

REQUEST NUMBER: 10-1625

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**These Samples are on:**

LANL Request Number:10-1625

Per Agreement Number:126310011

Project Cost Code: MR3A05529E00

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA.901.1	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	EPA.906.0	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	

Friday, February 05, 2010

REQUEST NUMBER: 10-1625

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA.906.0	1	RE15-10-8362	R	2/3/2010	
	HASL-300:AM-241	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	HASL-300:ISOPU	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	HASL-300:ISOU	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	

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Friday, February 05, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1625

**LOS ALAMOS**

REQUEST NUMBER: 10-1625

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

## LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8361	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8361	1	POLY	H3	Ice	R
RE15-10-8362	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8362	1	POLY	H3	Ice	R
RE15-10-8359	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8359	1	POLY	H3	Ice	R
RE15-10-8358	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8358	1	POLY	H3	Ice	R
RE15-10-8360	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8360	1	POLY	H3	Ice	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8358

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/03/2010		MEDIA:		QBT3	
TIME COLLECTED(HH:MM)		007		SUB-MEDIA:		TUFF 1	
PRS ID:	15-009(c)	ok		SAMPLE TECH CODE:		HA	
LOCATION ID:	15-610849	↓		FIELD QC TYPE:		NA	
LOCATION TYPE:	GENERIC	↓		FIELD PREP:		NA	
TOP DEPTH:	0	0.0		SAMPLE USAGE:		INV	
BOTTOM DEPTH:	0	0.8		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	SEP		EXCAVATED: YES/NO/NA		YES/NO/NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		YES/NO/NA	
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	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		METALS+U-GEL	125 ML POLY	Ice	Y	
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sand, Tuff fragments, few pine needles  
FTB: RE15-10-8383

SAMPLE COMMENTS:

NA

LOCATION DESC:

9c-11 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

HE negative

Alpha = 27 dpm  
Beta/Gamma = 2100 dpm

PID Ambient Reading 0.0 ppm  
1.0

COLLECTED BY (PRINT)

TLMcFarland

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) TLMcFarland	Date/Time 2/3/10 1400	RECEIVED BY (Printed Name) [Signature] (Signature) [Signature]	Date/Time 2/3/10 1400
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8359

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED (MM/DD/YYYY):		02/03/2010		MEDIA:		OBT3	
TIME COLLECTED (HH:MM)		11:12		SUB-MEDIA:		TUFF 1	
PRSID: 15-009(c)		OK		SAMPLE TECH CODE:		HA	
LOCATION ID: 15-610849		↓		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		9		EXCAVATED: YES/NO/NA		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	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		METALS+U-GEL	125 ML POLY	Ice	Y	
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sand, stuff fragments

SAMPLE COMMENTS:

NA

LOCATION DESC:

9c-11 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  11 dpm  
Beta/Gamma  $\leq$  1945 dpm

PID  $\frac{\text{Ambient Reading}}{0.3}$  ppm

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/3/10	(Printed Name) [Signature]	2/3/10
(Signature) [Signature]	1400	(Signature) [Signature]	2400
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8360

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/03/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1123		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-009(c)	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	15-610850			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.4		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		METALS+U-GEL	125 ML POLY	Ice	Y	
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sand, till fragments

SAMPLE COMMENTS:

NA

LOCATION DESC:

9C-12

FIELD SCREENING/MEASUREMENT RESULTS:

HE neg

Alpha  $\leq$  22 dpm  
 Beta/Gamma  $\leq$  2390 dpm

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

COLLECTED BY (PRINT)

J L McFarlane

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY (Printed Name) J L McFarlane (Signature)	Date/Time 2/3/10 1400	RECEIVED BY (Printed Name) (Signature)	Date/Time 2/3/10 1400
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8361

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/03/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		1133		SUB-MEDIA:		TUFF 1	
PRS ID:	15-009(c)	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	15-610850	↓		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:	B	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		METALS+U-GEL	125 ML POLY	Ice	Y	
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

moist brown silty sand and  
clay, roots

SAMPLE COMMENTS:

NA

LOCATION DESC:

9C-12

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2030 dpm

PID Ambient Reading 0.0 ppm

COLLECTED BY (PRINT)

TL McFarlane

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarlane	1400	(Printed Name) [Signature]	2/3/10
(Signature) [Signature]	2/3/10	(Signature) [Signature]	2/3/10
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8362

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/03/2010		MEDIA:	OBT3		SED
TIME COLLECTED (HH:MM)		1150		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-009(c)	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	15-610851			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		METALS+U-GEL	125 ML POLY	Ice	Y	
1		Perchlorate+CN+ N03+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown sand

SAMPLE COMMENTS:

NA

LOCATION DESC:

9c-13

FIELD SCREENING/MEASUREMENT RESULTS:

HF neg

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2020 dpm

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

COLLECTED BY (PRINT)

T. McFarlane

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) T. McFarlane (Signature) Tracy	Date/Time 2/3/10 1400	RECEIVED BY (Printed Name) Nelson (Signature) Nelson	Date/Time 2/3/10 2:00
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2507

EVENT NAME: 4th Qtr. FY09 - SWMU 15-009(c) - Threemile Canyon

SAMPLE ID: RE15-10-8383

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/03/2010	MEDIA:	FILL	ok
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	SOIL	
PRS ID:	15-009(c)	ok	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	15-810849	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	
BOREHOLE: YES/NO/NA			WATER FLOWING: YES/NO/NA		
BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION:	NM	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B Trip Blank	40 ML SEPTUM AMBER GLASS	Ice	Y	

SAMPLE DESC: QC Sample of RE15-10-8358

SAMPLE COMMENTS:

FTB

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

TL McFarlane

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY (Printed Name) TL McFarlane (Signature) Tracy M	Date/Time 2/3/10 1400	RECEIVED BY (Printed Name) Mike M (Signature) Mike M	Date/Time 2/3/10 2:10
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## Rad Screening Data Release Form

The Following samples were received at the Field Support Facility (FSF) without screening data (list sample number):

RE15-10 - 8358  
8359  
8360  
8361  
8362


These samples will not be shipped until radiological screening data documentation arrives at the FSF. I understand that it is my responsibility to ensure this information arrives at the FSF in a timely manner. If holding times are missed because screening data does not arrive, I will pick up the samples.

.....  
The following samples do not require rad screening data for the reasons stated (list sample numbers):

RE15-10-8383

Reason: FTB

.....  
Print Last Name McFarland

Signature 

Date 2/3/10

## DATA VALIDATION COVER SHEET

5119-1

## Data Validation Cover Sheet

Records Use only



## Section I.

REQUEST NUMBER: 10-1625 VALIDATION DATE: 3/22/10 LAB CODE: GEL

CONTRACT LABORATORY NAME: GEL Laboratories LLC

VALIDATOR: Joanne Compton ORGANIZATION: Analytical Quality Associates, Inc.

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

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

## Section II. Completeness Check

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

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


1. The gamma spec sample results that were rejected by the laboratory due to interference and low abundance were qualified R,R5a. In the duplicate sample, several results were also rejected by the laboratory. No sample data were qualified as a result.
2. An MS/MSD for tritium was not analyzed but an LCS was analyzed and met acceptance criteria. No sample data were qualified as a result.
3. The matrix QC for Iso-U and tritium were performed on samples from other LANL RNs. No sample data were qualified as a result.

Reviewed By: Charissa Lewis Level: I Date: 3/23/10


VALIDATOR'S SIGNATURE:

A handwritten signature in cursive script that reads "Joanne Compton".


DATE: 03/22/10

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

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

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

RAD ANALYTICAL DATA VALIDATION CHECKLIST	
<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"/>	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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input type="checkbox"/>	<input checked="" 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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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 4, 2010

Client Sample ID:	RE15-10-8361	Project: LANL01004
Sample ID:	246444001	Client ID: LANL010
Matrix:	R	
Collect Date:	03-FEB-10	
Receive Date:	06-FEB-10	
Collector:	Client	
Moisture:	18%	

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	-0.00333	0.024	+/-0.00302	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0186	0.0387	+/-0.00782	0.050	pCi/g		MXE1	03/01/10	1820	953494	2
Plutonium-239/240	U	0.0252	0.0293	+/-0.00861	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		13.9	0.121	+/-1.05	0.100	pCi/g		MXE1	02/27/10	2004	953497	4
Uranium-235/236		0.780	0.0769	+/-0.0892	0.100	pCi/g						
Uranium-238		15.1	0.0823	+/-1.13	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00321	0.0796	+/-0.025	0.200	pCi/g		MXR1	02/19/10	1759	950788	5
Bismuth-211	UI	4.04	R,R5a	0.282	+/-0.302	pCi/g						
Bismuth-214		1.30		0.0986	+/-0.107	pCi/g						
Cadmium-109	UI	3.30	R,R5a	0.773	+/-0.392	pCi/g						
Cerium-139	U	-0.00185		0.0432	+/-0.0124	pCi/g						
Cesium-134	UI	0.110	R,R5a	0.0888	+/-0.0376	pCi/g						
Cesium-137		0.238		0.0609	+/-0.0358	pCi/g						
Cobalt-60	U	-0.0286		0.0607	+/-0.0201	pCi/g						
Europium-152	U	0.0419		0.151	+/-0.0455	pCi/g						
Lanthanum-140	U	0.0054		0.161	+/-0.0476	pCi/g						
Lead-212		1.86		0.0752	+/-0.118	pCi/g						
Lead-214		1.41		0.0985	+/-0.111	pCi/g						
Mercury-203	UI	0.0753	R,R5a	0.0545	+/-0.0287	pCi/g						
Potassium-40		32.6		0.493	+/-1.65	pCi/g						
Radium-223	U	-0.0274		0.982	+/-0.319	pCi/g						
Radium-224	UI	4.60	R,R5a	0.857	+/-0.667	pCi/g						
Radium-226		1.30		0.0986	+/-0.107	pCi/g						
Radium-228		1.83		0.202	+/-0.183	pCi/g						
Ruthenium-106	U	0.0984		0.527	+/-0.150	pCi/g						
Sodium-22	U	-0.041		0.0686	+/-0.0227	pCi/g						
Strontium-85	U	0.0477		0.0648	+/-0.0203	pCi/g						

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

Report Date: March 4, 2010

Client Sample ID:  
Sample ID:

RE15-10-8361  
246444001

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"												
Thallium-208		0.528	0.0627	+/-0.0502	0.080	pCi/g						
Thorium-227	U	0.166	0.581	+/-0.170		pCi/g						
Thorium-231	U	-0.0274	0.982	+/-0.319		pCi/g						
Thorium-234		3.58	0.762	+/-0.515	2.00	pCi/g						
Tin-113	U	-0.0364	0.0715	+/-0.0219	0.100	pCi/g						
Uranium-235	UI	0.295	R,R5a	+/-0.133	0.500	pCi/g						
Yttrium-88	U	0.0239	0.0594	+/-0.0156	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

H3 "As Received"

Tritium	235	173	+/-57.6	250	pCi/L	KXK2	02/20/10	0902	953095	6
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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, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R
6	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	72.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	84.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	75.3	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8362  
 Sample ID: 246444002  
 Matrix: R  
 Collect Date: 03-FEB-10  
 Receive Date: 06-FEB-10  
 Collector: Client  
 Moisture: 25%

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	0.00273	0.0241	+/-0.00204	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0184	0.0231	+/-0.00793	0.050	pCi/g		MXE1	02/27/10	2033	953494	2
Plutonium-239/240	U	0.0113	0.0174	+/-0.00532	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.945	0.0998	+/-0.0914	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.0831	0.0636	+/-0.0221	0.100	pCi/g						
Uranium-238		1.63	0.0681	+/-0.142	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0236	0.214	+/-0.0687	0.200	pCi/g		MXR1	02/19/10	2039	950788	4
Bismuth-211	UI	3.10	R,R5a	0.271	+/-0.246	pCi/g						
Bismuth-214		0.954	0.101	+/-0.0838	0.200	pCi/g						
Cadmium-109	UI	1.62	R,R5a	0.993	+/-0.453	pCi/g						
Cerium-139	U	-0.0117	0.0419	+/-0.0123	0.050	pCi/g						
Cesium-134	U	0.0347	0.0708	+/-0.0196	0.100	pCi/g						
Cesium-137		0.0832	0.0577	+/-0.0239	0.100	pCi/g						
Cobalt-60	U	-0.0248	0.0538	+/-0.0181	0.100	pCi/g						
Europium-152	U	-0.0574	0.132	+/-0.0408	0.200	pCi/g						
Lanthanum-140	U	-0.0331	0.115	+/-0.0372		pCi/g						
Lead-212		1.30	0.075	+/-0.0897	0.100	pCi/g						
Lead-214		1.08	0.0944	+/-0.0902	0.100	pCi/g						
Mercury-203	U	-0.00115	0.0586	+/-0.0177	0.100	pCi/g						
Potassium-40		35.3	0.495	+/-1.80	1.00	pCi/g						
Radium-223	U	0.421	0.926	+/-0.271		pCi/g						
Radium-224	UI	3.95	R,R5a	0.854	+/-0.588	pCi/g						
Radium-226		0.954	0.101	+/-0.0838		pCi/g						
Radium-228		1.25	0.190	+/-0.148	0.500	pCi/g						
Ruthenium-106	U	0.0946	0.444	+/-0.130	0.800	pCi/g						
Sodium-22	U	-0.0022	0.0678	+/-0.0209	0.080	pCi/g						
Strontium-85	U	0.0378	0.0567	+/-0.0174		pCi/g						
Thallium-208		0.441	0.0526	+/-0.0391	0.080	pCi/g						

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

Report Date: March 4, 2010

Client Sample ID:  
Sample ID:

RE15-10-8362  
246444002

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	-0.109	0.533	+/-0.162		pCi/g					
Thorium-231	U	0.421	0.926	+/-0.271		pCi/g					
Thorium-234		3.29	1.70	+/-0.898	2.00	pCi/g					
Tin-113	U	0.0363	0.0643	+/-0.0175	0.100	pCi/g					
Uranium-235	U	-0.0146	0.300	+/-0.0874	0.500	pCi/g					
Yttrium-88	U	0.0037	0.0427	+/-0.0126	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	19.1	173	+/-51.2	250	pCi/L		KXK2	02/20/10	1040 953095	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"	74.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.8	(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: March 4, 2010

Client Sample ID: RE15-10-8359  
Sample ID: 246444003  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 6.85%

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	0.00987	0.0232	+/-0.00384	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0158	0.0235	+/-0.00523	0.050	pCi/g		MXE1	02/27/10	1946	953494	2
Plutonium-239/240	U	0.0115	0.0177	+/-0.00612	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.04	0.104	+/-0.101	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.0866	0.0663	+/-0.0219	0.100	pCi/g						
Uranium-238		2.02	0.071	+/-0.173	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.00386	0.100	+/-0.0304	0.200	pCi/g		MXR1	02/19/10	2039	950788	4
Bismuth-211	UI	3.46	R,R5a	0.321	+/-0.294	pCi/g						
Bismuth-214		1.03		0.114	+/-0.096	pCi/g						
Cadmium-109	UI	2.86	R,R5a	0.861	+/-0.429	pCi/g						
Cerium-139	U	-0.00976	0.0463	+/-0.0137	0.050	pCi/g						
Cesium-134	U	0.0682	0.104	+/-0.0277	0.100	pCi/g						
Cesium-137	UI	0.176	R,R5a	0.0694	+/-0.042	pCi/g						
Cobalt-60	U	0.00413	0.0705	+/-0.0206	0.100	pCi/g						
Europium-152	U	0.0255	0.159	+/-0.0539	0.200	pCi/g						
Lanthanum-140	U	-0.095	0.144	+/-0.0524	pCi/g							
Lead-212		1.41	0.0871	+/-0.0887	0.100	pCi/g						
Lead-214		1.20	0.112	+/-0.107	0.100	pCi/g						
Mercury-203	U	-0.00264	0.0695	+/-0.0196	0.100	pCi/g						
Potassium-40		32.5	0.549	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.739	1.05	+/-0.340	pCi/g							
Radium-224	UI	3.92	R,R5a	0.992	+/-0.568	pCi/g						
Radium-226		1.03	0.114	+/-0.096	pCi/g							
Radium-228		1.30	0.260	+/-0.215	0.500	pCi/g						
Ruthenium-106	U	0.0647	0.590	+/-0.175	0.800	pCi/g						
Sodium-22	U	0.0291	0.100	+/-0.0294	0.080	pCi/g						
Strontium-85	U	0.0197	0.0673	+/-0.0192	pCi/g							
Thallium-208		0.481	0.0558	+/-0.0502	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 4, 2010

Client Sample ID: RE15-10-8359  
Sample ID: 246444003  
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	-0.359	0.608	+/-0.201		pCi/g						
Thorium-231	U	-0.739	1.05	+/-0.340		pCi/g						
Thorium-234		2.66	0.981	+/-0.551	2.00	pCi/g						
Tin-113	U	-0.0151	0.0778	+/-0.0231	0.100	pCi/g						
Uranium-235	U	0.00736	0.355	+/-0.102	0.500	pCi/g						
Yttrium-88	U	0.027	0.0714	+/-0.0189	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
H3 "As Received"												
Tritium		758	173	+/-83.0	250	pCi/L		KXK2	02/20/10	1218	953095	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"	75.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	85.1	(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: March 4, 2010

Client Sample ID: RE15-10-8358  
Sample ID: 246444004  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 16.5%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.00265	0.0237	+/-0.0029	0.050	pCi/g		MXE1	02/27/10	1946 953491	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.0172	0.0386	+/-0.00721	0.050	pCi/g		MXE1	03/01/10	1820 953494	2
Plutonium-239/240	U	0.00641	0.0293	+/-0.0104	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		1.81	0.108	+/-0.157	0.100	pCi/g		MXE1	02/27/10	2004 953497	4
Uranium-235/236		0.0847	0.0689	+/-0.022	0.100	pCi/g					
Uranium-238		2.56	0.0738	+/-0.212	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.149	0.318	+/-0.099	0.200	pCi/g		MXR1	02/19/10	2040 950788	5
Bismuth-211	UI	3.42	R,R5a	0.292	+/-0.234	pCi/g					
Bismuth-214		1.10		0.0953	+/-0.0847	0.200	pCi/g				
Cadmium-109	UI	2.55	R,R5a	1.27	+/-0.493	pCi/g					
Cerium-139	U	-0.0332		0.0423	+/-0.0129	0.050	pCi/g				
Cesium-134	U	0.0722		0.0788	+/-0.0221	0.100	pCi/g				
Cesium-137		0.0768		0.0573	+/-0.0281	0.100	pCi/g				
Cobalt-60	U	-0.00136		0.0554	+/-0.0168	0.100	pCi/g				
Europium-152	U	-0.077		0.133	+/-0.050	0.200	pCi/g				
Lanthanum-140	U	-0.00581		0.110	+/-0.0395	pCi/g					
Lead-212		1.56		0.0765	+/-0.0746	0.100	pCi/g				
Lead-214		1.19		0.102	+/-0.0871	0.100	pCi/g				
Mercury-203	U	0.0481		0.064	+/-0.0206	0.100	pCi/g				
Potassium-40		33.6		0.394	+/-1.50	1.00	pCi/g				
Radium-223	U	-0.0926		0.931	+/-0.330	pCi/g					
Radium-224	UI	3.91	R,R5a	0.870	+/-0.500	pCi/g					
Radium-226		1.10		0.0953	+/-0.0847	pCi/g					
Radium-228		1.46		0.174	+/-0.152	0.500	pCi/g				
Ruthenium-106	U	0.00164		0.449	+/-0.138	0.800	pCi/g				
Sodium-22	U	-0.00213		0.0623	+/-0.0191	0.080	pCi/g				
Strontium-85	UI	0.0772	R,R5a	0.0624	+/-0.0191	pCi/g					
Thallium-208		0.525		0.0467	+/-0.0381	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: March 4, 2010

Client Sample ID: RE15-10-8358  
Sample ID: 246444004

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	0.063	0.539	+/-0.160		pCi/g						
Thorium-231	U	-0.0926	0.931	+/-0.330		pCi/g						
Thorium-234		3.37	2.33	+/-1.21	2.00	pCi/g						
Tin-113	U	-0.0152	0.0578	+/-0.0175	0.100	pCi/g						
Uranium-235	U	0.139	0.335	+/-0.103	0.500	pCi/g						
Yttrium-88	U	-0.0151	0.0418	+/-0.014	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		417	173	+/-65.2	250	pCi/L		KXK2	02/20/10	1356	953095	6

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	89.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	78.4	(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

# 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: March 4, 2010

Client Sample ID: RE15-10-8360  
Sample ID: 246444005  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 27.4%

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	0.00243	0.0224	+/-0.00185	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0142	0.0193	+/-0.00415	0.050	pCi/g		MXE1	02/27/10	1946	953494	2
Plutonium-239/240	U	0.00828	0.0145	+/-0.00315	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.27	0.0996	+/-0.116	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.078	0.0635	+/-0.0203	0.100	pCi/g						
Uranium-238		1.78	0.068	+/-0.154	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0813	0.252	+/-0.0831	0.200	pCi/g		MXR1	02/19/10	2040	950788	4
Bismuth-211	UI	2.97	R,R5a	0.324	+/-0.261	pCi/g						
Bismuth-214		0.946		0.111	+/-0.0793	0.200	pCi/g					
Cadmium-109	UI	2.62	R,R5a	1.23	+/-0.457	pCi/g						
Cerium-139	U	0.0152		0.0528	+/-0.0153	0.050	pCi/g					
Cesium-134	UI	0.131	R,R5a	0.0959	+/-0.0451	0.100	pCi/g					
Cesium-137	U	0.0549		0.0736	+/-0.0203	0.100	pCi/g					
Cobalt-60	U	0.0119		0.067	+/-0.0195	0.100	pCi/g					
Europium-152	U	-0.0487		0.156	+/-0.0805	0.200	pCi/g					
Lanthanum-140	U	0.0376		0.156	+/-0.0447	pCi/g						
Lead-212		1.43		0.0904	+/-0.0724	0.100	pCi/g					
Lead-214		1.03		0.113	+/-0.0947	0.100	pCi/g					
Mercury-203	U	0.0425		0.071	+/-0.0219	0.100	pCi/g					
Potassium-40		35.2		0.409	+/-1.57	1.00	pCi/g					
Radium-223	U	-0.392		1.08	+/-0.372	pCi/g						
Radium-224	UI	4.04	R,R5a	1.03	+/-0.606	pCi/g						
Radium-226		0.946		0.111	+/-0.0793	pCi/g						
Radium-228	UI	1.36	R,R5a	0.452	+/-0.159	0.500	pCi/g					
Ruthenium-106	U	0.00556		0.492	+/-0.147	0.800	pCi/g					
Sodium-22	U	0.00259		0.0717	+/-0.0213	0.080	pCi/g					
Strontium-85	U	0.040		0.0667	+/-0.021	pCi/g						
Thallium-208		0.451		0.0542	+/-0.0384	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: March 4, 2010

Client Sample ID: RE15-10-8360  
Sample ID: 246444005

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	-0.131	0.619	+/-0.190		pCi/g					
Thorium-231	U	-0.392	1.08	+/-0.372		pCi/g					
Thorium-234	U	1.59	2.09	+/-0.864	2.00	pCi/g					
Tin-113	U	-0.00667	0.0692	+/-0.0203	0.100	pCi/g					
Uranium-235	U	0.177	0.373	+/-0.108	0.500	pCi/g					
Yttrium-88	U	0.0113	0.0497	+/-0.0141	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
H3 "As Received"											
Tritium	U	91.5	173	+/-52.9	250	pCi/L		KXK2	02/20/10	1534 953095	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"	74.3	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	86.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.1	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

Friday, February 05, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1625

LOS ALAMOS

REQUEST NUMBER: 10-1625

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2464447.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8361	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8361	1	POLY	H3	Ice	R
RE15-10-8362	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8362	1	POLY	H3	Ice	R
RE15-10-8359	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8359	1	POLY	H3	Ice	R
RE15-10-8358	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8358	1	POLY	H3	Ice	R
RE15-10-8360	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8360	1	POLY	H3	Ice	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

2/5/10 1400

Printed Name

Signature

Greg Tyler

2-6-10 0915

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

Friday, February 05, 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: 10-1625  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

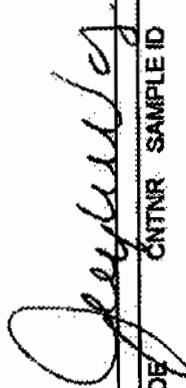
Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 2/5/2010  
TURNAROUND/REPORT DUE: 3/7/2010  
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background  
LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-901.1	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
		1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
	EPA-906.0					

Friday, February 05, 2010

REQUEST NUMBER: 10-1625

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-908.0	1	RE15-10-8362	R	2/3/2010	
	HASL-300:AM-241	1	RE15-10-8356	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
		1	RE15-10-8358	R	2/3/2010	
	HASL-300:ISOPU	1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	HASL-300:ISOU	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	

Final Page of REQUEST NUMBER 10-1625



Laboratories LLC

a member of **The GEL Group** LLC



PO Box 30712 Charleston, SC 29417  
2040 Savage Road Charleston, SC 29407  
P 843.556.8171 F 843.766.1178

February 12, 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: 246444  
SDG: 10-1625

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 06, 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: 10-1625  
Enclosures

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# Case Narrative

**Case Narrative for  
Los Alamos National Laboratory (72733-001-09)  
LANL ER Project  
Workorder #: 246444  
SDG # : 10-1625**

**February 12, 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 February 06, 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 12/15C temperatures. Shipping container temperature was within specification (0 - 6C).

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

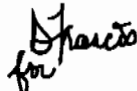
<u>Laboratory ID</u>	<u>Client ID</u>
246444001	RE15-10-8361
246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360

**Case Narrative**

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

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

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



Valerie Davis

Project Manager

**List of current GEL Certifications as of 12 February 2010**

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

# **Chain of Custody and Supporting Documentation**

Friday, February 05, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1625

**LOS ALAMOS**

REQUEST NUMBER: 10-1625

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

246444%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8361	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8361	1	POLY	H3	Ice	R
RE15-10-8362	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8362	1	POLY	H3	Ice	R
RE15-10-8359	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8359	1	POLY	H3	Ice	R
RE15-10-8358	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8358	1	POLY	H3	Ice	R
RE15-10-8360	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8360	1	POLY	H3	Ice	R

Relinquished By:

Date Time

Received By:

Date Time

*[Signature]*  
 Printed Name Signature

2/5/10 1400

Greg Tyler  
 Printed Name

*[Signature]*  
 Signature

2-6-10 0915

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date Time

Remarks:

Printed Name

Signature

Friday, February 05, 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: 2/5/2010**

**TURNAROUND/REPORT DUE: 3/7/2010**

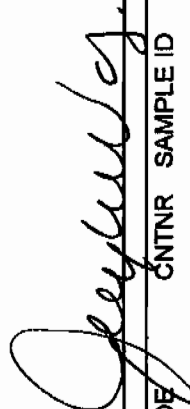
**TURNAROUND REQ'D: 30 Days**

**RAD SCREENING: Yes, Below Background**

**LAB REQUEST COMMENTS:**

LANL ER SMO CONTACT:

Signature:



Page 1 of 2

REQUEST NUMBER: 10-1625

These Samples are on:

LANL Request Number: 10-1625  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1		1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
EPA:906.0		1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	

Friday, February 05, 2010

Page 2 of 2

REQUEST NUMBER: 10-1625

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	RE15-10-8362	R	2/3/2010	
	HASL-300:AM-241	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	HASL-300:ISOPU	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	
	HASL-300:ISOU	1	RE15-10-8358	R	2/3/2010	
		1	RE15-10-8359	R	2/3/2010	
		1	RE15-10-8360	R	2/3/2010	
		1	RE15-10-8361	R	2/3/2010	
		1	RE15-10-8362	R	2/3/2010	

Final Page of REQUEST NUMBER 10-1625



Laboratories LLC

## SAMPLE RECEIPT &amp; REVIEW FORM

Client: LANL			SDG/ARCOC/Work Order: 10-1625		
Received By: Greg Tyler			Date Received: 2/06/10		
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- 6C    12,15C
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 9293 2C    7209 7849 9282 4C    7209 7849 9179 15C  
 7209 7849 9271 3C    7209 7849 9180 5C    7209 7849 9227 15C  
 7209 7849 9308 3C    7209 7849 9216 5C  
 7209 7849 9319 3C    7209 7849 9205 5C  
 7209 7849 9260 3C    7209 7849 9190 6C  
 7209 7849 9250 3C    7209 7849 9238 6C  
 7209 7849 9249 4C    7209 7849 9157 12C  
 7209 7849 9341 4C    7209 7849 9146 12C



ORIGIN ID: BMT  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63  
LOS ALAMOS, NM 87545  
UNITED STATES US

ACTNGT: 01.0 LB MAN  
CAD: 0014175/CAFE2449  
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

3°

CHARLESTON SC 29407

(843) 556-8171  
REF: 6B010AMR3A05529E00

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1 of 2  
TRKH 7209 7849 9260  
0201  
NM MASTER NM

### SATURDAY ### A1  
PRIORITY OVERNIGHT

29407  
SC-US  
CHS

X0 CHSA



JOYLENE VALDEZ (806) 505-  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 05FEB10  
ACTNGT: 48.0 LB MAN  
CAD: 0014175/CAFE2449  
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 6B010AMR3A05529E00

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2 of 3  
MPSH 7209 7849 9249  
0263

### SATURDAY ### A1  
PRIORITY OVERNIGHT

MatrN 7209 7849 9238 0201

X0 CHSA

29407  
SC-US  
CHS



ORIGIN ID: SAFA (506) 605-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 05FEB10  
ACTNGT: 48.0 LB MAN  
CAD: 0014175/CAFE2449  
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

3°

CHARLESTON SC 29407

(843) 556-8171  
REF: 6B010AMR3A05529E00

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3 of 3  
MPSH 7209 7849 9250  
0263

### SATURDAY ### A1  
PRIORITY OVERNIGHT

MatrN 7209 7849 9238 0201

29407  
SC-US  
CHS

X0 CHSA



ORIGIN ID: SAFA (506) 605-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 05FEB10  
ACTNGT: 53.0 LB MAN  
CAD: 0014175/CAFE2449  
BILL SENDER

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GENERAL ENGINEERING LAB  
2040 SAVAGE RD

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(843) 556-8171  
REF: 6B010MR1A015AGWK0

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TRKH 7209 7849 9341  
0201

### SATURDAY ### A1  
PRIORITY OVERNIGHT

X0 CHSA

29407  
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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 83

SHIP DATE: 05FEB18  
ACTWGT: 59.0 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS NM 87545  
UNITED STATES US

BILL SENDER

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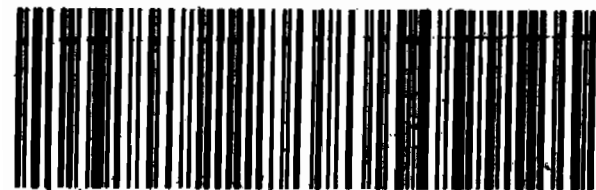


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PRIORITY OVERNIGHT

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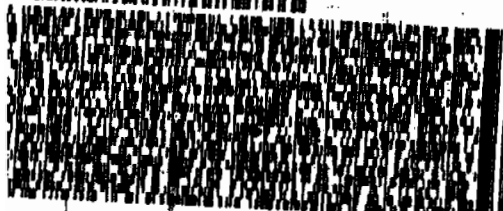
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UNITED STATES US

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
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2 of 3  
### SATURDAY ### A1  
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PRIORITY OVERNIGHT

7209 7849 9205 (0201)

CHSA

29407  
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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 83

SHIP DATE: 05FEB18  
ACTWGT: 59.0 LB MAN  
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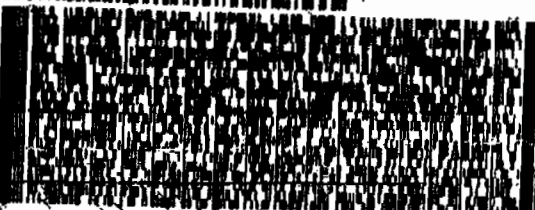
LOS ALAMOS NM 87545  
UNITED STATES US

BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(43) 866-9171  
REF: 68010AMR3A0532VA00



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2 of 3  
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7209 7849 9180  
PRIORITY OVERNIGHT

7209 7849 9178 (0201)

CHSA

29407  
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CHS



JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 83

SHIP DATE: 05FEB18  
ACTWGT: 59.0 LB MAN  
CAD: 0014176/CAFE2448

LOS ALAMOS NM 87545  
UNITED STATES US

BILL SENDER

VALERIE DAVIS  
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2040 SAVAGE RD

CHARLESTON SC 29407

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1 of 3  
### SATURDAY ### A1  
7209 7849 9205  
PRIORITY OVERNIGHT

7209 7849 9205 (0201)

CHSA

29407  
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CHS



SHIP DATE: 05FEB10  
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**BILL SENDER**

REF: 6B010AMR3A0532VA00

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PRIORITY OVERNIGHT

Matr# 7209 7549 9179 0201

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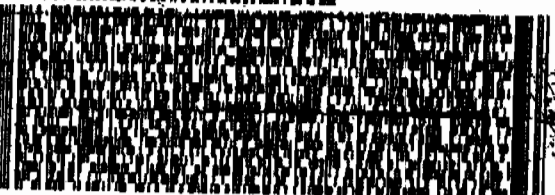
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REF: 68010AAREW0140T500



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Instr# 7209 7849 9135 0201

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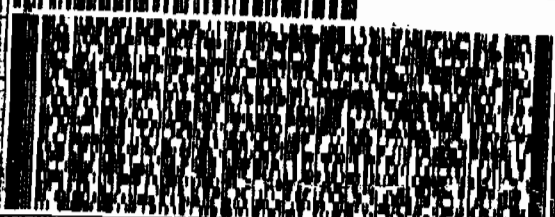
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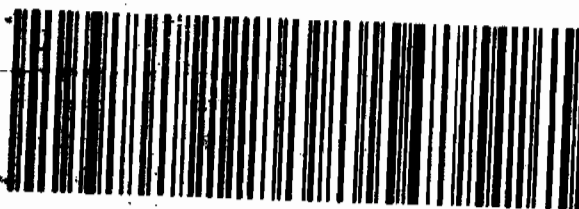


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PRIORITY OVERNIGHT

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SC-US  
CHS

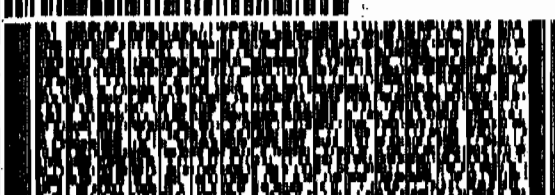


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### SATURDAY ### A1  
PRIORITY OVERNIGHT

Matr-N 7209 7849 9135 0201

**X0 CHSA**

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ORIGIN ID: SAFA (505), 669-99687;  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
1800 BLDG 1237 CPU 03

LOS ALAMOS, NM 87545  
UNITED STATES OF AMERICA

SHIP DATE: 05 FEB 10  
ACTWGT: 45.0 LB MAN  
CAD: 00141787 CAFE2440

**BILL ŠENDER**

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

**CHARLESTON SC 29407**

REF: 680100NR3A0532VA00

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Express

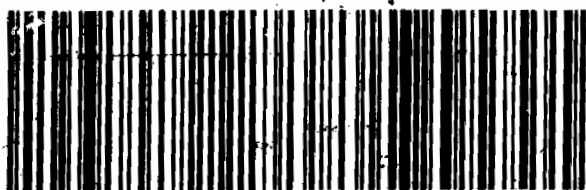
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STROM 7209 7849 9179  
10201

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### SATURDAY ### A1  
PRIORITY OVERNIGHT

**X0 CHSA**

**29407**  
SC-US  
CHS

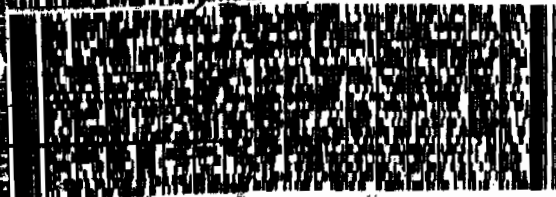


UNITED STATES OF AMERICA

RIE DAVIS  
GENERAL ENGINEERING LAB  
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Matr# 7208 7849 9205 8201

### SATURDAY ### A1  
PRIORITY OVERNIGHT

**XO CHSA**

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# **Data Review Qualifier Flag Definition Sheet**

## Data Review Qualifier Definitions

Qualifier	Explanation
-----------	-------------

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Los Alamos National Laboratory (LANL)  
SDG 10-1625**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 953491  
**Prep Batch Number:** 950434

<b>Sample ID</b>	<b>Client ID</b>
246444001	RE15-10-8361
246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360
1202052623	Method Blank (MB)
1202052624	246444001(RE15-10-8361) Sample Duplicate (DUP)
1202052625	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 solutions for these analysis are NIST traceable or verified with a NIST traceable standard, and used before the expiration dates.

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

Aliquot for sample 1202052623 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 246444001 (RE15-10-8361). The QC was from LANL work order 246444.

**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>	ISOPU
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	953494
Prep Batch Number:	950434

<b>Sample ID</b>	<b>Client ID</b>
246444001	RE15-10-8361

246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360
1202044064	Method Blank (MB)
1202044065	246444001(RE15-10-8361) Sample Duplicate (DUP)
1202044066	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 solutions for these analysis are NIST traceable or verified with a NIST traceable standard, and used before the expiration dates.

##### **Sample Geometry**

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

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

##### **Blank Information**

Aliquot for sample 1202044064 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 246444001 (RE15-10-8361). The QC was from LANL work order 246444.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The Pu-238 and Pu-239/240 blank results 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**

Samples 1202044065 (RE15-10-8361), 246444001 (RE15-10-8361) and 246444004 (RE15-10-8358) were recounted due to a suspected false positive.

#### **Miscellaneous Information:**

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

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

#### **Manual Integration**

No manual integrations were performed on data in this batch.

#### **Additional Comments**

The MDCs are calculated using a blank population.

#### **Blank Decision Level**

The Pu-238 and Pu-239/240 blank results are greater than the decision level but less than the MDC.

#### **Qualifier information**

Manual qualifiers were not required.

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

<b>Product:</b>	<b>ISOU</b>
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	953497
Prep Batch Number:	950434

<b>Sample ID</b>	<b>Client ID</b>
246444001	RE15-10-8361
246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360
1202044075	Method Blank (MB)
1202044076	246440001(RE15-10-8354) Sample Duplicate (DUP)
1202044077	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 solutions for these analysis are NIST traceable or verified with a NIST traceable standard, and used before the expiration dates.

#### **Sample Geometry**

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

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

##### **Blank Information**

Aliquot for sample 1202044075 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 246440001 (RE15-10-8354). The QC was from LANL work order 246440.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The U-233/234, U-235/236, and U-238 blank, 1202044075 (MB), result is greater than 1.65 times the CSU but less than the MDC.

#### **Technical Information:**

##### **Holding Time**

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

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

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

#### **Miscellaneous Information:**

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

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

##### **Manual Integration**

No manual integrations were performed on data in this batch.

##### **Additional Comments**

The MDCs are calculated using a blank population.

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

The U-238 blank, 1202044075 (MB), result is greater than the decision level but less than the MDC.

#### **Qualifier information**

Manual qualifiers were not required.

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

<b>Product:</b>	<b>GAMMA SPEC</b>
<b>Analytical Method:</b>	<b>DOE HASL 300, 4.5.2.3/Ga-01-R</b>

Prep Method: Dry Soil Prep  
Analytical Batch Number: 950788  
Prep Batch Number: 950434

Sample ID	Client ID
246444001	RE15-10-8361
246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360
1202037552	Method Blank (MB)
1202037553	246444001(RE15-10-8361) Sample Duplicate (DUP)
1202037554	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# 19.

#### **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, July 2009, October 2009, November 2009, December 2009 and January 2010.

##### **Standards Information**

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard, and used before the expiration dates.

##### **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: 246444001 (RE15-10-8361). The QC was from LANL work order 246444.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank 1202037552 (MB) result is greater than 1.65 times the CSU but less than the MDC for TI-208.

**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 1202037552 (MB) result is greater than the decision level but less than the MDC for Bi-211.

**Qualifier information**

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to high counting uncertainty.	Uranium-235	246444001	RE15-10-8361
UI	Data rejected due to high peak-width.	Cesium-137	246444003	RE15-10-8359
UI	Data rejected due to interference.	Bismuth-211	246444001	RE15-10-8361
			246444002	RE15-10-8362
			246444003	RE15-10-8359
			246444004	RE15-10-8358
			246444005	RE15-10-8360
			1202037553	RE15-10-8361(246444001DUP)
		Cadmium-109	246444001	RE15-10-8361
			246444002	RE15-10-8362
			246444003	RE15-10-8359
			246444004	RE15-10-8358
			246444005	RE15-10-8360
			1202037553	RE15-10-8361(246444001DUP)
		Mercury-203	246444001	RE15-10-8361
			1202037553	RE15-10-8361(246444001DUP)

UI	Data rejected due to low abundance.	Radium-224	246444001	RE15-10-8361
			246444002	RE15-10-8362
			246444003	RE15-10-8359
			246444004	RE15-10-8358
			246444005	RE15-10-8360
			1202037553	RE15-10-8361(246444001DUP)
		Cesium-134	246444001	RE15-10-8361
			246444005	RE15-10-8360
		Radium-228	246444005	RE15-10-8360
		Strontium-85	246444004	RE15-10-8358
			1202037553	RE15-10-8361(246444001DUP)

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

**Product:** H3  
**Analytical Method:** GL-RAD-A-002  
**Analytical Batch Number:** 953095

<b>Sample ID</b>	<b>Client ID</b>
246444001	RE15-10-8361
246444002	RE15-10-8362
246444003	RE15-10-8359
246444004	RE15-10-8358
246444005	RE15-10-8360
1202042910	Method Blank (MB)
1202042911	246341001(RE15-10-8304) Sample Duplicate (DUP)
1202042912	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 Calibrations were performed in

August 2009 and September 2009.

**Standards Information**

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard, and used before the expiration dates.

**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: 246341001 (RE15-10-8304). The QC was from LANL work order 246341.

**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:** John J. Austin 3/4/2010

# 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: 10-1625 GEL Work Order: 246444

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

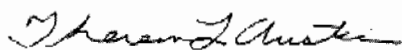
- \* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- \*\* Indicates the analyte is a surrogate compound.

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

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

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

Reviewed by



# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8361  
Sample ID: 246444001  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 18%

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	-0.00333	0.024	+/-0.00302	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0186	0.0387	+/-0.00782	0.050	pCi/g		MXE1	03/01/10	1820	953494	2
Plutonium-239/240	U	0.0252	0.0293	+/-0.00861	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		13.9	0.121	+/-1.05	0.100	pCi/g		MXE1	02/27/10	2004	953497	4
Uranium-235/236		0.780	0.0769	+/-0.0892	0.100	pCi/g						
Uranium-238		15.1	0.0823	+/-1.13	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00321	0.0796	+/-0.025	0.200	pCi/g		MXR1	02/19/10	1759	950788	5
Bismuth-211	UI	4.04	0.282	+/-0.302		pCi/g						
Bismuth-214		1.30	0.0986	+/-0.107	0.200	pCi/g						
Cadmium-109	UI	3.30	0.773	+/-0.392		pCi/g						
Cerium-139	U	-0.00185	0.0432	+/-0.0124	0.050	pCi/g						
Cesium-134	UI	0.110	0.0888	+/-0.0376	0.100	pCi/g						
Cesium-137		0.238	0.0609	+/-0.0358	0.100	pCi/g						
Cobalt-60	U	-0.0286	0.0607	+/-0.0201	0.100	pCi/g						
Europium-152	U	0.0419	0.151	+/-0.0455	0.200	pCi/g						
Lanthanum-140	U	0.0054	0.161	+/-0.0476		pCi/g						
Lead-212		1.86	0.0752	+/-0.118	0.100	pCi/g						
Lead-214		1.41	0.0985	+/-0.111	0.100	pCi/g						
Mercury-203	UI	0.0753	0.0545	+/-0.0287	0.100	pCi/g						
Potassium-40		32.6	0.493	+/-1.65	1.00	pCi/g						
Radium-223	U	-0.0274	0.982	+/-0.319		pCi/g						
Radium-224	UI	4.60	0.857	+/-0.667		pCi/g						
Radium-226		1.30	0.0986	+/-0.107		pCi/g						
Radium-228		1.83	0.202	+/-0.183	0.500	pCi/g						
Ruthenium-106	U	0.0984	0.527	+/-0.150	0.800	pCi/g						
Sodium-22	U	-0.041	0.0686	+/-0.0227	0.080	pCi/g						
Strontium-85	U	0.0477	0.0648	+/-0.0203		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: March 4, 2010

Client Sample ID: RE15-10-8361  
Sample ID: 246444001  
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		0.528	0.0627	+/-0.0502	0.080	pCi/g						
Thorium-227	U	0.166	0.581	+/-0.170		pCi/g						
Thorium-231	U	-0.0274	0.982	+/-0.319		pCi/g						
Thorium-234		3.58	0.762	+/-0.515	2.00	pCi/g						
Tin-113	U	-0.0364	0.0715	+/-0.0219	0.100	pCi/g						
Uranium-235	UI	0.295	0.272	+/-0.133	0.500	pCi/g						
Yttrium-88	U	0.0259	0.0594	+/-0.0156	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

*H3 "As Received"*

Tritium		235	173	+/-57.6	250	pCi/L	KXK2	02/20/10	0902	953095	6	
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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, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R
6	GL-RAD-A-002

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	72.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	84.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	75.3	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

## GEL LABORATORIES LLC

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### Certificate of Analysis

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8361  
Sample ID: 246444001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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D Results are reported from a diluted aliquot of the sample

F Estimated Value

H Analytical holding time was exceeded

J Value is estimated

M M if above MDC and less than LLD

M Matrix Related Failure

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

ND Analyte concentration is not detected above the detection limit

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

R Sample results are rejected

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

UI Gamma Spectroscopy--Uncertain identification

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

Y QC Samples were not spiked with this compound

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

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8362  
Sample ID: 246444002  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 25%

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	0.00273	0.0241	+/-0.00204	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0184	0.0231	+/-0.00793	0.050	pCi/g		MXE1	02/27/10	2033	953494	2
Plutonium-239/240	U	0.0113	0.0174	+/-0.00532	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.945	0.0998	+/-0.0914	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.0831	0.0636	+/-0.0221	0.100	pCi/g						
Uranium-238		1.63	0.0681	+/-0.142	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0236	0.214	+/-0.0687	0.200	pCi/g		MXR1	02/19/10	2039	950788	4
Bismuth-211	UI	3.10	0.271	+/-0.246		pCi/g						
Bismuth-214		0.954	0.101	+/-0.0838	0.200	pCi/g						
Cadmium-109	UI	1.62	0.993	+/-0.453		pCi/g						
Cerium-139	U	-0.0117	0.0419	+/-0.0123	0.050	pCi/g						
Cesium-134	U	0.0347	0.0708	+/-0.0196	0.100	pCi/g						
Cesium-137		0.0832	0.0577	+/-0.0239	0.100	pCi/g						
Cobalt-60	U	-0.0248	0.0538	+/-0.0181	0.100	pCi/g						
Europium-152	U	-0.0574	0.132	+/-0.0408	0.200	pCi/g						
Lanthanum-140	U	-0.0331	0.115	+/-0.0372		pCi/g						
Lead-212		1.30	0.075	+/-0.0897	0.100	pCi/g						
Lead-214		1.08	0.0944	+/-0.0902	0.100	pCi/g						
Mercury-203	U	-0.00115	0.0586	+/-0.0177	0.100	pCi/g						
Potassium-40		35.3	0.495	+/-1.80	1.00	pCi/g						
Radium-223	U	0.421	0.926	+/-0.271		pCi/g						
Radium-224	UI	3.95	0.854	+/-0.588		pCi/g						
Radium-226		0.954	0.101	+/-0.0838		pCi/g						
Radium-228		1.25	0.190	+/-0.148	0.500	pCi/g						
Ruthenium-106	U	0.0946	0.444	+/-0.130	0.800	pCi/g						
Sodium-22	U	-0.0022	0.0678	+/-0.0209	0.080	pCi/g						
Strontium-85	U	0.0378	0.0567	+/-0.0174		pCi/g						
Thallium-208		0.441	0.0526	+/-0.0391	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: March 4, 2010

Client Sample ID: RE15-10-8362  
Sample ID: 246444002

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	-0.109	0.533	+/-0.162		pCi/g						
Thorium-231	U	0.421	0.926	+/-0.271		pCi/g						
Thorium-234		3.29	1.70	+/-0.898	2.00	pCi/g						
Tin-113	U	0.0363	0.0643	+/-0.0175	0.100	pCi/g						
Uranium-235	U	-0.0146	0.300	+/-0.0874	0.500	pCi/g						
Yttrium-88	U	0.0037	0.0427	+/-0.0126	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	19.1	173	+/-51.2	250	pCi/L		KXK2	02/20/10	1040	953095	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"	74.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.8	(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

## GEL LABORATORIES LLC

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### Certificate of Analysis

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8362  
Sample ID: 246444002

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: March 4, 2010

Client Sample ID: RE15-10-8359  
Sample ID: 246444003  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 6.85%

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	0.00987	0.0232	+/-0.00384	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0158	0.0235	+/-0.00523	0.050	pCi/g		MXE1	02/27/10	1946	953494	2
Plutonium-239/240	U	0.0115	0.0177	+/-0.00612	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.04	0.104	+/-0.101	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.0866	0.0663	+/-0.0219	0.100	pCi/g						
Uranium-238		2.02	0.071	+/-0.173	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.00386	0.100	+/-0.0304	0.200	pCi/g		MXR1	02/19/10	2039	950788	4
Bismuth-211	UI	3.46	0.321	+/-0.294		pCi/g						
Bismuth-214		1.03	0.114	+/-0.096	0.200	pCi/g						
Cadmium-109	UI	2.86	0.861	+/-0.429		pCi/g						
Cerium-139	U	-0.00976	0.0463	+/-0.0137	0.050	pCi/g						
Cesium-134	U	0.0682	0.104	+/-0.0277	0.100	pCi/g						
Cesium-137	UI	0.176	0.0694	+/-0.042	0.100	pCi/g						
Cobalt-60	U	0.00413	0.0705	+/-0.0206	0.100	pCi/g						
Europium-152	U	0.0255	0.159	+/-0.0539	0.200	pCi/g						
Lanthanum-140	U	-0.095	0.144	+/-0.0524		pCi/g						
Lead-212		1.41	0.0871	+/-0.0887	0.100	pCi/g						
Lead-214		1.20	0.112	+/-0.107	0.100	pCi/g						
Mercury-203	U	-0.00264	0.0695	+/-0.0196	0.100	pCi/g						
Potassium-40		32.5	0.549	+/-1.77	1.00	pCi/g						
Radium-223	U	-0.739	1.05	+/-0.340		pCi/g						
Radium-224	UI	3.92	0.992	+/-0.568		pCi/g						
Radium-226		1.03	0.114	+/-0.096		pCi/g						
Radium-228		1.30	0.260	+/-0.215	0.500	pCi/g						
Ruthenium-106	U	0.0647	0.590	+/-0.175	0.800	pCi/g						
Sodium-22	U	0.0291	0.100	+/-0.0294	0.080	pCi/g						
Strontium-85	U	0.0197	0.0673	+/-0.0192		pCi/g						
Thallium-208		0.481	0.0558	+/-0.0502	0.080	pCi/g						

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8359  
Sample ID: 246444003

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	-0.359	0.608	+/-0.201		pCi/g						
Thorium-231	U	-0.739	1.05	+/-0.340		pCi/g						
Thorium-234		2.66	0.981	+/-0.551	2.00	pCi/g						
Tin-113	U	-0.0151	0.0778	+/-0.0231	0.100	pCi/g						
Uranium-235	U	0.00736	0.355	+/-0.102	0.500	pCi/g						
Yttrium-88	U	0.027	0.0714	+/-0.0189	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

*H3 "As Received"*

Tritium		758	173	+/-83.0	250	pCi/L		KXK2	02/20/10	1218	953095	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"	75.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	85.1	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 4, 2010

Client Sample ID: RE15-10-8359  
Sample ID: 246444003  
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: March 4, 2010

Client Sample ID: RE15-10-8358  
Sample ID: 246444004  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 16.5%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00265	0.0237	+/-0.0029	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0172	0.0386	+/-0.00721	0.050	pCi/g		MXE1	03/01/10	1820	953494	2
Plutonium-239/240	U	0.00641	0.0293	+/-0.0104	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.81	0.108	+/-0.157	0.100	pCi/g		MXE1	02/27/10	2004	953497	4
Uranium-235/236		0.0847	0.0689	+/-0.022	0.100	pCi/g						
Uranium-238		2.56	0.0738	+/-0.212	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.149	0.318	+/-0.099	0.200	pCi/g		MXR1	02/19/10	2040	950788	5
Bismuth-211	UI	3.42	0.292	+/-0.234		pCi/g						
Bismuth-214		1.10	0.0953	+/-0.0847	0.200	pCi/g						
Cadmium-109	UI	2.55	1.27	+/-0.493		pCi/g						
Cerium-139	U	-0.0332	0.0423	+/-0.0129	0.050	pCi/g						
Cesium-134	U	0.0722	0.0788	+/-0.0221	0.100	pCi/g						
Cesium-137		0.0768	0.0573	+/-0.0281	0.100	pCi/g						
Cobalt-60	U	-0.00136	0.0554	+/-0.0168	0.100	pCi/g						
Europium-152	U	-0.077	0.133	+/-0.050	0.200	pCi/g						
Lanthanum-140	U	-0.00581	0.110	+/-0.0395		pCi/g						
Lead-212		1.56	0.0765	+/-0.0746	0.100	pCi/g						
Lead-214		1.19	0.102	+/-0.0871	0.100	pCi/g						
Mercury-203	U	0.0481	0.064	+/-0.0206	0.100	pCi/g						
Potassium-40		33.6	0.394	+/-1.50	1.00	pCi/g						
Radium-223	U	-0.0926	0.931	+/-0.330		pCi/g						
Radium-224	UI	3.91	0.870	+/-0.500		pCi/g						
Radium-226		1.10	0.0953	+/-0.0847		pCi/g						
Radium-228		1.46	0.174	+/-0.152	0.500	pCi/g						
Ruthenium-106	U	0.00164	0.449	+/-0.138	0.800	pCi/g						
Sodium-22	U	-0.00213	0.0623	+/-0.0191	0.080	pCi/g						
Strontium-85	UI	0.0772	0.0624	+/-0.0191		pCi/g						
Thallium-208		0.525	0.0467	+/-0.0381	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 4, 2010

Client Sample ID: RE15-10-8358  
Sample ID: 246444004

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	0.063	0.539	+/-0.160		pCi/g						
Thorium-231	U	-0.0926	0.931	+/-0.330		pCi/g						
Thorium-234		3.37	2.33	+/-1.21	2.00	pCi/g						
Tin-113	U	-0.0152	0.0578	+/-0.0175	0.100	pCi/g						
Uranium-235	U	0.139	0.335	+/-0.103	0.500	pCi/g						
Yttrium-88	U	-0.0151	0.0418	+/-0.014	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		417	173	+/-65.2	250	pCi/L		KXK2	02/20/10	1356	953095	6

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	89.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	78.4	(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

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8358  
Sample ID: 246444004  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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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## Certificate of Analysis

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8360  
Sample ID: 246444005  
Matrix: R  
Collect Date: 03-FEB-10  
Receive Date: 06-FEB-10  
Collector: Client  
Moisture: 27.4%

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	0.00243	0.0224	+/-0.00185	0.050	pCi/g		MXE1	02/27/10	1946	953491	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.0142	0.0193	+/-0.00415	0.050	pCi/g		MXE1	02/27/10	1946	953494	2
Plutonium-239/240	U	0.00828	0.0145	+/-0.00315	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.27	0.0996	+/-0.116	0.100	pCi/g		MXE1	02/27/10	2004	953497	3
Uranium-235/236		0.078	0.0635	+/-0.0203	0.100	pCi/g						
Uranium-238		1.78	0.068	+/-0.154	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0813	0.252	+/-0.0831	0.200	pCi/g		MXR1	02/19/10	2040	950788	4
Bismuth-211	UI	2.97	0.324	+/-0.261		pCi/g						
Bismuth-214		0.946	0.111	+/-0.0793	0.200	pCi/g						
Cadmium-109	UI	2.62	1.23	+/-0.457		pCi/g						
Cerium-139	U	0.0152	0.0528	+/-0.0153	0.050	pCi/g						
Cesium-134	UI	0.131	0.0959	+/-0.0451	0.100	pCi/g						
Cesium-137	U	0.0549	0.0736	+/-0.0203	0.100	pCi/g						
Cobalt-60	U	0.0119	0.067	+/-0.0195	0.100	pCi/g						
Europium-152	U	-0.0487	0.156	+/-0.0805	0.200	pCi/g						
Lanthanum-140	U	0.0376	0.156	+/-0.0447		pCi/g						
Lead-212		1.43	0.0904	+/-0.0724	0.100	pCi/g						
Lead-214		1.03	0.113	+/-0.0947	0.100	pCi/g						
Mercury-203	U	0.0425	0.071	+/-0.0219	0.100	pCi/g						
Potassium-40		35.2	0.409	+/-1.57	1.00	pCi/g						
Radium-223	U	-0.392	1.08	+/-0.372		pCi/g						
Radium-224	UI	4.04	1.03	+/-0.606		pCi/g						
Radium-226		0.946	0.111	+/-0.0793		pCi/g						
Radium-228	UI	1.36	0.452	+/-0.159	0.500	pCi/g						
Ruthenium-106	U	0.00556	0.492	+/-0.147	0.800	pCi/g						
Sodium-22	U	0.00259	0.0717	+/-0.0213	0.080	pCi/g						
Strontium-85	U	0.040	0.0667	+/-0.021		pCi/g						
Thallium-208		0.451	0.0542	+/-0.0384	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 4, 2010

Client Sample ID: RE15-10-8360  
Sample ID: 246444005

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	-0.131	0.619	+/-0.190		pCi/g						
Thorium-231	U	-0.392	1.08	+/-0.372		pCi/g						
Thorium-234	U	1.59	2.09	+/-0.864	2.00	pCi/g						
Tin-113	U	-0.00667	0.0692	+/-0.0203	0.100	pCi/g						
Uranium-235	U	0.177	0.373	+/-0.108	0.500	pCi/g						
Yttrium-88	U	0.0113	0.0497	+/-0.0141	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
H3 "As Received"												
Tritium	U	91.5	173	+/-52.9	250	pCi/L	KXK2	02/20/10	1534	953095	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"	74.3	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	86.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.1	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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

Report Date: March 4, 2010

Client Sample ID: RE15-10-8360  
Sample ID: 246444005

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.

# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: March 4, 2010

Page 1 of 6

Client : Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico  
Contact: Ms. Joylene Valdez  
Workorder: 246444

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	953491										
QC1202052624	246444001	DUP									
Americium-241		U	-0.00333	U	-0.00181	pCi/g	0.131	(0-1)	MXE1	02/27/1019:46	
		TPU:	+/-0.00302		+/-0.0028						
		Yield:	72.9		66.8						
QC1202052625	LCS										
Americium-241		33.2			26.2	pCi/g	79	(75%-125%)			
		TPU:			+/-1.78						
		Yield:			89.1						
QC1202052623	MB										
Americium-241		U		U	0.00112	pCi/g					
		TPU:			+/-0.00171						
		Yield:			74.2						
Batch	953494										
QC1202044065	246444001	DUP									
Plutonium-238		U	0.0186	U	0.0274	pCi/g	0.246	(0-1)	MXE1	03/01/1018:20	
		TPU:	+/-0.00782		+/-0.00997						
		Yield:	84.2		84.0						
Plutonium-239/240		U	0.0252	U	0.00388	pCi/g	0.781	(0-1)			
		TPU:	+/-0.00861		+/-0.00507						
		Yield:	84.2		84.0						
QC1202044066	LCS										
Plutonium-238					7.37	pCi/g		(75%-125%)		02/27/1019:46	
		TPU:			+/-0.493						
		Yield:			89.9						
Plutonium-239/240		41.8			38.7	pCi/g	92.6	(75%-125%)			
		TPU:			+/-2.17						
		Yield:			89.9						
QC1202044064	MB										
Plutonium-238		U		U	0.025	pCi/g					
		TPU:			+/-0.00656						
		Yield:			85.9						
Plutonium-239/240		U		U	0.00998	pCi/g					
		TPU:			+/-0.00528						
		Yield:			85.9						
Batch	953497										
QC1202044076	246440001	DUP									
Uranium-233/234			1.16		1.06	pCi/g	0.244	(0-1)	MXE1	02/27/1020:04	
		TPU:	+/-0.104		+/-0.0993						
		Yield:	95.5		90.6						
Uranium-235/236			0.0824		0.126	pCi/g	0.484	(0-1)			
		TPU:	+/-0.0198		+/-0.0256						
		Yield:	95.5		90.6						
Uranium-238			2.94		3.34	pCi/g	0.397	(0-1)			
		TPU:	+/-0.231		+/-0.266						

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## QC Summary

Workorder: 246444

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	953497										
QC1202044077	LCS	Yield:	95.5	90.6							
Uranium-233/234				6.28	pCi/g			(75%-125%)		02/27/1020:04	
		TPU:		+/-0.584							
		Yield:		80.0							
Uranium-235/236				0.352	pCi/g			(75%-125%)			
		TPU:		+/-0.0919							
		Yield:		80.0							
Uranium-238	5.75			5.42	pCi/g		94.3	(75%-125%)			
		TPU:		+/-0.517							
		Yield:		80.0							
QC1202044075	MB										
Uranium-233/234			U	0.0227	pCi/g					02/27/1020:04	
		TPU:		+/-0.00896							
		Yield:		63.6							
Uranium-235/236			U	0.017	pCi/g						
		TPU:		+/-0.0077							
		Yield:		63.6							
Uranium-238			U	0.0275	pCi/g						
		TPU:		+/-0.00892							
		Yield:		63.6							
Rad Gamma Spec											
Batch	950788										
QC1202037553	246444001	DUP									
Americium-241		U	0.00321	U	0.0718	pCi/g	0.374	(0-1)	MXR1	02/19/1020:42	
		TPU:	+/-0.025		+/-0.0667						
Bismuth-211		UI	4.04	UI	3.95	pCi/g	0.0725	(0-1)			
		TPU:	+/-0.302		+/-0.305						
Bismuth-214			1.30		1.20	pCi/g	0.246	(0-1)			
		TPU:	+/-0.107		+/-0.0963						
Cadmium-109		UI	3.30	UI	1.75	pCi/g	0.917	(0-1)			
		TPU:	+/-0.392		+/-0.454						
Cerium-139		U	-0.00185	U	0.0129	pCi/g	0.285	(0-1)			
		TPU:	+/-0.0124		+/-0.0135						
Cesium-134		UI	0.110	U	0.0766	pCi/g	0.244	(0-1)			
		TPU:	+/-0.0376		+/-0.0301						
Cesium-137			0.238		0.247	pCi/g	0.0609	(0-1)			
		TPU:	+/-0.0358		+/-0.0331						
Cobalt-60		U	-0.0286	U	-0.00354	pCi/g	0.347	(0-1)			
		TPU:	+/-0.0201		+/-0.0161						
Europium-152		U	0.0419	U	-0.063	pCi/g	0.556	(0-1)			
		TPU:	+/-0.0455		+/-0.0488						
Lanthanum-140		U	0.0054	U	-0.124	pCi/g	0.748	(0-1)			
		TPU:	+/-0.0476		+/-0.0388						
Lead-212			1.86		1.67	pCi/g	0.401	(0-1)			
		TPU:	+/-0.118		+/-0.120						
Lead-214			1.41		1.37	pCi/g	0.0694	(0-1)			
		TPU:	+/-0.111		+/-0.112						
Mercury-203		UI	0.0753	UI	0.0622	pCi/g	0.115	(0-1)			
		TPU:	+/-0.0287		+/-0.0282						

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## QC Summary

Workorder: 246444

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	950788										
Potassium-40		32.6		34.4	pCi/g	0.255		(0-1)			
	TPU:	+/-1.65		+/-1.75							
Radium-223	U	-0.0274	U	0.0605	pCi/g	0.0685		(0-1)			
	TPU:	+/-0.319		+/-0.324							
Radium-224	UI	4.60	UI	4.51	pCi/g	0.0369		(0-1)			
	TPU:	+/-0.667		+/-0.633							
Radium-226		1.30		1.20	pCi/g	0.246		(0-1)			
	TPU:	+/-0.107		+/-0.0963							
Radium-228		1.83		1.49	pCi/g	0.483		(0-1)			
	TPU:	+/-0.183		+/-0.169							
Ruthenium-106	U	0.0984	U	-0.0447	pCi/g	0.259		(0-1)			
	TPU:	+/-0.150		+/-0.127							
Sodium-22	U	-0.041	U	-0.00462	pCi/g	0.436		(0-1)			
	TPU:	+/-0.0227		+/-0.0189							
Strontium-85	U	0.0477	UI	0.117	pCi/g	0.864		(0-1)			
	TPU:	+/-0.0203		+/-0.0197							
Thallium-208		0.528		0.535	pCi/g	0.0378		(0-1)			
	TPU:	+/-0.0502		+/-0.0451							
Thorium-227	U	0.166	U	-0.0279	pCi/g	0.284		(0-1)			
	TPU:	+/-0.170		+/-0.170							
Thorium-231	U	-0.0274	U	0.0605	pCi/g	0.0685		(0-1)			
	TPU:	+/-0.319		+/-0.324							
Thorium-234		3.58		5.11	pCi/g	0.463		(0-1)			
	TPU:	+/-0.515		+/-1.14							
Tin-113	U	-0.0364	U	-0.027	pCi/g	0.114		(0-1)			
	TPU:	+/-0.0219		+/-0.0194							
Uranium-235	UI	0.295	U	-0.0357	pCi/g	0.716		(0-1)			
	TPU:	+/-0.133		+/-0.0979							
Yttrium-88	U	0.0259	U	0.00691	pCi/g	0.325		(0-1)			
	TPU:	+/-0.0156		+/-0.0136							
QC1202037554 LCS											
Americium-241	15.9			13.1	pCi/g		82.2 (75%-125%)			02/19/10	21:35
	TPU:			+/-0.585							
Bismuth-211				2.33	pCi/g						
	TPU:			+/-0.351							
Bismuth-214				0.753	pCi/g						
	TPU:			+/-0.124							
Cadmium-109				29.7	pCi/g						
	TPU:			+/-1.81							
Cerium-139			U	-0.0217	pCi/g						
	TPU:			+/-0.023							
Cesium-134			U	0.122	pCi/g						
	TPU:			+/-0.047							
Cesium-137	5.56			5.89	pCi/g		106 (75%-125%)				
	TPU:			+/-0.221							
Cobalt-60	6.39			6.74	pCi/g		105 (75%-125%)				
	TPU:			+/-0.291							
Europium-152			U	0.059	pCi/g						
	TPU:			+/-0.0903							
Lanthanum-140			U	-0.0252	pCi/g						
	TPU:			+/-0.0441							

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## QC Summary

Workorder: 246444

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	950788										
Lead-212				0.760	pCi/g						
	TPU:			+/-0.0929							
Lead-214				0.809	pCi/g						
	TPU:			+/-0.124							
Mercury-203			U	0.0131	pCi/g						
	TPU:			+/-0.0306							
Potassium-40				1.20	pCi/g						
	TPU:			+/-0.353							
Radium-223			U	-1.12	pCi/g						
	TPU:			+/-0.595							
Radium-224				6.57	pCi/g						
	TPU:			+/-0.725							
Radium-226				0.753	pCi/g						
	TPU:			+/-0.124							
Radium-228				0.995	pCi/g						
	TPU:			+/-0.201							
Ruthenium-106			U	-0.187	pCi/g						
	TPU:			+/-0.293							
Sodium-22			U	-0.00715	pCi/g						
	TPU:			+/-0.0247							
Strontium-85			U	0.00571	pCi/g						
	TPU:			+/-0.0346							
Thallium-208				0.355	pCi/g						
	TPU:			+/-0.0498							
Thorium-227			U	-0.0514	pCi/g						
	TPU:			+/-0.322							
Thorium-231			U	-1.12	pCi/g						
	TPU:			+/-0.595							
Thorium-234			U	-0.0667	pCi/g						
	TPU:			+/-0.950							
Tin-113			U	0.0148	pCi/g						
	TPU:			+/-0.0398							
Uranium-235			U	-0.0594	pCi/g						
	TPU:			+/-0.160							
Yttrium-88			U	-0.00675	pCi/g						
	TPU:			+/-0.0262							
QC1202037552	MB										
Americium-241			U	0.00353	pCi/g						02/19/1020:41
	TPU:			+/-0.00625							
Bismuth-211			U	0.0684	pCi/g						
	TPU:			+/-0.0573							
Bismuth-214			U	-0.00645	pCi/g						
	TPU:			+/-0.0194							
Cadmium-109			U	-0.0123	pCi/g						
	TPU:			+/-0.0668							
Cerium-139			U	0.00623	pCi/g						
	TPU:			+/-0.004							
Cesium-134			U	0.0138	pCi/g						
	TPU:			+/-0.0101							
Cesium-137			U	0.0126	pCi/g						
	TPU:			+/-0.00797							

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## QC Summary

Workorder: 246444

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	950788										
Cobalt-60			U	-0.0106	pCi/g						
	TPU:			+/-0.00804							
Europium-152			U	0.00203	pCi/g						
	TPU:			+/-0.0178							
Lanthanum-140			U	0.00623	pCi/g						
	TPU:			+/-0.0182							
Lead-212			U	-0.00384	pCi/g						
	TPU:			+/-0.0113							
Lead-214			U	0.0238	pCi/g						
	TPU:			+/-0.020							
Mercury-203			U	0.000731	pCi/g						
	TPU:			+/-0.00704							
Potassium-40			U	-0.106	pCi/g						
	TPU:			+/-0.101							
Radium-223			U	0.105	pCi/g						
	TPU:			+/-0.135							
Radium-224			U	-0.0689	pCi/g						
	TPU:			+/-0.135							
Radium-226			U	-0.00645	pCi/g						
	TPU:			+/-0.0194							
Radium-228			U	0.0336	pCi/g						
	TPU:			+/-0.0314							
Ruthenium-106			U	0.0134	pCi/g						
	TPU:			+/-0.0684							
Sodium-22			U	-0.0129	pCi/g						
	TPU:			+/-0.0107							
Strontium-85			U	-0.0594	pCi/g						
	TPU:			+/-0.0129							
Thallium-208			U	0.0182	pCi/g						
	TPU:			+/-0.00995							
Thorium-227			U	0.0359	pCi/g						
	TPU:			+/-0.0713							
Thorium-231			U	0.105	pCi/g						
	TPU:			+/-0.135							
Thorium-234			U	-0.00512	pCi/g						
	TPU:			+/-0.0611							
Tin-113			U	-0.00767	pCi/g						
	TPU:			+/-0.00864							
Uranium-235			U	-0.0103	pCi/g						
	TPU:			+/-0.0283							
Yttrium-88			U	-0.00998	pCi/g						
	TPU:			+/-0.0111							
<b>Rad Liquid Scintillation</b>											
Batch	953095										
QC1202042911	246341001	DUP									
Tritium		U	53.4	U	15.2	pCi/L	0.185	(0-1)	KXK2	02/20/10	18:50
		TPU:	+/-52.0		+/-51.0						
QC1202042912	LCS										
Tritium		5550			5090	pCi/L		91.7 (80%-120%)		02/20/10	20:27
		TPU:			+/-447						

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## QC Summary

Workorder: 246444

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>											
Batch	953095										
QC1202042910	MB										
Tritium		U		15.2	pCi/L					02/20/10	17:12
	TPU:			+/-50.9							

### 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

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#

953491

Product:

Am

Date:

3/3/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)	✓		
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%.	✓		See 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.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			NA
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:

Debbie Green 3/3/10

Secondary Review Performed By:

3/3/10

## Am/Cm Que Sheet

24-FEB-10

Batch #: 953491 Analyst: MXE1 First Client Due Date: 05-MAR-10 Internal Due Date: 22-FEB-10 Comments: Vol: 0.1  
 Tracer(s): Am243/Cm244 Tracer Code: 445-96-2-SS Expiration Date: 5/11/10  
 LCS Isotope(s): Am241/Cm244 LCS Code(s): / Expiration Date: /  
 Spike Isotope(s): Am241/Cm244 Spike Code(s): / Expiration Date: /  
 Prep Date: 2/24/10 Initials: ME Pipet ID: 2971058 Balance ID: 50410272 Witness: Affected 4/11/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Wet Aliquot (g/l / g)	Am/Cm Det #
246325001-1	RE46-10-11906	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	1	1	1.254	31
246440001-1	RE15-10-8354	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	2	2	1.259	33
246440002-1	RE15-10-8356	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	3	3	1.269	35
246440003-1	RE15-10-8353	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	4	4	1.257	36
246440004-1	RE15-10-8352	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	5	5	1.260	38
246440005-1	RE15-10-8355	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	6	6	1.264	44
246440006-1	RE15-10-8351	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	7	7	1.263	45
246440007-1	RE15-10-8350	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	8	8	1.273	46
246440008-1	RE15-10-8357	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	9	9	1.272	47
246440009-1	RE15-10-8338	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	10	10	1.255	48
246440010-1	RE15-10-8336	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	11	11	1.262	49
246440011-1	RE15-10-8339	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	12	12	1.261	97
246440012-1	RE15-10-8337	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	13	13	1.275	99
246440013-1	RE15-10-8375	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	14	14	1.270	101
246440014-1	RE15-10-8374	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	02-FEB-10	15	15	1.260	102
24644001-1	RE15-10-8361	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	03-FEB-10	16	16	1.254	103
24644002-1	RE15-10-8362	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	03-FEB-10	17	17	1.252	105
24644003-1	RE15-10-8359	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	03-FEB-10	18	18	1.273	106
24644004-1	RE15-10-8358	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	03-FEB-10	19	19	1.251	107
24644005-1	RE15-10-8360	SAMPLE	.05 pCi/g	SOIL	LANL010	LANL010	03-FEB-10	20	20	1.214	108
1202052623-1	MB for batch 953491	MB	.05 pCi/g	SOIL	QC ACCOUNT	QC ACCOUNT	03-FEB-10	21	21	1.263	109
1202052624-1	RE15-10-8361 (24644001)DUP	DUP	.05 pCi/g	SOIL	QC ACCOUNT	QC ACCOUNT	03-FEB-10	22	22	0.137	111
1202052625-1	LCS for batch 953491	LCS	.05 pCi/g	SOIL	QC ACCOUNT	QC ACCOUNT	03-FEB-10	23	23		112

Choose SOP Used: GL-RAD-A-001  
 GL-RAD-A-036

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

Data Reviewed By: [Signature]

\*SRM 0244-B exp 4/30/20  
 3/3/10

# Blank Correction Report

**Batch ID 953491**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202052624	DUP	Americium-241	1.26 g	-0.00181	0.0028	0.0257	.000888889	pCi/g	YES
1202052625	LCS	Americium-241	0.137 g	26.2	1.78	0.185	.008175182	pCi/g	NO
1202052623	MB	Americium-241	1.00 g	0.00112	0.00171	0.0271	.00112	pCi/g	YES
246325001	RE46-10-11906	Americium-241	1.25 g	-0.000395	0.00202	0.0227	.000896	pCi/g	YES
246440001	RE15-10-8354	Americium-241	1.26 g	0.00253	0.00192	0.0231	.000888889	pCi/g	YES
246440002	RE15-10-8356	Americium-241	1.27 g	-0.00325	0.00348	0.0231	.000881890	pCi/g	YES
246440003	RE15-10-8353	Americium-241	1.26 g	-0.00182	0.00244	0.0224	.000888889	pCi/g	YES
246440004	RE15-10-8352	Americium-241	1.26 g	0.00593	0.00305	0.0289	.000888889	pCi/g	NO
246440005	RE15-10-8355	Americium-241	1.26 g	0.00193	0.00235	0.0198	.000888889	pCi/g	YES
246440006	RE15-10-8351	Americium-241	1.26 g	-0.00322	0.002	0.0225	.000888889	pCi/g	YES
246440007	RE15-10-8350	Americium-241	1.27 g	-0.00179	0.00359	0.0221	.000881890	pCi/g	YES
246440008	RE15-10-8357	Americium-241	1.27 g	-0.00179	0.00458	0.0223	.000881890	pCi/g	YES
246440009	RE15-10-8338	Americium-241	1.26 g	-0.00659	0.00634	0.0253	.000888889	pCi/g	YES
246440010	RE15-10-8336	Americium-241	1.26 g	-0.00181	0.00822	0.0244	.000888889	pCi/g	YES
246440011	RE15-10-8339	Americium-241	1.27 g	-0.000436	0.00505	0.0218	.000881890	pCi/g	YES
246440012	RE15-10-8337	Americium-241	1.28 g	-0.00179	0.00182	0.0204	.000875	pCi/g	YES
246440013	RE15-10-8375	Americium-241	1.27 g	0.00555	0.00288	0.0234	.000881890	pCi/g	NO
246440014	RE15-10-8374	Americium-241	1.26 g	-0.00181	0.00209	0.0235	.000888889	pCi/g	YES
246444001	RE15-10-8381	Americium-241	1.25 g	-0.00333	0.00302	0.024	.000896	pCi/g	YES
246444002	RE15-10-8362	Americium-241	1.25 g	0.00273	0.00204	0.0241	.000896	pCi/g	YES
246444003	RE15-10-8359	Americium-241	1.27 g	0.00987	0.00384	0.0232	.000881890	pCi/g	NO
246444004	RE15-10-8358	Americium-241	1.26 g	0.00265	0.0029	0.0237	.000888889	pCi/g	YES
246444005	RE15-10-8360	Americium-241	1.27 g	0.00243	0.00185	0.0224	.000881890	pCi/g	YES

# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953491  
SAMPLE ID : S0246444001\_AM  
SAMPLE QTY : 1.254 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 72.919

CHAMBER : 103  
DETECTOR S/N : 79461  
AVERAGE %EFFICIENCY : 32.6574  
COUNT DATE : 27-FEB-2010 19:46:33  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B103.CNF:687  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W103.CNF:198  
CAL DATE : 9-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9166E+00 dpm  
RESULTS : 2.1267E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

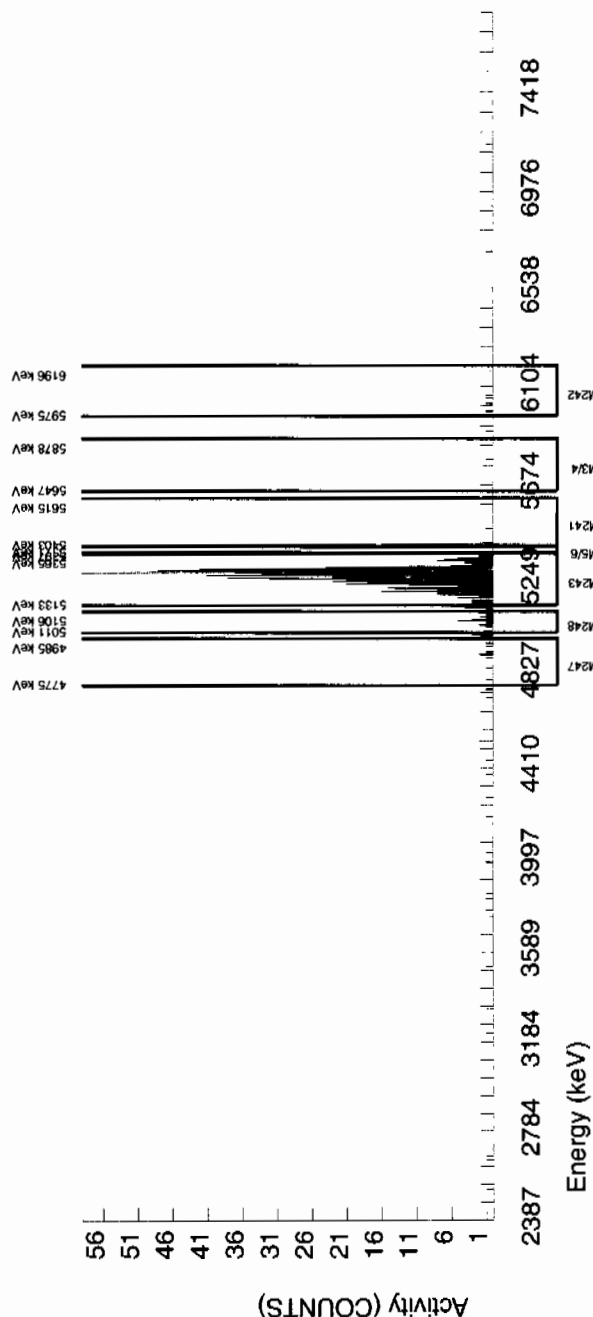
LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

## 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	5490.229	19.706	2.000	-2.206	3.000	2.8409	99.94000	-3.33E-03	3.02E-03	9.98E-03	2.40E-02	3.02E-03
AM243	5270.000	5265.390	48.864	693.000	693.000	0.000	0.0000	99.78000	1.05E+00	7.64E-02	0.00E+00	4.10E-03	3.98E-02
CM-242	6102.000	6048.548	171.809	8.000	8.000	0.000	4.3413	100.0000	1.34E-02	4.82E-03	1.52E-02	3.46E-02	4.75E-03
CM-3/4	5795.020	5791.940	4.926	1.000	0.000	1.000	5.1799	100.0000	-1.80E-10	2.14E-03	1.82E-02	4.04E-02	2.14E-03
CM-5/6	5386.000	5373.311	0.000	2.000	2.000	0.000	14.2480	86.09000	3.50E-03	2.49E-03	5.81E-02	1.21E-01	2.48E-03
CM-247	4946.000	4904.957	7.236	13.000	13.000	0.000	13.7917	79.30000	2.47E-02	7.03E-03	6.10E-02	1.27E-01	6.86E-03
CM-248	5078.600	5065.368	9.083	26.000	25.000	1.000	19.5080	91.00000	4.14E-02	8.99E-03	7.52E-02	1.55E-01	8.61E-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 : 953491  
SAMPLE ID : S0246444002\_AM  
SAMPLE QTY : 1.252 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 74.742

CHAMBER : 105  
DETECTOR S/N : 78777  
AVERAGE %EFFICIENCY : 31.7688  
COUNT DATE : 27-FEB-2010 19:46:33  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B105.CNF:685  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W105.CNF:175  
CAL DATE : 9-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9166E+00 dpm  
RESULTS : 2.1799E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

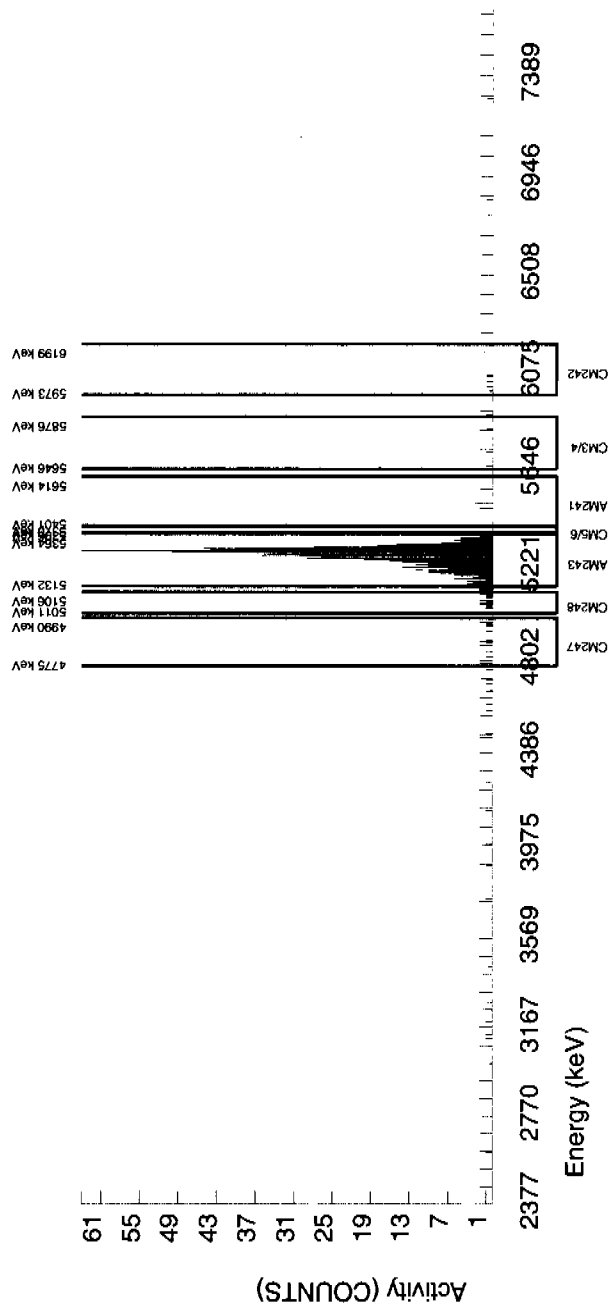
LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

## 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	5502.198	4.882	3.000	1.798	0.000	2.8409	99.94000	2.73E-03	2.04E-03	1.00E-02	2.41E-02	2.03E-03
AM243	5270.000	5270.938	35.138	693.000	691.000	2.000	1.4142	99.78000	1.05E+00	7.67E-02	5.00E-03	1.41E-02	4.00E-02
CM-242	6102.000	6017.989	0.000	7.000	7.000	0.000	4.3413	100.00000	1.18E-02	4.52E-03	1.53E-02	3.47E-02	4.46E-03
CM-3/4	5795.020	5740.301	151.332	3.000	3.000	0.000	5.1799	100.00000	4.56E-03	2.65E-03	1.83E-02	4.06E-02	2.63E-03
CM-5/6	5386.000	5376.167	6.051	4.000	4.000	0.000	14.2480	86.09000	7.04E-03	3.55E-03	5.83E-02	1.21E-01	3.52E-03
CM-247	4946.000	4896.956	175.740	16.000	16.000	0.000	13.7917	79.30000	3.06E-02	7.88E-03	6.13E-02	1.28E-01	7.64E-03
CM-248	5078.600	5062.056	4.882	22.000	21.000	1.000	19.5080	91.00000	3.50E-02	8.28E-03	7.56E-02	1.56E-01	7.99E-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 : 953491  
SAMPLE ID : S024644003\_AM  
SAMPLE QTY : 1.273 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 75.177

CHAMBER : 106  
DETECTOR S/N : 64274  
AVERAGE %EFFICIENCY : 32.3164  
COUNT DATE : 27-FEB-2010 19:46:33  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B106.CNF:685  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W106.CNF:186  
CAL DATE : 9-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9166E+00 dpm  
RESULTS : 2.1926E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/g

LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+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	DLG pCi/g	MDC pCi/g	UNC pCi/g
AM-241	5479.150	5476.174	4.953	8.000	6.770	0.000	2.8409	99.94000	9.87E-03	3.84E-03	9.63E-03	2.32E-02	3.79E-03
AM243	5270.000	5268.509	50.730	707.000	707.000	0.000	0.0000	99.78000	1.03E+00	7.49E-02	0.00E+00	3.96E-03	3.88E-02
CM-242	6102.000	6027.013	0.000	5.000	5.000	0.000	4.3413	100.0000	8.11E-03	3.66E-03	1.47E-02	3.34E-02	3.62E-03
CM-3/4	5795.020	5758.764	0.000	11.000	11.000	0.000	5.1799	100.0000	1.61E-02	4.94E-03	1.76E-02	3.91E-02	4.84E-03
CM-5/6	5386.000	5377.169	0.000	4.000	4.000	0.000	14.2480	86.09000	6.77E-03	3.41E-03	5.61E-02	1.17E-01	3.38E-03
CM-247	4946.000	4892.749	193.169	5.000	3.000	2.000	13.7917	79.30000	5.51E-03	4.87E-03	5.89E-02	1.23E-01	4.86E-03
CM-248	5078.600	5066.491	0.000	29.000	29.000	0.000	19.5080	91.00000	4.64E-02	9.09E-03	7.26E-02	1.50E-01	8.62E-03

## NOTES:

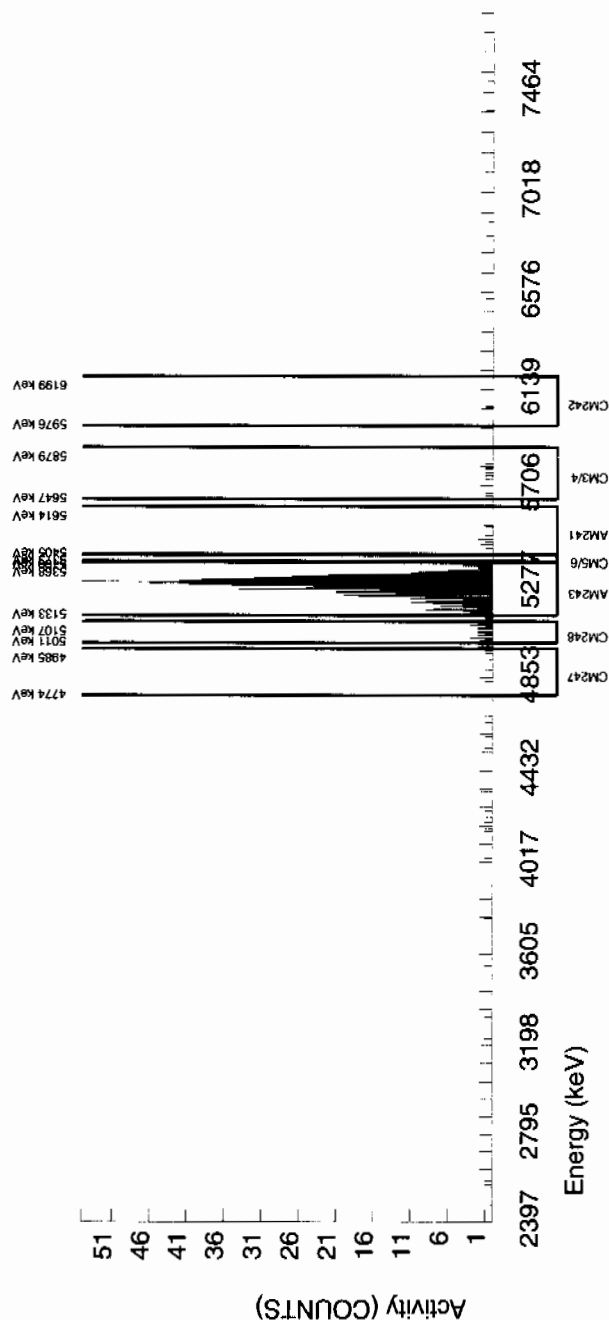
\* Sg calculated via blank population.

(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 : 953491  
SAMPLE ID : S024644004\_AM  
SAMPLE QTY : 1.257 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 78.077

CHAMBER : 107  
DETECTOR S/N : 67578  
AVERAGE %EFFICIENCY : 30.8518  
COUNT DATE : 27-FEB-2010 19:46:40  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B107.CNF;687  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W107.CNF;232  
CAL DATE : 9-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9166E+00 dpm  
RESULTS : 2.2772E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

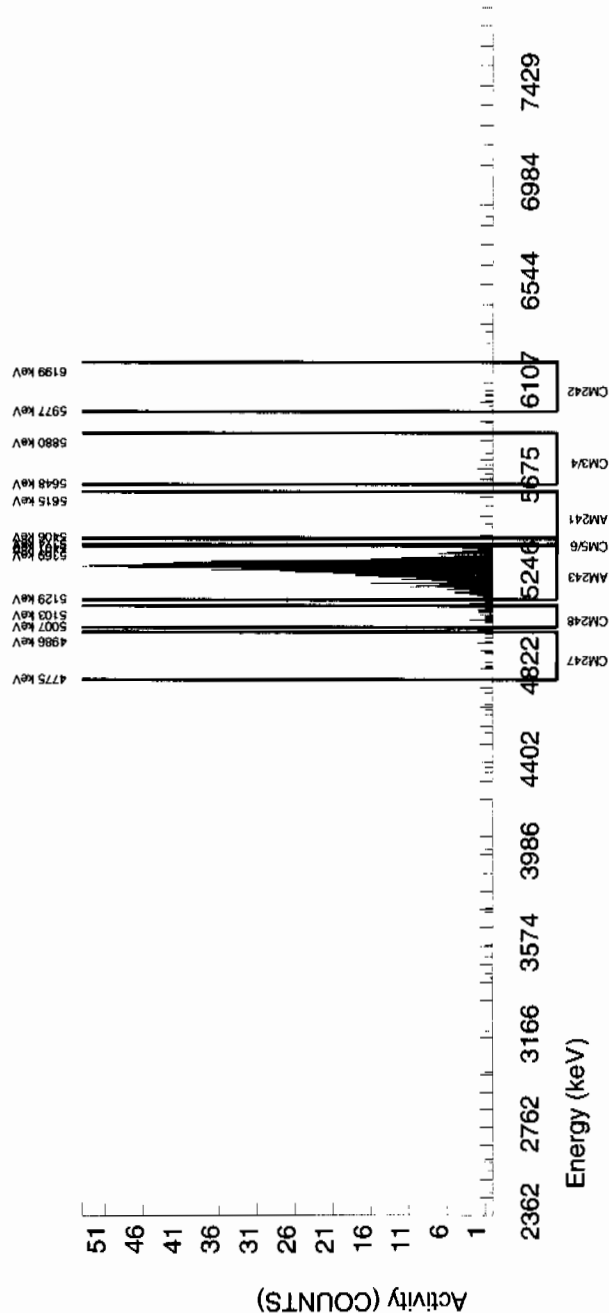
LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

## 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	5488.034	4.970	4.000	1.780	1.000	2.8409	99.94000	2.65E-03	2.90E-03	9.84E-03	2.37E-02	2.89E-03
AM243	5270.000	5271.321	48.972	701.000	701.000	0.000	0.0000	99.78000	1.05E+00	7.60E-02	0.00E+00	4.04E-03	3.95E-02
CM-242	6102.000	6045.175	64.607	5.000	5.000	0.000	4.3413	100.0000	8.28E-03	3.74E-03	1.50E-02	3.41E-02	3.70E-03
CM-3/4	5795.020	5719.201	49.698	7.000	6.000	1.000	5.1799	100.0000	8.95E-03	4.26E-03	1.79E-02	3.99E-02	4.22E-03
CM-5/6	5386.000	5379.671	0.000	3.000	3.000	0.000	14.2480	86.09000	5.18E-03	3.01E-03	5.73E-02	1.19E-01	2.99E-03
CM-247	4946.000	4909.339	49.698	15.000	14.000	1.000	13.7917	79.30000	2.63E-02	7.68E-03	6.02E-02	1.25E-01	7.50E-03
CM-248	5078.600	5065.176	50.940	20.000	20.000	0.000	19.5080	91.00000	3.27E-02	7.59E-03	7.42E-02	1.53E-01	7.31E-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 : 953491  
SAMPLE ID : S024644005\_AM  
SAMPLE QTY : 1.274 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 74.314

CHAMBER : 108  
DETECTOR S/N : 78778  
AVERAGE %EFFICIENCY : 33.8473  
COUNT DATE : 27-FEB-2010 19:46:40  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B108.CNF:685  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W108.CNF:213  
CAL DATE : 9-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9166E+00 dpm  
RESULTS : 2.1674E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

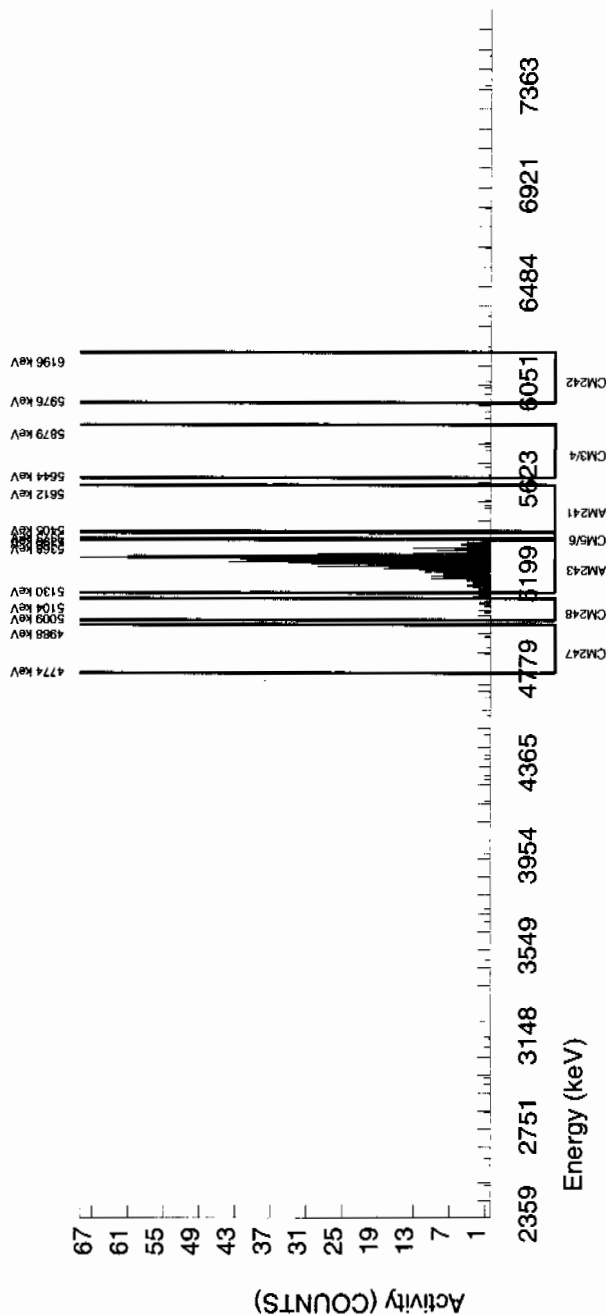
LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3155E+01 pCi/G

## 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	5530.315	34.107	3.000	1.726	0.000	2.8409	99.94000	2.43E-03	1.85E-03	9.30E-03	2.24E-02	1.85E-03
AM243	5270.000	5274.053	37.872	735.000	732.000	3.000	1.7321	99.78000	1.03E+00	7.43E-02	5.68E-03	1.52E-02	3.83E-02
CM-242	6102.000	6045.499	53.597	3.000	3.000	0.000	4.3413	100.0000	4.69E-03	2.73E-03	1.42E-02	3.22E-02	2.71E-03
CM-3/4	5795.020	5745.215	131.557	5.000	2.000	3.000	5.1799	100.0000	2.82E-03	3.99E-03	1.69E-02	3.77E-02	3.99E-03
CM-5/6	5386.000	5375.628	0.000	10.000	10.000	0.000	14.2480	86.09000	1.63E-02	5.26E-03	5.41E-02	1.13E-01	5.16E-03
CM-247	4946.000	4894.262	7.156	6.000	3.000	3.000	13.7917	79.30000	5.32E-03	5.33E-03	5.69E-02	1.19E-01	5.32E-03
CM-248	5078.600	5071.782	0.000	16.000	16.000	0.000	19.5080	91.00000	2.47E-02	6.36E-03	7.01E-02	1.44E-01	6.18E-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

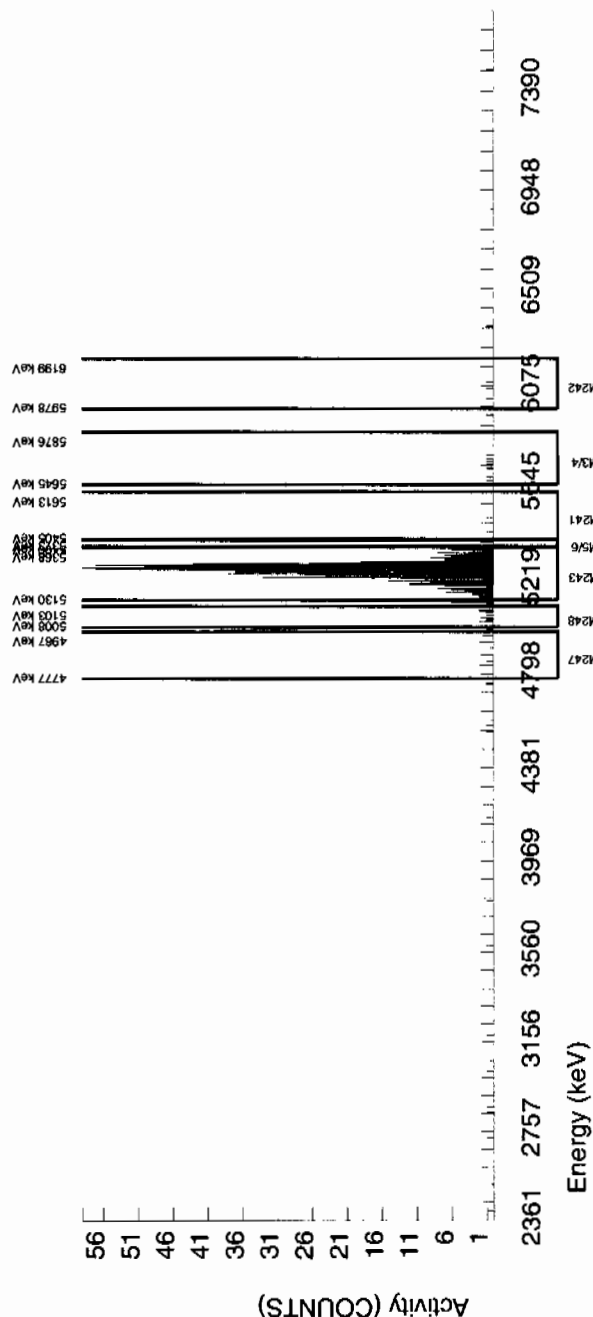
<p>BATCH NUMBER : 953491  SAMPLE ID : S1202052623_AM  SAMPLE QTY : 1.000 G  SAMPLE DATE : 24-FEB-2010 00:00:00  ANALYST : MXE1  % YIELD : 74.219</p>		<p>CHAMBER : 109  DETECTOR S/N : 79463  AVERAGE %EFFICIENCY : 35.6501  COUNT DATE : 27-FEB-2010 19:46:40  ELAPSED LIVE TIME(SEC) : 59999.99</p>		<p>LIB FILE : ENV_ALPHA_AM  BKG FILE : B109.CNF:683  BKG DATE : 21-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W109.CNF:194  CAL DATE : 9-FEB-2010</p>	
<p>TRACER  ID : 445-96-2-SS  NUCLIDE : AM243  NOMINAL : 2.9165E+00 dpm  RESULTS : 2.1646E+00 dpm</p>		<p>MS/MSD  ID : 0244-B  NUCLIDE : AM-241  NOMINAL : 3.3152E+01 pCi/G</p>		<p>LCS/LCSD  ID : 0244-B  NUCLIDE : AM-241  NOMINAL : 3.3152E+01 pCi/G</p>	

## 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	5471.581	58.973	2.000	0.660	0.000	2.8409	99.94000	1.12E-03	1.71E-03	1.13E-02	2.71E-02	1.70E-03
AM-243	5270.000	5267.016	63.669	773.000	770.000	3.000	1.7321	99.78000	1.31E+00	9.34E-02	6.87E-03	1.84E-02	4.75E-02
CM-242	6102.000	6065.885	73.717	3.000	3.000	0.000	4.3413	100.0000	5.20E-03	3.02E-03	1.72E-02	3.90E-02	3.00E-03
CM-3/4	5795.020	5728.617	108.118	8.000	6.000	2.000	5.1799	100.0000	1.02E-02	5.42E-03	2.05E-02	4.56E-02	5.39E-03
CM-5/6	5386.000	5374.959	0.000	3.000	3.000	0.000	14.2480	86.09000	5.93E-03	3.44E-03	6.55E-02	1.36E-01	3.43E-03
CM-247	4946.000	4871.563	100.685	10.000	10.000	0.000	13.7917	79.30000	2.15E-02	6.91E-03	6.89E-02	1.44E-01	6.79E-03
CM-248	5078.600	5066.209	52.574	16.000	16.000	0.000	19.5080	91.00000	2.99E-02	7.70E-03	8.49E-02	1.75E-01	7.48E-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

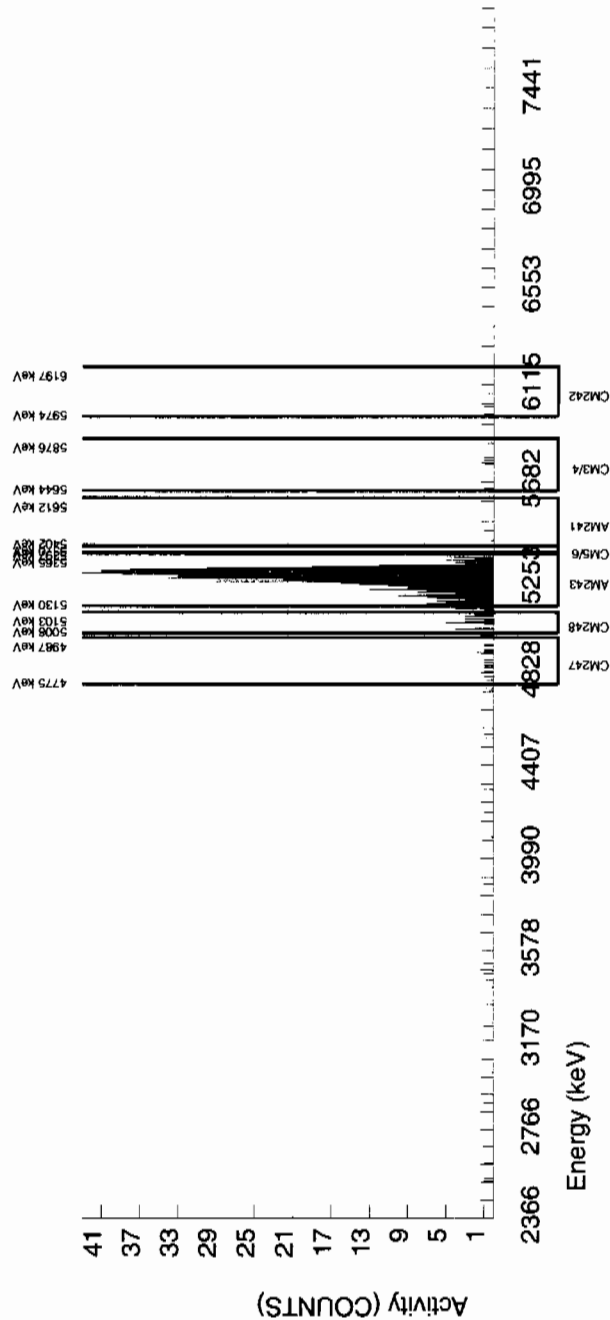


# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953491 SAMPLE ID : S1202052624_AM SAMPLE QTY : 1.263 G SAMPLE DATE : 3-FEB-2010 00:00:00. ANALYST : MXE1 % YIELD : 66.813				CHAMBER : 111 DETECTOR S/N : 79462 AVERAGE %EFFICIENCY : 33.1216 COUNT DATE : 27-FEB-2010 19:46:40 ELAPSED LIVE TIME(SEC) : 59999.99				LIB FILE : ENV_ALPHA_AM BKG FILE : B111.CNF:682 BKG DATE : 21-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W111.CNF:209 CAL DATE : 9-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 1.9486E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+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	5437.256	0.000	2.000	-1.121	2.000	2.8409	99.94000	-1.81E-03	2.80E-03	1.07E-02	2.57E-02	2.79E-03
AM243	5270.000	5262.540	61.852	646.000	644.000	2.000	1.4142	99.78000	1.04E+00	7.75E-02	5.31E-03	1.50E-02	4.11E-02
CM-242	6102.000	6031.903	89.446	3.000	3.000	0.000	4.3413	100.00000	5.38E-03	3.13E-03	1.63E-02	3.69E-02	3.11E-03
CM-3/4	5795.020	5732.591	133.548	5.000	4.000	1.000	5.1799	100.00000	6.46E-03	3.98E-03	1.94E-02	4.32E-02	3.96E-03
CM-5/6	5386.000	5372.967	0.000	2.000	2.000	0.000	14.2480	86.09000	3.74E-03	2.66E-03	6.21E-02	1.29E-01	2.65E-03
CM-247	4946.000	4891.876	7.299	15.000	14.000	1.000	13.7917	79.30000	2.85E-02	8.33E-03	6.52E-02	1.36E-01	8.13E-03
CM-248	5078.600	5065.621	0.000	35.000	34.000	1.000	19.5080	91.00000	6.02E-02	1.13E-02	8.04E-02	1.66E-01	1.06E-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 : 953491  
SAMPLE ID : S1202052625\_AM  
SAMPLE QTY : 0.137 G  
SAMPLE DATE : 24-FEB-2010 00:00:00  
ANALYST : MXE1  
% YIELD : 89.106

CHAMBER : 112  
DETECTOR S/N : 78261  
AVERAGE %EFFICIENCY : 31.8150  
COUNT DATE : 27-FEB-2010 19:46:40  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV\_ALPHA\_AM  
BKG FILE : B112.CNF:690  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W112.CNF:221  
CAL DATE : 15-FEB-2010

TRACER  
ID : 445-96-2-SS  
NUCLIDE : AM243  
NOMINAL : 2.9165E+00 dpm  
RESULTS : 2.5988E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3152E+01 pCi/G

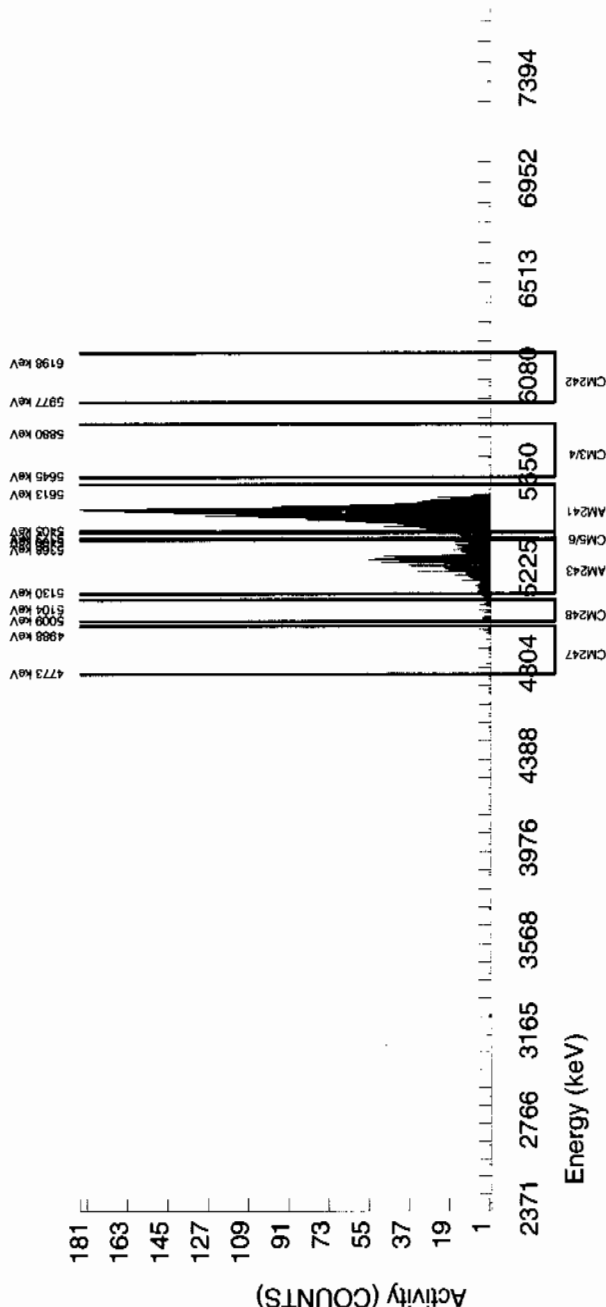
LCS/LCSD  
ID : 0244-B  
NUCLIDE : AM-241  
NOMINAL : 3.3152E+01 pCi/G

## 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	5488.363	46.347	2258.000	2255.564	1.000	2.8409	99.94000	2.62E+01	1.78E+00	7.67E-02	1.85E-01	5.51E-01
AM243	5270.000	5270.994	64.534	828.000	825.000	3.000	1.7321	99.78000	9.59E+00	7.06E-01	4.68E-02	1.25E-01	3.35E-01
CM-242	6102.000	6036.440	83.363	5.000	5.000	0.000	4.3413	100.0000	5.90E-02	2.67E-02	1.17E-01	2.66E-01	2.64E-02
CM-3/4	5795.020	5719.586	34.326	2.000	2.000	0.000	5.1798	100.0000	2.32E-02	1.65E-02	1.40E-01	3.11E-01	1.64E-02
CM-5/6	5386.000	5386.774	0.000	97.000	97.000	0.000	14.2480	86.09000	1.31E+00	1.57E-01	4.47E-01	9.30E-01	1.33E-01
CM-247	4946.000	4903.743	142.208	25.000	24.000	1.000	13.7917	79.30000	3.51E-01	7.80E-02	4.69E-01	9.78E-01	7.46E-02
CM-248	5078.600	5061.133	0.000	39.000	39.000	0.000	19.5080	91.00000	4.97E-01	8.59E-02	5.78E-01	1.19E+00	7.96E-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# 953494 Product: PU Date: 3/3/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)	/		
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)	/		CASE narrative
Sample was run within hold time.	/		
Sample was correctly preserved if required.	/		
Smears Taken for Radioactive batches.	/		
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.	/		0234/10
Batch Data Exception Reports (DER) completed, if applicable.	/		NA DER# 799122
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.	/		NA DER# 799122
Aliquot Correction completed if required.	/		NA
Review sample historical results if available (if REMP, results above MDC have been verified by historical results, recount or re-analysis.)	/		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: Paul On 3/3/10

Secondary Review Performed By: J. L. M. - 3/4/10

2  
3/22  
0234/10  
(35)  
CAM

# Plutonium Que Sheet

15-FEB-10

Batch #: 933494 Analyst: MXE1 First Client Due Date: 05-MAR-10 Internal Due Date: 22-FEB-10  
 Tracer Isotope(s): Pu-238 Tracer Code: 1730-B Expiration Date: 1/27/11 Vol: 0.1  
 LCS Isotope(s): Pu-239/Pu-238 LCS Code: 1730-B Expiration Date: 1/27/11 Vol: 0.1  
 Spike Isotope(s): Pu-239/Pu-238 Spike Code: 1730-B Expiration Date: 1/27/11 Vol: 0.1  
 Prep Date: 2/24/10 Initials: ME Pipet ID: 2971058 Balance ID: 5040272 Witness: MBa/29/110

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g) (1/10)	Pu #	Det #
246325001-1	RE46-10-11906	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	1	1	1.254	65	
246440001-1	RE15-10-8354	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	2	2	1.259	28	66
246440002-1	RE15-10-8356	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	3	3	1.269	24	67
246440003-1	RE15-10-8353	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	4	4	1.257	63	
246440004-1	RE15-10-8352	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	5	5	1.260	69	68
246440005-1	RE15-10-8355	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	6	6	1.264	27	26
246440006-1	RE15-10-8351	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	7	7	1.263	77	
246440007-1	RE15-10-8350	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	8	8	1.273	79	78
246440008-1	RE15-10-8357	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	9	9	1.272	28	86
246440009-1	RE15-10-8338	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	10	10	1.255	81	
246440010-1	RE15-10-8336	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	11	11	1.262	82	
246440011-1	RE15-10-8339	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	12	12	1.267	27	83
246440012-1	RE15-10-8337	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	13	13	1.275	37	84
246440013-1	RE15-10-8375	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	14	14	1.270	31	85
246440014-1	RE15-10-8374	SAMPLE	.05 pCi/g		SOIL	LANL010	02-FEB-10	15	15	1.260	86	
24644001-1	RE15-10-8361	SAMPLE	.05 pCi/g		SOIL	LANL010	03-FEB-10	16	16	1.254	33	87
24644002-1	RE15-10-8362	SAMPLE	.05 pCi/g		SOIL	LANL010	03-FEB-10	17	17	1.252	88	
24644003-1	RE15-10-8359	SAMPLE	.05 pCi/g		SOIL	LANL010	03-FEB-10	18	18	1.273	89	
24644004-1	RE15-10-8358	SAMPLE	.05 pCi/g		SOIL	LANL010	03-FEB-10	19	19	1.257	35	90
24644005-1	RE15-10-8360	SAMPLE	.05 pCi/g		SOIL	LANL010	03-FEB-10	20	20	1.274	91	
1202044064-1	MB for batch 953494	MB	.05 pCi/g		SOIL	QC ACCOUNT		21	21	1.00	92	
1202044065-1	RE15-10-8361(24644001DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT		22	22	1.263	36	93
1202044066-1	LCS for batch 953494	LCS	.05 pCi/g		SOIL	QC ACCOUNT		23	23	0.137	94	

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  
 \* 9 RM 0244-B exp 4/30/10  
 Data Reviewed By: MBa/29/110  
 Date Reviewed By: 2/23/10

# Blank Correction Report

**Batch ID 953494**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202044065	DUP	Plutonium-238	1.26 g	0.0274	0.00987	0.0379	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00388	0.00507	0.0288	.007920635	pCi/g	YES
1202044066	LCS	Plutonium-238	0.137 g	7.37	0.493	0.195	.182481752	pCi/g	NO
		Plutonium-239/240	0.137 g	38.7	2.17	0.147	.072846715	pCi/g	NO
1202044064	MB	Plutonium-238	1.00 g	0.025	0.00656	0.0272	.025	pCi/g	YES
		Plutonium-239/240	1.00 g	0.00988	0.00528	0.0205	.00998	pCi/g	YES
246325001	RE46-10-11906	Plutonium-238	1.25 g	0.0161	0.00831	0.0219	.02	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00134	0.00403	0.0165	.007984	pCi/g	YES
246440001	RE15-10-8354	Plutonium-238	1.26 g	0.00948	0.00971	0.0351	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0169	0.00645	0.0266	.007920635	pCi/g	YES
246440002	RE15-10-8356	Plutonium-238	1.27 g	0.00231	0.0056	0.0346	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.0262	0.00802	0.0263	.007858268	pCi/g	YES
246440003	RE15-10-8353	Plutonium-238	1.26 g	0.0113	0.00539	0.0264	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00808	0.00537	0.0199	.007920635	pCi/g	YES
246440004	RE15-10-8352	Plutonium-238	1.26 g	0.019	0.00512	0.0194	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00476	0.00337	0.0146	.007920635	pCi/g	YES
246440005	RE15-10-8355	Plutonium-238	1.26 g	0.0161	0.00674	0.0361	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.021	0.00821	0.0273	.007920635	pCi/g	YES
246440006	RE15-10-8351	Plutonium-238	1.26 g	0.00516	0.00632	0.0211	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00645	0.00342	0.0159	.007920635	pCi/g	YES
246440007	RE15-10-8350	Plutonium-238	1.27 g	0.013	0.00415	0.0212	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.013	0.00454	0.016	.007858268	pCi/g	YES
246440008	RE15-10-8357	Plutonium-238	1.27 g	0.0152	0.00628	0.0369	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.0114	0.00585	0.028	.007858268	pCi/g	YES
246440009	RE15-10-8338	Plutonium-238	1.26 g	0.0178	0.00536	0.0224	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00821	0.00337	0.0168	.007920635	pCi/g	YES
246440010	RE15-10-8336	Plutonium-238	1.26 g	0.0131	0.00419	0.0214	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	-0.00262	0.00262	0.0161	.007920635	pCi/g	YES
246440011	RE15-10-8339	Plutonium-238	1.27 g	0.00976	0.00783	0.0358	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.00239	0.0058	0.0272	.007858268	pCi/g	YES
246440012	RE15-10-8337	Plutonium-238	1.28 g	0.0304	0.0112	0.0355	.01953125	pCi/g	YES
		Plutonium-239/240	1.28 g	0.00241	0.00387	0.0269	.007796875	pCi/g	YES
246440013	RE15-10-8375	Plutonium-238	1.27 g	0.0339	0.00923	0.0352	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.00961	0.00709	0.0267	.007858268	pCi/g	YES
246440014	RE15-10-8374	Plutonium-238	1.26 g	0.0186	0.00569	0.0217	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00795	0.00421	0.0163	.007920635	pCi/g	YES
246444001	RE15-10-8381	Plutonium-238	1.25 g	0.0186	0.00782	0.0387	.02	pCi/g	YES
		Plutonium-239/240	1.25 g	0.0252	0.00861	0.0293	.007984	pCi/g	YES
246444002	RE15-10-8382	Plutonium-238	1.25 g	0.0184	0.00793	0.0231	.02	pCi/g	YES

3/4/16

## Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Allquot	Result	TPU	MDA	Allquot Corrected Blank Result	Units	Activity <5X Corrected Blank
246444002	RE15-10-8362	Plutonium-239/240	1.25 g	0.0113	0.00532	0.0174	.007984	pCi/g	YES
246444003	RE15-10-8359	Plutonium-238	1.27 g	0.0158	0.00523	0.0235	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.0115	0.00612	0.0177	.007858268	pCi/g	YES
246444004	RE15-10-8358	Plutonium-238	1.26 g	0.0172	0.00721	0.0386	.019841270	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00641	0.0104	0.0293	.007920635	pCi/g	YES
246444005	RE15-10-8360	Plutonium-238	1.27 g	0.0142	0.00415	0.0193	.019685039	pCi/g	YES
		Plutonium-239/240	1.27 g	0.00828	0.00315	0.0145	.007858268	pCi/g	YES

### DATA EXCEPTION REPORT

<b>Mo.Day Yr.</b> 04-MAR-10	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> ALPHA SPECTROMETER	<b>Test / Method:</b> DOE EML HASL-300, Pu-11-RC <del>Modified</del>	<b>Matrix Type:</b> Solid	<b>Client Code:</b> LANL
<b>Batch ID:</b> 953494	<b>Sample Numbers:</b> See below		

Potentially affected work order(s)(SDG): 246325(10-1603),246440(10-1622),246444(10-1625)

**Application Issues:**

Peak Centroid Values Off

**Specification and Requirements  
Exception Description:**

1. The Pu-236 tracer peak centroid value for sample 246440011 is greater than 50 keV from the expected energy of 5749 keV.

**DER Disposition:**

1. The Pu-236 tracer peak is within the region of interest, the tracer yield recovery meets the client requirements, and there is no activity present in the sample. Reporting results.

**Originator's Name:**

Jessica Downey 04-MAR-10

**Data Validator/Group Leader:**

Joseph Moulden 04-MAR-10

# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953494  
SAMPLE ID : S024644001\_PU  
SAMPLE QTY : 1.254 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 84.213

CHAMBER : 033  
DETECTOR S/N : 78785  
AVERAGE %EFFICIENCY : 31.8048  
COUNT DATE : 1-MAR-2010 18:20:58  
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B033.CNF:1113  
BKG DATE : 28-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W033.CNF:330  
CAL DATE : 3-FEB-2010

TRACER  
ID : 1430-B  
NUCLIDE : PU-236  
NOMINAL : 6.6385E+00 dpm  
RESULTS : 5.5905E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

LCS/LCSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

## NUCLIDE ACTIVITY SUMMARY

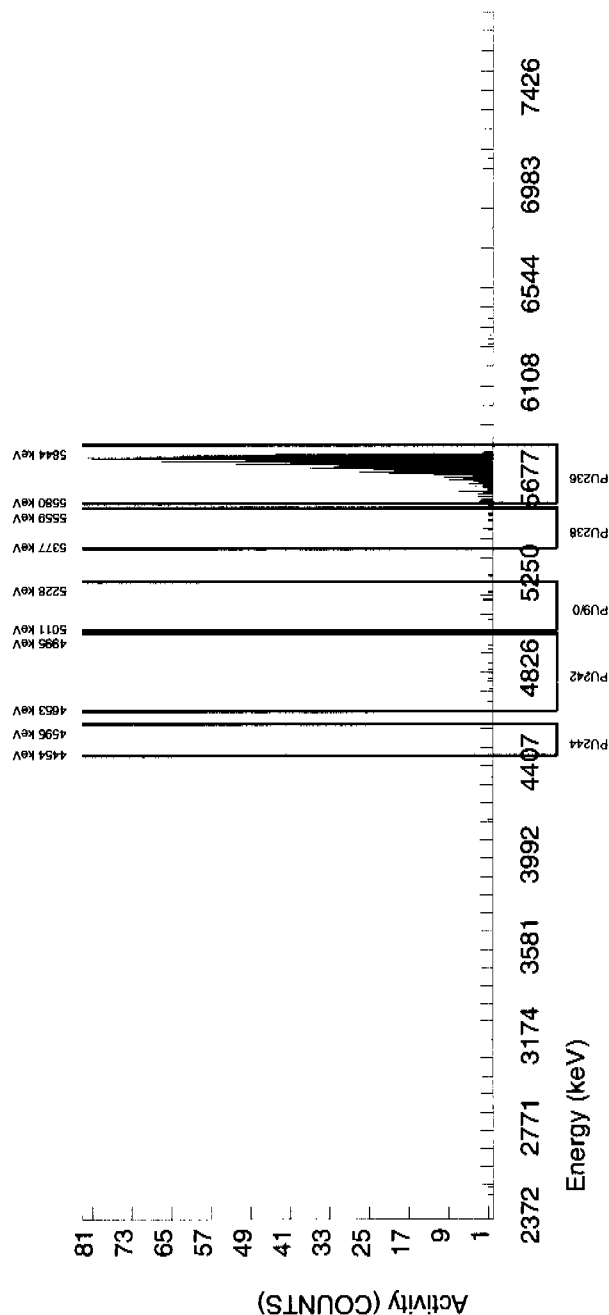
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5762.972	42.433	883.000	881.990	1.010	1.0050	100.0000	2.38E+00	1.47E-01	5.39E-03	1.80E-02	8.04E-02
PU-238	5499.000	5494.869	7.288	8.000	6.990	1.010	2.9312	99.900000	1.86E-02	7.82E-03	1.57E-02	3.87E-02	7.76E-03
PU-9/0	5155.000	5148.817	24.189	10.000	9.495	0.505	2.0604	99.900000	2.52E-02	8.61E-03	1.11E-02	2.93E-02	8.51E-03
PU242	4890.000	4829.406	238.172	9.000	8.495	0.505	*****	100.0000	2.26E-02	8.16E-03	6.88E-01	1.38E+00	8.08E-03
PU-244	4589.000	4524.787	0.000	0.000	-1.515	1.515	3.7241	99.900000	-4.03E-03	3.53E-03	2.00E-02	4.72E-02	3.53E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953494  
SAMPLE ID : S024644d02\_PU  
SAMPLE QTY : 1.252 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 83.842

CHAMBER : 088  
DETECTOR S/N : 33452  
AVERAGE %EFFICIENCY : 30.3479  
COUNT DATE : 27-FEB-2010 20:33:01  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B088.CNF;1021  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W088.CNF;286  
CAL DATE : 9-FEB-2010

TRACER  
ID : 1430-B  
NUCLIDE : PU-236  
NOMINAL : 6.6382E+00 dpm  
RESULTS : 5.5656E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

LCS/LCSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

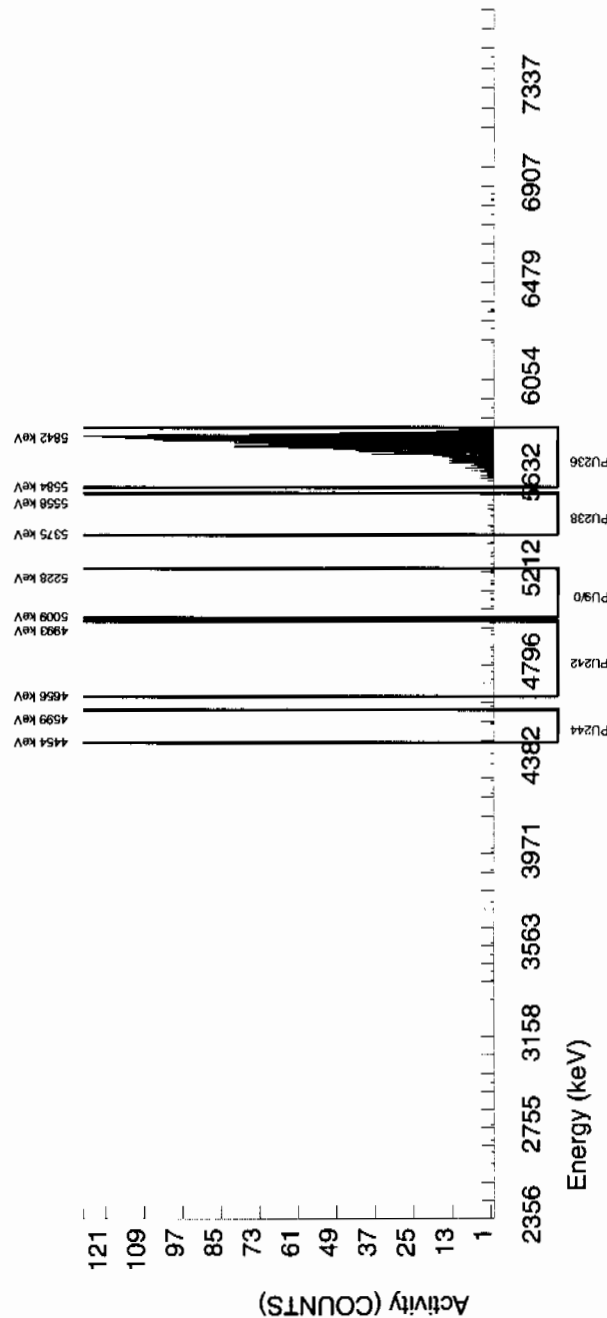
## NUCLIDE ACTIVITY SUMMARY

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
PU-236	5749.000	5778.295	61.657	1664.000	1661.000	3.000	1.7321	100.0000	2.39E+00	1.25E-01	5.70E-03	1.52E-02	5.87E-02
PU-238	5499.000	5473.501	5.466	22.000	13.000	9.000	2.9312	99.900000	1.84E-02	7.93E-03	9.65E-03	2.31E-02	7.89E-03
PU-9/0	5155.000	5131.312	4.979	11.000	8.000	3.000	2.0604	99.900000	1.13E-02	5.32E-03	6.78E-03	1.74E-02	5.30E-03
PU242	4890.000	4837.041	0.000	12.000	11.000	1.000	*****	100.0000	1.56E-02	5.15E-03	4.22E-01	8.48E-01	5.10E-03
PU-244	4589.000	4561.159	54.144	3.000	2.000	1.000	3.7241	99.900000	2.83E-03	2.83E-03	1.23E-02	2.84E-02	2.83E-03

## NOTES:

\* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<b>BATCH NUMBER :</b> 953494 <b>SAMPLE ID :</b> S024644003_PU <b>SAMPLE QTY :</b> 1.273 G <b>SAMPLE DATE :</b> 3-FEB-2010 00:00:00. <b>ANALYST :</b> MXE1 <b>% YIELD :</b> 83.612		<b>CHAMBER :</b> 089 <b>DETECTOR S/N :</b> 78262 <b>AVERAGE %EFFICIENCY :</b> 29.4965 <b>COUNT DATE :</b> 27-FEB-2010 19:46:14 <b>ELAPSED LIVE TIME(SEC) :</b> 59999.99		<b>LIB FILE :</b> ENV_ALPHA_PU <b>BKG FILE :</b> B089.CNF:720 <b>BKG DATE :</b> 21-FEB-2010 <b>BKG LIVE TIME(SEC) :</b> 59999.99 <b>EFF FILE :</b> W089.CNF:195 <b>CAL DATE :</b> 9-FEB-2010	
<b>TRACER</b> <b>ID :</b> 1430-B <b>NUCLIDE :</b> PU-236 <b>NOMINAL :</b> 6.6382E+00 dpm <b>RESULTS :</b> 5.5503E+00 dpm		<b>MS/MSD</b> <b>ID :</b> 0244-B <b>NUCLIDE :</b> PU-9/0 <b>NOMINAL :</b> 4.1778E+01 pCi/G		<b>LCS/LCSD</b> <b>ID :</b> 0244-B <b>NUCLIDE :</b> PU-9/0 <b>NOMINAL :</b> 4.1778E+01 pCi/G	

## NUCLIDE ACTIVITY SUMMARY

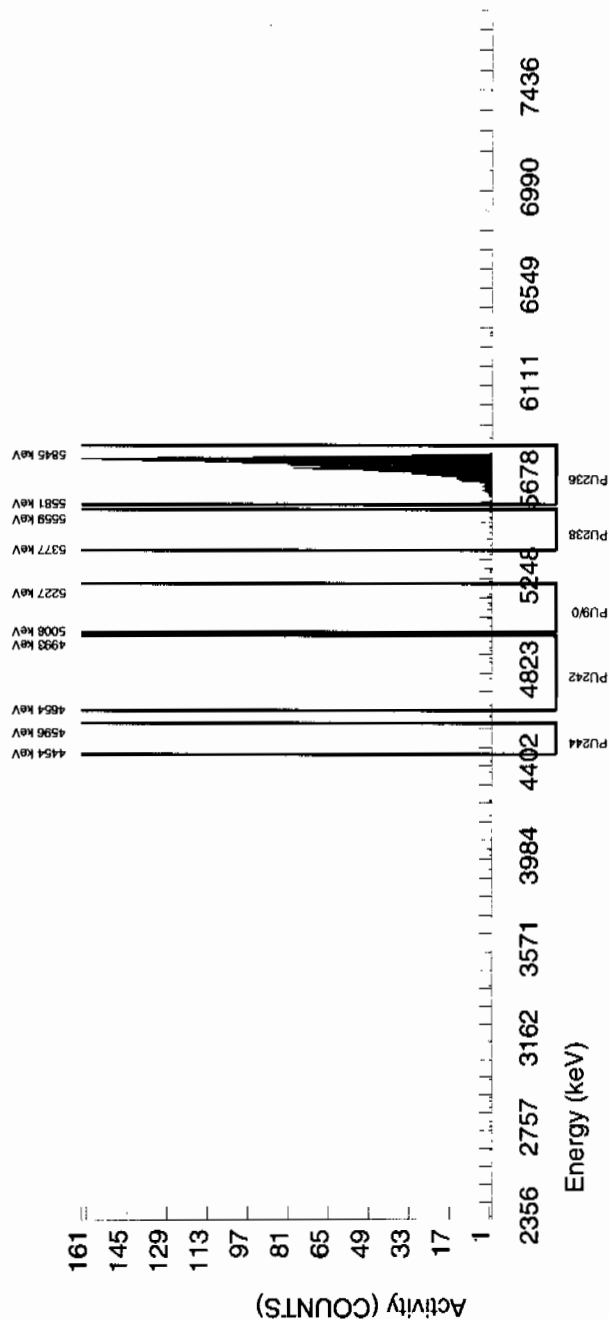
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5765.357	35.564	1614.000	1610.000	4.000	2.0000	100.0000	2.35E+00	1.24E-01	6.68E-03	1.72E-02	5.87E-02
PU-238	5499.000	5492.864	4.988	12.000	11.000	1.000	2.9312	99.900000	1.58E-02	5.23E-03	9.79E-03	2.35E-02	5.18E-03
PU-9/0	5155.000	5123.488	94.671	13.000	8.000	5.000	2.0604	99.900000	1.15E-02	6.12E-03	6.88E-03	1.77E-02	6.09E-03
PU242	4890.000	4873.843	274.350	8.000	5.000	3.000	*****	100.0000	7.17E-03	4.77E-03	4.28E-01	8.61E-01	4.76E-03
PU-244	4589.000	4532.787	4.988	1.000	0.000	1.000	3.7241	99.900000	0.00E+00	2.03E-03	1.24E-02	2.88E-02	2.03E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953494  
SAMPLE ID : S024644004\_PU  
SAMPLE QTY : 1.257 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 89.156

CHAMBER : 035  
DETECTOR S/N : 78202  
AVERAGE %EFFICIENCY : 30.0240  
COUNT DATE : 1-MAR-2010 18:20:58  
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B035.CNF:1111  
BKG DATE : 28-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W035.CNF:319  
CAL DATE : 3-FEB-2010

TRACER  
ID : 1430-B  
NUCLIDE : PU-236  
NOMINAL : 6.6385E+00 dpm  
RESULTS : 5.9187E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

LCS/LCSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

## NUCLIDE ACTIVITY SUMMARY

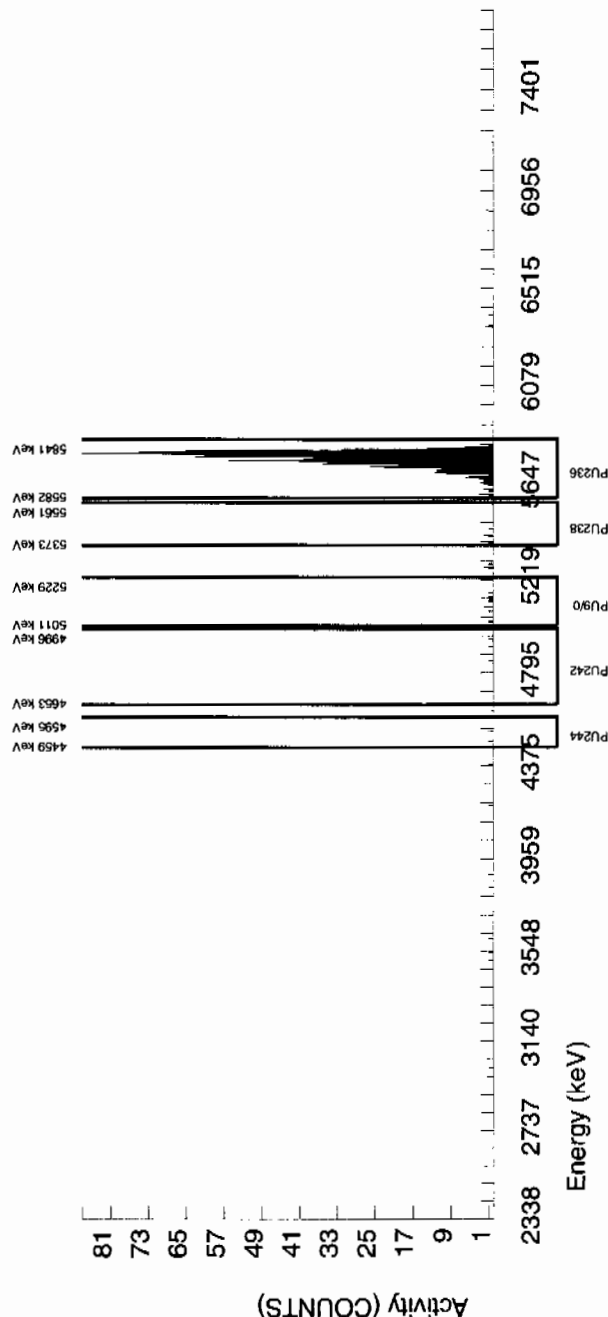
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5761.820	47.031	883.000	881.485	1.515	1.2309	100.0000	2.38E+00	1.47E-01	6.58E-03	2.04E-02	8.02E-02
PU-238	5499.000	5434.446	7.287	7.000	6.495	0.505	2.9312	99.900000	1.72E-02	7.21E-03	1.57E-02	3.86E-02	7.15E-03
PU-9/0	5155.000	5096.798	4.961	11.000	2.415	8.585	2.0604	99.900000	6.41E-03	1.04E-02	1.10E-02	2.93E-02	1.04E-02
PU242	4890.000	4903.450	109.148	5.000	1.465	3.535	*****	100.0000	3.88E-03	6.91E-03	6.87E-01	1.38E+00	6.91E-03
PU-244	4589.000	4527.896	4.961	4.000	3.495	0.505	3.7241	99.900000	9.27E-03	5.49E-03	1.99E-02	4.71E-02	5.47E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953494  
SAMPLE ID : S024644005\_PU  
SAMPLE QTY : 1.274 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 86.759

CHAMBER : 091  
DETECTOR S/N : 78259  
AVERAGE %EFFICIENCY : 34.5001  
COUNT DATE : 27-FEB-2010 19:46:14  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B091.CNF:726  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W091.CNF:192  
CAL DATE : 9-FEB-2010

TRACER  
ID : 1430-B  
NUCLIDE : PU-236  
NOMINAL : 6.6382E+00 dpm  
RESULTS : 5.7592E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

LCS/LCSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

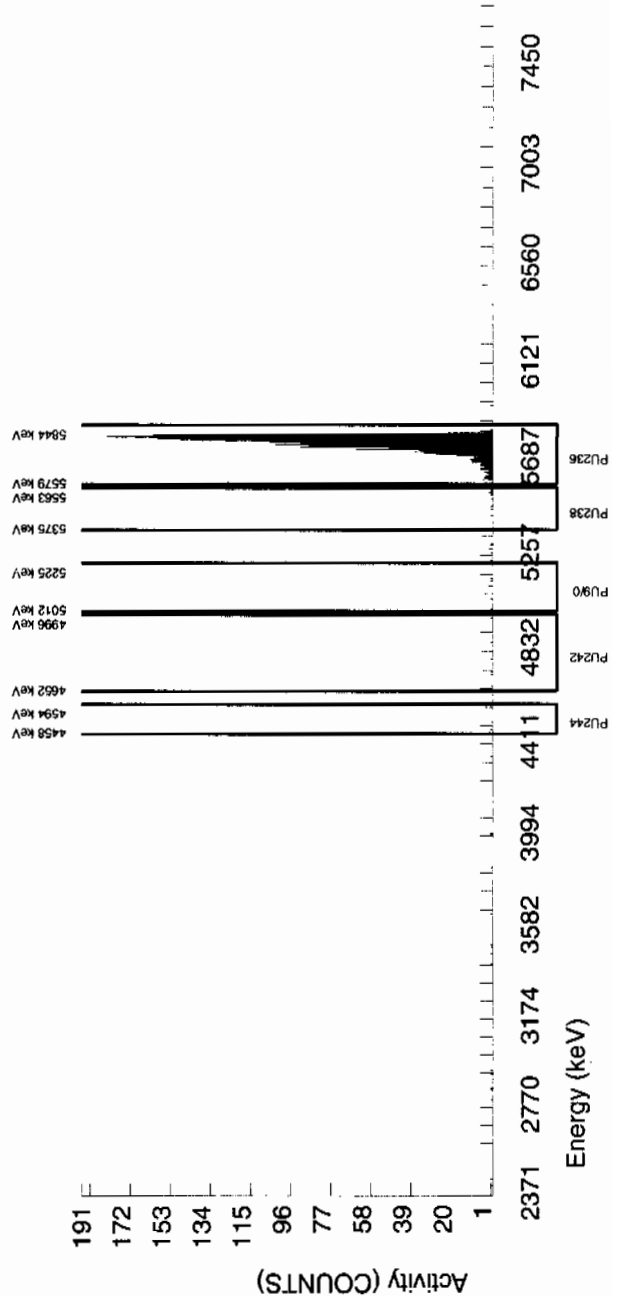
## NUCLIDE ACTIVITY SUMMARY

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
PU-236	5749.000	5770.999	44.524	1954.000	1954.000	0.000	0.0000	100.0000	2.35E+00	1.23E-01	0.00E+00	3.20E-03	5.31E-02
PU-238	5499.000	5510.271	9.925	12.000	12.000	0.000	2.9312	99.900000	1.42E-02	4.15E-03	8.06E-03	1.93E-02	4.10E-03
PU-9/0	5155.000	5120.880	4.963	7.000	7.000	0.000	2.0604	99.900000	8.28E-03	3.15E-03	5.67E-03	1.45E-02	3.13E-03
PU242	4890.000	4805.423	0.000	9.000	7.000	2.000	*****	100.0000	8.27E-03	3.94E-03	3.53E-01	7.09E-01	3.92E-03
PU-244	4589.000	4499.875	34.739	2.000	1.000	1.000	3.7241	99.900000	1.18E-03	2.05E-03	1.02E-02	2.37E-02	2.05E-03

## NOTES:

\* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

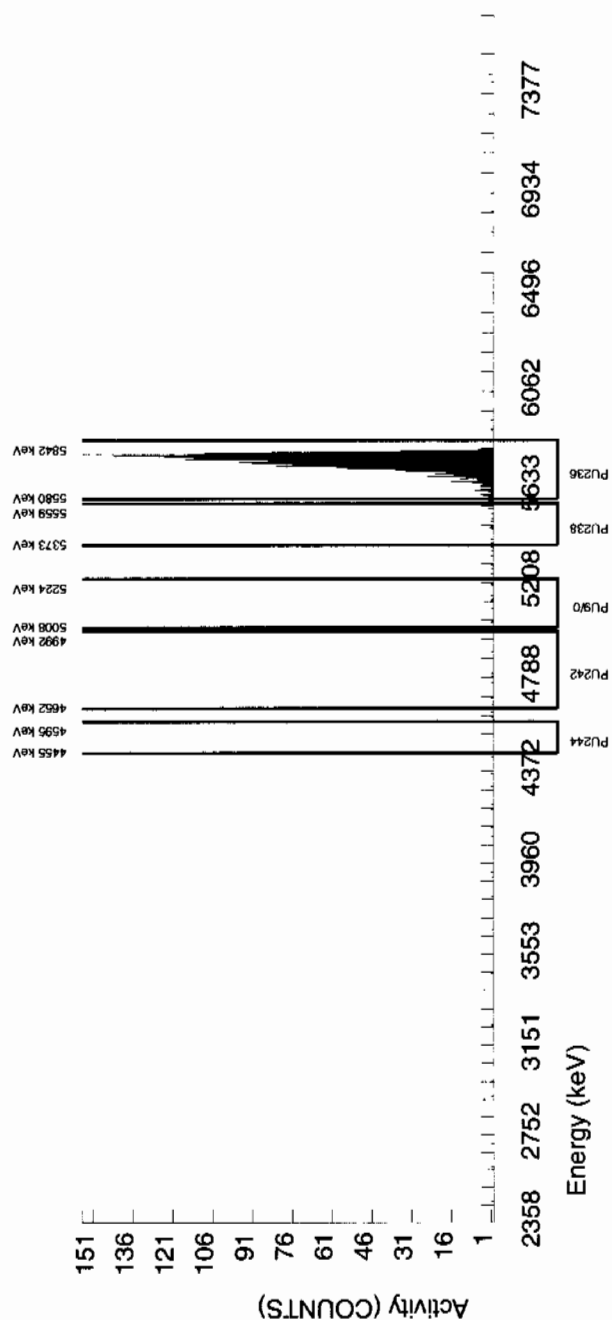
<p>BATCH NUMBER : 953494  SAMPLE ID : S1202044064_PU  SAMPLE QTY : 1.000 G  SAMPLE DATE : 24-FEB-2010 00:00:00  ANALYST : MXE1  % YIELD : 85.886</p>		<p>CHAMBER : 092  DETECTOR S/N : 79457  AVERAGE %EFFICIENCY : 31.5514  COUNT DATE : 27-FEB-2010 19:46:14  ELAPSED LIVE TIME(SEC) : 59999.99</p>		<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B092.CNF:729  BKG DATE : 21-FEB-2010  BKG LIVE TIME(SEC) : 59999.99  EFF FILE : W092.CNF:235  CAL DATE : 9-FEB-2010</p>	
<p>TRACER  ID : 1430-B  NUCLIDE : PU-236  NOMINAL : 6.5462E+00 dpm  RESULTS : 5.6223E+00 dpm</p>		<p>MS/MSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>		<p>LCS/LCSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>	

## 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
PU-236	5749.000	5750.160	59.959	1769.000	1769.000	0.000	0.0000	100.0000	2.95E+00	1.58E-01	0.00E+00	4.50E-03	7.01E-02
PU-238	5499.000	5489.734	0.000	15.000	15.000	0.000	2.9312	99.900000	2.50E-02	6.56E-03	1.13E-02	2.72E-02	6.45E-03
PU-9/0	5155.000	5126.633	165.823	8.000	6.000	2.000	2.0604	99.900000	9.98E-03	5.28E-03	7.98E-03	2.05E-02	5.26E-03
PU242	4890.000	4771.699	225.177	8.000	3.000	5.000	*****	100.0000	4.99E-03	6.00E-03	4.96E-01	9.97E-01	5.99E-03
PU-244	4589.000	4460.078	4.895	1.000	1.000	0.000	3.7241	99.900000	1.66E-03	1.67E-03	1.44E-02	3.33E-02	1.66E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 953494  SAMPLE ID : S1202044065_PU  SAMPLE QTY : 1.263 G  SAMPLE DATE : 3-FEB-2010 00:00:00.  ANALYST : MXE1  % YIELD : 84.008</p>		<p>CHAMBER : 036  DETECTOR S/N : 78203  AVERAGE %EFFICIENCY : 32.2436  COUNT DATE : 1-MAR-2010 18:20:58  ELAPSED LIVE TIME(SEC) : 30300.00</p>		<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B036.CNF;1109  BKG DATE : 28-FEB-2010  BKG LIVE TIME(SEC) : 59999.99  EFF FILE : W036.CNF;331  CAL DATE : 3-FEB-2010</p>	
<p>TRACER  ID : 1430-B  NUCLIDE : PU-236  NOMINAL : 6.6385E+00 dpm  RESULTS : 5.5769E+00 dpm</p>		<p>MS/MSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>		<p>LCS/LCSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>	

## NUCLIDE ACTIVITY SUMMARY

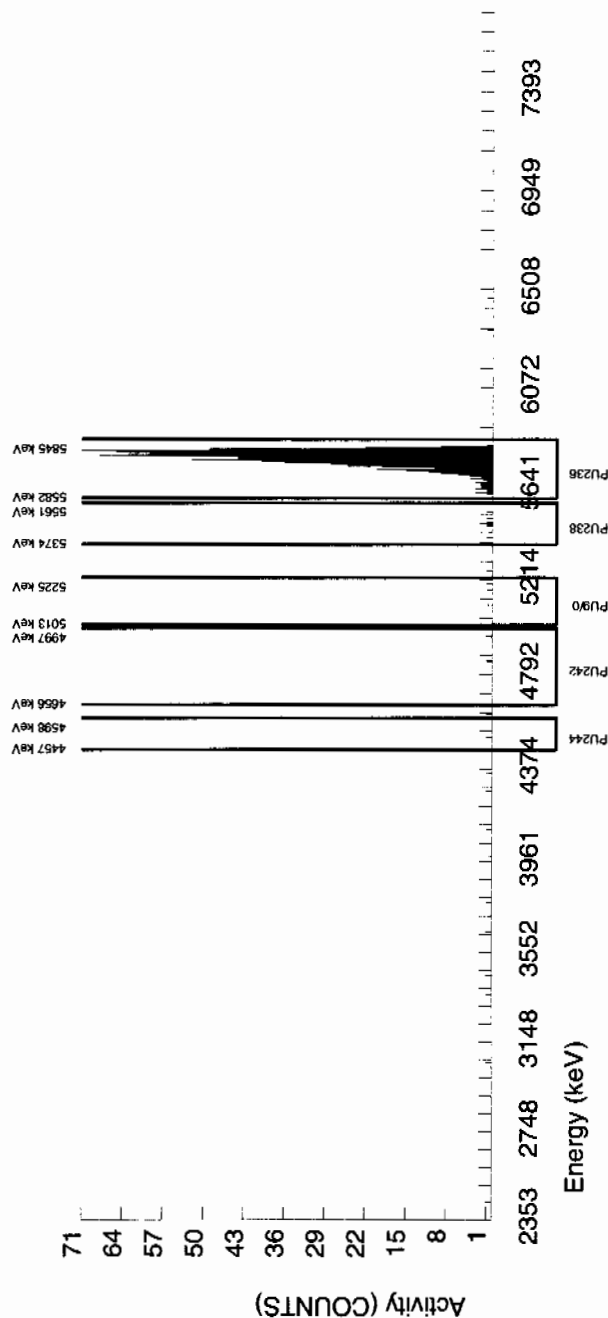
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5765.271	56.292	893.000	891.990	1.010	1.0050	100.0000	2.37E+00	1.46E-01	5.29E-03	1.76E-02	7.93E-02
PU-238	5499.000	5474.278	73.675	13.000	10.475	2.525	2.9312	99.900000	2.74E-02	9.97E-03	1.54E-02	3.79E-02	9.87E-03
PU-9/0	5155.000	5162.946	93.322	3.000	1.485	1.515	2.0604	99.900000	3.88E-03	5.07E-03	1.09E-02	2.88E-02	5.06E-03
PU242	4890.000	4895.749	112.354	4.000	4.000	0.000	*****	100.0000	1.04E-02	5.24E-03	6.75E-01	1.36E+00	5.21E-03
PU-244	4589.000	4519.836	4.912	1.000	1.000	0.000	3.7241	99.900000	2.61E-03	2.61E-03	1.96E-02	4.63E-02	2.61E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU-236 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953494  
SAMPLE ID : S1202044066\_PU  
SAMPLE QTY : 0.137 G  
SAMPLE DATE : 24-FEB-2010 00:00:00  
ANALYST : MXE1  
% YIELD : 89.850

CHAMBER : 094  
DETECTOR S/N : 78267  
AVERAGE %EFFICIENCY : 30.6536  
COUNT DATE : 27-FEB-2010 19:46:14  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B094.CNF:718  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 59999.99  
EFF FILE : W094.CNF:193  
CAL DATE : 9-FEB-2010

TRACER  
ID : 1430-B  
NUCLIDE : PU-236  
NOMINAL : 6.5462E+00 dpm  
RESULTS : 5.8818E+00 dpm

MS/MSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

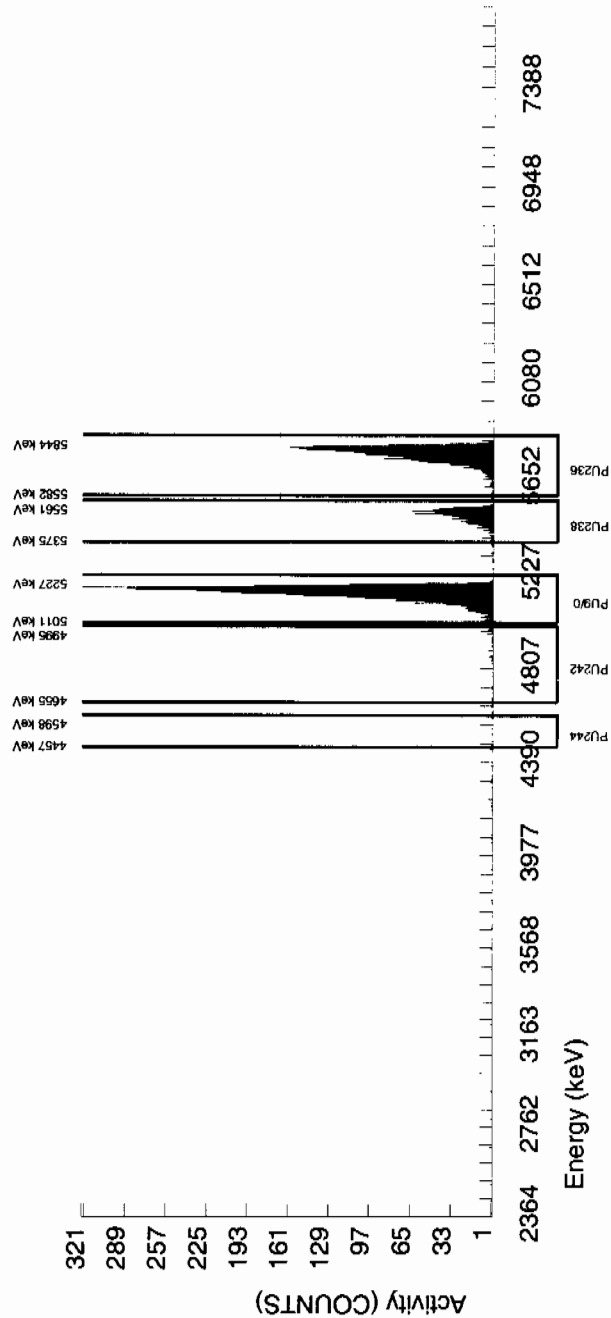
LCS/LCSD  
ID : 0244-B  
NUCLIDE : PU-9/0  
NOMINAL : 4.1778E+01 pCi/G

## 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
PU-236	5749.000	5766.997	55.996	1800.000	1798.000	2.000	1.4142	100.0000	2.15E+01	1.26E+00	3.93E-02	1.11E-01	5.08E-01
PU-238	5499.000	5496.954	44.933	617.000	617.000	0.000	2.9312	99.900000	7.37E+00	4.93E-01	8.15E-02	1.95E-01	2.97E-01
PU-9/0	5155.000	5152.252	41.790	3236.000	3235.000	1.000	2.0604	99.900000	3.87E+01	2.17E+00	5.73E-02	1.47E-01	6.80E-01
PU242	4890.000	4892.756	121.752	52.000	49.000	3.000	*****	100.0000	5.85E-01	9.39E-02	3.56E+00	7.16E+00	8.85E-02
PU-244	4589.000	4506.330	4.943	7.000	7.000	0.000	3.7241	99.900000	8.36E-02	3.19E-02	1.04E-01	2.39E-01	3.16E-02

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of PU-236 calculated as  $\sqrt{\text{BKG AREA}}$ .



## Radiochemistry Batch Checklist, Rev10

Batch#

953497

Product:

U

Date:

3/1/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Green 3/1/10

Secondary Review Performed By:

L. H. 3/2/10

# Uranium Que Sheet

01-MAR-10

\* Que sheet recycled 3/1/10

Batch #: 953497 Analyst: PRO-1 First Client Due Date: 05-MAR-10 Internal Due Date: 22-FEB-10  
 Tracer Isotope: U-232/U-236 Tracer Code: 1283-H Expiration Date: 12/9/10 Vol: 0.1  
 LCS Isotope: U-238 LCS Code: / Expiration Date: / Vol: /  
 Spike Isotope: U-238 Spike Code: / Expiration Date: / Vol: /  
 Prep Date: 2/24/10 Initials: ME Pipet ID: 2971058 Balance ID: 50410272  
 Witness: ARB 2/24/10

Sample ID	Client Description	Type	Hazard Code	Mln CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	U Det #
246325001-1	RE46-10-11906	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	1	1	0.514	118
246440001-1	RE15-10-8354	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	2	2	0.527	119
246440002-1	RE15-10-8356	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	3	3	0.501	120
246440003-1	RE15-10-8353	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	4	4	0.521	121
246440004-1	RE15-10-8352	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	5	5	0.550	122
246440005-1	RE15-10-8355	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	6	6	0.517	123
246440006-1	RE15-10-8351	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	7	7	0.517	124
246440007-1	RE15-10-8350	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	8	8	0.570	125
246440008-1	RE15-10-8357	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	9	9	0.508	126
246440009-1	RE15-10-8358	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	10	10	0.525	127
246440010-1	RE15-10-8356	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	11	11	0.504	128
246440011-1	RE15-10-8359	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	12	12	0.504	129
246440012-1	RE15-10-8357	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	13	13	0.504	130
246440013-1	RE15-10-8375	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	14	14	0.524	131
246440014-1	RE15-10-8374	SAMPLE		.1 pCi/g	SOIL	LANL010	02-FEB-10	15	15	0.550	132
24644001-1	RE15-10-8361	SAMPLE		.1 pCi/g	SOIL	LANL010	03-FEB-10	16	16	0.515	133
24644002-1	RE15-10-8362	SAMPLE		.1 pCi/g	SOIL	LANL010	03-FEB-10	17	17	0.513	138
24644003-1	RE15-10-8359	SAMPLE		.1 pCi/g	SOIL	LANL010	03-FEB-10	18	18	0.517	139
24644004-1	RE15-10-8358	SAMPLE		.1 pCi/g	SOIL	LANL010	03-FEB-10	19	19	0.523	140
24644005-1	RE15-10-8360	SAMPLE		.1 pCi/g	SOIL	LANL010	03-FEB-10	20	20	0.502	141
1202044075-1	MB for batch 953497	MB		.1 pCi/g	SOIL	QC ACCOUNT		21	21	1	142
1202044076-1	RE15-10-8354(246440001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT		22	22	0.501	143
1202044077-1	LCS for batch 953497	LCS		.1 pCi/g	SOIL	QC ACCOUNT		23	23	0.186	144

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

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION

Data Reviewed By: ARB 3/1/10

Circle One

# Blank Correction Report

**Batch ID 953497**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202044076	DUP	Uranium-233/234	0.561 g	1.06	0.0993	0.0921	.040463458	pCi/g	NO
		Uranium-235/236	0.561 g	0.126	0.0256	0.0587	.030303030	pCi/g	YES
		Uranium-238	0.561 g	3.34	0.266	0.0629	.049019608	pCi/g	NO
1202044077	LCS	Uranium-233/234	0.126 g	6.28	0.584	0.449	.180158730	pCi/g	NO
		Uranium-235/236	0.126 g	0.352	0.0919	0.286	.134920635	pCi/g	YES
		Uranium-238	0.126 g	5.42	0.517	0.306	.218253968	pCi/g	NO
1202044075	MB	Uranium-233/234	1.00 g	0.0227	0.00896	0.0694	.0227	pCi/g	YES
		Uranium-235/236	1.00 g	0.017	0.0077	0.0442	.017	pCi/g	YES
		Uranium-238	1.00 g	0.0275	0.00892	0.0474	.0275	pCi/g	YES
246325001	RE46-10-11906	Uranium-233/234	0.514 g	0.805	0.078	0.0891	.044163424	pCi/g	NO
		Uranium-235/236	0.514 g	0.0306	0.0118	0.0568	.033073930	pCi/g	YES
		Uranium-238	0.514 g	0.834	0.0801	0.0609	.053501946	pCi/g	NO
246440001	RE15-10-8354	Uranium-233/234	0.527 g	1.16	0.104	0.0885	.043074004	pCi/g	NO
		Uranium-235/236	0.527 g	0.0824	0.0198	0.0564	.032258065	pCi/g	YES
		Uranium-238	0.527 g	2.94	0.231	0.0604	.052182163	pCi/g	NO
246440002	RE15-10-8356	Uranium-233/234	0.501 g	1.54	0.135	0.102	.045309381	pCi/g	NO
		Uranium-235/236	0.501 g	0.120	0.0269	0.065	.033932136	pCi/g	YES
		Uranium-238	0.501 g	2.70	0.219	0.0696	.054890220	pCi/g	NO
246440003	RE15-10-8353	Uranium-233/234	0.521 g	2.33	0.191	0.0958	.043570058	pCi/g	NO
		Uranium-235/236	0.521 g	0.221	0.0358	0.0611	.032629559	pCi/g	NO
		Uranium-238	0.521 g	7.96	0.591	0.0654	.052783109	pCi/g	NO
246440004	RE15-10-8352	Uranium-233/234	0.550 g	0.938	0.0881	0.0893	.041272727	pCi/g	NO
		Uranium-235/236	0.550 g	0.0525	0.0168	0.0569	.030909091	pCi/g	YES
		Uranium-238	0.550 g	1.21	0.108	0.061	.05	pCi/g	NO
246440005	RE15-10-8355	Uranium-233/234	0.517 g	1.17	0.109	0.105	.043907157	pCi/g	NO
		Uranium-235/236	0.517 g	0.0566	0.0175	0.067	.032882012	pCi/g	YES
		Uranium-238	0.517 g	1.69	0.148	0.0718	.053191489	pCi/g	NO
246440006	RE15-10-8351	Uranium-233/234	0.517 g	1.10	0.103	0.100	.043907157	pCi/g	NO
		Uranium-235/236	0.517 g	0.0638	0.0195	0.0639	.032882012	pCi/g	YES
		Uranium-238	0.517 g	1.82	0.155	0.0684	.053191489	pCi/g	NO
246440007	RE15-10-8350	Uranium-233/234	0.570 g	0.904	0.0852	0.0874	.039824561	pCi/g	NO
		Uranium-235/236	0.570 g	0.0685	0.0178	0.0557	.029824561	pCi/g	YES
		Uranium-238	0.570 g	1.31	0.115	0.0597	.048245614	pCi/g	NO
246440008	RE15-10-8357	Uranium-233/234	0.508 g	1.26	0.112	0.0947	.044685039	pCi/g	NO
		Uranium-235/236	0.508 g	0.0464	0.015	0.0604	.033464567	pCi/g	YES
		Uranium-238	0.508 g	1.70	0.144	0.0647	.054133858	pCi/g	NO
246440009	RE15-10-8338	Uranium-233/234	0.525 g	1.06	0.0964	0.0874	.043238095	pCi/g	NO
		Uranium-235/236	0.525 g	0.0513	0.0153	0.0557	.032380952	pCi/g	YES
		Uranium-238	0.525 g	1.58	0.133	0.0596	.052380952	pCi/g	NO
246440010	RE15-10-8336	Uranium-233/234	0.504 g	0.944	0.0907	0.0997	.045039683	pCi/g	NO
		Uranium-235/236	0.504 g	0.0976	0.0229	0.0635	.033730159	pCi/g	YES

# Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
246440010	RE15-10-8336	Uranium-238	0.504 g	1.33	0.119	0.068	.054563492	pCi/g	NO
246440011	RE15-10-8339	Uranium-233/234	0.504 g	1.33	0.119	0.0994	.045039683	pCi/g	NO
		Uranium-235/236	0.504 g	0.0633	0.0181	0.0634	.033730159	pCi/g	YES
		Uranium-238	0.504 g	3.33	0.263	0.0678	.054563492	pCi/g	NO
246440012	RE15-10-8337	Uranium-233/234	0.504 g	0.995	0.0956	0.104	.045039683	pCi/g	NO
		Uranium-235/236	0.504 g	0.0816	0.0224	0.0664	.033730159	pCi/g	YES
		Uranium-238	0.504 g	1.60	0.140	0.0711	.054563492	pCi/g	NO
246440013	RE15-10-8375	Uranium-233/234	0.524 g	1.46	0.131	0.105	.043320611	pCi/g	NO
		Uranium-235/236	0.524 g	0.113	0.0255	0.0671	.032442748	pCi/g	YES
		Uranium-238	0.524 g	2.49	0.206	0.0719	.052480916	pCi/g	NO
246440014	RE15-10-8374	Uranium-233/234	0.556 g	0.989	0.0905	0.0849	.040827338	pCi/g	NO
		Uranium-235/236	0.556 g	0.0707	0.0179	0.0541	.030575540	pCi/g	YES
		Uranium-238	0.556 g	1.68	0.141	0.058	.049460432	pCi/g	NO
246444001	RE15-10-8361	Uranium-233/234	0.515 g	13.9	1.05	0.121	.044077670	pCi/g	NO
		Uranium-235/236	0.515 g	0.780	0.0892	0.0769	.033009709	pCi/g	NO
		Uranium-238	0.515 g	15.1	1.13	0.0823	.053398058	pCi/g	NO
246444002	RE15-10-8362	Uranium-233/234	0.513 g	0.945	0.0914	0.0998	.044249513	pCi/g	NO
		Uranium-235/236	0.513 g	0.0831	0.0221	0.0636	.033138402	pCi/g	YES
		Uranium-238	0.513 g	1.63	0.142	0.0681	.053606238	pCi/g	NO
246444003	RE15-10-8359	Uranium-233/234	0.517 g	1.04	0.101	0.104	.043907157	pCi/g	NO
		Uranium-235/236	0.517 g	0.0866	0.0219	0.0663	.032882012	pCi/g	YES
		Uranium-238	0.517 g	2.02	0.173	0.071	.053191489	pCi/g	NO
246444004	RE15-10-8358	Uranium-233/234	0.523 g	1.81	0.157	0.108	.043403442	pCi/g	NO
		Uranium-235/236	0.523 g	0.0847	0.022	0.0689	.032504780	pCi/g	YES
		Uranium-238	0.523 g	2.56	0.212	0.0738	.052581262	pCi/g	NO
246444005	RE15-10-8360	Uranium-233/234	0.502 g	1.27	0.116	0.0996	.045219124	pCi/g	NO
		Uranium-235/236	0.502 g	0.078	0.0203	0.0635	.033864542	pCi/g	YES
		Uranium-238	0.502 g	1.78	0.154	0.068	.054780876	pCi/g	NO

# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497  
SAMPLE ID : S0246440001\_UU  
SAMPLE QTY : 0.527 G  
SAMPLE DATE : 2-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 95.474

CHAMBER : 119  
DETECTOR S/N : 79450  
AVERAGE %EFFICIENCY : 25.5204  
COUNT DATE : 27-FEB-2010 20:03:42  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_UU  
BKG FILE : B119.CNF;463  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W119.CNF;121  
CAL DATE : 18-FEB-2010

TRACER  
ID : 1283-H  
NUCLIDE : U232  
NOMINAL : 4.5056E+00 dpm  
RESULTS : 4.3016E+00 dpm

MS/MSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

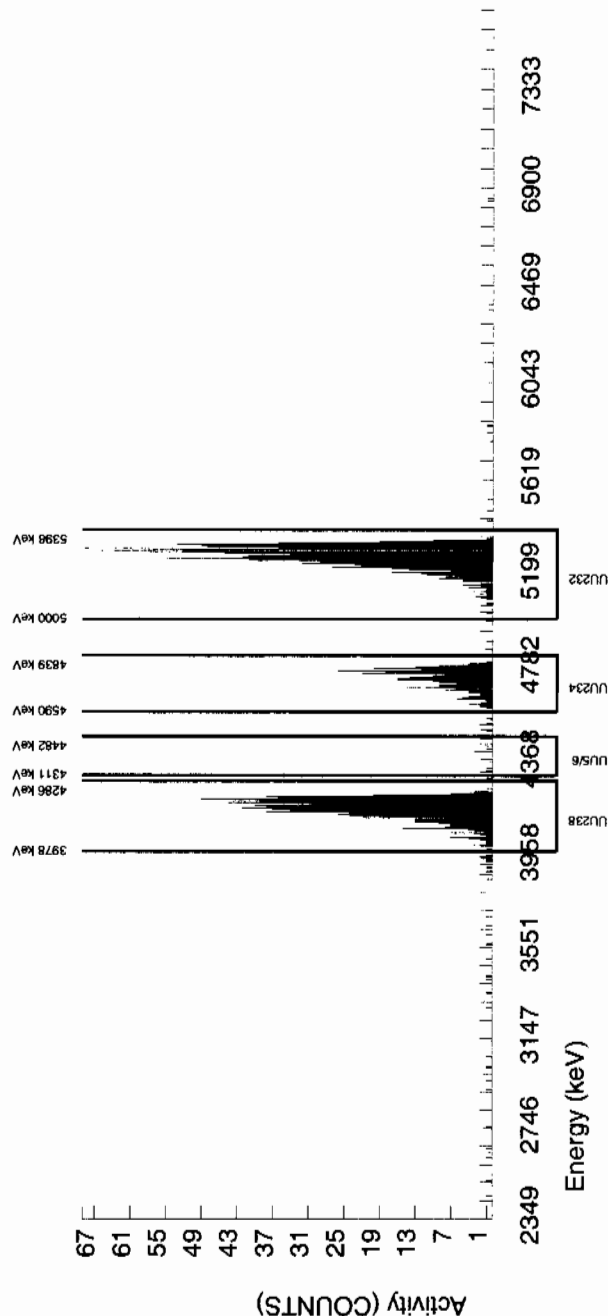
LCS/LCSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

## 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
U232	5302.100	5283.581	76.830	1098.000	1097.000	1.000	1.0000	100.0000	3.85E+00	2.95E-01	8.16E-03	2.58E-02	1.16E-01
U-3/4	4763.020	4736.786	85.538	333.000	330.889	1.000	4.8416	100.0000	1.16E+00	1.04E-01	3.95E-02	8.85E-02	6.40E-02
U-235	4391.000	4396.813	158.205	19.000	19.000	0.000	2.2152	80.90000	8.24E-02	1.98E-02	2.23E-02	5.64E-02	1.89E-02
U-238	4184.730	4169.214	80.190	840.000	839.000	1.000	3.1208	100.0000	2.94E+00	2.31E-01	2.55E-02	6.04E-02	1.02E-01

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497  
 SAMPLE ID : S024644001\_UU  
 SAMPLE QTY : 0.515 G  
 SAMPLE DATE : 3-FEB-2010 00:00:00.  
 ANALYST : MXE1  
 % YIELD : 75.277

CHAMBER : 133  
 DETECTOR S/N : 76229  
 AVERAGE %EFFICIENCY : 24.3125  
 COUNT DATE : 27-FEB-2010 20:04:26  
 ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_UU  
 BKG FILE : B133.CNF:437  
 BKG DATE : 21-FEB-2010  
 BKG LIVE TIME(SEC) : 60000.00  
 EFF FILE : W133.CNF:123  
 CAL DATE : 18-FEB-2010

TRACER  
 ID : 1283-H  
 NUCLIDE : U232  
 NOMINAL : 4.5054E+00 dpm  
 RESULTS : 3.3916E+00 dpm

MS/MSD  
 ID : 0244-A  
 NUCLIDE : U-238  
 NOMINAL : 5.7500E+00 pCi/G

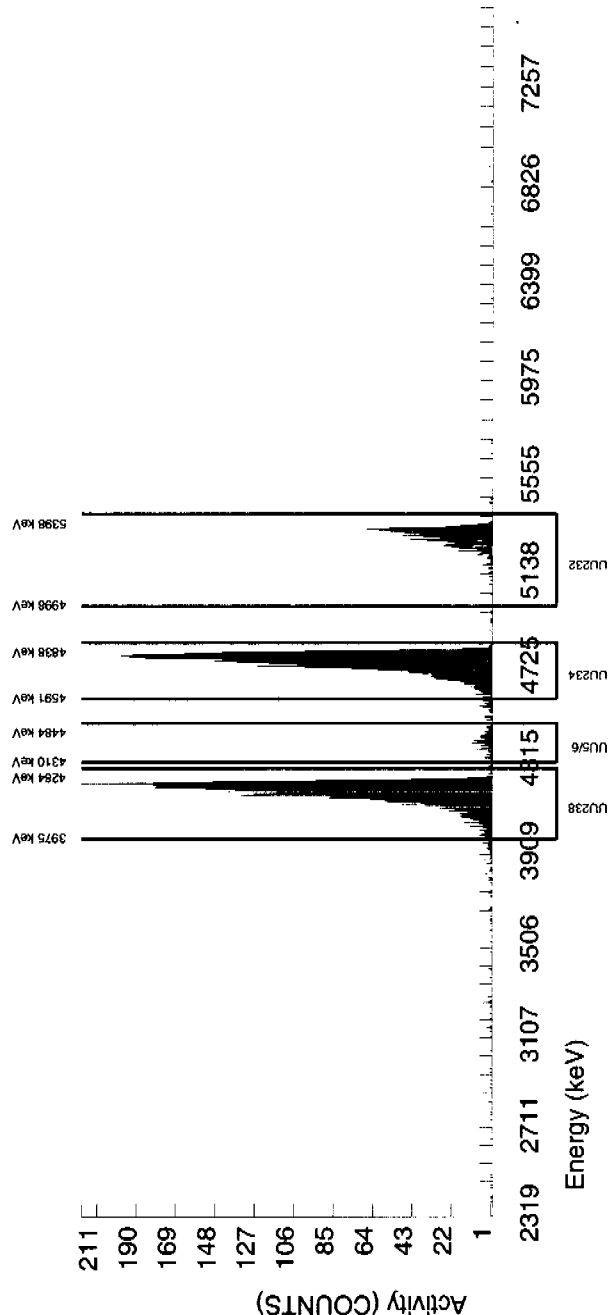
LCS/LCSD  
 ID : 0244-A  
 NUCLIDE : U-238  
 NOMINAL : 5.7500E+00 pCi/G

## 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
U232	5302.100	5302.138	57.743	831.000	824.000	7.000	2.6458	100.0000	3.94E+00	3.18E-01	2.94E-02	7.18E-02	1.38E-01
U-3/4	4763.020	4757.588	68.577	2914.000	2912.166	1.000	4.8416	100.0000	1.39E+01	1.04E+00	5.38E-02	1.21E-01	2.58E-01
U-235	4391.000	4405.140	67.577	134.000	132.000	2.000	2.2152	80.90000	7.80E-01	8.92E-02	3.04E-02	7.69E-02	6.89E-02
U-238	4184.730	4183.855	64.569	3160.000	3159.000	1.000	3.1208	100.0000	1.51E+01	1.13E+00	3.47E-02	8.23E-02	2.69E-01

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497  
SAMPLE ID : S0246444002\_UU  
SAMPLE QTY : 0.513 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 87.366

CHAMBER : 138  
DETECTOR S/N : 65877  
AVERAGE %EFFICIENCY : 25.4229  
COUNT DATE : 27-FEB-2010 20:04:42  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_UU  
BKG FILE : B138.CNF:402  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W138.CNF:104  
CAL DATE : 19-FEB-2010

TRACER  
ID : 1283-H  
NUCLIDE : U232  
NOMINAL : 4.5054E+00 dpm  
RESULTS : 3.9362E+00 dpm

MS/MSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

LCS/LCSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 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
U232	5302.100	5299.212	60.417	1004.000	1000.000	4.000	2.0000	100.0000	3.96E+00	3.09E-01	1.84E-02	4.75E-02	1.26E-01
U-3/4	4763.020	4759.612	52.421	243.000	238.988	3.000	4.8416	100.0000	9.45E-01	9.14E-02	4.45E-02	9.98E-02	6.19E-02
U-235	4391.000	4386.429	62.406	18.000	17.000	1.000	2.2152	80.90000	8.31E-02	2.21E-02	2.52E-02	6.36E-02	2.13E-02
U-238	4184.730	4186.229	50.334	415.000	413.000	2.000	3.1208	100.0000	1.63E+00	1.42E-01	2.87E-02	6.81E-02	8.07E-02

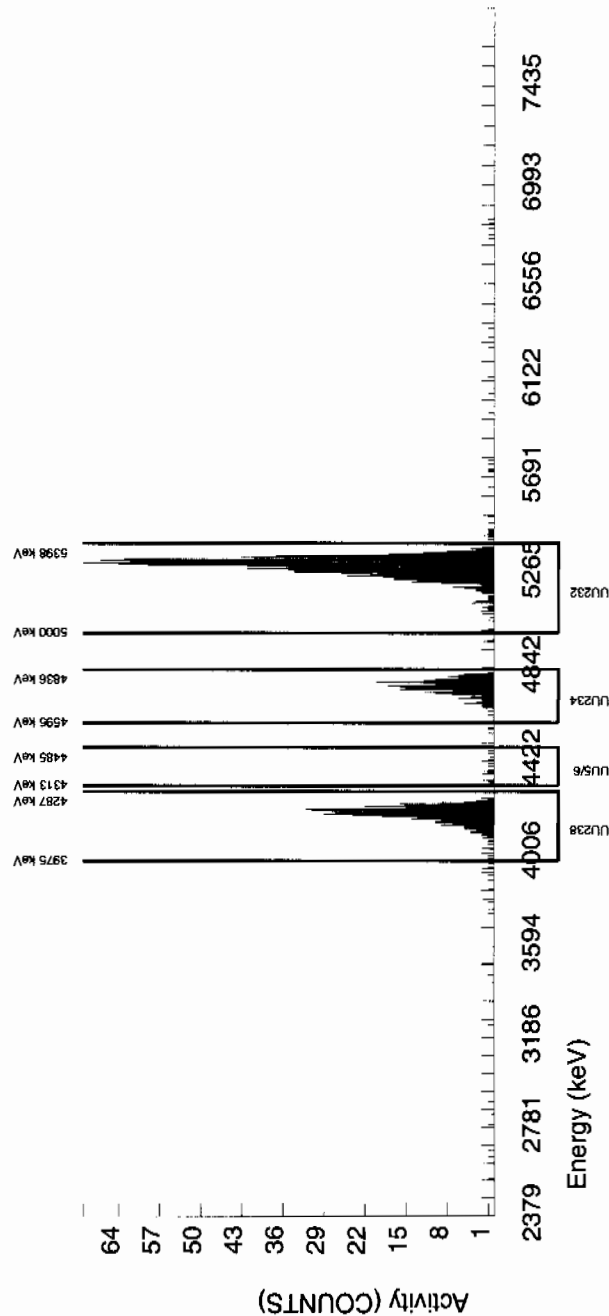
## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of U232 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:  
U-3/4



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

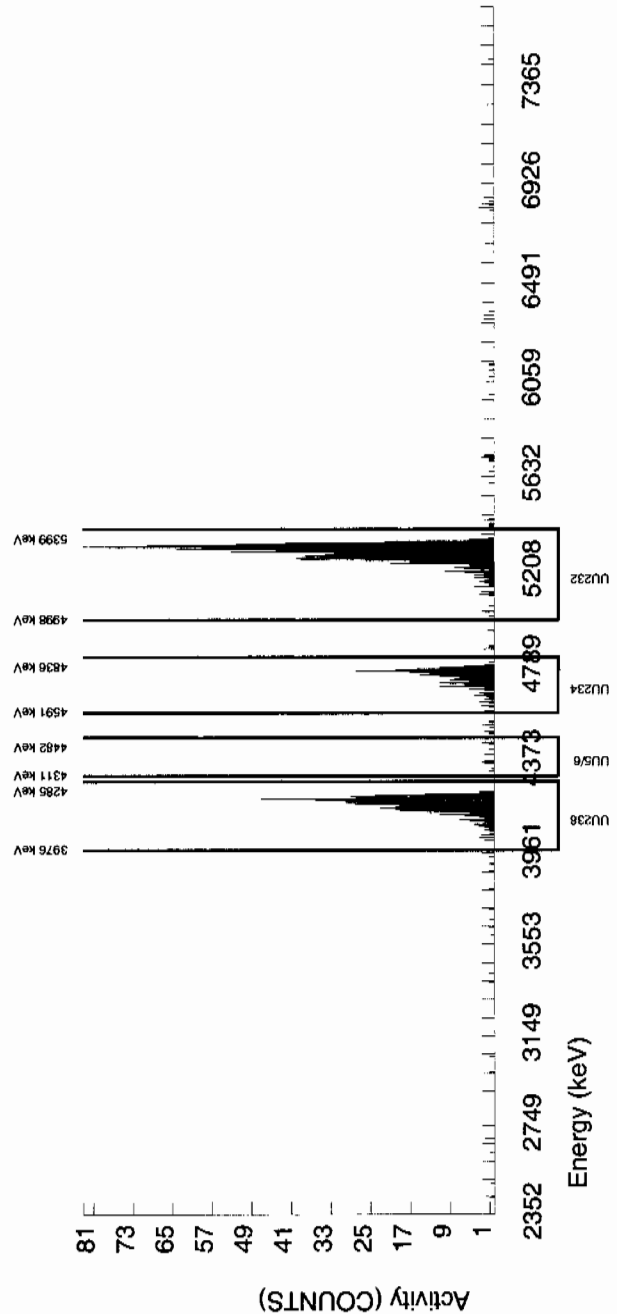
BATCH NUMBER : 953497 SAMPLE ID : S0246444003_UU SAMPLE QTY : 0.517 G SAMPLE DATE : 3-FEB-2010 00:00:00. ANALYST : MXE1 % YIELD : 85.148		CHAMBER : 139 DETECTOR S/N : 76231 AVERAGE %EFFICIENCY : 24.8328 COUNT DATE : 27-FEB-2010 20:04:44 ELAPSED LIVE TIME(SEC) : 60000.00		LIB FILE : ENV_ALPHA_UU BKG FILE : B139.CNF;399 BKG DATE : 21-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W139.CNF;104 CAL DATE : 19-FEB-2010	
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5054E+00 dpm RESULTS : 3.8363E+00 dpm		MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G		LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 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
U232	5302.100	5299.782	42.146	956.000	952.000	4.000	2.0000	100.0000	3.93E+00	3.14E-01	1.92E-02	4.95E-02	1.28E-01
U-3/4	4763.020	4751.921	27.782	255.000	253.036	1.000	4.8416	100.0000	1.04E+00	1.01E-01	4.64E-02	1.04E-01	6.58E-02
U-235	4391.000	4398.779	93.032	17.000	17.000	0.000	2.2152	80.90000	8.66E-02	2.19E-02	2.62E-02	6.63E-02	2.10E-02
U-238	4184.730	4185.301	42.003	490.000	490.000	0.000	3.1208	100.0000	2.02E+00	1.73E-01	2.99E-02	7.10E-02	9.12E-02

NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497	CHAMBER : 140	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S024644004_UU	DETECTOR S/N : 78771	BKG FILE : B140.CNF:399
SAMPLE QTY : 0.523 G	AVERAGE %EFFICIENCY : 25.6501	BKG DATE : 21-FEB-2010
SAMPLE DATE : 3-FEB-2010 00:00:00.	COUNT DATE : 27-FEB-2010 20:04:48	BKG LIVE TIME(SEC) : 60000.00
ANALYST : MXE1	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W140.CNF:109
% YIELD : 78.365		CAL DATE : 19-FEB-2010

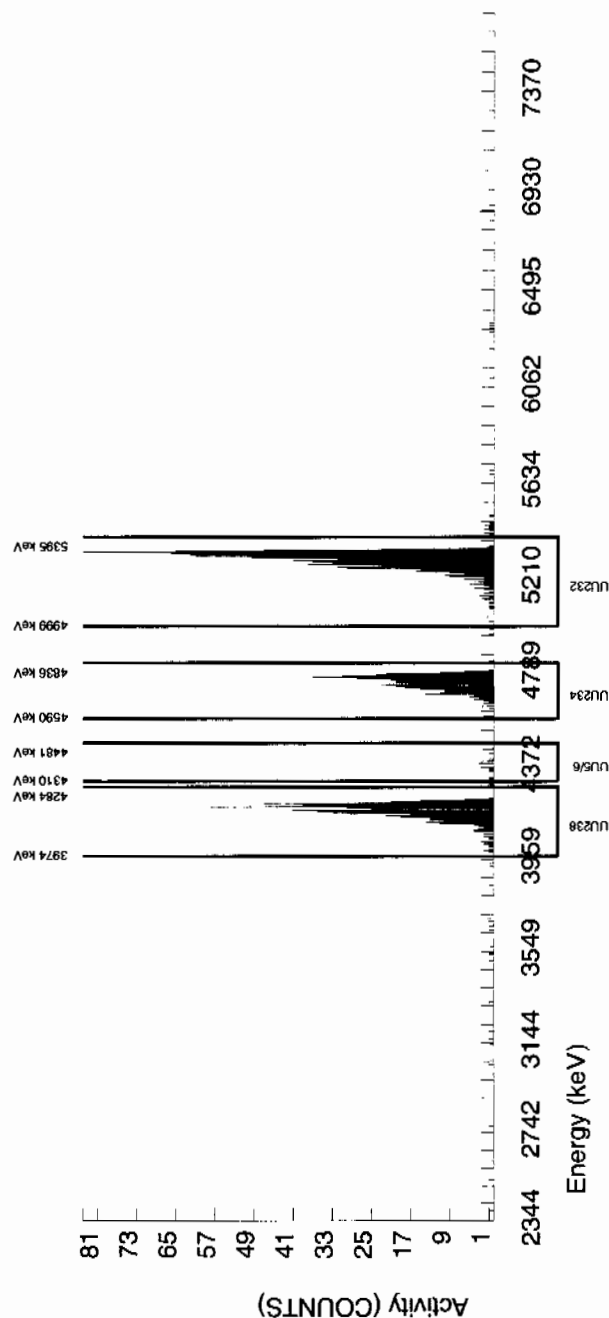
TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5054E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 3.5307E+00 dpm		

## 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
U232	5302.100	5297.145	37.742	909.000	905.000	4.000	2.0000	100.0000	3.88E+00	3.08E-01	1.99E-02	5.15E-02	1.30E-01
U-3/4	4763.020	4751.292	59.664	423.000	422.084	0.000	4.8416	100.0000	1.81E+00	1.57E-01	4.83E-02	1.08E-01	8.80E-02
U-235	4391.000	4392.759	63.151	16.000	16.000	0.000	2.2152	80.90000	8.47E-02	2.20E-02	2.73E-02	6.89E-02	2.12E-02
U-238	4184.730	4177.641	48.325	597.000	597.000	0.000	3.1208	100.0000	2.56E+00	2.12E-01	3.11E-02	7.38E-02	1.05E-01

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

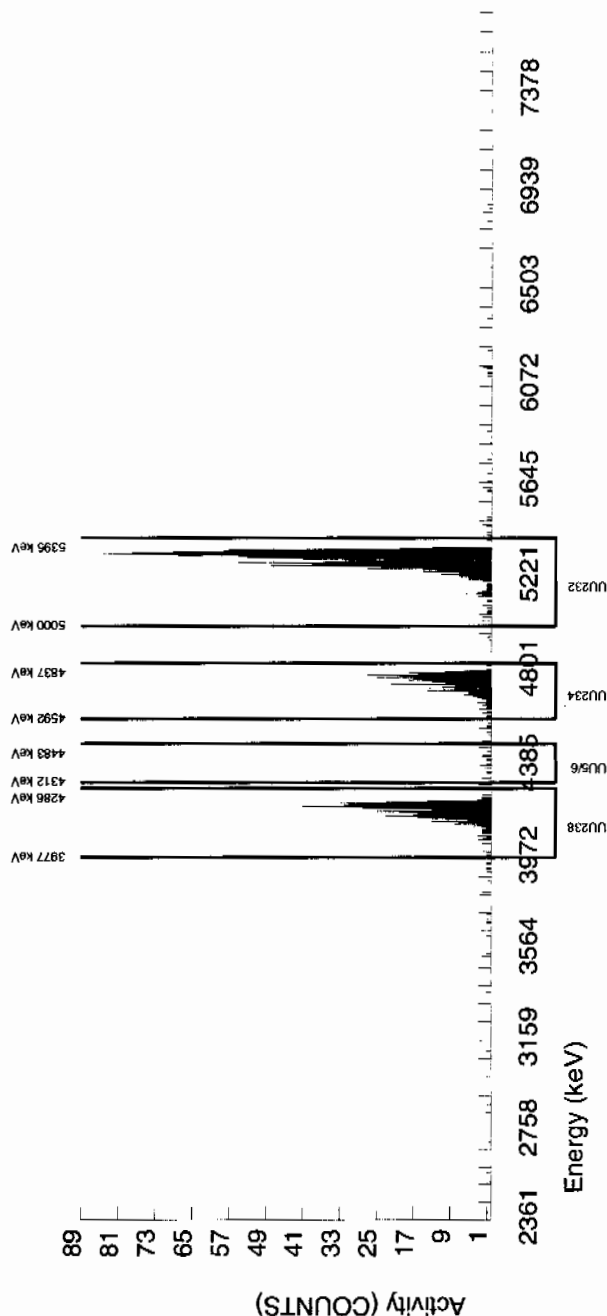
<b>BATCH NUMBER :</b> 953497 <b>SAMPLE ID :</b> S0246444005_UU <b>SAMPLE QTY :</b> 0.502 G <b>SAMPLE DATE :</b> 3-FEB-2010 00:00:00. <b>ANALYST :</b> MXE1 <b>% YIELD :</b> 88.125		<b>CHAMBER :</b> 141 <b>DETECTOR S/N :</b> 76232 <b>AVERAGE %EFFICIENCY :</b> 25.8088 <b>COUNT DATE :</b> 27-FEB-2010 20:04:51 <b>ELAPSED LIVE TIME(SEC) :</b> 60000.00		<b>LIB FILE :</b> ENV_ALPHA_UU <b>BKG FILE :</b> B141.CNF:402 <b>BKG DATE :</b> 21-FEB-2010 <b>BKG LIVE TIME(SEC) :</b> 60000.00 <b>EFF FILE :</b> W141.CNF:107 <b>CAL DATE :</b> 19-FEB-2010	
<b>TRACER</b> <b>ID :</b> 1283-H <b>NUCLIDE :</b> U232 <b>NOMINAL :</b> 4.5054E+00 dpm <b>RESULTS :</b> 3.9704E+00 dpm		<b>MS/MSD</b> <b>ID :</b> 0244-A <b>NUCLIDE :</b> U-238 <b>NOMINAL :</b> 5.7500E+00 pCi/G		<b>LCS/LCSD</b> <b>ID :</b> 0244-A <b>NUCLIDE :</b> U-238 <b>NOMINAL :</b> 5.7500E+00 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
U232	5302.100	5300.374	71.470	1029.000	1024.000	5.000	2.2361	100.0000	4.04E+00	3.19E-01	2.05E-02	5.17E-02	1.27E-01
U-3/4	4763.020	4755.086	77.562	323.000	320.963	1.000	4.8416	100.0000	1.27E+00	1.16E-01	4.44E-02	9.96E-02	7.09E-02
U-235	4391.000	4398.270	98.782	16.000	16.000	0.000	2.2152	80.90000	7.80E-02	2.03E-02	2.51E-02	6.35E-02	1.95E-02
U-238	4184.730	4187.632	62.348	456.000	452.000	4.000	3.1208	100.0000	1.78E+00	1.54E-01	2.86E-02	6.80E-02	8.46E-02

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4

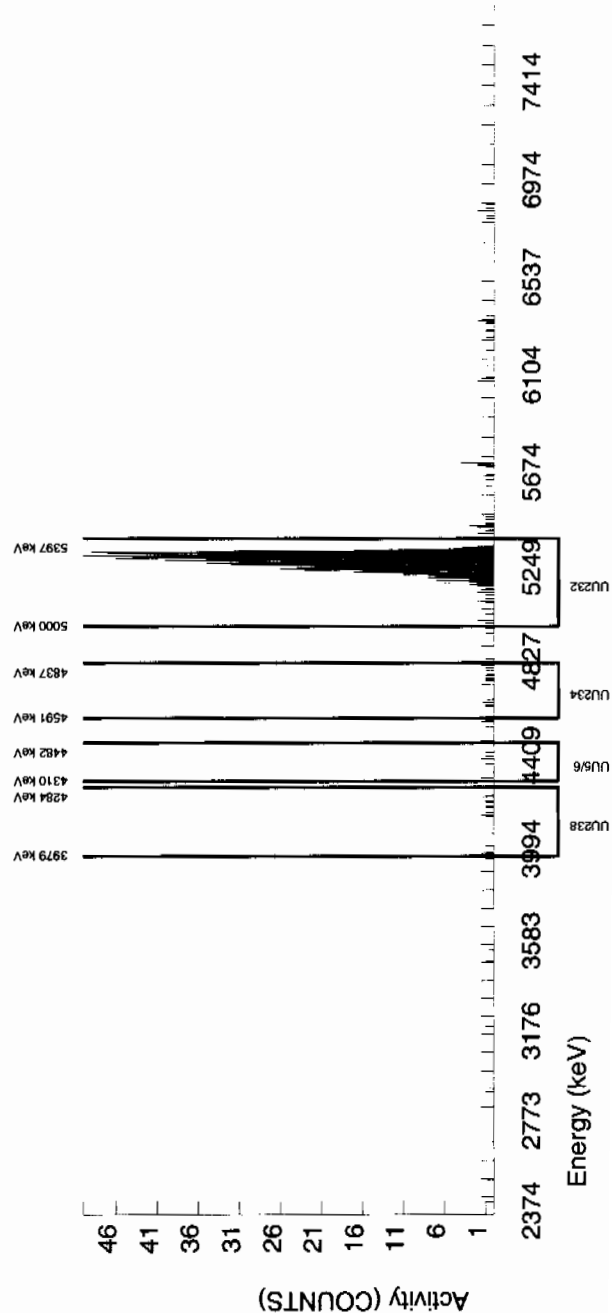


# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497 SAMPLE ID : S1202044075_UU SAMPLE QTY : 1,000 G SAMPLE DATE : 24-FEB-2010 00:00:00 ANALYST : MXE1 % YIELD : 63.632				CHAMBER : 142 DETECTOR S/N : 64261 AVERAGE %EFFICIENCY : 25.7599 COUNT DATE : 27-FEB-2010 20:04:53 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B142.CNF:396 BKG DATE : 21-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W142.CNF:111 CAL DATE : 19-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5028E+00 dpm RESULTS : 2.8652E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 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
U232	5302.100	5294.451	78.463	752.000	738.000	14.000	3.7417	100.0000	2.03E+00	1.68E-01	2.39E-02	5.53E-02	7.61E-02
U-3/4	4763.020	4749.190	168.390	10.000	8.253	1.000	4.8416	100.0000	2.27E-02	8.96E-03	3.10E-02	6.94E-02	8.80E-03
U-235	4391.000	4421.144	0.000	5.000	5.000	0.000	2.2152	80.90000	1.70E-02	7.70E-03	1.75E-02	4.42E-02	7.60E-03
U-238	4184.730	4144.521	0.000	10.000	10.000	0.000	3.1208	100.0000	2.75E-02	8.92E-03	2.00E-02	4.74E-02	8.69E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497  
SAMPLE ID : S1202044076\_UU  
SAMPLE QTY : 0.561 G  
SAMPLE DATE : 3-FEB-2010 00:00:00.  
ANALYST : MXE1  
% YIELD : 90.629

CHAMBER : 143  
DETECTOR S/N : 65882  
AVERAGE %EFFICIENCY : 24.2868  
COUNT DATE : 27-FEB-2010 20:04:56  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_UU  
BKG FILE : B143.CNF:398  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W143.CNF:114  
CAL DATE : 19-FEB-2010

TRACER  
ID : 1283-H  
NUCLIDE : U232  
NOMINAL : 4.5054E+00 dpm  
RESULTS : 4.0832E+00 dpm

MS/MSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

LCS/LCSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 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
U232	5302.100	5295.274	60.459	993.000	991.000	2.000	1.4142	100.0000	3.62E+00	2.87E-01	1.20E-02	3.39E-02	1.15E-01
U-3/4	4763.020	4753.264	45.367	294.000	290.997	2.000	4.8416	100.0000	1.06E+00	9.93E-02	4.11E-02	9.21E-02	6.27E-02
U-235	4391.000	4396.453	9.699	28.000	28.000	0.000	2.2152	80.90000	1.26E-01	2.56E-02	2.32E-02	5.87E-02	2.39E-02
U-238	4184.730	4181.239	52.060	915.000	915.000	0.000	3.1208	100.0000	3.34E+00	2.66E-01	2.65E-02	6.29E-02	1.10E-01

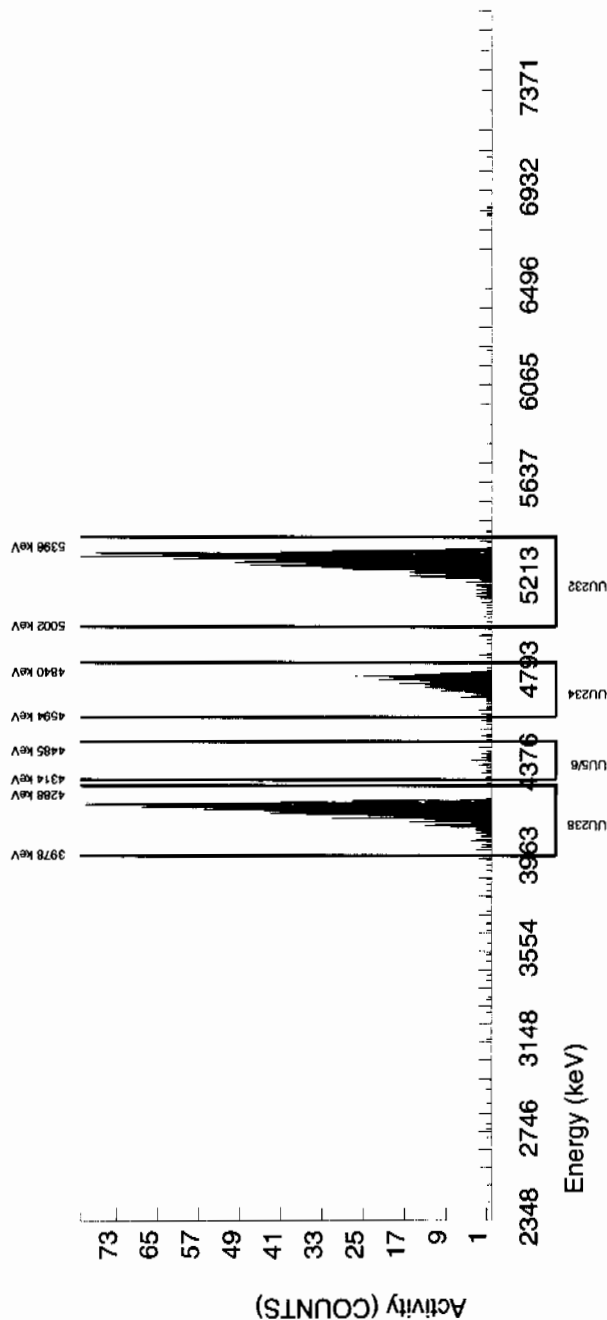
## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of U232 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:  
U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 953497  
SAMPLE ID : S1202044077\_UU  
SAMPLE QTY : 0.126 G  
SAMPLE DATE : 24-FEB-2010 00:00:00  
ANALYST : MXE1  
% YIELD : 79.960

CHAMBER : 144  
DETECTOR S/N : 75551  
AVERAGE %EFFICIENCY : 25.1386  
COUNT DATE : 27-FEB-2010 20:04:59  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_UU  
BKG FILE : B144.CNF;397  
BKG DATE : 21-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W144.CNF;108  
CAL DATE : 19-FEB-2010

TRACER  
ID : 1283-H  
NUCLIDE : U232  
NOMINAL : 4.5028E+00 dpm  
RESULTS : 3.6005E+00 dpm

MS/MSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

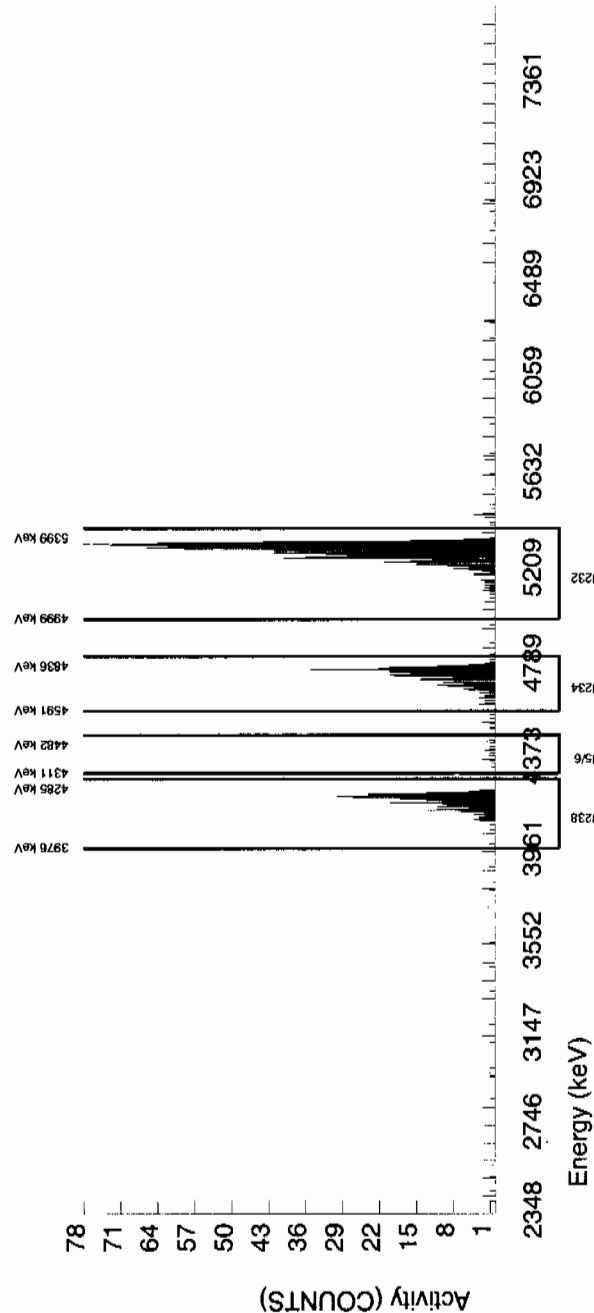
LCS/LCSD  
ID : 0244-A  
NUCLIDE : U-238  
NOMINAL : 5.7500E+00 pCi/G

## 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
U232	5302.100	5302.033	70.251	908.000	905.000	3.000	1.7321	100.0000	1.61E+01	1.34E+00	7.17E-02	1.92E-01	5.37E-01
U-3/4	4763.020	4753.355	41.137	356.000	353.084	2.000	4.8416	100.0000	6.28E+00	5.84E-01	2.00E-01	4.49E-01	3.36E-01
U-235	4391.000	4418.962	69.079	16.000	16.000	0.000	2.2152	80.90000	3.52E-01	9.19E-02	1.13E-01	2.86E-01	8.79E-02
U-238	4184.730	4188.179	46.056	305.000	305.000	0.000	3.1208	100.0000	5.42E+00	5.17E-01	1.29E-01	3.06E-01	3.11E-01

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of U232 calculated as sqrt(BKG AREA).
- \* Corrections made to the following net area due to tracer impurity:  
U-3/4



# Radiochemistry Batch Checklist, Rev10

Batch# 950788

Product: X-5

Date: 2/24/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stasured.	✓		
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:

2/24/10

Secondary Review Performed By:

2/25/10

LANL

3/6

# Gamma Spec Que Sheet

I.6.- 2/18/10

02/09/2010

Batch #: 950788 Analyst: MXR1 First Client Due Date: 03/06/2010 Internal Due Date: 02/23/2010  
 Gamma Spike Isotope: Mixed Gamma Spike Code: Na Expiration Date: Na Vol: Na Nominal Concentration: Na 6.390  
 Gamma LCS Isotope: Mixed Gamma LCS Code: 1032-A Expiration Date: 12/24/10 Vol: 1.0mL Nominal Concentration: 65-137 5.559 Na 15.90  
 Initials: U Prep Date: 2/11/10 Library: Solid Witness: Na

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Detector	Sealing Date/Time (if Applicable)
246440001-1	RE15-10-8354	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00	Can	158.75	15 2/11/10
246440002-1	RE15-10-8356	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		128.31	16
246440003-1	RE15-10-8353	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		143.18	19
246440004-1	RE15-10-8352	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		131.53	21
246440005-1	RE15-10-8355	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		132.62	22
246440006-1	RE15-10-8351	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		126.87	17
246440007-1	RE15-10-8350	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		139.29	18
246440008-1	RE15-10-8357	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		140.80	1
246440009-1	RE15-10-8338	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		136.19	2
246440010-1	RE15-10-8336	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		130.51	4
246440011-1	RE15-10-8339	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		131.76	7
246440012-1	RE15-10-8337	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		122.74	10
246440013-1	RE15-10-8375	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		142.35	11
246440014-1	RE15-10-8374	SAMPLE	LANL010	LANL010	SOIL	02-FEB-10 12:00:00		153.01	12
24644001-1	RE15-10-8361	SAMPLE	LANL010	LANL010	SOIL	03-FEB-10 12:00:00		144.98	25
24644002-1	RE15-10-8362	SAMPLE	LANL010	LANL010	SOIL	03-FEB-10 12:00:00		142.27	16
24644003-1	RE15-10-8359	SAMPLE	LANL010	LANL010	SOIL	03-FEB-10 12:00:00		148.03	17
24644004-1	RE15-10-8358	SAMPLE	LANL010	LANL010	SOIL	03-FEB-10 12:00:00		119.20	18
24644005-1	RE15-10-8360	SAMPLE	LANL010	LANL010	SOIL	03-FEB-10 12:00:00		141.47	19
1202037552-1	MB	MB	QC ACCOUNT	QC ACCOUNT	SOIL	2/11/10		158.75	21
1202037553-1	DUP RE15-10-8361(246444001)	DUP	QC ACCOUNT	QC ACCOUNT	SOIL	2/11/10		144.98	22
1202037554-1	LCS	LCS	QC ACCOUNT	QC ACCOUNT	SOIL	2/11/10		155.44	14

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: W. Stamps 2/24/10  
 ✓ no history  
 ✓ initials  
 W. Stamps 2/25/10 Page 1 of 1

# Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
950788	246440001	SAMPLE	19-FEB-10		Americium-241	0.2833	0.486	0.200
					Cerium-139	-0.02107	0.05765	0.050
					Sodium-22	0.00713	0.08332	0.080
950788	246440002	SAMPLE	19-FEB-10		Americium-241	0.08373	0.2405	0.200
950788	246440003	SAMPLE	19-FEB-10		Americium-241	0.2147	0.2838	0.200
					Cerium-139	0.01258	0.053	0.050
950788	246440004	SAMPLE	19-FEB-10		Cesium-134	0.09655	0.1165	0.100
					Sodium-22	-0.00293	0.1002	0.080
950788	246440005	SAMPLE	19-FEB-10		Americium-241	0.1101	0.2301	0.200
					Cerium-139	0.0272	0.0515	0.050
950788	246440006	SAMPLE	19-FEB-10		Cerium-139	-0.00625	0.05418	0.050
					Cesium-134	0.03021	0.1035	0.100
					Sodium-22	-0.04209	0.09299	0.080
950788	246440007	SAMPLE	19-FEB-10		Americium-241	-0.04196	0.2725	0.200
950788	246440008	SAMPLE	19-FEB-10		Americium-241	-0.1156	0.2782	0.200
					Cerium-139	-0.00994	0.05281	0.050
					Sodium-22	0.00567	0.08483	0.080
950788	246440009	SAMPLE	19-FEB-10		Americium-241	0.2337	0.3378	0.200
					Cerium-139	0.00696	0.05473	0.050
					Sodium-22	0.02856	0.09374	0.080
950788	246440010	SAMPLE	19-FEB-10		Americium-241	0.1446	0.4018	0.200
					Sodium-22	0.00924	0.0898	0.080
950788	246440011	SAMPLE	19-FEB-10		Cerium-139	0.0035	0.05018	0.050
					Sodium-22	-0.01805	0.08026	0.080
950788	246440012	SAMPLE	19-FEB-10		Americium-241	0.05484	0.4138	0.200
					Sodium-22	-0.02138	0.08045	0.080
950788	246440013	SAMPLE	19-FEB-10					
950788	246440014	SAMPLE	19-FEB-10		Americium-241	0.09175	0.2427	0.200
950788	246444001	SAMPLE	19-FEB-10					
950788	246444002	SAMPLE	19-FEB-10		Americium-241	0.02356	0.2139	0.200
950788	246444003	SAMPLE	19-FEB-10		Cesium-134	0.06823	0.1035	0.100
					Sodium-22	0.02911	0.1002	0.080
950788	246444004	SAMPLE	19-FEB-10		Americium-241	0.1489	0.3184	0.200
950788	246444005	SAMPLE	19-FEB-10		Americium-241	-0.08129	0.2521	0.200
					Cerium-139	0.01515	0.05282	0.050
					Thorium-234	1.589	2.088	2.00
950788	1202037552	MB	19-FEB-10					
950788	1202037553	DUP	19-FEB-10		Americium-241	0.07181	0.2192	0.200
950788	1202037554	LCS	19-FEB-10		Cerium-139	-0.02168	0.07679	0.050
					Cesium-134	0.1223	0.1678	0.100
					Europium-152	0.059	0.3017	0.200
					Mercury-203	0.01312	0.1088	0.100

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
950788	1202037554	LCS	19-FEB-10		Ruthenium-106	-0.1873	0.9596	0.800
					Sodium-22	-0.00715	0.08071	0.080
					Thorium-234	-0.0667	2.998	2.00
					Tin-113	0.01481	0.1386	0.100
					Uranium-235	-0.05935	0.5448	0.500

# GEL QUALS

Batch ID: 950788

Report run on: February 24, 2010 11:04 AM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
246440001-1 19-FEB-2010 17:57	Bismuth-211	UI	UI	Data rejected due to interference.		3.387			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.11			
	Radium-224	UI	UI	Data rejected due to interference.		4.061			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1039			
246440002-1 19-FEB-2010 17:57	Bismuth-211	UI	UI	Data rejected due to interference.		3.563			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.604			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1229		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.057			
246440003-1 19-FEB-2010 17:58	Bismuth-211	UI	UI	Data rejected due to interference.		3.21			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.702			
	Radium-224	UI	UI	Data rejected due to interference.		4.863			
246440004-1 19-FEB-2010 17:58	Bismuth-211	UI	UI	Data rejected due to interference.		4.043			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.374			
	Radium-224	UI	UI	Data rejected due to interference.		4.857			
246440005-1 19-FEB-2010 17:59	Bismuth-211	UI	UI	Data rejected due to interference.		4.18			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.107			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.08162		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.722			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1498			

# GEL QUALS

Batch ID: 950788

Report run on: February 24, 2010 11:04 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
24644001-1 19-FEB-2010 17:59	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.039			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.3			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1096		.1	.1
	Mercury-203	UI	UI	UI	Data rejected due to interference.		.07528		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.602			
	Uranium-235	UI	UI	UI	Data rejected due to high counting uncertainty.		.2951		.5	.5
24644006-1 19-FEB-2010 18:02	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.295			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.069			
	Cesium-137	UI	UI	UI	Data rejected due to low abundance.		.1002		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.462			
24644007-1 19-FEB-2010 18:30	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.61			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.812			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1169		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.378			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.06535			
24644008-1 19-FEB-2010 19:26	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.762			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.19			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1162		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.462			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.08872			

# GEL QUALS

Batch ID: 950788

Report run on: February 24, 2010 11:04 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246440009-1 19-FEB-2010 19:50	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.934			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.996			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.436			
246440010-1 19-FEB-2010 19:50	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.801			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.3			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1346		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.683			
	Thorium-234	UI	UI	UI	Data rejected due to no valid peak.		4.868		2	2
246440011-1 19-FEB-2010 19:50	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.639			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.496			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.593			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07977			
246440012-1 19-FEB-2010 19:51	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.691			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.589			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.65			
246440013-1 19-FEB-2010 19:51	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.628			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.887			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1112		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.118			

# GEL QUALS

Batch ID: 950788

Report run on: February 24, 2010 11:04 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246440014-1 19-FEB-2010 19:52	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.905			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.902			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.0926		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.532			
24644002-1 19-FEB-2010 20:39	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.095			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.621			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.951			
24644003-1 19-FEB-2010 20:39	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.461			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.862			
	Cesium-137	UI	UI	UI	Data rejected due to high peak-width.		.176		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.923			
24644004-1 19-FEB-2010 20:40	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.416			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.549			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.913			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07717			
24644005-1 19-FEB-2010 20:40	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.972			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.622			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.131		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.043			
	Radium-226	UI	UI	UI	Data rejected due to low abundance.		1.358		.5	.5

# GEL QUALS

Batch ID: 950788

Report run on: February 24, 2010 11:04 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
1202037553-1 DUP 19-FEB-2010 20:42	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.951			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.748			
	Mercury-203	UI	UI	UI	Data rejected due to interference.		.06224		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.506			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1167			

## Gamma Review Report based on Result &gt; MDA for Batch:950788

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246440001	02-FEB-10 12:00	19-FEB-10 17:57	17.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.551	0.1583	pCi/g 0.2144	N	911.1	3 1.996	IDENTIFIED 8.341	<input type="checkbox"/>	
Americium-243	NT	0.3284	0.05152	pCi/g 0.1252	N	74.96	1 1.34	IDENTIFIED 14.6	<input type="checkbox"/>	
Annihilation Rad.	—	0.1604	0.03112	pCi/g 0.05007	N	510.9	1 1.939	IDENTIFIED 18.91	<input type="checkbox"/>	
Barium-137m	HE	0.08108	0.02913	pCi/g 0.06405	N	662.1	2 1.785	IDENTIFIED 35.7	<input type="checkbox"/>	
Bismuth-211	NT	3.387	0.286	pCi/g 0.41	Y	352.1	4 1.425	IDENTIFIED 6.828	<input checked="" type="checkbox"/>	UI
Bismuth-212	HE	1.004	0.2643	pCi/g 0.6981	N	0	10 0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	✓	1.041	0.0965	pCi/g 0.1245	0.200	609.6	4 1.544	IDENTIFIED 7.831	<input type="checkbox"/>	
Cadmium-109	NT	4.11	0.8854	pCi/g 1.803	Y	86.56	3 1.351	IDENTIFIED 20.65	<input checked="" type="checkbox"/>	UI
Cerium-143	—	2204	384	pCi/g 0	N	0	10 0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137	✓	0.08571	0.0308	pCi/g 0.06771	0.100	662.1	2 1.785	IDENTIFIED 35.7	<input type="checkbox"/>	
Gross Gamma	—	9.745	1.709	pCi/g 3.684	N	0			<input type="checkbox"/>	
Krypton-85	HE	19.81	4.56	pCi/g 15.42	N	0	10 0	NOT_IDENTI 0	<input type="checkbox"/>	
Lead-212	✓	1.74	0.1204	pCi/g 0.1035	0.100	238.8	4 1.419	IDENTIFIED 3.53	<input type="checkbox"/>	
Lead-214	✓	1.178	0.1041	pCi/g 0.138	0.100	352.1	4 1.425	IDENTIFIED 6.828	<input type="checkbox"/>	
Lutetium-177	HE	3.556	1.157	pCi/g 2.932	N	0	10 0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	NT	1.182	0.2824	pCi/g 0.5189	N	86.56	3 1.351	IDENTIFIED 20.65	<input type="checkbox"/>	
Niobium-95m	HE	0.3884	0.08519	pCi/g 0.284	N	0	10 0	NOT_IDENTI 0	<input type="checkbox"/>	
Polonium-212	NR	1.74	0.1204	pCi/g 0.1035	N	238.8	4 1.419	IDENTIFIED 3.53	<input type="checkbox"/>	
Polonium-214	NR	1.178	0.1041	pCi/g 0.138	N	352.1	4 1.425	IDENTIFIED 6.828	<input type="checkbox"/>	
Polonium-216	NR	1.74	0.1204	pCi/g 0.1035	N	238.8	4 1.419	IDENTIFIED 3.53	<input type="checkbox"/>	
Polonium-218	NR	1.178	0.1041	pCi/g 0.138	N	352.1	4 1.425	IDENTIFIED 6.828	<input type="checkbox"/>	
Potassium-40	✓	33.13	1.876	pCi/g 0.5453	1.00	1461	1 2.019	IDENTIFIED 2.814	<input type="checkbox"/>	
Radium-224	NT	4.061	0.7071	pCi/g 1.177	Y	241.7	1 1.854	IDENTIFIED 16.52	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.041	0.0965	pCi/g 0.1245	Y	609.6	4 1.544	IDENTIFIED 7.831	<input type="checkbox"/>	
Radium-228	✓	1.551	0.1583	pCi/g 0.2144	0.500	911.1	3 1.996	IDENTIFIED 8.341	<input type="checkbox"/>	
Sodium-24	HE	1.67E+06	4.38E+06	pCi/g 0	N	0	10 0	SHORT_HLIF 0	<input type="checkbox"/>	
Strontium-85	LA	0.1039	0.02391	pCi/g 0.08088	Y	0	10 0	NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-200	—	2358	961.2	pCi/g 0	N	0	10 0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.5576	0.04912	pCi/g 0.06534	0.080	583.3	1 1.643	IDENTIFIED 7.525	<input type="checkbox"/>	
Thorium-228	NR	1.77	0.1225	pCi/g 0.1052	N	238.8	4 1.419	IDENTIFIED 3.53	<input type="checkbox"/>	
Thorium-230	NR	1.041	0.0965	pCi/g 0.1245	N	609.6	4 1.544	IDENTIFIED 7.831	<input type="checkbox"/>	
Thorium-232	NR	1.551	0.1583	pCi/g 0.2144	N	911.1	3 1.996	IDENTIFIED 8.341	<input type="checkbox"/>	
Thorium-234	✓	4.305	1.731	pCi/g 3.673	2.00	63.06	2 1.592	IDENTIFIED 39	<input type="checkbox"/>	
Tin-126	NR	0.4027	0.08675	pCi/g 0.1946	N	86.56	3 1.351	IDENTIFIED 20.65	<input type="checkbox"/>	
Titanium-44	—	0.3293	0.03728	pCi/g 0.1032	N	0	10 0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	—	12.866	5.15E-06	ug/g 5.4675	N	0			<input type="checkbox"/>	
Uranium-234	NR	1.041	0.0965	pCi/g 0.1245	N	609.6	4 1.544	IDENTIFIED 7.831	<input type="checkbox"/>	
Uranium-238	HE	4.305	1.731	pCi/g 3.673	N	63.06	2 1.592	IDENTIFIED 39	<input type="checkbox"/>	
Zirconium-97	—	3.88E+07	8.77E+06	pCi/g 0	N	0	10 0	SHORT_HLIF 0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246440002	02-FEB-10 12:00	19-FEB-10 17:57	17.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.747	0.1703	pCi/g	0.2092	N	911.2	3	1.697 IDENTIFIED 7.728	<input type="checkbox"/>	
Americium-243 INT	0.3531	0.03369	pCi/g	0.08175	N	74.84	1	0.9162 IDENTIFIED 8.593	<input type="checkbox"/>	
Annihilation Rad. —	0.1353	0.03246	pCi/g	0.04639	N	511	1	1.809 IDENTIFIED 23.52	<input type="checkbox"/>	
Bismuth-211 INT	3.563	0.2917	pCi/g	0.3105	Y	351.8	4	1.149 IDENTIFIED 6.101	<input checked="" type="checkbox"/>	UI
Bismuth-212 —	1.398	0.2804	pCi/g	0.6889	N	0	11	0 FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 ✓	1.139	0.09499	pCi/g	0.09591	0.200	609.4	4	1.283 IDENTIFIED 6.448	<input type="checkbox"/>	
Cadmium-109 INT	2.604	0.4686	pCi/g	1.178	Y	87.18	3	1.002 IDENTIFIED 17.35	<input checked="" type="checkbox"/>	UI
Cerium-143 —	1587	285.1	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134 LA	0.1229	0.03299	pCi/g	0.0924	0.100	0	11	0 FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma —	9.843	1.717	pCi/g	3.396	N	0			<input type="checkbox"/>	
Indium-114m HE	0.3456	0.08997	pCi/g	0.2997	N	0	11	0 NOT_IDENTI 0	<input type="checkbox"/>	
Iodine-123 HE	4.05E+07	3.93E+07	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135 —	6.10E+17	0	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212 ✓	1.639	0.1108	pCi/g	0.08355	0.100	238.5	4	0.9552 IDENTIFIED 3.275	<input type="checkbox"/>	
Lead-214 ✓	1.239	0.1065	pCi/g	0.1082	0.100	351.8	4	1.149 IDENTIFIED 6.101	<input type="checkbox"/>	
Lutetium-177 HE	3.592	0.9809	pCi/g	2.509	N	0	11	0 FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237 INT	0.7491	0.1554	pCi/g	0.385	N	87.18	3	1.002 IDENTIFIED 17.35	<input type="checkbox"/>	
Niobium-97 HE	2.55E+05	4.37E+05	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212 NR	1.639	0.1108	pCi/g	0.08355	N	238.5	4	0.9552 IDENTIFIED 3.275	<input type="checkbox"/>	
Polonium-214 NR	1.239	0.1065	pCi/g	0.1082	N	351.8	4	1.149 IDENTIFIED 6.101	<input type="checkbox"/>	
Polonium-216 NR	1.639	0.1108	pCi/g	0.08355	N	238.5	4	0.9552 IDENTIFIED 3.275	<input type="checkbox"/>	
Polonium-218 NR	1.239	0.1065	pCi/g	0.1082	N	351.8	4	1.149 IDENTIFIED 6.101	<input type="checkbox"/>	
Potassium-40 ✓	33.38	1.736	pCi/g	0.517	1.00	1461	1	1.952 IDENTIFIED 2.781	<input type="checkbox"/>	
Radium-224 INT	5.057	0.6751	pCi/g	0.9508	Y	241.4	1	1.72 IDENTIFIED 12.16	<input checked="" type="checkbox"/>	UI
Radium-226 ✓	1.139	0.09499	pCi/g	0.09591	Y	609.4	4	1.283 IDENTIFIED 6.448	<input type="checkbox"/>	
Radium-228 ✓	1.747	0.1703	pCi/g	0.2092	0.500	911.2	3	1.697 IDENTIFIED 7.728	<input type="checkbox"/>	
Technetium-99m —	7.69E+18	0	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208 ✓	0.5773	0.04588	pCi/g	0.05535	0.080	583.1	1	1.302 IDENTIFIED 6.213	<input type="checkbox"/>	
Thorium-228 NR	1.667	0.1128	pCi/g	0.085	N	238.5	4	0.9552 IDENTIFIED 3.275	<input type="checkbox"/>	
Thorium-230 NR	1.139	0.09499	pCi/g	0.09591	N	609.4	4	1.283 IDENTIFIED 6.448	<input type="checkbox"/>	
Thorium-232 NR	1.747	0.1703	pCi/g	0.2092	N	911.2	3	1.697 IDENTIFIED 7.728	<input type="checkbox"/>	
Thorium-234 ✓	3.225	0.9484	pCi/g	1.98	2.00	63.29	2	0.8411 IDENTIFIED 28.09	<input type="checkbox"/>	
Tin-126 NR	0.2551	0.04591	pCi/g	0.116	N	87.18	3	1.002 IDENTIFIED 17.35	<input type="checkbox"/>	
Titanium-44 —	0.335	0.02543	pCi/g	0.06737	N	0	11	0 FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium —	9.6974	2.82E-06	ug/g	2.9481	N	0			<input type="checkbox"/>	
Uranium-234 NR	1.139	0.09499	pCi/g	0.09591	N	609.4	4	1.283 IDENTIFIED 6.448	<input type="checkbox"/>	
Uranium-238 HE	3.225	0.9484	pCi/g	1.98	N	63.29	2	0.8411 IDENTIFIED 28.09	<input type="checkbox"/>	
Zirconium-97 HE	1.12E+07	7.44E+06	pCi/g	0	N	0	11	0 SHORT_HLIF 0	<input type="checkbox"/>	
*** = Number of isotopes identified with a keyline at this energy.										
Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246440003	02-FEB-10 12:00	19-FEB-10 17:58	17.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.637	0.1831	pCi/g	0.1956	N	911.5	3	1.415 IDENTIFIED 9.647	<input type="checkbox"/>	



Bismuth-214	✓	1.243	0.1289	pCi/g 0.1358	0.200	609.2	4	1.254	IDENTIFIED	8.517	<input type="checkbox"/>	
Cadmium-109	INT	4.374	0.4359	pCi/g 0.7246	Y	87.3	3	1.14	IDENTIFIED	8.8	<input checked="" type="checkbox"/>	UI
Cerium-143	—	994.3	241.1	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Gross Gamma	—	10.67	1.498	pCi/g 3.914	N		0				<input type="checkbox"/>	
Iodine-123	HE	3.08E+07	3.41E+07	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	—	1.47E+18	0	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-210	✓	1.461	0.336	pCi/g 0.648	N	46.63	3	0.7702	IDENTIFIED	22.5	<input type="checkbox"/>	
Lead-212	✓	1.83	0.1074	pCi/g 0.08825	0.100	238.5	4	0.8716	IDENTIFIED	3.116	<input type="checkbox"/>	
Lead-214	✓	1.406	0.1058	pCi/g 0.1064	0.100	351.7	4	0.9711	IDENTIFIED	5.426	<input type="checkbox"/>	
Lutetium-177	HE	2.773	0.9234	pCi/g 2.445	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	INT	1.258	0.1805	pCi/g 0.2073	N	87.3	3	1.14	IDENTIFIED	8.8	<input type="checkbox"/>	
Polonium-210	NR	1.461	0.3348	pCi/g 0.648	N	46.63	3	0.7702	IDENTIFIED	22.5	<input type="checkbox"/>	
Polonium-212	NR	1.83	0.1074	pCi/g 0.08825	N	238.5	4	0.8716	IDENTIFIED	3.116	<input type="checkbox"/>	
Polonium-214	NR	1.406	0.1058	pCi/g 0.1064	N	351.7	4	0.9711	IDENTIFIED	5.426	<input type="checkbox"/>	
Polonium-216	NR	1.83	0.1074	pCi/g 0.08825	N	238.5	4	0.8716	IDENTIFIED	3.116	<input type="checkbox"/>	
Polonium-218	NR	1.406	0.1058	pCi/g 0.1064	N	351.7	4	0.9711	IDENTIFIED	5.426	<input type="checkbox"/>	
Potassium-40	✓	36.91	1.997	pCi/g 0.8112	1.00	1460	1	1.8	IDENTIFIED	3.324	<input type="checkbox"/>	
Radium-224	INT	4.857	0.7811	pCi/g 1.007	Y	241.3	1	1.882	IDENTIFIED	15.46	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.243	0.1289	pCi/g 0.1358	Y	609.2	4	1.254	IDENTIFIED	8.517	<input type="checkbox"/>	
Radium-228	✓	1.996	0.206	pCi/g 0.2381	0.500	910.6	3	1.415	IDENTIFIED	8.621	<input type="checkbox"/>	
Technetium-99m	—	1.54E+18	0	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-200	HE	311.4	923.6	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.6066	0.0625	pCi/g 0.06731	0.080	583	1	1.474	IDENTIFIED	8.746	<input type="checkbox"/>	
Thorium-228	NR	1.862	0.1092	pCi/g 0.08978	N	238.5	4	0.8716	IDENTIFIED	3.116	<input type="checkbox"/>	
Thorium-230	NR	1.243	0.1289	pCi/g 0.1358	N	609.2	4	1.254	IDENTIFIED	8.517	<input type="checkbox"/>	
Thorium-232	NR	1.996	0.206	pCi/g 0.2381	N	910.6	3	1.415	IDENTIFIED	8.621	<input type="checkbox"/>	
Thorium-234	✓	1.763	0.4898	pCi/g 0.7942	2.00	63.12	2	0.9055	IDENTIFIED	26.35	<input type="checkbox"/>	
Tin-126	NR	0.4286	0.04271	pCi/g 0.07087	N	87.3	3	1.14	IDENTIFIED	8.8	<input type="checkbox"/>	
Titanium-44	—	0.4126	0.02326	pCi/g 0.0404	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	5.2915	1.46E-06	ug/g 1.1843	N		0				<input type="checkbox"/>	
Uranium-234	NR	1.243	0.1289	pCi/g 0.1358	N	609.2	4	1.254	IDENTIFIED	8.517	<input type="checkbox"/>	
Uranium-238	HE	1.763	0.4898	pCi/g 0.7942	N	63.12	2	0.9055	IDENTIFIED	26.35	<input type="checkbox"/>	
Zirconium-97	HE	2.25E+05	9.18E+06	pCi/g 0	N	0	9	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
246440005	02-FEB-10 12:00	19-FEB-10 17:59	17.2	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.684	0.1848	pCi/g 0.1944	N	911	3	1.798	IDENTIFIED	8.749	<input type="checkbox"/>
Americium-243	INT	0.4204	0.04213	pCi/g 0.07952	N	74.76	1	1.347	IDENTIFIED	9.153	<input type="checkbox"/>
Annihilation Rad.	—	0.1486	0.02964	pCi/g 0.04414	N	510.9	1	2.218	IDENTIFIED	19.31	<input type="checkbox"/>
Bismuth-211	INT	4.18	0.3286	pCi/g 0.3087	Y	351.9	4	1.481	IDENTIFIED	5.291	<input checked="" type="checkbox"/> UI
Bismuth-212	—	1.561	0.2661	pCi/g 0.6152	N	0	14	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.192	0.0951	pCi/g 0.1161	0.200	609.4	4	1.699	IDENTIFIED	5.464	<input type="checkbox"/>
Cadmium-109	INT	2.107	0.5061	pCi/g 1.246	Y	86.78	3	1.006	IDENTIFIED	23.56	<input checked="" type="checkbox"/> UI
Cerium-143	—	2848	433.6	pCi/g 0	N	0	14	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134	LA	0.08162	0.02273	pCi/g 0.08011	0.100	0	14	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.



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Krypton-85	HE	12.46	3.176	pCi/g 10.48	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-212	✓	1.663	0.07551	pCi/g 0.07752	0.100	238.7	4	1.178	IDENTIFIED	2.805	<input type="checkbox"/>	
Lead-214	✓	1.256	0.07729	pCi/g 0.09052	0.100	351.9	4	1.491	IDENTIFIED	4.557	<input type="checkbox"/>	
Lutetium-177	HE	2.697	0.8425	pCi/g 2.132	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	INT	1.097	0.1852	pCi/g 0.323	N	87.43	3	1.324	IDENTIFIED	12.55	<input type="checkbox"/>	
Niobium-95m	HE	0.212	0.05829	pCi/g 0.19	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-97	HE	3.88E+05	3.17E+05	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	
Polonium-212	NR	1.663	0.07551	pCi/g 0.07752	N	238.7	4	1.178	IDENTIFIED	2.805	<input type="checkbox"/>	
Polonium-214	NR	1.256	0.07729	pCi/g 0.09052	N	351.9	4	1.491	IDENTIFIED	4.557	<input type="checkbox"/>	
Polonium-216	NR	1.663	0.07551	pCi/g 0.07752	N	238.7	4	1.178	IDENTIFIED	2.805	<input type="checkbox"/>	
Polonium-218	NR	1.256	0.07729	pCi/g 0.09052	N	351.9	4	1.491	IDENTIFIED	4.557	<input type="checkbox"/>	
Potassium-40	✓	36.63	1.579	pCi/g 0.4621	1.00	1460	1	2.214	IDENTIFIED	2.041	<input type="checkbox"/>	
Radium-224	INT	4.378	0.5615	pCi/g 0.8809	Y	241.6	1	1.796	IDENTIFIED	12.52	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.003	0.07522	pCi/g 0.09296	Y	609.2	4	1.502	IDENTIFIED	6.023	<input type="checkbox"/>	
Radium-228	✓	1.677	0.1576	pCi/g 0.1406	0.500	910.7	3	1.534	IDENTIFIED	6.662	<input type="checkbox"/>	
Strontium-85	LA	0.06535	0.01666	pCi/g 0.05494	Y	0	12	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208	✓	0.4855	0.03849	pCi/g 0.04639	0.080	582.9	1	1.64	IDENTIFIED	6.892	<input type="checkbox"/>	
Thorium-228	NR	1.692	0.07682	pCi/g 0.07886	N	238.7	4	1.178	IDENTIFIED	2.805	<input type="checkbox"/>	
Thorium-230	NR	1.003	0.07521	pCi/g 0.09296	N	609.2	4	1.502	IDENTIFIED	6.023	<input type="checkbox"/>	
Thorium-232	NR	1.677	0.1576	pCi/g 0.1406	N	910.7	3	1.534	IDENTIFIED	6.662	<input type="checkbox"/>	
Thorium-234	✓	3.136	1.141	pCi/g 2.206	2.00	63.43	2	0.9802	IDENTIFIED	35.3	<input type="checkbox"/>	
Tin-126	NR	0.3734	0.04992	pCi/g 0.1083	N	87.43	3	1.324	IDENTIFIED	12.55	<input type="checkbox"/>	
Titanium-44	-	0.3922	0.03014	pCi/g 0.07874	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	-	9.3213	3.40E-06	ug/g 3.2847	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.003	0.07521	pCi/g 0.09296	N	609.2	4	1.502	IDENTIFIED	6.023	<input type="checkbox"/>	
Uranium-238	HE	3.136	1.141	pCi/g 2.206	N	63.43	2	0.9802	IDENTIFIED	35.3	<input type="checkbox"/>	
Zirconium-97	✓	2.85E+07	6.83E+06	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue		
246440008	02-FEB-10 12:00	19-FEB-10 19:26	17.3	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP		
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment		
Actinium-228	✓	1.277	0.1925	pCi/g 0.2629	N	911.7	3	1.837	IDENTIFIED	13.92	<input type="checkbox"/>	
Americium-243	INT	0.4124	0.04553	pCi/g 0.09321	N	74.81	1	1.305	IDENTIFIED	10.23	<input type="checkbox"/>	
Annihilation Rad.	HE	0.1309	0.0408	pCi/g 0.05366	N	511.1	1	1.536	IDENTIFIED	30.88	<input type="checkbox"/>	
Bismuth-211	INT	3.762	0.2857	pCi/g 0.388	Y	352.3	4	1.476	IDENTIFIED	6.089	<input checked="" type="checkbox"/>	UI
Bismuth-212	HE	1.186	0.2653	pCi/g 0.7726	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.054	0.09105	pCi/g 0.1166	0.200	609.6	4	1.582	IDENTIFIED	7.091	<input type="checkbox"/>	
Cadmium-109	INT	3.19	0.5009	pCi/g 1.337	Y	87.23	3	1.179	IDENTIFIED	14.99	<input checked="" type="checkbox"/>	UI
Cerium-143	-	1239	291.9	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.1162	0.02735	pCi/g 0.1043	0.100	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma	-	9.486	1.344	pCi/g 2.852	N	0					<input type="checkbox"/>	
Iodine-133	HE	17780	18060	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	-	5.88E+16	0	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Krypton-85	HE	16.91	4.723	pCi/g 15.55	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-212	✓	1.722	0.1068	pCi/g 0.1011	0.100	239	4	1.262	IDENTIFIED	3.582	<input type="checkbox"/>	
Lead-214	✓	1.308	0.1051	pCi/g 0.1257	0.100	352.3	4	1.476	IDENTIFIED	6.089	<input type="checkbox"/>	

Lutetium-177	HE	3.348	0.9878	pCi/g 2.75	N	0	13	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	INT	0.9177	0.1724	pCi/g 0.3917	N	87.23	3	1.179	IDENTIFIED 14.99	<input type="checkbox"/>	
Niobium-97	HE	3.18E+05	5.21E+05	pCi/g 0	N	0	13	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212	NR	1.722	0.1068	pCi/g 0.1011	N	239	4	1.262	IDENTIFIED 3.582	<input type="checkbox"/>	
Polonium-214	NR	1.308	0.1051	pCi/g 0.1257	N	352.3	4	1.476	IDENTIFIED 6.089	<input type="checkbox"/>	
Polonium-216	NR	1.722	0.1068	pCi/g 0.1011	N	239	4	1.262	IDENTIFIED 3.582	<input type="checkbox"/>	
Polonium-218	NR	1.308	0.1051	pCi/g 0.1257	N	352.3	4	1.476	IDENTIFIED 6.089	<input type="checkbox"/>	
Potassium-40	✓	32.38	1.768	pCi/g 0.5173	1.00	1461	1	2.277	IDENTIFIED 3.17	<input type="checkbox"/>	
Radium-224	INT	4.462	0.623	pCi/g 1.151	Y	242.1	1	1.708	IDENTIFIED 13.2	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.054	0.09105	pCi/g 0.1166	Y	609.6	4	1.582	IDENTIFIED 7.091	<input type="checkbox"/>	
Radium-228	✓	1.277	0.1925	pCi/g 0.2629	0.500	911.7	3	1.837	IDENTIFIED 13.92	<input type="checkbox"/>	
Sodium-24	HE	3.06E+06	4.06E+06	pCi/g 0	N	0	13	0	SHORT_HLIF 0	<input type="checkbox"/>	
Strontium-85	LA	0.08872	0.02478	pCi/g 0.08159	Y	0	13	0	NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance
Thallium-200	HE	841.3	1018	pCi/g 0	N	0	13	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.5044	0.04934	pCi/g 0.06263	0.080	583.6	1	1.284	IDENTIFIED 8.664	<input type="checkbox"/>	
Thorium-228	NR	1.752	0.1087	pCi/g 0.1029	N	239	4	1.262	IDENTIFIED 3.582	<input type="checkbox"/>	
Thorium-230	NR	1.054	0.09105	pCi/g 0.1166	N	609.6	4	1.582	IDENTIFIED 7.091	<input type="checkbox"/>	
Thorium-232	NR	1.277	0.1925	pCi/g 0.2629	N	911.7	3	1.837	IDENTIFIED 13.92	<input type="checkbox"/>	
Thorium-234	✓	2.613	1.001	pCi/g 2.349	2.00	63.2	2	1.28	IDENTIFIED 37.29	<input type="checkbox"/>	
Tin-126	NR	0.3125	0.04908	pCi/g 0.1317	N	87.23	3	1.179	IDENTIFIED 14.99	<input type="checkbox"/>	
Titanium-44	-	0.4254	0.03274	pCi/g 0.08973	N	0	13	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	-	7.9124	2.98E-06	ug/g 3.4972	N	0				<input type="checkbox"/>	
Uranium-234	NR	1.054	0.09105	pCi/g 0.1166	N	609.6	4	1.582	IDENTIFIED 7.091	<input type="checkbox"/>	
Uranium-238	HE	2.613	1.001	pCi/g 2.349	N	63.2	2	1.28	IDENTIFIED 37.29	<input type="checkbox"/>	
Zirconium-97	HE	1.69E+07	9.34E+06	pCi/g 0	N	0	13	0	SHORT_HLIF 0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246440009	02-FEB-10 12:00	19-FEB-10 19:50	17.3	SAMPLE	LOAD	1	LANL	LANL01004IGEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.891	0.1934	pCi/g 0.2247	N	910.6	3	1.663	IDENTIFIED 8.101	<input type="checkbox"/>
Americium-243	INT	0.4038	0.04355	pCi/g 0.09899	N	74.55	1	1.031	IDENTIFIED 9.86	<input type="checkbox"/>
Annihilation Rad.	-	0.1384	0.03976	pCi/g 0.05135	N	510.7	1	2.05	IDENTIFIED 28.3	<input type="checkbox"/>
Bismuth-211	INT	3.934	0.3511	pCi/g 0.3459	Y	351.6	4	1.23	IDENTIFIED 6.818	<input checked="" type="checkbox"/>
Bismuth-212	HE	0.986	0.3374	pCi/g 0.762	N	0	8	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214	✓	0.9989	0.1134	pCi/g 0.1353	0.200	608.9	4	1.8	IDENTIFIED 10.05	<input type="checkbox"/>
Cadmium-109	INT	2.996	0.5658	pCi/g 1.302	Y	87.04	3	1.102	IDENTIFIED 18.22	<input checked="" type="checkbox"/>
Cerium-143	-	2655	423.7	pCi/g 0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Gross Gamma	-	10.12	1.565	pCi/g 2.958	N	0				<input type="checkbox"/>
Lead-212	✓	1.803	0.1292	pCi/g 0.09909	0.100	238.4	4	1.101	IDENTIFIED 3.432	<input type="checkbox"/>
Lead-214	✓	1.368	0.1273	pCi/g 0.1206	0.100	351.6	4	1.23	IDENTIFIED 6.818	<input type="checkbox"/>
Lutetium-177	HE	4.621	1.498	pCi/g 2.747	N	0	8	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	INT	0.862	0.1855	pCi/g 0.382	N	87.04	3	1.102	IDENTIFIED 18.22	<input type="checkbox"/>
Niobium-97	HE	1.20E+05	4.82E+05	pCi/g 0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-212	NR	1.803	0.1292	pCi/g 0.09909	N	238.4	4	1.101	IDENTIFIED 3.432	<input type="checkbox"/>
Polonium-214	NR	1.368	0.1273	pCi/g 0.1206	N	351.6	4	1.23	IDENTIFIED 6.818	<input type="checkbox"/>
Polonium-216	NR	1.803	0.1292	pCi/g 0.09909	N	238.4	4	1.101	IDENTIFIED 3.432	<input type="checkbox"/>

Polonium-218	NR	1.368	0.1273	pCi/g 0.1206	N	351.6	4	1.23	IDENTIFIED	6.818	<input type="checkbox"/>	
Potassium-40	✓	36.01	1.987	pCi/g 0.5232	1.00	1460	1	2.128	IDENTIFIED	2.801	<input type="checkbox"/>	
Radium-224	INT	5.436	0.7584	pCi/g 1.128	Y	241.5	1	1.723	IDENTIFIED	12.64	<input checked="" type="checkbox"/>	UI
Radium-226	✓	0.9989	0.1134	pCi/g 0.1353	Y	608.9	4	1.8	IDENTIFIED	10.05	<input type="checkbox"/>	
Radium-228	✓	1.891	0.1934	pCi/g 0.2247	0.500	910.6	3	1.663	IDENTIFIED	8.101	<input type="checkbox"/>	
Sodium-24	HE	2.29E+06	5.43E+06	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-200	HE	1116	978.1	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.5871	0.05353	pCi/g 0.06257	0.080	582.8	1	1.273	IDENTIFIED	7.619	<input type="checkbox"/>	
Thorium-228	NR	1.834	0.1314	pCi/g 0.1008	N	238.4	4	1.101	IDENTIFIED	3.432	<input type="checkbox"/>	
Thorium-230	NR	0.9989	0.1134	pCi/g 0.1353	N	608.9	4	1.8	IDENTIFIED	10.05	<input type="checkbox"/>	
Thorium-232	NR	1.891	0.1934	pCi/g 0.2247	N	910.6	3	1.663	IDENTIFIED	8.101	<input type="checkbox"/>	
Thorium-234	✓	2.825	1.173	pCi/g 2.413	2.00	63.01	2	1.002	IDENTIFIED	40.59	<input type="checkbox"/>	
Tin-126	NR	0.2935	0.05543	pCi/g 0.1283	N	87.04	3	1.102	IDENTIFIED	18.22	<input type="checkbox"/>	
Titanium-44	HE	0.1207	0.02583	pCi/g 0.0742	N	0	8	0	NOT_IDENTI	0	<input type="checkbox"/>	
Total Uranium	✓	8.4456	3.49E-06	ug/g 3.5927	N	0					<input type="checkbox"/>	
Uranium-234	NR	0.9989	0.1134	pCi/g 0.1353	N	608.9	4	1.8	IDENTIFIED	10.05	<input type="checkbox"/>	
Uranium-238	HE	2.825	1.173	pCi/g 2.413	N	63.01	2	1.002	IDENTIFIED	40.59	<input type="checkbox"/>	
Zirconium-97	HE	1.39E+07	9.87E+06	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue		
246440010	02-FEB-10 12:00	19-FEB-10 19:50	17.3	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP		
Name		Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment		
Actinium-228	✓	1.649	0.2093	pCi/g	0.1956	N	911.4	3	1.758	IDENTIFIED	11.46	<input type="checkbox"/>	
Americium-243	INT	0.3421	0.04492	pCi/g	0.1026	N	74.75	1	0.9805	IDENTIFIED	11.82	<input type="checkbox"/>	
Annihilation Rad.	HE	0.0756	0.03149	pCi/g	0.04777	N	510.7	1	1.805	IDENTIFIED	41.57	<input type="checkbox"/>	
Bismuth-211	INT	3.801	0.28	pCi/g	0.309	Y	351.9	4	1.251	IDENTIFIED	6.549	<input checked="" type="checkbox"/>	UI
Bismuth-212	✓	1.292	0.2805	pCi/g	0.7272	N	0	10	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.168	0.08672	pCi/g	0.1059	0.200	609.3	4	1.41	IDENTIFIED	6.455	<input type="checkbox"/>	
Cadmium-109	INT	3.3	0.6175	pCi/g	1.352	Y	87.13	3	1.145	IDENTIFIED	17.73	<input checked="" type="checkbox"/>	UI
Cerium-143	✓	1575	297	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.1346	0.0389	pCi/g	0.09691	0.100	0	10	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma	✓	10.18	1.462	pCi/g	3.138	N	0					<input type="checkbox"/>	
Iodine-123	HE	1.51E+07	4.57E+07	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-133	✓	39310	16580	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.712	0.08836	pCi/g	0.09003	0.100	238.6	4	1.047	IDENTIFIED	3.241	<input type="checkbox"/>	
Lead-214	✓	1.322	0.1033	pCi/g	0.1077	0.100	351.9	4	1.251	IDENTIFIED	6.549	<input type="checkbox"/>	
Lutetium-177	HE	2.686	0.9942	pCi/g	2.582	N	0	10	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	INT	0.9493	0.2029	pCi/g	0.4312	N	87.13	3	1.145	IDENTIFIED	17.73	<input type="checkbox"/>	
Polonium-212	NR	1.712	0.08836	pCi/g	0.09003	N	238.6	4	1.047	IDENTIFIED	3.241	<input type="checkbox"/>	
Polonium-214	NR	1.322	0.1033	pCi/g	0.1077	N	351.9	4	1.251	IDENTIFIED	6.549	<input type="checkbox"/>	
Polonium-216	NR	1.712	0.08836	pCi/g	0.09003	N	238.6	4	1.047	IDENTIFIED	3.241	<input type="checkbox"/>	
Polonium-218	NR	1.322	0.1033	pCi/g	0.1077	N	351.9	4	1.251	IDENTIFIED	6.549	<input type="checkbox"/>	
Potassium-40	✓	34.51	1.597	pCi/g	0.6417	1.00	1461	1	2.22	IDENTIFIED	2.965	<input type="checkbox"/>	
Radium-224	INT	4.683	0.7678	pCi/g	1.025	Y	241.4	1	1.863	IDENTIFIED	16.05	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.168	0.08672	pCi/g	0.1059	Y	609.3	4	1.41	IDENTIFIED	6.455	<input type="checkbox"/>	
Radium-228	✓	1.649	0.2093	pCi/g	0.1956	0.500	911.4	3	1.758	IDENTIFIED	11.46	<input checked="" type="checkbox"/>	

Technetium-99m	—	4.15E+18 0	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	<input type="checkbox"/>		
Thallium-200	HE	1587	898.4	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	<input type="checkbox"/>	
Thallium-208	✓	0.4901	0.04326	pCi/g 0.06631	0.080	583.2	1	1.489	IDENTIFIED 8.248	<input type="checkbox"/>	<input type="checkbox"/>	
Thorium-228	NR	1.742	0.0899	pCi/g 0.0916	N	238.6	4	1.047	IDENTIFIED 3.241	<input type="checkbox"/>	<input type="checkbox"/>	
Thorium-230	NR	1.168	0.08672	pCi/g 0.1059	N	609.3	4	1.41	IDENTIFIED 6.455	<input type="checkbox"/>	<input type="checkbox"/>	
Thorium-232	NR	1.649	0.2093	pCi/g 0.1956	N	911.4	3	1.758	IDENTIFIED 11.46	<input type="checkbox"/>	<input type="checkbox"/>	
Thorium-234	NR	4.868	1.56	pCi/g 2.944	2.00	63.51	2	1.863	IDENTIFIED 30.49	<input checked="" type="checkbox"/>	UI	
Tin-126	NR	0.3233	0.0605	pCi/g 0.1335	N	87.13	3	1.145	IDENTIFIED 17.73	<input type="checkbox"/>	<input type="checkbox"/>	
Titanium-44	—	0.4275	0.03948	pCi/g 0.08538	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>	<input type="checkbox"/>	
Total Uranium	NR	14.513	4.64E-06	ug/g 4.382	N	0				<input type="checkbox"/>	<input type="checkbox"/>	
Uranium-234	NR	1.168	0.08672	pCi/g 0.1059	N	609.3	4	1.41	IDENTIFIED 6.455	<input type="checkbox"/>	<input type="checkbox"/>	
Uranium-238	HE	4.868	1.56	pCi/g 2.944	N	63.51	2	1.863	IDENTIFIED 30.49	<input type="checkbox"/>	<input type="checkbox"/>	
Zirconium-97	HE	1.67E+07	8.74E+06	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	<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
246440011	02-FEB-10 12:00	19-FEB-10 19:50	17.3	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err (%)	Qual	Qual Comment
Actinium-228	✓	1.644	0.1753	pCi/g 0.2485	N	911.4	3	1.737	IDENTIFIED 8.93	<input type="checkbox"/>	
Americium-243	INT	0.3795	0.0368	pCi/g 0.07775	N	74.77	1	1.217	IDENTIFIED 8.823	<input type="checkbox"/>	
Annihilation Rad.	—	0.2196	0.0389	pCi/g 0.04676	N	511	1	1.864	IDENTIFIED 17.15	<input type="checkbox"/>	
Barium-137m	HE	0.08135	0.02994	pCi/g 0.06746	N	661.7	2	1.907	IDENTIFIED 36.53	<input type="checkbox"/>	
Bismuth-211	INT	3.639	0.2763	pCi/g 0.3748	Y	352	4	1.198	IDENTIFIED 6.128	<input checked="" type="checkbox"/>	UI
Bismuth-212	HE	0.9368	0.2569	pCi/g 0.6833	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	✓	1.375	0.1154	pCi/g 0.1083	0.200	609.5	4	1.327	IDENTIFIED 6.613	<input type="checkbox"/>	
Cadmium-109	INT	4.496	0.5271	pCi/g 1.122	Y	87.16	3	1.371	IDENTIFIED 10.76	<input checked="" type="checkbox"/>	UI
Cerium-143	—	1832	331.3	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137	✓	0.08599	0.03165	pCi/g 0.07131	0.100	661.7	2	1.907	IDENTIFIED 36.53	<input type="checkbox"/>	
Gross Gamma	—	11.15	1.93	pCi/g 4.42	N	0				<input type="checkbox"/>	
Iodine-123	HE	5.35E+07	5.42E+07	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-133	HE	17740	17530	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Krypton-85	HE	15.2	4.107	pCi/g 14.02	N	0	11	0	NOT_IDENTI 0	<input type="checkbox"/>	
Lead-212	✓	1.852	0.1072	pCi/g 0.09753	0.100	238.8	4	1.121	IDENTIFIED 3.258	<input type="checkbox"/>	
Lead-214	✓	1.266	0.1016	pCi/g 0.1335	0.100	352	4	1.198	IDENTIFIED 6.128	<input type="checkbox"/>	
Lutetium-177	—	7.324	1.29	pCi/g 2.721	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	INT	1.293	0.202	pCi/g 0.3253	N	87.16	3	1.371	IDENTIFIED 10.76	<input type="checkbox"/>	
Niobium-97	HE	4.27E+05	5.28E+05	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212	NR	1.852	0.1072	pCi/g 0.09753	N	238.8	4	1.121	IDENTIFIED 3.258	<input type="checkbox"/>	
Polonium-214	NR	1.266	0.1016	pCi/g 0.1335	N	352	4	1.198	IDENTIFIED 6.128	<input type="checkbox"/>	
Polonium-216	NR	1.852	0.1072	pCi/g 0.09753	N	238.8	4	1.121	IDENTIFIED 3.258	<input type="checkbox"/>	
Polonium-218	NR	1.266	0.1016	pCi/g 0.1335	N	352	4	1.198	IDENTIFIED 6.128	<input type="checkbox"/>	
Potassium-40	✓	37.28	1.902	pCi/g 0.5998	1.00	1461	1	1.958	IDENTIFIED 2.758	<input type="checkbox"/>	
Radium-224	INT	4.593	0.6753	pCi/g 1.11	Y	241.7	1	1.665	IDENTIFIED 14.08	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.375	0.1154	pCi/g 0.1083	Y	609.5	4	1.327	IDENTIFIED 6.613	<input type="checkbox"/>	
Radium-228	✓	1.644	0.1753	pCi/g 0.2485	0.500	911.4	3	1.737	IDENTIFIED 8.93	<input type="checkbox"/>	
Sodium-24	HE	6.35E+05	3.90E+06	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Strontium-85	LA	0.07977	0.02155	pCi/g 0.0736	Y	0	11	0	NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.

Thallium-208	✓	0.5935	0.04533	pCi/g	0.06183	0.080	583.4	1	1.438	IDENTIFIED	5.955	<input type="checkbox"/>	
Thorium-228	NR	1.884	0.109	pCi/g	0.09923	N	238.8	4	1.121	IDENTIFIED	3.258	<input type="checkbox"/>	
Thorium-230	NR	1.375	0.1154	pCi/g	0.1083	N	609.5	4	1.327	IDENTIFIED	6.613	<input type="checkbox"/>	
Thorium-232	NR	1.644	0.1753	pCi/g	0.2485	N	911.4	3	1.737	IDENTIFIED	8.93	<input type="checkbox"/>	
Thorium-234	✓	2.65	0.7361	pCi/g	1.622	2.00	63.49	2	0.9609	IDENTIFIED	26.38	<input type="checkbox"/>	
Tin-126	NR	0.4404	0.05164	pCi/g	0.1101	N	87.16	3	1.371	IDENTIFIED	10.76	<input type="checkbox"/>	
Titanium-44	—	0.3918	0.0268	pCi/g	0.07447	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	7.8759	2.19E-06	ug/g	2.4154	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.375	0.1154	pCi/g	0.1083	N	609.5	4	1.327	IDENTIFIED	6.613	<input type="checkbox"/>	
Uranium-238	HE	2.65	0.7361	pCi/g	1.622	N	63.49	2	0.9609	IDENTIFIED	26.38	<input type="checkbox"/>	
Zirconium-97	—	2.88E+07	9.42E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue	
246440012	02-FEB-10 12:00	19-FEB-10 19:51	17.3	SAMPLE	LOAD	1	LANL	LANL01004KGEI		N	RGSP	
Name		Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.62	0.1931	pCi/g	0.219	N	910.7	3	1.552	IDENTIFIED 10.2	<input type="checkbox"/>	
Americium-243	INT	0.3842	0.04905	pCi/g	0.1094	N	74.53	1	0.9454	IDENTIFIED 11.53	<input type="checkbox"/>	
Annihilation Rad.	—	0.1547	0.03164	pCi/g	0.04449	N	510.5	1	1.832	IDENTIFIED 20.2	<input type="checkbox"/>	
Bismuth-211	INT	3.691	0.2801	pCi/g	0.3211	Y	351.6	4	1.401	IDENTIFIED 6.656	<input checked="" type="checkbox"/>	UL
Bismuth-212	✓	1.179	0.2711	pCi/g	0.483	N	726.7	1	1.57	IDENTIFIED 22.64	<input type="checkbox"/>	
Bismuth-214	✓	1.06	0.08237	pCi/g	0.1103	0.200	608.9	4	1.396	IDENTIFIED 6.775	<input type="checkbox"/>	
Cadmium-109	INT	3.589	0.614	pCi/g	1.29	Y	86.87	3	1.321	IDENTIFIED 16.15	<input checked="" type="checkbox"/>	UL
Cerium-143	—	2831	427.1	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-135	HE	0.3323	0.08762	pCi/g	0.2932	N	0	10	0	NOT_IDENTI 0	<input type="checkbox"/>	
Gross Gamma	—	10.11	1.491	pCi/g	3.233	N	0				<input type="checkbox"/>	
Iodine-123	HE	2.22E+07	4.98E+07	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-133	HE	1352	18130	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212	✓	1.641	0.08475	pCi/g	0.09149	0.100	238.3	4	1.117	IDENTIFIED 3.506	<input type="checkbox"/>	
Lead-214	✓	1.284	0.103	pCi/g	0.1119	0.100	351.6	4	1.401	IDENTIFIED 6.656	<input type="checkbox"/>	
Lutetium-177	HE	3.421	0.9518	pCi/g	2.544	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	INT	1.032	0.2063	pCi/g	0.4662	N	86.87	3	1.321	IDENTIFIED 16.15	<input type="checkbox"/>	
Niobium-95m	HE	0.2574	0.07229	pCi/g	0.2391	N	0	10	0	NOT_IDENTI 0	<input type="checkbox"/>	
Polonium-212	NR	1.641	0.08475	pCi/g	0.09149	N	238.3	4	1.117	IDENTIFIED 3.506	<input type="checkbox"/>	
Polonium-214	NR	1.284	0.103	pCi/g	0.1119	N	351.6	4	1.401	IDENTIFIED 6.656	<input type="checkbox"/>	
Polonium-216	NR	1.641	0.08475	pCi/g	0.09149	N	238.3	4	1.117	IDENTIFIED 3.506	<input type="checkbox"/>	
Polonium-218	NR	1.284	0.103	pCi/g	0.1119	N	351.6	4	1.401	IDENTIFIED 6.656	<input type="checkbox"/>	
Potassium-40	✓	37.95	1.942	pCi/g	0.5498	1.00	1460	1	1.962	IDENTIFIED 2.761	<input type="checkbox"/>	
Radium-224	INT	4.65	0.7147	pCi/g	1.041	Y	241.3	1	1.87	IDENTIFIED 15.06	<input checked="" type="checkbox"/>	UL
Radium-226	✓	1.06	0.08237	pCi/g	0.1103	Y	608.9	4	1.396	IDENTIFIED 6.775	<input type="checkbox"/>	
Radium-228	✓	1.62	0.1931	pCi/g	0.219	0.500	910.7	3	1.552	IDENTIFIED 10.2	<input type="checkbox"/>	
Sodium-24	HE	4.55E+06	5.42E+06	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-200	HE	1322	907	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.5303	0.0409	pCi/g	0.06057	0.080	582.9	1	1.564	IDENTIFIED 6.942	<input type="checkbox"/>	
Thorium-228	NR	1.67	0.08622	pCi/g	0.09308	N	238.3	4	1.117	IDENTIFIED 3.506	<input type="checkbox"/>	
Thorium-230	NR	1.06	0.08237	pCi/g	0.1103	N	608.9	4	1.396	IDENTIFIED 6.775	<input type="checkbox"/>	
Thorium-232	NR	1.62	0.1931	pCi/g	0.219	N	910.7	3	1.552	IDENTIFIED 10.2	<input type="checkbox"/>	

Thorium-234	✓	4.435	1.56	pCi/g	3.019	2.00	62.94	2	1.656	IDENTIFIED	33.75	<input type="checkbox"/>	
Tin-126	NR	0.3516	0.06015	pCi/g	0.1273	N	86.87	3	1.321	IDENTIFIED	16.15	<input type="checkbox"/>	
Titanium-44	-	0.1453	0.02562	pCi/g	0.0838	N	0	10	0	NOT_IDENTI	0	<input type="checkbox"/>	
Total Uranium	-	13.193	4.64E-06	ug/g	4.4945	N		0				<input type="checkbox"/>	
Uranium-234	NR	1.06	0.08237	pCi/g	0.1103	N	608.9	4	1.396	IDENTIFIED	6.775	<input type="checkbox"/>	
Uranium-238	HE	4.435	1.56	pCi/g	3.019	N	62.94	2	1.656	IDENTIFIED	33.75	<input type="checkbox"/>	
Zirconium-97	-	3.08E+07	9.14E+06	pCi/g	0	N	0	10	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
246440013	02-FEB-10 12:00	19-FEB-10 19:51	17.3	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	✓	1.337	0.1459	pCi/g	0.1843	N	911.5	3	1.39	IDENTIFIED	9.059	<input type="checkbox"/>	
Americium-243	INT	0.3546	0.03196	pCi/g	0.06515	N	74.76	1	0.918	IDENTIFIED	8.052	<input type="checkbox"/>	
Annihilation Rad.	-	0.1245	0.029	pCi/g	0.04011	N	510.8	1	1.753	IDENTIFIED	22.68	<input type="checkbox"/>	
Barium-137m	HE	0.06023	0.02096	pCi/g	0.05364	N	662.1	2	1.33	IDENTIFIED	34.48	<input type="checkbox"/>	
Bismuth-211	INT	3.628	0.3076	pCi/g	0.2816	Y	351.9	4	1.166	IDENTIFIED	5.354	<input checked="" type="checkbox"/>	
Bismuth-212	✓	1.199	0.2366	pCi/g	0.3633	N	727.1	1	1.345	IDENTIFIED	18.95	<input type="checkbox"/>	
Bismuth-214	✓	1.051	0.09215	pCi/g	0.09021	0.200	609.5	4	1.233	IDENTIFIED	6.702	<input type="checkbox"/>	
Cadmium-109	INT	3.887	0.484	pCi/g	0.8883	Y	87.21	3	1.323	IDENTIFIED	11.53	<input checked="" type="checkbox"/>	
Cerium-143	-	1080	233.4	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.1112	0.0243	pCi/g	0.08	0.100	0	9	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	Data rejected due to low abundance.
Cesium-137	✓	0.06367	0.02216	pCi/g	0.0567	0.100	662.1	2	1.33	IDENTIFIED	34.48	<input type="checkbox"/>	
Gross Gamma	-	9.713	1.387	pCi/g	3.231	N		0				<input type="checkbox"/>	
Iodine-123	HE	4.30E+07	3.68E+07	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	-	1.57E+18	0	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.611	0.1233	pCi/g	0.0808	0.100	238.6	4	0.934	IDENTIFIED	3.087	<input type="checkbox"/>	
Lead-214	✓	1.262	0.112	pCi/g	0.09341	0.100	351.9	4	1.166	IDENTIFIED	5.354	<input type="checkbox"/>	
Lutetium-177	-	4.931	1.03	pCi/g	2.14	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	INT	1.118	0.1808	pCi/g	0.2585	N	87.21	3	1.323	IDENTIFIED	11.53	<input type="checkbox"/>	
Polonium-212	NR	1.611	0.1233	pCi/g	0.0808	N	238.6	4	0.934	IDENTIFIED	3.087	<input type="checkbox"/>	
Polonium-214	NR	1.262	0.112	pCi/g	0.09341	N	351.9	4	1.166	IDENTIFIED	5.354	<input type="checkbox"/>	
Polonium-216	NR	1.611	0.1233	pCi/g	0.0808	N	238.6	4	0.934	IDENTIFIED	3.087	<input type="checkbox"/>	
Polonium-218	NR	1.262	0.112	pCi/g	0.09341	N	351.9	4	1.166	IDENTIFIED	5.354	<input type="checkbox"/>	
Potassium-40	✓	30.71	1.556	pCi/g	0.4934	1.00	1461	1	1.958	IDENTIFIED	2.643	<input type="checkbox"/>	
Radium-224	INT	4.118	0.5267	pCi/g	0.9197	Y	241.5	1	1.529	IDENTIFIED	10.89	<input checked="" type="checkbox"/>	
Radium-226	✓	1.051	0.09215	pCi/g	0.09021	Y	609.5	4	1.233	IDENTIFIED	6.702	<input type="checkbox"/>	
Radium-228	✓	1.337	0.1459	pCi/g	0.1843	0.500	911.5	3	1.39	IDENTIFIED	9.059	<input type="checkbox"/>	
Sodium-24	HE	5.30E+06	3.48E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-200	HE	557.9	835.9	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.6091	0.04838	pCi/g	0.04453	0.080	583.1	1	1.253	IDENTIFIED	5.825	<input type="checkbox"/>	
Thorium-228	NR	1.639	0.1254	pCi/g	0.08221	N	238.6	4	0.934	IDENTIFIED	3.087	<input type="checkbox"/>	
Thorium-230	NR	1.051	0.09215	pCi/g	0.09021	N	609.5	4	1.233	IDENTIFIED	6.702	<input type="checkbox"/>	
Thorium-232	NR	1.337	0.1459	pCi/g	0.1843	N	911.5	3	1.39	IDENTIFIED	9.059	<input type="checkbox"/>	
Thorium-234	✓	2.41	0.6821	pCi/g	1.438	2.00	63.11	2	0.8126	IDENTIFIED	26.93	<input type="checkbox"/>	
Tin-126	NR	0.3808	0.04741	pCi/g	0.08731	N	87.21	3	1.323	IDENTIFIED	11.53	<input type="checkbox"/>	
Titanium-44	-	0.3172	0.02252	pCi/g	0.05488	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	



Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246444001	03-FEB-10 12:00	19-FEB-10 17:59	16.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.828	0.1827	pCi/g	0.2021	N	910.9	3	1.431 IDENTIFIED	8.031	<input type="checkbox"/>
Americium-243 INT	0.3528	0.02713	pCi/g	0.04745	N	74.84	1	0.9581 IDENTIFIED	5.772	<input type="checkbox"/>
Annihilation Rad. —	0.1576	0.03437	pCi/g	0.04751	N	510.7	1	1.88 IDENTIFIED	21.2	<input type="checkbox"/>
Barium-137m ✓	0.2254	0.03389	pCi/g	0.05756	N	661.2	2	1.224 IDENTIFIED	13.98	<input type="checkbox"/>
Bismuth-210 HE	0.9596	0.3267	pCi/g	0.6474	N	46.62	3	0.9852 IDENTIFIED	33.65	<input type="checkbox"/>
Bismuth-211 INT	4.039	0.3022	pCi/g	0.2824	Y	351.7	4	1.148 IDENTIFIED	5.32	<input checked="" type="checkbox"/> UI
Bismuth-212 —	1.468	0.2613	pCi/g	0.6857	N	0	13	0 FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 ✓	1.298	0.1071	pCi/g	0.09858	0.200	609.2	4	1.24 IDENTIFIED	5.632	<input type="checkbox"/>
Cadmium-109 INT	3.3	0.392	pCi/g	0.7733	Y	87.17	3	1.089 IDENTIFIED	10.61	<input checked="" type="checkbox"/> UI
Cerium-143 —	978.9	171.6	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134 LA	0.1096	0.03755	pCi/g	0.08875	0.100	0	13	0 FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-137 ✓	0.2382	0.03583	pCi/g	0.06085	0.100	661.2	2	1.224 IDENTIFIED	13.98	<input type="checkbox"/>
Europium-155 HE	0.1642	0.06011	pCi/g	0.1256	N	105.5	1	1.626 IDENTIFIED	36.12	<input type="checkbox"/>
Gross Gamma —	10.37	1.375	pCi/g	3.165	N	0				<input type="checkbox"/>
Iodine-123 HE	7.34E+06	9.64E+06	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-133 HE	6254	6804	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135 —	1.71E+16	0	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-210 HE	0.9596	0.3267	pCi/g	0.6474	N	46.62	3	0.9852 IDENTIFIED	33.65	<input type="checkbox"/>
Lead-212 ✓	1.861	0.1176	pCi/g	0.07519	0.100	238.5	4	0.9987 IDENTIFIED	2.744	<input type="checkbox"/>
Lead-214 ✓	1.405	0.1113	pCi/g	0.09848	0.100	351.7	4	1.148 IDENTIFIED	5.32	<input type="checkbox"/>
Lutetium-177 HE	3.175	0.6999	pCi/g	2.054	N	0	13	0 FAIL_ABUND	0	<input type="checkbox"/>
Mercury-203 INT	0.07528	0.02868	pCi/g	0.05451	0.100	278.2	1	0.9393 IDENTIFIED	37.67	<input checked="" type="checkbox"/> UI
Neptunium-237 NR	0.9509	0.1496	pCi/g	0.2372	N	87.17	3	1.089 IDENTIFIED	10.61	<input type="checkbox"/>
Niobium-95 HE	0.09149	0.02415	pCi/g	0.08923	N	0	13	0 NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97 HE	1.37E+05	1.61E+05	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Polonium-210 HE	0.9596	0.3261	pCi/g	0.6474	N	46.62	3	0.9852 IDENTIFIED	33.65	<input type="checkbox"/>
Polonium-212 NR	1.861	0.1176	pCi/g	0.07519	N	238.5	4	0.9987 IDENTIFIED	2.744	<input type="checkbox"/>
Polonium-214 NR	1.405	0.1113	pCi/g	0.09848	N	351.7	4	1.148 IDENTIFIED	5.32	<input type="checkbox"/>
Polonium-216 NR	1.861	0.1176	pCi/g	0.07519	N	238.5	4	0.9987 IDENTIFIED	2.744	<input type="checkbox"/>
Polonium-218 NR	1.405	0.1113	pCi/g	0.09848	N	351.7	4	1.148 IDENTIFIED	5.32	<input type="checkbox"/>
Potassium-40 ✓	32.61	1.654	pCi/g	0.4933	1.00	1460	1	2.106 IDENTIFIED	2.758	<input type="checkbox"/>
Radium-224 INT	4.602	0.6669	pCi/g	0.8566	Y	241.4	1	1.769 IDENTIFIED	13.5	<input checked="" type="checkbox"/> UI
Radium-226 ✓	1.298	0.1071	pCi/g	0.09858	Y	609.2	4	1.24 IDENTIFIED	5.632	<input type="checkbox"/>
Radium-228 ✓	1.828	0.1827	pCi/g	0.2021	0.500	910.9	3	1.431 IDENTIFIED	8.031	<input type="checkbox"/>
Technetium-99m —	6.62E+16	0	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-200 HE	211.5	409.6	pCi/g	0	N	0	13	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 ✓	0.5279	0.05015	pCi/g	0.06266	0.080	583	1	1.4 IDENTIFIED	7.649	<input type="checkbox"/>
Thorium-228 NR	1.891	0.1195	pCi/g	0.07642	N	238.5	4	0.9987 IDENTIFIED	2.744	<input type="checkbox"/>
Thorium-230 NR	1.298	0.1071	pCi/g	0.09858	N	609.2	4	1.24 IDENTIFIED	5.632	<input type="checkbox"/>
Thorium-232 NR	1.828	0.1827	pCi/g	0.2021	N	910.9	3	1.431 IDENTIFIED	8.031	<input type="checkbox"/>
Thorium-234 ✓	3.576	0.5151	pCi/g	0.7624	2.00	63.19	2	0.6804 IDENTIFIED	10.99	<input type="checkbox"/>
Tin-126 NR	0.3238	0.03847	pCi/g	0.07573	N	87.17	3	1.089 IDENTIFIED	10.61	<input type="checkbox"/>
Titanium-44 —	0.3873	0.02439	pCi/g	0.0454	N	0	13	0 FAIL_ABUND	0	<input type="checkbox"/>

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

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.245	0.1477	pCi/g 0.19	N	911	3	1.713	IDENTIFIED	10.27	☐	
Americium-243	INT	0.2887	0.02921	pCi/g 0.07324	N	74.83	1	0.8967	IDENTIFIED	9.231	☐	
Annihilation Rad.	HE	0.08657	0.03064	pCi/g 0.03945	N	510.7	1	1.733	IDENTIFIED	35.07	☐	
Barium-137m	HE	0.07874	0.02259	pCi/g 0.05458	N	661.7	2	1.761	IDENTIFIED	28.34	☐	
Beryllium-7	HE	0.5405	0.2141	pCi/g 0.4555	N	477.6	1	1.122	IDENTIFIED	39.28	☐	
Bismuth-211	INT	3.095	0.2464	pCi/g 0.2708	Y	351.8	4	1.008	IDENTIFIED	5.795	☑	✓
Bismuth-212	HE	0.9307	0.2591	pCi/g 0.5998	N	0	7	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	0.9539	0.08382	pCi/g 0.1009	0.200	609.3	4	1.52	IDENTIFIED	7.019	☐	
Cadmium-109	INT	1.621	0.4525	pCi/g 0.993	Y	86.77	3	1.026	IDENTIFIED	27.5	☑	✓
Cerium-143	—	802.5	156.9	pCi/g 0	N	0	7	0	SHORT_HLIF	0	☐	
Cesium-137	✓	0.08324	0.02388	pCi/g 0.0577	0.100	661.7	2	1.761	IDENTIFIED	28.34	☐	
Gross Gamma	—	8.868	1.342	pCi/g 2.551	N	0					☐	
Lead-212	✓	1.297	0.08967	pCi/g 0.075	0.100	238.5	4	0.9643	IDENTIFIED	3.575	☐	
Lead-214	✓	1.077	0.0902	pCi/g 0.09438	0.100	351.8	4	1.008	IDENTIFIED	5.795	☐	
Lutetium-177	HE	2.407	0.6752	pCi/g 1.906	N	0	7	0	FAIL_ABUND	0	☐	
Neptunium-237	HE	0.4671	0.139	pCi/g 0.3376	N	86.77	3	1.026	IDENTIFIED	27.5	☐	
Polonium-212	NR	1.297	0.08967	pCi/g 0.075	N	238.5	4	0.9643	IDENTIFIED	3.575	☐	
Polonium-214	NR	1.077	0.0902	pCi/g 0.09438	N	351.8	4	1.008	IDENTIFIED	5.795	☐	
Polonium-216	NR	1.297	0.08967	pCi/g 0.075	N	238.5	4	0.9643	IDENTIFIED	3.575	☐	
Polonium-218	NR	1.077	0.0902	pCi/g 0.09438	N	351.8	4	1.008	IDENTIFIED	5.795	☐	
Potassium-40	✓	35.29	1.795	pCi/g 0.4946	1.00	1461	1	1.963	IDENTIFIED	2.56	☐	
Radium-224	INT	3.951	0.5884	pCi/g 0.8535	Y	241.5	1	1.649	IDENTIFIED	13.83	☑	✓
Radium-226	✓	0.9539	0.08382	pCi/g 0.1009	Y	609.3	4	1.52	IDENTIFIED	7.019	☐	
Radium-228	✓	1.245	0.1477	pCi/g 0.19	0.500	911	3	1.713	IDENTIFIED	10.27	☐	
Technetium-99m	—	3.58E+17	0	pCi/g 0	N	0	7	0	SHORT_HLIF	0	☐	
Thallium-200	—	999.9	402.9	pCi/g 0	N	0	7	0	SHORT_HLIF	0	☐	
Thallium-208	✓	0.4485	0.03912	pCi/g 0.05261	0.080	583.2	1	1.248	IDENTIFIED	7.371	☐	
Thorium-228	NR	1.318	0.09114	pCi/g 0.07623	N	238.5	4	0.9643	IDENTIFIED	3.575	☐	
Thorium-230	NR	0.9538	0.08381	pCi/g 0.1009	N	609.3	4	1.52	IDENTIFIED	7.019	☐	
Thorium-232	NR	1.245	0.1477	pCi/g 0.19	N	911	3	1.713	IDENTIFIED	10.27	☐	
Thorium-234	✓	3.29	0.8978	pCi/g 1.695	2.00	63	2	1.061	IDENTIFIED	25.86	☐	
Tin-126	HE	0.1591	0.04439	pCi/g 0.1135	N	86.77	3	1.026	IDENTIFIED	27.5	☐	
Titanium-44	—	0.3012	0.02432	pCi/g 0.06172	N	0	7	0	FAIL_ABUND	0	☐	
Total Uranium	—	9.7802	2.67E-06	ug/g 2.5232	N	0					☐	
Uranium-234	NR	0.9538	0.08381	pCi/g 0.1009	N	609.3	4	1.52	IDENTIFIED	7.019	☐	
Uranium-238	HE	3.29	0.8978	pCi/g 1.695	N	63	2	1.061	IDENTIFIED	25.86	☐	
Zirconium-97	—	7.13E+06	2.69E+06	pCi/g 0	N	0	7	0	SHORT_HLIF	0	☐	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246444003	03-FEB-10 12:00	19-FEB-10 20:39	16.4	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.304	0.2154	pCi/g	0.2595	N	910.8	3	1.411 IDENTIFIED 15.52	<input type="checkbox"/>	
Americium-243 INT	0.3462	0.02865	pCi/g	0.05628	N	74.8	1	1.031 IDENTIFIED 6.685	<input type="checkbox"/>	
Annihilation Rad. HE	0.08992	0.04462	pCi/g	0.05135	N	511	1	2.105 IDENTIFIED 49.42	<input type="checkbox"/>	
Barium-137m ✓	0.1665	0.03969	pCi/g	0.06562	N	662.3	2	5.263 IDENTIFIED 23.47	<input type="checkbox"/>	
Bismuth-211 INT	3.461	0.2943	pCi/g	0.3205	Y	351.8	4	1.206 IDENTIFIED 7.111	<input checked="" type="checkbox"/>	UI
Bismuth-212 HE	0.9725	0.2943	pCi/g	0.7431	N	0	8	0 FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 ✓	1.025	0.09603	pCi/g	0.1141	0.200	609	4	1.137 IDENTIFIED 7.867	<input type="checkbox"/>	
Cadmium-109 INT	2.862	0.4293	pCi/g	0.8614	Y	87.25	3	1.111 IDENTIFIED 14.19	<input checked="" type="checkbox"/>	UI
Cerium-143 —	969.3	186.3	pCi/g	0	N	0	8	0 SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137 APW	0.176	0.04196	pCi/g	0.06936	0.100	662.3	2	5.263 IDENTIFIED 23.47	<input checked="" type="checkbox"/>	UI Data rejected due to high peak-width.
Gross Gamma —	8.884	1.402	pCi/g	3.636	N	0			<input type="checkbox"/>	
Iodine-123 HE	9.11E+06	1.28E+07	pCi/g	0	N	0	8	0 SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212 ✓	1.411	0.08871	pCi/g	0.08714	0.100	238.6	4	1.045 IDENTIFIED 3.754	<input type="checkbox"/>	
Lead-214 ✓	1.204	0.1071	pCi/g	0.1118	0.100	351.8	4	1.206 IDENTIFIED 7.111	<input type="checkbox"/>	
Lutetium-177 HE	2.917	0.9059	pCi/g	2.197	N	0	8	0 FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237 INT	0.8245	0.1501	pCi/g	0.2868	N	87.25	3	1.111 IDENTIFIED 14.19	<input type="checkbox"/>	
Niobium-97 HE	1622	2.20E+05	pCi/g	0	N	0	8	0 SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212 NR	1.411	0.08871	pCi/g	0.08714	N	238.6	4	1.045 IDENTIFIED 3.754	<input type="checkbox"/>	
Polonium-214 NR	1.204	0.1071	pCi/g	0.1118	N	351.8	4	1.206 IDENTIFIED 7.111	<input type="checkbox"/>	
Polonium-216 NR	1.411	0.08871	pCi/g	0.08714	N	238.6	4	1.045 IDENTIFIED 3.754	<input type="checkbox"/>	
Polonium-218 NR	1.204	0.1071	pCi/g	0.1118	N	351.8	4	1.206 IDENTIFIED 7.111	<input type="checkbox"/>	
Potassium-40 ✓	32.47	1.769	pCi/g	0.5489	1.00	1460	1	1.954 IDENTIFIED 3.16	<input type="checkbox"/>	
Radium-224 INT	3.923	0.5678	pCi/g	0.9922	Y	241.5	1	1.502 IDENTIFIED 13.75	<input checked="" type="checkbox"/>	UI
Radium-226 ✓	1.025	0.09603	pCi/g	0.1141	Y	609	4	1.137 IDENTIFIED 7.867	<input type="checkbox"/>	
Radium-228 ✓	1.304	0.2154	pCi/g	0.2595	0.500	910.8	3	1.411 IDENTIFIED 15.52	<input type="checkbox"/>	
Thallium-200 HE	113	487.5	pCi/g	0	N	0	8	0 SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208 ✓	0.4809	0.05021	pCi/g	0.05583	0.080	582.8	1	1.213 IDENTIFIED 9.309	<input type="checkbox"/>	
Thorium-228 NR	1.435	0.09017	pCi/g	0.08857	N	238.6	4	1.045 IDENTIFIED 3.754	<input type="checkbox"/>	
Thorium-230 NR	1.025	0.09603	pCi/g	0.1141	N	609	4	1.137 IDENTIFIED 7.867	<input type="checkbox"/>	
Thorium-232 NR	1.304	0.2154	pCi/g	0.2595	N	910.8	3	1.411 IDENTIFIED 15.52	<input type="checkbox"/>	
Thorium-234 ✓	2.656	0.5513	pCi/g	0.9812	2.00	63.4	2	0.9878 IDENTIFIED 18.54	<input type="checkbox"/>	
Tin-126 NR	0.2808	0.04212	pCi/g	0.0844	N	87.25	3	1.111 IDENTIFIED 14.19	<input type="checkbox"/>	
Titanium-44 —	0.3368	0.02343	pCi/g	0.05617	N	0	8	0 FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium —	7.9062	1.64E-06	ug/g	1.4628	N	0			<input type="checkbox"/>	
Uranium-234 NR	1.025	0.09603	pCi/g	0.1141	N	609	4	1.137 IDENTIFIED 7.867	<input type="checkbox"/>	
Uranium-238 NR	2.656	0.5513	pCi/g	0.9812	N	63.4	2	0.9878 IDENTIFIED 18.54	<input type="checkbox"/>	
Zirconium-97 HE	3.83E+06	3.90E+06	pCi/g	0	N	0	8	0 SHORT_HLIF 0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue	
246444004	03-FEB-10 12:00	19-FEB-10 20:40	16.4	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.457	0.1519	pCi/g	0.174	N	910.8	3	1.602	IDENTIFIED 8.056	<input type="checkbox"/>	



Annihilation Rad.	HE	0.06226	0.03111	pCi/g 0.04658	N	510.6	1	2.05	IDENTIFIED	49.88	<input type="checkbox"/>	
Bismuth-211	INT	2.972	0.2611	pCi/g 0.3237	Y	351.7	4	1.381	IDENTIFIED	8.184	<input checked="" type="checkbox"/>	
Bismuth-212	HE	0.7819	0.1638	pCi/g 0.603	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	0.9455	0.0793	pCi/g 0.1106	0.200	609.4	4	1.524	IDENTIFIED	7.409	<input type="checkbox"/>	
Cadmium-109	INT	2.622	0.457	pCi/g 1.229	Y	87.18	3	1.228	IDENTIFIED	16.85	<input checked="" type="checkbox"/>	
Cerium-143	—	1610	237.9	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.131	0.04507	pCi/g 0.09587	0.100	0	13	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-135	HE	0.43	0.08129	pCi/g 0.2847	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Gross Gamma	—	9.071	1.472	pCi/g 3.821	N	0					<input type="checkbox"/>	
Iodine-135	—	1.24E+170		pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.428	0.07238	pCi/g 0.09043	0.100	238.5	4	1.334	IDENTIFIED	3.559	<input type="checkbox"/>	
Lead-214	✓	1.034	0.09473	pCi/g 0.1128	0.100	351.7	4	1.381	IDENTIFIED	8.184	<input type="checkbox"/>	
Lutetium-177	—	4.189	0.9123	pCi/g 2.258	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	INT	0.7555	0.153	pCi/g 0.3596	N	87.18	3	1.228	IDENTIFIED	16.85	<input type="checkbox"/>	
Niobium-95m	—	0.4316	0.07796	pCi/g 0.2563	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Polonium-212	NR	1.428	0.07238	pCi/g 0.09043	N	238.5	4	1.334	IDENTIFIED	3.559	<input type="checkbox"/>	
Polonium-214	NR	1.034	0.09473	pCi/g 0.1128	N	351.7	4	1.381	IDENTIFIED	8.184	<input type="checkbox"/>	
Polonium-216	NR	1.428	0.07238	pCi/g 0.09043	N	238.5	4	1.334	IDENTIFIED	3.559	<input type="checkbox"/>	
Polonium-218	NR	1.034	0.09473	pCi/g 0.1128	N	351.7	4	1.381	IDENTIFIED	8.184	<input type="checkbox"/>	
Potassium-40	✓	35.17	1.572	pCi/g 0.409	1.00	1461	1	1.869	IDENTIFIED	2.475	<input type="checkbox"/>	
Radium-224	INT	4.043	0.6062	pCi/g 1.028	Y	241.5	1	1.798	IDENTIFIED	14.72	<input checked="" type="checkbox"/>	
Radium-226	✓	0.9455	0.0793	pCi/g 0.1106	Y	609.4	4	1.524	IDENTIFIED	7.409	<input type="checkbox"/>	
Radium-228	LA	1.358	0.1593	pCi/g 0.452	0.500	0	13	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Sodium-24	HE	1.35E+06	1.35E+06	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.4509	0.03839	pCi/g 0.05424	0.080	583.2	1	1.266	IDENTIFIED	7.805	<input type="checkbox"/>	
Thorium-228	NR	1.451	0.07357	pCi/g 0.09191	N	238.5	4	1.334	IDENTIFIED	3.559	<input type="checkbox"/>	
Thorium-230	NR	0.9455	0.0793	pCi/g 0.1106	N	609.4	4	1.524	IDENTIFIED	7.409	<input type="checkbox"/>	
Thorium-232	—	1.358	0.1593	pCi/g 0.452	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Tin-126	NR	0.2573	0.04484	pCi/g 0.1211	N	87.18	3	1.228	IDENTIFIED	16.85	<input type="checkbox"/>	
Titanium-44	—	0.343	0.02854	pCi/g 0.08242	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	4.8102	2.57E-06	ug/g 3.1092	N	0					<input type="checkbox"/>	
Uranium-234	NR	0.9455	0.0793	pCi/g 0.1106	N	609.4	4	1.524	IDENTIFIED	7.409	<input type="checkbox"/>	
Zirconium-97	—	1.32E+07	3.29E+06	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202037552		19-FEB-10 20:41	0	MB	LOAD	1		GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Sodium-24 HE	16.41	163.7	pCi/g	0	N	0	1	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
1202037553	03-FEB-10 12:00	19-FEB-10 20:42	16.4	DUP	LOAD	1		LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	✓	1.488	0.169	pCi/g 0.1705	N	911.4	3	2.004	IDENTIFIED	9.226	<input type="checkbox"/>			
Americium-243	INT	0.3639	0.03631	pCi/g 0.07972	N	74.82	1	1.167	IDENTIFIED	9.105	<input type="checkbox"/>			
Annihilation Rad.	—	0.1546	0.03241	pCi/g 0.03917	N	510.8	1	2.436	IDENTIFIED	20.35	<input type="checkbox"/>			

Barium-137m	✓	0.2332	0.0313	pCi/g 0.04965	N	661.6	2	1.673	IDENTIFIED	12.34	<input type="checkbox"/>	
Bismuth-211	INT	3.951	0.3046	pCi/g 0.292	Y	352	4	1.324	IDENTIFIED	5.066	<input checked="" type="checkbox"/>	UL
Bismuth-212	—	1.439	0.2229	pCi/g 0.5617	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.198	0.09631	pCi/g 0.09627	0.200	609.2	4	1.656	IDENTIFIED	5.557	<input type="checkbox"/>	
Cadmium-109	INT	1.748	0.4544	pCi/g 1.097	Y	86.78	3	1.057	IDENTIFIED	25.57	<input checked="" type="checkbox"/>	UL
Cerium-143	—	1761	264.6	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-135	HE	0.2772	0.0815	pCi/g 0.2533	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>	
Cesium-137	✓	0.2466	0.03309	pCi/g 0.05249	0.100	661.6	2	1.673	IDENTIFIED	12.34	<input type="checkbox"/>	
Gross Gamma	—	10.34	1.359	pCi/g 2.332	N	0					<input type="checkbox"/>	
Iodine-123	HE	1.39E+06	1.25E+07	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-133	HE	3427	6882	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	
Krypton-85	—	22.46	3.787	pCi/g 12.34	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-212	✓	1.67	0.1203	pCi/g 0.08597	0.100	238.7	4	1.21	IDENTIFIED	2.874	<input type="checkbox"/>	
Lead-214	✓	1.374	0.1119	pCi/g 0.1017	0.100	352	4	1.324	IDENTIFIED	5.066	<input type="checkbox"/>	
Lutetium-177	HE	4.083	1.019	pCi/g 2.158	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>	
Mercury-203	INT	0.06224	0.02824	pCi/g 0.06129	0.100	278.1	1	1.336	IDENTIFIED	44.83	<input checked="" type="checkbox"/>	UL
Neptunium-237	HE	0.5036	0.1408	pCi/g 0.327	N	86.78	3	1.057	IDENTIFIED	25.57	<input type="checkbox"/>	
Niobium-95	HE	0.0911	0.02237	pCi/g 0.07123	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-97	—	4.28E+05	1.66E+05	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	
Polonium-212	NR	1.67	0.1203	pCi/g 0.08597	N	238.7	4	1.21	IDENTIFIED	2.874	<input type="checkbox"/>	
Polonium-214	NR	1.374	0.1119	pCi/g 0.1017	N	352	4	1.324	IDENTIFIED	5.066	<input type="checkbox"/>	
Polonium-216	NR	1.67	0.1203	pCi/g 0.08597	N	238.7	4	1.21	IDENTIFIED	2.874	<input type="checkbox"/>	
Polonium-218	NR	1.374	0.1119	pCi/g 0.1017	N	352	4	1.324	IDENTIFIED	5.066	<input type="checkbox"/>	
Potassium-40	✓	34.35	1.754	pCi/g 0.4262	1.00	1461	1	2.656	IDENTIFIED	2.255	<input type="checkbox"/>	
Radium-224	INT	4.506	0.6325	pCi/g 0.9772	Y	241.7	1	1.886	IDENTIFIED	12.56	<input checked="" type="checkbox"/>	UL
Radium-226	✓	1.198	0.09631	pCi/g 0.09627	Y	609.2	4	1.656	IDENTIFIED	5.557	<input type="checkbox"/>	
Radium-228	✓	1.488	0.169	pCi/g 0.1705	0.500	911.4	3	2.004	IDENTIFIED	9.226	<input type="checkbox"/>	
Strontium-85	LA	0.1167	0.01967	pCi/g 0.06412	Y	0	12	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208	✓	0.5351	0.04509	pCi/g 0.0484	0.080	583.3	1	1.591	IDENTIFIED	6.45	<input type="checkbox"/>	
Thorium-228	NR	1.697	0.1223	pCi/g 0.08738	N	238.7	4	1.21	IDENTIFIED	2.874	<input type="checkbox"/>	
Thorium-230	NR	1.198	0.09631	pCi/g 0.09627	N	609.2	4	1.656	IDENTIFIED	5.557	<input type="checkbox"/>	
Thorium-232	NR	1.488	0.169	pCi/g 0.1705	N	911.4	3	2.004	IDENTIFIED	9.226	<input type="checkbox"/>	
Thorium-234	✓	5.105	1.137	pCi/g 1.765	2.00	63.02	2	1.116	IDENTIFIED	20.5	<input type="checkbox"/>	
Tin-126	HE	0.1715	0.04458	pCi/g 0.1289	N	86.78	3	1.057	IDENTIFIED	25.57	<input type="checkbox"/>	
Titanium-44	—	0.3198	0.0244	pCi/g 0.06901	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	15.171	3.38E-06	ug/g 2.6279	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.198	0.09631	pCi/g 0.09627	N	609.2	4	1.656	IDENTIFIED	5.557	<input type="checkbox"/>	
Uranium-238	NR	5.105	1.137	pCi/g 1.765	N	63.02	2	1.116	IDENTIFIED	20.5	<input checked="" type="checkbox"/>	
Zirconium-97	—	2.13E+07	3.40E+06	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
1202037554		19-FEB-10 21:35	0	LCS	LOAD	1		GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	0.9947	0.2006	pCi/g	0.5159	N	911.4	3	1.954	IDENTIFIED	19.3	<input type="checkbox"/>
Americium-241	✓ 13.08	0.5854	pCi/g	0.4826	0.200	59.62	1	1.235	IDENTIFIED	2.498	<input type="checkbox"/> 87.2a
Americium-243 HE	0.2187	0.04705	pCi/g	0.1535	N	74.6	1	1.51	IDENTIFIED	21.18	<input type="checkbox"/>

Barium-137m	5.573	0.2084	pCi/g 0.1086	N	661.5	2	1.636	IDENTIFIED	2.269	<input type="checkbox"/>	
Bismuth-211	2.326	0.3511	pCi/g 0.5951	Y	351.8	4	1.606	IDENTIFIED	14.76	<input type="checkbox"/>	
Bismuth-214	0.7534	0.1239	pCi/g 0.2028	0.200	608.8	4	1.662	IDENTIFIED	15.96	<input type="checkbox"/>	
Cadmium-109	29.73	1.808	pCi/g 2.395	Y	88.08	2	1.301	IDENTIFIED	4.227	<input type="checkbox"/>	
Cerium-143 HE	29.97	6.369	pCi/g 19.56	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	
Cesium-137 ✓	5.891	0.2209	pCi/g 0.1148	0.100	661.5	2	1.636	IDENTIFIED	2.269	<input type="checkbox"/>	106.0%
Cobalt-57	0.2301	0.03399	pCi/g 0.06807	N	122.2	1	1.334	IDENTIFIED	14.34	<input type="checkbox"/>	
Cobalt-60 ✓	6.739	0.2911	pCi/g 0.1091	0.100	1332	1	1.94	IDENTIFIED	2.44	<input type="checkbox"/>	105.5%
Gross Gamma	26.77	2.566	pCi/g 5.674	N	0					<input type="checkbox"/>	
Lead-212	0.7596	0.09288	pCi/g 0.1793	0.100	238.4	4	1.256	IDENTIFIED	11.67	<input type="checkbox"/>	
Lead-214	0.809	0.124	pCi/g 0.2074	0.100	351.8	4	1.606	IDENTIFIED	14.76	<input type="checkbox"/>	
Neptunium-237	7.433	0.9077	pCi/g 1.222	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-95m HE	0.4541	0.1143	pCi/g 0.3836	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-97	2925	316.5	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Polonium-212	0.7596	0.09288	pCi/g 0.1793	N	238.4	4	1.256	IDENTIFIED	11.67	<input type="checkbox"/>	
Polonium-214	0.809	0.124	pCi/g 0.2074	N	351.8	4	1.606	IDENTIFIED	14.76	<input type="checkbox"/>	
Polonium-216	0.7596	0.09288	pCi/g 0.1793	N	238.4	4	1.256	IDENTIFIED	11.67	<input type="checkbox"/>	
Polonium-218	0.809	0.124	pCi/g 0.2074	N	351.8	4	1.606	IDENTIFIED	14.76	<input type="checkbox"/>	
Potassium-40	1.198	0.353	pCi/g 0.6143	1.00	1461	1	1.576	IDENTIFIED	29.24	<input type="checkbox"/>	
Radium-224	6.566	0.725	pCi/g 2.608	Y	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>	
Radium-226	0.7534	0.1239	pCi/g 0.2028	Y	608.8	4	1.662	IDENTIFIED	15.96	<input type="checkbox"/>	
Radium-228	0.9947	0.2006	pCi/g 0.5159	0.500	911.4	3	1.954	IDENTIFIED	19.3	<input type="checkbox"/>	
Silver-110m	0.2812	0.04626	pCi/g 0.1607	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>	
Sodium-24 HE	114.3	349.7	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	0.3554	0.04975	pCi/g 0.1119	0.080	582.6	1	1.93	IDENTIFIED	13.58	<input type="checkbox"/>	
Thorium-228	0.7664	0.09371	pCi/g 0.1809	N	238.4	4	1.256	IDENTIFIED	11.67	<input type="checkbox"/>	
Thorium-230	0.7534	0.1239	pCi/g 0.2028	N	608.8	4	1.662	IDENTIFIED	15.96	<input type="checkbox"/>	
Thorium-232	0.9947	0.2006	pCi/g 0.5159	N	911.4	3	1.954	IDENTIFIED	19.3	<input type="checkbox"/>	
Tin-126	2.95	0.1793	pCi/g 0.2486	N	88.08	2	1.301	IDENTIFIED	4.227	<input type="checkbox"/>	
Titanium-44	0.2455	0.03583	pCi/g 0.112	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>	
Uranium-234	0.7534	0.1239	pCi/g 0.2028	N	608.8	4	1.662	IDENTIFIED	15.96	<input type="checkbox"/>	
Zirconium-97	13000	4068	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
950788	246444004	SAMPLE	19-FEB-10	Strontium-85	0.07717	0.01814	pCi/g	0.0312	Y
				Thallium-208	0.5249	0.03807	pCi/g	0.02337	0.080
				Thorium-234	3.371	1.208	pCi/g	1.167	2.00
				Zirconium-97	1.84E+07	3.15E+06	pCi/g	0	N
950788	246444005	SAMPLE	19-FEB-10	Bismuth-211	2.972	0.2611	pCi/g	0.162	Y
				Bismuth-214	0.9455	0.0793	pCi/g	0.05535	0.200
				Cadmium-109	2.622	0.457	pCi/g	0.6151	Y
				Cadmium-115	15.76	7.65	pCi/g	13.6	N
				Cerium-143	1610	237.9	pCi/g	0	N
				Cesium-134	0.131	0.04507	pCi/g	0.04796	0.100
				Cesium-137	0.05493	0.0203	pCi/g	0.03682	0.100
				Gross Gamma	9.071	1.472	pCi/g	1.86	N
				Iodine-135	1.24E+17	0	pCi/g	0	N
				Krypton-85	7.707	4.045	pCi/g	6.419	N
				Lead-212	1.428	0.07238	pCi/g	0.04524	0.100
				Lead-214	1.034	0.09473	pCi/g	0.05645	0.100
				Mercury-203	0.04245	0.0219	pCi/g	0.03551	0.100
				Potassium-40	35.17	1.572	pCi/g	0.2046	1.00
				Radium-224	4.043	0.6092	pCi/g	0.5145	Y
				Radium-226	0.9455	0.0793	pCi/g	0.05535	Y
				Radium-228	1.358	0.1593	pCi/g	0.2261	0.500
				Sodium-24	1.35E+06	1.35E+06	pCi/g	0	N
				Strontium-85	0.04003	0.02101	pCi/g	0.03335	Y
				Thallium-208	0.4509	0.03839	pCi/g	0.02714	0.080
				Thorium-234	1.589	0.864	pCi/g	1.045	2.00
				Zirconium-97	1.32E+07	3.29E+06	pCi/g	0	N
950788	1202037552	MB	19-FEB-10	Bismuth-211	0.06844	0.05731	pCi/g	0.06803	(Y)
				Sodium-24	16.41	163.7	pCi/g	0	N
950788	1202037553	DUP	19-FEB-10	Bismuth-211	3.951	0.3046	pCi/g	0.1481	Y
				Bismuth-214	1.198	0.09831	pCi/g	0.04816	0.200
				Cadmium-109	1.748	0.4544	pCi/g	0.5487	Y
				Cerium-143	1761	264.6	pCi/g	0	N
				Cesium-134	0.07655	0.03007	pCi/g	0.04008	0.100
				Cesium-137	0.2486	0.03309	pCi/g	0.02626	0.100
				Gross Gamma	10.34	1.359	pCi/g	1.135	N
				Iodine-123	1.39E+06	1.25E+07	pCi/g	0	N
				Iodine-133	3427	6882	pCi/g	0	N

VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 20:01:39.13

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444001.CNF;1
Sample date   : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 17:59:40
Sample ID     : G246444001 Sample quantity : 1.44980E+02 GRAM
Detector name : GAM25 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.34 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 5.00000
Batch ID       : 950788 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	46.62*	138	617	0.99	92.81	89	8	1.91E-02	33.7	
2	0	63.19*	513	854	0.68	125.95	122	8	7.13E-02	11.0	
3	2	73.18	78	654	0.93	145.92	143	18	1.08E-02	54.8	4.66E+00
4	2	74.84*	872	650	0.96	149.24	143	18	1.21E-01	5.8	
5	2	77.06*	1408	533	0.86	153.68	143	18	1.96E-01	3.7	
6	0	84.07*	160	533	1.07	167.69	165	6	2.22E-02	24.6	
7	3	87.17	435	629	1.09	173.90	171	11	6.05E-02	10.6	1.72E+00
8	3	89.85	323	491	1.03	179.26	171	11	4.49E-02	12.3	
9	0	92.88*	902	725	1.38	185.32	182	11	1.25E-01	6.9	
10	0	105.55	115	496	1.63	210.64	205	9	1.60E-02	36.1	
11	0	143.80*	91	448	1.53	287.14	283	9	1.26E-02	44.1	
12	0	185.76*	350	484	1.47	371.07	367	11	4.87E-02	13.6	
13	0	209.14	148	285	1.08	417.82	414	8	2.05E-02	21.5	
14	5	238.55*	1712	175	1.00	476.63	470	20	2.38E-01	2.7	2.83E+00
15	5	241.41	371	300	1.77	482.34	470	20	5.16E-02	13.5	
16	0	270.02	98	216	1.28	539.56	536	9	1.36E-02	28.9	
17	0	278.23	83	253	0.94	555.99	551	10	1.16E-02	37.7	
18	0	295.02*	446	347	1.10	589.57	584	13	6.19E-02	9.9	
19	0	300.61	107	246	1.01	600.74	596	11	1.49E-02	29.9	
20	0	328.06	105	252	1.24	655.64	649	12	1.46E-02	31.7	
21	0	338.16	319	193	1.01	675.83	671	10	4.43E-02	9.9	
22	0	351.72*	785	218	1.15	702.96	696	13	1.09E-01	5.3	
23	0	462.52	110	162	1.73	924.54	918	12	1.53E-02	24.9	
24	0	510.70*	171	189	1.88	1020.90	1015	16	2.37E-02	21.2	
25	0	582.95*	429	165	1.40	1165.40	1160	11	5.95E-02	7.6	
26	0	609.16*	557	92	1.24	1217.81	1212	13	7.74E-02	5.6	
27	0	661.24*	175	102	1.22	1321.97	1318	11	2.43E-02	14.0	
28	0	726.49	137	86	1.50	1452.46	1444	14	1.91E-02	16.8	
29	0	794.47	61	80	1.15	1588.42	1581	14	8.43E-03	33.9	
30	0	860.19	81	80	1.21	1719.86	1713	14	1.12E-02	26.1	
31	0	910.95*	328	75	1.43	1821.38	1814	15	4.56E-02	8.0	
32	0	969.40	112	147	1.34	1938.28	1930	12	1.55E-02	23.7	
33	0	1120.66*	100	95	1.68	2240.82	2232	17	1.40E-02	24.8	
34	0	1460.30*	1490	30	2.11	2920.13	2910	20	2.07E-01	2.8	
35	0	1729.50	29	15	1.57	3458.58	3451	12	4.00E-03	32.8	
36	0	1763.66*	94	5	2.16	3526.90	3517	16	1.31E-02	12.0	

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

VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 20:01:41

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444001.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 3-FEB-2010 12:00:00 Acquisition date : 19-FEB-2010 17:59:40  
 Sample ID : G246444001 Sample quantity : 144.98 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA25 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.34 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.261E+01	3.308E+00	4.907E-01	4.179E-02	66.449
CD-109	+	88.03	*	3.300E+00	7.840E-01	7.228E-01	7.767E-02	4.566
SN-126	+	64.28		1.415E+00	3.842E-01	2.930E-01	4.669E-02	4.830
	+	86.94		1.346E+00	6.315E-01	2.934E-01	1.228E-01	4.588
	+	87.57	*	3.238E-01	7.693E-02	7.078E-02	7.589E-03	4.575
BA-137M	+	661.65	*	2.254E-01	6.778E-02	5.622E-02	6.227E-03	4.009
CS-137	+	661.65	*	2.382E-01	7.166E-02	5.943E-02	6.591E-03	4.009
EU-155		48.70		-3.837E-02	3.286E-01	4.866E-01	4.632E-02	-0.079
		60.01		5.689E-01	1.623E+00	2.420E+00	2.381E-01	0.235
	+	86.54		3.902E-01	9.282E-02	9.095E-02	9.769E-03	4.290
	+	105.31	*	1.642E-01	1.202E-01	1.178E-01	1.393E-02	1.394
HG-203		70.83		2.034E-01	5.198E-01	7.662E-01	1.114E-01	0.266
	+	72.87		3.302E-01	3.647E-01	4.620E-01	6.565E-02	0.715
	+	82.60		1.565E+00	8.062E-01	9.832E-01	1.473E-01	1.592
	+	279.20	*	7.528E-02	5.735E-02	5.222E-02	5.927E-03	1.442
TL-208	+	277.35		6.716E-01	5.149E-01	5.051E-01	7.175E-02	1.330
	+	510.84		7.294E-01	3.240E-01	2.135E-01	2.827E-02	3.417
	+	583.14	*	5.279E-01	1.003E-01	6.103E-02	6.879E-03	8.650
	+	860.37		9.498E-01	5.051E-01	4.612E-01	4.822E-02	2.059
BI-210	+	46.50	*	9.596E-01	6.533E-01	5.973E-01	6.159E-02	1.607
PB-210	+	46.50	*	9.596E-01	6.533E-01	5.973E-01	6.159E-02	1.607
PO-210	+	46.50	*	9.596E-01	6.522E-01	5.973E-01	5.689E-02	1.607
BI-211	+	72.87		1.632E+00	1.795E+00	2.284E+00	2.305E-01	0.715
	+	351.07	*	4.039E+00	6.044E-01	2.719E-01	2.865E-02	14.852
PB-212	+	74.81		2.176E+00	3.916E-01	2.728E-01	3.766E-02	7.978
	+	77.11		2.098E+00	2.643E-01	1.635E-01	1.675E-02	12.836
	+	87.30		1.498E+00	3.860E-01	3.270E-01	4.790E-02	4.581
	+	238.63	*	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923
	+	300.09		1.831E+00	1.120E+00	1.061E+00	1.322E-01	1.725
PO-212	+	74.81		2.176E+00	3.916E-01	2.728E-01	3.766E-02	7.978
	+	77.11		2.098E+00	2.643E-01	1.635E-01	1.675E-02	12.836
	+	87.30		1.498E+00	3.860E-01	3.270E-01	4.790E-02	4.581
		115.19		-2.271E+00	2.524E+00	4.108E+00	5.094E-01	-0.553
	+	238.63	*	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-214	+	300.09		1.831E+00	1.120E+00	1.061E+00	1.322E-01	1.725
	+	609.31	*	1.298E+00	2.142E-01	9.610E-02	1.160E-02	13.503
	+	1120.29		1.233E+00	6.265E-01	4.942E-01	5.363E-02	2.494
PB-214	+	1764.49		1.640E+00	4.149E-01	3.512E-01	2.894E-02	4.670
	+	74.81		3.750E+00	6.401E-01	4.701E-01	5.911E-02	7.978
	+	77.11		3.597E+00	5.296E-01	2.803E-01	3.579E-02	12.836
	+	87.30		2.566E+00	6.408E-01	5.601E-01	7.390E-02	4.581
	+	241.98		2.427E+00	7.165E-01	4.331E-01	5.166E-02	5.604
	+	295.21		1.334E+00	3.137E-01	1.898E-01	2.408E-02	7.029
PO-214	+	351.92	*	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
	+	74.81		3.750E+00	6.401E-01	4.701E-01	5.911E-02	7.978
	+	77.11		3.597E+00	5.296E-01	2.803E-01	3.579E-02	12.836
	+	87.30		2.566E+00	6.408E-01	5.601E-01	7.390E-02	4.581
	+	241.98		2.427E+00	7.165E-01	4.331E-01	5.166E-02	5.604
	+	295.21		1.334E+00	3.137E-01	1.898E-01	2.408E-02	7.029
PO-216	+	351.92	*	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
	+	74.81		2.176E+00	3.916E-01	2.728E-01	3.766E-02	7.978
	+	77.11		2.098E+00	2.643E-01	1.635E-01	1.675E-02	12.836
	+	87.30		1.498E+00	3.860E-01	3.270E-01	4.790E-02	4.581
	+	238.63	*	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923
	+	300.09		1.831E+00	1.120E+00	1.061E+00	1.322E-01	1.725
PO-218	+	74.81		3.750E+00	6.401E-01	4.701E-01	5.911E-02	7.978
	+	77.11		3.597E+00	5.296E-01	2.803E-01	3.579E-02	12.836
	+	87.30		2.566E+00	6.408E-01	5.601E-01	7.390E-02	4.581
	+	241.98		2.427E+00	7.165E-01	4.331E-01	5.166E-02	5.604
	+	295.21		1.334E+00	3.137E-01	1.898E-01	2.408E-02	7.029
	+	351.92	*	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
RA-224	+	240.98	*	4.602E+00	1.334E+00	8.180E-01	8.596E-02	5.626
RA-226	+	609.31	*	1.298E+00	2.142E-01	9.610E-02	1.160E-02	13.503
	+	1120.29		1.233E+00	6.265E-01	4.942E-01	5.363E-02	2.494
	+	1764.49		1.640E+00	4.149E-01	3.512E-01	2.894E-02	4.670
AC-228	+	338.32		1.802E+00	8.318E-01	3.364E-01	1.402E-01	5.358
	+	911.07	*	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
	+	969.11		1.095E+00	5.804E-01	3.965E-01	9.358E-02	2.763
RA-228	+	338.32		1.802E+00	8.318E-01	3.364E-01	1.402E-01	5.358
	+	911.07	*	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
	+	969.11		1.095E+00	5.804E-01	3.965E-01	9.358E-02	2.763
TH-228	+	74.81		2.212E+00	3.411E-01	2.773E-01	2.834E-02	7.978
	+	77.11		2.133E+00	2.687E-01	1.661E-01	1.703E-02	12.836
	+	87.30		1.522E+00	3.616E-01	3.323E-01	3.558E-02	4.581
	+	238.63	*	1.891E+00	2.390E-01	7.296E-02	8.306E-03	25.923
	+	300.09		1.861E+00	1.573E+00	1.079E+00	6.436E-01	1.726
	+	609.31	*	1.298E+00	2.142E-01	9.609E-02	1.160E-02	13.503
TH-230	+	1120.29		1.232E+00	6.265E-01	4.941E-01	5.363E-02	2.494
	+	1764.49		1.640E+00	4.149E-01	3.512E-01	2.894E-02	4.670
	+	338.32		1.802E+00	4.037E-01	3.364E-01	3.507E-02	5.358
TH-232	+	911.07	*	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
	+	969.11		1.095E+00	5.804E-01	3.965E-01	9.358E-02	2.763
	+	63.29	*	3.576E+00	1.030E+00	7.078E-01	1.318E-01	5.052

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-234	+	92.38		4.673E+00	1.113E+00	4.536E-01	8.763E-02	10.302
	+	609.31	*	1.298E+00	2.142E-01	9.609E-02	1.160E-02	13.503
	+	1120.29		1.232E+00	6.265E-01	4.941E-01	5.363E-02	2.494
U-235	+	1764.49		1.640E+00	4.149E-01	3.512E-01	2.894E-02	4.670
	+	89.95		3.324E+00	1.332E+00	9.390E-01	2.963E-01	3.540
	+	93.35		5.618E+00	1.799E+00	5.479E-01	1.581E-01	10.255
	+	105.00		1.609E+00	1.264E+00	1.152E+00	3.559E-01	1.396
	+	143.76	*	2.951E-01	2.660E-01	2.567E-01	4.847E-02	1.149
	+	163.35		1.664E-01	3.907E-01	6.548E-01	1.267E-01	0.254
NP-237	+	185.71		2.617E-01	7.533E-02	5.766E-02	5.399E-03	4.539
	+	205.31		8.190E-01	4.906E-01	7.428E-01	1.459E-01	1.103
	+	86.50	*	9.509E-01	2.992E-01	2.216E-01	5.148E-02	4.290
	+	95.87		-3.034E-01	6.274E-01	9.409E-01	2.412E-01	-0.322
U-238	+	63.29	*	3.576E+00	1.030E+00	7.078E-01	1.318E-01	5.052
	+	92.38		4.673E+00	8.281E-01	4.536E-01	4.979E-02	10.302
AM-243	+	74.67	*	3.528E-01	5.426E-02	4.421E-02	4.490E-03	7.981
	+	86.72		3.566E+01	8.472E+00	7.765E+00	8.292E-01	4.592
	+	117.66		1.176E+00	2.690E+00	4.615E+00	5.803E-01	0.255
ANH-511	+	142.18		4.812E+00	1.514E+01	2.308E+01	2.606E+00	0.208
	+	511.00	*	1.576E-01	6.874E-02	4.613E-02	4.748E-03	3.415

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-3.782E-01	3.297E-01	4.913E-01	5.202E-02	-0.770
NA-22		1274.54	*	-4.098E-02	4.545E-02	6.799E-02	5.575E-03	-0.603
NA-24		1368.53	*	-2.301E+00	4.545E-02	Half-Life too short		
AL-26		1129.67		-3.454E-01	1.985E+00	3.104E+00	2.650E-01	-0.111
		1808.65	*	1.068E-02	2.840E-02	5.014E-02	4.109E-03	0.213
TI-44		67.85		1.453E-03	1.963E-02	3.112E-02	3.097E-03	0.047
	+	78.38	*	3.873E-01	4.878E-02	4.233E-02	4.359E-03	9.148
SC-46		889.25	*	-9.243E-03	3.956E-02	6.295E-02	6.028E-03	-0.147
	+	1120.51		2.130E-01	1.073E-01	1.289E-01	1.108E-02	1.652
V-48		944.10		-4.239E-01	9.444E-01	1.446E+00	1.356E-01	-0.293
		983.50	*	-2.178E-02	7.741E-02	1.213E-01	1.124E-02	-0.180
CR-51		1312.09		-1.725E-02	8.664E-02	1.391E-01	1.133E-02	-0.124
		320.08	*	4.509E-02	3.205E-01	5.441E-01	6.042E-02	0.083
MN-52		744.21		1.308E-01	2.833E-01	4.840E-01	5.229E-02	0.270
		848.13		-1.915E+00	7.872E+00	1.259E+01	1.262E+00	-0.152
		935.52		2.395E-01	3.077E-01	5.296E-01	4.979E-02	0.452
		1246.25		-4.902E+00	8.994E+00	1.414E+01	1.161E+00	-0.347
		1333.61		2.698E-01	5.699E+00	9.377E+00	7.617E-01	0.029
MN-54		1434.06	*	-2.797E-01	2.418E-01	3.151E-01	2.597E-02	-0.888
		834.83	*	-4.169E-03	3.834E-02	6.221E-02	6.313E-03	-0.067
CO-56		846.75	*	2.986E-02	4.020E-02	6.956E-02	6.979E-03	0.429
		977.42		2.616E-01	2.884E+00	4.690E+00	4.355E-01	0.056
		1037.82		-1.111E-01	2.905E-01	4.697E-01	4.457E-02	-0.237
		1175.09		1.355E+00	2.524E+00	4.345E+00	3.576E-01	0.312

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1238.25		1.848E-01	1.055E-01	1.910E-01	1.619E-02	0.967
		1360.21		-7.218E-01	1.033E+00	1.527E+00	1.246E-01	-0.473
		1771.40		-5.182E-01	3.001E-01	3.566E-01	2.936E-02	-1.453
CO-57		122.06	*	-7.323E-04	1.823E-02	3.072E-02	3.961E-03	-0.024
		136.48		1.421E-01	1.599E-01	2.752E-01	3.374E-02	0.516
CO-58		810.76	*	-2.074E-02	4.249E-02	6.695E-02	6.946E-03	-0.310
FE-59	+	142.65		3.874E+00	3.443E+00	3.786E+00	4.260E-01	1.023
		192.34		-4.700E-01	7.928E-01	1.256E+00	1.760E-01	-0.374
		1099.22	*	2.059E-02	8.903E-02	1.515E-01	1.427E-02	0.136
		1291.56		5.793E-02	1.406E-01	2.391E-01	2.247E-02	0.242
CO-60		1173.22		-6.961E-03	5.111E-02	8.386E-02	6.902E-03	-0.083
		1332.49	*	-2.862E-02	4.015E-02	6.022E-02	4.891E-03	-0.475
ZN-65		1115.52	*	-2.929E-02	1.070E-01	1.485E-01	1.283E-02	-0.197
GE-68		1077.35	*	-8.942E-03	1.245E+00	2.080E+00	1.841E-01	-0.004
AS-73		53.44	*	1.354E-01	1.746E-01	2.876E-01	2.761E-02	0.471
AS-74		595.88	*	1.478E-02	9.361E-02	1.513E-01	1.639E-02	0.098
		634.78		3.145E-01	3.355E-01	5.986E-01	6.584E-02	0.525
SE-75		66.05		-3.002E-01	2.115E+00	3.059E+00	3.526E-01	-0.098
		96.73		-2.718E-01	5.141E-01	7.720E-01	1.189E-01	-0.352
		121.11		-9.939E-04	9.726E-02	1.641E-01	2.412E-02	-0.006
		136.00		2.843E-02	3.023E-02	5.210E-02	6.181E-03	0.546
		198.60		1.271E+00	1.465E+00	2.444E+00	2.565E-01	0.520
		264.65	*	1.150E-02	3.849E-02	6.228E-02	6.826E-03	0.185
	+	279.53		1.992E-01	1.517E-01	1.551E-01	1.770E-02	1.284
		303.91		2.020E+00	1.952E+00	3.099E+00	4.125E-01	0.652
		400.65		2.100E-01	2.478E-01	4.273E-01	4.942E-02	0.491
BR-77	+	87.88		9.905E+02	2.353E+02	3.041E+02	3.266E+01	3.257
		200.40		-3.610E+01	1.791E+02	2.889E+02	2.798E+01	-0.125
	+	239.00		4.158E+02	4.913E+01	5.020E+01	5.257E+00	8.284
		249.79		-8.415E+00	8.269E+01	1.316E+02	1.404E+01	-0.064
		281.68		-3.561E+01	1.195E+02	1.639E+02	1.826E+01	-0.217
		297.23		2.775E+02	8.950E+01	1.264E+02	1.392E+01	2.196
		303.76		2.527E+02	2.301E+02	3.675E+02	4.023E+01	0.688
		439.47		1.646E+02	1.960E+02	3.369E+02	3.245E+01	0.488
		484.57		-2.983E+02	3.284E+02	4.997E+02	5.032E+01	-0.597
		520.65	*	-8.951E+00	1.359E+01	2.079E+01	2.156E+00	-0.430
		574.64		1.269E+02	2.697E+02	4.478E+02	4.803E+01	0.283
		578.91		-6.368E+01	1.374E+02	1.819E+02	1.956E+01	-0.350
		585.48		1.240E+03	3.467E+02	5.749E+02	6.200E+01	2.156
		755.35		6.355E+01	2.251E+02	3.799E+02	4.082E+01	0.167
		817.79		-1.938E+02	1.853E+02	2.737E+02	2.819E+01	-0.708
SR-82		698.33		-1.251E+01	3.560E+01	5.776E+01	6.351E+00	-0.217
		776.49	*	-1.043E-01	4.118E-01	6.654E-01	7.062E-02	-0.157
		1395.20		-8.998E-01	1.089E+01	1.755E+01	1.439E+00	-0.051
RB-83		520.41	*	-4.905E-02	6.551E-02	9.938E-02	1.030E-02	-0.494
		529.64		-4.331E-02	1.031E-01	1.609E-01	1.679E-02	-0.269
		552.65		2.747E-02	1.808E-01	2.942E-01	3.117E-02	0.093
RB-84		881.50	*	-4.373E-04	7.146E-02	1.163E-01	1.124E-02	-0.004
KR-85		513.99	*	9.189E+00	7.817E+00	1.214E+01	1.252E+00	0.757

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SR-85	513.99	*		4.768E-02	4.056E-02	6.297E-02	6.496E-03	0.757
RB-86	1076.63	*		8.315E-01	7.767E-01	1.412E+00	1.251E-01	0.589
Y-88	898.02			-2.801E-02	4.279E-02	6.525E-02	6.206E-03	-0.429
	1836.01	*		2.587E-02	3.126E-02	5.937E-02	4.852E-03	0.436
ZR-88	392.90	*		-6.254E-04	3.015E-02	4.991E-02	4.543E-03	-0.013
Y-91	1204.90	*		-1.068E+01	2.109E+01	3.350E+01	2.757E+00	-0.319
NB-94	702.63	*		1.143E-05	3.538E-02	5.885E-02	6.462E-03	0.000
	871.10			1.144E-02	3.407E-02	5.716E-02	5.591E-03	0.200
NB-95	765.79	*		9.149E-02	4.831E-02	8.744E-02	9.340E-03	1.046
NB-95M	235.69	*		8.328E-02	1.112E-01	1.666E-01	1.909E-02	0.500
ZR-95	724.18			1.172E-01	1.062E-01	1.684E-01	1.937E-02	0.696
	756.15	*		6.826E-02	7.004E-02	1.236E-01	1.416E-02	0.552
NB-97	657.90	*		1.372E-01	7.004E-02	Half-Life	too short	
	1024.50			2.809E+01	7.004E-02	Half-Life	too short	
ZR-97	254.15			3.150E+00	7.004E-02	Half-Life	too short	
	355.39			-3.792E-01	7.004E-02	Half-Life	too short	
	507.63	*		8.035E+00	7.004E-02	Half-Life	too short	
	602.52			-3.610E+00	7.004E-02	Half-Life	too short	
	1021.30			-1.447E+01	7.004E-02	Half-Life	too short	
	1147.95			-9.901E+00	7.004E-02	Half-Life	too short	
	1362.66			1.754E+01	7.004E-02	Half-Life	too short	
	1750.46			-9.180E+00	7.004E-02	Half-Life	too short	
MO-99	140.51			2.646E+00	2.857E+01	4.305E+01	1.235E+01	0.061
	181.06			5.836E+00	2.084E+01	3.083E+01	5.733E+00	0.189
	366.43			2.020E+01	9.787E+01	1.651E+02	1.618E+01	0.122
	739.58	*		-7.571E+00	1.590E+01	2.497E+01	4.130E+00	-0.303
	778.00			-3.419E+01	4.813E+01	7.477E+01	7.928E+00	-0.457
TC-99M	140.51	*		6.615E+10	4.813E+01	Half-Life	too short	
RH-101	127.23			1.156E-02	2.450E-02	4.183E-02	5.235E-03	0.276
	198.01	*		6.840E-03	2.713E-02	4.422E-02	4.261E-03	0.155
	325.23			-3.735E-02	2.188E-01	3.208E-01	3.417E-02	-0.116
RH-102	418.52			2.114E-01	2.564E-01	4.433E-01	4.168E-02	0.477
	475.06	*		1.034E-02	2.715E-02	4.539E-02	4.532E-03	0.228
	631.29			-2.087E-02	4.946E-02	8.033E-02	8.824E-03	-0.260
	697.49			-3.078E-03	7.742E-02	1.285E-01	1.413E-02	-0.024
	766.84			2.104E-01	1.258E-01	2.249E-01	2.401E-02	0.936
	1046.59			-1.492E-02	1.084E-01	1.795E-01	1.617E-02	-0.083
	1112.84			-6.576E-02	2.697E-01	3.756E-01	3.247E-02	-0.175
RU-103	497.08	*		5.167E-04	3.840E-02	6.240E-02	9.460E-03	0.008
	610.33	+		1.429E+01	3.031E+00	2.916E+00	5.240E-01	4.902
RH-106	511.85	+		7.886E-01	3.441E-01	4.190E-01	4.316E-02	1.882
	621.84	*		9.842E-02	2.991E-01	5.139E-01	7.691E-02	0.192
	1050.47			2.252E-01	2.268E+00	3.831E+00	3.444E-01	0.059
RU-106	511.85	+		7.886E-01	3.441E-01	4.190E-01	4.316E-02	1.882
	621.84	*		9.842E-02	2.989E-01	5.139E-01	5.627E-02	0.192
	1050.47			2.252E-01	2.268E+00	3.831E+00	3.444E-01	0.059
AG-108M	433.93	*		-2.542E-02	3.175E-02	4.934E-02	4.876E-03	-0.515
	614.37			-1.682E-02	3.790E-02	5.285E-02	5.913E-03	-0.318
	722.95			2.420E-02	4.338E-02	6.619E-02	7.396E-03	0.366

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AG-110M	657.75	*		-8.461E-03	3.955E-02	5.630E-02	6.345E-03	-0.150
	677.61			-5.505E-02	3.161E-01	5.211E-01	5.857E-02	-0.106
	706.67			1.343E-01	2.151E-01	3.717E-01	4.147E-02	0.361
	763.93			-1.896E-01	1.941E-01	2.982E-01	3.247E-02	-0.636
	884.67			-8.449E-03	4.856E-02	7.774E-02	7.680E-03	-0.109
	937.48			-4.459E-02	1.156E-01	1.804E-01	1.747E-02	-0.247
IN-111	1384.27			-1.715E-02	1.580E-01	2.541E-01	2.146E-02	-0.067
	171.28			9.464E-02	1.046E+00	1.730E+00	1.563E-01	0.055
	245.39	*		-3.492E-01	1.324E+00	1.851E+00	1.960E-01	-0.189
IN-113M	391.69	*		-3.643E-02	4.380E-02	6.900E-02	6.444E-03	-0.528
SN-113	391.69	*		-3.643E-02	4.380E-02	6.900E-02	6.444E-03	-0.528
IN-114M	190.27	*		-4.234E-02	1.687E-01	2.428E-01	2.298E-02	-0.174
CD-115	260.90			6.346E+00	1.596E+02	2.551E+02	2.771E+01	0.025
	492.35			2.151E+01	4.672E+01	7.841E+01	7.950E+00	0.274
	527.90	*		-1.615E+01	1.503E+01	2.209E+01	2.302E+00	-0.731
SN-117M	156.02			-8.522E-01	1.920E+00	3.127E+00	3.118E-01	-0.273
	158.56	*		1.629E-02	4.595E-02	7.721E-02	7.496E-03	0.211
SB-122	563.90	*		1.542E+00	2.730E+00	4.555E+00	4.857E-01	0.339
	692.80			-3.004E+01	5.756E+01	9.211E+01	1.014E+01	-0.326
I-123	159.00	*		7.340E+00	5.756E+01	Half-Life too short		
	528.96			-1.554E+03	5.756E+01	Half-Life too short		
TE-123M	159.00	*		8.689E-03	2.281E-02	3.835E-02	3.724E-03	0.227
I-124	602.71	*		-1.479E-01	7.756E-01	1.171E+00	1.273E-01	-0.126
	722.78			2.386E+00	5.473E+00	8.254E+00	9.001E-01	0.289
	1325.50			-6.258E+00	4.369E+01	7.045E+01	5.729E+00	-0.089
	1376.25			9.386E+01	4.033E+01	7.921E+01	6.480E+00	1.185
	1509.49			-3.279E+00	1.788E+01	2.809E+01	2.330E+00	-0.117
	1691.02			-9.478E-01	4.521E+00	7.239E+00	6.001E-01	-0.131
SB-124	602.71			-7.215E-03	3.785E-02	5.717E-02	6.214E-03	-0.126
	645.85			7.965E-02	4.625E-01	7.851E-01	8.983E-02	0.101
	709.31			-3.085E-01	2.820E+00	4.650E+00	5.095E-01	-0.066
	713.82			-8.279E-01	1.548E+00	2.454E+00	3.386E-01	-0.337
	722.78			1.688E-01	3.872E-01	5.839E-01	6.454E-02	0.289
	+ 968.20			1.142E+01	5.523E+00	7.372E+00	6.867E-01	1.550
	1045.16			-9.689E-01	2.340E+00	3.772E+00	3.401E-01	-0.257
	1325.50			-4.728E-01	3.301E+00	5.323E+00	4.328E-01	-0.089
	1368.21			-1.277E+00	1.608E+00	2.308E+00	3.045E-01	-0.553
	1436.60			1.204E+00	3.057E+00	5.280E+00	4.353E-01	0.228
	1691.02	*		-1.581E-02	7.544E-02	1.208E-01	1.044E-02	-0.131
	427.89	*		5.252E-02	8.857E-02	1.507E-01	1.455E-02	0.349
SB-125	+ 463.38			9.088E-01	4.616E-01	5.545E-01	5.804E-02	1.639
	600.56			1.024E-01	1.719E-01	2.862E-01	3.254E-02	0.358
	635.90			2.082E-01	2.445E-01	4.340E-01	5.015E-02	0.480
TE-125M	109.28	*		5.868E+00	7.203E+00	1.130E+01	1.500E+00	0.519
I-126	388.63			1.336E-01	2.049E-01	3.516E-01	3.228E-02	0.380
	666.33	*		6.731E-02	2.089E-01	3.134E-01	3.470E-02	0.215
	753.82			-7.684E-01	1.569E+00	2.460E+00	2.645E-01	-0.312
SB-126	223.80			-8.876E-01	3.740E+00	5.968E+00	6.073E-01	-0.149
	+ 278.60			4.731E+00	3.603E+00	4.201E+00	4.684E-01	1.126

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	+	296.50		1.415E+01	3.208E+00	3.429E+00	3.781E-01	4.127
		414.70		-4.454E-02	7.298E-02	1.156E-01	1.082E-02	-0.385
		415.30		-2.569E+00	6.085E+00	9.764E+00	9.145E-01	-0.263
		555.20		-2.966E+00	3.843E+00	5.744E+00	6.093E-01	-0.516
		573.80		6.050E-01	1.043E+00	1.745E+00	1.870E-01	0.347
		593.00		-8.978E-01	9.754E-01	1.429E+00	1.547E-01	-0.628
		656.30		-1.312E-01	3.917E+00	5.684E+00	6.288E-01	-0.023
		666.33		2.820E-02	8.750E-02	1.313E-01	1.454E-02	0.215
		675.00		-2.181E-01	2.072E+00	3.433E+00	3.795E-01	-0.064
		695.00		-1.470E-02	8.047E-02	1.322E-01	1.455E-02	-0.111
		697.00		1.175E-01	2.843E-01	4.862E-01	5.348E-02	0.242
		720.50	*	4.867E-02	1.516E-01	2.267E-01	2.474E-02	0.215
		856.80		4.411E-01	5.616E-01	8.654E-01	8.596E-02	0.510
		989.30		-6.362E-01	1.385E+00	2.128E+00	1.967E-01	-0.299
		1034.80		-6.165E+00	9.075E+00	1.426E+01	1.293E+00	-0.432
		1213.00		1.705E+00	5.532E+00	9.340E+00	7.684E-01	0.183
		61.10		1.385E+01	2.401E+01	3.604E+01	4.486E+00	0.384
		252.40		-2.756E+00	4.929E+00	7.416E+00	3.160E+00	-0.372
		290.80		4.522E-01	2.444E+01	3.672E+01	4.936E+00	0.012
		411.60		-3.712E+00	1.414E+01	2.295E+01	3.756E+00	-0.162
		444.90		4.401E+00	1.129E+01	1.896E+01	2.574E+00	0.232
		473.00		2.791E-01	2.003E+00	3.297E+00	4.643E-01	0.085
		543.00		1.436E+01	1.936E+01	3.271E+01	5.188E+00	0.439
		603.60		-6.633E+00	1.438E+01	2.010E+01	2.900E+00	-0.330
		685.20	*	-1.025E+00	1.698E+00	2.698E+00	3.668E-01	-0.380
		698.50		-6.460E+00	1.887E+01	3.061E+01	5.342E+00	-0.211
		722.20		8.405E+00	3.839E+01	5.662E+01	7.533E+00	0.148
		783.80		5.043E+00	4.500E+00	7.932E+00	1.120E+00	0.636
XE-127		57.60		1.132E-01	1.671E+00	2.677E+00	2.610E-01	0.042
	+	145.22		9.964E-01	8.855E-01	9.373E-01	1.033E-01	1.063
		172.10		5.835E-02	9.684E-02	1.634E-01	1.480E-02	0.357
	*	202.84		-5.360E-02	3.916E-02	5.899E-02	5.746E-03	-0.909
I-131		374.96		-4.946E-02	1.723E-01	2.816E-01	2.696E-02	-0.176
		80.18		2.853E+00	3.014E+00	4.497E+00	4.689E-01	0.634
		284.30		-1.897E-01	1.497E+00	2.352E+00	2.701E-01	-0.081
	*	364.48		1.033E-02	1.095E-01	1.836E-01	1.885E-02	0.056
TE-132		636.97		-3.471E-01	1.533E+00	2.527E+00	2.879E-01	-0.137
		722.89		3.829E+00	8.088E+00	1.224E+01	1.341E+00	0.313
		49.72		-1.892E+00	3.733E+00	5.396E+00	6.408E-01	-0.351
		111.76		-5.497E+00	2.609E+01	4.391E+01	6.184E+00	-0.125
BA-133		116.30		2.607E+00	2.409E+01	4.093E+01	5.875E+00	0.064
	*	228.16		6.912E-01	7.717E-01	1.282E+00	2.164E-01	0.539
		53.15		4.851E-01	7.300E-01	1.199E+00	1.150E-01	0.405
		79.62		-9.268E-02	7.799E-01	1.117E+00	1.816E-01	-0.083
		81.00		4.837E-03	6.712E-02	8.470E-02	1.433E-02	0.057
		276.40		4.538E-01	3.907E-01	5.845E-01	9.389E-02	0.776
		302.84		1.295E-01	1.332E-01	2.103E-01	3.135E-02	0.616
	*	356.01		-1.688E-02	4.112E-02	5.831E-02	8.268E-03	-0.290
		383.85		-1.094E-01	2.876E-01	4.668E-01	6.114E-02	-0.234

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	510.53		3.966E+00	2.876E-01	Half-Life	too short	
		529.87	*	6.254E-03	2.876E-01	Half-Life	too short	
		706.58		3.975E-01	2.876E-01	Half-Life	too short	
		856.28		7.653E-01	2.876E-01	Half-Life	too short	
		875.33		2.644E-02	2.876E-01	Half-Life	too short	
		1236.41		2.540E+00	2.876E-01	Half-Life	too short	
CS-134		1298.22		-8.052E-02	2.876E-01	Half-Life	too short	
		475.35		-5.196E-01	1.797E+00	2.869E+00	2.865E-01	-0.181
		563.23		1.495E-01	3.559E-01	5.883E-01	6.310E-02	0.254
		569.32		-3.608E-02	1.906E-01	3.009E-01	3.247E-02	-0.120
		604.70		-3.787E-02	3.429E-02	4.420E-02	4.815E-03	-0.857
	+	795.84	*	1.096E-01	7.509E-02	8.704E-02	9.163E-03	1.259
		801.93		-1.002E-01	4.461E-01	6.879E-01	7.201E-02	-0.146
		1038.57		-2.984E-01	3.538E+00	5.886E+00	5.325E-01	-0.051
		1167.94		1.040E+00	2.787E+00	4.748E+00	3.926E-01	0.219
		1365.15		-5.331E-01	1.154E+00	1.766E+00	1.515E-01	-0.302
CS-135		268.24	*	9.818E-02	1.539E-01	2.269E-01	2.739E-02	0.433
I-135		288.45		3.683E+10	1.539E-01	Half-Life	too short	
		417.63		5.801E+11	1.539E-01	Half-Life	too short	
		546.56		1.661E+11	1.539E-01	Half-Life	too short	
		836.80		2.319E+11	1.539E-01	Half-Life	too short	
		1038.76		-6.844E+10	1.539E-01	Half-Life	too short	
		1124.00		-3.422E+11	1.539E-01	Half-Life	too short	
		1131.51		5.511E+10	1.539E-01	Half-Life	too short	
		1260.41	*	1.708E+10	1.539E-01	Half-Life	too short	
		1457.56		1.689E+13	1.539E-01	Half-Life	too short	
		1678.03		9.242E+10	1.539E-01	Half-Life	too short	
		1706.46		1.535E+11	1.539E-01	Half-Life	too short	
		1791.20		-2.221E+10	1.539E-01	Half-Life	too short	
CS-136		66.91		2.338E-01	3.667E-01	5.445E-01	8.824E-02	0.429
	+	86.29		4.486E+00	1.148E+00	1.340E+00	1.916E-01	3.347
		153.22		3.961E-01	5.507E-01	9.374E-01	1.043E-01	0.423
		163.89		1.094E+00	9.291E-01	1.596E+00	1.615E-01	0.685
		176.55		-2.223E-02	3.101E-01	5.084E-01	4.894E-02	-0.044
		273.65		8.474E-02	5.532E-01	6.224E-01	7.171E-02	0.136
		340.57		1.063E-01	1.304E-01	2.029E-01	2.148E-02	0.524
		818.51		-7.092E-02	7.916E-02	1.190E-01	1.225E-02	-0.596
		1048.07	*	1.190E-02	1.082E-01	1.830E-01	1.712E-02	0.065
		1235.34		8.475E-01	7.629E-01	1.333E+00	1.541E-01	0.636
CE-139		165.85	*	-1.854E-03	2.482E-02	4.088E-02	3.645E-03	-0.045
BA-140		162.64		-4.119E-02	6.501E-01	1.073E+00	1.045E-01	-0.038
		304.84		5.651E-01	1.241E+00	1.899E+00	5.474E-01	0.298
		423.70		-1.219E-01	1.838E+00	3.012E+00	9.836E-01	-0.040
LA-140		537.32	*	2.114E-02	2.595E-01	4.207E-01	1.417E-01	0.050
	+	328.77		7.791E-01	5.015E-01	5.481E-01	6.025E-02	1.421
		432.53		-1.061E+00	2.099E+00	3.335E+00	3.314E-01	-0.318
		487.03		4.948E-02	1.379E-01	2.298E-01	2.425E-02	0.215
		751.79		-3.050E+00	1.834E+00	2.513E+00	2.894E-01	-1.214
		815.85		-2.387E-02	3.457E-01	5.638E-01	6.291E-02	-0.042

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		867.82		-4.708E-01	1.552E+00	2.305E+00	2.356E-01	-0.204
		919.63		2.407E+00	2.969E+00	5.041E+00	5.705E-01	0.478
		925.24		-6.171E-01	1.307E+00	2.027E+00	2.011E-01	-0.304
		1596.49	*	5.403E-03	9.512E-02	1.600E-01	1.330E-02	0.034
CE-141		145.44	*	5.083E-02	5.324E-02	8.318E-02	9.250E-03	0.611
CE-143		57.37		-7.691E-05	5.324E-02	Half-Life	too short	
		231.56		-2.587E-03	5.324E-02	Half-Life	too short	
		293.26	*	9.789E-04	5.324E-02	Half-Life	too short	
	+	350.59		5.667E-02	5.324E-02	Half-Life	too short	
		490.36		-2.179E-03	5.324E-02	Half-Life	too short	
		664.57		7.828E-04	5.324E-02	Half-Life	too short	
		721.93		4.129E-04	5.324E-02	Half-Life	too short	
CE-144		80.11		1.158E+00	1.259E+00	1.877E+00	1.947E-01	0.617
		133.54	*	-1.231E-01	1.563E-01	2.516E-01	4.448E-02	-0.489
PM-144		476.78		-7.749E-02	6.793E-02	1.013E-01	1.084E-02	-0.765
		618.01		-1.034E-03	2.943E-02	4.939E-02	5.494E-03	-0.021
		696.49	*	1.097E-02	3.428E-02	5.829E-02	6.414E-03	0.188
		778.57		-2.268E+00	2.407E+00	3.651E+00	3.871E-01	-0.621
PR-144		696.49	*	7.436E-01	2.324E+00	3.952E+00	4.348E-01	0.188
		1489.15		-8.068E+00	1.136E+01	1.620E+01	1.342E+00	-0.498
PM-146		453.90	*	-2.764E-03	4.148E-02	6.760E-02	7.894E-03	-0.041
		633.02		3.087E-01	1.285E+00	2.186E+00	8.304E-01	0.141
		735.90		-1.567E-01	1.556E-01	2.256E-01	6.622E-02	-0.694
		747.13		2.690E-02	9.063E-02	1.532E-01	2.369E-02	0.176
ND-147	+	91.11		8.965E-01	2.438E-01	3.640E-01	4.178E-02	2.463
		319.41		3.686E-01	2.954E+00	5.012E+00	5.385E-01	0.074
		439.89		4.746E+00	6.157E+00	1.055E+01	1.017E+00	0.450
		531.02	*	5.526E-01	5.557E-01	9.538E-01	1.533E-01	0.579
PM-149		285.90	*	7.768E+01	1.177E+02	1.921E+02	3.276E+01	0.404
EU-152		121.78		-5.078E-03	5.273E-02	8.865E-02	1.222E-02	-0.057
		244.69		-4.676E-02	3.072E-01	4.333E-01	4.584E-02	-0.108
		344.27	*	4.187E-02	9.090E-02	1.455E-01	1.563E-02	0.288
		443.98		-9.084E-01	9.323E-01	1.425E+00	1.379E-01	-0.638
		778.89		-2.613E-01	2.773E-01	4.206E-01	4.458E-02	-0.621
		867.32		-2.527E-01	8.926E-01	1.274E+00	1.251E-01	-0.198
		964.01		5.893E-01	3.767E-01	6.010E-01	5.606E-02	0.981
		1085.78		3.358E-01	3.823E-01	6.846E-01	6.028E-02	0.491
		1112.02		-1.559E-01	3.773E-01	5.386E-01	4.659E-02	-0.289
		1407.95		5.359E-02	1.699E-01	2.879E-01	2.365E-02	0.186
GD-153		69.67		-3.281E-01	8.003E-01	1.142E+00	1.142E-01	-0.287
	+	83.37		2.077E+01	1.046E+01	1.442E+01	1.516E+00	1.440
		97.43	*	-9.711E-03	5.520E-02	8.348E-02	9.401E-03	-0.116
		103.18		-2.580E-02	7.275E-02	1.098E-01	1.274E-02	-0.235
EU-154		123.07		1.555E-02	3.827E-02	6.536E-02	9.679E-03	0.238
		247.94		1.340E-01	3.311E-01	5.159E-01	6.737E-02	0.260
		591.81		-5.471E-01	6.124E-01	8.979E-01	1.201E-01	-0.609
		723.30		1.352E-01	1.841E-01	2.852E-01	3.318E-02	0.474
		756.87		9.682E-01	7.693E-01	1.372E+00	1.863E-01	0.706
		873.19		-3.752E-02	3.118E-01	5.029E-01	6.573E-02	-0.075

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	+	996.32		-3.456E-01	3.843E-01	5.556E-01	1.004E-01	-0.622
		1004.76		-1.063E-01	2.357E-01	3.631E-01	4.381E-02	-0.293
		1274.45	*	-1.248E-01	1.285E-01	1.903E-01	2.090E-02	-0.656
		86.79		1.053E+00	2.502E-01	3.304E-01	3.529E-02	3.188
		197.04		-2.430E-01	4.717E-01	7.421E-01	7.135E-02	-0.327
		215.65		-7.838E-02	6.216E-01	1.000E+00	1.001E-01	-0.078
		298.57		2.811E-01	1.289E-01	1.748E-01	1.923E-02	1.609
		879.36	*	1.296E-02	1.416E-01	2.325E-01	2.253E-02	0.056
		962.29		1.581E-01	7.135E-01	1.016E+00	9.480E-02	0.156
		966.15		1.030E+00	3.097E-01	5.292E-01	4.933E-02	1.946
HO-166M	+	1177.93		4.288E-02	4.100E-01	6.745E-01	5.552E-02	0.064
		1271.85		3.311E-01	6.901E-01	1.187E+00	9.726E-02	0.279
		80.57		1.020E-01	1.834E-01	2.377E-01	2.470E-02	0.429
		184.41		1.963E-01	5.650E-02	5.821E-02	5.434E-03	3.372
		280.46		3.958E-02	7.989E-02	1.167E-01	1.301E-02	0.339
		410.95		1.398E-01	2.334E-01	3.977E-01	3.705E-02	0.351
		711.68	*	-2.890E-02	5.663E-02	9.015E-02	9.870E-03	-0.321
		752.31		-2.887E-01	2.647E-01	3.884E-01	4.180E-02	-0.743
		810.29		-3.159E-02	6.280E-02	9.880E-02	1.024E-02	-0.320
		51.35		-3.379E+00	5.220E+00	8.162E+00	7.795E-01	-0.414
TM-171		52.39		3.586E+00	2.987E+00	4.988E+00	4.775E-01	0.719
		59.40		6.560E-01	8.570E+00	1.264E+01	1.243E+00	0.052
		66.72	*	1.412E+00	1.263E+01	1.845E+01	1.831E+00	0.077
LU-176	+	88.36		7.680E-01	1.825E-01	2.237E-01	2.408E-02	3.433
		201.83		-3.436E-02	2.305E-02	3.441E-02	3.344E-03	-0.999
		306.84	*	-1.725E-04	2.111E-02	3.454E-02	3.769E-03	-0.005
LU-177		401.10		1.780E+00	6.546E+00	1.099E+01	1.011E+00	0.162
		112.95		9.806E-01	1.258E+00	2.182E+00	2.672E-01	0.449
LU-177M	+	208.36	*	3.175E+00	1.400E+00	1.955E+00	1.928E-01	1.624
		52.97		3.782E-01	3.228E-01	5.383E-01	5.160E-02	0.703
		54.07		1.093E-01	1.860E-01	3.045E-01	2.929E-02	0.359
		61.30		1.763E-01	5.198E-01	7.735E-01	7.616E-02	0.228
		121.62		-4.854E-02	2.710E-01	4.542E-01	5.839E-02	-0.107
		147.16		-1.273E-01	5.364E-01	7.907E-01	8.570E-02	-0.161
		171.86		2.821E-01	3.818E-01	6.477E-01	5.860E-02	0.436
		218.09		3.623E-03	7.256E-01	1.174E+00	1.181E-01	0.003
		268.79		1.654E+00	9.719E-01	1.239E+00	1.362E-01	1.335
		319.02		-7.106E-02	2.188E-01	3.622E-01	3.893E-02	-0.196
		367.43		3.005E-02	7.960E-01	1.330E+00	1.300E-01	0.023
		413.65	*	-1.647E-01	1.631E-01	2.509E-01	2.346E-02	-0.656
		56.28		-1.081E-01	2.385E-01	3.747E-01	3.632E-02	-0.289
		57.53		-1.020E-02	1.401E-01	2.233E-01	2.176E-02	-0.046
		65.20		-1.343E-01	4.083E-01	5.863E-01	5.803E-02	-0.229
		133.02		-7.413E-03	4.968E-02	8.285E-02	9.995E-03	-0.089
		136.25		3.633E-01	3.554E-01	6.138E-01	7.243E-02	0.592
HF-181		345.85		4.231E-03	1.962E-01	2.899E-01	2.979E-02	0.015
		482.03	*	2.852E-02	4.446E-02	7.518E-02	7.554E-03	0.379
		56.28		-4.166E-02	9.227E-02	1.450E-01	1.405E-02	-0.287
W-181		57.53		-4.002E-03	5.423E-02	8.642E-02	8.422E-03	-0.046

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TA-182	65.20	*		-5.157E-02	1.568E-01	2.251E-01	2.228E-02	-0.229
	67.75			2.545E-02	4.668E-02	7.475E-02	7.437E-03	0.341
	100.10			-2.357E-02	1.197E-01	1.942E-01	2.218E-02	-0.121
	152.43			1.019E-01	2.625E-01	4.427E-01	4.574E-02	0.230
	222.10			7.858E-02	3.027E-01	4.949E-01	5.019E-02	0.159
	1001.68			1.219E+00	2.149E+00	3.621E+00	3.332E-01	0.337
	1121.28	+		5.867E-01	2.957E-01	3.551E-01	3.051E-02	1.652
	1189.05			-1.585E-01	3.469E-01	5.532E-01	4.554E-02	-0.287
	1221.42	*		1.839E-01	2.132E-01	3.732E-01	3.069E-02	0.493
	1230.97			1.008E-01	5.555E-01	9.276E-01	7.625E-02	0.109
RE-183	57.98			1.103E-02	5.535E-02	8.905E-02	8.696E-03	0.124
	59.32			9.132E-03	3.520E-02	5.235E-02	5.146E-03	0.174
	67.20			7.302E-02	8.336E-02	1.347E-01	1.338E-02	0.542
	162.32	*		-2.683E-02	9.079E-02	1.484E-01	1.381E-02	-0.181
	208.81	+		2.568E+00	1.132E+00	1.584E+00	1.562E-01	1.622
RE-184	291.72			1.822E-03	8.834E-01	1.325E+00	1.467E-01	0.001
	57.98			4.039E-02	2.026E-01	3.260E-01	3.183E-02	0.124
	59.32			3.340E-02	1.288E-01	1.915E-01	1.882E-02	0.174
	67.20			2.672E-01	3.051E-01	4.929E-01	4.898E-02	0.542
	161.27			-3.039E-01	2.925E-01	4.614E-01	4.347E-02	-0.659
	216.55			-2.007E-02	2.249E-01	3.625E-01	3.635E-02	-0.055
	252.85	*		-8.411E-02	2.081E-01	3.251E-01	3.487E-02	-0.259
	318.01			-3.284E-01	3.786E-01	6.056E-01	6.518E-02	-0.542
	792.07			1.067E+00	1.075E+00	1.696E+00	1.781E-01	0.629
	903.28			1.550E-01	1.136E+00	1.697E+00	1.606E-01	0.091
OS-185	920.93			1.899E-01	4.483E-01	7.549E-01	7.121E-02	0.252
	59.72			7.811E-03	9.656E-02	1.425E-01	1.401E-02	0.055
	61.14			1.591E-02	5.693E-02	8.452E-02	8.322E-03	0.188
	69.30			-7.420E-02	1.316E-01	2.035E-01	2.033E-02	-0.365
	592.07			-2.439E+00	2.503E+00	3.646E+00	3.944E-01	-0.669
	646.12	*		1.106E-02	3.954E-02	6.761E-02	7.460E-03	0.164
	717.42			-7.777E-02	8.515E-01	1.366E+00	1.492E-01	-0.057
	874.81			1.514E-01	6.142E-01	1.022E+00	9.952E-02	0.148
	880.27			-1.922E-01	7.775E-01	1.237E+00	1.197E-01	-0.155
	155.03	*		-9.414E-03	1.374E-01	2.275E-01	2.291E-02	-0.041
RE-188	477.96			-2.279E+00	3.100E+00	4.786E+00	4.792E-01	-0.476
	633.10			6.141E-01	2.614E+00	4.462E+00	4.905E-01	0.138
	63.58	+		1.453E+02	3.503E+01	4.279E+01	4.224E+00	3.397
W-188	227.08			-1.850E+00	1.151E+01	1.841E+01	1.886E+00	-0.100
	290.67	*		-3.123E+00	7.154E+00	1.041E+01	1.153E+00	-0.300
IR-192	295.96	+		1.028E+00	2.333E-01	2.689E-01	2.979E-02	3.823
	308.46			-5.522E-02	8.206E-02	1.335E-01	1.458E-02	-0.414
	316.51	*		-1.002E-02	2.907E-02	4.810E-02	5.195E-03	-0.208
	468.07			7.778E-02	6.490E-02	1.071E-01	1.120E-02	0.727
	604.41			-4.728E-01	4.725E-01	6.152E-01	8.989E-02	-0.769
AU-195	612.46			6.222E-01	7.046E-01	1.117E+00	1.335E-01	0.557
	65.12			-2.270E-02	7.230E-02	1.039E-01	1.028E-02	-0.219
	66.83			2.516E-02	4.140E-02	6.161E-02	6.118E-03	0.408
	75.70	+		1.147E+00	1.764E-01	2.504E-01	2.554E-02	4.579

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-200	98.88	*		2.472E-01	1.534E-01	2.580E-01	2.927E-02	0.958
	129.76			4.331E-01	2.186E+00	3.698E+00	4.556E-01	0.117
	367.94	*		2.115E-04	2.186E+00	Half-Life	too short	
	579.30			-4.452E-03	2.186E+00	Half-Life	too short	
	828.27			1.705E-03	2.186E+00	Half-Life	too short	
TL-201	1205.75			-1.577E-03	2.186E+00	Half-Life	too short	
	68.90			-1.907E+00	2.685E+00	4.127E+00	4.118E-01	-0.462
	70.82			6.664E-01	1.700E+00	2.508E+00	2.516E-01	0.266
	80.30			3.242E+00	4.391E+00	5.744E+00	5.961E-01	0.565
	135.34			2.540E+01	2.481E+01	4.286E+01	5.090E+00	0.593
TL-202	167.43	*		3.640E+00	7.147E+00	1.204E+01	1.077E+00	0.302
	68.90			-1.413E-01	1.989E-01	3.058E-01	3.051E-02	-0.462
	70.82			4.925E-02	1.256E-01	1.853E-01	1.859E-02	0.266
	80.30			2.397E-01	3.246E-01	4.246E-01	4.406E-02	0.565
	439.56	*		5.746E-02	7.273E-02	1.247E-01	1.201E-02	0.461
BI-207	72.80		+	9.519E-02	1.047E-01	1.373E-01	1.386E-02	0.693
	74.97		+	6.334E-01	9.741E-02	1.261E-01	1.282E-02	5.022
	84.90		+	2.677E-01	1.349E-01	1.913E-01	2.026E-02	1.399
	569.67			-1.252E-03	2.999E-02	4.792E-02	5.126E-03	-0.026
	1063.62	*		6.209E-02	5.893E-02	1.057E-01	9.431E-03	0.588
TL-207	1770.23			-2.911E+00	8.509E-01	7.508E-01	6.182E-02	-3.877
	81.07			3.035E-03	1.481E-01	1.863E-01	1.940E-02	0.016
	83.78		+	1.765E-01	8.895E-02	1.261E-01	1.329E-02	1.399
	94.90			1.801E-01	1.510E-01	2.429E-01	2.700E-02	0.742
	122.32			5.454E-02	1.261E+00	2.131E+00	2.836E-01	0.026
	144.24		+	9.562E-01	8.508E-01	9.729E-01	1.160E-01	0.983
	154.21			3.388E-02	3.143E-01	5.241E-01	5.710E-02	0.065
	269.46		+	3.853E-01	2.265E-01	2.964E-01	3.304E-02	1.300
	323.87	*		-2.744E-02	6.377E-01	9.440E-01	1.774E-01	-0.029
	338.28		+	7.526E+00	1.811E+00	2.367E+00	3.228E-01	3.179
PO-209	445.03			1.827E+00	2.110E+00	3.633E+00	4.677E-01	0.503
	260.50			-3.677E+00	8.513E+00	1.323E+01	1.437E+00	-0.278
	262.80			3.657E+00	2.329E+01	3.743E+01	4.078E+00	0.098
	896.60	*		-3.051E+00	7.378E+00	1.152E+01	1.093E+00	-0.265
	404.84	*		-9.536E-01	1.093E+00	1.423E+00	8.927E-01	-0.670
PB-211	427.08			-5.731E-01	2.012E+00	3.200E+00	1.993E+00	-0.179
	831.96			-1.313E+00	1.443E+00	1.747E+00	1.099E+00	-0.751
	727.18	*	+	1.468E+00	5.226E-01	6.711E-01	8.064E-02	2.187
	785.46			2.946E-01	1.676E+00	2.799E+00	2.953E-01	0.105
	1620.62			1.217E+00	1.162E+00	2.217E+00	1.843E-01	0.549
PO-215	81.07			3.035E-03	1.481E-01	1.863E-01	1.940E-02	0.016
	83.78		+	1.765E-01	8.895E-02	1.261E-01	1.329E-02	1.399
	94.90			1.801E-01	1.510E-01	2.429E-01	2.700E-02	0.742
	122.32			5.454E-02	1.261E+00	2.131E+00	2.836E-01	0.026
	144.24		+	9.562E-01	8.508E-01	9.729E-01	1.160E-01	0.983
	154.21			3.388E-02	3.143E-01	5.241E-01	5.710E-02	0.065
	269.46		+	3.853E-01	2.265E-01	2.964E-01	3.304E-02	1.300
	323.87	*		-2.744E-02	6.377E-01	9.440E-01	1.774E-01	-0.029
	338.28		+	7.526E+00	1.811E+00	2.367E+00	3.228E-01	3.179

---- 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		1.827E+00	2.110E+00	3.633E+00	4.677E-01	0.503
		271.23		4.944E-01	2.919E-01	3.694E-01	4.581E-02	1.338
		401.81	*	1.529E-01	3.926E-01	6.626E-01	1.019E-01	0.231
		549.76	*	1.450E+01	2.391E+01	4.024E+01	4.255E+00	0.360
RN-220		81.07		3.035E-03	1.481E-01	1.863E-01	1.940E-02	0.016
RA-223	+	83.78		1.765E-01	8.895E-02	1.261E-01	1.329E-02	1.399
		94.90		1.801E-01	1.510E-01	2.429E-01	2.700E-02	0.742
		122.32		5.454E-02	1.261E+00	2.131E+00	2.836E-01	0.026
		144.24		9.562E-01	8.508E-01	9.729E-01	1.160E-01	0.983
		154.21		3.388E-02	3.143E-01	5.241E-01	5.710E-02	0.065
	+	269.46		3.853E-01	2.265E-01	2.964E-01	3.304E-02	1.300
		323.87	*	-2.744E-02	6.377E-01	9.440E-01	1.774E-01	-0.029
	+	338.28		7.526E+00	1.811E+00	2.367E+00	3.228E-01	3.179
AC-227		445.03		1.827E+00	2.110E+00	3.633E+00	4.677E-01	0.503
		79.80		7.723E-01	9.741E-01	1.429E+00	3.182E-01	0.540
		236.00		2.858E-01	2.113E-01	3.232E-01	4.385E-02	0.884
		256.20	*	1.657E-01	3.401E-01	5.553E-01	9.251E-02	0.298
		286.10		9.694E-01	1.385E+00	2.267E+00	3.389E-01	0.428
	+	299.80		3.394E+00	2.130E+00	2.279E+00	4.278E-01	1.489
		304.40		1.652E+00	1.716E+00	2.693E+00	5.286E-01	0.614
		334.20		-1.608E+00	2.425E+00	3.126E+00	6.351E-01	-0.514
TH-227	+	79.80		7.723E-01	9.744E-01	1.429E+00	3.220E-01	0.540
		94.00		1.806E+01	4.825E+00	2.699E+00	6.170E-01	6.690
		236.00		2.858E-01	2.108E-01	3.232E-01	4.048E-02	0.884
		256.20	*	1.657E-01	3.405E-01	5.553E-01	1.066E-01	0.298
		286.10		9.694E-01	1.688E+00	2.267E+00	2.281E+00	0.428
	+	299.80		3.394E+00	2.130E+00	2.279E+00	4.278E-01	1.489
		304.40		1.652E+00	1.716E+00	2.693E+00	5.286E-01	0.614
		334.20		-1.608E+00	2.425E+00	3.126E+00	6.351E-01	-0.514
TH-229	+	85.43		2.642E-01	1.332E-01	1.875E-01	1.991E-02	1.409
		88.47		4.421E-01	1.050E-01	1.281E-01	1.380E-02	3.451
		100.00		-3.626E-02	1.264E-01	2.012E-01	2.297E-02	-0.180
		193.63	*	1.889E-01	4.082E-01	6.798E-01	6.485E-02	0.278
		210.97		4.459E-01	6.825E-01	1.025E+00	1.016E-01	0.435
PA-231		283.67	*	-7.582E-01	1.442E+00	2.082E+00	3.486E-01	-0.364
	+	301.29		1.358E+00	8.349E-01	9.263E-01	1.297E-01	1.466
TH-231	+	81.07		3.035E-03	1.481E-01	1.863E-01	1.940E-02	0.016
		83.78		1.765E-01	8.895E-02	1.261E-01	1.329E-02	1.399
		94.90		1.801E-01	1.510E-01	2.429E-01	2.700E-02	0.742
		122.32		5.454E-02	1.261E+00	2.131E+00	2.836E-01	0.026
	+	144.24		9.562E-01	8.508E-01	9.729E-01	1.160E-01	0.983
		154.21		3.388E-02	3.143E-01	5.241E-01	5.710E-02	0.065
	+	269.46		3.853E-01	2.265E-01	2.964E-01	3.304E-02	1.300
		323.87	*	-2.744E-02	6.377E-01	9.440E-01	1.774E-01	-0.029
	+	338.28		7.526E+00	1.811E+00	2.367E+00	3.228E-01	3.179
U-231	+	445.03		1.827E+00	2.110E+00	3.633E+00	4.677E-01	0.503
		84.21		9.163E+00	4.618E+00	6.663E+00	7.034E-01	1.375
		92.29		2.150E+01	3.810E+00	3.953E+00	4.336E-01	5.440
		95.87	*	-4.145E-01	8.517E-01	1.285E+00	1.436E-01	-0.322

Sample ID : G246444001

Acquisition date : 19-FEB-2010 17:59:40

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233	+	108.00		1.775E+00	1.791E+00	2.854E+00	3.401E-01	0.622
	+	75.28		1.848E+01	3.686E+00	3.702E+00	6.024E-01	4.993
	+	86.59		6.339E+00	2.205E+00	1.956E+00	5.388E-01	3.241
	+	300.12		9.462E-01	5.873E-01	6.394E-01	1.046E-01	1.480
		311.98	*	7.862E-03	5.484E-02	9.326E-02	1.030E-02	0.084
		340.50		5.620E-01	6.128E-01	9.395E-01	2.304E-01	0.598
PA-234		398.62		-7.320E-02	2.068E+00	3.417E+00	9.162E-01	-0.021
		415.76		-3.653E-01	1.502E+00	2.435E+00	5.325E-01	-0.150
	+	63.00		4.168E+00	1.139E+00	1.224E+00	1.985E-01	3.406
		94.67		2.276E-01	1.146E-01	1.839E-01	2.619E-02	1.238
		98.44		7.831E-02	7.758E-02	1.026E-01	5.772E-02	0.763
		99.86		-5.885E-02	3.208E-01	5.129E-01	5.850E-02	-0.115
		111.00		-2.040E-01	1.348E-01	2.079E-01	3.074E-02	-0.981
		131.20		-1.027E-01	8.152E-02	1.289E-01	1.573E-02	-0.797
		152.70		1.620E-01	2.521E-01	4.268E-01	7.665E-02	0.380
	+	186.00		7.066E+00	2.938E+00	2.468E+00	7.758E-01	2.863
		226.40		-1.373E-01	3.567E-01	5.641E-01	8.068E-02	-0.243
		227.20		-4.438E-02	3.826E-01	6.136E-01	6.285E-02	-0.072
		248.90		3.544E-01	7.160E-01	1.169E+00	2.719E-01	0.303
	+	293.70		6.404E+00	1.741E+00	1.555E+00	2.897E-01	4.119
		369.80		5.370E-02	7.461E-01	1.248E+00	2.775E-01	0.043
		568.70		-1.321E-01	9.623E-01	1.526E+00	1.632E-01	-0.087
		569.50		-2.994E-02	2.648E-01	4.208E-01	4.500E-02	-0.071
		574.00		7.133E-01	1.399E+00	2.328E+00	2.496E-01	0.306
		699.00		7.554E-02	7.196E-01	1.206E+00	2.443E-01	0.063
		706.10		-2.646E-01	1.115E+00	1.814E+00	8.181E-01	-0.146
		733.00		2.841E-01	3.964E-01	6.498E-01	1.505E-01	0.437
		742.81		4.019E-01	1.428E+00	2.369E+00	1.600E+00	0.170
		796.30		5.550E-01	1.113E+00	1.652E+00	4.576E-01	0.336
		805.60		7.217E-01	1.080E+00	1.825E+00	5.692E-01	0.396
		819.60		-2.508E-01	1.159E+00	1.856E+00	7.132E-01	-0.135
		826.30		3.752E-01	7.965E-01	1.329E+00	5.993E-01	0.282
		831.60		-7.159E-01	6.471E-01	8.933E-01	2.709E-01	-0.801
		876.40		-1.260E-01	8.768E-01	1.395E+00	1.435E+00	-0.090
		880.51		-8.272E-02	2.799E-01	4.432E-01	4.289E-02	-0.187
		883.24		-9.238E-02	2.879E-01	4.434E-01	2.987E-01	-0.208
		899.00		-2.818E-01	8.551E-01	1.333E+00	5.852E-01	-0.211
		925.00		-4.837E-01	1.277E+00	1.999E+00	1.884E-01	-0.242
		926.50		6.022E-02	1.832E-01	3.044E-01	7.782E-02	0.198
		946.00	*	3.947E-02	3.067E-01	4.973E-01	9.511E-02	0.079
		949.00		2.285E-01	4.715E-01	7.936E-01	7.436E-02	0.288
		980.50		-4.056E-01	7.245E-01	1.099E+00	1.020E-01	-0.369
		1394.10		6.843E-01	1.131E+00	1.848E+00	1.202E+00	0.370
PA-234M		766.42		2.913E+01	1.948E+01	2.364E+01	1.209E+01	1.232
		1001.03	*	2.545E+00	4.790E+00	8.048E+00	8.430E-01	0.316
NP-236		94.67		1.756E-01	8.569E-02	1.398E-01	1.552E-02	1.256
		98.44		5.917E-02	4.873E-02	7.755E-02	8.779E-03	0.763
		111.00		-1.543E-01	1.011E-01	1.573E-01	1.905E-02	-0.981
		160.31	*	-3.726E-02	6.508E-02	1.051E-01	1.001E-02	-0.354

---- 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		8.823E-02	1.019E-01	1.751E-01	1.994E-02	0.504
		117.00	*	3.013E-02	1.334E-01	2.275E-01	2.850E-02	0.132
	+	209.75		2.003E+00	8.831E-01	1.218E+00	1.204E-01	1.645
		228.18		1.806E-01	1.971E-01	3.300E-01	3.387E-02	0.547
	+	277.60		3.239E-01	2.467E-01	2.882E-01	3.209E-02	1.124
AM-241		334.30		-9.113E-01	1.365E+00	1.772E+00	1.860E-01	-0.514
		59.54	*	3.207E-03	5.003E-02	7.377E-02	7.664E-03	0.043
CM-243		99.55		9.080E-02	1.048E-01	1.802E-01	2.052E-02	0.504
		103.76	*	2.910E-02	6.764E-02	1.059E-01	1.233E-02	0.275
		117.00		3.100E-02	1.373E-01	2.340E-01	2.932E-02	0.132
	+	209.75		1.975E+00	8.707E-01	1.200E+00	1.187E-01	1.645
		228.18		1.825E-01	1.992E-01	3.335E-01	3.423E-02	0.547
AM-246	+	277.60		3.266E-01	2.487E-01	2.906E-01	3.236E-02	1.124
		798.80		2.044E-02	1.492E-01	2.160E-01	2.258E-02	0.095
		1036.00		-1.089E-01	2.796E-01	4.519E-01	4.094E-02	-0.241
		1062.04		1.286E-01	2.540E-01	4.406E-01	3.936E-02	0.292
		1078.86	*	-8.488E-02	1.409E-01	2.226E-01	1.969E-02	-0.381
CM-247	+	278.00		1.343E+00	1.023E+00	1.200E+00	1.337E-01	1.119
		287.40		3.700E-01	1.130E+00	1.819E+00	2.019E-01	0.203
		402.60	*	-1.126E-02	3.615E-02	5.872E-02	5.413E-03	-0.192
CF-249		252.85		-3.141E-01	7.774E-01	1.214E+00	1.302E-01	-0.259
		333.44		3.088E-02	1.859E-01	2.370E-01	2.492E-02	0.130
		387.95	*	1.954E-02	3.794E-02	6.466E-02	5.951E-03	0.302
CF-251		176.60	*	-9.197E-03	1.007E-01	1.649E-01	1.510E-02	-0.056
		227.00		-6.700E-02	3.408E-01	5.445E-01	5.575E-02	-0.123
		285.00		2.011E-01	1.608E+00	2.562E+00	2.849E-01	0.079

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444001      *
* Acquisition date   : 19-FEB-2010 17:59:40 Detector SN#      :             *
* Detector ID        : GAM25                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00             Abundance limit: 75.000       *
* Elapsed real time  : 0 02:00:02.34             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246444001             Analyst initials: MXR1         *
* Batch Number       : 950788                 Sample Quantity : 1.4498E+02 GRAM *
* Recovery           : 1.00000                Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                                       *
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope      :                 *
* MSD DPM             : 0.000                MSD Isotope    :                 *
* LCS DPM             : 0.000                LCS Isotope     :                 *
* LCSD DPM            : 0.000                LCSD Isotope    :                 *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.261E+01	3.242E+00	4.933E-01	0.000E+00
CD-109	3.300E+00	7.684E-01	7.733E-01	0.000E+00
SN-126	3.238E-01	7.539E-02	7.573E-02	0.000E+00
BA-137M	2.254E-01	6.643E-02	5.756E-02	0.000E+00
CS-137	2.382E-01	7.023E-02	6.085E-02	0.000E+00
EU-155	1.642E-01	1.178E-01	1.256E-01	0.000E+00
HG-203	7.528E-02	5.621E-02	5.451E-02	0.000E+00
TL-208	5.279E-01	9.830E-02	6.266E-02	0.000E+00
BI-210	9.596E-01	6.403E-01	6.474E-01	0.000E+00
PB-210	9.596E-01	6.403E-01	6.474E-01	0.000E+00
PO-210	9.596E-01	6.392E-01	6.474E-01	0.000E+00
BI-211	4.039E+00	5.923E-01	2.824E-01	0.000E+00
PB-212	1.861E+00	2.305E-01	7.519E-02	0.000E+00
PO-212	1.861E+00	2.305E-01	7.519E-02	0.000E+00
BI-214	1.298E+00	2.099E-01	9.858E-02	0.000E+00
PB-214	1.405E+00	2.182E-01	9.848E-02	0.000E+00
PO-214	1.405E+00	2.182E-01	9.848E-02	0.000E+00
PO-216	1.861E+00	2.305E-01	7.519E-02	0.000E+00
PO-218	1.405E+00	2.182E-01	9.848E-02	0.000E+00
RA-224	4.602E+00	1.307E+00	8.566E-01	0.000E+00
RA-226	1.298E+00	2.099E-01	9.858E-02	0.000E+00
AC-228	1.828E+00	3.581E-01	2.021E-01	0.000E+00
RA-228	1.828E+00	3.581E-01	2.021E-01	0.000E+00
TH-228	1.891E+00	2.342E-01	7.642E-02	0.000E+00
TH-230	1.298E+00	2.099E-01	9.858E-02	0.000E+00
TH-232	1.828E+00	3.581E-01	2.021E-01	0.000E+00
TH-234	3.576E+00	1.010E+00	7.624E-01	0.000E+00
U-234	1.298E+00	2.099E-01	9.858E-02	0.000E+00
U-235	2.951E-01	2.607E-01	2.718E-01	0.000E+00
NP-237	9.509E-01	2.932E-01	2.372E-01	0.000E+00
U-238	3.576E+00	1.010E+00	7.624E-01	0.000E+00
AM-243	3.528E-01	5.318E-02	4.745E-02	0.000E+00
ANH-511	1.576E-01	6.737E-02	4.751E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error ) Ided	MDA (pCi/GRAM)	)	
BE-7	-3.782E-01	3.231E-01	5.068E-01	0.000E+00	NOT IDENT.
NA-22	-4.098E-02	4.454E-02	6.857E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.376E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.068E-02	2.783E-02	5.015E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.781E-02	4.540E-02	0.000E+00	FAIL ABUN
SC-46	-9.243E-03	3.876E-02	6.402E-02	0.000E+00	FAIL ABUN
V-48	-2.178E-02	7.586E-02	1.231E-01	0.000E+00	NOT IDENT.
CR-51	4.509E-02	3.141E-01	5.662E-01	0.000E+00	NOT IDENT.
MN-52	-2.797E-01	2.370E-01	3.169E-01	0.000E+00	NOT IDENT.
MN-54	-4.169E-03	3.757E-02	6.336E-02	0.000E+00	NOT IDENT.
CO-56	2.986E-02	3.939E-02	7.082E-02	0.000E+00	NOT IDENT.
CO-57	-7.323E-04	1.787E-02	3.264E-02	0.000E+00	NOT IDENT.
CO-58	-2.074E-02	4.164E-02	6.823E-02	0.000E+00	NOT IDENT.
FE-59	2.059E-02	8.725E-02	1.533E-01	0.000E+00	FAIL ABUN
CO-60	-2.862E-02	3.935E-02	6.067E-02	0.000E+00	NOT IDENT.
ZN-65	-2.929E-02	1.049E-01	1.503E-01	0.000E+00	NOT IDENT.
GE-68	-8.942E-03	1.221E+00	2.106E+00	0.000E+00	NOT IDENT.
AS-73	1.354E-01	1.711E-01	3.109E-01	0.000E+00	NOT IDENT.
AS-74	1.478E-02	9.174E-02	1.552E-01	0.000E+00	NOT IDENT.
SE-75	1.150E-02	3.772E-02	6.509E-02	0.000E+00	FAIL ABUN
BR-77	-8.951E+00	1.332E+01	2.140E+01	0.000E+00	FAIL ABUN
SR-82	-1.043E-01	4.035E-01	6.788E-01	0.000E+00	NOT IDENT.
RB-83	-4.905E-02	6.420E-02	1.023E-01	0.000E+00	NOT IDENT.
RB-84	-4.373E-04	7.004E-02	1.183E-01	0.000E+00	NOT IDENT.
KR-85	9.189E+00	7.661E+00	1.250E+01	0.000E+00	NOT IDENT.
SR-85	4.768E-02	3.975E-02	6.484E-02	0.000E+00	NOT IDENT.
RB-86	8.315E-01	7.612E-01	1.430E+00	0.000E+00	NOT IDENT.
Y-88	2.587E-02	3.063E-02	5.936E-02	0.000E+00	NOT IDENT.
ZR-88	-6.254E-04	2.955E-02	5.171E-02	0.000E+00	NOT IDENT.
Y-91	-1.068E+01	2.067E+01	3.383E+01	0.000E+00	NOT IDENT.
NB-94	1.143E-05	3.467E-02	6.017E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	4.734E-02	8.923E-02	0.000E+00	NOT IDENT.
NB-95M	8.328E-02	1.090E-01	1.745E-01	0.000E+00	NOT IDENT.
ZR-95	6.826E-02	6.864E-02	1.262E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.146E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	5.839E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-7.571E+00	1.558E+01	2.551E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.001E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.840E-03	2.659E-02	4.650E-02	0.000E+00	NOT IDENT.
RH-102	1.034E-02	2.661E-02	4.683E-02	0.000E+00	NOT IDENT.
RU-103	5.167E-04	3.763E-02	6.430E-02	0.000E+00	FAIL ABUN
RH-106	9.842E-02	2.931E-01	5.269E-01	0.000E+00	FAIL ABUN
RU-106	9.842E-02	2.929E-01	5.269E-01	0.000E+00	FAIL ABUN
AG-108M	-2.542E-02	3.111E-02	5.101E-02	0.000E+00	NOT IDENT.
AG-110M	-8.461E-03	3.876E-02	5.766E-02	0.000E+00	NOT IDENT.
IN-111	-3.492E-01	1.297E+00	1.938E+00	0.000E+00	NOT IDENT.
IN-113M	-3.643E-02	4.293E-02	7.148E-02	0.000E+00	NOT IDENT.
SN-113	-3.643E-02	4.293E-02	7.148E-02	0.000E+00	NOT IDENT.
IN-114M	-4.234E-02	1.654E-01	2.555E-01	0.000E+00	NOT IDENT.
CD-115	-1.615E+01	1.473E+01	2.273E+01	0.000E+00	NOT IDENT.
SN-117M	1.629E-02	4.504E-02	8.158E-02	0.000E+00	NOT IDENT.
SB-122	1.542E+00	2.675E+00	4.681E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.889E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	8.689E-03	2.236E-02	4.052E-02	0.000E+00	NOT IDENT.
I-124	-1.479E-01	7.600E-01	1.202E+00	0.000E+00	NOT IDENT.
SB-124	-1.581E-02	7.393E-02	1.210E-01	0.000E+00	FAIL ABUN
SB-125	5.252E-02	8.680E-02	1.558E-01	0.000E+00	FAIL ABUN
TE-125M	5.868E+00	7.059E+00	1.203E+01	0.000E+00	NOT IDENT.
I-126	6.731E-02	2.047E-01	3.208E-01	0.000E+00	NOT IDENT.
SB-126	4.867E-02	1.486E-01	2.317E-01	0.000E+00	FAIL ABUN
SB-127	-1.025E+00	1.664E+00	2.761E+00	0.000E+00	NOT IDENT.
XE-127	-5.360E-02	3.838E-02	6.201E-02	0.000E+00	FAIL ABUN
I-131	1.033E-02	1.073E-01	1.905E-01	0.000E+00	NOT IDENT.
TE-132	6.912E-01	7.563E-01	1.344E+00	0.000E+00	NOT IDENT.
BA-133	-1.688E-02	4.030E-02	6.054E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.334E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	7.359E-02	8.875E-02	0.000E+00	FAIL ABUN
CS-135	9.818E-02	1.508E-01	2.370E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.030E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.190E-02	1.060E-01	1.854E-01	0.000E+00	FAIL ABUN
CE-139	-1.854E-03	2.432E-02	4.315E-02	0.000E+00	NOT IDENT.
BA-140	2.114E-02	2.543E-01	4.328E-01	0.000E+00	NOT IDENT.

LA-140	5.403E-03	9.322E-02	1.605E-01	0.000E+00	FAIL ABUN
CE-141	5.083E-02	5.217E-02	8.805E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.364E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.231E-01	1.531E-01	2.668E-01	0.000E+00	NOT IDENT.
PM-144	1.097E-02	3.359E-02	5.961E-02	0.000E+00	NOT IDENT.
PR-144	7.436E-01	2.278E+00	4.042E+00	0.000E+00	NOT IDENT.
PM-146	-2.764E-03	4.065E-02	6.981E-02	0.000E+00	NOT IDENT.
ND-147	5.526E-01	5.446E-01	9.815E-01	0.000E+00	FAIL ABUN
PM-149	7.768E+01	1.153E+02	2.004E+02	0.000E+00	NOT IDENT.
EU-152	4.187E-02	8.908E-02	1.512E-01	0.000E+00	NOT IDENT.
GD-153	-9.711E-03	5.409E-02	8.912E-02	0.000E+00	FAIL ABUN
EU-154	-1.248E-01	1.259E-01	1.919E-01	0.000E+00	NOT IDENT.
TB-160	1.296E-02	1.388E-01	2.365E-01	0.000E+00	FAIL ABUN
HO-166M	-2.890E-02	5.550E-02	9.215E-02	0.000E+00	FAIL ABUN
TM-171	1.412E+00	1.238E+01	1.985E+01	0.000E+00	NOT IDENT.
LU-176	-1.725E-04	2.069E-02	3.598E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.372E+00	2.054E+00	0.000E+00	FAIL ABUN
LU-177M	-1.647E-01	1.599E-01	2.597E-01	0.000E+00	FAIL ABUN
HF-181	2.852E-02	4.357E-02	7.753E-02	0.000E+00	NOT IDENT.
W-181	-5.157E-02	1.537E-01	2.424E-01	0.000E+00	NOT IDENT.
TA-182	1.839E-01	2.089E-01	3.768E-01	0.000E+00	FAIL ABUN
RE-183	-2.683E-02	8.898E-02	1.567E-01	0.000E+00	FAIL ABUN
RE-184	-8.411E-02	2.040E-01	3.401E-01	0.000E+00	NOT IDENT.
OS-185	1.106E-02	3.875E-02	6.926E-02	0.000E+00	NOT IDENT.
RE-188	-9.414E-03	1.347E-01	2.405E-01	0.000E+00	NOT IDENT.
W-188	-3.123E+00	7.011E+00	1.086E+01	0.000E+00	FAIL ABUN
IR-192	-1.002E-02	2.849E-02	5.007E-02	0.000E+00	FAIL ABUN
AU-195	2.472E-01	1.503E-01	2.753E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.028E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	3.640E+00	7.004E+00	1.270E+01	0.000E+00	NOT IDENT.
TL-202	5.746E-02	7.127E-02	1.289E-01	0.000E+00	NOT IDENT.
BI-207	6.209E-02	5.775E-02	1.070E-01	0.000E+00	FAIL ABUN
TL-207	-2.744E-02	6.249E-01	9.821E-01	0.000E+00	FAIL ABUN
PO-209	-3.051E+00	7.230E+00	1.171E+01	0.000E+00	NOT IDENT.
PB-211	-9.536E-01	1.071E+00	1.473E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.121E-01	6.857E-01	0.000E+00	FAIL ABUN
PO-215	-2.744E-02	6.249E-01	9.821E-01	0.000E+00	FAIL ABUN
RN-219	1.529E-01	3.848E-01	6.861E-01	0.000E+00	FAIL ABUN
RN-220	1.450E+01	2.343E+01	4.138E+01	0.000E+00	NOT IDENT.
RA-223	-2.744E-02	6.249E-01	9.821E-01	0.000E+00	FAIL ABUN
AC-227	1.657E-01	3.333E-01	5.807E-01	0.000E+00	FAIL ABUN
TH-227	1.657E-01	3.337E-01	5.807E-01	0.000E+00	FAIL ABUN
TH-229	1.889E-01	4.000E-01	7.152E-01	0.000E+00	FAIL ABUN
PA-231	-7.582E-01	1.413E+00	2.173E+00	0.000E+00	FAIL ABUN
TH-231	-2.744E-02	6.249E-01	9.821E-01	0.000E+00	FAIL ABUN
U-231	-4.145E-01	8.347E-01	1.373E+00	0.000E+00	FAIL ABUN
PA-233	7.862E-03	5.374E-02	9.711E-02	0.000E+00	FAIL ABUN
PA-234	3.947E-02	3.006E-01	5.051E-01	0.000E+00	FAIL ABUN
PA-234M	2.545E+00	4.694E+00	8.163E+00	0.000E+00	NOT IDENT.
NP-236	-3.726E-02	6.377E-02	1.111E-01	0.000E+00	NOT IDENT.
NP-239	3.013E-02	1.307E-01	2.419E-01	0.000E+00	FAIL ABUN
AM-241	3.207E-03	4.903E-02	7.956E-02	0.000E+00	NOT IDENT.
CM-243	2.910E-02	6.628E-02	1.129E-01	0.000E+00	FAIL ABUN
AM-246	-8.488E-02	1.381E-01	2.254E-01	0.000E+00	NOT IDENT.
CM-247	-1.126E-02	3.543E-02	6.080E-02	0.000E+00	FAIL ABUN
CF-249	1.954E-02	3.718E-02	6.701E-02	0.000E+00	NOT IDENT.
CF-251	-9.197E-03	9.866E-02	1.738E-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]G246444001.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 17:59:40
Sample ID          : G246444001      Sample quantity   : 1.44980E+02 GRAM
Detector name      : GAM25            Detector geometry: CAN
Elapsed live time   : 0 02:00:00.00   Elapsed real time: 0 02:00:02.34  0.0%
Energy tolerance    : 1.50000 keV     Analyst Initials : MXR1
Abundance limit     : 75.00000         Sensitivity       : 5.00000
Batch ID           : 950788            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	1490	10.67*	1.109E+00	3.261E+01	3.261E+01	10.15
CD-109	88.03	435	3.72*	9.406E+00	3.221E+00	3.300E+00	23.76
SN-126	64.28	513	9.60	9.778E+00	1.415E+00	1.415E+00	27.15
	86.94	435	8.90	9.406E+00	1.346E+00	1.346E+00	46.91
	87.57	435	37.00*	9.406E+00	3.238E-01	3.238E-01	23.76
BA-137M	661.65	175	89.98*	2.232E+00	2.251E-01	2.254E-01	30.07
CS-137	661.65	175	85.12*	2.232E+00	2.380E-01	2.382E-01	30.08
EU-155	48.70	-----	4.60	9.341E+00	-----	Line Not Found	-----
	60.01	-----	1.11	9.748E+00	-----	Line Not Found	-----
	86.54	435	30.90	9.406E+00	3.877E-01	3.902E-01	23.79
	105.31	115	20.70*	8.825E+00	1.632E-01	1.642E-01	73.20
HG-203	70.83	-----	4.75	9.750E+00	-----	Line Not Found	-----
	72.87	78	8.00	9.720E+00	2.591E-01	3.302E-01	110.43
	82.60	160	3.55	9.490E+00	1.228E+00	1.565E+00	51.52
	279.20	83	77.30*	4.726E+00	5.908E-02	7.528E-02	76.18
TL-208	277.35	83	6.80	4.726E+00	6.716E-01	6.716E-01	76.66
	510.84	171	21.60	2.809E+00	7.294E-01	7.294E-01	44.42
	583.14	429	84.20*	2.497E+00	5.279E-01	5.279E-01	19.00
	860.37	81	12.46	1.766E+00	9.498E-01	9.498E-01	53.18
BI-210	46.50	138	4.05*	9.197E+00	9.582E-01	9.596E-01	68.09
PB-210	46.50	138	4.05*	9.197E+00	9.582E-01	9.596E-01	68.09
PO-210	46.50	138	4.05*	9.197E+00	9.582E-01	9.596E-01	67.97
BI-211	72.87	78	1.27	9.720E+00	1.632E+00	1.632E+00	109.98
	351.07	785	12.94*	3.888E+00	4.039E+00	4.039E+00	14.96
PB-212	74.81	872	10.70	9.694E+00	2.176E+00	2.176E+00	18.00
	77.11	1408	18.00	9.653E+00	2.098E+00	2.098E+00	12.60
	87.30	435	8.00	9.406E+00	1.498E+00	1.498E+00	25.78
	238.63	1712	44.60*	5.340E+00	1.861E+00	1.861E+00	12.64
	300.09	107	3.41	4.436E+00	1.831E+00	1.831E+00	61.16
PO-212	74.81	872	10.70	9.694E+00	2.176E+00	2.176E+00	18.00
	77.11	1408	18.00	9.653E+00	2.098E+00	2.098E+00	12.60
	87.30	435	8.00	9.406E+00	1.498E+00	1.498E+00	25.78

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	115.19	-----	0.60	8.498E+00	-----	Line Not Found	-----
	238.63	1712	44.60*	5.340E+00	1.861E+00	1.861E+00	12.64
	300.09	107	3.41	4.436E+00	1.831E+00	1.831E+00	61.16
BI-214	609.31	557	46.30*	2.401E+00	1.298E+00	1.298E+00	16.51
	1120.29	100	15.10	1.397E+00	1.232E+00	1.233E+00	50.83
	1764.49	94	15.80	9.416E-01	1.640E+00	1.640E+00	25.29
PB-214	74.81	872	6.21	9.694E+00	3.750E+00	3.750E+00	17.07
	77.11	1408	10.50	9.653E+00	3.597E+00	3.597E+00	14.72
	87.30	435	4.67	9.406E+00	2.566E+00	2.566E+00	24.98
	241.98	371	7.49	5.291E+00	2.427E+00	2.427E+00	29.52
	295.21	446	19.20	4.505E+00	1.334E+00	1.334E+00	23.51
	351.92	785	37.20*	3.888E+00	1.405E+00	1.405E+00	15.85
PO-214	74.81	872	6.21	9.694E+00	3.750E+00	3.750E+00	17.07
	77.11	1408	10.50	9.653E+00	3.597E+00	3.597E+00	14.72
	87.30	435	4.67	9.406E+00	2.566E+00	2.566E+00	24.98
	241.98	371	7.49	5.291E+00	2.427E+00	2.427E+00	29.52
	295.21	446	19.20	4.505E+00	1.334E+00	1.334E+00	23.51
	351.92	785	37.20*	3.888E+00	1.405E+00	1.405E+00	15.85
PO-216	74.81	872	10.70	9.694E+00	2.176E+00	2.176E+00	18.00
	77.11	1408	18.00	9.653E+00	2.098E+00	2.098E+00	12.60
	87.30	435	8.00	9.406E+00	1.498E+00	1.498E+00	25.78
	238.63	1712	44.60*	5.340E+00	1.861E+00	1.861E+00	12.64
	300.09	107	3.41	4.436E+00	1.831E+00	1.831E+00	61.16
PO-218	74.81	872	6.21	9.694E+00	3.750E+00	3.750E+00	17.07
	77.11	1408	10.50	9.653E+00	3.597E+00	3.597E+00	14.72
	87.30	435	4.67	9.406E+00	2.566E+00	2.566E+00	24.98
	241.98	371	7.49	5.291E+00	2.427E+00	2.427E+00	29.52
	295.21	446	19.20	4.505E+00	1.334E+00	1.334E+00	23.51
	351.92	785	37.20*	3.888E+00	1.405E+00	1.405E+00	15.85
RA-224	240.98	371	3.95*	5.291E+00	4.602E+00	4.602E+00	28.98
RA-226	609.31	557	46.30*	2.401E+00	1.298E+00	1.298E+00	16.51
	1120.29	100	15.10	1.397E+00	1.232E+00	1.233E+00	50.83
	1764.49	94	15.80	9.416E-01	1.640E+00	1.640E+00	25.29
AC-228	338.32	319	11.40	4.020E+00	1.802E+00	1.802E+00	46.15
	911.07	328	27.70*	1.678E+00	1.828E+00	1.828E+00	19.99
	969.11	112	16.60	1.588E+00	1.095E+00	1.095E+00	52.99
RA-228	338.32	319	11.40	4.020E+00	1.802E+00	1.802E+00	46.15
	911.07	328	27.70*	1.678E+00	1.828E+00	1.828E+00	19.99
	969.11	112	16.60	1.588E+00	1.095E+00	1.095E+00	52.99
TH-228	74.81	872	10.70	9.694E+00	2.176E+00	2.212E+00	15.42
	77.11	1408	18.00	9.653E+00	2.098E+00	2.133E+00	12.60
	87.30	435	8.00	9.406E+00	1.498E+00	1.522E+00	23.76
	238.63	1712	44.60*	5.340E+00	1.861E+00	1.891E+00	12.64
	300.09	107	3.41	4.436E+00	1.831E+00	1.861E+00	84.54
TH-230	609.31	557	46.30*	2.401E+00	1.298E+00	1.298E+00	16.51
	1120.29	100	15.10	1.397E+00	1.232E+00	1.232E+00	50.83
	1764.49	94	15.80	9.416E-01	1.640E+00	1.640E+00	25.29
TH-232	338.32	319	11.40	4.020E+00	1.802E+00	1.802E+00	22.40
	911.07	328	27.70*	1.678E+00	1.828E+00	1.828E+00	19.99

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	969.11	112	16.60	1.588E+00	1.095E+00	1.095E+00	52.99
TH-234	63.29	513	3.80*	9.778E+00	3.576E+00	3.576E+00	28.81
	92.38	902	5.41	9.237E+00	4.673E+00	4.673E+00	23.81
U-234	609.31	557	46.30*	2.401E+00	1.298E+00	1.298E+00	16.51
	1120.29	100	15.10	1.397E+00	1.232E+00	1.232E+00	50.83
	1764.49	94	15.80	9.416E-01	1.640E+00	1.640E+00	25.29
U-235	89.95	323	2.70	9.328E+00	3.324E+00	3.324E+00	40.06
	93.35	902	4.50	9.237E+00	5.618E+00	5.618E+00	32.02
	105.00	115	2.10	8.825E+00	1.609E+00	1.609E+00	78.57
	143.76	91	10.50*	7.567E+00	2.951E-01	2.951E-01	90.17
	163.35	-----	4.70	6.998E+00	-----	Line Not Found	-----
	185.71	350	54.00	6.421E+00	2.617E-01	2.617E-01	28.78
	205.31	-----	4.70	5.979E+00	-----	Line Not Found	-----
NP-237	86.50	435	12.60*	9.406E+00	9.509E-01	9.509E-01	31.47
	95.87	-----	2.60	9.143E+00	-----	Line Not Found	-----
U-238	63.29	513	3.80*	9.778E+00	3.576E+00	3.576E+00	28.81
	92.38	902	5.41	9.237E+00	4.673E+00	4.673E+00	17.72
AM-243	74.67	872	66.00*	9.694E+00	3.528E-01	3.528E-01	15.38
	86.72	435	0.34	9.406E+00	3.566E+01	3.566E+01	23.76
	117.66	-----	0.55	8.415E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.617E+00	-----	Line Not Found	-----
ANH-511	511.00	171	100.00*	2.809E+00	1.576E-01	1.576E-01	43.63

Flag: "\*" = Keyline

Total number of lines in spectrum 36  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 35 97.22%

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	3.261E+01	3.261E+01	0.331E+01	10.15	
CD-109	464.00D	1.02	3.221E+00	3.300E+00	0.784E+00	23.76	
SN-126	1.00E+05Y	1.00	3.238E-01	3.238E-01	0.769E-01	23.76	
BA-137M	30.17Y	1.00	2.251E-01	2.254E-01	0.678E-01	30.07	
CS-137	30.17Y	1.00	2.380E-01	2.382E-01	0.717E-01	30.08	
EU-155	4.96Y	1.01	1.632E-01	1.642E-01	1.202E-01	73.20	
HG-203	46.60D	1.27	5.908E-02	7.528E-02	5.735E-02	76.18	
TL-208	1.41E+10Y	1.00	5.279E-01	5.279E-01	1.003E-01	19.00	
BI-210	22.26Y	1.00	9.582E-01	9.596E-01	6.533E-01	68.09	
PB-210	22.26Y	1.00	9.582E-01	9.596E-01	6.533E-01	68.09	
PO-210	22.26Y	1.00	9.582E-01	9.596E-01	6.522E-01	67.97	
BI-211	7.04E+08Y	1.00	4.039E+00	4.039E+00	0.604E+00	14.96	
PB-212	1.41E+10Y	1.00	1.861E+00	1.861E+00	0.235E+00	12.64	
PO-212	1.41E+10Y	1.00	1.861E+00	1.861E+00	0.235E+00	12.64	
BI-214	1600.00Y	1.00	1.298E+00	1.298E+00	0.214E+00	16.51	
PB-214	1600.00Y	1.00	1.405E+00	1.405E+00	0.223E+00	15.85	
PO-214	1600.00Y	1.00	1.405E+00	1.405E+00	0.223E+00	15.85	
PO-216	1.41E+10Y	1.00	1.861E+00	1.861E+00	0.235E+00	12.64	
PO-218	1600.00Y	1.00	1.405E+00	1.405E+00	0.223E+00	15.85	
RA-224	1.41E+10Y	1.00	4.602E+00	4.602E+00	1.334E+00	28.98	
RA-226	1600.00Y	1.00	1.298E+00	1.298E+00	0.214E+00	16.51	
AC-228	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.365E+00	19.99	
RA-228	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.365E+00	19.99	
TH-228	1.91Y	1.02	1.861E+00	1.891E+00	0.239E+00	12.64	
TH-230	4.47E+09Y	1.00	1.298E+00	1.298E+00	0.214E+00	16.51	
TH-232	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.365E+00	19.99	
TH-234	4.47E+09Y	1.00	3.576E+00	3.576E+00	1.030E+00	28.81	
U-234	4.47E+09Y	1.00	1.298E+00	1.298E+00	0.214E+00	16.51	
U-235	7.04E+08Y	1.00	2.951E-01	2.951E-01	2.660E-01	90.17	
NP-237	2.14E+06Y	1.00	9.509E-01	9.509E-01	2.992E-01	31.47	
U-238	4.47E+09Y	1.00	3.576E+00	3.576E+00	1.030E+00	28.81	
AM-243	7380.00Y	1.00	3.528E-01	3.528E-01	0.543E-01	15.38	
ANH-511	1.00E+09Y	1.00	1.576E-01	1.576E-01	0.687E-01	43.63	

Total Activity : 8.012E+01 8.025E+01

Grand Total Activity : 8.012E+01 8.025E+01

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

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

Unidentified Energy Lines  
Sample ID : G246444001

Page : 5  
Acquisition date : 19-FEB-2010 17:59:40

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.14	148	285	1.08	417.82	414	8	2.05E-02	43.0	5.90E+00	T
0	270.02	98	216	1.28	539.56	536	9	1.36E-02	57.7	4.84E+00	T
0	328.06	105	252	1.24	655.64	649	12	1.46E-02	63.4	4.12E+00	T
0	462.52	110	162	1.73	924.54	918	12	1.53E-02	49.7	3.07E+00	T
0	726.49	137	86	1.50	1452.46	1444	14	1.91E-02	33.5	2.05E+00	T
0	794.47	61	80	1.15	1588.42	1581	14	8.43E-03	67.7	1.90E+00	T
0	1729.50	29	15	1.57	3458.58	3451	12	4.00E-03	65.5	9.58E-01	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444001.CNF;1 *
* Acquisition date   : 19-FEB-2010 17:59:40 Detector SN#      :              *
* Detector ID        : GAM25 Sensitivity      : 5.00000        *
* Geometry           : CAN Energy tolerance   : 1.50000        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.00000 *
* Elapsed real time  : 0 02:00:02.34 Half life ratio : 8.00000 *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 3-FEB-2010 12:00:00. Nuclide Library : SOLID          *
* Sample ID          : G246444001 Analyst initials: MXRl         *
* Batch Number       : 950788 Sample Quantity : 1.44980E+02 GRAM *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43.34MS Isotope      :              *
* MSD ID              : MSD Isotope      :                      *
* LCS ID              : 1032-A LCS Isotope :                      *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.261E+01	3.308E+00	4.907E-01	4.179E-02	66.449
CD-109	3.300E+00	7.840E-01	7.228E-01	7.767E-02	4.566
SN-126	3.238E-01	7.693E-02	7.078E-02	7.589E-03	4.575
BA-137M	2.254E-01	6.778E-02	5.622E-02	6.227E-03	4.009
CS-137	2.382E-01	7.166E-02	5.943E-02	6.591E-03	4.009
EU-155	1.642E-01	1.202E-01	1.178E-01	1.393E-02	1.394
HG-203	7.528E-02	5.735E-02	5.222E-02	5.927E-03	1.442
TL-208	5.279E-01	1.003E-01	6.103E-02	6.879E-03	8.650
BI-210	9.596E-01	6.533E-01	5.973E-01	6.159E-02	1.607
PB-210	9.596E-01	6.533E-01	5.973E-01	6.159E-02	1.607
PO-210	9.596E-01	6.522E-01	5.973E-01	5.689E-02	1.607
BI-211	4.039E+00	6.044E-01	2.719E-01	2.865E-02	14.852
PB-212	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923
PO-212	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923
BI-214	1.298E+00	2.142E-01	9.610E-02	1.160E-02	13.503
PB-214	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
PO-214	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
PO-216	1.861E+00	2.352E-01	7.179E-02	8.173E-03	25.923

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-218	1.405E+00	2.227E-01	9.483E-02	1.114E-02	14.815
RA-224	4.602E+00	1.334E+00	8.180E-01	8.596E-02	5.626
RA-226	1.298E+00	2.142E-01	9.610E-02	1.160E-02	13.503
AC-228	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
RA-228	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
TH-228	1.891E+00	2.390E-01	7.296E-02	8.306E-03	25.923
TH-230	1.298E+00	2.142E-01	9.609E-02	1.160E-02	13.503
TH-232	1.828E+00	3.654E-01	1.988E-01	2.365E-02	9.195
TH-234	3.576E+00	1.030E+00	7.078E-01	1.318E-01	5.052
U-234	1.298E+00	2.142E-01	9.609E-02	1.160E-02	13.503
U-235	2.951E-01	2.660E-01	2.567E-01	4.847E-02	1.149
NP-237	9.509E-01	2.992E-01	2.216E-01	5.148E-02	4.290
U-238	3.576E+00	1.030E+00	7.078E-01	1.318E-01	5.052
AM-243	3.528E-01	5.426E-02	4.421E-02	4.490E-03	7.981
ANH-511	1.576E-01	6.874E-02	4.613E-02	4.748E-03	3.415

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.782E-01		3.297E-01	4.913E-01	5.202E-02	-0.770
NA-22	-4.098E-02		4.545E-02	6.799E-02	5.575E-03	-0.603
NA-24	-2.301E+00		1.212E+00	Half-Life too short		
AL-26	1.068E-02		2.840E-02	5.014E-02	4.109E-03	0.213
TI-44	3.873E-01	+	4.878E-02	4.233E-02	4.359E-03	9.148
SC-46	-9.243E-03		3.956E-02	6.295E-02	6.028E-03	-0.147
V-48	-2.178E-02		7.741E-02	1.213E-01	1.124E-02	-0.180
CR-51	4.509E-02		3.205E-01	5.441E-01	6.042E-02	0.083
MN-52	-2.797E-01		2.418E-01	3.151E-01	2.597E-02	-0.888
MN-54	-4.169E-03		3.834E-02	6.221E-02	6.313E-03	-0.067
CO-56	2.986E-02		4.020E-02	6.956E-02	6.979E-03	0.429
CO-57	-7.323E-04		1.823E-02	3.072E-02	3.961E-03	-0.024
CO-58	-2.074E-02		4.249E-02	6.695E-02	6.946E-03	-0.310
FE-59	2.059E-02		8.903E-02	1.515E-01	1.427E-02	0.136
CO-60	-2.862E-02		4.015E-02	6.022E-02	4.891E-03	-0.475
ZN-65	-2.929E-02		1.070E-01	1.485E-01	1.283E-02	-0.197
GE-68	-8.942E-03		1.245E+00	2.080E+00	1.841E-01	-0.004
AS-73	1.354E-01		1.746E-01	2.876E-01	2.761E-02	0.471
AS-74	1.478E-02		9.361E-02	1.513E-01	1.639E-02	0.098
SE-75	1.150E-02		3.849E-02	6.228E-02	6.826E-03	0.185
BR-77	-8.951E+00		1.359E+01	2.079E+01	2.156E+00	-0.430
SR-82	-1.043E-01		4.118E-01	6.654E-01	7.062E-02	-0.157
RB-83	-4.905E-02		6.551E-02	9.938E-02	1.030E-02	-0.494
RB-84	-4.373E-04		7.146E-02	1.163E-01	1.124E-02	-0.004
KR-85	9.189E+00		7.817E+00	1.214E+01	1.252E+00	0.757
SR-85	4.768E-02		4.056E-02	6.297E-02	6.496E-03	0.757
RB-86	8.315E-01		7.767E-01	1.412E+00	1.251E-01	0.589
Y-88	2.587E-02		3.126E-02	5.937E-02	4.852E-03	0.436

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-88	-6.254E-04		3.015E-02	4.991E-02	4.543E-03	-0.013
Y-91	-1.068E+01		2.109E+01	3.350E+01	2.757E+00	-0.319
NB-94	1.143E-05		3.538E-02	5.885E-02	6.462E-03	0.000
NB-95	9.149E-02		4.831E-02	8.744E-02	9.340E-03	1.046
NB-95M	8.328E-02		1.112E-01	1.666E-01	1.909E-02	0.500
ZR-95	6.826E-02		7.004E-02	1.236E-01	1.416E-02	0.552
NB-97	1.372E-01		1.605E-01	Half-Life	too short	
ZR-97	8.035E+00		2.979E+00	Half-Life	too short	
MO-99	-7.571E+00		1.590E+01	2.497E+01	4.130E+00	-0.303
TC-99M	6.615E+10		3.572E+11	Half-Life	too short	
RH-101	6.840E-03		2.713E-02	4.422E-02	4.261E-03	0.155
RH-102	1.034E-02		2.715E-02	4.539E-02	4.532E-03	0.228
RU-103	5.167E-04		3.840E-02	6.240E-02	9.460E-03	0.008
RH-106	9.842E-02		2.991E-01	5.139E-01	7.691E-02	0.192
RU-106	9.842E-02		2.989E-01	5.139E-01	5.627E-02	0.192
AG-108M	-2.542E-02		3.175E-02	4.934E-02	4.876E-03	-0.515
AG-110M	-8.461E-03		3.955E-02	5.630E-02	6.345E-03	-0.150
IN-111	-3.492E-01		1.324E+00	1.851E+00	1.960E-01	-0.189
IN-113M	-3.643E-02		4.380E-02	6.900E-02	6.444E-03	-0.528
SN-113	-3.643E-02		4.380E-02	6.900E-02	6.444E-03	-0.528
IN-114M	-4.234E-02		1.687E-01	2.428E-01	2.298E-02	-0.174
CD-115	-1.615E+01		1.503E+01	2.209E+01	2.302E+00	-0.731
SN-117M	1.629E-02		4.595E-02	7.721E-02	7.496E-03	0.211
SB-122	1.542E+00		2.730E+00	4.555E+00	4.857E-01	0.339
I-123	7.340E+00		9.636E+00	Half-Life	too short	
TE-123M	8.689E-03		2.281E-02	3.835E-02	3.724E-03	0.227
I-124	-1.479E-01		7.756E-01	1.171E+00	1.273E-01	-0.126
SB-124	-1.581E-02		7.544E-02	1.208E-01	1.044E-02	-0.131
SB-125	5.252E-02		8.857E-02	1.507E-01	1.455E-02	0.349
TE-125M	5.868E+00		7.203E+00	1.130E+01	1.500E+00	0.519
I-126	6.731E-02		2.089E-01	3.134E-01	3.470E-02	0.215
SB-126	4.867E-02		1.516E-01	2.267E-01	2.474E-02	0.215
SB-127	-1.025E+00		1.698E+00	2.698E+00	3.668E-01	-0.380
XE-127	-5.360E-02		3.916E-02	5.899E-02	5.746E-03	-0.909
I-131	1.033E-02		1.095E-01	1.836E-01	1.885E-02	0.056
TE-132	6.912E-01		7.717E-01	1.282E+00	2.164E-01	0.539
BA-133	-1.688E-02		4.112E-02	5.831E-02	8.268E-03	-0.290
I-133	6.254E-03		6.804E-03	Half-Life	too short	
CS-134	1.096E-01	+	7.509E-02	8.704E-02	9.163E-03	1.259
CS-135	9.818E-02		1.539E-01	2.269E-01	2.739E-02	0.433
I-135	1.708E+10		5.254E+10	Half-Life	too short	
CS-136	1.190E-02		1.082E-01	1.830E-01	1.712E-02	0.065
CE-139	-1.854E-03		2.482E-02	4.088E-02	3.645E-03	-0.045
BA-140	2.114E-02		2.595E-01	4.207E-01	1.417E-01	0.050
LA-140	5.403E-03		9.512E-02	1.600E-01	1.330E-02	0.034
CE-141	5.083E-02		5.324E-02	8.318E-02	9.250E-03	0.611
CE-143	9.789E-04		1.716E-04	Half-Life	too short	
CE-144	-1.231E-01		1.563E-01	2.516E-01	4.448E-02	-0.489

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-144	1.097E-02		3.428E-02	5.829E-02	6.414E-03	0.188
PR-144	7.436E-01		2.324E+00	3.952E+00	4.348E-01	0.188
PM-146	-2.764E-03		4.148E-02	6.760E-02	7.894E-03	-0.041
ND-147	5.526E-01		5.557E-01	9.538E-01	1.533E-01	0.579
PM-149	7.768E+01		1.177E+02	1.921E+02	3.276E+01	0.404
EU-152	4.187E-02		9.090E-02	1.455E-01	1.563E-02	0.288
GD-153	-9.711E-03		5.520E-02	8.348E-02	9.401E-03	-0.116
EU-154	-1.248E-01		1.285E-01	1.903E-01	2.090E-02	-0.656
TB-160	1.296E-02		1.416E-01	2.325E-01	2.253E-02	0.056
HO-166M	-2.890E-02		5.663E-02	9.015E-02	9.870E-03	-0.321
TM-171	1.412E+00		1.263E+01	1.845E+01	1.831E+00	0.077
LU-176	-1.725E-04		2.111E-02	3.454E-02	3.769E-03	-0.005
LU-177	3.175E+00	+	1.400E+00	1.955E+00	1.928E-01	1.624
LU-177M	-1.647E-01		1.631E-01	2.509E-01	2.346E-02	-0.656
HF-181	2.852E-02		4.446E-02	7.518E-02	7.554E-03	0.379
W-181	-5.157E-02		1.568E-01	2.251E-01	2.228E-02	-0.229
TA-182	1.839E-01		2.132E-01	3.732E-01	3.069E-02	0.493
RE-183	-2.683E-02		9.079E-02	1.484E-01	1.381E-02	-0.181
RE-184	-8.411E-02		2.081E-01	3.251E-01	3.487E-02	-0.259
OS-185	1.106E-02		3.954E-02	6.761E-02	7.460E-03	0.164
RE-188	-9.414E-03		1.374E-01	2.275E-01	2.291E-02	-0.041
W-188	-3.123E+00		7.154E+00	1.041E+01	1.153E+00	-0.300
IR-192	-1.002E-02		2.907E-02	4.810E-02	5.195E-03	-0.208
AU-195	2.472E-01		1.534E-01	2.580E-01	2.927E-02	0.958
TL-200	2.115E-04		4.096E-04	Half-Life	too short	
TL-201	3.640E+00		7.147E+00	1.204E+01	1.077E+00	0.302
TL-202	5.746E-02		7.273E-02	1.247E-01	1.201E-02	0.461
BI-207	6.209E-02		5.893E-02	1.057E-01	9.431E-03	0.588
TL-207	-2.744E-02		6.377E-01	9.440E-01	1.774E-01	-0.029
PO-209	-3.051E+00		7.378E+00	1.152E+01	1.093E+00	-0.265
PB-211	-9.536E-01		1.093E+00	1.423E+00	8.927E-01	-0.670
BI-212	1.468E+00	+	5.226E-01	6.711E-01	8.064E-02	2.187
PO-215	-2.744E-02		6.377E-01	9.440E-01	1.774E-01	-0.029
RN-219	1.529E-01		3.926E-01	6.626E-01	1.019E-01	0.231
RN-220	1.450E+01		2.391E+01	4.024E+01	4.255E+00	0.360
RA-223	-2.744E-02		6.377E-01	9.440E-01	1.774E-01	-0.029
AC-227	1.657E-01		3.401E-01	5.553E-01	9.251E-02	0.298
TH-227	1.657E-01		3.405E-01	5.553E-01	1.066E-01	0.298
TH-229	1.889E-01		4.082E-01	6.798E-01	6.485E-02	0.278
PA-231	-7.582E-01		1.442E+00	2.082E+00	3.486E-01	-0.364
TH-231	-2.744E-02		6.377E-01	9.440E-01	1.774E-01	-0.029
U-231	-4.145E-01		8.517E-01	1.285E+00	1.436E-01	-0.322
PA-233	7.862E-03		5.484E-02	9.326E-02	1.030E-02	0.084
PA-234	3.947E-02		3.067E-01	4.973E-01	9.511E-02	0.079
PA-234M	2.545E+00		4.790E+00	8.048E+00	8.430E-01	0.316
NP-236	-3.726E-02		6.508E-02	1.051E-01	1.001E-02	-0.354
NP-239	3.013E-02		1.334E-01	2.275E-01	2.850E-02	0.132
AM-241	3.207E-03		5.003E-02	7.377E-02	7.664E-03	0.043

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.910E-02		6.764E-02	1.059E-01	1.233E-02	0.275
AM-246	-8.488E-02		1.409E-01	2.226E-01	1.969E-02	-0.381
CM-247	-1.126E-02		3.615E-02	5.872E-02	5.413E-03	-0.192
CF-249	1.954E-02		3.794E-02	6.466E-02	5.951E-03	0.302
CF-251	-9.197E-03		1.007E-01	1.649E-01	1.510E-02	-0.056

## 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]G246444001          *
* Acquisition date   : 19-FEB-2010 17:59:40 Detector SN#      :             *
* Detector ID        : GAM25                      Sensitivity   : 5.000       *
* Geometry           : CAN                        Energy tolerance: 1.500       *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:02.34              Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID          : G246444001              Analyst initials: MXR1         *
* Batch Number       : 950788                  Sample Quantity : 1.4498E+02 GRAM *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000       *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope          :             *
* MSD DPM             : 0.000                      MSD Isotope   :             *
* LCS DPM             : 0.000                      LCS Isotope   :             *
* LCSD DPM           : 0.000                      LCSD Isotope  :             *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.261E+01	3.242E+00	2.468E-01	1.654E+00
CD-109	3.300E+00	7.684E-01	3.869E-01	3.920E-01
SN-126	3.238E-01	7.539E-02	3.789E-02	3.847E-02
BA-137M	2.254E-01	6.643E-02	2.880E-02	3.389E-02
CS-137	2.382E-01	7.023E-02	3.044E-02	3.583E-02
EU-155	1.642E-01	1.178E-01	6.283E-02	6.011E-02
HG-203	7.528E-02	5.621E-02	2.727E-02	2.868E-02
TL-208	5.279E-01	9.830E-02	3.135E-02	5.015E-02
BI-210	9.596E-01	6.403E-01	3.239E-01	3.267E-01
PB-210	9.596E-01	6.403E-01	3.239E-01	3.267E-01
PO-210	9.596E-01	6.392E-01	3.239E-01	3.261E-01
BI-211	4.039E+00	5.923E-01	1.413E-01	3.022E-01
PB-212	1.861E+00	2.305E-01	3.762E-02	1.176E-01
PO-212	1.861E+00	2.305E-01	3.762E-02	1.176E-01
BI-214	1.298E+00	2.099E-01	4.932E-02	1.071E-01
PB-214	1.405E+00	2.182E-01	4.927E-02	1.113E-01
PO-214	1.405E+00	2.182E-01	4.927E-02	1.113E-01
PO-216	1.861E+00	2.305E-01	3.762E-02	1.176E-01
PO-218	1.405E+00	2.182E-01	4.927E-02	1.113E-01
RA-224	4.602E+00	1.307E+00	4.286E-01	6.669E-01
RA-226	1.298E+00	2.099E-01	4.932E-02	1.071E-01
AC-228	1.828E+00	3.581E-01	1.011E-01	1.827E-01
RA-228	1.828E+00	3.581E-01	1.011E-01	1.827E-01
TH-228	1.891E+00	2.342E-01	3.823E-02	1.195E-01
TH-230	1.298E+00	2.099E-01	4.932E-02	1.071E-01
TH-232	1.828E+00	3.581E-01	1.011E-01	1.827E-01
TH-234	3.576E+00	1.010E+00	3.814E-01	5.151E-01
U-234	1.298E+00	2.099E-01	4.932E-02	1.071E-01
U-235	2.951E-01	2.607E-01	1.360E-01	1.330E-01
NP-237	9.509E-01	2.932E-01	1.187E-01	1.496E-01
U-238	3.576E+00	1.010E+00	3.814E-01	5.151E-01
AM-243	3.528E-01	5.318E-02	2.374E-02	2.713E-02
ANH-511	1.576E-01	6.737E-02	2.377E-02	3.437E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-3.782E-01	3.231E-01	2.535E-01	1.648E-01 NOT IDENT.
NA-22	-4.098E-02	4.454E-02	3.431E-02	2.273E-02 NOT IDENT.
NA-24	-2.301E+06	2.376E+06	0.000E+00	1.212E+06 SHORT HLIF
AL-26	1.068E-02	2.783E-02	2.509E-02	1.420E-02 NOT IDENT.
TI-44	3.873E-01	4.781E-02	2.271E-02	2.439E-02 FAIL ABUN
SC-46	-9.243E-03	3.876E-02	3.203E-02	1.978E-02 FAIL ABUN
V-48	-2.178E-02	7.586E-02	6.157E-02	3.870E-02 NOT IDENT.
CR-51	4.509E-02	3.141E-01	2.833E-01	1.603E-01 NOT IDENT.
MN-52	-2.797E-01	2.370E-01	1.586E-01	1.209E-01 NOT IDENT.
MN-54	-4.169E-03	3.757E-02	3.170E-02	1.917E-02 NOT IDENT.
CO-56	2.986E-02	3.939E-02	3.543E-02	2.010E-02 NOT IDENT.
CO-57	-7.323E-04	1.787E-02	1.633E-02	9.117E-03 NOT IDENT.
CO-58	-2.074E-02	4.164E-02	3.413E-02	2.124E-02 NOT IDENT.
FE-59	2.059E-02	8.725E-02	7.669E-02	4.452E-02 FAIL ABUN
CO-60	-2.862E-02	3.935E-02	3.036E-02	2.007E-02 NOT IDENT.
ZN-65	-2.929E-02	1.049E-01	7.517E-02	5.350E-02 NOT IDENT.
GE-68	-8.942E-03	1.221E+00	1.054E+00	6.227E-01 NOT IDENT.
AS-73	1.354E-01	1.711E-01	1.555E-01	8.729E-02 NOT IDENT.
AS-74	1.478E-02	9.174E-02	7.767E-02	4.680E-02 NOT IDENT.
SE-75	1.150E-02	3.772E-02	3.256E-02	1.924E-02 FAIL ABUN
BR-77	-8.951E+00	1.332E+01	1.071E+01	6.797E+00 FAIL ABUN
SR-82	-1.043E-01	4.035E-01	3.396E-01	2.059E-01 NOT IDENT.
RB-83	-4.905E-02	6.420E-02	5.119E-02	3.276E-02 NOT IDENT.
RB-84	-4.373E-04	7.004E-02	5.919E-02	3.573E-02 NOT IDENT.
KR-85	9.189E+00	7.661E+00	6.252E+00	3.908E+00 NOT IDENT.
SR-85	4.768E-02	3.975E-02	3.244E-02	2.028E-02 NOT IDENT.
RB-86	8.315E-01	7.612E-01	7.153E-01	3.883E-01 NOT IDENT.
Y-88	2.587E-02	3.063E-02	2.970E-02	1.563E-02 NOT IDENT.
ZR-88	-6.254E-04	2.955E-02	2.587E-02	1.508E-02 NOT IDENT.
Y-91	-1.068E+01	2.067E+01	1.693E+01	1.055E+01 NOT IDENT.
NB-94	1.143E-05	3.467E-02	3.010E-02	1.769E-02 NOT IDENT.
NB-95	9.149E-02	4.734E-02	4.464E-02	2.415E-02 NOT IDENT.
NB-95M	8.328E-02	1.090E-01	8.730E-02	5.562E-02 NOT IDENT.
ZR-95	6.826E-02	6.864E-02	6.314E-02	3.502E-02 NOT IDENT.
NB-97	1.372E+05	3.146E+05	0.000E+00	1.605E+05 SHORT HLIF
ZR-97	8.035E+06	5.839E+06	0.000E+00	2.979E+06 SHORT HLIF
MO-99	-7.571E+00	1.558E+01	1.276E+01	7.950E+00 NOT IDENT.
TC-99M	6.615E+16	7.001E+17	0.000E+00	0.000E+00 SHORT HLIF
RH-101	6.840E-03	2.659E-02	2.326E-02	1.356E-02 NOT IDENT.
RH-102	1.034E-02	2.661E-02	2.343E-02	1.358E-02 NOT IDENT.
RU-103	5.167E-04	3.763E-02	3.217E-02	1.920E-02 FAIL ABUN
RH-106	9.842E-02	2.931E-01	2.636E-01	1.495E-01 FAIL ABUN
RU-106	9.842E-02	2.929E-01	2.636E-01	1.495E-01 FAIL ABUN
AG-108M	-2.542E-02	3.111E-02	2.552E-02	1.587E-02 NOT IDENT.
AG-110M	-8.461E-03	3.876E-02	2.885E-02	1.977E-02 NOT IDENT.
IN-111	-3.492E-01	1.297E+00	9.693E-01	6.618E-01 NOT IDENT.
IN-113M	-3.643E-02	4.293E-02	3.576E-02	2.190E-02 NOT IDENT.
SN-113	-3.643E-02	4.293E-02	3.576E-02	2.190E-02 NOT IDENT.
IN-114M	-4.234E-02	1.654E-01	1.278E-01	8.437E-02 NOT IDENT.
CD-115	-1.615E+01	1.473E+01	1.137E+01	7.517E+00 NOT IDENT.
SN-117M	1.629E-02	4.504E-02	4.081E-02	2.298E-02 NOT IDENT.
SB-122	1.542E+00	2.675E+00	2.342E+00	1.365E+00 NOT IDENT.
I-123	7.340E+06	1.889E+07	0.000E+00	9.636E+06 SHORT HLIF
TE-123M	8.689E-03	2.236E-02	2.027E-02	1.141E-02 NOT IDENT.
I-124	-1.479E-01	7.600E-01	6.014E-01	3.878E-01 NOT IDENT.
SB-124	-1.581E-02	7.393E-02	6.054E-02	3.772E-02 FAIL ABUN
SB-125	5.252E-02	8.680E-02	7.795E-02	4.429E-02 FAIL ABUN
TE-125M	5.868E+00	7.059E+00	6.018E+00	3.602E+00 NOT IDENT.
I-126	6.731E-02	2.047E-01	1.605E-01	1.044E-01 NOT IDENT.
SB-126	4.867E-02	1.486E-01	1.159E-01	7.579E-02 FAIL ABUN
SB-127	-1.025E+00	1.664E+00	1.381E+00	8.489E-01 NOT IDENT.
XE-127	-5.360E-02	3.838E-02	3.102E-02	1.958E-02 FAIL ABUN
I-131	1.033E-02	1.073E-01	9.530E-02	5.473E-02 NOT IDENT.
TE-132	6.912E-01	7.563E-01	6.726E-01	3.858E-01 NOT IDENT.
BA-133	-1.688E-02	4.030E-02	3.029E-02	2.056E-02 NOT IDENT.
I-133	6.254E+03	1.334E+04	0.000E+00	6.804E+03 SHORT HLIF
CS-134	1.096E-01	7.359E-02	4.440E-02	3.755E-02 FAIL ABUN
CS-135	9.818E-02	1.508E-01	1.186E-01	7.694E-02 NOT IDENT.
I-135	1.708E+16	1.030E+17	0.000E+00	0.000E+00 SHORT HLIF
CS-136	1.190E-02	1.060E-01	9.277E-02	5.409E-02 FAIL ABUN
CE-139	-1.854E-03	2.432E-02	2.159E-02	1.241E-02 NOT IDENT.
BA-140	2.114E-02	2.543E-01	2.165E-01	1.297E-01 NOT IDENT.

LA-140	5.403E-03	9.322E-02	8.029E-02	4.756E-02	FAIL ABUN
CE-141	5.083E-02	5.217E-02	4.405E-02	2.662E-02	NOT IDENT.
CE-143	9.789E+02	3.364E+02	0.000E+00	1.716E+02	SHORT HLIF
CE-144	-1.231E-01	1.531E-01	1.335E-01	7.813E-02	NOT IDENT.
PM-144	1.097E-02	3.359E-02	2.982E-02	1.714E-02	NOT IDENT.
PR-144	7.436E-01	2.278E+00	2.022E+00	1.162E+00	NOT IDENT.
PM-146	-2.764E-03	4.065E-02	3.492E-02	2.074E-02	NOT IDENT.
ND-147	5.526E-01	5.446E-01	4.910E-01	2.779E-01	FAIL ABUN
PM-149	7.768E+01	1.153E+02	1.003E+02	5.884E+01	NOT IDENT.
EU-152	4.187E-02	8.908E-02	7.565E-02	4.545E-02	NOT IDENT.
GD-153	-9.711E-03	5.409E-02	4.459E-02	2.760E-02	FAIL ABUN
EU-154	-1.248E-01	1.259E-01	9.600E-02	6.424E-02	NOT IDENT.
TB-160	1.296E-02	1.388E-01	1.183E-01	7.080E-02	FAIL ABUN
HO-166M	-2.890E-02	5.550E-02	4.610E-02	2.832E-02	FAIL ABUN
TM-171	1.412E+00	1.238E+01	9.932E+00	6.314E+00	NOT IDENT.
LU-176	-1.725E-04	2.069E-02	1.800E-02	1.056E-02	FAIL ABUN
LU-177	3.175E+00	1.372E+00	1.028E+00	6.999E-01	FAIL ABUN
LU-177M	-1.647E-01	1.599E-01	1.299E-01	8.157E-02	FAIL ABUN
HF-181	2.852E-02	4.357E-02	3.879E-02	2.223E-02	NOT IDENT.
W-181	-5.157E-02	1.537E-01	1.213E-01	7.840E-02	NOT IDENT.
TA-182	1.839E-01	2.089E-01	1.885E-01	1.066E-01	FAIL ABUN
RE-183	-2.683E-02	8.898E-02	7.840E-02	4.540E-02	FAIL ABUN
RE-184	-8.411E-02	2.040E-01	1.701E-01	1.041E-01	NOT IDENT.
OS-185	1.106E-02	3.875E-02	3.465E-02	1.977E-02	NOT IDENT.
RE-188	-9.414E-03	1.347E-01	1.203E-01	6.870E-02	NOT IDENT.
W-188	-3.123E+00	7.011E+00	5.432E+00	3.577E+00	FAIL ABUN
IR-192	-1.002E-02	2.849E-02	2.505E-02	1.454E-02	FAIL ABUN
AU-195	2.472E-01	1.503E-01	1.377E-01	7.670E-02	FAIL ABUN
TL-200	2.115E+02	8.028E+02	0.000E+00	4.096E+02	SHORT HLIF
TL-201	3.640E+00	7.004E+00	6.356E+00	3.573E+00	NOT IDENT.
TL-202	5.746E-02	7.127E-02	6.447E-02	3.636E-02	NOT IDENT.
BI-207	6.209E-02	5.775E-02	5.354E-02	2.946E-02	FAIL ABUN
TL-207	-2.744E-02	6.249E-01	4.913E-01	3.188E-01	FAIL ABUN
PO-209	-3.051E+00	7.230E+00	5.860E+00	3.689E+00	NOT IDENT.
PB-211	-9.536E-01	1.071E+00	7.368E-01	5.467E-01	NOT IDENT.
BI-212	1.468E+00	5.121E-01	3.430E-01	2.613E-01	FAIL ABUN
PO-215	-2.744E-02	6.249E-01	4.913E-01	3.188E-01	FAIL ABUN
RN-219	1.529E-01	3.848E-01	3.432E-01	1.963E-01	FAIL ABUN
RN-220	1.450E+01	2.343E+01	2.070E+01	1.196E+01	NOT IDENT.
RA-223	-2.744E-02	6.249E-01	4.913E-01	3.188E-01	FAIL ABUN
AC-227	1.657E-01	3.333E-01	2.905E-01	1.701E-01	FAIL ABUN
TH-227	1.657E-01	3.337E-01	2.905E-01	1.702E-01	FAIL ABUN
TH-229	1.889E-01	4.000E-01	3.578E-01	2.041E-01	FAIL ABUN
PA-231	-7.582E-01	1.413E+00	1.087E+00	7.210E-01	FAIL ABUN
TH-231	-2.744E-02	6.249E-01	4.913E-01	3.188E-01	FAIL ABUN
U-231	-4.145E-01	8.347E-01	6.868E-01	4.259E-01	FAIL ABUN
PA-233	7.862E-03	5.374E-02	4.858E-02	2.742E-02	FAIL ABUN
PA-234	3.947E-02	3.006E-01	2.527E-01	1.533E-01	FAIL ABUN
PA-234M	2.545E+00	4.694E+00	4.084E+00	2.395E+00	NOT IDENT.
NP-236	-3.726E-02	6.377E-02	5.557E-02	3.254E-02	NOT IDENT.
NP-239	3.013E-02	1.307E-01	1.210E-01	6.670E-02	FAIL ABUN
AM-241	3.207E-03	4.903E-02	3.980E-02	2.502E-02	NOT IDENT.
CM-243	2.910E-02	6.628E-02	5.649E-02	3.382E-02	FAIL ABUN
AM-246	-8.488E-02	1.381E-01	1.128E-01	7.045E-02	NOT IDENT.
CM-247	-1.126E-02	3.543E-02	3.042E-02	1.808E-02	FAIL ABUN
CF-249	1.954E-02	3.718E-02	3.352E-02	1.897E-02	NOT IDENT.
CF-251	-9.197E-03	9.866E-02	8.696E-02	5.034E-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	339.8526
46.50	339.8526
46.50	339.8526
48.70	304.1634
49.72	325.7164
51.35	372.3000
52.39	341.1512
52.97	346.3700
53.15	375.1519
53.44	374.5089
54.07	380.9955
56.28	419.9926
56.28	419.9984
57.37	0.0000
57.53	432.1464
57.53	432.1493
57.60	425.5641
57.98	425.0821
57.98	425.0821
59.32	442.3019
59.32	442.3019
59.40	454.4384
59.54	454.6834
59.72	454.9993
60.01	443.4798
61.10	448.3430
61.14	469.5482
61.30	469.8329
63.00	476.6282
63.29	477.1392
63.29	477.1392
63.58	477.6479
64.28	522.4072
65.12	543.9197
65.20	544.0777
65.20	544.0777
66.05	533.4440
66.72	525.4655
66.83	493.3040
66.91	493.4407
67.20	486.2306
67.20	486.2306
67.75	495.2890
67.85	533.7561
68.90	553.1797
68.90	553.1797
69.30	552.7818
69.67	546.4844
70.82	506.4280
70.82	506.4280
70.83	506.4445
72.80	548.7498
72.87	548.8775
72.87	548.8775
74.67	552.1414
74.81	552.3932
74.81	552.3932
74.81	552.3932
74.81	552.3932
74.81	552.3932
74.81	552.3932
74.81	552.3932
74.97	552.6806
75.28	553.2376
75.70	553.9933
77.11	556.5050
77.11	556.5050

77.11	556.5050
77.11	556.5050
77.11	556.5050
77.11	556.5050
77.11	556.5050
78.38	558.7471
79.62	521.1112
79.80	461.8614
79.80	461.8614
80.11	462.3052
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80.30	466.6061
80.30	466.6061
80.57	466.9949
81.00	484.5734
81.07	484.6771
81.07	484.6771
81.07	484.6771
81.07	484.6771
82.60	469.9015
83.37	457.1595
83.78	420.2604
83.78	420.2604
83.78	420.2604
83.78	420.2604
84.21	420.8011
84.90	475.6013
85.43	476.3473
86.29	477.5521
86.50	477.8452
86.54	477.9014
86.59	477.9725
86.72	416.5354
86.79	416.6179
86.94	416.8036
87.30	417.2394
87.30	417.2394
87.30	417.2394
87.30	417.2394
87.30	417.2394
87.30	417.2394
87.30	417.2394
87.57	417.5669
87.88	417.9408
88.03	418.1213
88.36	418.5184
88.47	418.6525
89.95	385.5984
91.11	386.8638
92.29	355.5883
92.38	355.6782
92.38	355.6782
93.35	356.6337
94.00	357.2729
94.67	357.9251
94.67	357.9294
94.90	358.1548
94.90	358.1548
94.90	358.1548
94.90	358.1548
95.87	373.0083
95.87	373.0083
96.73	358.6685
97.43	355.5286
98.44	305.5591
98.44	305.5591
98.88	296.7369
99.55	317.5228
99.55	317.5228
99.86	354.7558
100.00	354.8850
100.10	354.9825
103.18	314.5089
103.76	299.4855
105.00	315.9665
105.31	316.2141
108.00	287.0296
109.28	301.0222

111.00	375.8856
111.00	375.8856
111.76	340.5854
112.95	302.8232
115.19	349.5688
116.30	299.0162
117.00	302.1692
117.00	302.1692
117.66	298.1822
121.11	296.0580
121.62	303.5842
121.78	302.7957
122.06	301.1878
122.32	300.4638
122.32	300.4638
122.32	300.4638
122.32	300.4638
123.07	305.4738
127.23	334.6614
129.76	341.0667
131.20	366.8823
133.02	309.3672
133.54	331.8274
135.34	277.5635
136.00	285.3537
136.25	279.9392
136.48	284.7083
140.51	290.3294
140.51	0.0000
142.18	308.1893
142.65	318.3401
143.76	287.0420
144.24	287.3151
144.24	287.3151
144.24	287.3151
144.24	287.3151
145.22	264.7464
145.44	264.8606
147.16	282.8044
152.43	286.1523
152.70	278.6382
153.22	286.5782
154.21	305.3549
154.21	305.3549
154.21	305.3549
154.21	305.3549
155.03	306.7857
156.02	317.9486
158.56	279.7542
159.00	0.0000
159.00	282.8839
160.31	319.4919
161.27	329.7753
162.32	311.8815
162.64	303.2838
163.35	298.7877
163.89	269.7559
165.85	306.9854
167.43	260.6329
171.28	260.4022
171.86	242.8217
172.10	248.8705
176.55	263.7476
176.60	263.7690
181.06	268.7546
184.41	293.0045
185.71	275.8737
186.00	276.0010
190.27	272.7852
192.34	276.7511
193.63	240.3365
197.04	266.3906
198.01	243.0059
198.60	218.3836
200.40	241.8171
201.83	274.5864
202.84	280.2138
205.31	211.7223

208.36	310.3556
208.81	269.0495
209.75	228.9011
209.75	228.9011
210.97	232.4734
215.65	236.7039
216.55	245.5127
218.09	242.8553
222.10	243.1607
223.80	252.3267
226.40	261.8558
227.00	258.8379
227.08	258.8672
227.20	255.6723
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228.18	221.4473
228.18	221.4473
231.56	0.0000
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236.00	207.9679
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238.63	201.5738
238.63	201.5738
238.63	201.5738
239.00	201.6711
240.98	202.1971
241.98	202.4610
241.98	202.4610
241.98	202.4610
244.69	205.3826
245.39	207.2258
247.94	195.5986
248.90	190.9525
249.79	214.5099
252.40	221.9094
252.85	214.2266
252.85	214.2266
254.15	0.0000
256.20	194.9570
256.20	194.9570
260.50	205.0092
260.90	184.8237
262.80	185.2541
264.65	180.0104
268.24	185.9067
268.79	189.4432
269.46	181.0553
269.46	181.0553
269.46	181.0553
269.46	181.0553
271.23	169.4553
273.65	168.2252
276.40	194.6015
277.35	182.7471
277.60	182.8021
277.60	182.8021
278.00	182.8862
278.60	183.0156
279.20	153.7700
279.53	150.3729
280.46	157.4560
281.68	171.5400
283.67	187.5597
284.30	186.5362
285.00	185.5273
285.90	165.9838
286.10	166.0216
286.10	166.0216
287.40	180.2216
288.45	0.0000
290.67	197.4585
290.80	180.6787
291.72	182.2666
293.26	0.0000
293.70	174.2388
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295.21	185.7926

295.21	185.7926
295.96	185.9473
296.50	186.0568
297.23	112.8535
298.57	113.0195
299.80	178.2457
299.80	178.2457
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300.09	178.3011
300.09	178.3011
300.09	178.3011
300.12	178.3072
301.29	164.3654
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303.76	143.4960
303.91	143.5181
304.40	137.9077
304.40	137.9077
304.84	147.9308
306.84	156.8010
308.46	174.0319
311.98	160.3505
316.51	157.5150
318.01	167.6798
319.02	159.7337
319.41	147.1591
320.08	149.9714
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323.87	162.5313
323.87	162.5313
323.87	162.5313
325.23	174.3838
328.77	169.1771
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334.20	175.9717
334.30	175.9893
338.28	163.8031
338.28	163.8031
338.28	163.8031
338.28	163.8031
338.32	163.8086
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338.32	163.8086
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340.57	157.9008
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350.59	0.0000
351.07	129.5171
351.92	129.6232
351.92	129.6232
351.92	129.6232
355.39	0.0000
356.01	139.3025
364.48	128.3363
366.43	128.5687
367.43	132.4719
367.94	0.0000
369.80	131.8120
374.96	129.5773
383.85	160.3899
387.95	142.6591
388.63	137.9225
391.69	172.1414
391.69	172.1414
392.90	155.8656
398.62	159.5582
400.65	134.4961
401.10	151.1236
401.81	140.4844
402.60	161.0799
404.84	176.0614
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411.60	148.5415
413.65	148.7950
414.70	137.0911
415.30	134.1987

415.76	129.3149
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427.08	138.4952
427.89	122.6340
432.53	136.1058
433.93	143.2706
439.47	118.7472
439.56	119.7626
439.89	119.7935
443.98	142.4006
444.90	113.1946
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445.03	101.0773
445.03	101.0773
445.03	101.0773
453.90	121.1154
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468.07	86.4212
473.00	115.6538
475.06	101.3526
475.35	113.7883
476.78	140.8331
477.59	141.9523
477.96	132.6641
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484.57	140.5989
487.03	100.1616
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497.08	98.7878
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510.53	0.0000
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511.00	115.6836
511.85	115.7518
511.85	115.7518
513.99	105.5022
513.99	105.5022
520.41	105.7585
520.65	103.6368
527.90	114.8892
528.96	0.0000
529.64	105.3512
529.87	0.0000
531.02	74.2432
537.32	91.8481
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546.56	0.0000
549.76	77.3551
552.65	80.7749
555.20	91.8442
563.23	95.6182
563.90	93.4616
568.70	98.1586
569.32	99.2999
569.50	99.3137
569.67	99.3246
573.80	81.8792
574.00	81.8905
574.64	80.8173
578.91	110.1166
579.30	0.0000
583.14	113.5236
585.48	98.0842
591.81	97.3520
592.07	97.3652
593.00	97.4210
595.88	90.8630
600.56	86.6227
602.52	0.0000
602.71	92.6895
602.71	92.6895
603.60	97.6772
604.41	106.7456
604.70	106.7658
609.31	78.7121

609.31	78.7121
609.31	78.7121
609.31	78.7121
610.33	84.4945
612.46	77.0479
614.37	86.2120
618.01	87.3070
621.84	82.9464
621.84	82.9464
631.29	84.3251
633.02	78.9033
633.10	78.9075
634.78	65.2087
635.90	66.1693
636.97	80.0035
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646.12	75.8040
656.30	88.3273
657.75	96.1535
657.90	0.0000
661.65	87.6614
661.65	87.6614
664.57	0.0000
666.33	84.1487
666.33	84.1487
675.00	89.2504
677.61	97.8453
685.20	101.0857
692.80	99.6039
695.00	93.0713
696.49	90.2941
696.49	90.2941
697.00	89.3688
697.49	98.9016
698.33	104.6558
698.50	104.6638
699.00	97.0793
702.63	106.8019
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706.58	0.0000
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713.82	83.4508
717.42	74.7453
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722.78	72.2772
722.78	72.2772
722.89	72.2809
722.95	70.6764
723.30	70.6890
724.18	77.1504
727.18	106.2483
733.00	73.8690
735.90	96.0489
739.58	87.4819
742.81	82.7567
744.21	80.8662
747.13	76.1071
751.79	91.9323
752.31	79.2380
753.82	79.2993
755.35	74.4600
756.15	64.6884
756.87	62.7516
763.93	137.7476
765.79	83.7092
766.42	80.7788
766.84	97.5474
776.49	91.0769
778.00	98.0791
778.57	98.1057
778.89	98.1226
783.80	68.5502
785.46	72.5812
792.07	61.5086

795.84	79.9375
796.30	86.6180
798.80	66.7074
801.93	81.4206
805.60	75.2875
810.29	88.5328
810.76	89.5584
815.85	72.6240
817.79	81.7752
818.51	80.7930
819.60	63.6568
826.30	57.7723
828.27	0.0000
831.60	85.3453
831.96	85.3597
834.83	84.4529
836.80	0.0000
846.75	62.4044
848.13	73.7033
856.28	0.0000
856.80	59.9455
860.37	71.0198
867.32	66.3700
867.82	68.4141
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873.19	72.4558
874.81	67.3280
875.33	0.0000
876.40	71.5218
879.36	64.3492
880.27	66.4516
880.51	67.4962
881.50	64.4082
883.24	65.4963
884.67	63.4573
889.25	66.7094
896.60	67.9659
898.02	75.3311
899.00	70.1292
903.28	68.9086
911.07	58.9162
911.07	58.9162
911.07	58.9162
919.63	50.4472
920.93	55.9916
925.00	77.2524
925.24	78.3179
926.50	63.5347
935.52	62.7091
937.48	73.3967
944.10	62.9295
946.00	58.7087
949.00	64.1250
962.29	100.2878
964.01	78.8512
966.15	78.9193
968.20	128.1690
969.11	75.4209
969.11	75.4209
969.11	75.4209
977.42	55.1313
980.50	63.8571
983.50	67.1843
989.30	67.3372
996.32	75.1453
1001.03	56.7353
1001.68	57.8407
1004.76	79.7635
1021.30	0.0000
1024.50	0.0000
1034.80	65.3925
1036.00	58.9740
1037.82	58.0909
1038.57	53.4947
1038.76	0.0000
1045.16	60.0991
1046.59	58.2832
1048.07	55.5371

1050.47	60.2181
1050.47	60.2181
1062.04	71.6423
1063.62	66.0974
1076.63	43.9650
1077.35	62.6898
1078.86	68.3395
1085.78	47.8644
1099.22	56.5820
1112.02	80.9982
1112.84	74.7275
1115.52	78.0502
1120.29	75.0590
1120.29	75.0590
1120.29	75.0590
1120.29	75.0590
1120.51	75.0654
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1124.00	0.0000
1129.67	84.6483
1131.51	0.0000
1147.95	0.0000
1167.94	79.1973
1173.22	89.9840
1175.09	77.4544
1177.93	80.4333
1189.05	88.5154
1204.90	94.8489
1205.75	0.0000
1213.00	86.2777
1221.42	74.7166
1230.97	101.5750
1235.34	105.6677
1236.41	0.0000
1238.25	85.9982
1246.25	83.2446
1260.41	0.0000
1271.85	44.9579
1274.45	69.9915
1274.54	67.9917
1291.56	58.3021
1298.22	0.0000
1312.09	49.5662
1325.50	46.7206
1325.50	46.7206
1332.49	48.8555
1333.61	38.6896
1360.21	34.8923
1362.66	0.0000
1365.15	33.9158
1368.21	33.9453
1368.53	0.0000
1376.25	23.7150
1384.27	34.1051
1394.10	20.7292
1395.20	31.1035
1407.95	27.0548
1434.06	31.4490
1436.60	16.7845
1457.56	0.0000
1460.81	23.2354
1489.15	27.6737
1509.49	26.7558
1596.49	28.1543
1620.62	13.2192
1678.03	0.0000
1691.02	18.2552
1691.02	18.2552
1706.46	0.0000
1750.46	0.0000
1764.49	18.8210
1764.49	18.8210
1764.49	18.8210
1764.49	18.8210
1770.23	88.1104
1771.40	39.1713
1791.20	0.0000
1808.65	10.8646

1836.01

7.9506

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246444001

Total Uranium Activity	1.0774E+01	ug/g
Total Uranium Counting Unc.	3.0059E+00	ug/g
Total Uranium Tpu	1.5336E-06	ug/g
Total Uranium Mda	1.1364E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON , SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 950788          SAMPLE ID   : G246444001
*  ANALYST       : MXR1            DETECTOR    : GAM25
*  SAMPLE DATE   : 3-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 19-FEB-2010 17:59:40.38  SAMPLE ALQT: 144.980 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.037E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.375E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.165E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.541E+00

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## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:39:30.08

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration : DKAl00:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444002.CNF;1
Sample date   : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:39:02
Sample ID    : G246444002           Sample quantity  : 1.42270E+02 GRAM
Detector name: GAM16                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00    Elapsed real time: 0 02:00:02.00  0.0%
Energy tolerance: 1.50000 keV       Analyst Initials : MXR1
Abundance limit: 75.00000           Sensitivity    : 5.00000
Batch ID     : 950788               Detector SN#   :
Matrix Spike ID :                    LCS ID          : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.00*	165	488	1.06	126.18	122	9	2.29E-02	25.9	
2	3	74.83	369	348	0.90	149.85	144	15	5.12E-02	9.2	2.10E+00
3	3	77.12*	597	404	0.98	154.43	144	15	8.29E-02	6.9	
4	0	86.77	139	486	1.03	173.72	172	7	1.93E-02	27.5	
5	5	90.05	141	306	1.09	180.30	178	14	1.96E-02	19.9	3.34E+00
6	5	92.77*	401	432	1.25	185.74	178	14	5.57E-02	10.8	
7	0	128.86	77	354	0.95	257.91	255	8	1.07E-02	44.0	
8	0	185.97*	223	393	1.27	372.14	368	10	3.10E-02	18.8	
9	0	208.89	105	248	1.66	417.97	414	8	1.46E-02	27.6	
10	5	238.54*	1145	197	0.96	477.27	473	15	1.59E-01	3.6	3.07E+00
11	5	241.48*	306	255	1.65	483.16	473	15	4.26E-02	13.8	
12	0	269.77	50	328	1.34	539.73	537	12	6.88E-03	74.1	
13	0	295.10*	347	183	1.07	590.38	586	9	4.82E-02	8.9	
14	0	300.22	99	196	1.01	600.64	596	11	1.37E-02	29.4	
15	0	338.22*	213	237	1.12	676.62	671	11	2.96E-02	15.7	
16	0	351.77*	598	151	1.01	703.73	698	11	8.31E-02	5.8	
17	0	409.31	70	104	1.74	818.79	814	9	9.77E-03	28.7	
18	0	463.99	83	176	1.54	928.15	920	16	1.16E-02	37.2	
19	0	477.64	54	121	1.12	955.44	951	9	7.49E-03	39.3	
20	0	510.73*	97	168	1.73	1021.63	1014	16	1.35E-02	35.1	
21	0	583.22*	375	87	1.25	1166.57	1162	11	5.21E-02	7.4	
22	0	609.26*	431	103	1.52	1218.65	1213	14	5.99E-02	7.0	
23	0	661.68	65	82	1.76	1323.48	1319	9	8.96E-03	28.3	
24	0	727.36	92	115	1.72	1454.82	1449	16	1.28E-02	27.3	
25	0	860.23	66	51	0.96	1720.49	1714	12	9.17E-03	24.9	
26	0	911.04*	239	78	1.71	1822.09	1814	14	3.31E-02	10.3	
27	0	933.74	45	36	0.89	1867.47	1861	11	6.28E-03	29.6	
28	0	968.87*	150	64	1.73	1937.71	1933	10	2.08E-02	13.1	
29	0	1001.12*	44	27	1.87	2002.20	1999	7	6.09E-03	26.0	
30	0	1120.31	111	49	1.37	2240.51	2235	13	1.54E-02	16.1	
31	0	1460.68*	1724	36	1.96	2920.95	2912	18	2.39E-01	2.6	
32	0	1729.06	28	11	2.17	3457.45	3449	14	3.93E-03	30.7	
33	0	1764.27*	68	0	1.83	3527.82	3523	11	9.40E-03	13.5	

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

VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:39:32

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-FEB-2010 12:00:00   Acquisition date : 19-FEB-2010 20:39:02
Sample ID         : G246444002           Sample quantity  : 142.27 GRAM
Sample type       : SOLID                 Sample geometry   :
Detector name     : GAMMA16              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:02.00   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                  WTM error limit   : 3.00
  
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	+	477.59	*	5.405E-01	4.282E-01	4.426E-01	4.477E-02	1.221
K-40	+	1460.81	*	3.529E+01	3.590E+00	4.924E-01	4.328E-02	71.669
CD-109	+	88.03	*	1.621E+00	9.049E-01	9.318E-01	8.979E-02	1.740
SN-126	+	64.28		1.302E+00	6.996E-01	6.208E-01	9.045E-02	2.097
	+	86.94		6.612E-01	4.558E-01	4.463E-01	1.854E-01	1.482
	+	87.57	*	1.591E-01	8.878E-02	1.065E-01	1.021E-02	1.494
BA-137M	+	661.65	*	7.874E-02	4.517E-02	5.340E-02	4.739E-03	1.474
CS-137	+	661.65	*	8.324E-02	4.775E-02	5.645E-02	5.019E-03	1.474
TL-208		277.35		4.539E-01	3.266E-01	5.511E-01	8.192E-02	0.824
	+	510.84		4.008E-01	2.856E-01	1.776E-01	2.246E-02	2.256
	+	583.14	*	4.405E-01	7.825E-02	5.133E-02	5.088E-03	8.581
	+	860.37		7.285E-01	3.698E-01	3.761E-01	3.765E-02	1.937
BI-211		72.87		2.325E+00	2.479E+00	3.975E+00	3.231E-01	0.585
	+	351.07	*	3.095E+00	4.928E-01	2.614E-01	2.858E-02	11.844
PB-212	+	74.81		1.781E+00	3.969E-01	4.213E-01	5.263E-02	4.227
	+	77.11		1.632E+00	2.635E-01	2.390E-01	2.030E-02	6.828
	+	87.30		7.356E-01	4.172E-01	4.939E-01	6.831E-02	1.489
	+	238.63	*	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
	+	300.09		1.726E+00	1.041E+00	8.876E-01	1.163E-01	1.944
PO-212	+	74.81		1.781E+00	3.969E-01	4.213E-01	5.263E-02	4.227
	+	77.11		1.632E+00	2.635E-01	2.390E-01	2.030E-02	6.828
	+	87.30		7.356E-01	4.172E-01	4.939E-01	6.831E-02	1.489
	+	115.19		8.193E-01	2.801E+00	4.758E+00	3.970E-01	0.172
	+	238.63	*	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
	+	300.09		1.726E+00	1.041E+00	8.876E-01	1.163E-01	1.944
BI-214	+	609.31	*	9.539E-01	1.676E-01	9.850E-02	1.041E-02	9.683
	+	1120.29		1.277E+00	4.336E-01	4.443E-01	4.770E-02	2.875
	+	1764.49		1.070E+00	3.031E-01	1.633E-01	1.352E-02	6.554
PB-214	+	74.81		3.068E+00	6.612E-01	7.258E-01	8.070E-02	4.227
	+	77.11		2.798E+00	4.996E-01	4.097E-01	4.675E-02	6.828
	+	87.30		1.260E+00	7.101E-01	8.460E-01	1.039E-01	1.489
	+	241.98		2.084E+00	6.315E-01	4.326E-01	5.359E-02	4.817
	+	295.21		1.063E+00	2.370E-01	1.876E-01	2.504E-02	5.668
	+	351.92	*	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		3.068E+00	6.612E-01	7.258E-01	8.070E-02	4.227
	+	77.11		2.798E+00	4.996E-01	4.097E-01	4.675E-02	6.828
	+	87.30		1.260E+00	7.101E-01	8.460E-01	1.039E-01	1.489
	+	241.98		2.084E+00	6.315E-01	4.326E-01	5.359E-02	4.817
	+	295.21		1.063E+00	2.370E-01	1.876E-01	2.504E-02	5.668
	+	351.92	*	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818
PO-216	+	74.81		1.781E+00	3.969E-01	4.213E-01	5.263E-02	4.227
	+	77.11		1.632E+00	2.635E-01	2.390E-01	2.030E-02	6.828
	+	87.30		7.356E-01	4.172E-01	4.939E-01	6.831E-02	1.489
	+	238.63	*	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
	+	300.09		1.726E+00	1.041E+00	8.876E-01	1.163E-01	1.944
PO-218	+	74.81		3.068E+00	6.612E-01	7.258E-01	8.070E-02	4.227
	+	77.11		2.798E+00	4.996E-01	4.097E-01	4.675E-02	6.828
	+	87.30		1.260E+00	7.101E-01	8.460E-01	1.039E-01	1.489
	+	241.98		2.084E+00	6.315E-01	4.326E-01	5.359E-02	4.817
	+	295.21		1.063E+00	2.370E-01	1.876E-01	2.504E-02	5.668
	+	351.92	*	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818
RA-224	+	240.98	*	3.951E+00	1.177E+00	8.174E-01	9.008E-02	4.834
RA-226	+	609.31	*	9.539E-01	1.676E-01	9.850E-02	1.041E-02	9.683
	+	1120.29		1.277E+00	4.336E-01	4.443E-01	4.770E-02	2.875
	+	1764.49		1.070E+00	3.031E-01	1.633E-01	1.352E-02	6.554
AC-228	+	338.32		1.215E+00	6.354E-01	3.130E-01	1.308E-01	3.881
	+	911.07	*	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652
	+	969.11		1.379E+00	4.869E-01	4.201E-01	9.907E-02	3.283
RA-228	+	338.32		1.215E+00	6.354E-01	3.130E-01	1.308E-01	3.881
	+	911.07	*	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652
	+	969.11		1.379E+00	4.869E-01	4.201E-01	9.907E-02	3.283
TH-228	+	74.81		1.810E+00	3.669E-01	4.282E-01	3.582E-02	4.227
	+	77.11		1.659E+00	2.679E-01	2.429E-01	2.063E-02	6.828
	+	87.30		7.477E-01	4.174E-01	5.020E-01	4.797E-02	1.489
	+	238.63	*	1.318E+00	1.823E-01	7.300E-02	8.643E-03	18.056
	+	300.09		1.754E+00	1.472E+00	9.021E-01	5.396E-01	1.944
TH-230	+	609.31	*	9.538E-01	1.676E-01	9.850E-02	1.041E-02	9.683
	+	1120.29		1.277E+00	4.336E-01	4.443E-01	4.770E-02	2.875
	+	1764.49		1.070E+00	3.031E-01	1.633E-01	1.352E-02	6.554
TH-232	+	338.32		1.215E+00	4.043E-01	3.130E-01	3.417E-02	3.881
	+	911.07	*	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652
	+	969.11		1.379E+00	4.869E-01	4.201E-01	9.907E-02	3.283
TH-234	+	63.29	*	3.290E+00	1.796E+00	1.580E+00	2.756E-01	2.082
	+	92.38		2.967E+00	8.410E-01	5.912E-01	1.087E-01	5.018
U-234	+	609.31	*	9.538E-01	1.676E-01	9.850E-02	1.041E-02	9.683
	+	1120.29		1.277E+00	4.336E-01	4.443E-01	4.770E-02	2.875
	+	1764.49		1.070E+00	3.031E-01	1.633E-01	1.352E-02	6.554
NP-237	+	86.50	*	4.671E-01	2.780E-01	3.167E-01	7.189E-02	1.475
		95.87		-2.960E-01	8.028E-01	1.196E+00	2.961E-01	-0.247
U-238	+	63.29	*	3.290E+00	1.796E+00	1.580E+00	2.756E-01	2.082
	+	92.38		2.967E+00	6.963E-01	5.912E-01	5.455E-02	5.018
AM-243	+	74.67	*	2.887E-01	5.843E-02	6.850E-02	5.671E-03	4.214
	+	86.72		1.751E+01	9.777E+00	1.185E+01	1.124E+00	1.478

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-1.064E+00	2.958E+00	4.888E+00	4.067E-01	-0.218
		142.18		-1.215E+01	1.471E+01	2.316E+01	1.975E+00	-0.525
ANH-511	+	511.00	*	8.657E-02	6.127E-02	3.838E-02	3.650E-03	2.256

---- 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	*	-2.195E-03	4.175E-02	6.734E-02	5.603E-03	-0.033
NA-24		1368.53	*	-5.306E-01	4.175E-02	Half-Life too short		
AL-26		1129.67		3.561E-01	1.622E+00	2.707E+00	2.269E-01	0.132
		1808.65	*	1.534E-02	2.383E-02	4.422E-02	3.616E-03	0.347
TI-44		67.85		-1.809E-02	3.823E-02	5.765E-02	4.464E-03	-0.314
	+	78.38	*	3.012E-01	4.864E-02	5.778E-02	4.976E-03	5.212
SC-46		889.25	*	-2.955E-02	3.037E-02	4.529E-02	4.282E-03	-0.652
	+	1120.51		2.209E-01	7.355E-02	1.121E-01	9.469E-03	1.971
V-48		944.10		-7.666E-03	8.361E-01	1.389E+00	1.298E-01	-0.006
		983.50	*	5.447E-03	6.092E-02	1.019E-01	9.376E-03	0.053
		1312.09		-5.260E-02	7.277E-02	1.065E-01	8.943E-03	-0.494
CR-51		320.08	*	-9.373E-02	3.234E-01	5.013E-01	5.861E-02	-0.187
MN-52		744.21		8.424E-02	2.444E-01	4.037E-01	3.707E-02	0.209
		848.13		5.749E+00	6.851E+00	1.224E+01	1.152E+00	0.470
		935.52		2.087E-01	2.804E-01	4.435E-01	4.154E-02	0.471
		1246.25		-5.171E+00	8.641E+00	1.329E+01	1.096E+00	-0.389
		1333.61		-4.374E+00	5.289E+00	7.593E+00	6.406E-01	-0.576
		1434.06	*	6.906E-02	2.226E-01	3.746E-01	3.196E-02	0.184
MN-54		834.83	*	-1.030E-02	3.188E-02	5.209E-02	4.893E-03	-0.198
CO-56		846.75	*	9.798E-03	3.377E-02	5.801E-02	5.459E-03	0.169
		977.42		-2.322E+00	2.408E+00	3.567E+00	3.292E-01	-0.651
		1037.82		4.533E-02	2.869E-01	4.801E-01	4.513E-02	0.094
		1175.09		-1.134E+00	2.209E+00	3.441E+00	2.769E-01	-0.330
		1238.25		8.622E-02	9.141E-02	1.583E-01	1.343E-02	0.545
		1360.21		2.597E-01	8.498E-01	1.427E+00	1.209E-01	0.182
		1771.40		-9.876E-02	1.979E-01	2.942E-01	2.431E-02	-0.336
CO-57		122.06	*	7.573E-03	2.005E-02	3.409E-02	2.833E-03	0.222
		136.48		3.750E-02	1.622E-01	2.728E-01	2.480E-02	0.137
CO-58		810.76	*	-5.240E-03	3.121E-02	5.172E-02	4.845E-03	-0.101
FE-59		142.65		1.489E-01	2.287E+00	3.746E+00	3.198E-01	0.040
		192.34		-4.422E-01	7.693E-01	1.218E+00	1.725E-01	-0.363
		1099.22	*	6.351E-02	8.021E-02	1.412E-01	1.313E-02	0.450
		1291.56		6.179E-02	1.205E-01	2.051E-01	1.959E-02	0.301
CO-60		1173.22		2.267E-02	4.146E-02	7.092E-02	5.702E-03	0.320
		1332.49	*	-2.483E-02	3.625E-02	5.340E-02	4.504E-03	-0.465
ZN-65		1115.52	*	1.018E-01	8.413E-02	1.380E-01	1.172E-02	0.737
GE-68		1077.35	*	5.576E-01	1.096E+00	1.888E+00	1.649E-01	0.295
AS-73		53.44	*	3.428E-01	6.815E-01	1.095E+00	8.355E-02	0.313
AS-74		595.88	*	1.581E-02	8.232E-02	1.362E-01	1.264E-02	0.116
		634.78		2.349E-02	3.409E-01	5.561E-01	5.041E-02	0.042
SE-75		66.05		-3.123E+00	4.276E+00	5.821E+00	5.600E-01	-0.537

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	96.73			-4.615E-01	6.596E-01	9.639E-01	1.332E-01	-0.479
	121.11			5.913E-02	1.059E-01	1.813E-01	1.991E-02	0.326
	136.00			1.418E-02	2.992E-02	5.084E-02	4.315E-03	0.279
	198.60			9.931E-01	1.492E+00	2.476E+00	2.654E-01	0.401
	264.65	*		-1.622E-03	3.793E-02	6.065E-02	7.078E-03	-0.027
	279.53			-4.382E-02	9.360E-02	1.451E-01	1.776E-02	-0.302
	303.91			-4.650E-01	1.858E+00	2.559E+00	3.557E-01	-0.182
	400.65			-1.334E-01	2.155E-01	3.464E-01	4.033E-02	-0.385
BR-77	+	87.88		5.025E+02	2.805E+02	3.717E+02	3.577E+01	1.352
	+	200.40		4.072E+01	1.896E+02	3.124E+02	3.104E+01	0.130
	+	239.00		2.993E+02	3.915E+01	4.583E+01	5.026E+00	6.530
		249.79		-6.840E+01	7.747E+01	1.174E+02	1.321E+01	-0.583
		281.68		-6.803E+01	1.047E+02	1.597E+02	1.913E+01	-0.426
		297.23		6.132E+01	9.496E+01	1.126E+02	1.324E+01	0.545
		303.76		-5.390E+01	2.259E+02	3.117E+02	3.632E+01	-0.173
		439.47		1.189E+02	1.681E+02	2.928E+02	2.763E+01	0.406
		484.57		-1.587E+01	2.672E+02	4.403E+02	4.188E+01	-0.036
		520.65	*	3.957E-01	1.232E+01	2.034E+01	1.932E+00	0.019
		574.64		1.578E+02	2.589E+02	4.421E+02	4.143E+01	0.357
		578.91		-8.764E+01	1.292E+02	1.714E+02	1.603E+01	-0.511
		585.48		7.679E+02	2.666E+02	4.612E+02	4.302E+01	1.665
		755.35		-2.941E+00	2.065E+02	3.299E+02	3.040E+01	-0.009
		817.79		4.243E+01	1.510E+02	2.602E+02	2.436E+01	0.163
SR-82		698.33		6.379E-01	2.907E+01	4.689E+01	4.232E+00	0.014
		776.49	*	-1.995E-01	3.576E-01	5.399E-01	5.006E-02	-0.369
		1395.20		-1.370E+00	8.792E+00	1.378E+01	1.172E+00	-0.099
RB-83		520.41	*	-3.537E-03	5.681E-02	9.309E-02	8.846E-03	-0.038
		529.64		-5.072E-02	8.815E-02	1.381E-01	1.310E-02	-0.367
		552.65		-2.459E-02	1.662E-01	2.692E-01	2.541E-02	-0.091
RB-84		881.50	*	2.604E-02	6.204E-02	1.074E-01	1.015E-02	0.242
KR-85		513.99	*	7.273E+00	6.703E+00	1.063E+01	1.010E+00	0.684
SR-85		513.99	*	3.778E-02	3.482E-02	5.521E-02	5.249E-03	0.684
RB-86		1076.63	*	-1.870E-01	7.586E-01	1.219E+00	1.065E-01	-0.153
Y-88		898.02		1.604E-02	3.710E-02	6.415E-02	6.093E-03	0.250
		1836.01	*	3.696E-03	2.516E-02	4.271E-02	3.468E-03	0.087
ZR-88		392.90	*	4.450E-04	2.450E-02	4.119E-02	3.810E-03	0.011
Y-91		1204.90	*	1.530E+01	1.890E+01	3.272E+01	2.661E+00	0.468
NB-94		702.63	*	3.838E-02	2.794E-02	4.990E-02	4.511E-03	0.769
		871.10		1.515E-02	2.818E-02	4.936E-02	4.659E-03	0.307
NB-95		765.79	*	4.358E-04	3.770E-02	6.031E-02	5.575E-03	0.007
NB-95M		235.69	*	-2.060E-02	1.138E-01	1.618E-01	1.924E-02	-0.127
ZR-95		724.18		5.217E-02	8.554E-02	1.295E-01	1.273E-02	0.403
		756.15	*	-1.838E-02	6.458E-02	1.006E-01	1.009E-02	-0.183
NB-97		657.90	*	-6.826E-02	6.458E-02	Half-Life	too short	
		1024.50		-1.842E+01	6.458E-02	Half-Life	too short	
ZR-97		254.15		5.452E+00	6.458E-02	Half-Life	too short	
		355.39		-1.188E+00	6.458E-02	Half-Life	too short	
		507.63	*	7.128E+00	6.458E-02	Half-Life	too short	
		602.52		-9.460E+00	6.458E-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			-5.697E-01	6.458E-02	Half-Life	too short	
	1147.95			-4.712E+00	6.458E-02	Half-Life	too short	
	1362.66			7.359E+00	6.458E-02	Half-Life	too short	
	1750.46			-2.426E+00	6.458E-02	Half-Life	too short	
MO-99	140.51			1.085E+01	2.827E+01	4.750E+01	1.314E+01	0.228
	181.06			-2.125E+01	1.984E+01	2.859E+01	5.342E+00	-0.743
	366.43			9.214E+01	9.241E+01	1.644E+02	1.662E+01	0.561
	739.58	*		8.691E-01	1.515E+01	2.440E+01	3.783E+00	0.036
	778.00			-1.713E+01	4.203E+01	6.444E+01	5.978E+00	-0.266
TC-99M	140.51	*		3.583E+11	4.203E+01	Half-Life	too short	
RH-101	127.23			-1.537E-03	2.715E-02	4.060E-02	3.380E-03	-0.038
	198.01	*		1.154E-03	2.747E-02	4.442E-02	4.386E-03	0.026
	325.23			-1.048E-01	1.868E-01	2.833E-01	3.180E-02	-0.370
RH-102	418.52			2.474E-01	2.300E-01	4.094E-01	3.834E-02	0.604
	475.06	*		1.491E-02	2.762E-02	4.230E-02	4.021E-03	0.353
	631.29			1.118E-02	4.526E-02	7.531E-02	6.843E-03	0.148
	697.49			-3.626E-02	6.400E-02	9.673E-02	8.726E-03	-0.375
	766.84			1.020E-01	9.735E-02	1.681E-01	1.555E-02	0.607
	1046.59			-3.048E-02	9.919E-02	1.585E-01	1.413E-02	-0.192
	1112.84			3.817E-03	2.200E-01	3.409E-01	2.898E-02	0.011
RU-103	497.08	*		-1.335E-02	3.154E-02	5.018E-02	7.389E-03	-0.266
+	610.33			1.053E+01	2.321E+00	2.504E+00	4.256E-01	4.204
RH-106	511.85	+		4.334E-01	3.068E-01	3.546E-01	3.372E-02	1.222
	621.84	*		9.455E-02	2.593E-01	4.342E-01	5.950E-02	0.218
	1050.47			2.431E+00	2.005E+00	3.654E+00	3.249E-01	0.665
RU-106	511.85	+		4.334E-01	3.068E-01	3.546E-01	3.372E-02	1.222
	621.84	*		9.455E-02	2.591E-01	4.342E-01	3.971E-02	0.218
	1050.47			2.431E+00	2.005E+00	3.654E+00	3.249E-01	0.665
AG-108M	433.93	*		7.503E-03	2.570E-02	4.373E-02	4.256E-03	0.172
	614.37			-1.574E-03	3.785E-02	5.361E-02	5.096E-03	-0.029
	722.95			-3.236E-02	3.917E-02	4.880E-02	4.603E-03	-0.663
AG-110M	657.75	*		-1.881E-02	3.475E-02	4.580E-02	4.192E-03	-0.411
	677.61			2.140E-02	2.576E-01	4.190E-01	3.844E-02	0.051
	706.67			-5.503E-02	1.806E-01	2.825E-01	2.622E-02	-0.195
	763.93			-1.872E-01	1.532E-01	2.161E-01	2.046E-02	-0.866
	884.67			-1.479E-02	4.269E-02	6.908E-02	6.703E-03	-0.214
	937.48			-4.664E-02	9.837E-02	1.318E-01	1.271E-02	-0.354
	1384.27			3.971E-02	1.183E-01	2.006E-01	1.754E-02	0.198
IN-111	171.28			-1.805E-01	1.084E+00	1.769E+00	1.627E-01	-0.102
	245.39	*		4.979E-01	1.231E+00	1.822E+00	2.029E-01	0.273
IN-113M	391.69	*		3.628E-02	3.491E-02	6.219E-02	5.903E-03	0.583
SN-113	391.69	*		3.628E-02	3.491E-02	6.219E-02	5.903E-03	0.583
IN-114M	190.27	*		1.824E-01	1.559E-01	2.439E-01	2.359E-02	0.748
CD-115	260.90			-2.974E+01	1.621E+02	2.573E+02	2.970E+01	-0.116
	492.35			1.105E+01	4.306E+01	7.255E+01	6.904E+00	0.152
	527.90	*		4.501E+00	1.267E+01	2.143E+01	2.034E+00	0.210
SN-117M	156.02			3.669E-01	1.932E+00	3.222E+00	2.842E-01	0.114
	158.56	*		-1.065E-02	4.480E-02	7.322E-02	6.503E-03	-0.145
SB-122	563.90	*		1.614E+00	2.382E+00	4.095E+00	3.852E-01	0.394

---- 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		3.613E+00	4.980E+01	8.076E+01	7.270E+00	0.045
		159.00	*	-7.442E+00	4.980E+01	Half-Life	too short	
		528.96		6.009E+02	4.980E+01	Half-Life	too short	
TE-123M		159.00	*	-7.662E-03	2.187E-02	3.553E-02	3.177E-03	-0.216
I-124		602.71	*	-3.364E-01	7.544E-01	1.086E+00	1.004E-01	-0.310
		722.78		-5.517E+00	5.261E+00	6.347E+00	5.783E-01	-0.869
		1325.50		-1.141E+01	4.251E+01	6.661E+01	5.609E+00	-0.171
SB-124		1376.25		5.056E+01	3.566E+01	6.603E+01	5.604E+00	0.766
		1509.49		3.469E+00	1.495E+01	2.582E+01	2.208E+00	0.134
		1691.02		2.371E+00	3.707E+00	6.841E+00	5.752E-01	0.347
		602.71		-1.614E-02	3.619E-02	5.207E-02	4.817E-03	-0.310
		645.85		-1.305E-01	4.283E-01	6.746E-01	6.401E-02	-0.193
		709.31		2.962E-01	2.414E+00	3.924E+00	3.557E-01	0.075
		713.82		1.216E+00	1.420E+00	2.443E+00	3.022E-01	0.498
		722.78		-3.837E-01	3.659E-01	4.414E-01	4.099E-02	-0.869
	+	968.20		1.440E+01	4.012E+00	6.611E+00	6.124E-01	2.179
		1045.16		-1.384E+00	2.136E+00	3.285E+00	2.929E-01	-0.421
		1325.50		-8.478E-01	3.157E+00	4.947E+00	4.166E-01	-0.171
SB-125		1368.21		-6.638E-02	1.425E+00	2.281E+00	3.053E-01	-0.029
		1436.60		-1.275E+00	2.958E+00	4.650E+00	3.969E-01	-0.274
		1691.02	*	3.889E-02	6.081E-02	1.122E-01	9.827E-03	0.347
		427.89	*	-4.622E-02	6.962E-02	1.103E-01	1.054E-02	-0.419
	+	463.38		6.729E-01	5.054E-01	4.720E-01	4.771E-02	1.425
TE-125M		600.56		8.542E-02	1.562E-01	2.645E-01	2.607E-02	0.323
		635.90		7.493E-02	2.523E-01	4.186E-01	4.070E-02	0.179
		109.28	*	-4.556E+00	7.393E+00	1.212E+01	1.234E+00	-0.376
I-126		388.63		-1.051E-01	1.705E-01	2.745E-01	2.568E-02	-0.383
		666.33	*	-1.408E-02	1.964E-01	2.750E-01	2.446E-02	-0.051
		753.82		-6.813E-01	1.374E+00	2.092E+00	1.926E-01	-0.326
SB-126		223.80		3.078E-02	3.597E+00	5.831E+00	6.158E-01	0.005
		278.60		2.033E+00	2.268E+00	3.788E+00	4.544E-01	0.537
	+	296.50		1.135E+01	2.428E+00	3.108E+00	3.659E-01	3.652
		414.70		-1.726E-02	6.630E-02	1.052E-01	9.837E-03	-0.164
		415.30		-1.030E+00	5.316E+00	8.776E+00	8.209E-01	-0.117
		555.20		1.406E+00	3.361E+00	5.697E+00	5.374E-01	0.247
		573.80		7.067E-01	9.875E-01	1.696E+00	1.590E-01	0.417
		593.00		-4.106E-01	8.236E-01	1.284E+00	1.194E-01	-0.320
		656.30		-2.735E+00	3.519E+00	4.474E+00	3.988E-01	-0.611
		666.33		-5.900E-03	8.230E-02	1.153E-01	1.025E-02	-0.051
		675.00		3.848E-01	1.776E+00	2.924E+00	2.611E-01	0.132
SB-127		695.00		-3.478E-02	6.900E-02	1.049E-01	9.456E-03	-0.331
		697.00		-1.277E-01	2.389E-01	3.622E-01	3.267E-02	-0.353
		720.50	*	6.880E-02	1.334E-01	2.172E-01	1.977E-02	0.317
		856.80		6.629E-02	4.868E-01	7.216E-01	6.800E-02	0.092
		989.30		-2.015E-01	1.132E+00	1.842E+00	1.692E-01	-0.109
		1034.80		-2.868E+00	8.809E+00	1.410E+01	1.265E+00	-0.203
		1213.00		3.302E-02	4.927E+00	8.028E+00	6.547E-01	0.004
		61.10		1.868E+01	6.182E+01	9.007E+01	9.498E+00	0.207
		252.40		4.418E+00	4.686E+00	7.317E+00	3.130E+00	0.604

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			1.325E+01	2.374E+01	3.513E+01	4.961E+00	0.377
	411.60			1.012E+01	1.379E+01	2.150E+01	3.525E+00	0.471
	444.90			2.488E+00	9.993E+00	1.692E+01	2.274E+00	0.147
	473.00			-1.434E-01	1.932E+00	2.794E+00	3.852E-01	-0.051
	543.00			-8.282E+00	1.683E+01	2.642E+01	4.017E+00	-0.313
	603.60			-1.163E+01	1.415E+01	1.817E+01	2.412E+00	-0.640
	685.20	*		-1.970E-01	1.481E+00	2.360E+00	2.836E-01	-0.083
	698.50			-3.939E-01	1.595E+01	2.562E+01	4.178E+00	-0.015
	722.20			-1.859E+01	3.543E+01	4.634E+01	5.519E+00	-0.401
	783.80			-1.200E+00	4.304E+00	6.693E+00	8.848E-01	-0.179
XE-127	57.60			2.009E-01	5.246E+00	8.211E+00	5.936E-01	0.024
	145.22			-2.452E-02	5.674E-01	9.404E-01	8.074E-02	-0.026
	172.10			2.733E-03	9.748E-02	1.606E-01	1.480E-02	0.017
	202.84	*		-3.390E-02	3.973E-02	6.185E-02	6.186E-03	-0.548
	374.96			1.611E-01	1.641E-01	2.911E-01	2.863E-02	0.553
I-131	80.18			1.855E-01	4.013E+00	6.188E+00	5.475E-01	0.030
	284.30			2.446E-01	1.314E+00	2.122E+00	2.607E-01	0.115
	364.48	*		-7.731E-02	1.033E-01	1.656E-01	1.752E-02	-0.467
	636.97			1.539E+00	1.580E+00	2.747E+00	2.615E-01	0.560
	722.89			-8.413E+00	7.662E+00	9.156E+00	8.399E-01	-0.919
TE-132	49.72			4.122E+00	2.021E+01	3.212E+01	3.465E+00	0.128
	111.76			2.500E+01	3.022E+01	5.226E+01	5.758E+00	0.478
	116.30			1.676E+01	2.791E+01	4.789E+01	5.255E+00	0.350
	228.16	*		-3.609E-02	7.622E-01	1.231E+00	2.110E-01	-0.029
BA-133	53.15			9.268E-01	2.938E+00	4.679E+00	3.585E-01	0.198
	79.62			-4.357E-02	1.015E+00	1.559E+00	2.383E-01	-0.028
	81.00			-1.556E-01	8.501E-02	1.139E-01	1.824E-02	-1.366
	276.40			1.836E-01	3.595E-01	5.289E-01	8.802E-02	0.347
	302.84			-1.039E-01	1.298E-01	1.682E-01	2.597E-02	-0.617
	356.01	*		3.146E-03	4.038E-02	5.968E-02	8.624E-03	0.053
	383.85			1.769E-01	2.437E-01	4.259E-01	5.640E-02	0.415
I-133	510.53	+		2.381E+00	2.437E-01	Half-Life	too short	
	529.87	*		-1.486E-02	2.437E-01	Half-Life	too short	
	706.58			-3.418E-01	2.437E-01	Half-Life	too short	
	856.28			-2.967E-01	2.437E-01	Half-Life	too short	
	875.33			-4.844E-02	2.437E-01	Half-Life	too short	
	1236.41			2.621E+00	2.437E-01	Half-Life	too short	
	1298.22			-8.053E-03	2.437E-01	Half-Life	too short	
CS-134	475.35			1.400E+00	1.880E+00	2.921E+00	2.777E-01	0.479
	563.23			3.445E-01	2.916E-01	5.185E-01	4.918E-02	0.664
	569.32			3.855E-02	1.751E-01	2.843E-01	2.700E-02	0.136
	604.70			-2.023E-02	3.114E-02	4.091E-02	3.788E-03	-0.494
	795.84	*		3.471E-02	3.920E-02	6.949E-02	6.516E-03	0.499
	801.93			4.355E-02	3.036E-01	5.244E-01	4.917E-02	0.083
	1038.57			1.894E+00	3.547E+00	6.127E+00	5.485E-01	0.309
	1167.94			1.258E+00	2.349E+00	4.013E+00	3.244E-01	0.313
	1365.15			-1.164E+00	1.051E+00	1.392E+00	1.235E-01	-0.836
CS-135	268.24	*		4.847E-02	1.500E-01	2.189E-01	2.791E-02	0.221
I-135	288.45			3.515E+11	1.500E-01	Half-Life	too short	

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	417.63			2.427E+11	1.500E-01	Half-Life	too short	
	546.56			-3.912E+10	1.500E-01	Half-Life	too short	
	836.80			3.436E+11	1.500E-01	Half-Life	too short	
	1038.76			2.749E+11	1.500E-01	Half-Life	too short	
	1124.00			-4.427E+10	1.500E-01	Half-Life	too short	
	1131.51			-8.121E+10	1.500E-01	Half-Life	too short	
	1260.41	*		-3.120E+09	1.500E-01	Half-Life	too short	
	1457.56			1.271E+13	1.500E-01	Half-Life	too short	
	1678.03			-6.056E+10	1.500E-01	Half-Life	too short	
	1706.46			-3.305E+11	1.500E-01	Half-Life	too short	
	1791.20			2.249E+11	1.500E-01	Half-Life	too short	
CS-136	66.91			-8.392E-02	7.334E-01	1.037E+00	1.549E-01	-0.081
	86.29	+		2.216E+00	1.255E+00	1.676E+00	2.249E-01	1.322
	153.22			4.001E-01	5.714E-01	9.715E-01	9.479E-02	0.412
	163.89			-2.699E-01	9.404E-01	1.495E+00	1.497E-01	-0.181
	176.55			-2.011E-01	3.136E-01	4.985E-01	4.879E-02	-0.403
	273.65			-1.979E-01	4.638E-01	6.377E-01	7.837E-02	-0.310
	340.57			1.061E-01	1.275E-01	2.011E-01	2.223E-02	0.528
	818.51			3.953E-02	6.045E-02	1.075E-01	1.008E-02	0.368
	1048.07	*		-4.511E-02	1.029E-01	1.624E-01	1.503E-02	-0.278
	1235.34			4.479E-01	6.114E-01	1.046E+00	1.209E-01	0.428
CE-139	165.85	*		-1.169E-02	2.469E-02	3.982E-02	3.611E-03	-0.294
BA-140	162.64			1.817E-01	6.388E-01	1.041E+00	9.856E-02	0.175
	304.84			-8.862E-01	1.314E+00	1.706E+00	4.965E-01	-0.519
	423.70			6.206E-01	1.654E+00	2.789E+00	9.100E-01	0.223
	537.32	*		-6.066E-02	2.386E-01	3.830E-01	1.278E-01	-0.158
LA-140	328.77			9.065E-02	2.608E-01	4.212E-01	4.854E-02	0.215
	432.53			-3.999E-01	1.686E+00	2.764E+00	2.709E-01	-0.145
	487.03			1.494E-02	1.191E-01	1.989E-01	1.989E-02	0.075
	751.79			2.749E-01	1.502E+00	2.447E+00	2.465E-01	0.112
	815.85			7.953E-04	2.707E-01	4.553E-01	4.681E-02	0.002
	867.82			2.432E-01	1.181E+00	2.014E+00	1.985E-01	0.121
	919.63			3.543E-01	2.538E+00	4.282E+00	4.837E-01	0.083
	925.24			-4.432E-01	9.706E-01	1.540E+00	1.524E-01	-0.288
	1596.49	*		-3.308E-02	7.444E-02	1.151E-01	9.804E-03	-0.287
CE-141	145.44	*		-1.500E-02	5.111E-02	8.377E-02	7.328E-03	-0.179
CE-143	57.37			4.266E-04	5.111E-02	Half-Life	too short	
	231.56			1.646E-04	5.111E-02	Half-Life	too short	
	293.26	*		8.025E-04	5.111E-02	Half-Life	too short	
	350.59	+		4.593E-02	5.111E-02	Half-Life	too short	
	490.36			8.436E-04	5.111E-02	Half-Life	too short	
	664.57			1.665E-03	5.111E-02	Half-Life	too short	
	721.93			-1.631E-03	5.111E-02	Half-Life	too short	
CE-144	80.11			-3.464E-03	1.662E+00	2.557E+00	2.245E-01	-0.001
	133.54	*		-7.187E-02	1.735E-01	2.526E-01	3.901E-02	-0.285
PM-144	476.78	+		1.119E-01	8.862E-02	1.205E-01	1.234E-02	0.928
	618.01			-1.799E-02	2.757E-02	4.226E-02	3.969E-03	-0.426
	696.49	*		-1.058E-02	2.886E-02	4.454E-02	4.017E-03	-0.237
	778.57			4.711E-02	2.062E+00	3.297E+00	3.060E-01	0.014

---- 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	*		-7.171E-01	1.957E+00	3.020E+00	2.723E-01	-0.237
	1489.15			2.075E-01	7.469E+00	1.257E+01	1.075E+00	0.017
PM-146	453.90	*		-2.799E-03	3.574E-02	5.911E-02	6.750E-03	-0.047
	633.02			1.319E-01	1.201E+00	1.965E+00	7.365E-01	0.067
	735.90			1.202E-02	1.545E-01	2.304E-01	6.627E-02	0.052
	747.13			-5.169E-02	7.812E-02	1.163E-01	1.674E-02	-0.445
ND-147	91.11	+		5.812E-01	2.383E-01	4.363E-01	4.361E-02	1.332
	319.41			-4.709E-01	2.940E+00	4.600E+00	5.223E-01	-0.102
	439.89			1.340E+00	5.150E+00	8.731E+00	8.242E-01	0.154
	531.02	*		-3.838E-01	5.183E-01	7.969E-01	1.233E-01	-0.482
PM-149	285.90	*		-9.498E+01	1.109E+02	1.647E+02	2.899E+01	-0.577
EU-152	121.78			1.353E-02	5.792E-02	9.794E-02	9.455E-03	0.138
	244.69			-1.888E-01	2.937E-01	3.993E-01	4.440E-02	-0.473
	344.27	*		-5.741E-02	8.153E-02	1.273E-01	1.422E-02	-0.451
	443.98			-4.023E-02	7.793E-01	1.293E+00	1.222E-01	-0.031
	778.89			3.714E-02	2.401E-01	3.887E-01	3.606E-02	0.096
	867.32			3.976E-02	6.665E-01	1.094E+00	1.032E-01	0.036
	964.01			4.408E-01	2.832E-01	4.745E-01	4.402E-02	0.929
	1085.78			-1.519E-01	3.577E-01	5.635E-01	4.892E-02	-0.270
	1112.02			-1.308E-02	2.908E-01	4.751E-01	4.042E-02	-0.028
	1407.95			7.031E-03	1.709E-01	2.762E-01	2.352E-02	0.025
GD-153	69.67			4.179E-01	1.344E+00	2.110E+00	1.662E-01	0.198
	83.37			8.559E+00	1.226E+01	1.930E+01	1.759E+00	0.443
	97.43	*		1.295E-02	6.784E-02	1.043E-01	9.267E-03	0.124
	103.18			5.077E-03	8.044E-02	1.362E-01	1.173E-02	0.037
EU-154	123.07			1.176E-02	4.005E-02	6.786E-02	7.550E-03	0.173
	247.94			1.815E-01	2.870E-01	4.776E-01	6.459E-02	0.380
	591.81			3.881E-02	5.176E-01	8.495E-01	1.035E-01	0.046
	723.30			-1.144E-01	1.653E-01	2.107E-01	2.102E-02	-0.543
	756.87			5.336E-02	6.866E-01	1.106E+00	1.373E-01	0.048
	873.19			4.968E-02	2.468E-01	4.202E-01	5.394E-02	0.118
	996.32			3.647E-01	3.759E-01	5.975E-01	1.077E-01	0.610
	1004.76			2.226E-02	1.988E-01	2.899E-01	3.482E-02	0.077
	1274.45	*		-3.133E-02	1.187E-01	1.874E-01	2.075E-02	-0.167
EU-155	48.70			-2.941E+00	2.072E+00	2.992E+00	2.459E-01	-0.983
	60.01			2.500E+00	4.299E+00	6.370E+00	4.550E-01	0.393
	86.54	+		1.917E-01	1.070E-01	1.452E-01	1.387E-02	1.320
	105.31	*		4.356E-02	8.491E-02	1.459E-01	1.262E-02	0.299
TB-160	86.79	+		5.178E-01	2.890E-01	3.918E-01	3.720E-02	1.322
	197.04			-1.959E-01	4.683E-01	7.399E-01	7.286E-02	-0.265
	215.65			-4.474E-01	6.383E-01	9.976E-01	1.032E-01	-0.448
	298.57			1.004E-01	1.418E-01	1.697E-01	1.992E-02	0.592
	879.36	*		9.764E-02	1.215E-01	2.166E-01	2.046E-02	0.451
	962.29			1.309E-01	4.954E-01	7.961E-01	7.390E-02	0.164
	966.15			6.620E-01	2.403E-01	4.208E-01	3.901E-02	1.573
	1177.93			-6.396E-02	3.468E-01	5.569E-01	4.485E-02	-0.115
	1271.85			-3.254E-01	7.137E-01	1.105E+00	9.174E-02	-0.295
HO-166M	80.57			-2.619E-02	2.135E-01	3.265E-01	2.881E-02	-0.080
	184.41			8.273E-02	3.525E-02	5.782E-02	5.504E-03	1.431

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	280.46			-1.383E-02	7.135E-02	1.126E-01	1.350E-02	-0.123
	410.95			3.126E-01	2.265E-01	3.699E-01	3.453E-02	0.845
	711.68	*		-3.908E-02	5.463E-02	8.204E-02	7.444E-03	-0.476
	752.31			8.711E-03	2.281E-01	3.665E-01	3.374E-02	0.024
	810.29			-1.084E-02	4.729E-02	7.792E-02	7.284E-03	-0.139
TM-171	51.35			-1.629E+01	2.574E+01	3.902E+01	3.075E+00	-0.417
	52.39			4.350E+00	1.294E+01	2.065E+01	1.601E+00	0.211
	59.40			-3.355E+00	2.412E+01	3.431E+01	2.436E+00	-0.098
	66.72	*		4.177E+00	2.450E+01	3.522E+01	2.698E+00	0.119
LU-176	88.36			4.130E-01	1.929E-01	2.656E-01	2.550E-02	1.555
	201.83			-2.739E-02	2.373E-02	3.625E-02	3.615E-03	-0.756
	306.84	*		2.129E-02	2.016E-02	3.403E-02	3.947E-03	0.626
	401.10			-3.487E+00	5.584E+00	8.983E+00	8.346E-01	-0.388
LU-177	112.95			-1.493E-01	1.441E+00	2.413E+00	2.021E-01	-0.062
+	208.36	*		2.407E+00	1.350E+00	1.820E+00	1.847E-01	1.323
LU-177M	52.97			3.807E-01	1.336E+00	2.125E+00	1.633E-01	0.179
	54.07			5.420E-02	7.050E-01	1.109E+00	8.381E-02	0.049
	61.30			2.860E-01	1.278E+00	1.854E+00	1.345E-01	0.154
	121.62			1.133E-01	2.947E-01	5.014E-01	4.162E-02	0.226
	147.16			4.090E-01	5.088E-01	8.712E-01	7.513E-02	0.469
	171.86			-2.372E-02	3.841E-01	6.301E-01	5.802E-02	-0.038
	218.09			3.485E-01	7.153E-01	1.187E+00	1.236E-01	0.293
+	268.79			8.620E-01	1.282E+00	1.155E+00	1.356E-01	0.747
	319.02			-1.927E-02	2.099E-01	3.301E-01	3.751E-02	-0.058
	367.43			8.788E-01	7.375E-01	1.322E+00	1.333E-01	0.665
	413.65	*		-8.406E-02	1.624E-01	2.275E-01	2.127E-02	-0.369
HF-181	56.28			6.526E-02	7.899E-01	1.240E+00	9.105E-02	0.053
	57.53			8.503E-03	4.398E-01	6.878E-01	4.976E-02	0.012
	65.20			-1.939E-02	8.268E-01	1.179E+00	8.902E-02	-0.016
	133.02			3.263E-02	5.532E-02	8.554E-02	7.173E-03	0.381
	136.25			6.852E-02	3.607E-01	6.058E-01	5.107E-02	0.113
	345.85			-7.653E-02	1.649E-01	2.504E-01	2.683E-02	-0.306
W-181	482.03	*		-5.283E-03	4.113E-02	5.904E-02	5.615E-03	-0.089
	56.28			2.556E-02	3.051E-01	4.792E-01	3.517E-02	0.053
	57.53			3.192E-03	1.700E-01	2.659E-01	1.924E-02	0.012
	65.20	*		-7.438E-03	3.171E-01	4.521E-01	3.414E-02	-0.016
TA-182	67.75			-4.054E-02	9.207E-02	1.391E-01	1.076E-02	-0.292
	100.10			7.488E-02	1.394E-01	2.402E-01	2.101E-02	0.312
	152.43			1.183E-01	2.717E-01	4.579E-01	4.001E-02	0.258
	222.10			-1.099E-01	2.943E-01	4.676E-01	4.918E-02	-0.235
+	1001.68			3.645E+00	1.921E+00	3.523E+00	3.216E-01	1.035
+	1121.28			6.084E-01	2.026E-01	3.033E-01	2.560E-02	2.006
	1189.05			-1.490E-01	2.931E-01	4.560E-01	3.688E-02	-0.327
	1221.42	*		-5.052E-02	1.918E-01	3.052E-01	2.496E-02	-0.166
	1230.97			-1.948E-01	4.566E-01	7.166E-01	5.878E-02	-0.272
RE-183	57.98			3.715E-02	1.694E-01	2.673E-01	1.925E-02	0.139
	59.32			1.943E-02	9.879E-02	1.433E-01	1.019E-02	0.136
	67.20			-1.056E-01	1.840E-01	2.534E-01	1.950E-02	-0.417
	162.32	*		-9.668E-03	8.869E-02	1.420E-01	1.275E-02	-0.068

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RE-184	+	208.81	1.927E+00	1.081E+00	1.481E+00	1.504E-01	1.301
		291.72	-2.353E-01	8.566E-01	1.183E+00	1.402E-01	-0.199
		57.98	1.359E-01	6.197E-01	9.780E-01	7.042E-02	0.139
		59.32	7.103E-02	3.611E-01	5.239E-01	3.723E-02	0.136
		67.20	-3.861E-01	6.729E-01	9.267E-01	7.132E-02	-0.417
		161.27	-2.179E-01	2.712E-01	4.295E-01	3.843E-02	-0.507
		216.55	-9.994E-02	2.239E-01	3.549E-01	3.680E-02	-0.282
	*	252.85	1.350E-01	1.893E-01	3.160E-01	3.582E-02	0.427
		318.01	8.220E-02	3.626E-01	5.832E-01	6.639E-02	0.141
		792.07	-7.522E-01	8.093E-01	1.252E+00	1.165E-01	-0.601
OS-185		903.28	4.214E-02	1.013E+00	1.544E+00	1.459E-01	0.027
		920.93	4.263E-01	3.787E-01	6.914E-01	6.504E-02	0.617
		59.72	5.531E-02	2.633E-01	3.822E-01	2.720E-02	0.145
		61.14	4.061E-02	1.417E-01	2.063E-01	1.494E-02	0.197
		69.30	1.329E-02	2.303E-01	3.793E-01	2.978E-02	0.035
		592.07	2.935E-01	2.143E+00	3.534E+00	3.286E-01	0.083
	*	646.12	-1.820E-02	3.678E-02	5.690E-02	5.115E-03	-0.320
		717.42	2.664E-01	8.209E-01	1.355E+00	1.232E-01	0.197
		874.81	1.491E-02	4.764E-01	7.992E-01	7.547E-02	0.019
		880.27	5.143E-01	6.728E-01	1.196E+00	1.130E-01	0.430
RE-188	*	155.03	6.996E-02	1.416E-01	2.390E-01	2.102E-02	0.293
	+	477.96	5.157E+00	4.081E+00	5.604E+00	5.328E-01	0.920
W-188	+	633.10	-4.094E-01	2.503E+00	4.005E+00	3.635E-01	-0.102
	+	63.58	1.339E+02	6.995E+01	7.717E+01	5.736E+00	1.735
IR-192		227.08	5.173E+00	1.098E+01	1.818E+01	1.936E+00	0.285
	*	290.67	3.715E+00	6.647E+00	9.846E+00	1.168E+00	0.377
	+	295.96	8.204E-01	1.757E-01	2.458E-01	2.908E-02	3.337
		308.46	-2.967E-02	8.378E-02	1.297E-01	1.505E-02	-0.229
	*	316.51	-3.007E-02	2.969E-02	4.333E-02	4.952E-03	-0.694
AU-195		468.07	3.816E-02	5.974E-02	9.257E-02	9.314E-03	0.412
		604.41	-2.925E-01	4.255E-01	5.545E-01	7.451E-02	-0.528
		612.46	1.874E-01	6.831E-01	1.001E+00	1.042E-01	0.187
		65.12	-6.244E-04	1.467E-01	2.094E-01	1.580E-02	-0.003
		66.83	1.635E-02	8.133E-02	1.171E-01	8.981E-03	0.140
	+	75.70	9.386E-01	1.900E-01	3.427E-01	2.867E-02	2.739
	*	98.88	2.676E-01	1.795E-01	3.176E-01	2.797E-02	0.843
TL-200	+	129.76	3.727E+00	3.295E+00	4.060E+00	3.390E-01	0.918
	*	367.94	9.999E-04	3.295E+00	Half-Life	too short	
		579.30	-2.669E-03	3.295E+00	Half-Life	too short	
		828.27	6.585E-03	3.295E+00	Half-Life	too short	
TL-201		1205.75	-3.978E-04	3.295E+00	Half-Life	too short	
		68.90	2.299E+00	4.645E+00	8.100E+00	6.336E-01	0.284
		70.82	6.169E-01	2.880E+00	4.500E+00	3.585E-01	0.137
		80.30	6.726E-01	5.229E+00	8.092E+00	7.119E-01	0.083
TL-202		135.34	1.387E+01	2.509E+01	4.279E+01	3.601E+00	0.324
	*	167.43	8.609E+00	7.378E+00	1.272E+01	1.158E+00	0.677
		68.90	1.672E-01	3.378E-01	5.889E-01	4.606E-02	0.284
		70.82	4.473E-02	2.088E-01	3.263E-01	2.599E-02	0.137
		80.30	4.878E-02	3.793E-01	5.869E-01	5.163E-02	0.083

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HG-203	439.56	*		5.098E-02	5.992E-02	1.053E-01	9.935E-03	0.484
	70.83			1.797E-01	8.591E-01	1.342E+00	1.771E-01	0.134
	72.87			4.711E-01	5.046E-01	8.053E-01	1.038E-01	0.585
	82.60			-1.009E-01	8.350E-01	1.406E+00	1.969E-01	-0.072
BI-207	279.20	*		-1.149E-03	3.532E-02	5.632E-02	6.863E-03	-0.020
	72.80			1.299E-01	1.446E-01	2.315E-01	1.880E-02	0.561
	74.97		+	5.182E-01	1.049E-01	1.760E-01	1.462E-02	2.944
	84.90			1.522E-01	1.526E-01	2.427E-01	2.253E-02	0.627
	569.67			9.868E-03	2.712E-02	4.449E-02	4.177E-03	0.222
	1063.62	*		3.021E-02	5.216E-02	8.933E-02	7.875E-03	0.338
TL-207	1770.23			-1.406E+00	5.783E-01	5.650E-01	4.669E-02	-2.489
	81.07			-3.429E-01	1.819E-01	2.514E-01	2.231E-02	-1.364
	83.78			1.448E-01	1.037E-01	1.670E-01	1.530E-02	0.867
	94.90			1.767E-01	1.834E-01	2.920E-01	2.640E-02	0.605
	122.32			2.936E-01	1.389E+00	2.346E+00	2.101E-01	0.125
	144.24			-6.612E-02	5.641E-01	9.165E-01	8.793E-02	-0.072
	154.21			2.000E-01	3.213E-01	5.447E-01	5.242E-02	0.367
	269.46		+	2.007E-01	2.986E-01	2.851E-01	3.391E-02	0.704
	323.87	*		4.211E-01	5.413E-01	8.921E-01	1.706E-01	0.472
	338.28		+	5.073E+00	1.746E+00	2.163E+00	3.031E-01	2.346
PO-209	445.03			4.989E-01	1.864E+00	3.158E+00	4.009E-01	0.158
	260.50			6.717E-01	8.006E+00	1.291E+01	1.489E+00	0.052
	262.80			-6.505E+00	2.235E+01	3.521E+01	4.081E+00	-0.185
	896.60	*		2.454E+00	6.527E+00	1.124E+01	1.063E+00	0.218
BI-210	46.50	*		2.454E+00	3.056E+00	4.965E+00	4.630E-01	0.494
PB-210	46.50	*		2.454E+00	3.056E+00	4.965E+00	4.630E-01	0.494
PO-210	46.50	*		2.454E+00	3.054E+00	4.965E+00	4.194E-01	0.494
PB-211	404.84	*		1.458E-01	8.650E-01	1.289E+00	8.089E-01	0.113
BI-212	427.08			-1.603E+00	1.881E+00	2.467E+00	1.536E+00	-0.650
	831.96			-1.544E-01	1.033E+00	1.706E+00	1.071E+00	-0.090
	727.18	*	+	9.307E-01	5.182E-01	5.881E-01	6.144E-02	1.583
	785.46			3.009E-01	1.597E+00	2.729E+00	2.537E-01	0.110
	1620.62			-9.265E-02	1.162E+00	1.909E+00	1.622E-01	-0.049
PO-215	81.07			-3.429E-01	1.819E-01	2.514E-01	2.231E-02	-1.364
	83.78			1.448E-01	1.037E-01	1.670E-01	1.530E-02	0.867
	94.90			1.767E-01	1.834E-01	2.920E-01	2.640E-02	0.605
	122.32			2.936E-01	1.389E+00	2.346E+00	2.101E-01	0.125
	144.24			-6.612E-02	5.641E-01	9.165E-01	8.793E-02	-0.072
	154.21			2.000E-01	3.213E-01	5.447E-01	5.242E-02	0.367
	269.46		+	2.007E-01	2.986E-01	2.851E-01	3.391E-02	0.704
	323.87	*		4.211E-01	5.413E-01	8.921E-01	1.706E-01	0.472
	338.28		+	5.073E+00	1.746E+00	2.163E+00	3.031E-01	2.346
	445.03			4.989E-01	1.864E+00	3.158E+00	4.009E-01	0.158
RN-219	271.23		+	2.575E-01	3.834E-01	3.635E-01	4.760E-02	0.709
	401.81	*		1.431E-02	3.454E-01	5.806E-01	8.955E-02	0.025
RN-220	549.76	*		2.110E+01	2.236E+01	3.912E+01	3.696E+00	0.539
RA-223	81.07			-3.429E-01	1.819E-01	2.514E-01	2.231E-02	-1.364
	83.78			1.448E-01	1.037E-01	1.670E-01	1.530E-02	0.867
	94.90			1.767E-01	1.834E-01	2.920E-01	2.640E-02	0.605

---- 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		2.936E-01	1.389E+00	2.346E+00	2.101E-01	0.125
		144.24		-6.612E-02	5.641E-01	9.165E-01	8.793E-02	-0.072
		154.21		2.000E-01	3.213E-01	5.447E-01	5.242E-02	0.367
	+	269.46		2.007E-01	2.986E-01	2.851E-01	3.391E-02	0.704
		323.87	*	4.211E-01	5.413E-01	8.921E-01	1.706E-01	0.472
	+	338.28		5.073E+00	1.746E+00	2.163E+00	3.031E-01	2.346
		445.03		4.989E-01	1.864E+00	3.158E+00	4.009E-01	0.158
		79.80		-1.647E-01	1.283E+00	1.962E+00	4.229E-01	-0.084
		236.00		-3.032E-02	2.070E-01	2.949E-01	4.110E-02	-0.103
		256.20	*	-1.088E-01	3.246E-01	5.107E-01	8.721E-02	-0.213
		286.10		-6.826E-01	1.242E+00	1.901E+00	2.959E-01	-0.359
	+	299.80		3.198E+00	1.981E+00	2.225E+00	4.274E-01	1.437
TH-227		304.40		-6.181E-01	1.681E+00	2.284E+00	4.575E-01	-0.271
		334.20		-4.934E-01	2.047E+00	3.007E+00	6.190E-01	-0.164
		79.80		-1.647E-01	1.283E+00	1.962E+00	4.283E-01	-0.084
	+	94.00		1.146E+01	3.535E+00	3.113E+00	6.841E-01	3.683
		236.00		-3.032E-02	2.070E-01	2.949E-01	3.811E-02	-0.103
		256.20	*	-1.088E-01	3.248E-01	5.107E-01	9.986E-02	-0.213
		286.10		-6.826E-01	1.415E+00	1.901E+00	1.915E+00	-0.359
	+	299.80		3.198E+00	1.981E+00	2.225E+00	4.274E-01	1.437
		304.40		-6.181E-01	1.681E+00	2.284E+00	4.575E-01	-0.271
		334.20		-4.934E-01	2.047E+00	3.007E+00	6.190E-01	-0.164
	+	85.43		3.567E-01	1.991E-01	2.397E-01	2.239E-02	1.488
		88.47		2.288E-01	1.105E-01	1.518E-01	1.456E-02	1.507
TH-229		100.00		9.507E-02	1.445E-01	2.499E-01	2.187E-02	0.380
		193.63	*	-3.301E-01	4.099E-01	6.323E-01	6.170E-02	-0.522
		210.97		3.251E-01	6.921E-01	1.033E+00	1.056E-01	0.315
		283.67	*	-1.587E-01	1.203E+00	1.903E+00	3.292E-01	-0.083
	+	301.29		1.279E+00	7.762E-01	8.639E-01	1.259E-01	1.481
	TH-231	81.07		-3.429E-01	1.819E-01	2.514E-01	2.231E-02	-1.364
		83.78		1.448E-01	1.037E-01	1.670E-01	1.530E-02	0.867
		94.90		1.767E-01	1.834E-01	2.920E-01	2.640E-02	0.605
		122.32		2.936E-01	1.389E+00	2.346E+00	2.101E-01	0.125
		144.24		-6.612E-02	5.641E-01	9.165E-01	8.793E-02	-0.072
		154.21		2.000E-01	3.213E-01	5.447E-01	5.242E-02	0.367
	+	269.46		2.007E-01	2.986E-01	2.851E-01	3.391E-02	0.704
U-231		323.87	*	4.211E-01	5.413E-01	8.921E-01	1.706E-01	0.472
	+	338.28		5.073E+00	1.746E+00	2.163E+00	3.031E-01	2.346
		445.03		4.989E-01	1.864E+00	3.158E+00	4.009E-01	0.158
		84.21		8.923E+00	5.438E+00	8.822E+00	8.121E-01	1.011
	+	92.29		1.390E+01	3.263E+00	4.438E+00	4.098E-01	3.132
		95.87	*	-4.118E-01	1.113E+00	1.664E+00	1.494E-01	-0.247
		108.00		-8.243E-03	1.960E+00	3.302E+00	2.796E-01	-0.002
	+	75.28		1.512E+01	3.613E+00	5.187E+00	7.878E-01	2.915
	+	86.59		3.114E+00	1.909E+00	2.359E+00	6.394E-01	1.320
	+	300.12		8.916E-01	5.462E-01	6.188E-01	1.043E-01	1.441
		311.98	*	4.062E-02	5.450E-02	9.031E-02	1.056E-02	0.450
		340.50		5.653E-01	5.975E-01	9.274E-01	2.294E-01	0.610
		398.62		1.967E-01	1.702E+00	2.874E+00	7.717E-01	0.068

----- 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		1.346E-01	1.335E+00	2.247E+00	4.911E-01	0.060
		63.00		3.835E+00	2.064E+00	2.265E+00	3.364E-01	1.693
		94.67		2.682E-01	1.392E-01	2.252E-01	2.862E-02	1.191
		98.44		1.087E-01	9.492E-02	1.256E-01	7.012E-02	0.865
		99.86		2.871E-01	3.668E-01	6.370E-01	5.578E-02	0.451
		111.00		5.137E-02	1.452E-01	2.475E-01	2.954E-02	0.208
		131.20		5.928E-03	8.998E-02	1.353E-01	1.131E-02	0.044
		152.70		1.073E-01	2.661E-01	4.470E-01	7.647E-02	0.240
		186.00		4.791E+00	2.349E+00	2.289E+00	7.207E-01	2.093
		226.40		2.331E-01	3.381E-01	5.637E-01	8.228E-02	0.413
		227.20		1.520E-01	3.654E-01	6.033E-01	6.427E-02	0.252
		248.90		-1.096E-01	6.582E-01	1.048E+00	2.467E-01	-0.105
		293.70		5.105E+00	1.334E+00	1.360E+00	2.597E-01	3.753
		369.80		-6.672E-01	6.982E-01	1.079E+00	2.412E-01	-0.619
		568.70		-3.341E-01	8.964E-01	1.390E+00	1.305E-01	-0.240
		569.50		5.646E-02	2.423E-01	3.938E-01	3.697E-02	0.143
		574.00		8.296E-01	1.314E+00	2.245E+00	2.104E-01	0.370
		699.00		-1.849E-01	6.103E-01	9.546E-01	1.839E-01	-0.194
		706.10		-8.624E-01	1.006E+00	1.373E+00	6.135E-01	-0.628
		733.00		-2.057E-01	4.074E-01	5.297E-01	1.187E-01	-0.388
		742.81		2.916E-01	1.222E+00	1.975E+00	1.329E+00	0.148
		796.30		7.835E-01	7.581E-01	1.329E+00	3.626E-01	0.589
		805.60		-6.974E-02	7.647E-01	1.276E+00	3.938E-01	-0.055
		819.60		3.084E-01	9.335E-01	1.606E+00	6.135E-01	0.192
		826.30		-3.552E-01	6.863E-01	1.067E+00	4.791E-01	-0.333
		831.60		8.190E-02	5.326E-01	9.046E-01	2.721E-01	0.091
		876.40		-4.250E-01	8.380E-01	1.131E+00	1.163E+00	-0.376
		880.51		1.525E-01	2.417E-01	4.255E-01	4.020E-02	0.359
		883.24		3.769E-02	2.451E-01	4.131E-01	2.782E-01	0.091
		899.00		-6.480E-01	8.329E-01	1.215E+00	5.333E-01	-0.533
		925.00		-7.556E-01	9.666E-01	1.480E+00	1.390E-01	-0.511
		926.50		-7.044E-02	1.568E-01	2.221E-01	5.674E-02	-0.317
		946.00	*	7.222E-02	2.579E-01	4.391E-01	8.388E-02	0.164
		949.00		4.292E-02	3.805E-01	6.390E-01	5.960E-02	0.067
		980.50		2.874E-01	5.650E-01	9.847E-01	9.076E-02	0.292
		1394.10		4.117E-01	8.775E-01	1.457E+00	9.478E-01	0.283
PA-234M		766.42		3.531E+00	1.055E+01	1.708E+01	8.686E+00	0.207
	+	1001.03	*	8.213E+00	4.348E+00	8.124E+00	8.459E-01	1.011
U-235	+	89.95		2.140E+00	1.080E+00	1.496E+00	4.653E-01	1.430
		93.35		3.567E+00	1.267E+00	1.115E+00	3.143E-01	3.200
		105.00		3.963E-01	8.293E-01	1.411E+00	4.207E-01	0.281
		143.76	*	-1.458E-02	1.749E-01	2.846E-01	4.974E-02	-0.051
		163.35		-6.654E-02	3.834E-01	6.121E-01	1.179E-01	-0.109
NP-236	+	185.71		1.775E-01	6.880E-02	8.474E-02	8.095E-03	2.094
		205.31		4.778E-01	4.713E-01	7.096E-01	1.403E-01	0.673
		94.67		2.057E-01	1.041E-01	1.710E-01	1.549E-02	1.202
		98.44		8.215E-02	5.565E-02	9.496E-02	8.383E-03	0.865
		111.00		3.885E-02	1.098E-01	1.872E-01	1.574E-02	0.208
		160.31	*	-3.435E-02	6.086E-02	9.774E-02	8.723E-03	-0.351

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.161E-01	1.236E-01	2.156E-01	1.891E-02	0.539
		117.00	*	6.832E-03	1.483E-01	2.495E-01	2.077E-02	0.027
	+	209.75		1.501E+00	8.423E-01	1.147E+00	1.168E-01	1.309
		228.18		-9.061E-03	1.914E-01	3.089E-01	3.299E-02	-0.029
		277.60		2.302E-01	1.553E-01	2.649E-01	3.170E-02	0.869
		334.30		-2.732E-01	1.159E+00	1.705E+00	1.878E-01	-0.160
AM-241		59.54	*	2.356E-02	1.375E-01	1.992E-01	1.563E-02	0.118
CM-243		99.55		1.195E-01	1.272E-01	2.218E-01	1.946E-02	0.539
		103.76	*	4.144E-02	7.515E-02	1.294E-01	1.112E-02	0.320
		117.00		7.030E-03	1.526E-01	2.567E-01	2.137E-02	0.027
	+	209.75		1.480E+00	8.304E-01	1.131E+00	1.151E-01	1.309
		228.18		-9.156E-03	1.934E-01	3.122E-01	3.334E-02	-0.029
		277.60		2.321E-01	1.566E-01	2.671E-01	3.197E-02	0.869
AM-246		798.80		-1.543E-01	1.148E-01	1.691E-01	1.577E-02	-0.912
		1036.00		-9.432E-02	2.841E-01	4.547E-01	4.077E-02	-0.207
		1062.04		-3.636E-03	2.307E-01	3.769E-01	3.326E-02	-0.010
		1078.86	*	9.367E-02	1.256E-01	2.205E-01	1.924E-02	0.425
CM-247		278.00		8.061E-01	6.424E-01	1.087E+00	1.303E-01	0.741
		287.40		3.729E-01	9.762E-01	1.594E+00	1.898E-01	0.234
		402.60	*	1.909E-02	3.017E-02	5.245E-02	4.877E-03	0.364
CF-249		252.85		5.040E-01	7.066E-01	1.180E+00	1.337E-01	0.427
		333.44		7.317E-03	1.491E-01	2.244E-01	2.477E-02	0.033
		387.95	*	-2.777E-02	3.142E-02	4.955E-02	4.648E-03	-0.560
CF-251		176.60	*	-6.778E-02	1.012E-01	1.606E-01	1.497E-02	-0.422
		227.00		2.108E-01	3.238E-01	5.400E-01	5.750E-02	0.390
		285.00		-3.666E-02	1.390E+00	2.213E+00	2.642E-01	-0.017

# 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]G246444002        *
* Acquisition date   : 19-FEB-2010 20:39:02 Detector SN# :                   *
* Detector ID        : GAM16          Sensitivity       : 5.000              *
* Geometry           : CAN            Energy tolerance  : 1.500              *
* Elapsed live time  : 0 02:00:00.00  Abundance limit   : 75.000            *
* Elapsed real time  : 0 02:00:02.00  Half life ratio   : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date       : 3-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID         : G246444002      Analyst initials: MXR1                 *
* Batch Number      : 950788          Sample Quantity   : 1.4227E+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 )	
BE-7	5.405E-01	4.196E-01	4.555E-01	0.000E+00
K-40	3.529E+01	3.518E+00	4.946E-01	0.000E+00
CD-109	1.621E+00	8.868E-01	9.930E-01	0.000E+00
SN-126	1.591E-01	8.701E-02	1.135E-01	0.000E+00
BA-137M	7.874E-02	4.427E-02	5.458E-02	0.000E+00
CS-137	8.324E-02	4.680E-02	5.770E-02	0.000E+00
TL-208	4.405E-01	7.668E-02	5.261E-02	0.000E+00
BI-211	3.095E+00	4.829E-01	2.708E-01	0.000E+00
PB-212	1.297E+00	1.757E-01	7.500E-02	0.000E+00
PO-212	1.297E+00	1.757E-01	7.500E-02	0.000E+00
BI-214	9.539E-01	1.643E-01	1.009E-01	0.000E+00
PB-214	1.077E+00	1.768E-01	9.438E-02	0.000E+00
PO-214	1.077E+00	1.768E-01	9.438E-02	0.000E+00
PO-216	1.297E+00	1.757E-01	7.500E-02	0.000E+00
PO-218	1.077E+00	1.768E-01	9.438E-02	0.000E+00
RA-224	3.951E+00	1.153E+00	8.535E-01	0.000E+00
RA-226	9.539E-01	1.643E-01	1.009E-01	0.000E+00
AC-228	1.245E+00	2.896E-01	1.900E-01	0.000E+00
RA-228	1.245E+00	2.896E-01	1.900E-01	0.000E+00
TH-228	1.318E+00	1.786E-01	7.623E-02	0.000E+00
TH-230	9.538E-01	1.643E-01	1.009E-01	0.000E+00
TH-232	1.245E+00	2.896E-01	1.900E-01	0.000E+00
TH-234	3.290E+00	1.760E+00	1.695E+00	0.000E+00
U-234	9.538E-01	1.643E-01	1.009E-01	0.000E+00
NP-237	4.671E-01	2.724E-01	3.376E-01	0.000E+00
U-238	3.290E+00	1.760E+00	1.695E+00	0.000E+00
AM-243	2.887E-01	5.726E-02	7.324E-02	0.000E+00
ANH-511	8.657E-02	6.005E-02	3.945E-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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NA-22	-2.195E-03	4.091E-02	6.784E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.248E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.534E-02	2.336E-02	4.420E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.766E-02	6.172E-02	0.000E+00	FAIL ABUN
SC-46	-2.955E-02	2.976E-02	4.600E-02	0.000E+00	FAIL ABUN
V-48	5.447E-03	5.970E-02	1.032E-01	0.000E+00	NOT IDENT.
CR-51	-9.373E-02	3.169E-01	5.203E-01	0.000E+00	NOT IDENT.
MN-52	6.906E-02	2.181E-01	3.764E-01	0.000E+00	NOT IDENT.
MN-54	-1.030E-02	3.124E-02	5.298E-02	0.000E+00	NOT IDENT.
CO-56	9.798E-03	3.310E-02	5.897E-02	0.000E+00	NOT IDENT.
CO-57	7.573E-03	1.965E-02	3.610E-02	0.000E+00	NOT IDENT.
CO-58	-5.240E-03	3.059E-02	5.263E-02	0.000E+00	NOT IDENT.
FE-59	6.351E-02	7.861E-02	1.428E-01	0.000E+00	NOT IDENT.
CO-60	-2.483E-02	3.553E-02	5.375E-02	0.000E+00	NOT IDENT.
ZN-65	1.018E-01	8.245E-02	1.395E-01	0.000E+00	NOT IDENT.
GE-68	5.576E-01	1.074E+00	1.909E+00	0.000E+00	NOT IDENT.
AS-73	3.428E-01	6.678E-01	1.179E+00	0.000E+00	NOT IDENT.
AS-74	1.581E-02	8.067E-02	1.396E-01	0.000E+00	NOT IDENT.
SE-75	-1.622E-03	3.717E-02	6.321E-02	0.000E+00	NOT IDENT.
BR-77	3.957E-01	1.207E+01	2.089E+01	0.000E+00	FAIL ABUN
SR-82	-1.995E-01	3.504E-01	5.499E-01	0.000E+00	NOT IDENT.
RB-83	-3.537E-03	5.567E-02	9.564E-02	0.000E+00	NOT IDENT.
RB-84	2.604E-02	6.080E-02	1.091E-01	0.000E+00	NOT IDENT.
KR-85	7.273E+00	6.569E+00	1.092E+01	0.000E+00	NOT IDENT.
SR-85	3.778E-02	3.412E-02	5.673E-02	0.000E+00	NOT IDENT.
RB-86	-1.870E-01	7.434E-01	1.233E+00	0.000E+00	NOT IDENT.
Y-88	3.696E-03	2.466E-02	4.268E-02	0.000E+00	NOT IDENT.
ZR-88	4.450E-04	2.401E-02	4.257E-02	0.000E+00	NOT IDENT.
Y-91	1.530E+01	1.852E+01	3.301E+01	0.000E+00	NOT IDENT.
NB-94	3.838E-02	2.739E-02	5.094E-02	0.000E+00	NOT IDENT.
NB-95	4.358E-04	3.695E-02	6.145E-02	0.000E+00	NOT IDENT.
NB-95M	-2.060E-02	1.116E-01	1.691E-01	0.000E+00	NOT IDENT.
ZR-95	-1.838E-02	6.329E-02	1.025E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.108E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	5.264E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	8.691E-01	1.485E+01	2.488E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.160E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.154E-03	2.692E-02	4.657E-02	0.000E+00	NOT IDENT.
RH-102	1.491E-02	2.707E-02	4.355E-02	0.000E+00	NOT IDENT.
RU-103	-1.335E-02	3.091E-02	5.161E-02	0.000E+00	FAIL ABUN
RH-106	9.455E-02	2.541E-01	4.444E-01	0.000E+00	FAIL ABUN
RU-106	9.455E-02	2.539E-01	4.444E-01	0.000E+00	FAIL ABUN
AG-108M	7.503E-03	2.519E-02	4.510E-02	0.000E+00	NOT IDENT.
AG-110M	-1.881E-02	3.406E-02	4.682E-02	0.000E+00	NOT IDENT.
IN-111	4.979E-01	1.207E+00	1.902E+00	0.000E+00	NOT IDENT.
IN-113M	3.628E-02	3.421E-02	6.428E-02	0.000E+00	NOT IDENT.
SN-113	3.628E-02	3.421E-02	6.428E-02	0.000E+00	NOT IDENT.
IN-114M	1.824E-01	1.528E-01	2.559E-01	0.000E+00	NOT IDENT.
CD-115	4.501E+00	1.242E+01	2.201E+01	0.000E+00	NOT IDENT.
SN-117M	-1.065E-02	4.391E-02	7.711E-02	0.000E+00	NOT IDENT.
SB-122	1.614E+00	2.335E+00	4.200E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.081E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-7.662E-03	2.143E-02	3.741E-02	0.000E+00	NOT IDENT.
I-124	-3.364E-01	7.393E-01	1.112E+00	0.000E+00	NOT IDENT.
SB-124	3.889E-02	5.959E-02	1.123E-01	0.000E+00	FAIL ABUN
SB-125	-4.622E-02	6.823E-02	1.138E-01	0.000E+00	FAIL ABUN
TE-125M	-4.556E+00	7.245E+00	1.286E+01	0.000E+00	NOT IDENT.
I-126	-1.408E-02	1.925E-01	2.811E-01	0.000E+00	NOT IDENT.
SB-126	6.880E-02	1.307E-01	2.216E-01	0.000E+00	FAIL ABUN
SB-127	-1.970E-01	1.452E+00	2.411E+00	0.000E+00	NOT IDENT.
XE-127	-3.390E-02	3.894E-02	6.481E-02	0.000E+00	NOT IDENT.
I-131	-7.731E-02	1.012E-01	1.714E-01	0.000E+00	NOT IDENT.
TE-132	-3.609E-02	7.470E-01	1.286E+00	0.000E+00	NOT IDENT.
BA-133	3.146E-03	3.957E-02	6.181E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.368E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.471E-02	3.842E-02	7.075E-02	0.000E+00	NOT IDENT.
CS-135	4.847E-02	1.470E-01	2.280E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.280E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.511E-02	1.008E-01	1.643E-01	0.000E+00	FAIL ABUN
CE-139	-1.169E-02	2.419E-02	4.189E-02	0.000E+00	NOT IDENT.
BA-140	-6.066E-02	2.338E-01	3.932E-01	0.000E+00	NOT IDENT.
LA-140	-3.308E-02	7.295E-02	1.154E-01	0.000E+00	NOT IDENT.
CE-141	-1.500E-02	5.008E-02	8.838E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.075E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.187E-02	1.700E-01	2.669E-01	0.000E+00	NOT IDENT.
PM-144	-1.058E-02	2.828E-02	4.547E-02	0.000E+00	FAIL ABUN
PR-144	-7.171E-01	1.918E+00	3.083E+00	0.000E+00	NOT IDENT.

PM-146	-2.799E-03	3.503E-02	6.090E-02	0.000E+00	NOT IDENT.
ND-147	-3.838E-01	5.079E-01	8.184E-01	0.000E+00	FAIL ABUN
PM-149	-9.498E+01	1.087E+02	1.714E+02	0.000E+00	NOT IDENT.
EU-152	-5.741E-02	7.990E-02	1.319E-01	0.000E+00	NOT IDENT.
GD-153	1.295E-02	6.649E-02	1.109E-01	0.000E+00	NOT IDENT.
EU-154	-3.133E-02	1.163E-01	1.888E-01	0.000E+00	NOT IDENT.
EU-155	4.356E-02	8.321E-02	1.549E-01	0.000E+00	FAIL ABUN
TB-160	9.764E-02	1.191E-01	2.200E-01	0.000E+00	FAIL ABUN
HO-166M	-3.908E-02	5.354E-02	8.372E-02	0.000E+00	NOT IDENT.
TM-171	4.177E+00	2.401E+01	3.774E+01	0.000E+00	NOT IDENT.
LU-176	2.129E-02	1.976E-02	3.535E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	1.323E+00	1.906E+00	0.000E+00	FAIL ABUN
LU-177M	-8.406E-02	1.592E-01	2.349E-01	0.000E+00	FAIL ABUN
HF-181	-5.283E-03	4.030E-02	6.075E-02	0.000E+00	NOT IDENT.
W-181	-7.438E-03	3.108E-01	4.847E-01	0.000E+00	NOT IDENT.
TA-182	-5.052E-02	1.880E-01	3.078E-01	0.000E+00	FAIL ABUN
RE-183	-9.668E-03	8.692E-02	1.495E-01	0.000E+00	FAIL ABUN
RE-184	1.350E-01	1.855E-01	3.297E-01	0.000E+00	NOT IDENT.
OS-185	-1.820E-02	3.605E-02	5.819E-02	0.000E+00	NOT IDENT.
RE-188	6.996E-02	1.388E-01	2.518E-01	0.000E+00	FAIL ABUN
W-188	3.715E+00	6.514E+00	1.024E+01	0.000E+00	FAIL ABUN
IR-192	-3.007E-02	2.909E-02	4.499E-02	0.000E+00	FAIL ABUN
AU-195	2.676E-01	1.760E-01	3.377E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.897E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	8.609E+00	7.230E+00	1.338E+01	0.000E+00	NOT IDENT.
TL-202	5.098E-02	5.872E-02	1.085E-01	0.000E+00	NOT IDENT.
HG-203	-1.149E-03	3.461E-02	5.862E-02	0.000E+00	NOT IDENT.
BI-207	3.021E-02	5.112E-02	9.037E-02	0.000E+00	FAIL ABUN
TL-207	4.211E-01	5.305E-01	9.258E-01	0.000E+00	FAIL ABUN
PO-209	2.454E+00	6.397E+00	1.142E+01	0.000E+00	NOT IDENT.
BI-210	2.454E+00	2.995E+00	5.358E+00	0.000E+00	NOT IDENT.
PB-210	2.454E+00	2.995E+00	5.358E+00	0.000E+00	NOT IDENT.
PO-210	2.454E+00	2.993E+00	5.358E+00	0.000E+00	NOT IDENT.
PB-211	1.458E-01	8.477E-01	1.331E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.079E-01	5.998E-01	0.000E+00	FAIL ABUN
PO-215	4.211E-01	5.305E-01	9.258E-01	0.000E+00	FAIL ABUN
RN-219	1.431E-02	3.385E-01	5.998E-01	0.000E+00	FAIL ABUN
RN-220	2.110E+01	2.191E+01	4.015E+01	0.000E+00	NOT IDENT.
RA-223	4.211E-01	5.305E-01	9.258E-01	0.000E+00	FAIL ABUN
AC-227	-1.088E-01	3.181E-01	5.325E-01	0.000E+00	FAIL ABUN
TH-227	-1.088E-01	3.183E-01	5.325E-01	0.000E+00	FAIL ABUN
TH-229	-3.301E-01	4.017E-01	6.632E-01	0.000E+00	FAIL ABUN
PA-231	-1.587E-01	1.179E+00	1.980E+00	0.000E+00	FAIL ABUN
TH-231	4.211E-01	5.305E-01	9.258E-01	0.000E+00	FAIL ABUN
U-231	-4.118E-01	1.091E+00	1.770E+00	0.000E+00	FAIL ABUN
PA-233	4.062E-02	5.341E-02	9.380E-02	0.000E+00	FAIL ABUN
PA-234	7.222E-02	2.527E-01	4.453E-01	0.000E+00	FAIL ABUN
PA-234M	8.213E+00	4.261E+00	8.229E+00	0.000E+00	FAIL ABUN
U-235	-1.458E-02	1.714E-01	3.003E-01	0.000E+00	FAIL ABUN
NP-236	-3.435E-02	5.965E-02	1.029E-01	0.000E+00	NOT IDENT.
NP-239	6.832E-03	1.454E-01	2.643E-01	0.000E+00	FAIL ABUN
AM-241	2.356E-02	1.347E-01	2.139E-01	0.000E+00	NOT IDENT.
CM-243	4.144E-02	7.365E-02	1.375E-01	0.000E+00	FAIL ABUN
AM-246	9.367E-02	1.231E-01	2.230E-01	0.000E+00	NOT IDENT.
CM-247	1.909E-02	2.957E-02	5.418E-02	0.000E+00	NOT IDENT.
CF-249	-2.777E-02	3.079E-02	5.122E-02	0.000E+00	NOT IDENT.
CF-251	-6.778E-02	9.913E-02	1.687E-01	0.000E+00	NOT IDENT.

## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:39:30.98

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444002.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:39:02
Sample ID          : G246444002      Sample quantity   : 1.42270E+02 GRAM
Detector name      : GAM16           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:02.00  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 950788          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
BE-7	477.59	54	10.42*	3.124E+00	4.370E-01	5.405E-01	79.21
K-40	1460.81	1724	10.67*	1.208E+00	3.529E+01	3.529E+01	10.17
CD-109	88.03	139	3.72*	6.225E+00	1.582E+00	1.621E+00	55.82
SN-126	64.28	165	9.60	3.485E+00	1.302E+00	1.302E+00	53.73
	86.94	139	8.90	6.225E+00	6.612E-01	6.612E-01	68.93
	87.57	139	37.00*	6.225E+00	1.591E-01	1.591E-01	55.82
BA-137M	661.65	65	89.98*	2.405E+00	7.866E-02	7.874E-02	57.37
CS-137	661.65	65	85.12*	2.405E+00	8.315E-02	8.324E-02	57.37
TL-208	277.35	-----	6.80	4.695E+00	-----	Line Not Found	-----
	510.84	97	21.60	2.965E+00	4.008E-01	4.008E-01	71.27
	583.14	375	84.20*	2.667E+00	4.405E-01	4.405E-01	17.76
	860.37	66	12.46	1.920E+00	7.285E-01	7.285E-01	50.75
BI-211	72.87	-----	1.27	4.872E+00	-----	Line Not Found	-----
	351.07	598	12.94*	3.941E+00	3.095E+00	3.095E+00	15.92
PB-212	74.81	369	10.70	5.108E+00	1.781E+00	1.781E+00	22.29
	77.11	597	18.00	5.364E+00	1.632E+00	1.632E+00	16.15
	87.30	139	8.00	6.225E+00	7.356E-01	7.356E-01	56.71
	238.63	1145	44.60*	5.226E+00	1.297E+00	1.297E+00	13.83
	300.09	99	3.41	4.431E+00	1.726E+00	1.726E+00	60.34
PO-212	74.81	369	10.70	5.108E+00	1.781E+00	1.781E+00	22.29
	77.11	597	18.00	5.364E+00	1.632E+00	1.632E+00	16.15
	87.30	139	8.00	6.225E+00	7.356E-01	7.356E-01	56.71
	115.19	-----	0.60	7.166E+00	-----	Line Not Found	-----
	238.63	1145	44.60*	5.226E+00	1.297E+00	1.297E+00	13.83
	300.09	99	3.41	4.431E+00	1.726E+00	1.726E+00	60.34
BI-214	609.31	431	46.30*	2.575E+00	9.538E-01	9.539E-01	17.57
	1120.29	111	15.10	1.516E+00	1.277E+00	1.277E+00	33.95
	1764.49	68	15.80	1.056E+00	1.070E+00	1.070E+00	28.31
PB-214	74.81	369	6.21	5.108E+00	3.068E+00	3.068E+00	21.55
	77.11	597	10.50	5.364E+00	2.798E+00	2.798E+00	17.86
	87.30	139	4.67	6.225E+00	1.260E+00	1.260E+00	56.35
	241.98	306	7.49	5.181E+00	2.084E+00	2.084E+00	30.30

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	347	19.20	4.487E+00	1.063E+00	1.063E+00	22.29
	351.92	598	37.20*	3.941E+00	1.077E+00	1.077E+00	16.75
	74.81	369	6.21	5.108E+00	3.068E+00	3.068E+00	21.55
	77.11	597	10.50	5.364E+00	2.798E+00	2.798E+00	17.86
	87.30	139	4.67	6.225E+00	1.260E+00	1.260E+00	56.35
	241.98	306	7.49	5.181E+00	2.084E+00	2.084E+00	30.30
PO-216	295.21	347	19.20	4.487E+00	1.063E+00	1.063E+00	22.29
	351.92	598	37.20*	3.941E+00	1.077E+00	1.077E+00	16.75
	74.81	369	10.70	5.108E+00	1.781E+00	1.781E+00	22.29
	77.11	597	18.00	5.364E+00	1.632E+00	1.632E+00	16.15
	87.30	139	8.00	6.225E+00	7.356E-01	7.356E-01	56.71
	238.63	1145	44.60*	5.226E+00	1.297E+00	1.297E+00	13.83
PO-218	300.09	99	3.41	4.431E+00	1.726E+00	1.726E+00	60.34
	74.81	369	6.21	5.108E+00	3.068E+00	3.068E+00	21.55
	77.11	597	10.50	5.364E+00	2.798E+00	2.798E+00	17.86
	87.30	139	4.67	6.225E+00	1.260E+00	1.260E+00	56.35
	241.98	306	7.49	5.181E+00	2.084E+00	2.084E+00	30.30
	295.21	347	19.20	4.487E+00	1.063E+00	1.063E+00	22.29
RA-224	351.92	598	37.20*	3.941E+00	1.077E+00	1.077E+00	16.75
	240.98	306	3.95*	5.181E+00	3.951E+00	3.951E+00	29.78
RA-226	609.31	431	46.30*	2.575E+00	9.538E-01	9.539E-01	17.57
	1120.29	111	15.10	1.516E+00	1.277E+00	1.277E+00	33.95
AC-228	1764.49	68	15.80	1.056E+00	1.070E+00	1.070E+00	28.31
	338.32	213	11.40	4.058E+00	1.215E+00	1.215E+00	52.30
	911.07	239	27.70*	1.825E+00	1.245E+00	1.245E+00	23.73
RA-228	969.11	150	16.60	1.727E+00	1.379E+00	1.379E+00	35.30
	338.32	213	11.40	4.058E+00	1.215E+00	1.215E+00	52.30
	911.07	239	27.70*	1.825E+00	1.245E+00	1.245E+00	23.73
TH-228	969.11	150	16.60	1.727E+00	1.379E+00	1.379E+00	35.30
	74.81	369	10.70	5.108E+00	1.781E+00	1.810E+00	20.27
	77.11	597	18.00	5.364E+00	1.632E+00	1.659E+00	16.15
TH-230	87.30	139	8.00	6.225E+00	7.356E-01	7.477E-01	55.82
	238.63	1145	44.60*	5.226E+00	1.297E+00	1.318E+00	13.83
	300.09	99	3.41	4.431E+00	1.726E+00	1.754E+00	83.94
	609.31	431	46.30*	2.575E+00	9.538E-01	9.538E-01	17.57
	1120.29	111	15.10	1.516E+00	1.277E+00	1.277E+00	33.95
	1764.49	68	15.80	1.056E+00	1.070E+00	1.070E+00	28.31
TH-232	338.32	213	11.40	4.058E+00	1.215E+00	1.215E+00	33.28
	911.07	239	27.70*	1.825E+00	1.245E+00	1.245E+00	23.73
	969.11	150	16.60	1.727E+00	1.379E+00	1.379E+00	35.30
TH-234	63.29	165	3.80*	3.485E+00	3.290E+00	3.290E+00	54.58
	92.38	401	5.41	6.595E+00	2.967E+00	2.967E+00	28.35
U-234	609.31	431	46.30*	2.575E+00	9.538E-01	9.538E-01	17.57
	1120.29	111	15.10	1.516E+00	1.277E+00	1.277E+00	33.95
	1764.49	68	15.80	1.056E+00	1.070E+00	1.070E+00	28.31
NP-237	86.50	139	12.60*	6.225E+00	4.671E-01	4.671E-01	59.51
	95.87	---	2.60	6.742E+00	-----	Line Not Found	-----
U-238	63.29	165	3.80*	3.485E+00	3.290E+00	3.290E+00	54.58
	92.38	401	5.41	6.595E+00	2.967E+00	2.967E+00	23.47

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	369	66.00*	5.108E+00	2.887E-01	2.887E-01	20.24
	86.72	139	0.34	6.225E+00	1.751E+01	1.751E+01	55.82
	117.66	-----	0.55	7.175E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.968E+00	-----	Line Not Found	-----
ANH-511	511.00	97	100.00*	2.965E+00	8.657E-02	8.657E-02	70.78

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 30 90.91%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BE-7	53.44D	1.24	4.370E-01	5.405E-01	4.282E-01	79.21	
K-40	1.28E+09Y	1.00	3.529E+01	3.529E+01	0.359E+01	10.17	
CD-109	464.00D	1.02	1.582E+00	1.621E+00	0.905E+00	55.82	
SN-126	1.00E+05Y	1.00	1.591E-01	1.591E-01	0.888E-01	55.82	
BA-137M	30.17Y	1.00	7.866E-02	7.874E-02	4.517E-02	57.37	
CS-137	30.17Y	1.00	8.315E-02	8.324E-02	4.775E-02	57.37	
TL-208	1.41E+10Y	1.00	4.405E-01	4.405E-01	0.782E-01	17.76	
BI-211	7.04E+08Y	1.00	3.095E+00	3.095E+00	0.493E+00	15.92	
PB-212	1.41E+10Y	1.00	1.297E+00	1.297E+00	0.179E+00	13.83	
PO-212	1.41E+10Y	1.00	1.297E+00	1.297E+00	0.179E+00	13.83	
BI-214	1600.00Y	1.00	9.538E-01	9.539E-01	1.676E-01	17.57	
PB-214	1600.00Y	1.00	1.077E+00	1.077E+00	0.180E+00	16.75	
PO-214	1600.00Y	1.00	1.077E+00	1.077E+00	0.180E+00	16.75	
PO-216	1.41E+10Y	1.00	1.297E+00	1.297E+00	0.179E+00	13.83	
PO-218	1600.00Y	1.00	1.077E+00	1.077E+00	0.180E+00	16.75	
RA-224	1.41E+10Y	1.00	3.951E+00	3.951E+00	1.177E+00	29.78	
RA-226	1600.00Y	1.00	9.538E-01	9.539E-01	1.676E-01	17.57	
AC-228	1.41E+10Y	1.00	1.245E+00	1.245E+00	0.295E+00	23.73	
RA-228	1.41E+10Y	1.00	1.245E+00	1.245E+00	0.295E+00	23.73	
TH-228	1.91Y	1.02	1.297E+00	1.318E+00	0.182E+00	13.83	
TH-230	4.47E+09Y	1.00	9.538E-01	9.538E-01	1.676E-01	17.57	
TH-232	1.41E+10Y	1.00	1.245E+00	1.245E+00	0.295E+00	23.73	
TH-234	4.47E+09Y	1.00	3.290E+00	3.290E+00	1.796E+00	54.58	
U-234	4.47E+09Y	1.00	9.538E-01	9.538E-01	1.676E-01	17.57	
NP-237	2.14E+06Y	1.00	4.671E-01	4.671E-01	2.780E-01	59.51	
U-238	4.47E+09Y	1.00	3.290E+00	3.290E+00	1.796E+00	54.58	
AM-243	7380.00Y	1.00	2.887E-01	2.887E-01	0.584E-01	20.24	
ANH-511	1.00E+09Y	1.00	8.657E-02	8.657E-02	6.127E-02	70.78	

Total Activity : 6.851E+01 6.867E+01

Grand Total Activity : 6.851E+01 6.867E+01

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

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

Unidentified Energy Lines  
Sample ID : G246444002

Page : 5  
Acquisition date : 19-FEB-2010 20:39:02

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	90.05	141	306	1.09	180.30	178	14	1.96E-02	39.7	6.44E+00	T
0	128.86	77	354	0.95	257.91	255	8	1.07E-02	88.0	7.13E+00	T
0	185.97	223	393	1.27	372.14	368	10	3.10E-02	37.6	6.14E+00	T
0	208.89	105	248	1.66	417.97	414	8	1.46E-02	55.2	5.72E+00	T
0	269.77	50	328	1.34	539.73	537	12	6.88E-03	****	4.79E+00	T
0	409.31	70	104	1.74	818.79	814	9	9.77E-03	57.3	3.52E+00	
0	463.99	83	176	1.54	928.15	920	16	1.16E-02	74.4	3.19E+00	T
0	727.36	92	115	1.72	1454.82	1449	16	1.28E-02	54.7	2.22E+00	T
0	933.74	45	36	0.89	1867.47	1861	11	6.28E-03	59.3	1.78E+00	
0	1001.12	44	27	1.87	2002.20	1999	7	6.09E-03	51.9	1.68E+00	T
0	1729.06	28	11	2.17	3457.45	3449	14	3.93E-03	61.5	1.07E+00	

Flags: "T" = Tentatively associated

## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:39:35.56

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444002.CNF;1  *
* Acquisition date   : 19-FEB-2010 20:39:02  Detector SN#      :              *
* Detector ID        : GAM16              Sensitivity          : 5.00000      *
* Geometry           : CAN              Energy tolerance       : 1.50000      *
* Elapsed live time  : 0 02:00:00.00      Abundance limit      : 75.00000      *
* Elapsed real time  : 0 02:00:02.00      Half life ratio     : 8.00000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00.  Nuclide Library    : SOLID        *
* Sample ID          : G246444002          Analyst initials   : MXR1         *
* Batch Number       : 950788              Sample Quantity    : 1.42270E+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
BE-7	5.405E-01	4.282E-01	4.426E-01	4.477E-02	1.221
K-40	3.529E+01	3.590E+00	4.924E-01	4.328E-02	71.669
CD-109	1.621E+00	9.049E-01	9.318E-01	8.979E-02	1.740
SN-126	1.591E-01	8.878E-02	1.065E-01	1.021E-02	1.494
BA-137M	7.874E-02	4.517E-02	5.340E-02	4.739E-03	1.474
CS-137	8.324E-02	4.775E-02	5.645E-02	5.019E-03	1.474
TL-208	4.405E-01	7.825E-02	5.133E-02	5.088E-03	8.581
BI-211	3.095E+00	4.928E-01	2.614E-01	2.858E-02	11.844
PB-212	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
PO-212	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
BI-214	9.539E-01	1.676E-01	9.850E-02	1.041E-02	9.683
PB-214	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818
PO-214	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818
PO-216	1.297E+00	1.793E-01	7.182E-02	8.503E-03	18.056
PO-218	1.077E+00	1.804E-01	9.111E-02	1.102E-02	11.818
RA-224	3.951E+00	1.177E+00	8.174E-01	9.008E-02	4.834
RA-226	9.539E-01	1.676E-01	9.850E-02	1.041E-02	9.683
AC-228	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652
TH-228	1.318E+00	1.823E-01	7.300E-02	8.643E-03	18.056
TH-230	9.538E-01	1.676E-01	9.850E-02	1.041E-02	9.683
TH-232	1.245E+00	2.955E-01	1.872E-01	2.224E-02	6.652
TH-234	3.290E+00	1.796E+00	1.580E+00	2.756E-01	2.082
U-234	9.538E-01	1.676E-01	9.850E-02	1.041E-02	9.683
NP-237	4.671E-01	2.780E-01	3.167E-01	7.189E-02	1.475
U-238	3.290E+00	1.796E+00	1.580E+00	2.756E-01	2.082
AM-243	2.887E-01	5.843E-02	6.850E-02	5.671E-03	4.214
ANH-511	8.657E-02	6.127E-02	3.838E-02	3.650E-03	2.256

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	-2.195E-03		4.175E-02	6.734E-02	5.603E-03	-0.033
NA-24	-5.306E-01		1.147E+00	Half-Life	too short	
AL-26	1.534E-02		2.383E-02	4.422E-02	3.616E-03	0.347
TI-44	3.012E-01	+	4.864E-02	5.778E-02	4.976E-03	5.212
SC-46	-2.955E-02		3.037E-02	4.529E-02	4.282E-03	-0.652
V-48	5.447E-03		6.092E-02	1.019E-01	9.376E-03	0.053
CR-51	-9.373E-02		3.234E-01	5.013E-01	5.861E-02	-0.187
MN-52	6.906E-02		2.226E-01	3.746E-01	3.196E-02	0.184
MN-54	-1.030E-02		3.188E-02	5.209E-02	4.893E-03	-0.198
CO-56	9.798E-03		3.377E-02	5.801E-02	5.459E-03	0.169
CO-57	7.573E-03		2.005E-02	3.409E-02	2.833E-03	0.222
CO-58	-5.240E-03		3.121E-02	5.172E-02	4.845E-03	-0.101
FE-59	6.351E-02		8.021E-02	1.412E-01	1.313E-02	0.450
CO-60	-2.483E-02		3.625E-02	5.340E-02	4.504E-03	-0.465
ZN-65	1.018E-01		8.413E-02	1.380E-01	1.172E-02	0.737
GE-68	5.576E-01		1.096E+00	1.888E+00	1.649E-01	0.295
AS-73	3.428E-01		6.815E-01	1.095E+00	8.355E-02	0.313
AS-74	1.581E-02		8.232E-02	1.362E-01	1.264E-02	0.116
SE-75	-1.622E-03		3.793E-02	6.065E-02	7.078E-03	-0.027
BR-77	3.957E-01		1.232E+01	2.034E+01	1.932E+00	0.019
SR-82	-1.995E-01		3.576E-01	5.399E-01	5.006E-02	-0.369
RB-83	-3.537E-03		5.681E-02	9.309E-02	8.846E-03	-0.038
RB-84	2.604E-02		6.204E-02	1.074E-01	1.015E-02	0.242
KR-85	7.273E+00		6.703E+00	1.063E+01	1.010E+00	0.684
SR-85	3.778E-02		3.482E-02	5.521E-02	5.249E-03	0.684
RB-86	-1.870E-01		7.586E-01	1.219E+00	1.065E-01	-0.153
Y-88	3.696E-03		2.516E-02	4.271E-02	3.468E-03	0.087
ZR-88	4.450E-04		2.450E-02	4.119E-02	3.810E-03	0.011
Y-91	1.530E+01		1.890E+01	3.272E+01	2.661E+00	0.468
NB-94	3.838E-02		2.794E-02	4.990E-02	4.511E-03	0.769
NB-95	4.358E-04		3.770E-02	6.031E-02	5.575E-03	0.007
NB-95M	-2.060E-02		1.138E-01	1.618E-01	1.924E-02	-0.127
ZR-95	-1.838E-02		6.458E-02	1.006E-01	1.009E-02	-0.183

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	-6.826E-02		1.586E-01	Half-Life too short		
ZR-97	7.128E+00		2.686E+00	Half-Life too short		
MO-99	8.691E-01		1.515E+01	2.440E+01	3.783E+00	0.036
TC-99M	3.583E+11		4.673E+11	Half-Life too short		
RH-101	1.154E-03		2.747E-02	4.442E-02	4.386E-03	0.026
RH-102	1.491E-02		2.762E-02	4.230E-02	4.021E-03	0.353
RU-103	-1.335E-02		3.154E-02	5.018E-02	7.389E-03	-0.266
RH-106	9.455E-02		2.593E-01	4.342E-01	5.950E-02	0.218
RU-106	9.455E-02		2.591E-01	4.342E-01	3.971E-02	0.218
AG-108M	7.503E-03		2.570E-02	4.373E-02	4.256E-03	0.172
AG-110M	-1.881E-02		3.475E-02	4.580E-02	4.192E-03	-0.411
IN-111	4.979E-01		1.231E+00	1.822E+00	2.029E-01	0.273
IN-113M	3.628E-02		3.491E-02	6.219E-02	5.903E-03	0.583
SN-113	3.628E-02		3.491E-02	6.219E-02	5.903E-03	0.583
IN-114M	1.824E-01		1.559E-01	2.439E-01	2.359E-02	0.748
CD-115	4.501E+00		1.267E+01	2.143E+01	2.034E+00	0.210
SN-117M	-1.065E-02		4.480E-02	7.322E-02	6.503E-03	-0.145
SB-122	1.614E+00		2.382E+00	4.095E+00	3.852E-01	0.394
I-123	-7.442E+00		1.062E+01	Half-Life too short		
TE-123M	-7.662E-03		2.187E-02	3.553E-02	3.177E-03	-0.216
I-124	-3.364E-01		7.544E-01	1.086E+00	1.004E-01	-0.310
SB-124	3.889E-02		6.081E-02	1.122E-01	9.827E-03	0.347
SB-125	-4.622E-02		6.962E-02	1.103E-01	1.054E-02	-0.419
TE-125M	-4.556E+00		7.393E+00	1.212E+01	1.234E+00	-0.376
I-126	-1.408E-02		1.964E-01	2.750E-01	2.446E-02	-0.051
SB-126	6.880E-02		1.334E-01	2.172E-01	1.977E-02	0.317
SB-127	-1.970E-01		1.481E+00	2.360E+00	2.836E-01	-0.083
XE-127	-3.390E-02		3.973E-02	6.185E-02	6.186E-03	-0.548
I-131	-7.731E-02		1.033E-01	1.656E-01	1.752E-02	-0.467
TE-132	-3.609E-02		7.622E-01	1.231E+00	2.110E-01	-0.029
BA-133	3.146E-03		4.038E-02	5.968E-02	8.624E-03	0.053
I-133	-1.486E-02		6.978E-03	Half-Life too short		
CS-134	3.471E-02		3.920E-02	6.949E-02	6.516E-03	0.499
CS-135	4.847E-02		1.500E-01	2.189E-01	2.791E-02	0.221
I-135	-3.120E+09		6.531E+10	Half-Life too short		
CS-136	-4.511E-02		1.029E-01	1.624E-01	1.503E-02	-0.278
CE-139	-1.169E-02		2.469E-02	3.982E-02	3.611E-03	-0.294
BA-140	-6.066E-02		2.386E-01	3.830E-01	1.278E-01	-0.158
LA-140	-3.308E-02		7.444E-02	1.151E-01	9.804E-03	-0.287
CE-141	-1.500E-02		5.111E-02	8.377E-02	7.328E-03	-0.179
CE-143	8.025E-04		1.569E-04	Half-Life too short		
CE-144	-7.187E-02		1.735E-01	2.526E-01	3.901E-02	-0.285
PM-144	-1.058E-02		2.886E-02	4.454E-02	4.017E-03	-0.237
PR-144	-7.171E-01		1.957E+00	3.020E+00	2.723E-01	-0.237
PM-146	-2.799E-03		3.574E-02	5.911E-02	6.750E-03	-0.047
ND-147	-3.838E-01		5.183E-01	7.969E-01	1.233E-01	-0.482
PM-149	-9.498E+01		1.109E+02	1.647E+02	2.899E+01	-0.577
EU-152	-5.741E-02		8.153E-02	1.273E-01	1.422E-02	-0.451

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	1.295E-02		6.784E-02	1.043E-01	9.267E-03	0.124
EU-154	-3.133E-02		1.187E-01	1.874E-01	2.075E-02	-0.167
EU-155	4.356E-02		8.491E-02	1.459E-01	1.262E-02	0.299
TB-160	9.764E-02		1.215E-01	2.166E-01	2.046E-02	0.451
HO-166M	-3.908E-02		5.463E-02	8.204E-02	7.444E-03	-0.476
TM-171	4.177E+00		2.450E+01	3.522E+01	2.698E+00	0.119
LU-176	2.129E-02		2.016E-02	3.403E-02	3.947E-03	0.626
LU-177	2.407E+00	+	1.350E+00	1.820E+00	1.847E-01	1.323
LU-177M	-8.406E-02		1.624E-01	2.275E-01	2.127E-02	-0.369
HF-181	-5.283E-03		4.113E-02	5.904E-02	5.615E-03	-0.089
W-181	-7.438E-03		3.171E-01	4.521E-01	3.414E-02	-0.016
TA-182	-5.052E-02		1.918E-01	3.052E-01	2.496E-02	-0.166
RE-183	-9.668E-03		8.869E-02	1.420E-01	1.275E-02	-0.068
RE-184	1.350E-01		1.893E-01	3.160E-01	3.582E-02	0.427
OS-185	-1.820E-02		3.678E-02	5.690E-02	5.115E-03	-0.320
RE-188	6.996E-02		1.416E-01	2.390E-01	2.102E-02	0.293
W-188	3.715E+00		6.647E+00	9.846E+00	1.168E+00	0.377
IR-192	-3.007E-02		2.969E-02	4.333E-02	4.952E-03	-0.694
AU-195	2.676E-01		1.795E-01	3.176E-01	2.797E-02	0.843
TL-200	9.999E-04		4.029E-04	Half-Life too short		
TL-201	8.609E+00		7.378E+00	1.272E+01	1.158E+00	0.677
TL-202	5.098E-02		5.992E-02	1.053E-01	9.935E-03	0.484
HG-203	-1.149E-03		3.532E-02	5.632E-02	6.863E-03	-0.020
BI-207	3.021E-02		5.216E-02	8.933E-02	7.875E-03	0.338
TL-207	4.211E-01		5.413E-01	8.921E-01	1.706E-01	0.472
PO-209	2.454E+00		6.527E+00	1.124E+01	1.063E+00	0.218
BI-210	2.454E+00		3.056E+00	4.965E+00	4.630E-01	0.494
PB-210	2.454E+00		3.056E+00	4.965E+00	4.630E-01	0.494
PO-210	2.454E+00		3.054E+00	4.965E+00	4.194E-01	0.494
PB-211	1.458E-01		8.650E-01	1.289E+00	8.089E-01	0.113
BI-212	9.307E-01	+	5.182E-01	5.881E-01	6.144E-02	1.583
PO-215	4.211E-01		5.413E-01	8.921E-01	1.706E-01	0.472
RN-219	1.431E-02		3.454E-01	5.806E-01	8.955E-02	0.025
RN-220	2.110E+01		2.236E+01	3.912E+01	3.696E+00	0.539
RA-223	4.211E-01		5.413E-01	8.921E-01	1.706E-01	0.472
AC-227	-1.088E-01		3.246E-01	5.107E-01	8.721E-02	-0.213
TH-227	-1.088E-01		3.248E-01	5.107E-01	9.986E-02	-0.213
TH-229	-3.301E-01		4.099E-01	6.323E-01	6.170E-02	-0.522
PA-231	-1.587E-01		1.203E+00	1.903E+00	3.292E-01	-0.083
TH-231	4.211E-01		5.413E-01	8.921E-01	1.706E-01	0.472
U-231	-4.118E-01		1.113E+00	1.664E+00	1.494E-01	-0.247
PA-233	4.062E-02		5.450E-02	9.031E-02	1.056E-02	0.450
PA-234	7.222E-02		2.579E-01	4.391E-01	8.388E-02	0.164
PA-234M	8.213E+00	+	4.348E+00	8.124E+00	8.459E-01	1.011
U-235	-1.458E-02		1.749E-01	2.846E-01	4.974E-02	-0.051
NP-236	-3.435E-02		6.086E-02	9.774E-02	8.723E-03	-0.351
NP-239	6.832E-03		1.483E-01	2.495E-01	2.077E-02	0.027
AM-241	2.356E-02		1.375E-01	1.992E-01	1.563E-02	0.118

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.144E-02		7.515E-02	1.294E-01	1.112E-02	0.320
AM-246	9.367E-02		1.256E-01	2.205E-01	1.924E-02	0.425
CM-247	1.909E-02		3.017E-02	5.245E-02	4.877E-03	0.364
CF-249	-2.777E-02		3.142E-02	4.955E-02	4.648E-03	-0.560
CF-251	-6.778E-02		1.012E-01	1.606E-01	1.497E-02	-0.422

# 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]G246444002            *
* Acquisition date   : 19-FEB-2010 20:39:02 Detector SN#      :              *
* Detector ID        : GAM16                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00             Abundance limit: 75.000        *
* Elapsed real time  : 0 02:00:02.00             Half life ratio: 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G246444002             Analyst initials: MXR1          *
* Batch Number       : 950788                 Sample Quantity : 1.4227E+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
BE-7	5.405E-01	4.196E-01	2.279E-01	2.141E-01
K-40	3.529E+01	3.518E+00	2.474E-01	1.795E+00
CD-109	1.621E+00	8.868E-01	4.968E-01	4.525E-01
SN-126	1.591E-01	8.701E-02	5.678E-02	4.439E-02
BA-137M	7.874E-02	4.427E-02	2.731E-02	2.259E-02
CS-137	8.324E-02	4.680E-02	2.887E-02	2.388E-02
TL-208	4.405E-01	7.668E-02	2.632E-02	3.912E-02
BI-211	3.095E+00	4.829E-01	1.355E-01	2.464E-01
PB-212	1.297E+00	1.757E-01	3.752E-02	8.967E-02
PO-212	1.297E+00	1.757E-01	3.752E-02	8.967E-02
BI-214	9.539E-01	1.643E-01	5.046E-02	8.382E-02
PB-214	1.077E+00	1.768E-01	4.722E-02	9.020E-02
PO-214	1.077E+00	1.768E-01	4.722E-02	9.020E-02
PO-216	1.297E+00	1.757E-01	3.752E-02	8.967E-02
PO-218	1.077E+00	1.768E-01	4.722E-02	9.020E-02
RA-224	3.951E+00	1.153E+00	4.270E-01	5.884E-01
RA-226	9.539E-01	1.643E-01	5.046E-02	8.382E-02
AC-228	1.245E+00	2.896E-01	9.507E-02	1.477E-01
RA-228	1.245E+00	2.896E-01	9.507E-02	1.477E-01
TH-228	1.318E+00	1.786E-01	3.814E-02	9.114E-02
TH-230	9.538E-01	1.643E-01	5.046E-02	8.381E-02
TH-232	1.245E+00	2.896E-01	9.507E-02	1.477E-01
TH-234	3.290E+00	1.760E+00	8.478E-01	8.978E-01
U-234	9.538E-01	1.643E-01	5.046E-02	8.381E-02
NP-237	4.671E-01	2.724E-01	1.689E-01	1.390E-01
U-238	3.290E+00	1.760E+00	8.478E-01	8.978E-01
AM-243	2.887E-01	5.726E-02	3.664E-02	2.921E-02
ANH-511	8.657E-02	6.005E-02	1.974E-02	3.064E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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NA-22	-2.195E-03	4.091E-02	3.394E-02	2.087E-02	NOT IDENT.
NA-24	-5.306E+05	2.248E+06	0.000E+00	1.147E+06	SHORT HLIF
AL-26	1.534E-02	2.336E-02	2.211E-02	1.192E-02	NOT IDENT.
TI-44	3.012E-01	4.766E-02	3.088E-02	2.432E-02	FAIL ABUN
SC-46	-2.955E-02	2.976E-02	2.301E-02	1.518E-02	FAIL ABUN
V-48	5.447E-03	5.970E-02	5.164E-02	3.046E-02	NOT IDENT.
CR-51	-9.373E-02	3.169E-01	2.603E-01	1.617E-01	NOT IDENT.
MN-52	6.906E-02	2.181E-01	1.883E-01	1.113E-01	NOT IDENT.
MN-54	-1.030E-02	3.124E-02	2.650E-02	1.594E-02	NOT IDENT.
CO-56	9.798E-03	3.310E-02	2.950E-02	1.689E-02	NOT IDENT.
CO-57	7.573E-03	1.965E-02	1.806E-02	1.003E-02	NOT IDENT.
CO-58	-5.240E-03	3.059E-02	2.633E-02	1.561E-02	NOT IDENT.
FE-59	6.351E-02	7.861E-02	7.143E-02	4.011E-02	NOT IDENT.
CO-60	-2.483E-02	3.553E-02	2.689E-02	1.813E-02	NOT IDENT.
ZN-65	1.018E-01	8.245E-02	6.978E-02	4.207E-02	NOT IDENT.
GE-68	5.576E-01	1.074E+00	9.551E-01	5.480E-01	NOT IDENT.
AS-73	3.428E-01	6.678E-01	5.896E-01	3.407E-01	NOT IDENT.
AS-74	1.581E-02	8.067E-02	6.982E-02	4.116E-02	NOT IDENT.
SE-75	-1.622E-03	3.717E-02	3.162E-02	1.896E-02	NOT IDENT.
BR-77	3.957E-01	1.207E+01	1.045E+01	6.159E+00	FAIL ABUN
SR-82	-1.995E-01	3.504E-01	2.751E-01	1.788E-01	NOT IDENT.
RB-83	-3.537E-03	5.567E-02	4.785E-02	2.840E-02	NOT IDENT.
RB-84	2.604E-02	6.080E-02	5.459E-02	3.102E-02	NOT IDENT.
KR-85	7.273E+00	6.569E+00	5.464E+00	3.352E+00	NOT IDENT.
SR-85	3.778E-02	3.412E-02	2.838E-02	1.741E-02	NOT IDENT.
RB-86	-1.870E-01	7.434E-01	6.167E-01	3.793E-01	NOT IDENT.
Y-88	3.696E-03	2.466E-02	2.136E-02	1.258E-02	NOT IDENT.
ZR-88	4.450E-04	2.401E-02	2.130E-02	1.225E-02	NOT IDENT.
Y-91	1.530E+01	1.852E+01	1.652E+01	9.450E+00	NOT IDENT.
NB-94	3.838E-02	2.739E-02	2.548E-02	1.397E-02	NOT IDENT.
NB-95	4.358E-04	3.695E-02	3.074E-02	1.885E-02	NOT IDENT.
NB-95M	-2.060E-02	1.116E-01	8.458E-02	5.692E-02	NOT IDENT.
ZR-95	-1.838E-02	6.329E-02	5.127E-02	3.229E-02	NOT IDENT.
NB-97	-6.826E+04	3.108E+05	0.000E+00	1.586E+05	SHORT HLIF
ZR-97	7.128E+06	5.264E+06	0.000E+00	2.686E+06	SHORT HLIF
MO-99	8.691E-01	1.485E+01	1.245E+01	7.575E+00	NOT IDENT.
TC-99M	3.583E+17	9.160E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.154E-03	2.692E-02	2.330E-02	1.374E-02	NOT IDENT.
RH-102	1.491E-02	2.707E-02	2.179E-02	1.381E-02	NOT IDENT.
RU-103	-1.335E-02	3.091E-02	2.582E-02	1.577E-02	FAIL ABUN
RH-106	9.455E-02	2.541E-01	2.223E-01	1.296E-01	FAIL ABUN
RU-106	9.455E-02	2.539E-01	2.223E-01	1.295E-01	FAIL ABUN
AG-108M	7.503E-03	2.519E-02	2.256E-02	1.285E-02	NOT IDENT.
AG-110M	-1.881E-02	3.406E-02	2.342E-02	1.738E-02	NOT IDENT.
IN-111	4.979E-01	1.207E+00	9.515E-01	6.157E-01	NOT IDENT.
IN-113M	3.628E-02	3.421E-02	3.216E-02	1.746E-02	NOT IDENT.
SN-113	3.628E-02	3.421E-02	3.216E-02	1.746E-02	NOT IDENT.
IN-114M	1.824E-01	1.528E-01	1.280E-01	7.795E-02	NOT IDENT.
CD-115	4.501E+00	1.242E+01	1.101E+01	6.337E+00	NOT IDENT.
SN-117M	-1.065E-02	4.391E-02	3.858E-02	2.240E-02	NOT IDENT.
SB-122	1.614E+00	2.335E+00	2.101E+00	1.191E+00	NOT IDENT.
I-123	-7.442E+06	2.081E+07	0.000E+00	1.062E+07	SHORT HLIF
TE-123M	-7.662E-03	2.143E-02	1.872E-02	1.093E-02	NOT IDENT.
I-124	-3.364E-01	7.393E-01	5.562E-01	3.772E-01	NOT IDENT.
SB-124	3.889E-02	5.959E-02	5.621E-02	3.041E-02	FAIL ABUN
SB-125	-4.622E-02	6.823E-02	5.692E-02	3.481E-02	FAIL ABUN
TE-125M	-4.556E+00	7.245E+00	6.433E+00	3.696E+00	NOT IDENT.
I-126	-1.408E-02	1.925E-01	1.406E-01	9.819E-02	NOT IDENT.
SB-126	6.880E-02	1.307E-01	1.108E-01	6.670E-02	FAIL ABUN
SB-127	-1.970E-01	1.452E+00	1.206E+00	7.407E-01	NOT IDENT.
XE-127	-3.390E-02	3.894E-02	3.242E-02	1.987E-02	NOT IDENT.
I-131	-7.731E-02	1.012E-01	8.574E-02	5.163E-02	NOT IDENT.
TE-132	-3.609E-02	7.470E-01	6.436E-01	3.811E-01	NOT IDENT.
BA-133	3.146E-03	3.957E-02	3.092E-02	2.019E-02	NOT IDENT.
I-133	-1.486E+04	1.368E+04	0.000E+00	6.978E+03	SHORT HLIF
CS-134	3.471E-02	3.842E-02	3.539E-02	1.960E-02	NOT IDENT.
CS-135	4.847E-02	1.470E-01	1.141E-01	7.502E-02	NOT IDENT.
I-135	-3.120E+15	1.280E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.511E-02	1.008E-01	8.219E-02	5.144E-02	FAIL ABUN
CE-139	-1.169E-02	2.419E-02	2.096E-02	1.234E-02	NOT IDENT.
BA-140	-6.066E-02	2.338E-01	1.967E-01	1.193E-01	NOT IDENT.
LA-140	-3.308E-02	7.295E-02	5.773E-02	3.722E-02	NOT IDENT.
CE-141	-1.500E-02	5.008E-02	4.422E-02	2.555E-02	NOT IDENT.
CE-143	8.025E+02	3.075E+02	0.000E+00	1.569E+02	SHORT HLIF
CE-144	-7.187E-02	1.700E-01	1.336E-01	8.674E-02	NOT IDENT.
PM-144	-1.058E-02	2.828E-02	2.275E-02	1.443E-02	FAIL ABUN
PR-144	-7.171E-01	1.918E+00	1.543E+00	9.784E-01	NOT IDENT.

PM-146	-2.799E-03	3.503E-02	3.047E-02	1.787E-02	NOT IDENT.
ND-147	-3.838E-01	5.079E-01	4.094E-01	2.592E-01	FAIL ABUN
PM-149	-9.498E+01	1.087E+02	8.574E+01	5.544E+01	NOT IDENT.
EU-152	-5.741E-02	7.990E-02	6.599E-02	4.077E-02	NOT IDENT.
GD-153	1.295E-02	6.649E-02	5.550E-02	3.392E-02	NOT IDENT.
EU-154	-3.133E-02	1.163E-01	9.444E-02	5.935E-02	NOT IDENT.
EU-155	4.356E-02	8.321E-02	7.750E-02	4.245E-02	FAIL ABUN
TB-160	9.764E-02	1.191E-01	1.101E-01	6.075E-02	FAIL ABUN
HO-166M	-3.908E-02	5.354E-02	4.189E-02	2.731E-02	NOT IDENT.
TM-171	4.177E+00	2.401E+01	1.888E+01	1.225E+01	NOT IDENT.
LU-176	2.129E-02	1.976E-02	1.769E-02	1.008E-02	NOT IDENT.
LU-177	2.407E+00	1.323E+00	9.533E-01	6.752E-01	FAIL ABUN
LU-177M	-8.406E-02	1.592E-01	1.175E-01	8.120E-02	FAIL ABUN
HF-181	-5.283E-03	4.030E-02	3.039E-02	2.056E-02	NOT IDENT.
W-181	-7.438E-03	3.108E-01	2.425E-01	1.586E-01	NOT IDENT.
TA-182	-5.052E-02	1.880E-01	1.540E-01	9.591E-02	FAIL ABUN
RE-183	-9.668E-03	8.692E-02	7.479E-02	4.435E-02	FAIL ABUN
RE-184	1.350E-01	1.855E-01	1.649E-01	9.463E-02	NOT IDENT.
OS-185	-1.820E-02	3.605E-02	2.911E-02	1.839E-02	NOT IDENT.
RE-188	6.996E-02	1.388E-01	1.260E-01	7.080E-02	FAIL ABUN
W-188	3.715E+00	6.514E+00	5.123E+00	3.324E+00	FAIL ABUN
IR-192	-3.007E-02	2.909E-02	2.251E-02	1.484E-02	FAIL ABUN
AU-195	2.676E-01	1.760E-01	1.689E-01	8.977E-02	FAIL ABUN
TL-200	9.999E+02	7.897E+02	0.000E+00	4.029E+02	SHORT HLIF
TL-201	8.609E+00	7.230E+00	6.696E+00	3.689E+00	NOT IDENT.
TL-202	5.098E-02	5.872E-02	5.431E-02	2.996E-02	NOT IDENT.
HG-203	-1.149E-03	3.461E-02	2.933E-02	1.766E-02	NOT IDENT.
BI-207	3.021E-02	5.112E-02	4.521E-02	2.608E-02	FAIL ABUN
TL-207	4.211E-01	5.305E-01	4.632E-01	2.706E-01	FAIL ABUN
PO-209	2.454E+00	6.397E+00	5.711E+00	3.264E+00	NOT IDENT.
BI-210	2.454E+00	2.995E+00	2.681E+00	1.528E+00	NOT IDENT.
PB-210	2.454E+00	2.995E+00	2.681E+00	1.528E+00	NOT IDENT.
PO-210	2.454E+00	2.993E+00	2.681E+00	1.527E+00	NOT IDENT.
PB-211	1.458E-01	8.477E-01	6.660E-01	4.325E-01	NOT IDENT.
BI-212	9.307E-01	5.079E-01	3.001E-01	2.591E-01	FAIL ABUN
PO-215	4.211E-01	5.305E-01	4.632E-01	2.706E-01	FAIL ABUN
RN-219	1.431E-02	3.385E-01	3.001E-01	1.727E-01	FAIL ABUN
RN-220	2.110E+01	2.191E+01	2.009E+01	1.118E+01	NOT IDENT.
RA-223	4.211E-01	5.305E-01	4.632E-01	2.706E-01	FAIL ABUN
AC-227	-1.088E-01	3.181E-01	2.664E-01	1.623E-01	FAIL ABUN
TH-227	-1.088E-01	3.183E-01	2.664E-01	1.624E-01	FAIL ABUN
TH-229	-3.301E-01	4.017E-01	3.318E-01	2.049E-01	FAIL ABUN
PA-231	-1.587E-01	1.179E+00	9.907E-01	6.017E-01	FAIL ABUN
TH-231	4.211E-01	5.305E-01	4.632E-01	2.706E-01	FAIL ABUN
U-231	-4.118E-01	1.091E+00	8.856E-01	5.564E-01	FAIL ABUN
PA-233	4.062E-02	5.341E-02	4.693E-02	2.725E-02	FAIL ABUN
PA-234	7.222E-02	2.527E-01	2.228E-01	1.289E-01	FAIL ABUN
PA-234M	8.213E+00	4.261E+00	4.117E+00	2.174E+00	FAIL ABUN
U-235	-1.458E-02	1.714E-01	1.503E-01	8.744E-02	FAIL ABUN
NP-236	-3.435E-02	5.965E-02	5.149E-02	3.043E-02	NOT IDENT.
NP-239	6.832E-03	1.454E-01	1.322E-01	7.417E-02	FAIL ABUN
AM-241	2.356E-02	1.347E-01	1.070E-01	6.874E-02	NOT IDENT.
CM-243	4.144E-02	7.365E-02	6.877E-02	3.757E-02	FAIL ABUN
AM-246	9.367E-02	1.231E-01	1.116E-01	6.280E-02	NOT IDENT.
CM-247	1.909E-02	2.957E-02	2.711E-02	1.508E-02	NOT IDENT.
CF-249	-2.777E-02	3.079E-02	2.563E-02	1.571E-02	NOT IDENT.
CF-251	-6.778E-02	9.913E-02	8.442E-02	5.058E-02	NOT IDENT.

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

46.50	222.1650
46.50	222.1650
46.50	222.1650
48.70	276.9529
49.72	218.4537
51.35	260.0875
52.39	232.1637
52.97	234.9545
53.15	235.0775
53.44	228.0726
54.07	245.3223
56.28	256.5400
56.28	256.5417
57.37	0.0000
57.53	284.1471
57.53	284.1485
57.60	284.2020
57.98	280.8510
57.98	280.8510
59.32	284.7230
59.32	284.7230
59.40	301.0579
59.54	284.8922
59.72	285.0297
60.01	267.3217
61.10	284.4457
61.14	284.4753
61.30	284.5952
63.00	298.1856
63.29	298.4099
63.29	298.4099
63.58	298.6334
64.28	319.7737
65.12	313.8521
65.20	313.9144
65.20	313.9144
66.05	329.4905
66.72	300.1900
66.83	300.2729
66.91	320.2452
67.20	353.6848
67.20	353.6848
67.75	340.4481
67.85	340.5335
68.90	328.4896
68.90	328.4896
69.30	346.5026
69.67	335.7892
70.82	340.4888
70.82	340.4888
70.83	340.4971
72.80	347.1447
72.87	347.2014
72.87	347.2014
74.67	351.6221
74.81	351.7342
74.81	351.7342
74.81	351.7342
74.81	351.7342
74.81	351.7342
74.81	351.7342
74.97	351.8654
75.28	352.1172
75.70	352.4557
77.11	353.5898
77.11	353.5898

77.11	353.5898
77.11	353.5898
77.11	353.5898
77.11	353.5898
77.11	353.5898
78.38	349.0627
79.62	332.0789
79.80	332.2113
79.80	332.2113
80.11	329.8714
80.18	329.9224
80.30	330.0087
80.30	330.0087
80.57	337.9138
81.00	420.5405
81.07	420.6053
81.07	420.6053
81.07	420.6053
81.07	420.6053
82.60	345.8654
83.37	333.5111
83.78	311.8114
83.78	311.8114
83.78	311.8114
83.78	311.8114
84.21	301.7381
84.90	313.8530
85.43	362.2453
86.29	412.3307
86.50	407.3069
86.54	407.3404
86.59	407.3833
86.72	407.4932
86.79	407.5505
86.94	407.6818
87.30	406.6840
87.30	406.6840
87.30	406.6840
87.30	406.6840
87.30	406.6840
87.30	406.6840
87.30	406.6840
87.57	406.9125
87.88	302.7707
88.03	302.8645
88.36	303.0716
88.47	303.1406
89.95	304.0610
91.11	292.9546
92.29	293.6522
92.38	293.7049
92.38	293.7049
93.35	294.2732
94.00	294.6543
94.67	264.6103
94.67	264.6133
94.90	268.7033
94.90	268.7033
94.90	268.7033
94.90	268.7033
95.87	311.6522
95.87	311.6522
96.73	309.5207
97.43	288.6551
98.44	245.2327
98.44	245.2341
98.88	259.6689
99.55	271.5762
99.55	271.5762
99.86	270.8459
100.00	272.6993
100.10	272.7538
103.18	267.1584
103.76	262.9590
105.00	266.2582
105.31	272.7105
108.00	278.5657
109.28	295.5237

111.00	271.8751
111.00	271.8751
111.76	256.7602
112.95	278.2802
115.19	266.5384
116.30	247.7747
117.00	260.0155
117.00	260.0155
117.66	266.7449
121.11	234.9869
121.62	242.5933
121.78	252.8452
122.06	250.1834
122.32	256.7795
122.32	256.7795
122.32	256.7795
122.32	256.7795
123.07	243.1743
127.23	256.5019
129.76	244.8707
131.20	252.4808
133.02	220.6652
133.54	249.1543
135.34	219.5627
136.00	227.3657
136.25	243.5623
136.48	243.6486
140.51	254.6745
140.51	0.0000
142.18	287.8184
142.65	262.1848
143.76	267.4062
144.24	264.7162
144.24	264.7162
144.24	264.7162
144.24	264.7162
145.22	272.7820
145.44	272.8687
147.16	233.0958
152.43	251.3568
152.70	264.0728
153.22	252.6076
154.21	251.9838
154.21	251.9838
154.21	251.9838
154.21	251.9838
155.03	257.1438
156.02	252.6214
158.56	232.9545
159.00	0.0000
159.00	233.0925
160.31	237.4359
161.27	238.7285
162.32	220.3747
162.64	209.6415
163.35	230.5318
163.89	239.5714
165.85	267.8766
167.43	209.0038
171.28	233.9506
171.86	229.1460
172.10	229.2162
176.55	243.5562
176.60	243.5735
181.06	258.8533
184.41	233.8151
185.71	243.3105
186.00	243.3984
190.27	178.9081
192.34	231.9832
193.63	224.1506
197.04	230.1911
198.01	225.3091
198.60	204.8726
200.40	219.7451
201.83	257.3106
202.84	251.4021
205.31	189.8618

208.36	238.4066
208.81	238.5277
209.75	229.9163
209.75	229.9163
210.97	220.8332
215.65	238.2456
216.55	229.0260
218.09	205.2078
222.10	223.0091
223.80	207.5322
226.40	194.3035
227.00	197.6136
227.08	204.0059
227.20	204.0313
228.16	212.7482
228.18	212.7523
228.18	212.7523
231.56	0.0000
235.69	220.3150
236.00	218.7775
236.00	218.7775
238.63	186.0317
238.63	186.0317
238.63	186.0317
238.63	186.0317
239.00	186.1003
240.98	186.4752
241.98	186.6635
241.98	186.6635
241.98	186.6635
244.69	183.3836
245.39	149.4088
247.94	146.5302
248.90	164.0518
249.79	178.3323
252.40	135.1823
252.85	147.2388
252.85	147.2388
254.15	0.0000
256.20	182.7319
256.20	182.7319
260.50	163.7115
260.90	172.5652
262.80	169.5748
264.65	172.0754
268.24	174.3164
268.79	176.0671
269.46	179.5012
269.46	179.5012
269.46	179.5012
269.46	179.5012
271.23	162.0371
273.65	191.8761
276.40	172.2880
277.35	150.6720
277.60	146.2423
277.60	146.2423
278.00	150.7626
278.60	157.5493
279.20	169.9300
279.53	177.8107
280.46	164.5286
281.68	156.8648
283.67	135.8197
284.30	131.4036
285.00	135.9798
285.90	155.2107
286.10	148.4866
286.10	148.4866
287.40	128.3868
288.45	0.0000
290.67	130.4521
290.80	130.4662
291.72	149.2251
293.26	0.0000
293.70	134.1949
295.21	173.4915
295.21	173.4915

295.21	173.4915
295.96	163.3945
296.50	163.4707
297.23	163.5732
298.57	163.7607
299.80	119.5349
299.80	119.5349
300.09	119.5648
300.09	119.5648
300.09	119.5648
300.09	119.5648
300.12	119.5691
301.29	119.6887
302.84	145.5283
303.76	130.2214
303.91	130.2377
304.40	135.4341
304.40	135.4341
304.84	154.3497
306.84	111.0906
308.46	149.0879
311.98	124.2224
316.51	148.9332
318.01	116.7504
319.02	122.6315
319.41	127.2994
320.08	136.6320
323.87	113.8249
323.87	113.8249
323.87	113.8249
323.87	113.8249
325.23	146.5078
328.77	131.7644
333.44	133.4268
334.20	141.9376
334.20	141.9376
334.30	141.9499
338.28	139.2216
338.28	139.2216
338.28	139.2216
338.28	139.2216
338.32	139.2264
338.32	139.2264
338.32	139.2264
340.50	149.7017
340.57	149.7095
344.27	143.6641
345.85	129.9961
350.59	0.0000
351.07	118.3537
351.92	118.4308
351.92	118.4308
351.92	118.4308
355.39	0.0000
356.01	124.3350
364.48	126.7399
366.43	97.2175
367.43	96.3875
367.94	0.0000
369.80	129.0417
374.96	99.6355
383.85	102.0947
387.95	120.6764
388.63	115.2449
391.69	87.9946
391.69	87.9946
392.90	106.4171
398.62	110.5243
400.65	128.2021
401.10	128.2424
401.81	119.0734
402.60	103.4380
404.84	110.9949
410.95	93.6233
411.60	96.6367
413.65	114.6353
414.70	106.4157
415.30	104.3284

415.76	103.4290
417.63	0.0000
418.52	84.9487
423.70	90.8605
427.08	106.0823
427.89	95.8071
432.53	90.4438
433.93	87.6955
439.47	88.0091
439.56	83.2815
439.89	94.6579
443.98	96.8032
444.90	93.0608
445.03	93.0698
445.03	93.0698
445.03	93.0698
453.90	97.4086
463.38	84.5330
468.07	78.6092
473.00	89.6664
475.06	86.6824
475.35	91.3420
476.78	86.7713
477.59	90.1079
477.96	86.8328
482.03	93.2607
484.57	87.5638
487.03	83.7941
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492.35	80.1469
497.08	78.4082
507.63	0.0000
510.53	0.0000
510.84	85.9446
511.00	85.9526
511.85	85.9931
511.85	85.9931
513.99	87.0869
513.99	87.0869
520.41	81.4420
520.65	81.4545
527.90	70.8115
528.96	0.0000
529.64	88.8506
529.87	0.0000
531.02	94.9130
537.32	90.2280
543.00	82.4604
546.56	0.0000
549.76	71.6609
552.65	80.8691
555.20	65.7954
563.23	62.0090
563.90	74.2320
568.70	88.6913
569.32	78.5227
569.50	78.5298
569.67	75.4769
573.80	80.7503
574.00	80.7575
574.64	77.7163
578.91	108.2232
579.30	0.0000
583.14	88.3279
585.48	70.7463
591.81	75.3080
592.07	75.3169
593.00	80.5137
595.88	79.5966
600.56	82.8931
602.52	0.0000
602.71	92.6621
602.71	92.6621
603.60	97.9607
604.41	88.0349
604.70	88.0478
609.31	91.5771

609.31	91.5771
609.31	91.5771
609.31	91.5771
610.33	91.6228
612.46	83.3813
614.37	85.1287
618.01	86.7437
621.84	63.8705
621.84	63.8705
631.29	59.9554
633.02	73.6914
633.10	80.0101
634.78	82.1823
635.90	82.2252
636.97	70.6661
645.85	73.0809
646.12	77.3286
656.30	81.7406
657.75	81.7969
657.90	0.0000
661.65	88.5598
661.65	88.5598
664.57	0.0000
666.33	82.1203
666.33	82.1203
675.00	64.4110
677.61	65.5627
685.20	73.3374
692.80	68.1757
695.00	69.3262
696.49	69.3711
696.49	69.3711
697.00	70.4709
697.49	71.5712
698.33	69.4277
698.50	72.6883
699.00	78.1304
702.63	53.2573
706.10	90.3481
706.58	0.0000
706.67	77.3052
709.31	69.7637
711.68	85.1125
713.82	57.8863
717.42	72.1976
720.50	60.0887
721.93	0.0000
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722.78	80.6977
722.78	80.6977
722.89	80.7021
722.95	71.9322
723.30	71.9422
724.18	54.4165
727.18	68.1077
733.00	79.2905
735.90	79.3872
739.58	78.4059
742.81	65.2443
744.21	63.0691
747.13	69.7926
751.79	56.6093
752.31	59.9524
753.82	72.2105
755.35	65.5864
756.15	73.3920
756.87	67.8524
763.93	95.9390
765.79	75.9169
766.42	80.4045
766.84	68.1317
776.49	76.2489
778.00	72.9306
778.57	67.3352
778.89	67.3444
783.80	83.2229
785.46	78.3276
792.07	75.8256

795.84	51.5310
796.30	51.5407
798.80	78.7439
801.93	42.5926
805.60	53.5451
810.29	58.1906
810.76	55.4734
815.85	51.9387
817.79	49.2420
818.51	41.9582
819.60	43.8012
826.30	61.2978
828.27	0.0000
831.60	63.2573
831.96	66.9333
834.83	72.5137
836.80	0.0000
846.75	57.1684
848.13	52.5858
856.28	0.0000
856.80	60.1615
860.37	53.7548
867.32	48.5248
867.82	48.3272
871.10	47.4552
873.19	51.2161
874.81	50.3152
875.33	0.0000
876.40	63.3964
879.36	48.5329
880.27	48.5494
880.51	50.4207
881.50	53.2413
883.24	54.2093
884.67	60.7836
889.25	54.3283
896.60	55.4119
898.02	56.3804
899.00	78.0212
903.28	67.2468
911.07	59.4762
911.07	59.4762
911.07	59.4762
919.63	53.0291
920.93	39.7903
925.00	57.8726
925.24	52.1842
926.50	52.8864
935.52	46.0240
937.48	49.2322
944.10	58.2598
946.00	51.6072
949.00	53.5746
962.29	64.8699
964.01	51.2852
966.15	60.9460
968.20	117.1606
969.11	96.3281
969.11	96.3281
969.11	96.3281
977.42	56.0261
980.50	37.7117
983.50	46.4613
989.30	51.4007
996.32	46.9834
1001.03	59.3886
1001.68	65.2449
1004.76	47.1144
1021.30	0.0000
1024.50	0.0000
1034.80	62.9969
1036.00	65.9760
1037.82	56.1595
1038.57	52.2314
1038.76	0.0000
1045.16	57.2807
1046.59	55.3301
1048.07	60.2971

1050.47	39.5703
1050.47	39.5703
1062.04	68.5081
1063.62	59.6016
1076.63	60.8392
1077.35	47.8852
1078.86	45.9102
1085.78	60.0117
1099.22	44.1891
1112.02	62.5086
1112.84	63.0310
1115.52	40.3711
1120.29	68.7305
1120.29	68.7305
1120.29	68.7305
1120.29	68.7305
1120.51	68.7338
1121.28	68.7504
1124.00	0.0000
1129.67	63.8552
1131.51	0.0000
1147.95	0.0000
1167.94	59.4500
1173.22	57.4875
1175.09	77.0361
1177.93	69.9025
1189.05	74.2500
1204.90	67.3328
1205.75	0.0000
1213.00	77.8711
1221.42	80.1356
1230.97	79.3027
1235.34	77.3098
1236.41	0.0000
1238.25	81.5534
1246.25	82.7841
1260.41	0.0000
1271.85	63.3105
1274.45	59.1336
1274.54	54.9098
1291.56	45.6140
1298.22	0.0000
1312.09	42.6621
1325.50	48.1641
1325.50	48.1641
1332.49	43.9609
1333.61	42.9023
1360.21	25.9172
1362.66	0.0000
1365.15	35.6812
1368.21	24.8878
1368.53	0.0000
1376.25	27.1069
1384.27	18.4701
1394.10	15.2482
1395.20	22.8785
1407.95	32.7876
1434.06	19.7991
1436.60	24.7643
1457.56	0.0000
1460.81	26.7544
1489.15	12.0743
1509.49	19.5978
1596.49	22.8457
1620.62	23.9248
1678.03	0.0000
1691.02	9.7160
1691.02	9.7160
1706.46	0.0000
1750.46	0.0000
1764.49	4.9327
1764.49	4.9327
1764.49	4.9327
1764.49	4.9327
1770.23	49.3835
1771.40	16.7946
1791.20	0.0000
1808.65	7.9629

1836.01

9.0070

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246444002

Total Uranium Activity	9.7802E+00	ug/g
Total Uranium Counting Unc.	5.2359E+00	ug/g
Total Uranium Tpu	2.6714E-06	ug/g
Total Uranium Mda	2.5232E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 950788          SAMPLE ID   : G246444002
*  ANALYST       : MXR1            DETECTOR    : GAM16
*  SAMPLE DATE   : 3-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 19-FEB-2010 20:39:02.96  SAMPLE ALQT: 142.270 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.868E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.342E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.551E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.233E+00

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## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:40:20.51

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444003.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:39:31
Sample ID          : G246444003           Sample quantity  : 1.48030E+02 GRAM
Detector name      : GAM17                Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00         Elapsed real time: 0 02:00:09.64 0.1%
Energy tolerance   : 1.50000 keV           Analyst Initials : MXR1
Abundance limit    : 75.00000              Sensitivity        : 5.00000
Batch ID           : 950788                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	46.50*	64	431	0.96	92.63	89	8	8.90E-03	60.1	
2	0	63.40*	270	649	0.99	126.44	122	9	3.75E-02	18.5	
3	4	72.72*	65	220	0.87	145.09	143	18	9.06E-03	32.1	1.30E+00
4	4	74.80*	612	413	1.03	149.25	143	18	8.50E-02	6.7	
5	4	77.10*	879	367	1.00	153.86	143	18	1.22E-01	5.0	
6	2	84.25*	82	333	0.88	168.15	163	15	1.14E-02	36.2	9.07E-01
7	2	87.25*	273	424	1.11	174.15	163	15	3.80E-02	14.2	
8	4	89.94	175	367	0.96	179.54	177	12	2.43E-02	18.6	1.75E+00
9	4	92.76*	400	484	1.29	185.18	177	12	5.56E-02	11.2	
10	0	129.44	80	271	0.86	258.57	256	7	1.12E-02	35.7	
11	0	185.86*	215	262	1.11	371.46	367	10	2.98E-02	16.2	
12	0	209.49	103	255	1.06	418.73	414	10	1.43E-02	30.7	
13	3	238.55*	999	132	1.05	476.88	470	20	1.39E-01	3.8	1.01E+00
14	3	241.54	243	195	1.50	482.86	470	20	3.38E-02	13.7	
15	0	270.10	81	162	1.39	539.99	536	9	1.12E-02	30.8	
16	0	295.06*	295	176	1.10	589.93	584	11	4.10E-02	10.6	
17	0	299.95	50	132	0.82	599.72	596	8	6.94E-03	42.2	
18	0	338.37	207	196	1.11	676.59	670	14	2.87E-02	15.9	
19	0	351.78*	514	175	1.21	703.43	696	14	7.13E-02	7.1	
20	0	510.97*	73	173	2.11	1021.96	1015	19	1.01E-02	49.4	
21	0	582.82*	289	91	1.21	1165.74	1159	14	4.02E-02	9.3	
22	0	609.04*	325	81	1.14	1218.22	1212	11	4.52E-02	7.9	
23	0	662.35	95	77	5.26	1324.88	1317	16	1.31E-02	23.5	
24	0	726.99*	66	76	1.58	1454.25	1447	15	9.20E-03	29.8	
25	0	910.78*	168	101	1.41	1822.06	1814	16	2.34E-02	15.5	
26	0	963.10*	46	42	2.01	1926.78	1918	14	6.44E-03	34.0	
27	0	968.11*	95	30	1.69	1936.80	1932	10	1.32E-02	15.5	
28	0	1120.15	69	89	1.94	2241.11	2232	19	9.64E-03	34.9	
29	0	1376.67	23	24	3.34	2754.55	2747	17	3.23E-03	53.6	
30	0	1459.77*	1063	12	1.95	2920.90	2913	16	1.48E-01	3.2	
31	0	1587.85	16	15	1.73	3177.29	3172	11	2.17E-03	56.0	
32	0	1763.48*	54	10	2.58	3528.89	3521	13	7.51E-03	18.7	

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

VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:40:23

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-FEB-2010 12:00:00   Acquisition date : 19-FEB-2010 20:39:31
Sample ID         : G246444003           Sample quantity  : 148.03 GRAM
Sample type       : SOLID                 Sample geometry   :
Detector name     : GAMMA17              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:09.64   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	*	3.247E+01	3.539E+00	5.455E-01	4.843E-02	59.534
CD-109	+	88.03	*	2.862E+00	8.586E-01	8.017E-01	7.827E-02	3.570
SN-126	+	64.28		1.051E+00	4.245E-01	3.660E-01	5.842E-02	2.873
	+	86.94		1.167E+00	5.879E-01	3.782E-01	1.574E-01	3.086
	+	87.57	*	2.808E-01	8.424E-02	7.854E-02	7.665E-03	3.575
BA-137M	+	661.65	*	1.665E-01	7.938E-02	6.396E-02	5.388E-03	2.603
CS-137	+	661.65	*	1.760E-01	8.392E-02	6.761E-02	5.707E-03	2.603
TL-208		277.35		4.890E-01	3.587E-01	6.411E-01	8.162E-02	0.763
	+	510.84		4.163E-01	4.146E-01	2.302E-01	2.812E-02	1.808
	+	583.14	*	4.809E-01	1.004E-01	5.426E-02	5.132E-03	8.863
		860.37		6.500E-01	3.700E-01	6.922E-01	6.513E-02	0.939
BI-210	+	46.50	*	6.369E-01	7.692E-01	7.724E-01	8.379E-02	0.825
PB-210	+	46.50	*	6.369E-01	7.692E-01	7.724E-01	8.379E-02	0.825
PO-210	+	46.50	*	6.369E-01	7.688E-01	7.724E-01	7.804E-02	0.825
BI-211	+	72.87		1.915E+00	1.242E+00	2.704E+00	2.644E-01	0.708
	+	351.07	*	3.461E+00	5.886E-01	3.078E-01	2.872E-02	11.244
PB-212	+	74.81		2.135E+00	4.059E-01	3.220E-01	4.351E-02	6.631
	+	77.11		1.825E+00	2.539E-01	1.923E-01	1.874E-02	9.492
	+	87.30		1.299E+00	4.107E-01	4.213E-01	5.885E-02	3.083
	+	238.63	*	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
	+	300.09		1.113E+00	9.477E-01	1.128E+00	1.229E-01	0.986
PO-212	+	74.81		2.135E+00	4.059E-01	3.220E-01	4.351E-02	6.631
	+	77.11		1.825E+00	2.539E-01	1.923E-01	1.874E-02	9.492
	+	87.30		1.299E+00	4.107E-01	4.213E-01	5.885E-02	3.083
		115.19		1.580E+00	3.079E+00	5.207E+00	5.863E-01	0.303
	+	238.63	*	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
	+	300.09		1.113E+00	9.477E-01	1.128E+00	1.229E-01	0.986
BI-214	+	609.31	*	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
	+	1120.29		1.193E+00	8.424E-01	5.845E-01	6.249E-02	2.041
	+	1764.49		1.292E+00	4.959E-01	3.287E-01	2.779E-02	3.929
PB-214	+	74.81		3.679E+00	6.672E-01	5.548E-01	6.798E-02	6.631
	+	77.11		3.129E+00	4.963E-01	3.296E-01	4.078E-02	9.492
	+	87.30		2.225E+00	6.891E-01	7.216E-01	8.974E-02	3.083
	+	241.98		2.069E+00	6.100E-01	4.999E-01	5.322E-02	4.139

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.150E+00	2.759E-01	2.065E-01	2.294E-02	5.569
	+	351.92	*	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
	+	74.81		3.679E+00	6.672E-01	5.548E-01	6.798E-02	6.631
	+	77.11		3.129E+00	4.963E-01	3.296E-01	4.078E-02	9.492
	+	87.30		2.225E+00	6.891E-01	7.216E-01	8.974E-02	3.083
PO-216	+	241.98		2.069E+00	6.100E-01	4.999E-01	5.322E-02	4.139
	+	295.21		1.150E+00	2.759E-01	2.065E-01	2.294E-02	5.569
	+	351.92	*	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
	+	74.81		2.135E+00	4.059E-01	3.220E-01	4.351E-02	6.631
	+	77.11		1.825E+00	2.539E-01	1.923E-01	1.874E-02	9.492
PO-218	+	87.30		1.299E+00	4.107E-01	4.213E-01	5.885E-02	3.083
	+	238.63	*	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
	+	300.09		1.113E+00	9.477E-01	1.128E+00	1.229E-01	0.986
	+	74.81		3.679E+00	6.672E-01	5.548E-01	6.798E-02	6.631
	+	77.11		3.129E+00	4.963E-01	3.296E-01	4.078E-02	9.492
RA-224	+	87.30		2.225E+00	6.891E-01	7.216E-01	8.974E-02	3.083
	+	241.98		2.069E+00	6.100E-01	4.999E-01	5.322E-02	4.139
	+	295.21		1.150E+00	2.759E-01	2.065E-01	2.294E-02	5.569
	+	351.92	*	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
	+	240.98	*	3.923E+00	1.136E+00	9.445E-01	8.542E-02	4.154
RA-226	+	609.31	*	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
	+	1120.29		1.193E+00	8.424E-01	5.845E-01	6.249E-02	2.041
	+	1764.49		1.292E+00	4.959E-01	3.287E-01	2.779E-02	3.929
	+	338.32		1.529E+00	7.986E-01	3.476E-01	1.437E-01	4.400
	+	911.07	*	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
AC-228	+	969.11		1.305E+00	5.062E-01	4.194E-01	9.805E-02	3.112
	+	338.32		1.529E+00	7.986E-01	3.476E-01	1.437E-01	4.400
	+	911.07	*	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
	+	969.11		1.305E+00	5.062E-01	4.194E-01	9.805E-02	3.112
	+	74.81		2.170E+00	3.601E-01	3.273E-01	3.216E-02	6.631
TH-228	+	77.11		1.855E+00	2.581E-01	1.954E-01	1.905E-02	9.492
	+	87.30		1.320E+00	3.960E-01	4.282E-01	4.178E-02	3.083
	+	238.63	*	1.435E+00	1.803E-01	8.429E-02	8.498E-03	17.021
	+	300.09		1.131E+00	1.168E+00	1.147E+00	6.809E-01	0.986
	+	609.31	*	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
TH-230	+	1120.29		1.193E+00	8.424E-01	5.845E-01	6.249E-02	2.041
	+	1764.49		1.292E+00	4.958E-01	3.287E-01	2.779E-02	3.929
	+	338.32		1.529E+00	5.068E-01	3.476E-01	3.132E-02	4.400
	+	911.07	*	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
	+	969.11		1.305E+00	5.062E-01	4.194E-01	9.805E-02	3.112
TH-234	+	63.29	*	2.656E+00	1.103E+00	9.067E-01	1.692E-01	2.930
	+	92.38		2.846E+00	8.339E-01	6.074E-01	1.140E-01	4.686
U-234	+	609.31	*	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
	+	1120.29		1.193E+00	8.424E-01	5.845E-01	6.249E-02	2.041
	+	1764.49		1.292E+00	4.958E-01	3.287E-01	2.779E-02	3.929
	+	86.50	*	8.245E-01	3.002E-01	2.668E-01	6.090E-02	3.090
	+	95.87		-3.242E-01	8.126E-01	1.188E+00	2.994E-01	-0.273
U-238	+	63.29	*	2.656E+00	1.103E+00	9.067E-01	1.692E-01	2.930
	+	92.38		2.846E+00	7.005E-01	6.074E-01	6.054E-02	4.686

Sample ID : G246444003

Acquisition date : 19-FEB-2010 20:39:31

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.462E-01	5.730E-02	5.219E-02	5.095E-03	6.633
	+	86.72		3.092E+01	9.276E+00	1.001E+01	9.766E-01	3.088
		117.66		-5.424E+00	3.351E+00	5.044E+00	5.759E-01	-1.075
		142.18		1.213E+01	1.623E+01	2.743E+01	2.828E+00	0.442
ANH-511	+	511.00	*	8.992E-02	8.924E-02	4.975E-02	4.443E-03	1.808

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	7.542E-02	3.562E-01	5.934E-01	5.646E-02	0.127
NA-22		1274.54	*	2.911E-02	5.873E-02	9.927E-02	8.363E-03	0.293
NA-24		1368.53	*	-2.795E+00	5.873E-02	Half-Life too short		
AL-26		1129.67		6.804E-02	2.164E+00	3.430E+00	2.866E-01	0.020
		1808.65	*	-3.627E-02	3.447E-02	4.008E-02	3.360E-03	-0.905
TI-44		67.85		1.005E-02	2.336E-02	3.843E-02	3.784E-03	0.262
	+	78.38	*	3.368E-01	4.686E-02	5.214E-02	5.081E-03	6.459
SC-46		889.25	*	-5.216E-02	4.812E-02	7.034E-02	6.158E-03	-0.742
	+	1120.51		2.063E-01	1.451E-01	1.506E-01	1.264E-02	1.370
V-48		944.10		6.083E-01	1.128E+00	1.956E+00	1.712E-01	0.311
		983.50	*	-1.132E-01	9.392E-02	1.332E-01	1.162E-02	-0.850
		1312.09		-9.905E-03	9.679E-02	1.604E-01	1.361E-02	-0.062
CR-51		320.08	*	6.846E-02	3.511E-01	5.980E-01	5.710E-02	0.114
MN-52		744.21		-2.041E-01	3.060E-01	4.804E-01	4.176E-02	-0.425
		848.13		3.130E+00	8.738E+00	1.503E+01	1.321E+00	0.208
		935.52		3.030E-01	3.632E-01	6.438E-01	5.634E-02	0.471
		1246.25		-3.533E+00	1.102E+01	1.714E+01	1.432E+00	-0.206
		1333.61		2.550E+00	5.729E+00	1.020E+01	8.695E-01	0.250
		1434.06	*	2.062E-01	3.103E-01	5.652E-01	4.873E-02	0.365
MN-54		834.83	*	-1.160E-02	4.301E-02	6.974E-02	6.132E-03	-0.166
CO-56		846.75	*	7.245E-03	4.427E-02	7.473E-02	6.569E-03	0.097
		977.42		1.920E-01	3.487E+00	5.762E+00	5.030E-01	0.033
		1037.82		-2.719E-01	3.999E-01	6.054E-01	5.505E-02	-0.449
		1175.09		-5.753E-01	3.234E+00	5.147E+00	4.207E-01	-0.112
		1238.25		9.070E-02	1.277E-01	2.171E-01	1.866E-02	0.418
		1360.21		-1.416E+00	1.106E+00	1.470E+00	1.258E-01	-0.963
		1771.40		-1.098E-02	2.116E-01	3.412E-01	2.881E-02	-0.032
CO-57		122.06	*	-2.037E-02	2.217E-02	3.488E-02	4.087E-03	-0.584
		136.48		2.665E-02	1.860E-01	3.078E-01	3.465E-02	0.087
CO-58		810.76	*	-1.043E-02	4.549E-02	7.415E-02	6.530E-03	-0.141
FE-59		142.65		5.580E-01	2.621E+00	4.338E+00	4.459E-01	0.129
		192.34		-3.073E-01	8.997E-01	1.424E+00	1.913E-01	-0.216
		1099.22	*	-3.977E-02	1.236E-01	1.945E-01	1.785E-02	-0.205
		1291.56		-1.027E-01	1.771E-01	2.652E-01	2.555E-02	-0.387
CO-60		1173.22		-2.964E-02	6.681E-02	1.031E-01	8.423E-03	-0.287
		1332.49	*	4.127E-03	4.118E-02	6.993E-02	5.960E-03	0.059
ZN-65		1115.52	*	7.678E-02	1.216E-01	1.862E-01	1.567E-02	0.412
GE-68		1077.35	*	3.128E-01	1.541E+00	2.565E+00	2.189E-01	0.122
AS-73		53.44	*	1.483E-01	2.108E-01	3.682E-01	3.684E-02	0.403

---- 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	*		5.911E-02	1.022E-01	1.735E-01	1.529E-02	0.341
	634.78			2.684E-02	3.918E-01	6.334E-01	5.455E-02	0.042
SE-75	66.05			1.138E+00	2.420E+00	3.768E+00	4.334E-01	0.302
	96.73			-7.305E-01	7.026E-01	9.843E-01	1.444E-01	-0.742
	121.11			9.463E-02	1.168E-01	1.991E-01	2.725E-02	0.475
	136.00			4.886E-03	3.518E-02	5.822E-02	6.296E-03	0.084
	198.60			-5.561E-01	1.727E+00	2.734E+00	2.634E-01	-0.203
	264.65	*		2.018E-02	4.738E-02	7.343E-02	6.747E-03	0.275
	279.53			-3.153E-02	1.024E-01	1.708E-01	1.620E-02	-0.185
	303.91			7.031E-01	2.182E+00	3.335E+00	3.966E-01	0.211
	400.65			1.404E-03	2.644E-01	4.388E-01	4.831E-02	0.003
BR-77	87.88	+		8.871E+02	2.662E+02	3.672E+02	3.584E+01	2.416
	200.40			-9.890E+01	2.207E+02	3.465E+02	3.021E+01	-0.285
	239.00	+		3.258E+02	3.826E+01	5.300E+01	4.787E+00	6.147
	249.79			-3.512E+01	9.219E+01	1.427E+02	1.298E+01	-0.246
	281.68			-8.542E+01	1.177E+02	1.907E+02	1.751E+01	-0.448
	297.23			1.588E+02	9.764E+01	1.297E+02	1.191E+01	1.224
	303.76			8.548E+01	2.651E+02	4.054E+02	3.717E+01	0.211
	439.47			-2.316E+01	2.113E+02	3.454E+02	3.010E+01	-0.067
	484.57			2.396E+02	3.601E+02	6.190E+02	5.500E+01	0.387
	520.65	*		2.703E+00	1.719E+01	2.742E+01	2.451E+00	0.099
	574.64			5.472E+01	2.962E+02	4.879E+02	4.332E+01	0.112
	578.91			-3.615E+01	1.502E+02	2.055E+02	1.822E+01	-0.176
	585.48			6.185E+02	3.092E+02	5.242E+02	4.637E+01	1.180
	755.35			1.221E+02	2.556E+02	4.465E+02	3.892E+01	0.273
	817.79			7.827E+00	2.253E+02	3.766E+02	3.310E+01	0.021
SR-82	698.33			1.118E+01	3.778E+01	6.521E+01	5.584E+00	0.171
	776.49	*		-4.889E-01	4.589E-01	6.884E-01	6.025E-02	-0.710
	1395.20			-1.246E+01	1.204E+01	1.656E+01	1.423E+00	-0.752
RB-83	520.41	*		1.105E-02	7.971E-02	1.270E-01	1.135E-02	0.087
	529.64			-4.849E-02	1.156E-01	1.811E-01	1.619E-02	-0.268
	552.65			-9.495E-02	2.167E-01	3.370E-01	3.008E-02	-0.282
RB-84	881.50	*		3.747E-02	8.544E-02	1.474E-01	1.292E-02	0.254
KR-85	513.99	*		3.798E+00	7.402E+00	1.255E+01	1.121E+00	0.303
SR-85	513.99	*		1.973E-02	3.845E-02	6.517E-02	5.822E-03	0.303
RB-86	1076.63	*		-3.975E-01	1.004E+00	1.563E+00	1.334E-01	-0.254
Y-88	898.02			1.834E-02	5.141E-02	8.785E-02	7.716E-03	0.209
	1836.01	*		2.702E-02	3.785E-02	7.132E-02	5.947E-03	0.379
ZR-88	392.90	*		-3.487E-02	3.226E-02	4.929E-02	4.153E-03	-0.708
Y-91	1204.90	*		7.598E+00	2.506E+01	4.160E+01	3.434E+00	0.183
NB-94	702.63	*		-5.157E-03	3.913E-02	6.465E-02	5.546E-03	-0.080
	871.10			-5.526E-02	4.038E-02	5.664E-02	4.970E-03	-0.976
NB-95	765.79	*		2.334E-02	4.952E-02	8.597E-02	7.509E-03	0.272
NB-95M	235.69	*		-5.375E-02	1.340E-01	1.841E-01	1.880E-02	-0.292
ZR-95	724.18			9.308E-02	1.114E-01	1.794E-01	1.684E-02	0.519
	756.15	*		4.794E-02	7.768E-02	1.372E-01	1.314E-02	0.349
NB-97	657.90	*		1.622E-03	7.768E-02	Half-Life too short		
	1024.50			-2.163E+01	7.768E-02	Half-Life too short		
ZR-97	254.15			-8.410E+00	7.768E-02	Half-Life too short		

Sample ID : G246444003

Acquisition date : 19-FEB-2010 20:39:31

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	355.39			-3.000E+00	7.768E-02	Half-Life	too short	
	507.63	*		3.827E+00	7.768E-02	Half-Life	too short	
	602.52			1.220E+01	7.768E-02	Half-Life	too short	
	1021.30			8.119E+00	7.768E-02	Half-Life	too short	
	1147.95			-2.041E-01	7.768E-02	Half-Life	too short	
	1362.66			7.225E+00	7.768E-02	Half-Life	too short	
	1750.46			-3.255E+00	7.768E-02	Half-Life	too short	
MO-99	140.51			-1.622E+01	3.367E+01	5.357E+01	1.517E+01	-0.303
	181.06			2.899E+01	2.374E+01	3.631E+01	6.623E+00	0.798
	366.43			-4.125E+00	1.143E+02	1.903E+02	1.666E+01	-0.022
	739.58	*		1.778E+01	1.811E+01	3.258E+01	4.958E+00	0.546
	778.00			-9.217E+00	5.288E+01	8.700E+01	7.616E+00	-0.106
TC-99M	140.51	*		-5.361E+11	5.288E+01	Half-Life	too short	
RH-101	127.23			-1.877E-04	3.195E-02	4.718E-02	5.365E-03	-0.004
	198.01	*		3.604E-03	3.149E-02	5.104E-02	4.438E-03	0.071
	325.23			-8.459E-02	2.224E-01	3.655E-01	3.322E-02	-0.231
RH-102	418.52			-1.006E-01	2.962E-01	4.776E-01	4.106E-02	-0.211
	475.06	*		2.294E-02	3.227E-02	5.563E-02	4.928E-03	0.412
	631.29			-1.846E-02	6.081E-02	9.466E-02	8.173E-03	-0.195
	697.49			2.659E-02	7.961E-02	1.380E-01	1.181E-02	0.193
	766.84			1.262E-01	1.262E-01	2.267E-01	1.980E-02	0.557
	1046.59			-1.218E-01	1.501E-01	2.174E-01	1.873E-02	-0.560
	1112.84			-7.329E-02	3.283E-01	4.455E-01	3.751E-02	-0.165
RU-103	497.08	*		-3.412E-02	4.451E-02	6.751E-02	9.682E-03	-0.505
+	610.33			1.131E+01	2.601E+00	3.168E+00	5.307E-01	3.571
RH-106	511.85	+		4.502E-01	4.468E-01	4.567E-01	4.079E-02	0.986
	621.84	*		6.467E-02	3.506E-01	5.737E-01	7.688E-02	0.113
	1050.47			2.734E+00	2.641E+00	4.778E+00	4.112E-01	0.572
RU-106	511.85	+		4.502E-01	4.468E-01	4.567E-01	4.079E-02	0.986
	621.84	*		6.467E-02	3.506E-01	5.737E-01	4.984E-02	0.113
	1050.47			2.734E+00	2.641E+00	4.778E+00	4.112E-01	0.572
AG-108M	433.93	*		2.833E-02	3.235E-02	5.681E-02	5.127E-03	0.499
	614.37			-5.440E-03	4.069E-02	5.941E-02	5.383E-03	-0.092
	722.95			-3.488E-02	4.781E-02	6.265E-02	5.624E-03	-0.557
AG-110M	657.75	*		1.917E-02	4.396E-02	6.497E-02	5.662E-03	0.295
	677.61			2.715E-01	3.329E-01	5.748E-01	5.021E-02	0.472
	706.67			-1.749E-01	2.403E-01	3.796E-01	3.352E-02	-0.461
	763.93			-1.783E-01	1.975E-01	3.046E-01	2.733E-02	-0.585
	884.67			-5.571E-03	5.835E-02	9.569E-02	8.644E-03	-0.058
	937.48			-9.397E-02	1.341E-01	2.045E-01	1.852E-02	-0.460
	1384.27			1.312E-01	1.774E-01	2.975E-01	2.626E-02	0.441
IN-111	171.28			4.664E-01	1.275E+00	2.109E+00	1.771E-01	0.221
	245.39	*		5.921E-01	1.476E+00	2.158E+00	1.956E-01	0.274
IN-113M	391.69	*		-1.508E-02	4.614E-02	7.491E-02	6.508E-03	-0.201
SN-113	391.69	*		-1.508E-02	4.614E-02	7.491E-02	6.508E-03	-0.201
IN-114M	190.27	*		8.826E-02	1.830E-01	2.726E-01	2.348E-02	0.324
CD-115	260.90			-1.924E+02	1.925E+02	2.833E+02	2.588E+01	-0.679
	492.35			6.076E+00	5.551E+01	9.164E+01	8.158E+00	0.066
	527.90	*		-4.861E-02	1.665E+01	2.709E+01	2.422E+00	-0.002

----- 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			-1.884E+00	2.292E+00	3.586E+00	3.301E-01	-0.526
	158.56	*		1.707E-02	5.400E-02	8.942E-02	8.038E-03	0.191
SB-122	563.90	*		9.677E-01	3.166E+00	5.260E+00	4.684E-01	0.184
	692.80			1.705E+01	6.023E+01	1.041E+02	8.894E+00	0.164
I-123	159.00	*		9.113E+00	6.023E+01	Half-Life	too short	
	528.96			1.208E+03	6.023E+01	Half-Life	too short	
TE-123M	159.00	*		9.377E-03	2.636E-02	4.372E-02	3.936E-03	0.214
I-124	602.71	*		2.195E-01	9.595E-01	1.391E+00	1.221E-01	0.158
	722.78			-2.008E+00	5.790E+00	8.047E+00	6.951E-01	-0.250
	1325.50			-2.051E+00	5.611E+01	9.367E+01	7.973E+00	-0.022
+	1376.25			6.771E+01	7.275E+01	8.405E+01	7.207E+00	0.806
	1509.49			3.124E+00	2.095E+01	3.556E+01	3.075E+00	0.088
	1691.02			-1.812E+00	4.780E+00	7.122E+00	6.092E-01	-0.254
SB-124	602.71			1.053E-02	4.603E-02	6.672E-02	5.860E-03	0.158
	645.85			3.236E-01	5.731E-01	9.677E-01	8.769E-02	0.334
	709.31			2.719E+00	3.036E+00	5.476E+00	4.709E-01	0.497
	713.82			-1.168E+00	1.800E+00	2.843E+00	3.421E-01	-0.411
	722.78			-1.396E-01	4.026E-01	5.595E-01	4.938E-02	-0.250
+	968.20			1.363E+01	4.382E+00	7.578E+00	6.621E-01	1.799
	1045.16			-2.522E+00	3.254E+00	4.733E+00	4.079E-01	-0.533
	1325.50			-1.523E-01	4.167E+00	6.957E+00	5.921E-01	-0.022
	1368.21			-1.161E+00	2.240E+00	3.155E+00	4.240E-01	-0.368
	1436.60			9.234E-01	4.196E+00	7.219E+00	6.225E-01	0.128
	1691.02	*		-2.973E-02	7.840E-02	1.168E-01	1.039E-02	-0.254
SB-125	427.89	*		6.301E-02	9.634E-02	1.663E-01	1.467E-02	0.379
	463.38			3.264E-01	3.062E-01	5.379E-01	5.099E-02	0.607
	600.56			-9.690E-02	1.849E-01	2.825E-01	2.659E-02	-0.343
	635.90			-1.002E-01	2.943E-01	4.556E-01	4.238E-02	-0.220
TE-125M	109.28	*		3.109E+00	7.777E+00	1.313E+01	1.614E+00	0.237
I-126	388.63			1.466E-01	2.306E-01	3.943E-01	3.337E-02	0.372
	666.33	*		6.320E-02	2.665E-01	3.825E-01	3.230E-02	0.165
	753.82			1.198E+00	1.678E+00	2.989E+00	2.604E-01	0.401
SB-126	223.80			4.483E-01	4.148E+00	6.678E+00	5.961E-01	0.067
	278.60			2.413E+00	2.541E+00	4.501E+00	4.132E-01	0.536
+	296.50			1.228E+01	2.842E+00	3.572E+00	3.279E-01	3.437
	414.70			3.257E-02	8.541E-02	1.450E-01	1.243E-02	0.225
	415.30			2.709E+00	7.126E+00	1.209E+01	1.038E+00	0.224
	555.20			-2.860E+00	4.530E+00	6.893E+00	6.149E-01	-0.415
	573.80			-4.276E-01	1.135E+00	1.768E+00	1.570E-01	-0.242
	593.00			2.438E-01	1.074E+00	1.770E+00	1.561E-01	0.138
	656.30			3.629E-02	4.638E+00	6.483E+00	5.487E-01	0.006
	666.33			2.648E-02	1.117E-01	1.603E-01	1.354E-02	0.165
	675.00			-1.905E+00	2.392E+00	3.488E+00	2.957E-01	-0.546
	695.00			-5.931E-02	8.655E-02	1.367E-01	1.169E-02	-0.434
	697.00			1.476E-02	2.951E-01	4.996E-01	4.276E-02	0.030
	720.50	*		2.904E-02	1.766E-01	2.645E-01	2.283E-02	0.110
	856.80			-6.258E-01	6.474E-01	9.775E-01	8.589E-02	-0.640
	989.30			2.026E+00	1.667E+00	3.046E+00	2.654E-01	0.665
	1034.80			-3.264E+00	1.183E+01	1.878E+01	1.623E+00	-0.174

----- 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			3.163E+00	6.461E+00	1.090E+01	9.020E-01	0.290
	61.10			1.597E+01	3.005E+01	4.703E+01	5.935E+00	0.340
	252.40			5.992E+00	5.887E+00	9.035E+00	3.816E+00	0.663
	290.80			1.393E+01	2.701E+01	4.196E+01	5.021E+00	0.332
	411.60			-5.411E+00	1.611E+01	2.602E+01	4.153E+00	-0.208
	444.90			-5.789E+00	1.271E+01	2.016E+01	2.610E+00	-0.287
	473.00			-2.720E-01	2.299E+00	3.736E+00	4.986E-01	-0.073
	543.00			-1.449E+01	2.181E+01	3.303E+01	4.914E+00	-0.439
	603.60			4.320E+00	1.736E+01	2.519E+01	3.263E+00	0.171
	685.20	*		-7.979E-01	1.825E+00	2.767E+00	3.232E-01	-0.288
	698.50			-8.235E-01	2.089E+01	3.509E+01	5.635E+00	-0.023
	722.20			-1.974E+01	4.263E+01	5.831E+01	6.736E+00	-0.339
	783.80			3.487E+00	5.363E+00	9.412E+00	1.210E+00	0.370
	57.60			-2.947E-01	2.037E+00	3.418E+00	3.432E-01	-0.086
XE-127	145.22			3.022E-01	6.716E-01	1.121E+00	1.131E-01	0.269
	172.10			-5.277E-02	1.184E-01	1.880E-01	1.580E-02	-0.281
	202.84	*		-9.779E-03	4.491E-02	7.141E-02	6.243E-03	-0.137
	374.96			4.711E-02	1.936E-01	3.280E-01	2.837E-02	0.144
I-131	80.18			-2.829E-01	4.294E+00	5.153E+00	5.048E-01	-0.055
	284.30			1.175E-02	1.473E+00	2.497E+00	2.401E-01	0.005
	364.48	*		-7.300E-02	1.277E-01	2.045E-01	1.890E-02	-0.357
	636.97			-1.130E+00	1.953E+00	2.949E+00	2.681E-01	-0.383
TE-132	722.89			-3.065E+00	8.443E+00	1.170E+01	1.019E+00	-0.262
	49.72			1.572E+00	5.102E+00	8.002E+00	9.850E-01	0.197
	111.76			-2.823E+00	3.315E+01	5.375E+01	7.069E+00	-0.053
	116.30			1.397E+01	3.095E+01	5.220E+01	6.990E+00	0.268
BA-133	228.16	*		-1.046E+00	8.917E-01	1.299E+00	2.096E-01	-0.805
	53.15			2.998E-01	8.806E-01	1.523E+00	1.523E-01	0.197
	79.62			8.577E-02	1.041E+00	1.264E+00	2.008E-01	0.068
	81.00			-4.829E-03	8.338E-02	1.001E-01	1.652E-02	-0.048
	276.40			3.840E-01	3.558E-01	6.288E-01	9.297E-02	0.611
	302.84			-1.961E-02	1.483E-01	2.185E-01	2.983E-02	-0.090
	356.01	*		6.351E-03	4.341E-02	6.482E-02	8.661E-03	0.098
I-133	383.85			-2.868E-02	3.272E-01	5.414E-01	6.790E-02	-0.053
	510.53	+		2.474E+00	3.272E-01	Half-Life	too short	
	529.87	*		-3.867E-03	3.272E-01	Half-Life	too short	
	706.58			-9.011E-01	3.272E-01	Half-Life	too short	
	856.28			-2.785E+00	3.272E-01	Half-Life	too short	
	875.33			1.102E-01	3.272E-01	Half-Life	too short	
	1236.41			2.315E+00	3.272E-01	Half-Life	too short	
	1298.22			1.797E-01	3.272E-01	Half-Life	too short	
	475.35			1.309E+00	2.107E+00	3.612E+00	3.199E-01	0.362
	563.23			-3.195E-02	4.087E-01	6.577E-01	5.910E-02	-0.049
CS-134	569.32			3.119E-02	2.041E-01	3.350E-01	3.017E-02	0.093
	604.70			1.651E-03	4.108E-02	5.809E-02	5.108E-03	0.028
	795.84	*		6.823E-02	5.548E-02	1.013E-01	8.950E-03	0.674
	801.93			4.226E-03	4.431E-01	7.369E-01	6.504E-02	0.006
	1038.57			-4.549E-01	4.910E+00	7.949E+00	6.863E-01	-0.057
	1167.94			1.630E+00	3.397E+00	5.740E+00	4.703E-01	0.284

----- 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			1.708E+00	1.369E+00	2.648E+00	2.372E-01	0.645
	268.24	*		6.782E-02	1.873E-01	2.705E-01	2.822E-02	0.251
	288.45			-3.132E+10	1.873E-01	Half-Life	too short	
	417.63			-6.064E+11	1.873E-01	Half-Life	too short	
	546.56			-2.450E+11	1.873E-01	Half-Life	too short	
	836.80			3.006E+11	1.873E-01	Half-Life	too short	
	1038.76			-6.773E+10	1.873E-01	Half-Life	too short	
	1124.00			2.149E+11	1.873E-01	Half-Life	too short	
	1131.51			-4.558E+10	1.873E-01	Half-Life	too short	
	1260.41	*		-5.883E+10	1.873E-01	Half-Life	too short	
	1457.56			2.577E+13	1.873E-01	Half-Life	too short	
	1678.03			-6.549E+10	1.873E-01	Half-Life	too short	
	1706.46			-7.552E+10	1.873E-01	Half-Life	too short	
	1791.20			7.715E+10	1.873E-01	Half-Life	too short	
CS-136 +	66.91			2.536E-01	4.325E-01	6.740E-01	1.090E-01	0.376
	86.29			3.912E+00	1.232E+00	1.576E+00	2.150E-01	2.482
	153.22			2.547E-01	6.632E-01	1.102E+00	1.144E-01	0.231
	163.89			7.579E-01	1.041E+00	1.751E+00	1.675E-01	0.433
	176.55			-7.748E-02	3.745E-01	6.010E-01	5.390E-02	-0.129
	273.65			-3.897E-01	5.366E-01	7.020E-01	6.816E-02	-0.555
	340.57			1.662E-01	1.409E-01	2.273E-01	2.099E-02	0.731
	818.51			1.738E-02	9.312E-02	1.578E-01	1.388E-02	0.110
	1048.07	*		-4.723E-02	1.376E-01	2.161E-01	1.940E-02	-0.219
	1235.34			1.515E+00	8.847E-01	1.591E+00	1.852E-01	0.952
CE-139 BA-140	165.85	*		-9.763E-03	2.737E-02	4.372E-02	3.646E-03	-0.223
	162.64			1.884E-01	7.579E-01	1.249E+00	1.141E-01	0.151
	304.84			-5.701E-01	1.397E+00	2.112E+00	5.954E-01	-0.270
	423.70			-8.483E-01	2.208E+00	3.521E+00	1.142E+00	-0.241
LA-140	537.32	*		2.979E-02	3.172E-01	5.194E-01	1.726E-01	0.057
	328.77			2.981E-01	3.220E-01	5.660E-01	5.395E-02	0.527
	432.53			-5.482E-01	2.283E+00	3.698E+00	3.364E-01	-0.148
	487.03			4.699E-02	1.670E-01	2.791E-01	2.626E-02	0.168
	751.79			-2.622E+00	2.025E+00	2.941E+00	2.830E-01	-0.892
	815.85			3.087E-01	3.946E-01	7.034E-01	6.868E-02	0.439
	867.82			2.234E+00	1.656E+00	3.086E+00	2.848E-01	0.724
	919.63			-1.523E+00	3.886E+00	6.172E+00	6.637E-01	-0.247
	925.24			-1.376E-01	1.479E+00	2.418E+00	2.245E-01	-0.057
	1596.49	*		-9.501E-02	1.048E-01	1.436E-01	1.240E-02	-0.662
CE-141 CE-143	145.44	*		-1.196E-02	6.210E-02	1.009E-01	1.029E-02	-0.119
	57.37			4.944E-05	6.210E-02	Half-Life	too short	
	231.56			4.150E-03	6.210E-02	Half-Life	too short	
	293.26	*		9.693E-04	6.210E-02	Half-Life	too short	
	350.59			5.135E-02	6.210E-02	Half-Life	too short	
	490.36			-3.249E-03	6.210E-02	Half-Life	too short	
CE-144	664.57			-5.234E-04	6.210E-02	Half-Life	too short	
	721.93			-1.307E-03	6.210E-02	Half-Life	too short	
	80.11			-1.377E-01	1.778E+00	2.132E+00	2.077E-01	-0.065
	133.54	*		2.069E-01	2.016E-01	3.110E-01	5.276E-02	0.665
	476.78			-7.544E-03	7.400E-02	1.204E-01	1.161E-02	-0.063

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		1.199E-02	3.320E-02	5.530E-02	4.947E-03	0.217
		696.49	*	-5.350E-03	3.505E-02	5.826E-02	4.988E-03	-0.092
		778.57		-6.512E-02	2.603E+00	4.341E+00	3.802E-01	-0.015
PR-144		696.49	*	-3.628E-01	2.376E+00	3.951E+00	3.381E-01	-0.092
		1489.15		-6.219E+00	1.377E+01	2.114E+01	1.827E+00	-0.294
PM-146		453.90	*	4.640E-02	4.817E-02	8.424E-02	9.143E-03	0.551
		633.02		-8.072E-01	1.515E+00	2.247E+00	8.397E-01	-0.359
		735.90		-1.268E-01	1.589E-01	2.387E-01	6.830E-02	-0.531
		747.13		-1.811E-02	9.687E-02	1.595E-01	2.247E-02	-0.114
ND-147	+	91.11		6.725E-01	2.603E-01	4.444E-01	4.680E-02	1.513
		319.41		-1.333E+00	3.355E+00	5.501E+00	5.016E-01	-0.242
		439.89		2.331E+00	6.525E+00	1.104E+01	9.626E-01	0.211
		531.02	*	-4.993E-01	6.719E-01	1.014E+00	1.535E-01	-0.492
PM-149		285.90	*	-6.925E+01	1.185E+02	1.927E+02	3.058E+01	-0.359
EU-152		121.78		-1.944E-02	6.292E-02	1.025E-01	1.300E-02	-0.190
		244.69		1.327E-01	3.311E-01	4.842E-01	4.389E-02	0.274
		344.27	*	2.551E-02	1.078E-01	1.522E-01	1.440E-02	0.168
		443.98		-1.686E-01	9.725E-01	1.580E+00	1.381E-01	-0.107
		778.89		1.277E-01	2.978E-01	5.167E-01	4.523E-02	0.247
		867.32		1.183E+00	9.349E-01	1.731E+00	1.519E-01	0.684
	+	964.01		7.300E-01	5.008E-01	6.406E-01	5.599E-02	1.139
		1085.78		-3.541E-01	4.855E-01	7.240E-01	6.161E-02	-0.489
		1112.02		7.826E-02	4.485E-01	6.459E-01	5.440E-02	0.121
		1407.95		3.690E-01	2.184E-01	4.349E-01	3.742E-02	0.848
GD-153		69.67		-4.186E-01	9.412E-01	1.406E+00	1.380E-01	-0.298
	+	83.37		1.475E+01	1.078E+01	1.809E+01	1.762E+00	0.815
		97.43	*	-5.841E-02	6.410E-02	1.028E-01	1.051E-02	-0.568
		103.18		-1.034E-01	8.539E-02	1.337E-01	1.409E-02	-0.773
EU-154		123.07		-2.335E-02	4.464E-02	7.179E-02	9.910E-03	-0.325
		247.94		-1.207E-01	3.646E-01	5.370E-01	6.351E-02	-0.225
		591.81		2.646E-01	6.605E-01	1.105E+00	1.307E-01	0.239
		723.30		-1.274E-01	2.015E-01	2.686E-01	2.565E-02	-0.474
		756.87		9.805E-02	8.361E-01	1.416E+00	1.706E-01	0.069
		873.19		5.185E-02	3.239E-01	5.460E-01	6.745E-02	0.095
		996.32		3.231E-02	4.377E-01	7.234E-01	1.288E-01	0.045
		1004.76		-2.565E-01	2.440E-01	3.476E-01	4.065E-02	-0.738
		1274.45	*	9.037E-02	1.631E-01	2.771E-01	3.092E-02	0.326
EU-155		48.70		-4.092E-02	4.448E-01	6.853E-01	6.884E-02	-0.060
		60.01		-6.930E-01	2.029E+00	3.044E+00	3.063E-01	-0.228
	+	86.54		3.383E-01	1.016E-01	1.410E-01	1.386E-02	2.400
		105.31	*	7.676E-02	8.782E-02	1.508E-01	1.620E-02	0.509
TB-160	+	86.79		9.141E-01	2.743E-01	3.827E-01	3.733E-02	2.389
		197.04		6.216E-01	5.298E-01	9.019E-01	7.832E-02	0.689
		215.65		1.172E-01	7.486E-01	1.210E+00	1.072E-01	0.097
	+	298.57		1.638E-01	1.392E-01	1.907E-01	1.750E-02	0.859
		879.36	*	1.803E-03	1.652E-01	2.739E-01	2.401E-02	0.007
	+	962.29		1.364E+00	9.356E-01	1.221E+00	1.067E-01	1.117
		966.15		9.553E-01	3.594E-01	5.505E-01	4.810E-02	1.735
		1177.93		1.519E-02	5.042E-01	8.179E-01	6.692E-02	0.019

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85		-3.151E-01	9.872E-01	1.530E+00	1.287E-01	-0.206
		80.57		-1.467E-02	2.288E-01	2.745E-01	2.674E-02	-0.053
	+	184.41		1.573E-01	5.267E-02	6.195E-02	5.296E-03	2.539
		280.46		-7.282E-02	8.244E-02	1.327E-01	1.219E-02	-0.549
		410.95		1.046E-01	2.640E-01	4.482E-01	3.833E-02	0.233
		711.68	*	-2.287E-02	6.496E-02	1.058E-01	9.109E-03	-0.216
TM-171		752.31		-2.120E-01	2.929E-01	4.556E-01	3.968E-02	-0.465
		810.29		-2.896E-02	6.879E-02	1.100E-01	9.666E-03	-0.263
		51.35		-3.866E+00	6.515E+00	1.090E+01	1.091E+00	-0.355
		52.39		-7.605E-01	3.674E+00	6.239E+00	6.242E-01	-0.122
		59.40		-6.143E-01	1.042E+01	1.584E+01	1.596E+00	-0.039
		66.72	*	1.018E+01	1.446E+01	2.270E+01	2.240E+00	0.449
LU-176	+	88.36		6.660E-01	1.998E-01	2.724E-01	2.663E-02	2.445
		201.83		1.925E-03	2.653E-02	4.287E-02	3.744E-03	0.045
	*	306.84		9.902E-03	2.356E-02	4.069E-02	3.728E-03	0.243
		401.10		-2.127E+00	6.876E+00	1.116E+01	9.466E-01	-0.191
LU-177		112.95		-4.645E-01	1.643E+00	2.643E+00	2.938E-01	-0.176
	+	208.36	*	2.917E+00	1.812E+00	2.084E+00	1.833E-01	1.400
LU-177M		52.97		1.144E-01	3.948E-01	6.818E-01	6.821E-02	0.168
		54.07		1.737E-01	2.246E-01	3.929E-01	3.932E-02	0.442
HF-181		61.30		5.828E-01	6.280E-01	9.971E-01	9.985E-02	0.585
		121.62		-5.128E-02	3.263E-01	5.356E-01	6.255E-02	-0.096
		147.16		2.412E-01	6.114E-01	1.019E+00	1.011E-01	0.237
		171.86		-3.410E-02	4.586E-01	7.422E-01	6.237E-02	-0.046
		218.09		1.853E-02	8.448E-01	1.355E+00	1.204E-01	0.014
	+	268.79		1.770E+00	1.104E+00	1.443E+00	1.322E-01	1.227
		319.02		-4.269E-02	2.386E-01	3.970E-01	3.620E-02	-0.108
		367.43		-5.211E-02	8.828E-01	1.467E+00	1.282E-01	-0.036
	*	413.65		6.166E-02	1.912E-01	3.233E-01	2.770E-02	0.191
		56.28		-1.222E-01	2.906E-01	4.885E-01	4.897E-02	-0.250
		57.53		3.360E-03	1.677E-01	2.861E-01	2.873E-02	0.012
		65.20		2.687E-02	4.726E-01	7.242E-01	7.173E-02	0.037
		133.02		3.998E-03	6.730E-02	9.949E-02	1.092E-02	0.040
		136.25		5.785E-02	4.160E-01	6.885E-01	7.400E-02	0.084
W-181		345.85		6.366E-02	2.017E-01	3.063E-01	2.742E-02	0.208
	*	482.03		-4.469E-02	4.788E-02	7.222E-02	6.411E-03	-0.619
		56.28		-4.721E-02	1.123E-01	1.887E-01	1.892E-02	-0.250
		57.53		1.345E-03	6.481E-02	1.106E-01	1.111E-02	0.012
TA-182		65.20	*	1.031E-02	1.813E-01	2.778E-01	2.751E-02	0.037
		67.75		3.014E-02	5.930E-02	9.235E-02	9.096E-03	0.326
		100.10		1.472E-01	1.454E-01	2.508E-01	2.600E-02	0.587
		152.43		4.910E-02	3.225E-01	5.309E-01	5.046E-02	0.092
RE-183		222.10		5.258E-02	3.377E-01	5.452E-01	4.859E-02	0.096
		1001.68		4.402E-01	2.363E+00	3.950E+00	3.436E-01	0.111
	+	1121.28		5.683E-01	3.995E-01	4.015E-01	3.368E-02	1.415
		1189.05		-2.684E-03	4.270E-01	6.898E-01	5.664E-02	-0.004
	*	1221.42		2.084E-01	2.545E-01	4.409E-01	3.657E-02	0.473
		1230.97		-2.080E-01	6.434E-01	1.005E+00	8.363E-02	-0.207
		57.98		-8.544E-03	6.734E-02	1.130E-01	1.136E-02	-0.076

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RE-184		59.32		-2.435E-03	4.316E-02	6.563E-02	6.613E-03	-0.037
		67.20		3.101E-02	1.077E-01	1.663E-01	1.640E-02	0.187
		162.32	*	6.939E-03	1.055E-01	1.725E-01	1.494E-02	0.040
	+	208.81		2.335E+00	1.450E+00	1.678E+00	1.476E-01	1.391
		291.72		1.840E-01	9.788E-01	1.484E+00	1.363E-01	0.124
		57.98		-3.126E-02	2.463E-01	4.135E-01	4.156E-02	-0.076
		59.32		-8.899E-03	1.578E-01	2.399E-01	2.417E-02	-0.037
		67.20		1.134E-01	3.937E-01	6.081E-01	5.996E-02	0.187
		161.27		-1.776E-01	3.404E-01	5.403E-01	4.728E-02	-0.329
		216.55		1.241E-01	2.614E-01	4.296E-01	3.809E-02	0.289
		252.85	*	2.332E-01	2.301E-01	3.870E-01	3.523E-02	0.603
		318.01		-4.589E-02	4.208E-01	7.035E-01	6.418E-02	-0.065
		792.07		8.331E-01	1.194E+00	2.104E+00	1.845E-01	0.396
		903.28		-1.522E+00	1.382E+00	1.635E+00	1.430E-01	-0.931
OS-185		920.93		-9.542E-02	5.646E-01	9.163E-01	8.018E-02	-0.104
		59.72		-1.701E-02	1.176E-01	1.781E-01	1.794E-02	-0.096
		61.14		3.812E-02	6.906E-02	1.082E-01	1.085E-02	0.352
		69.30		-1.184E-01	1.709E-01	2.521E-01	2.477E-02	-0.470
		592.07		7.797E-01	2.715E+00	4.500E+00	3.971E-01	0.173
		646.12	*	2.702E-03	5.029E-02	8.103E-02	6.919E-03	0.033
		717.42		3.570E-01	9.458E-01	1.644E+00	1.418E-01	0.217
		874.81		3.597E-01	6.709E-01	1.170E+00	1.027E-01	0.307
		880.27		2.449E-01	9.429E-01	1.600E+00	1.403E-01	0.153
		155.03	*	8.119E-02	1.604E-01	2.679E-01	2.489E-02	0.303
RE-188		477.96		4.887E-01	3.363E+00	5.575E+00	4.943E-01	0.088
		633.10		-1.561E+00	3.048E+00	4.626E+00	3.989E-01	-0.337
		63.58		1.081E+02	4.149E+01	4.905E+01	4.878E+00	2.204
W-188	+	227.08		-5.873E+00	1.210E+01	1.875E+01	1.678E+00	-0.313
		290.67	*	4.134E+00	7.577E+00	1.181E+01	1.084E+00	0.350
IR-192	+	295.96		8.874E-01	2.057E-01	2.803E-01	2.590E-02	3.165
		308.46		3.042E-02	9.385E-02	1.612E-01	1.483E-02	0.189
		316.51	*	4.192E-03	3.211E-02	5.450E-02	4.986E-03	0.077
		468.07		6.026E-02	7.005E-02	1.222E-01	1.154E-02	0.493
AU-195		604.41		1.726E-02	5.608E-01	7.922E-01	1.039E-01	0.022
		612.46		8.671E-02	7.979E-01	1.138E+00	1.138E-01	0.076
		65.12		2.834E-02	8.436E-02	1.307E-01	1.295E-02	0.217
		66.83		2.669E-02	4.857E-02	7.581E-02	7.481E-03	0.352
	+	75.70		1.126E+00	1.863E-01	3.040E-01	2.966E-02	3.702
		98.88	*	2.778E-01	1.844E-01	3.219E-01	3.315E-02	0.863
TL-200	+	129.76		4.549E+00	3.287E+00	4.649E+00	5.208E-01	0.978
		367.94	*	1.130E-04	3.287E+00	Half-Life	too short	
		579.30		-2.576E-03	3.287E+00	Half-Life	too short	
		828.27		2.643E-03	3.287E+00	Half-Life	too short	
TL-201		1205.75		3.977E-03	3.287E+00	Half-Life	too short	
		68.90		-1.356E+00	3.330E+00	5.310E+00	5.220E-01	-0.255
		70.82		-3.673E-02	2.059E+00	3.133E+00	3.071E-01	-0.012
		80.30		-2.785E-01	5.593E+00	6.719E+00	6.544E-01	-0.041
		135.34		-1.162E+01	3.067E+01	4.953E+01	5.356E+00	-0.235
		167.43	*	-2.849E+00	8.225E+00	1.313E+01	1.096E+00	-0.217

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

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TL-202		68.90	-9.862E-02	2.421E-01	3.861E-01	3.795E-02	-0.255
		70.82	-2.663E-03	1.493E-01	2.272E-01	2.227E-02	-0.012
		80.30	-2.020E-02	4.056E-01	4.873E-01	4.746E-02	-0.041
HG-203		439.56	* -2.503E-03	7.680E-02	1.263E-01	1.101E-02	-0.020
		70.83	-9.954E-03	6.144E-01	9.350E-01	1.345E-01	-0.011
	+	72.87	3.879E-01	2.546E-01	6.297E-01	8.807E-02	0.616
BI-207		82.60	5.938E-01	1.013E+00	1.266E+00	1.832E-01	0.469
		279.20	* -2.635E-03	3.927E-02	6.636E-02	6.245E-03	-0.040
	+	72.80	1.116E-01	7.241E-02	1.786E-01	1.746E-02	0.625
	+	74.97	6.214E-01	1.029E-01	1.505E-01	1.469E-02	4.128
	+	84.90	1.901E-01	1.389E-01	2.320E-01	2.262E-02	0.819
		569.67	-2.593E-03	3.222E-02	5.175E-02	4.602E-03	-0.050
		1063.62	* -2.588E-02	6.753E-02	1.040E-01	8.913E-03	-0.249
		1770.23	-1.046E+00	6.401E-01	6.648E-01	5.615E-02	-1.573
TL-207		81.07	-1.059E-02	1.842E-01	2.210E-01	2.152E-02	-0.048
	+	83.78	1.253E-01	9.159E-02	1.557E-01	1.517E-02	0.805
		94.90	2.770E-01	1.938E-01	3.081E-01	3.109E-02	0.899
		122.32	-1.478E+00	1.528E+00	2.394E+00	2.914E-01	-0.617
		144.24	5.291E-01	6.527E-01	1.103E+00	1.217E-01	0.480
		154.21	2.935E-01	3.744E-01	6.317E-01	6.415E-02	0.465
	+	269.46	4.122E-01	2.571E-01	3.441E-01	3.211E-02	1.198
		323.87	* -7.394E-01	6.795E-01	1.010E+00	1.812E-01	-0.732
	+	338.28	6.387E+00	2.189E+00	2.491E+00	3.135E-01	2.564
PO-209		445.03	-1.054E+00	2.368E+00	3.760E+00	4.578E-01	-0.280
		260.50	-4.407E+00	9.389E+00	1.439E+01	1.315E+00	-0.306
		262.80	-1.090E+01	2.671E+01	4.113E+01	3.760E+00	-0.265
PB-211		896.60	* -1.263E+00	9.399E+00	1.535E+01	1.342E+00	-0.082
		404.84	* -6.599E-01	9.840E-01	1.397E+00	8.752E-01	-0.472
		427.08	1.731E+00	2.387E+00	3.725E+00	2.315E+00	0.465
BI-212		831.96	-4.695E-01	1.410E+00	2.219E+00	1.391E+00	-0.212
	+	727.18	* 9.725E-01	5.887E-01	7.259E-01	7.284E-02	1.340
		785.46	9.250E-01	2.047E+00	3.550E+00	3.111E-01	0.261
PO-215		1620.62	7.273E-02	1.367E+00	2.274E+00	1.960E-01	0.032
		81.07	-1.059E-02	1.842E-01	2.210E-01	2.152E-02	-0.048
	+	83.78	1.253E-01	9.159E-02	1.557E-01	1.517E-02	0.805
		94.90	2.770E-01	1.938E-01	3.081E-01	3.109E-02	0.899
		122.32	-1.478E+00	1.528E+00	2.394E+00	2.914E-01	-0.617
		144.24	5.291E-01	6.527E-01	1.103E+00	1.217E-01	0.480
		154.21	2.935E-01	3.744E-01	6.317E-01	6.415E-02	0.465
	+	269.46	4.122E-01	2.571E-01	3.441E-01	3.211E-02	1.198
		323.87	* -7.394E-01	6.795E-01	1.010E+00	1.812E-01	-0.732
	+	338.28	6.387E+00	2.189E+00	2.491E+00	3.135E-01	2.564
		445.03	-1.054E+00	2.368E+00	3.760E+00	4.578E-01	-0.280
RN-219	+	271.23	5.289E-01	3.311E-01	4.142E-01	4.463E-02	1.277
		401.81	* -3.216E-02	4.123E-01	6.801E-01	1.017E-01	-0.047
		549.76	* 3.012E+01	2.810E+01	4.961E+01	4.429E+00	0.607
RN-220		81.07	-1.059E-02	1.842E-01	2.210E-01	2.152E-02	-0.048
RA-223	+	83.78	1.253E-01	9.159E-02	1.557E-01	1.517E-02	0.805
		94.90	2.770E-01	1.938E-01	3.081E-01	3.109E-02	0.899

----- 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	-1.478E+00	1.528E+00	2.394E+00	2.914E-01	-0.617
		144.24	5.291E-01	6.527E-01	1.103E+00	1.217E-01	0.480
		154.21	2.935E-01	3.744E-01	6.317E-01	6.415E-02	0.465
	+	269.46	4.122E-01	2.571E-01	3.441E-01	3.211E-02	1.198
		323.87	* -7.394E-01	6.795E-01	1.010E+00	1.812E-01	-0.732
	+	338.28	6.387E+00	2.189E+00	2.491E+00	3.135E-01	2.564
		445.03	-1.054E+00	2.368E+00	3.760E+00	4.578E-01	-0.280
		79.80	1.925E-01	1.327E+00	1.618E+00	3.556E-01	0.119
		236.00	7.429E-02	2.518E-01	3.644E-01	4.564E-02	0.204
		256.20	* -3.591E-01	4.002E-01	5.791E-01	9.054E-02	-0.620
		286.10	-9.288E-01	1.325E+00	2.137E+00	2.901E-01	-0.435
	+	299.80	2.062E+00	1.780E+00	2.474E+00	4.397E-01	0.833
TH-227		304.40	1.865E-01	1.963E+00	2.947E+00	5.510E-01	0.063
		334.20	-1.445E+00	2.495E+00	3.478E+00	6.816E-01	-0.416
		79.80	1.925E-01	1.327E+00	1.618E+00	3.599E-01	0.119
	+	94.00	1.100E+01	3.488E+00	3.215E+00	7.196E-01	3.421
		236.00	7.429E-02	2.518E-01	3.644E-01	4.149E-02	0.204
		256.20	* -3.591E-01	4.016E-01	5.791E-01	1.060E-01	-0.620
		286.10	-9.288E-01	1.616E+00	2.137E+00	2.146E+00	-0.435
	+	299.80	2.062E+00	1.780E+00	2.474E+00	4.397E-01	0.833
		304.40	1.865E-01	1.963E+00	2.947E+00	5.510E-01	0.063
		334.20	-1.445E+00	2.495E+00	3.478E+00	6.816E-01	-0.416
	+	85.43	1.876E-01	1.371E-01	2.322E-01	2.263E-02	0.808
	+	88.47	3.834E-01	1.150E-01	1.554E-01	1.521E-02	2.466
TH-229		100.00	1.752E-01	1.499E-01	2.598E-01	2.691E-02	0.674
		193.63	* -3.559E-01	4.766E-01	7.361E-01	6.366E-02	-0.484
	+	210.97	1.806E+00	1.122E+00	1.189E+00	1.048E-01	1.519
		283.67	* 1.058E+00	1.371E+00	2.409E+00	3.736E-01	0.439
	+	301.29	8.248E-01	7.045E-01	9.976E-01	1.261E-01	0.827
		81.07	-1.059E-02	1.842E-01	2.210E-01	2.152E-02	-0.048
	+	83.78	1.253E-01	9.159E-02	1.557E-01	1.517E-02	0.805
		94.90	2.770E-01	1.938E-01	3.081E-01	3.109E-02	0.899
		122.32	-1.478E+00	1.528E+00	2.394E+00	2.914E-01	-0.617
		144.24	5.291E-01	6.527E-01	1.103E+00	1.217E-01	0.480
		154.21	2.935E-01	3.744E-01	6.317E-01	6.415E-02	0.465
	+	269.46	4.122E-01	2.571E-01	3.441E-01	3.211E-02	1.198
U-231		323.87	* -7.394E-01	6.795E-01	1.010E+00	1.812E-01	-0.732
	+	338.28	6.387E+00	2.189E+00	2.491E+00	3.135E-01	2.564
		445.03	-1.054E+00	2.368E+00	3.760E+00	4.578E-01	-0.280
	+	84.21	6.627E+00	4.843E+00	8.158E+00	7.950E-01	0.812
	+	92.29	1.334E+01	3.283E+00	4.399E+00	4.382E-01	3.032
		95.87	* -4.511E-01	1.126E+00	1.652E+00	1.676E-01	-0.273
		108.00	-1.295E+00	2.088E+00	3.372E+00	3.647E-01	-0.384
	+	75.28	1.813E+01	3.783E+00	4.584E+00	7.341E-01	3.956
	+	86.59	5.497E+00	2.161E+00	2.294E+00	6.241E-01	2.396
	+	300.12	5.749E-01	4.934E-01	6.862E-01	1.043E-01	0.838
		311.98	* -4.005E-02	6.081E-02	9.810E-02	9.201E-03	-0.408
		340.50	9.340E-01	6.843E-01	1.067E+00	2.558E-01	0.875
		398.62	-1.786E-01	2.275E+00	3.756E+00	9.983E-01	-0.048

---- 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		5.041E-01	1.734E+00	2.922E+00	6.293E-01	0.172
		63.00		3.096E+00	1.254E+00	1.406E+00	2.290E-01	2.202
		94.67		3.319E-01	1.483E-01	2.353E-01	3.167E-02	1.410
		98.44		5.385E-02	8.020E-02	1.275E-01	7.149E-02	0.422
		99.86		4.789E-01	3.812E-01	6.617E-01	6.851E-02	0.724
		111.00		-7.471E-02	1.589E-01	2.528E-01	3.510E-02	-0.296
		131.20		4.254E-02	1.043E-01	1.574E-01	1.747E-02	0.270
		152.70		3.330E-02	3.096E-01	5.086E-01	8.900E-02	0.065
		186.00		5.662E+00	2.546E+00	2.551E+00	7.960E-01	2.219
		226.40		-5.237E-02	3.732E-01	5.915E-01	7.937E-02	-0.089
		227.20		-3.922E-01	4.174E-01	6.273E-01	5.615E-02	-0.625
		248.90		-7.914E-01	8.185E-01	1.186E+00	2.680E-01	-0.667
		293.70		5.521E+00	1.523E+00	1.667E+00	2.933E-01	3.311
		369.80		9.880E-02	8.310E-01	1.397E+00	3.047E-01	0.071
		568.70		-2.682E-01	1.074E+00	1.698E+00	1.510E-01	-0.158
		569.50		-2.749E-02	2.878E-01	4.617E-01	4.106E-02	-0.060
		574.00		-3.708E-01	1.525E+00	2.408E+00	2.139E-01	-0.154
		699.00		3.297E-02	7.816E-01	1.322E+00	2.519E-01	0.025
		706.10		-7.453E-01	1.249E+00	1.926E+00	8.588E-01	-0.387
		733.00		5.590E-02	4.324E-01	6.434E-01	1.429E-01	0.087
		742.81		7.551E-01	1.645E+00	2.733E+00	1.837E+00	0.276
		796.30		4.853E-01	1.067E+00	1.836E+00	4.977E-01	0.264
		805.60		-1.888E-02	1.187E+00	1.977E+00	6.068E-01	-0.010
		819.60		-5.008E-01	1.517E+00	2.406E+00	9.159E-01	-0.208
		826.30		-1.314E-01	1.010E+00	1.622E+00	7.260E-01	-0.081
		831.60		-3.286E-01	7.247E-01	1.142E+00	3.415E-01	-0.288
		876.40		-2.914E-01	9.918E-01	1.516E+00	1.559E+00	-0.192
		880.51		1.491E-01	3.310E-01	5.719E-01	5.013E-02	0.261
		883.24		-5.638E-02	3.431E-01	5.554E-01	3.735E-01	-0.102
		899.00		5.364E-01	1.005E+00	1.703E+00	7.447E-01	0.315
		925.00		1.314E-02	1.423E+00	2.350E+00	2.056E-01	0.006
		926.50		-2.281E-02	2.092E-01	3.412E-01	8.641E-02	-0.067
		946.00	*	2.384E-01	3.506E-01	6.128E-01	1.153E-01	0.389
		949.00		-7.338E-01	5.764E-01	8.207E-01	7.179E-02	-0.894
		980.50		1.764E-01	8.545E-01	1.434E+00	1.251E-01	0.123
		1394.10		5.874E-02	1.138E+00	1.915E+00	1.246E+00	0.031
PA-234M		766.42		1.294E+01	1.448E+01	2.332E+01	1.183E+01	0.555
		1001.03	*	3.278E+00	5.273E+00	9.187E+00	9.219E-01	0.357
U-235	+	89.95		2.476E+00	1.204E+00	1.459E+00	4.554E-01	1.698
		93.35		3.422E+00	1.242E+00	1.130E+00	3.220E-01	3.027
		105.00		7.277E-01	8.826E-01	1.472E+00	4.489E-01	0.494
		143.76	*	7.359E-03	2.032E-01	3.338E-01	6.120E-02	0.022
		163.35		3.186E-01	4.450E-01	7.431E-01	1.416E-01	0.429
NP-236	+	185.71		2.097E-01	7.023E-02	9.408E-02	8.056E-03	2.229
		205.31		-4.107E-02	5.375E-01	7.654E-01	1.466E-01	-0.054
		94.67		2.544E-01	1.104E-01	1.788E-01	1.802E-02	1.423
		98.44		4.069E-02	5.632E-02	9.638E-02	9.905E-03	0.422
		111.00		-5.651E-02	1.201E-01	1.912E-01	2.103E-02	-0.296
		160.31	*	5.179E-03	7.487E-02	1.225E-01	1.082E-02	0.042

---- 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		1.870E-01	1.276E-01	2.226E-01	2.301E-02	0.840
		117.00	*	-1.319E-01	1.644E-01	2.614E-01	2.973E-02	-0.505
	+	209.75		1.819E+00	1.130E+00	1.320E+00	1.162E-01	1.378
		228.18		-2.621E-01	2.211E-01	3.262E-01	2.922E-02	-0.803
		277.60		2.531E-01	1.731E-01	3.124E-01	2.868E-02	0.810
		334.30		-7.944E-01	1.408E+00	1.976E+00	1.786E-01	-0.402
AM-241		59.54	*	-3.860E-03	6.080E-02	9.240E-02	9.811E-03	-0.042
CM-243		99.55		1.924E-01	1.314E-01	2.291E-01	2.368E-02	0.840
		103.76	*	-2.313E-02	7.700E-02	1.266E-01	1.338E-02	-0.183
		117.00		-1.357E-01	1.691E-01	2.689E-01	3.059E-02	-0.505
	+	209.75		1.794E+00	1.114E+00	1.301E+00	1.146E-01	1.378
		228.18		-2.648E-01	2.234E-01	3.296E-01	2.953E-02	-0.803
		277.60		2.552E-01	1.745E-01	3.150E-01	2.891E-02	0.810
AM-246		798.80		-2.235E-01	1.625E-01	2.336E-01	2.051E-02	-0.957
		1036.00		-6.740E-02	3.765E-01	6.040E-01	5.218E-02	-0.112
		1062.04		-6.800E-02	3.080E-01	4.841E-01	4.153E-02	-0.140
		1078.86	*	9.758E-02	1.703E-01	2.942E-01	2.509E-02	0.332
CM-247		278.00		9.868E-01	7.304E-01	1.312E+00	1.204E-01	0.752
		287.40		-1.104E+00	1.119E+00	1.775E+00	1.631E-01	-0.622
		402.60	*	9.691E-03	3.641E-02	6.152E-02	5.226E-03	0.158
CF-249		252.85		8.707E-01	8.590E-01	1.445E+00	1.315E-01	0.603
		333.44		-9.729E-02	1.831E-01	2.579E-01	2.332E-02	-0.377
		387.95	*	-7.384E-04	4.240E-02	6.963E-02	5.899E-03	-0.011
CF-251		176.60	*	-2.474E-02	1.210E-01	1.942E-01	1.643E-02	-0.127
		227.00		-1.895E-01	3.590E-01	5.547E-01	4.965E-02	-0.342
		285.00		-5.137E-01	1.569E+00	2.605E+00	2.393E-01	-0.197

# 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]G246444003
* Acquisition date   : 19-FEB-2010 20:39:31 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 02:00:09.64             Half life ratio : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G246444003                Analyst initials: MXR1
* Batch Number       : 950788                    Sample Quantity : 1.4803E+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	3.247E+01	3.468E+00	5.489E-01	0.000E+00
CD-109	2.862E+00	8.415E-01	8.614E-01	0.000E+00
SN-126	2.808E-01	8.255E-02	8.440E-02	0.000E+00
BA-137M	1.665E-01	7.780E-02	6.562E-02	0.000E+00
CS-137	1.760E-01	8.224E-02	6.936E-02	0.000E+00
TL-208	4.809E-01	9.842E-02	5.583E-02	0.000E+00
BI-210	6.369E-01	7.538E-01	8.415E-01	0.000E+00
PB-210	6.369E-01	7.538E-01	8.415E-01	0.000E+00
PO-210	6.369E-01	7.534E-01	8.415E-01	0.000E+00
BI-211	3.461E+00	5.768E-01	3.205E-01	0.000E+00
PB-212	1.411E+00	1.739E-01	8.714E-02	0.000E+00
PO-212	1.411E+00	1.739E-01	8.714E-02	0.000E+00
BI-214	1.025E+00	1.882E-01	1.141E-01	0.000E+00
PB-214	1.204E+00	2.099E-01	1.118E-01	0.000E+00
PO-214	1.204E+00	2.099E-01	1.118E-01	0.000E+00
PO-216	1.411E+00	1.739E-01	8.714E-02	0.000E+00
PO-218	1.204E+00	2.099E-01	1.118E-01	0.000E+00
RA-224	3.923E+00	1.113E+00	9.922E-01	0.000E+00
RA-226	1.025E+00	1.882E-01	1.141E-01	0.000E+00
AC-228	1.304E+00	4.221E-01	2.595E-01	0.000E+00
RA-228	1.304E+00	4.221E-01	2.595E-01	0.000E+00
TH-228	1.435E+00	1.767E-01	8.857E-02	0.000E+00
TH-230	1.025E+00	1.882E-01	1.141E-01	0.000E+00
TH-232	1.304E+00	4.221E-01	2.595E-01	0.000E+00
TH-234	2.656E+00	1.080E+00	9.812E-01	0.000E+00
U-234	1.025E+00	1.882E-01	1.141E-01	0.000E+00
NP-237	8.245E-01	2.942E-01	2.868E-01	0.000E+00
U-238	2.656E+00	1.080E+00	9.812E-01	0.000E+00
AM-243	3.462E-01	5.616E-02	5.628E-02	0.000E+00
ANH-511	8.992E-02	8.746E-02	5.135E-02	0.000E+00

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

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	7.542E-02	3.491E-01	6.136E-01	0.000E+00	NOT IDENT.
NA-22	2.911E-02	5.755E-02	1.002E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.924E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.627E-02	3.378E-02	4.012E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.592E-02	5.617E-02	0.000E+00	FAIL ABUN
SC-46	-5.216E-02	4.715E-02	7.165E-02	0.000E+00	FAIL ABUN
V-48	-1.132E-01	9.204E-02	1.354E-01	0.000E+00	NOT IDENT.
CR-51	6.846E-02	3.441E-01	6.241E-01	0.000E+00	NOT IDENT.
MN-52	2.062E-01	3.041E-01	5.690E-01	0.000E+00	NOT IDENT.
MN-54	-1.160E-02	4.215E-02	7.115E-02	0.000E+00	NOT IDENT.
CO-56	7.245E-03	4.338E-02	7.622E-02	0.000E+00	NOT IDENT.
CO-57	-2.037E-02	2.173E-02	3.721E-02	0.000E+00	NOT IDENT.
CO-58	-1.043E-02	4.458E-02	7.570E-02	0.000E+00	NOT IDENT.
FE-59	-3.977E-02	1.211E-01	1.971E-01	0.000E+00	NOT IDENT.
CO-60	4.127E-03	4.036E-02	7.053E-02	0.000E+00	NOT IDENT.
ZN-65	7.678E-02	1.192E-01	1.886E-01	0.000E+00	NOT IDENT.
GE-68	3.128E-01	1.510E+00	2.600E+00	0.000E+00	NOT IDENT.
AS-73	1.483E-01	2.066E-01	3.999E-01	0.000E+00	NOT IDENT.
AS-74	5.911E-02	1.002E-01	1.785E-01	0.000E+00	NOT IDENT.
SE-75	2.018E-02	4.643E-02	7.698E-02	0.000E+00	NOT IDENT.
BR-77	2.703E+00	1.684E+01	2.830E+01	0.000E+00	FAIL ABUN
SR-82	-4.889E-01	4.497E-01	7.036E-01	0.000E+00	NOT IDENT.
RB-83	1.105E-02	7.812E-02	1.310E-01	0.000E+00	NOT IDENT.
RB-84	3.747E-02	8.373E-02	1.502E-01	0.000E+00	NOT IDENT.
KR-85	3.798E+00	7.254E+00	1.295E+01	0.000E+00	NOT IDENT.
SR-85	1.973E-02	3.768E-02	6.726E-02	0.000E+00	NOT IDENT.
RB-86	-3.975E-01	9.835E-01	1.585E+00	0.000E+00	NOT IDENT.
Y-88	2.702E-02	3.709E-02	7.135E-02	0.000E+00	NOT IDENT.
ZR-88	-3.487E-02	3.162E-02	5.119E-02	0.000E+00	NOT IDENT.
Y-91	7.598E+00	2.456E+01	4.206E+01	0.000E+00	NOT IDENT.
NB-94	-5.157E-03	3.835E-02	6.623E-02	0.000E+00	NOT IDENT.
NB-95	2.334E-02	4.853E-02	8.789E-02	0.000E+00	NOT IDENT.
NB-95M	-5.375E-02	1.314E-01	1.935E-01	0.000E+00	NOT IDENT.
ZR-95	4.794E-02	7.613E-02	1.403E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	4.302E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.644E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.778E+01	1.775E+01	3.333E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.093E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.604E-03	3.086E-02	5.386E-02	0.000E+00	NOT IDENT.
RH-102	2.294E-02	3.162E-02	5.752E-02	0.000E+00	NOT IDENT.
RU-103	-3.412E-02	4.362E-02	6.974E-02	0.000E+00	FAIL ABUN
RH-106	6.467E-02	3.436E-01	5.895E-01	0.000E+00	FAIL ABUN
RU-106	6.467E-02	3.436E-01	5.895E-01	0.000E+00	FAIL ABUN
AG-108M	2.833E-02	3.171E-02	5.887E-02	0.000E+00	NOT IDENT.
AG-110M	1.917E-02	4.308E-02	6.667E-02	0.000E+00	NOT IDENT.
IN-111	5.921E-01	1.446E+00	2.266E+00	0.000E+00	NOT IDENT.
IN-113M	-1.508E-02	4.522E-02	7.781E-02	0.000E+00	NOT IDENT.
SN-113	-1.508E-02	4.522E-02	7.781E-02	0.000E+00	NOT IDENT.
IN-114M	8.826E-02	1.794E-01	2.879E-01	0.000E+00	NOT IDENT.
CD-115	-4.861E-02	1.632E+01	2.795E+01	0.000E+00	NOT IDENT.
SN-117M	1.707E-02	5.292E-02	9.483E-02	0.000E+00	NOT IDENT.
SB-122	9.677E-01	3.102E+00	5.417E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.510E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	9.377E-03	2.583E-02	4.637E-02	0.000E+00	NOT IDENT.
I-124	2.195E-01	9.403E-01	1.430E+00	0.000E+00	FAIL ABUN
SB-124	-2.973E-02	7.683E-02	1.171E-01	0.000E+00	FAIL ABUN
SB-125	6.301E-02	9.442E-02	1.724E-01	0.000E+00	NOT IDENT.
TE-125M	3.109E+00	7.622E+00	1.404E+01	0.000E+00	NOT IDENT.
I-126	6.320E-02	2.612E-01	3.924E-01	0.000E+00	NOT IDENT.
SB-126	2.904E-02	1.731E-01	2.708E-01	0.000E+00	FAIL ABUN
SB-127	-7.979E-01	1.788E+00	2.837E+00	0.000E+00	NOT IDENT.
XE-127	-9.779E-03	4.402E-02	7.531E-02	0.000E+00	NOT IDENT.
I-131	-7.300E-02	1.251E-01	2.128E-01	0.000E+00	NOT IDENT.
TE-132	-1.046E+00	8.739E-01	1.366E+00	0.000E+00	NOT IDENT.
BA-133	6.351E-03	4.254E-02	6.748E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.702E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.823E-02	5.437E-02	1.035E-01	0.000E+00	NOT IDENT.
CS-135	6.782E-02	1.836E-01	2.834E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.520E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.723E-02	1.348E-01	2.192E-01	0.000E+00	FAIL ABUN
CE-139	-9.763E-03	2.682E-02	4.632E-02	0.000E+00	NOT IDENT.
BA-140	2.979E-02	3.108E-01	5.355E-01	0.000E+00	NOT IDENT.
LA-140	-9.501E-02	1.027E-01	1.442E-01	0.000E+00	NOT IDENT.
CE-141	-1.196E-02	6.086E-02	1.072E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.652E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	2.069E-01	1.975E-01	3.311E-01	0.000E+00	NOT IDENT.
PM-144	-5.350E-03	3.435E-02	5.970E-02	0.000E+00	NOT IDENT.
PR-144	-3.628E-01	2.329E+00	4.048E+00	0.000E+00	NOT IDENT.
PM-146	4.640E-02	4.720E-02	8.720E-02	0.000E+00	NOT IDENT.
ND-147	-4.993E-01	6.585E-01	1.046E+00	0.000E+00	FAIL ABUN
PM-149	-6.925E+01	1.162E+02	2.017E+02	0.000E+00	NOT IDENT.
EU-152	2.551E-02	1.056E-01	1.586E-01	0.000E+00	FAIL ABUN
GD-153	-5.841E-02	6.282E-02	1.102E-01	0.000E+00	FAIL ABUN
EU-154	9.037E-02	1.599E-01	2.798E-01	0.000E+00	NOT IDENT.
EU-155	7.676E-02	8.606E-02	1.614E-01	0.000E+00	FAIL ABUN
TB-160	1.803E-03	1.619E-01	2.791E-01	0.000E+00	FAIL ABUN
HO-166M	-2.287E-02	6.366E-02	1.084E-01	0.000E+00	FAIL ABUN
TM-171	1.018E+01	1.417E+01	2.454E+01	0.000E+00	NOT IDENT.
LU-176	9.902E-03	2.309E-02	4.251E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.775E+00	2.197E+00	0.000E+00	FAIL ABUN
LU-177M	6.166E-02	1.874E-01	3.354E-01	0.000E+00	FAIL ABUN
HF-181	-4.469E-02	4.692E-02	7.465E-02	0.000E+00	NOT IDENT.
W-181	1.031E-02	1.776E-01	3.004E-01	0.000E+00	NOT IDENT.
TA-182	2.084E-01	2.494E-01	4.456E-01	0.000E+00	FAIL ABUN
RE-183	6.939E-03	1.034E-01	1.829E-01	0.000E+00	FAIL ABUN
RE-184	2.332E-01	2.255E-01	4.061E-01	0.000E+00	NOT IDENT.
OS-185	2.702E-03	4.928E-02	8.318E-02	0.000E+00	NOT IDENT.
RE-188	8.119E-02	1.572E-01	2.843E-01	0.000E+00	NOT IDENT.
W-188	4.134E+00	7.426E+00	1.235E+01	0.000E+00	FAIL ABUN
IR-192	4.192E-03	3.146E-02	5.689E-02	0.000E+00	FAIL ABUN
AU-195	2.778E-01	1.807E-01	3.449E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.556E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.849E+00	8.060E+00	1.391E+01	0.000E+00	NOT IDENT.
TL-202	-2.503E-03	7.527E-02	1.309E-01	0.000E+00	NOT IDENT.
HG-203	-2.635E-03	3.848E-02	6.948E-02	0.000E+00	FAIL ABUN
BI-207	-2.588E-02	6.618E-02	1.054E-01	0.000E+00	FAIL ABUN
TL-207	-7.394E-01	6.659E-01	1.054E+00	0.000E+00	FAIL ABUN
PO-209	-1.263E+00	9.211E+00	1.563E+01	0.000E+00	NOT IDENT.
PB-211	-6.599E-01	9.643E-01	1.450E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.769E-01	7.431E-01	0.000E+00	FAIL ABUN
PO-215	-7.394E-01	6.659E-01	1.054E+00	0.000E+00	FAIL ABUN
RN-219	-3.216E-02	4.041E-01	7.061E-01	0.000E+00	FAIL ABUN
RN-220	3.012E+01	2.753E+01	5.113E+01	0.000E+00	NOT IDENT.
RA-223	-7.394E-01	6.659E-01	1.054E+00	0.000E+00	FAIL ABUN
AC-227	-3.591E-01	3.922E-01	6.075E-01	0.000E+00	FAIL ABUN
TH-227	-3.591E-01	3.936E-01	6.075E-01	0.000E+00	FAIL ABUN
TH-229	-3.559E-01	4.670E-01	7.771E-01	0.000E+00	FAIL ABUN
PA-231	1.058E+00	1.343E+00	2.521E+00	0.000E+00	FAIL ABUN
TH-231	-7.394E-01	6.659E-01	1.054E+00	0.000E+00	FAIL ABUN
U-231	-4.511E-01	1.103E+00	1.772E+00	0.000E+00	FAIL ABUN
PA-233	-4.005E-02	5.959E-02	1.025E-01	0.000E+00	FAIL ABUN
PA-234	2.384E-01	3.436E-01	6.233E-01	0.000E+00	FAIL ABUN
PA-234M	3.278E+00	5.167E+00	9.331E+00	0.000E+00	NOT IDENT.
U-235	7.359E-03	1.992E-01	3.548E-01	0.000E+00	FAIL ABUN
NP-236	5.179E-03	7.337E-02	1.299E-01	0.000E+00	NOT IDENT.
NP-239	-1.319E-01	1.611E-01	2.791E-01	0.000E+00	FAIL ABUN
AM-241	-3.860E-03	5.958E-02	1.001E-01	0.000E+00	NOT IDENT.
CM-243	-2.313E-02	7.546E-02	1.355E-01	0.000E+00	FAIL ABUN
AM-246	9.758E-02	1.669E-01	2.982E-01	0.000E+00	NOT IDENT.
CM-247	9.691E-03	3.568E-02	6.386E-02	0.000E+00	NOT IDENT.
CF-249	-7.384E-04	4.155E-02	7.235E-02	0.000E+00	NOT IDENT.
CF-251	-2.474E-02	1.186E-01	2.054E-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]G246444003.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:39:31
Sample ID          : G246444003      Sample quantity   : 1.48030E+02 GRAM
Detector name      : GAM17            Detector geometry: CAN
Elapsed live time   : 0 02:00:00.00    Elapsed real time: 0 02:00:09.64  0.1%
Energy tolerance    : 1.50000 keV      Analyst Initials : MXR1
Abundance limit     : 75.00000          Sensitivity       : 5.00000
Batch ID           : 950788            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	1063	10.67*	7.782E-01	3.247E+01	3.247E+01	10.90
CD-109	88.03	273	3.72*	6.675E+00	2.793E+00	2.862E+00	30.00
SN-126	64.28	270	9.60	6.778E+00	1.051E+00	1.051E+00	40.37
	86.94	273	8.90	6.675E+00	1.167E+00	1.167E+00	50.36
	87.57	273	37.00*	6.675E+00	2.808E-01	2.808E-01	30.00
BA-137M	661.65	95	89.98*	1.602E+00	1.663E-01	1.665E-01	47.69
CS-137	661.65	95	85.12*	1.602E+00	1.758E-01	1.760E-01	47.69
TL-208	277.35	-----	6.80	3.568E+00	-----	Line Not Found	-----
	510.84	73	21.60	2.056E+00	4.163E-01	4.163E-01	99.59
	583.14	289	84.20*	1.812E+00	4.809E-01	4.809E-01	20.88
	860.37	-----	12.46	1.247E+00	-----	Line Not Found	-----
BI-210	46.50	64	4.05*	6.312E+00	6.360E-01	6.369E-01	120.77
PB-210	46.50	64	4.05*	6.312E+00	6.360E-01	6.369E-01	120.77
PO-210	46.50	64	4.05*	6.312E+00	6.360E-01	6.369E-01	120.71
BI-211	72.87	65	1.27	6.804E+00	1.915E+00	1.915E+00	64.86
	351.07	514	12.94*	2.908E+00	3.461E+00	3.461E+00	17.01
PB-212	74.81	612	10.70	6.795E+00	2.135E+00	2.135E+00	19.01
	77.11	879	18.00	6.782E+00	1.825E+00	1.825E+00	13.91
	87.30	273	8.00	6.675E+00	1.299E+00	1.299E+00	31.62
	238.63	999	44.60*	4.023E+00	1.411E+00	1.411E+00	12.57
	300.09	50	3.41	3.342E+00	1.113E+00	1.113E+00	85.17
PO-212	74.81	612	10.70	6.795E+00	2.135E+00	2.135E+00	19.01
	77.11	879	18.00	6.782E+00	1.825E+00	1.825E+00	13.91
	87.30	273	8.00	6.675E+00	1.299E+00	1.299E+00	31.62
	115.19	-----	0.60	6.177E+00	-----	Line Not Found	-----
	238.63	999	44.60*	4.023E+00	1.411E+00	1.411E+00	12.57
	300.09	50	3.41	3.342E+00	1.113E+00	1.113E+00	85.17
BI-214	609.31	325	46.30*	1.737E+00	1.025E+00	1.025E+00	18.74
	1120.29	69	15.10	9.770E-01	1.193E+00	1.193E+00	70.62
	1764.49	54	15.80	6.717E-01	1.292E+00	1.292E+00	38.39
PB-214	74.81	612	6.21	6.795E+00	3.679E+00	3.679E+00	18.14
	77.11	879	10.50	6.782E+00	3.129E+00	3.129E+00	15.86

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	273	4.67	6.675E+00	2.225E+00	2.225E+00	30.98
	241.98	243	7.49	3.984E+00	2.069E+00	2.069E+00	29.48
	295.21	295	19.20	3.389E+00	1.150E+00	1.150E+00	23.98
	351.92	514	37.20*	2.908E+00	1.204E+00	1.204E+00	17.79
	74.81	612	6.21	6.795E+00	3.679E+00	3.679E+00	18.14
	77.11	879	10.50	6.782E+00	3.129E+00	3.129E+00	15.86
PO-216	87.30	273	4.67	6.675E+00	2.225E+00	2.225E+00	30.98
	241.98	243	7.49	3.984E+00	2.069E+00	2.069E+00	29.48
	295.21	295	19.20	3.389E+00	1.150E+00	1.150E+00	23.98
	351.92	514	37.20*	2.908E+00	1.204E+00	1.204E+00	17.79
	74.81	612	10.70	6.795E+00	2.135E+00	2.135E+00	19.01
	77.11	879	18.00	6.782E+00	1.825E+00	1.825E+00	13.91
PO-218	87.30	273	8.00	6.675E+00	1.299E+00	1.299E+00	31.62
	238.63	999	44.60*	4.023E+00	1.411E+00	1.411E+00	12.57
	300.09	50	3.41	3.342E+00	1.113E+00	1.113E+00	85.17
	74.81	612	6.21	6.795E+00	3.679E+00	3.679E+00	18.14
	77.11	879	10.50	6.782E+00	3.129E+00	3.129E+00	15.86
	87.30	273	4.67	6.675E+00	2.225E+00	2.225E+00	30.98
RA-224	241.98	243	7.49	3.984E+00	2.069E+00	2.069E+00	29.48
	295.21	295	19.20	3.389E+00	1.150E+00	1.150E+00	23.98
	351.92	514	37.20*	2.908E+00	1.204E+00	1.204E+00	17.79
	240.98	243	3.95*	3.984E+00	3.923E+00	3.923E+00	28.94
	609.31	325	46.30*	1.737E+00	1.025E+00	1.025E+00	18.74
	1120.29	69	15.10	9.770E-01	1.193E+00	1.193E+00	70.62
AC-228	1764.49	54	15.80	6.717E-01	1.292E+00	1.292E+00	38.39
	338.32	207	11.40	3.010E+00	1.529E+00	1.529E+00	52.21
	911.07	168	27.70*	1.182E+00	1.304E+00	1.304E+00	33.04
	969.11	95	16.60	1.116E+00	1.305E+00	1.305E+00	38.78
	338.32	207	11.40	3.010E+00	1.529E+00	1.529E+00	52.21
	911.07	168	27.70*	1.182E+00	1.304E+00	1.304E+00	33.04
TH-228	969.11	95	16.60	1.116E+00	1.305E+00	1.305E+00	38.78
	74.81	612	10.70	6.795E+00	2.135E+00	2.170E+00	16.59
	77.11	879	18.00	6.782E+00	1.825E+00	1.855E+00	13.91
	87.30	273	8.00	6.675E+00	1.299E+00	1.320E+00	30.00
	238.63	999	44.60*	4.023E+00	1.411E+00	1.435E+00	12.57
	300.09	50	3.41	3.342E+00	1.113E+00	1.131E+00	103.25
TH-230	609.31	325	46.30*	1.737E+00	1.025E+00	1.025E+00	18.74
	1120.29	69	15.10	9.770E-01	1.193E+00	1.193E+00	70.62
	1764.49	54	15.80	6.717E-01	1.292E+00	1.292E+00	38.39
	338.32	207	11.40	3.010E+00	1.529E+00	1.529E+00	33.13
	911.07	168	27.70*	1.182E+00	1.304E+00	1.304E+00	33.04
	969.11	95	16.60	1.116E+00	1.305E+00	1.305E+00	38.78
TH-234	63.29	270	3.80*	6.778E+00	2.656E+00	2.656E+00	41.50
	92.38	400	5.41	6.594E+00	2.846E+00	2.846E+00	29.30
	609.31	325	46.30*	1.737E+00	1.025E+00	1.025E+00	18.74
	1120.29	69	15.10	9.770E-01	1.193E+00	1.193E+00	70.62
	1764.49	54	15.80	6.717E-01	1.292E+00	1.292E+00	38.39
	86.50	273	12.60*	6.675E+00	8.245E-01	8.245E-01	36.41
NP-237	95.87	-----	2.60	6.543E+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	270	3.80*	6.778E+00	2.656E+00	2.656E+00	41.50
	92.38	400	5.41	6.594E+00	2.846E+00	2.846E+00	24.61
AM-243	74.67	612	66.00*	6.795E+00	3.462E-01	3.462E-01	16.55
	86.72	273	0.34	6.675E+00	3.092E+01	3.092E+01	30.00
	117.66	-----	0.55	6.127E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.624E+00	-----	Line Not Found	-----
ANH-511	511.00	73	100.00*	2.056E+00	8.992E-02	8.992E-02	99.24

Flag: "\*" = Keyline

Total number of lines in spectrum 32  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 31 96.88%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.247E+01	3.247E+01	0.354E+01	10.90	
CD-109	464.00D	1.02	2.793E+00	2.862E+00	0.859E+00	30.00	
SN-126	1.00E+05Y	1.00	2.808E-01	2.808E-01	0.842E-01	30.00	
BA-137M	30.17Y	1.00	1.663E-01	1.665E-01	0.794E-01	47.69	
CS-137	30.17Y	1.00	1.758E-01	1.760E-01	0.839E-01	47.69	
TL-208	1.41E+10Y	1.00	4.809E-01	4.809E-01	1.004E-01	20.88	
BI-210	22.26Y	1.00	6.360E-01	6.369E-01	7.692E-01	120.77	
PB-210	22.26Y	1.00	6.360E-01	6.369E-01	7.692E-01	120.77	
PO-210	22.26Y	1.00	6.360E-01	6.369E-01	7.688E-01	120.71	
BI-211	7.04E+08Y	1.00	3.461E+00	3.461E+00	0.589E+00	17.01	
PB-212	1.41E+10Y	1.00	1.411E+00	1.411E+00	0.177E+00	12.57	
PO-212	1.41E+10Y	1.00	1.411E+00	1.411E+00	0.177E+00	12.57	
BI-214	1600.00Y	1.00	1.025E+00	1.025E+00	0.192E+00	18.74	
PB-214	1600.00Y	1.00	1.204E+00	1.204E+00	0.214E+00	17.79	
PO-214	1600.00Y	1.00	1.204E+00	1.204E+00	0.214E+00	17.79	
PO-216	1.41E+10Y	1.00	1.411E+00	1.411E+00	0.177E+00	12.57	
PO-218	1600.00Y	1.00	1.204E+00	1.204E+00	0.214E+00	17.79	
RA-224	1.41E+10Y	1.00	3.923E+00	3.923E+00	1.136E+00	28.94	
RA-226	1600.00Y	1.00	1.025E+00	1.025E+00	0.192E+00	18.74	
AC-228	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.431E+00	33.04	
RA-228	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.431E+00	33.04	
TH-228	1.91Y	1.02	1.411E+00	1.435E+00	0.180E+00	12.57	
TH-230	4.47E+09Y	1.00	1.025E+00	1.025E+00	0.192E+00	18.74	
TH-232	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.431E+00	33.04	
TH-234	4.47E+09Y	1.00	2.656E+00	2.656E+00	1.103E+00	41.50	
U-234	4.47E+09Y	1.00	1.025E+00	1.025E+00	0.192E+00	18.74	
NP-237	2.14E+06Y	1.00	8.245E-01	8.245E-01	3.002E-01	36.41	
U-238	4.47E+09Y	1.00	2.656E+00	2.656E+00	1.103E+00	41.50	
AM-243	7380.00Y	1.00	3.462E-01	3.462E-01	0.573E-01	16.55	
ANH-511	1.00E+09Y	1.00	8.992E-02	8.992E-02	8.924E-02	99.24	
Total Activity :			6.950E+01	6.960E+01			

Grand Total Activity : 6.950E+01 6.960E+01

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

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

Unidentified Energy Lines  
Sample ID : G246444003

Page : 5  
Acquisition date : 19-FEB-2010 20:39:31

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	84.25	82	333	0.88	168.15	163	15	1.14E-02	72.4	6.71E+00	T
4	89.94	175	367	0.96	179.54	177	12	2.43E-02	37.3	6.64E+00	T
0	129.44	80	271	0.86	258.57	256	7	1.12E-02	71.4	5.88E+00	T
0	185.86	215	262	1.11	371.46	367	10	2.98E-02	32.4	4.81E+00	T
0	209.49	103	255	1.06	418.73	414	10	1.43E-02	61.5	4.43E+00	T
0	270.10	81	162	1.39	539.99	536	9	1.12E-02	61.7	3.65E+00	T
0	726.99	66	76	1.58	1454.25	1447	15	9.20E-03	59.7	1.46E+00	T
0	963.10	46	42	2.01	1926.78	1918	14	6.44E-03	68.0	1.12E+00	T
0	1376.67	23	24	3.34	2754.55	2747	17	3.23E-03	****	8.17E-01	T
0	1587.85	16	15	1.73	3177.29	3172	11	2.17E-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]G246444003.CNF;1    *
* Acquisition date   : 19-FEB-2010 20:39:31  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 02:00:09.64             Half life ratio : 8.00000        *
*****
*
*                               SAMPLE DATA                                *
*
* Sample date        : 3-FEB-2010 12:00:00.   Nuclide Library : SOLID            *
* Sample ID          : G246444003             Analyst initials: MXR1            *
* Batch Number       : 950788                 Sample Quantity : 1.48030E+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	3.247E+01	3.539E+00	5.455E-01	4.843E-02	59.534
CD-109	2.862E+00	8.586E-01	8.017E-01	7.827E-02	3.570
SN-126	2.808E-01	8.424E-02	7.854E-02	7.665E-03	3.575
BA-137M	1.665E-01	7.938E-02	6.396E-02	5.388E-03	2.603
CS-137	1.760E-01	8.392E-02	6.761E-02	5.707E-03	2.603
TL-208	4.809E-01	1.004E-01	5.426E-02	5.132E-03	8.863
BI-210	6.369E-01	7.692E-01	7.724E-01	8.379E-02	0.825
PB-210	6.369E-01	7.692E-01	7.724E-01	8.379E-02	0.825
PO-210	6.369E-01	7.688E-01	7.724E-01	7.804E-02	0.825
BI-211	3.461E+00	5.886E-01	3.078E-01	2.872E-02	11.244
PB-212	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
PO-212	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
BI-214	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
PB-214	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
PO-214	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
PO-216	1.411E+00	1.774E-01	8.293E-02	8.360E-03	17.021
PO-218	1.204E+00	2.142E-01	1.073E-01	1.147E-02	11.216
RA-224	3.923E+00	1.136E+00	9.445E-01	8.542E-02	4.154

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
AC-228	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
RA-228	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
TH-228	1.435E+00	1.803E-01	8.429E-02	8.498E-03	17.021
TH-230	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
TH-232	1.304E+00	4.308E-01	2.549E-01	2.891E-02	5.115
TH-234	2.656E+00	1.103E+00	9.067E-01	1.692E-01	2.930
U-234	1.025E+00	1.921E-01	1.110E-01	1.129E-02	9.236
NP-237	8.245E-01	3.002E-01	2.668E-01	6.090E-02	3.090
U-238	2.656E+00	1.103E+00	9.067E-01	1.692E-01	2.930
AM-243	3.462E-01	5.730E-02	5.219E-02	5.095E-03	6.633
ANH-511	8.992E-02	8.924E-02	4.975E-02	4.443E-03	1.808

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.542E-02		3.562E-01	5.934E-01	5.646E-02	0.127
NA-22	2.911E-02		5.873E-02	9.927E-02	8.363E-03	0.293
NA-24	-2.795E+00		2.002E+00	Half-Life	too short	
AL-26	-3.627E-02		3.447E-02	4.008E-02	3.360E-03	-0.905
TI-44	3.368E-01	+	4.686E-02	5.214E-02	5.081E-03	6.459
SC-46	-5.216E-02		4.812E-02	7.034E-02	6.158E-03	-0.742
V-48	-1.132E-01		9.392E-02	1.332E-01	1.162E-02	-0.850
CR-51	6.846E-02		3.511E-01	5.980E-01	5.710E-02	0.114
MN-52	2.062E-01		3.103E-01	5.652E-01	4.873E-02	0.365
MN-54	-1.160E-02		4.301E-02	6.974E-02	6.132E-03	-0.166
CO-56	7.245E-03		4.427E-02	7.473E-02	6.569E-03	0.097
CO-57	-2.037E-02		2.217E-02	3.488E-02	4.087E-03	-0.584
CO-58	-1.043E-02		4.549E-02	7.415E-02	6.530E-03	-0.141
FE-59	-3.977E-02		1.236E-01	1.945E-01	1.785E-02	-0.205
CO-60	4.127E-03		4.118E-02	6.993E-02	5.960E-03	0.059
ZN-65	7.678E-02		1.216E-01	1.862E-01	1.567E-02	0.412
GE-68	3.128E-01		1.541E+00	2.565E+00	2.189E-01	0.122
AS-73	1.483E-01		2.108E-01	3.682E-01	3.684E-02	0.403
AS-74	5.911E-02		1.022E-01	1.735E-01	1.529E-02	0.341
SE-75	2.018E-02		4.738E-02	7.343E-02	6.747E-03	0.275
BR-77	2.703E+00		1.719E+01	2.742E+01	2.451E+00	0.099
SR-82	-4.889E-01		4.589E-01	6.884E-01	6.025E-02	-0.710
RB-83	1.105E-02		7.971E-02	1.270E-01	1.135E-02	0.087
RB-84	3.747E-02		8.544E-02	1.474E-01	1.292E-02	0.254
KR-85	3.798E+00		7.402E+00	1.255E+01	1.121E+00	0.303
SR-85	1.973E-02		3.845E-02	6.517E-02	5.822E-03	0.303
RB-86	-3.975E-01		1.004E+00	1.563E+00	1.334E-01	-0.254
Y-88	2.702E-02		3.785E-02	7.132E-02	5.947E-03	0.379
ZR-88	-3.487E-02		3.226E-02	4.929E-02	4.153E-03	-0.708
Y-91	7.598E+00		2.506E+01	4.160E+01	3.434E+00	0.183
NB-94	-5.157E-03		3.913E-02	6.465E-02	5.546E-03	-0.080

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	2.334E-02		4.952E-02	8.597E-02	7.509E-03	0.272
NB-95M	-5.375E-02		1.340E-01	1.841E-01	1.880E-02	-0.292
ZR-95	4.794E-02		7.768E-02	1.372E-01	1.314E-02	0.349
NB-97	1.622E-03		2.195E-01	Half-Life	too short	
ZR-97	3.827E+00		3.900E+00	Half-Life	too short	
MO-99	1.778E+01		1.811E+01	3.258E+01	4.958E+00	0.546
TC-99M	-5.361E+11		5.577E+11	Half-Life	too short	
RH-101	3.604E-03		3.149E-02	5.104E-02	4.438E-03	0.071
RH-102	2.294E-02		3.227E-02	5.563E-02	4.928E-03	0.412
RU-103	-3.412E-02		4.451E-02	6.751E-02	9.682E-03	-0.505
RH-106	6.467E-02		3.506E-01	5.737E-01	7.688E-02	0.113
RU-106	6.467E-02		3.506E-01	5.737E-01	4.984E-02	0.113
AG-108M	2.833E-02		3.235E-02	5.681E-02	5.127E-03	0.499
AG-110M	1.917E-02		4.396E-02	6.497E-02	5.662E-03	0.295
IN-111	5.921E-01		1.476E+00	2.158E+00	1.956E-01	0.274
IN-113M	-1.508E-02		4.614E-02	7.491E-02	6.508E-03	-0.201
SN-113	-1.508E-02		4.614E-02	7.491E-02	6.508E-03	-0.201
IN-114M	8.826E-02		1.830E-01	2.726E-01	2.348E-02	0.324
CD-115	-4.861E-02		1.665E+01	2.709E+01	2.422E+00	-0.002
SN-117M	1.707E-02		5.400E-02	8.942E-02	8.038E-03	0.191
SB-122	9.677E-01		3.166E+00	5.260E+00	4.684E-01	0.184
I-123	9.113E+00		1.281E+01	Half-Life	too short	
TE-123M	9.377E-03		2.636E-02	4.372E-02	3.936E-03	0.214
I-124	2.195E-01		9.595E-01	1.391E+00	1.221E-01	0.158
SB-124	-2.973E-02		7.840E-02	1.168E-01	1.039E-02	-0.254
SB-125	6.301E-02		9.634E-02	1.663E-01	1.467E-02	0.379
TE-125M	3.109E+00		7.777E+00	1.313E+01	1.614E+00	0.237
I-126	6.320E-02		2.665E-01	3.825E-01	3.230E-02	0.165
SB-126	2.904E-02		1.766E-01	2.645E-01	2.283E-02	0.110
SB-127	-7.979E-01		1.825E+00	2.767E+00	3.232E-01	-0.288
XE-127	-9.779E-03		4.491E-02	7.141E-02	6.243E-03	-0.137
I-131	-7.300E-02		1.277E-01	2.045E-01	1.890E-02	-0.357
TE-132	-1.046E+00		8.917E-01	1.299E+00	2.096E-01	-0.805
BA-133	6.351E-03		4.341E-02	6.482E-02	8.661E-03	0.098
I-133	-3.867E-03		8.684E-03	Half-Life	too short	
CS-134	6.823E-02		5.548E-02	1.013E-01	8.950E-03	0.674
CS-135	6.782E-02		1.873E-01	2.705E-01	2.822E-02	0.251
I-135	-5.883E+10		7.757E+10	Half-Life	too short	
CS-136	-4.723E-02		1.376E-01	2.161E-01	1.940E-02	-0.219
CE-139	-9.763E-03		2.737E-02	4.372E-02	3.646E-03	-0.223
BA-140	2.979E-02		3.172E-01	5.194E-01	1.726E-01	0.057
LA-140	-9.501E-02		1.048E-01	1.436E-01	1.240E-02	-0.662
CE-141	-1.196E-02		6.210E-02	1.009E-01	1.029E-02	-0.119
CE-143	9.693E-04		1.863E-04	Half-Life	too short	
CE-144	2.069E-01		2.016E-01	3.110E-01	5.276E-02	0.665
PM-144	-5.350E-03		3.505E-02	5.826E-02	4.988E-03	-0.092
PR-144	-3.628E-01		2.376E+00	3.951E+00	3.381E-01	-0.092
PM-146	4.640E-02		4.817E-02	8.424E-02	9.143E-03	0.551

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-4.993E-01		6.719E-01	1.014E+00	1.535E-01	-0.492
PM-149	-6.925E+01		1.185E+02	1.927E+02	3.058E+01	-0.359
EU-152	2.551E-02		1.078E-01	1.522E-01	1.440E-02	0.168
GD-153	-5.841E-02		6.410E-02	1.028E-01	1.051E-02	-0.568
EU-154	9.037E-02		1.631E-01	2.771E-01	3.092E-02	0.326
EU-155	7.676E-02		8.782E-02	1.508E-01	1.620E-02	0.509
TB-160	1.803E-03		1.652E-01	2.739E-01	2.401E-02	0.007
HO-166M	-2.287E-02		6.496E-02	1.058E-01	9.109E-03	-0.216
TM-171	1.018E+01		1.446E+01	2.270E+01	2.240E+00	0.449
LU-176	9.902E-03		2.356E-02	4.069E-02	3.728E-03	0.243
LU-177	2.917E+00	+	1.812E+00	2.084E+00	1.833E-01	1.400
LU-177M	6.166E-02		1.912E-01	3.233E-01	2.770E-02	0.191
HF-181	-4.469E-02		4.788E-02	7.222E-02	6.411E-03	-0.619
W-181	1.031E-02		1.813E-01	2.778E-01	2.751E-02	0.037
TA-182	2.084E-01		2.545E-01	4.409E-01	3.657E-02	0.473
RE-183	6.939E-03		1.055E-01	1.725E-01	1.494E-02	0.040
RE-184	2.332E-01		2.301E-01	3.870E-01	3.523E-02	0.603
OS-185	2.702E-03		5.029E-02	8.103E-02	6.919E-03	0.033
RE-188	8.119E-02		1.604E-01	2.679E-01	2.489E-02	0.303
W-188	4.134E+00		7.577E+00	1.181E+01	1.084E+00	0.350
IR-192	4.192E-03		3.211E-02	5.450E-02	4.986E-03	0.077
AU-195	2.778E-01		1.844E-01	3.219E-01	3.315E-02	0.863
TL-200	1.130E-04		4.875E-04	Half-Life too short		
TL-201	-2.849E+00		8.225E+00	1.313E+01	1.096E+00	-0.217
TL-202	-2.503E-03		7.680E-02	1.263E-01	1.101E-02	-0.020
HG-203	-2.635E-03		3.927E-02	6.636E-02	6.245E-03	-0.040
BI-207	-2.588E-02		6.753E-02	1.040E-01	8.913E-03	-0.249
TL-207	-7.394E-01		6.795E-01	1.010E+00	1.812E-01	-0.732
PO-209	-1.263E+00		9.399E+00	1.535E+01	1.342E+00	-0.082
PB-211	-6.599E-01		9.840E-01	1.397E+00	8.752E-01	-0.472
BI-212	9.725E-01	+	5.887E-01	7.259E-01	7.284E-02	1.340
PO-215	-7.394E-01		6.795E-01	1.010E+00	1.812E-01	-0.732
RN-219	-3.216E-02		4.123E-01	6.801E-01	1.017E-01	-0.047
RN-220	3.012E+01		2.810E+01	4.961E+01	4.429E+00	0.607
RA-223	-7.394E-01		6.795E-01	1.010E+00	1.812E-01	-0.732
AC-227	-3.591E-01		4.002E-01	5.791E-01	9.054E-02	-0.620
TH-227	-3.591E-01		4.016E-01	5.791E-01	1.060E-01	-0.620
TH-229	-3.559E-01		4.766E-01	7.361E-01	6.366E-02	-0.484
PA-231	1.058E+00		1.371E+00	2.409E+00	3.736E-01	0.439
TH-231	-7.394E-01		6.795E-01	1.010E+00	1.812E-01	-0.732
U-231	-4.511E-01		1.126E+00	1.652E+00	1.676E-01	-0.273
PA-233	-4.005E-02		6.081E-02	9.810E-02	9.201E-03	-0.408
PA-234	2.384E-01		3.506E-01	6.128E-01	1.153E-01	0.389
PA-234M	3.278E+00		5.273E+00	9.187E+00	9.219E-01	0.357
U-235	7.359E-03		2.032E-01	3.338E-01	6.120E-02	0.022
NP-236	5.179E-03		7.487E-02	1.225E-01	1.082E-02	0.042
NP-239	-1.319E-01		1.644E-01	2.614E-01	2.973E-02	-0.505
AM-241	-3.860E-03		6.080E-02	9.240E-02	9.811E-03	-0.042

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-2.313E-02		7.700E-02	1.266E-01	1.338E-02	-0.183
AM-246	9.758E-02		1.703E-01	2.942E-01	2.509E-02	0.332
CM-247	9.691E-03		3.641E-02	6.152E-02	5.226E-03	0.158
CF-249	-7.384E-04		4.240E-02	6.963E-02	5.899E-03	-0.011
CF-251	-2.474E-02		1.210E-01	1.942E-01	1.643E-02	-0.127

# 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]G246444003          *
* Acquisition date   : 19-FEB-2010 20:39:31 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 02:00:09.64 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246444003 Analyst initials: MXR1                 *
* Batch Number       : 950788 Sample Quantity : 1.4803E+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	3.247E+01	3.468E+00	2.746E-01	1.769E+00
CD-109	2.862E+00	8.415E-01	4.310E-01	4.293E-01
SN-126	2.808E-01	8.255E-02	4.223E-02	4.212E-02
BA-137M	1.665E-01	7.780E-02	3.283E-02	3.969E-02
CS-137	1.760E-01	8.224E-02	3.470E-02	4.196E-02
TL-208	4.809E-01	9.842E-02	2.793E-02	5.021E-02
BI-210	6.369E-01	7.538E-01	4.210E-01	3.846E-01
PB-210	6.369E-01	7.538E-01	4.210E-01	3.846E-01
PO-210	6.369E-01	7.534E-01	4.210E-01	3.844E-01
BI-211	3.461E+00	5.768E-01	1.604E-01	2.943E-01
PB-212	1.411E+00	1.739E-01	4.359E-02	8.871E-02
PO-212	1.411E+00	1.739E-01	4.359E-02	8.871E-02
BI-214	1.025E+00	1.882E-01	5.708E-02	9.603E-02
PB-214	1.204E+00	2.099E-01	5.592E-02	1.071E-01
PO-214	1.204E+00	2.099E-01	5.592E-02	1.071E-01
PO-216	1.411E+00	1.739E-01	4.359E-02	8.871E-02
PO-218	1.204E+00	2.099E-01	5.592E-02	1.071E-01
RA-224	3.923E+00	1.113E+00	4.964E-01	5.678E-01
RA-226	1.025E+00	1.882E-01	5.708E-02	9.603E-02
AC-228	1.304E+00	4.221E-01	1.298E-01	2.154E-01
RA-228	1.304E+00	4.221E-01	1.298E-01	2.154E-01
TH-228	1.435E+00	1.767E-01	4.431E-02	9.017E-02
TH-230	1.025E+00	1.882E-01	5.708E-02	9.603E-02
TH-232	1.304E+00	4.221E-01	1.298E-01	2.154E-01
TH-234	2.656E+00	1.080E+00	4.909E-01	5.513E-01
U-234	1.025E+00	1.882E-01	5.708E-02	9.603E-02
NP-237	8.245E-01	2.942E-01	1.435E-01	1.501E-01
U-238	2.656E+00	1.080E+00	4.909E-01	5.513E-01
AM-243	3.462E-01	5.616E-02	2.815E-02	2.865E-02
ANH-511	8.992E-02	8.746E-02	2.569E-02	4.462E-02

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

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	7.542E-02	3.491E-01	3.070E-01	1.781E-01 NOT IDENT.
NA-22	2.911E-02	5.755E-02	5.014E-02	2.936E-02 NOT IDENT.
NA-24	-2.795E+06	3.924E+06	0.000E+00	2.002E+06 SHORT HLIF
AL-26	-3.627E-02	3.378E-02	2.007E-02	1.723E-02 NOT IDENT.
TI-44	3.368E-01	4.592E-02	2.810E-02	2.343E-02 FAIL ABUN
SC-46	-5.216E-02	4.715E-02	3.585E-02	2.406E-02 FAIL ABUN
V-48	-1.132E-01	9.204E-02	6.773E-02	4.696E-02 NOT IDENT.
CR-51	6.846E-02	3.441E-01	3.122E-01	1.755E-01 NOT IDENT.
MN-52	2.062E-01	3.041E-01	2.847E-01	1.552E-01 NOT IDENT.
MN-54	-1.160E-02	4.215E-02	3.560E-02	2.151E-02 NOT IDENT.
CO-56	7.245E-03	4.338E-02	3.813E-02	2.213E-02 NOT IDENT.
CO-57	-2.037E-02	2.173E-02	1.862E-02	1.109E-02 NOT IDENT.
CO-58	-1.043E-02	4.458E-02	3.787E-02	2.274E-02 NOT IDENT.
FE-59	-3.977E-02	1.211E-01	9.860E-02	6.178E-02 NOT IDENT.
CO-60	4.127E-03	4.036E-02	3.528E-02	2.059E-02 NOT IDENT.
ZN-65	7.678E-02	1.192E-01	9.436E-02	6.079E-02 NOT IDENT.
GE-68	3.128E-01	1.510E+00	1.301E+00	7.705E-01 NOT IDENT.
AS-73	1.483E-01	2.066E-01	2.001E-01	1.054E-01 NOT IDENT.
AS-74	5.911E-02	1.002E-01	8.929E-02	5.110E-02 NOT IDENT.
SE-75	2.018E-02	4.643E-02	3.851E-02	2.369E-02 NOT IDENT.
BR-77	2.703E+00	1.684E+01	1.416E+01	8.593E+00 FAIL ABUN
SR-82	-4.889E-01	4.497E-01	3.520E-01	2.295E-01 NOT IDENT.
RB-83	1.105E-02	7.812E-02	6.556E-02	3.986E-02 NOT IDENT.
RB-84	3.747E-02	8.373E-02	7.514E-02	4.272E-02 NOT IDENT.
KR-85	3.798E+00	7.254E+00	6.478E+00	3.701E+00 NOT IDENT.
SR-85	1.973E-02	3.768E-02	3.365E-02	1.923E-02 NOT IDENT.
RB-86	-3.975E-01	9.835E-01	7.929E-01	5.018E-01 NOT IDENT.
Y-88	2.702E-02	3.709E-02	3.570E-02	1.893E-02 NOT IDENT.
ZR-88	-3.487E-02	3.162E-02	2.561E-02	1.613E-02 NOT IDENT.
Y-91	7.598E+00	2.456E+01	2.104E+01	1.253E+01 NOT IDENT.
NB-94	-5.157E-03	3.835E-02	3.314E-02	1.957E-02 NOT IDENT.
NB-95	2.334E-02	4.853E-02	4.397E-02	2.476E-02 NOT IDENT.
NB-95M	-5.375E-02	1.314E-01	9.682E-02	6.702E-02 NOT IDENT.
ZR-95	4.794E-02	7.613E-02	7.019E-02	3.884E-02 NOT IDENT.
NB-97	1.622E+03	4.302E+05	0.000E+00	2.195E+05 SHORT HLIF
ZR-97	3.827E+06	7.644E+06	0.000E+00	3.900E+06 SHORT HLIF
MO-99	1.778E+01	1.775E+01	1.668E+01	9.055E+00 NOT IDENT.
TC-99M	-5.361E+17	1.093E+18	0.000E+00	0.000E+00 SHORT HLIF
RH-101	3.604E-03	3.086E-02	2.695E-02	1.574E-02 NOT IDENT.
RH-102	2.294E-02	3.162E-02	2.878E-02	1.613E-02 NOT IDENT.
RU-103	-3.412E-02	4.362E-02	3.489E-02	2.225E-02 FAIL ABUN
RH-106	6.467E-02	3.436E-01	2.949E-01	1.753E-01 FAIL ABUN
RU-106	6.467E-02	3.436E-01	2.949E-01	1.753E-01 FAIL ABUN
AG-108M	2.833E-02	3.171E-02	2.945E-02	1.618E-02 NOT IDENT.
AG-110M	1.917E-02	4.308E-02	3.335E-02	2.198E-02 NOT IDENT.
IN-111	5.921E-01	1.446E+00	1.133E+00	7.378E-01 NOT IDENT.
IN-113M	-1.508E-02	4.522E-02	3.893E-02	2.307E-02 NOT IDENT.
SN-113	-1.508E-02	4.522E-02	3.893E-02	2.307E-02 NOT IDENT.
IN-114M	8.826E-02	1.794E-01	1.440E-01	9.151E-02 NOT IDENT.
CD-115	-4.861E-02	1.632E+01	1.398E+01	8.324E+00 NOT IDENT.
SN-117M	1.707E-02	5.292E-02	4.745E-02	2.700E-02 NOT IDENT.
SB-122	9.677E-01	3.102E+00	2.710E+00	1.583E+00 NOT IDENT.
I-123	9.113E+06	2.510E+07	0.000E+00	1.281E+07 SHORT HLIF
TE-123M	9.377E-03	2.583E-02	2.320E-02	1.318E-02 NOT IDENT.
I-124	2.195E-01	9.403E-01	7.155E-01	4.797E-01 FAIL ABUN
SB-124	-2.973E-02	7.683E-02	5.859E-02	3.920E-02 FAIL ABUN
SB-125	6.301E-02	9.442E-02	8.627E-02	4.817E-02 NOT IDENT.
TE-125M	3.109E+00	7.622E+00	7.024E+00	3.889E+00 NOT IDENT.
I-126	6.320E-02	2.612E-01	1.963E-01	1.333E-01 NOT IDENT.
SB-126	2.904E-02	1.731E-01	1.355E-01	8.831E-02 FAIL ABUN
SB-127	-7.979E-01	1.788E+00	1.419E+00	9.125E-01 NOT IDENT.
XE-127	-9.779E-03	4.402E-02	3.768E-02	2.246E-02 NOT IDENT.
I-131	-7.300E-02	1.251E-01	1.065E-01	6.385E-02 NOT IDENT.
TE-132	-1.046E+00	8.739E-01	6.836E-01	4.459E-01 NOT IDENT.
BA-133	6.351E-03	4.254E-02	3.376E-02	2.170E-02 NOT IDENT.
I-133	-3.867E+03	1.702E+04	0.000E+00	8.684E+03 SHORT HLIF
CS-134	6.823E-02	5.437E-02	5.176E-02	2.774E-02 NOT IDENT.
CS-135	6.782E-02	1.836E-01	1.418E-01	9.367E-02 NOT IDENT.
I-135	-5.883E+16	1.520E+17	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-4.723E-02	1.348E-01	1.097E-01	6.880E-02 FAIL ABUN
CE-139	-9.763E-03	2.682E-02	2.317E-02	1.369E-02 NOT IDENT.
BA-140	2.979E-02	3.108E-01	2.679E-01	1.586E-01 NOT IDENT.
LA-140	-9.501E-02	1.027E-01	7.214E-02	5.239E-02 NOT IDENT.
CE-141	-1.196E-02	6.086E-02	5.365E-02	3.105E-02 NOT IDENT.
CE-143	9.693E+02	3.652E+02	0.000E+00	1.863E+02 SHORT HLIF

CE-144	2.069E-01	1.975E-01	1.657E-01	1.008E-01	NOT IDENT.
PM-144	-5.350E-03	3.435E-02	2.987E-02	1.752E-02	NOT IDENT.
PR-144	-3.628E-01	2.329E+00	2.025E+00	1.188E+00	NOT IDENT.
PM-146	4.640E-02	4.720E-02	4.363E-02	2.408E-02	NOT IDENT.
ND-147	-4.993E-01	6.585E-01	5.234E-01	3.359E-01	FAIL ABUN
PM-149	-6.925E+01	1.162E+02	1.009E+02	5.927E+01	NOT IDENT.
EU-152	2.551E-02	1.056E-01	7.934E-02	5.390E-02	FAIL ABUN
GD-153	-5.841E-02	6.282E-02	5.514E-02	3.205E-02	FAIL ABUN
EU-154	9.037E-02	1.599E-01	1.400E-01	8.156E-02	NOT IDENT.
EU-155	7.676E-02	8.606E-02	8.076E-02	4.391E-02	FAIL ABUN
TB-160	1.803E-03	1.619E-01	1.396E-01	8.259E-02	FAIL ABUN
HO-166M	-2.287E-02	6.366E-02	5.423E-02	3.248E-02	FAIL ABUN
TM-171	1.018E+01	1.417E+01	1.228E+01	7.229E+00	NOT IDENT.
LU-176	9.902E-03	2.309E-02	2.127E-02	1.178E-02	FAIL ABUN
LU-177	2.917E+00	1.775E+00	1.099E+00	9.059E-01	FAIL ABUN
LU-177M	6.166E-02	1.874E-01	1.678E-01	9.562E-02	FAIL ABUN
HF-181	-4.469E-02	4.692E-02	3.735E-02	2.394E-02	NOT IDENT.
W-181	1.031E-02	1.776E-01	1.503E-01	9.063E-02	NOT IDENT.
TA-182	2.084E-01	2.494E-01	2.229E-01	1.273E-01	FAIL ABUN
RE-183	6.939E-03	1.034E-01	9.150E-02	5.277E-02	FAIL ABUN
RE-184	2.332E-01	2.255E-01	2.032E-01	1.150E-01	NOT IDENT.
OS-185	2.702E-03	4.928E-02	4.162E-02	2.514E-02	NOT IDENT.
RE-188	8.119E-02	1.572E-01	1.422E-01	8.019E-02	NOT IDENT.
W-188	4.134E+00	7.426E+00	6.178E+00	3.789E+00	FAIL ABUN
IR-192	4.192E-03	3.146E-02	2.846E-02	1.605E-02	FAIL ABUN
AU-195	2.778E-01	1.807E-01	1.726E-01	9.220E-02	FAIL ABUN
TL-200	1.130E+02	9.556E+02	0.000E+00	4.875E+02	SHORT HLIF
TL-201	-2.849E+00	8.060E+00	6.958E+00	4.112E+00	NOT IDENT.
TL-202	-2.503E-03	7.527E-02	6.547E-02	3.840E-02	NOT IDENT.
HG-203	-2.635E-03	3.848E-02	3.476E-02	1.963E-02	FAIL ABUN
BI-207	-2.588E-02	6.618E-02	5.275E-02	3.377E-02	FAIL ABUN
TL-207	-7.394E-01	6.659E-01	5.272E-01	3.397E-01	FAIL ABUN
PO-209	-1.263E+00	9.211E+00	7.821E+00	4.699E+00	NOT IDENT.
PB-211	-6.599E-01	9.643E-01	7.255E-01	4.920E-01	NOT IDENT.
BI-212	9.725E-01	5.769E-01	3.717E-01	2.943E-01	FAIL ABUN
PO-215	-7.394E-01	6.659E-01	5.272E-01	3.397E-01	FAIL ABUN
RN-219	-3.216E-02	4.041E-01	3.532E-01	2.062E-01	FAIL ABUN
RN-220	3.012E+01	2.753E+01	2.558E+01	1.405E+01	NOT IDENT.
RA-223	-7.394E-01	6.659E-01	5.272E-01	3.397E-01	FAIL ABUN
AC-227	-3.591E-01	3.922E-01	3.039E-01	2.001E-01	FAIL ABUN
TH-227	-3.591E-01	3.936E-01	3.039E-01	2.008E-01	FAIL ABUN
TH-229	-3.559E-01	4.670E-01	3.888E-01	2.383E-01	FAIL ABUN
PA-231	1.058E+00	1.343E+00	1.261E+00	6.853E-01	FAIL ABUN
TH-231	-7.394E-01	6.659E-01	5.272E-01	3.397E-01	FAIL ABUN
U-231	-4.511E-01	1.103E+00	8.866E-01	5.629E-01	FAIL ABUN
PA-233	-4.005E-02	5.959E-02	5.126E-02	3.040E-02	FAIL ABUN
PA-234	2.384E-01	3.436E-01	3.118E-01	1.753E-01	FAIL ABUN
PA-234M	3.278E+00	5.167E+00	4.668E+00	2.636E+00	NOT IDENT.
U-235	7.359E-03	1.992E-01	1.775E-01	1.016E-01	FAIL ABUN
NP-236	5.179E-03	7.337E-02	6.498E-02	3.744E-02	NOT IDENT.
NP-239	-1.319E-01	1.611E-01	1.396E-01	8.219E-02	FAIL ABUN
AM-241	-3.860E-03	5.958E-02	5.010E-02	3.040E-02	NOT IDENT.
CM-243	-2.313E-02	7.546E-02	6.778E-02	3.850E-02	FAIL ABUN
AM-246	9.758E-02	1.669E-01	1.492E-01	8.516E-02	NOT IDENT.
CM-247	9.691E-03	3.568E-02	3.195E-02	1.821E-02	NOT IDENT.
CF-249	-7.384E-04	4.155E-02	3.619E-02	2.120E-02	NOT IDENT.
CF-251	-2.474E-02	1.186E-01	1.028E-01	6.049E-02	NOT IDENT.

```

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

```

46.50	279.6360
46.50	279.6360
46.50	279.6360
48.70	295.2982
49.72	291.1363
51.35	324.1563
52.39	325.1084
52.97	312.0676
53.15	312.2229
53.44	303.9836
54.07	302.8104
56.28	350.8340
56.28	350.8360
57.37	0.0000
57.53	345.9930
57.53	345.9950
57.60	346.0565
57.98	348.1221
57.98	348.1221
59.32	354.5139
59.32	354.5139
59.40	354.5870
59.54	354.7156
59.72	358.7652
60.01	381.0670
61.10	366.5309
61.14	366.5675
61.30	353.7119
63.00	391.7902
63.29	392.0717
63.29	392.0717
63.58	392.3532
64.28	408.7502
65.12	400.4003
65.20	400.4777
65.20	400.4777
66.05	377.6181
66.72	371.6353
66.83	383.5982
66.91	383.6714
67.20	407.6866
67.20	407.6866
67.75	385.7585
67.85	390.0806
68.90	426.0160
68.90	426.0160
69.30	442.8573
69.67	423.3360
70.82	404.5015
70.82	404.5015
70.83	404.5107
72.80	392.4306
72.87	392.4911
72.87	392.4911
74.67	394.0770
74.81	394.1980
74.81	394.1980
74.81	394.1980
74.81	394.1980
74.81	394.1980
74.81	394.1980
74.81	394.1980
74.97	394.3391
75.28	394.6079
75.70	394.9753
77.11	396.1938
77.11	396.1938

77.11	396.1938
77.11	396.1938
77.11	396.1938
77.11	396.1938
77.11	396.1938
78.38	397.2824
79.62	333.7569
79.80	333.8845
79.80	333.8845
80.11	358.5507
80.18	358.6051
80.30	358.6957
80.30	358.6957
80.57	358.8992
81.00	359.2255
81.07	359.2778
81.07	359.2778
81.07	359.2778
81.07	359.2778
82.60	360.4279
83.37	360.9999
83.78	361.3081
83.78	361.3081
83.78	361.3081
83.78	361.3081
84.21	361.6263
84.90	362.1359
85.43	362.5267
86.29	363.1591
86.50	363.3122
86.54	363.3404
86.59	363.3787
86.72	363.4733
86.79	363.5217
86.94	363.6324
87.30	363.8963
87.30	363.8963
87.30	363.8963
87.30	363.8963
87.30	363.8963
87.30	363.8963
87.30	363.8963
87.57	270.3105
87.88	270.4780
88.03	270.5587
88.36	270.7352
88.47	270.7950
89.95	336.7112
91.11	337.4732
92.29	338.2445
92.38	338.3038
92.38	338.3038
93.35	304.0644
94.00	298.8542
94.67	288.0451
94.67	288.0483
94.90	288.1740
94.90	288.1740
94.90	288.1740
94.90	288.1740
95.87	315.3282
95.87	315.3282
96.73	343.9125
97.43	332.6464
98.44	283.5121
98.44	283.5121
98.88	256.4957
99.55	253.0481
99.55	253.0481
99.86	256.9567
100.00	257.0220
100.10	260.8372
103.18	292.5888
103.76	262.5588
105.00	241.2876
105.31	241.4194
108.00	277.8878
109.28	247.8764

111.00	268.7620
111.00	268.7620
111.76	258.5359
112.95	278.3151
115.19	246.4904
116.30	240.1630
117.00	263.7075
117.00	263.7075
117.66	283.4037
121.11	206.9072
121.62	234.4263
121.78	234.4861
122.06	254.1390
122.32	254.2435
122.32	254.2435
122.32	254.2435
122.32	254.2435
123.07	240.8400
127.23	255.7133
129.76	257.2017
131.20	233.4757
133.02	241.5712
133.54	202.9583
135.34	251.3848
136.00	227.6660
136.25	227.7495
136.48	225.8276
140.51	267.3611
140.51	0.0000
142.18	233.7488
142.65	262.1344
143.76	274.6673
144.24	248.5800
144.24	248.5800
144.24	248.5800
144.24	248.5800
145.22	248.9254
145.44	272.2809
147.16	238.4400
152.43	244.2660
152.70	247.4232
153.22	235.3204
154.21	224.3667
154.21	224.3667
154.21	224.3667
154.21	224.3667
155.03	219.4859
156.02	257.7765
158.56	213.3087
159.00	0.0000
159.00	210.3397
160.31	225.1629
161.27	243.0251
162.32	228.8617
162.64	221.7041
163.35	207.3913
163.89	195.0837
165.85	215.3428
167.43	200.1406
171.28	201.1172
171.86	213.8406
172.10	230.6818
176.55	218.2487
176.60	218.2635
181.06	168.5606
184.41	201.1701
185.71	185.4892
186.00	185.5529
190.27	170.4061
192.34	200.8960
193.63	209.8019
197.04	171.7340
198.01	203.2804
198.60	210.9882
200.40	202.7431
201.83	186.7777
202.84	195.6848
205.31	191.3131

208.36	190.3107
208.81	196.9702
209.75	197.1716
209.75	197.1716
210.97	190.8506
215.65	192.9087
216.55	180.9565
218.09	190.0916
222.10	176.4634
223.80	172.3252
226.40	163.8692
227.00	172.8929
227.08	171.7915
227.20	190.7799
228.16	197.6666
228.18	197.6702
228.18	197.6702
231.56	0.0000
235.69	194.1046
236.00	194.1660
236.00	194.1660
238.63	159.1227
238.63	159.1227
238.63	159.1227
238.63	159.1227
239.00	159.1801
240.98	159.4899
241.98	159.6448
241.98	159.6448
241.98	159.6448
244.69	131.1183
245.39	132.9104
247.94	148.9516
248.90	164.1343
249.79	150.5840
252.40	126.9413
252.85	129.2838
252.85	129.2838
254.15	0.0000
256.20	166.4172
256.20	166.4172
260.50	147.4948
260.90	162.5350
262.80	151.2715
264.65	141.5798
268.24	165.3687
268.79	170.6746
269.46	167.2910
269.46	167.2910
269.46	167.2910
269.46	167.2910
271.23	122.1774
273.65	160.9242
276.40	135.0155
277.35	127.2312
277.60	127.2600
277.60	127.2600
278.00	134.3279
278.60	137.0332
279.20	148.5326
279.53	148.5738
280.46	166.2921
281.68	141.8085
283.67	107.6417
284.30	118.2948
285.00	126.3164
285.90	123.7625
286.10	122.0155
286.10	122.0155
287.40	138.9705
288.45	0.0000
290.67	116.4576
290.80	116.4696
291.72	127.9336
293.26	0.0000
293.70	129.5728
295.21	129.7372
295.21	129.7372

295.21	129.7372
295.96	117.6934
296.50	92.7694
297.23	92.8265
298.57	92.9313
299.80	121.6479
299.80	121.6479
300.09	118.8160
300.09	118.8160
300.09	118.8160
300.09	118.8160
300.12	118.8181
301.29	116.0677
302.84	123.3898
303.76	114.8691
303.91	114.8828
304.40	120.6762
304.40	120.6762
304.84	132.9349
306.84	115.1602
308.46	118.9140
311.98	127.3854
316.51	106.0884
318.01	112.5699
319.02	109.9350
319.41	117.2389
320.08	103.6604
323.87	134.0689
323.87	134.0689
323.87	134.0689
323.87	134.0689
325.23	139.6905
328.77	125.4272
333.44	124.9600
334.20	126.5036
334.20	126.5036
334.30	126.5141
338.28	102.3671
338.28	102.3671
338.28	102.3671
338.28	102.3671
338.32	102.3705
338.32	102.3705
338.32	102.3705
340.50	99.0295
340.57	99.0344
344.27	94.4935
345.85	92.0085
350.59	0.0000
351.07	96.8351
351.92	96.8954
351.92	96.8954
351.92	96.8954
355.39	0.0000
356.01	85.2245
364.48	109.0668
366.43	99.8036
367.43	96.1059
367.94	0.0000
369.80	94.3802
374.96	88.0943
383.85	117.2344
387.95	104.1833
388.63	92.7565
391.69	106.3660
391.69	106.3660
392.90	117.9626
398.62	112.6404
400.65	99.2972
401.10	104.1487
401.81	95.5150
402.60	87.8424
404.84	96.6736
410.95	103.8571
411.60	108.7563
413.65	101.1245
414.70	94.3817
415.30	94.4187

415.76	92.4995
417.63	0.0000
418.52	96.5664
423.70	103.7388
427.08	78.4619
427.89	81.4460
432.53	89.5587
433.93	66.9821
439.47	85.0066
439.56	85.0106
439.89	80.0854
443.98	82.2705
444.90	89.2598
445.03	89.2667
445.03	89.2667
445.03	89.2667
445.03	89.2667
453.90	78.7818
463.38	81.2373
468.07	69.3959
473.00	86.7454
475.06	76.7503
475.35	77.7743
476.78	85.9261
477.59	80.9094
477.96	79.9149
482.03	95.3138
484.57	73.1140
487.03	83.3864
490.36	0.0000
492.35	70.3803
497.08	83.8643
507.63	0.0000
510.53	0.0000
510.84	75.2361
511.00	75.2428
511.85	75.2785
511.85	75.2785
513.99	75.3665
513.99	75.3665
520.41	73.4131
520.65	73.4217
527.90	65.5378
528.96	0.0000
529.64	70.8057
529.87	0.0000
531.02	76.0677
537.32	76.3239
543.00	71.3099
546.56	0.0000
549.76	53.6723
552.65	71.6710
555.20	70.7111
563.23	76.3022
563.90	68.9078
568.70	70.1391
569.32	60.5938
569.50	65.9147
569.67	64.8572
573.80	62.8622
574.00	61.8020
574.64	53.2959
578.91	68.3652
579.30	0.0000
583.14	49.2414
585.48	53.1571
591.81	55.9038
592.07	56.9854
593.00	59.1626
595.88	54.9377
600.56	66.9402
602.52	0.0000
602.71	58.7961
602.71	58.7961
603.60	62.2811
604.41	67.4978
604.70	67.5073
609.31	57.2489

609.31	57.2489
609.31	57.2489
609.31	57.2489
610.33	48.5980
612.46	55.5984
614.37	53.6196
618.01	51.1725
621.84	57.8102
621.84	57.8102
631.29	62.4499
633.02	60.3073
633.10	60.3107
634.78	51.5784
635.90	59.2916
636.97	67.0110
645.85	52.9468
646.12	62.8813
656.30	60.2919
657.75	53.2339
657.90	0.0000
661.65	61.1046
661.65	61.1046
664.57	0.0000
666.33	67.6912
666.33	67.6912
675.00	64.8234
677.61	43.6382
685.20	55.0114
692.80	49.5618
695.00	64.0421
696.49	55.9589
696.49	55.9589
697.00	55.0698
697.49	53.2743
698.33	57.8109
698.50	65.0426
699.00	63.2478
702.63	65.1568
706.10	76.1311
706.58	0.0000
706.67	76.1496
709.31	48.0998
711.68	59.9591
713.82	63.6511
717.42	48.2668
720.50	47.1130
721.93	0.0000
722.20	54.7515
722.78	48.6797
722.78	48.6797
722.89	48.6823
722.95	57.8102
723.30	57.8195
724.18	47.1862
727.18	46.6359
733.00	45.8325
735.90	56.9004
739.58	45.9570
742.81	53.3810
744.21	60.7793
747.13	51.6318
751.79	67.4341
752.31	58.2089
753.82	43.4520
755.35	46.2537
756.15	45.3441
756.87	50.9113
763.93	79.8335
765.79	61.3126
766.42	54.8242
766.84	57.6209
776.49	69.9719
778.00	56.9448
778.57	55.0892
778.89	49.4934
783.80	55.2030
785.46	55.2390
792.07	56.3203

795.84	48.8833
796.30	56.4141
798.80	72.4676
801.93	45.2297
805.60	57.5598
810.29	57.6641
810.76	53.8926
815.85	41.6818
817.79	52.1412
818.51	50.2594
819.60	55.0235
826.30	52.3091
828.27	0.0000
831.60	58.1317
831.96	56.2329
834.83	59.1558
836.80	0.0000
846.75	45.0424
848.13	42.1889
856.28	0.0000
856.80	75.0293
860.37	43.3422
867.32	32.8304
867.82	30.9047
871.10	61.8828
873.19	39.6737
874.81	39.6967
875.33	0.0000
876.40	47.4699
879.36	47.5202
880.27	47.5357
880.51	43.6586
881.50	44.6445
883.24	50.4994
884.67	48.5815
889.25	61.3127
896.60	56.5939
898.02	48.8123
899.00	41.9932
903.28	60.3132
911.07	50.0164
911.07	50.0164
911.07	50.0164
919.63	60.9843
920.93	53.1391
925.00	48.2870
925.24	50.2616
926.50	48.3121
935.52	43.5166
937.48	56.4114
944.10	41.6596
946.00	37.7161
949.00	68.5536
962.29	38.2547
964.01	24.9634
966.15	24.9811
968.20	56.6611
969.11	43.3429
969.11	43.3429
969.11	43.3429
977.42	43.1270
980.50	41.1632
983.50	61.3023
989.30	35.2401
996.32	45.4120
1001.03	38.4063
1001.68	43.4693
1004.76	51.6076
1021.30	0.0000
1024.50	0.0000
1034.80	50.0575
1036.00	50.0767
1037.82	56.2407
1038.57	50.1173
1038.76	0.0000
1045.16	51.2451
1046.59	52.2924
1048.07	47.1882

1050.47	30.7983
1050.47	30.7983
1062.04	54.6045
1063.62	51.5381
1076.63	48.6386
1077.35	44.5096
1078.86	38.3152
1085.78	51.8872
1099.22	58.3461
1112.02	47.0654
1112.84	54.0507
1115.52	41.8789
1120.29	53.4703
1120.29	53.4703
1120.29	53.4703
1120.29	53.4703
1120.51	53.4728
1121.28	53.4853
1124.00	0.0000
1129.67	49.0615
1131.51	0.0000
1147.95	0.0000
1167.94	55.2729
1173.22	74.5186
1175.09	69.2307
1177.93	62.8920
1189.05	64.1572
1204.90	56.9207
1205.75	0.0000
1213.00	53.8208
1221.42	50.7063
1230.97	71.3915
1235.34	56.3139
1236.41	0.0000
1238.25	72.6171
1246.25	57.5676
1260.41	0.0000
1271.85	52.4930
1274.45	41.5848
1274.54	42.6810
1291.56	53.8641
1298.22	0.0000
1312.09	32.2329
1325.50	38.8127
1325.50	38.8127
1332.49	23.1435
1333.61	17.5945
1360.21	31.6965
1362.66	0.0000
1365.15	14.0009
1368.21	28.6452
1368.53	0.0000
1376.25	28.0786
1384.27	12.8616
1394.10	15.9811
1395.20	26.3298
1407.95	13.2053
1434.06	16.1367
1436.60	18.0460
1457.56	0.0000
1460.81	14.7380
1489.15	19.2318
1509.49	17.3892
1596.49	22.6556
1620.62	13.8627
1678.03	0.0000
1691.02	11.0555
1691.02	11.0555
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	25.5351
1771.40	7.1515
1791.20	0.0000
1808.65	14.4084

1836.01

6.2083

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246444003

Total Uranium Activity	7.9062E+00	ug/g
Total Uranium Counting Unc.	3.2157E+00	ug/g
Total Uranium Tpu	1.6407E-06	ug/g
Total Uranium Mda	1.4628E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950788                          SAMPLE ID   : G246444003
*  ANALYST       : MXR1                             DETECTOR    : GAM17
*  SAMPLE DATE   : 3-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 19-FEB-2010 20:39:31.68          SAMPLE ALQT  : 148.030 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.884E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.402E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.636E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.764E+00

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## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:41:10.52

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                          *
*                                     Charleston, SC 29414                      *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444004.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:40:00
Sample ID          : G246444004          Sample quantity   : 1.19200E+02 GRAM
Detector name      : GAM18              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.67  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 950788             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	63.33*	126	522	0.89	125.78	122	9	1.74E-02	34.7	
2	1	75.02	339	388	1.08	149.17	143	15	4.71E-02	10.7	1.15E+00
3	1	77.34	594	363	1.04	153.80	143	15	8.25E-02	6.6	
4	2	87.40	190	502	1.08	173.90	169	23	2.64E-02	18.8	3.85E+00
5	2	89.96	124	533	1.24	179.03	169	23	1.72E-02	31.3	
6	2	92.95*	502	447	1.25	185.01	169	23	6.97E-02	9.0	
7	0	129.33*	93	400	1.17	257.75	254	9	1.29E-02	40.5	
8	0	186.00*	337	442	1.24	371.04	364	11	4.68E-02	13.7	
9	0	209.56*	179	338	1.09	418.14	413	11	2.48E-02	21.6	
10	2	238.73*	1502	248	1.15	476.46	471	18	2.09E-01	3.2	7.50E-01
11	2	241.79	331	308	1.61	482.59	471	18	4.60E-02	12.5	
12	0	270.46	121	318	1.11	539.90	533	12	1.68E-02	30.9	
13	0	277.30	68	191	1.01	553.57	550	8	9.39E-03	37.4	
14	0	295.26*	437	193	1.25	589.48	585	9	6.07E-02	7.8	
15	0	299.95	101	264	1.15	598.86	595	11	1.41E-02	32.7	
16	0	328.18*	80	204	1.62	655.30	651	10	1.11E-02	36.2	
17	0	338.34	347	259	1.19	675.62	669	14	4.82E-02	11.2	
18	0	351.98*	765	289	1.31	702.89	697	14	1.06E-01	6.1	
19	0	462.86	111	131	1.61	924.59	919	11	1.54E-02	22.2	
20	0	510.91*	202	179	1.92	1020.66	1014	16	2.81E-02	19.2	
21	0	583.03*	552	127	1.52	1164.86	1158	13	7.67E-02	6.1	
22	0	609.12*	618	161	1.62	1217.03	1210	16	8.59E-02	6.2	
23	0	661.05*	74	151	1.39	1320.85	1315	13	1.03E-02	36.3	
24	0	727.25*	96	133	1.68	1453.23	1447	13	1.34E-02	27.4	
25	0	860.55*	37	108	1.60	1719.77	1714	13	5.14E-03	61.8	
26	0	910.81*	356	89	1.60	1820.26	1812	15	4.95E-02	8.1	
27	1	964.48	58	75	1.94	1927.58	1917	26	8.04E-03	33.9	1.53E+00
28	1	968.61*	193	81	2.32	1935.84	1917	26	2.68E-02	12.8	
29	0	1120.12	209	93	2.70	2238.82	2231	19	2.90E-02	13.2	
30	0	1459.95	2157	64	2.23	2918.39	2907	20	3.00E-01	2.3	
31	0	1588.89	48	24	1.50	3176.25	3166	21	6.65E-03	30.3	
32	0	1763.96*	109	27	2.43	3526.36	3517	20	1.51E-02	16.2	

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

## VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:41:13

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-FEB-2010 12:00:00   Acquisition date : 19-FEB-2010 20:40:00
Sample ID        : G246444004             Sample quantity  : 119.20 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.67   0.0%
Peak Width (FWHM): 3.00                   Confidence level  : 5.00 %
Energy tolerance : 1.50 keV               Half life ratio   : 8.00
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit  : 75.00                  WTM error limit   : 3.00

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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	*	3.362E+01	2.994E+00	3.949E-01	2.996E-02	85.149
CD-109	+	88.03	*	2.549E+00	9.868E-01	1.231E+00	1.138E-01	2.070
SN-126	+	64.28		1.334E+00	9.478E-01	8.820E-01	1.304E-01	1.513
	+	86.94		1.040E+00	5.822E-01	5.100E-01	2.115E-01	2.039
	+	87.57	*	2.501E-01	9.681E-02	1.216E-01	1.120E-02	2.057
BA-137M	+	661.65	*	7.264E-02	5.306E-02	5.381E-02	4.102E-03	1.350
CS-137	+	661.65	*	7.679E-02	5.609E-02	5.689E-02	4.347E-03	1.350
TL-208	+	277.35		5.000E-01	3.777E-01	4.930E-01	5.178E-02	1.014
	+	510.84		6.846E-01	2.731E-01	1.837E-01	1.953E-02	3.727
	+	583.14	*	5.249E-01	7.614E-02	4.635E-02	3.633E-03	11.325
	+	860.37		3.207E-01	3.978E-01	4.008E-01	4.483E-02	0.800
BI-211	+	72.87		2.473E+00	3.478E+00	5.311E+00	4.385E-01	0.466
	+	351.07	*	3.416E+00	4.681E-01	2.880E-01	1.849E-02	11.858
PB-212	+	74.81		2.018E+00	5.006E-01	5.584E-01	6.999E-02	3.615
	+	77.11		1.973E+00	3.102E-01	3.124E-01	2.648E-02	6.315
	+	87.30		1.157E+00	4.625E-01	5.645E-01	7.667E-02	2.049
	+	238.63	*	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
	+	300.09		1.566E+00	1.031E+00	1.025E+00	8.415E-02	1.528
PO-212	+	74.81		2.018E+00	5.006E-01	5.584E-01	6.999E-02	3.615
	+	77.11		1.973E+00	3.102E-01	3.124E-01	2.648E-02	6.315
	+	87.30		1.157E+00	4.625E-01	5.645E-01	7.667E-02	2.049
	+	115.19		-1.153E-01	3.480E+00	5.598E+00	3.527E-01	-0.021
	+	238.63	*	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
	+	300.09		1.566E+00	1.031E+00	1.025E+00	8.415E-02	1.528
BI-214	+	609.31	*	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
	+	1120.29		1.863E+00	5.219E-01	4.023E-01	3.852E-02	4.632
	+	1764.49		1.278E+00	4.203E-01	2.943E-01	1.790E-02	4.341
PB-214	+	74.81		3.478E+00	8.396E-01	9.621E-01	1.074E-01	3.615
	+	77.11		3.382E+00	5.909E-01	5.355E-01	6.103E-02	6.315
	+	87.30		1.982E+00	7.821E-01	9.670E-01	1.160E-01	2.049
	+	241.98		2.064E+00	5.396E-01	4.518E-01	3.573E-02	4.568
	+	295.21		1.186E+00	2.098E-01	1.950E-01	1.654E-02	6.082
	+	351.92	*	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
PO-214	+	74.81		3.478E+00	8.396E-01	9.621E-01	1.074E-01	3.615

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		3.382E+00	5.909E-01	5.355E-01	6.103E-02	6.315
	+	87.30		1.982E+00	7.821E-01	9.670E-01	1.160E-01	2.049
	+	241.98		2.064E+00	5.396E-01	4.518E-01	3.573E-02	4.568
	+	295.21		1.186E+00	2.098E-01	1.950E-01	1.654E-02	6.082
	+	351.92	*	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
	+	74.81		2.018E+00	5.006E-01	5.584E-01	6.999E-02	3.615
	+	77.11		1.973E+00	3.102E-01	3.124E-01	2.648E-02	6.315
	+	87.30		1.157E+00	4.625E-01	5.645E-01	7.667E-02	2.049
	+	238.63	*	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
	+	300.09		1.566E+00	1.031E+00	1.025E+00	8.415E-02	1.528
PO-218	+	74.81		3.478E+00	8.396E-01	9.621E-01	1.074E-01	3.615
	+	77.11		3.382E+00	5.909E-01	5.355E-01	6.103E-02	6.315
	+	87.30		1.982E+00	7.821E-01	9.670E-01	1.160E-01	2.049
	+	241.98		2.064E+00	5.396E-01	4.518E-01	3.573E-02	4.568
	+	295.21		1.186E+00	2.098E-01	1.950E-01	1.654E-02	6.082
RA-224	+	351.92	*	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
	+	240.98	*	3.913E+00	9.993E-01	8.543E-01	4.759E-02	4.580
RA-226	+	609.31	*	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
	+	1120.29		1.863E+00	5.219E-01	4.023E-01	3.852E-02	4.632
AC-228	+	1764.49		1.278E+00	4.203E-01	2.943E-01	1.790E-02	4.341
	+	338.32		1.718E+00	7.991E-01	2.971E-01	1.211E-01	5.783
	+	911.07	*	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394
	+	969.11		1.388E+00	4.874E-01	3.019E-01	7.229E-02	4.598
RA-228	+	338.32		1.718E+00	7.991E-01	2.971E-01	1.211E-01	5.783
	+	911.07	*	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394
	+	969.11		1.388E+00	4.874E-01	3.019E-01	7.229E-02	4.598
TH-228	+	74.81		2.052E+00	4.719E-01	5.676E-01	4.783E-02	3.615
	+	77.11		2.005E+00	3.153E-01	3.175E-01	2.691E-02	6.315
	+	87.30		1.176E+00	4.551E-01	5.737E-01	5.273E-02	2.049
	+	238.63	*	1.587E+00	1.516E-01	7.640E-02	5.458E-03	20.770
TH-230	+	300.09		1.591E+00	1.400E+00	1.042E+00	6.139E-01	1.528
	+	609.31	*	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
	+	1120.29		1.863E+00	5.219E-01	4.023E-01	3.852E-02	4.632
	+	1764.49		1.278E+00	4.203E-01	2.943E-01	1.790E-02	4.341
TH-232	+	338.32		1.718E+00	3.977E-01	2.971E-01	1.718E-02	5.783
	+	911.07	*	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394
	+	969.11		1.388E+00	4.874E-01	3.019E-01	7.229E-02	4.598
TH-234	+	63.29	*	3.371E+00	2.416E+00	2.257E+00	3.979E-01	1.494
	+	92.38		4.196E+00	1.068E+00	7.838E-01	1.413E-01	5.354
U-234	+	609.31	*	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
	+	1120.29		1.863E+00	5.219E-01	4.023E-01	3.852E-02	4.632
	+	1764.49		1.278E+00	4.203E-01	2.943E-01	1.790E-02	4.341
NP-237	+	86.50	*	7.345E-01	3.222E-01	3.626E-01	8.181E-02	2.026
	+	95.87		-1.024E+00	1.093E+00	1.473E+00	3.599E-01	-0.695
U-238	+	63.29	*	3.371E+00	2.416E+00	2.257E+00	3.979E-01	1.494
	+	92.38		4.196E+00	8.343E-01	7.838E-01	6.662E-02	5.354
AM-243	+	74.67	*	3.272E-01	7.518E-02	9.088E-02	7.584E-03	3.601
	+	86.72		2.754E+01	1.066E+01	1.355E+01	1.239E+00	2.032
	+	117.66		-2.055E+00	3.604E+00	5.651E+00	3.476E-01	-0.364

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		142.18		-4.440E+00	1.691E+01	2.655E+01	1.462E+00	-0.167
ANH-511	+	511.00	*	1.479E-01	5.768E-02	3.968E-02	2.621E-03	3.726

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-1.494E-02	2.894E-01	4.759E-01	3.449E-02	-0.031
NA-22		1274.54	*	-2.134E-03	3.817E-02	6.240E-02	4.246E-03	-0.034
NA-24		1368.53	*	-2.542E+00	3.817E-02	Half-Life too short		
AL-26		1129.67		-2.744E-01	1.754E+00	2.451E+00	1.636E-01	-0.112
		1808.65	*	-1.042E-02	2.227E-02	3.349E-02	1.955E-03	-0.311
TI-44		67.85		-5.538E-02	5.577E-02	7.942E-02	6.387E-03	-0.697
	+	78.38	*	3.640E-01	5.724E-02	7.983E-02	6.825E-03	4.560
SC-46		889.25	*	-1.826E-03	3.362E-02	5.471E-02	6.102E-03	-0.033
	+	1120.51		3.223E-01	8.770E-02	1.165E-01	8.047E-03	2.767
V-48		944.10		1.970E-02	8.433E-01	1.373E+00	1.453E-01	0.014
		983.50	*	1.841E-02	6.501E-02	1.076E-01	1.064E-02	0.171
		1312.09		2.170E-02	7.650E-02	1.282E-01	9.340E-03	0.169
CR-51		320.08	*	-1.069E-01	3.410E-01	5.399E-01	3.476E-02	-0.198
MN-52		744.21		7.376E-02	2.313E-01	3.923E-01	3.459E-02	0.188
		848.13		-2.488E+00	6.986E+00	1.117E+01	1.168E+00	-0.223
		935.52		2.598E-01	2.763E-01	4.762E-01	5.108E-02	0.546
		1246.25		9.501E+00	8.108E+00	1.430E+01	9.194E-01	0.664
		1333.61		1.133E+00	5.149E+00	8.588E+00	6.488E-01	0.132
		1434.06	*	2.341E-01	2.385E-01	4.262E-01	3.141E-02	0.549
MN-54		834.83	*	2.513E-02	3.529E-02	6.037E-02	6.184E-03	0.416
CO-56		846.75	*	-4.916E-03	3.570E-02	5.804E-02	6.059E-03	-0.085
		977.42		-1.776E+00	2.783E+00	4.030E+00	4.031E-01	-0.441
		1037.82		-8.941E-02	2.621E-01	4.273E-01	3.959E-02	-0.209
		1175.09		-1.101E+00	2.070E+00	3.300E+00	1.831E-01	-0.334
		1238.25		4.918E-02	8.600E-02	1.462E-01	9.741E-03	0.336
		1360.21		-8.045E-01	9.876E-01	1.428E+00	1.073E-01	-0.563
		1771.40		1.182E-01	1.924E-01	3.076E-01	1.859E-02	0.384
CO-57		122.06	*	1.201E-02	2.366E-02	3.878E-02	2.297E-03	0.310
		136.48		5.402E-02	1.926E-01	3.105E-01	2.032E-02	0.174
CO-58		810.76	*	-1.620E-04	3.324E-02	5.477E-02	5.407E-03	-0.003
FE-59		142.65		-2.722E+00	2.817E+00	4.204E+00	2.313E-01	-0.648
		192.34		-4.294E-01	8.054E-01	1.316E+00	1.526E-01	-0.326
		1099.22	*	-6.154E-02	8.227E-02	1.294E-01	1.065E-02	-0.476
		1291.56		6.319E-03	1.115E-01	1.838E-01	1.544E-02	0.034
CO-60		1173.22		1.660E-04	4.140E-02	6.853E-02	3.787E-03	0.002
		1332.49	*	-1.359E-03	3.352E-02	5.552E-02	4.195E-03	-0.024
ZN-65		1115.52	*	8.158E-02	9.658E-02	1.479E-01	1.042E-02	0.552
GE-68		1077.35	*	-9.537E-02	1.138E+00	1.887E+00	1.499E-01	-0.051
AS-73		53.44	*	1.265E+00	1.065E+00	1.866E+00	1.480E-01	0.678
AS-74		595.88	*	2.432E-02	7.943E-02	1.312E-01	9.426E-03	0.185
		634.78		-7.599E-03	3.202E-01	5.143E-01	3.829E-02	-0.015
SE-75		66.05		-4.812E+00	5.808E+00	8.345E+00	8.265E-01	-0.577

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	96.73			-1.390E+00	9.041E-01	1.183E+00	1.560E-01	-1.175
	121.11			7.770E-03	1.268E-01	2.041E-01	1.906E-02	0.038
	136.00			2.556E-02	3.623E-02	5.944E-02	3.385E-03	0.430
	198.60			6.938E-01	1.627E+00	2.716E+00	1.843E-01	0.255
	264.65	*		1.964E-02	4.287E-02	6.327E-02	3.619E-03	0.310
	279.53			9.017E-02	1.073E-01	1.612E-01	9.959E-03	0.559
	303.91			1.649E-02	2.036E+00	2.879E+00	2.739E-01	0.006
	400.65			-6.388E-02	2.073E-01	3.408E-01	3.104E-02	-0.187
BR-77	+	87.88		7.903E+02	3.059E+02	4.857E+02	4.488E+01	1.627
		200.40		-1.307E+02	2.067E+02	3.361E+02	1.810E+01	-0.389
	+	239.00		3.604E+02	3.041E+01	4.846E+01	2.696E+00	7.436
		249.79		-4.247E+00	8.148E+01	1.335E+02	7.481E+00	-0.032
		281.68		5.566E+01	1.238E+02	1.818E+02	1.038E+01	0.306
		297.23		4.306E+02	1.115E+02	1.534E+02	8.808E+00	2.807
		303.76		-7.902E+00	2.471E+02	3.484E+02	2.004E+01	-0.023
		439.47		-7.030E+01	1.744E+02	2.829E+02	1.724E+01	-0.249
		484.57		-2.027E+02	2.746E+02	4.311E+02	2.767E+01	-0.470
		520.65	*	-1.035E+00	1.288E+01	2.099E+01	1.400E+00	-0.049
		574.64		4.748E+01	2.780E+02	4.439E+02	3.125E+01	0.107
		578.91		-1.862E+01	1.319E+02	1.825E+02	1.290E+01	-0.102
		585.48		1.965E+03	3.391E+02	5.936E+02	4.224E+01	3.310
		755.35		1.847E+02	2.115E+02	3.687E+02	3.314E+01	0.501
		817.79		-2.749E+01	1.596E+02	2.594E+02	2.585E+01	-0.106
SR-82		698.33		1.278E+00	2.962E+01	4.960E+01	4.039E+00	0.026
		776.49	*	-4.215E-01	3.505E-01	5.290E-01	4.927E-02	-0.797
		1395.20		-7.298E+00	9.853E+00	1.471E+01	1.096E+00	-0.496
RB-83		520.41	*	-3.061E-03	5.995E-02	9.784E-02	6.526E-03	-0.031
		529.64		4.813E-02	8.403E-02	1.426E-01	9.601E-03	0.338
		552.65		1.334E-03	1.651E-01	2.691E-01	1.855E-02	0.005
RB-84		881.50	*	2.257E-02	6.264E-02	1.051E-01	1.158E-02	0.215
KR-85		513.99	*	1.486E+01	7.368E+00	1.189E+01	7.880E-01	1.249
SR-85		513.99	*	7.717E-02	3.827E-02	6.179E-02	4.093E-03	1.249
RB-86		1076.63	*	-1.945E-01	7.547E-01	1.236E+00	9.843E-02	-0.157
Y-88		898.02		-1.041E-02	3.817E-02	6.107E-02	6.922E-03	-0.171
		1836.01	*	-1.508E-02	2.805E-02	4.198E-02	2.391E-03	-0.359
ZR-88		392.90	*	6.727E-03	2.412E-02	4.102E-02	2.359E-03	0.164
Y-91		1204.90	*	1.387E+01	1.765E+01	3.055E+01	1.806E+00	0.454
NB-94		702.63	*	-5.687E-03	2.826E-02	4.658E-02	3.821E-03	-0.122
		871.10		-1.798E-03	3.048E-02	4.970E-02	5.390E-03	-0.036
NB-95		765.79	*	4.858E-02	3.770E-02	6.674E-02	6.105E-03	0.728
NB-95M		235.69	*	1.779E-02	1.228E-01	1.792E-01	1.315E-02	0.099
ZR-95		724.18		1.153E-01	9.605E-02	1.507E-01	1.397E-02	0.765
		756.15	*	3.710E-02	6.360E-02	1.092E-01	1.074E-02	0.340
NB-97		657.90	*	1.225E-01	6.360E-02	Half-Life	too short	
		1024.50		-7.793E+00	6.360E-02	Half-Life	too short	
ZR-97		254.15		-6.491E-01	6.360E-02	Half-Life	too short	
		355.39		2.172E+01	6.360E-02	Half-Life	too short	
		507.63	*	1.835E+01	6.360E-02	Half-Life	too short	
		602.52		1.300E+01	6.360E-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			-1.884E+01	6.360E-02	Half-Life	too short	
	1147.95			-9.542E+00	6.360E-02	Half-Life	too short	
	1362.66			1.461E+01	6.360E-02	Half-Life	too short	
	1750.46			-1.121E+01	6.360E-02	Half-Life	too short	
MO-99	140.51			-1.542E+00	3.505E+01	5.492E+01	1.477E+01	-0.028
	181.06			1.269E+01	2.277E+01	3.454E+01	5.864E+00	0.367
	366.43			-2.072E+01	9.133E+01	1.520E+02	8.779E+00	-0.136
	739.58	*		-6.055E+00	1.305E+01	2.093E+01	3.193E+00	-0.289
	778.00			-2.290E+01	4.010E+01	6.366E+01	5.944E+00	-0.360
TC-99M	140.51	*		-5.099E+10	4.010E+01	Half-Life	too short	
RH-101	127.23			6.074E-03	3.319E-02	4.719E-02	2.726E-03	0.129
	198.01	*		1.485E-02	2.937E-02	4.916E-02	2.642E-03	0.302
	325.23			-2.160E-02	2.241E-01	3.124E-01	1.805E-02	-0.069
RH-102	418.52			-1.211E-01	2.365E-01	3.829E-01	2.275E-02	-0.316
	475.06	*		-4.596E-03	2.537E-02	4.143E-02	2.631E-03	-0.111
	631.29			1.967E-02	4.625E-02	7.666E-02	5.689E-03	0.257
	697.49			-1.703E-02	6.491E-02	1.067E-01	8.671E-03	-0.160
	766.84			1.155E-01	9.650E-02	1.698E-01	1.556E-02	0.680
	1046.59			-3.813E-02	9.778E-02	1.588E-01	1.370E-02	-0.240
	1112.84			-2.258E-01	2.470E-01	3.182E-01	2.259E-02	-0.710
RU-103	497.08	*		1.615E-02	3.377E-02	5.707E-02	7.411E-03	0.283
	610.33	+		1.217E+01	2.474E+00	2.455E+00	3.936E-01	4.960
RH-106	511.85	+		7.403E-01	2.888E-01	3.966E-01	2.621E-02	1.867
	621.84	*		1.635E-03	2.764E-01	4.457E-01	5.607E-02	0.004
	1050.47			6.140E-01	2.001E+00	3.417E+00	2.919E-01	0.180
RU-106	511.85	+		7.403E-01	2.888E-01	3.966E-01	2.621E-02	1.867
	621.84	*		1.635E-03	2.764E-01	4.457E-01	3.280E-02	0.004
	1050.47			6.140E-01	2.001E+00	3.417E+00	2.919E-01	0.180
AG-108M	433.93	*		-6.290E-03	2.635E-02	4.318E-02	2.821E-03	-0.146
	614.37			-7.349E-03	3.590E-02	4.889E-02	3.767E-03	-0.150
	722.95			-5.139E-03	4.208E-02	5.969E-02	5.279E-03	-0.086
AG-110M	657.75	*		8.001E-03	3.242E-02	4.805E-02	3.790E-03	0.167
	677.61			9.239E-02	2.491E-01	4.269E-01	3.463E-02	0.216
	706.67			2.387E-02	1.718E-01	2.891E-01	2.460E-02	0.083
	763.93			-1.075E-01	1.464E-01	2.310E-01	2.159E-02	-0.465
	884.67			6.904E-03	4.301E-02	7.116E-02	8.036E-03	0.097
	937.48			-4.170E-02	1.020E-01	1.607E-01	1.760E-02	-0.259
	1384.27			-1.368E-01	1.500E-01	2.215E-01	1.717E-02	-0.618
IN-111	171.28			-2.502E-01	1.160E+00	1.939E+00	1.020E-01	-0.129
	245.39	*		-5.130E-01	1.482E+00	1.940E+00	1.084E-01	-0.264
IN-113M	391.69	*		-1.522E-02	3.493E-02	5.709E-02	3.502E-03	-0.267
SN-113	391.69	*		-1.522E-02	3.493E-02	5.709E-02	3.502E-03	-0.267
IN-114M	190.27	*		9.983E-02	1.693E-01	2.580E-01	1.377E-02	0.387
CD-115	260.90			-4.913E+01	1.627E+02	2.622E+02	1.480E+01	-0.187
	492.35			2.743E+01	4.458E+01	7.559E+01	4.894E+00	0.363
	527.90	*		-3.029E+00	1.283E+01	2.065E+01	1.388E+00	-0.147
SN-117M	156.02			-1.250E+00	2.171E+00	3.606E+00	1.926E-01	-0.347
	158.56	*		3.336E-02	5.244E-02	9.076E-02	4.824E-03	0.368
SB-122	563.90	*		1.447E+00	2.393E+00	4.039E+00	2.814E-01	0.358

---- 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		1.421E+01	5.270E+01	8.944E+01	7.211E+00	0.159
		159.00	*	4.790E+00	5.270E+01	Half-Life	too short	
		528.96		4.116E+02	5.270E+01	Half-Life	too short	
TE-123M		159.00	*	4.927E-03	2.585E-02	4.408E-02	2.378E-03	0.112
I-124		602.71	*	3.838E-01	7.842E-01	1.143E+00	8.263E-02	0.336
		722.78		-1.059E+00	5.381E+00	7.581E+00	6.443E-01	-0.140
		1325.50		-2.522E+00	3.753E+01	5.861E+01	4.374E+00	-0.043
SB-124		1376.25		8.570E+01	3.532E+01	6.790E+01	5.085E+00	1.262
		1509.49		1.404E+01	1.493E+01	2.737E+01	1.961E+00	0.513
		1691.02		9.345E-01	3.875E+00	6.610E+00	4.264E-01	0.141
		602.71		1.841E-02	3.762E-02	5.481E-02	3.964E-03	0.336
		645.85		-2.082E-01	4.141E-01	6.387E-01	5.178E-02	-0.326
		709.31		4.399E-01	2.317E+00	3.910E+00	3.246E-01	0.112
		713.82		-9.772E-01	1.382E+00	2.188E+00	2.595E-01	-0.447
		722.78		-7.367E-02	3.742E-01	5.271E-01	4.579E-02	-0.140
	+	968.20		1.449E+01	4.003E+00	6.030E+00	6.132E-01	2.404
		1045.16		1.269E-01	2.090E+00	3.512E+00	3.041E-01	0.036
		1325.50		-1.873E-01	2.787E+00	4.353E+00	3.248E-01	-0.043
		1368.21		-1.609E+00	1.667E+00	2.435E+00	3.114E-01	-0.661
		1436.60		2.410E+00	3.300E+00	5.766E+00	4.246E-01	0.418
		1691.02	*	1.533E-02	6.356E-02	1.084E-01	7.480E-03	0.141
SB-125		427.89	*	1.087E-02	7.487E-02	1.256E-01	7.849E-03	0.086
	+	463.38		7.404E-01	3.334E-01	4.663E-01	3.343E-02	1.588
		600.56		-7.203E-02	1.563E-01	2.375E-01	1.892E-02	-0.303
TE-125M		635.90		-1.253E-02	2.368E-01	3.795E-01	3.130E-02	-0.033
		109.28	*	8.857E-01	9.022E+00	1.450E+01	1.276E+00	0.061
		388.63		2.483E-02	1.778E-01	3.003E-01	1.726E-02	0.083
I-126		666.33	*	6.314E-02	1.851E-01	2.759E-01	2.121E-02	0.229
		753.82		9.597E-01	1.436E+00	2.475E+00	2.218E-01	0.388
		223.80		-5.721E-01	3.731E+00	6.135E+00	3.372E-01	-0.093
SB-126		278.60		3.544E+00	2.659E+00	4.007E+00	2.283E-01	0.885
	+	296.50		1.266E+01	2.095E+00	3.384E+00	1.943E-01	3.739
		414.70		-1.637E-02	6.830E-02	1.125E-01	6.653E-03	-0.146
		415.30		1.631E+00	5.551E+00	9.406E+00	5.567E-01	0.173
		555.20		-2.369E+00	3.518E+00	5.455E+00	3.769E-01	-0.434
		573.80		5.641E-02	1.004E+00	1.636E+00	1.151E-01	0.034
		593.00		-2.082E-01	8.220E-01	1.307E+00	9.363E-02	-0.159
		656.30		-2.765E+00	3.413E+00	4.554E+00	3.455E-01	-0.607
		666.33		2.646E-02	7.756E-02	1.156E-01	8.887E-03	0.229
		675.00		-9.457E-01	1.738E+00	2.804E+00	2.190E-01	-0.337
		695.00		-1.323E-02	7.210E-02	1.191E-01	9.642E-03	-0.111
		697.00		-3.270E-02	2.437E-01	4.037E-01	3.279E-02	-0.081
		720.50	*	4.856E-02	1.470E-01	2.174E-01	1.841E-02	0.223
		856.80		4.085E-01	4.756E-01	7.277E-01	7.718E-02	0.561
		989.30		-7.709E-01	1.144E+00	1.739E+00	1.701E-01	-0.443
SB-127		1034.80		-7.983E-02	8.205E+00	1.321E+01	1.173E+00	-0.006
		1213.00		-1.675E+00	4.690E+00	7.559E+00	4.545E-01	-0.222
		61.10		-1.012E+02	9.101E+01	1.279E+02	1.391E+01	-0.792
		252.40		-2.816E+00	4.825E+00	7.458E+00	3.105E+00	-0.378

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		290.80		-7.602E+00	2.607E+01	3.622E+01	3.468E+00	-0.210
		411.60		9.009E+00	1.307E+01	2.247E+01	3.304E+00	0.401
		444.90		2.592E+00	9.740E+00	1.641E+01	1.863E+00	0.158
		473.00		-2.318E+00	1.876E+00	2.840E+00	3.360E-01	-0.816
		543.00		8.118E+00	1.814E+01	3.036E+01	4.164E+00	0.267
		603.60		6.947E+00	1.379E+01	2.010E+01	2.404E+00	0.346
	*	685.20		6.891E-03	1.509E+00	2.525E+00	2.847E-01	0.003
		698.50		2.445E+00	1.606E+01	2.707E+01	4.286E+00	0.090
		722.20		-2.818E+01	3.830E+01	5.108E+01	5.844E+00	-0.552
		783.80		6.637E+00	4.111E+00	7.302E+00	9.724E-01	0.909
XE-127		57.60		2.030E+00	7.532E+00	1.275E+01	9.823E-01	0.159
		145.22		2.013E-01	6.947E-01	1.092E+00	5.967E-02	0.184
		172.10		-1.025E-01	1.055E-01	1.710E-01	9.001E-03	-0.600
	*	202.84		-1.180E-02	4.155E-02	6.848E-02	3.696E-03	-0.172
		374.96		-1.923E-02	1.563E-01	2.610E-01	1.505E-02	-0.074
I-131		80.18		2.421E+00	5.254E+00	7.909E+00	6.902E-01	0.306
		284.30		-8.101E-01	1.439E+00	2.270E+00	1.449E-01	-0.357
	*	364.48		4.978E-02	1.003E-01	1.734E-01	1.122E-02	0.287
		636.97		1.198E-01	1.481E+00	2.396E+00	1.922E-01	0.050
		722.89		-1.169E+00	7.879E+00	1.115E+01	9.549E-01	-0.105
TE-132		49.72		-3.665E+01	3.630E+01	5.850E+01	6.179E+00	-0.626
		111.76		2.532E+01	3.758E+01	6.214E+01	6.010E+00	0.408
		116.30		7.095E+00	3.453E+01	5.604E+01	5.311E+00	0.127
	*	228.16		3.448E-01	7.662E-01	1.288E+00	1.869E-01	0.268
BA-133		53.15		3.955E+00	4.637E+00	8.041E+00	6.381E-01	0.492
		79.62		2.982E-01	1.359E+00	2.023E+00	3.081E-01	0.147
		81.00		2.428E-02	1.020E-01	1.518E-01	2.419E-02	0.160
	+	276.40		4.942E-01	3.752E-01	5.416E-01	6.995E-02	0.913
		302.84		3.990E-02	1.414E-01	2.038E-01	2.371E-02	0.196
	*	356.01		6.644E-02	3.960E-02	6.178E-02	7.137E-03	1.075
		383.85		-5.490E-04	2.528E-01	4.242E-01	4.602E-02	-0.001
I-133	+	510.53		4.069E+00	2.528E-01	Half-Life	too short	
	*	529.87		3.233E-03	2.528E-01	Half-Life	too short	
		706.58		1.438E-01	2.528E-01	Half-Life	too short	
		856.28		5.427E-01	2.528E-01	Half-Life	too short	
		875.33		-1.439E-02	2.528E-01	Half-Life	too short	
		1236.41		2.119E+00	2.528E-01	Half-Life	too short	
		1298.22		1.437E-01	2.528E-01	Half-Life	too short	
CS-134		475.35		2.232E-01	1.640E+00	2.727E+00	1.732E-01	0.082
		563.23		1.096E-01	2.998E-01	4.989E-01	3.525E-02	0.220
		569.32		-4.419E-02	1.749E-01	2.764E-01	1.976E-02	-0.160
		604.70		1.913E-02	3.334E-02	4.880E-02	3.548E-03	0.392
	*	795.84		7.217E-02	4.411E-02	7.848E-02	7.591E-03	0.920
		801.93		-3.175E-01	3.722E-01	5.614E-01	5.477E-02	-0.566
		1038.57		-5.847E-01	3.237E+00	5.345E+00	4.703E-01	-0.109
		1167.94		-6.675E-01	2.284E+00	3.706E+00	2.102E-01	-0.180
		1365.15		8.919E-01	1.075E+00	1.891E+00	1.504E-01	0.472
CS-135	*	268.24		4.124E-02	1.617E-01	2.349E-01	1.776E-02	0.176
I-135		288.45		-1.430E+11	1.617E-01	Half-Life	too short	

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		417.63		-2.383E+11	1.617E-01	Half-Life	too short	
		546.56		-8.428E+10	1.617E-01	Half-Life	too short	
		836.80		3.213E+11	1.617E-01	Half-Life	too short	
		1038.76		-3.308E+10	1.617E-01	Half-Life	too short	
		1124.00		1.182E+12	1.617E-01	Half-Life	too short	
		1131.51		-3.330E+10	1.617E-01	Half-Life	too short	
		1260.41	*	2.097E+10	1.617E-01	Half-Life	too short	
		1457.56		3.151E+13	1.617E-01	Half-Life	too short	
		1678.03		-4.105E+09	1.617E-01	Half-Life	too short	
		1706.46		1.663E+09	1.617E-01	Half-Life	too short	
		1791.20		-1.156E+11	1.617E-01	Half-Life	too short	
CS-136		66.91		-1.493E+00	1.042E+00	1.420E+00	2.145E-01	-1.052
	+	86.29		3.485E+00	1.389E+00	2.162E+00	2.850E-01	1.612
		153.22		4.925E-01	6.257E-01	1.089E+00	7.500E-02	0.452
		163.89		-4.386E-01	1.011E+00	1.662E+00	1.135E-01	-0.264
		176.55		-2.967E-01	3.410E-01	5.538E-01	3.357E-02	-0.536
		273.65		-1.526E-01	6.347E-01	6.320E-01	4.118E-02	-0.241
		340.57		4.746E-01	1.396E-01	2.336E-01	1.438E-02	2.031
		818.51		-2.309E-02	6.602E-02	1.058E-01	1.056E-02	-0.218
		1048.07	*	-7.681E-02	1.017E-01	1.605E-01	1.438E-02	-0.479
		1235.34		8.426E-01	5.891E-01	1.040E+00	1.069E-01	0.810
CE-139		165.85	*	-3.318E-02	2.582E-02	4.139E-02	2.173E-03	-0.802
BA-140		162.64		-6.814E-03	7.296E-01	1.221E+00	7.399E-02	-0.006
		304.84		-6.120E-01	1.387E+00	1.883E+00	5.137E-01	-0.325
		423.70		1.241E+00	1.720E+00	2.902E+00	9.233E-01	0.428
		537.32	*	1.256E-01	2.383E-01	3.963E-01	1.296E-01	0.317
LA-140	+	328.77		5.250E-01	3.817E-01	4.991E-01	3.234E-02	1.052
		432.53		-6.456E-01	1.714E+00	2.784E+00	1.846E-01	-0.232
		487.03		2.652E-03	1.216E-01	2.005E-01	1.431E-02	0.013
		751.79		1.047E+00	1.658E+00	2.853E+00	2.803E-01	0.367
		815.85		5.928E-02	2.885E-01	4.822E-01	5.212E-02	0.123
		867.82		9.948E-01	1.504E+00	2.255E+00	2.516E-01	0.441
		919.63		-3.892E-01	2.684E+00	4.224E+00	5.336E-01	-0.092
		925.24		6.126E-01	1.110E+00	1.875E+00	2.124E-01	0.327
		1596.49	*	-5.812E-03	7.894E-02	1.100E-01	7.544E-03	-0.053
CE-141		145.44	*	1.867E-02	6.075E-02	9.754E-02	5.569E-03	0.191
CE-143		57.37		2.152E-04	6.075E-02	Half-Life	too short	
		231.56		1.146E-03	6.075E-02	Half-Life	too short	
		293.26	*	1.458E-03	6.075E-02	Half-Life	too short	
	+	350.59		5.069E-02	6.075E-02	Half-Life	too short	
		490.36		-1.888E-03	6.075E-02	Half-Life	too short	
		664.57		2.609E-03	6.075E-02	Half-Life	too short	
		721.93		-2.291E-03	6.075E-02	Half-Life	too short	
CE-144		80.11		9.640E-01	2.179E+00	3.277E+00	2.838E-01	0.294
		133.54	*	1.485E-02	2.202E-01	3.135E-01	4.433E-02	0.047
PM-144		476.78		-2.964E-02	5.947E-02	9.521E-02	7.065E-03	-0.311
		618.01		2.612E-03	2.847E-02	4.353E-02	3.314E-03	0.060
		696.49	*	-2.048E-02	2.991E-02	4.781E-02	3.882E-03	-0.428
		778.57		-1.189E+00	2.011E+00	3.189E+00	2.981E-01	-0.373

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PR-144		696.49	*	-1.389E+00	2.028E+00	3.242E+00	2.631E-01	-0.428
		1489.15		-2.104E+00	1.034E+01	1.630E+01	1.177E+00	-0.129
PM-146		453.90	*	4.058E-02	3.710E-02	6.488E-02	5.772E-03	0.625
		633.02		3.439E-01	1.199E+00	1.958E+00	7.267E-01	0.176
		735.90		8.182E-02	1.266E-01	2.119E-01	6.064E-02	0.386
		747.13		-6.110E-02	8.018E-02	1.256E-01	1.782E-02	-0.486
ND-147	+	91.11		5.858E-01	3.711E-01	5.780E-01	5.436E-02	1.013
		319.41		-1.721E+00	3.207E+00	5.015E+00	2.897E-01	-0.343
		439.89		-2.392E+00	5.314E+00	8.594E+00	5.244E-01	-0.278
		531.02	*	-4.799E-02	4.902E-01	7.959E-01	1.110E-01	-0.060
PM-149		285.90	*	4.202E+00	1.146E+02	1.866E+02	2.640E+01	0.023
EU-152		121.78		4.036E-02	6.873E-02	1.130E-01	8.706E-03	0.357
		244.69		-2.673E-02	3.448E-01	4.625E-01	2.583E-02	-0.058
		344.27	*	-7.700E-02	9.992E-02	1.308E-01	8.536E-03	-0.589
		443.98		-2.721E-01	7.958E-01	1.294E+00	7.929E-02	-0.210
		778.89		-8.303E-02	2.289E-01	3.691E-01	3.451E-02	-0.225
		867.32		9.068E-01	8.168E-01	1.274E+00	1.374E-01	0.712
	+	964.01		4.792E-01	3.284E-01	4.904E-01	5.024E-02	0.977
		1085.78		-1.020E-01	3.569E-01	5.829E-01	4.516E-02	-0.175
		1112.02		-1.166E-01	3.371E-01	4.627E-01	3.294E-02	-0.252
		1407.95		3.000E-02	1.650E-01	2.731E-01	2.028E-02	0.110
GD-153		69.67		-4.217E-02	1.954E+00	2.878E+00	2.336E-01	-0.015
		83.37		-8.580E+00	1.677E+01	2.377E+01	2.111E+00	-0.361
		97.43	*	-3.550E-02	8.963E-02	1.275E-01	9.972E-03	-0.278
		103.18		-9.809E-02	1.033E-01	1.606E-01	1.158E-02	-0.611
EU-154		123.07		1.282E-02	4.865E-02	7.888E-02	7.460E-03	0.163
		247.94		5.817E-02	3.292E-01	5.058E-01	4.765E-02	0.115
		591.81		-2.760E-02	4.982E-01	8.033E-01	8.544E-02	-0.034
		723.30		2.222E-02	1.762E-01	2.554E-01	2.407E-02	0.087
		756.87		1.804E-01	6.877E-01	1.159E+00	1.421E-01	0.156
		873.19		-1.764E-01	2.662E-01	4.122E-01	5.741E-02	-0.428
		996.32		-1.367E-01	3.324E-01	5.188E-01	9.487E-02	-0.263
		1004.76		-1.022E-01	2.000E-01	3.100E-01	3.811E-02	-0.330
		1274.45	*	-5.689E-03	1.066E-01	1.742E-01	1.740E-02	-0.033
EU-155		48.70		-6.802E-01	3.596E+00	6.031E+00	4.575E-01	-0.113
		60.01		1.202E+00	6.270E+00	9.500E+00	7.249E-01	0.126
	+	86.54		3.014E-01	1.167E-01	1.876E-01	1.728E-02	1.607
		105.31	*	5.537E-02	1.030E-01	1.704E-01	1.218E-02	0.325
TB-160	+	86.79		8.143E-01	3.152E-01	5.067E-01	4.636E-02	1.607
		197.04		3.653E-01	5.087E-01	8.582E-01	4.609E-02	0.426
		215.65		-4.040E-01	6.959E-01	1.038E+00	5.666E-02	-0.389
	+	298.57		2.305E-01	1.512E-01	1.828E-01	1.050E-02	1.261
		879.36	*	-1.656E-02	1.225E-01	1.983E-01	2.178E-02	-0.083
		962.29		1.126E+00	4.809E-01	8.753E-01	8.993E-02	1.287
		966.15		1.353E+00	2.663E-01	4.720E-01	4.817E-02	2.865
		1177.93		2.432E-02	3.315E-01	5.511E-01	3.077E-02	0.044
		1271.85		-2.079E-01	6.191E-01	9.883E-01	6.679E-02	-0.210
HO-166M		80.57		2.123E-01	2.755E-01	4.202E-01	3.651E-02	0.505
		184.41		1.526E-01	3.453E-02	6.382E-02	3.391E-03	2.391

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46		3.254E-02	8.198E-02	1.199E-01	6.840E-03	0.271
		410.95		2.960E-01	2.109E-01	3.751E-01	2.208E-02	0.789
		711.68	*	-1.647E-02	5.047E-02	8.234E-02	6.863E-03	-0.200
		752.31		2.053E-01	2.456E-01	4.273E-01	3.820E-02	0.481
		810.29		-1.081E-02	4.996E-02	8.105E-02	7.980E-03	-0.133
		51.35		-2.127E+01	4.117E+01	6.790E+01	5.382E+00	-0.313
		52.39		8.522E+00	2.075E+01	3.547E+01	2.818E+00	0.240
		59.40		2.454E+01	3.417E+01	5.307E+01	4.029E+00	0.462
		66.72	*	-3.482E+01	3.420E+01	4.867E+01	3.891E+00	-0.715
		88.36		5.932E-01	2.296E-01	3.653E-01	3.354E-02	1.624
LU-176	+	201.83		-1.360E-02	2.517E-02	4.107E-02	2.215E-03	-0.331
		306.84	*	4.686E-03	2.317E-02	3.504E-02	2.018E-03	0.134
LU-177		401.10		6.597E-01	5.297E+00	8.921E+00	5.186E-01	0.074
		112.95		-1.478E-01	1.843E+00	2.963E+00	1.909E-01	-0.050
LU-177M	+	208.36	*	3.839E+00	1.675E+00	1.985E+00	1.077E-01	1.934
		52.97		1.892E+00	2.126E+00	3.690E+00	2.930E-01	0.513
HF-181		54.07		2.526E-01	1.114E+00	1.889E+00	1.493E-01	0.134
		61.30		-1.917E+00	1.881E+00	2.669E+00	2.062E-01	-0.719
		121.62		2.150E-01	3.545E-01	5.834E-01	3.461E-02	0.368
		147.16		-4.064E-01	6.198E-01	9.533E-01	5.187E-02	-0.426
		171.86		-2.824E-01	4.137E-01	6.784E-01	3.571E-02	-0.416
		218.09		4.512E-01	7.412E-01	1.259E+00	6.887E-02	0.358
		268.79		1.005E+00	8.400E-01	1.283E+00	7.278E-02	0.783
		319.02		-2.310E-01	2.344E-01	3.569E-01	2.060E-02	-0.647
		367.43		1.323E-01	7.088E-01	1.206E+00	6.963E-02	0.110
		413.65	*	-1.568E-01	1.548E-01	2.441E-01	1.442E-02	-0.642
W-181		56.28		-5.644E-01	1.182E+00	1.944E+00	1.515E-01	-0.290
		57.53		1.140E-01	6.329E-01	1.068E+00	8.233E-02	0.107
		65.20		-7.861E-01	1.179E+00	1.713E+00	1.359E-01	-0.459
		133.02		2.796E-02	6.947E-02	1.008E-01	5.702E-03	0.277
		136.25		5.276E-02	4.361E-01	6.982E-01	3.910E-02	0.076
TA-182		345.85		1.322E-01	2.045E-01	2.805E-01	1.623E-02	0.471
		482.03	*	-1.156E-02	3.790E-02	6.133E-02	3.925E-03	-0.188
		56.28		-2.189E-01	4.564E-01	7.510E-01	5.850E-02	-0.292
		57.53		4.381E-02	2.447E-01	4.127E-01	3.183E-02	0.106
		65.20	*	-3.015E-01	4.521E-01	6.570E-01	5.211E-02	-0.459
RE-183		67.75		-1.720E-01	1.355E-01	1.899E-01	1.526E-02	-0.906
		100.10		2.633E-01	1.763E-01	3.011E-01	2.264E-02	0.874
		152.43		4.054E-02	3.231E-01	5.133E-01	2.761E-02	0.079
		222.10		1.065E-01	3.024E-01	5.080E-01	2.788E-02	0.210
		1001.68		3.196E-01	1.966E+00	3.148E+00	3.005E-01	0.102
RE-183	+	1121.28		8.876E-01	2.416E-01	3.188E-01	2.196E-02	2.784
		1189.05		1.101E-01	2.765E-01	4.691E-01	2.682E-02	0.235
		1221.42	*	2.628E-02	1.861E-01	3.096E-01	1.894E-02	0.085
		1230.97		-5.036E-01	4.715E-01	7.244E-01	4.518E-02	-0.695
		57.98		2.526E-01	2.416E-01	4.191E-01	3.220E-02	0.603
		59.32		9.935E-02	1.422E-01	2.207E-01	1.677E-02	0.450
		67.20		-3.496E-01	2.455E-01	3.409E-01	2.732E-02	-1.026
		162.32	*	7.598E-03	1.007E-01	1.691E-01	8.923E-03	0.045

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

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RE-184	+	208.81		3.072E+00	1.340E+00	1.608E+00	8.725E-02	1.911
		291.72		-3.327E-01	9.292E-01	1.285E+00	7.362E-02	-0.259
		57.98		9.243E-01	8.838E-01	1.533E+00	1.178E-01	0.603
		59.32		3.632E-01	5.197E-01	8.067E-01	6.129E-02	0.450
		67.20		-1.279E+00	8.979E-01	1.247E+00	9.993E-02	-1.026
		161.27		1.803E-01	3.198E-01	5.516E-01	2.917E-02	0.327
		216.55		2.572E-02	2.274E-01	3.790E-01	2.071E-02	0.068
		252.85	*	-1.767E-01	1.994E-01	3.126E-01	1.756E-02	-0.565
		318.01		3.501E-02	4.022E-01	6.512E-01	3.758E-02	0.054
		792.07		3.747E-01	8.967E-01	1.518E+00	1.451E-01	0.247
OS-185		903.28		-1.114E-01	1.044E+00	1.443E+00	1.620E-01	-0.077
		920.93		-7.919E-02	4.029E-01	6.463E-01	7.082E-02	-0.123
		59.72		2.318E-01	3.782E-01	5.845E-01	4.445E-02	0.397
		61.14		-2.293E-01	2.080E-01	2.935E-01	2.265E-02	-0.781
		69.30		7.960E-02	3.483E-01	5.190E-01	4.205E-02	0.153
		592.07		-5.449E-01	2.074E+00	3.294E+00	2.359E-01	-0.165
		646.12	*	-2.025E-02	3.488E-02	5.343E-02	4.018E-03	-0.379
		717.42		-3.887E-02	7.566E-01	1.256E+00	1.058E-01	-0.031
		874.81		-1.034E-01	5.265E-01	8.491E-01	9.262E-02	-0.122
		880.27		3.573E-01	6.848E-01	1.161E+00	1.278E-01	0.308
RE-188		155.03	*	6.041E-02	1.534E-01	2.638E-01	1.412E-02	0.229
		477.96		6.536E-01	2.756E+00	4.605E+00	2.934E-01	0.142
W-188		633.10		8.479E-01	2.438E+00	4.018E+00	2.987E-01	0.211
	+	63.58		1.372E+02	9.592E+01	1.118E+02	8.785E+00	1.227
IR-192		227.08		2.557E+00	1.098E+01	1.833E+01	1.010E+00	0.139
		290.67	*	-2.051E+00	7.308E+00	1.017E+01	5.823E-01	-0.202
AU-195	+	295.96		9.148E-01	1.517E-01	2.482E-01	1.447E-02	3.685
		308.46		2.013E-02	8.334E-02	1.364E-01	7.945E-03	0.148
		316.51	*	8.744E-03	3.056E-02	5.001E-02	2.901E-03	0.175
		468.07		3.973E-02	6.385E-02	9.612E-02	6.850E-03	0.413
		604.41		1.697E-01	4.569E-01	6.573E-01	7.987E-02	0.258
		612.46		2.316E+00	7.634E-01	1.277E+00	1.120E-01	1.814
TL-200		65.12		-1.193E-01	2.097E-01	3.064E-01	2.429E-02	-0.389
		66.83		-1.667E-01	1.160E-01	1.610E-01	1.288E-02	-1.035
	+	75.70		1.064E+00	2.445E-01	4.361E-01	3.663E-02	2.439
TL-201		98.88	*	3.979E-01	2.389E-01	3.933E-01	3.010E-02	1.012
	+	129.76		4.667E+00	3.789E+00	4.607E+00	2.636E-01	1.013
		367.94	*	-1.356E-04	3.789E+00	Half-Life	too short	
		579.30		6.057E-03	3.789E+00	Half-Life	too short	
TL-202		828.27		1.434E-04	3.789E+00	Half-Life	too short	
		1205.75		3.407E-03	3.789E+00	Half-Life	too short	
		68.90		3.448E-01	7.009E+00	1.100E+01	8.894E-01	0.031
		70.82		9.951E-01	4.135E+00	6.158E+00	5.028E-01	0.162
TL-202		80.30		4.853E+00	6.759E+00	1.029E+01	8.921E-01	0.472
		135.34		4.403E+00	3.161E+01	5.067E+01	2.845E+00	0.087
		167.43	*	-3.859E+00	8.058E+00	1.336E+01	7.012E-01	-0.289
		68.90		2.507E-02	5.096E-01	7.998E-01	6.466E-02	0.031
TL-202		70.82		7.215E-02	2.998E-01	4.465E-01	3.645E-02	0.162
		80.30		3.519E-01	4.901E-01	7.462E-01	6.470E-02	0.472

----- 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	*	-2.541E-02	6.301E-02	1.022E-01	6.232E-03	-0.249
		70.83		2.964E-01	1.234E+00	1.837E+00	2.447E-01	0.161
		72.87		5.010E-01	7.065E-01	1.076E+00	1.395E-01	0.466
		82.60		-1.517E+00	1.257E+00	1.715E+00	2.380E-01	-0.884
BI-207		279.20	*	4.814E-02	4.118E-02	6.299E-02	3.820E-03	0.764
		72.80		1.207E-01	2.024E-01	3.077E-01	2.540E-02	0.392
	+	74.97		5.874E-01	1.350E-01	2.208E-01	1.846E-02	2.660
		84.90		1.271E-01	2.119E-01	3.155E-01	2.839E-02	0.403
		569.67		-7.678E-03	2.740E-02	4.323E-02	3.029E-03	-0.178
		1063.62	*	1.913E-02	4.863E-02	8.328E-02	6.875E-03	0.230
TL-207		1770.23		2.502E-01	3.804E-01	6.127E-01	3.707E-02	0.408
		81.07		5.352E-02	2.249E-01	3.348E-01	2.920E-02	0.160
		83.78		-1.559E-02	1.412E-01	2.040E-01	1.819E-02	-0.076
		94.90		7.280E-01	2.612E-01	4.183E-01	3.405E-02	1.740
		122.32		8.105E-01	1.630E+00	2.669E+00	1.813E-01	0.304
		144.24		8.231E-01	6.575E-01	1.070E+00	7.470E-02	0.769
		154.21		2.135E-01	3.498E-01	6.057E-01	4.031E-02	0.352
	+	269.46		4.412E-01	2.736E-01	3.134E-01	1.862E-02	1.408
		323.87	*	-9.261E-02	6.602E-01	9.172E-01	1.514E-01	-0.101
	+	338.28		7.173E+00	1.776E+00	2.143E+00	2.255E-01	3.347
		445.03		2.104E-01	1.809E+00	3.022E+00	3.162E-01	0.070
		260.50		-1.074E+00	8.100E+00	1.317E+01	7.434E-01	-0.082
PO-209		262.80		5.959E+00	2.355E+01	3.770E+01	2.131E+00	0.158
		896.60	*	2.656E+00	6.569E+00	1.104E+01	1.245E+00	0.241
		46.50	*	5.527E+00	5.662E+00	9.889E+00	7.651E-01	0.559
		46.50	*	5.527E+00	5.662E+00	9.889E+00	7.651E-01	0.559
PO-210		46.50	*	5.527E+00	5.657E+00	9.889E+00	6.578E-01	0.559
PB-211		404.84	*	-5.562E-01	8.656E-01	1.277E+00	7.963E-01	-0.435
		427.08		-3.987E-01	1.703E+00	2.766E+00	1.710E+00	-0.144
BI-212		831.96		-6.703E-01	1.198E+00	1.770E+00	1.114E+00	-0.379
	+	727.18	*	7.695E-01	4.280E-01	5.636E-01	5.613E-02	1.365
		785.46		9.897E-01	1.574E+00	2.699E+00	2.552E-01	0.367
		1620.62		-2.141E-02	1.156E+00	1.896E+00	1.282E-01	-0.011
PO-215		81.07		5.352E-02	2.249E-01	3.348E-01	2.920E-02	0.160
		83.78		-1.559E-02	1.412E-01	2.040E-01	1.819E-02	-0.076
		94.90		7.280E-01	2.612E-01	4.183E-01	3.405E-02	1.740
		122.32		8.105E-01	1.630E+00	2.669E+00	1.813E-01	0.304
		144.24		8.231E-01	6.575E-01	1.070E+00	7.470E-02	0.769
		154.21		2.135E-01	3.498E-01	6.057E-01	4.031E-02	0.352
	+	269.46		4.412E-01	2.736E-01	3.134E-01	1.862E-02	1.408
		323.87	*	-9.261E-02	6.602E-01	9.172E-01	1.514E-01	-0.101
	+	338.28		7.173E+00	1.776E+00	2.143E+00	2.255E-01	3.347
		445.03		2.104E-01	1.809E+00	3.022E+00	3.162E-01	0.070
RN-219	+	271.23		5.661E-01	3.523E-01	4.072E-01	3.265E-02	1.390
		401.81	*	1.588E-01	3.320E-01	5.684E-01	7.738E-02	0.279
RN-220		549.76	*	9.850E+00	2.238E+01	3.748E+01	2.575E+00	0.263
RA-223		81.07		5.352E-02	2.249E-01	3.348E-01	2.920E-02	0.160
		83.78		-1.559E-02	1.412E-01	2.040E-01	1.819E-02	-0.076
		94.90		7.280E-01	2.612E-01	4.183E-01	3.405E-02	1.740

----- 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		8.105E-01	1.630E+00	2.669E+00	1.813E-01	0.304
		144.24		8.231E-01	6.575E-01	1.070E+00	7.470E-02	0.769
		154.21		2.135E-01	3.498E-01	6.057E-01	4.031E-02	0.352
	+	269.46		4.412E-01	2.736E-01	3.134E-01	1.862E-02	1.408
		323.87	*	-9.261E-02	6.602E-01	9.172E-01	1.514E-01	-0.101
	+	338.28		7.173E+00	1.776E+00	2.143E+00	2.255E-01	3.347
		445.03		2.104E-01	1.809E+00	3.022E+00	3.162E-01	0.070
		79.80		6.059E-01	1.684E+00	2.519E+00	5.419E-01	0.241
		236.00		4.408E-01	2.449E-01	3.804E-01	3.924E-02	1.159
		256.20	*	6.302E-02	3.201E-01	5.294E-01	7.354E-02	0.119
		286.10		1.247E-01	1.305E+00	2.130E+00	2.454E-01	0.059
	+	299.80		2.901E+00	1.953E+00	2.348E+00	3.819E-01	1.236
TH-227		304.40		-4.491E-01	1.864E+00	2.586E+00	4.469E-01	-0.174
		334.20		3.417E-01	2.658E+00	3.160E+00	5.791E-01	0.108
		79.80		6.059E-01	1.685E+00	2.519E+00	5.488E-01	0.241
	+	94.00		1.622E+01	4.573E+00	4.433E+00	9.594E-01	3.658
		236.00		4.408E-01	2.438E-01	3.804E-01	3.385E-02	1.159
		256.20	*	6.302E-02	3.202E-01	5.294E-01	8.916E-02	0.119
		286.10		1.247E-01	1.310E+00	2.130E+00	2.134E+00	0.059
	+	299.80		2.901E+00	1.953E+00	2.348E+00	3.819E-01	1.236
		304.40		-4.491E-01	1.864E+00	2.586E+00	4.469E-01	-0.174
		334.20		3.417E-01	2.658E+00	3.160E+00	5.791E-01	0.108
		85.43		2.906E-01	2.106E-01	3.217E-01	2.908E-02	0.903
	+	88.47		3.415E-01	1.322E-01	2.095E-01	1.919E-02	1.630
PA-231		100.00		2.897E-01	1.825E-01	3.125E-01	2.353E-02	0.927
		193.63	*	-3.306E-01	4.235E-01	6.849E-01	3.667E-02	-0.483
	+	210.97		2.377E+00	1.037E+00	1.200E+00	6.522E-02	1.981
		283.67	*	-2.865E-02	1.318E+00	2.141E+00	2.942E-01	-0.013
	+	301.29		1.161E+00	7.677E-01	9.095E-01	9.481E-02	1.276
		81.07		5.352E-02	2.249E-01	3.348E-01	2.920E-02	0.160
		83.78		-1.559E-02	1.412E-01	2.040E-01	1.819E-02	-0.076
		94.90		7.280E-01	2.612E-01	4.183E-01	3.405E-02	1.740
		122.32		8.105E-01	1.630E+00	2.669E+00	1.813E-01	0.304
		144.24		8.231E-01	6.575E-01	1.070E+00	7.470E-02	0.769
		154.21		2.135E-01	3.498E-01	6.057E-01	4.031E-02	0.352
	+	269.46		4.412E-01	2.736E-01	3.134E-01	1.862E-02	1.408
U-231		323.87	*	-9.261E-02	6.602E-01	9.172E-01	1.514E-01	-0.101
	+	338.28		7.173E+00	1.776E+00	2.143E+00	2.255E-01	3.347
		445.03		2.104E-01	1.809E+00	3.022E+00	3.162E-01	0.070
		84.21		-5.115E-01	7.482E+00	1.084E+01	9.692E-01	-0.047
	+	92.29		1.966E+01	3.910E+00	5.797E+00	4.935E-01	3.392
		95.87	*	-1.425E+00	1.485E+00	2.050E+00	1.642E-01	-0.695
		108.00		-2.581E+00	2.478E+00	3.792E+00	2.578E-01	-0.681
	+	75.28		1.714E+01	4.500E+00	6.521E+00	9.920E-01	2.629
	+	86.59		4.897E+00	2.267E+00	3.050E+00	8.230E-01	1.606
	+	300.12		8.089E-01	5.394E-01	6.515E-01	8.740E-02	1.241
		311.98	*	-3.556E-02	5.586E-02	8.694E-02	5.326E-03	-0.409
		340.50		2.377E+00	8.329E-01	1.089E+00	2.501E-01	2.183
		398.62		-8.344E-01	1.685E+00	2.719E+00	7.029E-01	-0.307

---- 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		6.562E-01	1.371E+00	2.335E+00	4.816E-01	0.281
		63.00		3.930E+00	2.794E+00	3.294E+00	4.966E-01	1.193
		94.67		7.566E-01	2.100E-01	3.223E-01	3.898E-02	2.347
		98.44		1.444E-01	1.290E-01	1.571E-01	8.744E-02	0.919
		99.86		7.966E-01	4.652E-01	7.989E-01	6.027E-02	0.997
		111.00		-1.708E-02	1.810E-01	2.911E-01	3.123E-02	-0.059
		131.20		1.299E-01	1.078E-01	1.631E-01	9.283E-03	0.797
		152.70		2.611E-01	3.059E-01	4.967E-01	7.777E-02	0.526
		186.00		6.944E+00	2.845E+00	2.537E+00	7.729E-01	2.737
		226.40		-3.039E-02	3.373E-01	5.557E-01	6.344E-02	-0.055
	+	227.20		1.914E-01	3.620E-01	6.120E-01	3.373E-02	0.313
		248.90		3.076E-01	7.007E-01	1.169E+00	2.506E-01	0.263
		293.70		5.633E+00	1.188E+00	1.479E+00	2.375E-01	3.809
		369.80		-3.689E-01	6.736E-01	1.093E+00	2.274E-01	-0.338
		568.70		-1.215E-01	8.912E-01	1.419E+00	9.937E-02	-0.086
		569.50		-8.025E-02	2.425E-01	3.811E-01	2.670E-02	-0.211
		574.00		-4.425E-02	1.348E+00	2.184E+00	1.537E-01	-0.020
		699.00		2.880E-01	6.039E-01	1.033E+00	1.950E-01	0.279
		706.10		3.210E-01	8.591E-01	1.447E+00	6.444E-01	0.222
		733.00		-9.471E-03	3.663E-01	5.232E-01	1.162E-01	-0.018
		742.81		-1.070E-01	1.118E+00	1.840E+00	1.238E+00	-0.058
		796.30		1.718E+00	9.466E-01	1.522E+00	4.169E-01	1.129
		805.60		5.365E-01	8.806E-01	1.486E+00	4.605E-01	0.361
		819.60		7.763E-02	1.016E+00	1.682E+00	6.451E-01	0.046
		826.30		1.699E-01	6.990E-01	1.164E+00	5.242E-01	0.146
		831.60		-3.841E-01	5.870E-01	9.040E-01	2.742E-01	-0.425
		876.40		4.609E-01	8.635E-01	1.236E+00	1.273E+00	0.373
		880.51		8.677E-02	2.489E-01	4.171E-01	4.590E-02	0.208
		883.24		-8.981E-02	2.598E-01	4.020E-01	2.716E-01	-0.223
		899.00		4.548E-02	7.424E-01	1.217E+00	5.394E-01	0.037
		925.00		7.207E-01	1.064E+00	1.814E+00	1.976E-01	0.397
		926.50		1.716E-02	1.644E-01	2.696E-01	7.044E-02	0.064
		946.00	*	9.858E-02	2.680E-01	4.464E-01	8.806E-02	0.221
		949.00		-5.613E-02	4.045E-01	6.501E-01	6.828E-02	-0.086
		980.50		1.716E-01	6.230E-01	1.031E+00	1.026E-01	0.166
		1394.10		-1.013E+00	1.226E+00	1.501E+00	9.751E-01	-0.675
PA-234M		766.42		1.187E+01	1.164E+01	1.763E+01	8.960E+00	0.674
		1001.03	*	-4.460E-01	4.540E+00	7.141E+00	7.704E-01	-0.062
U-235	+	89.95		2.157E+00	1.506E+00	1.886E+00	5.835E-01	1.143
		93.35		5.045E+00	1.678E+00	1.475E+00	4.121E-01	3.421
	+	105.00		1.091E+00	1.053E+00	1.696E+00	4.991E-01	0.643
		143.76	*	1.385E-01	2.061E-01	3.273E-01	5.300E-02	0.423
	+	163.35		2.251E-02	4.201E-01	7.038E-01	1.254E-01	0.032
		185.71		2.572E-01	7.174E-02	9.428E-02	5.014E-03	2.728
NP-236		205.31		2.541E-01	4.947E-01	7.380E-01	1.318E-01	0.344
		94.67		5.787E-01	1.511E-01	2.449E-01	2.001E-02	2.363
		98.44		1.091E-01	7.675E-02	1.188E-01	9.146E-03	0.919
		111.00		-1.292E-02	1.369E-01	2.202E-01	1.448E-02	-0.059
		160.31	*	3.461E-02	7.228E-02	1.244E-01	6.588E-03	0.278

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		3.018E-01	1.566E-01	2.703E-01	2.048E-02	1.117
		117.00	*	9.314E-02	1.776E-01	2.920E-01	1.808E-02	0.319
	+	209.75		2.394E+00	1.044E+00	1.272E+00	6.909E-02	1.882
		228.18		8.857E-02	1.921E-01	3.236E-01	1.785E-02	0.274
	+	277.60		2.411E-01	1.809E-01	2.707E-01	1.542E-02	0.891
AM-241		334.30		1.937E-01	1.506E+00	1.790E+00	1.035E-01	0.108
		59.54	*	1.489E-01	1.980E-01	3.079E-01	2.553E-02	0.484
		99.55		3.106E-01	1.612E-01	2.782E-01	2.108E-02	1.117
		103.76	*	4.504E-02	9.098E-02	1.504E-01	1.077E-02	0.299
		117.00		9.583E-02	1.828E-01	3.005E-01	1.860E-02	0.319
CM-243	+	209.75		2.360E+00	1.030E+00	1.254E+00	6.812E-02	1.882
		228.18		8.951E-02	1.941E-01	3.271E-01	1.804E-02	0.274
	+	277.60		2.431E-01	1.824E-01	2.729E-01	1.555E-02	0.891
		798.80		-1.977E-01	1.322E-01	1.948E-01	1.882E-02	-1.015
		1036.00		-1.300E-01	2.566E-01	4.131E-01	3.657E-02	-0.315
AM-246		1062.04		-5.454E-02	2.123E-01	3.484E-01	2.889E-02	-0.157
		1078.86	*	-3.914E-02	1.307E-01	2.135E-01	1.689E-02	-0.183
	+	278.00		1.000E+00	7.503E-01	1.120E+00	6.381E-02	0.893
		287.40		3.396E-01	1.046E+00	1.727E+00	9.878E-02	0.197
		402.60	*	2.739E-02	2.962E-02	5.189E-02	3.022E-03	0.528
CM-247		252.85		-6.598E-01	7.444E-01	1.167E+00	6.556E-02	-0.565
		333.44		5.591E-02	2.295E-01	2.374E-01	1.373E-02	0.236
		387.95	*	1.377E-02	3.237E-02	5.548E-02	3.189E-03	0.248
CF-249		176.60	*	-9.584E-02	1.101E-01	1.789E-01	9.446E-03	-0.536
		227.00		7.346E-02	3.252E-01	5.429E-01	2.992E-02	0.135
		285.00		-7.721E-01	1.515E+00	2.397E+00	1.370E-01	-0.322

# 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]G246444004      *
* Acquisition date   : 19-FEB-2010 20:40:00 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 02:00:01.67 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID           : G246444004 Analyst initials: MXR1                 *
* Batch Number        : 950788 Sample Quantity : 1.1920E+02 GRAM          *
* Recovery            : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM           : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.362E+01	2.934E+00	3.938E-01	0.000E+00
CD-109	2.549E+00	9.671E-01	1.268E+00	0.000E+00
SN-126	2.501E-01	9.488E-02	1.252E-01	0.000E+00
BA-137M	7.264E-02	5.200E-02	5.416E-02	0.000E+00
CS-137	7.679E-02	5.497E-02	5.726E-02	0.000E+00
TL-208	5.249E-01	7.462E-02	4.672E-02	0.000E+00
BI-211	3.416E+00	4.587E-01	2.920E-01	0.000E+00
PB-212	1.561E+00	1.462E-01	7.654E-02	0.000E+00
PO-212	1.561E+00	1.462E-01	7.654E-02	0.000E+00
BI-214	1.103E+00	1.659E-01	9.525E-02	0.000E+00
PB-214	1.188E+00	1.707E-01	1.018E-01	0.000E+00
PO-214	1.188E+00	1.707E-01	1.018E-01	0.000E+00
PO-216	1.561E+00	1.462E-01	7.654E-02	0.000E+00
PO-218	1.188E+00	1.707E-01	1.018E-01	0.000E+00
RA-224	3.913E+00	9.793E-01	8.698E-01	0.000E+00
RA-226	1.103E+00	1.659E-01	9.525E-02	0.000E+00
AC-228	1.457E+00	2.978E-01	1.740E-01	0.000E+00
RA-228	1.457E+00	2.978E-01	1.740E-01	0.000E+00
TH-228	1.587E+00	1.486E-01	7.779E-02	0.000E+00
TH-230	1.103E+00	1.659E-01	9.525E-02	0.000E+00
TH-232	1.457E+00	2.978E-01	1.740E-01	0.000E+00
TH-234	3.371E+00	2.368E+00	2.332E+00	0.000E+00
U-234	1.103E+00	1.659E-01	9.525E-02	0.000E+00
NP-237	7.345E-01	3.157E-01	3.734E-01	0.000E+00
U-238	3.371E+00	2.368E+00	2.332E+00	0.000E+00
AM-243	3.272E-01	7.368E-02	9.374E-02	0.000E+00
ANH-511	1.479E-01	5.653E-02	4.006E-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	-1.494E-02	2.836E-01	4.808E-01	0.000E+00	NOT IDENT.
NA-22	-2.134E-03	3.741E-02	6.233E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.682E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.042E-02	2.183E-02	3.331E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.610E-02	8.229E-02	0.000E+00	FAIL ABUN
SC-46	-1.826E-03	3.295E-02	5.488E-02	0.000E+00	FAIL ABUN
V-48	1.841E-02	6.371E-02	1.078E-01	0.000E+00	NOT IDENT.
CR-51	-1.069E-01	3.342E-01	5.479E-01	0.000E+00	NOT IDENT.
MN-52	2.341E-01	2.337E-01	4.252E-01	0.000E+00	NOT IDENT.
MN-54	2.513E-02	3.458E-02	6.060E-02	0.000E+00	NOT IDENT.
CO-56	-4.916E-03	3.499E-02	5.825E-02	0.000E+00	NOT IDENT.
CO-57	1.201E-02	2.319E-02	3.978E-02	0.000E+00	NOT IDENT.
CO-58	-1.620E-04	3.258E-02	5.500E-02	0.000E+00	NOT IDENT.
FE-59	-6.154E-02	8.063E-02	1.294E-01	0.000E+00	NOT IDENT.
CO-60	-1.359E-03	3.285E-02	5.543E-02	0.000E+00	NOT IDENT.
ZN-65	8.158E-02	9.465E-02	1.480E-01	0.000E+00	NOT IDENT.
GE-68	-9.537E-02	1.115E+00	1.889E+00	0.000E+00	NOT IDENT.
AS-73	1.265E+00	1.044E+00	1.932E+00	0.000E+00	NOT IDENT.
AS-74	2.432E-02	7.785E-02	1.322E-01	0.000E+00	NOT IDENT.
SE-75	1.964E-02	4.201E-02	6.435E-02	0.000E+00	NOT IDENT.
BR-77	-1.035E+00	1.262E+01	2.118E+01	0.000E+00	FAIL ABUN
SR-82	-4.215E-01	3.435E-01	5.315E-01	0.000E+00	NOT IDENT.
RB-83	-3.061E-03	5.875E-02	9.875E-02	0.000E+00	NOT IDENT.
RB-84	2.257E-02	6.138E-02	1.054E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.221E+00	1.201E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.751E-02	6.237E-02	0.000E+00	NOT IDENT.
RB-86	-1.945E-01	7.396E-01	1.238E+00	0.000E+00	NOT IDENT.
Y-88	-1.508E-02	2.749E-02	4.175E-02	0.000E+00	NOT IDENT.
ZR-88	6.727E-03	2.363E-02	4.154E-02	0.000E+00	NOT IDENT.
Y-91	1.387E+01	1.729E+01	3.054E+01	0.000E+00	NOT IDENT.
NB-94	-5.687E-03	2.769E-02	4.685E-02	0.000E+00	NOT IDENT.
NB-95	4.858E-02	3.694E-02	6.706E-02	0.000E+00	NOT IDENT.
NB-95M	1.779E-02	1.203E-01	1.825E-01	0.000E+00	NOT IDENT.
ZR-95	3.710E-02	6.232E-02	1.097E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.033E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.182E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-6.055E+00	1.279E+01	2.104E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.136E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.485E-02	2.878E-02	5.016E-02	0.000E+00	NOT IDENT.
RH-102	-4.596E-03	2.487E-02	4.185E-02	0.000E+00	NOT IDENT.
RU-103	1.615E-02	3.309E-02	5.764E-02	0.000E+00	FAIL ABUN
RH-106	1.635E-03	2.708E-01	4.489E-01	0.000E+00	FAIL ABUN
RU-106	1.635E-03	2.708E-01	4.489E-01	0.000E+00	FAIL ABUN
AG-108M	-6.290E-03	2.582E-02	4.367E-02	0.000E+00	NOT IDENT.
AG-110M	8.001E-03	3.177E-02	4.837E-02	0.000E+00	NOT IDENT.
IN-111	-5.130E-01	1.452E+00	1.975E+00	0.000E+00	NOT IDENT.
IN-113M	-1.522E-02	3.423E-02	5.780E-02	0.000E+00	NOT IDENT.
SN-113	-1.522E-02	3.423E-02	5.780E-02	0.000E+00	NOT IDENT.
IN-114M	9.983E-02	1.660E-01	2.633E-01	0.000E+00	NOT IDENT.
CD-115	-3.029E+00	1.258E+01	2.084E+01	0.000E+00	NOT IDENT.
SN-117M	3.336E-02	5.139E-02	9.284E-02	0.000E+00	NOT IDENT.
SB-122	1.447E+00	2.345E+00	4.072E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.463E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	4.927E-03	2.533E-02	4.509E-02	0.000E+00	NOT IDENT.
I-124	3.838E-01	7.685E-01	1.151E+00	0.000E+00	NOT IDENT.
SB-124	1.533E-02	6.229E-02	1.079E-01	0.000E+00	FAIL ABUN
SB-125	1.087E-02	7.337E-02	1.271E-01	0.000E+00	FAIL ABUN
TE-125M	8.857E-01	8.841E+00	1.490E+01	0.000E+00	NOT IDENT.
I-126	6.314E-02	1.814E-01	2.776E-01	0.000E+00	NOT IDENT.
SB-126	4.856E-02	1.441E-01	2.186E-01	0.000E+00	FAIL ABUN
SB-127	6.891E-03	1.479E+00	2.541E+00	0.000E+00	NOT IDENT.
XE-127	-1.180E-02	4.072E-02	6.985E-02	0.000E+00	NOT IDENT.
I-131	4.978E-02	9.832E-02	1.758E-01	0.000E+00	NOT IDENT.
TE-132	3.448E-01	7.509E-01	1.312E+00	0.000E+00	NOT IDENT.
BA-133	0.000E+00	3.880E-02	6.263E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.294E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.217E-02	4.323E-02	7.883E-02	0.000E+00	NOT IDENT.
CS-135	4.124E-02	1.585E-01	2.389E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.108E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.681E-02	9.966E-02	1.606E-01	0.000E+00	FAIL ABUN
CE-139	-3.318E-02	2.530E-02	4.232E-02	0.000E+00	NOT IDENT.
BA-140	1.256E-01	2.336E-01	3.999E-01	0.000E+00	NOT IDENT.
LA-140	-5.812E-03	7.736E-02	1.095E-01	0.000E+00	FAIL ABUN
CE-141	1.867E-02	5.953E-02	9.988E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.144E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.485E-02	2.158E-01	3.213E-01	0.000E+00	NOT IDENT.
PM-144	-2.048E-02	2.931E-02	4.810E-02	0.000E+00	NOT IDENT.
PR-144	-1.389E+00	1.988E+00	3.261E+00	0.000E+00	NOT IDENT.

PM-146	4.058E-02	3.636E-02	6.558E-02	0.000E+00	NOT IDENT.
ND-147	-4.799E-02	4.804E-01	8.031E-01	0.000E+00	FAIL ABUN
PM-149	4.202E+00	1.123E+02	1.896E+02	0.000E+00	NOT IDENT.
EU-152	-7.700E-02	9.792E-02	1.326E-01	0.000E+00	FAIL ABUN
GD-153	-3.550E-02	8.783E-02	1.312E-01	0.000E+00	NOT IDENT.
EU-154	-5.689E-03	1.044E-01	1.741E-01	0.000E+00	NOT IDENT.
EU-155	5.537E-02	1.010E-01	1.751E-01	0.000E+00	FAIL ABUN
TB-160	-1.656E-02	1.200E-01	1.989E-01	0.000E+00	FAIL ABUN
HO-166M	-1.647E-02	4.946E-02	8.281E-02	0.000E+00	NOT IDENT.
TM-171	-3.482E+01	3.352E+01	5.026E+01	0.000E+00	NOT IDENT.
LU-176	4.686E-03	2.271E-02	3.558E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.641E+00	2.024E+00	0.000E+00	FAIL ABUN
LU-177M	-1.568E-01	1.517E-01	2.470E-01	0.000E+00	NOT IDENT.
HF-181	-1.156E-02	3.714E-02	6.195E-02	0.000E+00	NOT IDENT.
W-181	-3.015E-01	4.431E-01	6.787E-01	0.000E+00	NOT IDENT.
TA-182	2.628E-02	1.824E-01	3.094E-01	0.000E+00	FAIL ABUN
RE-183	7.598E-03	9.873E-02	1.729E-01	0.000E+00	FAIL ABUN
RE-184	-1.767E-01	1.954E-01	3.181E-01	0.000E+00	NOT IDENT.
OS-185	-2.025E-02	3.418E-02	5.380E-02	0.000E+00	NOT IDENT.
RE-188	6.041E-02	1.503E-01	2.699E-01	0.000E+00	NOT IDENT.
W-188	-2.051E+00	7.162E+00	1.033E+01	0.000E+00	FAIL ABUN
IR-192	8.744E-03	2.995E-02	5.076E-02	0.000E+00	FAIL ABUN
AU-195	3.979E-01	2.342E-01	4.045E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.750E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-3.859E+00	7.897E+00	1.366E+01	0.000E+00	NOT IDENT.
TL-202	-2.541E-02	6.175E-02	1.034E-01	0.000E+00	NOT IDENT.
HG-203	4.814E-02	4.036E-02	6.403E-02	0.000E+00	NOT IDENT.
BI-207	1.913E-02	4.766E-02	8.336E-02	0.000E+00	FAIL ABUN
TL-207	-9.261E-02	6.470E-01	9.308E-01	0.000E+00	FAIL ABUN
PO-209	2.656E+00	6.438E+00	1.107E+01	0.000E+00	NOT IDENT.
BI-210	5.527E+00	5.548E+00	1.025E+01	0.000E+00	NOT IDENT.
PB-210	5.527E+00	5.548E+00	1.025E+01	0.000E+00	NOT IDENT.
PO-210	5.527E+00	5.544E+00	1.025E+01	0.000E+00	NOT IDENT.
PB-211	-5.562E-01	8.483E-01	1.293E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.194E-01	5.666E-01	0.000E+00	FAIL ABUN
PO-215	-9.261E-02	6.470E-01	9.308E-01	0.000E+00	FAIL ABUN
RN-219	1.588E-01	3.254E-01	5.754E-01	0.000E+00	FAIL ABUN
RN-220	9.850E+00	2.193E+01	3.780E+01	0.000E+00	NOT IDENT.
RA-223	-9.261E-02	6.470E-01	9.308E-01	0.000E+00	FAIL ABUN
AC-227	6.302E-02	3.137E-01	5.387E-01	0.000E+00	FAIL ABUN
TH-227	6.302E-02	3.138E-01	5.387E-01	0.000E+00	FAIL ABUN
TH-229	-3.306E-01	4.150E-01	6.990E-01	0.000E+00	FAIL ABUN
PA-231	-2.865E-02	1.292E+00	2.176E+00	0.000E+00	FAIL ABUN
TH-231	-9.261E-02	6.470E-01	9.308E-01	0.000E+00	FAIL ABUN
U-231	-1.425E+00	1.456E+00	2.108E+00	0.000E+00	FAIL ABUN
PA-233	-3.556E-02	5.474E-02	8.826E-02	0.000E+00	FAIL ABUN
PA-234	9.858E-02	2.627E-01	4.475E-01	0.000E+00	FAIL ABUN
PA-234M	-4.460E-01	4.449E+00	7.154E+00	0.000E+00	NOT IDENT.
U-235	1.385E-01	2.020E-01	3.351E-01	0.000E+00	FAIL ABUN
NP-236	3.461E-02	7.083E-02	1.272E-01	0.000E+00	NOT IDENT.
NP-239	9.314E-02	1.741E-01	2.997E-01	0.000E+00	FAIL ABUN
AM-241	1.489E-01	1.941E-01	3.184E-01	0.000E+00	NOT IDENT.
CM-243	4.504E-02	8.916E-02	1.546E-01	0.000E+00	FAIL ABUN
AM-246	-3.914E-02	1.281E-01	2.137E-01	0.000E+00	NOT IDENT.
CM-247	2.739E-02	2.902E-02	5.253E-02	0.000E+00	FAIL ABUN
CF-249	1.377E-02	3.172E-02	5.618E-02	0.000E+00	NOT IDENT.
CF-251	-9.584E-02	1.079E-01	1.827E-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]G246444004.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:40:00
Sample ID          : G246444004          Sample quantity   : 1.19200E+02 GRAM
Detector name      : GAM18              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time  : 0 02:00:01.67  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 950788             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	2157	10.67*	1.894E+00	3.362E+01	3.362E+01	8.90
CD-109	88.03	190	3.72*	6.457E+00	2.488E+00	2.549E+00	38.71
SN-126	64.28	126	9.60	3.086E+00	1.334E+00	1.334E+00	71.02
	86.94	190	8.90	6.457E+00	1.040E+00	1.040E+00	55.99
	87.57	190	37.00*	6.457E+00	2.501E-01	2.501E-01	38.71
BA-137M	661.65	74	89.98*	3.590E+00	7.257E-02	7.264E-02	73.05
CS-137	661.65	74	85.12*	3.590E+00	7.671E-02	7.679E-02	73.05
TL-208	277.35	68	6.80	6.259E+00	5.000E-01	5.000E-01	75.54
	510.84	202	21.60	4.309E+00	6.846E-01	6.846E-01	39.89
	583.14	552	84.20*	3.934E+00	5.249E-01	5.249E-01	14.51
	860.37	37	12.46	2.914E+00	3.207E-01	3.207E-01	124.06
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	765	12.94*	5.450E+00	3.416E+00	3.416E+00	13.70
PB-212	74.81	339	10.70	4.940E+00	2.018E+00	2.018E+00	24.80
	77.11	594	18.00	5.266E+00	1.973E+00	1.973E+00	15.72
	87.30	190	8.00	6.457E+00	1.157E+00	1.157E+00	39.98
	238.63	1502	44.60*	6.792E+00	1.561E+00	1.561E+00	9.56
	300.09	101	3.41	5.986E+00	1.566E+00	1.566E+00	65.84
PO-212	74.81	339	10.70	4.940E+00	2.018E+00	2.018E+00	24.80
	77.11	594	18.00	5.266E+00	1.973E+00	1.973E+00	15.72
	87.30	190	8.00	6.457E+00	1.157E+00	1.157E+00	39.98
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	1502	44.60*	6.792E+00	1.561E+00	1.561E+00	9.56
	300.09	101	3.41	5.986E+00	1.566E+00	1.566E+00	65.84
BI-214	609.31	618	46.30*	3.813E+00	1.103E+00	1.103E+00	15.35
	1120.29	209	15.10	2.334E+00	1.863E+00	1.863E+00	28.01
	1764.49	109	15.80	1.695E+00	1.278E+00	1.278E+00	32.89
PB-214	74.81	339	6.21	4.940E+00	3.478E+00	3.478E+00	24.14
	77.11	594	10.50	5.266E+00	3.382E+00	3.382E+00	17.47
	87.30	190	4.67	6.457E+00	1.982E+00	1.982E+00	39.47
	241.98	331	7.49	6.746E+00	2.064E+00	2.064E+00	26.15
	295.21	437	19.20	6.040E+00	1.186E+00	1.186E+00	17.70

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	765	37.20*	5.450E+00	1.188E+00	1.188E+00	14.66
	74.81	339	6.21	4.940E+00	3.478E+00	3.478E+00	24.14
	77.11	594	10.50	5.266E+00	3.382E+00	3.382E+00	17.47
	87.30	190	4.67	6.457E+00	1.982E+00	1.982E+00	39.47
	241.98	331	7.49	6.746E+00	2.064E+00	2.064E+00	26.15
PO-216	295.21	437	19.20	6.040E+00	1.186E+00	1.186E+00	17.70
	351.92	765	37.20*	5.450E+00	1.188E+00	1.188E+00	14.66
	74.81	339	10.70	4.940E+00	2.018E+00	2.018E+00	24.80
	77.11	594	18.00	5.266E+00	1.973E+00	1.973E+00	15.72
	87.30	190	8.00	6.457E+00	1.157E+00	1.157E+00	39.98
PO-218	238.63	1502	44.60*	6.792E+00	1.561E+00	1.561E+00	9.56
	300.09	101	3.41	5.986E+00	1.566E+00	1.566E+00	65.84
	74.81	339	6.21	4.940E+00	3.478E+00	3.478E+00	24.14
	77.11	594	10.50	5.266E+00	3.382E+00	3.382E+00	17.47
	87.30	190	4.67	6.457E+00	1.982E+00	1.982E+00	39.47
RA-224	241.98	331	7.49	6.746E+00	2.064E+00	2.064E+00	26.15
	295.21	437	19.20	6.040E+00	1.186E+00	1.186E+00	17.70
	351.92	765	37.20*	5.450E+00	1.188E+00	1.188E+00	14.66
	240.98	331	3.95*	6.746E+00	3.913E+00	3.913E+00	25.54
	609.31	618	46.30*	3.813E+00	1.103E+00	1.103E+00	15.35
AC-228	1120.29	209	15.10	2.334E+00	1.863E+00	1.863E+00	28.01
	1764.49	109	15.80	1.695E+00	1.278E+00	1.278E+00	32.89
	338.32	347	11.40	5.580E+00	1.718E+00	1.718E+00	46.52
	911.07	356	27.70*	2.780E+00	1.457E+00	1.457E+00	20.86
	969.11	193	16.60	2.640E+00	1.388E+00	1.388E+00	35.12
RA-228	338.32	347	11.40	5.580E+00	1.718E+00	1.718E+00	46.52
	911.07	356	27.70*	2.780E+00	1.457E+00	1.457E+00	20.86
	969.11	193	16.60	2.640E+00	1.388E+00	1.388E+00	35.12
	74.81	339	10.70	4.940E+00	2.018E+00	2.052E+00	23.00
	77.11	594	18.00	5.266E+00	1.973E+00	2.005E+00	15.72
TH-228	87.30	190	8.00	6.457E+00	1.157E+00	1.176E+00	38.71
	238.63	1502	44.60*	6.792E+00	1.561E+00	1.587E+00	9.56
	300.09	101	3.41	5.986E+00	1.566E+00	1.591E+00	87.98
	609.31	618	46.30*	3.813E+00	1.103E+00	1.103E+00	15.35
	1120.29	209	15.10	2.334E+00	1.863E+00	1.863E+00	28.01
TH-230	1764.49	109	15.80	1.695E+00	1.278E+00	1.278E+00	32.89
	338.32	347	11.40	5.580E+00	1.718E+00	1.718E+00	23.15
	911.07	356	27.70*	2.780E+00	1.457E+00	1.457E+00	20.86
	969.11	193	16.60	2.640E+00	1.388E+00	1.388E+00	35.12
	63.29	126	3.80*	3.086E+00	3.371E+00	3.371E+00	71.68
TH-232	92.38	502	5.41	6.959E+00	4.196E+00	4.196E+00	25.46
	609.31	618	46.30*	3.813E+00	1.103E+00	1.103E+00	15.35
	1120.29	209	15.10	2.334E+00	1.863E+00	1.863E+00	28.01
	1764.49	109	15.80	1.695E+00	1.278E+00	1.278E+00	32.89
	86.50	190	12.60*	6.457E+00	7.345E-01	7.345E-01	43.86
NP-237	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
	63.29	126	3.80*	3.086E+00	3.371E+00	3.371E+00	71.68
	92.38	502	5.41	6.959E+00	4.196E+00	4.196E+00	19.88
	74.67	339	66.00*	4.940E+00	3.272E-01	3.272E-01	22.98

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	190	0.34	6.457E+00	2.754E+01	2.754E+01	38.71
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
ANH-511	511.00	202	100.00*	4.309E+00	1.479E-01	1.479E-01	39.01

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G246444004

Page : 4  
Acquisition date : 19-FEB-2010 20:40:00

Total number of lines in spectrum 32  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 31 96.88%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.362E+01	3.362E+01	0.299E+01	8.90	
CD-109	464.00D	1.02	2.488E+00	2.549E+00	0.987E+00	38.71	
SN-126	1.00E+05Y	1.00	2.501E-01	2.501E-01	0.968E-01	38.71	
BA-137M	30.17Y	1.00	7.257E-02	7.264E-02	5.306E-02	73.05	
CS-137	30.17Y	1.00	7.671E-02	7.679E-02	5.609E-02	73.05	
TL-208	1.41E+10Y	1.00	5.249E-01	5.249E-01	0.761E-01	14.51	
BI-211	7.04E+08Y	1.00	3.416E+00	3.416E+00	0.468E+00	13.70	
PB-212	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.149E+00	9.56	
PO-212	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.149E+00	9.56	
BI-214	1600.00Y	1.00	1.103E+00	1.103E+00	0.169E+00	15.35	
PB-214	1600.00Y	1.00	1.188E+00	1.188E+00	0.174E+00	14.66	
PO-214	1600.00Y	1.00	1.188E+00	1.188E+00	0.174E+00	14.66	
PO-216	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.149E+00	9.56	
PO-218	1600.00Y	1.00	1.188E+00	1.188E+00	0.174E+00	14.66	
RA-224	1.41E+10Y	1.00	3.913E+00	3.913E+00	0.999E+00	25.54	
RA-226	1600.00Y	1.00	1.103E+00	1.103E+00	0.169E+00	15.35	
AC-228	1.41E+10Y	1.00	1.457E+00	1.457E+00	0.304E+00	20.86	
RA-228	1.41E+10Y	1.00	1.457E+00	1.457E+00	0.304E+00	20.86	
TH-228	1.91Y	1.02	1.561E+00	1.587E+00	0.152E+00	9.56	
TH-230	4.47E+09Y	1.00	1.103E+00	1.103E+00	0.169E+00	15.35	
TH-232	1.41E+10Y	1.00	1.457E+00	1.457E+00	0.304E+00	20.86	
TH-234	4.47E+09Y	1.00	3.371E+00	3.371E+00	2.416E+00	71.68	
U-234	4.47E+09Y	1.00	1.103E+00	1.103E+00	0.169E+00	15.35	
NP-237	2.14E+06Y	1.00	7.345E-01	7.345E-01	3.222E-01	43.86	
U-238	4.47E+09Y	1.00	3.371E+00	3.371E+00	2.416E+00	71.68	
AM-243	7380.00Y	1.00	3.272E-01	3.272E-01	0.752E-01	22.98	
ANH-511	1.00E+09Y	1.00	1.479E-01	1.479E-01	0.577E-01	39.01	
Total Activity :			7.091E+01	7.099E+01			

Grand Total Activity : 7.091E+01 7.099E+01

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

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

Unidentified Energy Lines  
Sample ID : G246444004

Page : 5  
Acquisition date : 19-FEB-2010 20:40:00

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	89.96	124	533	1.24	179.03	169	23	1.72E-02	62.6	6.70E+00	T
0	129.33	93	400	1.17	257.75	254	9	1.29E-02	81.0	8.25E+00	T
0	186.00	337	442	1.24	371.04	364	11	4.68E-02	27.4	7.65E+00	T
0	209.56	179	338	1.09	418.14	413	11	2.48E-02	43.3	7.25E+00	T
0	270.46	121	318	1.11	539.90	533	12	1.68E-02	61.7	6.35E+00	T
0	328.18	80	204	1.62	655.30	651	10	1.11E-02	72.4	5.68E+00	T
0	462.86	111	131	1.61	924.59	919	11	1.54E-02	44.5	4.60E+00	T
0	727.25	96	133	1.68	1453.23	1447	13	1.34E-02	54.7	3.34E+00	T
1	964.48	58	75	1.94	1927.58	1917	26	8.04E-03	67.8	2.65E+00	T
0	1588.89	48	24	1.50	3176.25	3166	21	6.65E-03	60.5	1.79E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:41:15.97

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444004.CNF;1  *
* Acquisition date   : 19-FEB-2010 20:40:00 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 02:00:01.67 Half life ratio : 8.00000  *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00. Nuclide Library : SOLID          *
* Sample ID          : G246444004 Analyst initials: MXR1           *
* Batch Number       : 950788 Sample Quantity : 1.19200E+02 GRAM *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope      :              *
* MSD ID             : MSD Isotope      :                      *
* LCS ID             : 1032-A LCS Isotope :                      *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.362E+01	2.994E+00	3.949E-01	2.996E-02	85.149
CD-109	2.549E+00	9.868E-01	1.231E+00	1.138E-01	2.070
SN-126	2.501E-01	9.681E-02	1.216E-01	1.120E-02	2.057
BA-137M	7.264E-02	5.306E-02	5.381E-02	4.102E-03	1.350
CS-137	7.679E-02	5.609E-02	5.689E-02	4.347E-03	1.350
TL-208	5.249E-01	7.614E-02	4.635E-02	3.633E-03	11.325
BI-211	3.416E+00	4.681E-01	2.880E-01	1.849E-02	11.858
PB-212	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
PO-212	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
BI-214	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
PB-214	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
PO-214	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
PO-216	1.561E+00	1.492E-01	7.516E-02	5.370E-03	20.770
PO-218	1.188E+00	1.742E-01	1.004E-01	8.304E-03	11.837
RA-224	3.913E+00	9.993E-01	8.543E-01	4.759E-02	4.580
RA-226	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
AC-228	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394
RA-228	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.587E+00	1.516E-01	7.640E-02	5.458E-03	20.770
TH-230	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
TH-232	1.457E+00	3.039E-01	1.735E-01	2.299E-02	8.394
TH-234	3.371E+00	2.416E+00	2.257E+00	3.979E-01	1.494
U-234	1.103E+00	1.693E-01	9.454E-02	8.445E-03	11.666
NP-237	7.345E-01	3.222E-01	3.626E-01	8.181E-02	2.026
U-238	3.371E+00	2.416E+00	2.257E+00	3.979E-01	1.494
AM-243	3.272E-01	7.518E-02	9.088E-02	7.584E-03	3.601
ANH-511	1.479E-01	5.768E-02	3.968E-02	2.621E-03	3.726

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.494E-02		2.894E-01	4.759E-01	3.449E-02	-0.031
NA-22	-2.134E-03		3.817E-02	6.240E-02	4.246E-03	-0.034
NA-24	-2.542E+00		1.368E+00	Half-Life too short		
AL-26	-1.042E-02		2.227E-02	3.349E-02	1.955E-03	-0.311
TI-44	3.640E-01	+	5.724E-02	7.983E-02	6.825E-03	4.560
SC-46	-1.826E-03		3.362E-02	5.471E-02	6.102E-03	-0.033
V-48	1.841E-02		6.501E-02	1.076E-01	1.064E-02	0.171
CR-51	-1.069E-01		3.410E-01	5.399E-01	3.476E-02	-0.198
MN-52	2.341E-01		2.385E-01	4.262E-01	3.141E-02	0.549
MN-54	2.513E-02		3.529E-02	6.037E-02	6.184E-03	0.416
CO-56	-4.916E-03		3.570E-02	5.804E-02	6.059E-03	-0.085
CO-57	1.201E-02		2.366E-02	3.878E-02	2.297E-03	0.310
CO-58	-1.620E-04		3.324E-02	5.477E-02	5.407E-03	-0.003
FE-59	-6.154E-02		8.227E-02	1.294E-01	1.065E-02	-0.476
CO-60	-1.359E-03		3.352E-02	5.552E-02	4.195E-03	-0.024
ZN-65	8.158E-02		9.658E-02	1.479E-01	1.042E-02	0.552
GE-68	-9.537E-02		1.138E+00	1.887E+00	1.499E-01	-0.051
AS-73	1.265E+00		1.065E+00	1.866E+00	1.480E-01	0.678
AS-74	2.432E-02		7.943E-02	1.312E-01	9.426E-03	0.185
SE-75	1.964E-02		4.287E-02	6.327E-02	3.619E-03	0.310
BR-77	-1.035E+00		1.288E+01	2.099E+01	1.400E+00	-0.049
SR-82	-4.215E-01		3.505E-01	5.290E-01	4.927E-02	-0.797
RB-83	-3.061E-03		5.995E-02	9.784E-02	6.526E-03	-0.031
RB-84	2.257E-02		6.264E-02	1.051E-01	1.158E-02	0.215
KR-85	1.486E+01		7.368E+00	1.189E+01	7.880E-01	1.249
SR-85	7.717E-02		3.827E-02	6.179E-02	4.093E-03	1.249
RB-86	-1.945E-01		7.547E-01	1.236E+00	9.843E-02	-0.157
Y-88	-1.508E-02		2.805E-02	4.198E-02	2.391E-03	-0.359
ZR-88	6.727E-03		2.412E-02	4.102E-02	2.359E-03	0.164
Y-91	1.387E+01		1.765E+01	3.055E+01	1.806E+00	0.454
NB-94	-5.687E-03		2.826E-02	4.658E-02	3.821E-03	-0.122
NB-95	4.858E-02		3.770E-02	6.674E-02	6.105E-03	0.728
NB-95M	1.779E-02		1.228E-01	1.792E-01	1.315E-02	0.099
ZR-95	3.710E-02		6.360E-02	1.092E-01	1.074E-02	0.340

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	1.225E-01		1.547E-01	Half-Life too short		
ZR-97	1.835E+01		3.154E+00	Half-Life too short		
MO-99	-6.055E+00		1.305E+01	2.093E+01	3.193E+00	-0.289
TC-99M	-5.099E+10		5.795E+11	Half-Life too short		
RH-101	1.485E-02		2.937E-02	4.916E-02	2.642E-03	0.302
RH-102	-4.596E-03		2.537E-02	4.143E-02	2.631E-03	-0.111
RU-103	1.615E-02		3.377E-02	5.707E-02	7.411E-03	0.283
RH-106	1.635E-03		2.764E-01	4.457E-01	5.607E-02	0.004
RU-106	1.635E-03		2.764E-01	4.457E-01	3.280E-02	0.004
AG-108M	-6.290E-03		2.635E-02	4.318E-02	2.821E-03	-0.146
AG-110M	8.001E-03		3.242E-02	4.805E-02	3.790E-03	0.167
IN-111	-5.130E-01		1.482E+00	1.940E+00	1.084E-01	-0.264
IN-113M	-1.522E-02		3.493E-02	5.709E-02	3.502E-03	-0.267
SN-113	-1.522E-02		3.493E-02	5.709E-02	3.502E-03	-0.267
IN-114M	9.983E-02		1.693E-01	2.580E-01	1.377E-02	0.387
CD-115	-3.029E+00		1.283E+01	2.065E+01	1.388E+00	-0.147
SN-117M	3.336E-02		5.244E-02	9.076E-02	4.824E-03	0.368
SB-122	1.447E+00		2.393E+00	4.039E+00	2.814E-01	0.358
I-123	4.790E+00		1.257E+01	Half-Life too short		
TE-123M	4.927E-03		2.585E-02	4.408E-02	2.378E-03	0.112
I-124	3.838E-01		7.842E-01	1.143E+00	8.263E-02	0.336
SB-124	1.533E-02		6.356E-02	1.084E-01	7.480E-03	0.141
SB-125	1.087E-02		7.487E-02	1.256E-01	7.849E-03	0.086
TE-125M	8.857E-01		9.022E+00	1.450E+01	1.276E+00	0.061
I-126	6.314E-02		1.851E-01	2.759E-01	2.121E-02	0.229
SB-126	4.856E-02		1.470E-01	2.174E-01	1.841E-02	0.223
SB-127	6.891E-03		1.509E+00	2.525E+00	2.847E-01	0.003
XE-127	-1.180E-02		4.155E-02	6.848E-02	3.696E-03	-0.172
I-131	4.978E-02		1.003E-01	1.734E-01	1.122E-02	0.287
TE-132	3.448E-01		7.662E-01	1.288E+00	1.869E-01	0.268
BA-133	6.644E-02		3.960E-02	6.178E-02	7.137E-03	1.075
I-133	3.233E-03		6.601E-03	Half-Life too short		
CS-134	7.217E-02		4.411E-02	7.848E-02	7.591E-03	0.920
CS-135	4.124E-02		1.617E-01	2.349E-01	1.776E-02	0.176
I-135	2.097E+10		5.652E+10	Half-Life too short		
CS-136	-7.681E-02		1.017E-01	1.605E-01	1.438E-02	-0.479
CE-139	-3.318E-02		2.582E-02	4.139E-02	2.173E-03	-0.802
BA-140	1.256E-01		2.383E-01	3.963E-01	1.296E-01	0.317
LA-140	-5.812E-03		7.894E-02	1.100E-01	7.544E-03	-0.053
CE-141	1.867E-02		6.075E-02	9.754E-02	5.569E-03	0.191
CE-143	1.458E-03		2.114E-04	Half-Life too short		
CE-144	1.485E-02		2.202E-01	3.135E-01	4.433E-02	0.047
PM-144	-2.048E-02		2.991E-02	4.781E-02	3.882E-03	-0.428
PR-144	-1.389E+00		2.028E+00	3.242E+00	2.631E-01	-0.428
PM-146	4.058E-02		3.710E-02	6.488E-02	5.772E-03	0.625
ND-147	-4.799E-02		4.902E-01	7.959E-01	1.110E-01	-0.060
PM-149	4.202E+00		1.146E+02	1.866E+02	2.640E+01	0.023
EU-152	-7.700E-02		9.992E-02	1.308E-01	8.536E-03	-0.589

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-3.550E-02		8.963E-02	1.275E-01	9.972E-03	-0.278
EU-154	-5.689E-03		1.066E-01	1.742E-01	1.740E-02	-0.033
EU-155	5.537E-02		1.030E-01	1.704E-01	1.218E-02	0.325
TB-160	-1.656E-02		1.225E-01	1.983E-01	2.178E-02	-0.083
HO-166M	-1.647E-02		5.047E-02	8.234E-02	6.863E-03	-0.200
TM-171	-3.482E+01		3.420E+01	4.867E+01	3.891E+00	-0.715
LU-176	4.686E-03		2.317E-02	3.504E-02	2.018E-03	0.134
LU-177	3.839E+00	+	1.675E+00	1.985E+00	1.077E-01	1.934
LU-177M	-1.568E-01		1.548E-01	2.441E-01	1.442E-02	-0.642
HF-181	-1.156E-02		3.790E-02	6.133E-02	3.925E-03	-0.188
W-181	-3.015E-01		4.521E-01	6.570E-01	5.211E-02	-0.459
TA-182	2.628E-02		1.861E-01	3.096E-01	1.894E-02	0.085
RE-183	7.598E-03		1.007E-01	1.691E-01	8.923E-03	0.045
RE-184	-1.767E-01		1.994E-01	3.126E-01	1.756E-02	-0.565
OS-185	-2.025E-02		3.488E-02	5.343E-02	4.018E-03	-0.379
RE-188	6.041E-02		1.534E-01	2.638E-01	1.412E-02	0.229
W-188	-2.051E+00		7.308E+00	1.017E+01	5.823E-01	-0.202
IR-192	8.744E-03		3.056E-02	5.001E-02	2.901E-03	0.175
AU-195	3.979E-01		2.389E-01	3.933E-01	3.010E-02	1.012
TL-200	-1.356E-04		3.954E-04	Half-Life too short		
TL-201	-3.859E+00		8.058E+00	1.336E+01	7.012E-01	-0.289
TL-202	-2.541E-02		6.301E-02	1.022E-01	6.232E-03	-0.249
HG-203	4.814E-02		4.118E-02	6.299E-02	3.820E-03	0.764
BI-207	1.913E-02		4.863E-02	8.328E-02	6.875E-03	0.230
PL-207	-9.261E-02		6.602E-01	9.172E-01	1.514E-01	-0.101
PO-209	2.656E+00		6.569E+00	1.104E+01	1.245E+00	0.241
BI-210	5.527E+00		5.662E+00	9.889E+00	7.651E-01	0.559
PB-210	5.527E+00		5.662E+00	9.889E+00	7.651E-01	0.559
PO-210	5.527E+00		5.657E+00	9.889E+00	6.578E-01	0.559
PB-211	-5.562E-01		8.656E-01	1.277E+00	7.963E-01	-0.435
BI-212	7.695E-01	+	4.280E-01	5.636E-01	5.613E-02	1.365
PO-215	-9.261E-02		6.602E-01	9.172E-01	1.514E-01	-0.101
RN-219	1.588E-01		3.320E-01	5.684E-01	7.738E-02	0.279
RN-220	9.850E+00		2.238E+01	3.748E+01	2.575E+00	0.263
RA-223	-9.261E-02		6.602E-01	9.172E-01	1.514E-01	-0.101
AC-227	6.302E-02		3.201E-01	5.294E-01	7.354E-02	0.119
TH-227	6.302E-02		3.202E-01	5.294E-01	8.916E-02	0.119
TH-229	-3.306E-01		4.235E-01	6.849E-01	3.667E-02	-0.483
PA-231	-2.865E-02		1.318E+00	2.141E+00	2.942E-01	-0.013
TH-231	-9.261E-02		6.602E-01	9.172E-01	1.514E-01	-0.101
U-231	-1.425E+00		1.485E+00	2.050E+00	1.642E-01	-0.695
PA-233	-3.556E-02		5.586E-02	8.694E-02	5.326E-03	-0.409
PA-234	9.858E-02		2.680E-01	4.464E-01	8.806E-02	0.221
PA-234M	-4.460E-01		4.540E+00	7.141E+00	7.704E-01	-0.062
U-235	1.385E-01		2.061E-01	3.273E-01	5.300E-02	0.423
NP-236	3.461E-02		7.228E-02	1.244E-01	6.588E-03	0.278
NP-239	9.314E-02		1.776E-01	2.920E-01	1.808E-02	0.319
AM-241	1.489E-01		1.980E-01	3.079E-01	2.553E-02	0.484

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.504E-02		9.098E-02	1.504E-01	1.077E-02	0.299
AM-246	-3.914E-02		1.307E-01	2.135E-01	1.689E-02	-0.183
CM-247	2.739E-02		2.962E-02	5.189E-02	3.022E-03	0.528
CF-249	1.377E-02		3.237E-02	5.548E-02	3.189E-03	0.248
CF-251	-9.584E-02		1.101E-01	1.789E-01	9.446E-03	-0.536

## 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]G246444004             *
* Acquisition date   : 19-FEB-2010 20:40:00 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 02:00:01.67             Half life ratio : 8.000       *
*****
*                               SAMPLE DATA                                *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G246444004                 Analyst initials: MXR1        *
* Batch Number       : 950788                     Sample Quantity : 1.1920E+02 GRAM *
* Recovery           : 1.00000                     Carrier Weight  : 0.00000     *
*****
*                               QC DATA                                    *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope       :              *
* MSD DPM             : 0.000                      MSD Isotope   :              *
* LCS DPM             : 0.000                      LCS Isotope   :              *
* LCSD DPM            : 0.000                      LCSD Isotope  :              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.362E+01	2.934E+00	1.970E-01	1.497E+00
CD-109	2.549E+00	9.671E-01	6.343E-01	4.934E-01
SN-126	2.501E-01	9.488E-02	6.263E-02	4.841E-02
BA-137M	7.264E-02	5.200E-02	2.710E-02	2.653E-02
CS-137	7.679E-02	5.497E-02	2.865E-02	2.805E-02
TL-208	5.249E-01	7.462E-02	2.337E-02	3.807E-02
BI-211	3.416E+00	4.587E-01	1.461E-01	2.340E-01
PB-212	1.561E+00	1.462E-01	3.829E-02	7.459E-02
PO-212	1.561E+00	1.462E-01	3.829E-02	7.459E-02
BI-214	1.103E+00	1.659E-01	4.765E-02	8.467E-02
PB-214	1.188E+00	1.707E-01	5.091E-02	8.711E-02
PO-214	1.188E+00	1.707E-01	5.091E-02	8.711E-02
PO-216	1.561E+00	1.462E-01	3.829E-02	7.459E-02
PO-218	1.188E+00	1.707E-01	5.091E-02	8.711E-02
RA-224	3.913E+00	9.793E-01	4.352E-01	4.996E-01
RA-226	1.103E+00	1.659E-01	4.765E-02	8.467E-02
AC-228	1.457E+00	2.978E-01	8.706E-02	1.519E-01
RA-228	1.457E+00	2.978E-01	8.706E-02	1.519E-01
TH-228	1.587E+00	1.486E-01	3.892E-02	7.581E-02
TH-230	1.103E+00	1.659E-01	4.765E-02	8.467E-02
TH-232	1.457E+00	2.978E-01	8.706E-02	1.519E-01
TH-234	3.371E+00	2.368E+00	1.167E+00	1.208E+00
U-234	1.103E+00	1.659E-01	4.765E-02	8.467E-02
NP-237	7.345E-01	3.157E-01	1.868E-01	1.611E-01
U-238	3.371E+00	2.368E+00	1.167E+00	1.208E+00
AM-243	3.272E-01	7.368E-02	4.690E-02	3.759E-02
ANH-511	1.479E-01	5.653E-02	2.004E-02	2.884E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-1.494E-02	2.836E-01	2.406E-01	1.447E-01	NOT IDENT.
NA-22	-2.134E-03	3.741E-02	3.118E-02	1.908E-02	NOT IDENT.
NA-24	-2.542E+06	2.682E+06	0.000E+00	1.368E+06	SHORT HLIF
AL-26	-1.042E-02	2.183E-02	1.667E-02	1.114E-02	NOT IDENT.
TI-44	3.640E-01	5.610E-02	4.117E-02	2.862E-02	FAIL ABUN
SC-46	-1.826E-03	3.295E-02	2.746E-02	1.681E-02	FAIL ABUN
V-48	1.841E-02	6.371E-02	5.392E-02	3.250E-02	NOT IDENT.
CR-51	-1.069E-01	3.342E-01	2.741E-01	1.705E-01	NOT IDENT.
MN-52	2.341E-01	2.337E-01	2.127E-01	1.193E-01	NOT IDENT.
MN-54	2.513E-02	3.458E-02	3.032E-02	1.764E-02	NOT IDENT.
CO-56	-4.916E-03	3.499E-02	2.914E-02	1.785E-02	NOT IDENT.
CO-57	1.201E-02	2.319E-02	1.990E-02	1.183E-02	NOT IDENT.
CO-58	-1.620E-04	3.258E-02	2.752E-02	1.662E-02	NOT IDENT.
FE-59	-6.154E-02	8.063E-02	6.476E-02	4.114E-02	NOT IDENT.
CO-60	-1.359E-03	3.285E-02	2.773E-02	1.676E-02	NOT IDENT.
ZN-65	8.158E-02	9.465E-02	7.403E-02	4.829E-02	NOT IDENT.
GE-68	-9.537E-02	1.115E+00	9.449E-01	5.689E-01	NOT IDENT.
AS-73	1.265E+00	1.044E+00	9.666E-01	5.326E-01	NOT IDENT.
AS-74	2.432E-02	7.785E-02	6.614E-02	3.972E-02	NOT IDENT.
SE-75	1.964E-02	4.201E-02	3.220E-02	2.143E-02	NOT IDENT.
BR-77	-1.035E+00	1.262E+01	1.060E+01	6.441E+00	FAIL ABUN
SR-82	-4.215E-01	3.435E-01	2.659E-01	1.752E-01	NOT IDENT.
RB-83	-3.061E-03	5.875E-02	4.941E-02	2.997E-02	NOT IDENT.
RB-84	2.257E-02	6.138E-02	5.275E-02	3.132E-02	NOT IDENT.
KR-85	1.486E+01	7.221E+00	6.007E+00	3.684E+00	NOT IDENT.
SR-85	7.717E-02	3.751E-02	3.120E-02	1.914E-02	NOT IDENT.
RB-86	-1.945E-01	7.396E-01	6.191E-01	3.773E-01	NOT IDENT.
Y-88	-1.508E-02	2.749E-02	2.089E-02	1.402E-02	NOT IDENT.
ZR-88	6.727E-03	2.363E-02	2.078E-02	1.206E-02	NOT IDENT.
Y-91	1.387E+01	1.729E+01	1.528E+01	8.824E+00	NOT IDENT.
NB-94	-5.687E-03	2.769E-02	2.344E-02	1.413E-02	NOT IDENT.
NB-95	4.858E-02	3.694E-02	3.355E-02	1.885E-02	NOT IDENT.
NB-95M	1.779E-02	1.203E-01	9.130E-02	6.140E-02	NOT IDENT.
ZR-95	3.710E-02	6.232E-02	5.489E-02	3.180E-02	NOT IDENT.
NB-97	1.225E+05	3.033E+05	0.000E+00	1.547E+05	SHORT HLIF
ZR-97	1.835E+07	6.182E+06	0.000E+00	3.154E+06	SHORT HLIF
MO-99	-6.055E+00	1.279E+01	1.052E+01	6.524E+00	NOT IDENT.
TC-99M	-5.099E+16	1.136E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.485E-02	2.878E-02	2.509E-02	1.468E-02	NOT IDENT.
RH-102	-4.596E-03	2.487E-02	2.094E-02	1.269E-02	NOT IDENT.
RU-103	1.615E-02	3.309E-02	2.883E-02	1.688E-02	FAIL ABUN
RH-106	1.635E-03	2.708E-01	2.246E-01	1.382E-01	FAIL ABUN
RU-106	1.635E-03	2.708E-01	2.246E-01	1.382E-01	FAIL ABUN
AG-108M	-6.290E-03	2.582E-02	2.185E-02	1.317E-02	NOT IDENT.
AG-110M	8.001E-03	3.177E-02	2.420E-02	1.621E-02	NOT IDENT.
IN-111	-5.130E-01	1.452E+00	9.881E-01	7.409E-01	NOT IDENT.
IN-113M	-1.522E-02	3.423E-02	2.892E-02	1.747E-02	NOT IDENT.
SN-113	-1.522E-02	3.423E-02	2.892E-02	1.747E-02	NOT IDENT.
IN-114M	9.983E-02	1.660E-01	1.317E-01	8.467E-02	NOT IDENT.
CD-115	-3.029E+00	1.258E+01	1.042E+01	6.416E+00	NOT IDENT.
SN-117M	3.336E-02	5.139E-02	4.645E-02	2.622E-02	NOT IDENT.
SB-122	1.447E+00	2.345E+00	2.037E+00	1.197E+00	NOT IDENT.
I-123	4.790E+06	2.463E+07	0.000E+00	1.257E+07	SHORT HLIF
TE-123M	4.927E-03	2.533E-02	2.256E-02	1.293E-02	NOT IDENT.
I-124	3.838E-01	7.685E-01	5.760E-01	3.921E-01	NOT IDENT.
SB-124	1.533E-02	6.229E-02	5.400E-02	3.178E-02	FAIL ABUN
SB-125	1.087E-02	7.337E-02	6.357E-02	3.743E-02	FAIL ABUN
TE-125M	8.857E-01	8.841E+00	7.454E+00	4.511E+00	NOT IDENT.
I-126	6.314E-02	1.814E-01	1.389E-01	9.254E-02	NOT IDENT.
SB-126	4.856E-02	1.441E-01	1.094E-01	7.350E-02	FAIL ABUN
SB-127	6.891E-03	1.479E+00	1.271E+00	7.545E-01	NOT IDENT.
XE-127	-1.180E-02	4.072E-02	3.495E-02	2.077E-02	NOT IDENT.
I-131	4.978E-02	9.832E-02	8.794E-02	5.016E-02	NOT IDENT.
TE-132	3.448E-01	7.509E-01	6.566E-01	3.831E-01	NOT IDENT.
BA-133	6.644E-02	3.880E-02	3.133E-02	1.980E-02	FAIL ABUN
I-133	3.233E+03	1.294E+04	0.000E+00	6.601E+03	SHORT HLIF
CS-134	7.217E-02	4.323E-02	3.944E-02	2.206E-02	NOT IDENT.
CS-135	4.124E-02	1.585E-01	1.195E-01	8.087E-02	NOT IDENT.
I-135	2.097E+16	1.108E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.681E-02	9.966E-02	8.037E-02	5.085E-02	FAIL ABUN
CE-139	-3.318E-02	2.530E-02	2.117E-02	1.291E-02	NOT IDENT.
BA-140	1.256E-01	2.336E-01	2.000E-01	1.192E-01	NOT IDENT.
LA-140	-5.812E-03	7.736E-02	5.480E-02	3.947E-02	FAIL ABUN
CE-141	1.867E-02	5.953E-02	4.997E-02	3.037E-02	NOT IDENT.
CE-143	1.458E+03	4.144E+02	0.000E+00	2.114E+02	SHORT HLIF
CE-144	1.485E-02	2.158E-01	1.607E-01	1.101E-01	NOT IDENT.
PM-144	-2.048E-02	2.931E-02	2.406E-02	1.496E-02	NOT IDENT.
PR-144	-1.389E+00	1.988E+00	1.632E+00	1.014E+00	NOT IDENT.

PM-146	4.058E-02	3.636E-02	3.281E-02	1.855E-02	NOT IDENT.
ND-147	-4.799E-02	4.804E-01	4.018E-01	2.451E-01	FAIL ABUN
PM-149	4.202E+00	1.123E+02	9.488E+01	5.731E+01	NOT IDENT.
EU-152	-7.700E-02	9.792E-02	6.636E-02	4.996E-02	FAIL ABUN
GD-153	-3.550E-02	8.783E-02	6.563E-02	4.481E-02	NOT IDENT.
EU-154	-5.689E-03	1.044E-01	8.708E-02	5.328E-02	NOT IDENT.
EU-155	5.537E-02	1.010E-01	8.759E-02	5.151E-02	FAIL ABUN
TB-160	-1.656E-02	1.200E-01	9.952E-02	6.123E-02	FAIL ABUN
HO-166M	-1.647E-02	4.946E-02	4.143E-02	2.523E-02	NOT IDENT.
TM-171	-3.482E+01	3.352E+01	2.515E+01	1.710E+01	NOT IDENT.
LU-176	4.686E-03	2.271E-02	1.780E-02	1.159E-02	FAIL ABUN
LU-177	3.839E+00	1.641E+00	1.013E+00	8.373E-01	FAIL ABUN
LU-177M	-1.568E-01	1.517E-01	1.236E-01	7.738E-02	NOT IDENT.
HF-181	-1.156E-02	3.714E-02	3.099E-02	1.895E-02	NOT IDENT.
W-181	-3.015E-01	4.431E-01	3.395E-01	2.261E-01	NOT IDENT.
TA-182	2.628E-02	1.824E-01	1.548E-01	9.306E-02	FAIL ABUN
RE-183	7.598E-03	9.873E-02	8.649E-02	5.037E-02	FAIL ABUN
RE-184	-1.767E-01	1.954E-01	1.592E-01	9.970E-02	NOT IDENT.
OS-185	-2.025E-02	3.418E-02	2.691E-02	1.744E-02	NOT IDENT.
RE-188	6.041E-02	1.503E-01	1.350E-01	7.671E-02	NOT IDENT.
W-188	-2.051E+00	7.162E+00	5.167E+00	3.654E+00	FAIL ABUN
IR-192	8.744E-03	2.995E-02	2.540E-02	1.528E-02	FAIL ABUN
AU-195	3.979E-01	2.342E-01	2.024E-01	1.195E-01	FAIL ABUN
TL-200	-1.356E+02	7.750E+02	0.000E+00	3.954E+02	SHORT HLIF
TL-201	-3.859E+00	7.897E+00	6.832E+00	4.029E+00	NOT IDENT.
TL-202	-2.541E-02	6.175E-02	5.171E-02	3.150E-02	NOT IDENT.
HG-203	4.814E-02	4.036E-02	3.203E-02	2.059E-02	NOT IDENT.
BI-207	1.913E-02	4.766E-02	4.171E-02	2.432E-02	FAIL ABUN
TL-207	-9.261E-02	6.470E-01	4.657E-01	3.301E-01	FAIL ABUN
PO-209	2.656E+00	6.438E+00	5.537E+00	3.285E+00	NOT IDENT.
BI-210	5.527E+00	5.548E+00	5.129E+00	2.831E+00	NOT IDENT.
PB-210	5.527E+00	5.548E+00	5.129E+00	2.831E+00	NOT IDENT.
PO-210	5.527E+00	5.544E+00	5.129E+00	2.829E+00	NOT IDENT.
PB-211	-5.562E-01	8.483E-01	6.468E-01	4.328E-01	NOT IDENT.
BI-212	7.695E-01	4.194E-01	2.835E-01	2.140E-01	FAIL ABUN
PO-215	-9.261E-02	6.470E-01	4.657E-01	3.301E-01	FAIL ABUN
RN-219	1.588E-01	3.254E-01	2.878E-01	1.660E-01	FAIL ABUN
RN-220	9.850E+00	2.193E+01	1.891E+01	1.119E+01	NOT IDENT.
RA-223	-9.261E-02	6.470E-01	4.657E-01	3.301E-01	FAIL ABUN
AC-227	6.302E-02	3.137E-01	2.695E-01	1.601E-01	FAIL ABUN
TH-227	6.302E-02	3.138E-01	2.695E-01	1.601E-01	FAIL ABUN
TH-229	-3.306E-01	4.150E-01	3.497E-01	2.117E-01	FAIL ABUN
PA-231	-2.865E-02	1.292E+00	1.089E+00	6.590E-01	FAIL ABUN
TH-231	-9.261E-02	6.470E-01	4.657E-01	3.301E-01	FAIL ABUN
U-231	-1.425E+00	1.456E+00	1.055E+00	7.427E-01	FAIL ABUN
PA-233	-3.556E-02	5.474E-02	4.416E-02	2.793E-02	FAIL ABUN
PA-234	9.858E-02	2.627E-01	2.239E-01	1.340E-01	FAIL ABUN
PA-234M	-4.460E-01	4.449E+00	3.579E+00	2.270E+00	NOT IDENT.
U-235	1.385E-01	2.020E-01	1.677E-01	1.030E-01	FAIL ABUN
NP-236	3.461E-02	7.083E-02	6.363E-02	3.614E-02	NOT IDENT.
NP-239	9.314E-02	1.741E-01	1.500E-01	8.882E-02	FAIL ABUN
AM-241	1.489E-01	1.941E-01	1.593E-01	9.902E-02	NOT IDENT.
CM-243	4.504E-02	8.916E-02	7.735E-02	4.549E-02	FAIL ABUN
AM-246	-3.914E-02	1.281E-01	1.069E-01	6.537E-02	NOT IDENT.
CM-247	2.739E-02	2.902E-02	2.628E-02	1.481E-02	FAIL ABUN
CF-249	1.377E-02	3.172E-02	2.811E-02	1.618E-02	NOT IDENT.
CF-251	-9.584E-02	1.079E-01	9.143E-02	5.505E-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	295.0521
46.50	295.0521
46.50	295.0521
48.70	302.2037
49.72	317.8092
51.35	290.0409
52.39	270.3459
52.97	260.9455
53.15	260.2145
53.44	245.0174
54.07	292.1647
56.28	310.2142
56.28	310.2177
57.37	0.0000
57.53	310.7028
57.53	310.7045
57.60	308.0057
57.98	286.1976
57.98	286.1976
59.32	302.9179
59.32	302.9179
59.40	303.0032
59.54	303.1522
59.72	307.5371
60.01	319.0438
61.10	373.6292
61.14	373.6810
61.30	373.8870
63.00	325.1642
63.29	325.4818
63.29	325.4818
63.58	325.7985
64.28	352.1189
65.12	371.6087
65.20	371.7068
65.20	371.7068
66.05	364.1754
66.72	382.1421
66.83	409.4841
66.91	409.5889
67.20	401.3721
67.20	401.3721
67.75	403.5173
67.85	390.7198
68.90	374.7319
68.90	374.7319
69.30	367.9905
69.67	387.2047
70.82	379.8932
70.82	379.8932
70.83	379.9052
72.80	407.0119
72.87	407.0992
72.87	407.0992
74.67	400.9996
74.81	401.1674
74.81	401.1674
74.81	401.1674
74.81	401.1674
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74.81	401.1674
74.97	401.3582
75.28	401.7294
75.70	402.2299
77.11	403.8982
77.11	403.8982

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77.11	403.8982
77.11	403.8982
77.11	403.8982
77.11	403.8982
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79.62	369.1278
79.80	348.4685
79.80	348.4685
80.11	348.7755
80.18	348.8452
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80.30	335.5414
80.57	335.7988
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81.07	369.1526
81.07	369.1526
81.07	369.1526
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83.78	429.1678
83.78	429.1678
83.78	429.1678
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84.90	416.8890
85.43	403.8754
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86.50	394.4235
86.54	394.4652
86.59	394.5187
86.72	394.6556
86.79	394.7270
86.94	394.8877
87.30	395.2686
87.30	395.2686
87.30	395.2686
87.30	395.2686
87.30	395.2686
87.30	395.2686
87.57	395.5522
87.88	395.8775
88.03	396.0362
88.36	396.3814
88.47	396.4964
89.95	398.0397
91.11	399.2398
92.29	400.4538
92.38	400.5470
92.38	400.5470
93.35	401.5369
94.00	402.1994
94.67	333.1440
94.67	333.1490
94.90	333.3409
94.90	333.3409
94.90	333.3409
94.90	333.3409
95.87	413.4129
95.87	413.4129
96.73	428.3174
97.43	383.8082
98.44	315.9394
98.44	315.9394
98.88	316.9047
99.55	301.1104
99.55	301.1104
99.86	303.4285
100.00	303.5318
100.10	303.6070
103.18	363.8461
103.76	300.9788
105.00	295.4967
105.31	313.7292
108.00	364.7318
109.28	318.7318

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111.00	352.1769
111.76	328.0354
112.95	366.6421
115.19	345.6855
116.30	324.7919
117.00	294.8197
117.00	294.8197
117.66	330.0994
121.11	296.2999
121.62	290.0243
121.78	290.1210
122.06	290.2902
122.32	290.4459
122.32	290.4459
122.32	290.4459
122.32	290.4459
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144.24	296.2234
144.24	296.2234
144.24	296.2234
145.22	331.2598
145.44	331.3945
147.16	355.5109
152.43	336.7227
152.70	306.5738
153.22	322.0225
154.21	320.8252
154.21	320.8252
154.21	320.8252
154.21	320.8252
155.03	326.5501
156.02	362.2823
158.56	318.8220
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159.00	334.9676
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161.27	320.2845
162.32	324.4042
162.64	328.1339
163.35	313.3872
163.89	321.6891
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167.43	322.6740
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171.86	309.6452
172.10	322.4064
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176.60	326.5297
181.06	297.4748
184.41	312.0708
185.71	312.6837
186.00	282.0001
190.27	254.0849
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198.60	285.7538
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209.75	279.7440
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223.80	274.3386
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227.00	254.9625
227.08	254.9884
227.20	242.3256
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228.18	249.4787
228.18	249.4787
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236.00	306.6962
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238.63	241.8778
238.63	241.8778
238.63	241.8778
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241.98	242.8756
241.98	242.8756
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252.85	243.0428
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256.20	213.6280
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262.80	212.2053
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268.79	248.1657
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269.46	225.1186
269.46	225.1186
269.46	225.1186
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278.60	207.6813
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284.30	221.5040
285.00	220.6266
285.90	200.9531
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286.10	200.9941
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290.80	218.8354
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295.21	238.4539

295.21	238.4539
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300.09	203.9678
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303.91	196.2328
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304.84	220.3330
306.84	191.1119
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323.87	200.1606
323.87	200.1606
323.87	200.1606
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334.30	187.5130
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338.28	166.5249
338.28	166.5249
338.28	166.5249
338.32	166.5318
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338.32	166.5318
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340.57	157.3775
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351.92	193.1942
351.92	193.1942
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391.69	151.6399
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413.65	195.7719
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439.56	157.4756
439.89	156.5552
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445.03	128.2333
445.03	128.2333
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511.85	136.4131
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513.99	139.9781
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569.50	134.1469
569.67	134.1625
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595.88	110.7184
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602.71	117.5706
603.60	117.6296
604.41	131.9510
604.70	128.4053
609.31	129.8180

609.31	129.8180
609.31	129.8180
609.31	129.8180
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621.84	117.7764
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646.12	106.2287
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661.65	140.4097
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666.33	113.8711
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696.49	139.6360
697.00	125.6114
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698.50	121.9543
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722.78	130.2344
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747.13	123.9636
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756.15	107.1270
756.87	113.9212
763.93	139.4883
765.79	107.6171
766.42	113.4675
766.84	116.3989
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778.57	118.9892
778.89	113.1538
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792.07	116.7872

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896.60	88.3078
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903.28	100.6108
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911.07	83.2237
911.07	83.2237
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969.11	81.5264
969.11	81.5264
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1001.68	95.2216
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1048.07	102.6032

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1076.63	101.7623
1077.35	98.9575
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1112.84	123.5516
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1120.29	93.7344
1120.29	93.7344
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1147.95	0.0000
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1175.09	114.9298
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1274.54	79.3747
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1298.22	0.0000
1312.09	67.0589
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1325.50	52.0210
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1333.61	57.2559
1360.21	62.8467
1362.66	0.0000
1365.15	42.3013
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1368.53	0.0000
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1384.27	67.4257
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1395.20	55.1461
1407.95	52.2077
1434.06	34.7046
1436.60	36.8335
1457.56	0.0000
1460.81	29.6592
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1509.49	28.1644
1596.49	29.0048
1620.62	33.7898
1678.03	0.0000
1691.02	23.5635
1691.02	23.5635
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1750.46	0.0000
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1764.49	28.9575
1764.49	28.9575
1764.49	28.9575
1770.23	14.2196
1771.40	14.2235
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1808.65	20.1685

1836.01

25.3624

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246444004

Total Uranium Activity	1.0094E+01	ug/g
Total Uranium Counting Unc.	7.0455E+00	ug/g
Total Uranium Tpu	3.5947E-06	ug/g
Total Uranium Mda	3.4719E+00	ug/g

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*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950788                          SAMPLE ID   : G246444004
*  ANALYST       : MXR1                             DETECTOR    : GAM18
*  SAMPLE DATE   : 3-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 19-FEB-2010 20:40:00.34          SAMPLE ALQT  : 119.200 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.467E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.292E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 2.144E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.038E+00

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VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:41:58.92

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444005.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:40:26
Sample ID          : G246444005      Sample quantity   : 1.41470E+02 GRAM
Detector name      : GAM19           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           : 950788          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	63.39*	83	561	0.91	126.64	122	9	1.15E-02	53.6	
2	2	74.81	454	571	1.46	149.47	142	18	6.30E-02	11.0	1.93E+00
3	2	77.12	668	480	1.25	154.08	142	18	9.28E-02	7.3	
4	2	87.18	218	441	1.23	174.19	163	30	3.03E-02	16.9	3.74E+00
5	2	89.86	198	463	1.37	179.53	163	30	2.75E-02	20.6	
6	2	92.67*	323	404	1.39	185.16	163	30	4.48E-02	13.6	
7	0	185.74*	232	341	1.48	371.16	367	10	3.22E-02	16.9	
8	0	209.61	174	310	1.20	418.87	414	12	2.42E-02	21.6	
9	2	238.50*	1204	191	1.33	476.60	471	19	1.67E-01	3.6	2.30E+00
10	2	241.46	299	236	1.80	482.52	471	19	4.16E-02	14.7	
11	0	269.95	114	212	1.88	539.45	533	11	1.59E-02	26.4	
12	0	277.58	54	197	1.60	554.71	549	9	7.49E-03	49.1	
13	0	294.93	368	256	1.61	589.39	581	14	5.11E-02	10.6	
14	0	299.74	70	260	1.28	599.00	595	13	9.72E-03	48.7	
15	0	327.80	51	148	1.09	655.08	652	8	7.02E-03	43.8	
16	0	338.06*	261	207	1.04	675.60	670	12	3.62E-02	13.0	
17	0	351.72*	549	287	1.38	702.90	695	16	7.62E-02	8.2	
18	0	463.79	65	147	0.78	926.93	919	14	9.00E-03	41.9	
19	0	510.60*	67	165	2.05	1020.50	1013	15	9.27E-03	49.9	
20	0	567.62*	117	168	2.84	1134.50	1126	16	1.63E-02	27.0	
21	0	583.16*	366	109	1.27	1165.57	1159	12	5.08E-02	7.8	
22	0	609.36*	407	110	1.52	1217.94	1211	13	5.65E-02	7.4	
23	0	727.27	74	52	1.59	1453.70	1449	8	1.03E-02	20.5	
24	0	795.85	73	107	1.52	1590.84	1583	17	1.02E-02	34.2	
25	0	861.35	82	64	1.89	1721.83	1714	18	1.14E-02	25.3	
26	0	911.48*	247	78	1.66	1822.08	1816	15	3.44E-02	10.3	
27	0	971.05	64	169	1.00	1941.23	1930	13	8.92E-03	43.5	
28	0	1120.54	115	62	0.94	2240.23	2233	13	1.60E-02	16.8	
29	0	1409.03	29	13	1.63	2817.37	2810	14	3.97E-03	33.4	
30	0	1457.18	6	14	1.35	2913.72	2906	9	8.82E-04	111.8	
31	0	1460.93	1652	4	1.87	2921.22	2914	16	2.29E-01	2.5	
32	0	1661.08	23	0	1.42	3321.74	3315	13	3.19E-03	20.9	
33	0	1764.31*	71	29	2.03	3528.35	3520	13	9.93E-03	20.1	
34	0	1847.70	19	13	2.23	3695.26	3687	13	2.66E-03	45.1	

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

## VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:42:01

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444005.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-FEB-2010 12:00:00   Acquisition date : 19-FEB-2010 20:40:26
Sample ID         : G246444005           Sample quantity  : 141.47 GRAM
Sample type       : SOLID                Sample geometry   :
Detector name     : GAMMA19              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00        Elapsed real time: 0 02:00:01.60    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

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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	*	3.517E+01	3.144E+00	4.073E-01	3.033E-02	86.346
CD-109	+	88.03	*	2.622E+00	9.140E-01	1.155E+00	1.034E-01	2.270
SN-126	+	64.28		6.291E-01	6.813E-01	7.739E-01	1.130E-01	0.813
	+	86.94		1.070E+00	5.711E-01	4.760E-01	1.971E-01	2.247
	+	87.57	*	2.573E-01	8.967E-02	1.138E-01	1.015E-02	2.261
TL-208	+	277.35		4.669E-01	4.611E-01	5.434E-01	5.734E-02	0.859
	+	510.84		2.883E-01	2.891E-01	2.099E-01	2.143E-02	1.373
	+	583.14	*	4.509E-01	7.677E-02	5.295E-02	3.601E-03	8.515
	+	860.37		9.511E-01	4.886E-01	3.944E-01	3.532E-02	2.412
BI-211		72.87		1.052E+01	3.326E+00	5.604E+00	4.391E-01	1.878
	+	351.07	*	2.972E+00	5.221E-01	3.127E-01	1.997E-02	9.503
PB-212	+	74.81		2.219E+00	5.573E-01	5.295E-01	6.492E-02	4.192
	+	77.11		1.859E+00	3.093E-01	3.013E-01	2.434E-02	6.169
	+	87.30		1.190E+00	4.315E-01	5.277E-01	7.062E-02	2.255
	+	238.63	*	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
	+	300.09		1.277E+00	1.250E+00	1.079E+00	8.913E-02	1.184
PO-212	+	74.81		2.219E+00	5.573E-01	5.295E-01	6.492E-02	4.192
	+	77.11		1.859E+00	3.093E-01	3.013E-01	2.434E-02	6.169
	+	87.30		1.190E+00	4.315E-01	5.277E-01	7.062E-02	2.255
		115.19		-5.647E-02	3.582E+00	5.805E+00	3.696E-01	-0.010
	+	238.63	*	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
	+	300.09		1.277E+00	1.250E+00	1.079E+00	8.913E-02	1.184
BI-214	+	609.31	*	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
	+	1120.29		1.395E+00	4.864E-01	5.068E-01	4.636E-02	2.752
	+	1764.49		1.166E+00	4.736E-01	4.030E-01	2.442E-02	2.894
PB-214	+	74.81		3.824E+00	9.352E-01	9.123E-01	9.905E-02	4.192
	+	77.11		3.186E+00	5.832E-01	5.165E-01	5.736E-02	6.169
	+	87.30		2.038E+00	7.276E-01	9.040E-01	1.064E-01	2.255
	+	241.98		2.132E+00	6.505E-01	5.214E-01	4.159E-02	4.089
	+	295.21		1.177E+00	2.691E-01	1.883E-01	1.607E-02	6.254
	+	351.92	*	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
PO-214	+	74.81		3.824E+00	9.352E-01	9.123E-01	9.905E-02	4.192
	+	77.11		3.186E+00	5.832E-01	5.165E-01	5.736E-02	6.169
	+	87.30		2.038E+00	7.276E-01	9.040E-01	1.064E-01	2.255

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.132E+00	6.505E-01	5.214E-01	4.159E-02	4.089
	+	295.21		1.177E+00	2.691E-01	1.883E-01	1.607E-02	6.254
	+	351.92	*	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
	+	74.81		2.219E+00	5.573E-01	5.295E-01	6.492E-02	4.192
	+	77.11		1.859E+00	3.093E-01	3.013E-01	2.434E-02	6.169
	+	87.30		1.190E+00	4.315E-01	5.277E-01	7.062E-02	2.255
PO-218	+	238.63	*	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
	+	300.09		1.277E+00	1.250E+00	1.079E+00	8.913E-02	1.184
	+	74.81		3.824E+00	9.352E-01	9.123E-01	9.905E-02	4.192
	+	77.11		3.186E+00	5.832E-01	5.165E-01	5.736E-02	6.169
	+	87.30		2.038E+00	7.276E-01	9.040E-01	1.064E-01	2.255
	+	241.98		2.132E+00	6.505E-01	5.214E-01	4.159E-02	4.089
RA-224	+	295.21		1.177E+00	2.691E-01	1.883E-01	1.607E-02	6.254
	+	351.92	*	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
	+	240.98	*	4.043E+00	1.212E+00	9.857E-01	5.585E-02	4.102
	+	609.31	*	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
	+	1120.29		1.395E+00	4.864E-01	5.068E-01	4.636E-02	2.752
	+	1764.49		1.166E+00	4.736E-01	4.030E-01	2.442E-02	2.894
TH-228	+	74.81		2.256E+00	5.263E-01	5.381E-01	4.315E-02	4.192
	+	77.11		1.889E+00	3.144E-01	3.062E-01	2.474E-02	6.169
	+	87.30		1.209E+00	4.215E-01	5.364E-01	4.770E-02	2.255
	+	238.63	*	1.451E+00	1.471E-01	8.809E-02	6.358E-03	16.477
	+	300.09		1.298E+00	1.479E+00	1.097E+00	6.465E-01	1.184
	+	609.31	*	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
TH-230	+	1120.29		1.395E+00	4.864E-01	5.068E-01	4.636E-02	2.752
	+	1764.49		1.166E+00	4.736E-01	4.030E-01	2.442E-02	2.894
	+	63.29	*	1.589E+00	1.728E+00	1.949E+00	3.410E-01	0.815
	+	92.38		2.480E+00	8.078E-01	7.486E-01	1.344E-01	3.312
	+	609.31	*	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
	+	1120.29		1.395E+00	4.864E-01	5.068E-01	4.636E-02	2.752
U-234	+	1764.49		1.166E+00	4.736E-01	4.030E-01	2.442E-02	2.894
	+	86.50	*	7.555E-01	3.060E-01	3.377E-01	7.578E-02	2.237
	+	95.87		2.539E-01	1.072E+00	1.551E+00	3.786E-01	0.164
	+	63.29	*	1.589E+00	1.728E+00	1.949E+00	3.410E-01	0.815
	+	92.38		2.480E+00	7.051E-01	7.486E-01	6.252E-02	3.312
	+	74.67	*	3.598E-01	8.386E-02	8.608E-02	6.827E-03	4.180
AM-243	+	86.72		2.833E+01	9.875E+00	1.264E+01	1.117E+00	2.242
	+	117.66		-2.767E-01	3.721E+00	6.044E+00	3.755E-01	-0.046
	+	142.18		6.330E+00	1.762E+01	2.896E+01	1.612E+00	0.219
	+	511.00	*	6.226E-02	6.223E-02	4.535E-02	2.676E-03	1.373

---- 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	*	2.295E-01	3.146E-01	5.442E-01	3.694E-02	0.422
NA-22		1274.54	*	2.594E-03	4.260E-02	7.114E-02	4.745E-03	0.036
NA-24		1368.53	*	1.345E+00	4.260E-02	Half-Life too short		
AL-26		1129.67		2.793E-01	1.682E+00	2.847E+00	1.757E-01	0.098

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1808.65	*		2.096E-03	2.674E-02	4.427E-02	2.584E-03	0.047
TI-44	67.85			-8.552E-03	7.043E-02	7.269E-02	5.549E-03	-0.118
	78.38	*		3.430E-01	5.709E-02	7.725E-02	6.306E-03	4.440
SC-46	889.25	*		-2.483E-02	3.968E-02	6.010E-02	5.222E-03	-0.413
	1120.51	+		2.412E-01	8.259E-02	1.264E-01	7.971E-03	1.909
V-48	944.10			-8.671E-01	9.380E-01	1.364E+00	1.149E-01	-0.636
	983.50	*		3.223E-02	7.736E-02	1.289E-01	1.036E-02	0.250
	1312.09			5.866E-03	7.946E-02	1.328E-01	9.448E-03	0.044
CR-51	320.08	*		1.491E-01	3.669E-01	6.276E-01	4.061E-02	0.238
MN-52	744.21			1.417E-01	2.703E-01	4.582E-01	3.115E-02	0.309
	848.13			-2.946E+00	7.986E+00	1.248E+01	1.015E+00	-0.236
	935.52			9.542E-02	3.244E-01	5.349E-01	4.547E-02	0.178
	1246.25			2.230E+00	8.552E+00	1.451E+01	9.172E-01	0.154
	1333.61			2.151E+00	5.877E+00	1.010E+01	7.443E-01	0.213
	1434.06	*		-4.451E-02	2.605E-01	4.203E-01	3.032E-02	-0.106
MN-54	834.83	*		3.243E-03	3.569E-02	5.821E-02	4.630E-03	0.056
CO-56	846.75	*		-9.415E-04	3.996E-02	6.448E-02	5.232E-03	-0.015
	977.42			-3.326E+00	3.124E+00	4.477E+00	3.627E-01	-0.743
	1037.82			-3.291E-01	3.136E-01	4.760E-01	3.786E-02	-0.691
	1175.09			-6.143E-01	2.387E+00	3.900E+00	2.145E-01	-0.158
	1238.25			2.070E-01	9.931E-02	1.851E-01	1.216E-02	1.119
	1360.21			-3.075E-01	9.653E-01	1.537E+00	1.127E-01	-0.200
	1771.40			-7.316E-02	2.584E-01	3.666E-01	2.210E-02	-0.200
CO-57	122.06	*		-1.242E-02	2.496E-02	3.980E-02	2.375E-03	-0.312
	136.48			8.657E-02	2.021E-01	3.336E-01	2.202E-02	0.260
CO-58	810.76	*		-8.370E-02	4.092E-02	5.272E-02	4.040E-03	-1.588
FE-59	142.65			2.794E+00	2.748E+00	4.621E+00	2.569E-01	0.605
	192.34			-9.240E-01	9.792E-01	1.440E+00	1.672E-01	-0.642
	1099.22	*		-7.519E-02	9.467E-02	1.475E-01	1.107E-02	-0.510
	1291.56			2.185E-03	1.268E-01	2.107E-01	1.744E-02	0.010
CO-60	1173.22			-4.155E-03	4.795E-02	7.941E-02	4.352E-03	-0.052
	1332.49	*		1.191E-02	3.893E-02	6.653E-02	4.903E-03	0.179
ZN-65	1115.52	*		-2.250E-02	1.122E-01	1.581E-01	1.011E-02	-0.142
GE-68	1077.35	*		9.232E-01	1.287E+00	2.273E+00	1.573E-01	0.406
AS-73	53.44	*		3.537E-01	7.890E-01	1.323E+00	9.784E-02	0.267
AS-74	595.88	*		7.549E-02	9.336E-02	1.618E-01	9.583E-03	0.467
	634.78			1.032E-01	3.527E-01	5.906E-01	3.471E-02	0.175
SE-75	66.05			-7.863E+00	5.500E+00	7.380E+00	7.084E-01	-1.065
	96.73			-3.106E-01	8.624E-01	1.212E+00	1.594E-01	-0.256
	121.11			-7.329E-02	1.351E-01	2.149E-01	2.013E-02	-0.341
	136.00			-7.447E-03	3.869E-02	6.233E-02	3.590E-03	-0.119
	198.60			3.241E-01	1.748E+00	2.834E+00	1.935E-01	0.114
	264.65	*		-3.320E-02	4.471E-02	6.215E-02	3.614E-03	-0.534
	279.53			4.361E-02	1.166E-01	1.752E-01	1.097E-02	0.249
	303.91			-4.773E-02	2.193E+00	3.202E+00	3.059E-01	-0.015
	400.65			6.256E-02	2.497E-01	4.216E-01	3.785E-02	0.148
BR-77	87.88	+		8.130E+02	2.834E+02	4.881E+02	4.368E+01	1.666
	200.40			7.179E+01	2.313E+02	3.769E+02	2.050E+01	0.190
	239.00	+		3.296E+02	2.997E+01	5.014E+01	2.837E+00	6.574

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	249.79	-2.761E+01		9.188E+01	1.444E+02	8.236E+00	-0.191	
	281.68	-2.328E+00		1.352E+02	1.981E+02	1.148E+01	-0.012	
	297.23	3.628E+02		1.206E+02	1.582E+02	9.199E+00	2.293	
	303.76	-1.052E+01		2.664E+02	3.886E+02	2.260E+01	-0.027	
	439.47	2.324E+01		1.952E+02	3.265E+02	1.875E+01	0.071	
	484.57	5.239E+01		3.180E+02	5.318E+02	3.115E+01	0.099	
	520.65	* 3.175E-01		1.404E+01	2.320E+01	1.371E+00	0.014	
	574.64	3.226E+01		3.246E+02	4.669E+02	2.771E+01	0.069	
	578.91	-9.714E+01		1.407E+02	1.859E+02	1.103E+01	-0.523	
	585.48	1.628E+03		3.506E+02	6.360E+02	3.772E+01	2.559	
	755.35	1.706E+02		2.445E+02	4.183E+02	2.902E+01	0.408	
	817.79	1.836E+01		1.980E+02	3.232E+02	2.499E+01	0.057	
SR-82	698.33	2.240E+01		3.456E+01	5.902E+01	3.687E+00	0.380	
	776.49	* -4.768E-01		3.823E-01	5.482E-01	3.947E-02	-0.870	
	1395.20	-5.489E+00		1.012E+01	1.549E+01	1.128E+00	-0.354	
RB-83	520.41	* 3.813E-02		6.286E-02	1.082E-01	6.396E-03	0.352	
	529.64	-3.368E-02		1.026E-01	1.652E-01	9.782E-03	-0.204	
	552.65	3.420E-02		1.953E-01	3.255E-01	1.932E-02	0.105	
RB-84	881.50	* 2.197E-02		7.599E-02	1.257E-01	1.079E-02	0.175	
KR-85	513.99	* 7.707E+00		8.091E+00	1.249E+01	7.377E-01	0.617	
SR-85	513.99	* 4.003E-02		4.203E-02	6.490E-02	3.832E-03	0.617	
RB-86	1076.63	* 2.774E-01		8.511E-01	1.461E+00	1.012E-01	0.190	
Y-88	898.02	-6.058E-03		3.986E-02	6.333E-02	5.606E-03	-0.096	
	1836.01	* 1.128E-02		2.819E-02	4.973E-02	2.839E-03	0.227	
ZR-88	392.90	* 6.613E-03		2.787E-02	4.710E-02	2.623E-03	0.140	
Y-91	1204.90	* -6.278E-01		1.908E+01	3.169E+01	1.851E+00	-0.020	
NB-94	702.63	* -1.320E-03		3.382E-02	5.497E-02	3.462E-03	-0.024	
	871.10	-4.767E-03		3.158E-02	4.877E-02	4.116E-03	-0.098	
NB-95	765.79	* 1.093E-02		4.313E-02	7.050E-02	4.982E-03	0.155	
NB-95M	235.69	* 4.316E-01		1.559E-01	2.456E-01	1.819E-02	1.758	
ZR-95	724.18	5.691E-02		1.031E-01	1.538E-01	1.155E-02	0.370	
	756.15	* 4.322E-02		7.499E-02	1.271E-01	1.018E-02	0.340	
NB-97	657.90	* -2.858E-01		7.499E-02	Half-Life	too short		
	1024.50	2.510E+00		7.499E-02	Half-Life	too short		
ZR-97	254.15	2.087E+01		7.499E-02	Half-Life	too short		
	355.39	-2.230E+00		7.499E-02	Half-Life	too short		
	507.63	* 1.319E+01		7.499E-02	Half-Life	too short		
	602.52	1.289E+01		7.499E-02	Half-Life	too short		
	1021.30	7.449E-01		7.499E-02	Half-Life	too short		
	1147.95	-5.275E-01		7.499E-02	Half-Life	too short		
	1362.66	-1.561E+00		7.499E-02	Half-Life	too short		
	1750.46	-3.935E+00		7.499E-02	Half-Life	too short		
MO-99	140.51	-3.565E+01		3.796E+01	5.693E+01	1.532E+01	-0.626	
	181.06	5.753E+00		2.632E+01	3.750E+01	6.368E+00	0.153	
	366.43	-3.378E+01		1.069E+02	1.752E+02	9.975E+00	-0.193	
	739.58	* -8.060E+00		1.563E+01	2.426E+01	3.445E+00	-0.332	
	778.00	-3.911E+01		4.324E+01	6.411E+01	4.630E+00	-0.610	
TC-99M	140.51	* -1.180E+12		4.324E+01	Half-Life	too short		
RH-101	127.23	3.074E-02		3.297E-02	5.533E-02	3.229E-03	0.556	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RH-102	198.01	*		2.404E-03	3.209E-02	5.178E-02	2.809E-03	0.046
	325.23			-1.003E-01	2.483E-01	3.519E-01	2.042E-02	-0.285
	418.52			9.859E-03	2.744E-01	4.574E-01	2.594E-02	0.022
	475.06	*		6.861E-03	2.832E-02	4.761E-02	2.779E-03	0.144
	631.29			-1.377E-02	5.299E-02	8.502E-02	5.002E-03	-0.162
	697.49			-1.755E-02	7.693E-02	1.233E-01	7.691E-03	-0.142
RU-103	766.84			4.502E-02	1.098E-01	1.815E-01	1.285E-02	0.248
	1046.59			-9.491E-02	1.162E-01	1.810E-01	1.325E-02	-0.524
	1112.84			5.359E-02	2.803E-01	4.280E-01	2.748E-02	0.125
	497.08	*		2.778E-02	3.858E-02	6.664E-02	8.451E-03	0.417
	610.33	+		1.044E+01	2.235E+00	2.693E+00	4.164E-01	3.875
	511.85	+		3.117E-01	3.115E-01	3.998E-01	2.360E-02	0.780
RH-106	621.84	*		5.564E-03	2.929E-01	4.808E-01	5.666E-02	0.012
	1050.47			-2.912E-01	2.217E+00	3.673E+00	2.670E-01	-0.079
	511.85	+		3.117E-01	3.115E-01	3.998E-01	2.360E-02	0.780
	621.84	*		5.564E-03	2.929E-01	4.808E-01	2.835E-02	0.012
	1050.47			-2.912E-01	2.217E+00	3.673E+00	2.670E-01	-0.079
	433.93	*		-1.499E-02	3.155E-02	5.082E-02	3.165E-03	-0.295
AG-108M	614.37			2.224E-02	4.009E-02	6.025E-02	3.850E-03	0.369
	722.95			-6.929E-03	4.369E-02	6.029E-02	4.208E-03	-0.115
	657.75	*		-3.250E-02	3.800E-02	5.828E-02	3.616E-03	-0.558
AG-110M	677.61			1.878E-01	2.742E-01	4.731E-01	3.004E-02	0.397
	706.67			2.162E-01	2.032E-01	3.568E-01	2.378E-02	0.606
	763.93			-2.397E-01	1.708E-01	2.448E-01	1.797E-02	-0.979
	884.67			-4.367E-03	5.145E-02	8.240E-02	7.337E-03	-0.053
	937.48			-5.142E-02	1.196E-01	1.850E-01	1.628E-02	-0.278
	1384.27			-1.266E-01	1.592E-01	2.373E-01	1.801E-02	-0.533
IN-111	171.28			-5.712E-01	1.374E+00	2.180E+00	1.144E-01	-0.262
	245.39	*		2.533E-01	1.515E+00	2.137E+00	1.215E-01	0.119
	391.69	*		-6.669E-03	4.062E-02	6.703E-02	3.999E-03	-0.100
IN-113M	391.69	*		-6.669E-03	4.062E-02	6.703E-02	3.999E-03	-0.100
SN-113	391.69	*		-6.669E-03	4.062E-02	6.703E-02	3.999E-03	-0.100
IN-114M	190.27	*		1.352E-02	1.987E-01	2.805E-01	1.507E-02	0.048
CD-115	260.90			1.883E+02	1.727E+02	2.920E+02	1.677E+01	0.645
	492.35			-3.995E+01	4.969E+01	7.737E+01	4.543E+00	-0.516
	527.90	*		1.576E+01	1.530E+01	2.648E+01	1.567E+00	0.595
SN-117M	156.02			4.009E+00	2.447E+00	4.193E+00	2.247E-01	0.956
	158.56	*		-2.659E-02	5.992E-02	9.519E-02	5.067E-03	-0.279
	563.90	*		1.334E+00	3.378E+00	4.989E+00	2.961E-01	0.267
SB-122	692.80			-1.684E+01	5.839E+01	9.310E+01	5.756E+00	-0.181
	159.00	*		-2.463E+01	5.839E+01	Half-Life too short		
	528.96			-3.022E+02	5.839E+01	Half-Life too short		
TE-123M	159.00	*		-2.532E-02	2.939E-02	4.585E-02	2.476E-03	-0.552
	602.71	*		3.090E-01	9.213E-01	1.351E+00	7.998E-02	0.229
	722.78			-8.895E-01	5.609E+00	7.741E+00	5.061E-01	-0.115
I-124	1325.50			-1.678E+01	4.185E+01	6.633E+01	4.830E+00	-0.253
	1376.25			1.844E+01	3.742E+01	6.543E+01	4.786E+00	0.282
	1509.49			7.506E+00	1.609E+01	2.827E+01	1.989E+00	0.266
	1691.02			-3.903E+00	3.761E+00	4.647E+00	2.972E-01	-0.840
	602.71			1.482E-02	4.419E-02	6.482E-02	3.838E-03	0.229
	602.71			1.482E-02	4.419E-02	6.482E-02	3.838E-03	0.229

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		645.85		2.071E-01	4.896E-01	8.269E-01	5.453E-02	0.250
		709.31		-4.666E-01	2.748E+00	4.419E+00	2.818E-01	-0.106
		713.82		7.263E-01	1.491E+00	2.527E+00	2.674E-01	0.287
		722.78		-6.185E-02	3.900E-01	5.382E-01	3.650E-02	-0.115
		968.20		1.066E+01	3.816E+00	6.912E+00	5.665E-01	1.542
		1045.16		1.097E-01	2.565E+00	4.314E+00	3.165E-01	0.025
		1325.50		-1.246E+00	3.108E+00	4.926E+00	3.587E-01	-0.253
		1368.21		5.480E-01	1.599E+00	2.755E+00	3.496E-01	0.199
		1436.60		2.354E+00	3.460E+00	6.206E+00	4.474E-01	0.379
		1691.02	*	-6.401E-02	6.170E-02	7.622E-02	5.220E-03	-0.840
		427.89	*	2.285E-02	8.765E-02	1.479E-01	8.807E-03	0.154
	+	463.38		5.479E-01	4.611E-01	5.173E-01	3.503E-02	1.059
		600.56		6.756E-02	1.783E-01	3.000E-01	2.044E-02	0.225
		635.90		9.464E-02	2.499E-01	4.213E-01	2.889E-02	0.225
		109.28	*	-1.232E+00	9.800E+00	1.592E+01	1.407E+00	-0.077
TE-125M		388.63		-6.190E-02	1.982E-01	3.242E-01	1.809E-02	-0.191
I-126		666.33	*	-1.381E-01	1.863E-01	2.863E-01	1.682E-02	-0.482
SB-126		753.82		3.653E-01	1.630E+00	2.695E+00	1.864E-01	0.136
		223.80		4.149E-01	4.349E+00	7.002E+00	3.907E-01	0.059
	+	278.60		3.309E+00	3.255E+00	4.539E+00	2.628E-01	0.729
		296.50		1.121E+01	2.501E+00	3.529E+00	2.051E-01	3.177
		414.70		-6.411E-02	7.721E-02	1.218E-01	6.893E-03	-0.526
		415.30		1.351E-01	6.313E+00	1.051E+01	5.950E-01	0.013
		555.20		1.053E+00	4.359E+00	7.290E+00	4.326E-01	0.144
		573.80		4.538E-01	1.183E+00	1.752E+00	1.040E-01	0.259
		593.00		-4.848E-01	9.315E-01	1.467E+00	8.694E-02	-0.330
		656.30		-1.957E+00	3.757E+00	5.909E+00	3.448E-01	-0.331
		666.33		-5.787E-02	7.806E-02	1.200E-01	7.050E-03	-0.482
		675.00		-8.663E-02	1.906E+00	3.101E+00	1.853E-01	-0.028
		695.00		5.528E-02	8.004E-02	1.373E-01	8.522E-03	0.403
		697.00		-4.799E-02	2.868E-01	4.618E-01	2.878E-02	-0.104
		720.50	*	-3.236E-03	1.512E-01	2.315E-01	1.507E-02	-0.014
SB-127		856.80		-4.026E-02	5.282E-01	7.285E-01	6.008E-02	-0.055
		989.30		-8.062E-02	1.358E+00	2.168E+00	1.729E-01	-0.037
		1034.80		-2.245E-01	8.971E+00	1.501E+01	1.120E+00	-0.015
		1213.00		-7.928E-02	5.098E+00	8.474E+00	5.027E-01	-0.009
		61.10		5.846E+01	7.560E+01	1.128E+02	1.212E+01	0.518
		252.40		9.759E-01	5.396E+00	8.674E+00	3.612E+00	0.112
		290.80		-1.742E+01	2.861E+01	4.007E+01	3.855E+00	-0.435
		411.60		1.870E+00	1.484E+01	2.487E+01	3.633E+00	0.075
		444.90		3.427E+00	1.158E+01	1.956E+01	2.183E+00	0.175
		473.00		-6.707E-01	2.042E+00	3.308E+00	3.826E-01	-0.203
		543.00		-5.219E-01	1.873E+01	3.079E+01	4.092E+00	-0.017
		603.60		1.946E+00	1.583E+01	2.276E+01	2.552E+00	0.086
		685.20	*	1.790E+00	1.662E+00	2.920E+00	2.934E-01	0.613
		698.50		1.345E+01	1.880E+01	3.209E+01	4.798E+00	0.419
		722.20		1.497E+01	3.710E+01	5.477E+01	5.518E+00	0.273
XE-127		783.80		4.090E+00	4.357E+00	7.566E+00	9.004E-01	0.541
		57.60		1.966E+00	6.350E+00	9.829E+00	7.363E-01	0.200

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131		145.22		-3.008E-01	7.381E-01	1.165E+00	6.430E-02	-0.258
		172.10		2.425E-02	1.221E-01	1.988E-01	1.044E-02	0.122
		202.84	*	1.802E-02	4.856E-02	7.663E-02	4.181E-03	0.235
		374.96		1.499E-02	1.900E-01	3.186E-01	1.801E-02	0.047
		80.18		1.231E+00	7.655E+00	8.038E+00	6.718E-01	0.153
		284.30		1.535E-02	1.565E+00	2.635E+00	1.702E-01	0.006
		364.48	*	-4.674E-02	1.207E-01	1.970E-01	1.261E-02	-0.237
TE-132		636.97		-4.751E-01	1.594E+00	2.546E+00	1.673E-01	-0.187
		722.89		-1.299E+00	8.191E+00	1.130E+01	7.488E-01	-0.115
		49.72		-1.313E+01	2.319E+01	3.753E+01	3.792E+00	-0.350
		111.76		-3.970E+01	4.000E+01	6.220E+01	6.044E+00	-0.638
BA-133		116.30		2.520E+01	3.565E+01	5.919E+01	5.635E+00	0.426
		228.16	*	-7.202E-01	9.317E-01	1.429E+00	2.079E-01	-0.504
		53.15		8.318E-01	3.400E+00	5.665E+00	4.184E-01	0.147
		79.62		2.175E+00	1.997E+00	2.210E+00	3.319E-01	0.984
		81.00		-2.912E-02	1.455E-01	1.484E-01	2.335E-02	-0.196
I-133	+	276.40		4.615E-01	4.571E-01	6.343E-01	8.219E-02	0.728
		302.84		-7.303E-04	1.550E-01	2.267E-01	2.644E-02	-0.003
		356.01	*	1.072E-02	4.580E-02	6.781E-02	7.815E-03	0.158
		383.85		2.074E-02	2.727E-01	4.569E-01	4.921E-02	0.045
	+	510.53		1.714E+00	2.727E-01	Half-Life	too short	
		529.87	*	-5.930E-03	2.727E-01	Half-Life	too short	
		706.58		1.167E+00	2.727E-01	Half-Life	too short	
		856.28		1.596E-01	2.727E-01	Half-Life	too short	
		875.33		9.821E-03	2.727E-01	Half-Life	too short	
		1236.41		2.709E+00	2.727E-01	Half-Life	too short	
CS-134		1298.22		-8.653E-01	2.727E-01	Half-Life	too short	
		475.35		4.038E-01	1.849E+00	3.103E+00	1.812E-01	0.130
		563.23		-1.141E-01	4.272E-01	5.930E-01	3.590E-02	-0.192
		569.32		6.138E-01	2.728E-01	4.484E-01	2.737E-02	1.369
		604.70		-9.653E-03	3.812E-02	5.276E-02	3.139E-03	-0.183
	+	795.84	*	1.310E-01	9.015E-02	9.421E-02	7.084E-03	1.390
		801.93		-3.571E-01	4.808E-01	6.039E-01	4.578E-02	-0.591
CS-135		1038.57		-2.293E+00	3.797E+00	6.026E+00	4.469E-01	-0.380
		1167.94		-3.967E-01	2.694E+00	4.443E+00	2.473E-01	-0.089
		1365.15		-9.871E-01	1.164E+00	1.713E+00	1.334E-01	-0.576
		268.24	*	4.300E-01	1.626E-01	2.735E-01	2.087E-02	1.572
I-135		288.45		4.596E+10	1.626E-01	Half-Life	too short	
		417.63		3.734E+11	1.626E-01	Half-Life	too short	
		546.56		-3.104E+10	1.626E-01	Half-Life	too short	
		836.80		-1.834E+10	1.626E-01	Half-Life	too short	
		1038.76		-2.282E+11	1.626E-01	Half-Life	too short	
		1124.00		-5.379E+10	1.626E-01	Half-Life	too short	
		1131.51		-3.934E+10	1.626E-01	Half-Life	too short	
		1260.41	*	1.235E+11	1.626E-01	Half-Life	too short	
	+	1457.56		1.417E+11	1.626E-01	Half-Life	too short	
		1678.03		5.175E+10	1.626E-01	Half-Life	too short	
		1706.46		-2.237E+11	1.626E-01	Half-Life	too short	
		1791.20		-6.023E+10	1.626E-01	Half-Life	too short	

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Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	+	66.91		-7.058E-01	9.960E-01	1.287E+00	1.917E-01	-0.548
		86.29		3.585E+00	1.295E+00	2.109E+00	2.736E-01	1.700
		153.22		-4.162E-01	7.169E-01	1.133E+00	7.829E-02	-0.367
		163.89		1.324E+00	1.149E+00	1.936E+00	1.320E-01	0.684
		176.55		1.389E-02	3.957E-01	6.394E-01	3.877E-02	0.022
		273.65		-1.502E-01	7.270E-01	6.990E-01	4.611E-02	-0.215
		340.57		3.939E-01	1.533E-01	2.568E-01	1.578E-02	1.534
		818.51		-1.106E-02	8.112E-02	1.298E-01	1.006E-02	-0.085
		1048.07	*	-2.825E-02	1.144E-01	1.876E-01	1.450E-02	-0.151
		1235.34		5.163E-01	6.913E-01	1.202E+00	1.228E-01	0.430
BA-137M		661.65	*	5.196E-02	3.840E-02	6.815E-02	3.968E-03	0.763
CS-137		661.65	*	5.493E-02	4.059E-02	7.204E-02	4.212E-03	0.763
CE-139		165.85	*	1.515E-02	3.050E-02	5.025E-02	2.623E-03	0.302
BA-140		162.64		3.578E-01	8.012E-01	1.318E+00	7.976E-02	0.271
		304.84		8.505E-02	1.438E+00	2.113E+00	5.767E-01	0.040
LA-140	+	423.70		-1.016E+00	1.991E+00	3.164E+00	1.005E+00	-0.321
		537.32	*	9.356E-02	2.593E-01	4.354E-01	1.417E-01	0.215
		328.77		3.988E-01	3.505E-01	5.680E-01	3.690E-02	0.702
		432.53		3.718E-01	2.053E+00	3.449E+00	2.185E-01	0.108
		487.03		3.822E-02	1.414E-01	2.379E-01	1.575E-02	0.161
		751.79		4.298E-01	1.833E+00	3.036E+00	2.433E-01	0.142
		815.85		5.719E-01	3.343E-01	6.144E-01	5.408E-02	0.931
		867.82		9.624E-04	1.485E+00	2.069E+00	1.834E-01	0.000
		919.63		1.656E+00	2.784E+00	4.382E+00	4.672E-01	0.378
		925.24		-1.791E-01	1.072E+00	1.695E+00	1.548E-01	-0.106
CE-141		1596.49	*	3.759E-02	8.947E-02	1.551E-01	1.049E-02	0.242
		145.44	*	-4.067E-02	6.709E-02	1.050E-01	6.048E-03	-0.387
CE-143		57.37		4.691E-04	6.709E-02	Half-Life	too short	
		231.56		3.751E-03	6.709E-02	Half-Life	too short	
	+	293.26	*	1.610E-03	6.709E-02	Half-Life	too short	
		350.59		4.411E-02	6.709E-02	Half-Life	too short	
		490.36		1.474E-04	6.709E-02	Half-Life	too short	
		664.57		-3.380E-04	6.709E-02	Half-Life	too short	
		721.93		1.337E-03	6.709E-02	Half-Life	too short	
CE-144		80.11		7.443E-01	3.180E+00	3.358E+00	2.782E-01	0.222
		133.54	*	-1.129E-01	2.092E-01	3.317E-01	4.699E-02	-0.340
PM-144		476.78		4.247E-02	6.576E-02	1.132E-01	7.898E-03	0.375
		618.01		-1.445E-02	2.907E-02	4.571E-02	2.855E-03	-0.316
	*	696.49		-1.453E-02	3.515E-02	5.555E-02	3.461E-03	-0.262
		778.57		-6.518E-01	2.122E+00	3.347E+00	2.420E-01	-0.195
		696.49	*	-9.853E-01	2.384E+00	3.767E+00	2.345E-01	-0.262
PR-144		1489.15		1.045E+00	9.444E+00	1.584E+01	1.123E+00	0.066
		453.90	*	3.120E-02	4.197E-02	7.264E-02	6.256E-03	0.430
PM-146		633.02		2.760E-01	1.318E+00	2.186E+00	8.053E-01	0.126
		735.90		-1.061E-02	1.337E-01	2.159E-01	6.063E-02	-0.049
		747.13		-8.115E-02	9.091E-02	1.355E-01	1.764E-02	-0.599
ND-147	+	91.11		8.456E-01	3.579E-01	5.976E-01	5.520E-02	1.415
		319.41		1.024E+00	3.411E+00	5.807E+00	3.376E-01	0.176
		439.89		-3.512E-01	6.010E+00	9.941E+00	5.713E-01	-0.035

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149		531.02	*	-5.243E-01	5.823E-01	8.895E-01	1.208E-01	-0.589
EU-152		285.90	*	8.431E+01	1.291E+02	2.179E+02	3.091E+01	0.387
		121.78		-6.353E-02	7.314E-02	1.147E-01	8.879E-03	-0.554
		244.69		1.862E-01	3.448E-01	4.992E-01	2.837E-02	0.373
		344.27	*	-4.869E-02	1.610E-01	1.501E-01	9.773E-03	-0.324
		443.98		-2.141E-01	9.178E-01	1.501E+00	8.638E-02	-0.143
		778.89		1.916E-02	2.408E-01	3.937E-01	2.847E-02	0.049
		867.32		-5.248E-02	8.232E-01	1.135E+00	9.526E-02	-0.046
		964.01		4.153E-02	3.829E-01	5.360E-01	4.415E-02	0.077
		1085.78		-4.927E-01	3.991E-01	5.928E-01	4.034E-02	-0.831
		1112.02		-4.485E-03	3.793E-01	5.876E-01	3.780E-02	-0.008
	+	1407.95		3.058E-01	2.052E-01	3.164E-01	2.298E-02	0.966
GD-153		69.67		1.952E+00	1.788E+00	2.690E+00	2.070E-01	0.726
		83.37		3.123E+01	1.475E+01	2.449E+01	2.092E+00	1.275
		97.43	*	2.783E-02	8.529E-02	1.242E-01	9.658E-03	0.224
		103.18		-8.829E-02	1.111E-01	1.761E-01	1.275E-02	-0.501
EU-154		123.07		9.932E-03	5.077E-02	8.324E-02	7.897E-03	0.119
		247.94		-2.144E-01	4.107E-01	5.493E-01	5.207E-02	-0.390
		591.81		-2.555E-01	5.729E-01	9.070E-01	8.934E-02	-0.282
		723.30		-3.331E-02	1.865E-01	2.569E-01	1.978E-02	-0.130
		756.87		1.480E-01	8.099E-01	1.335E+00	1.447E-01	0.111
		873.19		-1.006E-02	2.738E-01	4.405E-01	5.347E-02	-0.023
		996.32		-1.668E-01	3.765E-01	5.768E-01	1.005E-01	-0.289
		1004.76		-7.942E-02	2.221E-01	3.622E-01	4.004E-02	-0.219
		1274.45	*	-1.078E-02	1.203E-01	1.981E-01	1.961E-02	-0.054
EU-155		48.70		3.676E-01	2.209E+00	3.676E+00	2.578E-01	0.100
		60.01		-1.207E+00	5.272E+00	7.550E+00	5.680E-01	-0.160
	+	86.54		3.100E-01	1.081E-01	1.800E-01	1.604E-02	1.722
		105.31	*	7.291E-02	1.143E-01	1.892E-01	1.361E-02	0.385
TB-160	+	86.79		8.376E-01	2.919E-01	4.795E-01	4.241E-02	1.747
		197.04		9.723E-02	5.536E-01	8.973E-01	4.862E-02	0.108
		215.65		8.581E-03	8.530E-01	1.195E+00	6.611E-02	0.007
	+	298.57		1.881E-01	1.837E-01	1.947E-01	1.132E-02	0.966
		879.36	*	8.465E-02	1.415E-01	2.404E-01	2.056E-02	0.352
		962.29		3.295E-01	6.316E-01	9.265E-01	7.647E-02	0.356
		966.15		6.068E-01	2.857E-01	4.660E-01	3.828E-02	1.302
		1177.93		-4.963E-02	3.808E-01	6.283E-01	3.476E-02	-0.079
		1271.85		1.524E-01	7.125E-01	1.206E+00	7.991E-02	0.126
HO-166M		80.57		-4.021E-02	4.030E-01	4.146E-01	3.450E-02	-0.097
	+	184.41		1.453E-01	4.969E-02	6.927E-02	3.696E-03	2.098
		280.46		-1.416E-04	8.724E-02	1.280E-01	7.414E-03	-0.001
		410.95		1.521E-01	2.380E-01	4.098E-01	2.312E-02	0.371
		711.68	*	-5.253E-02	5.822E-02	8.754E-02	5.607E-03	-0.600
		752.31		5.112E-02	2.767E-01	4.564E-01	3.148E-02	0.112
		810.29		-7.847E-02	5.682E-02	7.925E-02	6.049E-03	-0.990
TM-171		51.35		-1.661E+01	2.846E+01	4.605E+01	3.359E+00	-0.361
		52.39		5.410E+00	1.458E+01	2.440E+01	1.794E+00	0.222
		59.40		-1.494E+01	2.863E+01	4.043E+01	3.041E+00	-0.370
		66.72	*	-3.069E+01	3.158E+01	4.356E+01	3.312E+00	-0.705

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	88.36		6.102E-01	2.127E-01	3.755E-01	3.344E-02	1.625
		201.83		-1.789E-02	2.885E-02	4.509E-02	2.457E-03	-0.397
		306.84	*	7.856E-03	2.564E-02	3.835E-02	2.231E-03	0.205
		401.10		2.785E+00	6.441E+00	1.098E+01	6.154E-01	0.254
LU-177		112.95		-1.943E-01	1.850E+00	2.986E+00	1.944E-01	-0.065
	+	208.36	*	4.189E+00	1.825E+00	2.158E+00	1.185E-01	1.941
LU-177M		52.97		2.919E-01	1.544E+00	2.567E+00	1.894E-01	0.114
		54.07		1.707E-01	8.030E-01	1.336E+00	9.910E-02	0.128
		61.30		1.689E+00	1.574E+00	2.379E+00	1.790E-01	0.710
		121.62		-3.275E-01	3.767E-01	5.912E-01	3.535E-02	-0.554
		147.16		-3.736E-01	6.629E-01	1.050E+00	5.766E-02	-0.356
		171.86		4.601E-04	4.844E-01	7.821E-01	4.108E-02	0.001
		218.09		-2.088E-01	8.467E-01	1.342E+00	7.448E-02	-0.156
	+	268.79		2.081E+00	1.104E+00	1.442E+00	8.315E-02	1.443
		319.02		1.328E-01	2.432E-01	4.190E-01	2.435E-02	0.317
		367.43		-2.437E-01	8.465E-01	1.390E+00	7.904E-02	-0.175
		413.65	*	-1.792E-01	1.727E-01	2.691E-01	1.521E-02	-0.666
HF-181		56.28		2.495E-01	9.110E-01	1.518E+00	1.133E-01	0.164
		57.53		1.524E-01	5.322E-01	8.230E-01	6.165E-02	0.185
		65.20		-1.534E-01	1.099E+00	1.579E+00	1.195E-01	-0.097
		133.02		-2.455E-02	6.899E-02	1.106E-01	6.326E-03	-0.222
		136.25		-5.786E-02	4.584E-01	7.405E-01	4.195E-02	-0.078
		345.85		8.492E-02	2.104E-01	3.156E-01	1.819E-02	0.269
W-181		482.03	*	-4.381E-03	4.178E-02	6.866E-02	4.018E-03	-0.064
		56.28		7.817E-02	3.525E-01	5.863E-01	4.378E-02	0.133
		57.53		5.877E-02	2.057E-01	3.182E-01	2.383E-02	0.185
		65.20	*	-5.882E-02	4.217E-01	6.057E-01	4.583E-02	-0.097
TA-182		67.75		1.215E-02	1.428E-01	1.746E-01	1.333E-02	0.070
		100.10		-1.204E-02	1.882E-01	2.919E-01	2.194E-02	-0.041
		152.43		-3.306E-01	3.478E-01	5.414E-01	2.930E-02	-0.611
		222.10		2.806E-02	3.496E-01	5.626E-01	3.134E-02	0.050
		1001.68		1.359E+00	2.155E+00	3.743E+00	2.936E-01	0.363
	+	1121.28		6.644E-01	2.275E-01	3.479E-01	2.190E-02	1.910
RE-183		1189.05		9.996E-02	3.144E-01	5.366E-01	3.036E-02	0.186
		1221.42	*	2.399E-02	2.049E-01	3.422E-01	2.063E-02	0.070
		1230.97		-9.213E-02	5.037E-01	8.266E-01	5.076E-02	-0.111
		57.98		-1.016E-02	2.201E-01	3.182E-01	2.386E-02	-0.032
		59.32		-6.460E-02	1.190E-01	1.679E-01	1.263E-02	-0.385
		67.20		-1.404E-01	2.414E-01	3.156E-01	2.403E-02	-0.445
RE-184		162.32	*	-8.624E-03	1.114E-01	1.795E-01	9.458E-03	-0.048
	+	208.81		3.353E+00	1.460E+00	1.752E+00	9.626E-02	1.913
		291.72		-8.037E-02	1.006E+00	1.465E+00	8.513E-02	-0.055
		57.98		-3.717E-02	8.052E-01	1.164E+00	8.728E-02	-0.032
		59.32		-2.361E-01	4.351E-01	6.137E-01	4.616E-02	-0.385
		67.20		-5.135E-01	8.830E-01	1.154E+00	8.789E-02	-0.445
RE-184		161.27		-2.977E-01	3.616E-01	5.645E-01	2.982E-02	-0.527
		216.55		6.807E-02	2.822E-01	4.235E-01	2.346E-02	0.161
		252.85	*	1.730E-01	2.263E-01	3.756E-01	2.147E-02	0.461
		318.01		2.366E-02	4.182E-01	7.036E-01	4.090E-02	0.034

Sample ID : G246444005

Acquisition date : 19-FEB-2010 20:40:26

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	792.07			1.181E-01	1.184E+00	1.652E+00	1.222E-01	0.071
	903.28			-3.796E-01	9.953E-01	1.498E+00	1.313E-01	-0.253
	920.93			-5.831E-02	4.059E-01	6.438E-01	5.554E-02	-0.091
	59.72			-1.424E-01	3.183E-01	4.511E-01	3.394E-02	-0.316
	61.14			1.423E-01	1.734E-01	2.597E-01	1.954E-02	0.548
	69.30			2.900E-01	3.442E-01	4.809E-01	3.694E-02	0.603
	592.07			-1.286E+00	2.341E+00	3.674E+00	2.178E-01	-0.350
	646.12	*		1.724E-02	4.142E-02	6.993E-02	4.096E-03	0.247
	717.42			1.643E-01	8.267E-01	1.369E+00	8.865E-02	0.120
	874.81			2.953E-02	5.627E-01	9.132E-01	7.755E-02	0.032
RE-188	880.27			1.062E-01	8.184E-01	1.336E+00	1.144E-01	0.079
	155.03	*		2.156E-01	1.757E-01	2.971E-01	1.597E-02	0.726
	477.96			2.131E+00	3.011E+00	5.204E+00	3.041E-01	0.410
	633.10			4.151E-01	2.676E+00	4.434E+00	2.607E-01	0.094
W-188	63.58	+		6.468E+01	6.957E+01	9.053E+01	6.827E+00	0.714
	227.08			-9.010E+00	1.328E+01	2.059E+01	1.152E+00	-0.438
IR-192	290.67	*		-3.623E+00	7.907E+00	1.121E+01	6.511E-01	-0.323
	295.96	+		9.084E-01	1.999E-01	2.622E-01	1.548E-02	3.464
	308.46			4.157E-02	9.093E-02	1.525E-01	8.971E-03	0.273
	316.51	*		-2.804E-02	3.233E-02	5.167E-02	3.019E-03	-0.543
	468.07			-6.437E-02	7.326E-02	9.607E-02	6.442E-03	-0.670
AU-195	604.41			-6.826E-02	5.166E-01	7.238E-01	8.259E-02	-0.094
	612.46			1.645E+00	8.636E-01	1.413E+00	1.082E-01	1.164
	65.12			-9.965E-03	1.953E-01	2.816E-01	2.131E-02	-0.035
	66.83			-9.538E-02	1.049E-01	1.451E-01	1.104E-02	-0.657
	75.70	+		1.170E+00	2.726E-01	4.541E-01	3.628E-02	2.577
	98.88	*		4.416E-02	2.544E-01	3.674E-01	2.804E-02	0.120
TL-200	129.76			6.077E+00	2.998E+00	5.182E+00	2.998E-01	1.173
	367.94	*		-1.030E-04	2.998E+00	Half-Life	too short	
	579.30			-2.552E-03	2.998E+00	Half-Life	too short	
	828.27			5.290E-03	2.998E+00	Half-Life	too short	
TL-201	1205.75			-1.376E-03	2.998E+00	Half-Life	too short	
	68.90			5.488E+00	7.283E+00	1.014E+01	7.775E-01	0.541
	70.82			3.714E+00	3.869E+00	5.791E+00	4.483E-01	0.641
	80.30			3.446E-01	9.921E+00	1.032E+01	8.562E-01	0.033
	135.34			-4.577E+01	3.404E+01	5.218E+01	2.964E+00	-0.877
TL-202	167.43	*		-9.074E-01	9.436E+00	1.518E+01	7.934E-01	-0.060
	68.90			3.990E-01	5.294E-01	7.371E-01	5.652E-02	0.541
	70.82			2.692E-01	2.805E-01	4.199E-01	3.250E-02	0.641
HG-203	80.30			2.499E-02	7.194E-01	7.481E-01	6.209E-02	0.033
	439.56	*		7.154E-03	7.047E-02	1.177E-01	6.761E-03	0.061
	70.83			6.183E-01	1.174E+00	1.728E+00	2.257E-01	0.358
	72.87			2.132E+00	7.068E-01	1.136E+00	1.443E-01	1.878
	82.60			1.084E+00	1.719E+00	1.860E+00	2.540E-01	0.583
BI-207	279.20	*		4.245E-02	4.381E-02	6.824E-02	4.196E-03	0.622
	72.80			4.634E-01	2.102E-01	3.235E-01	2.533E-02	1.432
	74.97	+		6.459E-01	1.505E-01	2.288E-01	1.818E-02	2.824
	84.90			5.844E-01	1.959E-01	3.276E-01	2.842E-02	1.784
	569.67			1.050E-01	3.926E-02	6.729E-02	3.994E-03	1.561

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA	
TL-207		1063.62	*	1.311E-02	5.502E-02	9.338E-02	6.631E-03	0.140	
		1770.23		-1.406E-01	5.841E-01	7.704E-01	4.647E-02	-0.183	
		81.07		-6.468E-02	3.209E-01	3.273E-01	2.736E-02	-0.198	
		83.78		2.308E-01	1.232E-01	2.038E-01	1.749E-02	1.132	
		94.90		7.919E-01	2.694E-01	4.238E-01	3.412E-02	1.869	
		122.32		-8.012E-01	1.727E+00	2.758E+00	1.884E-01	-0.290	
		144.24		2.803E-01	7.013E-01	1.141E+00	8.013E-02	0.246	
		154.21		4.469E-02	4.063E-01	6.605E-01	4.408E-02	0.068	
PO-209	+	269.46		4.846E-01	2.573E-01	3.368E-01	2.032E-02	1.439	
		323.87	*	-3.918E-01	7.440E-01	1.041E+00	1.719E-01	-0.377	
	+	338.28		6.498E+00	1.817E+00	2.386E+00	2.510E-01	2.724	
		445.03		1.071E+00	2.142E+00	3.661E+00	3.751E-01	0.292	
		260.50		4.024E+00	8.891E+00	1.454E+01	8.349E-01	0.277	
		262.80		-1.779E+01	2.740E+01	3.843E+01	2.209E+00	-0.463	
		896.60	*	2.689E+00	6.937E+00	1.160E+01	1.020E+00	0.232	
	BI-210	46.50	*	2.272E+00	3.179E+00	5.343E+00	4.073E-01	0.425	
PB-210	46.50	*	2.272E+00	3.179E+00	5.343E+00	4.073E-01	0.425		
PO-210	46.50	*	2.272E+00	3.178E+00	5.343E+00	3.483E-01	0.425		
PB-211	404.84	*	-8.316E-01	1.081E+00	1.504E+00	9.371E-01	-0.553		
BI-212		427.08		5.316E-01	1.995E+00	3.324E+00	2.054E+00	0.160	
		831.96		2.992E-02	1.236E+00	2.004E+00	1.254E+00	0.015	
	+	727.18	*	7.819E-01	3.276E-01	5.915E-01	4.924E-02	1.322	
		785.46		7.834E-02	1.777E+00	2.893E+00	2.116E-01	0.027	
		1620.62		1.006E+00	1.094E+00	2.045E+00	1.365E-01	0.492	
	PO-215		81.07		-6.468E-02	3.209E-01	3.273E-01	2.736E-02	-0.198
			83.78		2.308E-01	1.232E-01	2.038E-01	1.749E-02	1.132
			94.90		7.919E-01	2.694E-01	4.238E-01	3.412E-02	1.869
		122.32		-8.012E-01	1.727E+00	2.758E+00	1.884E-01	-0.290	
		144.24		2.803E-01	7.013E-01	1.141E+00	8.013E-02	0.246	
		154.21		4.469E-02	4.063E-01	6.605E-01	4.408E-02	0.068	
+		269.46		4.846E-01	2.573E-01	3.368E-01	2.032E-02	1.439	
		323.87	*	-3.918E-01	7.440E-01	1.041E+00	1.719E-01	-0.377	
RN-219	+	338.28		6.498E+00	1.817E+00	2.386E+00	2.510E-01	2.724	
		445.03		1.071E+00	2.142E+00	3.661E+00	3.751E-01	0.292	
	+	271.23		6.218E-01	3.318E-01	4.299E-01	3.475E-02	1.446	
		401.81	*	2.648E-01	3.987E-01	6.860E-01	9.277E-02	0.386	
	RN-220	549.76	*	-1.607E+01	2.458E+01	3.847E+01	2.283E+00	-0.418	
	RA-223		81.07		-6.468E-02	3.209E-01	3.273E-01	2.736E-02	-0.198
			83.78		2.308E-01	1.232E-01	2.038E-01	1.749E-02	1.132
			94.90		7.919E-01	2.694E-01	4.238E-01	3.412E-02	1.869
		122.32		-8.012E-01	1.727E+00	2.758E+00	1.884E-01	-0.290	
		144.24		2.803E-01	7.013E-01	1.141E+00	8.013E-02	0.246	
		154.21		4.469E-02	4.063E-01	6.605E-01	4.408E-02	0.068	
+		269.46		4.846E-01	2.573E-01	3.368E-01	2.032E-02	1.439	
		323.87	*	-3.918E-01	7.440E-01	1.041E+00	1.719E-01	-0.377	
AC-227	+	338.28		6.498E+00	1.817E+00	2.386E+00	2.510E-01	2.724	
		445.03		1.071E+00	2.142E+00	3.661E+00	3.751E-01	0.292	
		79.80		1.572E+00	2.497E+00	2.690E+00	5.748E-01	0.584	
		236.00		1.651E+00	3.499E-01	5.344E-01	5.540E-02	3.090	

---- 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	*	-1.310E-01	3.792E-01	5.936E-01	8.269E-02	-0.221
		286.10		1.047E+00	1.468E+00	2.488E+00	2.876E-01	0.421
	+	299.80		2.367E+00	2.340E+00	2.486E+00	4.050E-01	0.952
		304.40		1.990E-02	1.964E+00	2.875E+00	4.975E-01	0.007
		334.20		-5.470E-01	2.904E+00	3.640E+00	6.672E-01	-0.150
		79.80		1.572E+00	2.498E+00	2.690E+00	5.822E-01	0.584
	+	94.00		9.582E+00	3.331E+00	3.985E+00	8.606E-01	2.405
		236.00		1.651E+00	3.391E-01	5.344E-01	4.787E-02	3.090
		256.20	*	-1.310E-01	3.794E-01	5.936E-01	1.002E-01	-0.221
		286.10		1.047E+00	1.800E+00	2.488E+00	2.492E+00	0.421
AC-228	+	299.80		2.367E+00	2.340E+00	2.486E+00	4.050E-01	0.952
		304.40		1.990E-02	1.964E+00	2.875E+00	4.975E-01	0.007
		334.20		-5.470E-01	2.904E+00	3.640E+00	6.672E-01	-0.150
	+	338.32		1.556E+00	7.517E-01	5.708E-01	2.327E-01	2.726
	+	911.07	*	1.358E+00	3.186E-01	4.455E-01	5.039E-02	3.048
RA-228		969.11		1.280E+00	4.672E-01	6.497E-01	1.506E-01	1.970
	+	338.32		1.556E+00	7.517E-01	5.708E-01	2.327E-01	2.726
	+	911.07	*	1.358E+00	3.186E-01	4.455E-01	5.039E-02	3.048
TH-229		969.11		1.280E+00	4.672E-01	6.497E-01	1.506E-01	1.970
		85.43		7.696E-01	2.027E-01	3.387E-01	2.954E-02	2.272
	+	88.47		3.513E-01	1.224E-01	2.149E-01	1.910E-02	1.635
		100.00		-1.106E-02	1.939E-01	3.009E-01	2.264E-02	-0.037
PA-231		193.63	*	2.529E-01	4.797E-01	7.900E-01	4.263E-02	0.320
	+	210.97		2.593E+00	1.130E+00	1.329E+00	7.320E-02	1.951
		283.67	*	-7.535E-01	1.493E+00	2.380E+00	3.279E-01	-0.317
		301.29		1.195E+00	6.175E-01	9.974E-01	1.043E-01	1.198
TH-231		81.07		-6.468E-02	3.209E-01	3.273E-01	2.736E-02	-0.198
		83.78		2.308E-01	1.232E-01	2.038E-01	1.749E-02	1.132
		94.90		7.919E-01	2.694E-01	4.238E-01	3.412E-02	1.869
		122.32		-8.012E-01	1.727E+00	2.758E+00	1.884E-01	-0.290
		144.24		2.803E-01	7.013E-01	1.141E+00	8.013E-02	0.246
U-231		154.21		4.469E-02	4.063E-01	6.605E-01	4.408E-02	0.068
	+	269.46		4.846E-01	2.573E-01	3.368E-01	2.032E-02	1.439
		323.87	*	-3.918E-01	7.440E-01	1.041E+00	1.719E-01	-0.377
	+	338.28		6.498E+00	1.817E+00	2.386E+00	2.510E-01	2.724
		445.03		1.071E+00	2.142E+00	3.661E+00	3.751E-01	0.292
		84.21		1.270E+01	6.510E+00	1.078E+01	9.285E-01	1.178
	+	92.29		1.162E+01	3.304E+00	5.090E+00	4.257E-01	2.283
		95.87	*	3.533E-01	1.490E+00	2.159E+00	1.715E-01	0.164
		108.00		1.026E+00	2.627E+00	4.343E+00	2.979E-01	0.236
	+	338.32		1.556E+00	4.131E-01	5.708E-01	3.300E-02	2.726
TH-232	+	911.07	*	1.358E+00	3.186E-01	4.455E-01	5.039E-02	3.048
		969.11		1.280E+00	4.672E-01	6.497E-01	1.506E-01	1.970
	+	75.28		1.885E+01	5.002E+00	7.052E+00	1.057E+00	2.673
PA-233	+	86.59		5.037E+00	2.172E+00	2.917E+00	7.842E-01	1.727
	+	300.12		6.600E-01	6.495E-01	6.901E-01	9.277E-02	0.956
		311.98	*	-1.899E-02	5.789E-02	9.547E-02	5.894E-03	-0.199
		340.50		2.025E+00	8.387E-01	1.199E+00	2.753E-01	1.689
		398.62		3.100E-01	1.985E+00	3.333E+00	8.602E-01	0.093

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		2.524E-01	1.551E+00	2.603E+00	5.349E-01	0.097
		63.00		1.853E+00	2.007E+00	2.632E+00	3.929E-01	0.704
		94.67		8.038E-01	2.125E-01	3.190E-01	3.837E-02	2.520
		98.44		6.757E-02	1.079E-01	1.497E-01	8.330E-02	0.451
		99.86		-4.249E-02	5.130E-01	7.624E-01	5.747E-02	-0.056
		111.00		-1.006E-01	1.887E-01	3.012E-01	3.244E-02	-0.334
		131.20		1.010E-01	1.099E-01	1.842E-01	1.060E-02	0.549
		152.70		-2.003E-01	3.295E-01	5.183E-01	8.121E-02	-0.386
	+	186.00		5.231E+00	2.380E+00	2.544E+00	7.751E-01	2.057
		226.40		1.540E-02	4.045E-01	6.493E-01	7.440E-02	0.024
		227.20		-1.679E-01	4.367E-01	6.870E-01	3.846E-02	-0.244
		248.90		-6.749E-01	8.564E-01	1.240E+00	2.661E-01	-0.544
	+	293.70		5.652E+00	1.504E+00	1.631E+00	2.623E-01	3.466
		369.80		2.037E-01	7.741E-01	1.311E+00	2.725E-01	0.155
	+	568.70		3.978E+00	2.162E+00	2.362E+00	1.402E-01	1.684
		569.50		7.751E-01	3.727E-01	6.077E-01	3.607E-02	1.275
		574.00		4.849E-01	1.576E+00	2.317E+00	1.375E-01	0.209
		699.00		6.185E-01	7.091E-01	1.216E+00	2.205E-01	0.509
		706.10		6.168E-01	1.064E+00	1.751E+00	7.742E-01	0.352
		733.00		1.748E-02	3.580E-01	5.514E-01	1.186E-01	0.032
		742.81		1.936E+00	1.834E+00	2.361E+00	1.582E+00	0.820
	+	796.30		2.542E+00	1.867E+00	1.870E+00	4.995E-01	1.359
		805.60		8.745E-01	1.019E+00	1.712E+00	5.199E-01	0.511
		819.60		-7.972E-01	1.277E+00	1.892E+00	7.161E-01	-0.421
		826.30		-2.029E-01	8.727E-01	1.377E+00	6.143E-01	-0.147
		831.60		8.949E-02	6.330E-01	1.036E+00	3.070E-01	0.086
		876.40		-6.554E-01	1.066E+00	1.232E+00	1.266E+00	-0.532
		880.51		6.123E-02	2.951E-01	4.849E-01	4.155E-02	0.126
		883.24		1.617E-01	3.158E-01	5.013E-01	3.370E-01	0.323
		899.00		-1.885E-01	7.958E-01	1.246E+00	5.454E-01	-0.151
		925.00		-2.232E-01	1.036E+00	1.630E+00	1.400E-01	-0.137
		926.50		-1.699E-02	1.666E-01	2.632E-01	6.650E-02	-0.065
		946.00	*	-2.578E-01	3.053E-01	4.441E-01	8.291E-02	-0.581
		949.00		2.986E-01	4.279E-01	7.329E-01	6.141E-02	0.407
		980.50		3.798E-01	7.498E-01	1.260E+00	1.017E-01	0.301
		1394.10		7.519E-02	1.033E+00	1.722E+00	1.118E+00	0.044
PA-234M		766.42		1.041E+01	1.247E+01	1.939E+01	9.791E+00	0.537
		1001.03	*	3.098E+00	4.802E+00	8.346E+00	7.769E-01	0.371
U-235	+	89.95		3.113E+00	1.605E+00	1.941E+00	5.994E-01	1.604
	+	93.35		2.981E+00	1.162E+00	1.279E+00	3.569E-01	2.331
		105.00		7.691E-01	1.137E+00	1.850E+00	5.447E-01	0.416
		143.76	*	1.767E-01	2.159E-01	3.538E-01	5.737E-02	0.499
		163.35		3.198E-01	4.773E-01	7.866E-01	1.401E-01	0.407
	+	185.71		1.937E-01	6.626E-02	9.402E-02	5.024E-03	2.061
NP-236		205.31		-4.137E-02	5.712E-01	7.971E-01	1.425E-01	-0.052
		94.67		6.126E-01	1.519E-01	2.422E-01	1.956E-02	2.530
		98.44		5.110E-02	7.654E-02	1.132E-01	8.685E-03	0.452
		111.00		-7.607E-02	1.426E-01	2.278E-01	1.514E-02	-0.334
		160.31	*	-1.353E-01	8.185E-02	1.229E-01	6.511E-03	-1.101

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		3.648E-03	1.704E-01	2.544E-01	1.925E-02	0.014
		117.00	*	1.900E-02	1.914E-01	3.114E-01	1.947E-02	0.061
	+	209.75		2.613E+00	1.138E+00	1.394E+00	7.664E-02	1.875
		228.18		-1.810E-01	2.326E-01	3.588E-01	2.010E-02	-0.504
	+	277.60		2.252E-01	2.215E-01	3.036E-01	1.757E-02	0.742
AM-241		334.30		-3.166E-01	1.645E+00	2.061E+00	1.194E-01	-0.154
		59.54	*	-8.129E-02	1.662E-01	2.350E-01	1.935E-02	-0.346
CM-243		99.55		3.754E-03	1.753E-01	2.618E-01	1.981E-02	0.014
		103.76	*	-5.559E-03	1.024E-01	1.657E-01	1.192E-02	-0.034
		117.00		1.955E-02	1.970E-01	3.204E-01	2.004E-02	0.061
	+	209.75		2.576E+00	1.122E+00	1.374E+00	7.555E-02	1.875
		228.18		-1.829E-01	2.350E-01	3.625E-01	2.032E-02	-0.504
AM-246	+	277.60		2.270E-01	2.233E-01	3.061E-01	1.772E-02	0.742
		798.80		1.071E-01	1.544E-01	2.337E-01	1.750E-02	0.458
		1036.00		-2.247E-01	2.895E-01	4.513E-01	3.361E-02	-0.498
		1062.04		7.870E-02	2.297E-01	3.932E-01	2.800E-02	0.200
		1078.86	*	1.503E-01	1.488E-01	2.676E-01	1.846E-02	0.562
CM-247	+	278.00		9.338E-01	9.185E-01	1.270E+00	7.350E-02	0.735
		287.40		2.298E-01	1.333E+00	1.977E+00	1.147E-01	0.116
		402.60	*	2.498E-02	3.572E-02	6.175E-02	3.464E-03	0.405
CF-249		252.85		6.459E-01	8.450E-01	1.402E+00	8.014E-02	0.461
		333.44		-8.403E-02	2.420E-01	2.673E-01	1.548E-02	-0.314
		387.95	*	1.662E-03	3.544E-02	5.924E-02	3.309E-03	0.028
CF-251		176.60	*	-9.501E-04	1.280E-01	2.065E-01	1.091E-02	-0.005
		227.00		-2.684E-01	3.934E-01	6.099E-01	3.414E-02	-0.440
		285.00		1.536E-01	1.643E+00	2.777E+00	1.611E-01	0.055

## 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]G246444005      *
* Acquisition date   : 19-FEB-2010 20:40:26 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 02:00:01.60 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246444005 Analyst initials: MXR1                 *
* Batch Number       : 950788 Sample Quantity : 1.4147E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.517E+01	3.082E+00	4.090E-01	0.000E+00
CD-109	2.622E+00	8.957E-01	1.229E+00	0.000E+00
SN-126	2.573E-01	8.788E-02	1.211E-01	0.000E+00
TL-208	4.509E-01	7.524E-02	5.424E-02	0.000E+00
BI-211	2.972E+00	5.117E-01	3.237E-01	0.000E+00
PB-212	1.428E+00	1.419E-01	9.043E-02	0.000E+00
PO-212	1.428E+00	1.419E-01	9.043E-02	0.000E+00
BI-214	9.455E-01	1.554E-01	1.106E-01	0.000E+00
PB-214	1.034E+00	1.857E-01	1.128E-01	0.000E+00
PO-214	1.034E+00	1.857E-01	1.128E-01	0.000E+00
PO-216	1.428E+00	1.419E-01	9.043E-02	0.000E+00
PO-218	1.034E+00	1.857E-01	1.128E-01	0.000E+00
RA-224	4.043E+00	1.188E+00	1.028E+00	0.000E+00
RA-226	9.455E-01	1.554E-01	1.106E-01	0.000E+00
TH-228	1.451E+00	1.442E-01	9.191E-02	0.000E+00
TH-230	9.455E-01	1.554E-01	1.106E-01	0.000E+00
TH-234	1.589E+00	1.693E+00	2.088E+00	0.000E+00
U-234	9.455E-01	1.554E-01	1.106E-01	0.000E+00
NP-237	7.555E-01	2.999E-01	3.596E-01	0.000E+00
U-238	1.589E+00	1.693E+00	2.088E+00	0.000E+00
AM-243	3.598E-01	8.218E-02	9.192E-02	0.000E+00
ANH-511	6.226E-02	6.098E-02	4.658E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	2.295E-01	3.083E-01	5.598E-01	0.000E+00 NOT IDENT.
NA-22	2.594E-03	4.175E-02	7.165E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.647E+06	0.000E+00	0.000E+00 SHORT HLIF
AL-26	2.096E-03	2.620E-02	4.424E-02	0.000E+00 NOT IDENT.
TI-44	0.000E+00	5.594E-02	8.242E-02	0.000E+00 FAIL ABUN

SC-46	-2.483E-02	3.888E-02	6.101E-02	0.000E+00	FAIL ABUN
V-48	3.223E-02	7.582E-02	1.306E-01	0.000E+00	NOT IDENT.
CR-51	1.491E-01	3.595E-01	6.510E-01	0.000E+00	NOT IDENT.
MN-52	-4.451E-02	2.553E-01	4.222E-01	0.000E+00	NOT IDENT.
MN-54	3.243E-03	3.498E-02	5.917E-02	0.000E+00	NOT IDENT.
CO-56	-9.415E-04	3.916E-02	6.553E-02	0.000E+00	NOT IDENT.
CO-57	-1.242E-02	2.446E-02	4.209E-02	0.000E+00	NOT IDENT.
CO-58	-8.370E-02	4.010E-02	5.362E-02	0.000E+00	NOT IDENT.
FE-59	-7.519E-02	9.277E-02	1.490E-01	0.000E+00	NOT IDENT.
CO-60	1.191E-02	3.815E-02	6.695E-02	0.000E+00	NOT IDENT.
ZN-65	-2.250E-02	1.099E-01	1.597E-01	0.000E+00	NOT IDENT.
GE-68	9.232E-01	1.261E+00	2.298E+00	0.000E+00	NOT IDENT.
AS-73	3.537E-01	7.732E-01	1.422E+00	0.000E+00	NOT IDENT.
AS-74	7.549E-02	9.149E-02	1.656E-01	0.000E+00	NOT IDENT.
SE-75	-3.320E-02	4.381E-02	6.471E-02	0.000E+00	NOT IDENT.
BR-77	3.175E-01	1.375E+01	2.382E+01	0.000E+00	FAIL ABUN
SR-82	-4.768E-01	3.746E-01	5.581E-01	0.000E+00	NOT IDENT.
RB-83	3.813E-02	6.160E-02	1.111E-01	0.000E+00	NOT IDENT.
RB-84	2.197E-02	7.447E-02	1.276E-01	0.000E+00	NOT IDENT.
KR-85	7.707E+00	7.929E+00	1.283E+01	0.000E+00	NOT IDENT.
SR-85	4.003E-02	4.119E-02	6.665E-02	0.000E+00	NOT IDENT.
RB-86	2.774E-01	8.340E-01	1.477E+00	0.000E+00	NOT IDENT.
Y-88	1.128E-02	2.763E-02	4.969E-02	0.000E+00	NOT IDENT.
ZR-88	6.613E-03	2.731E-02	4.865E-02	0.000E+00	NOT IDENT.
Y-91	-6.278E-01	1.870E+01	3.196E+01	0.000E+00	NOT IDENT.
NB-94	-1.320E-03	3.314E-02	5.609E-02	0.000E+00	NOT IDENT.
NB-95	1.093E-02	4.227E-02	7.179E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.528E-01	2.563E-01	0.000E+00	NOT IDENT.
ZR-95	4.322E-02	7.349E-02	1.295E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.535E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.441E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-8.060E+00	1.532E+01	2.472E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.243E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.404E-03	3.145E-02	5.424E-02	0.000E+00	NOT IDENT.
RH-102	6.861E-03	2.775E-02	4.898E-02	0.000E+00	NOT IDENT.
RU-103	2.778E-02	3.781E-02	6.848E-02	0.000E+00	FAIL ABUN
RH-106	5.564E-03	2.871E-01	4.918E-01	0.000E+00	FAIL ABUN
RU-106	5.564E-03	2.871E-01	4.918E-01	0.000E+00	FAIL ABUN
AG-108M	-1.499E-02	3.091E-02	5.238E-02	0.000E+00	NOT IDENT.
AG-110M	-3.250E-02	3.724E-02	5.954E-02	0.000E+00	NOT IDENT.
IN-111	2.533E-01	1.485E+00	2.229E+00	0.000E+00	NOT IDENT.
IN-113M	-6.669E-03	3.981E-02	6.923E-02	0.000E+00	NOT IDENT.
SN-113	-6.669E-03	3.981E-02	6.923E-02	0.000E+00	NOT IDENT.
IN-114M	1.352E-02	1.947E-01	2.940E-01	0.000E+00	NOT IDENT.
CD-115	1.576E+01	1.499E+01	2.718E+01	0.000E+00	NOT IDENT.
SN-117M	-2.659E-02	5.872E-02	1.002E-01	0.000E+00	NOT IDENT.
SB-122	1.334E+00	3.310E+00	5.113E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.801E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.532E-02	2.881E-02	4.824E-02	0.000E+00	NOT IDENT.
I-124	3.090E-01	9.028E-01	1.383E+00	0.000E+00	NOT IDENT.
SB-124	-6.401E-02	6.046E-02	7.629E-02	0.000E+00	NOT IDENT.
SB-125	2.285E-02	8.589E-02	1.525E-01	0.000E+00	FAIL ABUN
TE-125M	-1.232E+00	9.604E+00	1.687E+01	0.000E+00	NOT IDENT.
I-126	-1.381E-01	1.825E-01	2.924E-01	0.000E+00	NOT IDENT.
SB-126	-3.236E-03	1.482E-01	2.361E-01	0.000E+00	FAIL ABUN
SB-127	1.790E+00	1.629E+00	2.981E+00	0.000E+00	NOT IDENT.
XE-127	1.802E-02	4.759E-02	8.023E-02	0.000E+00	NOT IDENT.
I-131	-4.674E-02	1.183E-01	2.038E-01	0.000E+00	NOT IDENT.
TE-132	-7.202E-01	9.131E-01	1.493E+00	0.000E+00	NOT IDENT.
BA-133	1.072E-02	4.488E-02	7.017E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.538E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	8.835E-02	9.587E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.593E-01	2.847E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.275E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.825E-02	1.121E-01	1.898E-01	0.000E+00	FAIL ABUN
BA-137M	5.196E-02	3.763E-02	6.962E-02	0.000E+00	NOT IDENT.
CS-137	5.493E-02	3.978E-02	7.359E-02	0.000E+00	NOT IDENT.
CE-139	1.515E-02	2.989E-02	5.282E-02	0.000E+00	NOT IDENT.
BA-140	9.356E-02	2.541E-01	4.468E-01	0.000E+00	NOT IDENT.
LA-140	3.759E-02	8.768E-02	1.555E-01	0.000E+00	FAIL ABUN
CE-141	-4.067E-02	6.575E-02	1.107E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.662E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.129E-01	2.050E-01	3.502E-01	0.000E+00	NOT IDENT.
PM-144	-1.453E-02	3.445E-02	5.669E-02	0.000E+00	NOT IDENT.
PR-144	-9.853E-01	2.336E+00	3.844E+00	0.000E+00	NOT IDENT.
PM-146	3.120E-02	4.113E-02	7.480E-02	0.000E+00	NOT IDENT.
ND-147	-5.243E-01	5.706E-01	9.129E-01	0.000E+00	FAIL ABUN
PM-149	8.431E+01	1.265E+02	2.266E+02	0.000E+00	NOT IDENT.

EU-152	-4.869E-02	1.578E-01	1.555E-01	0.000E+00	FAIL ABUN
GD-153	2.783E-02	8.358E-02	1.319E-01	0.000E+00	NOT IDENT.
EU-154	-1.078E-02	1.179E-01	1.995E-01	0.000E+00	NOT IDENT.
EU-155	7.291E-02	1.120E-01	2.007E-01	0.000E+00	FAIL ABUN
TB-160	8.465E-02	1.387E-01	2.441E-01	0.000E+00	FAIL ABUN
HO-166M	-5.253E-02	5.706E-02	8.929E-02	0.000E+00	FAIL ABUN
TM-171	-3.069E+01	3.094E+01	4.662E+01	0.000E+00	NOT IDENT.
LU-176	7.856E-03	2.513E-02	3.981E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.788E+00	2.258E+00	0.000E+00	FAIL ABUN
LU-177M	-1.792E-01	1.692E-01	2.777E-01	0.000E+00	FAIL ABUN
HF-181	-4.381E-03	4.094E-02	7.061E-02	0.000E+00	NOT IDENT.
W-181	-5.882E-02	4.132E-01	6.485E-01	0.000E+00	NOT IDENT.
TA-182	2.399E-02	2.008E-01	3.450E-01	0.000E+00	FAIL ABUN
RE-183	-8.624E-03	1.092E-01	1.888E-01	0.000E+00	FAIL ABUN
RE-184	1.730E-01	2.218E-01	3.915E-01	0.000E+00	NOT IDENT.
OS-185	1.724E-02	4.060E-02	7.148E-02	0.000E+00	NOT IDENT.
RE-188	2.156E-01	1.722E-01	3.127E-01	0.000E+00	NOT IDENT.
W-188	-3.623E+00	7.749E+00	1.165E+01	0.000E+00	FAIL ABUN
IR-192	-2.804E-02	3.168E-02	5.361E-02	0.000E+00	FAIL ABUN
AU-195	4.416E-02	2.493E-01	3.902E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.265E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-9.074E-01	9.248E+00	1.596E+01	0.000E+00	NOT IDENT.
TL-202	7.154E-03	6.906E-02	1.213E-01	0.000E+00	NOT IDENT.
HG-203	4.245E-02	4.293E-02	7.098E-02	0.000E+00	NOT IDENT.
BI-207	1.311E-02	5.392E-02	9.443E-02	0.000E+00	FAIL ABUN
TL-207	-3.918E-01	7.291E-01	1.079E+00	0.000E+00	FAIL ABUN
PO-209	2.689E+00	6.799E+00	1.178E+01	0.000E+00	NOT IDENT.
BI-210	2.272E+00	3.115E+00	5.758E+00	0.000E+00	NOT IDENT.
PB-210	2.272E+00	3.115E+00	5.758E+00	0.000E+00	NOT IDENT.
PO-210	2.272E+00	3.114E+00	5.758E+00	0.000E+00	NOT IDENT.
PB-211	-8.316E-01	1.060E+00	1.552E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.210E-01	6.030E-01	0.000E+00	FAIL ABUN
PO-215	-3.918E-01	7.291E-01	1.079E+00	0.000E+00	FAIL ABUN
RN-219	2.648E-01	3.908E-01	7.082E-01	0.000E+00	FAIL ABUN
RN-220	-1.607E+01	2.409E+01	3.946E+01	0.000E+00	NOT IDENT.
RA-223	-3.918E-01	7.291E-01	1.079E+00	0.000E+00	FAIL ABUN
AC-227	-1.310E-01	3.716E-01	6.185E-01	0.000E+00	FAIL ABUN
TH-227	-1.310E-01	3.718E-01	6.185E-01	0.000E+00	FAIL ABUN
AC-228	0.000E+00	3.122E-01	4.520E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	3.122E-01	4.520E-01	0.000E+00	FAIL ABUN
TH-229	2.529E-01	4.701E-01	8.278E-01	0.000E+00	FAIL ABUN
PA-231	-7.535E-01	1.463E+00	2.474E+00	0.000E+00	NOT IDENT.
TH-231	-3.918E-01	7.291E-01	1.079E+00	0.000E+00	FAIL ABUN
U-231	3.533E-01	1.460E+00	2.294E+00	0.000E+00	FAIL ABUN
TH-232	0.000E+00	3.122E-01	4.520E-01	0.000E+00	FAIL ABUN
PA-233	-1.899E-02	5.674E-02	9.907E-02	0.000E+00	FAIL ABUN
PA-234	-2.578E-01	2.992E-01	4.503E-01	0.000E+00	FAIL ABUN
PA-234M	3.098E+00	4.705E+00	8.451E+00	0.000E+00	NOT IDENT.
U-235	1.767E-01	2.116E-01	3.730E-01	0.000E+00	FAIL ABUN
NP-236	-1.353E-01	8.022E-02	1.293E-01	0.000E+00	NOT IDENT.
NP-239	1.900E-02	1.876E-01	3.296E-01	0.000E+00	FAIL ABUN
AM-241	-8.129E-02	1.629E-01	2.521E-01	0.000E+00	NOT IDENT.
CM-243	-5.559E-03	1.003E-01	1.758E-01	0.000E+00	FAIL ABUN
AM-246	1.503E-01	1.458E-01	2.705E-01	0.000E+00	NOT IDENT.
CM-247	2.498E-02	3.500E-02	6.374E-02	0.000E+00	FAIL ABUN
CF-249	1.662E-03	3.473E-02	6.120E-02	0.000E+00	NOT IDENT.
CF-251	-9.501E-04	1.255E-01	2.168E-01	0.000E+00	NOT IDENT.

## VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:41:59.81

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246444005.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:40:26
Sample ID          : G246444005      Sample quantity   : 1.41470E+02 GRAM
Detector name      : GAM19            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           : 950788            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	1652	10.67*	1.168E+00	3.517E+01	3.517E+01	8.94
CD-109	88.03	218	3.72*	6.090E+00	2.559E+00	2.622E+00	34.85
SN-126	64.28	83	9.60	3.638E+00	6.291E-01	6.291E-01	108.29
	86.94	218	8.90	6.090E+00	1.070E+00	1.070E+00	53.40
	87.57	218	37.00*	6.090E+00	2.573E-01	2.573E-01	34.85
TL-208	277.35	54	6.80	4.509E+00	4.669E-01	4.669E-01	98.76
	510.84	67	21.60	2.843E+00	2.883E-01	2.883E-01	100.29
	583.14	366	84.20*	2.555E+00	4.509E-01	4.509E-01	17.03
	860.37	82	12.46	1.835E+00	9.511E-01	9.511E-01	51.37
BI-211	72.87	-----	1.27	4.857E+00	-----	Line Not Found	-----
	351.07	549	12.94*	3.788E+00	2.972E+00	2.972E+00	17.57
PB-212	74.81	454	10.70	5.068E+00	2.219E+00	2.219E+00	25.11
	77.11	668	18.00	5.300E+00	1.859E+00	1.859E+00	16.64
	87.30	218	8.00	6.090E+00	1.190E+00	1.190E+00	36.26
	238.63	1204	44.60*	5.018E+00	1.428E+00	1.428E+00	10.14
	300.09	70	3.41	4.264E+00	1.277E+00	1.277E+00	97.84
PO-212	74.81	454	10.70	5.068E+00	2.219E+00	2.219E+00	25.11
	77.11	668	18.00	5.300E+00	1.859E+00	1.859E+00	16.64
	87.30	218	8.00	6.090E+00	1.190E+00	1.190E+00	36.26
	115.19	-----	0.60	6.866E+00	-----	Line Not Found	-----
	238.63	1204	44.60*	5.018E+00	1.428E+00	1.428E+00	10.14
	300.09	70	3.41	4.264E+00	1.277E+00	1.277E+00	97.84
BI-214	609.31	407	46.30*	2.464E+00	9.455E-01	9.455E-01	16.77
	1120.29	115	15.10	1.455E+00	1.395E+00	1.395E+00	34.87
	1764.49	71	15.80	1.030E+00	1.166E+00	1.166E+00	40.62
PB-214	74.81	454	6.21	5.068E+00	3.824E+00	3.824E+00	24.45
	77.11	668	10.50	5.300E+00	3.186E+00	3.186E+00	18.30
	87.30	218	4.67	6.090E+00	2.038E+00	2.038E+00	35.70
	241.98	299	7.49	4.975E+00	2.132E+00	2.132E+00	30.51
	295.21	368	19.20	4.315E+00	1.177E+00	1.177E+00	22.85
	351.92	549	37.20*	3.788E+00	1.034E+00	1.034E+00	18.33
PO-214	74.81	454	6.21	5.068E+00	3.824E+00	3.824E+00	24.45

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	668	10.50	5.300E+00	3.186E+00	3.186E+00	18.30
	87.30	218	4.67	6.090E+00	2.038E+00	2.038E+00	35.70
	241.98	299	7.49	4.975E+00	2.132E+00	2.132E+00	30.51
	295.21	368	19.20	4.315E+00	1.177E+00	1.177E+00	22.85
	351.92	549	37.20*	3.788E+00	1.034E+00	1.034E+00	18.33
PO-216	74.81	454	10.70	5.068E+00	2.219E+00	2.219E+00	25.11
	77.11	668	18.00	5.300E+00	1.859E+00	1.859E+00	16.64
	87.30	218	8.00	6.090E+00	1.190E+00	1.190E+00	36.26
	238.63	1204	44.60*	5.018E+00	1.428E+00	1.428E+00	10.14
	300.09	70	3.41	4.264E+00	1.277E+00	1.277E+00	97.84
PO-218	74.81	454	6.21	5.068E+00	3.824E+00	3.824E+00	24.45
	77.11	668	10.50	5.300E+00	3.186E+00	3.186E+00	18.30
	87.30	218	4.67	6.090E+00	2.038E+00	2.038E+00	35.70
	241.98	299	7.49	4.975E+00	2.132E+00	2.132E+00	30.51
	295.21	368	19.20	4.315E+00	1.177E+00	1.177E+00	22.85
	351.92	549	37.20*	3.788E+00	1.034E+00	1.034E+00	18.33
RA-224	240.98	299	3.95*	4.975E+00	4.043E+00	4.043E+00	29.99
RA-226	609.31	407	46.30*	2.464E+00	9.455E-01	9.455E-01	16.77
	1120.29	115	15.10	1.455E+00	1.395E+00	1.395E+00	34.87
	1764.49	71	15.80	1.030E+00	1.166E+00	1.166E+00	40.62
TH-228	74.81	454	10.70	5.068E+00	2.219E+00	2.256E+00	23.33
	77.11	668	18.00	5.300E+00	1.859E+00	1.889E+00	16.64
	87.30	218	8.00	6.090E+00	1.190E+00	1.209E+00	34.85
	238.63	1204	44.60*	5.018E+00	1.428E+00	1.451E+00	10.14
	300.09	70	3.41	4.264E+00	1.277E+00	1.298E+00	113.92
TH-230	609.31	407	46.30*	2.464E+00	9.455E-01	9.455E-01	16.77
	1120.29	115	15.10	1.455E+00	1.395E+00	1.395E+00	34.87
	1764.49	71	15.80	1.030E+00	1.166E+00	1.166E+00	40.62
TH-234	63.29	83	3.80*	3.638E+00	1.589E+00	1.589E+00	108.72
	92.38	323	5.41	6.383E+00	2.480E+00	2.480E+00	32.58
U-234	609.31	407	46.30*	2.464E+00	9.455E-01	9.455E-01	16.77
	1120.29	115	15.10	1.455E+00	1.395E+00	1.395E+00	34.87
	1764.49	71	15.80	1.030E+00	1.166E+00	1.166E+00	40.62
NP-237	86.50	218	12.60*	6.090E+00	7.555E-01	7.555E-01	40.51
	95.87	-----	2.60	6.515E+00	-----	Line Not Found	-----
U-238	63.29	83	3.80*	3.638E+00	1.589E+00	1.589E+00	108.72
	92.38	323	5.41	6.383E+00	2.480E+00	2.480E+00	28.44
AM-243	74.67	454	66.00*	5.068E+00	3.598E-01	3.598E-01	23.30
	86.72	218	0.34	6.090E+00	2.833E+01	2.833E+01	34.85
	117.66	-----	0.55	6.871E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.659E+00	-----	Line Not Found	-----
ANH-511	511.00	67	100.00*	2.843E+00	6.226E-02	6.226E-02	99.94

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	3.517E+01	3.517E+01	0.314E+01	8.94	
CD-109	464.00D	1.02	2.559E+00	2.622E+00	0.914E+00	34.85	
SN-126	1.00E+05Y	1.00	2.573E-01	2.573E-01	0.897E-01	34.85	
TL-208	1.41E+10Y	1.00	4.509E-01	4.509E-01	0.768E-01	17.03	
BI-211	7.04E+08Y	1.00	2.972E+00	2.972E+00	0.522E+00	17.57	
PB-212	1.41E+10Y	1.00	1.428E+00	1.428E+00	0.145E+00	10.14	
PO-212	1.41E+10Y	1.00	1.428E+00	1.428E+00	0.145E+00	10.14	
BI-214	1600.00Y	1.00	9.455E-01	9.455E-01	1.586E-01	16.77	
PB-214	1600.00Y	1.00	1.034E+00	1.034E+00	0.189E+00	18.33	
PO-214	1600.00Y	1.00	1.034E+00	1.034E+00	0.189E+00	18.33	
PO-216	1.41E+10Y	1.00	1.428E+00	1.428E+00	0.145E+00	10.14	
PO-218	1600.00Y	1.00	1.034E+00	1.034E+00	0.189E+00	18.33	
RA-224	1.41E+10Y	1.00	4.043E+00	4.043E+00	1.212E+00	29.99	
RA-226	1600.00Y	1.00	9.455E-01	9.455E-01	1.586E-01	16.77	
TH-228	1.91Y	1.02	1.428E+00	1.451E+00	0.147E+00	10.14	
TH-230	4.47E+09Y	1.00	9.455E-01	9.455E-01	1.586E-01	16.77	
TH-234	4.47E+09Y	1.00	1.589E+00	1.589E+00	1.728E+00	108.72	
U-234	4.47E+09Y	1.00	9.455E-01	9.455E-01	1.586E-01	16.77	
NP-237	2.14E+06Y	1.00	7.555E-01	7.555E-01	3.060E-01	40.51	
U-238	4.47E+09Y	1.00	1.589E+00	1.589E+00	1.728E+00	108.72	
AM-243	7380.00Y	1.00	3.598E-01	3.598E-01	0.839E-01	23.30	
ANH-511	1.00E+09Y	1.00	6.226E-02	6.226E-02	6.223E-02	99.94	

Total Activity : 6.240E+01 6.249E+01

Grand Total Activity : 6.240E+01 6.249E+01

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

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

Unidentified Energy Lines  
Sample ID : G246444005

Page : 4  
Acquisition date : 19-FEB-2010 20:40:26

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	89.86	198	463	1.37	179.53	163	30	2.75E-02	41.3	6.24E+00	T
0	185.74	232	341	1.48	371.16	367	10	3.22E-02	33.8	5.89E+00	T
0	209.61	174	310	1.20	418.87	414	12	2.42E-02	43.2	5.47E+00	T
0	269.95	114	212	1.88	539.45	533	11	1.59E-02	52.8	4.60E+00	T
0	327.80	51	148	1.09	655.08	652	8	7.02E-03	87.6	3.99E+00	T
0	338.06	261	207	1.04	675.60	670	12	3.62E-02	25.9	3.90E+00	T
0	463.79	65	147	0.78	926.93	919	14	9.00E-03	83.9	3.07E+00	T
0	567.62	117	168	2.84	1134.50	1126	16	1.63E-02	54.0	2.61E+00	T
0	727.27	74	52	1.59	1453.70	1449	8	1.03E-02	41.1	2.12E+00	T
0	795.85	73	107	1.52	1590.84	1583	17	1.02E-02	68.4	1.97E+00	T
0	911.48	247	78	1.66	1822.08	1816	15	3.44E-02	20.6	1.75E+00	T
0	971.05	64	169	1.00	1941.23	1930	13	8.92E-03	87.0	1.65E+00	
0	1409.03	29	13	1.63	2817.37	2810	14	3.97E-03	66.7	1.20E+00	T
0	1457.18	6	14	1.35	2913.72	2906	9	8.82E-04	****	1.17E+00	T
0	1661.08	23	0	1.42	3321.74	3315	13	3.19E-03	41.7	1.07E+00	
0	1847.70	19	13	2.23	3695.26	3687	13	2.66E-03	90.1	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]G246444005.CNF;1
* Acquisition date   : 19-FEB-2010 20:40:26 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 02:00:01.60 Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 3-FEB-2010 12:00:00. Nuclide Library : SOLID
* Sample ID          : G246444005 Analyst initials: MXRl
* Batch Number       : 950788 Sample Quantity : 1.41470E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID             : MSD Isotope      :
* LCS ID             : 1032-A LCS Isotope :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.517E+01	3.144E+00	4.073E-01	3.033E-02	86.346
CD-109	2.622E+00	9.140E-01	1.155E+00	1.034E-01	2.270
SN-126	2.573E-01	8.967E-02	1.138E-01	1.015E-02	2.261
TL-208	4.509E-01	7.677E-02	5.295E-02	3.601E-03	8.515
BI-211	2.972E+00	5.221E-01	3.127E-01	1.997E-02	9.503
PB-212	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
PO-212	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
BI-214	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
PB-214	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
PO-214	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
PO-216	1.428E+00	1.448E-01	8.666E-02	6.255E-03	16.477
PO-218	1.034E+00	1.895E-01	1.090E-01	8.986E-03	9.484
RA-224	4.043E+00	1.212E+00	9.857E-01	5.585E-02	4.102
RA-226	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
TH-228	1.451E+00	1.471E-01	8.809E-02	6.358E-03	16.477
TH-230	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746
TH-234	1.589E+00	1.728E+00	1.949E+00	3.410E-01	0.815
U-234	9.455E-01	1.586E-01	1.081E-01	8.500E-03	8.746

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	7.555E-01	3.060E-01	3.377E-01	7.578E-02	2.237
U-238	1.589E+00	1.728E+00	1.949E+00	3.410E-01	0.815
AM-243	3.598E-01	8.386E-02	8.608E-02	6.827E-03	4.180
ANH-511	6.226E-02	6.223E-02	4.535E-02	2.676E-03	1.373

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.295E-01		3.146E-01	5.442E-01	3.694E-02	0.422
NA-22	2.594E-03		4.260E-02	7.114E-02	4.745E-03	0.036
NA-24	1.345E+00		1.351E+00	Half-Life too short		
AL-26	2.096E-03		2.674E-02	4.427E-02	2.584E-03	0.047
TI-44	3.430E-01	+	5.709E-02	7.725E-02	6.306E-03	4.440
SC-46	-2.483E-02		3.968E-02	6.010E-02	5.222E-03	-0.413
V-48	3.223E-02		7.736E-02	1.289E-01	1.036E-02	0.250
CR-51	1.491E-01		3.669E-01	6.276E-01	4.061E-02	0.238
MN-52	-4.451E-02		2.605E-01	4.203E-01	3.032E-02	-0.106
MN-54	3.243E-03		3.569E-02	5.821E-02	4.630E-03	0.056
CO-56	-9.415E-04		3.996E-02	6.448E-02	5.232E-03	-0.015
CO-57	-1.242E-02		2.496E-02	3.980E-02	2.375E-03	-0.312
CO-58	-8.370E-02		4.092E-02	5.272E-02	4.040E-03	-1.588
FE-59	-7.519E-02		9.467E-02	1.475E-01	1.107E-02	-0.510
CO-60	1.191E-02		3.893E-02	6.653E-02	4.903E-03	0.179
ZN-65	-2.250E-02		1.122E-01	1.581E-01	1.011E-02	-0.142
GE-68	9.232E-01		1.287E+00	2.273E+00	1.573E-01	0.406
AS-73	3.537E-01		7.890E-01	1.323E+00	9.784E-02	0.267
AS-74	7.549E-02		9.336E-02	1.618E-01	9.583E-03	0.467
SE-75	-3.320E-02		4.471E-02	6.215E-02	3.614E-03	-0.534
BR-77	3.175E-01		1.404E+01	2.320E+01	1.371E+00	0.014
SR-82	-4.768E-01		3.823E-01	5.482E-01	3.947E-02	-0.870
RB-83	3.813E-02		6.286E-02	1.082E-01	6.396E-03	0.352
RB-84	2.197E-02		7.599E-02	1.257E-01	1.079E-02	0.175
KR-85	7.707E+00		8.091E+00	1.249E+01	7.377E-01	0.617
SR-85	4.003E-02		4.203E-02	6.490E-02	3.832E-03	0.617
RB-86	2.774E-01		8.511E-01	1.461E+00	1.012E-01	0.190
Y-88	1.128E-02		2.819E-02	4.973E-02	2.839E-03	0.227
ZR-88	6.613E-03		2.787E-02	4.710E-02	2.623E-03	0.140
Y-91	-6.278E-01		1.908E+01	3.169E+01	1.851E+00	-0.020
NB-94	-1.320E-03		3.382E-02	5.497E-02	3.462E-03	-0.024
NB-95	1.093E-02		4.313E-02	7.050E-02	4.982E-03	0.155
NB-95M	4.316E-01		1.559E-01	2.456E-01	1.819E-02	1.758
ZR-95	4.322E-02		7.499E-02	1.271E-01	1.018E-02	0.340
NB-97	-2.858E-01		1.804E-01	Half-Life too short		
ZR-97	1.319E+01		3.286E+00	Half-Life too short		
MO-99	-8.060E+00		1.563E+01	2.426E+01	3.445E+00	-0.332
TC-99M	-1.180E+12		6.340E+11	Half-Life too short		
RH-101	2.404E-03		3.209E-02	5.178E-02	2.809E-03	0.046

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RH-102	6.861E-03		2.832E-02	4.761E-02	2.779E-03	0.144
RU-103	2.778E-02		3.858E-02	6.664E-02	8.451E-03	0.417
RH-106	5.564E-03		2.929E-01	4.808E-01	5.666E-02	0.012
RU-106	5.564E-03		2.929E-01	4.808E-01	2.835E-02	0.012
AG-108M	-1.499E-02		3.155E-02	5.082E-02	3.165E-03	-0.295
AG-110M	-3.250E-02		3.800E-02	5.828E-02	3.616E-03	-0.558
IN-111	2.533E-01		1.515E+00	2.137E+00	1.215E-01	0.119
IN-113M	-6.669E-03		4.062E-02	6.703E-02	3.999E-03	-0.100
SN-113	-6.669E-03		4.062E-02	6.703E-02	3.999E-03	-0.100
IN-114M	1.352E-02		1.987E-01	2.805E-01	1.507E-02	0.048
CD-115	1.576E+01		1.530E+01	2.648E+01	1.567E+00	0.595
SN-117M	-2.659E-02		5.992E-02	9.519E-02	5.067E-03	-0.279
SB-122	1.334E+00		3.378E+00	4.989E+00	2.961E-01	0.267
I-123	-2.463E+01		1.429E+01	Half-Life too short		
TE-123M	-2.532E-02		2.939E-02	4.585E-02	2.476E-03	-0.552
I-124	3.090E-01		9.213E-01	1.351E+00	7.998E-02	0.229
SB-124	-6.401E-02		6.170E-02	7.622E-02	5.220E-03	-0.840
SB-125	2.285E-02		8.765E-02	1.479E-01	8.807E-03	0.154
TE-125M	-1.232E+00		9.800E+00	1.592E+01	1.407E+00	-0.077
I-126	-1.381E-01		1.863E-01	2.863E-01	1.682E-02	-0.482
SB-126	-3.236E-03		1.512E-01	2.315E-01	1.507E-02	-0.014
SB-127	1.790E+00		1.662E+00	2.920E+00	2.934E-01	0.613
XE-127	1.802E-02		4.856E-02	7.663E-02	4.181E-03	0.235
I-131	-4.674E-02		1.207E-01	1.970E-01	1.261E-02	-0.237
TE-132	-7.202E-01		9.317E-01	1.429E+00	2.079E-01	-0.504
BA-133	1.072E-02		4.580E-02	6.781E-02	7.815E-03	0.158
I-133	-5.930E-03		7.849E-03	Half-Life too short		
CS-134	1.310E-01	+	9.015E-02	9.421E-02	7.084E-03	1.390
CS-135	4.300E-01		1.626E-01	2.735E-01	2.087E-02	1.572
I-135	1.235E+11		6.504E+10	Half-Life too short		
CS-136	-2.825E-02		1.144E-01	1.876E-01	1.450E-02	-0.151
BA-137M	5.196E-02		3.840E-02	6.815E-02	3.968E-03	0.763
CS-137	5.493E-02		4.059E-02	7.204E-02	4.212E-03	0.763
CE-139	1.515E-02		3.050E-02	5.025E-02	2.623E-03	0.302
BA-140	9.356E-02		2.593E-01	4.354E-01	1.417E-01	0.215
LA-140	3.759E-02		8.947E-02	1.551E-01	1.049E-02	0.242
CE-141	-4.067E-02		6.709E-02	1.050E-01	6.048E-03	-0.387
CE-143	1.610E-03		2.379E-04	Half-Life too short		
CE-144	-1.129E-01		2.092E-01	3.317E-01	4.699E-02	-0.340
PM-144	-1.453E-02		3.515E-02	5.555E-02	3.461E-03	-0.262
PR-144	-9.853E-01		2.384E+00	3.767E+00	2.345E-01	-0.262
PM-146	3.120E-02		4.197E-02	7.264E-02	6.256E-03	0.430
ND-147	-5.243E-01		5.823E-01	8.895E-01	1.208E-01	-0.589
PM-149	8.431E+01		1.291E+02	2.179E+02	3.091E+01	0.387
EU-152	-4.869E-02		1.610E-01	1.501E-01	9.773E-03	-0.324
GD-153	2.783E-02		8.529E-02	1.242E-01	9.658E-03	0.224
EU-154	-1.078E-02		1.203E-01	1.981E-01	1.961E-02	-0.054
EU-155	7.291E-02		1.143E-01	1.892E-01	1.361E-02	0.385

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	8.465E-02		1.415E-01	2.404E-01	2.056E-02	0.352
HO-166M	-5.253E-02		5.822E-02	8.754E-02	5.607E-03	-0.600
TM-171	-3.069E+01		3.158E+01	4.356E+01	3.312E+00	-0.705
LU-176	7.856E-03		2.564E-02	3.835E-02	2.231E-03	0.205
LU-177	4.189E+00	+	1.825E+00	2.158E+00	1.185E-01	1.941
LU-177M	-1.792E-01		1.727E-01	2.691E-01	1.521E-02	-0.666
HF-181	-4.381E-03		4.178E-02	6.866E-02	4.018E-03	-0.064
W-181	-5.882E-02		4.217E-01	6.057E-01	4.583E-02	-0.097
TA-182	2.399E-02		2.049E-01	3.422E-01	2.063E-02	0.070
RE-183	-8.624E-03		1.114E-01	1.795E-01	9.458E-03	-0.048
RE-184	1.730E-01		2.263E-01	3.756E-01	2.147E-02	0.461
OS-185	1.724E-02		4.142E-02	6.993E-02	4.096E-03	0.247
RE-188	2.156E-01		1.757E-01	2.971E-01	1.597E-02	0.726
W-188	-3.623E+00		7.907E+00	1.121E+01	6.511E-01	-0.323
IR-192	-2.804E-02		3.233E-02	5.167E-02	3.019E-03	-0.543
AU-195	4.416E-02		2.544E-01	3.674E-01	2.804E-02	0.120
TL-200	-1.030E-04		4.727E-04	Half-Life too short		
TL-201	-9.074E-01		9.436E+00	1.518E+01	7.934E-01	-0.060
TL-202	7.154E-03		7.047E-02	1.177E-01	6.761E-03	0.061
HG-203	4.245E-02		4.381E-02	6.824E-02	4.196E-03	0.622
BI-207	1.311E-02		5.502E-02	9.338E-02	6.631E-03	0.140
TL-207	-3.918E-01		7.440E-01	1.041E+00	1.719E-01	-0.377
PO-209	2.689E+00		6.937E+00	1.160E+01	1.020E+00	0.232
BI-210	2.272E+00		3.179E+00	5.343E+00	4.073E-01	0.425
PB-210	2.272E+00		3.179E+00	5.343E+00	4.073E-01	0.425
PO-210	2.272E+00		3.178E+00	5.343E+00	3.483E-01	0.425
PB-211	-8.316E-01		1.081E+00	1.504E+00	9.371E-01	-0.553
BI-212	7.819E-01	+	3.276E-01	5.915E-01	4.924E-02	1.322
PO-215	-3.918E-01		7.440E-01	1.041E+00	1.719E-01	-0.377
RN-219	2.648E-01		3.987E-01	6.860E-01	9.277E-02	0.386
RN-220	-1.607E+01		2.458E+01	3.847E+01	2.283E+00	-0.418
RA-223	-3.918E-01		7.440E-01	1.041E+00	1.719E-01	-0.377
AC-227	-1.310E-01		3.792E-01	5.936E-01	8.269E-02	-0.221
TH-227	-1.310E-01		3.794E-01	5.936E-01	1.002E-01	-0.221
AC-228	1.358E+00	+	3.186E-01	4.455E-01	5.039E-02	3.048
RA-228	1.358E+00		3.186E-01	4.455E-01	5.039E-02	3.048
TH-229	2.529E-01		4.797E-01	7.900E-01	4.263E-02	0.320
PA-231	-7.535E-01		1.493E+00	2.380E+00	3.279E-01	-0.317
TH-231	-3.918E-01		7.440E-01	1.041E+00	1.719E-01	-0.377
U-231	3.533E-01		1.490E+00	2.159E+00	1.715E-01	0.164
TH-232	1.358E+00	+	3.186E-01	4.455E-01	5.039E-02	3.048
PA-233	-1.899E-02		5.789E-02	9.547E-02	5.894E-03	-0.199
PA-234	-2.578E-01		3.053E-01	4.441E-01	8.291E-02	-0.581
PA-234M	3.098E+00		4.802E+00	8.346E+00	7.769E-01	0.371
U-235	1.767E-01		2.159E-01	3.538E-01	5.737E-02	0.499
NP-236	-1.353E-01		8.185E-02	1.229E-01	6.511E-03	-1.101
NP-239	1.900E-02		1.914E-01	3.114E-01	1.947E-02	0.061
AM-241	-8.129E-02		1.662E-01	2.350E-01	1.935E-02	-0.346

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-5.559E-03		1.024E-01	1.657E-01	1.192E-02	-0.034
AM-246	1.503E-01		1.488E-01	2.676E-01	1.846E-02	0.562
CM-247	2.498E-02		3.572E-02	6.175E-02	3.464E-03	0.405
CF-249	1.662E-03		3.544E-02	5.924E-02	3.309E-03	0.028
CF-251	-9.501E-04		1.280E-01	2.065E-01	1.091E-02	-0.005

# 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]G246444005           *
* Acquisition date   : 19-FEB-2010 20:40:26 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 02:00:01.60 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID           : G246444005 Analyst initials: MXR1                 *
* Batch Number        : 950788 Sample Quantity : 1.4147E+02 GRAM          *
* Recovery             : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope                    *
* MSD DPM              : 0.000 MSD Isotope                               *
* LCS DPM              : 0.000 LCS Isotope                               *
* LCSD DPM             : 0.000 LCSD Isotope                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.517E+01	3.082E+00	2.046E-01	1.572E+00
CD-109	2.622E+00	8.957E-01	6.151E-01	4.570E-01
SN-126	2.573E-01	8.788E-02	6.061E-02	4.484E-02
TL-208	4.509E-01	7.524E-02	2.714E-02	3.839E-02
BI-211	2.972E+00	5.117E-01	1.620E-01	2.611E-01
PB-212	1.428E+00	1.419E-01	4.524E-02	7.238E-02
PO-212	1.428E+00	1.419E-01	4.524E-02	7.238E-02
BI-214	9.455E-01	1.554E-01	5.535E-02	7.930E-02
PB-214	1.034E+00	1.857E-01	5.645E-02	9.473E-02
PO-214	1.034E+00	1.857E-01	5.645E-02	9.473E-02
PO-216	1.428E+00	1.419E-01	4.524E-02	7.238E-02
PO-218	1.034E+00	1.857E-01	5.645E-02	9.473E-02
RA-224	4.043E+00	1.188E+00	5.145E-01	6.062E-01
RA-226	9.455E-01	1.554E-01	5.535E-02	7.930E-02
TH-228	1.451E+00	1.442E-01	4.598E-02	7.357E-02
TH-230	9.455E-01	1.554E-01	5.535E-02	7.930E-02
TH-234	1.589E+00	1.693E+00	1.045E+00	8.640E-01
U-234	9.455E-01	1.554E-01	5.535E-02	7.930E-02
NP-237	7.555E-01	2.999E-01	1.799E-01	1.530E-01
U-238	1.589E+00	1.693E+00	1.045E+00	8.640E-01
AM-243	3.598E-01	8.218E-02	4.599E-02	4.193E-02
ANH-511	6.226E-02	6.098E-02	2.331E-02	3.111E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.295E-01	3.083E-01	2.801E-01	1.573E-01 NOT IDENT.
NA-22	2.594E-03	4.175E-02	3.585E-02	2.130E-02 NOT IDENT.
NA-24	1.345E+06	2.647E+06	0.000E+00	1.351E+06 SHORT HLIF
AL-26	2.096E-03	2.620E-02	2.213E-02	1.337E-02 NOT IDENT.
TI-44	3.430E-01	5.594E-02	4.123E-02	2.854E-02 FAIL ABUN

SC-46	-2.483E-02	3.888E-02	3.052E-02	1.984E-02	FAIL ABUN
V-48	3.223E-02	7.582E-02	6.533E-02	3.868E-02	NOT IDENT.
CR-51	1.491E-01	3.595E-01	3.257E-01	1.834E-01	NOT IDENT.
MN-52	-4.451E-02	2.553E-01	2.112E-01	1.302E-01	NOT IDENT.
MN-54	3.243E-03	3.498E-02	2.960E-02	1.785E-02	NOT IDENT.
CO-56	-9.415E-04	3.916E-02	3.278E-02	1.998E-02	NOT IDENT.
CO-57	-1.242E-02	2.446E-02	2.106E-02	1.248E-02	NOT IDENT.
CO-58	-8.370E-02	4.010E-02	2.683E-02	2.046E-02	NOT IDENT.
FE-59	-7.519E-02	9.277E-02	7.457E-02	4.733E-02	NOT IDENT.
CO-60	1.191E-02	3.815E-02	3.349E-02	1.946E-02	NOT IDENT.
ZN-65	-2.250E-02	1.099E-01	7.990E-02	5.609E-02	NOT IDENT.
GE-68	9.232E-01	1.261E+00	1.150E+00	6.436E-01	NOT IDENT.
AS-73	3.537E-01	7.732E-01	7.113E-01	3.945E-01	NOT IDENT.
AS-74	7.549E-02	9.149E-02	8.286E-02	4.668E-02	NOT IDENT.
SE-75	-3.320E-02	4.381E-02	3.237E-02	2.235E-02	NOT IDENT.
BR-77	3.175E-01	1.375E+01	1.192E+01	7.018E+00	FAIL ABUN
SR-82	-4.768E-01	3.746E-01	2.792E-01	1.911E-01	NOT IDENT.
RB-83	3.813E-02	6.160E-02	5.558E-02	3.143E-02	NOT IDENT.
RB-84	2.197E-02	7.447E-02	6.384E-02	3.800E-02	NOT IDENT.
KR-85	7.707E+00	7.929E+00	6.419E+00	4.045E+00	NOT IDENT.
SR-85	4.003E-02	4.119E-02	3.335E-02	2.101E-02	NOT IDENT.
RB-86	2.774E-01	8.340E-01	7.390E-01	4.255E-01	NOT IDENT.
Y-88	1.128E-02	2.763E-02	2.486E-02	1.410E-02	NOT IDENT.
ZR-88	6.613E-03	2.731E-02	2.434E-02	1.393E-02	NOT IDENT.
Y-91	-6.278E-01	1.870E+01	1.599E+01	9.542E+00	NOT IDENT.
NB-94	-1.320E-03	3.314E-02	2.806E-02	1.691E-02	NOT IDENT.
NB-95	1.093E-02	4.227E-02	3.592E-02	2.156E-02	NOT IDENT.
NB-95M	4.316E-01	1.528E-01	1.282E-01	7.796E-02	NOT IDENT.
ZR-95	4.322E-02	7.349E-02	6.478E-02	3.750E-02	NOT IDENT.
NB-97	-2.858E+05	3.535E+05	0.000E+00	1.804E+05	SHORT HLIF
ZR-97	1.319E+07	6.441E+06	0.000E+00	3.286E+06	SHORT HLIF
MO-99	-8.060E+00	1.532E+01	1.237E+01	7.816E+00	NOT IDENT.
TC-99M	-1.180E+18	1.243E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.404E-03	3.145E-02	2.713E-02	1.604E-02	NOT IDENT.
RH-102	6.861E-03	2.775E-02	2.450E-02	1.416E-02	NOT IDENT.
RU-103	2.778E-02	3.781E-02	3.426E-02	1.929E-02	FAIL ABUN
RH-106	5.564E-03	2.871E-01	2.460E-01	1.465E-01	FAIL ABUN
RU-106	5.564E-03	2.871E-01	2.460E-01	1.465E-01	FAIL ABUN
AG-108M	-1.499E-02	3.091E-02	2.620E-02	1.577E-02	NOT IDENT.
AG-110M	-3.250E-02	3.724E-02	2.979E-02	1.900E-02	NOT IDENT.
IN-111	2.533E-01	1.485E+00	1.115E+00	7.576E-01	NOT IDENT.
IN-113M	-6.669E-03	3.981E-02	3.464E-02	2.031E-02	NOT IDENT.
SN-113	-6.669E-03	3.981E-02	3.464E-02	2.031E-02	NOT IDENT.
IN-114M	1.352E-02	1.947E-01	1.471E-01	9.936E-02	NOT IDENT.
CD-115	1.576E+01	1.499E+01	1.360E+01	7.650E+00	NOT IDENT.
SN-117M	-2.659E-02	5.872E-02	5.011E-02	2.996E-02	NOT IDENT.
SB-122	1.334E+00	3.310E+00	2.558E+00	1.689E+00	NOT IDENT.
I-123	-2.463E+07	2.801E+07	0.000E+00	1.429E+07	SHORT HLIF
TE-123M	-2.532E-02	2.881E-02	2.413E-02	1.470E-02	NOT IDENT.
I-124	3.090E-01	9.028E-01	6.920E-01	4.606E-01	NOT IDENT.
SB-124	-6.401E-02	6.046E-02	3.817E-02	3.085E-02	NOT IDENT.
SB-125	2.285E-02	8.589E-02	7.630E-02	4.382E-02	FAIL ABUN
TE-125M	-1.232E+00	9.604E+00	8.440E+00	4.900E+00	NOT IDENT.
I-126	-1.381E-01	1.825E-01	1.463E-01	9.314E-02	NOT IDENT.
SB-126	-3.236E-03	1.482E-01	1.181E-01	7.562E-02	FAIL ABUN
SB-127	1.790E+00	1.629E+00	1.491E+00	8.311E-01	NOT IDENT.
XE-127	1.802E-02	4.759E-02	4.014E-02	2.428E-02	NOT IDENT.
I-131	-4.674E-02	1.183E-01	1.020E-01	6.033E-02	NOT IDENT.
TE-132	-7.202E-01	9.131E-01	7.469E-01	4.658E-01	NOT IDENT.
BA-133	1.072E-02	4.488E-02	3.511E-02	2.290E-02	FAIL ABUN
I-133	-5.930E+03	1.538E+04	0.000E+00	7.849E+03	SHORT HLIF
CS-134	1.310E-01	8.835E-02	4.796E-02	4.507E-02	FAIL ABUN
CS-135	4.300E-01	1.593E-01	1.424E-01	8.129E-02	NOT IDENT.
I-135	1.235E+17	1.275E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.825E-02	1.121E-01	9.496E-02	5.718E-02	FAIL ABUN
BA-137M	5.196E-02	3.763E-02	3.483E-02	1.920E-02	NOT IDENT.
CS-137	5.493E-02	3.978E-02	3.682E-02	2.030E-02	NOT IDENT.
CE-139	1.515E-02	2.989E-02	2.642E-02	1.525E-02	NOT IDENT.
BA-140	9.356E-02	2.541E-01	2.235E-01	1.296E-01	NOT IDENT.
LA-140	3.759E-02	8.768E-02	7.778E-02	4.474E-02	FAIL ABUN
CE-141	-4.067E-02	6.575E-02	5.537E-02	3.354E-02	NOT IDENT.
CE-143	1.610E+03	4.662E+02	0.000E+00	2.379E+02	SHORT HLIF
CE-144	-1.129E-01	2.050E-01	1.752E-01	1.046E-01	NOT IDENT.
PM-144	-1.453E-02	3.445E-02	2.836E-02	1.758E-02	NOT IDENT.
PR-144	-9.853E-01	2.336E+00	1.923E+00	1.192E+00	NOT IDENT.
PM-146	3.120E-02	4.113E-02	3.742E-02	2.099E-02	NOT IDENT.
ND-147	-5.243E-01	5.706E-01	4.567E-01	2.911E-01	FAIL ABUN
PM-149	8.431E+01	1.265E+02	1.134E+02	6.456E+01	NOT IDENT.

EU-152	-4.869E-02	1.578E-01	7.779E-02	8.052E-02	FAIL ABUN
GD-153	2.783E-02	8.358E-02	6.600E-02	4.264E-02	NOT IDENT.
EU-154	-1.078E-02	1.179E-01	9.983E-02	6.016E-02	NOT IDENT.
EU-155	7.291E-02	1.120E-01	1.004E-01	5.716E-02	FAIL ABUN
TB-160	8.465E-02	1.387E-01	1.221E-01	7.077E-02	FAIL ABUN
HO-166M	-5.253E-02	5.706E-02	4.467E-02	2.911E-02	FAIL ABUN
TM-171	-3.069E+01	3.094E+01	2.333E+01	1.579E+01	NOT IDENT.
LU-176	7.856E-03	2.513E-02	1.992E-02	1.282E-02	FAIL ABUN
LU-177	4.189E+00	1.788E+00	1.130E+00	9.123E-01	FAIL ABUN
LU-177M	-1.792E-01	1.692E-01	1.389E-01	8.634E-02	FAIL ABUN
HF-181	-4.381E-03	4.094E-02	3.532E-02	2.089E-02	NOT IDENT.
W-181	-5.882E-02	4.132E-01	3.244E-01	2.108E-01	NOT IDENT.
TA-182	2.399E-02	2.008E-01	1.726E-01	1.024E-01	FAIL ABUN
RE-183	-8.624E-03	1.092E-01	9.446E-02	5.570E-02	FAIL ABUN
RE-184	1.730E-01	2.218E-01	1.959E-01	1.132E-01	NOT IDENT.
OS-185	1.724E-02	4.060E-02	3.576E-02	2.071E-02	NOT IDENT.
RE-188	2.156E-01	1.722E-01	1.565E-01	8.784E-02	NOT IDENT.
W-188	-3.623E+00	7.749E+00	5.829E+00	3.954E+00	FAIL ABUN
IR-192	-2.804E-02	3.168E-02	2.682E-02	1.616E-02	FAIL ABUN
AU-195	4.416E-02	2.493E-01	1.952E-01	1.272E-01	FAIL ABUN
TL-200	-1.030E+02	9.265E+02	0.000E+00	4.727E+02	SHORT HLIF
TL-201	-9.074E-01	9.248E+00	7.984E+00	4.718E+00	NOT IDENT.
TL-202	7.154E-03	6.906E-02	6.069E-02	3.523E-02	NOT IDENT.
HG-203	4.245E-02	4.293E-02	3.551E-02	2.190E-02	NOT IDENT.
BI-207	1.311E-02	5.392E-02	4.724E-02	2.751E-02	FAIL ABUN
TL-207	-3.918E-01	7.291E-01	5.399E-01	3.720E-01	FAIL ABUN
PO-209	2.689E+00	6.799E+00	5.892E+00	3.469E+00	NOT IDENT.
BI-210	2.272E+00	3.115E+00	2.881E+00	1.589E+00	NOT IDENT.
PB-210	2.272E+00	3.115E+00	2.881E+00	1.589E+00	NOT IDENT.
PO-210	2.272E+00	3.114E+00	2.881E+00	1.589E+00	NOT IDENT.
PB-211	-8.316E-01	1.060E+00	7.764E-01	5.407E-01	NOT IDENT.
BI-212	7.819E-01	3.210E-01	3.017E-01	1.638E-01	FAIL ABUN
PO-215	-3.918E-01	7.291E-01	5.399E-01	3.720E-01	FAIL ABUN
RN-219	2.648E-01	3.908E-01	3.543E-01	1.994E-01	FAIL ABUN
RN-220	-1.607E+01	2.409E+01	1.974E+01	1.229E+01	NOT IDENT.
RA-223	-3.918E-01	7.291E-01	5.399E-01	3.720E-01	FAIL ABUN
AC-227	-1.310E-01	3.716E-01	3.095E-01	1.896E-01	FAIL ABUN
TH-227	-1.310E-01	3.718E-01	3.095E-01	1.897E-01	FAIL ABUN
AC-228	1.358E+00	3.122E-01	2.261E-01	1.593E-01	FAIL ABUN
RA-228	1.358E+00	3.122E-01	2.261E-01	1.593E-01	FAIL ABUN
TH-229	2.529E-01	4.701E-01	4.142E-01	2.398E-01	FAIL ABUN
PA-231	-7.535E-01	1.463E+00	1.238E+00	7.464E-01	NOT IDENT.
TH-231	-3.918E-01	7.291E-01	5.399E-01	3.720E-01	FAIL ABUN
U-231	3.533E-01	1.460E+00	1.148E+00	7.450E-01	FAIL ABUN
TH-232	1.358E+00	3.122E-01	2.261E-01	1.593E-01	FAIL ABUN
PA-233	-1.899E-02	5.674E-02	4.956E-02	2.895E-02	FAIL ABUN
PA-234	-2.578E-01	2.992E-01	2.253E-01	1.527E-01	FAIL ABUN
PA-234M	3.098E+00	4.705E+00	4.228E+00	2.401E+00	NOT IDENT.
U-235	1.767E-01	2.116E-01	1.866E-01	1.079E-01	FAIL ABUN
NP-236	-1.353E-01	8.022E-02	6.468E-02	4.093E-02	NOT IDENT.
NP-239	1.900E-02	1.876E-01	1.649E-01	9.571E-02	FAIL ABUN
AM-241	-8.129E-02	1.629E-01	1.261E-01	8.310E-02	NOT IDENT.
CM-243	-5.559E-03	1.003E-01	8.796E-02	5.119E-02	FAIL ABUN
AM-246	1.503E-01	1.458E-01	1.353E-01	7.438E-02	NOT IDENT.
CM-247	2.498E-02	3.500E-02	3.189E-02	1.786E-02	FAIL ABUN
CF-249	1.662E-03	3.473E-02	3.062E-02	1.772E-02	NOT IDENT.
CF-251	-9.501E-04	1.255E-01	1.085E-01	6.401E-02	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 SAVAGE ROAD                          *
*                                     CHARLESTON ,SC 29417                      *
*                                     GAMMA SPECTROSCOPY BACKGROUND REPORT      *
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ENERGY	MDA COUNTS
46.50	359.5730
46.50	359.5730
46.50	359.5730
48.70	386.8404
49.72	411.6997
51.35	415.4184
52.39	384.6009
52.97	410.3169
53.15	410.4016
53.44	397.7993
54.07	402.0047
56.28	418.7213
56.28	421.6717
57.37	0.0000
57.53	430.4512
57.53	430.4525
57.60	430.4842
57.98	455.3461
57.98	455.3461
59.32	474.9376
59.32	474.9376
59.40	474.9780
59.54	475.0496
59.72	475.1406
60.01	465.8134
61.10	447.3806
61.14	447.3987
61.30	442.7303
63.00	473.2158
63.29	473.3576
63.29	473.3576
63.58	488.1595
64.28	513.8873
65.12	569.8868
65.20	569.9328
65.20	569.9328
66.05	587.9012
66.72	562.8566
66.83	562.9193
66.91	554.6155
67.20	554.7751
67.20	554.7751
67.75	519.9292
67.85	541.2068
68.90	495.9559
68.90	495.9559
69.30	496.1516
69.67	492.7441
70.82	507.6607
70.82	507.6607
70.83	539.5952
72.80	582.2023
72.87	540.4250
72.87	540.4250
74.67	541.3447
74.81	541.4169
74.81	541.4169
74.81	541.4169
74.81	541.4169
74.81	541.4169
74.81	541.4169
74.81	541.4169
74.97	541.4973
75.28	541.6540
75.70	541.8664
77.11	542.5758
77.11	542.5758

77.11	542.5758
77.11	542.5758
77.11	542.5758
77.11	542.5758
77.11	542.5758
78.38	518.5176
79.62	519.1022
79.80	519.1868
79.80	519.1868
80.11	519.3325
80.18	519.3640
80.30	519.4211
80.30	519.4211
80.57	519.5471
81.00	519.7478
81.07	519.7793
81.07	519.7793
81.07	519.7793
81.07	519.7793
82.60	520.4899
83.37	433.7468
83.78	433.9042
83.78	433.9042
83.78	433.9042
83.78	433.9042
84.21	434.0681
84.90	434.3304
85.43	434.5304
86.29	434.8549
86.50	434.9336
86.54	434.9484
86.59	434.9680
86.72	435.0172
86.79	435.0418
86.94	435.0992
87.30	435.2336
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87.30	435.2336
87.30	435.2336
87.30	435.2336
87.57	435.3352
87.88	435.4500
88.03	435.5057
88.36	435.6286
88.47	435.6696
89.95	436.2171
91.11	436.6417
92.29	437.0728
92.38	437.1056
92.38	437.1056
93.35	437.4564
94.00	437.6908
94.67	381.5583
94.67	381.5597
94.90	404.4652
94.90	404.4652
94.90	404.4652
94.90	404.4652
95.87	437.4285
95.87	437.4285
96.73	421.4010
97.43	369.3426
98.44	371.2775
98.44	371.2788
98.88	395.9515
99.55	402.4380
99.55	402.4380
99.86	409.3597
100.00	407.0661
100.10	407.0995
103.18	460.7087
103.76	426.0152
105.00	402.7905
105.31	408.0266
108.00	416.0764
109.28	426.7875

111.00	419.0809
111.00	419.0809
111.76	428.6147
112.95	377.3071
115.19	369.6461
116.30	332.6390
117.00	355.6173
117.00	355.6173
117.66	351.6383
121.11	358.7477
121.62	373.4398
121.78	373.4822
122.06	355.8669
122.32	358.0136
122.32	358.0136
122.32	358.0136
122.32	358.0136
123.07	338.4193
127.23	372.8192
129.76	355.6826
131.20	375.9267
133.02	395.2615
133.54	387.0091
135.34	400.0744
136.00	346.6722
136.25	346.7301
136.48	320.5116
140.51	396.1695
140.51	0.0000
142.18	361.7892
142.65	339.7420
143.76	330.4825
144.24	349.5965
144.24	349.5965
144.24	349.5965
144.24	349.5965
145.22	376.2374
145.44	380.5170
147.16	384.1061
152.43	394.9321
152.70	376.9464
153.22	382.3792
154.21	366.6704
154.21	366.6704
154.21	366.6704
154.21	366.6704
155.03	324.3208
156.02	310.6866
158.56	364.4500
159.00	0.0000
159.00	375.2058
160.31	394.7030
161.27	363.9775
162.32	338.5732
162.64	321.5463
163.35	320.6131
163.89	306.8184
165.85	328.5789
167.43	339.5986
171.28	332.8446
171.86	315.7710
172.10	309.3684
176.55	319.8496
176.60	322.0126
181.06	312.6758
184.41	321.9126
185.71	312.8327
186.00	312.8834
190.27	274.3321
192.34	311.6381
193.63	259.8272
197.04	290.7968
198.01	292.0352
198.60	284.4970
200.40	286.9500
201.83	322.1048
202.84	279.6699
205.31	287.0300

208.36	301.5060
208.81	305.0820
209.75	285.0554
209.75	285.0554
210.97	279.0904
215.65	270.9550
216.55	259.6357
218.09	274.1504
222.10	269.1815
223.80	268.3026
226.40	267.5382
227.00	294.1582
227.08	294.1704
227.20	279.8091
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228.18	296.5396
228.18	296.5396
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235.69	271.8495
236.00	271.8907
236.00	271.8907
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238.63	246.8757
238.63	246.8757
238.63	246.8757
239.00	246.9181
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241.98	247.2653
241.98	247.2653
241.98	247.2653
244.69	196.2786
245.39	199.9115
247.94	230.5276
248.90	237.5259
249.79	213.5096
252.40	212.6469
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252.85	191.4213
254.15	0.0000
256.20	224.2264
256.20	224.2264
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260.90	152.7966
262.80	200.9019
264.65	195.0661
268.24	148.7860
268.79	167.7633
269.46	167.8132
269.46	167.8132
269.46	167.8132
269.46	167.8132
271.23	203.1564
273.65	203.3707
276.40	189.0353
277.35	182.5733
277.60	182.5930
277.60	182.5930
278.00	181.1157
278.60	173.6137
279.20	182.7186
279.53	196.3370
280.46	185.8388
281.68	188.9598
283.67	207.7798
284.30	193.4083
285.00	190.7406
285.90	174.6589
286.10	174.6754
286.10	174.6754
287.40	190.9341
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290.67	200.3015
290.80	207.8998
291.72	197.3539
293.26	0.0000
293.70	186.8798
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295.21	159.6320

295.21	159.6320
295.96	159.6811
296.50	159.7174
297.23	159.7665
298.57	159.8541
299.80	161.4585
299.80	161.4585
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300.09	161.4779
300.09	161.4779
300.09	161.4779
300.12	161.4801
301.29	161.5577
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303.91	173.9363
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304.40	175.4971
304.84	175.5275
306.84	157.3394
308.46	155.9136
311.98	164.4016
316.51	179.4205
318.01	162.9558
319.02	156.5735
319.41	166.7301
320.08	166.7732
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323.87	196.8594
323.87	196.8594
323.87	196.8594
325.23	196.9635
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334.20	187.6116
334.30	187.6190
338.28	154.9643
338.28	154.9643
338.28	154.9643
338.28	154.9643
338.32	154.9663
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338.32	154.9663
340.50	154.7852
340.57	154.7892
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351.07	154.7800
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351.92	154.8286
351.92	154.8286
355.39	0.0000
356.01	143.2315
364.48	148.0479
366.43	141.5901
367.43	142.5779
367.94	0.0000
369.80	126.7405
374.96	138.2611
383.85	127.3766
387.95	122.8351
388.63	134.2049
391.69	129.6182
391.69	129.6182
392.90	120.2066
398.62	134.6694
400.65	139.5082
401.10	134.7839
401.81	131.0191
402.60	131.0545
404.84	175.8245
410.95	135.2363
411.60	142.8864
413.65	159.1882
414.70	147.8025
415.30	128.7576

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423.70	139.6375
427.08	122.5578
427.89	120.6751
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433.93	132.4291
439.47	118.2464
439.56	118.2509
439.89	122.1088
443.98	124.1956
444.90	112.6753
445.03	107.8643
445.03	107.8643
445.03	107.8643
445.03	107.8643
453.90	108.1691
463.38	115.2725
468.07	126.1105
473.00	121.4447
475.06	111.8007
475.35	111.8105
476.78	106.0235
477.59	102.1571
477.96	103.1417
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484.57	109.2000
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492.35	112.3875
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510.53	0.0000
510.84	109.0753
511.00	109.0800
511.85	108.1235
511.85	108.1235
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513.99	118.0276
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529.64	105.7174
529.87	0.0000
531.02	110.7012
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543.00	87.2760
546.56	0.0000
549.76	102.3462
552.65	97.4545
555.20	105.4850
563.23	118.0213
563.90	109.7288
568.70	83.2377
569.32	99.9023
569.50	99.9072
569.67	91.5861
573.80	85.0208
574.00	85.0249
574.64	91.7092
578.91	115.1853
579.30	0.0000
583.14	85.2345
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591.81	91.4621
592.07	91.4688
593.00	94.5072
595.88	85.5250
600.56	102.7570
602.52	0.0000
602.71	100.7983
602.71	100.7983
603.60	99.1424
604.41	109.2485
604.70	112.6181
609.31	99.9644

609.31	99.9644
609.31	99.9644
609.31	99.9644
610.33	104.3677
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614.37	79.1997
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621.84	80.0280
631.29	90.3776
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634.78	78.2595
635.90	73.1988
636.97	82.3724
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646.12	78.4851
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661.65	90.0453
664.57	0.0000
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666.33	98.3438
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677.61	61.6348
685.20	68.9514
692.80	91.7595
695.00	77.3666
696.49	103.1934
696.49	103.1934
697.00	95.9812
697.49	98.0569
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698.50	82.5938
699.00	79.5059
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717.42	69.4814
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722.78	77.8748
722.89	77.8766
722.95	77.8784
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724.18	77.9004
727.18	77.9553
733.00	67.6517
735.90	66.6563
739.58	84.4330
742.81	55.2864
744.21	69.9133
747.13	89.8003
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752.31	80.4966
753.82	84.7079
755.35	76.3666
756.15	80.5661
756.87	86.8582
763.93	113.1996
765.79	85.9839
766.42	77.6061
766.84	88.1016
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778.00	77.8066
778.57	70.4563
778.89	64.1513
783.80	64.2198
785.46	83.2007
792.07	82.6191

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796.30	69.6754
798.80	65.1354
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805.60	62.4109
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818.51	75.3144
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828.27	0.0000
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836.80	0.0000
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848.13	75.7876
856.28	0.0000
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860.37	53.5083
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867.82	50.0174
871.10	54.8184
873.19	55.7959
874.81	59.0337
875.33	0.0000
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880.51	69.8496
881.50	69.8623
883.24	63.4365
884.67	70.9838
889.25	72.1264
896.60	52.8269
898.02	61.4698
899.00	61.4823
903.28	67.1730
911.07	58.3862
911.07	58.3862
911.07	58.3862
919.63	40.2287
920.93	52.0008
925.00	50.9587
925.24	50.9610
926.50	53.1427
935.52	76.0532
937.48	80.4298
944.10	71.8266
946.00	72.9426
949.00	51.1986
962.29	76.4480
964.01	103.7856
966.15	89.2551
968.20	111.5227
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969.11	76.5488
969.11	76.5488
977.42	78.8590
980.50	58.0839
983.50	60.3093
989.30	61.4729
996.32	70.3484
1001.03	62.3416
1001.68	64.1838
1004.76	78.8998
1021.30	0.0000
1024.50	0.0000
1034.80	58.1191
1036.00	69.2047
1037.82	76.6136
1038.57	69.2383
1038.76	0.0000
1045.16	68.3964
1046.59	76.7351
1048.07	67.5078

1050.47	61.9865
1050.47	61.9865
1062.04	57.4792
1063.62	64.9158
1076.63	65.0639
1077.35	60.4244
1078.86	58.5831
1085.78	79.1376
1099.22	78.3911
1112.02	86.0479
1112.84	85.5914
1115.52	88.2394
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1120.29	81.4882
1120.29	81.4882
1120.29	81.4882
1120.51	59.4127
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1124.00	0.0000
1129.67	65.6706
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1147.95	0.0000
1167.94	84.0387
1173.22	82.2245
1175.09	82.2493
1177.93	79.4507
1189.05	71.0693
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1205.75	0.0000
1213.00	79.9121
1221.42	79.0688
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1235.34	95.4793
1236.41	0.0000
1238.25	74.5088
1246.25	67.9117
1260.41	0.0000
1271.85	53.7829
1274.45	56.6857
1274.54	53.8057
1291.56	53.9492
1298.22	0.0000
1312.09	41.5583
1325.50	46.4863
1325.50	46.4863
1332.49	39.7488
1333.61	39.7555
1360.21	37.9701
1362.66	0.0000
1365.15	39.9473
1368.21	27.2936
1368.53	0.0000
1376.25	35.1343
1384.27	42.9920
1394.10	26.4210
1395.20	32.2964
1407.95	38.6617
1434.06	30.5131
1436.60	21.6625
1457.56	0.0000
1460.81	16.9392
1489.15	16.8658
1509.49	18.9041
1596.49	23.1591
1620.62	13.1322
1678.03	0.0000
1691.02	17.3320
1691.02	17.3320
1706.46	0.0000
1750.46	0.0000
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1764.49	28.2277
1764.49	28.2277
1764.49	28.2277
1770.23	22.9513
1771.40	20.5998
1791.20	0.0000
1808.65	12.4175

1836.01

9.3442

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246444005

Total Uranium Activity	4.8102E+00	ug/g
Total Uranium Counting Unc.	5.0387E+00	ug/g
Total Uranium Tpu	2.5708E-06	ug/g
Total Uranium Mda	3.1092E+00	ug/g

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                                   *
*                               CHARLESTON ,SC 29417                             *
*                               GROSS GAMMA REPORT                               *
*
*****
*
*   BATCH ID      : 950788                SAMPLE ID   : G246444005                *
*   ANALYST       : MXR1                   DETECTOR    : GAM19                  *
*   SAMPLE DATE   : 3-FEB-2010 12:00:00.00 COUNT TIME  : 0 02:00:00.00          *
*   ANALYSIS DATE: 19-FEB-2010 20:40:26.29 SAMPLE ALQT: 141.470 GRAM          *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.071E+00
GROSS GAMMA ERROR (pCi/GRAM )   : 1.472E+00
GROSS GAMMA MDA (pCi/GRAM )     : 3.821E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.860E+00

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VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:43:33.03

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037552.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 20:41:37
Sample ID          : G1202037552      Sample quantity   : 1.58750E+02 GRAM
Detector name      : GAM21             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:25.04 0.3%
Energy tolerance  : 1.50000 keV        Analyst Initials : MXR1
Abundance limit   : 75.00000           Sensitivity       : 5.00000
Batch ID          : 950788             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	351.44*	11	19	1.47	702.63	699	8	1.56E-03	83.6	

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

## VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:43:35

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037552.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 20:41:37
Sample ID         : G1202037552 Sample quantity : 158.75 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA21 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:25.04 0.3%
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)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-211	72.87		-3.997E-01		3.653E-01	5.082E-01	4.254E-02	-0.786
	+	351.07 *	6.844E-02		1.146E-01	1.293E-01	1.167E-02	0.529

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	477.59	*	-8.595E-02		1.486E-01	2.270E-01	2.224E-02	-0.379
NA-22	1274.54	*	-1.292E-02		2.145E-02	2.772E-02	2.274E-03	-0.466
NA-24	1368.53	*	1.641E-05		2.145E-02	Half-Life too short		
AL-26	1129.67		-5.261E-01		7.022E-01	8.445E-01	7.109E-02	-0.623
	1808.65	*	7.548E-03		2.340E-02	4.224E-02	3.495E-03	0.179
K-40	1460.81	*	-1.061E-01		2.015E-01	3.199E-01	2.731E-02	-0.332
TI-44	67.85		1.088E-05		4.552E-03	7.504E-03	6.085E-04	0.001
	78.38	*	-7.217E-03		4.817E-03	6.367E-03	5.544E-04	-1.134
SC-46	889.25	*	-1.127E-02		2.025E-02	2.865E-02	2.548E-03	-0.393
	1120.51		-2.222E-02		2.404E-02	3.274E-02	2.766E-03	-0.679
V-48	944.10		1.194E-01		3.470E-01	6.192E-01	5.428E-02	0.193
	983.50	*	-1.536E-02		2.531E-02	3.472E-02	3.037E-03	-0.442
	1312.09		2.102E-02		3.052E-02	5.878E-02	4.789E-03	0.358
CR-51	320.08	*	-7.199E-02		1.390E-01	2.077E-01	1.931E-02	-0.347
MN-52	744.21		-5.288E-03		5.351E-02	8.399E-02	8.926E-03	-0.063
	848.13		-1.900E-02		1.478E+00	2.473E+00	2.352E-01	-0.008
	935.52		4.209E-02		5.055E-02	1.003E-01	8.791E-03	0.420
	1246.25		1.410E-01		1.253E+00	2.099E+00	1.725E-01	0.067
	1333.61		-5.333E-01		8.680E-01	1.061E+00	8.611E-02	-0.503
	1434.06	*	3.843E-02		6.563E-02	1.259E-01	1.040E-02	0.305
MN-54	834.83	*	-1.324E-02		1.943E-02	2.819E-02	2.733E-03	-0.469
CO-56	846.75	*	1.297E-02		1.722E-02	3.336E-02	3.180E-03	0.389
	977.42		1.394E+00		1.276E+00	2.635E+00	2.306E-01	0.529
	1037.82		1.821E-02		1.409E-01	2.394E-01	2.186E-02	0.076
	1175.09		9.494E-02		8.573E-01	1.439E+00	1.186E-01	0.066
	1238.25		3.686E-02		3.225E-02	6.746E-02	5.724E-03	0.546
	1360.21		1.642E-02		3.654E-01	6.223E-01	5.078E-02	0.026

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	1771.40			-3.293E-02	1.696E-01	2.573E-01	2.138E-02	-0.128
	122.06		*	4.395E-05	5.582E-03	8.827E-03	1.014E-03	0.005
	136.48			-6.695E-04	5.699E-02	8.904E-02	9.865E-03	-0.008
CO-58	810.76		*	1.783E-02	1.707E-02	3.452E-02	3.454E-03	0.517
FE-59	142.65			5.913E-01	6.270E-01	1.108E+00	1.119E-01	0.534
	192.34			-1.218E-01	2.675E-01	4.276E-01	5.700E-02	-0.285
	1099.22		*	-5.731E-03	3.408E-02	5.279E-02	4.871E-03	-0.109
CO-60	1291.56			-1.271E-02	5.871E-02	8.829E-02	8.294E-03	-0.144
	1173.22			-2.875E-03	2.142E-02	3.355E-02	2.765E-03	-0.086
	1332.49		*	-1.063E-02	1.608E-02	1.982E-02	1.609E-03	-0.536
ZN-65	1115.52		*	-7.743E-03	4.284E-02	6.592E-02	5.588E-03	-0.117
GE-68	1077.35		*	9.498E-02	5.589E-01	9.577E-01	8.220E-02	0.099
AS-73	53.44		*	1.054E-02	4.155E-02	7.194E-02	5.826E-03	0.146
AS-74	595.88		*	-2.301E-02	3.347E-02	4.699E-02	4.933E-03	-0.490
	634.78			-1.014E-01	1.411E-01	1.948E-01	2.111E-02	-0.521
	66.05			-1.299E-01	4.367E-01	6.913E-01	6.880E-02	-0.188
SE-75	96.73			2.618E-03	1.365E-01	2.202E-01	3.178E-02	0.012
	121.11			-1.197E-02	3.047E-02	4.501E-02	6.069E-03	-0.266
	136.00			3.589E-04	9.930E-03	1.563E-02	1.661E-03	0.023
	198.60			1.198E-01	5.806E-01	9.985E-01	9.482E-02	0.120
	264.65		*	6.464E-03	1.538E-02	2.670E-02	2.397E-03	0.242
	279.53			2.259E-02	3.767E-02	6.663E-02	6.150E-03	0.339
	303.91			-6.268E-01	7.065E-01	9.639E-01	1.128E-01	-0.650
	400.65			1.868E-02	1.079E-01	1.762E-01	1.886E-02	0.106
	87.88			3.197E-01	4.784E+00	7.627E+00	7.168E-01	0.042
BR-77	200.40			-3.669E+00	8.414E+00	1.345E+01	1.152E+00	-0.273
	239.00			-2.660E-02	5.979E-01	1.041E+00	9.242E-02	-0.026
	249.79			-3.275E+00	4.254E+00	6.355E+00	5.668E-01	-0.515
	281.68			1.981E+00	5.157E+00	8.897E+00	7.936E-01	0.223
	297.23			-1.010E+00	3.465E+00	5.426E+00	4.843E-01	-0.186
	303.76			-6.383E+00	9.650E+00	1.381E+01	1.231E+00	-0.462
	439.47			2.610E+00	9.645E+00	1.697E+01	1.468E+00	0.154
	484.57			-1.422E+00	1.739E+01	2.875E+01	2.662E+00	-0.049
	520.65		*	1.635E-01	8.034E-01	1.381E+00	1.340E-01	0.118
	574.64			-1.179E+01	1.808E+01	2.641E+01	2.718E+00	-0.446
	578.91			-4.209E+00	7.984E+00	1.206E+01	1.246E+00	-0.349
	585.48			-2.588E+01	1.749E+01	2.109E+01	2.192E+00	-1.227
	755.35			1.061E+01	1.066E+01	2.137E+01	2.252E+00	0.496
	817.79			-1.406E+00	9.172E+00	1.486E+01	1.472E+00	-0.095
	698.33			1.029E+01	1.542E+01	2.784E+01	3.038E+00	0.369
SR-82	776.49		*	1.169E-01	1.462E-01	2.771E-01	2.869E-02	0.422
RB-83	1395.20			-1.648E-01	3.613E+00	5.919E+00	4.860E-01	-0.028
	520.41		*	-3.824E-03	3.130E-02	5.100E-02	4.946E-03	-0.075
	529.64			-1.336E-02	4.114E-02	6.373E-02	6.249E-03	-0.210
	552.65			3.567E-02	8.939E-02	1.581E-01	1.590E-02	0.226
RB-84	881.50		*	-7.956E-03	3.172E-02	5.011E-02	4.519E-03	-0.159
KR-85	513.99		*	-1.237E+01	5.373E+00	6.411E+00	6.169E-01	-1.929
SR-85	513.99		*	-5.938E-02	2.580E-02	3.078E-02	2.962E-03	-1.929
RB-86	1076.63		*	1.062E-01	3.005E-01	5.359E-01	4.601E-02	0.198

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88	898.02			9.133E-03	2.104E-02	3.813E-02	3.351E-03	0.240
	1836.01	*		-9.983E-03	2.218E-02	2.841E-02	2.346E-03	-0.351
ZR-88	392.90	*		9.151E-03	1.141E-02	2.074E-02	1.653E-03	0.441
Y-91	1204.90	*		-2.266E+00	5.156E+00	6.646E+00	5.475E-01	-0.341
NB-94	702.63	*		7.580E-04	1.739E-02	2.835E-02	3.087E-03	0.027
	871.10			8.850E-03	2.033E-02	3.660E-02	3.360E-03	0.242
NB-95	765.79	*		-1.424E-03	1.407E-02	2.185E-02	2.283E-03	-0.065
NB-95M	235.69	*		-2.950E-02	4.145E-02	6.313E-02	6.361E-03	-0.467
ZR-95	724.18			2.723E-02	4.684E-02	8.337E-02	9.483E-03	0.327
	756.15	*		1.519E-02	2.952E-02	5.319E-02	5.989E-03	0.286
NB-97	657.90	*		-3.401E-05	2.952E-02	Half-Life	too short	
	1024.50			1.747E-03	2.952E-02	Half-Life	too short	
ZR-97	254.15			-2.432E-03	2.952E-02	Half-Life	too short	
	355.39			3.527E-04	2.952E-02	Half-Life	too short	
	507.63	*		-5.749E-03	2.952E-02	Half-Life	too short	
	602.52			3.888E-03	2.952E-02	Half-Life	too short	
	1021.30			3.546E-03	2.952E-02	Half-Life	too short	
	1147.95			4.886E-04	2.952E-02	Half-Life	too short	
	1362.66			2.668E-03	2.952E-02	Half-Life	too short	
	1750.46			-6.099E-05	2.952E-02	Half-Life	too short	
MO-99	140.51			-1.280E+00	1.584E+00	2.085E+00	5.889E-01	-0.614
	181.06			1.657E-01	9.184E-01	1.592E+00	2.889E-01	0.104
	366.43			-5.649E+00	7.754E+00	1.079E+01	9.052E-01	-0.523
	739.58	*		-1.122E-01	1.167E+00	1.834E+00	3.014E-01	-0.061
	778.00			-3.239E+00	3.861E+00	4.909E+00	5.075E-01	-0.660
TC-99M	140.51	*		-2.804E+02	3.861E+00	Half-Life	too short	
RH-101	127.23			3.238E-03	7.882E-03	1.313E-02	1.466E-03	0.247
	198.01	*		8.682E-03	1.135E-02	2.051E-02	1.751E-03	0.423
	325.23			-4.774E-02	9.158E-02	1.362E-01	1.201E-02	-0.351
RH-102	418.52			-8.244E-02	9.751E-02	1.371E-01	1.145E-02	-0.601
	475.06	*		2.508E-03	1.492E-02	2.562E-02	2.340E-03	0.098
	631.29			2.527E-03	2.299E-02	3.850E-02	4.161E-03	0.066
	697.49			1.113E-02	4.250E-02	7.194E-02	7.853E-03	0.155
	766.84			-1.942E-02	4.598E-02	6.536E-02	6.824E-03	-0.297
	1046.59			9.248E-04	6.009E-02	9.911E-02	8.579E-03	0.009
	1112.84			5.571E-02	8.646E-02	1.675E-01	1.420E-02	0.333
RU-103	497.08	*		-1.439E-02	1.737E-02	2.464E-02	3.612E-03	-0.584
	610.33			-1.475E-01	3.821E-01	5.948E-01	1.059E-01	-0.248
RH-106	511.85			-3.060E-01	1.525E-01	2.526E-01	2.424E-02	-1.212
	621.84	*		1.342E-02	1.367E-01	2.285E-01	3.383E-02	0.059
	1050.47			3.805E-01	1.152E+00	2.038E+00	1.763E-01	0.187
RU-106	511.85			-3.060E-01	1.525E-01	2.526E-01	2.424E-02	-1.212
	621.84	*		1.342E-02	1.367E-01	2.285E-01	2.451E-02	0.059
	1050.47			3.805E-01	1.152E+00	2.038E+00	1.763E-01	0.187
AG-108M	433.93	*		5.426E-04	1.369E-02	2.329E-02	2.076E-03	0.023
	614.37			4.989E-03	1.923E-02	3.294E-02	3.603E-03	0.151
	722.95			1.357E-02	2.498E-02	4.385E-02	4.844E-03	0.309
CD-109	88.03	*		-1.227E-02	1.335E-01	2.082E-01	1.959E-02	-0.059
AG-110M	657.75	*		-7.846E-03	1.768E-02	2.616E-02	2.935E-03	-0.300

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	677.61			3.073E-02	1.514E-01	2.557E-01	2.861E-02	0.120
	706.67			-1.521E-02	1.039E-01	1.628E-01	1.800E-02	-0.093
	763.93			-6.007E-03	6.341E-02	9.889E-02	1.055E-02	-0.061
	884.67			-5.530E-03	2.424E-02	3.840E-02	3.546E-03	-0.144
	937.48			-4.113E-02	5.454E-02	7.336E-02	6.656E-03	-0.561
	1384.27			-3.564E-02	7.532E-02	1.045E-01	8.828E-03	-0.341
IN-111	171.28			4.158E-03	5.967E-02	1.024E-01	8.399E-03	0.041
	245.39	*		4.752E-02	8.266E-02	1.460E-01	1.300E-02	0.325
IN-113M	391.69	*		-7.672E-03	1.728E-02	2.500E-02	2.059E-03	-0.307
SN-113	391.69	*		-7.672E-03	1.728E-02	2.500E-02	2.059E-03	-0.307
IN-114M	190.27	*		1.181E-02	5.132E-02	8.888E-02	7.510E-03	0.133
CD-115	260.90			-7.818E-01	6.531E+00	1.058E+01	9.456E-01	-0.074
	492.35			1.294E+00	2.287E+00	4.174E+00	3.906E-01	0.310
	527.90	*		8.843E-02	6.435E-01	1.098E+00	1.074E-01	0.081
SN-117M	156.02			3.871E-01	4.406E-01	8.219E-01	7.418E-02	0.471
	158.56	*		-4.610E-03	1.016E-02	1.644E-02	1.447E-03	-0.280
SB-122	563.90	*		-1.585E-01	1.905E-01	2.606E-01	2.653E-02	-0.608
	692.80			-5.533E-01	4.395E+00	6.930E+00	7.580E-01	-0.080
I-123	159.00	*		-3.044E-04	4.395E+00	Half-Life too short		
	528.96			-2.082E-02	4.395E+00	Half-Life too short		
TE-123M	159.00	*		-4.009E-03	7.294E-03	1.168E-02	1.030E-03	-0.343
I-124	602.71	*		4.714E-02	1.208E-01	2.109E-01	2.227E-02	0.224
	722.78			4.518E-01	9.162E-01	1.598E+00	1.722E-01	0.283
	1325.50			3.357E+00	6.593E+00	1.244E+01	1.011E+00	0.270
	1376.25			9.138E+00	6.020E+00	1.340E+01	1.097E+00	0.682
	1509.49			7.551E-02	3.177E+00	5.301E+00	4.413E-01	0.014
	1691.02			-7.355E-01	1.035E+00	1.242E+00	1.037E-01	-0.592
SB-124	602.71			7.192E-03	1.843E-02	3.218E-02	3.398E-03	0.224
	645.85			-1.555E-01	2.046E-01	2.682E-01	3.040E-02	-0.580
	709.31			1.137E+00	1.203E+00	2.313E+00	2.511E-01	0.491
	713.82			-2.477E-01	7.029E-01	1.036E+00	1.420E-01	-0.239
	722.78			9.992E-02	2.027E-01	3.535E-01	3.862E-02	0.283
	968.20			6.546E-02	1.014E+00	1.706E+00	1.494E-01	0.038
	1045.16			-4.794E-01	1.225E+00	1.820E+00	1.576E-01	-0.263
	1325.50			7.931E-01	1.557E+00	2.938E+00	2.388E-01	0.270
	1368.21			3.503E-01	6.776E-01	1.333E+00	1.758E-01	0.263
	1436.60			-5.192E-01	2.114E+00	3.264E+00	2.697E-01	-0.159
	1691.02	*		-3.837E-02	5.400E-02	6.479E-02	5.640E-03	-0.592
SB-125	427.89	*		-8.327E-03	3.371E-02	5.455E-02	4.722E-03	-0.153
	463.38			9.057E-02	1.084E-01	2.062E-01	1.986E-02	0.439
	600.56			6.201E-02	9.861E-02	1.769E-01	1.958E-02	0.351
	635.90			9.046E-02	1.262E-01	2.344E-01	2.674E-02	0.386
TE-125M	109.28	*		1.378E-01	1.839E+00	2.962E+00	3.558E-01	0.047
I-126	388.63			3.179E-03	5.911E-02	9.487E-02	7.597E-03	0.034
	666.33	*		-3.433E-02	6.556E-02	9.483E-02	1.046E-02	-0.362
	753.82			-4.817E-02	4.862E-01	7.612E-01	8.032E-02	-0.063
SB-126	223.80			-4.575E-01	9.194E-01	1.435E+00	1.261E-01	-0.319
	278.60			-1.081E-01	6.332E-01	1.013E+00	9.031E-02	-0.107
	296.50			6.799E-03	3.673E-01	6.001E-01	5.356E-02	0.011

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	414.70			-2.767E-03	2.012E-02	3.340E-02	2.770E-03	-0.083
	415.30			7.432E-02	1.642E+00	2.808E+00	2.331E-01	0.026
	555.20			-5.681E-01	1.395E+00	2.137E+00	2.156E-01	-0.266
	573.80			-1.854E-01	3.938E-01	5.971E-01	6.139E-02	-0.310
	593.00			-5.966E-02	2.911E-01	4.579E-01	4.793E-02	-0.130
	656.30			2.583E-01	1.143E+00	1.944E+00	2.139E-01	0.133
	666.33			-1.414E-02	2.700E-02	3.906E-02	4.310E-03	-0.362
	675.00			5.120E-01	6.549E-01	1.229E+00	1.353E-01	0.417
	695.00			-1.864E-02	3.000E-02	4.243E-02	4.636E-03	-0.439
	697.00			1.384E-02	1.029E-01	1.707E-01	1.863E-02	0.081
	720.50	*		-2.535E-02	6.550E-02	9.850E-02	1.063E-02	-0.257
	856.80			-2.965E-02	1.628E-01	2.622E-01	2.462E-02	-0.113
	989.30			-5.155E-02	4.926E-01	7.954E-01	6.955E-02	-0.065
	1034.80			-2.714E+00	2.795E+00	3.105E+00	2.695E-01	-0.874
	1213.00			1.410E-01	1.166E+00	1.965E+00	1.618E-01	0.072
SN-126	64.28			3.281E-03	4.539E-02	7.575E-02	1.122E-02	0.043
	86.94			-3.563E-03	5.586E-02	8.757E-02	3.635E-02	-0.041
	87.57	*		9.293E-04	1.347E-02	2.149E-02	2.015E-03	0.043
SB-127	61.10			6.083E-01	1.662E+00	2.872E+00	2.550E-01	0.212
	252.40			1.045E-01	5.612E-01	9.445E-01	3.939E-01	0.111
	290.80			4.594E-01	2.313E+00	3.891E+00	3.833E-01	0.118
	411.60			-5.206E-01	1.978E+00	2.990E+00	4.313E-01	-0.174
	444.90			1.891E-01	1.349E+00	2.326E+00	2.611E-01	0.081
	473.00			1.515E-01	2.836E-01	5.089E-01	6.049E-02	0.298
	543.00			1.622E+00	2.631E+00	4.784E+00	6.750E-01	0.339
	603.60			-1.384E-01	1.922E+00	3.115E+00	3.951E-01	-0.044
	685.20	*		-1.604E-01	2.108E-01	2.773E-01	3.312E-02	-0.578
	698.50			1.528E+00	2.611E+00	4.655E+00	7.536E-01	0.328
	722.20			1.518E+00	5.709E+00	9.624E+00	1.112E+00	0.158
	783.80			3.592E-01	6.057E-01	1.087E+00	1.343E-01	0.330
XE-127	57.60			7.501E-02	3.597E-01	6.162E-01	4.853E-02	0.122
	145.22			-1.315E-01	1.657E-01	2.243E-01	2.221E-02	-0.587
	172.10			1.754E-02	3.012E-02	5.449E-02	4.474E-03	0.322
	202.84	*		-5.292E-03	1.361E-02	2.188E-02	1.880E-03	-0.242
	374.96			-5.310E-02	7.569E-02	1.050E-01	8.667E-03	-0.506
I-131	80.18			5.155E-02	3.218E-01	5.370E-01	4.751E-02	0.096
	284.30			-2.656E-01	3.226E-01	4.591E-01	4.281E-02	-0.579
	364.48	*		1.988E-02	3.051E-02	5.351E-02	4.740E-03	0.371
	636.97			5.640E-01	4.236E-01	8.573E-01	9.613E-02	0.658
	722.89			1.286E+00	2.445E+00	4.284E+00	4.623E-01	0.300
TE-132	49.72			7.770E-02	2.208E-01	3.875E-01	3.574E-02	0.201
	111.76			-5.776E-01	1.793E+00	2.714E+00	3.103E-01	-0.213
	116.30			-8.140E-01	1.727E+00	2.538E+00	2.976E-01	-0.321
	228.16	*		-1.560E-02	5.998E-02	9.659E-02	1.439E-02	-0.161
BA-133	53.15			-5.876E-02	2.037E-01	3.277E-01	2.660E-02	-0.179
	79.62			1.897E-02	1.560E-01	2.589E-01	3.967E-02	0.073
	81.00			1.081E-03	1.333E-02	2.194E-02	3.516E-03	0.049
	276.40			8.517E-02	1.201E-01	2.160E-01	3.161E-02	0.394
	302.84			-5.775E-02	5.034E-02	6.411E-02	8.642E-03	-0.901

Sample ID : G1202037552

Acquisition date : 19-FEB-2010 20:41:37

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	356.01	*		1.631E-03	2.115E-02	3.064E-02	4.027E-03	0.053
	383.85			1.378E-02	1.266E-01	1.994E-01	2.443E-02	0.069
	510.53			-6.466E-04	1.266E-01	Half-Life	too short	
	529.87	*		-1.985E-06	1.266E-01	Half-Life	too short	
	706.58			-2.298E-04	1.266E-01	Half-Life	too short	
	856.28			2.065E-04	1.266E-01	Half-Life	too short	
	875.33			4.600E-05	1.266E-01	Half-Life	too short	
CS-134	1236.41			1.090E-03	1.266E-01	Half-Life	too short	
	1298.22			6.156E-04	1.266E-01	Half-Life	too short	
	475.35			4.639E-01	9.399E-01	1.685E+00	1.540E-01	0.275
	563.23			-7.694E-02	1.639E-01	2.457E-01	2.516E-02	-0.313
	569.32			1.597E-02	9.773E-02	1.657E-01	1.712E-02	0.096
	604.70			-1.865E-02	1.759E-02	2.311E-02	2.448E-03	-0.807
	795.84	*		1.376E-02	2.014E-02	3.748E-02	3.826E-03	0.367
CS-135	801.93			1.906E-02	1.712E-01	2.958E-01	2.997E-02	0.064
	1038.57			4.799E-01	1.907E+00	3.326E+00	2.885E-01	0.144
	1167.94			6.543E-01	1.070E+00	2.022E+00	1.671E-01	0.324
	1365.15			-6.658E-02	5.888E-01	9.486E-01	8.141E-02	-0.070
	268.24	*		-2.049E-02	5.360E-02	8.317E-02	8.517E-03	-0.246
	288.45			-7.026E+02	5.360E-02	Half-Life	too short	
	417.63			-7.834E+02	5.360E-02	Half-Life	too short	
I-135	546.56			3.102E+02	5.360E-02	Half-Life	too short	
	836.80			-3.605E+01	5.360E-02	Half-Life	too short	
	1038.76			3.245E+02	5.360E-02	Half-Life	too short	
	1124.00			-5.855E+02	5.360E-02	Half-Life	too short	
	1131.51			5.323E+01	5.360E-02	Half-Life	too short	
	1260.41	*		-1.527E+02	5.360E-02	Half-Life	too short	
	1457.56			-7.669E+02	5.360E-02	Half-Life	too short	
CS-136	1678.03			6.364E+02	5.360E-02	Half-Life	too short	
	1706.46			-2.669E+03	5.360E-02	Half-Life	too short	
	1791.20			-3.289E+02	5.360E-02	Half-Life	too short	
	66.91			5.275E-02	5.131E-02	9.522E-02	1.441E-02	0.554
	86.29			-3.807E-02	1.316E-01	2.008E-01	2.670E-02	-0.190
	153.22			-6.298E-02	1.258E-01	2.039E-01	2.082E-02	-0.309
	163.89			-1.764E-01	2.059E-01	3.147E-01	2.952E-02	-0.560
BA-137M	176.55			2.154E-02	7.498E-02	1.315E-01	1.155E-02	0.164
	273.65			3.190E-02	1.059E-01	1.812E-01	1.717E-02	0.176
	340.57			-1.521E-02	3.422E-02	5.095E-02	4.556E-03	-0.299
	818.51			-2.709E-03	2.162E-02	3.522E-02	3.487E-03	-0.077
	1048.07	*		7.097E-03	4.012E-02	6.865E-02	6.188E-03	0.103
	1235.34			-9.174E-02	1.813E-01	2.494E-01	2.883E-02	-0.368
	661.65	*		1.193E-02	1.507E-02	2.860E-02	3.159E-03	0.417
CS-137	661.65	*		1.261E-02	1.593E-02	3.023E-02	3.343E-03	0.417
CE-139	165.85	*		6.230E-03	8.002E-03	1.477E-02	1.200E-03	0.422
BA-140	162.64			5.532E-02	1.440E-01	2.564E-01	2.293E-02	0.216
	304.84			-1.384E-01	2.846E-01	4.153E-01	1.168E-01	-0.333
	423.70			5.683E-02	5.399E-01	9.295E-01	3.008E-01	0.061
	537.32	*		3.991E-02	7.566E-02	1.365E-01	4.571E-02	0.292
LA-140	328.77			-4.607E-02	8.060E-02	1.178E-01	1.092E-02	-0.391

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	432.53			3.077E-01	6.151E-01	1.118E+00	1.003E-01	0.275
	487.03			3.334E-02	4.689E-02	8.659E-02	8.473E-03	0.385
	751.79			-2.077E-01	5.299E-01	7.572E-01	8.582E-02	-0.274
	815.85			-4.978E-02	9.448E-02	1.365E-01	1.475E-02	-0.365
	867.82			-2.242E-01	5.260E-01	8.005E-01	7.729E-02	-0.280
	919.63			-2.978E-01	1.051E+00	1.639E+00	1.764E-01	-0.182
	925.24			7.087E-02	4.329E-01	7.449E-01	6.925E-02	0.095
	1596.49	*		6.232E-03	3.634E-02	6.315E-02	5.281E-03	0.099
CE-141	145.44	*		-1.178E-02	1.484E-02	2.007E-02	2.013E-03	-0.587
CE-143	57.37			8.317E-01	3.032E+00	5.237E+00	5.017E-01	0.159
	231.56			3.673E+00	3.650E+01	6.144E+01	1.950E+01	0.060
	293.26	*		2.322E-01	1.926E+00	3.196E+00	6.944E-01	0.073
+	350.59			2.318E+01	3.943E+01	5.808E+01	1.807E+01	0.399
	490.36			-5.922E+01	6.138E+01	8.057E+01	2.569E+01	-0.735
	664.57			-4.452E+00	2.663E+01	4.171E+01	1.382E+01	-0.107
	721.93			1.482E+01	3.517E+01	6.037E+01	1.811E+01	0.246
CE-144	80.11			4.765E-02	2.510E-01	4.206E-01	3.711E-02	0.113
	133.54	*		-1.441E-04	4.728E-02	7.409E-02	1.248E-02	-0.002
PM-144	476.78			-1.144E-02	3.158E-02	4.991E-02	4.951E-03	-0.229
	618.01			-2.702E-03	1.621E-02	2.572E-02	2.800E-03	-0.105
	696.49	*		-5.255E-03	1.906E-02	2.924E-02	3.193E-03	-0.180
	778.57			-6.910E-01	1.198E+00	1.648E+00	1.703E-01	-0.419
PR-144	696.49	*		-3.549E-01	1.287E+00	1.975E+00	2.156E-01	-0.180
	1489.15			-5.331E+00	8.031E+00	1.060E+01	8.810E-01	-0.503
PM-146	453.90	*		4.750E-03	1.962E-02	3.423E-02	3.735E-03	0.139
	633.02			-4.362E-01	6.474E-01	8.544E-01	3.242E-01	-0.511
	735.90			-3.158E-02	7.803E-02	1.132E-01	3.315E-02	-0.279
	747.13			9.231E-03	4.035E-02	6.851E-02	1.051E-02	0.135
ND-147	91.11			-4.635E-03	2.788E-02	4.395E-02	4.482E-03	-0.105
	319.41			2.642E-01	9.273E-01	1.562E+00	1.383E-01	0.169
	439.89			2.451E-01	1.605E+00	2.777E+00	2.404E-01	0.088
	531.02	*		2.201E-02	1.454E-01	2.490E-01	3.903E-02	0.088
PM-149	285.90	*		2.007E+00	4.542E+00	7.890E+00	1.239E+00	0.254
EU-152	121.78			-7.836E-03	1.696E-02	2.470E-02	3.081E-03	-0.317
	244.69			-7.429E-02	1.221E-01	1.870E-01	1.665E-02	-0.397
	344.27	*		2.032E-03	3.559E-02	5.780E-02	5.301E-03	0.035
	443.98			9.138E-02	4.122E-01	7.192E-01	6.267E-02	0.127
	778.89			-9.197E-02	1.376E-01	1.832E-01	1.892E-02	-0.502
	867.32			-4.159E-01	4.469E-01	5.907E-01	5.456E-02	-0.704
	964.01			4.579E-02	1.374E-01	2.434E-01	2.133E-02	0.188
	1085.78			9.684E-02	1.862E-01	3.448E-01	2.952E-02	0.281
	1112.02			5.505E-02	1.274E-01	2.339E-01	1.984E-02	0.235
	1407.95			-1.043E-02	8.922E-02	1.431E-01	1.177E-02	-0.073
GD-153	69.67			-4.784E-02	1.543E-01	2.418E-01	1.983E-02	-0.198
	83.37			9.661E-01	2.241E+00	3.832E+00	3.469E-01	0.252
	97.43	*		-3.411E-03	1.545E-02	2.313E-02	2.285E-03	-0.147
	103.18			8.122E-03	1.951E-02	3.321E-02	3.391E-03	0.245
EU-154	123.07			-5.529E-04	1.152E-02	1.804E-02	2.456E-03	-0.031
	247.94			-4.115E-02	1.321E-01	2.098E-01	2.454E-02	-0.196

Sample ID : G1202037552

Acquisition date : 19-FEB-2010 20:41:37

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	591.81			8.935E-02	2.925E-01	5.078E-01	6.645E-02	0.176
	723.30			7.737E-02	9.852E-02	1.798E-01	2.070E-02	0.430
	756.87			1.765E-01	3.436E-01	6.186E-01	8.298E-02	0.285
	873.19			2.310E-02	1.792E-01	3.067E-01	3.870E-02	0.075
	996.32			-2.632E-02	1.786E-01	2.841E-01	5.063E-02	-0.093
	1004.76			3.943E-02	9.203E-02	1.686E-01	1.976E-02	0.234
	1274.45	*		-5.569E-02	6.484E-02	7.557E-02	8.305E-03	-0.737
	48.70			-4.303E-02	9.483E-02	1.495E-01	1.265E-02	-0.288
	60.01			1.966E-01	4.160E-01	7.292E-01	5.695E-02	0.270
	86.54			4.545E-04	1.628E-02	2.586E-02	2.425E-03	0.018
TB-160	105.31	*		-1.209E-02	2.079E-02	2.990E-02	3.117E-03	-0.405
	86.79			-5.459E-03	4.154E-02	6.466E-02	6.021E-03	-0.084
	197.04			1.154E-01	1.815E-01	3.244E-01	2.767E-02	0.356
	215.65			1.392E-01	1.992E-01	3.628E-01	3.163E-02	0.384
	298.57			1.665E-02	4.136E-02	7.087E-02	6.324E-03	0.235
	879.36	*		1.060E-02	6.777E-02	1.170E-01	1.059E-02	0.091
	962.29			7.900E-02	2.601E-01	4.561E-01	3.997E-02	0.173
	966.15			-3.028E-03	8.603E-02	1.414E-01	1.239E-02	-0.021
	1177.93			-7.769E-02	1.355E-01	1.758E-01	1.449E-02	-0.442
	1271.85			3.492E-02	2.802E-01	4.703E-01	3.855E-02	0.074
HO-166M	80.57			-8.571E-03	3.509E-02	5.514E-02	4.883E-03	-0.155
	184.41			-2.555E-03	1.154E-02	1.789E-02	1.498E-03	-0.143
	280.46			1.551E-02	3.040E-02	5.325E-02	4.749E-03	0.291
	410.95			-2.074E-02	1.174E-01	1.800E-01	1.483E-02	-0.115
	711.68	*		-9.925E-03	2.918E-02	4.338E-02	4.703E-03	-0.229
	752.31			-6.779E-02	1.140E-01	1.498E-01	1.582E-02	-0.453
	810.29			2.702E-02	2.826E-02	5.614E-02	5.611E-03	0.481
	51.35			-9.260E-01	1.484E+00	2.269E+00	1.870E-01	-0.408
	52.39			-1.939E-01	7.608E-01	1.226E+00	1.001E-01	-0.158
	59.40			3.673E-01	2.094E+00	3.555E+00	2.773E-01	0.103
LU-176	66.72	*		1.375E+00	2.756E+00	4.832E+00	3.894E-01	0.284
	88.36			-3.040E-02	3.268E-02	4.492E-02	4.233E-03	-0.677
	201.83			-2.226E-03	9.271E-03	1.518E-02	1.303E-03	-0.147
	306.84	*		5.143E-03	8.435E-03	1.504E-02	1.340E-03	0.342
	401.10			1.007E-01	2.862E+00	4.564E+00	3.693E-01	0.022
	112.95			-6.687E-02	2.003E-01	3.028E-01	3.280E-02	-0.221
	208.36	*		-3.192E-02	1.646E-01	2.696E-01	2.332E-02	-0.118
	52.97			-2.997E-02	8.815E-02	1.408E-01	1.144E-02	-0.213
	54.07			3.666E-02	4.574E-02	8.457E-02	6.816E-03	0.433
	61.30			1.479E-02	1.332E-01	2.237E-01	1.756E-02	0.066
LU-177	121.62			-6.640E-02	8.705E-02	1.197E-01	1.370E-02	-0.555
	147.16			4.404E-02	1.701E-01	2.748E-01	2.680E-02	0.160
	171.86			8.132E-02	1.299E-01	2.363E-01	1.939E-02	0.344
	218.09			-1.844E-01	2.276E-01	3.330E-01	2.910E-02	-0.554
	268.79			1.833E-02	2.477E-01	4.116E-01	3.678E-02	0.045
	319.02			1.522E-02	1.023E-01	1.693E-01	1.499E-02	0.090
	367.43			-2.837E-01	3.718E-01	5.088E-01	4.259E-02	-0.558
	413.65	*		6.965E-03	7.623E-02	1.224E-01	1.013E-02	0.057
	56.28			-1.484E-02	5.521E-02	8.858E-02	7.031E-03	-0.168
HF-181								

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		57.53		7.019E-03	3.077E-02	5.284E-02	4.163E-03	0.133
		65.20		-3.864E-02	7.967E-02	1.229E-01	9.826E-03	-0.314
		133.02		4.885E-03	1.346E-02	2.236E-02	2.411E-03	0.218
		136.25		-1.376E-02	1.130E-01	1.737E-01	1.834E-02	-0.079
		345.85		9.773E-03	7.026E-02	1.154E-01	9.977E-03	0.085
		482.03	*	9.501E-03	1.707E-02	3.109E-02	2.868E-03	0.306
W-181		56.28		-6.139E-03	2.311E-02	3.710E-02	2.945E-03	-0.165
		57.53		2.946E-03	1.288E-02	2.212E-02	1.743E-03	0.133
		65.20	*	-1.605E-02	3.309E-02	5.106E-02	4.081E-03	-0.314
TA-182		67.75		5.011E-03	9.955E-03	1.753E-02	1.421E-03	0.286
		100.10		-2.386E-02	3.158E-02	4.141E-02	4.153E-03	-0.576
		152.43		5.543E-03	9.655E-02	1.509E-01	1.408E-02	0.037
		222.10		7.536E-02	1.104E-01	1.985E-01	1.741E-02	0.380
		1001.68		-6.711E-01	9.140E-01	1.199E+00	1.047E-01	-0.560
		1121.28		-5.135E-02	6.614E-02	9.445E-02	7.979E-03	-0.544
		1189.05		7.549E-02	1.259E-01	2.371E-01	1.954E-02	0.318
		1221.42	*	3.365E-03	7.920E-02	1.297E-01	1.067E-02	0.026
		1230.97		-8.917E-02	1.773E-01	2.376E-01	1.955E-02	-0.375
RE-183		57.98		-6.096E-03	1.321E-02	2.055E-02	1.614E-03	-0.297
		59.32		9.084E-04	8.045E-03	1.356E-02	1.058E-03	0.067
		67.20		1.424E-02	1.663E-02	3.062E-02	2.474E-03	0.465
		162.32	*	1.494E-02	2.794E-02	5.048E-02	4.271E-03	0.296
		208.81		9.284E-02	2.605E-01	4.559E-01	3.945E-02	0.204
		291.72		-7.602E-03	3.113E-01	5.061E-01	4.518E-02	-0.015
RE-184		57.98		-2.329E-02	5.047E-02	7.850E-02	6.169E-03	-0.297
		59.32		3.468E-03	3.072E-02	5.178E-02	4.040E-03	0.067
		67.20		5.437E-02	6.352E-02	1.170E-01	9.451E-03	0.465
		161.27		5.033E-02	8.839E-02	1.608E-01	1.376E-02	0.313
		216.55		-2.522E-02	7.214E-02	1.147E-01	1.001E-02	-0.220
		252.85	*	3.147E-02	9.188E-02	1.576E-01	1.407E-02	0.200
		318.01		3.514E-02	1.788E-01	2.978E-01	2.639E-02	0.118
		792.07		-2.233E-01	4.648E-01	6.498E-01	6.626E-02	-0.344
		903.28		3.612E-01	4.694E-01	9.070E-01	7.938E-02	0.398
		920.93		4.994E-02	2.379E-01	4.130E-01	3.619E-02	0.121
OS-185		59.72		9.645E-03	2.323E-02	4.049E-02	3.159E-03	0.238
		61.14		5.034E-03	1.393E-02	2.406E-02	1.887E-03	0.209
		69.30		-9.721E-03	2.640E-02	4.097E-02	3.352E-03	-0.237
		592.07		6.563E-01	1.074E+00	1.970E+00	2.060E-01	0.333
		646.12	*	-9.504E-03	1.688E-02	2.342E-02	2.559E-03	-0.406
		717.42		2.051E-01	4.668E-01	8.153E-01	8.813E-02	0.252
		874.81		5.666E-02	3.504E-01	6.024E-01	5.494E-02	0.094
		880.27		-1.012E-01	3.997E-01	6.328E-01	5.718E-02	-0.160
RE-188		155.03	*	-1.170E-02	4.287E-02	7.132E-02	6.498E-03	-0.164
		477.96		-6.654E-01	1.446E+00	2.255E+00	2.068E-01	-0.295
		633.10		-8.099E-01	1.198E+00	1.642E+00	1.778E-01	-0.493
W-188		63.58		1.822E+00	4.455E+00	7.738E+00	6.135E-01	0.236
		227.08		4.000E-01	3.667E+00	6.199E+00	5.459E-01	0.065
		290.67	*	6.007E-01	2.341E+00	3.971E+00	3.546E-01	0.151
IR-192		295.96		-2.942E-02	4.156E-02	6.266E-02	5.630E-03	-0.469

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AU-195	308.46			1.044E-02	3.478E-02	5.898E-02	5.274E-03	0.177
	316.51	*		-2.141E-03	1.258E-02	1.983E-02	1.762E-03	-0.108
	468.07			-1.824E-02	2.818E-02	4.220E-02	4.066E-03	-0.432
	604.41			-2.384E-01	2.269E-01	2.968E-01	4.271E-02	-0.803
	612.46			-1.657E-01	3.172E-01	4.667E-01	5.464E-02	-0.355
	65.12			-7.675E-03	1.545E-02	2.380E-02	1.902E-03	-0.322
	66.83			9.060E-03	8.349E-03	1.569E-02	1.265E-03	0.577
	75.70			-1.600E-02	2.503E-02	3.874E-02	3.308E-03	-0.413
	98.88	*		-3.787E-03	4.153E-02	6.293E-02	6.267E-03	-0.060
	129.76			1.653E-01	6.464E-01	1.056E+00	1.162E-01	0.157
TL-200	367.94	*		-1.495E-06	6.464E-01	Half-Life	too short	
	579.30			-1.904E-05	6.464E-01	Half-Life	too short	
	828.27			2.406E-06	6.464E-01	Half-Life	too short	
	1205.75			-7.881E-06	6.464E-01	Half-Life	too short	
TL-201	68.90			-7.118E-02	1.107E-01	1.644E-01	1.342E-02	-0.433
	70.82			1.356E-02	6.265E-02	1.062E-01	8.771E-03	0.128
	80.30			5.719E-02	1.367E-01	2.371E-01	2.095E-02	0.241
	135.34			7.755E-01	1.519E+00	2.560E+00	2.720E-01	0.303
	167.43	*		3.793E-01	4.472E-01	8.334E-01	6.787E-02	0.455
TL-202	68.90			-1.866E-02	2.902E-02	4.310E-02	3.517E-03	-0.433
	70.82			3.545E-03	1.638E-02	2.776E-02	2.293E-03	0.128
	80.30			1.495E-02	3.574E-02	6.200E-02	5.479E-03	0.241
	439.56	*		4.523E-03	2.013E-02	3.519E-02	3.045E-03	0.129
HG-203	70.83			1.982E-02	9.220E-02	1.562E-01	2.090E-02	0.127
	72.87			-7.244E-02	6.660E-02	9.211E-02	1.201E-02	-0.786
	82.60			6.389E-03	1.586E-01	2.591E-01	3.623E-02	0.025
	279.20	*		7.308E-04	1.409E-02	2.323E-02	2.127E-03	0.031
BI-207	72.80			-2.366E-02	2.124E-02	2.944E-02	2.463E-03	-0.804
	74.97			-4.017E-03	1.471E-02	2.382E-02	2.023E-03	-0.169
	84.90			-2.628E-02	3.188E-02	4.632E-02	4.247E-03	-0.567
	569.67			2.506E-03	1.533E-02	2.598E-02	2.660E-03	0.096
TL-207	1063.62	*		6.363E-03	2.052E-02	3.682E-02	3.173E-03	0.173
	1770.23			-1.029E-01	3.833E-01	5.692E-01	4.729E-02	-0.181
	81.07			4.282E-03	2.973E-02	4.934E-02	4.386E-03	0.087
	83.78			1.419E-02	2.049E-02	3.587E-02	3.259E-03	0.396
	94.90			3.155E-03	4.023E-02	6.550E-02	6.382E-03	0.048
	122.32			-6.790E-02	4.117E-01	6.330E-01	7.566E-02	-0.107
	144.24			-4.967E-02	1.781E-01	2.652E-01	2.884E-02	-0.187
	154.21			-6.335E-02	1.073E-01	1.719E-01	1.717E-02	-0.369
	269.46			2.767E-02	5.930E-02	1.040E-01	9.469E-03	0.266
	323.87	*		1.046E-01	2.703E-01	4.604E-01	8.197E-02	0.227
TL-208	338.28			5.011E-01	3.596E-01	6.942E-01	8.595E-02	0.722
	445.03			1.134E-01	9.651E-01	1.658E+00	2.018E-01	0.068
	277.35			-2.785E-02	1.370E-01	2.182E-01	2.738E-02	-0.128
	510.84			-4.867E-02	1.424E-01	2.666E-01	3.386E-02	-0.183
	583.14	*		1.816E-02	1.990E-02	3.704E-02	4.035E-03	0.490
	860.37			5.235E-02	1.514E-01	2.699E-01	2.679E-02	0.194
PO-209	260.50			-3.999E-01	3.299E+00	5.343E+00	4.775E-01	-0.075
	262.80			3.937E+00	9.611E+00	1.667E+01	1.490E+00	0.236

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	896.60	*		-1.526E-01	3.876E+00	6.415E+00	5.626E-01	-0.024
BI-210	46.50	*		5.805E-02	1.069E-01	1.926E-01	1.837E-02	0.301
PB-210	46.50	*		5.805E-02	1.069E-01	1.926E-01	1.837E-02	0.301
PO-210	46.50	*		5.805E-02	1.068E-01	1.926E-01	1.672E-02	0.301
PB-211	404.84	*		-1.168E-01	4.222E-01	6.250E-01	3.912E-01	-0.187
	427.08			-6.999E-01	9.084E-01	1.139E+00	7.075E-01	-0.615
	831.96			4.445E-01	7.255E-01	1.252E+00	7.867E-01	0.355
BI-212	727.18	*		-2.110E-01	1.704E-01	2.004E-01	2.383E-02	-1.053
	785.46			1.508E-01	9.600E-01	1.585E+00	1.626E-01	0.095
	1620.62			2.944E-02	6.589E-01	1.103E+00	9.222E-02	0.027
PB-212	74.81			-1.380E-02	5.056E-02	8.187E-02	1.033E-02	-0.169
	77.11			-2.521E-02	2.826E-02	4.206E-02	3.628E-03	-0.599
	87.30			1.958E-03	6.104E-02	9.682E-02	1.326E-02	0.020
	238.63	*		-3.835E-03	2.250E-02	3.880E-02	3.858E-03	-0.099
	300.09			1.424E-01	3.065E-01	5.284E-01	5.641E-02	0.269
PO-212	74.81			-1.380E-02	5.056E-02	8.187E-02	1.033E-02	-0.169
	77.11			-2.521E-02	2.826E-02	4.206E-02	3.628E-03	-0.599
	87.30			1.958E-03	6.104E-02	9.682E-02	1.326E-02	0.020
	115.19			-1.463E-01	8.613E-01	1.333E+00	1.465E-01	-0.110
	238.63	*		-3.835E-03	2.250E-02	3.880E-02	3.858E-03	-0.099
	300.09			1.424E-01	3.065E-01	5.284E-01	5.641E-02	0.269
BI-214	609.31	*		-6.452E-03	3.881E-02	6.279E-02	7.420E-03	-0.103
	1120.29			-1.441E-01	1.465E-01	1.945E-01	2.088E-02	-0.741
	1764.49			-9.773E-02	2.166E-01	3.379E-01	2.809E-02	-0.289
PB-214	74.81			-2.377E-02	8.710E-02	1.411E-01	1.589E-02	-0.169
	77.11			-4.321E-02	4.856E-02	7.210E-02	8.298E-03	-0.599
	87.30			3.354E-03	1.046E-01	1.659E-01	2.010E-02	0.020
	241.98			-5.114E-02	1.340E-01	2.014E-01	2.117E-02	-0.254
	295.21			-5.042E-02	5.660E-02	8.265E-02	9.006E-03	-0.610
PO-214	351.92	*		2.381E-02	3.989E-02	6.499E-02	6.770E-03	0.366
	74.81			-2.377E-02	8.710E-02	1.411E-01	1.589E-02	-0.169
	77.11			-4.321E-02	4.856E-02	7.210E-02	8.298E-03	-0.599
	87.30			3.354E-03	1.046E-01	1.659E-01	2.010E-02	0.020
	241.98			-5.114E-02	1.340E-01	2.014E-01	2.117E-02	-0.254
	295.21			-5.042E-02	5.660E-02	8.265E-02	9.006E-03	-0.610
PO-215	351.92	*		2.381E-02	3.989E-02	6.499E-02	6.770E-03	0.366
	81.07			4.282E-03	2.973E-02	4.934E-02	4.386E-03	0.087
	83.78			1.419E-02	2.049E-02	3.587E-02	3.259E-03	0.396
	94.90			3.155E-03	4.023E-02	6.550E-02	6.382E-03	0.048
	122.32			-6.790E-02	4.117E-01	6.330E-01	7.566E-02	-0.107
	144.24			-4.967E-02	1.781E-01	2.652E-01	2.884E-02	-0.187
	154.21			-6.335E-02	1.073E-01	1.719E-01	1.717E-02	-0.369
	269.46			2.767E-02	5.930E-02	1.040E-01	9.469E-03	0.266
	323.87	*		1.046E-01	2.703E-01	4.604E-01	8.197E-02	0.227
	338.28			5.011E-01	3.596E-01	6.942E-01	8.595E-02	0.722
	445.03			1.134E-01	9.651E-01	1.658E+00	2.018E-01	0.068
PO-216	74.81			-1.380E-02	5.056E-02	8.187E-02	1.033E-02	-0.169
	77.11			-2.521E-02	2.826E-02	4.206E-02	3.628E-03	-0.599
	87.30			1.958E-03	6.104E-02	9.682E-02	1.326E-02	0.020

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-218	238.63	*		-3.835E-03	2.250E-02	3.880E-02	3.858E-03	-0.099
	300.09			1.424E-01	3.065E-01	5.284E-01	5.641E-02	0.269
	74.81			-2.377E-02	8.710E-02	1.411E-01	1.589E-02	-0.169
	77.11			-4.321E-02	4.856E-02	7.210E-02	8.298E-03	-0.599
	87.30			3.354E-03	1.046E-01	1.659E-01	2.010E-02	0.020
	241.98			-5.114E-02	1.340E-01	2.014E-01	2.117E-02	-0.254
RN-219	295.21			-5.042E-02	5.660E-02	8.265E-02	9.006E-03	-0.610
	351.92	*		2.381E-02	3.989E-02	6.499E-02	6.770E-03	0.366
	271.23			-2.002E-02	7.865E-02	1.242E-01	1.313E-02	-0.161
RN-220	401.81	*		-7.371E-02	1.859E-01	2.730E-01	4.022E-02	-0.270
RA-223	549.76	*		-4.695E+00	1.295E+01	2.005E+01	2.011E+00	-0.234
RA-224	81.07			4.282E-03	2.973E-02	4.934E-02	4.386E-03	0.087
	83.78			1.419E-02	2.049E-02	3.587E-02	3.259E-03	0.396
	94.90			3.155E-03	4.023E-02	6.550E-02	6.382E-03	0.048
	122.32			-6.790E-02	4.117E-01	6.330E-01	7.566E-02	-0.107
	144.24			-4.967E-02	1.781E-01	2.652E-01	2.884E-02	-0.187
	154.21			-6.335E-02	1.073E-01	1.719E-01	1.717E-02	-0.369
	269.46			2.767E-02	5.930E-02	1.040E-01	9.469E-03	0.266
	323.87	*		1.046E-01	2.703E-01	4.604E-01	8.197E-02	0.227
	338.28			5.011E-01	3.596E-01	6.942E-01	8.595E-02	0.722
	445.03			1.134E-01	9.651E-01	1.658E+00	2.018E-01	0.068
RA-226	240.98	*		-6.892E-02	2.695E-01	4.154E-01	3.692E-02	-0.166
AC-227	609.31	*		-6.452E-03	3.881E-02	6.279E-02	7.420E-03	-0.103
	1120.29			-1.441E-01	1.465E-01	1.945E-01	2.088E-02	-0.741
	1764.49			-9.773E-02	2.166E-01	3.379E-01	2.809E-02	-0.289
TH-227	79.80			1.934E-03	2.083E-01	3.401E-01	7.338E-02	0.006
	236.00			-7.391E-02	8.147E-02	1.202E-01	1.493E-02	-0.615
	256.20	*		3.587E-02	1.426E-01	2.425E-01	3.765E-02	0.148
	286.10			2.228E-01	5.379E-01	9.318E-01	1.249E-01	0.239
	299.80			4.117E-01	5.704E-01	1.007E+00	1.776E-01	0.409
	304.40			-5.693E-01	6.479E-01	8.730E-01	1.621E-01	-0.652
AC-228	334.20			-7.021E-01	9.302E-01	1.299E+00	2.528E-01	-0.541
	79.80			1.934E-03	2.083E-01	3.401E-01	7.431E-02	0.006
	94.00			-3.612E-01	3.950E-01	5.304E-01	1.179E-01	-0.681
	236.00			-7.391E-02	8.138E-02	1.202E-01	1.355E-02	-0.615
	256.20	*		3.587E-02	1.426E-01	2.425E-01	4.417E-02	0.148
	286.10			2.228E-01	5.818E-01	9.318E-01	9.355E-01	0.239
RA-228	299.80			4.117E-01	5.704E-01	1.007E+00	1.776E-01	0.409
	304.40			-5.693E-01	6.479E-01	8.730E-01	1.621E-01	-0.652
	334.20			-7.021E-01	9.302E-01	1.299E+00	2.528E-01	-0.541
TH-228	338.32			1.190E-01	9.788E-02	1.658E-01	6.844E-02	0.718
	911.07	*		3.355E-02	6.277E-02	1.164E-01	1.321E-02	0.288
	969.11			1.992E-02	9.608E-02	1.676E-01	3.920E-02	0.119
TH-228	338.32			1.190E-01	9.788E-02	1.658E-01	6.844E-02	0.718
	911.07	*		3.355E-02	6.277E-02	1.164E-01	1.321E-02	0.288
	969.11			1.992E-02	9.608E-02	1.676E-01	3.920E-02	0.119
TH-228	74.81			-1.392E-02	5.099E-02	8.259E-02	7.068E-03	-0.169
	77.11			-2.543E-02	2.851E-02	4.243E-02	3.660E-03	-0.599
	87.30			1.975E-03	6.158E-02	9.769E-02	9.136E-03	0.020

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-229	238.63	*		-3.869E-03	2.270E-02	3.915E-02	3.892E-03	-0.099
	300.09			1.436E-01	3.204E-01	5.331E-01	3.162E-01	0.269
	85.43			-3.308E-02	3.082E-02	4.280E-02	3.941E-03	-0.773
	88.47			-1.774E-02	1.880E-02	2.576E-02	2.429E-03	-0.689
	100.00			-2.520E-02	3.408E-02	4.490E-02	4.500E-03	-0.561
TH-230	193.63	*		-4.730E-02	1.578E-01	2.571E-01	2.183E-02	-0.184
	210.97			2.249E-01	2.359E-01	4.357E-01	3.780E-02	0.516
	609.31	*		-6.452E-03	3.881E-02	6.279E-02	7.420E-03	-0.103
	1120.29			-1.441E-01	1.465E-01	1.945E-01	2.088E-02	-0.741
	1764.49			-9.773E-02	2.166E-01	3.379E-01	2.809E-02	-0.289
PA-231	283.67	*		-5.479E-01	5.689E-01	7.806E-01	1.199E-01	-0.702
TH-231	301.29			7.544E-02	2.073E-01	3.546E-01	4.417E-02	0.213
	81.07			4.282E-03	2.973E-02	4.934E-02	4.386E-03	0.087
	83.78			1.419E-02	2.049E-02	3.587E-02	3.259E-03	0.396
	94.90			3.155E-03	4.023E-02	6.550E-02	6.382E-03	0.048
	122.32			-6.790E-02	4.117E-01	6.330E-01	7.566E-02	-0.107
U-231	144.24			-4.967E-02	1.781E-01	2.652E-01	2.884E-02	-0.187
	154.21			-6.335E-02	1.073E-01	1.719E-01	1.719E-02	-0.369
	269.46			2.767E-02	5.930E-02	1.040E-01	9.469E-03	0.266
	323.87	*		1.046E-01	2.703E-01	4.604E-01	8.197E-02	0.227
	338.28			5.011E-01	3.596E-01	6.942E-01	8.595E-02	0.722
TH-232	445.03			1.134E-01	9.651E-01	1.658E+00	2.018E-01	0.068
	84.21			2.001E-01	2.944E-01	5.172E-01	4.715E-02	0.387
	92.29			-4.736E-02	1.290E-01	1.916E-01	1.842E-02	-0.247
	95.87	*		-1.795E-02	7.403E-02	1.151E-01	1.127E-02	-0.156
	108.00			1.675E-02	1.411E-01	2.294E-01	2.410E-02	0.073
PA-233	338.32			1.190E-01	8.530E-02	1.658E-01	1.445E-02	0.718
	911.07	*		3.355E-02	6.277E-02	1.164E-01	1.321E-02	0.288
	969.11			1.992E-02	9.608E-02	1.676E-01	3.920E-02	0.119
	75.28			-1.175E-01	4.300E-01	6.957E-01	1.064E-01	-0.169
	86.59			7.422E-03	2.654E-01	4.215E-01	1.140E-01	0.018
PA-234	300.12			7.172E-02	1.583E-01	2.723E-01	4.098E-02	0.263
	311.98	*		-1.473E-02	2.342E-02	3.379E-02	3.084E-03	-0.436
	340.50			-1.374E-01	2.389E-01	3.446E-01	8.223E-02	-0.399
	398.62			-4.132E-02	8.827E-01	1.387E+00	3.669E-01	-0.030
	415.76			-1.521E-01	6.199E-01	1.007E+00	2.159E-01	-0.151
PA-234	63.00			6.871E-03	1.398E-01	2.329E-01	3.521E-02	0.029
	94.67			-2.364E-04	2.945E-02	4.737E-02	6.253E-03	-0.005
	98.44			4.004E-03	1.772E-02	2.808E-02	1.572E-02	0.143
	99.86			-6.171E-02	8.645E-02	1.147E-01	1.149E-02	-0.538
	111.00			-5.370E-03	4.229E-02	6.606E-02	9.018E-03	-0.081
	131.20			4.935E-03	2.363E-02	3.838E-02	4.185E-03	0.129
	152.70			1.288E-02	9.392E-02	1.485E-01	2.584E-02	0.087
	186.00			-8.415E-02	4.241E-01	6.590E-01	2.053E-01	-0.128
	226.40			7.494E-02	1.228E-01	2.199E-01	2.930E-02	0.341
	227.20			5.708E-03	1.307E-01	2.190E-01	1.929E-02	0.026
	248.90			-1.559E-01	3.277E-01	5.083E-01	1.145E-01	-0.307
	293.70			-2.098E-01	2.622E-01	3.852E-01	6.725E-02	-0.545
	369.80			-3.772E-02	3.459E-01	5.412E-01	1.173E-01	-0.070

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		568.70		2.888E-02	5.033E-01	8.386E-01	8.579E-02	0.034
		569.50		2.223E-02	1.360E-01	2.306E-01	2.361E-02	0.096
		574.00		-4.194E-01	7.956E-01	1.192E+00	1.226E-01	-0.352
		699.00		8.190E-02	4.182E-01	6.986E-01	1.412E-01	0.117
		706.10		-2.655E-01	5.268E-01	7.329E-01	3.304E-01	-0.362
		733.00		2.300E-03	2.075E-01	3.347E-01	7.729E-02	0.007
		742.81		-1.940E-01	6.834E-01	1.004E+00	6.776E-01	-0.193
		796.30		3.501E-01	3.976E-01	7.524E-01	2.075E-01	0.465
		805.60		-4.137E-01	4.350E-01	5.107E-01	1.587E-01	-0.810
		819.60		-8.047E-02	4.963E-01	7.985E-01	3.061E-01	-0.101
		826.30		-3.371E-01	4.923E-01	6.784E-01	3.052E-01	-0.497
		831.60		3.808E-01	3.600E-01	6.800E-01	2.053E-01	0.560
		876.40		1.338E-01	5.019E-01	8.484E-01	8.725E-01	0.158
		880.51		-3.044E-02	1.531E-01	2.455E-01	2.217E-02	-0.124
		883.24		-5.939E-03	1.419E-01	2.348E-01	1.580E-01	-0.025
		899.00		8.989E-02	4.205E-01	7.308E-01	3.197E-01	0.123
		925.00		1.374E-01	6.389E-01	1.110E+00	9.726E-02	0.124
		926.50		9.501E-03	8.335E-02	1.423E-01	3.605E-02	0.067
		946.00 *		-4.305E-02	1.695E-01	2.661E-01	5.011E-02	-0.162
		949.00		5.915E-02	2.441E-01	4.251E-01	3.727E-02	0.139
		980.50		-3.209E-01	3.362E-01	3.922E-01	3.432E-02	-0.818
		1394.10		-3.193E-01	4.607E-01	3.647E-01	2.372E-01	-0.876
PA-234M		766.42		-2.223E+00	4.941E+00	6.749E+00	3.447E+00	-0.329
		1001.03 *		-2.740E-01	1.933E+00	3.062E+00	3.081E-01	-0.089
TH-234		63.29 *		-5.115E-03	1.223E-01	2.013E-01	3.556E-02	-0.025
		92.38		-1.238E-02	9.331E-02	1.431E-01	2.658E-02	-0.087
U-234		609.31 *		-6.452E-03	3.881E-02	6.279E-02	7.420E-03	-0.103
		1120.29		-1.441E-01	1.465E-01	1.945E-01	2.088E-02	-0.741
		1764.49		-9.773E-02	2.166E-01	3.379E-01	2.809E-02	-0.289
U-235		89.95		-9.625E-03	1.630E-01	2.613E-01	8.129E-02	-0.037
		93.35		-1.483E-02	1.144E-01	1.756E-01	4.980E-02	-0.084
		105.00		-1.552E-01	2.133E-01	2.911E-01	8.842E-02	-0.533
		143.76 *		-1.026E-02	5.658E-02	8.571E-02	1.563E-02	-0.120
		163.35		-4.324E-02	1.274E-01	2.088E-01	3.961E-02	-0.207
		185.71		-4.534E-03	1.579E-02	2.437E-02	2.045E-03	-0.186
		205.31		2.531E-02	1.604E-01	2.742E-01	5.232E-02	0.092
NP-236		94.67		-1.508E-04	2.234E-02	3.594E-02	3.498E-03	-0.004
		98.44		3.036E-03	1.329E-02	2.123E-02	2.109E-03	0.143
		111.00		-4.062E-03	3.199E-02	4.997E-02	5.348E-03	-0.081
		160.31 *		2.579E-03	2.111E-02	3.662E-02	3.166E-03	0.070
NP-237		86.50 *		1.109E-03	3.979E-02	6.320E-02	1.430E-02	0.018
		95.87		-4.448E-02	1.837E-01	2.851E-01	7.148E-02	-0.156
U-238		63.29 *		-5.115E-03	1.223E-01	2.013E-01	3.556E-02	-0.025
		92.38		-1.238E-02	9.329E-02	1.431E-01	1.376E-02	-0.087
NP-239		99.55		-1.861E-02	2.969E-02	4.054E-02	4.052E-03	-0.459
		117.00 *		-1.911E-02	4.589E-02	6.809E-02	7.568E-03	-0.281
		209.75		1.147E-01	2.349E-01	4.154E-01	3.599E-02	0.276
		228.18		-1.911E-02	7.421E-02	1.196E-01	1.054E-02	-0.160
		277.60		-2.234E-02	6.617E-02	1.033E-01	9.216E-03	-0.216

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	334.30			-3.874E-01	5.122E-01	7.198E-01	6.300E-02	-0.538
AM-241	59.54	*		3.527E-03	1.249E-02	2.147E-02	1.822E-03	0.164
AM-243	74.67	*		1.620E-03	7.742E-03	1.323E-02	1.121E-03	0.122
	86.72			4.199E-02	1.494E+00	2.372E+00	2.208E-01	0.018
	117.66			-9.624E-02	9.401E-01	1.467E+00	1.637E-01	-0.066
	142.18			3.646E+00	4.304E+00	7.559E+00	7.661E-01	0.482
CM-243	99.55			-1.914E-02	3.054E-02	4.169E-02	4.168E-03	-0.459
	103.76	*		8.337E-03	1.761E-02	3.029E-02	3.103E-03	0.275
	117.00			-1.965E-02	4.719E-02	7.003E-02	7.783E-03	-0.281
	209.75			1.131E-01	2.314E-01	4.093E-01	3.546E-02	0.276
	228.18			-1.930E-02	7.496E-02	1.208E-01	1.065E-02	-0.160
	277.60			-2.251E-02	6.668E-02	1.041E-01	9.288E-03	-0.216
AM-246	798.80			-1.758E-02	7.207E-02	1.083E-01	1.097E-02	-0.162
	1036.00			-2.381E-02	1.322E-01	2.062E-01	1.789E-02	-0.115
	1062.04			2.785E-02	8.967E-02	1.610E-01	1.388E-02	0.173
	1078.86	*		-1.862E-02	6.658E-02	1.005E-01	8.624E-03	-0.185
CM-247	278.00			-1.812E-01	2.833E-01	4.226E-01	3.770E-02	-0.429
	287.40			1.085E-01	4.215E-01	7.157E-01	6.389E-02	0.152
	402.60	*		5.184E-04	1.584E-02	2.524E-02	2.048E-03	0.021
CF-249	252.85			1.212E-01	3.537E-01	6.068E-01	5.416E-02	0.200
	333.44			2.198E-02	6.783E-02	1.146E-01	1.004E-02	0.192
	387.95	*		1.662E-02	1.503E-02	2.863E-02	2.296E-03	0.581
CF-251	176.60	*		9.617E-03	3.585E-02	6.276E-02	5.192E-03	0.153
	227.00			1.813E-02	1.179E-01	2.004E-01	1.764E-02	0.090
	285.00			3.402E-01	6.381E-01	1.121E+00	1.000E-01	0.304
ANH-511	511.00	*		-1.200E-02	3.065E-02	5.729E-02	5.492E-03	-0.209

## 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]G1202037552
* Acquisition date   : 19-FEB-2010 20:41:37 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 02:00:25.04 Half life ratio : 8.000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID
* Sample ID          : G1202037552 Analyst initials: MXR1
* Batch Number       : 950788 Sample Quantity : 1.5875E+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 )	
BI-211	6.844E-02	1.123E-01	1.360E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-8.595E-02	1.457E-01	2.367E-01	0.000E+00 NOT IDENT.
NA-22	-1.292E-02	2.102E-02	2.810E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	3.209E+02	0.000E+00	0.000E+00 SHORT HLIF
AL-26	7.548E-03	2.293E-02	4.237E-02	0.000E+00 NOT IDENT.
K-40	-1.061E-01	1.975E-01	3.230E-01	0.000E+00 NOT IDENT.
TI-44	-7.217E-03	4.720E-03	6.965E-03	0.000E+00 NOT IDENT.
SC-46	-1.127E-02	1.985E-02	2.935E-02	0.000E+00 NOT IDENT.
V-48	-1.536E-02	2.480E-02	3.546E-02	0.000E+00 NOT IDENT.
CR-51	-7.199E-02	1.362E-01	2.190E-01	0.000E+00 NOT IDENT.
MN-52	3.843E-02	6.432E-02	1.272E-01	0.000E+00 NOT IDENT.
MN-54	-1.324E-02	1.904E-02	2.893E-02	0.000E+00 NOT IDENT.
CO-56	1.297E-02	1.688E-02	3.422E-02	0.000E+00 NOT IDENT.
CO-57	4.395E-05	5.470E-03	9.548E-03	0.000E+00 NOT IDENT.
CO-58	1.783E-02	1.673E-02	3.545E-02	0.000E+00 NOT IDENT.
FE-59	-5.731E-03	3.340E-02	5.374E-02	0.000E+00 NOT IDENT.
CO-60	-1.063E-02	1.576E-02	2.007E-02	0.000E+00 NOT IDENT.
ZN-65	-7.743E-03	4.198E-02	6.708E-02	0.000E+00 NOT IDENT.
GE-68	9.498E-02	5.477E-01	9.755E-01	0.000E+00 NOT IDENT.
AS-73	1.054E-02	4.072E-02	7.946E-02	0.000E+00 NOT IDENT.
AS-74	-2.301E-02	3.280E-02	4.869E-02	0.000E+00 NOT IDENT.
SE-75	6.464E-03	1.507E-02	2.829E-02	0.000E+00 NOT IDENT.
BR-77	1.635E-01	7.873E-01	1.437E+00	0.000E+00 NOT IDENT.
SR-82	1.169E-01	1.433E-01	2.850E-01	0.000E+00 NOT IDENT.
RB-83	-3.824E-03	3.068E-02	5.305E-02	0.000E+00 NOT IDENT.
RB-84	-7.956E-03	3.109E-02	5.135E-02	0.000E+00 NOT IDENT.
KR-85	-1.237E+01	5.266E+00	6.671E+00	0.000E+00 NOT IDENT.

SR-85	-5.938E-02	2.528E-02	3.202E-02	0.000E+00	NOT IDENT.
RB-86	1.062E-01	2.945E-01	5.459E-01	0.000E+00	NOT IDENT.
Y-88	-9.983E-03	2.174E-02	2.849E-02	0.000E+00	NOT IDENT.
ZR-88	9.151E-03	1.119E-02	2.175E-02	0.000E+00	NOT IDENT.
Y-91	-2.266E+00	5.053E+00	6.747E+00	0.000E+00	NOT IDENT.
NB-94	7.580E-04	1.704E-02	2.924E-02	0.000E+00	NOT IDENT.
NB-95	-1.424E-03	1.379E-02	2.247E-02	0.000E+00	NOT IDENT.
NB-95M	-2.950E-02	4.062E-02	6.710E-02	0.000E+00	NOT IDENT.
ZR-95	1.519E-02	2.893E-02	5.474E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.027E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.806E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.122E-01	1.144E+00	1.889E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.353E+08	0.000E+00	0.000E+00	SHORT HLIF
RH-101	8.682E-03	1.113E-02	2.190E-02	0.000E+00	NOT IDENT.
RH-102	2.508E-03	1.463E-02	2.672E-02	0.000E+00	NOT IDENT.
RU-103	-1.439E-02	1.702E-02	2.566E-02	0.000E+00	NOT IDENT.
RH-106	1.342E-02	1.340E-01	2.364E-01	0.000E+00	NOT IDENT.
RU-106	1.342E-02	1.340E-01	2.364E-01	0.000E+00	NOT IDENT.
AG-108M	5.426E-04	1.341E-02	2.434E-02	0.000E+00	NOT IDENT.
CD-109	-1.227E-02	1.308E-01	2.271E-01	0.000E+00	NOT IDENT.
AG-110M	-7.846E-03	1.733E-02	2.703E-02	0.000E+00	NOT IDENT.
IN-111	4.752E-02	8.101E-02	1.551E-01	0.000E+00	NOT IDENT.
IN-113M	-7.672E-03	1.693E-02	2.621E-02	0.000E+00	NOT IDENT.
SN-113	-7.672E-03	1.693E-02	2.621E-02	0.000E+00	NOT IDENT.
IN-114M	1.181E-02	5.030E-02	9.502E-02	0.000E+00	NOT IDENT.
CD-115	8.843E-02	6.306E-01	1.141E+00	0.000E+00	NOT IDENT.
SN-117M	-4.610E-03	9.955E-03	1.766E-02	0.000E+00	NOT IDENT.
SB-122	-1.585E-01	1.867E-01	2.705E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	5.428E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-4.009E-03	7.148E-03	1.255E-02	0.000E+00	NOT IDENT.
I-124	4.714E-02	1.184E-01	2.184E-01	0.000E+00	NOT IDENT.
SB-124	-3.837E-02	5.292E-02	6.512E-02	0.000E+00	NOT IDENT.
SB-125	-8.327E-03	3.304E-02	5.705E-02	0.000E+00	NOT IDENT.
TE-125M	1.378E-01	1.802E+00	3.213E+00	0.000E+00	NOT IDENT.
I-126	-3.433E-02	6.425E-02	9.795E-02	0.000E+00	NOT IDENT.
SB-126	-2.535E-02	6.419E-02	1.015E-01	0.000E+00	NOT IDENT.
SN-126	9.293E-04	1.320E-02	2.344E-02	0.000E+00	NOT IDENT.
SB-127	-1.604E-01	2.066E-01	2.862E-01	0.000E+00	NOT IDENT.
XE-127	-5.292E-03	1.334E-02	2.335E-02	0.000E+00	NOT IDENT.
I-131	1.988E-02	2.990E-02	5.621E-02	0.000E+00	NOT IDENT.
TE-132	-1.560E-02	5.878E-02	1.028E-01	0.000E+00	NOT IDENT.
BA-133	1.631E-03	2.073E-02	3.221E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.635E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.376E-02	1.974E-02	3.851E-02	0.000E+00	NOT IDENT.
CS-135	-2.049E-02	5.253E-02	8.810E-02	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.094E+08	0.000E+00	0.000E+00	SHORT HLIF
CS-136	7.097E-03	3.932E-02	6.999E-02	0.000E+00	NOT IDENT.
BA-137M	1.193E-02	1.477E-02	2.955E-02	0.000E+00	NOT IDENT.
CS-137	1.261E-02	1.561E-02	3.123E-02	0.000E+00	NOT IDENT.
CE-139	6.230E-03	7.842E-03	1.584E-02	0.000E+00	NOT IDENT.
BA-140	3.991E-02	7.415E-02	1.418E-01	0.000E+00	NOT IDENT.
LA-140	6.232E-03	3.561E-02	6.358E-02	0.000E+00	NOT IDENT.
CE-141	-1.178E-02	1.454E-02	2.161E-02	0.000E+00	NOT IDENT.
CE-143	2.322E-01	1.887E+00	3.377E+00	0.000E+00	FAIL ABUN
CE-144	-1.441E-04	4.633E-02	7.994E-02	0.000E+00	NOT IDENT.
PM-144	-5.255E-03	1.868E-02	3.016E-02	0.000E+00	NOT IDENT.
PR-144	-3.549E-01	1.262E+00	2.037E+00	0.000E+00	NOT IDENT.
PM-146	4.750E-03	1.923E-02	3.574E-02	0.000E+00	NOT IDENT.
ND-147	2.201E-02	1.424E-01	2.589E-01	0.000E+00	NOT IDENT.
PM-149	2.007E+00	4.452E+00	8.344E+00	0.000E+00	NOT IDENT.
EU-152	2.032E-03	3.488E-02	6.081E-02	0.000E+00	NOT IDENT.
GD-153	-3.411E-03	1.514E-02	2.517E-02	0.000E+00	NOT IDENT.
EU-154	-5.569E-02	6.355E-02	7.660E-02	0.000E+00	NOT IDENT.
EU-155	-1.209E-02	2.037E-02	3.246E-02	0.000E+00	NOT IDENT.
TB-160	1.060E-02	6.642E-02	1.199E-01	0.000E+00	NOT IDENT.
HO-166M	-9.925E-03	2.859E-02	4.472E-02	0.000E+00	NOT IDENT.
TM-171	1.375E+00	2.701E+00	5.307E+00	0.000E+00	NOT IDENT.
LU-176	5.143E-03	8.266E-03	1.588E-02	0.000E+00	NOT IDENT.
LU-177	-3.192E-02	1.613E-01	2.875E-01	0.000E+00	NOT IDENT.
LU-177M	6.965E-03	7.470E-02	1.281E-01	0.000E+00	NOT IDENT.
HF-181	9.501E-03	1.673E-02	3.241E-02	0.000E+00	NOT IDENT.
W-181	-1.605E-02	3.243E-02	5.611E-02	0.000E+00	NOT IDENT.
TA-182	3.365E-03	7.761E-02	1.316E-01	0.000E+00	NOT IDENT.
RE-183	1.494E-02	2.738E-02	5.419E-02	0.000E+00	NOT IDENT.
RE-184	3.147E-02	9.005E-02	1.672E-01	0.000E+00	NOT IDENT.
OS-185	-9.504E-03	1.654E-02	2.421E-02	0.000E+00	NOT IDENT.
RE-188	-1.170E-02	4.201E-02	7.666E-02	0.000E+00	NOT IDENT.
W-188	6.007E-01	2.294E+00	4.198E+00	0.000E+00	NOT IDENT.

IR-192	-2.141E-03	1.233E-02	2.091E-02	0.000E+00	NOT IDENT.
AU-195	-3.787E-03	4.070E-02	6.843E-02	0.000E+00	NOT IDENT.
TL-200	0.000E+00	3.301E+00	0.000E+00	0.000E+00	SHORT HLIF
TL-201	3.793E-01	4.383E-01	8.939E-01	0.000E+00	NOT IDENT.
TL-202	4.523E-03	1.972E-02	3.677E-02	0.000E+00	NOT IDENT.
HG-203	7.308E-04	1.381E-02	2.458E-02	0.000E+00	NOT IDENT.
BI-207	6.363E-03	2.011E-02	3.752E-02	0.000E+00	NOT IDENT.
TL-207	1.046E-01	2.649E-01	4.852E-01	0.000E+00	NOT IDENT.
TL-208	1.816E-02	1.950E-02	3.841E-02	0.000E+00	NOT IDENT.
PO-209	-1.526E-01	3.799E+00	6.569E+00	0.000E+00	NOT IDENT.
BI-210	5.805E-02	1.047E-01	2.135E-01	0.000E+00	NOT IDENT.
PB-210	5.805E-02	1.047E-01	2.135E-01	0.000E+00	NOT IDENT.
PO-210	5.805E-02	1.047E-01	2.135E-01	0.000E+00	NOT IDENT.
PB-211	-1.168E-01	4.137E-01	6.546E-01	0.000E+00	NOT IDENT.
BI-212	-2.110E-01	1.670E-01	2.065E-01	0.000E+00	NOT IDENT.
PB-212	-3.835E-03	2.205E-02	4.123E-02	0.000E+00	NOT IDENT.
PO-212	-3.835E-03	2.205E-02	4.123E-02	0.000E+00	NOT IDENT.
BI-214	-6.452E-03	3.803E-02	6.502E-02	0.000E+00	NOT IDENT.
PB-214	2.381E-02	3.909E-02	6.833E-02	0.000E+00	FAIL ABUN
PO-214	2.381E-02	3.909E-02	6.833E-02	0.000E+00	FAIL ABUN
PO-215	1.046E-01	2.649E-01	4.852E-01	0.000E+00	NOT IDENT.
PO-216	-3.835E-03	2.205E-02	4.123E-02	0.000E+00	NOT IDENT.
PO-218	2.381E-02	3.909E-02	6.833E-02	0.000E+00	FAIL ABUN
RN-219	-7.371E-02	1.822E-01	2.860E-01	0.000E+00	NOT IDENT.
RN-220	-4.695E+00	1.269E+01	2.082E+01	0.000E+00	NOT IDENT.
RA-223	1.046E-01	2.649E-01	4.852E-01	0.000E+00	NOT IDENT.
RA-224	-6.892E-02	2.641E-01	4.413E-01	0.000E+00	NOT IDENT.
RA-226	-6.452E-03	3.803E-02	6.502E-02	0.000E+00	NOT IDENT.
AC-227	3.587E-02	1.397E-01	2.572E-01	0.000E+00	NOT IDENT.
TH-227	3.587E-02	1.398E-01	2.572E-01	0.000E+00	NOT IDENT.
AC-228	3.355E-02	6.152E-02	1.192E-01	0.000E+00	NOT IDENT.
RA-228	3.355E-02	6.152E-02	1.192E-01	0.000E+00	NOT IDENT.
TH-228	-3.869E-03	2.224E-02	4.160E-02	0.000E+00	NOT IDENT.
TH-229	-4.730E-02	1.546E-01	2.747E-01	0.000E+00	NOT IDENT.
TH-230	-6.452E-03	3.803E-02	6.502E-02	0.000E+00	NOT IDENT.
PA-231	-5.479E-01	5.575E-01	8.256E-01	0.000E+00	NOT IDENT.
TH-231	1.046E-01	2.649E-01	4.852E-01	0.000E+00	NOT IDENT.
U-231	-1.795E-02	7.255E-02	1.253E-01	0.000E+00	NOT IDENT.
TH-232	3.355E-02	6.152E-02	1.192E-01	0.000E+00	NOT IDENT.
PA-233	-1.473E-02	2.295E-02	3.565E-02	0.000E+00	NOT IDENT.
PA-234	-4.305E-02	1.661E-01	2.721E-01	0.000E+00	NOT IDENT.
PA-234M	-2.740E-01	1.894E+00	3.126E+00	0.000E+00	NOT IDENT.
TH-234	-5.115E-03	1.198E-01	2.214E-01	0.000E+00	NOT IDENT.
U-234	-6.452E-03	3.803E-02	6.502E-02	0.000E+00	NOT IDENT.
U-235	-1.026E-02	5.545E-02	9.230E-02	0.000E+00	NOT IDENT.
NP-236	2.579E-03	2.069E-02	3.933E-02	0.000E+00	NOT IDENT.
NP-237	1.109E-03	3.900E-02	6.897E-02	0.000E+00	NOT IDENT.
U-238	-5.115E-03	1.198E-01	2.214E-01	0.000E+00	NOT IDENT.
NP-239	-1.911E-02	4.497E-02	7.373E-02	0.000E+00	NOT IDENT.
AM-241	3.527E-03	1.224E-02	2.365E-02	0.000E+00	NOT IDENT.
AM-243	1.620E-03	7.587E-03	1.449E-02	0.000E+00	NOT IDENT.
CM-243	8.337E-03	1.726E-02	3.290E-02	0.000E+00	NOT IDENT.
AM-246	-1.862E-02	6.525E-02	1.024E-01	0.000E+00	NOT IDENT.
CM-247	5.184E-04	1.553E-02	2.644E-02	0.000E+00	NOT IDENT.
CF-249	1.662E-02	1.473E-02	3.002E-02	0.000E+00	NOT IDENT.
CF-251	9.617E-03	3.514E-02	6.723E-02	0.000E+00	NOT IDENT.
ANH-511	-1.200E-02	3.004E-02	5.961E-02	0.000E+00	NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:43:34.05

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037552.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 20:41:37
Sample ID          : G1202037552      Sample quantity   : 1.58750E+02 GRAM
Detector name      : GAM21            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:25.04  0.3%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 950788            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
BI-211	72.87	-----	1.27	8.278E+00	-----	Line Not Found	-----
	351.07	11	12.94*	3.000E+00	6.844E-02	6.844E-02	167.47

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G1202037552

Page : 2  
Acquisition date : 19-FEB-2010 20:41:37

Total number of lines in spectrum 1  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 1 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BI-211	7.04E+08Y	1.00	6.844E-02	6.844E-02	11.46E-02	167.47	
Total Activity :			6.844E-02	6.844E-02			

Grand Total Activity : 6.844E-02 6.844E-02

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

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

Unidentified Energy Lines  
Sample ID : G1202037552

Page : 3  
Acquisition date : 19-FEB-2010 20:41:37

None

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037552.CNF;1
* Acquisition date   : 19-FEB-2010 20:41:37 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 02:00:25.04 Half life ratio : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID
* Sample ID          : G1202037552 Analyst initials: MXR1
* Batch Number       : 950788 Sample Quantity : 1.58750E+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
BI-211	6.844E-02	1.146E-01	1.293E-01	1.167E-02	0.529

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-8.595E-02		1.486E-01	2.270E-01	2.224E-02	-0.379
NA-22	-1.292E-02		2.145E-02	2.772E-02	2.274E-03	-0.466
NA-24	1.641E-05		1.637E-04	Half-Life too short		
AL-26	7.548E-03		2.340E-02	4.224E-02	3.495E-03	0.179
K-40	-1.061E-01		2.015E-01	3.199E-01	2.731E-02	-0.332
TI-44	-7.217E-03		4.817E-03	6.367E-03	5.544E-04	-1.134
SC-46	-1.127E-02		2.025E-02	2.865E-02	2.548E-03	-0.393
V-48	-1.536E-02		2.531E-02	3.472E-02	3.037E-03	-0.442
CR-51	-7.199E-02		1.390E-01	2.077E-01	1.931E-02	-0.347
MN-52	3.843E-02		6.563E-02	1.259E-01	1.040E-02	0.305
MN-54	-1.324E-02		1.943E-02	2.819E-02	2.733E-03	-0.469

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-56	1.297E-02		1.722E-02	3.336E-02	3.180E-03	0.389
CO-57	4.395E-05		5.582E-03	8.827E-03	1.014E-03	0.005
CO-58	1.783E-02		1.707E-02	3.452E-02	3.454E-03	0.517
FE-59	-5.731E-03		3.408E-02	5.279E-02	4.871E-03	-0.109
CO-60	-1.063E-02		1.608E-02	1.982E-02	1.609E-03	-0.536
ZN-65	-7.743E-03		4.284E-02	6.592E-02	5.588E-03	-0.117
GE-68	9.498E-02		5.589E-01	9.577E-01	8.220E-02	0.099
AS-73	1.054E-02		4.155E-02	7.194E-02	5.826E-03	0.146
AS-74	-2.301E-02		3.347E-02	4.699E-02	4.933E-03	-0.490
SE-75	6.464E-03		1.538E-02	2.670E-02	2.397E-03	0.242
BR-77	1.635E-01		8.034E-01	1.381E+00	1.340E-01	0.118
SR-82	1.169E-01		1.462E-01	2.771E-01	2.869E-02	0.422
RB-83	-3.824E-03		3.130E-02	5.100E-02	4.946E-03	-0.075
RB-84	-7.956E-03		3.172E-02	5.011E-02	4.519E-03	-0.159
KR-85	-1.237E+01		5.373E+00	6.411E+00	6.169E-01	-1.929
SR-85	-5.938E-02		2.580E-02	3.078E-02	2.962E-03	-1.929
RB-86	1.062E-01		3.005E-01	5.359E-01	4.601E-02	0.198
Y-88	-9.983E-03		2.218E-02	2.841E-02	2.346E-03	-0.351
ZR-88	9.151E-03		1.141E-02	2.074E-02	1.653E-03	0.441
Y-91	-2.266E+00		5.156E+00	6.646E+00	5.475E-01	-0.341
NB-94	7.580E-04		1.739E-02	2.835E-02	3.087E-03	0.027
NB-95	-1.424E-03		1.407E-02	2.185E-02	2.283E-03	-0.065
NB-95M	-2.950E-02		4.145E-02	6.313E-02	6.361E-03	-0.467
ZR-95	1.519E-02		2.952E-02	5.319E-02	5.989E-03	0.286
NB-97	-3.401E-05		5.241E-05	Half-Life too short		
ZR-97	-5.749E-03		1.432E-03	Half-Life too short		
MO-99	-1.122E-01		1.167E+00	1.834E+00	3.014E-01	-0.061
TC-99M	-2.804E+02		1.711E+02	Half-Life too short		
RH-101	8.682E-03		1.135E-02	2.051E-02	1.751E-03	0.423
RH-102	2.508E-03		1.492E-02	2.562E-02	2.340E-03	0.098
RU-103	-1.439E-02		1.737E-02	2.464E-02	3.612E-03	-0.584
RH-106	1.342E-02		1.367E-01	2.285E-01	3.383E-02	0.059
RU-106	1.342E-02		1.367E-01	2.285E-01	2.451E-02	0.059
AG-108M	5.426E-04		1.369E-02	2.329E-02	2.076E-03	0.023
CD-109	-1.227E-02		1.335E-01	2.082E-01	1.959E-02	-0.059
AG-110M	-7.846E-03		1.768E-02	2.616E-02	2.935E-03	-0.300
IN-111	4.752E-02		8.266E-02	1.460E-01	1.300E-02	0.325
IN-113M	-7.672E-03		1.728E-02	2.500E-02	2.059E-03	-0.307
SN-113	-7.672E-03		1.728E-02	2.500E-02	2.059E-03	-0.307
IN-114M	1.181E-02		5.132E-02	8.888E-02	7.510E-03	0.133
CD-115	8.843E-02		6.435E-01	1.098E+00	1.074E-01	0.081
SN-117M	-4.610E-03		1.016E-02	1.644E-02	1.447E-03	-0.280
SB-122	-1.585E-01		1.905E-01	2.606E-01	2.653E-02	-0.608
I-123	-3.044E-04		2.769E-04	Half-Life too short		
TE-123M	-4.009E-03		7.294E-03	1.168E-02	1.030E-03	-0.343
I-124	4.714E-02		1.208E-01	2.109E-01	2.227E-02	0.224
SB-124	-3.837E-02		5.400E-02	6.479E-02	5.640E-03	-0.592
SB-125	-8.327E-03		3.371E-02	5.455E-02	4.722E-03	-0.153

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-125M	1.378E-01		1.839E+00	2.962E+00	3.558E-01	0.047
I-126	-3.433E-02		6.556E-02	9.483E-02	1.046E-02	-0.362
SB-126	-2.535E-02		6.550E-02	9.850E-02	1.063E-02	-0.257
SN-126	9.293E-04		1.347E-02	2.149E-02	2.015E-03	0.043
SB-127	-1.604E-01		2.108E-01	2.773E-01	3.312E-02	-0.578
XE-127	-5.292E-03		1.361E-02	2.188E-02	1.880E-03	-0.242
I-131	1.988E-02		3.051E-02	5.351E-02	4.740E-03	0.371
TE-132	-1.560E-02		5.998E-02	9.659E-02	1.439E-02	-0.161
BA-133	1.631E-03		2.115E-02	3.064E-02	4.027E-03	0.053
I-133	-1.985E-06		8.341E-06	Half-Life too short		
CS-134	1.376E-02		2.014E-02	3.748E-02	3.826E-03	0.367
CS-135	-2.049E-02		5.360E-02	8.317E-02	8.517E-03	-0.246
I-135	-1.527E+02		2.089E+02	Half-Life too short		
CS-136	7.097E-03		4.012E-02	6.865E-02	6.188E-03	0.103
BA-137M	1.193E-02		1.507E-02	2.860E-02	3.159E-03	0.417
CS-137	1.261E-02		1.593E-02	3.023E-02	3.343E-03	0.417
CE-139	6.230E-03		8.002E-03	1.477E-02	1.200E-03	0.422
BA-140	3.991E-02		7.566E-02	1.365E-01	4.571E-02	0.292
LA-140	6.232E-03		3.634E-02	6.315E-02	5.281E-03	0.099
CE-141	-1.178E-02		1.484E-02	2.007E-02	2.013E-03	-0.587
CE-143	2.322E-01		1.926E+00	3.196E+00	6.944E-01	0.073
CE-144	-1.441E-04		4.728E-02	7.409E-02	1.248E-02	-0.002
PM-144	-5.255E-03		1.906E-02	2.924E-02	3.193E-03	-0.180
PR-144	-3.549E-01		1.287E+00	1.975E+00	2.156E-01	-0.180
PM-146	4.750E-03		1.962E-02	3.423E-02	3.735E-03	0.139
ND-147	2.201E-02		1.454E-01	2.490E-01	3.903E-02	0.088
PM-149	2.007E+00		4.542E+00	7.890E+00	1.239E+00	0.254
EU-152	2.032E-03		3.559E-02	5.780E-02	5.301E-03	0.035
GD-153	-3.411E-03		1.545E-02	2.313E-02	2.285E-03	-0.147
EU-154	-5.569E-02		6.484E-02	7.557E-02	8.305E-03	-0.737
EU-155	-1.209E-02		2.079E-02	2.990E-02	3.117E-03	-0.405
TB-160	1.060E-02		6.777E-02	1.170E-01	1.059E-02	0.091
HO-166M	-9.925E-03		2.918E-02	4.338E-02	4.703E-03	-0.229
TM-171	1.375E+00		2.756E+00	4.832E+00	3.894E-01	0.284
LU-176	5.143E-03		8.435E-03	1.504E-02	1.340E-03	0.342
LU-177	-3.192E-02		1.646E-01	2.696E-01	2.332E-02	-0.118
LU-177M	6.965E-03		7.623E-02	1.224E-01	1.013E-02	0.057
HF-181	9.501E-03		1.707E-02	3.109E-02	2.868E-03	0.306
W-181	-1.605E-02		3.309E-02	5.106E-02	4.081E-03	-0.314
TA-182	3.365E-03		7.920E-02	1.297E-01	1.067E-02	0.026
RE-183	1.494E-02		2.794E-02	5.048E-02	4.271E-03	0.296
RE-184	3.147E-02		9.188E-02	1.576E-01	1.407E-02	0.200
OS-185	-9.504E-03		1.688E-02	2.342E-02	2.559E-03	-0.406
RE-188	-1.170E-02		4.287E-02	7.132E-02	6.498E-03	-0.164
W-188	6.007E-01		2.341E+00	3.971E+00	3.546E-01	0.151
IR-192	-2.141E-03		1.258E-02	1.983E-02	1.762E-03	-0.108
AU-195	-3.787E-03		4.153E-02	6.293E-02	6.267E-03	-0.060
TL-200	-1.495E-06		1.684E-06	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
TL-201	3.793E-01		4.472E-01	8.334E-01	6.787E-02	0.455
TL-202	4.523E-03		2.013E-02	3.519E-02	3.045E-03	0.129
HG-203	7.308E-04		1.409E-02	2.323E-02	2.127E-03	0.031
BI-207	6.363E-03		2.052E-02	3.682E-02	3.173E-03	0.173
TL-207	1.046E-01		2.703E-01	4.604E-01	8.197E-02	0.227
TL-208	1.816E-02		1.990E-02	3.704E-02	4.035E-03	0.490
PO-209	-1.526E-01		3.876E+00	6.415E+00	5.626E-01	-0.024
BI-210	5.805E-02		1.069E-01	1.926E-01	1.837E-02	0.301
PB-210	5.805E-02		1.069E-01	1.926E-01	1.837E-02	0.301
PO-210	5.805E-02		1.068E-01	1.926E-01	1.672E-02	0.301
PB-211	-1.168E-01		4.222E-01	6.250E-01	3.912E-01	-0.187
BI-212	-2.110E-01		1.704E-01	2.004E-01	2.383E-02	-1.053
PB-212	-3.835E-03		2.250E-02	3.880E-02	3.858E-03	-0.099
PO-212	-3.835E-03		2.250E-02	3.880E-02	3.858E-03	-0.099
BI-214	-6.452E-03		3.881E-02	6.279E-02	7.420E-03	-0.103
PB-214	2.381E-02	+	3.989E-02	6.499E-02	6.770E-03	0.366
PO-214	2.381E-02	+	3.989E-02	6.499E-02	6.770E-03	0.366
PO-215	1.046E-01		2.703E-01	4.604E-01	8.197E-02	0.227
PO-216	-3.835E-03		2.250E-02	3.880E-02	3.858E-03	-0.099
PO-218	2.381E-02	+	3.989E-02	6.499E-02	6.770E-03	0.366
RN-219	-7.371E-02		1.859E-01	2.730E-01	4.022E-02	-0.270
RN-220	-4.695E+00		1.295E+01	2.005E+01	2.011E+00	-0.234
RA-223	1.046E-01		2.703E-01	4.604E-01	8.197E-02	0.227
RA-224	-6.892E-02		2.695E-01	4.154E-01	3.692E-02	-0.166
RA-226	-6.452E-03		3.881E-02	6.279E-02	7.420E-03	-0.103
AC-227	3.587E-02		1.426E-01	2.425E-01	3.765E-02	0.148
TH-227	3.587E-02		1.426E-01	2.425E-01	4.417E-02	0.148
AC-228	3.355E-02		6.277E-02	1.164E-01	1.321E-02	0.288
RA-228	3.355E-02		6.277E-02	1.164E-01	1.321E-02	0.288
TH-228	-3.869E-03		2.270E-02	3.915E-02	3.892E-03	-0.099
TH-229	-4.730E-02		1.578E-01	2.571E-01	2.183E-02	-0.184
TH-230	-6.452E-03		3.881E-02	6.279E-02	7.420E-03	-0.103
PA-231	-5.479E-01		5.689E-01	7.806E-01	1.199E-01	-0.702
TH-231	1.046E-01		2.703E-01	4.604E-01	8.197E-02	0.227
U-231	-1.795E-02		7.403E-02	1.151E-01	1.127E-02	-0.156
TH-232	3.355E-02		6.277E-02	1.164E-01	1.321E-02	0.288
PA-233	-1.473E-02		2.342E-02	3.379E-02	3.084E-03	-0.436
PA-234	-4.305E-02		1.695E-01	2.661E-01	5.011E-02	-0.162
PA-234M	-2.740E-01		1.933E+00	3.062E+00	3.081E-01	-0.089
TH-234	-5.115E-03		1.223E-01	2.013E-01	3.556E-02	-0.025
U-234	-6.452E-03		3.881E-02	6.279E-02	7.420E-03	-0.103
U-235	-1.026E-02		5.658E-02	8.571E-02	1.563E-02	-0.120
NP-236	2.579E-03		2.111E-02	3.662E-02	3.166E-03	0.070
NP-237	1.109E-03		3.979E-02	6.320E-02	1.430E-02	0.018
U-238	-5.115E-03		1.223E-01	2.013E-01	3.556E-02	-0.025
NP-239	-1.911E-02		4.589E-02	6.809E-02	7.568E-03	-0.281
AM-241	3.527E-03		1.249E-02	2.147E-02	1.822E-03	0.164
AM-243	1.620E-03		7.742E-03	1.323E-02	1.121E-03	0.122

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	8.337E-03		1.761E-02	3.029E-02	3.103E-03	0.275
AM-246	-1.862E-02		6.658E-02	1.005E-01	8.624E-03	-0.185
CM-247	5.184E-04		1.584E-02	2.524E-02	2.048E-03	0.021
CF-249	1.662E-02		1.503E-02	2.863E-02	2.296E-03	0.581
CF-251	9.617E-03		3.585E-02	6.276E-02	5.192E-03	0.153
ANH-511	-1.200E-02		3.065E-02	5.729E-02	5.492E-03	-0.209

## 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]G1202037552          *
* Acquisition date   : 19-FEB-2010 20:41:37 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 02:00:25.04              Half life ratio : 8.000     *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037552              Analyst initials: MXR1        *
* Batch Number       : 950788                   Sample Quantity : 1.5875E+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
BI-211	6.844E-02	1.123E-01	6.803E-02	5.731E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-8.595E-02	1.457E-01	1.184E-01	7.432E-02 NOT IDENT.
NA-22	-1.292E-02	2.102E-02	1.406E-02	1.073E-02 NOT IDENT.
NA-24	1.641E+01	3.209E+02	0.000E+00	1.637E+02 SHORT HLIF
AL-26	7.548E-03	2.293E-02	2.120E-02	1.170E-02 NOT IDENT.
K-40	-1.061E-01	1.975E-01	1.616E-01	1.008E-01 NOT IDENT.
TI-44	-7.217E-03	4.720E-03	3.485E-03	2.408E-03 NOT IDENT.
SC-46	-1.127E-02	1.985E-02	1.468E-02	1.013E-02 NOT IDENT.
V-48	-1.536E-02	2.480E-02	1.774E-02	1.265E-02 NOT IDENT.
CR-51	-7.199E-02	1.362E-01	1.095E-01	6.948E-02 NOT IDENT.
MN-52	3.843E-02	6.432E-02	6.363E-02	3.282E-02 NOT IDENT.
MN-54	-1.324E-02	1.904E-02	1.448E-02	9.716E-03 NOT IDENT.
CO-56	1.297E-02	1.688E-02	1.712E-02	8.611E-03 NOT IDENT.
CO-57	4.395E-05	5.470E-03	4.777E-03	2.791E-03 NOT IDENT.
CO-58	1.783E-02	1.673E-02	1.774E-02	8.536E-03 NOT IDENT.
FE-59	-5.731E-03	3.340E-02	2.689E-02	1.704E-02 NOT IDENT.
CO-60	-1.063E-02	1.576E-02	1.004E-02	8.039E-03 NOT IDENT.
ZN-65	-7.743E-03	4.198E-02	3.356E-02	2.142E-02 NOT IDENT.
GE-68	9.498E-02	5.477E-01	4.881E-01	2.794E-01 NOT IDENT.
AS-73	1.054E-02	4.072E-02	3.976E-02	2.078E-02 NOT IDENT.
AS-74	-2.301E-02	3.280E-02	2.436E-02	1.674E-02 NOT IDENT.
SE-75	6.464E-03	1.507E-02	1.415E-02	7.690E-03 NOT IDENT.
BR-77	1.635E-01	7.873E-01	7.188E-01	4.017E-01 NOT IDENT.
SR-82	1.169E-01	1.433E-01	1.426E-01	7.309E-02 NOT IDENT.
RB-83	-3.824E-03	3.068E-02	2.654E-02	1.565E-02 NOT IDENT.
RB-84	-7.956E-03	3.109E-02	2.569E-02	1.586E-02 NOT IDENT.
KR-85	-1.237E+01	5.266E+00	3.337E+00	2.687E+00 NOT IDENT.

SR-85	-5.938E-02	2.528E-02	1.602E-02	1.290E-02	NOT IDENT.
RB-86	1.062E-01	2.945E-01	2.731E-01	1.503E-01	NOT IDENT.
Y-88	-9.983E-03	2.174E-02	1.425E-02	1.109E-02	NOT IDENT.
ZR-88	9.151E-03	1.119E-02	1.088E-02	5.707E-03	NOT IDENT.
Y-91	-2.266E+00	5.053E+00	3.376E+00	2.578E+00	NOT IDENT.
NB-94	7.580E-04	1.704E-02	1.463E-02	8.693E-03	NOT IDENT.
NB-95	-1.424E-03	1.379E-02	1.124E-02	7.036E-03	NOT IDENT.
NB-95M	-2.950E-02	4.062E-02	3.357E-02	2.072E-02	NOT IDENT.
ZR-95	1.519E-02	2.893E-02	2.738E-02	1.476E-02	NOT IDENT.
NB-97	-3.401E+01	1.027E+02	0.000E+00	5.241E+01	SHORT HLIF
ZR-97	-5.749E+03	2.806E+03	0.000E+00	1.432E+03	SHORT HLIF
MO-99	-1.122E-01	1.144E+00	9.451E-01	5.836E-01	NOT IDENT.
TC-99M	-2.804E+08	3.353E+08	0.000E+00	1.711E+08	SHORT HLIF
RH-101	8.682E-03	1.113E-02	1.096E-02	5.677E-03	NOT IDENT.
RH-102	2.508E-03	1.463E-02	1.337E-02	7.462E-03	NOT IDENT.
RU-103	-1.439E-02	1.702E-02	1.284E-02	8.686E-03	NOT IDENT.
RH-106	1.342E-02	1.340E-01	1.183E-01	6.836E-02	NOT IDENT.
RU-106	1.342E-02	1.340E-01	1.183E-01	6.836E-02	NOT IDENT.
AG-108M	5.426E-04	1.341E-02	1.218E-02	6.843E-03	NOT IDENT.
CD-109	-1.227E-02	1.308E-01	1.136E-01	6.676E-02	NOT IDENT.
AG-110M	-7.846E-03	1.733E-02	1.353E-02	8.842E-03	NOT IDENT.
IN-111	4.752E-02	8.101E-02	7.758E-02	4.133E-02	NOT IDENT.
IN-113M	-7.672E-03	1.693E-02	1.311E-02	8.639E-03	NOT IDENT.
SN-113	-7.672E-03	1.693E-02	1.311E-02	8.639E-03	NOT IDENT.
IN-114M	1.181E-02	5.030E-02	4.754E-02	2.566E-02	NOT IDENT.
CD-115	8.843E-02	6.306E-01	5.710E-01	3.217E-01	NOT IDENT.
SN-117M	-4.610E-03	9.955E-03	8.836E-03	5.079E-03	NOT IDENT.
SB-122	-1.585E-01	1.867E-01	1.353E-01	9.527E-02	NOT IDENT.
I-123	-3.044E+02	5.428E+02	0.000E+00	2.769E+02	SHORT HLIF
TE-123M	-4.009E-03	7.148E-03	6.279E-03	3.647E-03	NOT IDENT.
I-124	4.714E-02	1.184E-01	1.093E-01	6.041E-02	NOT IDENT.
SB-124	-3.837E-02	5.292E-02	3.258E-02	2.700E-02	NOT IDENT.
SB-125	-8.327E-03	3.304E-02	2.854E-02	1.685E-02	NOT IDENT.
TE-125M	1.378E-01	1.802E+00	1.608E+00	9.194E-01	NOT IDENT.
I-126	-3.433E-02	6.425E-02	4.900E-02	3.278E-02	NOT IDENT.
SB-126	-2.535E-02	6.419E-02	5.079E-02	3.275E-02	NOT IDENT.
SN-126	9.293E-04	1.320E-02	1.173E-02	6.737E-03	NOT IDENT.
SB-127	-1.604E-01	2.066E-01	1.432E-01	1.054E-01	NOT IDENT.
XE-127	-5.292E-03	1.334E-02	1.168E-02	6.804E-03	NOT IDENT.
I-131	1.988E-02	2.990E-02	2.812E-02	1.526E-02	NOT IDENT.
TE-132	-1.560E-02	5.878E-02	5.141E-02	2.999E-02	NOT IDENT.
BA-133	1.631E-03	2.073E-02	1.611E-02	1.057E-02	NOT IDENT.
I-133	-1.985E+00	1.635E+01	0.000E+00	8.341E+00	SHORT HLIF
CS-134	1.376E-02	1.974E-02	1.927E-02	1.007E-02	NOT IDENT.
CS-135	-2.049E-02	5.253E-02	4.407E-02	2.680E-02	NOT IDENT.
I-135	-1.527E+08	4.094E+08	0.000E+00	2.089E+08	SHORT HLIF
CS-136	7.097E-03	3.932E-02	3.501E-02	2.006E-02	NOT IDENT.
BA-137M	1.193E-02	1.477E-02	1.478E-02	7.536E-03	NOT IDENT.
CS-137	1.261E-02	1.561E-02	1.563E-02	7.966E-03	NOT IDENT.
CE-139	6.230E-03	7.842E-03	7.926E-03	4.001E-03	NOT IDENT.
BA-140	3.991E-02	7.415E-02	7.095E-02	3.783E-02	NOT IDENT.
LA-140	6.232E-03	3.561E-02	3.181E-02	1.817E-02	NOT IDENT.
CE-141	-1.178E-02	1.454E-02	1.081E-02	7.420E-03	NOT IDENT.
CE-143	2.322E-01	1.887E+00	1.689E+00	9.628E-01	FAIL ABUN
CE-144	-1.441E-04	4.633E-02	4.000E-02	2.364E-02	NOT IDENT.
PM-144	-5.255E-03	1.868E-02	1.509E-02	9.531E-03	NOT IDENT.
PR-144	-3.549E-01	1.262E+00	1.019E+00	6.437E-01	NOT IDENT.
PM-146	4.750E-03	1.923E-02	1.788E-02	9.811E-03	NOT IDENT.
ND-147	2.201E-02	1.424E-01	1.295E-01	7.268E-02	NOT IDENT.
PM-149	2.007E+00	4.452E+00	4.174E+00	2.271E+00	NOT IDENT.
EU-152	2.032E-03	3.488E-02	3.042E-02	1.780E-02	NOT IDENT.
GD-153	-3.411E-03	1.514E-02	1.259E-02	7.723E-03	NOT IDENT.
EU-154	-5.569E-02	6.355E-02	3.832E-02	3.242E-02	NOT IDENT.
EU-155	-1.209E-02	2.037E-02	1.624E-02	1.039E-02	NOT IDENT.
TB-160	1.060E-02	6.642E-02	5.998E-02	3.389E-02	NOT IDENT.
HO-166M	-9.925E-03	2.859E-02	2.237E-02	1.459E-02	NOT IDENT.
TM-171	1.375E+00	2.701E+00	2.655E+00	1.378E+00	NOT IDENT.
LU-176	5.143E-03	8.266E-03	7.943E-03	4.217E-03	NOT IDENT.
LU-177	-3.192E-02	1.613E-01	1.438E-01	8.231E-02	NOT IDENT.
LU-177M	6.965E-03	7.470E-02	6.409E-02	3.811E-02	NOT IDENT.
HF-181	9.501E-03	1.673E-02	1.621E-02	8.535E-03	NOT IDENT.
W-181	-1.605E-02	3.243E-02	2.807E-02	1.654E-02	NOT IDENT.
TA-182	3.365E-03	7.761E-02	6.584E-02	3.960E-02	NOT IDENT.
RE-183	1.494E-02	2.738E-02	2.711E-02	1.397E-02	NOT IDENT.
RE-184	3.147E-02	9.005E-02	8.366E-02	4.594E-02	NOT IDENT.
OS-185	-9.504E-03	1.654E-02	1.211E-02	8.438E-03	NOT IDENT.
RE-188	-1.170E-02	4.201E-02	3.835E-02	2.143E-02	NOT IDENT.
W-188	6.007E-01	2.294E+00	2.100E+00	1.171E+00	NOT IDENT.

IR-192	-2.141E-03	1.233E-02	1.046E-02	6.290E-03	NOT IDENT.
AU-195	-3.787E-03	4.070E-02	3.424E-02	2.076E-02	NOT IDENT.
TL-200	-1.495E+00	3.301E+00	0.000E+00	1.684E+00	SHORT HLIF
TL-201	3.793E-01	4.383E-01	4.472E-01	2.236E-01	NOT IDENT.
TL-202	4.523E-03	1.972E-02	1.840E-02	1.006E-02	NOT IDENT.
HG-203	7.308E-04	1.381E-02	1.230E-02	7.044E-03	NOT IDENT.
BI-207	6.363E-03	2.011E-02	1.877E-02	1.026E-02	NOT IDENT.
TL-207	1.046E-01	2.649E-01	2.427E-01	1.352E-01	NOT IDENT.
TL-208	1.816E-02	1.950E-02	1.921E-02	9.950E-03	NOT IDENT.
PO-209	-1.526E-01	3.799E+00	3.287E+00	1.938E+00	NOT IDENT.
BI-210	5.805E-02	1.047E-01	1.068E-01	5.343E-02	NOT IDENT.
PB-210	5.805E-02	1.047E-01	1.068E-01	5.343E-02	NOT IDENT.
PO-210	5.805E-02	1.047E-01	1.068E-01	5.341E-02	NOT IDENT.
PB-211	-1.168E-01	4.137E-01	3.275E-01	2.111E-01	NOT IDENT.
BI-212	-2.110E-01	1.670E-01	1.033E-01	8.519E-02	NOT IDENT.
PB-212	-3.835E-03	2.205E-02	2.063E-02	1.125E-02	NOT IDENT.
PO-212	-3.835E-03	2.205E-02	2.063E-02	1.125E-02	NOT IDENT.
BI-214	-6.452E-03	3.803E-02	3.253E-02	1.940E-02	NOT IDENT.
PB-214	2.381E-02	3.909E-02	3.419E-02	1.995E-02	FAIL ABUN
PO-214	2.381E-02	3.909E-02	3.419E-02	1.995E-02	FAIL ABUN
PO-215	1.046E-01	2.649E-01	2.427E-01	1.352E-01	NOT IDENT.
PO-216	-3.835E-03	2.205E-02	2.063E-02	1.125E-02	NOT IDENT.
PO-218	2.381E-02	3.909E-02	3.419E-02	1.995E-02	FAIL ABUN
RN-219	-7.371E-02	1.822E-01	1.431E-01	9.294E-02	NOT IDENT.
RN-220	-4.695E+00	1.269E+01	1.042E+01	6.475E+00	NOT IDENT.
RA-223	1.046E-01	2.649E-01	2.427E-01	1.352E-01	NOT IDENT.
RA-224	-6.892E-02	2.641E-01	2.208E-01	1.347E-01	NOT IDENT.
RA-226	-6.452E-03	3.803E-02	3.253E-02	1.940E-02	NOT IDENT.
AC-227	3.587E-02	1.397E-01	1.287E-01	7.130E-02	NOT IDENT.
TH-227	3.587E-02	1.398E-01	1.287E-01	7.132E-02	NOT IDENT.
AC-228	3.355E-02	6.152E-02	5.962E-02	3.139E-02	NOT IDENT.
RA-228	3.355E-02	6.152E-02	5.962E-02	3.139E-02	NOT IDENT.
TH-228	-3.869E-03	2.224E-02	2.081E-02	1.135E-02	NOT IDENT.
TH-229	-4.730E-02	1.546E-01	1.374E-01	7.888E-02	NOT IDENT.
TH-230	-6.452E-03	3.803E-02	3.253E-02	1.940E-02	NOT IDENT.
PA-231	-5.479E-01	5.575E-01	4.130E-01	2.845E-01	NOT IDENT.
TH-231	1.046E-01	2.649E-01	2.427E-01	1.352E-01	NOT IDENT.
U-231	-1.795E-02	7.255E-02	6.267E-02	3.702E-02	NOT IDENT.
TH-232	3.355E-02	6.152E-02	5.962E-02	3.139E-02	NOT IDENT.
PA-233	-1.473E-02	2.295E-02	1.783E-02	1.171E-02	NOT IDENT.
PA-234	-4.305E-02	1.661E-01	1.361E-01	8.476E-02	NOT IDENT.
PA-234M	-2.740E-01	1.894E+00	1.564E+00	9.663E-01	NOT IDENT.
TH-234	-5.115E-03	1.198E-01	1.108E-01	6.113E-02	NOT IDENT.
U-234	-6.452E-03	3.803E-02	3.253E-02	1.940E-02	NOT IDENT.
U-235	-1.026E-02	5.545E-02	4.618E-02	2.829E-02	NOT IDENT.
NP-236	2.579E-03	2.069E-02	1.968E-02	1.055E-02	NOT IDENT.
NP-237	1.109E-03	3.900E-02	3.450E-02	1.990E-02	NOT IDENT.
U-238	-5.115E-03	1.198E-01	1.108E-01	6.113E-02	NOT IDENT.
NP-239	-1.911E-02	4.497E-02	3.689E-02	2.294E-02	NOT IDENT.
AM-241	3.527E-03	1.224E-02	1.183E-02	6.247E-03	NOT IDENT.
AM-243	1.620E-03	7.587E-03	7.251E-03	3.871E-03	NOT IDENT.
CM-243	8.337E-03	1.726E-02	1.646E-02	8.805E-03	NOT IDENT.
AM-246	-1.862E-02	6.525E-02	5.123E-02	3.329E-02	NOT IDENT.
CM-247	5.184E-04	1.553E-02	1.323E-02	7.921E-03	NOT IDENT.
CF-249	1.662E-02	1.473E-02	1.502E-02	7.517E-03	NOT IDENT.
CF-251	9.617E-03	3.514E-02	3.363E-02	1.793E-02	NOT IDENT.
ANH-511	-1.200E-02	3.004E-02	2.982E-02	1.532E-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	19.8365
46.50	19.8365
46.50	19.8365
48.70	28.2616
49.72	22.9056
51.35	29.5493
52.39	23.1986
52.97	28.8440
53.15	28.8680
53.44	20.5144
54.07	16.8330
56.28	26.4457
56.28	26.4460
57.37	21.8278
57.53	21.8430
57.53	21.8433
57.60	21.8497
57.98	28.5466
57.98	28.5466
59.32	27.7542
59.32	27.7542
59.40	27.7636
59.54	27.7802
59.72	27.8014
60.01	27.8354
61.10	30.8556
61.14	30.8607
61.30	34.7414
63.00	31.0977
63.29	33.0802
63.29	33.0802
63.58	27.2745
64.28	28.3283
65.12	32.3436
65.20	32.3540
65.20	32.3540
66.05	29.5113
66.72	24.6571
66.83	16.7742
66.91	16.7794
67.20	16.7982
67.20	16.7982
67.75	20.7948
67.85	26.7466
68.90	28.8434
68.90	28.8434
69.30	24.9027
69.67	24.9376
70.82	21.0378
70.82	21.0378
70.83	21.0386
72.80	41.3744
72.87	41.3848
72.87	41.3848
74.67	26.4150
74.81	35.5765
74.81	35.5765
74.81	35.5765
74.81	35.5765
74.81	35.5765
74.81	35.5765
74.97	35.5968
75.28	35.6361
75.70	35.6889
77.11	35.8660
77.11	35.8660

77.11	35.8660
77.11	35.8660
77.11	35.8660
77.11	35.8660
77.11	35.8660
78.38	33.9658
79.62	22.7400
79.80	25.8568
79.80	25.8568
80.11	21.7426
80.18	21.7477
80.30	17.6124
80.30	17.6124
80.57	27.9982
81.00	28.0386
81.07	28.0452
81.07	28.0452
81.07	28.0452
81.07	28.0452
82.60	35.4967
83.37	30.3530
83.78	31.4422
83.78	31.4422
83.78	31.4422
83.78	31.4422
84.21	27.2882
84.90	46.2837
85.43	46.3629
86.29	32.7549
86.50	27.4903
86.54	27.4939
86.59	27.4982
86.72	27.5096
86.79	29.6321
86.94	27.5290
87.30	25.4403
87.30	25.4403
87.30	25.4403
87.30	25.4403
87.30	25.4403
87.30	25.4403
87.30	25.4403
87.57	26.5230
87.88	26.5490
88.03	26.5615
88.36	36.1611
88.47	36.1735
89.95	27.7898
91.11	28.9621
92.29	26.9133
92.38	23.6902
92.38	23.6902
93.35	24.8395
94.00	35.7090
94.67	29.2744
94.67	29.2748
94.90	27.1248
94.90	27.1248
94.90	27.1248
94.90	27.1248
95.87	32.6434
95.87	32.6434
96.73	26.1808
97.43	24.0479
98.44	17.5405
98.44	17.5406
98.88	18.6605
99.55	21.9957
99.55	21.9957
99.86	20.9145
100.00	20.9227
100.10	20.9290
103.18	19.9996
103.76	17.8062
105.00	29.0340
105.31	26.8233
108.00	21.3904
109.28	25.9822

111.00	30.6397
111.00	30.6397
111.76	31.8377
112.95	33.0768
115.19	32.1204
116.30	32.2112
117.00	32.2680
117.00	32.2680
117.66	31.1670
121.11	27.9419
121.62	31.4738
121.78	27.9876
122.06	23.3389
122.32	26.8566
122.32	26.8566
122.32	26.8566
122.32	26.8566
123.07	23.3961
127.23	25.9924
129.76	23.7695
131.20	21.4637
133.02	20.3556
133.54	23.9761
135.34	22.8698
136.00	28.9307
136.25	32.5651
136.48	32.5820
140.51	32.8721
140.51	0.0000
142.18	19.5503
142.65	20.7929
143.76	31.8767
144.24	30.6820
144.24	30.6820
144.24	30.6820
144.24	30.6820
145.22	35.6655
145.44	35.6818
147.16	27.1673
152.43	33.7063
152.70	31.2267
153.22	37.5114
154.21	39.2570
154.21	39.2570
154.21	39.2570
154.21	39.2570
155.03	35.1389
156.02	25.1489
158.56	32.0165
159.00	0.0000
159.00	35.4170
160.31	29.5900
161.27	23.7164
162.32	27.1595
162.64	28.0257
163.35	34.0169
163.89	37.4576
165.85	25.6351
167.43	22.2837
171.28	29.3505
171.86	25.0611
172.10	26.8011
176.55	28.7629
176.60	28.7656
181.06	25.4809
184.41	29.1667
185.71	31.8900
186.00	30.1336
190.27	33.0333
192.34	38.5243
193.63	36.8122
197.04	36.1186
198.01	35.2719
198.60	38.0215
200.40	39.0418
201.83	38.2223
202.84	40.1077
205.31	32.0303

208.36	31.2659
208.81	25.7666
209.75	28.5696
209.75	28.5696
210.97	24.9307
215.65	19.5313
216.55	26.0774
218.09	28.0057
222.10	26.2970
223.80	33.8961
226.40	21.7391
227.00	25.5424
227.08	25.5454
227.20	25.5498
228.16	32.2191
228.18	32.2202
228.18	32.2202
231.56	30.4740
235.69	45.9819
236.00	46.9608
236.00	46.9608
238.63	29.8206
238.63	29.8206
238.63	29.8206
238.63	29.8206
239.00	30.7985
240.98	40.5354
241.98	35.7594
241.98	35.7594
241.98	35.7594
244.69	39.7742
245.39	27.1891
247.94	33.1308
248.90	40.0040
249.79	42.0062
252.40	33.3311
252.85	33.3515
252.85	33.3515
254.15	0.0000
256.20	28.5740
256.20	28.5740
260.50	25.7635
260.90	26.7687
262.80	23.8530
264.65	23.9102
268.24	28.0239
268.79	22.0345
269.46	19.0460
269.46	19.0460
269.46	19.0460
269.46	19.0460
271.23	25.1165
273.65	21.1624
276.40	17.1906
277.35	29.3593
277.60	30.3815
277.60	30.3815
278.00	34.4489
278.60	28.3908
279.20	28.4119
279.53	21.3174
280.46	21.3422
281.68	21.3738
283.67	31.6288
284.30	30.6317
285.00	20.4386
285.90	19.4380
286.10	19.4426
286.10	19.4426
287.40	19.4731
288.45	0.0000
290.67	19.5497
290.80	19.5524
291.72	23.6949
293.26	22.7059
293.70	24.7832
295.21	27.9305
295.21	27.9305

295.21	27.9305
295.96	27.9553
296.50	27.9728
297.23	34.2186
298.57	25.9638
299.80	23.9209
299.80	23.9209
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300.09	26.0096
300.09	26.0096
300.09	26.0096
300.12	26.0106
301.29	21.8784
302.84	28.1799
303.76	22.9856
303.91	26.1246
304.40	25.0938
304.40	25.0938
304.84	18.8298
306.84	14.6788
308.46	21.0083
311.98	24.2559
316.51	23.3186
318.01	23.3575
319.02	23.3835
319.41	23.3934
320.08	31.9238
323.87	22.4394
323.87	22.4394
323.87	22.4394
323.87	22.4394
325.23	29.9631
328.77	26.8555
333.44	21.5914
334.20	29.1720
334.20	29.1720
334.30	28.0947
338.28	10.8510
338.28	10.8510
338.28	10.8510
338.28	10.8510
338.32	10.8514
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350.59	13.1877
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351.92	28.0618
351.92	28.0618
351.92	28.0618
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367.43	24.5862
367.94	0.0000
369.80	19.0423
374.96	24.7661
383.85	14.7586
387.95	9.1170
388.63	17.1054
391.69	19.4411
391.69	19.4411
392.90	11.4488
398.62	18.4141
400.65	18.4482
401.10	18.4557
401.81	23.0843
402.60	18.4808
404.84	21.9900
410.95	24.4376
411.60	26.7805
413.65	18.6637
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415.30	14.8942

415.76	16.6531
417.63	0.0000
418.52	16.6934
423.70	15.8862
427.08	20.3580
427.89	15.0576
432.53	14.2280
433.93	16.9158
439.47	15.2060
439.56	15.2070
439.89	15.2114
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444.90	16.1732
445.03	16.1752
445.03	16.1752
445.03	16.1752
445.03	16.1752
453.90	17.1985
463.38	10.0334
468.07	21.9727
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475.06	21.1733
475.35	17.4950
476.78	21.2017
477.59	24.9046
477.96	23.9890
482.03	12.9579
484.57	18.5477
487.03	13.9371
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492.35	12.1278
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510.53	0.0000
510.84	21.7545
511.00	21.7573
511.85	41.6485
511.85	41.6485
513.99	72.0502
513.99	72.0502
520.41	17.1442
520.65	15.2422
527.90	11.4910
528.96	0.0000
529.64	13.4228
529.87	0.0000
531.02	9.5972
537.32	8.6759
543.00	12.5818
546.56	0.0000
549.76	18.4747
552.65	12.6660
555.20	18.5437
563.23	16.6825
563.90	18.6533
568.70	16.7437
569.32	15.7651
569.50	15.7671
569.67	15.7690
573.80	21.7422
574.00	21.7449
574.64	22.7431
578.91	25.7818
579.30	0.0000
583.14	13.9210
585.48	21.9094
591.81	11.9996
592.07	9.0011
593.00	13.0095
595.88	17.0441
600.56	16.0894
602.52	0.0000
602.71	15.1044
602.71	15.1044
603.60	18.1357
604.41	25.2014
604.70	25.2060
609.31	9.1005

609.31	9.1005
609.31	9.1005
609.31	9.1005
610.33	11.1299
612.46	18.2368
614.37	14.2012
618.01	16.2666
621.84	10.1907
621.84	10.1907
631.29	9.2249
633.02	14.3653
633.10	14.3657
634.78	17.4622
635.90	8.2231
636.97	5.1427
645.85	13.4427
646.12	11.3763
656.30	11.4451
657.75	16.6616
657.90	0.0000
661.65	6.2624
661.65	6.2624
664.57	13.5915
666.33	16.7451
666.33	16.7451
675.00	7.3627
677.61	11.5875
685.20	14.8113
692.80	13.8125
695.00	19.1486
696.49	18.0999
696.49	18.0999
697.00	14.9100
697.49	14.9143
698.33	11.7238
698.50	11.7248
699.00	17.0591
702.63	13.8887
706.10	14.9857
706.58	0.0000
706.67	13.9196
709.31	6.4338
711.68	12.8840
713.82	11.8245
717.42	11.8476
720.50	22.6560
721.93	15.1155
722.20	16.1975
722.78	15.1224
722.78	15.1224
722.89	15.1234
722.95	15.1241
723.30	11.8852
724.18	11.8909
727.18	21.6547
733.00	14.1196
735.90	14.1414
739.58	10.8994
742.81	12.0098
744.21	10.9259
747.13	7.6599
751.79	9.8723
752.31	9.8751
753.82	9.8828
755.35	3.2969
756.15	6.5966
756.87	6.5990
763.93	7.7270
765.79	6.6295
766.42	11.0526
766.84	11.0550
776.49	5.5548
778.00	16.6768
778.57	14.4576
778.89	14.4600
783.80	8.9204
785.46	12.2760
792.07	12.3166

795.84	5.6088
796.30	4.4882
798.80	12.3575
801.93	8.1011
805.60	11.7229
810.29	5.4229
810.76	4.5201
815.85	9.0627
817.79	8.1639
818.51	7.2594
819.60	7.2633
826.30	17.3060
828.27	0.0000
831.60	7.3053
831.96	10.0464
834.83	16.4619
836.80	0.0000
846.75	5.5182
848.13	9.2031
856.28	0.0000
856.80	11.0883
860.37	10.1812
867.32	15.7848
867.82	13.0023
871.10	11.1615
873.19	13.0344
874.81	13.9757
875.33	0.0000
876.40	11.1885
879.36	9.3364
880.27	12.1421
880.51	12.1437
881.50	11.2146
883.24	9.3528
884.67	10.2948
889.25	11.2538
896.60	10.3498
898.02	8.4733
899.00	8.4771
903.28	5.6621
911.07	6.6285
911.07	6.6285
911.07	6.6285
919.63	11.4059
920.93	9.5103
925.00	9.5271
925.24	9.5281
926.50	7.6266
935.52	3.8281
937.48	12.4519
944.10	7.6844
946.00	12.4969
949.00	9.6255
962.29	10.6474
964.01	8.7177
966.15	9.6948
968.20	7.7625
969.11	5.8241
969.11	5.8241
969.11	5.8241
977.42	2.9221
980.50	10.7280
983.50	9.7646
989.30	10.7666
996.32	8.8341
1001.03	6.8841
1001.68	10.8206
1004.76	4.9246
1021.30	0.0000
1024.50	0.0000
1034.80	9.9673
1036.00	6.9802
1037.82	6.9853
1038.57	6.9874
1038.76	0.0000
1045.16	11.0081
1046.59	9.0119
1048.07	8.0152

1050.47	7.0198
1050.47	7.0198
1062.04	4.0291
1063.62	4.0316
1076.63	6.0773
1077.35	6.0788
1078.86	8.1098
1085.78	5.0818
1099.22	6.1289
1112.02	4.1053
1112.84	3.0798
1115.52	7.1935
1120.29	8.2352
1120.29	8.2352
1120.29	8.2352
1120.29	8.2352
1120.51	8.2359
1121.28	7.2085
1124.00	0.0000
1129.67	8.2633
1131.51	0.0000
1147.95	0.0000
1167.94	4.1883
1173.22	8.3922
1175.09	5.2485
1177.93	7.3551
1189.05	4.2191
1204.90	4.2422
1205.75	0.0000
1213.00	4.2539
1221.42	6.3990
1230.97	7.4895
1235.34	9.6434
1236.41	0.0000
1238.25	2.1450
1246.25	4.3014
1260.41	0.0000
1271.85	4.3377
1274.45	10.8535
1274.54	8.6828
1291.56	7.6392
1298.22	0.0000
1312.09	3.2953
1325.50	4.5962
1325.50	4.5962
1332.49	5.5276
1333.61	4.6077
1360.21	2.7875
1362.66	0.0000
1365.15	4.6527
1368.21	1.8628
1368.53	0.0000
1376.25	0.9337
1384.27	5.6157
1394.10	3.7547
1395.20	2.8170
1407.95	4.7127
1434.06	3.7992
1436.60	6.6536
1457.56	0.0000
1460.81	1.9143
1489.15	8.6840
1509.49	4.8519
1596.49	3.9738
1620.62	2.9993
1678.03	0.0000
1691.02	7.1248
1691.02	7.1248
1706.46	0.0000
1750.46	0.0000
1764.49	7.2541
1764.49	7.2541
1764.49	7.2541
1764.49	7.2541
1770.23	6.2263
1771.40	5.1900
1791.20	0.0000
1808.65	3.1417

1836.01

4.2157

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037552

Total Uranium Activity	-1.9966E-02	ug/g
Total Uranium Counting Unc.	3.5736E-01	ug/g
Total Uranium Tpu	1.8232E-07	ug/g
Total Uranium Mda	3.3027E-01	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950788                          SAMPLE ID   : G1202037552
*  ANALYST       : MXR1                             DETECTOR    : GAM21
*  SAMPLE DATE   : 11-FEB-2010 00:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE: 19-FEB-2010 20:41:37.43          SAMPLE ALQT: 158.750 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.857E-03
GROSS GAMMA ERROR (pCi/GRAM ) : 7.405E-03
GROSS GAMMA MDA (pCi/GRAM ) : 1.846E-02
GROSS GAMMA DLC (pCi/GRAM ) : 8.167E-03

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VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:44:21.56

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                             *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037553.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:42:20
Sample ID          : G1202037553           Sample quantity : 1.44980E+02 GRAM
Detector name      : GAM22                 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00         Elapsed real time: 0 02:00:02.53  0.0%
Energy tolerance   : 1.50000 keV           Analyst Initials : MXR1
Abundance limit    : 75.00000              Sensitivity       : 5.00000
Batch ID           : 950788                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	63.02*	321	967	1.12	126.29	120	12	4.46E-02	20.5	
2	3	74.82*	572	764	1.17	149.87	143	16	7.95E-02	9.1	1.79E+00
3	3	77.11*	778	628	0.97	154.44	143	16	1.08E-01	6.4	
4	0	84.00*	149	634	1.73	168.21	165	7	2.07E-02	29.7	
5	0	86.78	182	736	1.06	173.77	172	7	2.53E-02	25.6	
6	4	89.98	236	343	1.07	180.17	178	14	3.27E-02	12.5	3.69E+00
7	4	92.75*	701	688	1.56	185.69	178	14	9.74E-02	8.2	
8	0	129.16	74	518	0.83	258.44	256	7	1.03E-02	52.0	
9	0	185.83*	371	520	1.33	371.67	367	9	5.15E-02	12.8	
10	0	209.84	229	660	1.47	419.65	413	13	3.17E-02	24.3	
11	3	238.70*	1930	373	1.21	477.32	472	26	2.68E-01	2.9	1.53E+00
12	3	241.66	458	482	1.89	483.24	472	26	6.36E-02	12.6	
13	0	270.36	108	395	1.24	540.59	536	10	1.50E-02	35.7	
14	0	278.08	90	406	1.34	556.01	550	11	1.25E-02	44.8	
15	0	295.24*	645	386	1.33	590.30	585	11	8.96E-02	7.2	
16	0	300.11	123	248	1.11	600.04	596	8	1.71E-02	24.0	
17	0	328.20	96	349	1.60	656.16	652	10	1.33E-02	38.2	
18	0	338.32*	398	303	1.38	676.39	671	10	5.53E-02	9.7	
19	0	352.02*	1066	372	1.32	703.77	697	15	1.48E-01	5.1	
20	0	409.76	98	182	1.71	819.17	815	10	1.36E-02	27.8	
21	0	463.51	107	243	0.92	926.59	922	13	1.49E-02	32.4	
22	0	510.85*	257	316	2.44	1021.20	1011	21	3.57E-02	20.4	
23	0	583.26*	684	232	1.59	1165.94	1159	16	9.50E-02	6.4	
24	0	609.21*	816	221	1.66	1217.80	1209	17	1.13E-01	5.6	
25	0	661.63	291	208	1.67	1322.59	1314	15	4.04E-02	12.3	
26	0	727.73	219	153	2.00	1454.73	1448	16	3.04E-02	14.3	
27	0	770.22	103	235	0.64	1539.67	1531	21	1.43E-02	39.2	
28	0	794.79*	70	147	2.08	1588.78	1583	13	9.69E-03	38.9	
29	0	860.12*	118	140	1.81	1719.39	1710	16	1.64E-02	24.7	
30	0	911.37*	444	198	2.00	1821.85	1814	19	6.16E-02	9.2	
31	2	965.10	104	71	2.63	1929.28	1924	19	1.44E-02	18.2	1.40E+00
32	2	968.96*	309	88	1.93	1937.00	1924	19	4.28E-02	8.7	
33	0	1120.15*	172	113	2.15	2239.33	2233	16	2.38E-02	16.3	
34	0	1460.75*	2702	117	2.66	2920.53	2907	28	3.75E-01	2.3	
35	0	1764.21*	157	9	2.93	3527.61	3516	21	2.18E-02	10.6	
36	0	1848.40	34	11	1.90	3696.07	3690	12	4.69E-03	24.6	

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

## VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:44:24

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037553.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-FEB-2010 12:00:00   Acquisition date : 19-FEB-2010 20:42:20
Sample ID         : G1202037553           Sample quantity  : 144.98 GRAM
Sample type       : SOLID                 Sample geometry   :
Detector name     : GAMMA22              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:02.53   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	*	3.435E+01	3.507E+00	4.239E-01	3.883E-02	81.022
CD-109	+	88.03	*	1.748E+00	9.088E-01	1.025E+00	9.728E-02	1.705
SN-126	+	64.28		2.021E+00	8.785E-01	6.391E-01	9.281E-02	3.162
	+	86.94		7.130E-01	4.696E-01	4.643E-01	1.928E-01	1.536
	+	87.57	*	1.715E-01	8.916E-02	1.205E-01	1.138E-02	1.423
BA-137M	+	661.65	*	2.332E-01	6.259E-02	4.849E-02	5.114E-03	4.810
CS-137	+	661.65	*	2.466E-01	6.618E-02	5.126E-02	5.413E-03	4.810
HG-203		70.83		-1.594E-02	9.838E-01	1.447E+00	1.900E-01	-0.011
		72.87		1.146E+00	5.463E-01	9.131E-01	1.170E-01	1.255
	+	82.60		1.930E+00	1.176E+00	1.500E+00	2.087E-01	1.287
	+	279.20	*	6.224E-02	5.649E-02	5.872E-02	8.311E-03	1.060
TL-208	+	277.35		5.543E-01	5.053E-01	5.269E-01	8.688E-02	1.052
	+	510.84		7.158E-01	3.060E-01	1.760E-01	2.294E-02	4.067
	+	583.14	*	5.351E-01	9.018E-02	4.713E-02	5.111E-03	11.354
	+	860.37		8.372E-01	4.245E-01	3.545E-01	4.130E-02	2.362
BI-211		72.87		5.654E+00	2.636E+00	4.507E+00	3.607E-01	1.255
	+	351.07	*	3.951E+00	6.093E-01	2.811E-01	3.280E-02	14.053
PB-212	+	74.81		2.245E+00	4.946E-01	4.568E-01	5.668E-02	4.914
	+	77.11		1.733E+00	2.644E-01	2.601E-01	2.175E-02	6.662
	+	87.30		7.932E-01	4.199E-01	5.587E-01	7.673E-02	1.420
	+	238.63	*	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
	+	300.09		1.585E+00	7.954E-01	1.091E+00	1.591E-01	1.453
PO-212	+	74.81		2.245E+00	4.946E-01	4.568E-01	5.668E-02	4.914
	+	77.11		1.733E+00	2.644E-01	2.601E-01	2.175E-02	6.662
	+	87.30		7.932E-01	4.199E-01	5.587E-01	7.673E-02	1.420
		115.19		9.041E-01	3.284E+00	5.277E+00	4.371E-01	0.171
	+	238.63	*	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
	+	300.09		1.585E+00	7.954E-01	1.091E+00	1.591E-01	1.453
BI-214	+	609.31	*	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
	+	1120.29		1.255E+00	4.309E-01	4.082E-01	4.510E-02	3.073
	+	1764.49		1.498E+00	3.410E-01	2.293E-01	1.911E-02	6.533
PB-214	+	74.81		3.868E+00	8.232E-01	7.870E-01	8.675E-02	4.914
	+	77.11		2.970E+00	5.066E-01	4.459E-01	5.044E-02	6.662
	+	87.30		1.359E+00	7.141E-01	9.572E-01	1.164E-01	1.420

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		2.376E+00	6.803E-01	4.935E-01	6.787E-02	4.815
	+	295.21		1.457E+00	3.017E-01	1.866E-01	2.778E-02	7.806
	+	351.92	*	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
	+	74.81		3.868E+00	8.232E-01	7.870E-01	8.675E-02	4.914
	+	77.11		2.970E+00	5.066E-01	4.459E-01	5.044E-02	6.662
	+	87.30		1.359E+00	7.141E-01	9.572E-01	1.164E-01	1.420
PO-216	+	241.98		2.376E+00	6.803E-01	4.935E-01	6.787E-02	4.815
	+	295.21		1.457E+00	3.017E-01	1.866E-01	2.778E-02	7.806
	+	351.92	*	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
	+	74.81		2.245E+00	4.946E-01	4.568E-01	5.668E-02	4.914
	+	77.11		1.733E+00	2.644E-01	2.601E-01	2.175E-02	6.662
	+	87.30		7.932E-01	4.199E-01	5.587E-01	7.673E-02	1.420
PO-218	+	238.63	*	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
	+	300.09		1.585E+00	7.954E-01	1.091E+00	1.591E-01	1.453
	+	74.81		3.868E+00	8.232E-01	7.870E-01	8.675E-02	4.914
	+	77.11		2.970E+00	5.066E-01	4.459E-01	5.044E-02	6.662
	+	87.30		1.359E+00	7.141E-01	9.572E-01	1.164E-01	1.420
	+	241.98		2.376E+00	6.803E-01	4.935E-01	6.787E-02	4.815
RA-224	+	295.21		1.457E+00	3.017E-01	1.866E-01	2.778E-02	7.806
	+	351.92	*	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
	+	240.98	*	4.506E+00	1.265E+00	9.332E-01	1.168E-01	4.829
RA-226	+	609.31	*	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
	+	1120.29		1.255E+00	4.309E-01	4.082E-01	4.510E-02	3.073
	+	1764.49		1.498E+00	3.410E-01	2.293E-01	1.911E-02	6.533
AC-228	+	338.32		1.637E+00	7.588E-01	3.207E-01	1.349E-01	5.105
	+	911.07	*	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868
	+	969.11		1.817E+00	5.398E-01	2.939E-01	7.099E-02	6.180
RA-228	+	338.32		1.637E+00	7.588E-01	3.207E-01	1.349E-01	5.105
	+	911.07	*	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868
	+	969.11		1.817E+00	5.398E-01	2.939E-01	7.099E-02	6.180
TH-228	+	74.81		2.281E+00	4.560E-01	4.643E-01	3.825E-02	4.914
	+	77.11		1.761E+00	2.687E-01	2.644E-01	2.211E-02	6.662
	+	87.30		8.062E-01	4.191E-01	5.679E-01	5.345E-02	1.420
TH-230	+	238.63	*	1.697E+00	2.446E-01	8.343E-02	1.102E-02	20.340
	+	300.09		1.611E+00	1.240E+00	1.109E+00	6.670E-01	1.453
	+	609.31	*	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
TH-232	+	1120.29		1.255E+00	4.309E-01	4.082E-01	4.510E-02	3.073
	+	1764.49		1.498E+00	3.410E-01	2.293E-01	1.911E-02	6.533
	+	338.32		1.637E+00	3.735E-01	3.207E-01	3.813E-02	5.105
TH-234	+	911.07	*	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868
	+	969.11		1.817E+00	5.398E-01	2.939E-01	7.099E-02	6.180
	+	63.29	*	5.105E+00	2.273E+00	1.638E+00	2.852E-01	3.116
U-234	+	92.38		4.269E+00	1.051E+00	6.219E-01	1.139E-01	6.865
	+	609.31	*	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
	+	1120.29		1.255E+00	4.309E-01	4.082E-01	4.510E-02	3.073
NP-237	+	1764.49		1.498E+00	3.410E-01	2.293E-01	1.911E-02	6.533
	+	86.50	*	5.036E-01	2.817E-01	3.055E-01	6.917E-02	1.649
	+	95.87		-6.960E-01	9.471E-01	1.295E+00	3.202E-01	-0.537
U-238	+	63.29	*	5.105E+00	2.273E+00	1.638E+00	2.852E-01	3.116

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	92.38		4.269E+00	8.032E-01	6.219E-01	5.667E-02	6.865
	+	74.67	*	3.639E-01	7.262E-02	7.426E-02	6.053E-03	4.900
	+	86.72		1.889E+01	9.818E+00	1.143E+01	1.068E+00	1.652
		117.66		-1.734E+00	3.583E+00	5.594E+00	4.620E-01	-0.310
ANH-511		142.18		-1.438E+01	1.632E+01	2.591E+01	2.288E+00	-0.555
	+	511.00	*	1.546E-01	6.482E-02	3.803E-02	3.810E-03	4.066

---- 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	*	2.902E-01	2.885E-01	4.870E-01	5.083E-02	0.596
NA-22		1274.54	*	-4.621E-03	3.786E-02	6.217E-02	5.358E-03	-0.074
NA-24		1368.53	*	-4.602E+00	3.786E-02	Half-Life too short		
AL-26		1129.67		8.055E-01	1.665E+00	2.476E+00	2.156E-01	0.325
		1808.65	*	-3.173E-03	2.281E-02	3.681E-02	3.010E-03	-0.086
TI-44		67.85		-1.148E-02	4.185E-02	6.112E-02	4.665E-03	-0.188
	+	78.38	*	3.198E-01	4.879E-02	6.435E-02	5.456E-03	4.969
SC-46		889.25	*	3.168E-03	3.126E-02	5.219E-02	5.842E-03	0.061
	+	1120.51		2.170E-01	7.313E-02	1.024E-01	9.055E-03	2.118
V-48		944.10		-5.825E-01	7.962E-01	1.248E+00	1.353E-01	-0.467
		983.50	*	5.915E-03	6.356E-02	1.050E-01	1.101E-02	0.056
		1312.09		-3.172E-02	7.104E-02	1.133E-01	9.980E-03	-0.280
CR-51		320.08	*	1.471E-01	3.227E-01	5.488E-01	7.107E-02	0.268
MN-52		744.21		-6.640E-02	2.289E-01	3.648E-01	3.964E-02	-0.182
		848.13		-1.866E+00	6.219E+00	1.016E+01	1.132E+00	-0.184
		935.52		2.989E-01	2.603E-01	4.542E-01	4.959E-02	0.658
		1246.25		-6.706E+00	7.583E+00	1.191E+01	1.007E+00	-0.563
		1333.61		-1.831E+00	4.848E+00	7.743E+00	6.905E-01	-0.236
		1434.06	*	1.151E-01	2.288E-01	3.907E-01	3.491E-02	0.295
MN-54		834.83	*	3.157E-02	3.255E-02	5.668E-02	6.297E-03	0.557
CO-56		846.75	*	-4.647E-02	3.264E-02	4.889E-02	5.443E-03	-0.950
		977.42		-2.168E+00	2.635E+00	3.778E+00	3.985E-01	-0.574
		1037.82		-7.387E-02	2.690E-01	4.314E-01	4.449E-02	-0.171
		1175.09		-2.739E-01	1.931E+00	3.195E+00	2.573E-01	-0.086
		1238.25		1.283E-01	8.221E-02	1.452E-01	1.258E-02	0.883
		1360.21		2.104E-01	8.501E-01	1.425E+00	1.273E-01	0.148
CO-57		1771.40		1.477E-01	1.922E-01	3.074E-01	2.554E-02	0.480
		122.06	*	-1.704E-02	2.427E-02	3.745E-02	3.088E-03	-0.455
		136.48		-4.319E-02	1.794E-01	3.011E-01	2.793E-02	-0.143
CO-58		810.76	*	-3.214E-03	3.177E-02	5.284E-02	5.851E-03	-0.061
FE-59		142.65		-1.395E+00	2.546E+00	4.090E+00	3.619E-01	-0.341
		192.34		-4.089E-01	9.109E-01	1.478E+00	2.194E-01	-0.277
		1099.22	*	-5.860E-02	8.406E-02	1.302E-01	1.276E-02	-0.450
CO-60		1291.56		7.936E-02	1.017E-01	1.768E-01	1.742E-02	0.449
		1173.22		-2.689E-02	3.842E-02	6.142E-02	4.939E-03	-0.438
		1332.49	*	-3.538E-03	3.219E-02	5.258E-02	4.689E-03	-0.067
ZN-65		1115.52	*	1.190E-01	8.953E-02	1.371E-01	1.223E-02	0.868
GE-68		1077.35	*	1.039E-01	1.150E+00	1.882E+00	1.774E-01	0.055

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-73	53.44	*		3.267E-01	6.565E-01	1.115E+00	8.428E-02	0.293
AS-74	595.88	*		5.111E-02	8.290E-02	1.413E-01	1.464E-02	0.362
	634.78			-6.110E-02	3.204E-01	5.225E-01	5.476E-02	-0.117
SE-75	66.05			-2.057E+00	4.270E+00	6.152E+00	5.869E-01	-0.334
	96.73			-2.655E-01	7.558E-01	1.067E+00	1.469E-01	-0.249
	121.11			4.226E-02	1.290E-01	2.069E-01	2.262E-02	0.204
	136.00			-2.303E-02	3.392E-02	5.609E-02	4.867E-03	-0.411
	198.60			-1.290E-01	1.731E+00	2.786E+00	3.256E-01	-0.046
	264.65	*		-3.854E-02	4.788E-02	6.370E-02	8.574E-03	-0.605
+	279.53			1.645E-01	1.493E-01	1.658E-01	2.353E-02	0.992
	303.91			5.731E-01	2.045E+00	3.036E+00	4.626E-01	0.189
	400.65			-5.758E-02	2.306E-01	3.742E-01	4.380E-02	-0.154
BR-77	87.88	+		5.422E+02	2.818E+02	4.082E+02	3.870E+01	1.328
	200.40			-5.988E+01	2.174E+02	3.540E+02	3.893E+01	-0.169
+	239.00			3.856E+02	5.281E+01	4.693E+01	5.839E+00	8.216
	249.79			-3.661E+01	1.001E+02	1.383E+02	1.778E+01	-0.265
	281.68			1.577E+01	1.307E+02	1.834E+02	2.555E+01	0.086
	297.23			5.841E+02	1.452E+02	1.658E+02	2.230E+01	3.522
	303.76			5.503E+01	2.482E+02	3.673E+02	4.859E+01	0.150
	439.47			8.484E+01	1.833E+02	3.046E+02	2.932E+01	0.279
	484.57			6.048E+00	2.811E+02	4.541E+02	4.489E+01	0.013
	520.65	*		3.785E+00	1.321E+01	2.092E+01	2.105E+00	0.181
	574.64			-1.232E+02	2.739E+02	4.234E+02	4.357E+01	-0.291
	578.91			-9.456E+01	1.293E+02	1.751E+02	1.804E+01	-0.540
	585.48			2.793E+03	4.270E+02	6.257E+02	6.463E+01	4.465
	755.35			2.148E+02	2.086E+02	3.557E+02	3.879E+01	0.604
	817.79			-2.423E+01	1.567E+02	2.596E+02	2.874E+01	-0.093
SR-82	698.33			1.001E+01	2.826E+01	4.706E+01	5.035E+00	0.213
	776.49	*		-1.744E-01	3.869E-01	5.117E-01	5.612E-02	-0.341
	1395.20			7.401E+00	9.270E+00	1.620E+01	1.449E+00	0.457
RB-83	520.41	*		1.468E-02	6.116E-02	9.664E-02	9.726E-03	0.152
	529.64			-1.988E-03	9.003E-02	1.507E-01	1.523E-02	-0.013
	552.65			-2.558E-02	1.601E-01	2.649E-01	2.703E-02	-0.097
RB-84	881.50	*		2.815E-02	5.536E-02	9.477E-02	1.060E-02	0.297
KR-85	513.99	*		2.246E+01	7.574E+00	1.199E+01	1.203E+00	1.874
SR-85	513.99	*		1.167E-01	3.934E-02	6.227E-02	6.248E-03	1.874
RB-86	1076.63	*		3.933E-01	7.560E-01	1.268E+00	1.196E-01	0.310
Y-88	898.02			-1.585E-02	3.593E-02	5.789E-02	6.505E-03	-0.274
	1836.01	*		6.914E-03	2.710E-02	4.591E-02	3.712E-03	0.151
ZR-88	392.90	*		-8.400E-03	2.687E-02	4.355E-02	4.055E-03	-0.193
Y-91	1204.90	*		3.887E+00	1.653E+01	2.786E+01	2.291E+00	0.140
NB-94	702.63	*		2.309E-03	2.862E-02	4.693E-02	5.029E-03	0.049
	871.10			2.712E-02	2.724E-02	4.775E-02	5.335E-03	0.568
NB-95	765.79	*		9.110E-02	4.474E-02	6.980E-02	7.633E-03	1.305
NB-95M	235.69	*		1.678E-01	1.340E-01	1.984E-01	2.623E-02	0.846
ZR-95	724.18			1.675E-01	9.218E-02	1.439E-01	1.640E-02	1.164
	756.15	*		5.887E-02	6.344E-02	1.076E-01	1.249E-02	0.547
NB-97	657.90	*		4.278E-01	6.344E-02	Half-Life	too short	
	1024.50			1.768E+00	6.344E-02	Half-Life	too short	

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

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ZR-97	254.15			1.322E+01	6.344E-02	Half-Life	too short	
	355.39			3.429E+00	6.344E-02	Half-Life	too short	
	507.63	*		2.128E+01	6.344E-02	Half-Life	too short	
	602.52			-1.135E+01	6.344E-02	Half-Life	too short	
	1021.30			-2.827E+01	6.344E-02	Half-Life	too short	
	1147.95			-1.205E+00	6.344E-02	Half-Life	too short	
	1362.66			1.314E+01	6.344E-02	Half-Life	too short	
	1750.46			7.335E+00	6.344E-02	Half-Life	too short	
MO-99	140.51			-1.064E+01	3.141E+01	5.224E+01	1.449E+01	-0.204
	181.06			9.884E+00	2.318E+01	3.428E+01	6.562E+00	0.288
	366.43			-5.394E+01	9.856E+01	1.588E+02	1.684E+01	-0.340
	739.58	*		-1.185E+01	1.339E+01	2.032E+01	3.364E+00	-0.583
	778.00			-4.190E+01	4.720E+01	5.955E+01	6.534E+00	-0.703
TC-99M	140.51	*		-3.534E+11	4.720E+01	Half-Life	too short	
RH-101	127.23			7.501E-03	3.384E-02	4.794E-02	4.007E-03	0.156
	198.01	*		-3.793E-03	3.193E-02	5.135E-02	5.602E-03	-0.074
	325.23			1.019E-01	2.233E-01	3.319E-01	4.126E-02	0.307
RH-102	418.52			7.594E-02	2.360E-01	3.918E-01	3.718E-02	0.194
	475.06	*		5.059E-03	2.634E-02	4.297E-02	4.226E-03	0.118
	631.29			1.871E-02	4.622E-02	7.779E-02	8.146E-03	0.241
	697.49			1.104E-03	6.132E-02	1.003E-01	1.073E-02	0.011
	766.84			1.604E-01	1.155E-01	1.742E-01	1.906E-02	0.921
	1046.59			2.875E-02	1.023E-01	1.668E-01	1.636E-02	0.172
	1112.84			-3.146E-02	2.347E-01	3.195E-01	2.859E-02	-0.098
RU-103	497.08	*		-1.454E-02	3.559E-02	5.590E-02	8.390E-03	-0.260
	610.33	+		1.322E+01	2.760E+00	2.356E+00	4.165E-01	5.610
RH-106	511.85	+		7.741E-01	3.245E-01	3.597E-01	3.605E-02	2.152
	621.84	*		-4.471E-02	2.537E-01	4.146E-01	6.054E-02	-0.108
	1050.47			-4.452E-01	1.981E+00	3.184E+00	3.108E-01	-0.140
RU-106	511.85	+		7.741E-01	3.245E-01	3.597E-01	3.605E-02	2.152
	621.84	*		-4.471E-02	2.536E-01	4.146E-01	4.330E-02	-0.108
	1050.47			-4.452E-01	1.981E+00	3.184E+00	3.108E-01	-0.140
AG-108M	433.93	*		-1.064E-02	2.852E-02	4.561E-02	4.515E-03	-0.233
	614.37			4.353E-03	3.518E-02	5.048E-02	5.403E-03	0.086
	722.95			5.323E-03	3.839E-02	5.415E-02	5.991E-03	0.098
AG-110M	657.75	*		3.656E-02	3.446E-02	5.222E-02	5.613E-03	0.700
	677.61			-2.660E-01	2.584E-01	3.952E-01	4.273E-02	-0.673
	706.67			1.440E-01	1.855E-01	3.137E-01	3.427E-02	0.459
	763.93			1.160E-01	1.648E-01	2.405E-01	2.676E-02	0.482
	884.67			-1.102E-02	3.896E-02	6.342E-02	7.233E-03	-0.174
	937.48			3.751E-02	9.587E-02	1.617E-01	1.803E-02	0.232
	1384.27			-2.005E-01	1.541E-01	2.254E-01	2.068E-02	-0.889
IN-111	171.28			5.750E-02	1.251E+00	2.085E+00	2.081E-01	0.028
	245.39	*		-1.601E+00	1.325E+00	2.018E+00	2.560E-01	-0.794
IN-113M	391.69	*		-2.703E-02	3.889E-02	6.180E-02	5.902E-03	-0.437
SN-113	391.69	*		-2.703E-02	3.889E-02	6.180E-02	5.902E-03	-0.437
IN-114M	190.27	*		1.205E-02	1.943E-01	2.823E-01	3.001E-02	0.043
CD-115	260.90			2.124E+02	1.739E+02	2.898E+02	3.850E+01	0.733
	492.35			5.917E+00	4.493E+01	7.291E+01	7.238E+00	0.081

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SN-117M		527.90	*	-3.247E+00	1.335E+01	2.210E+01	2.231E+00	-0.147
		156.02		1.680E+00	2.176E+00	3.717E+00	3.485E-01	0.452
		158.56	*	-1.748E-02	5.234E-02	8.664E-02	8.216E-03	-0.202
SB-122		563.90	*	-6.314E-01	2.348E+00	3.858E+00	3.954E-01	-0.164
		692.80		-1.690E+01	4.893E+01	7.834E+01	8.365E+00	-0.216
I-123		159.00	*	1.394E+00	4.893E+01	Half-Life	too short	
		528.96		-4.190E+02	4.893E+01	Half-Life	too short	
TE-123M		159.00	*	1.431E-03	2.557E-02	4.284E-02	4.091E-03	0.033
I-124		602.71	*	-3.986E-01	8.077E-01	1.108E+00	1.150E-01	-0.360
		722.78		-5.515E-02	4.894E+00	6.815E+00	7.354E-01	-0.008
SB-124		1325.50		-6.758E+00	3.450E+01	5.598E+01	4.971E+00	-0.121
		1376.25		7.558E+01	3.621E+01	6.645E+01	5.939E+00	1.137
		1509.49		1.807E+01	1.612E+01	2.873E+01	2.553E+00	0.629
		1691.02		-7.063E-01	3.501E+00	5.651E+00	4.832E-01	-0.125
		602.71		-1.911E-02	3.874E-02	5.311E-02	5.517E-03	-0.360
		645.85		-1.033E-01	4.189E-01	6.795E-01	7.432E-02	-0.152
		709.31		1.175E+00	2.456E+00	4.104E+00	4.409E-01	0.286
		713.82		-1.197E+00	1.456E+00	2.178E+00	2.973E-01	-0.550
		722.78		-3.834E-03	3.402E-01	4.737E-01	5.183E-02	-0.008
	+	968.20		1.897E+01	3.854E+00	6.259E+00	6.655E-01	3.031
		1045.16		8.731E-01	2.152E+00	3.601E+00	3.538E-01	0.242
		1325.50		-5.025E-01	2.561E+00	4.156E+00	3.691E-01	-0.121
		1368.21		-2.321E+00	1.594E+00	2.242E+00	3.066E-01	-1.036
		1436.60		2.408E-01	3.237E+00	5.327E+00	4.761E-01	0.045
SB-125		1691.02	*	-1.158E-02	5.741E-02	9.266E-02	8.242E-03	-0.125
		427.89	*	1.032E-02	7.603E-02	1.249E-01	1.212E-02	0.083
	+	463.38		5.922E-01	3.888E-01	4.607E-01	4.777E-02	1.286
		600.56		-2.791E-03	1.689E-01	2.503E-01	2.732E-02	-0.011
		635.90		-5.393E-02	2.317E-01	3.769E-01	4.170E-02	-0.143
TE-125M		109.28	*	1.684E+00	8.817E+00	1.418E+01	1.436E+00	0.119
I-126		388.63		-3.823E-02	1.895E-01	3.091E-01	2.927E-02	-0.124
		666.33	*	-2.321E-02	1.886E-01	2.628E-01	2.777E-02	-0.088
SB-126		753.82		9.580E-01	1.366E+00	2.297E+00	2.503E-01	0.417
		223.80		-1.397E+00	3.936E+00	6.328E+00	7.508E-01	-0.221
	+	278.60		3.929E+00	3.565E+00	4.202E+00	5.873E-01	0.935
	+	296.50		1.555E+01	3.070E+00	3.511E+00	4.730E-01	4.428
		414.70		-4.028E-02	7.880E-02	1.075E-01	1.017E-02	-0.375
		415.30		-4.545E-01	6.412E+00	9.031E+00	8.551E-01	-0.050
		555.20		2.611E-01	3.398E+00	5.692E+00	5.814E-01	0.046
		573.80		3.182E-01	1.006E+00	1.662E+00	1.710E-01	0.191
		593.00		-1.220E-01	8.710E-01	1.402E+00	1.452E-01	-0.087
		656.30		7.907E-03	3.396E+00	4.790E+00	5.045E-01	0.002
		666.33		-9.726E-03	7.904E-02	1.102E-01	1.164E-02	-0.088
		675.00		5.040E-01	1.783E+00	2.967E+00	3.146E-01	0.170
		695.00		-1.176E-02	6.674E-02	1.079E-01	1.153E-02	-0.109
		697.00		-6.431E-02	2.309E-01	3.709E-01	3.967E-02	-0.173
		720.50	*	5.460E-02	1.398E-01	2.016E-01	2.174E-02	0.271
		856.80		6.030E-01	4.997E-01	7.744E-01	8.634E-02	0.779
		989.30		6.673E-01	1.201E+00	2.034E+00	2.122E-01	0.328

## ---- 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			7.926E-01	7.819E+00	1.287E+01	1.279E+00	0.062
	1213.00			4.900E-01	4.355E+00	7.287E+00	6.025E-01	0.067
	61.10			3.725E+01	5.689E+01	9.606E+01	1.009E+01	0.388
	252.40			-2.273E+00	5.552E+00	7.980E+00	3.450E+00	-0.285
	290.80			4.521E+00	2.508E+01	3.721E+01	5.827E+00	0.122
	411.60			1.968E+01	1.508E+01	2.267E+01	3.730E+00	0.868
	444.90			-6.183E-01	1.090E+01	1.768E+01	2.403E+00	-0.035
	473.00			1.019E+00	1.868E+00	3.093E+00	4.334E-01	0.329
	543.00			6.224E+00	1.667E+01	2.835E+01	4.435E+00	0.220
	603.60			-1.773E+00	1.374E+01	1.938E+01	2.731E+00	-0.091
	685.20	*		-9.269E-02	1.410E+00	2.298E+00	3.059E-01	-0.040
	698.50			5.539E+00	1.525E+01	2.537E+01	4.386E+00	0.218
	722.20			-1.392E+01	3.422E+01	4.589E+01	6.076E+00	-0.303
	783.80			5.314E+00	3.952E+00	6.750E+00	9.763E-01	0.787
XE-127	57.60			3.385E+00	5.322E+00	8.162E+00	5.862E-01	0.415
	145.22			4.738E-01	6.376E-01	1.094E+00	9.780E-02	0.433
	172.10			-1.074E-02	1.125E-01	1.866E-01	1.867E-02	-0.058
	202.84	*		-3.115E-02	4.766E-02	7.034E-02	7.798E-03	-0.443
I-131	374.96			-1.092E-02	1.747E-01	2.877E-01	2.929E-02	-0.038
	80.18			-4.637E+00	6.188E+00	6.778E+00	5.907E-01	-0.684
	284.30			8.125E-01	1.517E+00	2.391E+00	3.381E-01	0.340
	364.48	*		1.084E-02	1.067E-01	1.774E-01	1.967E-02	0.061
TE-132	636.97			3.096E-01	1.422E+00	2.370E+00	2.581E-01	0.131
	722.89			6.173E-01	7.180E+00	1.008E+01	1.093E+00	0.061
	49.72			-1.602E+01	1.915E+01	3.109E+01	3.336E+00	-0.515
	111.76			-1.933E+01	3.690E+01	5.710E+01	6.265E+00	-0.339
	116.30			-1.680E+01	3.375E+01	5.268E+01	5.756E+00	-0.319
BA-133	228.16	*		-2.098E-01	8.376E-01	1.350E+00	2.432E-01	-0.155
	53.15			2.023E+00	2.785E+00	4.765E+00	3.616E-01	0.425
	79.62			-7.219E-01	1.534E+00	1.711E+00	2.602E-01	-0.422
	81.00			7.249E-02	1.079E-01	1.286E-01	2.050E-02	0.564
	276.40			2.558E-01	4.771E-01	5.773E-01	1.045E-01	0.443
I-133	302.84			5.638E-02	1.405E-01	2.095E-01	3.494E-02	0.269
	356.01	*		2.351E-02	3.982E-02	5.926E-02	8.856E-03	0.397
	383.85			7.591E-02	2.659E-01	4.432E-01	5.931E-02	0.171
	510.53	+		4.260E+00	2.659E-01	Half-Life	too short	
	529.87	*		3.427E-03	2.659E-01	Half-Life	too short	
	706.58			7.497E-01	2.659E-01	Half-Life	too short	
	856.28			6.083E-01	2.659E-01	Half-Life	too short	
	875.33			-1.634E-01	2.659E-01	Half-Life	too short	
	1236.41			3.949E+00	2.659E-01	Half-Life	too short	
	1298.22			-4.929E-01	2.659E-01	Half-Life	too short	
CS-134	475.35			6.923E-01	1.715E+00	2.826E+00	2.779E-01	0.245
	563.23			-1.392E-01	2.938E-01	4.771E-01	4.922E-02	-0.292
	569.32			8.222E-02	1.768E-01	2.967E-01	3.076E-02	0.277
	604.70			2.548E-02	3.164E-02	4.751E-02	4.946E-03	0.536
	795.84	+	*	7.655E-02	6.013E-02	7.857E-02	8.697E-03	0.974
	801.93			-3.864E-01	4.063E-01	5.064E-01	5.607E-02	-0.763
	1038.57			-1.320E+00	3.309E+00	5.259E+00	5.206E-01	-0.251

---- 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		1167.94		6.422E-01	2.034E+00	3.457E+00	2.809E-01	0.186
		1365.15		-4.324E-01	1.015E+00	1.606E+00	1.496E-01	-0.269
		268.24	*	2.772E-01	1.630E-01	2.424E-01	3.507E-02	1.143
		288.45		5.957E+10	1.630E-01	Half-Life	too short	
		417.63		-2.931E+10	1.630E-01	Half-Life	too short	
		546.56		1.842E+11	1.630E-01	Half-Life	too short	
		836.80		1.945E+11	1.630E-01	Half-Life	too short	
		1038.76		-2.095E+11	1.630E-01	Half-Life	too short	
		1124.00		2.289E+12	1.630E-01	Half-Life	too short	
		1131.51		-3.420E+09	1.630E-01	Half-Life	too short	
		1260.41	*	-2.113E+10	1.630E-01	Half-Life	too short	
		1457.56		2.871E+13	1.630E-01	Half-Life	too short	
		1678.03		-1.903E+11	1.630E-01	Half-Life	too short	
		1706.46		2.226E+11	1.630E-01	Half-Life	too short	
CS-136 +		1791.20		-1.465E+11	1.630E-01	Half-Life	too short	
		66.91		-4.899E-01	7.423E-01	1.057E+00	1.572E-01	-0.464
		86.29		2.390E+00	1.263E+00	1.794E+00	2.388E-01	1.333
		153.22		4.922E-01	6.424E-01	1.098E+00	1.121E-01	0.448
		163.89		-2.822E-03	1.018E+00	1.698E+00	1.808E-01	-0.002
		176.55		1.454E-01	3.555E-01	5.971E-01	6.319E-02	0.244
		273.65		-3.322E-01	7.137E-01	6.784E-01	9.598E-02	-0.490
		340.57		5.985E-01	1.605E-01	2.477E-01	2.968E-02	2.416
		818.51		-1.624E-02	6.454E-02	1.062E-01	1.177E-02	-0.153
		1048.07	*	6.712E-02	1.017E-01	1.694E-01	1.713E-02	0.396
CE-139 BA-140		1235.34		1.004E+00	5.850E-01	1.029E+00	1.202E-01	0.976
		165.85	*	1.293E-02	2.700E-02	4.564E-02	4.476E-03	0.283
		162.64		-4.511E-01	7.194E-01	1.176E+00	1.189E-01	-0.384
		304.84		7.121E-01	1.349E+00	2.004E+00	5.963E-01	0.355
LA-140 +		423.70		-1.581E+00	1.743E+00	2.586E+00	8.449E-01	-0.611
		537.32	*	-7.650E-02	2.243E-01	3.663E-01	1.230E-01	-0.209
		328.77		5.231E-01	4.053E-01	5.211E-01	6.583E-02	1.004
		432.53		8.578E-01	1.904E+00	3.170E+00	3.157E-01	0.271
		487.03		5.117E-03	1.239E-01	2.003E-01	2.076E-02	0.026
		751.79		1.114E-01	1.591E+00	2.591E+00	3.015E-01	0.043
		815.85		-4.516E-02	2.702E-01	4.471E-01	5.302E-02	-0.101
		867.82		-1.574E+00	1.433E+00	1.899E+00	2.188E-01	-0.829
		919.63		-2.444E+00	2.851E+00	3.658E+00	4.642E-01	-0.668
		925.24		3.288E-01	9.657E-01	1.630E+00	1.863E-01	0.202
CE-141 CE-143		1596.49	*	-1.237E-01	7.754E-02	1.077E-01	9.440E-03	-1.148
		145.44	*	4.293E-02	5.789E-02	9.927E-02	9.036E-03	0.432
		57.37		1.325E-03	5.789E-02	Half-Life	too short	
		231.56		-1.068E-03	5.789E-02	Half-Life	too short	
+ CE-144		293.26	*	1.761E-03	5.789E-02	Half-Life	too short	
		350.59		5.869E-02	5.789E-02	Half-Life	too short	
		490.36		-1.922E-03	5.789E-02	Half-Life	too short	
		664.57		9.380E-03	5.789E-02	Half-Life	too short	
		721.93		-1.074E-03	5.789E-02	Half-Life	too short	
		80.11		-1.899E+00	2.567E+00	2.814E+00	2.432E-01	-0.675
		133.54	*	-1.629E-01	2.020E-01	2.895E-01	4.494E-02	-0.563

----- 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		3.713E-02	5.967E-02	9.923E-02	1.048E-02	0.374
		618.01		3.507E-03	2.669E-02	4.242E-02	4.510E-03	0.083
		696.49	*	-1.550E-02	2.779E-02	4.384E-02	4.689E-03	-0.354
		778.57		-2.676E+00	2.416E+00	2.980E+00	3.270E-01	-0.898
PR-144		696.49	*	-1.051E+00	1.884E+00	2.973E+00	3.179E-01	-0.354
		1489.15		-5.836E+00	9.329E+00	1.413E+01	1.258E+00	-0.413
PM-146		453.90	*	2.276E-02	3.700E-02	6.176E-02	7.177E-03	0.369
		633.02		1.043E+00	1.208E+00	1.975E+00	7.474E-01	0.528
		735.90		1.195E-01	1.390E-01	2.023E-01	5.938E-02	0.590
		747.13		5.971E-02	7.431E-02	1.256E-01	1.950E-02	0.475
ND-147	+	91.11		7.986E-01	2.152E-01	5.224E-01	5.161E-02	1.529
		319.41		1.392E+00	3.025E+00	5.146E+00	6.514E-01	0.270
		439.89		5.101E+00	5.609E+00	9.485E+00	9.134E-01	0.538
		531.02	*	4.125E-01	5.070E-01	8.753E-01	1.388E-01	0.471
PM-149		285.90	*	-7.120E+01	1.218E+02	1.882E+02	3.561E+01	-0.378
EU-152		121.78		-2.719E-02	6.982E-02	1.091E-01	1.047E-02	-0.249
		244.69		-8.800E-02	3.053E-01	4.884E-01	6.184E-02	-0.180
		344.27	*	-6.299E-02	9.767E-02	1.352E-01	1.625E-02	-0.466
		443.98		-1.918E-01	8.652E-01	1.392E+00	1.344E-01	-0.138
		778.89		-3.099E-01	2.782E-01	3.429E-01	3.762E-02	-0.904
		867.32		-6.000E-01	8.085E-01	1.067E+00	1.192E-01	-0.562
	+	964.01		7.037E-01	2.674E-01	4.650E-01	4.962E-02	1.513
		1085.78		-3.522E-02	3.469E-01	5.605E-01	5.223E-02	-0.063
		1112.02		-5.709E-02	3.196E-01	4.504E-01	4.036E-02	-0.127
		1407.95		1.104E-01	1.633E-01	2.811E-01	2.513E-02	0.393
GD-153		69.67		7.304E-01	1.521E+00	2.281E+00	1.770E-01	0.320
	+	83.37		2.557E+01	1.534E+01	2.143E+01	1.924E+00	1.193
		97.43	*	8.045E-02	7.674E-02	1.148E-01	1.010E-02	0.701
		103.18		-6.329E-03	9.615E-02	1.540E-01	1.316E-02	-0.041
EU-154		123.07		-3.761E-02	4.895E-02	7.513E-02	8.334E-03	-0.501
		247.94		-1.217E-01	3.731E-01	5.167E-01	7.679E-02	-0.236
		591.81		-2.106E-01	5.978E-01	8.664E-01	1.126E-01	-0.243
		723.30		1.202E-01	1.593E-01	2.355E-01	2.716E-02	0.510
		756.87		4.680E-01	6.825E-01	1.144E+00	1.569E-01	0.409
		873.19		5.663E-02	2.396E-01	4.037E-01	5.716E-02	0.140
		996.32		-4.665E-01	3.480E-01	5.060E-01	9.448E-02	-0.922
		1004.76		9.278E-02	1.965E-01	3.303E-01	4.264E-02	0.281
		1274.45	*	-1.165E-02	1.058E-01	1.738E-01	1.965E-02	-0.067
EU-155		48.70		-1.578E+00	1.891E+00	3.082E+00	2.510E-01	-0.512
		60.01		3.728E+00	4.267E+00	6.575E+00	4.669E-01	0.567
	+	86.54		2.067E-01	1.075E-01	1.557E-01	1.464E-02	1.327
		105.31	*	3.531E-02	9.929E-02	1.609E-01	1.381E-02	0.219
TB-160	+	86.79		5.584E-01	2.903E-01	4.186E-01	3.915E-02	1.334
		197.04		-7.175E-03	5.467E-01	8.825E-01	9.597E-02	-0.008
		215.65		-3.718E-01	7.784E-01	1.087E+00	1.256E-01	-0.342
		298.57		1.729E-01	1.706E-01	1.833E-01	2.457E-02	0.943
		879.36	*	7.973E-03	1.119E-01	1.866E-01	2.086E-02	0.043
		962.29		8.052E-01	5.318E-01	8.264E-01	8.831E-02	0.974
	+	966.15		4.889E-01	1.858E-01	4.657E-01	4.961E-02	1.050

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1177.93			1.554E-01	3.124E-01	5.352E-01	4.318E-02	0.290
	1271.85			1.766E-01	5.987E-01	1.010E+00	8.680E-02	0.175
	80.57			-2.362E-01	3.278E-01	3.596E-01	3.124E-02	-0.657
	184.41		+	1.754E-01	4.860E-02	6.368E-02	6.639E-03	2.755
	280.46			1.739E-02	8.637E-02	1.218E-01	1.701E-02	0.143
	410.95		+	4.588E-01	2.588E-01	3.705E-01	3.497E-02	1.239
TM-171	711.68		*	-2.322E-02	5.443E-02	8.422E-02	9.054E-03	-0.276
	752.31			6.517E-02	2.377E-01	3.914E-01	4.264E-02	0.166
	810.29			-7.727E-03	4.789E-02	7.936E-02	8.774E-03	-0.097
	51.35			-6.477E+00	2.351E+01	3.903E+01	3.045E+00	-0.166
	52.39			1.207E+01	1.227E+01	2.115E+01	1.623E+00	0.571
	59.40			1.076E+01	2.296E+01	3.488E+01	2.466E+00	0.308
LU-176	66.72		*	-1.904E+01	2.516E+01	3.580E+01	2.705E+00	-0.532
	88.36			8.296E-01	2.388E-01	3.097E-01	2.929E-02	2.679
	201.83			-2.777E-02	2.637E-02	4.153E-02	4.588E-03	-0.669
	306.84		*	-1.333E-02	2.204E-02	3.605E-02	4.729E-03	-0.370
LU-177	401.10			-4.095E-01	5.914E+00	9.677E+00	9.067E-01	-0.042
	112.95			-7.810E-01	1.759E+00	2.729E+00	2.269E-01	-0.286
	208.36		+	4.083E+00	2.038E+00	2.055E+00	2.319E-01	1.987
LU-177M	52.97			1.074E+00	1.261E+00	2.165E+00	1.647E-01	0.496
	54.07			-6.205E-02	6.729E-01	1.121E+00	8.399E-02	-0.055
	61.30			1.243E+00	1.195E+00	2.039E+00	1.467E-01	0.610
	121.62			-1.190E-01	3.604E-01	5.647E-01	4.651E-02	-0.211
	147.16			-1.122E-01	5.950E-01	9.952E-01	8.974E-02	-0.113
	171.86			-7.915E-03	4.463E-01	7.419E-01	7.420E-02	-0.011
	218.09			5.958E-01	7.770E-01	1.297E+00	1.511E-01	0.459
	268.79			1.381E+00	8.539E-01	1.268E+00	1.724E-01	1.089
	319.02			1.624E-01	2.191E-01	3.759E-01	4.763E-02	0.432
	367.43			-3.126E-01	7.699E-01	1.249E+00	1.318E-01	-0.250
HF-181	413.65		*	4.155E-02	1.668E-01	2.403E-01	2.272E-02	0.173
	56.28			-2.852E-01	7.588E-01	1.250E+00	9.103E-02	-0.228
	57.53			3.642E-01	4.425E-01	6.837E-01	4.914E-02	0.533
	65.20			2.819E-01	8.472E-01	1.264E+00	9.420E-02	0.223
	133.02			-1.496E-02	6.539E-02	9.688E-02	8.258E-03	-0.154
	136.25			-2.423E-01	4.018E-01	6.662E-01	5.747E-02	-0.364
W-181	345.85			-1.767E-03	1.923E-01	2.775E-01	3.209E-02	-0.006
	482.03		*	-1.068E-03	3.704E-02	5.971E-02	5.895E-03	-0.018
	56.28			-1.098E-01	2.931E-01	4.828E-01	3.517E-02	-0.227
	57.53			1.407E-01	1.711E-01	2.643E-01	1.900E-02	0.532
	65.20		*	1.081E-01	3.249E-01	4.847E-01	3.613E-02	0.223
	67.75			-5.177E-02	1.019E-01	1.466E-01	1.118E-02	-0.353
TA-182	100.10			-1.256E-02	1.633E-01	2.620E-01	2.270E-02	-0.048
	152.43			1.359E-01	3.060E-01	5.196E-01	4.794E-02	0.262
	222.10			-1.892E-01	3.203E-01	5.102E-01	6.020E-02	-0.371
	1001.68			3.076E+00	1.904E+00	3.258E+00	3.357E-01	0.944
	1121.28		+	5.976E-01	2.014E-01	2.803E-01	2.475E-02	2.132
	1189.05			-8.187E-02	2.545E-01	4.159E-01	3.382E-02	-0.197
	1221.42		*	-8.495E-02	1.777E-01	2.877E-01	2.392E-02	-0.295
	1230.97			-5.263E-01	4.664E-01	7.286E-01	6.097E-02	-0.722

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		57.98		1.116E-01	1.722E-01	2.642E-01	1.890E-02	0.423
		59.32		4.089E-02	9.538E-02	1.447E-01	1.024E-02	0.283
		67.20		-9.743E-02	1.805E-01	2.594E-01	1.968E-02	-0.376
		162.32	*	-2.182E-03	9.818E-02	1.639E-01	1.581E-02	-0.013
	+	208.81		3.267E+00	1.631E+00	1.646E+00	1.861E-01	1.985
RE-184		291.72		3.978E-01	8.785E-01	1.320E+00	1.798E-01	0.301
		57.98		4.084E-01	6.301E-01	9.664E-01	6.916E-02	0.423
		59.32		1.495E-01	3.487E-01	5.290E-01	3.741E-02	0.283
		67.20		-3.563E-01	6.602E-01	9.486E-01	7.198E-02	-0.376
		161.27		-1.677E-01	3.150E-01	5.170E-01	4.964E-02	-0.324
		216.55		-1.420E-01	2.532E-01	3.902E-01	4.523E-02	-0.364
		252.85	*	-4.555E-02	2.215E-01	3.416E-01	4.433E-02	-0.133
		318.01		-9.809E-03	3.830E-01	6.405E-01	8.141E-02	-0.015
		792.07		1.034E-01	1.049E+00	1.457E+00	1.604E-01	0.071
		903.28		-2.554E-02	9.934E-01	1.403E+00	1.566E-01	-0.018
OS-185		920.93		-2.330E-01	4.354E-01	5.816E-01	6.418E-02	-0.401
		59.72		1.757E-01	2.550E-01	3.905E-01	2.765E-02	0.450
		61.14		9.016E-02	1.305E-01	2.208E-01	1.586E-02	0.408
		69.30		1.343E-01	2.670E-01	4.010E-01	3.102E-02	0.335
		592.07		-6.784E-01	2.353E+00	3.550E+00	3.675E-01	-0.191
		646.12	*	-5.162E-03	3.532E-02	5.763E-02	6.057E-03	-0.090
		717.42		-2.493E-01	7.363E-01	1.174E+00	1.265E-01	-0.212
		874.81		1.465E-01	4.696E-01	7.949E-01	8.884E-02	0.184
		880.27		2.889E-01	6.081E-01	1.039E+00	1.162E-01	0.278
		155.03	*	1.807E-01	1.594E-01	2.742E-01	2.559E-02	0.659
RE-188		477.96		2.128E+00	2.738E+00	4.583E+00	4.514E-01	0.464
		633.10		1.511E+00	2.370E+00	4.033E+00	4.225E-01	0.375
	+	63.58		2.078E+02	8.650E+01	8.313E+01	6.108E+00	2.499
W-188		227.08		-2.569E+00	1.202E+01	1.941E+01	2.327E+00	-0.132
	*	290.67		1.233E+00	7.026E+00	1.042E+01	1.423E+00	0.118
IR-192	+	295.96		1.124E+00	2.222E-01	2.550E-01	3.449E-02	4.408
		308.46		-4.503E-03	8.564E-02	1.434E-01	1.878E-02	-0.031
		316.51	*	6.137E-03	2.963E-02	5.001E-02	6.392E-03	0.123
		468.07		-1.777E-02	6.567E-02	8.875E-02	9.181E-03	-0.200
		604.41		1.714E-01	4.350E-01	6.361E-01	9.067E-02	0.269
		612.46		4.694E+00	9.799E-01	1.516E+00	1.743E-01	3.097
AU-195		65.12		7.997E-02	1.501E-01	2.255E-01	1.680E-02	0.355
		66.83		-5.862E-02	8.356E-02	1.192E-01	9.015E-03	-0.492
	+	75.70		1.183E+00	2.361E-01	3.824E-01	3.150E-02	3.094
		98.88	*	2.112E-01	2.033E-01	3.370E-01	2.939E-02	0.627
	+	129.76		2.966E+00	3.094E+00	4.556E+00	3.839E-01	0.651
TL-200		367.94	*	-6.155E-04	3.094E+00	Half-Life	too short	
		579.30		5.671E-03	3.094E+00	Half-Life	too short	
		828.27		-6.948E-03	3.094E+00	Half-Life	too short	
		1205.75		5.679E-04	3.094E+00	Half-Life	too short	
TL-201		68.90		-1.225E+00	5.714E+00	8.357E+00	6.440E-01	-0.147
		70.82		-5.516E-02	3.300E+00	4.854E+00	3.808E-01	-0.011
		80.30		-5.960E+00	8.044E+00	8.815E+00	7.636E-01	-0.676
		135.34		-8.831E+00	2.884E+01	4.832E+01	4.154E+00	-0.183

---- 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	*	7.947E-01	8.507E+00	1.422E+01	1.401E+00	0.056
		68.90		-8.900E-02	4.153E-01	6.074E-01	4.681E-02	-0.147
		70.82		-3.998E-03	2.392E-01	3.518E-01	2.760E-02	-0.011
		80.30		-4.321E-01	5.832E-01	6.391E-01	5.536E-02	-0.676
BI-207		439.56	*	4.870E-02	6.581E-02	1.106E-01	1.065E-02	0.440
		72.80		2.865E-01	1.522E-01	2.596E-01	2.076E-02	1.104
	+	74.97		6.533E-01	1.304E-01	1.906E-01	1.559E-02	3.427
	+	84.90		3.296E-01	1.977E-01	2.700E-01	2.468E-02	1.221
		569.67		6.796E-03	2.759E-02	4.586E-02	4.711E-03	0.148
		1063.62	*	5.055E-02	4.591E-02	7.950E-02	7.633E-03	0.636
TL-207		1770.23		4.480E-01	4.640E-01	7.436E-01	6.181E-02	0.602
		81.07		1.512E-01	2.368E-01	2.829E-01	2.472E-02	0.534
	+	83.78		2.173E-01	1.304E-01	1.828E-01	1.649E-02	1.188
		94.90		4.754E-01	2.276E-01	3.490E-01	3.120E-02	1.362
		122.32		-1.319E+00	1.670E+00	2.566E+00	2.283E-01	-0.514
		144.24		-5.585E-03	6.394E-01	1.045E+00	1.035E-01	-0.005
		154.21		4.033E-01	3.664E-01	6.295E-01	6.359E-02	0.641
	+	269.46		3.279E-01	2.388E-01	3.024E-01	4.153E-02	1.084
		323.87	*	6.051E-02	6.472E-01	9.456E-01	1.879E-01	0.064
	+	338.28		6.835E+00	1.672E+00	2.106E+00	3.116E-01	3.245
PO-209		445.03		-1.148E-01	2.030E+00	3.292E+00	4.230E-01	-0.035
		260.50		1.193E+01	8.806E+00	1.470E+01	1.951E+00	0.812
		262.80		-1.975E+00	2.482E+01	3.979E+01	5.317E+00	-0.050
		896.60	*	2.394E+00	6.339E+00	1.073E+01	1.202E+00	0.223
BI-210		46.50	*	2.044E+00	2.788E+00	4.701E+00	4.368E-01	0.435
PB-210		46.50	*	2.044E+00	2.788E+00	4.701E+00	4.368E-01	0.435
PO-210		46.50	*	2.044E+00	2.787E+00	4.701E+00	3.953E-01	0.435
PB-211		404.84	*	1.597E-01	9.365E-01	1.336E+00	8.389E-01	0.120
BI-212		427.08		-2.463E-01	1.706E+00	2.754E+00	1.715E+00	-0.089
		831.96		4.325E-02	1.028E+00	1.719E+00	1.084E+00	0.025
	+	727.18	*	1.439E+00	4.457E-01	5.498E-01	6.566E-02	2.618
		785.46		2.155E+00	1.589E+00	2.683E+00	2.949E-01	0.803
		1620.62		1.281E+00	9.921E-01	1.844E+00	1.607E-01	0.694
		81.07		1.512E-01	2.368E-01	2.829E-01	2.472E-02	0.534
PO-215	+	83.78		2.173E-01	1.304E-01	1.828E-01	1.649E-02	1.188
		94.90		4.754E-01	2.276E-01	3.490E-01	3.120E-02	1.362
		122.32		-1.319E+00	1.670E+00	2.566E+00	2.283E-01	-0.514
		144.24		-5.585E-03	6.394E-01	1.045E+00	1.035E-01	-0.005
		154.21		4.033E-01	3.664E-01	6.295E-01	6.359E-02	0.641
	+	269.46		3.279E-01	2.388E-01	3.024E-01	4.153E-02	1.084
		323.87	*	6.051E-02	6.472E-01	9.456E-01	1.879E-01	0.064
	+	338.28		6.835E+00	1.672E+00	2.106E+00	3.116E-01	3.245
		445.03		-1.148E-01	2.030E+00	3.292E+00	4.230E-01	-0.035
	+	271.23		4.207E-01	3.072E-01	3.914E-01	5.798E-02	1.075
RN-219		401.81	*	-4.837E-02	3.649E-01	5.953E-01	9.210E-02	-0.081
RN-220		549.76	*	-1.298E+01	2.129E+01	3.437E+01	3.503E+00	-0.378
RA-223		81.07		1.512E-01	2.368E-01	2.829E-01	2.472E-02	0.534
	+	83.78		2.173E-01	1.304E-01	1.828E-01	1.649E-02	1.188
		94.90		4.754E-01	2.276E-01	3.490E-01	3.120E-02	1.362

---- 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		-1.319E+00	1.670E+00	2.566E+00	2.283E-01	-0.514
		144.24		-5.585E-03	6.394E-01	1.045E+00	1.035E-01	-0.005
		154.21		4.033E-01	3.664E-01	6.295E-01	6.359E-02	0.641
	+	269.46		3.279E-01	2.388E-01	3.024E-01	4.153E-02	1.084
		323.87	*	6.051E-02	6.472E-01	9.456E-01	1.879E-01	0.064
	+	338.28		6.835E+00	1.672E+00	2.106E+00	3.116E-01	3.245
		445.03		-1.148E-01	2.030E+00	3.292E+00	4.230E-01	-0.035
		79.80		-1.010E+00	1.951E+00	2.160E+00	4.644E-01	-0.468
		236.00		9.910E-01	3.019E-01	4.282E-01	6.459E-02	2.315
		256.20	*	-2.788E-02	3.405E-01	5.470E-01	9.981E-02	-0.051
TH-227		286.10		-7.162E-01	1.372E+00	2.131E+00	3.631E-01	-0.336
	+	299.80		2.937E+00	1.531E+00	2.234E+00	4.524E-01	1.315
		304.40		1.473E+00	1.826E+00	2.750E+00	5.767E-01	0.536
		334.20		-2.936E-02	3.313E+00	3.216E+00	6.807E-01	-0.009
		79.80		-1.010E+00	1.951E+00	2.160E+00	4.703E-01	-0.468
	+	94.00		1.650E+01	4.530E+00	3.595E+00	7.884E-01	4.589
		236.00		9.910E-01	2.974E-01	4.282E-01	6.061E-02	2.315
		256.20	*	-2.788E-02	3.406E-01	5.470E-01	1.126E-01	-0.051
		286.10		-7.162E-01	1.546E+00	2.131E+00	2.151E+00	-0.336
	+	299.80		2.937E+00	1.531E+00	2.234E+00	4.524E-01	1.315
TH-229		304.40		1.473E+00	1.826E+00	2.750E+00	5.767E-01	0.536
		334.20		-2.936E-02	3.313E+00	3.216E+00	6.807E-01	-0.009
	+	85.43		3.846E-01	1.999E-01	2.736E-01	2.517E-02	1.406
		88.47		4.712E-01	1.370E-01	1.777E-01	1.678E-02	2.652
		100.00		5.522E-03	1.683E-01	2.709E-01	2.349E-02	0.020
		193.63	*	-6.799E-02	4.829E-01	7.924E-01	8.520E-02	-0.086
	+	210.97		2.527E+00	1.261E+00	1.218E+00	1.387E-01	2.074
		283.67	*	6.207E-01	1.447E+00	2.174E+00	4.059E-01	0.285
	+	301.29		1.175E+00	5.944E-01	8.945E-01	1.422E-01	1.313
		81.07		1.512E-01	2.368E-01	2.829E-01	2.472E-02	0.534
U-231	+	83.78		2.173E-01	1.304E-01	1.828E-01	1.649E-02	1.188
		94.90		4.754E-01	2.276E-01	3.490E-01	3.120E-02	1.362
		122.32		-1.319E+00	1.670E+00	2.566E+00	2.283E-01	-0.514
		144.24		-5.585E-03	6.394E-01	1.045E+00	1.035E-01	-0.005
		154.21		4.033E-01	3.664E-01	6.295E-01	6.359E-02	0.641
	+	269.46		3.279E-01	2.388E-01	3.024E-01	4.153E-02	1.084
		323.87	*	6.051E-02	6.472E-01	9.456E-01	1.879E-01	0.064
	+	338.28		6.835E+00	1.672E+00	2.106E+00	3.116E-01	3.245
		445.03		-1.148E-01	2.030E+00	3.292E+00	4.230E-01	-0.035
	+	84.21		1.149E+01	6.895E+00	9.602E+00	8.704E-01	1.197
PA-233	+	92.29		2.001E+01	3.765E+00	4.817E+00	4.393E-01	4.154
		95.87	*	-9.687E-01	1.299E+00	1.802E+00	1.601E-01	-0.537
		108.00		-1.136E+00	2.371E+00	3.729E+00	3.134E-01	-0.305
	+	75.28		1.906E+01	4.509E+00	5.768E+00	8.719E-01	3.305
	+	86.59		3.358E+00	1.943E+00	2.530E+00	6.844E-01	1.327
	+	300.12		8.188E-01	4.200E-01	6.201E-01	1.118E-01	1.320
		311.98	*	2.505E-02	5.493E-02	9.356E-02	1.226E-02	0.268
		340.50		2.912E+00	9.850E-01	1.144E+00	2.879E-01	2.545
		398.62		-2.913E-01	1.840E+00	2.998E+00	8.057E-01	-0.097

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-7.661E-01	1.633E+00	2.223E+00	4.871E-01	-0.345
		63.00		5.951E+00	2.594E+00	2.437E+00	3.610E-01	2.442
		94.67		5.168E-01	1.767E-01	2.647E-01	3.345E-02	1.952
		98.44		1.028E-01	1.030E-01	1.370E-01	7.645E-02	0.750
		99.86		3.363E-02	4.266E-01	6.880E-01	5.969E-02	0.049
		111.00		8.925E-03	1.723E-01	2.756E-01	3.278E-02	0.032
		131.20		1.018E-01	1.033E-01	1.603E-01	1.358E-02	0.635
		152.70		1.008E-01	2.965E-01	5.014E-01	8.707E-02	0.201
		186.00		6.316E+00	2.579E+00	2.428E+00	7.717E-01	2.601
		226.40		2.291E-02	3.699E-01	6.036E-01	9.411E-02	0.038
		227.20		-3.656E-02	4.001E-01	6.492E-01	7.786E-02	-0.056
		248.90		-2.173E-01	8.595E-01	1.194E+00	2.906E-01	-0.182
		293.70		6.399E+00	1.523E+00	1.514E+00	3.062E-01	4.227
		369.80		2.292E-01	7.285E-01	1.218E+00	2.748E-01	0.188
		568.70		4.414E-01	8.886E-01	1.493E+00	1.533E-01	0.296
		569.50		6.834E-02	2.452E-01	4.082E-01	4.192E-02	0.167
		574.00		2.515E-01	1.335E+00	2.193E+00	2.256E-01	0.115
		699.00		-1.767E-01	5.857E-01	9.385E-01	1.887E-01	-0.188
		706.10		5.594E-01	9.433E-01	1.531E+00	6.898E-01	0.365
		733.00		3.206E-02	3.668E-01	5.142E-01	1.190E-01	0.062
		742.81		-4.213E-01	1.143E+00	1.754E+00	1.184E+00	-0.240
		796.30		2.539E+00	1.158E+00	1.534E+00	4.281E-01	1.655
		805.60		-2.764E-02	8.711E-01	1.369E+00	4.302E-01	-0.020
		819.60		9.936E-02	9.889E-01	1.662E+00	6.423E-01	0.060
		826.30		-2.615E-01	6.960E-01	1.120E+00	5.072E-01	-0.233
		831.60		-1.989E-01	5.354E-01	8.697E-01	2.666E-01	-0.229
		876.40		-4.164E-01	7.950E-01	1.067E+00	1.100E+00	-0.390
		880.51		1.099E-01	2.164E-01	3.706E-01	4.144E-02	0.297
		883.24		7.211E-02	2.276E-01	3.767E-01	2.546E-01	0.191
		899.00		-3.511E-01	7.202E-01	1.130E+00	5.003E-01	-0.311
		925.00		4.660E-01	9.321E-01	1.588E+00	1.747E-01	0.294
		926.50		-2.200E-02	1.457E-01	2.382E-01	6.235E-02	-0.092
		946.00	*	-1.930E-01	2.607E-01	4.052E-01	8.054E-02	-0.476
		949.00		4.212E-02	3.920E-01	6.502E-01	7.026E-02	0.065
		980.50		-2.219E-01	6.039E-01	9.674E-01	1.017E-01	-0.229
		1394.10		1.475E-01	9.821E-01	1.624E+00	1.058E+00	0.091
PA-234M	+	766.42		2.210E+01	1.629E+01	1.847E+01	9.452E+00	1.197
		1001.03	*	5.376E+00	4.375E+00	7.361E+00	8.435E-01	0.730
U-235	+	89.95		2.940E+00	1.173E+00	1.630E+00	5.063E-01	1.804
		93.35		5.132E+00	1.675E+00	1.229E+00	3.461E-01	4.176
		105.00		4.693E-01	9.800E-01	1.580E+00	4.709E-01	0.297
		143.76	*	-3.565E-02	1.958E-01	3.183E-01	5.614E-02	-0.112
		163.35		-2.250E-01	4.209E-01	6.872E-01	1.346E-01	-0.327
		185.71		2.339E-01	6.479E-02	8.976E-02	9.399E-03	2.606
NP-236	+	205.31		2.869E-01	5.321E-01	7.797E-01	1.588E-01	0.368
		94.67		3.959E-01	1.296E-01	2.011E-01	1.801E-02	1.968
		98.44		7.772E-02	6.504E-02	1.036E-01	9.053E-03	0.750
		111.00		6.751E-03	1.304E-01	2.085E-01	1.739E-02	0.032
		160.31	*	-4.121E-02	7.070E-02	1.159E-01	1.108E-02	-0.356

---- 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		5.405E-02	1.412E-01	2.299E-01	1.998E-02	0.235
		117.00	*	-9.365E-02	1.793E-01	2.796E-01	2.311E-02	-0.335
	+	209.75		2.546E+00	1.271E+00	1.297E+00	1.471E-01	1.962
		228.18		-5.406E-02	2.100E-01	3.385E-01	4.072E-02	-0.160
	+	277.60		2.673E-01	2.426E-01	2.845E-01	3.966E-02	0.940
AM-241		334.30		2.996E-01	1.573E+00	1.826E+00	2.202E-01	0.164
		59.54	*	7.181E-02	1.334E-01	2.032E-01	1.589E-02	0.353
CM-243		99.55		5.562E-02	1.453E-01	2.366E-01	2.056E-02	0.235
		103.76	*	-9.196E-04	8.909E-02	1.429E-01	1.218E-02	-0.006
		117.00		-9.635E-02	1.844E-01	2.877E-01	2.378E-02	-0.335
	+	209.75		2.510E+00	1.253E+00	1.279E+00	1.450E-01	1.962
		228.18		-5.463E-02	2.122E-01	3.421E-01	4.115E-02	-0.160
AM-246	+	277.60		2.695E-01	2.446E-01	2.869E-01	3.999E-02	0.940
		798.80		6.747E-02	1.399E-01	2.005E-01	2.211E-02	0.336
		1036.00		1.466E-02	2.457E-01	4.032E-01	4.004E-02	0.036
		1062.04		2.497E-02	1.986E-01	3.263E-01	3.139E-02	0.077
		1078.86	*	-7.037E-02	1.302E-01	2.044E-01	1.923E-02	-0.344
CM-247	+	278.00		1.109E+00	1.006E+00	1.177E+00	1.642E-01	0.942
		287.40		-2.197E-01	1.093E+00	1.729E+00	2.379E-01	-0.127
CF-249		402.60	*	3.632E-03	3.370E-02	5.409E-02	5.074E-03	0.067
		252.85		-1.700E-01	8.270E-01	1.275E+00	1.655E-01	-0.133
		333.44		1.361E-01	2.310E-01	2.397E-01	2.900E-02	0.568
CF-251		387.95	*	3.328E-03	3.488E-02	5.766E-02	5.480E-03	0.058
		176.60	*	4.415E-02	1.147E-01	1.925E-01	1.956E-02	0.229
		227.00		-8.491E-02	3.559E-01	5.743E-01	6.884E-02	-0.148
		285.00		1.868E-01	1.554E+00	2.494E+00	3.450E-01	0.075

## 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]G1202037553      *
* Acquisition date   : 19-FEB-2010 20:42:20 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 02:00:02.53             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G1202037553           Analyst initials: MXR1          *
* Batch Number       : 950788                Sample Quantity : 1.4498E+02 GRAM  *
* Recovery           : 1.00000               Carrier Weight   : 0.00000        *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                                    *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope      :                  *
* MSD DPM             : 0.000                MSD Isotope    :                  *
* LCS DPM             : 0.000                LCS Isotope     :                  *
* LCSD DPM            : 0.000                LCSD Isotope    :                  *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.435E+01	3.437E+00	4.262E-01	0.000E+00
CD-109	1.748E+00	8.906E-01	1.097E+00	0.000E+00
SN-126	1.715E-01	8.737E-02	1.289E-01	0.000E+00
BA-137M	2.332E-01	6.134E-02	4.965E-02	0.000E+00
CS-137	2.466E-01	6.486E-02	5.249E-02	0.000E+00
HG-203	6.224E-02	5.536E-02	6.129E-02	0.000E+00
TL-208	5.351E-01	8.838E-02	4.840E-02	0.000E+00
BI-211	3.951E+00	5.971E-01	2.920E-01	0.000E+00
PB-212	1.670E+00	2.358E-01	8.597E-02	0.000E+00
PO-212	1.670E+00	2.358E-01	8.597E-02	0.000E+00
BI-214	1.198E+00	1.888E-01	9.627E-02	0.000E+00
PB-214	1.374E+00	2.193E-01	1.017E-01	0.000E+00
PO-214	1.374E+00	2.193E-01	1.017E-01	0.000E+00
PO-216	1.670E+00	2.358E-01	8.597E-02	0.000E+00
PO-218	1.374E+00	2.193E-01	1.017E-01	0.000E+00
RA-224	4.506E+00	1.240E+00	9.772E-01	0.000E+00
RA-226	1.198E+00	1.888E-01	9.627E-02	0.000E+00
AC-228	1.488E+00	3.312E-01	1.705E-01	0.000E+00
RA-228	1.488E+00	3.312E-01	1.705E-01	0.000E+00
TH-228	1.697E+00	2.397E-01	8.738E-02	0.000E+00
TH-230	1.198E+00	1.888E-01	9.627E-02	0.000E+00
TH-232	1.488E+00	3.312E-01	1.705E-01	0.000E+00
TH-234	5.105E+00	2.228E+00	1.765E+00	0.000E+00
U-234	1.198E+00	1.888E-01	9.627E-02	0.000E+00
NP-237	5.036E-01	2.761E-01	3.270E-01	0.000E+00
U-238	5.105E+00	2.228E+00	1.765E+00	0.000E+00
AM-243	3.639E-01	7.117E-02	7.972E-02	0.000E+00
ANH-511	1.546E-01	6.352E-02	3.917E-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	2.902E-01	2.828E-01	5.023E-01	0.000E+00	NOT IDENT.
NA-22	-4.621E-03	3.711E-02	6.270E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.654E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.173E-03	2.235E-02	3.682E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.782E-02	6.901E-02	0.000E+00	FAIL ABUN
SC-46	3.168E-03	3.064E-02	5.307E-02	0.000E+00	FAIL ABUN
V-48	5.915E-03	6.229E-02	1.066E-01	0.000E+00	NOT IDENT.
CR-51	1.471E-01	3.163E-01	5.712E-01	0.000E+00	NOT IDENT.
MN-52	1.151E-01	2.242E-01	3.929E-01	0.000E+00	NOT IDENT.
MN-54	3.157E-02	3.190E-02	5.773E-02	0.000E+00	NOT IDENT.
CO-56	-4.647E-02	3.199E-02	4.978E-02	0.000E+00	NOT IDENT.
CO-57	-1.704E-02	2.378E-02	3.979E-02	0.000E+00	NOT IDENT.
CO-58	-3.214E-03	3.113E-02	5.385E-02	0.000E+00	NOT IDENT.
FE-59	-5.860E-02	8.238E-02	1.318E-01	0.000E+00	NOT IDENT.
CO-60	-3.538E-03	3.155E-02	5.298E-02	0.000E+00	NOT IDENT.
ZN-65	1.190E-01	8.774E-02	1.387E-01	0.000E+00	NOT IDENT.
GE-68	1.039E-01	1.127E+00	1.905E+00	0.000E+00	NOT IDENT.
AS-73	3.267E-01	6.434E-01	1.206E+00	0.000E+00	NOT IDENT.
AS-74	5.111E-02	8.124E-02	1.450E-01	0.000E+00	NOT IDENT.
SE-75	-3.854E-02	4.692E-02	6.657E-02	0.000E+00	FAIL ABUN
BR-77	3.785E+00	1.294E+01	2.153E+01	0.000E+00	FAIL ABUN
SR-82	-1.744E-01	3.791E-01	5.220E-01	0.000E+00	NOT IDENT.
RB-83	1.468E-02	5.994E-02	9.949E-02	0.000E+00	NOT IDENT.
RB-84	2.815E-02	5.425E-02	9.640E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.422E+00	1.234E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.856E-02	6.412E-02	0.000E+00	NOT IDENT.
RB-86	3.933E-01	7.408E-01	1.284E+00	0.000E+00	NOT IDENT.
Y-88	6.914E-03	2.656E-02	4.590E-02	0.000E+00	NOT IDENT.
ZR-88	-8.400E-03	2.634E-02	4.511E-02	0.000E+00	NOT IDENT.
Y-91	3.887E+00	1.620E+01	2.814E+01	0.000E+00	NOT IDENT.
NB-94	2.309E-03	2.805E-02	4.799E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	4.385E-02	7.123E-02	0.000E+00	NOT IDENT.
NB-95M	1.678E-01	1.314E-01	2.079E-01	0.000E+00	NOT IDENT.
ZR-95	5.887E-02	6.217E-02	1.098E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.245E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.672E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.185E+01	1.313E+01	2.076E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.023E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.793E-03	3.129E-02	5.400E-02	0.000E+00	NOT IDENT.
RH-102	5.059E-03	2.581E-02	4.433E-02	0.000E+00	NOT IDENT.
RU-103	-1.454E-02	3.488E-02	5.761E-02	0.000E+00	FAIL ABUN
RH-106	-4.471E-02	2.486E-01	4.251E-01	0.000E+00	FAIL ABUN
RU-106	-4.471E-02	2.486E-01	4.251E-01	0.000E+00	FAIL ABUN
AG-108M	-1.064E-02	2.795E-02	4.715E-02	0.000E+00	NOT IDENT.
AG-110M	3.656E-02	3.377E-02	5.348E-02	0.000E+00	NOT IDENT.
IN-111	-1.601E+00	1.298E+00	2.112E+00	0.000E+00	NOT IDENT.
IN-113M	-2.703E-02	3.811E-02	6.403E-02	0.000E+00	NOT IDENT.
SN-113	-2.703E-02	3.811E-02	6.403E-02	0.000E+00	NOT IDENT.
IN-114M	1.205E-02	1.904E-01	2.971E-01	0.000E+00	NOT IDENT.
CD-115	-3.247E+00	1.308E+01	2.274E+01	0.000E+00	NOT IDENT.
SN-117M	-1.748E-02	5.130E-02	9.155E-02	0.000E+00	NOT IDENT.
SB-122	-6.314E-01	2.301E+00	3.965E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.441E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.431E-03	2.506E-02	4.526E-02	0.000E+00	NOT IDENT.
I-124	-3.986E-01	7.916E-01	1.136E+00	0.000E+00	NOT IDENT.
SB-124	-1.158E-02	5.626E-02	9.283E-02	0.000E+00	FAIL ABUN
SB-125	1.032E-02	7.451E-02	1.292E-01	0.000E+00	FAIL ABUN
TE-125M	1.684E+00	8.640E+00	1.510E+01	0.000E+00	NOT IDENT.
I-126	-2.321E-02	1.848E-01	2.691E-01	0.000E+00	NOT IDENT.
SB-126	5.460E-02	1.370E-01	2.060E-01	0.000E+00	FAIL ABUN
SB-127	-9.269E-02	1.382E+00	2.351E+00	0.000E+00	NOT IDENT.
XE-127	-3.115E-02	4.670E-02	7.394E-02	0.000E+00	NOT IDENT.
I-131	1.084E-02	1.046E-01	1.841E-01	0.000E+00	NOT IDENT.
TE-132	-2.098E-01	8.209E-01	1.415E+00	0.000E+00	NOT IDENT.
BA-133	2.351E-02	3.902E-02	6.153E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.349E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.655E-02	5.893E-02	8.011E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.597E-01	2.533E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.044E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.712E-02	9.966E-02	1.716E-01	0.000E+00	FAIL ABUN
CE-139	1.293E-02	2.646E-02	4.818E-02	0.000E+00	NOT IDENT.
BA-140	-7.650E-02	2.198E-01	3.768E-01	0.000E+00	NOT IDENT.
LA-140	-1.237E-01	7.599E-02	1.080E-01	0.000E+00	FAIL ABUN
CE-141	4.293E-02	5.673E-02	1.051E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	5.187E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.629E-01	1.980E-01	3.070E-01	0.000E+00	NOT IDENT.
PM-144	-1.550E-02	2.723E-02	4.484E-02	0.000E+00	NOT IDENT.

PR-144	-1.051E+00	1.847E+00	3.040E+00	0.000E+00	NOT IDENT.
PM-146	2.276E-02	3.626E-02	6.378E-02	0.000E+00	NOT IDENT.
ND-147	4.125E-01	4.969E-01	9.007E-01	0.000E+00	FAIL ABUN
PM-149	-7.120E+01	1.193E+02	1.963E+02	0.000E+00	NOT IDENT.
EU-152	-6.299E-02	9.571E-02	1.405E-01	0.000E+00	FAIL ABUN
GD-153	8.045E-02	7.520E-02	1.226E-01	0.000E+00	FAIL ABUN
EU-154	-1.165E-02	1.037E-01	1.753E-01	0.000E+00	NOT IDENT.
EU-155	3.531E-02	9.730E-02	1.715E-01	0.000E+00	FAIL ABUN
TB-160	7.973E-03	1.096E-01	1.898E-01	0.000E+00	FAIL ABUN
HO-166M	-2.322E-02	5.334E-02	8.609E-02	0.000E+00	FAIL ABUN
TM-171	-1.904E+01	2.466E+01	3.852E+01	0.000E+00	NOT IDENT.
LU-176	-1.333E-02	2.160E-02	3.755E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	1.997E+00	2.158E+00	0.000E+00	FAIL ABUN
LU-177M	4.155E-02	1.635E-01	2.486E-01	0.000E+00	NOT IDENT.
HF-181	-1.068E-03	3.630E-02	6.158E-02	0.000E+00	NOT IDENT.
W-181	1.081E-01	3.184E-01	5.217E-01	0.000E+00	NOT IDENT.
TA-182	-8.495E-02	1.742E-01	2.904E-01	0.000E+00	FAIL ABUN
RE-183	-2.182E-03	9.621E-02	1.731E-01	0.000E+00	FAIL ABUN
RE-184	-4.555E-02	2.171E-01	3.574E-01	0.000E+00	NOT IDENT.
OS-185	-5.162E-03	3.462E-02	5.904E-02	0.000E+00	NOT IDENT.
RE-188	1.807E-01	1.562E-01	2.899E-01	0.000E+00	NOT IDENT.
W-188	1.233E+00	6.886E+00	1.087E+01	0.000E+00	FAIL ABUN
IR-192	6.137E-03	2.904E-02	5.206E-02	0.000E+00	FAIL ABUN
AU-195	2.112E-01	1.992E-01	3.596E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.532E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	7.947E-01	8.337E+00	1.501E+01	0.000E+00	NOT IDENT.
TL-202	4.870E-02	6.449E-02	1.143E-01	0.000E+00	NOT IDENT.
BI-207	5.055E-02	4.499E-02	8.052E-02	0.000E+00	FAIL ABUN
TL-207	6.051E-02	6.342E-01	9.838E-01	0.000E+00	FAIL ABUN
PO-209	2.394E+00	6.212E+00	1.091E+01	0.000E+00	NOT IDENT.
BI-210	2.044E+00	2.733E+00	5.096E+00	0.000E+00	NOT IDENT.
PB-210	2.044E+00	2.733E+00	5.096E+00	0.000E+00	NOT IDENT.
PO-210	2.044E+00	2.731E+00	5.096E+00	0.000E+00	NOT IDENT.
PB-211	1.597E-01	9.178E-01	1.384E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.368E-01	5.617E-01	0.000E+00	FAIL ABUN
PO-215	6.051E-02	6.342E-01	9.838E-01	0.000E+00	FAIL ABUN
RN-219	-4.837E-02	3.576E-01	6.164E-01	0.000E+00	FAIL ABUN
RN-220	-1.298E+01	2.087E+01	3.534E+01	0.000E+00	NOT IDENT.
RA-223	6.051E-02	6.342E-01	9.838E-01	0.000E+00	FAIL ABUN
AC-227	-2.788E-02	3.337E-01	5.720E-01	0.000E+00	FAIL ABUN
TH-227	-2.788E-02	3.337E-01	5.720E-01	0.000E+00	FAIL ABUN
TH-229	-6.799E-02	4.732E-01	8.337E-01	0.000E+00	FAIL ABUN
PA-231	6.207E-01	1.418E+00	2.268E+00	0.000E+00	FAIL ABUN
TH-231	6.051E-02	6.342E-01	9.838E-01	0.000E+00	FAIL ABUN
U-231	-9.687E-01	1.273E+00	1.925E+00	0.000E+00	FAIL ABUN
PA-233	2.505E-02	5.383E-02	9.742E-02	0.000E+00	FAIL ABUN
PA-234	-1.930E-01	2.555E+01	4.115E-01	0.000E+00	FAIL ABUN
PA-234M	5.376E+00	4.287E+00	7.466E+00	0.000E+00	NOT IDENT.
U-235	-3.565E-02	1.919E-01	3.370E-01	0.000E+00	FAIL ABUN
NP-236	-4.121E-02	6.929E-02	1.224E-01	0.000E+00	NOT IDENT.
NP-239	-9.365E-02	1.757E-01	2.974E-01	0.000E+00	FAIL ABUN
AM-241	7.181E-02	1.308E-01	2.192E-01	0.000E+00	NOT IDENT.
CM-243	-9.196E-04	8.730E-02	1.523E-01	0.000E+00	FAIL ABUN
AM-246	-7.037E-02	1.276E-01	2.070E-01	0.000E+00	NOT IDENT.
CM-247	3.632E-03	3.302E-02	5.600E-02	0.000E+00	FAIL ABUN
CF-249	3.328E-03	3.418E-02	5.975E-02	0.000E+00	NOT IDENT.
CF-251	4.415E-02	1.124E-01	2.030E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037553.CNF;1
Sample date        : 3-FEB-2010 12:00:00. Acquisition date : 19-FEB-2010 20:42:20
Sample ID          : G1202037553      Sample quantity   : 1.44980E+02 GRAM
Detector name      : GAM22             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:02.53  0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 950788            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	2702	10.67*	1.909E+00	3.435E+01	3.435E+01	10.21
CD-109	88.03	182	3.72*	7.445E+00	1.706E+00	1.748E+00	51.99
SN-126	64.28	321	9.60	4.285E+00	2.021E+00	2.021E+00	43.47
	86.94	182	8.90	7.445E+00	7.130E-01	7.130E-01	65.87
	87.57	182	37.00*	7.445E+00	1.715E-01	1.715E-01	51.99
BA-137M	661.65	291	89.98*	3.590E+00	2.330E-01	2.332E-01	26.84
CS-137	661.65	291	85.12*	3.590E+00	2.463E-01	2.466E-01	26.84
HG-203	70.83	-----	4.75	5.596E+00	-----	Line Not Found	-----
	72.87	-----	8.00	5.897E+00	-----	Line Not Found	-----
	82.60	149	3.55	7.203E+00	1.512E+00	1.930E+00	60.94
	279.20	90	77.30*	6.173E+00	4.876E-02	6.224E-02	90.76
TL-208	277.35	90	6.80	6.173E+00	5.543E-01	5.543E-01	91.16
	510.84	257	21.60	4.299E+00	7.158E-01	7.158E-01	42.74
	583.14	684	84.20*	3.930E+00	5.351E-01	5.351E-01	16.85
	860.37	118	12.46	2.924E+00	8.372E-01	8.372E-01	50.70
BI-211	72.87	-----	1.27	5.897E+00	-----	Line Not Found	-----
	351.07	1066	12.94*	5.401E+00	3.951E+00	3.951E+00	15.42
PB-212	74.81	572	10.70	6.167E+00	2.245E+00	2.245E+00	22.04
	77.11	778	18.00	6.461E+00	1.733E+00	1.733E+00	15.26
	87.30	182	8.00	7.445E+00	7.932E-01	7.932E-01	52.94
	238.63	1930	44.60*	6.709E+00	1.670E+00	1.670E+00	14.41
	300.09	123	3.41	5.915E+00	1.585E+00	1.585E+00	50.19
PO-212	74.81	572	10.70	6.167E+00	2.245E+00	2.245E+00	22.04
	77.11	778	18.00	6.461E+00	1.733E+00	1.733E+00	15.26
	87.30	182	8.00	7.445E+00	7.932E-01	7.932E-01	52.94
	115.19	-----	0.60	8.535E+00	-----	Line Not Found	-----
	238.63	1930	44.60*	6.709E+00	1.670E+00	1.670E+00	14.41
	300.09	123	3.41	5.915E+00	1.585E+00	1.585E+00	50.19
BI-214	609.31	816	46.30*	3.811E+00	1.198E+00	1.198E+00	16.08
	1120.29	172	15.10	2.346E+00	1.255E+00	1.255E+00	34.35
	1764.49	157	15.80	1.716E+00	1.498E+00	1.498E+00	22.76
PB-214	74.81	572	6.21	6.167E+00	3.868E+00	3.868E+00	21.29

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	778	10.50	6.461E+00	2.970E+00	2.970E+00	17.06
	87.30	182	4.67	7.445E+00	1.359E+00	1.359E+00	52.55
	241.98	458	7.49	6.665E+00	2.376E+00	2.376E+00	28.63
	295.21	645	19.20	5.970E+00	1.457E+00	1.457E+00	20.71
	351.92	1066	37.20*	5.401E+00	1.374E+00	1.374E+00	16.28
	74.81	572	6.21	6.167E+00	3.868E+00	3.868E+00	21.29
	77.11	778	10.50	6.461E+00	2.970E+00	2.970E+00	17.06
	87.30	182	4.67	7.445E+00	1.359E+00	1.359E+00	52.55
	241.98	458	7.49	6.665E+00	2.376E+00	2.376E+00	28.63
	295.21	645	19.20	5.970E+00	1.457E+00	1.457E+00	20.71
PO-216	351.92	1066	37.20*	5.401E+00	1.374E+00	1.374E+00	16.28
	74.81	572	10.70	6.167E+00	2.245E+00	2.245E+00	22.04
	77.11	778	18.00	6.461E+00	1.733E+00	1.733E+00	15.26
	87.30	182	8.00	7.445E+00	7.932E-01	7.932E-01	52.94
	238.63	1930	44.60*	6.709E+00	1.670E+00	1.670E+00	14.41
PO-218	300.09	123	3.41	5.915E+00	1.585E+00	1.585E+00	50.19
	74.81	572	6.21	6.167E+00	3.868E+00	3.868E+00	21.29
	77.11	778	10.50	6.461E+00	2.970E+00	2.970E+00	17.06
	87.30	182	4.67	7.445E+00	1.359E+00	1.359E+00	52.55
	241.98	458	7.49	6.665E+00	2.376E+00	2.376E+00	28.63
RA-224	295.21	645	19.20	5.970E+00	1.457E+00	1.457E+00	20.71
	351.92	1066	37.20*	5.401E+00	1.374E+00	1.374E+00	16.28
	240.98	458	3.95*	6.665E+00	4.506E+00	4.506E+00	28.08
	609.31	816	46.30*	3.811E+00	1.198E+00	1.198E+00	16.08
	1120.29	172	15.10	2.346E+00	1.255E+00	1.255E+00	34.35
AC-228	1764.49	157	15.80	1.716E+00	1.498E+00	1.498E+00	22.76
	338.32	398	11.40	5.526E+00	1.637E+00	1.637E+00	46.36
	911.07	444	27.70*	2.788E+00	1.488E+00	1.488E+00	22.72
	969.11	309	16.60	2.649E+00	1.817E+00	1.817E+00	29.72
	338.32	398	11.40	5.526E+00	1.637E+00	1.637E+00	46.36
RA-228	911.07	444	27.70*	2.788E+00	1.488E+00	1.488E+00	22.72
	969.11	309	16.60	2.649E+00	1.817E+00	1.817E+00	29.72
	74.81	572	10.70	6.167E+00	2.245E+00	2.245E+00	19.99
	77.11	778	18.00	6.461E+00	1.733E+00	1.761E+00	15.26
	87.30	182	8.00	7.445E+00	7.932E-01	8.062E-01	51.99
TH-228	238.63	1930	44.60*	6.709E+00	1.670E+00	1.697E+00	14.41
	300.09	123	3.41	5.915E+00	1.585E+00	1.611E+00	76.97
	609.31	816	46.30*	3.811E+00	1.198E+00	1.198E+00	16.08
	1120.29	172	15.10	2.346E+00	1.255E+00	1.255E+00	34.35
	1764.49	157	15.80	1.716E+00	1.498E+00	1.498E+00	22.76
TH-232	338.32	398	11.40	5.526E+00	1.637E+00	1.637E+00	22.82
	911.07	444	27.70*	2.788E+00	1.488E+00	1.488E+00	22.72
	969.11	309	16.60	2.649E+00	1.817E+00	1.817E+00	29.72
	63.29	321	3.80*	4.285E+00	5.105E+00	5.105E+00	44.53
	92.38	701	5.41	7.863E+00	4.269E+00	4.269E+00	24.63
U-234	609.31	816	46.30*	3.811E+00	1.198E+00	1.198E+00	16.08
	1120.29	172	15.10	2.346E+00	1.255E+00	1.255E+00	34.35
	1764.49	157	15.80	1.716E+00	1.498E+00	1.498E+00	22.76
NP-237	86.50	182	12.60*	7.445E+00	5.036E-01	5.036E-01	55.93

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	95.87	-----	2.60	8.032E+00	-----	Line Not Found	-----
U-238	63.29	321	3.80*	4.285E+00	5.105E+00	5.105E+00	44.53
	92.38	701	5.41	7.863E+00	4.269E+00	4.269E+00	18.81
AM-243	74.67	572	66.00*	6.167E+00	3.639E-01	3.639E-01	19.96
	86.72	182	0.34	7.445E+00	1.889E+01	1.889E+01	51.99
	117.66	-----	0.55	8.550E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.387E+00	-----	Line Not Found	-----
ANH-511	511.00	257	100.00*	4.299E+00	1.546E-01	1.546E-01	41.92

Flag: "\*" = Keyline

Total number of lines in spectrum 36  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 34 94.44%

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	3.435E+01	3.435E+01	0.351E+01	10.21	
CD-109	464.00D	1.02	1.706E+00	1.748E+00	0.909E+00	51.99	
SN-126	1.00E+05Y	1.00	1.715E-01	1.715E-01	0.892E-01	51.99	
BA-137M	30.17Y	1.00	2.330E-01	2.332E-01	0.626E-01	26.84	
CS-137	30.17Y	1.00	2.463E-01	2.466E-01	0.662E-01	26.84	
HG-203	46.60D	1.28	4.876E-02	6.224E-02	5.649E-02	90.76	
TL-208	1.41E+10Y	1.00	5.351E-01	5.351E-01	0.902E-01	16.85	
BI-211	7.04E+08Y	1.00	3.951E+00	3.951E+00	0.609E+00	15.42	
PB-212	1.41E+10Y	1.00	1.670E+00	1.670E+00	0.241E+00	14.41	
PO-212	1.41E+10Y	1.00	1.670E+00	1.670E+00	0.241E+00	14.41	
BI-214	1600.00Y	1.00	1.198E+00	1.198E+00	0.193E+00	16.08	
PB-214	1600.00Y	1.00	1.374E+00	1.374E+00	0.224E+00	16.28	
PO-214	1600.00Y	1.00	1.374E+00	1.374E+00	0.224E+00	16.28	
PO-216	1.41E+10Y	1.00	1.670E+00	1.670E+00	0.241E+00	14.41	
PO-218	1600.00Y	1.00	1.374E+00	1.374E+00	0.224E+00	16.28	
RA-224	1.41E+10Y	1.00	4.506E+00	4.506E+00	1.265E+00	28.08	
RA-226	1600.00Y	1.00	1.198E+00	1.198E+00	0.193E+00	16.08	
AC-228	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.338E+00	22.72	
RA-228	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.338E+00	22.72	
TH-228	1.91Y	1.02	1.670E+00	1.697E+00	0.245E+00	14.41	
TH-230	4.47E+09Y	1.00	1.198E+00	1.198E+00	0.193E+00	16.08	
TH-232	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.338E+00	22.72	
TH-234	4.47E+09Y	1.00	5.105E+00	5.105E+00	2.273E+00	44.53	
U-234	4.47E+09Y	1.00	1.198E+00	1.198E+00	0.193E+00	16.08	
NP-237	2.14E+06Y	1.00	5.036E-01	5.036E-01	2.817E-01	55.93	
U-238	4.47E+09Y	1.00	5.105E+00	5.105E+00	2.273E+00	44.53	
AM-243	7380.00Y	1.00	3.639E-01	3.639E-01	0.726E-01	19.96	
ANH-511	1.00E+09Y	1.00	1.546E-01	1.546E-01	0.648E-01	41.92	

Total Activity : 7.703E+01 7.712E+01

Grand Total Activity : 7.703E+01 7.712E+01

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

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

Unidentified Energy Lines  
Sample ID : G1202037553

Page : 5  
Acquisition date : 19-FEB-2010 20:42:20

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	89.98	236	343	1.07	180.17	178	14	3.27E-02	25.0	7.69E+00	T
0	129.16	74	518	0.83	258.44	256	7	1.03E-02	****	8.53E+00	T
0	185.83	371	520	1.33	371.67	367	9	5.15E-02	25.6	7.61E+00	T
0	209.84	229	660	1.47	419.65	413	13	3.17E-02	48.6	7.17E+00	T
0	270.36	108	395	1.24	540.59	536	10	1.50E-02	71.5	6.27E+00	T
0	328.20	96	349	1.60	656.16	652	10	1.33E-02	76.4	5.62E+00	T
0	409.76	98	182	1.71	819.17	815	10	1.36E-02	55.6	4.94E+00	T
0	463.51	107	243	0.92	926.59	922	13	1.49E-02	64.8	4.58E+00	T
0	727.73	219	153	2.00	1454.73	1448	16	3.04E-02	28.6	3.34E+00	T
0	770.22	103	235	0.64	1539.67	1531	21	1.43E-02	78.4	3.20E+00	
0	794.79	70	147	2.08	1588.78	1583	13	9.69E-03	77.8	3.12E+00	T
2	965.10	104	71	2.63	1929.28	1924	19	1.44E-02	36.5	2.66E+00	T
0	1848.40	34	11	1.90	3696.07	3690	12	4.69E-03	49.2	1.69E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:44:26.96

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037553.CNF;1 *
* Acquisition date   : 19-FEB-2010 20:42:20   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 02:00:02.53          Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 3-FEB-2010 12:00:00.   Nuclide Library : SOLID          *
* Sample ID          : G1202037553            Analyst initials: MXR1           *
* Batch Number       : 950788                 Sample Quantity : 1.44980E+02 GRAM *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28.08MS Isotope      :             *
* MSD ID              :                      MSD Isotope      :             *
* LCS ID              : 1032-A                LCS Isotope      :             *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.435E+01	3.507E+00	4.239E-01	3.883E-02	81.022
CD-109	1.748E+00	9.088E-01	1.025E+00	9.728E-02	1.705
SN-126	1.715E-01	8.916E-02	1.205E-01	1.138E-02	1.423
BA-137M	2.332E-01	6.259E-02	4.849E-02	5.114E-03	4.810
CS-137	2.466E-01	6.618E-02	5.126E-02	5.413E-03	4.810
HG-203	6.224E-02	5.649E-02	5.872E-02	8.311E-03	1.060
TL-208	5.351E-01	9.018E-02	4.713E-02	5.111E-03	11.354
BI-211	3.951E+00	6.093E-01	2.811E-01	3.280E-02	14.053
PB-212	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
PO-212	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
BI-214	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
PB-214	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
PO-214	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
PO-216	1.670E+00	2.406E-01	8.208E-02	1.085E-02	20.340
PO-218	1.374E+00	2.238E-01	9.798E-02	1.249E-02	14.027
RA-224	4.506E+00	1.265E+00	9.332E-01	1.168E-01	4.829
RA-226	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
AC-228	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868
TH-228	1.697E+00	2.446E-01	8.343E-02	1.102E-02	20.340
TH-230	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
TH-232	1.488E+00	3.380E-01	1.678E-01	2.223E-02	8.868
TH-234	5.105E+00	2.273E+00	1.638E+00	2.852E-01	3.116
U-234	1.198E+00	1.926E-01	9.384E-02	1.091E-02	12.761
NP-237	5.036E-01	2.817E-01	3.055E-01	6.917E-02	1.649
U-238	5.105E+00	2.273E+00	1.638E+00	2.852E-01	3.116
AM-243	3.639E-01	7.262E-02	7.426E-02	6.053E-03	4.900
ANH-511	1.546E-01	6.482E-02	3.803E-02	3.810E-03	4.066

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.902E-01		2.885E-01	4.870E-01	5.083E-02	0.596
NA-22	-4.621E-03		3.786E-02	6.217E-02	5.358E-03	-0.074
NA-24	-4.602E+00		1.354E+00	Half-Life	too short	
AL-26	-3.173E-03		2.281E-02	3.681E-02	3.010E-03	-0.086
TI-44	3.198E-01	+	4.879E-02	6.435E-02	5.456E-03	4.969
SC-46	3.168E-03		3.126E-02	5.219E-02	5.842E-03	0.061
V-48	5.915E-03		6.356E-02	1.050E-01	1.101E-02	0.056
CR-51	1.471E-01		3.227E-01	5.488E-01	7.107E-02	0.268
MN-52	1.151E-01		2.288E-01	3.907E-01	3.491E-02	0.295
MN-54	3.157E-02		3.255E-02	5.668E-02	6.297E-03	0.557
CO-56	-4.647E-02		3.264E-02	4.889E-02	5.443E-03	-0.950
CO-57	-1.704E-02		2.427E-02	3.745E-02	3.088E-03	-0.455
CO-58	-3.214E-03		3.177E-02	5.284E-02	5.851E-03	-0.061
FE-59	-5.860E-02		8.406E-02	1.302E-01	1.276E-02	-0.450
CO-60	-3.538E-03		3.219E-02	5.258E-02	4.689E-03	-0.067
ZN-65	1.190E-01		8.953E-02	1.371E-01	1.223E-02	0.868
GE-68	1.039E-01		1.150E+00	1.882E+00	1.774E-01	0.055
AS-73	3.267E-01		6.565E-01	1.115E+00	8.428E-02	0.293
AS-74	5.111E-02		8.290E-02	1.413E-01	1.464E-02	0.362
SE-75	-3.854E-02		4.788E-02	6.370E-02	8.574E-03	-0.605
BR-77	3.785E+00		1.321E+01	2.092E+01	2.105E+00	0.181
SR-82	-1.744E-01		3.869E-01	5.117E-01	5.612E-02	-0.341
RB-83	1.468E-02		6.116E-02	9.664E-02	9.726E-03	0.152
RB-84	2.815E-02		5.536E-02	9.477E-02	1.060E-02	0.297
KR-85	2.246E+01		7.574E+00	1.199E+01	1.203E+00	1.874
SR-85	1.167E-01		3.934E-02	6.227E-02	6.248E-03	1.874
RB-86	3.933E-01		7.560E-01	1.268E+00	1.196E-01	0.310
Y-88	6.914E-03		2.710E-02	4.591E-02	3.712E-03	0.151
ZR-88	-8.400E-03		2.687E-02	4.355E-02	4.055E-03	-0.193
Y-91	3.887E+00		1.653E+01	2.786E+01	2.291E+00	0.140
NB-94	2.309E-03		2.862E-02	4.693E-02	5.029E-03	0.049
NB-95	9.110E-02		4.474E-02	6.980E-02	7.633E-03	1.305
NB-95M	1.678E-01		1.340E-01	1.984E-01	2.623E-02	0.846

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	5.887E-02		6.344E-02	1.076E-01	1.249E-02	0.547
NB-97	4.278E-01		1.655E-01	Half-Life too short		
ZR-97	2.128E+01		3.404E+00	Half-Life too short		
MO-99	-1.185E+01		1.339E+01	2.032E+01	3.364E+00	-0.583
TC-99M	-3.534E+11		5.221E+11	Half-Life too short		
RH-101	-3.793E-03		3.193E-02	5.135E-02	5.602E-03	-0.074
RH-102	5.059E-03		2.634E-02	4.297E-02	4.226E-03	0.118
RU-103	-1.454E-02		3.559E-02	5.590E-02	8.390E-03	-0.260
RH-106	-4.471E-02		2.537E-01	4.146E-01	6.054E-02	-0.108
RU-106	-4.471E-02		2.536E-01	4.146E-01	4.330E-02	-0.108
AG-108M	-1.064E-02		2.852E-02	4.561E-02	4.515E-03	-0.233
AG-110M	3.656E-02		3.446E-02	5.222E-02	5.613E-03	0.700
IN-111	-1.601E+00		1.325E+00	2.018E+00	2.560E-01	-0.794
IN-113M	-2.703E-02		3.889E-02	6.180E-02	5.902E-03	-0.437
SN-113	-2.703E-02		3.889E-02	6.180E-02	5.902E-03	-0.437
IN-114M	1.205E-02		1.943E-01	2.823E-01	3.001E-02	0.043
CD-115	-3.247E+00		1.335E+01	2.210E+01	2.231E+00	-0.147
SN-117M	-1.748E-02		5.234E-02	8.664E-02	8.216E-03	-0.202
SB-122	-6.314E-01		2.348E+00	3.858E+00	3.954E-01	-0.164
I-123	1.394E+00		1.245E+01	Half-Life too short		
TE-123M	1.431E-03		2.557E-02	4.284E-02	4.091E-03	0.033
I-124	-3.986E-01		8.077E-01	1.108E+00	1.150E-01	-0.360
SB-124	-1.158E-02		5.741E-02	9.266E-02	8.242E-03	-0.125
SB-125	1.032E-02		7.603E-02	1.249E-01	1.212E-02	0.083
TE-125M	1.684E+00		8.817E+00	1.418E+01	1.436E+00	0.119
I-126	-2.321E-02		1.886E-01	2.628E-01	2.777E-02	-0.088
SB-126	5.460E-02		1.398E-01	2.016E-01	2.174E-02	0.271
SB-127	-9.269E-02		1.410E+00	2.298E+00	3.059E-01	-0.040
XE-127	-3.115E-02		4.766E-02	7.034E-02	7.798E-03	-0.443
I-131	1.084E-02		1.067E-01	1.774E-01	1.967E-02	0.061
TE-132	-2.098E-01		8.376E-01	1.350E+00	2.432E-01	-0.155
BA-133	2.351E-02		3.982E-02	5.926E-02	8.856E-03	0.397
I-133	3.427E-03		6.882E-03	Half-Life too short		
CS-134	7.655E-02	+	6.013E-02	7.857E-02	8.697E-03	0.974
CS-135	2.772E-01		1.630E-01	2.424E-01	3.507E-02	1.143
I-135	-2.113E+10		5.325E+10	Half-Life too short		
CS-136	6.712E-02		1.017E-01	1.694E-01	1.713E-02	0.396
CE-139	1.293E-02		2.700E-02	4.564E-02	4.476E-03	0.283
BA-140	-7.650E-02		2.243E-01	3.663E-01	1.230E-01	-0.209
LA-140	-1.237E-01		7.754E-02	1.077E-01	9.440E-03	-1.148
CE-141	4.293E-02		5.789E-02	9.927E-02	9.036E-03	0.432
CE-143	1.761E-03		2.646E-04	Half-Life too short		
CE-144	-1.629E-01		2.020E-01	2.895E-01	4.494E-02	-0.563
PM-144	-1.550E-02		2.779E-02	4.384E-02	4.689E-03	-0.354
PR-144	-1.051E+00		1.884E+00	2.973E+00	3.179E-01	-0.354
PM-146	2.276E-02		3.700E-02	6.176E-02	7.177E-03	0.369
ND-147	4.125E-01		5.070E-01	8.753E-01	1.388E-01	0.471
PM-149	-7.120E+01		1.218E+02	1.882E+02	3.561E+01	-0.378

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-6.299E-02		9.767E-02	1.352E-01	1.625E-02	-0.466
GD-153	8.045E-02		7.674E-02	1.148E-01	1.010E-02	0.701
EU-154	-1.165E-02		1.058E-01	1.738E-01	1.965E-02	-0.067
EU-155	3.531E-02		9.929E-02	1.609E-01	1.381E-02	0.219
TB-160	7.973E-03		1.119E-01	1.866E-01	2.086E-02	0.043
HO-166M	-2.322E-02		5.443E-02	8.422E-02	9.054E-03	-0.276
TM-171	-1.904E+01		2.516E+01	3.580E+01	2.705E+00	-0.532
LU-176	-1.333E-02		2.204E-02	3.605E-02	4.729E-03	-0.370
LU-177	4.083E+00	+	2.038E+00	2.055E+00	2.319E-01	1.987
LU-177M	4.155E-02		1.668E-01	2.403E-01	2.272E-02	0.173
HF-181	-1.068E-03		3.704E-02	5.971E-02	5.895E-03	-0.018
W-181	1.081E-01		3.249E-01	4.847E-01	3.613E-02	0.223
TA-182	-8.495E-02		1.777E-01	2.877E-01	2.392E-02	-0.295
RE-183	-2.182E-03		9.818E-02	1.639E-01	1.581E-02	-0.013
RE-184	-4.555E-02		2.215E-01	3.416E-01	4.433E-02	-0.133
OS-185	-5.162E-03		3.532E-02	5.763E-02	6.057E-03	-0.090
RE-188	1.807E-01		1.594E-01	2.742E-01	2.559E-02	0.659
W-188	1.233E+00		7.026E+00	1.042E+01	1.423E+00	0.118
IR-192	6.137E-03		2.963E-02	5.001E-02	6.392E-03	0.123
AU-195	2.112E-01		2.033E-01	3.370E-01	2.939E-02	0.627
TL-200	-6.155E-04		4.353E-04	Half-Life too short		
TL-201	7.947E-01		8.507E+00	1.422E+01	1.401E+00	0.056
TL-202	4.870E-02		6.581E-02	1.106E-01	1.065E-02	0.440
BI-207	5.055E-02		4.591E-02	7.950E-02	7.633E-03	0.636
TL-207	6.051E-02		6.472E-01	9.456E-01	1.879E-01	0.064
PO-209	2.394E+00		6.339E+00	1.073E+01	1.202E+00	0.223
BI-210	2.044E+00		2.788E+00	4.701E+00	4.368E-01	0.435
PB-210	2.044E+00		2.788E+00	4.701E+00	4.368E-01	0.435
PO-210	2.044E+00		2.787E+00	4.701E+00	3.953E-01	0.435
PB-211	1.597E-01		9.365E-01	1.336E+00	8.389E-01	0.120
BI-212	1.439E+00	+	4.457E-01	5.498E-01	6.566E-02	2.618
PO-215	6.051E-02		6.472E-01	9.456E-01	1.879E-01	0.064
RN-219	-4.837E-02		3.649E-01	5.953E-01	9.210E-02	-0.081
RN-220	-1.298E+01		2.129E+01	3.437E+01	3.503E+00	-0.378
RA-223	6.051E-02		6.472E-01	9.456E-01	1.879E-01	0.064
AC-227	-2.788E-02		3.405E-01	5.470E-01	9.981E-02	-0.051
TH-227	-2.788E-02		3.406E-01	5.470E-01	1.126E-01	-0.051
TH-229	-6.799E-02		4.829E-01	7.924E-01	8.520E-02	-0.086
PA-231	6.207E-01		1.447E+00	2.174E+00	4.059E-01	0.285
TH-231	6.051E-02		6.472E-01	9.456E-01	1.879E-01	0.064
U-231	-9.687E-01		1.299E+00	1.802E+00	1.601E-01	-0.537
PA-233	2.505E-02		5.493E-02	9.356E-02	1.226E-02	0.268
PA-234	-1.930E-01		2.607E-01	4.052E-01	8.054E-02	-0.476
PA-234M	5.376E+00		4.375E+00	7.361E+00	8.435E-01	0.730
U-235	-3.565E-02		1.958E-01	3.183E-01	5.614E-02	-0.112
NP-236	-4.121E-02		7.070E-02	1.159E-01	1.108E-02	-0.356
NP-239	-9.365E-02		1.793E-01	2.796E-01	2.311E-02	-0.335
AM-241	7.181E-02		1.334E-01	2.032E-01	1.589E-02	0.353

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-9.196E-04		8.909E-02	1.429E-01	1.218E-02	-0.006
AM-246	-7.037E-02		1.302E-01	2.044E-01	1.923E-02	-0.344
CM-247	3.632E-03		3.370E-02	5.409E-02	5.074E-03	0.067
CF-249	3.328E-03		3.488E-02	5.766E-02	5.480E-03	0.058
CF-251	4.415E-02		1.147E-01	1.925E-01	1.956E-02	0.229

# 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]G1202037553          *
* Acquisition date   : 19-FEB-2010 20:42:20 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 02:00:02.53 Half life ratio : 8.000    *
*****
*                                     SAMPLE DATA                          *
*
* Sample date        : 3-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037553 Analyst initials: MXR1          *
* Batch Number       : 950788 Sample Quantity : 1.4498E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000            *
*****
*                                     QC DATA                              *
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope          :             *
* MSD DPM             : 0.000 MSD Isotope          :             *
* LCS DPM             : 0.000 LCS Isotope          :             *
* LCSD DPM            : 0.000 LCSD Isotope         :             *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.435E+01	3.437E+00	2.132E-01	1.754E+00
CD-109	1.748E+00	8.906E-01	5.487E-01	4.544E-01
SN-126	1.715E-01	8.737E-02	6.451E-02	4.458E-02
BA-137M	2.332E-01	6.134E-02	2.484E-02	3.130E-02
CS-137	2.466E-01	6.486E-02	2.626E-02	3.309E-02
HG-203	6.224E-02	5.536E-02	3.066E-02	2.824E-02
TL-208	5.351E-01	8.838E-02	2.421E-02	4.509E-02
BI-211	3.951E+00	5.971E-01	1.461E-01	3.046E-01
PB-212	1.670E+00	2.358E-01	4.301E-02	1.203E-01
PO-212	1.670E+00	2.358E-01	4.301E-02	1.203E-01
BI-214	1.198E+00	1.888E-01	4.816E-02	9.631E-02
PB-214	1.374E+00	2.193E-01	5.090E-02	1.119E-01
PO-214	1.374E+00	2.193E-01	5.090E-02	1.119E-01
PO-216	1.670E+00	2.358E-01	4.301E-02	1.203E-01
PO-218	1.374E+00	2.193E-01	5.090E-02	1.119E-01
RA-224	4.506E+00	1.240E+00	4.889E-01	6.325E-01
RA-226	1.198E+00	1.888E-01	4.816E-02	9.631E-02
AC-228	1.488E+00	3.312E-01	8.532E-02	1.690E-01
RA-228	1.488E+00	3.312E-01	8.532E-02	1.690E-01
TH-228	1.697E+00	2.397E-01	4.372E-02	1.223E-01
TH-230	1.198E+00	1.888E-01	4.816E-02	9.631E-02
TH-232	1.488E+00	3.312E-01	8.532E-02	1.690E-01
TH-234	5.105E+00	2.228E+00	8.829E-01	1.137E+00
U-234	1.198E+00	1.888E-01	4.816E-02	9.631E-02
NP-237	5.036E-01	2.761E-01	1.636E-01	1.408E-01
U-238	5.105E+00	2.228E+00	8.829E-01	1.137E+00
AM-243	3.639E-01	7.117E-02	3.988E-02	3.631E-02
ANH-511	1.546E-01	6.352E-02	1.960E-02	3.241E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.902E-01	2.828E-01	2.513E-01	1.443E-01	NOT IDENT.
NA-22	-4.621E-03	3.711E-02	3.137E-02	1.893E-02	NOT IDENT.
NA-24	-4.602E+06	2.654E+06	0.000E+00	1.354E+06	SHORT HLIF
AL-26	-3.173E-03	2.235E-02	1.842E-02	1.141E-02	NOT IDENT.
TI-44	3.198E-01	4.782E-02	3.453E-02	2.440E-02	FAIL ABUN
SC-46	3.168E-03	3.064E-02	2.655E-02	1.563E-02	FAIL ABUN
V-48	5.915E-03	6.229E-02	5.331E-02	3.178E-02	NOT IDENT.
CR-51	1.471E-01	3.163E-01	2.857E-01	1.614E-01	NOT IDENT.
MN-52	1.151E-01	2.242E-01	1.966E-01	1.144E-01	NOT IDENT.
MN-54	3.157E-02	3.190E-02	2.888E-02	1.628E-02	NOT IDENT.
CO-56	-4.647E-02	3.199E-02	2.490E-02	1.632E-02	NOT IDENT.
CO-57	-1.704E-02	2.378E-02	1.991E-02	1.213E-02	NOT IDENT.
CO-58	-3.214E-03	3.113E-02	2.694E-02	1.588E-02	NOT IDENT.
FE-59	-5.860E-02	8.238E-02	6.592E-02	4.203E-02	NOT IDENT.
CO-60	-3.538E-03	3.155E-02	2.650E-02	1.610E-02	NOT IDENT.
ZN-65	1.190E-01	8.774E-02	6.940E-02	4.477E-02	NOT IDENT.
GE-68	1.039E-01	1.127E+00	9.532E-01	5.749E-01	NOT IDENT.
AS-73	3.267E-01	6.434E-01	6.031E-01	3.282E-01	NOT IDENT.
AS-74	5.111E-02	8.124E-02	7.254E-02	4.145E-02	NOT IDENT.
SE-75	-3.854E-02	4.692E-02	3.331E-02	2.394E-02	FAIL ABUN
BR-77	3.785E+00	1.294E+01	1.077E+01	6.603E+00	FAIL ABUN
SR-82	-1.744E-01	3.791E+01	2.612E-01	1.934E-01	NOT IDENT.
RB-83	1.468E-02	5.994E-02	4.978E-02	3.058E-02	NOT IDENT.
RB-84	2.815E-02	5.425E-02	4.823E-02	2.768E-02	NOT IDENT.
KR-85	2.246E+01	7.422E+00	6.176E+00	3.787E+00	NOT IDENT.
SR-85	1.167E-01	3.856E-02	3.208E-02	1.967E-02	NOT IDENT.
RB-86	3.933E-01	7.408E-01	6.423E-01	3.780E-01	NOT IDENT.
Y-88	6.914E-03	2.656E-02	2.296E-02	1.355E-02	NOT IDENT.
ZR-88	-8.400E-03	2.634E-02	2.257E-02	1.344E-02	NOT IDENT.
Y-91	3.887E+00	1.620E+01	1.408E+01	8.267E+00	NOT IDENT.
NB-94	2.309E-03	2.805E-02	2.401E-02	1.431E-02	NOT IDENT.
NB-95	9.110E-02	4.385E-02	3.564E-02	2.237E-02	NOT IDENT.
NB-95M	1.678E-01	1.314E-01	1.040E-01	6.702E-02	NOT IDENT.
ZR-95	5.887E-02	6.217E-02	5.496E-02	3.172E-02	NOT IDENT.
NB-97	4.278E+05	3.245E+05	0.000E+00	1.655E+05	SHORT HLIF
ZR-97	2.128E+07	6.672E+06	0.000E+00	3.404E+06	SHORT HLIF
MO-99	-1.185E+01	1.313E+01	1.038E+01	6.697E+00	NOT IDENT.
TC-99M	-3.534E+17	1.023E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.793E-03	3.129E-02	2.702E-02	1.596E-02	NOT IDENT.
RH-102	5.059E-03	2.581E-02	2.218E-02	1.317E-02	NOT IDENT.
RU-103	-1.454E-02	3.488E-02	2.882E-02	1.780E-02	FAIL ABUN
RH-106	-4.471E-02	2.486E-01	2.127E-01	1.268E-01	FAIL ABUN
RU-106	-4.471E-02	2.486E-01	2.127E-01	1.268E-01	FAIL ABUN
AG-108M	-1.064E-02	2.795E-02	2.359E-02	1.426E-02	NOT IDENT.
AG-110M	3.656E-02	3.377E-02	2.675E-02	1.723E-02	NOT IDENT.
IN-111	-1.601E+00	1.298E+00	1.057E+00	6.624E-01	NOT IDENT.
IN-113M	-2.703E-02	3.811E-02	3.203E-02	1.944E-02	NOT IDENT.
SN-113	-2.703E-02	3.811E-02	3.203E-02	1.944E-02	NOT IDENT.
IN-114M	1.205E-02	1.904E-01	1.486E-01	9.714E-02	NOT IDENT.
CD-115	-3.247E+00	1.308E+01	1.138E+01	6.674E+00	NOT IDENT.
SN-117M	-1.748E-02	5.130E-02	4.580E-02	2.617E-02	NOT IDENT.
SB-122	-6.314E-01	2.301E+00	1.983E+00	1.174E+00	NOT IDENT.
I-123	1.394E+06	2.441E+07	0.000E+00	1.245E+07	SHORT HLIF
TE-123M	1.431E-03	2.506E-02	2.264E-02	1.278E-02	NOT IDENT.
I-124	-3.986E-01	7.916E-01	5.685E-01	4.039E-01	NOT IDENT.
SB-124	-1.158E-02	5.626E-02	4.644E-02	2.871E-02	FAIL ABUN
SB-125	1.032E-02	7.451E-02	6.462E-02	3.802E-02	FAIL ABUN
TE-125M	1.684E+00	8.640E+00	7.554E+00	4.408E+00	NOT IDENT.
I-126	-2.321E-02	1.848E-01	1.346E-01	9.430E-02	NOT IDENT.
SB-126	5.460E-02	1.370E-01	1.031E-01	6.991E-02	FAIL ABUN
SB-127	-9.269E-02	1.382E+00	1.176E+00	7.049E-01	NOT IDENT.
XE-127	-3.115E-02	4.670E-02	3.699E-02	2.383E-02	NOT IDENT.
I-131	1.084E-02	1.046E-01	9.211E-02	5.336E-02	NOT IDENT.
TE-132	-2.098E-01	8.209E-01	7.079E-01	4.188E-01	NOT IDENT.
BA-133	2.351E-02	3.902E-02	3.078E-02	1.991E-02	NOT IDENT.
I-133	3.427E+03	1.349E+04	0.000E+00	6.882E+03	SHORT HLIF
CS-134	7.655E-02	5.893E-02	4.008E-02	3.007E-02	FAIL ABUN
CS-135	2.772E-01	1.597E-01	1.267E-01	8.150E-02	NOT IDENT.
I-135	-2.113E+16	1.044E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.712E-02	9.966E-02	8.584E-02	5.085E-02	FAIL ABUN
CE-139	1.293E-02	2.646E-02	2.410E-02	1.350E-02	NOT IDENT.
BA-140	-7.650E-02	2.198E-01	1.885E-01	1.122E-01	NOT IDENT.
LA-140	-1.237E-01	7.599E-02	5.405E-02	3.877E-02	FAIL ABUN
CE-141	4.293E-02	5.673E-02	5.257E-02	2.894E-02	NOT IDENT.
CE-143	1.761E+03	5.187E+02	0.000E+00	2.646E+02	SHORT HLIF
CE-144	-1.629E-01	1.980E-01	1.536E-01	1.010E-01	NOT IDENT.
PM-144	-1.550E-02	2.723E-02	2.243E-02	1.389E-02	NOT IDENT.

PR-144	-1.051E+00	1.847E+00	1.521E+00	9.422E-01	NOT IDENT.
PM-146	2.276E-02	3.626E-02	3.191E-02	1.850E-02	NOT IDENT.
ND-147	4.125E-01	4.969E-01	4.506E-01	2.535E-01	FAIL ABUN
PM-149	-7.120E+01	1.193E+02	9.823E+01	6.088E+01	NOT IDENT.
EU-152	-6.299E-02	9.571E-02	7.029E-02	4.883E-02	FAIL ABUN
GD-153	8.045E-02	7.520E-02	6.133E-02	3.837E-02	FAIL ABUN
EU-154	-1.165E-02	1.037E-01	8.770E-02	5.289E-02	NOT IDENT.
EU-155	3.531E-02	9.730E-02	8.581E-02	4.965E-02	FAIL ABUN
TB-160	7.973E-03	1.096E-01	9.495E-02	5.593E-02	FAIL ABUN
HO-166M	-2.322E-02	5.334E-02	4.307E-02	2.721E-02	FAIL ABUN
TM-171	-1.904E+01	2.466E+01	1.927E+01	1.258E+01	NOT IDENT.
LU-176	-1.333E-02	2.160E-02	1.878E-02	1.102E-02	NOT IDENT.
LU-177	4.083E+00	1.997E+00	1.080E+00	1.019E+00	FAIL ABUN
LU-177M	4.155E-02	1.635E-01	1.244E-01	8.341E-02	NOT IDENT.
HF-181	-1.068E-03	3.630E-02	3.081E-02	1.852E-02	NOT IDENT.
W-181	1.081E-01	3.184E-01	2.610E-01	1.625E-01	NOT IDENT.
TA-182	-8.495E-02	1.742E-01	1.453E-01	8.886E-02	FAIL ABUN
RE-183	-2.182E-03	9.621E-02	8.658E-02	4.909E-02	FAIL ABUN
RE-184	-4.555E-02	2.171E-01	1.788E-01	1.108E-01	NOT IDENT.
OS-185	-5.162E-03	3.462E-02	2.954E-02	1.766E-02	NOT IDENT.
RE-188	1.807E-01	1.562E-01	1.450E-01	7.969E-02	NOT IDENT.
W-188	1.233E+00	6.886E+00	5.437E+00	3.513E+00	FAIL ABUN
IR-192	6.137E-03	2.904E-02	2.604E-02	1.482E-02	FAIL ABUN
AU-195	2.112E-01	1.992E-01	1.799E-01	1.016E-01	FAIL ABUN
TL-200	-6.155E+02	8.532E+02	0.000E+00	4.353E+02	SHORT HLIF
TL-201	7.947E-01	8.337E+00	7.507E+00	4.254E+00	NOT IDENT.
TL-202	4.870E-02	6.449E-02	5.719E-02	3.290E-02	NOT IDENT.
BI-207	5.055E-02	4.499E-02	4.029E-02	2.295E-02	FAIL ABUN
TL-207	6.051E-02	6.342E-01	4.922E-01	3.236E-01	FAIL ABUN
PO-209	2.394E+00	6.212E+00	5.458E+00	3.169E+00	NOT IDENT.
BI-210	2.044E+00	2.733E+00	2.549E+00	1.394E+00	NOT IDENT.
PB-210	2.044E+00	2.733E+00	2.549E+00	1.394E+00	NOT IDENT.
PO-210	2.044E+00	2.731E+00	2.549E+00	1.394E+00	NOT IDENT.
PB-211	1.597E-01	9.178E-01	6.922E-01	4.683E-01	NOT IDENT.
BI-212	1.439E+00	4.368E-01	2.810E-01	2.229E-01	FAIL ABUN
PO-215	6.051E-02	6.342E-01	4.922E-01	3.236E-01	FAIL ABUN
RN-219	-4.837E-02	3.576E-01	3.084E-01	1.825E-01	FAIL ABUN
RN-220	-1.298E+01	2.087E+01	1.768E+01	1.065E+01	NOT IDENT.
RA-223	6.051E-02	6.342E-01	4.922E-01	3.236E-01	FAIL ABUN
AC-227	-2.788E-02	3.337E-01	2.862E-01	1.703E-01	FAIL ABUN
TH-227	-2.788E-02	3.337E-01	2.862E-01	1.703E-01	FAIL ABUN
TH-229	-6.799E-02	4.732E-01	4.171E-01	2.414E-01	FAIL ABUN
PA-231	6.207E-01	1.418E+00	1.135E+00	7.233E-01	FAIL ABUN
TH-231	6.051E-02	6.342E-01	4.922E-01	3.236E-01	FAIL ABUN
U-231	-9.687E-01	1.273E+00	9.630E-01	6.495E-01	FAIL ABUN
PA-233	2.505E-02	5.383E-02	4.874E-02	2.747E-02	FAIL ABUN
PA-234	-1.930E-01	2.555E-01	2.059E-01	1.303E-01	FAIL ABUN
PA-234M	5.376E+00	4.287E+00	3.735E+00	2.187E+00	NOT IDENT.
U-235	-3.565E-02	1.919E-01	1.686E-01	9.789E-02	FAIL ABUN
NP-236	-4.121E-02	6.929E-02	6.124E-02	3.535E-02	NOT IDENT.
NP-239	-9.365E-02	1.757E-01	1.488E-01	8.963E-02	FAIL ABUN
AM-241	7.181E-02	1.308E-01	1.097E-01	6.672E-02	NOT IDENT.
CM-243	-9.196E-04	8.730E-02	7.620E-02	4.454E-02	FAIL ABUN
AM-246	-7.037E-02	1.276E-01	1.035E-01	6.509E-02	NOT IDENT.
CM-247	3.632E-03	3.302E-02	2.802E-02	1.685E-02	FAIL ABUN
CF-249	3.328E-03	3.418E-02	2.989E-02	1.744E-02	NOT IDENT.
CF-251	4.415E-02	1.124E-01	1.015E-01	5.734E-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	360.3660
46.50	360.3660
46.50	360.3660
48.70	417.9325
49.72	397.8819
51.35	394.3334
52.39	370.1630
52.97	372.9577
53.15	381.6255
53.44	396.0813
54.07	418.6442
56.28	447.0680
56.28	447.0728
57.37	0.0000
57.53	398.1795
57.53	398.1827
57.60	411.0961
57.98	413.1558
57.98	413.1558
59.32	449.7628
59.32	449.7628
59.40	449.9053
59.54	450.1556
59.72	444.7393
60.01	445.2501
61.10	498.1253
61.14	498.2023
61.30	498.5126
63.00	501.7855
63.29	502.3401
63.29	502.3401
63.58	502.8921
64.28	528.5556
65.12	511.1765
65.20	518.6546
65.20	518.6546
66.05	542.3319
66.72	561.3436
66.83	561.5704
66.91	561.7361
67.20	565.2809
67.20	565.2809
67.75	591.5466
67.85	591.7618
68.90	593.9941
68.90	593.9941
69.30	562.1233
69.67	595.6238
70.82	627.9332
70.82	627.9332
70.83	627.9556
72.80	622.2106
72.87	622.3620
72.87	622.3620
74.67	626.1682
74.81	626.4615
74.81	626.4615
74.81	626.4615
74.81	626.4615
74.81	626.4615
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74.81	626.4615
74.97	626.7990
75.28	627.4485
75.70	628.3252
77.11	631.2548
77.11	631.2548

77.11	631.2548
77.11	631.2548
77.11	631.2548
77.11	631.2548
77.11	631.2548
78.38	621.0925
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79.80	643.9628
79.80	643.9628
80.11	675.4427
80.18	675.5931
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81.07	525.9142
81.07	525.9142
81.07	525.9142
82.60	599.9356
83.37	576.4370
83.78	574.0510
83.78	574.0510
83.78	574.0510
83.78	574.0510
84.21	559.1920
84.90	560.3719
85.43	561.2760
86.29	562.7346
86.50	563.0896
86.54	563.1579
86.59	563.2426
86.72	563.4638
86.79	654.8845
86.94	655.1829
87.30	772.5598
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87.30	772.5598
87.57	773.1803
87.88	543.3054
88.03	543.5469
88.36	544.0770
88.47	544.2555
89.95	546.6228
91.11	478.3150
92.29	479.9400
92.38	480.0636
92.38	480.0636
93.35	481.3889
94.00	482.2746
94.67	507.3376
94.67	507.3448
94.90	507.6717
94.90	507.6717
94.90	507.6717
94.90	507.6717
95.87	560.7590
95.87	560.7590
96.73	518.3618
97.43	457.6842
98.44	472.6178
98.44	472.6201
98.88	480.1372
99.55	503.8629
99.55	503.8629
99.86	522.7979
100.00	522.9956
100.10	526.4117
103.18	512.0482
103.76	517.2300
105.00	500.1322
105.31	507.1627
108.00	554.0569
109.28	524.5953

111.00	522.3680
111.00	522.3680
111.76	540.1978
112.95	531.6434
115.19	489.2432
116.30	522.3455
117.00	519.8058
117.00	519.8058
117.66	516.0649
121.11	477.7627
121.62	508.2231
121.78	508.4097
122.06	522.5498
122.32	522.8616
122.32	522.8616
122.32	522.8616
122.32	522.8616
123.07	514.5352
127.23	508.3297
129.76	495.3761
131.20	466.6284
133.02	491.1160
133.54	504.4188
135.34	480.9366
136.00	491.4018
136.25	491.6629
136.48	476.7538
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140.51	0.0000
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142.65	521.7047
143.76	520.1681
144.24	522.4836
144.24	522.4836
144.24	522.4836
144.24	522.4836
145.22	505.3719
145.44	502.8740
147.16	542.8578
152.43	503.4018
152.70	520.2386
153.22	505.0913
154.21	500.5122
154.21	500.5122
154.21	500.5122
154.21	500.5122
155.03	490.1991
156.02	482.7852
158.56	499.0731
159.00	0.0000
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161.27	489.4307
162.32	476.3120
162.64	506.6167
163.35	496.9424
163.89	483.3260
165.85	471.8399
167.43	496.8458
171.28	487.8711
171.86	491.2287
172.10	491.4370
176.55	461.5942
176.60	461.6345
181.06	444.9937
184.41	500.5084
185.71	503.9299
186.00	503.3923
190.27	492.7457
192.34	519.2701
193.63	517.3779
197.04	484.3769
198.01	494.0776
198.60	478.5791
200.40	493.9246
201.83	507.0462
202.84	495.1212
205.31	449.7138

208.36	443.2932
208.81	443.5940
209.75	444.2189
209.75	444.2189
210.97	401.5408
215.65	441.9734
216.55	456.6028
218.09	403.5032
222.10	448.1784
223.80	431.6665
226.40	427.0202
227.00	442.9786
227.08	443.0274
227.20	437.9014
228.16	442.6554
228.18	442.6683
228.18	442.6683
231.56	0.0000
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236.00	464.9414
236.00	464.9414
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238.63	416.3014
238.63	416.3014
238.63	416.3014
239.00	416.5088
240.98	417.6150
241.98	418.1741
241.98	418.1741
241.98	418.1741
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245.39	420.0649
247.94	364.5623
248.90	371.8721
249.79	374.0169
252.40	381.5930
252.85	365.4078
252.85	365.4078
254.15	0.0000
256.20	345.9705
256.20	345.9705
260.50	307.6312
260.90	304.5239
262.80	363.0247
264.65	384.6187
268.24	303.7848
268.79	333.8638
269.46	349.9650
269.46	349.9650
269.46	349.9650
269.46	349.9650
271.23	373.0418
273.65	393.2807
276.40	375.3672
277.35	338.4338
277.60	338.5316
277.60	338.5316
278.00	338.6945
278.60	309.3767
279.20	330.9492
279.53	331.0764
280.46	320.7480
281.68	312.2870
283.67	287.6741
284.30	288.9516
285.00	305.6629
285.90	327.2792
286.10	322.8706
286.10	322.8706
287.40	313.2492
288.45	0.0000
290.67	302.0316
290.80	302.0766
291.72	290.3599
293.26	0.0000
293.70	315.1371
295.21	315.6771
295.21	315.6771

295.21	315.6771
295.96	344.6672
296.50	344.8760
297.23	345.1589
298.57	345.6785
299.80	344.6334
299.80	344.6334
300.09	334.1179
300.09	334.1179
300.09	334.1179
300.09	334.1179
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301.29	302.6256
302.84	307.7180
303.76	300.4058
303.91	300.4539
304.40	282.3064
304.40	282.3064
304.84	296.1823
306.84	336.0034
308.46	314.5256
311.98	279.7202
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318.01	283.3909
319.02	258.5787
319.41	267.0620
320.08	266.3166
323.87	292.9353
323.87	292.9353
323.87	292.9353
323.87	292.9353
325.23	305.8313
328.77	297.5592
333.44	250.2070
334.20	292.9220
334.20	292.9220
334.30	280.3522
338.28	281.4821
338.28	281.4821
338.28	281.4821
338.28	281.4821
338.32	281.4965
338.32	281.4965
338.32	281.4965
340.50	275.7726
340.57	275.7903
344.27	299.0819
345.85	274.0585
350.59	0.0000
351.07	267.1406
351.92	267.3612
351.92	267.3612
351.92	267.3612
355.39	0.0000
356.01	220.4677
364.48	232.6428
366.43	257.4516
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367.94	0.0000
369.80	239.6765
374.96	253.6097
383.85	255.6789
387.95	255.6290
388.63	258.7717
391.69	265.4675
391.69	265.4675
392.90	255.7625
398.62	259.0645
400.65	271.5952
401.10	261.6409
401.81	263.8166
402.60	259.7445
404.84	247.3477
410.95	230.0451
411.60	208.1706
413.65	211.9242
414.70	237.5688
415.30	219.0129

415.76	237.7824
417.63	0.0000
418.52	204.2871
423.70	225.6934
427.08	210.8958
427.89	203.8298
432.53	211.8417
433.93	232.7756
439.47	223.4326
439.56	214.0947
439.89	212.0733
443.98	241.9744
444.90	231.7152
445.03	231.7396
445.03	231.7396
445.03	231.7396
445.03	231.7396
453.90	194.4758
463.38	210.0367
468.07	200.1662
473.00	205.8965
475.06	220.1072
475.35	213.7451
476.78	201.1361
477.59	191.6231
477.96	194.8902
482.03	197.6315
484.57	195.8544
487.03	188.6633
490.36	0.0000
492.35	183.9930
497.08	199.8327
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510.53	0.0000
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511.00	184.2873
511.85	184.3970
511.85	184.3970
513.99	179.5470
513.99	179.5470
520.41	179.1296
520.65	179.1613
527.90	195.1724
528.96	0.0000
529.64	195.4042
529.87	0.0000
531.02	169.6376
537.32	181.5390
543.00	165.4153
546.56	0.0000
549.76	187.7563
552.65	172.1284
555.20	165.8236
563.23	191.3230
563.90	192.3569
568.70	189.1537
569.32	193.0301
569.50	198.7609
569.67	198.7822
573.80	202.8639
574.00	201.8494
574.64	211.8241
578.91	237.8249
579.30	0.0000
583.14	167.8828
585.48	159.7597
591.81	196.7742
592.07	191.6580
593.00	189.5481
595.88	181.7999
600.56	199.2997
602.52	0.0000
602.71	211.4245
602.71	211.4245
603.60	193.2173
604.41	184.9819
604.70	175.0122
609.31	189.1571

609.31	189.1571
609.31	189.1571
609.31	189.1571
610.33	172.2714
612.46	164.1206
614.37	164.3086
618.01	156.4374
621.84	157.1908
621.84	157.1908
631.29	162.0247
633.02	144.3901
633.10	153.2971
634.78	177.2083
635.90	176.3341
636.97	156.6210
645.85	162.4130
646.12	159.4499
656.30	158.0929
657.75	153.0650
657.90	0.0000
661.65	168.9160
661.65	168.9160
664.57	0.0000
666.33	174.5484
666.33	174.5484
675.00	156.0052
677.61	176.5205
685.20	156.8887
692.80	165.7244
695.00	158.7527
696.49	167.0823
696.49	167.0823
697.00	162.0021
697.49	155.8903
698.33	151.8572
698.50	151.8722
699.00	170.3871
702.63	175.8636
706.10	170.0085
706.58	0.0000
706.67	171.0929
709.31	168.2363
711.68	177.7494
713.82	172.7794
717.42	153.4139
720.50	131.7118
721.93	0.0000
722.20	153.2055
722.78	147.9074
722.78	147.9074
722.89	147.9161
722.95	147.9190
723.30	135.4704
724.18	135.5314
727.18	144.6739
733.00	152.2778
735.90	114.8304
739.58	161.4851
742.81	144.9489
744.21	147.1521
747.13	123.1604
751.79	158.2733
752.31	154.0943
753.82	146.8165
755.35	141.6444
756.15	145.9315
756.87	151.2742
763.93	156.5139
765.79	147.5498
766.42	160.3502
766.84	176.7868
776.49	151.9964
778.00	164.9362
778.57	179.6484
778.89	179.6758
783.80	134.0103
785.46	139.2894
792.07	173.4535

795.84	118.3103
796.30	120.1861
798.80	144.3974
801.93	165.0095
805.60	127.2238
810.29	137.7460
810.76	133.1224
815.85	125.0431
817.79	135.4318
818.51	135.4773
819.60	125.2628
826.30	145.3503
828.27	0.0000
831.60	160.7479
831.96	153.2531
834.83	149.6919
836.80	0.0000
846.75	154.2991
848.13	126.9266
856.28	0.0000
856.80	128.1399
860.37	115.0098
867.32	142.1223
867.82	153.1169
871.10	101.4472
873.19	115.9105
874.81	112.1583
875.33	0.0000
876.40	128.5460
879.36	115.2665
880.27	103.7813
880.51	101.8705
881.50	101.9148
883.24	105.8412
884.67	117.4620
889.25	112.8745
896.60	127.7530
898.02	144.2944
899.00	139.5100
903.28	137.5848
911.07	115.8893
911.07	115.8893
911.07	115.8893
919.63	129.9965
920.93	126.6455
925.00	103.8410
925.24	107.7710
926.50	125.4732
935.52	122.9967
937.48	129.9904
944.10	137.2596
946.00	143.2982
949.00	137.5383
962.29	134.0615
964.01	144.6066
966.15	135.5162
968.20	135.6277
969.11	115.2281
969.11	115.2281
969.11	115.2281
977.42	129.9449
980.50	122.2702
983.50	122.4170
989.30	124.7114
996.32	172.4612
1001.03	122.2597
1001.68	108.1420
1004.76	141.6650
1021.30	0.0000
1024.50	0.0000
1034.80	111.5851
1036.00	111.6345
1037.82	127.0836
1038.57	128.1477
1038.76	0.0000
1045.16	118.1887
1046.59	118.2528
1048.07	109.0611

1050.47	127.6934
1050.47	127.6934
1062.04	125.1442
1063.62	110.7319
1076.63	131.0229
1077.35	140.4194
1078.86	148.8253
1085.78	128.3323
1099.22	150.9810
1112.02	144.1840
1112.84	143.8173
1115.52	116.2716
1120.29	144.1981
1120.29	144.1981
1120.29	144.1981
1120.29	144.1981
1120.51	150.0232
1121.28	151.6479
1124.00	0.0000
1129.67	125.3060
1131.51	0.0000
1147.95	0.0000
1167.94	123.1203
1173.22	154.4106
1175.09	144.1472
1177.93	134.8568
1189.05	140.0959
1204.90	151.3091
1205.75	0.0000
1213.00	157.4419
1221.42	181.8011
1230.97	233.2408
1235.34	166.2897
1236.41	0.0000
1238.25	166.4481
1246.25	167.8403
1260.41	0.0000
1271.85	104.0612
1274.45	119.7193
1274.54	119.7231
1291.56	84.1576
1298.22	0.0000
1312.09	98.4833
1325.50	82.0780
1325.50	82.0780
1332.49	81.2618
1333.61	85.2546
1360.21	71.9495
1362.66	0.0000
1365.15	74.0565
1368.21	97.1628
1368.53	0.0000
1376.25	66.2679
1384.27	109.7019
1394.10	64.5977
1395.20	55.5304
1407.95	71.9512
1434.06	56.1548
1436.60	63.3491
1457.56	0.0000
1460.81	51.4374
1489.15	52.8786
1509.49	47.9597
1596.49	73.9692
1620.62	32.4431
1678.03	0.0000
1691.02	33.0177
1691.02	33.0177
1706.46	0.0000
1750.46	0.0000
1764.49	26.6858
1764.49	26.6858
1764.49	26.6858
1764.49	26.6858
1770.23	32.0660
1771.40	21.3832
1791.20	0.0000
1808.65	28.9583

1836.01

29.1400

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037553

Total Uranium Activity	1.5171E+01	ug/g
Total Uranium Counting Unc.	6.6285E+00	ug/g
Total Uranium Tpu	3.3819E-06	ug/g
Total Uranium Mda	2.6279E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 950788          SAMPLE ID   : G1202037553
*  ANALYST       : MXR1            DETECTOR    : GAM22
*  SAMPLE DATE   : 3-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 19-FEB-2010 20:42:20.81  SAMPLE ALQT: 144.980 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.034E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.359E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.332E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.135E+00

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VAX/VMS Nuclide Identification Report Generated 19-FEB-2010 22:36:01.46

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*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 Savage Road       *
*               Charleston, SC 29414  *
*                                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037554.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 21:35:28
Sample ID          : G1202037554      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM14            Detector geometry: CAN
Elapsed live time   : 0 01:00:00.00    Elapsed real time: 0 01:00:01.58  0.0%
Energy tolerance    : 1.50000 keV      Analyst Initials : MXR1
Abundance limit     : 75.00000          Sensitivity       : 5.00000
Batch ID           : 950788            Detector SN#      :
Matrix Spike ID     :                  LCS ID           : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	59.62*	3942	1271	1.23	118.80	113	13	1.09E+00	2.5	
2	1	74.60*	181	475	1.51	148.72	145	23	5.03E-02	21.2	2.62E+00
3	1	77.16*	313	542	1.26	153.85	145	23	8.69E-02	14.1	
4	0	88.08	1604	714	1.30	175.67	171	12	4.45E-01	4.2	
5	0	93.05*	96	377	2.26	185.58	182	9	2.65E-02	39.1	
6	0	122.16	305	402	1.33	243.76	239	12	8.47E-02	14.3	
7	0	186.25*	100	384	1.06	371.81	366	12	2.78E-02	40.9	
8	0	238.35*	391	482	1.26	475.94	472	10	1.09E-01	11.7	
9	0	295.07*	165	280	1.17	589.28	583	13	4.58E-02	22.4	
10	0	351.79*	260	254	1.61	702.64	696	15	7.23E-02	14.8	
11	0	509.72*	42	179	2.65	1018.29	1012	13	1.17E-02	71.4	
12	0	582.61*	171	117	1.93	1164.02	1158	11	4.75E-02	13.6	
13	0	608.82*	192	155	1.66	1216.42	1210	15	5.33E-02	16.0	
14	0	661.51	2562	149	1.64	1321.74	1313	18	7.12E-01	2.3	
15	0	860.44	34	90	1.01	1719.53	1713	10	9.44E-03	54.9	
16	0	911.41	105	88	1.95	1821.47	1817	10	2.92E-02	19.3	
17	0	969.10	84	59	1.58	1936.85	1933	8	2.35E-02	19.2	
18	0	1173.26	1869	66	2.05	2345.23	2338	18	5.19E-01	2.5	
19	0	1332.49	1817	25	1.94	2663.82	2653	20	5.05E-01	2.4	
20	0	1460.54*	32	9	1.58	2920.06	2911	18	8.91E-03	29.2	
21	0	1764.52*	27	5	1.99	3528.51	3523	10	7.44E-03	26.0	

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

VMS Nuclide Identification Report V3.1 Generated 19-FEB-2010 22:36:03

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Configuration       : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037554.CNF;1
Analyses by        : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title       : MXR1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 21:35:28
Sample ID          : G1202037554           Sample quantity  : 155.44 GRAM
Sample type        : SOLID                 Sample geometry   :
Detector name      : GAMMA14              Detector geometry: CAN
Elapsed live time: 0 01:00:00.00          Elapsed real time: 0 01:00:01.58    0.0%
Peak Width (FWHM) : 3.00                  Confidence level  : 5.00 %
Energy tolerance   : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type    : Empirical              Efficiencies at   : Peak Energy
Abundance limit    : 75.00                 WTM error limit   : 3.00
  
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	1.198E+00	7.061E-01	6.091E-01	4.423E-02	1.967
CO-57	+	122.06	*	2.301E-01	6.798E-02	6.320E-02	4.496E-03	3.640
		136.48		6.088E-02	3.264E-01	5.281E-01	3.877E-02	0.115
CO-60	+	1173.22		6.196E+00	4.627E-01	1.111E-01	6.121E-03	55.760
	+	1332.49	*	6.739E+00	5.821E-01	1.079E-01	7.692E-03	62.436
CD-109	+	88.03	*	2.973E+01	3.615E+00	2.206E+00	1.929E-01	13.478
SN-126		64.28		-6.404E-01	7.559E-01	1.040E+00	1.482E-01	-0.616
	+	86.94		1.226E+01	5.180E+00	9.790E-01	4.049E-01	12.527
	+	87.57	*	2.950E+00	3.587E-01	2.290E-01	1.992E-02	12.883
BA-137M	+	661.65	*	5.573E+00	4.168E-01	1.053E-01	6.264E-03	52.903
CS-137	+	661.65	*	5.891E+00	4.418E-01	1.114E-01	6.648E-03	52.903
TL-208		277.35		2.313E-01	6.262E-01	1.060E+00	1.121E-01	0.218
	+	510.84		3.034E-01	4.344E-01	4.050E-01	4.129E-02	0.749
	+	583.14	*	3.554E-01	9.951E-02	1.081E-01	7.396E-03	3.286
	+	860.37		6.778E-01	7.476E-01	9.629E-01	9.059E-02	0.704
BI-211		72.87		1.022E+01	5.191E+00	7.900E+00	5.822E-01	1.293
	+	351.07	*	2.326E+00	7.023E-01	5.676E-01	3.596E-02	4.097
PB-212	+	74.81		1.349E+00	5.939E-01	8.665E-01	1.039E-01	1.557
	+	77.11		1.330E+00	3.884E-01	4.973E-01	3.829E-02	2.675
	+	87.30		1.364E+01	2.148E+00	1.061E+00	1.405E-01	12.857
	+	238.63	*	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
		300.09		2.020E+00	1.396E+00	2.203E+00	1.822E-01	0.917
PO-212	+	74.81		1.349E+00	5.939E-01	8.665E-01	1.039E-01	1.557
	+	77.11		1.330E+00	3.884E-01	4.973E-01	3.829E-02	2.675
	+	87.30		1.364E+01	2.148E+00	1.061E+00	1.405E-01	12.857
		115.19		9.462E-01	5.367E+00	8.713E+00	6.341E-01	0.109
	+	238.63	*	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
		300.09		2.020E+00	1.396E+00	2.203E+00	1.822E-01	0.917
BI-214	+	609.31	*	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
		1120.29		3.613E-01	5.990E-01	1.030E+00	9.546E-02	0.351
	+	1764.49		7.735E-01	4.048E-01	4.596E-01	2.757E-02	1.683
PB-214	+	74.81		2.324E+00	1.015E+00	1.493E+00	1.575E-01	1.557
	+	77.11		2.281E+00	6.882E-01	8.525E-01	9.235E-02	2.675
	+	87.30		2.337E+01	3.365E+00	1.818E+00	2.109E-01	12.857

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214		241.98		1.192E+00	6.651E-01	1.050E+00	8.433E-02	1.135
	+	295.21		8.675E-01	3.957E-01	3.886E-01	3.322E-02	2.232
	+	351.92	*	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
	+	74.81		2.324E+00	1.015E+00	1.493E+00	1.575E-01	1.557
	+	77.11		2.281E+00	6.882E-01	8.525E-01	9.235E-02	2.675
PO-216	+	87.30		2.337E+01	3.365E+00	1.818E+00	2.109E-01	12.857
		241.98		1.192E+00	6.651E-01	1.050E+00	8.433E-02	1.135
	+	295.21		8.675E-01	3.957E-01	3.886E-01	3.322E-02	2.232
	+	351.92	*	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
	+	74.81		1.349E+00	5.939E-01	8.665E-01	1.039E-01	1.557
PO-218	+	77.11		1.330E+00	3.884E-01	4.973E-01	3.829E-02	2.675
	+	87.30		1.364E+01	2.148E+00	1.061E+00	1.405E-01	12.857
	+	238.63	*	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
		300.09		2.020E+00	1.396E+00	2.203E+00	1.822E-01	0.917
	+	74.81		2.324E+00	1.015E+00	1.493E+00	1.575E-01	1.557
RA-226	+	77.11		2.281E+00	6.882E-01	8.525E-01	9.235E-02	2.675
	+	87.30		2.337E+01	3.365E+00	1.818E+00	2.109E-01	12.857
		241.98		1.192E+00	6.651E-01	1.050E+00	8.433E-02	1.135
	+	295.21		8.675E-01	3.957E-01	3.886E-01	3.322E-02	2.232
	+	351.92	*	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
AC-228	+	609.31	*	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
		1120.29		3.613E-01	5.990E-01	1.030E+00	9.546E-02	0.351
	+	1764.49		7.735E-01	4.048E-01	4.596E-01	2.757E-02	1.683
		338.32		8.341E-01	5.523E-01	7.798E-01	3.178E-01	1.070
	+	911.07	*	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970
RA-228	+	969.11		1.411E+00	6.342E-01	8.874E-01	2.072E-01	1.589
		338.32		8.341E-01	5.523E-01	7.798E-01	3.178E-01	1.070
	+	911.07	*	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970
	+	969.11		1.411E+00	6.342E-01	8.874E-01	2.072E-01	1.589
	+	74.81		1.361E+00	5.858E-01	8.742E-01	6.642E-02	1.557
TH-228	+	77.11		1.342E+00	3.919E-01	5.017E-01	3.863E-02	2.675
	+	87.30		1.376E+01	1.674E+00	1.071E+00	9.285E-02	12.857
	+	238.63	*	7.664E-01	1.874E-01	1.708E-01	1.244E-02	4.486
		300.09		2.038E+00	1.843E+00	2.223E+00	1.310E+00	0.917
	+	609.31	*	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
TH-230		1120.29		3.613E-01	5.990E-01	1.030E+00	9.546E-02	0.351
	+	1764.49		7.735E-01	4.048E-01	4.596E-01	2.757E-02	1.683
		338.32		8.341E-01	4.379E-01	7.798E-01	4.480E-02	1.070
	+	911.07	*	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970
	+	969.11		1.411E+00	6.342E-01	8.874E-01	2.072E-01	1.589
U-234	+	609.31	*	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
		1120.29		3.613E-01	5.990E-01	1.030E+00	9.546E-02	0.351
	+	1764.49		7.735E-01	4.048E-01	4.596E-01	2.757E-02	1.683
	+	59.54	*	1.308E+01	1.171E+00	4.403E-01	3.269E-02	29.702
	+	74.67	*	2.187E-01	9.409E-02	1.408E-01	1.057E-02	1.553
AM-243	+	86.72		3.248E+02	3.950E+01	2.598E+01	2.237E+00	12.506
		117.66		-2.346E+00	6.800E+00	9.369E+00	6.754E-01	-0.250
		142.18		1.197E+01	2.645E+01	4.305E+01	2.707E+00	0.278
	+	511.00	*	6.554E-02	9.367E-02	8.751E-02	5.141E-03	0.749

---- 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	*		-2.502E-01	6.304E-01	1.012E+00	6.819E-02	-0.247
NA-22	1274.54	*		-7.151E-03	4.949E-02	7.973E-02	5.208E-03	-0.090
NA-24	1368.53	*		1.143E-04	4.949E-02	Half-Life	too short	
AL-26	1129.67			-4.174E-01	3.031E+00	4.960E+00	3.132E-01	-0.084
	1808.65	*		2.518E-02	4.020E-02	7.429E-02	4.307E-03	0.339
TI-44	67.85			-2.469E-02	6.389E-02	1.027E-01	7.226E-03	-0.240
+	78.38	*		2.455E-01	7.166E-02	1.028E-01	8.030E-03	2.387
SC-46	889.25	*		4.349E-02	8.401E-02	1.448E-01	1.338E-02	0.300
	1120.51			8.134E-02	9.576E-02	1.674E-01	1.084E-02	0.486
V-48	944.10			9.670E-02	1.661E+00	2.781E+00	2.485E-01	0.035
	983.50	*		-6.196E-02	1.176E-01	1.886E-01	1.602E-02	-0.328
	1312.09			2.781E-03	7.194E-02	1.189E-01	8.218E-03	0.023
CR-51	320.08	*		1.577E-01	5.721E-01	9.570E-01	6.184E-02	0.165
MN-52	744.21			1.749E-01	2.069E-01	3.536E-01	2.496E-02	0.495
	848.13			2.083E+00	6.631E+00	1.133E+01	9.734E-01	0.184
	935.52			6.235E-02	2.801E-01	4.734E-01	4.273E-02	0.132
	1246.25			1.677E+00	3.331E+00	5.884E+00	3.666E-01	0.285
+	1333.61			4.004E+02	3.459E+01	4.351E+01	3.101E+00	9.202
	1434.06	*		-9.171E-02	1.093E-01	1.414E-01	9.907E-03	-0.649
MN-54	834.83	*		-2.632E-02	7.273E-02	1.192E-01	9.996E-03	-0.221
CO-56	846.75	*		5.246E-02	7.940E-02	1.382E-01	1.185E-02	0.380
	977.42			4.886E+00	6.119E+00	1.070E+01	9.161E-01	0.457
	1037.82			-3.669E-01	6.442E-01	1.027E+00	8.509E-02	-0.357
	1175.09			2.633E+02	1.968E+01	3.036E+01	1.678E+00	8.672
	1238.25			7.396E-02	8.724E-02	1.583E-01	1.028E-02	0.467
	1360.21			-2.707E-01	9.584E-01	1.481E+00	1.052E-01	-0.183
	1771.40			-1.173E-01	3.187E-01	4.732E-01	2.824E-02	-0.248
CO-58	810.76	*		-3.365E-02	7.462E-02	1.155E-01	9.291E-03	-0.291
FE-59	142.65			-2.230E+00	3.822E+00	5.949E+00	3.730E-01	-0.375
	192.34			-9.036E-02	1.543E+00	2.257E+00	2.635E-01	-0.040
	1099.22	*		-6.581E-02	1.745E-01	2.813E-01	2.165E-02	-0.234
	1291.56			8.569E-02	1.284E-01	2.309E-01	1.880E-02	0.371
ZN-65	1115.52	*		-8.702E-02	1.834E-01	2.937E-01	1.931E-02	-0.296
GE-68	1077.35	*		8.037E-01	2.748E+00	4.646E+00	3.340E-01	0.173
AS-73	53.44	*		1.552E-01	1.679E+00	2.410E+00	1.571E-01	0.064
AS-74	595.88	*		-2.060E-02	1.333E-01	2.145E-01	1.283E-02	-0.096
	634.78			-2.817E-01	5.489E-01	8.583E-01	5.127E-02	-0.328
SE-75	66.05			-5.420E+00	7.151E+00	9.818E+00	8.928E-01	-0.552
	96.73			-5.310E-01	1.225E+00	1.686E+00	2.240E-01	-0.315
+	121.11			1.212E+00	3.686E-01	4.413E-01	4.465E-02	2.747
	136.00			-4.707E-03	6.017E-02	9.630E-02	6.361E-03	-0.049
	198.60			1.374E-01	2.788E+00	4.693E+00	3.249E-01	0.029
	264.65	*		-6.164E-02	7.090E-02	1.137E-01	6.675E-03	-0.542
	279.53			5.299E-03	1.730E-01	2.889E-01	1.820E-02	0.018
	303.91			-3.604E+00	3.507E+00	5.528E+00	5.284E-01	-0.652
	400.65			9.161E-02	4.770E-01	7.939E-01	7.070E-02	0.115
BR-77	87.88	+		1.051E+03	1.278E+02	1.407E+02	1.229E+01	7.472
	200.40			-1.316E+00	4.247E+01	7.137E+01	3.969E+00	-0.018
+	239.00			1.978E+01	4.755E+00	6.974E+00	4.004E-01	2.836

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	249.79			1.853E+00	1.749E+01	2.939E+01	1.697E+00	0.063
	281.68			-1.501E+01	2.451E+01	3.971E+01	2.316E+00	-0.378
	297.23			1.967E+01	1.781E+01	2.732E+01	1.594E+00	0.720
	303.76			-5.684E+01	5.015E+01	7.887E+01	4.596E+00	-0.721
	439.47			-1.617E-01	4.627E+01	7.605E+01	4.300E+00	-0.002
	484.57			7.087E+01	7.400E+01	1.273E+02	7.394E+00	0.557
	520.65	*		-7.347E-01	3.097E+00	4.984E+00	2.938E-01	-0.147
	574.64			1.924E+01	6.544E+01	1.057E+02	6.311E+00	0.182
	578.91			-3.177E+00	2.994E+01	4.168E+01	2.490E+00	-0.076
	585.48			1.512E+02	6.279E+01	1.037E+02	6.198E+00	1.458
	755.35			-2.511E+01	5.436E+01	8.453E+01	6.098E+00	-0.297
	817.79			5.025E+00	4.389E+01	7.422E+01	6.033E+00	0.068
SR-82	698.33			-3.656E+01	5.273E+01	8.076E+01	5.191E+00	-0.453
	776.49	*		-4.804E-01	6.264E-01	9.459E-01	7.112E-02	-0.508
	1395.20			7.069E+00	9.796E+00	1.820E+01	1.286E+00	0.388
RB-83	520.41	*		-3.384E-02	1.198E-01	1.922E-01	1.133E-02	-0.176
	529.64			-8.249E-02	1.740E-01	2.747E-01	1.624E-02	-0.300
	552.65			-1.350E-01	3.334E-01	5.282E-01	3.142E-02	-0.256
RB-84	881.50	*		4.351E-02	1.382E-01	2.357E-01	2.149E-02	0.185
KR-85	513.99	*		1.189E+00	1.442E+01	2.053E+01	1.208E+00	0.058
SR-85	513.99	*		5.709E-03	6.925E-02	9.859E-02	5.799E-03	0.058
RB-86	1076.63	*		7.427E-01	1.382E+00	2.373E+00	1.709E-01	0.313
Y-88	898.02			-2.269E-03	8.428E-02	1.407E-01	1.325E-02	-0.016
	1836.01	*		-6.751E-03	5.234E-02	8.222E-02	4.670E-03	-0.082
ZR-88	392.90	*		1.066E-02	5.379E-02	8.965E-02	4.881E-03	0.119
Y-91	1204.90	*		-6.293E+00	2.231E+01	3.563E+01	2.073E+00	-0.177
NB-94	702.63	*		4.864E-02	6.216E-02	1.057E-01	6.855E-03	0.460
	871.10			-7.171E-02	7.481E-02	1.171E-01	1.048E-02	-0.613
NB-95	765.79	*		3.068E-02	7.031E-02	1.167E-01	8.597E-03	0.263
NB-95M	235.69	*		4.541E-01	2.285E-01	3.621E-01	2.706E-02	1.254
ZR-95	724.18			9.720E-03	1.616E-01	2.617E-01	2.016E-02	0.037
	756.15	*		1.992E-02	1.303E-01	2.121E-01	1.750E-02	0.094
NB-97	657.90	*		2.925E-03	1.303E-01	Half-Life	too short	
	1024.50			-1.179E-02	1.303E-01	Half-Life	too short	
ZR-97	254.15			-3.026E-03	1.303E-01	Half-Life	too short	
	355.39			1.523E-03	1.303E-01	Half-Life	too short	
	507.63	*		1.300E-02	1.303E-01	Half-Life	too short	
	602.52			-1.570E-02	1.303E-01	Half-Life	too short	
	1021.30			-1.536E-02	1.303E-01	Half-Life	too short	
	1147.95			1.745E-03	1.303E-01	Half-Life	too short	
	1362.66			-3.632E-03	1.303E-01	Half-Life	too short	
	1750.46			-4.655E-03	1.303E-01	Half-Life	too short	
MO-99	140.51			-4.341E+00	8.648E+00	1.341E+01	3.631E+00	-0.324
	181.06			-2.706E-02	6.005E+00	8.826E+00	1.503E+00	-0.003
	366.43			7.600E+00	3.180E+01	5.323E+01	2.987E+00	0.143
	739.58	*		-2.920E+00	4.647E+00	7.097E+00	1.016E+00	-0.411
	778.00			-8.605E+00	1.383E+01	2.114E+01	1.594E+00	-0.407
TC-99M	140.51	*		-9.928E+02	1.383E+01	Half-Life	too short	
RH-101	127.23			5.211E-03	5.641E-02	7.959E-02	5.476E-03	0.065

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RH-102	198.01	*		2.641E-02	5.226E-02	8.940E-02	4.960E-03	0.295
	325.23			8.393E-03	3.864E-01	6.421E-01	3.716E-02	0.013
	418.52			-1.170E-01	5.505E-01	8.966E-01	4.991E-02	-0.130
	475.06	*		5.119E-03	6.247E-02	1.028E-01	5.943E-03	0.050
	631.29			3.189E-02	1.024E-01	1.696E-01	1.013E-02	0.188
	697.49			-9.027E-02	1.401E-01	2.154E-01	1.382E-02	-0.419
	766.84			7.603E-02	1.945E-01	3.217E-01	2.374E-02	0.236
RU-103	1046.59			-2.042E-02	2.553E-01	4.219E-01	3.229E-02	-0.048
	1112.84			-3.775E-01	4.668E-01	7.274E-01	4.806E-02	-0.519
	497.08	*		9.770E-03	7.540E-02	1.243E-01	1.574E-02	0.079
	610.33			5.906E+00	1.970E+00	3.019E+00	4.676E-01	1.956
RH-106	511.85			9.308E-02	3.474E-01	5.572E-01	3.275E-02	0.167
	621.84	*		-1.873E-01	5.862E-01	9.293E-01	1.099E-01	-0.202
RU-106	1050.47			-1.240E+00	4.800E+00	7.825E+00	5.944E-01	-0.158
	511.85			9.308E-02	3.474E-01	5.572E-01	3.275E-02	0.167
	621.84	*		-1.873E-01	5.859E-01	9.293E-01	5.557E-02	-0.202
AG-108M	1050.47			-1.240E+00	4.800E+00	7.825E+00	5.944E-01	-0.158
	433.93	*		-1.941E-03	6.735E-02	1.106E-01	6.794E-03	-0.018
	614.37			-7.998E-03	8.107E-02	1.125E-01	7.270E-03	-0.071
AG-110M	722.95			-1.722E-01	8.316E-02	1.123E-01	8.069E-03	-1.534
	657.75	*		2.812E-01	9.253E-02	1.559E-01	9.848E-03	1.804
	677.61			2.264E-01	5.794E-01	9.622E-01	6.243E-02	0.235
	706.67			-1.229E-02	3.703E-01	5.963E-01	4.084E-02	-0.021
	763.93			-2.588E-01	3.032E-01	4.550E-01	3.468E-02	-0.569
IN-111	884.67			-1.111E-01	1.091E-01	1.699E-01	1.602E-02	-0.654
	937.48			-1.876E-01	2.629E-01	4.194E-01	3.903E-02	-0.447
	1384.27			-1.694E-02	1.812E-01	2.919E-01	2.152E-02	-0.058
	171.28			-7.583E-02	3.629E-01	5.743E-01	3.097E-02	-0.132
	245.39	*		-9.230E-01	4.119E-01	5.721E-01	3.297E-02	-1.613
	391.69	*		1.481E-02	7.959E-02	1.326E-01	7.758E-03	0.112
IN-113M	391.69	*		1.481E-02	7.959E-02	1.326E-01	7.758E-03	0.112
SN-113	190.27	*		-4.314E-02	2.990E-01	4.354E-01	2.396E-02	-0.099
IN-114M	260.90			1.387E+01	3.113E+01	5.299E+01	3.075E+00	0.262
CD-115	492.35			2.193E-01	1.051E+01	1.723E+01	1.004E+00	0.013
SN-117M	527.90	*		-6.423E-01	2.738E+00	4.401E+00	2.601E-01	-0.146
	156.02			5.030E-01	2.589E+00	4.178E+00	2.405E-01	0.120
	158.56	*		-1.647E-02	6.410E-02	1.014E-01	5.736E-03	-0.162
SB-122	563.90	*		-7.191E-01	8.330E-01	1.284E+00	7.653E-02	-0.560
	692.80			7.421E+00	1.598E+01	2.667E+01	1.694E+00	0.278
I-123	159.00	*		-7.989E-05	1.598E+01	Half-Life too short		
	528.96			-2.929E-01	1.598E+01	Half-Life too short		
TE-123M	159.00	*		-1.030E-03	4.392E-02	7.020E-02	4.015E-03	-0.015
I-124	602.71	*		-2.292E-01	4.787E-01	6.392E-01	3.824E-02	-0.359
	722.78			-6.395E+00	3.084E+00	4.168E+00	2.818E-01	-1.534
	1325.50			2.095E+01	1.932E+01	3.267E+01	2.304E+00	0.641
	1376.25			-6.987E-01	1.199E+01	1.945E+01	1.378E+00	-0.036
	1509.49			-2.775E+00	7.547E+00	1.152E+01	7.905E-01	-0.241
SB-124	1691.02			-2.499E-01	1.648E+00	2.570E+00	1.620E-01	-0.097
	602.71			-3.488E-02	7.286E-02	9.727E-02	5.821E-03	-0.359

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		645.85		7.381E-02	8.936E-01	1.456E+00	9.741E-02	0.051
		709.31		-1.750E+00	4.661E+00	7.306E+00	4.804E-01	-0.240
		713.82		-1.303E+00	3.005E+00	4.694E+00	5.026E-01	-0.278
		722.78		-1.411E+00	6.808E-01	9.196E-01	6.433E-02	-1.534
	+	968.20		1.351E+01	5.322E+00	1.034E+01	8.963E-01	1.307
		1045.16		4.531E+00	4.932E+00	8.677E+00	6.659E-01	0.522
		1325.50		4.937E+00	4.551E+00	7.699E+00	5.429E-01	0.641
		1368.21		5.756E-01	1.557E+00	2.748E+00	3.450E-01	0.209
		1436.60		3.206E-01	3.184E+00	5.336E+00	3.737E-01	0.060
		1691.02	*	-1.300E-02	8.576E-02	1.338E-01	9.042E-03	-0.097
		427.89	*	-4.087E-02	1.828E-01	2.973E-01	1.743E-02	-0.137
		463.38		2.097E-01	5.960E-01	9.939E-01	6.671E-02	0.211
		600.56		-9.290E-02	3.196E-01	4.941E-01	3.393E-02	-0.188
		635.90		-2.161E-01	5.281E-01	8.318E-01	5.772E-02	-0.260
		109.28	*	4.282E+00	1.264E+01	2.068E+01	1.938E+00	0.207
TE-125M		388.63		-1.386E-01	2.730E-01	4.390E-01	2.398E-02	-0.316
I-126		666.33	*	3.300E-01	2.473E-01	3.931E-01	2.361E-02	0.840
		753.82		-8.738E-02	2.110E+00	3.386E+00	2.436E-01	-0.026
SB-126		223.80		2.330E-01	4.609E+00	7.748E+00	4.400E-01	0.030
		278.60		1.492E+00	2.866E+00	4.885E+00	2.848E-01	0.305
	+	296.50		6.094E+00	2.753E+00	3.316E+00	1.934E-01	1.838
		414.70		6.122E-02	1.017E-01	1.725E-01	9.572E-03	0.355
		415.30		6.619E-01	8.471E+00	1.401E+01	7.778E-01	0.047
		555.20		-1.384E+00	5.044E+00	8.068E+00	4.801E-01	-0.172
		573.80		-5.496E-01	1.425E+00	2.263E+00	1.351E-01	-0.243
		593.00		5.402E-01	1.204E+00	2.016E+00	1.206E-01	0.268
		656.30		2.274E+00	5.221E+00	7.600E+00	4.524E-01	0.299
		666.33		1.359E-01	1.019E-01	1.619E-01	9.725E-03	0.840
		675.00		4.852E-01	2.571E+00	4.216E+00	2.580E-01	0.115
		695.00		-4.568E-03	9.886E-02	1.592E-01	1.016E-02	-0.029
		697.00		-1.245E-01	3.455E-01	5.432E-01	3.482E-02	-0.229
		720.50	*	-6.282E-02	1.902E-01	2.992E-01	2.013E-02	-0.210
		856.80		1.993E-01	7.566E-01	1.121E+00	9.785E-02	0.178
		989.30		-5.176E-01	1.926E+00	3.147E+00	2.650E-01	-0.164
		1034.80		3.901E+00	1.337E+01	2.266E+01	1.772E+00	0.172
		1213.00		3.862E+00	4.180E+00	7.560E+00	4.458E-01	0.511
SB-127	+	61.10		1.648E+03	1.531E+02	1.158E+02	9.131E+00	14.232
		252.40		1.208E+00	2.410E+00	4.028E+00	1.658E+00	0.300
		290.80		-1.162E+00	1.304E+01	1.876E+01	1.345E+00	-0.062
		411.60		-3.251E+00	7.612E+00	1.225E+01	1.601E+00	-0.265
		444.90		-4.376E+00	6.417E+00	1.015E+01	9.194E-01	-0.431
		473.00		4.870E-01	1.186E+00	1.982E+00	1.898E-01	0.246
		543.00		1.547E-01	1.007E+01	1.644E+01	1.912E+00	0.009
		603.60		-1.645E+00	7.378E+00	1.012E+01	9.330E-01	-0.163
		685.20	*	-4.207E-01	8.271E-01	1.285E+00	1.008E-01	-0.327
		698.50		-5.886E+00	9.134E+00	1.400E+01	1.902E+00	-0.420
		722.20		-3.562E+01	1.918E+01	2.638E+01	2.093E+00	-1.350
		783.80		1.102E+00	2.343E+00	3.887E+00	3.986E-01	0.284
XE-127		57.60		2.507E+02	2.335E+01	3.087E+01	2.033E+00	8.123

Sample ID : G1202037554

Acquisition date : 19-FEB-2010 21:35:28

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131		145.22		3.353E-02	9.328E-01	1.498E+00	9.245E-02	0.022
		172.10		8.769E-02	1.742E-01	2.842E-01	1.534E-02	0.309
		202.84	*	-1.187E-02	6.629E-02	1.107E-01	6.173E-03	-0.107
		374.96		-3.490E-01	3.282E-01	5.122E-01	2.847E-02	-0.681
		80.18		-5.051E+00	4.402E+00	6.600E+00	5.272E-01	-0.765
		284.30		3.192E-01	1.443E+00	2.429E+00	1.562E-01	0.131
		364.48	*	-1.165E-02	1.228E-01	2.021E-01	1.267E-02	-0.058
TE-132		636.97		1.092E-01	1.706E+00	2.778E+00	1.834E-01	0.039
		722.89		-1.694E+01	8.171E+00	1.104E+01	7.493E-01	-1.534
		49.72		4.726E+00	8.421E+00	1.396E+01	1.050E+00	0.339
		111.76		2.566E-01	1.170E+01	1.889E+01	1.576E+00	0.014
BA-133		116.30		-2.324E-01	1.218E+01	1.810E+01	1.488E+00	-0.013
		228.16	*	-2.064E-01	2.983E-01	4.841E-01	6.435E-02	-0.426
		53.15		-2.683E+00	7.308E+00	1.093E+01	7.119E-01	-0.246
		79.62		-4.286E-01	2.160E+00	3.361E+00	4.988E-01	-0.128
		81.00		-2.030E-01	1.626E-01	2.391E-01	3.723E-02	-0.849
I-133		276.40		2.840E-01	6.102E-01	1.036E+00	1.345E-01	0.274
		302.84		-2.691E-01	2.512E-01	3.817E-01	4.455E-02	-0.705
		356.01	*	-7.264E-03	8.980E-02	1.282E-01	1.474E-02	-0.057
		383.85		-3.366E-02	5.760E-01	9.485E-01	1.016E-01	-0.035
	+	510.53		4.542E-03	5.760E-01	Half-Life	too short	
		529.87	*	-2.515E-05	5.760E-01	Half-Life	too short	
		706.58		-9.514E-04	5.760E-01	Half-Life	too short	
		856.28		-1.639E-03	5.760E-01	Half-Life	too short	
		875.33		9.261E-05	5.760E-01	Half-Life	too short	
		1236.41		6.124E-04	5.760E-01	Half-Life	too short	
CS-134		1298.22		-2.883E-04	5.760E-01	Half-Life	too short	
		475.35		9.282E-01	4.055E+00	6.724E+00	3.887E-01	0.138
		563.23		-7.997E-01	6.984E-01	1.053E+00	6.399E-02	-0.760
		569.32		4.113E-01	3.966E-01	6.828E-01	4.188E-02	0.602
		604.70		2.079E-02	6.458E-02	9.348E-02	5.621E-03	0.222
CS-135		795.84	*	1.223E-01	9.404E-02	1.636E-01	1.288E-02	0.748
		801.93		-2.935E-01	7.683E-01	1.209E+00	9.606E-02	-0.243
		1038.57		-4.586E+00	8.523E+00	1.363E+01	1.059E+00	-0.337
		1167.94		-2.330E+00	4.896E+00	6.522E+00	3.658E-01	-0.357
		1365.15		-1.040E+00	1.232E+00	1.629E+00	1.234E-01	-0.638
		268.24	*	1.379E-01	2.609E-01	4.449E-01	3.413E-02	0.310
		288.45		1.843E+03	2.609E-01	Half-Life	too short	
I-135		417.63		-4.934E+03	2.609E-01	Half-Life	too short	
		546.56		1.417E+03	2.609E-01	Half-Life	too short	
		836.80		2.136E+03	2.609E-01	Half-Life	too short	
		1038.76		-2.838E+03	2.609E-01	Half-Life	too short	
		1124.00		-8.797E+03	2.609E-01	Half-Life	too short	
		1131.51		-1.324E+03	2.609E-01	Half-Life	too short	
		1260.41	*	-6.407E+02	2.609E-01	Half-Life	too short	
		1457.56		3.417E+03	2.609E-01	Half-Life	too short	
		1678.03		1.974E+03	2.609E-01	Half-Life	too short	
		1706.46		4.198E+03	2.609E-01	Half-Life	too short	
		1791.20		-5.215E+02	2.609E-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	66.91			-2.581E-01	7.919E-01	1.228E+00	1.791E-01	-0.210
	86.29			2.130E+01	3.574E+00	3.469E+00	4.444E-01	6.140
	153.22			7.555E-01	7.351E-01	1.225E+00	8.907E-02	0.617
	163.89			-4.676E-01	1.223E+00	1.921E+00	1.338E-01	-0.243
	176.55			-3.172E-01	4.278E-01	6.589E-01	4.071E-02	-0.481
	273.65			-7.194E-01	5.550E-01	8.719E-01	5.781E-02	-0.825
	340.57			4.162E-02	1.625E-01	2.723E-01	1.661E-02	0.153
	818.51			-1.742E-02	1.085E-01	1.803E-01	1.468E-02	-0.097
	1048.07	*		-1.413E-01	1.667E-01	2.595E-01	2.086E-02	-0.545
	1235.34			-1.924E-01	4.639E-01	7.249E-01	7.374E-02	-0.265
CE-139	165.85	*		-2.168E-02	4.593E-02	7.184E-02	3.857E-03	-0.302
BA-140	162.64			-5.807E-02	8.456E-01	1.348E+00	8.430E-02	-0.043
	304.84			-1.840E+00	1.640E+00	2.452E+00	6.694E-01	-0.750
LA-140	423.70			7.309E-01	2.644E+00	4.396E+00	1.396E+00	0.166
	537.32	*		1.469E-01	3.504E-01	5.814E-01	1.892E-01	0.253
	328.77			2.925E-01	3.676E-01	6.310E-01	4.087E-02	0.464
	432.53			7.862E-01	2.974E+00	4.955E+00	3.097E-01	0.159
	487.03			-1.205E-01	1.956E-01	3.090E-01	2.033E-02	-0.390
	751.79			2.228E+00	2.293E+00	3.946E+00	3.255E-01	0.565
	815.85			1.040E-01	4.554E-01	7.758E-01	7.099E-02	0.134
	867.82			9.014E-01	2.087E+00	3.588E+00	3.352E-01	0.251
	919.63			-2.073E+00	4.791E+00	7.607E+00	8.450E-01	-0.273
	925.24			1.288E+00	1.905E+00	3.302E+00	3.183E-01	0.390
CE-141	1596.49	*		-2.522E-02	8.815E-02	1.362E-01	9.026E-03	-0.185
	145.44	*		-1.650E-03	8.312E-02	1.332E-01	8.497E-03	-0.012
CE-143	57.37			1.518E+03	1.837E+02	2.343E+02	2.002E+01	6.481
	231.56			-5.543E+01	1.829E+02	2.935E+02	9.104E+01	-0.189
+	293.26	*		2.997E+01	1.274E+01	1.857E+01	3.835E+00	1.614
	350.59			7.942E+02	3.369E+02	2.825E+02	8.602E+01	2.812
	490.36			-1.296E+02	2.431E+02	3.802E+02	1.180E+02	-0.341
	664.57			2.431E+03	8.028E+02	4.523E+02	1.439E+02	5.374
CE-144	721.93			-2.120E+02	1.317E+02	1.629E+02	4.690E+01	-1.301
	80.11			-3.874E+00	3.418E+00	5.128E+00	4.082E-01	-0.755
PM-144	133.54	*		-3.325E-01	3.249E-01	4.936E-01	7.185E-02	-0.674
	476.78			1.184E-01	1.424E-01	2.427E-01	1.681E-02	0.488
PR-144	618.01			-1.728E-02	5.823E-02	9.256E-02	5.847E-03	-0.187
	696.49	*		-2.464E-02	6.265E-02	9.827E-02	6.294E-03	-0.251
	778.57			-4.148E+00	4.510E+00	6.720E+00	5.074E-01	-0.617
	696.49	*		-1.664E+00	4.232E+00	6.638E+00	4.250E-01	-0.251
PM-146	1489.15			-1.268E+01	1.524E+01	2.062E+01	1.424E+00	-0.615
	453.90	*		-6.233E-02	9.697E-02	1.541E-01	1.319E-02	-0.404
ND-147	633.02			1.430E+00	2.687E+00	4.429E+00	1.632E+00	0.323
	735.90			7.820E-02	2.669E-01	4.385E-01	1.234E-01	0.178
	747.13			-2.555E-01	1.830E-01	2.579E-01	3.393E-02	-0.991
	91.11			9.997E-01	3.720E-01	4.679E-01	4.300E-02	2.137
PM-149	319.41			1.409E+00	4.012E+00	6.735E+00	3.908E-01	0.209
	439.89			2.761E+00	7.671E+00	1.284E+01	7.266E-01	0.215
	531.02	*		-5.200E-01	6.699E-01	1.029E+00	1.397E-01	-0.505
	285.90	*		1.155E-01	2.166E+01	3.611E+01	5.117E+00	0.003

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	+	121.78		6.779E-01	2.031E-01	2.497E-01	2.160E-02	2.715
		244.69		-8.890E-01	6.002E-01	8.372E-01	4.823E-02	-1.062
		344.27	*	5.900E-02	1.806E-01	2.876E-01	1.861E-02	0.205
		443.98		-1.769E+00	1.903E+00	2.968E+00	1.683E-01	-0.596
		778.89		-2.674E-01	5.153E-01	7.945E-01	6.001E-02	-0.337
		867.32		4.458E-01	1.783E+00	2.971E+00	2.642E-01	0.150
		964.01		4.817E-01	6.990E-01	1.062E+00	9.261E-02	0.454
		1085.78		-3.092E-01	8.657E-01	1.399E+00	9.873E-02	-0.221
		1112.02		-3.588E-01	6.689E-01	1.066E+00	7.056E-02	-0.337
		1407.95		1.714E-01	2.428E-01	4.388E-01	3.093E-02	0.391
GD-153		69.67		2.251E+00	2.536E+00	3.748E+00	2.680E-01	0.601
		83.37		-3.297E+01	3.825E+01	3.646E+01	3.014E+00	-0.904
		97.43	*	6.808E-02	1.240E-01	1.806E-01	1.448E-02	0.377
EU-154	+	103.18		-1.233E-01	1.478E-01	2.296E-01	1.771E-02	-0.537
		123.07		4.757E-01	1.449E-01	1.760E-01	1.800E-02	2.703
		247.94		-2.551E-01	5.757E-01	9.436E-01	8.986E-02	-0.270
		591.81		2.990E-02	1.160E+00	1.889E+00	1.867E-01	0.016
		723.30		-4.917E-01	3.324E-01	4.733E-01	3.735E-02	-1.039
		756.87		5.522E-01	1.531E+00	2.525E+00	2.783E-01	0.219
		873.19		-1.203E-01	6.483E-01	1.072E+00	1.341E-01	-0.112
		996.32		1.303E-01	8.104E-01	1.363E+00	2.402E-01	0.096
		1004.76		-3.794E-01	4.818E-01	7.574E-01	8.597E-02	-0.501
		1274.45	*	-2.004E-02	1.387E-01	2.234E-01	2.190E-02	-0.090
EU-155		48.70		7.373E-02	3.809E+00	6.235E+00	3.996E-01	0.012
	+	60.01		4.244E+02	3.524E+01	3.367E+01	2.238E+00	12.607
		86.54		3.078E+00	4.017E-01	4.620E-01	4.010E-02	6.662
TB-160		105.31	*	-4.026E-02	1.532E-01	2.445E-01	1.892E-02	-0.165
	+	86.79		8.939E+00	1.087E+00	1.194E+00	1.029E-01	7.486
		197.04		2.167E-01	8.442E-01	1.432E+00	7.936E-02	0.151
		215.65		-3.747E-01	1.184E+00	1.965E+00	1.108E-01	-0.191
		298.57		8.444E-02	2.016E-01	3.003E-01	1.752E-02	0.281
		879.36	*	1.518E-01	3.063E-01	5.271E-01	4.788E-02	0.288
		962.29		-8.231E-01	1.194E+00	1.752E+00	1.531E-01	-0.470
		966.15		5.980E-01	4.848E-01	7.609E-01	6.616E-02	0.786
		1177.93		1.260E+00	6.617E-01	1.141E+00	6.336E-02	1.104
		1271.85		-1.143E-01	7.936E-01	1.280E+00	8.309E-02	-0.089
HO-166M		80.57		-5.346E-01	4.441E-01	6.641E-01	5.315E-02	-0.805
		184.41		5.300E-02	5.953E-02	9.261E-02	5.065E-03	0.572
		280.46		-1.059E-01	1.427E-01	2.298E-01	1.340E-02	-0.461
		410.95		-2.386E-01	4.704E-01	7.552E-01	4.178E-02	-0.316
		711.68	*	-1.935E-02	1.117E-01	1.779E-01	1.176E-02	-0.109
		752.31		7.306E-01	5.173E-01	9.142E-01	6.556E-02	0.799
		810.29		-4.731E-02	1.172E-01	1.819E-01	1.458E-02	-0.260
TM-171		51.35		1.964E+01	5.366E+01	8.849E+01	5.738E+00	0.222
		52.39		2.554E+00	2.894E+01	4.741E+01	3.083E+00	0.054
	+	59.40		2.224E+03	1.847E+02	1.834E+02	1.215E+01	12.125
LU-176		66.72	*	-8.078E+00	3.933E+01	6.133E+01	4.276E+00	-0.132
	+	88.36		6.997E+00	8.507E-01	9.312E-01	8.113E-02	7.514
		201.83		-1.899E-02	4.567E-02	7.560E-02	4.210E-03	-0.251

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

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LU-177	306.84	*		-8.551E-03	4.383E-02	7.225E-02	4.207E-03	-0.118
	401.10			2.382E+00	1.298E+01	2.159E+01	1.185E+00	0.110
	112.95			-3.811E-01	1.287E+00	2.049E+00	1.505E-01	-0.186
	208.36	*		1.697E-01	8.990E-01	1.521E+00	8.526E-02	0.112
	52.97			-5.105E-01	3.195E+00	4.807E+00	3.130E-01	-0.106
	54.07			-1.417E-01	1.831E+00	2.614E+00	1.707E-01	-0.054
	61.30			9.337E+01	7.434E+00	8.441E+00	5.658E-01	11.062
	121.62		+	3.387E+00	1.001E+00	1.242E+00	8.834E-02	2.727
	147.16			-1.384E-01	9.797E-01	1.561E+00	9.516E-02	-0.089
	171.86			3.729E-01	7.691E-01	1.253E+00	6.764E-02	0.297
HF-181	218.09			1.931E+00	1.370E+00	2.412E+00	1.364E-01	0.800
	268.79			1.069E+00	1.275E+00	2.201E+00	1.281E-01	0.486
	319.02			-1.361E-02	4.548E-01	7.503E-01	4.354E-02	-0.018
	367.43			-1.164E+00	1.611E+00	2.563E+00	1.437E-01	-0.454
	413.65	*		2.564E-01	3.261E-01	5.577E-01	3.092E-02	0.460
	56.28			4.465E+00	2.008E+00	3.031E+00	1.989E-01	1.473
	57.53			1.945E+01	1.885E+00	2.557E+00	1.683E-01	7.608
	65.20			-1.097E+00	1.312E+00	1.796E+00	1.237E-01	-0.611
	133.02			-1.021E-01	9.537E-02	1.460E-01	9.699E-03	-0.700
	136.25			-7.384E-02	6.606E-01	1.056E+00	6.881E-02	-0.070
W-181	345.85			-1.141E-01	3.547E-01	4.983E-01	2.848E-02	-0.229
	482.03	*		1.547E-03	8.007E-02	1.313E-01	7.618E-03	0.012
	56.28			1.870E+00	8.400E-01	1.268E+00	8.319E-02	1.475
	57.53			8.117E+00	7.877E-01	1.069E+00	7.040E-02	7.592
	65.20	*		-4.556E-01	5.446E-01	7.458E-01	5.139E-02	-0.611
	67.75			-6.321E-02	1.466E-01	2.353E-01	1.654E-02	-0.269
	100.10			1.390E-01	2.448E-01	4.046E-01	3.183E-02	0.344
	152.43			2.808E-01	5.037E-01	8.256E-01	4.867E-02	0.340
	222.10			-5.427E-01	5.517E-01	8.887E-01	5.041E-02	-0.611
	1001.68			5.575E-01	4.272E+00	7.165E+00	5.923E-01	0.078
TA-182	1121.28			1.496E-01	2.717E-01	4.662E-01	3.013E-02	0.321
	1189.05			1.584E-01	4.045E-01	6.948E-01	3.934E-02	0.228
	1221.42	*		-6.682E-02	2.097E-01	3.317E-01	1.984E-02	-0.201
	1230.97			1.831E-01	4.780E-01	8.263E-01	5.022E-02	0.222
	57.98			1.280E+01	1.052E+00	1.229E+00	8.101E-02	10.419
	59.32		+	8.620E+00	7.158E-01	7.144E-01	4.732E-02	12.065
	67.20			-1.106E-01	2.558E-01	4.097E-01	2.868E-02	-0.270
	162.32	*		2.743E-02	1.615E-01	2.601E-01	1.433E-02	0.105
	208.81			4.106E-01	1.453E+00	2.467E+00	1.383E-01	0.166
	291.72			1.175E-01	1.632E+00	2.374E+00	1.385E-01	0.049
RE-183	57.98			4.891E+01	4.021E+00	4.694E+00	3.095E-01	10.419
	59.32		+	3.291E+01	2.732E+00	2.727E+00	1.806E-01	12.065
	67.20			-4.223E-01	9.769E-01	1.565E+00	1.095E-01	-0.270
	161.27			3.611E-01	5.426E-01	8.924E-01	4.953E-02	0.405
	216.55			1.429E-01	4.353E-01	7.397E-01	4.176E-02	0.193
	252.85	*		8.827E-02	3.834E-01	6.473E-01	3.744E-02	0.136
	318.01			-7.393E-02	7.780E-01	1.287E+00	7.469E-02	-0.057
	792.07			-1.989E+00	2.003E+00	2.977E+00	2.306E-01	-0.668
	903.28			-6.620E-01	2.184E+00	3.501E+00	3.268E-01	-0.189

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	+	920.93		-6.396E-01	1.038E+00	1.666E+00	1.528E-01	-0.384
		59.72		2.388E+01	1.983E+00	1.931E+00	1.281E-01	12.372
		61.14		1.125E+01	8.779E-01	9.559E-01	6.401E-02	11.772
		69.30		1.464E-01	4.230E-01	6.450E-01	4.597E-02	0.227
		592.07		1.013E+00	4.468E+00	7.374E+00	4.409E-01	0.137
		646.12	*	-5.949E-03	7.901E-02	1.274E-01	7.595E-03	-0.047
RE-188		717.42		1.843E+00	1.660E+00	2.876E+00	1.923E-01	0.641
		874.81		-3.070E-02	1.255E+00	2.098E+00	1.891E-01	-0.015
		880.27		5.554E-02	1.716E+00	2.879E+00	2.619E-01	0.019
		155.03	*	1.942E-02	2.551E-01	4.098E-01	2.374E-02	0.047
		477.96		-5.452E+00	6.248E+00	9.767E+00	5.653E-01	-0.558
		633.10		2.461E+00	4.999E+00	8.373E+00	5.002E-01	0.294
W-188		63.58		-2.718E+01	7.210E+01	1.022E+02	6.960E+00	-0.266
		227.08		-6.454E+00	1.958E+01	3.240E+01	1.845E+00	-0.199
IR-192	+	290.67	*	-1.235E+00	1.304E+01	1.875E+01	1.094E+00	-0.066
		295.96		6.239E-01	2.820E-01	3.412E-01	2.021E-02	1.829
		308.46		1.348E-01	1.567E-01	2.706E-01	1.593E-02	0.498
		316.51	*	-1.291E-02	5.773E-02	9.491E-02	5.540E-03	-0.136
		468.07		-5.671E-02	1.325E-01	2.126E-01	1.413E-02	-0.267
		604.41		-4.947E-03	8.455E-01	1.186E+00	1.357E-01	-0.004
AU-195		612.46		1.164E-01	1.466E+00	2.070E+00	1.596E-01	0.056
		65.12		-2.147E-01	2.553E-01	3.495E-01	2.406E-02	-0.614
		66.83		-2.142E-02	1.280E-01	1.998E-01	1.395E-02	-0.107
		75.70	+	6.912E-01	2.974E-01	5.399E-01	4.095E-02	1.280
		98.88	*	3.084E-01	3.392E-01	5.283E-01	4.193E-02	0.584
		129.76		1.048E+00	4.296E+00	6.975E+00	4.726E-01	0.150
TL-200		367.94	*	-1.057E-05	4.296E+00	Half-Life	too short	
		579.30		4.177E-05	4.296E+00	Half-Life	too short	
		828.27		5.142E-05	4.296E+00	Half-Life	too short	
		1205.75		-2.960E-05	4.296E+00	Half-Life	too short	
TL-201		68.90		2.395E-01	1.729E+00	2.616E+00	1.858E-01	0.092
		70.82		3.647E-01	1.049E+00	1.516E+00	1.096E-01	0.241
		80.30		-2.323E+00	1.984E+00	2.971E+00	2.371E-01	-0.782
		135.34		4.667E+00	9.683E+00	1.585E+01	1.039E+00	0.294
TL-202		167.43	*	1.489E+00	2.679E+00	4.384E+00	2.355E-01	0.340
		68.90		6.261E-02	4.519E-01	6.837E-01	4.855E-02	0.092
		70.82		9.507E-02	2.736E-01	3.953E-01	2.856E-02	0.241
		80.30		-6.058E-01	5.172E-01	7.748E-01	6.181E-02	-0.782
HG-203		439.56	*	-1.689E-03	9.693E-02	1.592E-01	9.003E-03	-0.011
		70.83		5.323E-01	1.540E+00	2.223E+00	2.838E-01	0.239
		72.87		1.852E+00	9.591E-01	1.432E+00	1.779E-01	1.293
		82.60		-4.672E+00	2.855E+00	2.482E+00	3.346E-01	-1.883
BI-207	+	279.20	*	1.312E-02	6.128E-02	1.031E-01	6.381E-03	0.127
		72.80		5.840E-01	3.011E-01	4.578E-01	3.372E-02	1.276
		74.97		3.924E-01	1.688E-01	2.909E-01	2.190E-02	1.349
		84.90		-4.133E-01	5.301E-01	5.104E-01	4.298E-02	-0.810
		569.67		5.309E-02	6.191E-02	1.057E-01	6.304E-03	0.502
		1063.62	*	-7.967E-02	1.136E-01	1.790E-01	1.325E-02	-0.445
		1770.23		-1.476E+00	8.690E-01	9.243E-01	5.521E-02	-1.597

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207		81.07		-4.561E-01	3.542E-01	5.276E-01	4.246E-02	-0.865
		83.78		-5.248E-01	3.510E-01	3.166E-01	2.631E-02	-1.658
		94.90		3.475E-01	3.723E-01	5.507E-01	4.506E-02	0.631
	+	122.32		1.616E+01	4.805E+00	6.006E+00	4.714E-01	2.690
		144.24		-5.284E-01	1.047E+00	1.633E+00	1.235E-01	-0.324
		154.21		2.985E-01	6.205E-01	1.013E+00	7.129E-02	0.295
		269.46		2.237E-01	3.063E-01	5.266E-01	3.202E-02	0.425
		323.87	*	-1.123E+00	1.190E+00	1.865E+00	3.079E-01	-0.602
		338.28		3.306E+00	1.856E+00	3.253E+00	3.417E-01	1.016
		445.03		-3.072E+00	4.601E+00	7.278E+00	7.423E-01	-0.422
PO-209		260.50		4.056E+00	1.597E+01	2.697E+01	1.565E+00	0.150
		262.80		2.778E+01	4.398E+01	7.544E+01	4.381E+00	0.368
		896.60	*	-6.021E+00	1.595E+01	2.601E+01	2.434E+00	-0.232
BI-210		46.50	*	-2.852E+00	4.853E+00	7.864E+00	5.831E-01	-0.363
PB-210		46.50	*	-2.852E+00	4.853E+00	7.864E+00	5.831E-01	-0.363
PO-210		46.50	*	-2.852E+00	4.852E+00	7.864E+00	4.935E-01	-0.363
PB-211		404.84	*	3.728E-01	1.814E+00	2.995E+00	1.866E+00	0.124
		427.08		-3.926E-01	4.114E+00	6.727E+00	4.157E+00	-0.058
		831.96		-1.431E-01	2.400E+00	4.009E+00	2.511E+00	-0.036
BI-212		727.18	*	9.743E-01	5.449E-01	9.770E-01	8.311E-02	0.997
		785.46		3.284E+00	3.418E+00	5.857E+00	4.480E-01	0.561
		1620.62		1.185E+00	1.810E+00	3.270E+00	2.142E-01	0.362
PO-215		81.07		-4.561E-01	3.542E-01	5.276E-01	4.246E-02	-0.865
		83.78		-5.248E-01	3.510E-01	3.166E-01	2.631E-02	-1.658
		94.90		3.475E-01	3.723E-01	5.507E-01	4.506E-02	0.631
	+	122.32		1.616E+01	4.805E+00	6.006E+00	4.714E-01	2.690
		144.24		-5.284E-01	1.047E+00	1.633E+00	1.235E-01	-0.324
		154.21		2.985E-01	6.205E-01	1.013E+00	7.129E-02	0.295
		269.46		2.237E-01	3.063E-01	5.266E-01	3.202E-02	0.425
		323.87	*	-1.123E+00	1.190E+00	1.865E+00	3.079E-01	-0.602
		338.28		3.306E+00	1.856E+00	3.253E+00	3.417E-01	1.016
		445.03		-3.072E+00	4.601E+00	7.278E+00	7.423E-01	-0.422
RN-219		271.23		5.934E-01	4.025E-01	7.075E-01	5.745E-02	0.839
		401.81	*	1.420E-01	7.922E-01	1.318E+00	1.776E-01	0.108
RN-220		549.76	*	-7.327E+00	4.655E+01	7.510E+01	4.464E+00	-0.098
RA-223		81.07		-4.561E-01	3.542E-01	5.276E-01	4.246E-02	-0.865
		83.78		-5.248E-01	3.510E-01	3.166E-01	2.631E-02	-1.658
		94.90		3.475E-01	3.723E-01	5.507E-01	4.506E-02	0.631
	+	122.32		1.616E+01	4.805E+00	6.006E+00	4.714E-01	2.690
		144.24		-5.284E-01	1.047E+00	1.633E+00	1.235E-01	-0.324
		154.21		2.985E-01	6.205E-01	1.013E+00	7.129E-02	0.295
		269.46		2.237E-01	3.063E-01	5.266E-01	3.202E-02	0.425
		323.87	*	-1.123E+00	1.190E+00	1.865E+00	3.079E-01	-0.602
		338.28		3.306E+00	1.856E+00	3.253E+00	3.417E-01	1.016
		445.03		-3.072E+00	4.601E+00	7.278E+00	7.423E-01	-0.422
RA-224		240.98	*	6.566E+00	1.450E+00	2.463E+00	1.416E-01	2.666
AC-227		79.80		-1.446E+00	2.735E+00	4.184E+00	8.886E-01	-0.346
		236.00		1.667E+00	4.999E-01	7.942E-01	8.271E-02	2.099
		256.20	*	-5.144E-02	6.432E-01	1.071E+00	1.495E-01	-0.048

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		286.10		-2.628E-01	2.584E+00	4.287E+00	4.963E-01	-0.061
		299.80		3.167E+00	2.651E+00	4.073E+00	6.638E-01	0.777
		304.40		-2.875E+00	3.224E+00	5.075E+00	8.784E-01	-0.566
		334.20		-8.031E+00	4.558E+00	6.556E+00	1.201E+00	-1.225
		79.80		-1.446E+00	2.736E+00	4.184E+00	9.003E-01	-0.346
	+	94.00		4.500E+00	3.648E+00	4.832E+00	1.045E+00	0.931
		236.00		1.667E+00	4.922E-01	7.942E-01	7.158E-02	2.099
		256.20	*	-5.144E-02	6.432E-01	1.071E+00	1.810E-01	-0.048
		286.10		-2.628E-01	2.598E+00	4.287E+00	4.294E+00	-0.061
		299.80		3.167E+00	2.651E+00	4.073E+00	6.638E-01	0.777
TH-229		304.40		-2.875E+00	3.224E+00	5.075E+00	8.784E-01	-0.566
		334.20		-8.031E+00	4.558E+00	6.556E+00	1.201E+00	-1.225
		85.43		6.824E-01	5.405E-01	5.924E-01	5.021E-02	1.152
	+	88.47		4.028E+00	4.897E-01	5.351E-01	4.657E-02	7.526
		100.00		1.584E-01	2.642E-01	4.371E-01	3.442E-02	0.362
PA-231		193.63	*	-5.018E-01	8.323E-01	1.332E+00	7.355E-02	-0.377
		210.97		1.024E+00	1.215E+00	2.102E+00	1.181E-01	0.487
TH-231		283.67	*	1.668E-01	2.554E+00	4.270E+00	5.890E-01	0.039
		301.29		1.204E+00	1.059E+00	1.633E+00	1.710E-01	0.737
		81.07		-4.561E-01	3.542E-01	5.276E-01	4.246E-02	-0.865
		83.78		-5.248E-01	3.510E-01	3.166E-01	2.631E-02	-1.658
		94.90		3.475E-01	3.723E-01	5.507E-01	4.506E-02	0.631
	+	122.32		1.616E+01	4.805E+00	6.006E+00	4.714E-01	2.690
		144.24		-5.284E-01	1.047E+00	1.633E+00	1.235E-01	-0.324
		154.21		2.985E-01	6.205E-01	1.013E+00	7.129E-02	0.295
		269.46		2.237E-01	3.063E-01	5.266E-01	3.202E-02	0.425
		323.87	*	-1.123E+00	1.190E+00	1.865E+00	3.079E-01	-0.602
		338.28		3.306E+00	1.856E+00	3.253E+00	3.417E-01	1.016
		445.03		-3.072E+00	4.601E+00	7.278E+00	7.423E-01	-0.422
U-231		84.21		-7.570E+00	5.381E+00	4.896E+00	4.089E-01	-1.546
	+	92.29		1.587E+00	1.247E+00	1.789E+00	1.498E-01	0.887
		95.87	*	-1.977E-01	6.404E-01	8.899E-01	7.224E-02	-0.222
PA-233		108.00		4.816E-01	1.057E+00	1.738E+00	1.306E-01	0.277
	+	75.28		1.146E+01	5.139E+00	8.758E+00	1.294E+00	1.308
	+	86.59		5.775E+01	1.626E+01	7.564E+00	2.028E+00	7.634
		300.12		1.047E+00	7.298E-01	1.139E+00	1.532E-01	0.919
		311.98	*	2.634E-02	1.134E-01	1.904E-01	1.176E-02	0.138
PA-234		340.50		3.644E-01	1.101E+00	1.847E+00	4.238E-01	0.197
		398.62		-1.516E-01	3.981E+00	6.554E+00	1.690E+00	-0.023
		415.76		3.079E-01	3.207E+00	5.307E+00	1.089E+00	0.058
		63.00		4.295E-01	2.251E+00	3.278E+00	4.772E-01	0.131
		94.67		3.050E-01	2.729E-01	4.044E-01	4.899E-02	0.754
		98.44		1.176E-01	1.621E-01	2.191E-01	1.220E-01	0.537
		99.86		4.592E-01	6.690E-01	1.110E+00	8.752E-02	0.414
		111.00		4.910E-02	2.745E-01	4.459E-01	5.019E-02	0.110
		131.20		8.571E-02	1.632E-01	2.678E-01	1.799E-02	0.320
		152.70		3.659E-01	5.100E-01	8.364E-01	1.325E-01	0.437
	+	186.00		3.699E+00	3.229E+00	3.476E+00	1.060E+00	1.064
		226.40		5.937E-01	6.468E-01	1.118E+00	1.286E-01	0.531

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	227.20			-2.709E-01	7.023E-01	1.159E+00	6.602E-02	-0.234
	248.90			3.070E-01	1.320E+00	2.228E+00	4.786E-01	0.138
	293.70		+	4.164E+00	1.982E+00	2.224E+00	3.580E-01	1.872
	369.80			7.794E-01	1.528E+00	2.578E+00	5.353E-01	0.302
	568.70			2.359E+00	2.009E+00	3.484E+00	2.079E-01	0.677
	569.50			5.084E-01	5.518E-01	9.446E-01	5.636E-02	0.538
	574.00			-5.550E-01	2.868E+00	4.611E+00	2.753E-01	-0.120
	699.00			-3.766E-01	1.332E+00	2.105E+00	3.831E-01	-0.179
	706.10			-6.433E-01	1.932E+00	3.008E+00	1.331E+00	-0.214
	733.00			-2.066E-01	6.803E-01	1.068E+00	2.306E-01	-0.193
	742.81			2.289E+00	3.003E+00	4.429E+00	2.969E+00	0.517
	796.30			2.246E+00	1.917E+00	3.170E+00	8.497E-01	0.709
	805.60			-3.526E-02	1.888E+00	3.026E+00	9.218E-01	-0.012
	819.60			-4.342E-01	2.533E+00	4.196E+00	1.591E+00	-0.103
	826.30			-9.026E-01	1.733E+00	2.731E+00	1.220E+00	-0.330
	831.60			6.754E-02	1.241E+00	2.089E+00	6.218E-01	0.032
	876.40			1.455E-01	1.938E+00	3.232E+00	3.324E+00	0.045
	880.51			-8.834E-03	6.479E-01	1.084E+00	9.866E-02	-0.008
	883.24			1.971E-01	6.690E-01	1.117E+00	7.517E-01	0.176
	899.00			-7.079E-01	1.783E+00	2.857E+00	1.253E+00	-0.248
	925.00			1.207E+00	2.811E+00	4.809E+00	4.391E-01	0.251
	926.50			3.654E-01	4.336E-01	7.421E-01	1.889E-01	0.492
	946.00		*	1.106E-01	7.302E-01	1.229E+00	2.322E-01	0.090
	949.00			-1.090E+00	1.116E+00	1.750E+00	1.555E-01	-0.623
	980.50			-4.233E-01	1.619E+00	2.650E+00	2.260E-01	-0.160
PA-234M	1394.10			6.002E-01	1.352E+00	2.304E+00	1.495E+00	0.261
	766.42			1.128E+01	2.100E+01	3.384E+01	1.710E+01	0.333
	1001.03		*	8.583E-01	1.009E+01	1.688E+01	1.632E+00	0.051
TH-234	63.29		*	-6.670E-02	1.900E+00	2.740E+00	4.709E-01	-0.024
	92.38		+	1.164E+00	9.334E-01	1.311E+00	2.354E-01	0.888
U-235	89.95			2.928E+01	9.399E+00	4.441E+00	1.370E+00	6.593
	93.35		+	1.400E+00	1.162E+00	1.518E+00	4.239E-01	0.922
	105.00			-3.141E-01	1.503E+00	2.401E+00	7.100E-01	-0.131
	143.76		*	-5.935E-02	3.208E-01	5.079E-01	8.361E-02	-0.117
	163.35			-4.248E-01	7.479E-01	1.159E+00	2.073E-01	-0.366
	185.71		+	1.370E-01	1.123E-01	1.283E-01	7.024E-03	1.068
	205.31			-6.563E-01	8.346E-01	1.348E+00	2.415E-01	-0.487
NP-236	94.67			2.331E-01	2.060E-01	3.069E-01	2.517E-02	0.759
	98.44			8.889E-02	1.124E-01	1.656E-01	1.318E-02	0.537
	111.00			3.714E-02	2.076E-01	3.373E-01	2.498E-02	0.110
	160.31		*	2.487E-02	1.255E-01	2.026E-01	1.132E-02	0.123
NP-237	86.50		*	7.433E+00	1.815E+00	1.125E+00	2.514E-01	6.609
	95.87			-4.884E-01	1.586E+00	2.199E+00	5.379E-01	-0.222
U-238	63.29		*	-6.670E-02	1.900E+00	2.740E+00	4.709E-01	-0.024
	92.38		+	1.164E+00	9.149E-01	1.311E+00	1.096E-01	0.888
NP-239	99.55			2.411E-01	2.301E-01	3.748E-01	2.960E-02	0.643
	117.00		*	-3.542E-02	3.355E-01	4.691E-01	3.390E-02	-0.076
	209.75			2.074E-01	1.233E+00	2.085E+00	1.170E-01	0.099
	228.18			-2.548E-01	3.665E-01	5.969E-01	3.402E-02	-0.427

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	277.60			2.395E-01	2.972E-01	5.123E-01	2.986E-02	0.467
	334.30			-4.562E+00	2.458E+00	3.713E+00	2.139E-01	-1.229
	99.55			2.480E-01	2.366E-01	3.855E-01	3.045E-02	0.643
	103.76	*		-9.917E-02	1.386E-01	2.166E-01	1.665E-02	-0.458
	117.00			-3.642E-02	3.451E-01	4.824E-01	3.486E-02	-0.076
	209.75			2.043E-01	1.215E+00	2.054E+00	1.153E-01	0.099
AM-246	228.18			-2.574E-01	3.702E-01	6.029E-01	3.436E-02	-0.427
	277.60			2.413E-01	2.995E-01	5.163E-01	3.010E-02	0.467
	798.80			-1.990E-01	2.907E-01	4.430E-01	3.476E-02	-0.449
	1036.00			1.357E-01	6.520E-01	1.099E+00	8.576E-02	0.124
	1062.04			-2.287E-02	4.808E-01	7.954E-01	5.905E-02	-0.029
	1078.86	*		1.843E-01	3.266E-01	5.609E-01	4.019E-02	0.329
CM-247	278.00			8.297E-01	1.229E+00	2.107E+00	1.228E-01	0.394
	287.40			-6.325E-01	2.186E+00	3.385E+00	1.975E-01	-0.187
	402.60	*		1.802E-02	7.148E-02	1.193E-01	6.553E-03	0.151
CF-249	252.85			3.398E-01	1.476E+00	2.492E+00	1.441E-01	0.136
	333.44			-4.579E-01	3.164E-01	4.886E-01	2.816E-02	-0.937
CF-251	387.95	*		-2.188E-02	7.399E-02	1.203E-01	6.578E-03	-0.182
	176.60	*		-1.568E-01	2.047E-01	3.149E-01	1.708E-02	-0.498
	227.00			-1.821E-01	6.263E-01	1.038E+00	5.911E-02	-0.175
	285.00			-1.171E+00	2.934E+00	4.800E+00	2.800E-01	-0.244

# 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]G1202037554      *
* Acquisition date   : 19-FEB-2010 21:35:28 Detector SN#      :              *
* Detector ID        : GAM14 Sensitivity      : 5.000           *
* Geometry           : CAN Energy tolerance: 1.500           *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:01.58 Half life ratio : 8.000    *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID      *
* Sample ID          : G1202037554 Analyst initials: MXR1          *
* Batch Number       : 950788 Sample Quantity : 1.5544E+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	1.198E+00	6.920E-01	6.143E-01	0.000E+00
CO-57	2.301E-01	6.662E-02	6.807E-02	0.000E+00
CO-60	6.739E+00	5.705E-01	1.091E-01	0.000E+00
CD-109	2.973E+01	3.543E+00	2.395E+00	0.000E+00
SN-126	2.950E+00	3.515E-01	2.486E-01	0.000E+00
BA-137M	5.573E+00	4.085E-01	1.086E-01	0.000E+00
CS-137	5.891E+00	4.329E-01	1.148E-01	0.000E+00
TL-208	3.554E-01	9.752E-02	1.119E-01	0.000E+00
BI-211	2.326E+00	6.882E-01	5.951E-01	0.000E+00
PB-212	7.596E-01	1.820E-01	1.793E-01	0.000E+00
PO-212	7.596E-01	1.820E-01	1.793E-01	0.000E+00
BI-214	7.534E-01	2.428E-01	2.028E-01	0.000E+00
PB-214	8.090E-01	2.430E-01	2.074E-01	0.000E+00
PO-214	8.090E-01	2.430E-01	2.074E-01	0.000E+00
PO-216	7.596E-01	1.820E-01	1.793E-01	0.000E+00
PO-218	8.090E-01	2.430E-01	2.074E-01	0.000E+00
RA-226	7.534E-01	2.428E-01	2.028E-01	0.000E+00
AC-228	9.947E-01	3.932E-01	5.159E-01	0.000E+00
RA-228	9.947E-01	3.932E-01	5.159E-01	0.000E+00
TH-228	7.664E-01	1.837E-01	1.809E-01	0.000E+00
TH-230	7.534E-01	2.428E-01	2.028E-01	0.000E+00
TH-232	9.947E-01	3.932E-01	5.159E-01	0.000E+00
U-234	7.534E-01	2.428E-01	2.028E-01	0.000E+00
AM-241	1.308E+01	1.147E+00	4.826E-01	0.000E+00
AM-243	2.187E-01	9.221E-02	1.535E-01	0.000E+00
ANH-511	6.554E-02	9.180E-02	9.084E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-2.502E-01	6.178E-01	1.052E+00	0.000E+00 NOT IDENT.

NA-22	-7.151E-03	4.850E-02	8.071E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.854E+02	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.518E-02	3.940E-02	7.447E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	7.023E-02	1.120E-01	0.000E+00	FAIL ABUN
SC-46	4.349E-02	8.233E-02	1.481E-01	0.000E+00	NOT IDENT.
V-48	-6.196E-02	1.152E-01	1.924E-01	0.000E+00	NOT IDENT.
CR-51	1.577E-01	5.607E-01	1.006E+00	0.000E+00	NOT IDENT.
MN-52	-9.171E-02	1.071E-01	1.426E-01	0.000E+00	FAIL ABUN
MN-54	-2.632E-02	7.128E-02	1.221E-01	0.000E+00	NOT IDENT.
CO-56	5.246E-02	7.781E-02	1.415E-01	0.000E+00	NOT IDENT.
CO-58	-3.365E-02	7.312E-02	1.184E-01	0.000E+00	NOT IDENT.
FE-59	-6.581E-02	1.710E-01	2.860E-01	0.000E+00	NOT IDENT.
ZN-65	-8.702E-02	1.797E-01	2.985E-01	0.000E+00	NOT IDENT.
GE-68	8.037E-01	2.693E+00	4.726E+00	0.000E+00	NOT IDENT.
AS-73	1.552E-01	1.645E+00	2.648E+00	0.000E+00	NOT IDENT.
AS-74	-2.060E-02	1.306E-01	2.217E-01	0.000E+00	NOT IDENT.
SE-75	-6.164E-02	6.949E-02	1.201E-01	0.000E+00	FAIL ABUN
BR-77	-7.347E-01	3.035E+00	5.171E+00	0.000E+00	FAIL ABUN
SR-82	-4.804E-01	6.139E-01	9.709E-01	0.000E+00	NOT IDENT.
RB-83	-3.384E-02	1.174E-01	1.994E-01	0.000E+00	NOT IDENT.
RB-84	4.351E-02	1.354E-01	2.411E-01	0.000E+00	NOT IDENT.
KR-85	1.189E+00	1.413E+01	2.131E+01	0.000E+00	NOT IDENT.
SR-85	5.709E-03	6.786E-02	1.023E-01	0.000E+00	NOT IDENT.
RB-86	7.427E-01	1.354E+00	2.414E+00	0.000E+00	NOT IDENT.
Y-88	-6.751E-03	5.129E-02	8.239E-02	0.000E+00	NOT IDENT.
ZR-88	1.066E-02	5.271E-02	9.371E-02	0.000E+00	NOT IDENT.
Y-91	-6.293E+00	2.186E+01	3.613E+01	0.000E+00	NOT IDENT.
NB-94	4.864E-02	6.092E-02	1.088E-01	0.000E+00	NOT IDENT.
NB-95	3.068E-02	6.890E-02	1.199E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.239E-01	3.836E-01	0.000E+00	NOT IDENT.
ZR-95	1.992E-02	1.277E-01	2.179E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.203E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.972E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.920E+00	4.554E+00	7.294E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.928E+09	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.641E-02	5.122E-02	9.513E-02	0.000E+00	NOT IDENT.
RH-102	5.119E-03	6.122E-02	1.070E-01	0.000E+00	NOT IDENT.
RU-103	9.770E-03	7.389E-02	1.291E-01	0.000E+00	NOT IDENT.
RH-106	-1.873E-01	5.745E-01	9.596E-01	0.000E+00	NOT IDENT.
RU-106	-1.873E-01	5.741E-01	9.596E-01	0.000E+00	NOT IDENT.
AG-108M	-1.941E-03	6.600E-02	1.153E-01	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	9.068E-02	1.607E-01	0.000E+00	NOT IDENT.
IN-111	-9.230E-01	4.036E-01	6.054E-01	0.000E+00	NOT IDENT.
IN-113M	1.481E-02	7.800E-02	1.386E-01	0.000E+00	NOT IDENT.
SN-113	1.481E-02	7.800E-02	1.386E-01	0.000E+00	NOT IDENT.
IN-114M	-4.314E-02	2.930E-01	4.638E-01	0.000E+00	NOT IDENT.
CD-115	-6.423E-01	2.684E+00	4.565E+00	0.000E+00	NOT IDENT.
SN-117M	-1.647E-02	6.282E-02	1.085E-01	0.000E+00	NOT IDENT.
SB-122	-7.191E-01	8.163E-01	1.329E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.338E+03	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.030E-03	4.304E-02	7.511E-02	0.000E+00	NOT IDENT.
I-124	-2.292E-01	4.691E-01	6.606E-01	0.000E+00	NOT IDENT.
SB-124	-1.300E-02	8.405E-02	1.343E-01	0.000E+00	FAIL ABUN
SB-125	-4.087E-02	1.791E-01	3.101E-01	0.000E+00	NOT IDENT.
TE-125M	4.282E+00	1.239E+01	2.234E+01	0.000E+00	NOT IDENT.
I-126	3.300E-01	2.424E-01	4.051E-01	0.000E+00	NOT IDENT.
SB-126	-6.282E-02	1.864E-01	3.077E-01	0.000E+00	FAIL ABUN
SB-127	-4.207E-01	8.105E-01	1.324E+00	0.000E+00	FAIL ABUN
XE-127	-1.187E-02	6.497E-02	1.178E-01	0.000E+00	NOT IDENT.
I-131	-1.165E-02	1.203E-01	2.117E-01	0.000E+00	NOT IDENT.
TE-132	-2.064E-01	2.923E-01	5.133E-01	0.000E+00	NOT IDENT.
BA-133	-7.264E-03	8.800E-02	1.344E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	6.985E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.223E-01	9.216E-02	1.678E-01	0.000E+00	NOT IDENT.
CS-135	1.379E-01	2.557E-01	4.698E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.036E+09	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.413E-01	1.634E-01	2.642E-01	0.000E+00	NOT IDENT.
CE-139	-2.168E-02	4.501E-02	7.679E-02	0.000E+00	NOT IDENT.
BA-140	1.469E-01	3.434E-01	6.027E-01	0.000E+00	NOT IDENT.
LA-140	-2.522E-02	8.639E-02	1.370E-01	0.000E+00	NOT IDENT.
CE-141	-1.650E-03	8.146E-02	1.428E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.248E+01	1.956E+01	0.000E+00	FAIL ABUN
CE-144	-3.325E-01	3.184E-01	5.304E-01	0.000E+00	NOT IDENT.
PM-144	-2.464E-02	6.140E-02	1.012E-01	0.000E+00	NOT IDENT.
PR-144	-1.664E+00	4.147E+00	6.833E+00	0.000E+00	NOT IDENT.
PM-146	-6.233E-02	9.503E-02	1.605E-01	0.000E+00	NOT IDENT.
ND-147	-5.200E-01	6.565E-01	1.068E+00	0.000E+00	NOT IDENT.
PM-149	1.155E-01	2.123E+01	3.806E+01	0.000E+00	NOT IDENT.

EU-152	5.900E-02	1.770E-01	3.017E-01	0.000E+00	FAIL ABUN
GD-153	6.808E-02	1.215E-01	1.956E-01	0.000E+00	NOT IDENT.
EU-154	-2.004E-02	1.359E-01	2.262E-01	0.000E+00	FAIL ABUN
EU-155	-4.026E-02	1.501E-01	2.643E-01	0.000E+00	FAIL ABUN
TB-160	1.518E-01	3.002E-01	5.392E-01	0.000E+00	FAIL ABUN
HO-166M	-1.935E-02	1.095E-01	1.831E-01	0.000E+00	NOT IDENT.
TM-171	-8.078E+00	3.855E+01	6.704E+01	0.000E+00	FAIL ABUN
LU-176	-8.551E-03	4.296E-02	7.601E-02	0.000E+00	FAIL ABUN
LU-177	1.697E-01	8.811E-01	1.617E+00	0.000E+00	NOT IDENT.
LU-177M	2.564E-01	3.195E-01	5.822E-01	0.000E+00	FAIL ABUN
HF-181	1.547E-03	7.847E-02	1.366E-01	0.000E+00	NOT IDENT.
W-181	-4.556E-01	5.337E-01	8.157E-01	0.000E+00	NOT IDENT.
TA-182	-6.682E-02	2.055E-01	3.362E-01	0.000E+00	NOT IDENT.
RE-183	2.743E-02	1.582E-01	2.781E-01	0.000E+00	FAIL ABUN
RE-184	8.827E-02	3.758E-01	6.844E-01	0.000E+00	FAIL ABUN
OS-185	-5.949E-03	7.743E-02	1.314E-01	0.000E+00	FAIL ABUN
RE-188	1.942E-02	2.500E-01	4.387E-01	0.000E+00	NOT IDENT.
W-188	-1.235E+00	1.278E+01	1.975E+01	0.000E+00	NOT IDENT.
IR-192	-1.291E-02	5.657E-02	9.978E-02	0.000E+00	FAIL ABUN
AU-195	3.084E-01	3.324E-01	5.720E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.515E+01	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.489E+00	2.626E+00	4.684E+00	0.000E+00	NOT IDENT.
TL-202	-1.689E-03	9.500E-02	1.659E-01	0.000E+00	NOT IDENT.
HG-203	1.312E-02	6.005E-02	1.088E-01	0.000E+00	NOT IDENT.
BI-207	-7.967E-02	1.113E-01	1.821E-01	0.000E+00	FAIL ABUN
TL-207	-1.123E+00	1.166E+00	1.959E+00	0.000E+00	FAIL ABUN
PO-209	-6.021E+00	1.563E+01	2.659E+01	0.000E+00	NOT IDENT.
BI-210	-2.852E+00	4.756E+00	8.671E+00	0.000E+00	NOT IDENT.
PB-210	-2.852E+00	4.756E+00	8.671E+00	0.000E+00	NOT IDENT.
PO-210	-2.852E+00	4.755E+00	8.671E+00	0.000E+00	NOT IDENT.
PB-211	3.728E-01	1.777E+00	3.128E+00	0.000E+00	NOT IDENT.
BI-212	9.743E-01	5.340E-01	1.005E+00	0.000E+00	NOT IDENT.
PO-215	-1.123E+00	1.166E+00	1.959E+00	0.000E+00	FAIL ABUN
RN-219	1.420E-01	7.764E-01	1.376E+00	0.000E+00	NOT IDENT.
RN-220	-7.327E+00	4.562E+01	7.781E+01	0.000E+00	NOT IDENT.
RA-223	-1.123E+00	1.166E+00	1.959E+00	0.000E+00	FAIL ABUN
RA-224	0.000E+00	1.421E+00	2.608E+00	0.000E+00	NOT IDENT.
AC-227	-5.144E-02	6.303E-01	1.133E+00	0.000E+00	NOT IDENT.
TH-227	-5.144E-02	6.303E-01	1.133E+00	0.000E+00	FAIL ABUN
TH-229	-5.018E-01	8.157E-01	1.418E+00	0.000E+00	FAIL ABUN
PA-231	1.668E-01	2.503E+00	4.502E+00	0.000E+00	NOT IDENT.
TH-231	-1.123E+00	1.166E+00	1.959E+00	0.000E+00	FAIL ABUN
U-231	-1.977E-01	6.276E-01	9.642E-01	0.000E+00	FAIL ABUN
PA-233	2.634E-02	1.111E-01	2.002E-01	0.000E+00	FAIL ABUN
PA-234	1.106E-01	7.156E-01	1.254E+00	0.000E+00	FAIL ABUN
PA-234M	8.583E-01	9.884E+00	1.720E+01	0.000E+00	NOT IDENT.
TH-234	-6.670E-02	1.862E+00	2.998E+00	0.000E+00	FAIL ABUN
U-235	-5.935E-02	3.144E-01	5.448E-01	0.000E+00	FAIL ABUN
NP-236	2.487E-02	1.230E-01	2.167E-01	0.000E+00	NOT IDENT.
NP-237	0.000E+00	1.779E+00	1.222E+00	0.000E+00	NOT IDENT.
U-238	-6.670E-02	1.862E+00	2.998E+00	0.000E+00	FAIL ABUN
NP-239	-3.542E-02	3.288E-01	5.057E-01	0.000E+00	NOT IDENT.
CM-243	-9.917E-02	1.358E-01	2.342E-01	0.000E+00	NOT IDENT.
AM-246	1.843E-01	3.201E-01	5.706E-01	0.000E+00	NOT IDENT.
CM-247	1.802E-02	7.005E-02	1.246E-01	0.000E+00	NOT IDENT.
CF-249	-2.188E-02	7.251E-02	1.258E-01	0.000E+00	NOT IDENT.
CF-251	-1.568E-01	2.006E-01	3.361E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037554.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 19-FEB-2010 21:35:28
Sample ID          : G1202037554 Sample quantity      : 1.55440E+02 GRAM
Detector name      : GAM14 Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00 Elapsed real time: 0 01:00:01.58 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials    : MXR1
Abundance limit    : 75.00000 Sensitivity           : 5.00000
Batch ID           : 950788 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	32	10.67*	1.211E+00	1.198E+00	1.198E+00	58.93
CO-57	122.06	305	85.51*	7.661E+00	2.249E-01	2.301E-01	29.55
	136.48	-----	10.60	7.493E+00	-----	Line Not Found	-----
CO-60	1173.22	1869	100.00	1.461E+00	6.176E+00	6.196E+00	7.47
	1332.49	1817	100.00*	1.307E+00	6.718E+00	6.739E+00	8.64
CD-109	88.03	1604	3.72*	7.096E+00	2.934E+01	2.973E+01	12.16
SN-126	64.28	-----	9.60	4.774E+00	-----	Line Not Found	-----
	86.94	1604	8.90	7.096E+00	1.226E+01	1.226E+01	42.24
	87.57	1604	37.00*	7.096E+00	2.950E+00	2.950E+00	12.16
BA-137M	661.65	2562	89.98*	2.469E+00	5.570E+00	5.573E+00	7.48
CS-137	661.65	2562	85.12*	2.469E+00	5.888E+00	5.891E+00	7.50
TL-208	277.35	-----	6.80	5.002E+00	-----	Line Not Found	-----
	510.84	42	21.60	3.094E+00	3.034E-01	3.034E-01	143.16
	583.14	171	84.20*	2.760E+00	3.554E-01	3.554E-01	28.00
	860.37	34	12.46	1.944E+00	6.778E-01	6.778E-01	110.29
BI-211	72.87	-----	1.27	5.875E+00	-----	Line Not Found	-----
	351.07	260	12.94*	4.178E+00	2.326E+00	2.326E+00	30.20
PB-212	74.81	181	10.70	6.059E+00	1.349E+00	1.349E+00	44.03
	77.11	313	18.00	6.310E+00	1.330E+00	1.330E+00	29.19
	87.30	1604	8.00	7.096E+00	1.364E+01	1.364E+01	15.74
	238.63	391	44.60*	5.572E+00	7.596E-01	7.596E-01	24.45
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
PO-212	74.81	181	10.70	6.059E+00	1.349E+00	1.349E+00	44.03
	77.11	313	18.00	6.310E+00	1.330E+00	1.330E+00	29.19
	87.30	1604	8.00	7.096E+00	1.364E+01	1.364E+01	15.74
	115.19	-----	0.60	7.689E+00	-----	Line Not Found	-----
	238.63	391	44.60*	5.572E+00	7.596E-01	7.596E-01	24.45
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
BI-214	609.31	192	46.30*	2.657E+00	7.534E-01	7.534E-01	32.88
	1120.29	-----	15.10	1.524E+00	-----	Line Not Found	-----
	1764.49	27	15.80	1.059E+00	7.735E-01	7.735E-01	52.34
PB-214	74.81	181	6.21	6.059E+00	2.324E+00	2.324E+00	43.66

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	313	10.50	6.310E+00	2.281E+00	2.281E+00	30.17
	87.30	1604	4.67	7.096E+00	2.337E+01	2.337E+01	14.40
	241.98	-----	7.49	5.514E+00	-----	Line Not Found	-----
	295.21	165	19.20	4.778E+00	8.675E-01	8.675E-01	45.61
	351.92	260	37.20*	4.178E+00	8.089E-01	8.090E-01	30.65
PO-214	74.81	181	6.21	6.059E+00	2.324E+00	2.324E+00	43.66
	77.11	313	10.50	6.310E+00	2.281E+00	2.281E+00	30.17
	87.30	1604	4.67	7.096E+00	2.337E+01	2.337E+01	14.40
	241.98	-----	7.49	5.514E+00	-----	Line Not Found	-----
	295.21	165	19.20	4.778E+00	8.675E-01	8.675E-01	45.61
	351.92	260	37.20*	4.178E+00	8.089E-01	8.090E-01	30.65
PO-216	74.81	181	10.70	6.059E+00	1.349E+00	1.349E+00	44.03
	77.11	313	18.00	6.310E+00	1.330E+00	1.330E+00	29.19
	87.30	1604	8.00	7.096E+00	1.364E+01	1.364E+01	15.74
	238.63	391	44.60*	5.572E+00	7.596E-01	7.596E-01	24.45
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
PO-218	74.81	181	6.21	6.059E+00	2.324E+00	2.324E+00	43.66
	77.11	313	10.50	6.310E+00	2.281E+00	2.281E+00	30.17
	87.30	1604	4.67	7.096E+00	2.337E+01	2.337E+01	14.40
	241.98	-----	7.49	5.514E+00	-----	Line Not Found	-----
	295.21	165	19.20	4.778E+00	8.675E-01	8.675E-01	45.61
	351.92	260	37.20*	4.178E+00	8.089E-01	8.090E-01	30.65
RA-226	609.31	192	46.30*	2.657E+00	7.534E-01	7.534E-01	32.88
	1120.29	-----	15.10	1.524E+00	-----	Line Not Found	-----
	1764.49	27	15.80	1.059E+00	7.735E-01	7.735E-01	52.34
AC-228	338.32	-----	11.40	4.307E+00	-----	Line Not Found	-----
	911.07	105	27.70*	1.843E+00	9.947E-01	9.947E-01	40.34
	969.11	84	16.60	1.741E+00	1.411E+00	1.411E+00	44.96
RA-228	338.32	-----	11.40	4.307E+00	-----	Line Not Found	-----
	911.07	105	27.70*	1.843E+00	9.947E-01	9.947E-01	40.34
	969.11	84	16.60	1.741E+00	1.411E+00	1.411E+00	44.96
TH-228	74.81	181	10.70	6.059E+00	1.349E+00	1.361E+00	43.04
	77.11	313	18.00	6.310E+00	1.330E+00	1.342E+00	29.19
	87.30	1604	8.00	7.096E+00	1.364E+01	1.376E+01	12.16
	238.63	391	44.60*	5.572E+00	7.596E-01	7.664E-01	24.45
	300.09	-----	3.41	4.718E+00	-----	Line Not Found	-----
TH-230	609.31	192	46.30*	2.657E+00	7.534E-01	7.534E-01	32.88
	1120.29	-----	15.10	1.524E+00	-----	Line Not Found	-----
	1764.49	27	15.80	1.059E+00	7.735E-01	7.735E-01	52.34
TH-232	338.32	-----	11.40	4.307E+00	-----	Line Not Found	-----
	911.07	105	27.70*	1.843E+00	9.947E-01	9.947E-01	40.34
	969.11	84	16.60	1.741E+00	1.411E+00	1.411E+00	44.96
U-234	609.31	192	46.30*	2.657E+00	7.534E-01	7.534E-01	32.88
	1120.29	-----	15.10	1.524E+00	-----	Line Not Found	-----
	1764.49	27	15.80	1.059E+00	7.735E-01	7.735E-01	52.34
AM-241	59.54	3942	35.90*	4.055E+00	1.308E+01	1.308E+01	8.95
AM-243	74.67	181	66.00*	6.059E+00	2.187E-01	2.187E-01	43.02
	86.72	1604	0.34	7.096E+00	3.248E+02	3.248E+02	12.16
	117.66	-----	0.55	7.685E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	142.18	-----	0.13	7.399E+00	-----	Line Not Found	-----
ANH-511	511.00	42	100.00*	3.094E+00	6.554E-02	6.554E-02	142.92

Flag: "\*" = Keyline

Total number of lines in spectrum 21  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 21 100.00%

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	1.198E+00	1.198E+00	0.706E+00	58.93	
CO-57	270.90D	1.02	2.249E-01	2.301E-01	0.680E-01	29.55	
CO-60	5.27Y	1.00	6.718E+00	6.739E+00	0.582E+00	8.64	
CD-109	464.00D	1.01	2.934E+01	2.973E+01	0.362E+01	12.16	
SN-126	1.00E+05Y	1.00	2.950E+00	2.950E+00	0.359E+00	12.16	
BA-137M	30.17Y	1.00	5.570E+00	5.573E+00	0.417E+00	7.48	
CS-137	30.17Y	1.00	5.888E+00	5.891E+00	0.442E+00	7.50	
TL-208	1.41E+10Y	1.00	3.554E-01	3.554E-01	0.995E-01	28.00	
BI-211	7.04E+08Y	1.00	2.326E+00	2.326E+00	0.702E+00	30.20	
PB-212	1.41E+10Y	1.00	7.596E-01	7.596E-01	1.858E-01	24.45	
PO-212	1.41E+10Y	1.00	7.596E-01	7.596E-01	1.858E-01	24.45	
BI-214	1600.00Y	1.00	7.534E-01	7.534E-01	2.477E-01	32.88	
PB-214	1600.00Y	1.00	8.089E-01	8.090E-01	2.479E-01	30.65	
PO-214	1600.00Y	1.00	8.089E-01	8.090E-01	2.479E-01	30.65	
PO-216	1.41E+10Y	1.00	7.596E-01	7.596E-01	1.858E-01	24.45	
PO-218	1600.00Y	1.00	8.089E-01	8.090E-01	2.479E-01	30.65	
RA-226	1600.00Y	1.00	7.534E-01	7.534E-01	2.477E-01	32.88	
AC-228	1.41E+10Y	1.00	9.947E-01	9.947E-01	4.012E-01	40.34	
RA-228	1.41E+10Y	1.00	9.947E-01	9.947E-01	4.012E-01	40.34	
TH-228	1.91Y	1.01	7.596E-01	7.664E-01	1.874E-01	24.45	
TH-230	4.47E+09Y	1.00	7.534E-01	7.534E-01	2.477E-01	32.88	
TH-232	1.41E+10Y	1.00	9.947E-01	9.947E-01	4.012E-01	40.34	
U-234	4.47E+09Y	1.00	7.534E-01	7.534E-01	2.477E-01	32.88	
AM-241	432.20Y	1.00	1.308E+01	1.308E+01	0.117E+01	8.95	
AM-243	7380.00Y	1.00	2.187E-01	2.187E-01	0.941E-01	43.02	
ANH-511	1.00E+09Y	1.00	6.554E-02	6.554E-02	9.367E-02	142.92	
Total Activity :			7.939E+01	7.983E+01			

Grand Total Activity : 7.939E+01 7.983E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202037554

Page : 5  
Acquisition date : 19-FEB-2010 21:35:28

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	93.05	96	377	2.26	185.58	182	9	2.65E-02	78.1	7.32E+00	T
0	186.25	100	384	1.06	371.81	366	12	2.78E-02	81.8	6.52E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037554.CNF;1
* Acquisition date   : 19-FEB-2010 21:35:28  Detector SN#      :
* Detector ID        : GAM14                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance   : 1.50000
* Elapsed live time  : 0 01:00:00.00          Abundance limit    : 75.00000
* Elapsed real time  : 0 01:00:01.58          Half life ratio   : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00  Nuclide Library   : SOLID
* Sample ID          : G1202037554          Analyst initials  : MXR1
* Batch Number       : 950788               Sample Quantity   : 1.55440E+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	1.198E+00	7.061E-01	6.091E-01	4.423E-02	1.967
CO-57	2.301E-01	6.798E-02	6.320E-02	4.496E-03	3.640
CO-60	6.739E+00	5.821E-01	1.079E-01	7.692E-03	62.436
CD-109	2.973E+01	3.615E+00	2.206E+00	1.929E-01	13.478
SN-126	2.950E+00	3.587E-01	2.290E-01	1.992E-02	12.883
BA-137M	5.573E+00	4.168E-01	1.053E-01	6.264E-03	52.903
CS-137	5.891E+00	4.418E-01	1.114E-01	6.648E-03	52.903
TL-208	3.554E-01	9.951E-02	1.081E-01	7.396E-03	3.286
BI-211	2.326E+00	7.023E-01	5.676E-01	3.596E-02	4.097
PB-212	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
PO-212	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
BI-214	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
PB-214	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
PO-214	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
PO-216	7.596E-01	1.858E-01	1.693E-01	1.233E-02	4.486
PO-218	8.090E-01	2.479E-01	1.979E-01	1.624E-02	4.089
RA-226	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
AC-228	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970
TH-228	7.664E-01	1.874E-01	1.708E-01	1.244E-02	4.486
TH-230	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
TH-232	9.947E-01	4.012E-01	5.048E-01	5.929E-02	1.970
U-234	7.534E-01	2.477E-01	1.963E-01	1.554E-02	3.838
AM-241	1.308E+01	1.171E+00	4.403E-01	3.269E-02	29.702
AM-243	2.187E-01	9.409E-02	1.408E-01	1.057E-02	1.553
ANH-511	6.554E-02	9.367E-02	8.751E-02	5.141E-03	0.749

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.502E-01		6.304E-01	1.012E+00	6.819E-02	-0.247
NA-22	-7.151E-03		4.949E-02	7.973E-02	5.208E-03	-0.090
NA-24	1.143E-04		3.497E-04	Half-Life too short		
AL-26	2.518E-02		4.020E-02	7.429E-02	4.307E-03	0.339
TI-44	2.455E-01	+	7.166E-02	1.028E-01	8.030E-03	2.387
SC-46	4.349E-02		8.401E-02	1.448E-01	1.338E-02	0.300
V-48	-6.196E-02		1.176E-01	1.886E-01	1.602E-02	-0.328
CR-51	1.577E-01		5.721E-01	9.570E-01	6.184E-02	0.165
MN-52	-9.171E-02		1.093E-01	1.414E-01	9.907E-03	-0.649
MN-54	-2.632E-02		7.273E-02	1.192E-01	9.996E-03	-0.221
CO-56	5.246E-02		7.940E-02	1.382E-01	1.185E-02	0.380
CO-58	-3.365E-02		7.462E-02	1.155E-01	9.291E-03	-0.291
FE-59	-6.581E-02		1.745E-01	2.813E-01	2.165E-02	-0.234
ZN-65	-8.702E-02		1.834E-01	2.937E-01	1.931E-02	-0.296
GE-68	8.037E-01		2.748E+00	4.646E+00	3.340E-01	0.173
AS-73	1.552E-01		1.679E+00	2.410E+00	1.571E-01	0.064
AS-74	-2.060E-02		1.333E-01	2.145E-01	1.283E-02	-0.096
SE-75	-6.164E-02		7.090E-02	1.137E-01	6.675E-03	-0.542
BR-77	-7.347E-01		3.097E+00	4.984E+00	2.938E-01	-0.147
SR-82	-4.804E-01		6.264E-01	9.459E-01	7.112E-02	-0.508
RB-83	-3.384E-02		1.198E-01	1.922E-01	1.133E-02	-0.176
RB-84	4.351E-02		1.382E-01	2.357E-01	2.149E-02	0.185
KR-85	1.189E+00		1.442E+01	2.053E+01	1.208E+00	0.058
SR-85	5.709E-03		6.925E-02	9.859E-02	5.799E-03	0.058
RB-86	7.427E-01		1.382E+00	2.373E+00	1.709E-01	0.313
Y-88	-6.751E-03		5.234E-02	8.222E-02	4.670E-03	-0.082
ZR-88	1.066E-02		5.379E-02	8.965E-02	4.881E-03	0.119
Y-91	-6.293E+00		2.231E+01	3.563E+01	2.073E+00	-0.177
NB-94	4.864E-02		6.216E-02	1.057E-01	6.855E-03	0.460
NB-95	3.068E-02		7.031E-02	1.167E-01	8.597E-03	0.263
NB-95M	4.541E-01		2.285E-01	3.621E-01	2.706E-02	1.254
ZR-95	1.992E-02		1.303E-01	2.121E-01	1.750E-02	0.094
NB-97	2.925E-03		3.165E-04	Half-Life too short		
ZR-97	1.300E-02		4.068E-03	Half-Life too short		
MO-99	-2.920E+00		4.647E+00	7.097E+00	1.016E+00	-0.411

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	-9.928E+02		9.837E+02	Half-Life too short		
RH-101	2.641E-02		5.226E-02	8.940E-02	4.960E-03	0.295
RH-102	5.119E-03		6.247E-02	1.028E-01	5.943E-03	0.050
RU-103	9.770E-03		7.540E-02	1.243E-01	1.574E-02	0.079
RH-106	-1.873E-01		5.862E-01	9.293E-01	1.099E-01	-0.202
RU-106	-1.873E-01		5.859E-01	9.293E-01	5.557E-02	-0.202
AG-108M	-1.941E-03		6.735E-02	1.106E-01	6.794E-03	-0.018
AG-110M	2.812E-01		9.253E-02	1.559E-01	9.848E-03	1.804
IN-111	-9.230E-01		4.119E-01	5.721E-01	3.297E-02	-1.613
IN-113M	1.481E-02		7.959E-02	1.326E-01	7.758E-03	0.112
SN-113	1.481E-02		7.959E-02	1.326E-01	7.758E-03	0.112
IN-114M	-4.314E-02		2.990E-01	4.354E-01	2.396E-02	-0.099
CD-115	-6.423E-01		2.738E+00	4.401E+00	2.601E-01	-0.146
SN-117M	-1.647E-02		6.410E-02	1.014E-01	5.736E-03	-0.162
SB-122	-7.191E-01		8.330E-01	1.284E+00	7.653E-02	-0.560
I-123	-7.989E-05		1.703E-03	Half-Life too short		
TE-123M	-1.030E-03		4.392E-02	7.020E-02	4.015E-03	-0.015
I-124	-2.292E-01		4.787E-01	6.392E-01	3.824E-02	-0.359
SB-124	-1.300E-02		8.576E-02	1.338E-01	9.042E-03	-0.097
SB-125	-4.087E-02		1.828E-01	2.973E-01	1.743E-02	-0.137
TE-125M	4.282E+00		1.264E+01	2.068E+01	1.938E+00	0.207
I-126	3.300E-01		2.473E-01	3.931E-01	2.361E-02	0.840
SB-126	-6.282E-02		1.902E-01	2.992E-01	2.013E-02	-0.210
SB-127	-4.207E-01		8.271E-01	1.285E+00	1.008E-01	-0.327
XE-127	-1.187E-02		6.629E-02	1.107E-01	6.173E-03	-0.107
I-131	-1.165E-02		1.228E-01	2.021E-01	1.267E-02	-0.058
TE-132	-2.064E-01		2.983E-01	4.841E-01	6.435E-02	-0.426
BA-133	-7.264E-03		8.980E-02	1.282E-01	1.474E-02	-0.057
I-133	-2.515E-05		3.564E-05	Half-Life too short		
CS-134	1.223E-01		9.404E-02	1.636E-01	1.288E-02	0.748
CS-135	1.379E-01		2.609E-01	4.449E-01	3.413E-02	0.310
I-135	-6.407E+02		5.288E+02	Half-Life too short		
CS-136	-1.413E-01		1.667E-01	2.595E-01	2.086E-02	-0.545
CE-139	-2.168E-02		4.593E-02	7.184E-02	3.857E-03	-0.302
BA-140	1.469E-01		3.504E-01	5.814E-01	1.892E-01	0.253
LA-140	-2.522E-02		8.815E-02	1.362E-01	9.026E-03	-0.185
CE-141	-1.650E-03		8.312E-02	1.332E-01	8.497E-03	-0.012
CE-143	2.997E+01		1.274E+01	1.857E+01	3.835E+00	1.614
CE-144	-3.325E-01		3.249E-01	4.936E-01	7.185E-02	-0.674
PM-144	-2.464E-02		6.265E-02	9.827E-02	6.294E-03	-0.251
PR-144	-1.664E+00		4.232E+00	6.638E+00	4.250E-01	-0.251
PM-146	-6.233E-02		9.697E-02	1.541E-01	1.319E-02	-0.404
ND-147	-5.200E-01		6.699E-01	1.029E+00	1.397E-01	-0.505
PM-149	1.155E-01		2.166E+01	3.611E+01	5.117E+00	0.003
EU-152	5.900E-02		1.806E-01	2.876E-01	1.861E-02	0.205
GD-153	6.808E-02		1.240E-01	1.806E-01	1.448E-02	0.377
EU-154	-2.004E-02		1.387E-01	2.234E-01	2.190E-02	-0.090
EU-155	-4.026E-02		1.532E-01	2.445E-01	1.892E-02	-0.165

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	1.518E-01		3.063E-01	5.271E-01	4.788E-02	0.288
HO-166M	-1.935E-02		1.117E-01	1.779E-01	1.176E-02	-0.109
TM-171	-8.078E+00		3.933E+01	6.133E+01	4.276E+00	-0.132
LU-176	-8.551E-03		4.383E-02	7.225E-02	4.207E-03	-0.118
LU-177	1.697E-01		8.990E-01	1.521E+00	8.526E-02	0.112
LU-177M	2.564E-01		3.261E-01	5.577E-01	3.092E-02	0.460
HF-181	1.547E-03		8.007E-02	1.313E-01	7.618E-03	0.012
W-181	-4.556E-01		5.446E-01	7.458E-01	5.139E-02	-0.611
TA-182	-6.682E-02		2.097E-01	3.317E-01	1.984E-02	-0.201
RE-183	2.743E-02		1.615E-01	2.601E-01	1.433E-02	0.105
RE-184	8.827E-02		3.834E-01	6.473E-01	3.744E-02	0.136
OS-185	-5.949E-03		7.901E-02	1.274E-01	7.595E-03	-0.047
RE-188	1.942E-02		2.551E-01	4.098E-01	2.374E-02	0.047
W-188	-1.235E+00		1.304E+01	1.875E+01	1.094E+00	-0.066
IR-192	-1.291E-02		5.773E-02	9.491E-02	5.540E-03	-0.136
AU-195	3.084E-01		3.392E-01	5.283E-01	4.193E-02	0.584
TL-200	-1.057E-05		7.732E-06	Half-Life too short		
TL-201	1.489E+00		2.679E+00	4.384E+00	2.355E-01	0.340
TL-202	-1.689E-03		9.693E-02	1.592E-01	9.003E-03	-0.011
HG-203	1.312E-02		6.128E-02	1.031E-01	6.381E-03	0.127
BI-207	-7.967E-02		1.136E-01	1.790E-01	1.325E-02	-0.445
TL-207	-1.123E+00		1.190E+00	1.865E+00	3.079E-01	-0.602
PO-209	-6.021E+00		1.595E+01	2.601E+01	2.434E+00	-0.232
BI-210	-2.852E+00		4.853E+00	7.864E+00	5.831E-01	-0.363
PB-210	-2.852E+00		4.853E+00	7.864E+00	5.831E-01	-0.363
PO-210	-2.852E+00		4.852E+00	7.864E+00	4.935E-01	-0.363
PB-211	3.728E-01		1.814E+00	2.995E+00	1.866E+00	0.124
BI-212	9.743E-01		5.449E-01	9.770E-01	8.311E-02	0.997
PO-215	-1.123E+00		1.190E+00	1.865E+00	3.079E-01	-0.602
RN-219	1.420E-01		7.922E-01	1.318E+00	1.776E-01	0.108
RN-220	-7.327E+00		4.655E+01	7.510E+01	4.464E+00	-0.098
RA-223	-1.123E+00		1.190E+00	1.865E+00	3.079E-01	-0.602
RA-224	6.566E+00		1.450E+00	2.463E+00	1.416E-01	2.666
AC-227	-5.144E-02		6.432E-01	1.071E+00	1.495E-01	-0.048
TH-227	-5.144E-02		6.432E-01	1.071E+00	1.810E-01	-0.048
TH-229	-5.018E-01		8.323E-01	1.332E+00	7.355E-02	-0.377
PA-231	1.668E-01		2.554E+00	4.270E+00	5.890E-01	0.039
TH-231	-1.123E+00		1.190E+00	1.865E+00	3.079E-01	-0.602
U-231	-1.977E-01		6.404E-01	8.899E-01	7.224E-02	-0.222
PA-233	2.634E-02		1.134E-01	1.904E-01	1.176E-02	0.138
PA-234	1.106E-01		7.302E-01	1.229E+00	2.322E-01	0.090
PA-234M	8.583E-01		1.009E+01	1.688E+01	1.632E+00	0.051
TH-234	-6.670E-02		1.900E+00	2.740E+00	4.709E-01	-0.024
U-235	-5.935E-02		3.208E-01	5.079E-01	8.361E-02	-0.117
NP-236	2.487E-02		1.255E-01	2.026E-01	1.132E-02	0.123
NP-237	7.433E+00		1.815E+00	1.125E+00	2.514E-01	6.609
U-238	-6.670E-02		1.900E+00	2.740E+00	4.709E-01	-0.024
NP-239	-3.542E-02		3.355E-01	4.691E-01	3.390E-02	-0.076

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-9.917E-02		1.386E-01	2.166E-01	1.665E-02	-0.458
AM-246	1.843E-01		3.266E-01	5.609E-01	4.019E-02	0.329
CM-247	1.802E-02		7.148E-02	1.193E-01	6.553E-03	0.151
CF-249	-2.188E-02		7.399E-02	1.203E-01	6.578E-03	-0.182
CF-251	-1.568E-01		2.047E-01	3.149E-01	1.708E-02	-0.498

# 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]G1202037554          *
* Acquisition date   : 19-FEB-2010 21:35:28 Detector SN# :                  *
* Detector ID        : GAM14 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 01:00:01.58 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037554 Analyst initials: MXR1                 *
* Batch Number       : 950788 Sample Quantity : 1.5544E+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	1.198E+00	6.920E-01	3.073E-01	3.530E-01
CO-57	2.301E-01	6.662E-02	3.405E-02	3.399E-02
CO-60	6.739E+00	5.705E-01	5.460E-02	2.911E-01
CD-109	2.973E+01	3.543E+00	1.198E+00	1.808E+00
SN-126	2.950E+00	3.515E-01	1.244E-01	1.793E-01
BA-137M	5.573E+00	4.085E-01	5.433E-02	2.084E-01
CS-137	5.891E+00	4.329E-01	5.743E-02	2.209E-01
TL-208	3.554E-01	9.752E-02	5.596E-02	4.975E-02
BI-211	2.326E+00	6.882E-01	2.977E-01	3.511E-01
PB-212	7.596E-01	1.820E-01	8.971E-02	9.288E-02
PO-212	7.596E-01	1.820E-01	8.971E-02	9.288E-02
BI-214	7.534E-01	2.428E-01	1.015E-01	1.239E-01
PB-214	8.090E-01	2.430E-01	1.038E-01	1.240E-01
PO-214	8.090E-01	2.430E-01	1.038E-01	1.240E-01
PO-216	7.596E-01	1.820E-01	8.971E-02	9.288E-02
PO-218	8.090E-01	2.430E-01	1.038E-01	1.240E-01
RA-226	7.534E-01	2.428E-01	1.015E-01	1.239E-01
AC-228	9.947E-01	3.932E-01	2.581E-01	2.006E-01
RA-228	9.947E-01	3.932E-01	2.581E-01	2.006E-01
TH-228	7.664E-01	1.837E-01	9.050E-02	9.371E-02
TH-230	7.534E-01	2.428E-01	1.015E-01	1.239E-01
TH-232	9.947E-01	3.932E-01	2.581E-01	2.006E-01
U-234	7.534E-01	2.428E-01	1.015E-01	1.239E-01
AM-241	1.308E+01	1.147E+00	2.415E-01	5.854E-01
AM-243	2.187E-01	9.221E-02	7.678E-02	4.705E-02
ANH-511	6.554E-02	9.180E-02	4.545E-02	4.683E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-2.502E-01	6.178E-01	5.264E-01	3.152E-01 NOT IDENT.

NA-22	-7.151E-03	4.850E-02	4.038E-02	2.474E-02	NOT IDENT.
NA-24	1.143E+02	6.854E+02	0.000E+00	3.497E+02	SHORT HLIF
AL-26	2.518E-02	3.940E-02	3.726E-02	2.010E-02	NOT IDENT.
TI-44	2.455E-01	7.023E-02	5.602E-02	3.583E-02	FAIL ABUN
SC-46	4.349E-02	8.233E-02	7.407E-02	4.201E-02	NOT IDENT.
V-48	-6.196E-02	1.152E-01	9.623E-02	5.879E-02	NOT IDENT.
CR-51	1.577E-01	5.607E-01	5.032E-01	2.861E-01	NOT IDENT.
MN-52	-9.171E-02	1.071E-01	7.136E-02	5.466E-02	FAIL ABUN
MN-54	-2.632E-02	7.128E-02	6.107E-02	3.637E-02	NOT IDENT.
CO-56	5.246E-02	7.781E-02	7.081E-02	3.970E-02	NOT IDENT.
CO-58	-3.365E-02	7.312E-02	5.922E-02	3.731E-02	NOT IDENT.
FE-59	-6.581E-02	1.710E-01	1.431E-01	8.724E-02	NOT IDENT.
ZN-65	-8.702E-02	1.797E-01	1.493E-01	9.169E-02	NOT IDENT.
GE-68	8.037E-01	2.693E+00	2.364E+00	1.374E+00	NOT IDENT.
AS-73	1.552E-01	1.645E+00	1.325E+00	8.394E-01	NOT IDENT.
AS-74	-2.060E-02	1.306E-01	1.109E-01	6.666E-02	NOT IDENT.
SE-75	-6.164E-02	6.949E-02	6.008E-02	3.545E-02	FAIL ABUN
BR-77	-7.347E-01	3.035E+00	2.587E+00	1.549E+00	FAIL ABUN
SR-82	-4.804E-01	6.139E-01	4.857E-01	3.132E-01	NOT IDENT.
RB-83	-3.384E-02	1.174E-01	9.975E-02	5.989E-02	NOT IDENT.
RB-84	4.351E-02	1.354E-01	1.206E-01	6.910E-02	NOT IDENT.
KR-85	1.189E+00	1.413E+01	1.066E+01	7.211E+00	NOT IDENT.
SR-85	5.709E-03	6.786E-02	5.119E-02	3.462E-02	NOT IDENT.
RB-86	7.427E-01	1.354E+00	1.208E+00	6.910E-01	NOT IDENT.
Y-88	-6.751E-03	5.129E-02	4.122E-02	2.617E-02	NOT IDENT.
ZR-88	1.066E-02	5.271E-02	4.688E-02	2.689E-02	NOT IDENT.
Y-91	-6.293E+00	2.186E+01	1.808E+01	1.115E+01	NOT IDENT.
NB-94	4.864E-02	6.092E-02	5.443E-02	3.108E-02	NOT IDENT.
NB-95	3.068E-02	6.890E-02	5.997E-02	3.515E-02	NOT IDENT.
NB-95M	4.541E-01	2.239E-01	1.919E-01	1.143E-01	NOT IDENT.
ZR-95	1.992E-02	1.277E-01	1.090E-01	6.517E-02	NOT IDENT.
NB-97	2.925E+03	6.203E+02	0.000E+00	3.165E+02	SHORT HLIF
ZR-97	1.300E+04	7.972E+03	0.000E+00	4.068E+03	SHORT HLIF
MO-99	-2.920E+00	4.554E+00	3.649E+00	2.324E+00	NOT IDENT.
TC-99M	-9.928E+08	1.928E+09	0.000E+00	9.837E+08	SHORT HLIF
RH-101	2.641E-02	5.122E-02	4.759E-02	2.613E-02	NOT IDENT.
RH-102	5.119E-03	6.122E-02	5.351E-02	3.124E-02	NOT IDENT.
RU-103	9.770E-03	7.389E-02	6.458E-02	3.770E-02	NOT IDENT.
RH-106	-1.873E-01	5.745E-01	4.801E-01	2.931E-01	NOT IDENT.
RU-106	-1.873E-01	5.741E-01	4.801E-01	2.929E-01	NOT IDENT.
AG-108M	-1.941E-03	6.600E-02	5.769E-02	3.367E-02	NOT IDENT.
AG-110M	2.812E-01	9.068E-02	8.041E-02	4.626E-02	NOT IDENT.
IN-111	-9.230E-01	4.036E-01	3.029E-01	2.059E-01	NOT IDENT.
IN-113M	1.481E-02	7.800E-02	6.934E-02	3.979E-02	NOT IDENT.
SN-113	1.481E-02	7.800E-02	6.934E-02	3.979E-02	NOT IDENT.
IN-114M	-4.314E-02	2.930E-01	2.320E-01	1.495E-01	NOT IDENT.
CD-115	-6.423E-01	2.684E+00	2.284E+00	1.369E+00	NOT IDENT.
SN-117M	-1.647E-02	6.282E-02	5.428E-02	3.205E-02	NOT IDENT.
SB-122	-7.191E-01	8.163E-01	6.650E-01	4.165E-01	NOT IDENT.
I-123	-7.989E+01	3.338E+03	0.000E+00	1.703E+03	SHORT HLIF
TE-123M	-1.030E-03	4.304E-02	3.758E-02	2.196E-02	NOT IDENT.
I-124	-2.292E-01	4.691E-01	3.305E-01	2.394E-01	NOT IDENT.
SB-124	-1.300E-02	8.405E-02	6.721E-02	4.288E-02	FAIL ABUN
SB-125	-4.087E-02	1.791E-01	1.551E-01	9.139E-02	NOT IDENT.
TE-125M	4.282E+00	1.239E+01	1.117E+01	6.322E+00	NOT IDENT.
I-126	3.300E-01	2.424E-01	2.027E-01	1.237E-01	NOT IDENT.
SB-126	-6.282E-02	1.864E-01	1.540E-01	9.511E-02	FAIL ABUN
SB-127	-4.207E-01	8.105E-01	6.622E-01	4.135E-01	FAIL ABUN
XE-127	-1.187E-02	6.497E-02	5.892E-02	3.315E-02	NOT IDENT.
I-131	-1.165E-02	1.203E-01	1.059E-01	6.138E-02	NOT IDENT.
TE-132	-2.064E-01	2.923E-01	2.568E-01	1.491E-01	NOT IDENT.
BA-133	-7.264E-03	8.800E-02	6.724E-02	4.490E-02	NOT IDENT.
I-133	-2.515E+01	6.985E+01	0.000E+00	3.564E+01	SHORT HLIF
CS-134	1.223E-01	9.216E-02	8.395E-02	4.702E-02	NOT IDENT.
CS-135	1.379E-01	2.557E-01	2.350E-01	1.305E-01	NOT IDENT.
I-135	-6.407E+08	1.036E+09	0.000E+00	5.288E+08	SHORT HLIF
CS-136	-1.413E-01	1.634E-01	1.322E-01	8.335E-02	NOT IDENT.
CE-139	-2.168E-02	4.501E-02	3.842E-02	2.297E-02	NOT IDENT.
BA-140	1.469E-01	3.434E-01	3.015E-01	1.752E-01	NOT IDENT.
LA-140	-2.522E-02	8.639E-02	6.853E-02	4.408E-02	NOT IDENT.
CE-141	-1.650E-03	8.146E-02	7.144E-02	4.156E-02	NOT IDENT.
CE-143	2.997E+01	1.248E+01	9.787E+00	6.369E+00	FAIL ABUN
CE-144	-3.325E-01	3.184E-01	2.654E-01	1.624E-01	NOT IDENT.
PM-144	-2.464E-02	6.140E-02	5.061E-02	3.133E-02	NOT IDENT.
PR-144	-1.664E+00	4.147E+00	3.419E+00	2.116E+00	NOT IDENT.
PM-146	-6.233E-02	9.503E-02	8.028E-02	4.848E-02	NOT IDENT.
ND-147	-5.200E-01	6.565E-01	5.341E-01	3.349E-01	NOT IDENT.
PM-149	1.155E-01	2.123E+01	1.904E+01	1.083E+01	NOT IDENT.

EU-152	5.900E-02	1.770E-01	1.509E-01	9.029E-02	FAIL ABUN
GD-153	6.808E-02	1.215E-01	9.783E-02	6.198E-02	NOT IDENT.
EU-154	-2.004E-02	1.359E-01	1.132E-01	6.934E-02	FAIL ABUN
EU-155	-4.026E-02	1.501E-01	1.322E-01	7.659E-02	FAIL ABUN
TB-160	1.518E-01	3.002E-01	2.698E-01	1.531E-01	FAIL ABUN
HO-166M	-1.935E-02	1.095E-01	9.158E-02	5.585E-02	NOT IDENT.
TM-171	-8.078E+00	3.855E+01	3.354E+01	1.967E+01	FAIL ABUN
LU-176	-8.551E-03	4.296E-02	3.803E-02	2.192E-02	FAIL ABUN
LU-177	1.697E-01	8.811E-01	8.088E-01	4.495E-01	NOT IDENT.
LU-177M	2.564E-01	3.195E-01	2.912E-01	1.630E-01	FAIL ABUN
HF-181	1.547E-03	7.847E-02	6.832E-02	4.004E-02	NOT IDENT.
W-181	-4.556E-01	5.337E-01	4.081E-01	2.723E-01	NOT IDENT.
TA-182	-6.682E-02	2.055E-01	1.682E-01	1.049E-01	NOT IDENT.
RE-183	2.743E-02	1.582E-01	1.392E-01	8.073E-02	FAIL ABUN
RE-184	8.827E-02	3.758E-01	3.424E-01	1.917E-01	FAIL ABUN
OS-185	-5.949E-03	7.743E-02	6.573E-02	3.951E-02	FAIL ABUN
RE-188	1.942E-02	2.500E-01	2.195E-01	1.276E-01	NOT IDENT.
W-188	-1.235E+00	1.278E+01	9.883E+00	6.519E+00	NOT IDENT.
IR-192	-1.291E-02	5.657E-02	4.992E-02	2.886E-02	FAIL ABUN
AU-195	3.084E-01	3.324E-01	2.862E-01	1.696E-01	FAIL ABUN
TL-200	-1.057E+01	1.515E+01	0.000E+00	7.732E+00	SHORT HLIF
TL-201	1.489E+00	2.626E+00	2.344E+00	1.340E+00	NOT IDENT.
TL-202	-1.689E-03	9.500E-02	8.302E-02	4.847E-02	NOT IDENT.
HG-203	1.312E-02	6.005E-02	5.442E-02	3.064E-02	NOT IDENT.
BI-207	-7.967E-02	1.113E-01	9.111E-02	5.679E-02	FAIL ABUN
TL-207	-1.123E+00	1.166E+00	9.800E-01	5.950E-01	FAIL ABUN
PO-209	-6.021E+00	1.563E+01	1.330E+01	7.975E+00	NOT IDENT.
BI-210	-2.852E+00	4.756E+00	4.338E+00	2.427E+00	NOT IDENT.
PB-210	-2.852E+00	4.756E+00	4.338E+00	2.427E+00	NOT IDENT.
PO-210	-2.852E+00	4.755E+00	4.338E+00	2.426E+00	NOT IDENT.
PB-211	3.728E-01	1.777E+00	1.565E+00	9.068E-01	NOT IDENT.
BI-212	9.743E-01	5.340E-01	5.026E-01	2.725E-01	NOT IDENT.
PO-215	-1.123E+00	1.166E+00	9.800E-01	5.950E-01	FAIL ABUN
RN-219	1.420E-01	7.764E-01	6.886E-01	3.961E-01	NOT IDENT.
RN-220	-7.327E+00	4.562E+01	3.893E+01	2.328E+01	NOT IDENT.
RA-223	-1.123E+00	1.166E+00	9.800E-01	5.950E-01	FAIL ABUN
RA-224	6.566E+00	1.421E+00	1.305E+00	7.250E-01	NOT IDENT.
AC-227	-5.144E-02	6.303E-01	5.666E-01	3.216E-01	NOT IDENT.
TH-227	-5.144E-02	6.303E-01	5.666E-01	3.216E-01	FAIL ABUN
TH-229	-5.018E-01	8.157E-01	7.093E-01	4.162E-01	FAIL ABUN
PA-231	1.668E-01	2.503E+00	2.252E+00	1.277E+00	NOT IDENT.
TH-231	-1.123E+00	1.166E+00	9.800E-01	5.950E-01	FAIL ABUN
U-231	-1.977E-01	6.276E-01	4.824E-01	3.202E-01	FAIL ABUN
PA-233	2.634E-02	1.111E-01	1.002E-01	5.668E-02	FAIL ABUN
PA-234	1.106E-01	7.156E-01	6.275E-01	3.651E-01	FAIL ABUN
PA-234M	8.583E-01	9.884E+00	8.606E+00	5.043E+00	NOT IDENT.
TH-234	-6.670E-02	1.862E+00	1.500E+00	9.499E-01	FAIL ABUN
U-235	-5.935E-02	3.144E-01	2.726E-01	1.604E-01	FAIL ABUN
NP-236	2.487E-02	1.230E-01	1.084E-01	6.277E-02	NOT IDENT.
NP-237	7.433E+00	1.779E+00	6.112E-01	9.077E-01	NOT IDENT.
U-238	-6.670E-02	1.862E+00	1.500E+00	9.499E-01	FAIL ABUN
NP-239	-3.542E-02	3.288E-01	2.530E-01	1.678E-01	NOT IDENT.
CM-243	-9.917E-02	1.358E-01	1.172E-01	6.930E-02	NOT IDENT.
AM-246	1.843E-01	3.201E-01	2.854E-01	1.633E-01	NOT IDENT.
CM-247	1.802E-02	7.005E-02	6.235E-02	3.574E-02	NOT IDENT.
CF-249	-2.188E-02	7.251E-02	6.294E-02	3.700E-02	NOT IDENT.
CF-251	-1.568E-01	2.006E-01	1.681E-01	1.023E-01	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
46.50	687.8816
46.50	687.8816
46.50	687.8816
48.70	779.3140
49.72	790.4338
51.35	869.5608
52.39	940.1412
52.97	962.2464
53.15	982.9156
53.44	940.6240
54.07	997.0324
56.28	991.2051
56.28	991.2079
57.37	1030.2140
57.53	1061.6616
57.53	1061.6636
57.60	1061.7404
57.98	1062.1675
57.98	1062.1675
59.32	809.0836
59.32	809.0836
59.40	809.1509
59.54	809.2692
59.72	809.4205
60.01	809.6630
61.10	472.5075
61.14	472.5267
61.30	472.6044
63.00	438.6584
63.29	438.7866
63.29	438.7866
63.58	460.4456
64.28	487.2874
65.12	507.5993
65.20	507.6399
65.20	507.6399
66.05	498.1023
66.72	483.0002
66.83	483.0534
66.91	494.9603
67.20	497.6232
67.20	497.6232
67.75	514.5191
67.85	514.5682
68.90	502.2555
68.90	502.2555
69.30	492.7312
69.67	464.8592
70.82	513.7363
70.82	513.7363
70.83	513.7400
72.80	524.7148
72.87	524.7484
72.87	524.7484
74.67	630.1227
74.81	630.2031
74.81	630.2031
74.81	630.2031
74.81	630.2031
74.81	630.2031
74.81	630.2031
74.81	630.2031
74.97	630.2950
75.28	630.4730
75.70	630.7131
77.11	631.5173
77.11	631.5173

77.11	631.5173
77.11	631.5173
77.11	631.5173
77.11	631.5173
77.11	631.5173
78.38	632.2341
79.62	632.9302
79.80	633.0314
79.80	633.0314
80.11	633.2037
80.18	633.2427
80.30	633.3093
80.30	633.3093
80.57	633.4587
81.00	633.6976
81.07	633.7367
81.07	633.7367
81.07	633.7367
81.07	633.7367
82.60	741.7480
83.37	653.6745
83.78	742.5000
83.78	742.5000
83.78	742.5000
83.78	742.5000
84.21	742.7739
84.90	743.2117
85.43	743.5447
86.29	596.1132
86.50	596.2186
86.54	596.2401
86.59	596.2637
86.72	744.3557
86.79	744.3960
86.94	744.4927
87.30	710.8649
87.30	710.8649
87.30	710.8649
87.30	710.8649
87.30	710.8649
87.30	710.8649
87.57	711.0264
87.88	654.0601
88.03	654.1402
88.36	654.3217
88.47	654.3807
89.95	296.8463
91.11	297.1283
92.29	297.4135
92.38	297.4359
92.38	297.4359
93.35	358.9035
94.00	314.8433
94.67	362.6876
94.67	362.6889
94.90	352.5368
94.90	352.5368
94.90	352.5368
94.90	352.5368
95.87	376.6712
95.87	376.6712
96.73	354.7565
97.43	303.7560
98.44	298.8725
98.44	298.8725
98.88	296.1277
99.55	285.7006
99.55	285.7006
99.86	298.1340
100.00	300.3044
100.10	300.3280
103.18	324.6064
103.76	320.4626
105.00	303.5980
105.31	306.8873
108.00	294.6014
109.28	305.6426

111.00	314.6476
111.00	314.6476
111.76	320.2122
112.95	334.5162
115.19	313.4373
116.30	325.9440
117.00	323.7974
117.00	323.7974
117.66	336.0744
121.11	347.3035
121.62	333.5297
121.78	324.6622
122.06	324.7250
122.32	324.7831
122.32	324.7831
122.32	324.7831
122.32	324.7831
123.07	324.9508
127.23	327.8319
129.76	327.5139
131.20	311.4361
133.02	369.7958
133.54	361.1641
135.34	314.4734
136.00	331.0498
136.25	335.4883
136.48	323.4778
140.51	340.8032
140.51	0.0000
142.18	283.9354
142.65	331.3568
143.76	308.4546
144.24	319.5660
144.24	319.5660
144.24	319.5660
144.24	319.5660
145.22	305.4266
145.44	304.3661
147.16	316.8338
152.43	295.7061
152.70	295.7550
153.22	282.5502
154.21	301.5674
154.21	301.5674
154.21	301.5674
154.21	301.5674
155.03	317.2463
156.02	306.3349
158.56	321.2466
159.00	0.0000
159.00	313.5473
160.31	298.2101
161.27	282.7928
162.32	294.1057
162.64	305.3025
163.35	316.5771
163.89	315.5595
165.85	314.8016
167.43	284.9198
171.28	324.7344
171.86	296.8371
172.10	296.8776
176.55	316.7100
176.60	316.7186
181.06	291.2250
184.41	303.7870
185.71	297.9809
186.00	298.0272
190.27	315.3008
192.34	306.5836
193.63	331.4766
197.04	308.8534
198.01	299.9195
198.60	318.1937
200.40	318.4885
201.83	324.1851
202.84	317.0636
205.31	340.2692

208.36	317.0378
208.81	316.1959
209.75	324.5724
209.75	324.5724
210.97	299.1539
215.65	331.0254
216.55	311.9060
218.09	268.0736
222.10	324.7087
223.80	284.4671
226.40	254.4038
227.00	295.0449
227.08	295.0566
227.20	295.0723
228.16	298.8971
228.18	298.9011
228.18	298.9011
231.56	288.4949
235.69	302.4259
236.00	297.8401
236.00	297.8401
238.63	350.4275
238.63	350.4275
238.63	350.4275
238.63	350.4275
239.00	356.9780
240.98	276.8724
241.98	270.8099
241.98	270.8099
241.98	270.8099
244.69	308.1088
245.39	326.6406
247.94	243.9251
248.90	231.9223
249.79	238.5375
252.40	238.8156
252.85	251.9269
252.85	251.9269
254.15	0.0000
256.20	256.9741
256.20	256.9741
260.50	235.9270
260.90	231.2881
262.80	220.2322
264.65	258.8646
268.24	240.4781
268.79	232.0811
269.46	233.0873
269.46	233.0873
269.46	233.0873
269.46	233.0873
271.23	221.9760
273.65	300.3553
276.40	233.7775
277.35	241.4125
277.60	223.5212
277.60	223.5212
278.00	224.5021
278.60	227.3879
279.20	230.2780
279.53	233.1394
280.46	254.0034
281.68	246.5768
283.67	221.2517
284.30	212.7969
285.00	231.7810
285.90	221.4574
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286.10	227.1533
287.40	228.4601
288.45	0.0000
290.67	221.2594
290.80	221.2708
291.72	215.0290
293.26	205.6720
293.70	212.0385
295.21	251.7532
295.21	251.7532

295.21	251.7532
295.96	261.3306
296.50	253.4668
297.23	258.2956
298.57	221.9714
299.80	185.5952
299.80	185.5952
300.09	176.0978
300.09	176.0978
300.09	176.0978
300.09	176.0978
300.12	176.1000
301.29	193.6432
302.84	246.7029
303.76	254.5267
303.91	251.6798
304.40	240.2890
304.40	240.2890
304.84	248.9122
306.84	230.9753
308.46	195.7860
311.98	215.1865
316.51	222.2720
318.01	220.4850
319.02	219.6102
319.41	208.1340
320.08	211.0652
323.87	245.9625
323.87	245.9625
323.87	245.9625
323.87	245.9625
325.23	221.0970
328.77	210.8062
333.44	279.6418
334.20	296.1208
334.20	296.1208
334.30	296.1321
338.28	209.6281
338.28	209.6281
338.28	209.6281
338.28	209.6281
338.32	205.7691
338.32	205.7691
338.32	205.7691
340.50	236.8742
340.57	236.8802
344.27	193.6353
345.85	209.8932
350.59	190.8497
351.07	187.3245
351.92	187.3834
351.92	187.3834
351.92	187.3834
355.39	0.0000
356.01	204.1886
364.48	193.1056
366.43	183.4813
367.43	205.0243
367.94	0.0000
369.80	171.9738
374.96	219.2723
383.85	207.1828
387.95	198.6243
388.63	205.5558
391.69	187.0637
391.69	187.0637
392.90	183.2005
398.62	198.3575
400.65	200.4675
401.10	202.4725
401.81	198.5685
402.60	199.6106
404.84	200.7475
410.95	214.0356
411.60	209.1275
413.65	176.5377
414.70	179.5749
415.30	189.5335

415.76	192.5412
417.63	0.0000
418.52	192.7141
423.70	183.0881
427.08	198.2275
427.89	199.2773
432.53	190.5920
433.93	202.6555
439.47	188.0115
439.56	188.0184
439.89	173.0338
443.98	201.2993
444.90	201.3558
445.03	201.3656
445.03	201.3656
445.03	201.3656
445.03	201.3656
453.90	241.0986
463.38	217.6216
468.07	210.8701
473.00	196.0271
475.06	198.1725
475.35	193.1334
476.78	180.0642
477.59	202.3682
477.96	217.5720
482.03	183.3862
484.57	149.0510
487.03	176.5552
490.36	164.5412
492.35	166.6706
497.08	171.9893
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510.53	0.0000
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511.00	144.7544
511.85	146.4924
511.85	146.4924
513.99	144.8772
513.99	144.8772
520.41	133.1897
520.65	133.1992
527.90	121.1517
528.96	0.0000
529.64	121.2093
529.87	0.0000
531.02	128.4485
537.32	125.5861
543.00	128.8757
546.56	0.0000
549.76	118.7875
552.65	119.9139
555.20	121.0333
563.23	161.7281
563.90	164.8654
568.70	130.8173
569.32	134.9924
569.50	137.0757
569.67	137.0821
573.80	144.5111
574.00	138.2797
574.64	124.7842
578.91	131.8682
579.30	0.0000
583.14	125.0654
585.48	118.1893
591.81	121.1713
592.07	114.9119
593.00	109.7142
595.88	124.4358
600.56	118.6541
602.52	0.0000
602.71	122.2123
602.71	122.2123
603.60	113.5093
604.41	113.5331
604.70	104.8071
609.31	115.4248

609.31	115.4248
609.31	115.4248
609.31	115.4248
610.33	129.4488
612.46	140.0195
614.37	120.8258
618.01	118.8348
621.84	117.8980
621.84	117.8980
631.29	107.6254
633.02	106.6147
633.10	106.6171
634.78	127.7826
635.90	124.6490
636.97	110.9473
645.85	112.2498
646.12	117.5527
656.30	109.7059
657.75	118.5940
657.90	0.0000
661.65	108.4323
661.65	108.4323
664.57	106.3794
666.33	72.7243
666.33	72.7243
675.00	99.1803
677.61	104.5796
685.20	111.1830
692.80	97.4584
695.00	103.9387
696.49	113.6213
696.49	113.6213
697.00	111.4902
697.49	116.8636
698.33	119.0323
698.50	119.0378
699.00	115.8337
702.63	97.6828
706.10	109.5778
706.58	0.0000
706.67	102.0717
709.31	104.2845
711.68	103.2656
713.82	120.5367
717.42	92.6306
720.50	108.8635
721.93	145.5601
722.20	147.7265
722.78	154.2138
722.78	154.2138
722.89	154.2207
722.95	154.2207
723.30	134.8206
724.18	108.9572
727.18	77.7252
733.00	97.2839
735.90	84.3680
739.58	109.3369
742.81	85.5827
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747.13	125.7875
751.79	82.4978
752.31	77.0790
753.82	110.7706
755.35	118.4124
756.15	103.2220
756.87	102.1516
763.93	116.4618
765.79	91.4648
766.42	92.5662
766.84	98.0200
776.49	112.4148
778.00	109.1772
778.57	116.8327
778.89	107.0152
783.80	102.7551
785.46	89.6695
792.07	133.6013

795.84	94.2536
796.30	94.2641
798.80	125.0215
801.93	97.6697
805.60	90.0579
810.29	101.1416
810.76	105.5484
815.85	98.1399
817.79	104.6044
818.51	108.2915
819.60	110.1514
826.30	116.7396
828.27	0.0000
831.60	107.6666
831.96	109.5167
834.83	118.7880
836.80	0.0000
846.75	106.1583
848.13	109.8823
856.28	0.0000
856.80	99.9009
860.37	107.9078
867.32	105.1703
867.82	101.9792
871.10	128.9494
873.19	116.0100
874.81	120.6901
875.33	0.0000
876.40	123.5158
879.36	119.8719
880.27	125.4694
880.51	125.4749
881.50	114.3441
883.24	119.0339
884.67	133.9512
889.25	111.7285
896.60	114.6894
898.02	107.2580
899.00	111.0105
903.28	123.2424
911.07	131.8461
911.07	131.8461
911.07	131.8461
919.63	134.8770
920.93	136.7829
925.00	122.8285
925.24	115.3325
926.50	119.1116
935.52	133.4110
937.48	148.5011
944.10	133.6306
946.00	131.7969
949.00	160.1290
962.29	152.3496
964.01	116.5932
966.15	124.7383
968.20	103.0435
969.11	130.4812
969.11	130.4812
969.11	130.4812
977.42	93.7511
980.50	110.8610
983.50	110.9229
989.30	105.3475
996.32	107.3859
1001.03	111.2823
1001.68	105.5880
1004.76	126.5870
1021.30	0.0000
1024.50	0.0000
1034.80	92.8241
1036.00	97.6296
1037.82	110.1101
1038.57	112.0393
1038.76	0.0000
1045.16	85.3279
1046.59	108.3652
1048.07	110.3113

1050.47	98.8424
1050.47	98.8424
1062.04	95.1973
1063.62	110.6154
1076.63	95.4430
1077.35	102.2044
1078.86	103.1947
1085.78	105.2522
1099.22	101.6248
1112.02	108.6367
1112.84	110.5906
1115.52	111.6121
1120.29	94.2174
1120.29	94.2174
1120.29	94.2174
1120.29	94.2174
1120.51	87.4219
1121.28	94.2332
1124.00	0.0000
1129.67	72.9645
1131.51	0.0000
1147.95	0.0000
1167.94	70.4941
1173.22	51.9368
1175.09	51.9541
1177.93	45.3930
1189.05	40.2826
1204.90	42.3561
1205.75	0.0000
1213.00	31.5612
1221.42	33.5794
1230.97	25.7175
1235.34	37.6134
1236.41	0.0000
1238.25	23.7666
1246.25	18.8392
1260.41	0.0000
1271.85	26.8792
1274.45	24.8983
1274.54	24.8983
1291.56	17.9736
1298.22	0.0000
1312.09	21.0350
1325.50	18.9270
1325.50	18.9270
1332.49	39.1857
1333.61	39.1936
1360.21	14.1253
1362.66	0.0000
1365.15	16.1549
1368.21	9.0912
1368.53	0.0000
1376.25	17.1930
1384.27	16.2005
1394.10	11.1540
1395.20	9.1274
1407.95	16.2565
1434.06	14.2780
1436.60	8.1618
1457.56	0.0000
1460.81	12.2847
1489.15	19.5280
1509.49	20.6136
1596.49	19.8141
1620.62	12.5542
1678.03	0.0000
1691.02	9.5013
1691.02	9.5013
1706.46	0.0000
1750.46	0.0000
1764.49	11.7202
1764.49	11.7202
1764.49	11.7202
1764.49	11.7202
1770.23	30.9199
1771.40	13.8628
1791.20	0.0000
1808.65	6.4275

1836.01

13.9717

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037554

Total Uranium Activity	-2.2591E-01	ug/g
Total Uranium Counting Unc.	5.5409E+00	ug/g
Total Uranium Tpu	2.8270E-06	ug/g
Total Uranium Mda	4.4644E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950788          SAMPLE ID   : G1202037554
*  ANALYST       : MXR1            DETECTOR    : GAM14
*  SAMPLE DATE   : 11-FEB-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00
*  ANALYSIS DATE : 19-FEB-2010 21:35:28.93  SAMPLE ALQT: 155.440 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.677E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 2.566E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 5.674E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 2.786E+00

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## Radiochemistry Batch Checklist, Rev10

Batch# 953095 Product: H3 Date: 2-23-10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
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] 2/23/10

LANL 3-5-10

# Tritium Que Sheet

Vacuum

15-FEB-10

Batch #: 953095 Analyst: KKK2 First Client Due Date 05-MAR-10 Internal Due Date: 22-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: 2/17/10 Initials: *KKK* Pipet ID: 2970968 Witness: *QJM 2-18-10*

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 Vol (mL)
246341001-1	RE15-10-8304	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-2	1		458.66	365.55	93.11
246341002-1	RE15-10-8305	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-3	2		319.00	197.32	122.48
246341003-1	RE15-10-8306	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-4	3		437.58	344.81	92.77
246341004-1	RE15-10-8307	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-5	4		386.16	330.55	55.61
246341005-1	RE15-10-8309	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-6	5		434.27	388.24	46.03
246341006-1	RE15-10-8308	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-7	6		355.44	257.34	98.10
246341007-1	RE15-10-8301	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-8	7		415.11	390.62	24.49
246341008-1	RE15-10-8300	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-9	8		291.44	202.28	89.18
246341009-1	RE15-10-8324	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-10	9		409.04	323.96	85.98
246344001-1	RE15-10-7981	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-11	10		296.44	221.14	75.30
246344002-1	RE15-10-7983	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-12	11		304.60	228.38	76.13
246344003-1	RE15-10-7984	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-1	12		426.35	304.18	122.17
246344004-1	RE15-10-7982	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-2	13		504.50	425.80	78.70
246344005-1	RE15-10-7985	SAMPLE		.25 pCi/mL SOIL		LANL010	01-FEB-10	10	14-3	14		197.52	163.30	94.22
246444001-1	RE15-10-8361	SAMPLE		.25 pCi/mL SOIL		LANL010	03-FEB-10	10	14-4	15		431.60	353.91	77.69
246444002-1	RE15-10-8362	SAMPLE		.25 pCi/mL SOIL		LANL010	03-FEB-10	10	14-5	16		335.90	267.04	68.86
246444003-1	RE15-10-8359	SAMPLE		.25 pCi/mL SOIL		LANL010	03-FEB-10	10	14-6	17		469.19	437.29	31.90
246444004-1	RE15-10-8358	SAMPLE		.25 pCi/mL SOIL		LANL010	03-FEB-10	10	14-7	18		448.33	374.80	73.53
246444005-1	RE15-10-8360	SAMPLE		.25 pCi/mL SOIL		LANL010	03-FEB-10	10	14-8	19		285.47	207.25	78.22
1202042910-1	MB for batch 953095	MB		.25 pCi/mL SOIL		QC ACCOUNT	01-FEB-10	10	14-9	20		20.00	0	20.00
1202042911-1	RE15-10-8360 (DUP)	DUP		.25 pCi/mL SOIL		QC ACCOUNT	02-FEB-10	10	14-10	1		458.66	365.55	93.11
1202042912-1	LCS for batch 953095	LCS		.25 pCi/mL SOIL		QC ACCOUNT	03-FEB-10	10	20-1	21		20.00	0	20.00

Bkg Rack #: 14-1  
*10/11/10*  
*10/11/10*

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) 4140121, LS6000 (Brown) 7060653, Wallac (Pink) 2200082, Wallac (White) 4140299, Purple 7069123, Silver 7060656, Orange D000095168

Calibration Used: Ecosint Ultra (10 mL sample/13 mL Ecosint Ultra)  
 Data Reviewed By: *JAN 2-23-10*

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

T953095

## Tritium Solid

Filename : H3VAC.XLS  
File type : Excel  
Version # : 1.2.6

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): 2465.92  
LCS Volume Added: 0.10

Batch : 953095  
Analyst : KXK2  
Prep Date : 2/17/2010

Procedure Code : LSC\_VH3S  
Paramname : Tritium  
Required MDC : 250 pCi/L  
Half-life of Tritium : 12.32 years

H-3 Abundance : 1  
Method Uncertainty : 0.0691  
Geometry: 10mL DW/13mL  
Eosclint Ultra

Pipet, 0.1 ml Sidev : +/-  
Pipet, 0.5 ml Sidev : +/-  
Pipet, 1.0 ml Sidev : +/-  
Pipet, 5.0 ml Sidev : +/-

0.000701 ml  
0.002564 ml  
0.005480 ml  
0.025729 ml

Sample Characteristics		Wet Sample		Total Moisture		Sample Aliquot in Vial		Sample Aliquot Sidev.		Dry Sample Weight (g)		% Moisture of Sample		Rig number		Sample Date/Time	
Pos.	Sample ID	Weight (g)	Weight (g)	L	L	L	L	L	L	Weight (g)	Weight (g)	%	%				
1	246341001.1	458.66	458.66	0.0631	0.0631	0.0100	0.0100	2.5729E-05	2.5729E-05	365.55	365.55	20.30%	20.30%	1		2/1/2010 12:00	
2	246341002.1	319.80	319.80	0.1225	0.1225	0.0100	0.0100	2.5729E-05	2.5729E-05	197.32	197.32	38.30%	38.30%	2		2/1/2010 12:00	
3	246341003.1	437.58	437.58	0.0928	0.0928	0.0100	0.0100	2.5729E-05	2.5729E-05	344.81	344.81	21.20%	21.20%	3		2/1/2010 12:00	
4	246341004.1	388.16	388.16	0.0556	0.0556	0.0100	0.0100	2.5729E-05	2.5729E-05	330.55	330.55	14.40%	14.40%	4		2/1/2010 12:00	
5	246341005.1	434.27	434.27	0.0460	0.0460	0.0100	0.0100	2.5729E-05	2.5729E-05	388.24	388.24	10.60%	10.60%	5		2/1/2010 12:00	
6	246341006.1	355.44	355.44	0.0981	0.0981	0.0100	0.0100	2.5729E-05	2.5729E-05	257.34	257.34	27.60%	27.60%	6		2/1/2010 12:00	
7	246341007.1	415.11	415.11	0.0245	0.0245	0.0100	0.0100	2.5729E-05	2.5729E-05	380.62	380.62	5.90%	5.90%	7		2/1/2010 12:00	
8	246341008.1	291.44	291.44	0.0892	0.0892	0.0100	0.0100	2.5729E-05	2.5729E-05	202.26	202.26	30.60%	30.60%	8		2/1/2010 12:00	
9	246341009.1	409.04	409.04	0.0851	0.0851	0.0100	0.0100	2.5729E-05	2.5729E-05	323.96	323.96	20.80%	20.80%	9		2/1/2010 12:00	
10	246341010.1	296.44	296.44	0.0753	0.0753	0.0100	0.0100	2.5729E-05	2.5729E-05	221.14	221.14	25.40%	25.40%	10		2/1/2010 12:00	
11	246341011.1	304.50	304.50	0.0761	0.0761	0.0100	0.0100	2.5729E-05	2.5729E-05	228.38	228.38	25.00%	25.00%	11		2/1/2010 12:00	
12	246341012.1	426.35	426.35	0.0222	0.0222	0.0100	0.0100	2.5729E-05	2.5729E-05	404.18	404.18	5.20%	5.20%	12		2/1/2010 12:00	
13	246341013.1	504.50	504.50	0.0787	0.0787	0.0100	0.0100	2.5729E-05	2.5729E-05	425.80	425.80	15.60%	15.60%	13		2/1/2010 12:00	
14	246341014.1	197.52	197.52	0.0842	0.0842	0.0100	0.0100	2.5729E-05	2.5729E-05	103.30	103.30	47.70%	47.70%	14		2/1/2010 12:00	
15	246441001.1	431.60	431.60	0.0777	0.0777	0.0100	0.0100	2.5729E-05	2.5729E-05	353.91	353.91	18.00%	18.00%	15		2/3/2010 12:00	
16	246441002.1	335.90	335.90	0.0688	0.0688	0.0100	0.0100	2.5729E-05	2.5729E-05	267.04	267.04	20.50%	20.50%	16		2/3/2010 12:00	
17	246441003.1	469.18	469.18	0.0319	0.0319	0.0100	0.0100	2.5729E-05	2.5729E-05	437.29	437.29	6.80%	6.80%	17		2/3/2010 12:00	
18	246441004.1	448.33	448.33	0.0735	0.0735	0.0100	0.0100	2.5729E-05	2.5729E-05	374.80	374.80	16.40%	16.40%	18		2/3/2010 12:00	
19	246441005.1	285.47	285.47	0.0782	0.0782	0.0100	0.0100	2.5729E-05	2.5729E-05	207.25	207.25	27.40%	27.40%	19		2/3/2010 12:00	
20	1202042910.1	20.00	20.00	0.0200	0.0200	0.0100	0.0100	2.5729E-05	2.5729E-05	0.00	0.00	100.00%	100.00%	20		2/1/2010 0:00	
21	1202042911.1	458.66	458.66	0.0831	0.0831	0.0100	0.0100	2.5729E-05	2.5729E-05	365.55	365.55	20.30%	20.30%	21		2/1/2010 12:00	
22	1202042912.1	20.00	20.00	0.0200	0.0200	0.0100	0.0100	2.5729E-05	2.5729E-05	0.00	0.00	100.00%	100.00%	22		2/1/2010 0:00	

Count raw data				Background				Calibration Data				Backgrounds			
Pos.	Rack Position #	Counting Time (min.)	Quench#	Gross cpm	Count Time (min.)	Count Start Date/Time	Sample Decay	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Error (cpm/dpm)	Rack Position #	Count Start Date/Time	
1	14-2	95	109.5	3.65	95	2/19/2010 8:55	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00792	14-1	2/19/2010 7:17	
2	14-3	95	110.4	3.64	95	2/19/2010 10:33	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00792	14-1	2/19/2010 7:17	
3	14-4	95	110.3	5.34	95	2/19/2010 12:11	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00792	14-1	2/19/2010 7:17	
4	14-5	95	112.7	7.18	95	2/19/2010 13:49	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2350	0.00792	14-1	2/19/2010 7:17	
5	14-6	95	109.5	4.85	95	2/19/2010 15:27	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00792	14-1	2/19/2010 7:17	
6	14-7	95	113	3.65	95	2/19/2010 17:05	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2348	0.00792	14-1	2/19/2010 7:17	
7	14-8	95	109.4	6.82	95	2/19/2010 18:43	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00792	14-1	2/19/2010 7:17	
8	14-9	95	110.1	3.37	95	2/19/2010 20:21	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2365	0.00792	14-1	2/19/2010 7:17	
9	14-10	95	110.4	5.27	95	2/19/2010 22:00	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00792	14-1	2/19/2010 7:17	
10	14-11	95	112	5.12	95	2/19/2010 23:38	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2354	0.00792	14-1	2/19/2010 7:17	
11	14-12	95	110.6	4.41	95	2/20/2010 1:16	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2362	0.00792	14-1	2/19/2010 7:17	
12	49-1	95	109.4	3.97	95	2/20/2010 4:08	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00792	14-1	2/19/2010 7:17	
13	49-2	95	108.9	4.44	95	2/20/2010 5:46	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00792	14-1	2/19/2010 7:17	
14	49-3	95	108.7	4.62	95	2/20/2010 7:24	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2372	0.00792	14-1	2/19/2010 7:17	
15	49-4	95	109.5	4.6	95	2/20/2010 9:02	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00792	14-1	2/19/2010 7:17	
16	49-5	95	108.2	3.47	95	2/20/2010 10:40	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2370	0.00792	14-1	2/19/2010 7:17	
17	49-6	95	109.9	7.34	95	2/20/2010 12:18	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2366	0.00792	14-1	2/19/2010 7:17	
18	49-7	95	109	5.56	95	2/20/2010 13:56	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00792	14-1	2/19/2010 7:17	
19	49-8	95	109.4	3.85	95	2/20/2010 15:34	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00792	14-1	2/19/2010 7:17	
20	49-9	95	109	3.45	95	2/20/2010 17:12	0.999	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00792	14-1	2/19/2010 7:17	
21	49-10	95	108.1	3.45	95	2/20/2010 18:50	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2375	0.00792	14-1	2/19/2010 7:17	
22	20-1	15	109.4	30.13	95	2/20/2010 20:27	0.999	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00792	14-1	2/19/2010 7:17	

## 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 1202042911.1

Results		Decision Level		Critical Level		Required MDC		Sample Act. Conc.		Sample Act. Error		Net Count Rate		Net Count Rate		1 SIGMA Counting Uncertainty		1 SIGMA Total Prop. Uncertainty		Sample QC		Sample Type		RPD		RER		Nominal pC/L		Recovery	
Pos.	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	pC/L	CPM	CPM	CPM	CPM	pC/L	pC/L	pC/L	pC/L												
1	118.3672	83.5882	250	173.1593	53.4029	0.971	0.280	0.272	51.8458	51.9791	SAMPLE																				
2	118.6066	83.7373	250	173.5096	51.6969	1.006	0.270	0.272	51.9137	52.0379	SAMPLE																				
3	118.5804	83.7188	250	173.4713	378.4047	0.154	1.970	0.303	57.8544	83.5168	SAMPLE																				
4	119.3080	84.2325	250	174.5357	782.4374	0.088	3.810	0.333	64.0634	81.8925	SAMPLE																				
5	118.3721	83.5717	250	173.1866	262.2845	0.199	1.480	0.294	56.1047	59.4497	SAMPLE																				
6	119.4111	84.3053	250	174.6885	53.8739	0.971	0.280	0.272	52.3031	52.4375	SAMPLE																				
7	118.3494	83.5557	250	173.1333	679.5713	0.083	3.550	0.329	62.7607	78.4982	SAMPLE																				
8	118.5324	83.8949	250	173.4011	0.000E+00	0.000	0.000	0.266	50.8723	50.8725	SAMPLE																				
9	118.6153	83.7434	250	173.5224	363.1368	0.159	1.900	0.302	57.6384	62.9432	SAMPLE																				
10	119.0892	84.0780	250	174.2156	335.8044	0.171	1.750	0.289	57.3641	61.9487	SAMPLE																				
11	118.6734	83.7845	250	173.6074	198.8670	0.275	1.040	0.286	54.7214	56.4471	SAMPLE																				
12	118.3565	83.5607	250	173.1438	114.4246	0.463	0.600	0.278	53.0066	53.6053	SAMPLE																				
13	118.2364	83.4752	250	172.9666	203.8483	0.268	1.070	0.287	54.8245	56.4394	SAMPLE																				
14	118.1894	83.4428	250	172.8894	238.0480	0.232	1.250	0.290	55.2288	57.6637	SAMPLE																				
15	118.3490	83.5554	250	173.1328	234.5555	0.236	1.230	0.290	55.2342	57.5994	SAMPLE																				
16	118.2753	83.5034	250	173.0250	19.0677	2.693	0.100	0.268	51.1371	51.1544	SAMPLE																				
17	118.4549	83.6301	250	173.2876	757.7384	0.085	3.970	0.336	64.0858	83.0190	SAMPLE																				
18	118.2291	83.4706	250	172.9574	417.2002	0.140	2.190	0.307	58.4069	65.2355	SAMPLE																				
19	118.3287	83.5411	250	173.1032	91.5182	0.574	0.480	0.276	52.5821	52.9472	SAMPLE																				
20	117.9860	83.2991	250	172.6017	16.2069	3.349	0.080	0.268	50.9374	50.9484	SAMPLE																				
21	118.0626	83.3532	250	172.7138	15.2187	3.349	0.080	0.268	50.9705	50.9815	DUP																				
22	226.1177	158.6410	250	357.3365	5091.6778	0.054	26.760	1.430	272.0384	448.9476	LCS																				
																								0.0%		0.1854		5553.8768		91.7%	

Instrument Type LS 6000  
 Data Capture Date 19 Feb 2010 07:14:54  
 User Filename C:\LSCCAPTURE\BROWN\USER13\UN021901.BSF

User Number 13  
 User Id TRITIUM  
 User Comments BROWN

Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	14-1	95.00	110.1	3.61	3.37	11.58	0.57	97.57
2	14-2	95.00	109.5	3.92	3.65	11.12	0.66	195.66
3	14-3	95.00	110.4	3.91	3.64	11.13	0.63	293.75
4	14-4	95.00	110.3	5.59	5.34	9.09	0.57	391.82
5	14-5	95.00	112.7	7.40	7.18	7.78	0.49	489.87
6	14-6	95.00	109.5	5.07	4.85	9.52	0.55	587.93
7	14-7	95.00	113.0	3.87	3.65	11.06	0.56	685.98
8	14-8	95.00	109.4	7.13	6.92	7.92	0.49	784.03
9	14-9	95.00	110.1	3.59	3.37	11.54	0.56	882.09
10	14-10	95.00	110.4	5.53	5.27	9.15	0.59	980.17
11	14-11	95.00	112.0	5.33	5.12	9.26	0.49	1078.20
12	14-12	95.00	110.6	4.61	4.41	9.99	0.50	1176.24

Instrument Type LS 6000  
 Data Capture Date 20 Feb 2010 04:05:38  
 User Filename C:\LSCCAPTURE\BROWN\USER13\UN022001.BSF

User Number 13  
 User Id TRITIUM  
 User Comments BROWN

Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	49-1	95.00	109.4	4.15	3.97	10.53	0.44	97.54
2	49-2	95.00	108.9	4.62	4.44	9.93	0.43	195.55
3	49-3	95.00	108.7	4.79	4.62	9.72	0.40	293.55
4	49-4	95.00	109.5	4.78	4.60	9.75	0.44	391.58
5	49-5	95.00	109.2	3.65	3.47	11.29	0.42	489.60
6	49-6	95.00	109.9	7.49	7.34	7.66	0.37	587.60
7	49-7	95.00	109.0	5.72	5.56	8.83	0.40	685.62
8	49-8	95.00	109.4	4.03	3.85	10.69	0.45	783.63
9	49-9	95.00	109.0	3.63	3.45	11.33	0.43	881.64
10	49-10	95.00	108.1	3.64	3.45	11.34	0.44	979.66

Filename: 2:02 PTab

Instrument Type LS 6000  
Data Capture Date 20 Feb 2010 20:26:15  
User Filename C:\LSCCAPTURE\BROWN\USER06\UN022001.BSF

User Number 6  
User Id TRITIUM  
User Comments BROWN

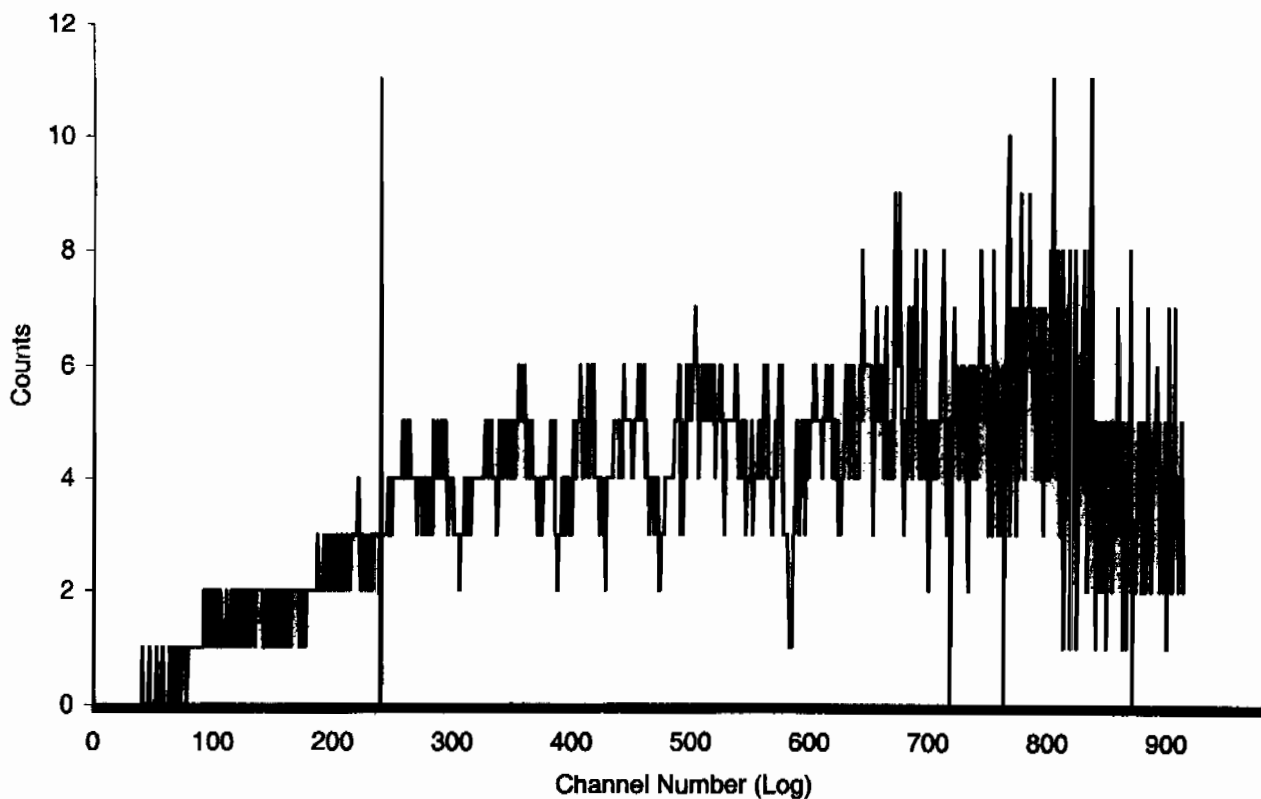
Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	ElTime
1	20-1	15.00	109.4	30.20	30.13	9.42	0.21	15.78

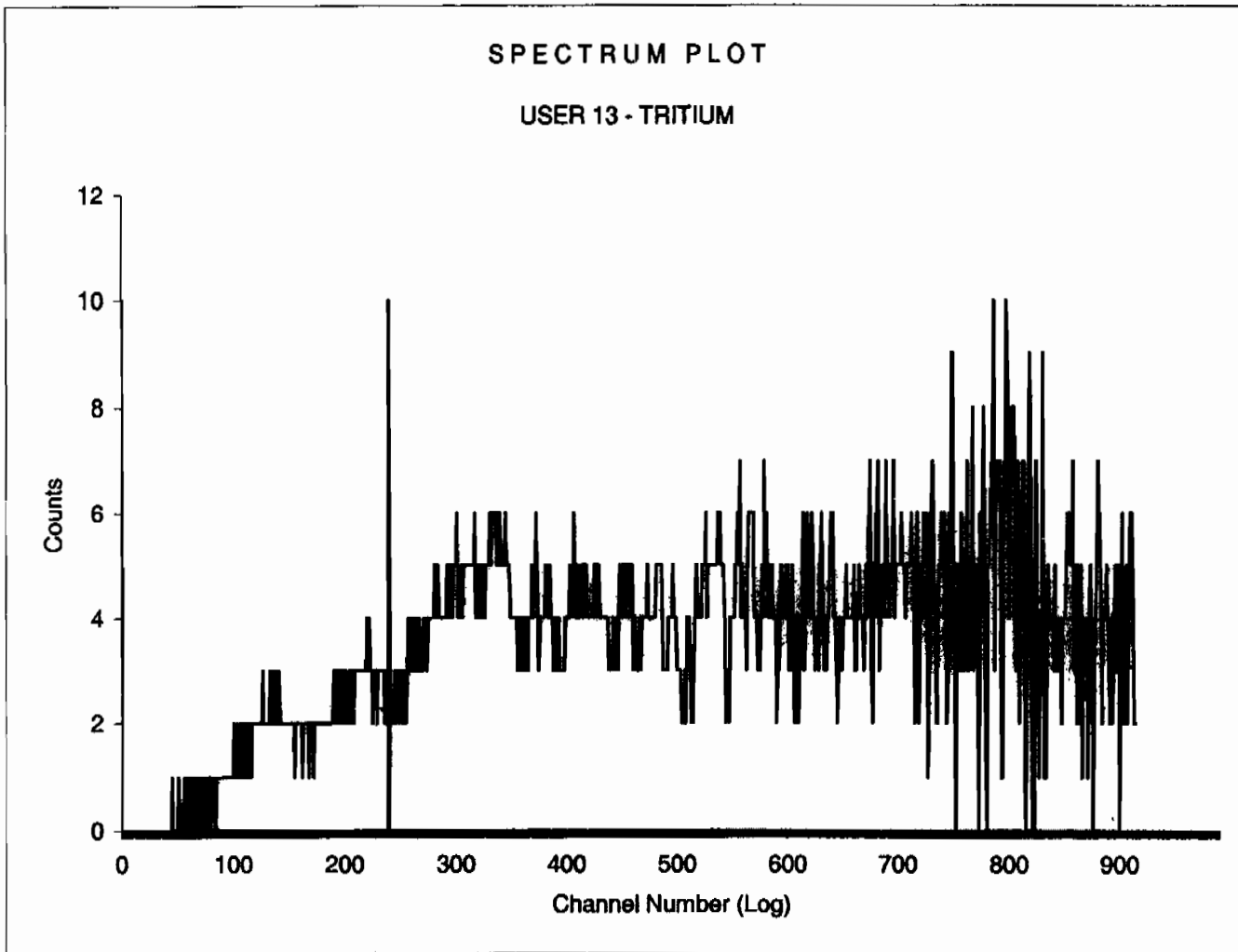
Sample Count Start Time:	19 Feb 2010 07:17:28		
Data Capture Date	19 Feb 2010 08:52:36		
User Filename	S13021914-1A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	14-1	95.00
H#, Total Counts:	110.1	3393	
Win1: Tritium - Start, End, Counts:	0	240	320
Win2: - Start, End, Counts:	0	990	3393

# SPECTRUM PLOT

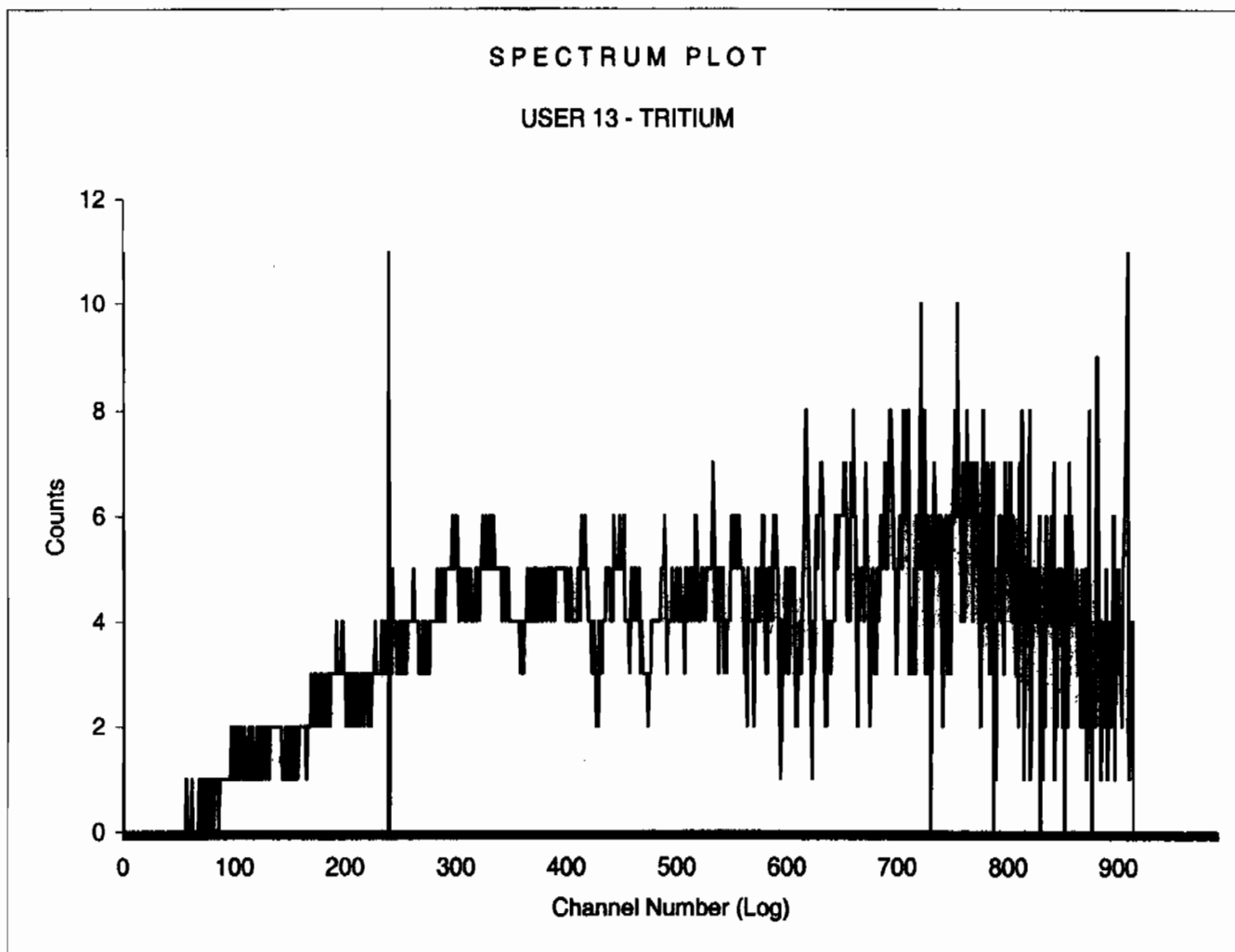
USER 13 - TRITIUM



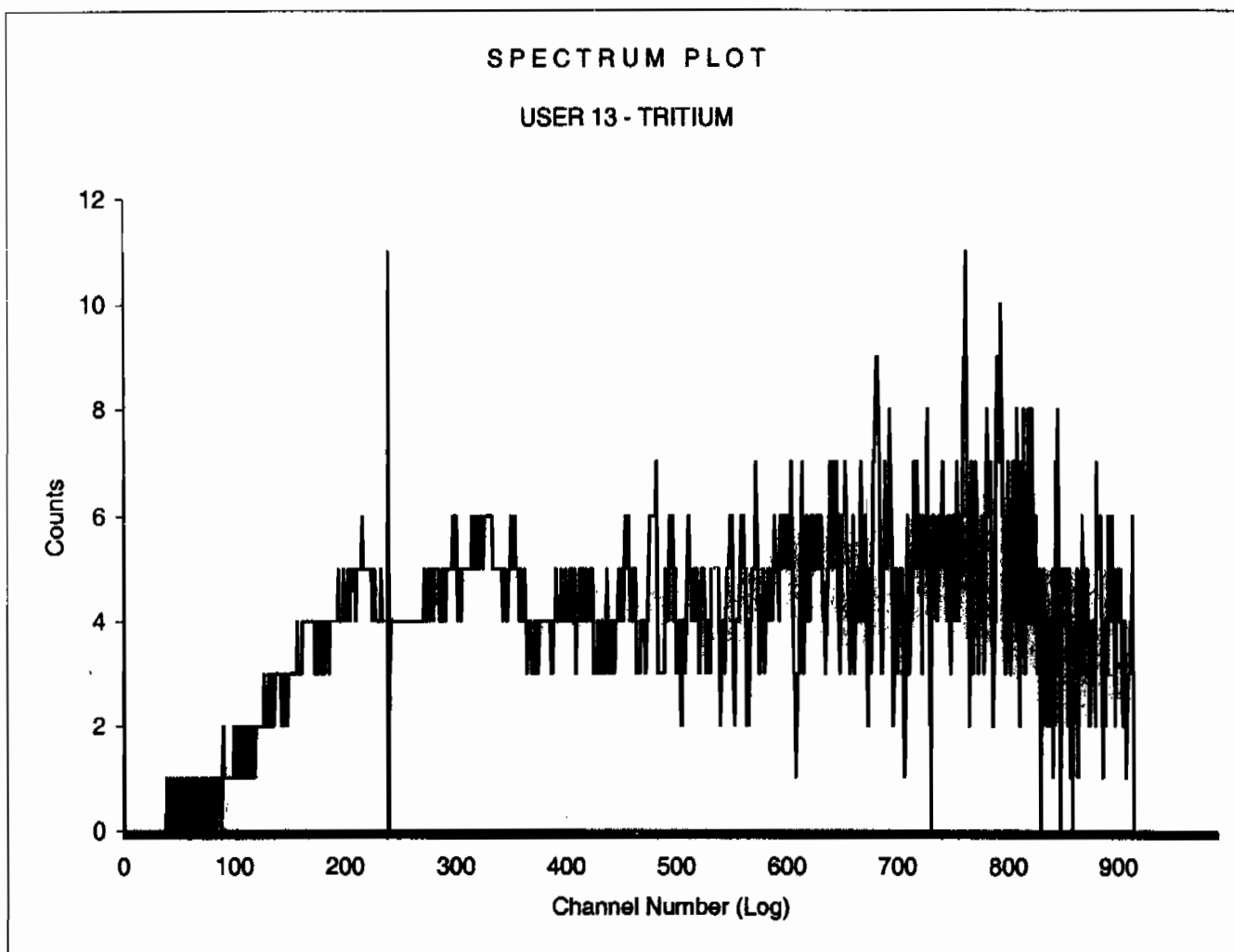
Sample Count Start Time:	19 Feb 2010 08:55:34		
Data Capture Date	19 Feb 2010 10:30:41		
User Filename	S13021914-2A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	14-2	95.00
H#, Total Counts:	109.5	3215	
Win1: Tritium - Start, End, Counts:	0	240	347
Win2: - Start, End, Counts:	0	990	3215



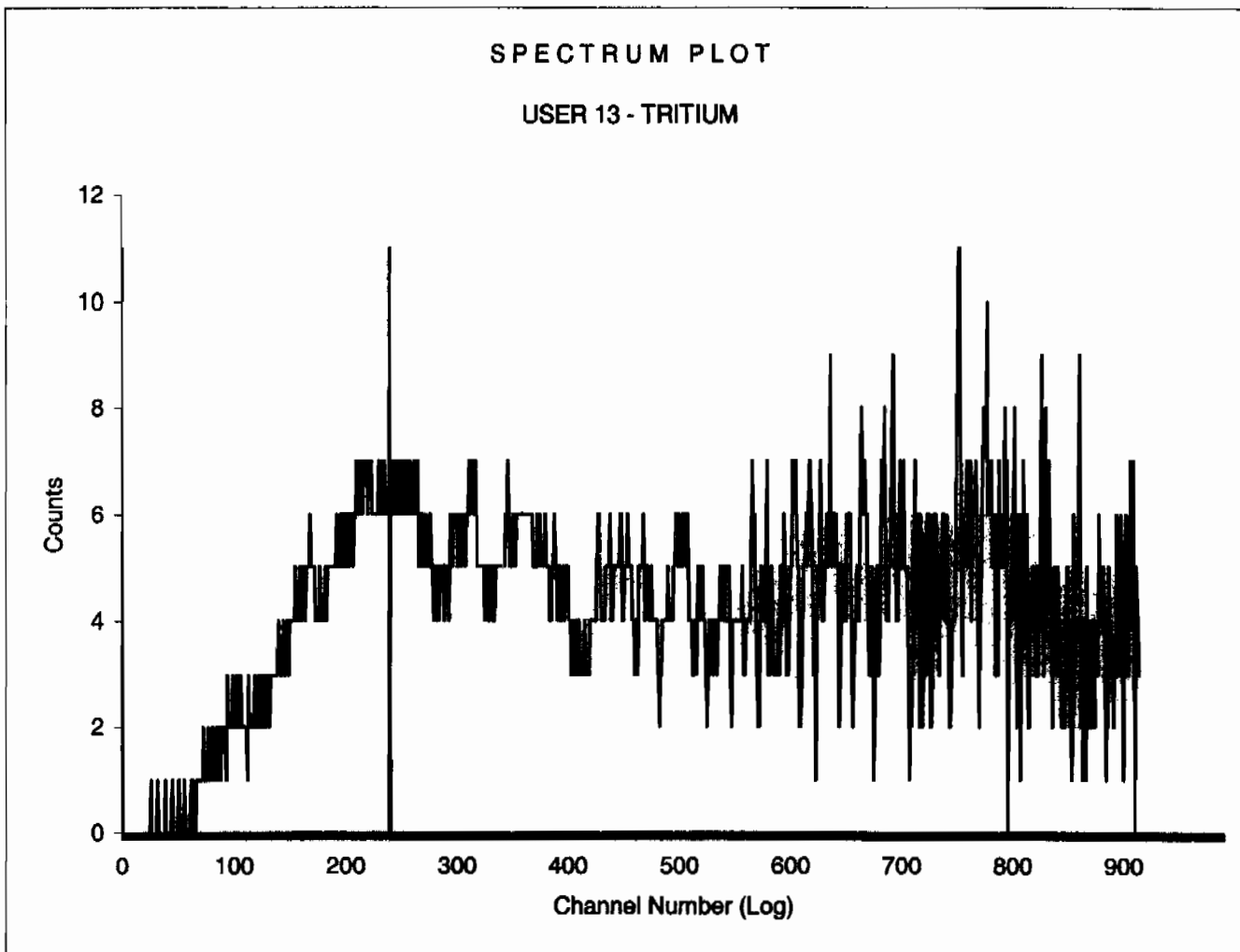
Sample Count Start Time:	19 Feb 2010 10:33:39		
Data Capture Date	19 Feb 2010 12:09:01		
User Filename	S13021914-3A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	14-3	95.00
H#, Total Counts:	110.4	3392	
Win1: Tritium - Start, End, Counts:	0	240	346
Win2: - Start, End, Counts:	0	990	3392



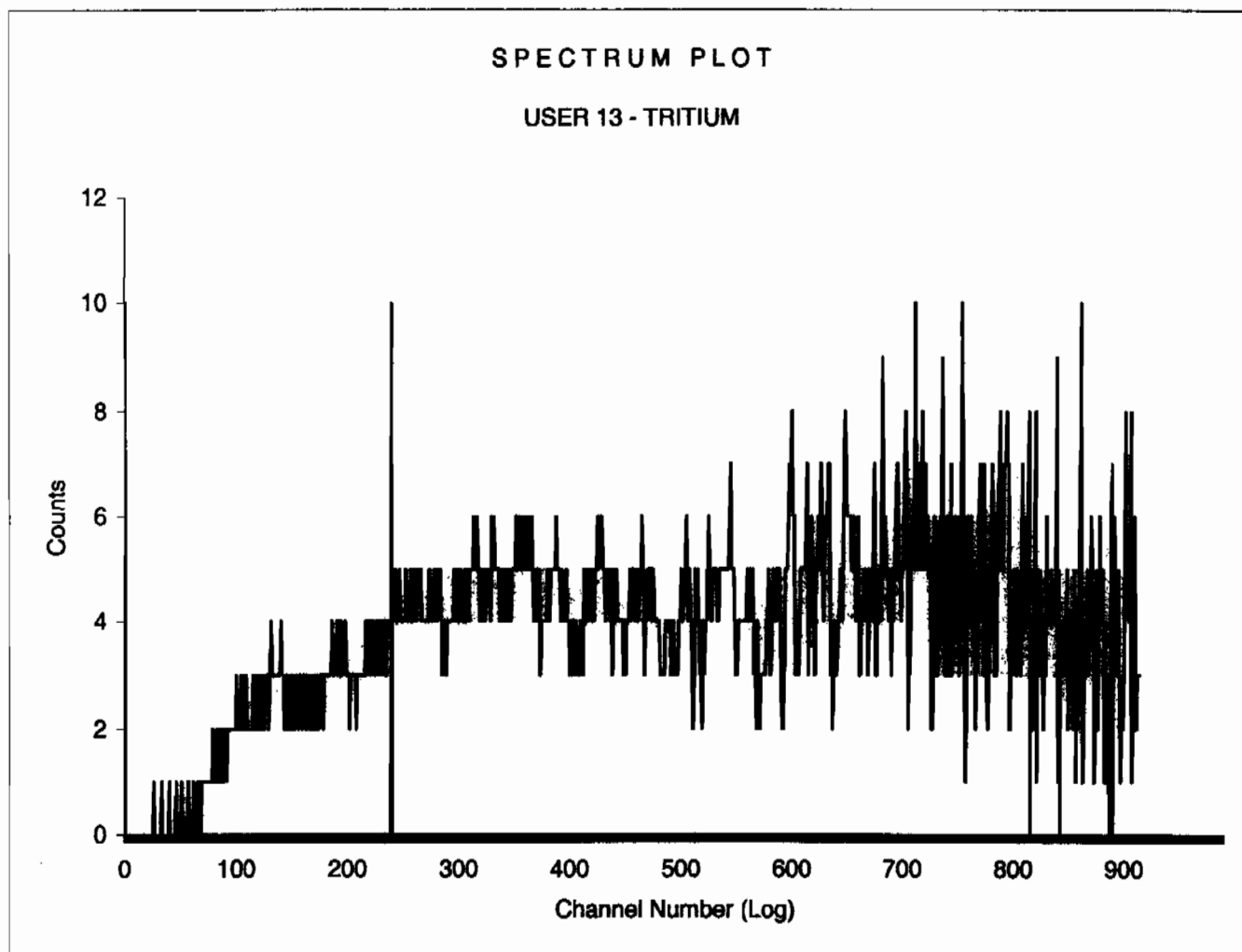
Sample Count Start Time:	19 Feb 2010 12:11:43		
Data Capture Date	19 Feb 2010 13:46:51		
User Filename	S13021914-4A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	14-4	95.00
H#, Total Counts:	110.3	3587	
Win1: Tritium - Start, End, Counts:	0	240	507
Win2: - Start, End, Counts:	0	990	3587



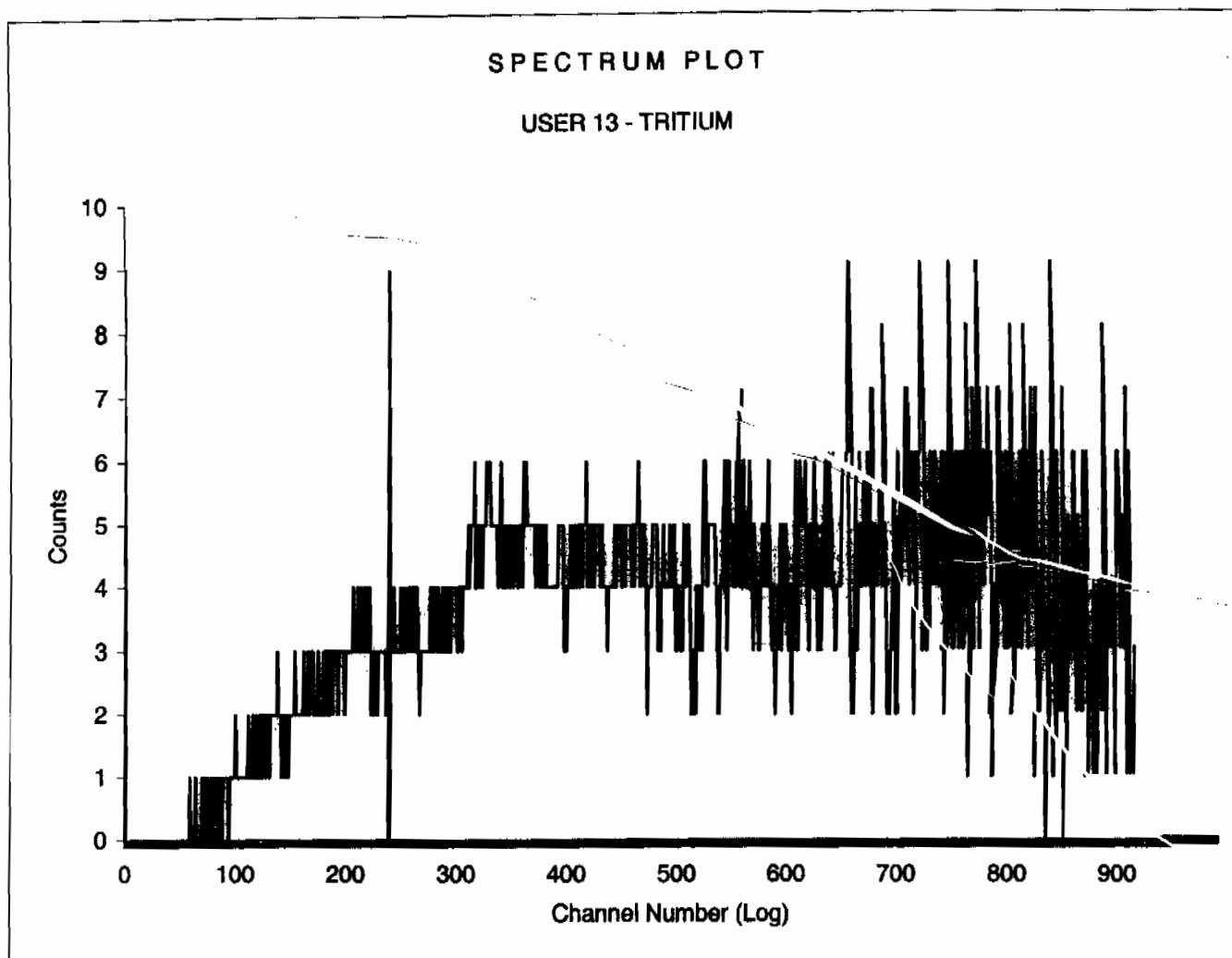
Sample Count Start Time:	19 Feb 2010 13:49:46		
Data Capture Date	19 Feb 2010 15:24:54		
User Filename	S13021914-5A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	14-5	95.00
H#, Total Counts:	112.7	3867	
Win1: Tritium - Start, End, Counts:	0	240	682
Win2: - Start, End, Counts:	0	990	3867



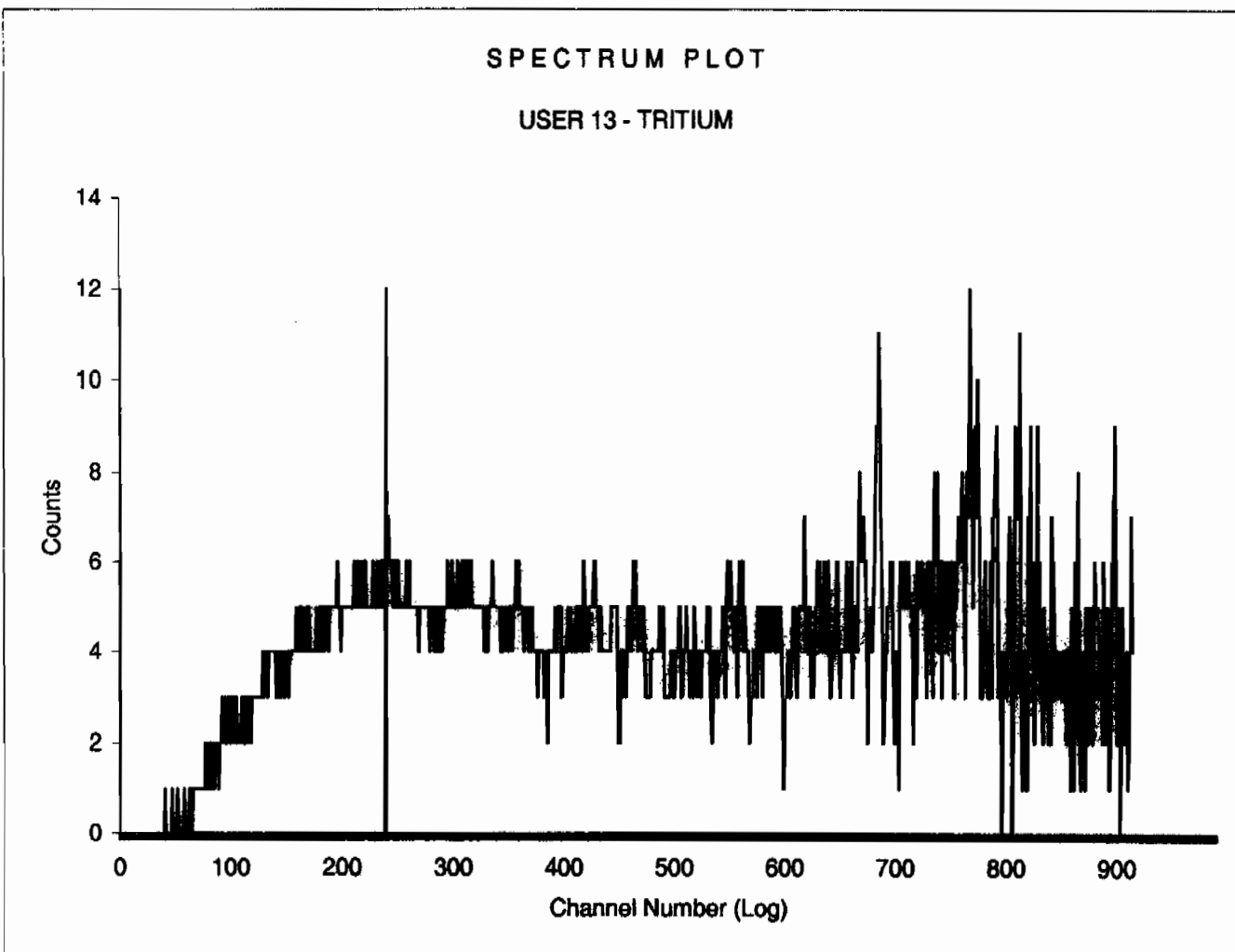
Sample Count Start Time:	19 Feb 2010 15:27:50		
Data Capture Date	19 Feb 2010 17:02:57		
User Filename	S13021914-6A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	14-6	95.00
H#, Total Counts:	109.5	3475	
Win1: Tritium - Start, End, Counts:	0	240	461
Win2: - Start, End, Counts:	0	990	3475



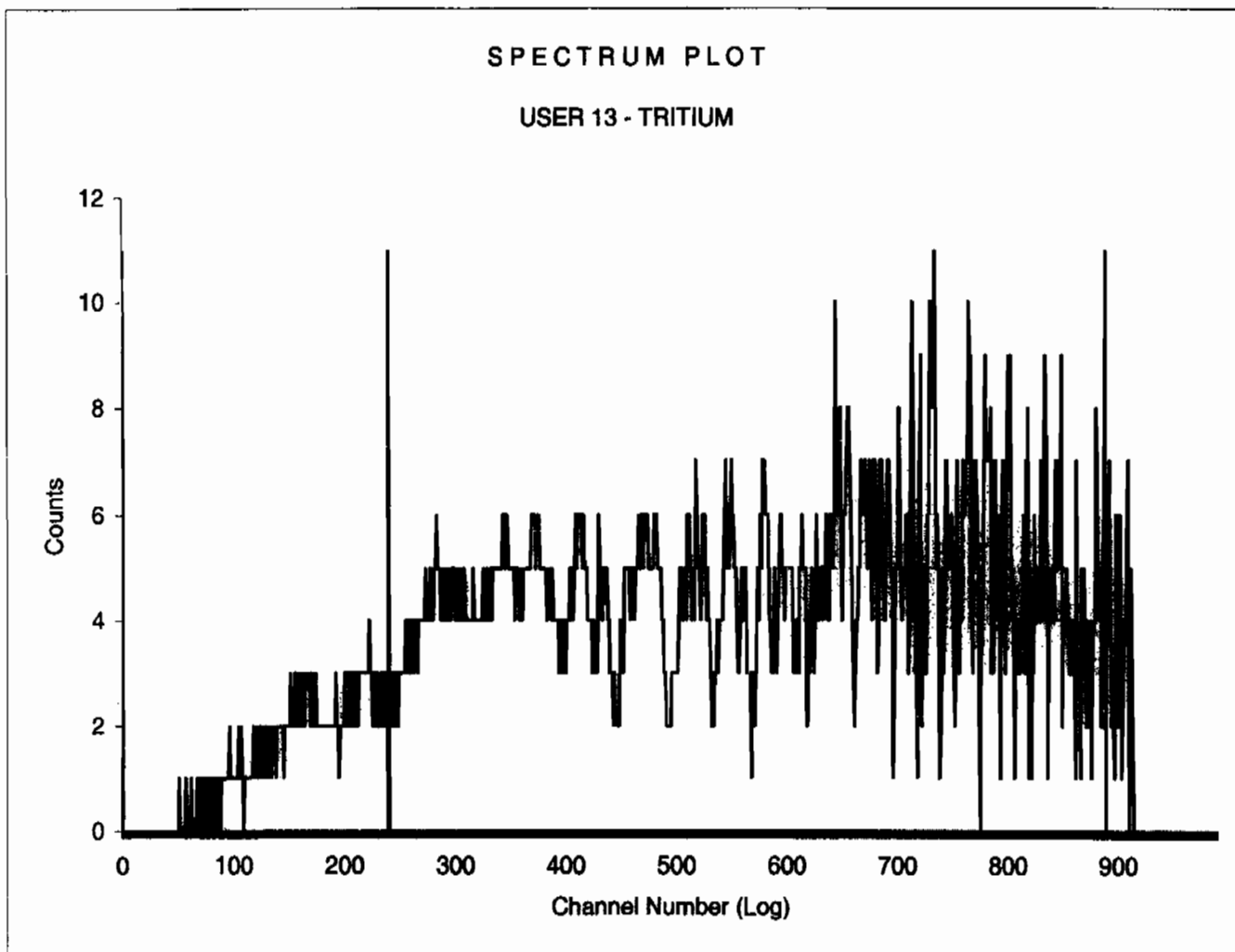
Sample Count Start Time:	19 Feb 2010 17:05:53		
Data Capture Date	19 Feb 2010 18:41:01		
User Filename	S13021914-7A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	14-7	95.00
H#, Total Counts:	113.0	3258	
Win1: Tritium - Start, End, Counts:	0	240	347
Win2: - Start, End, Counts:	0	990	3258



Sample Count Start Time:	19 Feb 2010 18:43:56		
Data Capture Date	19 Feb 2010 20:19:04		
User Filename	S13021914-8A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	14-8	95.00
H#, Total Counts:	109.4	3737	
Win1: Tritium - Start, End, Counts:	0	240	657
Win2: - Start, End, Counts:	0	990	3737



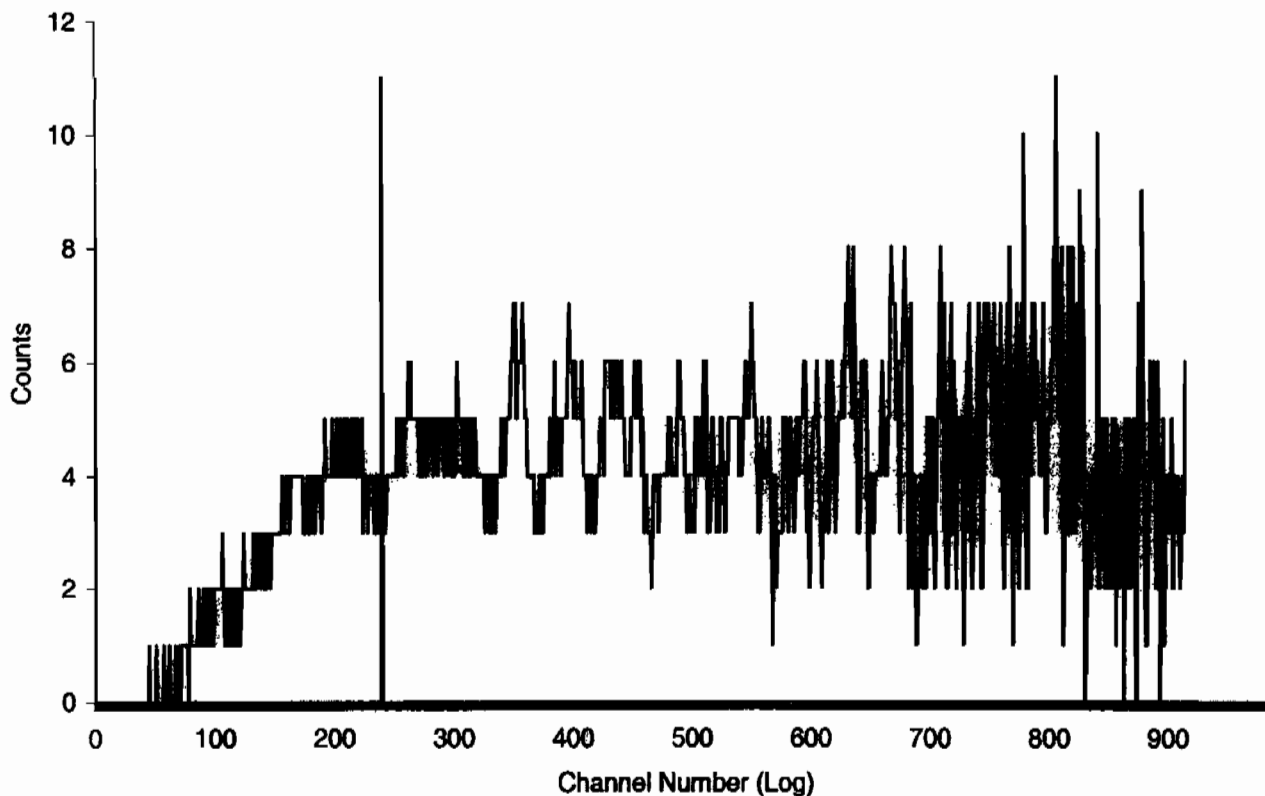
Sample Count Start Time:	19 Feb 2010 20:21:59		
Data Capture Date	19 Feb 2010 21:57:08		
User Filename	S13021914-9A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	14-9	95.00
H#, Total Counts:	110.1	3447	
Win1: Tritium - Start, End, Counts:	0	240	320
Win2: - Start, End, Counts:	0	990	3447



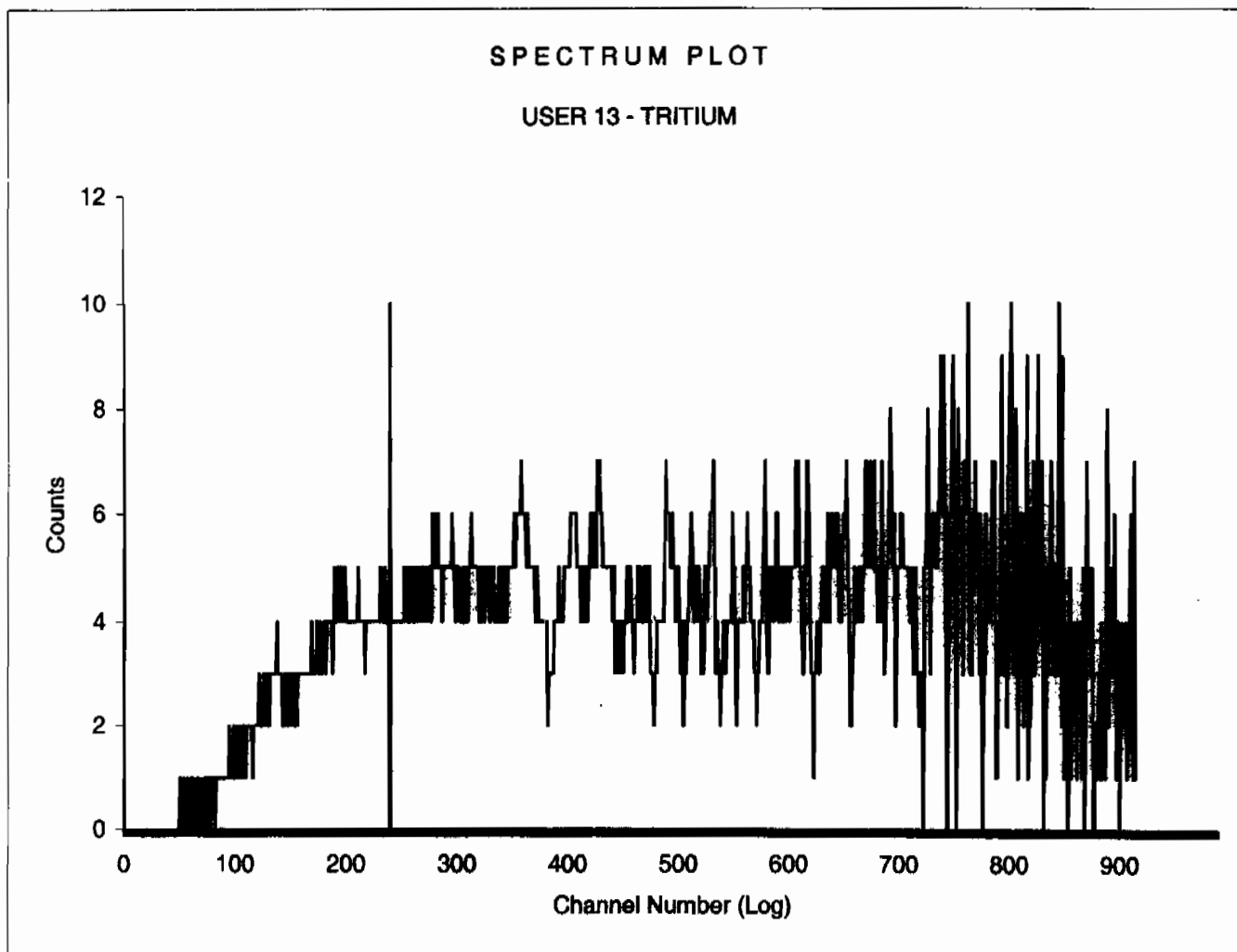
Sample Count Start Time:	19 Feb 2010 22:00:04		
Data Capture Date	19 Feb 2010 23:35:13		
User Filename	S13021914-10A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	14-10	95.00
H#, Total Counts:	110.4	3511	
Win1: Tritium - Start, End, Counts:	0	240	501
Win2: - Start, End, Counts:	0	990	3511

# SPECTRUM PLOT

USER 13 - TRITIUM



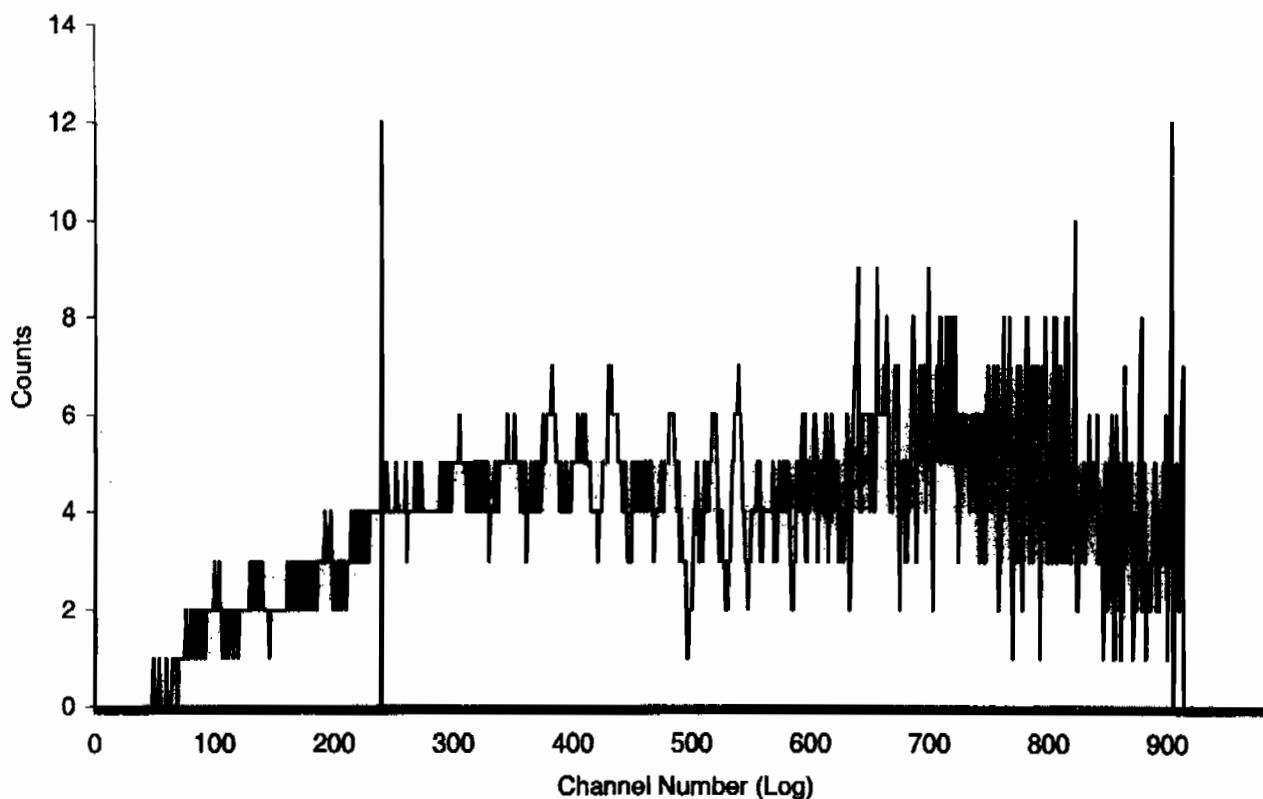
Sample Count Start Time:	19 Feb 2010 23:38:06		
Data Capture Date	20 Feb 2010 01:13:15		
User Filename	S13022014-11A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	11	14-11	95.00
H#, Total Counts:	112.0	3536	
Win1: Tritium - Start, End, Counts:	0	240	486
Win2: - Start, End, Counts:	0	990	3536



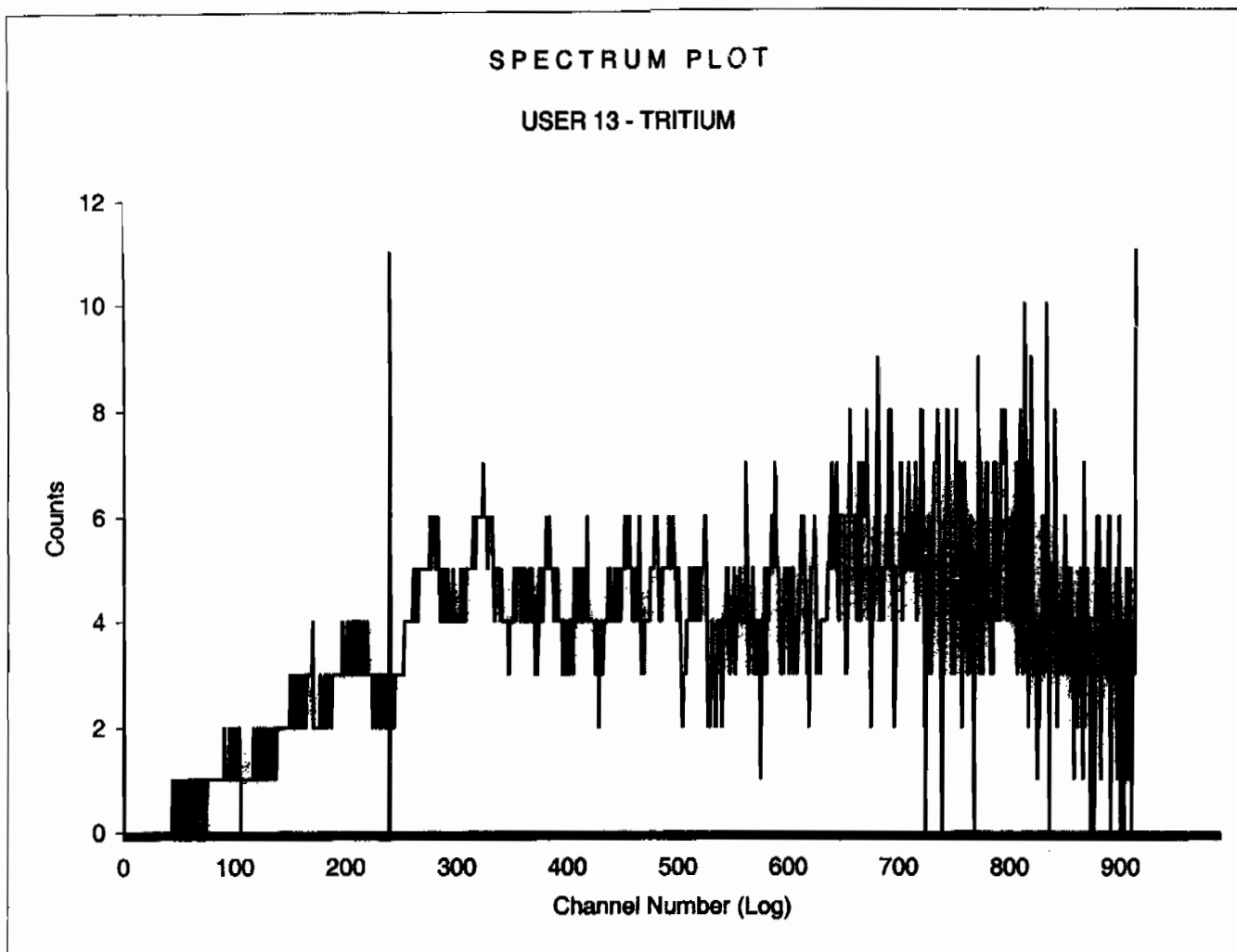
Sample Count Start Time:	20 Feb 2010 01:16:08		
Data Capture Date	20 Feb 2010 02:51:17		
User Filename	S13022014-12A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	12	14-12	95.00
H#, Total Counts:	110.6	3543	
Win1: Tritium - Start, End, Counts:	0	240	419
Win2: - Start, End, Counts:	0	990	3543

# SPECTRUM PLOT

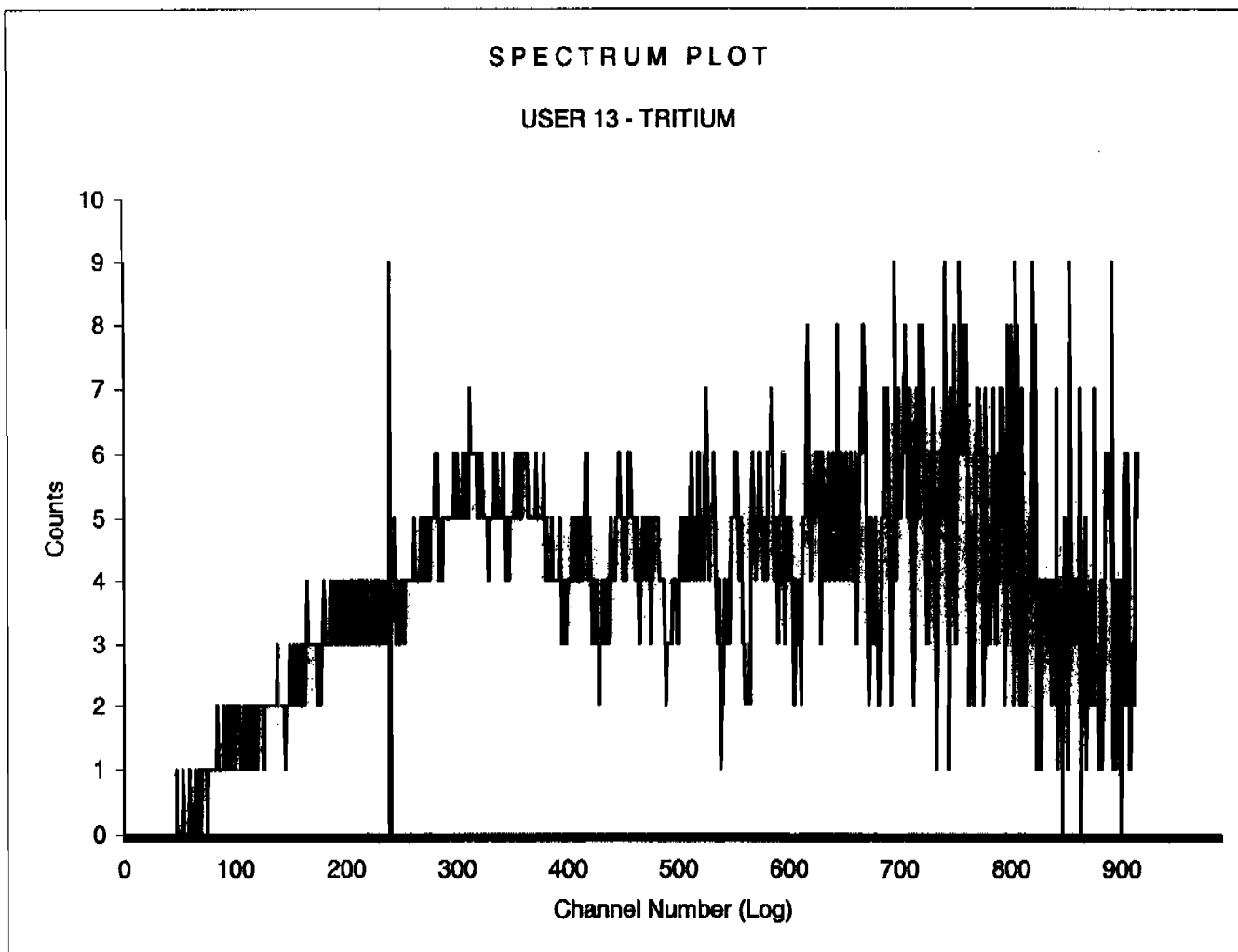
USER 13 - TRITIUM



Sample Count Start Time:	20 Feb 2010 04:08:10		
Data Capture Date	20 Feb 2010 05:43:02		
User Filename	S13022049-1A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	49-1	95.00
H#, Total Counts:	109.4	3414	
Win1: Tritium - Start, End, Counts:	0	240	377
Win2: - Start, End, Counts:	0	990	3414



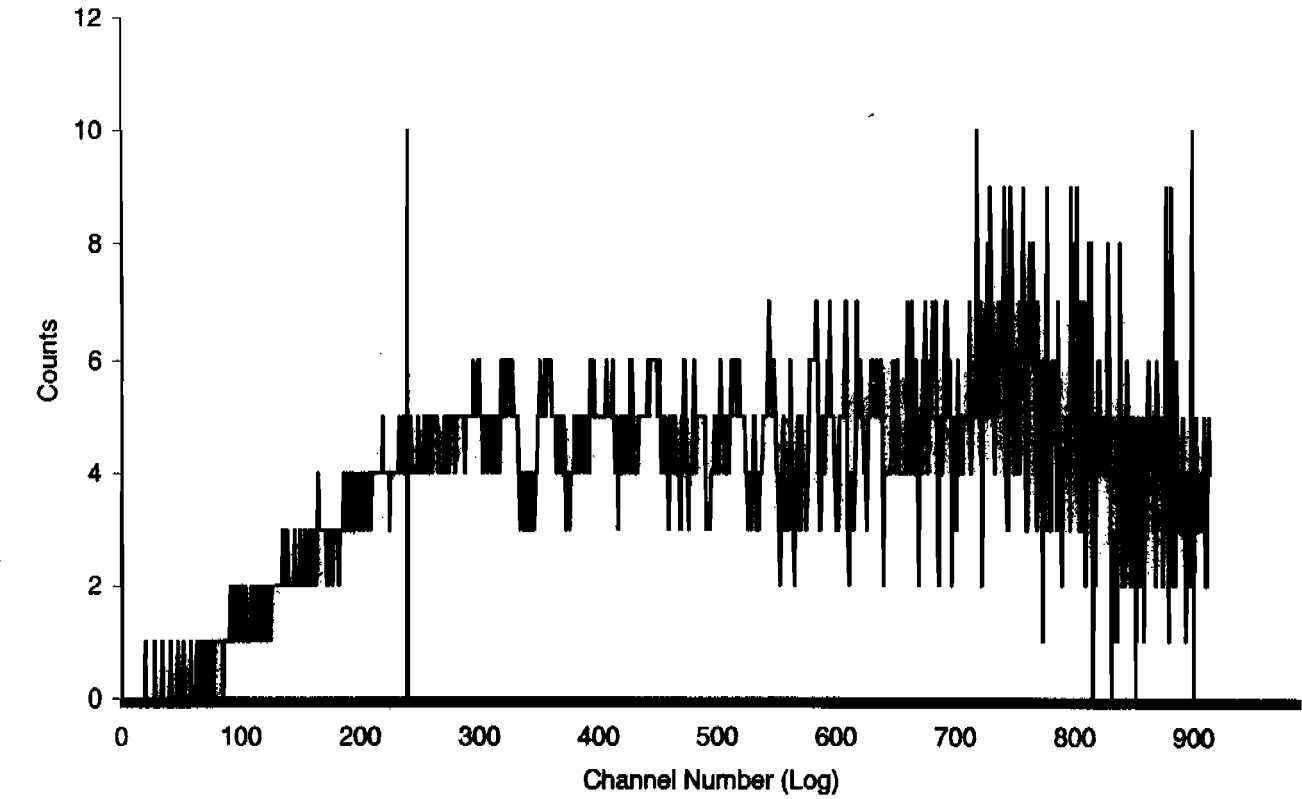
Sample Count Start Time:	20 Feb 2010 05:46:11		
Data Capture Date	20 Feb 2010 07:21:03		
User Filename	S13022049-2A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	49-2	95.00
H#, Total Counts:	108.9	3493	
Win1: Tritium - Start, End, Counts:	0	240	422
Win2: - Start, End, Counts:	0	990	3493



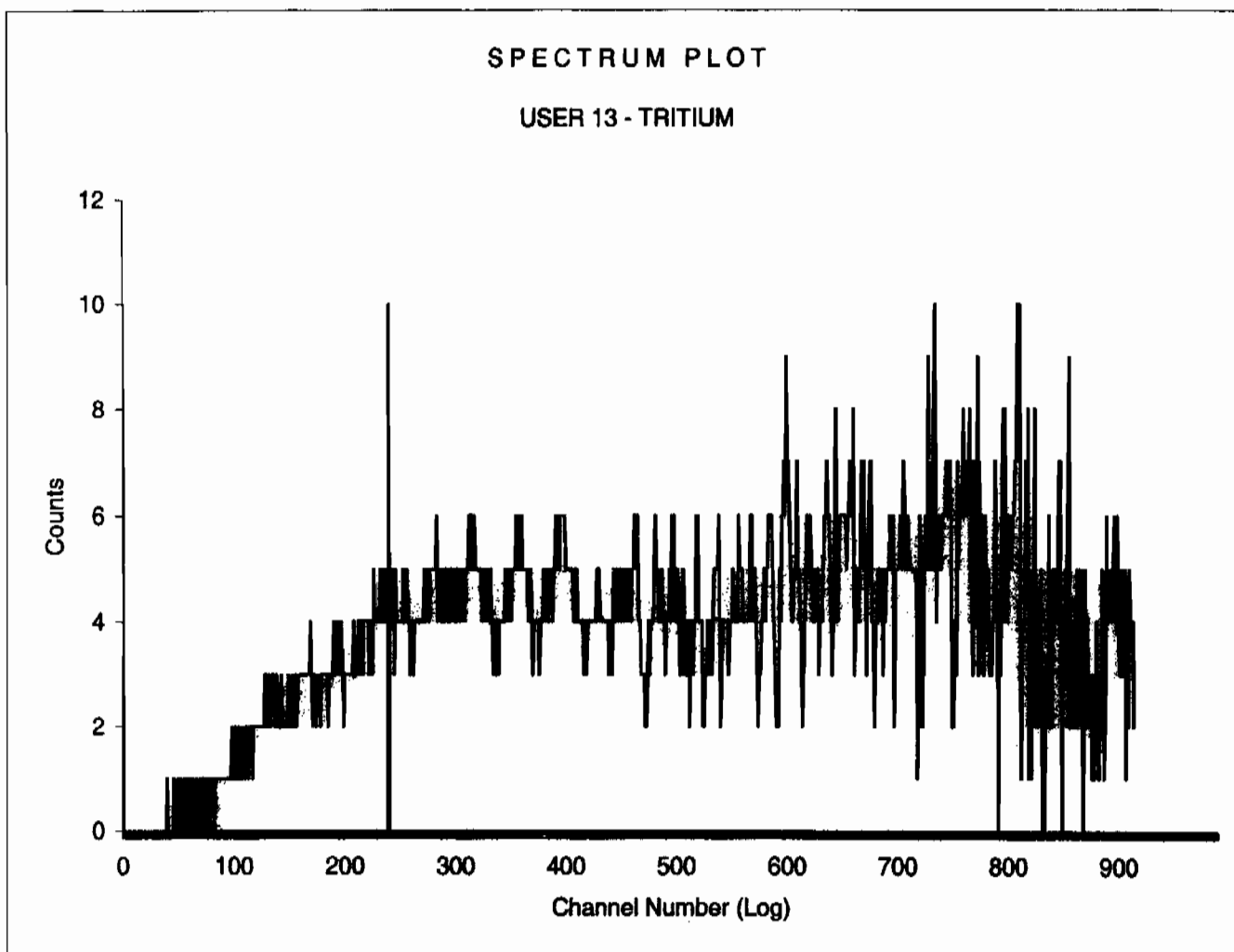
Sample Count Start Time:	20 Feb 2010 07:24:11		
Data Capture Date	20 Feb 2010 08:59:04		
User Filename	S13022049-3A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	49-3	95.00
H#, Total Counts:	108.7	3607	
Win1: Tritium - Start, End, Counts:	0	240	439
Win2: - Start, End, Counts:	0	990	3607

SPECTRUM PLOT

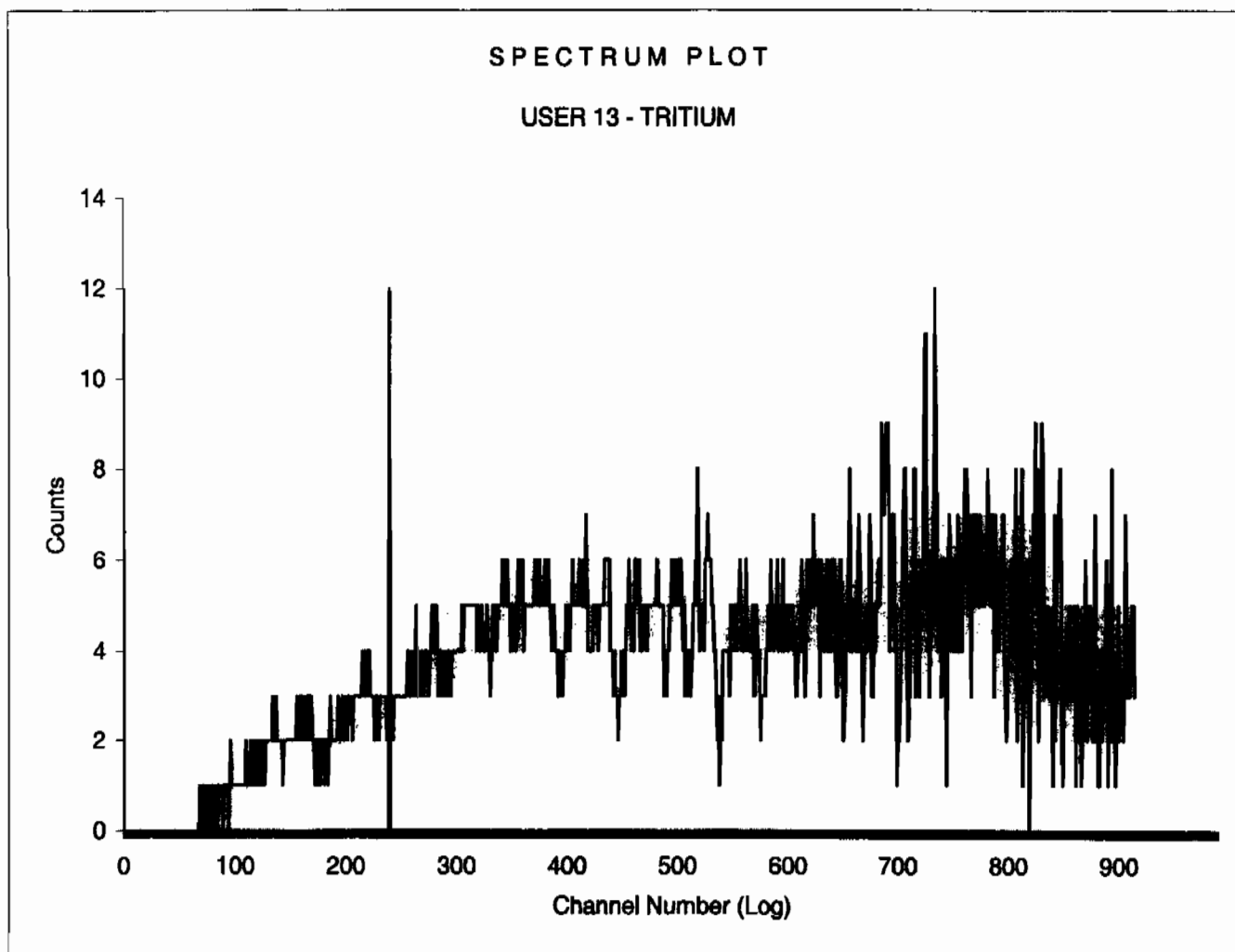
USER 13 - TRITIUM



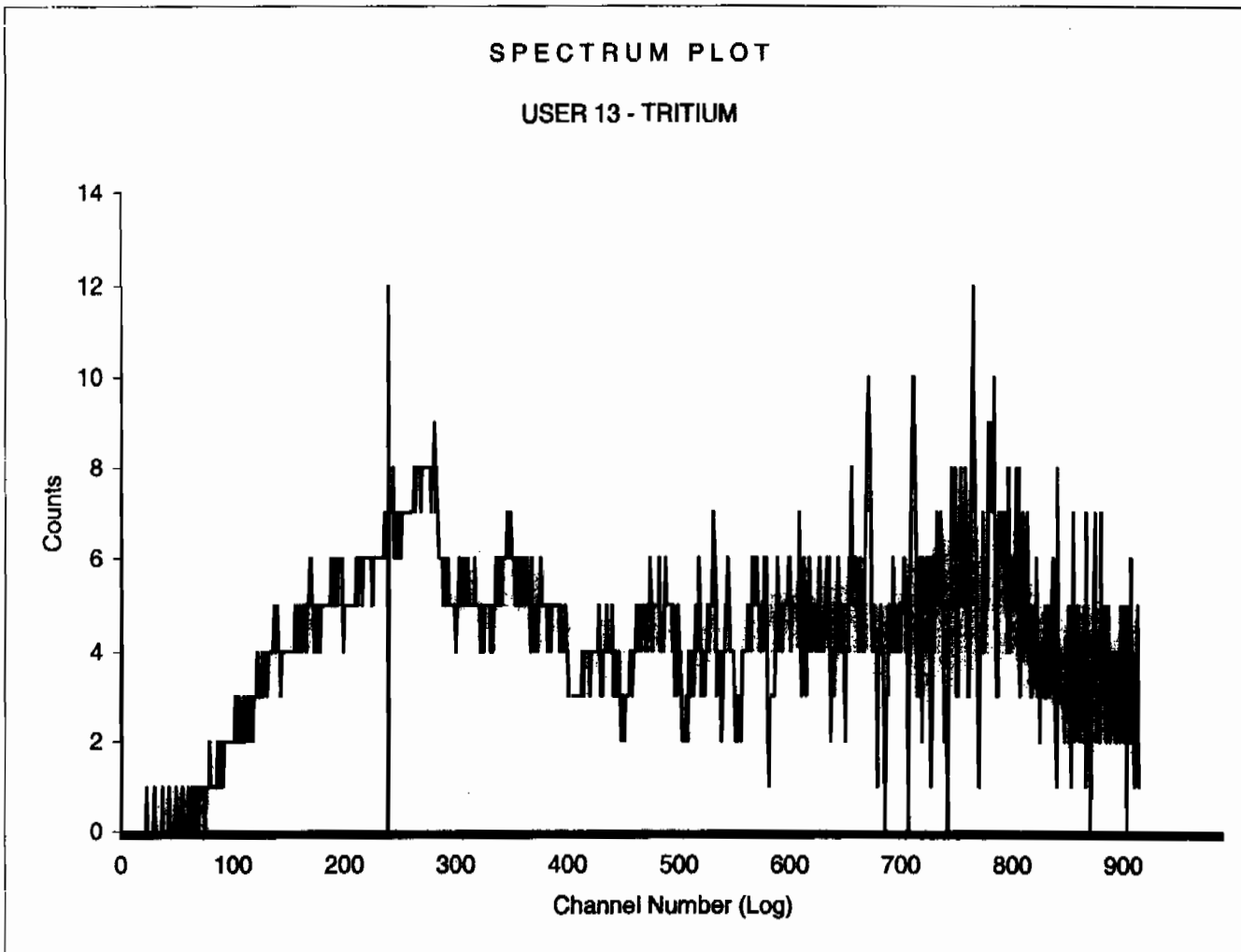
Sample Count Start Time:	20 Feb 2010 09:02:13		
Data Capture Date	20 Feb 2010 10:37:06		
User Filename	S13022049-4A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	49-4	95.00
H#, Total Counts:	109.5	3486	
Win1: Tritium - Start, End, Counts:	0	240	437
Win2: - Start, End, Counts:	0	990	3486



Sample Count Start Time:	20 Feb 2010 10:40:14		
Data Capture Date	20 Feb 2010 12:15:06		
User Filename	S13022049-5A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	49-5	95.00
H#, Total Counts:	109.2	3464	
Win1: Tritium - Start, End, Counts:	0	240	330
Win2: - Start, End, Counts:	0	990	3464



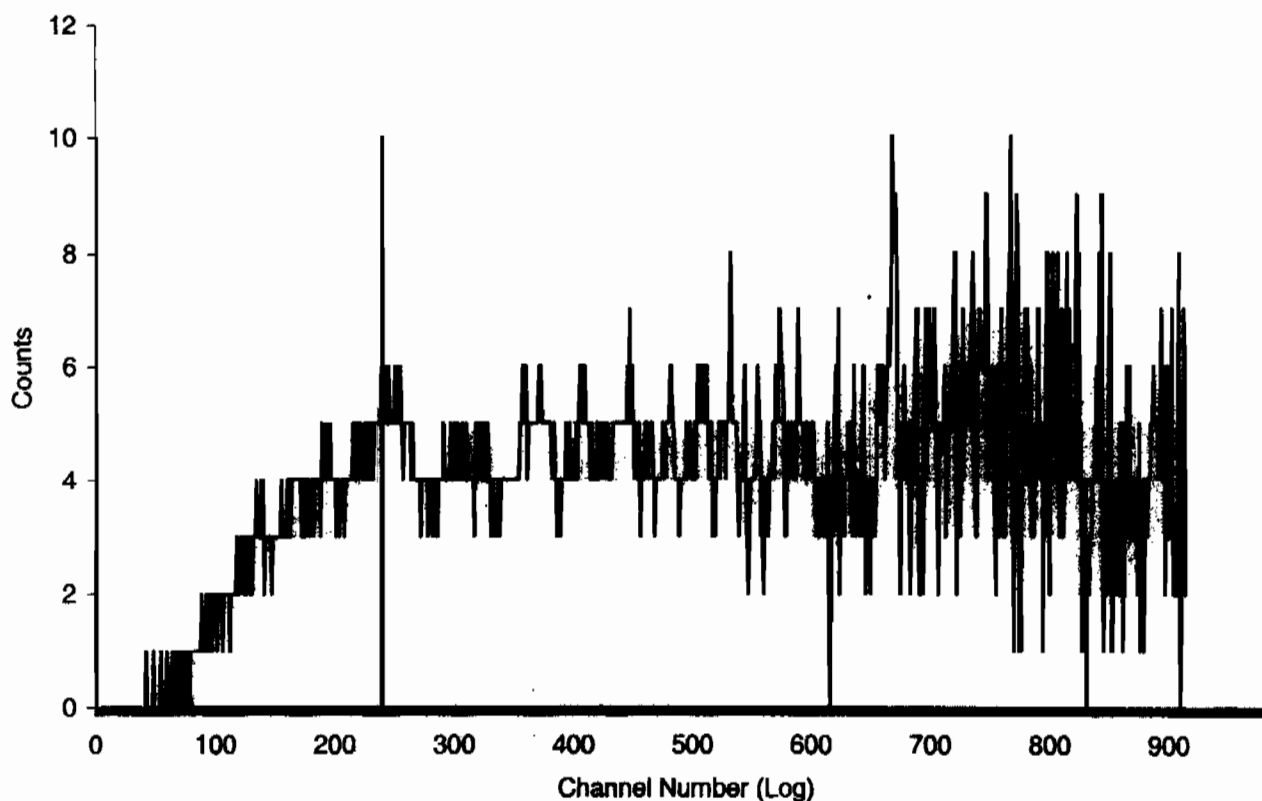
Sample Count Start Time:	20 Feb 2010 12:18:14		
Data Capture Date	20 Feb 2010 13:53:07		
User Filename	S13022049-6A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	49-6	95.00
H#, Total Counts:	109.9	3892	
Win1: Tritium - Start, End, Counts:	0	240	697
Win2: - Start, End, Counts:	0	990	3892



Sample Count Start Time:	20 Feb 2010 13:56:15		
Data Capture Date	20 Feb 2010 15:31:08		
User Filename	S13022049-7A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	49-7	95.00
H#, Total Counts:	109.0	3593	
Win1: Tritium - Start, End, Counts:	0	240	528
Win2: - Start, End, Counts:	0	990	3593

# SPECTRUM PLOT

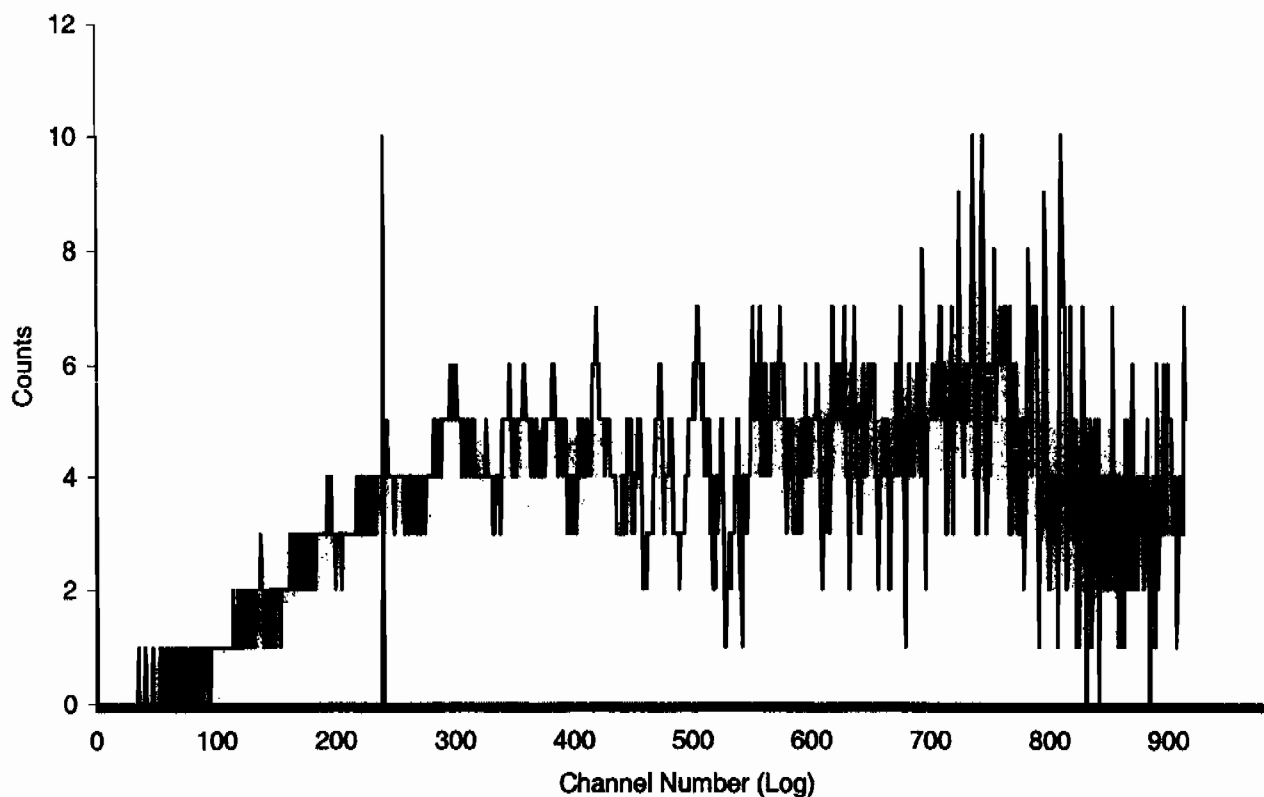
USER 13 - TRITIUM



Sample Count Start Time:	20 Feb 2010 15:34:16		
Data Capture Date	20 Feb 2010 17:09:09		
User Filename	S13022049-8A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	49-8	95.00
H#, Total Counts:	109.4	3339	
Win1: Tritium - Start, End, Counts:	0	240	366
Win2: - Start, End, Counts:	0	990	3339

# SPECTRUM PLOT

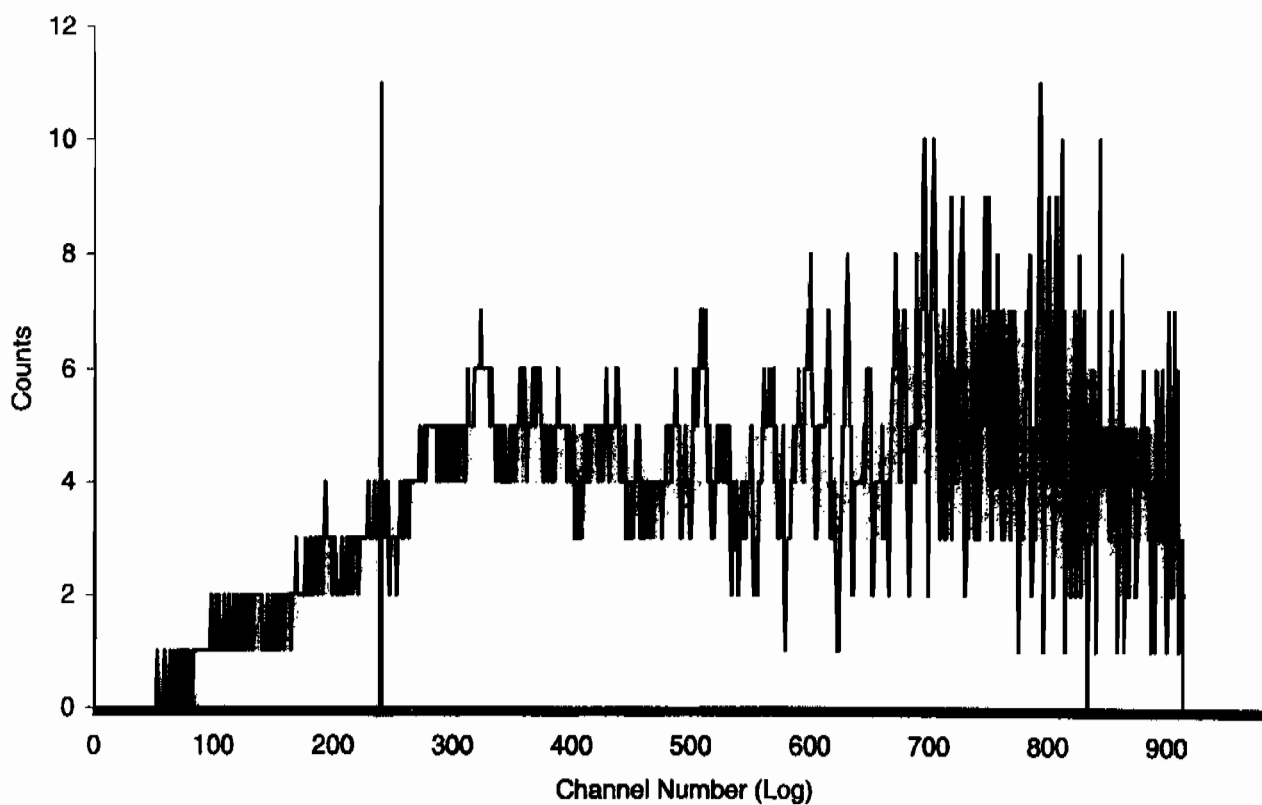
USER 13 - TRITIUM



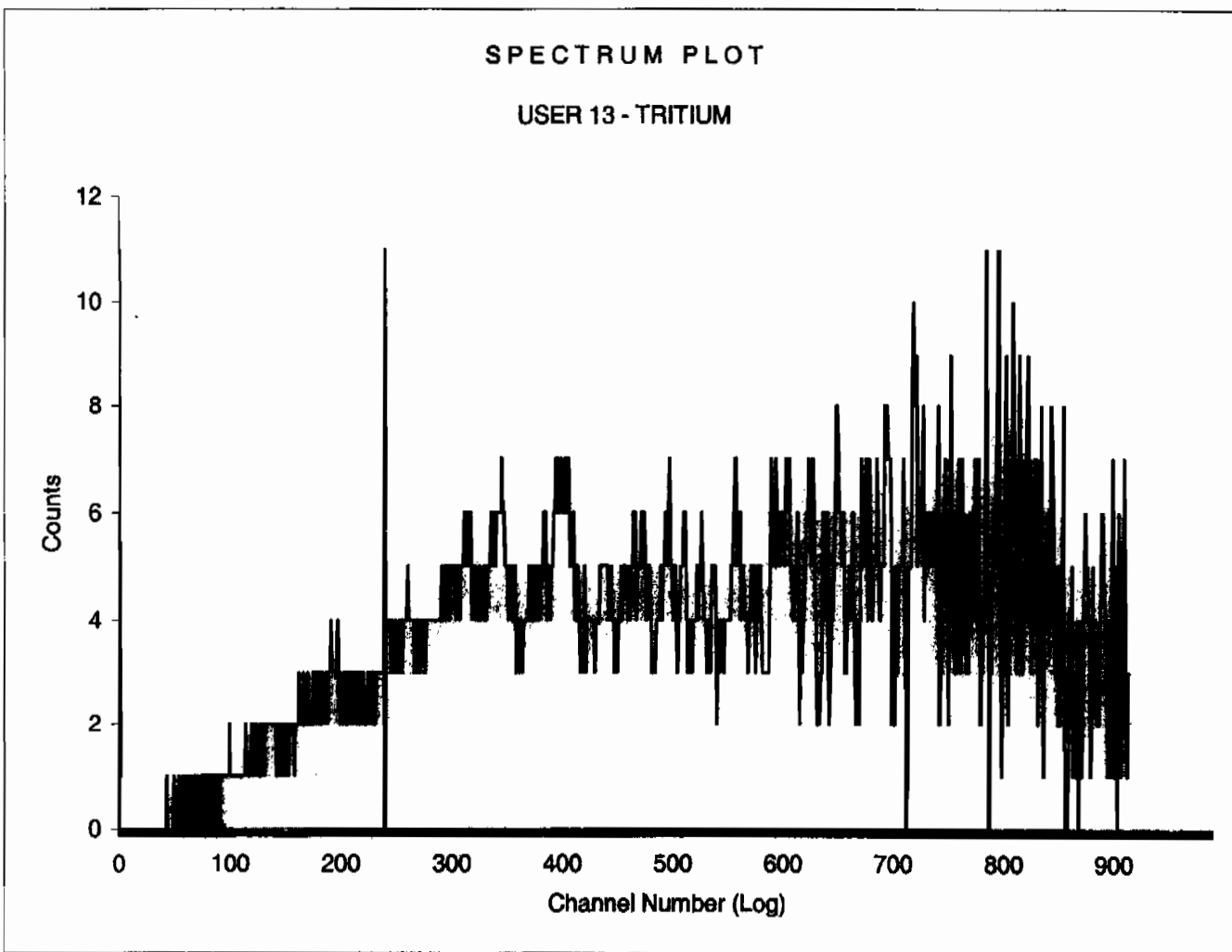
Sample Count Start Time:	20 Feb 2010 17:12:16		
Data Capture Date	20 Feb 2010 18:47:10		
User Filename	S13022049-9A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	49-9	95.00
H#, Total Counts:	109.0	3451	
Win1: Tritium - Start, End, Counts:	0	240	328
Win2: - Start, End, Counts:	0	990	3451

# SPECTRUM PLOT

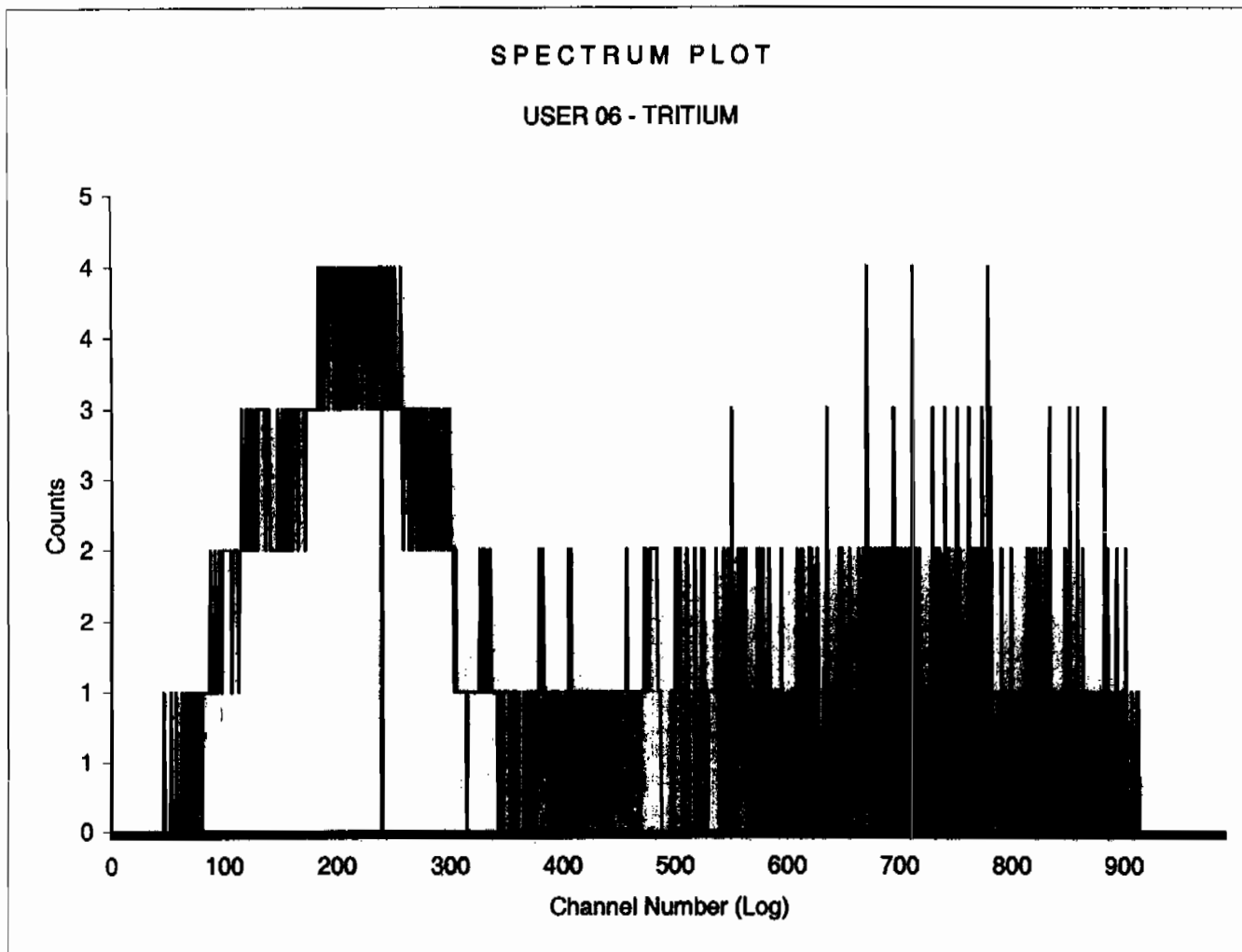
USER 13 - TRITIUM



Sample Count Start Time:	20 Feb 2010 18:50:18		
Data Capture Date	20 Feb 2010 20:25:11		
User Filename	S13022049-10A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	49-10	95.00
H#, Total Counts:	108.1	3455	
Win1: Tritium - Start, End, Counts:	0	240	328
Win2: - Start, End, Counts:	0	990	3455

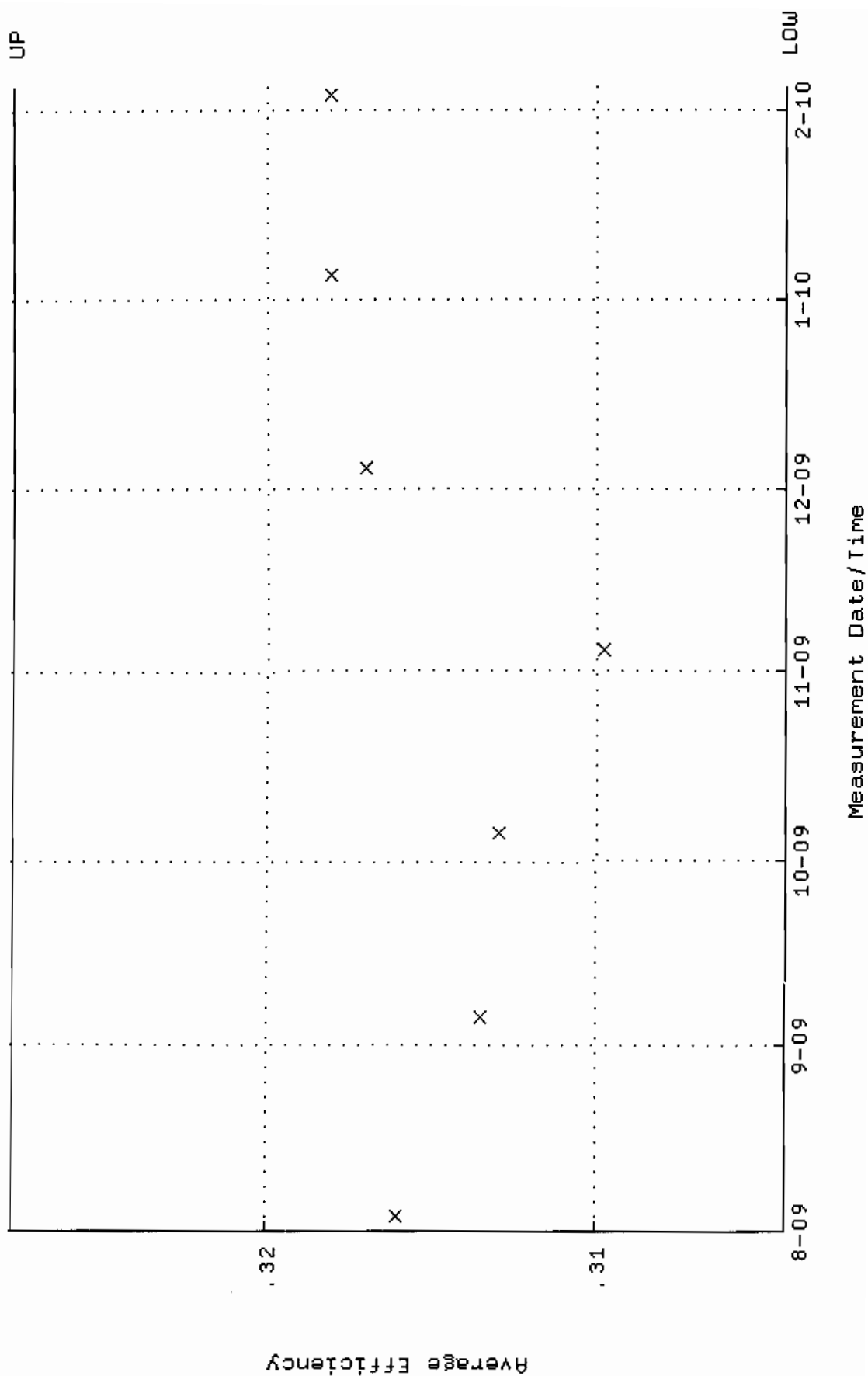


Sample Count Start Time:	20 Feb 2010 20:27:02		
Data Capture Date	20 Feb 2010 20:41:37		
User Filename	S06022020-1A.XLS		
	U06022020-1A.XLS		
Spectrum Type	Log Counts		
User Number	06		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	20-1	15.00
H#, Total Counts:	109.4	1089	
Win1: Tritium - Start, End, Counts:	0	240	452
Win2: - Start, End, Counts:	0	990	1089

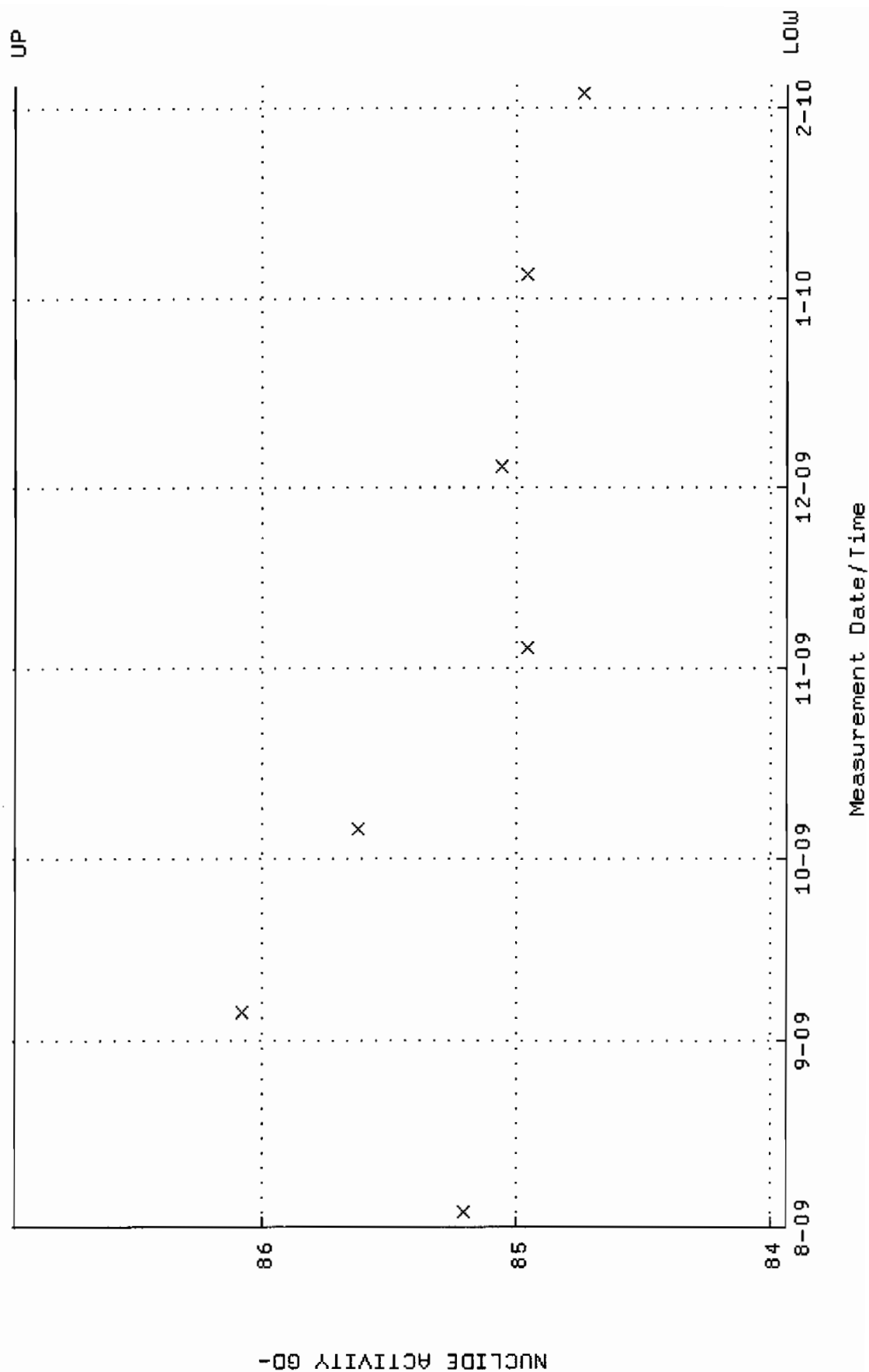


# BACKGROUND AND EFFICIENCY DATA

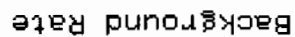
QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.304222 through 0.327748



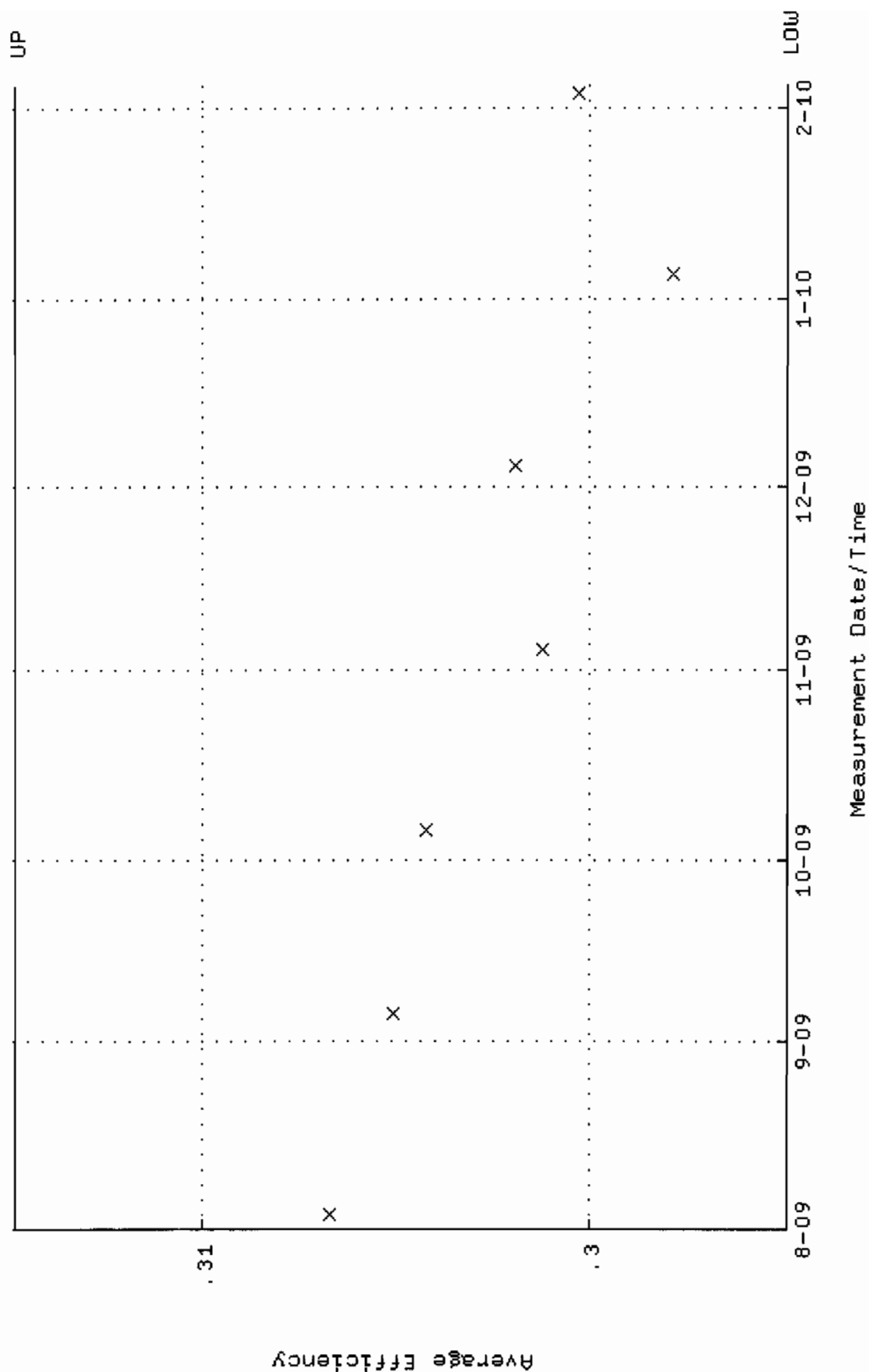
QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 83.9373 through 86.9661



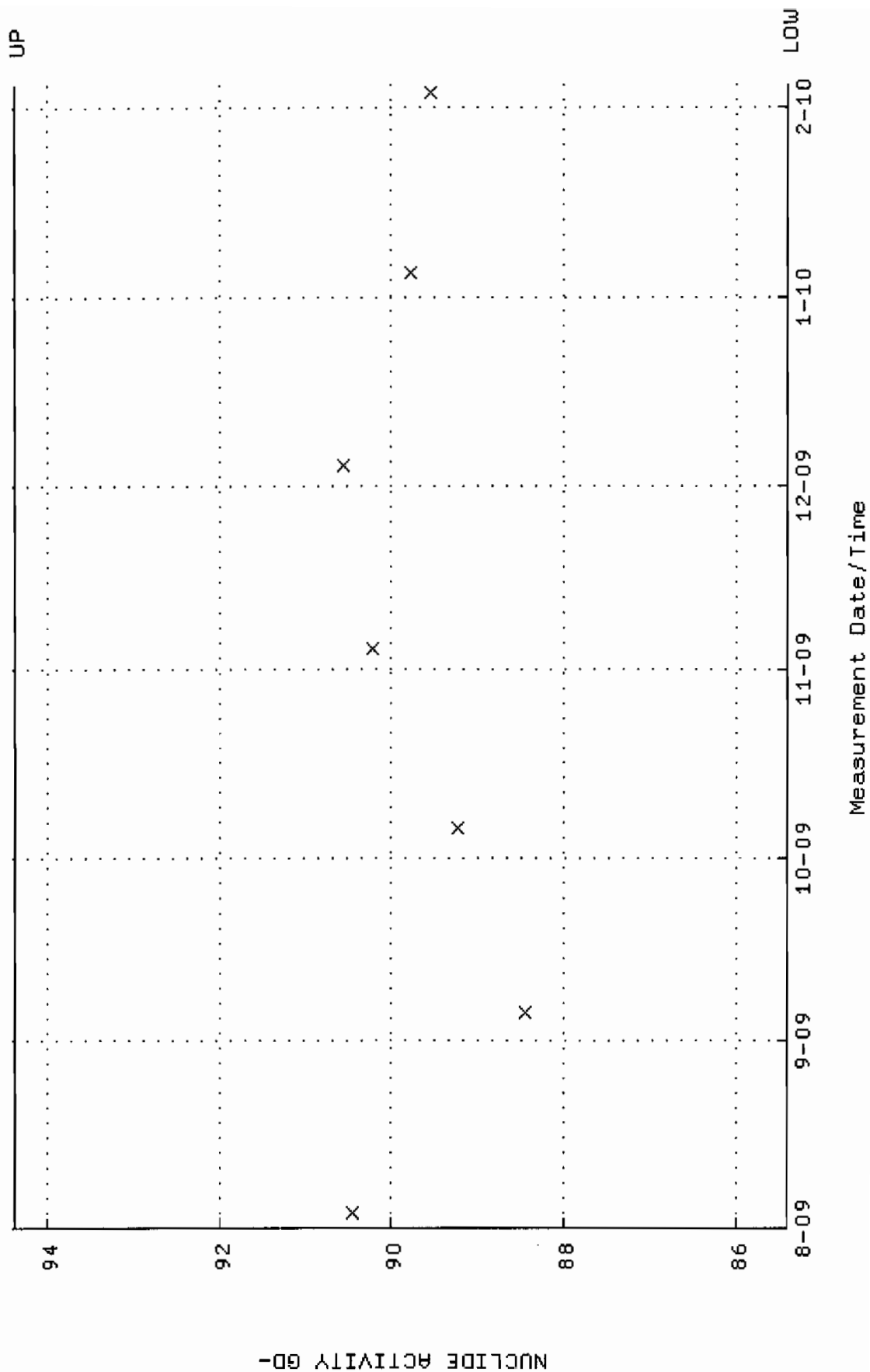
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.294859 through 0.314859



QA filename : DKA100:[ENVY\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 85.3984 through 94.3878

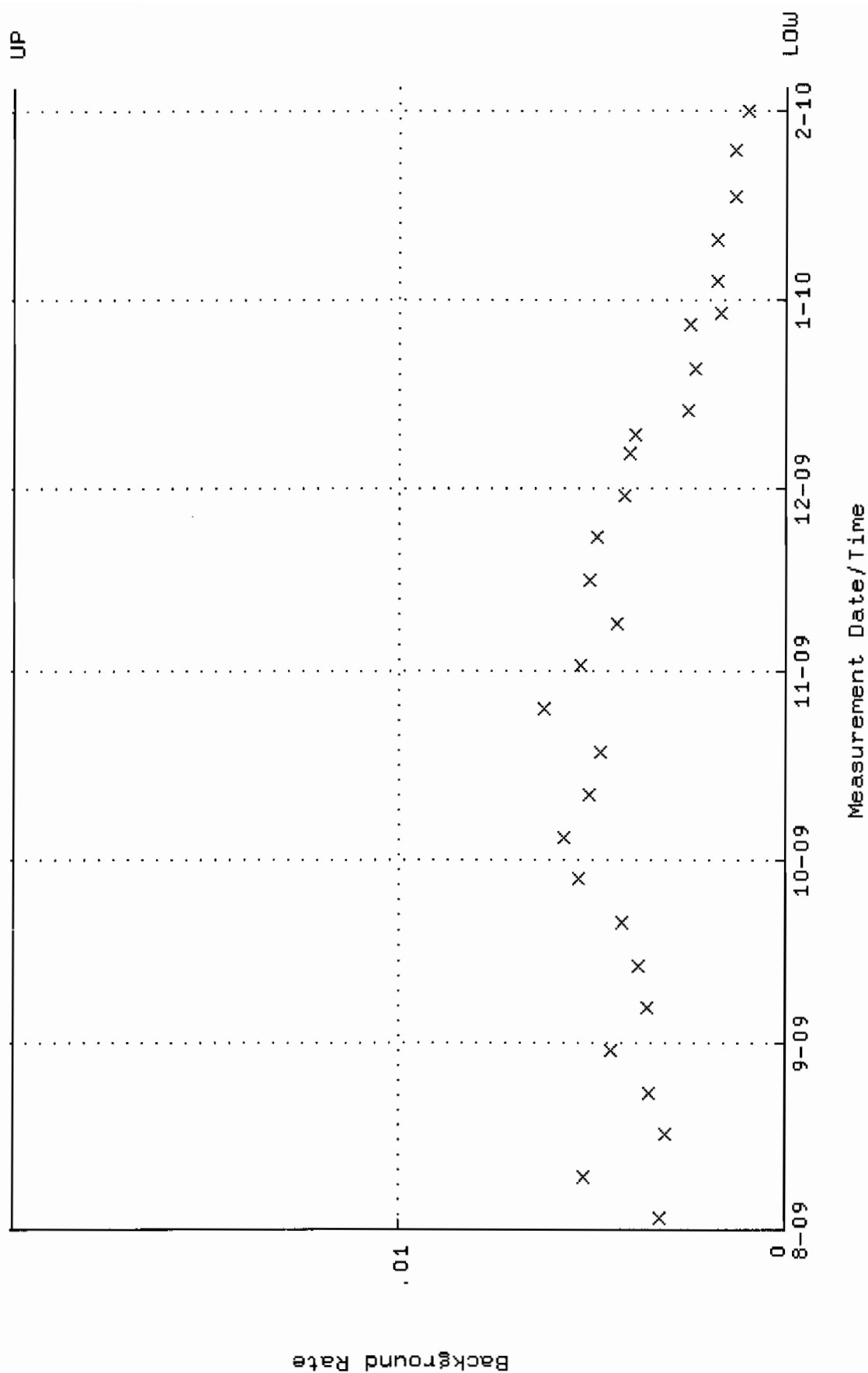


QA filename : DKA100:[ENV\_ALPHA.QA.B]B035.QAF;1

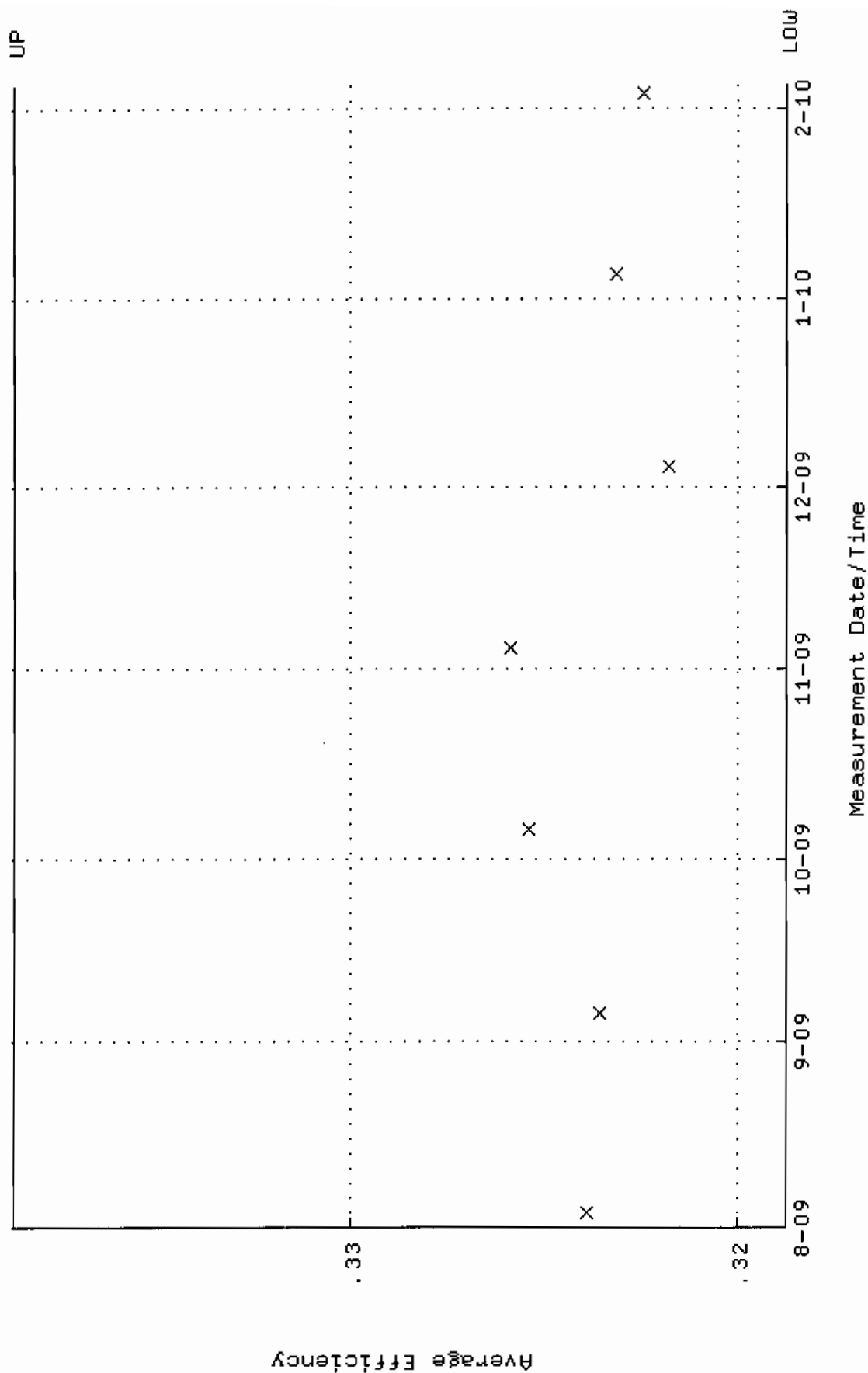
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:35 through 4-FEB-2010 12:00:00

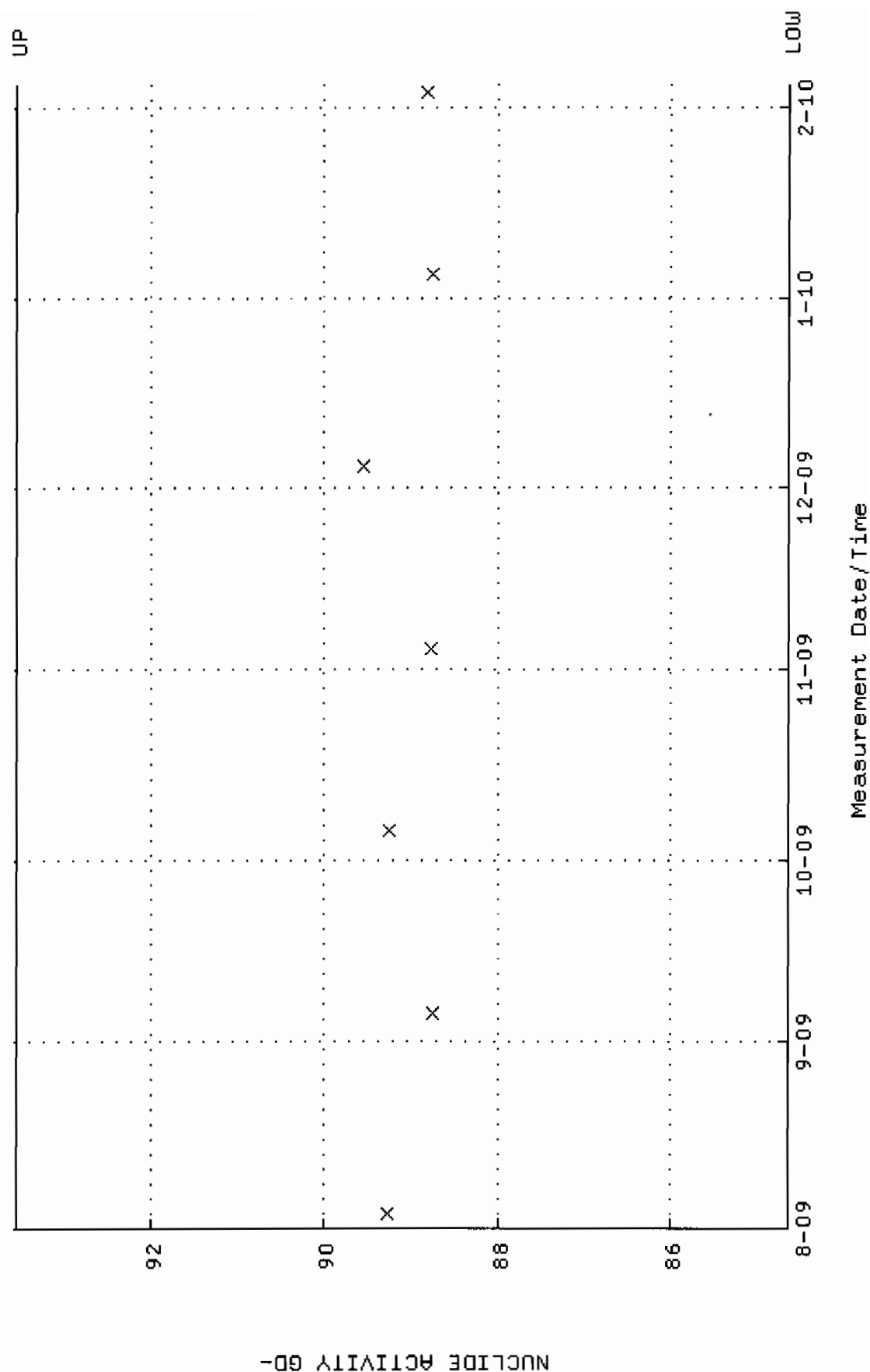
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.318717 through 0.338717



QA filename : DKA100:[ENV\_ALPHA.QA.W]w036.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-AUG-2009 10:53:41 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.6422 through 93.5518

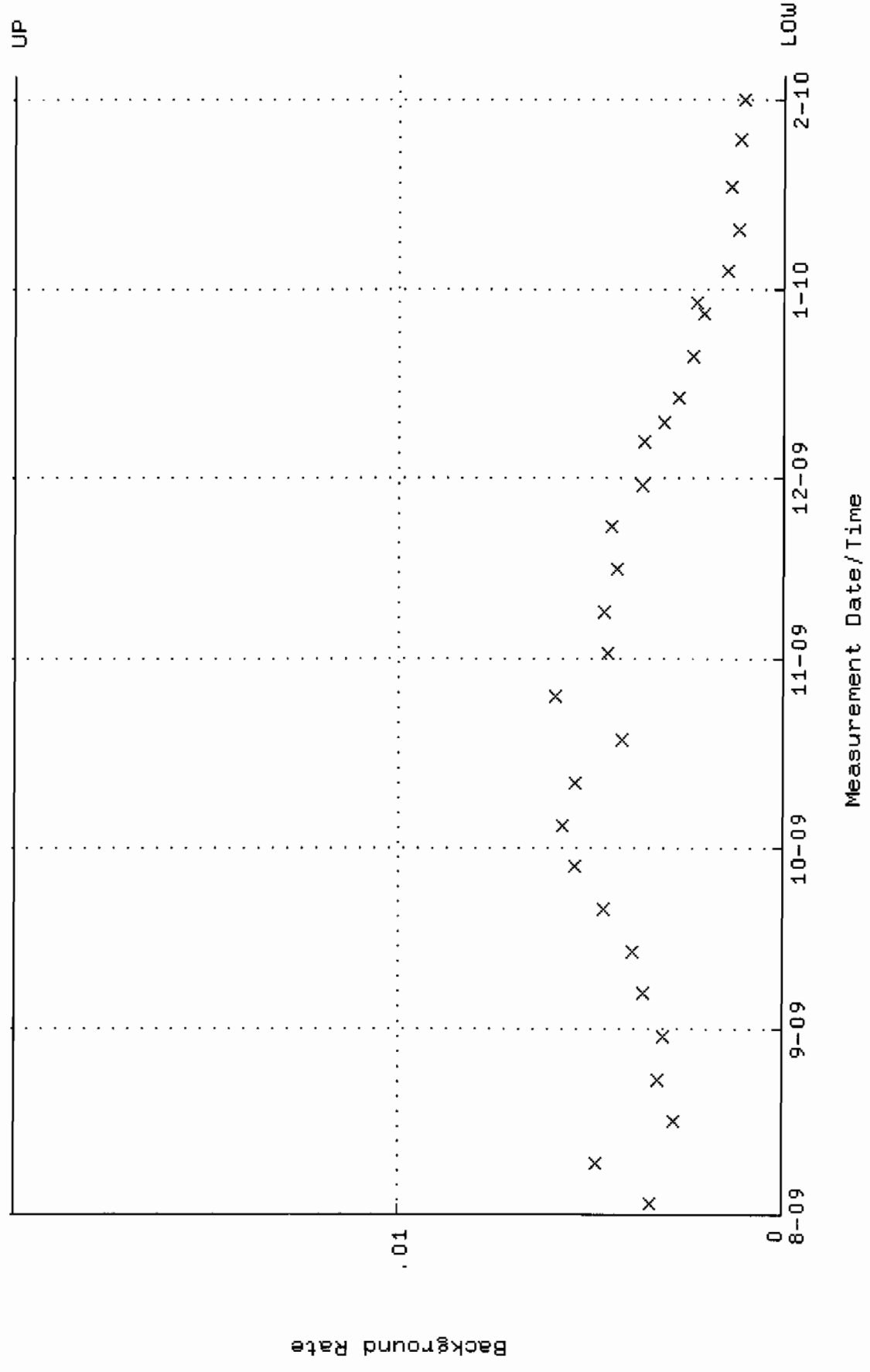


QA filename : DKA100:[ENV\_ALPHA.QA.B]B036.QAF;1

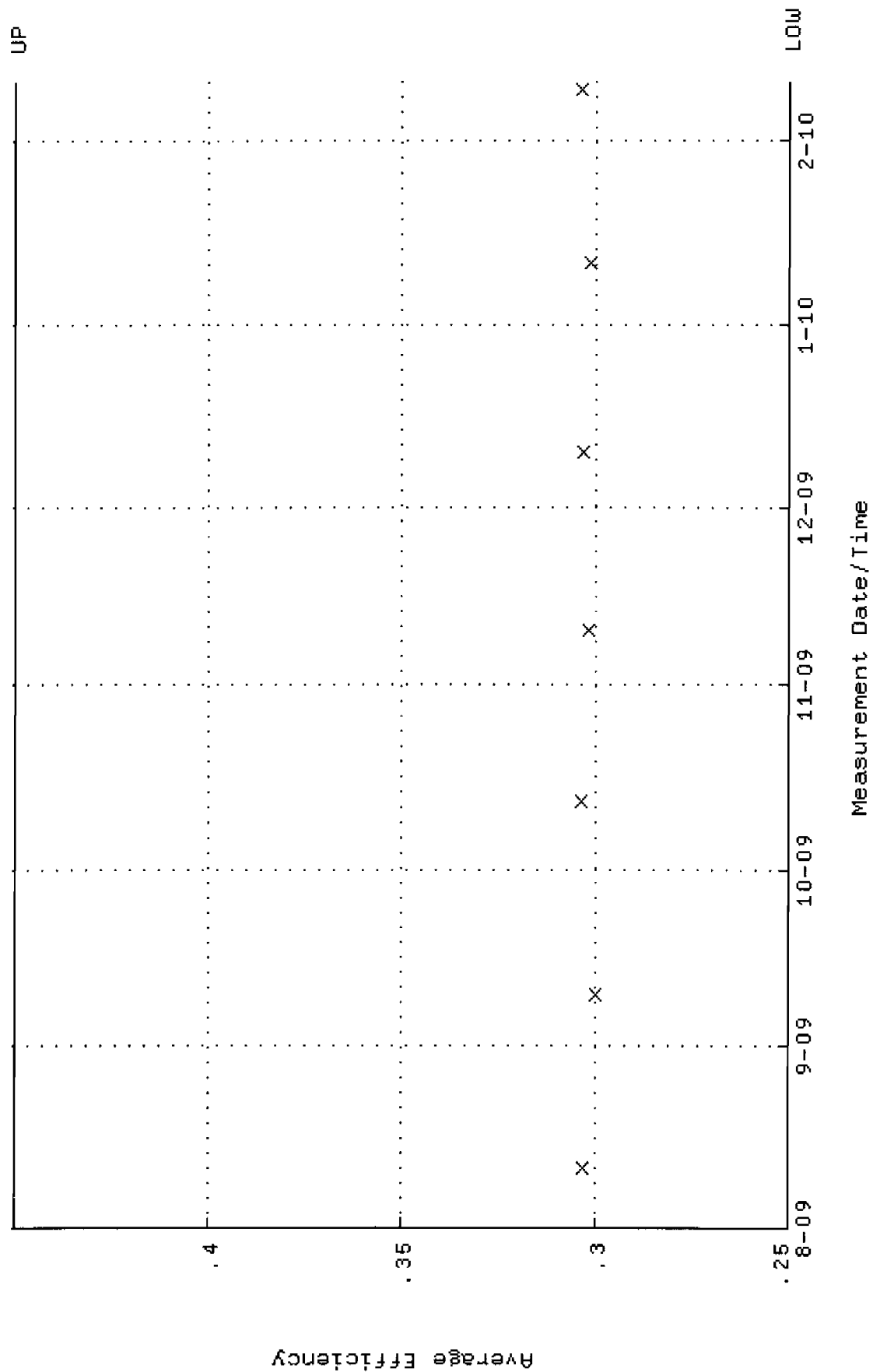
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:35 through 4-FEB-2010 12:00:00

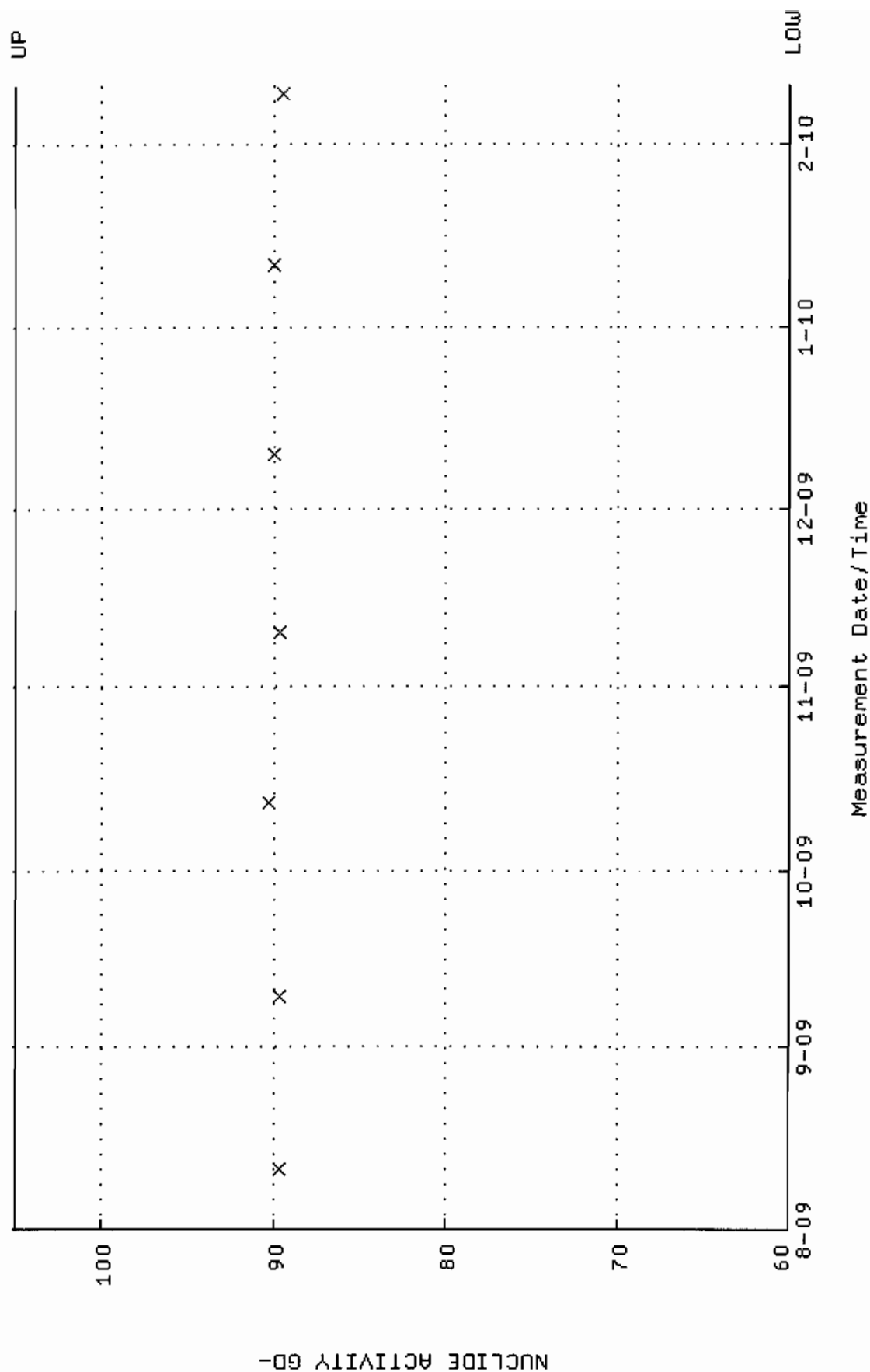
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]w088.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:14 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W088.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: 60.0000 through 105.000

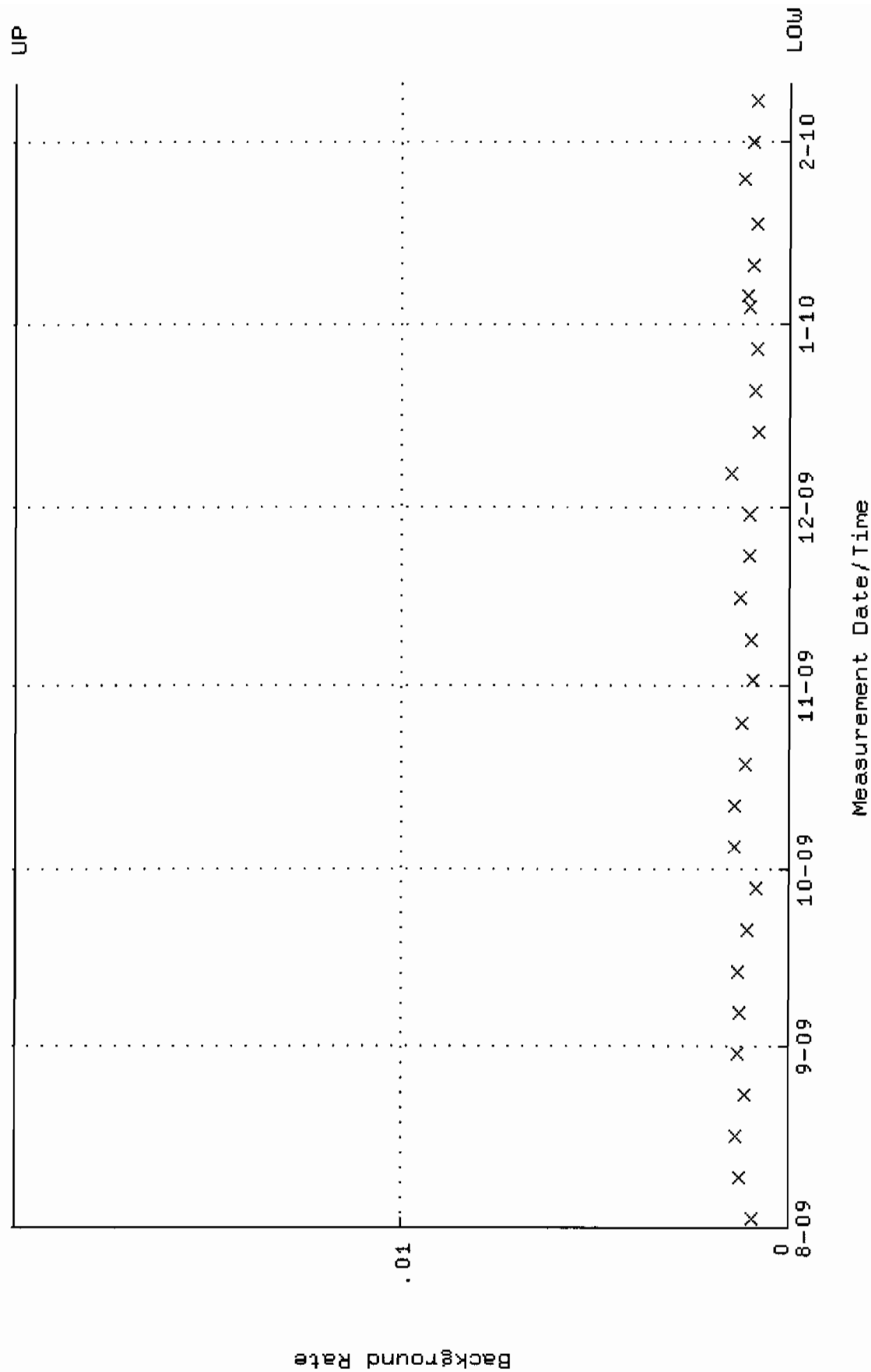


QA filename : DKA100:[ENV\_ALPHA.QA.B]B088.QAF;1

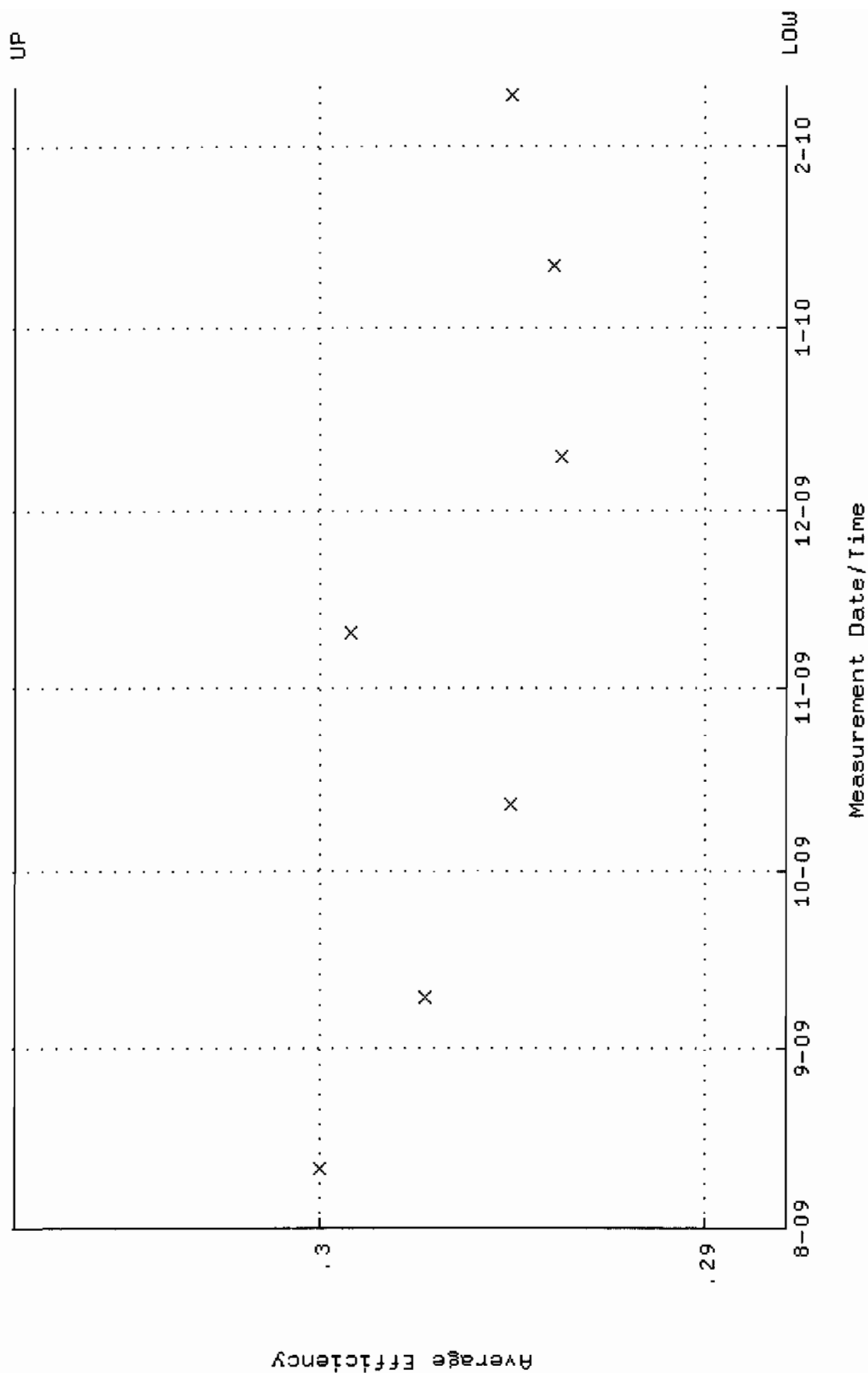
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:41 through 10-FEB-2010 12:00:00

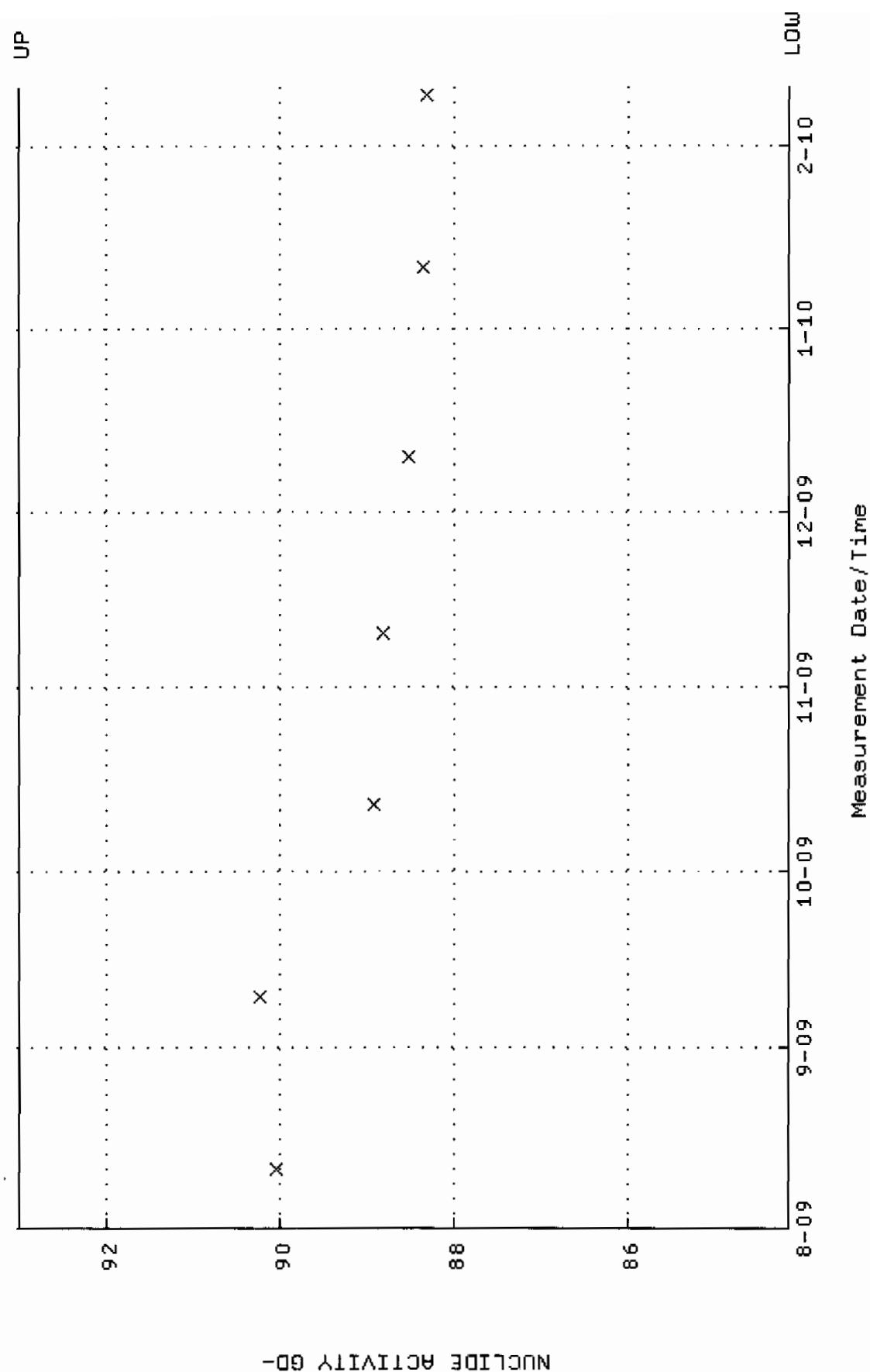
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W089.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.287888 through 0.307888



QA filename : DKA100:[ENV\_ALPHA.QA.W]W089.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.1413 through 92.9983

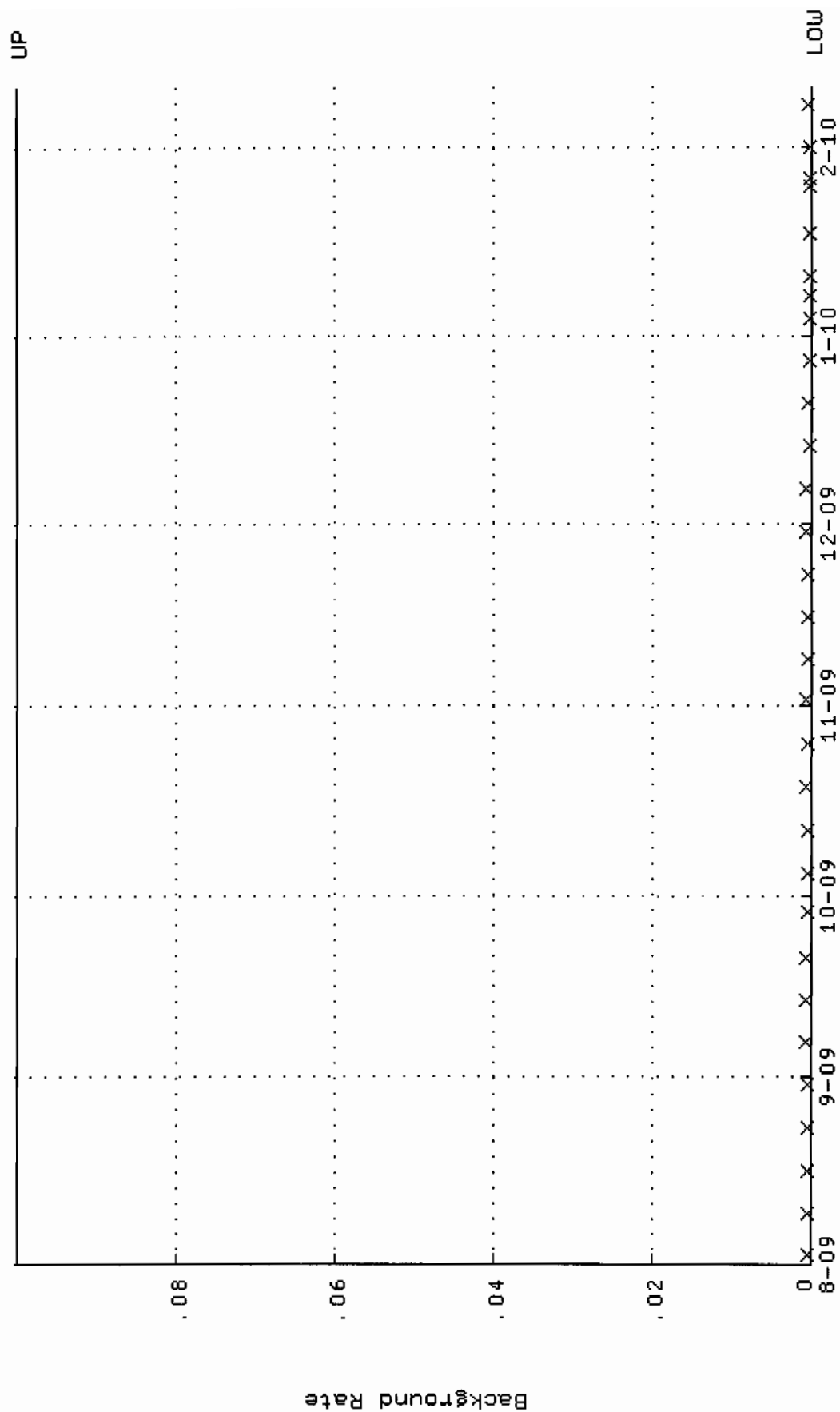


QA filename : DKA100:[ENV\_ALPHA.QA.B]B089.QAF;1

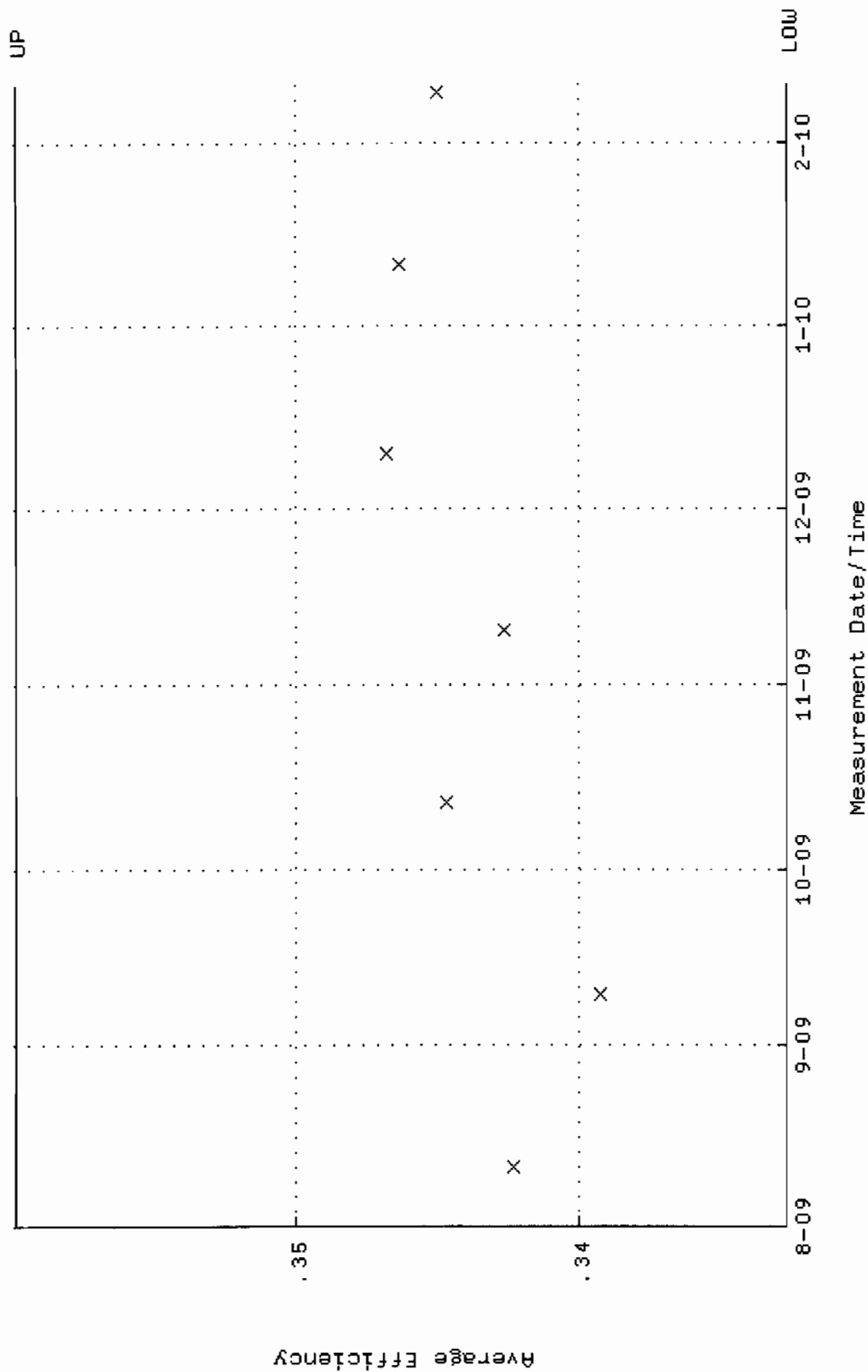
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00

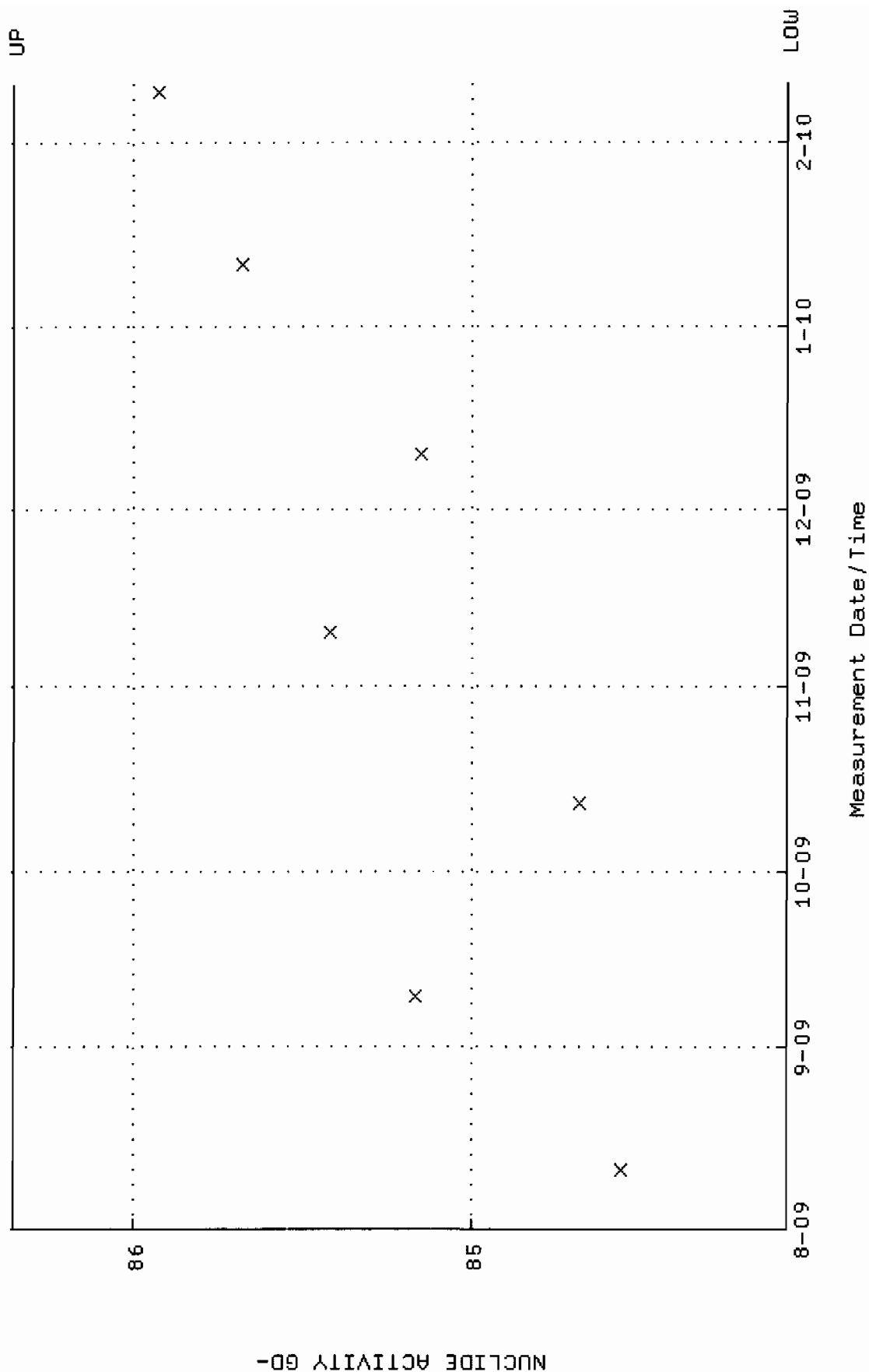
Lower/Upper Lmts: 0.000000E+00 through 0.100000



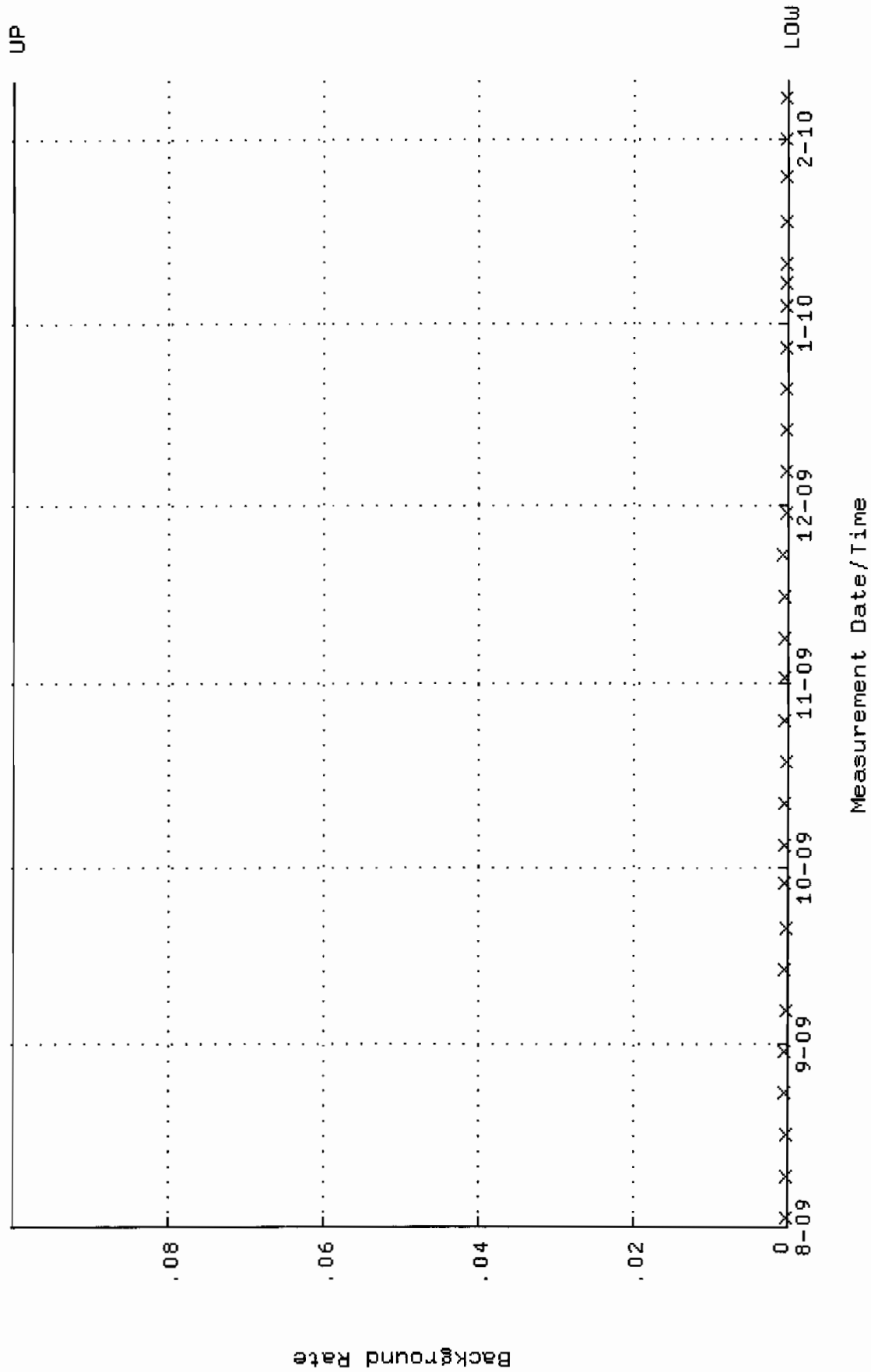
QA filename : DKA100:[ENV\_ALPHA.QA.W]W091.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.332648 through 0.359902



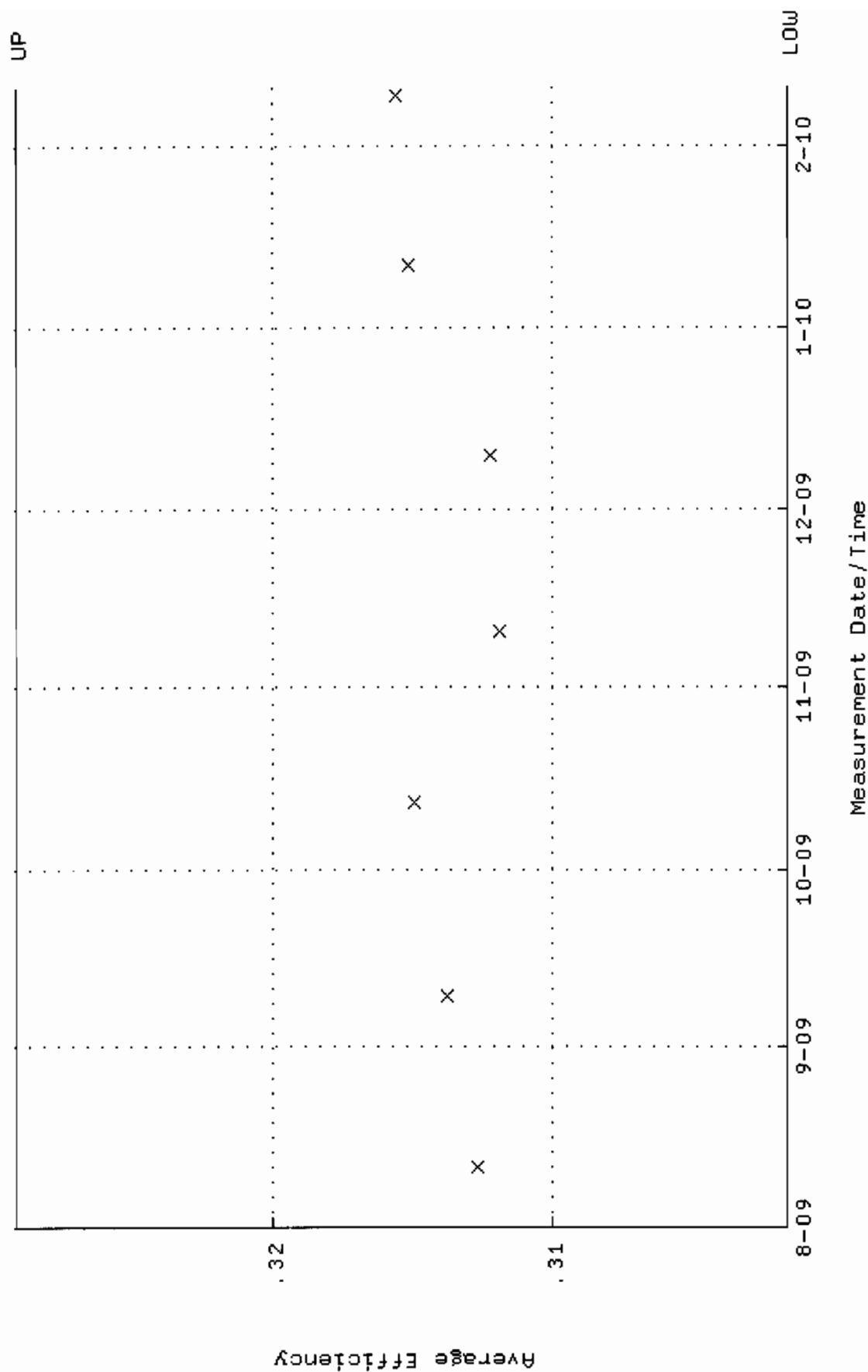
QA filename : DKA100:[ENV\_ALPHA.QA.W]W091.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.0764 through 86.3518



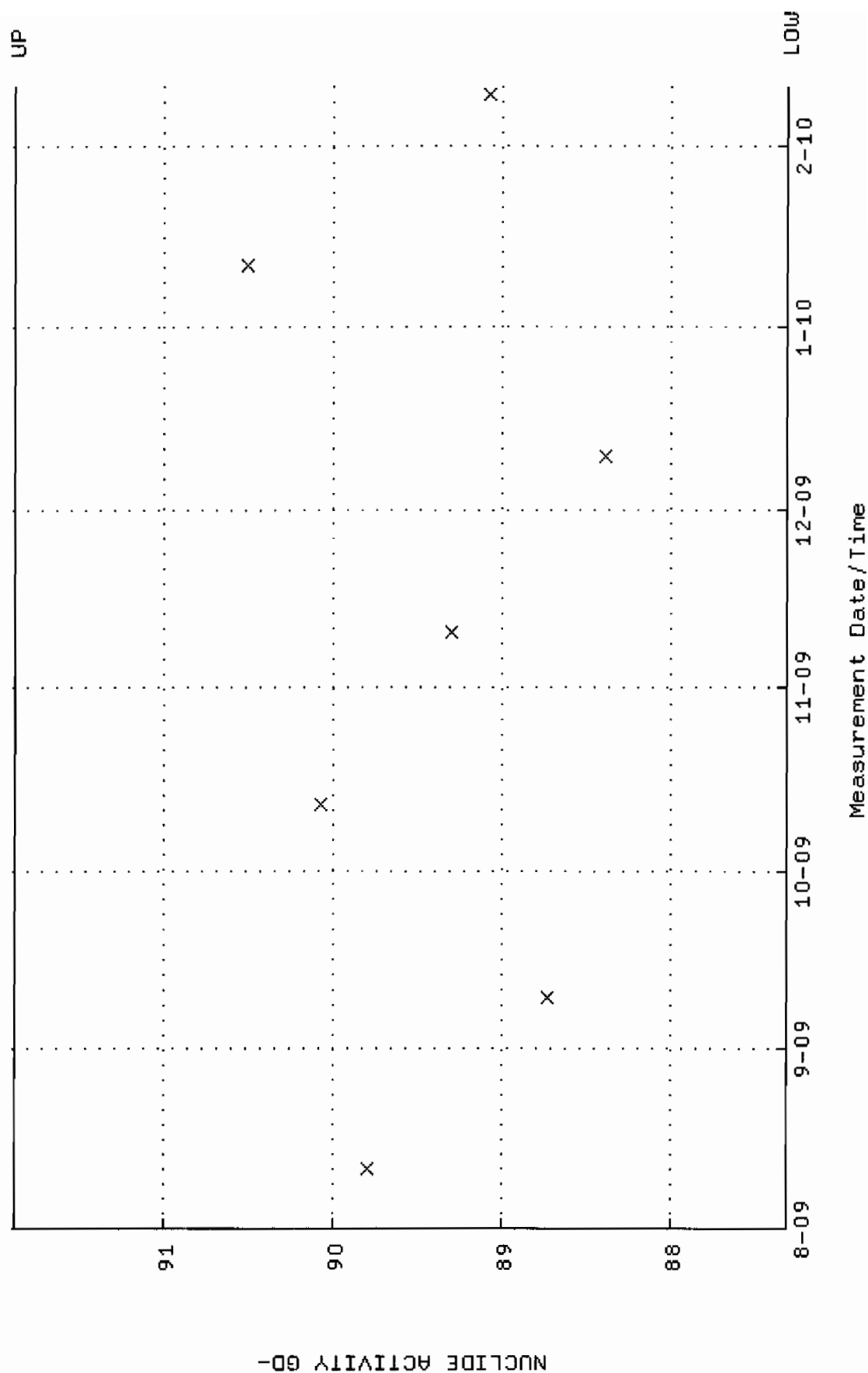
QA filename : DKA100:[ENV\_ALPHA.QA.B]B091.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



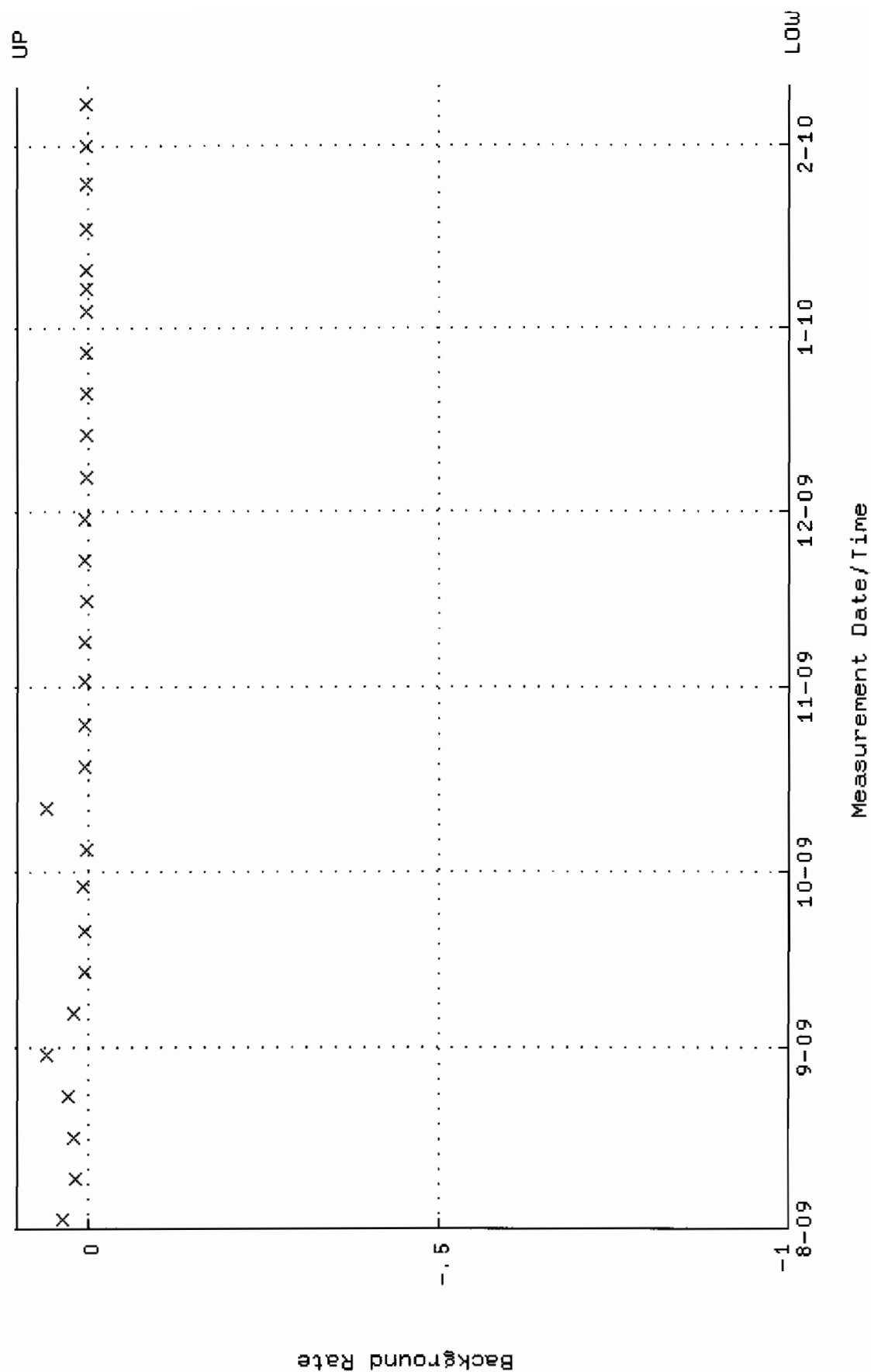
QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.301529 through 0.329133



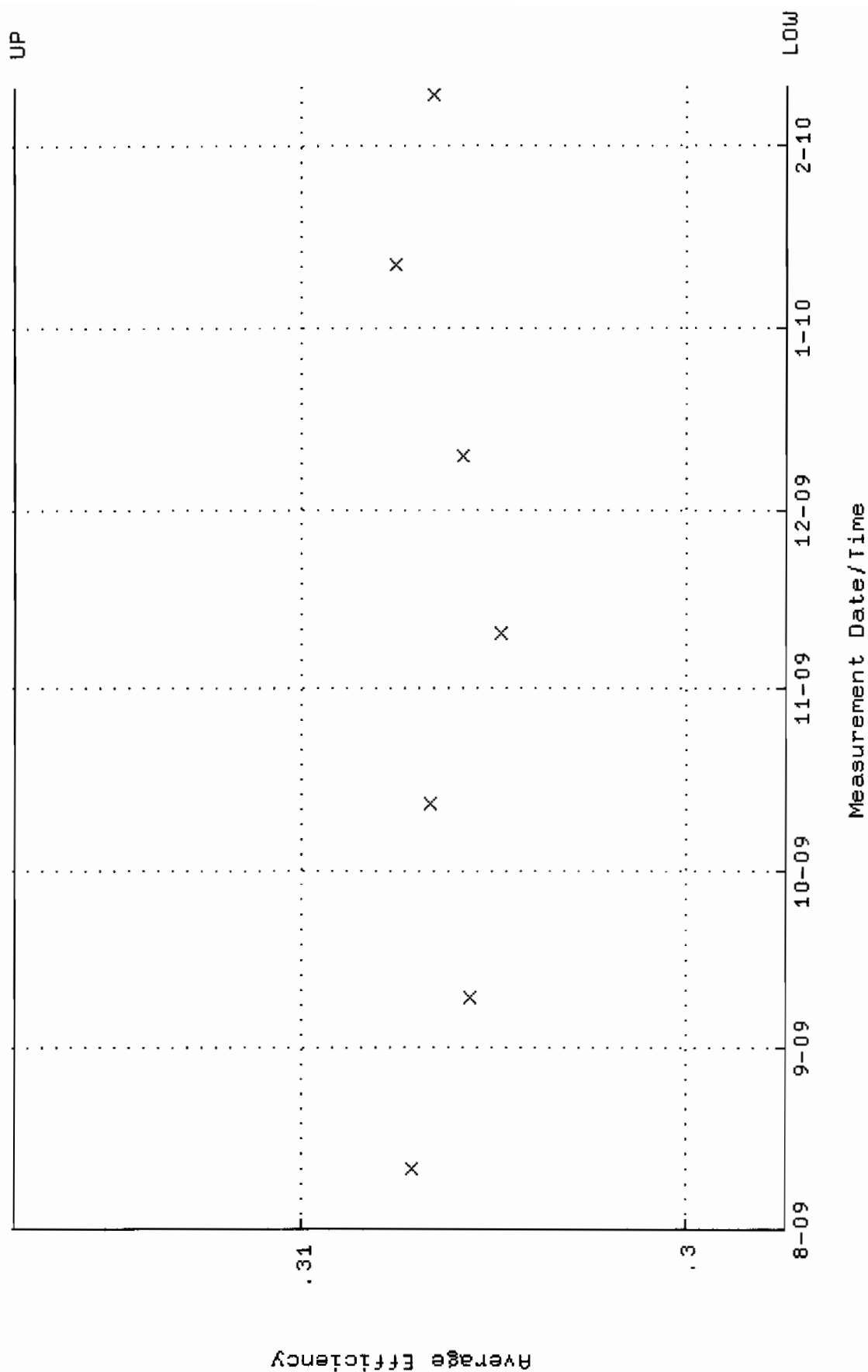
QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.3140 through 91.8878



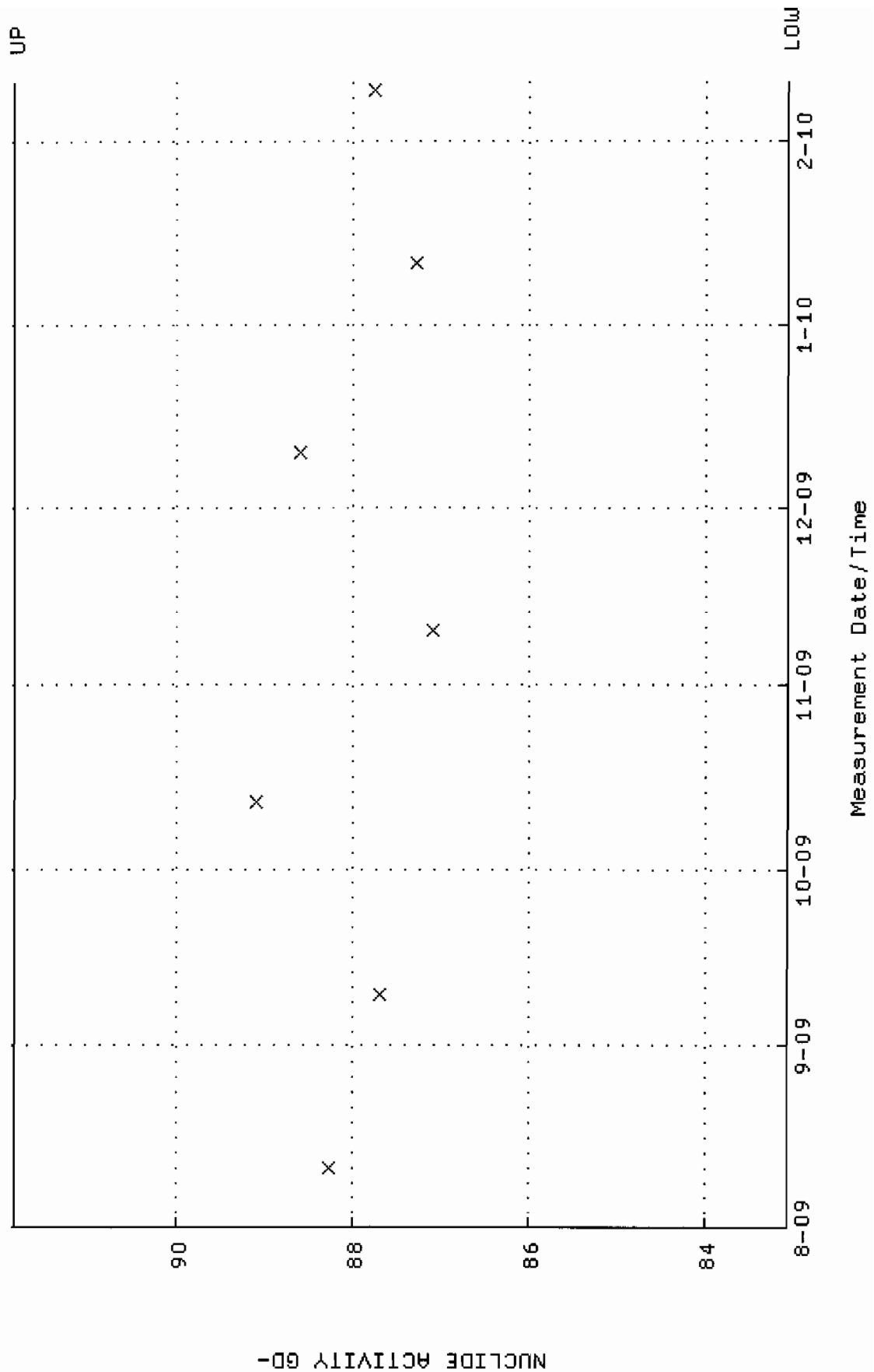
Lower/Upper Lmts: -1.00000 through 0.100000



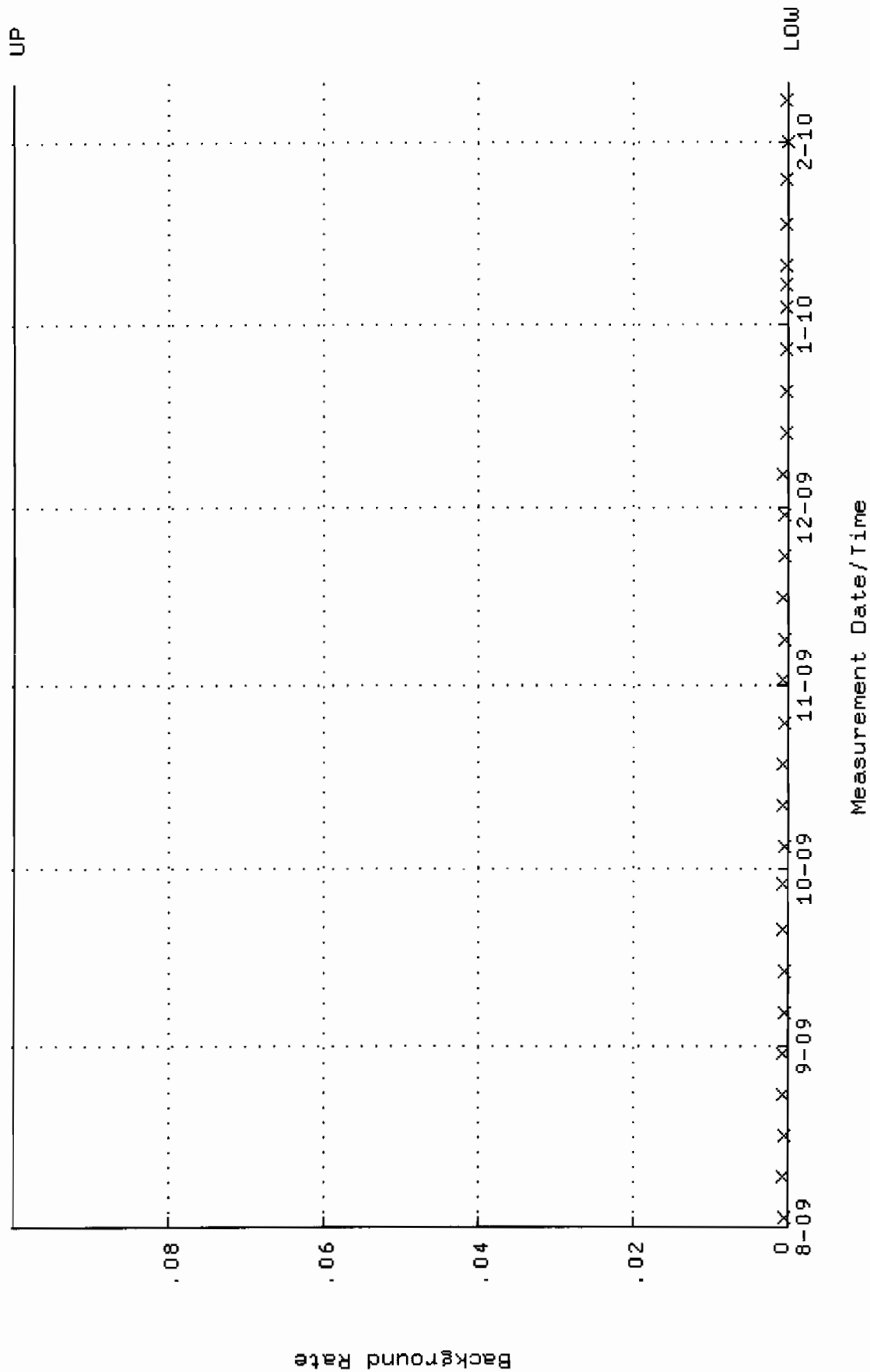
QA filename : DKA100:[ENV\_ALPHA.QA.W]W094.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.297429 through 0.317429



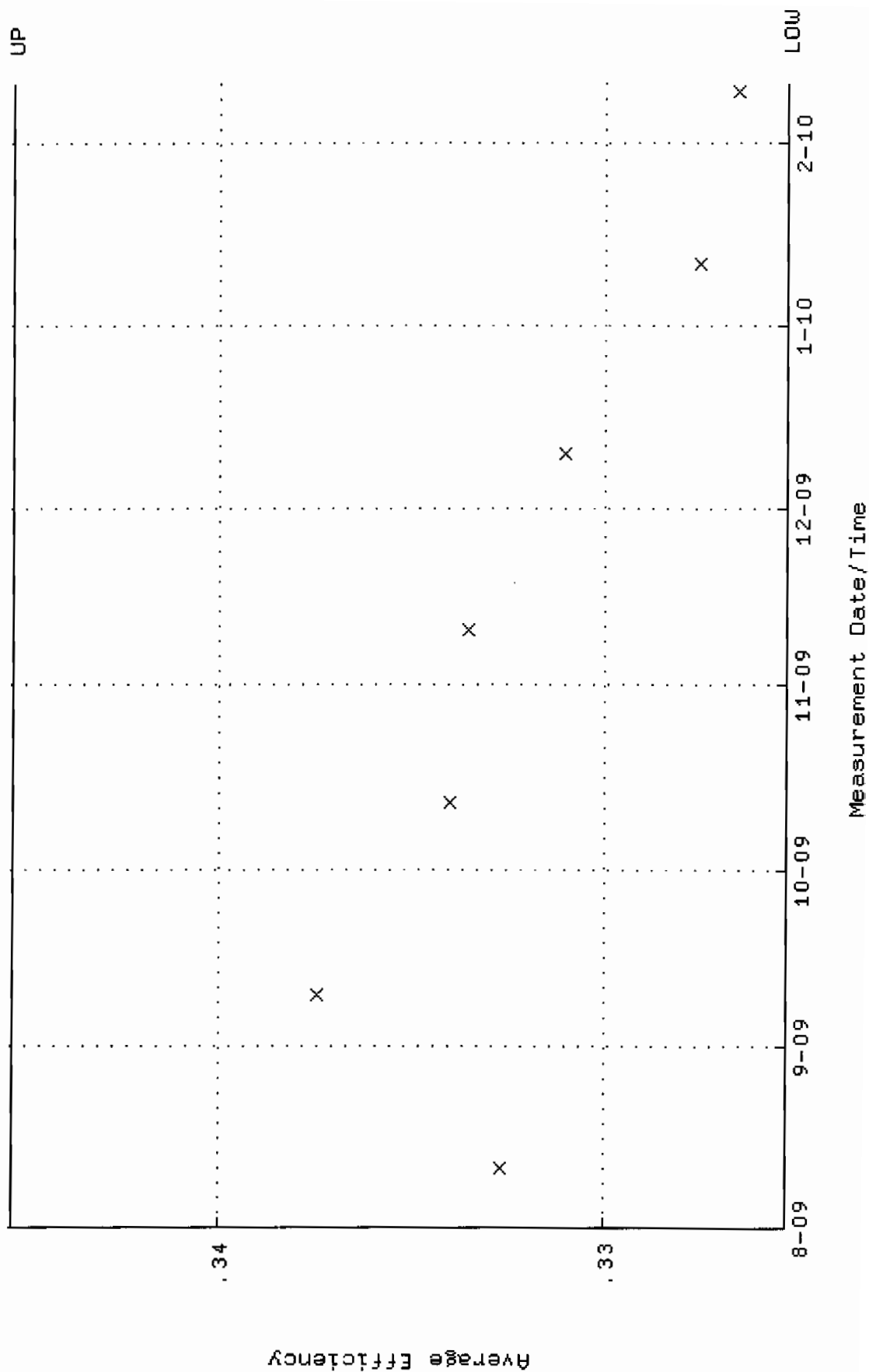
QA filename : DKA100:[ENV\_ALPHA.QA.W]W094.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 83.0827 through 91.8283



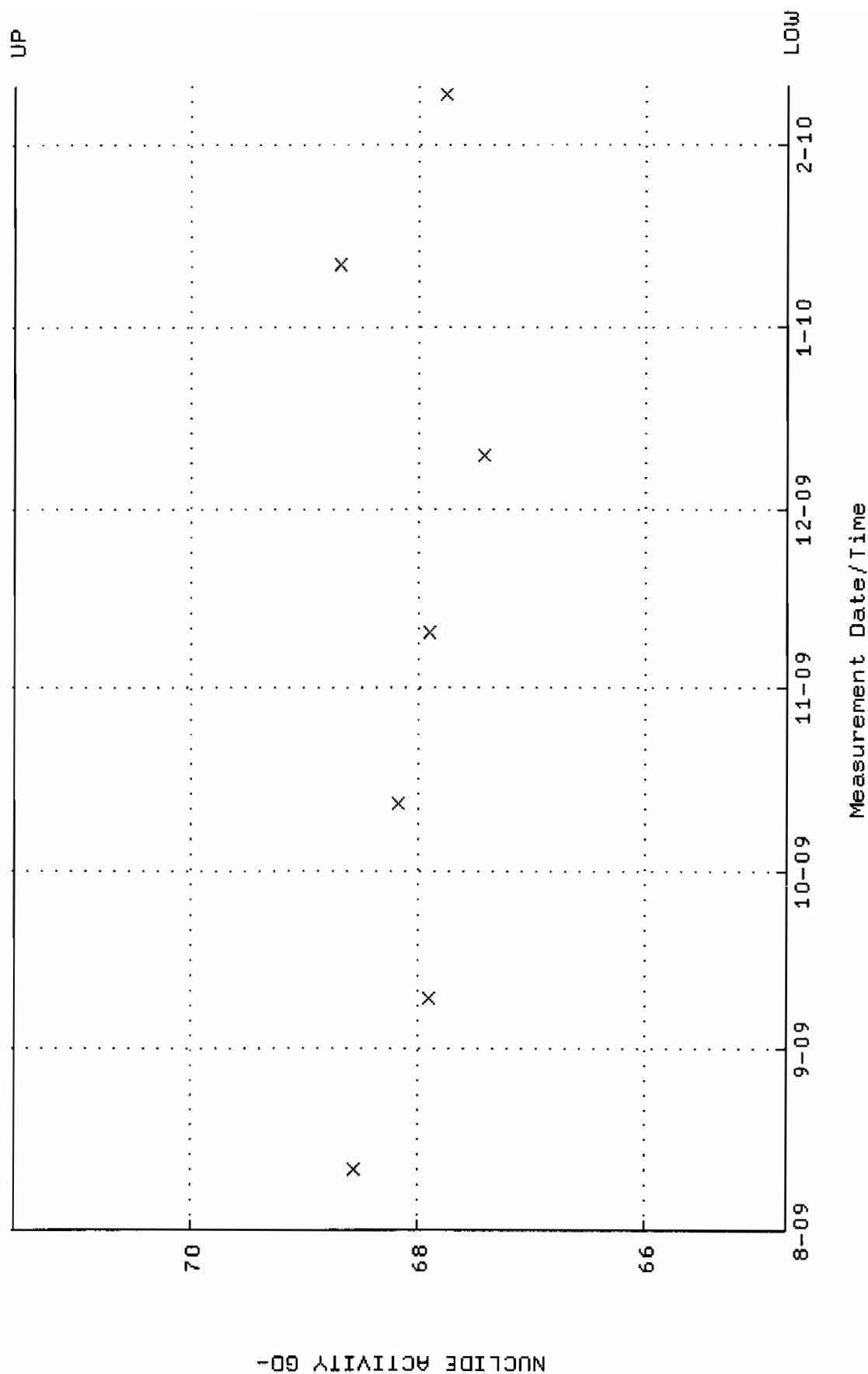
QA filename : DKA100:[ENV\_ALPHA.QA.B]B094.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



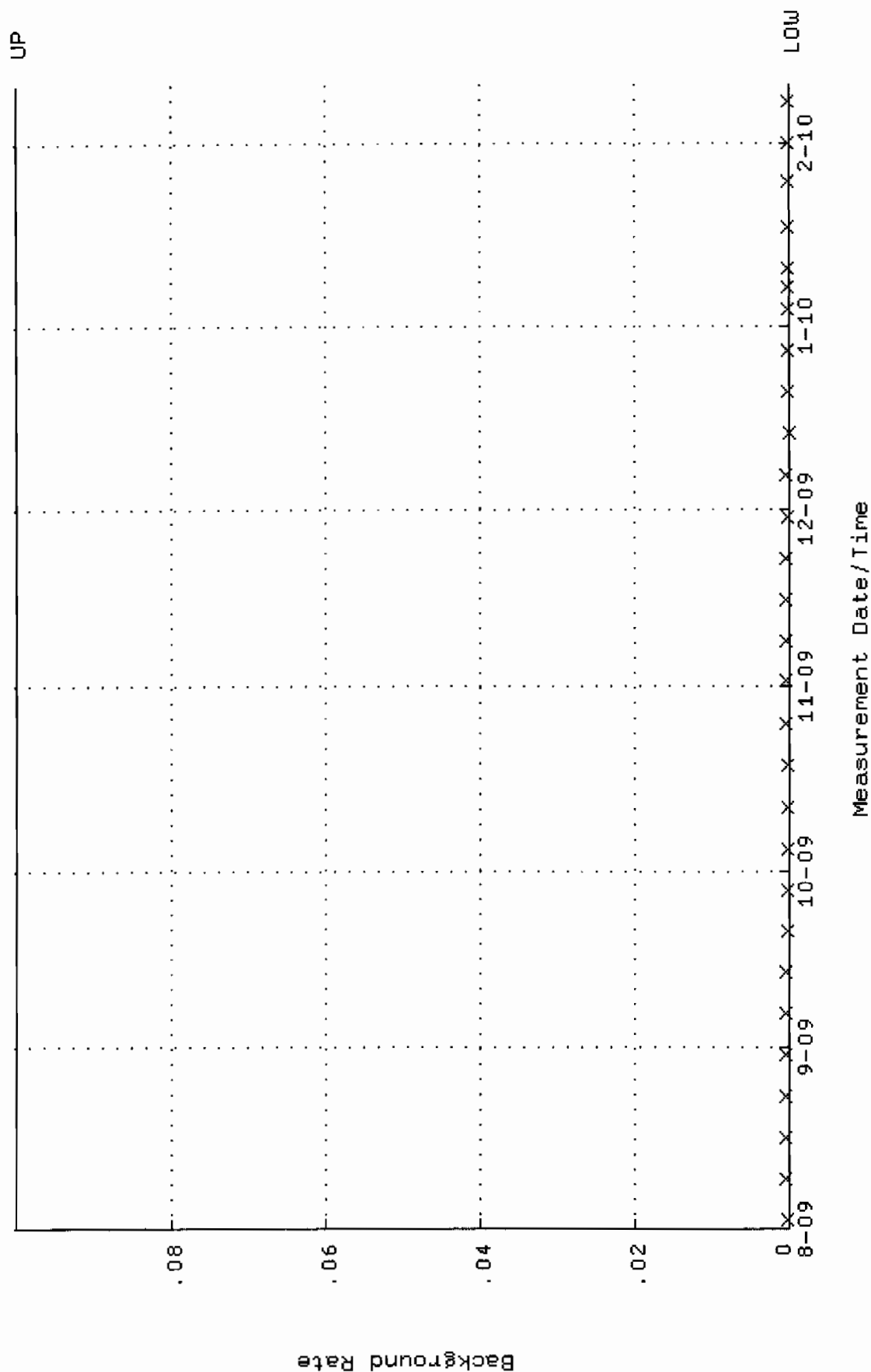
QA filename : DKA100:[ENV\_ALPHA.QA.W]W103.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.325314 through 0.345314



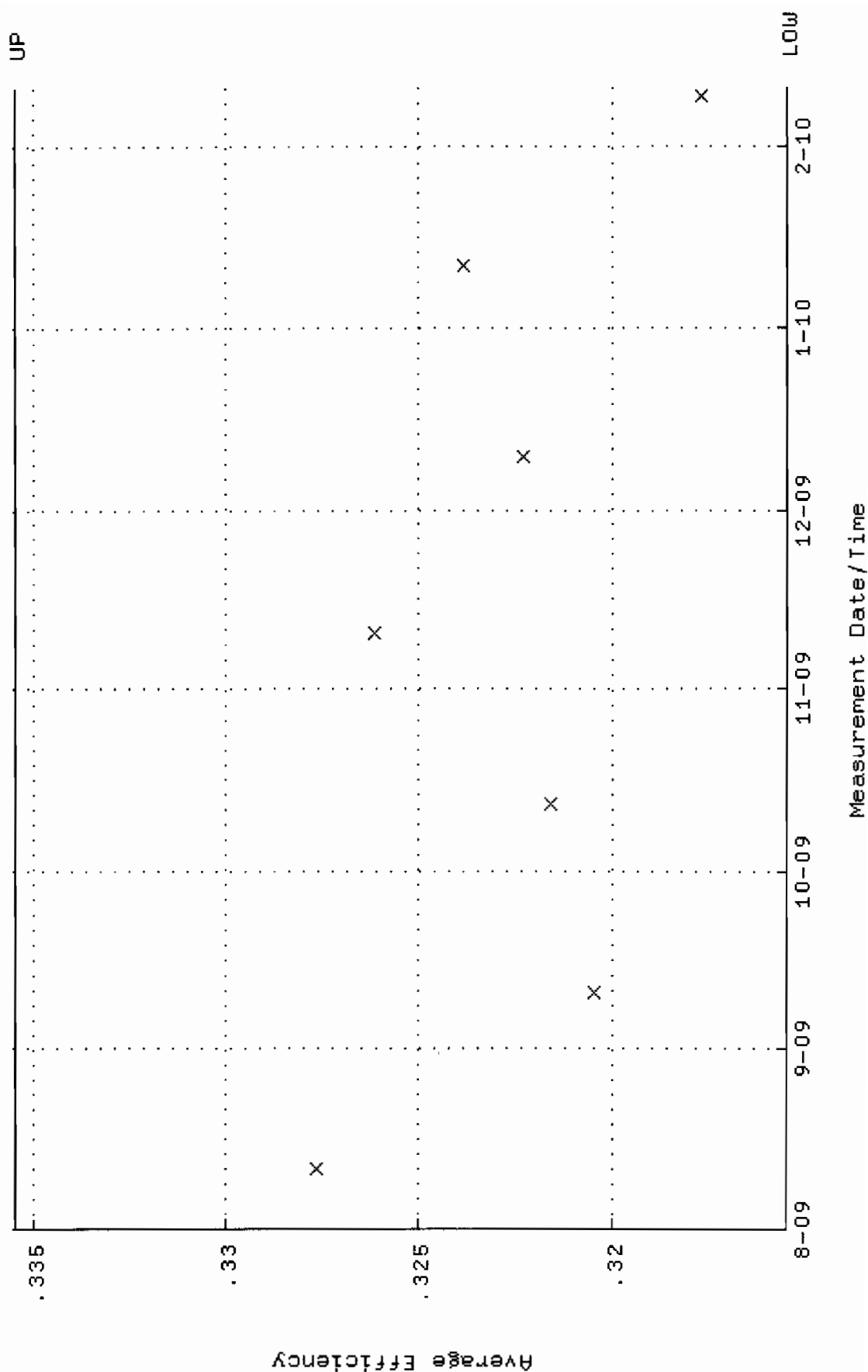
QA filename : DKA100:[ENV\_ALPHA.QA.W]W103.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 64.7479 through 71.5635



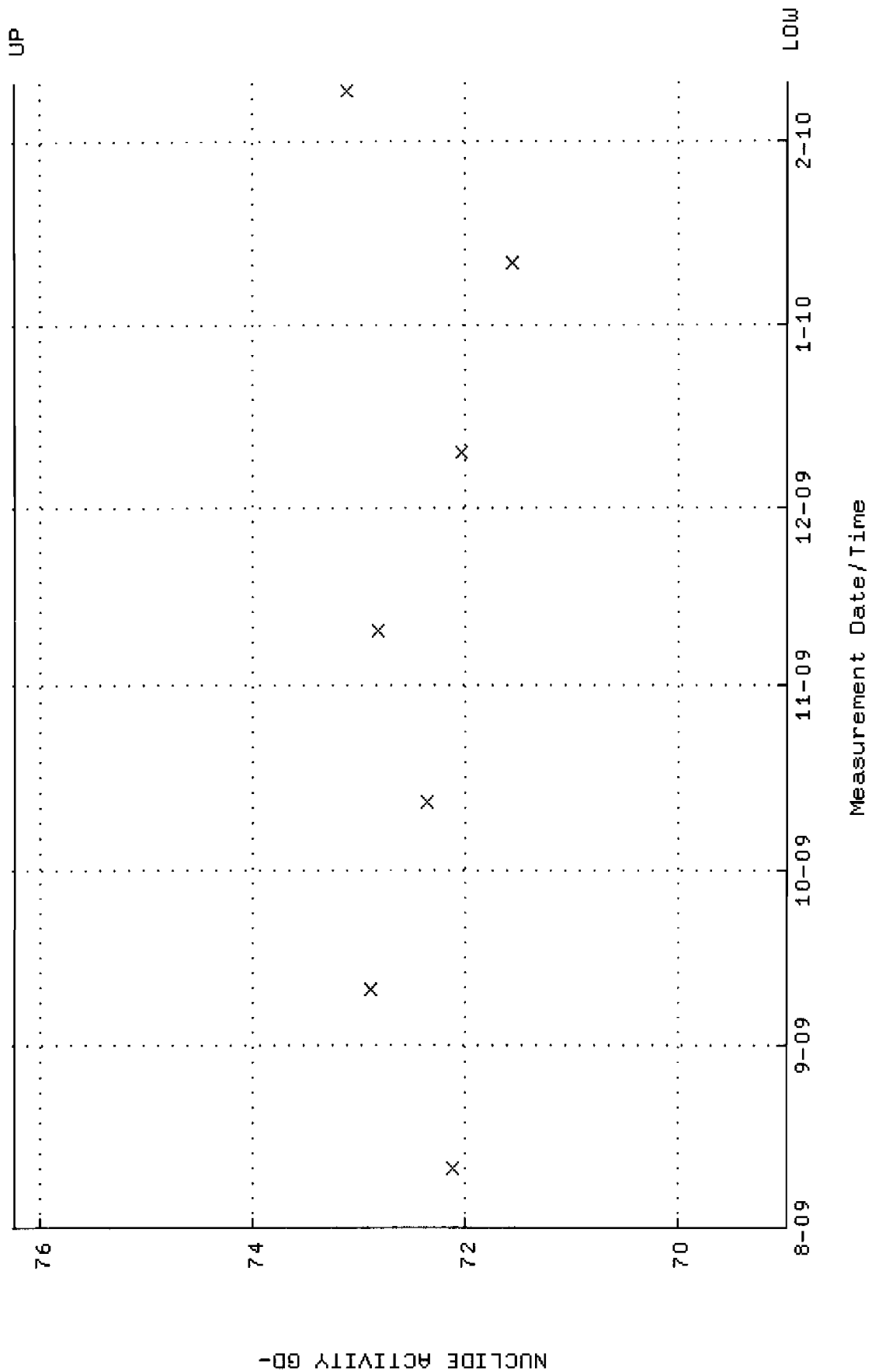
QA filename : DKA100:[ENV\_ALPHA.QA.B]B103.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]w105.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.315468 through 0.335468



QA filename : DKA100:[ENVY\_ALPHA.QA.W]W105.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 68.9774 through 76.2382

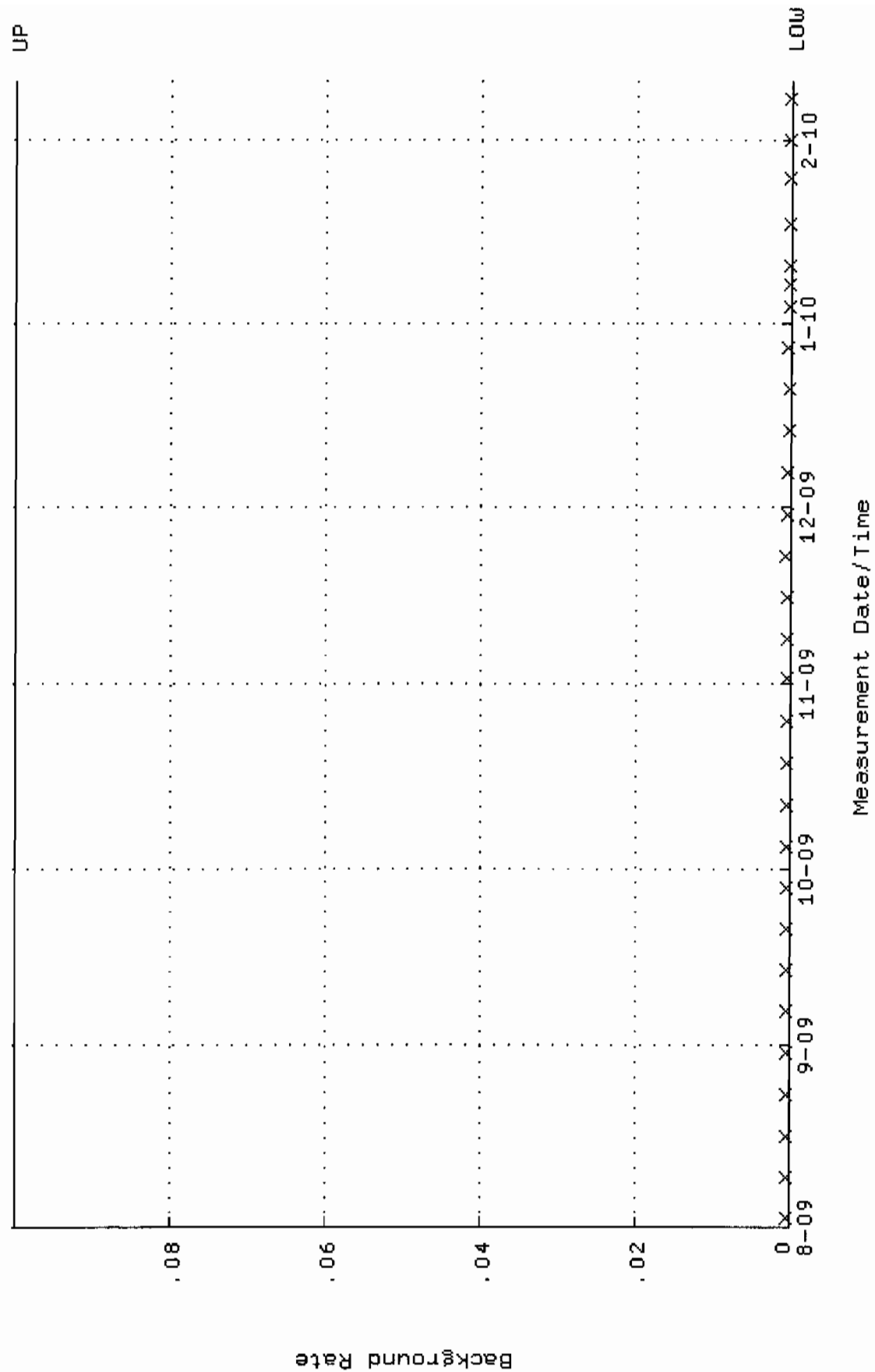


QA filename : DKA100:[ENV\_ALPHA.QA.B]B105.QAF;2

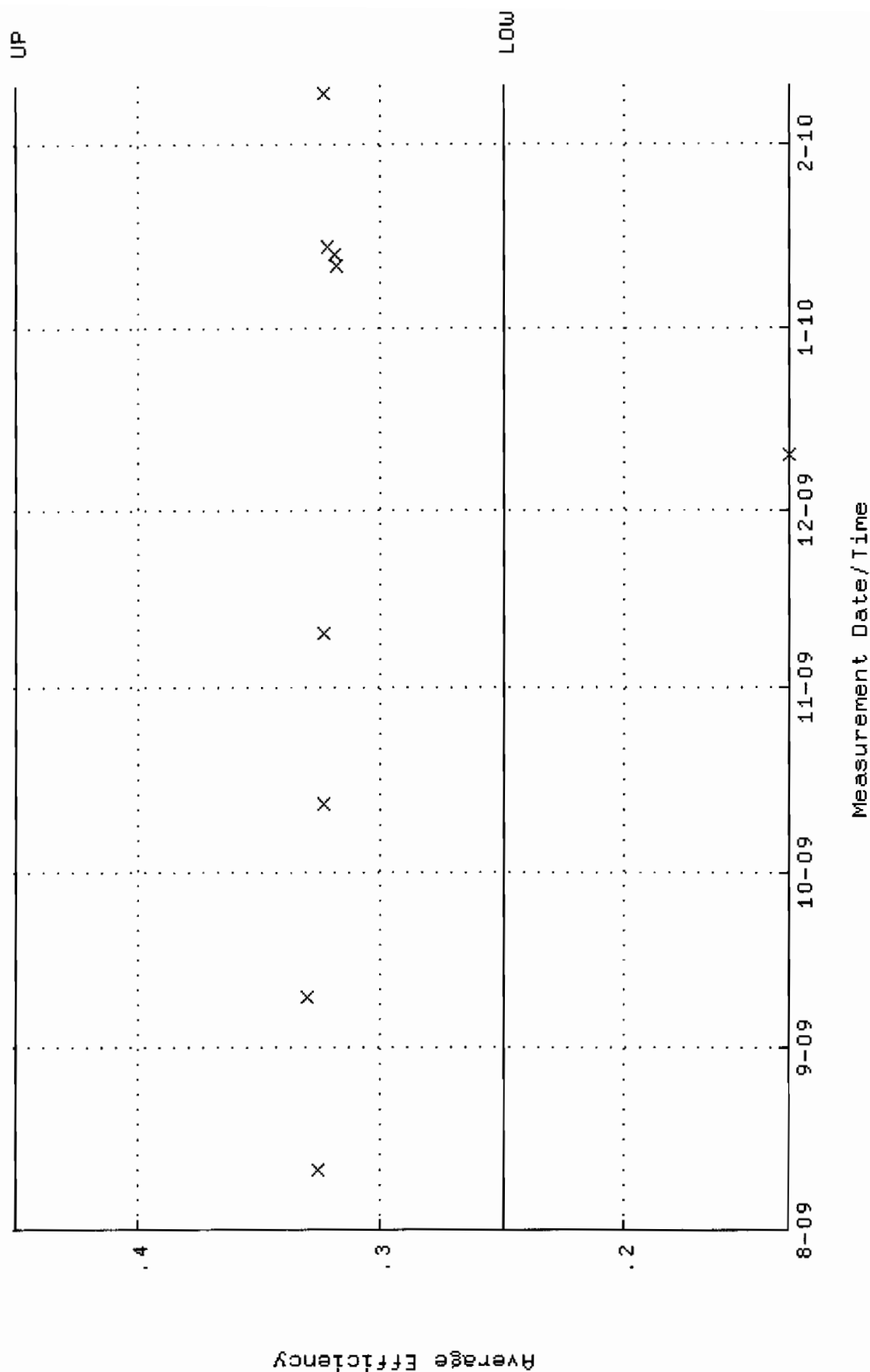
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00

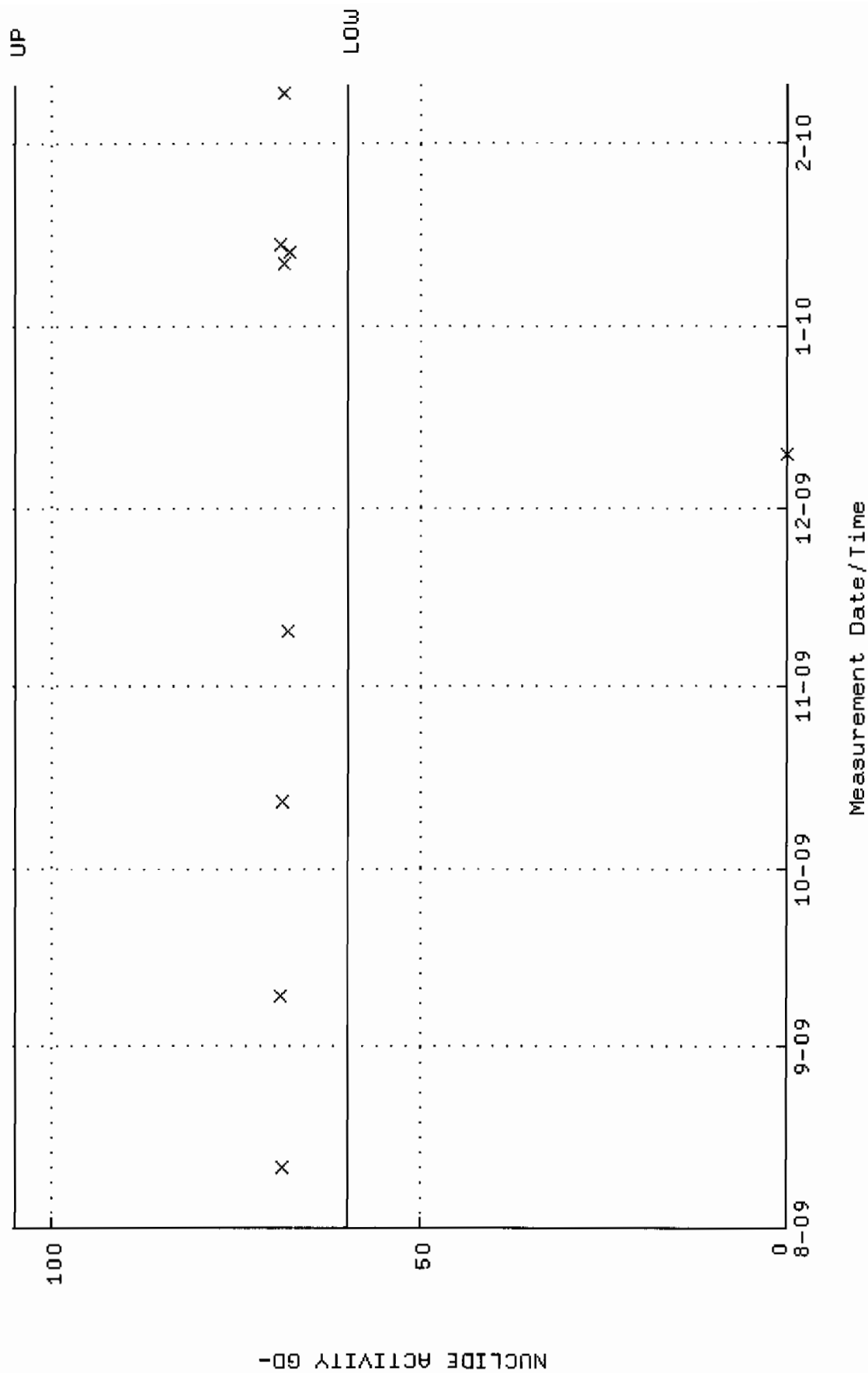
Lower/Upper Lmts: 0.000000E+00 through 0.100000



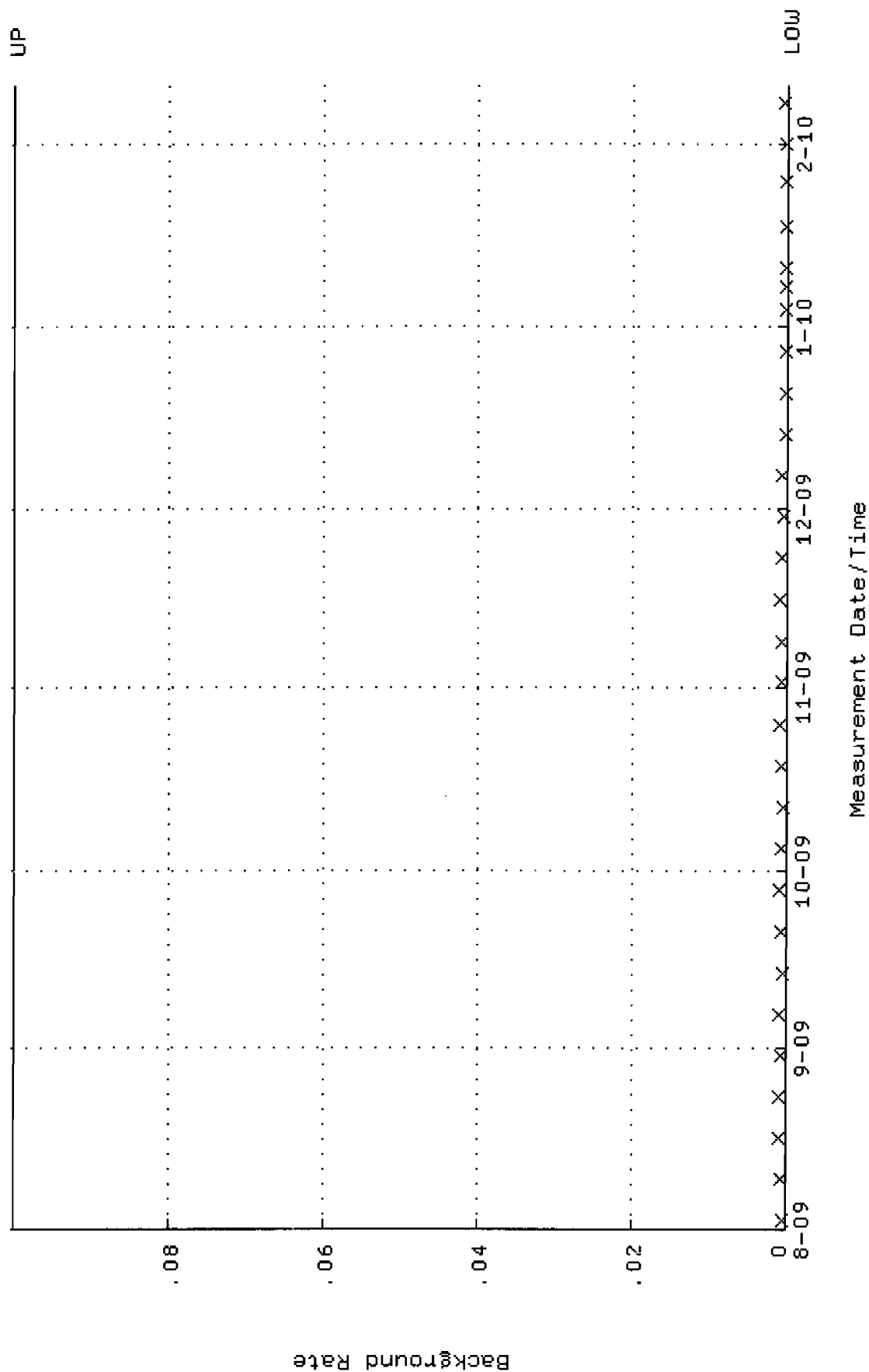
QA filename : DKA100:[ENV\_ALPHA.QA.W]w106.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



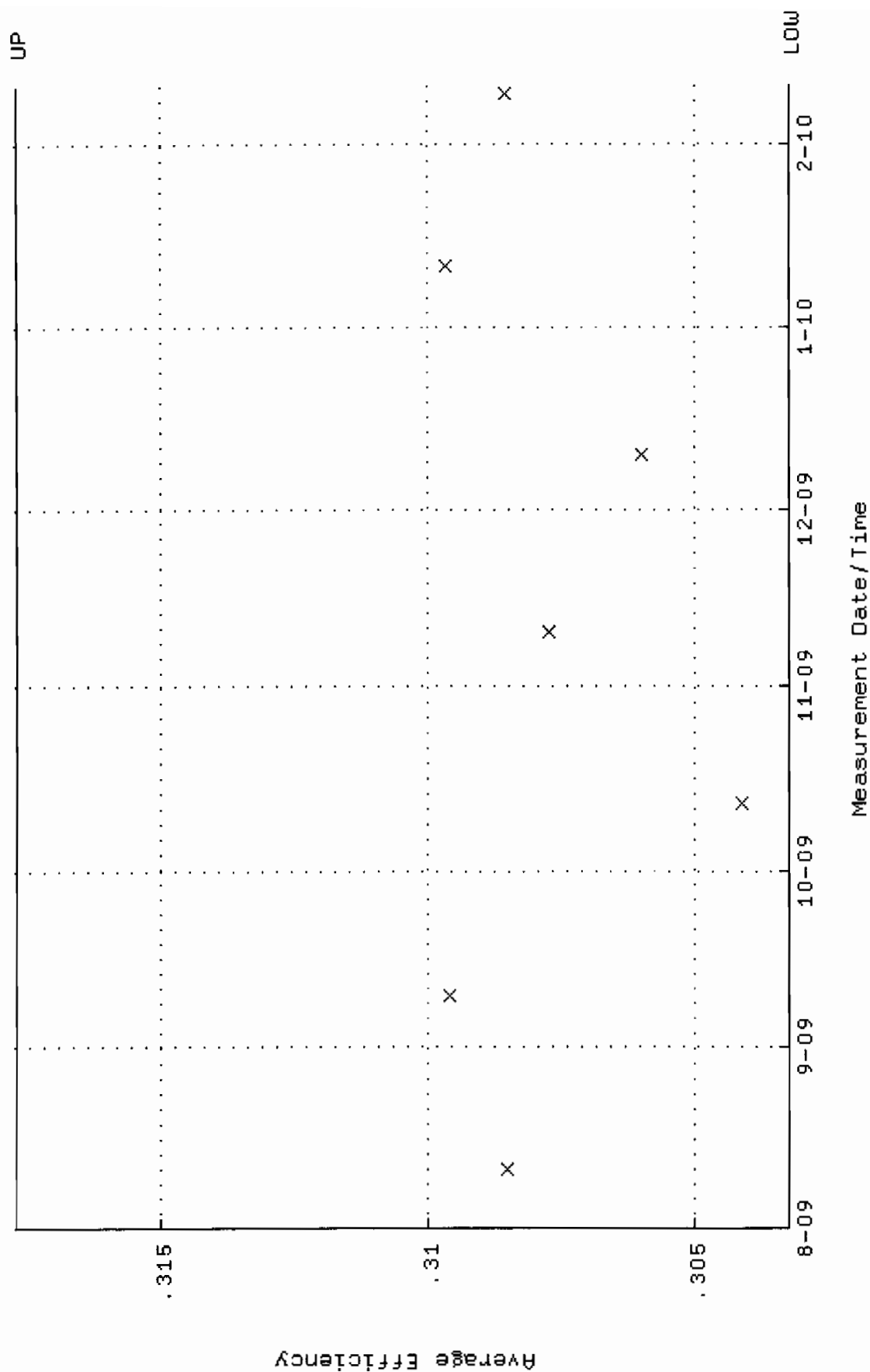
QA filename : DKA100:[ENV\_ALPHA.QA.W]U106.QAF;2  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



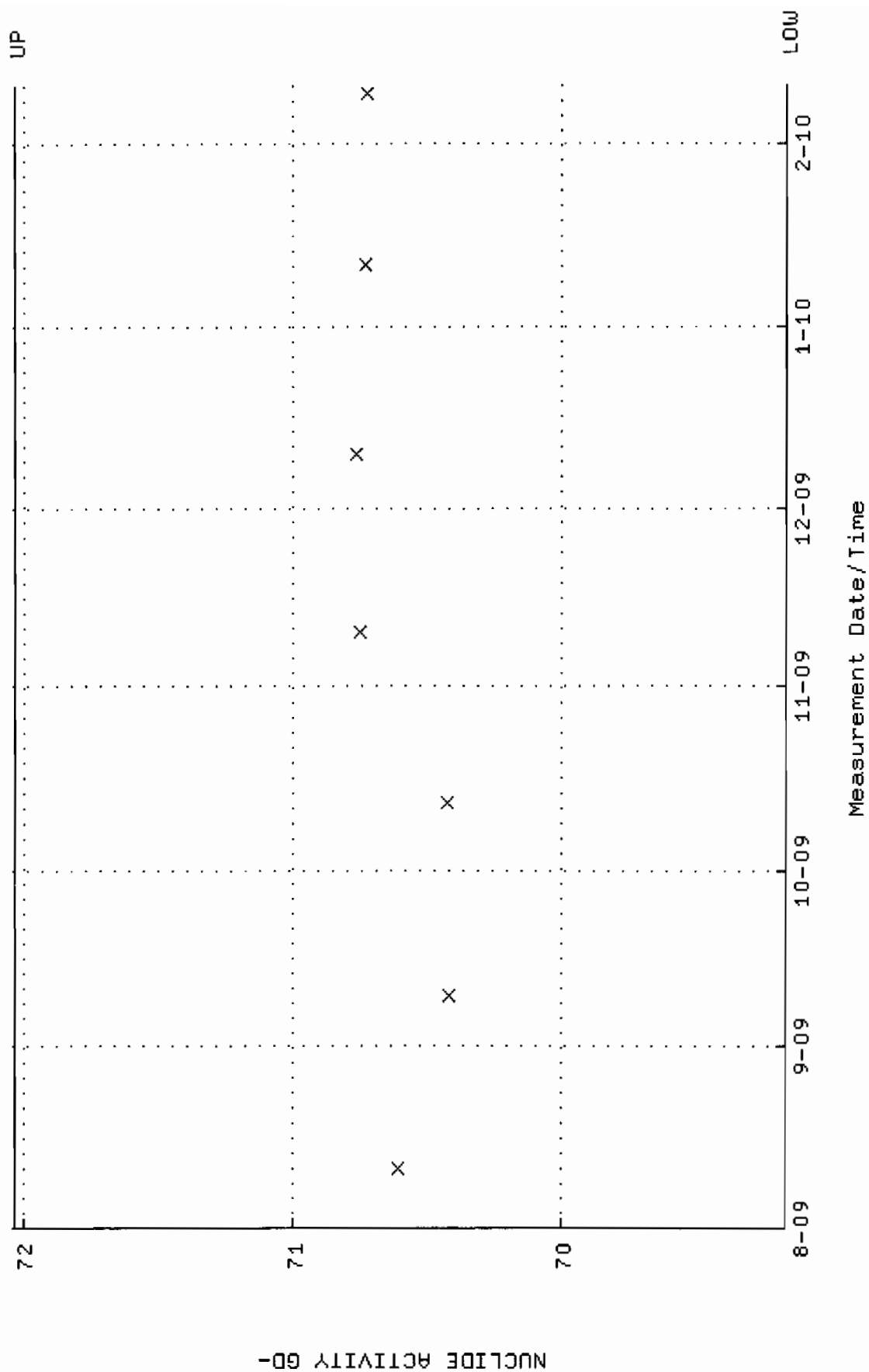
QA filename : DKA100:[ENV-ALPHA.QA.B]B106.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



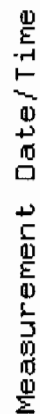
QA filename : DKA100:[ENV\_ALPHA.QA.W]W107.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.303231 through 0.317703



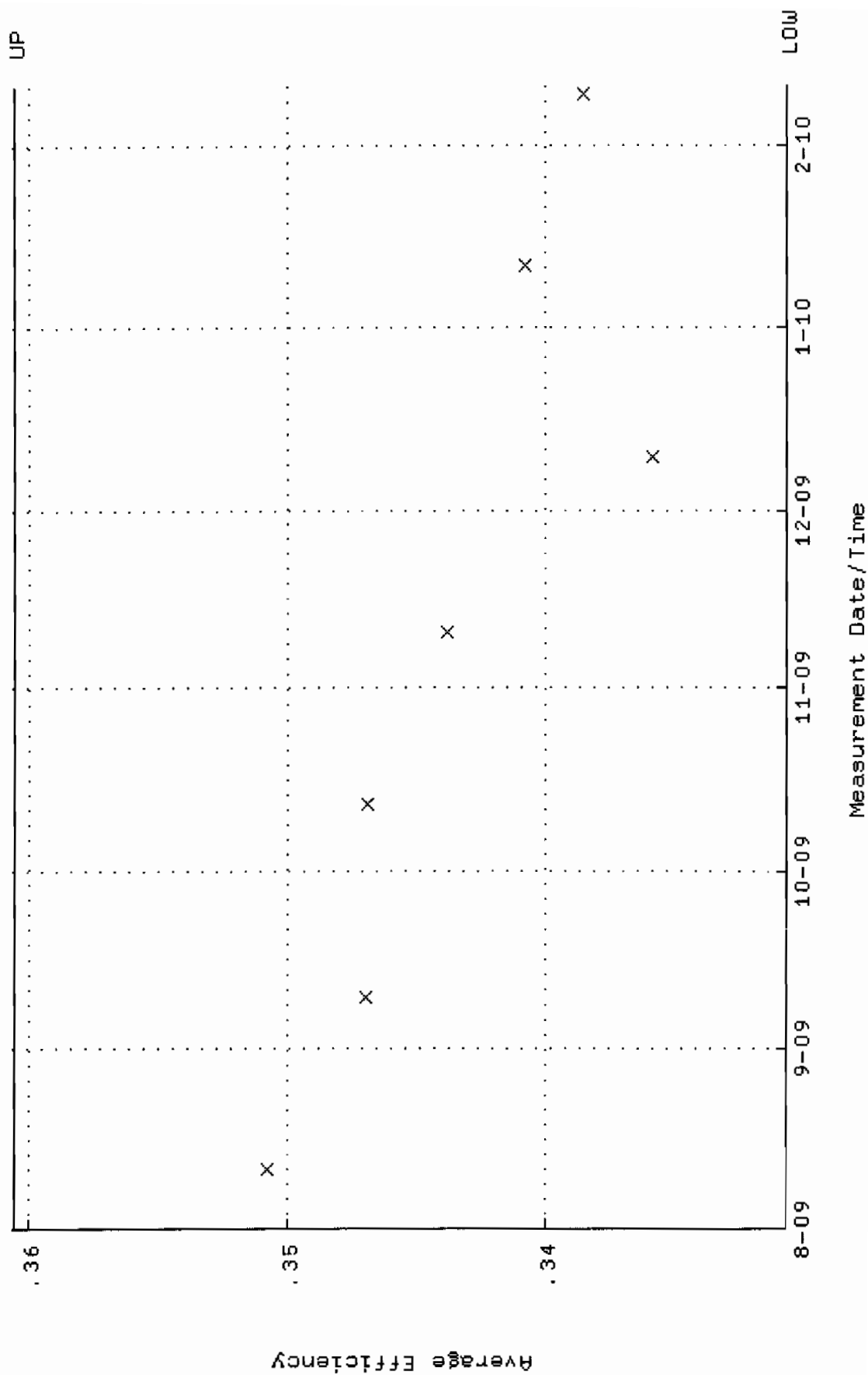
QA filename : DKA100:[ENV\_ALPHA.QA.W]W107.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 69.1572 through 72.0358



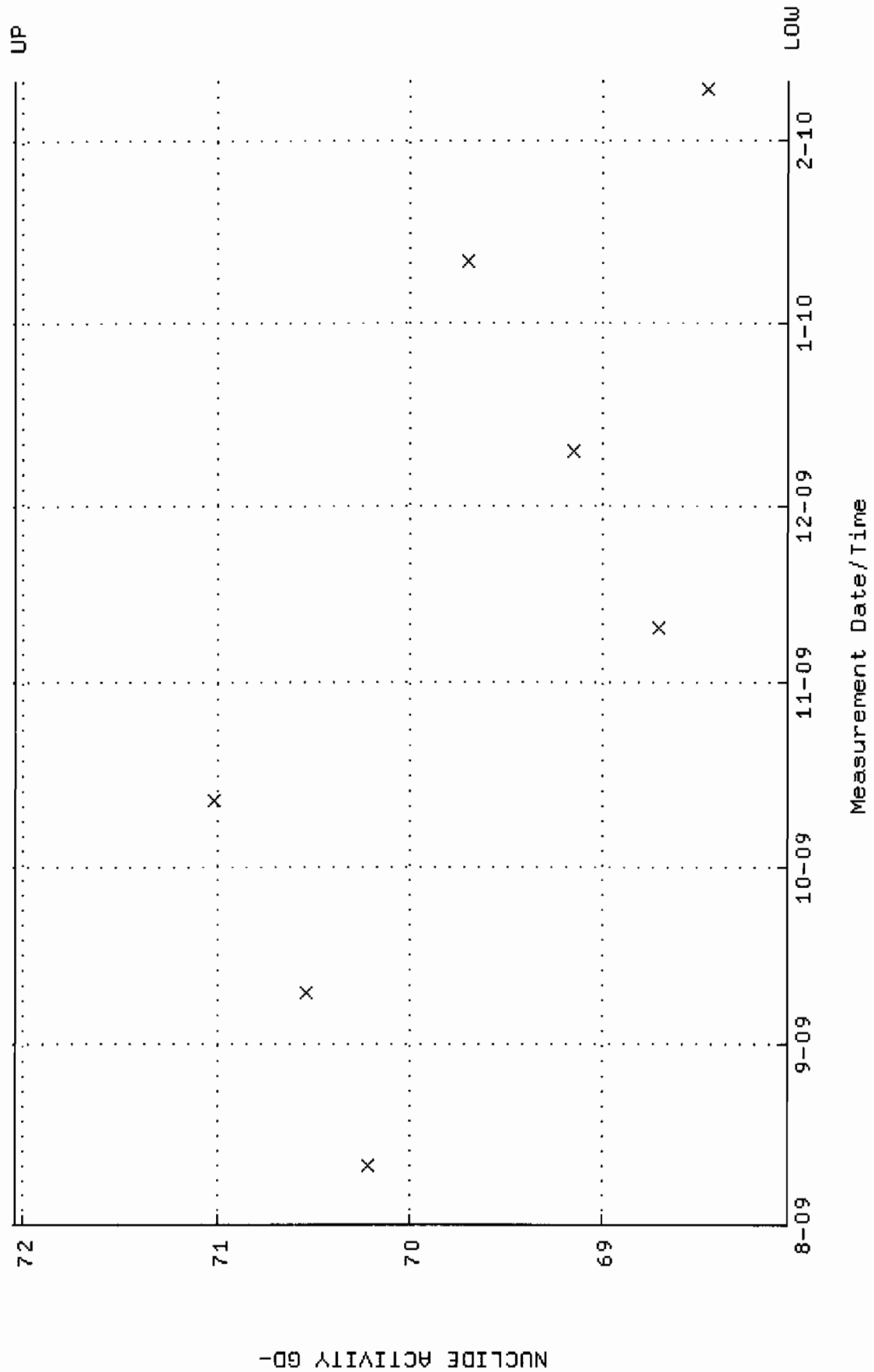
Lower/Upper Lmts: 0.000000E+00 through 0.100000



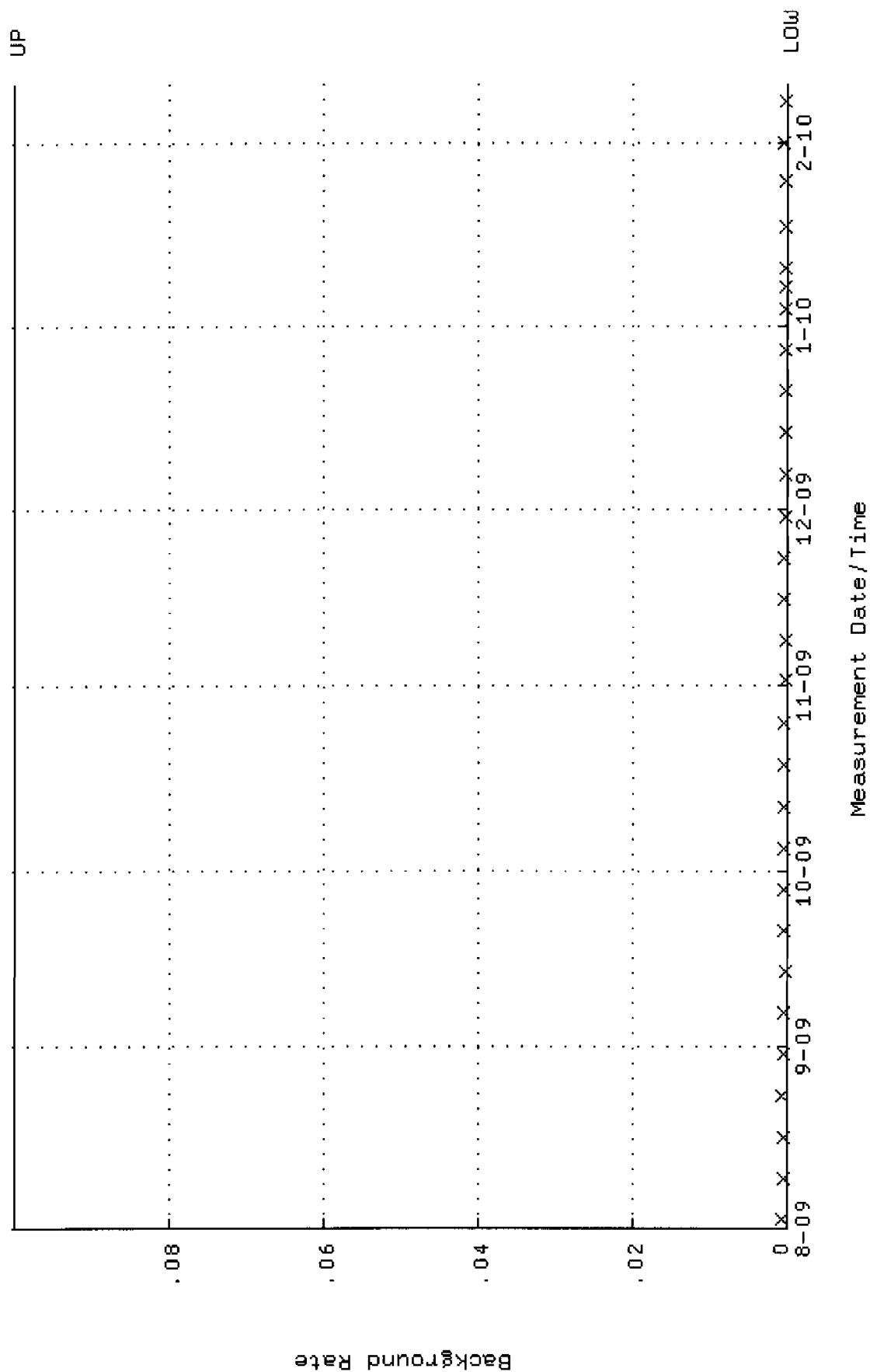
QA filename : DKA100:[ENV\_ALPHA.QA.W]W108.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.330641 through 0.360561



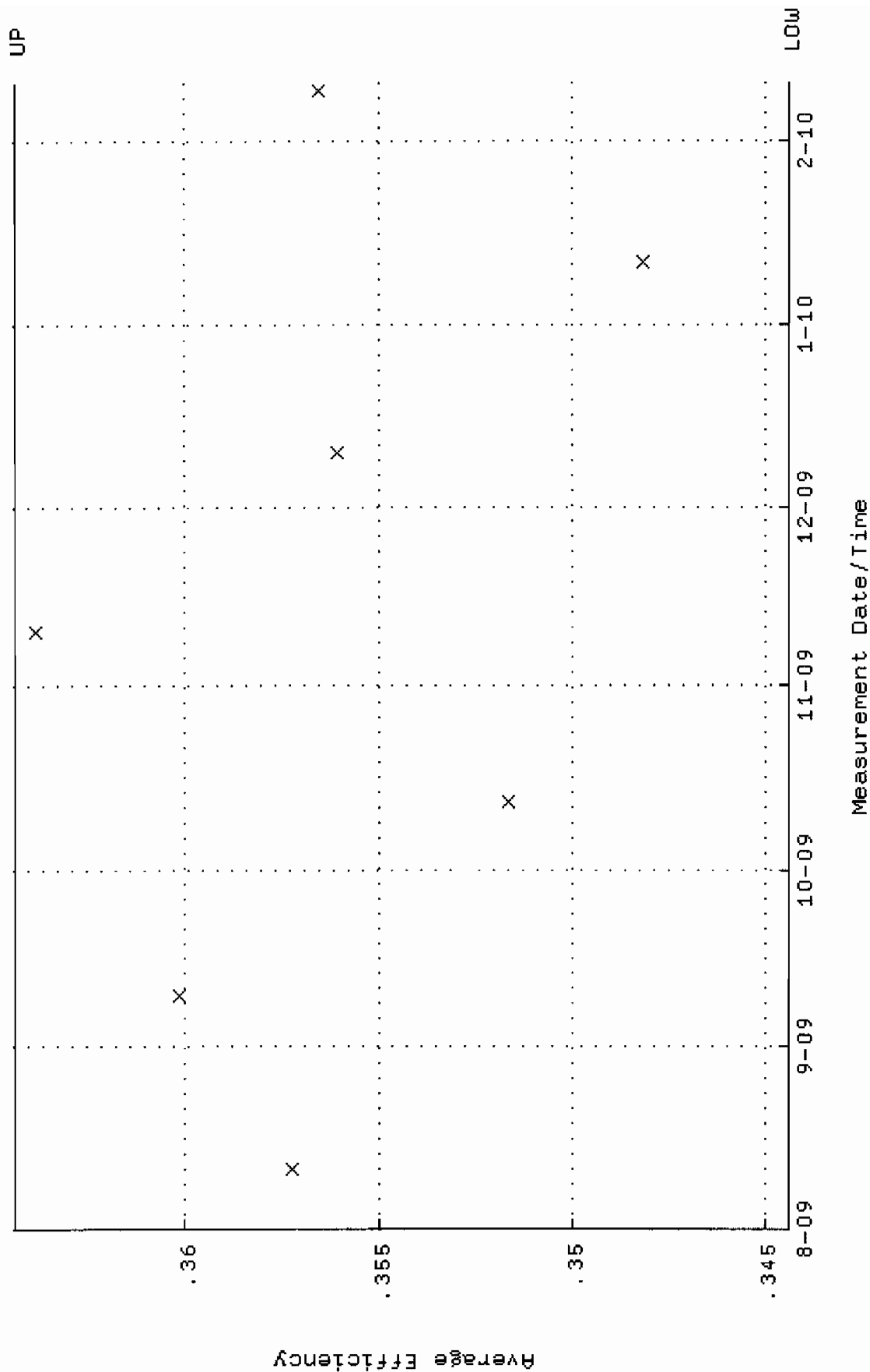
QA filename : DKA100:[ENV\_ALPHA.QA.W]W108.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 68.0460 through 72.0402



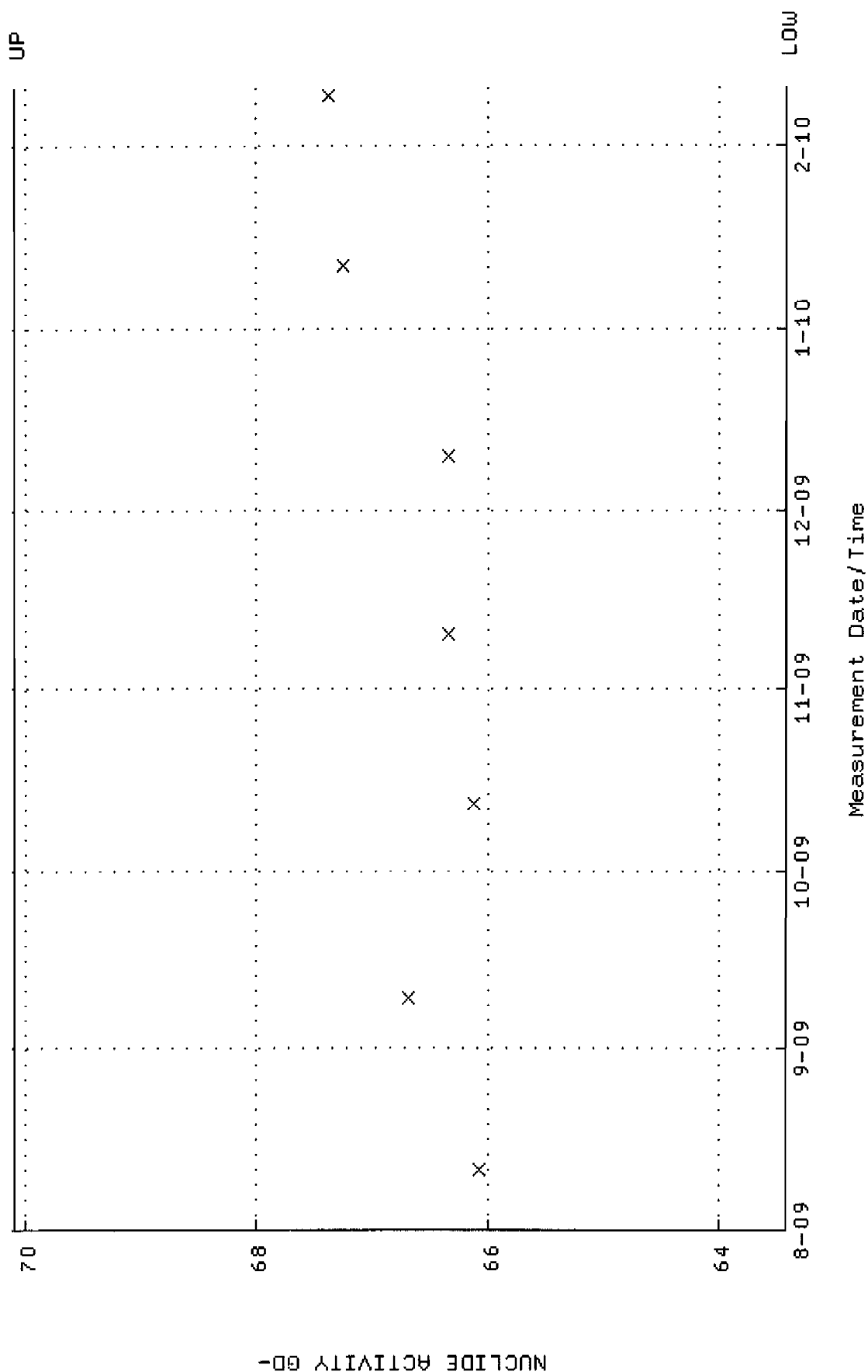
QA filename : DKA100:[ENV\_ALPHA.QA.B]B108.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : OKA100:[ENV\_ALPHA.QA.W]U109.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.344397 through 0.364397



QA filename : DKA100:[ENV-ALPHA.QA.W]W109.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 63.4194 through 70.0952

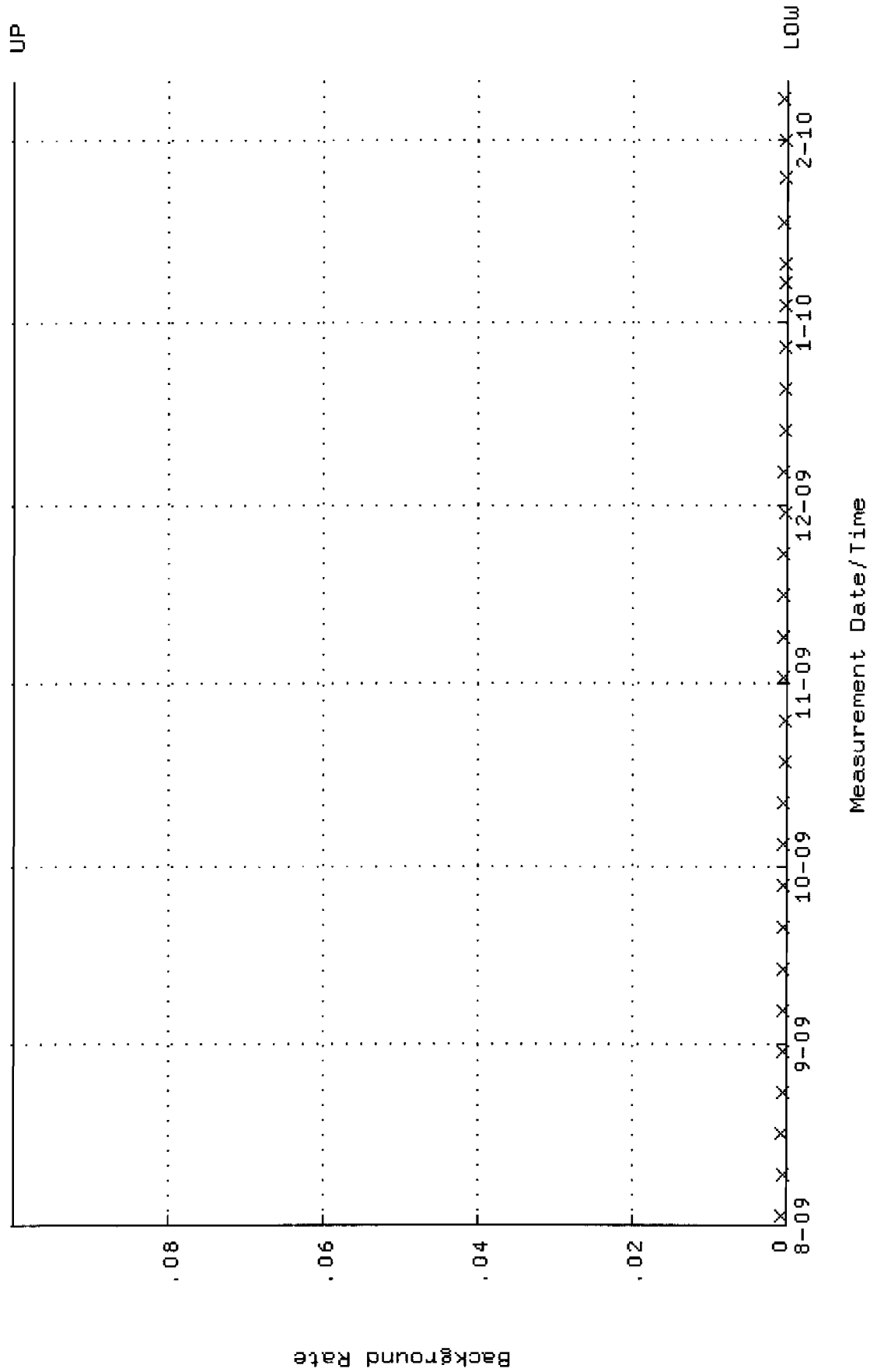


QA filename : DKA100:[ENV\_ALPHA.QA.8]B109.QAF;2

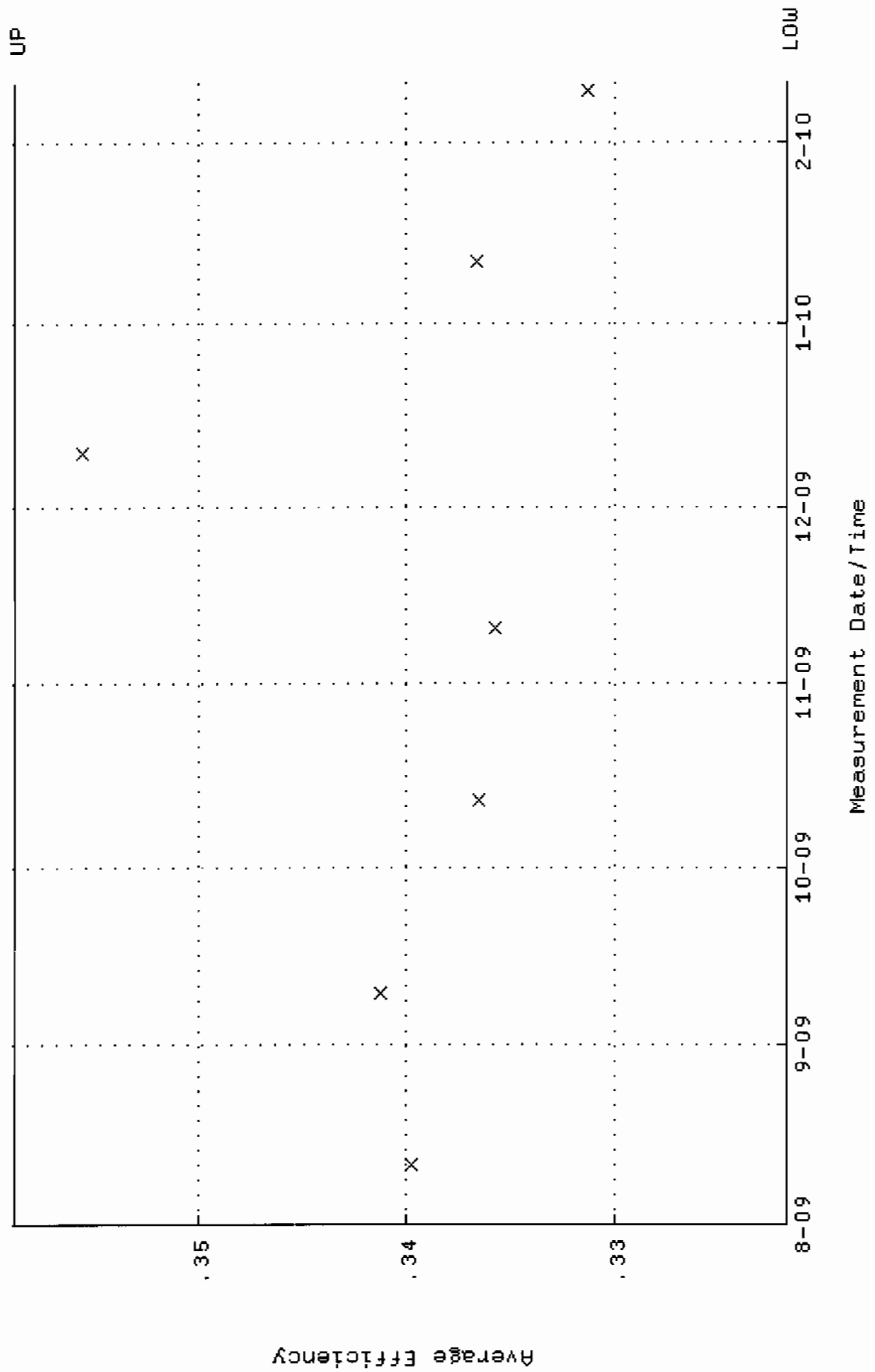
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00

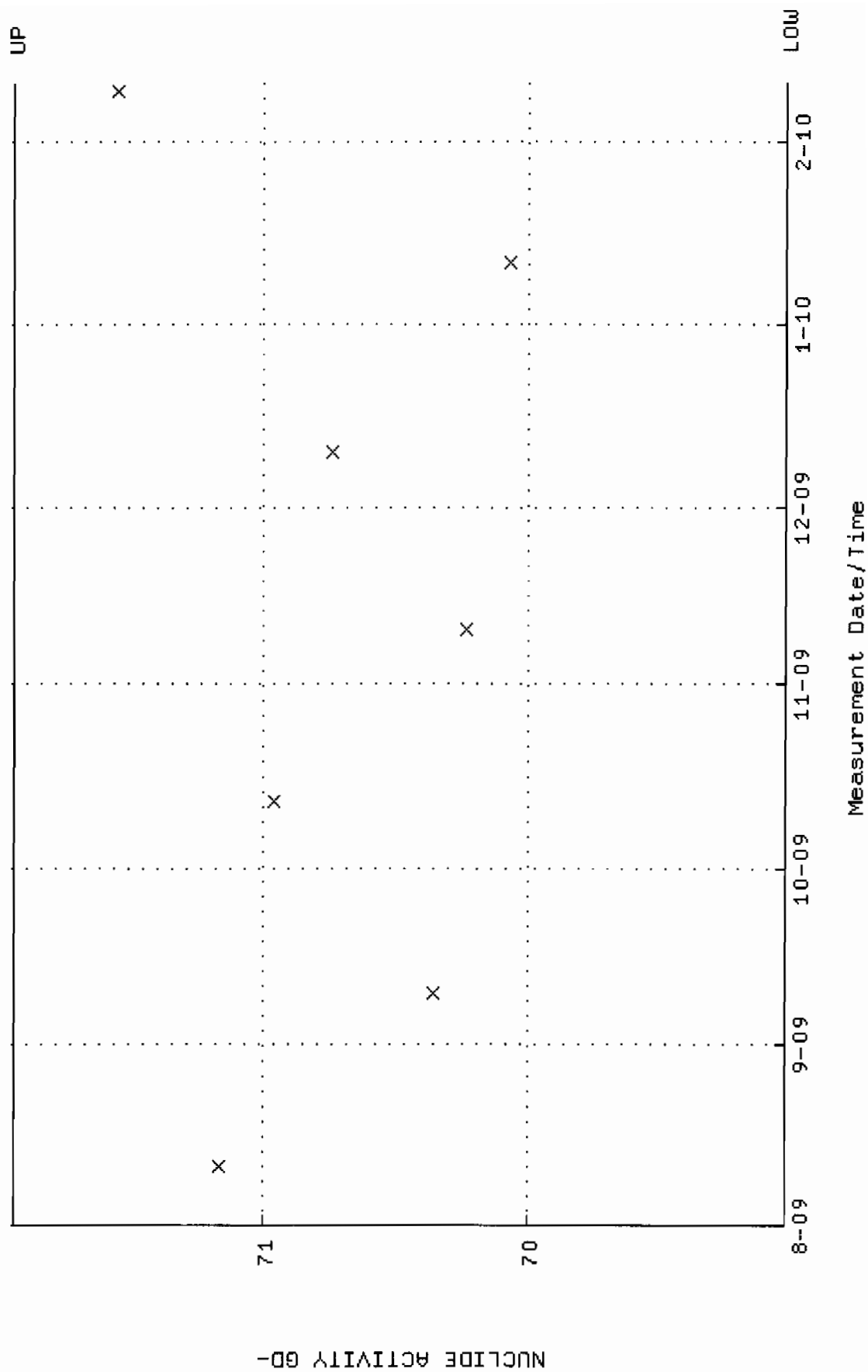
Lower/Upper Lmts: 0.000000E+00 through 0.100000



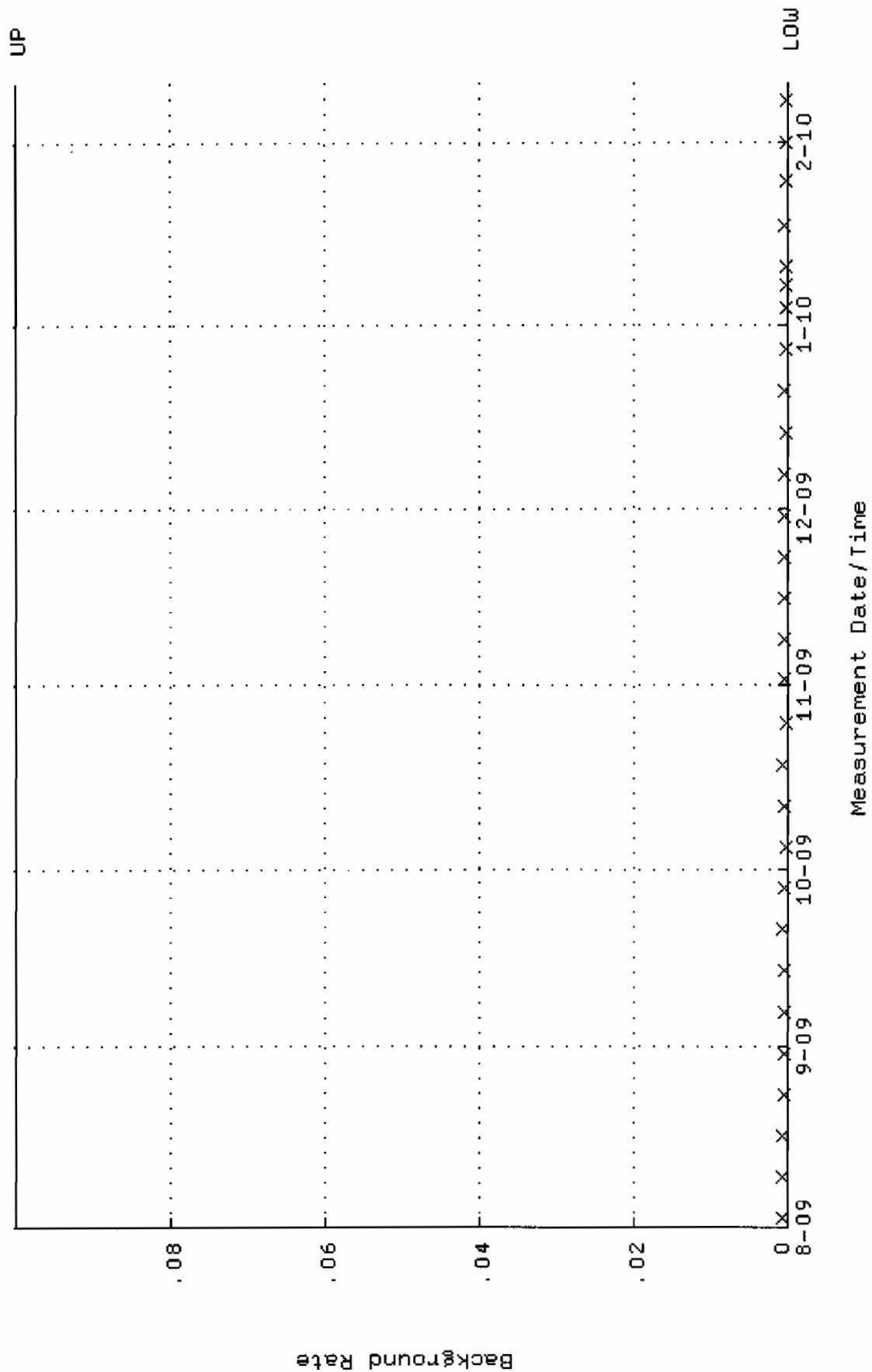
QA filename : OKA100:[ENV\_ALPHA.QA.W]W111.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.321662 through 0.358794



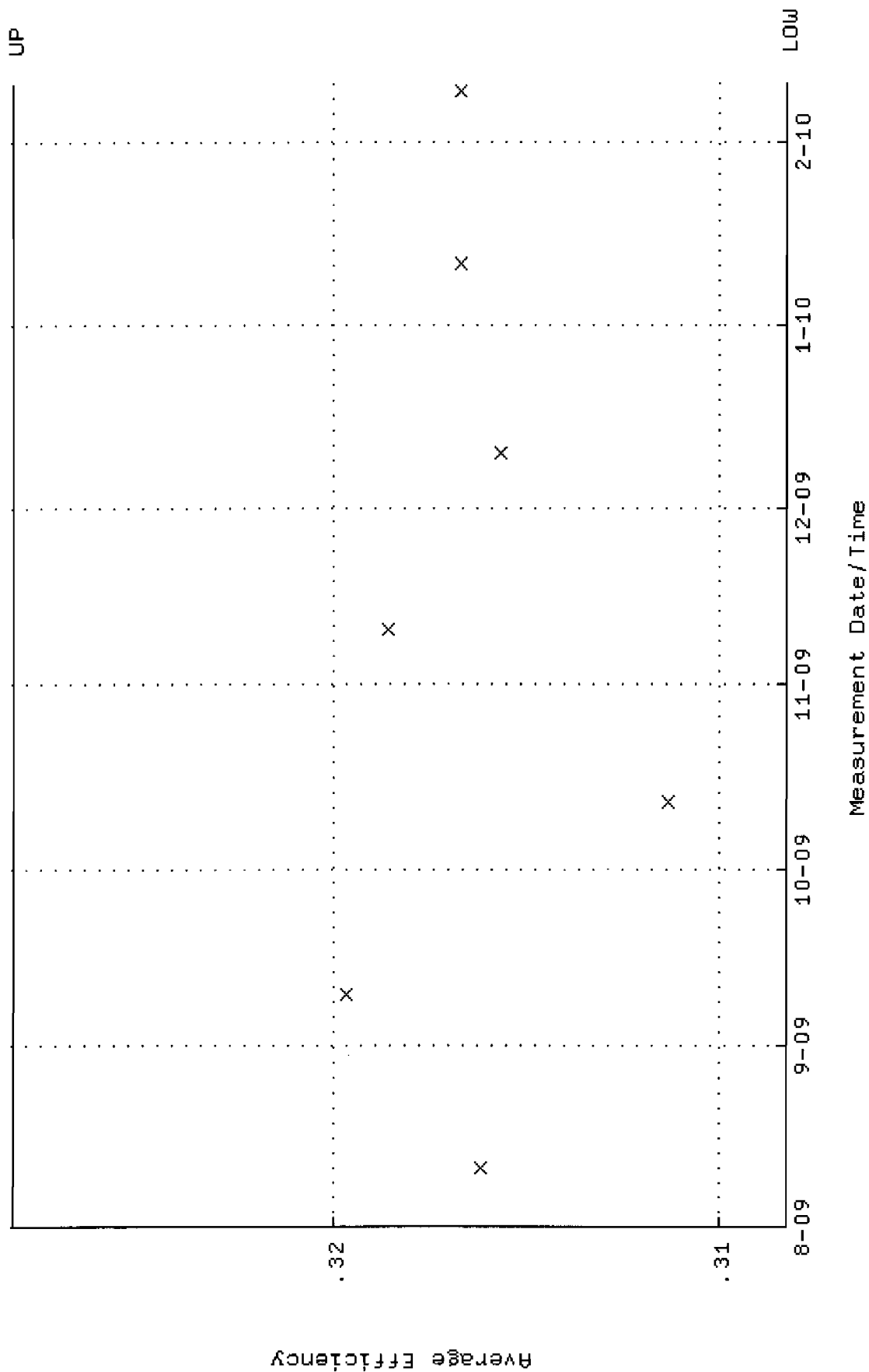
QA filename : DKA100:[ENV\_ALPHA.QA.W]W111.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 69.0200 through 71.9448



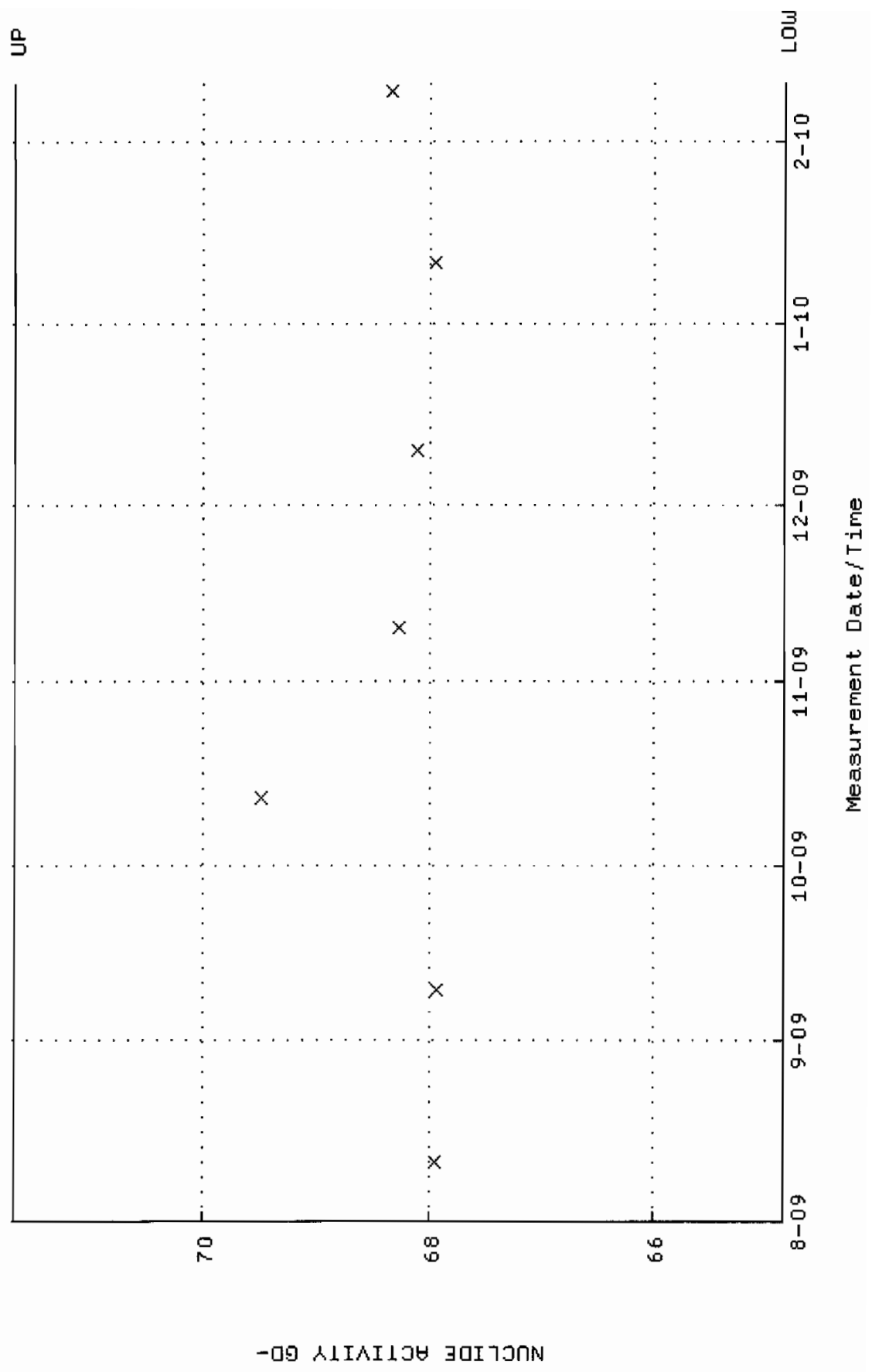
QA filename : DKA100:[ENV\_ALPHA.QA.B]B111.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W112.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.308263 through 0.328263



QA filename : DKA100:[ENV\_ALPHA.QA.W]W112.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 64.8451 through 71.6709

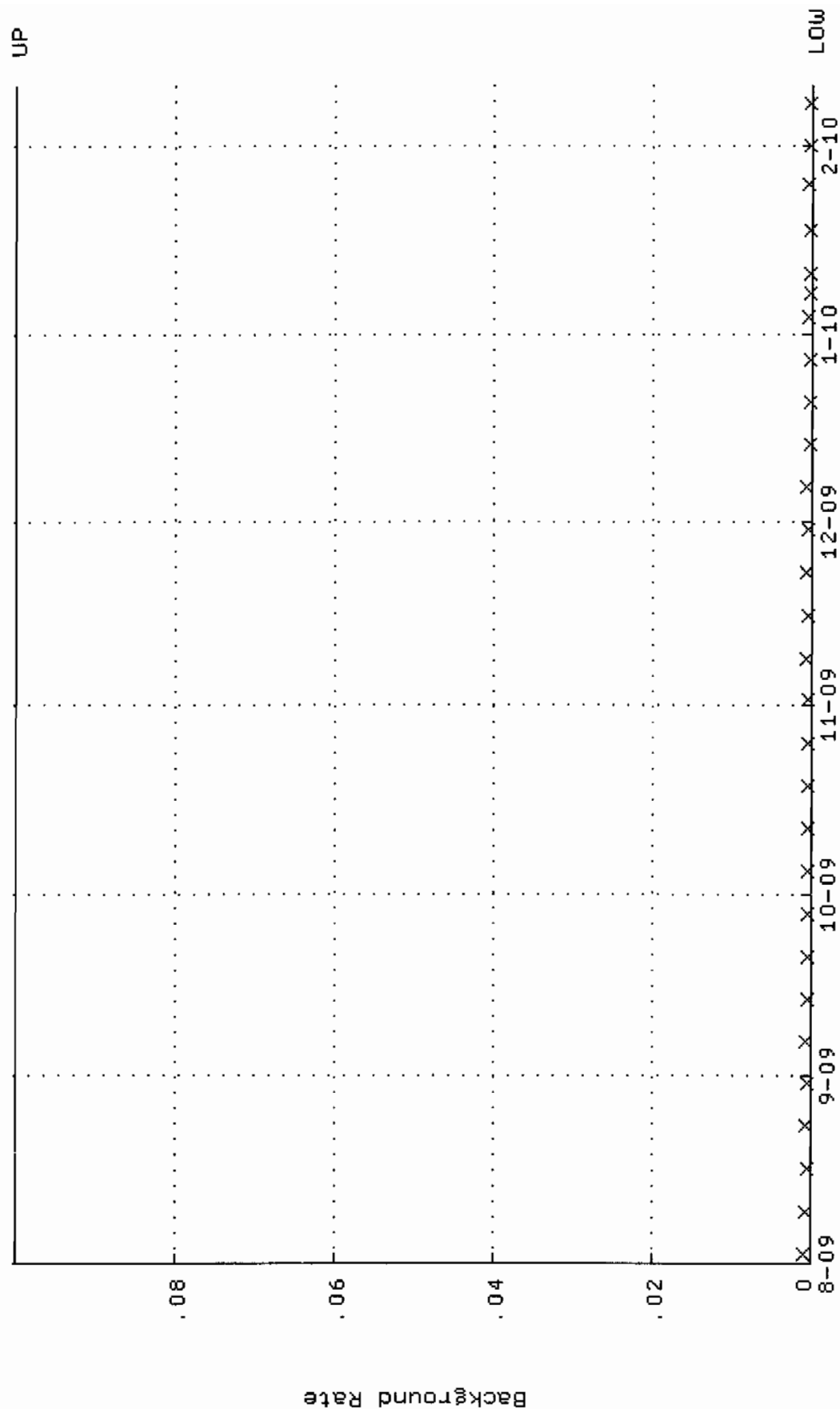


QA filename : DKA100:[ENV\_ALPHA.QA.B]B112.QAF;2

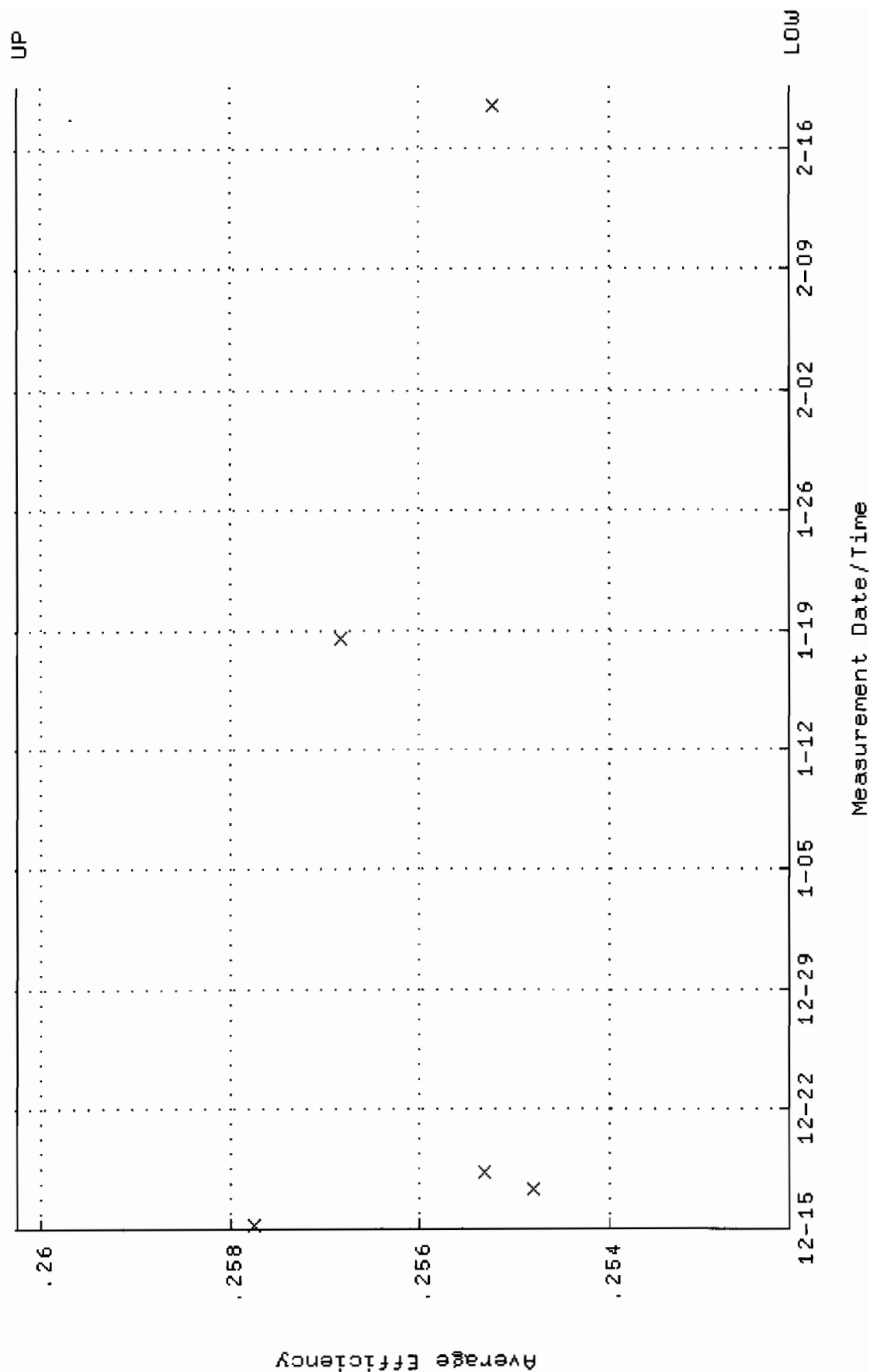
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00

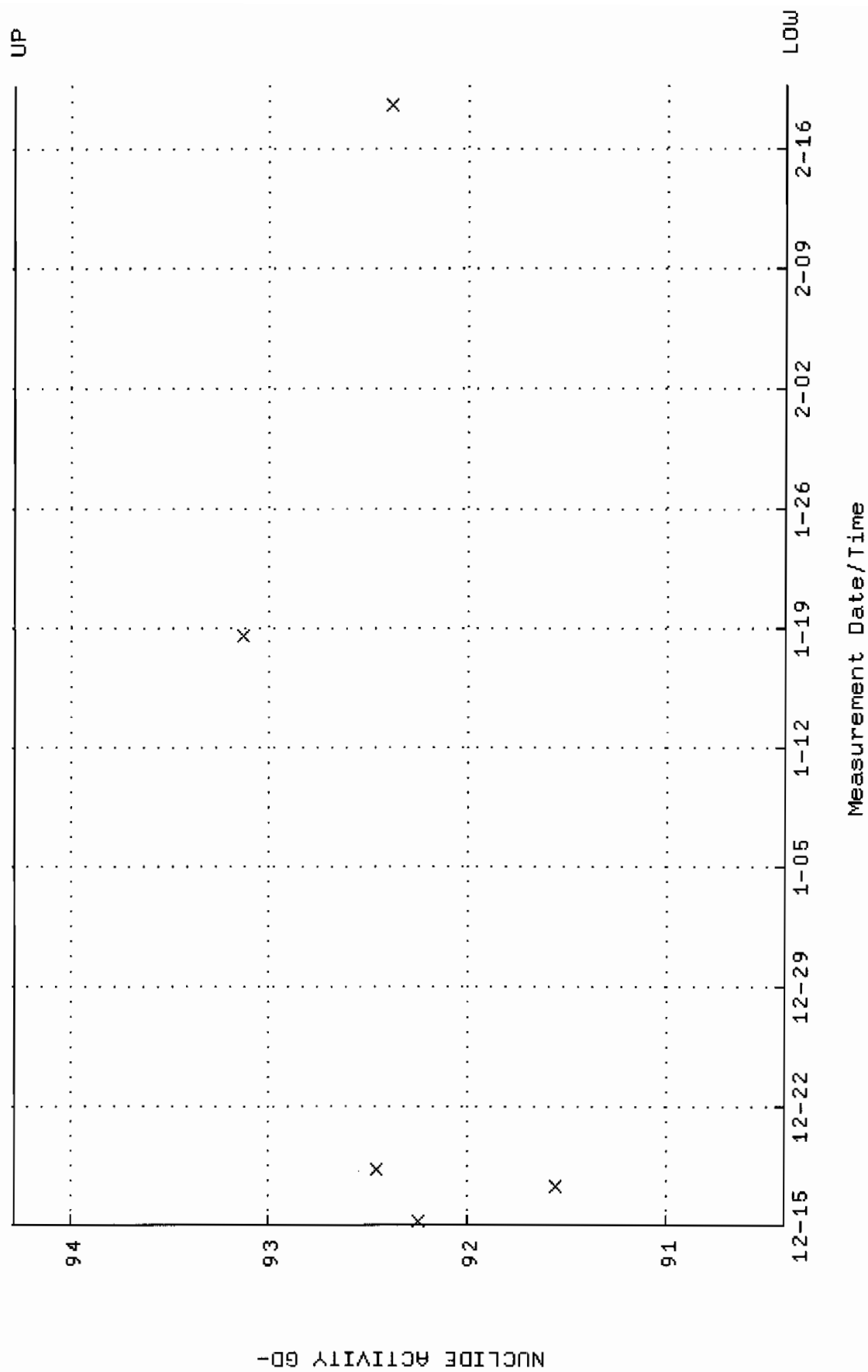
Lower/Upper Lmts: 0.000000E+00 through 0.100000



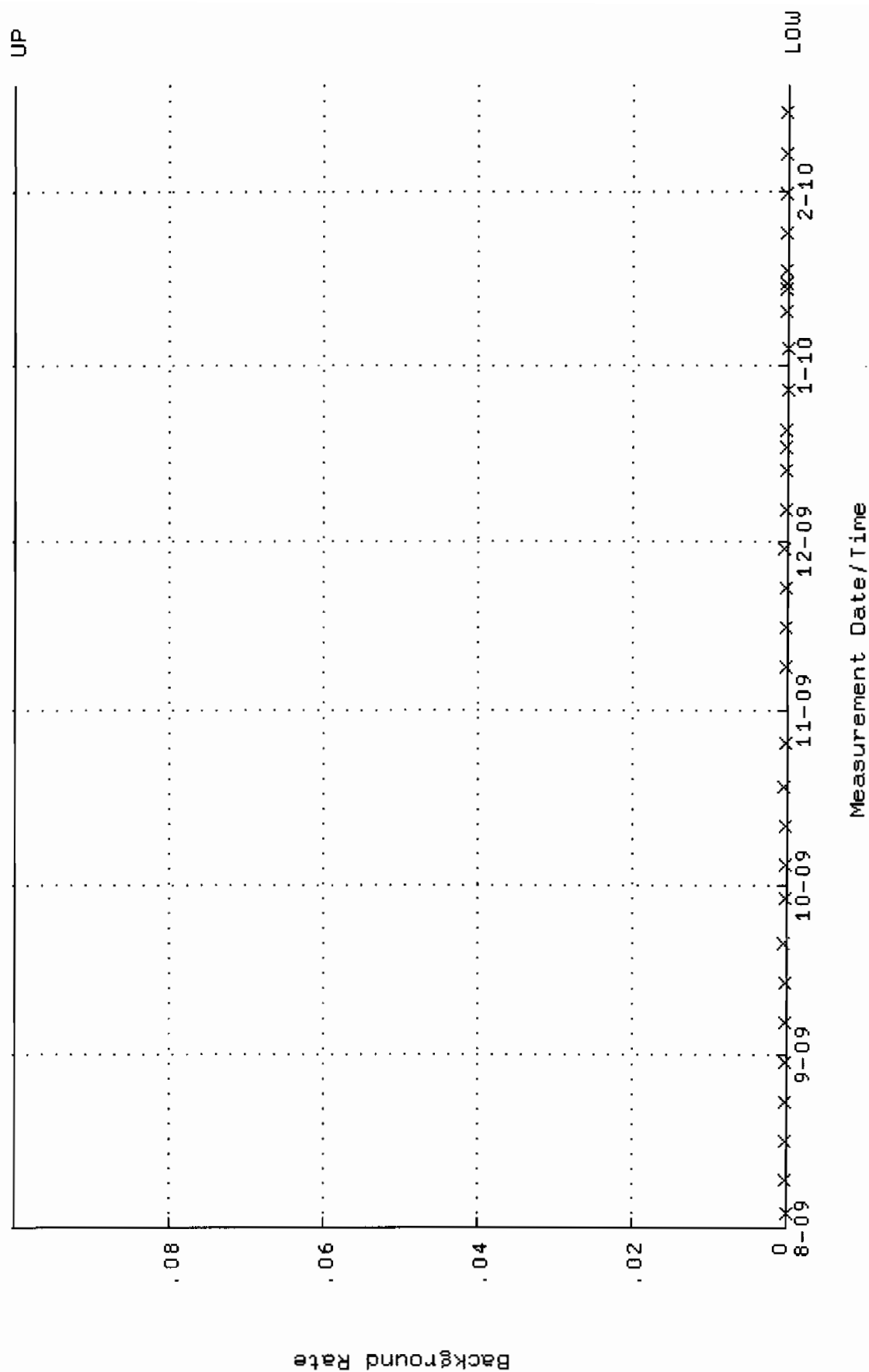
QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.252093 through 0.260243



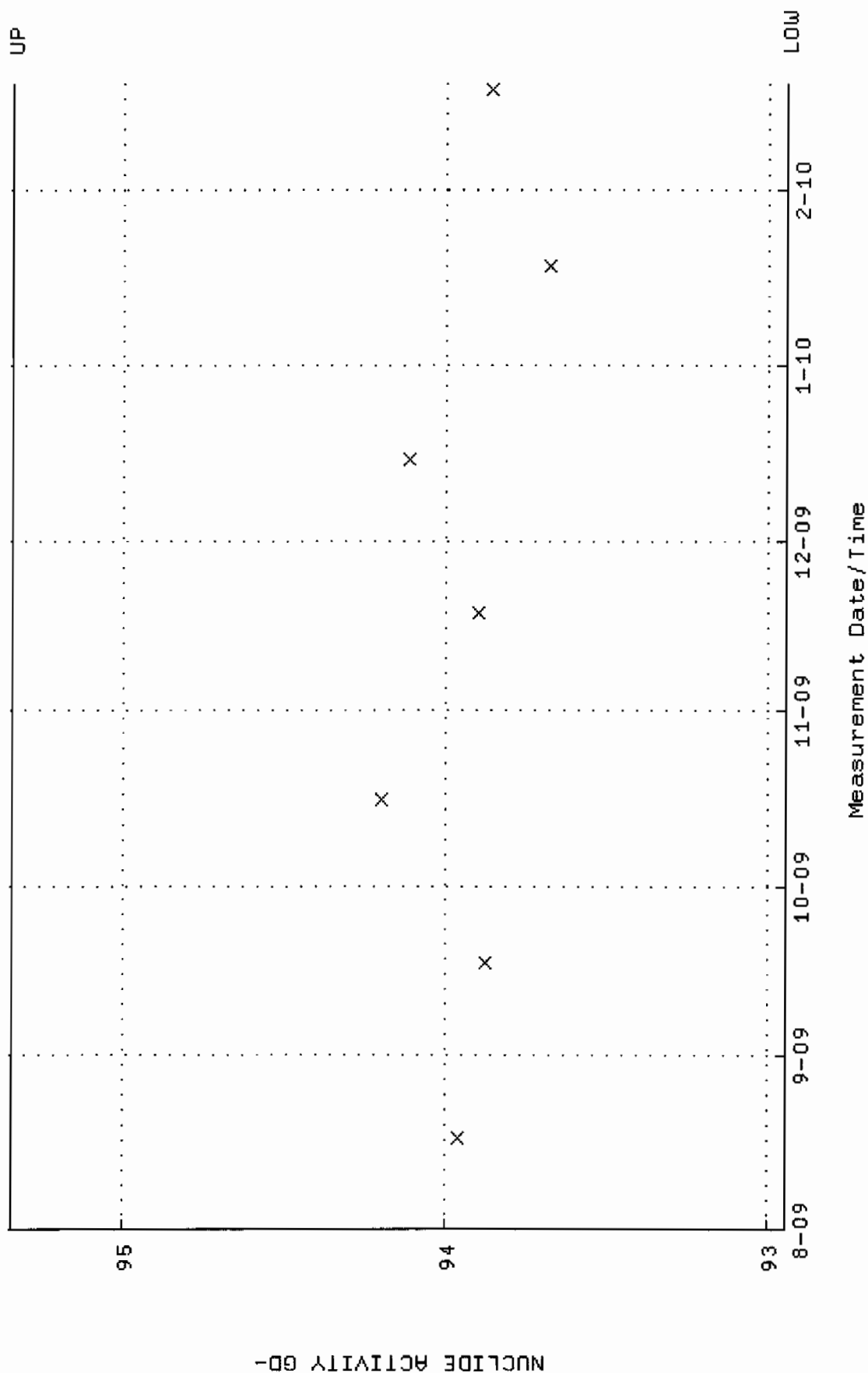
QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 90.4107 through 94.2781



QA filename : DKA100:[ENV\_ALPHA.QA.B]B119.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 3-AUG-2009 15:38:13 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W133.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:42:22 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 92.9459 through 95.3425

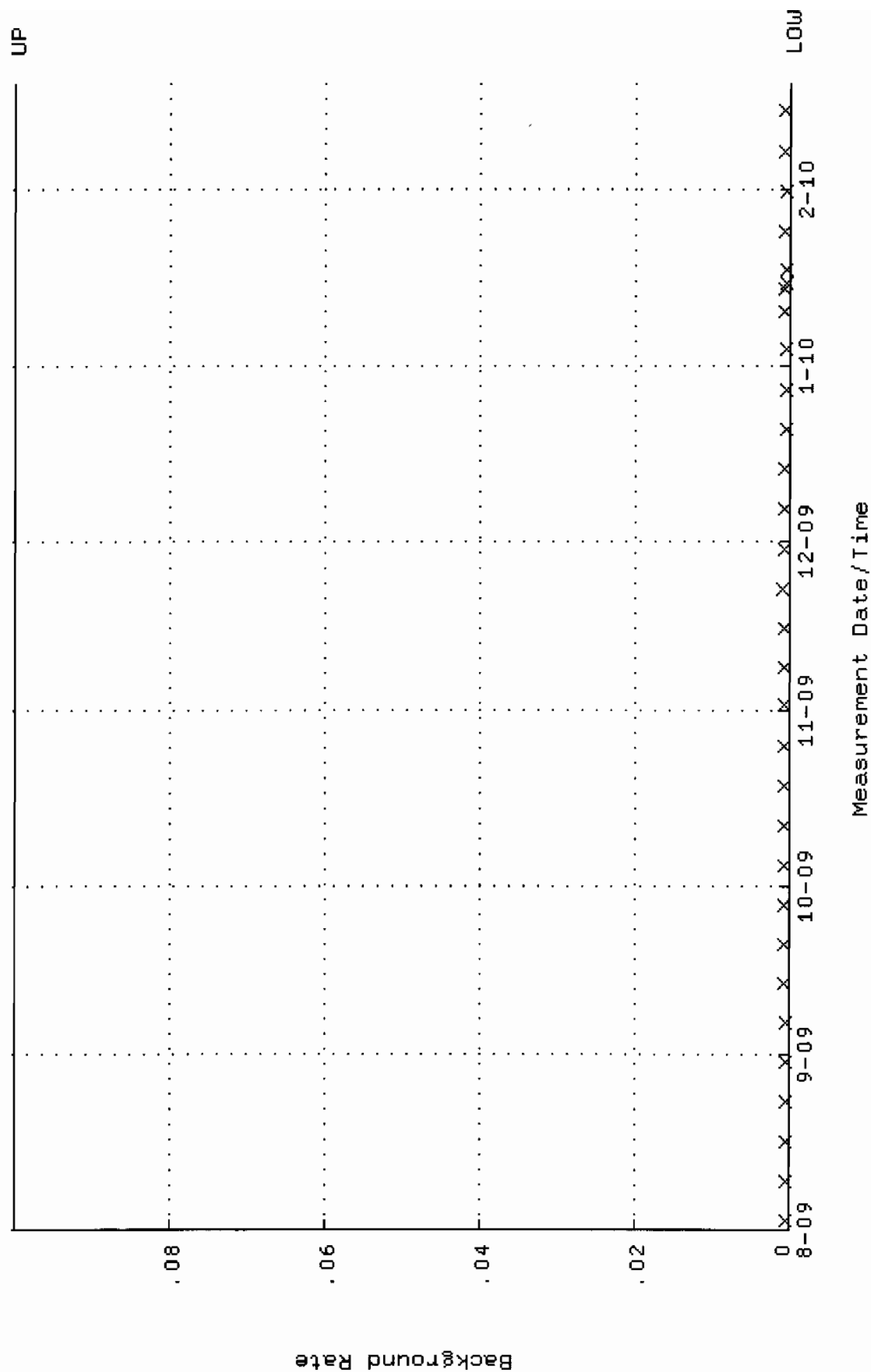


QA filename : DKA100:[ENV\_ALPHA.QA.B]B133.QAF;1

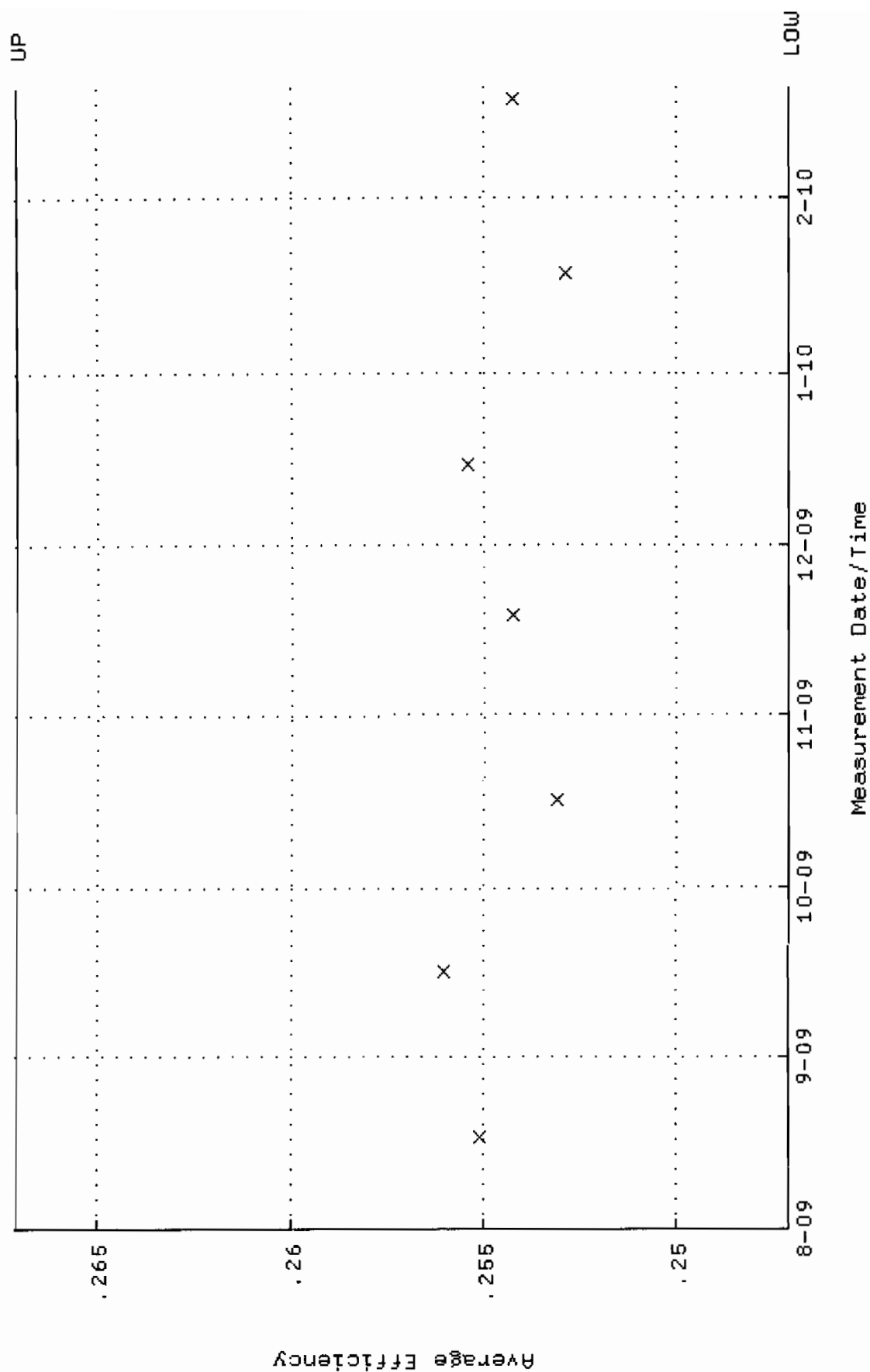
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:13:28 through 19-FEB-2010 12:00:00

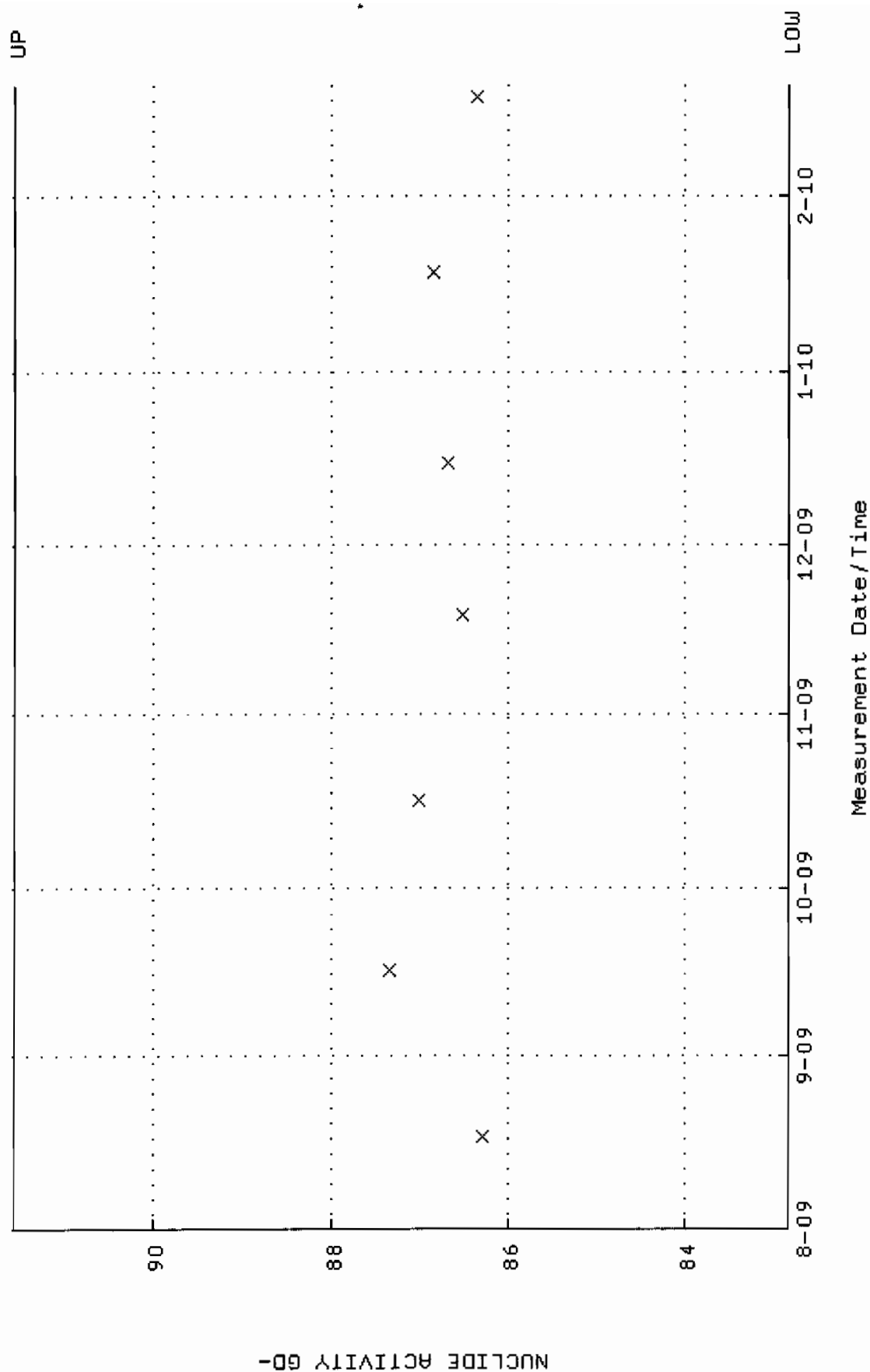
Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W138.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:05:25 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.247085 through 0.267085



QA filename : DKA100:[ENV\_ALPHA.QA.W]W138.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:05:25 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 82.8399 through 91.5599

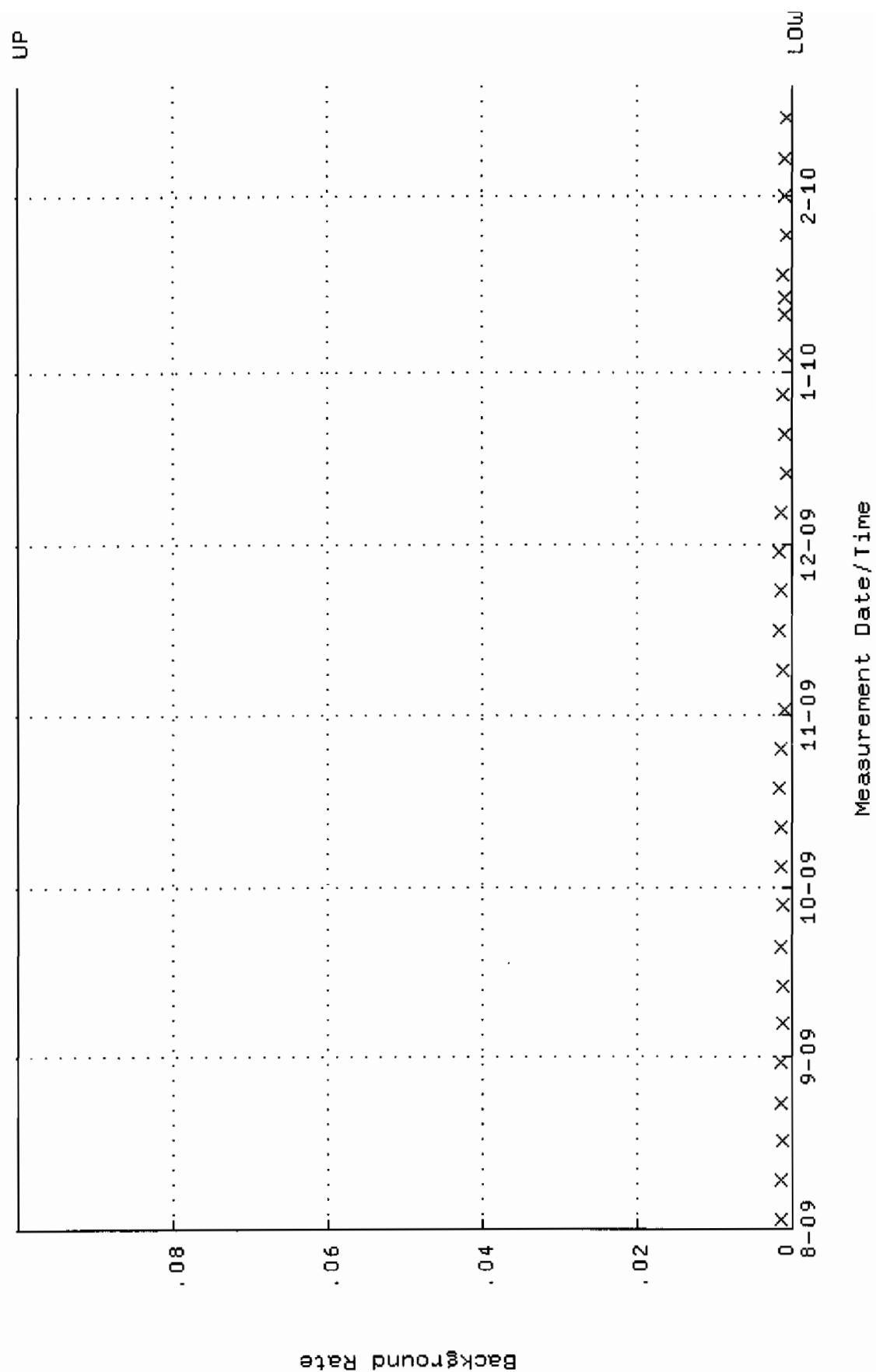


QA filename : DKA100:[ENV\_ALPHA.QA.B]B138.QAF;1

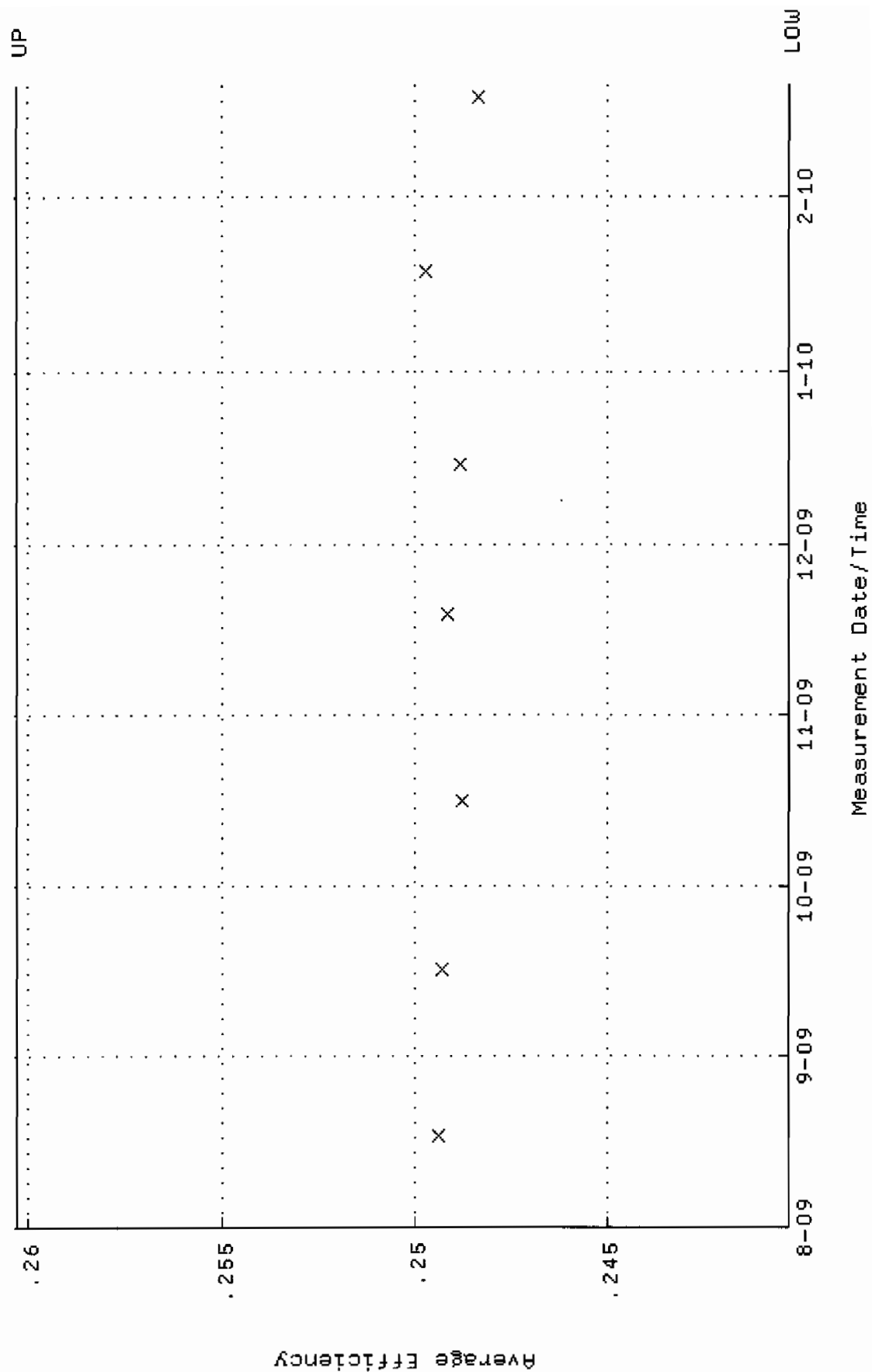
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:13:48 through 20-FEB-2010 12:00:00

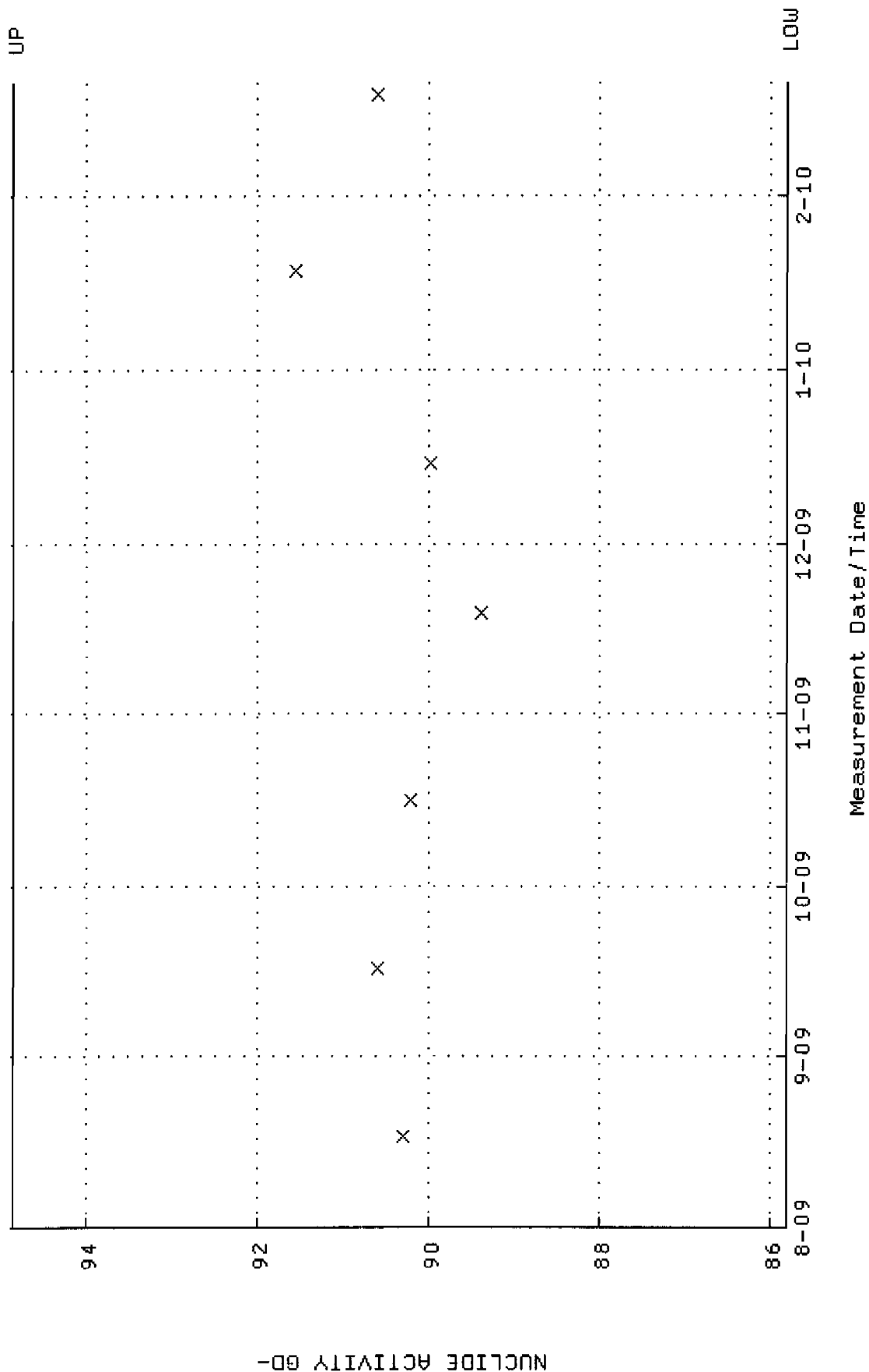
Lower/Upper Lmts: 0.000000E+00 through 0.100000



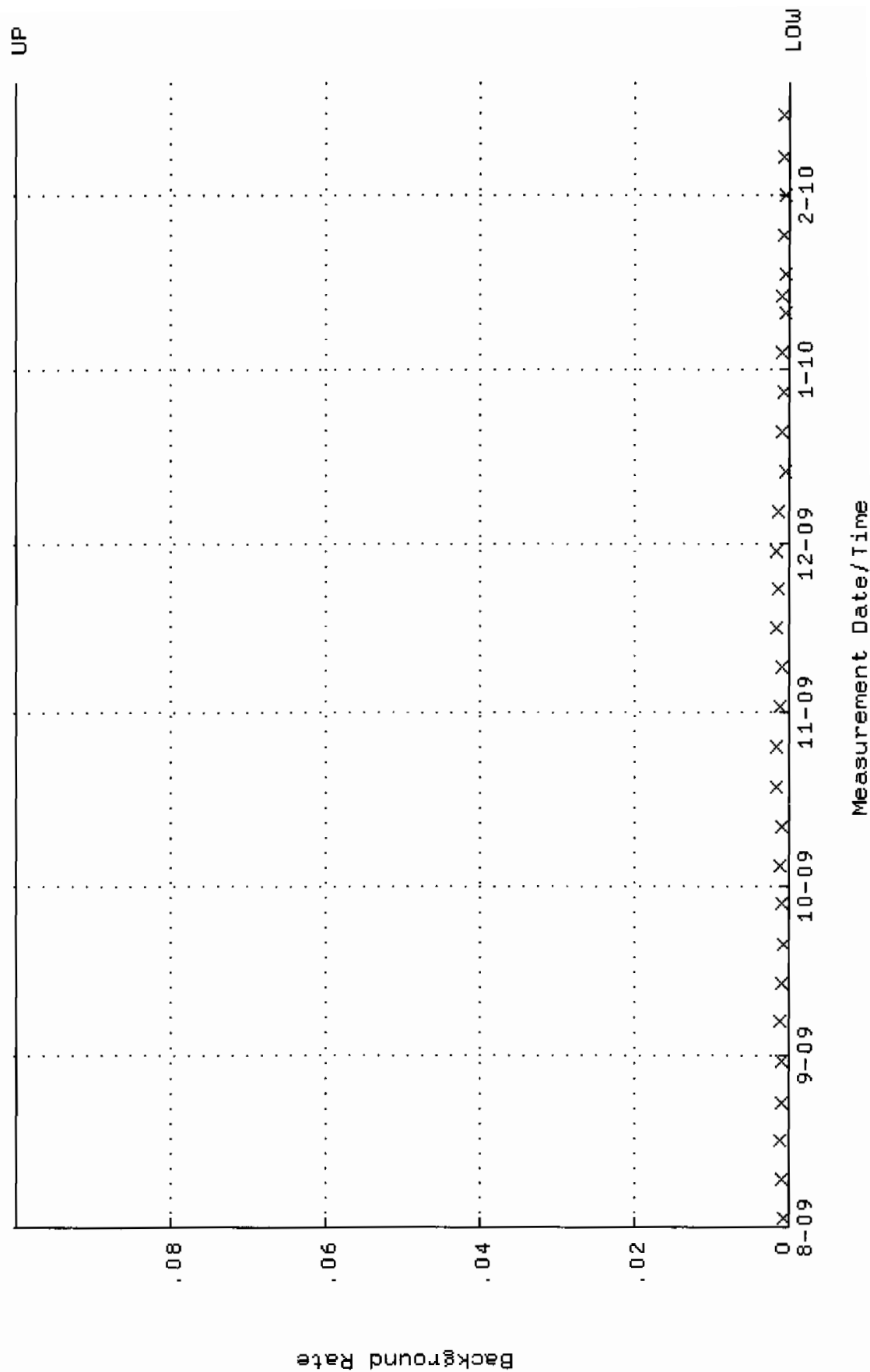
QA filename : DKA100:[ENV\_ALPHA.QA.w]w139.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:05:40 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.240299 through 0.260299



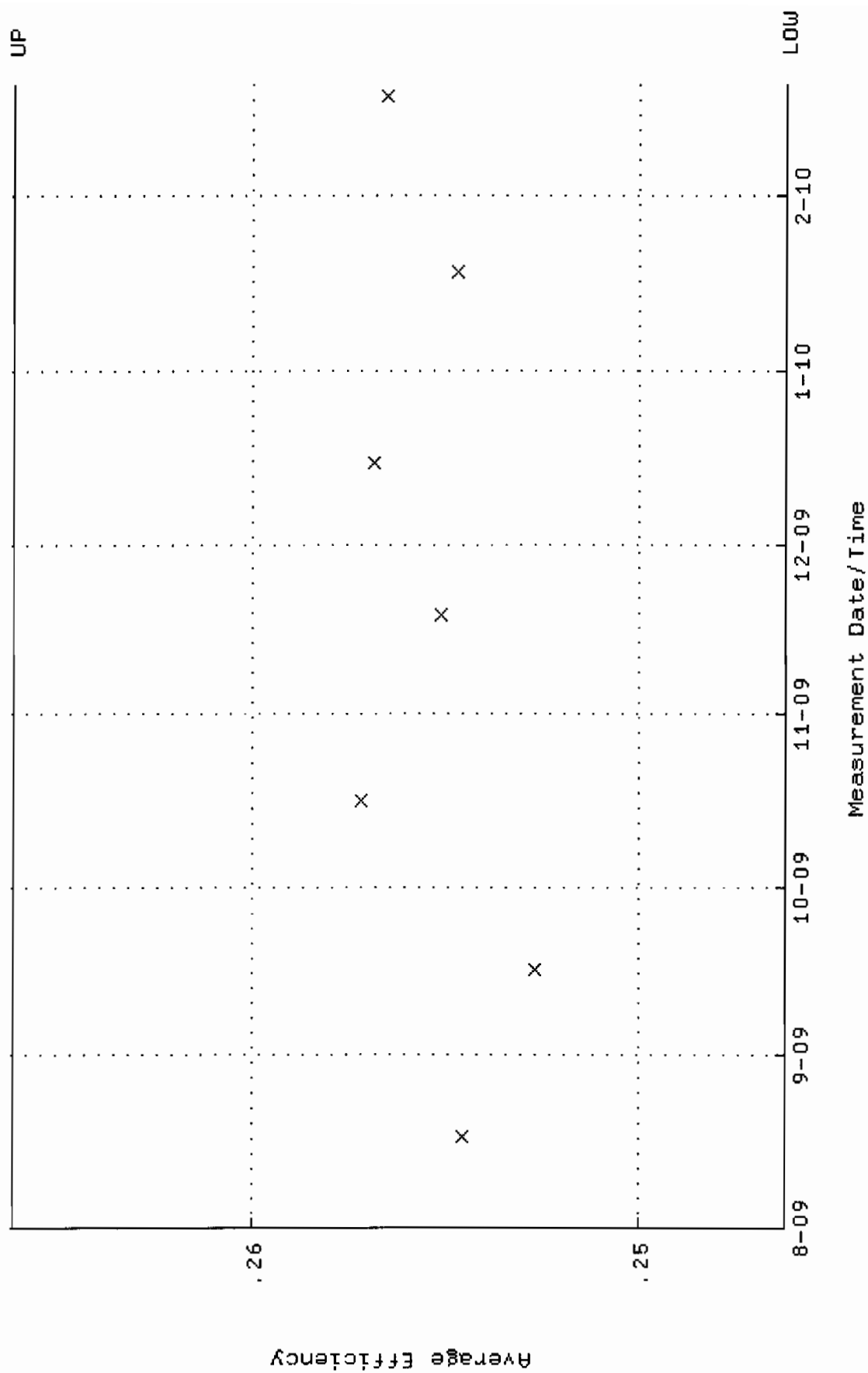
QA filename : DKA100:[ENVY\_ALPHA.QA.W]W139.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:05:40 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 85.8145 through 94.8477



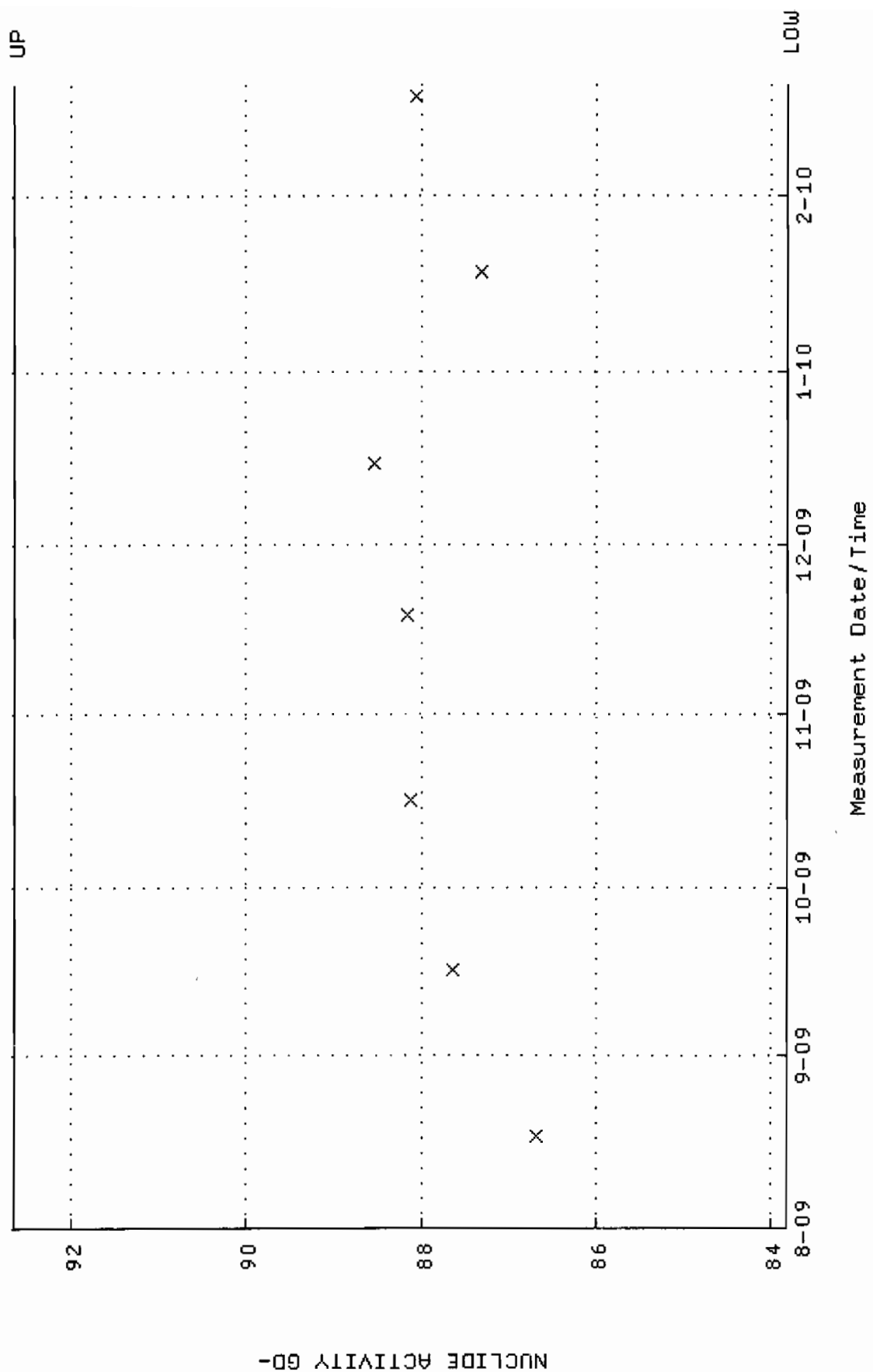
QA filename : DKA100:[ENV\_ALPHA.QA.B]B139.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:13:52 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



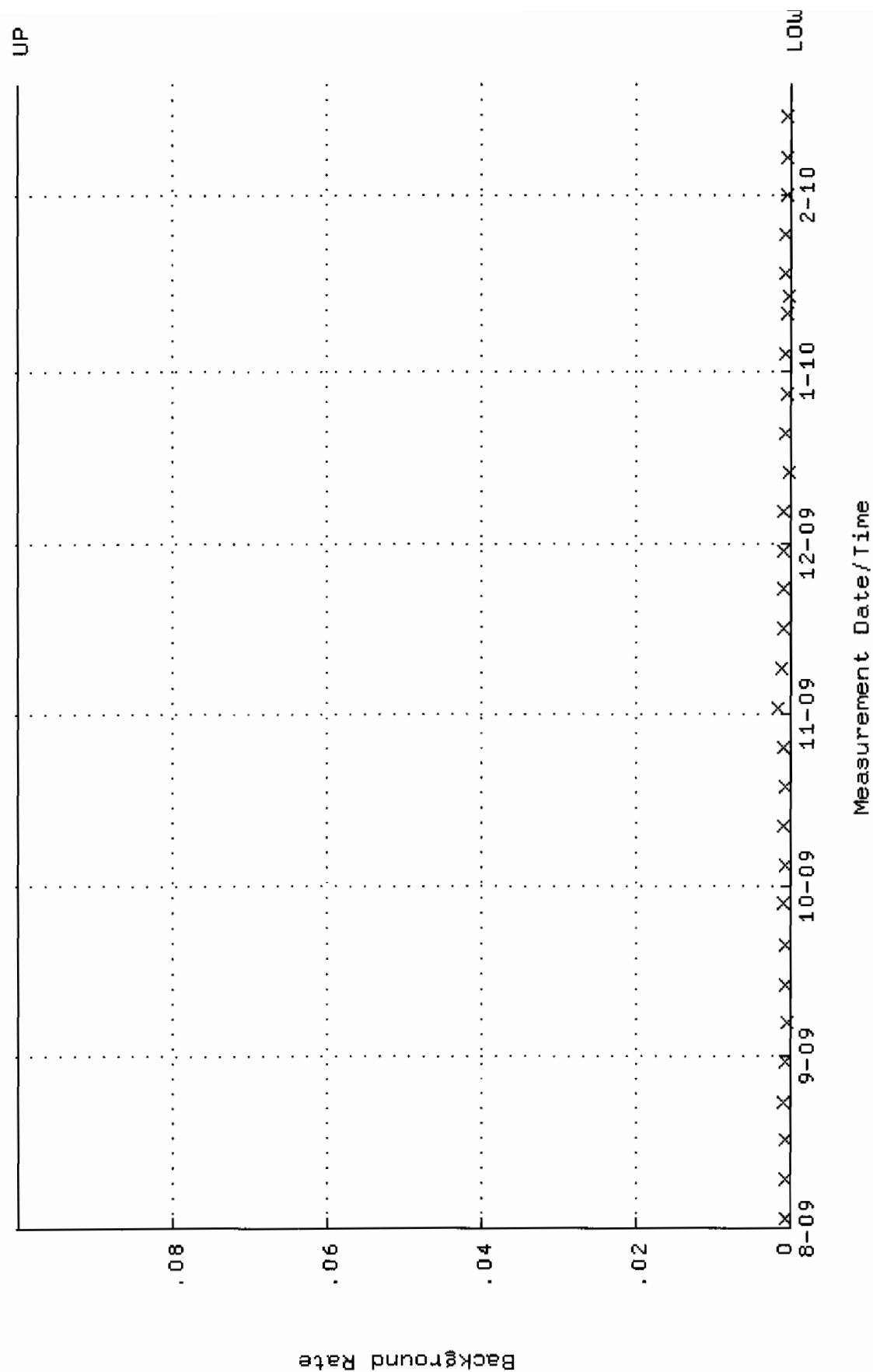
QA filename : DKA100:[ENV\_ALPHA.QA.W]w140.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:05:55 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.246178 through 0.266178



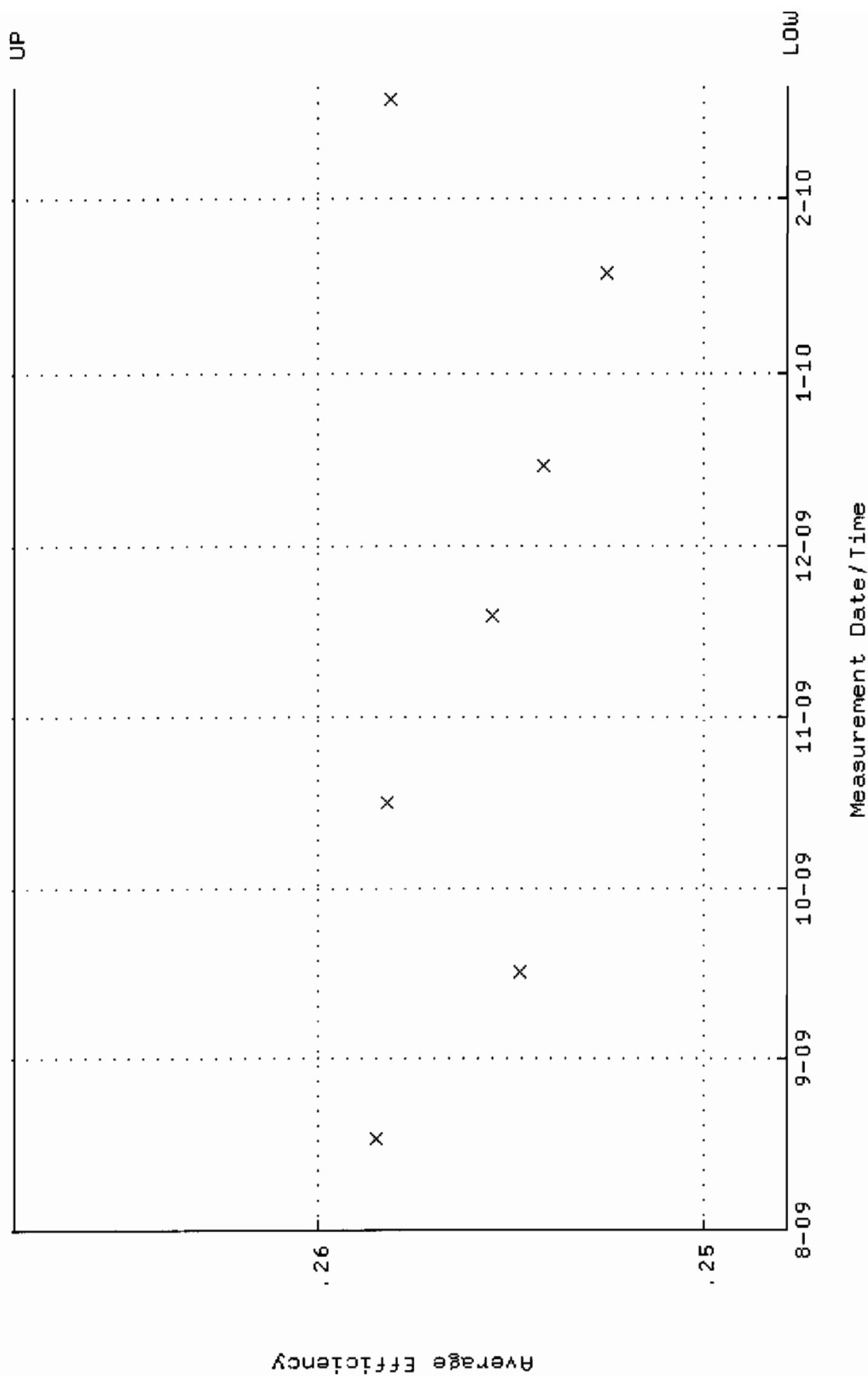
QA filename : DKA100:[ENV-ALPHA.QA.W]W140.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 17-AUG-2009 10:05:55 through 20-FEB-2010 12:00:00  
Lower/Upper Lmts: 83.8171 through 92.6399



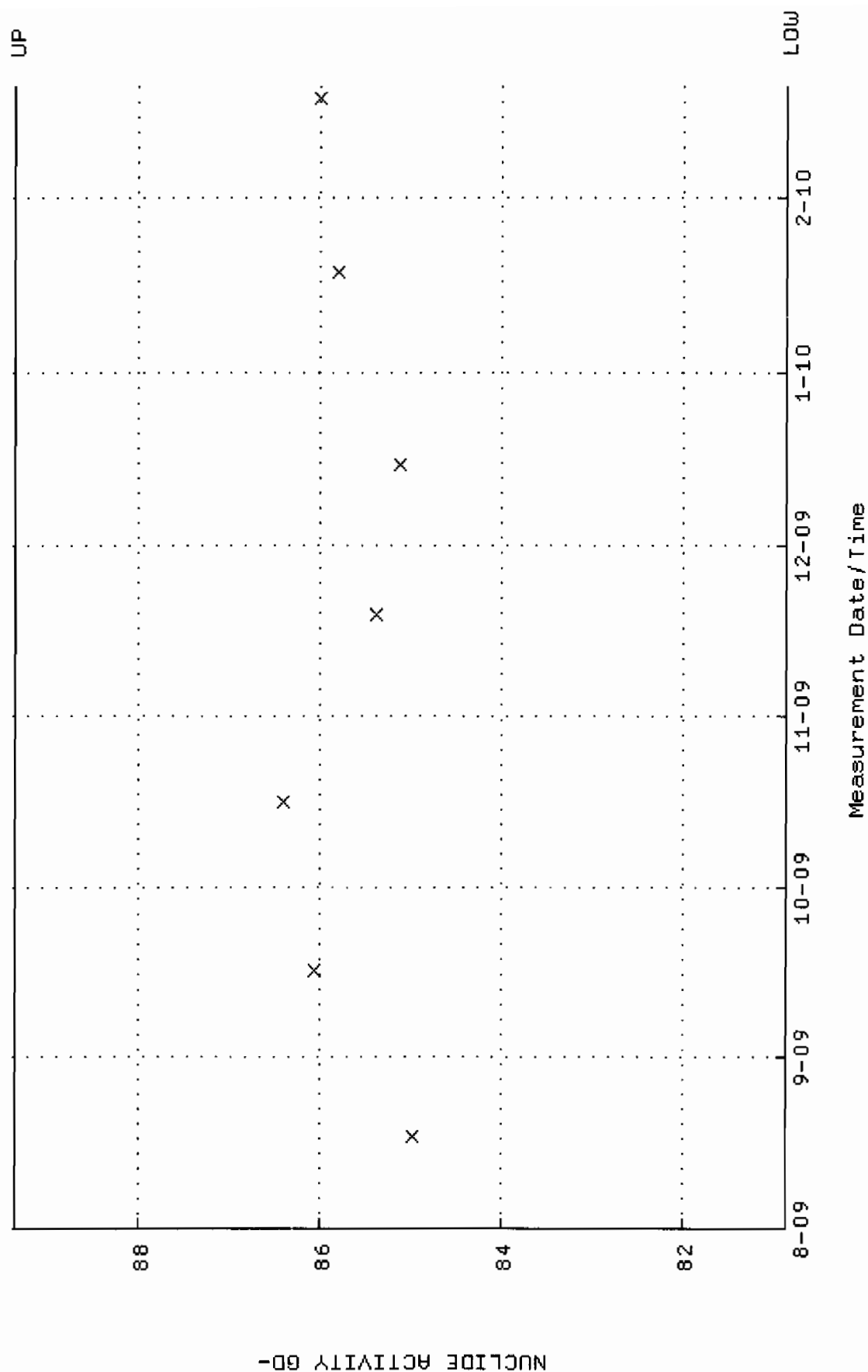
QA filename : DKA100:[ENV\_ALPHA.QA.B]B140.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:13:56 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



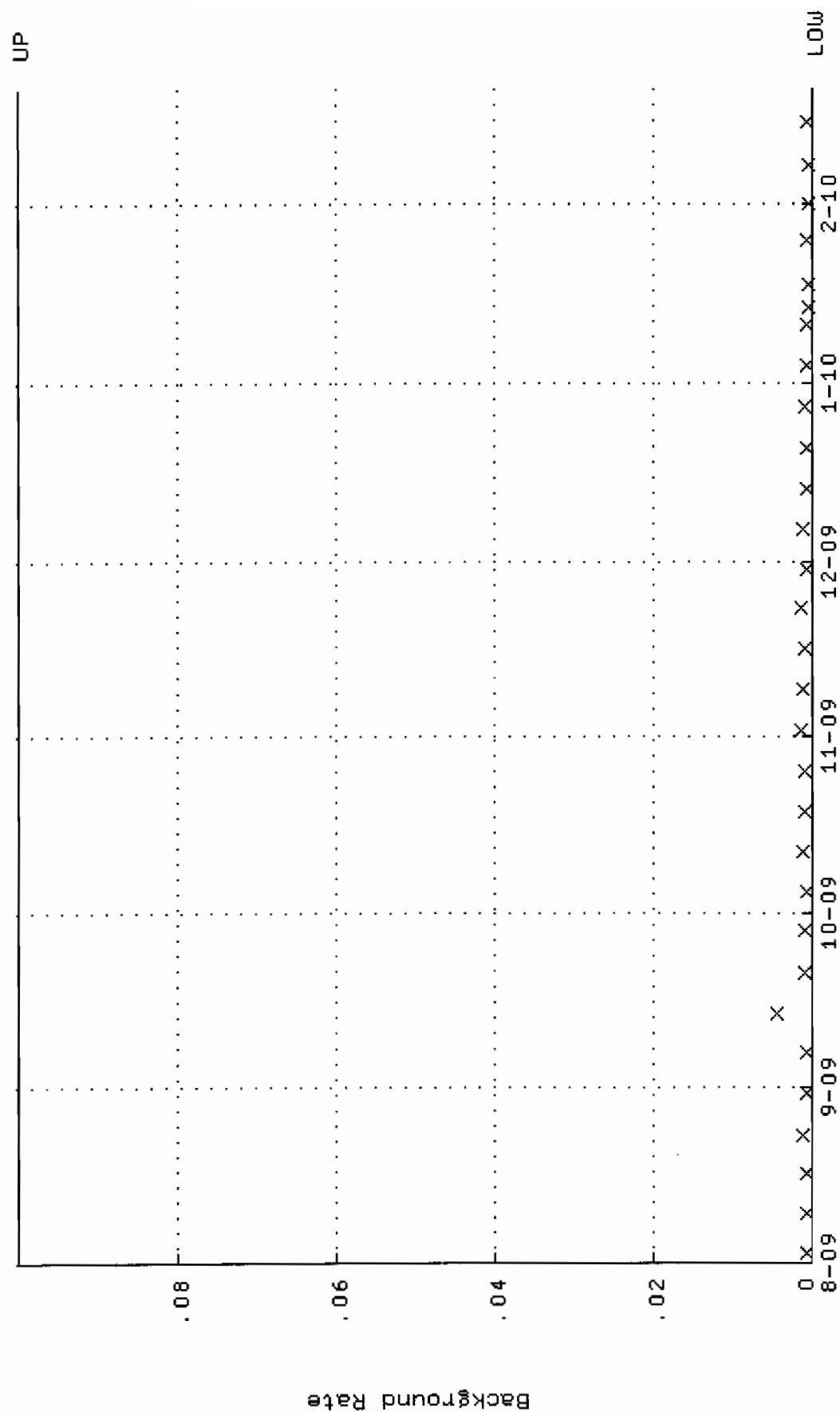
QA filename : DKA100:[ENV\_ALPHA.QA.W]W141.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:09 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.247845 through 0.267845



QA filename : DKA100:[ENV\_ALPHA.QA.w]w141.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:09 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 80.8595 through 89.3711

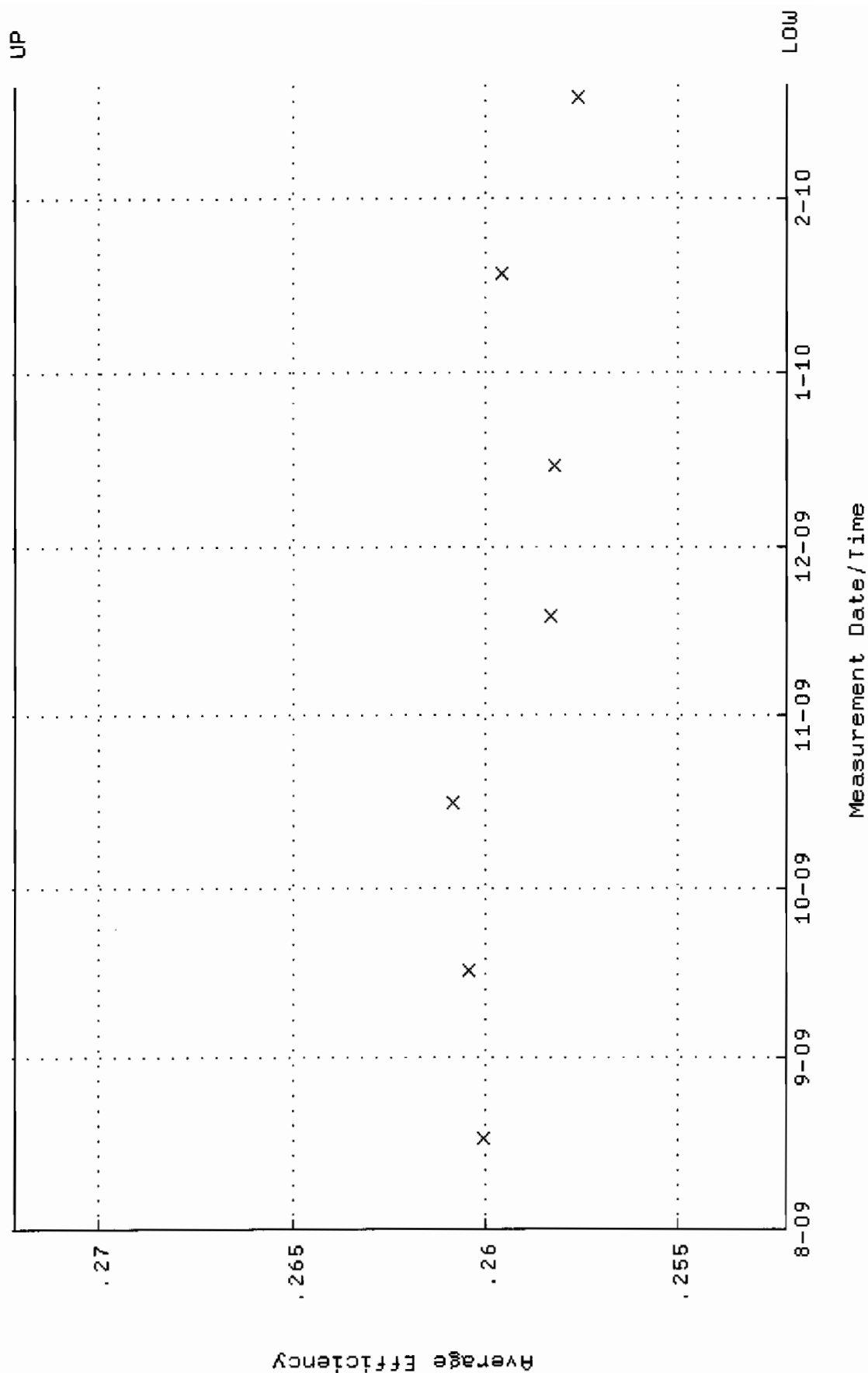


Lower/Upper Lmts: 0.00000E+00 through 0.100000

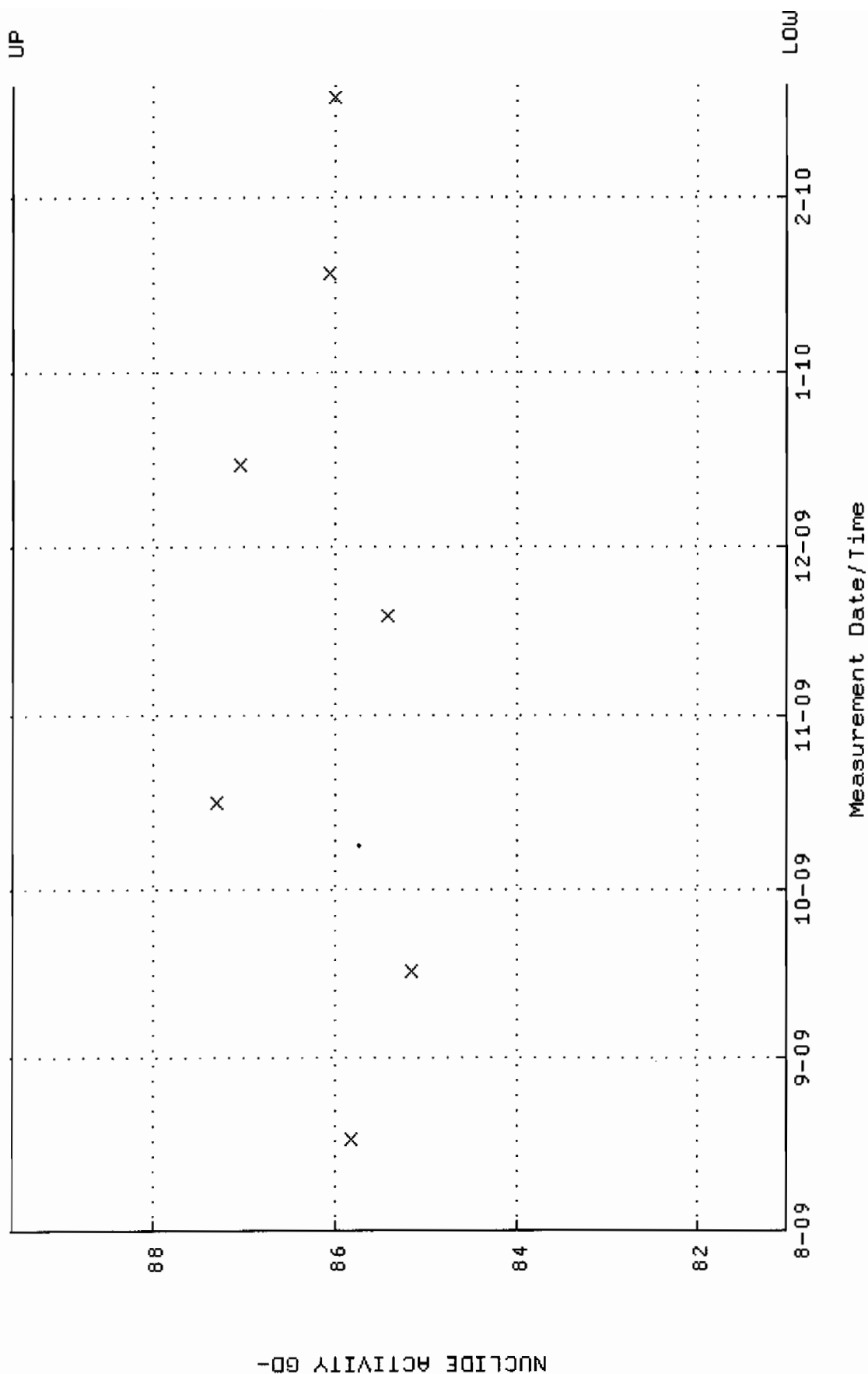


Measurement Date/Time

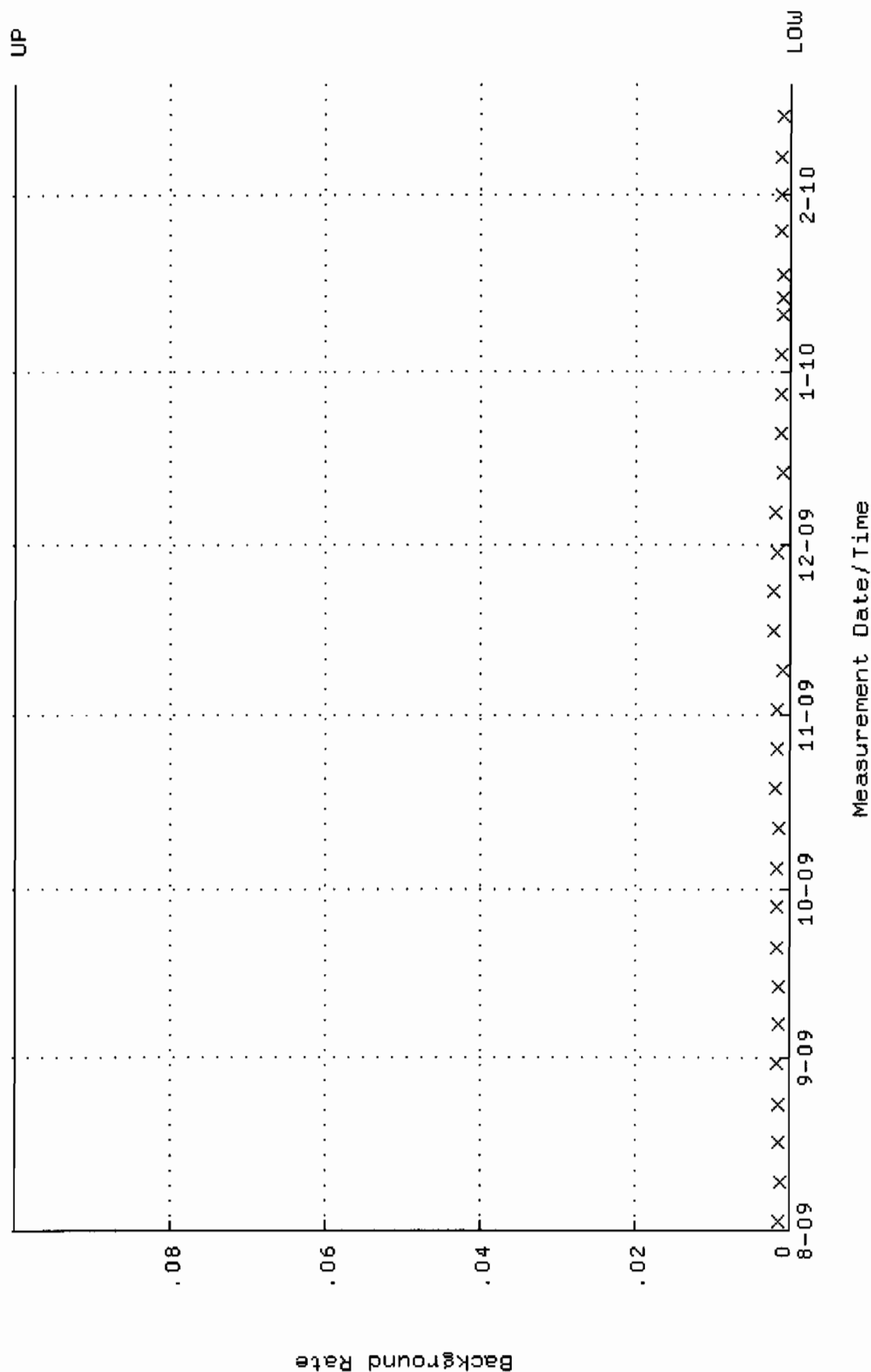
QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:21 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.252182 through 0.272182



QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:21 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 81.0245 through 89.5533



QA filename : DKA100:[ENV\_ALPHA.QA.B]B142.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:04 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

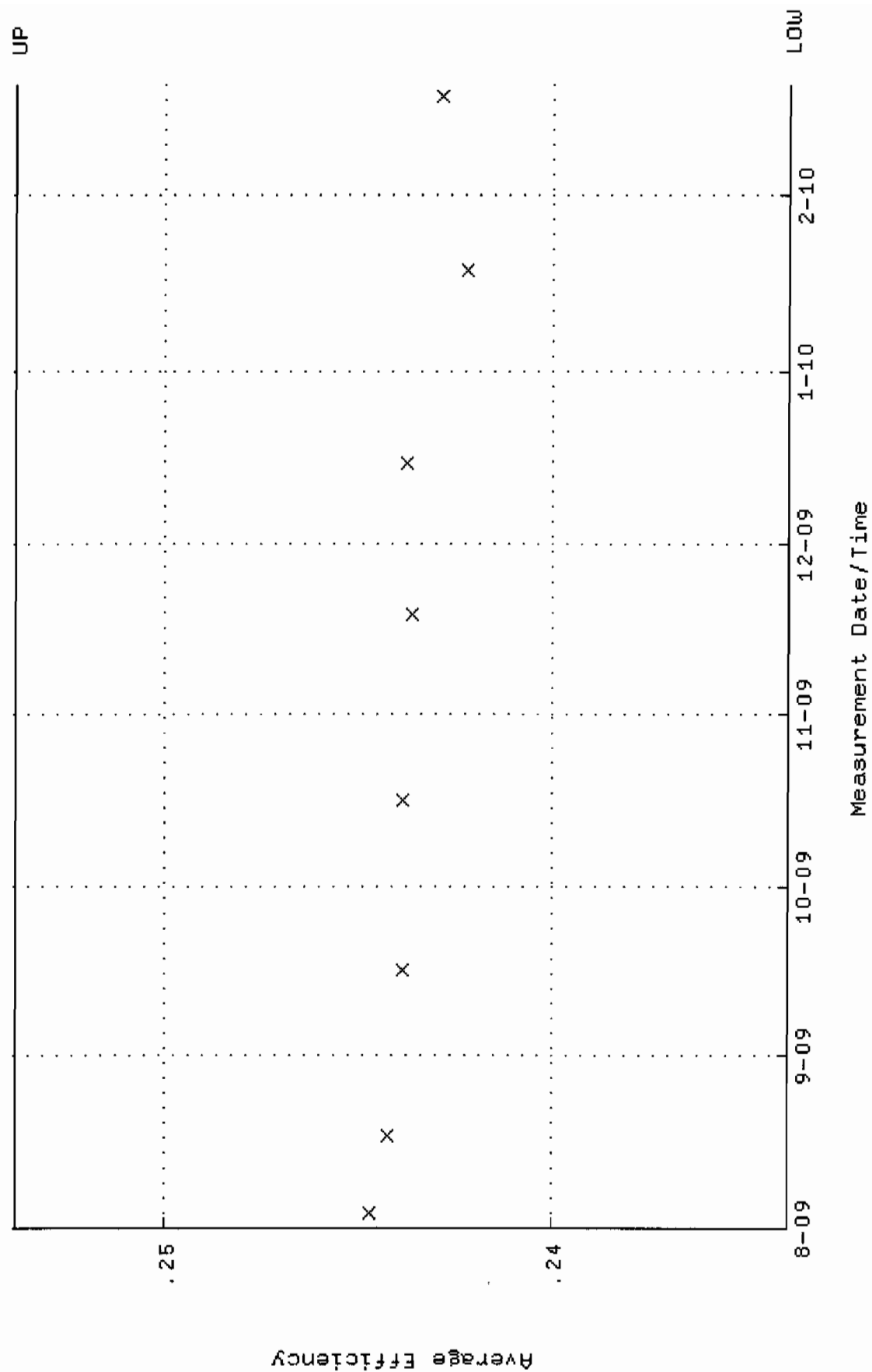


QA filename : DKA100:[ENV\_ALPHA.QA.W]W143.QAF;1

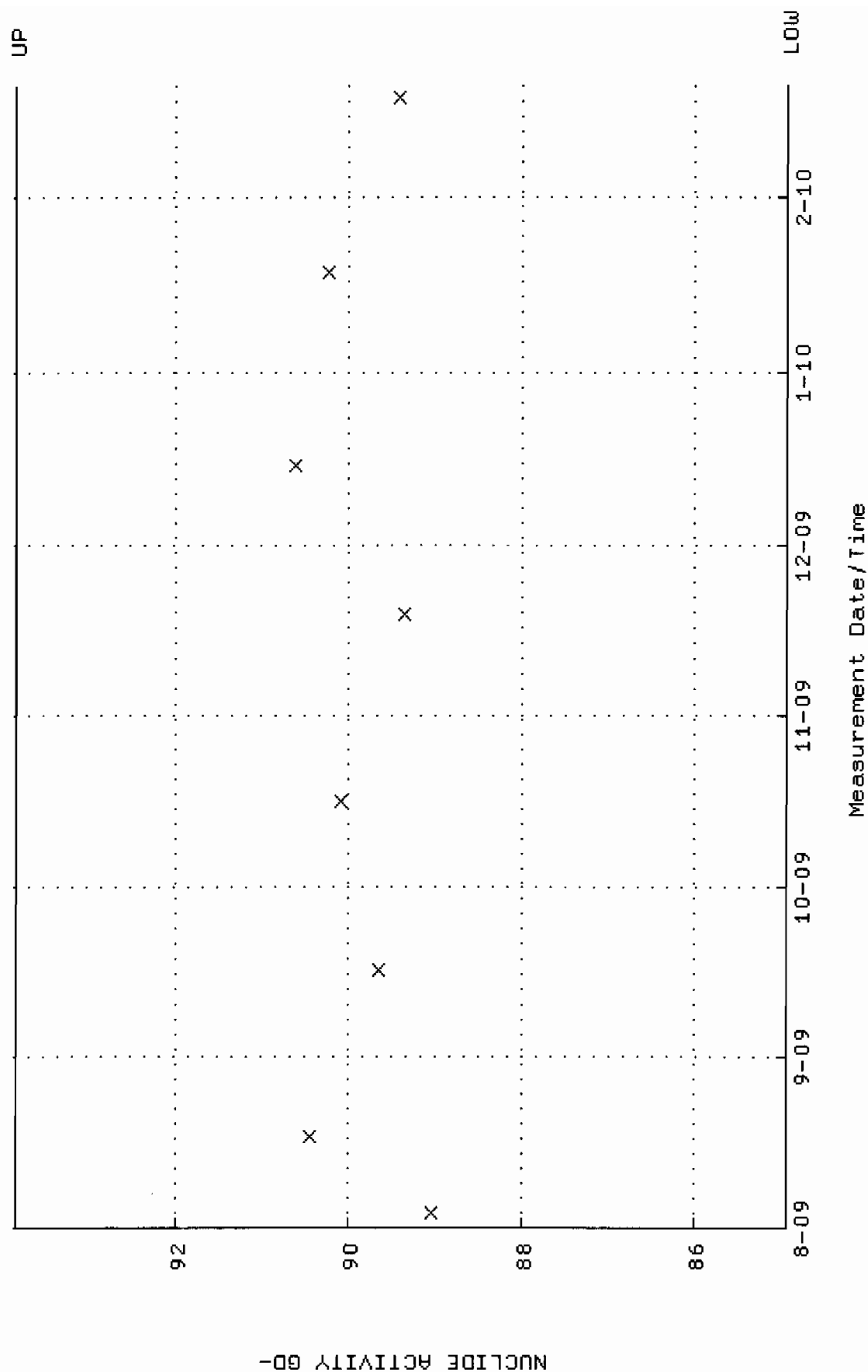
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 3-AUG-2009 15:01:06 through 20-FEB-2010 12:00:00

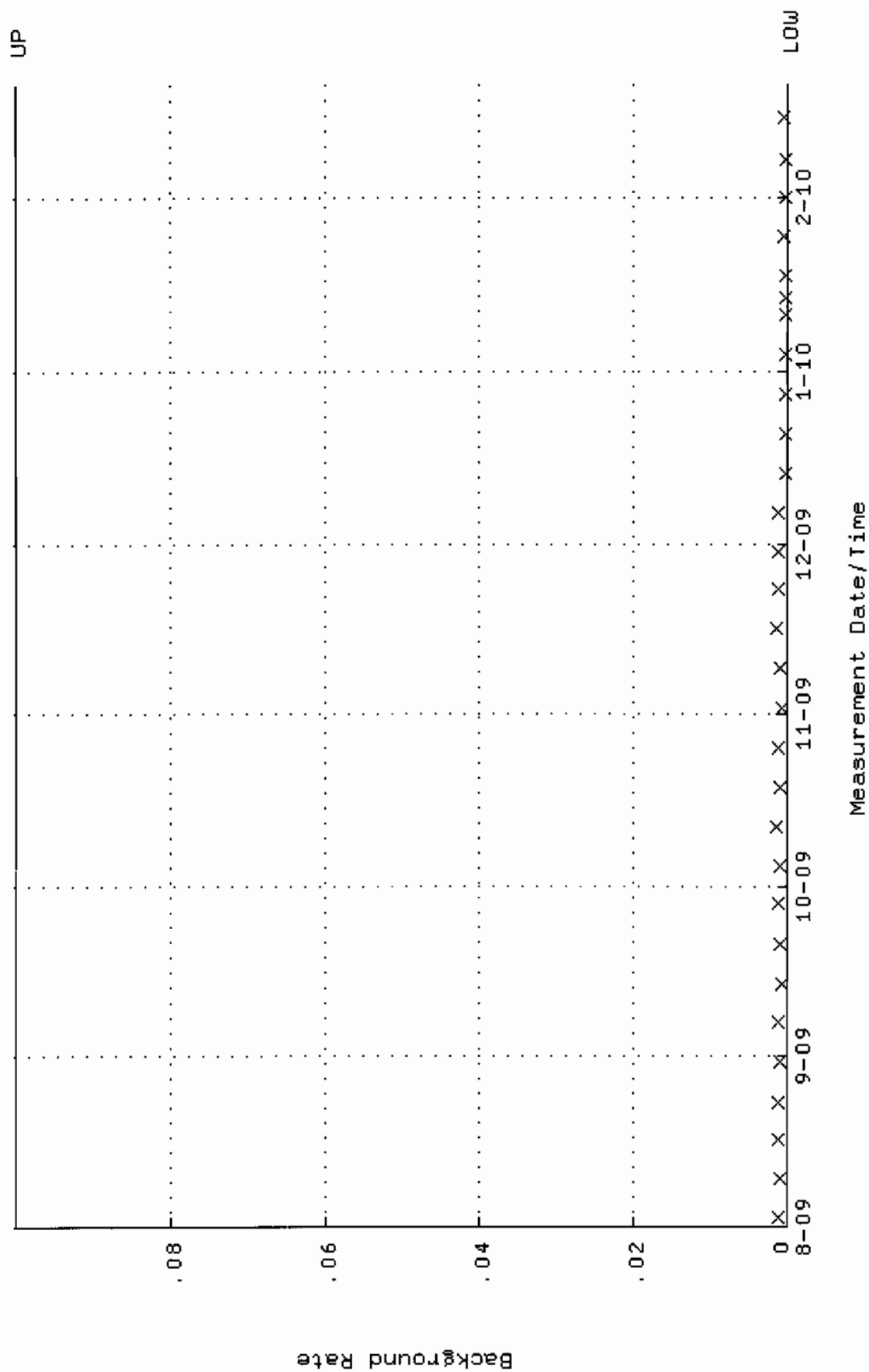
Lower/Upper Lmts: 0.233879 through 0.253879



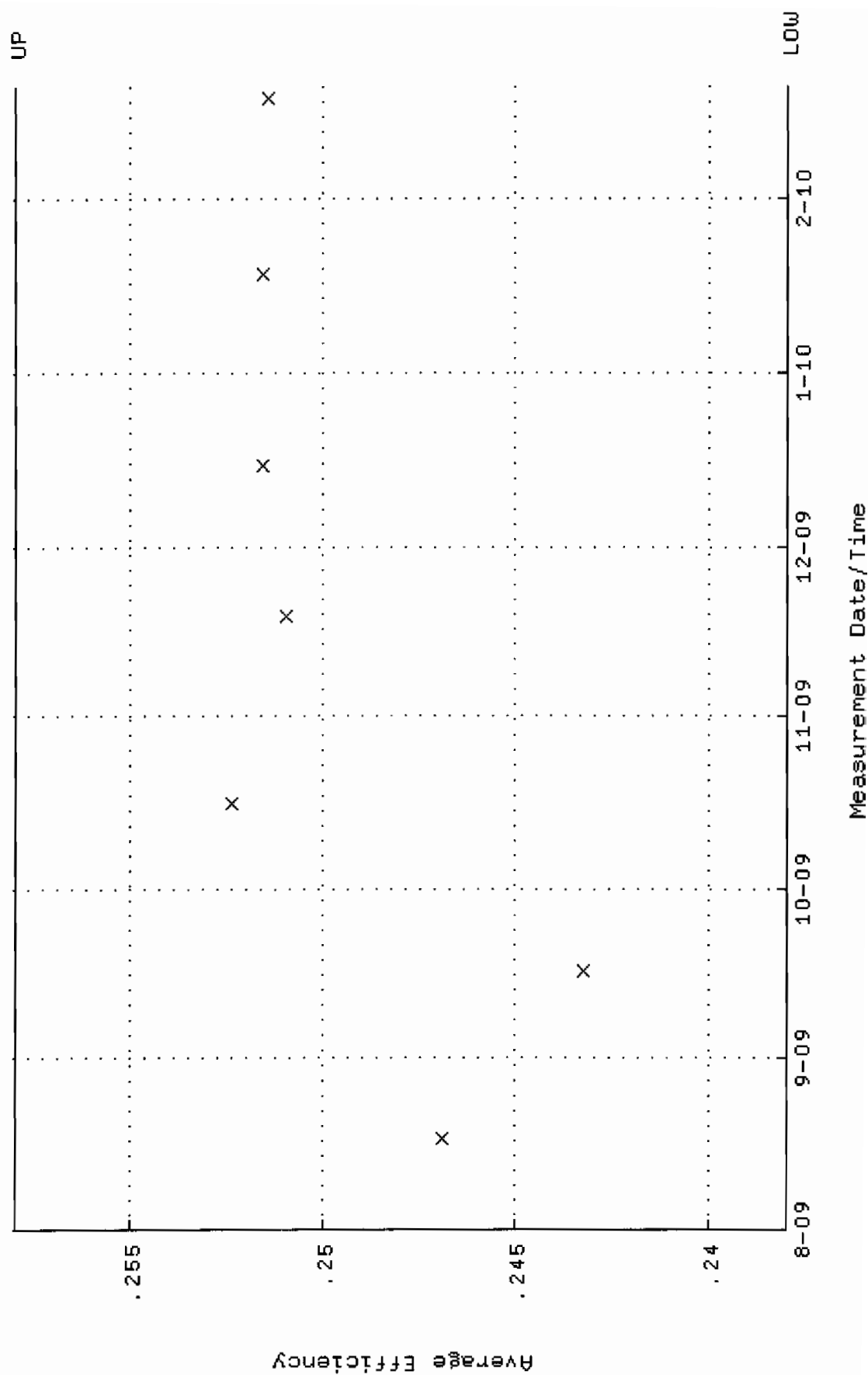
QA filename : DKA100:[ENV\_ALPHA.QA.W]W143.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-AUG-2009 15:01:06 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.9200 through 93.8590



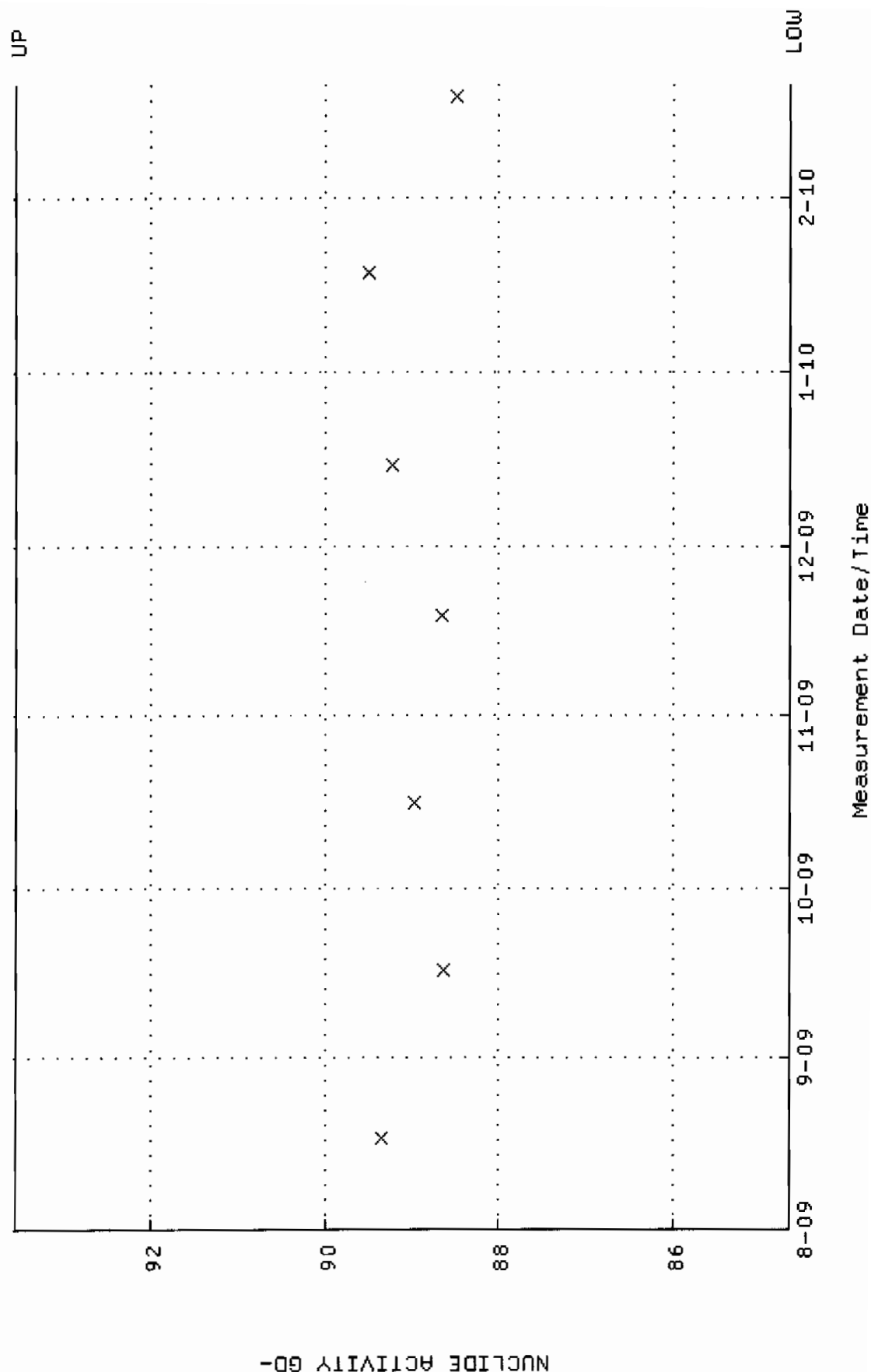
QA filename : DKA100:[ENV\_ALPHA.QA.B]B143.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:08 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



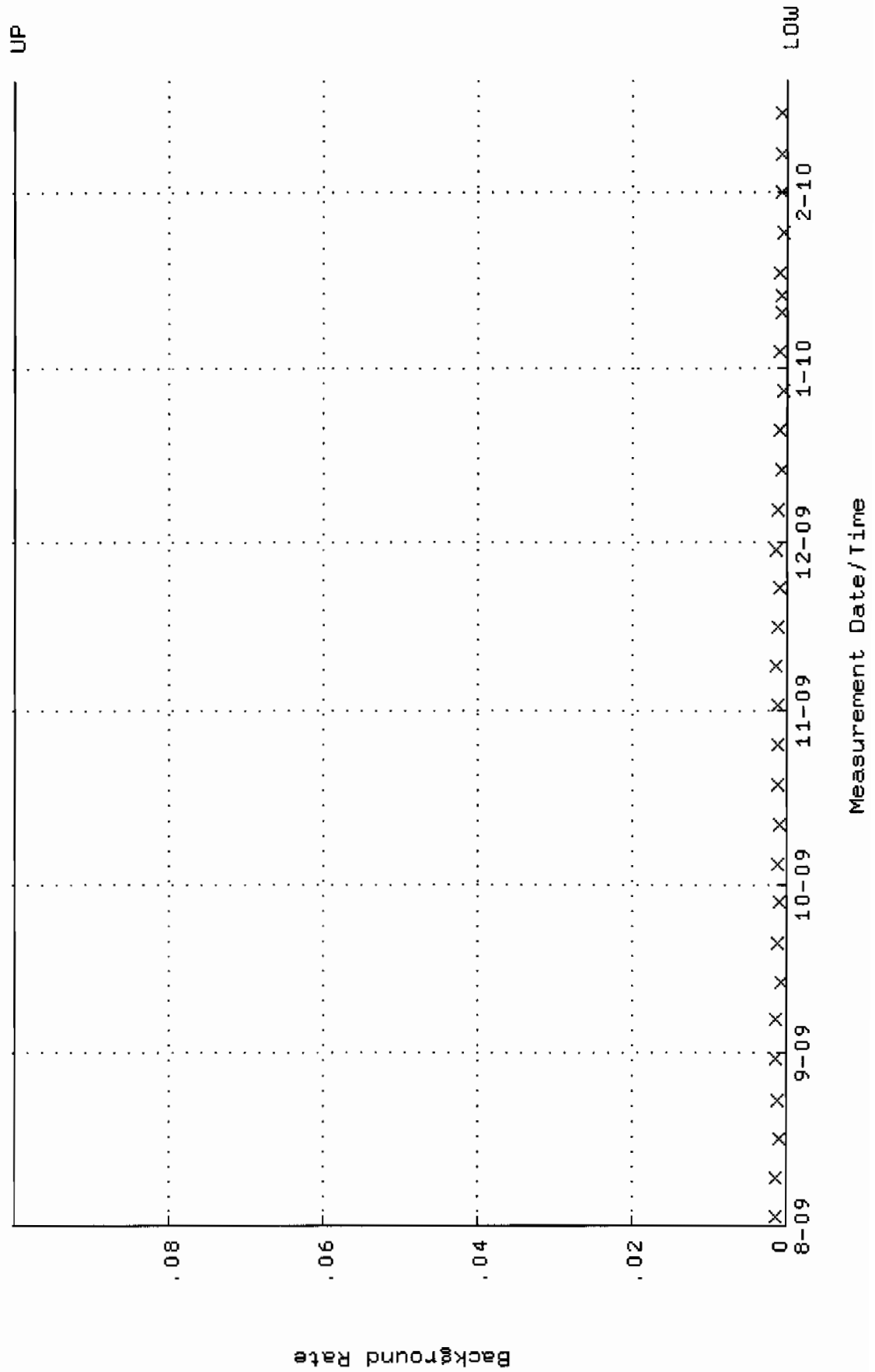
QA filename : DKA100:[ENV\_ALPHA.QA.W]w144.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.237963 through 0.257963



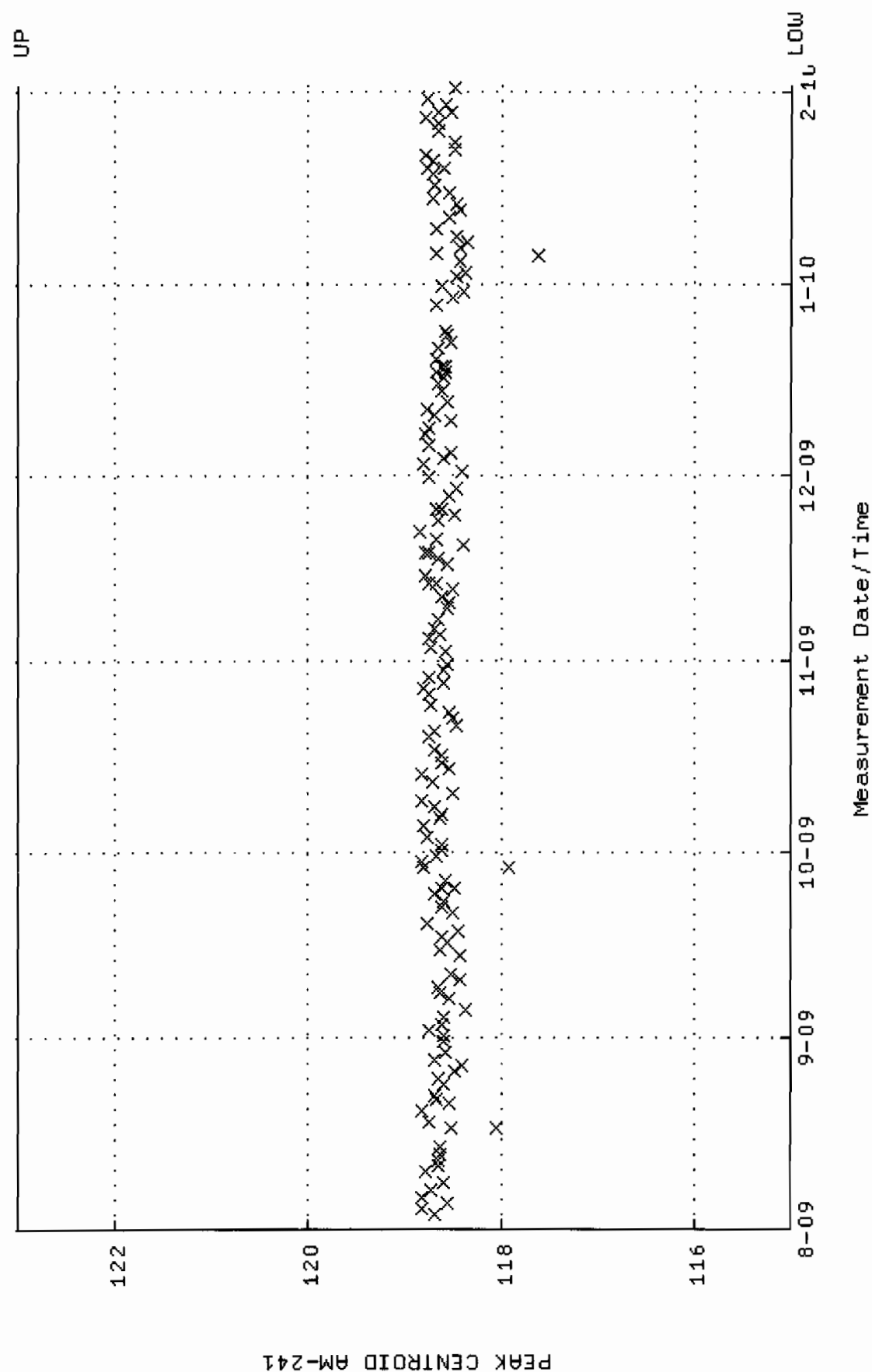
QA filename : DKA100:[ENV\_ALPHA.QA.W]W144.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.6507 through 93.5613



QA filename : DKA100:[ENV\_ALPHA.QA.B]B144.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:12 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



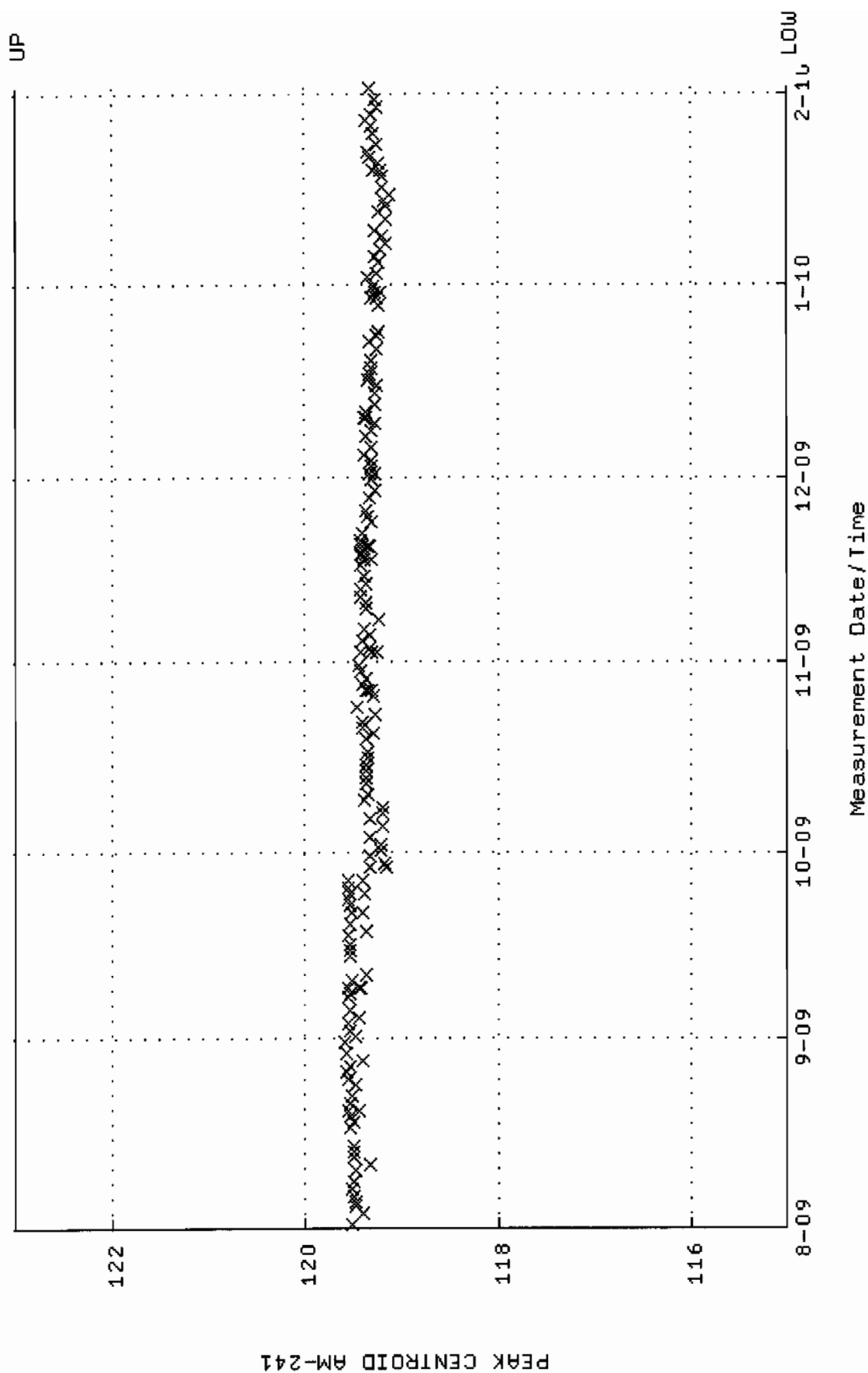
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM14\_2LMB.QAF;1  
 Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:15:54 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



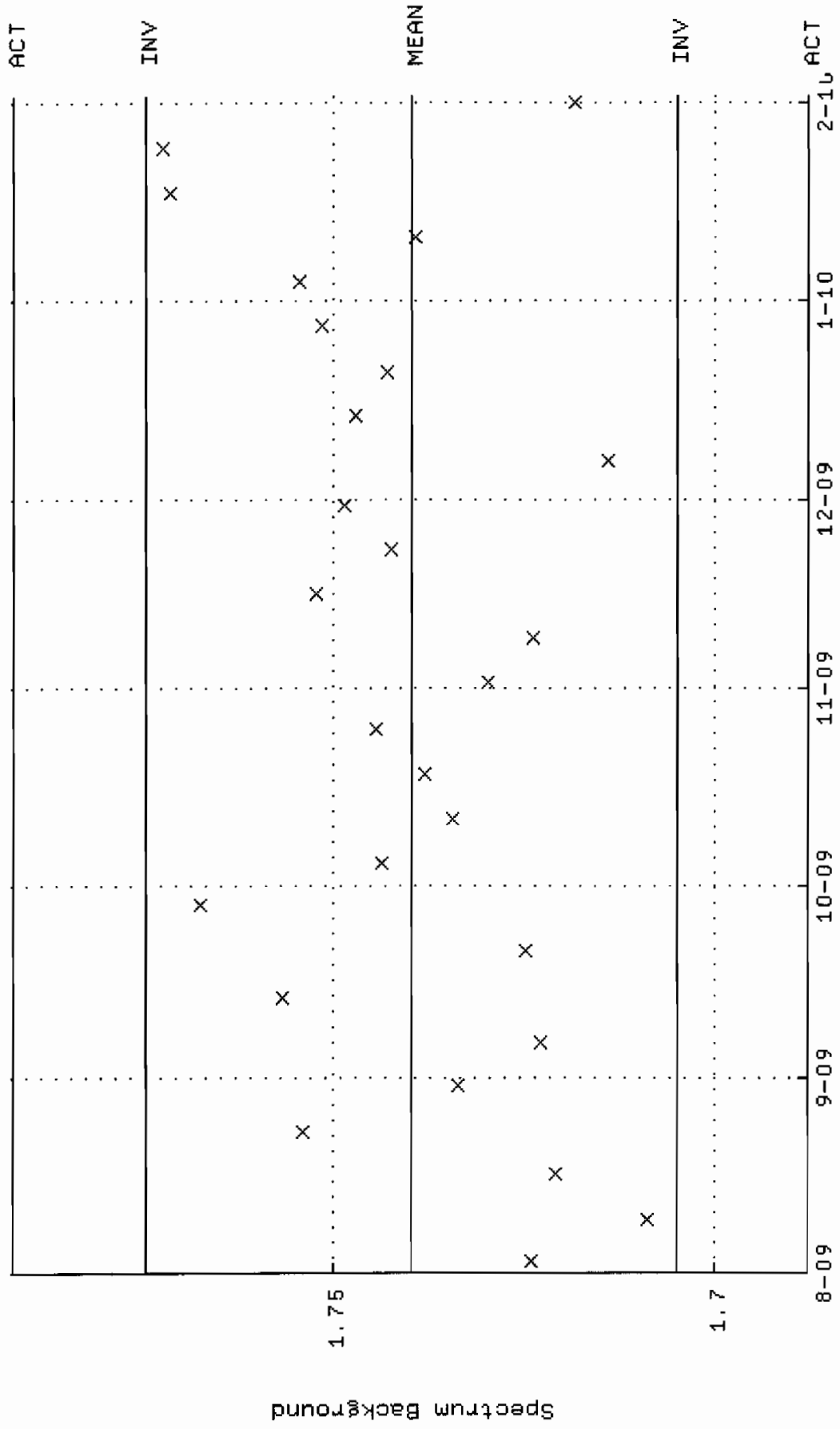
The figure displays a time series of 'Spectrum Background' values. The y-axis ranges from 1.45 to 1.55. The x-axis shows dates from 8-09 to 2-10. The plot is divided into four horizontal sections: ACT (top), INV, MEAN, and INV (bottom). Data points are marked with 'x'.

Date	ACT	INV	MEAN	INV
8-09	1.54			1.44
9-09				1.44
9-09		1.50	1.49	
9-09		1.51	1.50	
10-09			1.48	
10-09			1.47	
10-09			1.46	
10-09			1.45	
11-09			1.47	
11-09			1.46	
11-09			1.45	
12-09			1.47	
12-09			1.46	
12-09			1.45	
1-10			1.48	
1-10			1.47	
1-10			1.46	
1-10			1.45	
2-10			1.48	
2-10			1.47	
2-10			1.46	

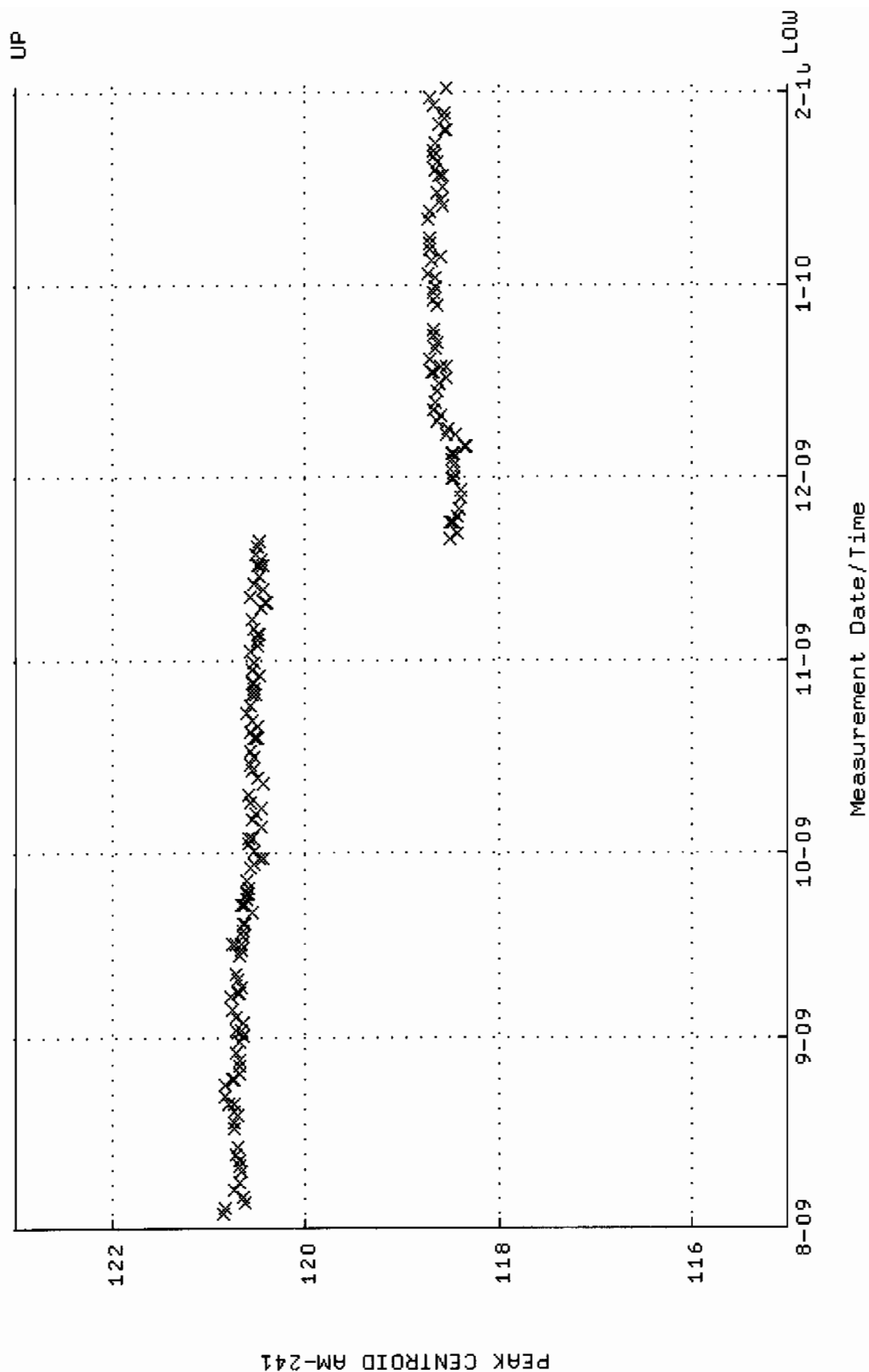
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM16-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 1-AUG-2009 13:27:30 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



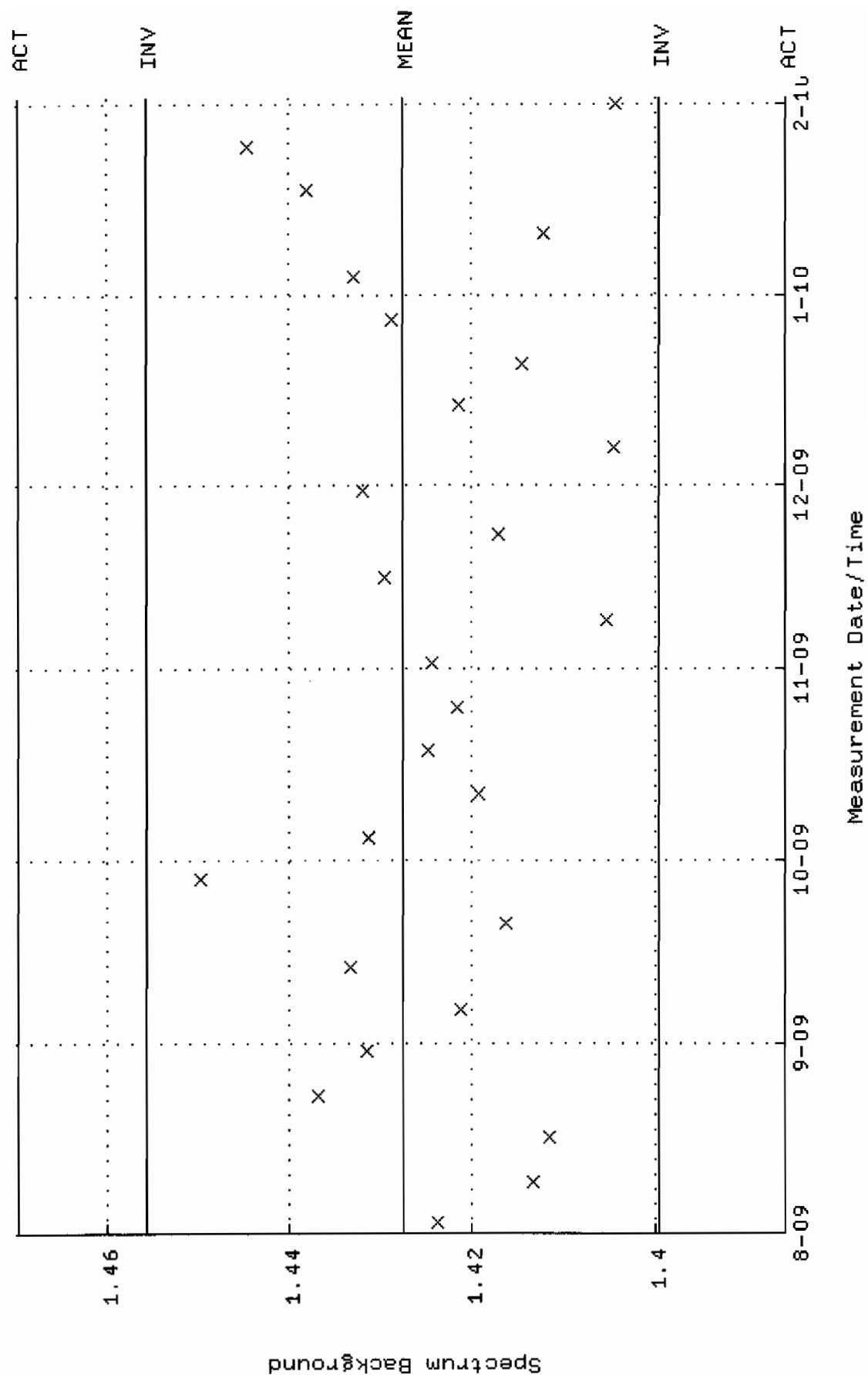
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM16.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:24:58 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.73980 +- 1.729897E-02 (0.99 %)



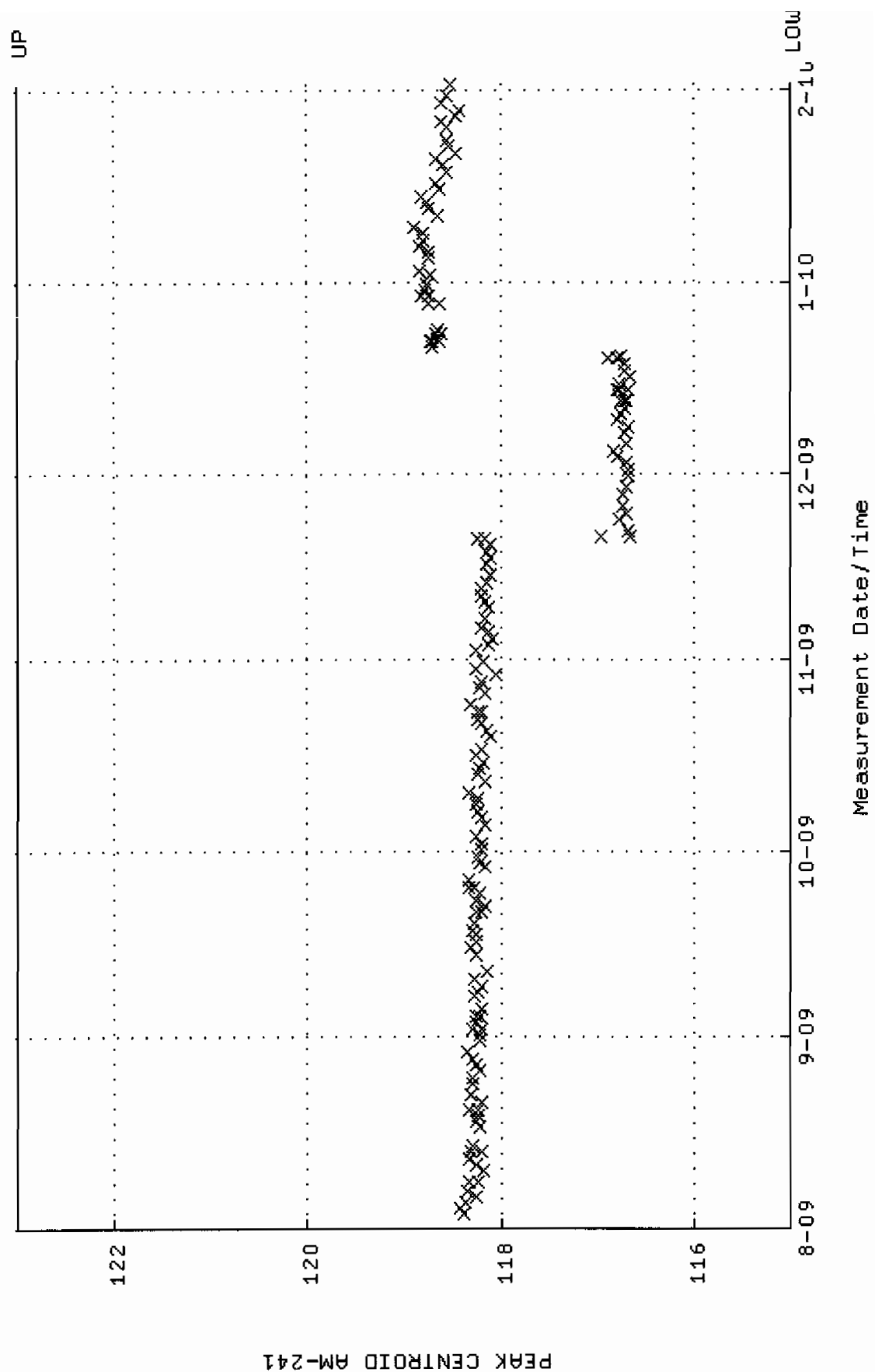
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM17-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:55:06 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



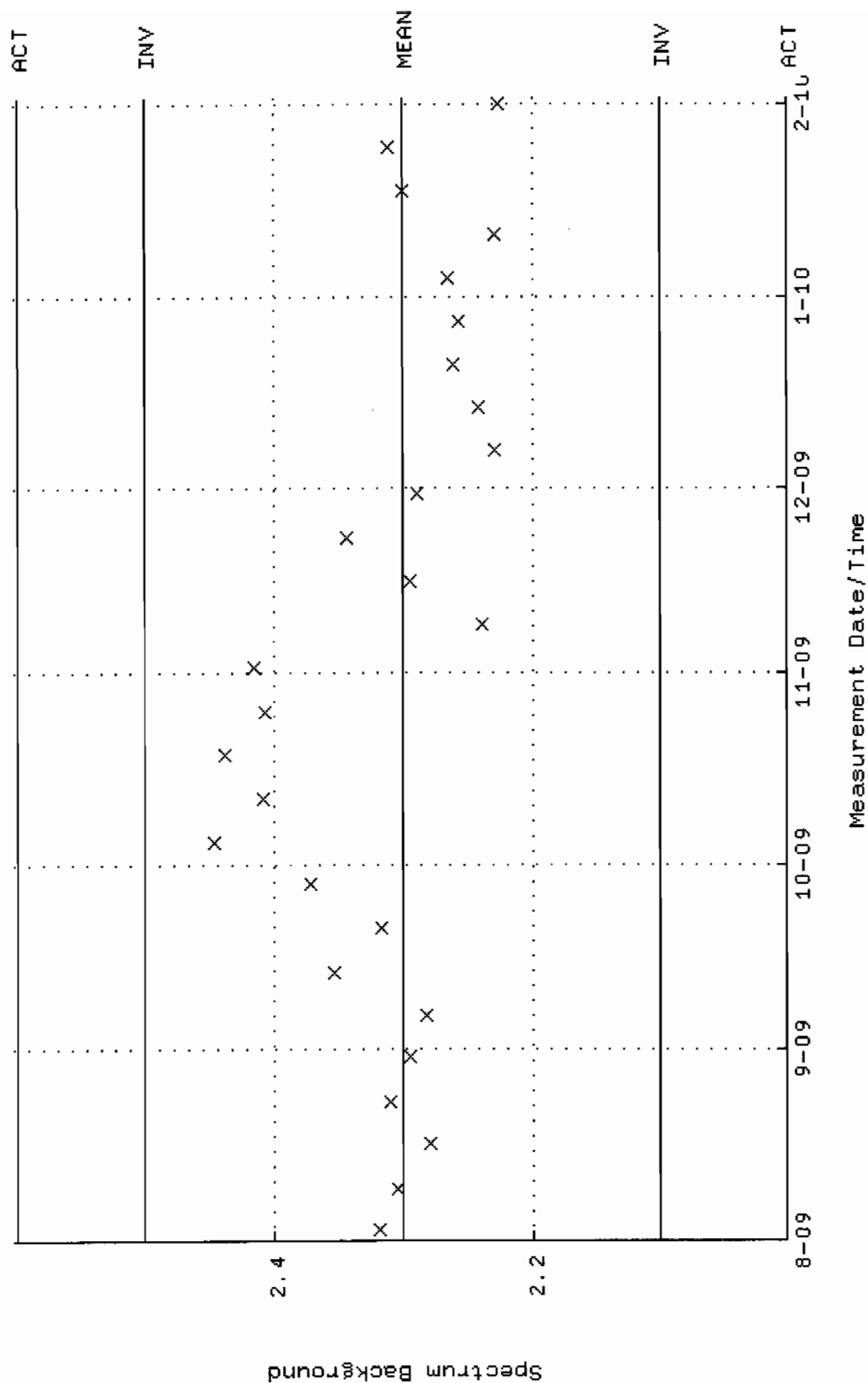
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM17.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:25:10 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



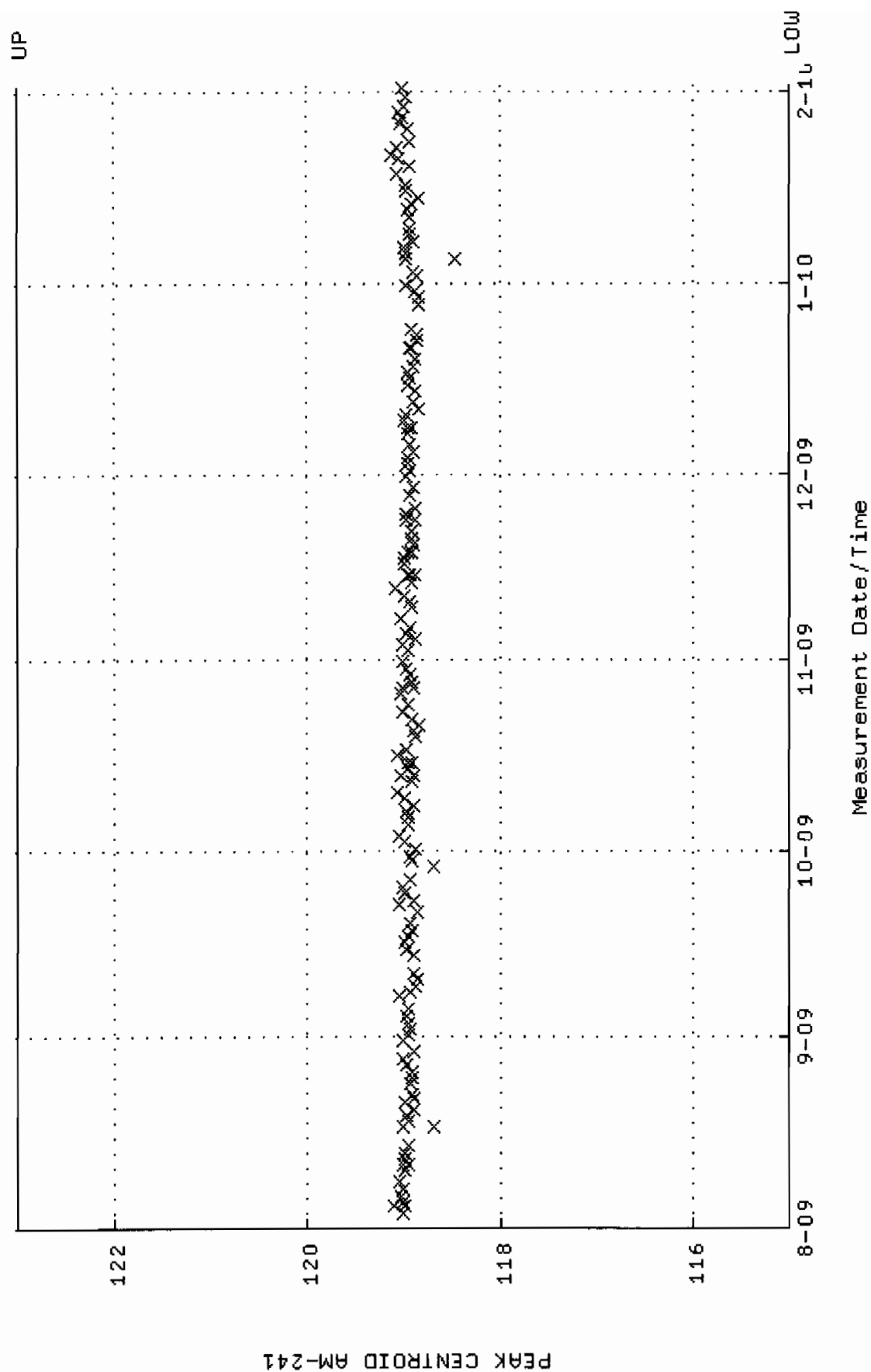
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM18\_CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 3-AUG-2009 10:02:47 through 1-FEB-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



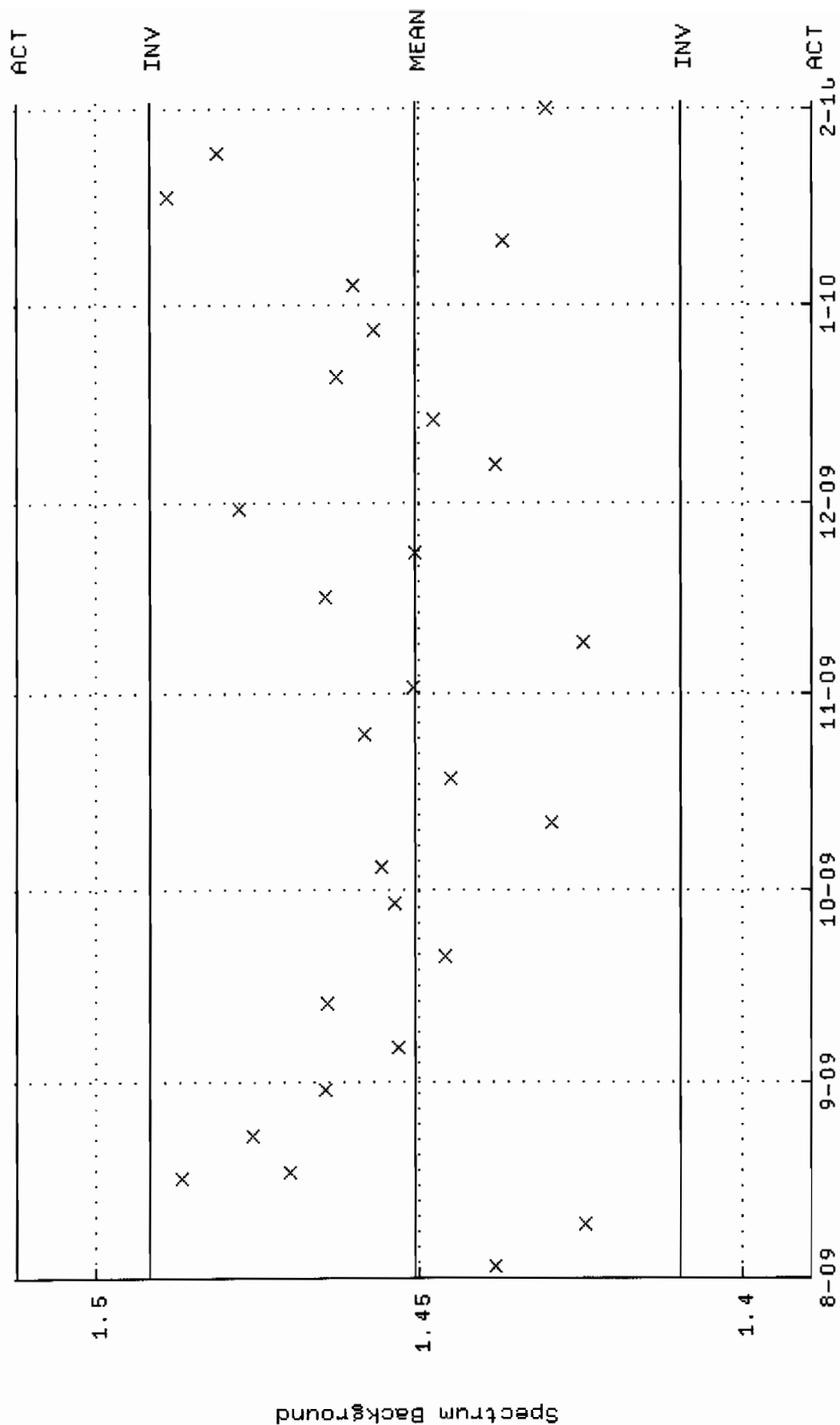
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM18.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:25:23 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



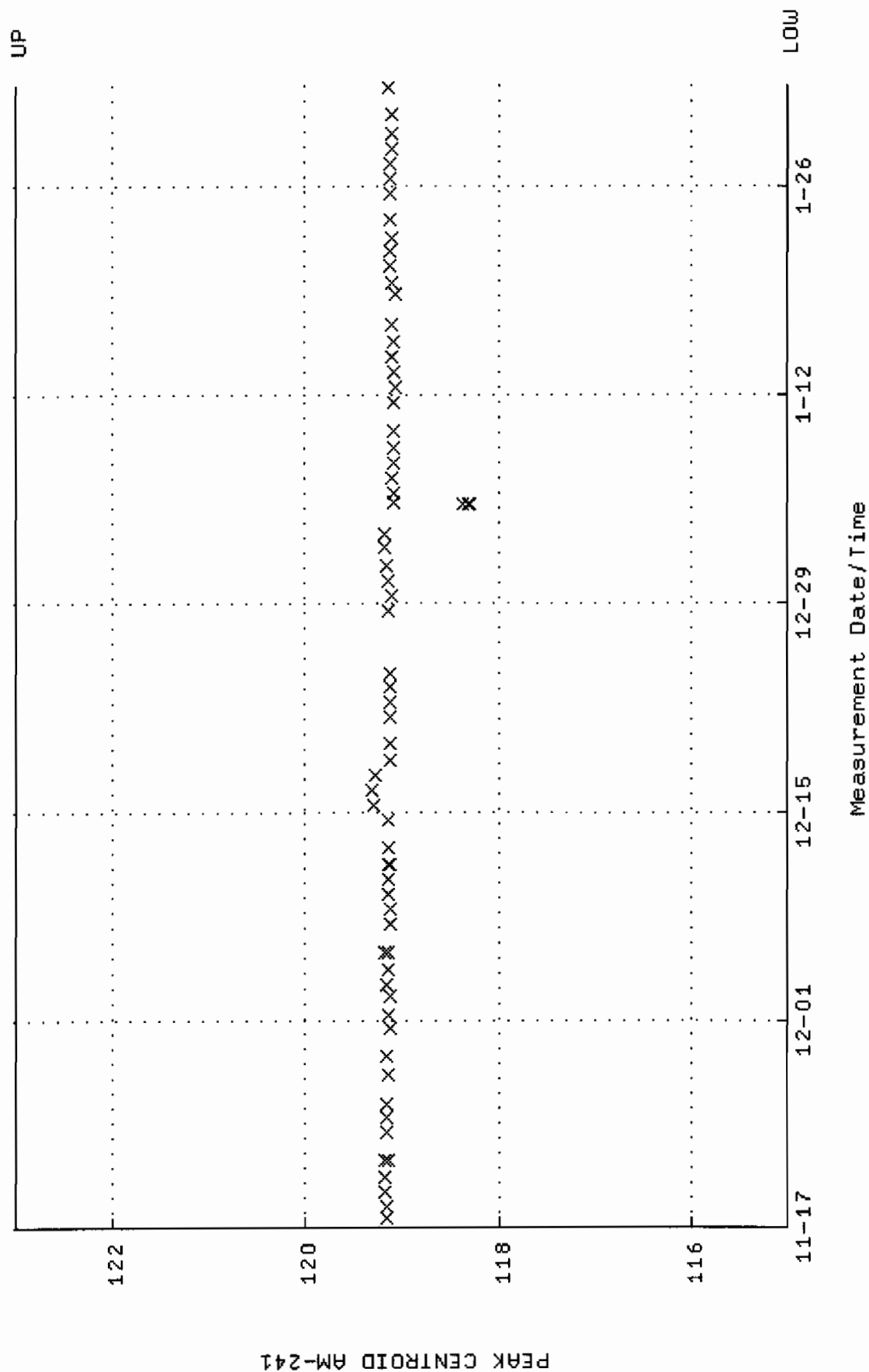
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM19\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 10:08:04 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



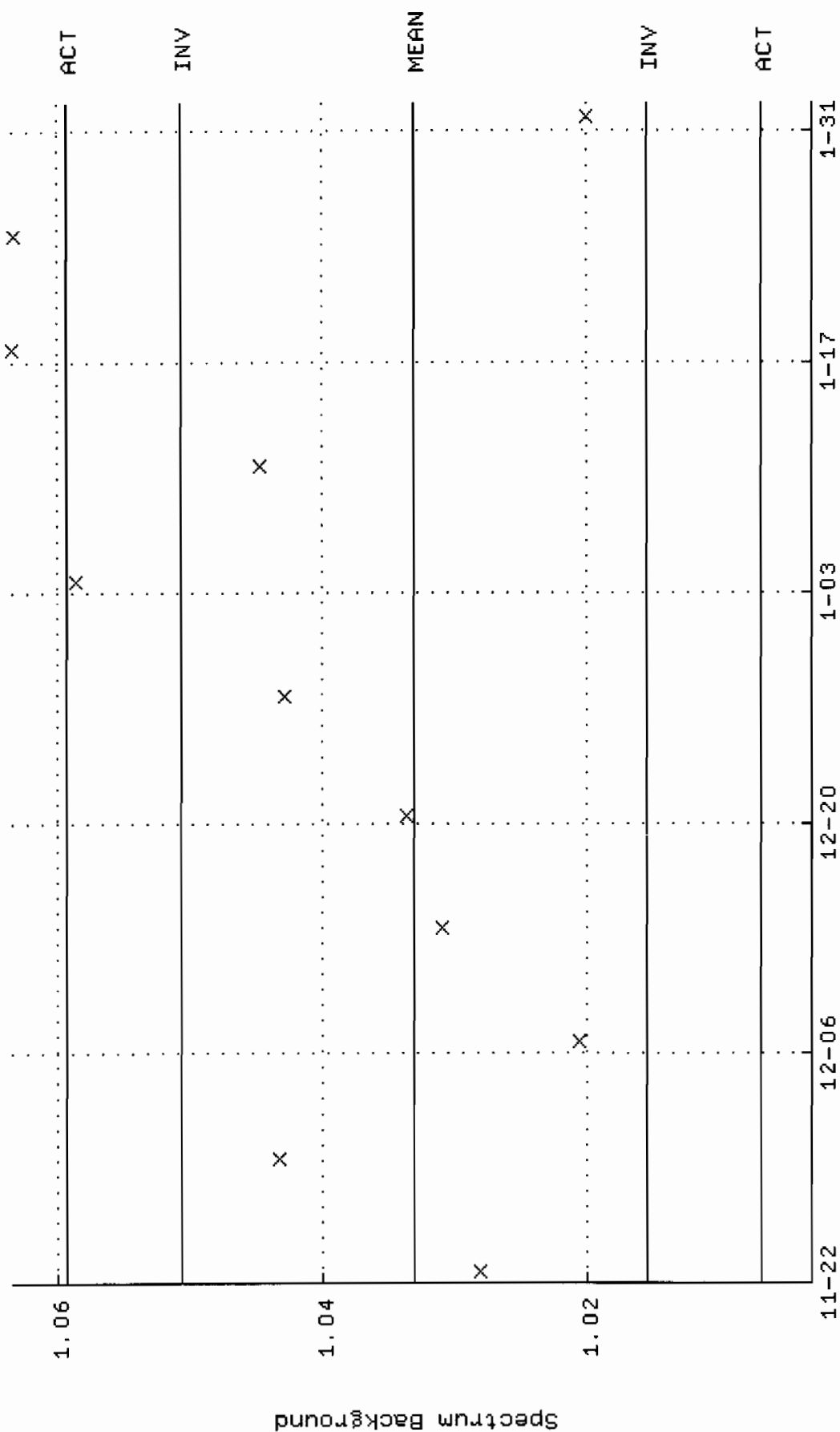
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM19.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:25:41 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



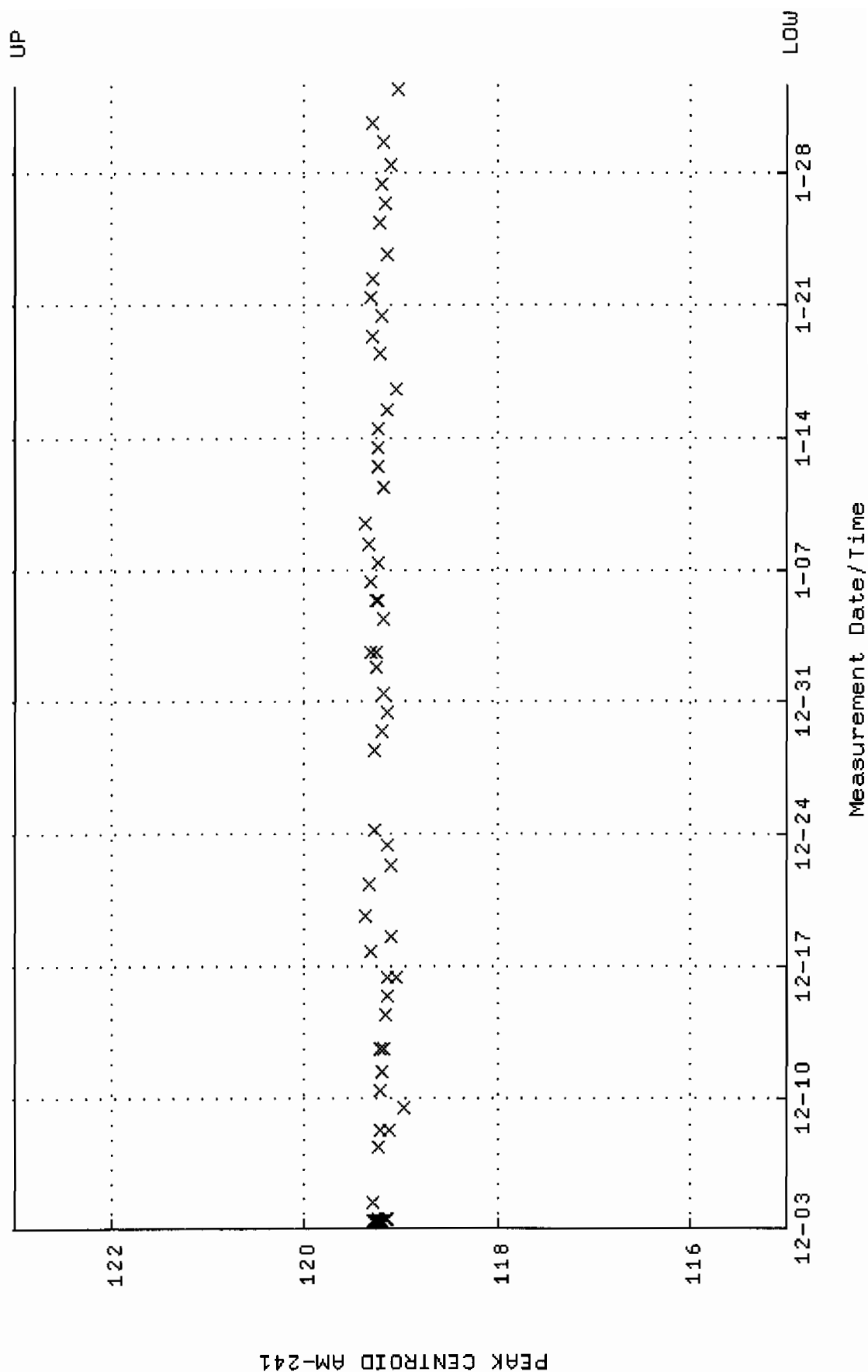
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM21\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 17-NOV-2009 15:50:12 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



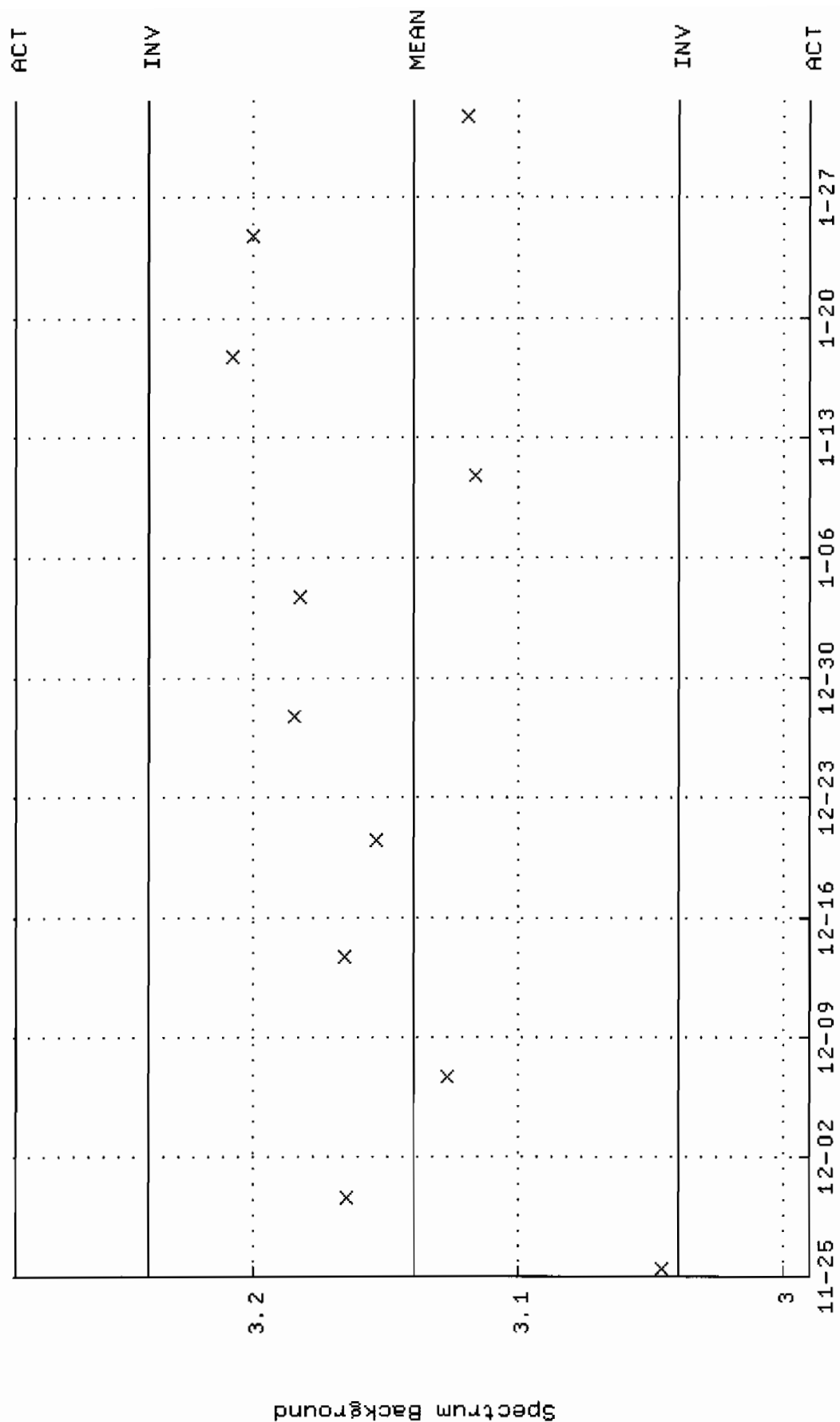
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM21.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 22-NOV-2009 17:05:16 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.03312 +- 8.784250E-03 (0.85 %)



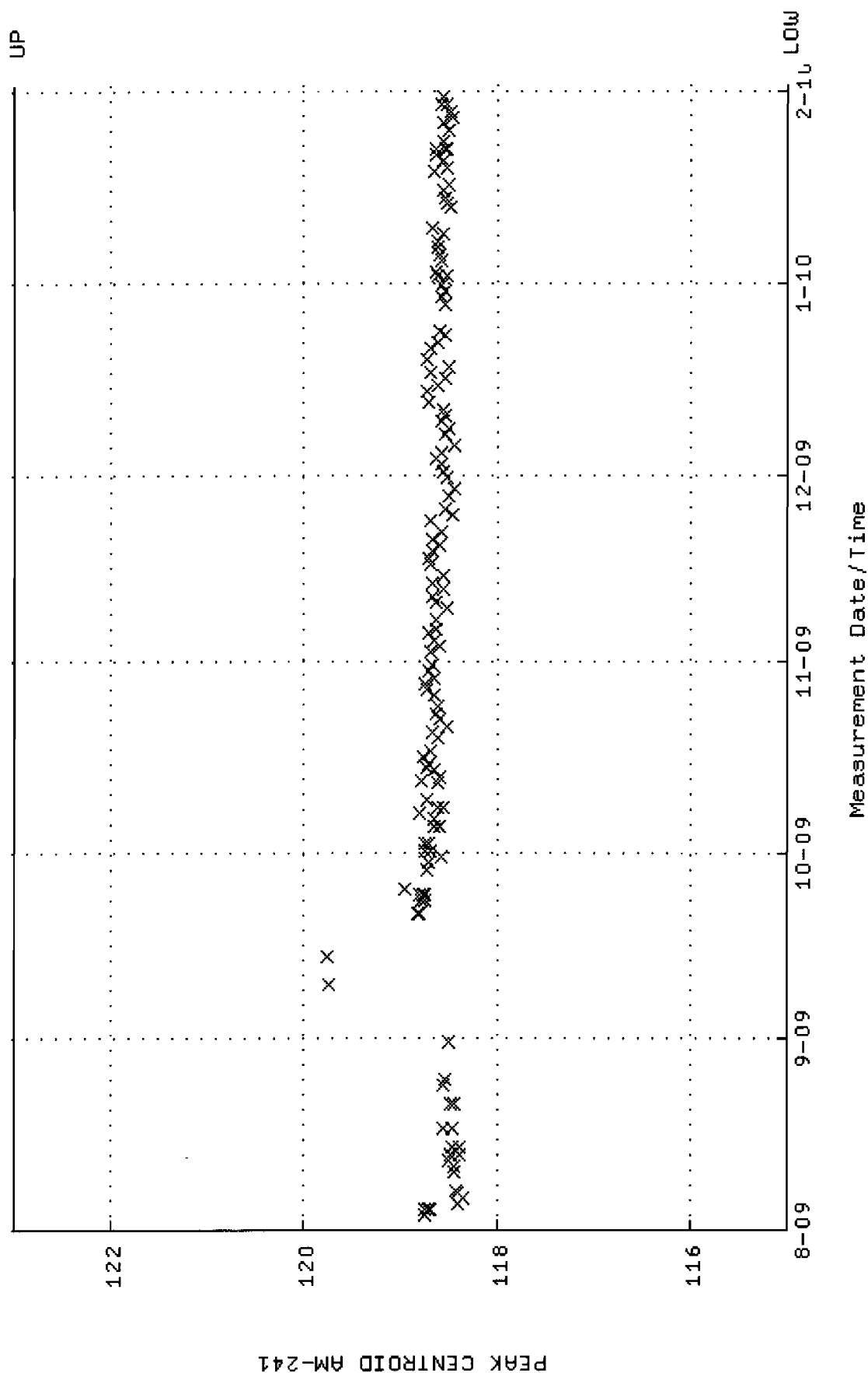
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM22-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-DEC-2009 09:11:39 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM22.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 25-NOV-2009 10:28:37 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM25-2LMB.QAF;1  
 Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 10:11:17 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

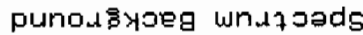


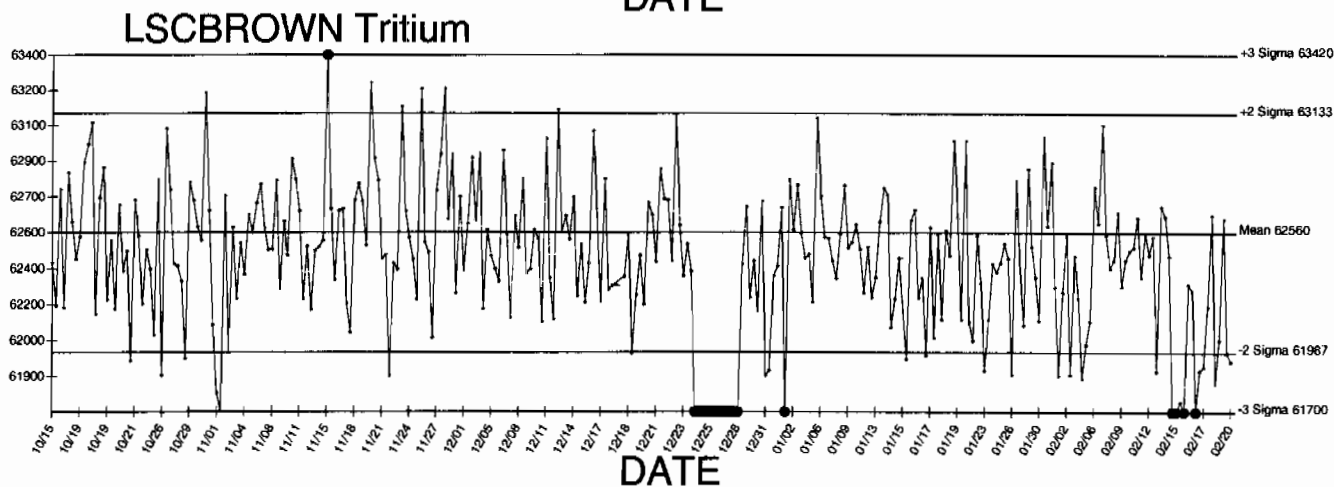
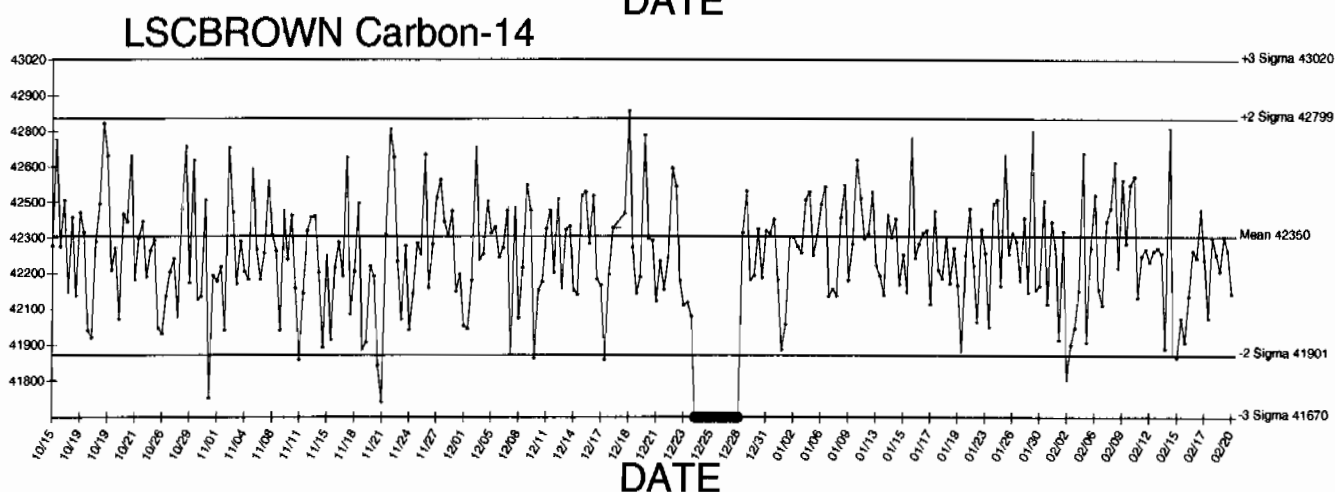
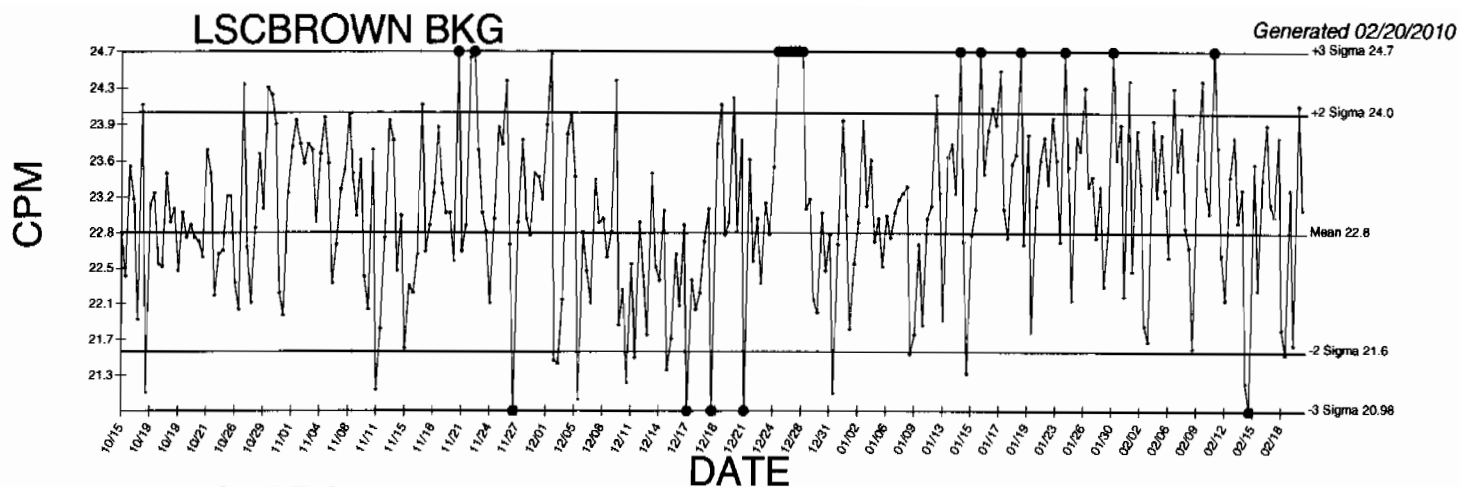
QA filename

Parameter Name

Start/End Dates

Mean + 1 Std Dev





● 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 592 of 627  
W.F. Case

# 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	0.380548	2741.3099
	0134-K N2	1073.2000	54.0000	1019.2000	0.380548	2678.242955
	0134-K N3	1085.2000	54.0000	1031.2000	0.380548	2709.776428
Mean Value (Counting) =	2709.776428		104.954429	Pass		
Stddev =	31.53347278		0.01163693	Rule 3 (Pass/Fail)		

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 = 270.9778428 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 Ecoscint 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 Ecoscint 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. Felt 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:

W.M. [Signature] 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/30/06  
RC-S-045-073-0

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytiscinc.com

**ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS  
BATCH 127  
CALIBRATION DATE: October 1, 2006 12:00 EST**

Isotope	Energy (keV)	Calibration Method <sup>1</sup>	Statistics <sup>2</sup>	Calibration <sup>2</sup>	Peak Fitting <sup>2</sup>	Geometry <sup>2</sup>	Impurities <sup>2</sup>	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertainty (k=2)
Cd-109	88	HPGe	0.16	1.1	0.88	0.8	0	0.2	1.64	3.3
Co-57	122	HPGe	0.23	1.1	0.71	0.7	0	0.2	1.52	3.0
Ce-139	166	HPGe	0.17	1.0	0.58	0.7	0	0.2	1.38	2.8
Hg-203	279	HPGe	0.11	1.1	0.34	0.7	0	0.2	1.37	2.7
Sn-113	392	HPGe	0.21	1.0	0.35	0.7	0	0.2	1.30	2.6
Cs-137	662	HPGe	0.36	1.1	0.60	0.7	0	0.2	1.49	3.0
Y-88	898	HPGe	0.19	1.0	0.33	0.7	0	0.2	1.29	2.6
Co-60	1173	HPGe	0.31	.97	0.45	0.7	0	0.2	1.33	2.7
Co-60	1332	HPGe	0.33	.93	0.48	0.7	0	0.2	1.32	2.6
Y-88	1836	HPGe	0.24	1.0	0.35	0.7	0	0.2	1.31	2.6

**Optional Additional Isotopes**

Pb-210	46.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Am-241	59.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Sr-85	514	IC	0.30	1.1	0	0.7	0.17	0.2	1.36	2.7
Cs-134	605	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Cs-134	796	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Mn-54	835	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Zn-65	1116	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7

**Calibration Methods:**

4π LS (4 pi Liquid Scintillation Counting)

HPGe (High Purity Germanium Gamma Ray Spectrometer)

IC (Gamma Ray Ionization Chamber)

<sup>2</sup>As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1032
Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL
Reference Date:	10/01/2006
Ampoule Mass (g):	5.31725 g
Uncertainty:	+/- 2.81 %
LogBook No:	RC-S-045-073

A Solution Material Info	
Isotope:	Mixed Gamma
Prepared By:	Daniel Roy
Prep Date:	11/30/2006
Verification Date:	12/02/2009
Expiration Date:	12/02/2010
Primary Code:	1032-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.2579 g
Density(g/mL):	1.0611
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
-----------	----------	--------------	---------------	------	-------------	-------------------	-----------------

GEL Laboratories LLC  
Version 1.0 9/18/2000

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Am-241

Isotope	Result	pCi/L - Ver. Jar. 1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L

Mean Value (Counting) = 2485.67  
Stdev = 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  
mixed gamma

## 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. Tar. 1
Mixed Gamma N1	854.2	pCi/L
Mixed Gamma N2	907.6	pCi/L - Ver. Tar. 3
Mixed Gamma N3	898.9	pCi/L - Ver. Tar. 2

Mean Value (Counting) = 886.90  
Stdev = 28.651  
Rule 3 (Pass/Fail) Pass

Certificate Value = 933.44144  
Lower Limit = 829.597644  
Upper Limit = 944.202356  
Rule 1 (Pass/Fail) Pass  
Two sigma = 57.30235597  
10 % of Mean = 88.69000000  
Rule 2 (Pass/Fail) Pass

## 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  
12/2/09  
12/2/09

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - VER-1Ae-5
Mixed Gamma N1	1572	pCi/L - VER-1Ae-2
Mixed Gamma N2	1495	pCi/L - VER-1Ae-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67  
Stdev = 42.829  
Rule 3 (Pass/Fail) 98.50 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*  
*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 DATE 4/11/2000 *fit c held 12/1/04*

*angela d. johnson 12/13/04*

TRM

Invoice:

5 boxes of TRM-1  
 10 " " TRM-2 and 3  
 5 " each of NRM-1 through 6  
 7 " baghouse dirt

Use 1/4 gm x 10 Samples WITH Together  
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
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	485 ± 24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

991627-01-202

Press F1 for instructions for each field.

Page 1 of 1

AR/COC-

602945

Dept. No./Mail Stop: <b>7132 / 1042</b> Project/Task Manager: <b>PAM PUISSANT</b> Project Name: Record Center Code: <b>N/A</b> Logbook Ref. No.: <b>N/A</b> Service Order No.:		One Samples Shipped: <b>11-16-98</b> SMO USE Carrier/Waybill No.: <b>526494</b> Lab Contact: <b>EDIE KENT</b> Lab Destination: <b>G.E.L.</b> SMO Contact/Phone: <b>Doug Salimi / 844-3110</b> Send Report to SMO: <b>Suzi Jensen/844-3184</b>		Contract No.: <b>AJ-2480A</b> Case No.: <b>10204 13</b> SMO Authorization: <i>[Signature]</i> Bill to: <b>Sandia National Laboratories</b> Supplier Services, Dept. P.O. Box 5800 MS 0154		LAB USE Lab Sample ID Parameter & Method Requested <i>See Special Instructions Below</i>																									
<b>Location</b> Building <b>N/A</b> Room <b>N/A</b> Sample No. - Fraction <b>050484 - 001 PEM-1</b> <b>050485 - 001 TRM-2</b> <b>050486 - 001 ARM-2 NBHD</b>		<b>Reference LOV (available at SMO)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sample Method</th> <th colspan="2">Container</th> <th rowspan="2">Preservative</th> <th rowspan="2">Sample Collection Method</th> <th rowspan="2">Sample Type</th> </tr> <tr> <th>Type</th> <th>Volume</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>P</td> <td>1 L</td> <td>4 C</td> <td>G</td> <td>SA</td> </tr> <tr> <td>S</td> <td>G</td> <td>1 L</td> <td>4 C</td> <td>G</td> <td>SA</td> </tr> <tr> <td>S</td> <td>G</td> <td>1 L</td> <td>4 C</td> <td>G</td> <td>SA</td> </tr> </tbody> </table>		Sample Method	Container		Preservative	Sample Collection Method	Sample Type	Type	Volume	S	P	1 L	4 C	G	SA	S	G	1 L	4 C	G	SA	S	G	1 L	4 C	G	SA	<b>Special Instructions/QC Requirements</b> EDD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Raw data package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>These "samples" are null, uncharacterized and maturing debris sent to GEL for backup to Health Division.</i> Please list as separate report.	
Sample Method	Container		Preservative		Sample Collection Method	Sample Type																									
	Type	Volume																													
S	P	1 L	4 C	G	SA																										
S	G	1 L	4 C	G	SA																										
S	G	1 L	4 C	G	SA																										
<b>RMMA</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No. Sample Disposit <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab Turnaround Time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Required Report Date		<b>Sample Tracking</b> Date Entered (mm/dd/yy) Entered by Init Company/Organization/Phone <b>11-16-98</b> <b>DK</b> <b>Weston / 757 / 845-0887</b>		<b>Abnormal Conditions on Receipt</b> <i>[Redacted]</i>																											
Sample Team Douglas E. Perry Members		Signature: <i>[Signature]</i> Date: <b>11-16-98</b> Time: <b>0900</b>		Date Date Date Date Date Date																											
1. Relinquished by <i>[Signature]</i> Org. <b>Emps. 377</b> Date <b>11-16-98</b> Time <b>0900</b>		4. Relinquished by 4. Received by 5. Relinquished by 5. Received by 6. Relinquished by 6. Received by		Date Date Date Date Date Date																											

Original To Accompany Samples,  
(Laboratory Copy (White))

**1<sup>st</sup> Copy To Accompany Samples,  
Return to SMO (Blue)**

**2<sup>nd</sup> Copy SMO Suspense Copy (Yellow)**

3<sup>rd</sup> Copy Field Copy (Pink)

### 0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATA 4/14/2000

Amanda L. Fehr 4/30/04  
lett & dated 5/1/04

## PREPARATION AND CHARACTERIZATION OF THE PERFORMANCE EVALUATION SOIL SAMPLE PEM-1

### INTRODUCTION

Rust Geotech (Rust) was contracted by Los Alamos National Laboratory (LANL) to prepare and characterize a soil performance evaluation sample designated PEM-1. This report describes sample preparation, homogeneity assessment, and determination of the concentrations of 28 elements and radioactive isotopes in the sample.

### SAMPLE PREPARATION

Rust received nine five-gallon buckets of soil from LANL. The soils were dried overnight in ovens at 103 °C. The large pieces of leaves and sticks were removed and the soils were ground with ceramic-plate grinders to a particle size that passed through a 325 mesh screen. The samples were blended at the proportions specified by LANL for 48 hours in a 3-cubic-foot cross-flow blender. The sample identifications and the amounts used are listed in Table 1.

Table 1. Sample Identifications and Amounts Used to Prepare PEM-1

LANL Sample ID	Amount Used (kg)
AAA 1592	1.7
AAA 2505-1	10.9
AAA 2505-2	12.8
AAA 2750-1	8.4
AAA 2750-2	8.4
AAA 3205	12.6
AAA 8581	4.2
AAB 3417	12.8
AAB 3475	12.6

The blended sample was transferred to three five-gallon plastic containers. While the sample was being transferred, 10 samples were taken at pre-determined time intervals to be used for homogeneity assessment and sample characterization. These samples are believed to be representative of the bulk material.



# CERTIFICATE OF CALIBRATION

## ALPHA STANDARD SOLUTION

Radionuclide Am-243  
Half Life: 7380  $\pm$  40 years  
Catalog No.: 7243  
Source No.: 445-96-2

Customer: GENERAL ENGINEERING LABS  
P.O.No.: 9290-RAD  
Reference Date: January 1 1994 12:00 PST.  
Contained Radioactivity: (Am-243) 101.2  $\mu$ Ci  
Contained Radioactivity: (Am-243) 3750 kBq

### Description of Solution

a. Mass of solution: 5.3739 g (in a 5 ml Flame Sealed Ampoule)  
b. Chemical form: Am(NO<sub>3</sub>)<sub>3</sub> in 2N HNO<sub>3</sub>  
c. Carrier content: None added  
d. Density: 1.0651 g/ml @ 20°C.

### Radioimpurities

None detected

### Radioactive Daughters

Np-239 (beta active) in equilibrium

### Radionuclide Concentration

(Am-243) 18.84  $\mu$ Ci/g

### Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) integrated under: 228, 278 keV.  
Branching ratio(s) used: 0.108, 0.1420 gamma rays per decay.

### Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:  $\pm 3.0\%$   
b. Random uncertainty in assay:  $\pm 0.4\%$   
c. Random uncertainty in weighing(s):  $\pm 0.0\%$   
d. Total uncertainty at the 99% confidence level:  $\pm 3.0\%$

### NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

### Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

### Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES  
1800 North Keystone Street  
Burbank, California 91504  
(818) 843 - 7000

*Anna H. Khan*  
QUALITY CONTROL

*Jan 3, 1994*  
Date Signed

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO  
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE

☒ 1. STANDARD WIPE TEST

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 2. SOAK TEST

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 3. SOAK TEST -- BERYLLIUM WINDOW

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 4. GAS SOURCE TEST (Radioactive Gas)

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.

☒ 5. OTHER LEAK TEST

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 6. LEAK TEST NOT APPLICABLE

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha at the time of shipment.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	05/11/2009
Expiration Date:	05/11/2010
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parent Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Julie Strock	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/30/2008	09/29/2009
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/ml	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/ml	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
04/14/2003	Lonnie Morris	.0315	1000	445-96-2-X	65.2559 dpm/mL	04/14/2004	04/14/2005
05/03/2003	Tim Chandler	.0103	1000	445-96-2-Y	21.3376 dpm/mL	05/05/2003	05/05/2004
05/05/2003	Eric Williamson	.011	1000	445-96-2-Z	22.7877 dpm/mL	04/03/2007	04/03/2008

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Am-243 Standard 445-96-2-SS

M. Aders 5/15/2009	Isotope	Value	Uncertainty
	445-96-2-SS #1	1.360	0.1690
	445-96-2-SS #2	1.370	0.1690
	445-96-2-SS #3	1.290	0.1590
Mean Value (Counting) =	1.340	101.99	Pass
Stdev =	0.043588989	Rule 3 (Pass/Fail)	
Target =	1.314		
Lower Limit =	1.252822021		
Upper Limit =	1.427177979		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.087177979		
10 % of Mean =	0.134		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard **445-96-2-SS** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **Cm-244** standard **0533-O** and 50 micrograms of neodymium carrier in a disposable centrifuge tube. Each standard was diluted with 4 mL of 2 M HCl and 6 mL of DI Water. Two mL of 48% HF was added to precipitate Nd (and Americium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Am-243 were calculated by comparison to Am-241 certified values.

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

*M. Aders 5/15/09*  
*Taheri*  
*07509*



# NATIONAL PHYSICAL LABORATORY

Teddington Middlesex UK TW11 0LW Telephone +44 20 8977 3222

## Certificate of Calibration



0478

PLUTONIUM-236 SOLUTION  
R37-02

*This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.*

FOR: GEL Laboratories LLC  
2040 Savage Road  
Charleston, SC 29407  
USA

FOR THE ATTENTION OF: Mr Tim Winters

NPL PRODUCT CODE: R37-02

IDENTIFICATION: A09881

DESCRIPTION: An aqueous solution of  $^{236}\text{Pu}$  also containing  $2 \text{ mol dm}^{-3}$  of nitric acid. The solution is contained in a flame sealed ampoule of type Q and nominal volume 5 ml (squat) as defined in BS 795:1983.

DATE(S) OF CALIBRATION: 26 June 2009 to 1 July 2009

INTENDED USE: Calibration of instruments for response to  $^{236}\text{Pu}$

STORAGE: The material may be stored at room temperature in a suitably sealed container. Flame-sealed glass ampoules are recommended for long-term storage. Regulatory conditions may apply to the manner in which this material is stored.

### MEASUREMENTS

The samples were prepared by gravimetric dilution of a  $^{236}\text{Pu}$  solution, which had been previously standardised using liquid scintillation counting. The accuracy of the dilution factor was checked using liquid scintillation counting.

Reference: 2009100356

Page 1 of 3

Date of Issue: 4 November 2009

Signed:

(Authorised Signatory)

Checked by:

Name: Dr Arvic Harms

for Managing Director

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## RESULTS

Principal radionuclide:	$^{236}\text{Pu}$
Reference time:	2009-07-01 12:00 UTC
Activity concentration of principal radionuclide:	$170.8 \text{ Bq g}^{-1}$
Expanded uncertainty:	$\pm 0.6 \text{ Bq g}^{-1} (\pm 0.36 \%)$
Contaminants present:	$^{226}\text{Ra}, ^{232}\text{U}, ^{228}\text{Th}, ^{237}\text{Np}$
Activity concentration of $^{226}\text{Ra}$ :	$11.0 \text{ mBq g}^{-1}$
Expanded uncertainty:	$\pm 4.0 \text{ mBq g}^{-1} (\pm 36 \%)$
Activity concentration of $^{232}\text{U}$ :	$0.67 \text{ Bq g}^{-1}$
Expanded uncertainty:	$\pm 0.12 \text{ Bq g}^{-1} (\pm 18 \%)$
Activity concentration of $^{228}\text{Th}$ :	$11.38 \text{ mBq g}^{-1}$
Expanded uncertainty:	$\pm 0.46 \text{ mBq g}^{-1} (\pm 4 \%)$
Activity concentration of $^{237}\text{Np}$ :	$5.00 \text{ mBq g}^{-1}$
Expanded uncertainty:	$\pm 0.34 \text{ mBq g}^{-1} (\pm 8 \%)$
Sample Mass:	$4.97 \text{ g} \pm 0.02 \text{ g}$

## UNCERTAINTIES

The reported uncertainties are based on standard uncertainties multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95 %. The uncertainty evaluations have been carried out in accordance with UKAS requirements.

## NOTES

- [1]. The reported reference time is stated consistent with the format given in ISO 8601:2004. UTC is the abbreviation for Universal Time, Coordinated. The date is stated in the format YYYY-MM-DD such that 2008-09-01 represents 1 September 2008.
- [2]. The recommended half life of  $^{236}\text{Pu}$  is 1044 (6) days and is taken from the evaluations published in *Nuclear Data Sheets*.
- [3]. The recommended half life of  $^{226}\text{Ra}$  is  $5.844 (50) \times 10^5$  days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example [www.nucleide.org/DDEP.htm](http://www.nucleide.org/DDEP.htm).
- [4]. The recommended half life of  $^{232}\text{U}$  is 25800 (800) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example [www.nucleide.org/DDEP.htm](http://www.nucleide.org/DDEP.htm).
- [5]. The recommended half life of  $^{237}\text{Np}$  is  $7.83 (6) \times 10^8$  days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example [www.nucleide.org/DDEP.htm](http://www.nucleide.org/DDEP.htm).
- [6]. The recommended half life of  $^{228}\text{Th}$  is 698.60 (46) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example [www.nucleide.org/DDEP.htm](http://www.nucleide.org/DDEP.htm).

## UNCERTAINTIES

The reported uncertainties are based on standard uncertainties multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95 %. The uncertainty evaluations have been carried out in accordance with UKAS requirements.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1430
Prepared By:	Ashley Drochter
Carrier Conc:	2 M HNO <sub>3</sub>
Reference Date:	07/01/2009
Ampoule Mass (g):	4.97 g
Uncertainty:	+/- .36 %
LogBook No:	RC-S-051-149

A Solution Material Info	
Isotope:	Plutonium-236
Prepared By:	Ashley Drochter
Prep Date:	01/27/2010
Verification Date:	01/27/2010
Expiration Date:	01/27/2011
Primary Code:	1430-A
Dilution(mL):	100 mL
Mass of Parent(g):	4.8051 g
Density(g/mL):	1.0610
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$

$(4.8051 \text{ g}) * (170.8 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (100 \text{ mL}) = 492.4266 \text{ dpm/mL}$

$(4.8051 \text{ g}) * (170.8 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0610 \text{ g/mL}) / (100 \text{ mL}) = 464.1156 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/27/2010	Bethany Fiem	33.0429	200	1430-B	76.6786262 dpm/mL	01/27/2010	01/27/2011
03/01/2010	Ashley Drochter	15.2331	200	1430-C	35.3496 dpm/mL	03/01/2010	03/01/2011

GEL Laboratories LLC

Version 1.0 9/18/2000

## Verification for Plutonium-236 Standard 1430-B

	Isotope	Value	Uncertainty
A. Drochter 1/29/2010	1430-B	3.080	0.4720
	1430-B	3.000	0.4660
	1430-B	2.960	0.4740
Mean Value (Counting) =	3.013	100.4268	% of Known Value
Stdev =	0.061101009		
Target =	3.00		
Lower Limit =	2.891131315		
Upper Limit =	3.135535352		
Rule 1 Pass/Fail	Pass	Pass	Pass
Two sigma =	0.122202019		
10 % of Mean =	0.301333333		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard 1430-B using 0.1 mL for each source. Each standard was combined with 0.1 mL of Pu 239 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. After approximately ten minutes, 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-236 were calculated by comparison to Pu-239 certified values.

*Signature*  
2/1/10

1/28/10



Eckert & Ziegler

Analytics

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318  
Tel 404-352-8677  
Fax 404-352-2837  
www.analytiscinc.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:

W. Mao  
W. Mao, Radiochemist

QA Approved:

D. M. Montgomery  
D. M. Montgomery, QA Manager

Date: 12-11-08

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1283	Isotope:	Uranium-232
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3	Prep Date:	12/16/2008
Reference Date:	12/09/2008	Verification Date:	12/30/2008
Ampoule Mass (g):	5.20453 g	Expiration Date:	12/30/2009
Uncertainty:	+/- 5 %	Primary Code:	1283-A
LogBook No:	RC-S-051-002	Dilution(mL):	100 mL
		Mass of Parent(g):	5.0245 g
		Density(g/mL):	1.0285
		Balance ID:	

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)} * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)} * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/02/2009	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: A. Drochter</b>	<b>Serial #</b>	<b>Value</b>	<b>Uncertainty</b>					
<b>Date: 12/10/09</b>	1283-H N1	2.020	pCi/L	0.238	pCi/L			
	1283-H N2	2.000	pCi/L	0.234	pCi/L			
	1283-H N3	2.060	pCi/L	0.242	pCi/L			
<b>Mean Value (Counting) =</b>	2.027	pCi/L	<b>99.66904</b>	<b>Pass</b>				
<b>Stdev =</b>	0.030550506	pCi/L	<b>Rule 3 (Pass/Fail)</b>					
<b>Target =</b>	2.033	pCi/L						
<b>Lower Limit =</b>	1.965565657	pCi/L						
<b>Upper Limit =</b>	2.087767676	pCi/L						
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>							
<b>Two sigma =</b>	0.061101009							
<b>10 % of Mean =</b>	0.202666667							
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>							

**Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

**Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

**Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard 1283-H using 0.1 mL for each source. Each standard was combined with 0.1 mL of U-238 standard 1163-G and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

*A. Drochter*  
12/14/09

# RUNLOGS

# Instrument Run Log

**Instrument Type: GAMMA SPECTROMETER**

**Batch ID: 950788**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246440001	SAMPLE	MXR1	GAM15	19-FEB-10 17:57	DONE	CAN	03-FEB-10 00:00
246440002	SAMPLE	MXR1	GAM16	19-FEB-10 17:57	DONE	CAN	16-NOV-09 00:00
246440003	SAMPLE	MXR1	GAM19	19-FEB-10 17:58	DONE	CAN	12-MAR-09 00:00
246440004	SAMPLE	MXR1	GAM21	19-FEB-10 17:58	DONE	CAN	28-JUL-09 00:00
246440005	SAMPLE	MXR1	GAM22	19-FEB-10 17:59	DONE	CAN	02-DEC-09 00:00
246444001	SAMPLE	MXR1	GAM25	19-FEB-10 17:59	DONE	CAN	07-OCT-09 00:00
246440006	SAMPLE	MXR1	GAM17	19-FEB-10 18:02	DONE	CAN	06-JAN-10 00:00
246440007	SAMPLE	MXR1	GAM18	19-FEB-10 18:30	DONE	CAN	23-APR-09 00:00
246440008	SAMPLE	MXR1	GAM01	19-FEB-10 19:26	DONE	CAN	12-JAN-10 00:00
246440009	SAMPLE	MXR1	GAM02	19-FEB-10 19:50	DONE	CAN	29-OCT-09 00:00
246440010	SAMPLE	MXR1	GAM04	19-FEB-10 19:50	DONE	CAN	05-MAY-09 00:00
246440011	SAMPLE	MXR1	GAM07	19-FEB-10 19:50	DONE	CAN	20-JUL-09 00:00
246440012	SAMPLE	MXR1	GAM10	19-FEB-10 19:51	DONE	CAN	16-MAR-09 00:00
246440013	SAMPLE	MXR1	GAM11	19-FEB-10 19:51	DONE	CAN	18-NOV-09 00:00
246440014	SAMPLE	MXR1	GAM12	19-FEB-10 19:52	DONE	CAN	10-FEB-09 00:00
246444002	SAMPLE	MXR1	GAM16	19-FEB-10 20:39	DONE	CAN	16-NOV-09 00:00
246444003	SAMPLE	MXR1	GAM17	19-FEB-10 20:39	DONE	CAN	06-JAN-10 00:00
246444004	SAMPLE	MXR1	GAM18	19-FEB-10 20:40	DONE	CAN	23-APR-09 00:00
246444005	SAMPLE	MXR1	GAM19	19-FEB-10 20:40	DONE	CAN	12-MAR-09 00:00
1202037552	MB	MXR1	GAM21	19-FEB-10 20:41	DONE	CAN	28-JUL-09 00:00
1202037553	DUP	MXR1	GAM22	19-FEB-10 20:42	DONE	CAN	02-DEC-09 00:00
1202037554	LCS	MXR1	GAM14	19-FEB-10 21:35	DONE	CAN	06-MAR-09 00:00

# Instrument Run Log

Instrument Type: LSC

Batch ID: 953095

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246341001	SAMPLE	KXK2	LSCBROWN	19-FEB-10 08:55	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341002	SAMPLE	KXK2	LSCBROWN	19-FEB-10 10:33	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341003	SAMPLE	KXK2	LSCBROWN	19-FEB-10 12:11	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341004	SAMPLE	KXK2	LSCBROWN	19-FEB-10 13:49	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341005	SAMPLE	KXK2	LSCBROWN	19-FEB-10 15:27	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341006	SAMPLE	KXK2	LSCBROWN	19-FEB-10 17:05	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341007	SAMPLE	KXK2	LSCBROWN	19-FEB-10 18:43	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341008	SAMPLE	KXK2	LSCBROWN	19-FEB-10 20:21	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341009	SAMPLE	KXK2	LSCBROWN	19-FEB-10 22:00	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344001	SAMPLE	KXK2	LSCBROWN	19-FEB-10 23:38	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344002	SAMPLE	KXK2	LSCBROWN	20-FEB-10 01:16	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344003	SAMPLE	KXK2	LSCBROWN	20-FEB-10 04:08	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344004	SAMPLE	KXK2	LSCBROWN	20-FEB-10 05:46	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344005	SAMPLE	KXK2	LSCBROWN	20-FEB-10 07:24	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444001	SAMPLE	KXK2	LSCBROWN	20-FEB-10 09:02	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444002	SAMPLE	KXK2	LSCBROWN	20-FEB-10 10:40	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444003	SAMPLE	KXK2	LSCBROWN	20-FEB-10 12:18	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444004	SAMPLE	KXK2	LSCBROWN	20-FEB-10 13:56	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444005	SAMPLE	KXK2	LSCBROWN	20-FEB-10 15:34	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042910 MB		KXK2	LSCBROWN	20-FEB-10 17:12	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042911 DUP		KXK2	LSCBROWN	20-FEB-10 18:50	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042912 LCS		KXK2	LSCBROWN	20-FEB-10 20:27	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 953491**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246325001	SAMPLE	MXE1	1031	27-FEB-10 19:45	DONE		
246440001	SAMPLE	MXE1	1033	27-FEB-10 19:45	DONE		
246440002	SAMPLE	MXE1	1035	27-FEB-10 19:45	DONE		
246440003	SAMPLE	MXE1	1036	27-FEB-10 19:45	DONE		
246440004	SAMPLE	MXE1	1043	27-FEB-10 19:45	DUSE		
246440005	SAMPLE	MXE1	1044	27-FEB-10 19:45	DONE		
246440006	SAMPLE	MXE1	1045	27-FEB-10 19:45	DONE		
246440007	SAMPLE	MXE1	1046	27-FEB-10 19:45	DONE		
246440008	SAMPLE	MXE1	1047	27-FEB-10 19:45	DONE		
246440009	SAMPLE	MXE1	1048	27-FEB-10 19:45	DONE		
246440010	SAMPLE	MXE1	1095	27-FEB-10 19:46	DONE		
246440011	SAMPLE	MXE1	1097	27-FEB-10 19:46	DONE		
246440012	SAMPLE	MXE1	1099	27-FEB-10 19:46	DONE		
246440013	SAMPLE	MXE1	1101	27-FEB-10 19:46	DONE		
246440014	SAMPLE	MXE1	1102	27-FEB-10 19:46	DONE		
246444001	SAMPLE	MXE1	1103	27-FEB-10 19:46	DONE		
246444002	SAMPLE	MXE1	1105	27-FEB-10 19:46	DONE		
246444003	SAMPLE	MXE1	1106	27-FEB-10 19:46	DONE		
246444004	SAMPLE	MXE1	1107	27-FEB-10 19:46	DONE		
246444005	SAMPLE	MXE1	1108	27-FEB-10 19:46	DONE		
1202052623	MB	MXE1	1109	27-FEB-10 19:46	DONE		
1202052624	DUP	MXE1	1111	27-FEB-10 19:46	DONE		
1202052625	LCS	MXE1	1112	27-FEB-10 19:46	DONE		
246440004	SAMPLE	MXE1	1099	01-MAR-10 18:21	DONE		

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 953494**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246325001	SAMPLE	MXE1	1065	27-FEB-10 19:45	DONE		
246440001	SAMPLE	MXE1	1066	27-FEB-10 19:45	DUSE		
246440002	SAMPLE	MXE1	1067	27-FEB-10 19:45	DUSE		
246440003	SAMPLE	MXE1	1068	27-FEB-10 19:45	DONE		
246440004	SAMPLE	MXE1	1069	27-FEB-10 19:45	DONE		
246440005	SAMPLE	MXE1	1070	27-FEB-10 19:45	DUSE		
246440006	SAMPLE	MXE1	1077	27-FEB-10 19:45	DONE		
246440007	SAMPLE	MXE1	1079	27-FEB-10 19:45	DONE		
246440008	SAMPLE	MXE1	1080	27-FEB-10 19:45	DUSE		
246440009	SAMPLE	MXE1	1081	27-FEB-10 19:45	DONE		
246440010	SAMPLE	MXE1	1082	27-FEB-10 19:45	DONE		
246444003	SAMPLE	MXE1	1089	27-FEB-10 19:46	DONE		
246444004	SAMPLE	MXE1	1090	27-FEB-10 19:46	DUSE		
246444005	SAMPLE	MXE1	1091	27-FEB-10 19:46	DONE		
1202044064	MB	MXE1	1092	27-FEB-10 19:46	DONE		
1202044065	DUP	MXE1	1093	27-FEB-10 19:46	DUSE		
1202044066	LCS	MXE1	1094	27-FEB-10 19:46	DONE		
246440011	SAMPLE	MXE1	1083	27-FEB-10 20:33	DUSE		
246440012	SAMPLE	MXE1	1084	27-FEB-10 20:33	DUSE		
246440013	SAMPLE	MXE1	1085	27-FEB-10 20:33	DUSE		
246440014	SAMPLE	MXE1	1086	27-FEB-10 20:33	DONE		
246444001	SAMPLE	MXE1	1087	27-FEB-10 20:33	DUSE		
246444002	SAMPLE	MXE1	1088	27-FEB-10 20:33	DONE		
246440001	SAMPLE	MXE1	1025	01-MAR-10 18:20	DONE		
246440002	SAMPLE	MXE1	1026	01-MAR-10 18:20	DONE		
246440005	SAMPLE	MXE1	1027	01-MAR-10 18:20	DONE		
246440008	SAMPLE	MXE1	1028	01-MAR-10 18:20	DONE		
246440011	SAMPLE	MXE1	1029	01-MAR-10 18:20	DONE		
246440012	SAMPLE	MXE1	1030	01-MAR-10 18:20	DUSE		
246440013	SAMPLE	MXE1	1031	01-MAR-10 18:20	DONE		
246444001	SAMPLE	MXE1	1033	01-MAR-10 18:20	DONE		
246444004	SAMPLE	MXE1	1035	01-MAR-10 18:20	DONE		
1202044065	DUP	MXE1	1036	01-MAR-10 18:20	DONE		
246440012	SAMPLE	MXE1	1037	03-MAR-10 07:24	DONE		

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 953497**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246325001	SAMPLE	MXE1	1118	27-FEB-10 20:03	DONE		
246440001	SAMPLE	MXE1	1119	27-FEB-10 20:03	DONE		
246440002	SAMPLE	MXE1	1120	27-FEB-10 20:03	DONE		
246440003	SAMPLE	MXE1	1121	27-FEB-10 20:03	DONE		
246440004	SAMPLE	MXE1	1122	27-FEB-10 20:03	DONE		
246440005	SAMPLE	MXE1	1123	27-FEB-10 20:03	DONE		
246440006	SAMPLE	MXE1	1124	27-FEB-10 20:03	DONE		
246440007	SAMPLE	MXE1	1125	27-FEB-10 20:04	DONE		
246440008	SAMPLE	MXE1	1126	27-FEB-10 20:04	DONE		
246440009	SAMPLE	MXE1	1127	27-FEB-10 20:04	DONE		
246440010	SAMPLE	MXE1	1128	27-FEB-10 20:04	DONE		
246440011	SAMPLE	MXE1	1129	27-FEB-10 20:04	DONE		
246440012	SAMPLE	MXE1	1130	27-FEB-10 20:04	DONE		
246440013	SAMPLE	MXE1	1131	27-FEB-10 20:04	DONE		
246440014	SAMPLE	MXE1	1132	27-FEB-10 20:04	DONE		
246444001	SAMPLE	MXE1	1133	27-FEB-10 20:04	DONE		
246444002	SAMPLE	MXE1	1138	27-FEB-10 20:04	DONE		
246444003	SAMPLE	MXE1	1139	27-FEB-10 20:04	DONE		
246444004	SAMPLE	MXE1	1140	27-FEB-10 20:04	DONE		
246444005	SAMPLE	MXE1	1141	27-FEB-10 20:04	DONE		
1202044075	MB	MXE1	1142	27-FEB-10 20:04	DONE		
1202044076	DUP	MXE1	1143	27-FEB-10 20:04	DONE		
1202044077	LCS	MXE1	1144	27-FEB-10 20:04	DONE		