7.170E-03	2.296E-02	1.904E-02	1.171E-02	FAIL ABUN
PO-209	8.706E-02	3.682E+00	3.164E+00	1.878E+00	NOT IDENT.
BI-210	-1.486E-01	1.577E+00	1.340E+00	8.047E-01	NOT IDENT.
PB-210	-1.486E-01	1.577E+00	1.340E+00	8.047E-01	NOT IDENT.
PO-210	-1.486E-01	1.577E+00	1.340E+00	8.047E-01	NOT IDENT.
BI-211	-3.430E-02	1.226E-01	1.011E-01	6.256E-02	NOT IDENT.
PB-211	-1.805E-01	5.148E-01	4.217E-01	2.627E-01	NOT IDENT.
BI-212	4.722E-02	1.637E-01	1.351E-01	8.350E-02	NOT IDENT.
PB-212	-3.402E-02	3.604E-02	2.934E-02	1.839E-02	NOT IDENT.
PO-212	-3.402E-02	3.604E-02	2.934E-02	1.839E-02	NOT IDENT.
BI-214	-4.500E-03	4.722E-02	4.144E-02	2.409E-02	NOT IDENT.
PB-214	-2.869E-02	4.293E-02	3.436E-02	2.190E-02	NOT IDENT.
PO-214	-2.869E-02	4.293E-02	3.436E-02	2.190E-02	NOT IDENT.
PO-215	-6.103E-02	3.471E-01	3.025E-01	1.771E-01	NOT IDENT.
PO-216	-3.402E-02	3.604E-02	2.934E-02	1.839E-02	NOT IDENT.
PO-218	-2.869E-02	4.293E-02	3.436E-02	2.190E-02	NOT IDENT.
RN-219	-1.683E-01	2.288E-01	1.855E-01	1.167E-01	NOT IDENT.
RN-220	4.118E+00	1.305E+01	1.167E+01	6.657E+00	NOT IDENT.
RA-223	-6.103E-02	3.471E-01	3.025E-01	1.771E-01	NOT IDENT.
RA-224	1.553E-01	3.697E-01	3.249E-01	1.886E-01	NOT IDENT.
RA-226	-4.500E-03	4.722E-02	4.144E-02	2.409E-02	NOT IDENT.
AC-227	-2.093E-02	2.158E-01	1.831E-01	1.101E-01	NOT IDENT.
TH-227	-2.093E-02	2.158E-01	1.831E-01	1.101E-01	FAIL ABUN
AC-228	1.497E-01	1.746E-01	8.005E-02	8.906E-02	FAIL ABUN
RA-228	1.497E-01	1.746E-01	8.005E-02	8.906E-02	FAIL ABUN
TH-228	-3.431E-02	3.635E-02	2.959E-02	1.855E-02	NOT IDENT.
TH-229	-3.101E-01	2.666E-01	2.164E-01	1.360E-01	NOT IDENT.
TH-230	-4.500E-03	4.722E-02	4.144E-02	2.409E-02	NOT IDENT.
PA-231	-3.629E-01	8.726E-01	7.140E-01	4.452E-01	NOT IDENT.
TH-231	-6.103E-02	3.471E-01	3.025E-01	1.771E-01	NOT IDENT.
U-231	-1.751E-01	1.944E-01	1.392E-01	9.919E-02	FAIL ABUN
TH-232	1.497E-01	1.746E-01	8.005E-02	8.906E-02	FAIL ABUN
PA-233	-2.438E-03	3.579E-02	3.156E-02	1.826E-02	NOT IDENT.
PA-234	5.658E-02	1.316E-01	1.174E-01	6.715E-02	FAIL ABUN
PA-234M	3.225E+00	2.486E+00	2.276E+00	1.268E+00	NOT IDENT.
U-234	-4.500E-03	4.722E-02	4.144E-02	2.409E-02	NOT IDENT.
U-235	5.288E-02	1.192E-01	1.027E-01	6.080E-02	FAIL ABUN
NP-236	-1.428E-02	4.241E-02	3.723E-02	2.164E-02	NOT IDENT.
NP-237	1.151E-02	1.053E-01	8.581E-02	5.374E-02	NOT IDENT.
NP-239	-8.881E-02	9.903E-02	7.953E-02	5.053E-02	NOT IDENT.
AM-241	2.657E-02	6.360E-02	5.350E-02	3.245E-02	NOT IDENT.
AM-243	-5.602E-03	2.100E-02	1.836E-02	1.071E-02	NOT IDENT.
CM-243	-3.523E-03	4.512E-02	3.881E-02	2.302E-02	NOT IDENT.
AM-246	2.302E-02	6.991E-02	6.080E-02	3.567E-02	NOT IDENT.
CM-247	3.220E-03	1.953E-02	1.704E-02	9.963E-03	NOT IDENT.
CF-249	1.782E-03	2.151E-02	1.873E-02	1.097E-02	NOT IDENT.
CF-251	-1.329E-02	6.518E-02	5.708E-02	3.325E-02	NOT IDENT.

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

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46.50	103.8649
46.50	103.8649
46.50	103.8649
48.70	120.4521
49.72	104.5128
51.35	92.3497
52.39	104.8331
52.97	97.6572
53.15	105.1797
53.44	110.9028
54.07	97.1853
56.28	89.6022
56.28	89.6032
57.37	102.3223
57.53	102.3890
57.53	102.3898
57.60	100.5218
57.98	104.4762
57.98	104.4762
59.32	94.5361
59.32	94.5361
59.40	94.5661
59.54	94.6187
59.72	101.8596
60.01	101.9766
61.10	112.5109
61.14	112.5283
61.30	112.5984
63.00	118.1811
63.29	138.1920
63.29	138.1920
63.58	138.3439
64.28	138.7093
65.12	111.3164
65.20	104.0239
65.20	104.0239
66.05	111.6998
66.72	131.1275
66.83	131.1805
66.91	131.2192
67.20	126.3395
67.20	126.3395
67.75	124.2248
67.85	124.2700
68.90	153.4485
68.90	153.4485
69.30	147.7185
69.67	117.1393
70.82	118.6096
70.82	118.6096
70.83	118.6138
72.80	119.4243
72.87	119.4533
72.87	119.4533
74.67	131.2933
74.81	131.3548
74.81	131.3548
74.81	131.3548
74.81	131.3548
74.81	131.3548
74.81	131.3548
74.81	131.3548
74.97	131.4256
75.28	132.5738
75.70	120.5979
77.11	140.5051
77.11	140.5051

77.11	140.5051
77.11	140.5051
77.11	140.5051
77.11	140.5051
77.11	140.5051
78.38	112.4612
79.62	126.2551
79.80	125.3006
79.80	125.3006
80.11	123.3685
80.18	123.3960
80.30	122.4143
80.30	122.4143
80.57	122.5190
81.00	115.4692
81.07	115.4949
81.07	115.4949
81.07	115.4949
81.07	115.4949
82.60	147.1345
83.37	132.9440
83.78	131.0334
83.78	131.0334
83.78	131.0334
83.78	131.0334
84.21	136.4137
84.90	126.2663
85.43	123.3344
86.29	127.0082
86.50	127.0884
86.54	127.1038
86.59	122.7177
86.72	122.7659
86.79	133.8105
86.94	133.8715
87.30	132.4388
87.30	132.4388
87.30	132.4388
87.30	132.4388
87.30	132.4388
87.30	132.4388
87.57	132.5452
87.88	138.9851
88.03	139.0469
88.36	142.3457
88.47	142.3924
89.95	139.8337
91.11	126.4877
92.29	126.9175
92.38	126.9502
92.38	126.9502
93.35	127.3006
94.00	127.5349
94.67	133.6794
94.67	133.6814
94.90	133.7675
94.90	133.7675
94.90	133.7675
94.90	133.7675
95.87	166.4501
95.87	166.4501
96.73	139.3097
97.43	121.7245
98.44	120.4329
98.44	120.4335
98.88	117.3186
99.55	114.2670
99.55	114.2670
99.86	127.4320
100.00	127.4802
100.10	128.6058
103.18	131.8579
103.76	126.5563
105.00	114.8206
105.31	112.7028
108.00	145.7459
109.28	130.5907

111.00	164.7813
111.00	164.7813
111.76	162.8455
112.95	143.0481
115.19	133.6359
116.30	164.6524
117.00	159.2403
117.00	159.2403
117.66	149.2373
121.11	136.6677
121.62	128.7805
121.78	128.8278
122.06	153.0818
122.32	153.1731
122.32	153.1731
122.32	153.1731
122.32	153.1731
123.07	168.4353
127.23	129.2660
129.76	132.6273
131.20	132.1644
133.02	160.1081
133.54	167.3721
135.34	144.0143
136.00	143.3255
136.25	143.4017
136.48	139.9072
140.51	183.3248
140.51	0.0000
142.18	161.4117
142.65	161.5660
143.76	150.1703
144.24	158.4656
144.24	158.4656
144.24	158.4656
144.24	158.4656
145.22	171.4817
145.44	174.2813
147.16	188.5429
152.43	173.0156
152.70	166.6605
153.22	171.4361
154.21	158.8341
154.21	158.8341
154.21	158.8341
154.21	158.8341
155.03	147.0597
156.02	152.8974
158.56	145.2526
159.00	0.0000
159.00	168.6684
160.31	169.0813
161.27	148.7944
162.32	151.8948
162.64	151.9850
163.35	139.0312
163.89	147.6307
165.85	152.8761
167.43	172.2399
171.28	137.2137
171.86	132.5841
172.10	132.6403
176.55	148.0948
176.60	148.1077
181.06	133.3430
184.41	173.0730
185.71	166.0234
186.00	166.1038
190.27	140.1098
192.34	143.1448
193.63	165.2048
197.04	145.2136
198.01	154.3993
198.60	165.5086
200.40	168.9742
201.83	173.3577
202.84	136.4929
205.31	146.0764



208.36	149.7886
208.81	145.8391
209.75	141.9878
209.75	141.9878
210.97	137.1660
215.65	112.5395
216.55	129.0781
218.09	146.8218
222.10	128.0510
223.80	142.8537
226.40	125.7164
227.00	127.9023
227.08	127.9164
227.20	124.8175
228.16	127.0681
228.18	127.0719
228.18	127.0719
231.56	111.9724
235.69	157.8609
236.00	164.2456
236.00	164.2456
238.63	140.5281
238.63	140.5281
238.63	140.5281
238.63	140.5281
239.00	137.4268
240.98	154.7507
241.98	177.2464
241.98	177.2464
241.98	177.2464
244.69	145.9283
245.39	147.1293
247.94	119.8092
248.90	140.3089
249.79	141.5431
252.40	125.8827
252.85	123.8019
252.85	123.8019
254.15	0.0000
256.20	131.9012
256.20	131.9012
260.50	129.3573
260.90	134.8606
262.80	121.0082
264.65	122.3787
268.24	127.3087
268.79	133.9848
269.46	122.0041
269.46	122.0041
269.46	122.0041
269.46	122.0041
271.23	116.7592
273.65	118.2052
276.40	113.0535
277.35	119.8389
277.60	113.2138
277.60	113.2138
278.00	121.0416
278.60	121.1281
279.20	106.7578
279.53	106.7988
280.46	112.4846
281.68	129.3760
283.67	126.3232
284.30	130.8913
285.00	141.0752
285.90	105.3570
286.10	103.1392
286.10	103.1392
287.40	125.7488
288.45	0.0000
290.67	134.3364
290.80	134.3565
291.72	135.4010
293.26	115.7438
293.70	113.9922
295.21	116.9063
295.21	116.9063

295.21	116.9063
295.96	116.0984
296.50	110.7233
297.23	108.0892
298.57	129.1746
299.80	125.7077
299.80	125.7077
300.09	130.3060
300.09	130.3060
300.09	130.3060
300.09	130.3060
300.12	130.3094
301.29	114.0549
302.84	105.1116
303.76	102.4734
303.91	102.4898
304.40	107.1238
304.40	107.1238
304.84	111.7554
306.84	122.0996
308.46	111.2795
311.98	118.1656
316.51	111.3193
318.01	116.1438
319.02	110.6866
319.41	101.4277
320.08	110.8100
323.87	108.4484
323.87	108.4484
323.87	108.4484
323.87	108.4484
325.23	104.8564
328.77	128.7335
333.44	111.4129
334.20	124.7281
334.20	124.7281
334.30	127.5760
338.28	104.3698
338.28	104.3698
338.28	104.3698
338.28	104.3698
338.32	104.3751
338.32	104.3751
338.32	104.3751
340.50	113.1618
340.57	113.1691
344.27	104.0423
345.85	102.2939
350.59	94.1276
351.07	94.1719
351.92	100.9818
351.92	100.9818
351.92	100.9818
355.39	0.0000
356.01	116.8318
364.48	88.5795
366.43	92.6436
367.43	95.6589
367.94	90.8214
369.80	90.0010
374.96	92.4004
383.85	89.1903
387.95	91.5092
388.63	93.5559
391.69	88.8218
391.69	88.8218
392.90	105.9017
398.62	92.3796
400.65	110.6499
401.10	109.6879
401.81	105.7280
402.60	85.6485
404.84	96.9199
410.95	76.1179
411.60	87.3301
413.65	96.6375
414.70	97.7426
415.30	88.6238

415.76	91.7161
417.63	0.0000
418.52	66.3933
423.70	87.1997
427.08	77.1570
427.89	81.3260
432.53	94.0370
433.93	87.9374
439.47	81.0593
439.56	75.8685
439.89	73.8098
443.98	85.5254
444.90	90.8073
445.03	90.8169
445.03	90.8169
445.03	90.8169
445.03	90.8169
453.90	58.8684
463.38	67.7766
468.07	80.7750
473.00	80.0116
475.06	75.8622
475.35	86.5668
476.78	81.3103
477.59	77.0774
477.96	77.0994
482.03	78.4082
484.57	101.1556
487.03	77.6215
490.36	81.0544
492.35	93.0788
497.08	70.5931
507.63	0.0000
510.53	0.0000
510.84	80.0683
511.00	80.0772
511.85	80.1249
511.85	80.1249
513.99	78.7808
513.99	78.7808
520.41	64.0450
520.65	64.0563
527.90	62.8992
528.96	0.0000
529.64	59.2695
529.87	0.0000
531.02	54.6919
537.32	56.7891
543.00	60.7457
546.56	0.0000
549.76	59.1432
552.65	62.0791
555.20	59.3573
563.23	65.3529
563.90	61.5921
568.70	64.6354
569.32	62.7585
569.50	56.1095
569.67	56.1155
573.80	72.4762
574.00	74.3929
574.64	74.4247
578.91	79.4116
579.30	102.3980
583.14	68.1124
585.48	53.8022
591.81	78.1309
592.07	76.2130
593.00	72.3969
595.88	77.3616
600.56	87.2845
602.52	0.0000
602.71	101.9666
602.71	101.9666
603.60	109.7952
604.41	123.4602
604.70	125.4254
609.31	85.8032

609.31	85.8032
609.31	85.8032
609.31	85.8032
610.33	84.8813
612.46	97.6908
614.37	107.5830
618.01	81.3553
621.84	65.8236
621.84	65.8236
631.29	55.3255
633.02	46.4817
633.10	49.4507
634.78	47.5195
635.90	43.5882
636.97	48.5723
645.85	46.8307
646.12	45.8418
656.30	63.1512
657.75	70.2264
657.90	0.0000
661.65	53.2890
661.65	53.2890
664.57	54.3845
666.33	57.4627
666.33	57.4627
675.00	53.6901
677.61	37.5360
685.20	45.8441
692.80	49.1035
695.00	56.3316
696.49	64.5778
696.49	64.5778
697.00	66.6464
697.49	66.6636
698.33	60.5377
698.50	60.5437
699.00	70.8235
702.63	58.6212
706.10	70.0641
706.58	0.0000
706.67	73.1783
709.31	55.7347
711.68	53.7382
713.82	56.9034
717.42	68.4143
720.50	61.2579
721.93	68.5768
722.20	67.5470
722.78	62.3706
722.78	62.3706
722.89	62.3743
722.95	62.3755
723.30	62.3877
724.18	62.4158
727.18	54.1783
733.00	55.3873
735.90	42.9119
739.58	59.7704
742.81	45.1652
744.21	44.1456
747.13	53.6853
751.79	45.3717
752.31	44.3285
753.82	45.4180
755.35	41.2249
756.15	41.2415
756.87	41.2566
763.93	46.7115
765.79	47.8171
766.42	41.4542
766.84	42.5260
776.49	54.4806
778.00	54.5206
778.57	51.3281
778.89	55.6139
783.80	49.3158
785.46	62.2315
792.07	38.7502

795.84	42.0556
796.30	44.2223
798.80	47.5154
801.93	33.5272
805.60	40.8602
810.29	34.4365
810.76	32.5824
815.85	48.5242
817.79	47.6346
818.51	42.9790
819.60	38.3267
826.30	44.0740
828.27	49.7457
831.60	46.0623
831.96	47.9504
834.83	50.8388
836.80	0.0000
846.75	49.2243
848.13	57.7800
856.28	0.0000
856.80	45.6454
860.37	45.7182
867.32	56.3712
867.82	53.5166
871.10	45.9383
873.19	42.1493
874.81	38.3447
875.33	0.0000
876.40	37.4126
879.36	49.9488
880.27	44.2031
880.51	41.3248
881.50	43.2657
883.24	34.6390
884.67	35.6237
889.25	37.6248
896.60	42.5843
898.02	34.8631
899.00	32.9399
903.28	45.8616
911.07	36.0328
911.07	36.0328
911.07	36.0328
919.63	44.4725
920.93	51.3428
925.00	36.2464
925.24	39.1895
926.50	39.2104
935.52	38.3750
937.48	39.3910
944.10	34.5618
946.00	28.6597
949.00	33.6425
962.29	57.7036
964.01	54.7564
966.15	46.8328
968.20	42.8823
969.11	38.9082
969.11	38.9082
969.11	38.9082
977.42	35.0342
980.50	36.0797
983.50	33.1128
989.30	26.1492
996.32	49.4187
1001.03	26.2707
1001.68	26.2775
1004.76	43.5114
1021.30	0.0000
1024.50	0.0000
1034.80	44.0198
1036.00	32.7734
1037.82	30.7460
1038.57	30.7554
1038.76	0.0000
1045.16	35.9705
1046.59	32.9051
1048.07	29.8375

1050.47	41.1914
1050.47	41.1914
1062.04	39.3015
1063.62	46.5695
1076.63	40.5547
1077.35	38.4853
1078.86	35.3850
1085.78	32.3439
1099.22	18.8726
1112.02	31.5988
1112.84	40.0370
1115.52	45.3486
1120.29	33.8047
1120.29	33.8047
1120.29	33.8047
1120.29	33.8047
1120.51	33.8080
1121.28	31.7034
1124.00	0.0000
1129.67	44.5166
1131.51	0.0000
1147.95	0.0000
1167.94	26.3158
1173.22	36.7196
1175.09	40.5120
1177.93	35.8361
1189.05	43.5433
1204.90	34.2587
1205.75	29.5090
1213.00	37.2135
1221.42	33.4897
1230.97	37.4337
1235.34	35.5648
1236.41	0.0000
1238.25	33.6745
1246.25	22.1858
1260.41	0.0000
1271.85	23.3408
1274.45	29.1998
1274.54	29.2007
1291.56	41.1002
1298.22	0.0000
1312.09	24.6208
1325.50	20.7667
1325.50	20.7667
1332.49	29.7299
1333.61	30.7313
1360.21	16.9881
1362.66	0.0000
1365.15	23.0175
1368.21	20.0336
1368.53	0.0000
1376.25	23.0934
1384.27	29.1867
1394.10	28.2615
1395.20	26.2507
1407.95	22.2947
1434.06	27.5669
1436.60	20.4352
1457.56	0.0000
1460.81	18.5175
1489.15	24.8840
1509.49	23.9799
1596.49	25.6047
1620.62	17.1758
1678.03	0.0000
1691.02	19.4222
1691.02	19.4222
1706.46	0.0000
1750.46	0.0000
1764.49	10.8720
1764.49	10.8720
1764.49	10.8720
1764.49	10.8720
1770.23	34.6392
1771.40	36.6286
1791.20	0.0000
1808.65	14.9784

1836.01

13.0628

2

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202021393

Total Uranium Activity	6.3447E-02	ug/g
Total Uranium Counting Unc.	2.0481E+00	ug/g
Total Uranium Tpu	1.0449E-06	ug/g
Total Uranium Mda	1.4317E+00	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G1202021393
*  ANALYST       : MXR1                             DETECTOR    : GAM22
*  SAMPLE DATE   : 25-JAN-2010 00:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:52:12.22          SAMPLE ALQT  : 138.100 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.044E-02
GROSS GAMMA ERROR  (pCi/GRAM )  : 2.060E-01
GROSS GAMMA MDA    (pCi/GRAM )  : 1.497E-01
GROSS GAMMA DLC    (pCi/GRAM )  : 7.091E-02

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 13:59:15.83

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021394.CNF;1
Sample date   : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:58:53.
Sample ID     : G1202021394      Sample quantity  : 1.29830E+02 GRAM
Detector name : GAM06            Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.25 0.0%
Energy tolerance: 1.50000 keV    Analyst Initials : MXR1
Abundance limit: 75.00000        Sensitivity     : 5.00000
Batch ID      : 944037           Detector SN#    :
Matrix Spike ID :                LCS ID         : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	1	74.60	401	480	1.27	149.21	144	17	5.57E-02	10.6	4.14E+00
2	1	76.92	613	379	1.19	153.83	144	17	8.52E-02	6.9	
3	3	83.74*	101	320	1.70	167.49	164	14	1.40E-02	30.4	1.69E+00
4	3	87.04	246	324	1.07	174.08	164	14	3.41E-02	13.2	
5	0	92.69*	325	494	1.26	185.38	182	10	4.51E-02	14.6	
6	0	143.08*	14	404	1.39	286.17	282	10	1.95E-03	272.7	
7	0	185.57*	171	373	1.19	371.13	365	11	2.38E-02	23.9	
8	3	238.39*	1020	191	1.16	476.78	471	18	1.42E-01	3.9	1.34E+00
9	3	241.47	283	243	1.95	482.95	471	18	3.93E-02	16.1	
10	0	270.18	97	190	0.73	540.37	536	9	1.35E-02	27.5	
11	0	294.79*	333	196	1.24	589.57	583	11	4.63E-02	10.0	
12	0	306.92	26	200	1.17	613.84	609	12	3.61E-03	110.8	
13	0	338.05*	164	176	1.29	676.11	671	11	2.28E-02	17.8	
14	0	351.63*	589	160	1.37	703.27	698	11	8.18E-02	6.0	
15	0	462.50	104	61	1.82	925.00	920	9	1.45E-02	16.6	
16	0	510.60*	102	132	1.81	1021.19	1013	16	1.42E-02	30.3	
17	0	583.05*	285	136	1.70	1166.10	1158	18	3.96E-02	11.6	
18	0	609.12*	399	121	1.48	1218.25	1210	15	5.54E-02	7.9	
19	0	661.31	132	58	1.89	1322.61	1318	10	1.84E-02	13.7	
20	0	726.98	60	55	1.07	1453.96	1448	12	8.30E-03	27.8	
21	0	795.84	37	79	1.44	1591.69	1584	16	5.19E-03	55.9	
22	0	910.90*	232	40	1.53	1821.80	1815	16	3.23E-02	9.3	
23	1	964.31	49	27	2.04	1928.61	1924	20	6.82E-03	22.5	2.20E+00
24	1	968.68*	98	35	1.82	1937.35	1924	20	1.36E-02	16.3	
25	0	1120.19	87	74	1.63	2240.38	2233	16	1.20E-02	24.9	
26	0	1238.10	39	54	1.46	2476.19	2469	12	5.46E-03	40.6	
27	0	1460.29*	771	4	2.38	2920.57	2912	17	1.07E-01	3.7	
28	0	1730.31*	15	9	2.65	3460.62	3455	10	2.12E-03	48.8	
29	0	1764.63*	61	11	2.15	3529.26	3521	14	8.51E-03	17.7	

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

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021394.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:58:53  
 Sample ID : G1202021394 Sample quantity : 129.83 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA6 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.25 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	*	2.169E+01	2.148E+00	5.076E-01	3.357E-02	42.740
CD-109	+	88.03	*	3.822E+00	1.075E+00	1.598E+00	1.578E-01	2.392
SN-126		64.28		5.620E-01	6.534E-01	1.109E+00	1.707E-01	0.507
	+	86.94		1.551E+00	7.639E-01	7.396E-01	3.078E-01	2.096
	+	87.57	*	3.730E-01	1.049E-01	1.717E-01	1.690E-02	2.172
BA-137M	+	661.65	*	2.193E-01	6.101E-02	6.365E-02	3.143E-03	3.445
CS-137	+	661.65	*	2.318E-01	6.450E-02	6.728E-02	3.342E-03	3.445
TL-208		277.35		6.023E-01	4.444E-01	7.532E-01	8.021E-02	0.800
	+	510.84		5.666E-01	3.484E-01	2.364E-01	2.373E-02	2.396
	+	583.14	*	4.537E-01	1.089E-01	6.162E-02	3.894E-03	7.363
		860.37		4.140E-01	3.457E-01	6.249E-01	4.779E-02	0.662
BI-211		72.87		1.659E+01	4.551E+00	7.240E+00	6.500E-01	2.291
	+	351.07	*	4.059E+00	5.496E-01	3.959E-01	2.555E-02	10.252
PB-212	+	74.81		2.642E+00	6.588E-01	6.315E-01	8.209E-02	4.184
	+	77.11		2.275E+00	3.750E-01	3.561E-01	3.251E-02	6.387
	+	87.30		1.725E+00	5.149E-01	8.193E-01	1.148E-01	2.105
	+	238.63	*	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
		300.09		2.909E-01	1.107E+00	1.562E+00	1.307E-01	0.186
PO-212	+	74.81		2.642E+00	6.588E-01	6.315E-01	8.209E-02	4.184
	+	77.11		2.275E+00	3.750E-01	3.561E-01	3.251E-02	6.387
	+	87.30		1.725E+00	5.149E-01	8.193E-01	1.148E-01	2.105
		115.19		2.884E+00	4.122E+00	6.963E+00	4.595E-01	0.414
	+	238.63	*	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
		300.09		2.909E-01	1.107E+00	1.562E+00	1.307E-01	0.186
BI-214	+	609.31	*	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
	+	1120.29		1.371E+00	6.933E-01	5.308E-01	4.848E-02	2.584
	+	1764.49		1.334E+00	4.775E-01	3.488E-01	2.042E-02	3.823
PB-214	+	74.81		4.553E+00	1.105E+00	1.088E+00	1.271E-01	4.184
	+	77.11		3.900E+00	7.082E-01	6.105E-01	7.260E-02	6.387
	+	87.30		2.955E+00	8.618E-01	1.404E+00	1.752E-01	2.105
	+	241.98		2.522E+00	8.388E-01	6.271E-01	5.088E-02	4.022
	+	295.21		1.349E+00	2.933E-01	2.897E-01	2.505E-02	4.656
	+	351.92	*	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
PO-214	+	74.81		4.553E+00	1.105E+00	1.088E+00	1.271E-01	4.184

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.900E+00	7.082E-01	6.105E-01	7.260E-02	6.387
	+	87.30		2.955E+00	8.618E-01	1.404E+00	1.752E-01	2.105
	+	241.98		2.522E+00	8.388E-01	6.271E-01	5.088E-02	4.022
	+	295.21		1.349E+00	2.933E-01	2.897E-01	2.505E-02	4.656
	+	351.92	*	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
PO-216	+	74.81		2.642E+00	6.588E-01	6.315E-01	8.209E-02	4.184
	+	77.11		2.275E+00	3.750E-01	3.561E-01	3.251E-02	6.387
	+	87.30		1.725E+00	5.149E-01	8.193E-01	1.148E-01	2.105
	+	238.63	*	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
	+	300.09		2.909E-01	1.107E+00	1.562E+00	1.307E-01	0.186
PO-218	+	74.81		4.553E+00	1.105E+00	1.088E+00	1.271E-01	4.184
	+	77.11		3.900E+00	7.082E-01	6.105E-01	7.260E-02	6.387
	+	87.30		2.955E+00	8.618E-01	1.404E+00	1.752E-01	2.105
	+	241.98		2.522E+00	8.388E-01	6.271E-01	5.088E-02	4.022
	+	295.21		1.349E+00	2.933E-01	2.897E-01	2.505E-02	4.656
	+	351.92	*	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
RA-224	+	240.98	*	4.782E+00	1.568E+00	1.185E+00	6.945E-02	4.035
RA-226	+	609.31	*	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
	+	1120.29		1.371E+00	6.933E-01	5.308E-01	4.848E-02	2.584
	+	1764.49		1.334E+00	4.775E-01	3.488E-01	2.042E-02	3.823
AC-228	+	338.32		1.246E+00	6.746E-01	4.400E-01	1.794E-01	2.831
	+	911.07	*	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026
	+	969.11		1.237E+00	4.924E-01	3.848E-01	8.776E-02	3.213
RA-228	+	338.32		1.246E+00	6.746E-01	4.400E-01	1.794E-01	2.831
	+	911.07	*	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026
	+	969.11		1.237E+00	4.924E-01	3.848E-01	8.776E-02	3.213
TH-228	+	74.81		2.695E+00	6.238E-01	6.442E-01	5.866E-02	4.184
	+	77.11		2.320E+00	3.826E-01	3.633E-01	3.317E-02	6.387
	+	87.30		1.760E+00	4.949E-01	8.358E-01	8.205E-02	2.105
	+	238.63	*	1.545E+00	1.659E-01	1.062E-01	7.829E-03	14.545
	+	300.09		2.967E-01	1.143E+00	1.594E+00	9.394E-01	0.186
TH-230	+	609.31	*	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
	+	1120.29		1.371E+00	6.933E-01	5.307E-01	4.848E-02	2.584
	+	1764.49		1.334E+00	4.774E-01	3.488E-01	2.042E-02	3.823
TH-232	+	338.32		1.246E+00	4.500E-01	4.400E-01	2.588E-02	2.831
	+	911.07	*	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026
	+	969.11		1.237E+00	4.924E-01	3.848E-01	8.776E-02	3.213
U-234	+	609.31	*	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
	+	1120.29		1.371E+00	6.933E-01	5.307E-01	4.848E-02	2.584
	+	1764.49		1.334E+00	4.774E-01	3.488E-01	2.042E-02	3.823
U-235		89.95		1.534E+00	2.070E+00	2.247E+00	6.993E-01	0.682
	+	93.35		3.813E+00	1.547E+00	1.179E+00	3.316E-01	3.234
		105.00		-2.766E-01	1.238E+00	2.006E+00	5.926E-01	-0.138
	+	143.76	*	6.585E-02	3.593E-01	3.982E-01	6.477E-02	0.165
		163.35		3.767E-01	5.613E-01	9.325E-01	1.666E-01	0.404
	+	185.71		1.771E-01	8.510E-02	8.412E-02	4.655E-03	2.105
		205.31		-4.702E-01	6.690E-01	1.040E+00	1.866E-01	-0.452
NP-237	+	86.50	*	1.095E+00	3.821E-01	4.818E-01	1.100E-01	2.273
		95.87		-1.182E+00	1.254E+00	1.686E+00	4.150E-01	-0.701

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	4.284E-01	9.903E-02	1.027E-01	9.278E-03	4.170
	+	86.72		4.107E+01	1.155E+01	1.802E+01	1.760E+00	2.279
		117.66		1.934E+00	4.395E+00	7.357E+00	4.717E-01	0.263
	+	142.18		5.531E+00	3.017E+01	3.339E+01	1.906E+00	0.166
ANH-511	+	511.00	*	1.224E-01	7.456E-02	5.109E-02	2.856E-03	2.396

---- 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	*	-1.497E-01	4.061E-01	6.375E-01	4.211E-02	-0.235
NA-22		1274.54	*	1.893E-02	4.559E-02	7.798E-02	4.816E-03	0.243
NA-24		1368.53	*	-7.015E+01	4.559E-02	Half-Life too short		
AL-26		1129.67		2.695E+00	2.147E+00	3.781E+00	2.355E-01	0.713
		1808.65	*	6.894E-04	2.766E-02	4.603E-02	2.644E-03	0.015
TI-44		67.85		-5.816E-03	5.588E-02	9.308E-02	8.306E-03	-0.062
	+	78.38	*	4.198E-01	6.922E-02	8.937E-02	8.215E-03	4.698
SC-46		889.25	*	-1.166E-02	4.355E-02	7.060E-02	5.060E-03	-0.165
	+	1120.51		2.444E-01	1.225E-01	1.565E-01	9.845E-03	1.561
V-48		944.10		6.646E-01	1.191E+00	2.086E+00	1.489E-01	0.319
		983.50	*	3.620E-02	9.261E-02	1.596E-01	1.117E-02	0.227
		1312.09		-7.528E-02	1.054E-01	1.541E-01	9.615E-03	-0.489
CR-51		320.08	*	-7.487E-02	4.830E-01	8.033E-01	5.292E-02	-0.093
MN-52		744.21		-2.795E-01	4.998E-01	7.587E-01	4.327E-02	-0.368
		848.13		6.916E+00	1.384E+01	2.413E+01	1.626E+00	0.287
		935.52		6.659E-01	4.743E-01	8.920E-01	6.391E-02	0.747
		1246.25		6.362E+00	1.508E+01	2.517E+01	1.535E+00	0.253
		1333.61		9.967E-01	9.790E+00	1.613E+01	1.013E+00	0.062
		1434.06	*	1.659E-01	3.824E-01	6.691E-01	4.211E-02	0.248
MN-54		834.83	*	1.731E-03	4.314E-02	7.237E-02	4.777E-03	0.024
CO-56		846.75	*	2.122E-02	4.662E-02	8.095E-02	5.442E-03	0.262
		977.42		-1.094E+00	3.143E+00	4.877E+00	3.426E-01	-0.224
		1037.82		6.242E-02	3.575E-01	6.009E-01	4.411E-02	0.104
		1175.09		1.623E+00	2.587E+00	4.499E+00	2.664E-01	0.361
	+	1238.25		1.828E-01	1.489E-01	2.129E-01	1.369E-02	0.859
		1360.21		-5.031E-02	1.128E+00	1.818E+00	1.144E-01	-0.028
		1771.40		-6.848E-01	3.722E-01	4.273E-01	2.495E-02	-1.603
CO-57		122.06	*	-1.605E-02	2.926E-02	4.703E-02	2.873E-03	-0.341
		136.48		-2.949E-02	2.519E-01	4.069E-01	2.734E-02	-0.072
CO-58		810.76	*	-7.074E-03	4.560E-02	7.531E-02	4.808E-03	-0.094
FE-59	+	142.65		9.164E-01	4.998E+00	5.781E+00	3.298E-01	0.159
		192.34		-3.990E-01	1.207E+00	1.925E+00	2.253E-01	-0.207
		1099.22	*	7.911E-02	1.122E-01	1.970E-01	1.445E-02	0.402
		1291.56		8.993E-02	1.454E-01	2.538E-01	1.964E-02	0.354
CO-60		1173.22		2.477E-02	4.957E-02	8.525E-02	5.043E-03	0.291
		1332.49	*	-1.512E-02	4.228E-02	6.517E-02	4.094E-03	-0.232
ZN-65		1115.52	*	-1.014E-02	1.241E-01	1.731E-01	1.096E-02	-0.059
GE-68		1077.35	*	-8.940E-01	1.532E+00	2.377E+00	1.558E-01	-0.376
AS-73		53.44	*	2.081E-01	1.178E+00	1.991E+00	1.821E-01	0.105

---- 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	*	-9.730E-02	1.296E-01	1.977E-01	1.052E-02	-0.492
		634.78		5.547E-02	4.854E-01	7.955E-01	4.066E-02	0.070
SE-75		66.05		-7.252E+00	6.261E+00	1.001E+01	1.071E+00	-0.724
		96.73		-6.979E-01	1.023E+00	1.428E+00	1.931E-01	-0.489
		121.11		-8.338E-02	1.600E-01	2.573E-01	2.435E-02	-0.324
		136.00		-2.143E-02	4.841E-02	7.717E-02	4.548E-03	-0.278
		198.60		6.123E-01	2.305E+00	3.708E+00	2.588E-01	0.165
		264.65	*	-2.242E-02	6.336E-02	8.584E-02	5.149E-03	-0.261
		279.53		-1.275E-01	1.298E-01	2.083E-01	1.338E-02	-0.612
		303.91		-4.812E+00	3.224E+00	4.190E+00	4.041E-01	-1.149
		400.65		-2.762E-01	3.020E-01	4.704E-01	4.214E-02	-0.587
BR-77	+	87.88		3.405E-03	3.020E-01	Half-Life	too short	
		200.40		-6.584E-04	3.020E-01	Half-Life	too short	
	+	239.00		1.010E-03	3.020E-01	Half-Life	too short	
		249.79		1.777E-04	3.020E-01	Half-Life	too short	
		281.68		-2.955E-04	3.020E-01	Half-Life	too short	
		297.23		7.705E-04	3.020E-01	Half-Life	too short	
		303.76		-1.704E-03	3.020E-01	Half-Life	too short	
		439.47		4.244E-04	3.020E-01	Half-Life	too short	
		484.57		-2.224E-04	3.020E-01	Half-Life	too short	
		520.65	*	-3.166E-06	3.020E-01	Half-Life	too short	
		574.64		-1.020E-03	3.020E-01	Half-Life	too short	
		578.91		1.179E-04	3.020E-01	Half-Life	too short	
		585.48		4.011E-03	3.020E-01	Half-Life	too short	
		755.35		6.208E-04	3.020E-01	Half-Life	too short	
		817.79		-2.358E-04	3.020E-01	Half-Life	too short	
SR-82		698.33		-2.246E+01	4.683E+01	7.246E+01	3.820E+00	-0.310
		776.49	*	-2.885E-01	5.110E-01	8.180E-01	4.921E-02	-0.353
		1395.20		-1.439E+01	1.415E+01	1.911E+01	1.203E+00	-0.753
RB-83		520.41	*	3.730E-03	7.924E-02	1.304E-01	7.267E-03	0.029
		529.64		-4.707E-02	1.166E-01	1.844E-01	1.024E-02	-0.255
		552.65		-8.682E-03	2.187E-01	3.563E-01	1.955E-02	-0.024
RB-84		881.50	*	2.380E-02	7.873E-02	1.353E-01	9.584E-03	0.176
KR-85		513.99	*	1.105E+01	9.184E+00	1.453E+01	8.115E-01	0.760
SR-85		513.99	*	5.963E-02	4.957E-02	7.843E-02	4.380E-03	0.760
RB-86		1076.63	*	-3.664E-01	1.148E+00	1.832E+00	1.202E-01	-0.200
Y-88		898.02		-1.367E-02	4.962E-02	7.935E-02	5.801E-03	-0.172
		1836.01	*	-2.430E-02	3.879E-02	5.528E-02	3.141E-03	-0.440
ZR-88		392.90	*	-1.120E-02	3.642E-02	5.936E-02	3.294E-03	-0.189
Y-91		1204.90	*	2.678E+00	2.257E+01	3.734E+01	2.240E+00	0.072
NB-94		702.63	*	-3.725E-03	4.201E-02	6.728E-02	3.574E-03	-0.055
		871.10		1.856E-02	3.793E-02	6.609E-02	4.610E-03	0.281
NB-95		765.79	*	8.219E-02	5.257E-02	9.498E-02	5.614E-03	0.865
NB-95M		235.69	*	6.304E-01	2.007E-01	3.209E-01	2.425E-02	1.964
ZR-95		724.18		1.294E-01	1.334E-01	2.059E-01	1.362E-02	0.629
		756.15	*	1.160E-01	8.525E-02	1.533E-01	1.081E-02	0.757
NB-97		657.90	*	1.137E+01	8.525E-02	Half-Life	too short	
		1024.50		1.094E+03	8.525E-02	Half-Life	too short	
ZR-97		254.15		2.299E+02	8.525E-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		-3.441E+01	8.525E-02	Half-Life	too short	
		507.63	*	6.756E+02	8.525E-02	Half-Life	too short	
		602.52		-7.803E+02	8.525E-02	Half-Life	too short	
		1021.30		1.172E+03	8.525E-02	Half-Life	too short	
		1147.95		1.075E+02	8.525E-02	Half-Life	too short	
		1362.66		-1.186E+02	8.525E-02	Half-Life	too short	
		1750.46		3.070E+02	8.525E-02	Half-Life	too short	
MO-99		140.51		-2.443E+01	1.178E+02	1.662E+02	4.477E+01	-0.147
		181.06		-7.595E+01	8.041E+01	1.061E+02	1.808E+01	-0.716
		366.43		4.598E+02	3.287E+02	5.908E+02	3.390E+01	0.778
		739.58	*	1.547E+01	4.541E+01	7.531E+01	1.033E+01	0.205
		778.00		-1.795E+02	1.399E+02	2.092E+02	1.262E+01	-0.858
TC-99M		140.51	*	-7.504E+15	1.399E+02	Half-Life	too short	
RH-101		127.23		1.306E-02	3.834E-02	6.376E-02	3.808E-03	0.205
		198.01	*	3.079E-02	4.078E-02	6.689E-02	3.758E-03	0.460
		325.23		-1.689E-01	2.700E-01	4.380E-01	2.596E-02	-0.386
RH-102		418.52		9.840E-02	3.455E-01	5.824E-01	3.263E-02	0.169
		475.06	*	1.069E-03	3.319E-02	5.480E-02	3.086E-03	0.020
		631.29		-1.527E-02	6.156E-02	9.768E-02	5.013E-03	-0.156
		697.49		-3.947E-03	9.016E-02	1.450E-01	7.631E-03	-0.027
		766.84		1.016E-01	1.319E-01	2.247E-01	1.331E-02	0.452
		1046.59		1.869E-02	1.289E-01	2.157E-01	1.450E-02	0.087
		1112.84		-5.145E-02	2.948E-01	4.051E-01	2.568E-02	-0.127
RU-103		497.08	*	-5.033E-03	4.982E-02	8.124E-02	1.020E-02	-0.062
	+	610.33		1.409E+01	3.101E+00	3.673E+00	5.590E-01	3.837
RH-106		511.85		6.169E-01	3.758E-01	4.884E-01	2.730E-02	1.263
		621.84	*	-2.174E-02	3.685E-01	5.956E-01	6.817E-02	-0.036
		1050.47		-9.440E-01	2.607E+00	4.137E+00	2.772E-01	-0.228
RU-106		511.85		6.169E-01	3.758E-01	4.884E-01	2.730E-02	1.263
		621.84	*	-2.174E-02	3.685E-01	5.956E-01	3.088E-02	-0.036
		1050.47		-9.440E-01	2.607E+00	4.137E+00	2.772E-01	-0.228
AG-108M		433.93	*	-2.760E-02	3.624E-02	5.662E-02	3.472E-03	-0.487
		614.37		-9.032E-03	4.720E-02	6.463E-02	3.727E-03	-0.140
		722.95		-1.411E-02	5.560E-02	7.461E-02	4.489E-03	-0.189
AG-110M		657.75	*	2.086E-02	4.801E-02	7.053E-02	3.808E-03	0.296
		677.61		-1.151E-02	3.586E-01	5.672E-01	3.110E-02	-0.020
		706.67		-1.329E-02	2.686E-01	4.315E-01	2.470E-02	-0.031
		763.93		-2.295E-01	2.049E-01	2.947E-01	1.840E-02	-0.779
		884.67		9.033E-03	5.093E-02	8.643E-02	6.441E-03	0.105
		937.48		-1.190E-01	1.182E-01	1.744E-01	1.314E-02	-0.682
		1384.27		-2.176E-01	1.997E-01	2.718E-01	1.801E-02	-0.801
IN-111		171.28		5.691E-01	3.888E+00	6.361E+00	3.458E-01	0.089
		245.39	*	-2.004E+00	4.531E+00	6.118E+00	3.597E-01	-0.328
IN-113M		391.69	*	-3.894E-02	5.139E-02	8.117E-02	4.830E-03	-0.480
SN-113		391.69	*	-3.894E-02	5.139E-02	8.117E-02	4.830E-03	-0.480
IN-114M		190.27	*	-5.856E-03	2.600E-01	3.675E-01	2.045E-02	-0.016
CD-115		260.90		-2.461E-04	2.600E-01	Half-Life	too short	
		492.35		-1.803E-05	2.600E-01	Half-Life	too short	
		527.90	*	-4.156E-05	2.600E-01	Half-Life	too short	

Sample ID : G1202021394

Acquisition date : 2-FEB-2010 11:58:53

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M		156.02		-2.051E+00	3.327E+00	5.284E+00	2.919E-01	-0.388
		158.56	*	-5.658E-02	8.120E-02	1.284E-01	7.051E-03	-0.441
SB-122		563.90	*	-1.042E+00	8.449E+00	1.366E+01	7.446E-01	-0.076
		692.80		-6.144E+01	1.857E+02	2.811E+02	1.468E+01	-0.219
I-123		159.00	*	-2.249E+03	1.857E+02	Half-Life	too short	
		528.96		-1.986E+05	1.857E+02	Half-Life	too short	
TE-123M		159.00	*	-2.353E-02	3.431E-02	5.429E-02	3.024E-03	-0.433
I-124		602.71	*	-1.342E+00	2.128E+00	2.782E+00	1.470E-01	-0.482
		722.78		-3.313E+00	1.305E+01	1.751E+01	9.630E-01	-0.189
		1325.50		-7.770E+01	8.113E+01	1.123E+02	7.039E+00	-0.692
		1376.25		1.504E+02	8.243E+01	1.607E+02	1.011E+01	0.936
		1509.49		2.593E+01	3.741E+01	6.695E+01	4.189E+00	0.387
		1691.02		-6.031E+00	8.549E+00	1.195E+01	7.186E-01	-0.505
SB-124		602.71		-3.671E-02	5.821E-02	7.612E-02	4.025E-03	-0.482
		645.85		-4.403E-01	6.261E-01	9.509E-01	5.595E-02	-0.463
		709.31		-6.269E-01	3.669E+00	5.832E+00	3.134E-01	-0.107
		713.82		-5.607E-01	2.146E+00	3.380E+00	3.379E-01	-0.166
		722.78		-1.314E-01	5.176E-01	6.946E-01	4.020E-02	-0.189
	+	968.20		1.347E+01	4.497E+00	7.997E+00	5.645E-01	1.684
		1045.16		-3.577E-01	2.935E+00	4.783E+00	3.217E-01	-0.075
		1325.50		-3.291E+00	3.437E+00	4.757E+00	2.982E-01	-0.692
		1368.21		-6.986E-01	1.871E+00	2.843E+00	3.446E-01	-0.246
		1436.60		-1.037E-01	3.753E+00	6.036E+00	3.799E-01	-0.017
		1691.02	*	-5.642E-02	7.999E-02	1.118E-01	7.259E-03	-0.505
SB-125		427.89	*	1.435E-02	1.060E-01	1.771E-01	1.039E-02	0.081
	+	463.38		1.134E+00	3.846E-01	6.810E-01	4.510E-02	1.665
		600.56		1.408E-01	2.134E-01	3.468E-01	2.177E-02	0.406
		635.90		9.416E-02	3.119E-01	5.190E-01	3.222E-02	0.181
TE-125M		109.28	*	-1.622E+00	1.140E+01	1.842E+01	1.677E+00	-0.088
I-126		388.63		-1.887E-02	2.953E-01	4.891E-01	2.725E-02	-0.039
		666.33	*	9.591E-02	3.059E-01	4.436E-01	2.209E-02	0.216
		753.82		-2.188E-01	2.286E+00	3.640E+00	2.109E-01	-0.060
SB-126		223.80		4.534E+00	6.142E+00	1.023E+01	5.909E-01	0.443
		278.60		-3.454E-01	3.688E+00	6.192E+00	3.694E-01	-0.056
		296.50		1.114E+01	3.221E+00	5.356E+00	3.200E-01	2.079
		414.70		-5.231E-03	1.154E-01	1.907E-01	1.067E-02	-0.027
		415.30		3.348E+00	9.563E+00	1.620E+01	9.064E-01	0.207
		555.20		1.401E+00	5.538E+00	9.245E+00	5.065E-01	0.152
		573.80		3.087E-03	1.542E+00	2.447E+00	1.325E-01	0.001
		593.00		7.456E-01	1.404E+00	2.383E+00	1.270E-01	0.313
		656.30		-3.541E+00	5.985E+00	7.728E+00	3.845E-01	-0.458
		666.33		4.053E-02	1.293E-01	1.875E-01	9.335E-03	0.216
		675.00		-1.043E+00	2.851E+00	4.447E+00	2.250E-01	-0.234
		695.00		-7.874E-02	1.257E-01	1.853E-01	9.709E-03	-0.425
		697.00		1.774E-01	4.117E-01	6.885E-01	3.621E-02	0.258
		720.50	*	2.538E-01	2.456E-01	3.849E-01	2.109E-02	0.659
		856.80		-6.610E-01	6.991E-01	1.064E+00	7.260E-02	-0.622
		989.30		-7.013E-01	1.790E+00	2.839E+00	1.981E-01	-0.247
		1034.80		6.801E+00	1.220E+01	2.133E+01	1.446E+00	0.319



----- 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			4.185E+00	6.704E+00	1.162E+01	6.992E-01	0.360
	61.10			3.347E+01	1.797E+02	3.027E+02	3.955E+01	0.111
	252.40			-4.617E+00	1.315E+01	2.045E+01	8.590E+00	-0.226
	290.80			2.226E+01	6.223E+01	9.367E+01	1.041E+01	0.238
	411.60			-2.204E+01	3.419E+01	5.412E+01	8.416E+00	-0.407
	444.90			7.151E-01	2.854E+01	4.723E+01	5.824E+00	0.015
	473.00			5.678E-03	4.539E+00	7.479E+00	9.476E-01	0.001
	543.00			-5.398E+01	4.710E+01	6.885E+01	9.759E+00	-0.784
	603.60			-2.105E+01	3.892E+01	5.132E+01	6.234E+00	-0.410
	685.20	*		9.212E-01	3.434E+00	5.690E+00	6.217E-01	0.162
XE-127	698.50			-1.871E+01	4.355E+01	6.753E+01	1.049E+01	-0.277
	722.20			1.698E+01	9.163E+01	1.303E+02	1.415E+01	0.130
	783.80			9.780E+00	1.069E+01	1.901E+01	2.363E+00	0.514
	57.60			-4.503E+00	8.668E+00	1.426E+01	1.313E+00	-0.316
	145.22			2.601E-01	1.016E+00	1.476E+00	8.363E-02	0.176
	172.10			1.069E-01	1.578E-01	2.636E-01	1.434E-02	0.406
	202.84	*		1.597E-02	6.351E-02	1.037E-01	5.859E-03	0.154
I-131	374.96			-5.673E-02	2.382E-01	3.907E-01	2.218E-02	-0.145
	80.18			4.567E+00	1.153E+01	1.265E+01	1.186E+00	0.361
	284.30			1.151E+00	2.593E+00	4.462E+00	2.970E-01	0.258
	364.48	*		2.202E-02	1.970E-01	3.307E-01	2.144E-02	0.067
TE-132	636.97			-1.308E-01	2.624E+00	4.238E+00	2.516E-01	-0.031
	722.89			-3.621E+00	1.426E+01	1.914E+01	1.081E+00	-0.189
	49.72			-1.132E+01	7.777E+01	1.302E+02	1.601E+01	-0.087
	111.76			-7.708E+01	9.583E+01	1.525E+02	1.693E+01	-0.506
BA-133	116.30			5.064E+01	9.149E+01	1.536E+02	1.672E+01	0.330
	228.16	*		-3.648E-01	2.339E+00	3.732E+00	5.768E-01	-0.098
	53.15			6.331E-01	4.873E+00	8.227E+00	7.510E-01	0.077
	79.62			-1.192E-01	2.235E+00	2.360E+00	3.681E-01	-0.050
	81.00			5.771E-02	1.610E-01	1.758E-01	2.862E-02	0.328
	276.40			4.851E-01	4.624E-01	7.482E-01	9.755E-02	0.648
	302.84			-1.774E-01	2.045E-01	2.799E-01	3.287E-02	-0.634
I-133	356.01	*		7.290E-03	5.202E-02	7.644E-02	8.836E-03	0.095
	383.85			-9.521E-03	3.474E-01	5.771E-01	6.216E-02	-0.016
	510.53	+		6.180E+01	3.474E-01	Half-Life	too short	
	529.87	*		-3.901E-02	3.474E-01	Half-Life	too short	
	706.58			-9.371E-01	3.474E-01	Half-Life	too short	
	856.28			-4.606E+01	3.474E-01	Half-Life	too short	
	875.33			-4.219E-01	3.474E-01	Half-Life	too short	
	1236.41			6.777E+01	3.474E-01	Half-Life	too short	
	1298.22			-4.770E+00	3.474E-01	Half-Life	too short	
	475.35			-1.498E-01	2.202E+00	3.609E+00	2.032E-01	-0.041
CS-134	563.23			1.819E-01	4.125E-01	6.964E-01	3.887E-02	0.261
	569.32			4.327E-02	2.330E-01	3.857E-01	2.165E-02	0.112
	604.70			-5.047E-03	4.460E-02	6.186E-02	3.286E-03	-0.082
	795.84	+	*	8.676E-02	9.713E-02	1.035E-01	6.515E-03	0.838
	801.93			-3.523E-01	4.993E-01	6.513E-01	4.125E-02	-0.541
	1038.57			5.045E-01	4.165E+00	6.965E+00	4.708E-01	0.072
	1167.94			-2.708E+00	2.852E+00	4.200E+00	2.501E-01	-0.645

## ---- 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			-9.121E-01	1.273E+00	1.813E+00	1.237E-01	-0.503
	268.24	*		4.047E-01	2.279E-01	3.523E-01	2.737E-02	1.149
	288.45			-5.596E+15	2.279E-01	Half-Life	too short	
	417.63			1.742E+14	2.279E-01	Half-Life	too short	
	546.56			2.403E+15	2.279E-01	Half-Life	too short	
	836.80			-1.682E+14	2.279E-01	Half-Life	too short	
	1038.76			2.435E+14	2.279E-01	Half-Life	too short	
	1124.00			-5.875E+15	2.279E-01	Half-Life	too short	
	1131.51			2.137E+15	2.279E-01	Half-Life	too short	
	1260.41	*		-4.655E+14	2.279E-01	Half-Life	too short	
	1457.56			1.431E+17	2.279E-01	Half-Life	too short	
	1678.03			-2.936E+14	2.279E-01	Half-Life	too short	
	1706.46			-5.167E+14	2.279E-01	Half-Life	too short	
	1791.20			1.077E+15	2.279E-01	Half-Life	too short	
CS-136 +	66.91			-1.200E+00	1.268E+00	2.034E+00	3.176E-01	-0.590
	86.29			6.295E+00	1.869E+00	3.102E+00	4.226E-01	2.029
	153.22			7.904E-01	9.672E-01	1.629E+00	1.147E-01	0.485
	163.89			-8.917E-02	1.640E+00	2.665E+00	1.856E-01	-0.033
	176.55			-1.730E-02	5.807E-01	9.420E-01	5.872E-02	-0.018
	273.65			-7.323E-01	8.436E-01	1.096E+00	7.413E-02	-0.668
	340.57			4.491E-01	2.081E-01	3.471E-01	2.167E-02	1.294
	818.51			-8.025E-03	9.620E-02	1.597E-01	1.030E-02	-0.050
	1048.07	*		1.449E-01	1.562E-01	2.806E-01	2.016E-02	0.516
	1235.34			1.453E+00	1.042E+00	1.687E+00	1.712E-01	0.861
CE-139 BA-140	165.85	*		-1.854E-02	3.491E-02	5.549E-02	3.000E-03	-0.334
	162.64			1.021E+00	1.157E+00	1.949E+00	1.210E-01	0.524
	304.84			-1.137E+00	2.381E+00	3.340E+00	9.127E-01	-0.340
LA-140	423.70			1.211E+00	2.895E+00	4.881E+00	1.550E+00	0.248
	537.32	*		2.184E-01	3.965E-01	6.657E-01	2.162E-01	0.328
	328.77			5.771E-01	4.731E-01	8.351E-01	5.512E-02	0.691
	432.53			1.558E+00	2.874E+00	4.934E+00	3.081E-01	0.316
	487.03			-4.427E-02	2.082E-01	3.372E-01	2.161E-02	-0.131
	751.79			8.221E-01	2.546E+00	4.215E+00	2.983E-01	0.195
	815.85			4.168E-02	4.443E-01	7.504E-01	5.771E-02	0.056
	867.82			8.095E-02	2.060E+00	3.450E+00	2.588E-01	0.023
	919.63			1.630E+00	3.938E+00	6.393E+00	6.099E-01	0.255
	925.24			-1.134E+00	1.431E+00	2.152E+00	1.686E-01	-0.527
CE-141	1596.49	*		-1.186E-01	1.195E-01	1.648E-01	1.017E-02	-0.720
	145.44	*		2.026E-02	9.314E-02	1.350E-01	7.965E-03	0.150
CE-143 +	57.37			-8.147E-03	9.314E-02	Half-Life	too short	
	231.56			-2.327E-02	9.314E-02	Half-Life	too short	
	293.26	*		1.360E-02	9.314E-02	Half-Life	too short	
	350.59			3.770E-01	9.314E-02	Half-Life	too short	
	490.36			3.950E-02	9.314E-02	Half-Life	too short	
CE-144	664.57			1.683E-02	9.314E-02	Half-Life	too short	
	721.93			3.465E-03	9.314E-02	Half-Life	too short	
	80.11			1.398E+00	3.528E+00	3.868E+00	3.593E-01	0.361
PM-144	133.54	*		-7.788E-02	2.463E-01	3.985E-01	5.668E-02	-0.195
	476.78			-5.108E-02	8.186E-02	1.261E-01	8.579E-03	-0.405

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-3.321E-03	3.633E-02	5.856E-02	3.277E-03	-0.057
		696.49	*	1.206E-02	3.990E-02	6.608E-02	3.478E-03	0.182
		778.57		-2.007E+00	2.617E+00	4.099E+00	2.477E-01	-0.490
PR-144		696.49	*	8.193E-01	2.711E+00	4.489E+00	2.359E-01	0.182
		1489.15		2.466E-01	1.283E+01	2.077E+01	1.302E+00	0.012
PM-146		453.90	*	3.483E-02	5.056E-02	8.716E-02	7.418E-03	0.400
		633.02		-4.370E-01	1.577E+00	2.483E+00	9.118E-01	-0.176
		735.90		-1.098E-01	1.782E-01	2.656E-01	7.396E-02	-0.414
		747.13		4.494E-03	9.823E-02	1.586E-01	1.979E-02	0.028
ND-147		91.11		2.153E+00	7.285E-01	9.111E-01	9.082E-02	2.363
		319.41		-3.805E+00	5.249E+00	8.454E+00	5.027E-01	-0.450
		439.89		7.326E+00	9.305E+00	1.615E+01	9.095E-01	0.454
		531.02	*	-9.065E-03	8.190E-01	1.340E+00	1.798E-01	-0.007
PM-149		285.90	*	7.941E-05	8.190E-01	Half-Life too short		
EU-152		121.78		-5.169E-02	8.374E-02	1.341E-01	1.053E-02	-0.385
		244.69		7.095E-02	4.214E-01	5.968E-01	3.507E-02	0.119
		344.27	*	-8.727E-02	1.274E-01	1.744E-01	1.149E-02	-0.500
		443.98		5.780E-01	1.162E+00	1.981E+00	1.115E-01	0.292
		778.89		-2.037E-01	3.018E-01	4.772E-01	2.882E-02	-0.427
		867.32		3.124E-01	9.459E-01	1.624E+00	1.127E-01	0.192
	+	964.01		7.124E-01	3.244E-01	6.132E-01	4.337E-02	1.162
		1085.78		-3.982E-02	4.547E-01	7.420E-01	4.827E-02	-0.054
		1112.02		-3.789E-02	3.945E-01	5.724E-01	3.632E-02	-0.066
		1407.95		1.253E-01	2.294E-01	3.968E-01	2.499E-02	0.316
GD-153		69.67		1.526E-01	2.250E+00	3.318E+00	2.962E-01	0.046
	+	83.37		2.854E+01	1.757E+01	2.982E+01	2.834E+00	0.957
		97.43	*	-2.228E-02	1.020E-01	1.466E-01	1.225E-02	-0.152
		103.18		-5.521E-02	1.235E-01	2.006E-01	1.541E-02	-0.275
EU-154		123.07		-2.887E-02	5.947E-02	9.576E-02	9.169E-03	-0.301
		247.94		-1.757E-01	4.641E-01	6.684E-01	6.414E-02	-0.263
		591.81		7.044E-01	7.744E-01	1.246E+00	1.185E-01	0.565
		723.30		-1.385E-02	2.240E-01	3.082E-01	2.108E-02	-0.045
		756.87		7.623E-01	8.812E-01	1.524E+00	1.547E-01	0.500
		873.19		6.215E-02	3.217E-01	5.465E-01	6.100E-02	0.114
		996.32		-3.915E-01	4.126E-01	6.055E-01	1.031E-01	-0.647
		1004.76		-1.198E-01	2.453E-01	3.856E-01	4.026E-02	-0.311
		1274.45	*	4.727E-02	1.264E-01	2.152E-01	2.060E-02	0.220
EU-155		48.70		-2.012E+00	3.555E+00	5.860E+00	4.907E-01	-0.343
		60.01		-1.015E+01	6.588E+00	1.037E+01	9.500E-01	-0.979
	+	86.54		4.500E-01	1.267E-01	2.193E-01	2.156E-02	2.052
		105.31	*	-2.571E-02	1.252E-01	2.035E-01	1.543E-02	-0.126
TB-160	+	86.79		1.257E+00	3.537E-01	6.077E-01	5.939E-02	2.069
		197.04		3.283E-01	7.297E-01	1.183E+00	6.637E-02	0.277
		215.65		6.966E-02	9.101E-01	1.448E+00	8.299E-02	0.048
		298.57		8.820E-02	1.581E-01	2.401E-01	1.434E-02	0.367
		879.36	*	-2.282E-02	1.473E-01	2.416E-01	1.706E-02	-0.094
		962.29		8.199E-01	7.130E-01	1.157E+00	8.188E-02	0.709
		966.15		1.320E+00	3.129E-01	6.260E-01	4.423E-02	2.109
		1177.93		-2.130E-01	4.380E-01	6.823E-01	4.045E-02	-0.312

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85		-3.345E-01	8.015E-01	1.239E+00	7.627E-02	-0.270
		80.57		1.587E-01	4.451E-01	4.864E-01	4.531E-02	0.326
	+	184.41		1.328E-01	6.383E-02	7.970E-02	4.403E-03	1.667
		280.46		-1.430E-01	9.847E-02	1.537E-01	9.172E-03	-0.931
		410.95		2.195E-01	2.796E-01	4.854E-01	2.713E-02	0.452
		711.68	*	-4.358E-03	7.434E-02	1.192E-01	6.433E-03	-0.037
TM-171		752.31		4.523E-02	3.242E-01	5.276E-01	3.050E-02	0.086
		810.29		-2.192E-02	6.592E-02	1.071E-01	6.802E-03	-0.205
		51.35		-1.982E+01	4.250E+01	7.022E+01	6.297E+00	-0.282
		52.39		-1.139E+01	2.199E+01	3.625E+01	3.290E+00	-0.314
		59.40		-3.997E+01	3.523E+01	5.652E+01	5.194E+00	-0.707
		66.72	*	-2.638E+01	3.527E+01	5.746E+01	5.133E+00	-0.459
LU-176	+	88.36		8.846E-01	2.488E-01	4.429E-01	4.344E-02	1.997
		201.83		-5.103E-02	3.622E-02	5.478E-02	3.091E-03	-0.932
	+	306.84	*	2.083E-02	4.619E-02	4.925E-02	2.938E-03	0.423
		401.10		-4.787E+00	7.462E+00	1.187E+01	6.608E-01	-0.403
LU-177		112.95		-1.487E+00	3.070E+00	4.964E+00	3.364E-01	-0.299
		208.36	*	1.646E+00	2.211E+00	3.677E+00	2.090E-01	0.448
LU-177M		52.97		5.795E-02	2.259E+00	3.799E+00	3.464E-01	0.015
		54.07		6.078E-01	1.174E+00	2.005E+00	1.839E-01	0.303
		61.30		1.135E+00	1.982E+00	3.375E+00	3.069E-01	0.336
		121.62		-2.537E-01	4.381E-01	7.031E-01	4.306E-02	-0.361
		147.16		-4.301E-01	8.988E-01	1.252E+00	7.062E-02	-0.343
		171.86		2.927E-01	5.872E-01	9.743E-01	5.301E-02	0.300
		218.09		-1.611E+00	1.059E+00	1.547E+00	8.885E-02	-1.041
	+	268.79		2.271E+00	1.256E+00	1.842E+00	1.096E-01	1.233
		319.02		-2.227E-01	3.088E-01	4.976E-01	2.958E-02	-0.448
		367.43		9.174E-01	1.046E+00	1.832E+00	1.050E-01	0.501
		413.65	*	-3.692E-01	2.210E-01	3.265E-01	1.826E-02	-1.131
		56.28		7.260E-01	1.339E+00	2.287E+00	2.106E-01	0.317
HF-181		57.53		-3.955E-01	7.206E-01	1.184E+00	1.090E-01	-0.334
		65.20		-6.576E-01	1.299E+00	2.137E+00	1.915E-01	-0.308
		133.02		-3.563E-02	8.492E-02	1.370E-01	8.024E-03	-0.260
		136.25		-1.287E-01	5.926E-01	9.533E-01	5.531E-02	-0.135
		345.85		-9.949E-02	2.697E-01	3.800E-01	2.223E-02	-0.262
		482.03	*	1.543E-02	5.442E-02	9.134E-02	5.139E-03	0.169
W-181		56.28		2.703E-01	4.978E-01	8.502E-01	7.827E-02	0.318
		57.53		-1.472E-01	2.680E-01	4.405E-01	4.055E-02	-0.334
		65.20	*	-2.426E-01	4.794E-01	7.887E-01	7.065E-02	-0.308
		67.75		-1.477E-02	1.374E-01	2.289E-01	2.043E-02	-0.065
TA-182		100.10		1.528E-01	2.115E-01	3.585E-01	2.878E-02	0.426
		152.43		4.912E-01	4.045E-01	6.906E-01	3.847E-02	0.711
		222.10		3.742E-01	4.163E-01	6.981E-01	4.026E-02	0.536
		1001.68		2.778E+00	2.391E+00	4.359E+00	3.020E-01	0.637
	+	1121.28		6.677E-01	3.347E-01	4.208E-01	2.645E-02	1.587
		1189.05		-2.736E-01	3.332E-01	4.948E-01	2.948E-02	-0.553
		1221.42	*	-2.115E-02	2.233E-01	3.614E-01	2.183E-02	-0.059
		1230.97		-2.973E-01	6.469E-01	8.597E-01	5.211E-02	-0.346
		57.98		-2.205E-01	2.733E-01	4.444E-01	4.089E-02	-0.496

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		-1.748E-01	1.514E-01	2.427E-01	2.230E-02	-0.720
		67.20		-1.613E-01	2.554E-01	4.177E-01	3.729E-02	-0.386
		162.32	*	1.586E-01	1.348E-01	2.297E-01	1.251E-02	0.690
		208.81		3.058E-01	1.267E+00	2.065E+00	1.174E-01	0.148
		291.72		2.558E-01	1.236E+00	1.840E+00	1.099E-01	0.139
		57.98		-7.898E-01	9.788E-01	1.592E+00	1.465E-01	-0.496
		59.32		-6.257E-01	5.419E-01	8.685E-01	7.983E-02	-0.720
		67.20		-5.775E-01	9.146E-01	1.496E+00	1.335E-01	-0.386
		161.27		6.694E-01	4.229E-01	7.306E-01	3.989E-02	0.916
		216.55		1.964E-01	3.170E-01	5.174E-01	2.967E-02	0.380
		252.85	*	-9.249E-02	2.912E-01	4.584E-01	2.707E-02	-0.202
		318.01		-4.032E-01	5.373E-01	8.644E-01	5.140E-02	-0.466
		792.07		1.463E+00	1.382E+00	2.226E+00	1.373E-01	0.657
		903.28		-7.724E-01	1.350E+00	1.876E+00	1.360E-01	-0.412
OS-185		920.93		8.046E-02	4.666E-01	7.742E-01	5.578E-02	0.104
		59.72		-5.587E-01	4.047E-01	6.420E-01	5.892E-02	-0.870
		61.14		7.208E-02	2.199E-01	3.720E-01	3.386E-02	0.194
		69.30		3.579E-02	4.096E-01	6.046E-01	5.396E-02	0.059
		592.07		3.269E+00	3.120E+00	5.253E+00	2.802E-01	0.622
		646.12	*	-1.414E-02	5.025E-02	7.937E-02	4.002E-03	-0.178
		717.42		-1.685E-01	1.177E+00	1.874E+00	1.021E-01	-0.090
		874.81		1.872E-01	6.416E-01	1.100E+00	7.719E-02	0.170
		880.27		3.075E-01	7.875E-01	1.366E+00	9.664E-02	0.225
		155.03	*	7.297E-02	2.079E-01	3.440E-01	1.905E-02	0.212
RE-188		477.96		2.380E-01	3.802E+00	6.161E+00	3.468E-01	0.039
		633.10		-8.591E-01	3.330E+00	5.279E+00	2.704E-01	-0.163
		63.58		9.737E+01	7.166E+01	1.236E+02	1.113E+01	0.788
W-188		227.08		-9.639E-01	1.576E+01	2.528E+01	1.465E+00	-0.038
		290.67	*	3.175E+00	9.380E+00	1.411E+01	8.428E-01	0.225
IR-192	+	295.96		1.077E+00	2.245E-01	3.378E-01	2.048E-02	3.187
		308.46		1.139E-02	1.341E-01	1.974E-01	1.190E-02	0.058
		316.51	*	-2.493E-03	4.322E-02	7.230E-02	4.322E-03	-0.034
		468.07		4.766E-02	8.364E-02	1.317E-01	8.617E-03	0.362
AU-195		604.41		-6.357E-02	6.289E-01	8.736E-01	9.690E-02	-0.073
		612.46		1.038E+00	9.771E-01	1.523E+00	1.089E-01	0.681
		65.12		-9.760E-02	2.206E-01	3.637E-01	3.258E-02	-0.268
		66.83		-8.521E-02	1.182E-01	1.927E-01	1.721E-02	-0.442
	+	75.70		1.412E+00	3.264E-01	5.774E-01	5.236E-02	2.446
		98.88	*	1.767E-01	2.804E-01	4.419E-01	3.612E-02	0.400
		129.76		4.170E+00	3.472E+00	5.933E+00	3.512E-01	0.703
		367.94	*	7.253E-04	3.472E+00	Half-Life	too short	
TL-200		579.30		8.149E-02	3.472E+00	Half-Life	too short	
		828.27		3.472E-02	3.472E+00	Half-Life	too short	
		1205.75		1.446E-02	3.472E+00	Half-Life	too short	
TL-201		68.90		-9.036E+00	1.973E+01	2.839E+01	2.533E+00	-0.318
		70.82		-9.149E-01	1.101E+01	1.612E+01	1.441E+00	-0.057
		80.30		9.578E+00	2.505E+01	2.744E+01	2.552E+00	0.349
		135.34		-6.477E+01	9.243E+01	1.457E+02	8.478E+00	-0.444
		167.43	*	-1.567E+01	2.413E+01	3.811E+01	2.063E+00	-0.411

---- 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		-3.526E-01	7.698E-01	1.108E+00	9.886E-02	-0.318
		70.82		-3.560E-02	4.285E-01	6.274E-01	5.608E-02	-0.057
		80.30		3.728E-01	9.753E-01	1.068E+00	9.933E-02	0.349
		439.56	*	6.979E-02	1.066E-01	1.837E-01	1.033E-02	0.380
HG-203		70.83		-1.151E-01	1.514E+00	2.218E+00	3.063E-01	-0.052
		72.87		3.548E+00	1.036E+00	1.549E+00	2.081E-01	2.291
	+	82.60		2.250E+00	1.406E+00	2.364E+00	3.375E-01	0.952
		279.20	*	-6.679E-03	4.985E-02	8.354E-02	5.276E-03	-0.080
BI-207		72.80		8.981E-01	2.621E-01	4.168E-01	3.742E-02	2.155
	+	74.97		7.691E-01	1.778E-01	2.908E-01	2.630E-02	2.645
	+	84.90		3.641E-01	2.242E-01	3.975E-01	3.824E-02	0.916
		569.67		7.633E-03	3.583E-02	5.943E-02	3.226E-03	0.128
		1063.62	*	4.727E-04	5.922E-02	9.771E-02	6.479E-03	0.005
		1770.23		3.838E-01	4.137E-01	7.782E-01	4.545E-02	0.493
TL-207		81.07		1.266E-01	3.546E-01	3.874E-01	3.621E-02	0.327
	+	83.78		2.400E-01	1.478E-01	2.516E-01	2.398E-02	0.954
		94.90		3.930E-01	2.926E-01	4.504E-01	3.921E-02	0.872
		122.32		-7.865E-01	1.994E+00	3.226E+00	2.242E-01	-0.244
	+	144.24		2.134E-01	1.164E+00	1.359E+00	9.701E-02	0.157
		154.21		3.973E-01	4.557E-01	7.686E-01	5.231E-02	0.517
	+	269.46		5.206E-01	2.881E-01	4.296E-01	2.666E-02	1.212
		323.87	*	-8.292E-01	8.025E-01	1.253E+00	2.076E-01	-0.662
	+	338.28		5.201E+00	1.934E+00	2.667E+00	2.821E-01	1.950
		445.03		-2.628E-02	2.754E+00	4.548E+00	4.627E-01	-0.006
PO-209		260.50		-6.086E+00	1.118E+01	1.732E+01	1.027E+00	-0.351
		262.80		7.608E+00	3.141E+01	5.089E+01	3.021E+00	0.149
		896.60	*	3.718E-01	8.612E+00	1.420E+01	1.029E+00	0.026
BI-210		46.50	*	-2.150E-01	5.369E+00	8.950E+00	7.369E-01	-0.024
PB-210		46.50	*	-2.150E-01	5.369E+00	8.950E+00	7.369E-01	-0.024
PO-210		46.50	*	-2.150E-01	5.369E+00	8.950E+00	6.465E-01	-0.024
PB-211		404.84	*	-8.198E-01	1.208E+00	1.733E+00	1.080E+00	-0.473
		427.08		-1.669E+00	2.656E+00	3.873E+00	2.393E+00	-0.431
		831.96		5.208E-01	1.435E+00	2.410E+00	1.504E+00	0.216
BI-212	+	727.18	*	8.197E-01	4.605E-01	6.744E-01	5.072E-02	1.215
		785.46		2.414E+00	2.116E+00	3.839E+00	2.343E-01	0.629
		1620.62		1.947E+00	1.508E+00	2.949E+00	1.809E-01	0.660
PO-215		81.07		1.266E-01	3.546E-01	3.874E-01	3.621E-02	0.327
	+	83.78		2.400E-01	1.478E-01	2.516E-01	2.398E-02	0.954
		94.90		3.930E-01	2.926E-01	4.504E-01	3.921E-02	0.872
		122.32		-7.865E-01	1.994E+00	3.226E+00	2.242E-01	-0.244
	+	144.24		2.134E-01	1.164E+00	1.359E+00	9.701E-02	0.157
		154.21		3.973E-01	4.557E-01	7.686E-01	5.231E-02	0.517
	+	269.46		5.206E-01	2.881E-01	4.296E-01	2.666E-02	1.212
		323.87	*	-8.292E-01	8.025E-01	1.253E+00	2.076E-01	-0.662
	+	338.28		5.201E+00	1.934E+00	2.667E+00	2.821E-01	1.950
		445.03		-2.628E-02	2.754E+00	4.548E+00	4.627E-01	-0.006
RN-219	+	271.23		6.679E-01	3.714E-01	5.440E-01	4.469E-02	1.228
		401.81	*	-1.041E-01	4.592E-01	7.510E-01	1.015E-01	-0.139
RN-220		549.76	*	-2.373E+01	2.969E+01	4.530E+01	2.490E+00	-0.524

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		1.266E-01	3.546E-01	3.874E-01	3.621E-02	0.327
	+	83.78		2.400E-01	1.478E-01	2.516E-01	2.398E-02	0.954
		94.90		3.930E-01	2.926E-01	4.504E-01	3.921E-02	0.872
		122.32		-7.865E-01	1.994E+00	3.226E+00	2.242E-01	-0.244
	+	144.24		2.134E-01	1.164E+00	1.359E+00	9.701E-02	0.157
		154.21		3.973E-01	4.557E-01	7.686E-01	5.231E-02	0.517
	+	269.46		5.206E-01	2.881E-01	4.296E-01	2.666E-02	1.212
		323.87	*	-8.292E-01	8.025E-01	1.253E+00	2.076E-01	-0.662
	+	338.28		5.201E+00	1.934E+00	2.667E+00	2.821E-01	1.950
		445.03		-2.628E-02	2.754E+00	4.548E+00	4.627E-01	-0.006
AC-227		79.80		-3.879E-01	2.826E+00	2.961E+00	6.447E-01	-0.131
		236.00		2.325E+00	4.459E-01	6.759E-01	7.080E-02	3.440
		256.20	*	4.278E-01	4.560E-01	7.599E-01	1.065E-01	0.563
		286.10		-3.941E-01	1.732E+00	2.884E+00	3.360E-01	-0.137
		299.80		6.510E-01	2.048E+00	2.898E+00	4.738E-01	0.225
		304.40		-3.173E+00	2.812E+00	3.721E+00	6.458E-01	-0.853
		334.20		-7.528E-01	3.183E+00	4.551E+00	8.358E-01	-0.165
	TH-227	79.80		-3.879E-01	2.826E+00	2.961E+00	6.528E-01	-0.131
	+	94.00		1.226E+01	4.478E+00	4.509E+00	9.859E-01	2.718
		236.00		2.325E+00	4.291E-01	6.759E-01	6.139E-02	3.440
TH-229		256.20	*	4.278E-01	4.578E-01	7.599E-01	1.287E-01	0.563
		286.10		-3.941E-01	1.776E+00	2.884E+00	2.890E+00	-0.137
		299.80		6.510E-01	2.048E+00	2.898E+00	4.738E-01	0.225
		304.40		-3.173E+00	2.812E+00	3.721E+00	6.458E-01	-0.853
		334.20		-7.528E-01	3.183E+00	4.551E+00	8.358E-01	-0.165
	TH-229	85.43		4.226E-01	2.524E-01	4.181E-01	4.039E-02	1.011
	+	88.47		5.092E-01	1.432E-01	2.529E-01	2.475E-02	2.014
		100.00		1.566E-01	2.133E-01	3.617E-01	2.908E-02	0.433
		193.63	*	-3.486E-01	6.039E-01	9.519E-01	5.319E-02	-0.366
		210.97		1.114E+00	9.037E-01	1.532E+00	8.735E-02	0.727
PA-231		283.67	*	1.895E+00	1.731E+00	3.038E+00	4.208E-01	0.624
		301.29		1.099E+00	7.980E-01	1.207E+00	1.273E-01	0.910
TH-231		81.07		1.266E-01	3.546E-01	3.874E-01	3.621E-02	0.327
	+	83.78		2.400E-01	1.478E-01	2.516E-01	2.398E-02	0.954
		94.90		3.930E-01	2.926E-01	4.504E-01	3.921E-02	0.872
		122.32		-7.865E-01	1.994E+00	3.226E+00	2.242E-01	-0.244
	+	144.24		2.134E-01	1.164E+00	1.359E+00	9.701E-02	0.157
		154.21		3.973E-01	4.557E-01	7.686E-01	5.231E-02	0.517
	+	269.46		5.206E-01	2.881E-01	4.296E-01	2.666E-02	1.212
		323.87	*	-8.292E-01	8.025E-01	1.253E+00	2.076E-01	-0.662
	+	338.28		5.201E+00	1.934E+00	2.667E+00	2.821E-01	1.950
		445.03		-2.628E-02	2.754E+00	4.548E+00	4.627E-01	-0.006
U-231	+	84.21		2.313E+01	1.424E+01	2.396E+01	2.292E+00	0.965
	+	92.29		2.709E+01	8.284E+00	1.096E+01	9.976E-01	2.473
		95.87	*	-2.997E+00	3.104E+00	4.277E+00	3.664E-01	-0.701
PA-233		108.00		-1.535E-01	5.168E+00	8.521E+00	6.141E-01	-0.018
	+	75.28		2.244E+01	5.918E+00	9.001E+00	1.404E+00	2.493
	+	86.59		7.302E+00	2.767E+00	3.550E+00	9.658E-01	2.057
		300.12		1.503E-01	5.724E-01	8.071E-01	1.091E-01	0.186

---- 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	*	-1.143E-02	8.745E-02	1.266E-01	7.984E-03	-0.090
		340.50		1.865E+00	8.921E-01	1.330E+00	3.058E-01	1.402
		398.62		1.200E+00	2.380E+00	4.043E+00	1.043E+00	0.297
		415.76		8.527E-01	1.939E+00	3.289E+00	6.752E-01	0.259
		63.00		3.371E+00	2.063E+00	3.499E+00	5.502E-01	0.964
		94.67		4.947E-01	2.187E-01	3.389E-01	4.232E-02	1.460
		98.44		4.709E-02	1.212E-01	1.755E-01	9.783E-02	0.268
		99.86		4.051E-01	5.404E-01	9.169E-01	7.386E-02	0.442
		111.00		-1.497E-01	2.140E-01	3.370E-01	3.691E-02	-0.444
		131.20		1.041E-02	1.273E-01	2.095E-01	1.234E-02	0.050
		152.70		4.315E-01	3.841E-01	6.450E-01	1.014E-01	0.669
	+	186.00		4.782E+00	2.709E+00	2.951E+00	9.002E-01	1.621
		226.40		-2.321E-01	4.788E-01	7.507E-01	8.675E-02	-0.309
		227.20		-9.489E-03	5.081E-01	8.166E-01	4.732E-02	-0.012
		248.90		2.860E-01	9.723E-01	1.579E+00	3.398E-01	0.181
	+	293.70		6.474E+00	1.662E+00	2.014E+00	3.251E-01	3.215
		369.80		-3.884E-01	9.609E-01	1.556E+00	3.236E-01	-0.250
		568.70		9.696E-02	1.139E+00	1.871E+00	1.016E-01	0.052
		569.50		7.585E-02	3.185E-01	5.292E-01	2.873E-02	0.143
		574.00		-7.164E-01	1.718E+00	2.624E+00	1.420E-01	-0.273
		699.00		-5.783E-01	8.685E-01	1.312E+00	2.338E-01	-0.441
		706.10		-6.584E-02	1.324E+00	2.126E+00	9.369E-01	-0.031
		733.00		4.634E-02	4.767E-01	6.697E-01	1.420E-01	0.069
		742.81		2.014E-01	1.562E+00	2.534E+00	1.695E+00	0.079
	+	796.30		1.679E+00	1.928E+00	1.967E+00	5.188E-01	0.854
		805.60		4.089E-01	1.088E+00	1.872E+00	5.630E-01	0.218
		819.60		-2.085E-01	1.292E+00	2.125E+00	7.989E-01	-0.098
		826.30		-2.703E-01	9.379E-01	1.516E+00	6.727E-01	-0.178
		831.60		2.232E-01	7.224E-01	1.234E+00	3.619E-01	0.181
		876.40		-4.681E-01	9.861E-01	1.354E+00	1.390E+00	-0.346
		880.51		1.236E-01	2.732E-01	4.771E-01	3.375E-02	0.259
		883.24		1.004E-01	2.943E-01	4.950E-01	3.319E-01	0.203
		899.00		-1.836E-01	1.005E+00	1.619E+00	7.039E-01	-0.113
		925.00		-7.918E-01	1.139E+00	1.736E+00	1.249E-01	-0.456
		926.50		-3.763E-02	1.679E-01	2.715E-01	6.741E-02	-0.139
		946.00	*	1.082E-01	3.196E-01	5.478E-01	9.931E-02	0.198
		949.00		-1.471E-01	4.836E-01	7.777E-01	5.539E-02	-0.189
		980.50		-1.891E-01	7.457E-01	1.200E+00	8.417E-02	-0.158
		1394.10		-1.170E+00	1.454E+00	1.681E+00	1.090E+00	-0.696
PA-234M		766.42		1.901E+01	1.648E+01	2.403E+01	1.210E+01	0.791
TH-234		1001.03	*	4.589E+00	5.308E+00	9.449E+00	8.076E-01	0.486
NP-236		63.29	*	2.716E+00	1.773E+00	2.978E+00	5.414E-01	0.912
	+	92.38		3.172E+00	1.093E+00	1.279E+00	2.342E-01	2.480
		94.67		3.792E-01	1.627E-01	2.575E-01	2.250E-02	1.473
U-238		98.44		3.559E-02	8.947E-02	1.327E-01	1.092E-02	0.268
		111.00		-1.133E-01	1.616E-01	2.549E-01	1.769E-02	-0.444
		160.31	*	2.966E-02	9.346E-02	1.543E-01	8.442E-03	0.192
	+	63.29	*	2.716E+00	1.773E+00	2.978E+00	5.414E-01	0.912
		92.38		3.172E+00	9.698E-01	1.279E+00	1.163E-01	2.480



---- 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		1.695E-01	1.846E-01	3.054E-01	2.471E-02	0.555
		117.00	*	1.418E-01	2.222E-01	3.745E-01	2.420E-02	0.379
		209.75		9.282E-01	9.317E-01	1.564E+00	8.907E-02	0.593
		228.18		-4.056E-02	2.708E-01	4.324E-01	2.508E-02	-0.094
		277.60		2.195E-01	2.147E-01	3.607E-01	2.151E-02	0.608
AM-241		334.30		-4.011E-01	1.803E+00	2.584E+00	1.524E-01	-0.155
		59.54	*	-2.773E-01	2.059E-01	3.268E-01	3.195E-02	-0.848
CM-243		99.55		1.745E-01	1.900E-01	3.143E-01	2.544E-02	0.555
		103.76	*	4.527E-02	1.110E-01	1.862E-01	1.419E-02	0.243
		117.00		1.459E-01	2.287E-01	3.854E-01	2.490E-02	0.379
		209.75		9.153E-01	9.188E-01	1.543E+00	8.783E-02	0.593
		228.18		-4.099E-02	2.737E-01	4.370E-01	2.535E-02	-0.094
AM-246		277.60		2.213E-01	2.166E-01	3.637E-01	2.169E-02	0.608
		798.80		-7.002E-02	1.613E-01	2.186E-01	1.363E-02	-0.320
		1036.00		-1.118E-02	3.267E-01	5.376E-01	3.641E-02	-0.021
		1062.04		-1.500E-01	2.621E-01	4.061E-01	2.696E-02	-0.369
		1078.86	*	3.399E-02	1.669E-01	2.803E-01	1.834E-02	0.121
CM-247		278.00		7.059E-01	8.330E-01	1.458E+00	8.700E-02	0.484
		287.40		-7.674E-01	1.477E+00	2.279E+00	1.361E-01	-0.337
CF-249		402.60	*	2.537E-04	4.043E-02	6.716E-02	3.742E-03	0.004
		252.85		-3.402E-01	1.071E+00	1.686E+00	9.957E-02	-0.202
		333.44		-1.996E-01	2.422E-01	3.312E-01	1.954E-02	-0.603
CF-251		387.95	*	1.383E-02	4.407E-02	7.472E-02	4.168E-03	0.185
		176.60	*	-4.000E-03	1.549E-01	2.513E-01	1.375E-02	-0.016
		227.00		4.267E-04	4.476E-01	7.200E-01	4.172E-02	0.001
		285.00		5.243E-01	1.970E+00	3.362E+00	2.008E-01	0.156

# VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021394
* Acquisition date   : 2-FEB-2010 11:58:53 Detector SN#      :
* Detector ID        : GAM06 Sensitivity                    : 5.000
* Geometry           : CAN Energy tolerance                : 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit        : 75.000
* Elapsed real time  : 0 02:00:01.25 Half life ratio        : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library  : SOLID
* Sample ID          : G1202021394 Analyst initials        : MXR1
* Batch Number       : 944037 Sample Quantity              : 1.2983E+02 GRAM
* Recovery           : 1.00000 Carrier Weight              : 0.00000
*****
*                               QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54 MS Isotope      :
* MSD DPM             : 0.000 MSD Isotope                  :
* LCS DPM             : 0.000 LCS Isotope                   :
* LCSD DPM            : 0.000 LCSD Isotope                  :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.169E+01	2.105E+00	5.079E-01	0.000E+00
CD-109	3.822E+00	1.054E+00	1.672E+00	0.000E+00
SN-126	3.730E-01	1.028E-01	1.797E-01	0.000E+00
BA-137M	2.193E-01	5.978E-02	6.452E-02	0.000E+00
CS-137	2.318E-01	6.321E-02	6.820E-02	0.000E+00
TL-208	4.537E-01	1.068E-01	6.260E-02	0.000E+00
BI-211	4.059E+00	5.386E-01	4.055E-01	0.000E+00
PB-212	1.514E+00	1.594E-01	1.073E-01	0.000E+00
PO-212	1.514E+00	1.594E-01	1.073E-01	0.000E+00
BI-214	1.198E+00	2.056E-01	1.263E-01	0.000E+00
PB-214	1.412E+00	2.008E-01	1.228E-01	0.000E+00
PO-214	1.412E+00	2.008E-01	1.228E-01	0.000E+00
PO-216	1.514E+00	1.594E-01	1.073E-01	0.000E+00
PO-218	1.412E+00	2.008E-01	1.228E-01	0.000E+00
RA-224	4.782E+00	1.536E+00	1.221E+00	0.000E+00
RA-226	1.198E+00	2.056E-01	1.263E-01	0.000E+00
AC-228	1.658E+00	3.458E-01	2.380E-01	0.000E+00
RA-228	1.658E+00	3.458E-01	2.380E-01	0.000E+00
TH-228	1.545E+00	1.626E-01	1.094E-01	0.000E+00
TH-230	1.198E+00	2.056E-01	1.263E-01	0.000E+00
TH-232	1.658E+00	3.458E-01	2.380E-01	0.000E+00
U-234	1.198E+00	2.056E-01	1.263E-01	0.000E+00
U-235	6.585E-02	3.521E-01	4.135E-01	0.000E+00
NP-237	1.095E+00	3.744E-01	5.043E-01	0.000E+00
AM-243	4.284E-01	9.705E-02	1.078E-01	0.000E+00
ANH-511	1.224E-01	7.307E-02	5.200E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-1.497E-01	3.980E-01	6.497E-01	0.000E+00 NOT IDENT.

NA-22	1.893E-02	4.467E-02	7.821E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.673E+08	0.000E+00	0.000E+00	SHORT HLIF
AL-26	6.894E-04	2.710E-02	4.590E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.783E-02	9.368E-02	0.000E+00	FAIL ABUN
SC-46	-1.166E-02	4.268E-02	7.122E-02	0.000E+00	FAIL ABUN
V-48	3.620E-02	9.076E-02	1.607E-01	0.000E+00	NOT IDENT.
CR-51	-7.487E-02	4.733E-01	8.238E-01	0.000E+00	NOT IDENT.
MN-52	1.659E-01	3.747E-01	6.697E-01	0.000E+00	NOT IDENT.
MN-54	1.731E-03	4.228E-02	7.309E-02	0.000E+00	NOT IDENT.
CO-56	2.122E-02	4.569E-02	8.173E-02	0.000E+00	FAIL ABUN
CO-57	-1.605E-02	2.868E-02	4.896E-02	0.000E+00	NOT IDENT.
CO-58	-7.074E-03	4.469E-02	7.609E-02	0.000E+00	NOT IDENT.
FE-59	7.911E-02	1.100E-01	1.981E-01	0.000E+00	FAIL ABUN
CO-60	-1.512E-02	4.143E-02	6.531E-02	0.000E+00	NOT IDENT.
ZN-65	-1.014E-02	1.216E-01	1.740E-01	0.000E+00	NOT IDENT.
GE-68	-8.940E-01	1.501E+00	2.391E+00	0.000E+00	NOT IDENT.
AS-73	2.081E-01	1.154E+00	2.099E+00	0.000E+00	NOT IDENT.
AS-74	-9.730E-02	1.270E-01	2.008E-01	0.000E+00	NOT IDENT.
SE-75	-2.242E-02	6.209E-02	8.830E-02	0.000E+00	NOT IDENT.
BR-77	0.000E+00	4.649E+01	0.000E+00	0.000E+00	SHORT HLIF
SR-82	-2.885E-01	5.008E-01	8.271E-01	0.000E+00	NOT IDENT.
RB-83	3.730E-03	7.766E-02	1.327E-01	0.000E+00	NOT IDENT.
RB-84	2.380E-02	7.715E-02	1.365E-01	0.000E+00	NOT IDENT.
KR-85	1.105E+01	9.000E+00	1.479E+01	0.000E+00	NOT IDENT.
SR-85	5.963E-02	4.857E-02	7.983E-02	0.000E+00	NOT IDENT.
RB-86	-3.664E-01	1.125E+00	1.843E+00	0.000E+00	NOT IDENT.
Y-88	-2.430E-02	3.802E-02	5.510E-02	0.000E+00	NOT IDENT.
ZR-88	-1.120E-02	3.569E-02	6.068E-02	0.000E+00	NOT IDENT.
Y-91	2.678E+00	2.212E+01	3.748E+01	0.000E+00	NOT IDENT.
NB-94	-3.725E-03	4.117E-02	6.814E-02	0.000E+00	NOT IDENT.
NB-95	8.219E-02	5.152E-02	9.605E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.967E-01	3.307E-01	0.000E+00	NOT IDENT.
ZR-95	1.160E-01	8.354E-02	1.551E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.612E+07	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.958E+08	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.547E+01	4.450E+01	7.621E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.552E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.079E-02	3.996E-02	6.913E-02	0.000E+00	NOT IDENT.
RH-102	1.069E-03	3.253E-02	5.585E-02	0.000E+00	NOT IDENT.
RU-103	-5.033E-03	4.882E-02	8.274E-02	0.000E+00	FAIL ABUN
RH-106	-2.174E-02	3.612E-01	6.044E-01	0.000E+00	FAIL ABUN
RU-106	-2.174E-02	3.612E-01	6.044E-01	0.000E+00	FAIL ABUN
AG-108M	-2.760E-02	3.551E-02	5.778E-02	0.000E+00	NOT IDENT.
AG-110M	2.086E-02	4.705E-02	7.151E-02	0.000E+00	NOT IDENT.
IN-111	-2.004E+00	4.440E+00	6.301E+00	0.000E+00	NOT IDENT.
IN-113M	-3.894E-02	5.036E-02	8.298E-02	0.000E+00	NOT IDENT.
SN-113	-3.894E-02	5.036E-02	8.298E-02	0.000E+00	NOT IDENT.
IN-114M	-5.856E-03	2.548E-01	3.801E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.031E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-5.658E-02	7.957E-02	1.331E-01	0.000E+00	NOT IDENT.
SB-122	-1.042E+00	8.280E+00	1.389E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.214E+09	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.353E-02	3.362E-02	5.629E-02	0.000E+00	NOT IDENT.
I-124	-1.342E+00	2.085E+00	2.824E+00	0.000E+00	NOT IDENT.
SB-124	-5.642E-02	7.839E-02	1.116E-01	0.000E+00	FAIL ABUN
SB-125	1.435E-02	1.039E-01	1.808E-01	0.000E+00	FAIL ABUN
TE-125M	-1.622E+00	1.117E+01	1.921E+01	0.000E+00	NOT IDENT.
I-126	9.591E-02	2.998E-01	4.496E-01	0.000E+00	NOT IDENT.
SB-126	2.538E-01	2.407E-01	3.897E-01	0.000E+00	NOT IDENT.
SB-127	9.212E-01	3.365E+00	5.765E+00	0.000E+00	NOT IDENT.
XE-127	1.597E-02	6.224E-02	1.071E-01	0.000E+00	NOT IDENT.
I-131	2.202E-02	1.930E-01	3.385E-01	0.000E+00	NOT IDENT.
TE-132	-3.648E-01	2.292E+00	3.848E+00	0.000E+00	NOT IDENT.
BA-133	7.290E-03	5.098E-02	7.827E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.042E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.676E-02	9.519E-02	1.046E-01	0.000E+00	FAIL ABUN
CS-135	0.000E+00	2.233E-01	3.623E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.159E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.449E-01	1.531E-01	2.823E-01	0.000E+00	FAIL ABUN
CE-139	-1.854E-02	3.421E-02	5.750E-02	0.000E+00	NOT IDENT.
BA-140	2.184E-01	3.886E-01	6.771E-01	0.000E+00	NOT IDENT.
LA-140	-1.186E-01	1.171E-01	1.647E-01	0.000E+00	NOT IDENT.
CE-141	2.026E-02	9.127E-02	1.402E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.891E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.788E-02	2.414E-01	4.144E-01	0.000E+00	NOT IDENT.
PM-144	1.206E-02	3.910E-02	6.693E-02	0.000E+00	NOT IDENT.
PR-144	8.193E-01	2.657E+00	4.547E+00	0.000E+00	NOT IDENT.
PM-146	3.483E-02	4.955E-02	8.889E-02	0.000E+00	NOT IDENT.

ND-147	-9.065E-03	8.026E-01	1.363E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	4.622E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-8.727E-02	1.248E-01	1.787E-01	0.000E+00	FAIL ABUN
GD-153	-2.228E-02	9.994E-02	1.531E-01	0.000E+00	FAIL ABUN
EU-154	4.727E-02	1.239E-01	2.158E-01	0.000E+00	NOT IDENT.
EU-155	-2.571E-02	1.227E-01	2.123E-01	0.000E+00	FAIL ABUN
TB-160	-2.282E-02	1.444E-01	2.438E-01	0.000E+00	FAIL ABUN
HO-166M	-4.358E-03	7.285E-02	1.207E-01	0.000E+00	FAIL ABUN
TM-171	-2.638E+01	3.457E+01	6.038E+01	0.000E+00	NOT IDENT.
LU-176	2.083E-02	4.526E-02	5.054E-02	0.000E+00	FAIL ABUN
LU-177	1.646E+00	2.167E+00	3.796E+00	0.000E+00	NOT IDENT.
LU-177M	-3.692E-01	2.165E-01	3.335E-01	0.000E+00	FAIL ABUN
HF-181	1.543E-02	5.334E-02	9.307E-02	0.000E+00	NOT IDENT.
W-181	-2.426E-01	4.698E-01	8.291E-01	0.000E+00	NOT IDENT.
TA-182	-2.115E-02	2.188E-01	3.627E-01	0.000E+00	FAIL ABUN
RE-183	1.586E-01	1.321E-01	2.381E-01	0.000E+00	NOT IDENT.
RE-184	-9.249E-02	2.853E-01	4.718E-01	0.000E+00	NOT IDENT.
OS-185	-1.414E-02	4.924E-02	8.049E-02	0.000E+00	NOT IDENT.
RE-188	7.297E-02	2.037E-01	3.568E-01	0.000E+00	NOT IDENT.
W-188	3.175E+00	9.193E+00	1.449E+01	0.000E+00	NOT IDENT.
IR-192	-2.493E-03	4.236E-02	7.417E-02	0.000E+00	FAIL ABUN
AU-195	1.767E-01	2.748E-01	4.615E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.162E+04	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.567E+01	2.365E+01	3.949E+01	0.000E+00	NOT IDENT.
TL-202	6.979E-02	1.045E-01	1.874E-01	0.000E+00	NOT IDENT.
HG-203	-6.679E-03	4.886E-02	8.586E-02	0.000E+00	FAIL ABUN
BI-207	4.727E-04	5.804E-02	9.829E-02	0.000E+00	FAIL ABUN
TL-207	-8.292E-01	7.864E-01	1.285E+00	0.000E+00	FAIL ABUN
PO-209	3.718E-01	8.440E+00	1.433E+01	0.000E+00	NOT IDENT.
BI-210	-2.150E-01	5.262E+00	9.455E+00	0.000E+00	NOT IDENT.
PB-210	-2.150E-01	5.262E+00	9.455E+00	0.000E+00	NOT IDENT.
PO-210	-2.150E-01	5.262E+00	9.455E+00	0.000E+00	NOT IDENT.
PB-211	-8.198E-01	1.184E+00	1.770E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.513E-01	6.826E-01	0.000E+00	FAIL ABUN
PO-215	-8.292E-01	7.864E-01	1.285E+00	0.000E+00	FAIL ABUN
RN-219	-1.041E-01	4.500E-01	7.675E-01	0.000E+00	FAIL ABUN
RN-220	-2.373E+01	2.910E+01	4.606E+01	0.000E+00	NOT IDENT.
RA-223	-8.292E-01	7.864E-01	1.285E+00	0.000E+00	FAIL ABUN
AC-227	4.278E-01	4.469E-01	7.821E-01	0.000E+00	NOT IDENT.
TH-227	4.278E-01	4.487E-01	7.821E-01	0.000E+00	FAIL ABUN
TH-229	-3.486E-01	5.919E-01	9.841E-01	0.000E+00	FAIL ABUN
PA-231	1.895E+00	1.696E+00	3.122E+00	0.000E+00	NOT IDENT.
TH-231	-8.292E-01	7.864E-01	1.285E+00	0.000E+00	FAIL ABUN
U-231	-2.997E+00	3.042E+00	4.469E+00	0.000E+00	FAIL ABUN
PA-233	-1.143E-02	8.570E-02	1.299E-01	0.000E+00	FAIL ABUN
PA-234	1.082E-01	3.132E-01	5.521E-01	0.000E+00	FAIL ABUN
PA-234M	4.589E+00	5.202E+00	9.514E+00	0.000E+00	NOT IDENT.
TH-234	2.716E+00	1.737E+00	3.132E+00	0.000E+00	FAIL ABUN
NP-236	2.966E-02	9.159E-02	1.600E-01	0.000E+00	NOT IDENT.
U-238	2.716E+00	1.737E+00	3.132E+00	0.000E+00	FAIL ABUN
NP-239	1.418E-01	2.178E-01	3.902E-01	0.000E+00	NOT IDENT.
AM-241	-2.773E-01	2.018E-01	3.440E-01	0.000E+00	NOT IDENT.
CM-243	4.527E-02	1.088E-01	1.944E-01	0.000E+00	NOT IDENT.
AM-246	3.399E-02	1.635E-01	2.819E-01	0.000E+00	NOT IDENT.
CM-247	2.537E-04	3.962E-02	6.862E-02	0.000E+00	NOT IDENT.
CF-249	1.383E-02	4.319E-02	7.640E-02	0.000E+00	NOT IDENT.
CF-251	-4.000E-03	1.518E-01	2.601E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021394.CNF;1
Sample date       : 13-JAN-2010 12:00:00 Acquisition date : 2-FEB-2010 11:58:53.
Sample ID        : G1202021394 Sample quantity   : 1.29830E+02 GRAM
Detector name    : GAM06 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.25 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity        : 5.00000
Batch ID        : 944037 Detector SN#       :
Matrix Spike ID : LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	771	10.67*	9.626E-01	2.169E+01	2.169E+01	9.90
CD-109	88.03	246	3.72*	5.147E+00	3.710E+00	3.822E+00	28.13
SN-126	64.28	-----	9.60	2.881E+00	-----	Line Not Found	-----
	86.94	246	8.90	5.147E+00	1.551E+00	1.551E+00	49.27
	87.57	246	37.00*	5.147E+00	3.730E-01	3.730E-01	28.13
BA-137M	661.65	132	89.98*	1.940E+00	2.190E-01	2.193E-01	27.82
CS-137	661.65	132	85.12*	1.940E+00	2.315E-01	2.318E-01	27.82
TL-208	277.35	-----	6.80	3.899E+00	-----	Line Not Found	-----
	510.84	102	21.60	2.407E+00	5.666E-01	5.666E-01	61.49
	583.14	285	84.20*	2.158E+00	4.537E-01	4.537E-01	24.01
	860.37	-----	12.46	1.539E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.913E+00	-----	Line Not Found	-----
	351.07	589	12.94*	3.243E+00	4.059E+00	4.059E+00	13.54
PB-212	74.81	401	10.70	4.098E+00	2.642E+00	2.642E+00	24.94
	77.11	613	18.00	4.330E+00	2.275E+00	2.275E+00	16.49
	87.30	246	8.00	5.147E+00	1.725E+00	1.725E+00	29.85
	238.63	1020	44.60*	4.367E+00	1.514E+00	1.514E+00	10.74
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
PO-212	74.81	401	10.70	4.098E+00	2.642E+00	2.642E+00	24.94
	77.11	613	18.00	4.330E+00	2.275E+00	2.275E+00	16.49
	87.30	246	8.00	5.147E+00	1.725E+00	1.725E+00	29.85
	115.19	-----	0.60	6.030E+00	-----	Line Not Found	-----
	238.63	1020	44.60*	4.367E+00	1.514E+00	1.514E+00	10.74
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
BI-214	609.31	399	46.30*	2.080E+00	1.198E+00	1.198E+00	17.52
	1120.29	87	15.10	1.211E+00	1.371E+00	1.371E+00	50.56
	1764.49	61	15.80	8.403E-01	1.334E+00	1.334E+00	35.80
PB-214	74.81	401	6.21	4.098E+00	4.553E+00	4.553E+00	24.28
	77.11	613	10.50	4.330E+00	3.899E+00	3.900E+00	18.16
	87.30	246	4.67	5.147E+00	2.955E+00	2.955E+00	29.16
	241.98	283	7.49	4.326E+00	2.522E+00	2.522E+00	33.26
	295.21	333	19.20	3.720E+00	1.349E+00	1.349E+00	21.75

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	589	37.20*	3.243E+00	1.412E+00	1.412E+00	14.51
	74.81	401	6.21	4.098E+00	4.553E+00	4.553E+00	24.28
	77.11	613	10.50	4.330E+00	3.899E+00	3.900E+00	18.16
	87.30	246	4.67	5.147E+00	2.955E+00	2.955E+00	29.16
	241.98	283	7.49	4.326E+00	2.522E+00	2.522E+00	33.26
PO-216	295.21	333	19.20	3.720E+00	1.349E+00	1.349E+00	21.75
	351.92	589	37.20*	3.243E+00	1.412E+00	1.412E+00	14.51
	74.81	401	10.70	4.098E+00	2.642E+00	2.642E+00	24.94
	77.11	613	18.00	4.330E+00	2.275E+00	2.275E+00	16.49
	87.30	246	8.00	5.147E+00	1.725E+00	1.725E+00	29.85
PO-218	238.63	1020	44.60*	4.367E+00	1.514E+00	1.514E+00	10.74
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
	74.81	401	6.21	4.098E+00	4.553E+00	4.553E+00	24.28
	77.11	613	10.50	4.330E+00	3.899E+00	3.900E+00	18.16
	87.30	246	4.67	5.147E+00	2.955E+00	2.955E+00	29.16
RA-224	241.98	283	7.49	4.326E+00	2.522E+00	2.522E+00	33.26
	295.21	333	19.20	3.720E+00	1.349E+00	1.349E+00	21.75
	351.92	589	37.20*	3.243E+00	1.412E+00	1.412E+00	14.51
	240.98	283	3.95*	4.326E+00	4.782E+00	4.782E+00	32.79
	609.31	399	46.30*	2.080E+00	1.198E+00	1.198E+00	17.52
AC-228	1120.29	87	15.10	1.211E+00	1.371E+00	1.371E+00	50.56
	1764.49	61	15.80	8.403E-01	1.334E+00	1.334E+00	35.80
	338.32	164	11.40	3.344E+00	1.246E+00	1.246E+00	54.16
	911.07	232	27.70*	1.462E+00	1.658E+00	1.658E+00	21.28
	969.11	98	16.60	1.382E+00	1.237E+00	1.237E+00	39.82
RA-228	338.32	164	11.40	3.344E+00	1.246E+00	1.246E+00	54.16
	911.07	232	27.70*	1.462E+00	1.658E+00	1.658E+00	21.28
	969.11	98	16.60	1.382E+00	1.237E+00	1.237E+00	39.82
	74.81	401	10.70	4.098E+00	2.642E+00	2.695E+00	23.15
	77.11	613	18.00	4.330E+00	2.275E+00	2.320E+00	16.49
TH-228	87.30	246	8.00	5.147E+00	1.725E+00	1.760E+00	28.13
	238.63	1020	44.60*	4.367E+00	1.514E+00	1.545E+00	10.74
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
	609.31	399	46.30*	2.080E+00	1.198E+00	1.198E+00	17.52
	1120.29	87	15.10	1.211E+00	1.371E+00	1.371E+00	50.56
TH-232	1764.49	61	15.80	8.403E-01	1.334E+00	1.334E+00	35.80
	338.32	164	11.40	3.344E+00	1.246E+00	1.246E+00	36.13
	911.07	232	27.70*	1.462E+00	1.658E+00	1.658E+00	21.28
	969.11	98	16.60	1.382E+00	1.237E+00	1.237E+00	39.82
	609.31	399	46.30*	2.080E+00	1.198E+00	1.198E+00	17.52
U-234	1120.29	87	15.10	1.211E+00	1.371E+00	1.371E+00	50.56
	1764.49	61	15.80	8.403E-01	1.334E+00	1.334E+00	35.80
	89.95	-----	2.70	5.324E+00	-----	Line Not Found	-----
	93.35	325	4.50	5.468E+00	3.813E+00	3.813E+00	40.57
	105.00	-----	2.10	5.892E+00	-----	Line Not Found	-----
U-235	143.76	14	10.50*	5.876E+00	6.585E-02	6.585E-02	545.68
	163.35	-----	4.70	5.561E+00	-----	Line Not Found	-----
	185.71	171	54.00	5.180E+00	1.771E-01	1.771E-01	48.05
	205.31	-----	4.70	4.853E+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	246	12.60*	5.147E+00	1.095E+00	1.095E+00	34.88
	95.87	-----	2.60	5.611E+00	-----	Line Not Found	-----
AM-243	74.67	401	66.00*	4.098E+00	4.284E-01	4.284E-01	23.12
	86.72	246	0.34	5.147E+00	4.107E+01	4.107E+01	28.13
	117.66	-----	0.55	6.042E+00	-----	Line Not Found	-----
	142.18	14	0.13	5.876E+00	5.531E+00	5.531E+00	545.46
ANH-511	511.00	102	100.00*	2.407E+00	1.224E-01	1.224E-01	60.92

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 28 96.55%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.169E+01	2.169E+01	0.215E+01	9.90	
CD-109	464.00D	1.03	3.710E+00	3.822E+00	1.075E+00	28.13	
SN-126	1.00E+05Y	1.00	3.730E-01	3.730E-01	1.049E-01	28.13	
BA-137M	30.17Y	1.00	2.190E-01	2.193E-01	0.610E-01	27.82	
CS-137	30.17Y	1.00	2.315E-01	2.318E-01	0.645E-01	27.82	
TL-208	1.41E+10Y	1.00	4.537E-01	4.537E-01	1.089E-01	24.01	
BI-211	7.04E+08Y	1.00	4.059E+00	4.059E+00	0.550E+00	13.54	
PB-212	1.41E+10Y	1.00	1.514E+00	1.514E+00	0.163E+00	10.74	
PO-212	1.41E+10Y	1.00	1.514E+00	1.514E+00	0.163E+00	10.74	
BI-214	1600.00Y	1.00	1.198E+00	1.198E+00	0.210E+00	17.52	
PB-214	1600.00Y	1.00	1.412E+00	1.412E+00	0.205E+00	14.51	
PO-214	1600.00Y	1.00	1.412E+00	1.412E+00	0.205E+00	14.51	
PO-216	1.41E+10Y	1.00	1.514E+00	1.514E+00	0.163E+00	10.74	
PO-218	1600.00Y	1.00	1.412E+00	1.412E+00	0.205E+00	14.51	
RA-224	1.41E+10Y	1.00	4.782E+00	4.782E+00	1.568E+00	32.79	
RA-226	1600.00Y	1.00	1.198E+00	1.198E+00	0.210E+00	17.52	
AC-228	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.353E+00	21.28	
RA-228	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.353E+00	21.28	
TH-228	1.91Y	1.02	1.514E+00	1.545E+00	0.166E+00	10.74	
TH-230	4.47E+09Y	1.00	1.198E+00	1.198E+00	0.210E+00	17.52	
TH-232	1.41E+10Y	1.00	1.658E+00	1.658E+00	0.353E+00	21.28	
U-234	4.47E+09Y	1.00	1.198E+00	1.198E+00	0.210E+00	17.52	
U-235	7.04E+08Y	1.00	6.585E-02	6.585E-02	35.93E-02	545.68	
NP-237	2.14E+06Y	1.00	1.095E+00	1.095E+00	0.382E+00	34.88	
AM-243	7380.00Y	1.00	4.284E-01	4.284E-01	0.990E-01	23.12	
ANH-511	1.00E+09Y	1.00	1.224E-01	1.224E-01	0.746E-01	60.92	
Total Activity :			5.729E+01	5.744E+01			

Grand Total Activity : 5.729E+01 5.744E+01

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

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



Unidentified Energy Lines  
Sample ID : G1202021394

Page : 5  
Acquisition date : 2-FEB-2010 11:58:53

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	83.74	101	320	1.70	167.49	164	14	1.40E-02	60.8	4.92E+00	T
0	270.18	97	190	0.73	540.37	536	9	1.35E-02	55.0	3.98E+00	T
0	306.92	26	200	1.17	613.84	609	12	3.61E-03	****	3.61E+00	T
0	462.50	104	61	1.82	925.00	920	9	1.45E-02	33.3	2.61E+00	T
0	726.98	60	55	1.07	1453.96	1448	12	8.30E-03	55.7	1.79E+00	T
0	795.84	37	79	1.44	1591.69	1584	16	5.19E-03	****	1.65E+00	T
1	964.31	49	27	2.04	1928.61	1924	20	6.82E-03	45.0	1.39E+00	T
0	1238.10	39	54	1.46	2476.19	2469	12	5.46E-03	81.2	1.11E+00	T
0	1730.31	15	9	2.65	3460.62	3455	10	2.12E-03	97.5	8.51E-01	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021394.CNF;1
* Acquisition date   : 2-FEB-2010 11:58:53.   Detector SN#      :
* Detector ID        : GAM06                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.25          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 13-JAN-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G1202021394           Analyst initials: MXR1
* Batch Number       : 944037                Sample Quantity : 1.29830E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54.47MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A                LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.169E+01	2.148E+00	5.076E-01	3.357E-02	42.740
CD-109	3.822E+00	1.075E+00	1.598E+00	1.578E-01	2.392
SN-126	3.730E-01	1.049E-01	1.717E-01	1.690E-02	2.172
BA-137M	2.193E-01	6.101E-02	6.365E-02	3.143E-03	3.445
CS-137	2.318E-01	6.450E-02	6.728E-02	3.342E-03	3.445
TL-208	4.537E-01	1.089E-01	6.162E-02	3.894E-03	7.363
BI-211	4.059E+00	5.496E-01	3.959E-01	2.555E-02	10.252
PB-212	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
PO-212	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
BI-214	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
PB-214	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
PO-214	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
PO-216	1.514E+00	1.626E-01	1.041E-01	7.675E-03	14.545
PO-218	1.412E+00	2.049E-01	1.199E-01	9.951E-03	11.772
RA-224	4.782E+00	1.568E+00	1.185E+00	6.945E-02	4.035
RA-226	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
AC-228	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026
RA-228	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.545E+00	1.659E-01	1.062E-01	7.829E-03	14.545
TH-230	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
TH-232	1.658E+00	3.528E-01	2.360E-01	2.412E-02	7.026
U-234	1.198E+00	2.098E-01	1.244E-01	9.181E-03	9.627
U-235	6.585E-02	3.593E-01	3.982E-01	6.477E-02	0.165
NP-237	1.095E+00	3.821E-01	4.818E-01	1.100E-01	2.273
AM-243	4.284E-01	9.903E-02	1.027E-01	9.278E-03	4.170
ANH-511	1.224E-01	7.456E-02	5.109E-02	2.856E-03	2.396

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.497E-01		4.061E-01	6.375E-01	4.211E-02	-0.235
NA-22	1.893E-02		4.559E-02	7.798E-02	4.816E-03	0.243
NA-24	-7.015E+01		8.534E+01	Half-Life	too short	
AL-26	6.894E-04		2.766E-02	4.603E-02	2.644E-03	0.015
TI-44	4.198E-01	+	6.922E-02	8.937E-02	8.215E-03	4.698
SC-46	-1.166E-02		4.355E-02	7.060E-02	5.060E-03	-0.165
V-48	3.620E-02		9.261E-02	1.596E-01	1.117E-02	0.227
CR-51	-7.487E-02		4.830E-01	8.033E-01	5.292E-02	-0.093
MN-52	1.659E-01		3.824E-01	6.691E-01	4.211E-02	0.248
MN-54	1.731E-03		4.314E-02	7.237E-02	4.777E-03	0.024
CO-56	2.122E-02		4.662E-02	8.095E-02	5.442E-03	0.262
CO-57	-1.605E-02		2.926E-02	4.703E-02	2.873E-03	-0.341
CO-58	-7.074E-03		4.560E-02	7.531E-02	4.808E-03	-0.094
FE-59	7.911E-02		1.122E-01	1.970E-01	1.445E-02	0.402
CO-60	-1.512E-02		4.228E-02	6.517E-02	4.094E-03	-0.232
ZN-65	-1.014E-02		1.241E-01	1.731E-01	1.096E-02	-0.059
GE-68	-8.940E-01		1.532E+00	2.377E+00	1.558E-01	-0.376
AS-73	2.081E-01		1.178E+00	1.991E+00	1.821E-01	0.105
AS-74	-9.730E-02		1.296E-01	1.977E-01	1.052E-02	-0.492
SE-75	-2.242E-02		6.336E-02	8.584E-02	5.149E-03	-0.261
BR-77	-3.166E-06		2.372E-05	Half-Life	too short	
SR-82	-2.885E-01		5.110E-01	8.180E-01	4.921E-02	-0.353
RB-83	3.730E-03		7.924E-02	1.304E-01	7.267E-03	0.029
RB-84	2.380E-02		7.873E-02	1.353E-01	9.584E-03	0.176
KR-85	1.105E+01		9.184E+00	1.453E+01	8.115E-01	0.760
SR-85	5.963E-02		4.957E-02	7.843E-02	4.380E-03	0.760
RB-86	-3.664E-01		1.148E+00	1.832E+00	1.202E-01	-0.200
Y-88	-2.430E-02		3.879E-02	5.528E-02	3.141E-03	-0.440
ZR-88	-1.120E-02		3.642E-02	5.936E-02	3.294E-03	-0.189
Y-91	2.678E+00		2.257E+01	3.734E+01	2.240E+00	0.072
NB-94	-3.725E-03		4.201E-02	6.728E-02	3.574E-03	-0.055
NB-95	8.219E-02		5.257E-02	9.498E-02	5.614E-03	0.865
NB-95M	6.304E-01		2.007E-01	3.209E-01	2.425E-02	1.964
ZR-95	1.160E-01		8.525E-02	1.533E-01	1.081E-02	0.757
NB-97	1.137E+01		8.223E+00	Half-Life	too short	

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	6.756E+02		1.509E+02	Half-Life too short		
MO-99	1.547E+01		4.541E+01	7.531E+01	1.033E+01	0.205
TC-99M	-7.504E+15		1.812E+16	Half-Life too short		
RH-101	3.079E-02		4.078E-02	6.689E-02	3.758E-03	0.460
RH-102	1.069E-03		3.319E-02	5.480E-02	3.086E-03	0.020
RU-103	-5.033E-03		4.982E-02	8.124E-02	1.020E-02	-0.062
RH-106	-2.174E-02		3.685E-01	5.956E-01	6.817E-02	-0.036
RU-106	-2.174E-02		3.685E-01	5.956E-01	3.088E-02	-0.036
AG-108M	-2.760E-02		3.624E-02	5.662E-02	3.472E-03	-0.487
AG-110M	2.086E-02		4.801E-02	7.053E-02	3.808E-03	0.296
IN-111	-2.004E+00		4.531E+00	6.118E+00	3.597E-01	-0.328
IN-113M	-3.894E-02		5.139E-02	8.117E-02	4.830E-03	-0.480
SN-113	-3.894E-02		5.139E-02	8.117E-02	4.830E-03	-0.480
IN-114M	-5.856E-03		2.600E-01	3.675E-01	2.045E-02	-0.016
CD-115	-4.156E-05		2.567E-05	Half-Life too short		
SN-117M	-5.658E-02		8.120E-02	1.284E-01	7.051E-03	-0.441
SB-122	-1.042E+00		8.449E+00	1.366E+01	7.446E-01	-0.076
I-123	-2.249E+03		1.640E+03	Half-Life too short		
TE-123M	-2.353E-02		3.431E-02	5.429E-02	3.024E-03	-0.433
I-124	-1.342E+00		2.128E+00	2.782E+00	1.470E-01	-0.482
SB-124	-5.642E-02		7.999E-02	1.118E-01	7.259E-03	-0.505
SB-125	1.435E-02		1.060E-01	1.771E-01	1.039E-02	0.081
TE-125M	-1.622E+00		1.140E+01	1.842E+01	1.677E+00	-0.088
I-126	9.591E-02		3.059E-01	4.436E-01	2.209E-02	0.216
SB-126	2.538E-01		2.456E-01	3.849E-01	2.109E-02	0.659
SB-127	9.212E-01		3.434E+00	5.690E+00	6.217E-01	0.162
XE-127	1.597E-02		6.351E-02	1.037E-01	5.859E-03	0.154
I-131	2.202E-02		1.970E-01	3.307E-01	2.144E-02	0.067
TE-132	-3.648E-01		2.339E+00	3.732E+00	5.768E-01	-0.098
BA-133	7.290E-03		5.202E-02	7.644E-02	8.836E-03	0.095
I-133	-3.901E-02		1.552E-01	Half-Life too short		
CS-134	8.676E-02	+	9.713E-02	1.035E-01	6.515E-03	0.838
CS-135	4.047E-01		2.279E-01	3.523E-01	2.737E-02	1.149
I-135	-4.655E+14		5.913E+14	Half-Life too short		
CS-136	1.449E-01		1.562E-01	2.806E-01	2.016E-02	0.516
CE-139	-1.854E-02		3.491E-02	5.549E-02	3.000E-03	-0.334
BA-140	2.184E-01		3.965E-01	6.657E-01	2.162E-01	0.328
LA-140	-1.186E-01		1.195E-01	1.648E-01	1.017E-02	-0.720
CE-141	2.026E-02		9.314E-02	1.350E-01	7.965E-03	0.150
CE-143	1.360E-02		1.985E-03	Half-Life too short		
CE-144	-7.788E-02		2.463E-01	3.985E-01	5.668E-02	-0.195
PM-144	1.206E-02		3.990E-02	6.608E-02	3.478E-03	0.182
PR-144	8.193E-01		2.711E+00	4.489E+00	2.359E-01	0.182
PM-146	3.483E-02		5.056E-02	8.716E-02	7.418E-03	0.400
ND-147	-9.065E-03		8.190E-01	1.340E+00	1.798E-01	-0.007
PM-149	7.941E-05		2.358E-04	Half-Life too short		
EU-152	-8.727E-02		1.274E-01	1.744E-01	1.149E-02	-0.500
GD-153	-2.228E-02		1.020E-01	1.466E-01	1.225E-02	-0.152

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	4.727E-02		1.264E-01	2.152E-01	2.060E-02	0.220
EU-155	-2.571E-02		1.252E-01	2.035E-01	1.543E-02	-0.126
TB-160	-2.282E-02		1.473E-01	2.416E-01	1.706E-02	-0.094
HO-166M	-4.358E-03		7.434E-02	1.192E-01	6.433E-03	-0.037
TM-171	-2.638E+01		3.527E+01	5.746E+01	5.133E+00	-0.459
LU-176	2.083E-02	+	4.619E-02	4.925E-02	2.938E-03	0.423
LU-177	1.646E+00		2.211E+00	3.677E+00	2.090E-01	0.448
LU-177M	-3.692E-01		2.210E-01	3.265E-01	1.826E-02	-1.131
HF-181	1.543E-02		5.442E-02	9.134E-02	5.139E-03	0.169
W-181	-2.426E-01		4.794E-01	7.887E-01	7.065E-02	-0.308
TA-182	-2.115E-02		2.233E-01	3.614E-01	2.183E-02	-0.059
RE-183	1.586E-01		1.348E-01	2.297E-01	1.251E-02	0.690
RE-184	-9.249E-02		2.912E-01	4.584E-01	2.707E-02	-0.202
OS-185	-1.414E-02		5.025E-02	7.937E-02	4.002E-03	-0.178
RE-188	7.297E-02		2.079E-01	3.440E-01	1.905E-02	0.212
W-188	3.175E+00		9.380E+00	1.411E+01	8.428E-01	0.225
IR-192	-2.493E-03		4.322E-02	7.230E-02	4.322E-03	-0.034
AU-195	1.767E-01		2.804E-01	4.419E-01	3.612E-02	0.400
TL-200	7.253E-04		5.927E-03	Half-Life	too short	
TL-201	-1.567E+01		2.413E+01	3.811E+01	2.063E+00	-0.411
TL-202	6.979E-02		1.066E-01	1.837E-01	1.033E-02	0.380
HG-203	-6.679E-03		4.985E-02	8.354E-02	5.276E-03	-0.080
BI-207	4.727E-04		5.922E-02	9.771E-02	6.479E-03	0.005
TL-207	-8.292E-01		8.025E-01	1.253E+00	2.076E-01	-0.662
PO-209	3.718E-01		8.612E+00	1.420E+01	1.029E+00	0.026
BI-210	-2.150E-01		5.369E+00	8.950E+00	7.369E-01	-0.024
PB-210	-2.150E-01		5.369E+00	8.950E+00	7.369E-01	-0.024
PO-210	-2.150E-01		5.369E+00	8.950E+00	6.465E-01	-0.024
PB-211	-8.198E-01		1.208E+00	1.733E+00	1.080E+00	-0.473
BI-212	8.197E-01	+	4.605E-01	6.744E-01	5.072E-02	1.215
PO-215	-8.292E-01		8.025E-01	1.253E+00	2.076E-01	-0.662
RN-219	-1.041E-01		4.592E-01	7.510E-01	1.015E-01	-0.139
RN-220	-2.373E+01		2.969E+01	4.530E+01	2.490E+00	-0.524
RA-223	-8.292E-01		8.025E-01	1.253E+00	2.076E-01	-0.662
AC-227	4.278E-01		4.560E-01	7.599E-01	1.065E-01	0.563
TH-227	4.278E-01		4.578E-01	7.599E-01	1.287E-01	0.563
TH-229	-3.486E-01		6.039E-01	9.519E-01	5.319E-02	-0.366
PA-231	1.895E+00		1.731E+00	3.038E+00	4.208E-01	0.624
TH-231	-8.292E-01		8.025E-01	1.253E+00	2.076E-01	-0.662
U-231	-2.997E+00		3.104E+00	4.277E+00	3.664E-01	-0.701
PA-233	-1.143E-02		8.745E-02	1.266E-01	7.984E-03	-0.090
PA-234	1.082E-01		3.196E-01	5.478E-01	9.931E-02	0.198
PA-234M	4.589E+00		5.308E+00	9.449E+00	8.076E-01	0.486
TH-234	2.716E+00		1.773E+00	2.978E+00	5.414E-01	0.912
NP-236	2.966E-02		9.346E-02	1.543E-01	8.442E-03	0.192
U-238	2.716E+00		1.773E+00	2.978E+00	5.414E-01	0.912
NP-239	1.418E-01		2.222E-01	3.745E-01	2.420E-02	0.379
AM-241	-2.773E-01		2.059E-01	3.268E-01	3.195E-02	-0.848

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.527E-02		1.110E-01	1.862E-01	1.419E-02	0.243
AM-246	3.399E-02		1.669E-01	2.803E-01	1.834E-02	0.121
CM-247	2.537E-04		4.043E-02	6.716E-02	3.742E-03	0.004
CF-249	1.383E-02		4.407E-02	7.472E-02	4.168E-03	0.185
CF-251	-4.000E-03		1.549E-01	2.513E-01	1.375E-02	-0.016

# VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*                               *                                         *
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202021394    *
* Acquisition date   : 2-FEB-2010 11:58:53 Detector SN#      :      *
* Detector ID        : GAM06                                           *
* Geometry           : CAN                                             *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.25 Half life ratio : 8.000         *
*****
*                               SAMPLE DATA                             *
*                               *                                         *
* Sample date        : 13-JAN-2010 12:00:00 Nuclide Library : SOLID    *
* Sample ID          : G1202021394 Analyst initials: MXR1           *
* Batch Number       : 944037 Sample Quantity : 1.2983E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000             *
*****
*                               QC DATA                                *
*                               *                                         *
* CALIB. DATE/TIME  : 4-FEB-2009 13:05:54 MS Isotope      :      *
* MSD DPM            : 0.000 MSD Isotope                  :      *
* LCS DPM            : 0.000 LCS Isotope                   :      *
* LCSD DPM           : 0.000 LCSD Isotope                  :      *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.169E+01	2.105E+00	2.541E-01	1.074E+00
CD-109	3.822E+00	1.054E+00	8.365E-01	5.375E-01
SN-126	3.730E-01	1.028E-01	8.989E-02	5.245E-02
BA-137M	2.193E-01	5.978E-02	3.228E-02	3.050E-02
CS-137	2.318E-01	6.321E-02	3.412E-02	3.225E-02
TL-208	4.537E-01	1.068E-01	3.132E-02	5.447E-02
BI-211	4.059E+00	5.386E-01	2.029E-01	2.748E-01
PB-212	1.514E+00	1.594E-01	5.367E-02	8.132E-02
PO-212	1.514E+00	1.594E-01	5.367E-02	8.132E-02
BI-214	1.198E+00	2.056E-01	6.318E-02	1.049E-01
PB-214	1.412E+00	2.008E-01	6.144E-02	1.024E-01
PO-214	1.412E+00	2.008E-01	6.144E-02	1.024E-01
PO-216	1.514E+00	1.594E-01	5.367E-02	8.132E-02
PO-218	1.412E+00	2.008E-01	6.144E-02	1.024E-01
RA-224	4.782E+00	1.536E+00	6.108E-01	7.839E-01
RA-226	1.198E+00	2.056E-01	6.318E-02	1.049E-01
AC-228	1.658E+00	3.458E-01	1.191E-01	1.764E-01
RA-228	1.658E+00	3.458E-01	1.191E-01	1.764E-01
TH-228	1.545E+00	1.626E-01	5.475E-02	8.295E-02
TH-230	1.198E+00	2.056E-01	6.318E-02	1.049E-01
TH-232	1.658E+00	3.458E-01	1.191E-01	1.764E-01
U-234	1.198E+00	2.056E-01	6.318E-02	1.049E-01
U-235	6.585E-02	3.521E-01	2.069E-01	1.797E-01
NP-237	1.095E+00	3.744E-01	2.523E-01	1.910E-01
AM-243	4.284E-01	9.705E-02	5.391E-02	4.951E-02
ANH-511	1.224E-01	7.307E-02	2.602E-02	3.728E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.497E-01	3.980E-01	3.250E-01	2.031E-01 NOT IDENT.

NA-22	1.893E-02	4.467E-02	3.913E-02	2.279E-02	NOT IDENT.
NA-24	-7.015E+07	1.673E+08	0.000E+00	8.534E+07	SHORT HLIF
AL-26	6.894E-04	2.710E-02	2.296E-02	1.383E-02	NOT IDENT.
TI-44	4.198E-01	6.783E-02	4.687E-02	3.461E-02	FAIL ABUN
SC-46	-1.166E-02	4.268E-02	3.563E-02	2.178E-02	FAIL ABUN
V-48	3.620E-02	9.076E-02	8.041E-02	4.631E-02	NOT IDENT.
CR-51	-7.487E-02	4.733E-01	4.122E-01	2.415E-01	NOT IDENT.
MN-52	1.659E-01	3.747E-01	3.350E-01	1.912E-01	NOT IDENT.
MN-54	1.731E-03	4.228E-02	3.657E-02	2.157E-02	NOT IDENT.
CO-56	2.122E-02	4.569E-02	4.089E-02	2.331E-02	FAIL ABUN
CO-57	-1.605E-02	2.868E-02	2.450E-02	1.463E-02	NOT IDENT.
CO-58	-7.074E-03	4.469E-02	3.807E-02	2.280E-02	NOT IDENT.
FE-59	7.911E-02	1.100E-01	9.910E-02	5.610E-02	FAIL ABUN
CO-60	-1.512E-02	4.143E-02	3.267E-02	2.114E-02	NOT IDENT.
ZN-65	-1.014E-02	1.216E-01	8.703E-02	6.204E-02	NOT IDENT.
GE-68	-8.940E-01	1.501E+00	1.196E+00	7.660E-01	NOT IDENT.
AS-73	2.081E-01	1.154E+00	1.050E+00	5.889E-01	NOT IDENT.
AS-74	-9.730E-02	1.270E-01	1.005E-01	6.479E-02	NOT IDENT.
SE-75	-2.242E-02	6.209E-02	4.418E-02	3.168E-02	NOT IDENT.
BR-77	-3.166E+00	4.649E+01	0.000E+00	2.372E+01	SHORT HLIF
SR-82	-2.885E-01	5.008E-01	4.138E-01	2.555E-01	NOT IDENT.
RB-83	3.730E-03	7.766E-02	6.640E-02	3.962E-02	NOT IDENT.
RB-84	2.380E-02	7.715E-02	6.828E-02	3.936E-02	NOT IDENT.
KR-85	1.105E+01	9.000E+00	7.400E+00	4.592E+00	NOT IDENT.
SR-85	5.963E-02	4.857E-02	3.994E-02	2.478E-02	NOT IDENT.
RB-86	-3.664E-01	1.125E+00	9.219E-01	5.740E-01	NOT IDENT.
Y-88	-2.430E-02	3.802E-02	2.757E-02	1.940E-02	NOT IDENT.
ZR-88	-1.120E-02	3.569E-02	3.036E-02	1.821E-02	NOT IDENT.
Y-91	2.678E+00	2.212E+01	1.875E+01	1.129E+01	NOT IDENT.
NB-94	-3.725E-03	4.117E-02	3.409E-02	2.100E-02	NOT IDENT.
NB-95	8.219E-02	5.152E-02	4.805E-02	2.629E-02	NOT IDENT.
NB-95M	6.304E-01	1.967E-01	1.654E-01	1.004E-01	NOT IDENT.
ZR-95	1.160E-01	8.354E-02	7.760E-02	4.262E-02	NOT IDENT.
NB-97	1.137E+07	1.612E+07	0.000E+00	8.223E+06	SHORT HLIF
ZR-97	6.756E+08	2.958E+08	0.000E+00	1.509E+08	SHORT HLIF
MO-99	1.547E+01	4.450E+01	3.813E+01	2.270E+01	NOT IDENT.
TC-99M	-7.504E+21	3.552E+22	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.079E-02	3.996E-02	3.458E-02	2.039E-02	NOT IDENT.
RH-102	1.069E-03	3.253E-02	2.794E-02	1.659E-02	NOT IDENT.
RU-103	-5.033E-03	4.882E-02	4.139E-02	2.491E-02	FAIL ABUN
RH-106	-2.174E-02	3.612E-01	3.024E-01	1.843E-01	FAIL ABUN
RU-106	-2.174E-02	3.612E-01	3.024E-01	1.843E-01	FAIL ABUN
AG-108M	-2.760E-02	3.551E-02	2.891E-02	1.812E-02	NOT IDENT.
AG-110M	2.086E-02	4.705E-02	3.577E-02	2.400E-02	NOT IDENT.
IN-111	-2.004E+00	4.440E+00	3.152E+00	2.265E+00	NOT IDENT.
IN-113M	-3.894E-02	5.036E-02	4.151E-02	2.569E-02	NOT IDENT.
SN-113	-3.894E-02	5.036E-02	4.151E-02	2.569E-02	NOT IDENT.
IN-114M	-5.856E-03	2.548E-01	1.901E-01	1.300E-01	NOT IDENT.
CD-115	-4.156E+01	5.031E+01	0.000E+00	2.567E+01	SHORT HLIF
SN-117M	-5.658E-02	7.957E-02	6.659E-02	4.060E-02	NOT IDENT.
SB-122	-1.042E+00	8.280E+00	6.948E+00	4.224E+00	NOT IDENT.
I-123	-2.249E+09	3.214E+09	0.000E+00	1.640E+09	SHORT HLIF
TE-123M	-2.353E-02	3.362E-02	2.816E-02	1.715E-02	NOT IDENT.
I-124	-1.342E+00	2.085E+00	1.413E+00	1.064E+00	NOT IDENT.
SB-124	-5.642E-02	7.839E-02	5.583E-02	3.999E-02	FAIL ABUN
SB-125	1.435E-02	1.039E-01	9.044E-02	5.301E-02	FAIL ABUN
TE-125M	-1.622E+00	1.117E+01	9.611E+00	5.699E+00	NOT IDENT.
I-126	9.591E-02	2.998E-01	2.249E-01	1.530E-01	NOT IDENT.
SB-126	2.538E-01	2.407E-01	1.950E-01	1.228E-01	NOT IDENT.
SB-127	9.212E-01	3.365E+00	2.884E+00	1.717E+00	NOT IDENT.
XE-127	1.597E-02	6.224E-02	5.360E-02	3.176E-02	NOT IDENT.
I-131	2.202E-02	1.930E-01	1.693E-01	9.849E-02	NOT IDENT.
TE-132	-3.648E-01	2.292E+00	1.925E+00	1.170E+00	NOT IDENT.
BA-133	7.290E-03	5.098E-02	3.916E-02	2.601E-02	NOT IDENT.
I-133	-3.901E+04	3.042E+05	0.000E+00	1.552E+05	SHORT HLIF
CS-134	8.676E-02	9.519E-02	5.234E-02	4.857E-02	FAIL ABUN
CS-135	4.047E-01	2.233E-01	1.813E-01	1.139E-01	NOT IDENT.
I-135	-4.655E+20	1.159E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.449E-01	1.531E-01	1.412E-01	7.809E-02	FAIL ABUN
CE-139	-1.854E-02	3.421E-02	2.877E-02	1.745E-02	NOT IDENT.
BA-140	2.184E-01	3.886E-01	3.387E-01	1.982E-01	NOT IDENT.
LA-140	-1.186E-01	1.171E-01	8.239E-02	5.974E-02	NOT IDENT.
CE-141	2.026E-02	9.127E-02	7.013E-02	4.657E-02	NOT IDENT.
CE-143	1.360E+04	3.891E+03	0.000E+00	1.985E+03	SHORT HLIF
CE-144	-7.788E-02	2.414E-01	2.073E-01	1.231E-01	NOT IDENT.
PM-144	1.206E-02	3.910E-02	3.348E-02	1.995E-02	NOT IDENT.
PR-144	8.193E-01	2.657E+00	2.275E+00	1.355E+00	NOT IDENT.
PM-146	3.483E-02	4.955E-02	4.447E-02	2.528E-02	NOT IDENT.



ND-147	-9.065E-03	8.026E-01	6.821E-01	4.095E-01	NOT IDENT.
PM-149	7.941E+01	4.622E+02	0.000E+00	2.358E+02	SHORT HLIF
EU-152	-8.727E-02	1.248E-01	8.940E-02	6.370E-02	FAIL ABUN
GD-153	-2.228E-02	9.994E-02	7.661E-02	5.099E-02	FAIL ABUN
EU-154	4.727E-02	1.239E-01	1.080E-01	6.320E-02	NOT IDENT.
EU-155	-2.571E-02	1.227E-01	1.062E-01	6.262E-02	FAIL ABUN
TB-160	-2.282E-02	1.444E-01	1.220E-01	7.366E-02	FAIL ABUN
HO-166M	-4.358E-03	7.285E-02	6.040E-02	3.717E-02	FAIL ABUN
TM-171	-2.638E+01	3.457E+01	3.021E+01	1.764E+01	NOT IDENT.
LU-176	2.083E-02	4.526E-02	2.529E-02	2.309E-02	FAIL ABUN
LU-177	1.646E+00	2.167E+00	1.899E+00	1.106E+00	NOT IDENT.
LU-177M	-3.692E-01	2.165E-01	1.669E-01	1.105E-01	FAIL ABUN
HF-181	1.543E-02	5.334E-02	4.656E-02	2.721E-02	NOT IDENT.
W-181	-2.426E-01	4.698E-01	4.148E-01	2.397E-01	NOT IDENT.
TA-182	-2.115E-02	2.188E-01	1.815E-01	1.116E-01	FAIL ABUN
RE-183	1.586E-01	1.321E-01	1.191E-01	6.741E-02	NOT IDENT.
RE-184	-9.249E-02	2.853E-01	2.361E-01	1.456E-01	NOT IDENT.
OS-185	-1.414E-02	4.924E-02	4.027E-02	2.512E-02	NOT IDENT.
RE-188	7.297E-02	2.037E-01	1.785E-01	1.039E-01	NOT IDENT.
W-188	3.175E+00	9.193E+00	7.250E+00	4.690E+00	NOT IDENT.
IR-192	-2.493E-03	4.236E-02	3.710E-02	2.161E-02	FAIL ABUN
AU-195	1.767E-01	2.748E-01	2.309E-01	1.402E-01	FAIL ABUN
TL-200	7.253E+02	1.162E+04	0.000E+00	5.927E+03	SHORT HLIF
TL-201	-1.567E+01	2.365E+01	1.976E+01	1.206E+01	NOT IDENT.
TL-202	6.979E-02	1.045E-01	9.376E-02	5.331E-02	NOT IDENT.
HG-203	-6.679E-03	4.886E-02	4.296E-02	2.493E-02	FAIL ABUN
BI-207	4.727E-04	5.804E-02	4.917E-02	2.961E-02	FAIL ABUN
TL-207	-8.292E-01	7.864E-01	6.429E-01	4.012E-01	FAIL ABUN
PO-209	3.718E-01	8.440E+00	7.167E+00	4.306E+00	NOT IDENT.
BI-210	-2.150E-01	5.262E+00	4.730E+00	2.685E+00	NOT IDENT.
PB-210	-2.150E-01	5.262E+00	4.730E+00	2.685E+00	NOT IDENT.
PO-210	-2.150E-01	5.262E+00	4.730E+00	2.685E+00	NOT IDENT.
PB-211	-8.198E-01	1.184E+00	8.857E-01	6.040E-01	NOT IDENT.
BI-212	8.197E-01	4.513E-01	3.415E-01	2.303E-01	FAIL ABUN
PO-215	-8.292E-01	7.864E-01	6.429E-01	4.012E-01	FAIL ABUN
RN-219	-1.041E-01	4.500E-01	3.840E-01	2.296E-01	FAIL ABUN
RN-220	-2.373E+01	2.910E+01	2.304E+01	1.485E+01	NOT IDENT.
RA-223	-8.292E-01	7.864E-01	6.429E-01	4.012E-01	FAIL ABUN
AC-227	4.278E-01	4.469E-01	3.913E-01	2.280E-01	NOT IDENT.
TH-227	4.278E-01	4.487E-01	3.913E-01	2.289E-01	FAIL ABUN
TH-229	-3.486E-01	5.919E-01	4.923E-01	3.020E-01	FAIL ABUN
PA-231	1.895E+00	1.696E+00	1.562E+00	8.653E-01	NOT IDENT.
TH-231	-8.292E-01	7.864E-01	6.429E-01	4.012E-01	FAIL ABUN
U-231	-2.997E+00	3.042E+00	2.236E+00	1.552E+00	FAIL ABUN
PA-233	-1.143E-02	8.570E-02	6.498E-02	4.372E-02	FAIL ABUN
PA-234	1.082E-01	3.132E-01	2.762E-01	1.598E-01	FAIL ABUN
PA-234M	4.589E+00	5.202E+00	4.760E+00	2.654E+00	NOT IDENT.
TH-234	2.716E+00	1.737E+00	1.567E+00	8.863E-01	FAIL ABUN
NP-236	2.966E-02	9.159E-02	8.003E-02	4.673E-02	NOT IDENT.
U-238	2.716E+00	1.737E+00	1.567E+00	8.863E-01	FAIL ABUN
NP-239	1.418E-01	2.178E-01	1.952E-01	1.111E-01	NOT IDENT.
AM-241	-2.773E-01	2.018E-01	1.721E-01	1.030E-01	NOT IDENT.
CM-243	4.527E-02	1.088E-01	9.725E-02	5.552E-02	NOT IDENT.
AM-246	3.399E-02	1.635E-01	1.410E-01	8.343E-02	NOT IDENT.
CM-247	2.537E-04	3.962E-02	3.433E-02	2.022E-02	NOT IDENT.
CF-249	1.383E-02	4.319E-02	3.822E-02	2.204E-02	NOT IDENT.
CF-251	-4.000E-03	1.518E-01	1.301E-01	7.743E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUN REPORT *
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ENERGY          MDA COUNTS

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46.50	362.2751
46.50	362.2751
46.50	362.2751
48.70	374.5979
49.72	353.4661
51.35	354.4692
52.39	369.7071
52.97	349.0546
53.15	345.5048
53.44	348.4170
54.07	337.8000
56.28	344.5466
56.28	344.5480
57.37	0.0000
57.53	390.3599
57.53	390.3607
57.60	389.4828
57.98	406.3046
57.98	406.3046
59.32	451.4908
59.32	451.4908
59.40	451.5477
59.54	466.4253
59.72	469.3299
60.01	478.7870
61.10	445.3457
61.14	440.7436
61.30	440.8535
63.00	402.0790
63.29	413.4041
63.29	413.4041
63.58	423.8105
64.28	441.9368
65.12	499.3205
65.20	499.3798
65.20	499.3798
66.05	512.1409
66.72	491.1686
66.83	491.2509
66.91	505.3198
67.20	476.5667
67.20	476.5667
67.75	454.5052
67.85	454.5720
68.90	466.1337
68.90	466.1337
69.30	437.9091
69.67	447.1473
70.82	464.4128
70.82	464.4128
70.83	464.4203
72.80	431.0493
72.87	431.0912
72.87	431.0912
74.67	428.5002
74.81	428.5833
74.81	428.5833
74.81	428.5833
74.81	428.5833
74.81	428.5833
74.81	428.5833
74.97	428.6768
75.28	428.8603
75.70	429.1060
77.11	429.9299
77.11	429.9299

77.11	429.9299
77.11	429.9299
77.11	429.9299
77.11	429.9299
77.11	429.9299
78.38	394.8671
79.62	422.1408
79.80	422.2407
79.80	422.2407
80.11	376.7487
80.18	376.7834
80.30	376.8423
80.30	376.8423
80.57	376.9768
81.00	377.1898
81.07	377.2245
81.07	377.2245
81.07	377.2245
81.07	377.2245
82.60	351.2526
83.37	397.4617
83.78	530.9587
83.78	530.9587
83.78	530.9587
83.78	530.9587
84.21	531.2532
84.90	531.7214
85.43	532.0795
86.29	532.6600
86.50	532.8020
86.54	532.8275
86.59	532.8613
86.72	532.9503
86.79	532.9948
86.94	633.4634
87.30	633.7505
87.30	633.7505
87.30	633.7505
87.30	633.7505
87.30	633.7505
87.30	633.7505
87.57	599.3846
87.88	0.0000
88.03	499.7748
88.36	469.2112
88.47	469.2763
89.95	500.9650
91.11	451.5112
92.29	637.6605
92.38	637.7310
92.38	637.7310
93.35	471.1199
94.00	309.8071
94.67	334.8574
94.67	334.8593
94.90	352.0093
94.90	352.0093
94.90	352.0093
94.90	352.0093
95.87	394.3325
95.87	394.3325
96.73	372.9771
97.43	346.8423
98.44	334.7932
98.44	334.7945
98.88	325.8769
99.55	318.5206
99.55	318.5206
99.86	330.4715
100.00	330.5245
100.10	330.5646
103.18	358.1493
103.76	327.0497
105.00	343.1948
105.31	337.4282
108.00	328.5978
109.28	324.1330

111.00	335.5980
111.00	335.5980
111.76	355.6302
112.95	346.1935
115.19	317.2754
116.30	325.5876
117.00	315.8929
117.00	315.8929
117.66	313.1291
121.11	322.2287
121.62	321.3994
121.78	322.4492
122.06	322.5417
122.32	317.6324
122.32	317.6324
122.32	317.6324
122.32	317.6324
123.07	325.8719
127.23	351.3265
129.76	332.0796
131.20	359.7564
133.02	358.3720
133.54	349.4634
135.34	340.9621
136.00	333.0764
136.25	325.0556
136.48	320.0623
140.51	320.4665
140.51	0.0000
142.18	333.9984
142.65	329.2536
143.76	332.8547
144.24	362.3841
144.24	362.3841
144.24	362.3841
144.24	362.3841
145.22	330.0328
145.44	330.0994
147.16	348.6211
152.43	288.8101
152.70	291.9628
153.22	283.8690
154.21	288.2330
154.21	288.2330
154.21	288.2330
154.21	288.2330
155.03	302.8645
156.02	318.5926
158.56	315.1642
159.00	0.0000
159.00	324.5863
160.31	300.1157
161.27	263.0770
162.32	275.7514
162.64	289.3067
163.35	294.6691
163.89	314.5273
165.85	299.4521
167.43	294.6420
171.28	285.1387
171.86	286.3211
172.10	286.3776
176.55	312.5917
176.60	312.6031
181.06	326.7758
184.41	303.9961
185.71	305.9965
186.00	306.0672
190.27	281.6326
192.34	288.8755
193.63	296.6014
197.04	271.7877
198.01	260.2534
198.60	278.5073
200.40	0.0000
201.83	349.7751
202.84	295.4442
205.31	348.5285

208.36	294.4906
208.81	309.6387
209.75	275.4199
209.75	275.4199
210.97	254.1260
215.65	232.2890
216.55	221.6256
218.09	284.6384
222.10	218.1492
223.80	216.2337
226.40	252.5428
227.00	233.0453
227.08	237.4146
227.20	237.4346
228.16	247.3980
228.18	247.4015
228.18	247.4015
231.56	0.0000
235.69	254.1376
236.00	240.1664
236.00	240.1664
238.63	227.1975
238.63	227.1975
238.63	227.1975
238.63	227.1975
239.00	0.0000
240.98	227.5512
241.98	227.7013
241.98	227.7013
241.98	227.7013
244.69	193.9448
245.39	202.8531
247.94	209.0782
248.90	195.5802
249.79	0.0000
252.40	224.8144
252.85	218.2328
252.85	218.2328
254.15	0.0000
256.20	178.7322
256.20	178.7322
260.50	194.8002
260.90	0.0000
262.80	181.7036
264.65	205.3491
268.24	191.4872
268.79	184.3916
269.46	198.7946
269.46	198.7946
269.46	198.7946
269.46	198.7946
271.23	200.8043
273.65	244.1924
276.40	178.5664
277.35	165.3324
277.60	175.4810
277.60	175.4810
278.00	173.7236
278.60	199.8976
279.20	196.3676
279.53	219.8293
280.46	224.4587
281.68	0.0000
283.67	151.7311
284.30	169.8586
285.00	169.0236
285.90	0.0000
286.10	179.0822
286.10	179.0822
287.40	185.5560
288.45	0.0000
290.67	152.6589
290.80	152.6692
291.72	169.3877
293.26	0.0000
293.70	167.1610
295.21	236.4089
295.21	236.4089

295.21	236.4089
295.96	241.0620
296.50	253.2691
297.23	0.0000
298.57	191.3148
299.80	196.9207
299.80	196.9207
300.09	198.7760
300.09	198.7760
300.09	198.7760
300.09	198.7760
300.12	198.7786
301.29	164.2390
302.84	220.7008
303.76	0.0000
303.91	248.2473
304.40	237.6531
304.40	237.6531
304.84	208.7583
306.84	169.3319
308.46	164.9048
311.98	172.8772
316.51	171.1622
318.01	176.8313
319.02	175.0844
319.41	173.2781
320.08	159.5118
323.87	194.9509
323.87	194.9509
323.87	194.9509
323.87	194.9509
325.23	195.0926
328.77	168.6011
333.44	202.7632
334.20	182.7161
334.20	182.7161
334.30	182.7257
338.28	155.4882
338.28	155.4882
338.28	155.4882
338.28	155.4882
338.32	155.4902
338.32	155.4902
338.32	155.4902
340.50	122.7335
340.57	122.7367
344.27	154.1074
345.85	146.4428
350.59	0.0000
351.07	153.0871
351.92	115.6461
351.92	115.6461
351.92	115.6461
355.39	0.0000
356.01	114.3209
364.48	121.7296
366.43	102.9579
367.43	110.5687
367.94	0.0000
369.80	129.6215
374.96	120.4655
383.85	127.6566
387.95	111.6813
388.63	119.3558
391.69	130.0483
391.69	130.0483
392.90	126.2959
398.62	110.3281
400.65	136.3613
401.10	125.8252
401.81	119.1411
402.60	111.4957
404.84	141.4390
410.95	109.9977
411.60	135.1260
413.65	163.2690
414.70	121.7856
415.30	114.0849

415.76	113.1424
417.63	0.0000
418.52	120.0614
423.70	107.7264
427.08	129.2740
427.89	107.9296
432.53	85.7431
433.93	110.1695
439.47	0.0000
439.56	99.6928
439.89	98.7302
443.98	108.6992
444.90	115.6002
445.03	115.6074
445.03	115.6074
445.03	115.6074
445.03	115.6074
453.90	94.4145
463.38	87.2270
468.07	84.8082
473.00	93.1991
475.06	94.2706
475.35	98.2519
476.78	110.2263
477.59	103.3106
477.96	95.3777
482.03	96.5335
484.57	0.0000
487.03	98.7269
490.36	0.0000
492.35	0.0000
497.08	89.1173
507.63	0.0000
510.53	0.0000
510.84	83.5669
511.00	83.5719
511.85	80.5791
511.85	80.5791
513.99	85.6869
513.99	85.6869
520.41	79.8390
520.65	0.0000
527.90	0.0000
528.96	0.0000
529.64	78.0978
529.87	0.0000
531.02	74.0800
537.32	78.3272
543.00	100.9239
546.56	0.0000
549.76	90.9621
552.65	70.5970
555.20	66.5679
563.23	78.0651
563.90	89.3874
568.70	82.3398
569.32	86.4773
569.50	84.4244
569.67	84.4284
573.80	75.6196
574.00	83.6458
574.64	0.0000
578.91	0.0000
579.30	0.0000
583.14	69.3228
585.48	0.0000
591.81	65.2388
592.07	62.2793
593.00	71.6448
595.88	92.5048
600.56	72.8779
602.52	0.0000
602.71	105.9259
602.71	105.9259
603.60	102.4866
604.41	88.6150
604.70	88.6233
609.31	79.3677

609.31	79.3677
609.31	79.3677
609.31	79.3677
610.33	62.6807
612.46	74.9246
614.37	71.4881
618.01	74.3715
621.84	74.4685
621.84	74.4685
631.29	71.5544
633.02	72.6488
633.10	72.6505
634.78	67.4250
635.90	67.4500
636.97	67.4750
645.85	82.4808
646.12	71.9130
656.30	81.3535
657.75	70.7764
657.90	0.0000
661.65	68.0328
661.65	68.0328
664.57	0.0000
666.33	67.4277
666.33	67.4277
675.00	66.1944
677.61	61.9762
685.20	53.5583
692.80	65.5005
695.00	71.9939
696.49	68.8031
696.49	68.8031
697.00	69.8893
697.49	76.3527
698.33	86.0527
698.50	83.9071
699.00	89.3000
702.63	87.2470
706.10	87.3420
706.58	0.0000
706.67	87.3578
709.31	84.1928
711.68	77.7744
713.82	81.0681
717.42	82.2418
720.50	54.1577
721.93	0.0000
722.20	63.2175
722.78	74.0673
722.78	74.0673
722.89	74.0706
722.95	74.0723
723.30	66.8532
724.18	65.0640
727.18	68.7420
733.00	57.9909
735.90	72.9165
739.58	57.7436
742.81	59.9817
744.21	67.6445
747.13	53.5088
751.79	57.9571
752.31	64.5284
753.82	68.9355
755.35	0.0000
756.15	45.9888
756.87	51.4751
763.93	91.0933
765.79	54.9060
766.42	59.3090
766.84	71.4000
776.49	76.1931
778.00	87.2476
778.57	72.5645
778.89	72.5710
783.80	66.2358
785.46	60.7457
792.07	61.6530



795.84	51.6968
796.30	51.7036
798.80	53.8531
801.93	63.4138
805.60	51.8415
810.29	61.1808
810.76	58.4075
815.85	49.2077
817.79	0.0000
818.51	45.5278
819.60	50.1888
826.30	60.5262
828.27	0.0000
831.60	59.6836
831.96	59.6901
834.83	65.3387
836.80	0.0000
846.75	52.4430
848.13	49.6530
856.28	0.0000
856.80	69.4909
860.37	47.9391
867.32	51.7964
867.82	54.6287
871.10	46.1927
873.19	46.2186
874.81	43.4086
875.33	0.0000
876.40	49.0907
879.36	43.4610
880.27	35.9118
880.51	34.9690
881.50	39.7048
883.24	37.8312
884.67	40.6843
889.25	49.2599
896.60	50.3054
898.02	54.1217
899.00	56.9849
903.28	61.3283
911.07	50.4962
911.07	50.4962
911.07	50.4962
919.63	36.9218
920.93	37.5133
925.00	43.0289
925.24	43.9879
926.50	38.2633
935.52	29.7228
937.48	54.6783
944.10	40.3577
946.00	41.3387
949.00	50.0291
962.29	49.6446
964.01	39.7324
966.15	39.6161
968.20	39.6362
969.11	43.0988
969.11	43.0988
969.11	43.0988
977.42	41.2246
980.50	41.6965
983.50	38.8167
989.30	47.6183
996.32	57.4347
1001.03	44.8311
1001.68	40.9387
1004.76	56.5769
1021.30	0.0000
1024.50	0.0000
1034.80	35.3716
1036.00	44.2255
1037.82	43.2624
1038.57	41.3027
1038.76	0.0000
1045.16	48.2623
1046.59	45.3224
1048.07	37.4526

1050.47	50.2944
1050.47	50.2944
1062.04	54.3868
1063.62	47.4824
1076.63	57.5469
1077.35	60.5334
1078.86	48.6411
1085.78	48.7189
1099.22	41.8872
1112.02	49.5101
1112.84	51.4495
1115.52	58.3426
1120.29	52.1079
1120.29	52.1079
1120.29	52.1079
1120.29	52.1079
1120.51	52.1100
1121.28	51.5458
1124.00	0.0000
1129.67	43.3793
1131.51	0.0000
1147.95	0.0000
1167.94	60.7568
1173.22	43.5931
1175.09	42.5964
1177.93	58.8591
1189.05	52.8971
1204.90	53.0749
1205.75	0.0000
1213.00	44.9865
1221.42	54.2853
1230.97	58.0585
1235.34	52.8285
1236.41	0.0000
1238.25	51.0979
1246.25	43.8023
1260.41	0.0000
1271.85	40.3632
1274.45	31.0645
1274.54	31.0657
1291.56	30.1328
1298.22	0.0000
1312.09	35.4734
1325.50	33.4753
1325.50	33.4753
1332.49	30.3794
1333.61	26.1943
1360.21	25.2773
1362.66	0.0000
1365.15	26.3550
1368.21	23.2067
1368.53	0.0000
1376.25	19.0166
1384.27	39.1499
1394.10	27.5615
1395.20	31.8091
1407.95	27.6335
1434.06	11.7484
1436.60	16.0278
1457.56	0.0000
1460.81	15.0265
1489.15	17.2617
1509.49	15.1587
1596.49	24.4992
1620.62	12.2999
1678.03	0.0000
1691.02	14.3591
1691.02	14.3591
1706.46	0.0000
1750.46	0.0000
1764.49	11.8659
1764.49	11.8659
1764.49	11.8659
1764.49	11.8659
1770.23	3.3933
1771.40	37.8180
1791.20	0.0000
1808.65	7.8030

1836.01

14.6924

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202021394

Total Uranium Activity	8.1100E+00	ug/g
Total Uranium Counting Unc.	5.1708E+00	ug/g
Total Uranium Tpu	2.6381E-06	ug/g
Total Uranium Mda	4.6620E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 944037                          SAMPLE ID   : G1202021394
*  ANALYST       : MXR1                             DETECTOR    : GAM06
*  SAMPLE DATE   : 13-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 2-FEB-2010 11:58:53.01          SAMPLE ALQT  : 129.830 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.234E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.616E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.860E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.876E+00

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VAX/VMS Nuclide Identification Report Generated 2-FEB-2010 14:05:32.74

```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021395.CNF;1
Sample date        : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 13:04:58.
Sample ID          : G1202021395      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM16            Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00    Elapsed real time: 0 01:00:02.01 0.1%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 944037           Detector SN#      :
Matrix Spike ID    :                  LCS ID            : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	59.59	2981	668	0.97	119.37	116	9	8.28E-01	2.5	
2	1	74.92*	186	304	0.93	150.04	146	14	5.16E-02	16.8	4.97E+00
3	1	77.33*	243	305	0.94	154.85	146	14	6.75E-02	13.2	
4	0	88.03*	1466	635	0.99	176.24	171	11	4.07E-01	4.2	
5	0	93.07*	83	385	1.20	186.33	182	9	2.30E-02	45.4	
6	0	122.11	259	311	0.91	244.42	240	8	7.20E-02	13.3	
7	0	185.44*	82	322	0.86	371.07	366	10	2.27E-02	43.4	
8	5	238.56*	517	203	0.96	477.32	472	16	1.44E-01	6.2	1.04E+00
9	5	241.48	129	284	1.74	483.15	472	16	3.58E-02	29.4	
10	0	295.08	163	150	1.29	590.35	587	8	4.54E-02	15.2	
11	0	338.09*	111	161	1.11	676.36	672	8	3.08E-02	22.3	
12	0	351.81*	208	214	1.32	703.81	698	11	5.78E-02	15.4	
13	0	510.74*	23	190	1.28	1021.63	1016	12	6.42E-03	127.8	
14	0	583.13*	139	127	1.24	1166.40	1160	12	3.86E-02	18.6	
15	0	609.08*	157	160	1.47	1218.30	1214	12	4.37E-02	18.0	
16	0	661.56	2536	96	1.35	1323.23	1317	12	7.04E-01	2.1	
17	0	727.29*	34	107	1.19	1454.67	1448	11	9.52E-03	61.3	
18	0	911.47*	143	131	1.73	1822.94	1815	15	3.97E-02	19.5	
19	0	969.16*	72	112	1.19	1938.30	1933	12	2.01E-02	32.1	
20	0	1120.99*	35	85	2.20	2241.86	2234	11	9.66E-03	54.6	
21	0	1173.11	1859	87	1.62	2346.06	2339	15	5.16E-01	2.6	
22	0	1332.35	1700	25	1.74	2664.42	2657	16	4.72E-01	2.5	
23	0	1460.59*	34	0	2.95	2920.79	2916	11	9.50E-03	19.4	
24	0	1764.03*	32	0	2.62	3527.33	3522	11	8.82E-03	19.2	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021395.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 13:04:58
Sample ID         : G1202021395 Sample quantity : 155.44 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA16 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:02.01 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

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	1.281E+00	5.088E-01	6.482E-01	5.698E-02	1.976
CO-57	+	122.06	*	2.086E-01	5.827E-02	5.234E-02	4.349E-03	3.986
		136.48		1.487E-01	2.798E-01	4.765E-01	4.332E-02	0.312
CO-60	+	1173.22		6.189E+00	5.901E-01	1.075E-01	8.646E-03	57.553
	+	1332.49	*	6.323E+00	6.206E-01	6.935E-02	5.850E-03	91.176
CD-109	+	88.03	*	3.054E+01	3.923E+00	1.754E+00	1.690E-01	17.414
SN-126		64.28		-4.727E-01	7.326E-01	1.004E+00	1.463E-01	-0.471
	+	86.94		1.260E+01	5.348E+00	7.316E-01	3.040E-01	17.226
	+	87.57	*	3.031E+00	3.894E-01	1.749E-01	1.677E-02	17.336
BA-137M	+	661.65	*	5.661E+00	5.569E-01	9.946E-02	8.827E-03	56.919
CS-137	+	661.65	*	5.984E+00	5.895E-01	1.051E-01	9.347E-03	56.919
TL-208		277.35		3.852E-01	5.625E-01	9.307E-01	1.384E-01	0.414
	+	510.84		1.744E-01	4.465E-01	3.835E-01	4.849E-02	0.455
	+	583.14	*	2.985E-01	1.150E-01	9.772E-02	9.686E-03	3.055
		860.37		-2.221E-01	5.381E-01	8.756E-01	8.767E-02	-0.254
BI-211		72.87		2.356E+00	3.861E+00	6.144E+00	4.995E-01	0.383
	+	351.07	*	1.971E+00	6.430E-01	5.345E-01	5.844E-02	3.688
PB-212	+	74.81		1.640E+00	5.864E-01	6.868E-01	8.580E-02	2.387
	+	77.11		1.210E+00	3.364E-01	3.897E-01	3.310E-02	3.105
	+	87.30		1.402E+01	2.282E+00	8.109E-01	1.122E-01	17.289
	+	238.63	*	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
		300.09		1.375E+00	1.304E+00	2.088E+00	2.736E-01	0.659
PO-212	+	74.81		1.640E+00	5.864E-01	6.868E-01	8.580E-02	2.387
	+	77.11		1.210E+00	3.364E-01	3.897E-01	3.310E-02	3.105
	+	87.30		1.402E+01	2.282E+00	8.109E-01	1.122E-01	17.289
		115.19		2.686E+00	4.579E+00	7.881E+00	6.576E-01	0.341
	+	238.63	*	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
		300.09		1.375E+00	1.304E+00	2.088E+00	2.736E-01	0.659
BI-214	+	609.31	*	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
	+	1120.29		7.343E-01	8.053E-01	7.532E-01	8.087E-02	0.975
	+	1764.49		9.187E-01	3.609E-01	1.891E-01	1.565E-02	4.859
PB-214	+	74.81		2.825E+00	9.974E-01	1.183E+00	1.316E-01	2.387
	+	77.11		2.074E+00	5.980E-01	6.680E-01	7.622E-02	3.105
	+	87.30		2.402E+01	3.598E+00	1.389E+00	1.706E-01	17.289

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		1.604E+00	9.646E-01	8.385E-01	1.039E-01	1.913
	+	295.21		9.154E-01	3.033E-01	3.285E-01	4.385E-02	2.786
	+	351.92	*	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
	+	74.81		2.825E+00	9.974E-01	1.183E+00	1.316E-01	2.387
	+	77.11		2.074E+00	5.980E-01	6.680E-01	7.622E-02	3.105
	+	87.30		2.402E+01	3.598E+00	1.389E+00	1.706E-01	17.289
PO-216	+	241.98		1.604E+00	9.646E-01	8.385E-01	1.039E-01	1.913
	+	295.21		9.154E-01	3.033E-01	3.285E-01	4.385E-02	2.786
	+	351.92	*	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
	+	74.81		1.640E+00	5.864E-01	6.868E-01	8.580E-02	2.387
	+	77.11		1.210E+00	3.364E-01	3.897E-01	3.310E-02	3.105
	+	87.30		1.402E+01	2.282E+00	8.109E-01	1.122E-01	17.289
PO-218	+	238.63	*	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
	+	300.09		1.375E+00	1.304E+00	2.088E+00	2.736E-01	0.659
	+	74.81		2.825E+00	9.974E-01	1.183E+00	1.316E-01	2.387
	+	77.11		2.074E+00	5.980E-01	6.680E-01	7.622E-02	3.105
	+	87.30		2.402E+01	3.598E+00	1.389E+00	1.706E-01	17.289
	+	241.98		1.604E+00	9.646E-01	8.385E-01	1.039E-01	1.913
RA-224	+	295.21		9.154E-01	3.033E-01	3.285E-01	4.385E-02	2.786
	+	351.92	*	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
	+	240.98	*	3.041E+00	1.821E+00	1.585E+00	1.746E-01	1.919
	+	609.31	*	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
	+	1120.29		7.343E-01	8.053E-01	7.532E-01	8.087E-02	0.975
	+	1764.49		9.187E-01	3.609E-01	1.891E-01	1.565E-02	4.859
AC-228	+	338.32		1.156E+00	7.071E-01	6.263E-01	2.618E-01	1.846
	+	911.07	*	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
	+	969.11		1.219E+00	8.329E-01	8.633E-01	2.036E-01	1.412
	+	338.32		1.156E+00	7.071E-01	6.263E-01	2.618E-01	1.846
	+	911.07	*	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
	+	969.11		1.219E+00	8.329E-01	8.633E-01	2.036E-01	1.412
TH-228	+	74.81		1.654E+00	5.711E-01	6.927E-01	5.795E-02	2.387
	+	77.11		1.220E+00	3.393E-01	3.930E-01	3.338E-02	3.105
	+	87.30		1.414E+01	1.816E+00	8.178E-01	7.815E-02	17.289
	+	238.63	*	1.081E+00	1.853E-01	1.404E-01	1.662E-02	7.698
	+	300.09		1.387E+00	1.544E+00	2.106E+00	1.259E+00	0.659
	+	609.31	*	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
TH-230	+	1120.29		7.343E-01	8.053E-01	7.532E-01	8.087E-02	0.975
	+	1764.49		9.187E-01	3.609E-01	1.891E-01	1.565E-02	4.859
	+	338.32		1.156E+00	5.312E-01	6.263E-01	6.837E-02	1.846
	+	911.07	*	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
	+	969.11		1.219E+00	8.329E-01	8.633E-01	2.036E-01	1.412
	+	609.31	*	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
U-234	+	1120.29		7.343E-01	8.053E-01	7.532E-01	8.087E-02	0.975
	+	1764.49		9.187E-01	3.609E-01	1.891E-01	1.565E-02	4.859
	+	59.54	*	1.358E+01	1.258E+00	4.386E-01	3.442E-02	30.966
	+	74.67	*	2.658E-01	9.176E-02	1.117E-01	9.246E-03	2.380
	+	86.72		3.338E+02	4.288E+01	1.942E+01	1.843E+00	17.186
	+	117.66		-5.920E+00	5.629E+00	7.900E+00	6.573E-01	-0.749
AM-243	+	142.18		5.146E+00	2.306E+01	3.871E+01	3.301E+00	0.133



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	3.768E-02	9.639E-02	8.286E-02	7.880E-03	0.455

---- 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	*	-8.542E-02	5.559E-01	9.128E-01	9.234E-02	-0.094
NA-22		1274.54	*	2.310E-02	4.741E-02	8.364E-02	6.960E-03	0.276
NA-24		1368.53	*	1.519E-04	4.741E-02	Half-Life too short		
AL-26		1129.67		2.620E+00	2.850E+00	5.033E+00	4.218E-01	0.521
		1808.65	*	8.929E-03	3.702E-02	6.449E-02	5.273E-03	0.138
TI-44		67.85		2.198E-02	5.868E-02	9.276E-02	7.183E-03	0.237
	+	78.38	*	2.232E-01	6.207E-02	8.794E-02	7.573E-03	2.539
SC-46		889.25	*	2.821E-02	7.955E-02	1.359E-01	1.284E-02	0.208
	+	1120.51		1.190E-01	1.303E-01	1.738E-01	1.468E-02	0.685
V-48		944.10		2.602E-02	1.630E+00	2.716E+00	2.537E-01	0.010
		983.50	*	-1.076E-01	1.094E-01	1.671E-01	1.538E-02	-0.644
		1312.09		4.031E-02	6.933E-02	1.224E-01	1.028E-02	0.329
CR-51		320.08	*	3.230E-01	5.165E-01	8.477E-01	9.911E-02	0.381
MN-52		744.21		3.599E-02	1.849E-01	3.010E-01	2.764E-02	0.120
		848.13		-1.406E+00	5.660E+00	9.320E+00	8.772E-01	-0.151
		935.52		-1.796E-01	2.627E-01	4.179E-01	3.915E-02	-0.430
		1246.25		-5.378E+00	3.726E+00	4.671E+00	3.850E-01	-1.151
	+	1333.61		3.596E+02	3.529E+01	4.007E+01	3.381E+00	8.973
		1434.06	*	-1.367E-02	1.174E-01	1.835E-01	1.566E-02	-0.074
MN-54		834.83	*	2.645E-02	6.667E-02	1.149E-01	1.079E-02	0.230
CO-56		846.75	*	2.871E-02	6.768E-02	1.169E-01	1.100E-02	0.246
		977.42		7.267E+00	5.905E+00	1.054E+01	9.729E-01	0.689
		1037.82		-7.150E-01	5.865E-01	8.654E-01	8.134E-02	-0.826
		1175.09		2.334E+02	2.255E+01	2.849E+01	2.292E+00	8.193
		1238.25		3.477E-02	8.659E-02	1.481E-01	1.257E-02	0.235
		1360.21		2.645E-01	1.059E+00	1.797E+00	1.522E-01	0.147
		1771.40		-1.233E-01	2.687E-01	3.921E-01	3.240E-02	-0.314
CO-58		810.76	*	-1.076E-02	6.520E-02	1.084E-01	1.015E-02	-0.099
FE-59		142.65		-1.135E+00	3.268E+00	5.350E+00	4.567E-01	-0.212
		192.34		-7.468E-02	1.215E+00	1.981E+00	2.804E-01	-0.038
		1099.22	*	6.451E-02	1.639E-01	2.770E-01	2.575E-02	0.233
		1291.56		-8.565E-02	1.323E-01	1.915E-01	1.828E-02	-0.447
ZN-65		1115.52	*	-6.766E-02	1.957E-01	2.669E-01	2.267E-02	-0.253
GE-68		1077.35	*	-1.693E-01	2.320E+00	3.793E+00	3.313E-01	-0.045
AS-73		53.44	*	4.209E-01	1.690E+00	2.673E+00	2.039E-01	0.157
AS-74		595.88	*	8.364E-03	1.175E-01	1.926E-01	1.787E-02	0.043
		634.78		1.615E-01	4.611E-01	7.685E-01	6.966E-02	0.210
SE-75		66.05		-3.756E-01	5.996E+00	9.280E+00	8.929E-01	-0.040
		96.73		-6.507E-01	9.762E-01	1.420E+00	1.963E-01	-0.458
	+	121.11		1.098E+00	3.167E-01	4.118E-01	4.521E-02	2.666
		136.00		-1.673E-03	5.211E-02	8.670E-02	7.358E-03	-0.019
		198.60		-1.099E+00	2.410E+00	3.836E+00	4.112E-01	-0.287
		264.65	*	-2.573E-02	6.755E-02	1.058E-01	1.235E-02	-0.243

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	279.53		-7.420E-02	1.633E-01	2.534E-01	3.101E-02	-0.293
		303.91		1.038E+00	3.220E+00	5.210E+00	7.241E-01	0.199
		400.65		1.135E-01	4.278E-01	7.272E-01	8.466E-02	0.156
		87.88		9.742E+02	1.251E+02	1.295E+02	1.247E+01	7.520
		200.40		-3.678E+00	3.326E+01	5.394E+01	5.360E+00	-0.068
		239.00		2.516E+01	4.165E+00	6.249E+00	6.853E-01	4.027
		249.79		9.021E+00	1.489E+01	2.472E+01	2.782E+00	0.365
		281.68		-7.241E+00	2.049E+01	3.198E+01	3.832E+00	-0.226
		297.23		-1.336E+01	1.476E+01	1.931E+01	2.272E+00	-0.692
		303.76		-5.420E+00	4.270E+01	6.729E+01	7.842E+00	-0.081
		439.47		-2.187E+01	3.769E+01	6.062E+01	5.720E+00	-0.361
		484.57		5.307E+00	6.041E+01	1.005E+02	9.562E+00	0.053
		520.65	*	-2.135E+00	2.585E+00	3.993E+00	3.794E-01	-0.535
574.64		-1.464E+01	4.911E+01	7.841E+01	7.347E+00	-0.187		
SR-82		578.91		6.592E+00	2.425E+01	3.562E+01	3.332E+00	0.185
		585.48		3.512E+01	4.842E+01	7.372E+01	6.876E+00	0.476
		755.35		8.646E+00	4.519E+01	7.339E+01	6.762E+00	0.118
		817.79		9.852E-01	3.513E+01	5.919E+01	5.542E+00	0.017
		698.33		1.999E+01	4.598E+01	7.664E+01	6.916E+00	0.261
		776.49	*	-1.286E-01	5.715E-01	8.945E-01	8.294E-02	-0.144
		1395.20		5.825E+00	9.887E+00	1.775E+01	1.510E+00	0.328
		520.41	*	-8.232E-02	1.114E-01	1.734E-01	1.648E-02	-0.475
		529.64		2.710E-02	1.798E-01	2.986E-01	2.834E-02	0.091
		552.65		-1.578E-01	3.203E-01	5.058E-01	4.775E-02	-0.312
		881.50	*	4.727E-02	1.282E-01	2.193E-01	2.072E-02	0.216
		513.99	*	-1.830E+00	1.440E+01	2.061E+01	1.960E+00	-0.089
		513.99	*	-8.753E-03	6.891E-02	9.861E-02	9.376E-03	-0.089
1076.63	*	3.499E-01	1.158E+00	1.952E+00	1.706E-01	0.179		
Y-88		898.02		-2.859E-02	7.981E-02	1.298E-01	1.233E-02	-0.220
		1836.01	*	2.133E-02	4.264E-02	7.780E-02	6.316E-03	0.274
ZR-88		392.90	*	3.104E-02	4.876E-02	8.457E-02	7.823E-03	0.367
Y-91		1204.90	*	4.611E+00	1.986E+01	3.333E+01	2.710E+00	0.138
NB-94		702.63	*	-4.774E-03	5.472E-02	8.743E-02	7.903E-03	-0.055
		871.10		-8.381E-03	6.219E-02	1.030E-01	9.720E-03	-0.081
NB-95		765.79	*	7.099E-02	6.730E-02	1.161E-01	1.073E-02	0.611
NB-95M		235.69	*	4.695E-02	1.935E-01	2.829E-01	3.364E-02	0.166
ZR-95		724.18		7.517E-02	1.568E-01	2.319E-01	2.278E-02	0.324
		756.15	*	6.898E-02	1.229E-01	2.051E-01	2.059E-02	0.336
NB-97		657.90	*	1.603E-04	1.229E-01	Half-Life	too short	
		1024.50		4.277E-03	1.229E-01	Half-Life	too short	
ZR-97		254.15		-1.324E-04	1.229E-01	Half-Life	too short	
		355.39		4.791E-03	1.229E-01	Half-Life	too short	
		507.63	*	-1.068E-03	1.229E-01	Half-Life	too short	
		602.52		-3.756E-03	1.229E-01	Half-Life	too short	
		1021.30		-3.082E-02	1.229E-01	Half-Life	too short	
		1147.95		4.993E-03	1.229E-01	Half-Life	too short	
		1362.66		-1.082E-02	1.229E-01	Half-Life	too short	
		1750.46		1.042E-02	1.229E-01	Half-Life	too short	
		140.51		-4.529E+00	6.663E+00	1.053E+01	2.912E+00	-0.430

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		181.06		2.518E+00	4.920E+00	7.427E+00	1.388E+00	0.339
		366.43		-7.766E+00	2.678E+01	4.445E+01	4.495E+00	-0.175
		739.58	*	4.179E+00	3.808E+00	6.576E+00	1.019E+00	0.635
		778.00		-1.510E+00	1.165E+01	1.839E+01	1.706E+00	-0.082
TC-99M		140.51	*	-4.253E+02	1.165E+01	Half-Life too short		
RH-101		127.23		-2.385E-03	4.008E-02	6.682E-02	5.563E-03	-0.036
		198.01	*	7.331E-03	4.608E-02	7.580E-02	7.484E-03	0.097
		325.23		-1.191E-01	3.579E-01	5.533E-01	6.212E-02	-0.215
RH-102		418.52		-3.738E-02	5.041E-01	8.395E-01	7.863E-02	-0.045
		475.06	*	-2.278E-02	5.578E-02	9.024E-02	8.577E-03	-0.252
		631.29		-1.261E-02	9.523E-02	1.530E-01	1.390E-02	-0.082
		697.49		4.768E-03	1.261E-01	2.037E-01	1.838E-02	0.023
		766.84		1.043E-01	1.837E-01	3.065E-01	2.834E-02	0.340
		1046.59		3.956E-02	2.295E-01	3.833E-01	3.416E-02	0.103
		1112.84		9.953E-03	4.835E-01	7.210E-01	6.130E-02	0.014
RU-103		497.08	*	7.616E-03	6.251E-02	1.041E-01	1.533E-02	0.073
	+	610.33		6.128E+00	2.442E+00	2.979E+00	5.063E-01	2.057
RH-106	+	511.85		1.859E-01	4.755E-01	5.591E-01	5.317E-02	0.332
		621.84	*	-2.885E-02	5.319E-01	8.607E-01	1.179E-01	-0.034
		1050.47		-1.781E+00	4.675E+00	7.479E+00	6.649E-01	-0.238
RU-106	+	511.85		1.859E-01	4.755E-01	5.591E-01	5.317E-02	0.332
		621.84	*	-2.885E-02	5.319E-01	8.607E-01	7.871E-02	-0.034
		1050.47		-1.781E+00	4.675E+00	7.479E+00	6.649E-01	-0.238
AG-108M		433.93	*	4.555E-02	6.124E-02	1.059E-01	1.031E-02	0.430
		614.37		1.165E-02	7.157E-02	1.036E-01	9.849E-03	0.112
		722.95		4.426E-02	7.201E-02	1.084E-01	1.022E-02	0.408
AG-110M		657.75	*	8.397E-03	7.078E-02	1.013E-01	9.272E-03	0.083
		677.61		-5.017E-02	4.539E-01	7.250E-01	6.652E-02	-0.069
		706.67		4.804E-01	3.205E-01	5.755E-01	5.341E-02	0.835
		763.93		-9.095E-02	2.907E-01	4.527E-01	4.286E-02	-0.201
		884.67		-2.090E-02	1.080E-01	1.783E-01	1.730E-02	-0.117
		937.48		-1.140E-01	2.641E-01	4.277E-01	4.127E-02	-0.267
		1384.27		-1.045E-01	1.832E-01	2.603E-01	2.275E-02	-0.402
IN-111		171.28		9.808E-02	2.598E-01	4.357E-01	4.006E-02	0.225
		245.39	*	3.604E-01	3.487E-01	5.353E-01	5.962E-02	0.673
IN-113M		391.69	*	2.493E-02	7.222E-02	1.235E-01	1.172E-02	0.202
SN-113		391.69	*	2.493E-02	7.222E-02	1.235E-01	1.172E-02	0.202
IN-114M		190.27	*	-3.200E-02	2.444E-01	3.782E-01	3.658E-02	-0.085
CD-115		260.90		-8.098E+00	2.730E+01	4.306E+01	4.970E+00	-0.188
		492.35		3.019E+00	8.221E+00	1.390E+01	1.323E+00	0.217
		527.90	*	1.735E+00	2.512E+00	4.307E+00	4.088E-01	0.403
SN-117M		156.02		2.332E-01	2.130E+00	3.541E+00	3.124E-01	0.066
		158.56	*	-8.543E-03	5.268E-02	8.639E-02	7.673E-03	-0.099
SB-122		563.90	*	-1.786E-01	6.143E-01	9.850E-01	9.267E-02	-0.181
		692.80		5.745E+00	1.306E+01	2.179E+01	1.961E+00	0.264
I-123		159.00	*	-7.397E-04	1.306E+01	Half-Life too short		
		528.96		1.678E-02	1.306E+01	Half-Life too short		
TE-123M		159.00	*	-1.492E-02	3.734E-02	6.049E-02	5.410E-03	-0.247
I-124		602.71	*	-2.724E-02	3.853E-01	6.026E-01	5.573E-02	-0.045

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

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SB-124		722.78		5.976E-01	2.641E+00	3.800E+00	3.463E-01	0.157
		1325.50		-6.169E+00	1.676E+01	2.125E+01	1.789E+00	-0.290
		1376.25		1.161E+01	1.321E+01	2.403E+01	2.040E+00	0.483
		1509.49		5.257E-01	6.367E+00	1.080E+01	9.233E-01	0.049
		1691.02		5.750E-01	1.569E+00	2.804E+00	2.358E-01	0.205
		602.71		-4.379E-03	6.194E-02	9.686E-02	8.960E-03	-0.045
		645.85		-5.303E-01	8.346E-01	1.283E+00	1.217E-01	-0.413
		709.31		1.720E-01	4.041E+00	6.524E+00	5.913E-01	0.026
		713.82		2.195E+00	2.315E+00	4.014E+00	4.966E-01	0.547
		722.78		1.392E-01	6.154E-01	8.855E-01	8.225E-02	0.157
	+	968.20		1.163E+01	7.537E+00	9.603E+00	8.895E-01	1.211
		1045.16		-6.238E-01	4.780E+00	7.806E+00	6.962E-01	-0.080
		1325.50		-1.535E+00	4.170E+00	5.288E+00	4.453E-01	-0.290
		1368.21		5.000E-01	1.686E+00	2.881E+00	3.857E-01	0.174
SB-125		1436.60		-6.346E-01	3.661E+00	5.939E+00	5.068E-01	-0.107
		1691.02	*	3.161E-02	8.625E-02	1.541E-01	1.350E-02	0.205
		427.89	*	-2.357E-02	1.580E-01	2.615E-01	2.499E-02	-0.090
		463.38		5.126E-01	5.378E-01	9.326E-01	9.425E-02	0.550
		600.56		-1.304E-01	3.018E-01	4.757E-01	4.687E-02	-0.274
TE-125M		635.90		-2.050E-02	4.586E-01	7.413E-01	7.207E-02	-0.028
		109.28	*	-1.330E+00	1.072E+01	1.795E+01	1.824E+00	-0.074
		388.63		-1.335E-01	2.396E-01	3.895E-01	3.645E-02	-0.343
I-126		666.33	*	1.355E-02	2.149E-01	3.059E-01	2.721E-02	0.044
		753.82		4.693E-01	1.845E+00	3.014E+00	2.776E-01	0.156
SB-126		223.80		2.720E-01	4.430E+00	7.199E+00	7.604E-01	0.038
		278.60		2.861E+00	2.536E+00	4.288E+00	5.143E-01	0.667
+ SB-126		296.50		6.304E+00	2.051E+00	2.865E+00	3.373E-01	2.201
		414.70		-2.879E-02	8.952E-02	1.470E-01	1.375E-02	-0.196
		415.30		-3.320E+00	7.488E+00	1.220E+01	1.141E+00	-0.272
		555.20		1.347E+00	4.552E+00	7.620E+00	7.188E-01	0.177
		573.80		-6.915E-01	1.165E+00	1.814E+00	1.700E-01	-0.381
		593.00		-5.638E-01	1.082E+00	1.691E+00	1.572E-01	-0.333
		656.30		-3.840E-01	4.781E+00	6.703E+00	5.976E-01	-0.057
		666.33		5.577E-03	8.847E-02	1.259E-01	1.120E-02	0.044
		675.00		3.045E-01	2.168E+00	3.544E+00	3.165E-01	0.086
		695.00		3.734E-03	8.794E-02	1.422E-01	1.281E-02	0.026
		697.00		-1.077E-01	3.060E-01	4.780E-01	4.311E-02	-0.225
		720.50	*	4.988E-02	1.668E-01	2.553E-01	2.325E-02	0.195
		856.80		1.189E-01	6.198E-01	1.052E+00	9.912E-02	0.113
		989.30		1.455E+00	1.801E+00	3.146E+00	2.889E-01	0.463
		1034.80		1.057E+00	1.213E+01	2.016E+01	1.809E+00	0.052
		1213.00		1.757E+00	3.532E+00	6.123E+00	4.993E-01	0.287
		61.10		3.723E+02	4.865E+01	7.348E+01	6.079E+00	5.067
		252.40		6.814E-01	2.126E+00	3.448E+00	1.457E+00	0.198
		290.80		4.558E+00	1.162E+01	1.695E+01	2.122E+00	0.269
SB-127		411.60		6.971E-01	6.604E+00	1.112E+01	1.671E+00	0.063
		444.90		-1.280E+00	5.557E+00	9.131E+00	1.072E+00	-0.140
		473.00		1.859E-01	9.703E-01	1.626E+00	1.973E-01	0.114
		543.00		8.935E-01	8.180E+00	1.354E+01	1.857E+00	0.066

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		603.60		-5.159E-01	6.452E+00	9.647E+00	1.114E+00	-0.053
		685.20	*	3.757E-02	5.992E-01	9.722E-01	9.798E-02	0.039
		698.50		4.053E+00	7.430E+00	1.247E+01	1.862E+00	0.325
		722.20		1.430E-01	1.665E+01	2.336E+01	2.324E+00	0.006
		783.80		1.551E+00	2.019E+00	3.406E+00	3.913E-01	0.456
		57.60		1.578E+01	1.326E+01	1.987E+01	1.437E+00	0.794
		145.22		4.570E-01	8.189E-01	1.392E+00	1.195E-01	0.328
		172.10		-3.857E-03	1.363E-01	2.240E-01	2.064E-02	-0.017
		202.84	*	5.875E-02	5.845E-02	9.955E-02	9.956E-03	0.590
		374.96		1.182E-01	2.928E-01	5.033E-01	4.950E-02	0.235
I-131		80.18		7.841E-01	3.453E+00	5.372E+00	4.729E-01	0.146
		284.30		1.127E+00	1.345E+00	2.242E+00	2.747E-01	0.503
		364.48	*	8.879E-02	1.073E-01	1.883E-01	1.986E-02	0.471
		636.97		-5.125E-01	1.530E+00	2.416E+00	2.289E-01	-0.212
TE-132		722.89		1.628E+00	7.197E+00	1.036E+01	9.454E-01	0.157
		49.72		5.343E+00	9.265E+00	1.488E+01	1.326E+00	0.359
		111.76		1.486E+00	9.220E+00	1.562E+01	1.434E+00	0.095
		116.30		2.562E+00	8.808E+00	1.497E+01	1.367E+00	0.171
BA-133		228.16	*	5.454E-02	2.789E-01	4.554E-01	7.301E-02	0.120
		53.15		-6.719E-01	7.776E+00	1.215E+01	9.311E-01	-0.055
		79.62		1.553E-02	1.759E+00	2.709E+00	4.141E-01	0.006
		81.00		5.207E-02	1.296E-01	2.029E-01	3.248E-02	0.257
		276.40		2.881E-01	5.458E-01	8.969E-01	1.493E-01	0.321
		302.84		-3.265E-01	2.465E-01	3.518E-01	5.433E-02	-0.928
I-133		356.01	*	1.649E-02	7.591E-02	1.151E-01	1.663E-02	0.143
		383.85		5.254E-01	5.031E-01	8.853E-01	1.172E-01	0.593
	+	510.53		1.967E-03	5.031E-01	Half-Life	too short	
		529.87	*	5.152E-06	5.031E-01	Half-Life	too short	
		706.58		5.009E-03	5.031E-01	Half-Life	too short	
		856.28		7.673E-04	5.031E-01	Half-Life	too short	
		875.33		1.376E-03	5.031E-01	Half-Life	too short	
		1236.41		1.737E-03	5.031E-01	Half-Life	too short	
		1298.22		-4.219E-04	5.031E-01	Half-Life	too short	
		475.35		-1.950E+00	3.615E+00	5.797E+00	5.510E-01	-0.336
CS-134		563.23		-2.129E-01	5.842E-01	9.315E-01	8.835E-02	-0.229
		569.32		2.589E-01	3.200E-01	5.525E-01	5.247E-02	0.469
		604.70		7.037E-03	6.570E-02	9.460E-02	8.760E-03	0.074
		795.84	*	2.757E-02	8.139E-02	1.402E-01	1.315E-02	0.197
		801.93		-5.309E-01	7.098E-01	1.135E+00	1.064E-01	-0.468
		1038.57		1.455E+00	7.577E+00	1.269E+01	1.136E+00	0.115
		1167.94		1.201E+00	4.093E+00	6.038E+00	4.881E-01	0.199
		1365.15		2.274E-01	1.293E+00	2.160E+00	1.917E-01	0.105
		268.24	*	-2.361E-02	2.420E-01	3.855E-01	4.916E-02	-0.061
		288.45		-1.573E+03	2.420E-01	Half-Life	too short	
I-135		417.63		-1.684E+03	2.420E-01	Half-Life	too short	
		546.56		-1.075E+03	2.420E-01	Half-Life	too short	
		836.80		-1.483E+03	2.420E-01	Half-Life	too short	
		1038.76		1.254E+03	2.420E-01	Half-Life	too short	
		1124.00		-4.738E+03	2.420E-01	Half-Life	too short	
						Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	1131.51			-3.178E+02	2.420E-01	Half-Life	too short	
	1260.41	*		-1.856E+02	2.420E-01	Half-Life	too short	
	1457.56			5.056E+02	2.420E-01	Half-Life	too short	
	1678.03			1.917E+02	2.420E-01	Half-Life	too short	
	1706.46			-4.408E+02	2.420E-01	Half-Life	too short	
	1791.20			8.021E+02	2.420E-01	Half-Life	too short	
	66.91			1.282E-01	7.120E-01	1.115E+00	1.664E-01	0.115
	86.29			3.589E+00	1.312E+00	2.086E+00	2.798E-01	1.720
	153.22			3.449E-01	5.850E-01	9.952E-01	9.705E-02	0.347
	163.89			2.760E-02	1.044E+00	1.712E+00	1.714E-01	0.016
	176.55			4.426E-01	3.451E-01	5.990E-01	5.859E-02	0.739
	273.65			-5.147E-01	4.766E-01	7.049E-01	8.660E-02	-0.730
	340.57			1.020E-01	1.468E-01	2.302E-01	2.544E-02	0.443
	818.51			3.918E-02	9.347E-02	1.618E-01	1.516E-02	0.242
CE-139	1048.07	*		5.865E-02	1.549E-01	2.625E-01	2.429E-02	0.223
	1235.34			1.016E-01	4.185E-01	7.026E-01	8.117E-02	0.145
	165.85	*		-1.934E-02	3.827E-02	6.142E-02	5.571E-03	-0.315
	162.64			5.310E-01	7.296E-01	1.233E+00	1.167E-01	0.431
BA-140	304.84			4.414E-01	1.445E+00	2.330E+00	6.780E-01	0.189
	423.70			-1.810E-01	2.279E+00	3.789E+00	1.236E+00	-0.048
	537.32	*		-1.145E-01	3.283E-01	5.231E-01	1.746E-01	-0.219
	328.77			8.109E-02	3.397E-01	5.444E-01	6.274E-02	0.149
LA-140	432.53			4.539E-01	2.663E+00	4.483E+00	4.394E-01	0.101
	487.03			-1.314E-01	1.711E-01	2.683E-01	2.682E-02	-0.490
	751.79			-6.677E-01	2.079E+00	3.233E+00	3.256E-01	-0.207
	815.85			3.476E-01	4.070E-01	7.232E-01	7.436E-02	0.481
	867.82			1.400E-02	1.760E+00	2.947E+00	2.904E-01	0.005
	919.63			1.464E+00	4.433E+00	7.533E+00	8.510E-01	0.194
	925.24			-9.460E-01	1.708E+00	2.734E+00	2.705E-01	-0.346
	1596.49	*		-4.028E-02	7.267E-02	1.075E-01	9.159E-03	-0.375
CE-141	145.44	*		3.705E-02	7.302E-02	1.239E-01	1.084E-02	0.299
	57.37			-1.120E+01	9.277E+01	1.326E+02	1.186E+01	-0.084
CE-143	231.56			-2.095E+01	1.437E+02	2.304E+02	7.442E+01	-0.091
	293.26	*		5.418E+00	8.808E+00	1.290E+01	2.970E+00	0.420
+	350.59			5.630E+02	2.485E+02	2.248E+02	7.125E+01	2.504
	490.36			1.110E+02	1.842E+02	3.104E+02	9.904E+01	0.358
	664.57			5.289E+02	2.050E+02	2.147E+02	6.967E+01	2.464
	721.93			-4.529E+00	9.134E+01	1.272E+02	3.738E+01	-0.036
CE-144	80.11			7.027E-01	2.765E+00	4.307E+00	3.781E-01	0.163
	133.54	*		-1.129E-01	2.724E-01	4.448E-01	6.869E-02	-0.254
PM-144	476.78			-2.025E-03	1.220E-01	2.019E-01	2.068E-02	-0.010
	618.01			1.496E-02	5.138E-02	8.541E-02	8.020E-03	0.175
	696.49	*		-1.378E-02	5.545E-02	8.741E-02	7.882E-03	-0.158
PR-144	778.57			-2.126E+00	4.160E+00	6.342E+00	5.884E-01	-0.335
	696.49	*		-9.304E-01	3.745E+00	5.903E+00	5.322E-01	-0.158
PM-146	1489.15			6.639E+00	1.318E+01	2.412E+01	2.062E+00	0.275
	453.90	*		8.273E-02	8.161E-02	1.423E-01	1.625E-02	0.581
	633.02			-2.297E+00	2.542E+00	3.580E+00	1.342E+00	-0.642
	735.90			-1.392E-01	2.583E-01	3.893E-01	1.120E-01	-0.358

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147		747.13		1.035E-01	1.590E-01	2.674E-01	3.850E-02	0.387
		91.11		9.919E-02	2.874E-01	3.605E-01	3.603E-02	0.275
		319.41		2.317E+00	3.656E+00	6.001E+00	6.813E-01	0.386
		439.89		-2.232E+00	6.701E+00	1.094E+01	1.033E+00	-0.204
		531.02	*	-3.063E-01	6.722E-01	1.069E+00	1.653E-01	-0.287
PM-149		285.90	*	-2.215E+00	1.852E+01	2.932E+01	5.154E+00	-0.076
EU-152	+	121.78		6.152E-01	1.745E-01	2.410E-01	2.326E-02	2.553
		244.69		2.284E-01	5.430E-01	8.030E-01	8.928E-02	0.284
		344.27	*	-1.214E-01	1.550E-01	2.505E-01	2.800E-02	-0.484
		443.98		-6.600E-01	1.765E+00	2.876E+00	2.717E-01	-0.230
		778.89		-2.831E-01	4.835E-01	7.314E-01	6.786E-02	-0.387
		867.32		-4.307E-01	1.498E+00	2.451E+00	2.313E-01	-0.176
		964.01		-1.051E-01	7.059E-01	1.004E+00	9.313E-02	-0.105
		1085.78		-5.342E-02	7.705E-01	1.260E+00	1.094E-01	-0.042
		1112.02		3.769E-02	6.512E-01	1.045E+00	8.889E-02	0.036
		1407.95		1.091E-01	2.167E-01	3.798E-01	3.234E-02	0.287
		69.67		-1.949E-01	1.875E+00	3.206E+00	2.526E-01	-0.061
		83.37		-1.492E+00	1.996E+01	3.064E+01	2.792E+00	-0.049
GD-153		97.43	*	-8.693E-03	1.024E-01	1.552E-01	1.379E-02	-0.056
		103.18		-9.584E-03	1.284E-01	2.160E-01	1.861E-02	-0.044
		123.07		4.317E-01	1.247E-01	1.607E-01	1.788E-02	2.685
		247.94		-5.698E-01	5.765E-01	8.682E-01	1.174E-01	-0.656
		591.81		-1.989E-01	1.018E+00	1.635E+00	1.991E-01	-0.122
		723.30		2.076E-01	3.026E-01	4.586E-01	4.576E-02	0.453
		756.87		1.113E+00	1.444E+00	2.439E+00	3.027E-01	0.456
		873.19		-2.432E-01	5.719E-01	9.254E-01	1.188E-01	-0.263
		996.32		-3.660E-01	7.484E-01	1.189E+00	2.144E-01	-0.308
		1004.76		-3.166E-01	4.294E-01	6.678E-01	8.022E-02	-0.474
EU-154	+	1274.45	*	8.664E-02	1.298E-01	2.347E-01	2.600E-02	0.369
		48.70		-2.886E+00	4.741E+00	7.264E+00	5.968E-01	-0.397
		60.01		4.407E+02	3.806E+01	3.807E+01	2.719E+00	11.576
		86.54		3.642E+00	4.699E-01	3.334E-01	3.183E-02	10.923
		105.31	*	7.399E-02	1.365E-01	2.355E-01	2.037E-02	0.314
		86.79		9.154E+00	1.176E+00	9.972E-01	9.469E-02	9.180
		197.04		-1.077E-01	7.423E-01	1.203E+00	1.185E-01	-0.090
		215.65		5.236E-02	1.106E+00	1.800E+00	1.862E-01	0.029
		298.57		4.439E-02	1.862E-01	2.680E-01	3.147E-02	0.166
		879.36	*	-2.207E-01	2.730E-01	4.296E-01	4.058E-02	-0.514
TB-160	+	962.29		-1.531E-01	1.108E+00	1.728E+00	1.604E-01	-0.089
		966.15		5.699E-01	4.458E-01	7.084E-01	6.566E-02	0.805
		1177.93		8.725E-02	5.165E-01	7.492E-01	6.034E-02	0.116
		1271.85		-5.407E-01	7.011E-01	9.777E-01	8.120E-02	-0.553
		80.57		-7.916E-03	3.612E-01	5.549E-01	4.897E-02	-0.014
		184.41		8.899E-02	7.770E-02	8.259E-02	7.862E-03	1.077
		280.46		-1.582E-01	1.360E-01	1.996E-01	2.395E-02	-0.793
		410.95		2.611E-01	4.273E-01	7.372E-01	6.882E-02	0.354
		711.68	*	-1.622E-01	1.001E-01	1.346E-01	1.222E-02	-1.205
		752.31		-1.831E-01	4.900E-01	7.588E-01	6.985E-02	-0.241
HO-166M	+	810.29		-2.328E-02	1.071E-01	1.774E-01	1.658E-02	-0.131

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		51.35		-2.289E+01	6.251E+01	9.672E+01	7.621E+00	-0.237
		52.39		-1.573E+01	3.308E+01	5.093E+01	3.948E+00	-0.309
	+	59.40		2.309E+03	1.994E+02	2.110E+02	1.498E+01	10.944
		66.72	*	-3.612E+00	3.669E+01	5.666E+01	4.341E+00	-0.064
LU-176	+	88.36		7.189E+00	9.235E-01	9.381E-01	9.006E-02	7.664
		201.83		-9.719E-03	4.083E-02	6.576E-02	6.559E-03	-0.148
		306.84	*	-1.819E-03	4.092E-02	6.482E-02	7.519E-03	-0.028
		401.10		9.857E-02	1.175E+01	1.971E+01	1.831E+00	0.005
LU-177		112.95		1.057E-01	1.045E+00	1.765E+00	1.478E-01	0.060
		208.36	*	8.810E-01	8.216E-01	1.395E+00	1.416E-01	0.631
LU-177M		52.97		-5.897E-01	3.419E+00	5.327E+00	4.093E-01	-0.111
		54.07		2.343E+00	1.769E+00	2.889E+00	2.184E-01	0.811
		61.30		1.209E+01	2.705E+00	4.480E+00	3.250E-01	2.698
	+	121.62		3.069E+00	8.573E-01	1.196E+00	9.928E-02	2.566
		147.16		3.530E-02	8.358E-01	1.390E+00	1.198E-01	0.025
		171.86		-1.723E-02	6.053E-01	9.946E-01	9.159E-02	-0.017
		218.09		-6.709E-01	1.288E+00	2.033E+00	2.116E-01	-0.330
		268.79		1.424E+00	1.190E+00	2.015E+00	2.367E-01	0.707
		319.02		1.417E-01	4.264E-01	6.885E-01	7.822E-02	0.206
		367.43		-1.159E+00	1.425E+00	2.284E+00	2.303E-01	-0.507
		413.65	*	-1.241E-02	2.945E-01	4.916E-01	4.595E-02	-0.025
HF-181		56.28		1.491E-01	2.023E+00	2.918E+00	2.142E-01	0.051
		57.53		8.408E-01	1.121E+00	1.656E+00	1.198E-01	0.508
		65.20		-2.569E-01	1.099E+00	1.686E+00	1.273E-01	-0.152
		133.02		8.272E-03	7.755E-02	1.300E-01	1.090E-02	0.064
		136.25		2.428E-01	5.568E-01	9.450E-01	7.966E-02	0.257
		345.85		-5.665E-02	2.922E-01	4.539E-01	4.865E-02	-0.125
		482.03	*	-4.658E-02	7.218E-02	1.147E-01	1.091E-02	-0.406
W-181		56.28		6.307E-02	8.491E-01	1.225E+00	8.991E-02	0.051
		57.53		3.469E-01	4.707E-01	6.953E-01	5.030E-02	0.499
		65.20	*	-1.071E-01	4.580E-01	7.029E-01	5.308E-02	-0.152
TA-182		67.75		5.625E-02	1.349E-01	2.137E-01	1.654E-02	0.263
		100.10		3.254E-02	2.075E-01	3.532E-01	3.089E-02	0.092
		152.43		5.530E-02	4.010E-01	6.687E-01	5.843E-02	0.083
		222.10		-5.950E-02	5.271E-01	8.496E-01	8.935E-02	-0.070
		1001.68		3.126E+00	3.819E+00	6.707E+00	6.123E-01	0.466
	+	1121.28		3.336E-01	3.652E-01	4.913E-01	4.148E-02	0.679
		1189.05		1.717E-01	3.863E-01	6.615E-01	5.349E-02	0.260
		1221.42	*	-4.089E-02	2.188E-01	3.476E-01	2.842E-02	-0.118
		1230.97		1.848E-01	4.700E-01	8.053E-01	6.606E-02	0.230
RE-183		57.98		2.469E+00	5.176E-01	8.219E-01	5.918E-02	3.004
	+	59.32		8.920E+00	7.703E-01	8.177E-01	5.811E-02	10.908
		67.20		1.117E-01	2.391E-01	3.798E-01	2.923E-02	0.294
		162.32	*	1.121E-01	1.403E-01	2.397E-01	2.151E-02	0.468
		208.81		1.985E+00	1.367E+00	2.349E+00	2.387E-01	0.845
		291.72		1.558E+00	1.459E+00	2.231E+00	2.643E-01	0.698
RE-184		57.98		9.452E+00	1.982E+00	3.147E+00	2.266E-01	3.004
	+	59.32		3.412E+01	2.947E+00	3.128E+00	2.223E-01	10.908
		67.20		4.277E-01	9.152E-01	1.454E+00	1.119E-01	0.294



Sample ID : G1202021395

Acquisition date : 2-FEB-2010 13:04:58

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	+	161.27		2.515E-02	4.800E-01	7.945E-01	7.110E-02	0.032
		216.55		5.486E-02	3.998E-01	6.533E-01	6.774E-02	0.084
		252.85	*	7.757E-02	3.601E-01	5.857E-01	6.638E-02	0.132
		318.01		3.996E-01	7.229E-01	1.182E+00	1.346E-01	0.338
		792.07		7.976E-02	1.649E+00	2.789E+00	2.596E-01	0.029
		903.28		1.146E+00	2.007E+00	3.306E+00	3.124E-01	0.347
		920.93		5.455E-01	9.892E-01	1.703E+00	1.602E-01	0.320
		59.72		2.474E+01	2.136E+00	2.206E+00	1.570E-01	11.214
		61.14		2.904E+00	3.858E-01	6.221E-01	4.505E-02	4.668
		69.30		-9.084E-02	3.306E-01	5.614E-01	4.408E-02	-0.162
		592.07		-6.202E-01	3.973E+00	6.402E+00	5.953E-01	-0.097
		646.12	*	-5.483E-02	7.443E-02	1.135E-01	1.020E-02	-0.483
RE-188	*	717.42		4.544E-01	1.355E+00	2.241E+00	2.038E-01	0.203
		874.81		1.035E+00	1.103E+00	1.956E+00	1.847E-01	0.529
		880.27		-8.525E-01	1.570E+00	2.526E+00	2.386E-01	-0.338
		155.03	*	1.374E-02	2.116E-01	3.513E-01	3.090E-02	0.039
		477.96		-3.460E-01	5.425E+00	8.956E+00	8.515E-01	-0.039
W-188		633.10		-3.955E+00	4.499E+00	6.755E+00	6.131E-01	-0.586
		63.58		1.287E+01	6.798E+01	9.878E+01	7.342E+00	0.130
IR-192	+	227.08		5.420E+00	1.946E+01	3.191E+01	3.399E+00	0.170
		290.67	*	3.778E+00	1.229E+01	1.782E+01	2.114E+00	0.212
		295.96		6.562E-01	2.136E-01	3.187E-01	3.769E-02	2.059
		308.46		5.100E-02	1.482E-01	2.400E-01	2.784E-02	0.213
		316.51	*	-2.753E-02	5.551E-02	8.504E-02	9.719E-03	-0.324
AU-195		468.07		-9.414E-02	1.227E-01	1.945E-01	1.957E-02	-0.484
		604.41		3.255E-01	8.033E-01	1.190E+00	1.598E-01	0.274
		612.46		1.408E-01	1.258E+00	1.811E+00	1.884E-01	0.078
		65.12		-5.390E-02	2.149E-01	3.294E-01	2.486E-02	-0.164
		66.83		-6.212E-03	1.192E-01	1.846E-01	1.416E-02	-0.034
TL-200	+	75.70		8.391E-01	2.896E-01	4.591E-01	3.842E-02	1.827
		98.88	*	1.035E-01	2.651E-01	4.549E-01	4.006E-02	0.228
		129.76		3.240E+00	3.612E+00	6.254E+00	5.221E-01	0.518
		367.94	*	-9.453E+00	1.123E+01	1.797E+01	1.808E+00	-0.526
		579.30		4.929E+00	1.041E+02	1.496E+02	1.399E+01	0.033
TL-201		828.27		9.853E+00	1.368E+02	2.309E+02	2.166E+01	0.043
		1205.75		-1.105E+01	4.390E+01	6.920E+01	5.630E+00	-0.160
		68.90		-5.661E-01	1.243E+00	2.096E+00	1.639E-01	-0.270
		70.82		2.243E-02	7.704E-01	1.194E+00	9.514E-02	0.019
		80.30		2.667E-01	1.477E+00	2.293E+00	2.017E-01	0.116
TL-202	*	135.34		1.160E+00	7.685E+00	1.289E+01	1.085E+00	0.090
		167.43	*	-5.825E-01	2.007E+00	3.256E+00	2.964E-01	-0.179
		68.90		-1.572E-01	3.452E-01	5.820E-01	4.552E-02	-0.270
		70.82		6.212E-03	2.134E-01	3.307E-01	2.635E-02	0.019
		80.30		7.388E-02	4.093E-01	6.353E-01	5.589E-02	0.116
HG-203	*	439.56	*	-1.653E-02	8.405E-02	1.384E-01	1.307E-02	-0.119
		70.83		3.747E-02	1.218E+00	1.888E+00	2.493E-01	0.020
		72.87		4.249E-01	6.975E-01	1.108E+00	1.428E-01	0.383
		82.60		-9.344E-01	1.323E+00	2.087E+00	2.923E-01	-0.448
		279.20	*	2.399E-02	5.533E-02	9.059E-02	1.104E-02	0.265

---- 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		1.344E-01	2.253E-01	3.583E-01	2.910E-02	0.375
	+	74.97		4.770E-01	1.647E-01	2.518E-01	2.091E-02	1.894
		84.90		1.752E-01	2.661E-01	4.211E-01	3.909E-02	0.416
		569.67		3.517E-02	4.975E-02	8.541E-02	8.018E-03	0.412
		1063.62	*	-1.275E-01	1.010E-01	1.475E-01	1.300E-02	-0.865
TL-207		1770.23		-1.054E+00	7.081E-01	7.643E-01	6.316E-02	-1.378
		81.07		1.150E-01	2.858E-01	4.481E-01	3.977E-02	0.257
		83.78		1.769E-02	1.749E-01	2.706E-01	2.478E-02	0.065
		94.90		1.302E-01	2.764E-01	4.333E-01	3.917E-02	0.301
	+	122.32		1.466E+01	4.125E+00	5.725E+00	5.127E-01	2.561
		144.24		-2.988E-01	9.359E-01	1.534E+00	1.471E-01	-0.195
		154.21		-1.430E-02	5.096E-01	8.424E-01	8.106E-02	-0.017
		269.46		3.350E-01	2.913E-01	4.917E-01	5.848E-02	0.681
		323.87	*	-8.869E-01	1.066E+00	1.571E+00	3.004E-01	-0.565
	+	338.28		4.829E+00	2.259E+00	3.156E+00	4.423E-01	1.530
PO-209		445.03		-7.816E-01	4.253E+00	7.008E+00	8.896E-01	-0.112
		260.50		5.045E+00	1.543E+01	2.520E+01	2.906E+00	0.200
		262.80		3.771E+01	4.265E+01	7.142E+01	8.279E+00	0.528
		896.60	*	1.410E+00	1.494E+01	2.511E+01	2.375E+00	0.056
		46.50	*	-1.117E+00	6.657E+00	1.046E+01	9.759E-01	-0.107
PB-210		46.50	*	-1.117E+00	6.657E+00	1.046E+01	9.759E-01	-0.107
PO-210		46.50	*	-1.117E+00	6.657E+00	1.046E+01	8.839E-01	-0.107
PB-211		404.84	*	-6.036E-01	1.681E+00	2.691E+00	1.689E+00	-0.224
BI-212		427.08		-2.921E+00	3.922E+00	5.508E+00	3.429E+00	-0.530
		831.96		-9.654E-02	2.260E+00	3.783E+00	2.375E+00	-0.026
	+	727.18	*	6.313E-01	7.771E-01	9.512E-01	9.938E-02	0.664
		785.46		1.271E-01	3.095E+00	5.235E+00	4.865E-01	0.024
		1620.62		2.680E+00	1.990E+00	3.905E+00	3.318E-01	0.686
PO-215		81.07		1.150E-01	2.858E-01	4.481E-01	3.977E-02	0.257
		83.78		1.769E-02	1.749E-01	2.706E-01	2.478E-02	0.065
		94.90		1.302E-01	2.764E-01	4.333E-01	3.917E-02	0.301
	+	122.32		1.466E+01	4.125E+00	5.725E+00	5.127E-01	2.561
		144.24		-2.988E-01	9.359E-01	1.534E+00	1.471E-01	-0.195
		154.21		-1.430E-02	5.096E-01	8.424E-01	8.106E-02	-0.017
		269.46		3.350E-01	2.913E-01	4.917E-01	5.848E-02	0.681
		323.87	*	-8.869E-01	1.066E+00	1.571E+00	3.004E-01	-0.565
	+	338.28		4.829E+00	2.259E+00	3.156E+00	4.423E-01	1.530
		445.03		-7.816E-01	4.253E+00	7.008E+00	8.896E-01	-0.112
RN-219		271.23		3.106E-01	3.787E-01	6.300E-01	8.249E-02	0.493
		401.81	*	5.525E-03	7.200E-01	1.208E+00	1.862E-01	0.005
RN-220		549.76	*	2.460E+01	4.242E+01	7.242E+01	6.842E+00	0.340
RA-223		81.07		1.150E-01	2.858E-01	4.481E-01	3.977E-02	0.257
		83.78		1.769E-02	1.749E-01	2.706E-01	2.478E-02	0.065
		94.90		1.302E-01	2.764E-01	4.333E-01	3.917E-02	0.301
	+	122.32		1.466E+01	4.125E+00	5.725E+00	5.127E-01	2.561
		144.24		-2.988E-01	9.359E-01	1.534E+00	1.471E-01	-0.195
		154.21		-1.430E-02	5.096E-01	8.424E-01	8.106E-02	-0.017
		269.46		3.350E-01	2.913E-01	4.917E-01	5.848E-02	0.681
		323.87	*	-8.869E-01	1.066E+00	1.571E+00	3.004E-01	-0.565

---- 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		4.829E+00	2.259E+00	3.156E+00	4.423E-01	1.530
		445.03		-7.816E-01	4.253E+00	7.008E+00	8.896E-01	-0.112
		79.80		-1.189E-01	2.228E+00	3.420E+00	7.371E-01	-0.035
		236.00		1.789E-01	3.838E-01	5.684E-01	7.920E-02	0.315
		256.20	*	-4.831E-01	6.257E-01	9.532E-01	1.628E-01	-0.507
		286.10		1.568E-01	2.449E+00	3.921E+00	6.102E-01	0.040
		299.80		3.102E+00	2.568E+00	3.868E+00	7.429E-01	0.802
TH-227		304.40		8.497E-01	2.991E+00	4.829E+00	9.672E-01	0.176
		334.20		-1.479E+00	3.945E+00	5.732E+00	1.180E+00	-0.258
		79.80		-1.189E-01	2.228E+00	3.420E+00	7.465E-01	-0.035
	+	94.00		4.328E+00	4.046E+00	4.111E+00	9.035E-01	1.053
		236.00		1.789E-01	3.837E-01	5.684E-01	7.344E-02	0.315
		256.20	*	-4.831E-01	6.273E-01	9.532E-01	1.864E-01	-0.507
		286.10		1.568E-01	2.454E+00	3.921E+00	3.949E+00	0.040
TH-229		299.80		3.102E+00	2.568E+00	3.868E+00	7.429E-01	0.802
		304.40		8.497E-01	2.991E+00	4.829E+00	9.672E-01	0.176
		334.20		-1.479E+00	3.945E+00	5.732E+00	1.180E+00	-0.258
		85.43		2.748E-01	2.666E-01	4.261E-01	3.981E-02	0.645
	+	88.47		4.139E+00	5.316E-01	5.377E-01	5.156E-02	7.696
		100.00		5.065E-03	2.252E-01	3.802E-01	3.327E-02	0.013
		193.63	*	-1.107E-01	7.267E-01	1.179E+00	1.150E-01	-0.094
PA-231		210.97		1.397E-01	1.151E+00	1.882E+00	1.923E-01	0.074
		283.67	*	1.550E+00	2.469E+00	4.062E+00	7.026E-01	0.382
		301.29		8.602E-01	9.200E-01	1.528E+00	2.226E-01	0.563
TH-231		81.07		1.150E-01	2.858E-01	4.481E-01	3.977E-02	0.257
		83.78		1.769E-02	1.749E-01	2.706E-01	2.478E-02	0.065
		94.90		1.302E-01	2.764E-01	4.333E-01	3.917E-02	0.301
	+	122.32		1.466E+01	4.125E+00	5.725E+00	5.127E-01	2.561
		144.24		-2.988E-01	9.359E-01	1.534E+00	1.471E-01	-0.195
		154.21		-1.430E-02	5.096E-01	8.424E-01	8.106E-02	-0.017
		269.46		3.350E-01	2.913E-01	4.917E-01	5.848E-02	0.681
U-231		323.87	*	-8.869E-01	1.066E+00	1.571E+00	3.004E-01	-0.565
	+	338.28		4.829E+00	2.259E+00	3.156E+00	4.423E-01	1.530
		445.03		-7.816E-01	4.253E+00	7.008E+00	8.896E-01	-0.112
		84.21		-1.206E-01	2.577E+00	3.957E+00	3.643E-01	-0.030
	+	92.29		1.440E+00	1.315E+00	1.508E+00	1.393E-01	0.955
		95.87	*	8.568E-02	4.444E-01	6.855E-01	6.154E-02	0.125
		108.00		-3.277E-03	8.562E-01	1.442E+00	1.222E-01	-0.002
PA-233	+	75.28		1.392E+01	5.121E+00	7.362E+00	1.118E+00	1.891
	+	86.59		5.934E+01	1.689E+01	5.657E+00	1.533E+00	10.490
		300.12		7.076E-01	6.778E-01	1.078E+00	1.818E-01	0.656
		311.98	*	1.947E-02	1.037E-01	1.663E-01	1.944E-02	0.117
		340.50		7.481E-01	1.024E+00	1.588E+00	3.929E-01	0.471
		398.62		-4.835E-01	3.651E+00	6.077E+00	1.632E+00	-0.080
		415.76		-1.665E+00	2.873E+00	4.608E+00	1.007E+00	-0.361
PA-234		63.00		1.896E-01	2.163E+00	3.124E+00	4.640E-01	0.061
		94.67		9.220E-02	2.040E-01	3.190E-01	4.055E-02	0.289
		98.44		5.799E-02	1.141E-01	1.890E-01	1.055E-01	0.307
		99.86		3.420E-02	5.676E-01	9.600E-01	8.407E-02	0.036

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		2.469E-02	2.286E-01	3.865E-01	4.614E-02	0.064
		131.20		-6.083E-02	1.415E-01	2.314E-01	1.935E-02	-0.263
		152.70		1.609E-01	4.031E-01	6.793E-01	1.162E-01	0.237
	+	186.00		3.204E+00	2.958E+00	3.104E+00	9.773E-01	1.032
		226.40		3.407E-01	6.444E-01	1.067E+00	1.557E-01	0.319
		227.20		1.390E-01	6.995E-01	1.143E+00	1.218E-01	0.122
		248.90		-1.018E+00	1.301E+00	1.965E+00	4.626E-01	-0.518
	+	293.70		4.394E+00	1.574E+00	2.001E+00	3.820E-01	2.196
		369.80		-3.737E-01	1.416E+00	2.349E+00	5.253E-01	-0.159
		568.70		1.439E+00	1.641E+00	2.843E+00	2.670E-01	0.506
		569.50		3.372E-01	4.436E-01	7.639E-01	7.172E-02	0.441
		574.00		-1.150E+00	2.438E+00	3.838E+00	3.597E-01	-0.300
		699.00		2.819E-01	1.157E+00	1.899E+00	3.659E-01	0.148
		706.10		1.847E+00	1.846E+00	2.904E+00	1.298E+00	0.636
		733.00		2.569E-01	6.449E-01	1.032E+00	2.312E-01	0.249
		742.81		-2.750E+00	3.153E+00	3.721E+00	2.504E+00	-0.739
		796.30		1.099E+00	1.607E+00	2.785E+00	7.598E-01	0.395
		805.60		3.734E-01	1.758E+00	2.998E+00	9.253E-01	0.125
		819.60		6.048E-01	2.186E+00	3.730E+00	1.425E+00	0.162
		826.30		1.215E+00	1.590E+00	2.653E+00	1.191E+00	0.458
		831.60		-4.339E-01	1.171E+00	1.904E+00	5.725E-01	-0.228
		876.40		3.078E-02	1.643E+00	2.752E+00	2.831E+00	0.011
		880.51		-3.422E-01	6.028E-01	9.685E-01	9.149E-02	-0.353
		883.24		3.998E-01	6.732E-01	1.074E+00	7.232E-01	0.372
		899.00		-4.961E-01	1.668E+00	2.701E+00	1.185E+00	-0.184
		925.00		-2.107E+00	2.573E+00	4.034E+00	3.791E-01	-0.522
		926.50		-4.175E-01	3.943E-01	5.841E-01	1.492E-01	-0.715
		946.00	*	9.154E-02	7.227E-01	1.210E+00	2.312E-01	0.076
		949.00		-5.650E-01	1.022E+00	1.637E+00	1.527E-01	-0.345
		980.50		-4.576E-01	1.510E+00	2.447E+00	2.256E-01	-0.187
		1394.10		5.531E-01	1.236E+00	2.096E+00	1.364E+00	0.264
PA-234M		766.42		1.536E+01	2.072E+01	3.264E+01	1.660E+01	0.471
TH-234		1001.03	*	6.038E+00	9.011E+00	1.568E+01	1.632E+00	0.385
		63.29	*	1.602E-01	1.833E+00	2.647E+00	4.617E-01	0.061
	+	92.38		1.120E+00	1.038E+00	1.173E+00	2.157E-01	0.955
U-235		89.95		1.689E+00	1.859E+00	2.341E+00	7.281E-01	0.721
	+	93.35		1.347E+00	1.281E+00	1.394E+00	3.931E-01	0.966
		105.00		7.663E-01	1.351E+00	2.303E+00	6.868E-01	0.333
		143.76	*	-3.262E-02	2.858E-01	4.729E-01	8.264E-02	-0.069
		163.35		2.315E-01	6.599E-01	1.096E+00	2.111E-01	0.211
	+	185.71		1.187E-01	1.036E-01	1.161E-01	1.109E-02	1.022
		205.31		-7.883E-01	7.721E-01	1.162E+00	2.298E-01	-0.678
NP-236		94.67		7.104E-02	1.547E-01	2.421E-01	2.193E-02	0.293
		98.44		4.381E-02	8.277E-02	1.429E-01	1.261E-02	0.307
		111.00		1.868E-02	1.729E-01	2.924E-01	2.458E-02	0.064
		160.31	*	-2.872E-02	1.093E-01	1.782E-01	1.590E-02	-0.161
NP-237		86.50	*	2.584E+00	7.242E-01	7.870E-01	1.786E-01	3.283
		95.87		2.245E-01	1.165E+00	1.796E+00	4.447E-01	0.125
U-238		63.29	*	1.602E-01	1.833E+00	2.647E+00	4.617E-01	0.061

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	92.38		1.120E+00	1.023E+00	1.173E+00	1.083E-01	0.955
		99.55		1.589E-02	1.912E-01	3.238E-01	2.841E-02	0.049
		117.00	*	-1.355E-01	2.571E-01	4.004E-01	3.334E-02	-0.338
		209.75		8.195E-01	1.160E+00	1.944E+00	1.980E-01	0.422
		228.18		7.486E-02	3.709E-01	6.059E-01	6.470E-02	0.124
		277.60		1.863E-01	2.701E-01	4.478E-01	5.361E-02	0.416
CM-243		334.30		-7.220E-01	2.236E+00	3.270E+00	3.602E-01	-0.221
		99.55		1.634E-02	1.967E-01	3.331E-01	2.922E-02	0.049
		103.76	*	4.479E-03	1.220E-01	2.062E-01	1.773E-02	0.022
		117.00		-1.393E-01	2.644E-01	4.118E-01	3.428E-02	-0.338
		209.75		8.075E-01	1.143E+00	1.915E+00	1.951E-01	0.422
		228.18		7.561E-02	3.746E-01	6.119E-01	6.535E-02	0.124
AM-246		277.60		1.878E-01	2.722E-01	4.513E-01	5.402E-02	0.416
		798.80		-1.092E-01	2.515E-01	4.106E-01	3.828E-02	-0.266
		1036.00		-5.308E-01	5.990E-01	9.153E-01	8.207E-02	-0.580
		1062.04		-3.536E-01	4.278E-01	6.528E-01	5.761E-02	-0.542
		1078.86	*	-2.168E-01	2.877E-01	4.439E-01	3.873E-02	-0.488
		278.00		9.230E-01	1.116E+00	1.862E+00	2.231E-01	0.496
CM-247		287.40		-9.081E-01	1.949E+00	3.012E+00	3.587E-01	-0.301
		402.60	*	-6.571E-04	6.432E-02	1.078E-01	1.002E-02	-0.006
CF-249		252.85		2.990E-01	1.388E+00	2.258E+00	2.559E-01	0.132
		333.44		-8.888E-02	2.843E-01	4.160E-01	4.591E-02	-0.214
		387.95	*	-4.027E-02	6.625E-02	1.073E-01	1.007E-02	-0.375
CF-251		176.60	*	2.160E-01	1.683E-01	2.923E-01	2.726E-02	0.739
		227.00		3.207E-01	6.183E-01	1.025E+00	1.091E-01	0.313
		285.00		1.578E+00	2.813E+00	4.626E+00	5.522E-01	0.341

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021395      *
* Acquisition date   : 2-FEB-2010 13:04:58 Detector SN#                   *
* Detector ID        : GAM16 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 01:00:02.01 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date       : 25-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202021395 Analyst initials: MXR1                 *
* Batch Number      : 944037 Sample Quantity : 1.5544E+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 :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	1.281E+00	4.986E-01	6.538E-01	0.000E+00
CO-57	2.086E-01	5.710E-02	5.637E-02	0.000E+00
CO-60	6.323E+00	6.082E-01	7.012E-02	0.000E+00
CD-109	3.054E+01	3.844E+00	1.904E+00	0.000E+00
SN-126	3.031E+00	3.816E-01	1.899E-01	0.000E+00
BA-137M	5.661E+00	5.457E-01	1.025E-01	0.000E+00
CS-137	5.984E+00	5.778E-01	1.084E-01	0.000E+00
TL-208	2.985E-01	1.127E-01	1.011E-01	0.000E+00
BI-211	1.971E+00	6.301E-01	5.604E-01	0.000E+00
PB-212	1.072E+00	1.801E-01	1.474E-01	0.000E+00
PO-212	1.072E+00	1.801E-01	1.474E-01	0.000E+00
BI-214	6.374E-01	2.346E-01	1.976E-01	0.000E+00
PB-214	6.856E-01	2.220E-01	1.953E-01	0.000E+00
PO-214	6.856E-01	2.220E-01	1.953E-01	0.000E+00
PO-216	1.072E+00	1.801E-01	1.474E-01	0.000E+00
PO-218	6.856E-01	2.220E-01	1.953E-01	0.000E+00
RA-224	3.041E+00	1.785E+00	1.678E+00	0.000E+00
RA-226	6.374E-01	2.346E-01	1.976E-01	0.000E+00
AC-228	1.367E+00	5.452E-01	4.732E-01	0.000E+00
RA-228	1.367E+00	5.452E-01	4.732E-01	0.000E+00
TH-228	1.081E+00	1.816E-01	1.487E-01	0.000E+00
TH-230	6.374E-01	2.346E-01	1.976E-01	0.000E+00
TH-232	1.367E+00	5.452E-01	4.732E-01	0.000E+00
U-234	6.374E-01	2.346E-01	1.976E-01	0.000E+00
AM-241	1.358E+01	1.233E+00	4.808E-01	0.000E+00
AM-243	2.658E-01	8.993E-02	1.217E-01	0.000E+00
ANH-511	3.768E-02	9.446E-02	8.601E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-8.542E-02	5.448E-01	9.493E-01	0.000E+00	NOT IDENT.
NA-22	2.310E-02	4.646E-02	8.468E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.018E+02	0.000E+00	0.000E+00	SHORT HLIF
AL-26	8.929E-03	3.628E-02	6.465E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.083E-02	9.575E-02	0.000E+00	FAIL ABUN
SC-46	2.821E-02	7.796E-02	1.389E-01	0.000E+00	FAIL ABUN
V-48	-1.076E-01	1.073E-01	1.704E-01	0.000E+00	NOT IDENT.
CR-51	3.230E-01	5.061E-01	8.909E-01	0.000E+00	NOT IDENT.
MN-52	-1.367E-02	1.150E-01	1.852E-01	0.000E+00	FAIL ABUN
MN-54	2.645E-02	6.534E-02	1.177E-01	0.000E+00	NOT IDENT.
CO-56	2.871E-02	6.632E-02	1.197E-01	0.000E+00	NOT IDENT.
CO-58	-1.076E-02	6.390E-02	1.111E-01	0.000E+00	NOT IDENT.
FE-59	6.451E-02	1.606E-01	2.816E-01	0.000E+00	NOT IDENT.
ZN-65	-6.766E-02	1.918E-01	2.712E-01	0.000E+00	NOT IDENT.
GE-68	-1.693E-01	2.273E+00	3.858E+00	0.000E+00	NOT IDENT.
AS-73	4.209E-01	1.657E+00	2.937E+00	0.000E+00	NOT IDENT.
AS-74	8.364E-03	1.151E-01	1.991E-01	0.000E+00	NOT IDENT.
SE-75	-2.573E-02	6.620E-02	1.117E-01	0.000E+00	FAIL ABUN
BR-77	-2.135E+00	2.533E+00	4.143E+00	0.000E+00	FAIL ABUN
SR-82	-1.286E-01	5.601E-01	9.182E-01	0.000E+00	NOT IDENT.
RB-83	-8.232E-02	1.092E-01	1.799E-01	0.000E+00	NOT IDENT.
RB-84	4.727E-02	1.256E-01	2.243E-01	0.000E+00	NOT IDENT.
KR-85	-1.830E+00	1.412E+01	2.139E+01	0.000E+00	NOT IDENT.
SR-85	-8.753E-03	6.753E-02	1.023E-01	0.000E+00	NOT IDENT.
RB-86	3.499E-01	1.135E+00	1.986E+00	0.000E+00	NOT IDENT.
Y-88	2.133E-02	4.179E-02	7.795E-02	0.000E+00	NOT IDENT.
ZR-88	3.104E-02	4.779E-02	8.841E-02	0.000E+00	NOT IDENT.
Y-91	4.611E+00	1.946E+01	3.379E+01	0.000E+00	NOT IDENT.
NB-94	-4.774E-03	5.363E-02	8.998E-02	0.000E+00	NOT IDENT.
NB-95	7.099E-02	6.595E-02	1.192E-01	0.000E+00	NOT IDENT.
NB-95M	4.695E-02	1.896E-01	2.997E-01	0.000E+00	NOT IDENT.
ZR-95	6.898E-02	1.205E-01	2.106E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.967E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.748E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	4.179E+00	3.732E+00	6.759E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.068E+08	0.000E+00	0.000E+00	SHORT HLIF
RH-101	7.331E-03	4.516E-02	8.066E-02	0.000E+00	NOT IDENT.
RH-102	-2.278E-02	5.467E-02	9.385E-02	0.000E+00	NOT IDENT.
RU-103	7.616E-03	6.126E-02	1.081E-01	0.000E+00	FAIL ABUN
RH-106	-2.885E-02	5.213E-01	8.887E-01	0.000E+00	FAIL ABUN
RU-106	-2.885E-02	5.213E-01	8.887E-01	0.000E+00	FAIL ABUN
AG-108M	4.555E-02	6.002E-02	1.104E-01	0.000E+00	NOT IDENT.
AG-110M	8.397E-03	6.937E-02	1.044E-01	0.000E+00	NOT IDENT.
IN-111	3.604E-01	3.417E-01	5.665E-01	0.000E+00	NOT IDENT.
IN-113M	2.493E-02	7.077E-02	1.291E-01	0.000E+00	NOT IDENT.
SN-113	2.493E-02	7.077E-02	1.291E-01	0.000E+00	NOT IDENT.
IN-114M	-3.200E-02	2.395E-01	4.029E-01	0.000E+00	NOT IDENT.
CD-115	1.735E+00	2.461E+00	4.467E+00	0.000E+00	NOT IDENT.
SN-117M	-8.543E-03	5.163E-02	9.243E-02	0.000E+00	NOT IDENT.
SB-122	-1.786E-01	6.020E-01	1.020E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.815E+03	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.492E-02	3.660E-02	6.472E-02	0.000E+00	NOT IDENT.
I-124	-2.724E-02	3.776E-01	6.227E-01	0.000E+00	NOT IDENT.
SB-124	3.161E-02	8.452E-02	1.548E-01	0.000E+00	FAIL ABUN
SB-125	-2.357E-02	1.549E-01	2.728E-01	0.000E+00	NOT IDENT.
TE-125M	-1.330E+00	1.051E+01	1.938E+01	0.000E+00	NOT IDENT.
I-126	1.355E-02	2.106E-01	3.153E-01	0.000E+00	NOT IDENT.
SB-126	4.988E-02	1.634E-01	2.626E-01	0.000E+00	FAIL ABUN
SB-127	3.757E-02	5.872E-01	1.001E+00	0.000E+00	NOT IDENT.
XE-127	5.875E-02	5.728E-02	1.059E-01	0.000E+00	NOT IDENT.
I-131	8.879E-02	1.051E-01	1.973E-01	0.000E+00	NOT IDENT.
TE-132	5.454E-02	2.733E-01	4.828E-01	0.000E+00	NOT IDENT.
BA-133	1.649E-02	7.439E-02	1.206E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.507E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	2.757E-02	7.976E-02	1.438E-01	0.000E+00	NOT IDENT.
CS-135	-2.361E-02	2.372E-01	4.070E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.384E+08	0.000E+00	0.000E+00	SHORT HLIF
CS-136	5.865E-02	1.519E-01	2.672E-01	0.000E+00	NOT IDENT.
CE-139	-1.934E-02	3.750E-02	6.565E-02	0.000E+00	NOT IDENT.
BA-140	-1.145E-01	3.217E-01	5.422E-01	0.000E+00	NOT IDENT.
LA-140	-4.028E-02	7.121E-02	1.082E-01	0.000E+00	NOT IDENT.
CE-141	3.705E-02	7.156E-02	1.329E-01	0.000E+00	NOT IDENT.
CE-143	5.418E+00	8.632E+00	1.359E+01	0.000E+00	FAIL ABUN
CE-144	-1.129E-01	2.669E-01	4.780E-01	0.000E+00	NOT IDENT.
PM-144	-1.378E-02	5.434E-02	8.998E-02	0.000E+00	NOT IDENT.
PR-144	-9.304E-01	3.670E+00	6.076E+00	0.000E+00	NOT IDENT.
PM-146	8.273E-02	7.997E-02	1.482E-01	0.000E+00	NOT IDENT.
ND-147	-3.063E-01	6.587E-01	1.109E+00	0.000E+00	NOT IDENT.

PM-149	-2.215E+00	1.815E+01	3.090E+01	0.000E+00	NOT IDENT.
EU-152	-1.214E-01	1.519E-01	2.628E-01	0.000E+00	FAIL ABUN
GD-153	-8.693E-03	1.004E-01	1.681E-01	0.000E+00	NOT IDENT.
EU-154	8.664E-02	1.272E-01	2.376E-01	0.000E+00	FAIL ABUN
EU-155	7.399E-02	1.338E-01	2.545E-01	0.000E+00	FAIL ABUN
TB-160	-2.207E-01	2.675E-01	4.395E-01	0.000E+00	FAIL ABUN
HO-166M	-1.622E-01	9.811E-02	1.385E-01	0.000E+00	FAIL ABUN
TM-171	-3.612E+00	3.596E+01	6.193E+01	0.000E+00	FAIL ABUN
LU-176	-1.819E-03	4.010E-02	6.820E-02	0.000E+00	FAIL ABUN
LU-177	8.810E-01	8.052E-01	1.483E+00	0.000E+00	NOT IDENT.
LU-177M	-1.241E-02	2.886E-01	5.132E-01	0.000E+00	FAIL ABUN
HF-181	-4.658E-02	7.073E-02	1.193E-01	0.000E+00	NOT IDENT.
W-181	-1.071E-01	4.489E-01	7.687E-01	0.000E+00	NOT IDENT.
TA-182	-4.089E-02	2.145E-01	3.523E-01	0.000E+00	FAIL ABUN
RE-183	1.121E-01	1.375E-01	2.563E-01	0.000E+00	FAIL ABUN
RE-184	7.757E-02	3.529E-01	6.193E-01	0.000E+00	FAIL ABUN
OS-185	-5.483E-02	7.294E-02	1.171E-01	0.000E+00	FAIL ABUN
RE-188	1.374E-02	2.074E-01	3.761E-01	0.000E+00	NOT IDENT.
W-188	3.778E+00	1.205E+01	1.878E+01	0.000E+00	NOT IDENT.
IR-192	-2.753E-02	5.440E-02	8.940E-02	0.000E+00	FAIL ABUN
AU-195	1.035E-01	2.598E-01	4.925E-01	0.000E+00	FAIL ABUN
TL-200	-9.453E+00	1.100E+01	1.881E+01	0.000E+00	NOT IDENT.
TL-201	-5.825E-01	1.967E+00	3.479E+00	0.000E+00	NOT IDENT.
TL-202	-1.653E-02	8.237E-02	1.443E-01	0.000E+00	NOT IDENT.
HG-203	2.399E-02	5.422E-02	9.555E-02	0.000E+00	NOT IDENT.
BI-207	-1.275E-01	9.901E-02	1.501E-01	0.000E+00	FAIL ABUN
TL-207	-8.869E-01	1.045E+00	1.650E+00	0.000E+00	FAIL ABUN
PO-209	1.410E+00	1.465E+01	2.568E+01	0.000E+00	NOT IDENT.
BI-210	-1.117E+00	6.524E+00	1.154E+01	0.000E+00	NOT IDENT.
PB-210	-1.117E+00	6.524E+00	1.154E+01	0.000E+00	NOT IDENT.
PO-210	-1.117E+00	6.524E+00	1.154E+01	0.000E+00	NOT IDENT.
PB-211	-6.036E-01	1.648E+00	2.811E+00	0.000E+00	NOT IDENT.
BI-212	6.313E-01	7.616E-01	9.781E-01	0.000E+00	FAIL ABUN
PO-215	-8.869E-01	1.045E+00	1.650E+00	0.000E+00	FAIL ABUN
RN-219	5.525E-03	7.056E-01	1.262E+00	0.000E+00	NOT IDENT.
RN-220	2.460E+01	4.157E+01	7.503E+01	0.000E+00	NOT IDENT.
RA-223	-8.869E-01	1.045E+00	1.650E+00	0.000E+00	FAIL ABUN
AC-227	-4.831E-01	6.131E-01	1.008E+00	0.000E+00	NOT IDENT.
TH-227	-4.831E-01	6.148E-01	1.008E+00	0.000E+00	FAIL ABUN
TH-229	-1.107E-01	7.122E-01	1.255E+00	0.000E+00	FAIL ABUN
PA-231	1.550E+00	2.419E+00	4.282E+00	0.000E+00	NOT IDENT.
TH-231	-8.869E-01	1.045E+00	1.650E+00	0.000E+00	FAIL ABUN
U-231	8.568E-02	4.355E-01	7.427E-01	0.000E+00	FAIL ABUN
PA-233	1.947E-02	1.016E-01	1.749E-01	0.000E+00	FAIL ABUN
PA-234	9.154E-02	7.082E-01	1.236E+00	0.000E+00	FAIL ABUN
PA-234M	6.038E+00	8.831E+00	1.598E+01	0.000E+00	NOT IDENT.
TH-234	1.602E-01	1.797E+00	2.897E+00	0.000E+00	FAIL ABUN
U-235	-3.262E-02	2.801E-01	5.072E-01	0.000E+00	FAIL ABUN
NP-236	-2.872E-02	1.071E-01	1.906E-01	0.000E+00	NOT IDENT.
NP-237	0.000E+00	7.098E-01	8.548E-01	0.000E+00	NOT IDENT.
U-238	1.602E-01	1.797E+00	2.897E+00	0.000E+00	FAIL ABUN
NP-239	-1.355E-01	2.520E-01	4.317E-01	0.000E+00	NOT IDENT.
CM-243	4.479E-03	1.195E-01	2.230E-01	0.000E+00	NOT IDENT.
AM-246	-2.168E-01	2.820E-01	4.515E-01	0.000E+00	NOT IDENT.
CM-247	-6.571E-04	6.304E-02	1.126E-01	0.000E+00	NOT IDENT.
CF-249	-4.027E-02	6.493E-02	1.123E-01	0.000E+00	NOT IDENT.
CF-251	2.160E-01	1.649E-01	3.120E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021395.CNF;1
Sample date       : 25-JAN-2010 00:00:00 Acquisition date : 2-FEB-2010 13:04:58.
Sample ID        : G1202021395 Sample quantity   : 1.55440E+02 GRAM
Detector name    : GAM16 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:02.01 0.1%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity       : 5.00000
Batch ID        : 944037 Detector SN#       :
Matrix Spike ID  : LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	34	10.67*	1.208E+00	1.281E+00	1.281E+00	39.72
CO-57	122.06	259	85.51*	7.172E+00	2.041E-01	2.086E-01	27.93
	136.48	-----	10.60	7.049E+00	-----	Line Not Found	-----
CO-60	1173.22	1859	100.00	1.455E+00	6.170E+00	6.189E+00	9.54
	1332.49	1700	100.00*	1.303E+00	6.303E+00	6.323E+00	9.82
CD-109	88.03	1466	3.72*	6.312E+00	3.015E+01	3.054E+01	12.85
SN-126	64.28	-----	9.60	3.681E+00	-----	Line Not Found	-----
	86.94	1466	8.90	6.312E+00	1.260E+01	1.260E+01	42.44
	87.57	1466	37.00*	6.312E+00	3.031E+00	3.031E+00	12.85
BA-137M	661.65	2536	89.98*	2.406E+00	5.658E+00	5.661E+00	9.84
CS-137	661.65	2536	85.12*	2.406E+00	5.981E+00	5.984E+00	9.85
TL-208	277.35	-----	6.80	4.695E+00	-----	Line Not Found	-----
	510.84	23	21.60	2.965E+00	1.744E-01	1.744E-01	255.94
	583.14	139	84.20*	2.668E+00	2.985E-01	2.985E-01	38.52
	860.37	-----	12.46	1.920E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	4.872E+00	-----	Line Not Found	-----
	351.07	208	12.94*	3.940E+00	1.971E+00	1.971E+00	32.62
PB-212	74.81	186	10.70	5.118E+00	1.640E+00	1.640E+00	35.76
	77.11	243	18.00	5.386E+00	1.210E+00	1.210E+00	27.80
	87.30	1466	8.00	6.312E+00	1.402E+01	1.402E+01	16.28
	238.63	517	44.60*	5.225E+00	1.072E+00	1.072E+00	17.15
	300.09	-----	3.41	4.433E+00	-----	Line Not Found	-----
PO-212	74.81	186	10.70	5.118E+00	1.640E+00	1.640E+00	35.76
	77.11	243	18.00	5.386E+00	1.210E+00	1.210E+00	27.80
	87.30	1466	8.00	6.312E+00	1.402E+01	1.402E+01	16.28
	115.19	-----	0.60	7.166E+00	-----	Line Not Found	-----
	238.63	517	44.60*	5.225E+00	1.072E+00	1.072E+00	17.15
	300.09	-----	3.41	4.433E+00	-----	Line Not Found	-----
BI-214	609.31	157	46.30*	2.575E+00	6.374E-01	6.374E-01	37.56
	1120.29	35	15.10	1.515E+00	7.343E-01	7.343E-01	109.66
	1764.49	32	15.80	1.056E+00	9.187E-01	9.187E-01	39.28
PB-214	74.81	186	6.21	5.118E+00	2.825E+00	2.825E+00	35.30

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	243	10.50	5.386E+00	2.074E+00	2.074E+00	28.83
	87.30	1466	4.67	6.312E+00	2.402E+01	2.402E+01	14.98
	241.98	129	7.49	5.181E+00	1.604E+00	1.604E+00	60.15
	295.21	163	19.20	4.488E+00	9.154E-01	9.154E-01	33.13
	351.92	208	37.20*	3.940E+00	6.856E-01	6.856E-01	33.04
PO-214	74.81	186	6.21	5.118E+00	2.825E+00	2.825E+00	35.30
	77.11	243	10.50	5.386E+00	2.074E+00	2.074E+00	28.83
	87.30	1466	4.67	6.312E+00	2.402E+01	2.402E+01	14.98
	241.98	129	7.49	5.181E+00	1.604E+00	1.604E+00	60.15
	295.21	163	19.20	4.488E+00	9.154E-01	9.154E-01	33.13
	351.92	208	37.20*	3.940E+00	6.856E-01	6.856E-01	33.04
PO-216	74.81	186	10.70	5.118E+00	1.640E+00	1.640E+00	35.76
	77.11	243	18.00	5.386E+00	1.210E+00	1.210E+00	27.80
	87.30	1466	8.00	6.312E+00	1.402E+01	1.402E+01	16.28
	238.63	517	44.60*	5.225E+00	1.072E+00	1.072E+00	17.15
	300.09	-----	3.41	4.433E+00	-----	Line Not Found	-----
PO-218	74.81	186	6.21	5.118E+00	2.825E+00	2.825E+00	35.30
	77.11	243	10.50	5.386E+00	2.074E+00	2.074E+00	28.83
	87.30	1466	4.67	6.312E+00	2.402E+01	2.402E+01	14.98
	241.98	129	7.49	5.181E+00	1.604E+00	1.604E+00	60.15
	295.21	163	19.20	4.488E+00	9.154E-01	9.154E-01	33.13
	351.92	208	37.20*	3.940E+00	6.856E-01	6.856E-01	33.04
RA-224	240.98	129	3.95*	5.181E+00	3.041E+00	3.041E+00	59.89
RA-226	609.31	157	46.30*	2.575E+00	6.374E-01	6.374E-01	37.56
	1120.29	35	15.10	1.515E+00	7.343E-01	7.343E-01	109.66
	1764.49	32	15.80	1.056E+00	9.187E-01	9.187E-01	39.28
AC-228	338.32	111	11.40	4.059E+00	1.156E+00	1.156E+00	61.14
	911.07	143	27.70*	1.824E+00	1.367E+00	1.367E+00	40.69
	969.11	72	16.60	1.727E+00	1.219E+00	1.219E+00	68.32
RA-228	338.32	111	11.40	4.059E+00	1.156E+00	1.156E+00	61.14
	911.07	143	27.70*	1.824E+00	1.367E+00	1.367E+00	40.69
	969.11	72	16.60	1.727E+00	1.219E+00	1.219E+00	68.32
TH-228	74.81	186	10.70	5.118E+00	1.640E+00	1.654E+00	34.54
	77.11	243	18.00	5.386E+00	1.210E+00	1.220E+00	27.80
	87.30	1466	8.00	6.312E+00	1.402E+01	1.414E+01	12.85
	238.63	517	44.60*	5.225E+00	1.072E+00	1.081E+00	17.15
	300.09	-----	3.41	4.433E+00	-----	Line Not Found	-----
TH-230	609.31	157	46.30*	2.575E+00	6.374E-01	6.374E-01	37.56
	1120.29	35	15.10	1.515E+00	7.343E-01	7.343E-01	109.66
	1764.49	32	15.80	1.056E+00	9.187E-01	9.187E-01	39.28
TH-232	338.32	111	11.40	4.059E+00	1.156E+00	1.156E+00	45.94
	911.07	143	27.70*	1.824E+00	1.367E+00	1.367E+00	40.69
	969.11	72	16.60	1.727E+00	1.219E+00	1.219E+00	68.32
U-234	609.31	157	46.30*	2.575E+00	6.374E-01	6.374E-01	37.56
	1120.29	35	15.10	1.515E+00	7.343E-01	7.343E-01	109.66
	1764.49	32	15.80	1.056E+00	9.187E-01	9.187E-01	39.28
AM-241	59.54	2981	35.90*	2.953E+00	1.358E+01	1.358E+01	9.26
AM-243	74.67	186	66.00*	5.118E+00	2.658E-01	2.658E-01	34.52
	86.72	1466	0.34	6.312E+00	3.338E+02	3.338E+02	12.85

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	7.175E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.968E+00	-----	Line Not Found	-----
ANH-511	511.00	23	100.00*	2.965E+00	3.768E-02	3.768E-02	255.80

Flag: "\*" = Keyline

Total number of lines in spectrum 24  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 24 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	1.281E+00	1.281E+00	0.509E+00	39.72	
CO-57	270.90D	1.02	2.041E-01	2.086E-01	0.583E-01	27.93	
CO-60	5.27Y	1.00	6.303E+00	6.323E+00	0.621E+00	9.82	
CD-109	464.00D	1.01	3.015E+01	3.054E+01	0.392E+01	12.85	
SN-126	1.00E+05Y	1.00	3.031E+00	3.031E+00	0.389E+00	12.85	
BA-137M	30.17Y	1.00	5.658E+00	5.661E+00	0.557E+00	9.84	
CS-137	30.17Y	1.00	5.981E+00	5.984E+00	0.590E+00	9.85	
TL-208	1.41E+10Y	1.00	2.985E-01	2.985E-01	1.150E-01	38.52	
BI-211	7.04E+08Y	1.00	1.971E+00	1.971E+00	0.643E+00	32.62	
PB-212	1.41E+10Y	1.00	1.072E+00	1.072E+00	0.184E+00	17.15	
PO-212	1.41E+10Y	1.00	1.072E+00	1.072E+00	0.184E+00	17.15	
BI-214	1600.00Y	1.00	6.374E-01	6.374E-01	2.394E-01	37.56	
PB-214	1600.00Y	1.00	6.856E-01	6.856E-01	2.265E-01	33.04	
PO-214	1600.00Y	1.00	6.856E-01	6.856E-01	2.265E-01	33.04	
PO-216	1.41E+10Y	1.00	1.072E+00	1.072E+00	0.184E+00	17.15	
PO-218	1600.00Y	1.00	6.856E-01	6.856E-01	2.265E-01	33.04	
RA-224	1.41E+10Y	1.00	3.041E+00	3.041E+00	1.821E+00	59.89	
RA-226	1600.00Y	1.00	6.374E-01	6.374E-01	2.394E-01	37.56	
AC-228	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.556E+00	40.69	
RA-228	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.556E+00	40.69	
TH-228	1.91Y	1.01	1.072E+00	1.081E+00	0.185E+00	17.15	
TH-230	4.47E+09Y	1.00	6.374E-01	6.374E-01	2.394E-01	37.56	
TH-232	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.556E+00	40.69	
U-234	4.47E+09Y	1.00	6.374E-01	6.374E-01	2.394E-01	37.56	
AM-241	432.20Y	1.00	1.358E+01	1.358E+01	0.126E+01	9.26	
AM-243	7380.00Y	1.00	2.658E-01	2.658E-01	0.918E-01	34.52	
ANH-511	1.00E+09Y	1.00	3.768E-02	3.768E-02	9.639E-02	255.80	
Total Activity :			8.480E+01	8.523E+01			

Grand Total Activity : 8.480E+01 8.523E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202021395

Page : 5  
Acquisition date : 2-FEB-2010 13:04:58

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	93.07	83	385	1.20	186.33	182	9	2.30E-02	90.9	6.61E+00	T
0	185.44	82	322	0.86	371.07	366	10	2.27E-02	86.8	6.15E+00	T
0	727.29	34	107	1.19	1454.67	1448	11	9.52E-03	****	2.22E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202021395.CNF;1 *
* Acquisition date   : 2-FEB-2010 13:04:58.  Detector SN#      :             *
* Detector ID        : GAM16                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 01:00:02.01        Half life ratio   : 8.00000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 25-JAN-2010 00:00:00  Nuclide Library   : SOLID        *
* Sample ID          : G1202021395          Analyst initials : MXR1          *
* Batch Number       : 944037              Sample Quantity   : 1.55440E+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        :             *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	1.281E+00	5.088E-01	6.482E-01	5.698E-02	1.976
CO-57	2.086E-01	5.827E-02	5.234E-02	4.349E-03	3.986
CO-60	6.323E+00	6.206E-01	6.935E-02	5.850E-03	91.176
CD-109	3.054E+01	3.923E+00	1.754E+00	1.690E-01	17.414
SN-126	3.031E+00	3.894E-01	1.749E-01	1.677E-02	17.336
BA-137M	5.661E+00	5.569E-01	9.946E-02	8.827E-03	56.919
CS-137	5.984E+00	5.895E-01	1.051E-01	9.347E-03	56.919
TL-208	2.985E-01	1.150E-01	9.772E-02	9.686E-03	3.055
BI-211	1.971E+00	6.430E-01	5.345E-01	5.844E-02	3.688
PB-212	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
PO-212	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
BI-214	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
PB-214	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
PO-214	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
PO-216	1.072E+00	1.838E-01	1.392E-01	1.648E-02	7.698
PO-218	6.856E-01	2.265E-01	1.863E-01	2.253E-02	3.680
RA-224	3.041E+00	1.821E+00	1.585E+00	1.746E-01	1.919
RA-226	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-228	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
RA-228	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
TH-228	1.081E+00	1.853E-01	1.404E-01	1.662E-02	7.698
TH-230	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
TH-232	1.367E+00	5.563E-01	4.630E-01	5.499E-02	2.953
U-234	6.374E-01	2.394E-01	1.913E-01	2.022E-02	3.333
AM-241	1.358E+01	1.258E+00	4.386E-01	3.442E-02	30.966
AM-243	2.658E-01	9.176E-02	1.117E-01	9.246E-03	2.380
ANH-511	3.768E-02	9.639E-02	8.286E-02	7.880E-03	0.455

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-8.542E-02		5.559E-01	9.128E-01	9.234E-02	-0.094
NA-22	2.310E-02		4.741E-02	8.364E-02	6.960E-03	0.276
NA-24	1.519E-04		2.560E-04	Half-Life too short		
AL-26	8.929E-03		3.702E-02	6.449E-02	5.273E-03	0.138
TI-44	2.232E-01	+	6.207E-02	8.794E-02	7.573E-03	2.539
SC-46	2.821E-02		7.955E-02	1.359E-01	1.284E-02	0.208
V-48	-1.076E-01		1.094E-01	1.671E-01	1.538E-02	-0.644
CR-51	3.230E-01		5.165E-01	8.477E-01	9.911E-02	0.381
MN-52	-1.367E-02		1.174E-01	1.835E-01	1.566E-02	-0.074
MN-54	2.645E-02		6.667E-02	1.149E-01	1.079E-02	0.230
CO-56	2.871E-02		6.768E-02	1.169E-01	1.100E-02	0.246
CO-58	-1.076E-02		6.520E-02	1.084E-01	1.015E-02	-0.099
FE-59	6.451E-02		1.639E-01	2.770E-01	2.575E-02	0.233
ZN-65	-6.766E-02		1.957E-01	2.669E-01	2.267E-02	-0.253
GE-68	-1.693E-01		2.320E+00	3.793E+00	3.313E-01	-0.045
AS-73	4.209E-01		1.690E+00	2.673E+00	2.039E-01	0.157
AS-74	8.364E-03		1.175E-01	1.926E-01	1.787E-02	0.043
SE-75	-2.573E-02		6.755E-02	1.058E-01	1.235E-02	-0.243
BR-77	-2.135E+00		2.585E+00	3.993E+00	3.794E-01	-0.535
SR-82	-1.286E-01		5.715E-01	8.945E-01	8.294E-02	-0.144
RB-83	-8.232E-02		1.114E-01	1.734E-01	1.648E-02	-0.475
RB-84	4.727E-02		1.282E-01	2.193E-01	2.072E-02	0.216
KR-85	-1.830E+00		1.440E+01	2.061E+01	1.960E+00	-0.089
SR-85	-8.753E-03		6.891E-02	9.861E-02	9.376E-03	-0.089
RB-86	3.499E-01		1.158E+00	1.952E+00	1.706E-01	0.179
Y-88	2.133E-02		4.264E-02	7.780E-02	6.316E-03	0.274
ZR-88	3.104E-02		4.876E-02	8.457E-02	7.823E-03	0.367
Y-91	4.611E+00		1.986E+01	3.333E+01	2.710E+00	0.138
NB-94	-4.774E-03		5.472E-02	8.743E-02	7.903E-03	-0.055
NB-95	7.099E-02		6.730E-02	1.161E-01	1.073E-02	0.611
NB-95M	4.695E-02		1.935E-01	2.829E-01	3.364E-02	0.166
ZR-95	6.898E-02		1.229E-01	2.051E-01	2.059E-02	0.336
NB-97	1.603E-04		1.514E-04	Half-Life too short		
ZR-97	-1.068E-03		2.422E-03	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99	4.179E+00		3.808E+00	6.576E+00	1.019E+00	0.635
TC-99M	-4.253E+02		3.096E+02	Half-Life too short		
RH-101	7.331E-03		4.608E-02	7.580E-02	7.484E-03	0.097
RH-102	-2.278E-02		5.578E-02	9.024E-02	8.577E-03	-0.252
RU-103	7.616E-03		6.251E-02	1.041E-01	1.533E-02	0.073
RH-106	-2.885E-02		5.319E-01	8.607E-01	1.179E-01	-0.034
RU-106	-2.885E-02		5.319E-01	8.607E-01	7.871E-02	-0.034
AG-108M	4.555E-02		6.124E-02	1.059E-01	1.031E-02	0.430
AG-110M	8.397E-03		7.078E-02	1.013E-01	9.272E-03	0.083
IN-111	3.604E-01		3.487E-01	5.353E-01	5.962E-02	0.673
IN-113M	2.493E-02		7.222E-02	1.235E-01	1.172E-02	0.202
SN-113	2.493E-02		7.222E-02	1.235E-01	1.172E-02	0.202
IN-114M	-3.200E-02		2.444E-01	3.782E-01	3.658E-02	-0.085
CD-115	1.735E+00		2.512E+00	4.307E+00	4.088E-01	0.403
SN-117M	-8.543E-03		5.268E-02	8.639E-02	7.673E-03	-0.099
SB-122	-1.786E-01		6.143E-01	9.850E-01	9.267E-02	-0.181
I-123	-7.397E-04		9.260E-04	Half-Life too short		
TE-123M	-1.492E-02		3.734E-02	6.049E-02	5.410E-03	-0.247
I-124	-2.724E-02		3.853E-01	6.026E-01	5.573E-02	-0.045
SB-124	3.161E-02		8.625E-02	1.541E-01	1.350E-02	0.205
SB-125	-2.357E-02		1.580E-01	2.615E-01	2.499E-02	-0.090
TE-125M	-1.330E+00		1.072E+01	1.795E+01	1.824E+00	-0.074
I-126	1.355E-02		2.149E-01	3.059E-01	2.721E-02	0.044
SB-126	4.988E-02		1.668E-01	2.553E-01	2.325E-02	0.195
SB-127	3.757E-02		5.992E-01	9.722E-01	9.798E-02	0.039
XE-127	5.875E-02		5.845E-02	9.955E-02	9.956E-03	0.590
I-131	8.879E-02		1.073E-01	1.883E-01	1.986E-02	0.471
TE-132	5.454E-02		2.789E-01	4.554E-01	7.301E-02	0.120
BA-133	1.649E-02		7.591E-02	1.151E-01	1.663E-02	0.143
I-133	5.152E-06		2.810E-05	Half-Life too short		
CS-134	2.757E-02		8.139E-02	1.402E-01	1.315E-02	0.197
CS-135	-2.361E-02		2.420E-01	3.855E-01	4.916E-02	-0.061
I-135	-1.856E+02		1.726E+02	Half-Life too short		
CS-136	5.865E-02		1.549E-01	2.625E-01	2.429E-02	0.223
CE-139	-1.934E-02		3.827E-02	6.142E-02	5.571E-03	-0.315
BA-140	-1.145E-01		3.283E-01	5.231E-01	1.746E-01	-0.219
LA-140	-4.028E-02		7.267E-02	1.075E-01	9.159E-03	-0.375
CE-141	3.705E-02		7.302E-02	1.239E-01	1.084E-02	0.299
CE-143	5.418E+00		8.808E+00	1.290E+01	2.970E+00	0.420
CE-144	-1.129E-01		2.724E-01	4.448E-01	6.869E-02	-0.254
PM-144	-1.378E-02		5.545E-02	8.741E-02	7.882E-03	-0.158
PR-144	-9.304E-01		3.745E+00	5.903E+00	5.322E-01	-0.158
PM-146	8.273E-02		8.161E-02	1.423E-01	1.625E-02	0.581
ND-147	-3.063E-01		6.722E-01	1.069E+00	1.653E-01	-0.287
PM-149	-2.215E+00		1.852E+01	2.932E+01	5.154E+00	-0.076
EU-152	-1.214E-01		1.550E-01	2.505E-01	2.800E-02	-0.484
GD-153	-8.693E-03		1.024E-01	1.552E-01	1.379E-02	-0.056
EU-154	8.664E-02		1.298E-01	2.347E-01	2.600E-02	0.369



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	7.399E-02		1.365E-01	2.355E-01	2.037E-02	0.314
TB-160	-2.207E-01		2.730E-01	4.296E-01	4.058E-02	-0.514
HO-166M	-1.622E-01		1.001E-01	1.346E-01	1.222E-02	-1.205
TM-171	-3.612E+00		3.669E+01	5.666E+01	4.341E+00	-0.064
LU-176	-1.819E-03		4.092E-02	6.482E-02	7.519E-03	-0.028
LU-177	8.810E-01		8.216E-01	1.395E+00	1.416E-01	0.631
LU-177M	-1.241E-02		2.945E-01	4.916E-01	4.595E-02	-0.025
HF-181	-4.658E-02		7.218E-02	1.147E-01	1.091E-02	-0.406
W-181	-1.071E-01		4.580E-01	7.029E-01	5.308E-02	-0.152
TA-182	-4.089E-02		2.188E-01	3.476E-01	2.842E-02	-0.118
RE-183	1.121E-01		1.403E-01	2.397E-01	2.151E-02	0.468
RE-184	7.757E-02		3.601E-01	5.857E-01	6.638E-02	0.132
OS-185	-5.483E-02		7.443E-02	1.135E-01	1.020E-02	-0.483
RE-188	1.374E-02		2.116E-01	3.513E-01	3.090E-02	0.039
W-188	3.778E+00		1.229E+01	1.782E+01	2.114E+00	0.212
IR-192	-2.753E-02		5.551E-02	8.504E-02	9.719E-03	-0.324
AU-195	1.035E-01		2.651E-01	4.549E-01	4.006E-02	0.228
TL-200	-9.453E+00		1.123E+01	1.797E+01	1.808E+00	-0.526
TL-201	-5.825E-01		2.007E+00	3.256E+00	2.964E-01	-0.179
TL-202	-1.653E-02		8.405E-02	1.384E-01	1.307E-02	-0.119
HG-203	2.399E-02		5.533E-02	9.059E-02	1.104E-02	0.265
BI-207	-1.275E-01		1.010E-01	1.475E-01	1.300E-02	-0.865
TL-207	-8.869E-01		1.066E+00	1.571E+00	3.004E-01	-0.565
PO-209	1.410E+00		1.494E+01	2.511E+01	2.375E+00	0.056
BI-210	-1.117E+00		6.657E+00	1.046E+01	9.759E-01	-0.107
PB-210	-1.117E+00		6.657E+00	1.046E+01	9.759E-01	-0.107
PO-210	-1.117E+00		6.657E+00	1.046E+01	8.839E-01	-0.107
PB-211	-6.036E-01		1.681E+00	2.691E+00	1.689E+00	-0.224
BI-212	6.313E-01	+	7.771E-01	9.512E-01	9.938E-02	0.664
PO-215	-8.869E-01		1.066E+00	1.571E+00	3.004E-01	-0.565
RN-219	5.525E-03		7.200E-01	1.208E+00	1.862E-01	0.005
RN-220	2.460E+01		4.242E+01	7.242E+01	6.842E+00	0.340
RA-223	-8.869E-01		1.066E+00	1.571E+00	3.004E-01	-0.565
AC-227	-4.831E-01		6.257E-01	9.532E-01	1.628E-01	-0.507
TH-227	-4.831E-01		6.273E-01	9.532E-01	1.864E-01	-0.507
TH-229	-1.107E-01		7.267E-01	1.179E+00	1.150E-01	-0.094
PA-231	1.550E+00		2.469E+00	4.062E+00	7.026E-01	0.382
TH-231	-8.869E-01		1.066E+00	1.571E+00	3.004E-01	-0.565
U-231	8.568E-02		4.444E-01	6.855E-01	6.154E-02	0.125
PA-233	1.947E-02		1.037E-01	1.663E-01	1.944E-02	0.117
PA-234	9.154E-02		7.227E-01	1.210E+00	2.312E-01	0.076
PA-234M	6.038E+00		9.011E+00	1.568E+01	1.632E+00	0.385
TH-234	1.602E-01		1.833E+00	2.647E+00	4.617E-01	0.061
U-235	-3.262E-02		2.858E-01	4.729E-01	8.264E-02	-0.069
NP-236	-2.872E-02		1.093E-01	1.782E-01	1.590E-02	-0.161
NP-237	2.584E+00		7.242E-01	7.870E-01	1.786E-01	3.283
U-238	1.602E-01		1.833E+00	2.647E+00	4.617E-01	0.061
NP-239	-1.355E-01		2.571E-01	4.004E-01	3.334E-02	-0.338

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.479E-03		1.220E-01	2.062E-01	1.773E-02	0.022
AM-246	-2.168E-01		2.877E-01	4.439E-01	3.873E-02	-0.488
CM-247	-6.571E-04		6.432E-02	1.078E-01	1.002E-02	-0.006
CF-249	-4.027E-02		6.625E-02	1.073E-01	1.007E-02	-0.375
CF-251	2.160E-01		1.683E-01	2.923E-01	2.726E-02	0.739

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202021395
* Acquisition date   : 2-FEB-2010 13:04:58 Detector SN#      :
* Detector ID        : GAM16                               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 01:00:02.01                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 25-JAN-2010 00:00:00 Nuclide Library : SOLID
* Sample ID          : G1202021395          Analyst initials: MXR1
* Batch Number       : 944037              Sample Quantity : 1.5544E+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    :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	1.281E+00	4.986E-01	3.271E-01	2.544E-01
CO-57	2.086E-01	5.710E-02	2.820E-02	2.913E-02
CO-60	6.323E+00	6.082E-01	3.508E-02	3.103E-01
CD-109	3.054E+01	3.844E+00	9.525E-01	1.961E+00
SN-126	3.031E+00	3.816E-01	9.499E-02	1.947E-01
BA-137M	5.661E+00	5.457E-01	5.130E-02	2.784E-01
CS-137	5.984E+00	5.778E-01	5.422E-02	2.948E-01
TL-208	2.985E-01	1.127E-01	5.057E-02	5.749E-02
BI-211	1.971E+00	6.301E-01	2.803E-01	3.215E-01
PB-212	1.072E+00	1.801E-01	7.376E-02	9.189E-02
PO-212	1.072E+00	1.801E-01	7.376E-02	9.189E-02
BI-214	6.374E-01	2.346E-01	9.886E-02	1.197E-01
PB-214	6.856E-01	2.220E-01	9.772E-02	1.133E-01
PO-214	6.856E-01	2.220E-01	9.772E-02	1.133E-01
PO-216	1.072E+00	1.801E-01	7.376E-02	9.189E-02
PO-218	6.856E-01	2.220E-01	9.772E-02	1.133E-01
RA-224	3.041E+00	1.785E+00	8.393E-01	9.106E-01
RA-226	6.374E-01	2.346E-01	9.886E-02	1.197E-01
AC-228	1.367E+00	5.452E-01	2.367E-01	2.782E-01
RA-228	1.367E+00	5.452E-01	2.367E-01	2.782E-01
TH-228	1.081E+00	1.816E-01	7.439E-02	9.267E-02
TH-230	6.374E-01	2.346E-01	9.886E-02	1.197E-01
TH-232	1.367E+00	5.452E-01	2.367E-01	2.782E-01
U-234	6.374E-01	2.346E-01	9.886E-02	1.197E-01
AM-241	1.358E+01	1.233E+00	2.405E-01	6.289E-01
AM-243	2.658E-01	8.993E-02	6.091E-02	4.588E-02
ANH-511	3.768E-02	9.446E-02	4.303E-02	4.819E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-8.542E-02	5.448E-01	4.749E-01	2.780E-01	NOT IDENT.
NA-22	2.310E-02	4.646E-02	4.236E-02	2.371E-02	NOT IDENT.
NA-24	1.519E+02	5.018E+02	0.000E+00	2.560E+02	SHORT HLIF
AL-26	8.929E-03	3.628E-02	3.234E-02	1.851E-02	NOT IDENT.
TI-44	2.232E-01	6.083E-02	4.790E-02	3.103E-02	FAIL ABUN
SC-46	2.821E-02	7.796E-02	6.951E-02	3.977E-02	FAIL ABUN
V-48	-1.076E-01	1.073E-01	8.527E-02	5.472E-02	NOT IDENT.
CR-51	3.230E-01	5.061E-01	4.457E-01	2.582E-01	NOT IDENT.
MN-52	-1.367E-02	1.150E-01	9.265E-02	5.868E-02	FAIL ABUN
MN-54	2.645E-02	6.534E-02	5.887E-02	3.333E-02	NOT IDENT.
CO-56	2.871E-02	6.632E-02	5.987E-02	3.384E-02	NOT IDENT.
CO-58	-1.076E-02	6.390E-02	5.558E-02	3.260E-02	NOT IDENT.
FE-59	6.451E-02	1.606E-01	1.409E-01	8.193E-02	NOT IDENT.
ZN-65	-6.766E-02	1.918E-01	1.357E-01	9.785E-02	NOT IDENT.
GE-68	-1.693E-01	2.273E+00	1.930E+00	1.160E+00	NOT IDENT.
AS-73	4.209E-01	1.657E+00	1.469E+00	8.452E-01	NOT IDENT.
AS-74	8.364E-03	1.151E-01	9.959E-02	5.874E-02	NOT IDENT.
SE-75	-2.573E-02	6.620E-02	5.591E-02	3.378E-02	FAIL ABUN
BR-77	-2.135E+00	2.533E+00	2.073E+00	1.292E+00	FAIL ABUN
SR-82	-1.286E-01	5.601E-01	4.594E-01	2.858E-01	NOT IDENT.
RB-83	-8.232E-02	1.092E-01	9.003E-02	5.570E-02	NOT IDENT.
RB-84	4.727E-02	1.256E-01	1.122E-01	6.408E-02	NOT IDENT.
KR-85	-1.830E+00	1.412E+01	1.070E+01	7.202E+00	NOT IDENT.
SR-85	-8.753E-03	6.753E-02	5.120E-02	3.445E-02	NOT IDENT.
RB-86	3.499E-01	1.135E+00	9.935E-01	5.792E-01	NOT IDENT.
Y-88	2.133E-02	4.179E-02	3.900E-02	2.132E-02	NOT IDENT.
ZR-88	3.104E-02	4.779E-02	4.423E-02	2.438E-02	NOT IDENT.
Y-91	4.611E+00	1.946E+01	1.691E+01	9.931E+00	NOT IDENT.
NB-94	-4.774E-03	5.363E-02	4.502E-02	2.736E-02	NOT IDENT.
NB-95	7.099E-02	6.595E-02	5.964E-02	3.365E-02	NOT IDENT.
NB-95M	4.695E-02	1.896E-01	1.499E-01	9.674E-02	NOT IDENT.
ZR-95	6.898E-02	1.205E-01	1.054E-01	6.146E-02	NOT IDENT.
NB-97	1.603E+02	2.967E+02	0.000E+00	1.514E+02	SHORT HLIF
ZR-97	-1.068E+03	4.748E+03	0.000E+00	2.422E+03	SHORT HLIF
MO-99	4.179E+00	3.732E+00	3.381E+00	1.904E+00	NOT IDENT.
TC-99M	-4.253E+08	6.068E+08	0.000E+00	3.096E+08	SHORT HLIF
RH-101	7.331E-03	4.516E-02	4.035E-02	2.304E-02	NOT IDENT.
RH-102	-2.278E-02	5.467E-02	4.695E-02	2.789E-02	NOT IDENT.
RU-103	7.616E-03	6.126E-02	5.410E-02	3.125E-02	FAIL ABUN
RH-106	-2.885E-02	5.213E-01	4.446E-01	2.660E-01	FAIL ABUN
RU-106	-2.885E-02	5.213E-01	4.446E-01	2.659E-01	FAIL ABUN
AG-108M	4.555E-02	6.002E-02	5.526E-02	3.062E-02	NOT IDENT.
AG-110M	8.397E-03	6.937E-02	5.225E-02	3.539E-02	NOT IDENT.
IN-111	3.604E-01	3.417E-01	2.834E-01	1.743E-01	NOT IDENT.
IN-113M	2.493E-02	7.077E-02	6.459E-02	3.611E-02	NOT IDENT.
SN-113	2.493E-02	7.077E-02	6.459E-02	3.611E-02	NOT IDENT.
IN-114M	-3.200E-02	2.395E-01	2.016E-01	1.222E-01	NOT IDENT.
CD-115	1.735E+00	2.461E+00	2.235E+00	1.256E+00	NOT IDENT.
SN-117M	-8.543E-03	5.163E-02	4.624E-02	2.634E-02	NOT IDENT.
SB-122	-1.786E-01	6.020E-01	5.102E-01	3.072E-01	NOT IDENT.
I-123	-7.397E+02	1.815E+03	0.000E+00	9.260E+02	SHORT HLIF
TE-123M	-1.492E-02	3.660E-02	3.238E-02	1.867E-02	NOT IDENT.
I-124	-2.724E-02	3.776E-01	3.116E-01	1.927E-01	NOT IDENT.
SB-124	3.161E-02	8.452E-02	7.744E-02	4.312E-02	FAIL ABUN
SB-125	-2.357E-02	1.549E-01	1.365E-01	7.901E-02	NOT IDENT.
TE-125M	-1.330E+00	1.051E+01	9.698E+00	5.360E+00	NOT IDENT.
I-126	1.355E-02	2.106E-01	1.577E-01	1.075E-01	NOT IDENT.
SB-126	4.988E-02	1.634E-01	1.314E-01	8.338E-02	FAIL ABUN
SB-127	3.757E-02	5.872E-01	5.009E-01	2.996E-01	NOT IDENT.
XE-127	5.875E-02	5.728E-02	5.296E-02	2.922E-02	NOT IDENT.
I-131	8.879E-02	1.051E-01	9.869E-02	5.365E-02	NOT IDENT.
TE-132	5.454E-02	2.733E-01	2.415E-01	1.395E-01	NOT IDENT.
BA-133	1.649E-02	7.439E-02	6.034E-02	3.796E-02	NOT IDENT.
I-133	5.152E+00	5.507E+01	0.000E+00	2.810E+01	SHORT HLIF
CS-134	2.757E-02	7.976E-02	7.195E-02	4.069E-02	NOT IDENT.
CS-135	-2.361E-02	2.372E-01	2.036E-01	1.210E-01	NOT IDENT.
I-135	-1.856E+08	3.384E+08	0.000E+00	1.726E+08	SHORT HLIF
CS-136	5.865E-02	1.519E-01	1.337E-01	7.747E-02	NOT IDENT.
CE-139	-1.934E-02	3.750E-02	3.284E-02	1.913E-02	NOT IDENT.
BA-140	-1.145E-01	3.217E-01	2.713E-01	1.641E-01	NOT IDENT.
LA-140	-4.028E-02	7.121E-02	5.412E-02	3.633E-02	NOT IDENT.
CE-141	3.705E-02	7.156E-02	6.647E-02	3.651E-02	NOT IDENT.
CE-143	5.418E+00	8.632E+00	6.798E+00	4.404E+00	FAIL ABUN
CE-144	-1.129E-01	2.669E-01	2.391E-01	1.362E-01	NOT IDENT.
PM-144	-1.378E-02	5.434E-02	4.502E-02	2.773E-02	NOT IDENT.
PR-144	-9.304E-01	3.670E+00	3.040E+00	1.872E+00	NOT IDENT.
PM-146	8.273E-02	7.997E-02	7.413E-02	4.080E-02	NOT IDENT.
ND-147	-3.063E-01	6.587E-01	5.546E-01	3.361E-01	NOT IDENT.

PM-149	-2.215E+00	1.815E+01	1.546E+01	9.260E+00	NOT IDENT.
EU-152	-1.214E-01	1.519E-01	1.315E-01	7.751E-02	FAIL ABUN
GD-153	-8.693E-03	1.004E-01	8.409E-02	5.122E-02	NOT IDENT.
EU-154	8.664E-02	1.272E-01	1.189E-01	6.489E-02	FAIL ABUN
EU-155	7.399E-02	1.338E-01	1.273E-01	6.827E-02	FAIL ABUN
TB-160	-2.207E-01	2.675E-01	2.199E-01	1.365E-01	FAIL ABUN
HO-166M	-1.622E-01	9.811E-02	6.930E-02	5.006E-02	FAIL ABUN
TM-171	-3.612E+00	3.596E+01	3.098E+01	1.835E+01	FAIL ABUN
LU-176	-1.819E-03	4.010E-02	3.412E-02	2.046E-02	FAIL ABUN
LU-177	8.810E-01	8.052E-01	7.419E-01	4.108E-01	NOT IDENT.
LU-177M	-1.241E-02	2.886E-01	2.567E-01	1.472E-01	FAIL ABUN
HF-181	-4.658E-02	7.073E-02	5.966E-02	3.609E-02	NOT IDENT.
W-181	-1.071E-01	4.489E-01	3.846E-01	2.290E-01	NOT IDENT.
TA-182	-4.089E-02	2.145E-01	1.763E-01	1.094E-01	FAIL ABUN
RE-183	1.121E-01	1.375E-01	1.282E-01	7.014E-02	FAIL ABUN
RE-184	7.757E-02	3.529E-01	3.098E-01	1.800E-01	FAIL ABUN
OS-185	-5.483E-02	7.294E-02	5.858E-02	3.722E-02	FAIL ABUN
RE-188	1.374E-02	2.074E-01	1.881E-01	1.058E-01	NOT IDENT.
W-188	3.778E+00	1.205E+01	9.395E+00	6.146E+00	NOT IDENT.
IR-192	-2.753E-02	5.440E-02	4.473E-02	2.775E-02	FAIL ABUN
AU-195	1.035E-01	2.598E-01	2.464E-01	1.326E-01	FAIL ABUN
TL-200	-9.453E+00	1.100E+01	9.412E+00	5.614E+00	NOT IDENT.
TL-201	-5.825E-01	1.967E+00	1.741E+00	1.003E+00	NOT IDENT.
TL-202	-1.653E-02	8.237E-02	7.219E-02	4.203E-02	NOT IDENT.
HG-203	2.399E-02	5.422E-02	4.780E-02	2.766E-02	NOT IDENT.
BI-207	-1.275E-01	9.901E-02	7.509E-02	5.052E-02	FAIL ABUN
TL-207	-8.869E-01	1.045E+00	8.255E-01	5.332E-01	FAIL ABUN
PO-209	1.410E+00	1.465E+01	1.285E+01	7.472E+00	NOT IDENT.
BI-210	-1.117E+00	6.524E+00	5.772E+00	3.328E+00	NOT IDENT.
PB-210	-1.117E+00	6.524E+00	5.772E+00	3.328E+00	NOT IDENT.
PO-210	-1.117E+00	6.524E+00	5.772E+00	3.328E+00	NOT IDENT.
PB-211	-6.036E-01	1.648E+00	1.406E+00	8.407E-01	NOT IDENT.
BI-212	6.313E-01	7.616E-01	4.893E-01	3.886E-01	FAIL ABUN
PO-215	-8.869E-01	1.045E+00	8.255E-01	5.332E-01	FAIL ABUN
RN-219	5.525E-03	7.056E-01	6.312E-01	3.600E-01	NOT IDENT.
RN-220	2.460E+01	4.157E+01	3.754E+01	2.121E+01	NOT IDENT.
RA-223	-8.869E-01	1.045E+00	8.255E-01	5.332E-01	FAIL ABUN
AC-227	-4.831E-01	6.131E-01	5.041E-01	3.128E-01	NOT IDENT.
TH-227	-4.831E-01	6.148E-01	5.041E-01	3.137E-01	FAIL ABUN
TH-229	-1.107E-01	7.122E-01	6.278E-01	3.634E-01	FAIL ABUN
PA-231	1.550E+00	2.419E+00	2.142E+00	1.234E+00	NOT IDENT.
TH-231	-8.869E-01	1.045E+00	8.255E-01	5.332E-01	FAIL ABUN
U-231	8.568E-02	4.355E-01	3.716E-01	2.222E-01	FAIL ABUN
PA-233	1.947E-02	1.016E-01	8.751E-02	5.184E-02	FAIL ABUN
PA-234	9.154E-02	7.082E-01	6.181E-01	3.613E-01	FAIL ABUN
PA-234M	6.038E+00	8.831E+00	7.994E+00	4.506E+00	NOT IDENT.
TH-234	1.602E-01	1.797E+00	1.449E+00	9.166E-01	FAIL ABUN
U-235	-3.262E-02	2.801E-01	2.538E-01	1.429E-01	FAIL ABUN
NP-236	-2.872E-02	1.071E-01	9.536E-02	5.463E-02	NOT IDENT.
NP-237	2.584E+00	7.098E-01	4.276E-01	3.621E-01	NOT IDENT.
U-238	1.602E-01	1.797E+00	1.449E+00	9.166E-01	FAIL ABUN
NP-239	-1.355E-01	2.520E-01	2.160E-01	1.286E-01	NOT IDENT.
CM-243	4.479E-03	1.195E-01	1.116E-01	6.099E-02	NOT IDENT.
AM-246	-2.168E-01	2.820E-01	2.259E-01	1.439E-01	NOT IDENT.
CM-247	-6.571E-04	6.304E-02	5.633E-02	3.216E-02	NOT IDENT.
CF-249	-4.027E-02	6.493E-02	5.616E-02	3.313E-02	NOT IDENT.
CF-251	2.160E-01	1.649E-01	1.561E-01	8.415E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417   *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	363.2221
46.50	363.2221
46.50	363.2221
48.70	408.3280
49.72	375.1704
51.35	452.1704
52.39	487.0651
52.97	509.4677
53.15	509.7344
53.44	494.5575
54.07	452.1627
56.28	550.1896
56.28	550.1931
57.37	592.3188
57.53	578.0087
57.53	578.0114
57.60	578.1204
57.98	528.4699
57.98	528.4699
59.32	425.8643
59.32	425.8643
59.40	425.9562
59.54	426.1172
59.72	426.3229
60.01	426.6551
61.10	258.2898
61.14	258.3167
61.30	258.4256
63.00	231.6483
63.29	231.8226
63.29	231.8226
63.58	228.7054
64.28	270.3242
65.12	257.6891
65.20	257.7402
65.20	257.7402
66.05	253.3269
66.72	259.9712
66.83	260.0429
66.91	250.1397
67.20	239.1108
67.20	239.1108
67.75	236.9419
67.85	237.0013
68.90	270.1285
68.90	270.1285
69.30	268.7231
69.67	258.9420
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70.82	261.3346
70.83	261.3409
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72.87	256.2977
72.87	256.2977
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74.81	279.0199
74.81	279.0199
74.81	279.0199
74.81	279.0199
74.81	279.0199
74.81	279.0199
74.97	279.1240
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75.70	279.5923
77.11	280.4919
77.11	280.4919

77.11	280.4919
77.11	280.4919
77.11	280.4919
77.11	280.4919
77.11	280.4919
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79.80	297.5792
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80.18	277.2889
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80.30	277.3614
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81.07	272.6860
81.07	272.6860
81.07	272.6860
81.07	272.6860
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83.78	304.0485
83.78	304.0485
83.78	304.0485
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84.90	300.8839
85.43	310.3105
86.29	342.0914
86.50	326.6263
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86.79	326.8217
86.94	326.9270
87.30	327.1721
87.30	327.1721
87.30	327.1721
87.30	327.1721
87.30	327.1721
87.30	327.1721
87.57	327.3559
87.88	327.5666
88.03	327.6681
88.36	327.8921
88.47	327.9668
89.95	267.3640
91.11	267.9944
92.29	202.7912
92.38	202.8276
92.38	202.8276
93.35	203.2200
94.00	186.3061
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94.67	202.4292
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94.90	189.2836
94.90	189.2836
94.90	189.2836
95.87	188.3175
95.87	188.3175
96.73	223.1737
97.43	206.1822
98.44	189.2557
98.44	189.2568
98.88	195.6410
99.55	205.6856
99.55	205.6856
99.86	202.2435
100.00	204.9701
100.10	205.0110
103.18	215.1611
103.76	217.1880
105.00	205.9903
105.31	209.7081
108.00	210.7332
109.28	215.7505

111.00	205.4976
111.00	205.4976
111.76	213.9668
112.95	216.2374
115.19	205.1704
116.30	212.9027
117.00	223.8154
117.00	223.8154
117.66	244.2095
121.11	195.2057
121.62	195.3710
121.78	195.4225
122.06	195.5137
122.32	176.5939
122.32	176.5939
122.32	176.5939
122.32	176.5939
123.07	183.7730
127.23	209.3130
129.76	204.5280
131.20	241.6669
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136.48	218.0512
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144.24	237.8609
144.24	237.8609
144.24	237.8609
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145.44	215.2204
147.16	216.7213
152.43	184.3930
152.70	179.6083
153.22	180.7116
154.21	201.3925
154.21	201.3925
154.21	201.3925
154.21	201.3925
155.03	208.4423
156.02	204.8282
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159.00	223.2987
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162.64	200.7834
163.35	211.8134
163.89	213.9383
165.85	209.5566
167.43	191.1741
171.28	176.2096
171.86	181.3242
172.10	181.3798
176.55	162.3708
176.60	162.3823
181.06	195.0471
184.41	222.6811
185.71	223.0347
186.00	223.1152
190.27	212.8548
192.34	211.5441
193.63	214.9390
197.04	211.6936
198.01	203.7041
198.60	212.0791
200.40	201.1751
201.83	212.8755
202.84	182.0854
205.31	238.6241



208.36	213.4207
208.81	202.0715
209.75	224.1814
209.75	224.1814
210.97	235.9730
215.65	232.9979
216.55	220.6213
218.09	233.6212
222.10	229.3506
223.80	224.4736
226.40	215.5388
227.00	218.8624
227.08	228.4440
227.20	228.4725
228.16	232.9593
228.18	232.9637
228.18	232.9637
231.56	218.8427
235.69	217.0988
236.00	212.3428
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238.63	208.6135
238.63	208.6135
238.63	208.6135
239.00	208.6905
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241.98	209.3220
241.98	209.3220
241.98	209.3220
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249.79	163.1088
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252.85	181.0491
254.15	0.0000
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256.20	207.8985
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260.90	193.4489
262.80	160.7657
264.65	184.2090
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268.79	152.8130
269.46	158.4486
269.46	158.4486
269.46	158.4486
269.46	158.4486
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277.60	148.4750
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284.30	146.0040
285.00	155.0844
285.90	165.3331
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286.10	161.9854
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290.80	160.9648
291.72	128.8762
293.26	181.6891
293.70	178.3603
295.21	158.7504
295.21	158.7504

295.21	158.7504
295.96	158.2885
296.50	199.2299
297.23	214.6899
298.57	165.4666
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299.80	145.1495
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300.09	154.4094
300.09	154.4094
300.12	154.4149
301.29	155.0254
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303.76	167.9171
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304.84	149.7764
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308.46	149.0879
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323.87	159.1226
323.87	159.1226
323.87	159.1226
325.23	158.1354
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334.20	158.8014
334.30	158.8152
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338.28	166.3610
338.28	166.3610
338.28	166.3610
338.32	166.3667
338.32	166.3667
338.32	166.3667
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340.57	136.9983
344.27	166.4277
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351.92	147.8159
351.92	147.8159
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367.43	152.2382
367.94	155.8996
369.80	150.6991
374.96	141.3012
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387.95	153.5881
388.63	154.5746
391.69	140.2414
391.69	140.2414
392.90	132.1040
398.62	156.5761
400.65	148.4931
401.10	156.8433
401.81	155.0724
402.60	154.2334
404.84	164.6424
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413.65	147.0160
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445.03	153.8501
445.03	153.8501
445.03	153.8501
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475.35	155.7845
476.78	135.5801
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487.03	134.4603
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511.85	131.2630
513.99	142.5059
513.99	142.5059
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520.65	115.2283
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529.87	0.0000
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537.32	119.3014
543.00	89.4998
546.56	0.0000
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563.90	92.5357
568.70	82.5746
569.32	82.6018
569.50	82.6092
569.67	82.6166
573.80	98.1270
574.00	98.1357
574.64	93.0551
578.91	98.3848
579.30	108.2458
583.14	95.5174
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591.81	90.7822
592.07	90.7930
593.00	99.0938
595.88	90.9675
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602.52	0.0000
602.71	100.7626
602.71	100.7626
603.60	105.1556
604.41	94.6790
604.70	107.9832
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609.31	103.0243
609.31	103.0243
609.31	103.0243
610.33	103.0757
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614.37	88.4670
618.01	80.4731
621.84	88.9999
621.84	88.9999
631.29	93.6146
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633.10	98.9599
634.78	79.0215
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636.97	94.9246
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661.65	91.7608
664.57	70.0884
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666.33	66.7228
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677.61	65.5627
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695.00	80.1584
696.49	83.4621
696.49	83.4621
697.00	86.7334
697.49	82.4153
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698.50	71.6034
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706.58	0.0000
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717.42	65.6342
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722.20	75.4159
722.78	71.9262
722.78	71.9262
722.89	71.9302
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723.30	61.4141
724.18	70.2148
727.18	93.1537
733.00	69.2219
735.90	83.7976
739.58	61.8413
742.81	105.0543
744.21	77.4533
747.13	69.7926
751.79	82.1389
752.31	87.7081
753.82	79.9871
755.35	87.8190
756.15	82.2880
756.87	80.0881
763.93	95.9390
765.79	71.4512
766.42	75.9376
766.84	80.4177
776.49	85.2194
778.00	83.0287
778.57	90.9025
778.89	90.9149
783.80	77.5997
785.46	90.0317
792.07	85.7551

795.84	86.7891
796.30	80.4759
798.80	97.7511
801.93	95.1537
805.60	79.8639
810.29	88.1952
810.76	83.6647
815.85	70.1629
817.79	81.1582
818.51	73.8828
819.60	73.9145
826.30	72.2765
828.27	86.0665
831.60	98.0947
831.96	94.4401
834.83	87.2001
836.80	0.0000
846.75	77.4539
848.13	92.2559
856.28	0.0000
856.80	91.6306
860.37	95.4611
867.32	81.7695
867.82	78.0671
871.10	79.0919
873.19	91.2577
874.81	77.3363
875.33	0.0000
876.40	89.5008
879.36	111.9990
880.27	112.0371
880.51	114.8470
881.50	97.1420
883.24	97.2029
884.67	116.8915
889.25	100.2263
896.60	92.0401
898.02	98.6656
899.00	94.9415
903.28	83.5541
911.07	108.5677
911.07	108.5677
911.07	108.5677
919.63	110.7929
920.93	104.2126
925.00	117.6426
925.24	111.0100
926.50	120.5539
935.52	139.0244
937.48	141.9792
944.10	127.9805
946.00	126.1509
949.00	126.2830
962.29	123.7333
964.01	129.8156
966.15	102.6458
968.20	136.4199
969.11	121.3734
969.11	121.3734
969.11	121.3734
977.42	78.2433
980.50	94.7628
983.50	102.6021
989.30	78.5558
996.32	97.2070
1001.03	74.9660
1001.68	73.0353
1004.76	98.4528
1021.30	0.0000
1024.50	0.0000
1034.80	79.7304
1036.00	93.5481
1037.82	97.5401
1038.57	77.8543
1038.76	0.0000
1045.16	92.8342
1046.59	82.0071
1048.07	81.0551

1050.47	92.9902
1050.47	92.9902
1062.04	82.4083
1063.62	92.3824
1076.63	68.8181
1077.35	74.8206
1078.86	93.8164
1085.78	78.0152
1099.22	78.3352
1112.02	87.3776
1112.84	85.0018
1115.52	90.8350
1120.29	58.9600
1120.29	58.9600
1120.29	58.9600
1120.29	58.9600
1120.51	58.9628
1121.28	50.5518
1124.00	0.0000
1129.67	50.6787
1131.51	0.0000
1147.95	0.0000
1167.94	42.7083
1173.22	48.2484
1175.09	34.2383
1177.93	37.6925
1189.05	35.0625
1204.90	29.0049
1205.75	35.2285
1213.00	24.9188
1221.42	34.3438
1230.97	23.9995
1235.34	26.1182
1236.41	0.0000
1238.25	26.1389
1246.25	39.8202
1260.41	0.0000
1271.85	24.2690
1274.45	14.7834
1274.54	16.8953
1291.56	27.5806
1298.22	0.0000
1312.09	15.9983
1325.50	23.1901
1325.50	23.1901
1332.49	16.0833
1333.61	16.0884
1360.21	12.9586
1362.66	0.0000
1365.15	11.8938
1368.21	10.8208
1368.53	0.0000
1376.25	16.2642
1384.27	18.4701
1394.10	8.7133
1395.20	9.8051
1407.95	13.1150
1434.06	13.1994
1436.60	12.8407
1457.56	0.0000
1460.81	13.8385
1489.15	9.2879
1509.49	14.9316
1596.49	16.1824
1620.62	11.4839
1678.03	0.0000
1691.02	7.7728
1691.02	7.7728
1706.46	0.0000
1750.46	0.0000
1764.49	1.9731
1764.49	1.9731
1764.49	1.9731
1764.49	1.9731
1770.23	21.7288
1771.40	10.8671
1791.20	0.0000
1808.65	6.9675

1836.01

7.0054

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202021395

Total Uranium Activity	4.6162E-01	ug/g
Total Uranium Counting Unc.	5.3463E+00	ug/g
Total Uranium Tpu	2.7277E-06	ug/g
Total Uranium Mda	4.3137E+00	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 944037          SAMPLE ID   : G1202021395
*  ANALYST       : MXR1           DETECTOR    : GAM16
*  SAMPLE DATE   : 25-JAN-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00
*  ANALYSIS DATE: 2-FEB-2010 13:04:58.14  SAMPLE ALQT: 155.440 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.705E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 3.053E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 4.719E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 2.299E+00

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# Radiochemistry Batch Checklist, Rev10

Batch# 945369 Product: H<sup>3</sup> Date: 2-4-10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
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 REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [Signature]

Secondary Review Performed By: [Signature]

LANL 2-17-10

# Tritium Que Sheet

VACUUM

26-JAN-10

Batch #: 945369

Analyst: KKK2

First Client Due Date 17-FEB-10

Internal Due Date: 06-FEB-10

Spike Isotope: Hydrogen-3

Spike Code: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

Vol: \_\_\_\_\_

LCS Isotope: Hydrogen-3

LCS Code: 0134-K

Expiration Date: 3/27/10

Vol: 0.1

Prep Date: 1/27/10 Initials: YKJ Pipet ID: 2970968 Witness: DM 1-27-10

Sample ID	Client Samp ID	Type	Hazard Code	Min CRDL	Matrix	Client	Sample Date	Aliquot in vial (g/mL)	LSC Rack #	Dist Rig #	Vol added for Dist (mL)	Initial Sample Aliquot (g/mL)	Final Wt (g)	Total Moisture Dist (mL)
245101001-1	RE15-10-7194	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.2	1		848.44	276.66	71.78
245101002-1	RE15-10-7186	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.2	2		524.44	427.42	97.02
245101003-1	RE15-10-7191	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.4	3		363.16	310.99	52.66
245101004-1	RE15-10-7195	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.6	4		458.59	412.73	45.86
245101005-1	RE15-10-7196	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.8	5		146.97	112.29	34.68
245101006-1	RE15-10-7197	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.8	6		372.53	318.89	53.64
245101007-1	RE15-10-7193	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.6	7		339.07	274.65	64.42
245101008-1	RE15-10-7184	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.9	8		289.46	239.96	49.50
245101009-1	RE15-10-7185	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.8	9		381.26	345.42	35.84
245101010-1	RE15-10-7189	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.10	10		394.92	358.59	36.33
245101011-1	RE15-10-7187	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.07	11		301.32	273.30	28.02
245101012-1	RE15-10-7188	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.1	12		298.01	261.06	36.95
245101013-1	RE15-10-7190	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.2	13		254.67	182.60	72.07
245101014-1	RE15-10-7192	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.3	14		210.88	138.55	72.33
245101015-1	RE15-10-7219	SAMPLE		.25 pCi/mL SOIL	LANL010		13-JAN-10	10	64.4	15		293.93	225.74	68.19
1202024712-1	MB for batch 945369	MB		.25 pCi/mL SOIL	QC ACCOUNT			10	64.5	16		20.00	0	20.00
1202024713-1	RE15-10-7194(245101001DUP)	DUP		.25 pCi/mL SOIL	QC ACCOUNT		13-JAN-10	10	64.4	1		348.44	276.66	71.78
1202024714-1	LCS for batch 945369	LCS		.25 pCi/mL SOIL	QC ACCOUNT			10	64.5	17		20.00	0	20.00

Bkg Rack #: 56.1

dailies

Comments:

Bkg prepared with dead water? Yes/No

Instrument Used (circle as appropriate): LS6000 (Red) 7065155, LS6500 (Blue) 7067083, LS6500 (Gold) 7070506, LS6500 (Green) 7067404, Wallac (Yellow) 4140127, LS6000 (Brown) 7060655, Wallac (Pink) 2200082, Wallac (White) 4140299, Purple 7069123, Silver 7060656, Orange DG06095168

Calibration Used : Ecosint Ultra (10 mL sample/13 mL Ecosint Ultra)  
Data Reviewed By: YKJ 2-4-10

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

DATE	12/27/2010		INITIALS	KXK2	BATCH NUMBER		945369		
Sample #	Sample Wet (g)	Flask Wt	Flask & Sample Wet (g)	% Moisture of Sample (Balance Interface using % Moisture Batch)	Total Moisture in Sample (mL)	Sample Dry (g)	Flask & Sample Dry (g)	mLs aliquoted into LSC vial	Collection Tube Number
245101001	348.44	200	548	0.206	71.78	276.66	476.66	10	1
245101002	524.44	200	724	0.185	97.02	427.42	627.42	10	2
245101003	363.15	200	563	0.145	52.66	310.49	510.49	10	3
245101004	458.59	200	659	0.100	45.86	412.73	612.73	10	4
245101005	146.97	200	347	0.236	34.68	112.29	312.29	10	5
245101006	372.53	200	573	0.144	53.64	318.89	518.89	10	6
245101007	339.07	200	539	0.190	64.42	274.65	474.65	10	7
245101008	289.46	200	489	0.171	49.50	239.96	439.96	10	8
245101009	381.26	200	581	0.094	35.84	345.42	545.42	10	9
245101010	394.92	200	595	0.092	36.33	358.59	558.59	10	10
245101011	301.32	200	501	0.093	28.02	273.30	473.30	10	11
245101012	298.01	200	498	0.124	36.95	261.06	461.06	10	12
245101013	254.67	200	455	0.283	72.07	182.60	382.60	10	13
245101014	210.88	200	411	0.343	72.33	138.55	338.55	10	14
245101015	293.93	200	494	0.232	68.19	225.74	425.74	10	15
MB	20.00	200	220	1.000	20.00	0.00	200.00	10	16
DUP	348.44	200	548	0.206	71.78	276.66	476.66	10	1
LCS	20.00	200	220	1.000	20.00	0.00	200.00	10	17

## Tritium Solid

Filename : H3VAC.XLS  
File type : Excel  
Version # : 1.2.5

Spike S/N :  
Spike Exp Date :  
Spike Activity (dpm/ml):  
Spike Volume Added:

LCS S/N : 0134-K  
LCS Exp Date : 3/27/2010  
LCS Activity (dpm/ml): 2473.91  
LCS Volume Added: 0.10

Batch : 945369

Analyst : KXK2

Prep Date : 1/27/2010

H-3 Abundance : 1

Method Uncertainty : 0.0691

Geometry: 10mL DW/13mL  
Eoscient Ultra

Procedure Code : LSC\_VH3S  
Parname : Tritium  
Required MDC : 250 pCi/L  
Half-life of Tritium : 12.28 years

Pipet, 0.1 ml Sidev : +/- 0.000701 ml  
Pipet, 0.5 ml Sidev : +/- 0.002564 ml  
Pipet, 1.0 ml Sidev : +/- 0.005480 ml  
Pipet, 5.0 ml Sidev : +/- 0.025729 ml

Sample Characteristics									
Pos.	Sample ID	Wet Sample Weight (g)	Total Moisture L	Sample Aliquot in Vial L	Sample Aliquot Sidev. L	Dry Sample Weight (g)	% Moisture of Sample	Rig number	Sample Date/Time
1	245101001.1	348.44	0.0718	0.0100	2.5729E-05	276.66	20.60%	1	1/13/2010 12:00
2	245101002.1	524.44	0.0970	0.0100	2.5729E-05	427.42	18.50%	2	1/13/2010 12:00
3	245101003.1	363.15	0.0527	0.0100	2.5729E-05	310.49	14.50%	3	1/13/2010 12:00
4	245101004.1	458.59	0.0459	0.0100	2.5729E-05	412.73	10.00%	4	1/13/2010 12:00
5	245101005.1	146.97	0.0347	0.0100	2.5729E-05	112.29	23.60%	5	1/13/2010 12:00
6	245101006.1	372.53	0.0536	0.0100	2.5729E-05	318.89	14.40%	6	1/13/2010 12:00
7	245101007.1	339.07	0.0644	0.0100	2.5729E-05	274.65	19.00%	7	1/13/2010 12:00
8	245101008.1	289.46	0.0495	0.0100	2.5729E-05	239.96	17.10%	8	1/13/2010 12:00
9	245101009.1	381.26	0.0358	0.0100	2.5729E-05	345.42	9.40%	9	1/13/2010 12:00
10	245101010.1	394.92	0.0363	0.0100	2.5729E-05	358.59	9.20%	10	1/13/2010 12:00
11	245101011.1	301.32	0.0280	0.0100	2.5729E-05	273.30	9.30%	11	1/13/2010 12:00
12	245101012.1	298.01	0.0370	0.0100	2.5729E-05	261.06	12.40%	12	1/13/2010 12:00
13	245101013.1	254.67	0.0721	0.0100	2.5729E-05	182.80	28.30%	13	1/13/2010 12:00
14	245101014.1	210.88	0.0723	0.0100	2.5729E-05	138.55	34.30%	14	1/13/2010 12:00
15	245101015.1	293.93	0.0682	0.0100	2.5729E-05	225.74	23.20%	15	1/13/2010 12:00
16	1202024712.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	16	1/27/2010 0:00
17	1202024713.1	348.44	0.0718	0.0100	2.5729E-05	276.66	20.60%	1	1/13/2010 12:00
18	1202024714.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	17	1/27/2010 0:00

Count raw data				Background				Calibration Data				Backgrounds			
Pos.	Rack Position #	Counting Time (min.)	Quench#	Gross cpm	cpm	Count Time (min.)	Count Start Date/Time	Sample Decay	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Rack Position #	Count Start Date/Time
1	56-2	95	118	2.86	2.81	95	1/29/2010 4:56	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1807	0.00792	56-1	1/29/2010 3:18
2	56-3	95	119.2	2.77	2.81	95	1/29/2010 6:34	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1799	0.00792	56-1	1/29/2010 3:18
3	56-4	95	118.2	2.95	2.81	95	1/29/2010 8:12	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1805	0.00792	56-1	1/29/2010 3:18
4	56-5	95	118.5	2.79	2.81	95	1/29/2010 9:50	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1803	0.00792	56-1	1/29/2010 3:18
5	56-6	95	117.1	2.57	2.81	95	1/29/2010 11:29	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1813	0.00792	56-1	1/29/2010 3:18
6	56-7	95	118	2.65	2.81	95	1/29/2010 13:07	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1807	0.00792	56-1	1/29/2010 3:18
7	56-8	95	117.8	2.47	2.81	95	1/29/2010 14:45	0.998	LSOGOLD	8/20/2009	8/31/2010	0.1808	0.00792	56-1	1/29/2010 3:18
8	56-9	95	117.7	3.12	2.81	95	1/29/2010 16:23	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1802	0.00792	56-1	1/29/2010 3:18
9	56-10	95	117.7	2.65	2.81	95	1/29/2010 18:01	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1809	0.00792	56-1	1/29/2010 3:18
10	56-11	95	118.3	3.25	2.81	95	1/29/2010 19:39	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1805	0.00792	56-1	1/29/2010 3:18
11	56-12	95	119.3	2.85	2.81	95	1/29/2010 21:17	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1798	0.00792	56-1	1/29/2010 3:18
12	12-1	95	117.5	3.36	2.81	95	1/29/2010 22:55	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1810	0.00792	56-1	1/29/2010 3:18
13	12-2	95	117.5	2.97	2.81	95	1/30/2010 0:33	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1810	0.00792	56-1	1/29/2010 3:18
14	12-3	95	118.1	3.08	2.81	95	1/30/2010 2:11	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1806	0.00792	56-1	1/29/2010 3:18
15	12-4	95	118.8	2.85	2.81	95	1/30/2010 3:49	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1801	0.00792	56-1	1/29/2010 3:18
16	12-5	95	116.3	2.95	2.81	95	1/30/2010 5:27	0.999	LSOGOLD	8/20/2009	8/31/2010	0.1817	0.00792	56-1	1/29/2010 3:18
17	12-6	95	118.7	3.07	2.81	95	1/30/2010 7:05	0.997	LSOGOLD	8/20/2009	8/31/2010	0.1802	0.00792	56-1	1/29/2010 3:18
18	37-1	15	117.5	24.27	2.81	95	1/30/2010 8:42	0.999	LSOGOLD	8/20/2009	8/31/2010	0.1810	0.00792	56-1	1/29/2010 3:18

## Notes:

- 1 - Results are decay corrected to Sample Date/Time  
 2 - Reference date for Spike Activity (dpm/ml) is the Batch Prep Date  
 3 - Spike Nominals are decay corrected to Sample Date/Time

\* - RPD changed to 0% due to activity below MDC for 1202024713.1

Results		Decision Level		Critical Level	Required MDC	Sample Act. Error		Sample Act. Conc.	Net Count Rate		Net Count Rate Error	1 SIGMA Counting Uncertainty		1 SIGMA Total Prop. Uncertainty		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
Pos.	pCi/L	pCi/L	pCi/L	pCi/L	MDC	pCi/L	pCi/L	pCi/L	MDC	pCi/L	CPM	CPM	pCi/L	pCi/L	pCi/L						
1	141.6342	99.9949	250	207.8822	12.4961	4.896	0.050	0.244	0.244	61.0570	61.0632	61.0570	61.0632	61.0570	61.0632	SAMPLE	SAMPLE				
2	142.2713	100.4447	250	208.8172	-10.0419	6.059	-0.040	0.242	0.242	60.8429	60.8432	60.8429	60.8432	60.8429	60.8432	SAMPLE	SAMPLE				
3	141.7404	100.0700	250	208.0382	35.0154	1.759	0.140	0.246	0.246	61.5858	61.6341	61.5858	61.6341	61.5858	61.6341	SAMPLE	SAMPLE				
4	141.8989	100.1818	250	208.2707	-5.0078	12.140	-0.020	0.243	0.243	60.7823	60.7926	60.7823	60.7926	60.7823	60.7926	SAMPLE	SAMPLE				
5	141.1885	99.6803	250	207.2280	-59.7927	0.992	-0.240	0.238	0.238	59.2879	59.2882	59.2879	59.2882	59.2879	59.2882	SAMPLE	SAMPLE				
6	141.6416	100.0002	250	207.8931	-39.9897	1.498	-0.160	0.240	0.240	59.9188	59.9191	59.9188	59.9191	59.9188	59.9191	SAMPLE	SAMPLE				
7	141.5409	99.9291	250	207.7453	-84.9178	0.693	-0.340	0.236	0.236	58.8809	58.8812	58.8809	58.8812	58.8809	58.8812	SAMPLE	SAMPLE				
8	142.0108	100.2608	250	208.4349	77.6821	0.806	0.310	0.250	0.250	62.6072	62.6072	62.6072	62.6072	62.6072	62.6072	SAMPLE	SAMPLE				
9	141.4931	99.8954	250	207.6752	-39.9478	1.498	-0.160	0.240	0.240	59.8560	59.8563	59.8560	59.8563	59.8560	59.8563	SAMPLE	SAMPLE				
10	141.8029	100.1141	250	208.1299	110.0970	0.574	0.440	0.253	0.253	63.1971	63.1971	63.1971	63.1971	63.1971	63.1971	SAMPLE	SAMPLE				
11	142.3394	100.4929	250	208.9173	10.0467	6.102	0.040	0.244	0.244	61.3069	61.3109	61.3069	61.3109	61.3069	61.3109	SAMPLE	SAMPLE				
12	141.3970	99.8275	250	207.5340	137.2273	0.463	0.550	0.255	0.255	63.5856	64.2999	63.5856	64.2999	63.5856	64.2999	SAMPLE	SAMPLE				
13	141.3985	99.8285	250	207.5362	39.9211	1.542	0.160	0.247	0.247	61.5438	61.6066	61.5438	61.6066	61.5438	61.6066	SAMPLE	SAMPLE				
14	141.7051	100.0450	250	207.9862	67.5129	0.922	0.270	0.249	0.249	62.2614	62.4387	62.2614	62.4387	62.2614	62.4387	SAMPLE	SAMPLE				
15	142.0746	100.3059	250	208.5286	10.0280	6.102	0.040	0.244	0.244	61.1928	61.1968	61.1928	61.1968	61.1928	61.1968	SAMPLE	SAMPLE				
16	140.5280	99.2139	250	206.2586	34.7159	1.759	0.140	0.246	0.246	61.0590	61.1069	61.0590	61.1069	61.0590	61.1069	SAMPLE	SAMPLE				
17	142.0242	100.2703	250	208.4547	65.1589	0.957	0.260	0.249	0.249	62.3486	62.5136	62.3486	62.5136	62.3486	62.5136	245101001.1	DUP	0.0%	0.2131	5571.8714	95.9%
18	270.2062	190.7679	250	431.3355	5343.5143	0.060	21.460	1.284	1.284	319.6100	490.5665	319.6100	490.5665	319.6100	490.5665	LCS	LCS				

PAGE: 1

## ID: TRITIUM

29 JAN 2010 03:14

USER: 3 COMMENT: GOLD

```

RESET TIME :      95.00
DATA CALC   :      CPM  H#   :YES  SAMPLE REPEATS:   1  PRINTER      : STD
COUNT BLANK :      NO  IC#  : NO  REPLICATES   :   1  RS232       : EDIT
NO PHASE    :      NO  AQC  : NO  CYCLE REPEATS :   1  DISK        : OFF
CINTILLATOR: LIQUID  LUMEX: YES  LOW SAMPLE REJ:   0
LOW LEVEL   :      NO  HALF LIFE CORRECTION DATE: none

```

```

HAN:  0.0 - 235.0 %ERROR: 0.00 FACTOR:  1.000000 BKG. SUB:  0
HAN:  0.0 - 1000.0 %ERROR: 0.00 FACTOR:  1.000000 BKG. SUB:  0

```

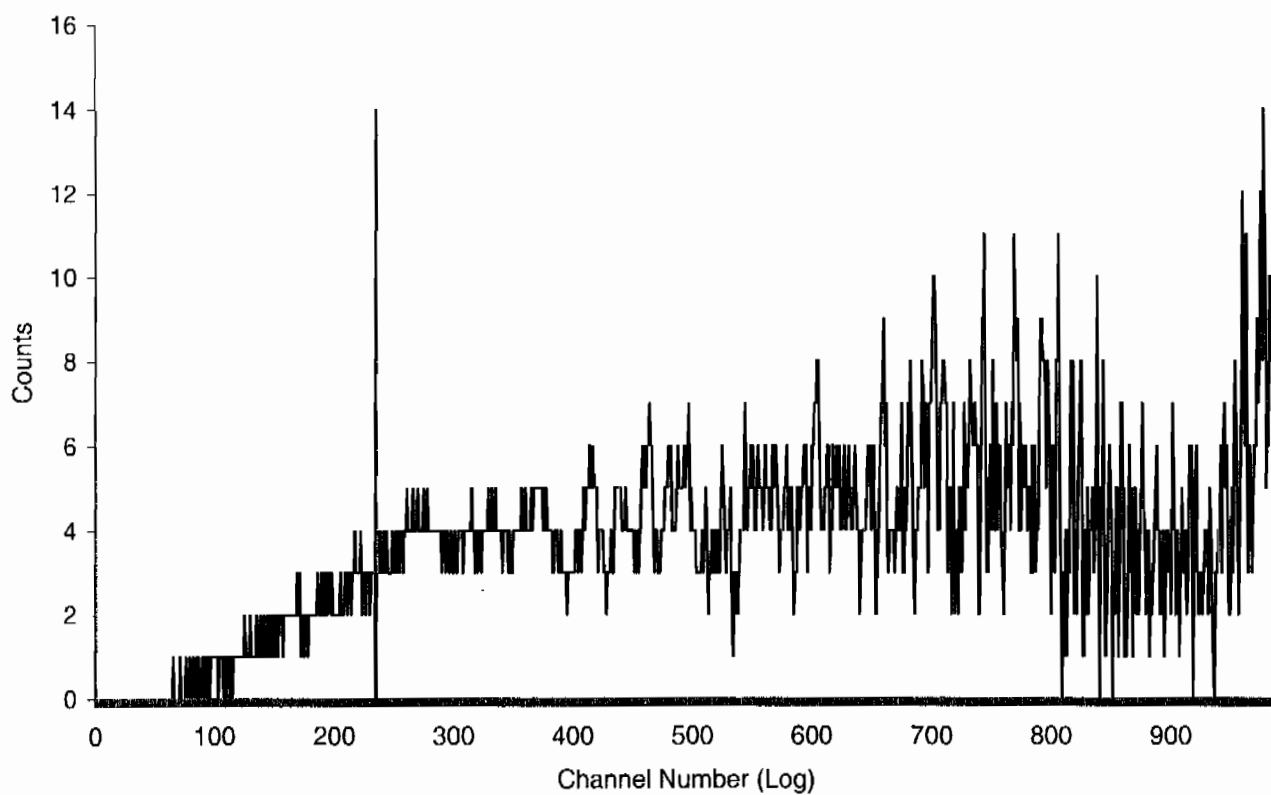
AM	POS	TIME	H#	<u>WIND1</u>		<u>WIND2</u>		LUMEX	ELAPSED
NO		MIN		CPM	%ERROR	CPM	%ERROR	%	TIME
1	56-1	95.00	117.8	2.81	12.49	43.23	3.12	0.35	97.49
2	56-2	95.00	118.0	2.86	12.56	42.09	3.17	0.57	195.60
3	56-3	95.00	119.2	2.77	12.68	42.91	3.14	0.45	293.69
4	56-4	95.00	118.2	2.95	12.37	43.82	3.11	0.54	391.78
5	56-5	95.00	118.5	2.79	12.72	42.03	3.17	0.54	489.89
6	56-6	95.00	117.1	2.57	13.32	43.23	3.13	0.55	588.00
7	56-7	95.00	118.0	2.65	13.02	43.14	3.13	0.51	686.10
8	56-8	95.00	117.8	2.47	13.48	43.05	3.13	0.48	784.19
9	56-9	95.00	118.7	3.12	11.92	44.07	3.10	0.43	882.26
10	56-10	95.00	117.7	2.65	13.04	41.94	3.18	0.52	980.36
11	56-11	95.00	118.3	3.25	11.67	43.96	3.10	0.46	1078.46
12	56-12	95.00	119.3	2.85	12.37	43.80	3.10	0.33	1176.49
13	12-1	95.00	117.5	3.36	11.46	43.91	3.10	0.44	1274.66
14	12-2	95.00	117.5	2.97	12.16	43.71	3.11	0.34	1372.70
15	12-3	95.00	118.1	3.08	11.88	42.96	3.13	0.34	1470.71
16	12-4	95.00	118.8	2.85	12.42	42.79	3.14	0.36	1568.75
17	12-5	95.00	116.3	2.95	12.14	43.68	3.11	0.27	1666.75
18	12-6	95.00	118.7	3.07	11.90	43.76	3.11	0.32	1764.77



Sample Count Start Time:	29 Jan 2010 03:18:31		
Data Capture Date	29 Jan 2010 04:53:52		
User Filename	S03012956-1A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	56-1	95.00
H#, Total Counts:	117.8	4587	
Win1: Tritium - Start, End, Counts:	0	235	267
Win2: - Start, End, Counts:	0	990	3708

# SPECTRUM PLOT

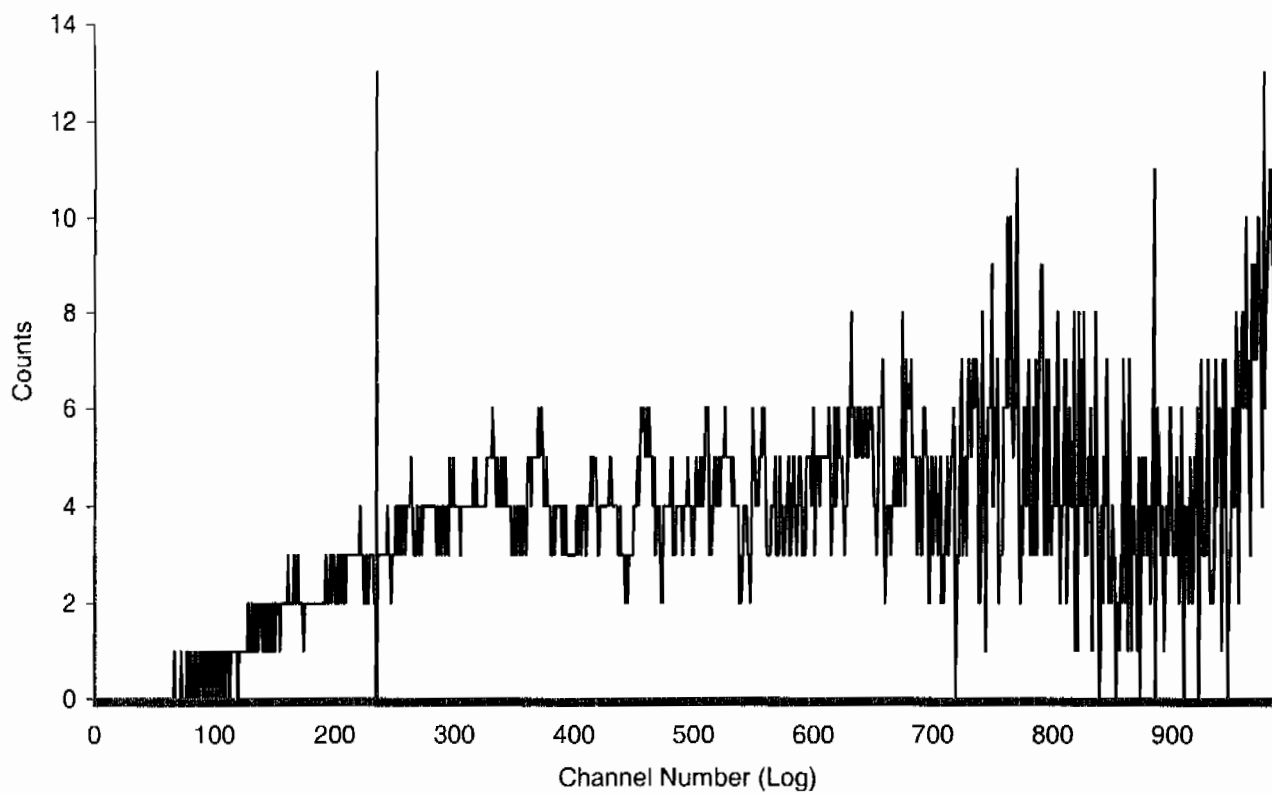
USER 03 - TRITIUM



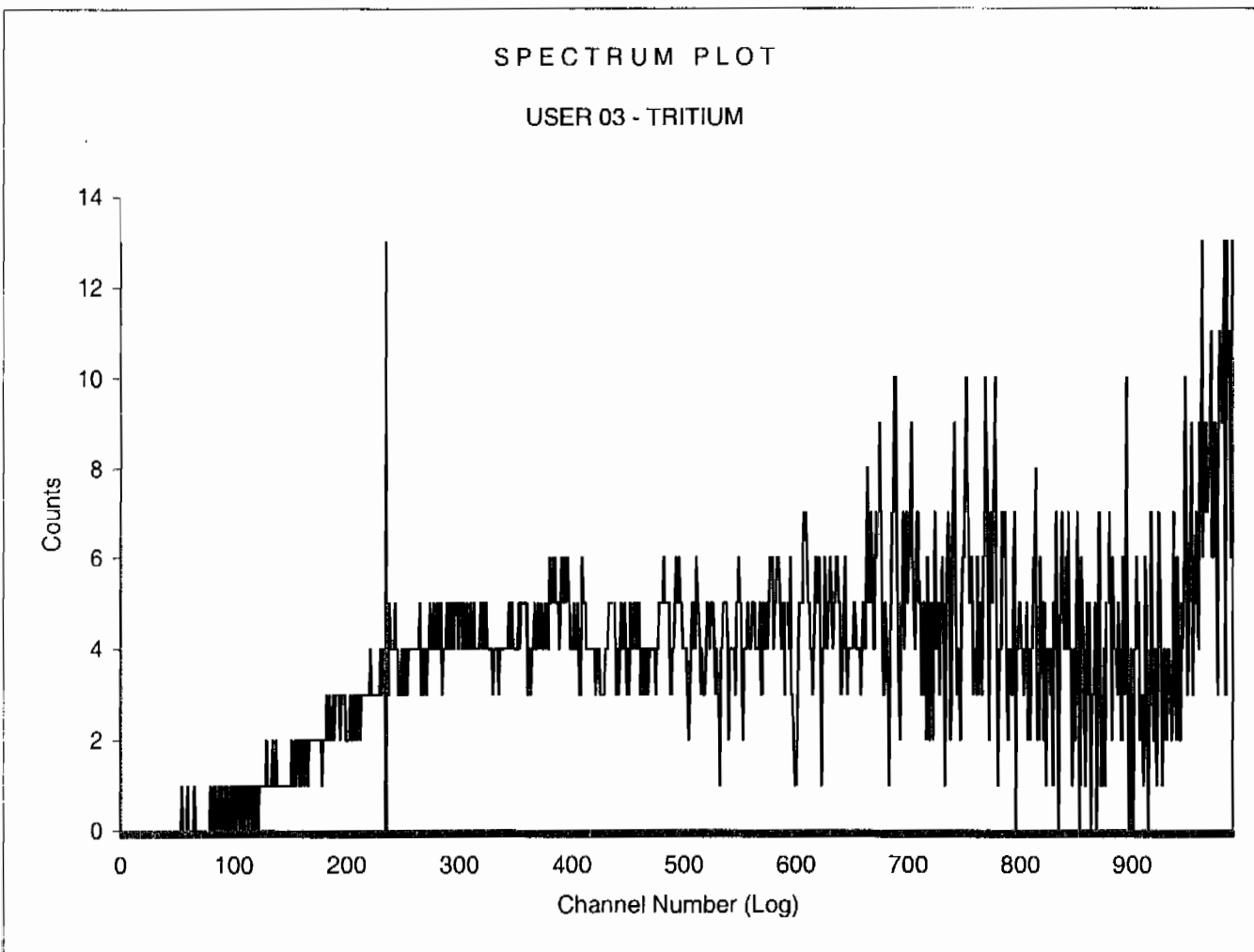
Sample Count Start Time:	29 Jan 2010 04:56:38		
Data Capture Date	29 Jan 2010 06:31:59		
User Filename	S03012956-2A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	56-2	95.00
H#, Total Counts:	118.0	4351	
Win1: Tritium - Start, End, Counts:	0	235	272
Win2: - Start, End, Counts:	0	990	3592

### SPECTRUM PLOT

USER 03 - TRITIUM



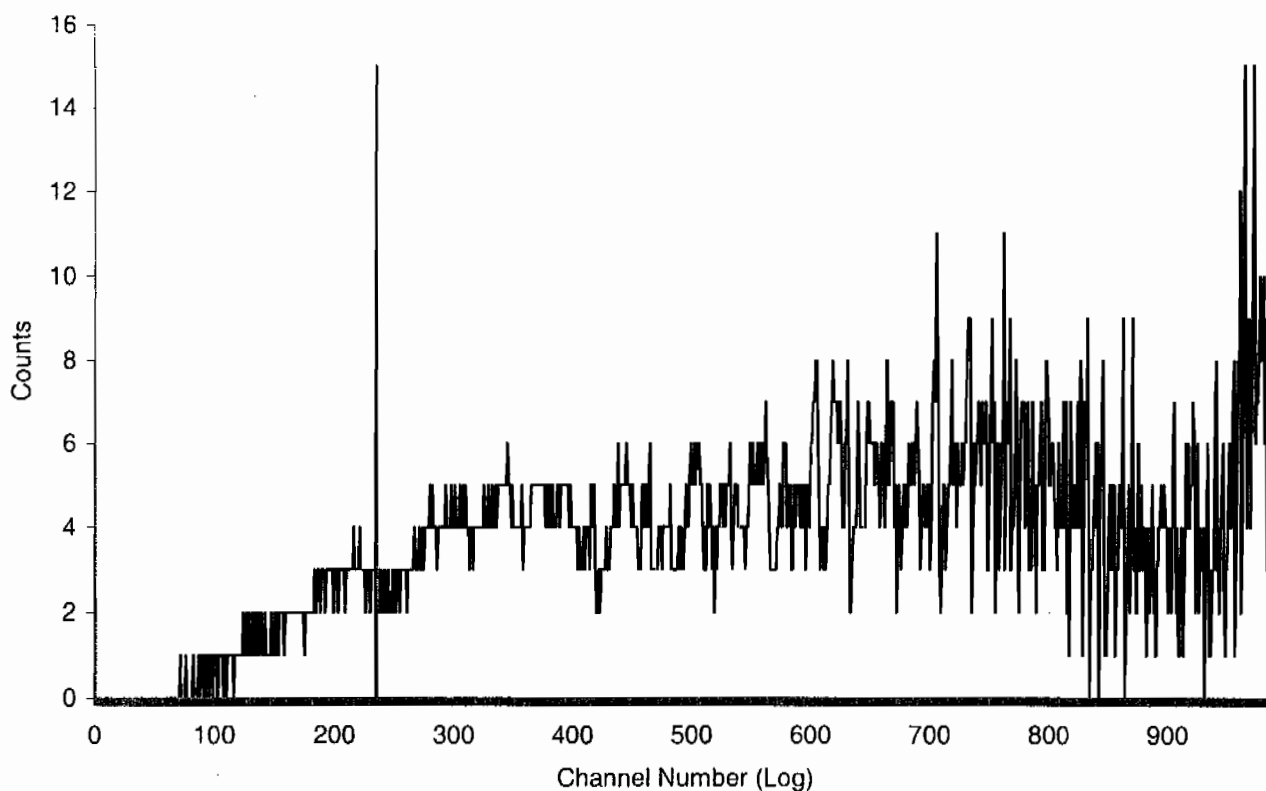
Sample Count Start Time:	29 Jan 2010 06:34:43		
Data Capture Date	29 Jan 2010 08:10:04		
User Filename	S03012956-3A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	56-3	95.00
H#, Total Counts:	119.2	4524	
Win1: Tritium - Start, End, Counts:	0	235	263
Win2: - Start, End, Counts:	0	990	3705



Sample Count Start Time:	29 Jan 2010 08:12:49		
Data Capture Date	29 Jan 2010 09:48:10		
User Filename	S03012956-4A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	56-4	95.00
H#, Total Counts:	118.2	4411	
Win1: Tritium - Start, End, Counts:	0	235	280
Win2: - Start, End, Counts:	0	990	3769

# SPECTRUM PLOT

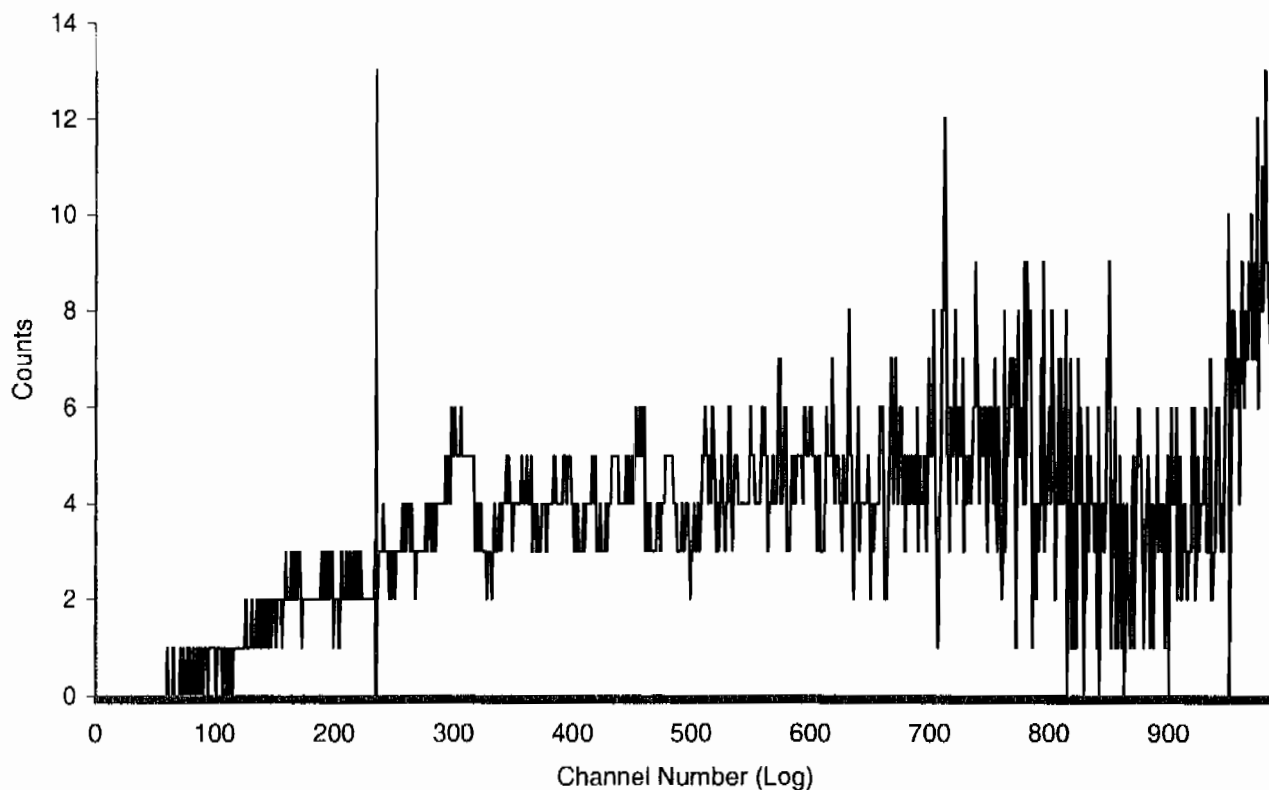
USER 03 - TRITIUM



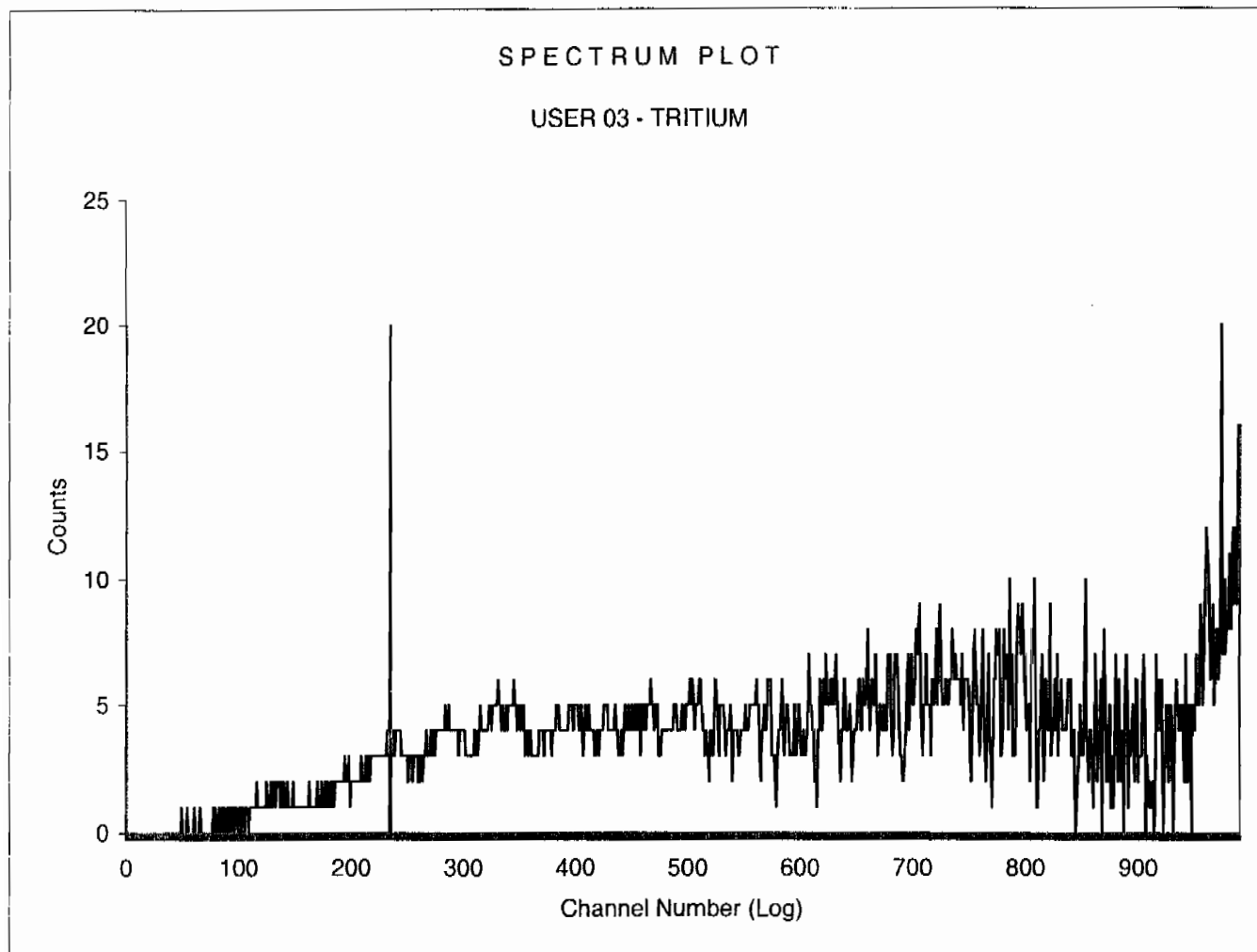
Sample Count Start Time:	29 Jan 2010 09:50:55		
Data Capture Date	29 Jan 2010 11:26:17		
User Filename	S03012956-5A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	56-5	95.00
H#, Total Counts:	118.5	4377	
Win1: Tritium - Start, End, Counts:	0	235	265
Win2: - Start, End, Counts:	0	990	3603

# SPECTRUM PLOT

USER 03 - TRITIUM



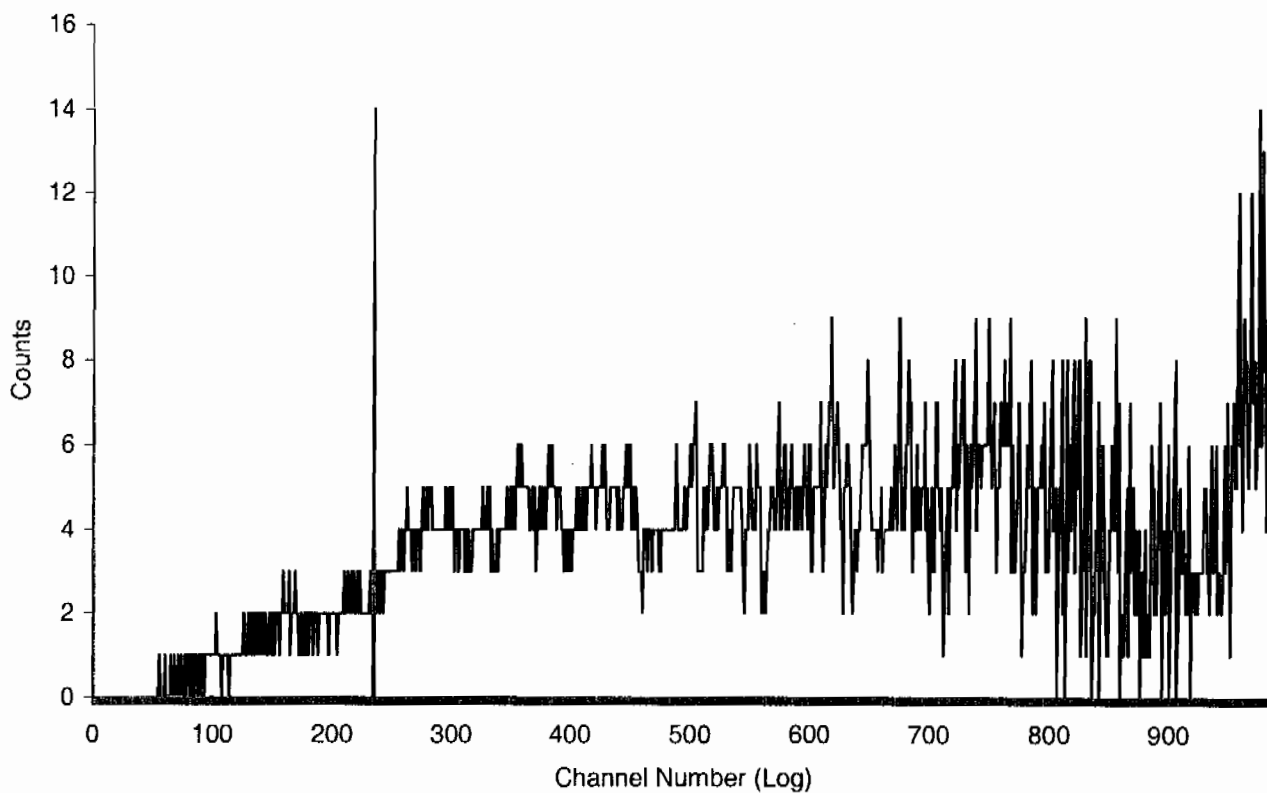
Sample Count Start Time:	29 Jan 2010 11:29:02		
Data Capture Date	29 Jan 2010 13:04:23		
User Filename	S03012956-6A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	56-6	95.00
H#, Total Counts:	117.1	4491	
Win1: Tritium - Start, End, Counts:	0	235	244
Win2: - Start, End, Counts:	0	990	3718



Sample Count Start Time:	29 Jan 2010 13:07:08		
Data Capture Date	29 Jan 2010 14:42:29		
User Filename	S03012956-7A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	56-7	95.00
H#, Total Counts:	118.0	4538	
Win1: Tritium - Start, End, Counts:	0	235	252
Win2: - Start, End, Counts:	0	990	3684

# SPECTRUM PLOT

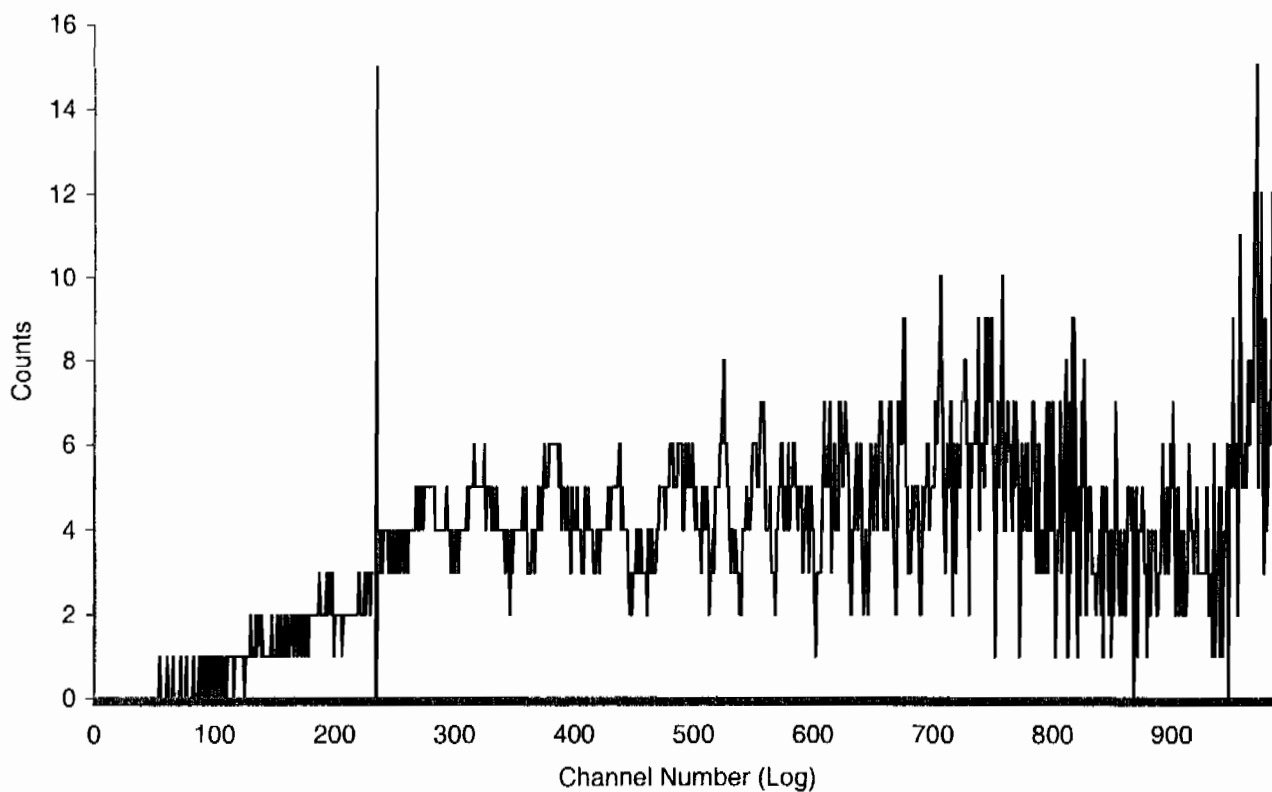
USER 03 - TRITIUM



Sample Count Start Time:	29 Jan 2010 14:45:13		
Data Capture Date	29 Jan 2010 16:20:35		
User Filename	S03012956-8A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	56-8	95.00
H#, Total Counts:	117.8	4506	
Win1: Tritium - Start, End, Counts:	0	235	235
Win2: - Start, End, Counts:	0	990	3712

# SPECTRUM PLOT

USER 03 - TRITIUM

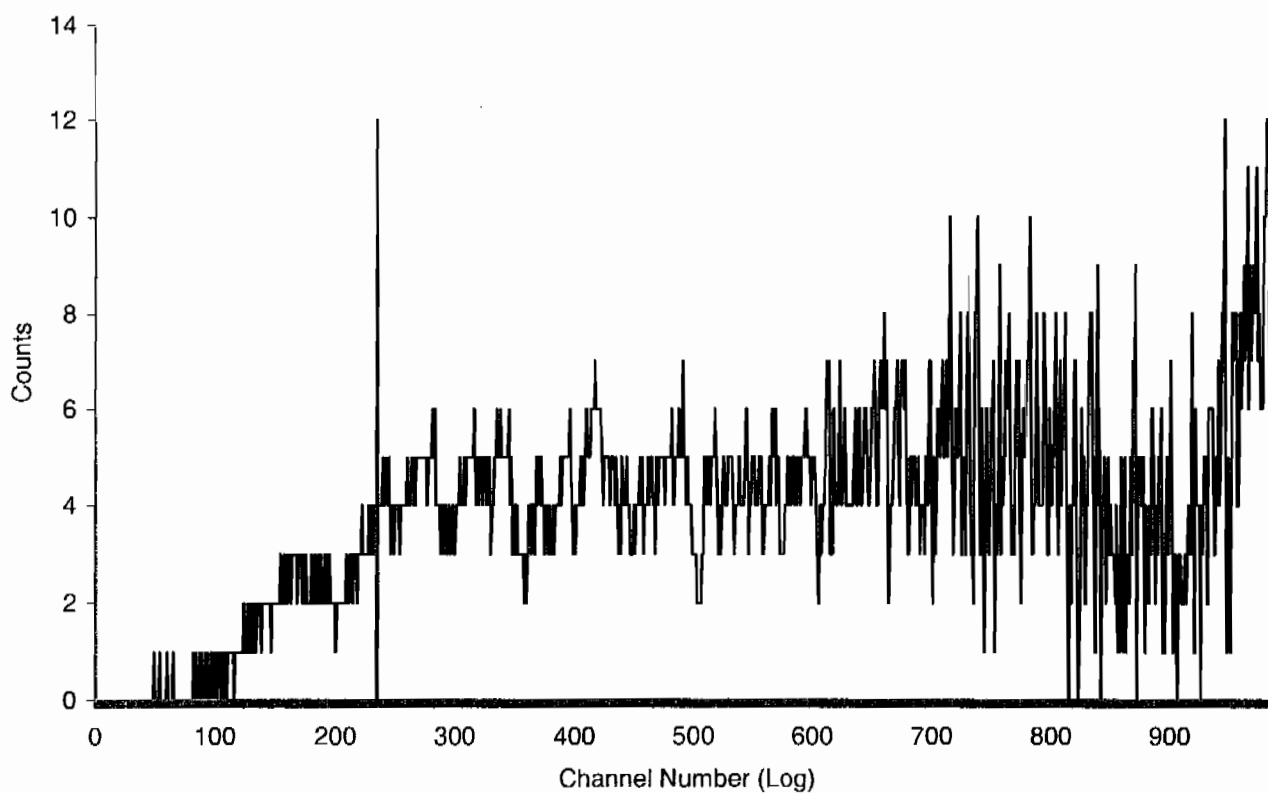




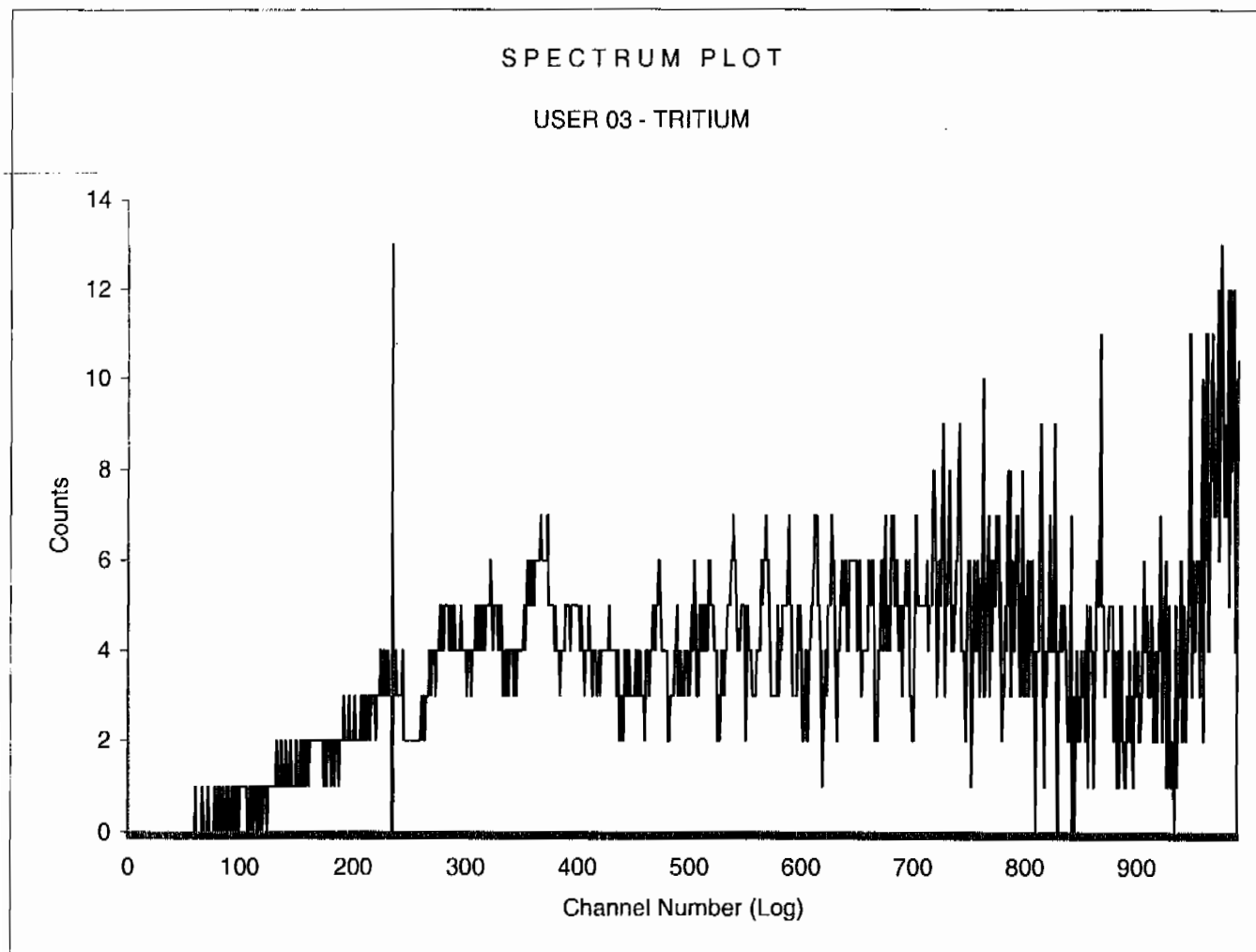
Sample Count Start Time:	29 Jan 2010 16:23:18		
Data Capture Date	29 Jan 2010 17:58:39		
User Filename	S03012956-9A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	56-9	95.00
H#, Total Counts:	118.7	4531	
Win1: Tritium - Start, End, Counts:	0	235	296
Win2: - Start, End, Counts:	0	990	3802

# SPECTRUM PLOT

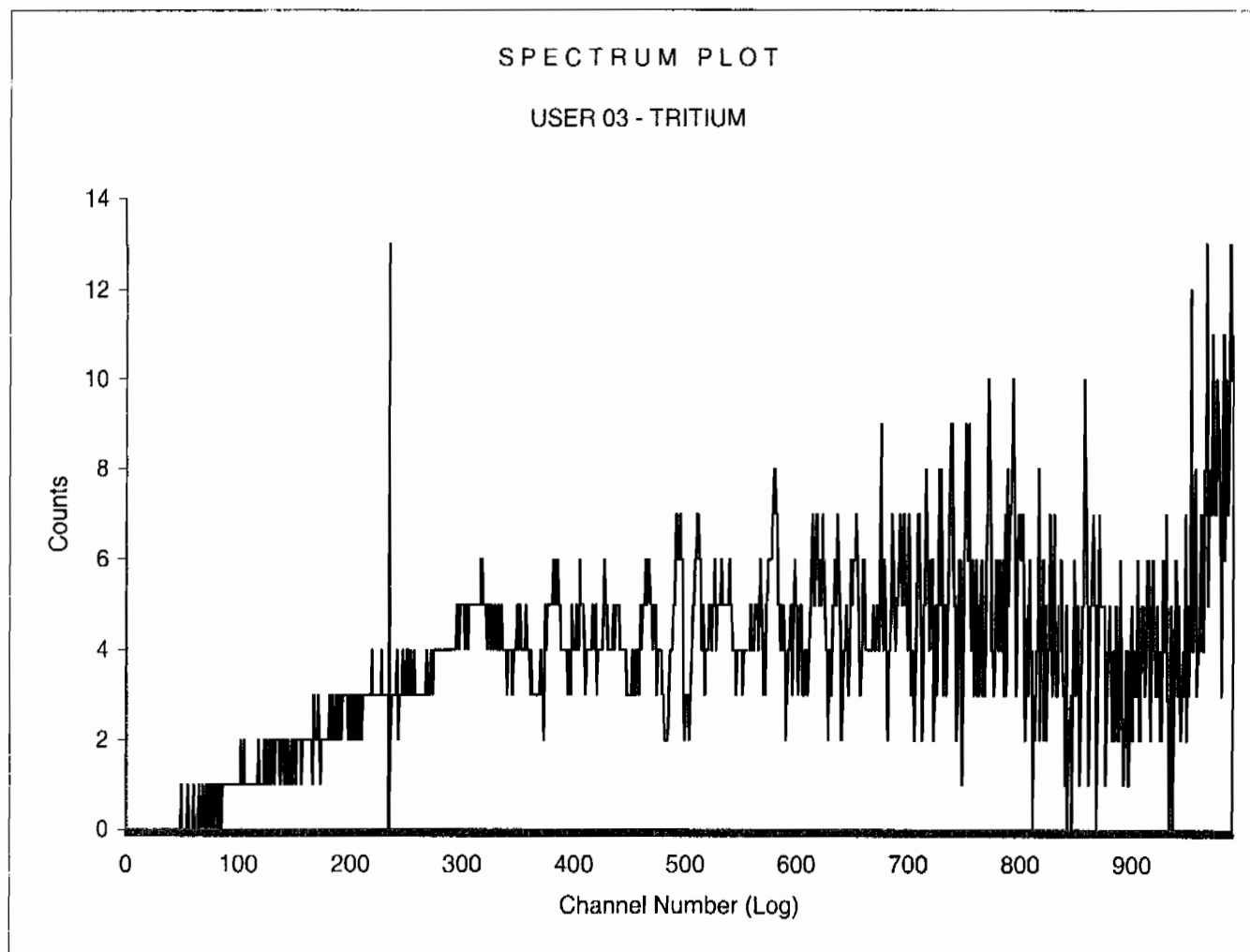
USER 03 - TRITIUM



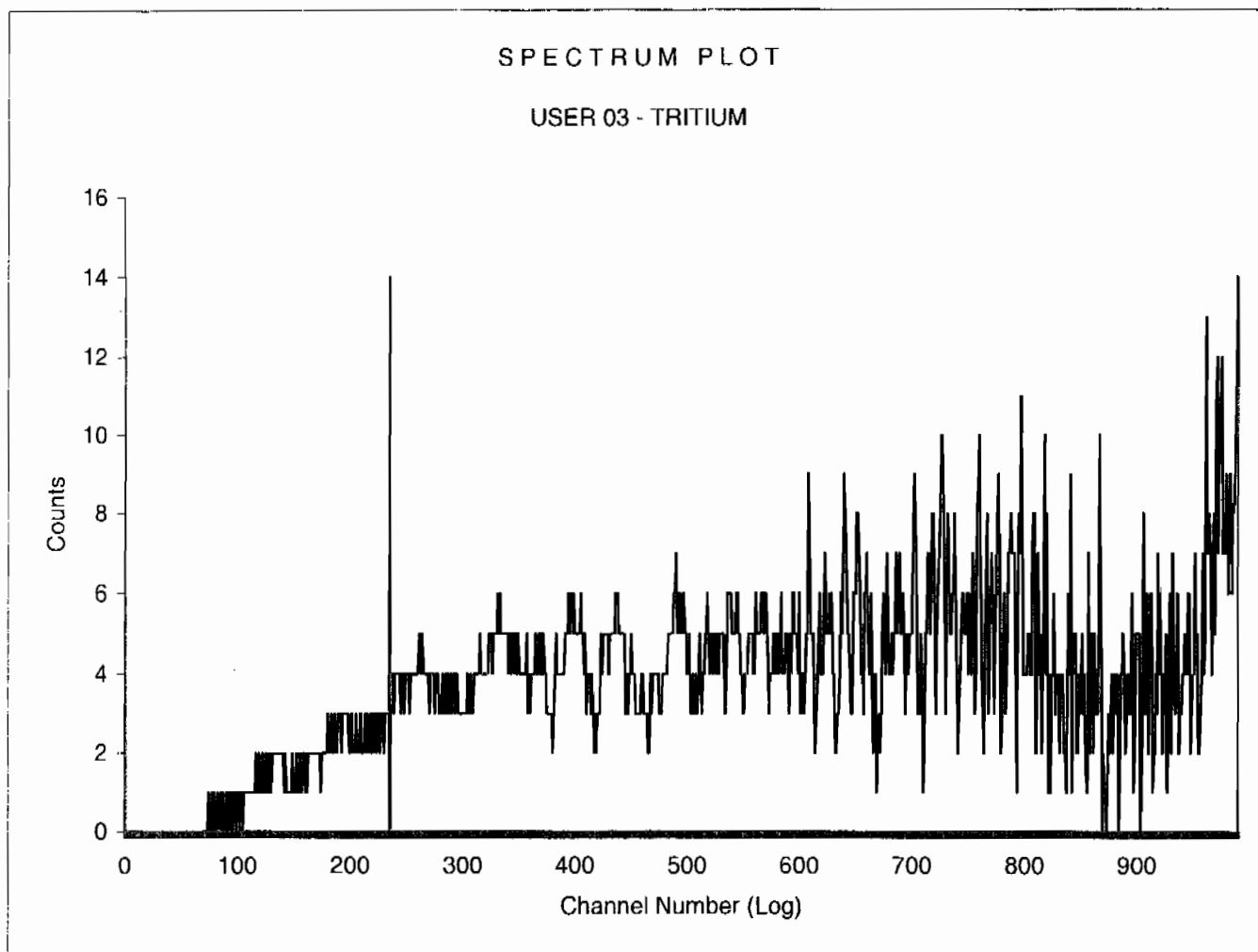
Sample Count Start Time:	29 Jan 2010 18:01:24		
Data Capture Date	29 Jan 2010 19:36:45		
User Filename	S03012956-10A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	56-10	95.00
H#, Total Counts:	117.7	4424	
Win1: Tritium - Start, End, Counts:	0	235	252
Win2: - Start, End, Counts:	0	990	3598



Sample Count Start Time:	29 Jan 2010 19:39:30		
Data Capture Date	29 Jan 2010 21:14:51		
User Filename	S03012956-11A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	11	56-11	95.00
H#, Total Counts:	118.3	4488	
Win1: Tritium - Start, End, Counts:	0	235	309
Win2: - Start, End, Counts:	0	990	3768



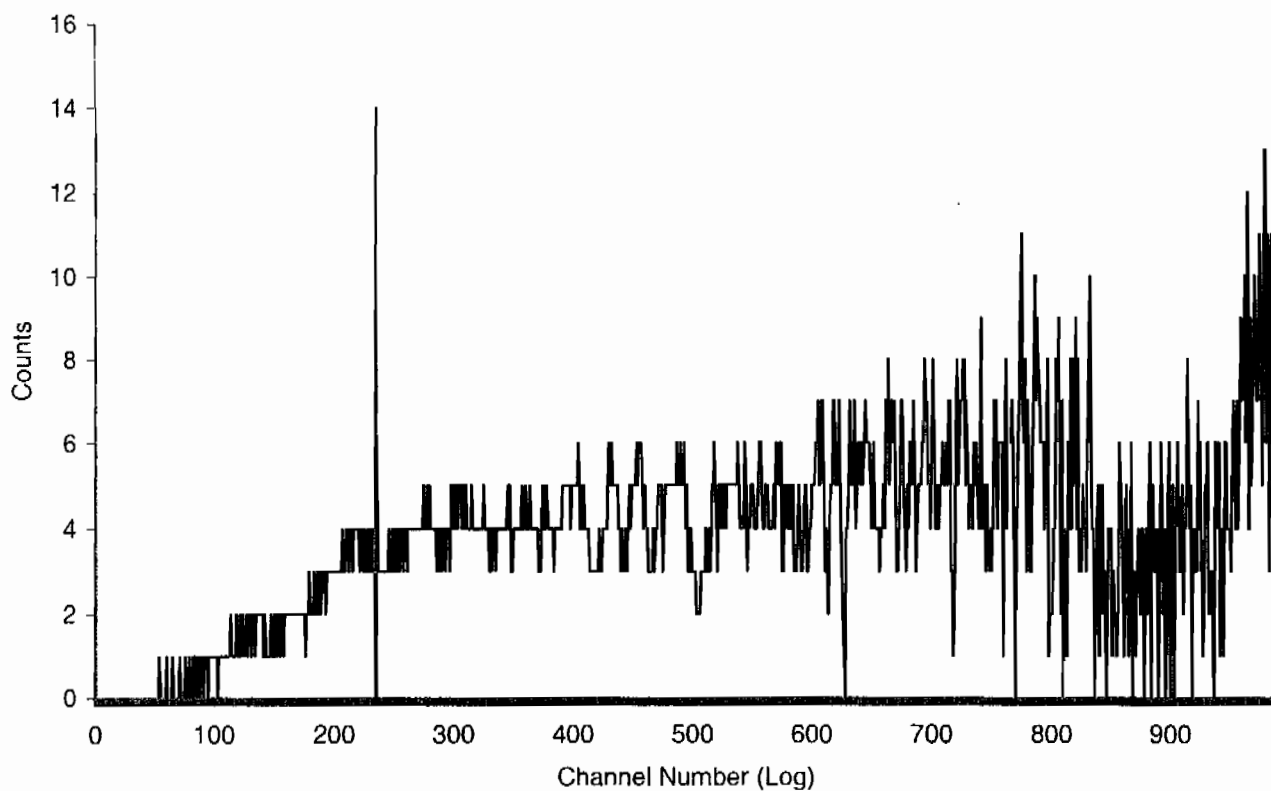
Sample Count Start Time:	29 Jan 2010 21:17:31		
Data Capture Date	29 Jan 2010 22:52:52		
User Filename	S03012956-12A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	12	56-12	95.00
H#, Total Counts:	119.3	4609	
Win1: Tritium - Start, End, Counts:	0	235	271
Win2: - Start, End, Counts:	0	990	3749



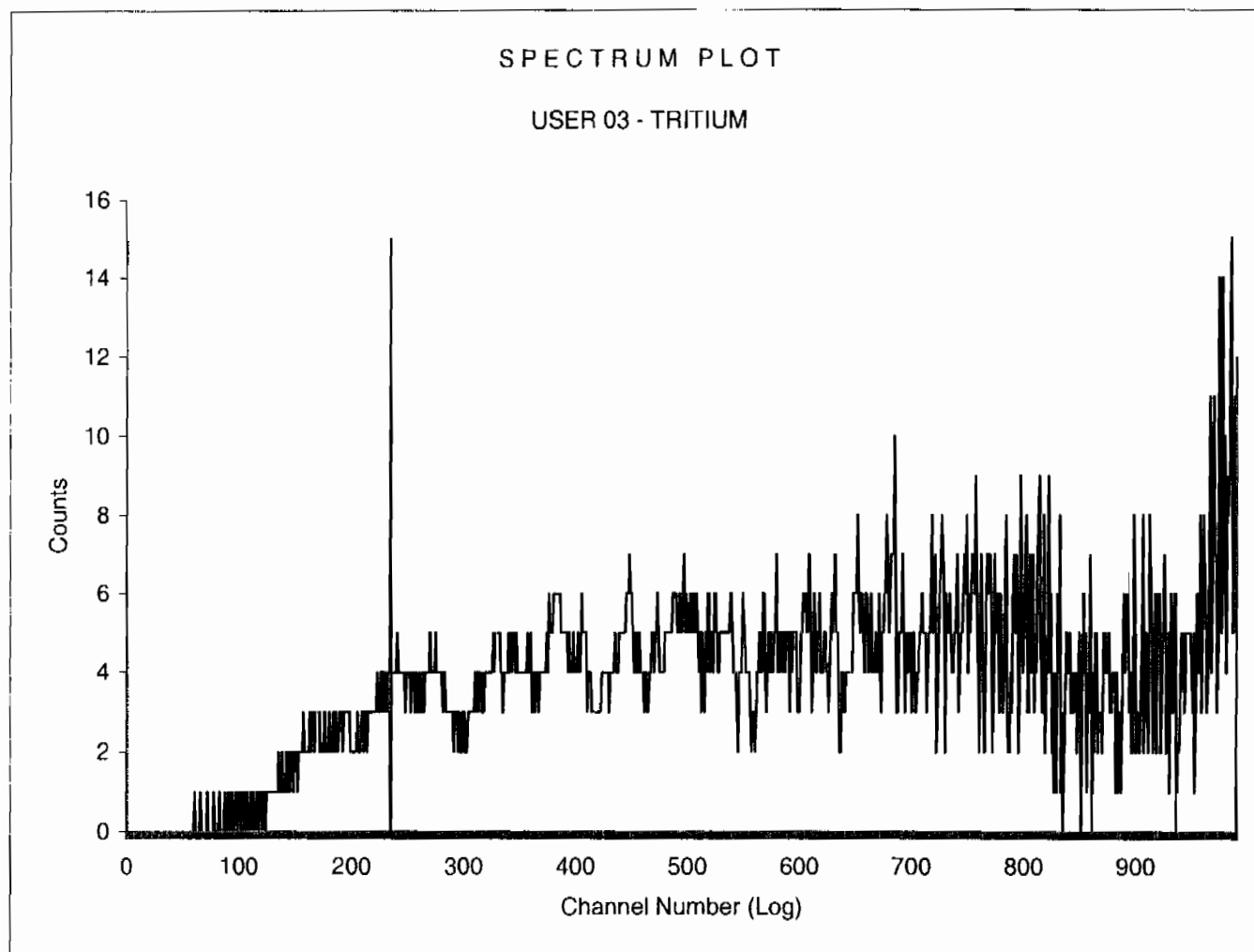
Sample Count Start Time:	29 Jan 2010 22:55:42		
Data Capture Date	30 Jan 2010 00:31:02		
User Filename	S03013012-1A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	13	12-1	95.00
H#, Total Counts:	117.5	4451	
Win1: Tritium - Start, End, Counts:	0	235	319
Win2: - Start, End, Counts:	0	990	3781

# SPECTRUM PLOT

USER 03 - TRITIUM



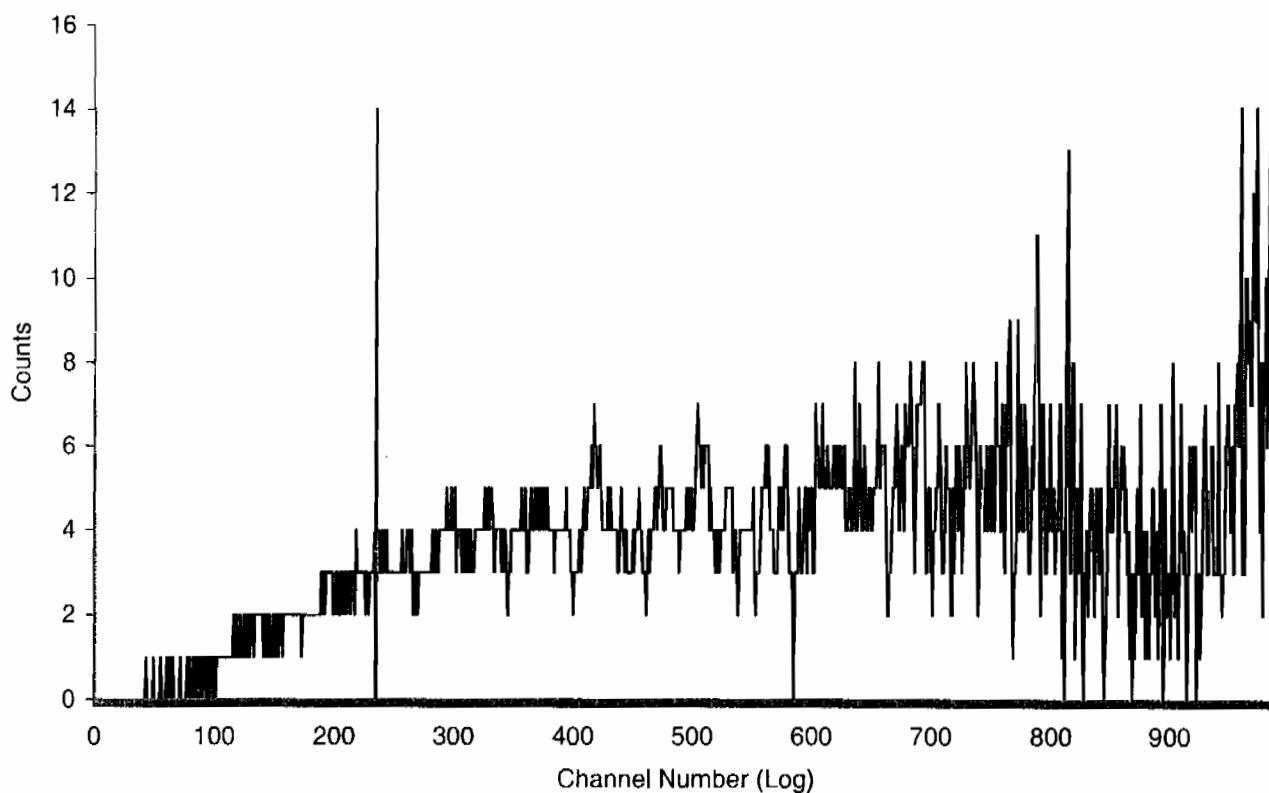
Sample Count Start Time:	30 Jan 2010 00:33:44		
Data Capture Date	30 Jan 2010 02:09:05		
User Filename	S03013012-2A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	14	12-2	95.00
H#, Total Counts:	117.5	4464	
Win1: Tritium - Start, End, Counts:	0	235	282
Win2: - Start, End, Counts:	0	990	3742



Sample Count Start Time:	30 Jan 2010 02:11:45		
Data Capture Date	30 Jan 2010 03:47:06		
User Filename	S03013012-3A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	15	12-3	95.00
H#, Total Counts:	118.1	4497	
Win1: Tritium - Start, End, Counts:	0	235	293
Win2: - Start, End, Counts:	0	990	3679

# SPECTRUM PLOT

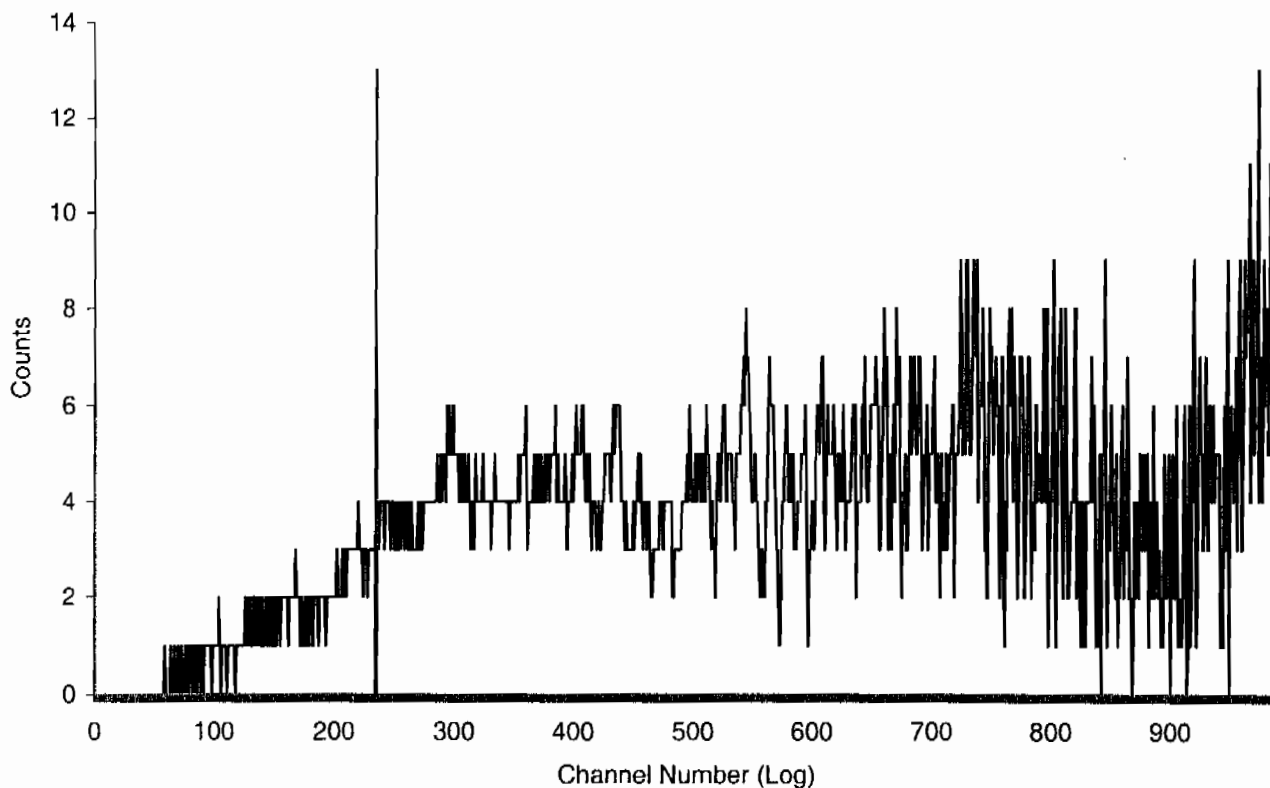
USER 03 - TRITIUM



Sample Count Start Time:	30 Jan 2010 03:49:47		
Data Capture Date	30 Jan 2010 05:25:08		
User Filename	S03013012-4A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	16	12-4	95.00
H#, Total Counts:	118.8	4377	
Win1: Tritium - Start, End, Counts:	0	235	271
Win2: - Start, End, Counts:	0	990	3666

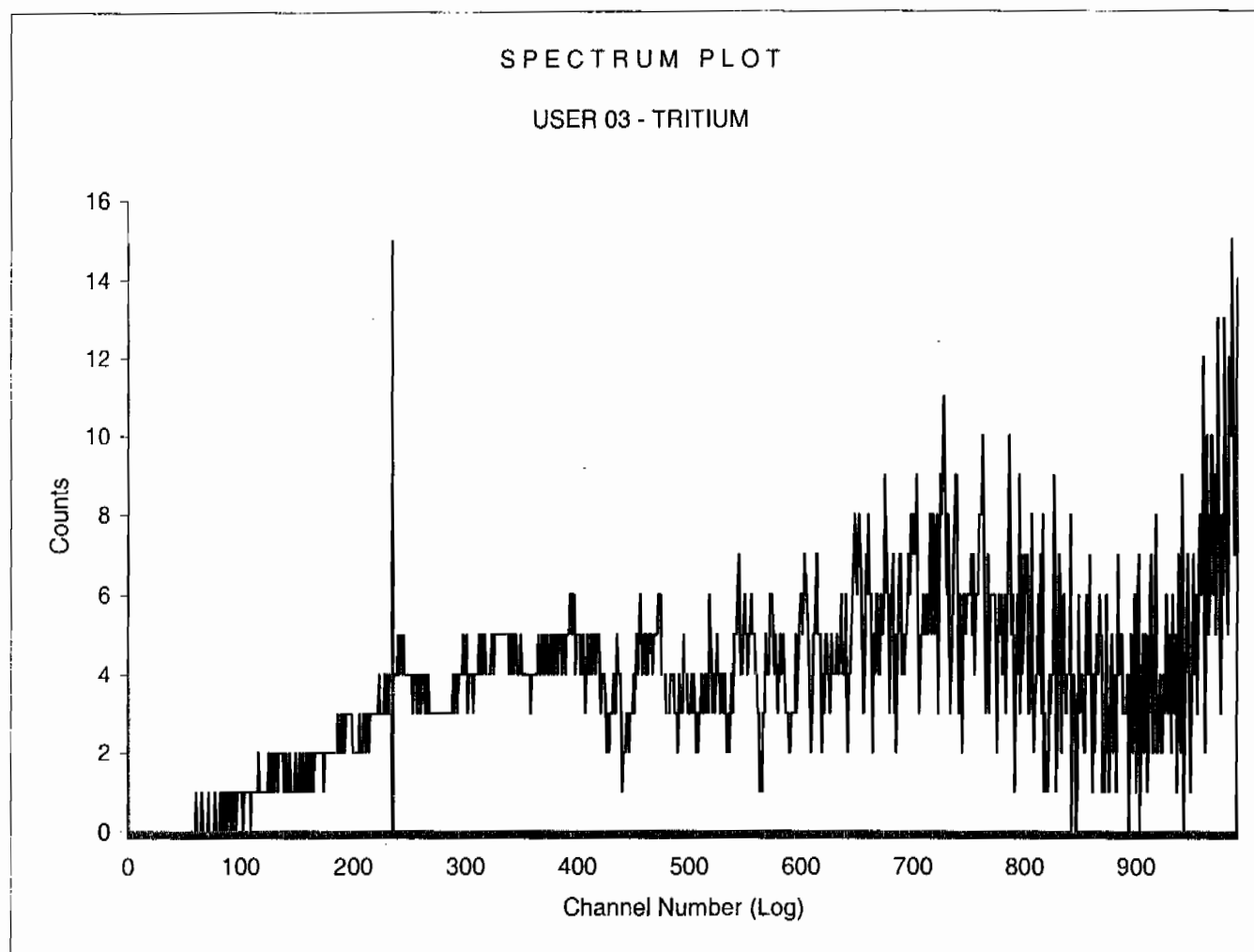
# SPECTRUM PLOT

USER 03 - TRITIUM



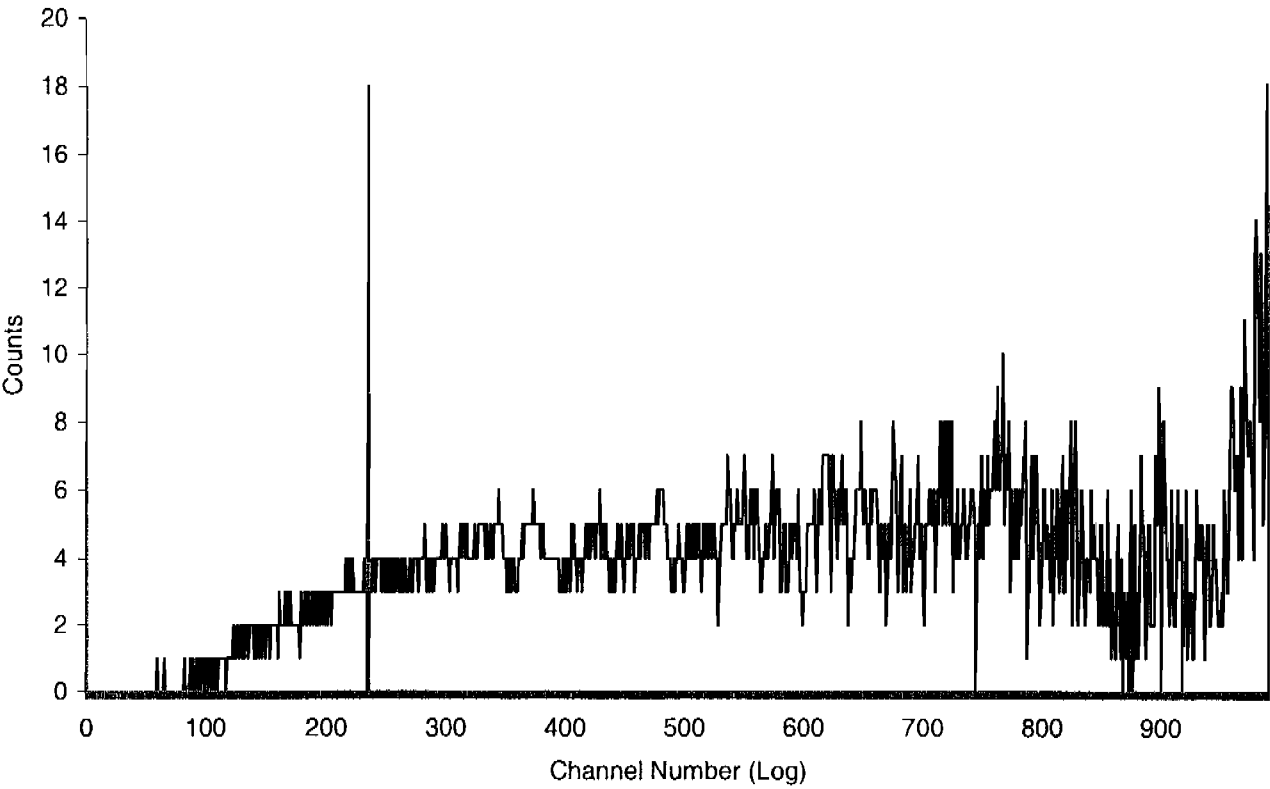


Sample Count Start Time:	30 Jan 2010 05:27:47		
Data Capture Date	30 Jan 2010 07:03:08		
User Filename	S03013012-5A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	17	12-5	95.00
H#, Total Counts:	116.3	4470	
Win1: Tritium - Start, End, Counts:	0	235	280
Win2: - Start, End, Counts:	0	990	3742



Sample Count Start Time:	30 Jan 2010 07:05:48		
Data Capture Date	30 Jan 2010 08:41:09		
User Filename	S03013012-6A.XLS		
	U03012956-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	18	12-6	95.00
H#, Total Counts:	118.7	4533	
Win1: Tritium - Start, End, Counts:	0	235	292
Win2: - Start, End, Counts:	0	990	3774

SPECTRUM PLOT  
USER 03 - TRITIUM



PAGE: 1

# D: TRITIUM

30 JAN 2010 08:40

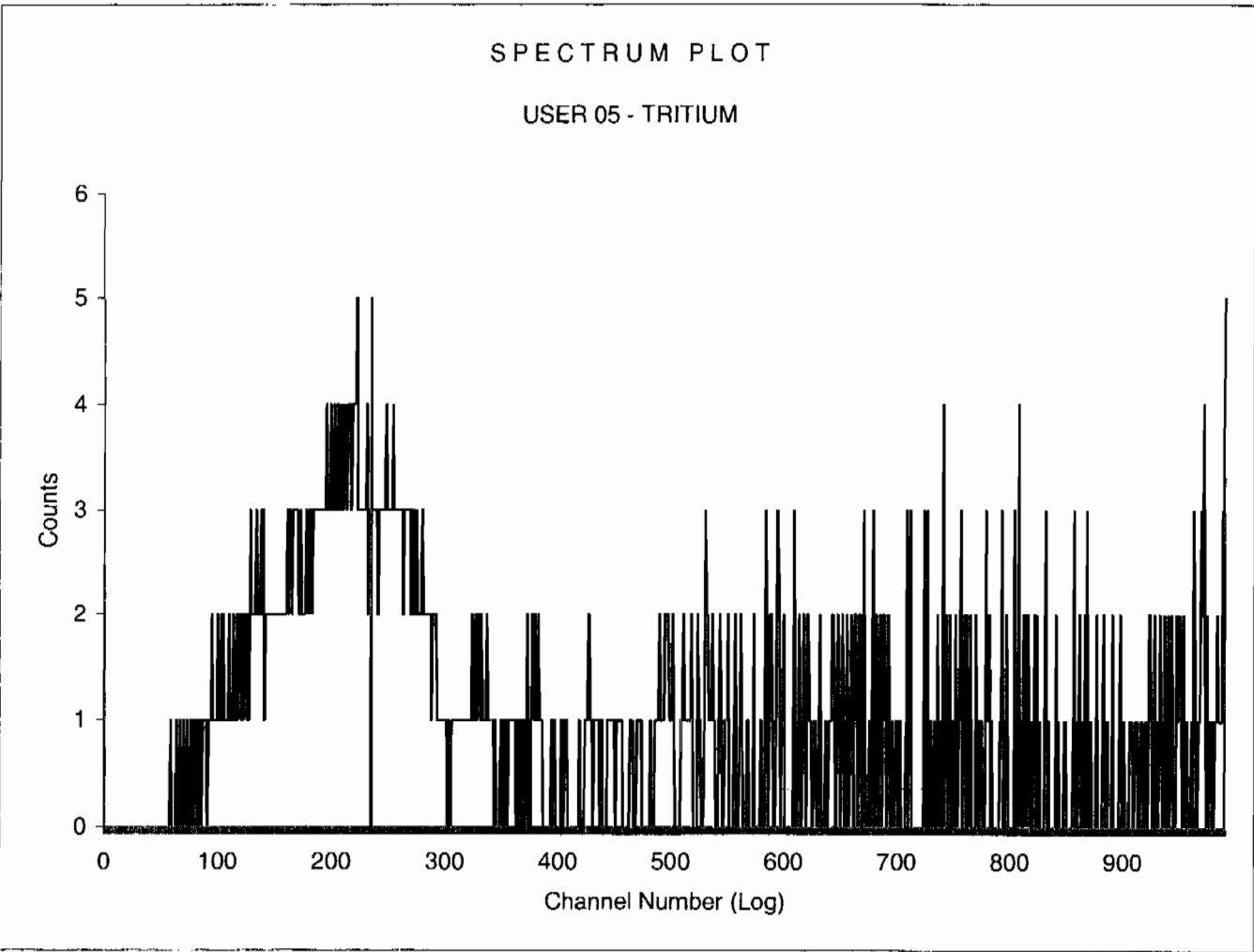
SER: 5 COMMENT:GOLD

RESET TIME : 15.00  
 DATA CALC : CPM H# :YES SAMPLE REPEATS: 1 PRINTER : STD  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 :EDIT  
 ID PHASE : NO AQC : NO CYCLE REPEATS : 1 DISK : OFF  
 SCINTILLATOR: LIQUID LUMEX:YES LOW SAMPLE REJ: 0  
 SLOW LEVEL : NO HALF LIFE CORRECTION DATE: none

IAN: 0.0 - 235.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0  
 IAN: 0.0 - 1000.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

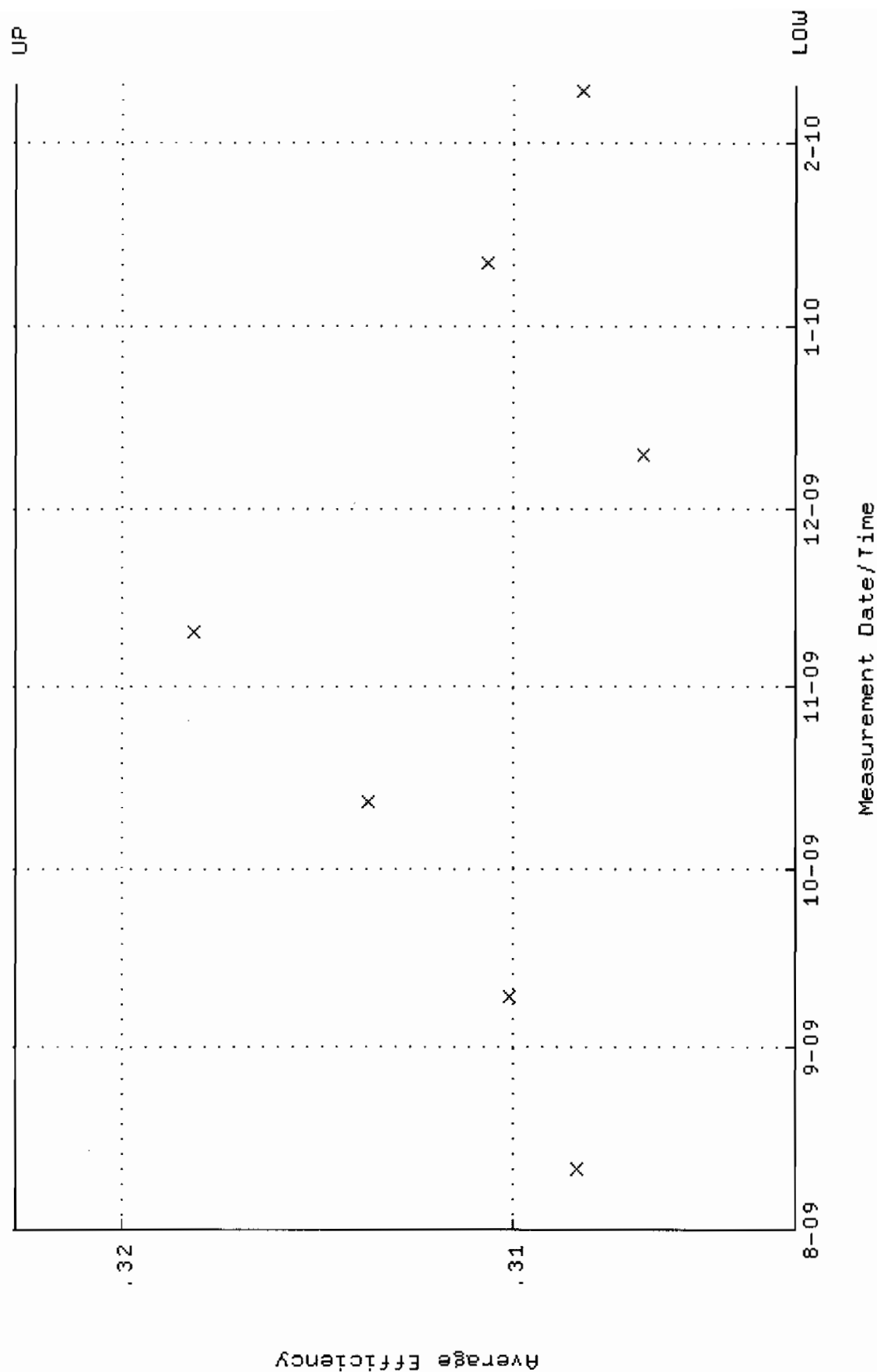
ID	POS	TIME MIN	H#	WIND1		WIND2		LUMEX %	ELAPSED TIME
				CPM	%ERROR	CPM	%ERROR		
1	37-1	15.00	117.5	24.27	10.48	74.00	6.00	0.14	15.79
<del>MISSING SAMPLE</del>									
3	**1	8.50	0.6	<del>1101.41</del>	2.00	<del>43777.77</del>	0.33	0.00	25.89
4	**2	0.60	-9.8	<del>17166.67</del>	1.97	<del>54751.66</del>	1.10	0.00	27.71
5	**3	15.00	-7.7	<del>5.87</del>	21.32	<del>29.87</del>	9.45	0.18	<del>44.06</del>

Sample Count Start Time:	30 Jan 2010 08:42:30		
Data Capture Date	30 Jan 2010 08:57:41		
User Filename	S05013037-1A.XLS		
	U05013037-1A.XLS		
Spectrum Type	Log Counts		
User Number	05		
User Id	TRITIUM		
User Comment	GOLD		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	37-1	15.00
H#, Total Counts:	117.5	1134	
Win1: Tritium - Start, End, Counts:	0	235	364
Win2: - Start, End, Counts:	0	990	1051

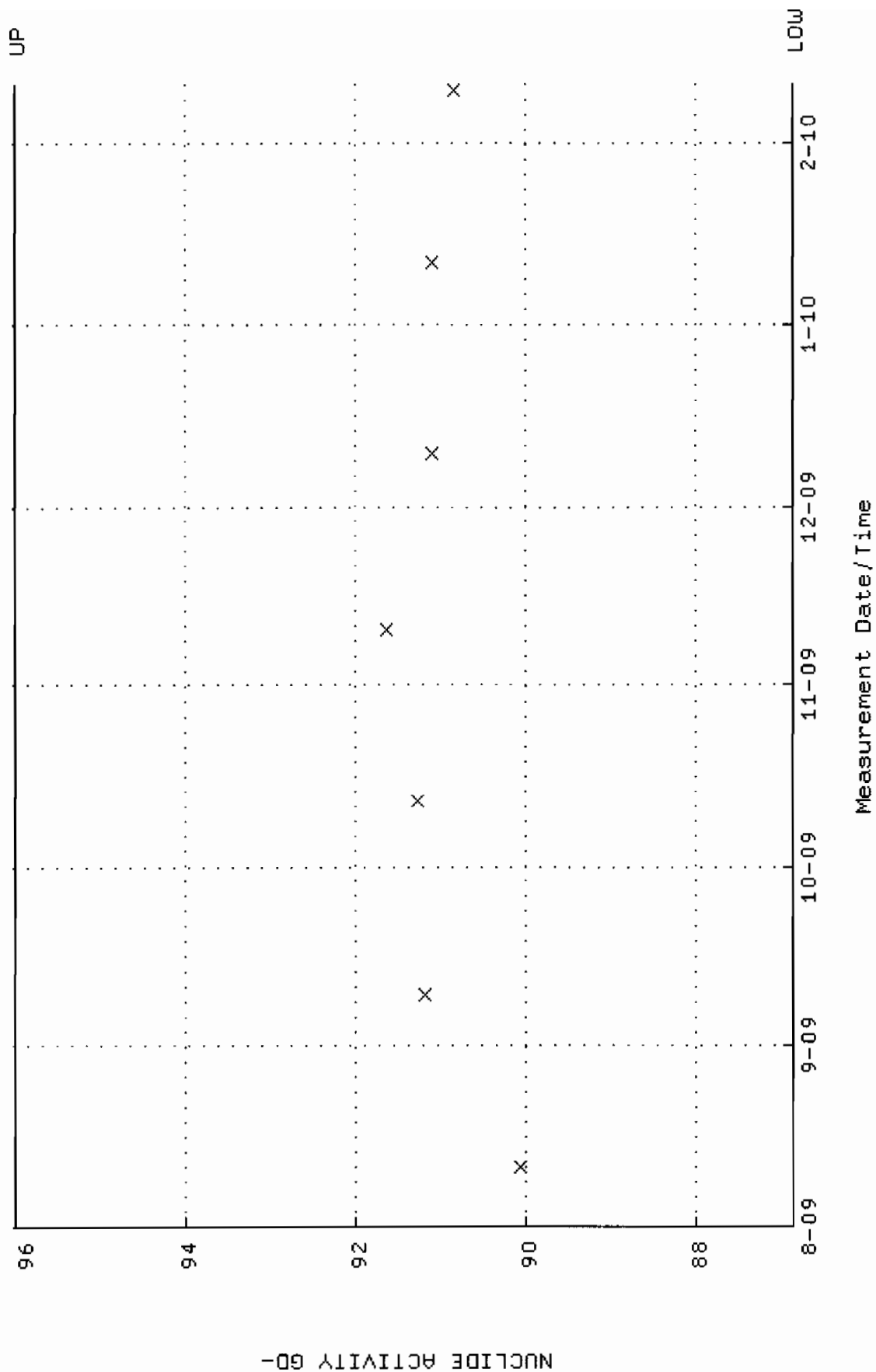


# BACKGROUND AND EFFICIENCY DATA

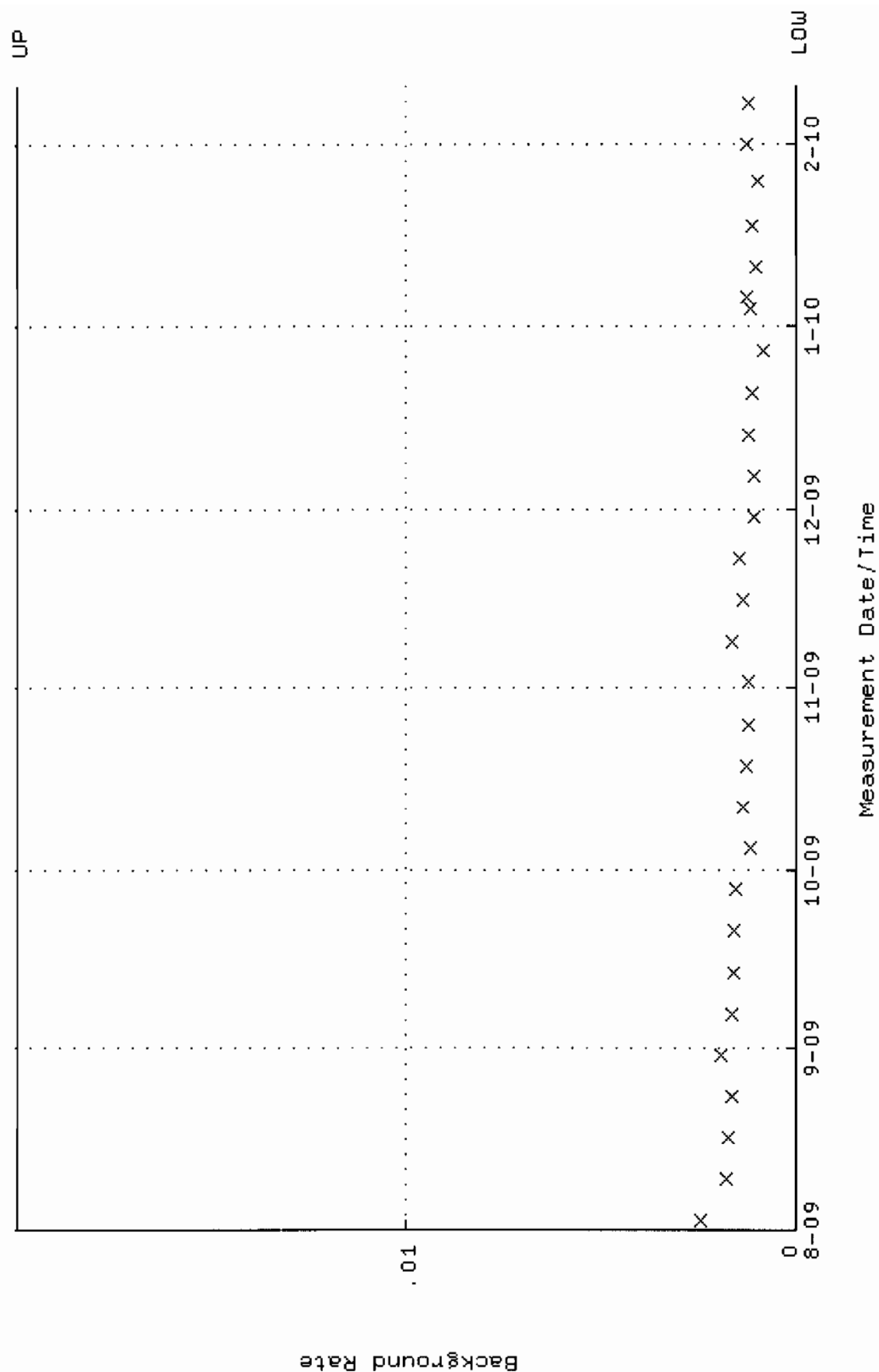
QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.302750 through 0.322750



QA filename : DKA100:[ENV\_ALPHA.QA.w]w065.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.8638 through 96.0074

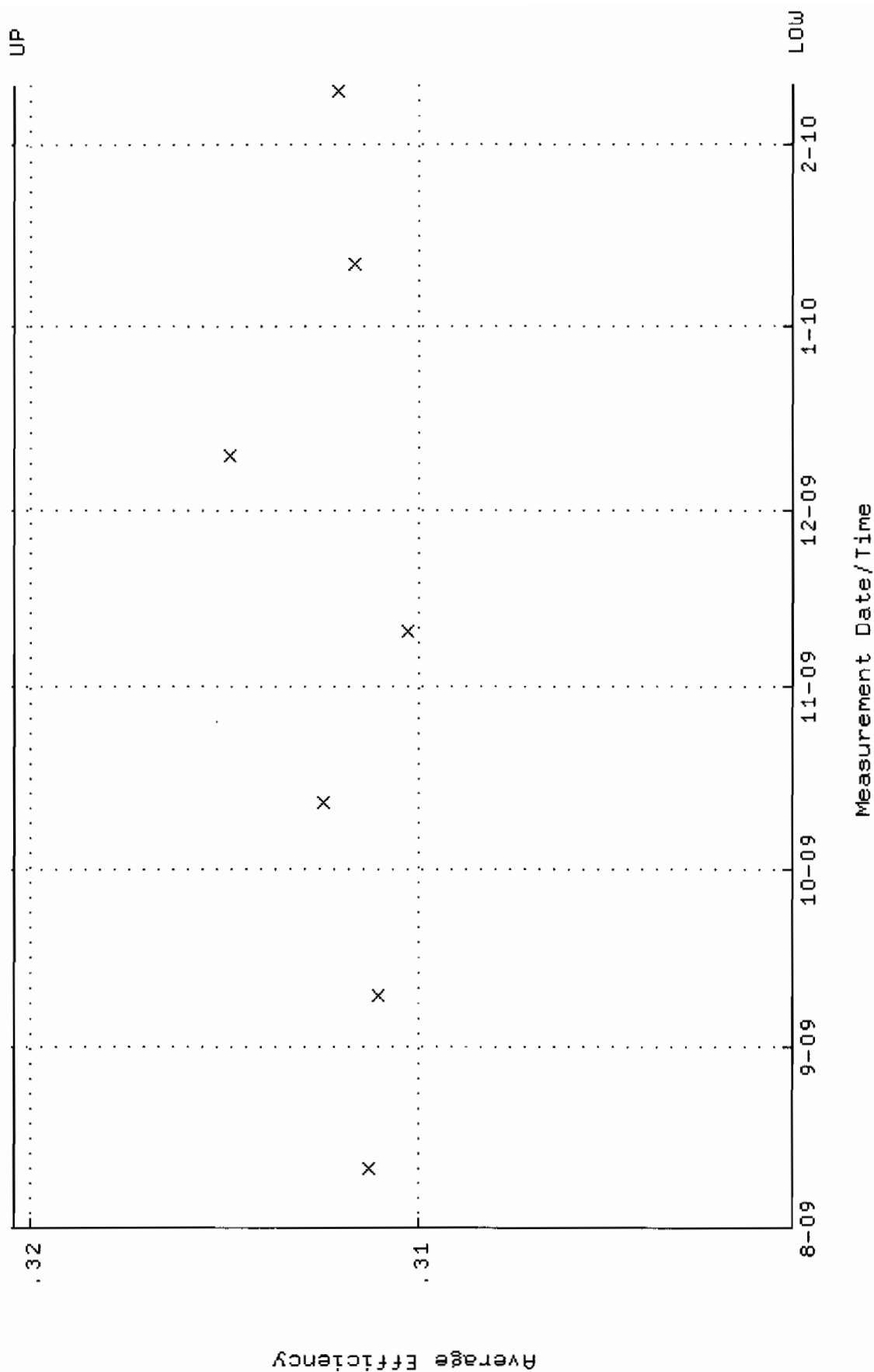


QA filename : DKA100:[ENV\_ALPHA.QA.B]B065.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:38 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

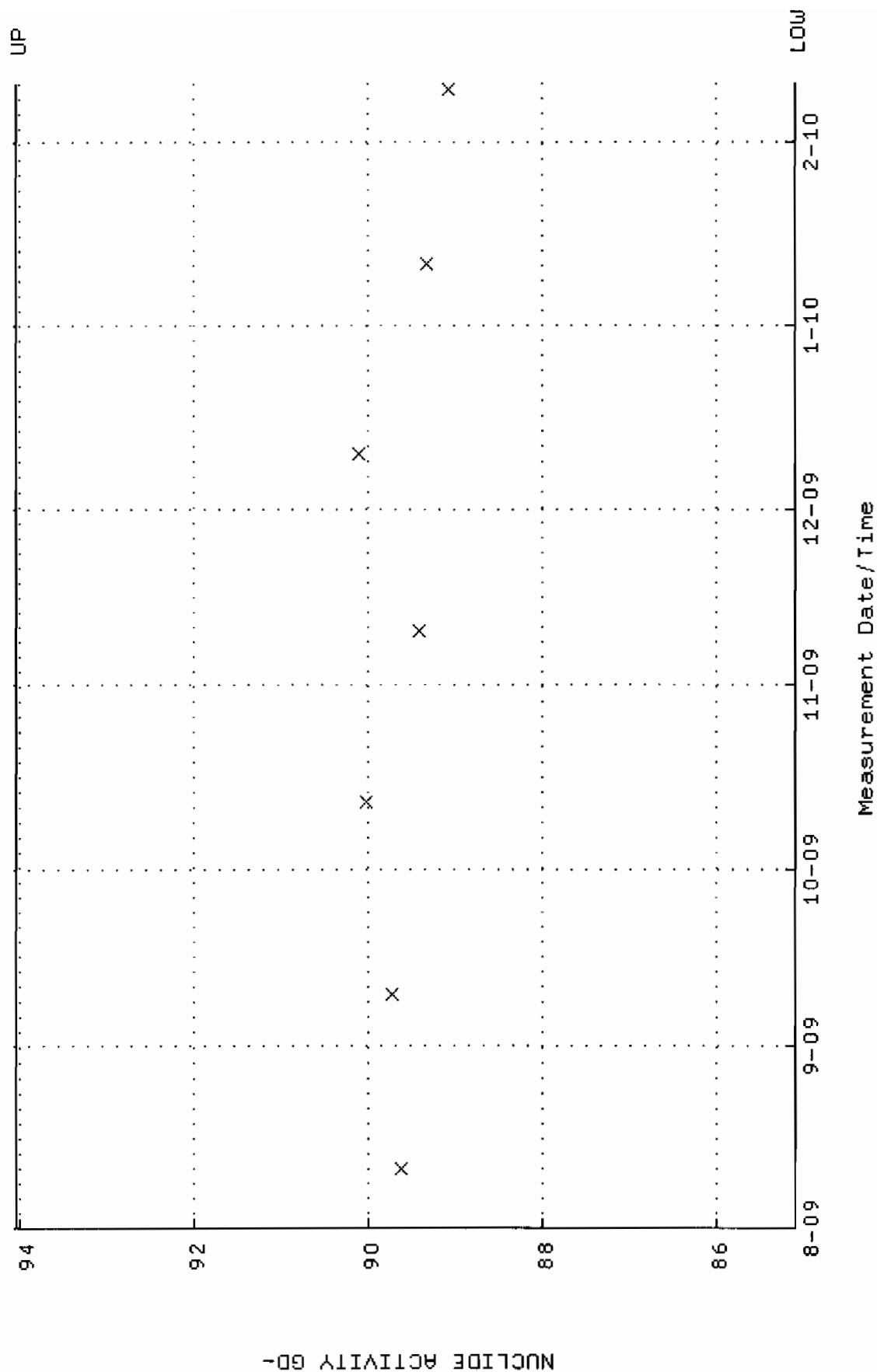




QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.300416 through 0.320416

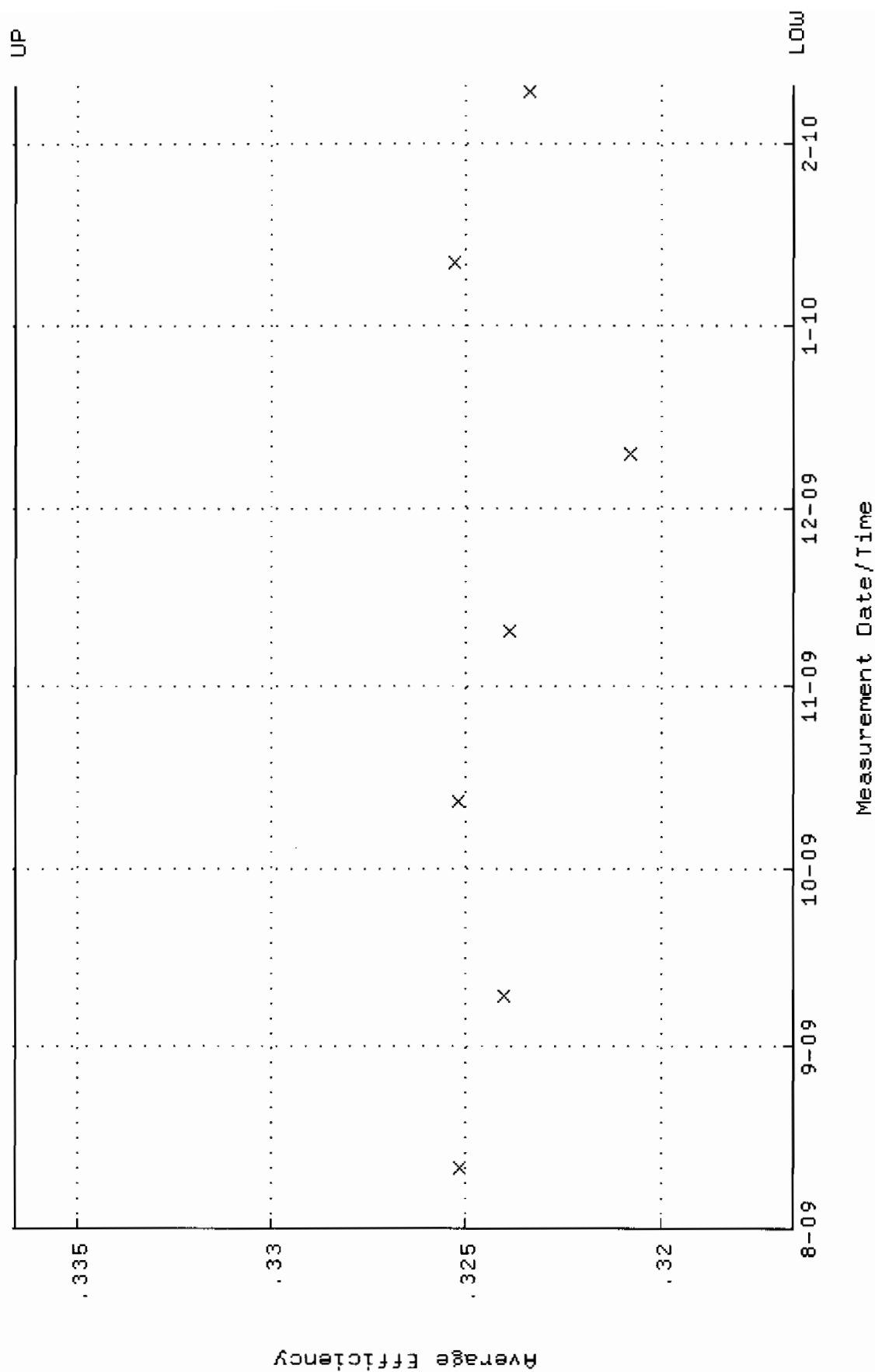


QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
Lower/Upper Lmts: 85.0864 through 94.0428

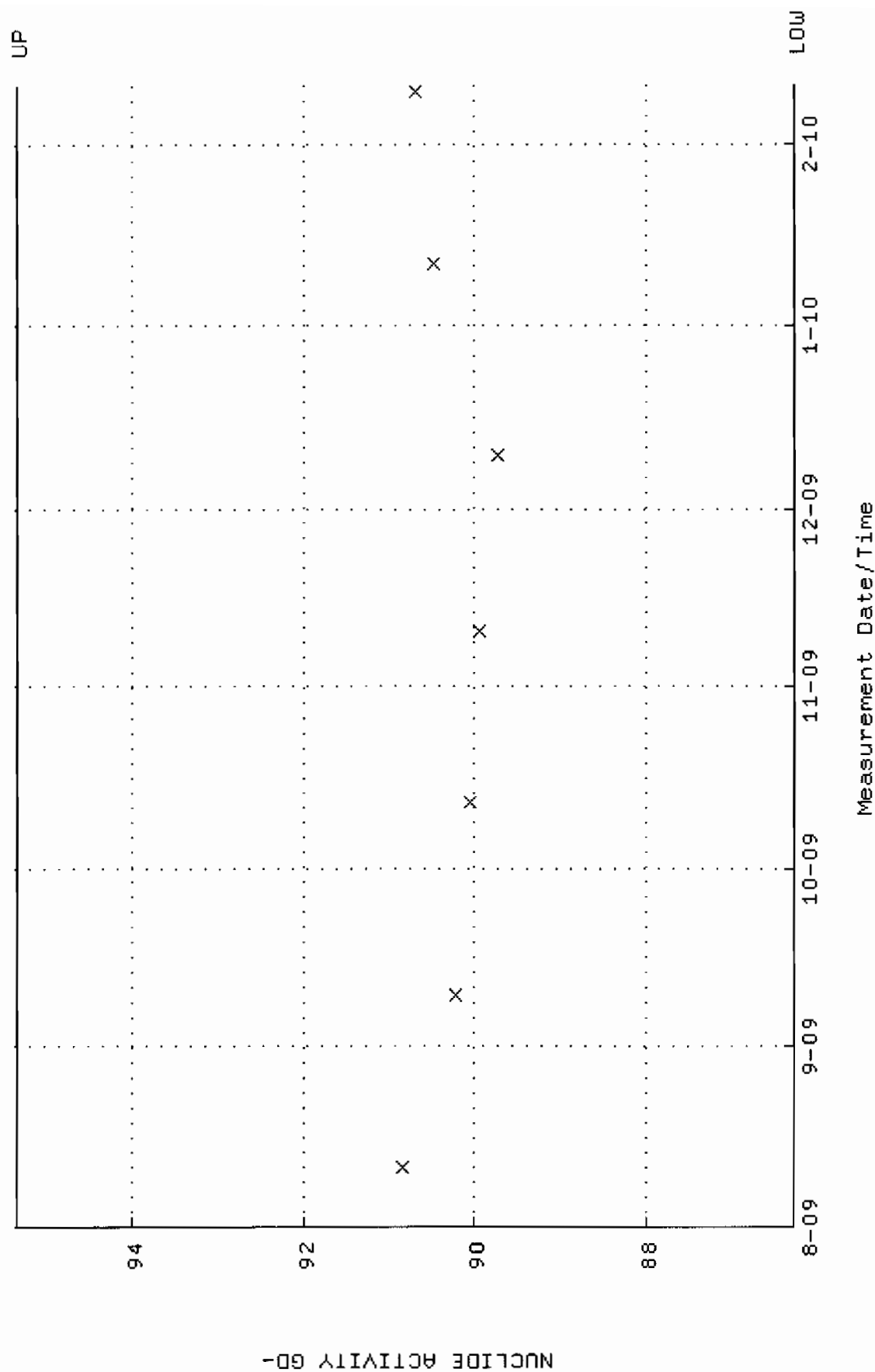




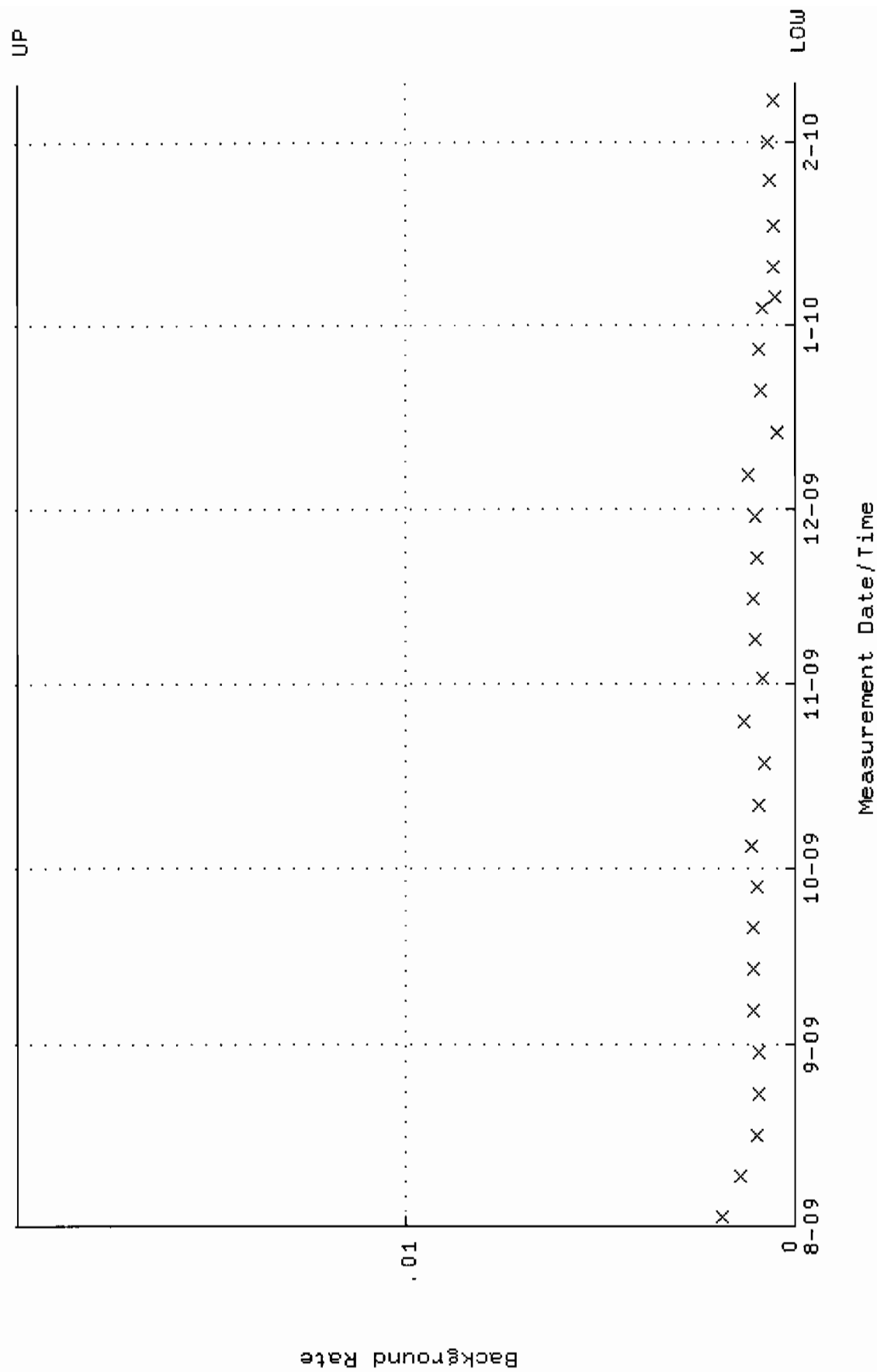
QA filename : DKA100:[ENV\_ALPHA.QA.W]W067.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.316597 through 0.336597



QA filename : DKA100:[ENV\_ALPHA.QA.W]U067.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.2683 through 95.3491



QA filename : DKA100:[ENV\_ALPHA.QA.B]B067.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:38 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

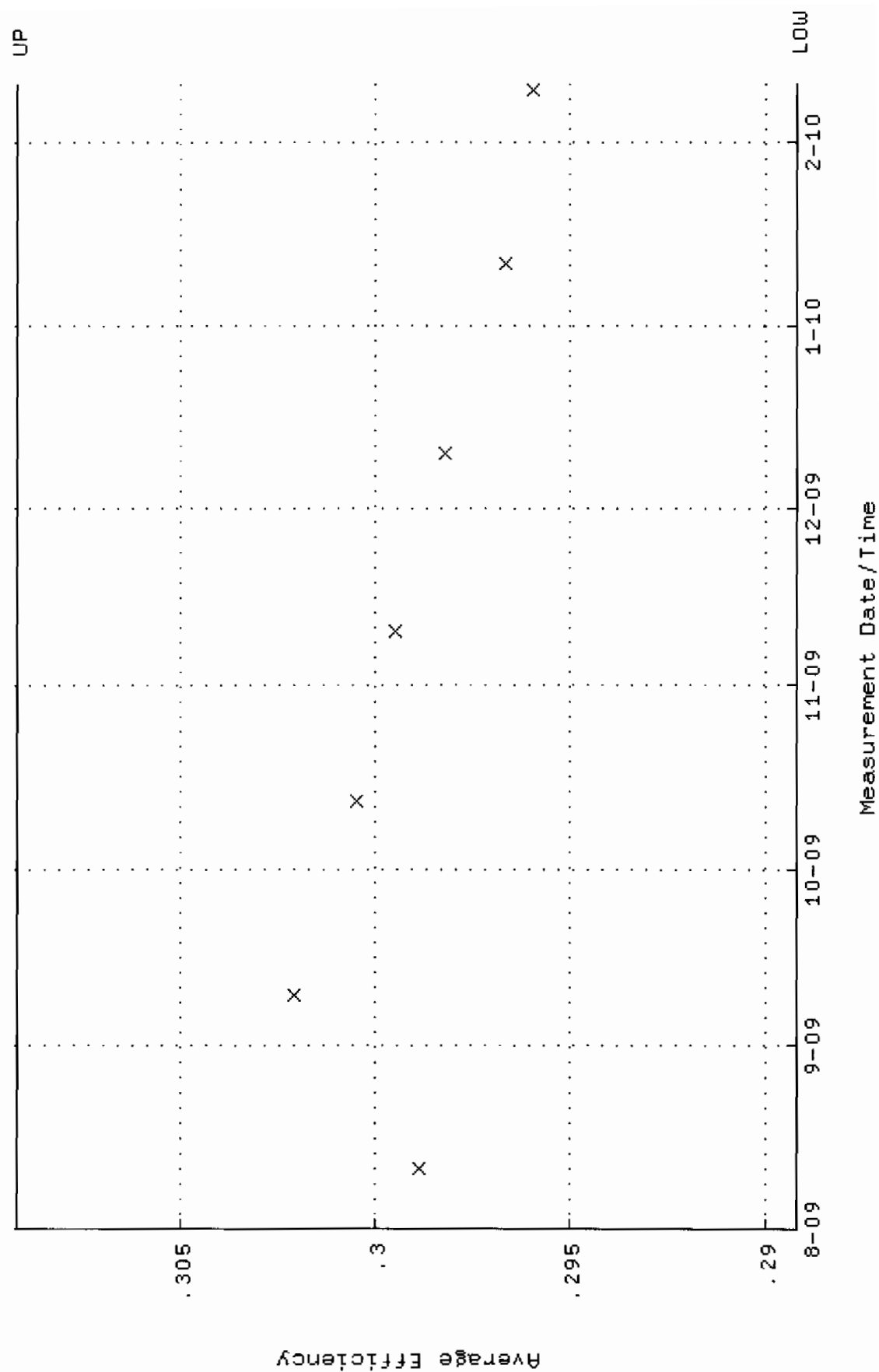


QA filename : DKA100:[ENV\_ALPHA.QA.W]W068.QAF;2

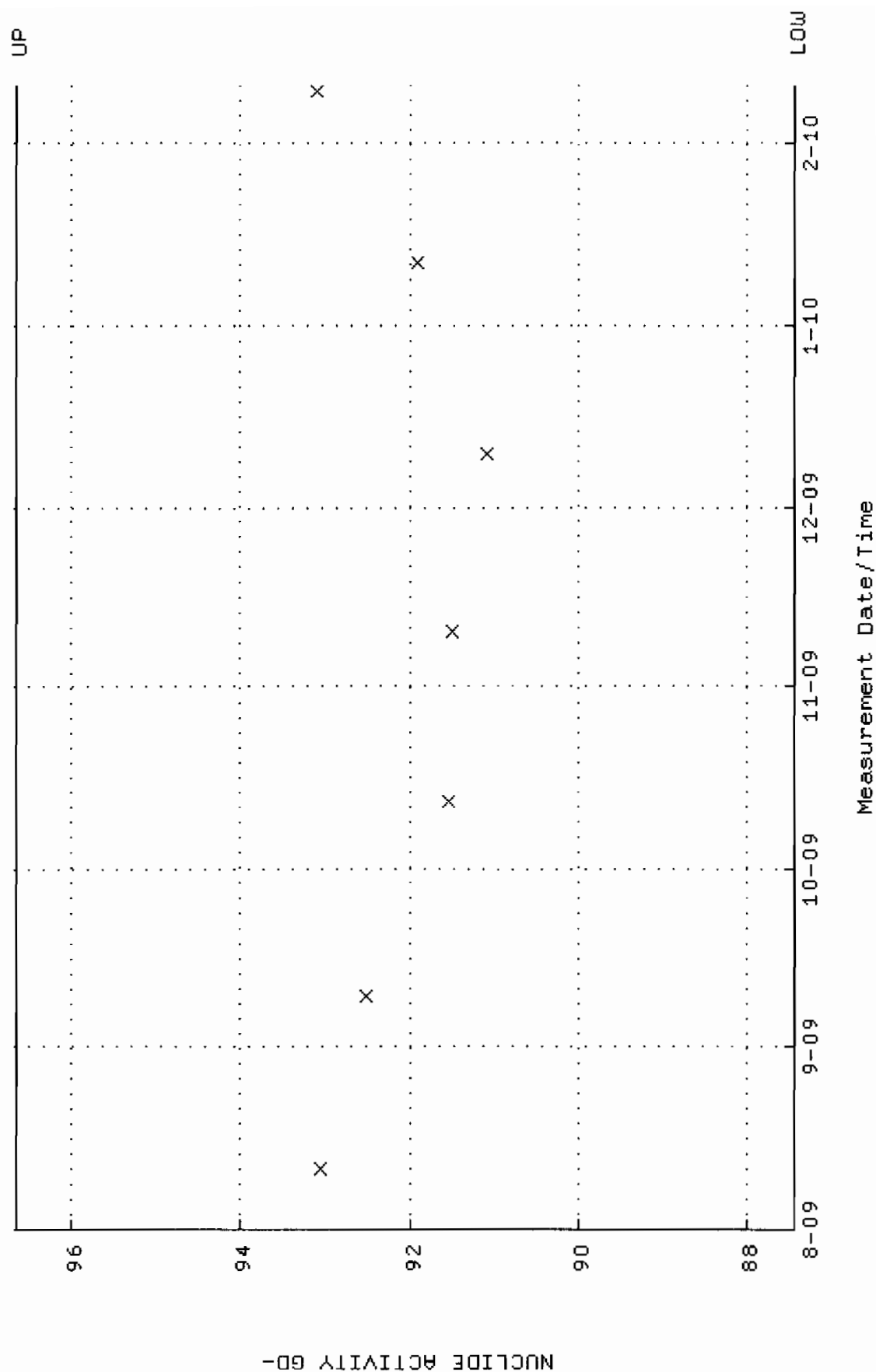
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.289178 through 0.309178

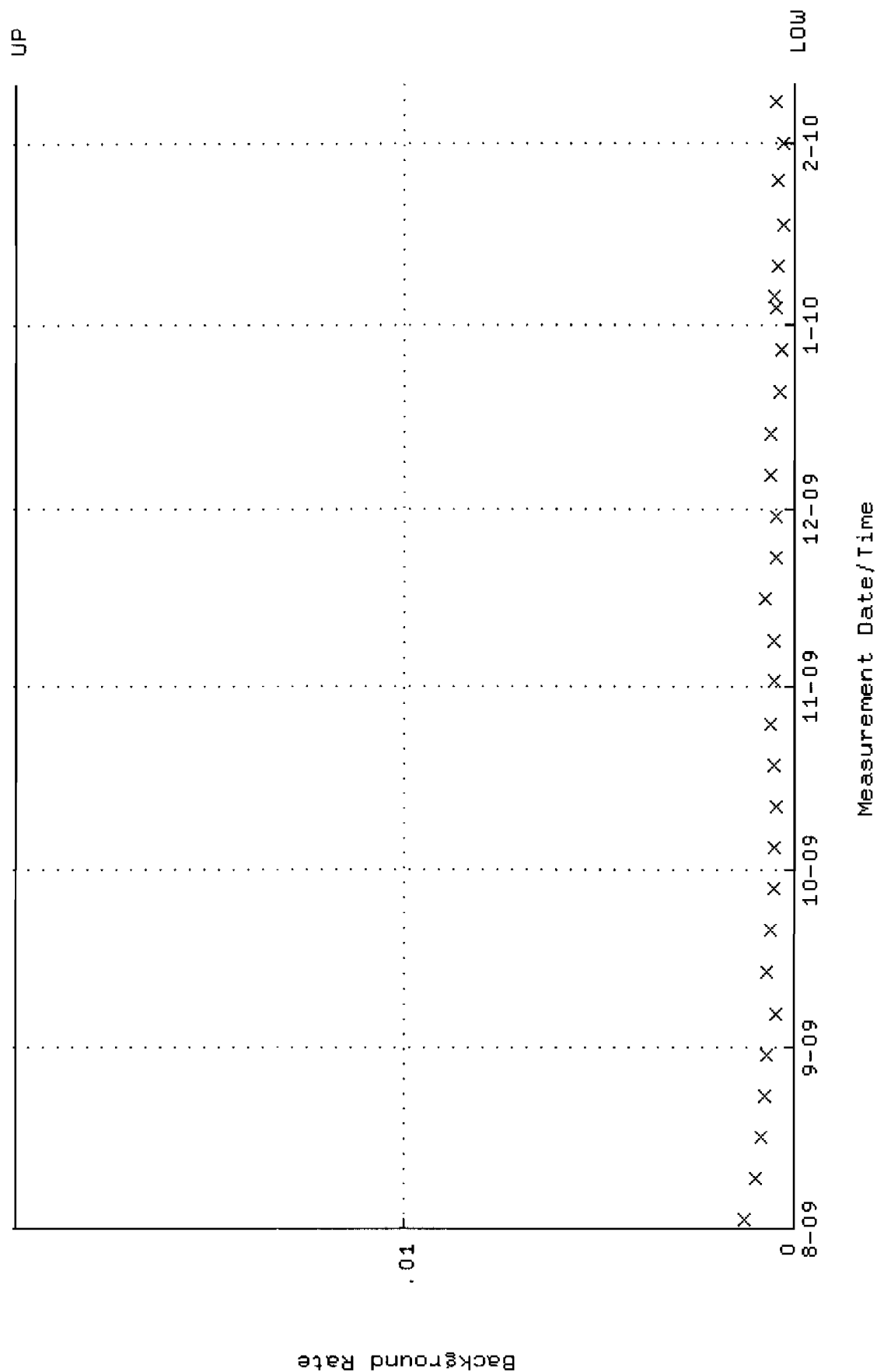


QA filename : DKA100:[ENV\_ALPHA.QA.W]W068.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.4419 through 96.6463

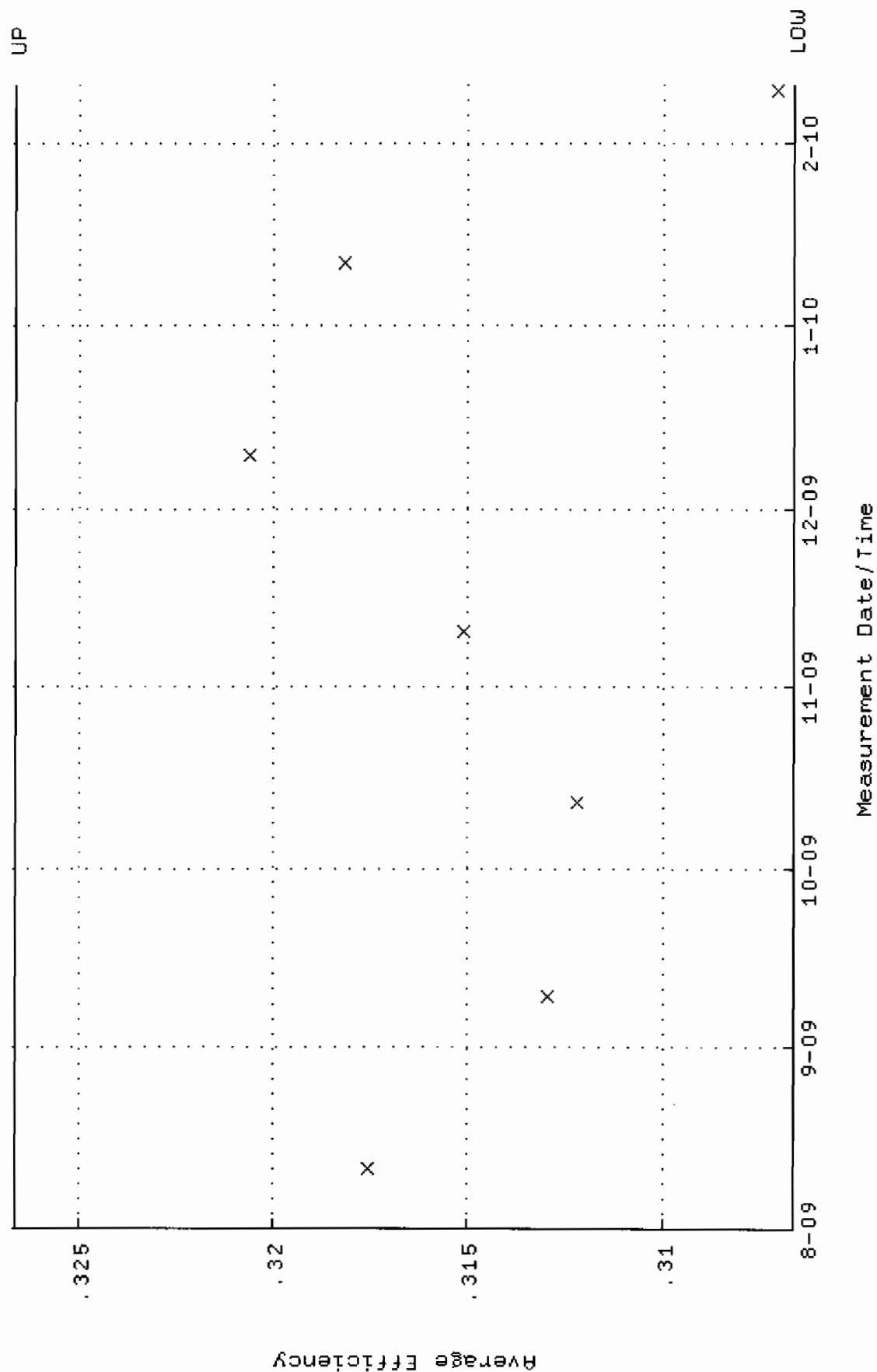




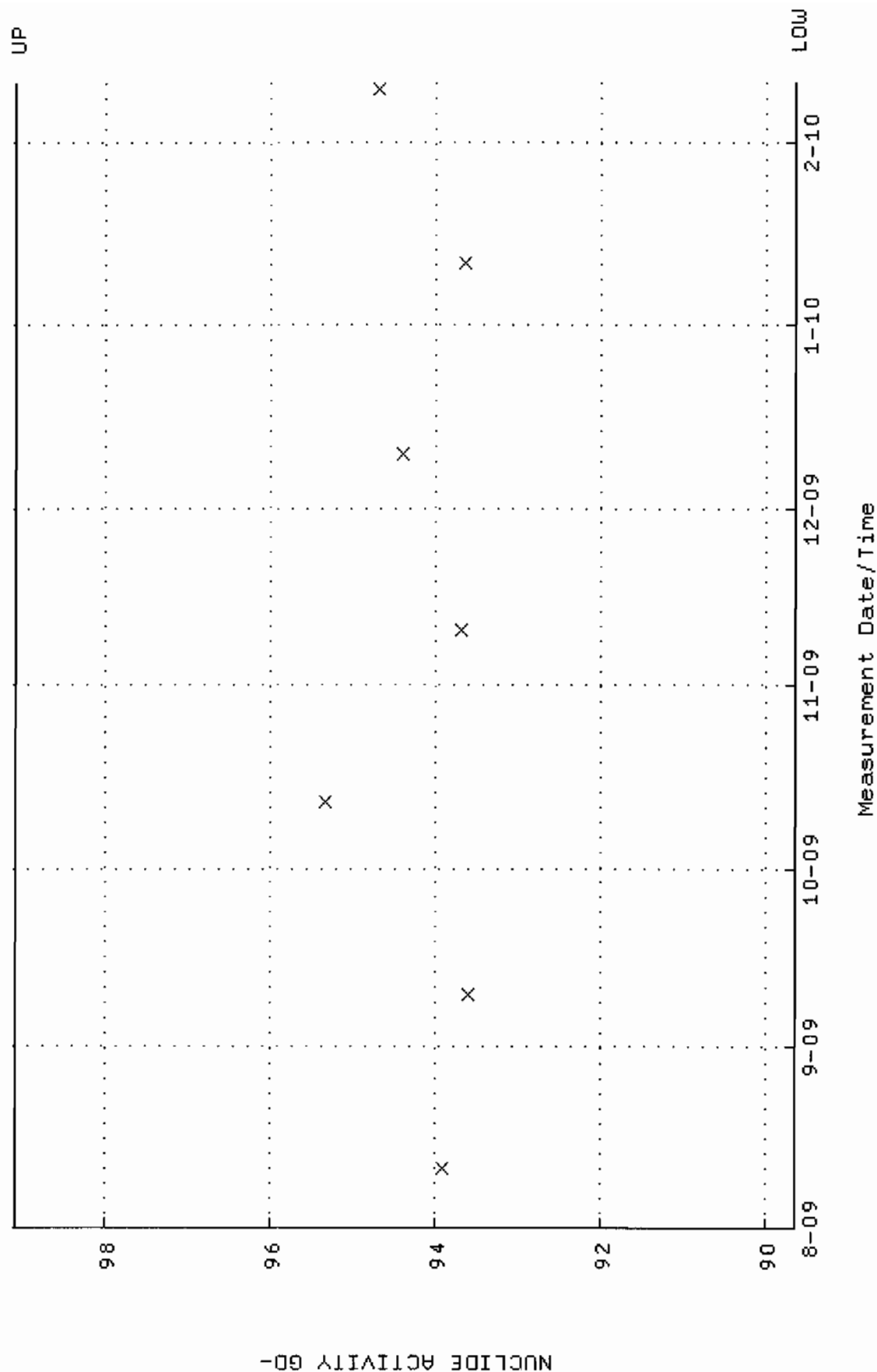
QA filename : DKA100:[ENV\_ALPHA.QA.B]B068.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:38 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



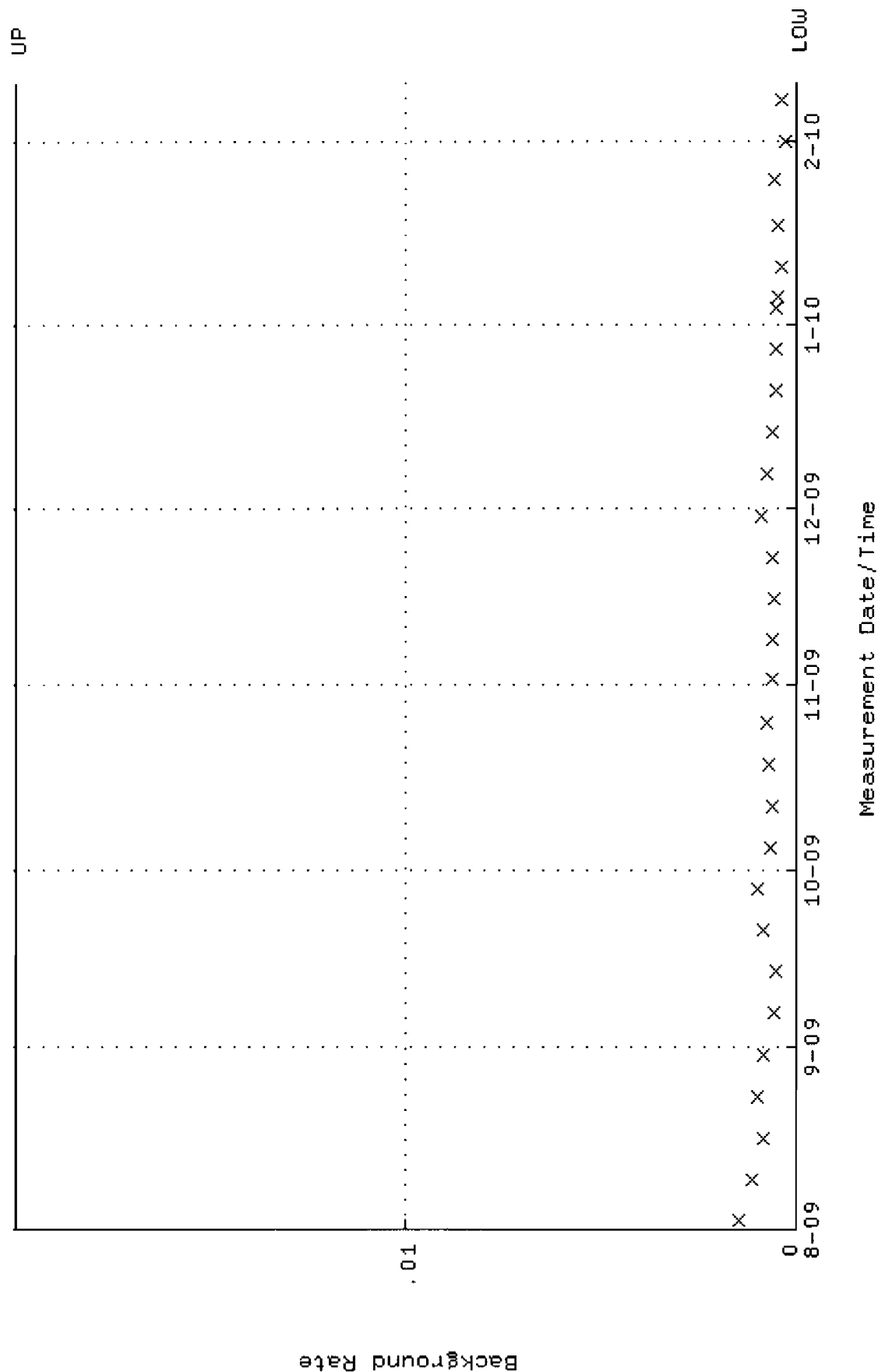
QA filename : DKA100:[ENV\_ALPHA.QA.W]W069.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.306636 through 0.326636



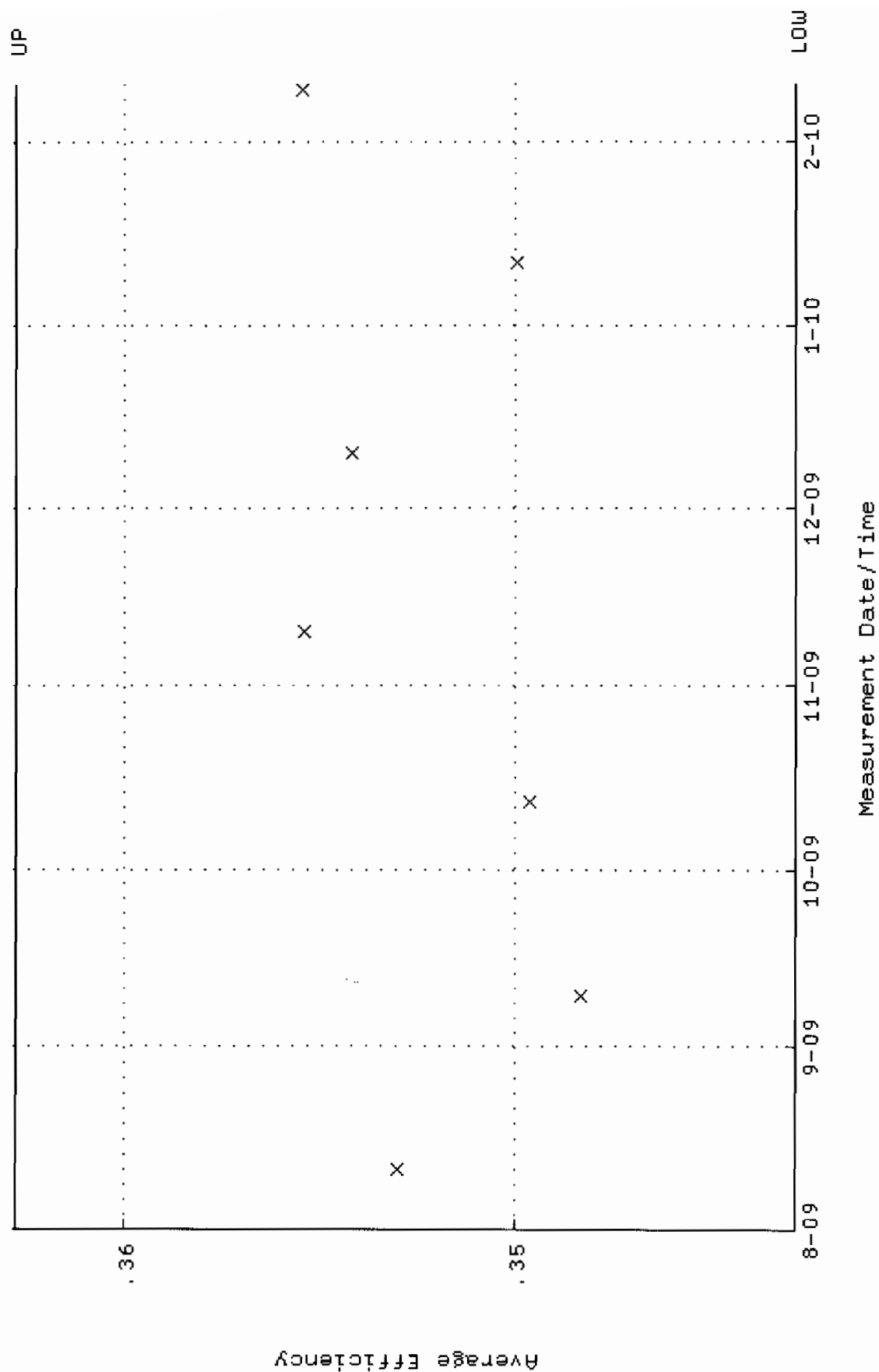
QA filename : DKA100:[ENV\_ALPHA.QA.W]W069.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.6479 through 99.0845



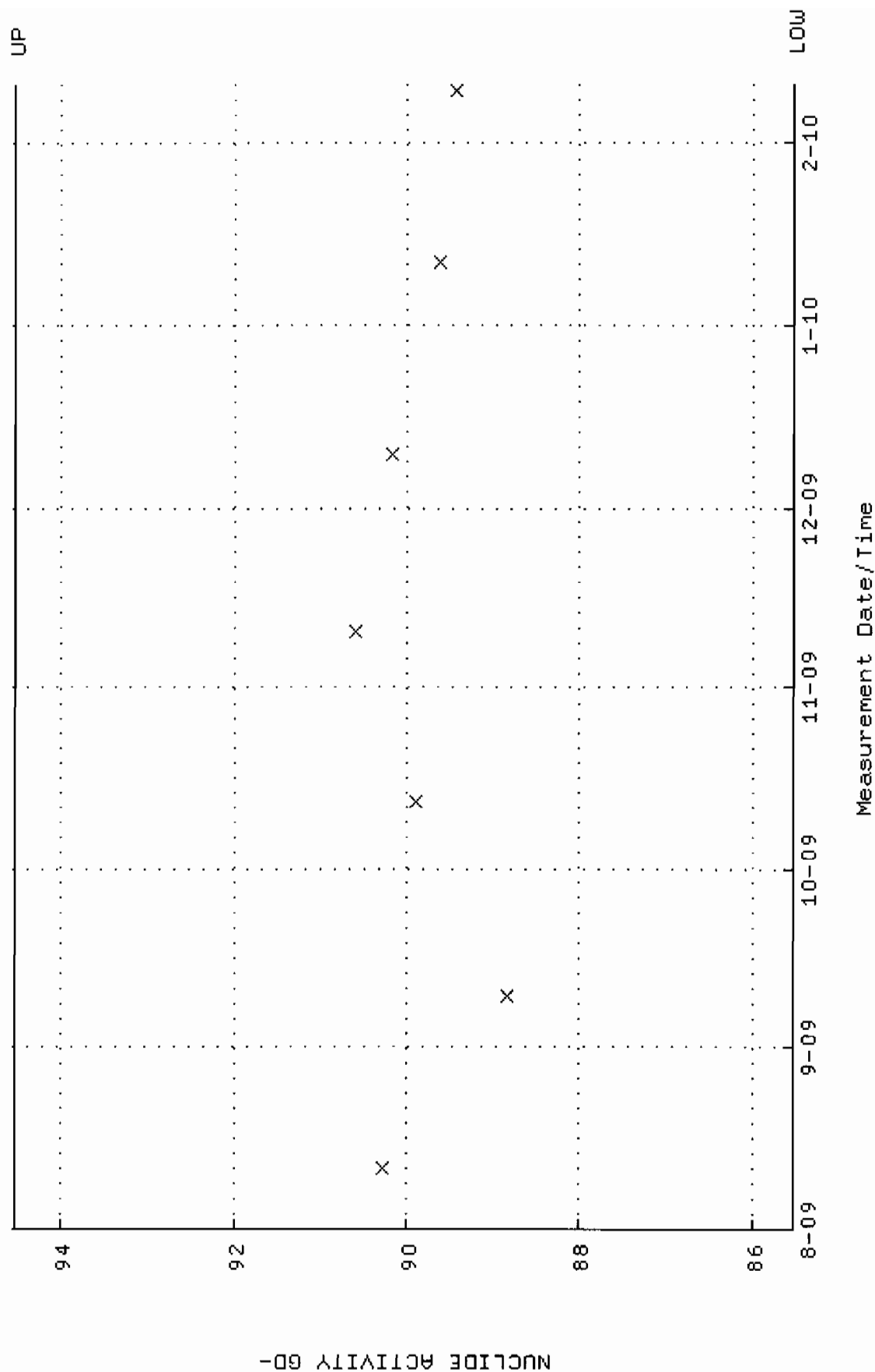
QA filename : DKA100:[ENV\_ALPHA.QA.B]B069.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:38 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



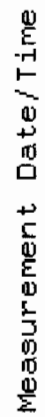
QA filename : DKA100:[ENV\_ALPHA.QA.W]W070.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.342785 through 0.362785



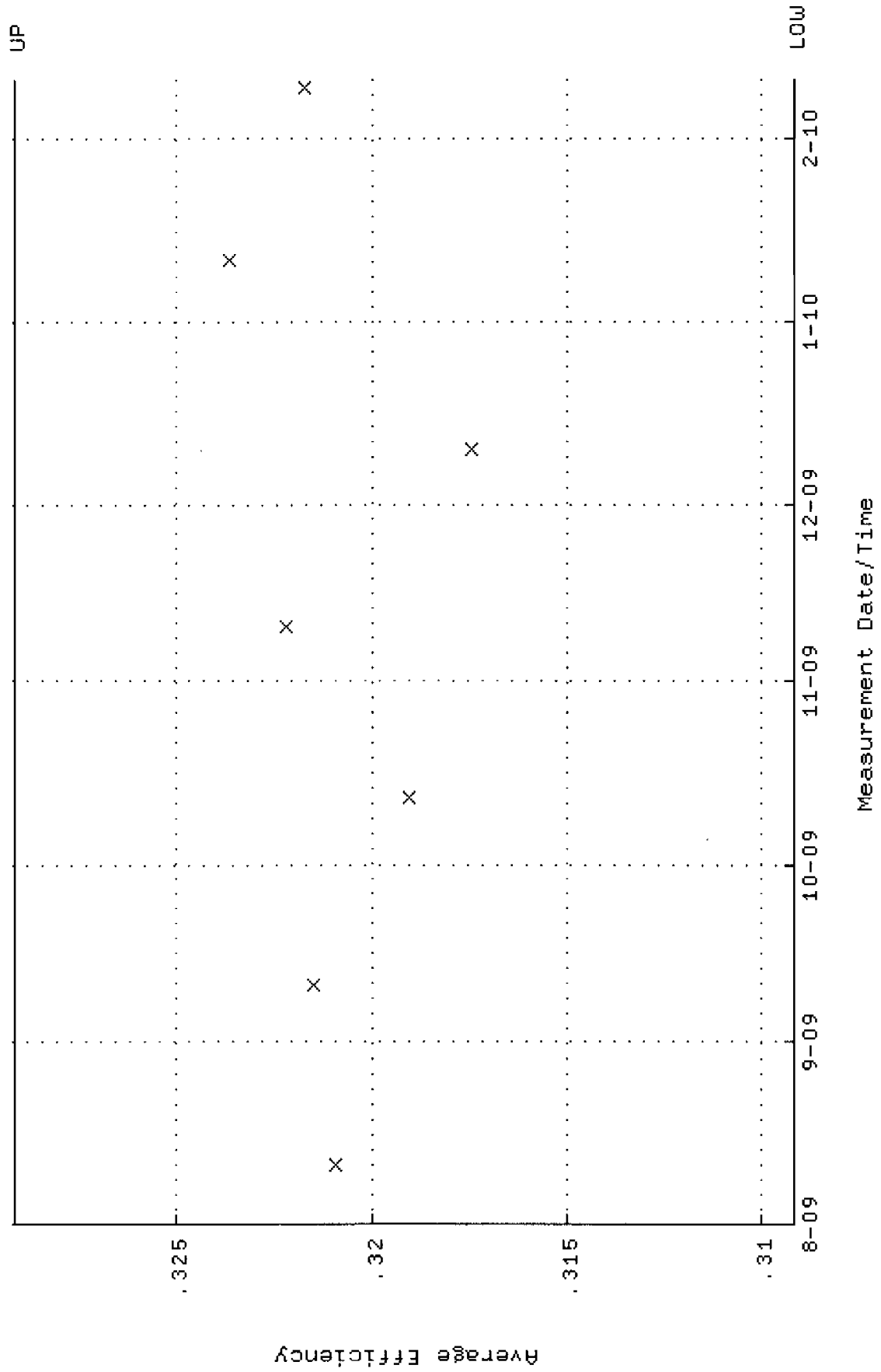
QA filename : DKA100:[ENV\_ALPHA,QA,W]W070.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:10 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 85.5293 through 94.5323



Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

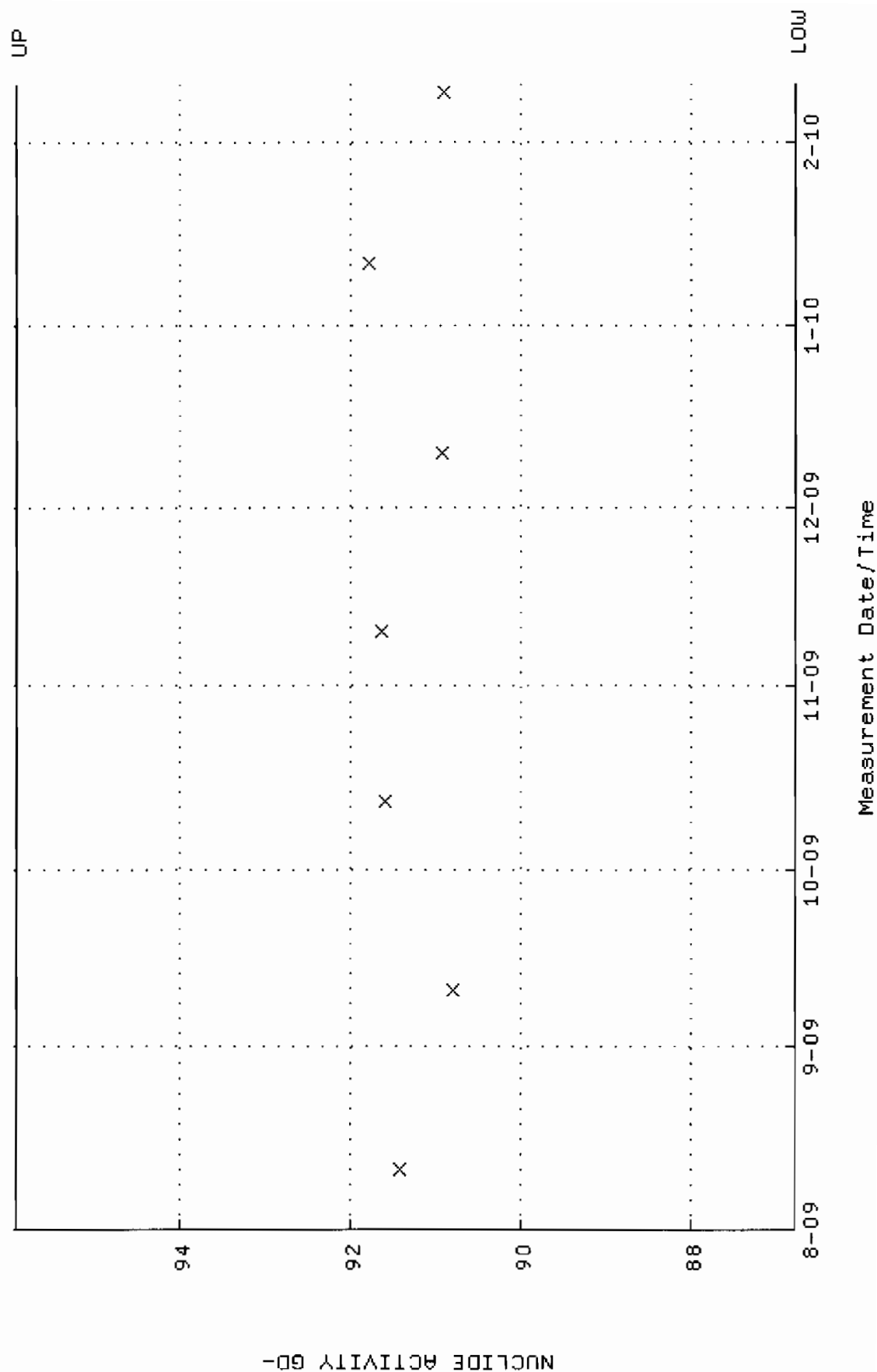


QA filename : DKA100:[ENV\_ALPHA.QA.W]W071.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.309161 through 0.329161



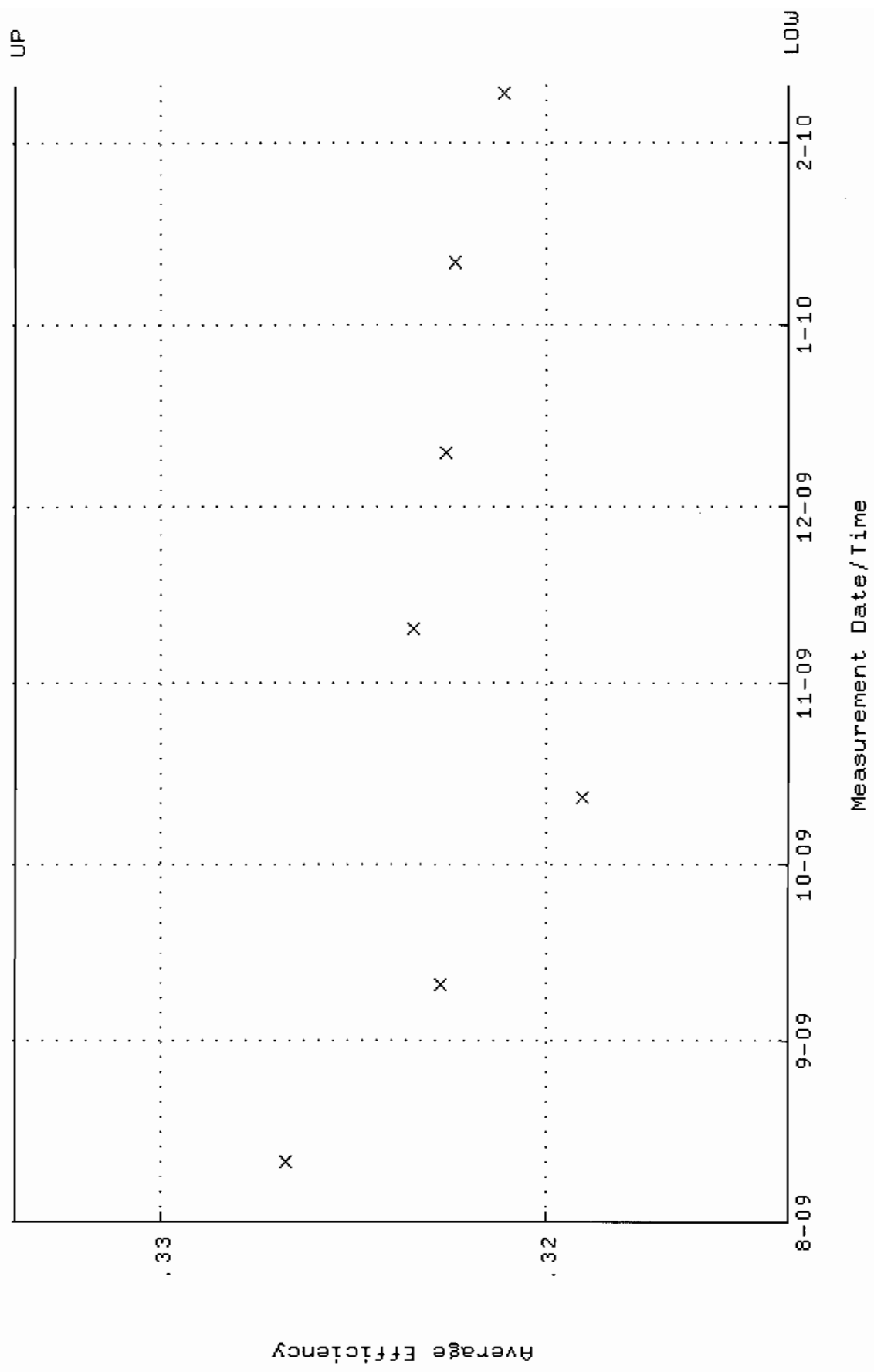


QA filename : DKA100:[ENV\_ALPHA.QA.W]W071.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.7769 through 95.9113

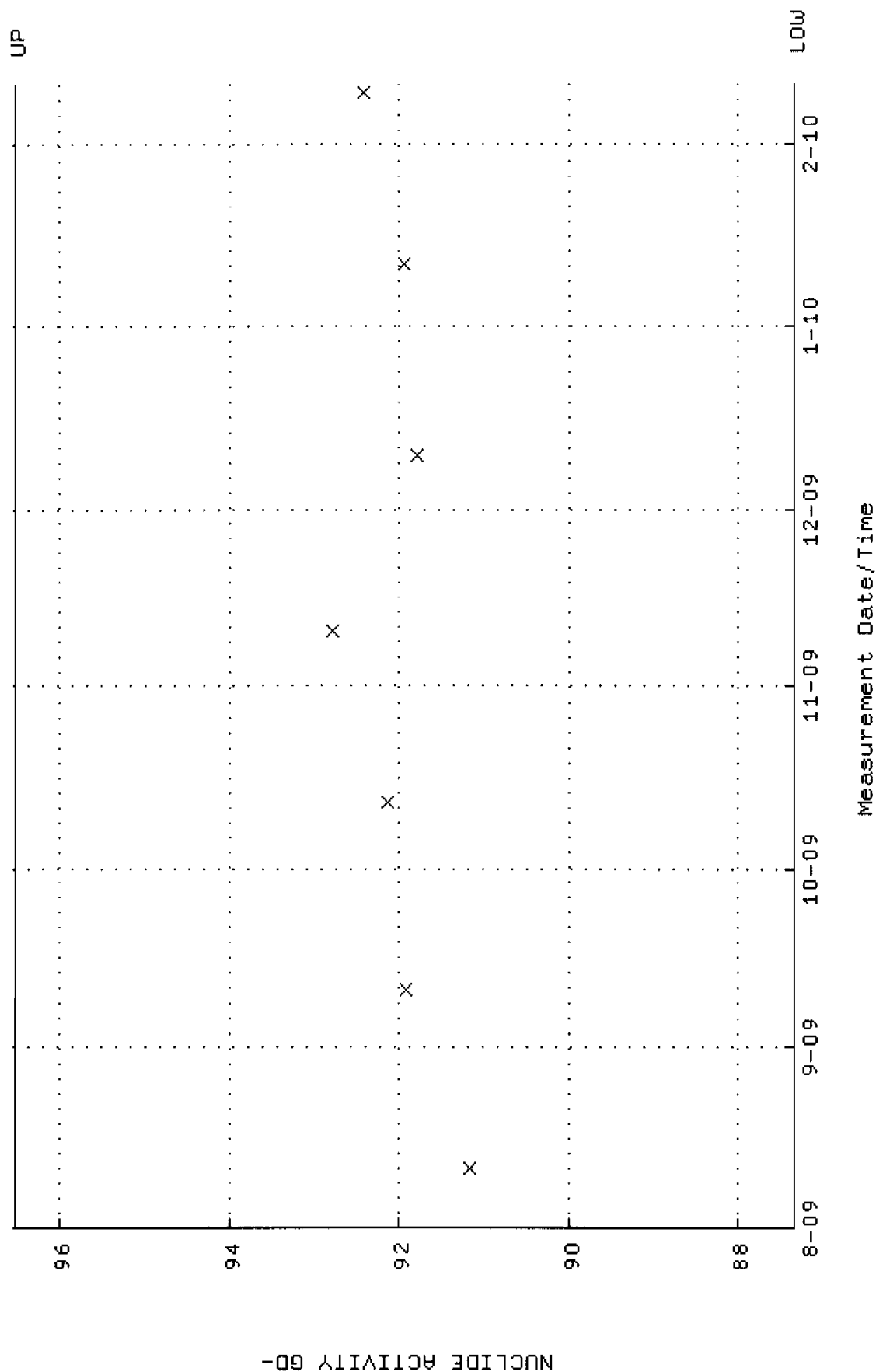




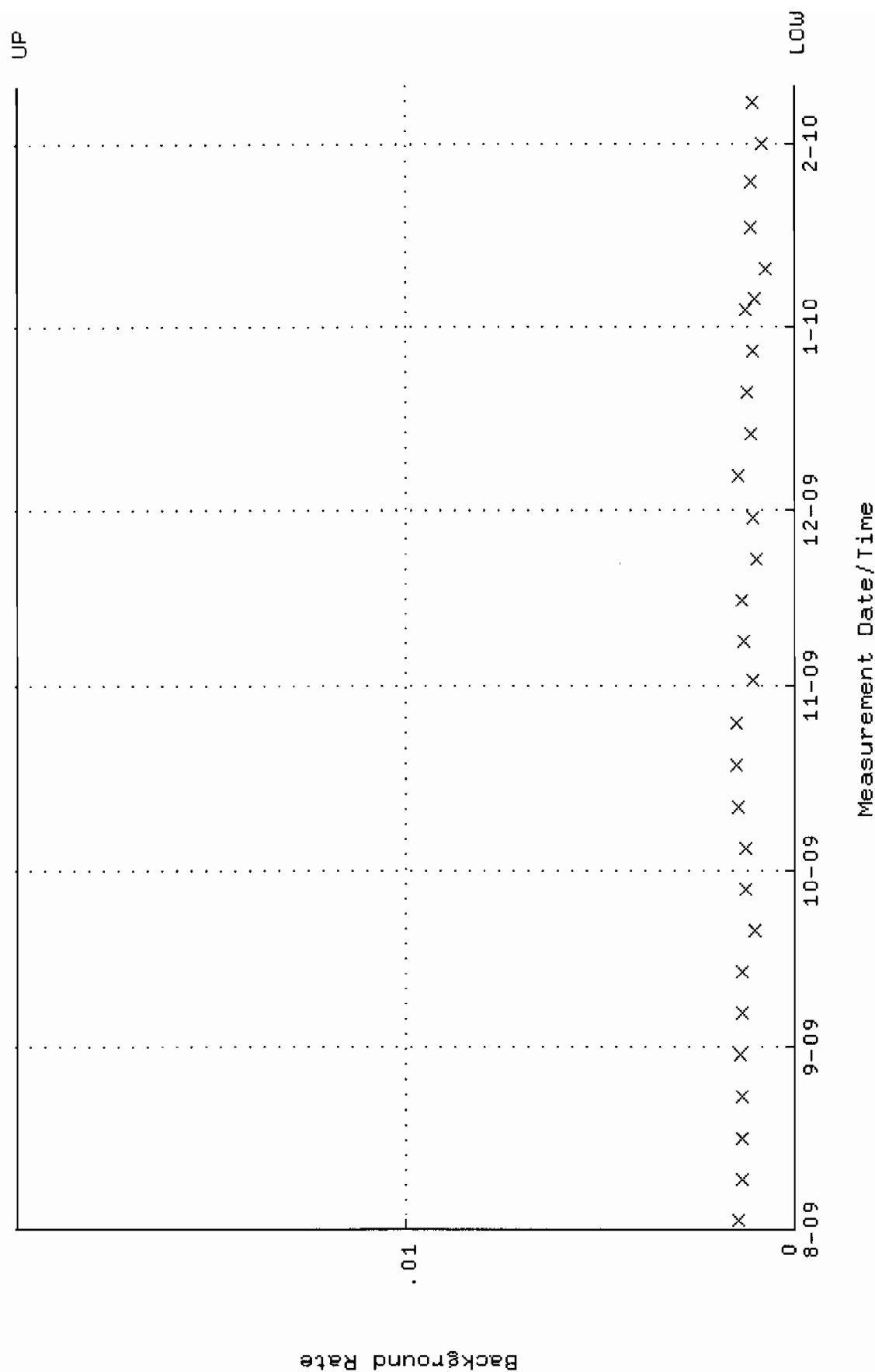
QA filename : DKA100:[ENV\_ALPHA.QA.W]U072.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.313761 through 0.333761



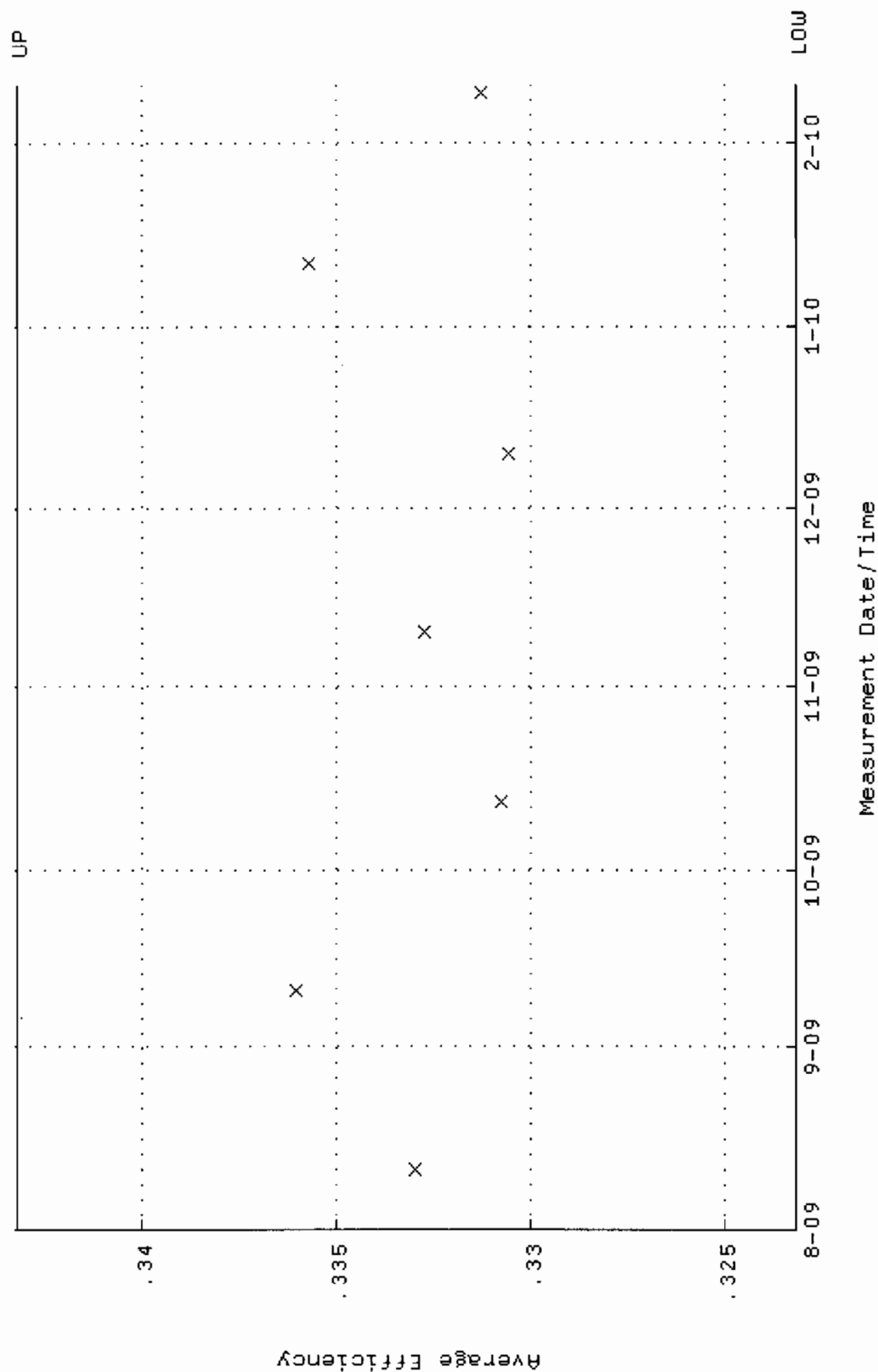
QA filename : DKA100:[ENV\_ALPHA.QA.W]U072.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.3348 through 96.5280



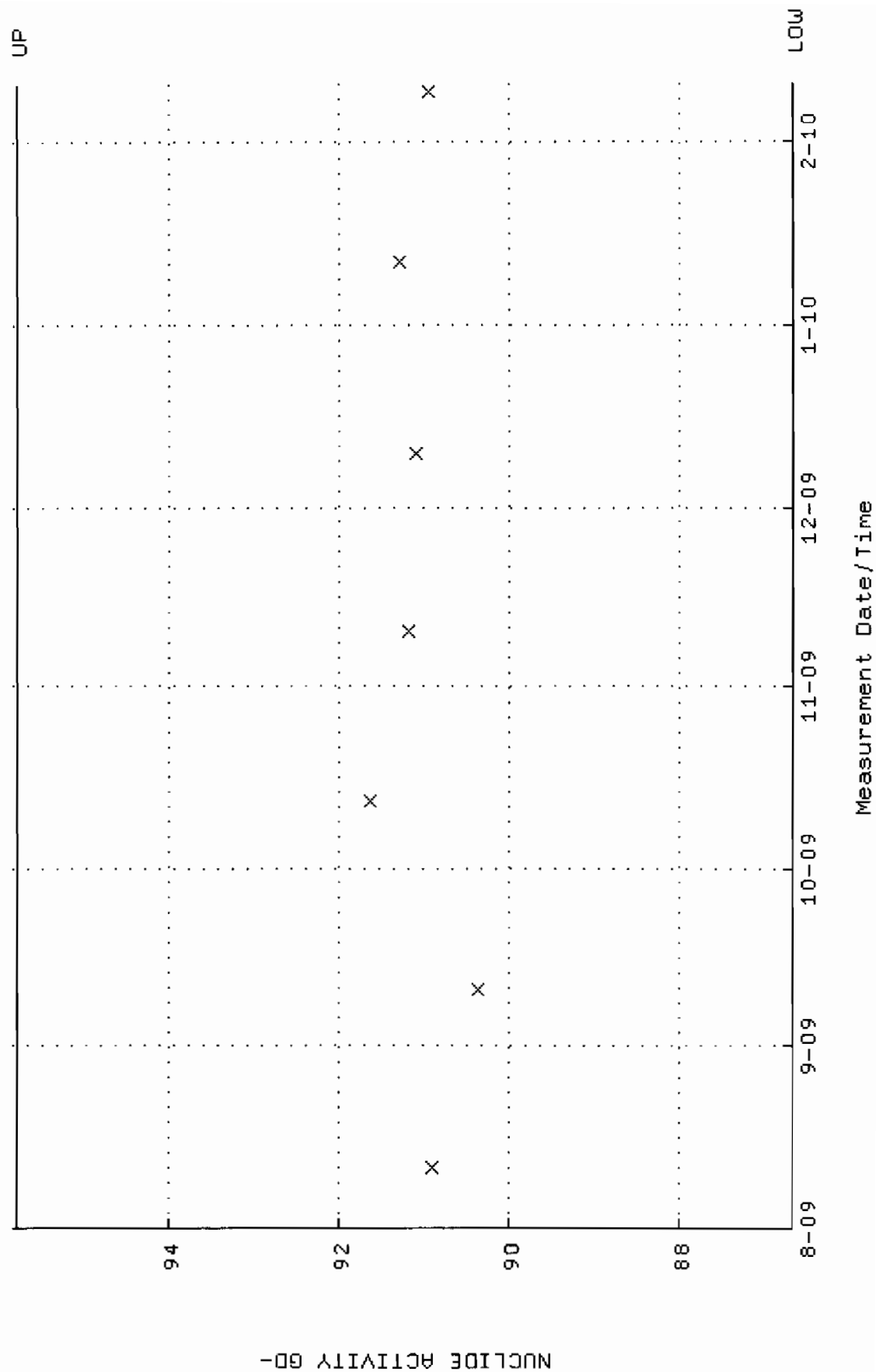
QA filename : DKA100:[ENV\_ALPHA.QA.B]B072.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:39 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



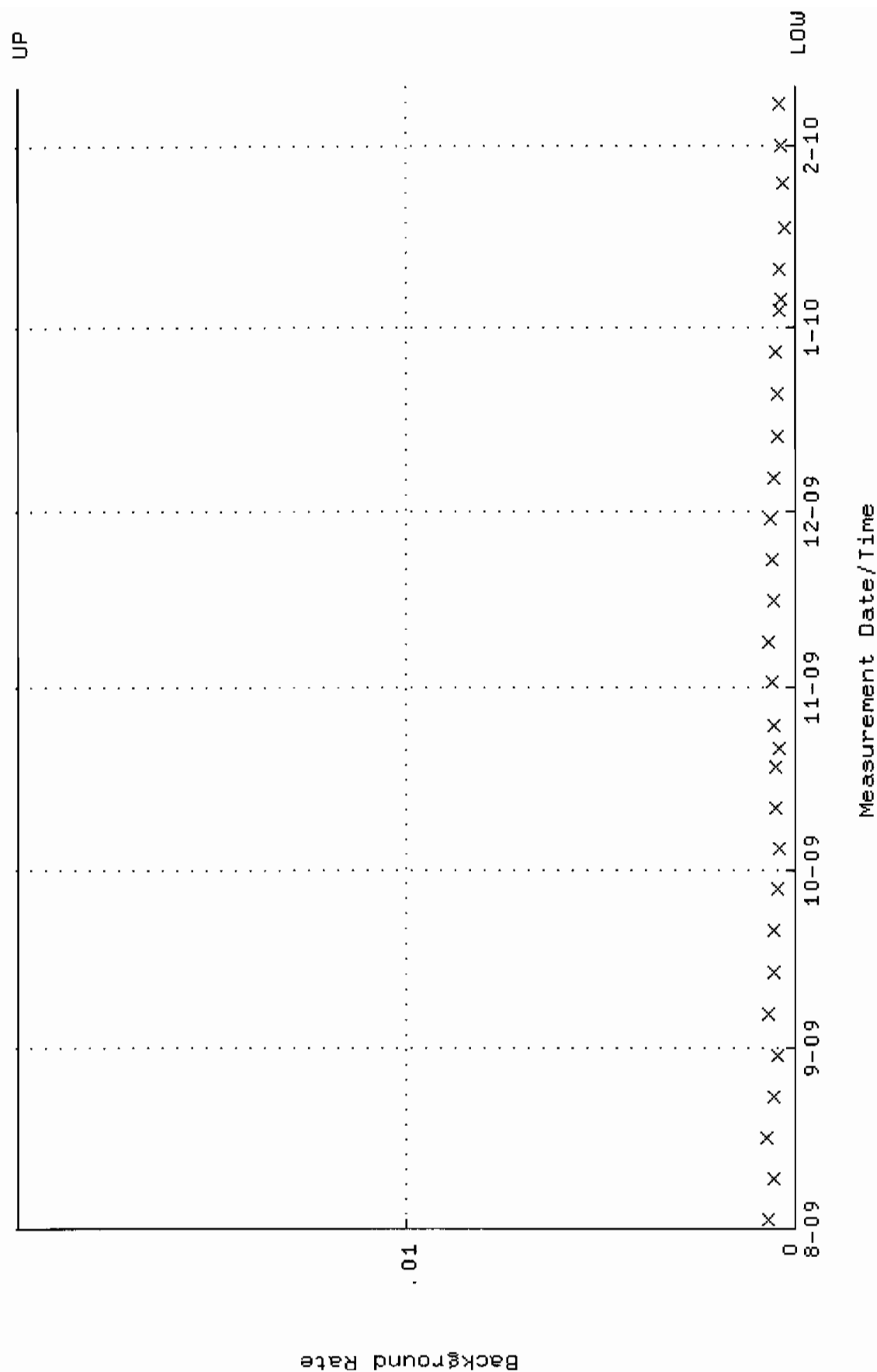
QA filename : DKA100:[ENV\_ALPHA.QA.W]W073.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.323184 through 0.343184



QA filename : DKA100:[ENV\_ALPHA.QA.W]W073.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.6734 through 95.7970

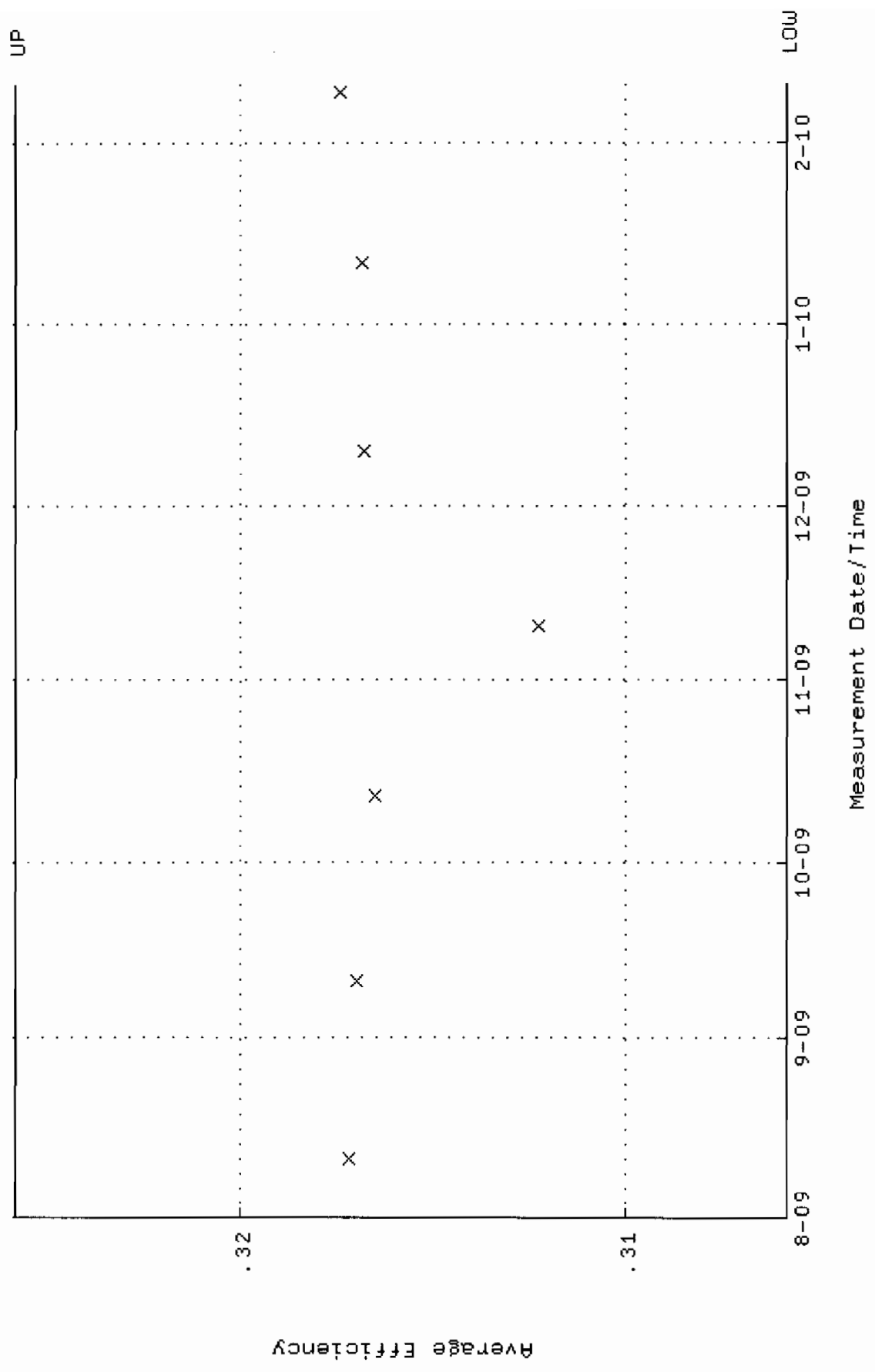


QA filename : DKA100:[ENV\_ALPHA.QA.B]B073.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:39 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

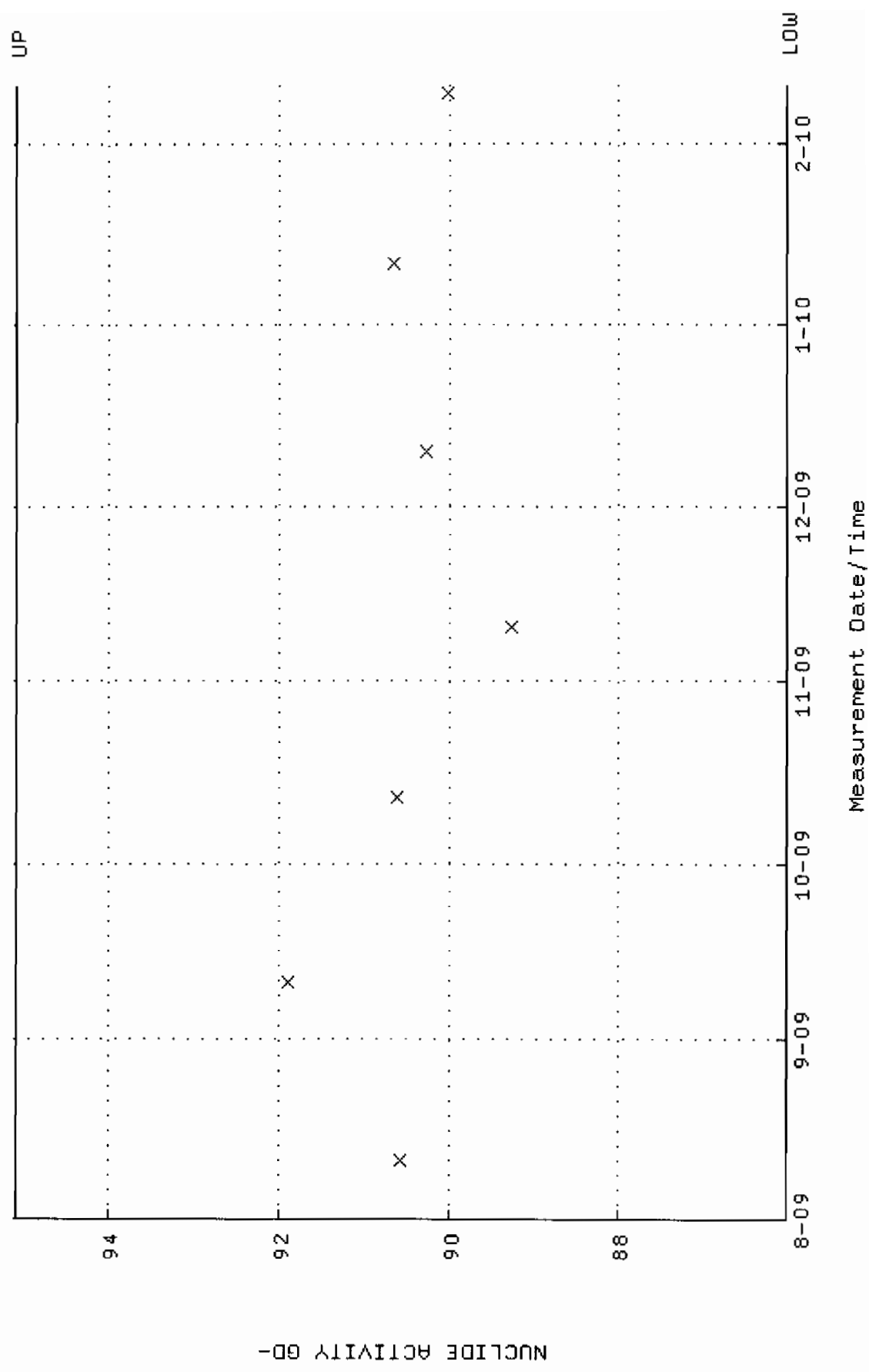




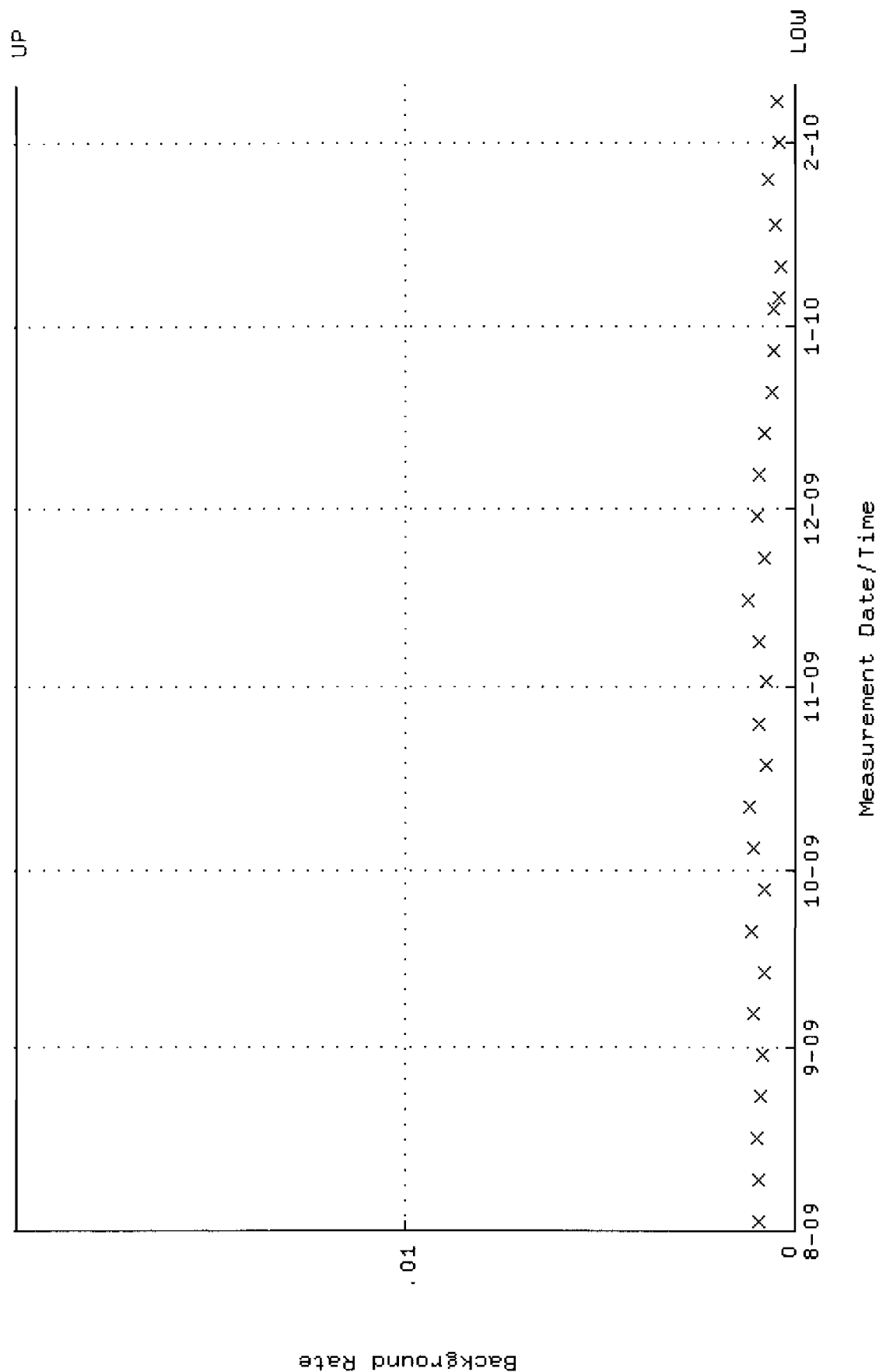
QA filename : DKA100:[ENV\_ALPHA.QA.W]W074.QAF;4  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
Lower/Upper Lmts: 0.305830 through 0.325830



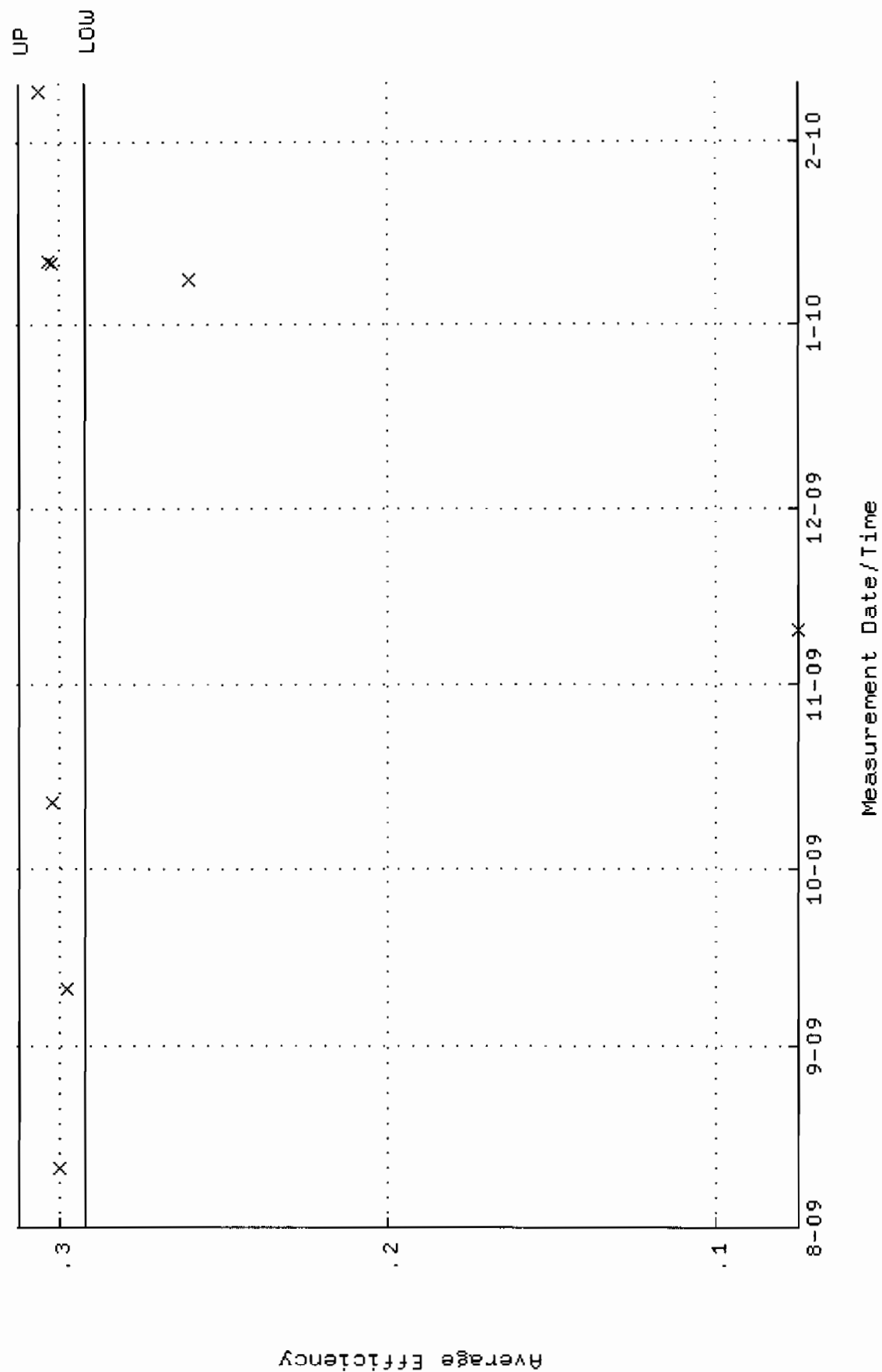
QA filename : DKA100:[ENV-ALPHA,QA,W]W074.QAF;4  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
Lower/Upper Lmts: 86.0289 through 95.0845



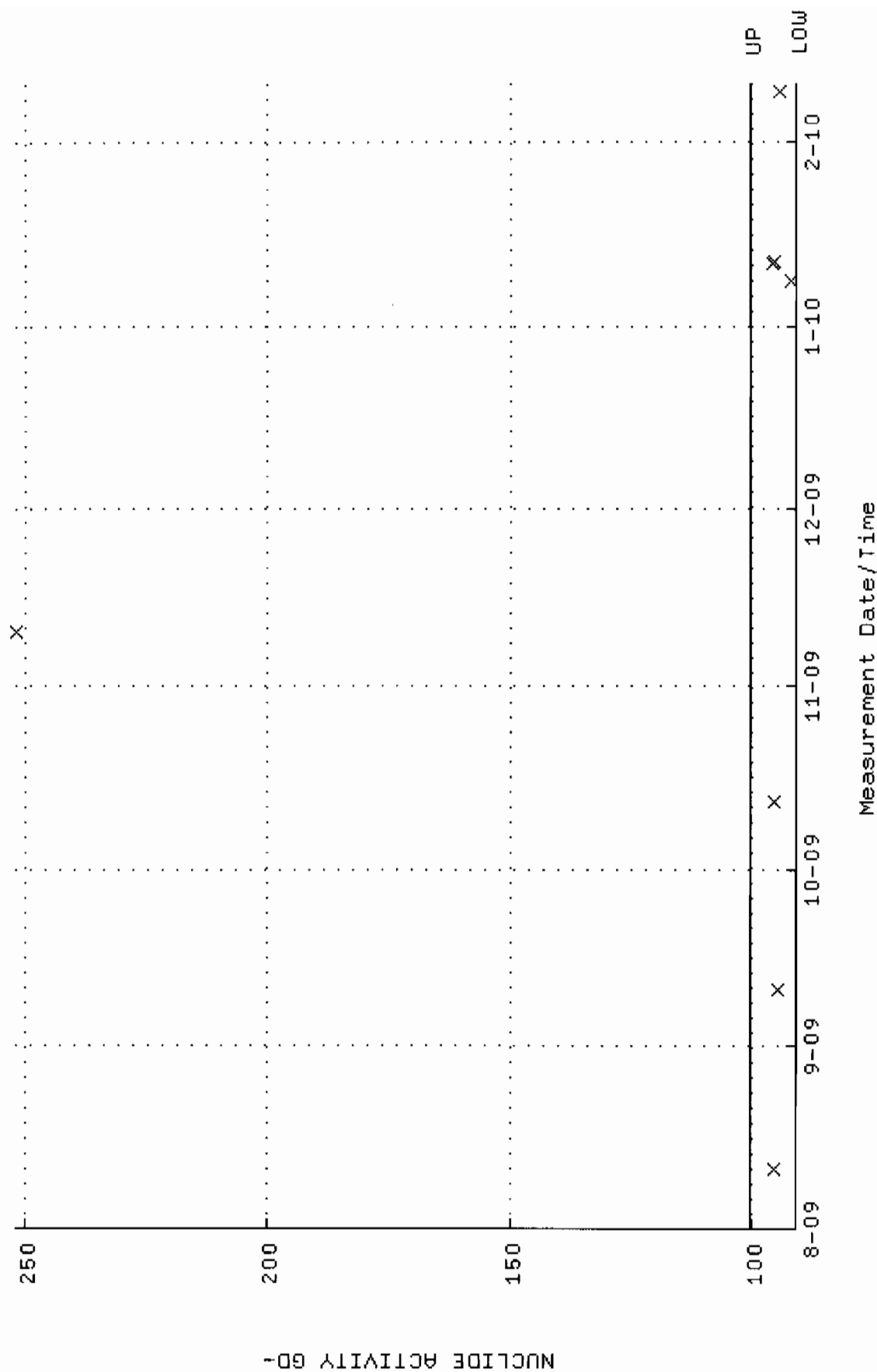
QA filename : DKA100:[ENV\_ALPHA.QA.B]B074.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:39 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



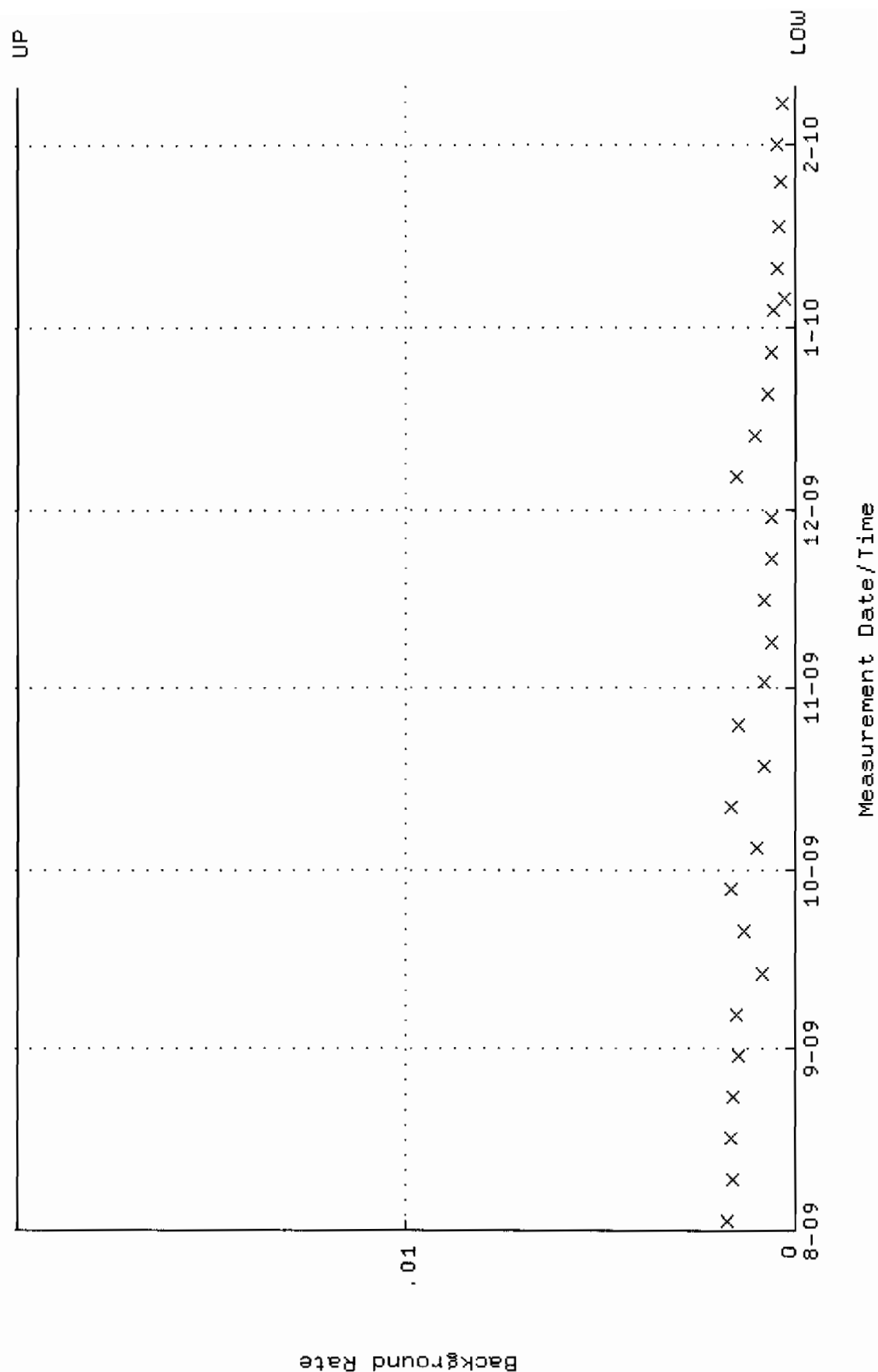
QA filename : OKA100:[ENV\_ALPHA,QA,W]W075.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.292134 through 0.312134



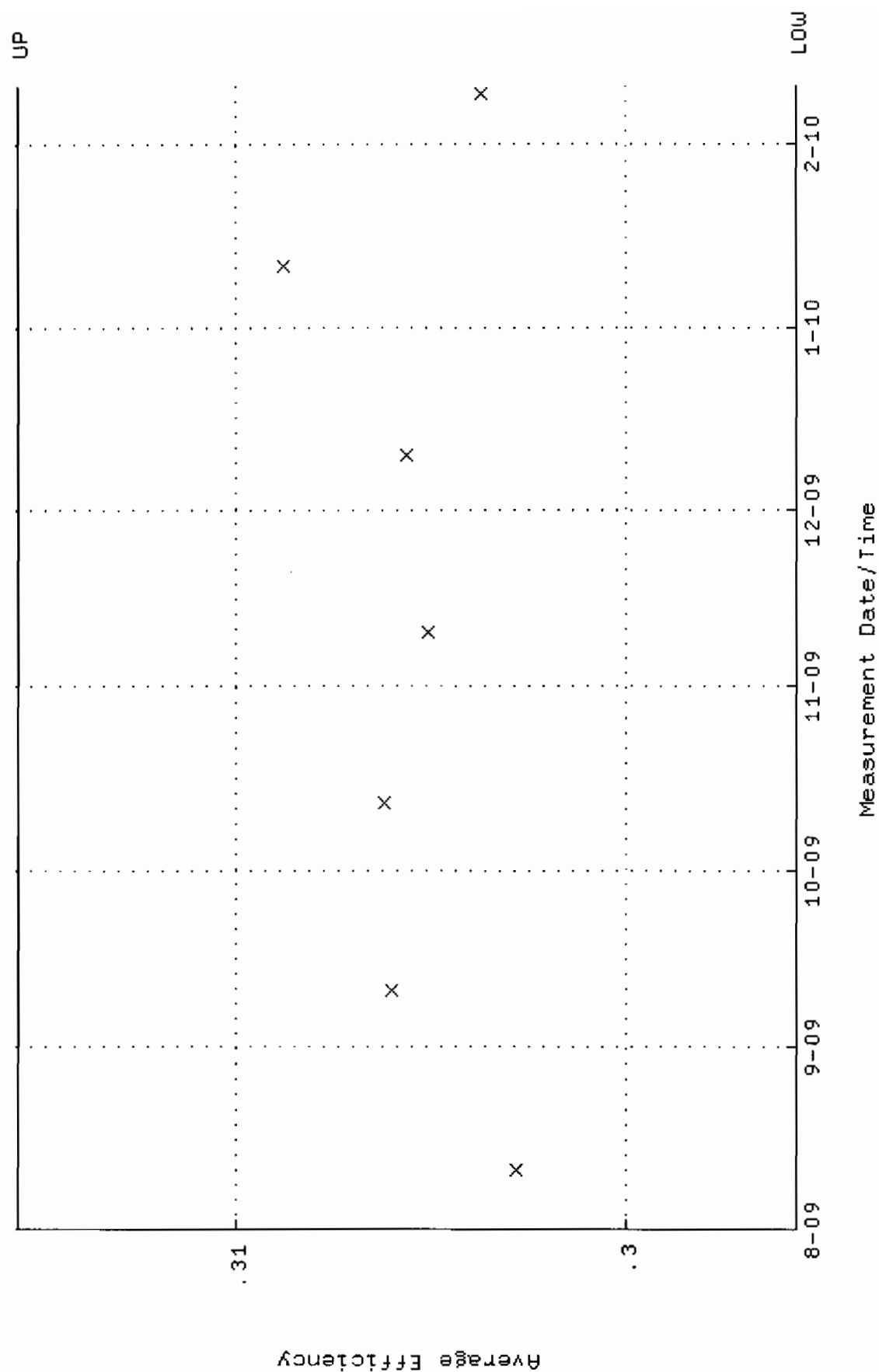
QA filename : DKA100:[ENV\_ALPHA.QA.W]W075.QAF;3  
 Parameter Name : NLACTIONY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 91.1212 through 100.713



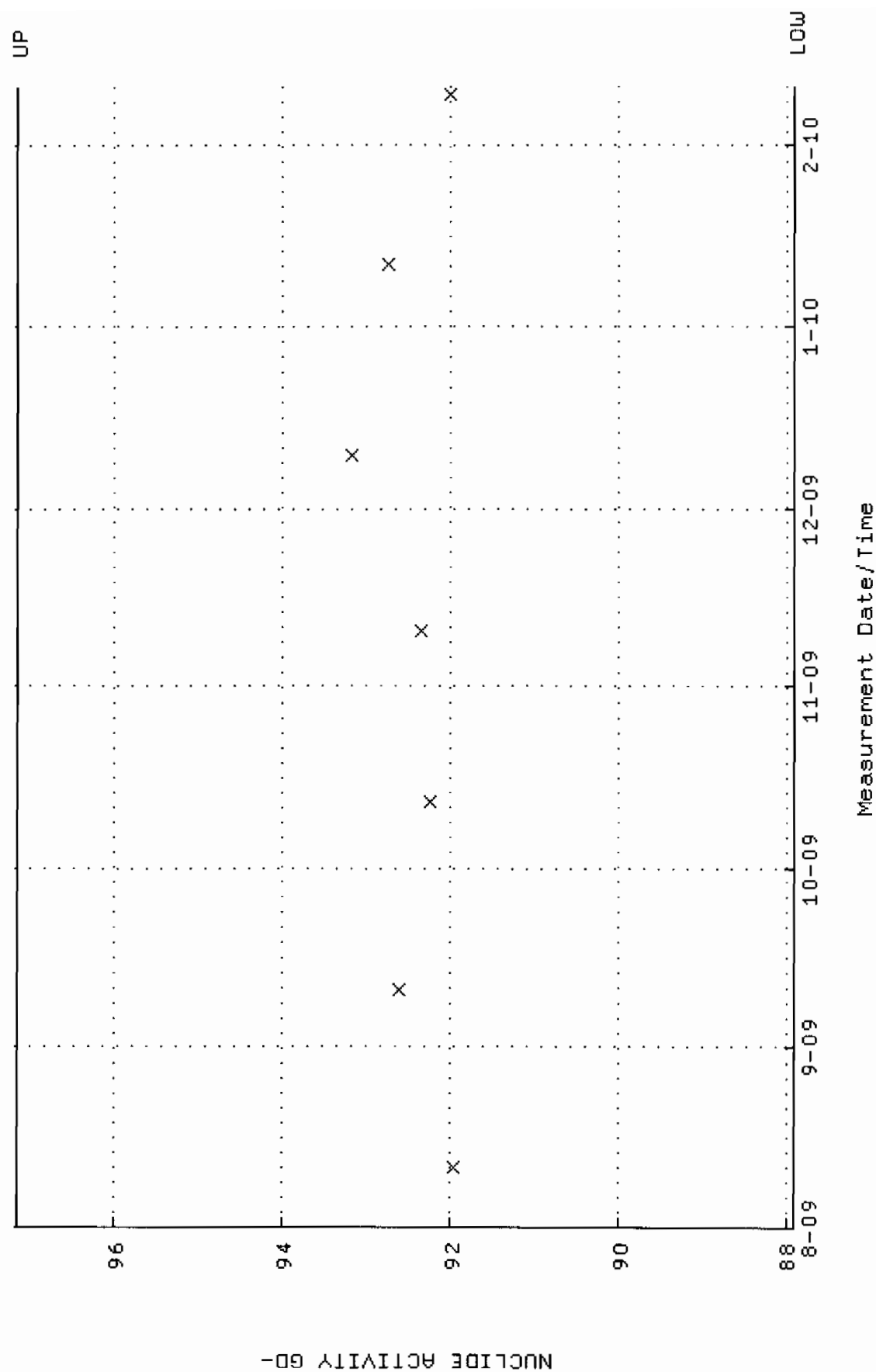
QA filename : DKA100:[ENV\_ALPHA.QA.B]B075.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:39 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W076.QAF;2  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
Lower/Upper Lmts: 0.295613 through 0.315613

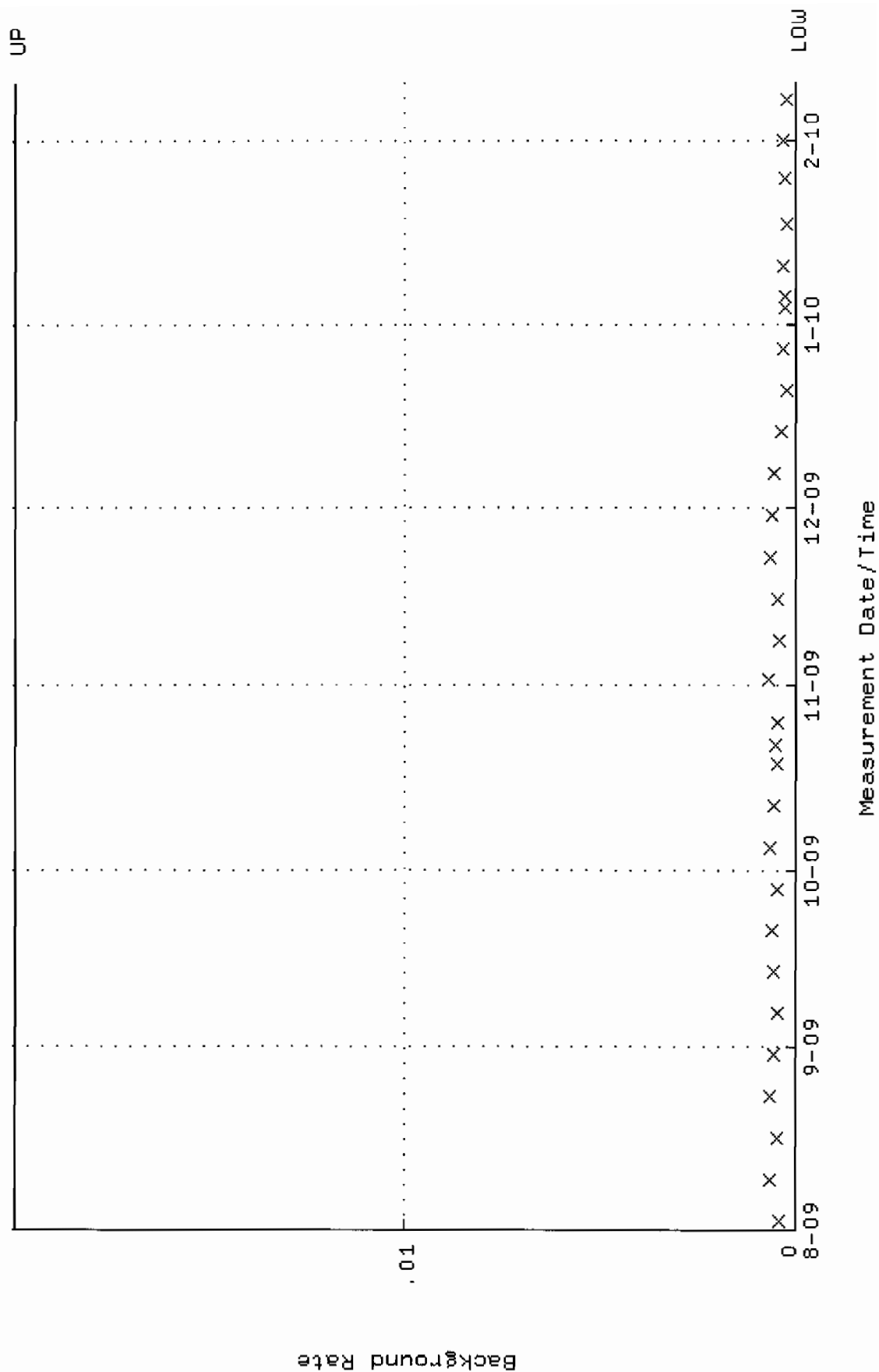


QA filename : DKA100:[ENV\_ALPHA.QA.W]W076.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:11 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.9031 through 97.1561

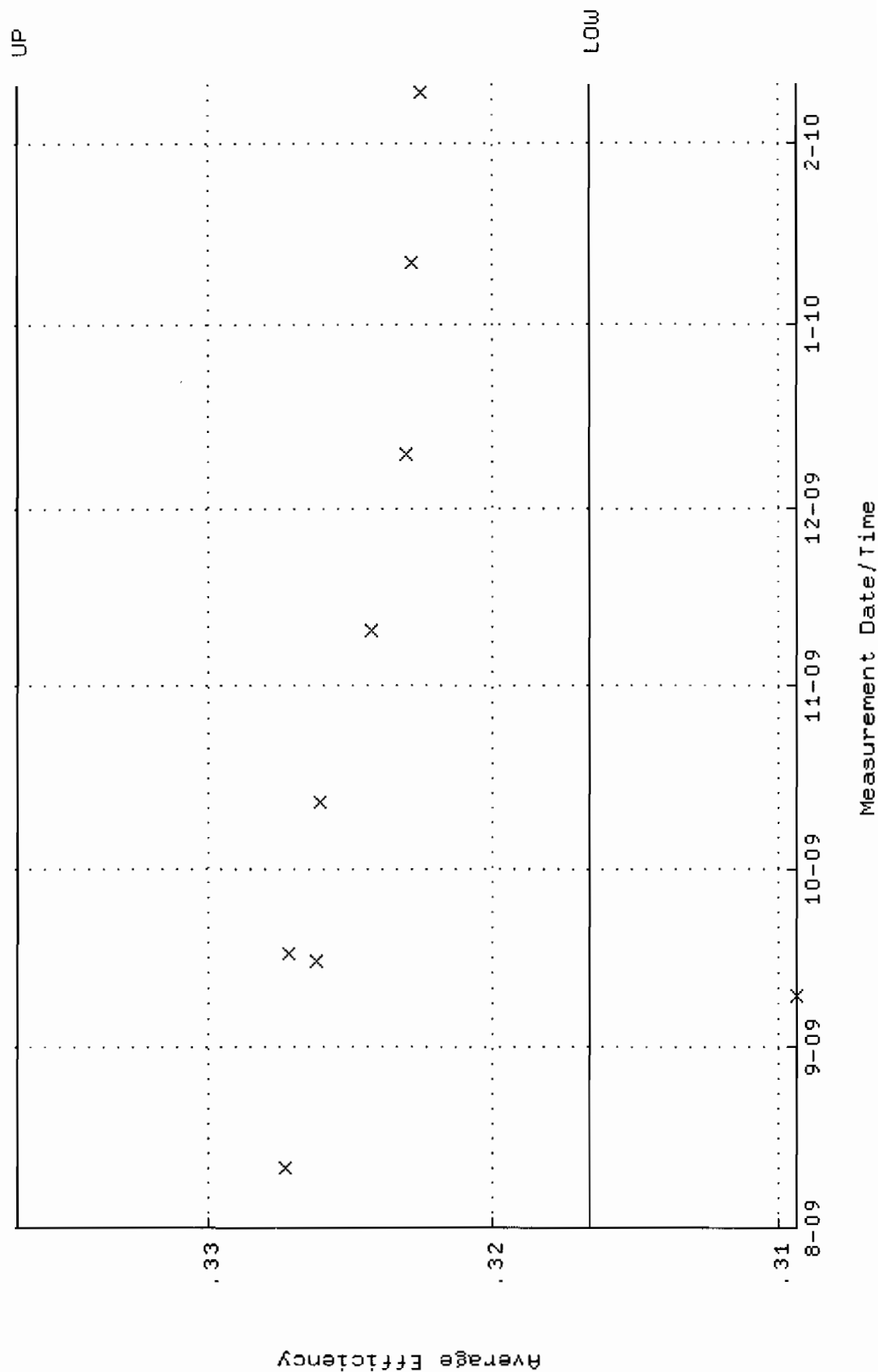




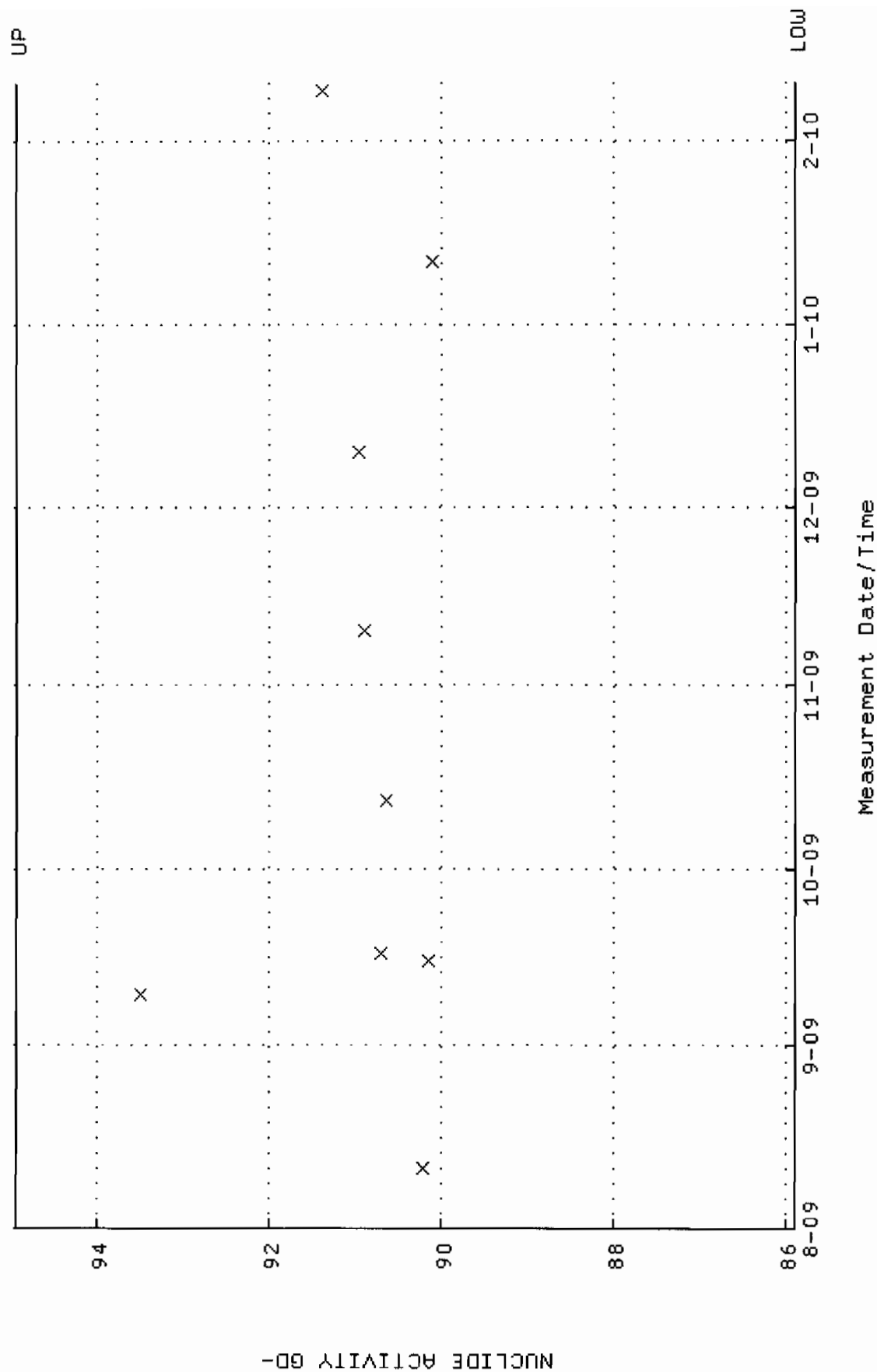
QA filename : DKA100:[ENV\_ALPHA.QA.B]B076.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:39 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



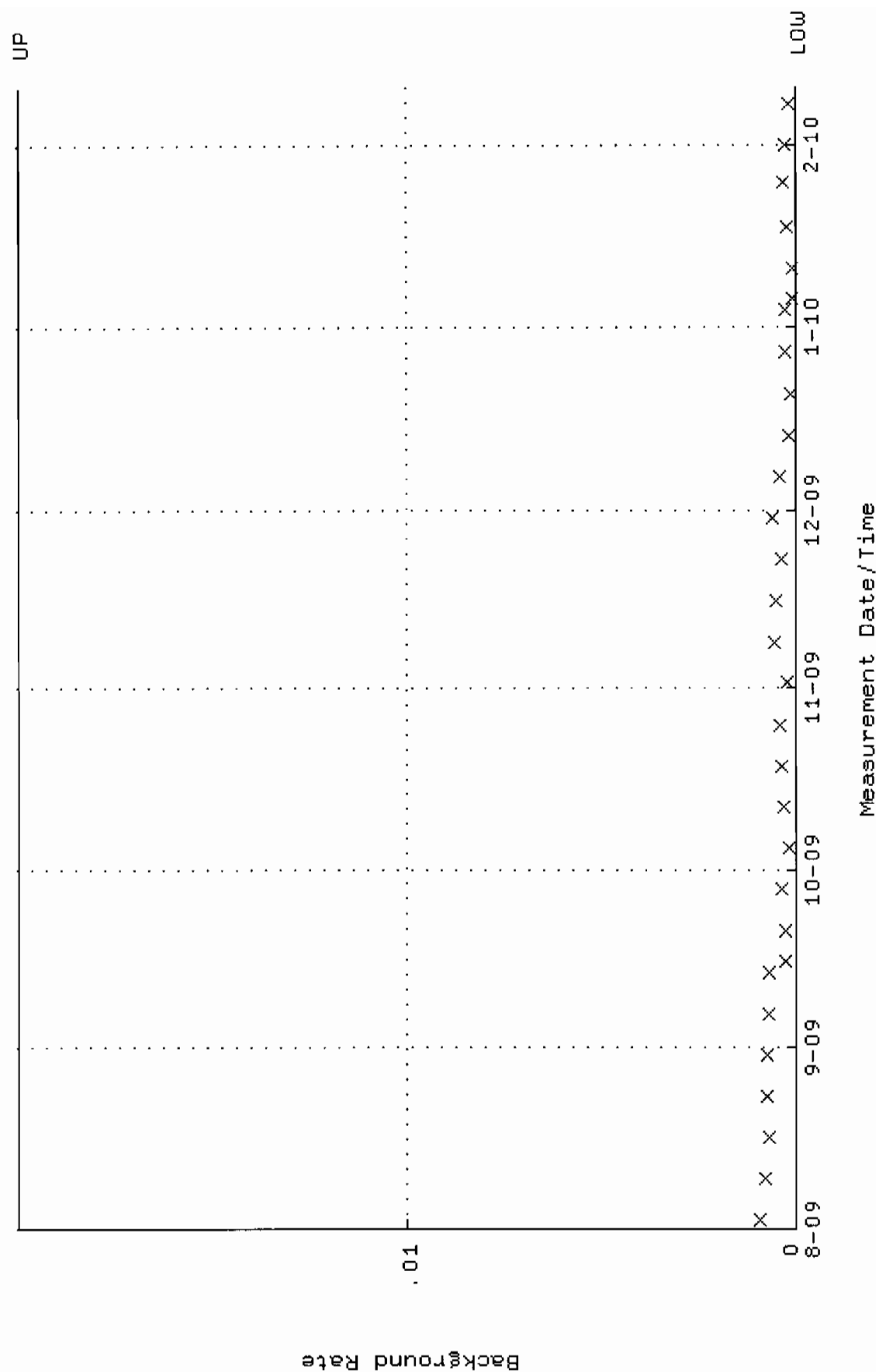
QA filename : DKA100:[ENV\_ALPHA.QA.W]W079.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.316654 through 0.336654



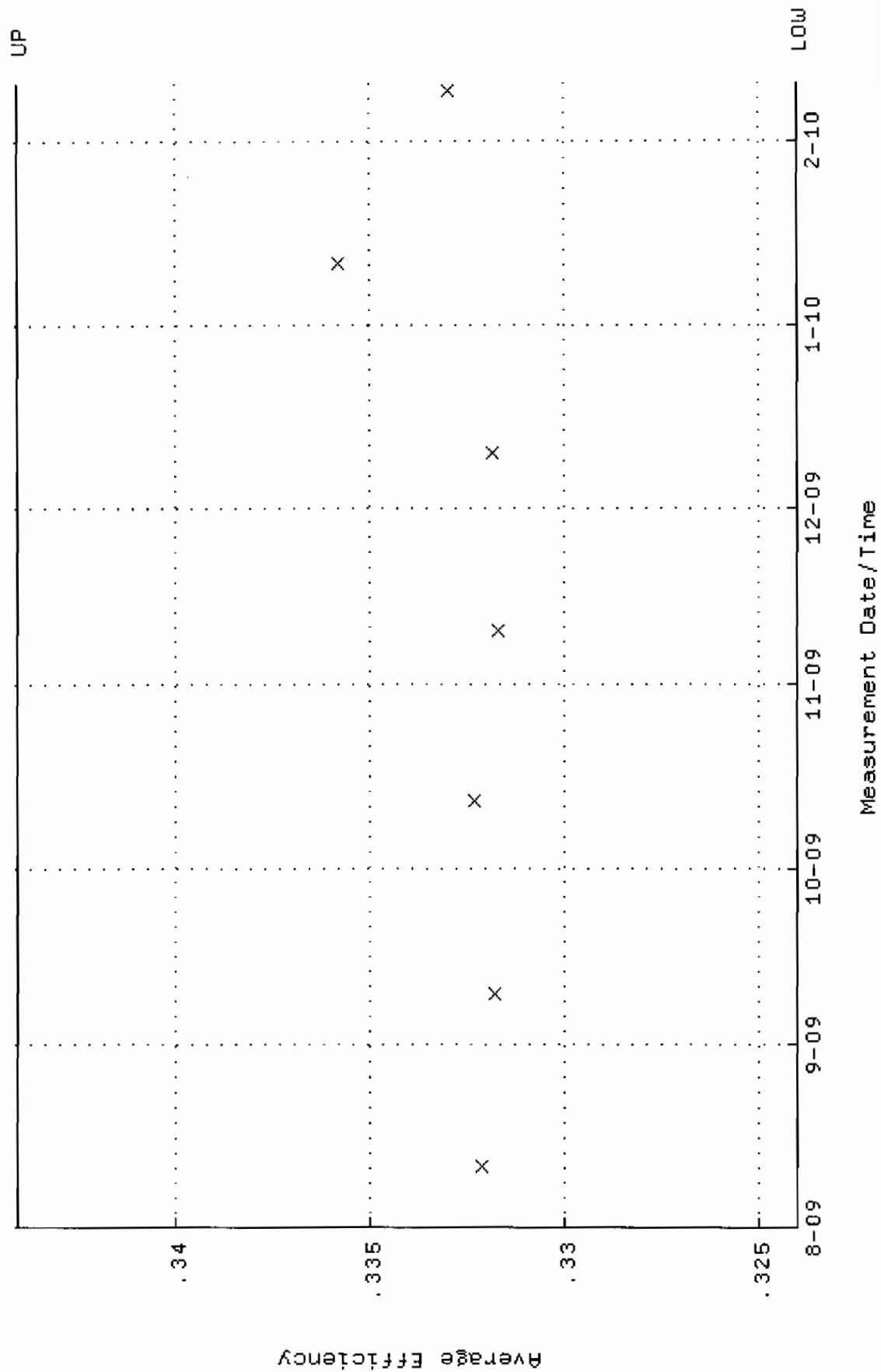
QA filename : DKA100:[ENV\_ALPHA.QA.W]W079.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 85.8913 through 94.9325



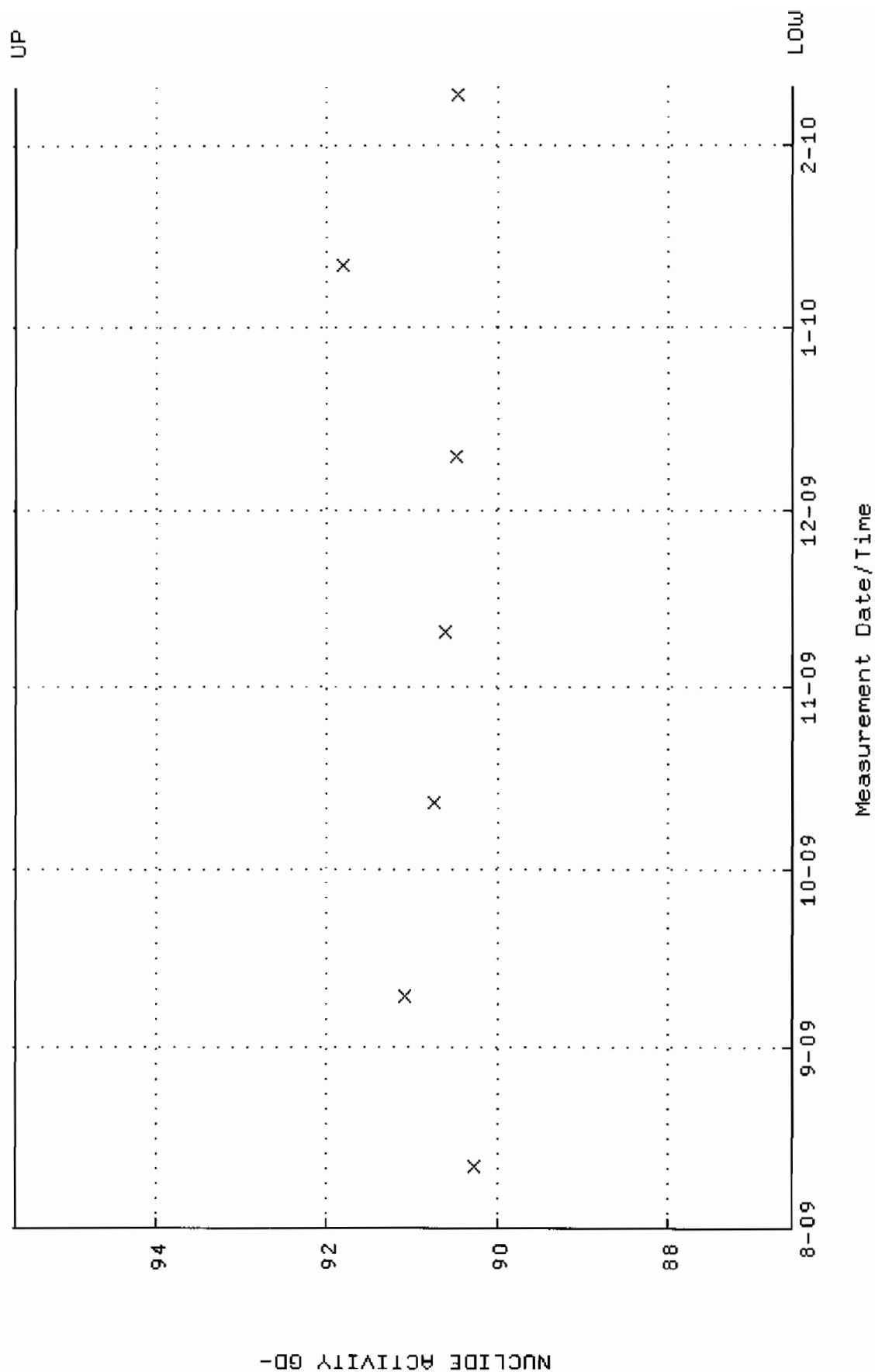
QA filename : DKA100:[ENV\_ALPHA.QA.B]B079.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



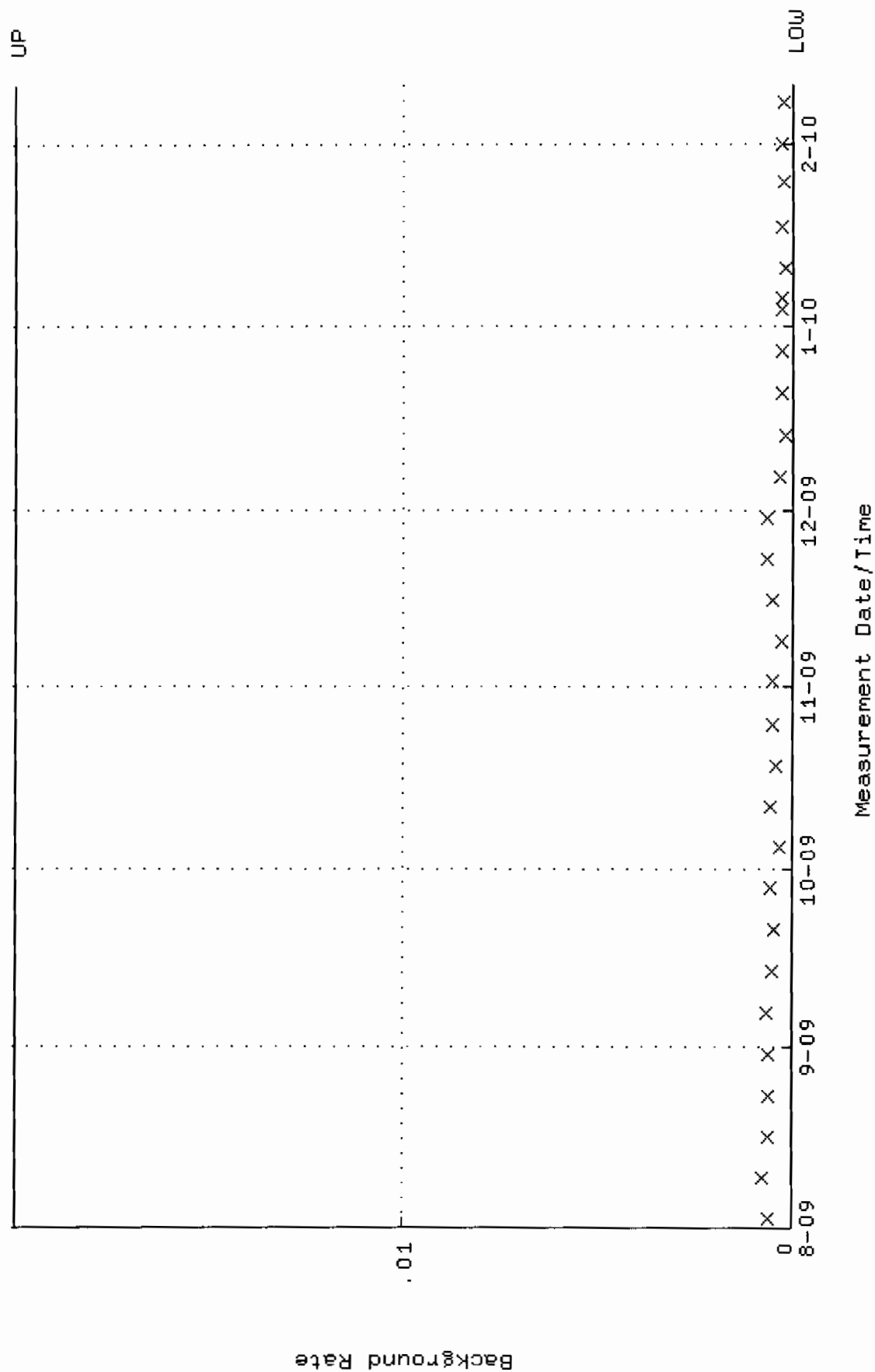
QA filename : DKA100:[ENV\_ALPHA.QA.W]U080.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 12:17:29 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.324032 through 0.344032



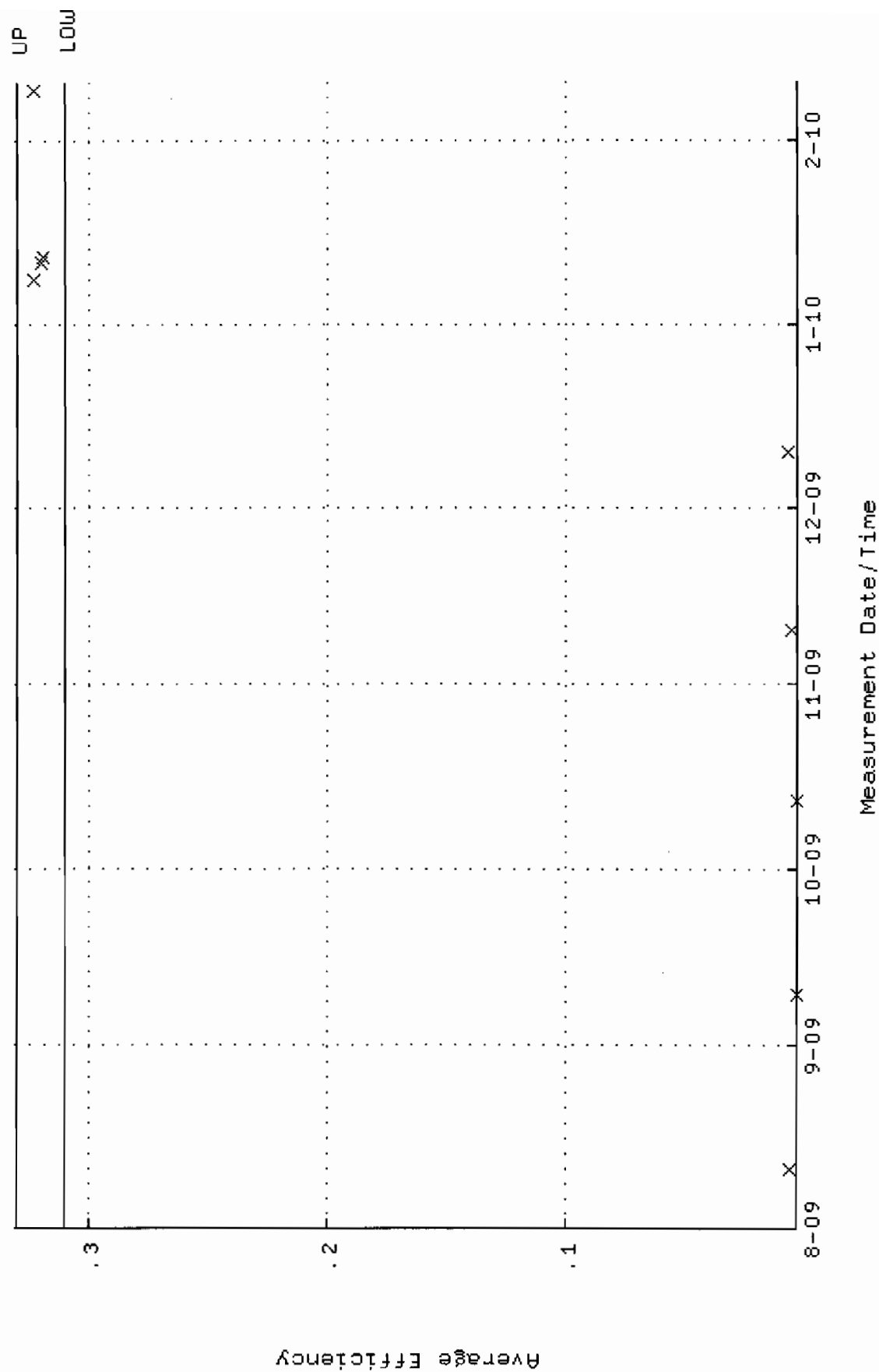
QA filename : DKA100:[ENV\_ALPHA.QA.W]W080.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 12:17:29 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.5393 through 95.6487



QA filename : DKA100:[ENV\_ALPHA.QA.B]B080.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

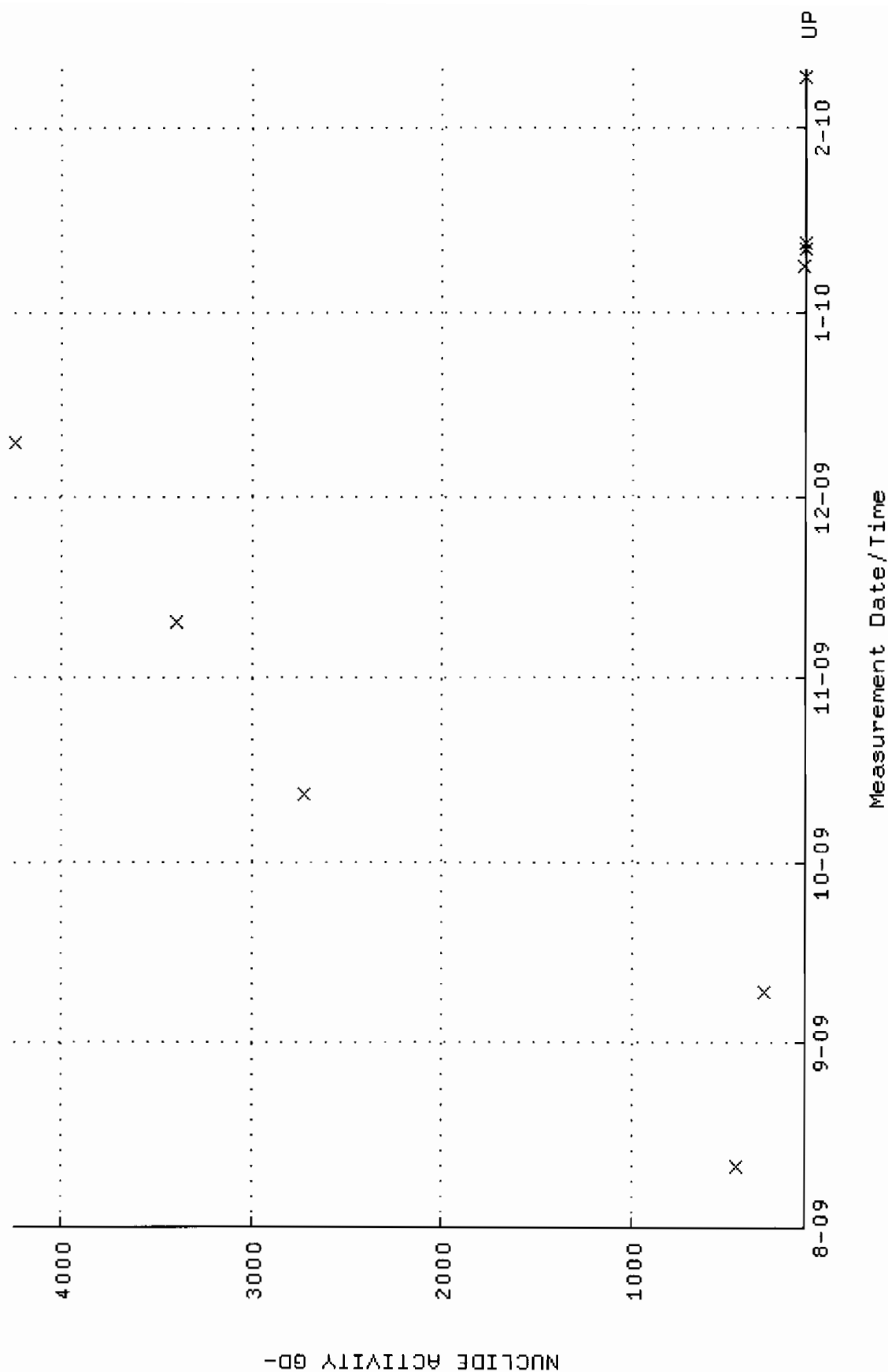


QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.310202 through 0.330202



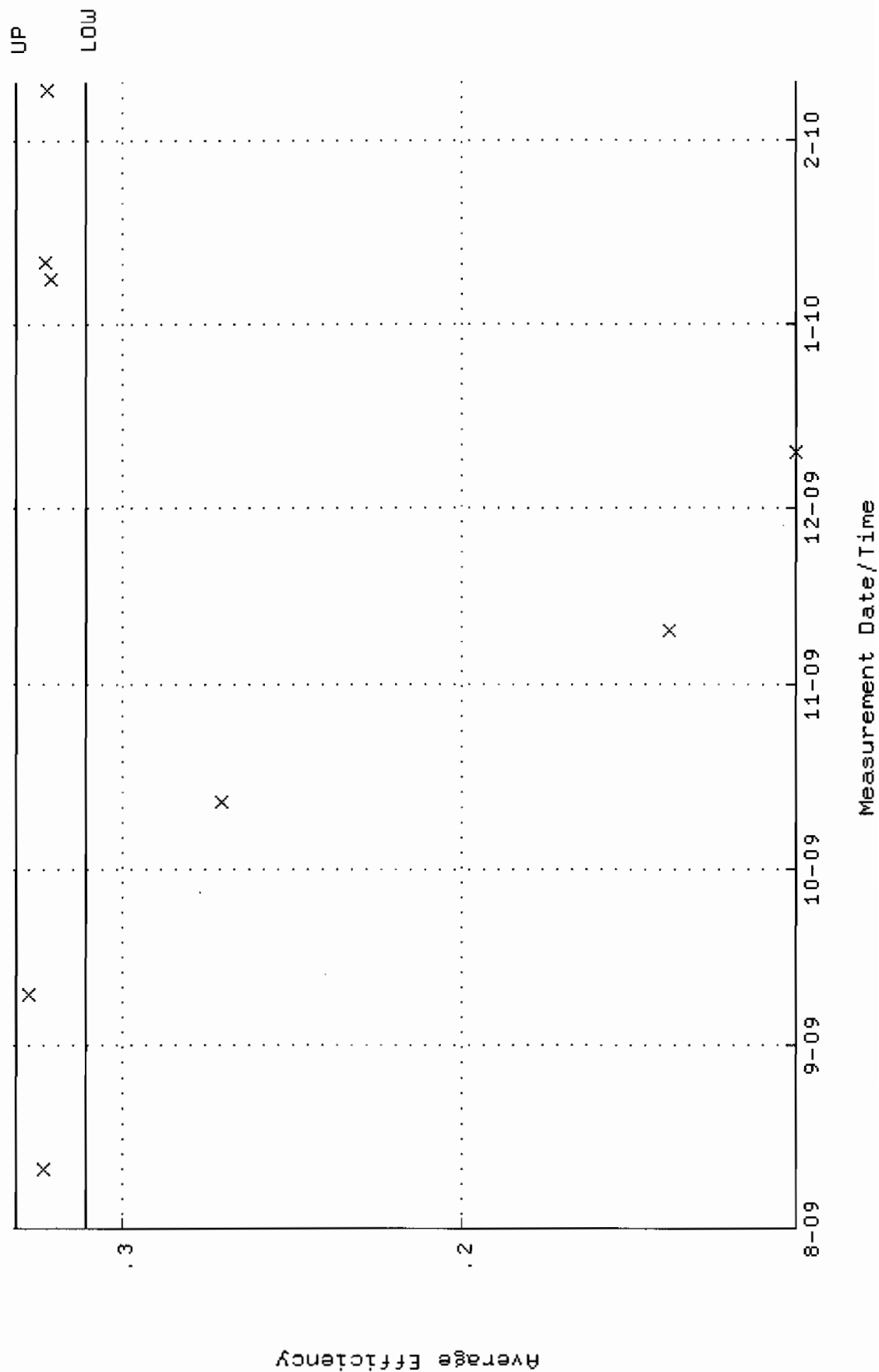


QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.2016 through 98.5912

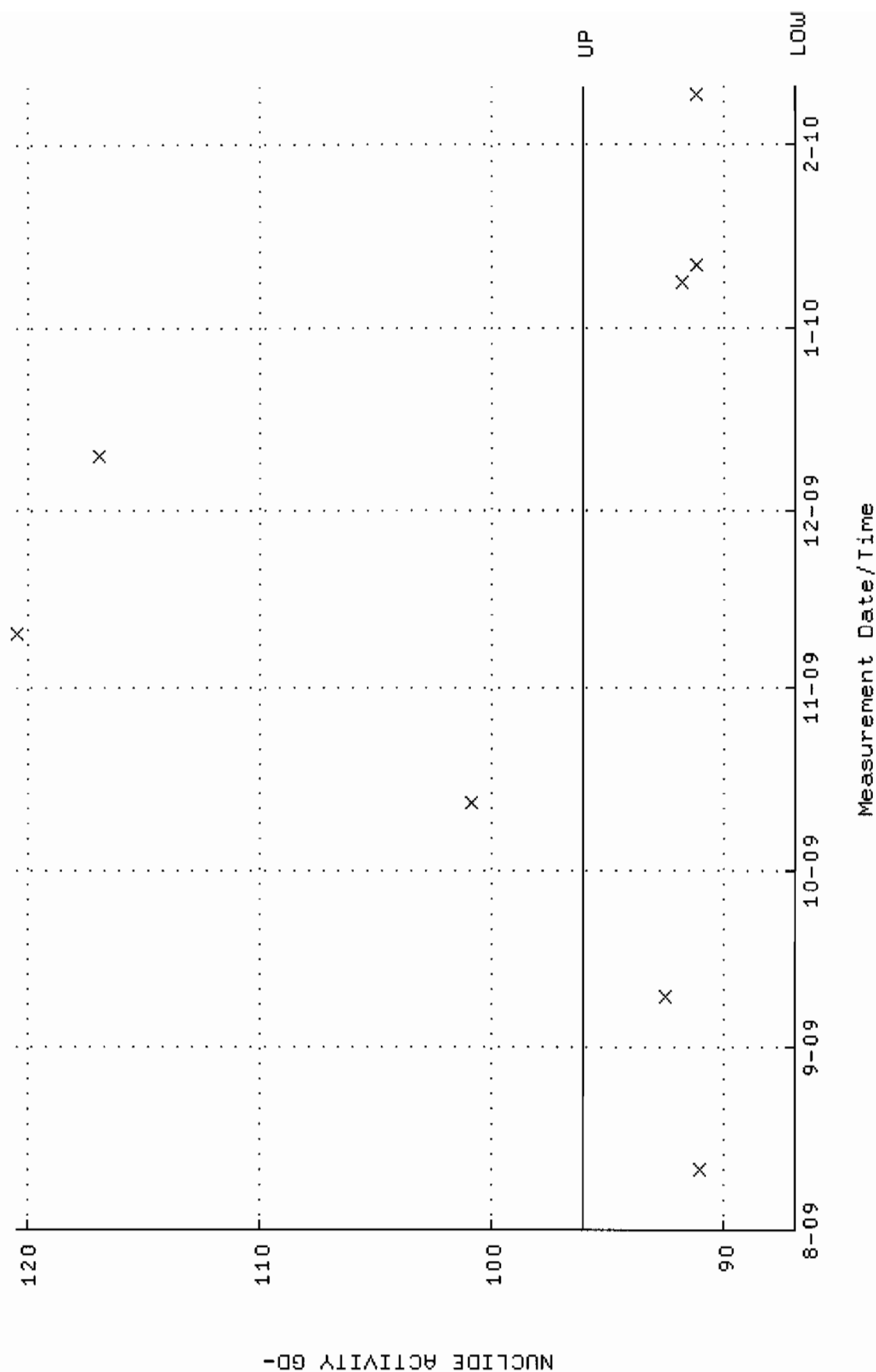




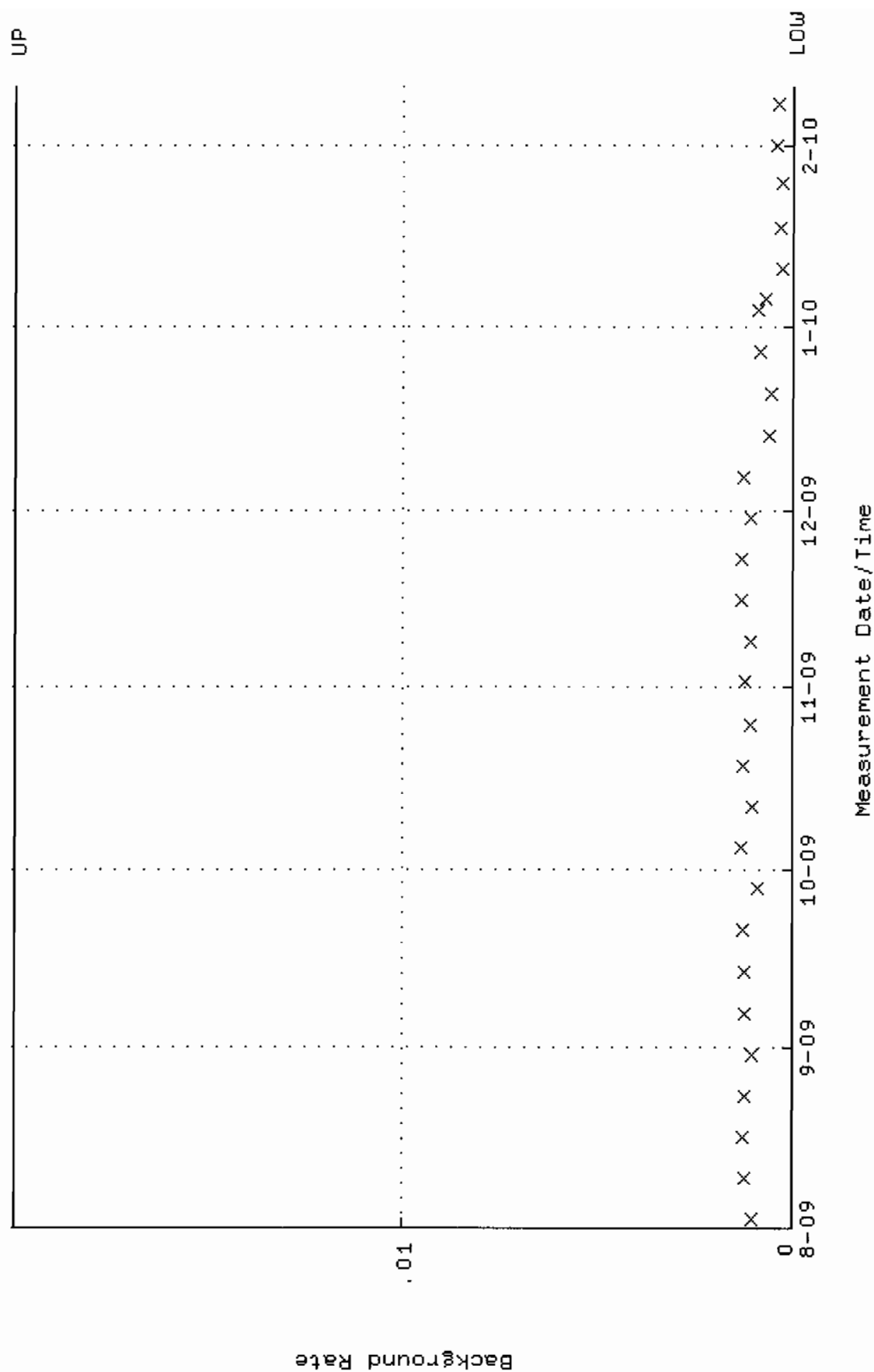
QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.311357 through 0.331357



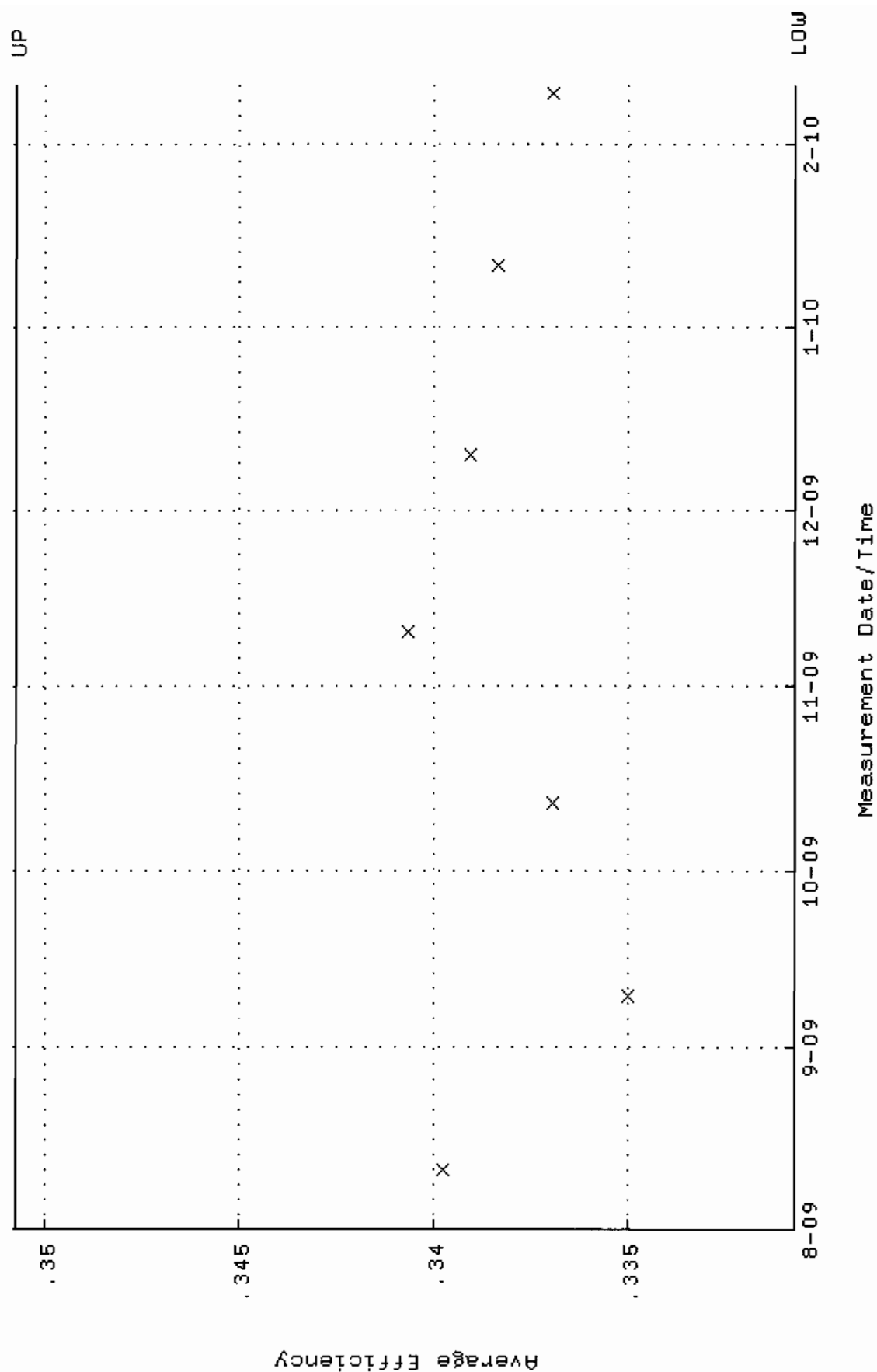
QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.9094 through 96.0578



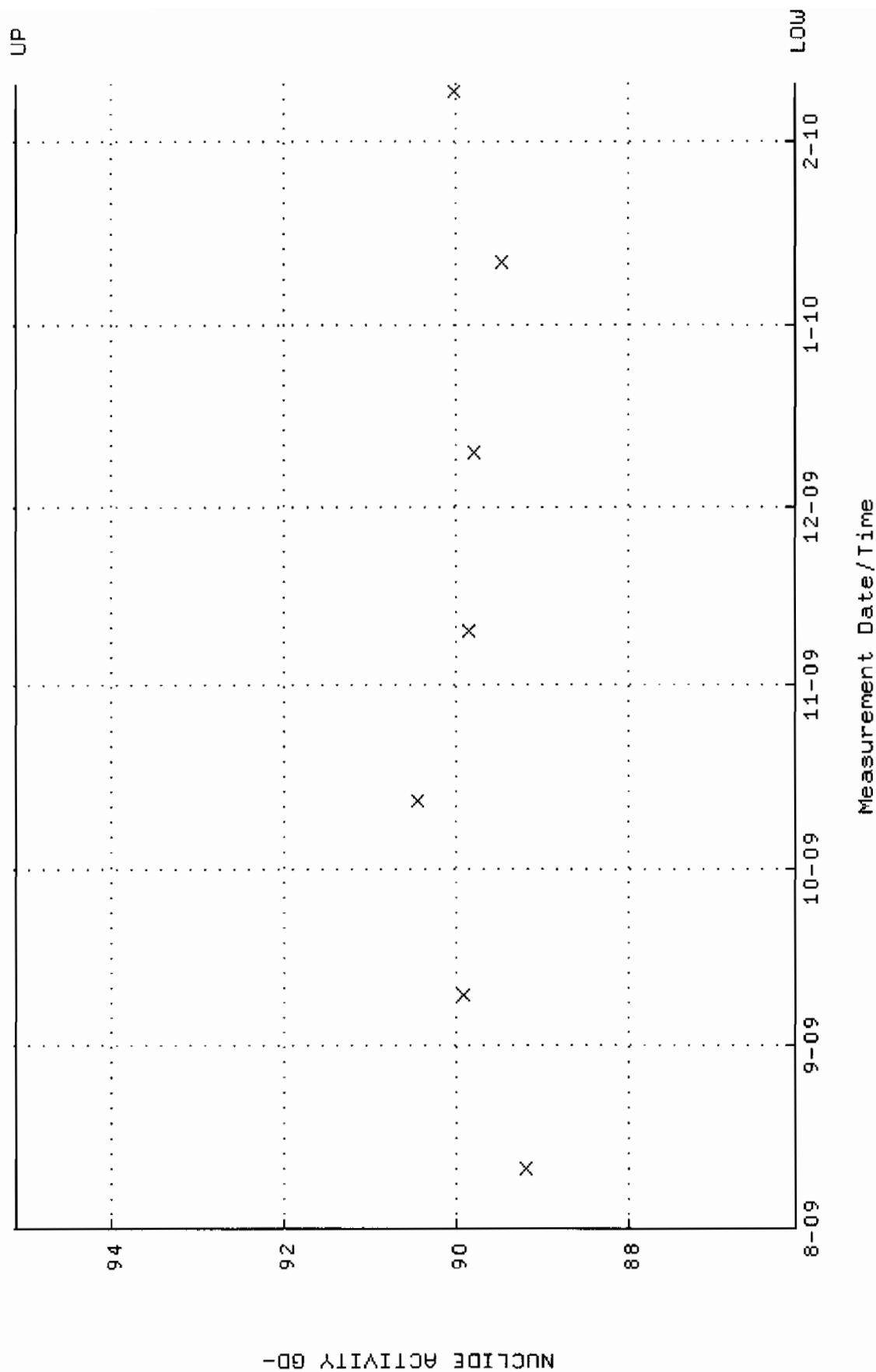
QA filename : DKA100:[ENV\_ALPHA,QA,B]B082.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



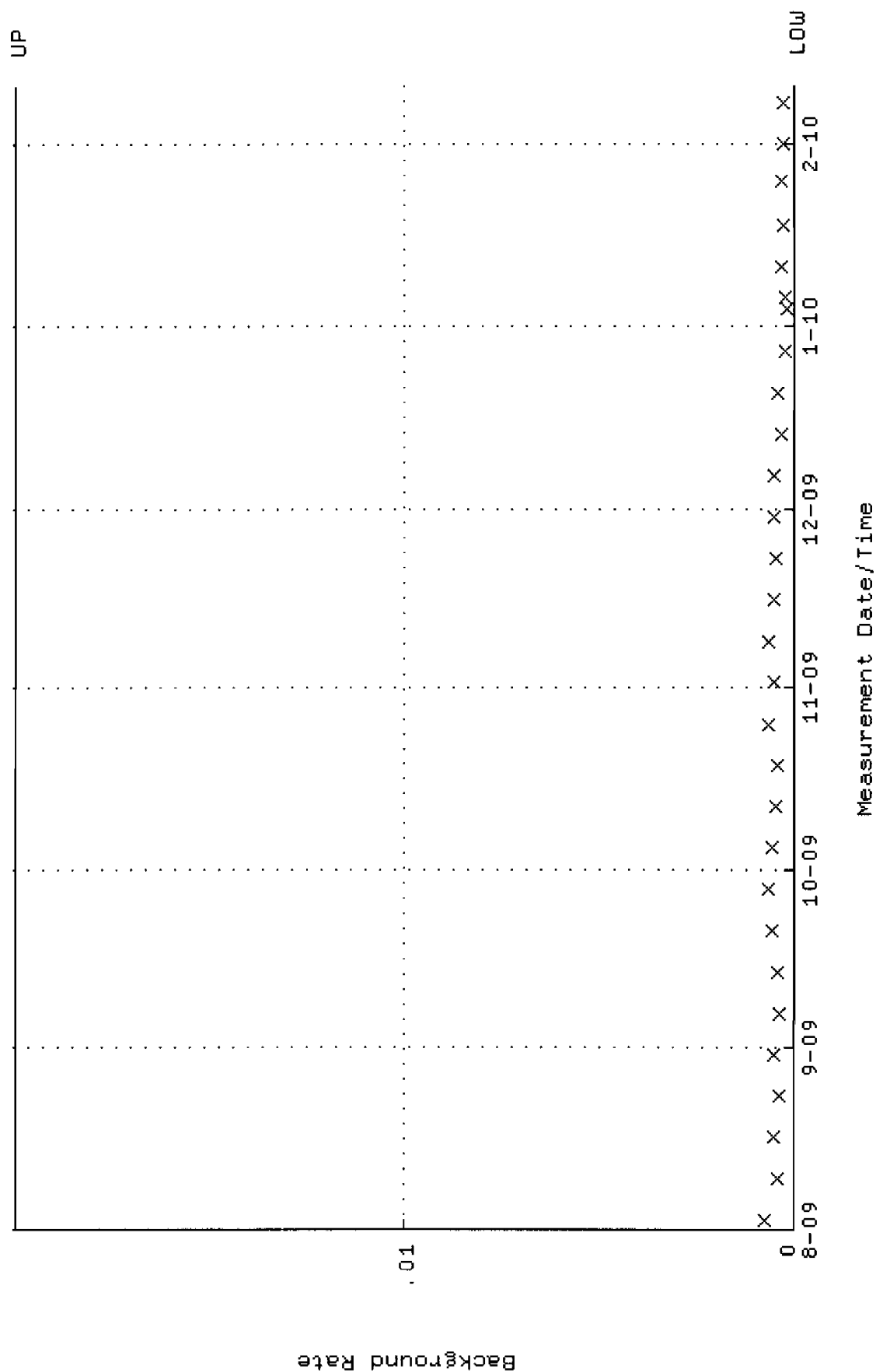
QA filename : DKA100:[ENV\_ALPHA.QA.W]W084.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.330740 through 0.350740



QA filename : OKA100:[ENV\_ALPHA.QA.W]W084.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.0569 through 95.1155

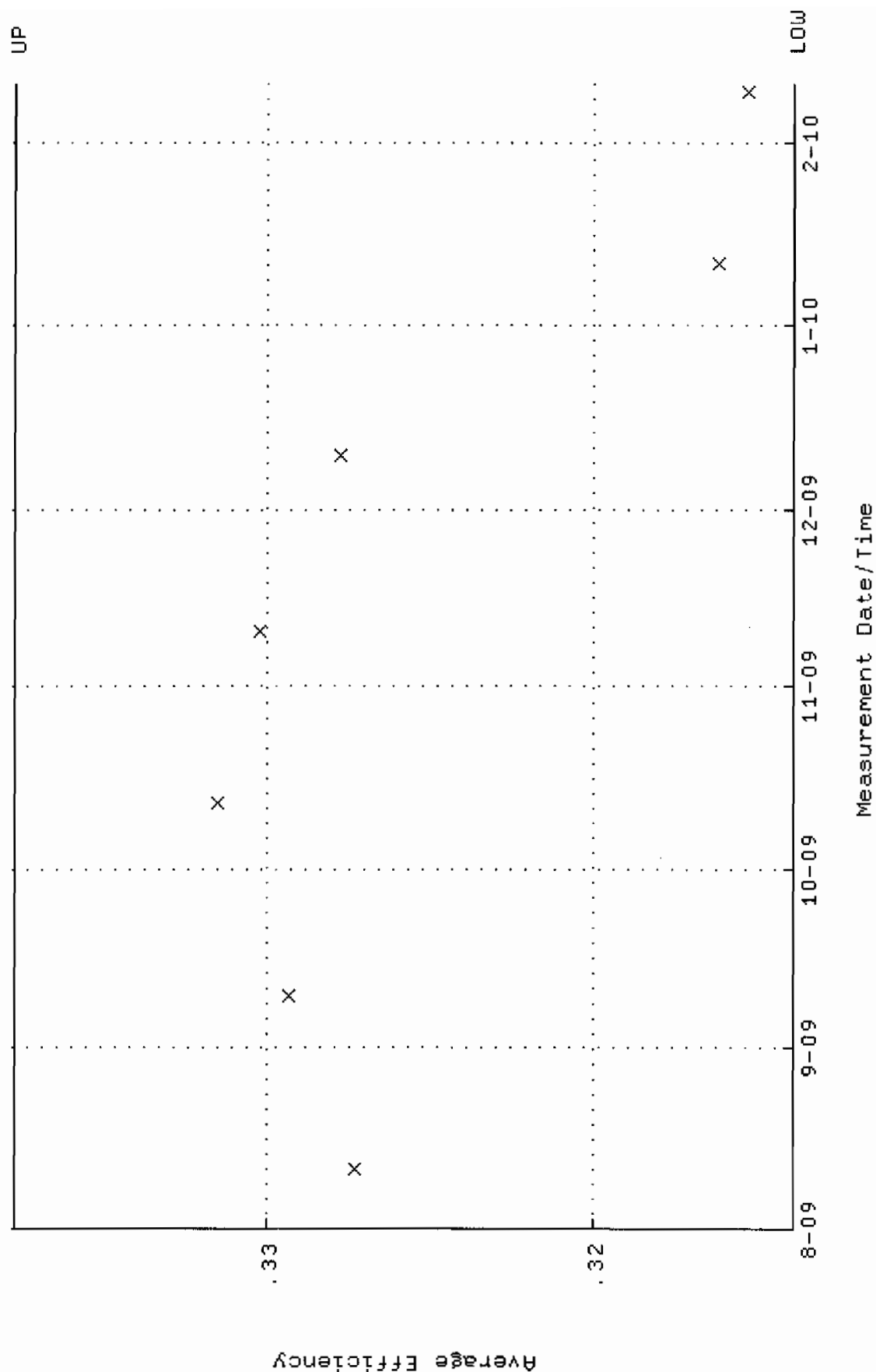


QA filename : DKA100:[ENV\_ALPHA.QA.B]B084.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:41 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

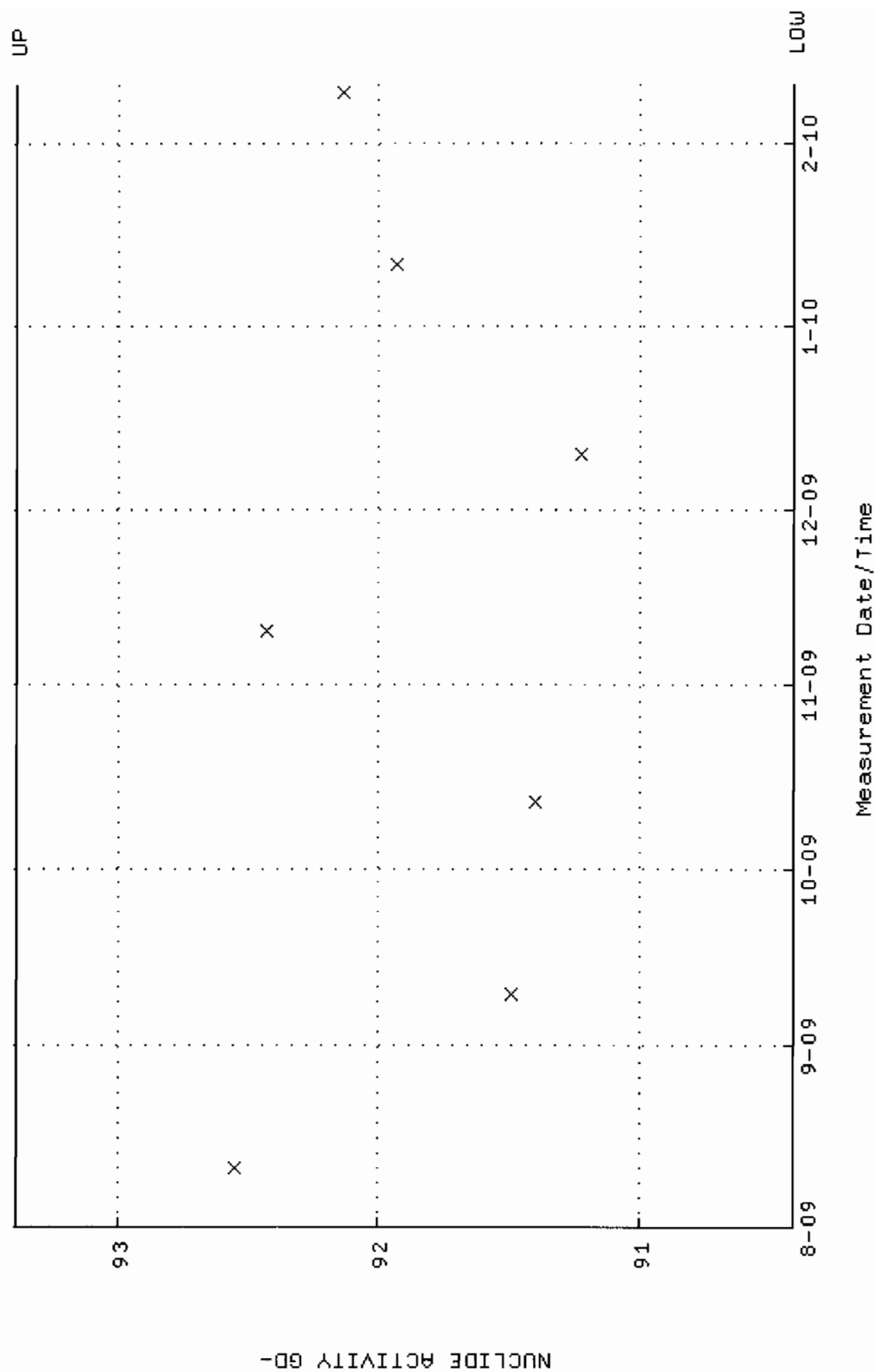




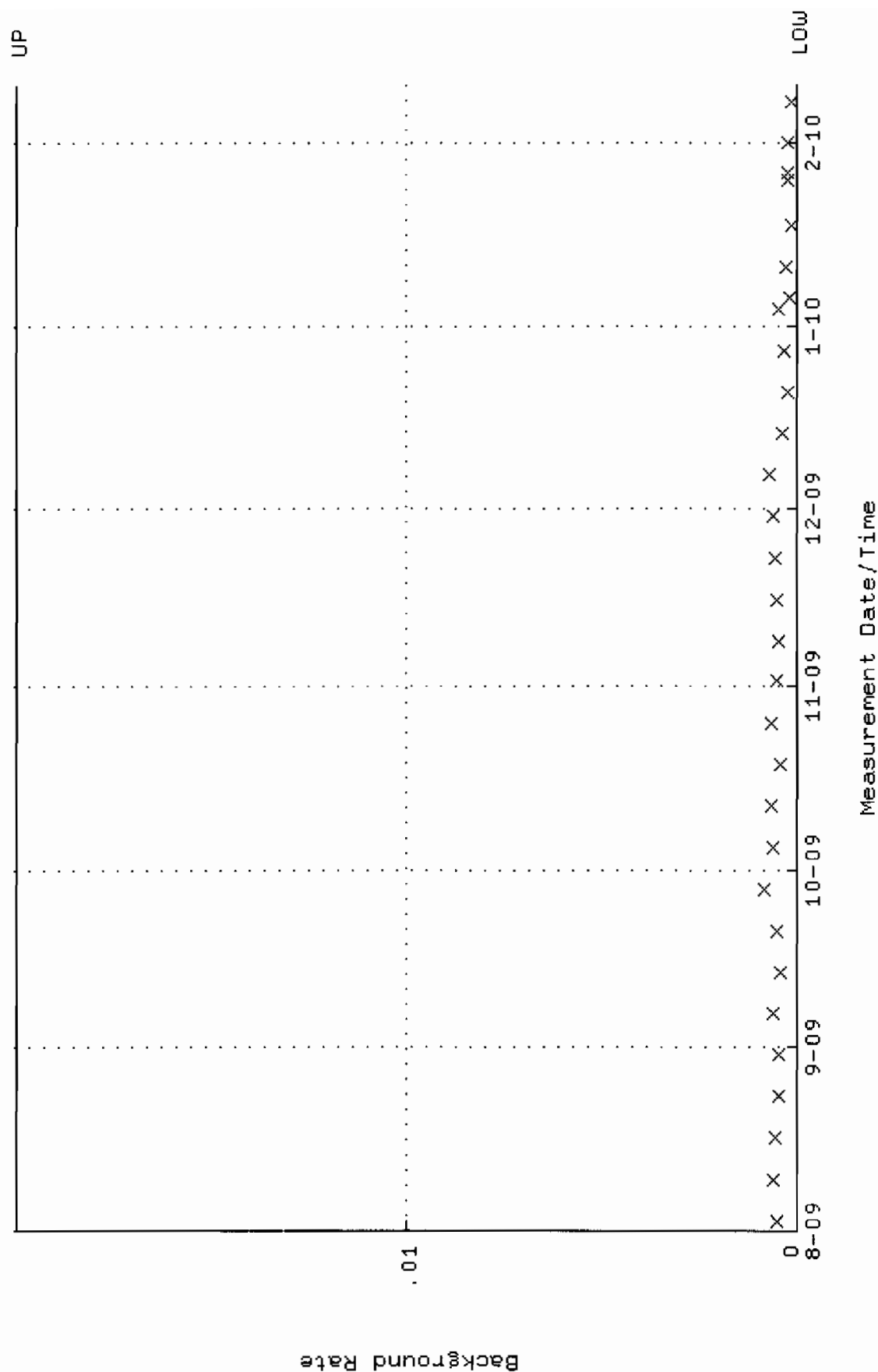
QA filename : DKA100:[ENV\_ALPHA.QA.W]W085.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.313884 through 0.337714



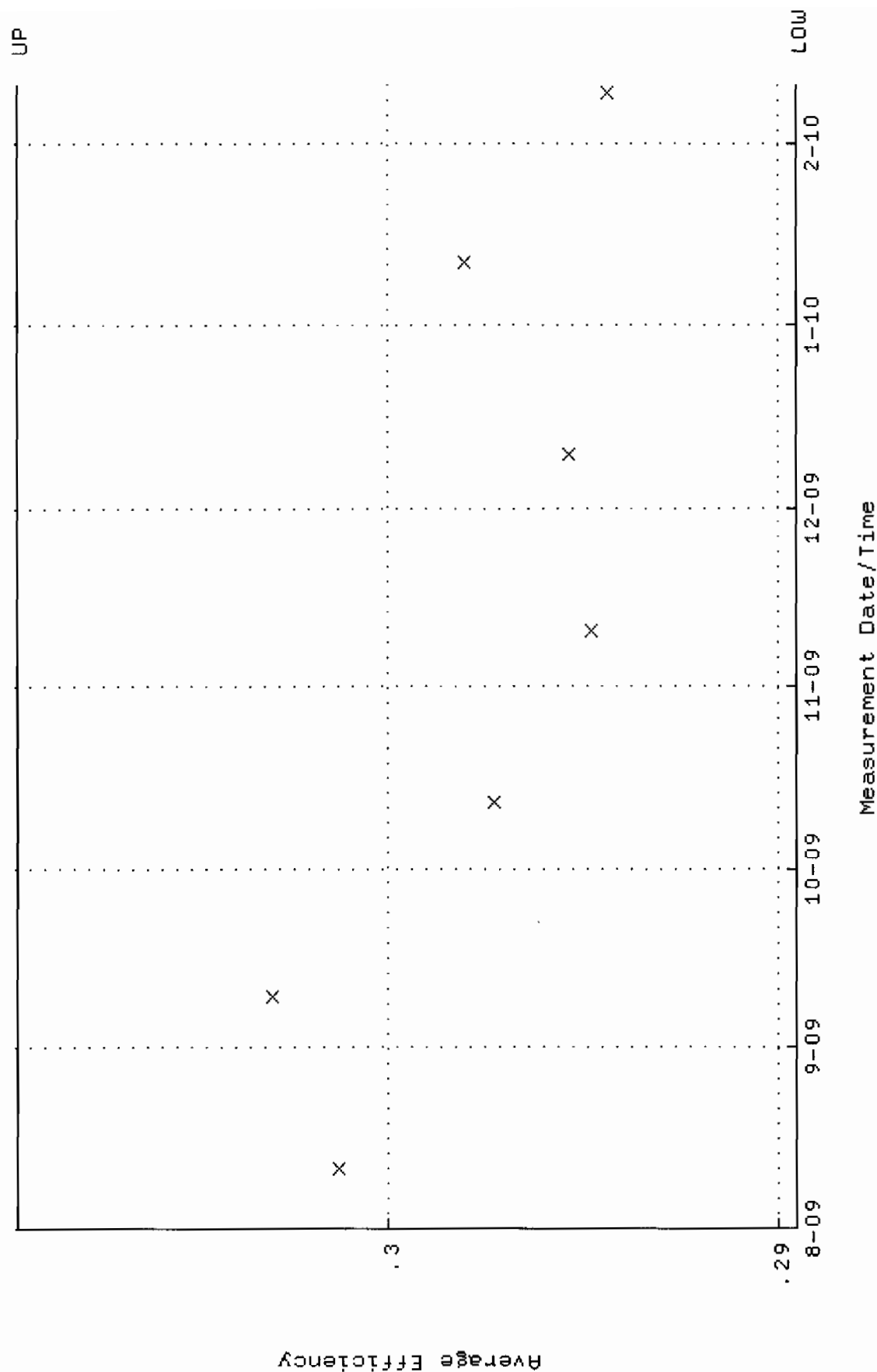
QA filename : DKA100:[ENV\_ALPHA.QA.W]W085.QAF;6  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 90.4059 through 93.3969



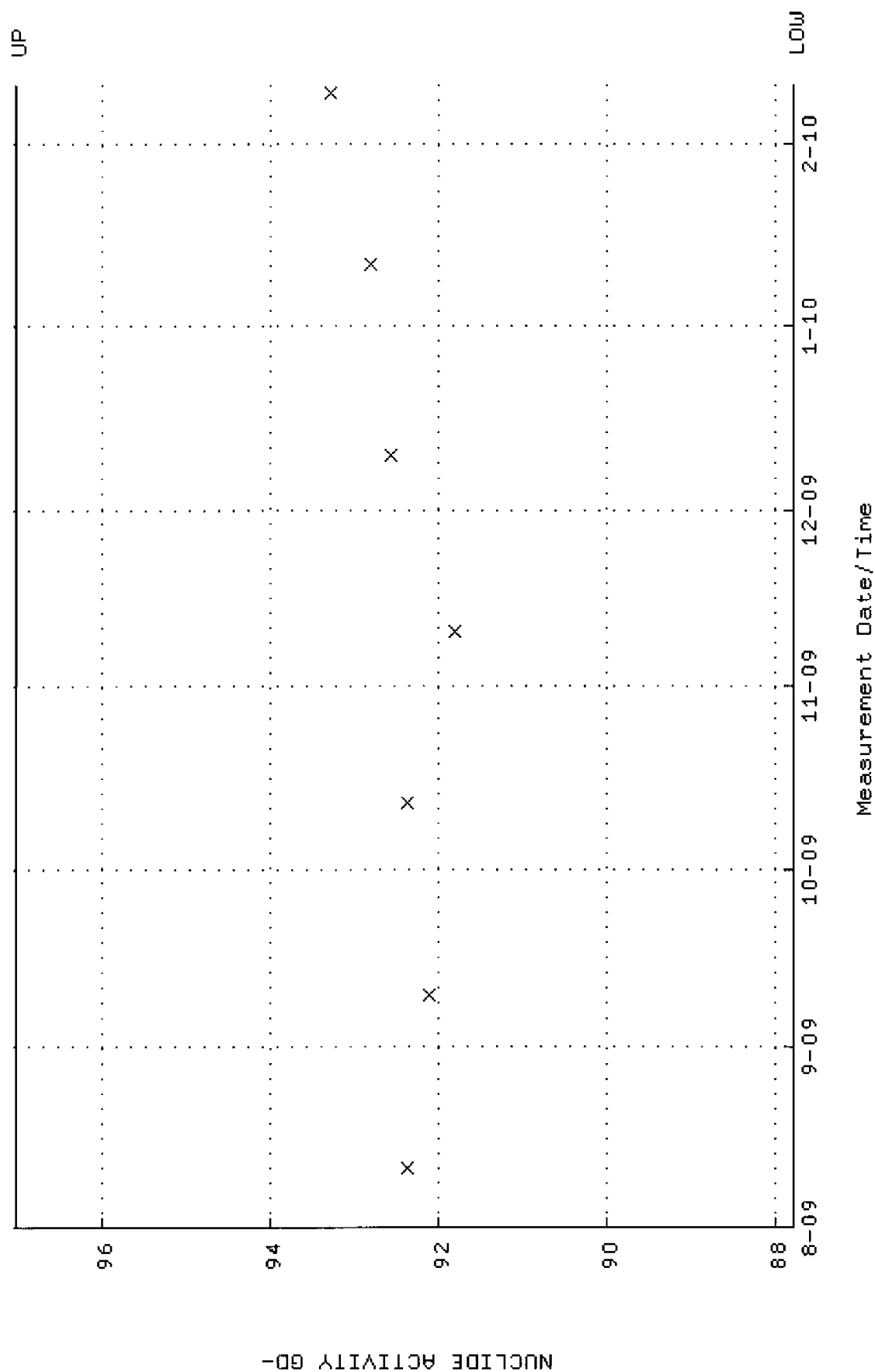
QA filename : DKA100:[ENV\_ALPHA.QA.B]B085.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:41 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.289508 through 0.309508



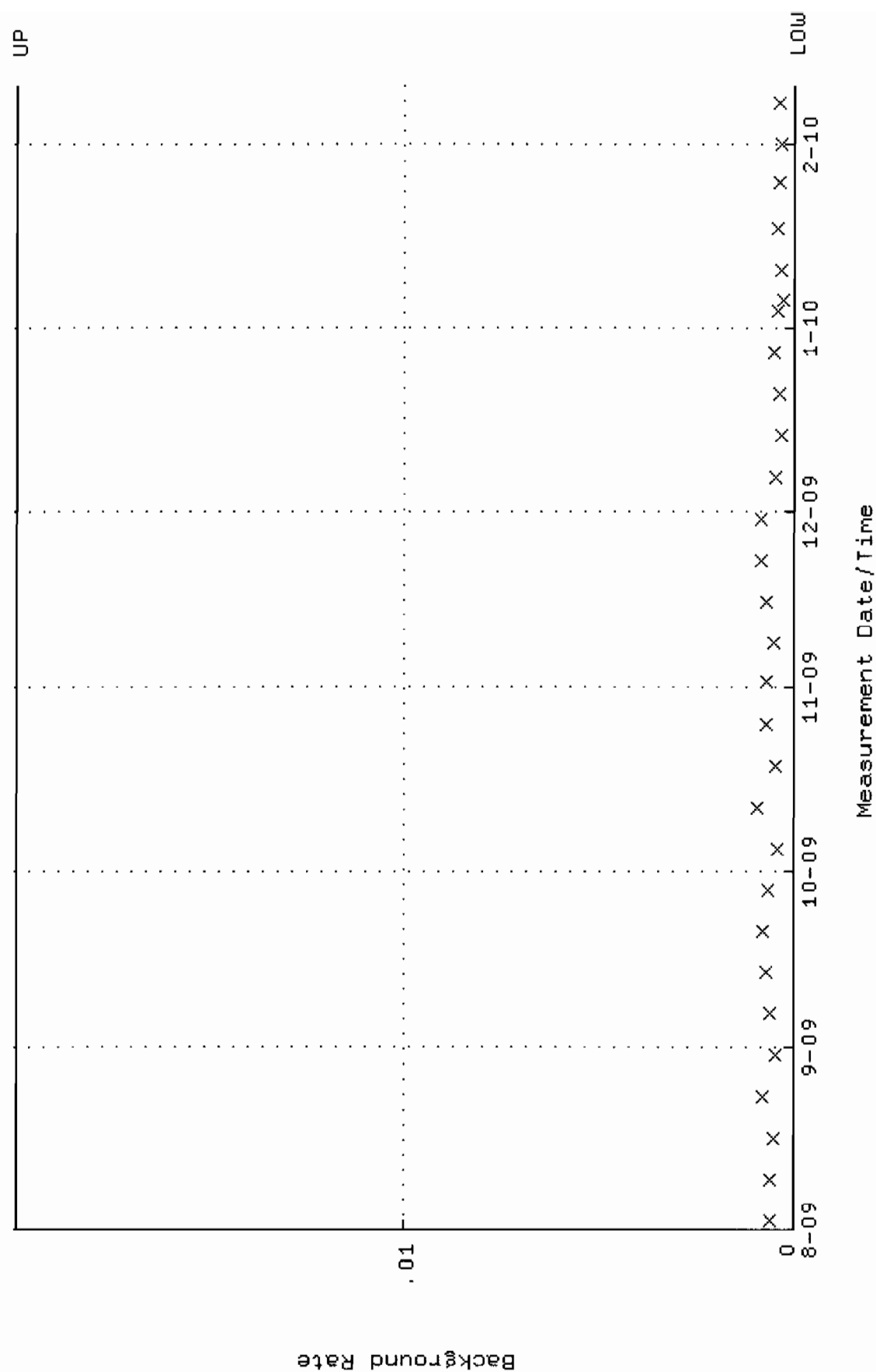
QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.7898 through 97.0308



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QA filename      : DKA100:[ENV-ALPHA.QA.B]B086.QAF:1
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 2-AUG-2009 17:38:41 through 10-FEB-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

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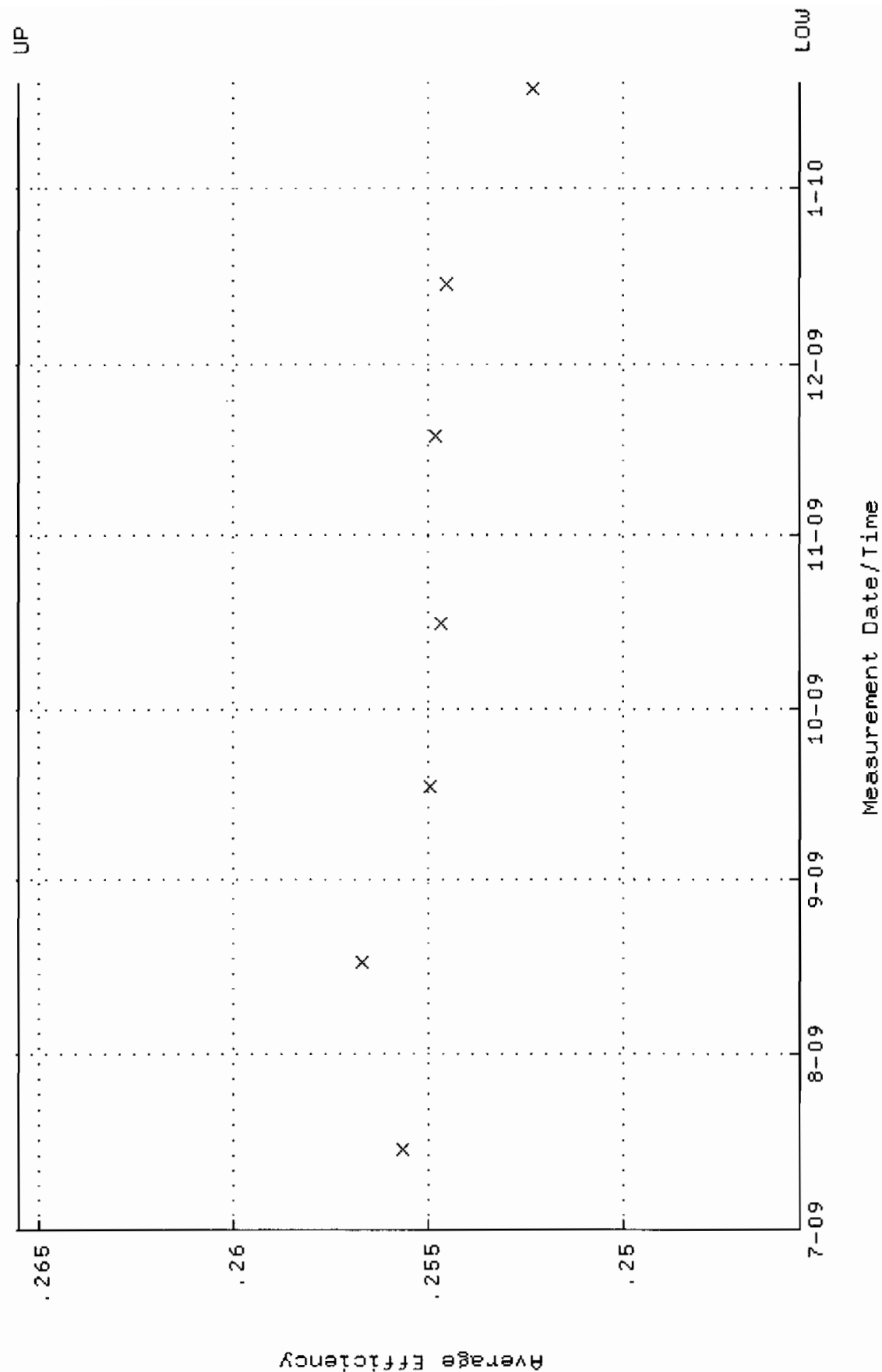


QA filename : DKA100:[ENV\_ALPHA.QA.W]W114.QAF;1

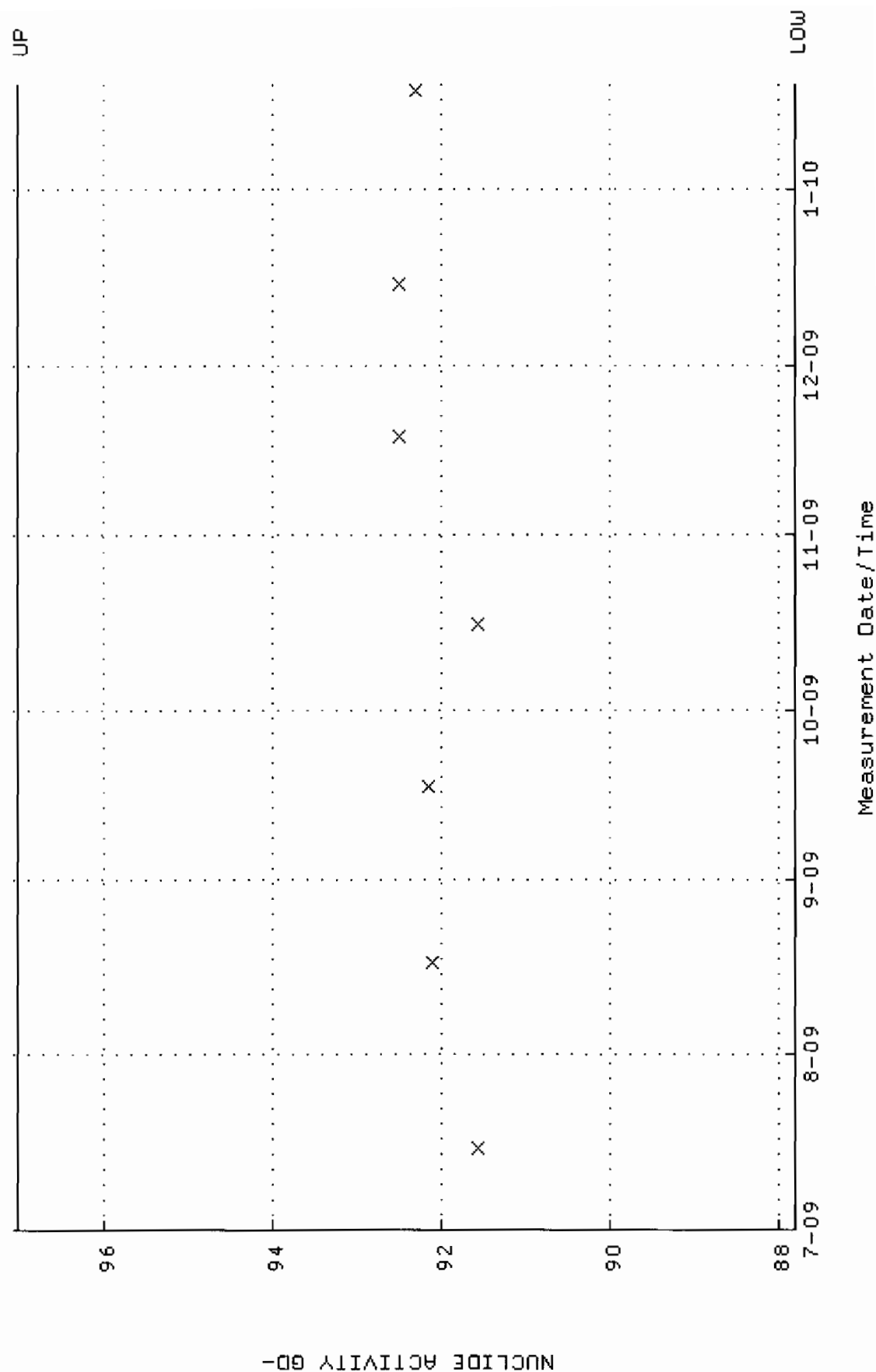
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00

Lower/Upper Lmts: 0.245499 through 0.265499

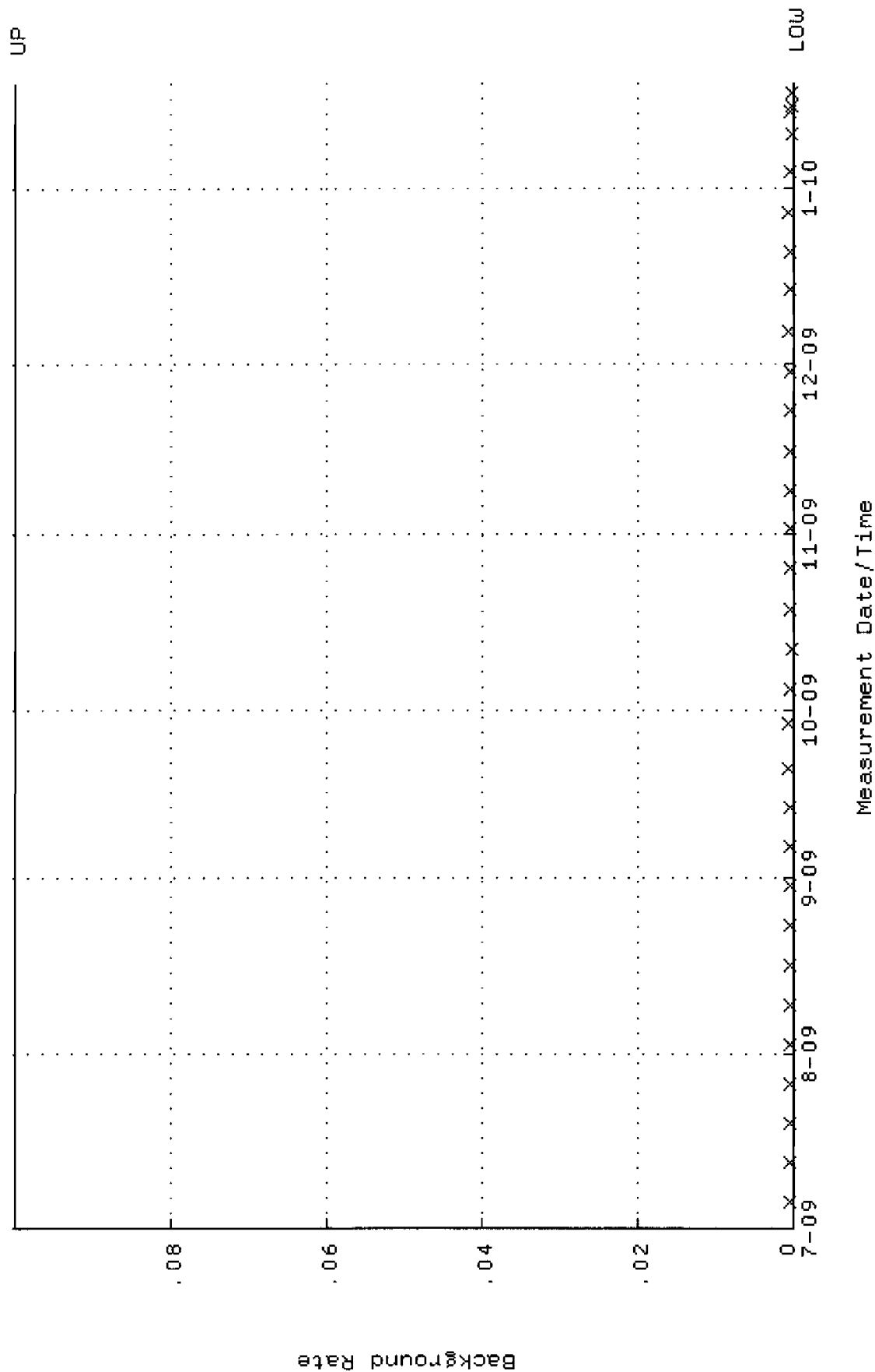


QA filename : DKA100:[ENV\_ALPHA.QA.W]W114.QAF;1  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.8108 through 97.0540





QA filename : DKA100:[ENV\_ALPHA.QA.B]B114.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:49 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

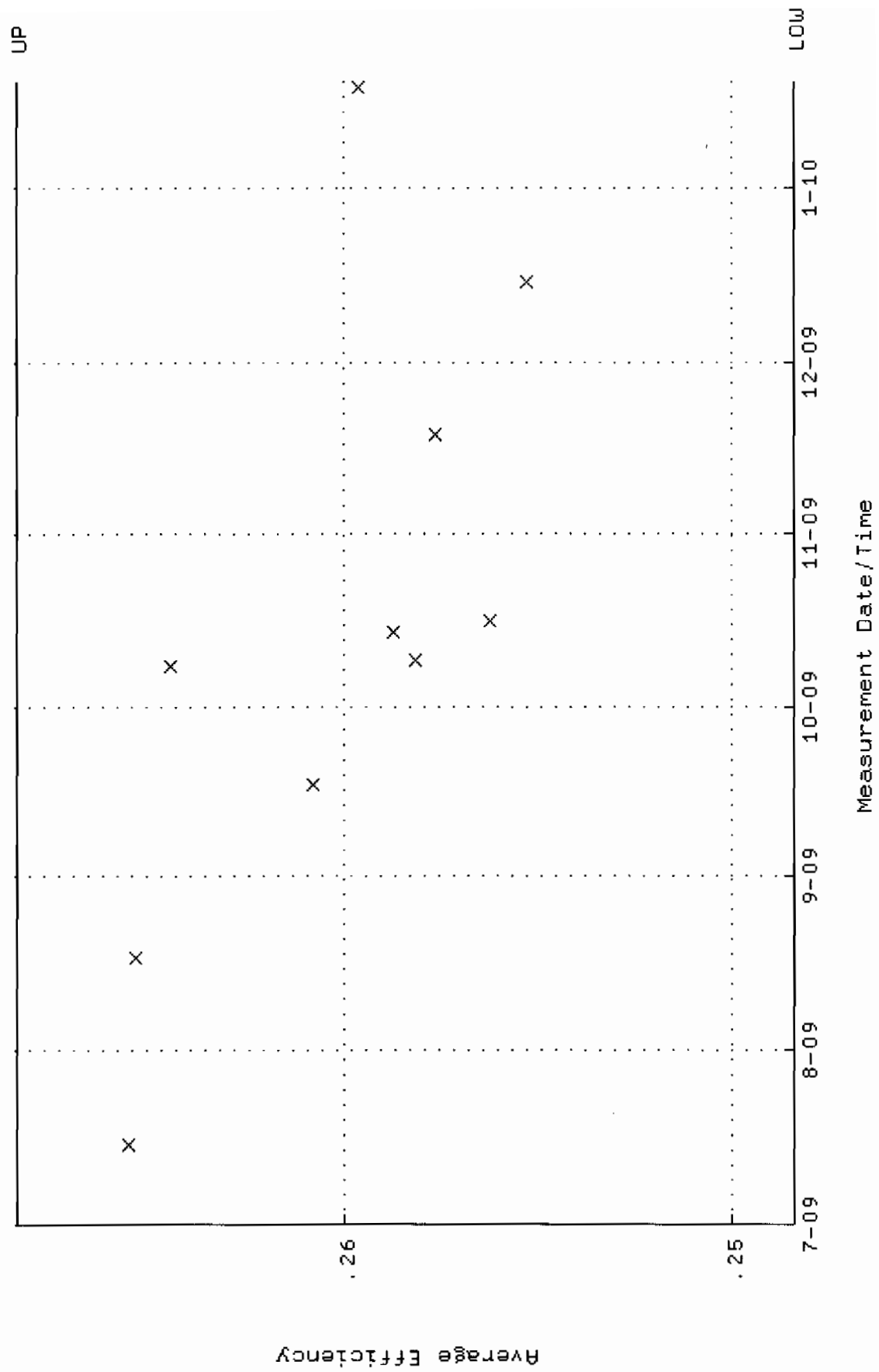


QA filename : DKA100:[ENV\_ALPHA.QA.W]W115.QAF;1

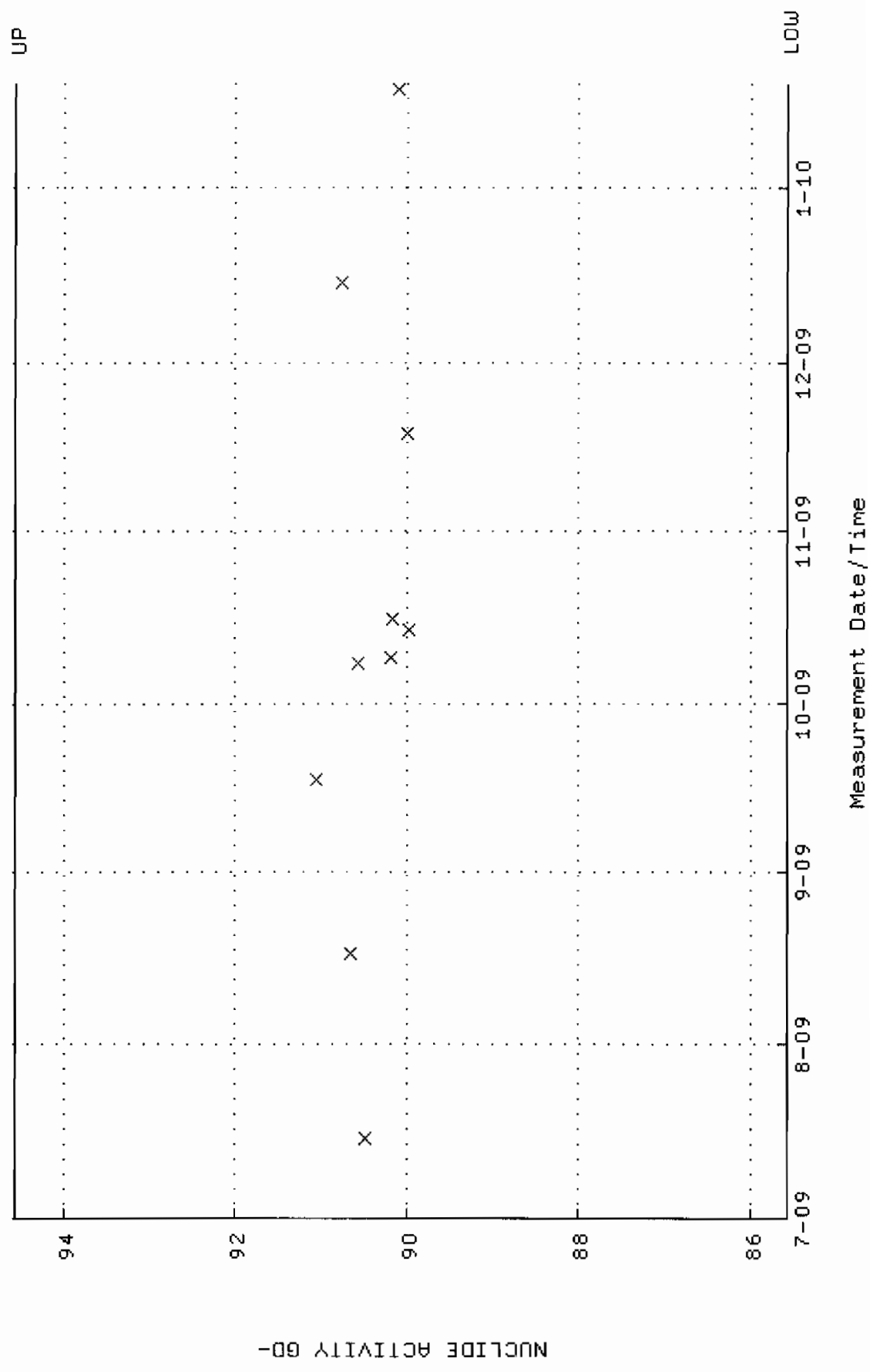
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00

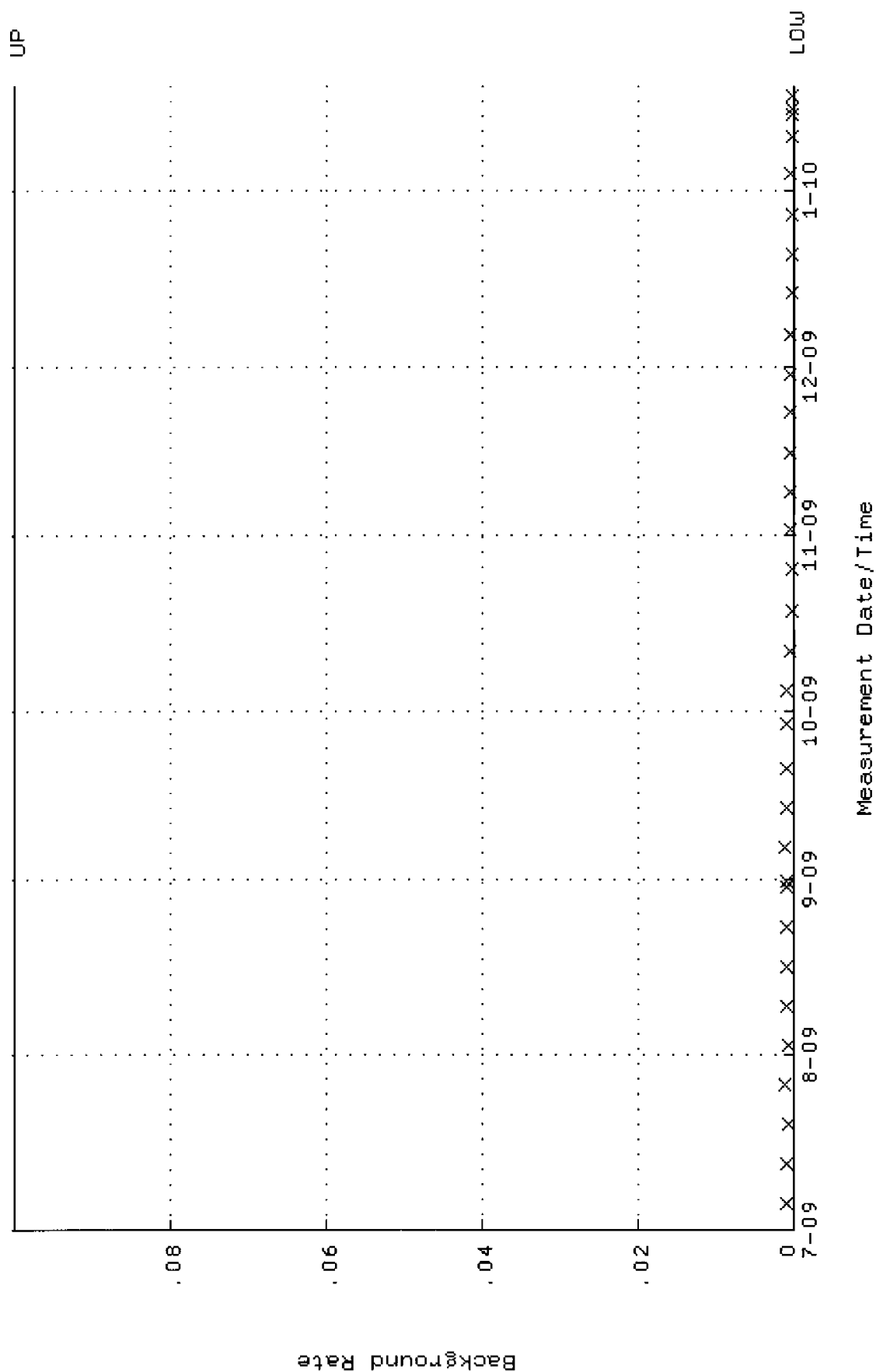
Lower/Upper Lmts: 0.248404 through 0.268404



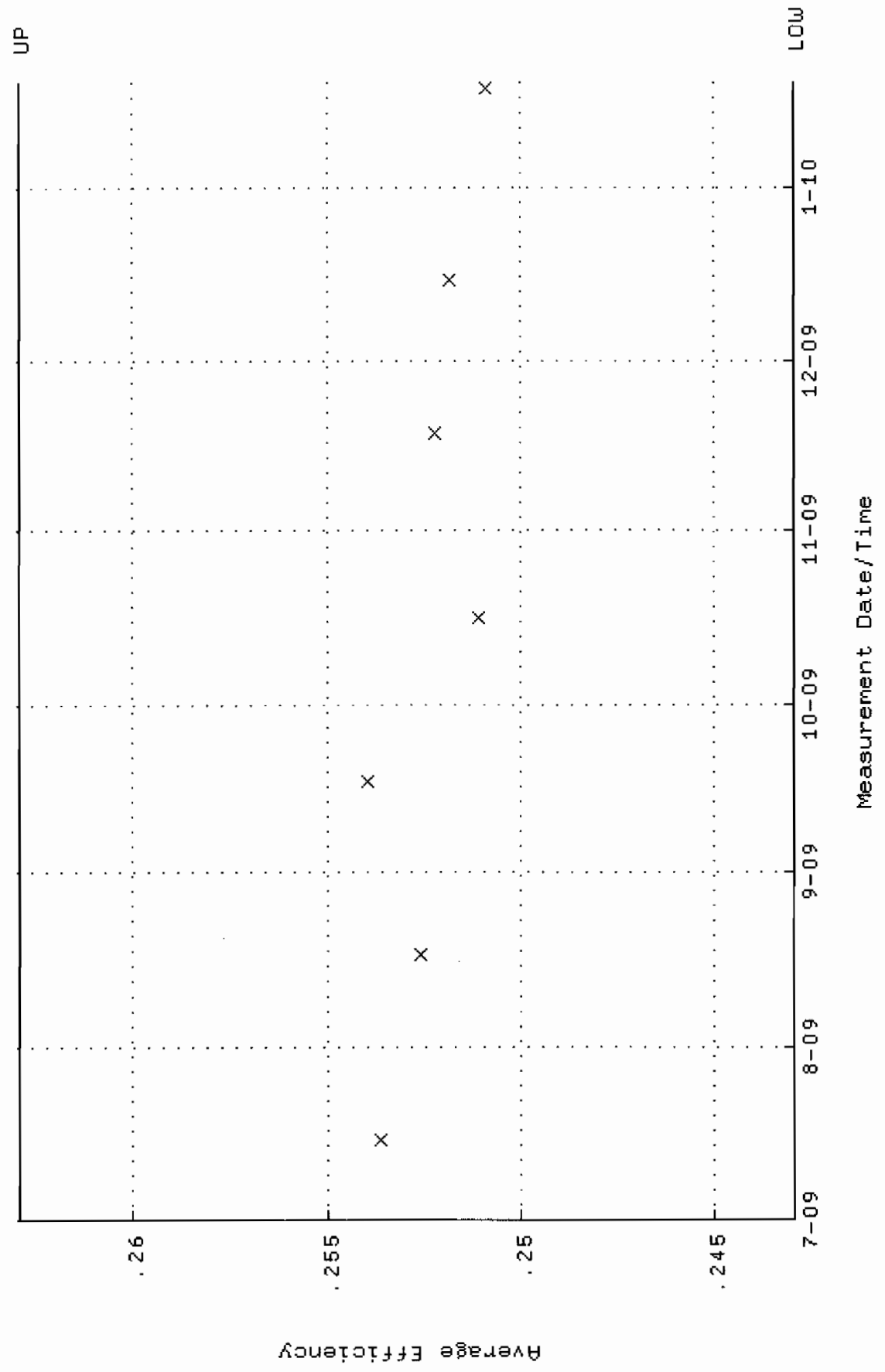
QA filename : DKA100:[ENV\_ALPHA.QA.W]w115.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.5661 through 94.5731



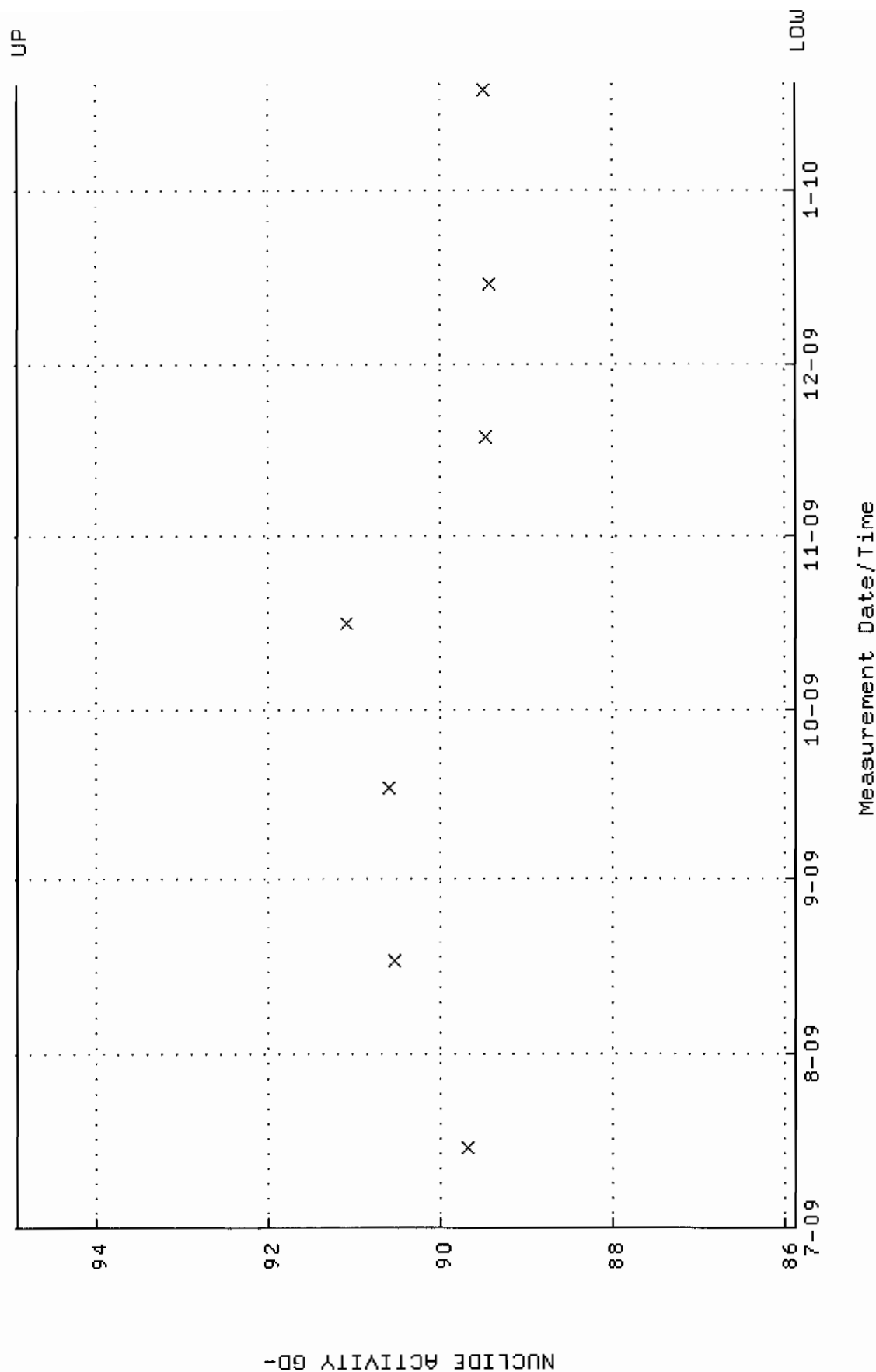
QA filename : DKA100:[ENV\_ALPHA.QA.B]B115.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:54 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



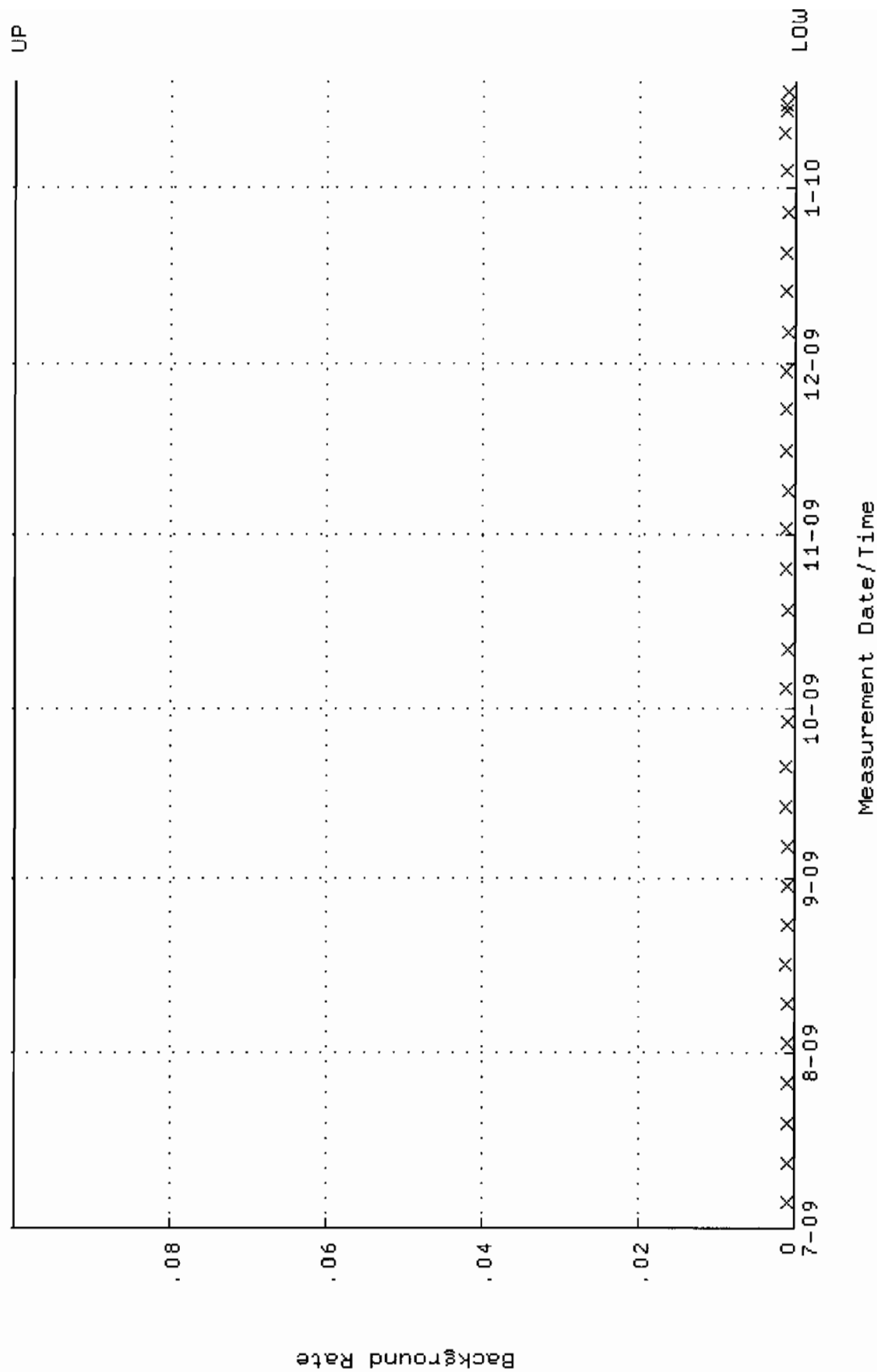
QA filename : DKA100:[ENV\_ALPHA.QA.W]W117.QAF;1  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 15-JUL-2009 08:38:07 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.242940 through 0.262940



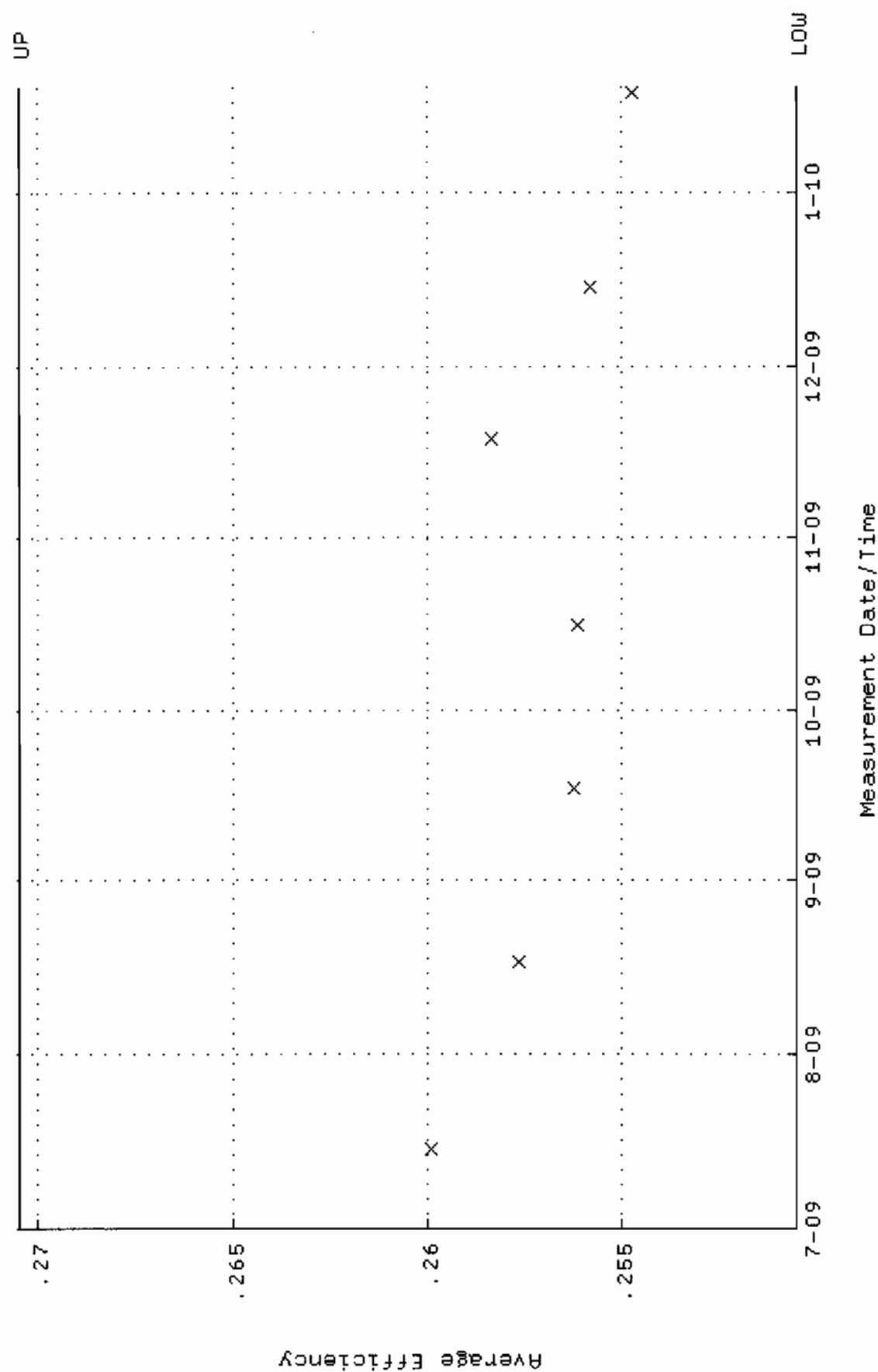
QA filename : DKA100:[ENV\_ALPHA.QA.W]W117.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:07 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8693 through 94.9081



QA filename : DKA100:[ENV\_ALPHA.QA.B]B117.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:03 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

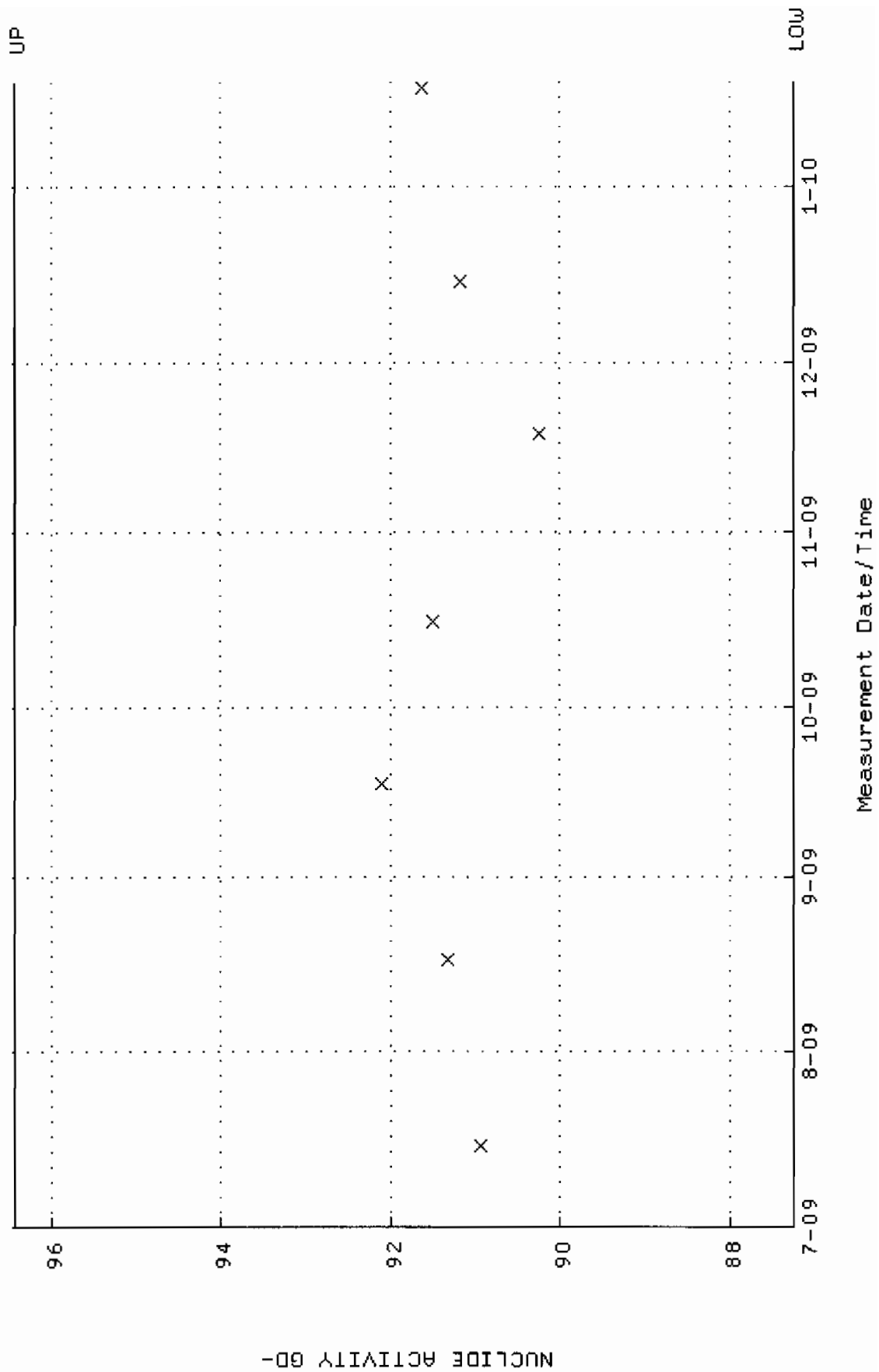


QA filename : DKA100:[ENV\_ALPHA.QA.W]W118.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250490 through 0.270490

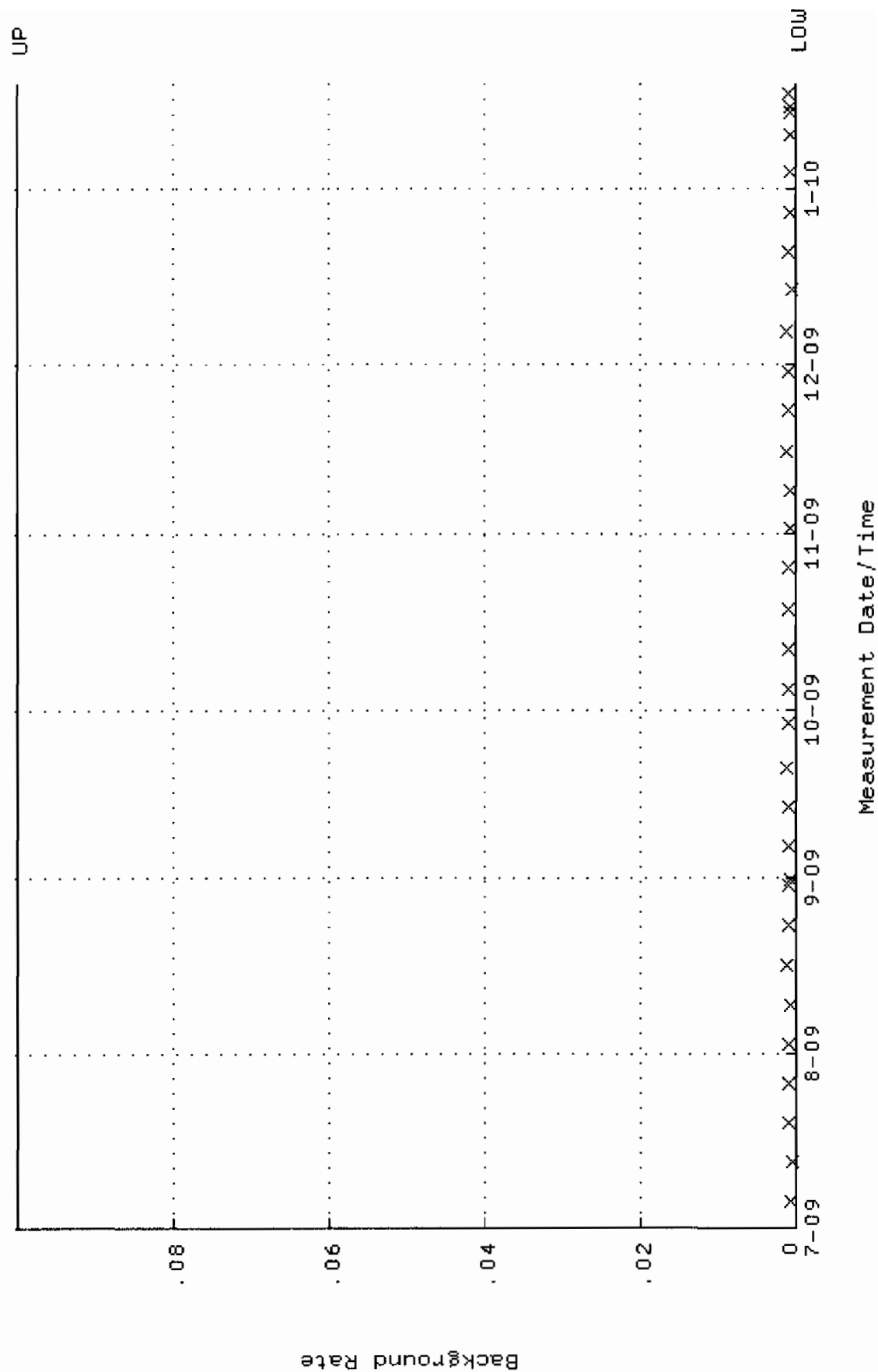




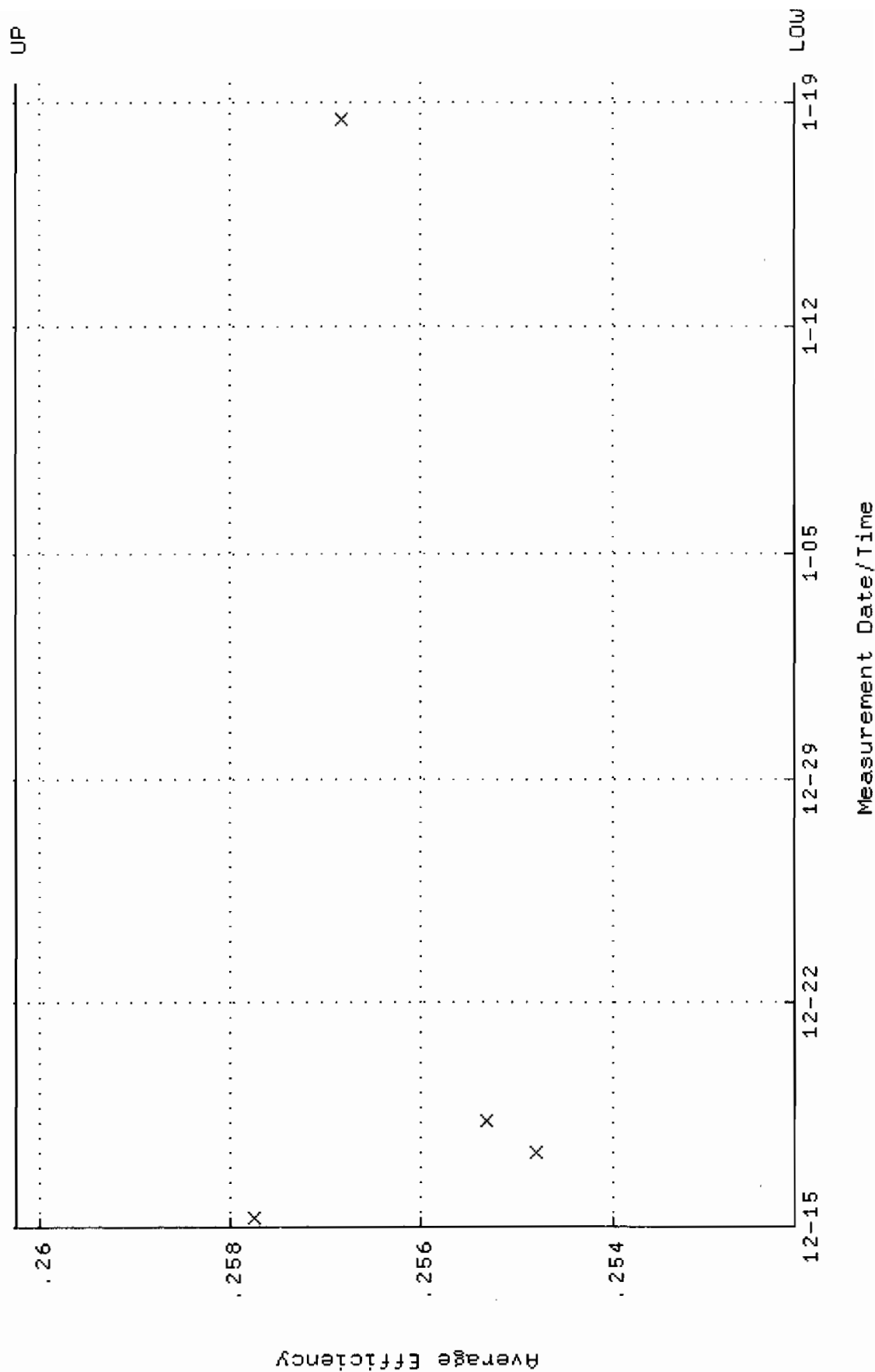
QA filename : DKA100:[ENV\_ALPHA.QA.W]W118.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.2440 through 96.4276



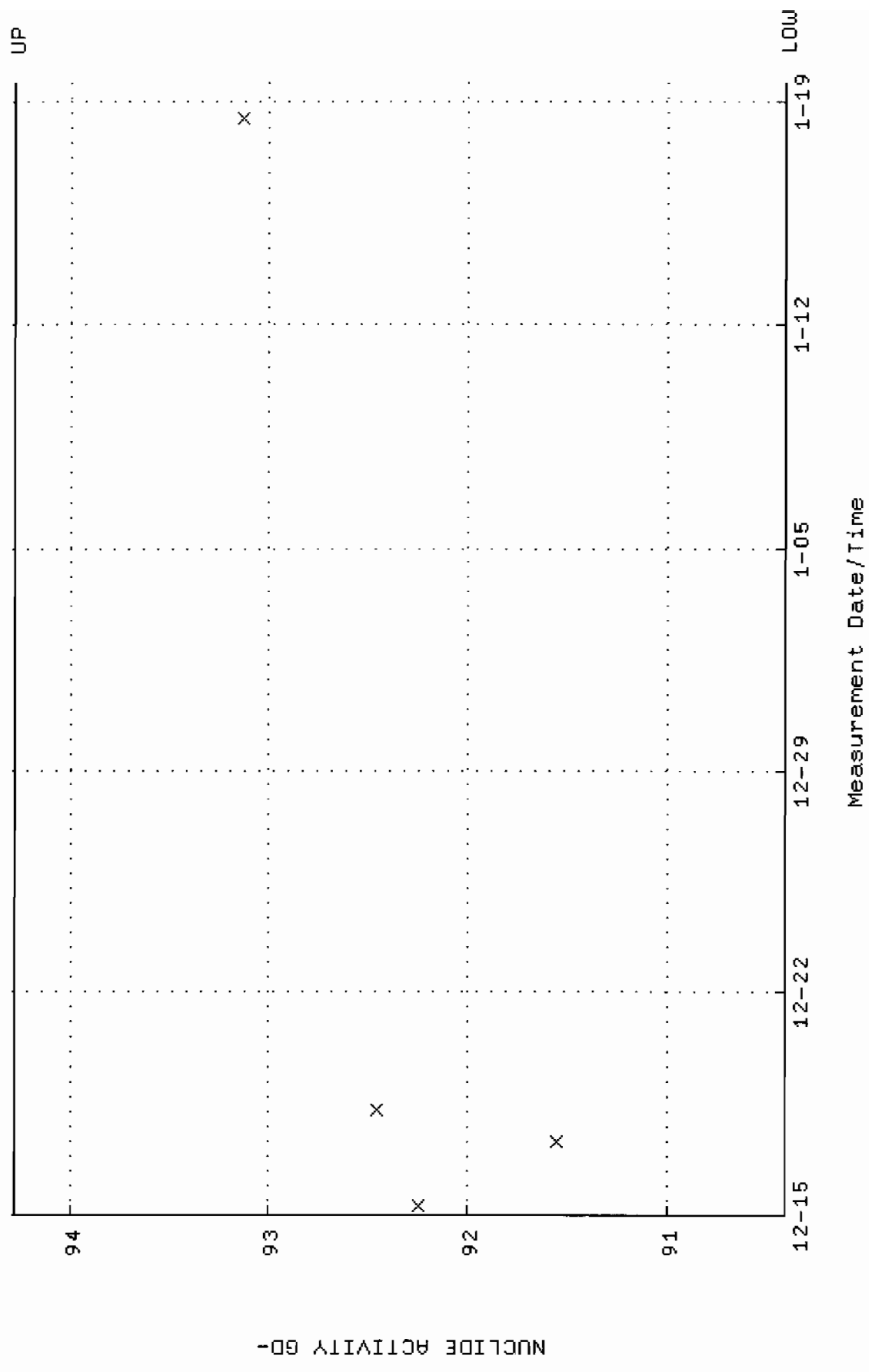
QA filename : DKA100:[ENV\_ALPHA.QA.B]B118.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:08 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



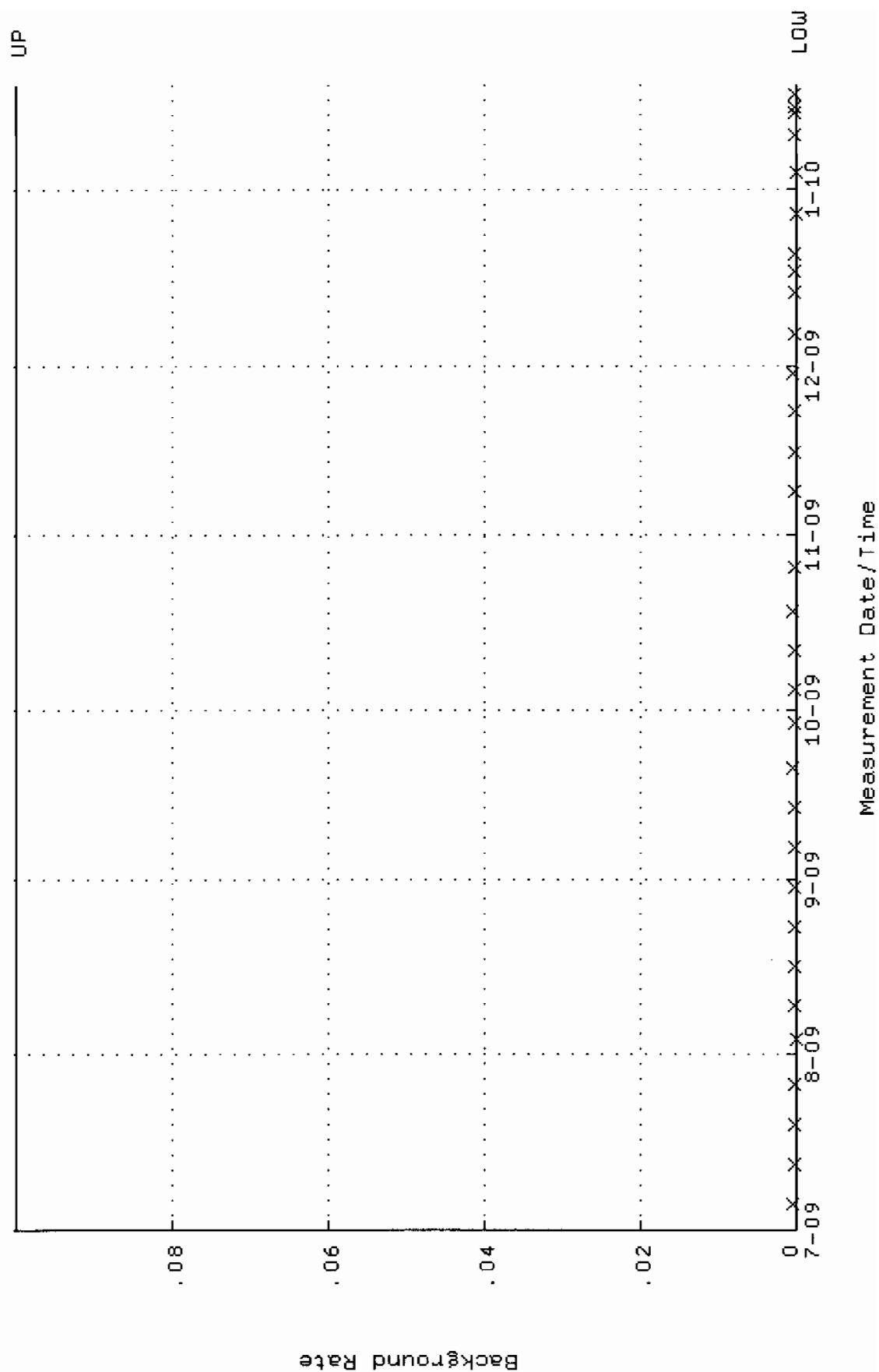
QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.252093 through 0.260243



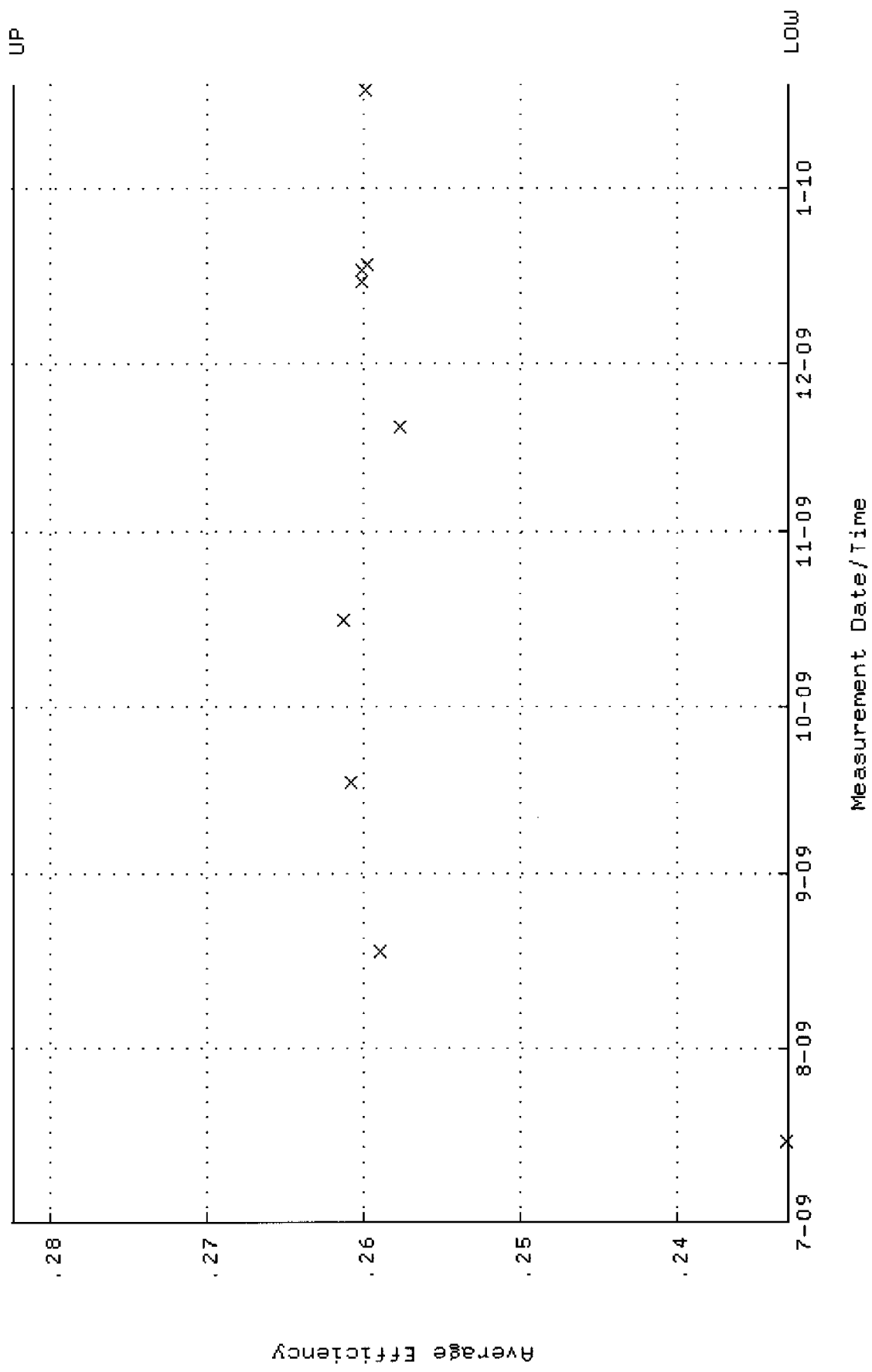
QA filename : DKA100:[ENV\_ALPHA.QA.W]w119.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 15-DEC-2009 06:21:52 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 90.4107 through 94.2781



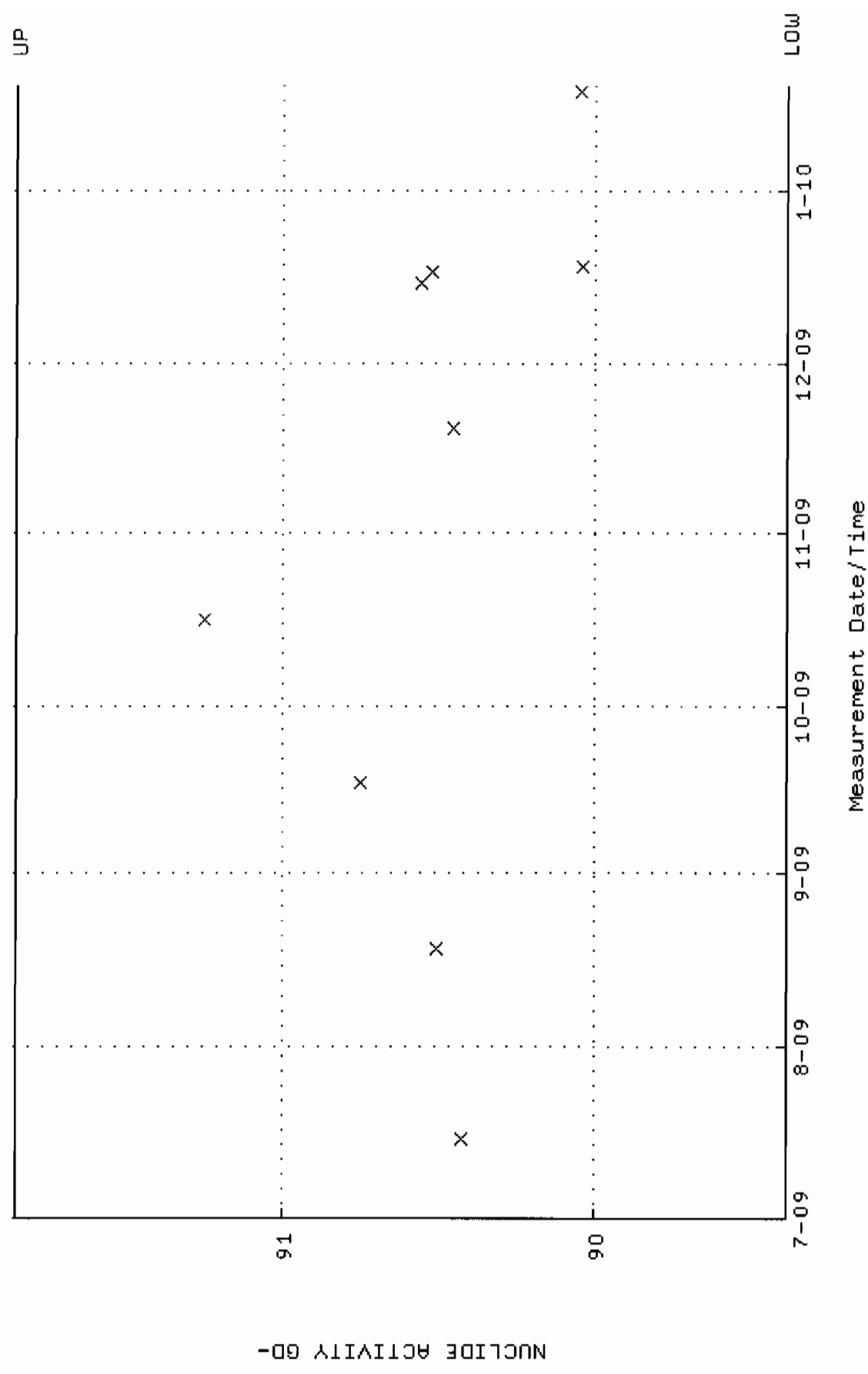
QA filename : DKA100:[ENV\_ALPHA.QA.B]B119.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:14 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



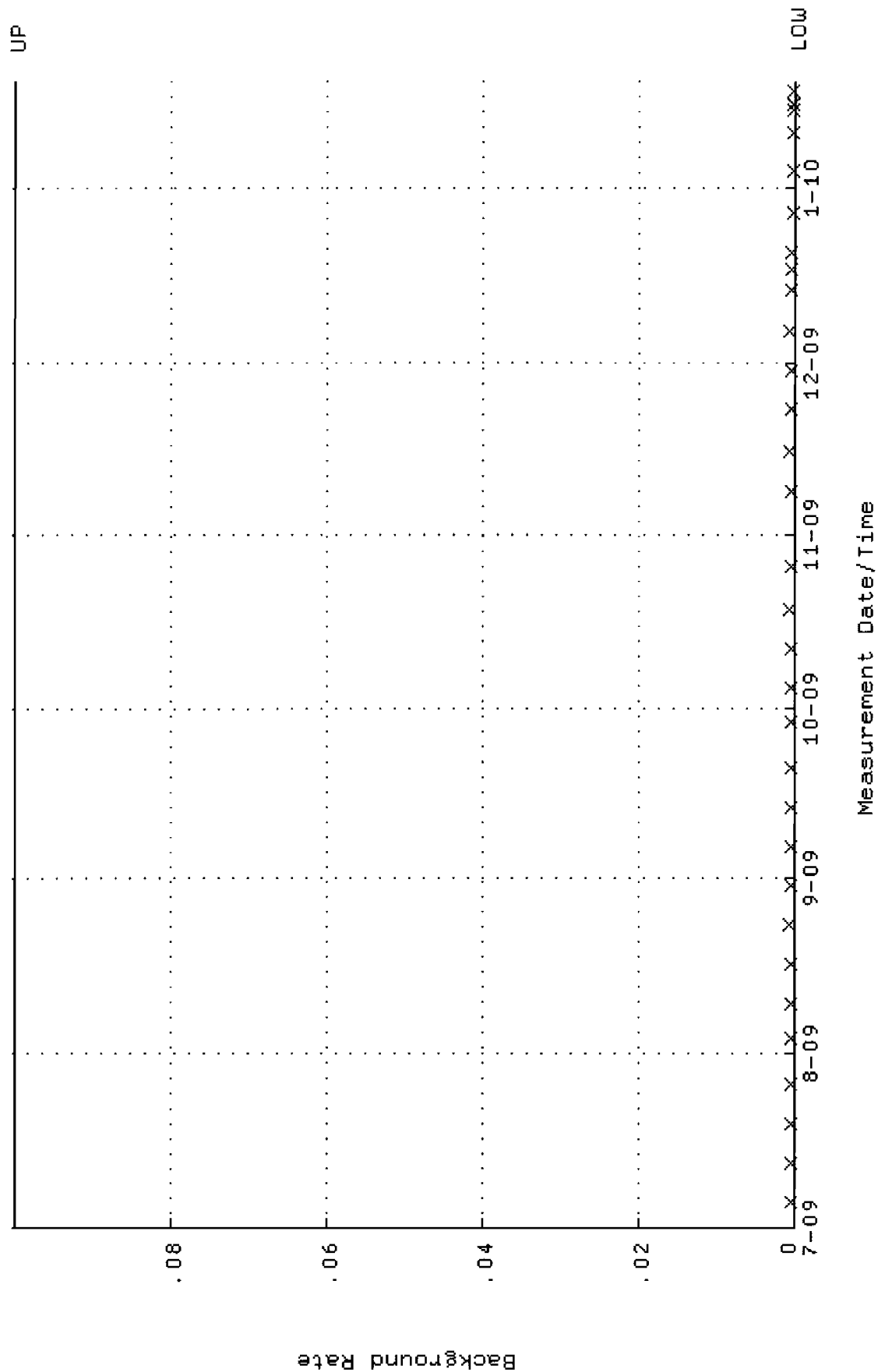
QA filename : DKA100:[ENV\_ALPHA.QA.W]W120.QAF;1  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 15-JUL-2009 08:38:20 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.232847 through 0.282381



QA filename : DKA100:[ENV\_ALPHA.QA.W]W120.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 15-JUL-2009 08:38:20 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 89.3881 through 91.8481

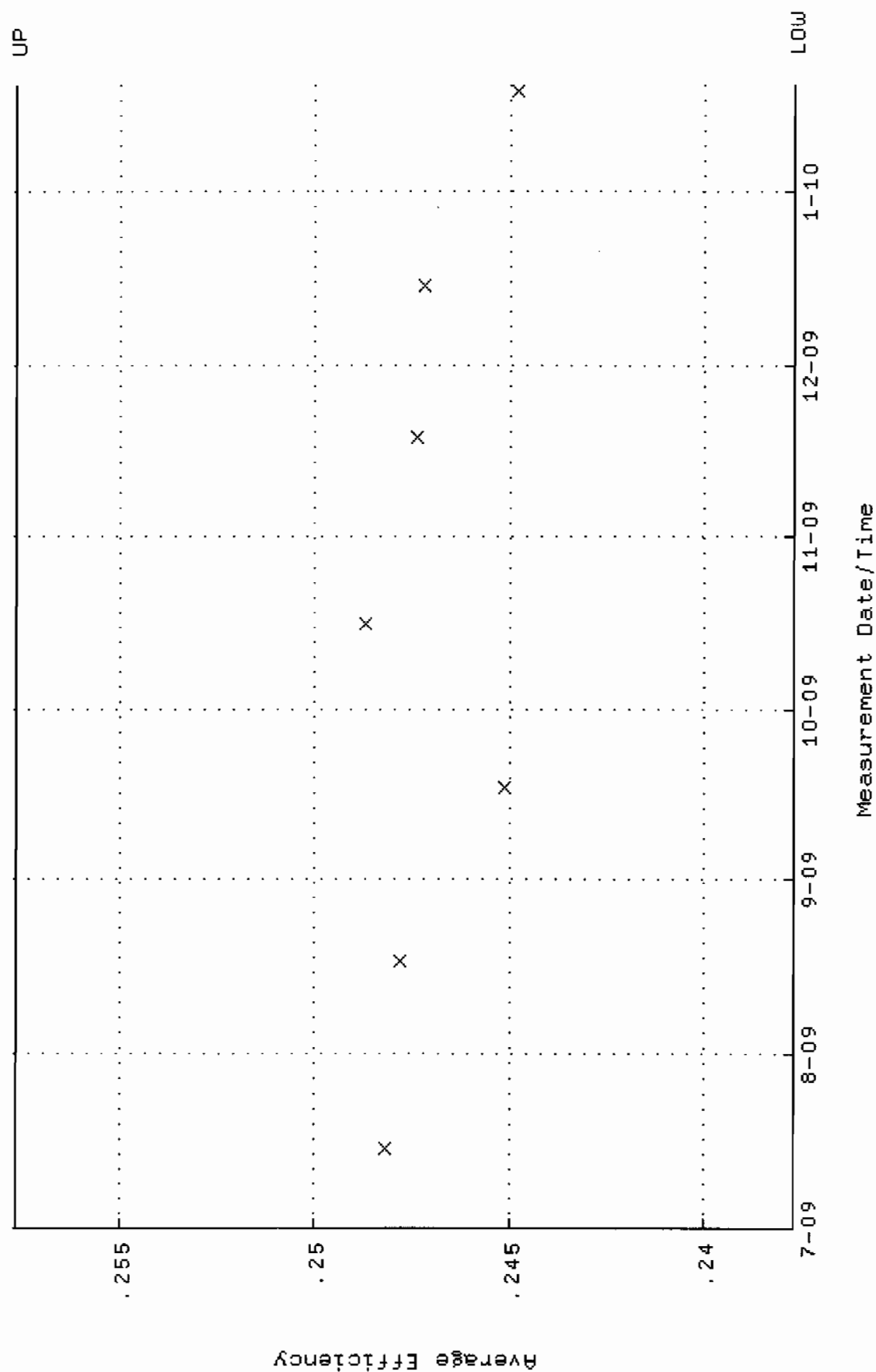


QA filename : DKA100:[ENV\_ALPHA.QA.B]B120.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:20 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

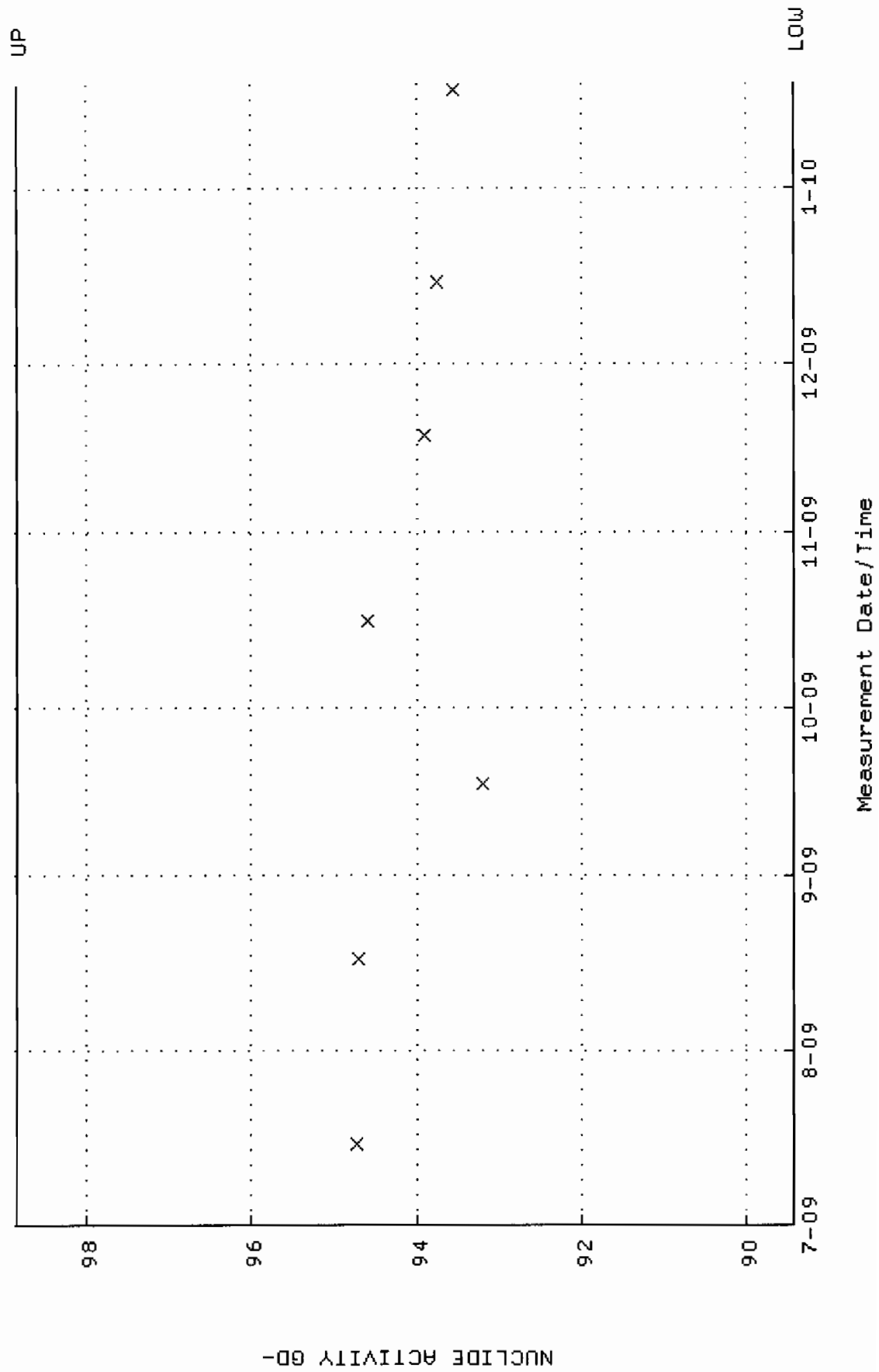




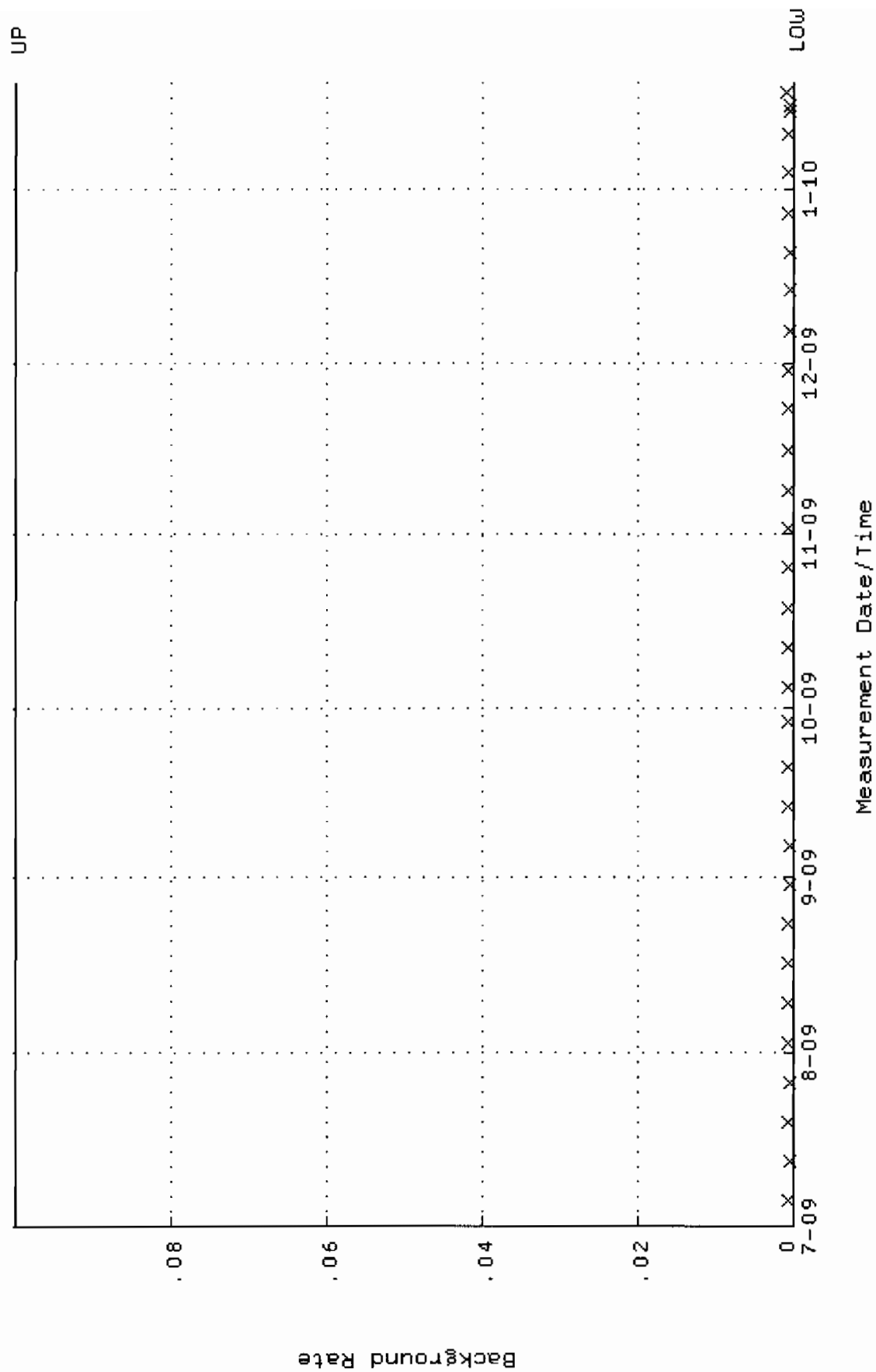
QA filename : DKA100:[ENV\_ALPHA.QA.W]W121.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:24 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.237686 through 0.257686



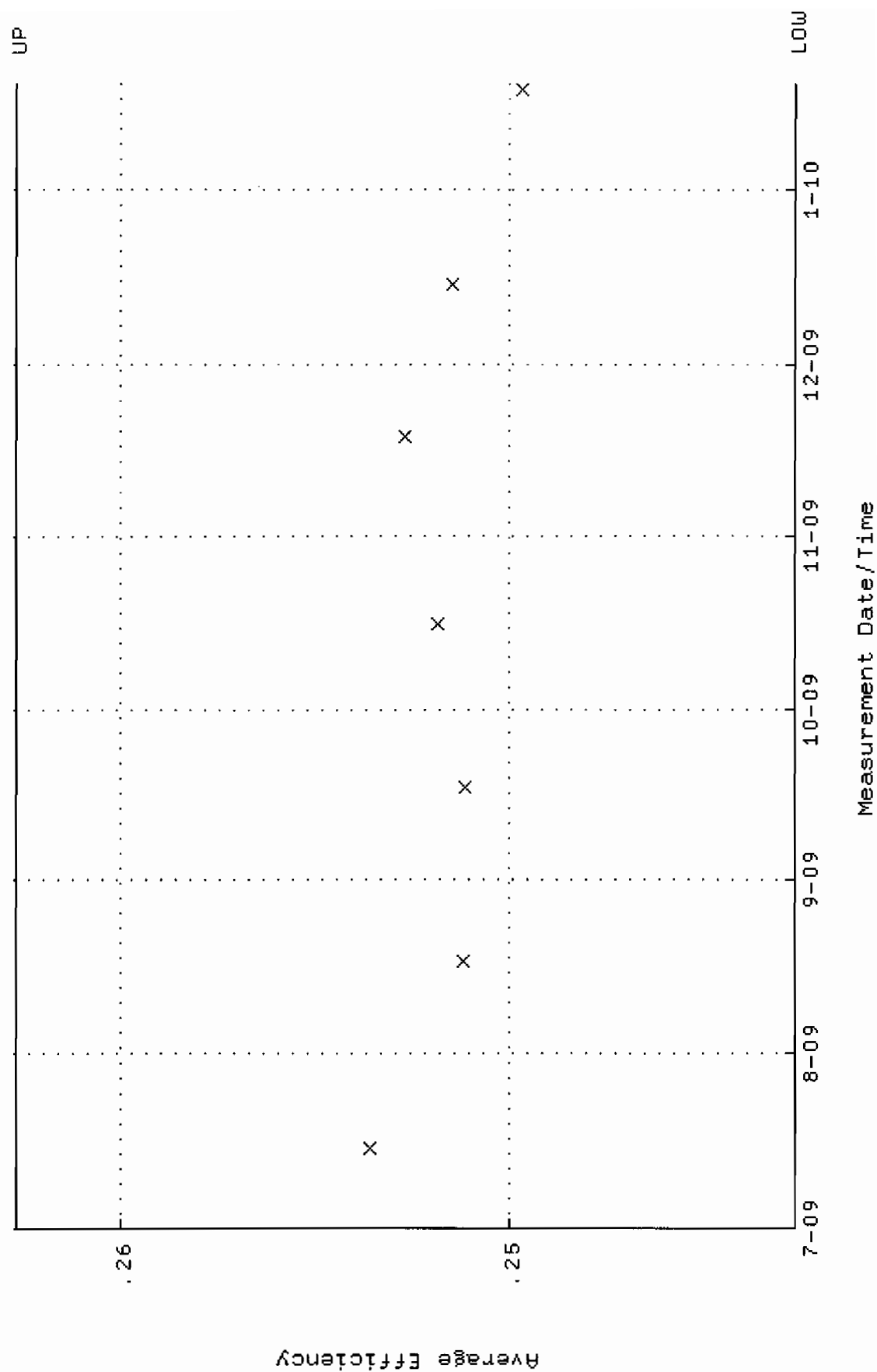
QA filename : DKA100:[ENV\_ALPHA,QA,w]W121.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:24 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 89.4263 through 98.8395



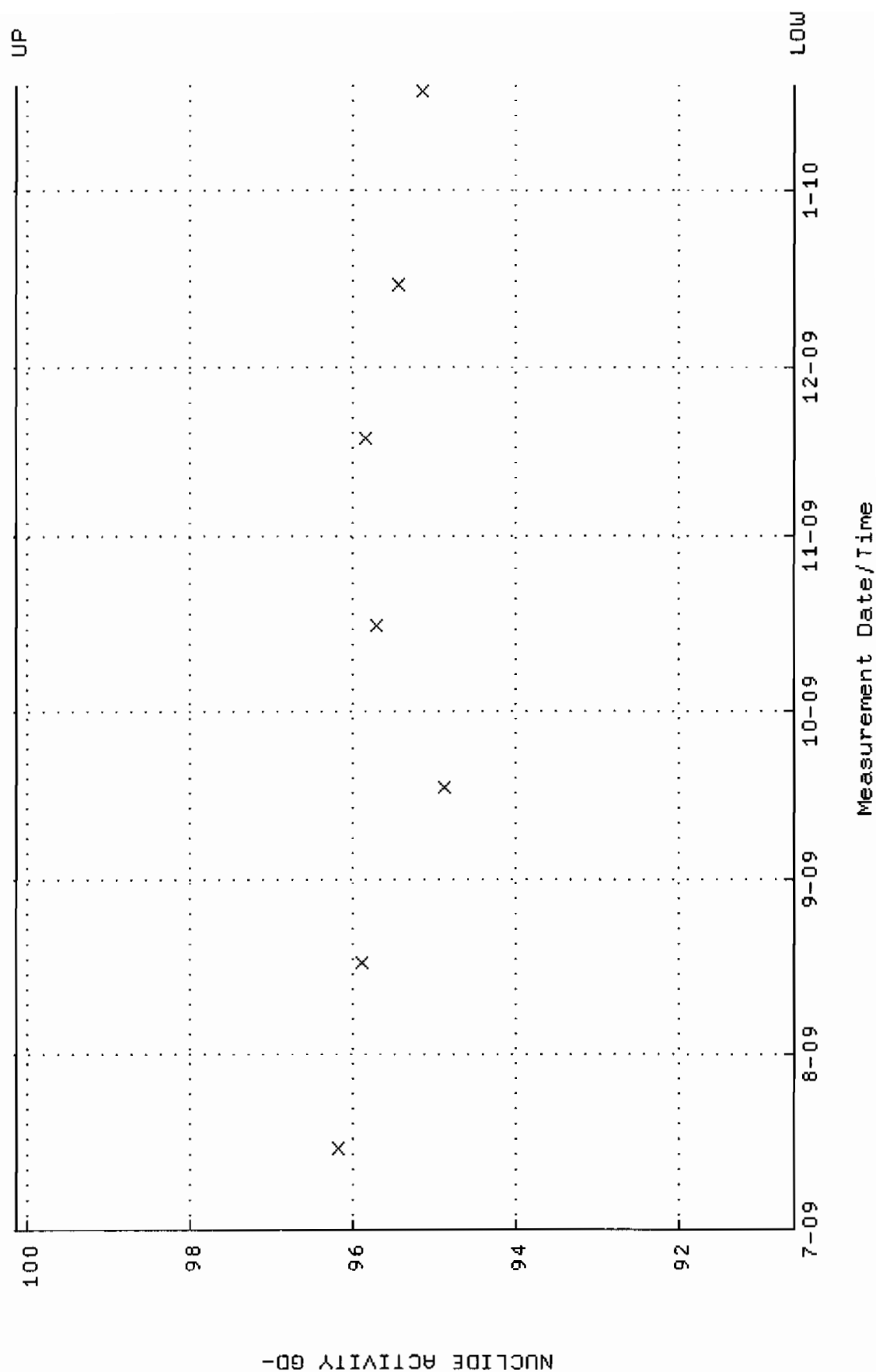
QA filename : DKA100:[ENV\_ALPHA.QA.B]B121.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:25 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



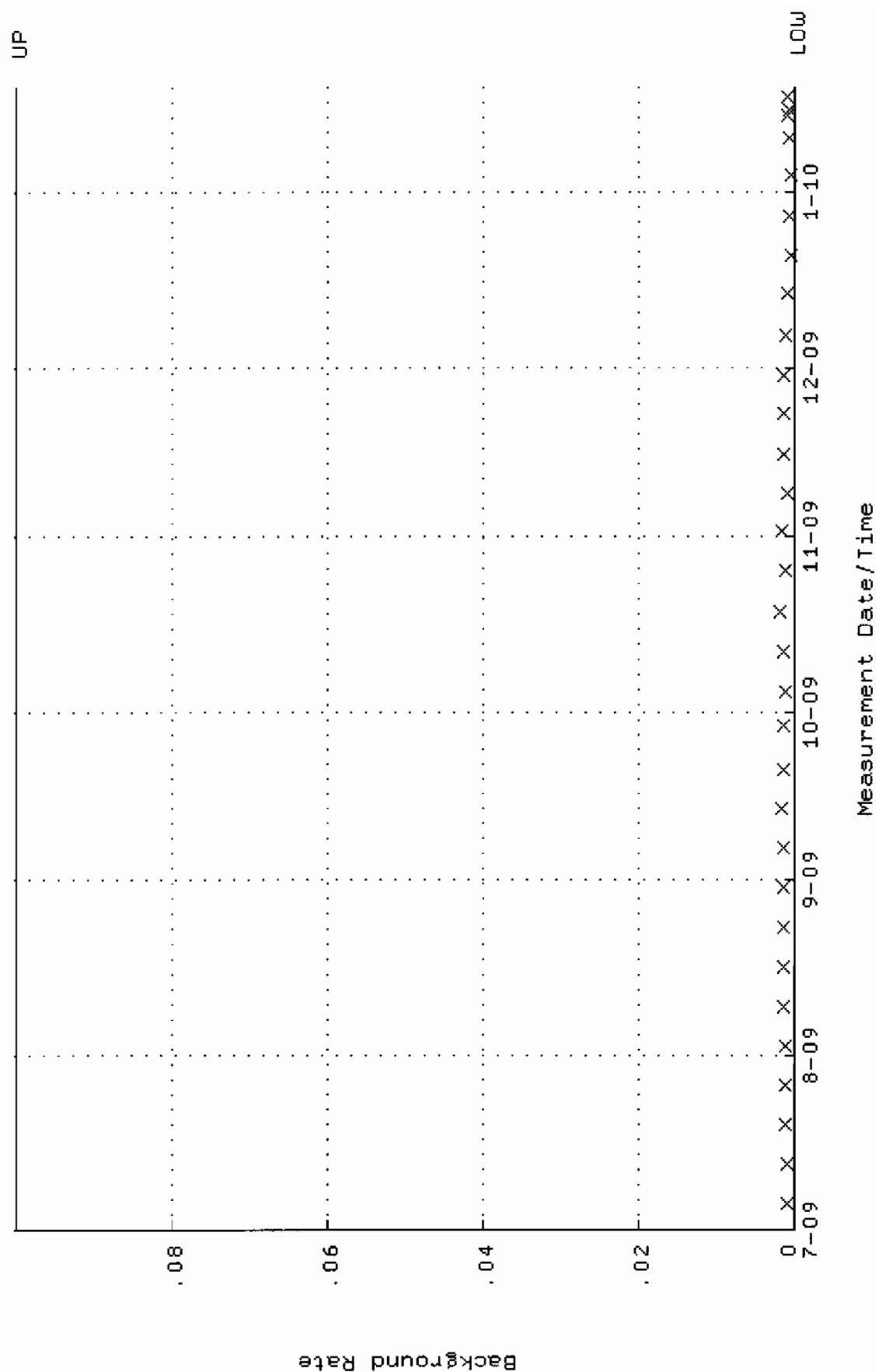
QA filename : DKA100:[ENV\_ALPHA.QA.W]W122.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:29 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.242659 through 0.262659



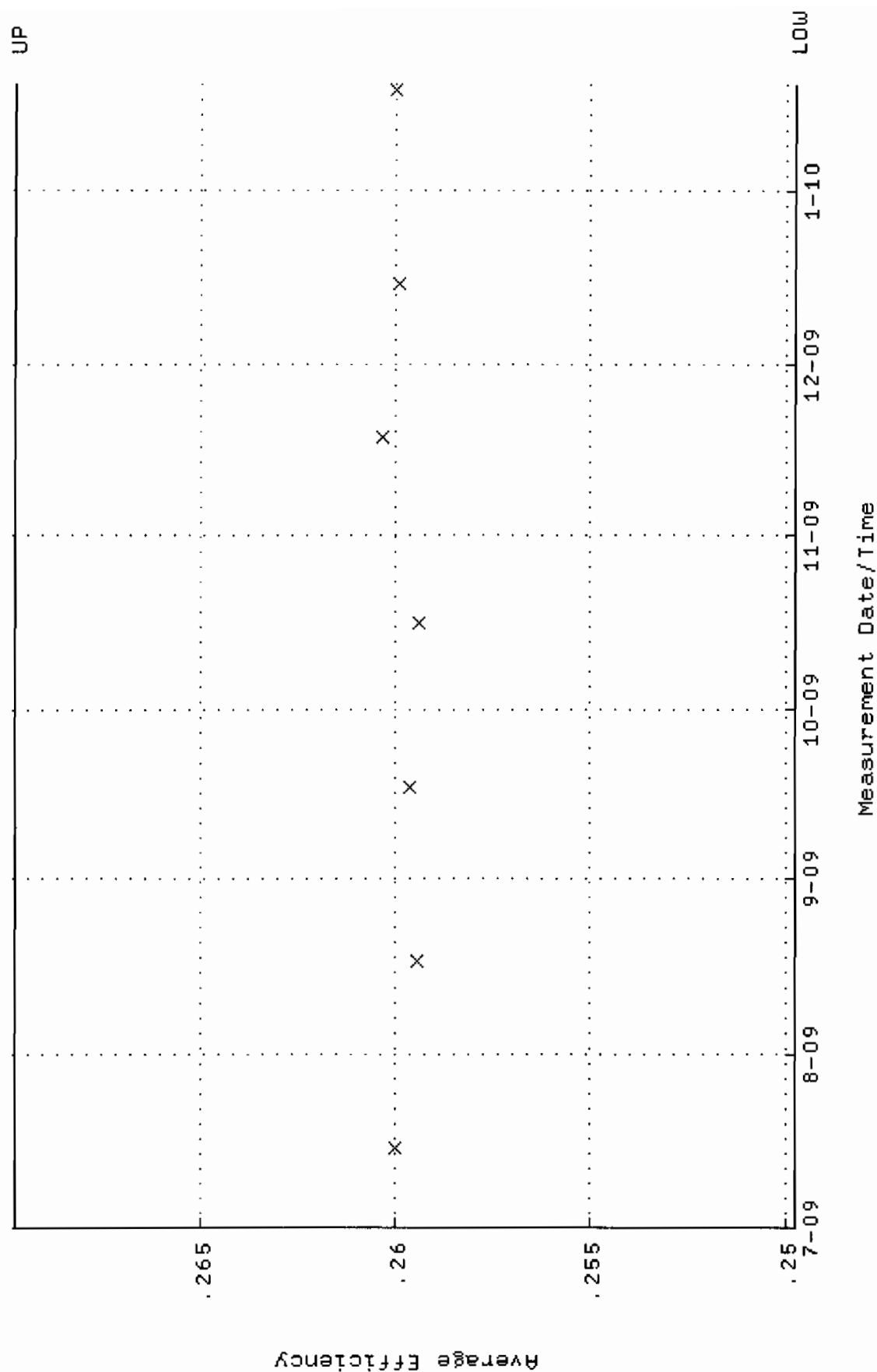
QA filename : DKA100:[ENV\_ALPHA.QA.W]W122.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:29 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.5949 through 100.131



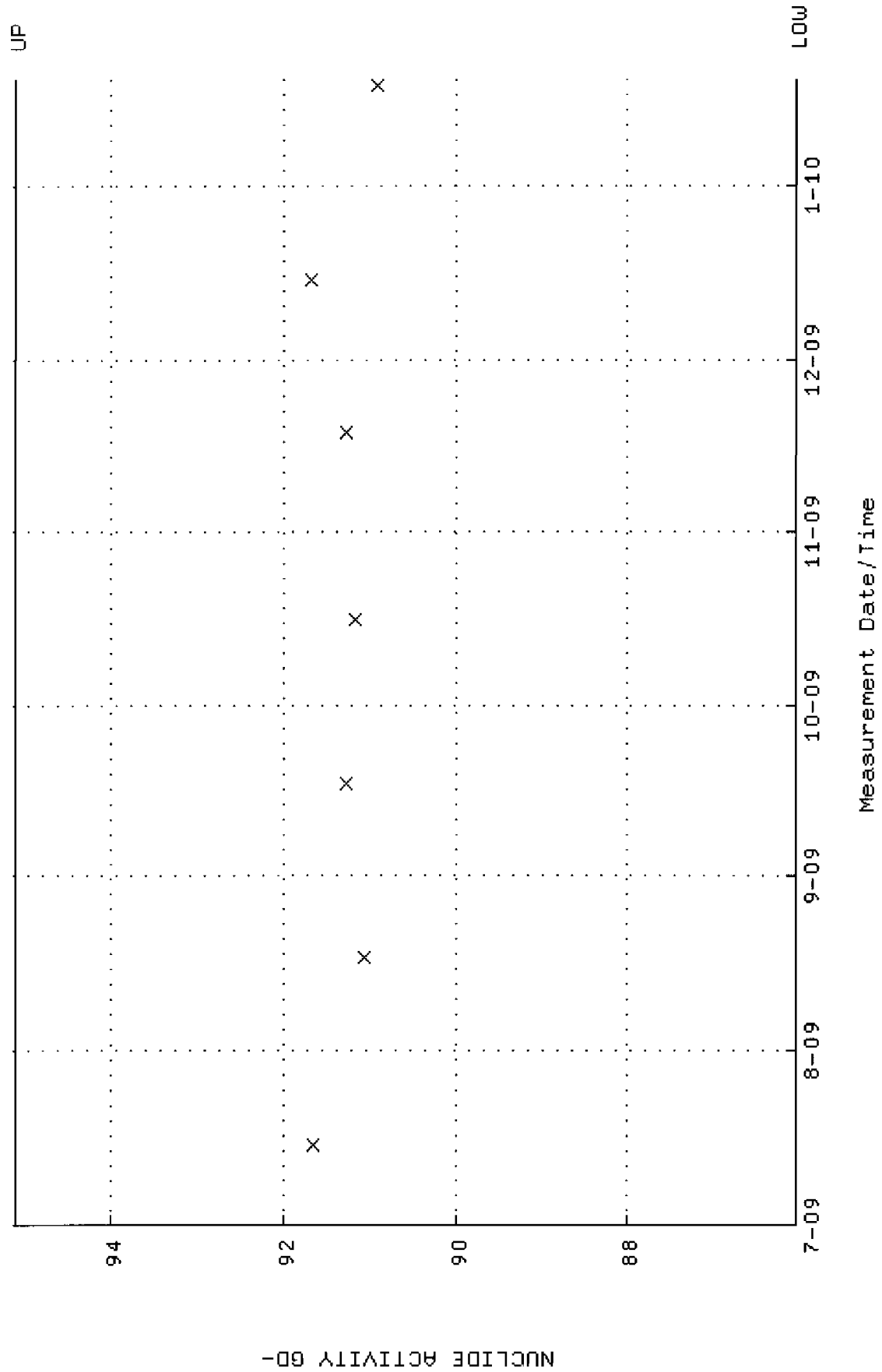
QA filename : DKA100:[ENV\_ALPHA.QA.B]B122.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:30 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W123.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:33 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.249752 through 0.269752

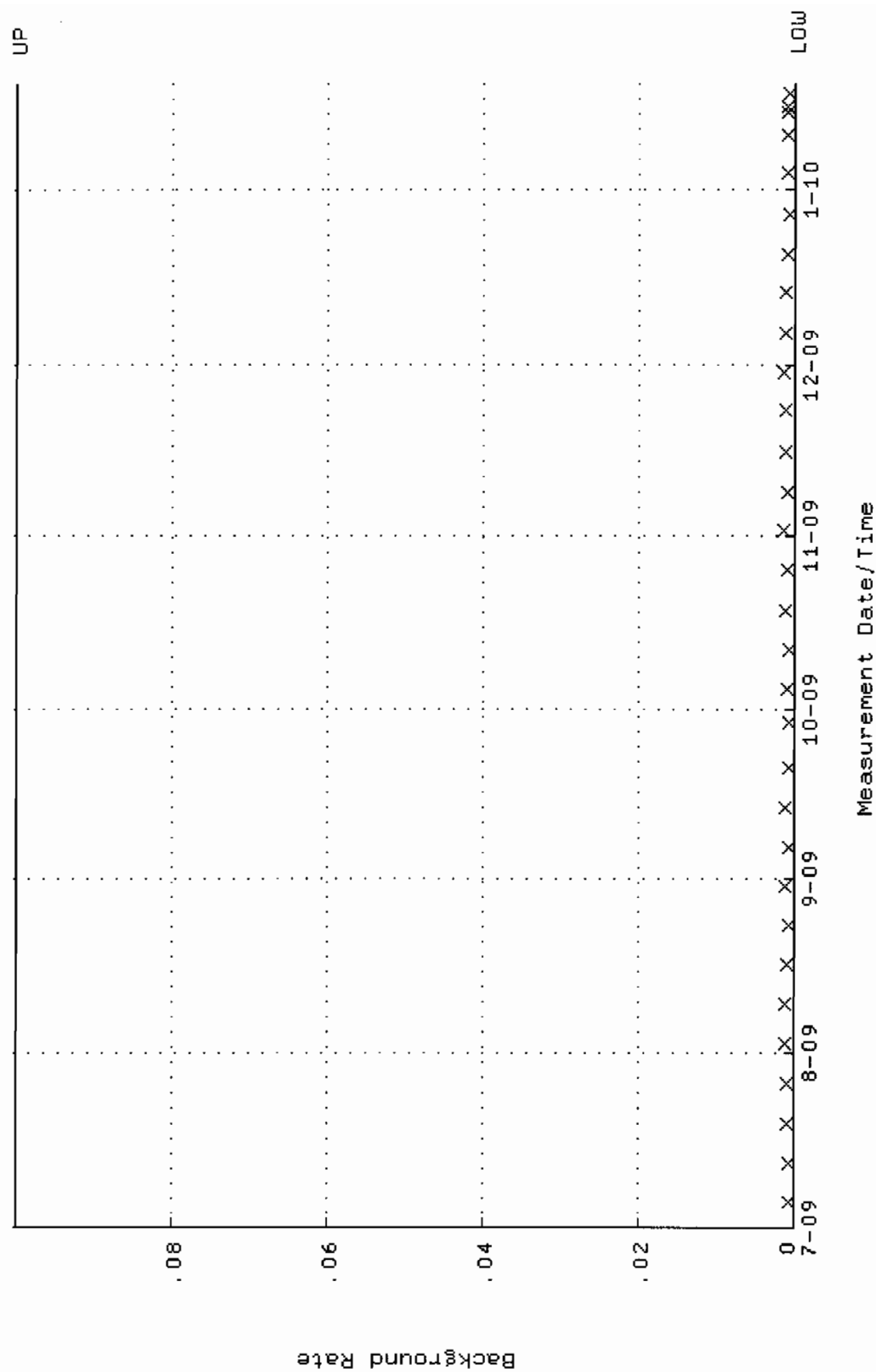


QA filename : DKA100:[ENV\_ALPHA.QA.W]W123.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:33 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.0496 through 95.1074

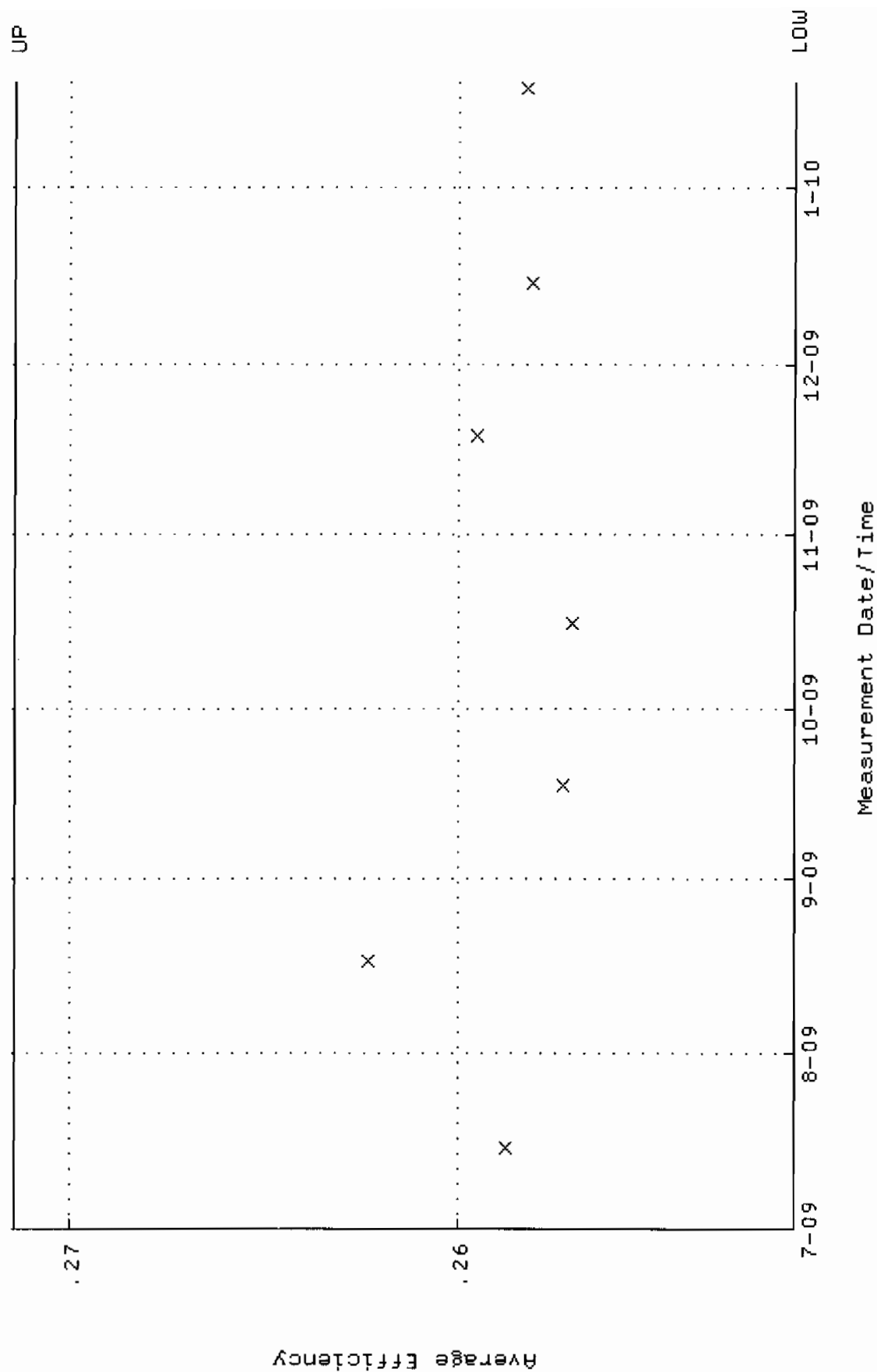




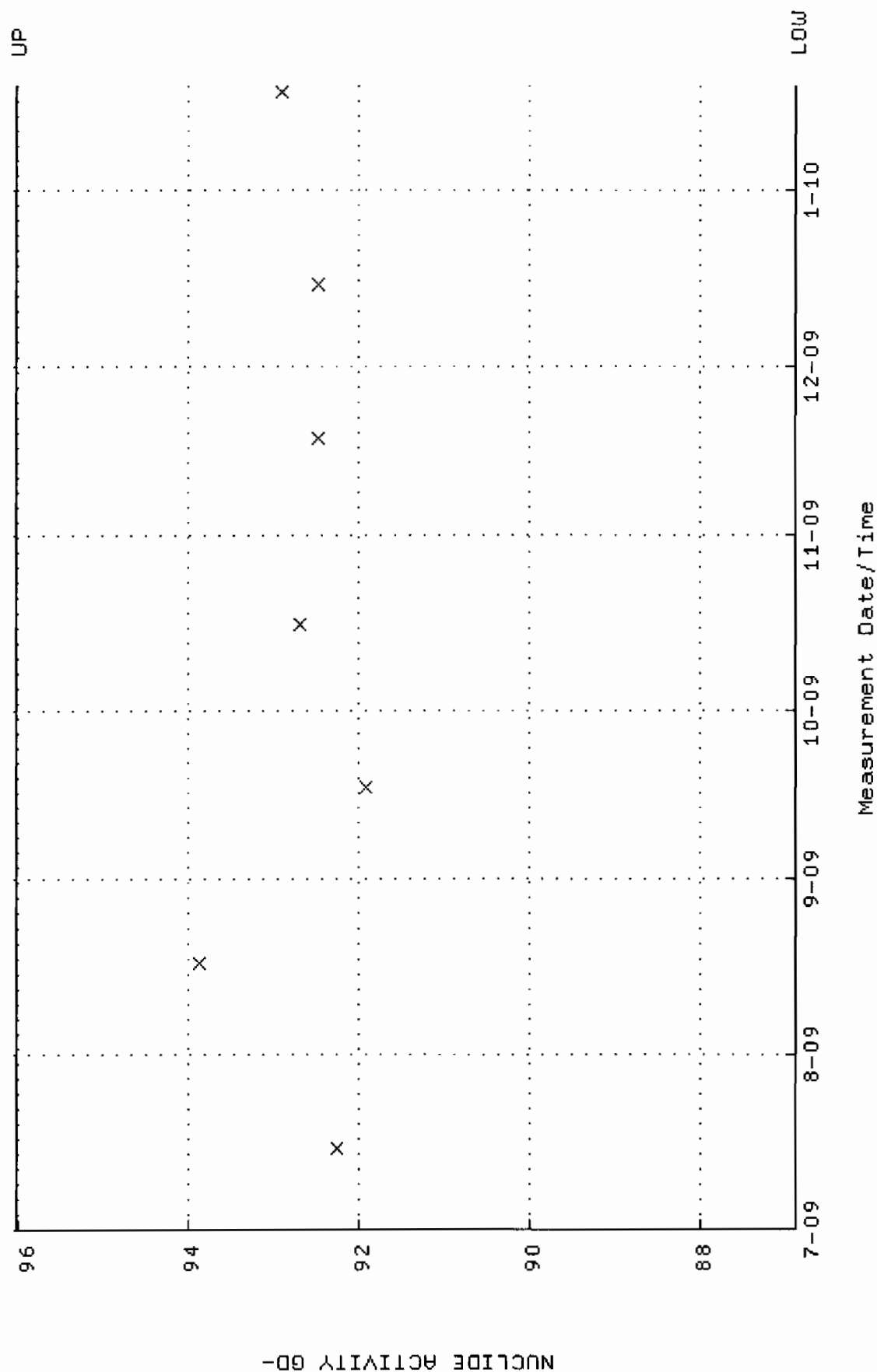
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QA filename      : DKA100:[ENV_ALPHA.QA.B]B123.QAF;1
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 5-JUL-2009 14:55:35 through 19-JAN-2010 00:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000
```



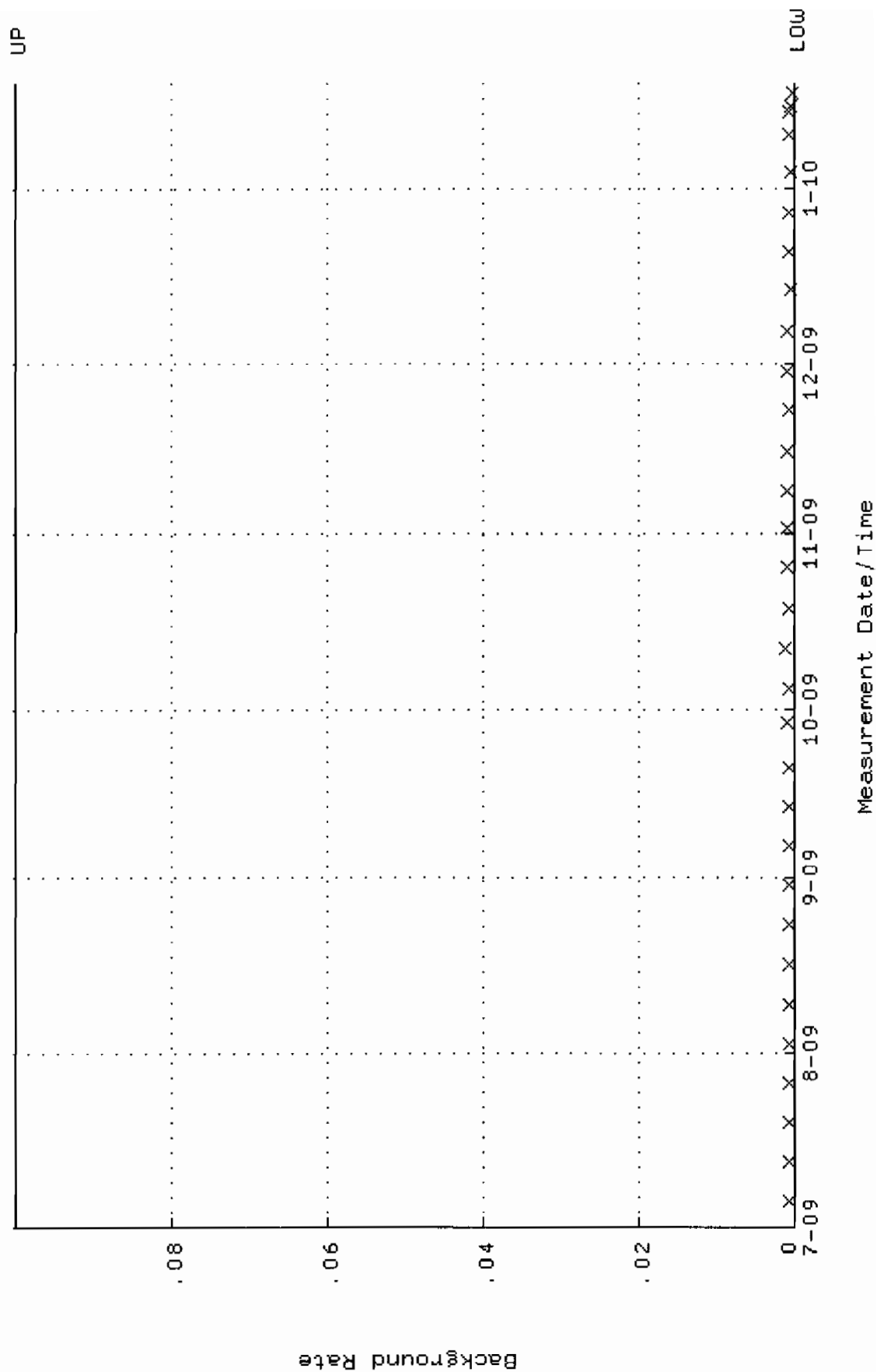
QA filename : DKA100:[ENV\_ALPHA,QA,W]W124.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.251398 through 0.271398



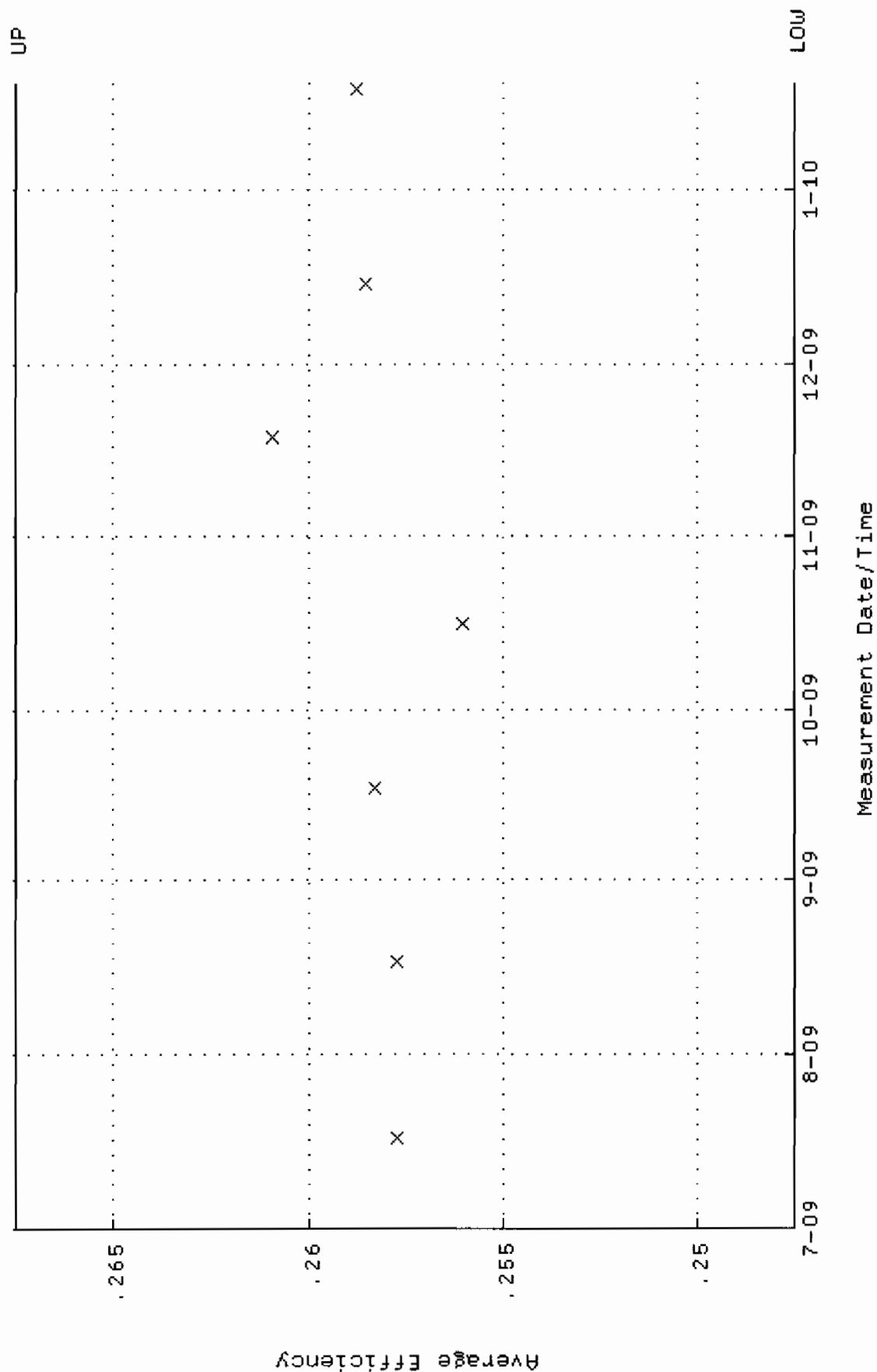
QA filename : DKA100:[ENV\_ALPHA.QA.W]W124.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.8862 through 96.0322



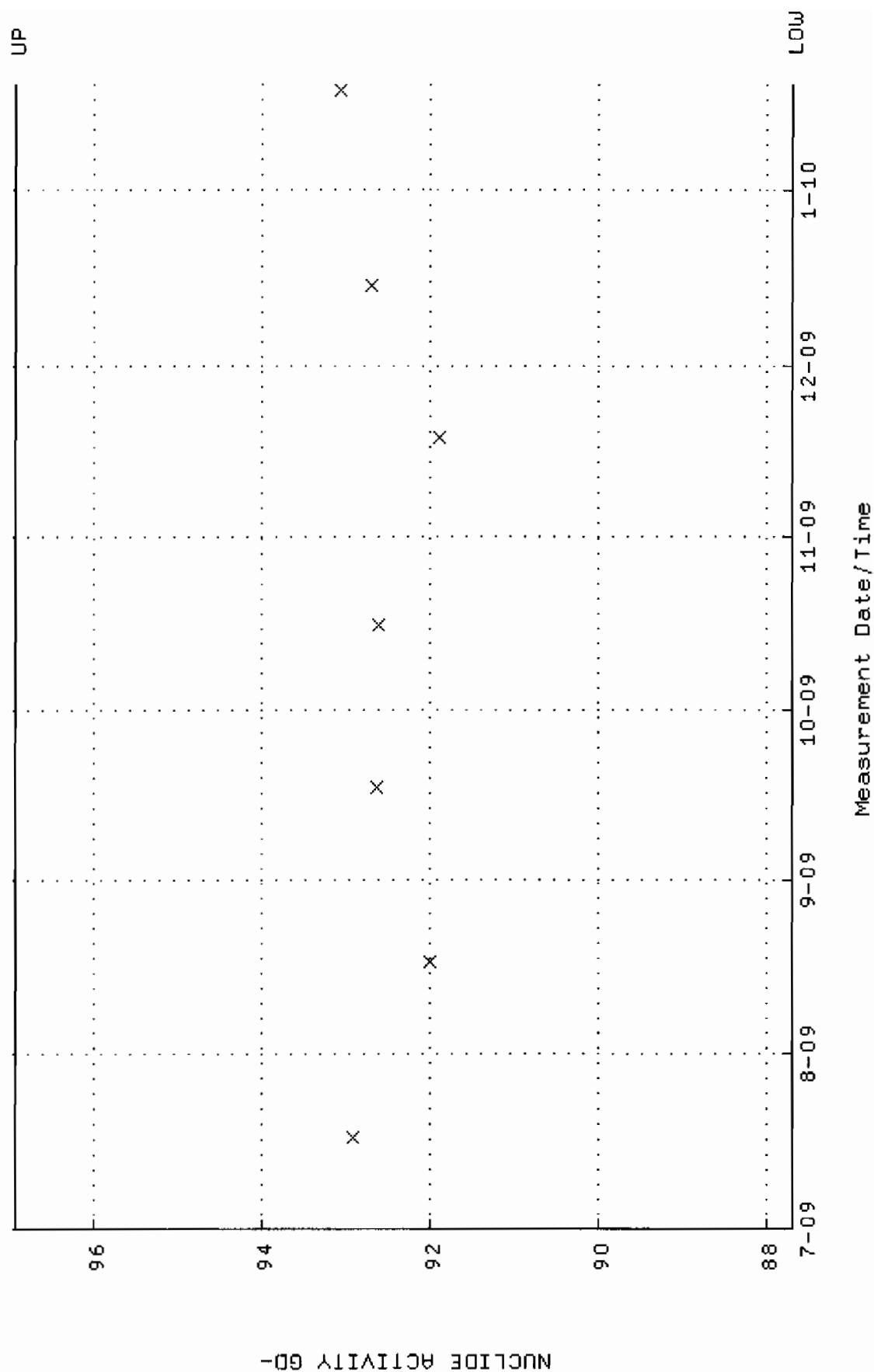
QA filename : DKA100:[ENV\_ALPHA.QA.B]B124.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:40 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



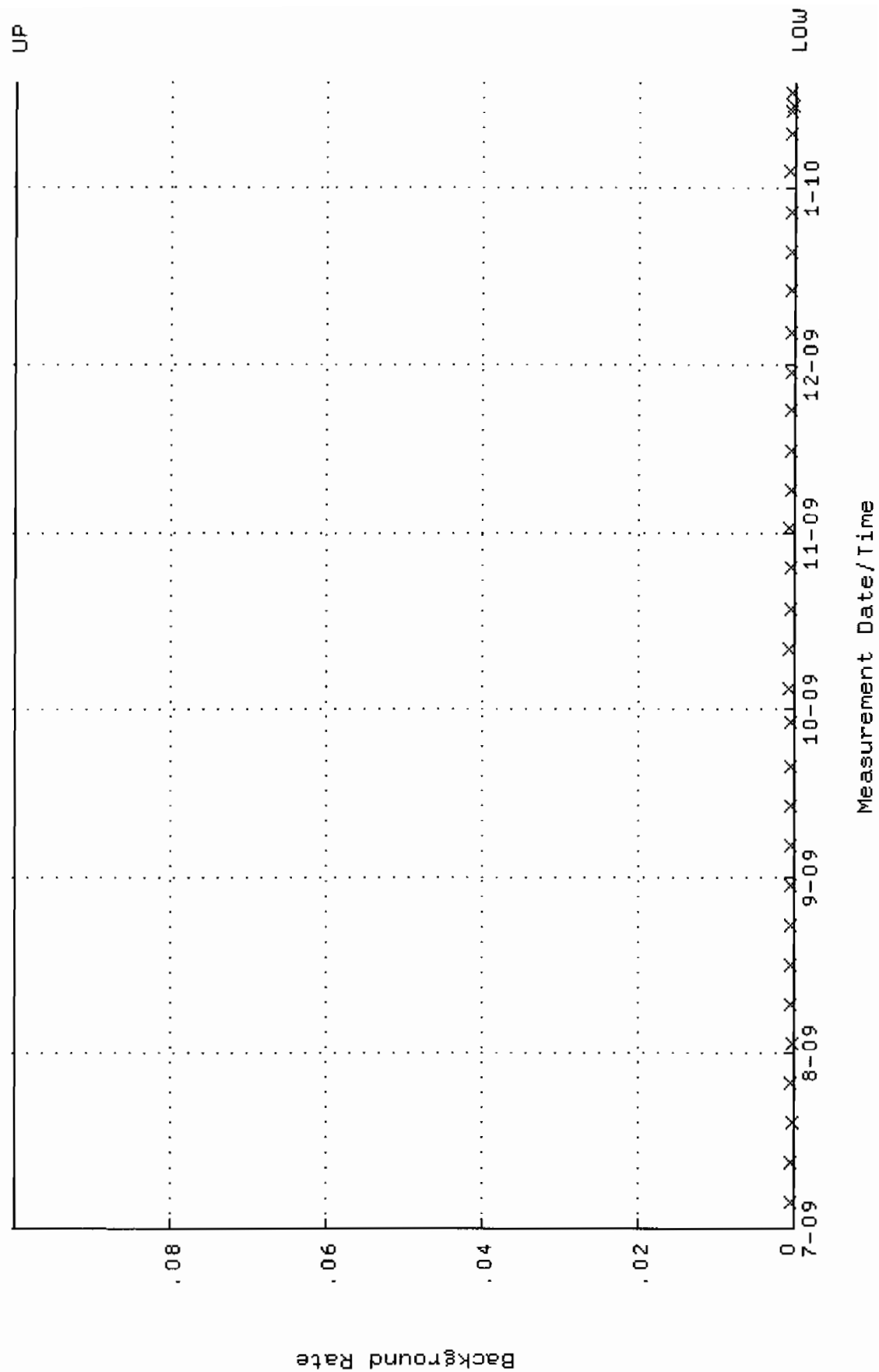
QA filename : DKA100:[ENV\_ALPHA.QA.W]W125.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:36 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.247512 through 0.267512



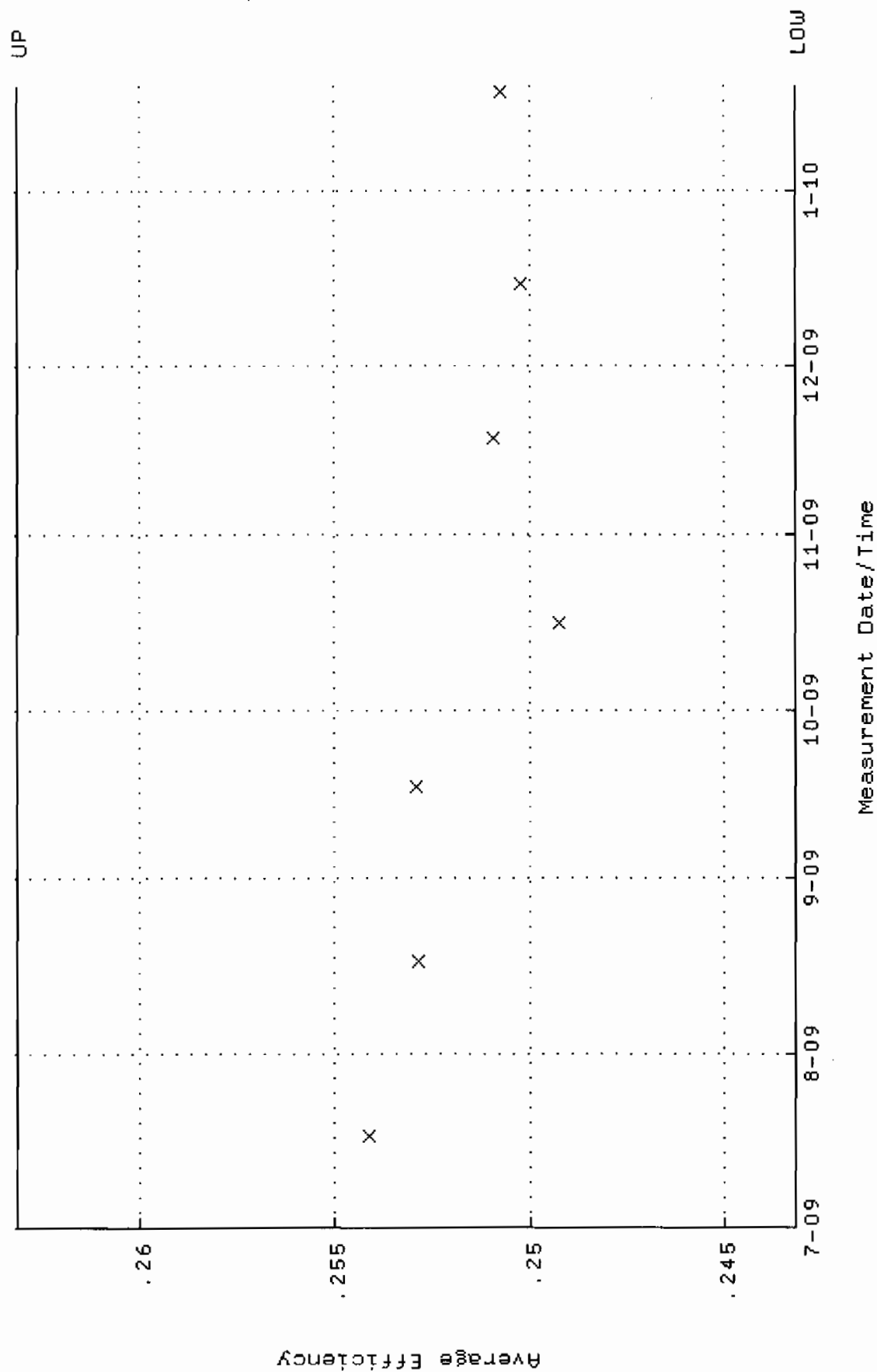
QA filename : DKA100:[ENV\_ALPHA.QA.W]W125.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:36 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.6956 through 96.9268



QA filename : OKA100:[ENV\_ALPHA.QA.B]B125.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:45 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

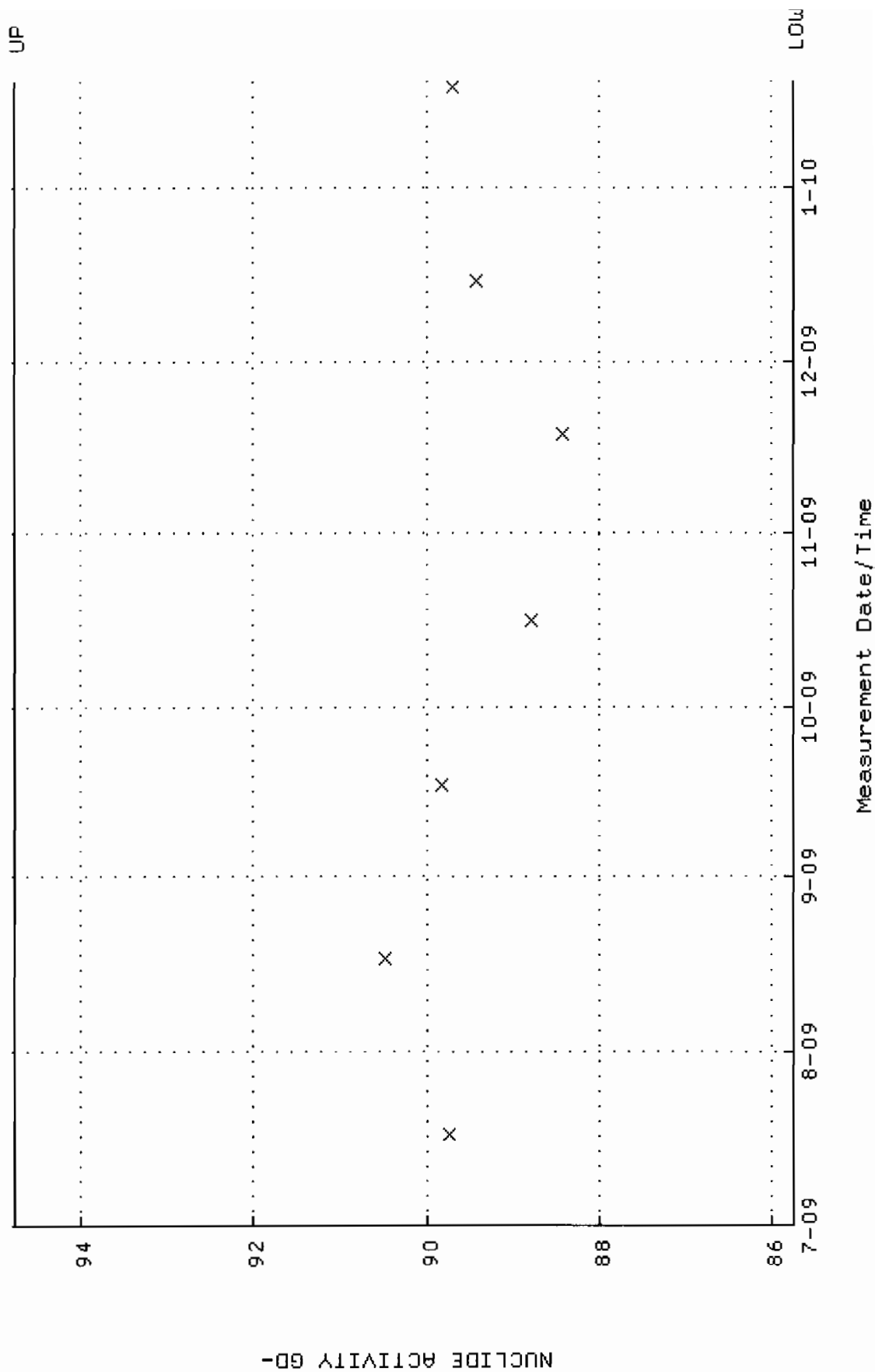


QA filename : DKA100:[ENV\_ALPHA.QA.W]W126.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:44 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.243156 through 0.263156

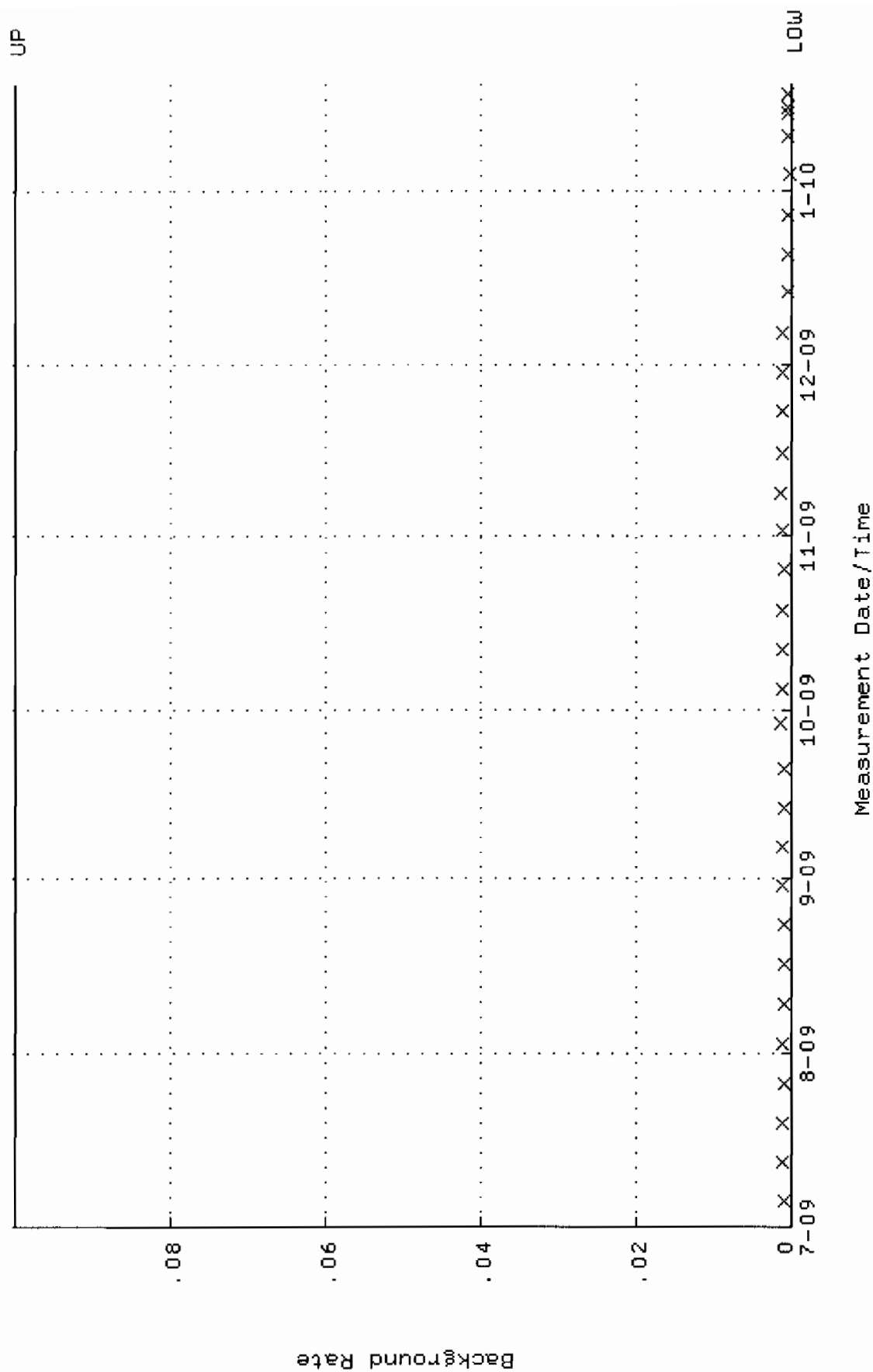




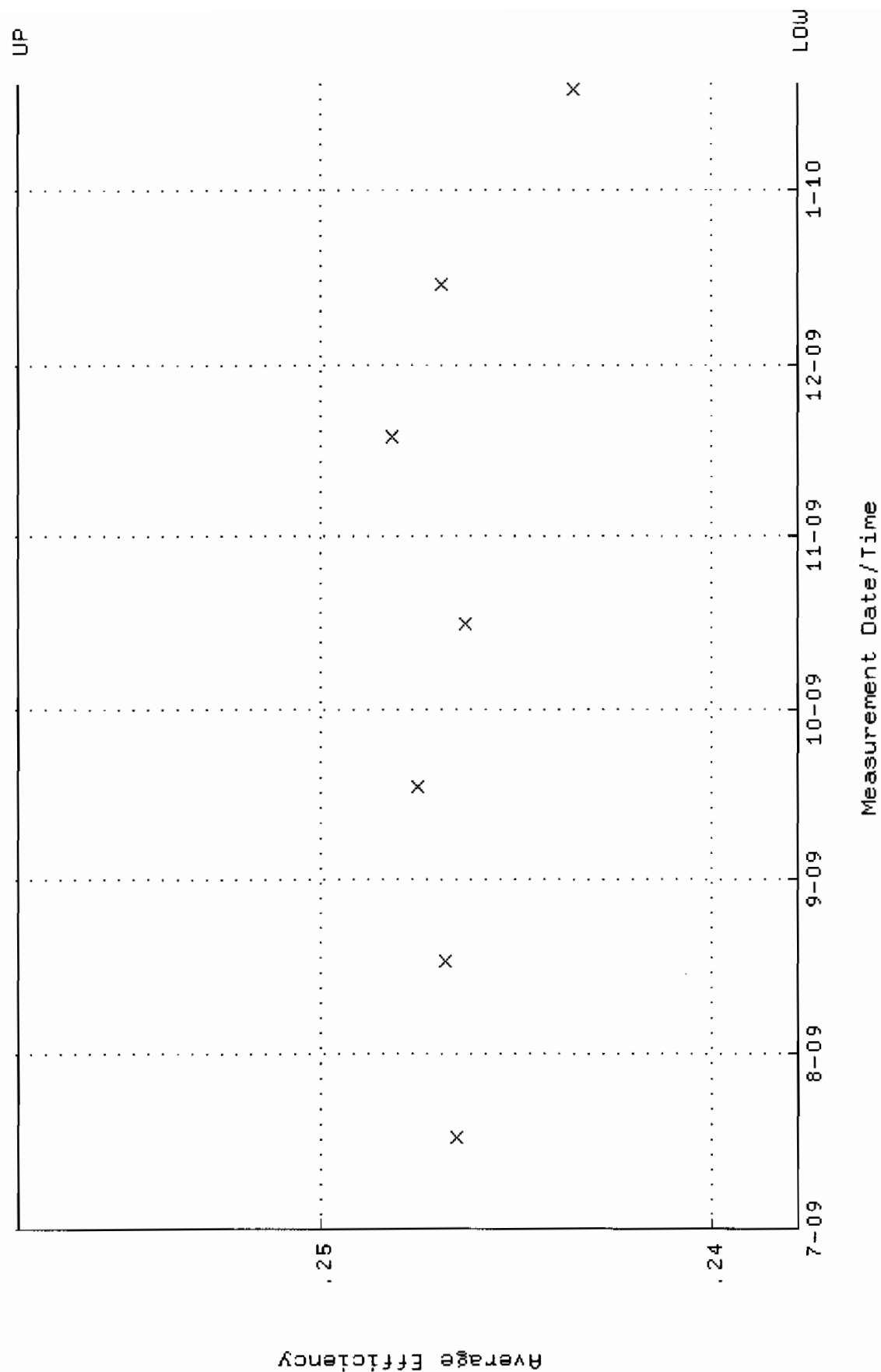
QA filename : DKA100:[ENV\_ALPHA.QA.W]w126.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:44 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.7449 through 94.7707



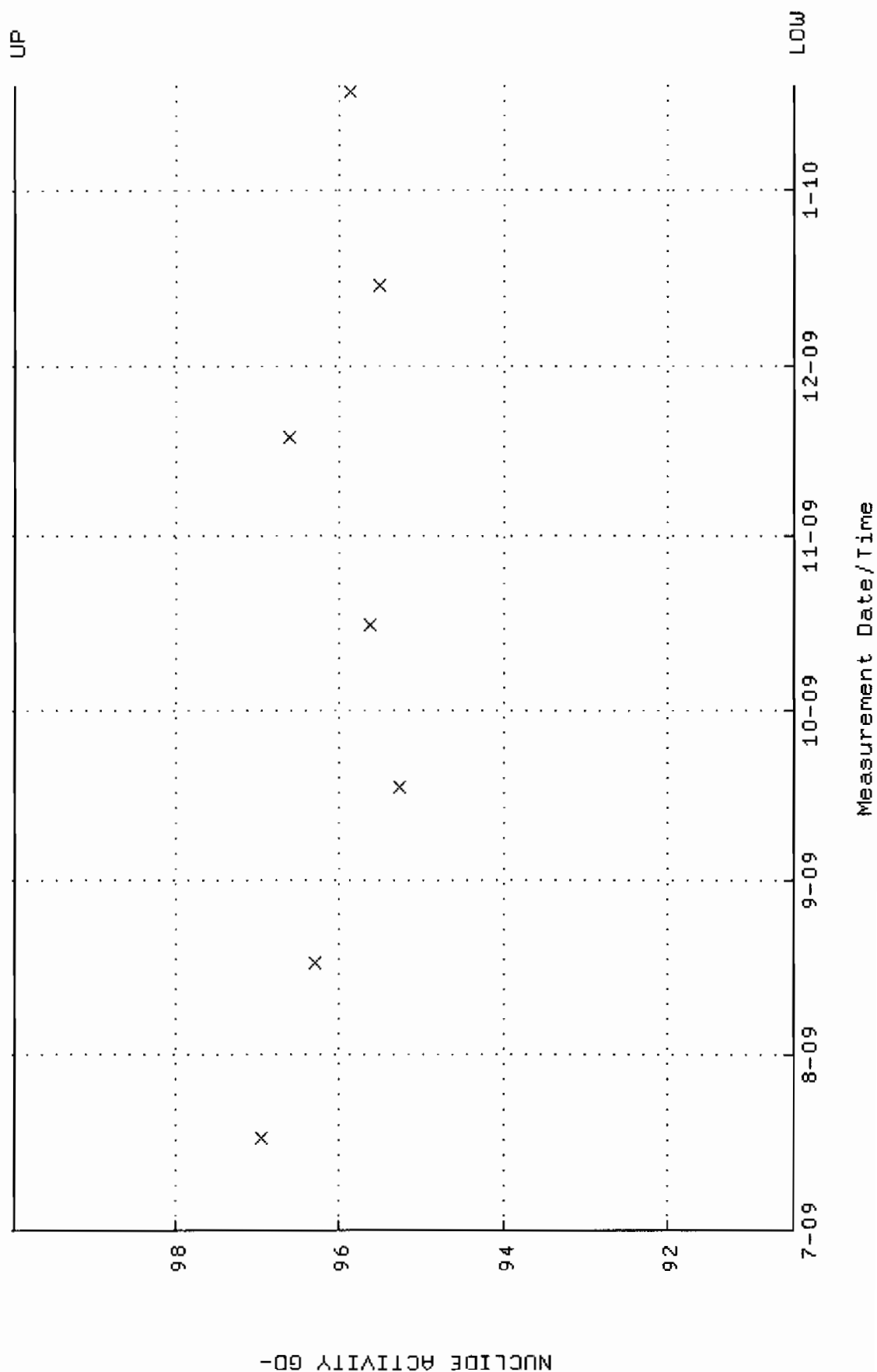
QA filename : DKA100:[ENV\_ALPHA.QA.B]B126.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:50 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



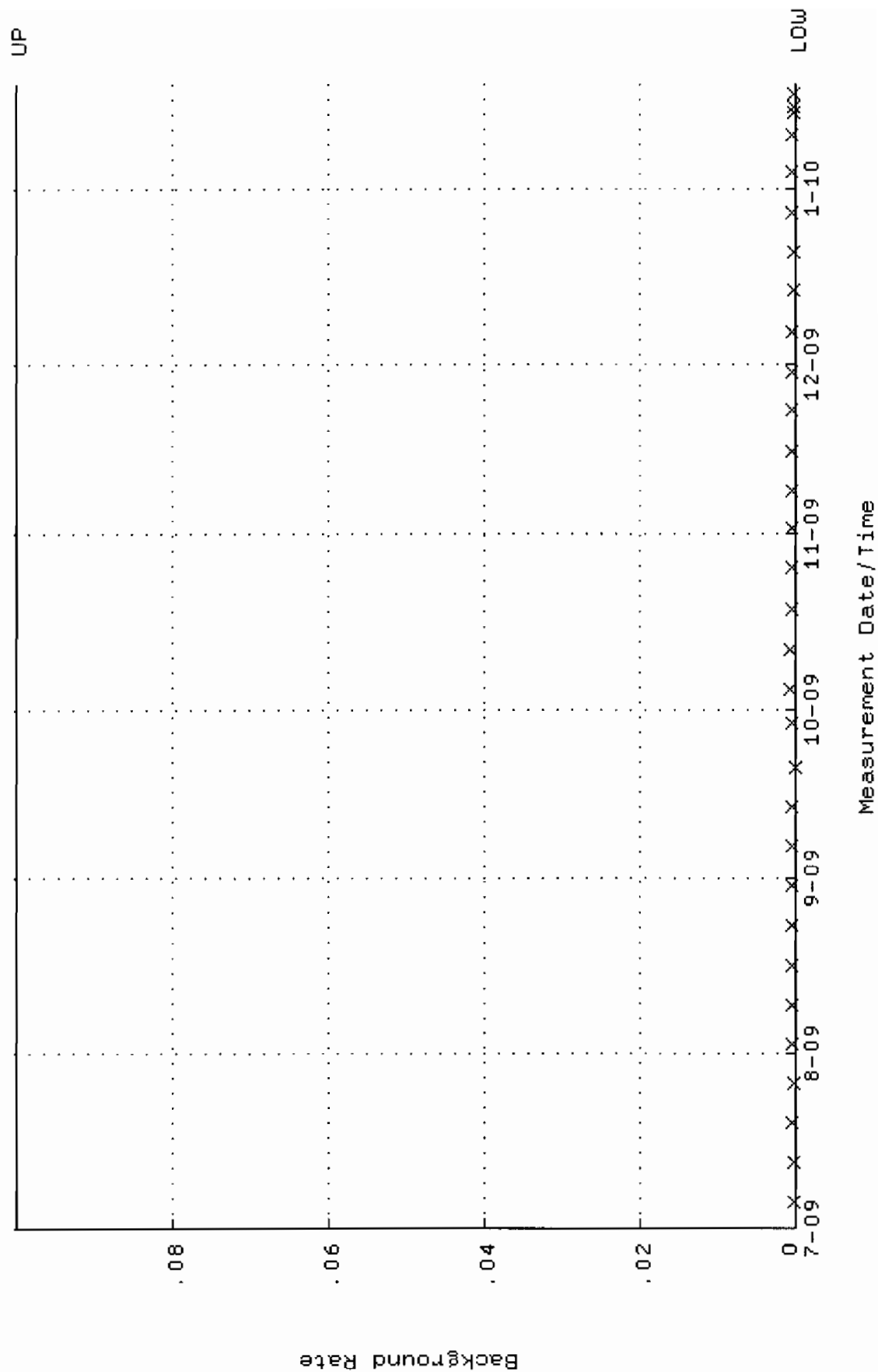
QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.237773 through 0.257773



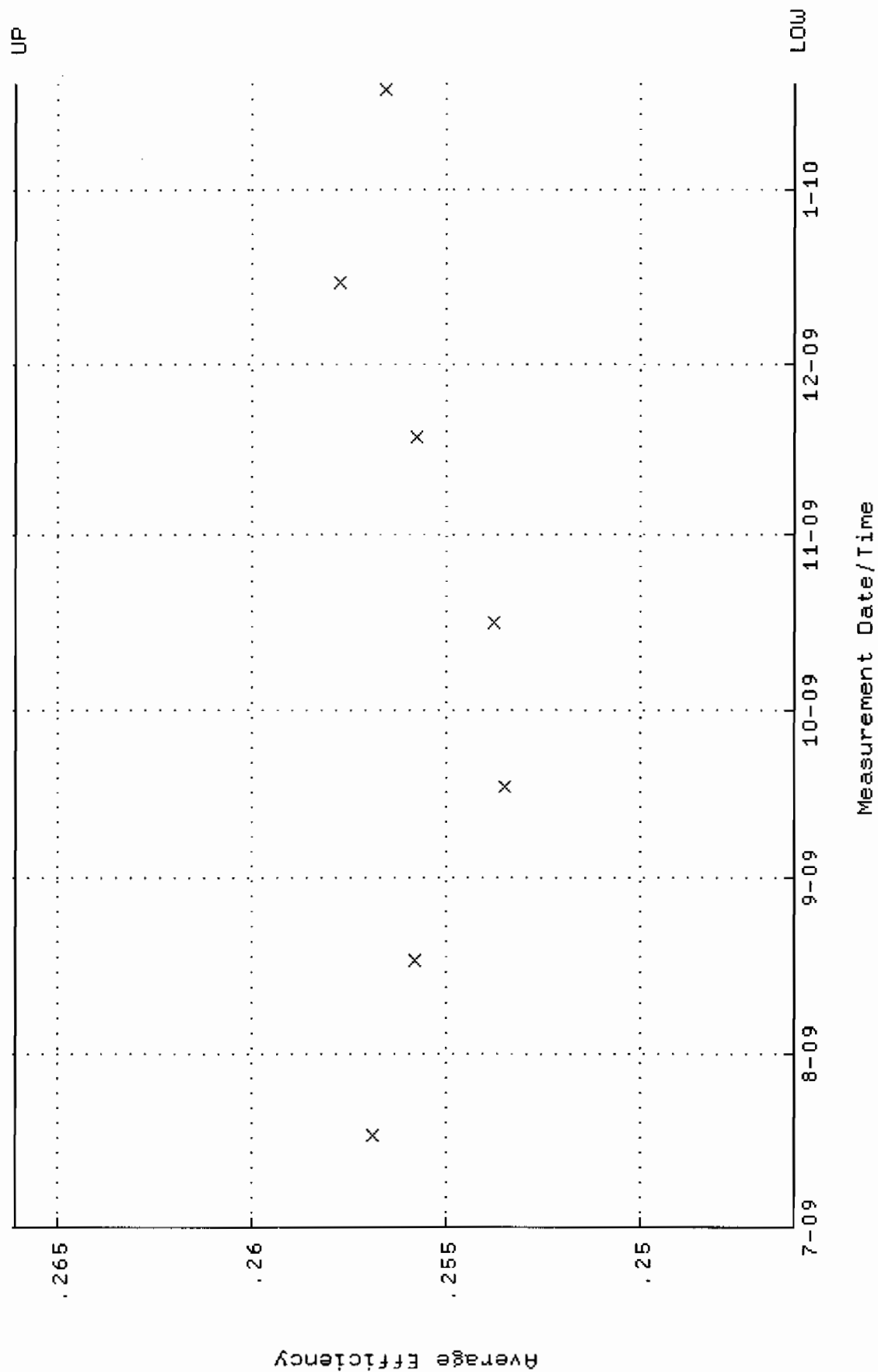
QA filename : DKA100:[ENV\_ALPHA.QA.W]w127.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.4503 through 99.9713



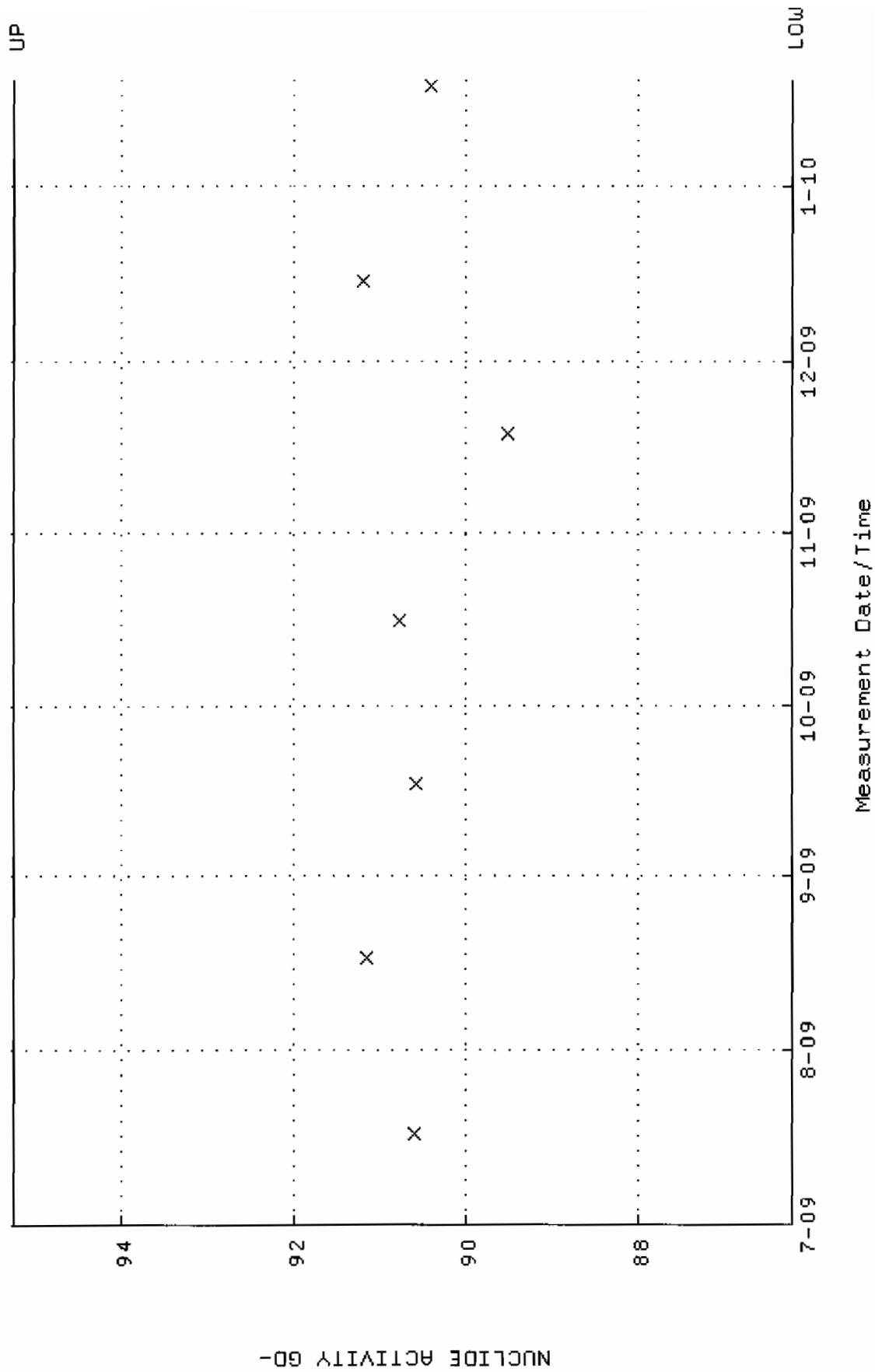
QA filename : DKA100:[ENV\_ALPHA.QA.B]B127.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



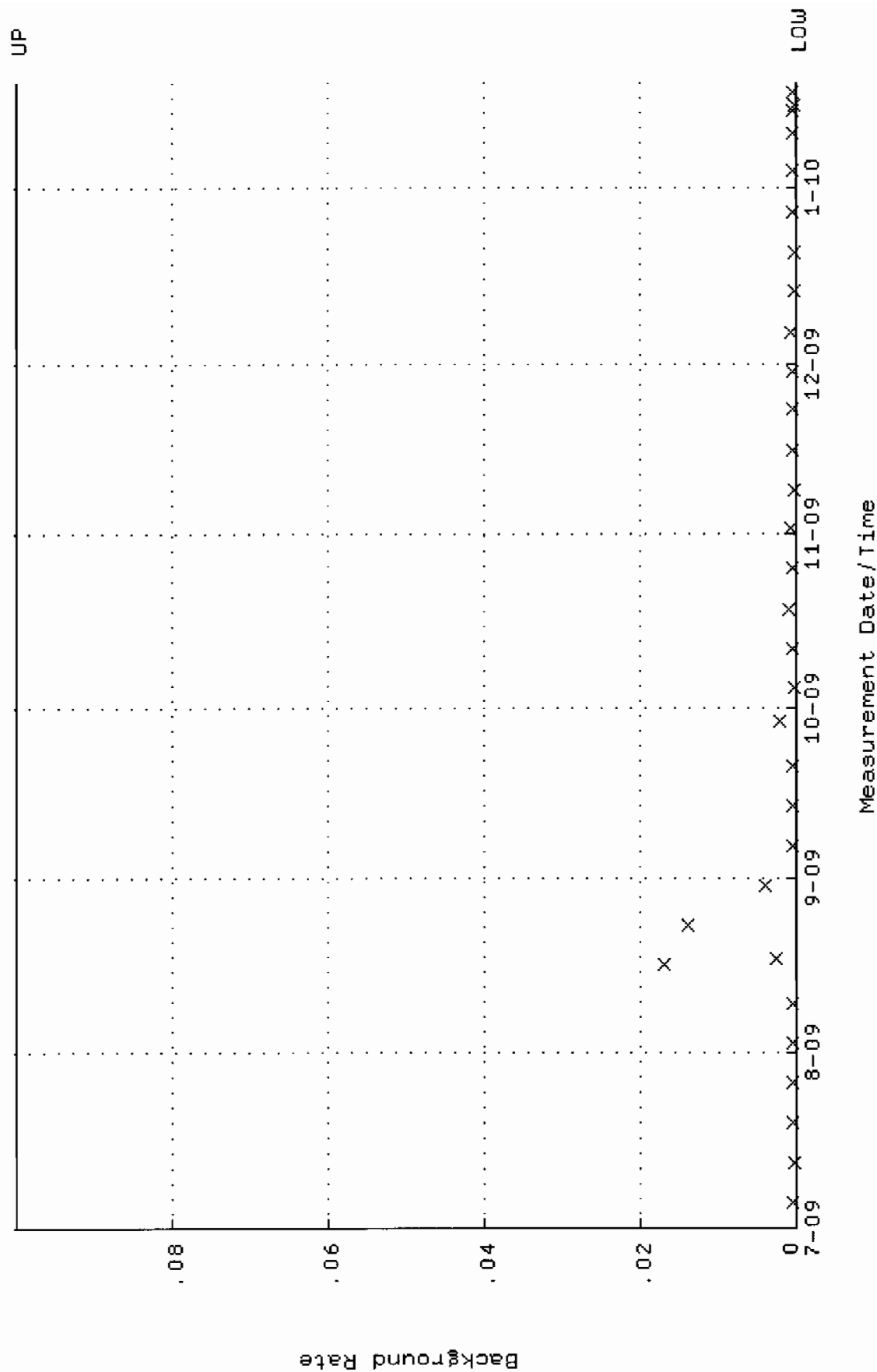
QA filename : DKA100:[ENV\_ALPHA.QA.W]W128.QAF;1  
 Parameter Name : AVREFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:58 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.246062 through 0.266062



QA filename : DKA100:[ENV\_ALPHA.QA.W]w128.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:58 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.1964 through 95.2697

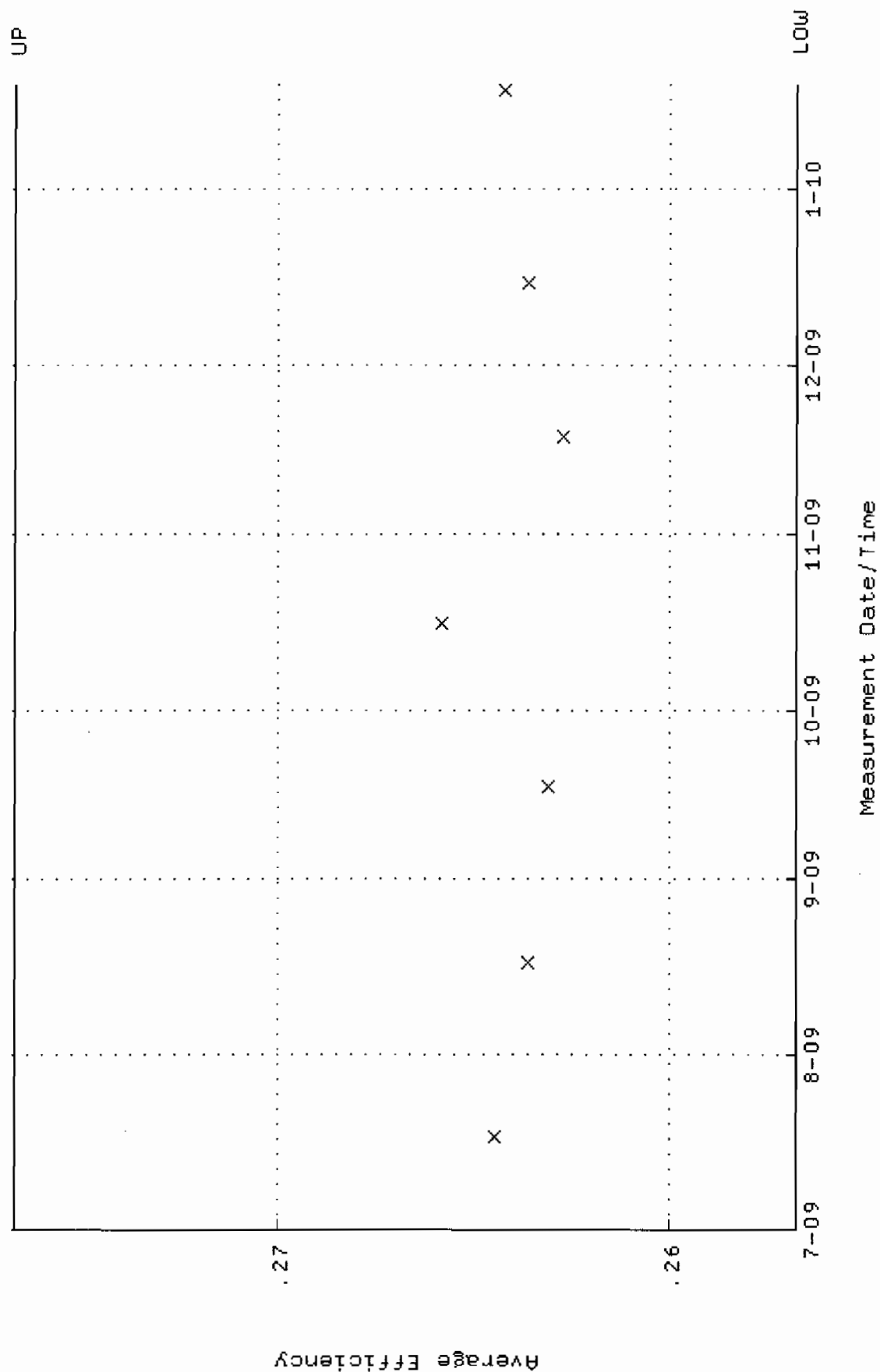


QA filename : DKA100:[ENV\_ALPHA.QA.B]B128.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:00 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

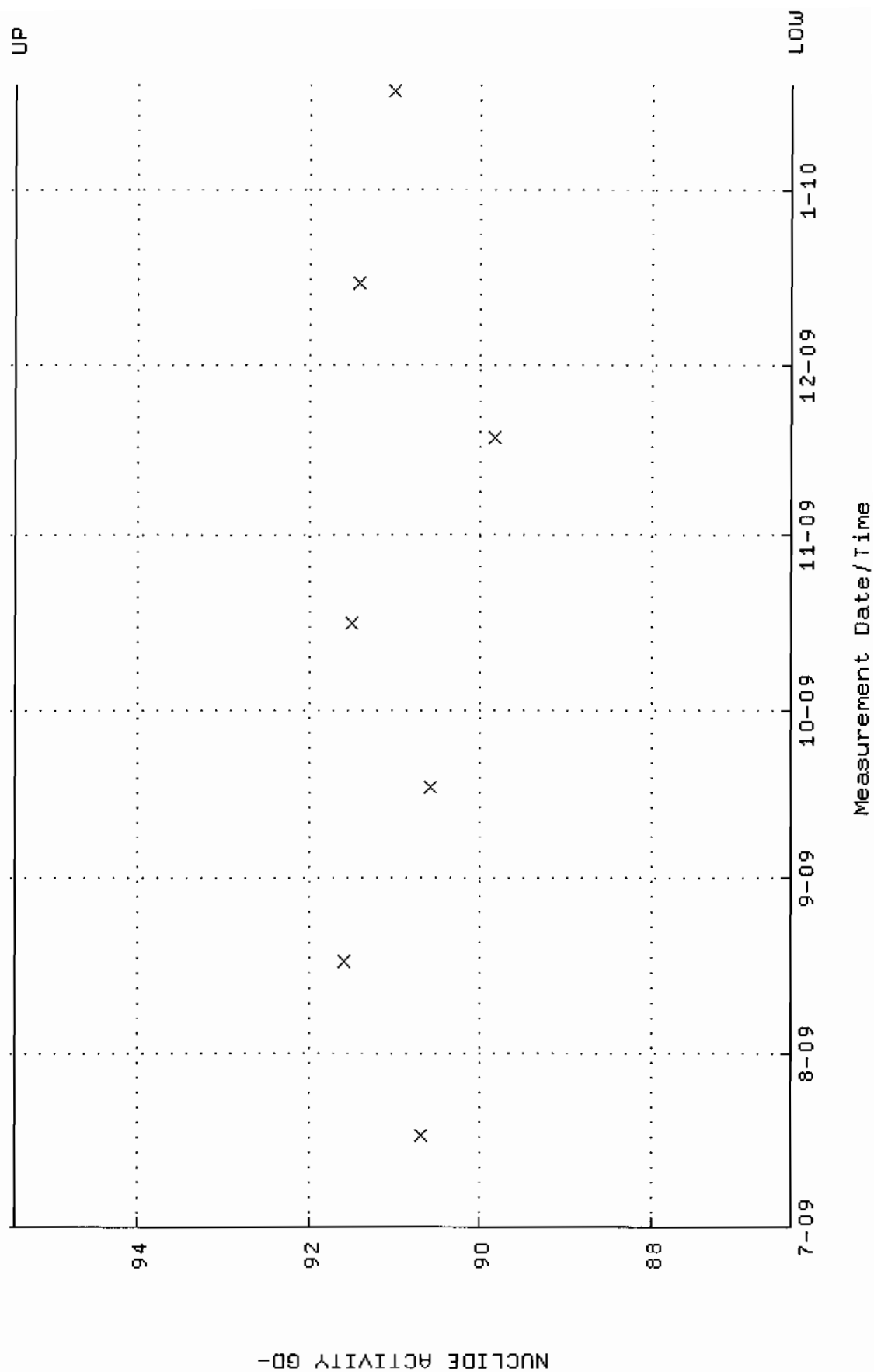




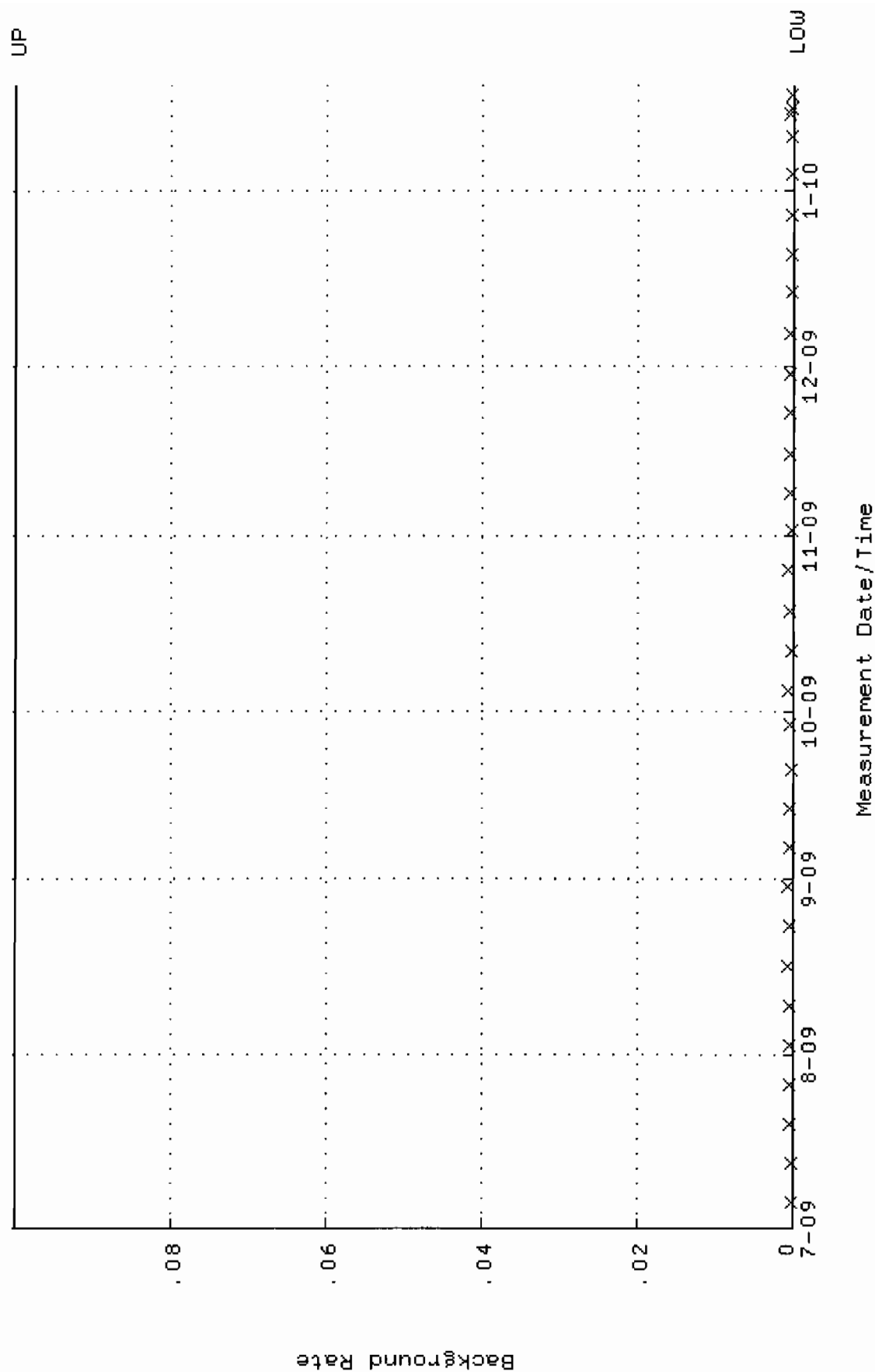
QA filename : DKA100:[ENV\_ALPHA.QA.W]W129.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:12:03 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.256741 through 0.276741



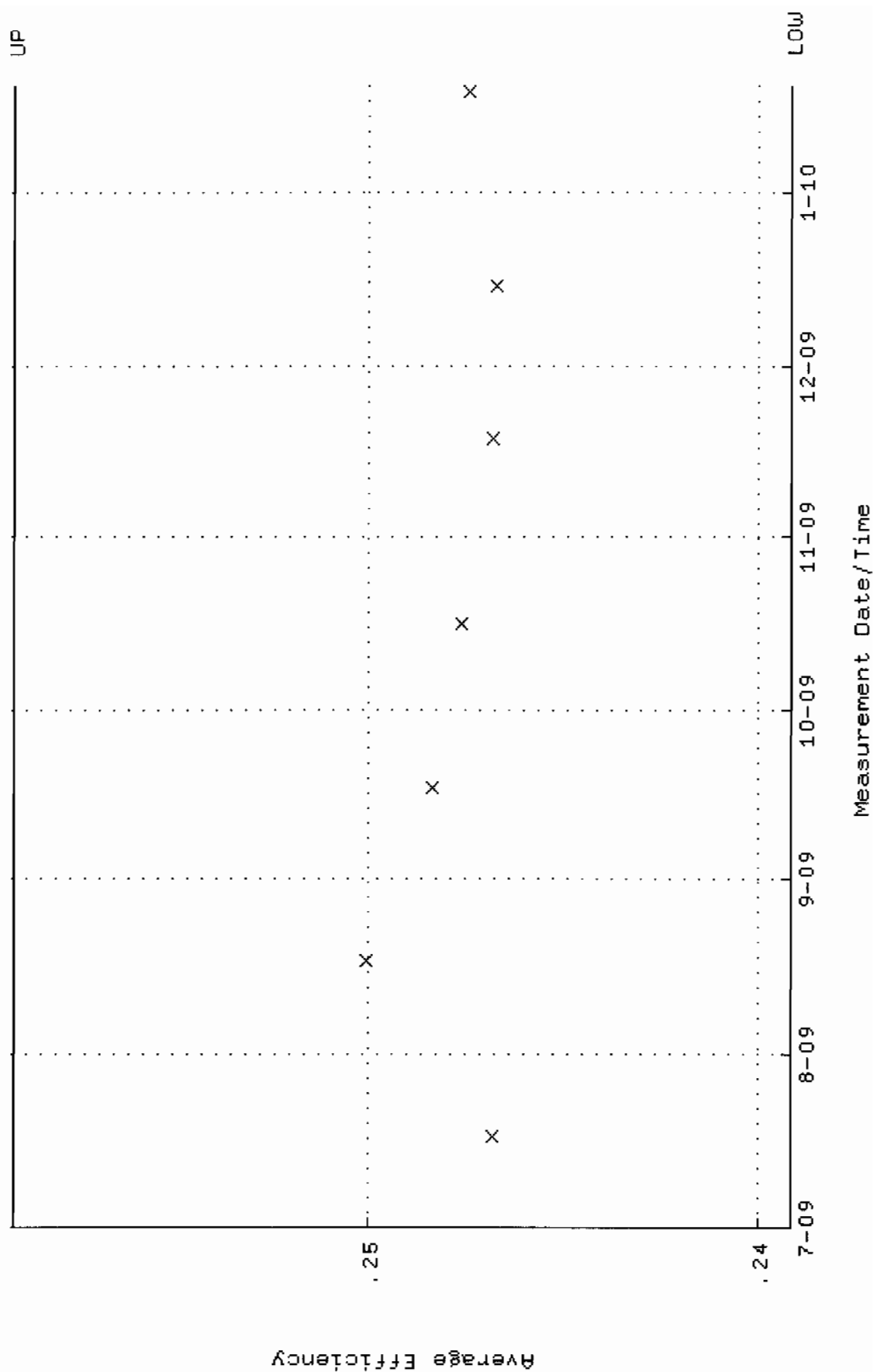
QA filename : DKA100:[ENV\_ALPHA.QA.W]w129.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:03 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.3646 through 95.4556



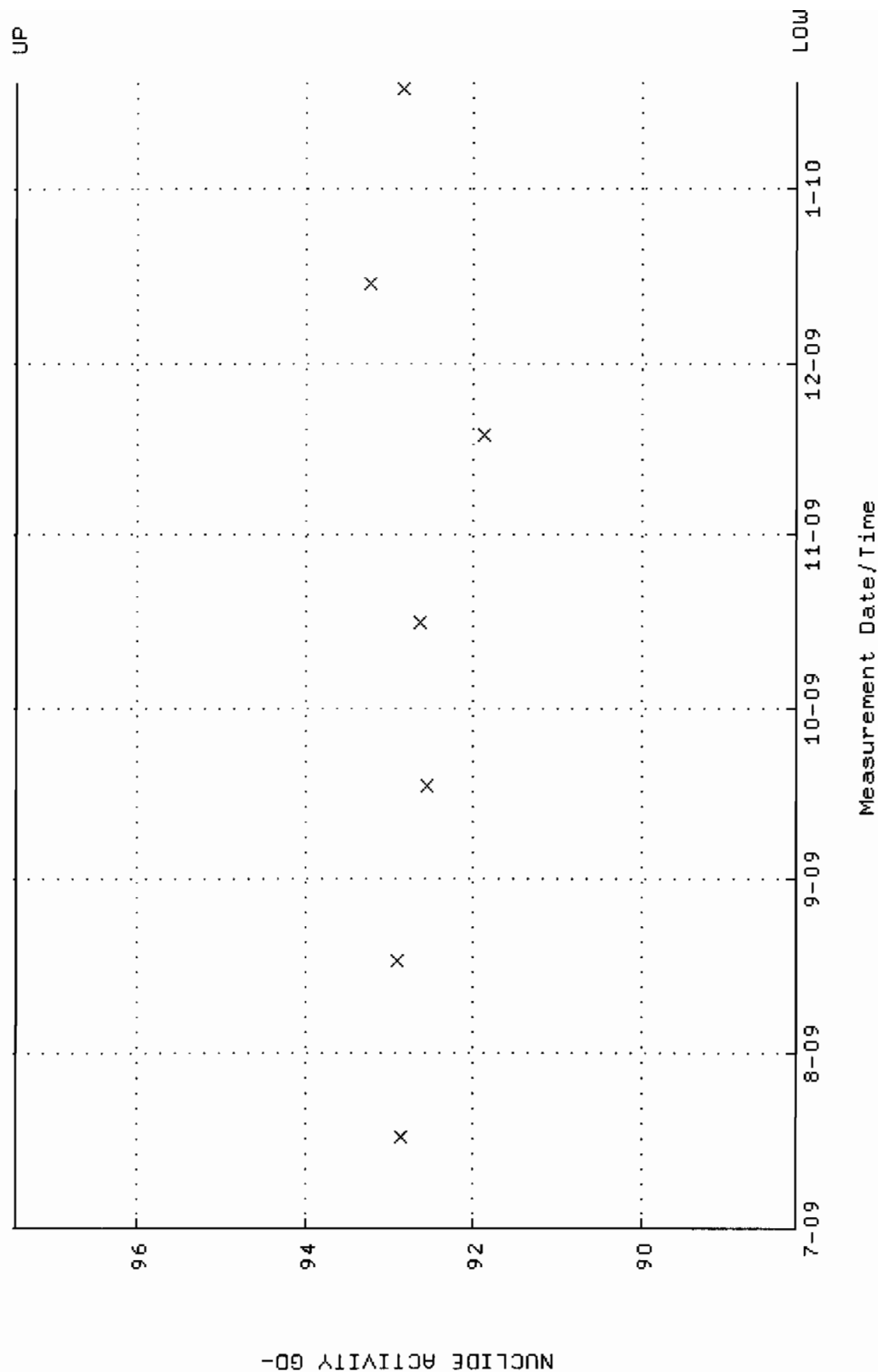
QA filename : DKA100:[ENV\_ALPHA.QA.B]B129.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:05 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



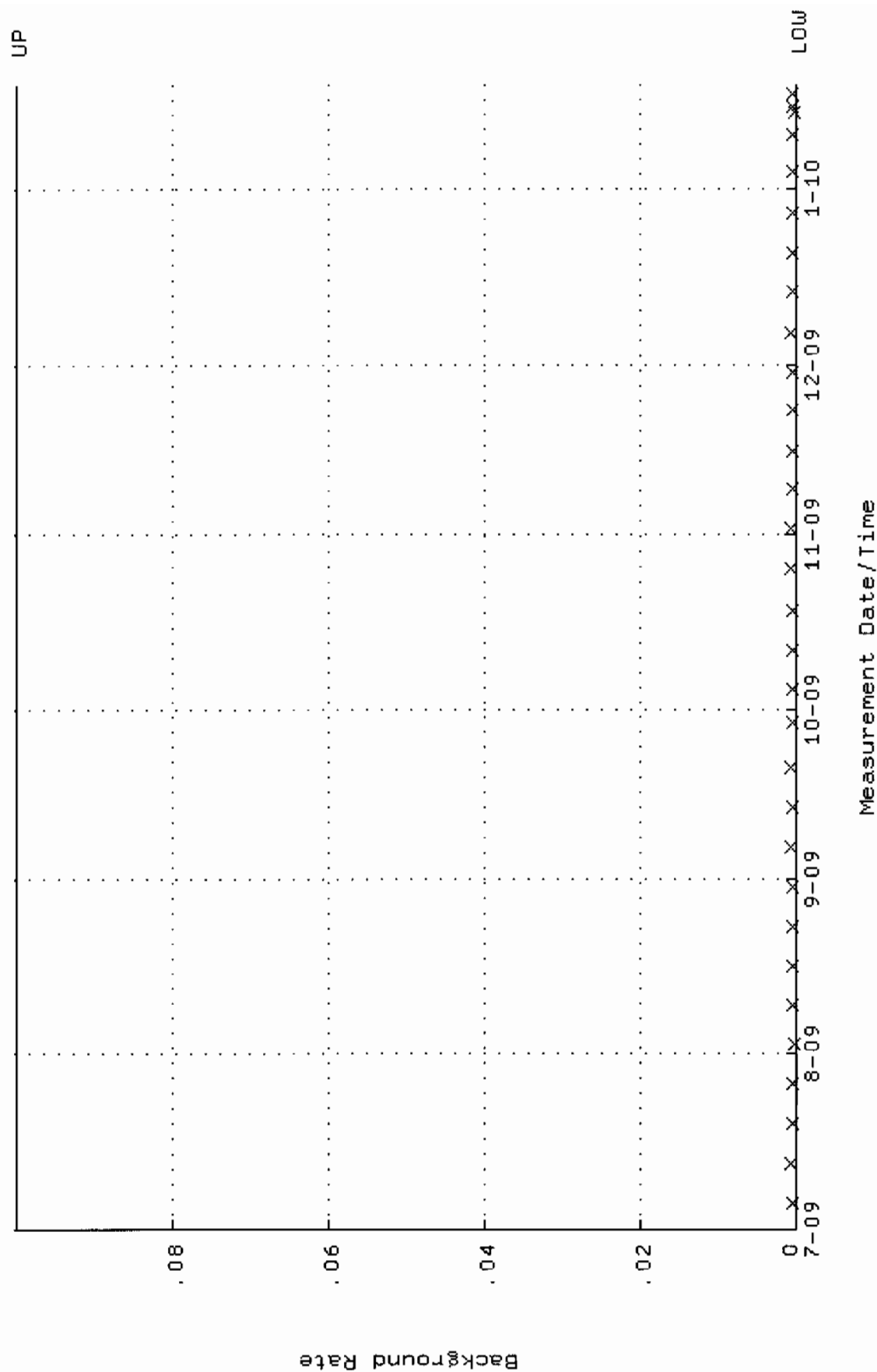
QA filename : DKA100:[ENV\_ALPHA.QA.W]W130.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:12:07 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.239131 through 0.259131



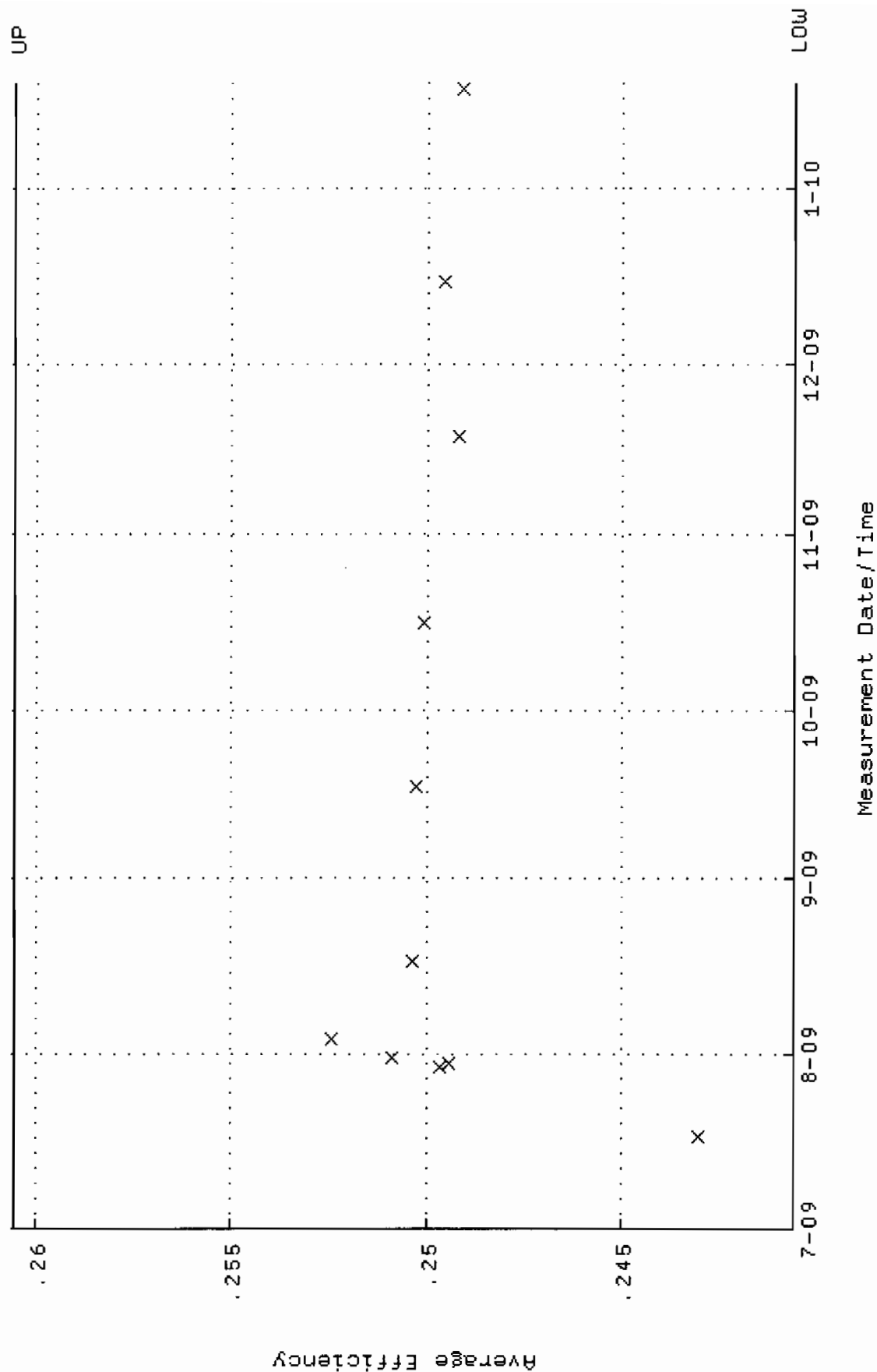
QA filename : DKA100:[ENV\_ALPHA.QA.W]w130.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:07 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 88.1614 through 97.4416



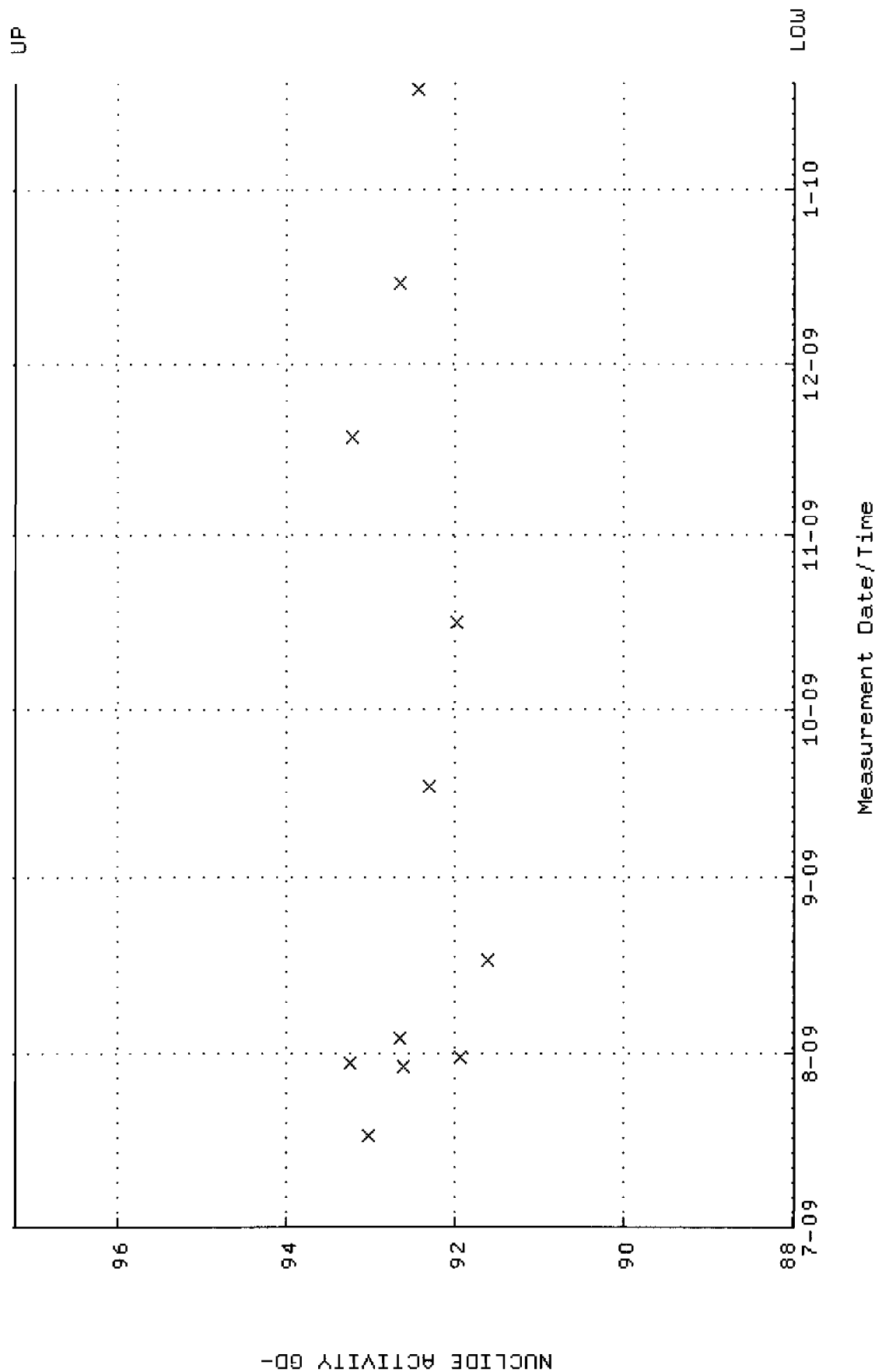
QA filename : DKA100:[ENV\_ALPHA.QA.B]B130.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W132.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:12:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.240573 through 0.260573

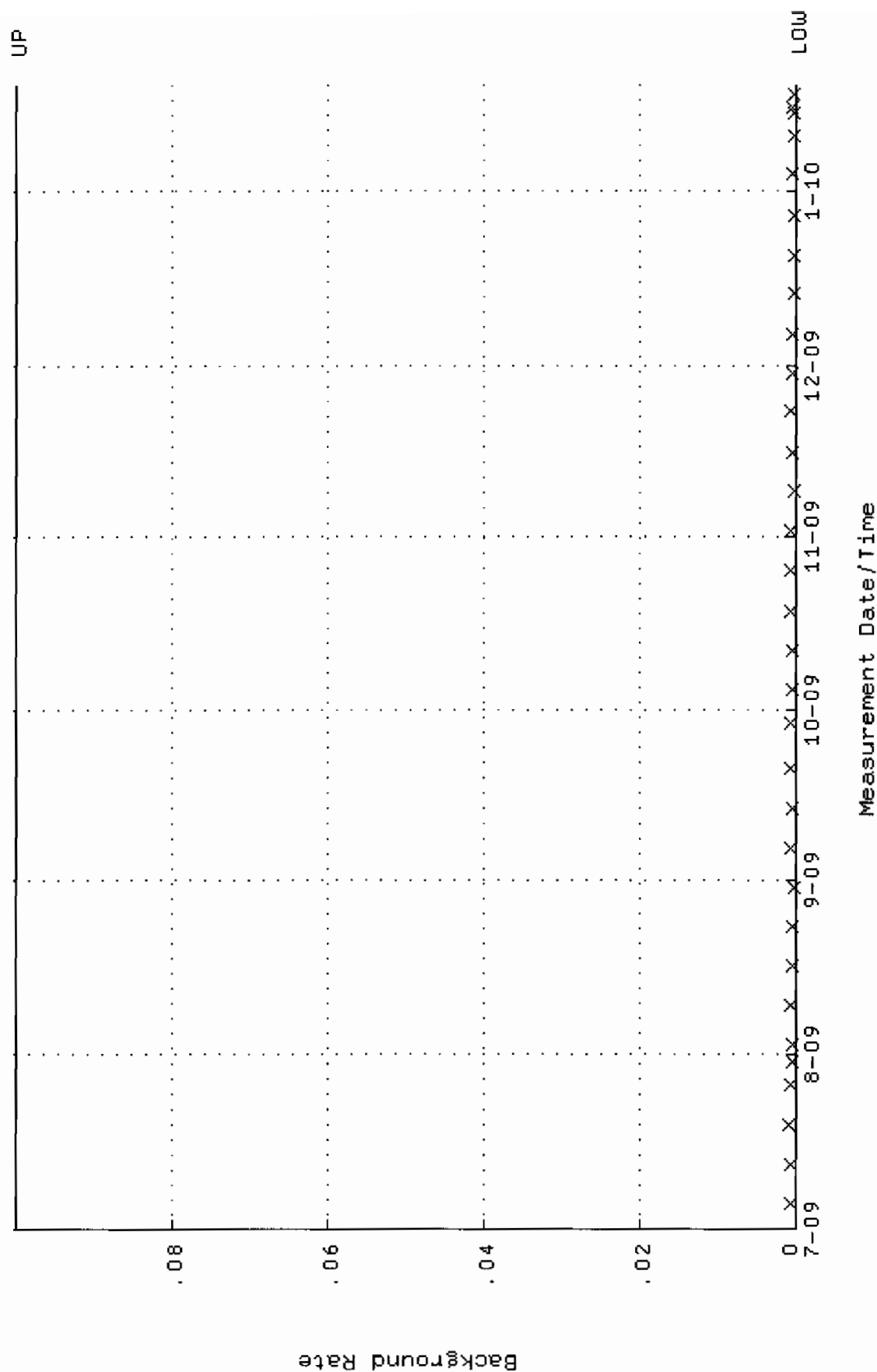


QA filename : DKA100:[ENV\_ALPHA.QA.W]w132.QAF;1  
 Parameter Name : NLAIVITY-60148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.9674 through 97.2272

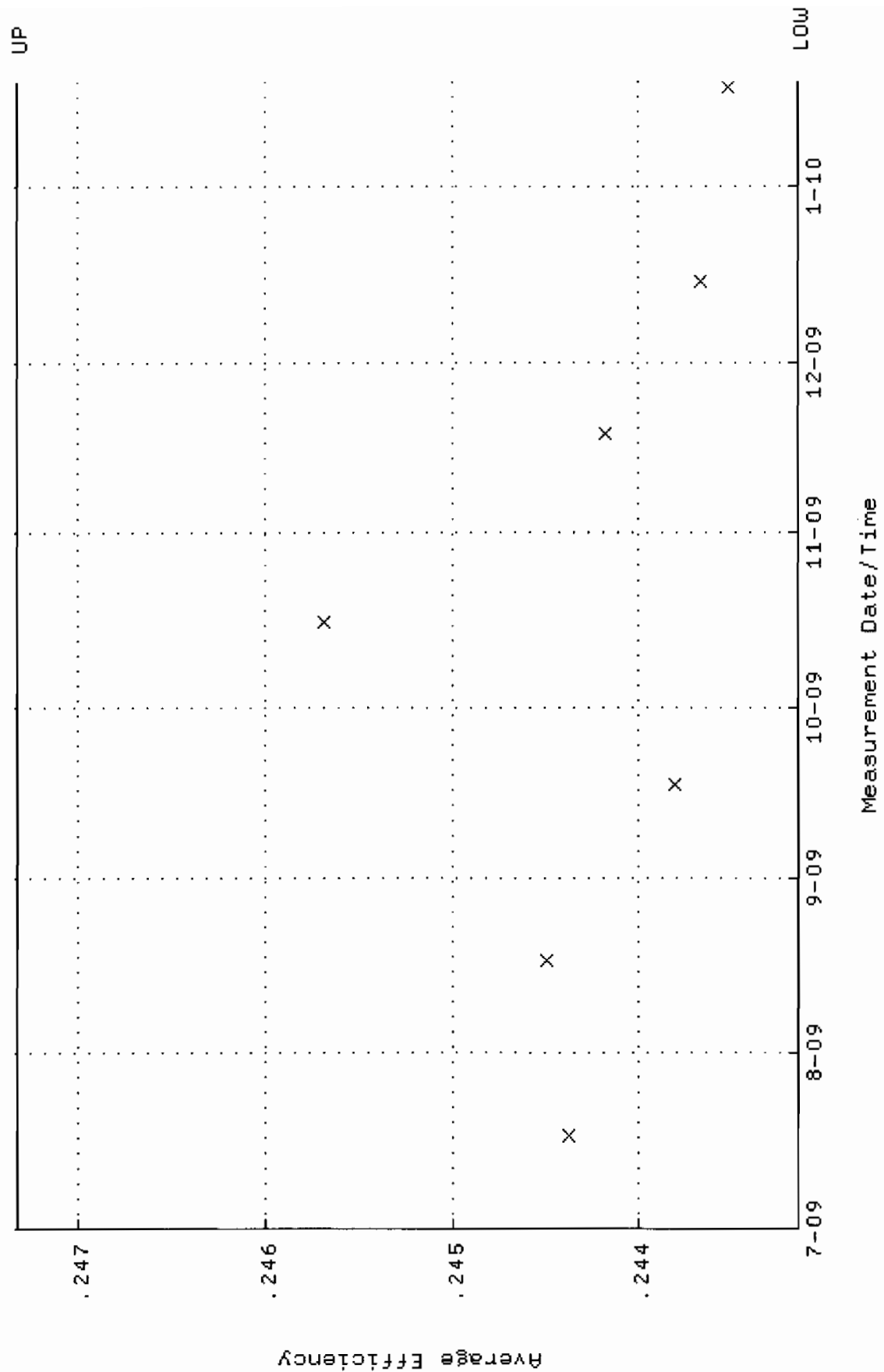




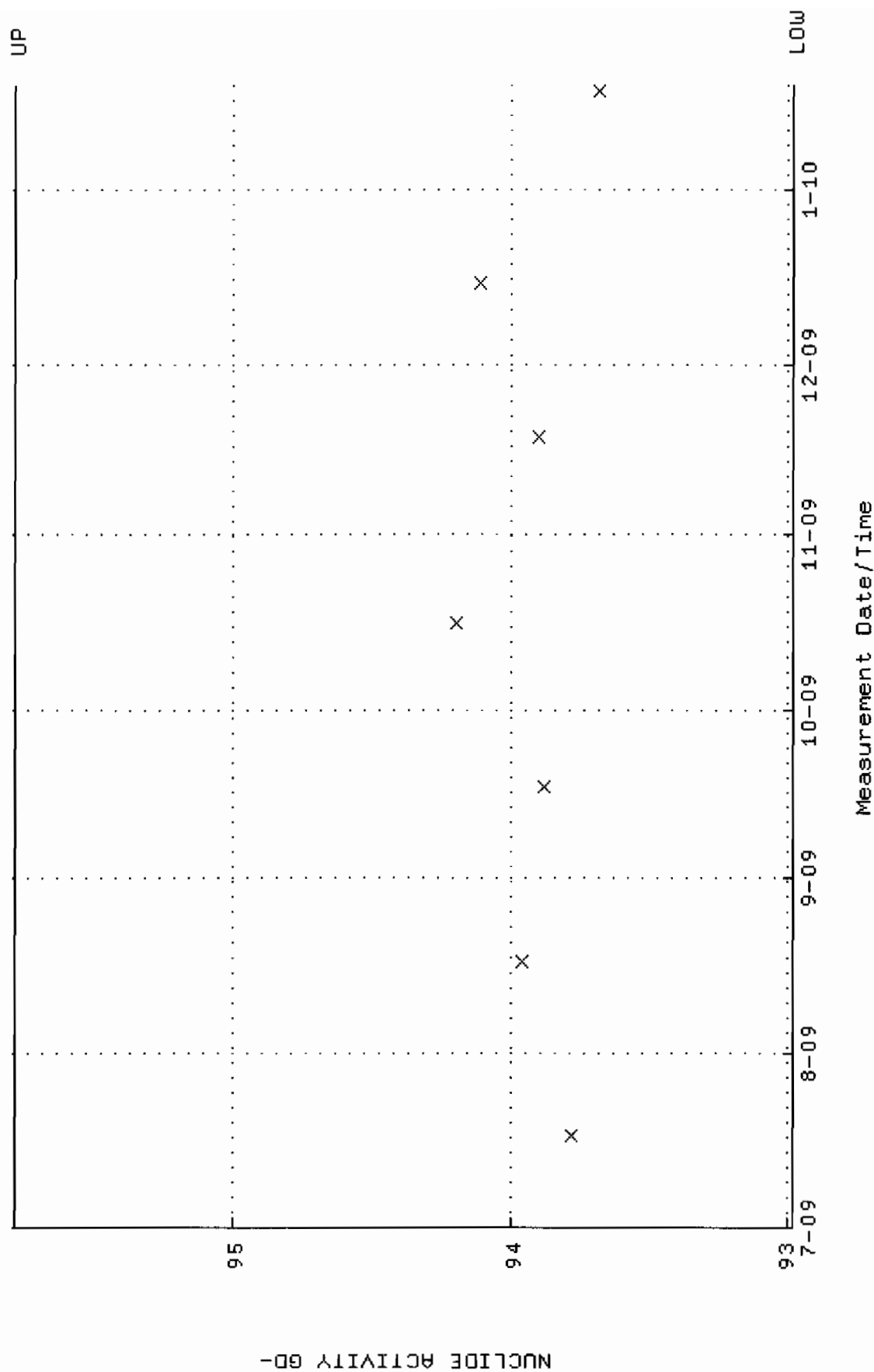
QA filename : DKA100:[ENV\_ALPHA.QA.B]B132.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:21 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



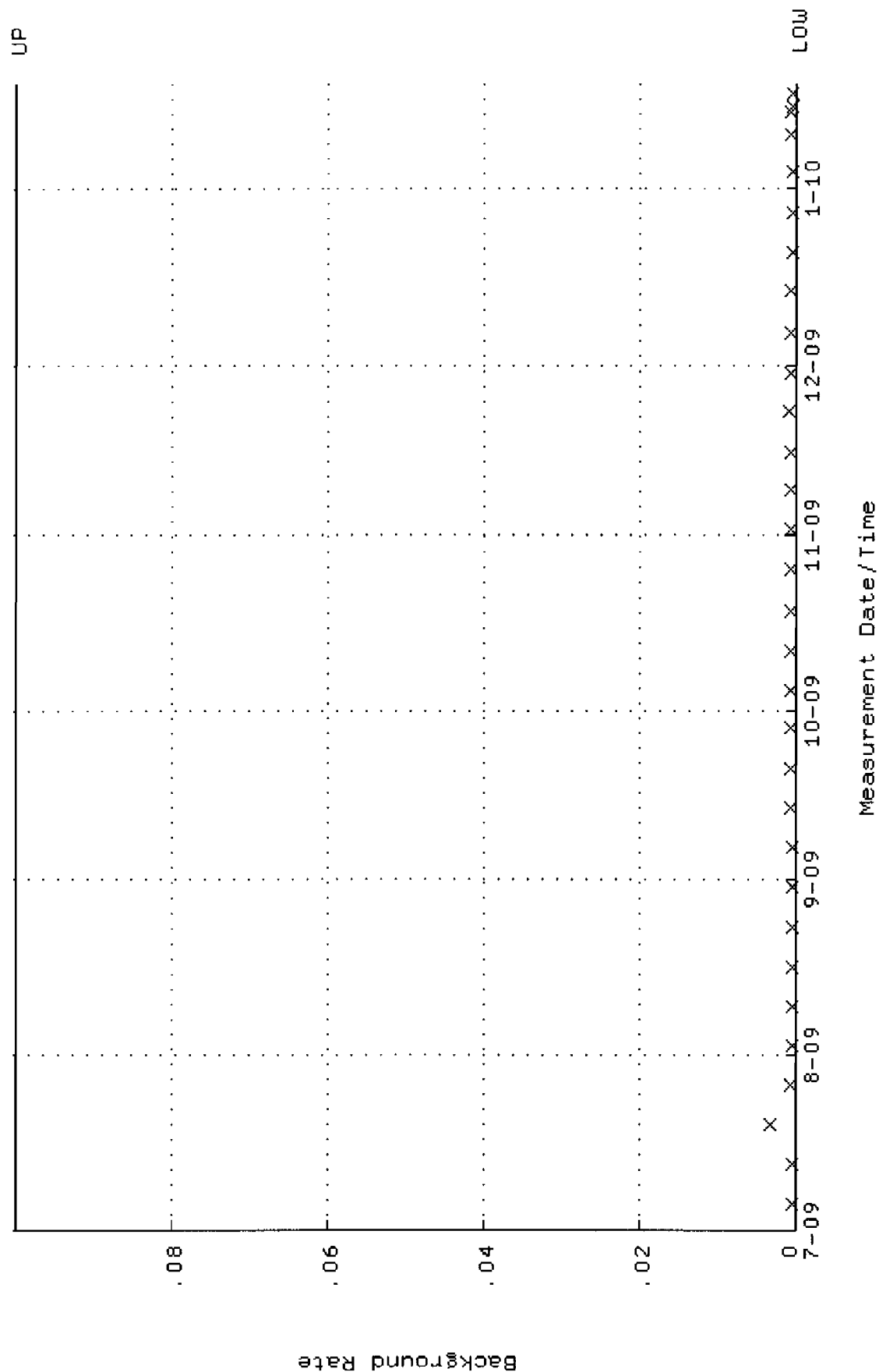
QA filename : DKA100:[ENV\_ALPHA.QA.W]u133.QAF;1  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 17-JUL-2009 09:12:20 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.243148 through 0.247324



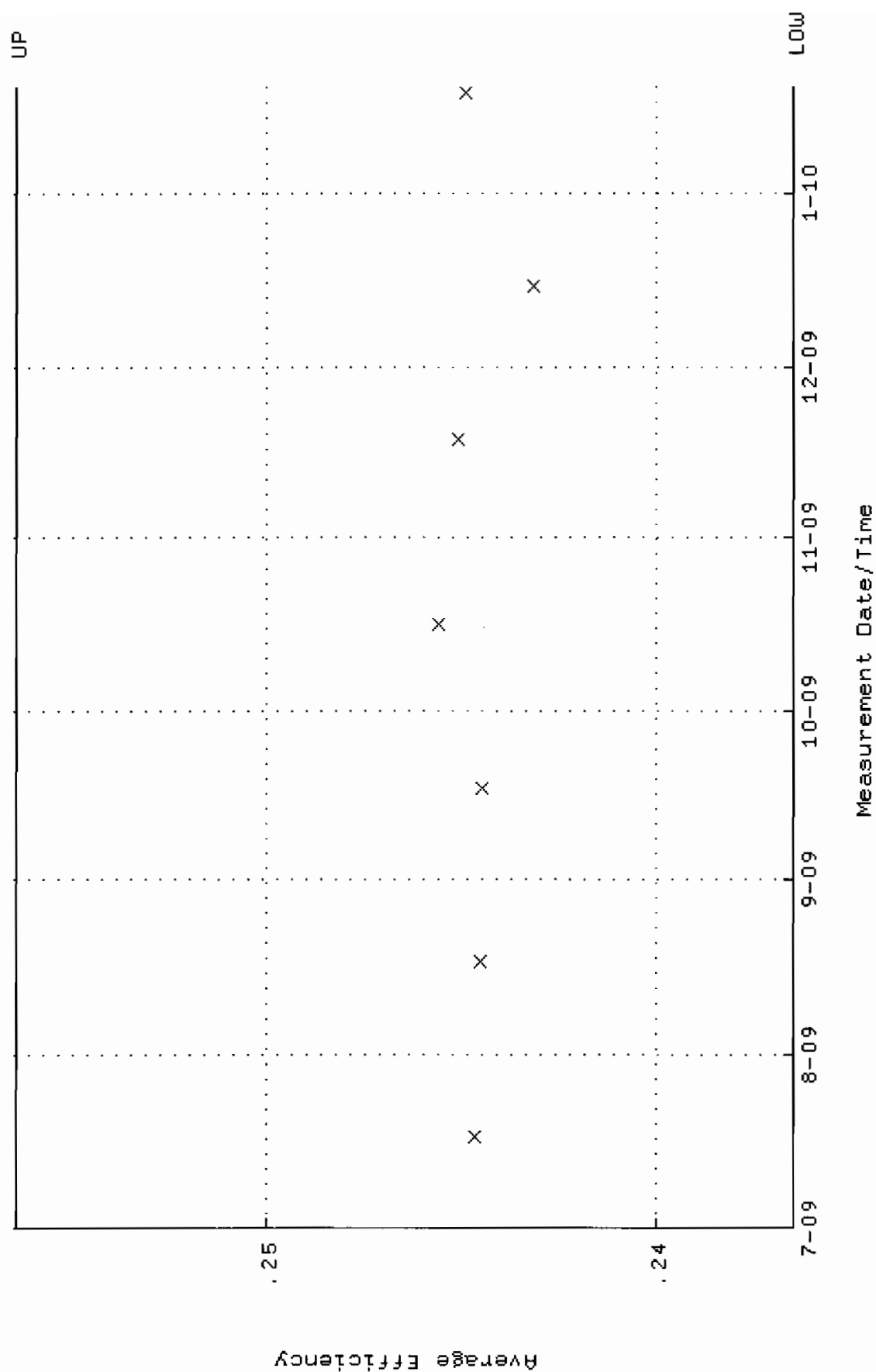
QA filename : DKA100:[ENV\_ALPHA.QA.W]W133.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:20 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 92.9792 through 95.7898



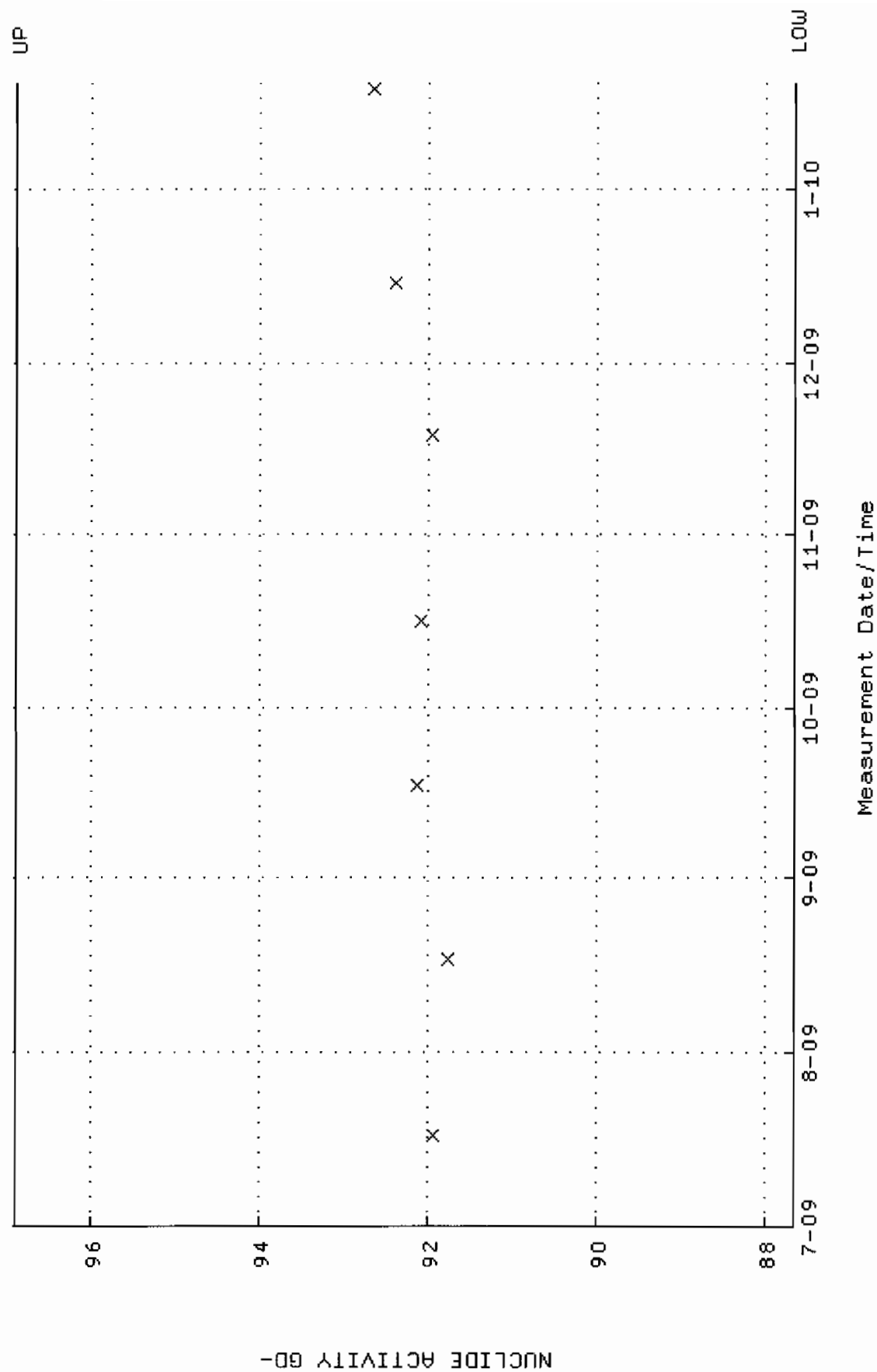
QA filename : DKA100:[ENV\_ALPHA.QA.B]B133.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:25 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



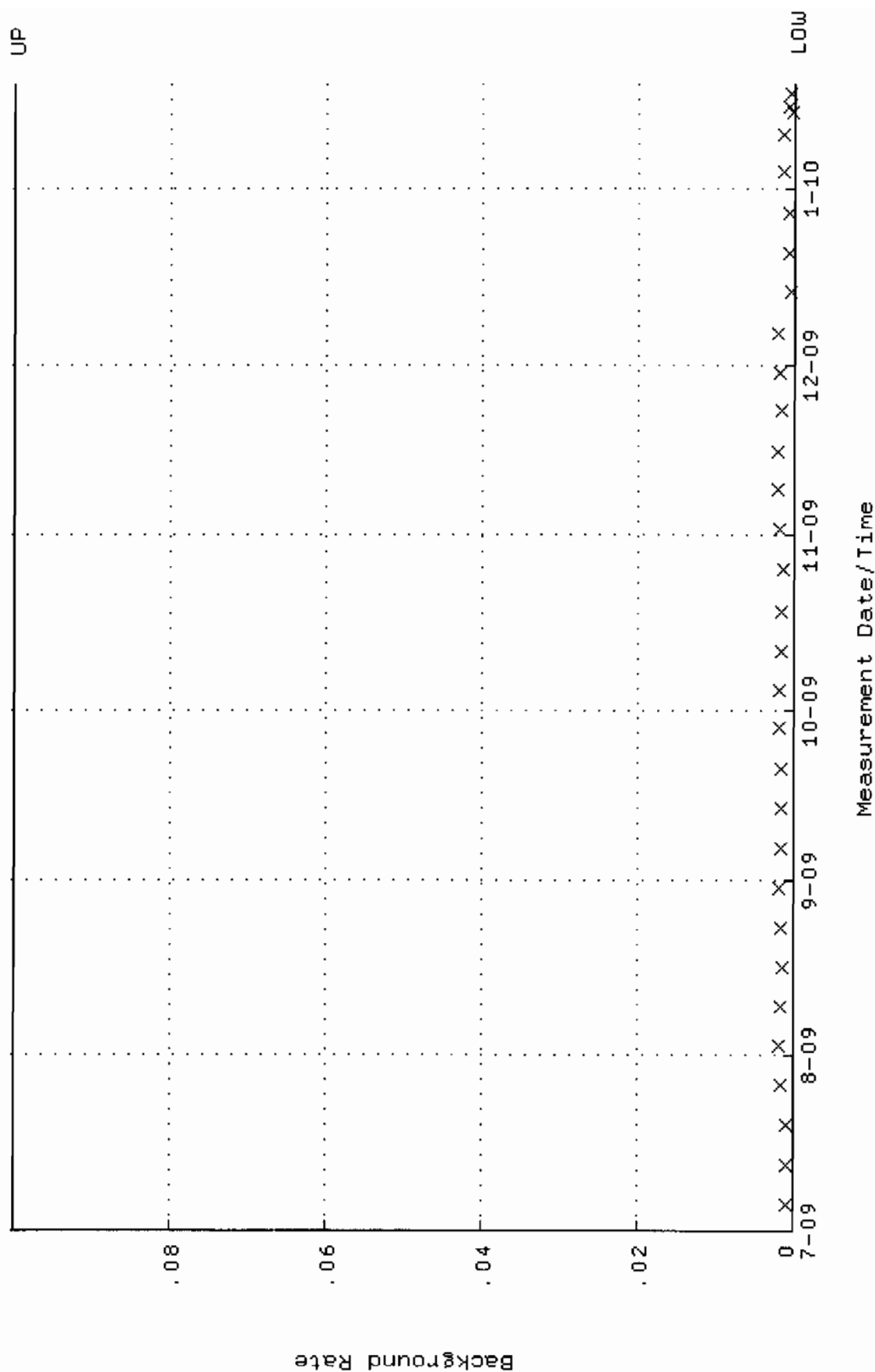
QA filename : DKA100:[ENV\_ALPHA.QA.W]W134.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:12:25 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.236455 through 0.256455



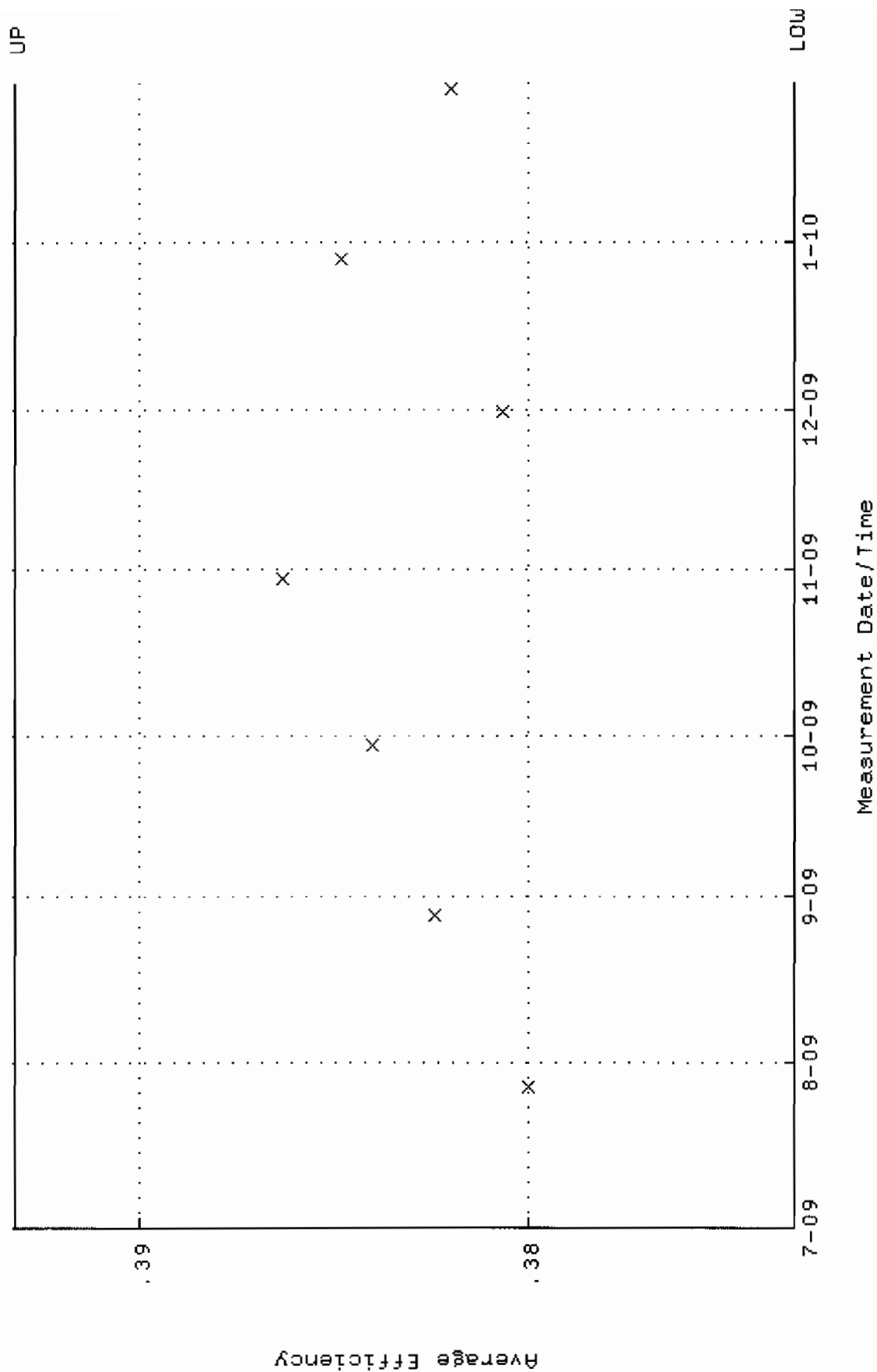
QA filename : DKA100:[ENV\_ALPHA.QA.W]U134.QAF;1  
Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 17-JUL-2009 09:12:25 through 19-JAN-2010 12:00:00  
Lower/Upper Lmts: 87.6576 through 96.8848



QA filename : DKA100:[ENV\_ALPHA.QA.B]B134.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:30 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

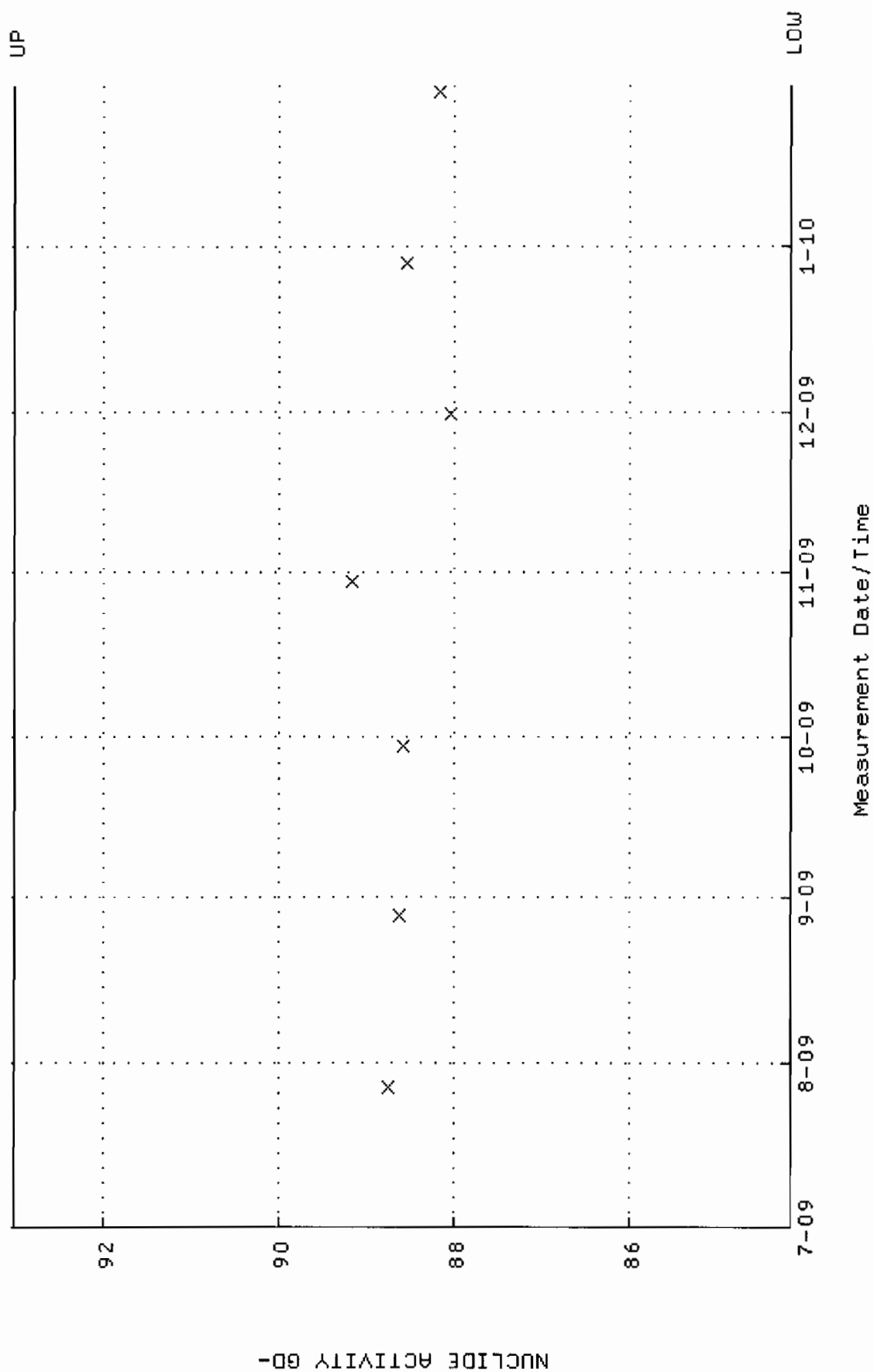


QA filename : DKA100:[ENV\_ALPHA.QA.W]W211.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:47:25 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.373189 through 0.393189

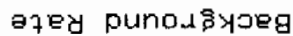




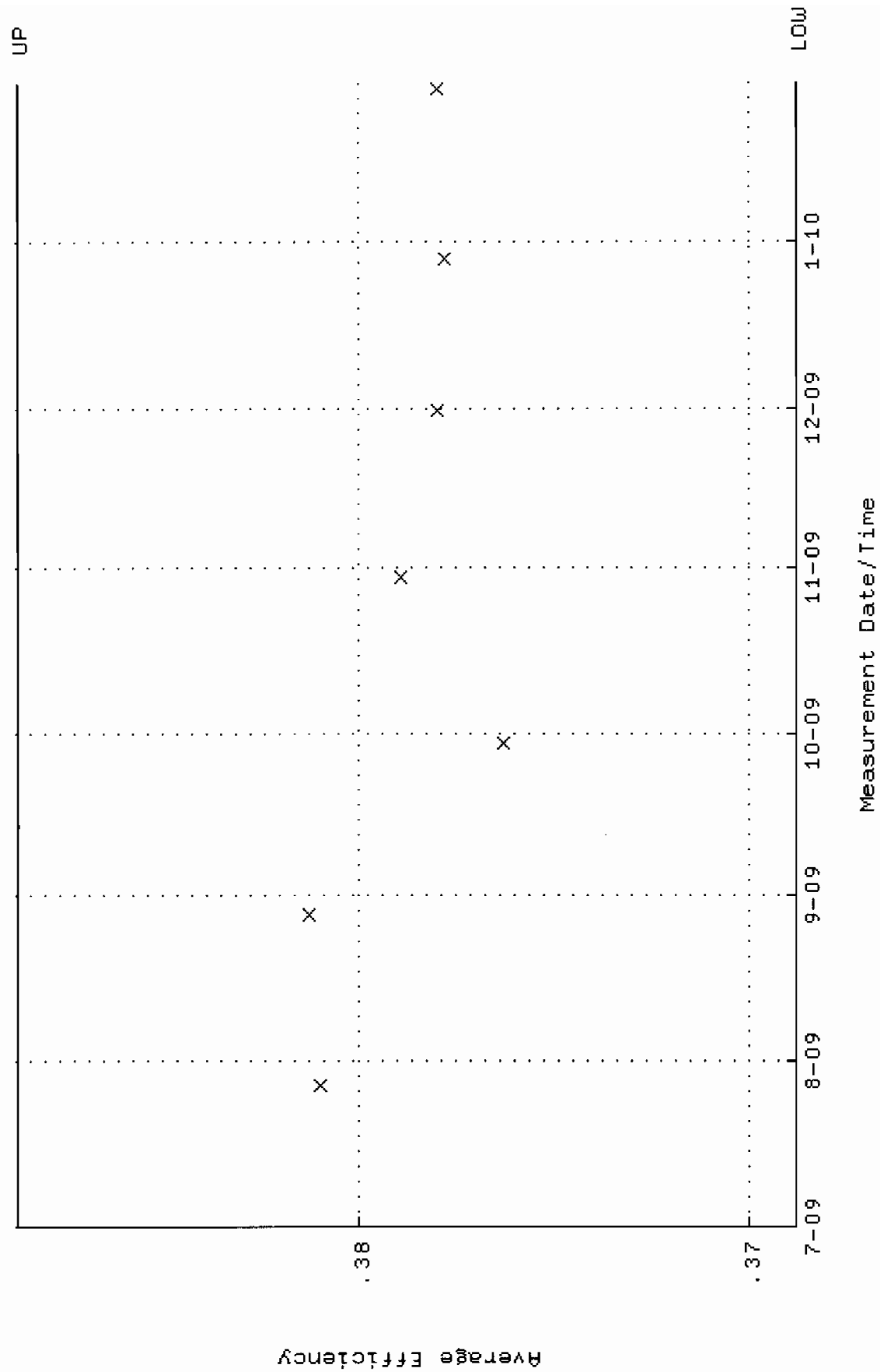
QA filename : DKA100:[ENV\_ALPHA.QA.W]W211.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GO-148)  
 Start/End Dates : 27-JUL-2009 11:47:25 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.1583 through 93.0171



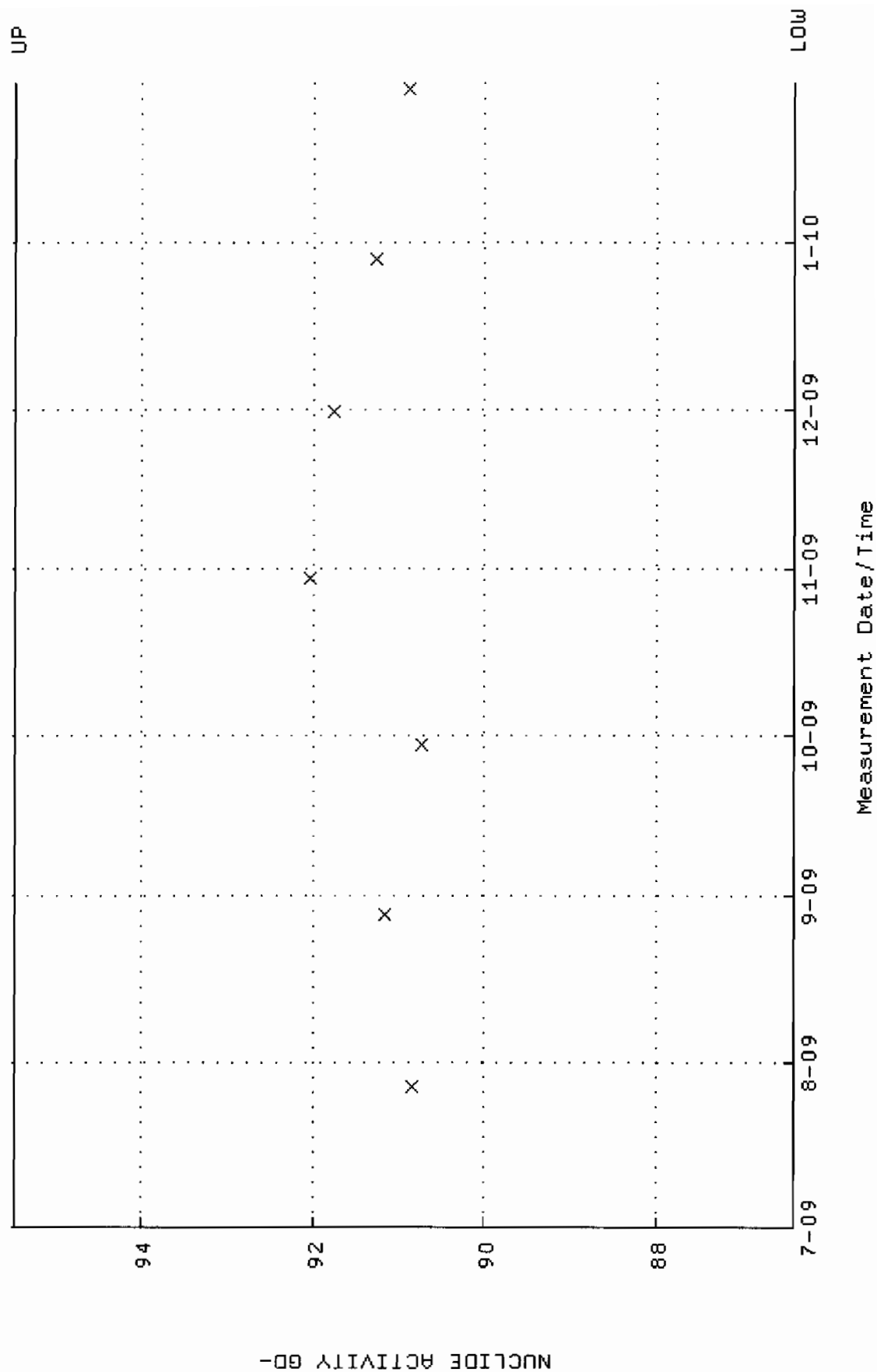
Lower/Upper Lmts: 0.00000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W212.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:47:32 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.368761 through 0.388761



QA filename : DKA100:[ENV\_ALPHA.QA.W]U212.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:47:32 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.3850 through 95.4782

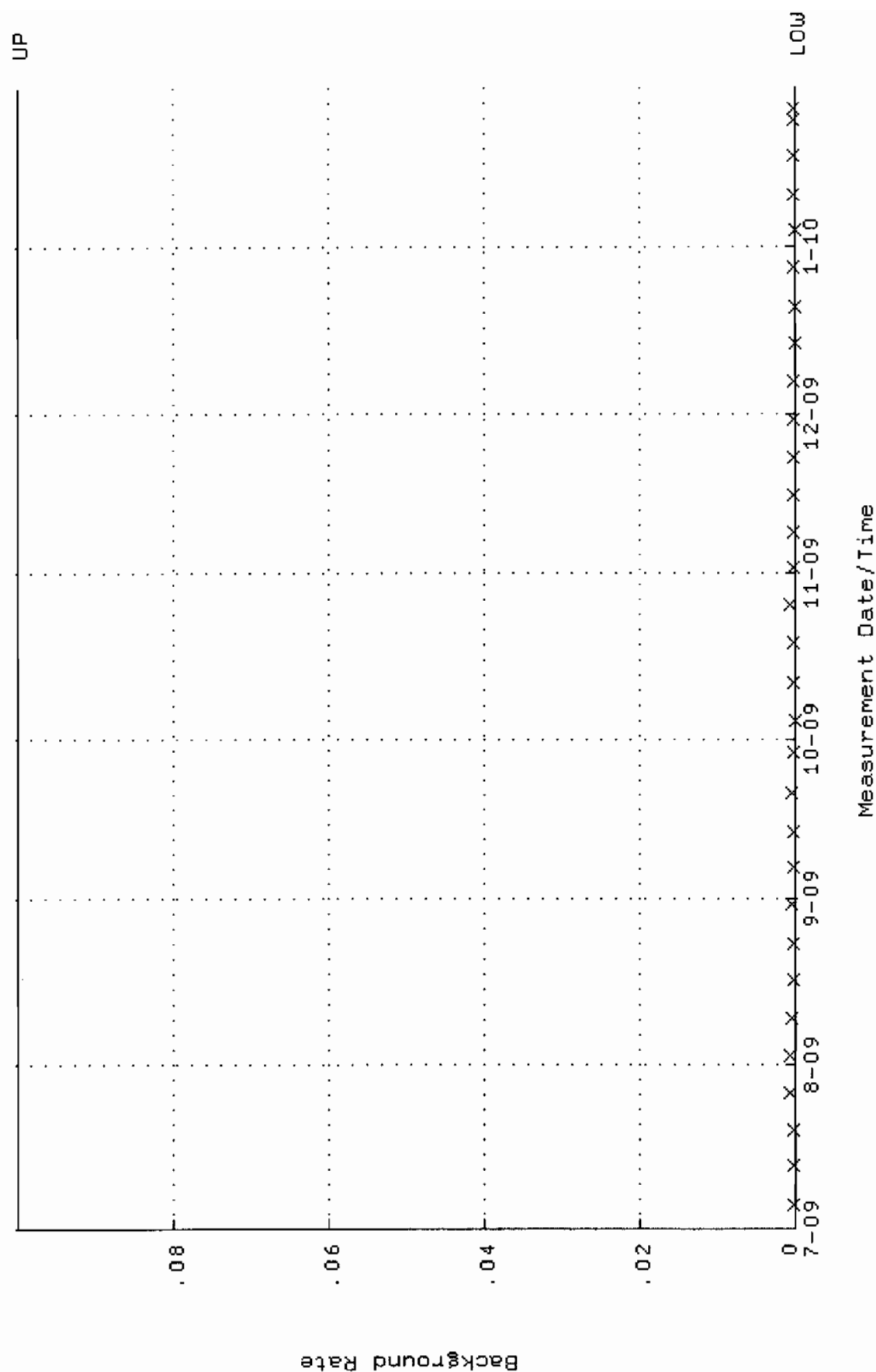


QA filename : DKA100:[ENV\_ALPHA.QA,B]B212.QAF;1

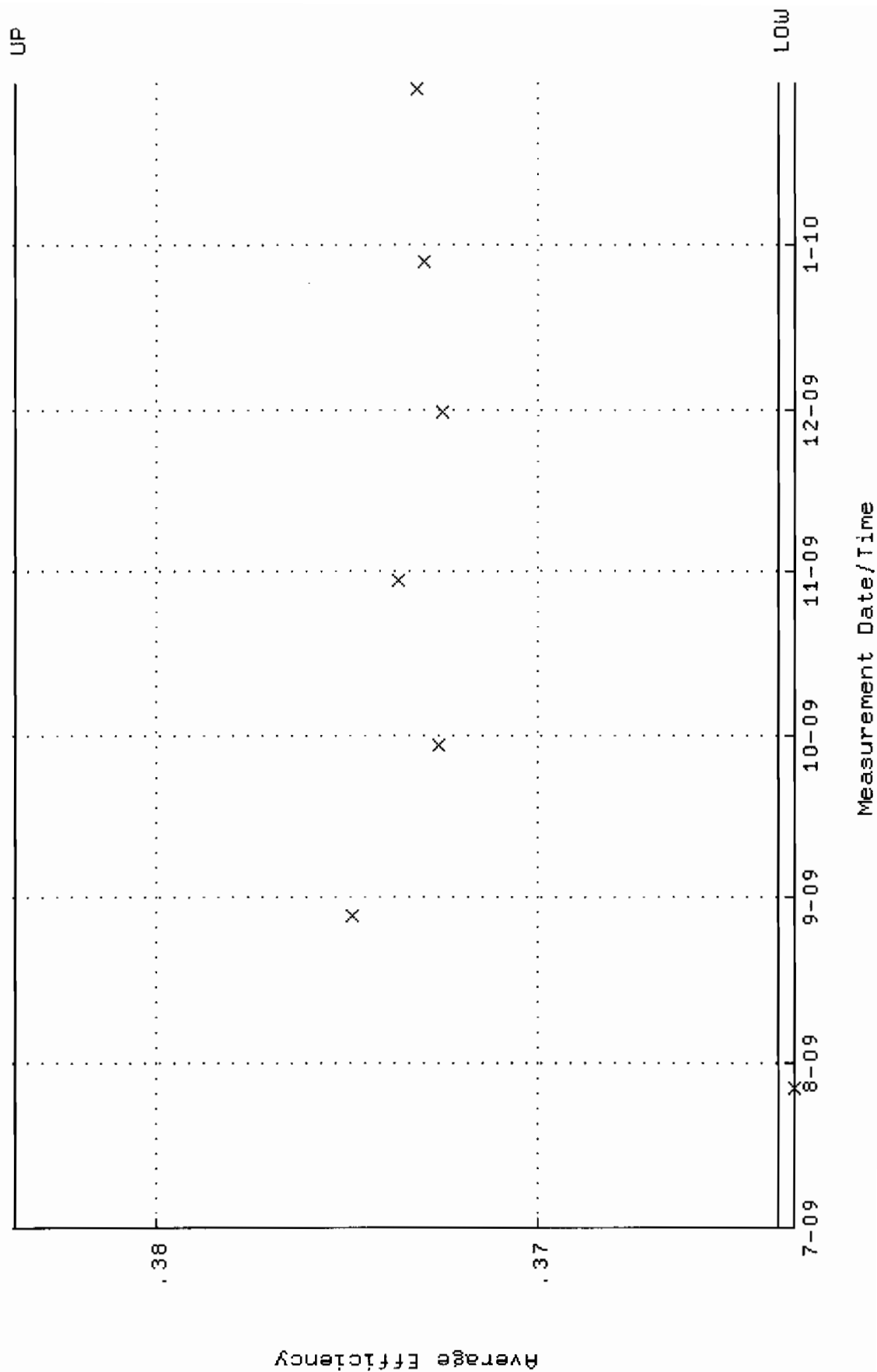
Parameter Name : BACKRATE (Background Rate)

Start/End Dates	5-JUL-2009 15:03:33 through 30-JAN-2010 12:00:00
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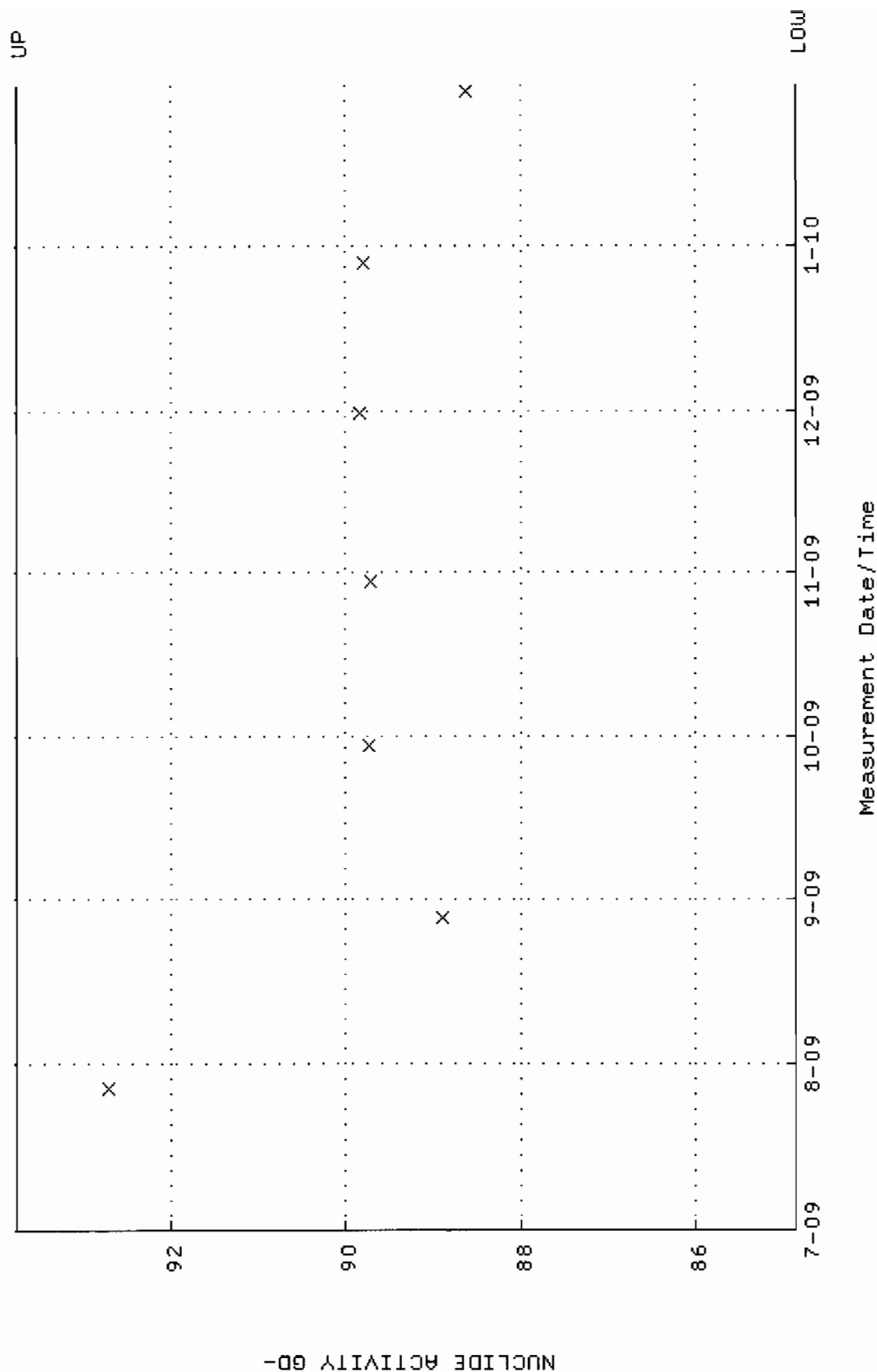
Lower/Upper Lmts: 0.000000E+00 through 0.100000



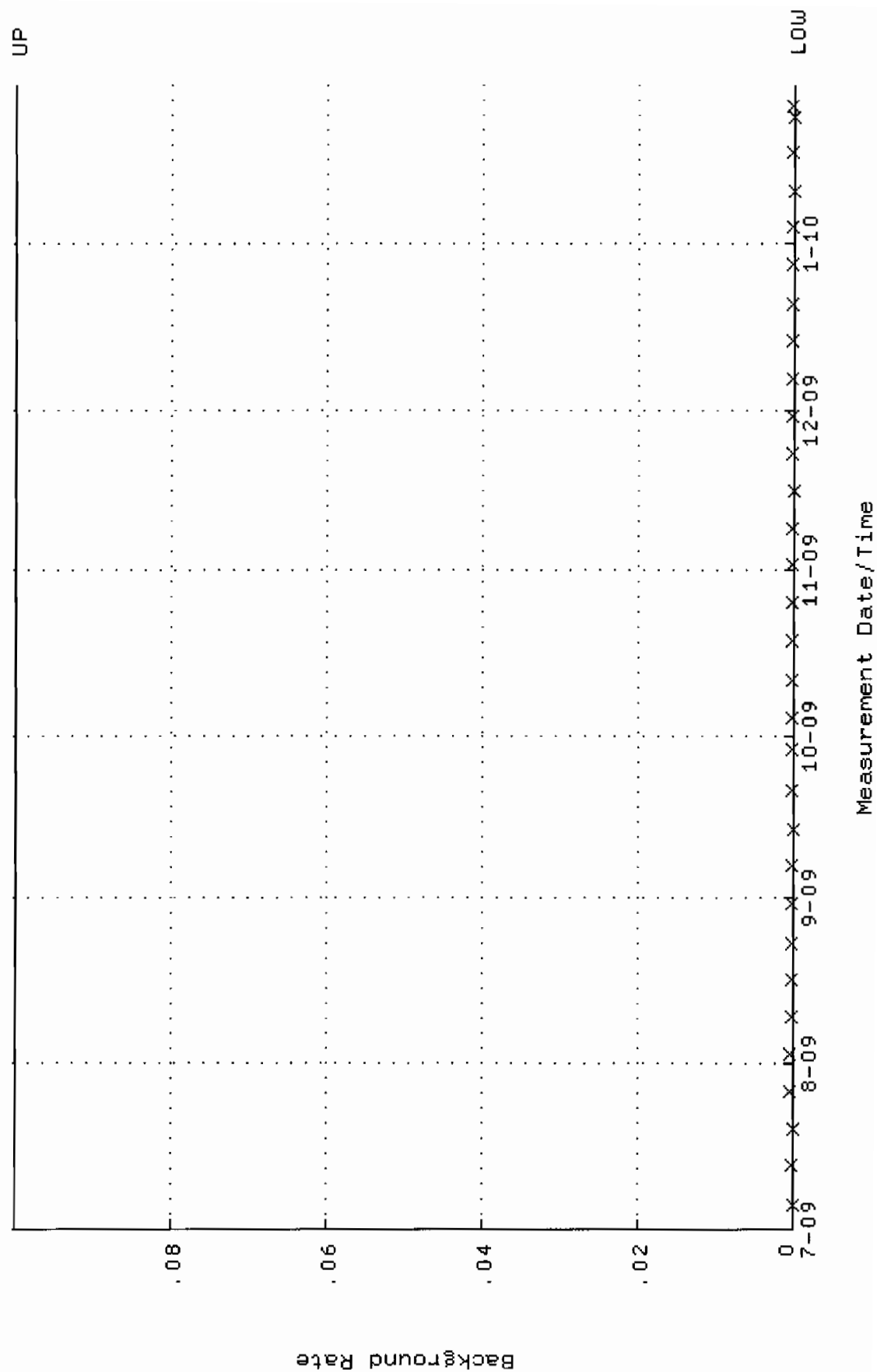
QA filename : DKA100:[ENV\_ALPHA.QA.W]W213.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:47:39 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.363706 through 0.383706



QA filename : OKA100:[ENV\_ALPHA.QA.W]W213.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:47:39 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.8395 through 93.7699

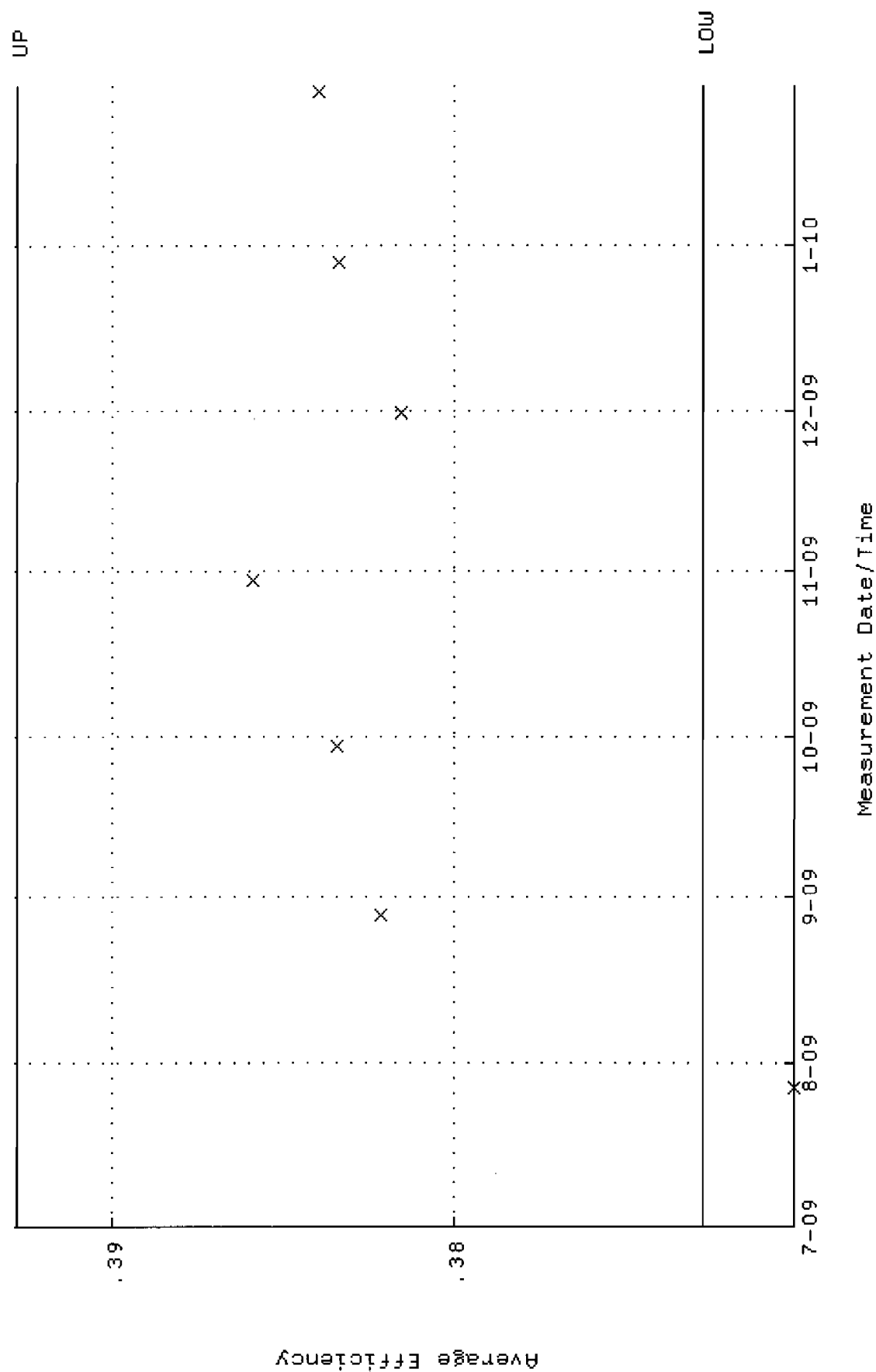


QA filename : DKA100:[ENV\_ALPHA.QA.B]B213.QAF;1  
Parameter Name : BACKRATE (Background Rate)  
Start/End Dates : 5-JUL-2009 15:03:38 through 30-JAN-2010 15:03:38  
Lower/Upper Lmts: 0.000000E+00 through 0.100000

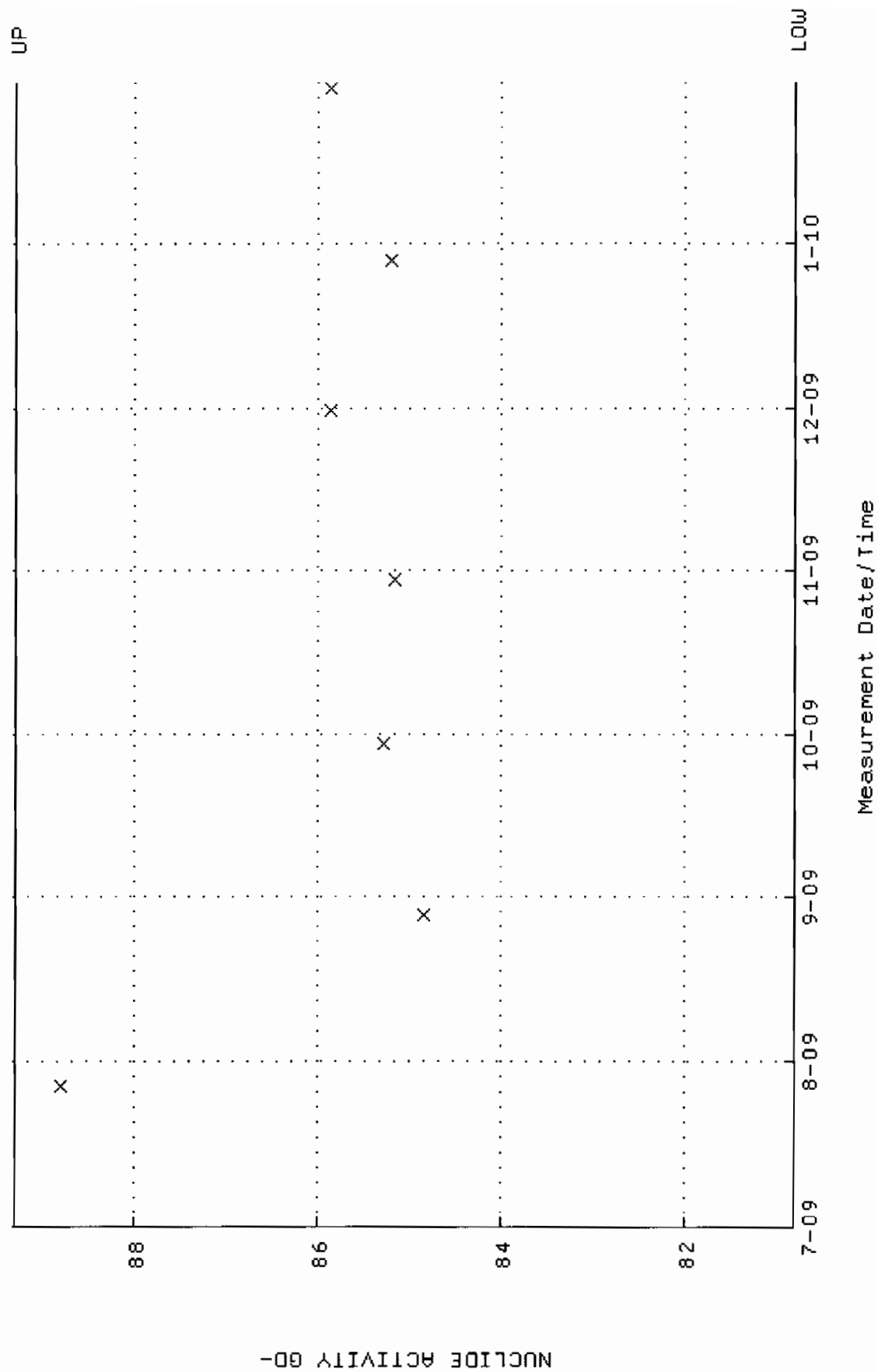




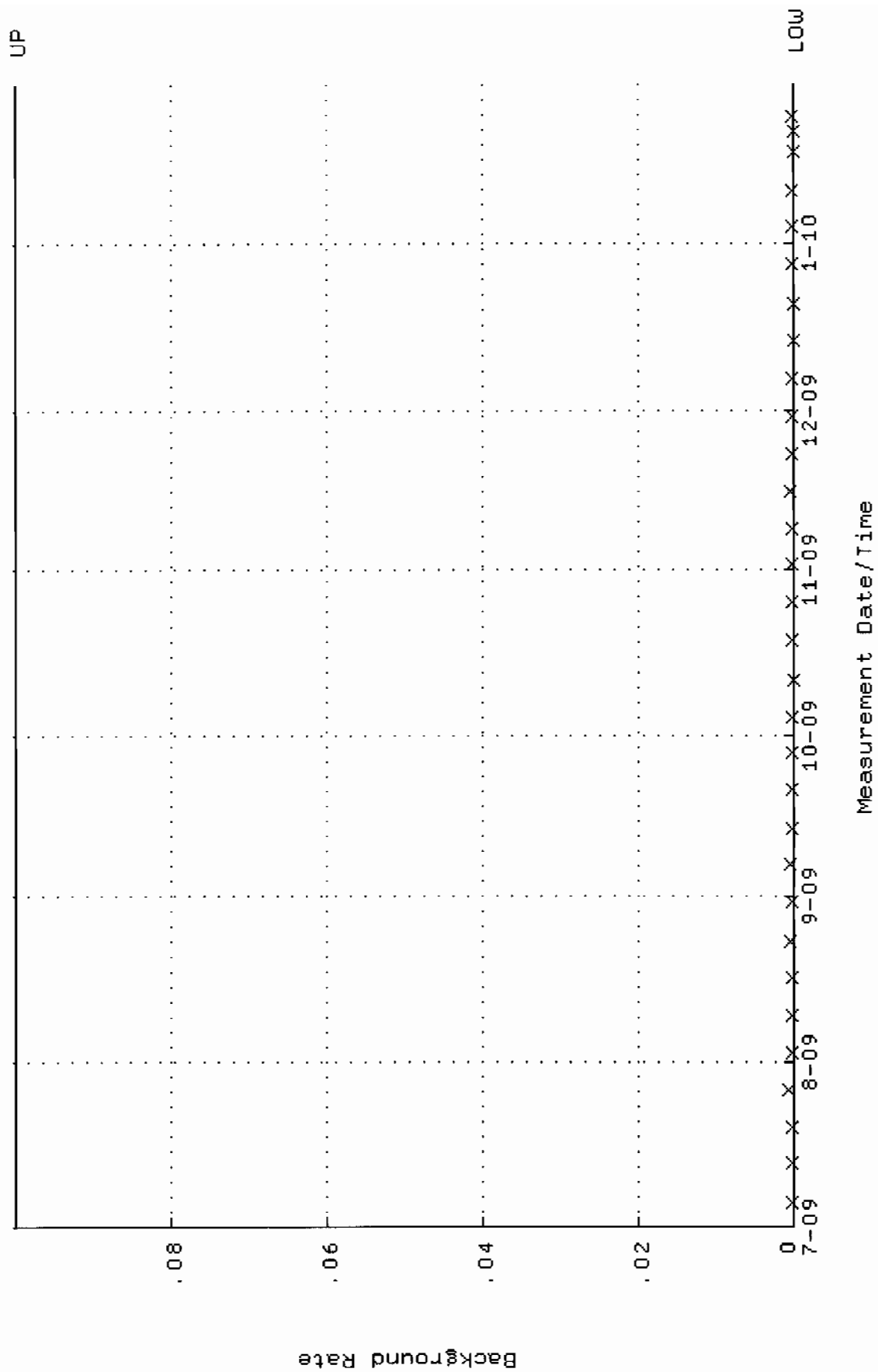
QA filename : DKA100:[ENV\_ALPHA.QA.W]W234.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:49:54 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.372763 through 0.392763



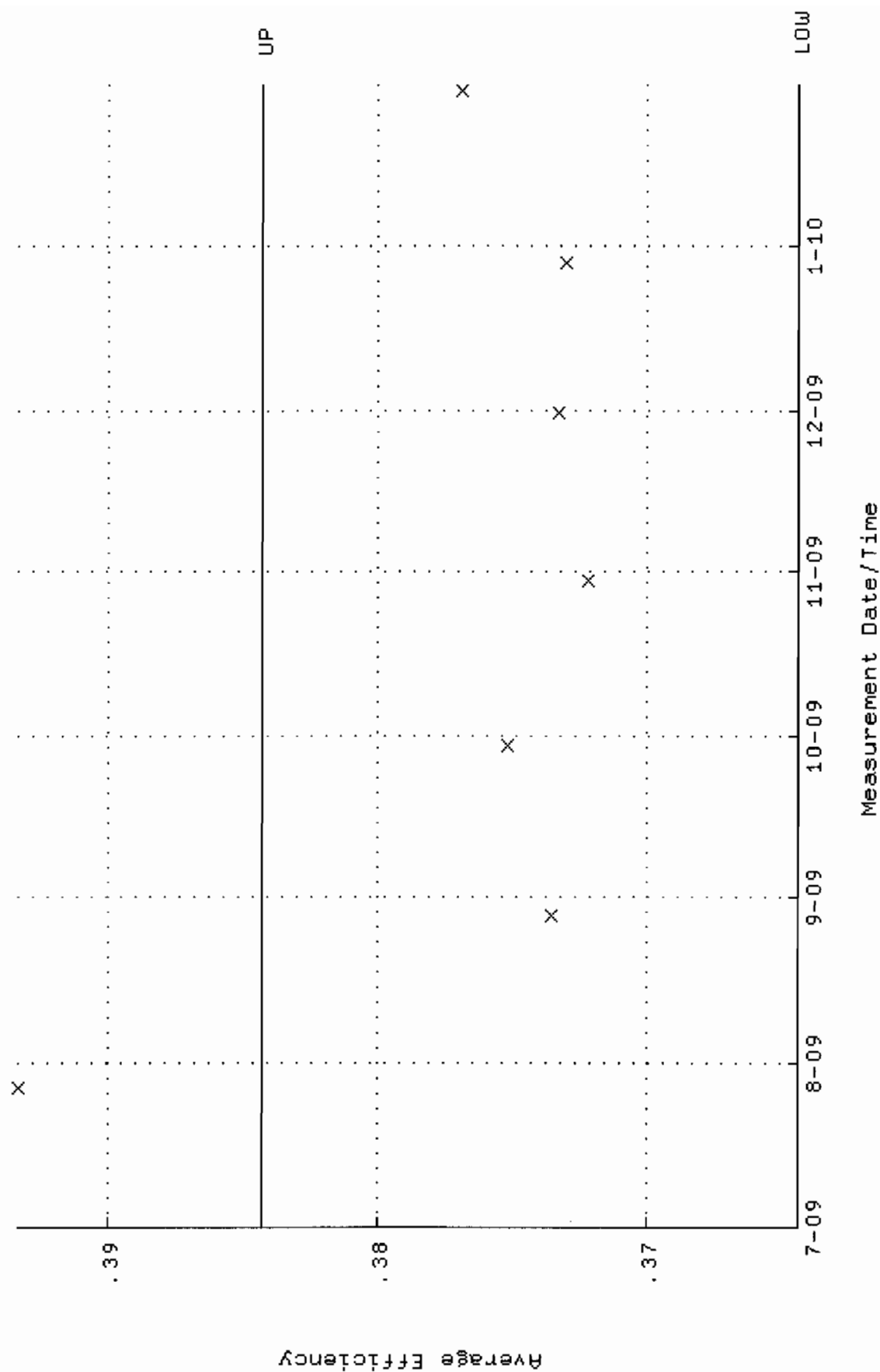
QA filename : DKA100:[ENV\_ALPHA.QA.W]W234.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:49:54 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.7996 through 89.3048



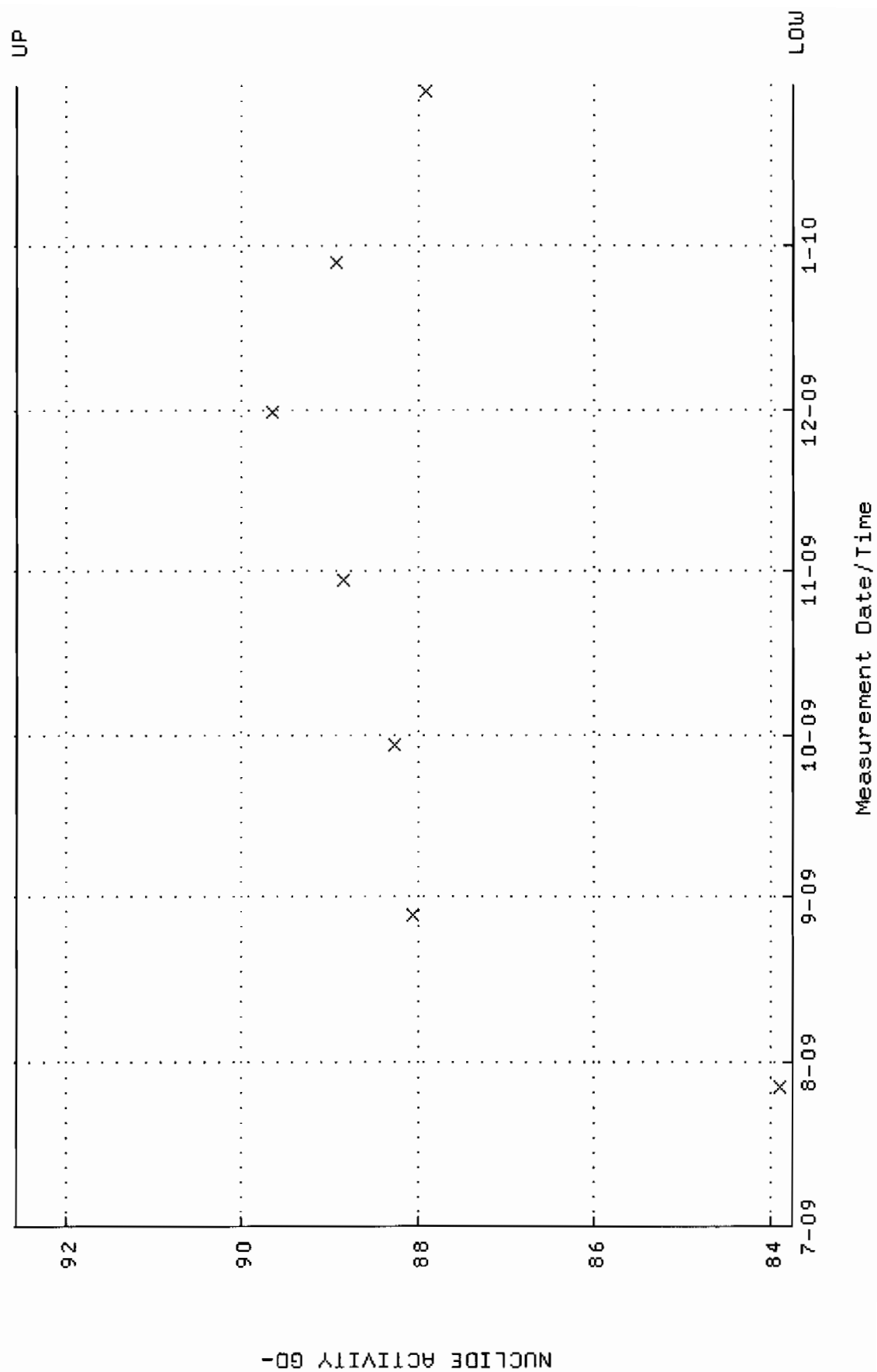
QA filename : DKA100:[ENV\_ALPHA.QA.B]B234.QAF;1  
Parameter Name : BACKRATE (Background Rate)  
Start/End Dates : 5-JUL-2009 15:05:15 through 30-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.000000E+00 through 0.100000



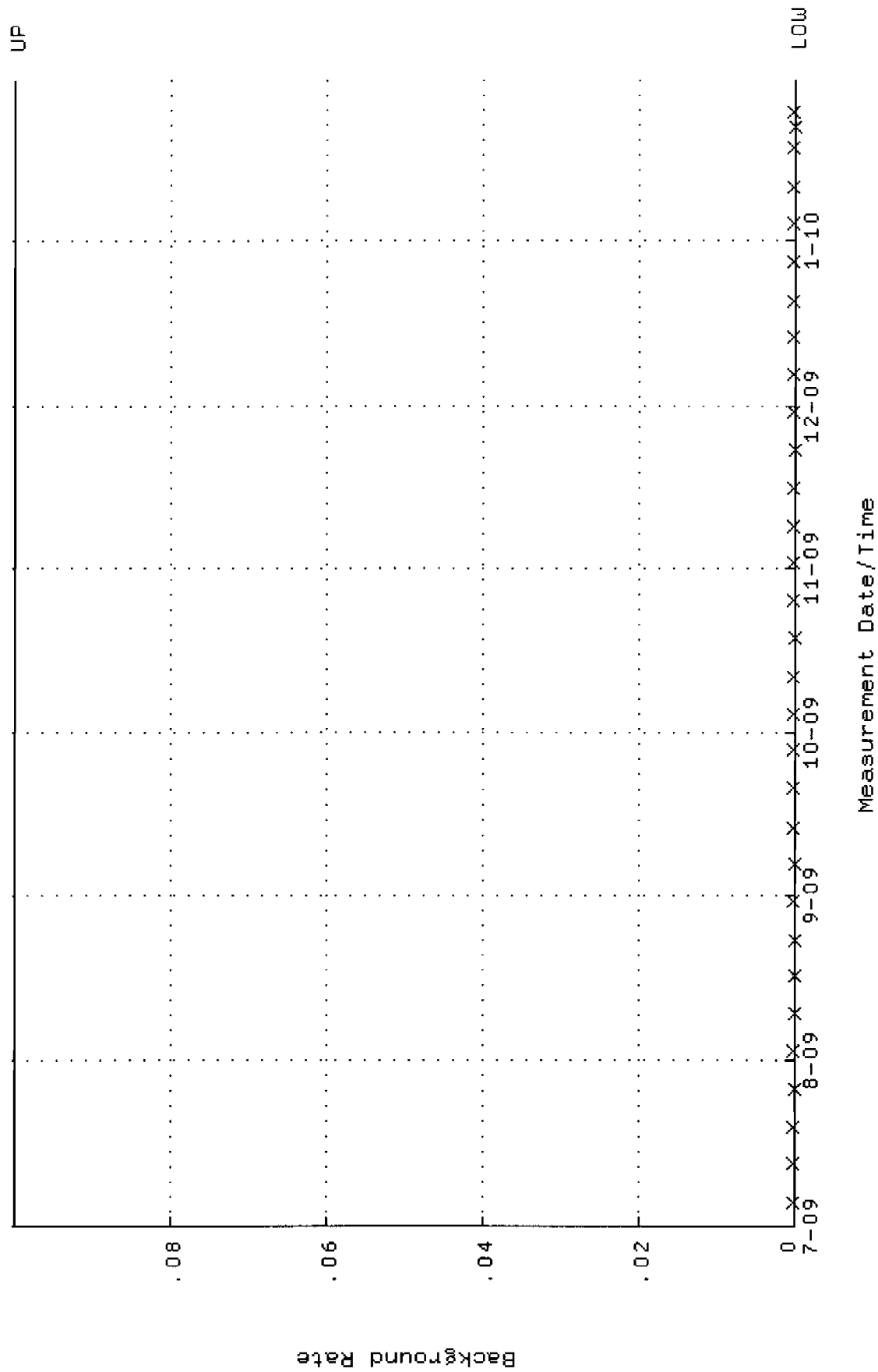
QA filename : DKA100:[ENV\_ALPHA.QA.W]W235.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:01 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.364314 through 0.384314



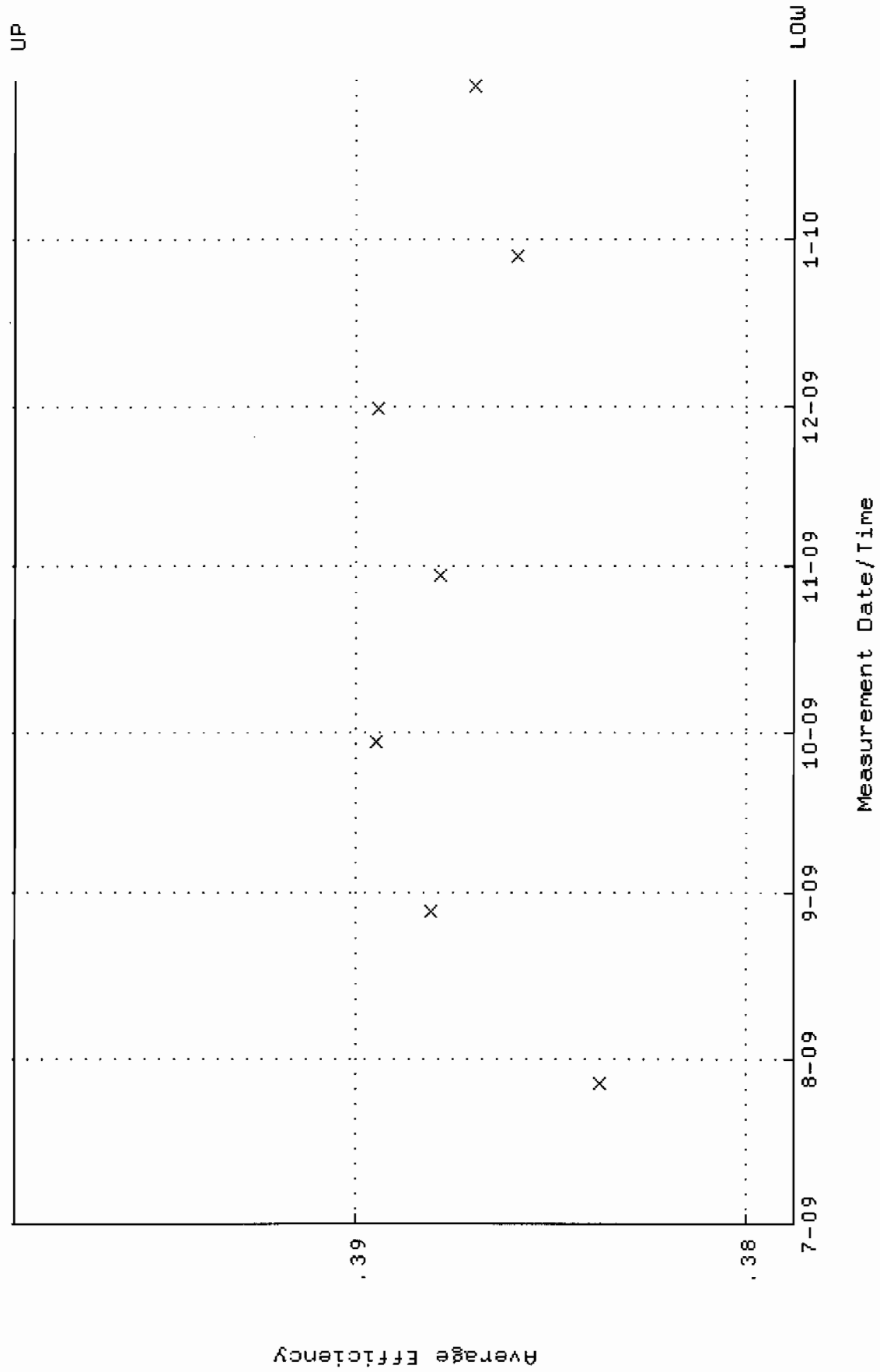
QA filename : DKA100:[ENV\_ALPHA.QA.W]W235.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:50:01 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.7416 through 92.5566



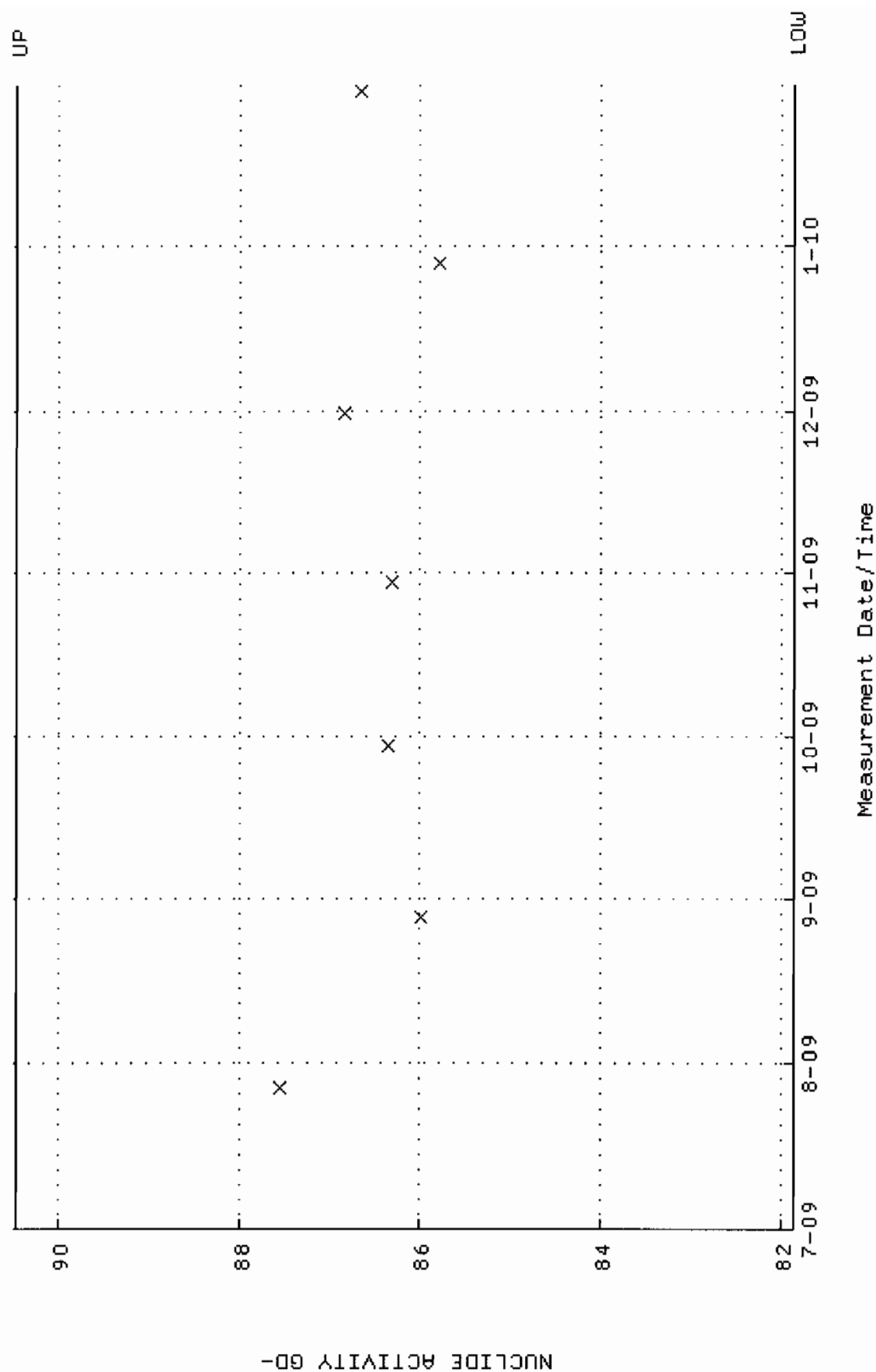
QA filename : DKA100:[ENV\_ALPHA.QA.B]B235.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:05:20 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W236.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:07 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.378766 through 0.398766

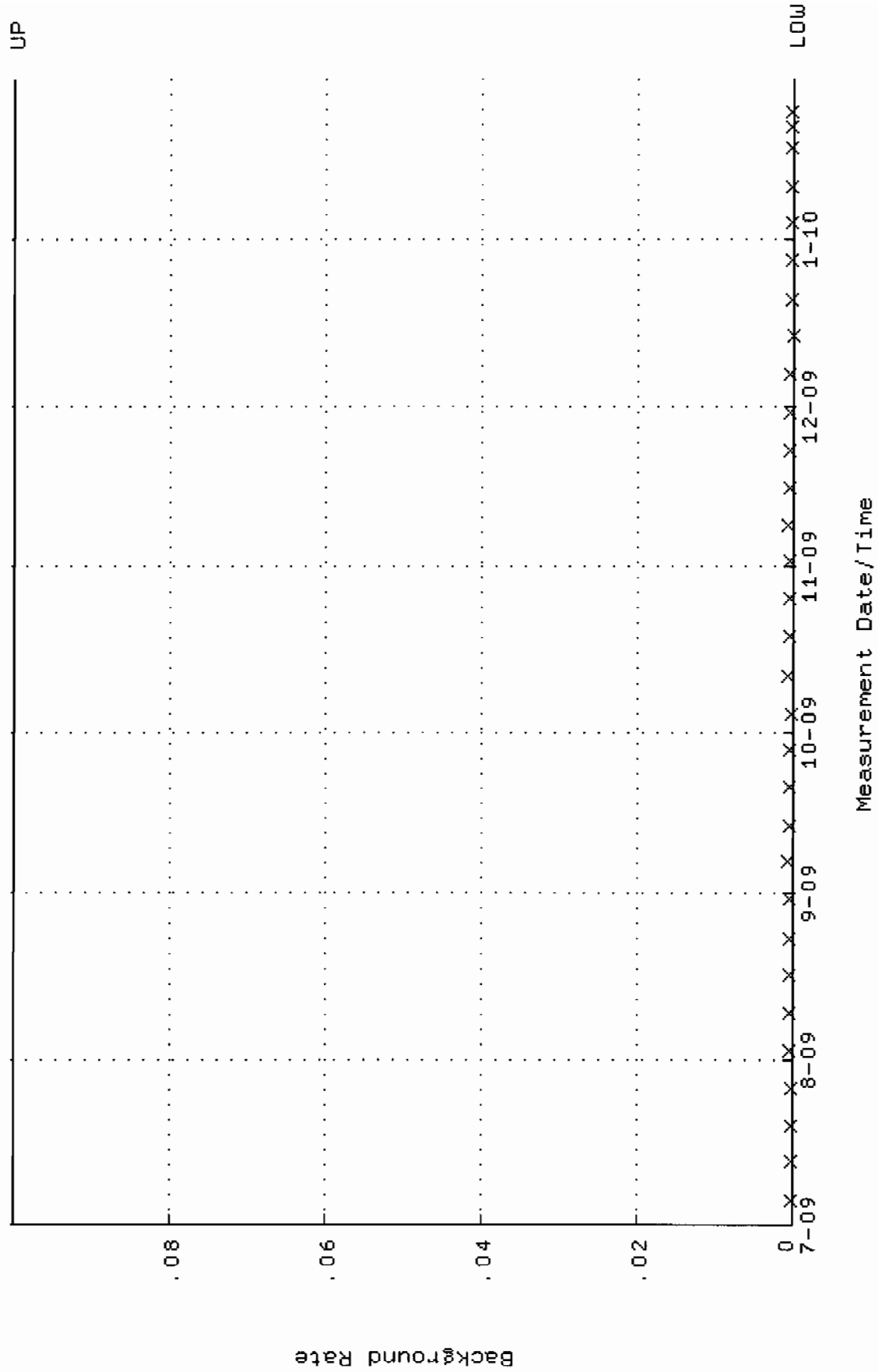


QA filename : DKA100:[ENV\_ALPHA.QA.W]W236.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:50:07 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 81.8490 through 90.4646

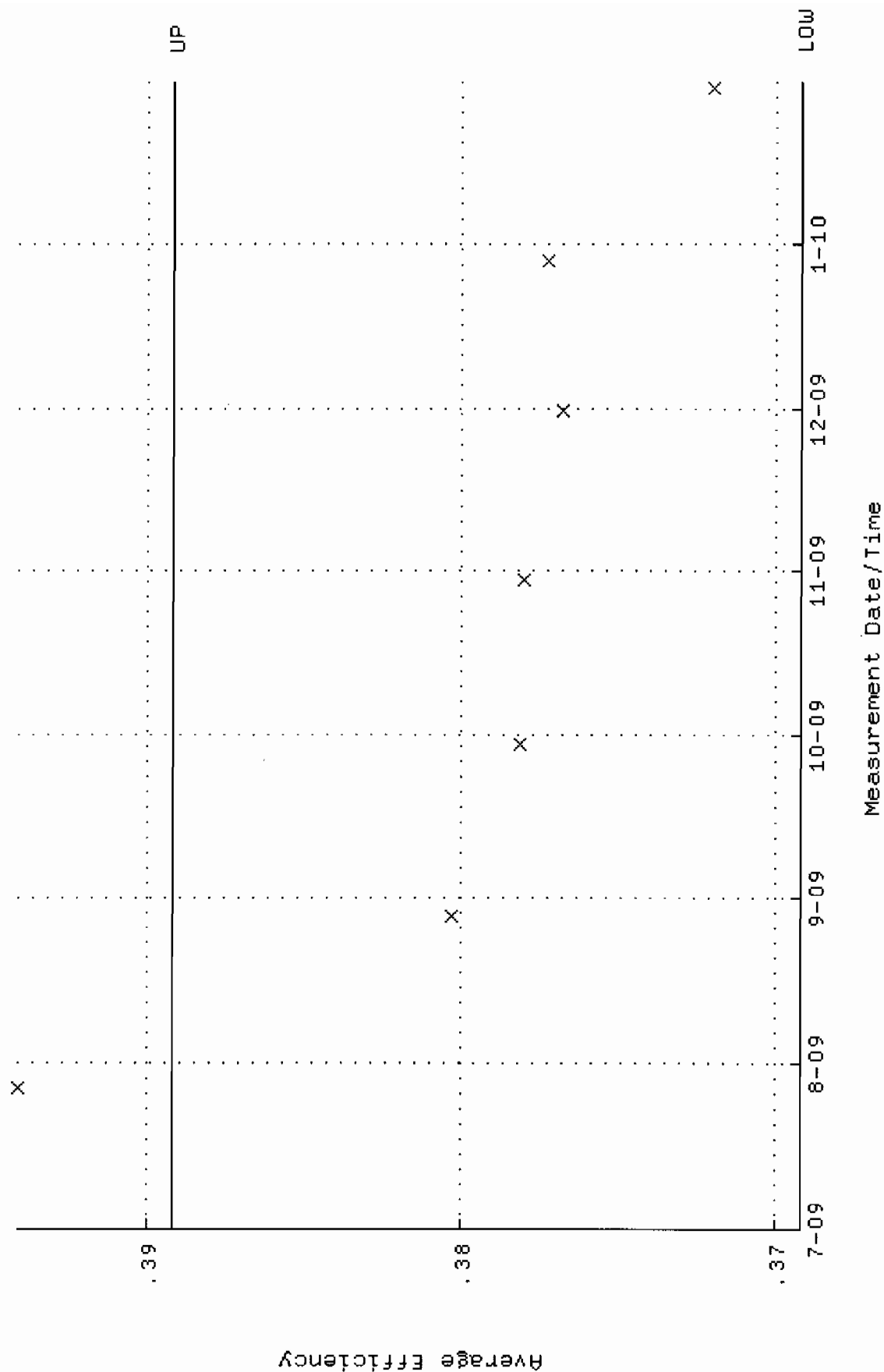




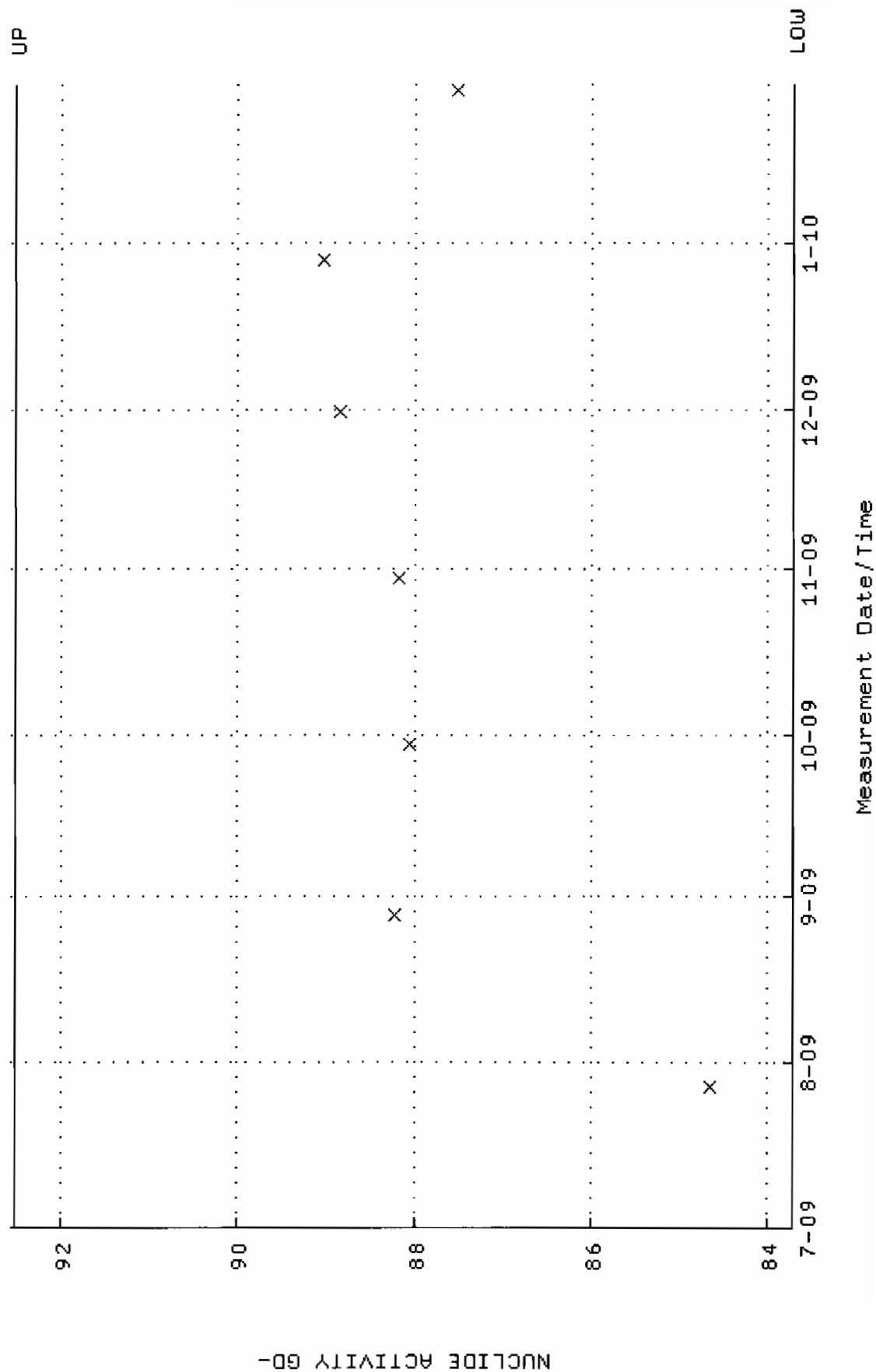
QA filename : DKA100:[ENV\_ALPHA.QA.B]B236.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:05:24 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



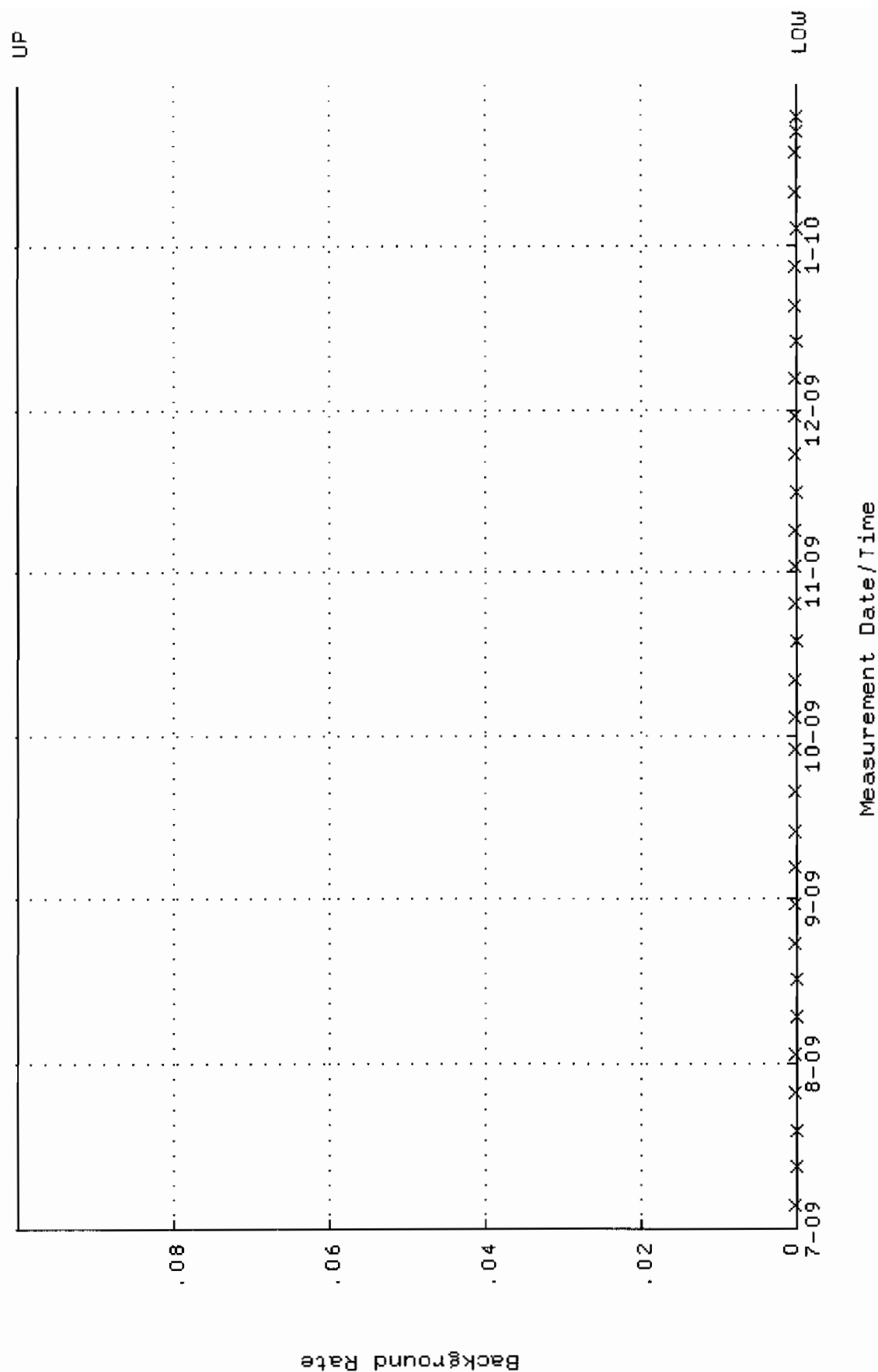
QA filename : DKA100:[ENV\_ALPHA.QA.W]W241.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:38 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.369174 through 0.389174



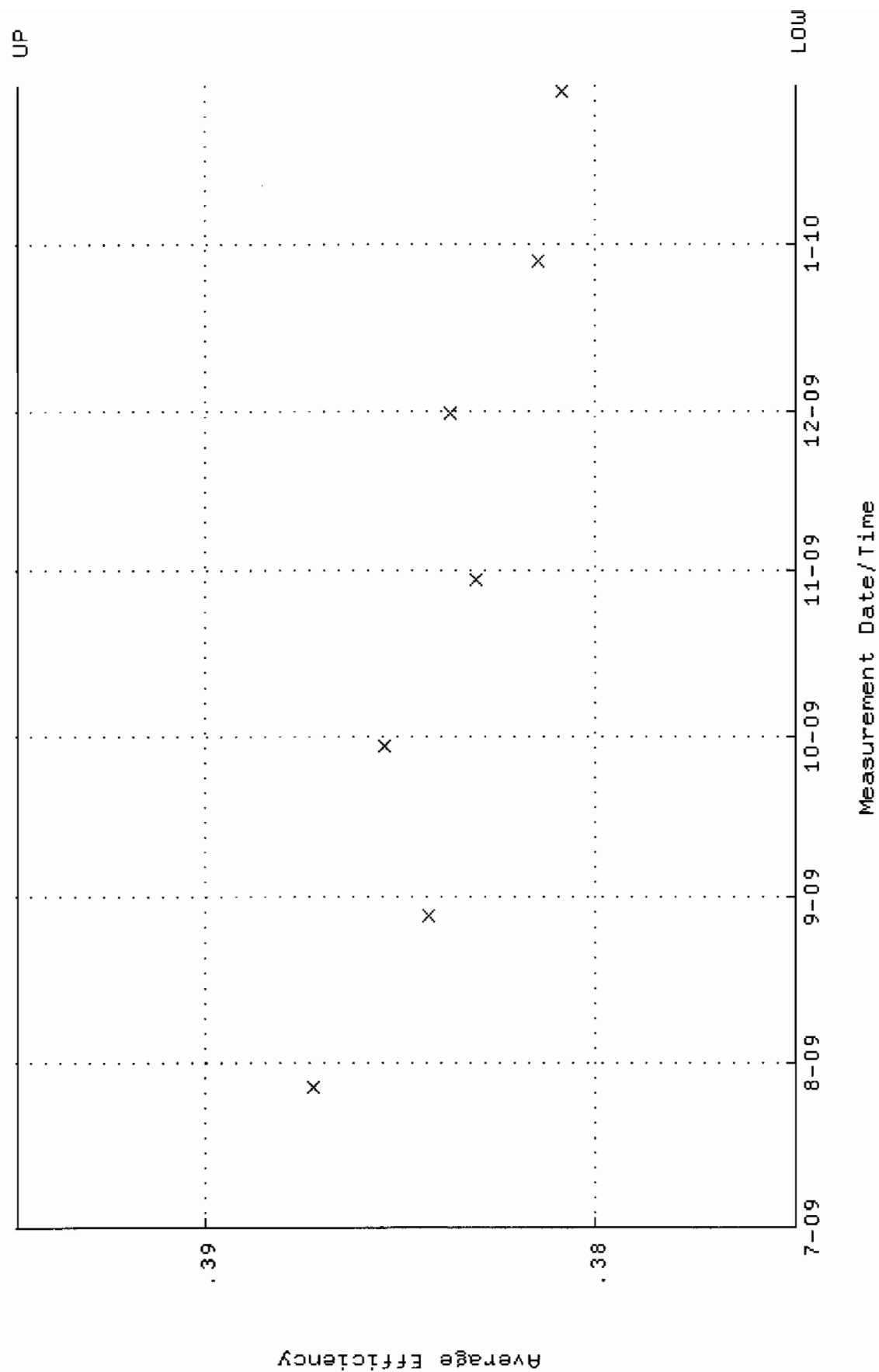
QA filename : DKA100:[ENV\_ALPHA,QA,W]W241.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:50:38 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.7197 through 92.5323



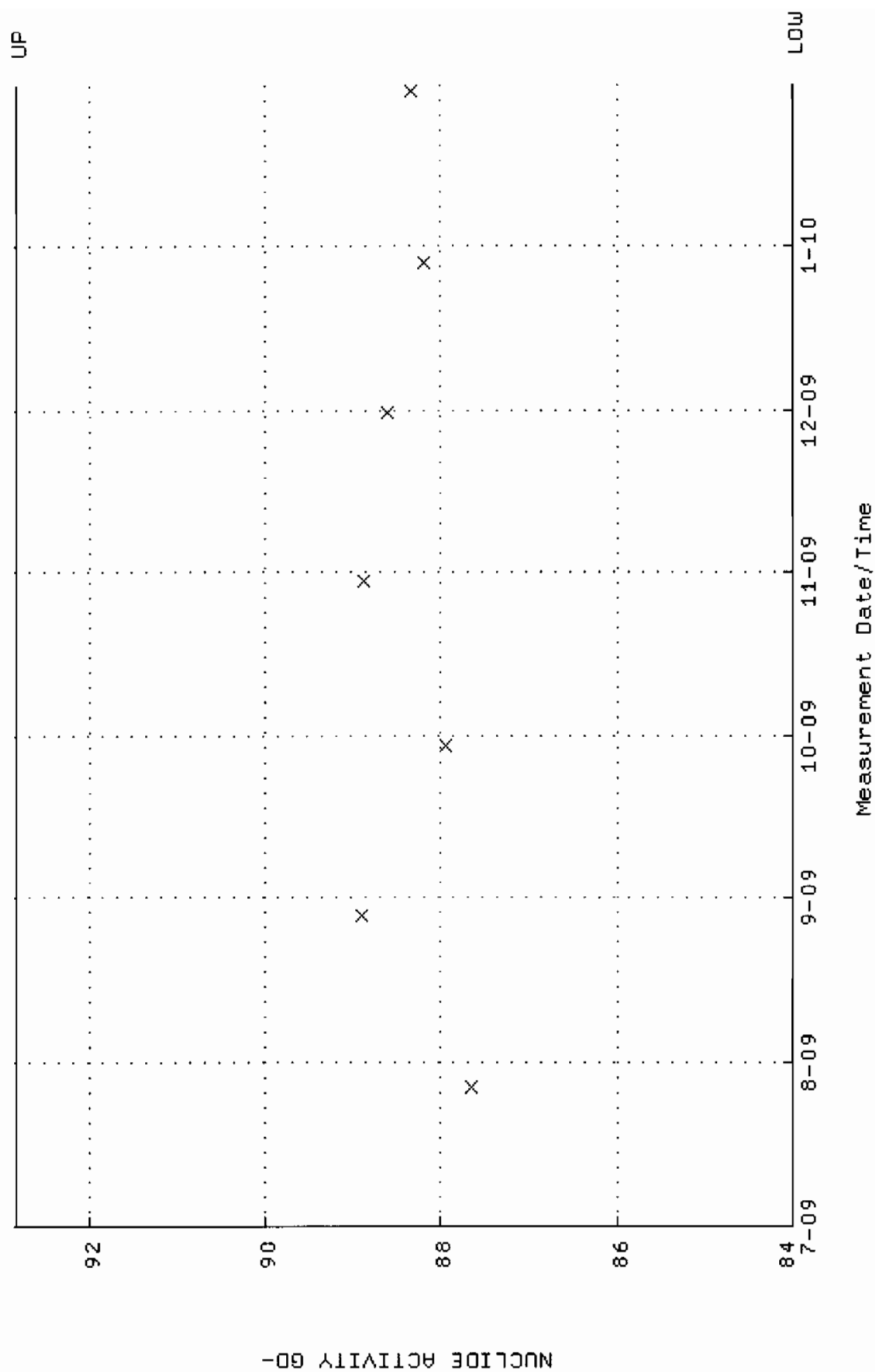
QA filename : DKA100:[ENV\_ALPHA.QA.B]B241.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:05:48 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



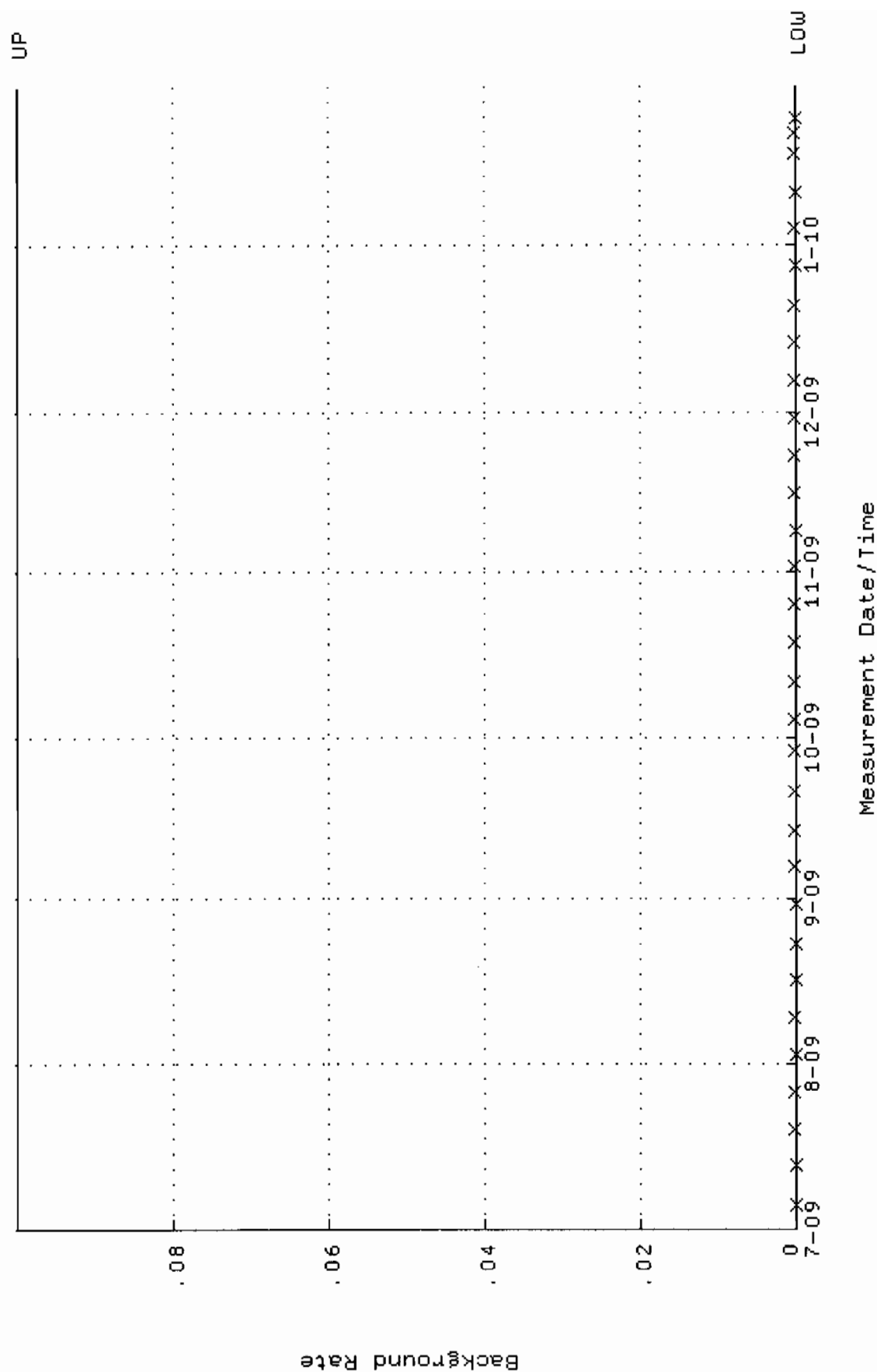
QA filename : DKA100:[ENV\_ALPHA.QA.W]W242.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:45 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.374815 through 0.394815



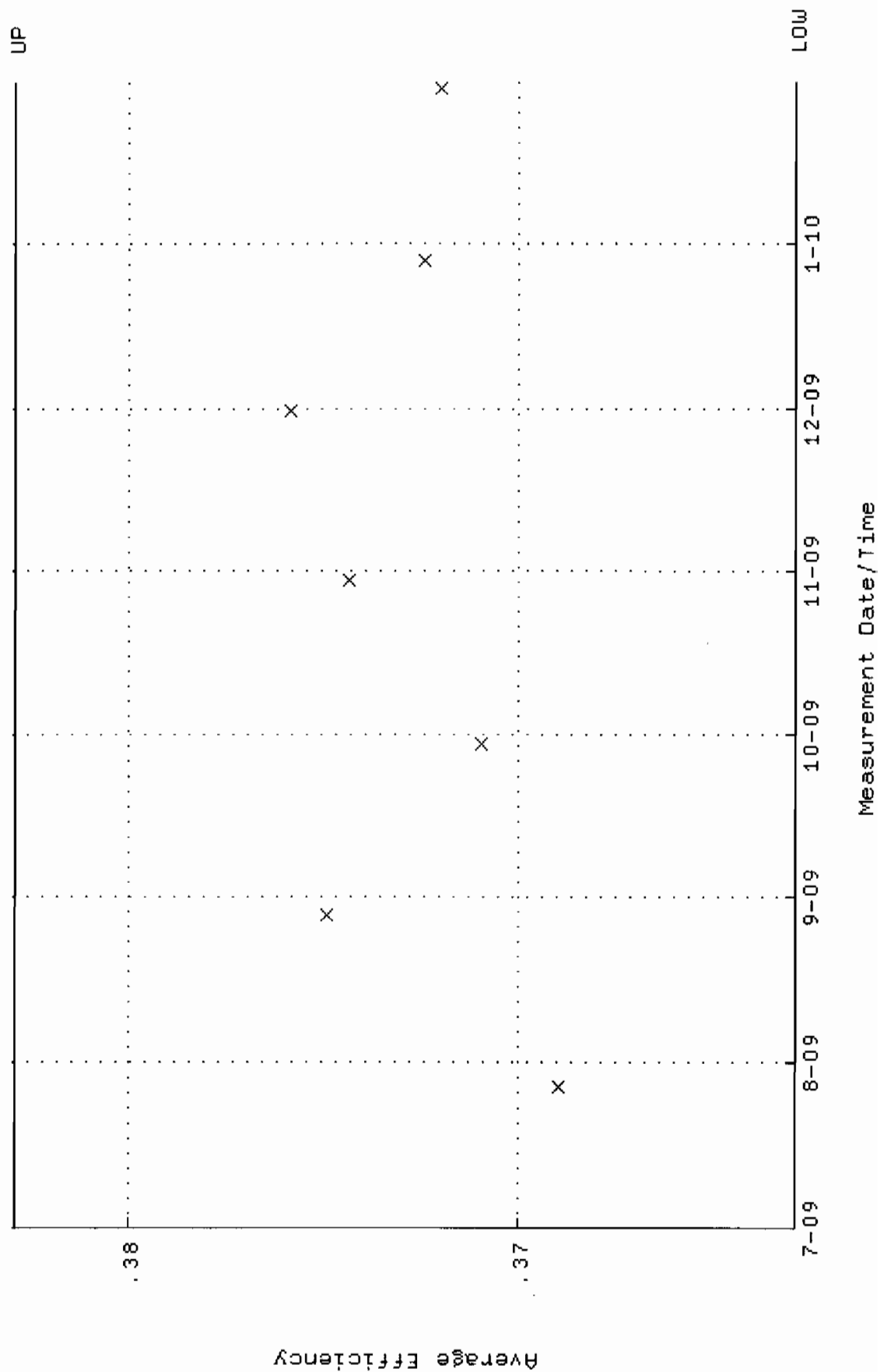
QA filename : DKA100:[ENV-ALPHA.QA.W]W242.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:50:45 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.9949 through 92.8365



QA filename : DKA100:[ENV\_ALPHA.QA.B]B242.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:05:53 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

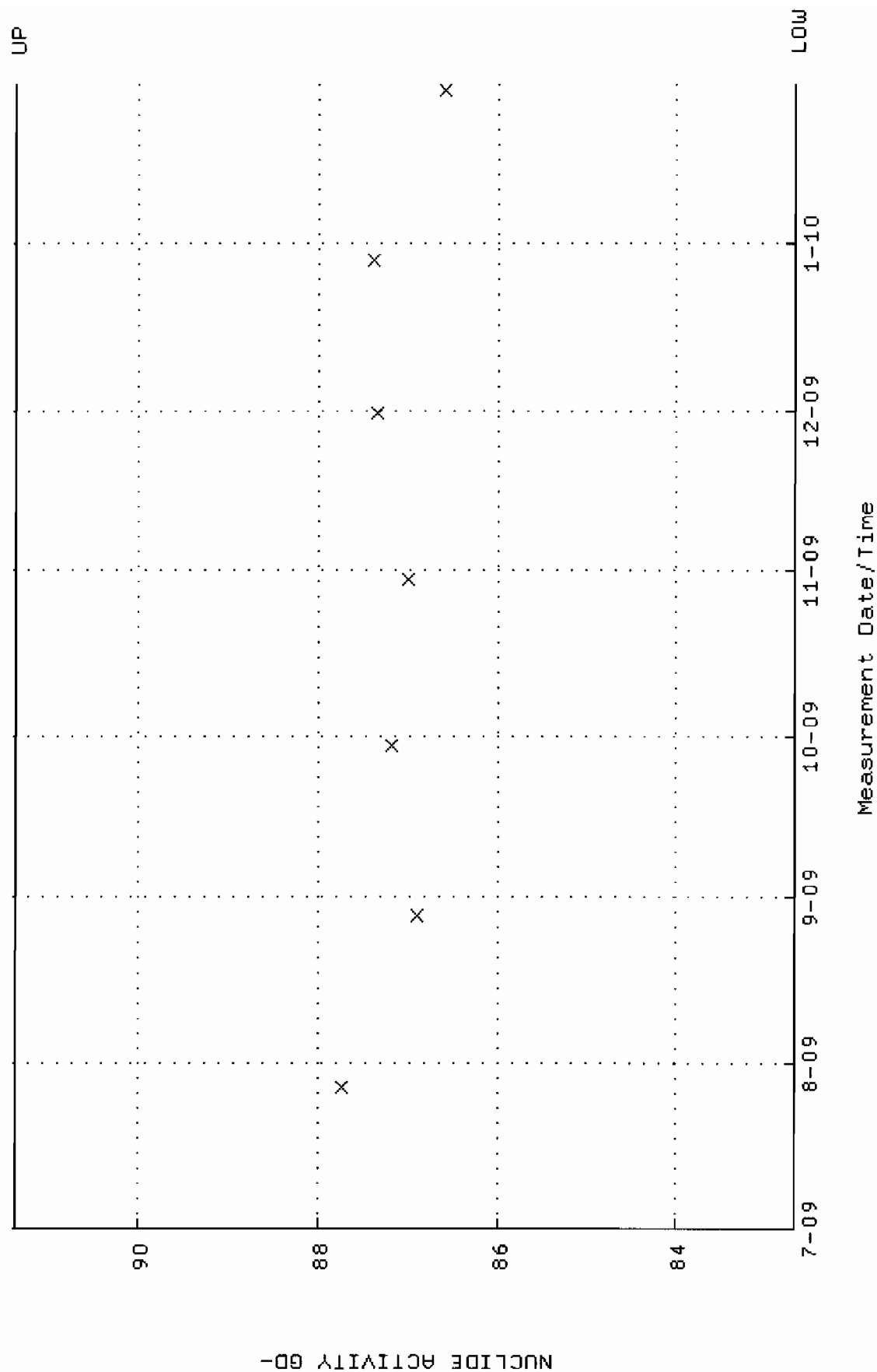


QA filename : DKA100:[ENV\_ALPHA.QA.W]W243.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:51 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.362914 through 0.382914

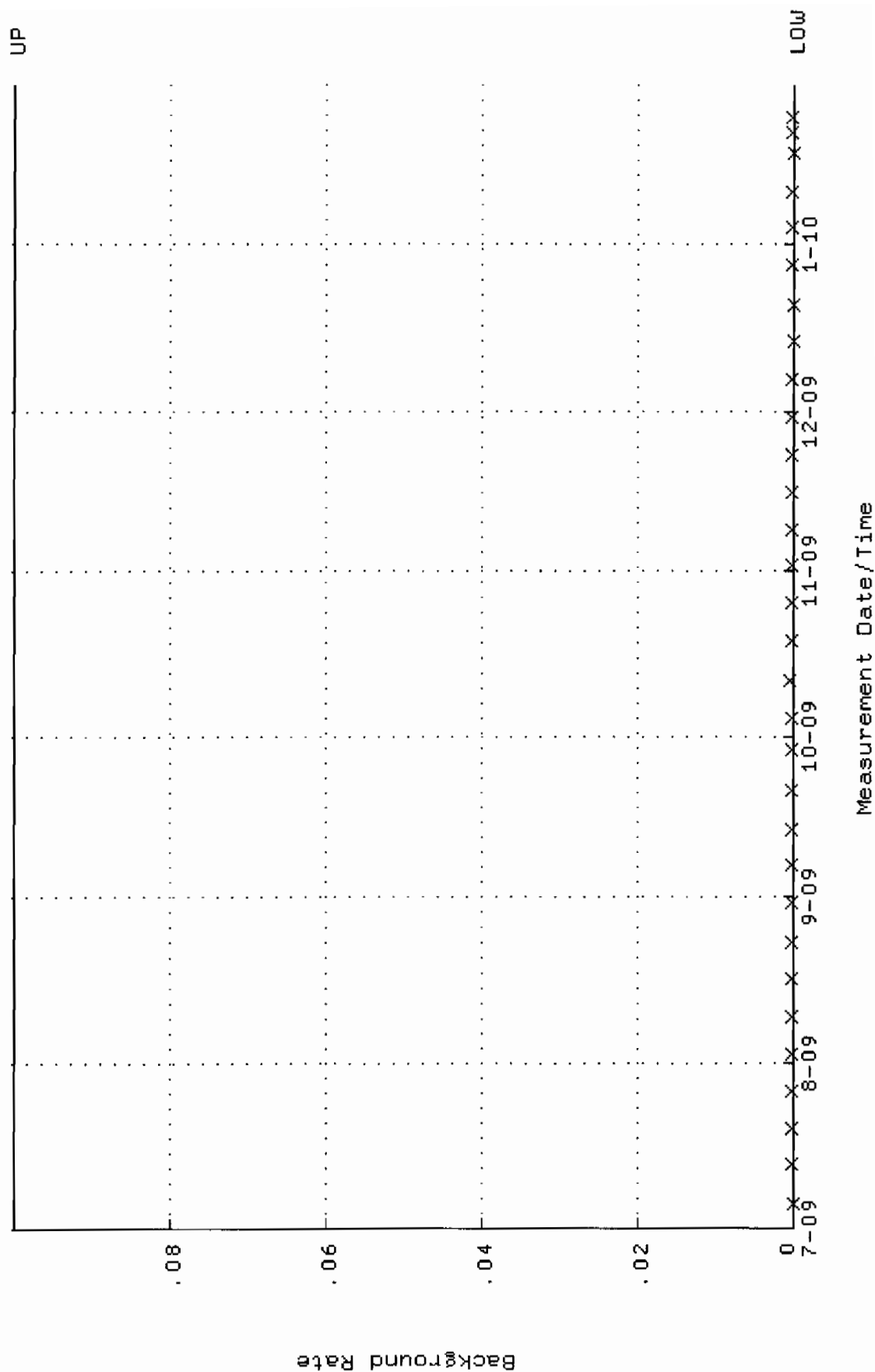




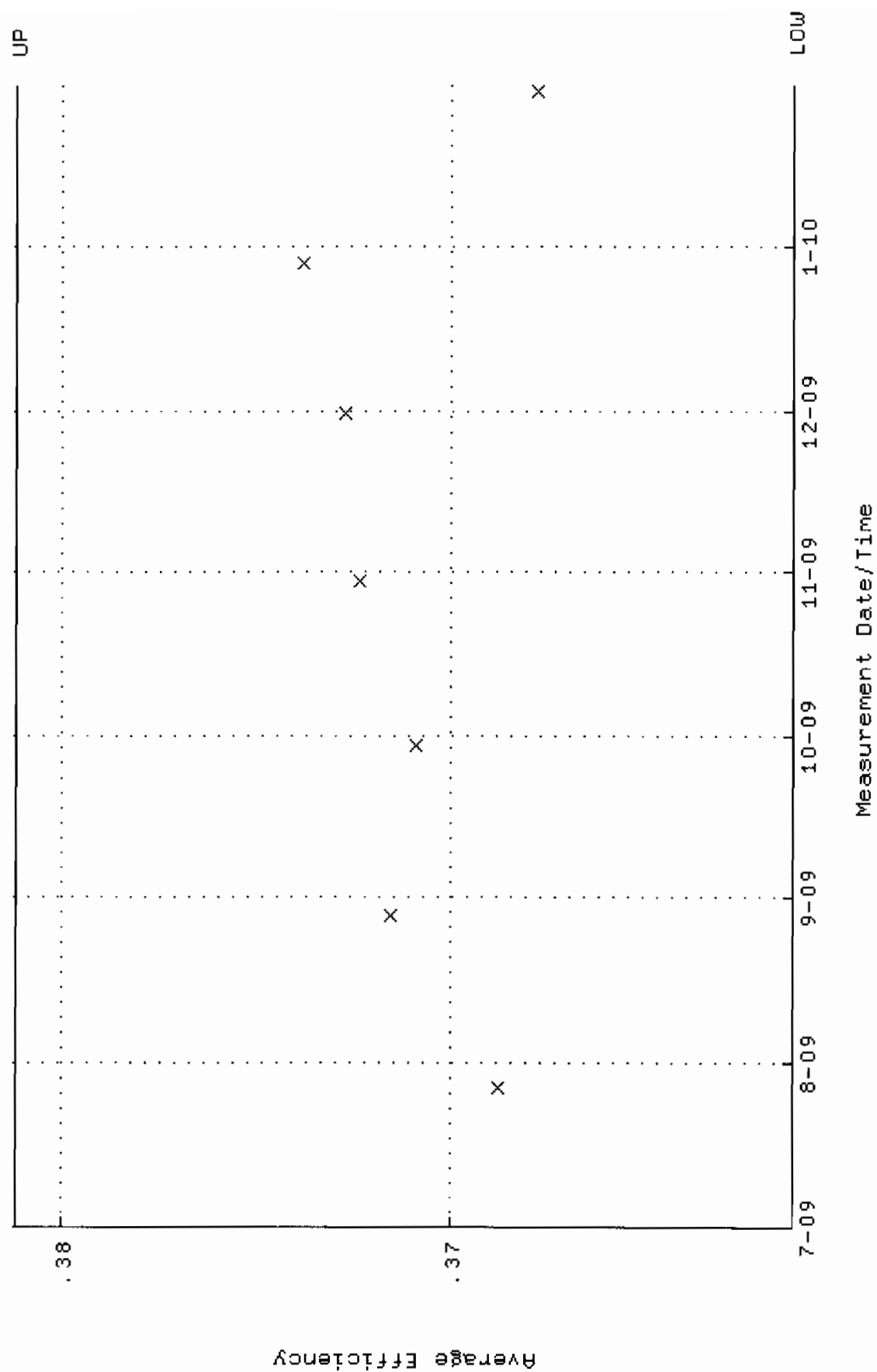
QA filename : OKA100:[ENV\_ALPHA.QA.W]W243.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 27-JUL-2009 11:50:51 through 30-JAN-2010 12:00:00  
Lower/Upper Lmts: 82.6788 through 91.3818



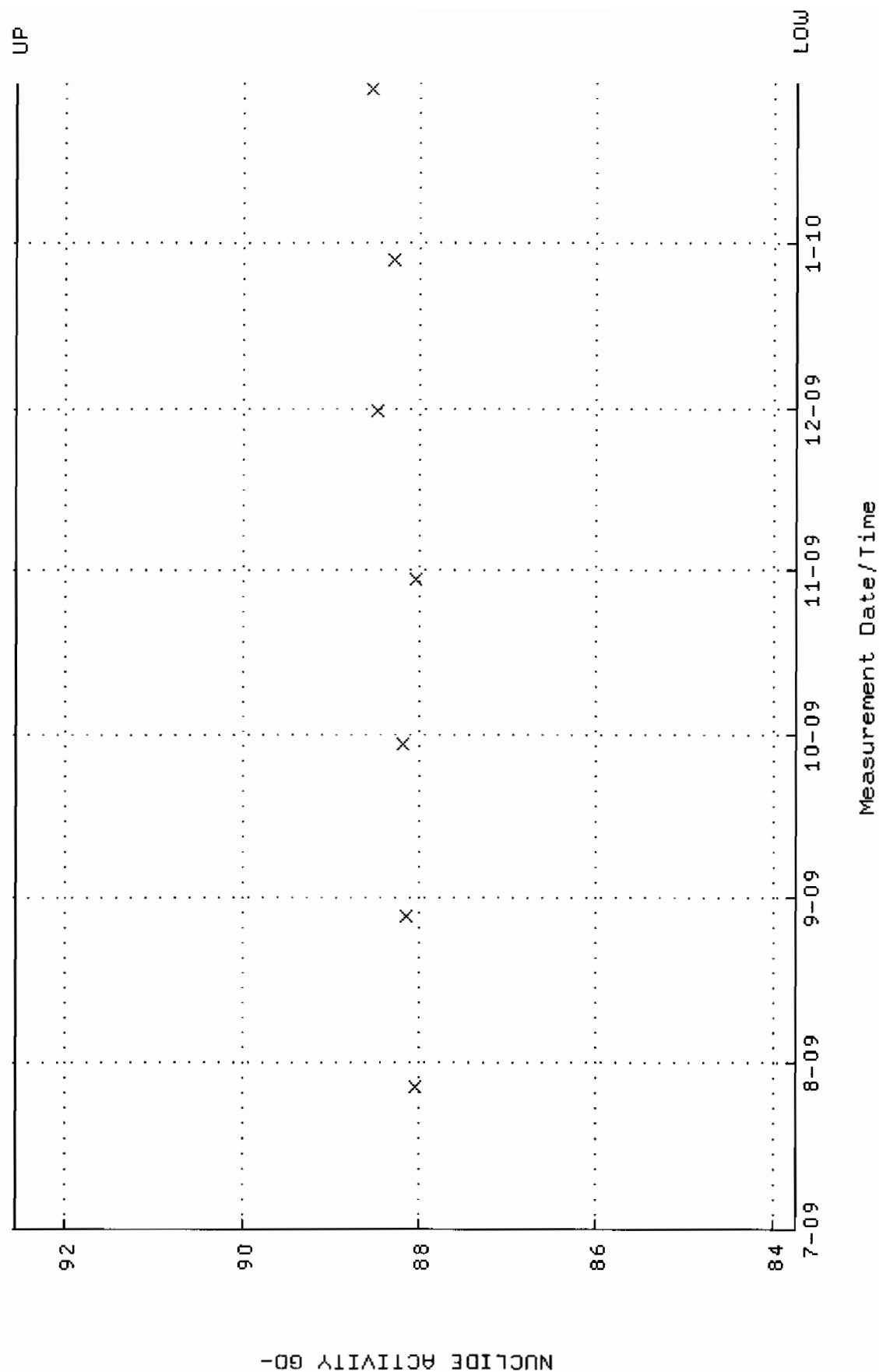
QA filename : DKA100:[ENV\_ALPHA.QA.B]B243.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:05:57 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



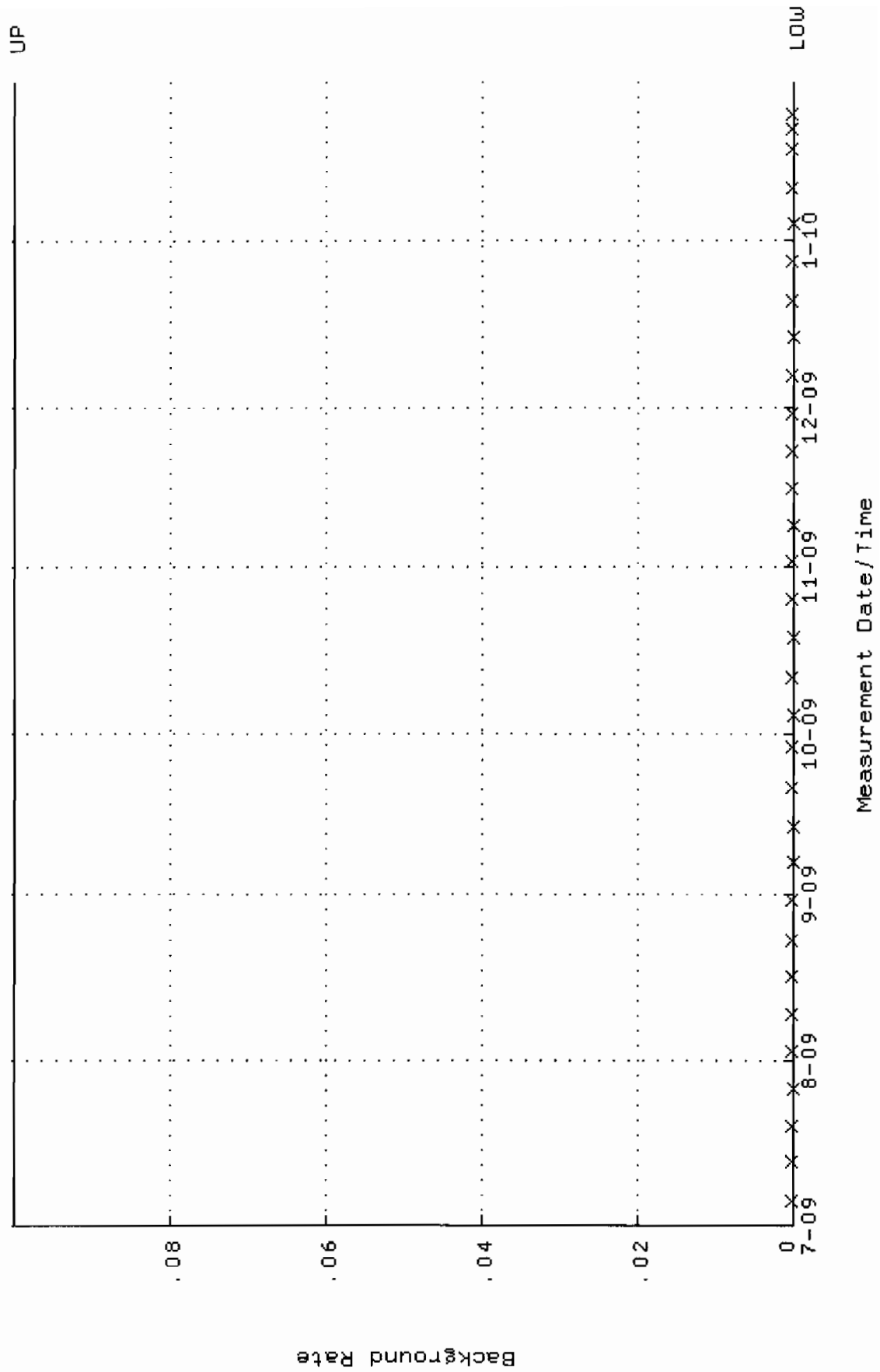
QA filename : DKA100:[ENV\_ALPHA.QA.W]W244.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:50:57 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.361192 through 0.381192



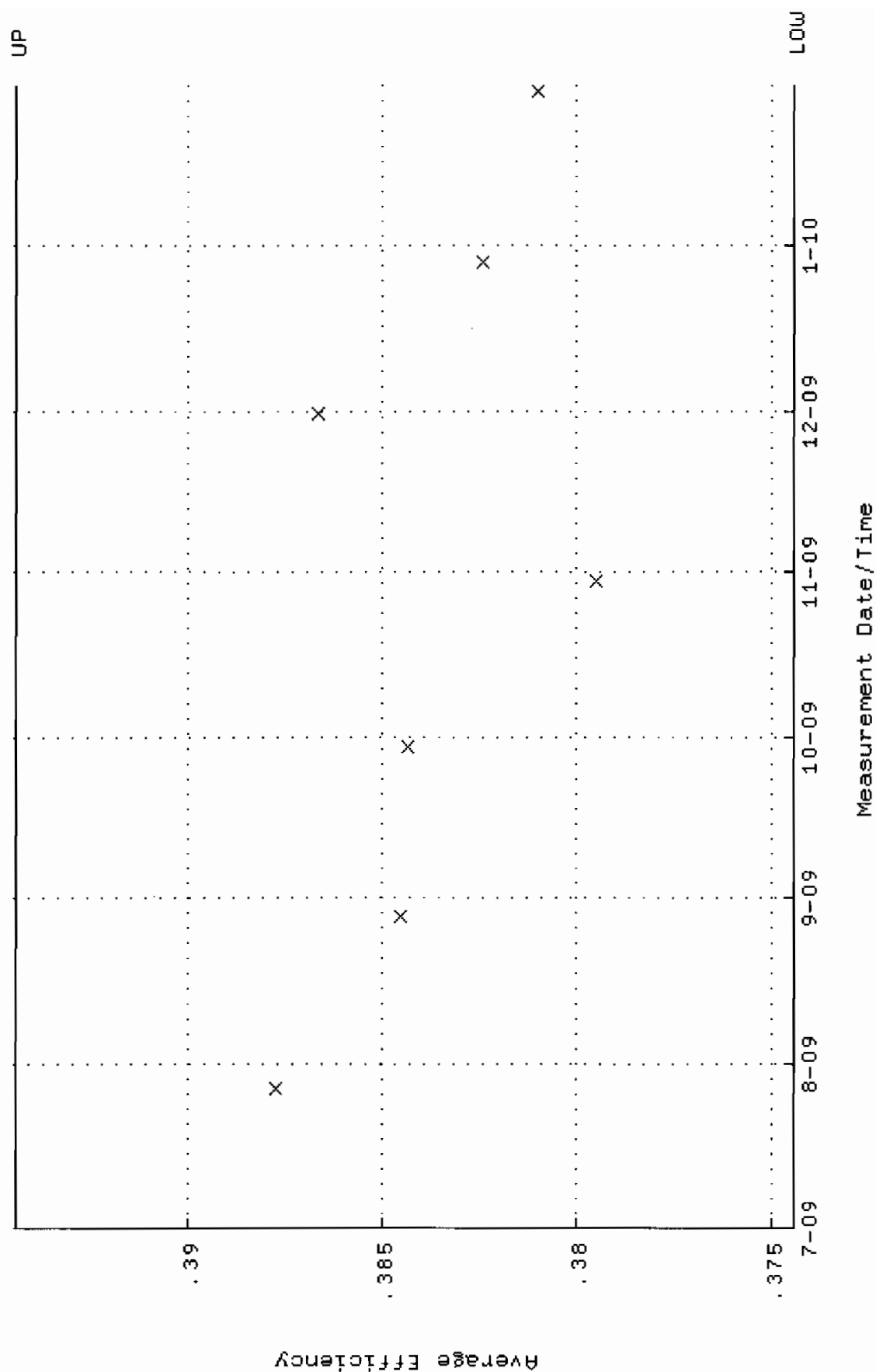
QA filename : DKA100:[ENV\_ALPHA.QA.W]W244.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:50:57 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.7473 through 92.5629



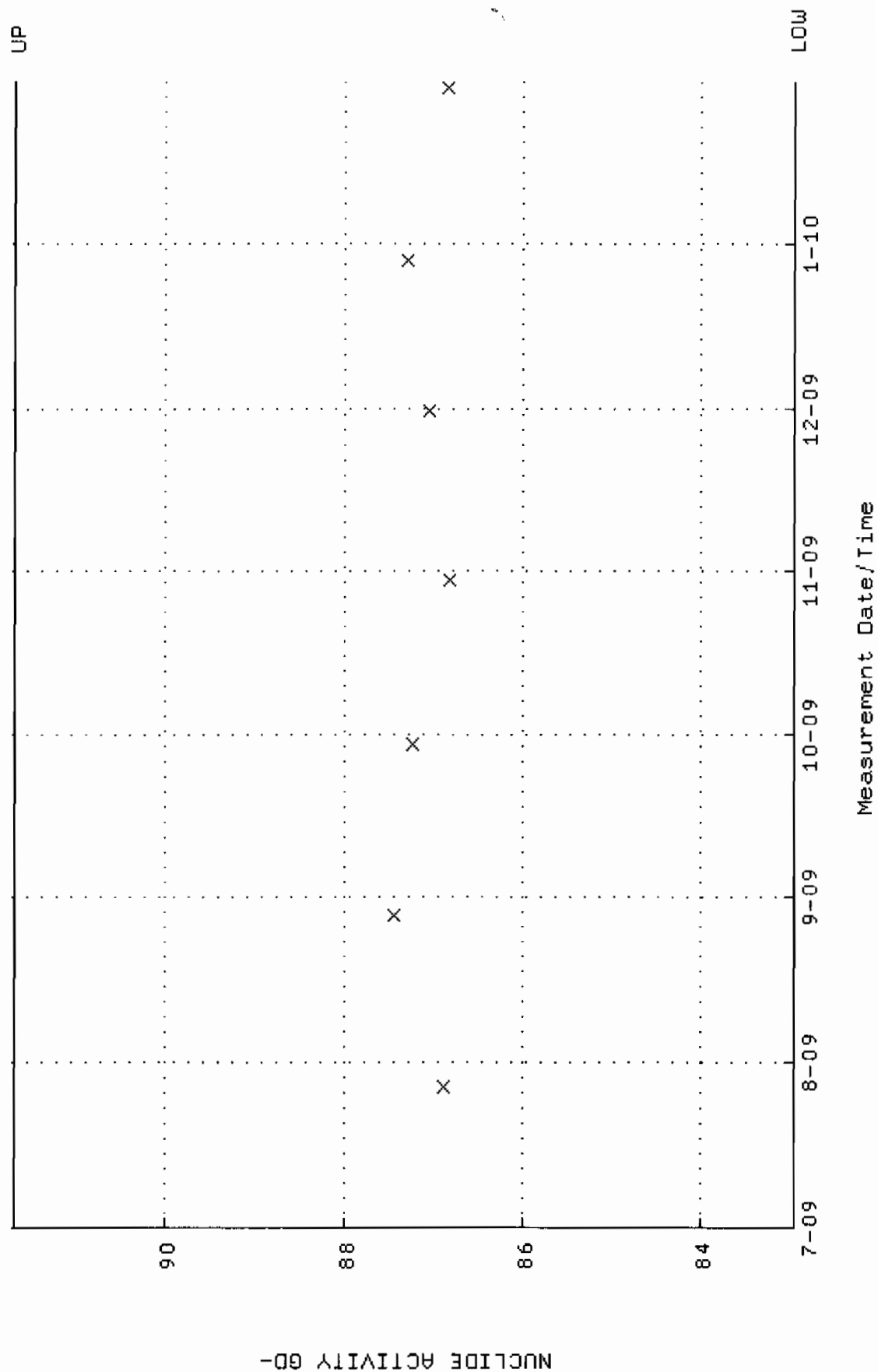
QA filename : DKA100:[ENV\_ALPHA.QA.B]B244.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:02 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



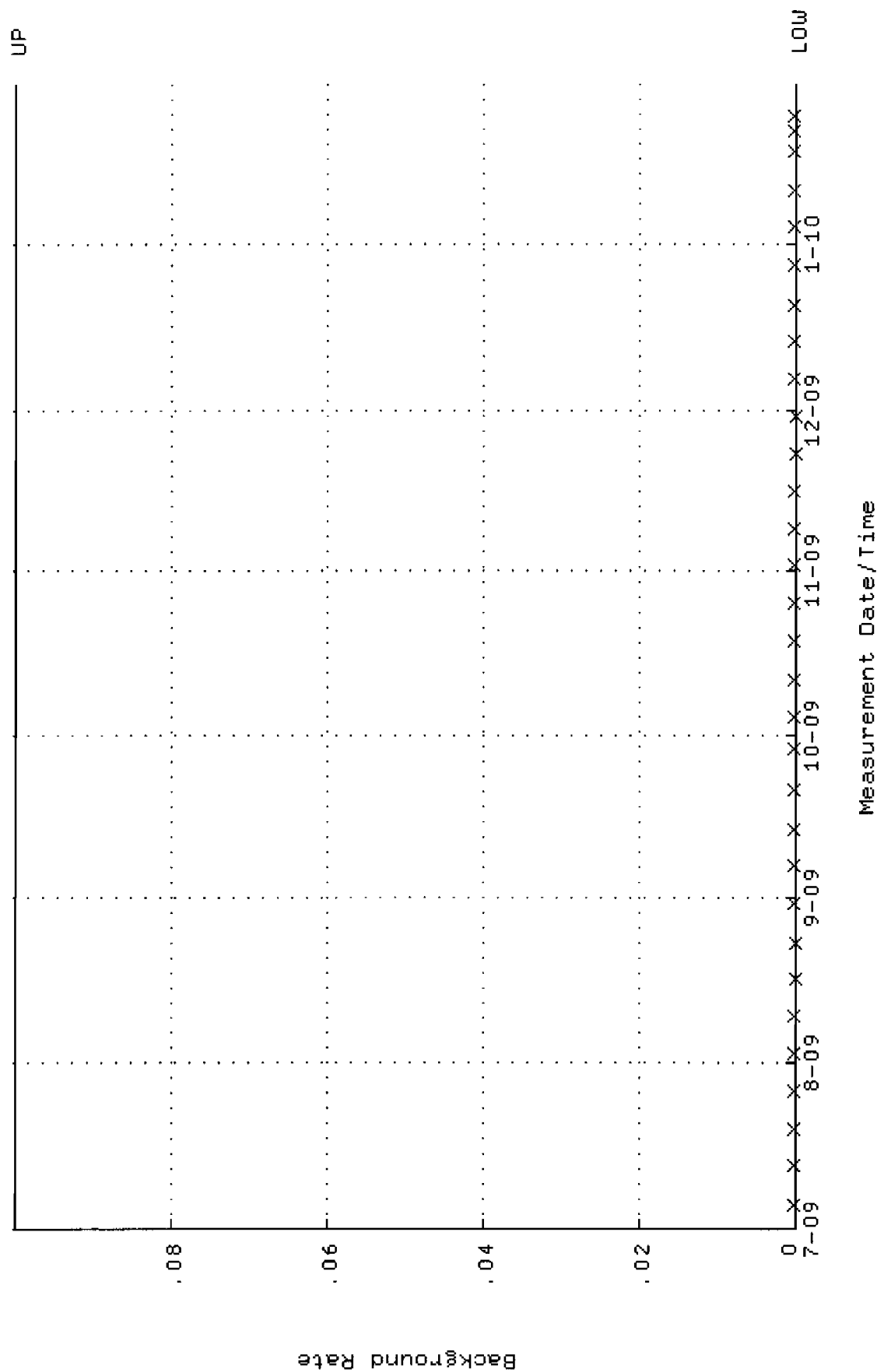
QA filename : DKA100:[ENV\_ALPHA.QA.W]W245.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:02 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.374422 through 0.394422



QA filename : DKA100:[ENV\_ALPHA.QA.W]W245.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:02 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.9600 through 91.6926

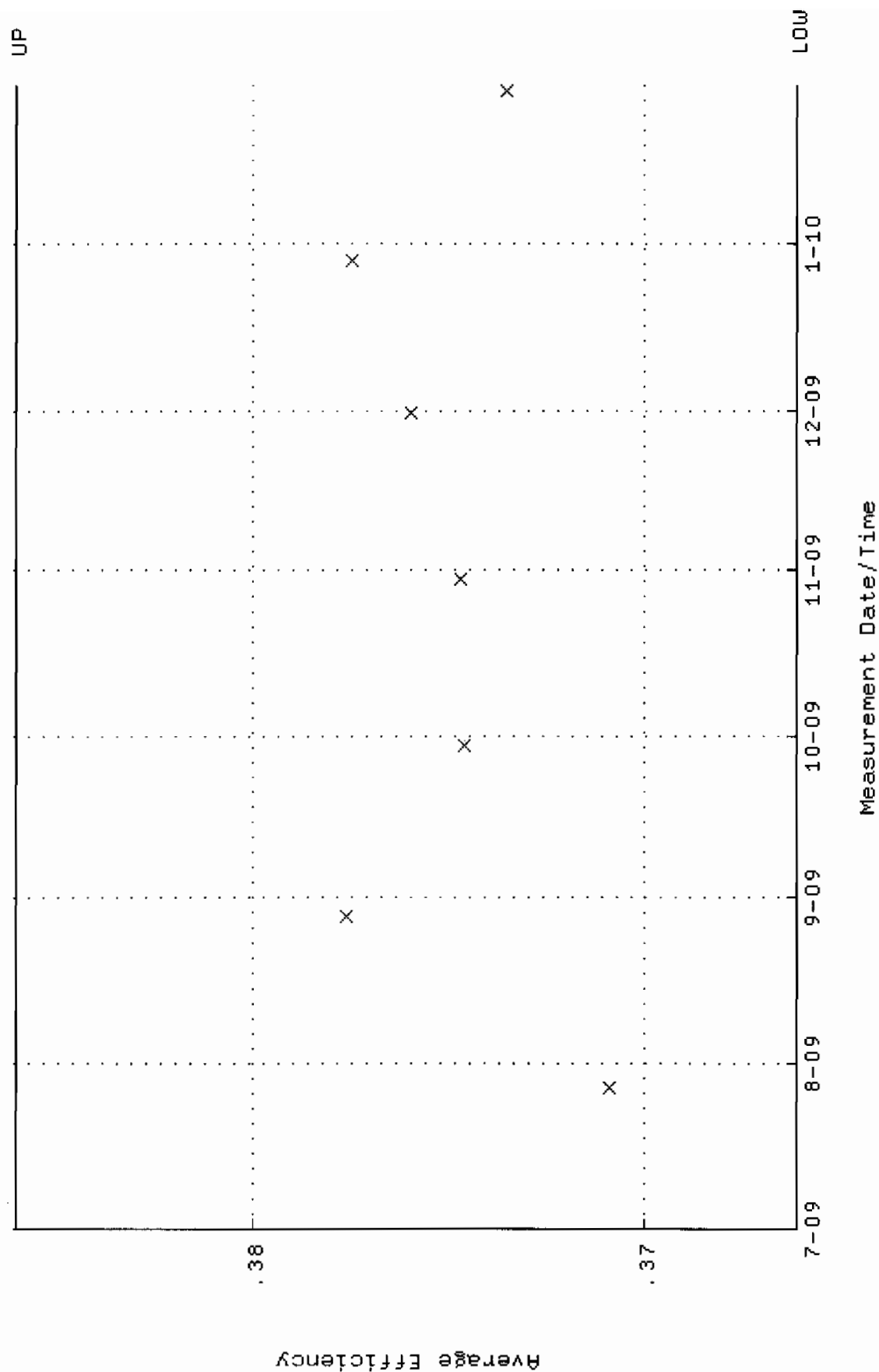


QA filename : DKA100:[ENV\_ALPHA.QA.B]8245.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:07 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

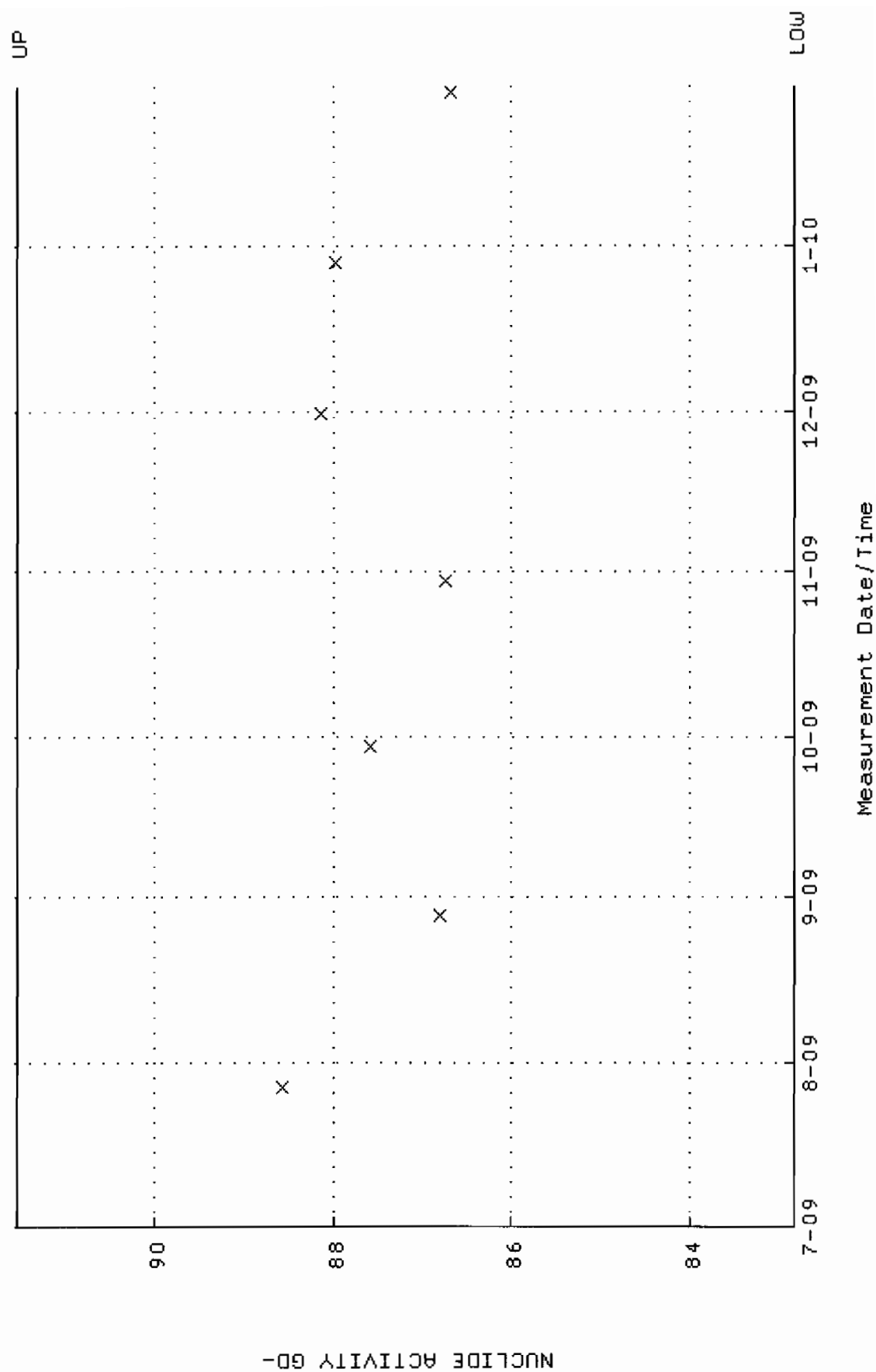




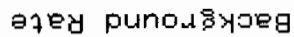
QA filename : DKA100:[ENV\_ALPHA.QA.W]W246.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:08 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.366080 through 0.386080



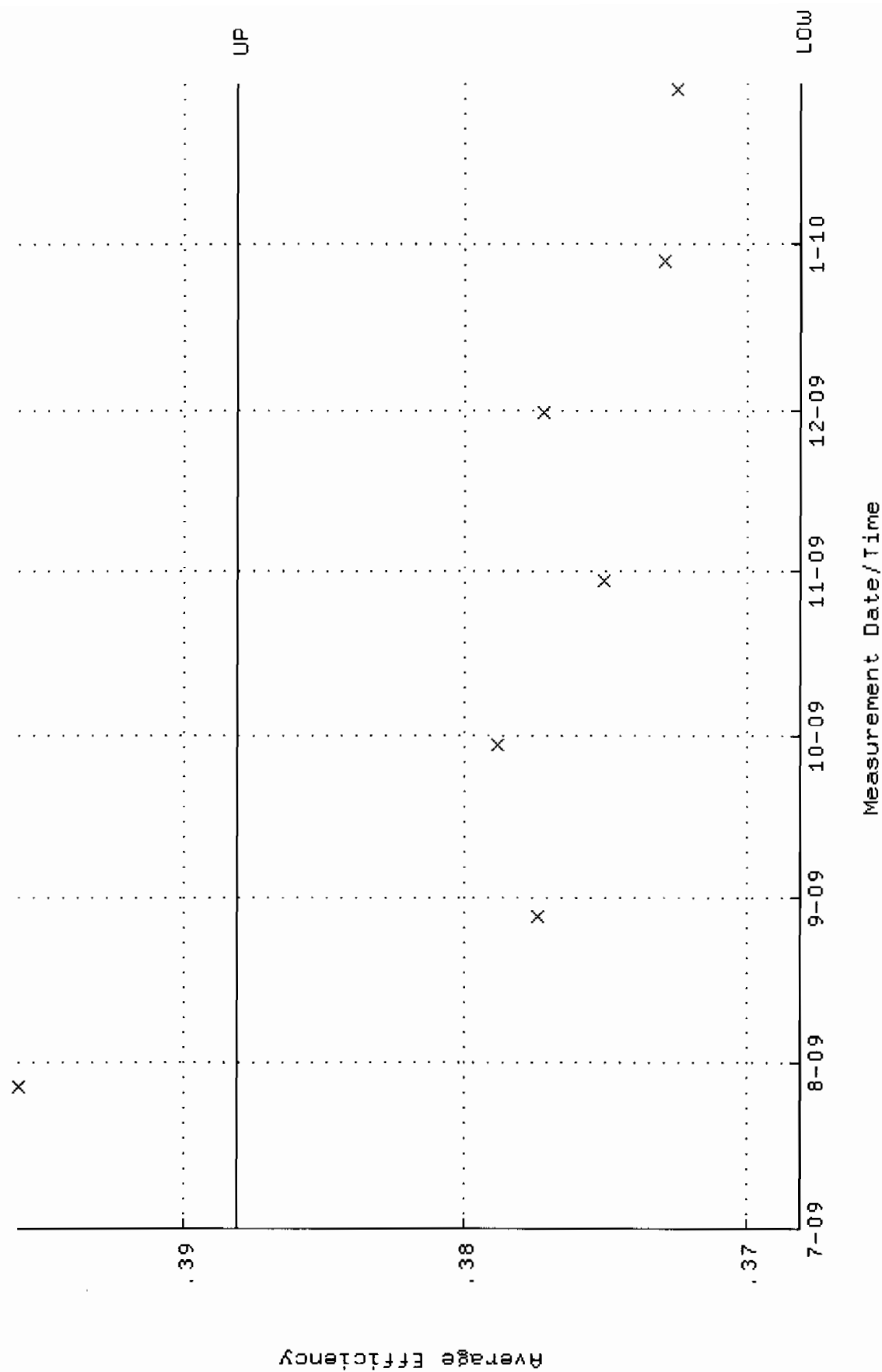
QA filename : DKA100:[ENV\_ALPHA.QA.W]W246.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:08 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.8267 through 91.5453



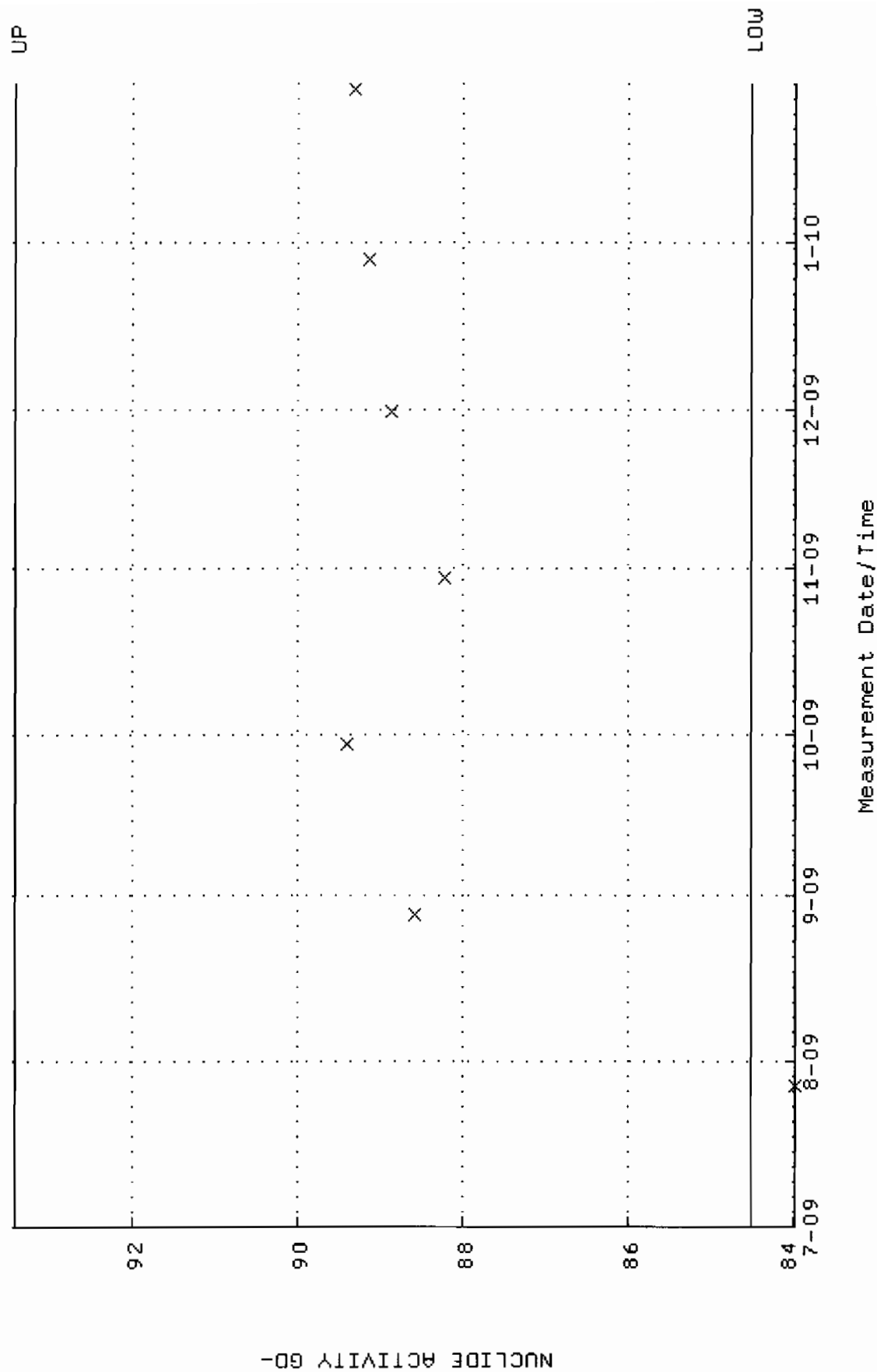
Lower/Upper Lmts: 0.000000E+00 through 0.100000



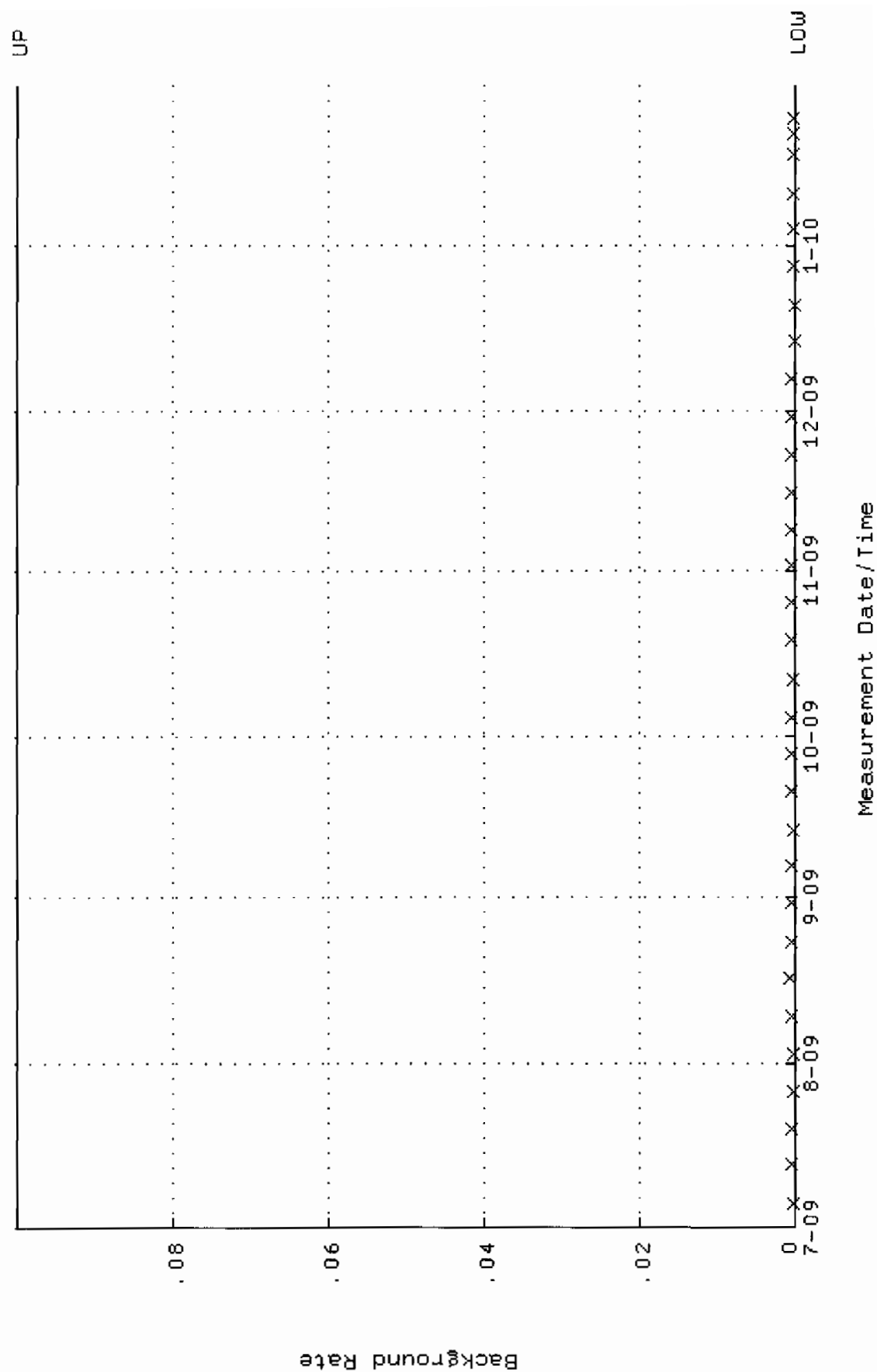
QA filename : DKA100:[ENV\_ALPHA.QA.W]W247.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:13 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.368107 through 0.388107



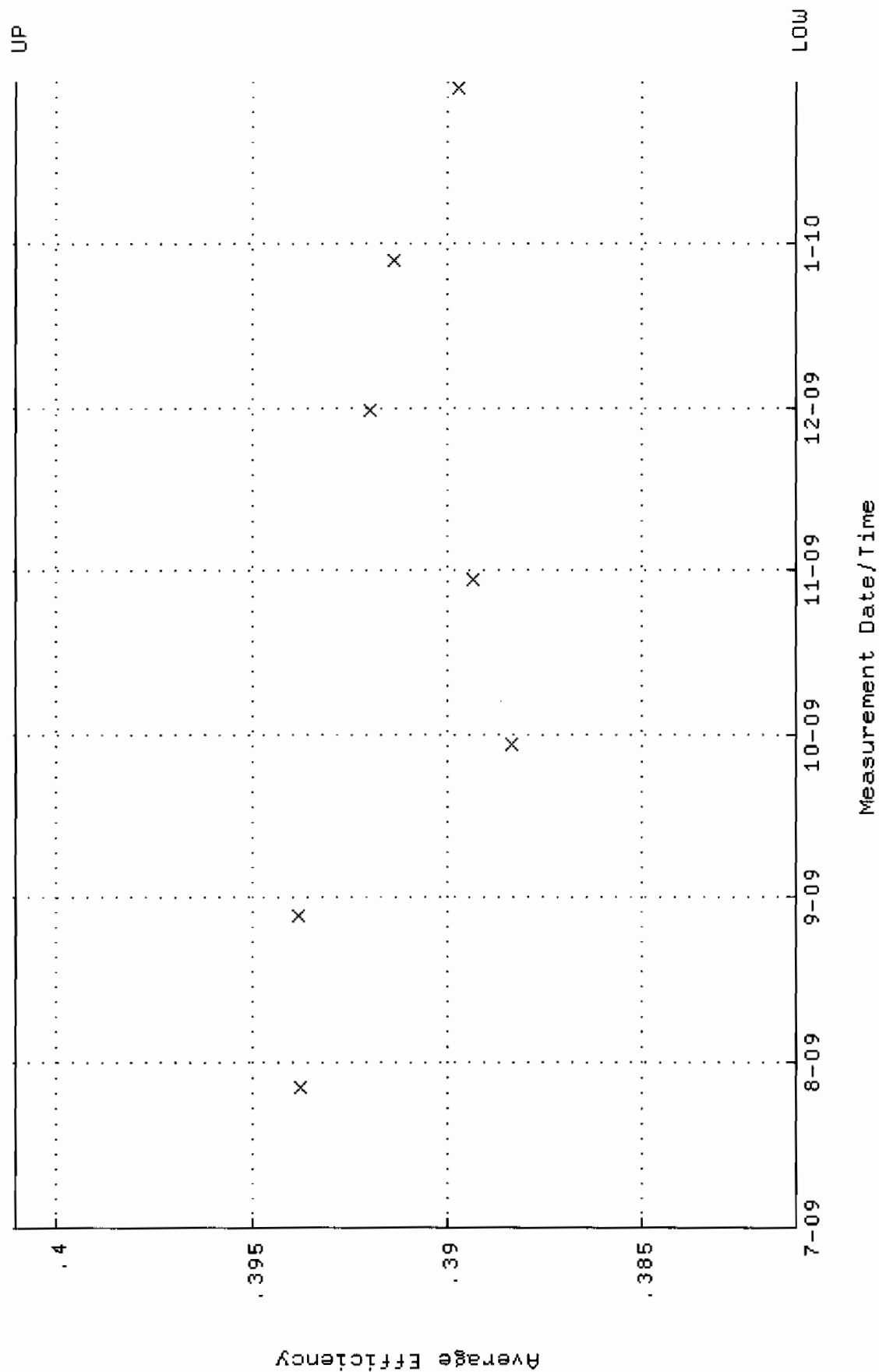
QA filename : DKA100:[ENV\_ALPHA.QA.W]w247.QAF;1  
Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 27-JUL-2009 11:51:13 through 30-JAN-2010 12:00:00  
Lower/Upper Lmts: 84.5211 through 93.4181



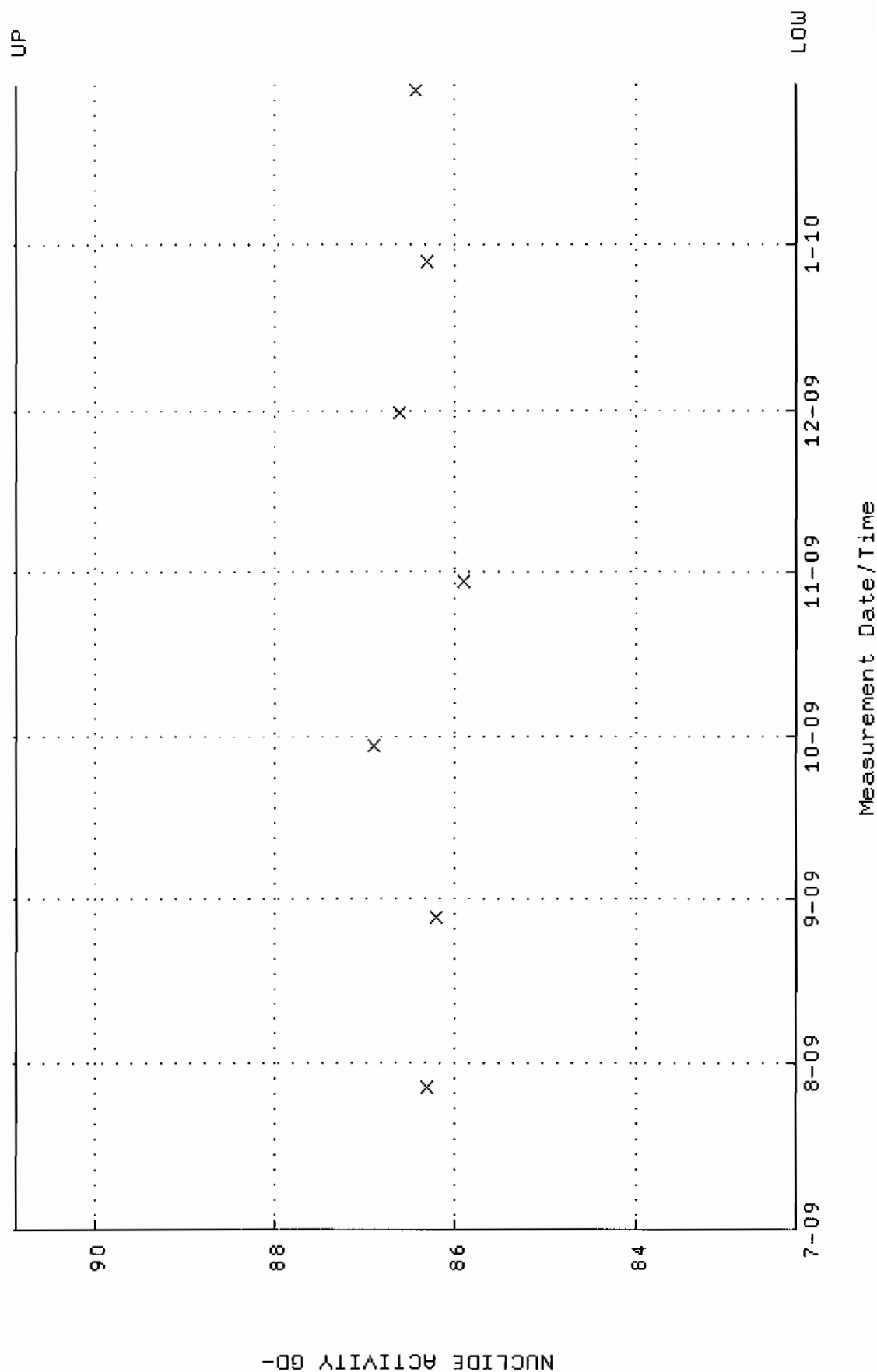
QA filename : OKA100:[ENV\_ALPHA.QA.B]B247.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:16 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W248.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:19 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.381049 through 0.401049

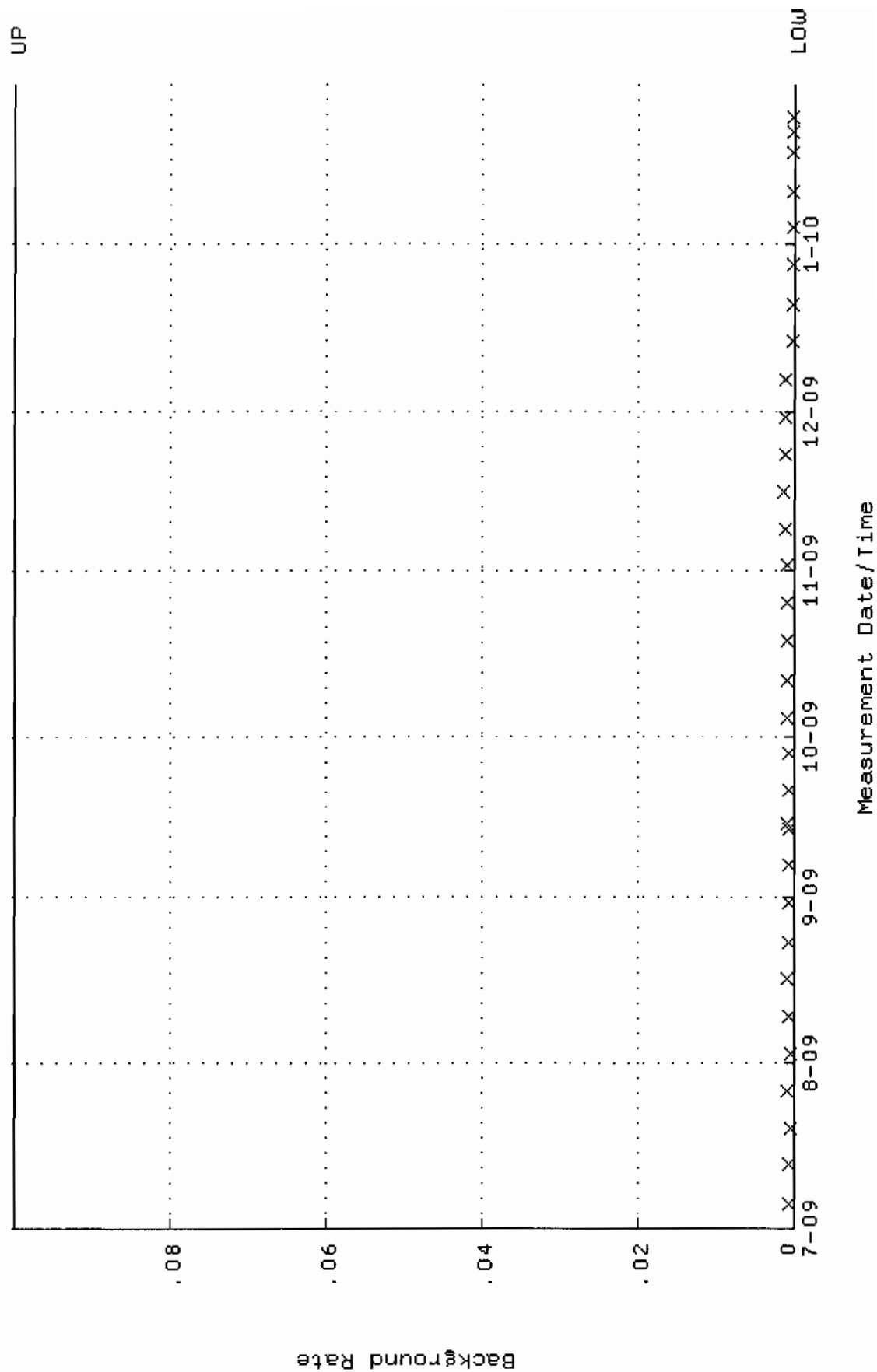


QA filename : DKA100:[ENV\_ALPHA.QA.W]W248.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:19 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.2216 through 90.8766

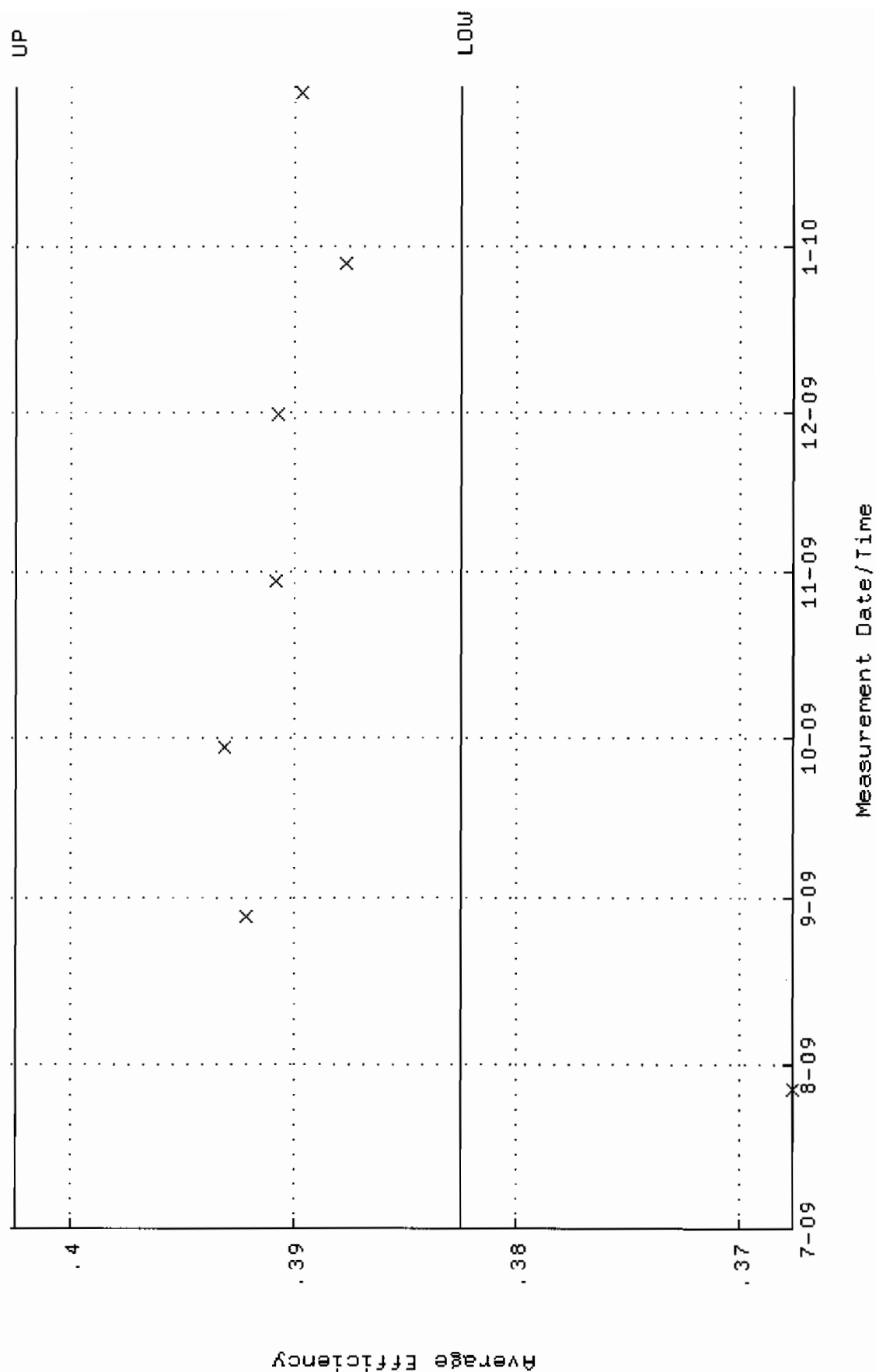




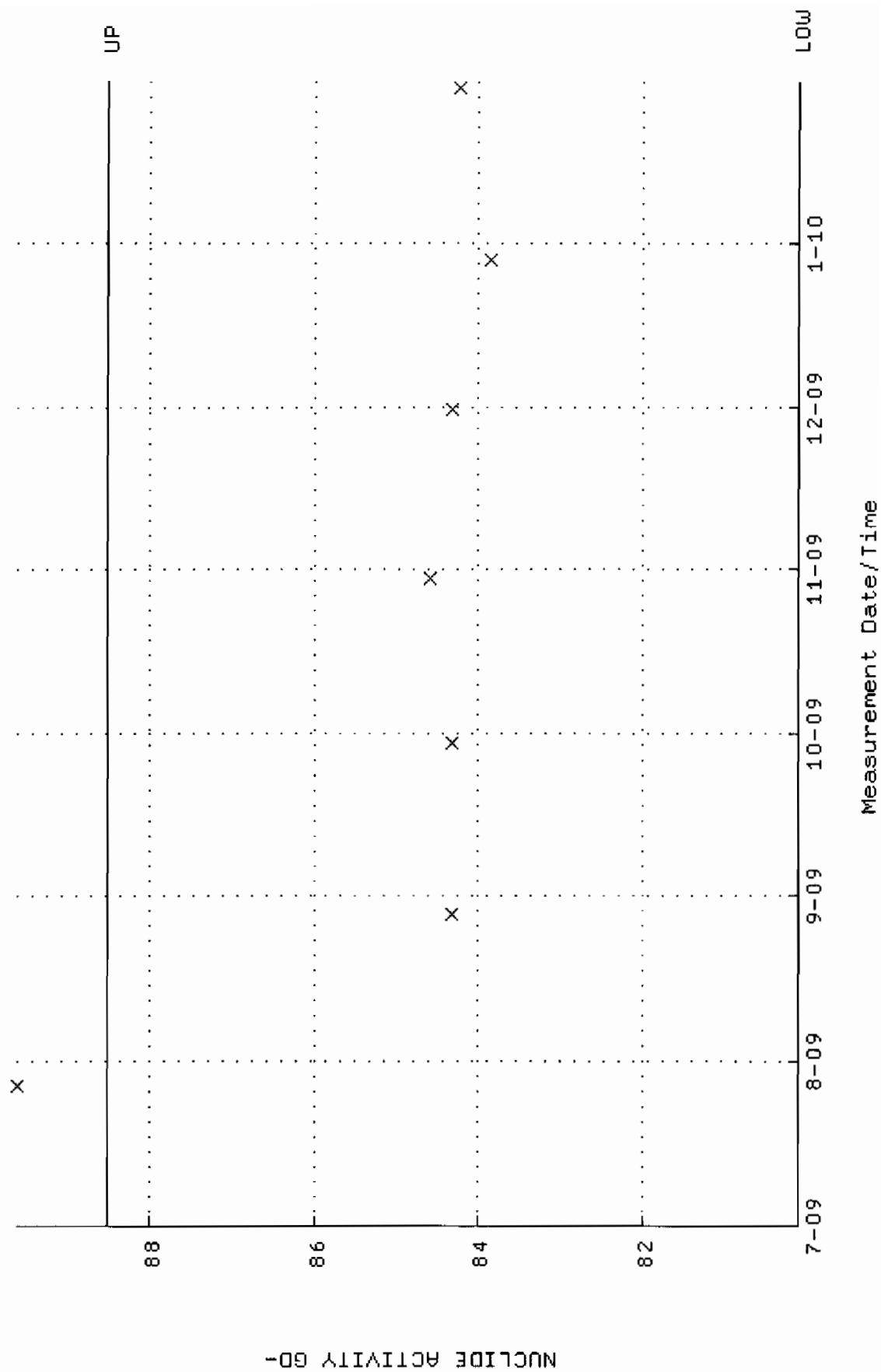
QA filename : DKA100:[ENV\_ALPHA.QA.B]B248.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:21 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



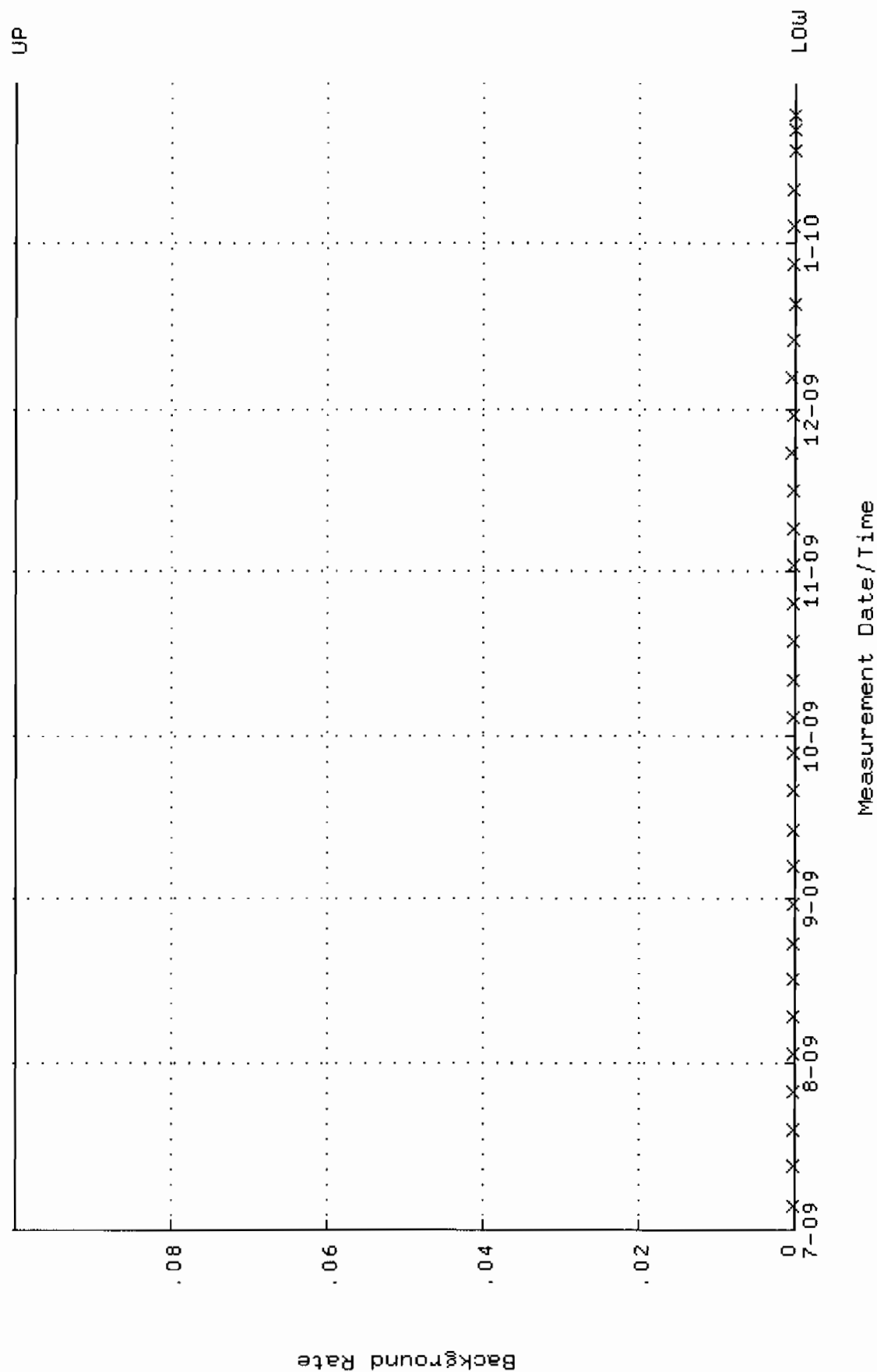
QA filename : DKA100:[ENV\_ALPHA.QA.W]W249.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:24 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.382546 through 0.402546



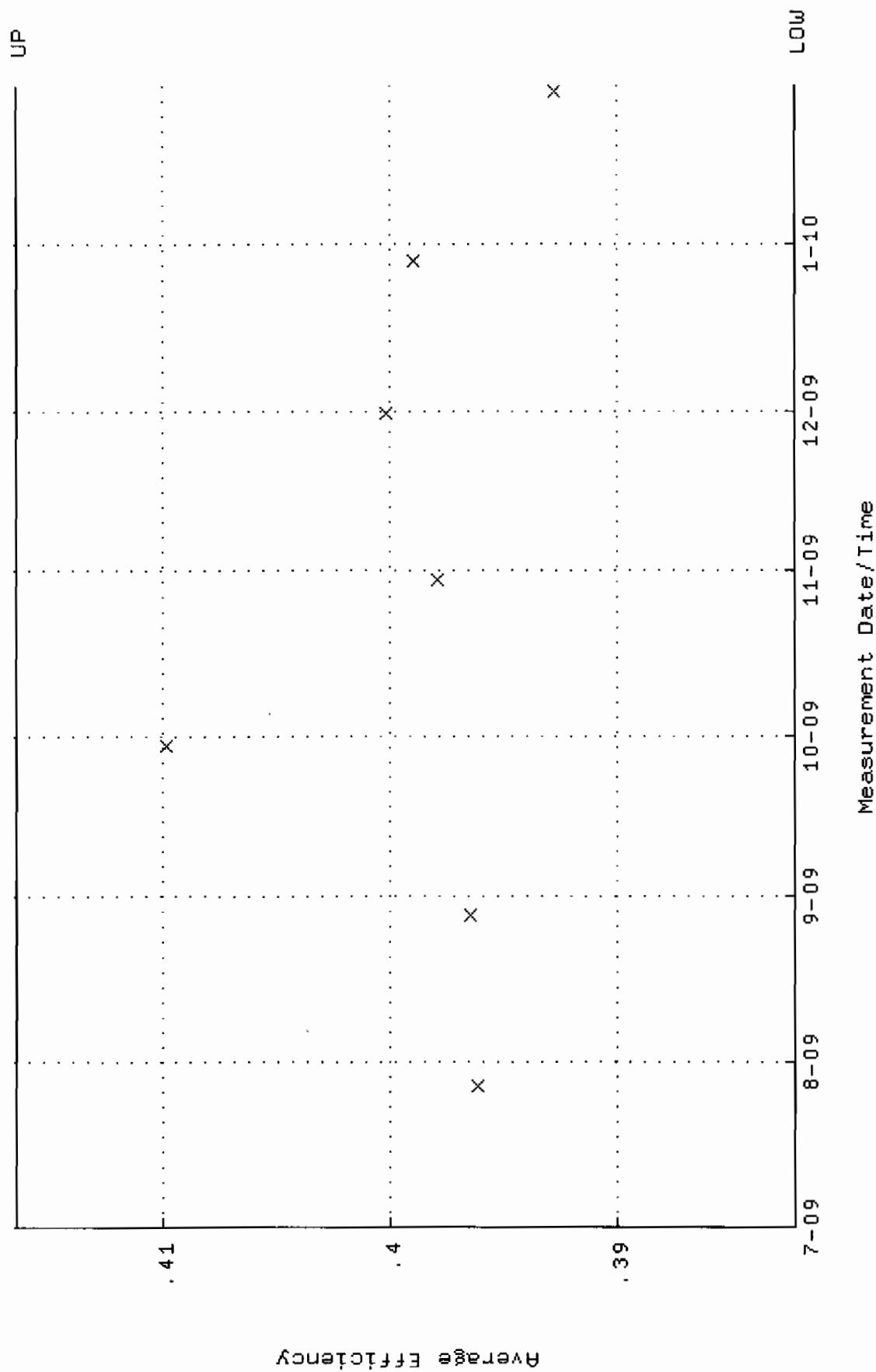
QA filename : DKA100:[ENV\_ALPHA.QA.W]W249.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:24 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.0964 through 88.5276



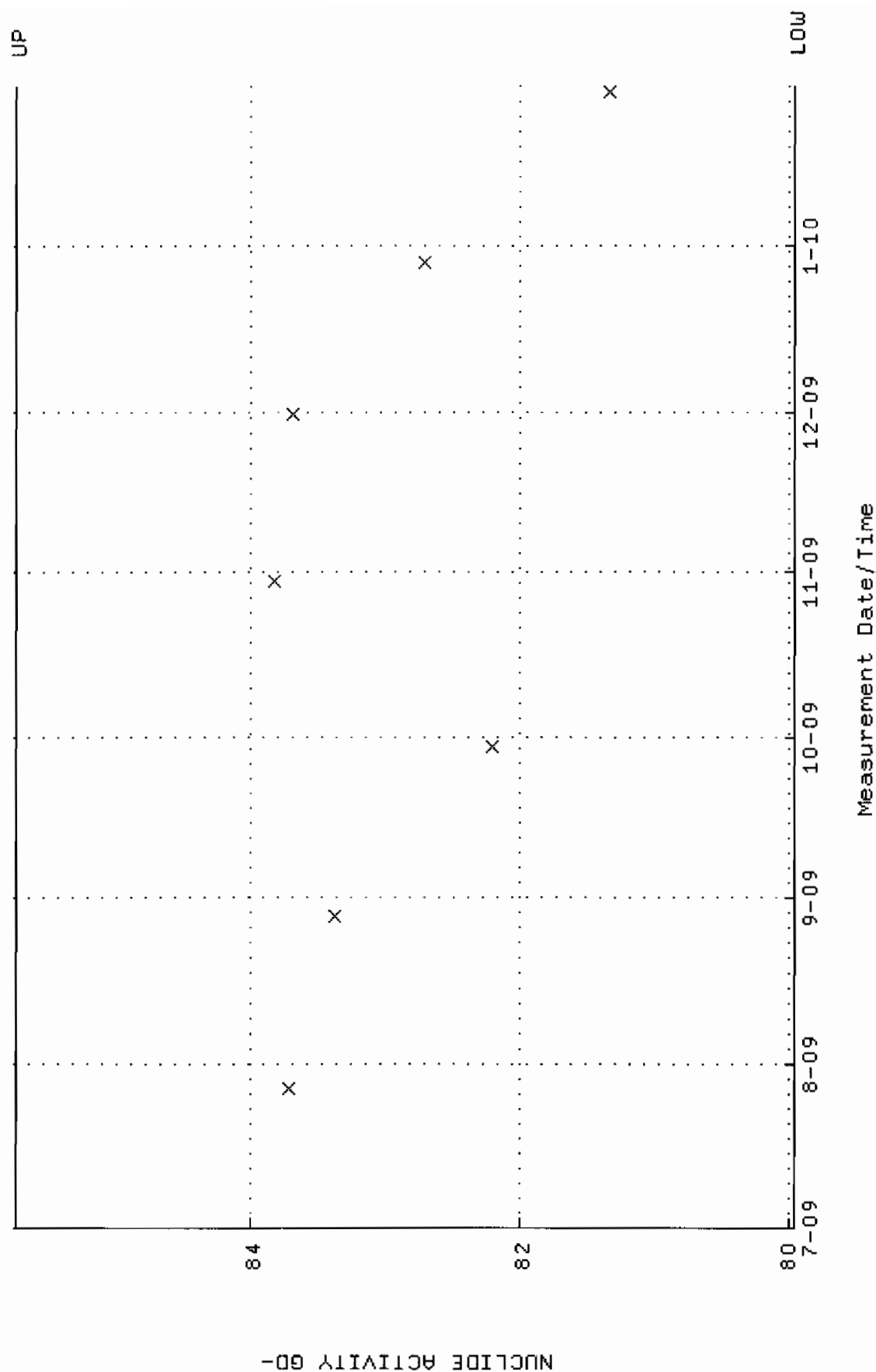
QA filename : DKA100:[ENV\_ALPHA.QA.B]B249.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:26 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



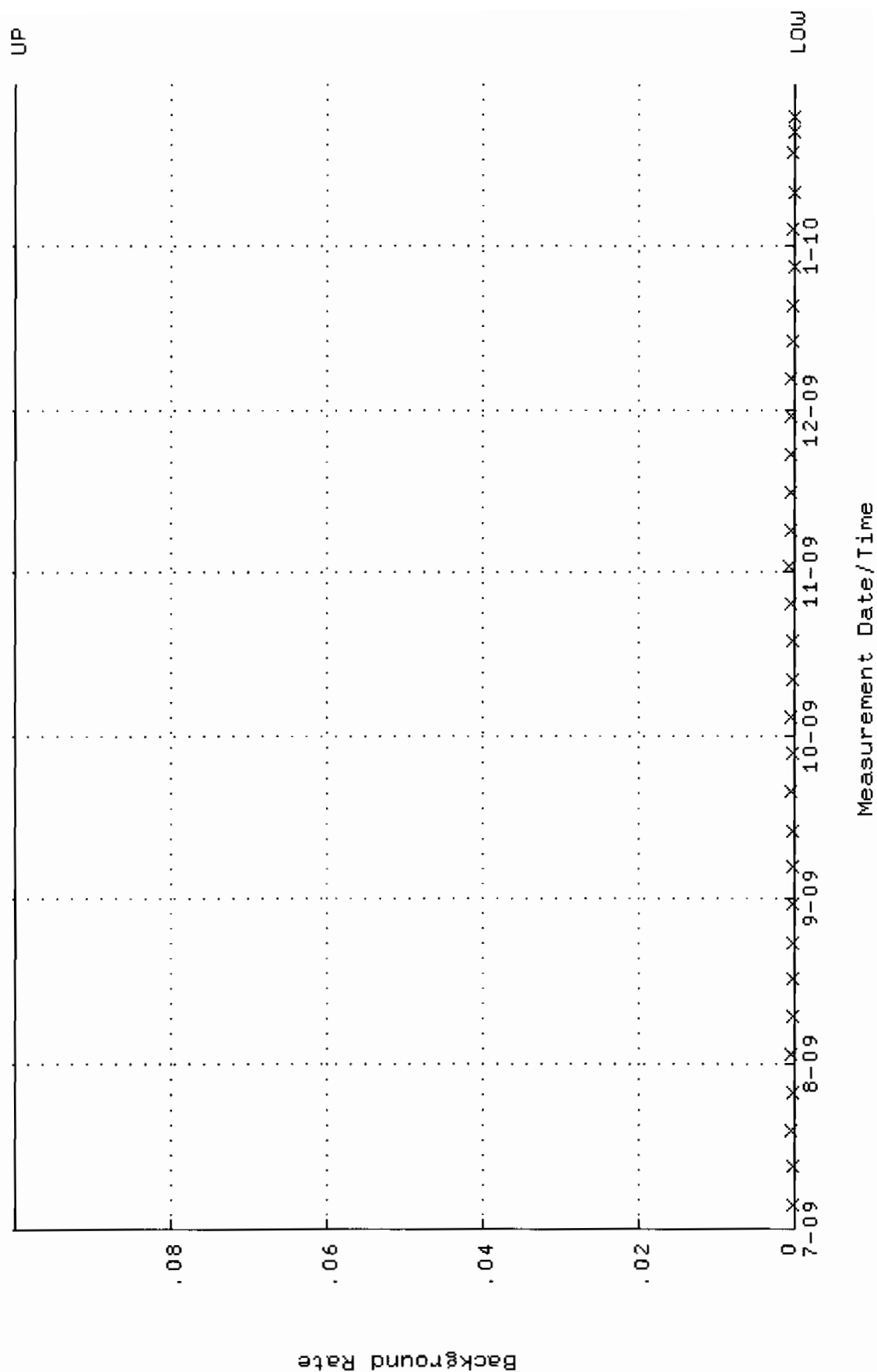
QA filename : DKA100:[ENV\_ALPHA.QA.W]W250.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:30 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.382119 through 0.416507



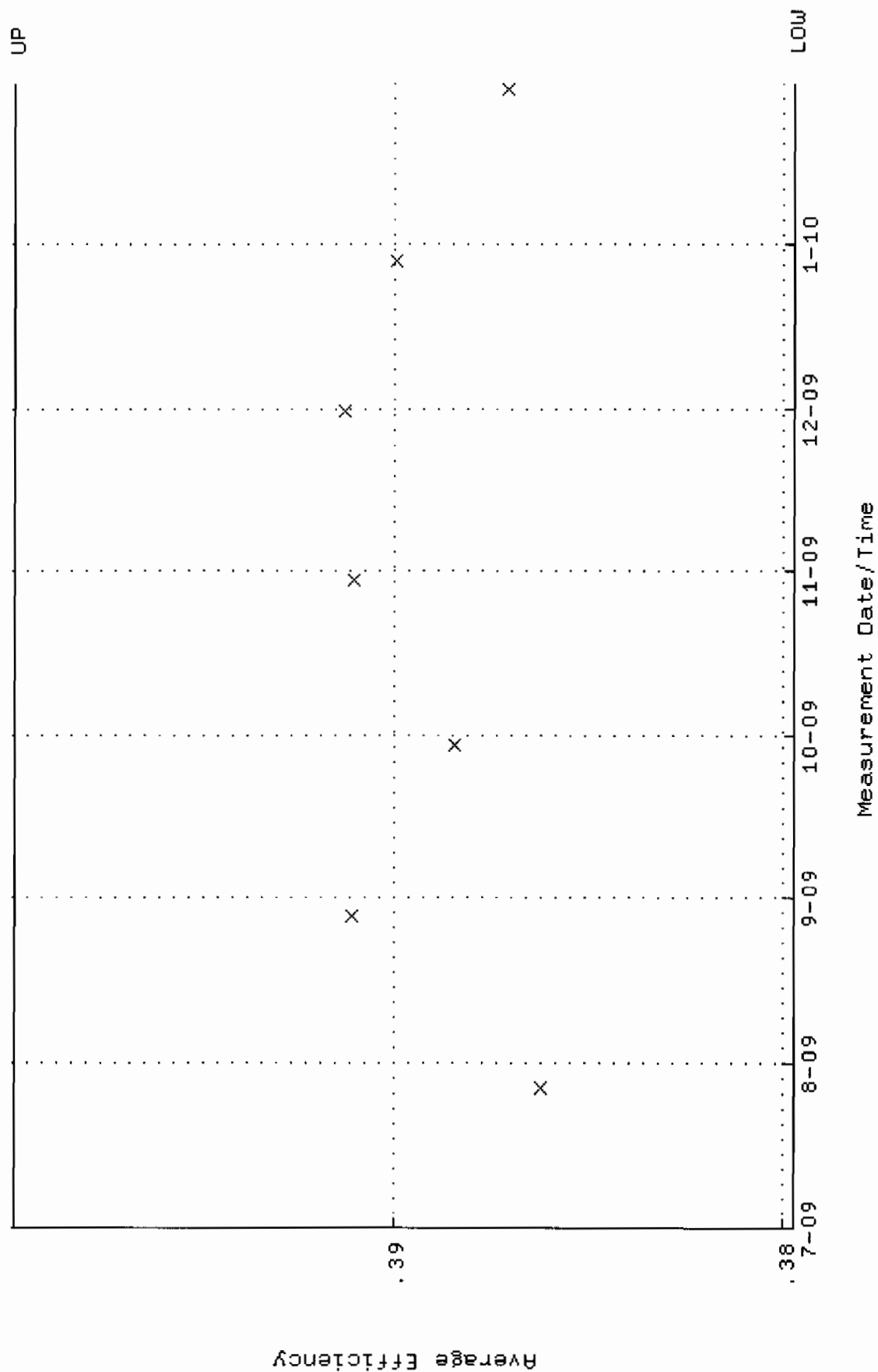
QA filename : DKA100:[ENV\_ALPHA.QA.W]W250.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:30 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 79.9626 through 85.7308



QA filename : DKA100:[ENV\_ALPHA.QA.B]B250.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:31 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

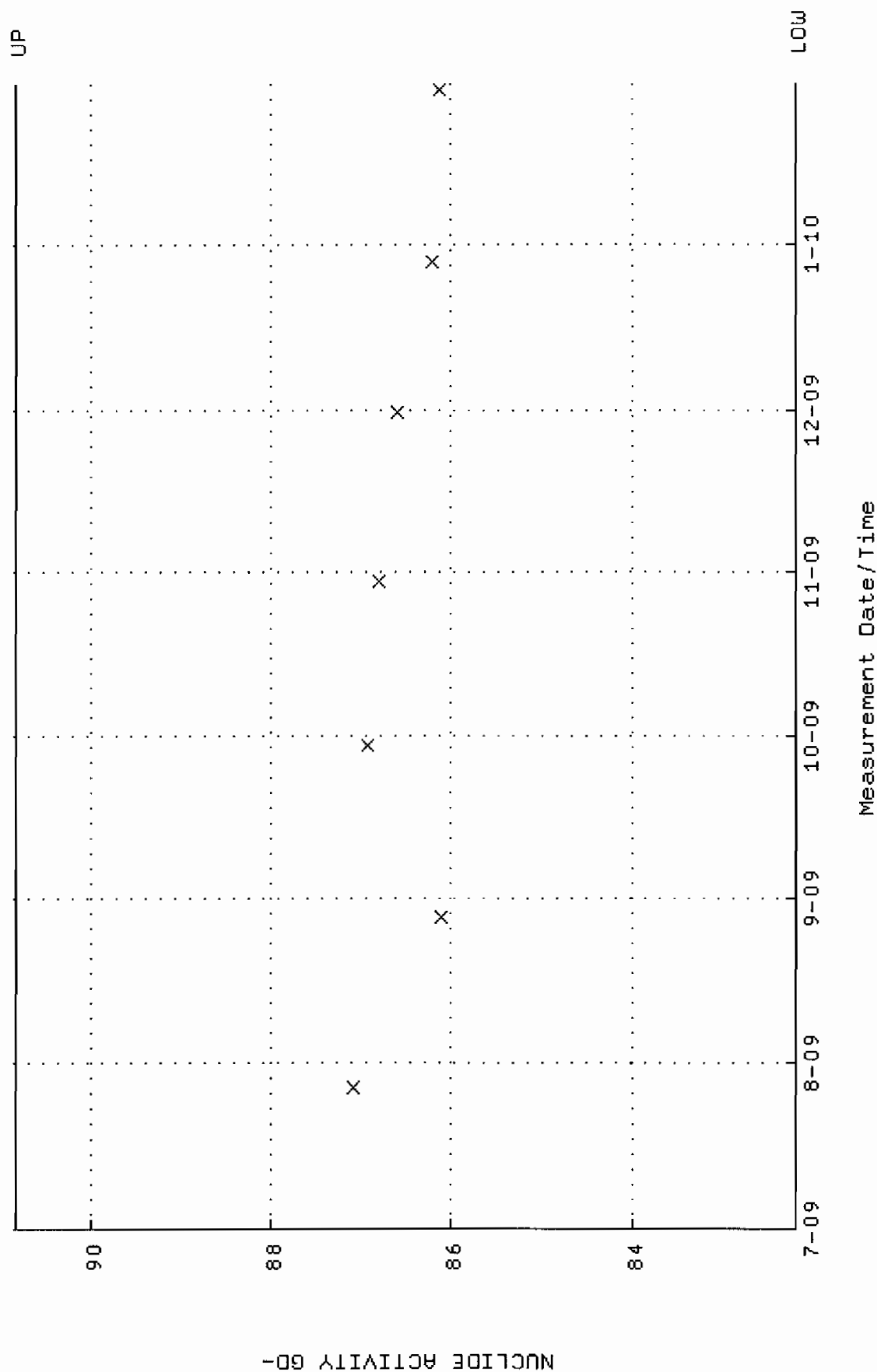


QA filename : DKA100:[ENV\_ALPHA.QA.W]W251.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:51:36 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.379733 through 0.399733

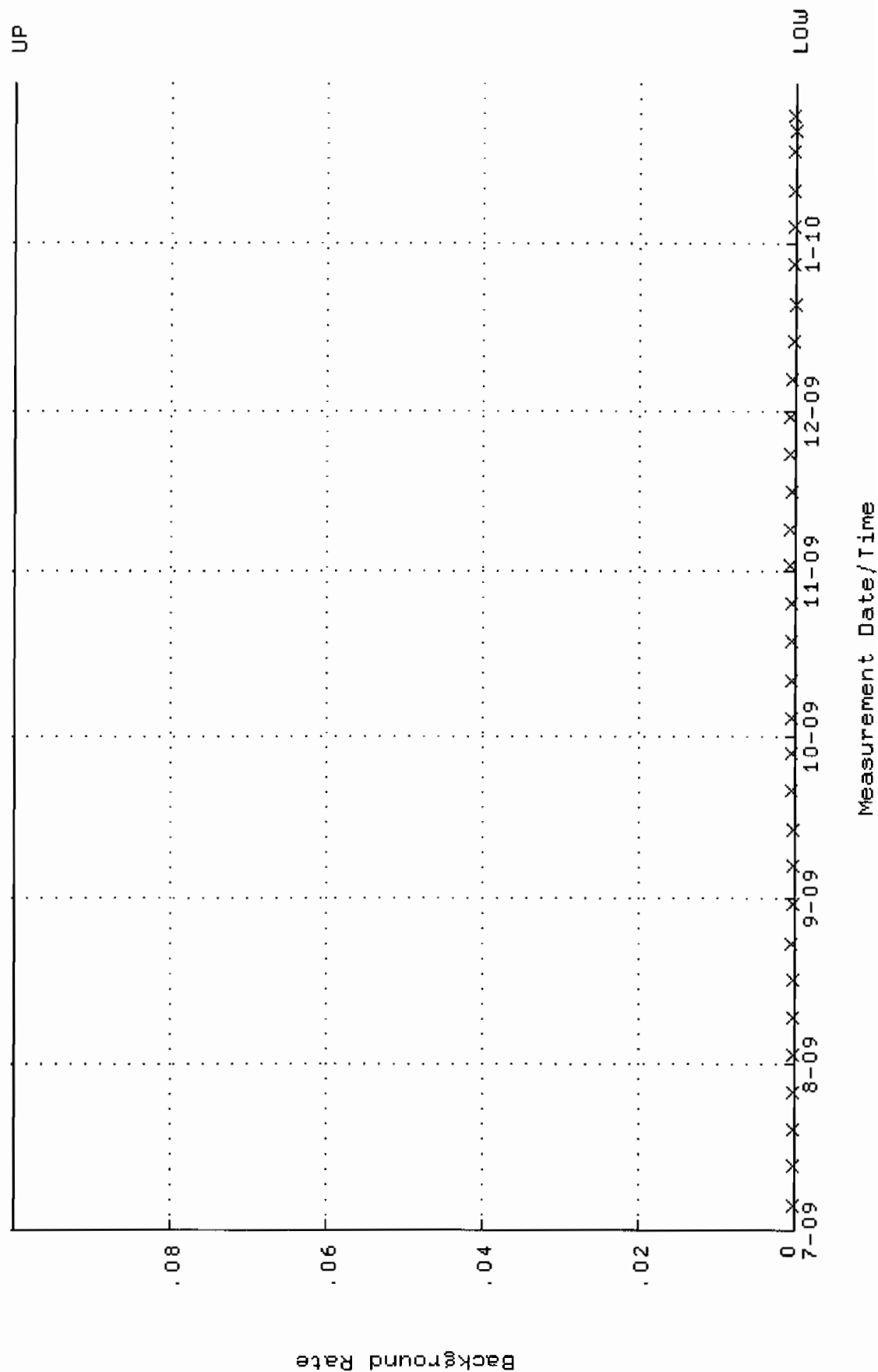




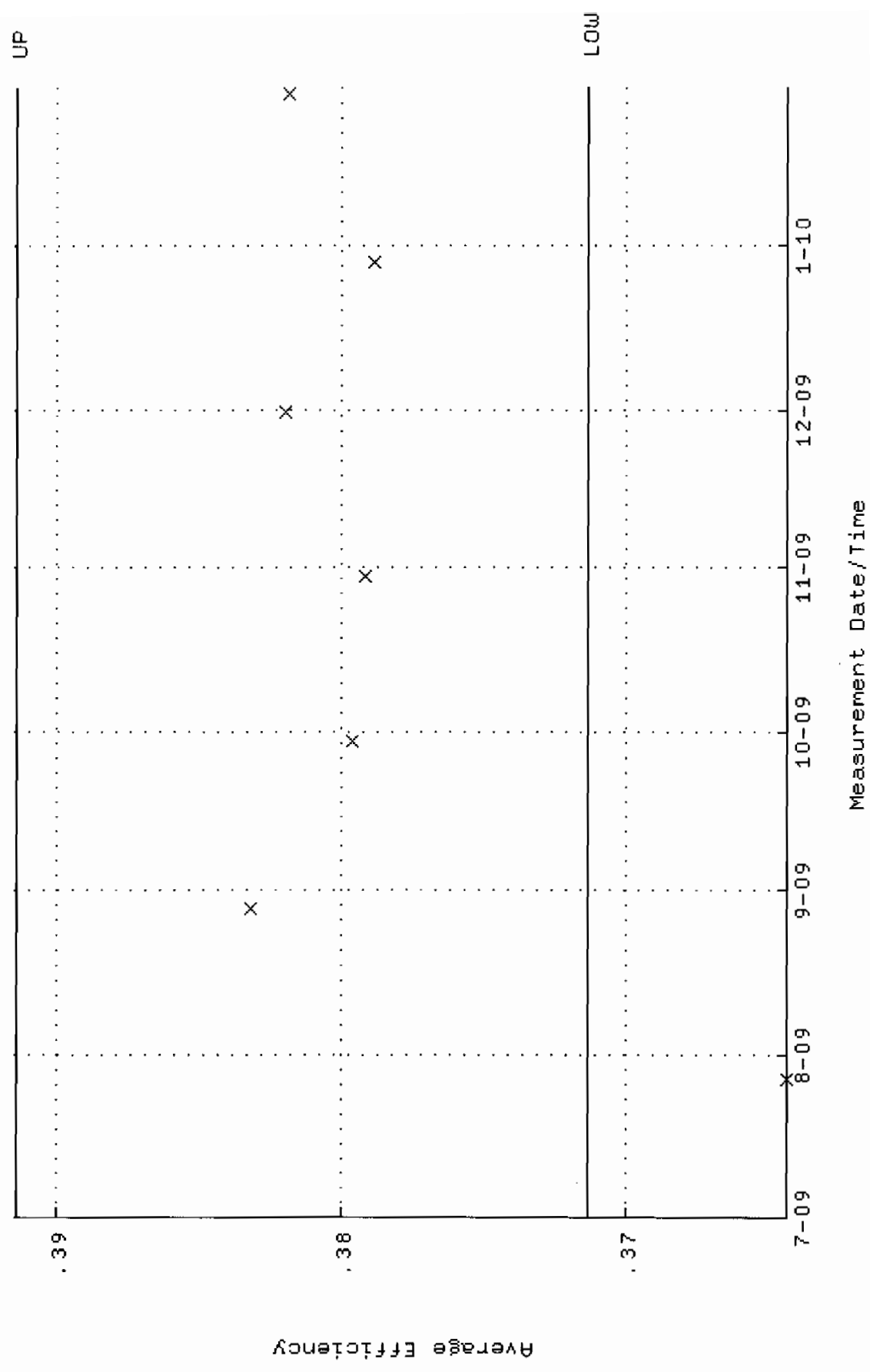
QA filename : DKA100:[ENV\_ALPHA.QA.W]W251.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:51:36 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 82.1799 through 90.8305



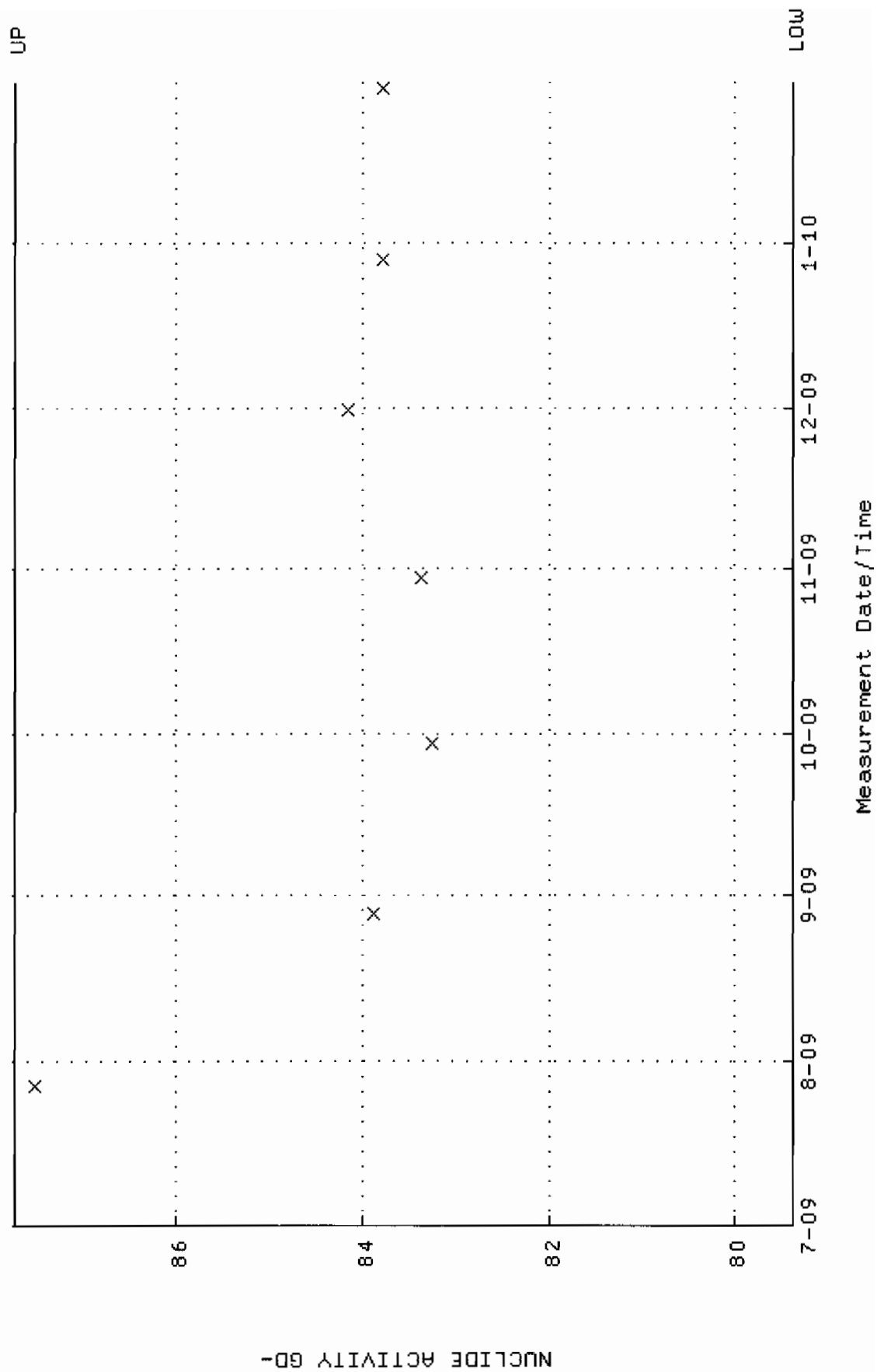
QA filename : DKA100:[ENV\_ALPHA.QA.B]B251.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:36 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



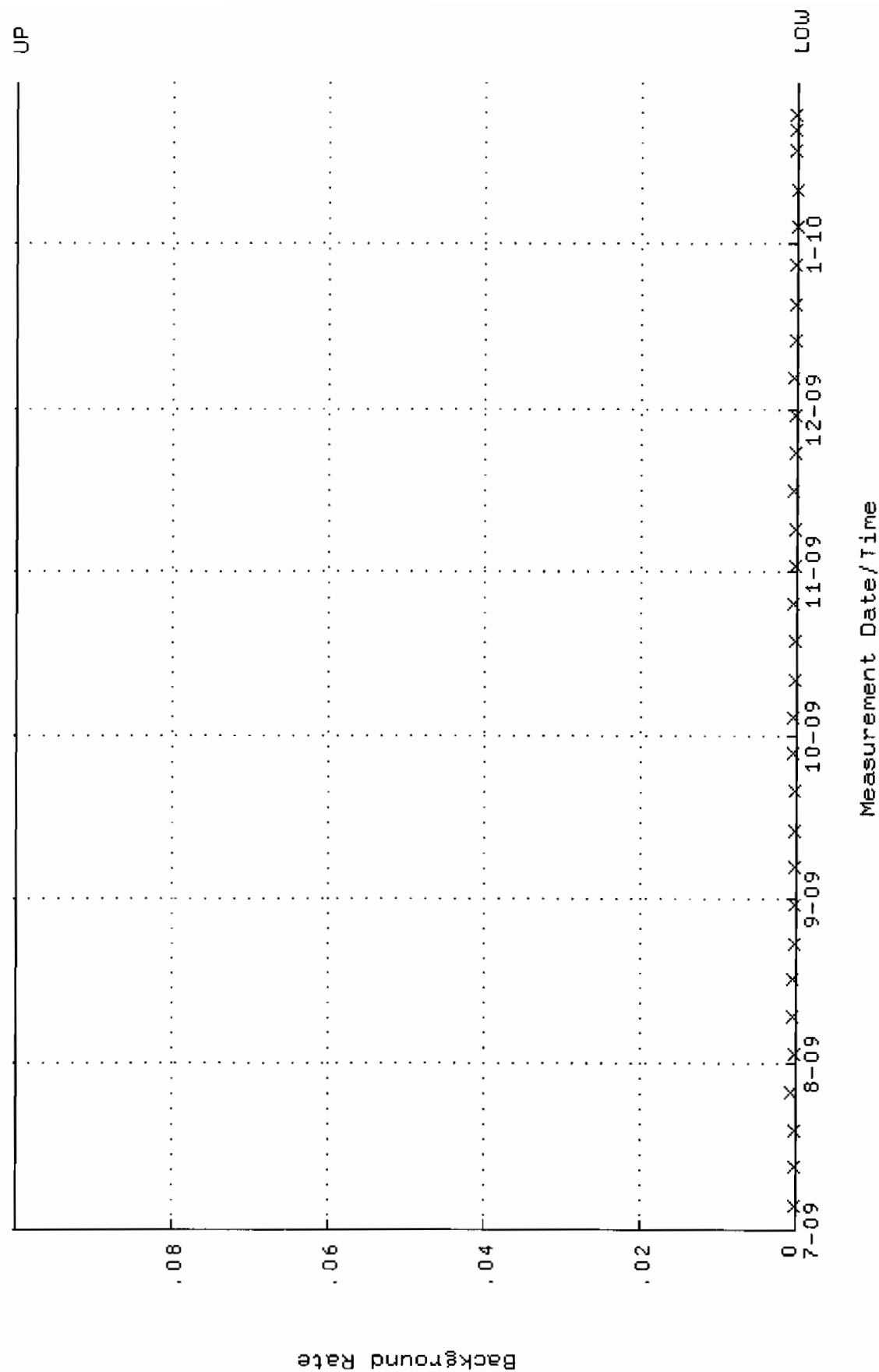
QA filename : DKA100:[ENV\_ALPHA.QA.W]W255.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:52:00 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.371403 through 0.391403



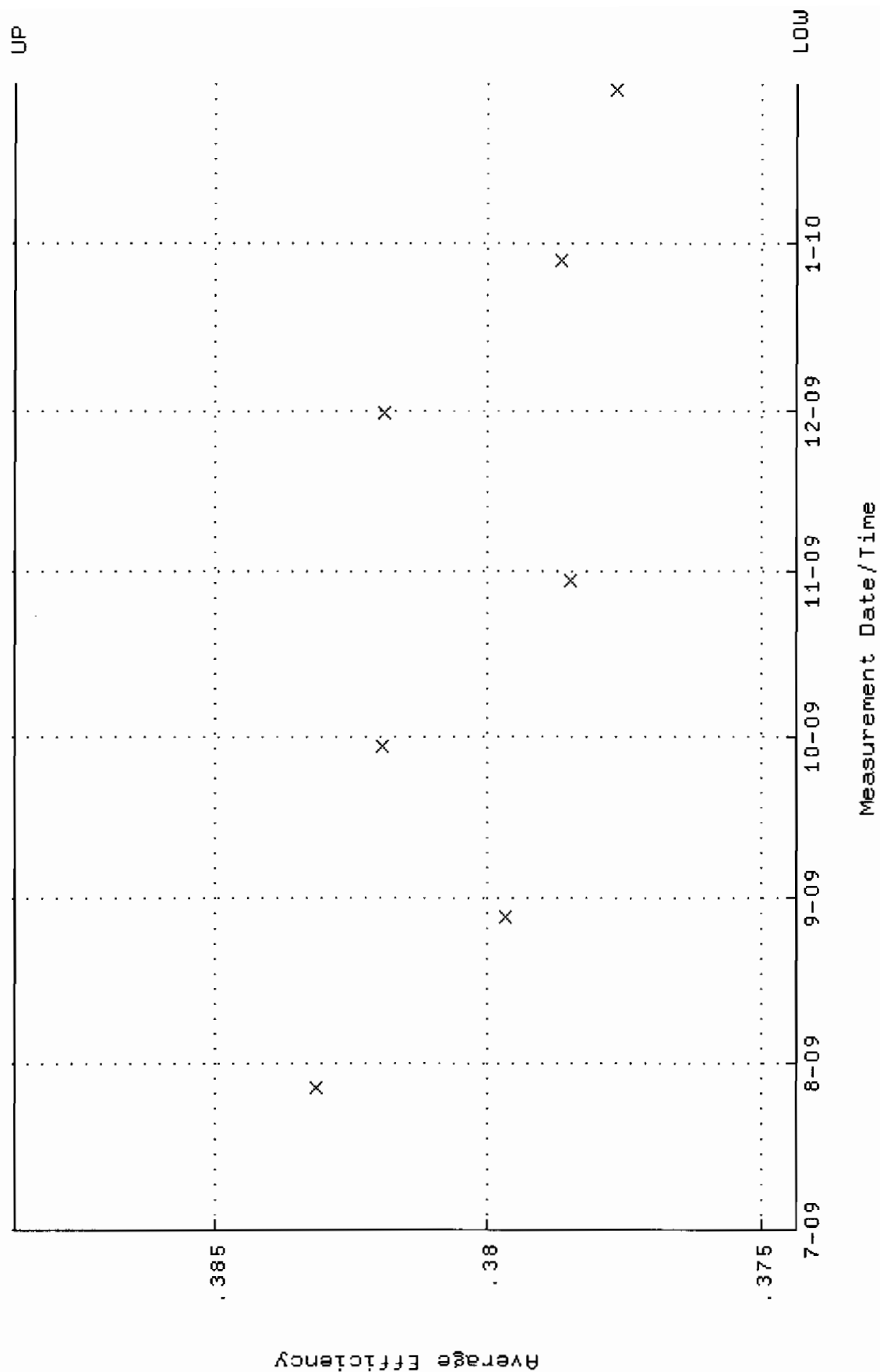
QA filename : DKA100:[ENV\_ALPHA.QA.W]w255.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:52:00 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 79.3783 through 87.7339



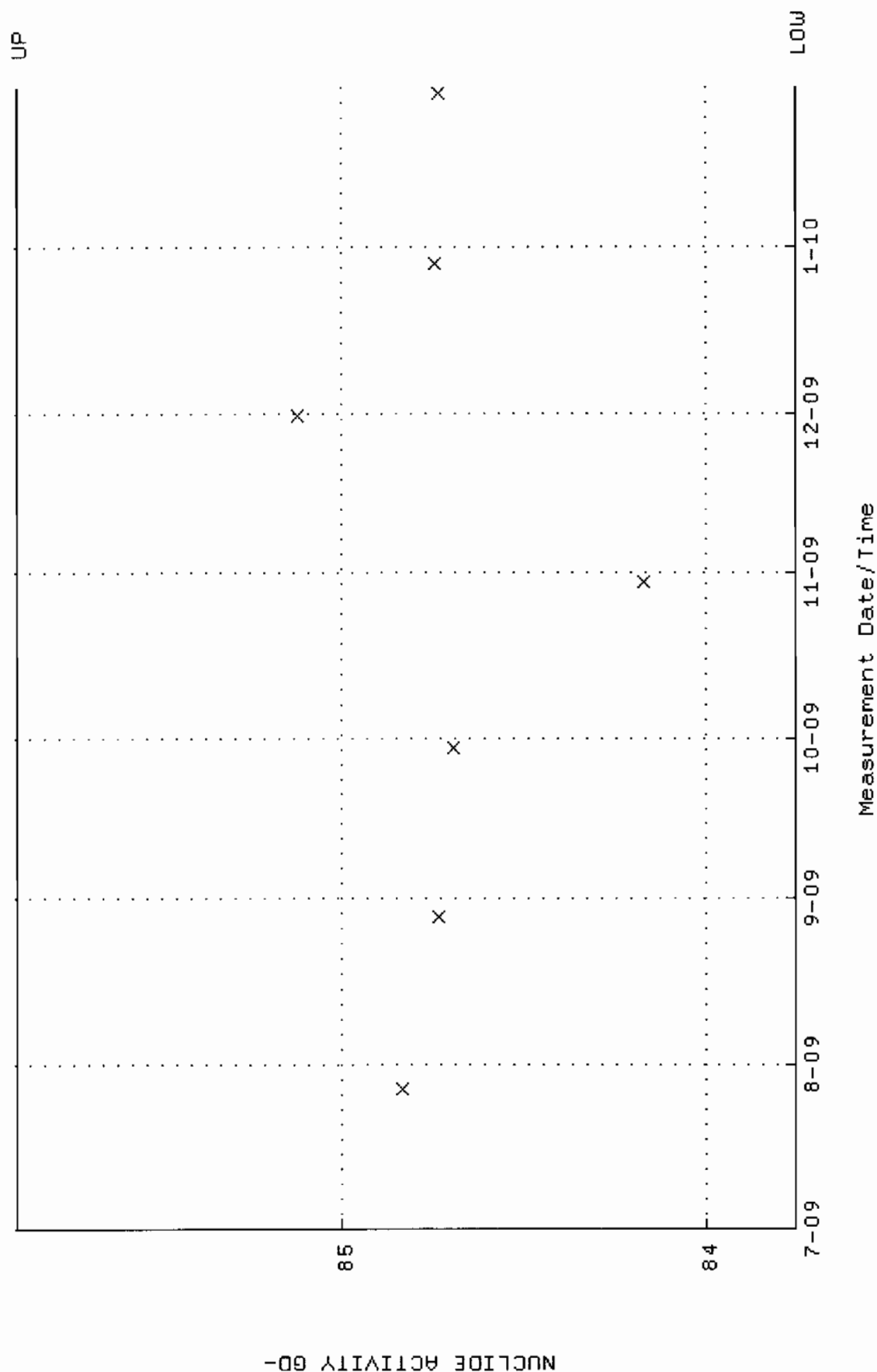
QA filename : DKA100:[ENV\_ALPHA.QA.B]B255.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:55 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



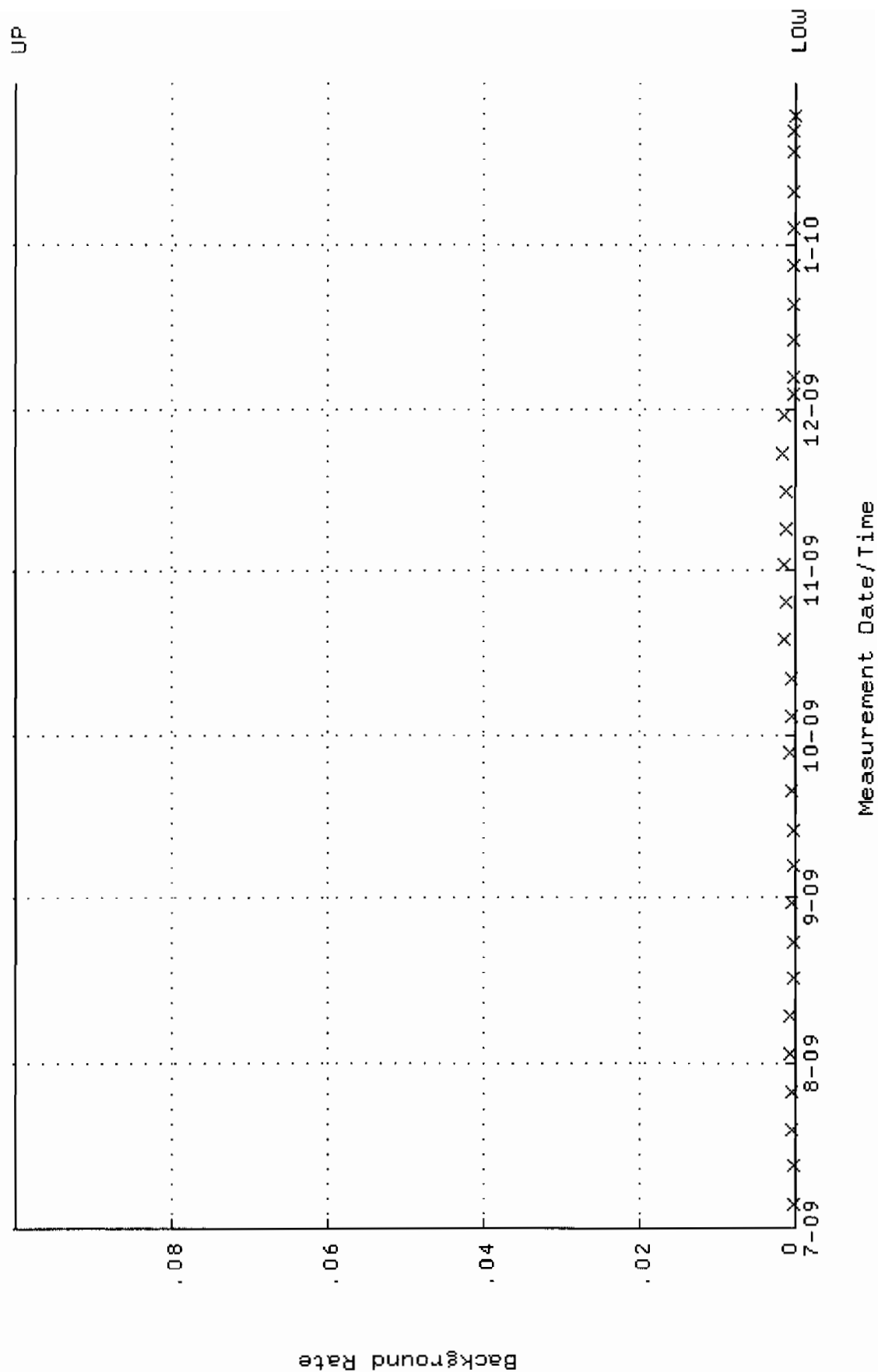
QA filename : DKA100:[ENV\_ALPHA.QA.W]W256.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-JUL-2009 11:52:06 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.374371 through 0.388647



QA filename : DKA100:[ENV-ALPHA.QA.W]W256.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 27-JUL-2009 11:52:06 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 83.7553 through 85.8901

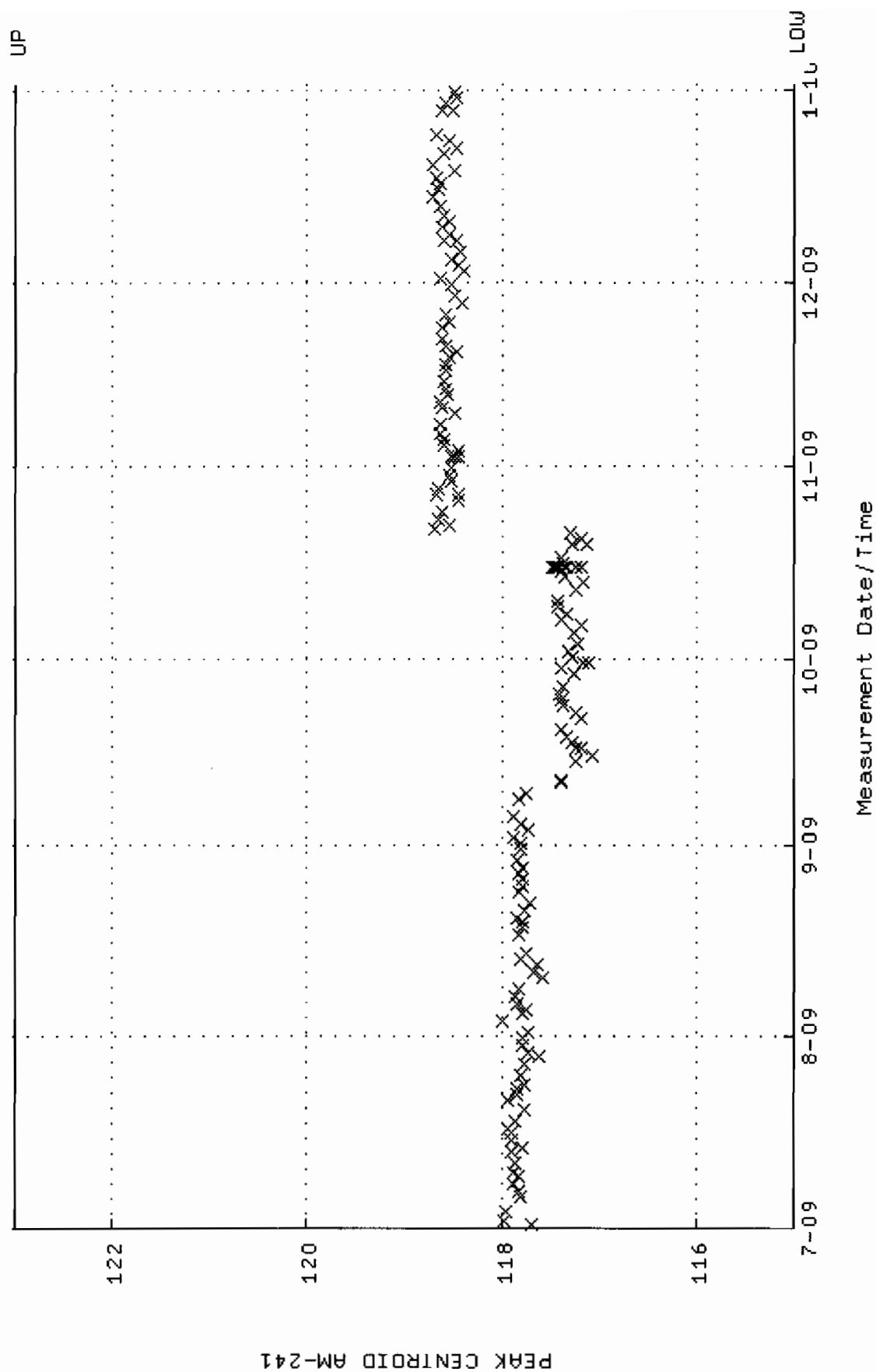


QA filename : DKA100:[ENV\_ALPHA.QA.B]B256.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:06:59 through 30-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

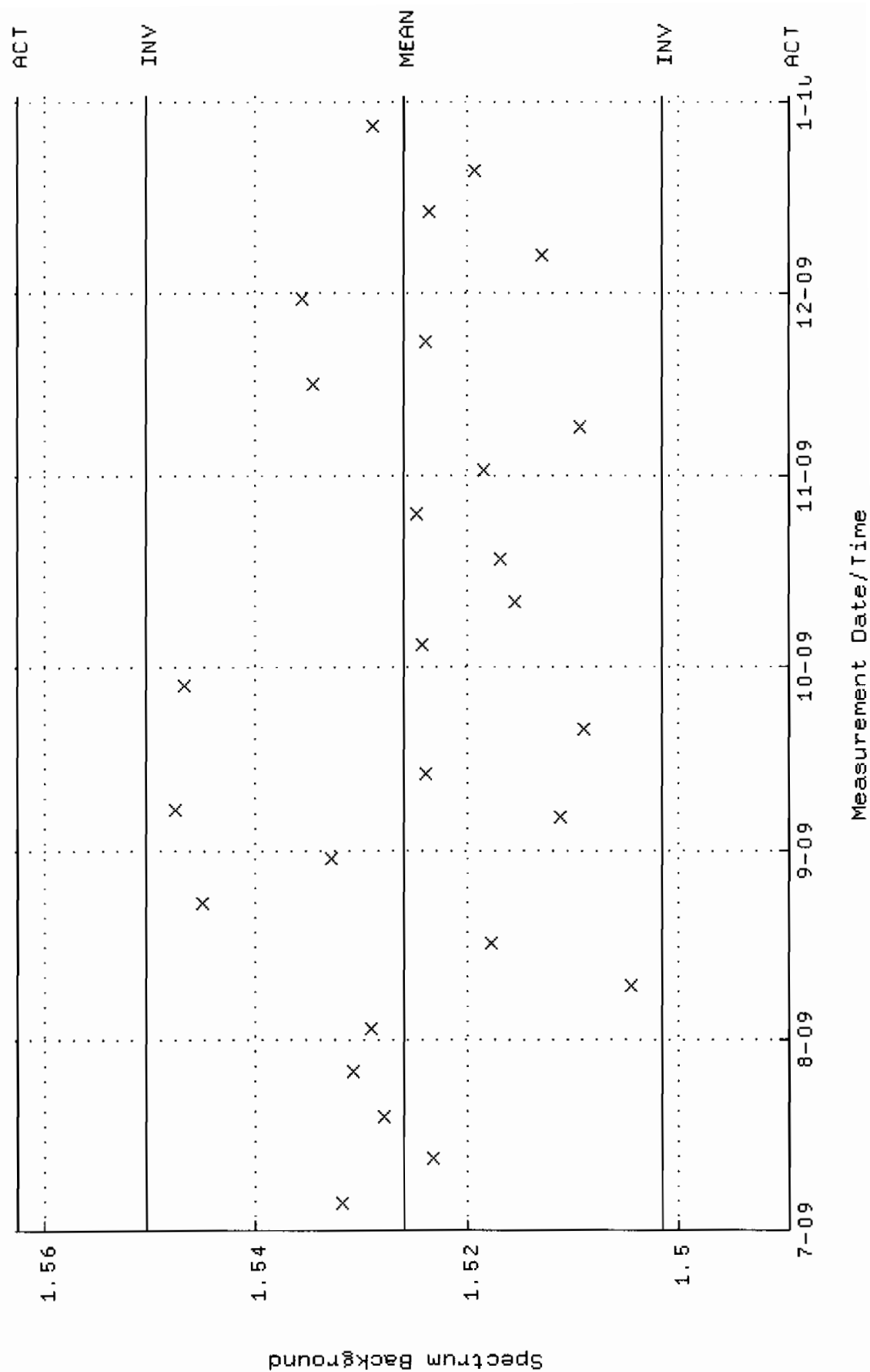




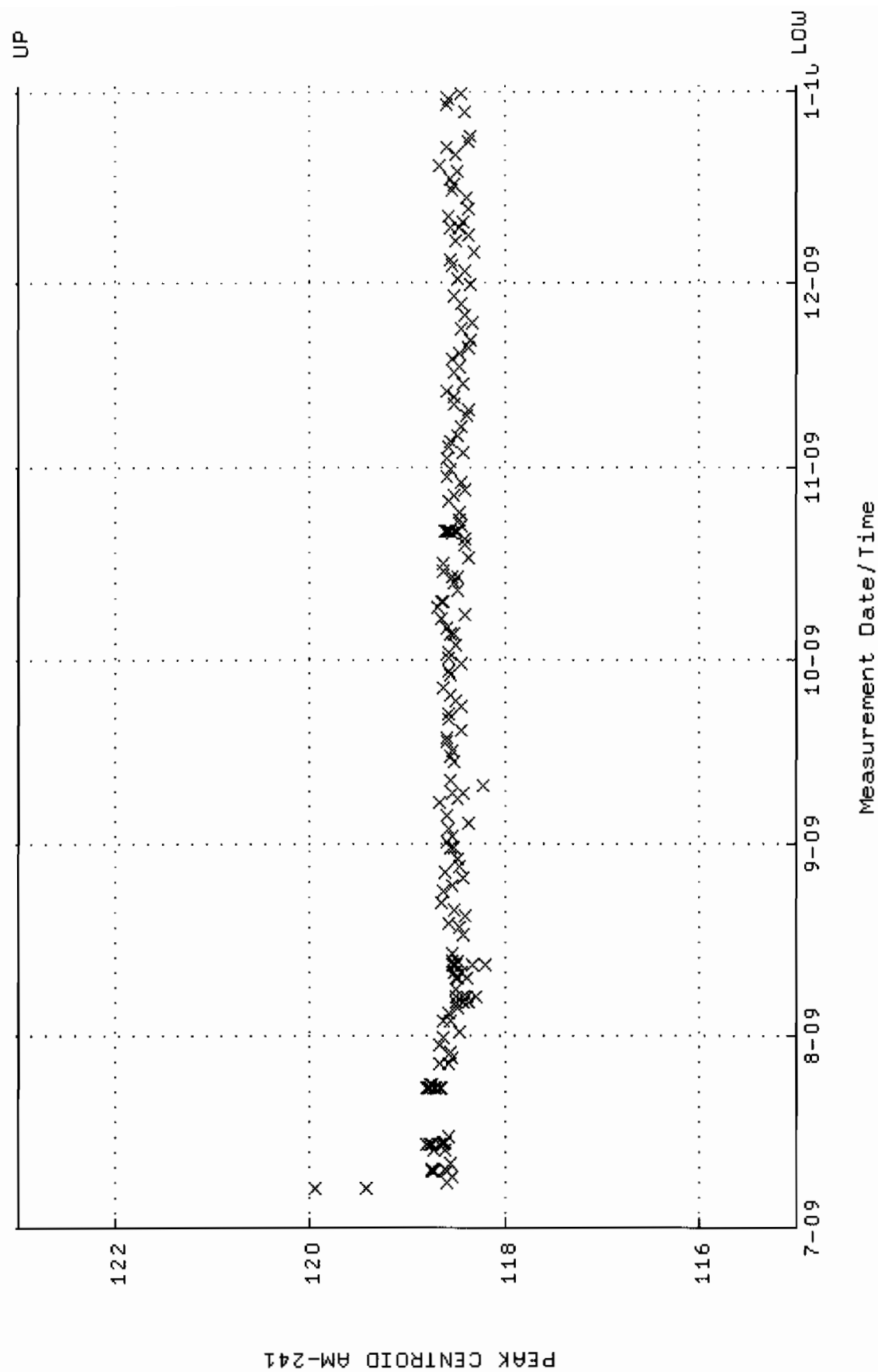
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM06\_500MLMB.QAF;1  
 Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 1-JUL-2009 14:30:59 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



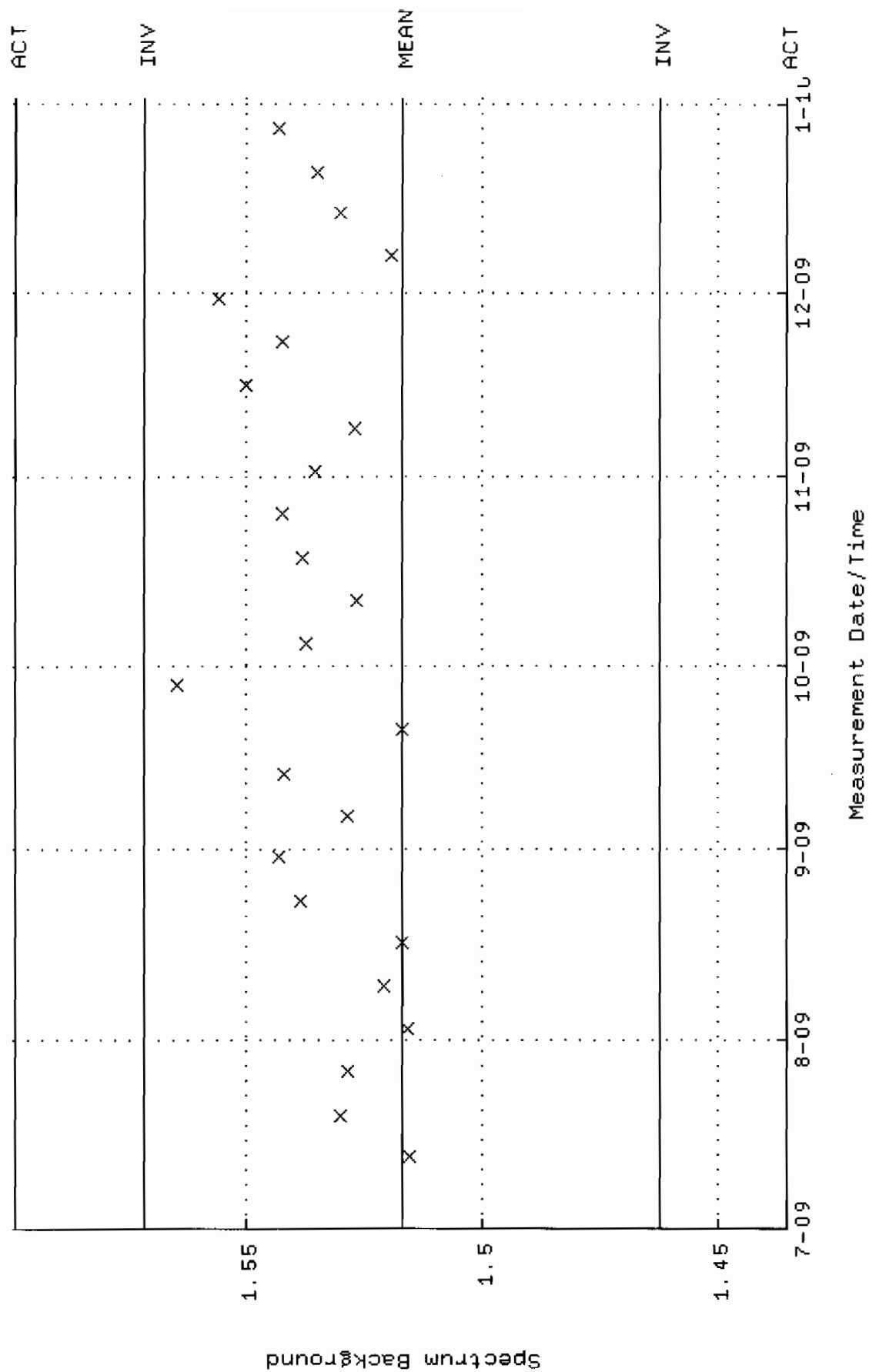
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM06.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:50:15 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.52603 +- 1.215987E-02 (0.80 %)



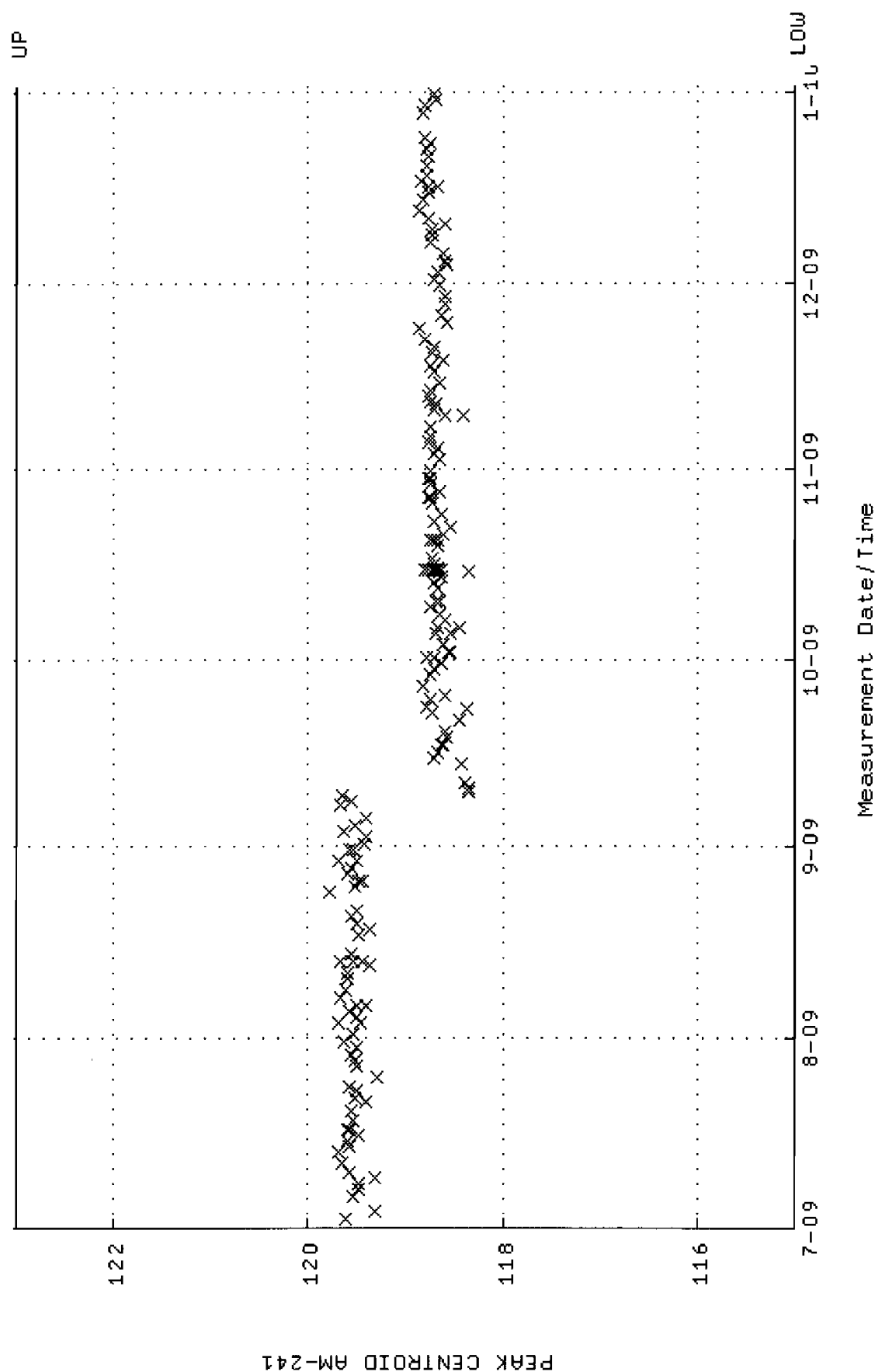
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM07\_JAR.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 7-JUL-2009 09:02:00 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



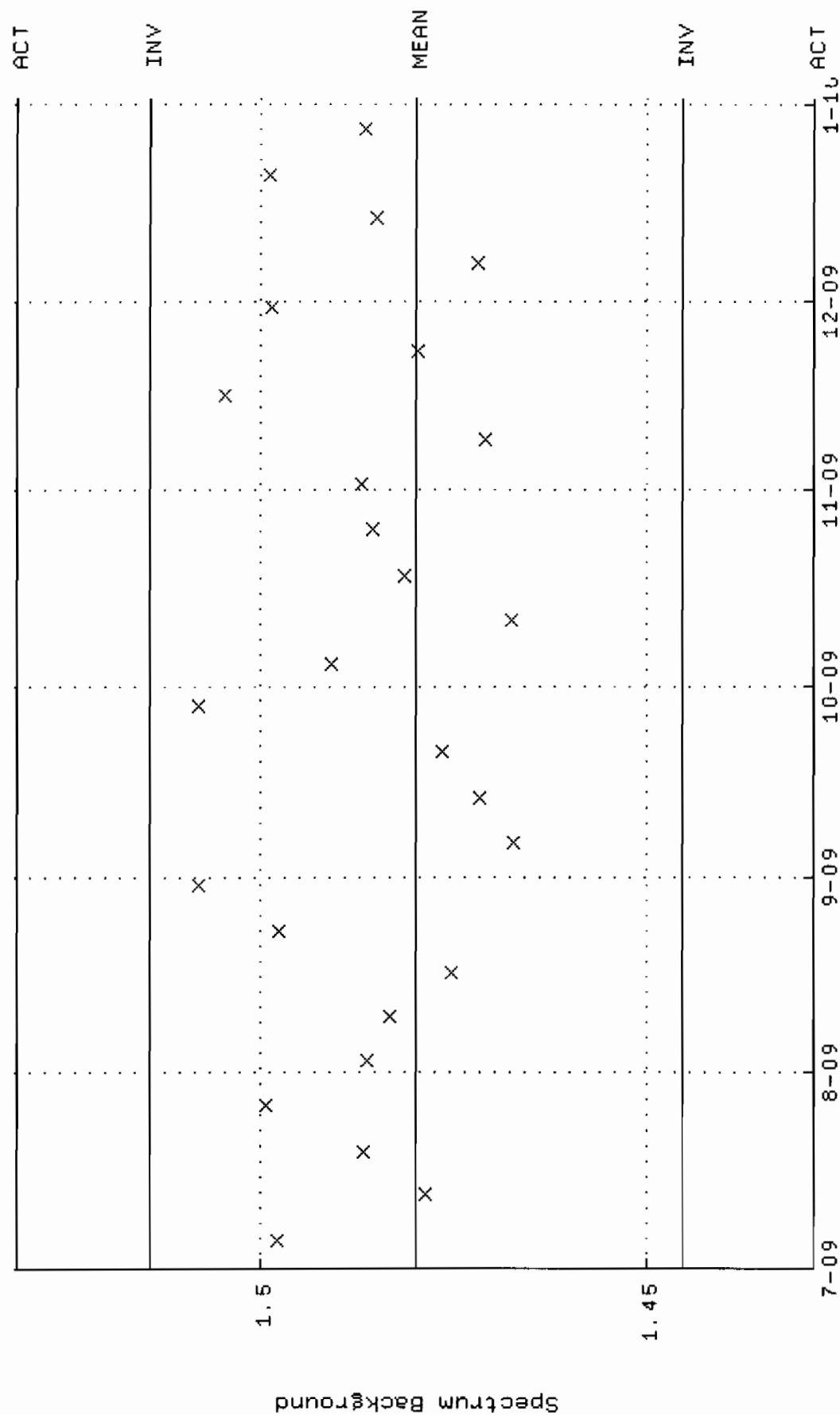
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM07.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 12-JUL-2009 17:17:31 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.51715 +- 2.726376E-02 (1.80 %)



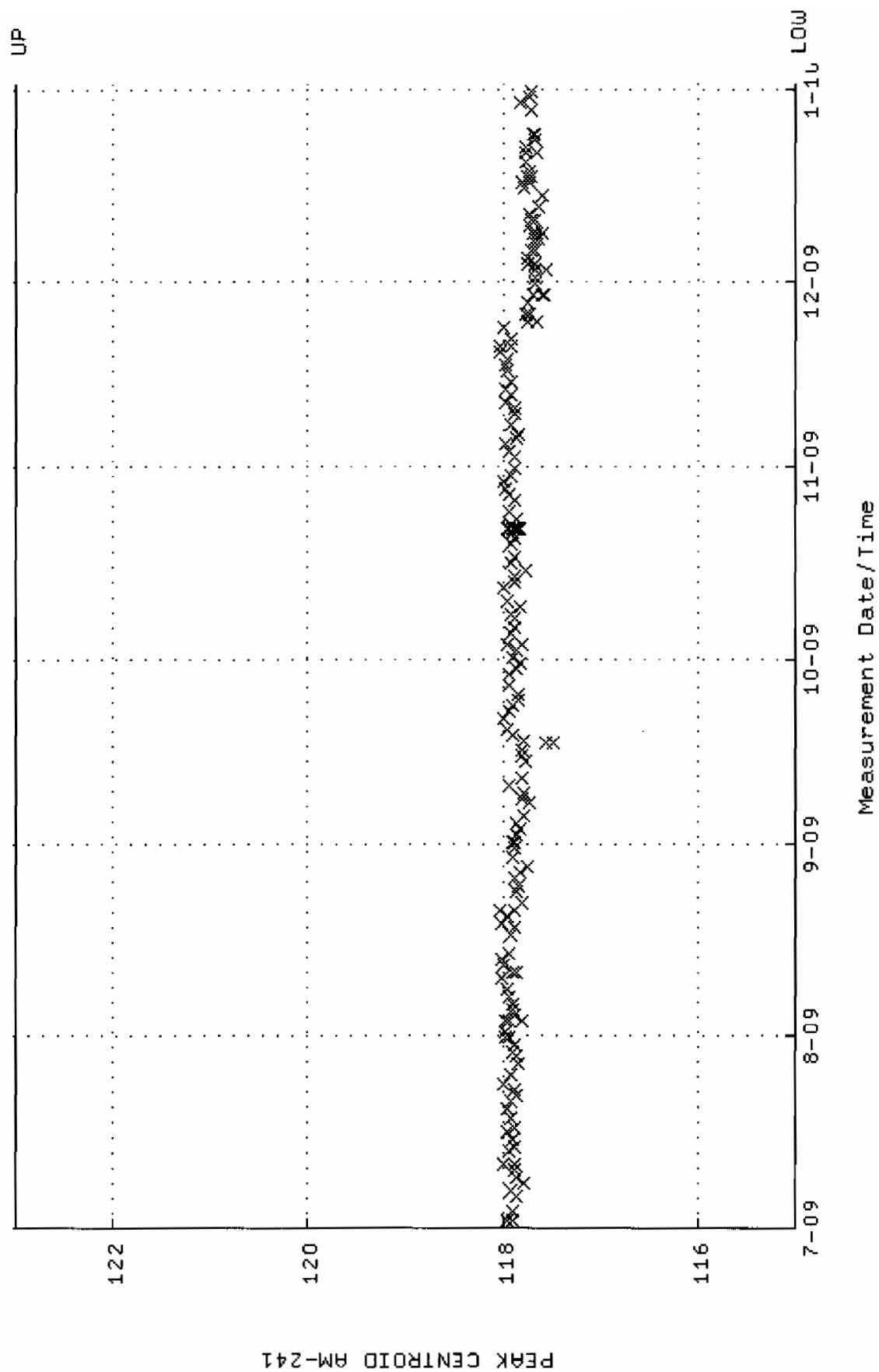
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM10-500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:17 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



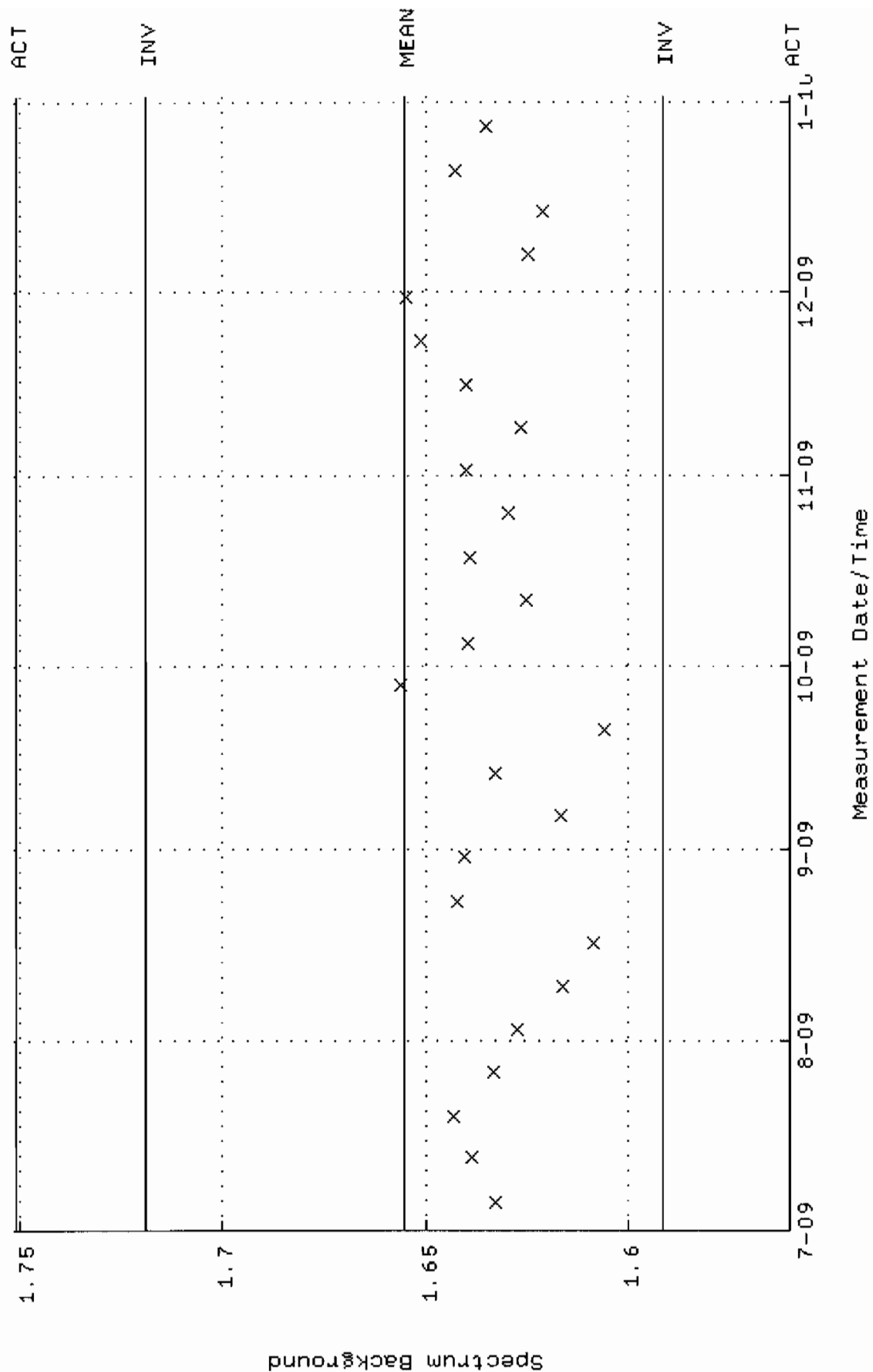
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM10.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:14 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48000 +- 1.723892E-02 (1.16 %)



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

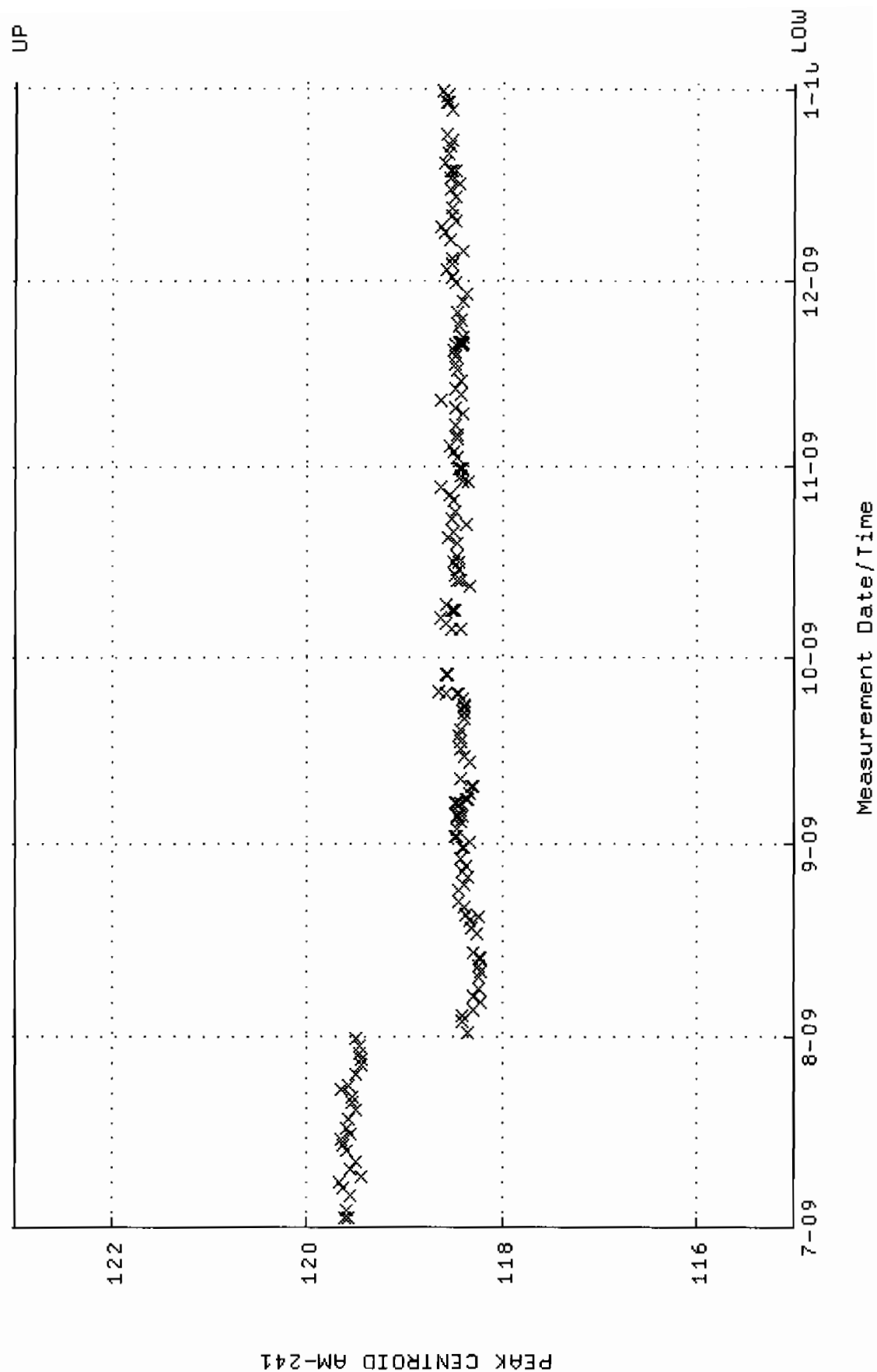


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM11.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:39 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)

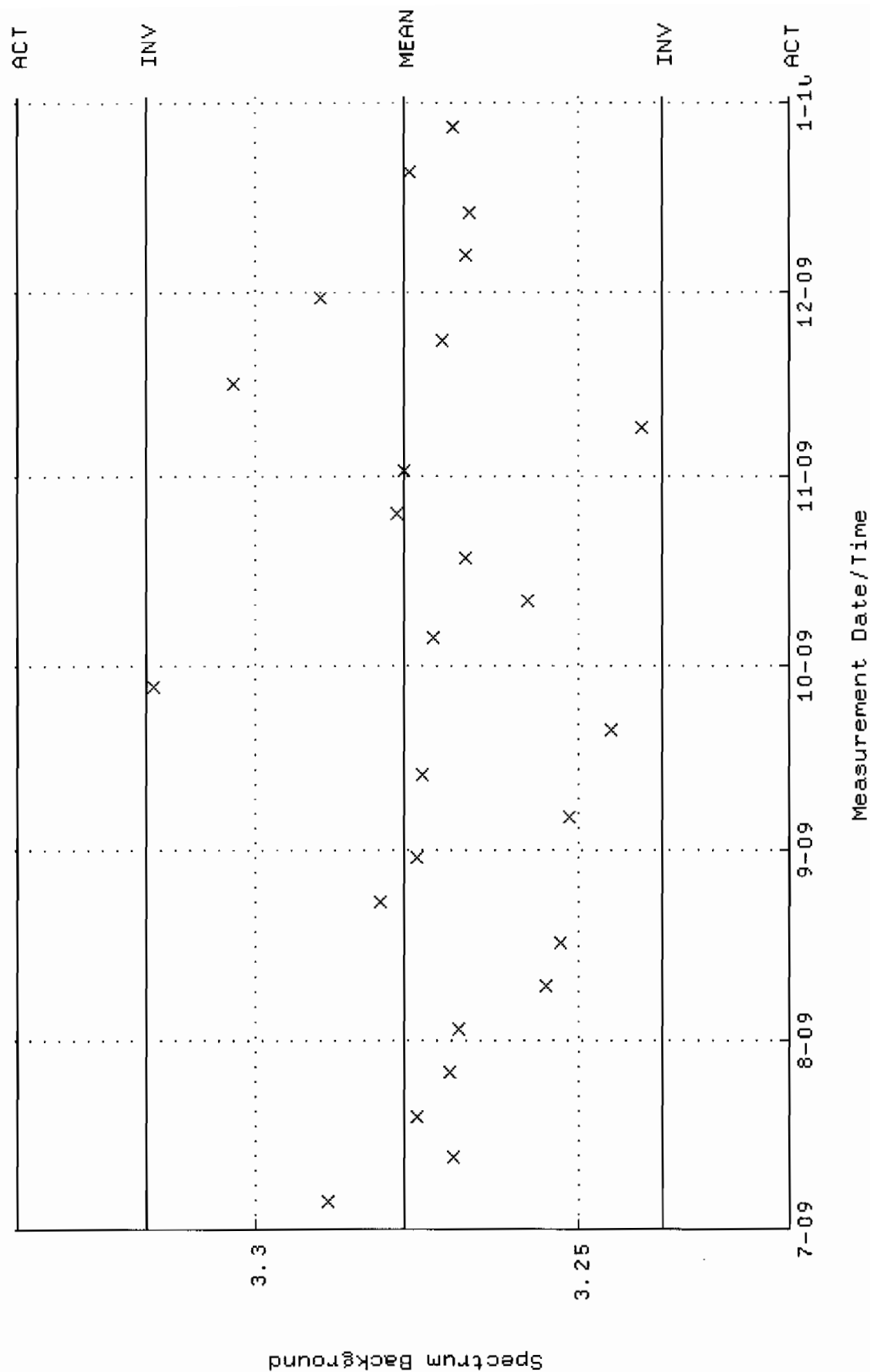




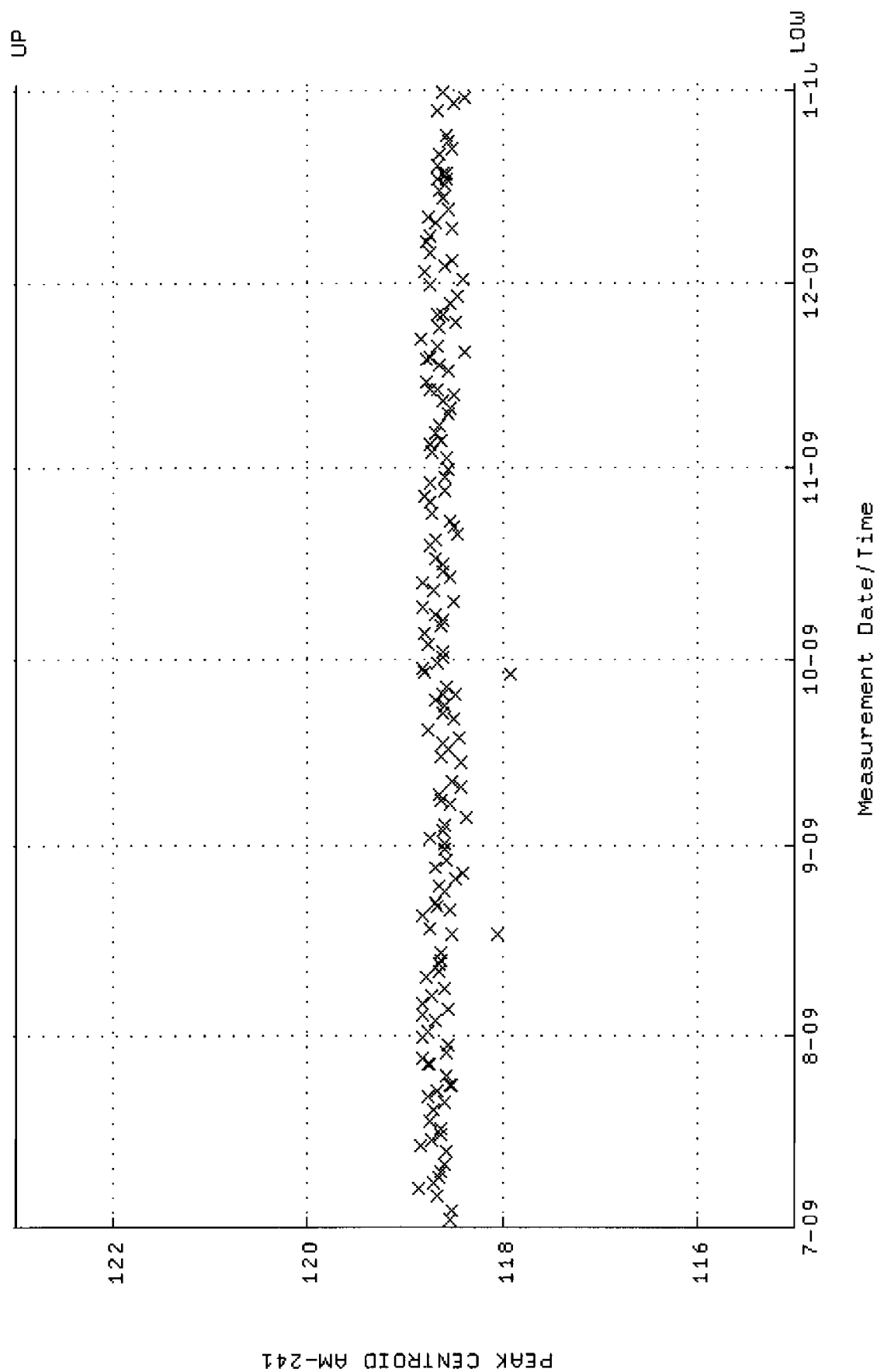
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM13\_CAN.QAF;1  
 Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:30 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



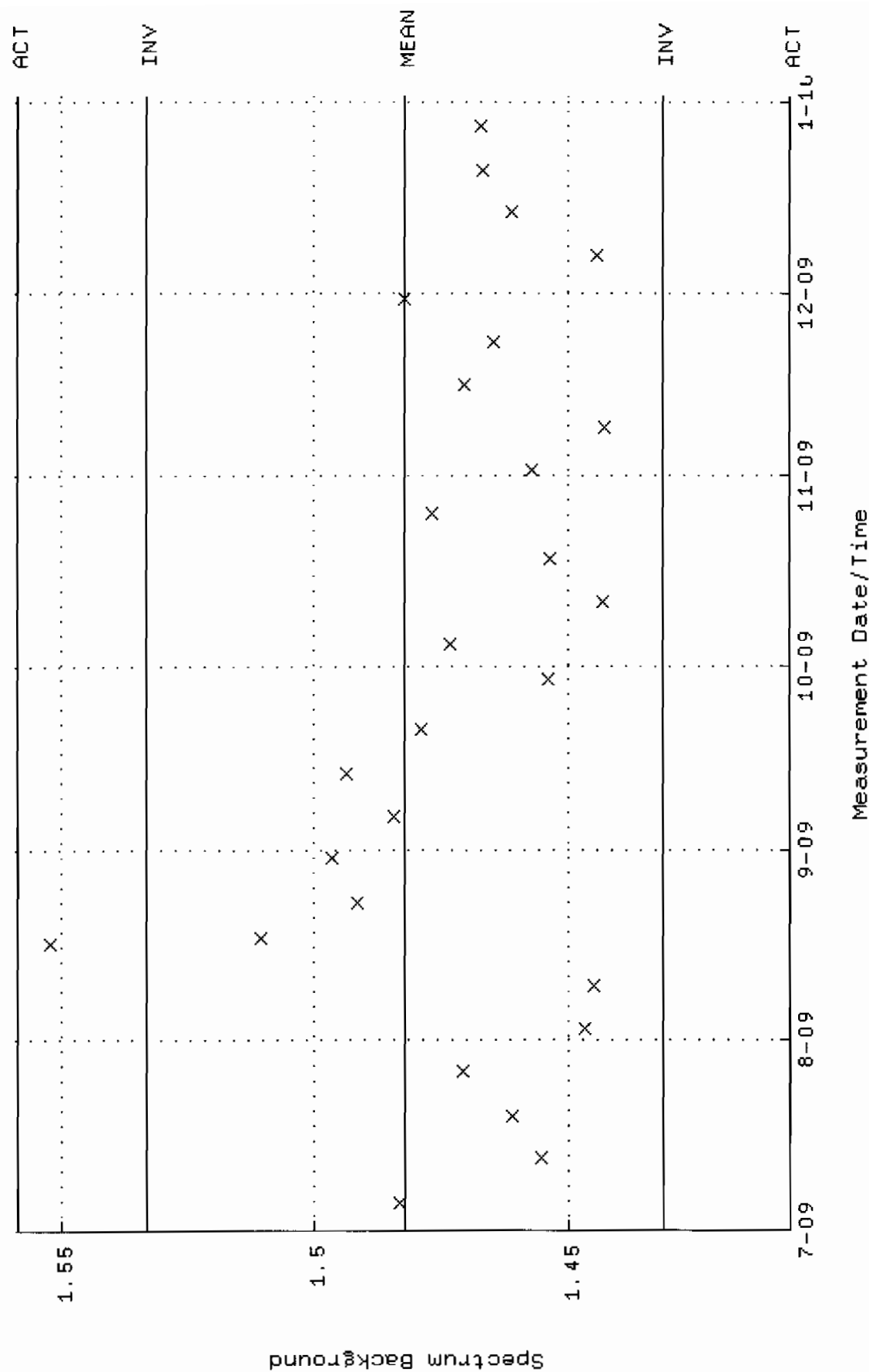
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM13.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:16 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 3.27712 +- 1.999120E-02 (0.61 %)



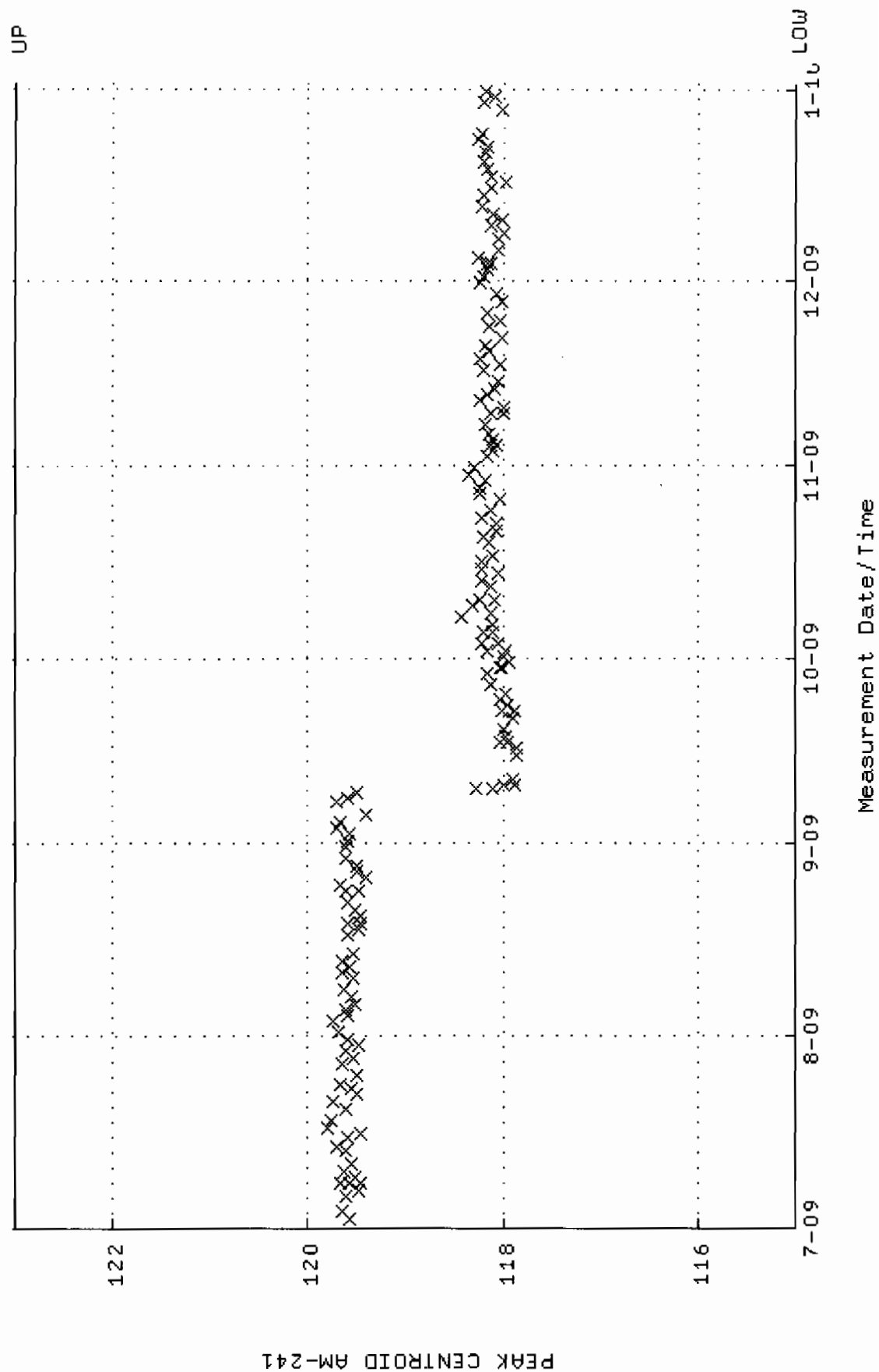
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM14\_2LMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 04:59:23 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



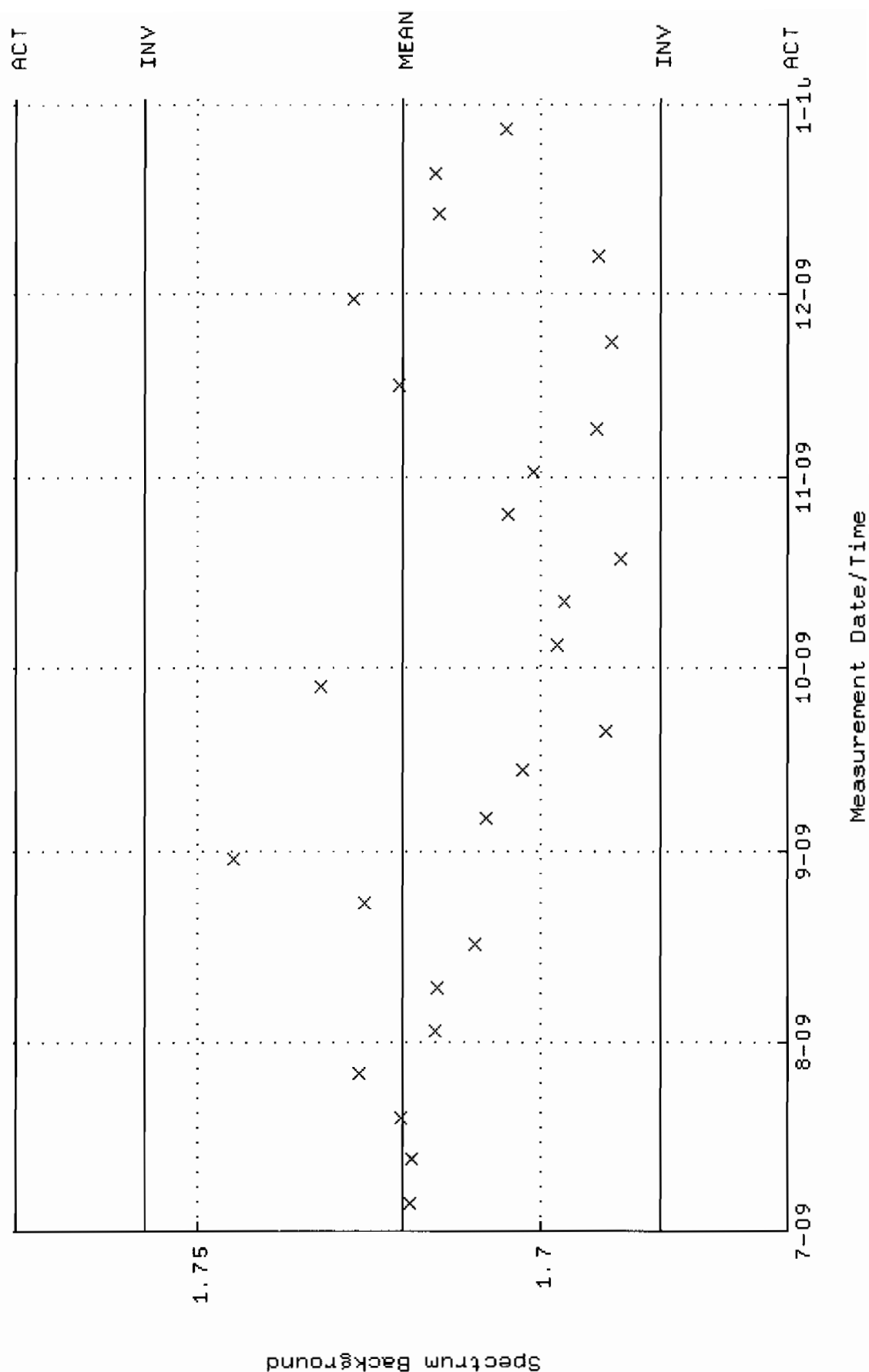
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM14.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:31 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)



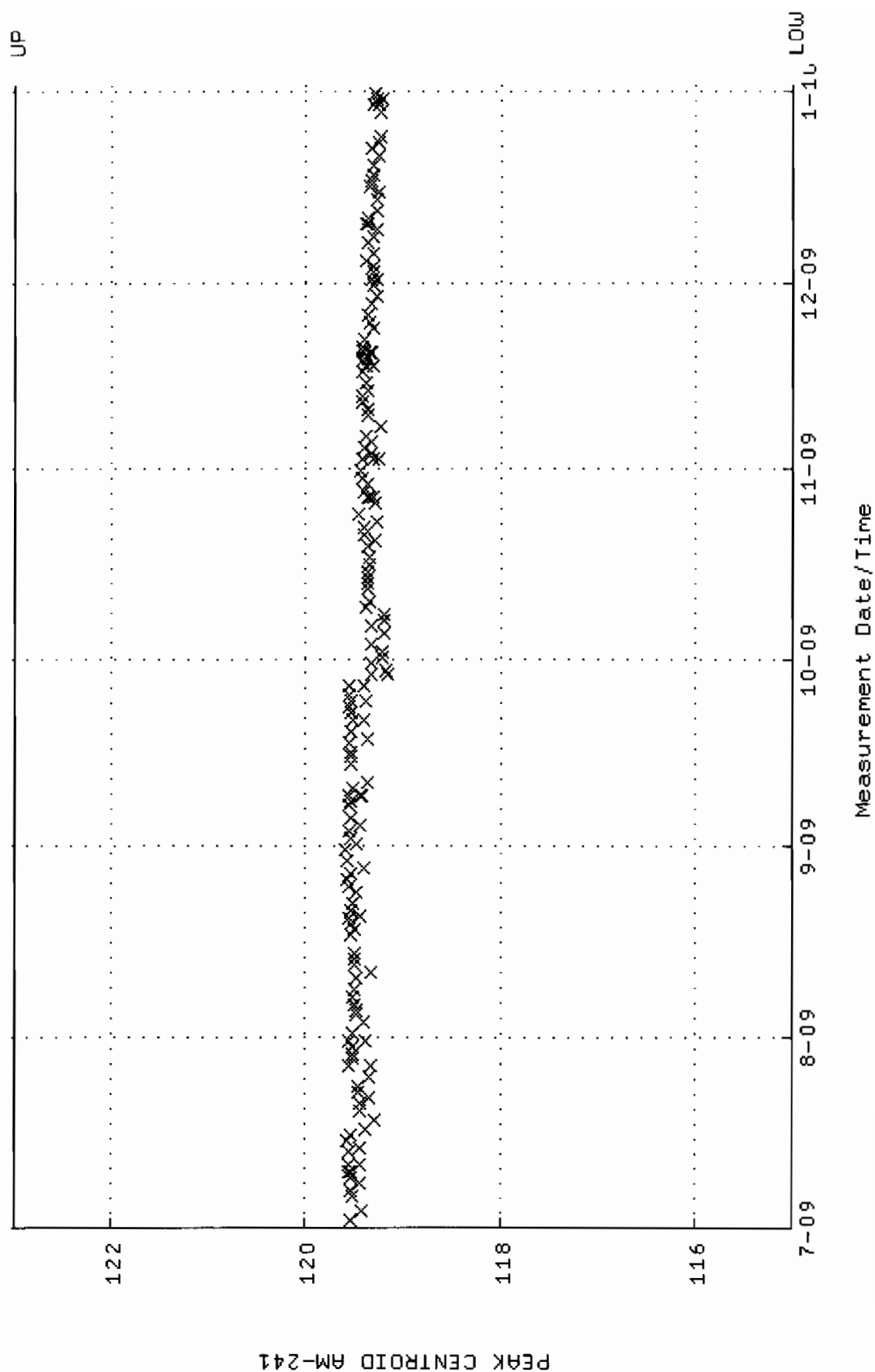
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM15\_CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 10:47:40 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



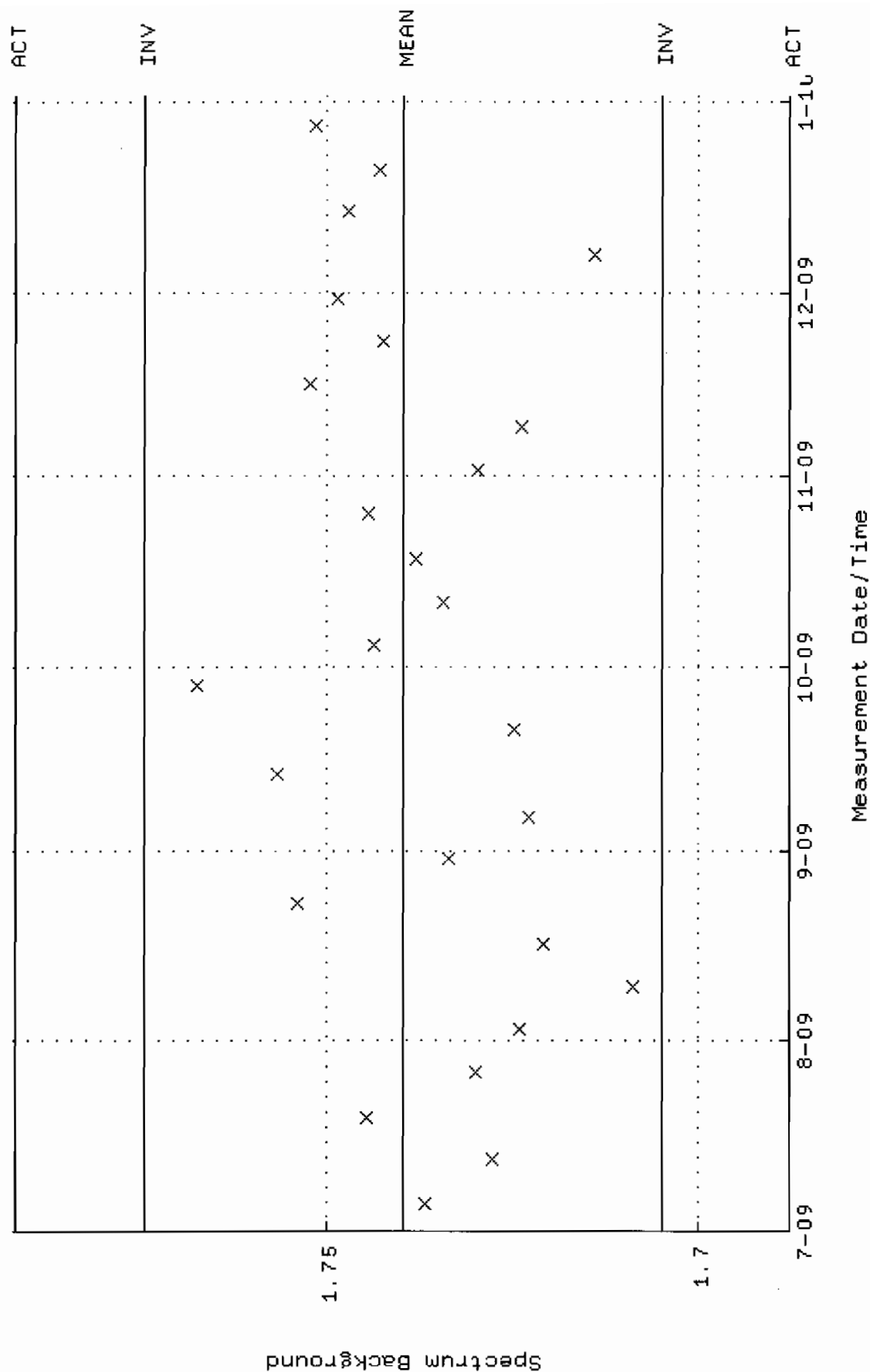
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM15.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:45 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_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

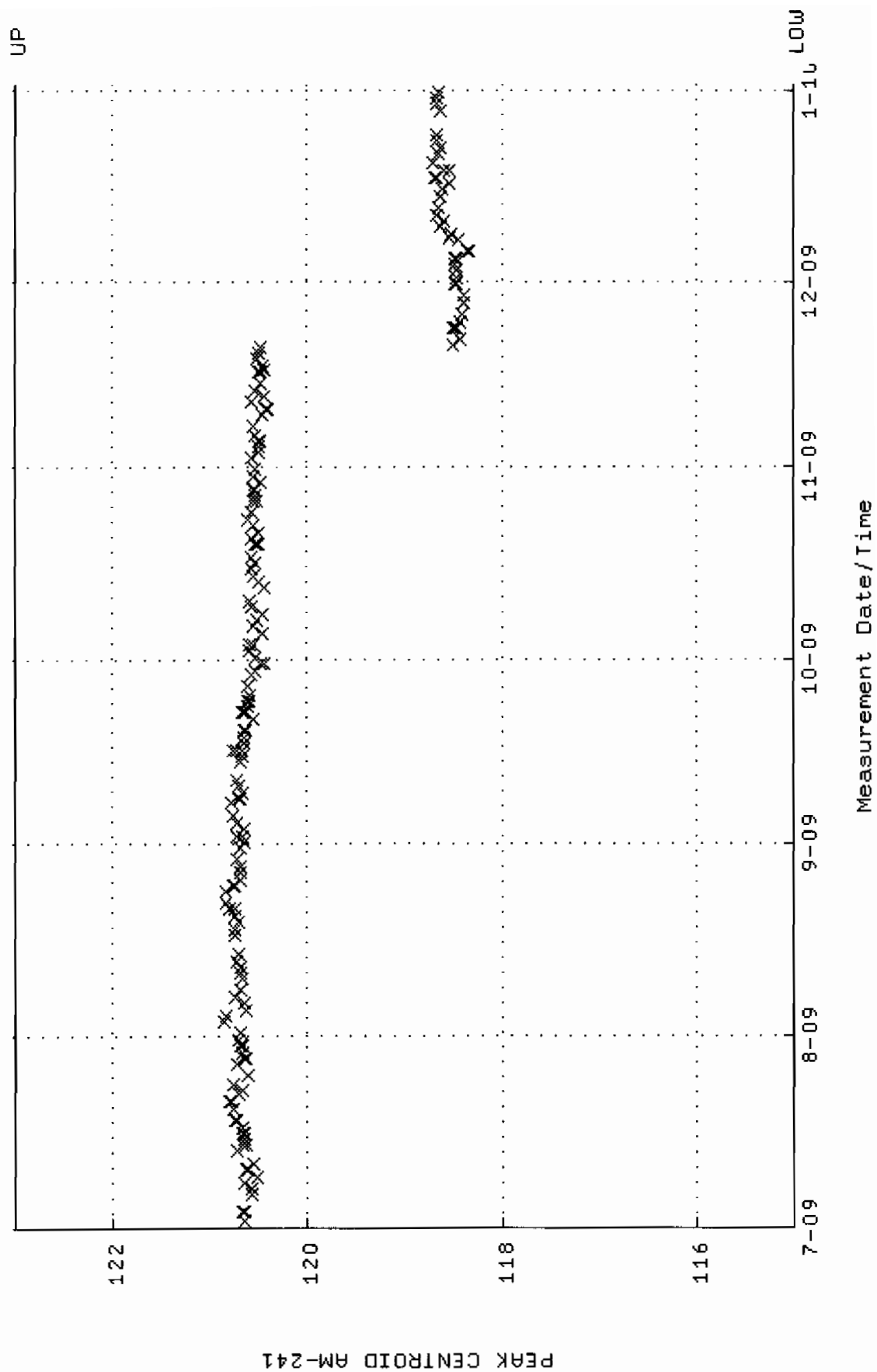


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM16.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:58 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.73980 +- 1.729897E-02 (0.99 %)

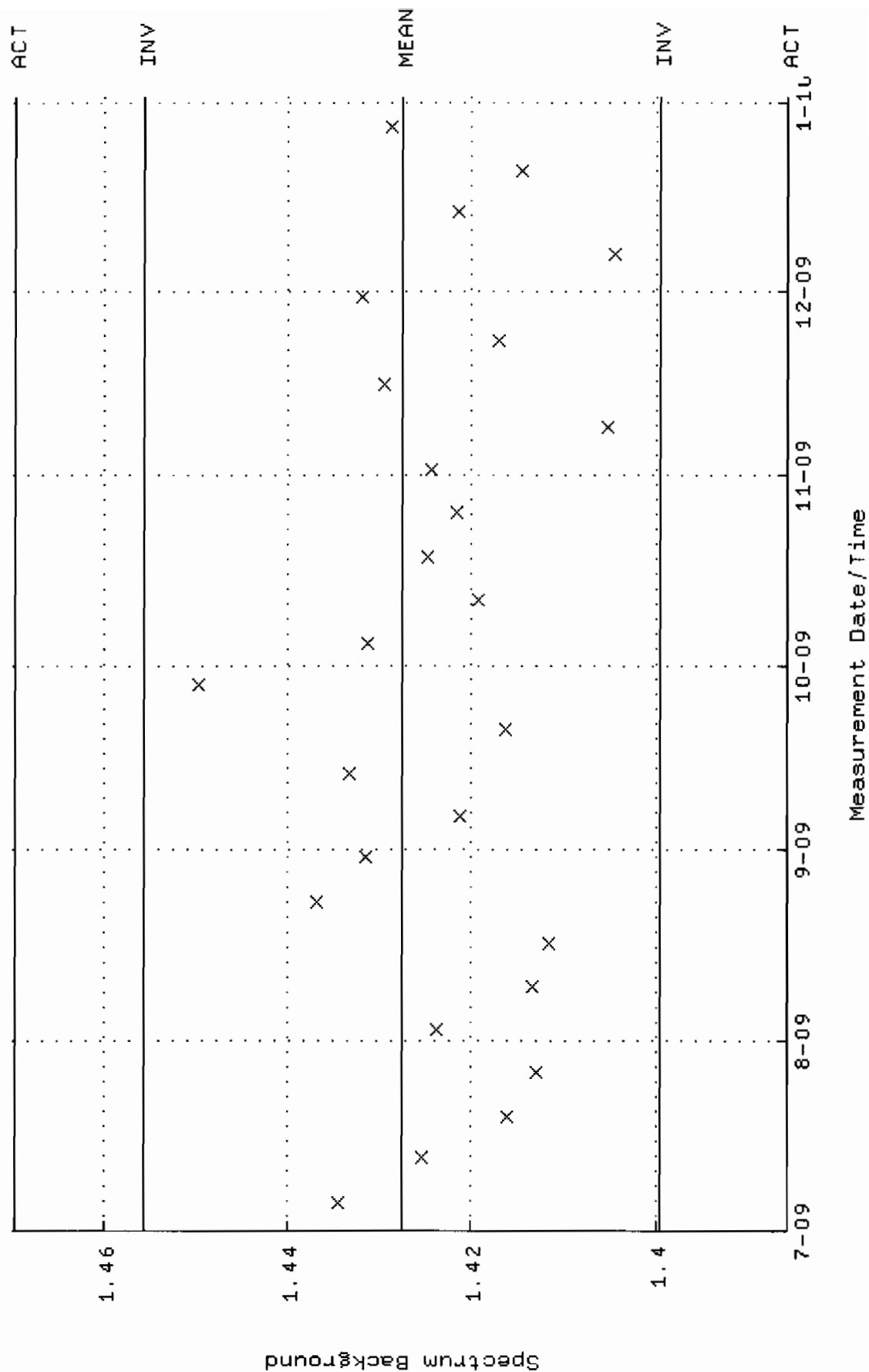




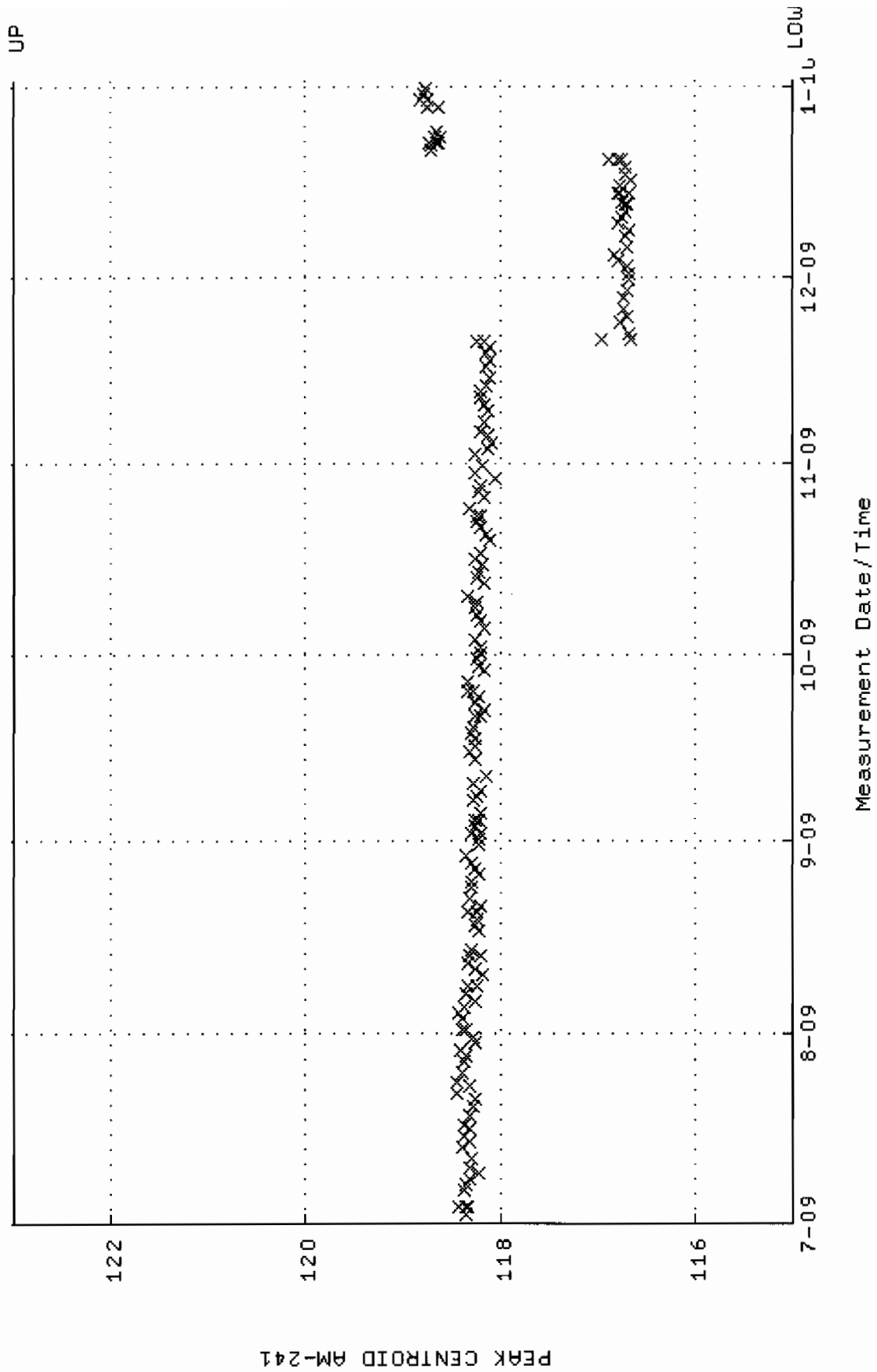
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM17-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:26 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



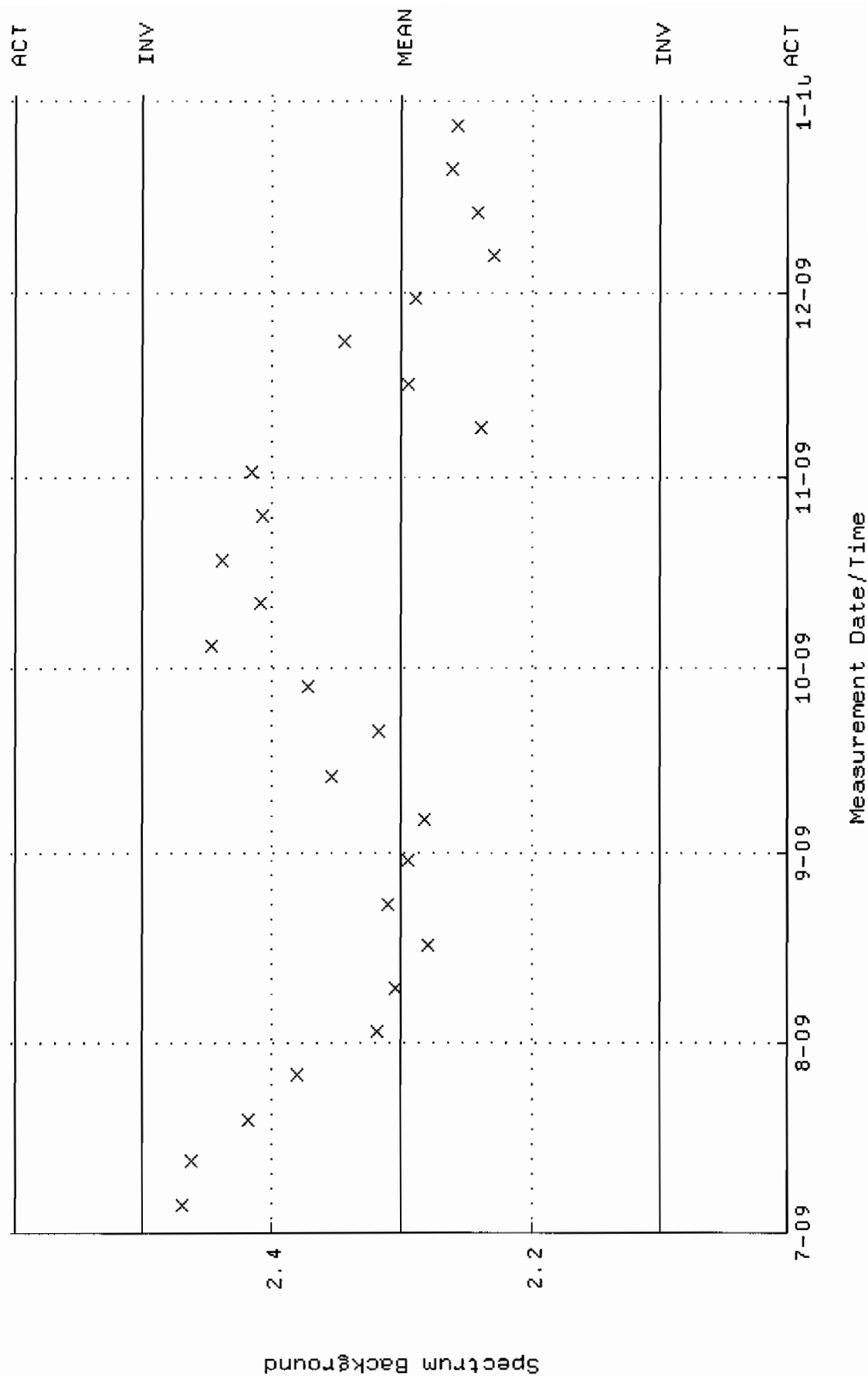
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM17.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:11 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



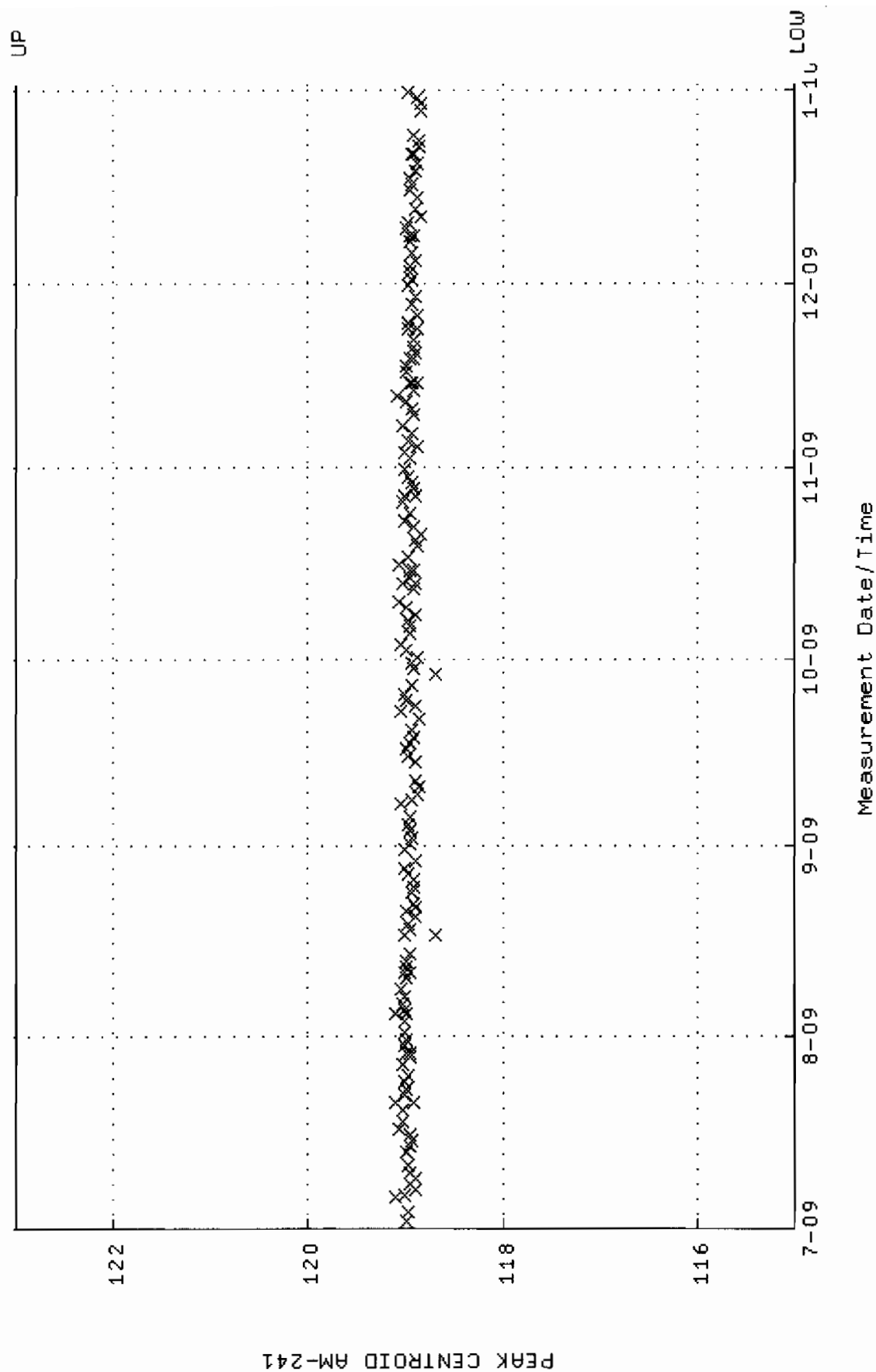
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM18-CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 11:04:02 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



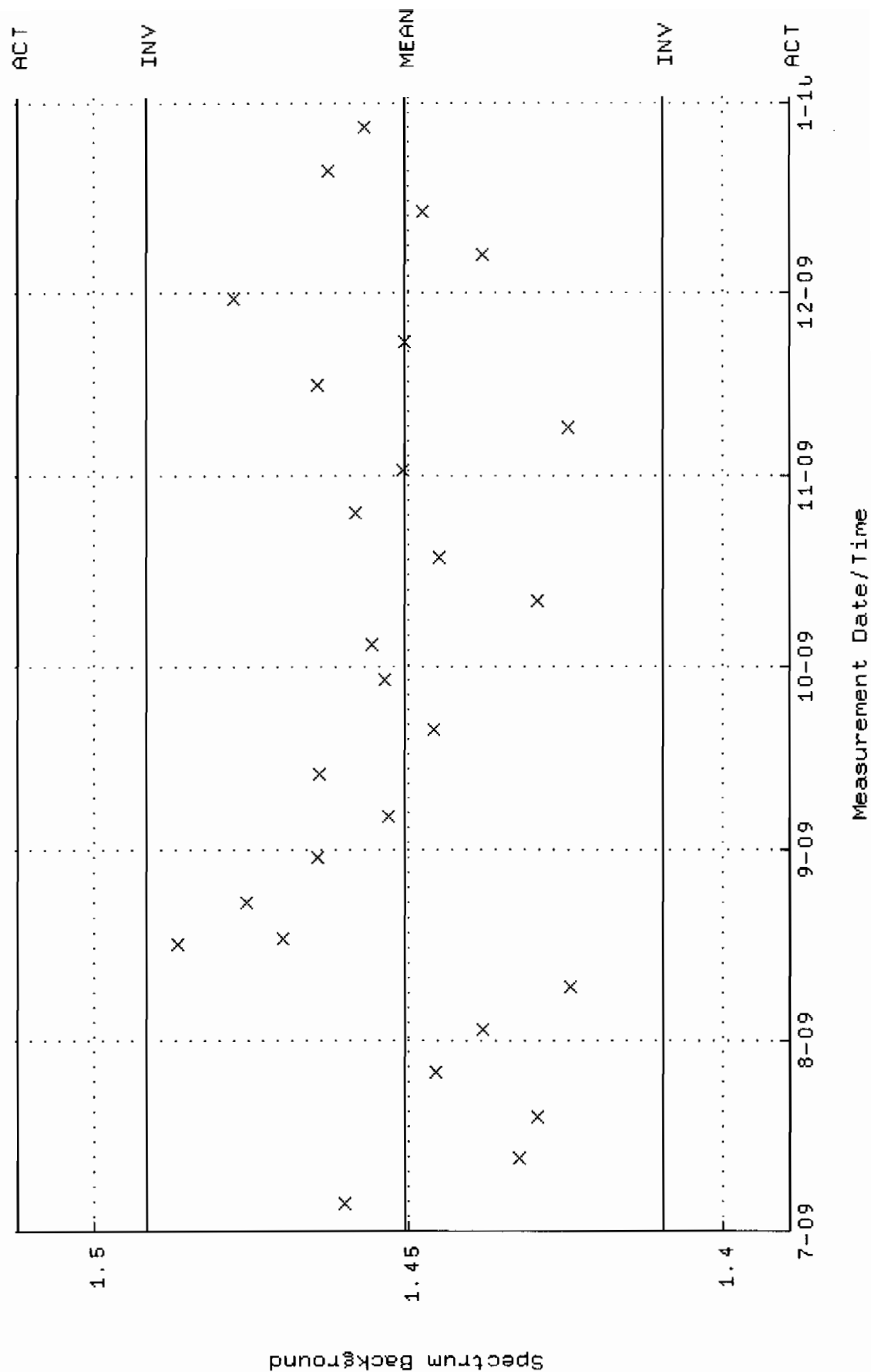
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM18.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:23 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



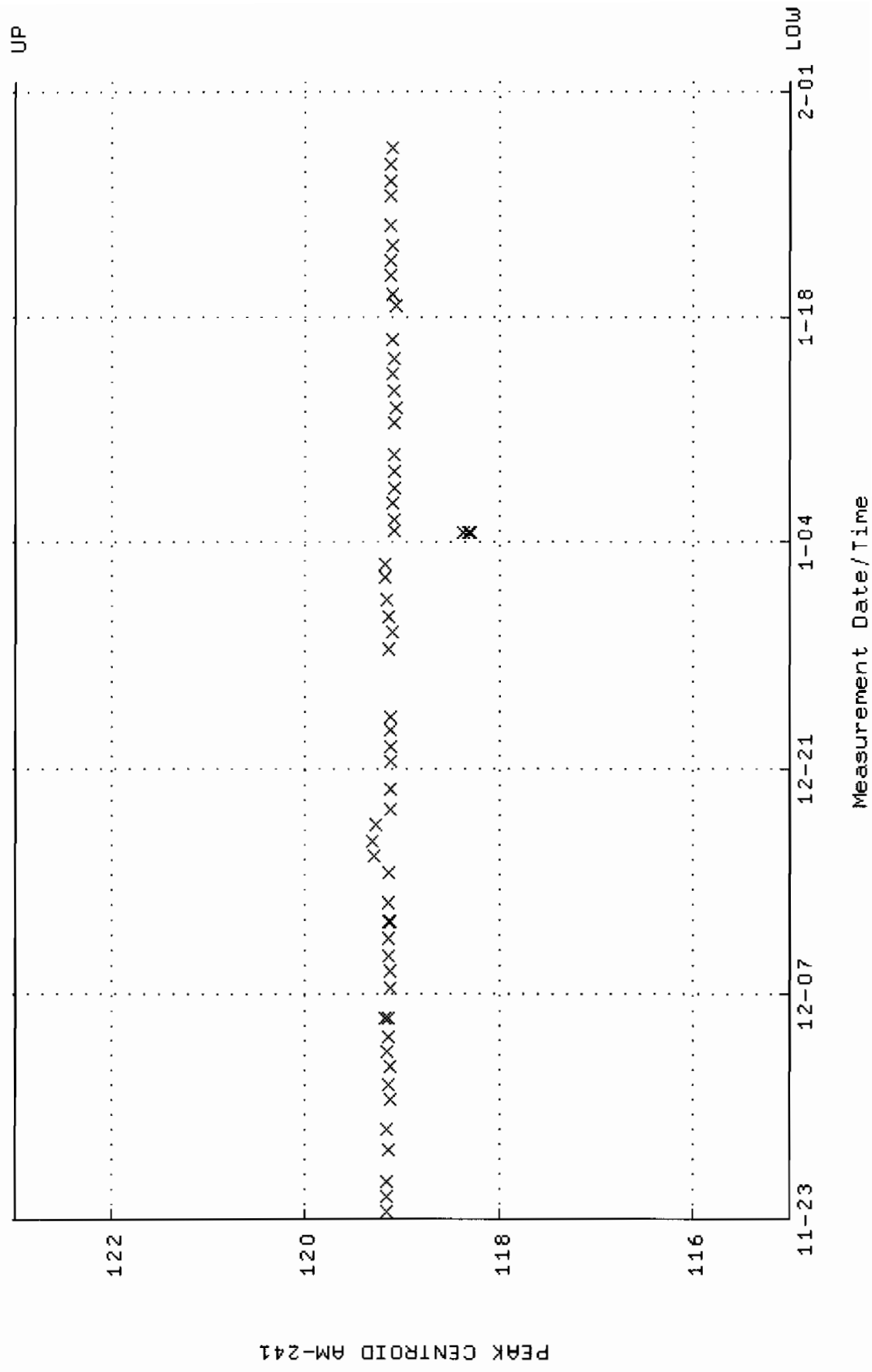
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM19-CAN.QAF;1  
 Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:41:19 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



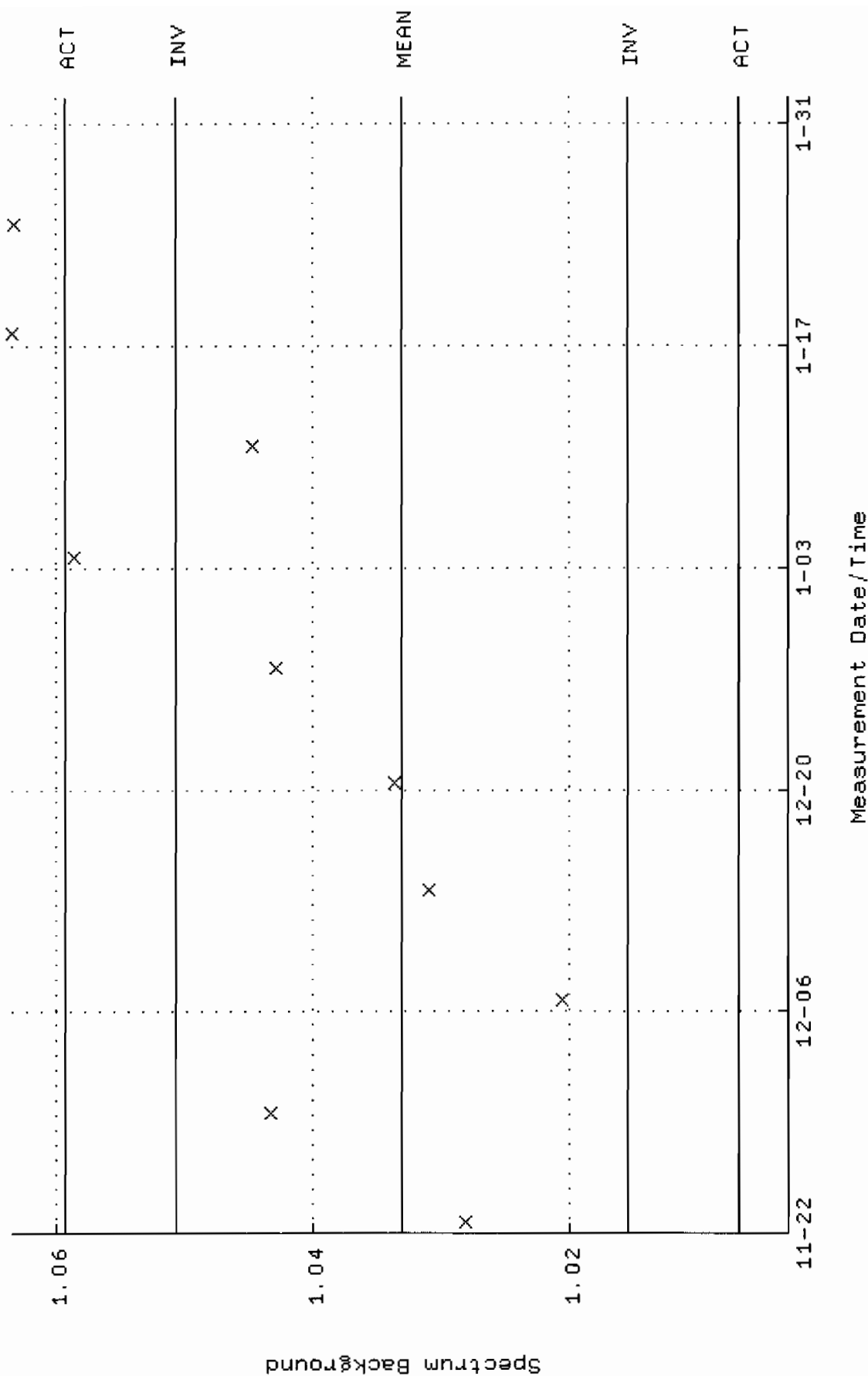
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM19.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:35 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM21-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 23-NOV-2009 10:56:51 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

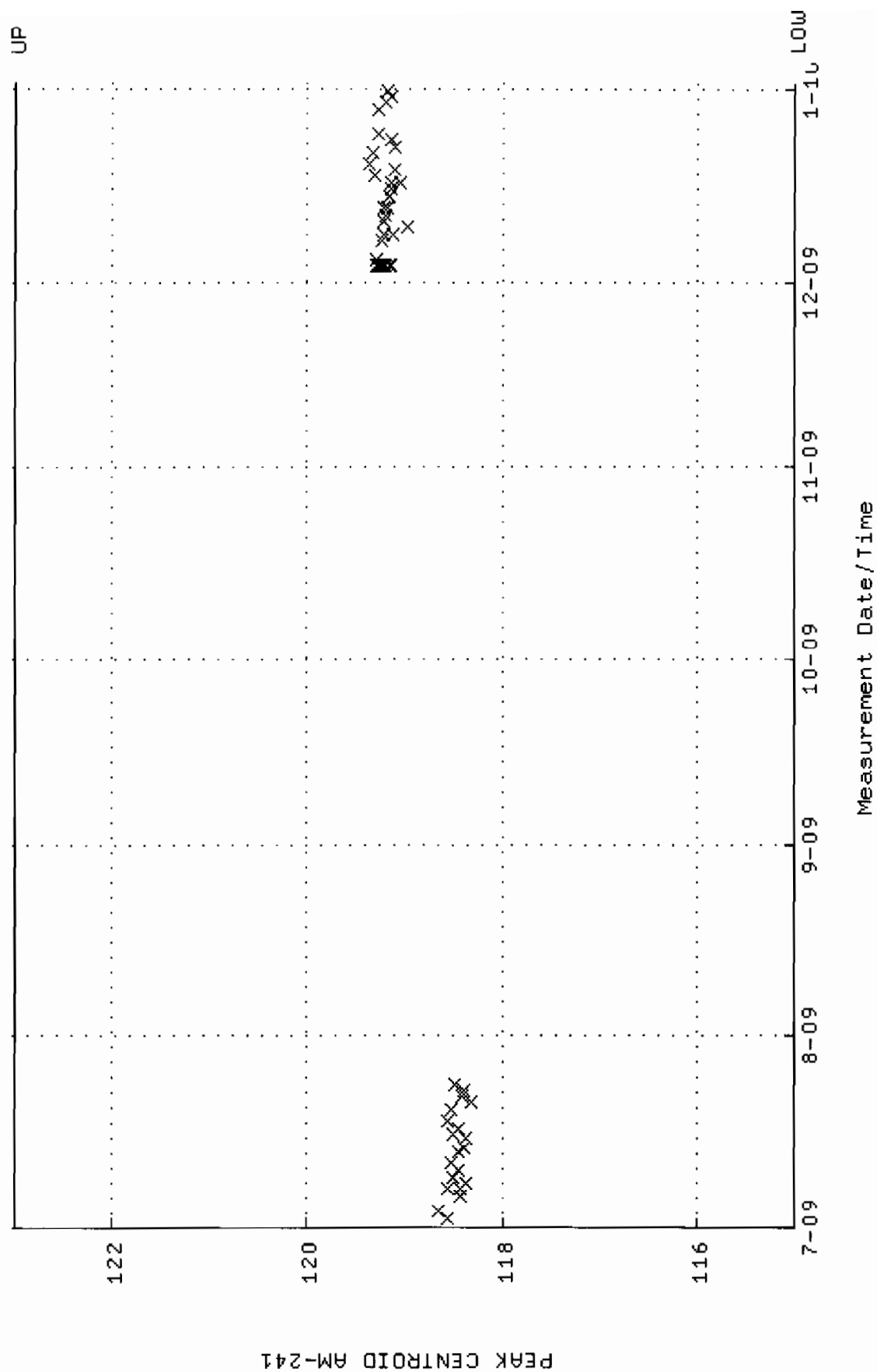


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM21.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 22-NOV-2009 17:05:16 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.03312 +- 8.784250E-03 (0.85 %)

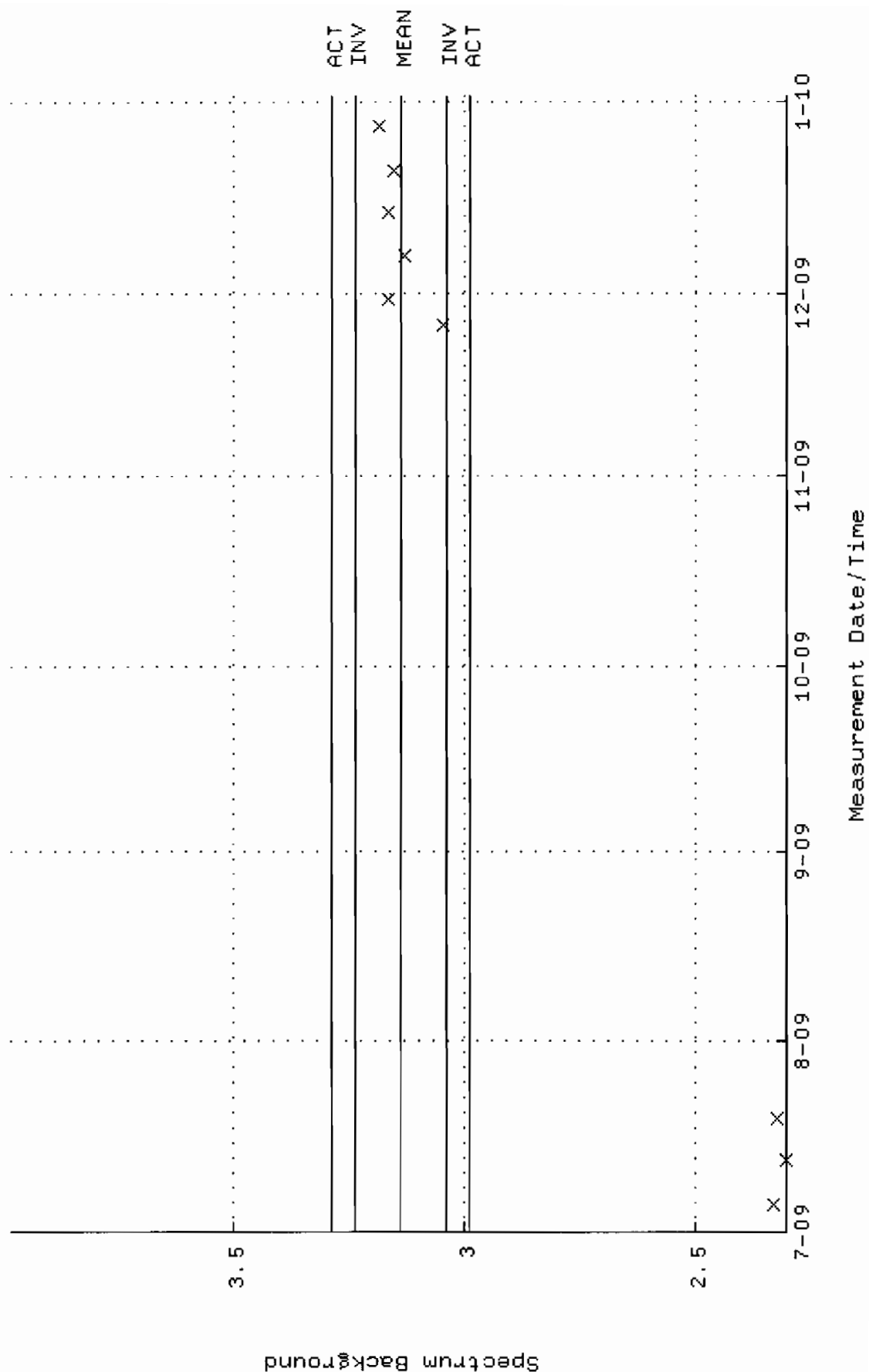




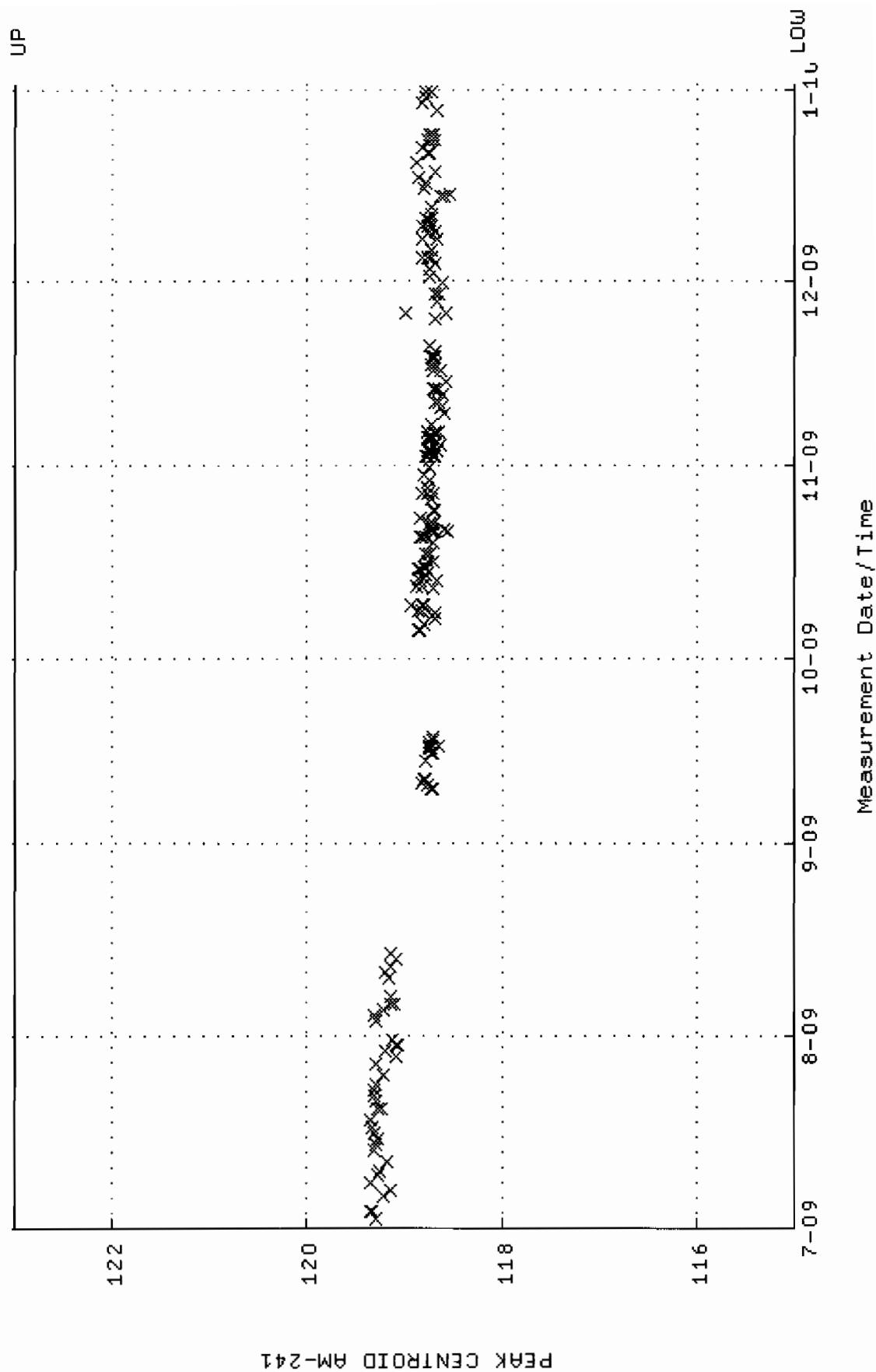
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM22\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:50 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



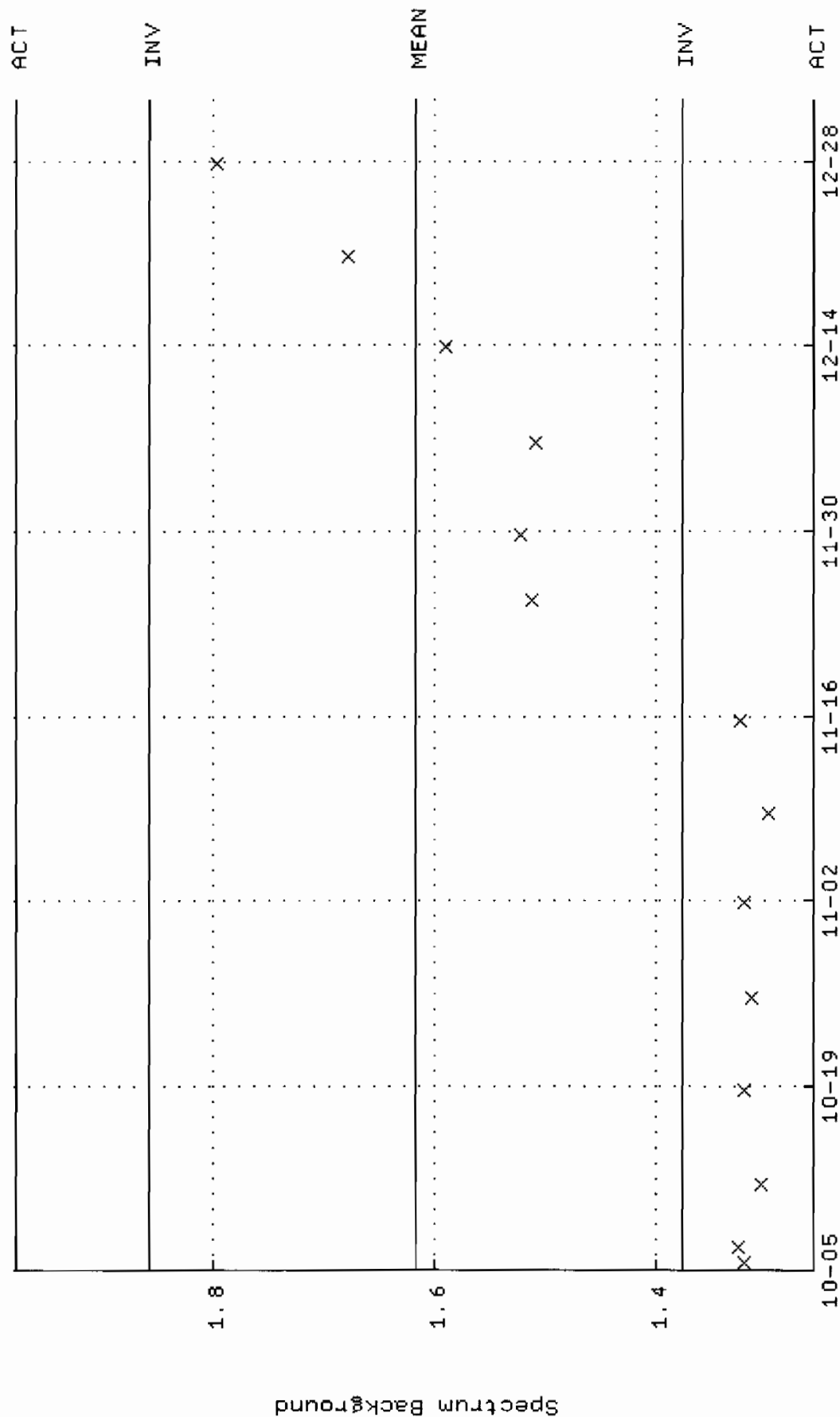
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM22.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:54:18 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)



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

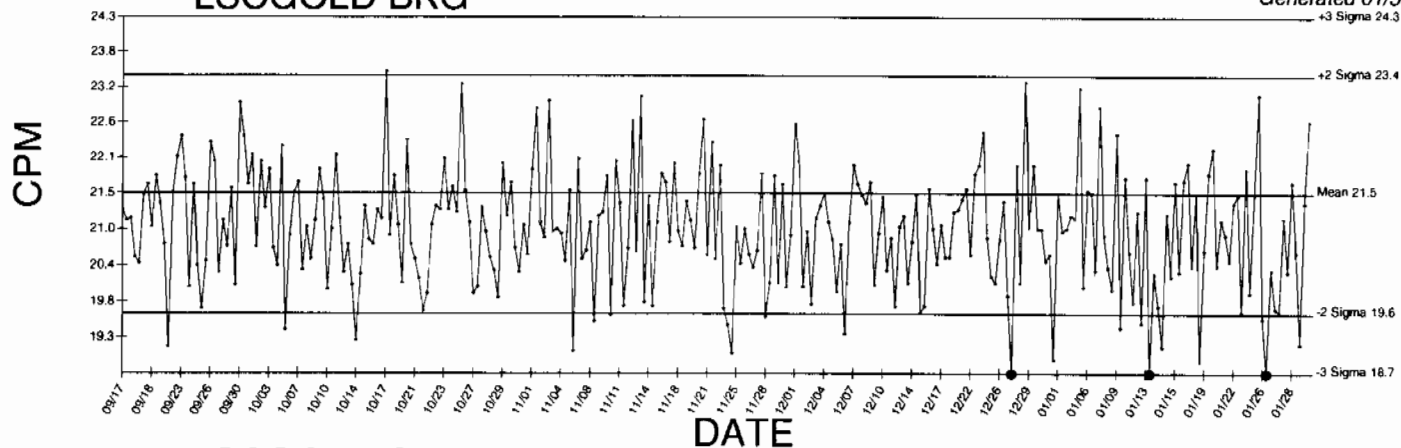


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM23.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-OCT-2009 15:13:53 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.61827 +- 0.119991 (7.41 %)

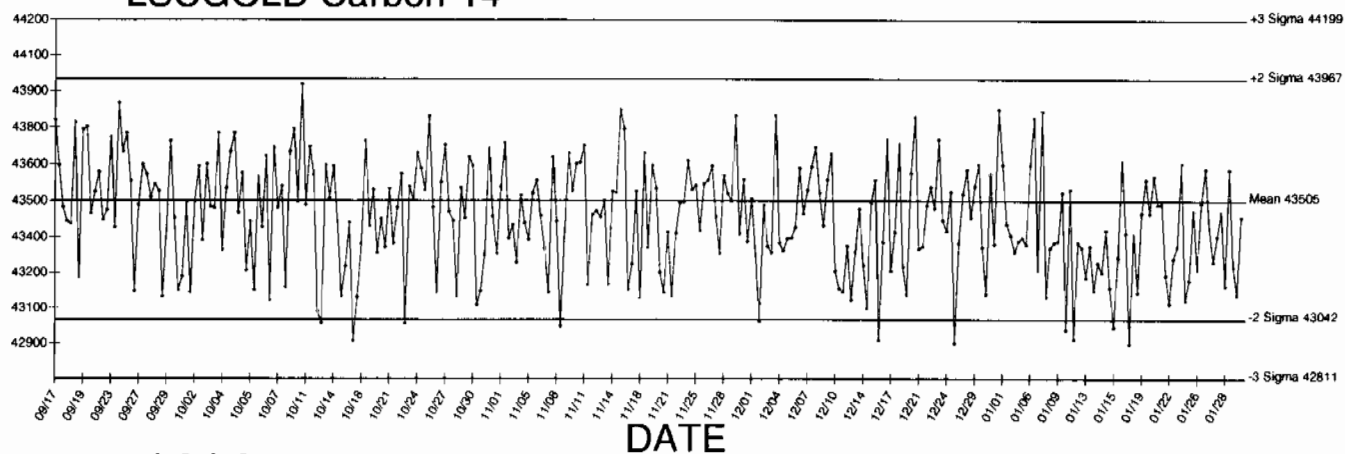


# LSCGOLD BKG

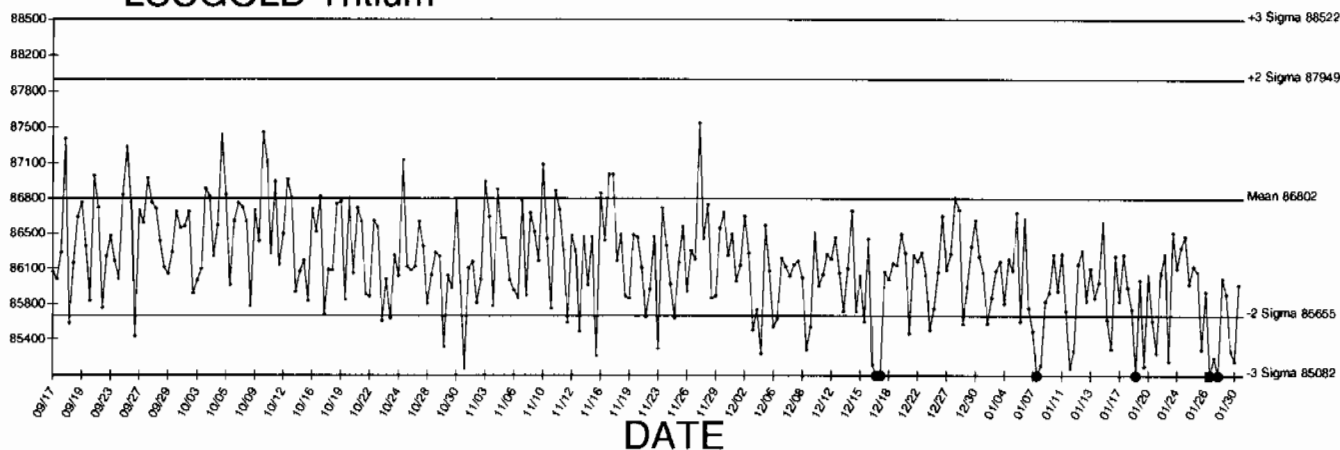
Generated 01/30/2010



# LSCGOLD Carbon-14



# LSCGOLD Tritium



● Denotes Outlier

# STANDARDS DATA

0134



CALIBRATION  
No. 0146

**Description** Radionuclide: TRITIUM (HYDROGEN-3) Product code: TRY-64  
Chemical form: water Batch: 111

**Measurement** Reference time: 1200 GMT on 1 March 1996  
Radioactive concentration of tritium: 488.0 kilobecquerels per gram of water  
which is equivalent to: 13.19 microcuries per gram of water  
or:  $2.93 \times 10^7$  disintegrations per minute per gram of water

**Method of Measurement**

This reference material was calibrated by direct comparison with a standard of tritium-labelled water obtained from the National Institute of Standards and Technology, USA.

**Accuracy** The OVERALL UNCERTAINTY of the result quoted above is estimated to be less than  $\pm 2.5\%$

This estimate of uncertainty was calculated in accordance with the recommendations of the International Commission on Radiation Units and Measurements (ICRU Report 12). The limits of uncertainty were taken as the arithmetic sum of the uncertainty due to random variations, calculated at the 99.7% confidence level, and the estimated systematic uncertainties.

**Purity** No radioactive impurities were detected. (Impurities with total activity greater than 0.001% of the activity of the tritium would have been detected).

**Physical Data** Half-life of tritium:  $12.43 \pm 0.11$  years  
Maximum beta energy of tritium: 18.6 keV

**Remarks:** The S.I. unit of radioactivity is the becquerel.

1 becquerel (Bq) = 1 nuclear transformation per second, therefore  
1 curie (Ci) =  $3.7 \times 10^{10}$  becquerels exactly.

Useful conversion factors are:

1 microcurie ( $\mu\text{Ci}$ ) =  $3.7 \times 10^4$  Bq = 37 kilobecquerels (kBq)

1 kilobecquerel (kBq) = 27.027 nanocuries (nCi)

This product meets the quality assurance requirements of NRC Regulatory Guide 4.15 for achieving implicit NIST (NBS) traceability as defined in NCRP58 (1985).

Approved  
signatory

*W. F. Case*  
Page 1218 of 1258  
W.F. Case

2C-5-023-061a

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0134	Isotope:	Tritium
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	DI WATER	Prep Date:	02/21/2001
Reference Date:	03/01/1996	Verification Date:	09/10/2008
Ampoule Mass (g):	5 g	Expiration Date:	03/27/2010
Uncertainty:	+/- 2.5 %	Primary Code:	0134-A
LogBook No:	RC S 023 061	Dilution(mL):	100 mL
		Mass of Parent(g):	3.3659 g
		Density(g/mL):	1.0004
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 985535.5200 \text{ dpm/mL}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0004 \text{ g/mL}) / (100 \text{ mL}) = 985180.3116 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
07/20/2004	Amanda Fehr	5.86	1000	0134-H	5773.1566 dpm/mL	07/25/2006	07/25/2007
12/20/2005	Amanda Fehr	5.5451	1000	0134-I	5462.92 dpm/mL	12/20/2006	12/20/2007
07/11/2007	Daniel Roy	5.5863	1000	0134-J	5503.5128 dpm/ml	07/29/2008	07/29/2009
03/25/2009	Mary Aders	5.4917	1000	0134-K	5410.3147 dpm/ml	03/27/2009	03/27/2010

GEL Laboratories LLC

Version 1.0 9/18/2000



# Verification for H-3 Standard 0134-K

M. Aders	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Source DPM/mL
4/9/2009	0134-K N1	1097.2000	54.0000	1043.2000	1.0000	2741.3089
	0134-K N2	1073.2000	54.0000	1019.2000	1.0000	2678.242955
	0134-K N3	1085.2000	54.0000	1031.2000	1.0000	2709.776428
					Average =	2709.776428

Mean Value (Counting) = 2709.776428  
 Stdev = 31.53347278

Certificate Value = 2581.86 dpm/mL  
 Lower Limit = 2646.709482 dpm/mL  
 Upper Limit = 2772.843373 dpm/mL  
 Rule 1 Pass/Fail Fail  
 Two sigma = 63.06694556 dpm/mL  
 10 % of Mean = 270.9776428 dpm/mL  
 Rule 2 (Pass/Fail) Pass

\*exception taken due to full recovery of standard

## 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 10% of the certificate value.

The analyst prepared three standard verification sources for H-3 source 0134-K by transferring 0.1 mL portions of the standard into glass liquid scintillation vials. Ten mL of Ecosint Ultra liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ecosint Ultra liquid scintillation cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on Silver for H-3 source standard verification. The H-3 efficiency calibration which was used for verification calculations was performed on 4/9/09 using 0020-A (H-3). Calibration data is recorded in this logbook under H-3 0020. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

Handwritten signature: Amanda L. Dehn 4/9/09

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. Analytix 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:

Wm. M. J. 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/3/06  
RC-S-045-073-c

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytiscinc.com

## ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS BATCH 127

**CALIBRATION DATE: October 1, 2006 12:00 EST**

Isotope	Energy (keV)	Calibration Method <sup>1</sup>	Statistics <sup>2</sup>	Calibration <sup>2</sup>	Peak Fitting <sup>2</sup>	Geometry <sup>2</sup>	Impurities <sup>2</sup>	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertainty (k=2)
Cd-109	88	HPGe	0.16	1.1	0.88	0.8	0	0.2	1.64	3.3
Co-57	122	HPGe	0.23	1.1	0.71	0.7	0	0.2	1.52	3.0
Ce-139	166	HPGe	0.17	1.0	0.58	0.7	0	0.2	1.38	2.8
Hg-203	279	HPGe	0.11	1.1	0.34	0.7	0	0.2	1.37	2.7
Sn-113	392	HPGe	0.21	1.0	0.35	0.7	0	0.2	1.30	2.6
Cs-137	662	HPGe	0.36	1.1	0.60	0.7	0	0.2	1.49	3.0
Y-88	898	HPGe	0.19	1.0	0.33	0.7	0	0.2	1.29	2.6
Co-60	1173	HPGe	0.31	.97	0.45	0.7	0	0.2	1.33	2.7
Co-60	1332	HPGe	0.33	.93	0.48	0.7	0	0.2	1.32	2.6
Y-88	1836	HPGe	0.24	1.0	0.35	0.7	0	0.2	1.31	2.6

### Optional Additional Isotopes

Pb-210	46.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Am-241	59.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Sr-85	514	IC	0.30	1.1	0	0.7	0.17	0.2	1.36	2.7
Cs-134	605	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Cs-134	796	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Mn-54	835	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Zn-65	1116	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7

<sup>1</sup>Calibration Methods:

4π LS (4 pi Liquid Scintillation Counting)

HPGe (High Purity Germanium Gamma Ray Spectrometer)

IC (Gamma Ray Ionization Chamber)

<sup>2</sup>As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1032	Isotope:	Mixed Gamma
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL	Prep Date:	11/30/2006
Reference Date:	10/01/2006	Verification Date:	12/02/2009
Ampoule Mass (g):	5.31725 g	Expiration Date:	12/02/2010
Uncertainty:	+/- 2.81 %	Primary Code:	1032-A
LogBook No:	RC-S-045-073	Dilution(mL):	100 mL
		Mass of Parent(g):	5.2579 g
		Density(g/mL):	1.0611
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC

Version 1.0 9/18/2000

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Am-241

Isotope	Result	pCi/L - Var. Tag. 1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L - Var. Tag. 5

Mean Value (Counting) = 2485.67  
Stdev = 64.065  
Rule 3 (Pass/Fail) Pass

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

pCi/L  
pCi/L  
pCi/L

M. Stamps  
12/2/09  
independent  
12/2/09

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Cs-137

Isotope	Result	pCi/L - Ver. Tab. 1
Mixed Gamma N1	854.2	pCi/L
Mixed Gamma N2	907.6	pCi/L
Mixed Gamma N3	898.9	pCi/L

Mean Value (Counting) =  
Stdev =

886.90  
28.651  
95.01  
Rule 3 (Pass/Fail)

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

pCi/L  
pCi/L  
pCi/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.

*Handwritten:*  
12/2/09  
M. Stamps  
12/2/09

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - Ver - Tag-5
Mixed Gamma N1	1572	pCi/L - Ver - Tag-2
Mixed Gamma N2	1495	pCi/L - Ver - Tag-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67  
Stdev = 42.829  
Rule 3 (Pass/Fail) Pass

Certificate Value = 1545.8378  
Lower Limit = 1437.008431  
Upper Limit = 1608.324902  
Rule 1 (Pass/Fail) Pass  
Two sigma = 85.65823564  
10 % of Mean = 152.26666667  
Rule 2 (Pass/Fail) Pass

## 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 issued, 12/2/09*

### 0244-A Characterization

Sample #	Uranium-233/234 Result (pCi/g)	Uranium-238 Result (pCi/g)	Thorium-230 Result (pCi/g)
0244-A 1	6.59	6.12	25.3
0244-A 2	6.36	6.07	28.5
0244-A 3	5.78	5.53	26.5
0244-A 4	6.48	5.97	25.5
0244-A 5	5.65	5.59	26.2
0244-A 6	6.96	5.78	27.0
0244-A 7	5.95	5.75	24.2
0244-A 8	5.29	5.67	27.2
0244-A 9	5.51	6.05	24.3
0244-A 10	6.37	5.57	25.6
0244-A 11	6.50	5.80	25.8
0244-A 12	6.13	5.42	22.4
0244-A 13	5.49	5.24	24.7
0244-A 14	6.19	5.21	26.9
0244-A 15	6.50	6.27	27.6
0244-A 16	6.50	5.24	24.9
0244-A 17	6.25	6.05	24.7
0244-A 18	6.14	6.00	25.4
0244-A 19	6.19	6.14	26.4
0244-A 20	5.67	5.61	23.2
Mean Value	6.13	5.75	25.62
1 sigma	0.439	0.325	1.493
2 sigma	0.878	0.650	2.986
75% Limit	4.60	4.31	19.22
125% Limit	7.66	7.19	32.03
Expected Result	6.2 +/- 4.0	6.0 +/- 4.0	24.5 +/- 0.6
Achieved Results	6.13 +/- 0.439	5.75 +/- 0.325	25.62 +/- 1.493

REFERENCE DATA 4/11/2000 *Jeff C. Hall 12/1/04*

*Angela L. Johnson 12/3/04*



TRM

Invoice:

5 boxes of TRM-1  
 10 " " TRM-2 and 3  
 5 " each of NRM-1 through 6  
 7 " baghouse dirt

use 1/4 gm x 10 samples WITH together  
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
Tn-230	471 ± 11	24.5 ± 0.6	58.5 ± 2.1	44.0 ± 1.6
Ra-226	489 ± 17	25.4 ± 0.9	60.3 ± 2.3	42.9 ± 1.2
Pb-210	1228 ± 125	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0



### 0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATA 4/14/2000

Amanda L. Lehn 4/30/04  
 Lott & Staley 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.



# CERTIFICATE OF CALIBRATION

## ALPHA STANDARD SOLUTION

Radionuclide	Am-243	Customer:	GENERAL ENGINEERING LABS
Half Life:	7380 $\pm$ 40 years	P.O.No.:	9290-RAD
Catalog No.:	7243	Reference Date:	January 1 1994 12:00 PST.
Source No.:	445-96-2	Contained Radioactivity:	(Am-243) 101.2 $\mu$ Ci
		Contained Radioactivity:	(Am-243) 3750 kBq

### Description of Solution

a. Mass of solution:	5.3739 g (in a 5 ml Flame Sealed Ampoule)
b. Chemical form:	Am(NO <sub>3</sub> ) <sub>3</sub> in 2N HNO <sub>3</sub>
c. Carrier content:	None added
d. Density:	1.0651 g/ml @ 20°C.

### Radioimpurities

None detected

### Radioactive Daughters

Np-239 (beta active) in equilibrium

### Radionuclide Concentration

(Am-243) 18.84  $\mu$ Ci/g

### Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) intergrated under:	228, 278 keV.
Branching ratio(s) used:	0.108, 0.1420 gamma rays per decay.

### Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	$\pm 3.0\%$
b. Random uncertainty in assay:	$\pm 0.4\%$
c. Random uncertainty in weighing(s):	$\pm 0.0\%$
d. Total uncertainty at the 99% confidence level:	$\pm 3.0\%$

### NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

### Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

### Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES  
1800 North Keystone Street  
Burbank, California 91504  
(818) 843 - 7000

Anna H. Khan  
QUALITY CONTROL

Jan 3, 1994  
Date Signed

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO  
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE



1. STANDARD WIPE TEST

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



2. SOAK TEST

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



3. SOAK TEST -- BERYLLIUM WINDOW

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



4. GAS SOURCE TEST (Radioactive Gas)

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.



5. OTHER LEAK TEST

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



6. LEAK TEST NOT APPLICABLE

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha at the time of shipment.

# Standard Traceability Log Rad

Source Material Info		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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$



## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Julie Strock	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/30/2008	09/29/2009
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/ml	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/ml	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
04/14/2003	Lonnie Morris	.0315	1000	445-96-2-X	65.2559 dpm/mL	04/14/2004	04/14/2005
05/03/2003	Tim Chandler	.0103	1000	445-96-2-Y	21.3376 dpm/mL	05/05/2003	05/05/2004
05/05/2003	Eric Williamson	.011	1000	445-96-2-Z	22.7877 dpm/mL	04/03/2007	04/03/2008

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Am-243 Standard 445-96-2-SS

M. Aders 5/15/2009	Isotope	Value	Uncertainty
	445-96-2-SS #1	1.360	0.1690
	445-96-2-SS #2	1.370	0.1690
	445-96-2-SS #3	1.290	0.1590
Mean Value (Counting) =	1.340	101.99	Pass
Stdev =	0.043588989		Rule 3 (Pass/Fail)
Target =	1.314		
Lower Limit =	1.252822021		
Upper Limit =	1.427177979		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.087177979		
10 % of Mean =	0.134		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard **445-96-2-SS** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **Cm-244** standard **0533-O** and 50 micrograms of neodymium carrier in a disposable centrifuge tube. Each standard was diluted with 4 mL of 2 M HCl and 6 mL of DI Water. Two mL of 48% HF was added to precipitate Nd (and Americium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Am-243 were calculated by comparison to Am-241 certified values.

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

*M. Aders* 515109  
*Rahm* 007509

1374



# National Institute of Standards & Technology Certificate

## Standard Reference Material 4334H Plutonium-242 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive plutonium-242 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

**Radiological Hazard:** The SRM ampoule contains plutonium-242 with a total activity of approximately 150 Bq. Plutonium-242 decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process, X-rays and gamma rays with energies from 10 keV to 160 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

**Chemical Hazard:** The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 3 moles per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

**Storage and Handling:** The SRM should be stored and used at a temperature between 5 °C and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least January 2015. The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

**Preparation:** This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, M.P. Unterwieser, Acting Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group. The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program.

RECEIVED  
2/1/05

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, $u(y)/y$ , (%) [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:  
 $0.003 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies less than 3.1 MeV,  
 $0.03 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 3.1 and 4.4 MeV, and  
 $0.003 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies greater than 5.0 MeV.
- [h] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994. Americium-241, the daughter of plutonium-241, was removed but has been growing in since that time.
- [i] Estimated limits of detection for photon-emitting impurities, expressed as massic photon emission rates (numbers of photons per second per gram), are:  
 $5 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 19 and 39 keV,  
 $7 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 49 and 92 keV,  
 $2 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 106 and 507 keV,  
 $1 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 515 and 1456 keV, and  
 $5 \times 10^{-6} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 1465 and 2750 keV,  
provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of plutonium-242, plutonium-241, or americium-241.
- [j] The stated uncertainty is the standard uncertainty.
- [k] Relative standard uncertainty of the input quantity  $x_i$ .
- [m] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [n] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u_i(y)/y \equiv |\partial y/\partial x_i| \cdot u(x_i)/y = |\partial y/\partial x_i| \cdot (x_i/y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y/\partial x_i| \cdot (x_i/y)$ , and  $u_i(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.

- [p] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [q]  $|\partial y / \partial x_i| \cdot (x_i / y) = |\lambda \cdot t|$
- [r] The live time is determined by counting the pulses from a gated crystal-controlled oscillator.
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i) / x_i = 100\%$ .  $|\partial y / \partial x_i| \cdot (x_i / y) = \{(\text{response per Bq of impurity}) / (\text{response per Bq of Pu-242})\} \cdot \{(\text{Bq of impurity}) / (\text{Bq of Pu-242})\}$ . Thus  $u(y) / y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.
- [t] The stated uncertainty is the standard uncertainty. The plutonium-241 activity was calculated from a gamma-ray measurement of the americium-241 ingrowth as of 25 November 1998, assuming that americium-241 was completely removed at the time of chemical purification.
- [u] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The value shown is an estimated upper limit based upon background and counting statistics. Measurements were made at the Lawrence Livermore National Laboratory (LLNL) in July of 1994.
- [v] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The stated uncertainty is the standard uncertainty. Measurements were made at the National Institute of Standards and Technology (NIST) in June and July of 1999.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993 (corrected and reprinted, 1995). Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [3] B.N. Taylor and C.E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), January 2005.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1374
Prepared By:	Mary Aders
Carrier Conc:	0.5M HNO3
Reference Date:	06/07/1994
Ampoule Mass (g):	5.5 g
Uncertainty:	+/- .72 %
LogBook No:	RC-S-051-093

A Solution Material Info	
Isotope:	Plutonium-242
Prepared By:	Ashley Drochter
Prep Date:	12/02/2009
Verification Date:	12/08/2009
Expiration Date:	12/08/2010
Primary Code:	1374-A
Dilution(mL):	250 mL
Mass of Parent(g):	5.3616 g
Density(g/mL):	1.0136
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (250 \text{ mL}) = 33.8553 \text{ dpm/mL}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0136 \text{ g/mL}) / (250 \text{ mL}) = 33.4010 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Pu-242 Standard 1374-A

A.Drochter 12/8/2009	Isotope 1374-A 1374-A 1374-A	Value 1.610 1.580 1.530	Uncertainty 0.2480 0.2510 0.2440
Mean Value (Counting) =	1.573	103.17	Pass
Stdev =	0.040414519	Rule 3 (Pass/Fail)	
Target =	1.52		
Lower Limit =	1.492504296		
Upper Limit =	1.654162371		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.080829038		
10 % of Mean =	0.157333333		
Rule 2 (Pass/Fail)	Pass		

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for standard 1374-A using 0.1 mL for each source. Each standard was combined with 0.1 mL of Pu239 standard 0338-BB and 50 micrograms of neodymium carrier in a disposable centrifuge tube containing 4 mL of 2 M HCl and 6 mL of DI water. Four drops of 25% Hydrazine dihydrochloride were added to each centrifuge tube and swirled. Two mL of 49% HF was added to precipitate neodymium (and plutonium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Pu-242 were calculated by comparison to Pu-239 certified values.

*Handwritten:* Jot call 12/11/09 12/9/09 12/9/09



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www.analytisc.com

**CERTIFICATE OF CALIBRATION**  
Standard Radionuclide Source

**78747-278**

1283

**U-232 5 mL Liquid in Flame Sealed Vial**

**Customer:** GEL Laboratories, LLC  
**P.O. No.:** 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

**Comments:**

Impurities: U-233 <0.3%, Am-241 <0.15%  
5.20453 grams 1M HNO<sub>3</sub> solution.

Source Prepared By: WMS

W. Mao, Radiochemist

QA Approved: DM Montgomery

D. M. Montgomery, QA Manager

Date: 12-11-08

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1283	Isotope:	Uranium-232
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3	Prep Date:	12/16/2008
Reference Date:	12/09/2008	Verification Date:	12/30/2008
Ampoule Mass (g):	5.20453 g	Expiration Date:	12/30/2009
Uncertainty:	+/- 5 %	Primary Code:	1283-A
LogBook No:	RC-S-051-002	Dilution(mL):	100 mL
		Mass of Parent(g):	5.0245 g
		Density(g/mL):	1.0285
		Balance ID:	

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

## 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	12/02/2009	12/02/2010
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	01/08/2010	12/02/2010
12/09/2009	Ashley Drochter	21.56	1000	1283-H	45.58 dpm/mL	12/09/2009	12/09/2010

## Verification for Uranium-232 Standard 1283-H

<b>Analyst:</b> A. Drochter	<b>Serial #</b>	<b>Value</b>	<b>Uncertainty</b>		
<b>Date:</b> 12/10/09	1283-H N1	2.020	pCi/L	0.238	pCi/L
	1283-H N2	2.000	pCi/L	0.234	pCi/L
	1283-H N3	2.060	pCi/L	0.242	pCi/L
<b>Mean Value (Counting) =</b>	2.027	pCi/L	<b>99.66904</b>	<b>Pass</b>	
<b>Stdev =</b>	0.030550505	pCi/L	<b>Rule 3 (Pass/Fail)</b>		
<b>Target =</b>	2.033	pCi/L			
<b>Lower Limit =</b>	1.965565657	pCi/L			
<b>Upper Limit =</b>	2.087767676	pCi/L			
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>				
<b>Two sigma =</b>	0.061101009				
<b>10 % of Mean =</b>	0.202666667				
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>				

**Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

**Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

**Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard 1283-H using 0.1 mL for each source. Each standard was combined with 0.1 mL of U-238 standard 1163-G and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1 ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

*A. Drochter*  
12/14/09



# RUNLOGS

## Instrument Run Log

**Instrument Type: GAMMA SPECTROMETER**

**Batch ID: 944037**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
245096005	SAMPLE	MXR1	GAM16	01-FEB-10 14:44	DONE	CAN	16-NOV-09 00:00
245101001	SAMPLE	MXR1	GAM18	01-FEB-10 14:44	DONE	CAN	23-APR-09 00:00
245101002	SAMPLE	MXR1	GAM19	01-FEB-10 14:45	DONE	CAN	12-MAR-09 00:00
245101003	SAMPLE	MXR1	GAM11	02-FEB-10 09:45	DONE	CAN	18-NOV-09 00:00
245101004	SAMPLE	MXR1	GAM15	02-FEB-10 09:46	DONE	CAN	16-FEB-09 00:00
245101005	SAMPLE	MXR1	GAM22	02-FEB-10 09:46	DONE	CAN	02-DEC-09 00:00
245101006	SAMPLE	MXR1	GAM21	02-FEB-10 10:28	DONE	CAN	28-JUL-09 00:00
245101007	SAMPLE	MXR1	GAM23	02-FEB-10 10:28	DONE	CAN	02-JUN-09 00:00
245101009	SAMPLE	MXR1	GAM14	02-FEB-10 10:55	DONE	CAN	06-MAR-09 00:00
245101010	SAMPLE	MXR1	GAM10	02-FEB-10 11:19	DONE	CAN	16-MAR-09 00:00
245101011	SAMPLE	MXR1	GAM13	02-FEB-10 11:20	DONE	CAN	02-FEB-09 00:00
245101012	SAMPLE	MXR1	GAM17	02-FEB-10 11:24	DONE	CAN	06-JAN-10 00:00
245101013	SAMPLE	MXR1	GAM18	02-FEB-10 11:30	DONE	CAN	23-APR-09 00:00
245101014	SAMPLE	MXR1	GAM19	02-FEB-10 11:31	DONE	CAN	12-MAR-09 00:00
245101015	SAMPLE	MXR1	GAM15	02-FEB-10 11:51	DONE	CAN	16-FEB-09 00:00
1202021393	MB	MXR1	GAM22	02-FEB-10 11:52	DONE	CAN	02-DEC-09 00:00
1202021394	DUP	MXR1	GAM06	02-FEB-10 11:58	DONE	CAN	04-FEB-09 00:00
1202021395	LCS	MXR1	GAM16	02-FEB-10 13:04	DONE	CAN	16-NOV-09 00:00
245101008	SAMPLE	MXR1	GAM07	02-FEB-10 13:13	DONE	CAN	20-JUL-09 00:00

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 944429**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
245096005	SAMPLE	JXD2	1065	28-JAN-10 20:58	DONE		
245101001	SAMPLE	JXD2	1066	28-JAN-10 20:58	DONE		
245101002	SAMPLE	JXD2	1067	28-JAN-10 20:58	DONE		
245101003	SAMPLE	JXD2	1068	28-JAN-10 20:58	DONE		
245101004	SAMPLE	JXD2	1069	28-JAN-10 20:58	DONE		
245101005	SAMPLE	JXD2	1070	28-JAN-10 20:58	DONE		
245101006	SAMPLE	JXD2	1071	28-JAN-10 20:58	DONE		
245101007	SAMPLE	JXD2	1072	28-JAN-10 20:58	DONE		
245101008	SAMPLE	JXD2	1073	28-JAN-10 20:58	DONE		
245101009	SAMPLE	JXD2	1074	28-JAN-10 20:58	DONE		
245101010	SAMPLE	JXD2	1075	28-JAN-10 20:58	DONE		
245101011	SAMPLE	JXD2	1076	28-JAN-10 20:58	DONE		
245101012	SAMPLE	JXD2	1077	28-JAN-10 20:58	DUSE		
245101013	SAMPLE	JXD2	1079	28-JAN-10 20:58	DONE		
245101014	SAMPLE	JXD2	1080	28-JAN-10 20:58	DONE		
245101015	SAMPLE	JXD2	1081	28-JAN-10 20:58	DONE		
245138001	SAMPLE	JXD2	1082	28-JAN-10 20:58	DONE		
245138002	SAMPLE	JXD2	1083	28-JAN-10 20:58	DONE		
1202022361	MB	JXD2	1084	28-JAN-10 20:58	DONE		
1202022362	DUP	JXD2	1085	28-JAN-10 20:58	DONE		
1202022363	LCS	JXD2	1086	28-JAN-10 20:58	DONE		

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 944430**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202022364	MB	JXD2	1211	28-JAN-10 14:14	DONE		
1202022365	DUP	JXD2	1212	28-JAN-10 14:14	DONE		
1202022366	LCS	JXD2	1213	28-JAN-10 14:14	DONE		
245096005	SAMPLE	JXD2	1233	28-JAN-10 14:14	DONE		
245101001	SAMPLE	JXD2	1234	28-JAN-10 14:14	DONE		
245101002	SAMPLE	JXD2	1235	28-JAN-10 14:15	DONE		
245101003	SAMPLE	JXD2	1236	28-JAN-10 14:15	DONE		
245138002	SAMPLE	JXD2	1240	28-JAN-10 14:15	DONE		
245101004	SAMPLE	JXD2	1241	28-JAN-10 14:15	DONE		
245101005	SAMPLE	JXD2	1242	28-JAN-10 14:15	DONE		
245101006	SAMPLE	JXD2	1243	28-JAN-10 14:15	DONE		
245101007	SAMPLE	JXD2	1244	28-JAN-10 14:15	DONE		
245101008	SAMPLE	JXD2	1245	28-JAN-10 14:16	DONE		
245101009	SAMPLE	JXD2	1246	28-JAN-10 14:16	DONE		
245101010	SAMPLE	JXD2	1247	28-JAN-10 14:16	DONE		
245101011	SAMPLE	JXD2	1248	28-JAN-10 14:16	DONE		
245101012	SAMPLE	JXD2	1249	28-JAN-10 14:16	DONE		
245101013	SAMPLE	JXD2	1250	28-JAN-10 14:16	DONE		
245101014	SAMPLE	JXD2	1251	28-JAN-10 14:16	DONE		
245101015	SAMPLE	JXD2	1255	28-JAN-10 14:16	DONE		
245138001	SAMPLE	JXD2	1256	28-JAN-10 14:17	DONE		

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 944433**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
245096005	SAMPLE	JXD2	1113	28-JAN-10 16:28	DONE		
245101001	SAMPLE	JXD2	1114	28-JAN-10 16:28	DONE		
245101002	SAMPLE	JXD2	1115	28-JAN-10 16:28	DONE		
245101003	SAMPLE	JXD2	1117	28-JAN-10 16:28	DONE		
245101004	SAMPLE	JXD2	1118	28-JAN-10 16:28	DONE		
245101005	SAMPLE	JXD2	1119	28-JAN-10 16:28	DONE		
245101006	SAMPLE	JXD2	1120	28-JAN-10 16:28	DONE		
245101007	SAMPLE	JXD2	1121	28-JAN-10 16:29	DONE		
245101008	SAMPLE	JXD2	1122	28-JAN-10 16:29	DONE		
245101009	SAMPLE	JXD2	1123	28-JAN-10 16:29	DONE		
245101010	SAMPLE	JXD2	1124	28-JAN-10 16:29	DONE		
245101011	SAMPLE	JXD2	1125	28-JAN-10 16:29	DONE		
245101012	SAMPLE	JXD2	1126	28-JAN-10 16:29	DONE		
245101013	SAMPLE	JXD2	1127	28-JAN-10 16:29	DONE		
245101014	SAMPLE	JXD2	1128	28-JAN-10 16:29	DONE		
245101015	SAMPLE	JXD2	1129	28-JAN-10 16:29	DONE		
245138001	SAMPLE	JXD2	1130	28-JAN-10 16:29	DONE		
245138002	SAMPLE	JXD2	1131	28-JAN-10 16:29	DONE		
1202022388	MB	JXD2	1132	28-JAN-10 16:29	DONE		
1202022389	DUP	JXD2	1133	28-JAN-10 16:29	DONE		
1202022390	LCS	JXD2	1134	28-JAN-10 16:29	DONE		

# Instrument Run Log

Instrument Type: LSC

Batch ID: 945369

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
245101001	SAMPLE	KXK2	LSCGOLD	29-JAN-10 04:56	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101002	SAMPLE	KXK2	LSCGOLD	29-JAN-10 06:34	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101003	SAMPLE	KXK2	LSCGOLD	29-JAN-10 08:12	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101004	SAMPLE	KXK2	LSCGOLD	29-JAN-10 09:50	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101005	SAMPLE	KXK2	LSCGOLD	29-JAN-10 11:29	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101006	SAMPLE	KXK2	LSCGOLD	29-JAN-10 13:07	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101007	SAMPLE	KXK2	LSCGOLD	29-JAN-10 14:45	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101008	SAMPLE	KXK2	LSCGOLD	29-JAN-10 16:23	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101009	SAMPLE	KXK2	LSCGOLD	29-JAN-10 18:01	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101010	SAMPLE	KXK2	LSCGOLD	29-JAN-10 19:39	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101011	SAMPLE	KXK2	LSCGOLD	29-JAN-10 21:17	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101012	SAMPLE	KXK2	LSCGOLD	29-JAN-10 22:55	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101013	SAMPLE	KXK2	LSCGOLD	30-JAN-10 00:33	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101014	SAMPLE	KXK2	LSCGOLD	30-JAN-10 02:11	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
245101015	SAMPLE	KXK2	LSCGOLD	30-JAN-10 03:49	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
1202024712	MB	KXK2	LSCGOLD	30-JAN-10 05:27	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
1202024713	DUP	KXK2	LSCGOLD	30-JAN-10 07:05	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
1202024714	LCS	KXK2	LSCGOLD	30-JAN-10 08:42	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 951264**

<b>Sample ID</b>	<b>Sample Type</b>	<b>Analyst</b>	<b>Instrument</b>	<b>Run Date</b>	<b>Status</b>	<b>Geometry</b>	<b>Calibration Date</b>
245101012	SAMPLE	MXE1	1065	11-FEB-10 09:03	DONE		
1202038568	MB	MXE1	1066	11-FEB-10 09:03	DONE		
1202038569	DUP	MXE1	1067	11-FEB-10 09:03	DONE		
1202038570	LCS	MXE1	1068	11-FEB-10 09:03	DONE		