

Wednesday, February 17, 2010

REQUEST NUMBER: 10-1916

Page 1 of 2

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: 10-1916

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 2/17/2010

TURNAROUND/REPORT DUE: 3/19/2010

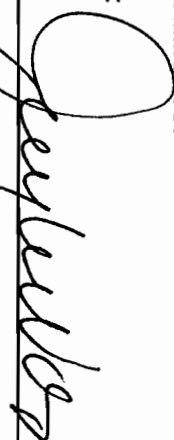
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1						
1		1	RE36-10-7423	R	2/12/2010	
1		1	RE36-10-7424	R	2/12/2010	
1		1	RE36-10-7427	R	2/12/2010	
1		1	RE36-10-7428	R	2/12/2010	
EPA:906.0						
1		1	RE36-10-7423	R	2/12/2010	
1		1	RE36-10-7424	R	2/12/2010	
1		1	RE36-10-7427	R	2/12/2010	
1		1	RE36-10-7428	R	2/12/2010	
HASL-300:AM-241						
1		1	RE36-10-7423	R	2/12/2010	

Wednesday, February 17, 2010

REQUEST NUMBER: 10-1916

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOPU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	

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Wednesday, February 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1916

LOS ALAMOS

REQUEST NUMBER: 10-1916

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/19/2010

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
RE36-10-7427	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7427	1	POLY	H3	Ice	R
RE36-10-7423	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7423	1	POLY	H3	Ice	R
RE36-10-7428	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7428	1	POLY	H3	Ice	R
RE36-10-7424	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7424	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: 2485

EVENT NAME: 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7423

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/12/2010		MEDIA:		OBT3	
TIME COLLECTED(HH:MM)		1100		SUB-MEDIA:		TUFF 1	
PRS ID: 36-008		OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID: 36-610584		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		0.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		0.5		SCREEN/PORT DESC: NA		↓	
FIELD MATRIX: R		S		EXCAVATED: YES/NO/NA		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA		NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Reg	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		METALS+U-GEL	125 ML POLY	Ice		
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	↓	

SAMPLE DESC: Dry brown soft silt and top soil

SAMPLE COMMENTS: None

LOCATION DESC: 8-51

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 14 dpm
Beta/Gamma = 1377 dpm

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

COLLECTED BY (PRINT)

A. Gornal

REVIEWED BY (PRINT)

TLMcFarlane

RELINQUISHED BY (Printed Name) A. Gornal (Signature) <i>A. Gornal</i>	Date/Time 2/12/10 1640	RECEIVED BY (Printed Name) S. M. McCarty (Signature) <i>S. M. McCarty</i>	Date/Time 2/12/10 1640
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485

EVENT NAME: 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7424

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/12/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		1120		SUB-MEDIA:		TUFF 1	
PRS ID: 36-008		OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID: 36-610584		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		2.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		2.0		SCREEN/PORT DESC: NA		↓	
FIELD MATRIX: R		OK		EXCAVATED: YES/NO/NA		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA		NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Reg	8260B	125 ML SEPTUM AMBER GLASS	Ice	2/12/10 y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		METALS+U-GEL	125 ML POLY	Ice		
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC: Eroded and weathered light brown tuff

SAMPLE COMMENTS: 26 2/12/10
26 2/12/10
interior @ 2.0' bgs

LOCATION DESC: 0-51

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 6 dpm
Beta/Gamma = 323 dpmPID $\frac{\text{Ambient Reading}}{0.8} = 0.8$ ppm

COLLECTED BY (PRINT)

A. Gamus

REVIEWED BY (PRINT) TLMcfarland

RELINQUISHED BY (Printed Name) A. Gamus (Signature) <i>A. Gamus</i>	Date/Time 2/12/10 1640	RECEIVED BY <i>S. M. L. O. R. H.</i> (Printed Name) (Signature) <i>U</i>	Date/Time 2/12/10 1640
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485

EVENT NAME: 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7427

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/12/2010		MEDIA:		OBT3	
TIME COLLECTED (HH:MM)		10:26		SUB-MEDIA:		TUFF 1	
PRS ID: 36-008		OK		SAMPLE TECH CODE:		HA	
LOCATION ID: 36-610586		↓		FIELD QC TYPE:		NA	
LOCATION TYPE: GENERIC		↓		FIELD PREP:		NA	
TOP DEPTH: 0		0.0		SAMPLE USAGE:		INV	
BOTTOM DEPTH: 0		0.5		SCREEN/PORT DESC:		NA	
FIELD MATRIX: R		S		EXCAVATED: YES/NO/NA		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA		NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Reg	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		METALS+U-GEL	125 ML POLY	Ice		
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC: Brown, soft duff material with top soil

SAMPLE COMMENTS: None

LOCATION DESC: B-50

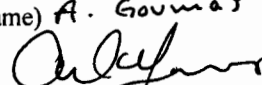
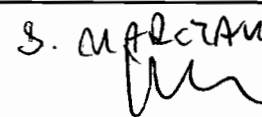
FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 6 dpm
Beta/Gamma = 9 dpmPID $\frac{\text{Ambient Reading}}{\text{Reading}} = \frac{0.0}{0.0} \text{ ppm}$

COLLECTED BY (PRINT)

A. Goumas

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) A. Goumas (Signature) 	Date/Time 2/12/2010 16:46	RECEIVED BY (Printed Name) S. Mafra (Signature) 	Date/Time 2/12/10 1646
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485

EVENT NAME: 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7428

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/12/2010		MEDIA:		QBT3	
TIME COLLECTED (HH:MM)		10:44		SUB-MEDIA:		TUFF 1	
PRS ID:	36-008	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	36-610586	↓		FIELD QC TYPE:		NA	
LOCATION TYPE:	GENERIC	↓		FIELD PREP:		NA	
TOP DEPTH:	0	2.0		SAMPLE USAGE:		INV	
BOTTOM DEPTH:	0	3.0		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA		NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Reg	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		METALS+U-GEL	125 ML POLY	Ice		
1		Perchlorate+CN+N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		

SAMPLE DESC: Brown soft, soil with some tuff, some root material

SAMPLE COMMENTS: None

LOCATION DESC: 8-50

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 6 dpm
Beta/Gamma = 211 dpm

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

COLLECTED BY (PRINT)

A. Goumar

REVIEWED BY (PRINT) TLMcFarlane

RELINQUISHED BY (Printed Name) A. Goumar (Signature) <i>A. Goumar</i>	Date/Time 2/12/10 16:46	RECEIVED BY S. MARRAM (Printed Name) (Signature) <i>S. MARRAM</i>	Date/Time 2/12/10 1646
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

DATA VALIDATION COVER SHEET

5119-1

Data Validation Cover Sheet

Records Use only



Section I.

REQUEST NUMBER: 10-1916 VALIDATION DATE: 03/25/10 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.

Reviewed by: Mary Donovan Level: I Date: 03/26/10


VALIDATOR'S SIGNATURE: Joanne Compton DATE: 03/25/10

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

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

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

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

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 16, 2010

Client Sample ID: RE36-10-7427
Sample ID: 247360001
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 36.4%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0296	0.0356	+/-0.00915	0.050	pCi/g		JXH2	03/06/10	1207	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-2.68E-05	0.0337	+/-0.00329	0.050	pCi/g		JXH2	03/15/10	1259	957099	2
Plutonium-239/240		0.087	0.0286	+/-0.0161	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.51	0.207	+/-0.170	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0228	0.134	+/-0.0216	0.100	pCi/g						
Uranium-238		1.93	0.142	+/-0.205	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.191	0.248	+/-0.0841	0.200	pCi/g		MXR1	03/04/10	1241	955027	5
Bismuth-211	UI	4.56	R,R5a	0.401	+/-0.376	pCi/g						
Bismuth-214		1.31		0.147	+/-0.130	pCi/g						
Cadmium-109	UI	2.86	R,R5a	1.78	+/-0.575	pCi/g						
Cerium-139	U	-0.0135		0.0622	R,R5a	0.050	pCi/g					
Cesium-134	UI	0.110	R,R5a	0.105	+/-0.0301	0.100	pCi/g					
Cesium-137		1.24		0.0725	+/-0.0914	0.100	pCi/g					
Cobalt-60	U	-0.0452		0.0639	+/-0.0223	0.100	pCi/g					
Europium-152	U	0.0444		0.207	+/-0.0688	0.200	pCi/g					
Lanthanum-140	U	-0.124		0.235	+/-0.0782	pCi/g						
Lead-212		1.75		0.118	+/-0.136	0.100	pCi/g					
Lead-214		1.65		0.153	+/-0.144	0.100	pCi/g					
Mercury-203	U	0.0703		0.0922	+/-0.0283	0.100	pCi/g					
Potassium-40		27.0		0.573	+/-1.52	1.00	pCi/g					
Radium-223	U	-0.229		1.41	+/-0.439	pCi/g						
Radium-224	UI	4.55	R,R5a	1.26	+/-0.780	pCi/g						
Radium-226		1.31		0.147	+/-0.130	pCi/g						
Radium-228		1.63		0.275	+/-0.218	0.500	pCi/g					
Ruthenium-106	U	0.0822		0.640	+/-0.195	0.800	pCi/g					
Sodium-22	U	-0.0352		0.0721	+/-0.0239	0.080	pCi/g					
Strontium-85	UI	0.247	R,R5a	0.109	+/-0.0338	pCi/g						

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Certificate of Analysis

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

Report Date: March 16, 2010

Client Sample ID:
Sample ID:

RE36-10-7427
247360001

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thallium-208		0.515	0.070	+/-0.0531	0.080	pCi/g						
Thorium-227	U	-0.0804	0.526	+/-0.170		pCi/g						
Thorium-231	U	-0.229	1.41	+/-0.439		pCi/g						
Thorium-234	U	0.585	2.59	+/-0.798	2.00	pCi/g						
Tin-113	U	0.0303	0.0995	+/-0.0302	0.100	pCi/g						
Uranium-235	U	0.133	0.445	+/-0.141	0.500	pCi/g						
Yttrium-88	U	0.0188	0.0649	+/-0.0185	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	109	211	+/-64.6	250	pCi/L		KXK2	03/12/10	0708	956742	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"	73.0	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	75.1	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

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- > Result is 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 16, 2010

Client Sample ID: RE36-10-7423
Sample ID: 247360002
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 51.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0318	0.0218	+/-0.00751	0.050	pCi/g		JXH2	03/11/10	1655	962678	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00676	0.0426	+/-0.0048	0.050	pCi/g		JXH2	03/15/10	1259	957099	3
Plutonium-239/240		0.0895	0.0361	+/-0.0188	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.45	0.217	+/-0.253	0.100	pCi/g		JXH2	03/06/10	1215	957101	5
Uranium-235/236		0.193	0.141	+/-0.0508	0.100	pCi/g						
Uranium-238		3.27	0.149	+/-0.322	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0095	0.0997	+/-0.0361	0.200	pCi/g		MXR1	03/04/10	1242	955027	6
Bismuth-211	UI	4.92	R,R5a	0.415	+/-0.422	pCi/g						
Bismuth-214		1.53		0.172	+/-0.156	pCi/g						
Cadmium-109	UI	4.51	R,R5a	0.954	+/-0.498	pCi/g						
Cerium-139	U	-0.0228		0.0561	+/-0.0184	pCi/g						
Cesium-134	U	0.0485		0.123	+/-0.0376	pCi/g						
Cesium-137		3.31		0.0995	+/-0.218	pCi/g						
Cobalt-60	U	-0.0224		0.0917	+/-0.0303	pCi/g						
Europium-152	U	-0.0288		0.206	+/-0.0696	pCi/g						
Lanthanum-140	U	-0.138		0.217	+/-0.0804	pCi/g						
Lead-212		1.60		0.118	+/-0.119	pCi/g						
Lead-214		1.79		0.151	+/-0.161	pCi/g						
Mercury-203	U	-0.0119		0.0908	+/-0.0301	pCi/g						
Potassium-40		21.8		0.974	+/-1.45	pCi/g						
Radium-223	U	0.0774		1.49	+/-0.454	pCi/g						
Radium-224	UI	5.59	R,R5a	1.27	+/-1.05	pCi/g						
Radium-226		1.53		0.172	+/-0.156	pCi/g						
Radium-228		1.73		0.326	+/-0.227	pCi/g						
Ruthenium-106	U	0.169		0.758	+/-0.224	pCi/g						
Sodium-22	U	-0.0204		0.0927	+/-0.0302	pCi/g						
Strontium-85	U	-0.319		0.105	+/-0.047	pCi/g						
Thallium-208		0.473		0.0889	+/-0.0629	pCi/g						

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7423
Sample ID: 247360002
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.201	0.494	+/-0.168		pCi/g						
Thorium-231	U	0.0774	1.49	+/-0.454		pCi/g						
Thorium-234		3.65	0.934	+/-0.657	2.00	pCi/g						
Tin-113	U	-0.0487	0.115	+/-0.0374	0.100	pCi/g						
Uranium-235	U	0.0739	0.381	+/-0.120	0.500	pCi/g						
Yttrium-88	U	-0.000162	0.0945	+/-0.0292	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	109	112	+/-37.1	250	pCi/L		KXK2	03/09/10	1617	956742	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, Pu-11-RC Modified
5	DOE EML HASL-300, U-02-RC Modified
6	DOE HASL 300, 4.5.2.3/Ga-01-R
7	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"	65.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	72.9	(50%-105%)

Notes:

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

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7428
Sample ID: 247360003
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 8.63%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.000709	0.0316	+/-0.0025	0.050	pCi/g		JXH2	03/06/10	1207	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00741	0.0209	+/-0.00333	0.050	pCi/g		JXH2	03/13/10	1427	957099	2
Plutonium-239/240	U	0.00148	0.0176	+/-0.00392	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.951	0.219	+/-0.124	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0365	0.142	+/-0.0213	0.100	pCi/g						
Uranium-238		0.999	0.151	+/-0.128	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.234	0.257	+/-0.0766	0.200	pCi/g		MXR1	03/04/10	1243	955027	5
Bismuth-211	UI	4.53	R,R5a	0.295	+/-0.261	pCi/g						
Bismuth-214		1.31		0.113	+/-0.101	pCi/g						
Cadmium-109	UI	3.17	R,R5a	1.52	+/-0.502	pCi/g						
Cerium-139	U	-0.0167		0.0515	+/-0.0154	pCi/g						
Cesium-134	UI	0.112	R,R5a	0.0923	+/-0.0431	pCi/g						
Cesium-137	U	-0.0212		0.0601	+/-0.0188	pCi/g						
Cobalt-60	U	0.0163		0.0616	+/-0.0175	pCi/g						
Europium-152	U	0.111		0.163	+/-0.0561	pCi/g						
Lanthanum-140	U	-0.115		0.164	+/-0.058	pCi/g						
Lead-212		1.70		0.0951	+/-0.0831	pCi/g						
Lead-214		1.64		0.107	+/-0.105	pCi/g						
Mercury-203	U	0.049		0.0743	+/-0.0228	pCi/g						
Potassium-40		29.5		0.540	+/-1.38	pCi/g						
Radium-223	U	-0.335		1.02	+/-0.350	pCi/g						
Radium-224	UI	4.27	R,R5a	1.02	+/-0.586	pCi/g						
Radium-226		1.31		0.113	+/-0.101	pCi/g						
Radium-228		1.82		0.227	+/-0.173	pCi/g						
Ruthenium-106	U	-0.151		0.436	+/-0.136	pCi/g						
Sodium-22	U	-0.0125		0.0648	+/-0.020	pCi/g						
Strontium-85	UI	0.114	R,R5a	0.0788	+/-0.0225	pCi/g						
Thallium-208		0.533		0.0548	+/-0.040	pCi/g						

JCC
03/25/10

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 16, 2010

Client Sample ID: RE36-10-7428
Sample ID: 247360003

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.260	0.451	+/-0.130		pCi/g						
Thorium-231	U	-0.335	1.02	+/-0.350		pCi/g						
Thorium-234	U	2.10	2.47	+/-0.692	2.00	pCi/g						
Tin-113	U	-0.0168	0.0725	+/-0.0215	0.100	pCi/g						
Uranium-235	U	-0.149	0.338	+/-0.102	0.500	pCi/g						
Yttrium-88	U	0.017	0.0516	+/-0.0141	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	110	115	+/-38.1	250	pCi/L		KXK2	03/09/10	1709	956742	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"	82.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	72.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	71.1	(50%-105%)

Notes:

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

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7424
Sample ID: 247360004
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 8.59%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00175	0.0339	+/-0.00292	0.050	pCi/g		JXH2	03/06/10	1208	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00147	0.0207	+/-0.00487	0.050	pCi/g		JXH2	03/13/10	1427	957099	2
Plutonium-239/240	U	0.00294	0.0175	+/-0.00415	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.06	0.210	+/-0.133	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0989	0.136	+/-0.0363	0.100	pCi/g						
Uranium-238		1.21	0.144	+/-0.145	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0303	0.220	+/-0.0725	0.200	pCi/g		MXR1	03/04/10	1244	955027	5
Bismuth-211	UI	4.29	R,R5a	0.313	+/-0.263	pCi/g						
Bismuth-214		1.36		0.114	+/-0.0973	0.200	pCi/g					
Cadmium-109	UI	2.56	R,R5a	1.26	+/-0.560	pCi/g						
Cerium-139	U	-0.0273		0.0499	+/-0.0157	0.050	pCi/g					
Cesium-134	U	0.0893		0.0908	+/-0.0266	0.100	pCi/g					
Cesium-137	U	-0.0496		0.0589	+/-0.020	0.100	pCi/g					
Cobalt-60	U	-0.00916		0.0547	+/-0.0173	0.100	pCi/g					
Europium-152	U	-0.0491		0.156	+/-0.0505	0.200	pCi/g					
Lanthanum-140	U	-0.00342		0.208	+/-0.0643	pCi/g						
Lead-212		1.70		0.0926	+/-0.0831	0.100	pCi/g					
Lead-214		1.56		0.114	+/-0.105	0.100	pCi/g					
Mercury-203	U	0.0364		0.0707	+/-0.0226	0.100	pCi/g					
Potassium-40		24.7		0.604	+/-1.21	1.00	pCi/g					
Radium-223	U	-0.0336		1.05	+/-0.357	pCi/g						
Radium-224	UI	4.33	R,R5a	0.992	+/-0.583	pCi/g						
Radium-226		1.36		0.114	+/-0.0973	pCi/g						
Radium-228		1.72		0.227	+/-0.181	0.500	pCi/g					
Ruthenium-106	U	0.0165		0.515	+/-0.156	0.800	pCi/g					
Sodium-22	U	-0.0201		0.0618	+/-0.0199	0.080	pCi/g					
Strontium-85	U	-0.147		0.0753	+/-0.0268	pCi/g						
Thallium-208		0.496		0.0551	+/-0.0416	0.080	pCi/g					

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

Report Date: March 16, 2010

Client Sample ID:
Sample ID:

RE36-10-7424
247360004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0927	0.437	+/-0.125		pCi/g						
Thorium-231	U	-0.0336	1.05	+/-0.357		pCi/g						
Thorium-234	U	1.85	1.90	+/-0.836	2.00	pCi/g						
Tin-113	U	-0.0401	0.0721	+/-0.0226	0.100	pCi/g						
Uranium-235	U	0.234	0.361	+/-0.107	0.500	pCi/g						
Yttrium-88	U	0.0385	0.0644	+/-0.0164	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	-5.04	212	+/-59.0	250	pCi/L		KXK2	03/11/10	1404	956742	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"	77.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	74.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	77.1	(50%-105%)

Notes:

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

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Wednesday, February 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1916

LOS ALAMOS

REQUEST NUMBER: 10-1916

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/19/2010

General Engineering Laboratories, Inc.,
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

247360%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-7427	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7427	1	POLY	H3	Ice	R
RE36-10-7423	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7423	1	POLY	H3	Ice	R
RE36-10-7428	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7428	1	POLY	H3	Ice	R
RE36-10-7424	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7424	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

REQUEST NUMBER: 10-1916

Wednesday, February 17, 2010

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Valerie Davis

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

These Samples are on:

LANL Request Number: 10-1916
Per Agreement Number: 126310011
Project Cost Code: MR3A05529E00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 2/17/2010

TURNAROUND/REPORT DUE: 3/19/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-901.1	1	RE38-10-7423	R	2/12/2010	
		1	RE38-10-7424	R	2/12/2010	
		1	RE38-10-7427	R	2/12/2010	
		1	RE38-10-7428	R	2/12/2010	
	EPA-906.0	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300/AM-241	1	RE36-10-7423	R	2/12/2010	

REQUEST NUMBER: 10-1916

Wednesday, February 17, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOPU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	

Final Page of REQUEST NUMBER 10-1916



February 22, 2010

www.gel.com

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

Re: LANL ER Project
Work Order: 247360
SDG: 10-1916

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 18, 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: 10-1916
Enclosures

Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Work Order #: 247360
SDG: 10-1916

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Case Narrative

**Case Narrative for
Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Workorder #: 247360
SDG # : 10-1916**

February 22, 2010

Laboratory Identification:

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

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 18, 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 10C temperature. Shipping container temperature was within specification (0 - 6C).

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
247360001	RE36-10-7427
247360002	RE36-10-7423
247360003	RE36-10-7428
247360004	RE36-10-7424

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 22 February 2010

State	Certification
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

Wednesday, February 17, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1916

LOS ALAMOS

REQUEST NUMBER: 10-1916

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/19/2010

General Engineering Laboratories, Inc.,
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

247360%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-7427	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7427	1	POLY	H3	Ice	R
RE36-10-7423	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7423	1	POLY	H3	Ice	R
RE36-10-7428	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7428	1	POLY	H3	Ice	R
RE36-10-7424	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE36-10-7424	1	POLY	H3	Ice	R

Relinquished By:

Date

Time

Received By:

Date

Time

[Signature] 2/17/10 1800
 Printed Name Signature

[Signature] Greg Tyler 2-18-10 0845
 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

Wednesday, February 17, 2010

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

These Samples are on:

LANL Request Number:10-1916

Per Agreement Number:126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 2/17/2010

TURNAROUND/REPORT DUE: 3/19/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	EPA:906.0	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:AM-241	1	RE36-10-7423	R	2/12/2010	

Wednesday, February 17, 2010

REQUEST NUMBER: 10-1916

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOPU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	
	HASL-300:ISOU	1	RE36-10-7423	R	2/12/2010	
		1	RE36-10-7424	R	2/12/2010	
		1	RE36-10-7427	R	2/12/2010	
		1	RE36-10-7428	R	2/12/2010	

Final Page of REQUEST NUMBER 10-1916



SAMPLE RECEIPT & REVIEW FORM

Client: LANL			SDG/ARCOC/Work Order: 10-1916		
Received By: Greg Tyler			Date Received: 2/18/10		
Suspected Hazard Information		Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.	
COC/Samples marked as radioactive?			X	Maximum Counts Observed*: 60cpm	
Classified Radioactive II by RSO?			X		
COC/Samples marked containing PCBs?			X		
Shipped as a DOT Hazardous?			X	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?			X		

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

Comments:

Fed Ex Tracking Numbers:

7209 7850 1047 1C

7209 7850 1014 2C

7209 7850 1036 2C

7209 7850 1025 2C

7209 7850 0990 10C

7209 7850 1003 10C

ORIGIN ID: SAFA (605) 665-9968
JYLENE VALDEZ
35 ALAMOS NATL LAB
400 BLDG 1237 DPU 03

SHIP DATE: 17FEB10
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2450

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

35 ALAMOS, NM 87545
UNITED STATES US

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR3A05529E00

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR2A0515BYDO

2°



RK# 7209 7850 1047
[201]

THU - 18FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA

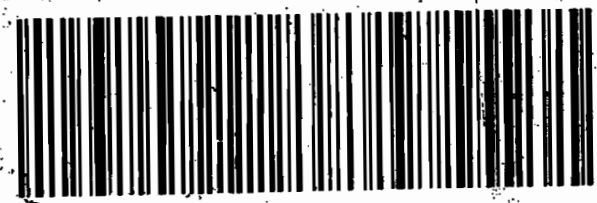


TRK# 7209 7850 1014
[0201]

THU - 18FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA



35 ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR3A05529E00

JYLENE VALDEZ
35 ALAMOS NATL LAB
400 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17FEB10
ACTWGT: 57.0 LB MAN
CAD: 0014176/CAFE2450

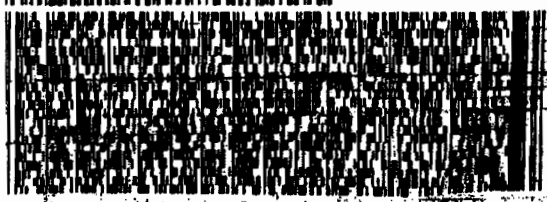
BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR3A05529E00

2°



2 of 2
PSH 7209 7850 1036
[201]

THU - 18FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA

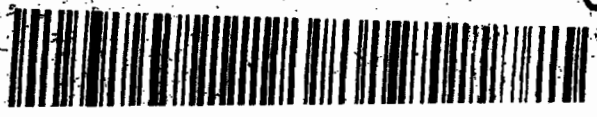


1 of 2
TRK# 7209 7850 1025
[0201]
NM MASTER NM

THU - 18FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA



ORIGIN ID: SAFA (805) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DRU 03

LOS ALAMOS NM 87545
UNITED STATES US

SHIP DATE: 17FEB10
ACTNGT: 87.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

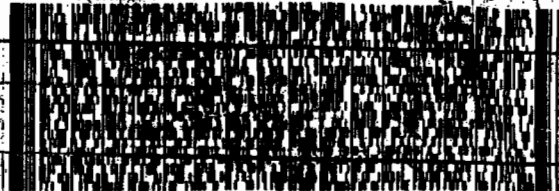
VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR2A0515BYDO

10°



FedEx

Express



J9420991130223

2 of 3
MPS# 7209 7850 0990

Matr# 7209 7850 0989 0201

THU - 18FEB A1
PRIORITY OVERNIGHT

29407

SC-US

CHS

XX CHSA

Part # 158148-434 MAT V3 09-09



ORIGIN ID: SAFA (805) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DRU 03

LOS ALAMOS NM 87545
UNITED STATES US

SHIP DATE: 17FEB10
ACTNGT: 42.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

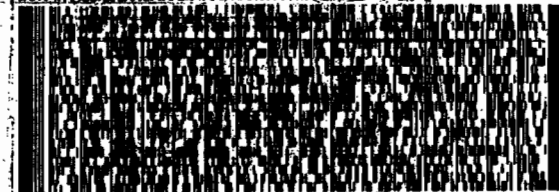
VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 68010AMR2A0515BYDO

10°



FedEx

Express



J9420991130223

3 of 3
MPS# 7209 7850 1003

Matr# 7209 7850 0989 0201

THU - 18FEB A1
PRIORITY OVERNIGHT

29407

SC-US

CHS

XX CHSA

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

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

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

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Los Alamos National Laboratory (LANL)
SDG 10-1916**

Method/Analysis Information

Product: AM241
Analytical Method: DOE EML HASL-300, Am-05-RC Modified
Prep Method: Dry Soil Prep
Analytical Batch Number: 957096
Prep Batch Number: 954973

Sample ID	Client ID
247360001	RE36-10-7427
247360003	RE36-10-7428
247360004	RE36-10-7424
1202052134	Method Blank (MB)
1202052135	247360001(RE36-10-7427) Sample Duplicate (DUP)
1202052136	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 1202052134 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 247360001 (RE36-10-7427). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:**Holding Time**

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

Sample Re-prep/Re-analysis

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

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

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: AM241
Analytical Method: DOE EML HASL-300, Am-05-RC Modified
Prep Method: Dry Soil Prep
Analytical Batch Number: 962678
Prep Batch Number: 954973

Sample ID	Client ID
247360002	RE36-10-7423
1202065275	Method Blank (MB)
1202065276	247360002(RE36-10-7423) Sample Duplicate (DUP)
1202065277	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 1202065275 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 247360002 (RE36-10-7423). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

Sample 247360002 (RE36-10-7423) was repped due to low carrier/tracer yield.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	ISOPU
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	957099
Prep Batch Number:	954973

Sample ID	Client ID
247360001	RE36-10-7427
247360002	RE36-10-7423
247360003	RE36-10-7428
247360004	RE36-10-7424
1202052141	Method Blank (MB)
1202052142	247360001(RE36-10-7427) Sample Duplicate (DUP)
1202052143	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 1202052141 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 247360001 (RE36-10-7427). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

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

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

Samples were given additional clean-up steps and recounted in order to remove suspected interferences. Samples 1202052142 (RE36-10-7427), 247360001 (RE36-10-7427) and 247360002 (RE36-10-7423) were recounted to verify results.

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

Manual integration of alpha spectroscopy spectra 1202052143 (LCS) was performed to fully separate counts in Regions of Interest which would have been biased.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

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

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	ISOU
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	957101
Prep Batch Number:	954973

Sample ID	Client ID
247360001	RE36-10-7427
247360002	RE36-10-7423
247360003	RE36-10-7428
247360004	RE36-10-7424
1202052148	Method Blank (MB)
1202052149	247360001(RE36-10-7427) Sample Duplicate (DUP)
1202052150	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 1202052148 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 247360001 (RE36-10-7427). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:**Holding Time**

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

Sample Re-prep/Re-analysis

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

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

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	GAMMA SPEC
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	955027
Prep Batch Number:	954973

Sample ID	Client ID
247360001	RE36-10-7427
247360002	RE36-10-7423
247360003	RE36-10-7428
247360004	RE36-10-7424
1202047453	Method Blank (MB)
1202047454	247360001(RE36-10-7427) Sample Duplicate (DUP)
1202047455	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 March 2009, April 2009, October 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: 247360001 (RE36-10-7427). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The method blank 1202047453 (MB) result is greater than 1.65 times the CSU but less than the MDC for Hg-203 and Y-88.

Technical Information:**Holding Time**

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

Sample Re-prep/Re-analysis

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

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

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

Additional Comments

Additional comments were not required for this sample set.

Blank Decision Level

The method blank 1202047453 (MB) result is greater than the decision level but less than the MDC for Hg-203 and Y-88.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Bismuth-211	247360001	RE36-10-7427
			247360002	RE36-10-7423
			247360003	RE36-10-7428
			247360004	RE36-10-7424
			1202047454	RE36-10-7427(247360001DUP)
		Cadmium-109	247360001	RE36-10-7427
			247360002	RE36-10-7423
			247360003	RE36-10-7428
			247360004	RE36-10-7424
			1202047454	RE36-10-7427(247360001DUP)
		Radium-224	247360001	RE36-10-7427
			247360002	RE36-10-7423
			247360003	RE36-10-7428
			247360004	RE36-10-7424
			1202047454	RE36-10-7427(247360001DUP)
		Strontium-85	1202047454	RE36-10-7427(247360001DUP)
UI	Data rejected due to low abundance.	Cadmium-109	1202047454	RE36-10-7427(247360001DUP)
		Cesium-134	247360001	RE36-10-7427
			247360003	RE36-10-7428
		Strontium-85	247360001	RE36-10-7427
			247360003	RE36-10-7428

Method/Analysis Information

Product: H3
Analytical Method: GL-RAD-A-002
Analytical Batch Number: 956742

Sample ID	Client ID
247360001	RE36-10-7427
247360002	RE36-10-7423
247360003	RE36-10-7428
247360004	RE36-10-7424
1202051381	Method Blank (MB)
1202051382	247360001(RE36-10-7427) Sample Duplicate (DUP)
1202051383	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 July 2009, 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: 247360001 (RE36-10-7427). The QC was from LANL work order 247360.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank 1202051381 (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

Samples 1202051381 (MB), 1202051382 (RE36-10-7427), 247360001 (RE36-10-7427), 247360002 (RE36-10-7423), 247360003 (RE36-10-7428) and 247360004 (RE36-10-7424) were recounted due to high MDAs. Sample 1202051382 (RE36-10-7427) was recounted due to high relative percent difference/relative error ratio. Samples were recounted due to a detector lock out condition. Recount is being reported. Sample 247360001 (RE36-10-7427) was recounted to verify sample results. Sample 1202051381 (MB) was recounted due to the quench number being outside the calibration range. Sample was then recounted due to a negative result greater than three times the error. Final count being reported.

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 1202051381 (MB) result is greater than the decision level but less than the MDC.

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: _____

Ramona Wilkins 3/16/10

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

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

Client SDG: 10-1916 GEL Work Order: 247360

The Qualifiers in this report are defined as follows:

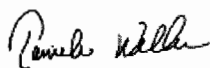
- * Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- ** Indicates the analyte is a surrogate compound.

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 16, 2010

Client Sample ID: RE36-10-7427
Sample ID: 247360001
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 36.4%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0296	0.0356	+/-0.00915	0.050	pCi/g		JXH2	03/06/10	1207	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-2.68E-05	0.0337	+/-0.00329	0.050	pCi/g		JXH2	03/15/10	1259	957099	2
Plutonium-239/240		0.087	0.0286	+/-0.0161	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.51	0.207	+/-0.170	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0228	0.134	+/-0.0216	0.100	pCi/g						
Uranium-238		1.93	0.142	+/-0.205	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.191	0.248	+/-0.0841	0.200	pCi/g		MXR1	03/04/10	1241	955027	5
Bismuth-211	UI	4.56	0.401	+/-0.376		pCi/g						
Bismuth-214		1.31	0.147	+/-0.130	0.200	pCi/g						
Cadmium-109	UI	2.86	1.78	+/-0.575		pCi/g						
Cerium-139	U	-0.0135	0.0622	+/-0.0195	0.050	pCi/g						
Cesium-134	UI	0.110	0.105	+/-0.0301	0.100	pCi/g						
Cesium-137		1.24	0.0725	+/-0.0914	0.100	pCi/g						
Cobalt-60	U	-0.0452	0.0639	+/-0.0223	0.100	pCi/g						
Europium-152	U	0.0444	0.207	+/-0.0688	0.200	pCi/g						
Lanthanum-140	U	-0.124	0.235	+/-0.0782		pCi/g						
Lead-212		1.75	0.118	+/-0.136	0.100	pCi/g						
Lead-214		1.65	0.153	+/-0.144	0.100	pCi/g						
Mercury-203	U	0.0703	0.0922	+/-0.0283	0.100	pCi/g						
Potassium-40		27.0	0.573	+/-1.52	1.00	pCi/g						
Radium-223	U	-0.229	1.41	+/-0.439		pCi/g						
Radium-224	UI	4.55	1.26	+/-0.780		pCi/g						
Radium-226		1.31	0.147	+/-0.130		pCi/g						
Radium-228		1.63	0.275	+/-0.218	0.500	pCi/g						
Ruthenium-106	U	0.0822	0.640	+/-0.195	0.800	pCi/g						
Sodium-22	U	-0.0352	0.0721	+/-0.0239	0.080	pCi/g						
Strontium-85	UI	0.247	0.109	+/-0.0338		pCi/g						

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Certificate of Analysis

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7427
Sample ID: 247360001

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thallium-208		0.515	0.070	+/-0.0531	0.080	pCi/g						
Thorium-227	U	-0.0804	0.526	+/-0.170		pCi/g						
Thorium-231	U	-0.229	1.41	+/-0.439		pCi/g						
Thorium-234	U	0.585	2.59	+/-0.798	2.00	pCi/g						
Tin-113	U	0.0303	0.0995	+/-0.0302	0.100	pCi/g						
Uranium-235	U	0.133	0.445	+/-0.141	0.500	pCi/g						
Yttrium-88	U	0.0188	0.0649	+/-0.0185	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	109	211	+/-64.6	250	pCi/L		KXK2	03/12/10	0708	956742	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"	73.0	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	83.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	75.1	(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

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Certificate of Analysis

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7427
Sample ID: 247360001

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

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7423
Sample ID: 247360002
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 51.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0318	0.0218	+/-0.00751	0.050	pCi/g		JXH2	03/11/10	1655	962678	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00676	0.0426	+/-0.0048	0.050	pCi/g		JXH2	03/15/10	1259	957099	3
Plutonium-239/240		0.0895	0.0361	+/-0.0188	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.45	0.217	+/-0.253	0.100	pCi/g		JXH2	03/06/10	1215	957101	5
Uranium-235/236		0.193	0.141	+/-0.0508	0.100	pCi/g						
Uranium-238		3.27	0.149	+/-0.322	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0095	0.0997	+/-0.0361	0.200	pCi/g		MXR1	03/04/10	1242	955027	6
Bismuth-211	UI	4.92	0.415	+/-0.422		pCi/g						
Bismuth-214		1.53	0.172	+/-0.156	0.200	pCi/g						
Cadmium-109	UI	4.51	0.954	+/-0.498		pCi/g						
Cerium-139	U	-0.0228	0.0561	+/-0.0184	0.050	pCi/g						
Cesium-134	U	0.0485	0.123	+/-0.0376	0.100	pCi/g						
Cesium-137		3.31	0.0995	+/-0.218	0.100	pCi/g						
Cobalt-60	U	-0.0224	0.0917	+/-0.0303	0.100	pCi/g						
Europium-152	U	-0.0288	0.206	+/-0.0696	0.200	pCi/g						
Lanthanum-140	U	-0.138	0.217	+/-0.0804		pCi/g						
Lead-212		1.60	0.118	+/-0.119	0.100	pCi/g						
Lead-214		1.79	0.151	+/-0.161	0.100	pCi/g						
Mercury-203	U	-0.0119	0.0908	+/-0.0301	0.100	pCi/g						
Potassium-40		21.8	0.974	+/-1.45	1.00	pCi/g						
Radium-223	U	0.0774	1.49	+/-0.454		pCi/g						
Radium-224	UI	5.59	1.27	+/-1.05		pCi/g						
Radium-226		1.53	0.172	+/-0.156		pCi/g						
Radium-228		1.73	0.326	+/-0.227	0.500	pCi/g						
Ruthenium-106	U	0.169	0.758	+/-0.224	0.800	pCi/g						
Sodium-22	U	-0.0204	0.0927	+/-0.0302	0.080	pCi/g						
Strontium-85	U	-0.319	0.105	+/-0.047		pCi/g						
Thallium-208		0.473	0.0889	+/-0.0629	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 16, 2010

Client Sample ID: RE36-10-7423
Sample ID: 247360002

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.201	0.494	+/-0.168		pCi/g						
Thorium-231	U	0.0774	1.49	+/-0.454		pCi/g						
Thorium-234		3.65	0.934	+/-0.657	2.00	pCi/g						
Tin-113	U	-0.0487	0.115	+/-0.0374	0.100	pCi/g						
Uranium-235	U	0.0739	0.381	+/-0.120	0.500	pCi/g						
Yttrium-88	U	-0.000162	0.0945	+/-0.0292	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	109	112	+/-37.1	250	pCi/L		KXK2	03/09/10	1617	956742	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, Pu-11-RC Modified
5	DOE EML HASL-300, U-02-RC Modified
6	DOE HASL 300, 4.5.2.3/Ga-01-R
7	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"	65.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	72.9	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

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

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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 16, 2010

Client Sample ID: RE36-10-7423
Sample ID: 247360002

Project: LANL01004
Client ID: LANL010

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

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
UJ 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 16, 2010

Client Sample ID: RE36-10-7428
Sample ID: 247360003
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 8.63%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.000709	0.0316	+/-0.0025	0.050	pCi/g		JXH2	03/06/10	1207	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00741	0.0209	+/-0.00333	0.050	pCi/g		JXH2	03/13/10	1427	957099	2
Plutonium-239/240	U	0.00148	0.0176	+/-0.00392	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.951	0.219	+/-0.124	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0365	0.142	+/-0.0213	0.100	pCi/g						
Uranium-238		0.999	0.151	+/-0.128	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.234	0.257	+/-0.0766	0.200	pCi/g		MXR1	03/04/10	1243	955027	5
Bismuth-211	UI	4.53	0.295	+/-0.261		pCi/g						
Bismuth-214		1.31	0.113	+/-0.101	0.200	pCi/g						
Cadmium-109	UI	3.17	1.52	+/-0.502		pCi/g						
Cerium-139	U	-0.0167	0.0515	+/-0.0154	0.050	pCi/g						
Cesium-134	UI	0.112	0.0923	+/-0.0431	0.100	pCi/g						
Cesium-137	U	-0.0212	0.0601	+/-0.0188	0.100	pCi/g						
Cobalt-60	U	0.0163	0.0616	+/-0.0175	0.100	pCi/g						
Europium-152	U	0.111	0.163	+/-0.0561	0.200	pCi/g						
Lanthanum-140	U	-0.115	0.164	+/-0.058		pCi/g						
Lead-212		1.70	0.0951	+/-0.0831	0.100	pCi/g						
Lead-214		1.64	0.107	+/-0.105	0.100	pCi/g						
Mercury-203	U	0.049	0.0743	+/-0.0228	0.100	pCi/g						
Potassium-40		29.5	0.540	+/-1.38	1.00	pCi/g						
Radium-223	U	-0.335	1.02	+/-0.350		pCi/g						
Radium-224	UI	4.27	1.02	+/-0.586		pCi/g						
Radium-226		1.31	0.113	+/-0.101		pCi/g						
Radium-228		1.82	0.227	+/-0.173	0.500	pCi/g						
Ruthenium-106	U	-0.151	0.436	+/-0.136	0.800	pCi/g						
Sodium-22	U	-0.0125	0.0648	+/-0.020	0.080	pCi/g						
Strontium-85	UI	0.114	0.0788	+/-0.0225		pCi/g						
Thallium-208		0.533	0.0548	+/-0.040	0.080	pCi/g						

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7428
Sample ID: 247360003

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.260	0.451	+/-0.130		pCi/g						
Thorium-231	U	-0.335	1.02	+/-0.350		pCi/g						
Thorium-234	U	2.10	2.47	+/-0.692	2.00	pCi/g						
Tin-113	U	-0.0168	0.0725	+/-0.0215	0.100	pCi/g						
Uranium-235	U	-0.149	0.338	+/-0.102	0.500	pCi/g						
Yttrium-88	U	0.017	0.0516	+/-0.0141	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	110	115	+/-38.1	250	pCi/L		KXK2	03/09/10	1709	956742	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"	82.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	72.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	71.1	(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

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Project: LANL ER Project

Report Date: March 16, 2010

Client Sample ID: RE36-10-7428
Sample ID: 247360003

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
UJ 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 16, 2010

Client Sample ID: RE36-10-7424
Sample ID: 247360004
Matrix: R
Collect Date: 12-FEB-10
Receive Date: 18-FEB-10
Collector: Client
Moisture: 8.59%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00175	0.0339	+/-0.00292	0.050	pCi/g		JXH2	03/06/10	1208	957096	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00147	0.0207	+/-0.00487	0.050	pCi/g		JXH2	03/13/10	1427	957099	2
Plutonium-239/240	U	0.00294	0.0175	+/-0.00415	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.06	0.210	+/-0.133	0.100	pCi/g		JXH2	03/06/10	1215	957101	4
Uranium-235/236	U	0.0989	0.136	+/-0.0363	0.100	pCi/g						
Uranium-238		1.21	0.144	+/-0.145	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0303	0.220	+/-0.0725	0.200	pCi/g		MXR1	03/04/10	1244	955027	5
Bismuth-211	UI	4.29	0.313	+/-0.263		pCi/g						
Bismuth-214		1.36	0.114	+/-0.0973	0.200	pCi/g						
Cadmium-109	UI	2.56	1.26	+/-0.560		pCi/g						
Cerium-139	U	-0.0273	0.0499	+/-0.0157	0.050	pCi/g						
Cesium-134	U	0.0893	0.0908	+/-0.0266	0.100	pCi/g						
Cesium-137	U	-0.0496	0.0589	+/-0.020	0.100	pCi/g						
Cobalt-60	U	-0.00916	0.0547	+/-0.0173	0.100	pCi/g						
Europium-152	U	-0.0491	0.156	+/-0.0505	0.200	pCi/g						
Lanthanum-140	U	-0.00342	0.208	+/-0.0643		pCi/g						
Lead-212		1.70	0.0926	+/-0.0831	0.100	pCi/g						
Lead-214		1.56	0.114	+/-0.105	0.100	pCi/g						
Mercury-203	U	0.0364	0.0707	+/-0.0226	0.100	pCi/g						
Potassium-40		24.7	0.604	+/-1.21	1.00	pCi/g						
Radium-223	U	-0.0336	1.05	+/-0.357		pCi/g						
Radium-224	UI	4.33	0.992	+/-0.583		pCi/g						
Radium-226		1.36	0.114	+/-0.0973		pCi/g						
Radium-228		1.72	0.227	+/-0.181	0.500	pCi/g						
Ruthenium-106	U	0.0165	0.515	+/-0.156	0.800	pCi/g						
Sodium-22	U	-0.0201	0.0618	+/-0.0199	0.080	pCi/g						
Strontium-85	U	-0.147	0.0753	+/-0.0268		pCi/g						
Thallium-208		0.496	0.0551	+/-0.0416	0.080	pCi/g						

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

Report Date: March 16, 2010

Client Sample ID: RE36-10-7424
Sample ID: 247360004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0927	0.437	+/-0.125		pCi/g						
Thorium-231	U	-0.0336	1.05	+/-0.357		pCi/g						
Thorium-234	U	1.85	1.90	+/-0.836	2.00	pCi/g						
Tin-113	U	-0.0401	0.0721	+/-0.0226	0.100	pCi/g						
Uranium-235	U	0.234	0.361	+/-0.107	0.500	pCi/g						
Yttrium-88	U	0.0385	0.0644	+/-0.0164	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	-5.04	212	+/-59.0	250	pCi/L		KXK2	03/11/10	1404	956742	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"	77.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	74.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	77.1	(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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 16, 2010

Client Sample ID: RE36-10-7424
Sample ID: 247360004

Project: LANL01004
Client ID: LANL010

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

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

QUALITY CONTROL DATA

GEL LABORATORIES LLC

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QC Summary

Report Date: March 16, 2010

Page 1 of 7

Client : Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: Ms. Joylene Valdez
Workorder: 247360

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	957096										
QC1202052135	247360001	DUP									
Americium-241	U	0.0296	U	0.00383	pCi/g	0.889		(0-1)	JXH2	03/06/1012:08	
	TPU:	+/-0.00915		+/-0.00535							
	Yield:	73.0		80.3							
QC1202052136	LCS										
Americium-241	33.2			31.4	pCi/g		94.8	(75%-125%)		03/06/1012:08	
	TPU:			+/-2.42							
	Yield:			97.5							
QC1202052134	MB										
Americium-241	U	-0.00231	U	-0.00231	pCi/g					03/06/1012:08	
	TPU:	+/-0.00335		+/-0.00335							
	Yield:	81.1									
Batch	957099										
QC1202052142	247360001	DUP									
Plutonium-238	U	-2.68E-05	U	0.006	pCi/g	0.399		(0-1)	JXH2	03/15/1012:59	
	TPU:	+/-0.00329		+/-0.00426							
	Yield:	83.9		75.5							
Plutonium-239/240		0.087		0.039	pCi/g	0.865		(0-1)			
	TPU:	+/-0.0161		+/-0.0116							
	Yield:	83.9		75.5							
QC1202052143	LCS										
Plutonium-238				7.03	pCi/g			(75%-125%)		03/13/1014:27	
	TPU:			+/-0.557							
	Yield:			60.5							
Plutonium-239/240	41.8			37.8	pCi/g		90.4	(75%-125%)			
	TPU:			+/-2.37							
	Yield:			60.5							
QC1202052141	MB										
Plutonium-238	U	0.0136	U	0.0136	pCi/g						
	TPU:	+/-0.00487		+/-0.00487							
	Yield:	74.9									
Plutonium-239/240	U	0.00341	U	0.00341	pCi/g						
	TPU:	+/-0.00418		+/-0.00418							
	Yield:	74.9									
Batch	957101										
QC1202052149	247360001	DUP									
Uranium-233/234		1.51		1.42	pCi/g	0.140		(0-1)	JXH2	03/06/1012:15	
	TPU:	+/-0.170		+/-0.156							
	Yield:	75.1		86.7							
Uranium-235/236	U	0.0228	U	0.0307	pCi/g	0.0898		(0-1)			
	TPU:	+/-0.0216		+/-0.0219							
	Yield:	75.1		86.7							
Uranium-238		1.93		1.48	pCi/g	0.611		(0-1)			
	TPU:	+/-0.205		+/-0.161							

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QC Summary

Workorder: 247360

Page 2 of 7

Parmname	NOM	Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	957101										
QC1202052150	LCS	Yield:	75.1	86.7							
Uranium-233/234				6.55	pCi/g					03/06/10	12:15
		TPU:		+/-0.741							
Uranium-235/236		Yield:		90.6							
			U	0.471	pCi/g						
		TPU:		+/-0.154							
Uranium-238		Yield:		90.6							
	5.75			5.16	pCi/g		89.7	(75%-125%)			
		TPU:		+/-0.619							
		Yield:		90.6							
QC1202052148	MB										
Uranium-233/234			U	0.0108	pCi/g					03/06/10	12:15
		TPU:		+/-0.00849							
Uranium-235/236		Yield:		98.1							
			U	0.00457	pCi/g						
		TPU:		+/-0.00459							
Uranium-238		Yield:		98.1							
			U	-0.00561	pCi/g						
		TPU:		+/-0.00492							
		Yield:		98.1							
Batch	962678										
QC1202065276	247360002	DUP									
Americium-241			0.0318	0.0505	pCi/g	0.505		(0-1)	JXH2	03/11/10	16:55
		TPU:	+/-0.00751	+/-0.011							
		Yield:	74.7	71.7							
QC1202065277	LCS										
Americium-241		33.2		28.2	pCi/g		84.9	(75%-125%)			
		TPU:		+/-1.96							
		Yield:		102							
QC1202065275	MB										
Americium-241			U	-0.00389	pCi/g						
		TPU:		+/-0.00322							
		Yield:		88.7							
Rad Gamma Spec											
Batch	955027										
QC1202047454	247360001	DUP									
Americium-241		U	-0.191	U	0.262	pCi/g	0.916	(0-1)	MXR1	03/04/10	16:10
		TPU:	+/-0.0841		+/-0.163						
Bismuth-211		UI	4.56	UI	3.95	pCi/g	0.460	(0-1)			
		TPU:	+/-0.376		+/-0.286						
Bismuth-214			1.31		1.48	pCi/g	0.333	(0-1)			
		TPU:	+/-0.130		+/-0.122						
Cadmium-109		UI	2.86	UI	2.92	pCi/g	0.0258	(0-1)			
		TPU:	+/-0.575		+/-0.644						
Cerium-139		U	-0.0135	U	0.00679	pCi/g	0.255	(0-1)			
		TPU:	+/-0.0195		+/-0.0204						
Cesium-134		UI	0.110	U	0.0975	pCi/g	0.0985	(0-1)			
		TPU:	+/-0.0301		+/-0.031						

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QC Summary

Workorder: 247360

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	955027										
Cesium-137		1.24		1.24	pCi/g	0.00		(0-1)			
	TPU:	+/-0.0914		+/-0.0717							
Cobalt-60	U	-0.0452	U	-0.0556	pCi/g	0.106		(0-1)			
	TPU:	+/-0.0223		+/-0.0269							
Europium-152	U	0.0444	U	0.00569	pCi/g	0.143		(0-1)			
	TPU:	+/-0.0688		+/-0.0661							
Lanthanum-140	U	-0.124	U	-0.15	pCi/g	0.0756		(0-1)			
	TPU:	+/-0.0782		+/-0.0978							
Lead-212		1.75		1.82	pCi/g	0.142		(0-1)			
	TPU:	+/-0.136		+/-0.104							
Lead-214		1.65		1.43	pCi/g	0.434		(0-1)			
	TPU:	+/-0.144		+/-0.111							
Mercury-203	U	0.0703	U	0.030	pCi/g	0.358		(0-1)			
	TPU:	+/-0.0283		+/-0.0278							
Potassium-40		27.0		25.8	pCi/g	0.204		(0-1)			
	TPU:	+/-1.52		+/-1.53							
Radium-223	U	-0.229	U	-0.622	pCi/g	0.223		(0-1)			
	TPU:	+/-0.439		+/-0.442							
Radium-224	UI	4.55	UI	4.40	pCi/g	0.0488		(0-1)			
	TPU:	+/-0.780		+/-0.728							
Radium-226		1.31		1.48	pCi/g	0.333		(0-1)			
	TPU:	+/-0.130		+/-0.122							
Radium-228		1.63		1.49	pCi/g	0.156		(0-1)			
	TPU:	+/-0.218		+/-0.220							
Ruthenium-106	U	0.0822	U	-0.0805	pCi/g	0.202		(0-1)			
	TPU:	+/-0.195		+/-0.208							
Sodium-22	U	-0.0352	U	0.0271	pCi/g	0.573		(0-1)			
	TPU:	+/-0.0239		+/-0.0305							
Strontium-85	UI	0.247	UI	0.155	pCi/g	0.431		(0-1)			
	TPU:	+/-0.0338		+/-0.0722							
Thallium-208		0.515		0.457	pCi/g	0.281		(0-1)			
	TPU:	+/-0.0531		+/-0.0503							
Thorium-227	U	-0.0804	U	-0.129	pCi/g	0.0719		(0-1)			
	TPU:	+/-0.170		+/-0.170							
Thorium-231	U	-0.229	U	-0.622	pCi/g	0.223		(0-1)			
	TPU:	+/-0.439		+/-0.442							
Thorium-234	U	0.585		4.01	pCi/g	0.717		(0-1)			
	TPU:	+/-0.798		+/-1.59							
Tin-113	U	0.0303	U	-0.041	pCi/g	0.575		(0-1)			
	TPU:	+/-0.0302		+/-0.0318							
Uranium-235	U	0.133	U	0.235	pCi/g	0.181		(0-1)			
	TPU:	+/-0.141		+/-0.140							
Yttrium-88	U	0.0188	U	-0.0164	pCi/g	0.423		(0-1)			
	TPU:	+/-0.0185		+/-0.0231							
QC1202047455	LCS										
Americium-241	15.9			13.3	pCi/g		83.8 (75%-125%)			03/04/10	12:48
	TPU:			+/-0.642							
Bismuth-211				2.54	pCi/g						
	TPU:			+/-0.297							
Bismuth-214				0.737	pCi/g						
	TPU:			+/-0.107							

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QC Summary

Workorder: 247360

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	955027									
Cadmium-109			34.3	pCi/g						
	TPU:		+/-1.91							
Cerium-139		U	0.0233	pCi/g						
	TPU:		+/-0.0182							
Cesium-134		U	-0.00594	pCi/g						
	TPU:		+/-0.0347							
Cesium-137	5.55		5.61	pCi/g			101 (75%-125%)			
	TPU:		+/-0.241							
Cobalt-60	6.36		6.45	pCi/g			101 (75%-125%)			
	TPU:		+/-0.277							
Europium-152		U	-0.046	pCi/g						
	TPU:		+/-0.0824							
Lanthanum-140		U	0.0277	pCi/g						
	TPU:		+/-0.0396							
Lead-212			1.29	pCi/g						
	TPU:		+/-0.0855							
Lead-214			0.922	pCi/g						
	TPU:		+/-0.111							
Mercury-203		U	0.0484	pCi/g						
	TPU:		+/-0.0264							
Potassium-40			1.13	pCi/g						
	TPU:		+/-0.249							
Radium-223		U	-0.726	pCi/g						
	TPU:		+/-0.473							
Radium-224			2.05	pCi/g						
	TPU:		+/-0.593							
Radium-226			0.737	pCi/g						
	TPU:		+/-0.107							
Radium-228			1.48	pCi/g						
	TPU:		+/-0.234							
Ruthenium-106		U	-0.0291	pCi/g						
	TPU:		+/-0.234							
Sodium-22		U	-0.0095	pCi/g						
	TPU:		+/-0.0223							
Strontium-85		U	-0.142	pCi/g						
	TPU:		+/-0.0304							
Thallium-208			0.421	pCi/g						
	TPU:		+/-0.0569							
Thorium-227		U	0.146	pCi/g						
	TPU:		+/-0.178							
Thorium-231		U	-0.726	pCi/g						
	TPU:		+/-0.473							
Thorium-234		U	0.254	pCi/g						
	TPU:		+/-1.20							
Tin-113		U	-0.0421	pCi/g						
	TPU:		+/-0.0321							
Uranium-235		U	0.260	pCi/g						
	TPU:		+/-0.135							
Yttrium-88		U	-0.00975	pCi/g						
	TPU:		+/-0.0197							

QC1202047453 MB

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QC Summary

Workorder: 247360

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	955027									
Americium-241		U	0.00686	pCi/g						
	TPU:		+/-0.0133							
Bismuth-211		U	-0.00423	pCi/g						
	TPU:		+/-0.0612							
Bismuth-214		U	-0.0129	pCi/g						
	TPU:		+/-0.0279							
Cadmium-109		U	0.0104	pCi/g						
	TPU:		+/-0.135							
Cerium-139		U	-0.0054	pCi/g						
	TPU:		+/-0.00687							
Cesium-134		U	0.00397	pCi/g						
	TPU:		+/-0.0136							
Cesium-137		U	-0.0257	pCi/g						
	TPU:		+/-0.0124							
Cobalt-60		U	-0.00983	pCi/g						
	TPU:		+/-0.0125							
Europium-152		U	0.000391	pCi/g						
	TPU:		+/-0.0301							
Lanthanum-140		U	-0.0126	pCi/g						
	TPU:		+/-0.0228							
Lead-212		U	-0.0134	pCi/g						
	TPU:		+/-0.0194							
Lead-214		U	0.00921	pCi/g						
	TPU:		+/-0.0219							
Mercury-203		U	0.0245	pCi/g						
	TPU:		+/-0.009							
Potassium-40		U	-0.0975	pCi/g						
	TPU:		+/-0.138							
Radium-223		U	-0.113	pCi/g						
	TPU:		+/-0.181							
Radium-224		U	-0.672	pCi/g						
	TPU:		+/-0.217							
Radium-226		U	-0.0129	pCi/g						
	TPU:		+/-0.0279							
Radium-228		U	-0.0408	pCi/g						
	TPU:		+/-0.0496							
Ruthenium-106		U	-0.146	pCi/g						
	TPU:		+/-0.110							
Sodium-22		U	0.00514	pCi/g						
	TPU:		+/-0.00986							
Strontium-85		U	-0.121	pCi/g						
	TPU:		+/-0.0192							
Thallium-208		U	-0.00755	pCi/g						
	TPU:		+/-0.0144							
Thorium-227		U	-0.0798	pCi/g						
	TPU:		+/-0.0689							
Thorium-231		U	-0.113	pCi/g						
	TPU:		+/-0.181							
Thorium-234		U	0.0933	pCi/g						
	TPU:		+/-0.161							

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QC Summary

Workorder: 247360

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	955027										
Tin-113			U	-0.0105	pCi/g						
	TPU:			+/-0.0133							
Uranium-235			U	0.013	pCi/g						
	TPU:			+/-0.0497							
Yttrium-88			U	0.0318	pCi/g						
	TPU:			+/-0.0147							
Rad Liquid Scintillation											
Batch	956742										
QC1202051382	247360001	DUP									
Tritium		U	109	U	56.0	pCi/L	0.213	(0-1)	KXK2	03/11/10	16:14
		TPU:	+/-64.6		+/-60.8						
QC1202051383	LCS										
Tritium	5540				5850	pCi/L		106 (80%-120%)		03/09/10	10:40
		TPU:			+/-533						
QC1202051381	MB										
Tritium			U		118	pCi/L				03/11/10	18:49
		TPU:			+/-52.2						

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
- UJ 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.

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QC Summary

Workorder: 247360

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
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# 957096 Product: Am Date: 8/8/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Brown 3/8/10

Secondary Review Performed By:

K. Bell 3/9/10

3/11
LANL

Am/Cm Que Sheet

24-FEB-10

Batch #: 957096

Analyst: JXH2

First Client Due Date: 11-MAR-10

Internal Due Date: 01-MAR-10

Comments:

Tracer(s): Am243/Cm244

Tracer Code: 445-96-2-55

Expiration Date: 05-11-10

Vol: 0.1

LCS Isotope(s): Am241/Cm244

LCS Code(s):

Expiration Date: / /

Vol(s): / /

Spike Isotope(s): Am241/Cm244

Spike Code(s):

Expiration Date: / /

Vol(s): / /

Prep Date: 3-3-10

Initials: JEH

Balance ID: 5040272

Witness: JEB313/10

Sample ID	Client Description	Type	Hazard	Min	Code	CRDL	Matrix	Client	Collection Date	Pos.	Label #	Allquot (\$/l/f)	Wet/Dry	Am/Cm Det #
247323001-1	RE46-10-12942	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	1	1	1,251		211
247323002-1	RE46-10-12944	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	2	2	1,255		212
247323003-1	RE46-10-12941	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	3	3	1,250		213
247323004-1	RE46-10-12951	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	4	4	1,274		214
247323005-1	RE46-10-12943	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	5	5	1,254		215
247323006-1	RE46-10-12952	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	6	6	1,267		216
247323007-1	RE46-10-13189	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	7	7	1,259		217
247325001-1	RE46-10-12661	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	8	8	1,279		218
247327002-1	WST15-10-8941	SAMPLE				.05 pCi/g	SOIL	LANL010	16-FEB-10	9	9	1,264		219
247327001-1	RE15-10-8346	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	10	10	1,262		220
247327002-1	RE15-10-8347	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	11	11	1,252		221
247327003-1	RE15-10-8344	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	12	12	1,256		222
247327004-1	RE15-10-8345	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	13	13	1,258		223
247327005-1	RE15-10-8342	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	14	14	1,250		224
247327006-1	RE15-10-8343	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	15	15	1,263		225
247327007-1	RE15-10-8377	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	16	16	1,254		226
247360001-1	RE36-10-7427	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	17	17	1,254		227
247360003-1	RE36-10-7423	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	18	18	1,250		228
247360003-1	RE36-10-7428	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	19	19	1,259		229
247360004-1	RE36-10-7424	SAMPLE				.05 pCi/g	SOIL	LANL010	12-FEB-10	20	20	1,257		230
1202052134-1	MB for batch 957096	MB				.05 pCi/g	SOIL	QC ACCOUNT		21	21	1		231
1202052135-1	RE36-10-7427(247360001DUP)	DUP				.05 pCi/g	SOIL	QC ACCOUNT	12-FEB-10	22	22	1,258		232
1202052136-1	LCS for batch 957096	LCS				.05 pCi/g	SOIL	QC ACCOUNT		23	23	0.109		233

Choose SOP Used: GL-RAD-A-011

GL-RAD-A-036

Solid Sample Dissolution by LEACH or DIGESTION

Circle One

Data Reviewed By: DS

3/8/10

GEL Laboratories LLC, Radiochemistry Division

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Blank Correction Report

Batch ID 957096

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202052135	DUP	Americium-241	1.26 g	0.00383	0.00535	0.0323	-0.00183333	pCi/g	NO
1202052136	LCS	Americium-241	0.109 g	31.4	2.42	0.302	-0.02119266	pCi/g	NO
1202052134	MB	Americium-241	1.00 g	-0.00231	0.00335	0.0386	-0.00231	pCi/g	NO
247323001	RE46-10-12942	Americium-241	1.25 g	-0.00083	0.00225	0.0285	-0.001848	pCi/g	NO
247323002	RE46-10-12944	Americium-241	1.26 g	0.00737	0.00415	0.0326	-0.00183333	pCi/g	NO
247323003	RE46-10-12941	Americium-241	1.25 g	0.0032	0.00284	0.0356	-0.001848	pCi/g	NO
247323005	RE46-10-12943	Americium-241	1.25 g	0.000828	0.00266	0.0375	-0.001848	pCi/g	NO
247323006	RE46-10-12952	Americium-241	1.27 g	-0.005	0.00281	0.0299	-0.00181890	pCi/g	NO
247323007	RE46-10-13189	Americium-241	1.26 g	0.00258	0.00239	0.0312	-0.00183333	pCi/g	NO
247325001	RE46-10-12661	Americium-241	1.28 g	-0.0075	0.00421	0.0318	-0.00180469	pCi/g	NO
247327002	WST15-10-8941	Americium-241	1.26 g	0.000384	0.00219	0.031	-0.00183333	pCi/g	NO
247337001	RE15-10-8346	Americium-241	1.26 g	0.000439	0.00225	0.0319	-0.00183333	pCi/g	NO
247337002	RE15-10-8347	Americium-241	1.25 g	-0.00395	0.00259	0.0299	-0.001848	pCi/g	NO
247337003	RE15-10-8344	Americium-241	1.26 g	0.0029	0.00262	0.0334	-0.00183333	pCi/g	NO
247337004	RE15-10-8345	Americium-241	1.26 g	0.00034	0.00216	0.0305	-0.00183333	pCi/g	NO
247337005	RE15-10-8342	Americium-241	1.25 g	0.00236	0.00223	0.0297	-0.001848	pCi/g	NO
247337006	RE15-10-8343	Americium-241	1.26 g	0.000796	0.00261	0.0369	-0.00183333	pCi/g	NO
247337007	RE15-10-8377	Americium-241	1.25 g	-0.00182	0.00258	0.0365	-0.001848	pCi/g	NO
247360001	RE36-10-7427	Americium-241	1.25 g	0.0296	0.00915	0.0356	-0.001848	pCi/g	NO
247360003	RE36-10-7428	Americium-241	1.26 g	-0.000709	0.0025	0.0316	-0.00183333	pCi/g	NO
247360004	RE36-10-7424	Americium-241	1.26 g	0.00175	0.00292	0.0339	-0.00183333	pCi/g	NO

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957096
SAMPLE ID : S0247360001_AM
SAMPLE QTY : 1.254 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 73.032

CHAMBER : 227
DETECTOR S/N : 79420
AVERAGE %EFFICIENCY : 38.7585
COUNT DATE : 6-MAR-2010 12:07:52
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B227.CNF:85
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W227.CNF:30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.1300E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

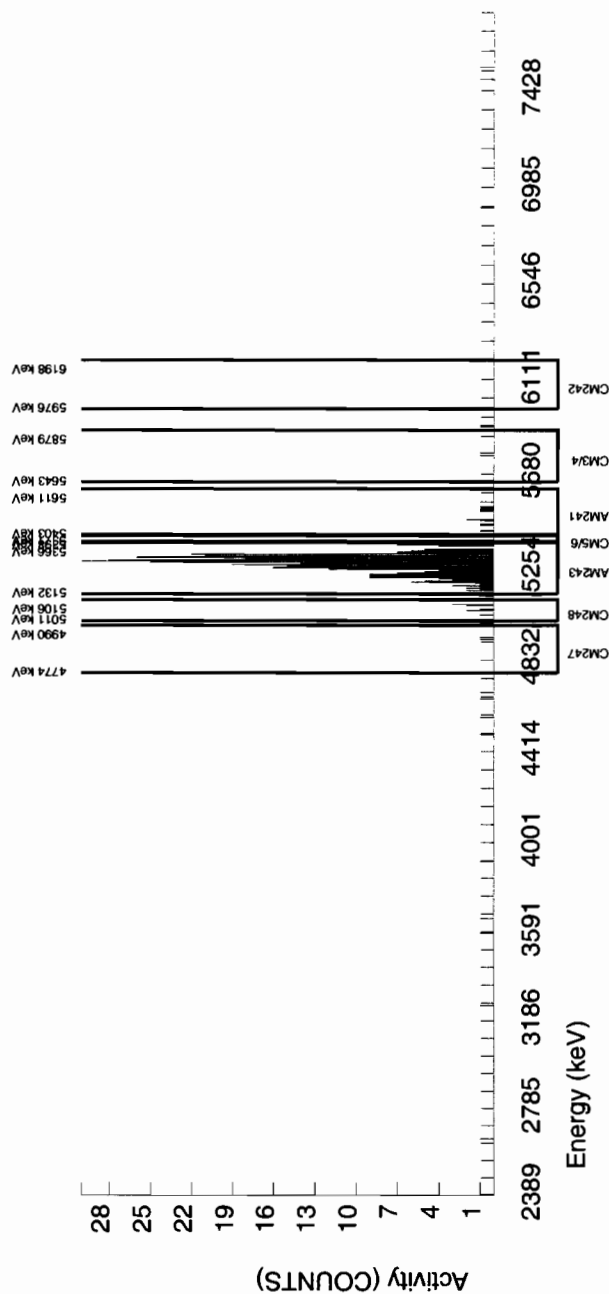
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

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	5504.110	7.240	13.000	11.771	0.505	2.8409	99.94000	2.96E-02	9.15E-03	1.44E-02	3.56E-02	8.90E-03
AM243	5270.000	5275.199	62.561	417.000	415.990	1.010	1.0050	99.78000	1.05E+00	9.03E-02	5.11E-03	1.70E-02	5.15E-02
CM-242	6102.000	6086.763	0.000	0.000	-0.505	0.505	4.3413	100.0000	-1.40E-03	3.11E-03	2.20E-02	5.08E-02	3.10E-03
CM-3/4	5795.020	5777.009	14.788	2.000	2.000	0.000	5.1799	100.0000	5.04E-03	3.58E-03	2.63E-02	5.93E-02	3.56E-03
CM-5/6	5386.000	5374.514	0.000	3.000	3.000	0.000	14.2480	86.09000	8.76E-03	5.09E-03	8.39E-02	1.76E-01	5.06E-03
CM-247	4946.000	4937.183	14.788	2.000	2.000	0.000	13.7917	79.30000	6.34E-03	4.50E-03	8.82E-02	1.85E-01	4.48E-03
CM-248	5078.600	5075.414	28.088	9.000	9.000	0.000	19.5080	91.00000	2.49E-02	8.47E-03	1.09E-01	2.25E-01	8.28E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957096
SAMPLE ID : S0247360003_AM
SAMPLE QTY : 1.259 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 82.154

CHAMBER : 229
DETECTOR S/N : 79422
AVERAGE %EFFICIENCY : 38.6797
COUNT DATE : 6-MAR-2010 12:07:59
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B229.CNF:85
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W229.CNF:30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.3961E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

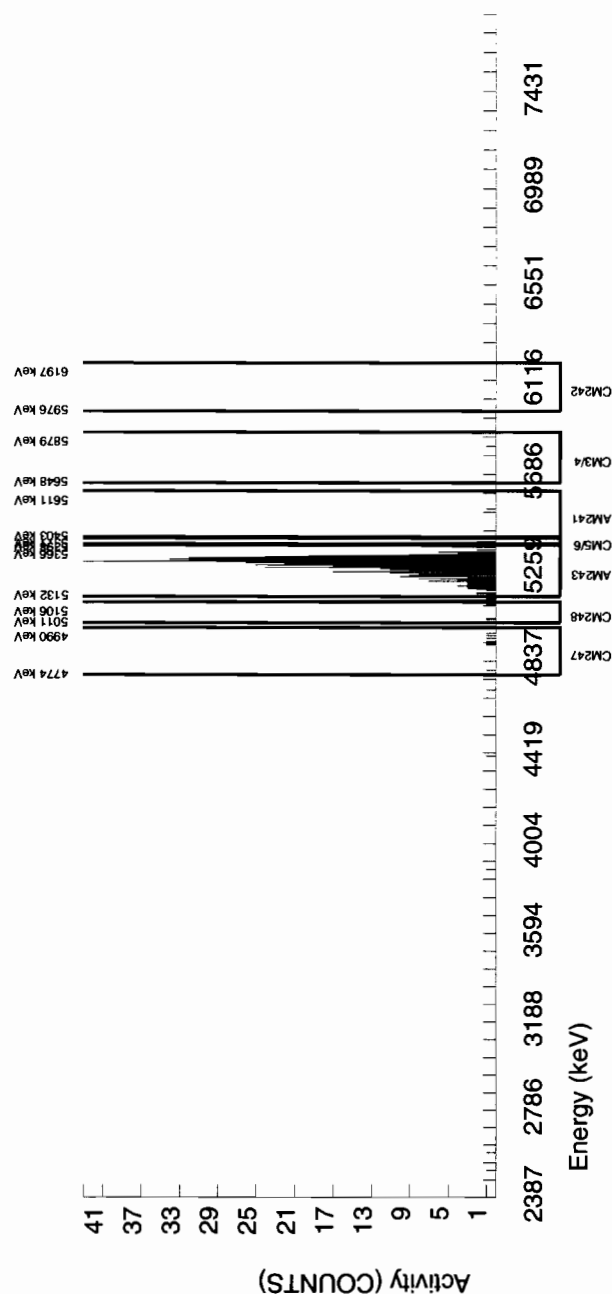
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

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	5536.113	4.953	1.000	-0.318	0.505	2.8409	99.94000	-7.09E-04	2.50E-03	1.28E-02	3.16E-02	2.50E-03
AM243	5270.000	5279.165	47.970	467.000	467.000	0.000	0.0000	99.78000	1.04E+00	8.66E-02	0.00E+00	6.06E-03	4.83E-02
CM-242	6102.000	5986.522	4.953	1.000	1.000	0.000	4.3413	100.0000	2.46E-03	2.46E-03	1.95E-02	4.51E-02	2.46E-03
CM-3/4	5795.020	5819.848	4.953	1.000	1.000	0.000	5.1799	100.0000	2.23E-03	2.24E-03	2.33E-02	5.27E-02	2.23E-03
CM-5/6	5386.000	5377.808	0.000	7.000	7.000	0.000	14.2480	86.09000	1.81E-02	6.97E-03	7.45E-02	1.56E-01	6.85E-03
CM-247	4946.000	4911.894	198.109	9.000	6.980	2.020	13.7917	79.30000	1.96E-02	9.00E-03	7.83E-02	1.64E-01	8.90E-03
CM-248	5078.600	5068.894	0.000	4.000	3.495	0.505	19.5080	91.00000	8.56E-03	5.09E-03	9.65E-02	2.00E-01	5.05E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG Sg of AM243 calculated as sqrt(BKG AREA).
- * Corrections made to the following net area due to tracer impurity:
AM-241

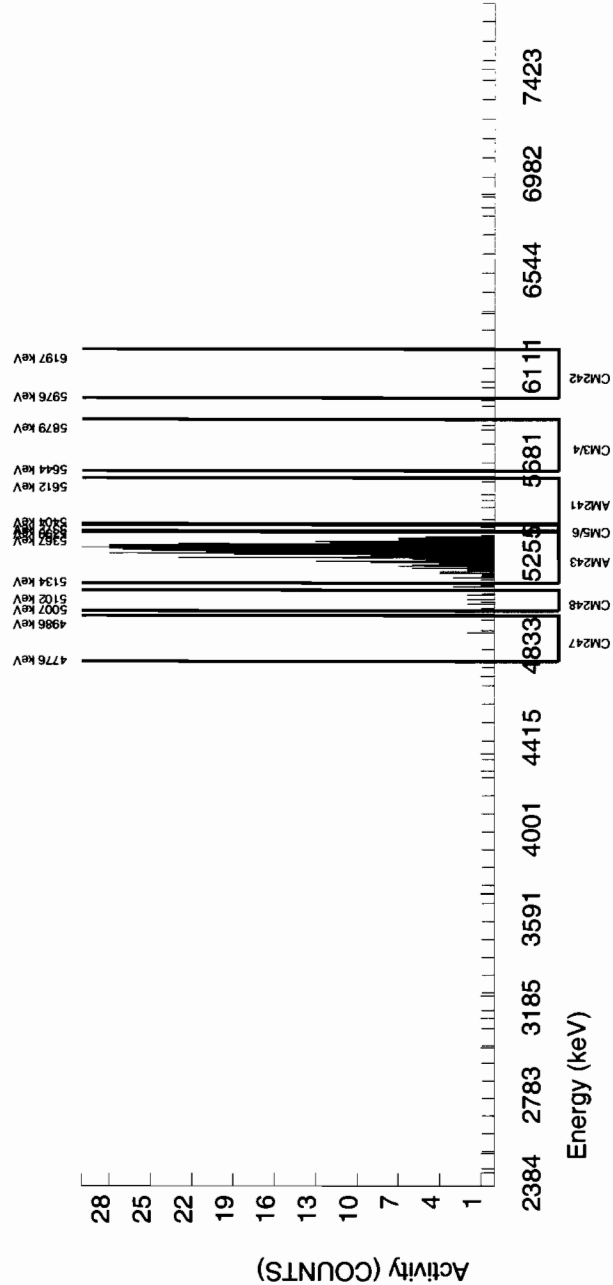


GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957096 SAMPLE ID : S0247360004_AM SAMPLE QTY : 1.257 G SAMPLE DATE : 12-FEB-2010 00:00:00 ANALYST : JXH2 % YIELD : 77.861				CHAMBER : 230 DETECTOR S/N : 79423 AVERAGE %EFFICIENCY : 38.1908 COUNT DATE : 6-MAR-2010 12:08:02 ELAPSED LIVE TIME(SEC) : 30300.00				LIB FILE : ENV_ALPHA_AM BKG FILE : B230.CNF:85 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W230.CNF:30 CAL DATE : 28-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.2709E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3154E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3154E+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	5513.023	59.464	2.000	0.735	0.505	2.8409	99.94000	1.75E-03	2.92E-03	1.37E-02	3.39E-02	2.92E-03
AM243	5270.000	5281.856	65.400	437.000	437.000	0.000	0.0000	99.78000	1.05E+00	8.86E-02	0.00E+00	6.48E-03	5.00E-02
CM-242	6102.000	6056.938	4.955	1.000	1.000	0.000	4.3413	100.00000	2.63E-03	2.63E-03	2.09E-02	4.83E-02	2.63E-03
CM-3/4	5795.020	5836.470	4.955	1.000	0.495	0.505	5.1799	100.00000	1.18E-03	2.69E-03	2.49E-02	5.64E-02	2.68E-03
CM-5/6	5386.000	5380.684	0.000	8.000	8.000	0.000	14.2480	86.09000	2.22E-02	7.99E-03	7.97E-02	1.67E-01	7.84E-03
CM-247	4946.000	4929.352	4.955	4.000	3.495	0.505	13.7917	79.30000	1.05E-02	6.25E-03	8.38E-02	1.76E-01	6.21E-03
CM-248	5078.600	5070.286	0.000	11.000	11.000	0.000	19.5080	91.00000	2.88E-02	8.93E-03	1.03E-01	2.14E-01	8.70E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957096
SAMPLE ID : S1202052134_AM
SAMPLE QTY : 1.000 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 81.111

CHAMBER : 231
DETECTOR S/N : 79424
AVERAGE %EFFICIENCY : 40.4350
COUNT DATE : 6-MAR-2010 12:08:05
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B231.CNF;85
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W231.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.3656E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3151E+01 pCi/G

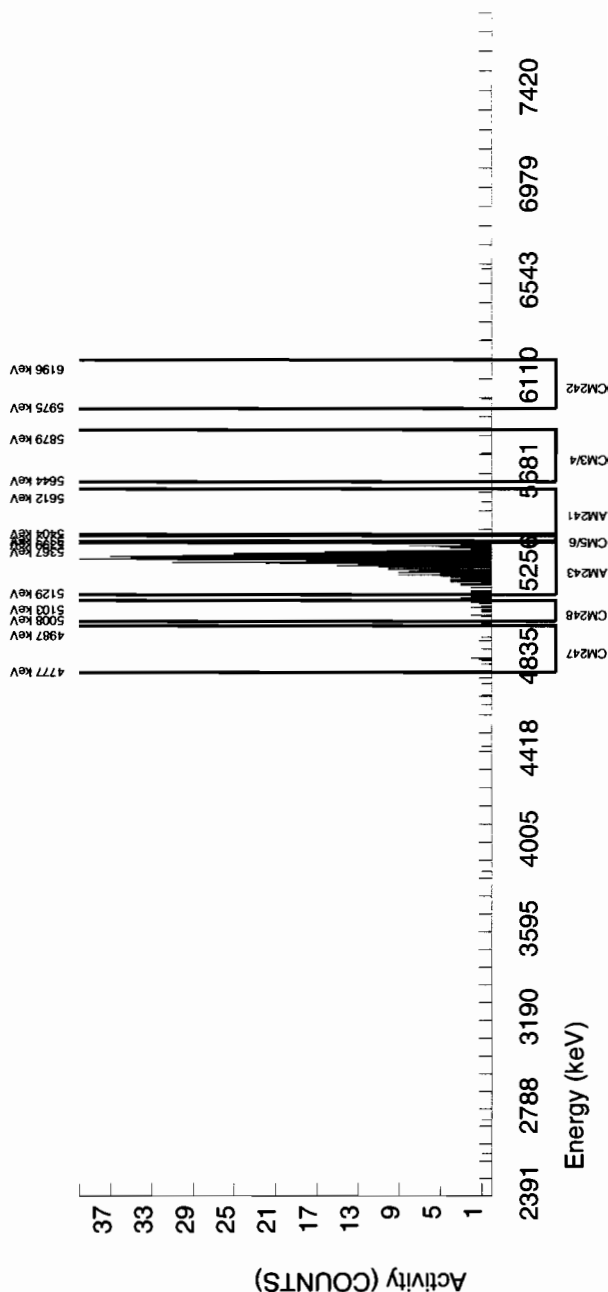
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3151E+01 pCi/G

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	5558.424	4.945	1.000	-0.849	1.010	2.8409	99.94000	-2.31E-03	3.35E-03	1.56E-02	3.86E-02	3.34E-03
AM243	5270.000	5285.781	47.248	483.000	481.990	1.010	1.0050	99.78000	1.31E+00	1.08E-01	5.53E-03	1.84E-02	5.99E-02
CM-242	6102.000	6023.809	4.945	1.000	0.495	0.505	4.3413	100.0000	1.37E-03	3.10E-03	2.38E-02	5.50E-02	3.09E-03
CM-3/4	5795.020	5777.167	4.945	1.000	1.000	0.000	5.1799	100.0000	2.72E-03	2.73E-03	2.84E-02	6.42E-02	2.72E-03
CM-5/6	5386.000	5380.458	0.000	4.000	4.000	0.000	14.2480	86.09000	1.26E-02	6.38E-03	9.08E-02	1.90E-01	6.32E-03
CM-247	4946.000	4879.889	4.945	7.000	4.980	2.020	13.7917	79.30000	1.71E-02	9.78E-03	9.55E-02	2.00E-01	9.71E-03
CM-248	5078.600	5069.135	64.074	12.000	12.000	0.000	19.5080	91.00000	3.59E-02	1.06E-02	1.18E-01	2.43E-01	1.04E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG Sg of AM243 calculated as sqrt(BKG AREA).
- * Corrections made to the following net area due to tracer impurity:
AM-241



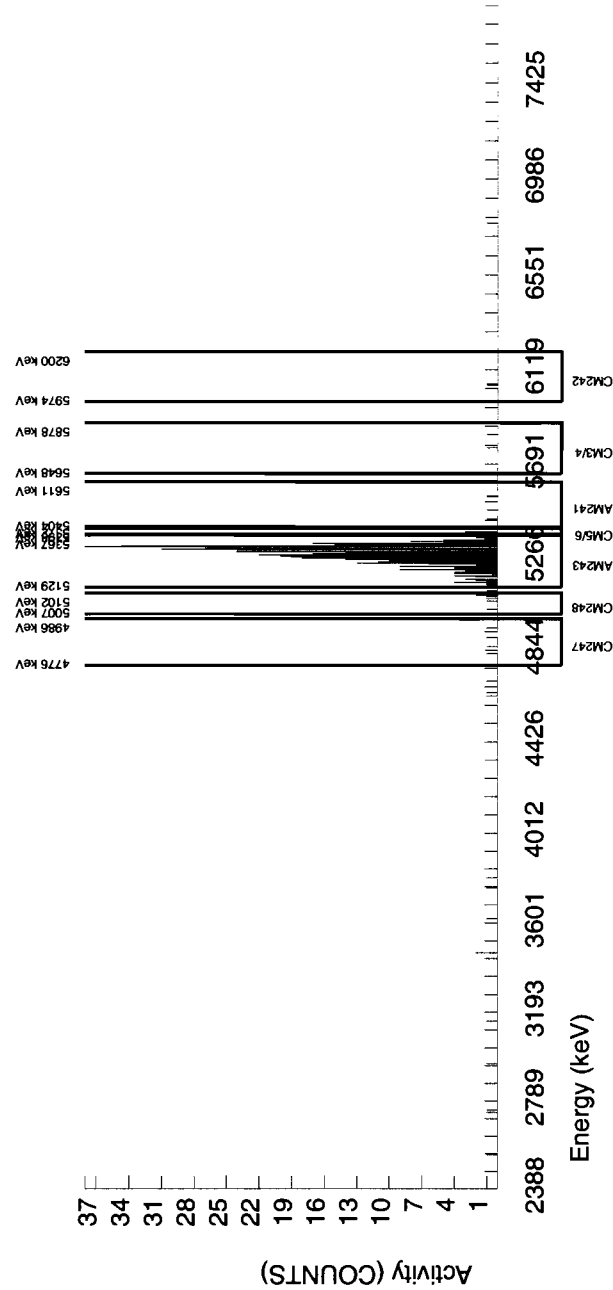
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957096 SAMPLE ID : S1202052135_AM SAMPLE QTY : 1.258 G SAMPLE DATE : 12-FEB-2010 00:00:00 ANALYST : JXH2 % YIELD : 80.332				CHAMBER : 232 DETECTOR S/N : 79425 AVERAGE %EFFICIENCY : 38.7095 COUNT DATE : 6-MAR-2010 12:08:08 ELAPSED LIVE TIME(SEC) : 30300.00				LIB FILE : ENV_ALPHA_AM BKG FILE : B232.CNF:87 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W232.CNF:30 CAL DATE : 28-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.3429E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3154E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3154E+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	5488.576	139.670	5.000	1.680	2.525	2.8409	99.94000	3.83E-03	5.35E-03	1.31E-02	3.23E-02	5.34E-03
AM243	5270.000	5284.418	52.748	458.000	456.990	1.010	1.0050	99.78000	1.04E+00	8.74E-02	4.63E-03	1.55E-02	4.89E-02
CM-242	6102.000	6057.448	9.353	2.000	2.000	0.000	4.3413	100.0000	5.02E-03	3.57E-03	2.00E-02	4.61E-02	3.55E-03
CM-3/4	5795.020	5800.299	59.858	2.000	2.000	0.000	5.1799	100.0000	4.57E-03	3.25E-03	2.38E-02	5.39E-02	3.23E-03
CM-5/6	5386.000	5379.775	0.000	10.000	10.000	0.000	14.2480	86.09000	2.65E-02	8.57E-03	7.62E-02	1.59E-01	8.38E-03
CM-247	4946.000	4897.964	114.729	5.000	3.990	1.010	13.7917	79.30000	1.15E-02	6.80E-03	8.00E-02	1.68E-01	6.75E-03
CM-248	5078.600	5086.354	0.000	9.000	9.000	0.000	19.5080	91.00000	2.26E-02	7.68E-03	9.86E-02	2.04E-01	7.52E-03

NOTES:

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

* BKG 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 : 957096
SAMPLE ID : S1202052136_AM
SAMPLE QTY : 0.109 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 97.483

CHAMBER : 233
DETECTOR S/N : 79426
AVERAGE %EFFICIENCY : 39.4029
COUNT DATE : 6-MAR-2010 12:08:11
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B233.CNF:86
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W233.CNF:31
CAL DATE : 2-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.8431E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3151E+01 pCi/G

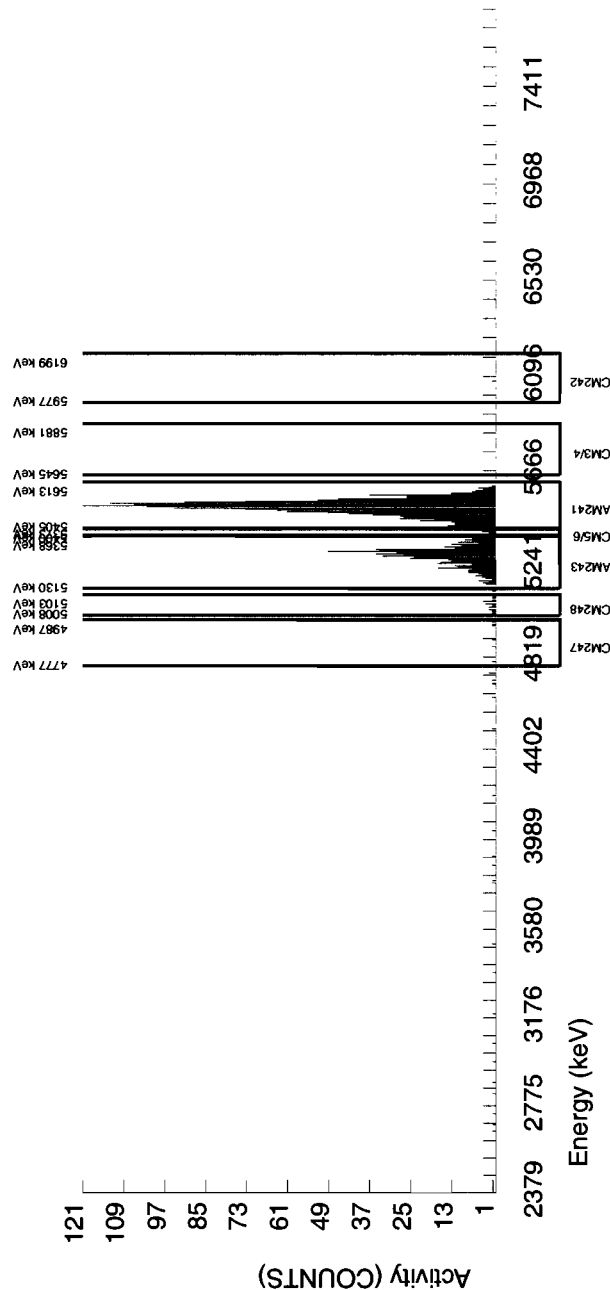
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3151E+01 pCi/G

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	5504.814	47.713	1476.000	1474.513	0.505	2.8409	99.94000	3.14E+01	2.42E+00	1.22E-01	3.02E-01	8.19E-01
AM243	5270.000	5281.159	41.845	565.000	564.495	0.505	0.7106	99.78000	1.21E+01	1.01E+00	3.06E-02	1.19E-01	5.08E-01
CM-242	6102.000	6079.750	4.925	1.000	0.495	0.505	4.3413	100.00000	1.07E-02	2.43E-02	1.87E-01	4.31E-01	2.42E-02
CM-3/4	5795.020	5762.480	0.000	0.000	0.000	0.000	5.1799	100.00000	0.00E+00	2.14E-02	2.23E-01	5.03E-01	2.13E-02
CM-5/6	5386.000	5385.884	0.000	44.000	44.000	0.000	14.2480	86.09000	1.09E+00	1.82E-01	7.12E-01	1.49E+00	1.64E-01
CM-247	4946.000	4926.353	0.000	7.000	7.000	0.000	13.7917	79.30000	1.88E-01	7.24E-02	7.48E-01	1.57E+00	7.11E-02
CM-248	5078.600	5059.384	39.279	17.000	17.000	0.000	19.5080	91.00000	3.98E-01	1.01E-01	9.22E-01	1.91E+00	9.65E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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# 957099

Product: PU

Date: 3/14/10

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%.	/		CASE NARRATIVE
Or meets the client's contract acceptance criteria.	/		CASE NARRATIVE
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	/		
Sample was run within hold time.	/		
Sample was correctly preserved If required.			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.	/		
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 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: CPM/On 3/16/10Secondary Review Performed By: JPL/MLI - 3/16/10

3/1 (3/18)

CAN

Plutonium Que Sheet

24-FEB-10

Batch #: 957099 Pu-236 3-3-10 Analyst: JXH2 First Client Due Date: 11-MAR-10 Internal Due Date: 01-MAR-10

Tracer Isotope(s): Pu-242/Pu-238 Tracer Code: 1430-B Expiration Date: 1-27-11 Vol: 0.1

LCS Isotope(s): Pu-239/Pu-238 LCS Code: — Expiration Date: — Vol: —

Spike Isotope(s): Pu-239/Pu-238 Spike Code: — Expiration Date: — Vol: —

Prep Date: 3-3-10 Initials: JEH Pipet ID: 247058 Balance ID: 80410272

Witness: ARB3/3/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g)	Pu Det #
247323001-1	RE46-10-12942	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	1	1	1.251	79 234
247323002-1	RE46-10-12944	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	2	2	1.255	79 235
247323003-1	RE46-10-12941	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	3	3	1.250	80 236
247323004-1	RE46-10-12951	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	4	4	1.274	81 237
247323005-1	RE46-10-12943	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	5	5	1.254	82 238
247323006-1	RE46-10-12952	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	6	6	1.267	89 239
247323007-1	RE46-10-13189	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	7	7	1.254	90 240
247325001-1	RE46-10-12661	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	8	8	1.279	91 241
247327002-1	WST15-10-8941	SAMPLE	.05 pCi/g		SOIL	LANL010	16-FEB-10	9	9	1.264	92 242
247337001-1	RE15-10-8346	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	10	10	1.262	93 243
247337002-1	RE15-10-8347	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	11	11	1.252	94 244
247337003-1	RE15-10-8344	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	12	12	1.256	95 245
247337004-1	RE15-10-8346	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	13	13	1.258	99 246
247337005-1	RE15-10-8342	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	14	14	1.250	99 247
247337006-1	RE15-10-8343	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	15	15	1.263	100 248
247337007-1	RE15-10-8377	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	16	16	1.254	101 249
247360001-1	RE36-10-7427	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	17	17	1.254	102 250
247360002-1	RE36-10-7423	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	18	18	1.250	103 251
247360003-1	RE36-10-7428	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	19	19	1.259	105 252
247360004-1	RE36-10-7424	SAMPLE	.05 pCi/g		SOIL	LANL010	12-FEB-10	20	20	1.257	107 253
1202052141-1	MB for batch 957099	MB	.05 pCi/g		SOIL	QC ACCOUNT	12-FEB-10	21	21	1.00	108 254
1202052142-1	RE36-10-7427(247360001DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT	12-FEB-10	22	22	1.258	109 255
1202052143-1	LCS for batch 957099	LCS	.05 pCi/g		SOIL	QC ACCOUNT	12-FEB-10	23	23	0.109	112 256

Choose SOP Used: GL-RAD-A-011, GL-RAD-A-036, GL-RAD-A-045, GL-RAD-A-043

Data Reviewed By: JXH2 3/10/10

Blank Correction Report

Batch ID 957099

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202052142	DUP	Plutonium-238	1.26 g	0.006	0.00426	0.0378	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.039	0.0116	0.032	.002706349	pCi/g	NO
1202052143	LCS	Plutonium-238	0.109 g	7.03	0.557	0.287	.124770642	pCi/g	NO
		Plutonium-239/240	0.109 g	37.8	2.37	0.242	.031284404	pCi/g	NO
1202052141	MB	Plutonium-238	1.00 g	0.0136	0.00487	0.024	.0136	pCi/g	YES
		Plutonium-239/240	1.00 g	0.00341	0.00418	0.0203	.00341	pCi/g	YES
247323001	RE46-10-12942	Plutonium-238	1.25 g	0.00671	0.00645	0.0189	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00671	0.00302	0.016	.002728	pCi/g	YES
247323002	RE46-10-12944	Plutonium-238	1.26 g	0.0137	0.00562	0.0321	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00911	0.0056	0.0271	.002706349	pCi/g	YES
247323003	RE46-10-12941	Plutonium-238	1.25 g	0.00587	0.00416	0.0207	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00734	0.0039	0.0175	.002728	pCi/g	YES
247323004	RE46-10-12951	Plutonium-238	1.27 g	0.00421	0.00372	0.0198	.010708661	pCi/g	YES
		Plutonium-239/240	1.27 g	0.00701	0.00316	0.0167	.002685039	pCi/g	YES
247323005	RE46-10-12943	Plutonium-238	1.25 g	0.0163	0.00513	0.0191	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00135	0.00406	0.0161	.002728	pCi/g	YES
247323006	RE46-10-12952	Plutonium-238	1.27 g	0.00918	0.00377	0.0216	.010708661	pCi/g	YES
		Plutonium-239/240	1.27 g	0.00611	0.00307	0.0182	.002685039	pCi/g	YES
247323007	RE46-10-13189	Plutonium-238	1.26 g	0.00876	0.0036	0.0206	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00876	0.0036	0.0174	.002706349	pCi/g	YES
247325001	RE46-10-12661	Plutonium-238	1.28 g	0.0114	0.00454	0.0201	.010625	pCi/g	YES
		Plutonium-239/240	1.28 g	0.00569	0.00286	0.0169	.002664063	pCi/g	YES
247337001	RE15-10-8346	Plutonium-238	1.26 g	0.00417	0.00312	0.0196	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00973	0.00371	0.0165	.002706349	pCi/g	YES
247337002	RE15-10-8347	Plutonium-238	1.25 g	0.00626	0.00314	0.0221	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00938	0.00386	0.0186	.002728	pCi/g	YES
247337003	RE15-10-8344	Plutonium-238	1.26 g	0.0134	0.00982	0.0211	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00597	0.00473	0.0178	.002706349	pCi/g	YES
247337005	RE15-10-8342	Plutonium-238	1.25 g	0.00773	0.00411	0.0218	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00773	0.00411	0.0184	.002728	pCi/g	YES
247337006	RE15-10-8343	Plutonium-238	1.26 g	0.00718	0.00323	0.0202	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00861	0.00354	0.0171	.002706349	pCi/g	YES
247337007	RE15-10-8377	Plutonium-238	1.25 g	0.0155	0.00523	0.0243	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00862	0.00458	0.0205	.002728	pCi/g	YES
247360001	RE36-10-7427	Plutonium-238	1.25 g	-2.68E-05	0.00329	0.0337	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.087	0.0161	0.0286	.002728	pCi/g	NO
247360002	RE36-10-7423	Plutonium-238	1.25 g	0.00676	0.0048	0.0426	.01088	pCi/g	YES
		Plutonium-239/240	1.25 g	0.0895	0.0188	0.0361	.002728	pCi/g	NO
247360003	RE36-10-7428	Plutonium-238	1.26 g	0.00741	0.00333	0.0209	.010793651	pCi/g	YES

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3/16/10

Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Allquot	Result	TPU	MDA	Allquot Corrected Blank Result	Units	Activity <5X Corrected Blank
247360003	RE36-10-7428	Plutonium-239/240	1.26 g	0.00148	0.00392	0.0176	.002706349	pCi/g	YES
247360004	RE36-10-7424	Plutonium-238	1.26 g	0.00147	0.00487	0.0207	.010793651	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00294	0.00415	0.0175	.002706349	pCi/g	YES

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 957099 SAMPLE ID : S1202052143_PU SAMPLE QTY : 0.109 G SAMPLE DATE : 3-MAR-2010 00:00:00. ANALYST : JXH2 % YIELD : 60.546</p>	<p>CHAMBER : 112 DETECTOR SN : 78261 AVERAGE %EFFICIENCY : 33.5504 COUNT DATE : 13-MAR-2010 14:27:44 ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_PU BKG FILE : B112.CNF:694 BKG DATE : 7-MAR-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W112.CNF:223 CAL DATE : 12-MAR-2010</p>
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<p>TRACER ID : 1430-B NUCLIDE : PU-236 NOMINAL : 6.5159E+00 dpm RESULTS : 3.9451E+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>
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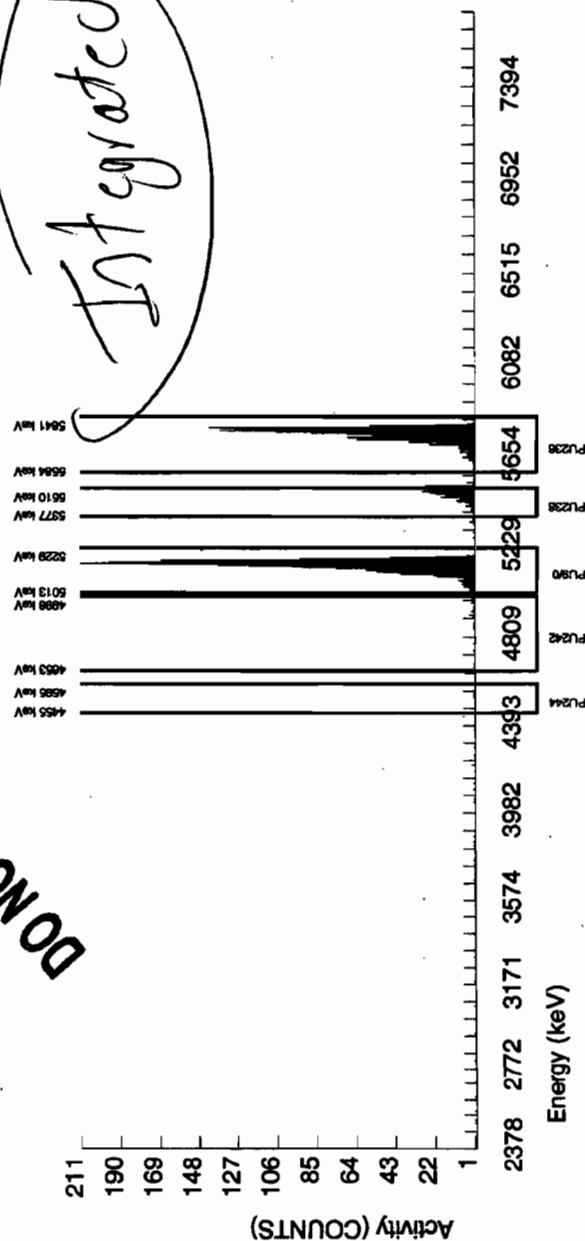
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5786.128	31.313	1314.000	1314.000	0.000	0.0000	100.0000	2.69E+01	1.73E+00	0.00E+00	5.51E-02	7.43E-01
PU-238	5499.000	5480.449	0.000	237.000	237.000	0.000	2.4495	99.900000	4.83E+00	4.21E-01	1.16E-01	2.87E-01	3.14E-01
PU-9/0	5155.000	5149.716	35.256	1859.000	1857.000	2.000	1.9732	99.900000	3.78E+01	2.37E+00	9.35E-02	2.42E-01	8.79E-01
PU242	4890.000	4888.286	0.000	34.000	31.000	3.000	*****	100.0000	6.31E-01	1.29E-01	5.90E+00	1.19E+01	1.24E-01
PU-244	4589.000	4530.854	0.000	7.000	5.000	2.000	6.4609	99.900000	1.02E-01	6.14E-02	3.06E-01	6.67E-01	6.11E-02

DO NOT REPORT

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG Sg of PU-236 calculated as sqrt(BKG AREA).



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

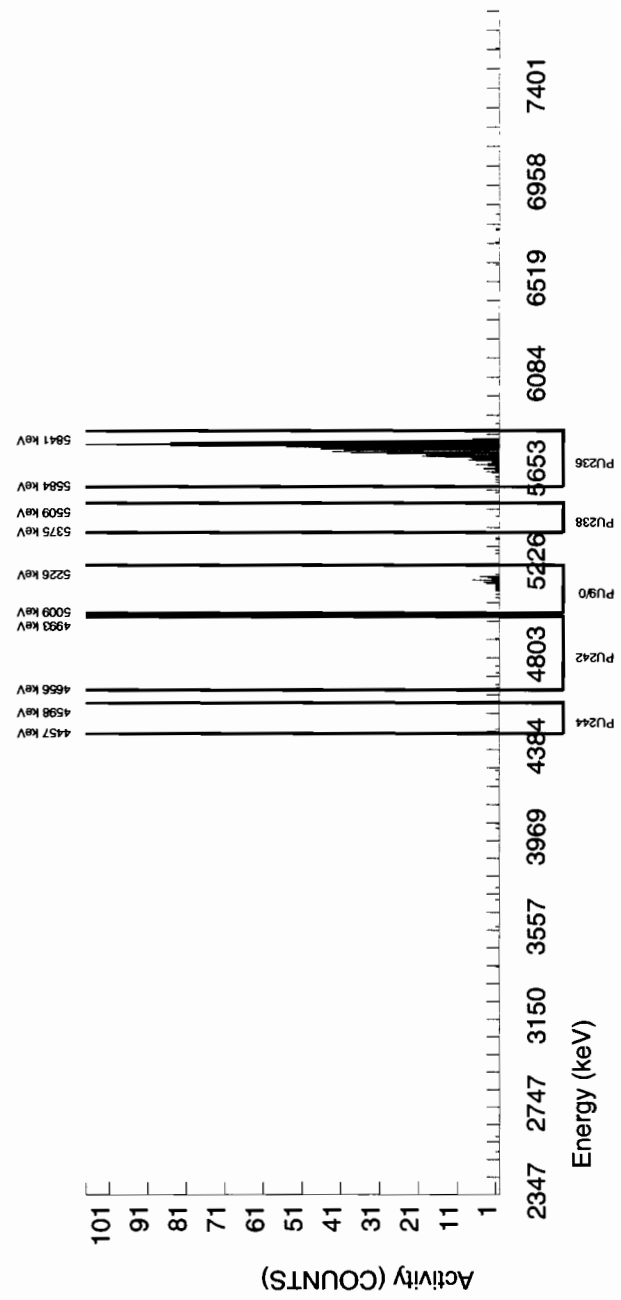
BATCH NUMBER : 957099 SAMPLE ID : S0247360001_PU SAMPLE QTY : 1.254 G SAMPLE DATE : 12-FEB-2010 00:00:00 ANALYST : JXH2 % YIELD : 83.878		CHAMBER : 074 DETECTOR S/N : 78266 AVERAGE %EFFICIENCY : 31.7138 COUNT DATE : 15-MAR-2010 12:59:28 ELAPSED LIVE TIME(SEC) : 30300.00		LIB FILE : ENV_ALPHA_PU BKG FILE : B074.CNF:1132 BKG DATE : 14-MAR-2010 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W074.CNF:334 CAL DATE : 12-MAR-2010	
TRACER ID : 1430-B NUCLIDE : PU-236 NOMINAL : 6.5990E+00 dpm RESULTS : 5.5350E+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	5767.411	25.352	869.000	867.990	1.010	1.0050	100.0000	2.37E+00	1.51E-01	5.42E-03	1.81E-02	8.05E-02
PU-238	5499.000	5455.231	4.968	1.000	-0.010	1.010	2.4495	99.900000	-2.68E-05	3.29E-03	1.32E-02	3.37E-02	3.29E-03
PU-9/0	5155.000	5151.708	26.950	33.000	32.495	0.505	1.9732	99.900000	8.70E-02	1.61E-02	1.07E-02	2.86E-02	1.54E-02
PU242	4890.000	4739.107	222.928	6.000	4.990	1.010	*****	100.0000	1.33E-02	6.86E-03	6.73E-01	1.35E+00	6.82E-03
PU-244	4589.000	4483.150	4.968	1.000	-0.515	1.515	6.4609	99.900000	-1.38E-03	3.56E-03	3.49E-02	7.71E-02	3.56E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG Sg of PU-236 calculated as sqrt(BKG AREA).



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
SAMPLE ID : S0247360002_PU
SAMPLE QTY : 1.250 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 65.753

CHAMBER : 075
DETECTOR S/N : 80010
AVERAGE %EFFICIENCY : 32.1597
COUNT DATE : 15-MAR-2010 12:59:28
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B075.CNF;1113
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W075.CNF;292
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-B
NUCLIDE : PU-236
NOMINAL : 6.5990E+00 dpm
RESULTS : 4.3390E+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

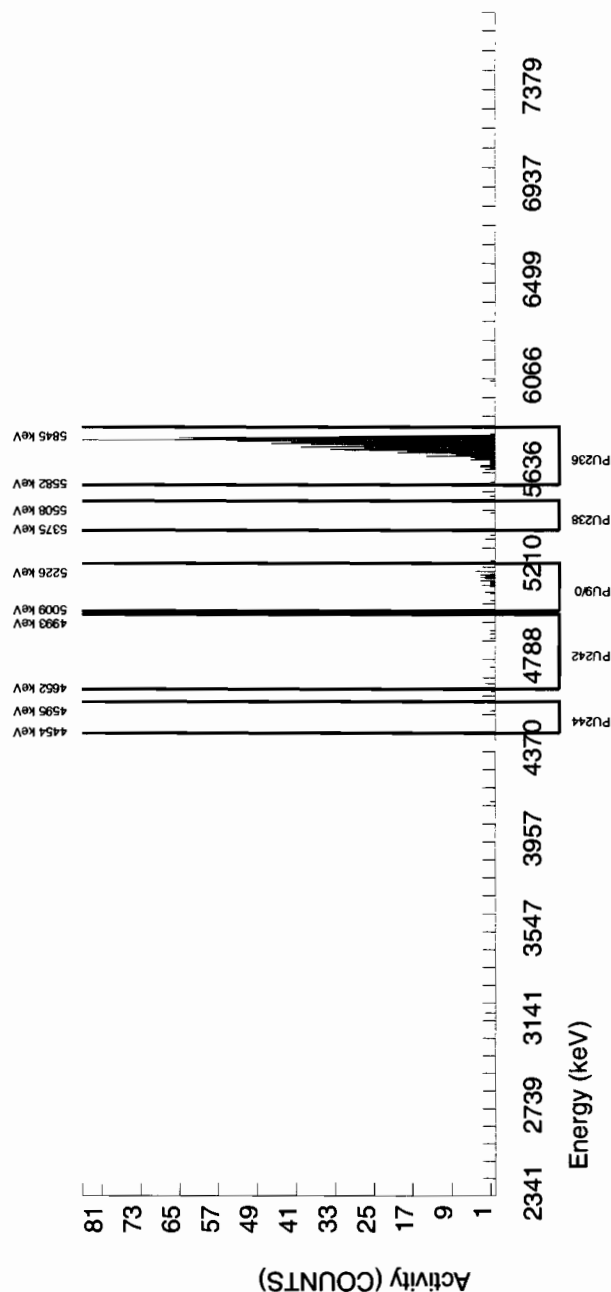
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5771.272	30.219	690.000	690.000	0.000	0.0000	100.0000	2.38E+00	1.62E-01	0.00E+00	9.15E-03	9.05E-02
PU-238	5499.000	5483.736	0.000	2.000	2.000	0.000	2.4495	99.90000	6.76E-03	4.80E-03	1.67E-02	4.26E-02	4.78E-03
PU-9/0	5155.000	5153.179	44.549	28.000	26.485	1.515	1.9732	99.90000	8.95E-02	1.88E-02	1.35E-02	3.61E-02	1.81E-02
PU242	4890.000	4807.519	4.950	6.000	3.980	2.020	*****	100.0000	1.34E-02	8.97E-03	8.49E-01	1.71E+00	8.94E-03
PU-244	4589.000	4557.962	4.950	1.000	0.495	0.505	6.4609	99.90000	1.67E-03	3.79E-03	4.40E-02	9.72E-02	3.78E-03

NOTES:

* BKG Sg calculated via blank population.

(Sg updated 8-MAR-2010)

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



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
SAMPLE ID : S0247360003_PU
SAMPLE QTY : 1.259 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 72.550

CHAMBER : 105
DETECTOR S/N : 78777
AVERAGE %EFFICIENCY : 33.3263
COUNT DATE : 13-MAR-2010 14:27:43
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV_ALPHA_PU
BKG FILE : B105.CNF:690
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W105.CNF:177
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-B
NUCLIDE : PU-236
NOMINAL : 6.5986E+00 dpm
RESULTS : 4.7873E+00 dpm

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

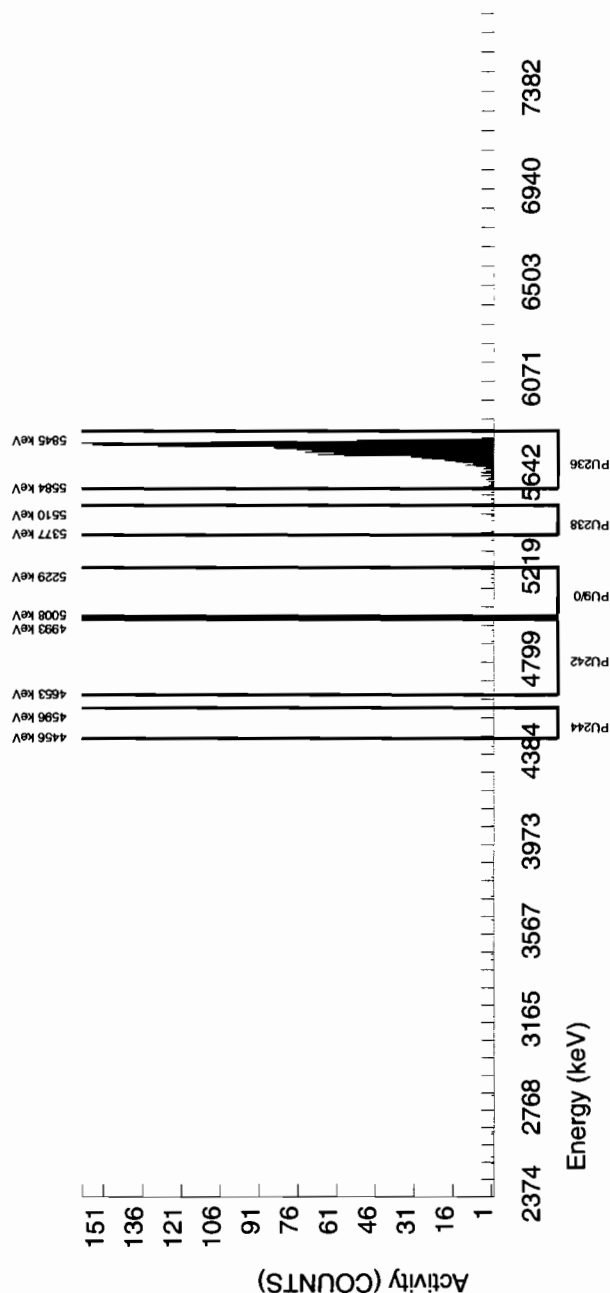
LCS/LCSD
ID : 0244-B
NUCLIDE : PU-9/0
NOMINAL : 4.1778E+01 pCi/G

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	5768.420	32.929	1564.000	1564.000	0.000	0.0000	100.0000	2.36E+00	1.30E-01	0.00E+00	4.01E-03	5.97E-02
PU-238	5499.000	5455.389	92.835	5.000	5.000	0.000	2.4495	99.900000	7.41E-03	3.33E-03	8.44E-03	2.09E-02	3.31E-03
PU-9/0	5155.000	5140.898	0.000	4.000	1.000	3.000	1.9732	99.900000	1.48E-03	3.92E-03	6.80E-03	1.76E-02	3.92E-03
PU242	4890.000	4940.178	73.291	3.000	0.000	3.000	*****	100.0000	3.53E-10	3.63E-03	4.29E-01	8.62E-01	3.62E-03
PU-244	4589.000	4526.204	0.000	0.000	-1.000	1.000	6.4609	99.900000	-1.48E-03	2.10E-03	2.23E-02	4.85E-02	2.09E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG Sg of PU-236 calculated as sqrt(BKG AREA).



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
SAMPLE ID : S0247360004_PU
SAMPLE QTY : 1.257 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 74.568

CHAMBER : 107
DETECTOR S/N : 67578
AVERAGE %EFFICIENCY : 32.7767
COUNT DATE : 13-MAR-2010 14:27:44
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B107.CNF;691
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W107.CNF;234
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-B
NUCLIDE : PU-236
NOMINAL : 6.5986E+00 dpm
RESULTS : 4.9204E+00 dpm

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

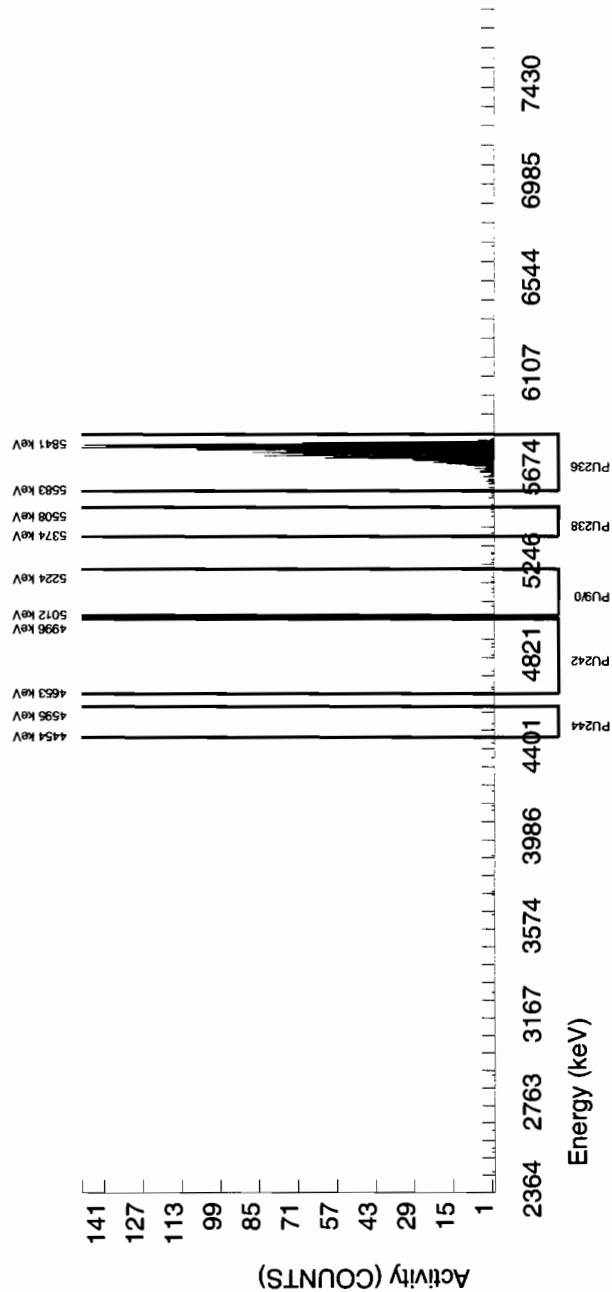
LCS/LCSD
ID : 0244-B
NUCLIDE : PU-9/0
NOMINAL : 4.1778E+01 pCi/G

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	5771.401	55.528	1583.000	1581.000	2.000	1.4142	100.0000	2.36E+00	1.30E-01	4.82E-03	1.36E-02	5.95E-02
PU-238	5499.000	5443.397	119.046	6.000	1.000	5.000	2.4495	99.90000	1.47E-03	4.87E-03	8.36E-03	2.07E-02	4.87E-03
PU-9/0	5155.000	5137.150	128.966	5.000	2.000	3.000	1.9732	99.90000	2.94E-03	4.15E-03	6.74E-03	1.75E-02	4.15E-03
PU242	4890.000	4788.933	203.370	6.000	4.000	2.000	*****	100.0000	5.86E-03	4.16E-03	4.25E-01	8.54E-01	4.15E-03
PU-244	4589.000	4508.639	29.761	2.000	2.000	0.000	6.4609	99.90000	2.94E-03	2.08E-03	2.21E-02	4.81E-02	2.08E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
* BKG Sg of PU-236 calculated as sqrt(BKG AREA).



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
SAMPLE ID : S1202052141_PU
SAMPLE QTY : 1.000 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 74.894

CHAMBER : 108
DETECTOR S/N : 78778
AVERAGE %EFFICIENCY : 35.3171
COUNT DATE : 13-MAR-2010 14:27:44
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B108.CNF:689
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W108.CNF:215
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-B
NUCLIDE : PU-236
NOMINAL : 6.5159E+00 dpm
RESULTS : 4.8800E+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

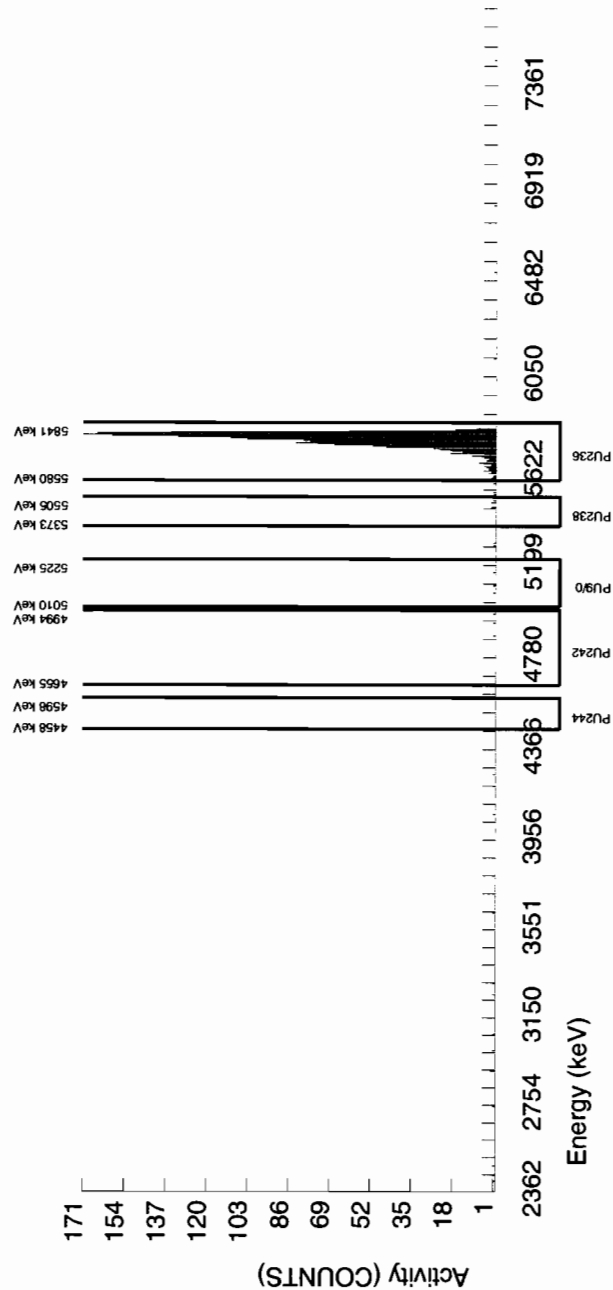
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5769.512	35.901	1711.000	1711.000	0.000	0.0000	100.0000	2.94E+00	1.58E-01	0.00E+00	4.62E-03	7.10E-02
PU-238	5499.000	5449.584	26.614	8.000	8.000	0.000	2.4495	99.900000	1.36E-02	4.87E-03	9.71E-03	2.40E-02	4.82E-03
PU-9/0	5155.000	5118.573	92.466	4.000	2.000	2.000	1.9732	99.900000	3.41E-03	4.18E-03	7.83E-03	2.03E-02	4.18E-03
PU242	4890.000	4867.250	306.596	4.000	2.000	2.000	*****	100.0000	3.41E-03	4.17E-03	4.94E-01	9.92E-01	4.17E-03
PU-244	4589.000	4528.223	0.000	0.000	0.000	0.000	6.4609	99.900000	0.00E+00	1.71E-03	2.56E-02	5.59E-02	1.70E-03

NOTES:

* BKG Sg calculated via blank population.

(Sg updated 8-MAR-2010)

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



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
 SAMPLE ID : S1202052142_PU
 SAMPLE QTY : 1.258 G
 SAMPLE DATE : 12-FEB-2010 00:00:00
 ANALYST : JXH2
 % YIELD : 75.520

CHAMBER : 076
 DETECTOR S/N : 78779
 AVERAGE %EFFICIENCY : 31.3281
 COUNT DATE : 15-MAR-2010 12:59:28
 ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_PU
 BKG FILE : B076.CNF;1116
 BKG DATE : 14-MAR-2010
 BKG LIVE TIME(SEC) : 59999.99
 EFF FILE : W076.CNF;297
 CAL DATE : 12-MAR-2010

TRACER
 ID : 1430-B
 NUCLEIDE : PU-236
 NOMINAL : 6.5990E+00 dpm
 RESULTS : 4.9835E+00 dpm

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

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

NUCLEIDE ACTIVITY SUMMARY

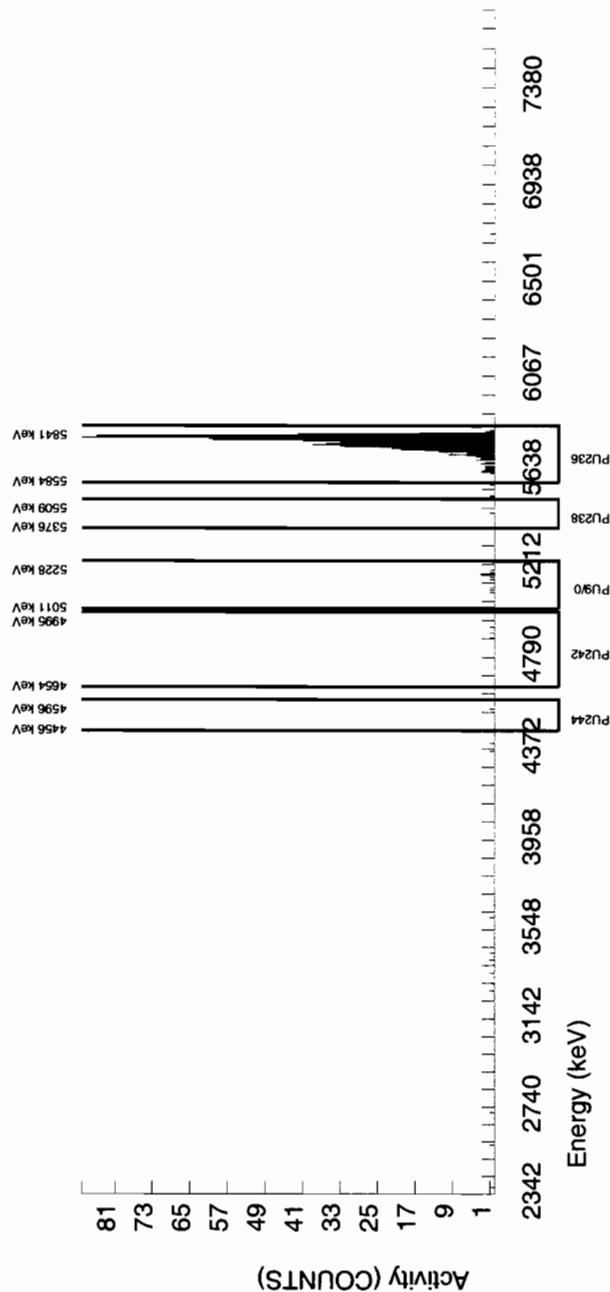
NUCLEIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5774.467	28.187	772.000	772.000	0.000	0.0000	100.0000	2.36E+00	1.55E-01	0.00E+00	8.12E-03	8.50E-02
PU-238	5499.000	5480.158	0.000	2.000	2.000	0.000	2.4495	99.90000	6.00E-03	4.26E-03	1.48E-02	3.78E-02	4.25E-03
PU-9/0	5155.000	5153.290	10.368	14.000	12.990	1.010	1.9732	99.90000	3.90E-02	1.16E-02	1.19E-02	3.20E-02	1.14E-02
PU242	4890.000	4900.461	53.849	4.000	3.495	0.505	*****	100.0000	1.05E-02	6.21E-03	7.54E-01	1.52E+00	6.18E-03
PU-244	4589.000	4559.836	4.952	1.000	0.495	0.505	6.4609	99.90000	1.48E-03	3.36E-03	3.91E-02	8.64E-02	3.36E-03

NOTES:

* BKG Sg calculated via blank population.

(Sg updated 8-MAR-2010)

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



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 957099
SAMPLE ID : S1202052143_PU
SAMPLE QTY : 0.109 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 60.546

CHAMBER : 112
DETECTOR S/N : 78261
AVERAGE %EFFICIENCY : 33.5504
COUNT DATE : 13-MAR-2010 14:27:44
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B112.CNF:694
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W112.CNF:223
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-B
NUCLIDE : PU-236
NOMINAL : 6.5159E+00 dpm
RESULTS : 3.9451E+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

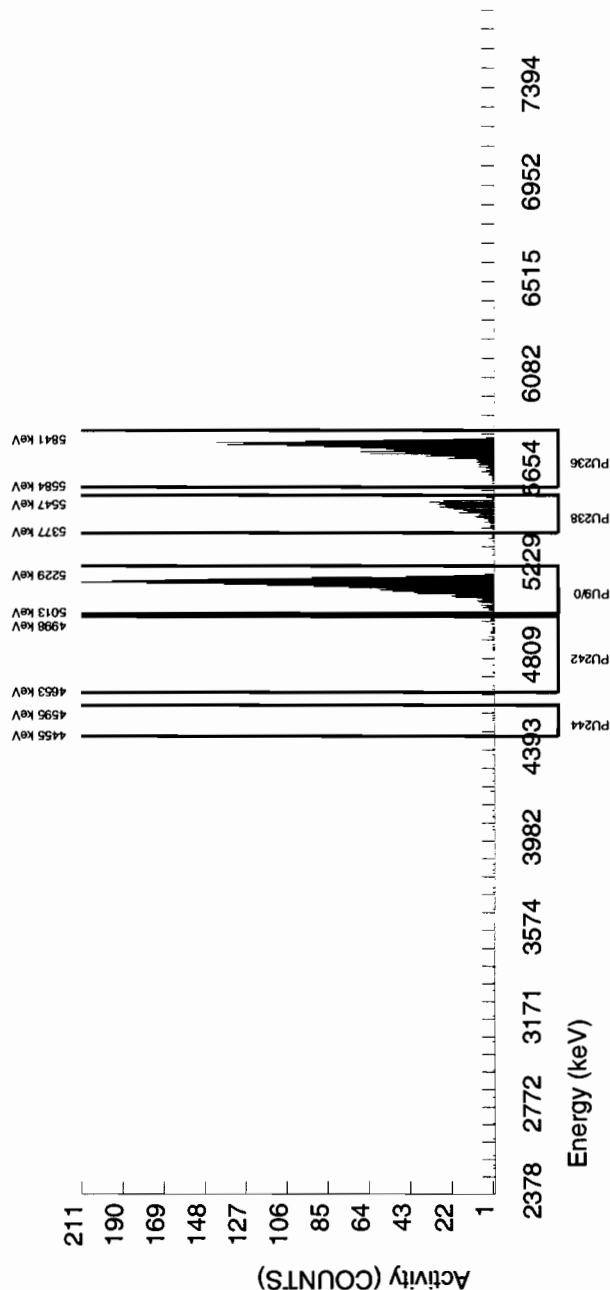
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5766.128	31.313	1314.000	1314.000	0.000	0.0000	100.0000	2.69E+01	1.73E+00	0.00E+00	5.51E-02	7.43E-01
PU-238	5499.000	5493.785	53.933	345.000	345.000	0.000	2.4495	99.900000	7.03E+00	5.57E-01	1.16E-01	2.87E-01	3.78E-01
PU-9/0	5155.000	5149.716	35.256	1859.000	1857.000	2.000	1.9732	99.900000	3.78E+01	2.37E+00	9.35E-02	2.42E-01	8.79E-01
PU242	4890.000	4888.286	0.000	34.000	31.000	3.000	*****	100.0000	6.31E-01	1.29E-01	5.90E+00	1.19E+01	1.24E-01
PU-244	4589.000	4530.854	0.000	7.000	5.000	2.000	6.4609	99.900000	1.02E-01	6.14E-02	3.06E-01	6.67E-01	6.11E-02

NOTES:

* BKG Sg calculated via blank population.

(Sg updated 8-MAR-2010)

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



Radiochemistry Batch Checklist, Rev10

957101

Batch#

Product: U

Date: 3/8/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	X		
If activity less 10 ⁶ MDA/MDC, error is 150% or less of sample activity. If greater 10 ⁶ MDA/MDC, error is 40% or less. If below the MDA/MDC, error is okay.	X		
Instrument source check is within limits.	X		
Instrument bkg check is within limits.	X		
Method RDL/LLD has been met.	X		
If duplicate activities are less 5 ⁶ MDA/MDC, then RPD is 100% or less. If greater 5 ⁶ MDA/MDC, then RPD 20% or less. If below the MDA/MDC, the RPD is 0%.	X		
Or meets the client's required RER acceptance criteria.	X		
Tracer yield is 15-125% . Carrier yield 25-125%.	X		
Or meets the client's contract acceptance criteria.	X		
Method blank is less than the RDL/LLD. (If rad samples, < 5% of lowest activity)	X		case narrative
Sample was run within hold time.	X		
Sample was correctly preserved if required.	X		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	X		
No blank spaces on data forms.	X		
All line outs initialed and dated.	X		
No transcription errors are apparent.			N/A
Aux data is correct.			N/A
Client Special requirements page has been checked.	X		
Raw Data and/ or spectrum are included and properly situated.	X		
QC data entered into QC database and batch is in REVIEW	X		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	X		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	X		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

[Signature] 3/8/10

Secondary Review Performed By:

[Signature] 3/8/10

AM10

3/11/10
LAN

PV

Uranium Que Sheet

24-FEB-10

Batch #: 957101 Analyst: JXH2 First Client Due Date: 11-MAR-10 Internal Due Date: 01-MAR-10
Tracer Isotope: U-233 Tracer Code: 1283-H Expiration Date: 12-04-10 Vol: 0.1
LCS Isotope: U-238 LCS Code: --- Expiration Date: --- Vol: 0.1
Spike Isotope: U-238 Spike Code: --- Expiration Date: --- Vol: 0.1
Prep Date: 3-3-10 Initials: JEH Pipet ID: 2471058 Balance ID: 5040272

Witness: AB3/310

Sample ID	Client Description	Type	Hazard Code	Mfn CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Wt Aliquot (g/1/1)	U Det #
247323001-1	RE46-10-12942	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	1	1	0.502	118
247323002-1	RE46-10-12944	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	2	2	0.522	125
247323003-1	RE46-10-12941	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	3	3	0.506	126
247323004-1	RE46-10-12951	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	4	4	0.509	127
247323005-1	RE46-10-12943	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	5	5	0.500	128
247323006-1	RE46-10-12952	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	6	6	0.512	129
247323007-1	RE46-10-13189	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	7	7	0.524	130
247323008-1	RE46-10-12661	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	8	8	0.503	131
247323009-1	WST15-10-5941	SAMPLE		.1 pCi/g	SOIL	LANL010	16-FEB-10	9	9	0.518	132
247323010-1	RE15-10-8346	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	10	10	0.513	133
247323011-1	RE15-10-8347	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	11	11	0.506	134
247323012-1	RE15-10-8344	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	12	12	0.514	135
247323013-1	RE15-10-8345	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	13	13	0.513	136
247323014-1	RE15-10-8342	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	14	14	0.516	137
247323015-1	RE15-10-8343	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	15	15	0.518	138
247323016-1	RE15-10-8377	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	16	16	0.513	139
247323017-1	RE36-10-7427	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	17	17	0.509	140
247323018-1	RE36-10-7423	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	18	18	0.503	141
247323019-1	RE36-10-7428	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	19	19	0.515	142
247323020-1	RE36-10-7424	SAMPLE		.1 pCi/g	SOIL	LANL010	12-FEB-10	20	20	0.502	143
1202652140-1	MB for batch 957101	MB		.1 pCi/g	SOIL	QC ACCOUNT		21	21		144
1202652149-1	RE36-10-7427(247560001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	12-FEB-10	22	22	0.503	145
1202652150-1	LCS for batch 957101	LCS		.1 pCi/g	SOIL	QC ACCOUNT		23	23	0.103	146

* SRM 0244-A exp 10/31/20

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION

Data Reviewed By:

AB3/310

Blank Correction Report

Batch ID 957101

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202052149	DUP	Uranium-233/234	0.503 g	1.42	0.156	0.185	.021471173	pCi/g	NO
		Uranium-235/236	0.503 g	0.0307	0.0219	0.119	.009085487	pCi/g	YES
		Uranium-238	0.503 g	1.48	0.161	0.127	-.01115308	pCi/g	NO
1202052150	LCS	Uranium-233/234	0.103 g	6.55	0.741	0.847	.104854369	pCi/g	NO
		Uranium-235/236	0.103 g	0.471	0.154	0.548	.044368932	pCi/g	NO
		Uranium-238	0.103 g	5.16	0.619	0.583	-.05446602	pCi/g	NO
1202052148	MB	Uranium-233/234	1.00 g	0.0108	0.00849	0.0823	.0108	pCi/g	YES
		Uranium-235/236	1.00 g	0.00457	0.00459	0.0533	.00457	pCi/g	YES
		Uranium-238	1.00 g	-0.00561	0.00492	0.0566	-.00561	pCi/g	NO
247323001	RE46-10-12942	Uranium-233/234	0.502 g	0.715	0.0904	0.162	.021513944	pCi/g	NO
		Uranium-235/236	0.502 g	0.0808	0.0276	0.105	.009103586	pCi/g	NO
		Uranium-238	0.502 g	0.846	0.102	0.111	-.01117530	pCi/g	NO
247323002	RE46-10-12944	Uranium-233/234	0.522 g	0.906	0.118	0.208	.020689655	pCi/g	NO
		Uranium-235/236	0.522 g	0.0462	0.0234	0.134	.008754789	pCi/g	NO
		Uranium-238	0.522 g	0.924	0.119	0.143	-.01074713	pCi/g	NO
247323003	RE46-10-12941	Uranium-233/234	0.506 g	0.790	0.103	0.188	.021343874	pCi/g	NO
		Uranium-235/236	0.506 g	0.0489	0.0242	0.122	.009031621	pCi/g	NO
		Uranium-238	0.506 g	0.790	0.103	0.129	-.01108696	pCi/g	NO
247323004	RE46-10-12951	Uranium-233/234	0.509 g	0.792	0.0984	0.167	.021218075	pCi/g	NO
		Uranium-235/236	0.509 g	0.0186	0.0132	0.108	.008978389	pCi/g	YES
		Uranium-238	0.509 g	0.743	0.0946	0.115	-.01102161	pCi/g	NO
247323005	RE46-10-12943	Uranium-233/234	0.500 g	0.951	0.115	0.182	.0216	pCi/g	NO
		Uranium-235/236	0.500 g	0.0453	0.0234	0.118	.00914	pCi/g	YES
		Uranium-238	0.500 g	0.893	0.110	0.125	-.01122	pCi/g	NO
247323006	RE46-10-12952	Uranium-233/234	0.512 g	0.857	0.113	0.209	.02109375	pCi/g	NO
		Uranium-235/236	0.512 g	0.0349	0.0203	0.135	.008925781	pCi/g	YES
		Uranium-238	0.512 g	0.922	0.120	0.144	-.01095703	pCi/g	NO
247323007	RE46-10-13189	Uranium-233/234	0.524 g	0.747	0.0962	0.173	.020610687	pCi/g	NO
		Uranium-235/236	0.524 g	0.0336	0.020	0.112	.006721374	pCi/g	YES
		Uranium-238	0.524 g	0.755	0.0971	0.119	-.01070611	pCi/g	NO
247325001	RE46-10-12661	Uranium-233/234	0.503 g	0.716	0.0943	0.180	.021471173	pCi/g	NO
		Uranium-235/236	0.503 g	0.070	0.027	0.116	.009085487	pCi/g	NO
		Uranium-238	0.503 g	0.683	0.0917	0.124	-.01115308	pCi/g	NO
247327002	WST15-10-8941	Uranium-233/234	0.518 g	1.50	0.155	0.158	.020849421	pCi/g	NO
		Uranium-235/236	0.518 g	0.101	0.0318	0.103	.008822394	pCi/g	NO
		Uranium-238	0.518 g	2.43	0.228	0.109	-.01083012	pCi/g	NO
247337001	RE15-10-8346	Uranium-233/234	0.513 g	1.23	0.134	0.162	.021052632	pCi/g	NO
		Uranium-235/236	0.513 g	0.108	0.0323	0.105	.008908382	pCi/g	NO
		Uranium-238	0.513 g	2.22	0.213	0.111	-.01093567	pCi/g	NO
247337002	RE15-10-8347	Uranium-233/234	0.506 g	0.761	0.0969	0.171	.021343874	pCi/g	NO
		Uranium-235/236	0.506 g	0.0285	0.0166	0.111	.009031621	pCi/g	YES

Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Allquot	Result	TPU	MDA	Allquot Corrected Blank Result	Units	Activity <5X Corrected Blank
247337002	RE15-10-8347	Uranium-238	0.506 g	0.900	0.109	0.118	-.01108696	pCi/g	NO
247337003	RE15-10-8344	Uranium-233/234	0.514 g	1.07	0.126	0.179	.021011673	pCi/g	NO
		Uranium-235/236	0.514 g	0.0498	0.0226	0.116	.008891051	pCi/g	NO
		Uranium-238	0.514 g	1.20	0.137	0.123	-.01091440	pCi/g	NO
247337004	RE15-10-8345	Uranium-233/234	0.513 g	1.53	0.156	0.157	.021052632	pCi/g	NO
		Uranium-235/236	0.513 g	0.0873	0.0284	0.102	.008908382	pCi/g	NO
		Uranium-238	0.513 g	1.71	0.171	0.108	-.01093567	pCi/g	NO
247337005	RE15-10-8342	Uranium-233/234	0.516 g	0.949	0.112	0.163	.020930233	pCi/g	NO
		Uranium-235/236	0.516 g	0.0634	0.0245	0.106	.008856589	pCi/g	NO
		Uranium-238	0.516 g	1.10	0.125	0.112	-.01087209	pCi/g	NO
247337006	RE15-10-8343	Uranium-233/234	0.518 g	0.862	0.103	0.157	.020849421	pCi/g	NO
		Uranium-235/236	0.518 g	0.0568	0.0239	0.102	.008822394	pCi/g	NO
		Uranium-238	0.518 g	1.08	0.120	0.108	-.01083012	pCi/g	NO
247337007	RE15-10-8377	Uranium-233/234	0.513 g	1.20	0.140	0.194	.021052632	pCi/g	NO
		Uranium-235/236	0.513 g	0.0753	0.0291	0.125	.008908382	pCi/g	NO
		Uranium-238	0.513 g	1.39	0.157	0.133	-.01093567	pCi/g	NO
247360001	RE36-10-7427	Uranium-233/234	0.509 g	1.51	0.170	0.207	.021218075	pCi/g	NO
		Uranium-235/236	0.509 g	0.0228	0.0216	0.134	.008978389	pCi/g	YES
		Uranium-238	0.509 g	1.93	0.205	0.142	-.01102161	pCi/g	NO
247360002	RE36-10-7423	Uranium-233/234	0.503 g	2.45	0.253	0.217	.021471173	pCi/g	NO
		Uranium-235/236	0.503 g	0.193	0.0508	0.141	.009085487	pCi/g	NO
		Uranium-238	0.503 g	3.27	0.322	0.149	-.01115308	pCi/g	NO
247360003	RE36-10-7428	Uranium-233/234	0.515 g	0.951	0.124	0.219	.020970874	pCi/g	NO
		Uranium-235/236	0.515 g	0.0365	0.0213	0.142	.008873786	pCi/g	YES
		Uranium-238	0.515 g	0.999	0.128	0.151	-.01089320	pCi/g	NO
247360004	RE36-10-7424	Uranium-233/234	0.502 g	1.06	0.133	0.210	.021513944	pCi/g	NO
		Uranium-235/236	0.502 g	0.0989	0.0363	0.136	.009103586	pCi/g	NO
		Uranium-238	0.502 g	1.21	0.145	0.144	-.01117530	pCi/g	NO

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

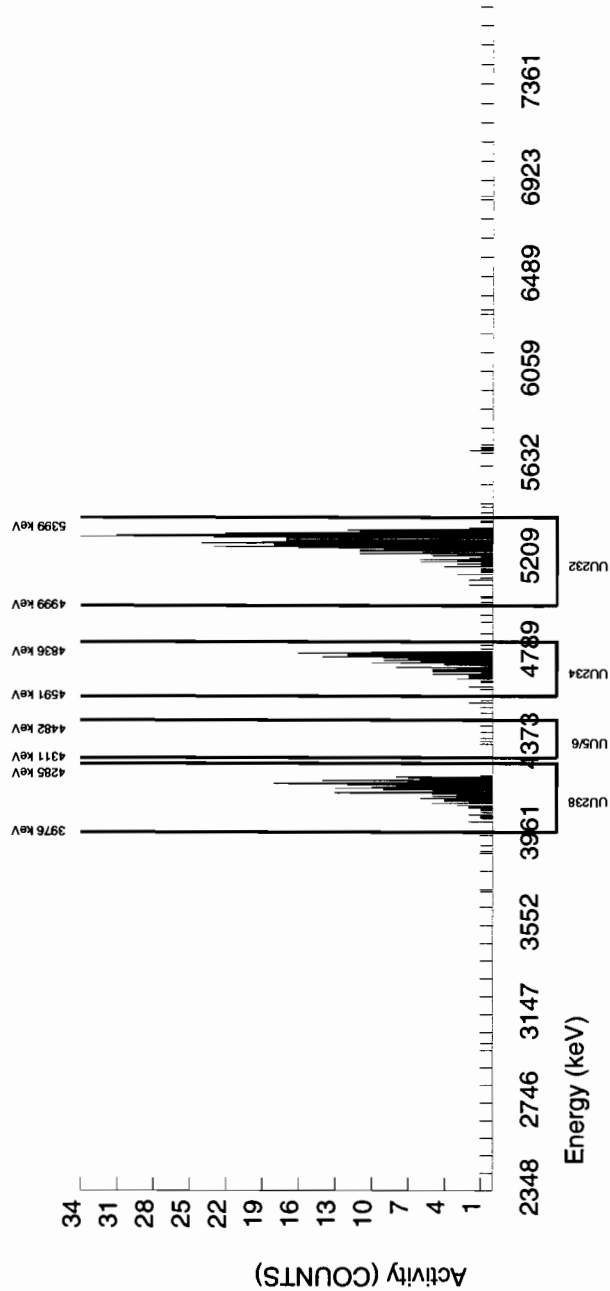
<p>BATCH NUMBER : 957101 SAMPLE ID : S0247360001_UU SAMPLE QTY : 0.509 G SAMPLE DATE : 12-FEB-2010 00:00:00 ANALYST : JXH2 % YIELD : 75.067</p>		<p>CHAMBER : 144 DETECTOR S/N : 75551 AVERAGE %EFFICIENCY : 25.1386 COUNT DATE : 6-MAR-2010 12:15:02 ELAPSED LIVE TIME(SEC) : 30300.00</p>	
<p>LIB FILE : ENV_ALPHA_UU BKG FILE : B144.CNF:399 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W144.CNF:108 CAL DATE : 19-FEB-2010</p>		<p>LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G</p>	
<p>TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5043E+00 dpm RESULTS : 3.3812E+00 dpm</p>		<p>MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 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
U232	5302.100	5287.514	65.548	431.000	428.980	2.020	1.4213	100.0000	3.99E+00	3.73E-01	2.66E-02	7.84E-02	1.93E-01
U-3/4	4763.020	4751.874	47.566	165.000	163.051	1.515	4.8416	100.0000	1.51E+00	1.70E-01	9.07E-02	2.07E-01	1.19E-01
U-235	4391.000	4407.846	44.540	3.000	1.990	1.010	2.2152	80.90000	2.28E-02	2.16E-02	5.13E-02	1.34E-01	2.15E-02
U-238	4184.730	4171.068	59.975	208.000	208.000	0.000	3.1208	100.0000	1.93E+00	2.05E-01	5.85E-02	1.42E-01	1.34E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
 SAMPLE ID : S0247360002_UU
 SAMPLE QTY : 0.503 G
 SAMPLE DATE : 12-FEB-2010 00:00:00
 ANALYST : JXH2
 % YIELD : 72.869

CHAMBER : 145
 DETECTOR S/N : 72526
 AVERAGE %EFFICIENCY : 24.9308
 COUNT DATE : 6-MAR-2010 12:15:05
 ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
 BKG FILE : B145.CNF;397
 BKG DATE : 28-FEB-2010
 BKG LIVE TIME(SEC) : 60000.00
 EFF FILE : W145.CNF;113
 CAL DATE : 19-FEB-2010

TRACER ID : 1283-H
 NUCLEIDE : U232
 NOMINAL : 4.5043E+00 dpm
 RESULTS : 3.2823E+00 dpm

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

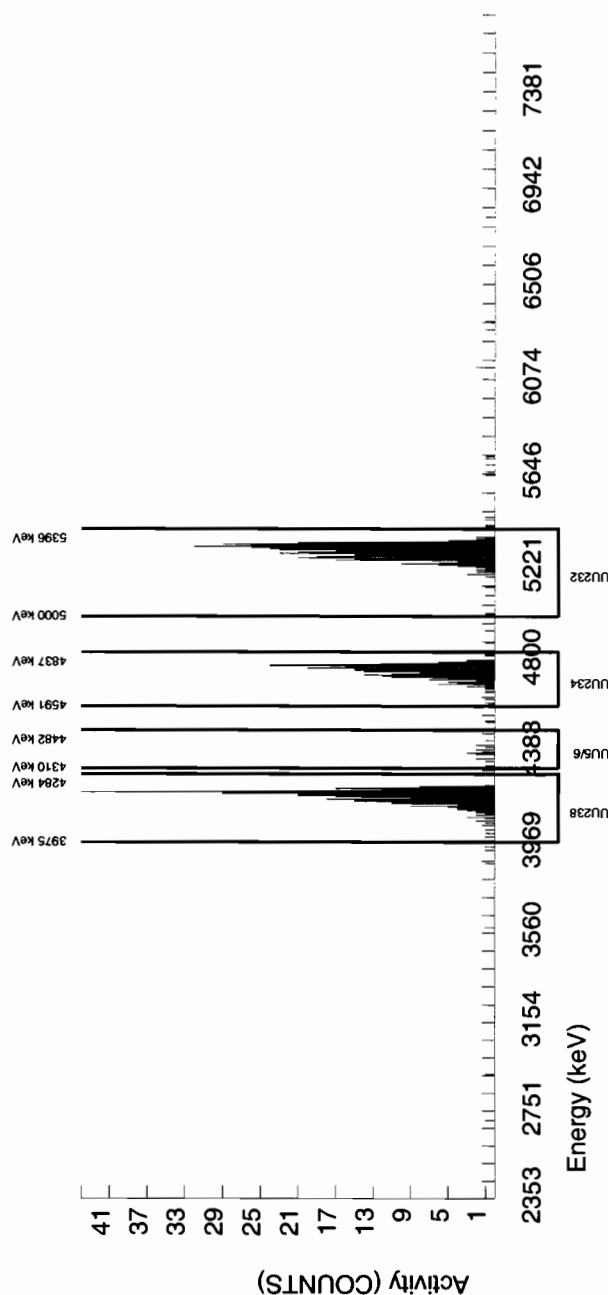
LCS/LCSD ID : 0244-A
 NUCLEIDE : U-238
 NOMINAL : 5.7500E+00 pCi/G

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	5295.224	78.898	415.000	412.980	2.020	1.4213	100.0000	4.03E+00	3.86E-01	2.80E-02	8.24E-02	1.99E-01
U-3/4	4763.020	4753.901	53.102	251.000	250.582	0.000	4.8416	100.0000	2.45E+00	2.53E-01	9.54E-02	2.17E-01	1.55E-01
U-235	4391.000	4380.278	61.677	16.000	16.000	0.000	2.2152	80.90000	1.93E-01	5.08E-02	5.39E-02	1.41E-01	4.83E-02
U-238	4184.730	4183.594	15.372	335.000	334.495	0.505	3.1208	100.0000	3.27E+00	3.22E-01	6.15E-02	1.49E-01	1.79E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
SAMPLE ID : S0247360003_UU
SAMPLE QTY : 0.515 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 71.129

CHAMBER : 146
DETECTOR S/N : 72527
AVERAGE %EFFICIENCY : 24.7373
COUNT DATE : 6-MAR-2010 12:15:07
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B146.CNF;402
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W146.CNF;115
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5043E+00 dpm
RESULTS : 3.2039E+00 dpm

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

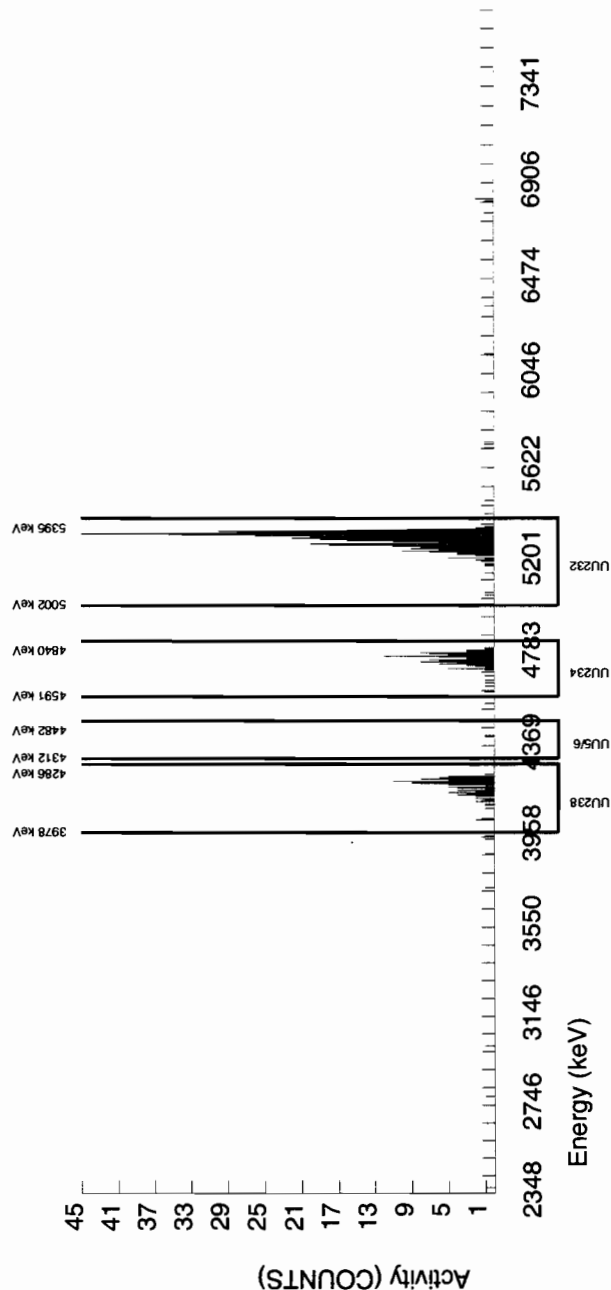
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5306.304	25.129	401.000	399.990	1.010	1.0050	100.0000	3.94E+00	3.76E-01	2.00E-02	6.66E-02	1.97E-01
U-3/4	4763.020	4760.348	43.993	98.000	96.585	1.010	4.8416	100.0000	9.51E-01	1.24E-01	9.62E-02	2.19E-01	9.75E-02
U-235	4391.000	4382.546	0.000	3.000	3.000	0.000	2.2152	80.90000	3.65E-02	2.13E-02	5.44E-02	1.42E-01	2.11E-02
U-238	4184.730	4188.044	30.747	102.000	101.495	0.505	3.1208	100.0000	9.99E-01	1.28E-01	6.20E-02	1.51E-01	9.95E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
SAMPLE ID : S0247360004_UU
SAMPLE QTY : 0.502 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 77.080

CHAMBER : 147
DETECTOR S/N : 75550
AVERAGE %EFFICIENCY : 24.4814
COUNT DATE : 6-MAR-2010 12:15:10
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B147.CNF:402
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W147.CNF:114
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5043E+00 dpm
RESULTS : 3.4719E+00 dpm

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

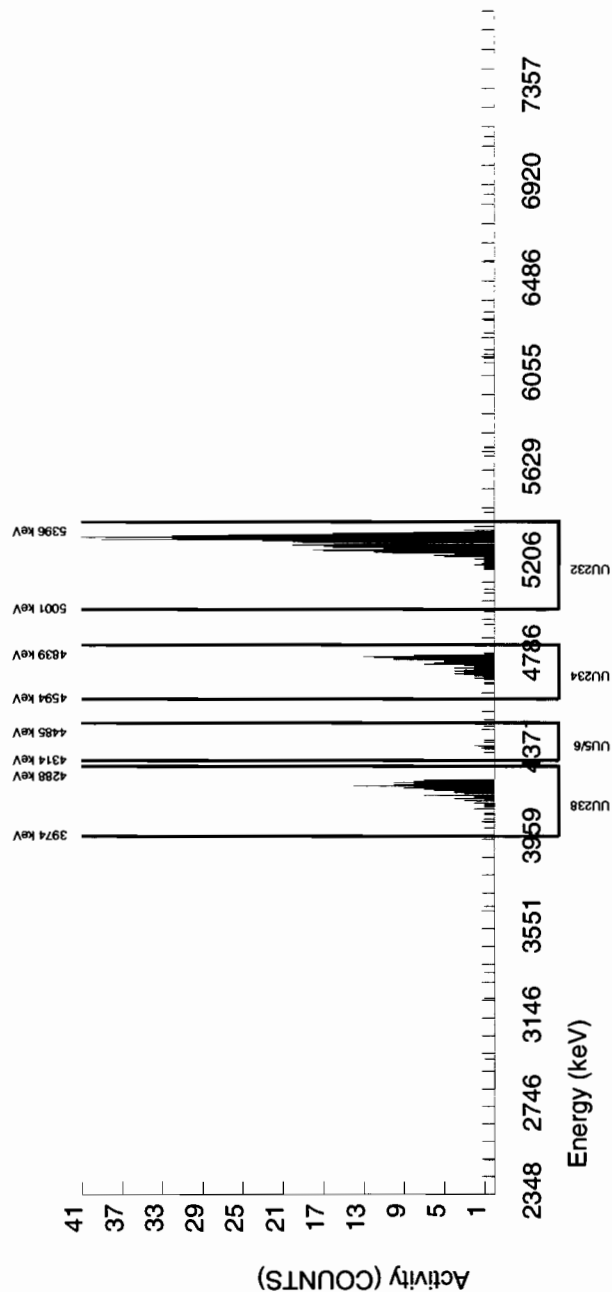
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5306.002	31.736	432.000	428.970	3.030	1.7407	100.0000	4.04E+00	3.83E-01	3.31E-02	9.17E-02	1.96E-01
U-3/4	4763.020	4760.686	40.873	114.000	113.061	0.505	4.8416	100.0000	1.06E+00	1.33E-01	9.20E-02	2.10E-01	1.00E-01
U-235	4391.000	4393.917	7.256	9.000	8.495	0.505	2.2152	80.90000	9.89E-02	3.63E-02	5.20E-02	1.36E-01	3.54E-02
U-238	4184.730	4186.965	39.335	129.000	128.495	0.505	3.1208	100.0000	1.21E+00	1.45E-01	5.93E-02	1.44E-01	1.07E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
SAMPLE ID : S1202052148_UU
SAMPLE QTY : 1.000 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 98.103

CHAMBER : 148
DETECTOR S/N : 74429
AVERAGE %EFFICIENCY : 24.5720
COUNT DATE : 6-MAR-2010 12:15:13
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B148.CNF;401
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W148.CNF;129
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5020E+00 dpm
RESULTS : 4.4166E+00 dpm

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

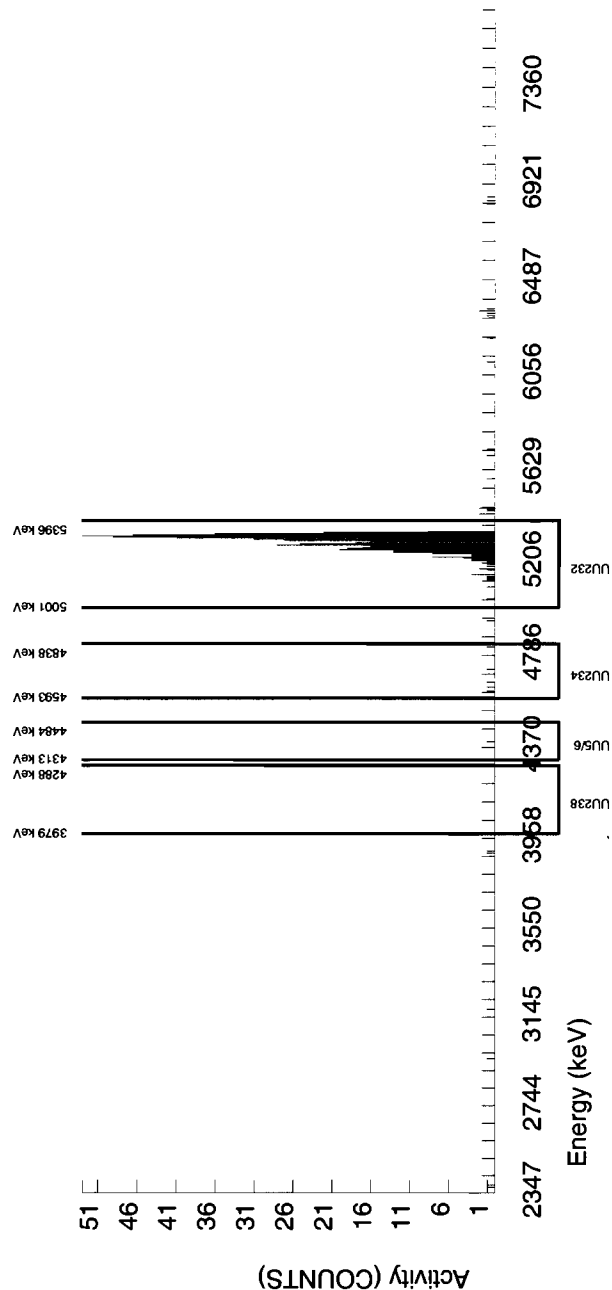
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5304.048	53.342	549.000	547.990	1.010	1.0050	100.0000	2.03E+00	1.78E-01	7.50E-03	2.50E-02	8.67E-02
U-3/4	4763.020	4701.647	192.702	5.000	2.930	1.515	4.8416	100.0000	1.08E-02	8.49E-03	3.62E-02	8.23E-02	8.45E-03
U-235	4391.000	4401.356	4.941	1.000	1.000	0.000	2.2152	80.90000	4.57E-03	4.59E-03	2.04E-02	5.33E-02	4.57E-03
U-238	4184.730	4132.864	0.000	0.000	-1.515	1.515	3.1208	100.0000	-5.61E-03	4.92E-03	2.33E-02	5.66E-02	4.92E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
SAMPLE ID : S1202052149_UU
SAMPLE QTY : 0.503 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 86.742

CHAMBER : 149
DETECTOR S/N : 33449
AVERAGE %EFFICIENCY : 24.6450
COUNT DATE : 6-MAR-2010 12:15:15
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B149.CNF:405
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W149.CNF:114
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5043E+00 dpm
RESULTS : 3.9072E+00 dpm

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

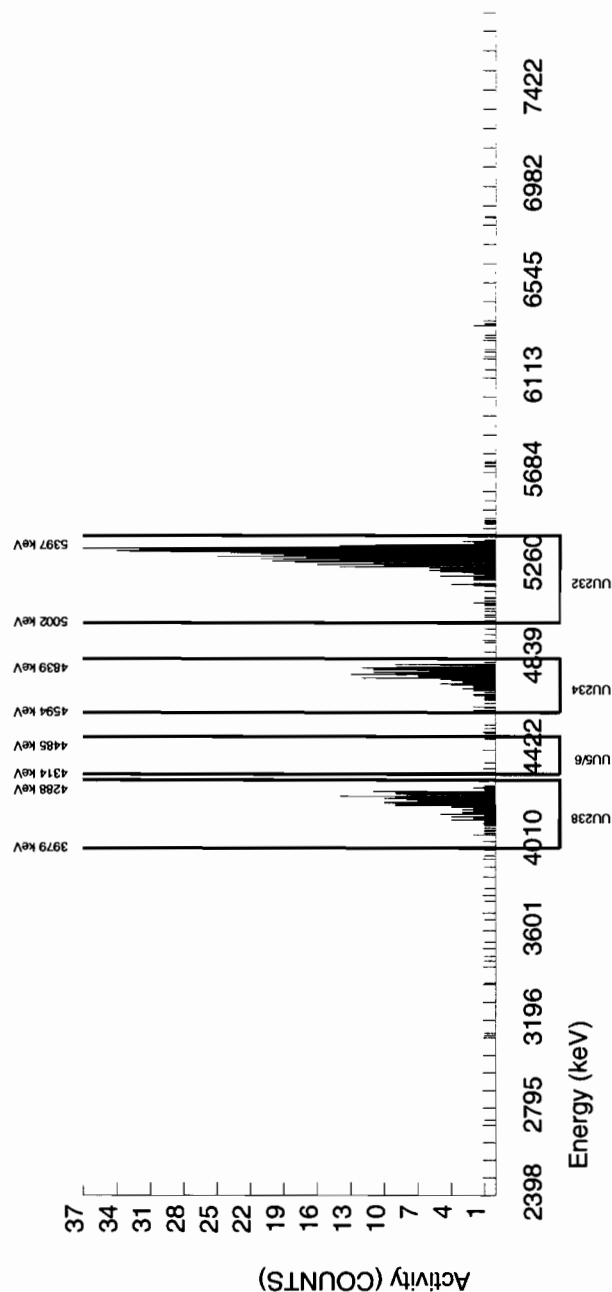
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5301.716	66.257	489.000	485.970	3.030	1.7407	100.0000	4.03E+00	3.66E-01	2.91E-02	8.08E-02	1.84E-01
U-3/4	4763.020	4762.927	64.438	173.000	171.498	1.010	4.8416	100.0000	1.42E+00	1.56E-01	8.10E-02	1.85E-01	1.09E-01
U-235	4391.000	4376.981	4.935	4.000	2.990	1.010	2.2152	80.90000	3.07E-02	2.19E-02	4.58E-02	1.19E-01	2.18E-02
U-238	4184.730	4188.089	63.161	179.000	179.000	0.000	3.1208	100.0000	1.48E+00	1.61E-01	5.22E-02	1.27E-01	1.11E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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 : 957101
SAMPLE ID : S1202052150_UU
SAMPLE QTY : 0.103 G
SAMPLE DATE : 3-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 90.587

CHAMBER : 150
DETECTOR S/N : 75552
AVERAGE %EFFICIENCY : 25.1049
COUNT DATE : 6-MAR-2010 12:15:18
ELAPSED LIVE TIME(SEC) : 30300.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B150.CNF;406
BKG DATE : 28-FEB-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W150.CNF;122
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5020E+00 dpm
RESULTS : 4.0782E+00 dpm

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

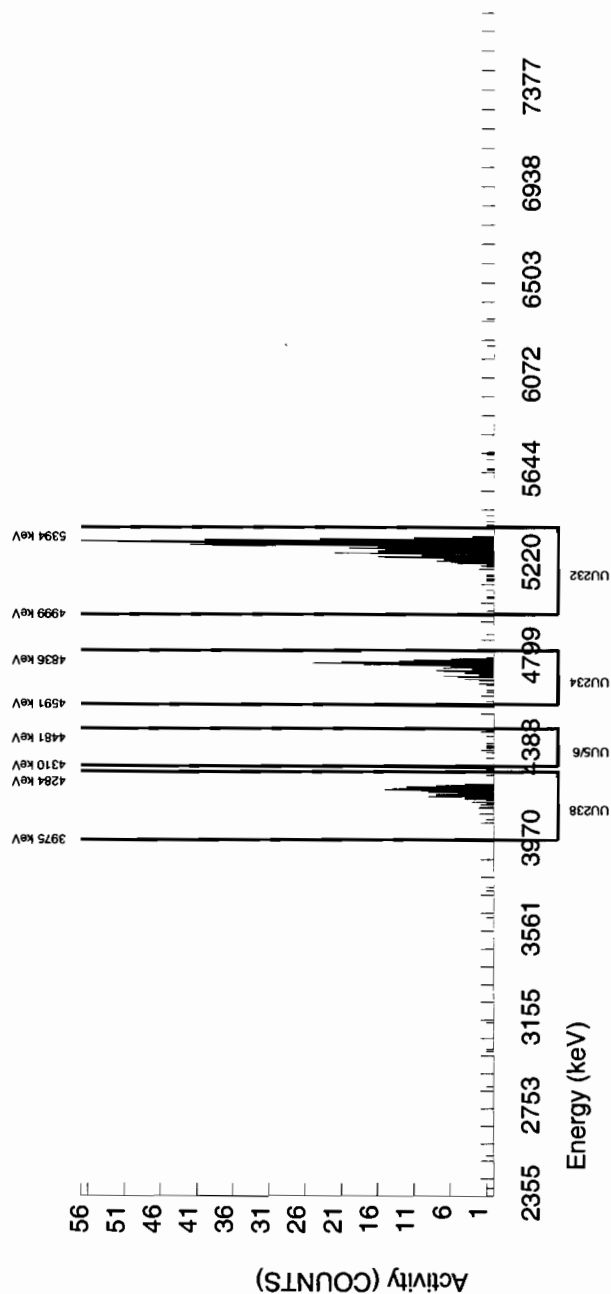
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5307.220	30.493	519.000	516.980	2.020	1.4213	100.0000	1.97E+01	1.86E+00	1.09E-01	3.22E-01	8.68E-01
U-3/4	4763.020	4767.484	21.245	173.000	171.972	0.505	4.8416	100.0000	6.55E+00	7.41E-01	3.72E-01	8.47E-01	5.00E-01
U-235	4391.000	4423.831	0.000	10.000	10.000	0.000	2.2152	80.90000	4.71E-01	1.54E-01	2.10E-01	5.48E-01	1.49E-01
U-238	4184.730	4195.387	51.273	136.000	135.495	0.505	3.1208	100.0000	5.16E+00	6.19E-01	2.40E-01	5.83E-01	4.44E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 10-FEB-2010)
- * BKG 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# 962678 Product: Am Date: 3/12/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Green 3/12/10

Secondary Review Performed By:

KABell 3/12/103/18
LANC

Am/Cm Que Sheet

08-MAR-10

Batch #: 962678 Analyst: JXH2 First Client Due Date: 18-MAR-10 Internal Due Date: 12-MAR-10 Comments:
 Tracer(s): Am241/Cm244 Tracer Code: 445-96-2-55 Expiration Date: 5-11-10 Vol: 0.1
 LCS Isotope(s): Am241/Cm244 LCS Code(s): — / — Expiration Date: — / — Vol(s): — / —
 Spike Isotope(s): Am241/Cm244 Spike Code(s): — / — Expiration Date: — / — Vol(s): — / —
 Prep Date: 3-8-10 Initials: JCH Pipet ID: 297105 P Balance ID: 242 564102 72 Witness: JCH 3/8/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry	Aliquot (g/l/f)	Am/Cm Det #
24732004-2	RE46-10-12951	SAMPLE		.05 pCi/g	SOIL	LANL010	16-FEB-10	1	1	1.251		26
247360002-2	RE36-10-7423	SAMPLE		.05 pCi/g	SOIL	LANL010	12-FEB-10	2	2	1.254		27
1202065275-1	MB for batch 962678	MB		UCF pCi/g to pCi/soil	SOIL	QC ACCOUNT		3	3	1		28
1202065276-2	RE36-10-7423(247360002DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	12-FEB-10	4	4	1.255		29
1202065277-1	LCS for batch 962678	LCS		UCF pCi/g to pCi/soil	SOIL	QC ACCOUNT		5	5	0.110		30

*SRM 0244-B exp 4-30-20

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

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By:

Page 1 of 1

Blank Correction Report

Batch ID 962678

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202065276	DUP	Americium-241	1.26 g	0.0505	0.011	0.024	-.00308730	pCi/g	NO
1202065277	LCS	Americium-241	0.110 g	28.2	1.96	0.177	-.03536364	pCi/g	NO
1202065275	MB	Americium-241	1.00 g	-0.00389	0.00322	0.0251	-.00389	pCi/g	NO
247323004	RE46-10-12951	Americium-241	1.25 g	0.00367	0.00298	0.0214	-.003112	pCi/g	NO
247360002	RE36-10-7423	Americium-241	1.26 g	0.0318	0.00751	0.0218	-.00308730	pCi/g	NO

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 962678
SAMPLE ID : S0247360002_AM
SAMPLE QTY : 1.259 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 74.713

CHAMBER : 027
DETECTOR S/N : 42484
AVERAGE %EFFICIENCY : 34.2191
COUNT DATE : 11-MAR-2010 16:55:08
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B027.CNF:1126
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W027.CNF:331
CAL DATE : 4-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.1790E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

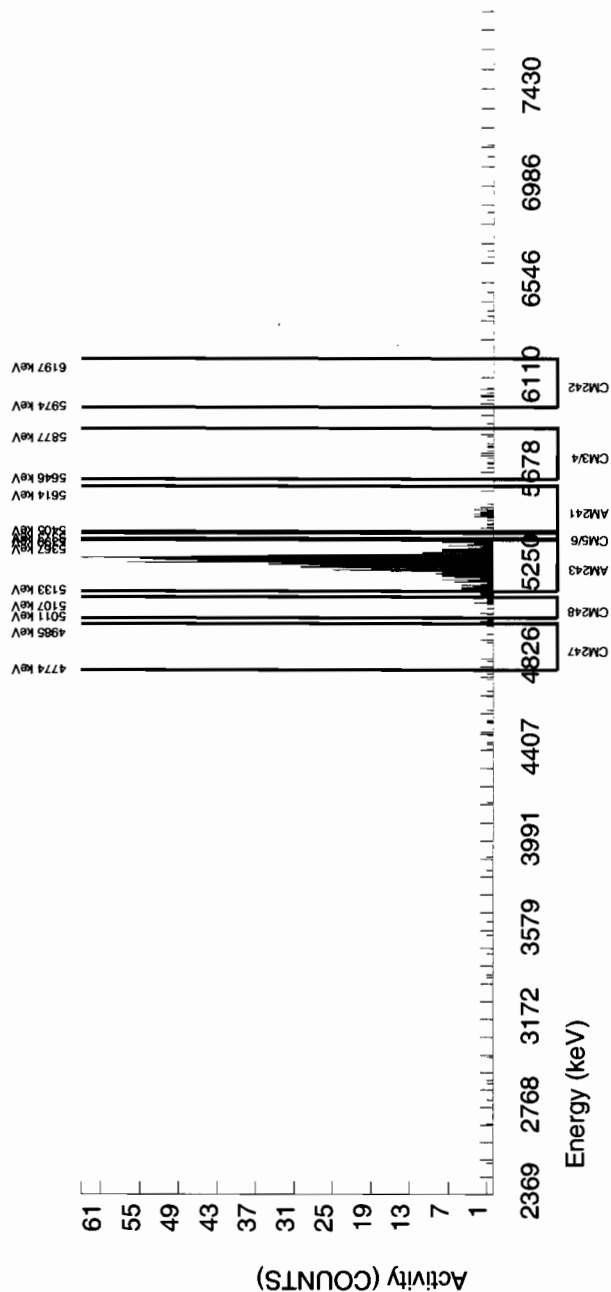
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

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	5483.716	44.600	26.000	22.705	2.000	2.7707	99.94000	3.18E-02	7.51E-03	9.03E-03	2.18E-02	7.24E-03
AM243	5270.000	5270.024	43.096	744.000	744.000	0.000	0.0000	99.78000	1.04E+00	7.61E-02	0.00E+00	3.80E-03	3.83E-02
CM-242	6102.000	6033.449	67.056	10.000	10.000	0.000	4.0092	100.0000	1.58E-02	5.08E-03	1.31E-02	2.99E-02	4.99E-03
CM-3/4	5795.020	5758.198	4.967	12.000	8.000	4.000	4.8510	100.0000	1.12E-02	5.66E-03	1.58E-02	3.54E-02	5.61E-03
CM-5/6	5386.000	5377.180	0.000	6.000	5.000	1.000	6.1294	86.09000	8.13E-03	4.33E-03	2.32E-02	5.08E-02	4.30E-03
CM-247	4946.000	4879.119	4.967	7.000	7.000	0.000	6.3427	79.30000	1.24E-02	4.73E-03	2.60E-02	5.69E-02	4.67E-03
CM-248	5078.600	5077.293	0.000	13.000	13.000	0.000	11.0244	91.00000	2.00E-02	5.69E-03	3.94E-02	8.31E-02	5.54E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG 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 : 962678
SAMPLE ID : S1202065275_AM
SAMPLE QTY : 1.000 G
SAMPLE DATE : 8-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 88.716

CHAMBER : 028
DETECTOR S/N : 78792
AVERAGE %EFFICIENCY : 31.5679
COUNT DATE : 11-MAR-2010 16:55:08
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B028.CNF;1130
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W028.CNF;323
CAL DATE : 4-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.5874E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3150E+01 pCi/G

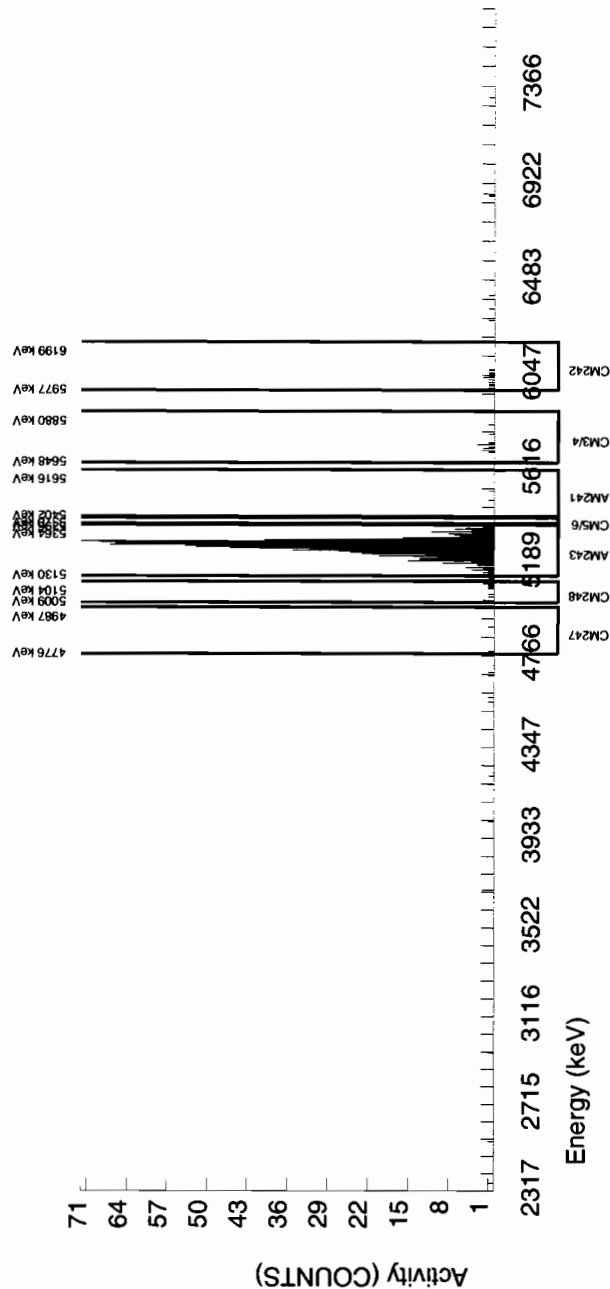
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3150E+01 pCi/G

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	5503.370	44.494	2.000	-2.418	3.000	2.7707	99.94000	-3.89E-03	3.22E-03	1.04E-02	2.51E-02	3.22E-03
AM243	5270.000	5269.674	38.122	815.000	815.000	0.000	0.0000	99.78000	1.31E+00	9.37E-02	0.00E+00	4.37E-03	4.60E-02
CM-242	6102.000	6039.680	7.261	13.000	13.000	0.000	4.0092	100.0000	2.13E-02	6.05E-03	1.50E-02	3.44E-02	5.90E-03
CM-3/4	5795.020	5741.410	19.713	11.000	10.000	1.000	4.8510	100.0000	1.61E-02	5.66E-03	1.82E-02	4.07E-02	5.57E-03
CM-5/6	5386.000	5383.136	0.000	2.000	2.000	0.000	6.1294	86.09000	3.74E-03	2.65E-03	2.66E-02	5.83E-02	2.64E-03
CM-247	4946.000	4850.155	108.763	3.000	1.000	2.000	6.3427	79.30000	2.03E-03	4.54E-03	2.99E-02	6.54E-02	4.54E-03
CM-248	5078.600	5078.708	7.261	8.000	8.000	0.000	11.0244	91.00000	1.41E-02	5.08E-03	4.53E-02	9.55E-02	5.00E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG 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 : 962678
SAMPLE ID : S1202065276_AM
SAMPLE QTY : 1.255 G
SAMPLE DATE : 12-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 71.714

CHAMBER : 029
DETECTOR S/N : 33454
AVERAGE %EFFICIENCY : 32.5354
COUNT DATE : 11-MAR-2010 16:55:08
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B029.CNF:1121
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W029.CNF:322
CAL DATE : 4-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.0916E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

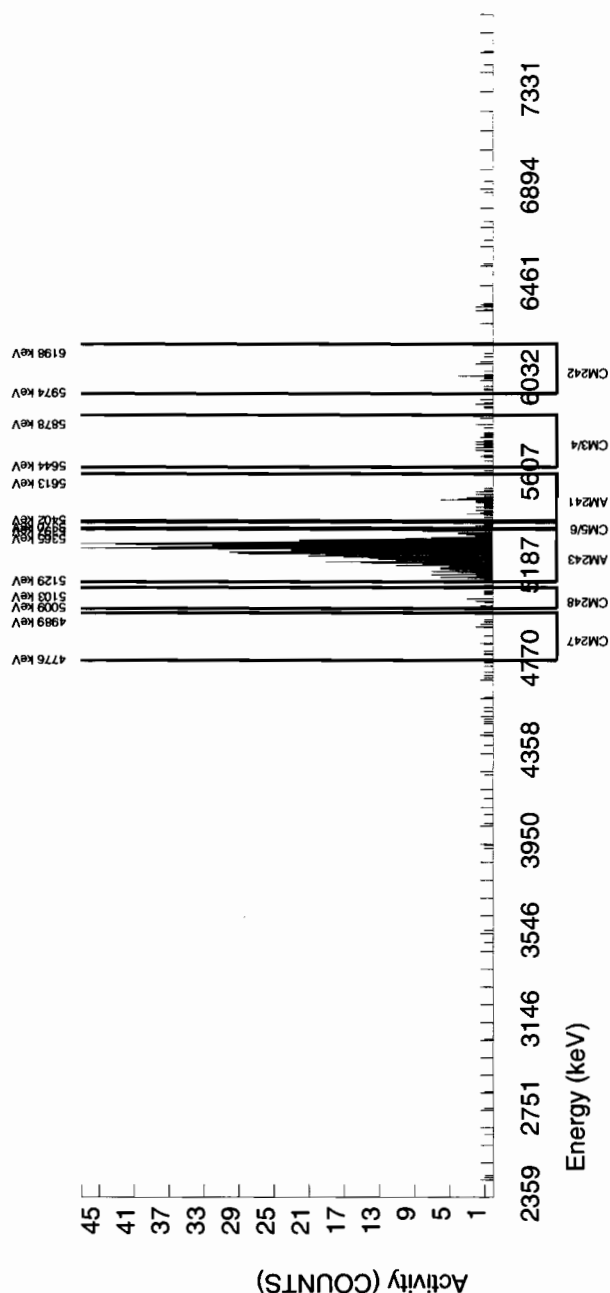
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3154E+01 pCi/G

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	5488.439	13.129	41.000	32.819	7.000	2.7707	99.94000	5.05E-02	1.10E-02	9.92E-03	2.40E-02	1.05E-02
AM243	5270.000	5271.392	55.161	682.000	679.000	3.000	1.7321	99.78000	1.05E+00	7.84E-02	6.21E-03	1.66E-02	4.04E-02
CM-242	6102.000	6056.211	6.489	20.000	18.000	2.000	4.0092	100.0000	3.12E-02	8.37E-03	1.43E-02	3.29E-02	8.13E-03
CM-3/4	5795.020	5752.998	114.211	24.000	16.000	8.000	4.8510	100.0000	2.47E-02	8.87E-03	1.74E-02	3.89E-02	8.73E-03
CM-5/6	5386.000	5378.265	0.000	8.000	7.000	1.000	6.1294	86.09000	1.25E-02	5.42E-03	2.55E-02	5.58E-02	5.36E-03
CM-247	4946.000	4888.738	7.148	10.000	9.000	1.000	6.3427	79.30000	1.75E-02	6.53E-03	2.86E-02	6.25E-02	6.43E-03
CM-248	5078.600	5064.296	0.000	17.000	17.000	0.000	11.0244	91.00000	2.87E-02	7.21E-03	4.34E-02	9.13E-02	6.97E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG 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 : 962678
SAMPLE ID : S1202065277_AM
SAMPLE QTY : 0.110 G
SAMPLE DATE : 8-MAR-2010 00:00:00.
ANALYST : JXH2
% YIELD : 102.470

CHAMBER : 030
DETECTOR S/N : 33447
AVERAGE %EFFICIENCY : 35.2784
COUNT DATE : 11-MAR-2010 16:55:08
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B030.CNF;1118
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W030.CNF;307
CAL DATE : 4-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.9886E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3150E+01 pCi/G

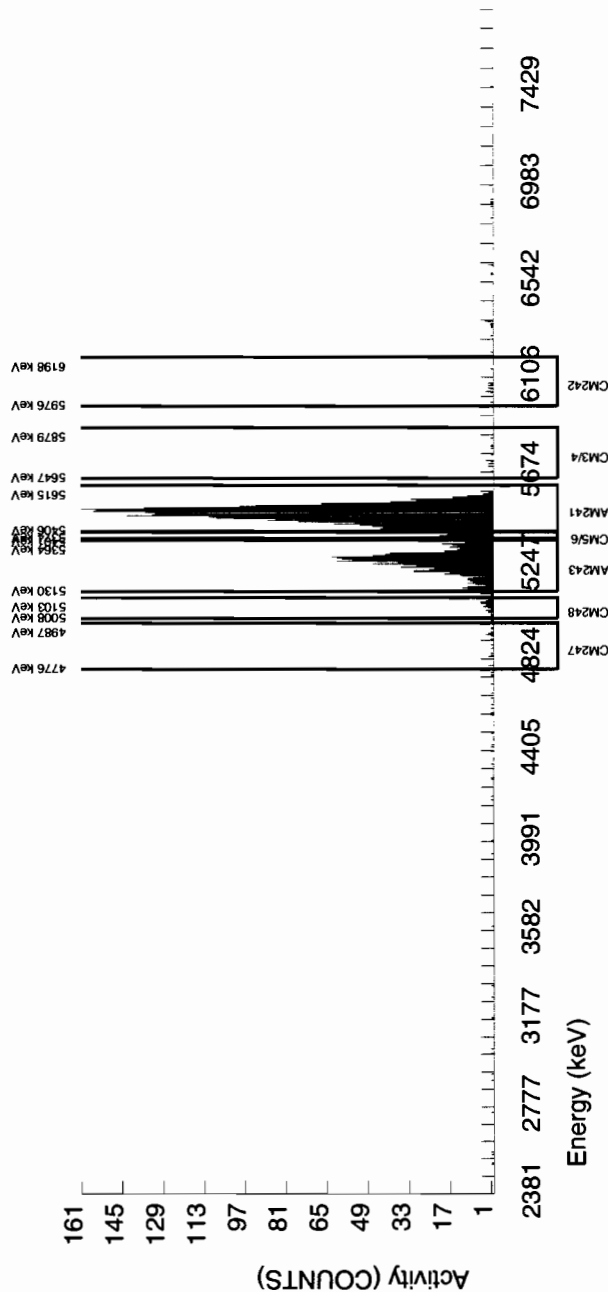
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3150E+01 pCi/G

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	5490.592	68.839	2495.000	2484.169	9.000	2.7707	99.94000	2.82E+01	1.96E+00	7.31E-02	1.77E-01	5.67E-01
AM243	5270.000	5269.396	64.317	1057.000	1052.000	5.000	2.2361	99.78000	1.19E+01	8.78E-01	5.91E-02	1.49E-01	3.70E-01
CM-242	6102.000	6049.402	57.796	19.000	16.000	3.000	4.0092	100.0000	1.84E-01	5.54E-02	1.06E-01	2.42E-01	5.41E-02
CM-3/4	5795.020	5739.940	28.232	15.000	3.000	12.000	4.8510	100.0000	3.40E-02	5.89E-02	1.28E-01	2.86E-01	5.89E-02
CM-5/6	5386.000	5388.991	0.000	114.000	110.000	4.000	6.1294	86.09000	1.45E+00	1.72E-01	1.88E-01	4.11E-01	1.43E-01
CM-247	4946.000	4892.959	141.261	19.000	17.000	2.000	6.3427	79.30000	2.43E-01	6.74E-02	2.11E-01	4.60E-01	6.55E-02
CM-248	5078.600	5062.798	44.064	45.000	45.000	0.000	11.0244	91.00000	5.60E-01	9.15E-02	3.19E-01	6.72E-01	8.35E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG 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# 955027 Product: 8S Date: 3/6/10

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.			NA
Aux data is correct.			
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			NA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			NA
Aliquot Correction completed if required.			NA
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: Heulan 3/6/10

Secondary Review Performed By: KBot 3/8/10

LANL
3/18/10

I.G. - 3/1/10

Gamma Spec Que Sheet

02/18/2010

Batch #: 955027 Analyst: MXR1 First Client Due Date: 03/07/2010 Internal Due Date: 03/07/2010
 Gamma Spike Isotope: Mixed Gamma Spike Code: u Expiration Date: u Vol: u Nominal Concentration: u
 Gamma LCS Isotope: Mixed Gamma LCS Code: B32-A Expiration Date: 12/2/10 Vol: 1.0 mL Nominal Concentration: Am 241 - 15.4 GBq - 5.565
 Initials: RF Prep Date: 2/22/10 Library: Soil Witness: u Col: u

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Detector	Sealing Date/Time (if Applicable)
247323001-1	RE46-10-12942	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u	can	111.10	15
247323002-1	RE46-10-12944	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		114.76	5
247323003-1	RE46-10-12941	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		123.23	4
247323004-1	RE46-10-12951	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		136.53	15
247323005-1	RE46-10-12943	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		136.56	22
247323006-1	RE46-10-12952	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		135.61	25
247323007-1	RE46-10-13189	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		139.77	1
247325001-1	RE46-10-12661	SAMPLE	LANL010	SOIL	16-FEB-10 12:00:00	u		134.54	14
247337001-1	RE15-10-8346	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		134.58	14
247337002-1	RE15-10-8347	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		134.44	17
247337003-1	RE15-10-8344	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		135.72	18
247337004-1	RE15-10-8345	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		123.66	21
247337005-1	RE15-10-8342	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		137.79	20
247337006-1	RE15-10-8343	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		130.17	6
247337007-1	RE15-10-8377	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		145.34	16
247360001-1	RE36-10-7427	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		80.57	22
247360002-1	RE36-10-7423	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		12.34	25
247360003-1	RE36-10-7428	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		144.49	19
247360004-1	RE36-10-7424	SAMPLE	LANL010	SOIL	12-FEB-10 12:00:00	u		128.22	14
1202047453-1	MB	MB	QC ACCOUNT	SOIL	2/22/10	u		145.34	17
1202047454-1	DUP RE36-10-7427(247360001)	DUP	QC ACCOUNT	SOIL	2/22/10	u		80.57	16
1202047455-1	LCS	LCS	QC ACCOUNT	SOIL	2/22/10	u		155.44	18

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: SELAN 3/10/10
 Jms history
 Jdairies
 10 3/8/10 Page 1 of 1

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
955027	247323001	SAMPLE	03-MAR-10		Americium-241	-0.4307	0.4073	0.200
					Cerium-139	-0.02159	0.05172	0.050
					Thorium-234	1.018	3.391	2.00
955027	247323002	SAMPLE	04-MAR-10		Cerium-139	-0.03599	0.05906	0.050
					Sodium-22	-0.00705	0.09412	0.080
955027	247323003	SAMPLE	04-MAR-10		Americium-241	-0.0313	0.3943	0.200
					Cerium-139	0.01698	0.05271	0.050
					Thorium-234	1.157	3.294	2.00
955027	247323004	SAMPLE	04-MAR-10		Americium-241	-0.04935	0.4866	0.200
					Cerium-139	0.00108	0.06099	0.050
					Europium-152	0.02461	0.2005	0.200
					Sodium-22	-0.02329	0.08266	0.080
					Thorium-234	-0.9323	3.72	2.00
955027	247323005	SAMPLE	04-MAR-10		Americium-241	0.00371	0.2025	0.200
955027	247323006	SAMPLE	04-MAR-10		Sodium-22	-0.0391	0.08272	0.080
955027	247323007	SAMPLE	04-MAR-10		Americium-241	-0.02099	0.2799	0.200
					Cerium-139	-0.00831	0.05299	0.050
					Thorium-234	1.582	2.717	2.00
955027	247325001	SAMPLE	04-MAR-10		Americium-241	-0.1471	0.2707	0.200
					Thorium-234	0.6173	2.432	2.00
955027	247337001	SAMPLE	04-MAR-10		Americium-241	0.1078	0.238	0.200
					Cerium-139	0.0037	0.0533	0.050
955027	247337002	SAMPLE	04-MAR-10		Cerium-139	-0.01337	0.05183	0.050
					Cesium-134	0.02482	0.1072	0.100
					Sodium-22	0.01637	0.1037	0.080
955027	247337003	SAMPLE	04-MAR-10		Americium-241	0.06703	0.2935	0.200
					Thorium-234	0.4522	2.598	2.00
955027	247337004	SAMPLE	04-MAR-10		Sodium-22	-0.03464	0.1053	0.080
955027	247337005	SAMPLE	04-MAR-10					
955027	247337006	SAMPLE	04-MAR-10		Americium-241	0.01243	0.3292	0.200
					Cerium-139	-0.01216	0.0581	0.050
					Cesium-134	0.1159	0.1165	0.100
					Sodium-22	-0.01506	0.08876	0.080
					Thorium-234	2.472	2.72	2.00
955027	247337007	SAMPLE	04-MAR-10		Americium-241	0.03609	0.2196	0.200
955027	247360001	SAMPLE	04-MAR-10		Americium-241	-0.1908	0.2475	0.200
					Cerium-139	-0.01352	0.06221	0.050
					Europium-152	0.04437	0.207	0.200
					Thorium-234	0.5847	2.589	2.00
955027	247360002	SAMPLE	04-MAR-10		Cerium-139	-0.02275	0.05613	0.050
					Cesium-134	0.04846	0.1233	0.100
					Europium-152	-0.02881	0.2055	0.200
					Sodium-22	-0.02039	0.09268	0.080
					Tin-113	-0.04873	0.1145	0.100

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
955027	247360003	SAMPLE	04-MAR-10		Americium-241	-0.2338	0.2572	0.200
					Cerium-139	-0.0167	0.05149	0.050
					Thorium-234	2.095	2.473	2.00
955027	247360004	SAMPLE	04-MAR-10		Americium-241	0.03025	0.2195	0.200
955027	1202047453	MB	04-MAR-10					
955027	1202047454	DUP	04-MAR-10		Americium-241	0.2621	0.4913	0.200
					Cerium-139	0.00679	0.06363	0.050
					Cesium-134	0.09746	0.1143	0.100
					Sodium-22	0.0271	0.1051	0.080
955027	1202047455	LCS	04-MAR-10		Cerium-139	0.02331	0.06734	0.050
					Cesium-134	-0.00594	0.1171	0.100
					Europium-152	-0.04599	0.2364	0.200
					Thorium-234	0.2536	3.973	2.00
					Tin-113	-0.04212	0.1089	0.100

GEL QUALS

Batch ID: 955027

Report run on: March 6, 2010 6:38 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
247323001-1 03-MAR-2010 23:25	Bismuth-211	UI	UI	Data rejected due to interference.		4.882			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.305			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1238		.1	.1
	Lanthanum-140	UI	UI	Data rejected due to low abundance.		.1436			
	Radium-224	UI	UI	Data rejected due to interference.		5.206			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1533			
247323002-1 04-MAR-2010 10:09	Bismuth-211	UI	UI	Data rejected due to interference.		4.28			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.584			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1306		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.512			
247323003-1 04-MAR-2010 10:10	Bismuth-211	UI	UI	Data rejected due to interference.		4.34			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.962			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1019		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.993			
247323004-1 04-MAR-2010 10:11	Bismuth-211	UI	UI	Data rejected due to interference.		3.32			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1433		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.648			
247323005-1 04-MAR-2010 10:12	Bismuth-211	UI	UI	Data rejected due to interference.		3.305			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.659			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.107		.1	.1

GEL QUALS

Batch ID: 955027

Report run on: March 6, 2010 6:38 PM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
247323005-1 04-MAR-2010 10:12	Radium-224	UI	UI	Data rejected due to interference.		3.892			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1291			
247323006-1 04-MAR-2010 10:13	Bismuth-211	UI	UI	Data rejected due to interference.		4.344			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.932			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.137		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.427			
247325001-1 04-MAR-2010 10:14	Bismuth-211	UI	UI	Data rejected due to interference.		4.362			
	Cadmium-109	UI	UI	Data rejected due to interference.		1.882			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1478		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.636			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1061			
247337001-1 04-MAR-2010 10:15	Bismuth-211	UI	UI	Data rejected due to interference.		4.221			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.443			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.09597		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.563			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.08767			
247337002-1 04-MAR-2010 10:16	Bismuth-211	UI	UI	Data rejected due to interference.		4.022			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.402			
	Radium-224	UI	UI	Data rejected due to interference.		4.217			

GEL QUALS

Batch ID: 955027

Report run on: March 6, 2010 6:38 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
247337003-1 04-MAR-2010 10:17	Bismuth-211	UI	UI	Data rejected due to interference.		4.191			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.339			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1193		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.354			
247337004-1 04-MAR-2010 10:18	Bismuth-211	UI	UI	Data rejected due to interference.		4.91			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.509			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.2723		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.754			
247337005-1 04-MAR-2010 10:19	Bismuth-211	UI	UI	Data rejected due to interference.		4.641			
	Cadmium-109	UI	UI	Data rejected due to interference.		5.345			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1097		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.11			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.06844			
247337006-1 04-MAR-2010 10:46	Bismuth-211	UI	UI	Data rejected due to interference.		4.294			
	Cadmium-109	UI	UI	Data rejected due to high peak-width.		4.27			
	Radium-224	UI	UI	Data rejected due to interference.		5.16			
247337007-1 04-MAR-2010 10:50	Bismuth-211	UI	UI	Data rejected due to interference.		4.068			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.672			
	Radium-224	UI	UI	Data rejected due to interference.		3.51			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.09828			

GEL QUALS

Batch ID: 955027

Report run on: March 6, 2010 6:38 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
247337007-1 04-MAR-2010 12:40	Bismuth-211	UI	UI	Data rejected due to interference.		4.264			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.058			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.181		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.703			
247360001-1 04-MAR-2010 12:41	Bismuth-211	UI	UI	Data rejected due to interference.		4.557			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.857			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1095		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.55			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.2468			
247360002-1 04-MAR-2010 12:42	Bismuth-211	UI	UI	Data rejected due to interference.		4.924			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.51			
	Radium-224	UI	UI	Data rejected due to interference.		5.589			
247360003-1 04-MAR-2010 12:43	Bismuth-211	UI	UI	Data rejected due to interference.		4.528			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.17			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.112		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.274			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1139			
247360004-1 04-MAR-2010 12:44	Bismuth-211	UI	UI	Data rejected due to interference.		4.29			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.56			
	Radium-224	UI	UI	Data rejected due to interference.		4.33			

GEL QUALS

Batch ID: 955027

Report run on: March 6, 2010 6:38 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
1202047454-1 DUP 04-MAR-2010 16:10	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.948			
	Cadmium-109	UI	UI	UI	Data rejected due to low abundance.		2.92			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.403			
	Strontium-85	UI	UI	UI	Data rejected due to interference.		.1553			

Gamma Review Report based on Result > MDA for Batch:955027

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
247323001	16-FEB-10 12:00	03-MAR-10 23:25	15.5	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>u</i>	2.111	0.1876	pCi/g	0.2397	N	910.9 3	1.926	IDENTIFIED 6.502	<input type="checkbox"/>	
Annihilation Rad. <i>-</i>	0.1389	0.03488	pCi/g	0.05	N	510.8 1	2.045	IDENTIFIED 24.74	<input type="checkbox"/>	
Barium-133 <i>HE</i>	0.07461	0.02378	pCi/g	0.07333	N	0 11 0		NOT_IDENTI 0	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	4.882	0.328	pCi/g	0.3802	Y	352 2	1.359	IDENTIFIED 4.525	<input checked="" type="checkbox"/>	<i>u</i>
Bismuth-212 <i>LA</i>	2.793	0.3989	pCi/g	1.157	N	0 11 0		FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.537	0.108	pCi/g	0.1076	0.200	609.2 2	1.771	IDENTIFIED 4.96	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	4.305	0.6329	pCi/g	1.314	Y	87.41 3	1.581	IDENTIFIED 13.34	<input checked="" type="checkbox"/>	<i>u</i>
Cerium-143 <i>-</i>	1130	169.3	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1238	0.03203	pCi/g	0.08888	0.100	0 11 0		FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-135 <i>HE</i>	0.3852	0.09476	pCi/g	0.2948	N	0 11 0		NOT_IDENTI 0	<input type="checkbox"/>	
Gross Gamma <i>-</i>	12.58	1.646	pCi/g	3.882	N	0			<input type="checkbox"/>	
Iodine-133 <i>HE</i>	3931	4270	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135 <i>-</i>	1.04E+16 0		pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Lanthanum-140 <i>LA</i>	0.1436	0.03699	pCi/g	0.1388	Y	0 11 0		FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Lead-212 <i>V</i>	2.087	0.1383	pCi/g	0.1	0.100	238.8 2	1.377	IDENTIFIED 2.866	<input type="checkbox"/>	
Lead-214 <i>V</i>	1.772	0.1287	pCi/g	0.1292	0.100	352 2	1.359	IDENTIFIED 4.525	<input type="checkbox"/>	
Neptunium-237 <i>u</i>	1.255	0.2266	pCi/g	0.3934	N	87.41 3	1.581	IDENTIFIED 13.34	<input type="checkbox"/>	
Niobium-95 <i>HE</i>	0.0969	0.02366	pCi/g	0.07709	N	0 11 0		NOT_IDENTI 0	<input type="checkbox"/>	
Niobium-95m <i>LA</i>	0.6083	0.08641	pCi/g	0.2628	N	0 11 0		NOT_IDENTI 0	<input type="checkbox"/>	
Potassium-40 <i>u</i>	42.33	2.263	pCi/g	0.5776	1.00	1460 1	2.031	IDENTIFIED 2.107	<input type="checkbox"/>	
Radium-224 <i>INT</i>	5.206	0.7109	pCi/g	1.072	Y	241.7 1	1.825	IDENTIFIED 12.49	<input checked="" type="checkbox"/>	<i>u</i>
Radium-226 <i>V</i>	1.537	0.108	pCi/g	0.1076	Y	609.2 2	1.771	IDENTIFIED 4.96	<input type="checkbox"/>	
Radium-228 <i>V</i>	2.111	0.1876	pCi/g	0.2397	0.500	910.9 3	1.926	IDENTIFIED 6.502	<input type="checkbox"/>	
Strontium-85 <i>LA</i>	0.1533	0.02416	pCi/g	0.07812	Y	0 11 0		NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208 <i>V</i>	0.609	0.05018	pCi/g	0.05698	0.080	583.1 1	1.374	IDENTIFIED 6.853	<input type="checkbox"/>	
Thorium-228 <i>u</i>	2.087	0.1383	pCi/g	0.1	N	238.8 2	1.377	IDENTIFIED 2.866	<input type="checkbox"/>	
Thorium-232 <i>u</i>	2.111	0.1876	pCi/g	0.2397	N	910.9 3	1.926	IDENTIFIED 6.502	<input type="checkbox"/>	
Tin-126 <i>u</i>	0.4206	0.06183	pCi/g	0.1294	N	87.41 3	1.581	IDENTIFIED 13.34	<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
247323002	16-FEB-10 12:00	04-MAR-10 10:09	15.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>u</i>	2.057	0.2339	pCi/g	0.2972	N	910.4 3	1.911	IDENTIFIED 9.434	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	4.28	0.3515	pCi/g	0.4034	Y	351.5 2	1.45	IDENTIFIED 7.198	<input checked="" type="checkbox"/>	<i>u</i>
Bismuth-212 <i>HE</i>	1.803	0.576	pCi/g	0.9625	N	726.9 1	1.077	IDENTIFIED 31.4	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.445	0.1089	pCi/g	0.1579	0.200	608.4 2	1.447	IDENTIFIED 6.246	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	4.584	0.5449	pCi/g	1.153	Y	86.63 3	1.474	IDENTIFIED 11.26	<input checked="" type="checkbox"/>	<i>u</i>
Cerium-143 <i>-</i>	2361	349.9	pCi/g	0	N	0 4 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1306	0.0317	pCi/g	0.1196	0.100	0 4 0		NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-135 <i>HE</i>	0.5801	0.1692	pCi/g	0.2847	N	269.5 1	1.215	IDENTIFIED 28.68	<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	1u	2.004	0.2216	pCi/g	0.2409	N	911.4	3	1.882	IDENTIFIED	9.519	<input type="checkbox"/>	
Annihilation Rad.	—	0.1897	0.0363	pCi/g	0.04447	N	510.9	1	1.706	IDENTIFIED	18.93	<input type="checkbox"/>	
Bismuth-211	INT	4.34	0.2949	pCi/g	0.3143	Y	352	2	1.04	IDENTIFIED	5.9	<input checked="" type="checkbox"/> UJ	
Bismuth-212	KA	2.677	0.4351	pCi/g	1.3	N	0	5	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	V	1.33	0.09359	pCi/g	0.1083	0.200	609.4	2	1.506	IDENTIFIED	5.982	<input type="checkbox"/>	
Cadmium-109	INT	2.962	0.6271	pCi/g	1.583	Y	87.33	3	1.087	IDENTIFIED	20.31	<input checked="" type="checkbox"/> UJ	
Cerium-143	—	833	149.9	pCi/g	0	N	0	5	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	KA	0.1019	0.03532	pCi/g	0.09227	0.100	0	5	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Gross Gamma	—	9.89	1.369	pCi/g	2.908	N	0					<input type="checkbox"/>	
Iodine-135		2.40E+16	0	pCi/g	0	N	0	5	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	V	1.86	0.09632	pCi/g	0.1036	0.100	238.6	2	1.07	IDENTIFIED	3.234	<input type="checkbox"/>	
Lead-214	V	1.575	0.1155	pCi/g	0.1143	0.100	352	2	1.04	IDENTIFIED	5.9	<input type="checkbox"/>	
Neptunium-237	HE	0.8629	0.2039	pCi/g	0.4729	N	87.33	3	1.087	IDENTIFIED	20.31	<input type="checkbox"/>	
Potassium-40	V	30.98	1.484	pCi/g	0.6787	1.00	1461	1	2.109	IDENTIFIED	3.213	<input type="checkbox"/>	
Radium-224	INT	4.993	0.5505	pCi/g	1.11	Y	241.6	1	1.816	IDENTIFIED	10.51	<input checked="" type="checkbox"/> UJ	
Radium-226		1.33	0.09359	pCi/g	0.1083	Y	609.4	2	1.506	IDENTIFIED	5.982	<input type="checkbox"/>	
Radium-228	V	2.004	0.2216	pCi/g	0.2409	0.500	911.4	3	1.882	IDENTIFIED	9.519	<input type="checkbox"/>	
Technetium-99m		2.66E+17	0	pCi/g	0	N	0	5	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	V	0.5936	0.04521	pCi/g	0.06338	0.080	583.3	1	1.443	IDENTIFIED	6.941	<input type="checkbox"/>	
Thorium-228	u	1.86	0.09632	pCi/g	0.1036	N	238.6	2	1.07	IDENTIFIED	3.234	<input type="checkbox"/>	
Thorium-232	u	2.004	0.2216	pCi/g	0.2409	N	911.4	3	1.882	IDENTIFIED	9.519	<input type="checkbox"/>	
Tin-126	u	0.2892	0.06123	pCi/g	0.1648	N	87.33	3	1.087	IDENTIFIED	20.31	<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
247323004	16-FEB-10 12:00	04-MAR-10 10:11	15.9	SAMPLE	LOAD	1	LANL	LANL01004IGEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>ML</i>	1.251	0.1936	pCi/g	0.2907	N	911.3 3	1.579	IDENTIFIED	14.24	<input type="checkbox"/>	
Barium-137m <i>ML</i>	0.1349	0.02848	pCi/g	0.07573	N	661.7 2	1.547	IDENTIFIED	20.71	<input type="checkbox"/>	
Bismuth-211 <i>JNT</i>	3.32	0.305	pCi/g	0.3817	Y	352.1 2	1.546	IDENTIFIED	7.729	<input checked="" type="checkbox"/>	<i>UT</i>
Bismuth-212 HE	1.618	0.4507	pCi/g	1.25	N	0 4 0		FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.039	0.103	pCi/g	0.1315	0.200	609.3 2	1.85	IDENTIFIED	8.575	<input type="checkbox"/>	
Cerium-143 <i>-</i>	1146	199.9	pCi/g	0	N	0 4 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1433	0.0363	pCi/g	0.1008	0.100	0 4 0		FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137 <i>V</i>	0.1425	0.03009	pCi/g	0.08	0.100	661.7 2	1.547	IDENTIFIED	20.71	<input type="checkbox"/>	
Gross Gamma	7.999	1.281	pCi/g	3.062	N	0				<input type="checkbox"/>	
Iodine-133 HE	5452	6823	pCi/g	0	N	0 4 0		SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.484	0.1088	pCi/g	0.1153	0.100	238.7 2	1.289	IDENTIFIED	4.25	<input type="checkbox"/>	
Lead-214 <i>✓</i>	1.205	0.1156	pCi/g	0.1388	0.100	352.1 2	1.546	IDENTIFIED	7.729	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	30.93	1.803	pCi/g	0.4815	1.00	1461 1	2.004	IDENTIFIED	3.135	<input type="checkbox"/>	
Radium-224 <i>JNT</i>	4.648	0.7252	pCi/g	1.235	Y	241.7 1	1.819	IDENTIFIED	14.59	<input checked="" type="checkbox"/>	<i>UT</i>
Radium-226 <i>✓</i>	1.039	0.103	pCi/g	0.1315	Y	609.3 2	1.85	IDENTIFIED	8.575	<input type="checkbox"/>	
Radium-228 <i>✓</i>	1.251	0.1936	pCi/g	0.2907	0.500	911.3 3	1.579	IDENTIFIED	14.24	<input type="checkbox"/>	
Thallium-208 <i>✓</i>	0.4109	0.05262	pCi/g	0.06499	0.080	583.3 1	1.577	IDENTIFIED	11.96	<input type="checkbox"/>	
Thorium-228 <i>ML</i>	1.484	0.1088	pCi/g	0.1153	N	238.7 2	1.289	IDENTIFIED	4.25	<input type="checkbox"/>	
Thorium-232 <i>ML</i>	1.251	0.1936	pCi/g	0.2907	N	911.3 3	1.579	IDENTIFIED	14.24	<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
247323005	16-FEB-10 12:00	04-MAR-10 10:12	15.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>ML</i>	1.35	0.1551	pCi/g	0.1702	N	911.2 3	1.675	IDENTIFIED	9.283	<input type="checkbox"/>	
Annihilation Rad.	0.1189	0.03166	pCi/g	0.03704	N	510.6 1	2.372	IDENTIFIED	26.15	<input type="checkbox"/>	
Bismuth-211 <i>JNT</i>	3.305	0.2589	pCi/g	0.2822	Y	352.1 2	1.364	IDENTIFIED	5.253	<input checked="" type="checkbox"/>	<i>UT</i>
Bismuth-212 HE	1.337	0.3648	pCi/g	0.7139	N	726.7 1	1.352	IDENTIFIED	26.37	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	1.071	0.08919	pCi/g	0.08817	0.200	609.4 2	1.655	IDENTIFIED	5.94	<input type="checkbox"/>	
Cadmium-109 <i>JNT</i>	2.659	0.3799	pCi/g	1.123	Y	87.19 3	1.064	IDENTIFIED	13.5	<input checked="" type="checkbox"/>	<i>UT</i>
Cerium-143 <i>-</i>	1229	185.1	pCi/g	0	N	0 4 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.107	0.02313	pCi/g	0.07022	0.100	0 4 0		FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma <i>-</i>	7.661	0.9867	pCi/g	2.367	N	0				<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.342	0.1004	pCi/g	0.07856	0.100	238.7 2	1.258	IDENTIFIED	3.489	<input type="checkbox"/>	
Lead-214 <i>✓</i>	1.2	0.09962	pCi/g	0.09873	0.100	352.1 2	1.364	IDENTIFIED	5.253	<input type="checkbox"/>	
Neptunium-237 <i>ML</i>	0.7745	0.1373	pCi/g	0.3485	N	87.19 3	1.064	IDENTIFIED	13.5	<input type="checkbox"/>	
Niobium-95 HE	0.07976	0.02091	pCi/g	0.06688	N	0 4 0		NOT_IDENTI	0	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	23.33	1.24	pCi/g	0.414	1.00	1461 1	2.577	IDENTIFIED	2.699	<input type="checkbox"/>	
Radium-224 <i>JNT</i>	3.892	0.6107	pCi/g	0.841	Y	241.6 1	1.886	IDENTIFIED	14.38	<input checked="" type="checkbox"/>	<i>UT</i>
Radium-226 <i>✓</i>	1.071	0.08919	pCi/g	0.08817	Y	609.4 2	1.655	IDENTIFIED	5.94	<input type="checkbox"/>	
Radium-228 <i>✓</i>	1.35	0.1551	pCi/g	0.1702	0.500	911.2 3	1.675	IDENTIFIED	9.283	<input type="checkbox"/>	
Strontium-85 <i>LA</i>	0.1291	0.01845	pCi/g	0.06657	Y	0 4 0		NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208 <i>✓</i>	0.3845	0.03367	pCi/g	0.04983	0.080	583.1 1	1.817	IDENTIFIED	6.881	<input type="checkbox"/>	
Thorium-228 <i>ML</i>	1.342	0.1004	pCi/g	0.07856	N	238.7 2	1.258	IDENTIFIED	3.489	<input type="checkbox"/>	
Thorium-232 <i>ML</i>	1.35	0.1551	pCi/g	0.1702	N	911.2 3	1.675	IDENTIFIED	9.283	<input type="checkbox"/>	
Tin-126 <i>ML</i>	0.2596	0.03709	pCi/g	0.1101	N	87.19 3	1.064	IDENTIFIED	13.5	<input type="checkbox"/>	

Total Uranium 3.3934 1.63E-06 ug/g 2.9222 N 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
247323006	16-FEB-10 12:00	04-MAR-10 10:13	15.9	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ML	1.925	0.1916	pCi/g	0.2227	N	911.1	3	1.514	IDENTIFIED 7.85	<input type="checkbox"/>
Annihilation Rad.	0.1479	0.03622	pCi/g	0.04575	N	510.8	1	1.902	IDENTIFIED 23.95	<input type="checkbox"/>
Bismuth-211 INT	4.344	0.3166	pCi/g	0.2955	Y	351.8	2	1.04	IDENTIFIED 5.044	<input checked="" type="checkbox"/> VI
Bismuth-212 HE	2.253	0.513	pCi/g	1.255	N	0	4	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214 V	1.199	0.1133	pCi/g	0.107	0.200	609.2	2	1.49	IDENTIFIED 7.259	<input type="checkbox"/>
Cadmium-109 INT	3.932	0.4076	pCi/g	0.7606	Y	87.13	3	1.093	IDENTIFIED 8.88	<input checked="" type="checkbox"/> VI
Cerium-143 -	755.8	140	pCi/g	0	N	0	4	0	SHORT_HLIF 0	<input type="checkbox"/>
Cesium-134 LA	0.137	0.04398	pCi/g	0.09299	0.100	0	4	0	FAIL_ABUND 0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Gross Gamma	10.46	1.275	pCi/g	3.655	N	0				<input type="checkbox"/>
Lead-210 V ML	1.332	0.3329	pCi/g	0.6004	N	46.57	1	0.9643	IDENTIFIED 24.47	<input type="checkbox"/>
Lead-212 V	1.887	0.1208	pCi/g	0.08104	0.100	238.6	2	0.9626	IDENTIFIED 2.896	<input type="checkbox"/>
Lead-214 V	1.577	0.1229	pCi/g	0.1075	0.100	351.8	2	1.04	IDENTIFIED 5.044	<input type="checkbox"/>
Neptunium-237 ML	1.145	0.1689	pCi/g	0.2201	N	87.13	3	1.093	IDENTIFIED 8.88	<input type="checkbox"/>
Potassium-40 V	33.81	1.73	pCi/g	0.5521	1.00	1461	1	1.977	IDENTIFIED 2.835	<input type="checkbox"/>
Radium-224 INT	4.427	0.5569	pCi/g	0.8696	Y	241.5	1	1.643	IDENTIFIED 11.43	<input checked="" type="checkbox"/> VI
Radium-226 V	1.199	0.1133	pCi/g	0.107	Y	609.2	2	1.49	IDENTIFIED 7.259	<input type="checkbox"/>
Radium-228 V	1.925	0.1916	pCi/g	0.2227	0.500	911.1	3	1.514	IDENTIFIED 7.85	<input type="checkbox"/>
Technetium-99m	1.88E+17 0		pCi/g	0	N	0	4	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208 V	0.569	0.05383	pCi/g	0.06043	0.080	583.1	1	1.302	IDENTIFIED 7.602	<input type="checkbox"/>
Thorium-228 ML	1.887	0.1208	pCi/g	0.08104	N	238.6	2	0.9626	IDENTIFIED 2.896	<input type="checkbox"/>
Thorium-232 ML	1.925	0.1916	pCi/g	0.2227	N	911.1	3	1.514	IDENTIFIED 7.85	<input type="checkbox"/>
Thorium-234 V	1.568	0.3872	pCi/g	0.8026	2.00	63.19	2	0.73	IDENTIFIED 22.79	<input type="checkbox"/>
Tin-126 ML	0.3839	0.03979	pCi/g	0.07411	N	87.13	3	1.093	IDENTIFIED 8.88	<input type="checkbox"/>
Total Uranium	4.6402	1.15E-06 ug/g	1.1963	N	0					<input type="checkbox"/>
Uranium-238 HE	1.568	0.3872	pCi/g	0.8026	N	63.19	2	0.73	IDENTIFIED 22.79	<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
247323007	16-FEB-10 12:00	04-MAR-10 10:50	16	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>LA</i>	1.766	0.2121	pCi/g	0.2068	N	911.7	3	1.73	IDENTIFIED 10.43	<input type="checkbox"/>
Annihilation Rad.	0.1594	0.03752	pCi/g	0.04871	N	511.2	1	1.982	IDENTIFIED 23.15	<input type="checkbox"/>
Barium-137m HE	0.09274	0.0284	pCi/g	0.06628	N	662	2	1.752	IDENTIFIED 30.35	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	4.068	0.312	pCi/g	0.3727	Y	352.2	2	1.297	IDENTIFIED 6.182	<input checked="" type="checkbox"/> <i>VI</i>
Bismuth-212 HE	1.716	0.4469	pCi/g	1.209	N	0	5	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214 <i>✓</i>	1.178	0.1139	pCi/g	0.1258	0.200	609.6	2	1.735	IDENTIFIED 8.306	<input type="checkbox"/>
Cadmium-109 <i>INT</i>	3.672	0.5229	pCi/g	1.516	Y	87.26	3	1.729	IDENTIFIED 13.45	<input checked="" type="checkbox"/> <i>VI</i>
Cerium-143	501.9	133.1	pCi/g	0	N	0	5	0	SHORT_HLIF 0	<input type="checkbox"/>
Cesium-137 <i>✓</i>	0.09797	0.03	pCi/g	0.07002	0.100	662	2	1.752	IDENTIFIED 30.35	<input type="checkbox"/>
Gross Gamma	8.619	1.085	pCi/g	2.56	N	0				<input type="checkbox"/>
Lead-212 <i>✓</i>	1.495	0.09531	pCi/g	0.1001	0.100	239	2	1.178	IDENTIFIED 3.845	<input type="checkbox"/>

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>MA</i>	2.017	0.2123	pCi/g	0.2414	N	911.5 3	1.615	IDENTIFIED	8.622	<input type="checkbox"/>	
Annihilation Rad.	0.171	0.03252	pCi/g	0.04529	N	511 1	1.857	IDENTIFIED	18.79	<input type="checkbox"/>	
Bismuth-211 <i>JNT</i>	4.221	0.2649	pCi/g	0.3315	Y	351.8 2	1.592	IDENTIFIED	5.419	<input checked="" type="checkbox"/> <i>UT</i>	
Bismuth-212 <i>MA</i>	2.432	0.3629	pCi/g	0.858	N	727.5 1	1.3	IDENTIFIED	13.81	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.283	0.1032	pCi/g	0.1132	0.200	609.2 2	1.559	IDENTIFIED	6.981	<input type="checkbox"/>	
Cadmium-109 <i>JNT</i>	2.443	0.4859	pCi/g	1.36	Y	87.27 3	1.092	IDENTIFIED	19.41	<input checked="" type="checkbox"/> <i>UT</i>	
Cadmium-115 HE	17.92	25.77	pCi/g	0	N	0 8 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cerium-143	14210	1900	pCi/g	0	N	0 8 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.09597	0.02607	pCi/g	0.09497	0.100	0 8 0		FAIL_ABUND	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Cesium-135 HE	0.3643	0.09041	pCi/g	0.2988	N	0 8 0		NOT_IDENTI	0	<input type="checkbox"/>	
Gross Gamma	10.68	1.36	pCi/g	4.181	N	0				<input type="checkbox"/>	
Iodine-135	4.74E+20 0		pCi/g	0	N	0 8 0		SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212 <i>V</i>	1.864	0.08927	pCi/g	0.09577	0.100	238.5 2	1.356	IDENTIFIED	3.071	<input type="checkbox"/>	
Lead-214 <i>V</i>	1.532	0.105	pCi/g	0.1206	0.100	351.8 2	1.592	IDENTIFIED	5.419	<input type="checkbox"/>	
Neptunium-237 HE	0.7074	0.159	pCi/g	0.4336	N	87.27 3	1.092	IDENTIFIED	19.41	<input type="checkbox"/>	
Niobium-95m <i>LA</i>	0.9416	0.0937	pCi/g	0.3189	N	0 8 0		NOT_IDENTI	0	<input type="checkbox"/>	
Potassium-40 <i>V</i>	32.05	1.485	pCi/g	0.444	1.00	1461 1	2.046	IDENTIFIED	2.88	<input type="checkbox"/>	
Promethium-149 HE	350.4	215	pCi/g	0	N	0 8 0		SHORT_HLIF	0	<input type="checkbox"/>	
Radium-224 <i>JNT</i>	4.563	0.6048	pCi/g	1.026	Y	241.4 1	1.756	IDENTIFIED	12.94	<input checked="" type="checkbox"/> <i>UT</i>	
Radium-226 <i>V</i>	1.283	0.1032	pCi/g	0.1132	Y	609.2 2	1.559	IDENTIFIED	6.981	<input type="checkbox"/>	
Radium-228 <i>V</i>	2.017	0.2123	pCi/g	0.2414	0.500	911.5 3	1.615	IDENTIFIED	8.622	<input type="checkbox"/>	
Strontium-85 <i>LA</i>	0.08767	0.02166	pCi/g	0.07294	Y	0 8 0		NOT_IDENTI	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Thallium-208 <i>V</i>	0.621	0.04435	pCi/g	0.05581	0.080	583 1	1.587	IDENTIFIED	6.274	<input type="checkbox"/>	
Thorium-228 <i>MA</i>	1.864	0.08927	pCi/g	0.09577	N	238.5 2	1.356	IDENTIFIED	3.071	<input type="checkbox"/>	
Thorium-232 <i>MA</i>	2.017	0.2123	pCi/g	0.2414	N	911.5 3	1.615	IDENTIFIED	8.622	<input type="checkbox"/>	
Thorium-234 <i>V</i>	2.433	0.948	pCi/g	2.012	2.00	63.97 2	1.295	IDENTIFIED	37.95	<input type="checkbox"/>	
Tin-126 <i>MA</i>	0.2371	0.04715	pCi/g	0.1325	N	87.27 3	1.092	IDENTIFIED	19.41	<input type="checkbox"/>	
Total Uranium	7.301	2.82E-06	ug/g	2.9958	N	0				<input type="checkbox"/>	
Uranium-238 HE	2.433	0.948	pCi/g	2.012	N	63.97 2	1.295	IDENTIFIED	37.95	<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
247337002	12-FEB-10 12:00	04-MAR-10 10:16	19.9	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>MA</i>	2.273	0.2388	pCi/g	0.3163	N	910.4 3	1.459	IDENTIFIED	8.729	<input type="checkbox"/>	
Annihilation Rad.	0.1951	0.03772	pCi/g	0.0568	N	510.4 1	1.711	IDENTIFIED	18.81	<input type="checkbox"/>	
Bismuth-211 <i>JNT</i>	4.022	0.3111	pCi/g	0.3888	Y	351.7 2	1.111	IDENTIFIED	6.172	<input checked="" type="checkbox"/> <i>UT</i>	
Bismuth-212 HE	1.637	0.6016	pCi/g	1.552	N	0 5 0		FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.431	0.1151	pCi/g	0.1377	0.200	608.8 2	1.146	IDENTIFIED	6.215	<input type="checkbox"/>	
Cadmium-109 <i>JNT</i>	4.402	0.5271	pCi/g	1.017	Y	87.26 3	1.295	IDENTIFIED	10.94	<input checked="" type="checkbox"/> <i>UT</i>	
Cerium-143	9150	1444	pCi/g	0	N	0 5 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-135 <i>MA</i>	0.7998	0.169	pCi/g	0.2642	N	269.5 1	1.375	IDENTIFIED	20.48	<input type="checkbox"/>	
Gross Gamma	10.97	1.433	pCi/g	3.972	N	0				<input type="checkbox"/>	
Iodine-135	7.49E+20 0		pCi/g	0	N	0 5 0		SHORT_HLIF	0	<input type="checkbox"/>	
Lead-210 HE	1.205	0.4134	pCi/g	0.8971	N	46.42 1	0.9123	IDENTIFIED	33.87	<input type="checkbox"/>	

Lead-212	✓	1.785	0.111	pCi/g	0.1078	0.100	238.5	2	1.021	IDENTIFIED	3.608	<input type="checkbox"/>
Lead-214	✓	1.46	0.1199	pCi/g	0.1409	0.100	351.7	2	1.111	IDENTIFIED	6.172	<input type="checkbox"/>
Neptunium-237	ML	1.275	0.2029	pCi/g	0.2932	N	87.26	3	1.295	IDENTIFIED	10.94	<input type="checkbox"/>
Potassium-40	✓	34.81	1.933	pCi/g	0.6323	1.00	1459	1	2.147	IDENTIFIED	3.336	<input type="checkbox"/>
Radium-224	INT	4.217	0.6541	pCi/g	1.156	Y	241.5	1	1.5	IDENTIFIED	14.84	<input checked="" type="checkbox"/> UI
Radium-226	✓	1.431	0.1151	pCi/g	0.1377	Y	608.8	2	1.146	IDENTIFIED	6.215	<input type="checkbox"/>
Radium-228	✓	2.273	0.2388	pCi/g	0.3163	0.500	910.4	3	1.459	IDENTIFIED	8.729	<input type="checkbox"/>
Sodium-24	HE	7.75E+07	1.04E+08	pCi/g	0	N	0	5	0	SHORT_HLIF	0	<input type="checkbox"/>
Technetium-99m		4.63E+21	0	pCi/g	0	N	0	5	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.6517	0.05873	pCi/g	0.06831	0.080	582.8	1	1.351	IDENTIFIED	7.674	<input type="checkbox"/>
Thorium-228	ML	1.785	0.111	pCi/g	0.1078	N	238.5	2	1.021	IDENTIFIED	3.608	<input type="checkbox"/>
Thorium-232	ML	2.273	0.2388	pCi/g	0.3163	N	910.4	3	1.459	IDENTIFIED	8.729	<input type="checkbox"/>
Thorium-234	✓	2.08	0.5438	pCi/g	1.139	2.00	63.36	2	1.048	IDENTIFIED	24.35	<input type="checkbox"/>
Tin-126	ML	0.4272	0.05115	pCi/g	0.09857	N	87.26	3	1.295	IDENTIFIED	10.94	<input type="checkbox"/>
Total Uranium		6.1967	1.62E-06	ug/g	1.6978	N	0					<input type="checkbox"/>
Uranium-238	HE	2.08	0.5438	pCi/g	1.139	N	63.36	2	1.048	IDENTIFIED	24.35	<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
247337003	12-FEB-10 12:00	04-MAR-10 10:17	19.9	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ML	1.899	0.1727	pCi/g	0.1886	N	910.8	3	1.679	IDENTIFIED	6.065 <input type="checkbox"/>
Annihilation Rad.	0.1121	0.02823	pCi/g	0.03831	N	510.5	1	1.753	IDENTIFIED	24.96 <input type="checkbox"/>
Bismuth-211 INT	4.191	0.2216	pCi/g	0.299	Y	352	2	1.325	IDENTIFIED	4.202 <input checked="" type="checkbox"/> UI
Bismuth-212 LA	2.428	0.3587	pCi/g	0.9728	N	0	6	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214 ✓	1.187	0.0863	pCi/g	0.09397	0.200	609	2	1.687	IDENTIFIED	5.718 <input type="checkbox"/>
Cadmium-109 INT	3.339	0.5037	pCi/g	1.081	Y	87.43	3	1.17	IDENTIFIED	14.36 <input checked="" type="checkbox"/> UI
Cerium-143	9176	1318	pCi/g	0	N	0	6	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-134 LA	0.1193	0.02802	pCi/g	0.07353	0.100	0	6	0	FAIL_ABUND	0 <input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135 HE	0.28	0.07217	pCi/g	0.2358	N	0	6	0	NOT_IDENTI	0 <input type="checkbox"/>
Gross Gamma	10.87	1.299	pCi/g	2.586	N	0				<input type="checkbox"/>
Iodine-135	2.58E+20	0	pCi/g	0	N	0	6	0	SHORT_HLIF	0 <input type="checkbox"/>
Lead-212 ✓	1.874	0.08405	pCi/g	0.07919	0.100	238.7	2	1.153	IDENTIFIED	2.667 <input type="checkbox"/>
Lead-214 ✓	1.521	0.09073	pCi/g	0.1043	0.100	352	2	1.325	IDENTIFIED	4.202 <input type="checkbox"/>
Neptunium-237 ML	0.967	0.1776	pCi/g	0.3762	N	87.43	3	1.17	IDENTIFIED	14.36 <input type="checkbox"/>
Potassium-40 ✓	34.02	1.491	pCi/g	0.4262	1.00	1460	1	2.315	IDENTIFIED	2.191 <input type="checkbox"/>
Promethium-149 HE	16.51	189.4	pCi/g	0	N	0	6	0	SHORT_HLIF	0 <input type="checkbox"/>
Radium-224 INT	4.354	0.5541	pCi/g	0.8476	Y	241.7	1	1.775	IDENTIFIED	12.42 <input checked="" type="checkbox"/> UI
Radium-226 ✓	1.187	0.0863	pCi/g	0.09397	Y	609	2	1.687	IDENTIFIED	5.718 <input type="checkbox"/>
Radium-228 ✓	1.899	0.1727	pCi/g	0.1886	0.500	910.8	3	1.679	IDENTIFIED	6.065 <input type="checkbox"/>
Thallium-208 ✓	0.5528	0.03985	pCi/g	0.04704	0.080	582.9	1	1.424	IDENTIFIED	6.054 <input type="checkbox"/>
Thorium-228 ML	1.874	0.08405	pCi/g	0.07919	N	238.7	2	1.153	IDENTIFIED	2.667 <input type="checkbox"/>
Thorium-232 ML	1.899	0.1727	pCi/g	0.1886	N	910.8	3	1.679	IDENTIFIED	6.065 <input type="checkbox"/>
Tin-126 ML	0.3241	0.04888	pCi/g	0.1241	N	87.43	3	1.17	IDENTIFIED	14.36 <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
247337004	12-FEB-10 12:00	04-MAR-10 10:18	19.9	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228 <i>ML</i>	2.234	0.2437	pCi/g	0.3055	N	910.7	3	1.317	IDENTIFIED	9.21		<input type="checkbox"/>	
Annihilation Rad.	HE	0.1238	0.04007	pCi/g	0.0542	N	510.3	1	1.17	IDENTIFIED	32.02	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	4.91	0.3427	pCi/g	0.3623	Y	351.7	2	1.119	IDENTIFIED	5.328		<input checked="" type="checkbox"/> <i>UJ</i>	
Bismuth-212	HE	2.939	0.7115	pCi/g	1.626	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.578	0.1409	pCi/g	0.1351	0.200	609	2	1.129	IDENTIFIED	6.671		<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	4.509	0.4347	pCi/g	0.8145	Y	87.22	3	1.024	IDENTIFIED	8.432		<input checked="" type="checkbox"/> <i>UJ</i>	
Cerium-143 <i>—</i>	5509	1142	pCi/g	0	N	0	8	0	SHORT_HLIF	0		<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.2723	0.04698	pCi/g	0.1186	0.100	0	8	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.	
Gross Gamma <i>—</i>	11.58	1.473	pCi/g	3.771	N	0						<input type="checkbox"/>	
Iodine-133	HE	15130	1.68E+05	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135 <i>—</i>	6.24E+20		pCi/g	0	N	0	8	0	SHORT_HLIF	0		<input type="checkbox"/>	
Lead-210	HE	0.8566	0.3338	pCi/g	0.6707	N	46.69	1	0.554	IDENTIFIED	38.68	<input type="checkbox"/>	
Lead-212 <i>V</i>	2.16	0.1253	pCi/g	0.088	0.100	238.4	2	0.8808	IDENTIFIED	2.95		<input type="checkbox"/>	
Lead-214 <i>V</i>	1.782	0.1337	pCi/g	0.1319	0.100	351.7	2	1.119	IDENTIFIED	5.328		<input type="checkbox"/>	
Neptunium-237 <i>INT</i>	1.306	0.186	pCi/g	0.2339	N	87.22	3	1.024	IDENTIFIED	8.432		<input type="checkbox"/>	
Potassium-40 <i>V</i>	35.17	1.911	pCi/g	0.7056	1.00	1460	1	2.28	IDENTIFIED	3.363		<input type="checkbox"/>	
Promethium-149 HE	208	210.1	pCi/g	0	N	0	8	0	SHORT_HLIF	0		<input type="checkbox"/>	
Radium-224 <i>INT</i>	5.754	0.8019	pCi/g	0.9458	Y	241.5	1	1.862	IDENTIFIED	13.21		<input checked="" type="checkbox"/> <i>UJ</i>	
Radium-226 <i>V</i>	1.578	0.1409	pCi/g	0.1351	Y	609	2	1.129	IDENTIFIED	6.671		<input type="checkbox"/>	
Radium-228 <i>V</i>	2.234	0.2437	pCi/g	0.3055	0.500	910.7	3	1.317	IDENTIFIED	9.21		<input type="checkbox"/>	
Sodium-24	HE	2.81E+07	1.19E+08	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Technetium-99m		5.37E+21	0	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208 <i>V</i>	0.6977	0.06803	pCi/g	0.06796	0.080	582.8	1	1.255	IDENTIFIED	8.092		<input type="checkbox"/>	
Thorium-228 <i>ML</i>	2.16	0.1253	pCi/g	0.088	N	238.4	2	0.8808	IDENTIFIED	2.95		<input type="checkbox"/>	
Thorium-232 <i>ML</i>	2.234	0.2437	pCi/g	0.3055	N	910.7	3	1.317	IDENTIFIED	9.21		<input type="checkbox"/>	
Thorium-234 <i>V</i>	1.642	0.4138	pCi/g	0.8996	2.00	63.32	2	0.8006	IDENTIFIED	23.54		<input type="checkbox"/>	
Tin-126 <i>ML</i>	0.4376	0.04219	pCi/g	0.0787	N	87.22	3	1.024	IDENTIFIED	8.432		<input type="checkbox"/>	
Total Uranium	4.9601	1.23E-06	ug/g	1.3409	N	0						<input type="checkbox"/>	
Uranium-238	HE	1.642	0.4138	pCi/g	0.8996	N	63.32	2	0.8006	IDENTIFIED	23.54	<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
247337005	12-FEB-10 12:00	04-MAR-10 10:19	19.9	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228 <i>ML</i>	2.217	0.2133	pCi/g	0.214	N	911.5	3	1.348	IDENTIFIED	7.286		<input type="checkbox"/>	
Annihilation Rad.	0.1221	0.0294	pCi/g	0.04417	N	510.9	1	1.466	IDENTIFIED	23.62		<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	4.641	0.3072	pCi/g	0.3243	Y	352	2	1.271	IDENTIFIED	4.574		<input checked="" type="checkbox"/> <i>UJ</i>	
Bismuth-212 <i>LA</i>	2.806	0.5451	pCi/g	1.236	N	0	9	0	FAIL_ABUND	0		<input type="checkbox"/>	
Bismuth-214 <i>V</i>	1.433	0.1122	pCi/g	0.09848	0.200	609.5	2	1.302	IDENTIFIED	5.487		<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	5.345	0.7432	pCi/g	1.17	Y	86.57	3	1.199	IDENTIFIED	13.11		<input checked="" type="checkbox"/> <i>UJ</i>	
Cadmium-115	HE	1.185	22.63	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cerium-143 <i>—</i>	7045	1193	pCi/g	0	N	0	9	0	SHORT_HLIF	0		<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1097	0.03312	pCi/g	0.09131	0.100	0	9	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.	
Gross Gamma <i>—</i>	11.02	1.412	pCi/g	3.941	N	0						<input type="checkbox"/>	
Iodine-133	HE	1.06E+05	1.29E+05	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>	

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
247337007	12-FEB-10 12:00	04-MAR-10 12:40	20	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>u</i>	1.993	0.184	pCi/g	0.2183	N	911.2	3	1.51 IDENTIFIED	6.929	<input type="checkbox"/>
Annihilation Rad.	0.1296	0.03137	pCi/g	0.03958	N	510.9	1	1.631 IDENTIFIED	23.74	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	4.264	0.3009	pCi/g	0.2992	Y	351.8	2	1.09 IDENTIFIED	4.476	<input checked="" type="checkbox"/> <i>u</i>
Bismuth-212 <i>u</i>	1.93	0.3947	pCi/g	1.126	N	0	5	0 FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 <i>V</i>	1.292	0.1027	pCi/g	0.1046	0.200	609.3	2	1.147 IDENTIFIED	5.913	<input type="checkbox"/>
Cadmium-109 <i>INT</i>	4.058	0.5289	pCi/g	1.086	Y	87.19	3	1.255 IDENTIFIED	12.13	<input checked="" type="checkbox"/> <i>u</i>
Cerium-143	4974	1064	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134 <i>u</i>	0.181	0.03143	pCi/g	0.09348	0.100	0	5	0 FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135 HE	0.4388	0.1221	pCi/g	0.2133	N	269.7	1	2.122 IDENTIFIED	27.08	<input type="checkbox"/>
Gross Gamma	10.45	1.265	pCi/g	3.088	N	0				<input type="checkbox"/>
Iodine-133 HE	17430	1.38E+05	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-212 <i>V</i>	1.962	0.1288	pCi/g	0.08081	0.100	238.6	2	0.9784 IDENTIFIED	2.804	<input type="checkbox"/>
Lead-214 <i>V</i>	1.548	0.1173	pCi/g	0.1059	0.100	351.8	2	1.09 IDENTIFIED	4.476	<input type="checkbox"/>
Neptunium-237 <i>M</i>	1.175	0.1965	pCi/g	0.3195	N	87.19	3	1.255 IDENTIFIED	12.13	<input type="checkbox"/>
Potassium-40 <i>V</i>	33.79	1.712	pCi/g	0.4504	1.00	1461	1	1.786 IDENTIFIED	2.52	<input type="checkbox"/>
Radium-224 <i>INT</i>	4.703	0.6368	pCi/g	0.8661	Y	241.6	1	1.736 IDENTIFIED	12.37	<input checked="" type="checkbox"/> <i>u</i>
Radium-226 <i>V</i>	1.292	0.1027	pCi/g	0.1046	Y	609.3	2	1.147 IDENTIFIED	5.913	<input type="checkbox"/>
Radium-228 <i>V</i>	1.993	0.184	pCi/g	0.2183	0.500	911.2	3	1.51 IDENTIFIED	6.929	<input type="checkbox"/>
Sodium-24 HE	1.94E+07	6.61E+07	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 <i>V</i>	0.5891	0.04674	pCi/g	0.0523	0.080	583.2	1	1.258 IDENTIFIED	6.2	<input type="checkbox"/>
Thorium-228 <i>u</i>	1.962	0.1288	pCi/g	0.08081	N	238.6	2	0.9784 IDENTIFIED	2.804	<input type="checkbox"/>
Thorium-232 <i>u</i>	1.993	0.184	pCi/g	0.2183	N	911.2	3	1.51 IDENTIFIED	6.929	<input type="checkbox"/>
Thorium-234 <i>V</i>	2.597	0.8718	pCi/g	1.818	2.00	63.07	2	0.678 IDENTIFIED	32.37	<input type="checkbox"/>
Tin-126 <i>u</i>	0.3938	0.05132	pCi/g	0.1058	N	87.19	3	1.255 IDENTIFIED	12.13	<input type="checkbox"/>
Total Uranium	7.8253	2.59E-06	ug/g	2.7071	N	0				<input type="checkbox"/>
Uranium-238 HE	2.597	0.8718	pCi/g	1.818	N	63.07	2	0.678 IDENTIFIED	32.37	<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
247360001	12-FEB-10 12:00	04-MAR-10 12:41	20	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>u</i>	1.631	0.2183	pCi/g	0.2753	N	911.4	3	2.008 IDENTIFIED	11.54	<input type="checkbox"/>
Annihilation Rad. HE	0.1511	0.04943	pCi/g	0.05797	N	510.9	1	1.793 IDENTIFIED	32.33	<input type="checkbox"/>
Barium-137m <i>u</i>	1.173	0.08648	pCi/g	0.06863	N	661.7	2	1.859 IDENTIFIED	5.156	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	4.557	0.3758	pCi/g	0.4014	Y	351.9	2	1.427 IDENTIFIED	5.846	<input checked="" type="checkbox"/> <i>u</i>
Bismuth-212 HE	1.616	0.4873	pCi/g	1.217	N	0	8	0 FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 <i>V</i>	1.309	0.1296	pCi/g	0.1465	0.200	609.4	2	1.581 IDENTIFIED	8.002	<input type="checkbox"/>
Cadmium-109 <i>INT</i>	2.857	0.5753	pCi/g	1.781	Y	87.05	3	1.084 IDENTIFIED	19.58	<input checked="" type="checkbox"/> <i>u</i>
Cadmium-115 HE	35.4	34.95	pCi/g	0	N	0	8	0 SHORT_HLIF	0	<input type="checkbox"/>
Cerium-143	9089	1707	pCi/g	0	N	0	8	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134 <i>u</i>	0.1095	0.03008	pCi/g	0.1051	0.100	0	8	0 NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-137 <i>V</i>	1.239	0.09142	pCi/g	0.0725	0.100	661.7	2	1.859 IDENTIFIED	5.156	<input type="checkbox"/>
Gross Gamma	9.77	1.283	pCi/g	2.45	N	0				<input type="checkbox"/>

Iodine-133	HE	28450	2.03E+05	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-212	✓	1.752	0.1358	pCi/g	0.1176	0.100	238.7	2	1.256	IDENTIFIED	4.02	<input type="checkbox"/>
Lead-214	✓	1.654	0.1438	pCi/g	0.1525	0.100	351.9	2	1.427	IDENTIFIED	5.846	<input type="checkbox"/>
Neptunium-237	HE	0.8271	0.1878	pCi/g	0.4883	N	87.05	3	1.084	IDENTIFIED	19.58	<input type="checkbox"/>
Potassium-40	✓	27.03	1.516	pCi/g	0.5729	1.00	1461	1	2.703	IDENTIFIED	3.236	<input type="checkbox"/>
Promethium-149	HE	6.232	291.6	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>
Radium-224	INT	4.55	0.78	pCi/g	1.259	Y	241.8	1	1.714	IDENTIFIED	15.95	<input checked="" type="checkbox"/> UJ
Radium-226	✓	1.309	0.1296	pCi/g	0.1465	Y	609.4	2	1.581	IDENTIFIED	8.002	<input type="checkbox"/>
Radium-228	✓	1.631	0.2183	pCi/g	0.2753	0.500	911.4	3	2.008	IDENTIFIED	11.54	<input type="checkbox"/>
Silver-110m	HE	0.1498	0.03001	pCi/g	0.09605	N	0	8	0	NOT_IDENTI	0	<input type="checkbox"/>
Strontium-85	LA	0.2468	0.03384	pCi/g	0.109	Y	0	8	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.5154	0.05311	pCi/g	0.07004	0.080	583.1	1	1.774	IDENTIFIED	8.766	<input type="checkbox"/>
Thorium-228	MM	1.752	0.1358	pCi/g	0.1176	N	238.7	2	1.256	IDENTIFIED	4.02	<input type="checkbox"/>
Thorium-232	MM	1.631	0.2183	pCi/g	0.2753	N	911.4	3	2.008	IDENTIFIED	11.54	<input type="checkbox"/>
Tin-126	HE	0.2772	0.05582	pCi/g	0.1721	N	87.05	3	1.084	IDENTIFIED	19.58	<input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
247360002	12-FEB-10 12:00	04-MAR-10 12:42	20	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	MM	1.725	0.227	pCi/g	0.3259	N	911 3	1.498 IDENTIFIED	11.65	<input type="checkbox"/>
Barium-137m	MM	3.135	0.2061	pCi/g	0.09414	N	661.5 2	1.479 IDENTIFIED	3.543	<input type="checkbox"/>
Bismuth-211	INT	4.924	0.4222	pCi/g	0.4153	Y	351.7 2	1.192 IDENTIFIED	6.77	<input checked="" type="checkbox"/> UJ
Bismuth-212	HE	1.932	0.4364	pCi/g	1.579	N	0 5 0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.526	0.1556	pCi/g	0.1723	0.200	609.3 2	1.475 IDENTIFIED	8.199	<input type="checkbox"/>
Cadmium-109	INT	4.51	0.498	pCi/g	0.9536	Y	87.18 3	1.049 IDENTIFIED	9.659	<input checked="" type="checkbox"/> UJ
Cadmium-115	HE	24.98	40.97	pCi/g	0	N	0 5 0	SHORT_HLIF	0	<input type="checkbox"/>
Cerium-143		6052	1448	pCi/g	0	N	0 5 0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-137	✓	3.312	0.218	pCi/g	0.09945	0.100	661.5 2	1.479 IDENTIFIED	3.543	<input type="checkbox"/>
Gross Gamma		12.11	1.329	pCi/g	3.835	N	0			<input type="checkbox"/>
Iodine-133	HE	3.01E+05	2.37E+05	pCi/g	0	N	0 5 0	SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135		5.75E+20	0	pCi/g	0	N	0 5 0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-210	MM	8.85	0.8191	pCi/g	0.8277	N	46.39 1	0.9847 IDENTIFIED	7.708	<input type="checkbox"/>
Lead-212	✓	1.603	0.119	pCi/g	0.1182	0.100	238.6 2	0.9366 IDENTIFIED	4.74	<input type="checkbox"/>
Lead-214	✓	1.787	0.161	pCi/g	0.1511	0.100	351.7 2	1.192 IDENTIFIED	6.77	<input type="checkbox"/>
Neptunium-237	MM	1.306	0.1988	pCi/g	0.2741	N	87.18 3	1.049 IDENTIFIED	9.659	<input type="checkbox"/>
Potassium-40	✓	21.8	1.451	pCi/g	0.9735	1.00	1461 1	2.113 IDENTIFIED	5.116	<input type="checkbox"/>
Radium-224	INT	5.589	1.049	pCi/g	1.269	Y	241.5 1	1.95 IDENTIFIED	18.03	<input checked="" type="checkbox"/> UJ
Radium-226	✓	1.526	0.1556	pCi/g	0.1723	Y	609.3 2	1.475 IDENTIFIED	8.199	<input type="checkbox"/>
Radium-228	✓	1.725	0.227	pCi/g	0.3259	0.500	911 3	1.498 IDENTIFIED	11.65	<input type="checkbox"/>
Thallium-208	✓	0.4729	0.06293	pCi/g	0.08888	0.080	583.3 1	1.298 IDENTIFIED	12.06	<input type="checkbox"/>
Thorium-228	MM	1.603	0.119	pCi/g	0.1182	N	238.6 2	0.9366 IDENTIFIED	4.74	<input type="checkbox"/>
Thorium-232	MM	1.725	0.227	pCi/g	0.3259	N	911 3	1.498 IDENTIFIED	11.65	<input type="checkbox"/>
Thorium-234	✓	3.649	0.6571	pCi/g	0.934	2.00	63.18 2	0.7636 IDENTIFIED	15.3	<input type="checkbox"/>
Tin-126	MM	0.4376	0.04832	pCi/g	0.09233	N	87.18 3	1.049 IDENTIFIED	9.659	<input type="checkbox"/>
Total Uranium		10.891	1.96E-06	ug/g	1.3929	N	0			<input type="checkbox"/>
Uranium-238	MM	3.649	0.6571	pCi/g	0.934	N	63.18 2	0.7636 IDENTIFIED	15.3	<input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
247360003	12-FEB-10 12:00	04-MAR-10 12:43	20	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>MM</i>	1.817	0.1731	pCi/g	0.2267	N	911.4	3	1.29	IDENTIFIED	7.531 <input type="checkbox"/>
Annihilation Rad.	0.1297	0.03192	pCi/g	0.04509	N	510.9	1	1.76	IDENTIFIED	24.44 <input type="checkbox"/>
Bismuth-211 <i>INT</i>	4.528	0.2613	pCi/g	0.2954	Y	351.8	2	1.311	IDENTIFIED	4.808 <input checked="" type="checkbox"/> <i>UI</i>
Bismuth-212 <i>MM</i>	1.823	0.4196	pCi/g	0.779	N	727.8	1	1.455	IDENTIFIED	22.33 <input type="checkbox"/>
Bismuth-214 <i>V</i>	1.306	0.101	pCi/g	0.1127	0.200	609.3	2	1.573	IDENTIFIED	6.639 <input type="checkbox"/>
Cadmium-109 <i>INT</i>	3.17	0.5017	pCi/g	1.516	Y	87.21	3	1.205	IDENTIFIED	15.19 <input checked="" type="checkbox"/> <i>UI</i>
Cerium-143	12940	1807	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-134 <i>LI</i>	0.112	0.04305	pCi/g	0.09227	0.100	0	7	0	FAIL_ABUND	0 <input checked="" type="checkbox"/> <i>UI</i> Data rejected due to low abundance.
Gross Gamma	9.852	1.356	pCi/g	3.947	N	0	0	0		<input type="checkbox"/>
Iodine-135	5.86E+20	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Lead-212 <i>V</i>	1.702	0.08314	pCi/g	0.09506	0.100	238.5	2	1.321	IDENTIFIED	3.256 <input type="checkbox"/>
Lead-214 <i>V</i>	1.643	0.1051	pCi/g	0.1074	0.100	351.8	2	1.311	IDENTIFIED	4.808 <input type="checkbox"/>
Neptunium-237 <i>MM</i>	0.9179	0.1742	pCi/g	0.4292	N	87.21	3	1.205	IDENTIFIED	15.19 <input type="checkbox"/>
Niobium-95m <i>LI</i>	0.4935	0.08443	pCi/g	0.278	N	0	7	0	NOT_IDENTI	0 <input type="checkbox"/>
Potassium-40 <i>V</i>	29.5	1.38	pCi/g	0.5395	1.00	1461	1	2.066	IDENTIFIED	2.835 <input type="checkbox"/>
Promethium-149 HE	227.4	208.2	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Radium-224 <i>INT</i>	4.274	0.5856	pCi/g	1.018	Y	241.4	1	1.711	IDENTIFIED	13.41 <input checked="" type="checkbox"/> <i>UI</i>
Radium-226 <i>V</i>	1.306	0.101	pCi/g	0.1127	Y	609.3	2	1.573	IDENTIFIED	6.639 <input type="checkbox"/>
Radium-228 <i>V</i>	1.817	0.1731	pCi/g	0.2267	0.500	911.4	3	1.29	IDENTIFIED	7.531 <input type="checkbox"/>
Sodium-24 HE	8.74E+07	7.93E+07	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Strontium-85 <i>LI</i>	0.1139	0.02248	pCi/g	0.07881	Y	0	7	0	NOT_IDENTI	0 <input checked="" type="checkbox"/> <i>UI</i> Data rejected due to low abundance.
Thallium-208 <i>V</i>	0.5327	0.04	pCi/g	0.05475	0.080	582.9	1	1.576	IDENTIFIED	6.7 <input type="checkbox"/>
Thorium-228 <i>MM</i>	1.702	0.08314	pCi/g	0.09506	N	238.5	2	1.321	IDENTIFIED	3.256 <input type="checkbox"/>
Thorium-232 <i>MM</i>	1.817	0.1731	pCi/g	0.2267	N	911.4	3	1.29	IDENTIFIED	7.531 <input type="checkbox"/>
Tin-126 <i>MM</i>	0.3076	0.04868	pCi/g	0.1477	N	87.21	3	1.205	IDENTIFIED	15.19 <input type="checkbox"/>
Total Uranium	6.1626	2.06E-06	ug/g	3.6812	N	0	0	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
247360004	12-FEB-10 12:00	04-MAR-10 12:44	20	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>MM</i>	1.723	0.181	pCi/g	0.2265	N	911.4	3	1.458	IDENTIFIED	8.594 <input type="checkbox"/>
Bismuth-211 <i>INT</i>	4.29	0.2632	pCi/g	0.3132	Y	351.8	2	1.327	IDENTIFIED	5.254 <input checked="" type="checkbox"/> <i>UI</i>
Bismuth-212 HE	2.071	0.5077	pCi/g	1.139	N	0	8	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214 <i>V</i>	1.356	0.09729	pCi/g	0.1135	0.200	609.2	2	1.717	IDENTIFIED	5.965 <input type="checkbox"/>
Cadmium-109 <i>INT</i>	2.56	0.5602	pCi/g	1.262	Y	87.29	3	1.433	IDENTIFIED	21.44 <input checked="" type="checkbox"/> <i>UI</i>
Cadmium-115 HE	6.804	22.19	pCi/g	0	N	0	8	0	SHORT_HLIF	0 <input type="checkbox"/>
Cerium-143	13220	1845	pCi/g	0	N	0	8	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-135 HE	0.3737	0.09221	pCi/g	0.3038	N	0	8	0	NOT_IDENTI	0 <input type="checkbox"/>
Gross Gamma	9.519	1.402	pCi/g	5.218	N	0	0	0		<input type="checkbox"/>
Iodine-135	2.87E+20	0	pCi/g	0	N	0	8	0	SHORT_HLIF	0 <input type="checkbox"/>
Lead-212 <i>V</i>	1.696	0.08308	pCi/g	0.0926	0.100	238.5	2	1.364	IDENTIFIED	3.243 <input type="checkbox"/>

Lead-214	✓	1.557	0.1047	pCi/g 0.1139	0.100	351.8	2	1.327	IDENTIFIED	5.254	□
Neptunium-237	HE	0.7413	0.1798	pCi/g 0.4098	N	87.29	3	1.433	IDENTIFIED	21.44	□
Niobium-95m	LA	0.858	0.08757	pCi/g 0.3014	N	0	8	0	NOT_IDENTI	0	□
Potassium-40	✓	24.67	1.21	pCi/g 0.6036	1.00	1461	1	1.869	IDENTIFIED	3.295	□
Promethium-149	HE	150.2	205.1	pCi/g 0	N	0	8	0	SHORT_HLIF	0	□
Radium-224	INT	4.33	0.5829	pCi/g 0.9919	Y	241.6	1	1.874	IDENTIFIED	13.15	✓ U
Radium-226	✓	1.356	0.09729	pCi/g 0.1135	Y	609.2	2	1.717	IDENTIFIED	5.965	□
Radium-228	✓	1.723	0.181	pCi/g 0.2265	0.500	911.4	3	1.458	IDENTIFIED	8.594	□
Sodium-24	HE	1.63E+08	8.74E+07	pCi/g 0	N	0	8	0	SHORT_HLIF	0	□
Thallium-208	✓	0.4962	0.04162	pCi/g 0.05513	0.080	583	1	1.766	IDENTIFIED	7.663	□
Thorium-228	LA	1.696	0.08308	pCi/g 0.0926	N	238.5	2	1.364	IDENTIFIED	3.243	□
Thorium-232	LA	1.723	0.181	pCi/g 0.2265	N	911.4	3	1.458	IDENTIFIED	8.594	□
Tin-126	LA	0.2484	0.05435	pCi/g 0.1228	N	87.29	3	1.433	IDENTIFIED	21.44	□
Total Uranium		5.6138	2.49E-06	ug/g 2.8248	N		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
1202047453		04-MAR-10 12:46	0	MB	LOAD	1		GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Iodine-133	HE	43.91	53.31	pCi/g 0	N	0	4	0	SHORT_HLIF 0	□	
Iodine-135	HE	4.64E+09	2.13E+10	pCi/g 0	N	0	4	0	SHORT_HLIF 0	□	
Sodium-24	HE	153.8	1306	pCi/g 0	N	0	4	0	SHORT_HLIF 0	□	
Technetium-99m	HE	2.71E+10	2.52E+10	pCi/g 0	N	0	4	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
1202047454	12-FEB-10 12:00	04-MAR-10 16:10	20.2	DUP	LOAD	1		LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.494	0.2201	pCi/g 0.3402	N	913	3	1.465	IDENTIFIED	13.31	□
Annihilation Rad.	HE	0.1201	0.05583	pCi/g 0.06002	N	512.1	2	1.864	IDENTIFIED	46.38	□
Barium-137m	LA	1.173	0.06782	pCi/g 0.07532	N	662.8	2	1.501	IDENTIFIED	5.223	□
Bismuth-211	INT	3.948	0.2858	pCi/g 0.4168	Y	352.4	2	1.327	IDENTIFIED	6.252	✓ U
Bismuth-212	HE	2.137	0.5812	pCi/g 1.347	N	0	4	0	FAIL_ABUND 0	□	
Bismuth-214	✓	1.476	0.1215	pCi/g 0.1433	0.200	610.2	2	1.782	IDENTIFIED	7.286	□
Cadmium-109	LA	2.92	0.6443	pCi/g 2.151	Y	0	4	0	NOT_IDENTI 0	□	UI Data rejected due to low abundance.
Cerium-143	—	17550	2958	pCi/g 0	N	0	4	0	SHORT_HLIF 0	□	
Cesium-137	✓	1.239	0.07172	pCi/g 0.07957	0.100	662.8	2	1.501	IDENTIFIED	5.223	□
Gross Gamma	—	9.797	1.448	pCi/g 3.483	N		0			□	
Lead-212	✓	1.82	0.1037	pCi/g 0.1185	0.100	238.8	2	1.27	IDENTIFIED	4.226	□
Lead-214	✓	1.433	0.111	pCi/g 0.1514	0.100	352.4	2	1.327	IDENTIFIED	6.252	□
Potassium-40	✓	25.79	1.527	pCi/g 0.579	1.00	1463	1	2.368	IDENTIFIED	4.068	□
Radium-224	INT	4.403	0.7276	pCi/g 1.27	Y	241.9	1	1.616	IDENTIFIED	16.24	✓ U
Radium-226	✓	1.476	0.1215	pCi/g 0.1433	Y	610.2	2	1.782	IDENTIFIED	7.286	□
Radium-228	✓	1.494	0.2201	pCi/g 0.3402	0.500	913	3	1.465	IDENTIFIED	13.31	□
Strontium-85	LA INT	0.1553	0.07219	pCi/g 0.07803	Y	512.1	2	1.864	IDENTIFIED	46.38	✓ U
Thallium-208	✓	0.4572	0.05027	pCi/g 0.07651	0.080	584.1	1	1.38	IDENTIFIED	10.47	□
Thorium-228	LA	1.82	0.1037	pCi/g 0.1185	N	238.8	2	1.27	IDENTIFIED	4.226	□
Thorium-232	LA	1.494	0.2201	pCi/g 0.3402	N	913	3	1.465	IDENTIFIED	13.31	□

Blank Results Greater Than CSU

Batch ID	Blank ID & Run Seq.	Run Date	Parmname	Result Units	1 Sigma			RDL	MDA	Report Parm?
					1 Sigma TPU	TPU x1.65	1 Sigma TPU x2			
955027	1202047453-1	04-MAR-10 12:46	Bismuth-212	0.302 pCi/g	0.156	0.257	0.312		0.6067	N
955027	1202047453-1	04-MAR-10 12:46	Cerium-144	0.0543 pCi/g	0.0435	0.0718	0.0871		0.1599	N
955027	1202047453-1	04-MAR-10 12:46	Cobalt-57	0.00772 pCi/g	0.00558	0.00921	0.0112		0.02075	N
955027	1202047453-1	04-MAR-10 12:46	Curium-247	0.0098 pCi/g	0.011	0.0181	0.022		0.03972	N
955027	1202047453-1	04-MAR-10 12:46	Europium-154	0.023 pCi/g	0.0263	0.0434	0.0526		0.09743	N
955027	1202047453-1	04-MAR-10 12:46	Europium-155	0.0218 pCi/g	0.0197	0.0325	0.0394		0.07338	N
955027	1202047453-1	04-MAR-10 12:46	Holmium-166m	0.0188 pCi/g	0.0208	0.0343	0.0416		0.07586	N
955027	1202047453-1	04-MAR-10 12:46	Iodine-131	0.0194 pCi/g	0.022	0.0363	0.044		0.08017	N
955027	1202047453-1	04-MAR-10 12:46	Lead-211	0.243 pCi/g	0.219	0.361	0.438		0.773	N
955027	1202047453-1	04-MAR-10 12:46	Mercury-203	0.0245 pCi/g	0.009	0.0149	0.018	0.100	0.0358	(Y)
955027	1202047453-1	04-MAR-10 12:46	Promethium-146	0.0143 pCi/g	0.012	0.0199	0.0241		0.0442	N
955027	1202047453-1	04-MAR-10 12:46	Promethium-149	7.92 pCi/g	5.29	8.73	10.6		20.06	N
955027	1202047453-1	04-MAR-10 12:46	Protactinium-234m	2.60 pCi/g	1.44	2.37	2.88		5.565	N
955027	1202047453-1	04-MAR-10 12:46	Technetium-99m	2.71E+10 pCi/g	25200000000	41600000000	50400000000		0	N
955027	1202047453-1	04-MAR-10 12:46	Terbium-160	0.0534 pCi/g	0.0474	0.0782	0.0948		0.1741	N
955027	1202047453-1	04-MAR-10 12:46	Yttrium-88	0.0318 pCi/g	0.0147	0.0242	0.0293	0.100	0.06133	(Y)

Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Parmname	Result	Uncertainty	Units	DL	RDL
955027	247360004	SAMPLE	04-MAR-10	Bismuth-211	4.29	0.2632	pCi/g	0.1567	Y
				Bismuth-214	1.356	0.09729	pCi/g	0.05679	0.200
				Cadmium-109	2.56	0.5602	pCi/g	0.6312	Y
				Cadmium-115	6.804	22.19	pCi/g	0	N
				Cerium-143	13220	1845	pCi/g	0	N
				Cesium-134	0.08932	0.02664	pCi/g	0.04543	0.100
				Gross Gamma	9.519	1.402	pCi/g	2.55	N
				Iodine-135	2.87E+20	0	pCi/g	0	N
				Lead-212	1.696	0.08308	pCi/g	0.04633	0.100
				Lead-214	1.557	0.1047	pCi/g	0.05699	0.100
				Mercury-203	0.03635	0.0226	pCi/g	0.03538	0.100
				Potassium-40	24.67	1.21	pCi/g	0.302	1.00
				Promethium-149	150.2	205.1	pCi/g	0	N
				Protactinium-234m	7.328	4.002	pCi/g	4.402	N
				Radium-224	4.33	0.5829	pCi/g	0.4962	Y
				Radium-226	1.356	0.09729	pCi/g	0.05679	Y
				Radium-228	1.723	0.181	pCi/g	0.1133	0.500
				Sodium-24	1.63E+08	8.74E+07	pCi/g	0	N
				Thallium-208	0.4962	0.04162	pCi/g	0.02758	0.080
				Thorium-234	1.851	0.8362	pCi/g	0.9491	2.00
				Uranium-235	0.2337	0.1073	pCi/g	0.1803	0.500
				Yttrium-88	0.03845	0.01636	pCi/g	0.03221	0.100
955027	1202047453	MB	04-MAR-10	Iodine-133	43.91	53.31	pCi/g	0	N
				Iodine-135	4.64E+09	2.13E+10	pCi/g	0	N
				Mercury-203	0.02451	0.009	pCi/g	0.01791	0.100
				Sodium-24	153.8	1306	pCi/g	0	N
				Technetium-99m	2.71E+10	2.52E+10	pCi/g	0	N
				Yttrium-88	0.03184	0.01466	pCi/g	0.03068	0.100
955027	1202047454	DUP	04-MAR-10	Americium-241	0.2621	0.1631	pCi/g	0.2458	0.200
				Bismuth-211	3.948	0.2858	pCi/g	0.2085	Y
				Bismuth-214	1.476	0.1215	pCi/g	0.07171	0.200
				Cadmium-109	2.92	0.6443	pCi/g	1.076	Y
				Cerium-143	17550	2958	pCi/g	0	N
				Cesium-134	0.09746	0.03104	pCi/g	0.0572	0.100
				Cesium-137	1.239	0.07172	pCi/g	0.03981	0.100
				Gross Gamma	9.797	1.448	pCi/g	1.679	N
				Lead-212	1.82	0.1037	pCi/g	0.05927	0.100

VAX/VMS Nuclide Identification Report Generated 4-MAR-2010 14:42:08.52

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360001.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:41:35.
Sample ID          : G247360001 Sample quantity : 8.05700E+01 GRAM
Detector name      : GAM22 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.78 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.77	390	385	1.16	149.76	143	19	5.42E-02	9.8	2.14E+00
2	2	77.09*	572	327	1.03	154.41	143	19	7.95E-02	6.8	
3	0	87.05	164	350	1.08	174.31	172	6	2.28E-02	19.6	
4	0	92.84*	227	541	1.43	185.87	182	9	3.15E-02	21.2	
5	0	185.52*	241	466	1.21	371.06	364	13	3.35E-02	20.4	
6	0	209.67*	89	364	1.31	419.31	413	10	1.23E-02	42.9	
7	2	238.69*	1100	231	1.26	477.30	472	17	1.53E-01	4.0	5.74E-01
8	2	241.75*	267	279	1.71	483.42	472	17	3.71E-02	16.0	
9	0	295.39*	349	205	1.41	590.60	586	10	4.85E-02	9.6	
10	0	300.01	93	194	1.37	599.83	596	9	1.30E-02	28.6	
11	0	338.30*	225	171	1.28	676.35	672	9	3.12E-02	13.0	
12	0	351.89*	683	203	1.43	703.51	698	12	9.48E-02	5.8	
13	0	464.15	66	192	1.57	927.87	920	14	9.11E-03	46.5	
14	0	510.93*	139	245	1.79	1021.36	1011	20	1.94E-02	32.3	
15	0	583.11*	370	136	1.77	1165.63	1159	13	5.13E-02	8.8	
16	0	609.36*	487	187	1.58	1218.09	1211	16	6.76E-02	8.0	
17	0	661.70	811	180	1.86	1322.74	1315	17	1.13E-01	5.2	
18	0	727.96*	77	84	1.45	1455.17	1450	14	1.07E-02	29.3	
19	0	861.81	85	73	1.94	1722.76	1716	17	1.18E-02	25.8	
20	0	911.42*	252	99	2.01	1821.96	1812	17	3.50E-02	11.5	
21	0	969.67*	119	88	1.70	1938.43	1933	14	1.66E-02	20.3	
22	0	1120.46*	115	88	2.39	2239.94	2231	16	1.60E-02	21.1	
23	0	1460.89*	1181	28	2.70	2920.81	2908	28	1.64E-01	3.2	
24	0	1764.84*	94	16	3.76	3528.87	3518	22	1.31E-02	16.9	

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

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:41:35
Sample ID         : G247360001 Sample quantity : 80.570 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.78 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	+	1460.82	*	2.703E+01	3.032E+00	5.815E-01	5.327E-02	46.492
CD-109	+	88.03	*	2.857E+00	1.151E+00	1.843E+00	1.749E-01	1.550
SN-126		64.28		7.468E-05	5.997E-01	9.976E-01	1.449E-01	0.000
	+	86.94		1.152E+00	6.578E-01	7.612E-01	3.161E-01	1.514
	+	87.57	*	2.772E-01	1.116E-01	1.781E-01	1.682E-02	1.556
BA-137M	+	661.66	*	1.173E+00	1.730E-01	7.004E-02	7.386E-03	16.742
CS-137	+	661.66	*	1.239E+00	1.828E-01	7.399E-02	7.813E-03	16.742
TL-208		277.37		3.303E-01	5.204E-01	8.539E-01	1.420E-01	0.387
	+	583.19	*	5.154E-01	1.062E-01	7.154E-02	7.750E-03	7.204
	+	860.56		1.086E+00	5.753E-01	5.677E-01	6.614E-02	1.913
BI-211		72.87		7.278E+00	3.718E+00	6.438E+00	5.153E-01	1.130
	+	351.06	*	4.557E+00	7.515E-01	4.115E-01	4.801E-02	11.075
PB-212	+	74.82		2.870E+00	6.709E-01	6.426E-01	8.161E-02	4.466
	+	77.11		2.413E+00	3.858E-01	3.701E-01	3.095E-02	6.521
	+	238.63	*	1.752E+00	2.715E-01	1.208E-01	1.601E-02	14.499
	+	300.09		2.231E+00	1.319E+00	1.595E+00	2.339E-01	1.399
BI-214	+	609.32	*	1.309E+00	2.592E-01	1.496E-01	1.746E-02	8.747
	+	1120.29		1.533E+00	6.676E-01	5.455E-01	6.053E-02	2.810
	+	1764.49		1.671E+00	5.817E-01	4.018E-01	3.348E-02	4.160
PB-214	+	74.82		5.087E+00	1.154E+00	1.139E+00	1.296E-01	4.466
	+	77.11		4.255E+00	7.653E-01	6.525E-01	7.664E-02	6.521
	+	242.00		2.573E+00	8.947E-01	7.338E-01	1.015E-01	3.507
	+	295.22		1.479E+00	3.605E-01	2.865E-01	4.297E-02	5.162
	+	351.93	*	1.654E+00	2.876E-01	1.563E-01	2.011E-02	10.583
RA-224	+	240.99	*	4.550E+00	1.560E+00	1.294E+00	1.620E-01	3.517
RA-226	+	609.32	*	1.309E+00	2.592E-01	1.496E-01	1.746E-02	8.747
	+	1120.29		1.533E+00	6.676E-01	5.455E-01	6.053E-02	2.810
	+	1764.49		1.671E+00	5.817E-01	4.018E-01	3.348E-02	4.160
AC-228	+	338.32		1.683E+00	8.395E-01	5.049E-01	2.147E-01	3.333
	+	911.20	*	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
	+	968.97		1.330E+00	6.342E-01	5.883E-01	1.479E-01	2.260
RA-228	+	338.32		1.683E+00	8.395E-01	5.049E-01	2.147E-01	3.333
	+	911.20	*	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
	+	968.97		1.330E+00	6.342E-01	5.883E-01	1.479E-01	2.260

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.870E+00	6.110E-01	6.426E-01	5.299E-02	4.466
	+	77.11		2.413E+00	3.858E-01	3.701E-01	3.095E-02	6.521
	+	238.63	*	1.752E+00	2.715E-01	1.208E-01	1.601E-02	14.499
	+	300.09		2.231E+00	1.884E+00	1.595E+00	9.898E-01	1.399
TH-232	+	338.32		1.683E+00	4.825E-01	5.049E-01	6.005E-02	3.333
	+	911.20	*	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
	+	968.97		1.330E+00	6.342E-01	5.883E-01	1.479E-01	2.260
NP-237	+	86.48	*	8.271E-01	3.755E-01	5.054E-01	1.160E-01	1.636
		95.86		-2.229E-02	1.261E+00	1.811E+00	4.362E-01	-0.012
ANH-511	+	511.00	*	1.511E-01	9.887E-02	5.926E-02	5.938E-03	2.550

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-5.746E-02	4.645E-01	7.449E-01	7.773E-02	-0.077
NA-22		1274.54	*	-3.520E-02	4.771E-02	7.328E-02	6.315E-03	-0.480
NA-24		1368.63	*	-1.509E+02	4.771E-02	Half-Life too short		
SC-46		889.28	*	-3.222E-02	5.014E-02	7.886E-02	8.827E-03	-0.409
	+	1120.55		2.700E-01	1.162E-01	1.597E-01	1.412E-02	1.690
V-48		944.13		-5.356E-01	1.341E+00	2.141E+00	2.322E-01	-0.250
		983.53	*	-1.860E-02	1.092E-01	1.769E-01	1.856E-02	-0.105
		1312.11		1.070E-02	1.149E-01	1.913E-01	1.685E-02	0.056
CR-51		320.08	*	1.364E-01	5.428E-01	9.182E-01	1.189E-01	0.149
MN-54		834.85	*	-6.473E-03	4.588E-02	7.582E-02	8.422E-03	-0.085
CO-56		846.77	*	-1.111E-03	4.926E-02	8.195E-02	9.123E-03	-0.014
		1037.84		6.195E-02	3.793E-01	6.282E-01	6.473E-02	0.099
		1238.28		1.527E-01	1.172E-01	2.044E-01	1.772E-02	0.747
		1771.35		-1.767E-01	3.901E-01	4.937E-01	4.102E-02	-0.358
CO-57		122.06	*	2.392E-02	3.313E-02	5.416E-02	4.466E-03	0.442
		136.47		-1.152E-01	2.636E-01	4.381E-01	4.060E-02	-0.263
CO-58		810.76	*	-8.782E-03	4.867E-02	8.037E-02	8.899E-03	-0.109
FE-59		1099.45	*	-9.425E-04	1.216E-01	1.974E-01	1.934E-02	-0.005
		1291.59		-1.166E-01	1.556E-01	2.387E-01	2.353E-02	-0.488
CO-60		1173.23		1.959E-02	4.947E-02	8.505E-02	6.840E-03	0.230
		1332.49	*	-4.516E-02	4.451E-02	6.494E-02	5.790E-03	-0.695
ZN-65		1115.54	*	3.921E-02	1.257E-01	1.796E-01	1.602E-02	0.218
SE-75		121.12		-7.222E-02	1.809E-01	2.814E-01	3.038E-02	-0.257
		136.00		-2.513E-02	5.083E-02	8.429E-02	7.316E-03	-0.298
		264.66	*	1.604E-02	5.994E-02	9.758E-02	1.313E-02	0.164
		279.54		1.729E-01	1.530E-01	2.551E-01	3.621E-02	0.678
		400.66		3.622E-01	3.526E-01	6.051E-01	7.066E-02	0.599
SR-85		514.00	*	2.468E-01	6.768E-02	1.115E-01	1.118E-02	2.214
Y-88		898.04		1.342E-02	5.305E-02	8.949E-02	1.005E-02	0.150
		1836.06	*	1.877E-02	3.701E-02	6.581E-02	5.320E-03	0.285
Y-91		1204.77	*	4.368E+00	2.650E+01	4.463E+01	3.669E+00	0.098
NB-94		702.65	*	7.735E-04	4.273E-02	6.984E-02	7.485E-03	0.011
		871.09		9.370E-04	4.691E-02	6.927E-02	7.738E-03	0.014
NB-95		765.81	*	6.153E-02	5.912E-02	1.014E-01	1.109E-02	0.607

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95M		235.69	*	1.157E-01	1.941E-01	2.843E-01	3.762E-02	0.407
ZR-95		724.19		1.395E-01	1.358E-01	2.070E-01	2.357E-02	0.674
		756.73	*	6.445E-02	9.578E-02	1.622E-01	1.887E-02	0.397
MO-99		140.51		-1.562E+02	1.092E+02	1.598E+02	3.804E+01	-0.977
		181.07		-6.761E+01	8.935E+01	1.230E+02	2.413E+01	-0.550
		366.42		-2.583E+02	4.361E+02	6.973E+02	7.396E+01	-0.370
		739.50	*	-1.312E+00	5.305E+01	8.603E+01	1.469E+01	-0.015
		777.92		-3.192E+02	1.583E+02	2.069E+02	2.270E+01	-1.543
TC-99M		140.51	*	-6.111E+16	1.583E+02	Half-Life	too short	
RU-103		497.08	*	3.981E-02	5.520E-02	9.248E-02	1.371E-02	0.430
	+	610.33		1.473E+01	3.478E+00	6.635E+00	6.309E-01	4.053
RH-106		621.93	*	8.217E-02	3.905E-01	6.533E-01	9.479E-02	0.126
		1050.41		1.289E+00	2.898E+00	4.909E+00	4.792E-01	0.263
RU-106		621.93	*	8.217E-02	3.904E-01	6.533E-01	6.824E-02	0.126
		1050.41		1.289E+00	2.898E+00	4.909E+00	4.792E-01	0.263
AG-108M		433.94	*	-2.446E-02	4.011E-02	6.300E-02	6.200E-03	-0.388
		614.28		-1.707E-02	5.167E-02	7.120E-02	7.588E-03	-0.240
		722.91		3.038E-02	4.872E-02	7.234E-02	7.969E-03	0.420
AG-110M		657.76	*	1.498E-01	6.001E-02	9.803E-02	1.054E-02	1.528
		677.62		-2.418E-01	3.940E-01	6.163E-01	6.667E-02	-0.392
		706.68		-7.149E-03	2.625E-01	4.275E-01	4.673E-02	-0.017
		763.94		-1.722E-01	2.260E-01	3.464E-01	3.851E-02	-0.497
		884.68		3.453E-03	5.932E-02	9.888E-02	1.127E-02	0.035
		937.49		9.597E-02	1.346E-01	2.334E-01	2.602E-02	0.411
		1384.29		-2.807E-01	2.353E-01	3.421E-01	3.134E-02	-0.821
		1505.03		-2.191E-01	3.470E-01	5.206E-01	4.629E-02	-0.421
SN-113		391.69	*	3.032E-02	6.047E-02	1.019E-01	9.736E-03	0.297
CD-115		260.90		1.216E-04	6.047E-02	Half-Life	too short	
		492.35		-9.093E-05	6.047E-02	Half-Life	too short	
		527.90	*	3.540E-05	6.047E-02	Half-Life	too short	
SN-117M		156.02		1.631E+00	3.673E+00	6.249E+00	5.859E-01	0.261
		158.56	*	1.154E-02	8.898E-02	1.496E-01	1.419E-02	0.077
TE-123M		159.00	*	9.887E-03	3.645E-02	6.160E-02	5.883E-03	0.161
SB-124		602.73		-1.501E-03	6.342E-02	9.015E-02	9.365E-03	-0.017
		645.85		-1.944E-01	6.394E-01	1.030E+00	1.124E-01	-0.189
		722.78		3.102E-01	5.170E-01	7.661E-01	8.389E-02	0.405
		1690.97	*	-3.140E-02	9.499E-02	1.496E-01	1.333E-02	-0.210
SB-125		427.87	*	5.995E-02	1.235E-01	2.067E-01	2.005E-02	0.290
	+	463.37		6.418E-01	6.010E-01	6.531E-01	6.757E-02	0.983
		600.60		1.544E-01	2.445E-01	4.013E-01	4.380E-02	0.385
		635.95		1.233E-01	3.420E-01	5.764E-01	6.378E-02	0.214
TE-125M		109.28	*	8.867E+00	1.341E+01	2.198E+01	2.263E+00	0.403
I-126		388.63		-2.173E-01	2.875E-01	4.529E-01	4.288E-02	-0.480
		666.33	*	-1.698E-02	4.276E-01	5.997E-01	6.336E-02	-0.028
		753.82		-2.379E-01	2.939E+00	4.737E+00	5.163E-01	-0.050
SB-126		414.70		-1.036E-02	1.326E-01	2.161E-01	2.045E-02	-0.048
		666.50		-3.725E-02	1.470E-01	2.017E-01	2.131E-02	-0.185
		695.00		-2.887E-02	1.319E-01	2.125E-01	2.271E-02	-0.136
		697.00		1.023E-01	4.503E-01	7.463E-01	7.981E-02	0.137

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	720.70	*		-9.187E-02	2.519E-01	3.525E-01	3.801E-02	-0.261
	856.80			7.097E-01	8.866E-01	1.360E+00	1.516E-01	0.522
	252.40			-3.431E+00	1.374E+01	2.177E+01	9.377E+00	-0.158
	473.00			-2.685E+00	5.440E+00	8.517E+00	1.272E+00	-0.315
I-131	685.70	*		-1.873E+00	3.810E+00	5.993E+00	8.606E-01	-0.312
	783.70			1.705E+01	1.027E+01	1.806E+01	2.780E+00	0.944
	80.19			-5.486E+00	8.880E+00	1.251E+01	1.095E+00	-0.438
	284.31			3.614E-01	3.076E+00	4.942E+00	6.996E-01	0.073
TE-132	364.49	*		-1.140E-02	2.309E-01	3.812E-01	4.236E-02	-0.030
	636.99			7.277E-01	3.027E+00	5.063E+00	5.534E-01	0.144
	49.72			-1.548E+01	5.795E+01	9.617E+01	1.163E+01	-0.161
	111.76			2.979E+01	1.286E+02	2.071E+02	2.548E+01	0.144
BA-133	116.30			-6.353E+00	1.092E+02	1.732E+02	2.125E+01	-0.037
	228.16	*		-1.350E+00	2.792E+00	4.425E+00	8.347E-01	-0.305
	81.00			-2.065E-01	1.286E-01	1.659E-01	2.585E-02	-1.245
	276.40			2.518E-01	4.816E-01	7.871E-01	1.403E-01	0.320
I-133	302.85			1.705E-01	2.025E-01	3.095E-01	5.107E-02	0.551
	356.01	*		-5.273E-03	6.439E-02	9.214E-02	1.357E-02	-0.057
	383.85			4.500E-01	3.869E-01	6.679E-01	8.826E-02	0.674
	529.87	*		2.845E-02	3.869E-01	Half-Life too short		
CS-134	875.33			3.896E+00	3.869E-01	Half-Life too short		
	1298.22			3.548E+00	3.869E-01	Half-Life too short		
	563.25			3.077E-01	4.740E-01	8.165E-01	8.424E-02	0.377
	569.33			-1.851E-01	2.650E-01	4.142E-01	4.295E-02	-0.447
CS-135	604.72			2.621E-03	5.144E-02	7.355E-02	7.657E-03	0.036
	795.86	*		1.095E-01	6.016E-02	1.071E-01	1.185E-02	1.023
	801.95			-3.275E-01	5.218E-01	7.835E-01	8.676E-02	-0.418
	1365.19			1.427E-01	1.478E+00	2.443E+00	2.277E-01	0.058
I-135	268.22	*		1.263E-01	2.135E-01	3.510E-01	5.078E-02	0.360
	546.56			2.379E+15	2.135E-01	Half-Life too short		
	836.80			3.053E+15	2.135E-01	Half-Life too short		
	1038.76			2.484E+15	2.135E-01	Half-Life too short		
CS-136	1131.51			5.085E+14	2.135E-01	Half-Life too short		
	1260.41	*		-7.899E+13	2.135E-01	Half-Life too short		
	1457.56			2.676E+17	2.135E-01	Half-Life too short		
	1678.03			-2.157E+15	2.135E-01	Half-Life too short		
CE-139	1791.20			7.467E+14	2.135E-01	Half-Life too short		
	153.25			7.068E-01	1.422E+00	2.426E+00	2.623E-01	0.291
	176.60			1.605E-01	8.456E-01	1.414E+00	1.545E-01	0.114
	273.65			-2.155E+00	1.013E+00	1.385E+00	1.974E-01	-1.556
BA-140	340.55			6.744E-01	3.016E-01	4.775E-01	5.751E-02	1.412
	818.51			-3.326E-02	1.157E-01	1.894E-01	2.099E-02	-0.176
	1048.07	*		-1.254E-02	1.564E-01	2.534E-01	2.563E-02	-0.049
	1235.36			-1.714E-01	9.084E-01	1.489E+00	1.728E-01	-0.115
BA-140	165.86	*		-1.352E-02	3.900E-02	6.411E-02	6.287E-03	-0.211
	162.66			8.939E-01	1.413E+00	2.343E+00	2.386E-01	0.382
	304.85			-1.171E-01	2.503E+00	3.649E+00	1.128E+00	-0.032
	423.72			4.479E-02	3.333E+00	5.449E+00	1.806E+00	0.008
	537.26	*		-6.167E-02	4.180E-01	6.922E-01	2.376E-01	-0.089

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LA-140	328.76			5.102E-01	5.254E-01	9.071E-01	1.147E-01	0.562
	487.02			1.485E-01	2.394E-01	3.998E-01	4.145E-02	0.371
	815.77			5.095E-02	5.203E-01	8.759E-01	1.040E-01	0.058
	1596.21	*		-1.237E-01	1.563E-01	2.387E-01	2.093E-02	-0.518
CE-141	145.44	*		2.932E-02	9.711E-02	1.577E-01	1.436E-02	0.186
CE-143	57.36			3.417E-03	9.711E-02	Half-Life	too short	
	293.27	*		9.089E-03	9.711E-02	Half-Life	too short	
	664.57			2.931E-01	9.711E-02	Half-Life	too short	
	721.93			1.018E-02	9.711E-02	Half-Life	too short	
CE-144	80.12			-1.935E+00	3.180E+00	4.484E+00	3.877E-01	-0.431
	133.52	*		-1.024E-01	2.466E-01	4.102E-01	6.252E-02	-0.250
PM-144	476.78			1.106E-02	8.905E-02	1.450E-01	1.523E-02	0.076
	618.01			3.141E-02	4.302E-02	6.938E-02	7.379E-03	0.453
	696.49	*		1.383E-02	4.388E-02	7.312E-02	7.821E-03	0.189
PR-144	696.51	*		1.042E+00	3.292E+00	5.487E+00	5.867E-01	0.190
	1489.16			-6.798E+00	1.652E+01	2.557E+01	2.278E+00	-0.266
PM-146	453.88	*		6.807E-04	5.659E-02	9.192E-02	1.057E-02	0.007
	633.25			-9.565E-01	1.829E+00	2.849E+00	1.101E+00	-0.336
	735.93			1.470E-01	2.108E-01	3.088E-01	8.888E-02	0.476
	747.24			2.407E-02	1.148E-01	1.891E-01	3.030E-02	0.127
ND-147	91.11			1.538E+00	7.161E-01	9.085E-01	8.982E-02	1.693
	319.41			6.341E-01	5.830E+00	9.806E+00	1.241E+00	0.065
	531.02	*		-3.982E-01	1.000E+00	1.634E+00	2.592E-01	-0.244
PM-149	285.90	*		6.232E-06	1.000E+00	Half-Life	too short	
EU-152	121.78			7.284E-03	9.593E-02	1.526E-01	1.461E-02	0.048
	244.70			3.670E-01	4.940E-01	7.280E-01	9.217E-02	0.504
	344.28	*		4.437E-02	1.376E-01	2.122E-01	2.550E-02	0.209
	778.90			-5.096E-01	3.239E-01	4.484E-01	4.921E-02	-1.136
	964.08			4.970E-01	4.117E-01	6.406E-01	6.836E-02	0.776
	1085.87			-1.317E-01	4.754E-01	7.550E-01	7.034E-02	-0.174
	1112.07			9.306E-02	3.931E-01	5.590E-01	5.009E-02	0.166
	1408.01			5.594E-02	2.274E-01	3.817E-01	3.412E-02	0.147
GD-153	69.67			-6.989E-01	2.284E+00	3.314E+00	2.572E-01	-0.211
	97.43	*		-1.415E-01	1.296E-01	1.723E-01	1.515E-02	-0.821
	103.18			5.887E-03	1.429E-01	2.297E-01	1.963E-02	0.026
EU-154	123.07			8.110E-02	6.777E-02	1.122E-01	1.243E-02	0.723
	723.31			1.093E-01	2.277E-01	3.330E-01	3.830E-02	0.328
	873.19			-4.869E-02	3.530E-01	5.695E-01	7.893E-02	-0.085
	996.26			-4.789E-01	4.412E-01	6.433E-01	1.183E-01	-0.744
	1004.73			2.161E-01	2.665E-01	4.611E-01	5.953E-02	0.469
	1274.44	*		-9.821E-02	1.351E-01	2.075E-01	2.360E-02	-0.473
EU-155	86.55	+		3.368E-01	1.357E-01	2.229E-01	2.097E-02	1.511
	105.31	*		-3.917E-02	1.380E-01	2.183E-01	1.873E-02	-0.179
TB-160	86.79	+		9.348E-01	3.765E-01	6.130E-01	5.733E-02	1.525
	197.04			7.695E-02	8.382E-01	1.324E+00	1.440E-01	0.058
	215.65			2.254E-01	9.909E-01	1.635E+00	1.890E-01	0.138
	298.57	+		3.293E-01	1.937E-01	2.776E-01	3.720E-02	1.186
	879.36	*		9.019E-02	1.799E-01	3.091E-01	3.457E-02	0.292
	962.29			7.165E-01	7.627E-01	1.169E+00	1.250E-01	0.613

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HO-166M		966.15		1.213E+00	3.650E-01	6.133E-01	6.532E-02	1.978
		1177.93		-1.600E-01	4.258E-01	6.593E-01	5.320E-02	-0.243
		1271.85		-4.931E-02	7.715E-01	1.269E+00	1.091E-01	-0.039
		80.57		-2.670E-01	3.404E-01	4.746E-01	4.124E-02	-0.563
	+	184.41		2.048E-01	8.638E-02	9.378E-02	9.778E-03	2.184
		280.46		-2.860E-02	1.174E-01	1.854E-01	2.590E-02	-0.154
		410.95		8.363E-02	3.327E-01	5.518E-01	5.209E-02	0.152
		711.68	*	-3.217E-02	7.206E-02	1.135E-01	1.220E-02	-0.283
		752.31		-1.977E-01	3.354E-01	5.184E-01	5.646E-02	-0.381
		810.29		1.140E-02	6.875E-02	1.164E-01	1.287E-02	0.098
TA-182		67.75		1.206E-02	1.359E-01	2.219E-01	1.692E-02	0.054
		100.11		1.548E-01	2.334E-01	3.852E-01	3.338E-02	0.402
		152.43		7.979E-02	4.565E-01	7.707E-01	7.111E-02	0.104
		222.11		-3.539E-02	4.847E-01	7.879E-01	9.298E-02	-0.045
	+	1121.30		7.400E-01	3.185E-01	4.352E-01	3.843E-02	1.700
		1189.05		5.724E-02	3.400E-01	5.742E-01	4.670E-02	0.100
		1221.41	*	-8.860E-02	2.351E-01	3.797E-01	3.157E-02	-0.233
		1231.02		-5.895E-01	6.064E-01	9.356E-01	7.830E-02	-0.630
	+	295.96		1.145E+00	2.693E-01	3.584E-01	4.849E-02	3.195
		308.46		-1.045E-01	1.292E-01	2.073E-01	2.714E-02	-0.504
IR-192		316.51	*	-2.439E-02	4.640E-02	7.557E-02	9.658E-03	-0.323
		468.07		4.338E-02	1.109E-01	1.597E-01	1.653E-02	0.272
		70.83		2.980E-02	1.825E+00	2.688E+00	4.209E-01	0.011
HG-203		72.87		1.949E+00	1.027E+00	1.724E+00	2.621E-01	1.130
		279.20	*	7.027E-02	5.666E-02	9.468E-02	1.339E-02	0.742
BI-207		72.81		3.739E-01	2.121E-01	3.660E-01	2.928E-02	1.022
	+	74.97		8.274E-01	1.759E-01	2.724E-01	2.227E-02	3.038
		569.70		-2.713E-02	4.053E-02	6.342E-02	6.514E-03	-0.428
PB-210		1063.66	*	-2.240E-02	6.869E-02	1.048E-01	1.006E-02	-0.214
		1770.23		2.961E-01	8.734E-01	1.282E+00	1.066E-01	0.231
		46.54	*	3.468E+00	4.121E+00	6.987E+00	6.435E-01	0.496
PB-211		404.85	*	-1.394E+00	1.205E+00	1.516E+00	7.356E-01	-0.920
		427.09		-4.855E-03	2.077E+00	3.391E+00	1.575E+00	-0.001
BI-212		832.01		-3.274E-01	1.214E+00	1.967E+00	1.029E+00	-0.166
	+	727.33	*	1.616E+00	9.746E-01	1.241E+00	1.746E-01	1.302
		785.37		4.681E+00	3.835E+00	6.687E+00	7.350E-01	0.700
RN-219		1620.50		1.623E+00	2.694E+00	4.801E+00	4.185E-01	0.338
		271.23		5.822E-01	3.358E-01	5.625E-01	8.311E-02	1.035
RA-223		401.81	*	2.167E-01	5.469E-01	9.142E-01	1.401E-01	0.237
		81.07		-4.660E-01	2.847E-01	3.756E-01	3.282E-02	-1.241
		83.79		1.837E-01	1.702E-01	2.548E-01	2.298E-02	0.721
AC-227		94.87		1.269E+00	6.295E-01	9.835E-01	8.794E-02	1.290
		144.24		6.989E-01	9.435E-01	1.554E+00	1.536E-01	0.450
		154.21		2.613E-01	4.979E-01	8.496E-01	8.554E-02	0.308
		269.46		4.244E-01	2.575E-01	4.332E-01	5.948E-02	0.980
		323.87	*	-2.286E-01	8.775E-01	1.448E+00	2.830E-01	-0.158
	+	338.28		6.679E+00	1.996E+00	2.835E+00	4.136E-01	2.356
		79.69		-4.994E-01	1.561E+00	2.236E+00	3.852E-01	-0.223
		235.96		4.345E-01	2.481E-01	3.744E-01	5.086E-02	1.160

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227	+	256.23	*	-8.038E-02	3.392E-01	5.400E-01	8.412E-02	-0.149
		299.98		2.454E+00	1.462E+00	2.071E+00	3.374E-01	1.185
		304.50		5.363E-01	2.297E+00	3.409E+00	6.585E-01	0.157
		334.37		-2.408E+00	2.627E+00	3.518E+00	6.235E-01	-0.684
		79.80		-7.188E-01	2.058E+00	2.939E+00	6.400E-01	-0.245
TH-229	+	235.96		4.345E-01	2.476E-01	3.744E-01	4.922E-02	1.160
		256.23	*	-8.038E-02	3.392E-01	5.400E-01	9.077E-02	-0.149
		299.98		2.454E+00	1.462E+00	2.071E+00	3.374E-01	1.185
		304.50		5.363E-01	2.297E+00	3.409E+00	6.585E-01	0.157
		334.37		-2.408E+00	2.627E+00	3.518E+00	6.235E-01	-0.684
PA-231	+	85.43		4.839E-01	2.931E-01	4.458E-01	4.101E-02	1.086
		88.47		4.274E-01	1.721E-01	2.834E-01	2.677E-02	1.508
		193.51	*	1.514E-01	6.848E-01	1.139E+00	1.224E-01	0.133
		210.85		2.054E+00	1.776E+00	2.007E+00	2.284E-01	1.023
		283.69	*	1.164E+00	1.975E+00	3.230E+00	5.875E-01	0.360
TH-231	+	301.36		1.577E+00	9.372E-01	1.352E+00	2.140E-01	1.166
		81.07		-4.660E-01	2.847E-01	3.756E-01	3.282E-02	-1.241
		83.79		1.837E-01	1.702E-01	2.548E-01	2.298E-02	0.721
		94.87		1.269E+00	6.295E-01	9.835E-01	8.794E-02	1.290
		144.24		6.989E-01	9.435E-01	1.554E+00	1.536E-01	0.450
PA-233	+	154.21		2.613E-01	4.979E-01	8.496E-01	8.554E-02	0.308
		269.46		4.244E-01	2.575E-01	4.332E-01	5.948E-02	0.980
		323.87	*	-2.286E-01	8.775E-01	1.448E+00	2.830E-01	-0.158
		338.28		6.679E+00	1.996E+00	2.835E+00	4.136E-01	2.356
		300.13		1.110E+00	6.668E-01	9.410E-01	1.693E-01	1.180
PA-234	+	311.90	*	3.917E-02	8.138E-02	1.393E-01	1.825E-02	0.281
		340.48		2.374E+00	1.144E+00	1.605E+00	4.073E-01	1.479
		94.67		6.277E-01	2.434E-01	3.752E-01	4.742E-02	1.673
		98.44		5.722E-02	1.245E-01	1.941E-01	1.083E-01	0.295
		111.00		3.336E-02	2.417E-01	3.882E-01	4.616E-02	0.086
PA-234M	+	131.20		-1.224E-01	1.323E-01	2.160E-01	1.829E-02	-0.567
		569.50		-1.626E-01	3.568E-01	5.664E-01	5.818E-02	-0.287
		733.00		-2.668E-01	5.722E-01	7.417E-01	1.716E-01	-0.360
		880.51		2.186E-01	3.460E-01	5.993E-01	6.702E-02	0.365
		883.24		-1.544E-01	3.612E-01	5.542E-01	3.746E-01	-0.279
TH-234	+	926.50		-7.421E-03	2.004E-01	3.301E-01	8.643E-02	-0.022
		946.00	*	1.416E-01	3.614E-01	6.122E-01	1.217E-01	0.231
		949.00		1.987E-01	5.280E-01	8.952E-01	9.672E-02	0.222
		766.42		1.644E+01	1.725E+01	2.602E+01	1.332E+01	0.632
		1001.03	*	3.930E+00	6.034E+00	1.008E+01	1.155E+00	0.390
U-235	+	63.29	*	5.847E-01	1.596E+00	2.686E+00	4.780E-01	0.218
		92.59		3.180E+00	1.523E+00	1.828E+00	4.072E-01	1.739
		89.96		5.894E-01	1.538E+00	1.789E+00	4.449E-01	0.329
		93.35		2.402E+00	1.162E+00	1.359E+00	3.161E-01	1.767
		143.76	*	1.331E-01	2.814E-01	4.591E-01	7.847E-02	0.290
U-238	+	163.33		1.027E-02	5.845E-01	9.482E-01	1.753E-01	0.011
		185.72		2.578E-01	1.087E-01	1.228E-01	1.286E-02	2.099
		205.31		7.296E-02	7.541E-01	1.090E+00	2.125E-01	0.067
		63.29	*	5.847E-01	1.596E+00	2.686E+00	4.780E-01	0.218

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.180E+00	1.379E+00	1.828E+00	1.663E-01	1.739
NP-239		99.53		6.781E-02	2.171E-01	3.473E-01	3.018E-02	0.195
		103.37		2.756E-02	1.274E-01	2.064E-01	1.762E-02	0.134
		106.12		-2.033E-02	1.103E-01	1.752E-01	1.482E-02	-0.116
	*	117.23		6.271E-02	5.013E-01	8.018E-01	6.625E-02	0.078
		228.18		-1.395E-01	2.846E-01	4.521E-01	5.439E-02	-0.308
		277.60		1.524E-01	2.383E-01	3.916E-01	5.458E-02	0.389
AM-241	*	59.54		-1.908E-01	1.681E-01	2.568E-01	2.008E-02	-0.743
CM-247		278.00		6.982E-01	1.023E+00	1.683E+00	2.348E-01	0.415
		287.50		-6.393E-01	1.673E+00	2.612E+00	3.594E-01	-0.245
	*	402.40		1.178E-02	5.010E-02	8.319E-02	7.803E-03	0.142
CF-249		252.80		-2.939E-01	1.252E+00	1.996E+00	2.589E-01	-0.147
		333.37		-1.822E-01	2.708E-01	3.732E-01	4.515E-02	-0.488
	*	388.16		-5.258E-02	5.298E-02	8.218E-02	7.802E-03	-0.640
CF-251	*	177.52		1.056E-01	1.692E-01	2.870E-01	2.924E-02	0.368
		227.38		-2.139E-01	4.710E-01	7.499E-01	8.999E-02	-0.285
		285.41		-3.205E-01	2.976E+00	4.726E+00	6.531E-01	-0.068

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]G247360001      *
* Acquisition date   : 4-MAR-2010 12:41:35 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 02:00:01.78 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G247360001 Analyst initials: MXR1                  *
* Batch Number       : 955027 Sample Quantity : 8.0570E+01 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope                     *
* MSD DPM             : 0.000 MSD Isotope                                  *
* LCS DPM             : 0.000 LCS Isotope                                  *
* LCSD DPM            : 0.000 LCSD Isotope                                 *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.703E+01	2.972E+00	5.729E-01	0.000E+00
CD-109	2.857E+00	1.127E+00	1.781E+00	0.000E+00
SN-126	2.772E-01	1.094E-01	1.721E-01	0.000E+00
BA-137M	1.173E+00	1.695E-01	6.863E-02	0.000E+00
CS-137	1.239E+00	1.792E-01	7.250E-02	0.000E+00
TL-208	5.154E-01	1.041E-01	7.004E-02	0.000E+00
BI-211	4.557E+00	7.365E-01	4.014E-01	0.000E+00
PB-212	1.752E+00	2.661E-01	1.176E-01	0.000E+00
BI-214	1.309E+00	2.540E-01	1.465E-01	0.000E+00
PB-214	1.654E+00	2.818E-01	1.525E-01	0.000E+00
RA-224	4.550E+00	1.529E+00	1.259E+00	0.000E+00
RA-226	1.309E+00	2.540E-01	1.465E-01	0.000E+00
AC-228	1.631E+00	4.279E-01	2.753E-01	0.000E+00
RA-228	1.631E+00	4.279E-01	2.753E-01	0.000E+00
TH-228	1.752E+00	2.661E-01	1.176E-01	0.000E+00
TH-232	1.631E+00	4.279E-01	2.753E-01	0.000E+00
NP-237	8.271E-01	3.680E-01	4.883E-01	0.000E+00
ANH-511	1.511E-01	9.689E-02	5.797E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-5.746E-02	4.552E-01	7.283E-01	0.000E+00 NOT IDENT.
NA-22	-3.520E-02	4.676E-02	7.213E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.027E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	-3.222E-02	4.913E-02	7.743E-02	0.000E+00 FAIL ABUN
V-48	-1.860E-02	1.070E-01	1.739E-01	0.000E+00 NOT IDENT.
CR-51	1.364E-01	5.319E-01	8.953E-01	0.000E+00 NOT IDENT.
MN-54	-6.473E-03	4.496E-02	7.441E-02	0.000E+00 NOT IDENT.
CO-56	-1.111E-03	4.827E-02	8.044E-02	0.000E+00 NOT IDENT.
CO-57	2.392E-02	3.246E-02	5.245E-02	0.000E+00 NOT IDENT.

CO-58	-8.782E-03	4.770E-02	7.886E-02	0.000E+00	NOT IDENT.
FE-59	-9.425E-04	1.192E-01	1.941E-01	0.000E+00	NOT IDENT.
CO-60	-4.516E-02	4.362E-02	6.394E-02	0.000E+00	NOT IDENT.
ZN-65	3.921E-02	1.232E-01	1.766E-01	0.000E+00	NOT IDENT.
SE-75	1.604E-02	5.874E-02	9.501E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	6.633E-02	1.090E-01	0.000E+00	NOT IDENT.
Y-88	1.877E-02	3.627E-02	6.493E-02	0.000E+00	NOT IDENT.
Y-91	4.368E+00	2.597E+01	4.391E+01	0.000E+00	NOT IDENT.
NB-94	7.735E-04	4.188E-02	6.847E-02	0.000E+00	NOT IDENT.
NB-95	6.153E-02	5.794E-02	9.945E-02	0.000E+00	NOT IDENT.
NB-95M	1.157E-01	1.902E-01	2.766E-01	0.000E+00	NOT IDENT.
ZR-95	6.445E-02	9.386E-02	1.591E-01	0.000E+00	NOT IDENT.
MO-99	-1.312E+00	5.199E+01	8.436E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.546E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	3.981E-02	5.410E-02	9.044E-02	0.000E+00	FAIL ABUN
RH-106	8.217E-02	3.827E-01	6.399E-01	0.000E+00	NOT IDENT.
RU-106	8.217E-02	3.826E-01	6.399E-01	0.000E+00	NOT IDENT.
AG-108M	-2.446E-02	3.931E-02	6.155E-02	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	5.881E-02	9.605E-02	0.000E+00	NOT IDENT.
SN-113	3.032E-02	5.926E-02	9.954E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	6.849E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	1.154E-02	8.720E-02	1.451E-01	0.000E+00	NOT IDENT.
TE-123M	9.887E-03	3.572E-02	5.976E-02	0.000E+00	NOT IDENT.
SB-124	-3.140E-02	9.309E-02	1.475E-01	0.000E+00	NOT IDENT.
SB-125	5.995E-02	1.211E-01	2.019E-01	0.000E+00	FAIL ABUN
TE-125M	8.867E+00	1.314E+01	2.127E+01	0.000E+00	NOT IDENT.
I-126	-1.698E-02	4.191E-01	5.876E-01	0.000E+00	NOT IDENT.
SB-126	-9.187E-02	2.468E-01	3.456E-01	0.000E+00	NOT IDENT.
SB-127	-1.873E+00	3.734E+00	5.874E+00	0.000E+00	NOT IDENT.
I-131	-1.140E-02	2.263E-01	3.720E-01	0.000E+00	NOT IDENT.
TE-132	-1.350E+00	2.736E+00	4.304E+00	0.000E+00	NOT IDENT.
BA-133	-5.273E-03	6.310E-02	8.990E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.973E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.896E-02	1.051E-01	0.000E+00	NOT IDENT.
CS-135	1.263E-01	2.092E-01	3.418E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.870E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.254E-02	1.532E-01	2.491E-01	0.000E+00	NOT IDENT.
CE-139	-1.352E-02	3.822E-02	6.221E-02	0.000E+00	NOT IDENT.
BA-140	-6.167E-02	4.097E-01	6.773E-01	0.000E+00	NOT IDENT.
LA-140	-1.237E-01	1.532E-01	2.354E-01	0.000E+00	NOT IDENT.
CE-141	2.932E-02	9.517E-02	1.529E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.345E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.024E-01	2.417E-01	3.975E-01	0.000E+00	NOT IDENT.
PM-144	1.383E-02	4.300E-02	7.167E-02	0.000E+00	NOT IDENT.
PR-144	1.042E+00	3.227E+00	5.379E+00	0.000E+00	NOT IDENT.
PM-146	6.807E-04	5.545E-02	8.984E-02	0.000E+00	NOT IDENT.
ND-147	-3.982E-01	9.804E-01	1.599E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	5.715E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	4.437E-02	1.349E-01	2.070E-01	0.000E+00	NOT IDENT.
GD-153	-1.415E-01	1.270E-01	1.666E-01	0.000E+00	NOT IDENT.
EU-154	-9.821E-02	1.324E-01	2.043E-01	0.000E+00	NOT IDENT.
EU-155	-3.917E-02	1.352E-01	2.112E-01	0.000E+00	FAIL ABUN
TB-160	9.019E-02	1.763E-01	3.035E-01	0.000E+00	FAIL ABUN
HO-166M	-3.217E-02	7.061E-02	1.112E-01	0.000E+00	FAIL ABUN
TA-182	-8.860E-02	2.304E-01	3.736E-01	0.000E+00	FAIL ABUN
IR-192	-2.439E-02	4.548E-02	7.367E-02	0.000E+00	FAIL ABUN
HG-203	7.027E-02	5.553E-02	9.223E-02	0.000E+00	NOT IDENT.
BI-207	-2.240E-02	6.732E-02	1.030E-01	0.000E+00	FAIL ABUN
PB-210	3.468E+00	4.039E+00	6.720E+00	0.000E+00	NOT IDENT.
PB-211	-1.394E+00	1.181E+00	1.480E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	9.551E-01	1.217E+00	0.000E+00	FAIL ABUN
RN-219	2.167E-01	5.359E-01	8.927E-01	0.000E+00	NOT IDENT.
RA-223	-2.286E-01	8.599E-01	1.412E+00	0.000E+00	FAIL ABUN
AC-227	-8.038E-02	3.324E-01	5.256E-01	0.000E+00	FAIL ABUN
TH-227	-8.038E-02	3.324E-01	5.256E-01	0.000E+00	FAIL ABUN
TH-229	1.514E-01	6.711E-01	1.106E+00	0.000E+00	FAIL ABUN
PA-231	1.164E+00	1.935E+00	3.147E+00	0.000E+00	FAIL ABUN
TH-231	-2.286E-01	8.599E-01	1.412E+00	0.000E+00	FAIL ABUN
PA-233	3.917E-02	7.976E-02	1.358E-01	0.000E+00	FAIL ABUN
PA-234	1.416E-01	3.541E-01	6.013E-01	0.000E+00	NOT IDENT.
PA-234M	3.930E+00	5.913E+00	9.905E+00	0.000E+00	NOT IDENT.
TH-234	5.847E-01	1.564E+00	2.589E+00	0.000E+00	FAIL ABUN
U-235	1.331E-01	2.758E-01	4.451E-01	0.000E+00	FAIL ABUN
U-238	5.847E-01	1.564E+00	2.589E+00	0.000E+00	FAIL ABUN
NP-239	6.271E-02	4.913E-01	7.762E-01	0.000E+00	NOT IDENT.
AM-241	-1.908E-01	1.648E-01	2.475E-01	0.000E+00	NOT IDENT.
CM-247	1.178E-02	4.910E-02	8.124E-02	0.000E+00	NOT IDENT.
CF-249	-5.258E-02	5.192E-02	8.023E-02	0.000E+00	NOT IDENT.

CF-251	1.056E-01	1.658E-01	2.786E-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]G247360001.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:41:35.
Sample ID          : G247360001 Sample quantity : 8.05700E+01 GRAM
Detector name      : GAM22 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.78 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 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	1460.82	1181	10.66*	1.909E+00	2.703E+01	2.703E+01	11.22
CD-109	88.03	164	3.70*	7.467E+00	2.772E+00	2.857E+00	40.27
SN-126	64.28	-----	9.60	4.512E+00	-----	Line Not Found	-----
	86.94	164	8.90	7.467E+00	1.152E+00	1.152E+00	57.08
	87.57	164	37.00*	7.467E+00	2.772E-01	2.772E-01	40.27
BA-137M	661.66	811	89.90*	3.590E+00	1.171E+00	1.173E+00	14.75
CS-137	661.66	811	85.10*	3.590E+00	1.237E+00	1.239E+00	14.76
TL-208	277.37	-----	6.60	6.182E+00	-----	Line Not Found	-----
	583.19	370	85.00*	3.931E+00	5.154E-01	5.154E-01	20.61
	860.56	85	12.50	2.920E+00	1.086E+00	1.086E+00	52.97
BI-211	72.87	-----	1.23	5.897E+00	-----	Line Not Found	-----
	351.06	683	12.92*	5.402E+00	4.557E+00	4.557E+00	16.49
PB-212	74.82	390	10.28	6.160E+00	2.870E+00	2.870E+00	23.38
	77.11	572	17.10	6.459E+00	2.413E+00	2.413E+00	15.99
	238.63	1100	43.60*	6.709E+00	1.752E+00	1.752E+00	15.50
	300.09	93	3.30	5.917E+00	2.231E+00	2.231E+00	59.14
BI-214	609.32	487	45.49*	3.811E+00	1.309E+00	1.309E+00	19.81
	1120.29	115	14.92	2.345E+00	1.533E+00	1.533E+00	43.55
	1764.49	94	15.30	1.716E+00	1.671E+00	1.671E+00	34.80
PB-214	74.82	390	5.80	6.160E+00	5.087E+00	5.087E+00	22.69
	77.11	572	9.70	6.459E+00	4.255E+00	4.255E+00	17.99
	242.00	267	7.25	6.664E+00	2.573E+00	2.573E+00	34.77
	295.22	349	18.42	5.968E+00	1.479E+00	1.479E+00	24.38
	351.93	683	35.60*	5.402E+00	1.654E+00	1.654E+00	17.39
RA-224	240.99	267	4.10*	6.664E+00	4.550E+00	4.550E+00	34.28
RA-226	609.32	487	45.49*	3.811E+00	1.309E+00	1.309E+00	19.81
	1120.29	115	14.92	2.345E+00	1.533E+00	1.533E+00	43.55
	1764.49	94	15.30	1.716E+00	1.671E+00	1.671E+00	34.80
AC-228	338.32	225	11.27	5.526E+00	1.683E+00	1.683E+00	49.88
	911.20	252	25.80*	2.788E+00	1.631E+00	1.631E+00	26.77
	968.97	119	15.80	2.647E+00	1.330E+00	1.330E+00	47.69
RA-228	338.32	225	11.27	5.526E+00	1.683E+00	1.683E+00	49.88

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	252	25.80*	2.788E+00	1.631E+00	1.631E+00	26.77
	968.97	119	15.80	2.647E+00	1.330E+00	1.330E+00	47.69
	74.82	390	10.28	6.160E+00	2.870E+00	2.870E+00	21.29
	77.11	572	17.10	6.459E+00	2.413E+00	2.413E+00	15.99
	238.63	1100	43.60*	6.709E+00	1.752E+00	1.752E+00	15.50
TH-232	300.09	93	3.30	5.917E+00	2.231E+00	2.231E+00	84.46
	338.32	225	11.27	5.526E+00	1.683E+00	1.683E+00	28.67
	911.20	252	25.80*	2.788E+00	1.631E+00	1.631E+00	26.77
NP-237	968.97	119	15.80	2.647E+00	1.330E+00	1.330E+00	47.69
	86.48	164	12.40*	7.467E+00	8.271E-01	8.271E-01	45.40
	95.86	-----	2.68	8.032E+00	-----	Line Not Found	-----
ANH-511	511.00	139	100.00*	4.298E+00	1.511E-01	1.511E-01	65.43

Flag: "*" = Keyline

Total number of lines in spectrum 24
Number of unidentified lines 0
Number of lines tentatively identified by NID 24 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.703E+01	2.703E+01	0.303E+01	11.22	
CD-109	461.40D	1.03	2.772E+00	2.857E+00	1.151E+00	40.27	
SN-126	2.30E+05Y	1.00	2.772E-01	2.772E-01	1.116E-01	40.27	
BA-137M	30.08Y	1.00	1.171E+00	1.173E+00	0.173E+00	14.75	
CS-137	30.08Y	1.00	1.237E+00	1.239E+00	0.183E+00	14.76	
TL-208	1.41E+10Y	1.00	5.154E-01	5.154E-01	1.062E-01	20.61	
BI-211	7.04E+08Y	1.00	4.557E+00	4.557E+00	0.752E+00	16.49	
PB-212	1.41E+10Y	1.00	1.752E+00	1.752E+00	0.272E+00	15.50	
BI-214	1600.00Y	1.00	1.309E+00	1.309E+00	0.259E+00	19.81	
PB-214	1600.00Y	1.00	1.654E+00	1.654E+00	0.288E+00	17.39	
RA-224	1.41E+10Y	1.00	4.550E+00	4.550E+00	1.560E+00	34.28	
RA-226	1600.00Y	1.00	1.309E+00	1.309E+00	0.259E+00	19.81	
AC-228	1.41E+10Y	1.00	1.631E+00	1.631E+00	0.437E+00	26.77	
RA-228	1.41E+10Y	1.00	1.631E+00	1.631E+00	0.437E+00	26.77	
TH-228	1.41E+10Y	1.00	1.752E+00	1.752E+00	0.272E+00	15.50	
TH-232	1.41E+10Y	1.00	1.631E+00	1.631E+00	0.437E+00	26.77	
NP-237	2.14E+06Y	1.00	8.271E-01	8.271E-01	3.755E-01	45.40	
ANH-511	1.00E+09Y	1.00	1.511E-01	1.511E-01	0.989E-01	65.43	
Total Activity :			5.576E+01	5.585E+01			

Grand Total Activity : 5.576E+01 5.585E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines
Sample ID : G247360001

Page : 4
Acquisition date : 4-MAR-2010 12:41:35

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	92.84	227	541	1.43	185.87	182	9	3.15E-02	42.4	7.87E+00	T
0	185.52	241	466	1.21	371.06	364	13	3.35E-02	40.8	7.61E+00	T
0	209.67	89	364	1.31	419.31	413	10	1.23E-02	85.7	7.18E+00	T
0	464.15	66	192	1.57	927.87	920	14	9.11E-03	93.1	4.57E+00	T
0	727.96	77	84	1.45	1455.17	1450	14	1.07E-02	58.7	3.34E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360001.CNF;1
* Acquisition date   : 4-MAR-2010 12:41:35.  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 02:00:01.78           Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G247360001           Analyst initials: MXR1
* Batch Number       : 955027              Sample Quantity : 8.05700E+01 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	2.703E+01	3.032E+00	5.815E-01	5.327E-02	46.492
CD-109	2.857E+00	1.151E+00	1.843E+00	1.749E-01	1.550
SN-126	2.772E-01	1.116E-01	1.781E-01	1.682E-02	1.556
BA-137M	1.173E+00	1.730E-01	7.004E-02	7.386E-03	16.742
CS-137	1.239E+00	1.828E-01	7.399E-02	7.813E-03	16.742
TL-208	5.154E-01	1.062E-01	7.154E-02	7.750E-03	7.204
BI-211	4.557E+00	7.515E-01	4.115E-01	4.801E-02	11.075
PB-212	1.752E+00	2.715E-01	1.208E-01	1.601E-02	14.499
BI-214	1.309E+00	2.592E-01	1.496E-01	1.746E-02	8.747
PB-214	1.654E+00	2.876E-01	1.563E-01	2.011E-02	10.583
RA-224	4.550E+00	1.560E+00	1.294E+00	1.620E-01	3.517
RA-226	1.309E+00	2.592E-01	1.496E-01	1.746E-02	8.747
AC-228	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
RA-228	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
TH-228	1.752E+00	2.715E-01	1.208E-01	1.601E-02	14.499
TH-232	1.631E+00	4.367E-01	2.804E-01	3.798E-02	5.819
NP-237	8.271E-01	3.755E-01	5.054E-01	1.160E-01	1.636
ANH-511	1.511E-01	9.887E-02	5.926E-02	5.938E-03	2.550

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-5.746E-02		4.645E-01	7.449E-01	7.773E-02	-0.077
NA-22	-3.520E-02		4.771E-02	7.328E-02	6.315E-03	-0.480
NA-24	-1.509E+02		1.034E+02	Half-Life	too short	
SC-46	-3.222E-02		5.014E-02	7.886E-02	8.827E-03	-0.409
V-48	-1.860E-02		1.092E-01	1.769E-01	1.856E-02	-0.105
CR-51	1.364E-01		5.428E-01	9.182E-01	1.189E-01	0.149
MN-54	-6.473E-03		4.588E-02	7.582E-02	8.422E-03	-0.085
CO-56	-1.111E-03		4.926E-02	8.195E-02	9.123E-03	-0.014
CO-57	2.392E-02		3.313E-02	5.416E-02	4.466E-03	0.442
CO-58	-8.782E-03		4.867E-02	8.037E-02	8.899E-03	-0.109
FE-59	-9.425E-04		1.216E-01	1.974E-01	1.934E-02	-0.005
CO-60	-4.516E-02		4.451E-02	6.494E-02	5.790E-03	-0.695
ZN-65	3.921E-02		1.257E-01	1.796E-01	1.602E-02	0.218
SE-75	1.604E-02		5.994E-02	9.758E-02	1.313E-02	0.164
SR-85	2.468E-01		6.768E-02	1.115E-01	1.118E-02	2.214
Y-88	1.877E-02		3.701E-02	6.581E-02	5.320E-03	0.285
Y-91	4.368E+00		2.650E+01	4.463E+01	3.669E+00	0.098
NB-94	7.735E-04		4.273E-02	6.984E-02	7.485E-03	0.011
NB-95	6.153E-02		5.912E-02	1.014E-01	1.109E-02	0.607
NB-95M	1.157E-01		1.941E-01	2.843E-01	3.762E-02	0.407
ZR-95	6.445E-02		9.578E-02	1.622E-01	1.887E-02	0.397
MO-99	-1.312E+00		5.305E+01	8.603E+01	1.469E+01	-0.015
TC-99M	-6.111E+16		2.319E+16	Half-Life	too short	
RU-103	3.981E-02		5.520E-02	9.248E-02	1.371E-02	0.430
RH-106	8.217E-02		3.905E-01	6.533E-01	9.479E-02	0.126
RU-106	8.217E-02		3.904E-01	6.533E-01	6.824E-02	0.126
AG-108M	-2.446E-02		4.011E-02	6.300E-02	6.200E-03	-0.388
AG-110M	1.498E-01		6.001E-02	9.803E-02	1.054E-02	1.528
SN-113	3.032E-02		6.047E-02	1.019E-01	9.736E-03	0.297
CD-115	3.540E-05		3.495E-05	Half-Life	too short	
SN-117M	1.154E-02		8.898E-02	1.496E-01	1.419E-02	0.077
TE-123M	9.887E-03		3.645E-02	6.160E-02	5.883E-03	0.161
SB-124	-3.140E-02		9.499E-02	1.496E-01	1.333E-02	-0.210
SB-125	5.995E-02		1.235E-01	2.067E-01	2.005E-02	0.290
TE-125M	8.867E+00		1.341E+01	2.198E+01	2.263E+00	0.403
I-126	-1.698E-02		4.276E-01	5.997E-01	6.336E-02	-0.028
SB-126	-9.187E-02		2.519E-01	3.525E-01	3.801E-02	-0.261
SB-127	-1.873E+00		3.810E+00	5.993E+00	8.606E-01	-0.312
I-131	-1.140E-02		2.309E-01	3.812E-01	4.236E-02	-0.030
TE-132	-1.350E+00		2.792E+00	4.425E+00	8.347E-01	-0.305
BA-133	-5.273E-03		6.439E-02	9.214E-02	1.357E-02	-0.057
I-133	2.845E-02		2.027E-01	Half-Life	too short	
CS-134	1.095E-01		6.016E-02	1.071E-01	1.185E-02	1.023
CS-135	1.263E-01		2.135E-01	3.510E-01	5.078E-02	0.360
I-135	-7.899E+13		9.538E+14	Half-Life	too short	
CS-136	-1.254E-02		1.564E-01	2.534E-01	2.563E-02	-0.049
CE-139	-1.352E-02		3.900E-02	6.411E-02	6.287E-03	-0.211
BA-140	-6.167E-02		4.180E-01	6.922E-01	2.376E-01	-0.089

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140	-1.237E-01		1.563E-01	2.387E-01	2.093E-02	-0.518
CE-141	2.932E-02		9.711E-02	1.577E-01	1.436E-02	0.186
CE-143	9.089E-03		1.707E-03	Half-Life too short		
CE-144	-1.024E-01		2.466E-01	4.102E-01	6.252E-02	-0.250
PM-144	1.383E-02		4.388E-02	7.312E-02	7.821E-03	0.189
PR-144	1.042E+00		3.292E+00	5.487E+00	5.867E-01	0.190
PM-146	6.807E-04		5.659E-02	9.192E-02	1.057E-02	0.007
ND-147	-3.982E-01		1.000E+00	1.634E+00	2.592E-01	-0.244
PM-149	6.232E-06		2.916E-04	Half-Life too short		
EU-152	4.437E-02		1.376E-01	2.122E-01	2.550E-02	0.209
GD-153	-1.415E-01		1.296E-01	1.723E-01	1.515E-02	-0.821
EU-154	-9.821E-02		1.351E-01	2.075E-01	2.360E-02	-0.473
EU-155	-3.917E-02		1.380E-01	2.183E-01	1.873E-02	-0.179
TB-160	9.019E-02		1.799E-01	3.091E-01	3.457E-02	0.292
HO-166M	-3.217E-02		7.206E-02	1.135E-01	1.220E-02	-0.283
TA-182	-8.860E-02		2.351E-01	3.797E-01	3.157E-02	-0.233
IR-192	-2.439E-02		4.640E-02	7.557E-02	9.658E-03	-0.323
HG-203	7.027E-02		5.666E-02	9.468E-02	1.339E-02	0.742
BI-207	-2.240E-02		6.869E-02	1.048E-01	1.006E-02	-0.214
PB-210	3.468E+00		4.121E+00	6.987E+00	6.435E-01	0.496
PB-211	-1.394E+00		1.205E+00	1.516E+00	7.356E-01	-0.920
BI-212	1.616E+00	+	9.746E-01	1.241E+00	1.746E-01	1.302
RN-219	2.167E-01		5.469E-01	9.142E-01	1.401E-01	0.237
RA-223	-2.286E-01		8.775E-01	1.448E+00	2.830E-01	-0.158
AC-227	-8.038E-02		3.392E-01	5.400E-01	8.412E-02	-0.149
TH-227	-8.038E-02		3.392E-01	5.400E-01	9.077E-02	-0.149
TH-229	1.514E-01		6.848E-01	1.139E+00	1.224E-01	0.133
PA-231	1.164E+00		1.975E+00	3.230E+00	5.875E-01	0.360
TH-231	-2.286E-01		8.775E-01	1.448E+00	2.830E-01	-0.158
PA-233	3.917E-02		8.138E-02	1.393E-01	1.825E-02	0.281
PA-234	1.416E-01		3.614E-01	6.122E-01	1.217E-01	0.231
PA-234M	3.930E+00		6.034E+00	1.008E+01	1.155E+00	0.390
TH-234	5.847E-01		1.596E+00	2.686E+00	4.780E-01	0.218
U-235	1.331E-01		2.814E-01	4.591E-01	7.847E-02	0.290
U-238	5.847E-01		1.596E+00	2.686E+00	4.780E-01	0.218
NP-239	6.271E-02		5.013E-01	8.018E-01	6.625E-02	0.078
AM-241	-1.908E-01		1.681E-01	2.568E-01	2.008E-02	-0.743
CM-247	1.178E-02		5.010E-02	8.319E-02	7.803E-03	0.142
CF-249	-5.258E-02		5.298E-02	8.218E-02	7.802E-03	-0.640
CF-251	1.056E-01		1.692E-01	2.870E-01	2.924E-02	0.368

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]G247360001 *
* Acquisition date   : 4-MAR-2010 12:41:35 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 02:00:01.78 Half life ratio        : 8.000 *
*****
*               SAMPLE DATA          *
*                                     *
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID *
* Sample ID          : G247360001    Analyst initials: MXR1 *
* Batch Number       : 955027        Sample Quantity : 8.0570E+01 GRAM *
* Recovery           : 1.00000       Carrier Weight  : 0.00000 *
*****
*               QC DATA              *
*                                     *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope      : *
* MSD DPM            : 0.000          MSD Isotope          : *
* LCS DPM            : 0.000          LCS Isotope          : *
* LCSD DPM           : 0.000          LCSD Isotope         : *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.703E+01	2.972E+00	2.866E-01	1.516E+00
CD-109	2.857E+00	1.127E+00	8.910E-01	5.753E-01
SN-126	2.772E-01	1.094E-01	8.611E-02	5.582E-02
BA-137M	1.173E+00	1.695E-01	3.434E-02	8.648E-02
CS-137	1.239E+00	1.792E-01	3.627E-02	9.142E-02
TL-208	5.154E-01	1.041E-01	3.504E-02	5.311E-02
BI-211	4.557E+00	7.365E-01	2.008E-01	3.758E-01
PB-212	1.752E+00	2.661E-01	5.882E-02	1.358E-01
BI-214	1.309E+00	2.540E-01	7.330E-02	1.296E-01
PB-214	1.654E+00	2.818E-01	7.627E-02	1.438E-01
RA-224	4.550E+00	1.529E+00	6.298E-01	7.800E-01
RA-226	1.309E+00	2.540E-01	7.330E-02	1.296E-01
AC-228	1.631E+00	4.279E-01	1.378E-01	2.183E-01
RA-228	1.631E+00	4.279E-01	1.378E-01	2.183E-01
TH-228	1.752E+00	2.661E-01	5.882E-02	1.358E-01
TH-232	1.631E+00	4.279E-01	1.378E-01	2.183E-01
NP-237	8.271E-01	3.680E-01	2.443E-01	1.878E-01
ANH-511	1.511E-01	9.689E-02	2.900E-02	4.943E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-5.746E-02	4.552E-01	3.644E-01	2.322E-01 NOT IDENT.
NA-22	-3.520E-02	4.676E-02	3.608E-02	2.386E-02 NOT IDENT.
NA-24	-1.509E+08	2.027E+08	0.000E+00	1.034E+08 SHORT HLIF
SC-46	-3.222E-02	4.913E-02	3.874E-02	2.507E-02 FAIL ABUN
V-48	-1.860E-02	1.070E-01	8.698E-02	5.460E-02 NOT IDENT.
CR-51	1.364E-01	5.319E-01	4.479E-01	2.714E-01 NOT IDENT.
MN-54	-6.473E-03	4.496E-02	3.723E-02	2.294E-02 NOT IDENT.
CO-56	-1.111E-03	4.827E-02	4.024E-02	2.463E-02 NOT IDENT.
CO-57	2.392E-02	3.246E-02	2.624E-02	1.656E-02 NOT IDENT.

CO-58	-8.782E-03	4.770E-02	3.945E-02	2.434E-02	NOT IDENT.
FE-59	-9.425E-04	1.192E-01	9.713E-02	6.081E-02	NOT IDENT.
CO-60	-4.516E-02	4.362E-02	3.199E-02	2.225E-02	NOT IDENT.
ZN-65	3.921E-02	1.232E-01	8.836E-02	6.283E-02	NOT IDENT.
SE-75	1.604E-02	5.874E-02	4.753E-02	2.997E-02	NOT IDENT.
SR-85	2.468E-01	6.633E-02	5.455E-02	3.384E-02	NOT IDENT.
Y-88	1.877E-02	3.627E-02	3.249E-02	1.850E-02	NOT IDENT.
Y-91	4.368E+00	2.597E+01	2.197E+01	1.325E+01	NOT IDENT.
NB-94	7.735E-04	4.188E-02	3.425E-02	2.137E-02	NOT IDENT.
NB-95	6.153E-02	5.794E-02	4.975E-02	2.956E-02	NOT IDENT.
NB-95M	1.157E-01	1.902E-01	1.384E-01	9.706E-02	NOT IDENT.
ZR-95	6.445E-02	9.386E-02	7.958E-02	4.789E-02	NOT IDENT.
MO-99	-1.312E+00	5.199E+01	4.220E+01	2.653E+01	NOT IDENT.
TC-99M	-6.111E+22	4.546E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	3.981E-02	5.410E-02	4.525E-02	2.760E-02	FAIL ABUN
RH-106	8.217E-02	3.827E-01	3.201E-01	1.952E-01	NOT IDENT.
RU-106	8.217E-02	3.826E-01	3.201E-01	1.952E-01	NOT IDENT.
AG-108M	-2.446E-02	3.931E-02	3.079E-02	2.005E-02	NOT IDENT.
AG-110M	1.498E-01	5.881E-02	4.805E-02	3.001E-02	NOT IDENT.
SN-113	3.032E-02	5.926E-02	4.980E-02	3.024E-02	NOT IDENT.
CD-115	3.540E+01	6.849E+01	0.000E+00	3.495E+01	SHORT HLIF
SN-117M	1.154E-02	8.720E-02	7.262E-02	4.449E-02	NOT IDENT.
TE-123M	9.887E-03	3.572E-02	2.990E-02	1.822E-02	NOT IDENT.
SB-124	-3.140E-02	9.309E-02	7.379E-02	4.750E-02	NOT IDENT.
SB-125	5.995E-02	1.211E-01	1.010E-01	6.177E-02	FAIL ABUN
TE-125M	8.867E+00	1.314E+01	1.064E+01	6.703E+00	NOT IDENT.
I-126	-1.698E-02	4.191E-01	2.940E-01	2.138E-01	NOT IDENT.
SB-126	-9.187E-02	2.468E-01	1.729E-01	1.259E-01	NOT IDENT.
SB-127	-1.873E+00	3.734E+00	2.939E+00	1.905E+00	NOT IDENT.
I-131	-1.140E-02	2.263E-01	1.861E-01	1.155E-01	NOT IDENT.
TE-132	-1.350E+00	2.736E+00	2.153E+00	1.396E+00	NOT IDENT.
BA-133	-5.273E-03	6.310E-02	4.497E-02	3.219E-02	NOT IDENT.
I-133	2.845E+04	3.973E+05	0.000E+00	2.027E+05	SHORT HLIF
CS-134	1.095E-01	5.896E-02	5.256E-02	3.008E-02	NOT IDENT.
CS-135	1.263E-01	2.092E-01	1.710E-01	1.068E-01	NOT IDENT.
I-135	-7.899E+19	1.870E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.254E-02	1.532E-01	1.246E-01	7.819E-02	NOT IDENT.
CE-139	-1.352E-02	3.822E-02	3.113E-02	1.950E-02	NOT IDENT.
BA-140	-6.167E-02	4.097E-01	3.389E-01	2.090E-01	NOT IDENT.
LA-140	-1.237E-01	1.532E-01	1.178E-01	7.817E-02	NOT IDENT.
CE-141	2.932E-02	9.517E-02	7.651E-02	4.856E-02	NOT IDENT.
CE-143	9.089E+03	3.345E+03	0.000E+00	1.707E+03	SHORT HLIF
CE-144	-1.024E-01	2.417E-01	1.989E-01	1.233E-01	NOT IDENT.
PM-144	1.383E-02	4.300E-02	3.586E-02	2.194E-02	NOT IDENT.
PR-144	1.042E+00	3.227E+00	2.691E+00	1.646E+00	NOT IDENT.
PM-146	6.807E-04	5.545E-02	4.495E-02	2.829E-02	NOT IDENT.
ND-147	-3.982E-01	9.804E-01	8.000E-01	5.002E-01	NOT IDENT.
PM-149	6.232E+00	5.715E+02	0.000E+00	2.916E+02	SHORT HLIF
EU-152	4.437E-02	1.349E-01	1.036E-01	6.881E-02	NOT IDENT.
GD-153	-1.415E-01	1.270E-01	8.335E-02	6.478E-02	NOT IDENT.
EU-154	-9.821E-02	1.324E-01	1.022E-01	6.757E-02	NOT IDENT.
EU-155	-3.917E-02	1.352E-01	1.057E-01	6.898E-02	FAIL ABUN
TB-160	9.019E-02	1.763E-01	1.518E-01	8.995E-02	FAIL ABUN
HO-166M	-3.217E-02	7.061E-02	5.565E-02	3.603E-02	FAIL ABUN
TA-182	-8.860E-02	2.304E-01	1.869E-01	1.176E-01	FAIL ABUN
IR-192	-2.439E-02	4.548E-02	3.68E-02	2.320E-02	FAIL ABUN
HG-203	7.027E-02	5.553E-02	4.614E-02	2.833E-02	NOT IDENT.
BI-207	-2.240E-02	6.732E-02	5.152E-02	3.435E-02	FAIL ABUN
PB-210	3.468E+00	4.039E+00	3.362E+00	2.060E+00	NOT IDENT.
PB-211	-1.394E+00	1.181E+00	7.405E-01	6.024E-01	NOT IDENT.
BI-212	1.616E+00	9.551E-01	6.090E-01	4.873E-01	FAIL ABUN
RN-219	2.167E-01	5.359E-01	4.466E-01	2.734E-01	NOT IDENT.
RA-223	-2.286E-01	8.599E-01	7.063E-01	4.387E-01	FAIL ABUN
AC-227	-8.038E-02	3.324E-01	2.630E-01	1.696E-01	FAIL ABUN
TH-227	-8.038E-02	3.324E-01	2.630E-01	1.696E-01	FAIL ABUN
TH-229	1.514E-01	6.711E-01	5.535E-01	3.424E-01	FAIL ABUN
PA-231	1.164E+00	1.935E+00	1.574E+00	9.873E-01	FAIL ABUN
TH-231	-2.286E-01	8.599E-01	7.063E-01	4.387E-01	FAIL ABUN
PA-233	3.917E-02	7.976E-02	6.792E-02	4.069E-02	FAIL ABUN
PA-234	1.416E-01	3.541E-01	3.008E-01	1.807E-01	NOT IDENT.
PA-234M	3.930E+00	5.913E+00	4.955E+00	3.017E+00	NOT IDENT.
TH-234	5.847E-01	1.564E+00	1.295E+00	7.981E-01	FAIL ABUN
U-235	1.331E-01	2.758E-01	2.227E-01	1.407E-01	FAIL ABUN
U-238	5.847E-01	1.564E+00	1.295E+00	7.981E-01	FAIL ABUN
NP-239	6.271E-02	4.913E-01	3.883E-01	2.507E-01	NOT IDENT.
AM-241	-1.908E-01	1.648E-01	1.238E-01	8.407E-02	NOT IDENT.
CM-247	1.178E-02	4.910E-02	4.064E-02	2.505E-02	NOT IDENT.
CF-249	-5.258E-02	5.192E-02	4.014E-02	2.649E-02	NOT IDENT.

CF-251	1.056E-01	1.658E-01	1.394E-01	8.458E-02 NOT IDENT.
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 * GEL Laboratories LLC *
 * 2040 SAVAGE ROAD *
 * CHARLESTON , SC 29417 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS
46.54	261.0669
49.72	257.6148
57.36	0.0000
59.54	283.8561
63.29	303.5376
63.29	303.5376
64.28	326.0886
67.75	344.0830
69.67	376.7321
70.83	360.3269
72.81	351.2604
72.87	351.3333
72.87	351.3333
74.82	353.6601
74.82	353.6601
74.82	353.6601
74.97	353.8381
77.11	356.3535
77.11	356.3535
77.11	356.3535
79.69	358.8291
79.80	358.9553
80.12	370.1166
80.19	370.1990
80.57	370.6458
81.00	426.8238
81.07	426.9185
81.07	426.9185
83.79	349.4343
83.79	349.4343
85.43	363.7319
86.48	460.8258
86.55	460.9220
86.79	543.6381
86.94	543.8858
87.57	521.7652
88.03	530.9063
88.47	449.3272
89.96	451.2957
91.11	452.8048
92.59	460.0683
92.59	460.0683
93.35	461.0636
94.67	301.1857
94.87	301.3540
94.87	301.3540
95.86	324.8109
97.43	361.9276
98.44	301.6262
99.53	304.6948
100.11	298.6311
103.18	306.5696
103.37	299.0273
105.31	327.0591
106.12	328.8499
109.28	296.8986
111.00	314.9902
111.76	322.3217
116.30	303.1875
117.23	270.8562
121.12	310.0932
121.78	293.3133
122.06	267.0299
123.07	260.7286
131.20	345.3896
133.52	308.1639
136.00	316.0283

136.47	322.5803
140.51	376.5348
140.51	0.0000
143.76	311.1962
144.24	303.3484
144.24	303.3484
145.44	308.6230
152.43	313.8208
153.25	312.4742
154.21	309.3572
154.21	309.3572
156.02	297.4550
158.56	297.0230
159.00	284.2202
162.66	288.9685
163.33	309.0500
165.86	308.5883
176.60	301.9859
177.52	286.0873
181.07	316.3071
184.41	284.5570
185.72	285.1763
193.51	288.8054
197.04	290.4272
205.31	328.8230
210.85	300.6950
215.65	256.7947
222.11	286.0536
227.38	284.0306
228.16	278.0917
228.18	278.0999
235.69	279.5191
235.96	306.5740
235.96	306.5740
238.63	266.2638
238.63	266.2638
240.99	267.1078
242.00	267.4674
244.70	245.4187
252.40	235.6265
252.80	234.6703
256.23	244.3503
256.23	244.3503
260.90	0.0000
264.66	213.0730
268.22	239.2491
269.46	225.3230
269.46	225.3230
271.23	223.6048
273.65	346.8824
276.40	233.8656
277.37	229.6975
277.60	230.8674
278.00	234.3099
279.20	209.0674
279.54	209.1506
280.46	249.4707
283.69	213.5256
284.31	221.5113
285.41	229.6365
285.90	0.0000
287.50	230.1933
293.27	0.0000
295.22	211.4612
295.96	167.7985
298.57	168.2908
299.98	211.0734
299.98	211.0734
300.09	206.5456
300.09	206.5456
300.13	198.9600
301.36	209.8778
302.85	196.5129
304.50	196.8725
304.50	196.8725
304.85	204.5823
308.46	219.8001
311.90	186.4653

316.51	208.7238
319.41	197.2723
320.08	200.2030
323.87	239.3344
323.87	239.3344
328.76	215.1823
333.37	228.1614
334.37	237.8422
334.37	237.8422
338.28	210.6371
338.28	210.6371
338.32	210.6480
338.32	210.6480
338.32	210.6480
340.48	204.4468
340.55	199.7076
344.28	188.1785
351.06	176.1696
351.93	192.3486
356.01	202.7659
364.49	182.0260
366.42	185.2848
383.85	154.5965
388.16	200.9619
388.63	196.0694
391.69	169.6597
400.66	163.9650
401.81	178.2272
402.40	181.3403
404.85	229.1780
410.95	187.7574
414.70	177.1584
423.72	165.1685
427.09	175.9200
427.87	163.6796
433.94	180.0152
453.88	160.8349
463.37	157.7905
468.07	159.4244
473.00	170.6914
476.78	156.2015
477.60	158.4388
487.02	134.7595
492.35	0.0000
497.08	118.3792
511.00	138.2155
514.00	115.4237
527.90	0.0000
529.87	0.0000
531.02	149.2440
537.26	122.8826
546.56	0.0000
563.25	132.6030
569.33	135.9798
569.50	126.4842
569.70	132.2072
583.19	121.7030
600.60	133.8391
602.73	154.8227
604.72	153.3472
609.32	143.3304
609.32	143.3304
610.33	143.4201
614.28	137.4770
618.01	105.8599
621.93	111.0206
621.93	111.0206
633.25	124.6260
635.95	108.9750
636.99	112.0137
645.85	113.5895
657.76	108.3494
661.66	108.5911
661.66	108.5911
664.57	0.0000
666.33	124.4305
666.50	124.4431
677.62	118.6972

685.70	105.9784
695.00	127.0021
696.49	114.8050
696.51	114.8073
697.00	117.9129
702.65	121.3586
706.68	109.2521
711.68	105.4095
720.70	102.7987
721.93	0.0000
722.78	83.7548
722.91	83.7597
723.31	90.9078
724.19	94.5153
727.33	105.3880
733.00	112.8647
735.93	87.9170
739.50	101.7107
747.24	87.3753
752.31	105.5440
753.82	103.5109
756.73	93.0864
763.94	146.5043
765.81	111.5753
766.42	115.8591
777.92	125.0718
778.90	116.5776
783.70	67.5374
785.37	79.3943
795.86	79.7993
801.95	98.4186
810.29	83.7645
810.76	91.2307
815.77	90.5129
818.51	92.4983
832.01	99.6634
834.85	104.5019
836.80	0.0000
846.77	88.0357
856.80	84.8719
860.56	91.6829
871.09	84.8583
873.19	88.7198
875.33	0.0000
879.36	79.7260
880.51	77.8444
883.24	88.5218
884.68	78.9499
889.28	93.5797
898.04	85.2208
911.20	86.6782
911.20	86.6782
911.20	86.6782
926.50	72.5392
937.49	71.8887
944.13	87.8872
946.00	74.1198
949.00	73.2219
962.29	83.5708
964.08	90.6001
966.15	87.1887
968.97	129.1861
968.97	129.1861
968.97	129.1861
983.53	84.2886
996.26	92.7829
1001.03	70.7288
1004.73	73.8669
1037.84	69.6934
1038.76	0.0000
1048.07	66.8771
1050.41	60.7573
1050.41	60.7573
1063.66	83.8251
1085.87	80.3408
1099.45	80.7383
1112.07	62.6730
1115.54	77.5144

1120.29	77.6451
1120.29	77.6451
1120.55	79.5017
1121.30	88.7695
1131.51	0.0000
1173.23	67.7900
1177.93	73.5582
1189.05	68.1548
1204.77	82.7891
1221.41	93.7711
1231.02	118.0602
1235.36	112.4618
1238.28	76.9702
1260.41	0.0000
1271.85	52.5168
1274.44	65.2130
1274.54	65.2150
1291.59	69.4811
1298.22	0.0000
1312.11	54.1658
1332.49	56.4868
1365.19	40.0317
1368.63	0.0000
1384.29	82.5280
1408.01	47.6311
1457.56	0.0000
1460.82	29.8337
1489.16	42.5102
1505.03	44.7781
1596.21	55.9479
1620.50	24.8088
1678.03	0.0000
1690.97	25.2482
1764.49	23.7207
1764.49	23.7207
1770.23	40.9732
1771.35	33.8567
1791.20	0.0000
1836.06	14.0680

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G247360001

Total Uranium Activity	1.8010E+00	ug/g
Total Uranium Counting Unc.	4.6556E+00	ug/g
Total Uranium Tpu	2.3753E-06	ug/g
Total Uranium Mda	3.8551E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 955027                          SAMPLE ID   : G247360001
*  ANALYST       : MXR1                             DETECTOR    : GAM22
*  SAMPLE DATE   : 12-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE: 4-MAR-2010 12:41:35.10            SAMPLE ALQT: 80.570 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.770E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.283E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.450E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.188E+00

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VAX/VMS Nuclide Identification Report Generated 4-MAR-2010 14:42:57.80

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360002.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:42:32.
Sample ID          : G247360002 Sample quantity : 7.23400E+01 GRAM
Detector name      : GAM25 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.63 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 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	46.39*	664	480	0.98	92.34	87	11	9.22E-02	7.7	
2	0	63.18*	254	368	0.76	125.92	122	8	3.53E-02	15.3	
3	3	74.78*	507	229	0.85	149.11	143	15	7.04E-02	6.4	2.62E+00
4	3	77.07*	733	237	0.85	153.70	143	15	1.02E-01	4.9	
5	7	83.95*	150	251	1.48	167.46	164	27	2.09E-02	19.6	1.21E+00
6	7	87.18	293	207	1.05	173.91	164	27	4.08E-02	9.7	
7	7	89.89	170	201	0.99	179.34	164	27	2.36E-02	15.3	
8	7	92.63*	427	224	1.15	184.81	164	27	5.93E-02	8.4	
9	0	185.86*	197	235	1.18	371.27	367	10	2.73E-02	17.3	
10	0	208.96	75	143	0.79	417.45	414	7	1.04E-02	28.7	
11	6	238.57*	719	155	0.94	476.66	472	18	9.99E-02	4.7	2.97E+00
12	6	241.48	234	213	1.95	482.49	472	18	3.24E-02	18.0	
13	0	270.10	85	132	1.18	539.72	534	10	1.17E-02	27.8	
14	0	295.09*	263	178	1.09	589.71	584	12	3.65E-02	12.1	
15	0	337.99	205	113	1.08	675.49	670	11	2.85E-02	12.2	
16	0	351.72*	477	127	1.19	702.95	696	13	6.62E-02	6.8	
17	0	583.28*	193	80	1.30	1166.05	1161	12	2.69E-02	12.1	
18	0	609.31*	321	68	1.48	1218.12	1211	15	4.46E-02	8.2	
19	0	661.51*	1210	123	1.48	1322.52	1316	15	1.68E-01	3.5	
20	0	726.89*	51	17	1.15	1453.27	1450	8	7.07E-03	21.5	
21	0	768.07	39	45	1.38	1535.62	1529	12	5.43E-03	37.8	
22	0	860.37	30	33	1.82	1720.23	1715	11	4.15E-03	41.5	
23	0	910.96*	144	24	1.50	1821.40	1815	14	2.00E-02	11.7	
24	0	968.79*	80	22	1.38	1937.07	1933	12	1.11E-02	16.9	
25	0	1119.34*	91	16	1.60	2238.18	2230	16	1.26E-02	14.7	
26	0	1377.70*	21	10	1.56	2754.92	2749	13	2.96E-03	39.1	
27	0	1460.67*	496	27	2.11	2920.87	2911	17	6.89E-02	5.1	
28	0	1764.13	40	6	2.25	3527.84	3520	14	5.53E-03	21.1	

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

VMS Nuclide Identification Report V3.1 Generated 4-MAR-2010 14:43:00

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360002.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
 Sample title : MXR1
 Sample date : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:42:32
 Sample ID : G247360002 Sample quantity : 72.340 GRAM
 Sample type : SOLID Sample geometry :
 Detector name : GAMMA25 Detector geometry: CAN
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.63 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 0.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 75.00 WTM error limit : 3.00

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	+	1460.82	*	2.180E+01	2.902E+00	9.907E-01	8.438E-02	22.003
CD-109	+	88.03	*	4.510E+00	9.960E-01	1.002E+00	1.076E-01	4.502
SN-126	+	64.28		1.406E+00	4.852E-01	3.850E-01	6.135E-02	3.653
	+	86.94		1.819E+00	8.383E-01	4.021E-01	1.682E-01	4.524
	+	87.57	*	4.376E-01	9.664E-02	9.698E-02	1.040E-02	4.512
BA-137M	+	661.66	*	3.135E+00	4.123E-01	9.664E-02	1.071E-02	32.445
CS-137	+	661.66	*	3.312E+00	4.359E-01	1.021E-01	1.132E-02	32.445
TL-208		277.37		7.524E-01	5.610E-01	9.520E-01	1.368E-01	0.790
	+	583.19	*	4.729E-01	1.259E-01	9.137E-02	1.029E-02	5.176
	+	860.56		7.032E-01	5.877E-01	6.749E-01	7.052E-02	1.042
PB-210	+	46.54	*	8.850E+00	1.638E+00	8.758E-01	8.970E-02	10.105
BI-211		72.87		6.727E-01	2.106E+00	3.367E+00	3.399E-01	0.200
	+	351.06	*	4.924E+00	8.445E-01	4.293E-01	4.524E-02	11.470
PB-212	+	74.82		2.640E+00	5.017E-01	3.861E-01	5.431E-02	6.838
	+	77.11		2.303E+00	3.274E-01	2.340E-01	2.398E-02	9.844
	+	238.63	*	1.603E+00	2.379E-01	1.228E-01	1.403E-02	13.058
		300.09		1.654E+00	1.236E+00	2.016E+00	2.530E-01	0.820
BI-214	+	609.32	*	1.526E+00	3.111E-01	1.771E-01	2.144E-02	8.619
	+	1120.29		2.263E+00	7.095E-01	5.525E-01	6.023E-02	4.097
	+	1764.49		1.435E+00	6.164E-01	5.799E-01	4.777E-02	2.474
PB-214	+	74.82		4.679E+00	8.492E-01	6.843E-01	8.820E-02	6.838
	+	77.11		4.060E+00	6.673E-01	4.125E-01	5.426E-02	9.844
	+	242.00		3.161E+00	1.201E+00	7.480E-01	8.987E-02	4.226
	+	295.22		1.642E+00	4.493E-01	3.063E-01	3.926E-02	5.362
	+	351.93	*	1.787E+00	3.220E-01	1.562E-01	1.856E-02	11.441
RA-224	+	240.99	*	5.589E+00	2.099E+00	1.317E+00	1.384E-01	4.242
RA-226	+	609.32	*	1.526E+00	3.111E-01	1.771E-01	2.144E-02	8.619
	+	1120.29		2.263E+00	7.095E-01	5.525E-01	6.023E-02	4.097
	+	1764.49		1.435E+00	6.164E-01	5.799E-01	4.777E-02	2.474
AC-228	+	338.32		2.348E+00	1.143E+00	5.386E-01	2.269E-01	4.359
	+	911.20	*	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174
	+	968.97		1.650E+00	6.909E-01	8.830E-01	2.173E-01	1.869
RA-228	+	338.32		2.348E+00	1.143E+00	5.386E-01	2.269E-01	4.359
	+	911.20	*	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	968.97		1.650E+00	6.909E-01	8.830E-01	2.173E-01	1.869
	+	74.82		2.640E+00	4.321E-01	3.861E-01	3.949E-02	6.838
	+	77.11		2.303E+00	3.274E-01	2.340E-01	2.398E-02	9.844
	+	238.63	*	1.603E+00	2.379E-01	1.228E-01	1.403E-02	13.058
		300.09		1.654E+00	1.588E+00	2.016E+00	1.242E+00	0.820
TH-229	+	85.43		5.595E-01	2.274E-01	2.418E-01	2.567E-02	2.314
	+	88.47		6.746E-01	1.490E-01	1.501E-01	1.617E-02	4.494
		193.51	*	-3.786E-01	6.748E-01	1.064E+00	1.015E-01	-0.356
		210.85		1.252E-01	1.315E+00	1.916E+00	1.899E-01	0.065
TH-232	+	338.32		2.348E+00	6.239E-01	5.386E-01	5.614E-02	4.359
	+	911.20	*	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174
	+	968.97		1.650E+00	6.909E-01	8.830E-01	2.173E-01	1.869
TH-234	+	63.29	*	3.649E+00	1.314E+00	9.847E-01	1.869E-01	3.706
	+	92.59		5.661E+00	1.620E+00	8.663E-01	2.002E-01	6.535
U-235	+	89.96		2.723E+00	1.086E+00	1.045E+00	2.663E-01	2.604
	+	93.35		4.276E+00	1.258E+00	6.567E-01	1.583E-01	6.512
		143.76	*	7.387E-02	2.398E-01	3.974E-01	7.300E-02	0.186
		163.33		8.246E-02	5.426E-01	8.881E-01	1.620E-01	0.093
	+	185.72		2.778E-01	9.935E-02	7.939E-02	7.433E-03	3.499
		205.31		2.123E-01	6.719E-01	9.977E-01	1.869E-01	0.213
NP-237	+	86.48	*	1.306E+00	3.976E-01	2.880E-01	6.775E-02	4.534
		95.86		-1.609E+00	9.588E-01	1.182E+00	2.957E-01	-1.361
U-238	+	63.29	*	3.649E+00	1.314E+00	9.847E-01	1.869E-01	3.706
	+	92.59		5.661E+00	1.140E+00	8.663E-01	9.518E-02	6.535

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	8.245E-01	6.292E-01	1.108E+00	1.173E-01	0.744
NA-22		1274.54	*	-2.039E-02	6.040E-02	9.446E-02	7.745E-03	-0.216
NA-24		1368.63	*	-4.067E+01	6.040E-02	Half-Life too short		
SC-46		889.28	*	-3.116E-02	5.990E-02	9.080E-02	8.695E-03	-0.343
	+	1120.55		3.987E-01	1.221E-01	1.951E-01	1.678E-02	2.043
V-48		944.13		1.426E-01	1.594E+00	2.607E+00	2.446E-01	0.055
		983.53	*	2.618E-02	1.355E-01	2.234E-01	2.070E-02	0.117
		1312.11		9.381E-02	1.580E-01	2.785E-01	2.269E-02	0.337
CR-51		320.08	*	-2.427E-01	6.131E-01	1.007E+00	1.118E-01	-0.241
MN-54		834.85	*	3.254E-03	5.254E-02	8.661E-02	8.788E-03	0.038
CO-56		846.77	*	3.978E-03	6.362E-02	1.047E-01	1.051E-02	0.038
		1037.84		-1.544E-01	4.062E-01	6.453E-01	6.118E-02	-0.239
		1238.28		1.459E-01	1.374E-01	2.495E-01	2.115E-02	0.585
		1771.35		-9.536E-01	5.833E-01	6.897E-01	5.678E-02	-1.383
CO-57		122.06	*	-5.026E-03	2.655E-02	4.434E-02	5.717E-03	-0.113
		136.47		4.554E-02	2.462E-01	4.159E-01	5.097E-02	0.109
CO-58		810.76	*	-2.912E-02	6.566E-02	1.025E-01	1.064E-02	-0.284
FE-59		1099.45	*	-7.978E-02	1.398E-01	2.164E-01	2.038E-02	-0.369
		1291.59		1.138E-01	2.081E-01	3.644E-01	3.424E-02	0.312
CO-60		1173.23		3.250E-03	6.406E-02	1.068E-01	8.792E-03	0.030

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-2.243E-02	6.051E-02	9.346E-02	7.590E-03	-0.240
ZN-65	1115.54	*		6.042E-02	1.562E-01	2.375E-01	2.052E-02	0.254
SE-75	121.12			-7.857E-04	1.397E-01	2.357E-01	3.440E-02	-0.003
	136.00			3.793E-02	4.840E-02	8.379E-02	9.943E-03	0.453
	264.66	*		-3.509E-02	7.223E-02	9.728E-02	1.066E-02	-0.361
	279.54			-1.555E-01	1.678E-01	2.469E-01	2.819E-02	-0.630
	400.66			-5.738E-02	4.196E-01	6.877E-01	7.937E-02	-0.083
SR-85	514.00	*		-3.189E-01	9.398E-02	1.085E-01	1.120E-02	-2.939
Y-88	898.04			-9.670E-02	6.833E-02	9.022E-02	8.581E-03	-1.072
	1836.06	*		-1.618E-04	5.830E-02	9.594E-02	7.840E-03	-0.002
Y-91	1204.77	*		-3.442E+00	3.483E+01	5.695E+01	4.687E+00	-0.060
NB-94	702.65	*		-1.569E-02	5.096E-02	8.229E-02	9.036E-03	-0.191
	871.09			6.070E-03	5.456E-02	9.005E-02	8.808E-03	0.067
NB-95	765.81	*		-5.273E-03	7.872E-02	1.125E-01	1.201E-02	-0.047
NB-95M	235.69	*		1.228E-01	1.916E-01	2.878E-01	3.303E-02	0.427
ZR-95	724.19			-1.214E-01	1.789E-01	2.335E-01	2.682E-02	-0.520
	756.73	*		6.235E-02	1.037E-01	1.822E-01	2.090E-02	0.342
MO-99	140.51			-5.891E+01	8.648E+01	1.350E+02	3.362E+01	-0.436
	181.07			-1.712E+01	8.716E+01	1.260E+02	2.405E+01	-0.136
	366.42			1.786E+02	5.164E+02	8.802E+02	8.627E+01	0.203
	739.50	*		7.085E+00	5.874E+01	9.853E+01	1.681E+01	0.072
	777.92			-1.737E+01	1.613E+02	2.622E+02	2.780E+01	-0.066
TC-99M	140.51	*		-2.309E+16	1.613E+02	Half-Life	too short	
RU-103	497.08	*		-3.554E-02	7.067E-02	1.094E-01	1.639E-02	-0.325
	610.33			1.718E+01	4.140E+00	4.703E+00	8.304E-01	3.653
RH-106	621.93	*		1.689E-01	4.480E-01	7.784E-01	1.158E-01	0.217
	1050.41			-7.585E-01	3.904E+00	6.396E+00	5.751E-01	-0.119
RU-106	621.93	*		1.689E-01	4.477E-01	7.784E-01	8.524E-02	0.217
	1050.41			-7.585E-01	3.904E+00	6.396E+00	5.751E-01	-0.119
AG-108M	433.94	*		-7.160E-03	5.085E-02	8.272E-02	8.127E-03	-0.087
	614.28			-9.578E-03	5.261E-02	7.516E-02	8.377E-03	-0.127
	722.91			-8.248E-03	5.706E-02	8.029E-02	8.933E-03	-0.103
AG-110M	657.76	*		6.378E-02	6.079E-02	9.949E-02	1.121E-02	0.641
	677.62			1.040E-01	4.700E-01	8.004E-01	9.000E-02	0.130
	706.68			4.399E-02	3.340E-01	5.618E-01	6.272E-02	0.078
	763.94			6.105E-02	2.528E-01	3.754E-01	4.086E-02	0.163
	884.68			6.614E-02	7.375E-02	1.323E-01	1.306E-02	0.500
	937.49			4.391E-02	1.619E-01	2.710E-01	2.625E-02	0.162
	1384.29			2.238E-02	2.100E-01	3.031E-01	2.556E-02	0.074
	1505.03			-4.511E-01	4.667E-01	6.142E-01	5.092E-02	-0.734
SN-113	391.69	*		-4.873E-02	7.472E-02	1.182E-01	1.104E-02	-0.412
CD-115	260.90			1.187E-04	7.472E-02	Half-Life	too short	
	492.35			1.913E-04	7.472E-02	Half-Life	too short	
	527.90	*		2.498E-05	7.472E-02	Half-Life	too short	
SN-117M	156.02			3.411E-01	3.364E+00	5.613E+00	5.597E-01	0.061
	158.56	*		-3.104E-02	8.237E-02	1.336E-01	1.297E-02	-0.232
TE-123M	159.00	*		-3.667E-03	3.397E-02	5.594E-02	5.432E-03	-0.066
SB-124	602.73			-9.562E-03	7.259E-02	1.051E-01	1.142E-02	-0.091
	645.85			-1.836E-01	8.147E-01	1.306E+00	1.492E-01	-0.141

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		722.78		4.183E-03	6.153E-01	8.871E-01	9.814E-02	0.005
		1690.97	*	-5.555E-02	1.389E-01	2.117E-01	1.835E-02	-0.262
		427.87	*	-1.584E-01	1.474E-01	2.212E-01	2.136E-02	-0.716
		463.37		6.138E-01	4.965E-01	8.698E-01	9.085E-02	0.706
		600.60		-1.656E-01	2.783E-01	4.458E-01	5.069E-02	-0.371
TE-125M		635.95		1.619E-01	3.960E-01	6.889E-01	7.963E-02	0.235
		109.28	*	4.003E-01	1.048E+01	1.783E+01	2.391E+00	0.022
		388.63		4.870E-01	3.464E-01	6.217E-01	5.708E-02	0.783
I-126		666.33	*	4.523E-01	5.190E-01	8.296E-01	9.184E-02	0.545
		753.82		7.794E-01	3.219E+00	5.461E+00	5.872E-01	0.143
SB-126		414.70		-1.395E-01	1.721E-01	2.635E-01	2.466E-02	-0.529
		666.50		1.500E-01	1.797E-01	2.864E-01	3.170E-02	0.524
		695.00		1.931E-01	1.546E-01	2.834E-01	3.118E-02	0.681
		697.00		2.259E-01	5.275E-01	9.116E-01	1.003E-01	0.248
		720.70	*	4.521E-01	2.731E-01	5.039E-01	5.500E-02	0.897
SB-127		856.80		9.899E-01	9.216E-01	1.538E+00	1.528E-01	0.643
		252.40		1.816E+01	1.555E+01	2.362E+01	1.003E+01	0.769
		473.00		-2.740E+00	7.196E+00	1.139E+01	1.712E+00	-0.240
		685.70	*	3.912E+00	5.023E+00	8.897E+00	1.303E+00	0.440
		783.70		9.669E+00	1.226E+01	2.170E+01	3.275E+00	0.446
I-131		80.19		7.270E+00	6.221E+00	8.561E+00	8.950E-01	0.849
		284.31		-1.696E+00	3.343E+00	5.085E+00	5.850E-01	-0.334
		364.49	*	8.290E-02	2.686E-01	4.569E-01	4.703E-02	0.181
TE-132		636.99		-2.226E-02	3.561E+00	5.972E+00	6.825E-01	-0.004
		49.72		-7.307E+00	1.228E+01	1.748E+01	2.297E+00	-0.418
		111.76		3.733E+00	1.074E+02	1.788E+02	2.712E+01	0.021
		116.30		-5.798E+01	8.846E+01	1.441E+02	2.222E+01	-0.402
BA-133		228.16	*	2.517E-03	2.905E+00	4.683E+00	8.331E-01	0.001
		81.00		-3.416E-02	9.093E-02	1.103E-01	1.829E-02	-0.310
		276.40		5.101E-01	5.230E-01	8.730E-01	1.376E-01	0.584
		302.85		-2.588E-01	2.023E-01	3.101E-01	4.563E-02	-0.834
		356.01	*	-8.432E-02	6.939E-02	8.795E-02	1.227E-02	-0.959
I-133		383.85		-1.277E-01	4.273E-01	6.935E-01	8.962E-02	-0.184
		529.87	*	3.013E-01	4.273E-01	Half-Life	too short	
		875.33		2.680E+00	4.273E-01	Half-Life	too short	
CS-134		1298.22		1.458E+00	4.273E-01	Half-Life	too short	
		563.25		4.516E-01	5.463E-01	9.425E-01	1.011E-01	0.479
		569.33		5.353E-02	3.445E-01	5.338E-01	5.760E-02	0.100
		604.72		2.951E-02	5.808E-02	9.010E-02	9.817E-03	0.327
		795.86	*	4.846E-02	7.516E-02	1.264E-01	1.330E-02	0.384
CS-135		801.95		-3.305E-01	7.033E-01	1.086E+00	1.137E-01	-0.304
		1365.19		-2.095E-01	2.163E+00	3.483E+00	2.990E-01	-0.060
		268.22	*	1.249E-01	2.484E-01	3.663E-01	4.422E-02	0.341
		546.56		4.808E+14	2.484E-01	Half-Life	too short	
		836.80		-2.621E+15	2.484E-01	Half-Life	too short	
I-135		1038.76		-1.164E+15	2.484E-01	Half-Life	too short	
		1131.51		-2.326E+15	2.484E-01	Half-Life	too short	
		1260.41	*	5.753E+14	2.484E-01	Half-Life	too short	
		1457.56		1.592E+17	2.484E-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
	1678.03			-2.447E+15	2.484E-01	Half-Life	too short	
	1791.20			8.963E+13	2.484E-01	Half-Life	too short	
CS-136	153.25			1.283E-01	1.274E+00	2.127E+00	2.484E-01	0.060
	176.60			3.111E-01	7.411E-01	1.248E+00	1.249E-01	0.249
	273.65			-2.613E-01	1.001E+00	1.375E+00	1.603E-01	-0.190
	340.55			3.800E-01	2.916E-01	4.748E-01	5.061E-02	0.800
	818.51			-9.273E-03	1.415E-01	2.303E-01	2.373E-02	-0.040
	1048.07	*		1.888E-02	2.069E-01	3.501E-01	3.276E-02	0.054
	1235.36			-1.078E-01	1.070E+00	1.746E+00	2.004E-01	-0.062
CE-139	165.86	*		-2.275E-02	3.677E-02	5.853E-02	5.219E-03	-0.389
BA-140	162.66			-5.954E-02	1.348E+00	2.186E+00	2.145E-01	-0.027
	304.85			1.607E+00	2.407E+00	4.154E+00	1.247E+00	0.387
	423.72			2.570E+00	4.064E+00	6.850E+00	2.269E+00	0.375
	537.26	*		5.475E-01	5.679E-01	9.437E-01	3.250E-01	0.580
LA-140	328.76			7.892E-01	5.769E-01	1.035E+00	1.138E-01	0.763
	487.02			1.824E-01	2.965E-01	5.049E-01	5.327E-02	0.361
	815.77			-3.455E-01	6.723E-01	1.038E+00	1.160E-01	-0.333
	1596.21	*		-1.381E-01	1.607E-01	2.211E-01	1.838E-02	-0.625
CE-141	145.44	*		-6.609E-02	8.386E-02	1.337E-01	1.487E-02	-0.494
CE-143	57.36			1.899E-03	8.386E-02	Half-Life	too short	
	293.27	*		6.052E-03	8.386E-02	Half-Life	too short	
	664.57			1.582E-01	8.386E-02	Half-Life	too short	
	721.93			1.817E-02	8.386E-02	Half-Life	too short	
CE-144	80.12			1.724E-01	2.407E+00	3.046E+00	3.159E-01	0.057
	133.52	*		6.423E-02	2.380E-01	4.040E-01	7.043E-02	0.159
PM-144	476.78			1.412E-01	1.226E-01	2.138E-01	2.278E-02	0.660
	618.01			7.216E-03	4.569E-02	7.798E-02	8.678E-03	0.093
	696.49	*		3.465E-03	5.217E-02	8.737E-02	9.615E-03	0.040
PR-144	696.51	*		2.447E-01	3.913E+00	6.551E+00	7.207E-01	0.037
	1489.16			-3.854E+00	1.982E+01	3.084E+01	2.555E+00	-0.125
PM-146	453.88	*		8.704E-04	7.135E-02	1.169E-01	1.351E-02	0.007
	633.25			-7.083E-01	2.119E+00	3.417E+00	1.326E+00	-0.207
	735.93			-2.521E-01	2.140E-01	2.838E-01	8.169E-02	-0.888
	747.24			-1.209E-02	1.318E-01	2.156E-01	3.442E-02	-0.056
ND-147	91.11	+		1.202E+00	3.936E-01	6.817E-01	7.828E-02	1.764
	319.41			9.926E-01	6.660E+00	1.132E+01	1.217E+00	0.088
	531.02	*		2.580E-01	1.183E+00	1.947E+00	3.129E-01	0.133
PM-149	285.90	*		-1.706E-04	1.183E+00	Half-Life	too short	
EU-152	121.78			2.351E-03	7.548E-02	1.276E-01	1.756E-02	0.018
	244.70			9.339E-03	4.655E-01	6.652E-01	7.036E-02	0.014
	344.28	*		-2.881E-02	1.392E-01	2.125E-01	2.281E-02	-0.136
	778.90			-1.517E-01	3.379E-01	5.247E-01	5.560E-02	-0.289
	964.08			6.338E-01	4.882E-01	8.065E-01	7.523E-02	0.786
	1085.87			1.534E-01	5.757E-01	9.902E-01	8.719E-02	0.155
	1112.07			4.729E-01	4.893E-01	8.128E-01	7.031E-02	0.582
	1408.01			2.881E-01	2.978E-01	5.496E-01	4.516E-02	0.524
GD-153	69.67			7.195E-02	1.174E+00	1.713E+00	1.713E-01	0.042
	97.43	*		9.797E-03	8.573E-02	1.332E-01	1.500E-02	0.074
	103.18			4.918E-02	1.057E-01	1.839E-01	2.135E-02	0.267

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154		123.07		-1.934E-03	5.167E-02	8.696E-02	1.287E-02	-0.022
		723.31		-2.547E-01	2.843E-01	3.509E-01	4.073E-02	-0.726
		873.19		-1.634E-02	4.427E-01	7.184E-01	9.155E-02	-0.023
		996.26		-4.855E-01	5.868E-01	8.349E-01	1.484E-01	-0.581
		1004.73		-1.490E-01	3.510E-01	5.343E-01	6.447E-02	-0.279
EU-155		1274.44	*	-9.540E-02	1.756E-01	2.660E-01	2.941E-02	-0.359
	+	86.55		5.316E-01	1.176E-01	1.775E-01	1.907E-02	2.994
		105.31	*	2.963E-02	1.037E-01	1.788E-01	2.113E-02	0.166
TB-160	+	86.79		1.476E+00	3.259E-01	5.024E-01	5.367E-02	2.937
		197.04		-3.093E-01	7.200E-01	1.143E+00	1.099E-01	-0.271
		215.65		-1.109E-01	1.070E+00	1.722E+00	1.724E-01	-0.064
		298.57		1.871E-02	1.843E-01	2.781E-01	3.061E-02	0.067
		879.36	*	-1.789E-01	2.148E-01	3.107E-01	3.010E-02	-0.576
HO-166M		962.29		7.980E-01	8.915E-01	1.501E+00	1.401E-01	0.532
		966.15		1.307E+00	4.245E-01	7.848E-01	7.316E-02	1.665
		1177.93		-4.708E-01	5.153E-01	7.492E-01	6.167E-02	-0.628
		1271.85		-2.661E-01	1.097E+00	1.745E+00	1.429E-01	-0.153
	+	80.57		3.018E-01	2.322E-01	3.234E-01	3.360E-02	0.933
		184.41		2.207E-01	7.893E-02	8.989E-02	8.391E-03	2.455
		280.46		-1.761E-01	1.288E-01	1.817E-01	2.027E-02	-0.969
		410.95		2.122E-01	4.156E-01	7.077E-01	6.593E-02	0.300
		711.68	*	-3.244E-03	8.583E-02	1.421E-01	1.555E-02	-0.023
		752.31		-2.229E-01	3.785E-01	5.818E-01	6.260E-02	-0.383
TA-182		810.29		-7.426E-02	9.819E-02	1.479E-01	1.533E-02	-0.502
		67.75		7.917E-03	6.839E-02	1.084E-01	1.079E-02	0.073
		100.11		-1.279E-01	1.681E-01	2.756E-01	3.148E-02	-0.464
		152.43		-3.516E-01	4.142E-01	6.537E-01	6.755E-02	-0.538
		222.11		-4.647E-02	4.881E-01	7.839E-01	7.950E-02	-0.059
IR-192		1121.30		6.139E-01	2.899E-01	5.161E-01	4.434E-02	1.189
		1189.05		1.521E-01	4.653E-01	7.981E-01	6.569E-02	0.191
		1221.41	*	-1.953E-01	2.888E-01	4.378E-01	3.600E-02	-0.446
		1231.02		-3.456E-01	7.274E-01	1.136E+00	9.337E-02	-0.304
	+	295.96		1.272E+00	3.382E-01	4.310E-01	4.775E-02	2.951
HG-203		308.46		-1.551E-02	1.368E-01	2.294E-01	2.507E-02	-0.068
		316.51	*	2.183E-02	5.465E-02	9.423E-02	1.018E-02	0.232
		468.07		6.902E-03	1.253E-01	2.053E-01	2.149E-02	0.034
BI-207		70.83		-5.711E-01	9.727E-01	1.353E+00	2.280E-01	-0.422
		72.87		1.802E-01	5.645E-01	9.019E-01	1.479E-01	0.200
		279.20	*	-1.188E-02	6.021E-02	9.409E-02	1.066E-02	-0.126
PB-211		72.81		1.316E-02	1.200E-01	1.901E-01	1.919E-02	0.069
	+	74.97		7.611E-01	1.242E-01	1.902E-01	1.934E-02	4.002
		569.70		5.189E-03	5.302E-02	8.170E-02	8.739E-03	0.064
		1063.66	*	-1.156E-03	7.853E-02	1.312E-01	1.171E-02	-0.009
BI-212		1770.23		2.600E-01	8.293E-01	1.287E+00	1.059E-01	0.202
		404.85	*	-1.217E-01	1.204E+00	1.936E+00	9.392E-01	-0.063
		427.09		-1.262E+00	2.534E+00	3.903E+00	1.812E+00	-0.323
BI-212		832.01		-2.750E-01	1.425E+00	2.269E+00	1.183E+00	-0.121
	+	727.33	*	1.932E+00	8.728E-01	1.619E+00	2.286E-01	1.193
		785.37		2.890E+00	4.503E+00	7.898E+00	8.334E-01	0.366

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	1620.50		2.066E+00	3.566E+00	6.545E+00	5.440E-01	0.316
		271.23		8.395E-01	4.788E-01	5.678E-01	7.014E-02	1.479
		401.81	*	-4.455E-02	6.513E-01	1.072E+00	1.632E-01	-0.042
RA-223	+	81.07		-8.703E-02	2.055E-01	2.485E-01	2.587E-02	-0.350
		83.79		3.330E-01	1.353E-01	1.883E-01	1.984E-02	1.768
		94.87		1.870E-01	3.986E-01	6.334E-01	7.040E-02	0.295
		144.24		3.873E-01	8.111E-01	1.355E+00	1.613E-01	0.286
		154.21		4.498E-01	4.423E-01	7.698E-01	8.364E-02	0.584
AC-227	+	269.46		6.523E-01	3.704E-01	4.704E-01	5.241E-02	1.386
		323.87	*	7.736E-02	9.081E-01	1.537E+00	2.834E-01	0.050
		338.28		9.316E+00	2.598E+00	3.440E+00	4.617E-01	2.708
		79.69		-5.362E-01	1.038E+00	1.438E+00	2.612E-01	-0.373
		235.96		2.114E-01	2.232E-01	3.412E-01	4.053E-02	0.620
		256.23	*	-2.005E-01	3.366E-01	5.120E-01	7.005E-02	-0.392
		299.98		1.810E+00	1.364E+00	2.215E+00	3.194E-01	0.817
		304.50		-2.706E-01	2.238E+00	3.758E+00	6.708E-01	-0.072
		334.37		6.151E-01	2.550E+00	3.857E+00	6.441E-01	0.159
		79.80		-2.515E-01	1.545E+00	1.916E+00	4.314E-01	-0.131
TH-227	+	235.96		2.114E-01	2.230E-01	3.412E-01	3.880E-02	0.620
		256.23	*	-2.005E-01	3.369E-01	5.120E-01	7.716E-02	-0.392
		299.98		1.810E+00	1.364E+00	2.215E+00	3.194E-01	0.817
		304.50		-2.706E-01	2.238E+00	3.758E+00	6.708E-01	-0.072
		334.37		6.151E-01	2.550E+00	3.857E+00	6.441E-01	0.159
PA-231	+	283.69	*	6.840E-02	2.109E+00	3.346E+00	5.420E-01	0.020
		301.36		4.754E-01	8.079E-01	1.368E+00	1.904E-01	0.348
TH-231	+	81.07		-8.703E-02	2.055E-01	2.485E-01	2.587E-02	-0.350
		83.79		3.330E-01	1.353E-01	1.883E-01	1.984E-02	1.768
		94.87		1.870E-01	3.986E-01	6.334E-01	7.040E-02	0.295
		144.24		3.873E-01	8.111E-01	1.355E+00	1.613E-01	0.286
		154.21		4.498E-01	4.423E-01	7.698E-01	8.364E-02	0.584
PA-233	+	269.46		6.523E-01	3.704E-01	4.704E-01	5.241E-02	1.386
		323.87	*	7.736E-02	9.081E-01	1.537E+00	2.834E-01	0.050
		338.28		9.316E+00	2.598E+00	3.440E+00	4.617E-01	2.708
		300.13		8.247E-01	6.214E-01	1.004E+00	1.638E-01	0.821
		311.90	*	-6.804E-02	9.167E-02	1.471E-01	1.624E-02	-0.463
PA-234	+	340.48		1.362E+00	1.016E+00	1.586E+00	3.927E-01	0.858
		94.67		2.371E-01	1.468E-01	2.430E-01	3.461E-02	0.975
		98.44		1.979E-01	1.388E-01	1.565E-01	8.805E-02	1.265
		111.00		-1.914E-01	1.979E-01	3.172E-01	4.691E-02	-0.603
		131.20		-5.339E-02	1.222E-01	2.005E-01	2.448E-02	-0.266
PA-234M	+	569.50		6.086E-02	4.717E-01	7.290E-01	7.798E-02	0.083
		733.00		5.970E-01	5.673E-01	9.720E-01	2.251E-01	0.614
		880.51		-2.432E-01	4.123E-01	6.194E-01	5.994E-02	-0.393
		883.24		5.532E-01	5.388E-01	7.445E-01	5.015E-01	0.743
		926.50		2.833E-02	2.670E-01	4.381E-01	1.120E-01	0.065
		946.00	*	3.067E-01	4.171E-01	7.329E-01	1.402E-01	0.418
		949.00		-1.709E-01	6.615E-01	1.033E+00	9.682E-02	-0.165
		766.42		1.317E+01	2.146E+01	3.177E+01	1.624E+01	0.414
		1001.03	*	1.001E+01	7.703E+00	1.407E+01	1.473E+00	0.712

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.53		1.147E-01	1.495E-01	2.636E-01	3.001E-02	0.435
		103.37		6.935E-02	9.465E-02	1.664E-01	1.933E-02	0.417
		106.12		-5.850E-03	8.261E-02	1.401E-01	1.653E-02	-0.042
		117.23	*	-3.317E-02	4.096E-01	6.900E-01	8.656E-02	-0.048
		228.18		2.284E-03	2.970E-01	4.790E-01	4.916E-02	0.005
		277.60		3.197E-01	2.529E-01	4.309E-01	4.798E-02	0.742
AM-241		59.54	*	-9.499E-03	7.211E-02	1.051E-01	1.093E-02	-0.090
CM-247		278.00		1.194E+00	1.082E+00	1.829E+00	2.038E-01	0.653
		287.50		1.608E+00	1.800E+00	3.012E+00	3.345E-01	0.534
		402.40	*	9.412E-03	5.850E-02	9.782E-02	9.015E-03	0.096
CF-249		252.80		1.314E+00	1.237E+00	2.114E+00	2.267E-01	0.622
		333.37		3.776E-04	2.719E-01	4.026E-01	4.234E-02	0.001
		388.16	*	8.561E-02	6.214E-02	1.116E-01	1.026E-02	0.767
CF-251		177.52	*	1.012E-01	1.614E-01	2.741E-01	2.516E-02	0.369
		227.38		-4.821E-01	4.966E-01	7.485E-01	7.670E-02	-0.644
		285.41		-3.050E+00	3.337E+00	4.906E+00	5.455E-01	-0.622
ANH-511		511.00	*	6.596E-03	7.702E-02	1.372E-01	1.412E-02	0.048

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]G247360002      *
* Acquisition date   : 4-MAR-2010 12:42:32 Detector SN#      :              *
* Detector ID        : GAM25                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time   : 0 02:00:00.00             Abundance limit: 75.000       *
* Elapsed real time   : 0 02:00:01.63             Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G247360002             Analyst initials: MXR1         *
* Batch Number       : 955027                 Sample Quantity : 7.2340E+01 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	2.180E+01	2.844E+00	9.735E-01	0.000E+00
CD-109	4.510E+00	9.760E-01	9.536E-01	0.000E+00
SN-126	4.376E-01	9.471E-02	9.233E-02	0.000E+00
BA-137M	3.135E+00	4.040E-01	9.414E-02	0.000E+00
CS-137	3.312E+00	4.272E-01	9.945E-02	0.000E+00
TL-208	4.729E-01	1.234E-01	8.888E-02	0.000E+00
PB-210	8.850E+00	1.605E+00	8.277E-01	0.000E+00
BI-211	4.924E+00	8.276E-01	4.153E-01	0.000E+00
PB-212	1.603E+00	2.332E-01	1.182E-01	0.000E+00
BI-214	1.526E+00	3.049E-01	1.723E-01	0.000E+00
PB-214	1.787E+00	3.155E-01	1.511E-01	0.000E+00
RA-224	5.589E+00	2.057E+00	1.269E+00	0.000E+00
RA-226	1.526E+00	3.049E-01	1.723E-01	0.000E+00
AC-228	1.725E+00	4.449E-01	3.259E-01	0.000E+00
RA-228	1.725E+00	4.449E-01	3.259E-01	0.000E+00
TH-228	1.603E+00	2.332E-01	1.182E-01	0.000E+00
TH-229	-3.786E-01	6.613E-01	1.023E+00	0.000E+00
TH-232	1.725E+00	4.449E-01	3.259E-01	0.000E+00
TH-234	3.649E+00	1.288E+00	9.340E-01	0.000E+00
U-235	7.387E-02	2.350E-01	3.805E-01	0.000E+00
NP-237	1.306E+00	3.897E-01	2.741E-01	0.000E+00
U-238	3.649E+00	1.288E+00	9.340E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	8.245E-01	6.166E-01	1.075E+00	0.000E+00 NOT IDENT.
NA-22	-2.039E-02	5.919E-02	9.268E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.651E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	-3.116E-02	5.870E-02	8.874E-02	0.000E+00 FAIL ABUN
V-48	2.618E-02	1.328E-01	2.186E-01	0.000E+00 NOT IDENT.

CR-51	-2.427E-01	6.008E-01	9.731E-01	0.000E+00	NOT IDENT.
MN-54	3.254E-03	5.149E-02	8.458E-02	0.000E+00	NOT IDENT.
CO-56	3.978E-03	6.234E-02	1.023E-01	0.000E+00	NOT IDENT.
CO-57	-5.026E-03	2.602E-02	4.237E-02	0.000E+00	NOT IDENT.
CO-58	-2.912E-02	6.435E-02	1.001E-01	0.000E+00	NOT IDENT.
FE-59	-7.978E-02	1.370E-01	2.120E-01	0.000E+00	NOT IDENT.
CO-60	-2.243E-02	5.930E-02	9.174E-02	0.000E+00	NOT IDENT.
ZN-65	6.042E-02	1.531E-01	2.327E-01	0.000E+00	NOT IDENT.
SE-75	-3.509E-02	7.079E-02	9.379E-02	0.000E+00	NOT IDENT.
SR-85	-3.189E-01	9.210E-02	1.054E-01	0.000E+00	NOT IDENT.
Y-88	-1.618E-04	5.714E-02	9.451E-02	0.000E+00	NOT IDENT.
Y-91	-3.442E+00	3.413E+01	5.585E+01	0.000E+00	NOT IDENT.
NB-94	-1.569E-02	4.994E-02	8.021E-02	0.000E+00	NOT IDENT.
NB-95	-5.273E-03	7.714E-02	1.097E-01	0.000E+00	NOT IDENT.
NB-95M	1.228E-01	1.878E-01	2.771E-01	0.000E+00	NOT IDENT.
ZR-95	6.235E-02	1.016E-01	1.777E-01	0.000E+00	NOT IDENT.
MO-99	7.085E+00	5.757E+01	9.609E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.388E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.554E-02	6.926E-02	1.063E-01	0.000E+00	FAIL ABUN
RH-106	1.689E-01	4.391E-01	7.578E-01	0.000E+00	NOT IDENT.
RU-106	1.689E-01	4.388E-01	7.578E-01	0.000E+00	NOT IDENT.
AG-108M	-7.160E-03	4.983E-02	8.020E-02	0.000E+00	NOT IDENT.
AG-110M	6.378E-02	5.958E-02	9.691E-02	0.000E+00	NOT IDENT.
SN-113	-4.873E-02	7.323E-02	1.145E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	8.030E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-3.104E-02	8.072E-02	1.280E-01	0.000E+00	NOT IDENT.
TE-123M	-3.667E-03	3.329E-02	5.363E-02	0.000E+00	NOT IDENT.
SB-124	-5.555E-02	1.361E-01	2.084E-01	0.000E+00	NOT IDENT.
SB-125	-1.584E-01	1.444E-01	2.145E-01	0.000E+00	NOT IDENT.
TE-125M	4.003E-01	1.027E+01	1.702E+01	0.000E+00	NOT IDENT.
I-126	4.523E-01	5.087E-01	8.082E-01	0.000E+00	NOT IDENT.
SB-126	4.521E-01	2.677E-01	4.913E-01	0.000E+00	NOT IDENT.
SB-127	3.912E+00	4.922E+00	8.670E+00	0.000E+00	NOT IDENT.
I-131	8.290E-02	2.632E-01	4.421E-01	0.000E+00	NOT IDENT.
TE-132	2.517E-03	2.847E+00	4.508E+00	0.000E+00	NOT IDENT.
BA-133	-8.432E-02	6.800E-02	8.509E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.637E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.846E-02	7.366E-02	1.233E-01	0.000E+00	NOT IDENT.
CS-135	1.249E-01	2.435E-01	3.533E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.512E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.888E-02	2.027E-01	3.428E-01	0.000E+00	NOT IDENT.
CE-139	-2.275E-02	3.603E-02	5.613E-02	0.000E+00	NOT IDENT.
BA-140	5.475E-01	5.565E-01	9.172E-01	0.000E+00	NOT IDENT.
LA-140	-1.381E-01	1.575E-01	2.174E-01	0.000E+00	NOT IDENT.
CE-141	-6.609E-02	8.218E-02	1.280E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.839E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	6.423E-02	2.333E-01	3.865E-01	0.000E+00	NOT IDENT.
PM-144	3.465E-03	5.112E-02	8.516E-02	0.000E+00	NOT IDENT.
PR-144	2.447E-01	3.834E+00	6.385E+00	0.000E+00	NOT IDENT.
PM-146	8.704E-04	6.992E-02	1.134E-01	0.000E+00	NOT IDENT.
ND-147	2.580E-01	1.159E+00	1.892E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	6.234E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.881E-02	1.364E-01	2.055E-01	0.000E+00	NOT IDENT.
GD-153	9.797E-03	8.402E-02	1.270E-01	0.000E+00	NOT IDENT.
EU-154	-9.540E-02	1.721E-01	2.610E-01	0.000E+00	NOT IDENT.
EU-155	2.963E-02	1.016E-01	1.706E-01	0.000E+00	FAIL ABUN
TB-160	-1.789E-01	2.105E-01	3.036E-01	0.000E+00	FAIL ABUN
HO-166M	-3.244E-03	8.412E-02	1.385E-01	0.000E+00	FAIL ABUN
TA-182	-1.953E-01	2.831E-01	4.293E-01	0.000E+00	NOT IDENT.
IR-192	2.183E-02	5.356E-02	9.104E-02	0.000E+00	FAIL ABUN
HG-203	-1.188E-02	5.901E-02	9.077E-02	0.000E+00	NOT IDENT.
BI-207	-1.156E-03	7.696E-02	1.285E-01	0.000E+00	FAIL ABUN
PB-211	-1.217E-01	1.180E+00	1.876E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.554E-01	1.579E+00	0.000E+00	FAIL ABUN
RN-219	-4.455E-02	6.383E-01	1.039E+00	0.000E+00	FAIL ABUN
RA-223	7.736E-02	8.899E-01	1.485E+00	0.000E+00	FAIL ABUN
AC-227	-2.005E-01	3.299E-01	4.935E-01	0.000E+00	NOT IDENT.
TH-227	-2.005E-01	3.301E-01	4.935E-01	0.000E+00	NOT IDENT.
PA-231	6.840E-02	2.067E+00	3.229E+00	0.000E+00	NOT IDENT.
TH-231	7.736E-02	8.899E-01	1.485E+00	0.000E+00	FAIL ABUN
PA-233	-6.804E-02	8.984E-02	1.420E-01	0.000E+00	NOT IDENT.
PA-234	3.067E-01	4.088E-01	7.168E-01	0.000E+00	NOT IDENT.
PA-234M	1.001E+01	7.549E+00	1.376E+01	0.000E+00	NOT IDENT.
NP-239	-3.317E-02	4.015E-01	6.592E-01	0.000E+00	NOT IDENT.
AM-241	-9.499E-03	7.067E-02	9.966E-02	0.000E+00	NOT IDENT.
CM-247	9.412E-03	5.733E-02	9.476E-02	0.000E+00	NOT IDENT.
CF-249	8.561E-02	6.090E-02	1.081E-01	0.000E+00	NOT IDENT.
CF-251	1.012E-01	1.582E-01	2.631E-01	0.000E+00	NOT IDENT.

ANH-511	6.596E-03	7.548E-02	1.332E-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]G247360002.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:42:32.
Sample ID          : G247360002 Sample quantity : 7.23400E+01 GRAM
Detector name      : GAM25 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.63 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 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	1460.82	496	10.66*	1.109E+00	2.180E+01	2.180E+01	13.31
CD-109	88.03	293	3.70*	9.406E+00	4.376E+00	4.510E+00	22.09
SN-126	64.28	254	9.60	9.778E+00	1.406E+00	1.406E+00	34.50
	86.94	293	8.90	9.406E+00	1.819E+00	1.819E+00	46.09
	87.57	293	37.00*	9.406E+00	4.376E-01	4.376E-01	22.09
BA-137M	661.66	1210	89.90*	2.231E+00	3.131E+00	3.135E+00	13.15
CS-137	661.66	1210	85.10*	2.231E+00	3.308E+00	3.312E+00	13.16
TL-208	277.37	-----	6.60	4.738E+00	-----	Line Not Found	-----
	583.19	193	85.00*	2.496E+00	4.729E-01	4.729E-01	26.62
	860.56	30	12.50	1.765E+00	7.032E-01	7.032E-01	83.58
PB-210	46.54	664	4.25*	9.179E+00	8.834E+00	8.850E+00	18.51
BI-211	72.87	-----	1.23	9.724E+00	-----	Line Not Found	-----
	351.06	477	12.92*	3.888E+00	4.924E+00	4.924E+00	17.15
PB-212	74.82	507	10.28	9.695E+00	2.640E+00	2.640E+00	19.00
	77.11	733	17.10	9.652E+00	2.303E+00	2.303E+00	14.22
	238.63	719	43.60*	5.340E+00	1.603E+00	1.603E+00	14.85
	300.09	-----	3.30	4.442E+00	-----	Line Not Found	-----
BI-214	609.32	321	45.49*	2.401E+00	1.526E+00	1.526E+00	20.38
	1120.29	91	14.92	1.399E+00	2.263E+00	2.263E+00	31.35
	1764.49	40	15.30	9.414E-01	1.435E+00	1.435E+00	42.96
PB-214	74.82	507	5.80	9.695E+00	4.679E+00	4.679E+00	18.15
	77.11	733	9.70	9.652E+00	4.060E+00	4.060E+00	16.44
	242.00	234	7.25	5.290E+00	3.161E+00	3.161E+00	38.00
	295.22	263	18.42	4.504E+00	1.642E+00	1.642E+00	27.36
	351.93	477	35.60*	3.888E+00	1.787E+00	1.787E+00	18.01
RA-224	240.99	234	4.10*	5.290E+00	5.589E+00	5.589E+00	37.55
RA-226	609.32	321	45.49*	2.401E+00	1.526E+00	1.526E+00	20.38
	1120.29	91	14.92	1.399E+00	2.263E+00	2.263E+00	31.35
	1764.49	40	15.30	9.414E-01	1.435E+00	1.435E+00	42.96
AC-228	338.32	205	11.27	4.021E+00	2.348E+00	2.348E+00	48.71
	911.20	144	25.80*	1.678E+00	1.725E+00	1.725E+00	26.32
	968.97	80	15.80	1.589E+00	1.650E+00	1.650E+00	41.86

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	205	11.27	4.021E+00	2.348E+00	2.348E+00	48.71
	911.20	144	25.80*	1.678E+00	1.725E+00	1.725E+00	26.32
	968.97	80	15.80	1.589E+00	1.650E+00	1.650E+00	41.86
TH-228	74.82	507	10.28	9.695E+00	2.640E+00	2.640E+00	16.37
	77.11	733	17.10	9.652E+00	2.303E+00	2.303E+00	14.22
	238.63	719	43.60*	5.340E+00	1.603E+00	1.603E+00	14.85
TH-229	300.09	-----	3.30	4.442E+00	-----	Line Not Found	-----
	85.43	150	14.70	9.493E+00	5.595E-01	5.595E-01	40.64
	88.47	293	24.00	9.406E+00	6.746E-01	6.746E-01	22.09
TH-232	193.51	-----	4.41*	6.239E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.863E+00	-----	Line Not Found	-----
	338.32	205	11.27	4.021E+00	2.348E+00	2.348E+00	26.58
TH-234	911.20	144	25.80*	1.678E+00	1.725E+00	1.725E+00	26.32
	968.97	80	15.80	1.589E+00	1.650E+00	1.650E+00	41.86
	63.29	254	3.70*	9.778E+00	3.649E+00	3.649E+00	36.01
U-235	92.59	427	4.23	9.245E+00	5.661E+00	5.661E+00	28.62
	89.96	170	3.47	9.327E+00	2.723E+00	2.723E+00	39.88
	93.35	427	5.60	9.245E+00	4.276E+00	4.276E+00	29.41
NP-237	143.76	-----	10.96*	7.568E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.998E+00	-----	Line Not Found	-----
	185.72	197	57.20	6.418E+00	2.778E-01	2.778E-01	35.77
U-238	205.31	-----	5.01	5.979E+00	-----	Line Not Found	-----
	86.48	293	12.40*	9.406E+00	1.306E+00	1.306E+00	30.45
	95.86	-----	2.68	9.143E+00	-----	Line Not Found	-----
U-238	63.29	254	3.70*	9.778E+00	3.649E+00	3.649E+00	36.01
	92.59	427	4.23	9.245E+00	5.661E+00	5.661E+00	20.14

Flag: "*" = Keyline

Total number of lines in spectrum 28
Number of unidentified lines 3
Number of lines tentatively identified by NID 25 89.29%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.180E+01	2.180E+01	0.290E+01	13.31	
CD-109	461.40D	1.03	4.376E+00	4.510E+00	0.996E+00	22.09	
SN-126	2.30E+05Y	1.00	4.376E-01	4.376E-01	0.966E-01	22.09	
BA-137M	30.08Y	1.00	3.131E+00	3.135E+00	0.412E+00	13.15	
CS-137	30.08Y	1.00	3.308E+00	3.312E+00	0.436E+00	13.16	
TL-208	1.41E+10Y	1.00	4.729E-01	4.729E-01	1.259E-01	26.62	
PB-210	22.20Y	1.00	8.834E+00	8.850E+00	1.638E+00	18.51	
BI-211	7.04E+08Y	1.00	4.924E+00	4.924E+00	0.844E+00	17.15	
PB-212	1.41E+10Y	1.00	1.603E+00	1.603E+00	0.238E+00	14.85	
BI-214	1600.00Y	1.00	1.526E+00	1.526E+00	0.311E+00	20.38	
PB-214	1600.00Y	1.00	1.787E+00	1.787E+00	0.322E+00	18.01	
RA-224	1.41E+10Y	1.00	5.589E+00	5.589E+00	2.099E+00	37.55	
RA-226	1600.00Y	1.00	1.526E+00	1.526E+00	0.311E+00	20.38	
AC-228	1.41E+10Y	1.00	1.725E+00	1.725E+00	0.454E+00	26.32	
RA-228	1.41E+10Y	1.00	1.725E+00	1.725E+00	0.454E+00	26.32	
TH-228	1.41E+10Y	1.00	1.603E+00	1.603E+00	0.238E+00	14.85	
TH-229	7340.00Y	1.00	6.746E-01	6.746E-01	1.490E-01	22.09	K
TH-232	1.41E+10Y	1.00	1.725E+00	1.725E+00	0.454E+00	26.32	
TH-234	4.47E+09Y	1.00	3.649E+00	3.649E+00	1.314E+00	36.01	
U-235	7.04E+08Y	1.00	2.778E-01	2.778E-01	0.993E-01	35.77	K
NP-237	2.14E+06Y	1.00	1.306E+00	1.306E+00	0.398E+00	30.45	
U-238	4.47E+09Y	1.00	3.649E+00	3.649E+00	1.314E+00	36.01	
Total Activity :			7.565E+01	7.581E+01			

Grand Total Activity : 7.565E+01 7.581E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines
Sample ID : G247360002

Page : 4
Acquisition date : 4-MAR-2010 12:42:32

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	208.96	75	143	0.79	417.45	414	7	1.04E-02	57.5	5.90E+00	
0	270.10	85	132	1.18	539.72	534	10	1.17E-02	55.7	4.84E+00	T
0	726.89	51	17	1.15	1453.27	1450	8	7.07E-03	42.9	2.05E+00	T
0	768.07	39	45	1.38	1535.62	1529	12	5.43E-03	75.7	1.95E+00	
0	1377.70	21	10	1.56	2754.92	2749	13	2.96E-03	78.2	1.17E+00	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360002.CNF;1
* Acquisition date   : 4-MAR-2010 12:42:32.  Detector SN#      :
* Detector ID        : GAM25                      Sensitivity    : 5.00000
* Geometry           : CAN                      Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:01.63             Half life ratio : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 12-FEB-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G247360002             Analyst initials: MXR1
* Batch Number       : 955027                 Sample Quantity : 7.23400E+01 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	2.180E+01	2.902E+00	9.907E-01	8.438E-02	22.003
CD-109	4.510E+00	9.960E-01	1.002E+00	1.076E-01	4.502
SN-126	4.376E-01	9.664E-02	9.698E-02	1.040E-02	4.512
BA-137M	3.135E+00	4.123E-01	9.664E-02	1.071E-02	32.445
CS-137	3.312E+00	4.359E-01	1.021E-01	1.132E-02	32.445
TL-208	4.729E-01	1.259E-01	9.137E-02	1.029E-02	5.176
PB-210	8.850E+00	1.638E+00	8.758E-01	8.970E-02	10.105
BI-211	4.924E+00	8.445E-01	4.293E-01	4.524E-02	11.470
PB-212	1.603E+00	2.379E-01	1.228E-01	1.403E-02	13.058
BI-214	1.526E+00	3.111E-01	1.771E-01	2.144E-02	8.619
PB-214	1.787E+00	3.220E-01	1.562E-01	1.856E-02	11.441
RA-224	5.589E+00	2.099E+00	1.317E+00	1.384E-01	4.242
RA-226	1.526E+00	3.111E-01	1.771E-01	2.144E-02	8.619
AC-228	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174
RA-228	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174
TH-228	1.603E+00	2.379E-01	1.228E-01	1.403E-02	13.058
TH-229	6.746E-01	1.490E-01	1.064E+00	1.015E-01	0.634
TH-232	1.725E+00	4.540E-01	3.334E-01	4.075E-02	5.174

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-234	3.649E+00	1.314E+00	9.847E-01	1.869E-01	3.706
U-235	2.778E-01	9.935E-02	3.974E-01	7.300E-02	0.699
NP-237	1.306E+00	3.976E-01	2.880E-01	6.775E-02	4.534
U-238	3.649E+00	1.314E+00	9.847E-01	1.869E-01	3.706

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	8.245E-01		6.292E-01	1.108E+00	1.173E-01	0.744
NA-22	-2.039E-02		6.040E-02	9.446E-02	7.745E-03	-0.216
NA-24	-4.067E+01		1.352E+02	Half-Life too short		
SC-46	-3.116E-02		5.990E-02	9.080E-02	8.695E-03	-0.343
V-48	2.618E-02		1.355E-01	2.234E-01	2.070E-02	0.117
CR-51	-2.427E-01		6.131E-01	1.007E+00	1.118E-01	-0.241
MN-54	3.254E-03		5.254E-02	8.661E-02	8.788E-03	0.038
CO-56	3.978E-03		6.362E-02	1.047E-01	1.051E-02	0.038
CO-57	-5.026E-03		2.655E-02	4.434E-02	5.717E-03	-0.113
CO-58	-2.912E-02		6.566E-02	1.025E-01	1.064E-02	-0.284
FE-59	-7.978E-02		1.398E-01	2.164E-01	2.038E-02	-0.369
CO-60	-2.243E-02		6.051E-02	9.346E-02	7.590E-03	-0.240
ZN-65	6.042E-02		1.562E-01	2.375E-01	2.052E-02	0.254
SE-75	-3.509E-02		7.223E-02	9.728E-02	1.066E-02	-0.361
SR-85	-3.189E-01		9.398E-02	1.085E-01	1.120E-02	-2.939
Y-88	-1.618E-04		5.830E-02	9.594E-02	7.840E-03	-0.002
Y-91	-3.442E+00		3.483E+01	5.695E+01	4.687E+00	-0.060
NB-94	-1.569E-02		5.096E-02	8.229E-02	9.036E-03	-0.191
NB-95	-5.273E-03		7.872E-02	1.125E-01	1.201E-02	-0.047
NB-95M	1.228E-01		1.916E-01	2.878E-01	3.303E-02	0.427
ZR-95	6.235E-02		1.037E-01	1.822E-01	2.090E-02	0.342
MO-99	7.085E+00		5.874E+01	9.853E+01	1.681E+01	0.072
TC-99M	-2.309E+16		1.729E+16	Half-Life too short		
RU-103	-3.554E-02		7.067E-02	1.094E-01	1.639E-02	-0.325
RH-106	1.689E-01		4.480E-01	7.784E-01	1.158E-01	0.217
RU-106	1.689E-01		4.477E-01	7.784E-01	8.524E-02	0.217
AG-108M	-7.160E-03		5.085E-02	8.272E-02	8.127E-03	-0.087
AG-110M	6.378E-02		6.079E-02	9.949E-02	1.121E-02	0.641
SN-113	-4.873E-02		7.472E-02	1.182E-01	1.104E-02	-0.412
CD-115	2.498E-05		4.097E-05	Half-Life too short		
SN-117M	-3.104E-02		8.237E-02	1.336E-01	1.297E-02	-0.232
TE-123M	-3.667E-03		3.397E-02	5.594E-02	5.432E-03	-0.066
SB-124	-5.555E-02		1.389E-01	2.117E-01	1.835E-02	-0.262
SB-125	-1.584E-01		1.474E-01	2.212E-01	2.136E-02	-0.716
TE-125M	4.003E-01		1.048E+01	1.783E+01	2.391E+00	0.022
I-126	4.523E-01		5.190E-01	8.296E-01	9.184E-02	0.545
SB-126	4.521E-01		2.731E-01	5.039E-01	5.500E-02	0.897
SB-127	3.912E+00		5.023E+00	8.897E+00	1.303E+00	0.440
I-131	8.290E-02		2.686E-01	4.569E-01	4.703E-02	0.181

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-132	2.517E-03		2.905E+00	4.683E+00	8.331E-01	0.001
BA-133	-8.432E-02		6.939E-02	8.795E-02	1.227E-02	-0.959
I-133	3.013E-01		2.366E-01	Half-Life too short		
CS-134	4.846E-02		7.516E-02	1.264E-01	1.330E-02	0.384
CS-135	1.249E-01		2.484E-01	3.663E-01	4.422E-02	0.341
I-135	5.753E+14		1.282E+15	Half-Life too short		
CS-136	1.888E-02		2.069E-01	3.501E-01	3.276E-02	0.054
CE-139	-2.275E-02		3.677E-02	5.853E-02	5.219E-03	-0.389
BA-140	5.475E-01		5.679E-01	9.437E-01	3.250E-01	0.580
LA-140	-1.381E-01		1.607E-01	2.211E-01	1.838E-02	-0.625
CE-141	-6.609E-02		8.386E-02	1.337E-01	1.487E-02	-0.494
CE-143	6.052E-03		1.448E-03	Half-Life too short		
CE-144	6.423E-02		2.380E-01	4.040E-01	7.043E-02	0.159
PM-144	3.465E-03		5.217E-02	8.737E-02	9.615E-03	0.040
PR-144	2.447E-01		3.913E+00	6.551E+00	7.207E-01	0.037
PM-146	8.704E-04		7.135E-02	1.169E-01	1.351E-02	0.007
ND-147	2.580E-01		1.183E+00	1.947E+00	3.129E-01	0.133
PM-149	-1.706E-04		3.181E-04	Half-Life too short		
EU-152	-2.881E-02		1.392E-01	2.125E-01	2.281E-02	-0.136
GD-153	9.797E-03		8.573E-02	1.332E-01	1.500E-02	0.074
EU-154	-9.540E-02		1.756E-01	2.660E-01	2.941E-02	-0.359
EU-155	2.963E-02		1.037E-01	1.788E-01	2.113E-02	0.166
TB-160	-1.789E-01		2.148E-01	3.107E-01	3.010E-02	-0.576
HO-166M	-3.244E-03		8.583E-02	1.421E-01	1.555E-02	-0.023
TA-182	-1.953E-01		2.888E-01	4.378E-01	3.600E-02	-0.446
IR-192	2.183E-02		5.465E-02	9.423E-02	1.018E-02	0.232
HG-203	-1.188E-02		6.021E-02	9.409E-02	1.066E-02	-0.126
BI-207	-1.156E-03		7.853E-02	1.312E-01	1.171E-02	-0.009
PB-211	-1.217E-01		1.204E+00	1.936E+00	9.392E-01	-0.063
BI-212	1.932E+00	+	8.728E-01	1.619E+00	2.286E-01	1.193
RN-219	-4.455E-02		6.513E-01	1.072E+00	1.632E-01	-0.042
RA-223	7.736E-02		9.081E-01	1.537E+00	2.834E-01	0.050
AC-227	-2.005E-01		3.366E-01	5.120E-01	7.005E-02	-0.392
TH-227	-2.005E-01		3.369E-01	5.120E-01	7.716E-02	-0.392
PA-231	6.840E-02		2.109E+00	3.346E+00	5.420E-01	0.020
TH-231	7.736E-02		9.081E-01	1.537E+00	2.834E-01	0.050
PA-233	-6.804E-02		9.167E-02	1.471E-01	1.624E-02	-0.463
PA-234	3.067E-01		4.171E-01	7.329E-01	1.402E-01	0.418
PA-234M	1.001E+01		7.703E+00	1.407E+01	1.473E+00	0.712
NP-239	-3.317E-02		4.096E-01	6.900E-01	8.656E-02	-0.048
AM-241	-9.499E-03		7.211E-02	1.051E-01	1.093E-02	-0.090
CM-247	9.412E-03		5.850E-02	9.782E-02	9.015E-03	0.096
CF-249	8.561E-02		6.214E-02	1.116E-01	1.026E-02	0.767
CF-251	1.012E-01		1.614E-01	2.741E-01	2.516E-02	0.369
ANH-511	6.596E-03		7.702E-02	1.372E-01	1.412E-02	0.048

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G247360002            *
* Acquisition date   : 4-MAR-2010 12:42:32 Detector SN#      :              *
* Detector ID        : GAM25 Sensitivity      : 5.000              *
* Geometry           : CAN Energy tolerance: 1.500              *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.63 Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G247360002 Analyst initials: MXR1           *
* Batch Number       : 955027 Sample Quantity : 7.2340E+01 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	2.180E+01	2.844E+00	4.870E-01	1.451E+00
CD-109	4.510E+00	9.760E-01	4.771E-01	4.980E-01
SN-126	4.376E-01	9.471E-02	4.619E-02	4.832E-02
BA-137M	3.135E+00	4.040E-01	4.710E-02	2.061E-01
CS-137	3.312E+00	4.272E-01	4.975E-02	2.180E-01
TL-208	4.729E-01	1.234E-01	4.446E-02	6.293E-02
PB-210	8.850E+00	1.605E+00	4.141E-01	8.191E-01
BI-211	4.924E+00	8.276E-01	2.078E-01	4.222E-01
PB-212	1.603E+00	2.332E-01	5.914E-02	1.190E-01
BI-214	1.526E+00	3.049E-01	8.622E-02	1.556E-01
PB-214	1.787E+00	3.155E-01	7.560E-02	1.610E-01
RA-224	5.589E+00	2.057E+00	6.348E-01	1.049E+00
RA-226	1.526E+00	3.049E-01	8.622E-02	1.556E-01
AC-228	1.725E+00	4.449E-01	1.631E-01	2.270E-01
RA-228	1.725E+00	4.449E-01	1.631E-01	2.270E-01
TH-228	1.603E+00	2.332E-01	5.914E-02	1.190E-01
TH-229	-3.786E-01	6.613E-01	5.116E-01	3.374E-01
TH-232	1.725E+00	4.449E-01	1.631E-01	2.270E-01
TH-234	3.649E+00	1.288E+00	4.673E-01	6.571E-01
U-235	7.387E-02	2.350E-01	1.904E-01	1.199E-01
NP-237	1.306E+00	3.897E-01	1.372E-01	1.988E-01
U-238	3.649E+00	1.288E+00	4.673E-01	6.571E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	8.245E-01	6.166E-01	5.379E-01	3.146E-01 NOT IDENT.
NA-22	-2.039E-02	5.919E-02	4.637E-02	3.020E-02 NOT IDENT.
NA-24	-4.067E+07	2.651E+08	0.000E+00	1.352E+08 SHORT HLIF
SC-46	-3.116E-02	5.870E-02	4.439E-02	2.995E-02 FAIL ABUN
V-48	2.618E-02	1.328E-01	1.094E-01	6.773E-02 NOT IDENT.

CR-51	-2.427E-01	6.008E-01	4.869E-01	3.066E-01	NOT IDENT.
MN-54	3.254E-03	5.149E-02	4.232E-02	2.627E-02	NOT IDENT.
CO-56	3.978E-03	6.234E-02	5.117E-02	3.181E-02	NOT IDENT.
CO-57	-5.026E-03	2.602E-02	2.120E-02	1.328E-02	NOT IDENT.
CO-58	-2.912E-02	6.435E-02	5.008E-02	3.283E-02	NOT IDENT.
FE-59	-7.978E-02	1.370E-01	1.061E-01	6.991E-02	NOT IDENT.
CO-60	-2.243E-02	5.930E-02	4.590E-02	3.025E-02	NOT IDENT.
ZN-65	6.042E-02	1.531E-01	1.164E-01	7.809E-02	NOT IDENT.
SE-75	-3.509E-02	7.079E-02	4.692E-02	3.612E-02	NOT IDENT.
SR-85	-3.189E-01	9.210E-02	5.274E-02	4.699E-02	NOT IDENT.
Y-88	-1.618E-04	5.714E-02	4.728E-02	2.915E-02	NOT IDENT.
Y-91	-3.442E+00	3.413E+01	2.794E+01	1.741E+01	NOT IDENT.
NB-94	-1.569E-02	4.994E-02	4.013E-02	2.548E-02	NOT IDENT.
NB-95	-5.273E-03	7.714E-02	5.490E-02	3.936E-02	NOT IDENT.
NB-95M	1.228E-01	1.878E-01	1.386E-01	9.581E-02	NOT IDENT.
ZR-95	6.235E-02	1.016E-01	8.892E-02	5.183E-02	NOT IDENT.
MO-99	7.085E+00	5.757E+01	4.808E+01	2.937E+01	NOT IDENT.
TC-99M	-2.309E+22	3.388E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.554E-02	6.926E-02	5.317E-02	3.534E-02	FAIL ABUN
RH-106	1.689E-01	4.391E-01	3.791E-01	2.240E-01	NOT IDENT.
RU-106	1.689E-01	4.388E-01	3.791E-01	2.239E-01	NOT IDENT.
AG-108M	-7.160E-03	4.983E-02	4.013E-02	2.542E-02	NOT IDENT.
AG-110M	6.378E-02	5.958E-02	4.848E-02	3.040E-02	NOT IDENT.
SN-113	-4.873E-02	7.323E-02	5.726E-02	3.736E-02	NOT IDENT.
CD-115	2.498E+01	8.030E+01	0.000E+00	4.097E+01	SHORT HLIF
SN-117M	-3.104E-02	8.072E-02	6.405E-02	4.118E-02	NOT IDENT.
TE-123M	-3.667E-03	3.329E-02	2.683E-02	1.698E-02	NOT IDENT.
SB-124	-5.555E-02	1.361E-01	1.043E-01	6.944E-02	NOT IDENT.
SB-125	-1.584E-01	1.444E-01	1.073E-01	7.368E-02	NOT IDENT.
TE-125M	4.003E-01	1.027E+01	8.515E+00	5.238E+00	NOT IDENT.
I-126	4.523E-01	5.087E-01	4.043E-01	2.595E-01	NOT IDENT.
SB-126	4.521E-01	2.677E-01	2.458E-01	1.366E-01	NOT IDENT.
SB-127	3.912E+00	4.922E+00	4.338E+00	2.511E+00	NOT IDENT.
I-131	8.290E-02	2.632E-01	2.212E-01	1.343E-01	NOT IDENT.
TE-132	2.517E-03	2.847E+00	2.255E+00	1.452E+00	NOT IDENT.
BA-133	-8.432E-02	6.800E-02	4.257E-02	3.469E-02	NOT IDENT.
I-133	3.013E+05	4.637E+05	0.000E+00	2.366E+05	SHORT HLIF
CS-134	4.846E-02	7.366E-02	6.171E-02	3.758E-02	NOT IDENT.
CS-135	1.249E-01	2.435E-01	1.767E-01	1.242E-01	NOT IDENT.
I-135	5.753E+20	2.512E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.888E-02	2.027E-01	1.715E-01	1.034E-01	NOT IDENT.
CE-139	-2.275E-02	3.603E-02	2.808E-02	1.838E-02	NOT IDENT.
BA-140	5.475E-01	5.565E-01	4.588E-01	2.839E-01	NOT IDENT.
LA-140	-1.381E-01	1.575E-01	1.088E-01	8.037E-02	NOT IDENT.
CE-141	-6.609E-02	8.218E-02	6.406E-02	4.193E-02	NOT IDENT.
CE-143	6.052E+03	2.839E+03	0.000E+00	1.448E+03	SHORT HLIF
CE-144	6.423E-02	2.333E-01	1.934E-01	1.190E-01	NOT IDENT.
PM-144	3.465E-03	5.112E-02	4.261E-02	2.608E-02	NOT IDENT.
PR-144	2.447E-01	3.834E+00	3.194E+00	1.956E+00	NOT IDENT.
PM-146	8.704E-04	6.992E-02	5.673E-02	3.568E-02	NOT IDENT.
ND-147	2.580E-01	1.159E+00	9.464E-01	5.915E-01	FAIL ABUN
PM-149	-1.706E+02	6.234E+02	0.000E+00	3.181E+02	SHORT HLIF
EU-152	-2.881E-02	1.364E-01	1.028E-01	6.959E-02	NOT IDENT.
GD-153	9.797E-03	8.402E-02	6.354E-02	4.287E-02	NOT IDENT.
EU-154	-9.540E-02	1.721E-01	1.306E-01	8.780E-02	NOT IDENT.
EU-155	2.963E-02	1.016E-01	8.534E-02	5.184E-02	FAIL ABUN
TB-160	-1.789E-01	2.105E-01	1.519E-01	1.074E-01	FAIL ABUN
HO-166M	-3.244E-03	8.412E-02	6.929E-02	4.292E-02	FAIL ABUN
TA-182	-1.953E-01	2.831E-01	2.148E-01	1.444E-01	NOT IDENT.
IR-192	2.183E-02	5.356E-02	4.555E-02	2.732E-02	FAIL ABUN
HG-203	-1.188E-02	5.901E-02	4.541E-02	3.011E-02	NOT IDENT.
BI-207	-1.156E-03	7.696E-02	6.426E-02	3.927E-02	FAIL ABUN
PB-211	-1.217E-01	1.180E+00	9.385E-01	6.021E-01	NOT IDENT.
BI-212	1.932E+00	8.554E-01	7.898E-01	4.364E-01	FAIL ABUN
RN-219	-4.455E-02	6.383E-01	5.197E-01	3.257E-01	FAIL ABUN
RA-223	7.736E-02	8.899E-01	7.430E-01	4.540E-01	FAIL ABUN
AC-227	-2.005E-01	3.299E-01	2.469E-01	1.683E-01	NOT IDENT.
TH-227	-2.005E-01	3.301E-01	2.469E-01	1.684E-01	NOT IDENT.
PA-231	6.840E-02	2.067E+00	1.616E+00	1.055E+00	NOT IDENT.
TH-231	7.736E-02	8.899E-01	7.430E-01	4.540E-01	FAIL ABUN
PA-233	-6.804E-02	8.984E-02	7.107E-02	4.584E-02	NOT IDENT.
PA-234	3.067E-01	4.088E-01	3.586E-01	2.086E-01	NOT IDENT.
PA-234M	1.001E+01	7.549E+00	6.886E+00	3.852E+00	NOT IDENT.
NP-239	-3.317E-02	4.015E-01	3.298E-01	2.048E-01	NOT IDENT.
AM-241	-9.499E-03	7.067E-02	4.986E-02	3.606E-02	NOT IDENT.
CM-247	9.412E-03	5.733E-02	4.741E-02	2.925E-02	NOT IDENT.
CF-249	8.561E-02	6.090E-02	5.407E-02	3.107E-02	NOT IDENT.
CF-251	1.012E-01	1.582E-01	1.316E-01	8.072E-02	NOT IDENT.

ANH-511

6.596E-03

7.548E-02

6.665E-02

3.851E-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
46.54	200.3266
49.72	200.3300
57.36	0.0000
59.54	238.5962
63.29	218.0229
63.29	218.0229
64.28	224.5435
67.75	240.1050
69.67	247.5528
70.83	253.2222
72.81	252.5511
72.87	252.6017
72.87	252.6017
74.82	254.2279
74.82	254.2279
74.82	254.2279
74.97	254.3519
77.11	256.1120
77.11	256.1120
77.11	256.1120
79.69	254.1784
79.80	241.3910
80.12	241.6306
80.19	186.0955
80.57	169.3764
81.00	242.2867
81.07	242.3386
81.07	242.3386
83.79	193.0326
83.79	193.0326
85.43	193.9765
86.48	194.5756
86.55	194.6154
86.79	194.7504
86.94	194.8372
87.57	195.1940
88.03	195.4532
88.47	195.7015
89.96	196.5356
91.11	197.1757
92.59	197.1564
92.59	197.1564
93.35	197.5717
94.67	144.9362
94.87	168.9742
94.87	168.9742
95.86	220.0050
97.43	184.1130
98.44	134.9553
99.53	162.5834
100.11	192.6692
103.18	165.8476
103.37	159.0502
105.31	177.1145
106.12	183.5354
109.28	184.1034
111.00	217.2952
111.76	200.1378
116.30	188.1051
117.23	163.6148
121.12	154.3125
121.78	155.4411
122.06	159.1351
123.07	145.0775
131.20	199.0337
133.52	184.3404
136.00	168.6181

136.47	178.9840
140.51	160.8266
140.51	0.0000
143.76	158.1084
144.24	157.3168
144.24	157.3168
145.44	202.0683
152.43	178.0078
153.25	161.0291
154.21	138.2739
154.21	138.2739
156.02	158.0108
158.56	163.5932
159.00	155.9737
162.66	165.7891
163.33	153.2948
165.86	169.6792
176.60	128.8871
177.52	147.0987
181.07	175.1470
184.41	165.4792
185.72	146.0522
193.51	167.3824
197.04	153.8457
205.31	141.1482
210.85	166.0236
215.65	162.4022
222.11	151.0403
227.38	171.5691
228.16	149.0676
228.18	149.0718
235.69	139.1341
235.96	139.1833
235.96	139.1833
238.63	140.2253
238.63	140.2253
240.99	140.6602
242.00	140.8464
244.70	119.2555
252.40	90.3249
252.80	92.6024
256.23	122.1332
256.23	122.1332
260.90	0.0000
264.66	125.6677
268.22	121.0930
269.46	120.7035
269.46	120.7035
271.23	112.9702
273.65	120.1608
276.40	117.1053
277.37	106.8936
277.60	106.9220
278.00	111.5721
279.20	130.1574
279.54	146.3399
280.46	154.5722
283.69	119.2551
284.31	128.6080
285.41	143.8518
285.90	0.0000
287.50	103.4929
293.27	0.0000
295.22	110.8422
295.96	110.9344
298.57	128.5597
299.98	103.2889
299.98	103.2889
300.09	103.3014
300.09	103.3014
300.13	103.3068
301.36	118.4262
302.85	147.2586
304.50	117.3047
304.50	117.3047
304.85	98.6798
308.46	106.2041
311.90	123.6117

316.51	117.0111
319.41	113.7549
320.08	122.8682
323.87	109.7449
323.87	109.7449
328.76	102.0896
333.37	98.1691
334.37	92.4005
334.37	92.4005
338.28	102.1469
338.28	102.1469
338.32	102.1503
338.32	102.1503
338.32	102.1503
340.48	90.0107
340.55	90.0167
344.28	91.3332
351.06	80.1316
351.93	80.1985
356.01	113.8386
364.49	97.1959
366.42	96.4250
383.85	93.1606
388.16	80.0187
388.63	83.9109
391.69	118.9517
400.66	106.2341
401.81	105.3633
402.40	97.6074
404.85	106.6150
410.95	109.1335
414.70	109.4756
423.72	81.4795
427.09	101.6311
427.87	107.6770
433.94	105.2003
453.88	94.6518
463.37	94.3163
468.07	102.8824
473.00	108.4254
476.78	90.0918
477.60	82.8931
487.02	71.9901
492.35	0.0000
497.08	81.9728
511.00	91.2733
514.00	227.5970
527.90	0.0000
529.87	0.0000
531.02	60.2554
537.26	50.7852
546.56	0.0000
563.25	49.4591
569.33	65.0984
569.50	65.1056
569.70	65.1128
583.19	64.5544
600.60	75.6000
602.73	70.5918
604.72	61.6535
609.32	64.2380
609.32	64.2380
610.33	64.2761
614.28	48.3971
618.01	49.1102
621.93	45.5774
621.93	45.5774
633.25	55.9738
635.95	45.9521
636.99	52.4175
645.85	52.6846
657.76	43.4253
661.66	64.3472
661.66	64.3472
664.57	0.0000
666.33	51.4242
666.50	51.4296
677.62	47.9818

685.70	46.3036
695.00	39.8877
696.49	53.2260
696.51	53.2273
697.00	48.4874
702.65	58.1689
706.68	54.4701
711.68	45.0321
720.70	25.2695
721.93	0.0000
722.78	41.7602
722.91	41.7633
723.31	56.2313
724.19	67.5083
727.33	48.2983
733.00	31.4852
735.93	50.4512
739.50	37.9069
747.24	38.0555
752.31	44.0211
753.82	36.2231
756.73	32.3539
763.94	37.7166
765.81	47.5994
766.42	44.3298
777.92	33.6821
778.90	36.6721
783.70	34.7701
785.37	35.7926
795.86	40.9680
801.95	56.1189
810.29	57.3451
810.76	50.3137
815.77	48.4137
818.51	38.3767
832.01	39.6322
834.85	37.6486
836.80	0.0000
846.77	40.9209
856.80	22.2655
860.56	38.0858
871.09	40.3311
873.19	40.3682
875.33	0.0000
879.36	41.5156
880.51	39.4593
883.24	18.7132
884.68	27.0474
889.28	38.5673
898.04	53.3607
911.20	35.7730
911.20	35.7730
911.20	35.7730
926.50	34.9441
937.49	30.8479
944.13	31.9988
946.00	23.4835
949.00	36.3375
962.29	36.2648
964.08	32.2581
966.15	26.9043
968.97	84.3948
968.97	84.3948
968.97	84.3948
983.53	33.5922
996.26	46.8286
1001.03	26.1855
1004.73	44.7977
1037.84	27.6624
1038.76	0.0000
1048.07	34.2479
1050.41	37.9837
1050.41	37.9837
1063.66	35.3776
1085.87	31.9110
1099.45	36.7815
1112.07	24.3604
1115.54	35.7730

1120.29	22.8027
1120.29	22.8027
1120.55	22.8047
1121.30	30.9572
1131.51	0.0000
1173.23	33.8650
1177.93	38.7630
1189.05	34.0444
1204.77	42.0447
1221.41	43.2570
1231.02	46.3498
1235.36	43.4521
1238.28	34.5970
1260.41	0.0000
1271.85	30.9710
1274.44	30.9962
1274.54	27.9966
1291.59	26.1354
1298.22	0.0000
1312.11	24.2773
1332.49	26.4634
1365.19	26.7215
1368.63	0.0000
1384.29	10.6302
1408.01	16.6491
1457.56	0.0000
1460.82	23.5371
1489.16	15.9656
1505.03	24.5863
1596.21	17.8297
1620.50	10.3862
1678.03	0.0000
1690.97	14.4114
1764.49	11.9770
1764.49	11.9770
1770.23	8.5663
1771.35	34.2737
1791.20	0.0000
1836.06	9.9383

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G247360002

Total Uranium Activity	1.0891E+01	ug/g
Total Uranium Counting Unc.	3.8332E+00	ug/g
Total Uranium Tpu	1.9557E-06	ug/g
Total Uranium Mda	1.3929E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 955027          SAMPLE ID   : G247360002
*  ANALYST       : MXR1           DETECTOR    : GAM25
*  SAMPLE DATE   : 12-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 4-MAR-2010 12:42:32.46  SAMPLE ALQT: 72.340 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.211E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.329E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.835E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.848E+00

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VAX/VMS Nuclide Identification Report Generated 4-MAR-2010 14:44:07.97

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360003.CNF;1
Sample date       : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:43:41.
Sample ID        : G247360003 Sample quantity : 1.44490E+02 GRAM
Detector name    : GAM19 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.69 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 5.00000
Batch ID        : 955027 Detector SN# :
Matrix Spike ID : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	1	74.71*	540	619	1.47	149.27	143	17	7.50E-02	9.8	4.21E+00
2	1	77.07*	871	482	1.39	153.97	143	17	1.21E-01	5.9	
3	4	87.21	267	506	1.20	174.24	171	12	3.71E-02	15.2	6.72E-01
4	4	89.88	124	420	0.99	179.58	171	12	1.72E-02	27.8	
5	0	93.09*	229	536	1.60	185.99	183	10	3.18E-02	21.1	
6	0	185.83*	181	487	1.24	371.33	364	13	2.51E-02	26.9	
7	0	209.61	160	387	1.03	418.85	413	12	2.23E-02	25.9	
8	2	238.52*	1433	223	1.32	476.64	470	20	1.99E-01	3.3	8.33E-01
9	2	241.43	336	230	1.71	482.46	470	20	4.66E-02	13.4	
10	0	270.33	165	255	1.15	540.22	534	13	2.28E-02	21.5	
11	0	276.46	102	254	1.65	552.48	547	12	1.42E-02	32.6	
12	0	295.08	471	254	1.39	589.69	585	11	6.54E-02	8.0	
13	0	299.81	71	207	1.30	599.13	596	10	9.88E-03	40.0	
14	0	327.70	94	193	1.02	654.88	650	11	1.31E-02	30.4	
15	0	338.27	336	210	1.38	676.02	671	12	4.66E-02	10.3	
16	0	351.76*	853	181	1.31	702.98	697	14	1.18E-01	4.8	
17	0	462.91	111	111	1.14	925.17	919	13	1.53E-02	21.8	
18	0	510.93*	142	173	1.76	1021.17	1015	15	1.97E-02	24.4	
19	0	568.63*	135	174	1.83	1136.52	1129	17	1.87E-02	24.7	
20	0	582.86*	445	88	1.58	1164.98	1156	14	6.19E-02	6.7	
21	0	609.29*	564	161	1.57	1217.82	1211	16	7.83E-02	6.6	
22	0	727.84	99	87	1.46	1454.84	1449	13	1.38E-02	22.3	
23	0	795.69	64	102	1.57	1590.52	1582	17	8.89E-03	38.3	
24	0	840.46	62	100	7.82	1680.06	1668	21	8.63E-03	43.8	
25	0	861.50	69	81	1.41	1722.12	1714	16	9.58E-03	32.0	
26	0	911.42	315	58	1.29	1821.96	1816	13	4.38E-02	7.5	
27	0	968.13	252	68	1.79	1935.38	1926	17	3.50E-02	9.8	
28	0	1120.46	115	42	1.82	2240.07	2235	11	1.60E-02	14.3	
29	0	1378.05	53	17	1.22	2755.39	2751	11	7.29E-03	20.4	
30	0	1408.68	30	22	1.59	2816.68	2809	17	4.18E-03	39.7	
31	0	1460.98*	1414	35	2.07	2921.32	2913	16	1.96E-01	2.8	
32	0	1620.97	14	14	1.55	3241.46	3235	13	2.01E-03	57.9	
33	0	1764.59*	98	13	2.61	3528.91	3520	17	1.36E-02	13.5	

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

VMS Nuclide Identification Report V3.1 Generated 4-MAR-2010 14:44:10

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Configuration       : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360003.CNF;1
Analyses by        : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title       : MXR1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:43:41
Sample ID          : G247360003 Sample quantity : 144.49 GRAM
Sample type        : SOLID Sample geometry :
Detector name      : GAMMA19 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.69 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	+	1460.82	*	2.950E+01	2.761E+00	5.367E-01	3.997E-02	54.952
CD-109	+	88.03	*	3.170E+00	1.003E+00	1.418E+00	1.270E-01	2.236
SN-126		64.28		6.335E-01	5.069E-01	8.526E-01	1.245E-01	0.743
	+	86.94		1.279E+00	6.568E-01	5.737E-01	2.376E-01	2.229
	+	87.57	*	3.076E-01	9.735E-02	1.382E-01	1.232E-02	2.226
TL-208	+	277.37		8.914E-01	5.885E-01	5.876E-01	6.332E-02	1.517
	+	583.19	*	5.327E-01	8.000E-02	5.334E-02	3.619E-03	9.986
	+	860.56		7.811E-01	5.044E-01	4.075E-01	3.648E-02	1.917
BI-211		72.87		1.179E+01	3.902E+00	6.013E+00	4.711E-01	1.960
	+	351.06	*	4.528E+00	5.226E-01	2.846E-01	1.818E-02	15.910
BI-212	+	727.33	*	1.823E+00	8.391E-01	7.627E-01	8.507E-02	2.390
		785.37		1.951E+00	2.917E+00	4.992E+00	3.651E-01	0.391
	+	1620.50		2.356E+00	2.735E+00	2.745E+00	1.833E-01	0.859
PB-212	+	74.82		2.698E+00	6.282E-01	5.515E-01	6.925E-02	4.892
	+	77.11		2.498E+00	3.589E-01	3.175E-01	2.565E-02	7.870
	+	238.63	*	1.702E+00	1.663E-01	9.081E-02	6.613E-03	18.745
	+	300.09		1.313E+00	1.056E+00	1.273E+00	1.069E-01	1.032
BI-214	+	609.32	*	1.306E+00	2.020E-01	1.099E-01	8.708E-03	11.889
	+	1120.29		1.378E+00	4.135E-01	4.374E-01	4.027E-02	3.152
	+	1764.49		1.620E+00	4.473E-01	2.911E-01	1.764E-02	5.564
PB-214	+	74.82		4.782E+00	1.080E+00	9.775E-01	1.097E-01	4.892
	+	77.11		4.404E+00	7.296E-01	5.597E-01	6.461E-02	7.870
	+	242.00		2.417E+00	6.770E-01	5.519E-01	4.474E-02	4.380
	+	295.22		1.539E+00	2.807E-01	2.146E-01	1.874E-02	7.170
	+	351.93	*	1.643E+00	2.102E-01	1.035E-01	8.733E-03	15.878
RA-224	+	240.99	*	4.274E+00	1.171E+00	9.728E-01	5.512E-02	4.393
RA-226	+	609.32	*	1.306E+00	2.020E-01	1.099E-01	8.708E-03	11.889
	+	1120.29		1.378E+00	4.135E-01	4.374E-01	4.027E-02	3.152
	+	1764.49		1.620E+00	4.473E-01	2.911E-01	1.764E-02	5.564
AC-228	+	338.32		1.984E+00	9.143E-01	3.945E-01	1.626E-01	5.030
	+	911.20	*	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147
	+	968.97		2.500E+00	7.790E-01	3.996E-01	9.676E-02	6.256
RA-228	+	338.32		1.984E+00	9.143E-01	3.945E-01	1.626E-01	5.030
	+	911.20	*	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	968.97		2.500E+00	7.790E-01	3.996E-01	9.676E-02	6.256
	+	74.82		2.698E+00	5.716E-01	5.515E-01	4.426E-02	4.892
	+	77.11		2.498E+00	3.589E-01	3.175E-01	2.565E-02	7.870
	+	238.63	*	1.702E+00	1.663E-01	9.081E-02	6.613E-03	18.745
TH-232	+	300.09		1.313E+00	1.320E+00	1.273E+00	7.748E-01	1.032
	+	338.32		1.984E+00	4.243E-01	3.945E-01	2.281E-02	5.030
	+	911.20	*	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147
	+	968.97		2.500E+00	7.790E-01	3.996E-01	9.676E-02	6.256
U-235	+	89.96		1.483E+00	9.008E-01	1.319E+00	3.248E-01	1.124
	+	93.35		1.658E+00	7.951E-01	8.451E-01	1.940E-01	1.962
		143.76	*	-1.490E-01	2.045E-01	3.192E-01	4.984E-02	-0.467
		163.33		-7.167E-02	4.501E-01	7.175E-01	1.191E-01	-0.100
NP-237	+	185.72		1.396E-01	7.557E-02	6.540E-02	3.495E-03	2.135
		205.31		1.956E-01	5.494E-01	7.851E-01	1.325E-01	0.249
	+	86.48	*	9.179E-01	3.485E-01	4.013E-01	9.128E-02	2.287
		95.86		-3.901E-01	1.027E+00	1.439E+00	3.418E-01	-0.271
ANH-511	+	511.00	*	1.297E-01	6.385E-02	4.380E-02	2.585E-03	2.961

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-9.282E-02	3.240E-01	5.261E-01	3.570E-02	-0.176
NA-22		1274.54	*	-1.248E-02	3.997E-02	6.430E-02	4.289E-03	-0.194
NA-24		1368.63	*	8.741E+01	3.997E-02	Half-Life too short		
SC-46		889.28	*	-9.302E-04	3.770E-02	6.068E-02	5.273E-03	-0.015
V-48	+	1120.55		2.428E-01	7.100E-02	1.234E-01	7.782E-03	1.968
		944.13		-4.551E-01	1.002E+00	1.534E+00	1.292E-01	-0.297
		983.53	*	-3.119E-02	8.437E-02	1.304E-01	1.048E-02	-0.239
		1312.11		-1.075E-01	9.485E-02	1.375E-01	9.782E-03	-0.782
CR-51		320.08	*	1.732E-01	3.995E-01	6.840E-01	4.419E-02	0.253
MN-54		834.85	*	5.940E-03	4.603E-02	6.517E-02	5.184E-03	0.091
CO-56		846.77	*	-1.963E-02	4.247E-02	5.523E-02	4.481E-03	-0.355
		1037.84		-1.411E-01	2.994E-01	4.805E-01	3.818E-02	-0.294
		1238.28		2.427E-01	9.988E-02	1.892E-01	1.243E-02	1.283
		1771.35		-9.573E-02	2.447E-01	3.019E-01	1.819E-02	-0.317
CO-57		122.06	*	-3.603E-04	2.691E-02	4.378E-02	2.613E-03	-0.008
		136.47		-1.951E-02	2.124E-01	3.437E-01	2.264E-02	-0.057
CO-58		810.76	*	-4.798E-02	3.919E-02	5.585E-02	4.280E-03	-0.859
FE-59		1099.45	*	1.104E-02	9.162E-02	1.548E-01	1.161E-02	0.071
		1291.59		-5.458E-02	1.239E-01	1.955E-01	1.619E-02	-0.279
CO-60		1173.23		-9.782E-03	4.544E-02	7.395E-02	4.053E-03	-0.132
		1332.49	*	1.631E-02	3.509E-02	6.113E-02	4.505E-03	0.267
ZN-65		1115.54	*	7.841E-03	9.063E-02	1.321E-01	8.442E-03	0.059
SE-75		121.12		-2.883E-02	1.426E-01	2.304E-01	2.121E-02	-0.125
		136.00		3.554E-03	4.180E-02	6.809E-02	3.923E-03	0.052
		264.66	*	3.079E-02	4.918E-02	7.514E-02	4.371E-03	0.410
		279.54		9.869E-02	1.214E-01	1.870E-01	1.172E-02	0.528
		400.66		-3.155E-02	2.433E-01	4.021E-01	3.597E-02	-0.078

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SR-85	514.00	*		1.139E-01	4.496E-02	7.656E-02	4.521E-03	1.488
Y-88	898.04			-3.484E-02	4.212E-02	6.084E-02	5.386E-03	-0.573
	1836.06	*		1.702E-02	2.821E-02	5.161E-02	2.946E-03	0.330
Y-91	1204.77	*		2.413E+00	2.278E+01	3.823E+01	2.232E+00	0.063
NB-94	702.65	*		5.468E-03	3.504E-02	5.775E-02	3.637E-03	0.095
	871.09			1.008E-02	3.421E-02	5.667E-02	4.783E-03	0.178
NB-95	765.81	*		6.779E-03	4.618E-02	7.581E-02	5.357E-03	0.089
NB-95M	235.69	*		4.935E-01	1.689E-01	2.654E-01	1.973E-02	1.859
ZR-95	724.19			9.941E-02	1.013E-01	1.577E-01	1.180E-02	0.630
	756.73	*		8.355E-02	7.982E-02	1.377E-01	1.108E-02	0.607
MO-99	140.51			-2.128E+01	7.586E+01	1.215E+02	2.773E+01	-0.175
	181.07			4.284E+00	6.835E+01	9.657E+01	1.692E+01	0.044
	366.42			1.796E+02	3.203E+02	5.509E+02	3.136E+01	0.326
	739.50	*		4.322E+01	4.126E+01	7.189E+01	1.065E+01	0.601
	777.92			4.848E+01	1.172E+02	1.968E+02	1.421E+01	0.246
TC-99M	140.51	*		-8.358E+15	1.172E+02	Half-Life	too short	
RU-103	497.08	*		1.262E-02	3.992E-02	6.735E-02	8.395E-03	0.187
	610.33			1.471E+01	2.956E+00	3.171E+00	4.786E-01	4.638
RH-106	621.93	*		-1.511E-01	2.729E-01	4.252E-01	4.962E-02	-0.355
	1050.41			-1.005E+00	2.263E+00	3.632E+00	2.640E-01	-0.277
RU-106	621.93	*		-1.511E-01	2.725E-01	4.252E-01	2.507E-02	-0.355
	1050.41			-1.005E+00	2.263E+00	3.632E+00	2.640E-01	-0.277
AG-108M	433.94	*		-1.379E-02	2.904E-02	4.685E-02	2.875E-03	-0.294
	614.28			7.692E-03	3.676E-02	5.332E-02	3.366E-03	0.144
	722.91			-1.545E-02	3.977E-02	5.333E-02	3.681E-03	-0.290
AG-110M	657.76	*		-1.096E-02	3.195E-02	5.076E-02	3.150E-03	-0.216
	677.62			-6.512E-02	2.964E-01	4.753E-01	3.021E-02	-0.137
	706.68			6.909E-02	2.177E-01	3.629E-01	2.424E-02	0.190
	763.94			4.348E-02	1.680E-01	2.780E-01	2.038E-02	0.156
	884.68			1.814E-02	4.711E-02	7.875E-02	7.011E-03	0.230
	937.49			-1.027E-01	1.170E-01	1.726E-01	1.519E-02	-0.595
	1384.29			2.055E-01	1.496E-01	2.644E-01	2.003E-02	0.777
	1505.03			-2.810E-01	2.234E-01	2.840E-01	2.001E-02	-0.990
SN-113	391.69	*		-1.683E-02	4.296E-02	6.997E-02	4.175E-03	-0.240
CD-115	260.90			-2.933E-04	4.296E-02	Half-Life	too short	
	492.35			-1.782E-05	4.296E-02	Half-Life	too short	
	527.90	*		-5.187E-05	4.296E-02	Half-Life	too short	
SN-117M	156.02			-2.331E+00	3.055E+00	4.798E+00	2.571E-01	-0.486
	158.56	*		-7.367E-03	7.429E-02	1.197E-01	6.372E-03	-0.062
TE-123M	159.00	*		1.337E-03	3.082E-02	4.993E-02	2.697E-03	0.027
SB-124	602.73			3.140E-02	4.209E-02	6.433E-02	3.809E-03	0.488
	645.85			3.128E-01	4.858E-01	8.335E-01	5.472E-02	0.375
	722.78			-1.791E-01	4.217E-01	5.629E-01	3.826E-02	-0.318
	1690.97	*		5.112E-02	7.901E-02	1.425E-01	9.800E-03	0.359
SB-125	427.87	*		5.175E-04	8.393E-02	1.395E-01	8.296E-03	0.004
	463.37			8.975E-01	3.959E-01	5.247E-01	3.534E-02	1.711
	600.60			-3.064E-02	1.677E-01	2.716E-01	1.851E-02	-0.113
	635.95			6.414E-03	2.771E-01	4.544E-01	3.117E-02	0.014
TE-125M	109.28	*		-8.532E+00	1.035E+01	1.634E+01	1.476E+00	-0.522

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-126		388.63		1.160E-01	2.125E-01	3.645E-01	2.034E-02	0.318
		666.33	*	1.589E-01	2.852E-01	4.843E-01	2.845E-02	0.328
		753.82		9.681E-01	2.406E+00	4.029E+00	2.787E-01	0.240
SB-126		414.70		-4.466E-02	9.319E-02	1.505E-01	8.515E-03	-0.297
		666.50		6.354E-02	9.971E-02	1.702E-01	1.000E-02	0.373
		695.00		-1.833E-02	9.932E-02	1.597E-01	9.916E-03	-0.115
		697.00		-1.606E-01	3.523E-01	5.547E-01	3.457E-02	-0.289
		720.70	*	-3.148E-01	2.073E-01	2.537E-01	1.653E-02	-1.241
		856.80		-1.730E-01	6.802E-01	9.032E-01	7.449E-02	-0.192
SB-127		252.40		-1.466E+01	1.238E+01	1.603E+01	6.652E+00	-0.915
		473.00		-3.926E-01	3.834E+00	6.308E+00	7.993E-01	-0.062
		685.70	*	-1.307E+00	3.104E+00	4.892E+00	5.578E-01	-0.267
		783.70		1.359E+00	7.769E+00	1.279E+01	1.665E+00	0.106
I-131		80.19		-1.189E+00	7.703E+00	1.101E+01	9.241E-01	-0.108
		284.31		-1.026E+00	2.215E+00	3.649E+00	2.369E-01	-0.281
		364.49	*	1.680E-02	1.655E-01	2.780E-01	1.790E-02	0.060
		636.99		-2.115E+00	2.479E+00	3.798E+00	2.518E-01	-0.557
TE-132		49.72		-4.641E+01	4.829E+01	7.674E+01	8.855E+00	-0.605
		111.76		-4.012E+00	9.470E+01	1.542E+02	1.727E+01	-0.026
		116.30		5.037E+01	8.728E+01	1.448E+02	1.597E+01	0.348
		228.16	*	1.657E+00	2.234E+00	3.669E+00	5.715E-01	0.452
BA-133		81.00		-1.366E-01	1.089E-01	1.455E-01	2.237E-02	-0.939
	+	276.40		8.246E-01	5.470E-01	6.468E-01	8.138E-02	1.275
		302.85		3.396E-02	1.455E-01	2.163E-01	2.469E-02	0.157
		356.01	*	1.524E-02	4.297E-02	6.421E-02	7.217E-03	0.237
		383.85		6.491E-02	2.924E-01	4.933E-01	5.209E-02	0.132
I-133		529.87	*	-1.383E-01	2.924E-01	Half-Life	too short	
		875.33		4.052E+00	2.924E-01	Half-Life	too short	
		1298.22		7.477E+00	2.924E-01	Half-Life	too short	
CS-134		563.25		2.643E-02	4.080E-01	5.850E-01	3.543E-02	0.045
	+	569.33		8.890E-01	4.429E-01	4.688E-01	2.863E-02	1.896
		604.72		-4.920E-03	3.625E-02	5.075E-02	3.019E-03	-0.097
	+	795.86	*	1.120E-01	8.610E-02	9.052E-02	6.807E-03	1.237
		801.95		-2.230E-01	4.517E-01	5.923E-01	4.491E-02	-0.377
		1365.19		-5.011E-01	1.226E+00	1.922E+00	1.498E-01	-0.261
CS-135		268.22	*	1.900E-01	1.795E-01	2.790E-01	2.129E-02	0.681
I-135		546.56		-9.150E+14	1.795E-01	Half-Life	too short	
		836.80		7.186E+15	1.795E-01	Half-Life	too short	
		1038.76		2.748E+15	1.795E-01	Half-Life	too short	
		1131.51		-2.476E+15	1.795E-01	Half-Life	too short	
		1260.41	*	5.856E+14	1.795E-01	Half-Life	too short	
		1457.56		1.100E+17	1.795E-01	Half-Life	too short	
		1678.03		-1.412E+15	1.795E-01	Half-Life	too short	
		1791.20		1.141E+15	1.795E-01	Half-Life	too short	
CS-136		153.25		4.830E-01	1.129E+00	1.857E+00	1.442E-01	0.260
		176.60		-1.578E-01	6.477E-01	1.034E+00	6.872E-02	-0.153
		273.65		8.477E-01	9.279E-01	1.030E+00	7.035E-02	0.823
		340.55		6.558E-01	2.240E-01	3.771E-01	2.361E-02	1.739
		818.51		7.548E-02	8.887E-02	1.546E-01	1.199E-02	0.488

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1048.07	*		-1.184E-02	1.230E-01	2.043E-01	1.579E-02	-0.058
	1235.36			-1.543E-01	7.901E-01	1.296E+00	1.313E-01	-0.119
BA-137M	661.66	*		-2.009E-02	3.552E-02	5.560E-02	3.237E-03	-0.361
CS-137	661.66	*		-2.122E-02	3.752E-02	5.873E-02	3.434E-03	-0.361
CE-139	165.86	*		-1.670E-02	3.089E-02	4.881E-02	2.548E-03	-0.342
BA-140	162.66			-2.009E-01	1.117E+00	1.781E+00	1.099E-01	-0.113
	304.85			-7.305E-02	1.854E+00	2.704E+00	7.726E-01	-0.027
	423.72			1.953E-01	2.343E+00	3.912E+00	1.262E+00	0.050
	537.26	*		-4.785E-02	3.232E-01	5.263E-01	1.754E-01	-0.091
LA-140	328.76	+		8.971E-01	5.485E-01	7.124E-01	4.637E-02	1.259
	487.02			9.795E-02	1.723E-01	2.952E-01	1.954E-02	0.332
	815.77			2.998E-01	3.961E-01	6.838E-01	6.032E-02	0.438
	1596.21	*		-1.151E-01	1.160E-01	1.639E-01	1.109E-02	-0.702
CE-141	145.44	*		3.734E-02	7.063E-02	1.163E-01	6.699E-03	0.321
CE-143	57.36			-1.585E-03	7.063E-02	Half-Life	too short	
	293.27	*		1.294E-02	7.063E-02	Half-Life	too short	
	664.57			9.020E-03	7.063E-02	Half-Life	too short	
	721.93			-7.696E-03	7.063E-02	Half-Life	too short	
CE-144	80.12			-1.142E-01	2.766E+00	3.973E+00	3.293E-01	-0.029
	133.52	*		-1.201E-01	2.086E-01	3.306E-01	4.581E-02	-0.363
PM-144	476.78			-4.073E-02	6.204E-02	9.815E-02	6.768E-03	-0.415
	618.01			-1.561E-02	3.068E-02	4.507E-02	2.818E-03	-0.346
	696.49	*		-8.865E-03	3.412E-02	5.455E-02	3.400E-03	-0.163
PR-144	696.51	*		-6.652E-01	2.560E+00	4.093E+00	2.548E-01	-0.163
	1489.16			3.882E+00	1.197E+01	2.059E+01	1.460E+00	0.189
PM-146	453.88	*		3.101E-03	4.075E-02	6.579E-02	5.556E-03	0.047
	633.25			2.274E-01	1.455E+00	2.405E+00	9.061E-01	0.095
	735.93			3.141E-02	1.446E-01	2.329E-01	6.402E-02	0.135
	747.24			-9.583E-03	8.786E-02	1.415E-01	1.925E-02	-0.068
ND-147	91.11	+		6.547E-01	3.688E-01	7.011E-01	6.480E-02	0.934
	319.41			2.075E+00	4.365E+00	7.488E+00	4.355E-01	0.277
	531.02	*		4.725E-02	7.340E-01	1.215E+00	1.650E-01	0.039
PM-149	285.90	*		2.274E-04	7.340E-01	Half-Life	too short	
EU-152	121.78			-7.575E-03	7.620E-02	1.236E-01	9.531E-03	-0.061
	244.70			-2.501E-02	3.547E-01	4.918E-01	2.795E-02	-0.051
	344.28	*		1.110E-01	1.122E-01	1.570E-01	1.021E-02	0.707
	778.90			4.495E-02	2.397E-01	3.954E-01	2.859E-02	0.114
	964.08			5.261E-01	3.339E-01	5.373E-01	4.425E-02	0.979
	1085.87			9.229E-03	3.453E-01	5.791E-01	3.940E-02	0.016
	1112.07			-2.523E-01	2.932E-01	4.399E-01	2.829E-02	-0.574
	1408.01	+		3.096E-01	2.465E-01	3.115E-01	2.262E-02	0.994
GD-153	69.67			6.996E-01	1.965E+00	2.877E+00	2.214E-01	0.243
	97.43	*		3.755E-02	9.332E-02	1.363E-01	1.060E-02	0.275
	103.18			-7.351E-02	1.135E-01	1.809E-01	1.310E-02	-0.406
EU-154	123.07			-1.405E-02	5.486E-02	8.843E-02	8.377E-03	-0.159
	723.31			1.083E-02	1.781E-01	2.523E-01	1.933E-02	0.043
	873.19			1.445E-01	2.788E-01	4.701E-01	5.540E-02	0.307
	996.26			4.141E-02	3.796E-01	6.149E-01	1.053E-01	0.067
	1004.73			-4.981E-02	2.117E-01	3.486E-01	3.852E-02	-0.143

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	+	1274.44	*	-5.292E-02	1.145E-01	1.813E-01	1.809E-02	-0.292
		86.55		3.737E-01	1.184E-01	1.931E-01	1.720E-02	1.936
		105.31	*	9.768E-02	1.059E-01	1.782E-01	1.281E-02	0.548
TB-160	+	86.79		1.037E+00	3.283E-01	5.314E-01	4.701E-02	1.952
		197.04		3.653E-03	6.078E-01	9.712E-01	5.262E-02	0.004
		215.65		8.000E-01	8.409E-01	1.307E+00	7.233E-02	0.612
	+	298.57		1.939E-01	1.555E-01	2.142E-01	1.245E-02	0.905
		879.36	*	3.294E-02	1.400E-01	2.309E-01	1.975E-02	0.143
		962.29		1.129E-01	6.717E-01	9.546E-01	7.879E-02	0.118
		966.15		8.538E-01	2.604E-01	4.879E-01	4.008E-02	1.750
		1177.93		2.906E-01	3.999E-01	7.011E-01	3.879E-02	0.415
		1271.85		-9.229E-02	6.986E-01	1.145E+00	7.590E-02	-0.081
HO-166M	+	80.57		-2.640E-01	3.017E-01	4.170E-01	3.470E-02	-0.633
		184.41		1.109E-01	6.004E-02	6.655E-02	3.550E-03	1.667
		280.46		6.755E-03	9.012E-02	1.329E-01	7.697E-03	0.051
		410.95		2.960E-02	2.342E-01	3.924E-01	2.214E-02	0.075
		711.68	*	-8.162E-02	6.018E-02	8.690E-02	5.566E-03	-0.939
		752.31		-1.347E-01	2.789E-01	4.358E-01	3.006E-02	-0.309
TA-182		810.29		-4.229E-02	5.351E-02	7.988E-02	6.097E-03	-0.529
		67.75		-1.867E-01	1.238E-01	1.854E-01	1.415E-02	-1.007
		100.11		1.509E-01	1.878E-01	3.022E-01	2.271E-02	0.500
		152.43		4.139E-02	3.690E-01	5.999E-01	3.247E-02	0.069
		222.11		1.787E-01	3.602E-01	5.902E-01	3.288E-02	0.303
		1121.30		6.655E-01	1.946E-01	3.411E-01	2.148E-02	1.951
	+	1189.05		2.526E-01	3.095E-01	5.479E-01	3.100E-02	0.461
		1221.41	*	-1.543E-01	2.045E-01	3.200E-01	1.930E-02	-0.482
		1231.02		-3.307E-01	4.892E-01	7.708E-01	4.734E-02	-0.429
IR-192	+	295.96		1.192E+00	2.034E-01	3.097E-01	1.829E-02	3.848
		308.46		-2.266E-02	9.395E-02	1.559E-01	9.169E-03	-0.145
		316.51	*	6.676E-03	3.463E-02	5.865E-02	3.427E-03	0.114
		468.07		-3.549E-02	7.635E-02	1.049E-01	7.046E-03	-0.338
		70.83		7.263E-01	1.612E+00	2.362E+00	3.686E-01	0.307
		72.87		3.157E+00	1.122E+00	1.611E+00	2.434E-01	1.960
HG-203		279.20	*	4.902E-02	4.563E-02	7.124E-02	4.355E-03	0.688
		72.81		6.567E-01	2.223E-01	3.425E-01	2.683E-02	1.917
		74.97		7.779E-01	1.645E-01	2.536E-01	2.016E-02	3.067
	+	569.70		1.374E-01	6.842E-02	7.097E-02	4.212E-03	1.936
		1063.66	*	-5.678E-02	4.955E-02	7.409E-02	5.261E-03	-0.766
		1770.23		1.794E-02	4.338E-01	6.139E-01	3.703E-02	0.029
PB-210		46.54	*	3.653E+00	2.988E+00	5.034E+00	3.795E-01	0.726
PB-211		404.85	*	1.220E-01	7.152E-01	1.198E+00	5.742E-01	0.102
		427.09		-1.736E-01	1.417E+00	2.333E+00	1.069E+00	-0.074
		832.01		1.222E-01	1.158E+00	1.635E+00	8.459E-01	0.075
RN-219	+	271.23		8.612E-01	3.772E-01	4.354E-01	3.488E-02	1.978
		401.81	*	4.463E-02	3.844E-01	6.442E-01	8.603E-02	0.069
		81.07		-3.168E-01	2.431E-01	3.285E-01	2.746E-02	-0.964
RA-223		83.79		1.796E-01	1.476E-01	2.079E-01	1.784E-02	0.864
		94.87		1.148E+00	5.159E-01	7.986E-01	6.432E-02	1.438
		144.24		-2.864E-02	6.756E-01	1.090E+00	7.625E-02	-0.026

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		154.21		4.714E-01	3.916E-01	6.606E-01	4.377E-02	0.714
	+	269.46		6.691E-01	2.909E-01	3.375E-01	2.032E-02	1.982
		323.87	*	-3.350E-01	7.008E-01	9.843E-01	1.587E-01	-0.340
	+	338.28		7.875E+00	1.810E+00	2.420E+00	2.478E-01	3.253
		79.69		2.042E+00	1.421E+00	2.101E+00	3.583E-01	0.972
		235.96		1.229E+00	2.301E-01	3.662E-01	2.941E-02	3.357
		256.23	*	2.601E-01	2.587E-01	4.310E-01	4.390E-02	0.604
	+	299.98		1.445E+00	1.166E+00	1.557E+00	1.713E-01	0.928
TH-227		304.50		1.773E-01	1.687E+00	2.485E+00	3.791E-01	0.071
		334.37		1.055E+00	2.212E+00	2.936E+00	4.175E-01	0.359
		79.80		1.890E+00	1.840E+00	2.694E+00	5.831E-01	0.701
		235.96		1.229E+00	2.263E-01	3.662E-01	2.659E-02	3.357
		256.23	*	2.601E-01	2.592E-01	4.310E-01	5.165E-02	0.604
TH-229	+	299.98		1.445E+00	1.166E+00	1.557E+00	1.713E-01	0.928
		304.50		1.773E-01	1.687E+00	2.485E+00	3.791E-01	0.071
		334.37		1.055E+00	2.212E+00	2.936E+00	4.175E-01	0.359
		85.43		6.629E-01	2.548E-01	3.917E-01	3.416E-02	1.693
	+	88.47		4.742E-01	1.501E-01	2.489E-01	2.213E-02	1.905
PA-231		193.51	*	-2.672E-01	5.418E-01	8.537E-01	4.606E-02	-0.313
	+	210.85		2.719E+00	1.414E+00	1.624E+00	8.943E-02	1.674
		283.69	*	-5.717E-01	1.495E+00	2.328E+00	3.054E-01	-0.246
TH-231		301.36		9.692E-01	6.145E-01	9.761E-01	1.011E-01	0.993
		81.07		-3.168E-01	2.431E-01	3.285E-01	2.746E-02	-0.964
		83.79		1.796E-01	1.476E-01	2.079E-01	1.784E-02	0.864
PA-233		94.87		1.148E+00	5.159E-01	7.986E-01	6.432E-02	1.438
		144.24		-2.864E-02	6.756E-01	1.090E+00	7.625E-02	-0.026
		154.21		4.714E-01	3.916E-01	6.606E-01	4.377E-02	0.714
	+	269.46		6.691E-01	2.909E-01	3.375E-01	2.032E-02	1.982
		323.87	*	-3.350E-01	7.008E-01	9.843E-01	1.587E-01	-0.340
	+	338.28		7.875E+00	1.810E+00	2.420E+00	2.478E-01	3.253
	+	300.13		6.538E-01	5.302E-01	7.014E-01	9.395E-02	0.932
		311.90	*	6.028E-03	5.979E-02	1.009E-01	6.230E-03	0.060
PA-234		340.48		2.381E+00	9.190E-01	1.271E+00	2.949E-01	1.874
		94.67		5.510E-01	1.969E-01	2.993E-01	3.600E-02	1.841
		98.44		9.270E-02	1.136E-01	1.505E-01	8.375E-02	0.616
		111.00		4.273E-03	1.809E-01	2.953E-01	3.180E-02	0.014
		131.20		-3.706E-02	1.115E-01	1.790E-01	1.030E-02	-0.207
PA-234M	+	569.50		1.219E+00	6.073E-01	6.377E-01	3.785E-02	1.912
		733.00		-1.409E-02	4.033E-01	5.645E-01	1.214E-01	-0.025
		880.51		2.466E-02	2.772E-01	4.511E-01	3.865E-02	0.055
		883.24		-8.375E-02	2.868E-01	4.412E-01	2.966E-01	-0.190
		926.50		-1.284E-02	1.625E-01	2.596E-01	6.557E-02	-0.049
		946.00	*	-1.949E-01	2.711E-01	3.983E-01	7.435E-02	-0.489
		949.00		-3.980E-01	4.271E-01	6.199E-01	5.194E-02	-0.642
		766.42		7.320E+00	1.226E+01	1.982E+01	1.001E+01	0.369
		1001.03	*	4.211E+00	4.791E+00	8.426E+00	7.844E-01	0.500
		63.29	*	2.095E+00	1.383E+00	2.297E+00	4.108E-01	0.912
TH-234		63.29	*	2.095E+00	1.383E+00	2.297E+00	4.108E-01	0.912
U-238	+	92.59		2.195E+00	1.042E+00	1.266E+00	2.782E-01	1.733
		63.29	*	2.095E+00	1.383E+00	2.297E+00	4.108E-01	0.912

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	92.59		2.195E+00	9.417E-01	1.266E+00	1.054E-01	1.733
		99.53		8.245E-02	1.765E-01	2.698E-01	2.042E-02	0.306
		103.37		-3.225E-02	1.012E-01	1.634E-01	1.180E-02	-0.197
		106.12		5.255E-02	8.352E-02	1.393E-01	9.751E-03	0.377
		117.23	*	6.538E-02	4.181E-01	6.848E-01	4.273E-02	0.095
AM-241		228.18		1.710E-01	2.270E-01	3.752E-01	2.103E-02	0.456
	+	277.60		4.074E-01	2.664E-01	3.148E-01	1.822E-02	1.294
		59.54	*	-2.338E-01	1.532E-01	2.387E-01	1.965E-02	-0.979
CM-247		278.00		9.630E-01	8.526E-01	1.331E+00	7.704E-02	0.724
		287.50		7.611E-01	1.197E+00	2.069E+00	1.201E-01	0.368
		402.40	*	7.667E-03	3.537E-02	5.962E-02	3.344E-03	0.129
CF-249		252.80		-9.791E-01	9.823E-01	1.487E+00	8.499E-02	-0.658
		333.37		1.076E-01	3.020E-01	3.101E-01	1.796E-02	0.347
		388.16	*	1.286E-02	3.879E-02	6.581E-02	3.674E-03	0.195
CF-251		177.52	*	1.561E-02	1.293E-01	2.096E-01	1.109E-02	0.074
		227.38		2.401E-02	3.700E-01	5.945E-01	3.329E-02	0.040
		285.41		-3.014E-01	2.108E+00	3.524E+00	2.044E-01	-0.086

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]G247360003      *
* Acquisition date   : 4-MAR-2010 12:43:41 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 02:00:01.69 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID          : G247360003 Analyst initials: MXR1                 *
* Batch Number       : 955027 Sample Quantity : 1.4449E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                           *
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope                   *
* MSD DPM            : 0.000 MSD Isotope :                               *
* LCS DPM            : 0.000 LCS Isotope :                               *
* LCSD DPM           : 0.000 LCSD Isotope :                               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.950E+01	2.706E+00	5.395E-01	0.000E+00
CD-109	3.170E+00	9.832E-01	1.516E+00	0.000E+00
SN-126	3.076E-01	9.540E-02	1.477E-01	0.000E+00
TL-208	5.327E-01	7.840E-02	5.475E-02	0.000E+00
BI-211	4.528E+00	5.122E-01	2.954E-01	0.000E+00
BI-212	1.823E+00	8.223E-01	7.790E-01	0.000E+00
PB-212	1.702E+00	1.629E-01	9.506E-02	0.000E+00
BI-214	1.306E+00	1.980E-01	1.127E-01	0.000E+00
PB-214	1.643E+00	2.060E-01	1.074E-01	0.000E+00
RA-224	4.274E+00	1.148E+00	1.018E+00	0.000E+00
RA-226	1.306E+00	1.980E-01	1.127E-01	0.000E+00
AC-228	1.817E+00	3.392E-01	2.267E-01	0.000E+00
RA-228	1.817E+00	3.392E-01	2.267E-01	0.000E+00
TH-228	1.702E+00	1.629E-01	9.506E-02	0.000E+00
TH-232	1.817E+00	3.392E-01	2.267E-01	0.000E+00
U-235	-1.490E-01	2.004E-01	3.378E-01	0.000E+00
NP-237	9.179E-01	3.415E-01	4.292E-01	0.000E+00
ANH-511	1.297E-01	6.257E-02	4.509E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-9.282E-02	3.175E-01	5.425E-01	0.000E+00 NOT IDENT.
NA-22	-1.248E-02	3.917E-02	6.483E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	1.554E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	-9.302E-04	3.695E-02	6.170E-02	0.000E+00 FAIL ABUN
V-48	-3.119E-02	8.268E-02	1.322E-01	0.000E+00 NOT IDENT.
CR-51	1.732E-01	3.915E-01	7.115E-01	0.000E+00 NOT IDENT.
MN-54	5.940E-03	4.511E-02	6.635E-02	0.000E+00 NOT IDENT.
CO-56	-1.963E-02	4.162E-02	5.622E-02	0.000E+00 NOT IDENT.
CO-57	-3.603E-04	2.637E-02	4.648E-02	0.000E+00 NOT IDENT.

CO-58	-4.798E-02	3.840E-02	5.690E-02	0.000E+00	NOT IDENT.
FE-59	1.104E-02	8.979E-02	1.566E-01	0.000E+00	NOT IDENT.
CO-60	1.631E-02	3.439E-02	6.158E-02	0.000E+00	NOT IDENT.
ZN-65	7.841E-03	8.882E-02	1.336E-01	0.000E+00	NOT IDENT.
SE-75	3.079E-02	4.820E-02	7.848E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.406E-02	7.881E-02	0.000E+00	NOT IDENT.
Y-88	1.702E-02	2.765E-02	5.160E-02	0.000E+00	NOT IDENT.
Y-91	2.413E+00	2.232E+01	3.860E+01	0.000E+00	NOT IDENT.
NB-94	5.468E-03	3.434E-02	5.904E-02	0.000E+00	NOT IDENT.
NB-95	6.779E-03	4.526E-02	7.734E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.655E-01	2.780E-01	0.000E+00	NOT IDENT.
ZR-95	8.355E-02	7.822E-02	1.406E-01	0.000E+00	NOT IDENT.
MO-99	4.322E+01	4.043E+01	7.340E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.930E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.262E-02	3.912E-02	6.939E-02	0.000E+00	FAIL ABUN
RH-106	-1.511E-01	2.675E-01	4.358E-01	0.000E+00	NOT IDENT.
RU-106	-1.511E-01	2.671E-01	4.358E-01	0.000E+00	NOT IDENT.
AG-108M	-1.379E-02	2.846E-02	4.841E-02	0.000E+00	NOT IDENT.
AG-110M	-1.096E-02	3.131E-02	5.196E-02	0.000E+00	NOT IDENT.
SN-113	-1.683E-02	4.211E-02	7.246E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.891E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-7.367E-03	7.280E-02	1.264E-01	0.000E+00	NOT IDENT.
TE-123M	1.337E-03	3.020E-02	5.272E-02	0.000E+00	NOT IDENT.
SB-124	5.112E-02	7.743E-02	1.428E-01	0.000E+00	NOT IDENT.
SB-125	5.175E-04	8.225E-02	1.442E-01	0.000E+00	FAIL ABUN
TE-125M	-8.532E+00	1.015E+01	1.739E+01	0.000E+00	NOT IDENT.
I-126	1.589E-01	2.795E-01	4.956E-01	0.000E+00	NOT IDENT.
SB-126	-3.148E-01	2.032E-01	2.592E-01	0.000E+00	NOT IDENT.
SB-127	-1.307E+00	3.042E+00	5.003E+00	0.000E+00	NOT IDENT.
I-131	1.680E-02	1.622E-01	2.884E-01	0.000E+00	NOT IDENT.
TE-132	1.657E+00	2.189E+00	3.845E+00	0.000E+00	NOT IDENT.
BA-133	1.524E-02	4.212E-02	6.664E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.836E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	8.438E-02	9.227E-02	0.000E+00	FAIL ABUN
CS-135	1.900E-01	1.759E-01	2.913E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.668E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.184E-02	1.205E-01	2.069E-01	0.000E+00	NOT IDENT.
BA-137M	-2.009E-02	3.481E-02	5.691E-02	0.000E+00	NOT IDENT.
CS-137	-2.122E-02	3.677E-02	6.012E-02	0.000E+00	NOT IDENT.
CE-139	-1.670E-02	3.027E-02	5.149E-02	0.000E+00	NOT IDENT.
BA-140	-4.785E-02	3.167E-01	5.413E-01	0.000E+00	NOT IDENT.
LA-140	-1.151E-01	1.137E-01	1.644E-01	0.000E+00	FAIL ABUN
CE-141	3.734E-02	6.922E-02	1.230E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.541E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.201E-01	2.045E-01	3.504E-01	0.000E+00	NOT IDENT.
PM-144	-8.865E-03	3.344E-02	5.578E-02	0.000E+00	NOT IDENT.
PR-144	-6.652E-01	2.509E+00	4.185E+00	0.000E+00	NOT IDENT.
PM-146	3.101E-03	3.994E-02	6.791E-02	0.000E+00	NOT IDENT.
ND-147	4.725E-02	7.193E-01	1.250E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.081E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	1.110E-01	1.100E-01	1.631E-01	0.000E+00	FAIL ABUN
GD-153	3.755E-02	9.145E-02	1.454E-01	0.000E+00	NOT IDENT.
EU-154	-5.292E-02	1.122E-01	1.828E-01	0.000E+00	NOT IDENT.
EU-155	9.768E-02	1.038E-01	1.898E-01	0.000E+00	FAIL ABUN
TB-160	3.294E-02	1.372E-01	2.348E-01	0.000E+00	FAIL ABUN
HO-166M	-8.162E-02	5.897E-02	8.880E-02	0.000E+00	FAIL ABUN
TA-182	-1.543E-01	2.004E-01	3.230E-01	0.000E+00	FAIL ABUN
IR-192	6.676E-03	3.394E-02	6.102E-02	0.000E+00	FAIL ABUN
HG-203	4.902E-02	4.472E-02	7.432E-02	0.000E+00	NOT IDENT.
BI-207	-5.678E-02	4.856E-02	7.502E-02	0.000E+00	FAIL ABUN
PB-210	3.653E+00	2.928E+00	5.452E+00	0.000E+00	NOT IDENT.
PB-211	1.220E-01	7.009E-01	1.239E+00	0.000E+00	NOT IDENT.
RN-219	4.463E-02	3.767E-01	6.668E-01	0.000E+00	FAIL ABUN
RA-223	-3.350E-01	6.868E-01	1.024E+00	0.000E+00	FAIL ABUN
AC-227	2.601E-01	2.535E-01	4.505E-01	0.000E+00	FAIL ABUN
TH-227	2.601E-01	2.540E-01	4.505E-01	0.000E+00	FAIL ABUN
TH-229	-2.672E-01	5.309E-01	8.977E-01	0.000E+00	FAIL ABUN
PA-231	-5.717E-01	1.465E+00	2.428E+00	0.000E+00	NOT IDENT.
TH-231	-3.350E-01	6.868E-01	1.024E+00	0.000E+00	FAIL ABUN
PA-233	6.028E-03	5.859E-02	1.050E-01	0.000E+00	FAIL ABUN
PA-234	-1.949E-01	2.657E-01	4.044E-01	0.000E+00	FAIL ABUN
PA-234M	4.211E+00	4.696E+00	8.544E+00	0.000E+00	NOT IDENT.
TH-234	2.095E+00	1.356E+00	2.473E+00	0.000E+00	FAIL ABUN
U-238	2.095E+00	1.356E+00	2.473E+00	0.000E+00	FAIL ABUN
NP-239	6.538E-02	4.097E-01	7.278E-01	0.000E+00	FAIL ABUN
AM-241	-2.338E-01	1.502E-01	2.572E-01	0.000E+00	NOT IDENT.
CM-247	7.667E-03	3.467E-02	6.170E-02	0.000E+00	NOT IDENT.
CF-249	1.286E-02	3.801E-02	6.817E-02	0.000E+00	NOT IDENT.

CF-251	1.561E-02	1.267E-01	2.208E-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]G247360003.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:43:41.
Sample ID          : G247360003          Sample quantity  : 1.44490E+02 GRAM
Detector name      : GAM19              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.69  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 955027             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	1460.82	1414	10.66*	1.168E+00	2.950E+01	2.950E+01	9.36
CD-109	88.03	267	3.70*	6.092E+00	3.076E+00	3.170E+00	31.65
SN-126	64.28	-----	9.60	3.765E+00	-----	Line Not Found	-----
	86.94	267	8.90	6.092E+00	1.279E+00	1.279E+00	51.36
	87.57	267	37.00*	6.092E+00	3.076E-01	3.076E-01	31.65
TL-208	277.37	102	6.60	4.522E+00	8.914E-01	8.914E-01	66.02
	583.19	445	85.00*	2.556E+00	5.327E-01	5.327E-01	15.02
	860.56	69	12.50	1.834E+00	7.811E-01	7.811E-01	64.58
BI-211	72.87	-----	1.23	4.857E+00	-----	Line Not Found	-----
	351.06	853	12.92*	3.788E+00	4.528E+00	4.528E+00	11.54
BI-212	727.33	99	6.67*	2.123E+00	1.823E+00	1.823E+00	46.03
	785.37	-----	1.10	1.989E+00	-----	Line Not Found	-----
	1620.50	14	1.47	1.085E+00	2.356E+00	2.356E+00	116.08
PB-212	74.82	540	10.28	5.057E+00	2.698E+00	2.698E+00	23.28
	77.11	871	17.10	5.295E+00	2.498E+00	2.498E+00	14.37
	238.63	1433	43.60*	5.017E+00	1.702E+00	1.702E+00	9.77
	300.09	71	3.30	4.264E+00	1.313E+00	1.313E+00	80.42
BI-214	609.32	564	45.49*	2.465E+00	1.306E+00	1.306E+00	15.46
	1120.29	115	14.92	1.455E+00	1.378E+00	1.378E+00	29.99
	1764.49	98	15.30	1.030E+00	1.619E+00	1.620E+00	27.62
PB-214	74.82	540	5.80	5.057E+00	4.782E+00	4.782E+00	22.59
	77.11	871	9.70	5.295E+00	4.404E+00	4.404E+00	16.57
	242.00	336	7.25	4.976E+00	2.417E+00	2.417E+00	28.01
	295.22	471	18.42	4.313E+00	1.539E+00	1.539E+00	18.24
	351.93	853	35.60*	3.788E+00	1.643E+00	1.643E+00	12.79
RA-224	240.99	336	4.10*	4.976E+00	4.274E+00	4.274E+00	27.41
RA-226	609.32	564	45.49*	2.465E+00	1.306E+00	1.306E+00	15.46
	1120.29	115	14.92	1.455E+00	1.378E+00	1.378E+00	29.99
	1764.49	98	15.30	1.030E+00	1.619E+00	1.620E+00	27.62
AC-228	338.32	336	11.27	3.900E+00	1.984E+00	1.984E+00	46.08
	911.20	315	25.80*	1.746E+00	1.817E+00	1.817E+00	19.05
	968.97	252	15.80	1.655E+00	2.500E+00	2.500E+00	31.16

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	336	11.27	3.900E+00	1.984E+00	1.984E+00	46.08
	911.20	315	25.80*	1.746E+00	1.817E+00	1.817E+00	19.05
	968.97	252	15.80	1.655E+00	2.500E+00	2.500E+00	31.16
TH-228	74.82	540	10.28	5.057E+00	2.698E+00	2.698E+00	21.19
	77.11	871	17.10	5.295E+00	2.498E+00	2.498E+00	14.37
	238.63	1433	43.60*	5.017E+00	1.702E+00	1.702E+00	9.77
TH-232	300.09	71	3.30	4.264E+00	1.313E+00	1.313E+00	100.52
	338.32	336	11.27	3.900E+00	1.984E+00	1.984E+00	21.38
	911.20	315	25.80*	1.746E+00	1.817E+00	1.817E+00	19.05
U-235	968.97	252	15.80	1.655E+00	2.500E+00	2.500E+00	31.16
	89.96	124	3.47	6.245E+00	1.483E+00	1.483E+00	60.76
	93.35	229	5.60	6.401E+00	1.658E+00	1.658E+00	47.96
	143.76	-----	10.96*	6.636E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.300E+00	-----	Line Not Found	-----
	185.72	181	57.20	5.885E+00	1.396E-01	1.396E-01	54.11
	205.31	-----	5.01	5.540E+00	-----	Line Not Found	-----
NP-237	86.48	267	12.40*	6.092E+00	9.179E-01	9.179E-01	37.96
	95.86	-----	2.68	6.514E+00	-----	Line Not Found	-----
ANH-511	511.00	142	100.00*	2.842E+00	1.297E-01	1.297E-01	49.23

Flag: "*" = Keyline

Total number of lines in spectrum 33
Number of unidentified lines 2
Number of lines tentatively identified by NID 31 93.94%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.950E+01	2.950E+01	0.276E+01	9.36	
CD-109	461.40D	1.03	3.076E+00	3.170E+00	1.003E+00	31.65	
SN-126	2.30E+05Y	1.00	3.076E-01	3.076E-01	0.974E-01	31.65	
TL-208	1.41E+10Y	1.00	5.327E-01	5.327E-01	0.800E-01	15.02	
BI-211	7.04E+08Y	1.00	4.528E+00	4.528E+00	0.523E+00	11.54	
BI-212	1.41E+10Y	1.00	1.823E+00	1.823E+00	0.839E+00	46.03	
PB-212	1.41E+10Y	1.00	1.702E+00	1.702E+00	0.166E+00	9.77	
BI-214	1600.00Y	1.00	1.306E+00	1.306E+00	0.202E+00	15.46	
PB-214	1600.00Y	1.00	1.643E+00	1.643E+00	0.210E+00	12.79	
RA-224	1.41E+10Y	1.00	4.274E+00	4.274E+00	1.171E+00	27.41	
RA-226	1600.00Y	1.00	1.306E+00	1.306E+00	0.202E+00	15.46	
AC-228	1.41E+10Y	1.00	1.817E+00	1.817E+00	0.346E+00	19.05	
RA-228	1.41E+10Y	1.00	1.817E+00	1.817E+00	0.346E+00	19.05	
TH-228	1.41E+10Y	1.00	1.702E+00	1.702E+00	0.166E+00	9.77	
TH-232	1.41E+10Y	1.00	1.817E+00	1.817E+00	0.346E+00	19.05	
U-235	7.04E+08Y	1.00	1.396E-01	1.396E-01	0.756E-01	54.11	K
NP-237	2.14E+06Y	1.00	9.179E-01	9.179E-01	3.485E-01	37.96	
ANH-511	1.00E+09Y	1.00	1.297E-01	1.297E-01	0.638E-01	49.23	
Total Activity :			5.834E+01	5.843E+01			

Grand Total Activity : 5.834E+01 5.843E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines
Sample ID : G247360003

Page : 4
Acquisition date : 4-MAR-2010 12:43:41

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.61	160	387	1.03	418.85	413	12	2.23E-02	51.7	5.47E+00	T
0	270.33	165	255	1.15	540.22	534	13	2.28E-02	43.1	4.60E+00	T
0	327.70	94	193	1.02	654.88	650	11	1.31E-02	60.8	3.99E+00	T
0	462.91	111	111	1.14	925.17	919	13	1.53E-02	43.6	3.07E+00	T
0	568.63	135	174	1.83	1136.52	1129	17	1.87E-02	49.4	2.61E+00	T
0	795.69	64	102	1.57	1590.52	1582	17	8.89E-03	76.5	1.97E+00	T
0	840.46	62	100	7.82	1680.06	1668	21	8.63E-03	87.7	1.87E+00	
0	1378.05	53	17	1.22	2755.39	2751	11	7.29E-03	40.7	1.22E+00	
0	1408.68	30	22	1.59	2816.68	2809	17	4.18E-03	79.3	1.20E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360003.CNF;1
* Acquisition date   : 4-MAR-2010 12:43:41.  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 02:00:01.69           Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G247360003             Analyst initials: MXR1
* Batch Number       : 955027                 Sample Quantity : 1.44490E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID             :                               MSD Isotope :
* LCS ID             : 1032-A                       LCS Isotope  :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.950E+01	2.761E+00	5.367E-01	3.997E-02	54.952
CD-109	3.170E+00	1.003E+00	1.418E+00	1.270E-01	2.236
SN-126	3.076E-01	9.735E-02	1.382E-01	1.232E-02	2.226
TL-208	5.327E-01	8.000E-02	5.334E-02	3.619E-03	9.986
BI-211	4.528E+00	5.226E-01	2.846E-01	1.818E-02	15.910
BI-212	1.823E+00	8.391E-01	7.627E-01	8.507E-02	2.390
PB-212	1.702E+00	1.663E-01	9.081E-02	6.613E-03	18.745
BI-214	1.306E+00	2.020E-01	1.099E-01	8.708E-03	11.889
PB-214	1.643E+00	2.102E-01	1.035E-01	8.733E-03	15.878
RA-224	4.274E+00	1.171E+00	9.728E-01	5.512E-02	4.393
RA-226	1.306E+00	2.020E-01	1.099E-01	8.708E-03	11.889
AC-228	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147
RA-228	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147
TH-228	1.702E+00	1.663E-01	9.081E-02	6.613E-03	18.745
TH-232	1.817E+00	3.462E-01	2.231E-01	2.601E-02	8.147
U-235	1.396E-01	7.557E-02	3.192E-01	4.984E-02	0.437
NP-237	9.179E-01	3.485E-01	4.013E-01	9.128E-02	2.287
ANH-511	1.297E-01	6.385E-02	4.380E-02	2.585E-03	2.961

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-9.282E-02		3.240E-01	5.261E-01	3.570E-02	-0.176
NA-22	-1.248E-02		3.997E-02	6.430E-02	4.289E-03	-0.194
NA-24	8.741E+01		7.929E+01	Half-Life	too short	
SC-46	-9.302E-04		3.770E-02	6.068E-02	5.273E-03	-0.015
V-48	-3.119E-02		8.437E-02	1.304E-01	1.048E-02	-0.239
CR-51	1.732E-01		3.995E-01	6.840E-01	4.419E-02	0.253
MN-54	5.940E-03		4.603E-02	6.517E-02	5.184E-03	0.091
CO-56	-1.963E-02		4.247E-02	5.523E-02	4.481E-03	-0.355
CO-57	-3.603E-04		2.691E-02	4.378E-02	2.613E-03	-0.008
CO-58	-4.798E-02		3.919E-02	5.585E-02	4.280E-03	-0.859
FE-59	1.104E-02		9.162E-02	1.548E-01	1.161E-02	0.071
CO-60	1.631E-02		3.509E-02	6.113E-02	4.505E-03	0.267
ZN-65	7.841E-03		9.063E-02	1.321E-01	8.442E-03	0.059
SE-75	3.079E-02		4.918E-02	7.514E-02	4.371E-03	0.410
SR-85	1.139E-01		4.496E-02	7.656E-02	4.521E-03	1.488
Y-88	1.702E-02		2.821E-02	5.161E-02	2.946E-03	0.330
Y-91	2.413E+00		2.278E+01	3.823E+01	2.232E+00	0.063
NB-94	5.468E-03		3.504E-02	5.775E-02	3.637E-03	0.095
NB-95	6.779E-03		4.618E-02	7.581E-02	5.357E-03	0.089
NB-95M	4.935E-01		1.689E-01	2.654E-01	1.973E-02	1.859
ZR-95	8.355E-02		7.982E-02	1.377E-01	1.108E-02	0.607
MO-99	4.322E+01		4.126E+01	7.189E+01	1.065E+01	0.601
TC-99M	-8.358E+15		1.495E+16	Half-Life	too short	
RU-103	1.262E-02		3.992E-02	6.735E-02	8.395E-03	0.187
RH-106	-1.511E-01		2.729E-01	4.252E-01	4.962E-02	-0.355
RU-106	-1.511E-01		2.725E-01	4.252E-01	2.507E-02	-0.355
AG-108M	-1.379E-02		2.904E-02	4.685E-02	2.875E-03	-0.294
AG-110M	-1.096E-02		3.195E-02	5.076E-02	3.150E-03	-0.216
SN-113	-1.683E-02		4.296E-02	6.997E-02	4.175E-03	-0.240
CD-115	-5.187E-05		2.495E-05	Half-Life	too short	
SN-117M	-7.367E-03		7.429E-02	1.197E-01	6.372E-03	-0.062
TE-123M	1.337E-03		3.082E-02	4.993E-02	2.697E-03	0.027
SB-124	5.112E-02		7.901E-02	1.425E-01	9.800E-03	0.359
SB-125	5.175E-04		8.393E-02	1.395E-01	8.296E-03	0.004
TE-125M	-8.532E+00		1.035E+01	1.634E+01	1.476E+00	-0.522
I-126	1.589E-01		2.852E-01	4.843E-01	2.845E-02	0.328
SB-126	-3.148E-01		2.073E-01	2.537E-01	1.653E-02	-1.241
SB-127	-1.307E+00		3.104E+00	4.892E+00	5.578E-01	-0.267
I-131	1.680E-02		1.655E-01	2.780E-01	1.790E-02	0.060
TE-132	1.657E+00		2.234E+00	3.669E+00	5.715E-01	0.452
BA-133	1.524E-02		4.297E-02	6.421E-02	7.217E-03	0.237
I-133	-1.383E-01		1.447E-01	Half-Life	too short	
CS-134	1.120E-01	+	8.610E-02	9.052E-02	6.807E-03	1.237
CS-135	1.900E-01		1.795E-01	2.790E-01	2.129E-02	0.681
I-135	5.856E+14		8.508E+14	Half-Life	too short	
CS-136	-1.184E-02		1.230E-01	2.043E-01	1.579E-02	-0.058
BA-137M	-2.009E-02		3.552E-02	5.560E-02	3.237E-03	-0.361
CS-137	-2.122E-02		3.752E-02	5.873E-02	3.434E-03	-0.361

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-139	-1.670E-02		3.089E-02	4.881E-02	2.548E-03	-0.342
BA-140	-4.785E-02		3.232E-01	5.263E-01	1.754E-01	-0.091
LA-140	-1.151E-01		1.160E-01	1.639E-01	1.109E-02	-0.702
CE-141	3.734E-02		7.063E-02	1.163E-01	6.699E-03	0.321
CE-143	1.294E-02		1.807E-03	Half-Life too short		
CE-144	-1.201E-01		2.086E-01	3.306E-01	4.581E-02	-0.363
PM-144	-8.865E-03		3.412E-02	5.455E-02	3.400E-03	-0.163
PR-144	-6.652E-01		2.560E+00	4.093E+00	2.548E-01	-0.163
PM-146	3.101E-03		4.075E-02	6.579E-02	5.556E-03	0.047
ND-147	4.725E-02		7.340E-01	1.215E+00	1.650E-01	0.039
PM-149	2.274E-04		2.082E-04	Half-Life too short		
EU-152	1.110E-01		1.122E-01	1.570E-01	1.021E-02	0.707
GD-153	3.755E-02		9.332E-02	1.363E-01	1.060E-02	0.275
EU-154	-5.292E-02		1.145E-01	1.813E-01	1.809E-02	-0.292
EU-155	9.768E-02		1.059E-01	1.782E-01	1.281E-02	0.548
TB-160	3.294E-02		1.400E-01	2.309E-01	1.975E-02	0.143
HO-166M	-8.162E-02		6.018E-02	8.690E-02	5.566E-03	-0.939
TA-182	-1.543E-01		2.045E-01	3.200E-01	1.930E-02	-0.482
IR-192	6.676E-03		3.463E-02	5.865E-02	3.427E-03	0.114
HG-203	4.902E-02		4.563E-02	7.124E-02	4.355E-03	0.688
BI-207	-5.678E-02		4.955E-02	7.409E-02	5.261E-03	-0.766
PB-210	3.653E+00		2.988E+00	5.034E+00	3.795E-01	0.726
PB-211	1.220E-01		7.152E-01	1.198E+00	5.742E-01	0.102
RN-219	4.463E-02		3.844E-01	6.442E-01	8.603E-02	0.069
RA-223	-3.350E-01		7.008E-01	9.843E-01	1.587E-01	-0.340
AC-227	2.601E-01		2.587E-01	4.310E-01	4.390E-02	0.604
TH-227	2.601E-01		2.592E-01	4.310E-01	5.165E-02	0.604
TH-229	-2.672E-01		5.418E-01	8.537E-01	4.606E-02	-0.313
PA-231	-5.717E-01		1.495E+00	2.328E+00	3.054E-01	-0.246
TH-231	-3.350E-01		7.008E-01	9.843E-01	1.587E-01	-0.340
PA-233	6.028E-03		5.979E-02	1.009E-01	6.230E-03	0.060
PA-234	-1.949E-01		2.711E-01	3.983E-01	7.435E-02	-0.489
PA-234M	4.211E+00		4.791E+00	8.426E+00	7.844E-01	0.500
TH-234	2.095E+00		1.383E+00	2.297E+00	4.108E-01	0.912
U-238	2.095E+00		1.383E+00	2.297E+00	4.108E-01	0.912
NP-239	6.538E-02		4.181E-01	6.848E-01	4.273E-02	0.095
AM-241	-2.338E-01		1.532E-01	2.387E-01	1.965E-02	-0.979
CM-247	7.667E-03		3.537E-02	5.962E-02	3.344E-03	0.129
CF-249	1.286E-02		3.879E-02	6.581E-02	3.674E-03	0.195
CF-251	1.561E-02		1.293E-01	2.096E-01	1.109E-02	0.074

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]G247360003             *
* Acquisition date   : 4-MAR-2010 12:43:41 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 02:00:01.69                Half life ratio : 8.000         *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G247360003                Analyst initials: MXR1         *
* Batch Number       : 955027                    Sample Quantity : 1.4449E+02 GRAM *
* Recovery           : 1.00000                   Carrier Weight  : 0.00000         *
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope      :               *
* MSD DPM             : 0.000                      MSD Isotope   :               *
* LCS DPM             : 0.000                      LCS Isotope   :               *
* LCSD DPM            : 0.000                      LCSD Isotope  :               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.950E+01	2.706E+00	2.699E-01	1.380E+00
CD-109	3.170E+00	9.832E-01	7.584E-01	5.017E-01
SN-126	3.076E-01	9.540E-02	7.391E-02	4.868E-02
TL-208	5.327E-01	7.840E-02	2.739E-02	4.000E-02
BI-211	4.528E+00	5.122E-01	1.478E-01	2.613E-01
BI-212	1.823E+00	8.223E-01	3.898E-01	4.196E-01
PB-212	1.702E+00	1.629E-01	4.756E-02	8.314E-02
BI-214	1.306E+00	1.980E-01	5.638E-02	1.010E-01
PB-214	1.643E+00	2.060E-01	5.375E-02	1.051E-01
RA-224	4.274E+00	1.148E+00	5.094E-01	5.856E-01
RA-226	1.306E+00	1.980E-01	5.638E-02	1.010E-01
AC-228	1.817E+00	3.392E-01	1.134E-01	1.731E-01
RA-228	1.817E+00	3.392E-01	1.134E-01	1.731E-01
TH-228	1.702E+00	1.629E-01	4.756E-02	8.314E-02
TH-232	1.817E+00	3.392E-01	1.134E-01	1.731E-01
U-235	-1.490E-01	2.004E-01	1.690E-01	1.023E-01
NP-237	9.179E-01	3.415E-01	2.147E-01	1.742E-01
ANH-511	1.297E-01	6.257E-02	2.256E-02	3.192E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-9.282E-02	3.175E-01	2.714E-01	1.620E-01 NOT IDENT.
NA-22	-1.248E-02	3.917E-02	3.244E-02	1.998E-02 NOT IDENT.
NA-24	8.741E+07	1.554E+08	0.000E+00	7.929E+07 SHORT HLIF
SC-46	-9.302E-04	3.695E-02	3.087E-02	1.885E-02 FAIL ABUN
V-48	-3.119E-02	8.268E-02	6.616E-02	4.219E-02 NOT IDENT.
CR-51	1.732E-01	3.915E-01	3.560E-01	1.998E-01 NOT IDENT.
MN-54	5.940E-03	4.511E-02	3.320E-02	2.302E-02 NOT IDENT.
CO-56	-1.963E-02	4.162E-02	2.813E-02	2.124E-02 NOT IDENT.
CO-57	-3.603E-04	2.637E-02	2.326E-02	1.345E-02 NOT IDENT.

CO-58	-4.798E-02	3.840E-02	2.847E-02	1.959E-02	NOT IDENT.
FE-59	1.104E-02	8.979E-02	7.835E-02	4.581E-02	NOT IDENT.
CO-60	1.631E-02	3.439E-02	3.081E-02	1.754E-02	NOT IDENT.
ZN-65	7.841E-03	8.882E-02	6.682E-02	4.532E-02	NOT IDENT.
SE-75	3.079E-02	4.820E-02	3.926E-02	2.459E-02	NOT IDENT.
SR-85	1.139E-01	4.406E-02	3.943E-02	2.248E-02	NOT IDENT.
Y-88	1.702E-02	2.765E-02	2.581E-02	1.411E-02	NOT IDENT.
Y-91	2.413E+00	2.232E+01	1.931E+01	1.139E+01	NOT IDENT.
NB-94	5.468E-03	3.434E-02	2.954E-02	1.752E-02	NOT IDENT.
NB-95	6.779E-03	4.526E-02	3.869E-02	2.309E-02	NOT IDENT.
NB-95M	4.935E-01	1.655E-01	1.391E-01	8.443E-02	NOT IDENT.
ZR-95	8.355E-02	7.822E-02	7.032E-02	3.991E-02	NOT IDENT.
MO-99	4.322E+01	4.043E+01	3.672E+01	2.063E+01	NOT IDENT.
TC-99M	-8.358E+21	2.930E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.262E-02	3.912E-02	3.471E-02	1.996E-02	FAIL ABUN
RH-106	-1.511E-01	2.675E-01	2.180E-01	1.365E-01	NOT IDENT.
RU-106	-1.511E-01	2.671E-01	2.180E-01	1.363E-01	NOT IDENT.
AG-108M	-1.379E-02	2.846E-02	2.422E-02	1.452E-02	NOT IDENT.
AG-110M	-1.096E-02	3.131E-02	2.600E-02	1.597E-02	NOT IDENT.
SN-113	-1.683E-02	4.211E-02	3.625E-02	2.148E-02	NOT IDENT.
CD-115	-5.187E+01	4.891E+01	0.000E+00	2.495E+01	SHORT HLIF
SN-117M	-7.367E-03	7.280E-02	6.325E-02	3.714E-02	NOT IDENT.
TE-123M	1.337E-03	3.020E-02	2.638E-02	1.541E-02	NOT IDENT.
SB-124	5.112E-02	7.743E-02	7.143E-02	3.951E-02	NOT IDENT.
SB-125	5.175E-04	8.225E-02	7.215E-02	4.197E-02	FAIL ABUN
TE-125M	-8.532E+00	1.015E+01	8.698E+00	5.176E+00	NOT IDENT.
I-126	1.589E-01	2.795E-01	2.479E-01	1.426E-01	NOT IDENT.
SB-126	-3.148E-01	2.032E-01	1.297E-01	1.037E-01	NOT IDENT.
SB-127	-1.307E+00	3.042E+00	2.503E+00	1.552E+00	NOT IDENT.
I-131	1.680E-02	1.622E-01	1.443E-01	8.275E-02	NOT IDENT.
TE-132	1.657E+00	2.189E+00	1.924E+00	1.117E+00	NOT IDENT.
BA-133	1.524E-02	4.212E-02	3.334E-02	2.149E-02	FAIL ABUN
I-133	-1.383E+05	2.836E+05	0.000E+00	1.447E+05	SHORT HLIF
CS-134	1.120E-01	8.438E-02	4.616E-02	4.305E-02	FAIL ABUN
CS-135	1.900E-01	1.759E-01	1.457E-01	8.977E-02	NOT IDENT.
I-135	5.856E+20	1.668E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.184E-02	1.205E-01	1.035E-01	6.150E-02	NOT IDENT.
BA-137M	-2.009E-02	3.481E-02	2.847E-02	1.776E-02	NOT IDENT.
CS-137	-2.122E-02	3.677E-02	3.008E-02	1.876E-02	NOT IDENT.
CE-139	-1.670E-02	3.027E-02	2.576E-02	1.544E-02	NOT IDENT.
BA-140	-4.785E-02	3.167E-01	2.708E-01	1.616E-01	NOT IDENT.
LA-140	-1.151E-01	1.137E-01	8.226E-02	5.802E-02	FAIL ABUN
CE-141	3.734E-02	6.922E-02	6.155E-02	3.531E-02	NOT IDENT.
CE-143	1.294E+04	3.541E+03	0.000E+00	1.807E+03	SHORT HLIF
CE-144	-1.201E-01	2.045E-01	1.753E-01	1.043E-01	NOT IDENT.
PM-144	-8.865E-03	3.344E-02	2.790E-02	1.706E-02	NOT IDENT.
PR-144	-6.652E-01	2.509E+00	2.094E+00	1.280E+00	NOT IDENT.
PM-146	3.101E-03	3.994E-02	3.397E-02	2.038E-02	NOT IDENT.
ND-147	4.725E-02	7.193E-01	6.255E-01	3.670E-01	FAIL ABUN
PM-149	2.274E+02	4.081E+02	0.000E+00	2.082E+02	SHORT HLIF
EU-152	1.110E-01	1.100E-01	8.159E-02	5.611E-02	FAIL ABUN
GD-153	3.755E-02	9.145E-02	7.275E-02	4.666E-02	NOT IDENT.
EU-154	-5.292E-02	1.122E-01	9.147E-02	5.727E-02	NOT IDENT.
EU-155	9.768E-02	1.038E-01	9.495E-02	5.297E-02	FAIL ABUN
TB-160	3.294E-02	1.372E-01	1.175E-01	6.999E-02	FAIL ABUN
HO-166M	-8.162E-02	5.897E-02	4.443E-02	3.009E-02	FAIL ABUN
TA-182	-1.543E-01	2.004E-01	1.616E-01	1.022E-01	FAIL ABUN
IR-192	6.676E-03	3.394E-02	3.053E-02	1.732E-02	FAIL ABUN
HG-203	4.902E-02	4.472E-02	3.718E-02	2.282E-02	NOT IDENT.
BI-207	-5.678E-02	4.856E-02	3.753E-02	2.478E-02	FAIL ABUN
PB-210	3.653E+00	2.928E+00	2.728E+00	1.494E+00	NOT IDENT.
PB-211	1.220E-01	7.009E-01	6.200E-01	3.576E-01	NOT IDENT.
RN-219	4.463E-02	3.767E-01	3.336E-01	1.922E-01	FAIL ABUN
RA-223	-3.350E-01	6.868E-01	5.121E-01	3.504E-01	FAIL ABUN
AC-227	2.601E-01	2.535E-01	2.254E-01	1.293E-01	FAIL ABUN
TH-227	2.601E-01	2.540E-01	2.254E-01	1.296E-01	FAIL ABUN
TH-229	-2.672E-01	5.309E-01	4.491E-01	2.709E-01	FAIL ABUN
PA-231	-5.717E-01	1.465E+00	1.215E+00	7.476E-01	NOT IDENT.
TH-231	-3.350E-01	6.868E-01	5.121E-01	3.504E-01	FAIL ABUN
PA-233	6.028E-03	5.859E-02	5.252E-02	2.990E-02	FAIL ABUN
PA-234	-1.949E-01	2.657E-01	2.023E-01	1.356E-01	FAIL ABUN
PA-234M	4.211E+00	4.696E+00	4.275E+00	2.396E+00	NOT IDENT.
TH-234	2.095E+00	1.356E+00	1.237E+00	6.916E-01	FAIL ABUN
U-238	2.095E+00	1.356E+00	1.237E+00	6.916E-01	FAIL ABUN
NP-239	6.538E-02	4.097E-01	3.641E-01	2.090E-01	FAIL ABUN
AM-241	-2.338E-01	1.502E-01	1.287E-01	7.661E-02	NOT IDENT.
CM-247	7.667E-03	3.467E-02	3.087E-02	1.769E-02	NOT IDENT.
CF-249	1.286E-02	3.801E-02	3.410E-02	1.939E-02	NOT IDENT.

CF-251

1.561E-02

1.267E-01

1.105E-01

6.465E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	340.1533
49.72	445.8454
57.36	0.0000
59.54	574.0840
63.29	500.0953
63.29	500.0953
64.28	520.4298
67.75	662.7960
69.67	566.0976
70.83	576.3132
72.81	598.2037
72.87	609.4349
72.87	609.4349
74.82	565.8880
74.82	565.8880
74.82	565.8880
74.97	565.9677
77.11	567.0950
77.11	567.0950
77.11	567.0950
79.69	531.2065
79.80	531.2609
80.12	566.8416
80.19	566.8781
80.57	605.7354
81.00	634.9788
81.07	635.0172
81.07	635.0172
83.79	521.0371
83.79	521.0371
85.43	587.3093
86.48	620.2337
86.55	620.2711
86.79	620.3973
86.94	659.3604
87.57	669.4437
88.03	669.7058
88.47	669.9579
89.96	560.3576
91.11	560.8987
92.59	561.5916
92.59	561.5916
93.35	631.1704
94.67	417.4328
94.87	430.5485
94.87	430.5485
95.86	458.6437
97.43	385.6852
98.44	371.2788
99.53	395.6111
100.11	377.8566
103.18	440.1872
103.37	426.9116
105.31	383.3600
106.12	386.6829
109.28	429.8801
111.00	388.1143
111.76	389.3680
116.30	402.0684
117.23	410.6364
121.12	413.8627
121.78	408.8538
122.06	409.9753
123.07	426.9290
131.20	441.8972
133.52	416.3696
136.00	384.4910

136.47	383.5602
140.51	384.5794
140.51	0.0000
143.76	397.0014
144.24	370.7202
144.24	370.7202
145.44	357.2632
152.43	385.3773
153.25	371.7655
154.21	339.0373
154.21	339.0373
156.02	419.2142
158.56	392.1567
159.00	385.8651
162.66	380.3033
163.33	362.2876
165.86	362.8308
176.60	337.0901
177.52	322.1815
181.07	323.0407
184.41	332.0805
185.72	332.3195
193.51	346.7767
197.04	321.2924
205.31	304.5319
210.85	305.4006
215.65	265.3834
222.11	266.9751
227.38	297.5312
228.16	282.1533
228.18	282.1552
235.69	300.2783
235.96	300.3174
235.96	300.3174
238.63	270.2289
238.63	270.2289
240.99	270.5292
242.00	270.6571
244.70	235.5343
252.40	277.5601
252.80	265.2969
256.23	216.3807
256.23	216.3807
260.90	0.0000
264.66	202.5687
268.22	237.4565
269.46	199.9925
269.46	199.9925
271.23	167.0397
273.65	167.2159
276.40	206.6316
277.37	209.7358
277.60	209.7556
278.00	227.9039
279.20	205.3696
279.54	200.8692
280.46	205.4803
283.69	228.0818
284.31	228.8210
285.41	218.0273
285.90	0.0000
287.50	200.9449
293.27	0.0000
295.22	199.1612
295.96	218.9912
298.57	219.2285
299.98	219.3545
299.98	219.3545
300.09	219.3662
300.09	219.3662
300.13	219.3691
301.36	182.9004
302.85	181.4852
304.50	178.5564
304.50	178.5564
304.85	186.2143
308.46	184.3449
311.90	173.5791

316.51	178.5004
319.41	174.0994
320.08	174.1444
323.87	192.2455
323.87	192.2455
328.76	231.1340
333.37	194.4987
334.37	192.2567
334.37	192.2567
338.28	206.0004
338.28	206.0004
338.32	206.0031
338.32	206.0031
338.32	206.0031
340.48	171.8093
340.55	171.8138
344.28	132.5309
351.06	133.3328
351.93	133.3765
356.01	138.5609
364.49	146.1738
366.42	139.7130
383.85	158.5131
388.16	148.3566
388.63	146.4913
391.69	148.5405
400.66	140.4591
401.81	141.4627
402.40	140.5422
404.85	156.8165
410.95	145.7123
414.70	142.0811
423.72	124.3347
427.09	127.3452
427.87	122.5906
433.94	143.9447
453.88	114.9283
463.37	106.5531
468.07	126.1105
473.00	123.3878
476.78	125.4774
477.60	118.6983
487.02	104.4021
492.35	0.0000
497.08	97.8674
511.00	106.1319
514.00	96.7170
527.90	0.0000
529.87	0.0000
531.02	102.7939
537.26	99.0161
546.56	0.0000
563.25	106.3854
569.33	114.8877
569.50	114.8933
569.70	114.8989
583.19	91.9218
600.60	101.7496
602.73	82.3186
604.72	104.2138
609.32	104.0033
609.32	104.0033
610.33	104.0310
614.28	87.6230
618.01	87.2860
621.93	80.0299
621.93	80.0299
633.25	98.5488
635.95	98.6175
636.99	113.8977
645.85	74.4026
657.76	83.8238
661.66	106.4172
661.66	106.4172
664.57	0.0000
666.33	90.1484
666.50	90.1527
677.62	84.2342

685.70	91.6031
695.00	93.8715
696.49	98.0337
696.51	98.0337
697.00	103.2056
702.65	104.3782
706.68	93.0981
711.68	107.7070
720.70	106.7494
721.93	0.0000
722.78	84.7970
722.91	84.8009
723.31	77.8857
724.19	69.2448
727.33	80.0360
733.00	76.3250
735.93	76.3770
739.50	64.6262
747.24	69.9623
752.31	94.0869
753.82	83.6621
756.73	71.1593
763.94	93.2849
765.81	100.6641
766.42	95.4345
777.92	67.2906
778.90	67.3063
783.70	69.4837
785.37	65.2953
795.86	63.3354
801.95	81.0353
810.29	70.9454
810.76	82.6027
815.77	55.1269
818.51	53.0383
832.01	78.0134
834.85	90.4785
836.80	0.0000
846.77	62.2498
856.80	67.7262
860.56	59.9307
871.09	65.4246
873.19	61.1609
875.33	0.0000
879.36	60.1631
880.51	65.5512
883.24	68.8125
884.68	55.9267
889.28	58.1317
898.04	67.9403
911.20	69.2016
911.20	69.2016
911.20	69.2016
926.50	57.4809
937.49	83.6905
944.13	59.8555
946.00	59.8783
949.00	70.8065
962.29	85.5490
964.08	67.3696
966.15	69.9469
968.97	74.7229
968.97	74.7229
968.97	74.7229
983.53	62.5024
996.26	71.4460
1001.03	62.3416
1004.73	73.3936
1037.84	63.6908
1038.76	0.0000
1048.07	54.5611
1050.41	57.3581
1050.41	57.3581
1063.66	73.2621
1085.87	53.0687
1099.45	58.7959
1112.07	72.4435
1115.54	56.1523

1120.29	61.8186
1120.29	61.8186
1120.55	67.4414
1121.30	65.8442
1131.51	0.0000
1173.23	73.7185
1177.93	73.7756
1189.05	61.5934
1204.77	76.0059
1221.41	92.4058
1231.02	92.5518
1235.36	105.0273
1238.28	66.8669
1260.41	0.0000
1271.85	53.7829
1274.44	55.7249
1274.54	52.8448
1291.59	50.0957
1298.22	0.0000
1312.11	57.0218
1332.49	31.9929
1365.19	37.9987
1368.63	0.0000
1384.29	16.7508
1408.01	27.4554
1457.56	0.0000
1460.82	30.6317
1489.16	22.8184
1505.03	27.8416
1596.21	38.2613
1620.50	13.1317
1678.03	0.0000
1690.97	14.2734
1764.49	14.4079
1764.49	14.4079
1770.23	12.3584
1771.35	15.8913
1791.20	0.0000
1836.06	8.3060

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G247360003

Total Uranium Activity	6.1626E+00	ug/g
Total Uranium Counting Unc.	4.0338E+00	ug/g
Total Uranium Tpu	2.0581E-06	ug/g
Total Uranium Mda	3.6812E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 955027          SAMPLE ID   : G247360003
*  ANALYST       : MXR1            DETECTOR    : GAM19
*  SAMPLE DATE   : 12-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE:  4-MAR-2010 12:43:41.72  SAMPLE ALQT: 144.490 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.852E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.356E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.947E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.927E+00

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VAX/VMS Nuclide Identification Report Generated 4-MAR-2010 14:45:12.63

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360004.CNF;1
Sample date       : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:44:36.
Sample ID        : G247360004 Sample quantity : 1.28220E+02 GRAM
Detector name    : GAM14 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.45 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 5.00000
Batch ID        : 955027 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	63.29*	108	607	0.89	126.13	121	10	1.50E-02	44.3	
2	1	74.85*	585	612	1.54	149.23	144	18	8.12E-02	9.3	2.55E+00
3	1	77.18	783	572	1.26	153.88	144	18	1.09E-01	6.6	
4	1	87.29*	221	702	1.43	174.08	169	24	3.08E-02	21.4	3.69E+00
5	1	90.25	143	528	1.42	180.00	169	24	1.99E-02	29.0	
6	1	93.11*	243	485	1.44	185.72	169	24	3.38E-02	19.7	
7	0	129.98	147	476	4.84	259.37	254	13	2.03E-02	32.1	
8	0	186.30*	164	462	1.40	371.92	364	12	2.28E-02	28.1	
9	0	209.39	207	368	1.55	418.06	413	14	2.88E-02	21.0	
10	2	238.52*	1406	207	1.36	476.27	468	22	1.95E-01	3.2	1.96E+00
11	2	241.56	335	240	1.87	482.35	468	22	4.65E-02	13.2	
12	0	269.90	119	278	1.53	538.98	534	13	1.66E-02	30.3	
13	0	277.04	41	185	1.43	553.24	551	9	5.73E-03	61.1	
14	0	295.01	451	168	1.33	589.16	585	9	6.26E-02	7.0	
15	1	328.01	104	165	1.77	655.11	649	44	1.45E-02	25.2	2.55E+00
16	1	338.06	332	133	1.71	675.20	649	44	4.61E-02	8.4	
17	0	351.82*	791	200	1.33	702.69	696	14	1.10E-01	5.3	
18	0	462.58	149	101	2.32	924.06	917	15	2.07E-02	16.8	
19	0	567.99*	121	126	2.50	1134.78	1128	13	1.68E-02	21.9	
20	0	583.03*	397	100	1.77	1164.85	1156	15	5.52E-02	7.7	
21	0	609.20*	559	112	1.72	1217.17	1209	15	7.77E-02	6.0	
22	0	727.34	107	99	0.89	1453.38	1444	18	1.49E-02	23.9	
23	0	794.95*	48	43	1.56	1588.58	1584	9	6.69E-03	29.6	
24	0	911.43	280	59	1.46	1821.51	1814	16	3.89E-02	8.6	
25	2	964.93	55	62	1.98	1928.50	1924	20	7.61E-03	29.4	1.33E+00
26	2	969.26*	185	60	1.89	1937.17	1924	20	2.57E-02	11.3	
27	0	1002.06	35	66	0.98	2002.78	1994	16	4.93E-03	54.4	
28	0	1120.35	148	45	1.84	2239.39	2232	14	2.05E-02	12.7	
29	0	1239.04	69	56	2.00	2476.83	2471	12	9.58E-03	24.9	
30	0	1379.19	48	17	1.88	2757.27	2750	17	6.67E-03	24.4	
31	0	1408.58	29	12	1.44	2816.07	2809	12	4.02E-03	30.3	
32	0	1461.07*	1088	32	1.87	2921.12	2911	17	1.51E-01	3.3	
33	0	1511.14	51	14	6.60	3021.33	3012	20	7.02E-03	23.4	
34	0	1730.09	31	3	1.31	3459.59	3454	12	4.35E-03	20.9	
35	0	1764.71*	104	0	2.18	3528.90	3521	15	1.45E-02	10.3	
36	0	1848.02*	18	3	1.66	3695.69	3688	12	2.43E-03	35.2	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:44:36
Sample ID        : G247360004 Sample quantity : 128.22 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA14 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.45 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	+	1460.82	*	2.467E+01	2.419E+00	6.035E-01	4.382E-02	40.878
CD-109	+	88.03	*	2.560E+00	1.120E+00	1.209E+00	1.057E-01	2.118
SN-126	+	64.28		7.133E-01	6.404E-01	7.000E-01	9.975E-02	1.019
	+	86.94		1.033E+00	6.154E-01	4.915E-01	2.033E-01	2.101
	+	87.57	*	2.484E-01	1.087E-01	1.177E-01	1.024E-02	2.111
TL-208	+	277.37		3.656E-01	4.487E-01	5.843E-01	6.310E-02	0.626
	+	583.19	*	4.962E-01	8.324E-02	5.433E-02	3.707E-03	9.133
		860.56		3.758E-01	3.097E-01	5.593E-01	5.261E-02	0.672
BI-211		72.87		1.118E+01	3.703E+00	5.701E+00	4.202E-01	1.961
	+	351.06	*	4.290E+00	5.264E-01	3.063E-01	1.941E-02	14.006
PB-212	+	74.82		2.735E+00	6.090E-01	5.442E-01	6.689E-02	5.027
	+	77.11		2.123E+00	3.255E-01	3.159E-01	2.433E-02	6.722
	+	238.63	*	1.696E+00	1.662E-01	9.003E-02	6.615E-03	18.832
		300.09		9.577E-01	9.063E-01	1.394E+00	1.172E-01	0.687
BI-214	+	609.32	*	1.356E+00	1.946E-01	1.120E-01	8.930E-03	12.112
	+	1120.29		1.900E+00	5.148E-01	4.337E-01	4.043E-02	4.380
	+	1764.49		1.883E+00	4.038E-01	2.602E-01	1.561E-02	7.237
PB-214	+	74.82		4.848E+00	1.044E+00	9.645E-01	1.054E-01	5.027
	+	77.11		3.743E+00	6.515E-01	5.569E-01	6.284E-02	6.722
	+	242.00		2.449E+00	6.744E-01	5.472E-01	4.467E-02	4.475
	+	295.22		1.499E+00	2.473E-01	2.390E-01	2.090E-02	6.274
	+	351.93	*	1.557E+00	2.095E-01	1.114E-01	9.357E-03	13.977
RA-224	+	240.99	*	4.330E+00	1.166E+00	9.645E-01	5.544E-02	4.489
RA-226	+	609.32	*	1.356E+00	1.946E-01	1.120E-01	8.930E-03	12.112
	+	1120.29		1.900E+00	5.148E-01	4.337E-01	4.043E-02	4.380
	+	1764.49		1.883E+00	4.038E-01	2.602E-01	1.561E-02	7.237
AC-228	+	338.32		1.999E+00	8.900E-01	3.750E-01	1.546E-01	5.332
	+	911.20	*	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
	+	968.97		1.966E+00	6.538E-01	3.788E-01	9.233E-02	5.192
RA-228	+	338.32		1.999E+00	8.900E-01	3.750E-01	1.546E-01	5.332
	+	911.20	*	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
	+	968.97		1.966E+00	6.538E-01	3.788E-01	9.233E-02	5.192
TH-228	+	74.82		2.735E+00	5.487E-01	5.442E-01	4.139E-02	5.027
	+	77.11		2.123E+00	3.255E-01	3.159E-01	2.433E-02	6.722

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	1.696E+00	1.662E-01	9.003E-02	6.615E-03	18.832
		300.09		9.577E-01	1.075E+00	1.394E+00	8.485E-01	0.687
TH-232	+	338.32		1.999E+00	3.551E-01	3.750E-01	2.154E-02	5.332
	+	911.20	*	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
	+	968.97		1.966E+00	6.538E-01	3.788E-01	9.233E-02	5.192
TH-234	+	63.29	*	1.851E+00	1.672E+00	1.809E+00	3.180E-01	1.023
	+	92.59		2.297E+00	1.034E+00	9.978E-01	2.193E-01	2.302
U-235	+	89.96		1.675E+00	1.055E+00	1.235E+00	3.036E-01	1.356
	+	93.35		1.735E+00	7.902E-01	7.509E-01	1.725E-01	2.310
		143.76	*	2.337E-01	2.146E-01	3.478E-01	5.521E-02	0.672
		163.33		2.675E-01	4.368E-01	7.126E-01	1.188E-01	0.375
	+	185.72		1.287E-01	7.260E-02	6.685E-02	3.662E-03	1.925
		205.31		2.286E-01	5.243E-01	7.752E-01	1.311E-01	0.295
NP-237	+	86.48	*	7.413E-01	3.597E-01	3.925E-01	8.893E-02	1.889
		95.86		1.507E-01	1.035E+00	1.473E+00	3.508E-01	0.102
U-238	+	63.29	*	1.851E+00	1.672E+00	1.809E+00	3.180E-01	1.023
	+	92.59		2.297E+00	9.231E-01	9.978E-01	8.332E-02	2.302

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-4.408E-02	3.150E-01	5.111E-01	3.443E-02	-0.086
NA-22		1274.54	*	-2.010E-02	3.973E-02	6.161E-02	4.025E-03	-0.326
NA-24		1368.63	*	1.630E+02	3.973E-02	Half-Life too short		
SC-46		889.28	*	1.070E-03	4.323E-02	7.246E-02	6.696E-03	0.015
	+	1120.55		3.347E-01	8.788E-02	1.415E-01	9.159E-03	2.366
V-48		944.13		-9.730E-01	1.067E+00	1.625E+00	1.452E-01	-0.599
		983.53	*	-6.058E-02	7.920E-02	1.214E-01	1.031E-02	-0.499
		1312.11		-6.800E-02	9.733E-02	1.468E-01	1.015E-02	-0.463
CR-51		320.08	*	3.511E-01	4.255E-01	7.176E-01	4.630E-02	0.489
MN-54		834.85	*	-1.478E-02	3.732E-02	6.027E-02	5.056E-03	-0.245
CO-56		846.77	*	8.742E-03	3.900E-02	6.660E-02	5.709E-03	0.131
		1037.84		-5.013E-02	2.878E-01	4.698E-01	3.888E-02	-0.107
	+	1238.28		2.598E-01	1.306E-01	1.966E-01	1.277E-02	1.321
		1771.35		1.190E-01	3.097E-01	4.679E-01	2.792E-02	0.254
CO-57		122.06	*	-2.583E-02	2.625E-02	4.050E-02	2.881E-03	-0.638
		136.47		-3.268E-02	2.372E-01	3.296E-01	2.416E-02	-0.099
CO-58		810.76	*	-2.790E-02	4.281E-02	6.446E-02	5.187E-03	-0.433
FE-59		1099.45	*	-5.247E-02	9.014E-02	1.405E-01	1.081E-02	-0.374
		1291.59		6.191E-02	1.287E-01	2.222E-01	1.809E-02	0.279
CO-60		1173.23		1.506E-03	4.228E-02	7.009E-02	3.861E-03	0.021
		1332.49	*	-9.164E-03	3.450E-02	5.463E-02	3.893E-03	-0.168
ZN-65		1115.54	*	-6.444E-04	9.826E-02	1.398E-01	9.192E-03	-0.005
SE-75		121.12		8.591E-02	1.320E-01	2.176E-01	2.170E-02	0.395
		136.00		-3.144E-03	4.582E-02	6.394E-02	4.224E-03	-0.049
		264.66	*	7.322E-03	4.938E-02	7.243E-02	4.254E-03	0.101
		279.54		1.069E-01	1.197E-01	1.837E-01	1.158E-02	0.582
		400.66		1.238E-01	2.462E-01	4.179E-01	3.708E-02	0.296

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SR-85	514.00	*		-1.473E-01	5.356E-02	7.406E-02	4.356E-03	-1.989
Y-88	898.04			-2.039E-02	4.290E-02	6.790E-02	6.396E-03	-0.300
	1836.06	*		3.845E-02	3.271E-02	6.462E-02	3.670E-03	0.595
Y-91	1204.77	*		1.218E+01	2.461E+01	4.217E+01	2.453E+00	0.289
NB-94	702.65	*		-4.775E-05	3.346E-02	5.401E-02	3.503E-03	-0.001
	871.09			-1.757E-02	3.177E-02	5.045E-02	4.516E-03	-0.348
NB-95	765.81	*		6.793E-02	4.839E-02	8.535E-02	6.285E-03	0.796
NB-95M	235.69	*		8.580E-01	1.751E-01	2.929E-01	2.197E-02	2.929
ZR-95	724.19			7.019E-02	1.086E-01	1.620E-01	1.245E-02	0.433
	756.73	*		-5.072E-03	7.721E-02	1.236E-01	1.024E-02	-0.041
MO-99	140.51			-5.274E+01	7.979E+01	1.218E+02	2.804E+01	-0.433
	181.07			1.434E+01	6.806E+01	1.011E+02	1.775E+01	0.142
	366.42			-2.048E+02	3.240E+02	5.156E+02	2.894E+01	-0.397
	739.50	*		-2.269E+01	4.342E+01	6.654E+01	9.934E+00	-0.341
	777.92			-1.646E+02	1.247E+02	1.741E+02	1.313E+01	-0.946
TC-99M	140.51	*		-2.075E+16	1.247E+02	Half-Life	too short	
RU-103	497.08	*		1.870E-02	3.914E-02	6.622E-02	8.242E-03	0.282
	610.33		+	1.526E+01	2.940E+00	3.200E+00	4.839E-01	4.770
RH-106	621.93	*		1.650E-02	3.118E-01	5.081E-01	5.951E-02	0.032
	1050.41			9.167E-02	2.714E+00	4.520E+00	3.434E-01	0.020
RU-106	621.93	*		1.650E-02	3.118E-01	5.081E-01	3.038E-02	0.032
	1050.41			9.167E-02	2.714E+00	4.520E+00	3.434E-01	0.020
AG-108M	433.94	*		-1.339E-02	2.911E-02	4.645E-02	2.810E-03	-0.288
	614.28			8.132E-03	3.815E-02	5.475E-02	3.495E-03	0.149
	722.91			-1.174E-02	4.271E-02	5.739E-02	4.081E-03	-0.205
AG-110M	657.76	*		-9.918E-03	3.493E-02	5.523E-02	3.489E-03	-0.180
	677.62			-1.091E-01	3.242E-01	5.098E-01	3.312E-02	-0.214
	706.68			-2.700E-01	2.198E-01	3.168E-01	2.174E-02	-0.852
	763.94			-8.887E-02	1.824E-01	2.823E-01	2.149E-02	-0.315
	884.68			-9.257E-03	4.918E-02	8.097E-02	7.634E-03	-0.114
	937.49			9.423E-02	1.120E-01	1.992E-01	1.854E-02	0.473
	1384.29			1.897E-01	1.494E-01	2.632E-01	1.936E-02	0.721
	1505.03			6.363E-02	3.028E-01	4.427E-01	3.042E-02	0.144
SN-113	391.69	*		-4.009E-02	4.521E-02	7.058E-02	4.130E-03	-0.568
CD-115	260.90			-9.629E-06	4.521E-02	Half-Life	too short	
	492.35			6.374E-06	4.521E-02	Half-Life	too short	
	527.90	*		6.804E-06	4.521E-02	Half-Life	too short	
SN-117M	156.02			1.619E+00	3.074E+00	5.018E+00	2.888E-01	0.323
	158.56	*		-6.629E-02	7.442E-02	1.146E-01	6.484E-03	-0.578
TE-123M	159.00	*		-1.656E-02	3.031E-02	4.738E-02	2.710E-03	-0.349
SB-124	602.73			2.287E-02	4.463E-02	6.603E-02	3.951E-03	0.346
	645.85			3.733E-01	4.831E-01	8.324E-01	5.544E-02	0.448
	722.78			-1.326E-01	4.535E-01	6.080E-01	4.262E-02	-0.218
	1690.97	*		-5.976E-03	6.842E-02	1.088E-01	7.384E-03	-0.055
SB-125	427.87	*		8.050E-02	8.710E-02	1.513E-01	8.857E-03	0.532
	463.37		+	1.251E+00	4.287E-01	5.542E-01	3.701E-02	2.258
	600.60			6.700E-02	1.828E-01	2.886E-01	1.982E-02	0.232
	635.95			-8.657E-02	2.680E-01	4.228E-01	2.936E-02	-0.205
TE-125M	109.28	*		-2.559E+00	1.047E+01	1.673E+01	1.601E+00	-0.153

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-126	388.63			4.142E-02	2.125E-01	3.547E-01	1.937E-02	0.117
	666.33	*		4.165E-01	2.983E-01	5.298E-01	3.182E-02	0.786
	753.82			2.018E+00	2.352E+00	4.052E+00	2.915E-01	0.498
SB-126	414.70			-9.272E-02	9.889E-02	1.533E-01	8.509E-03	-0.605
	666.50			1.410E-01	1.034E-01	1.833E-01	1.101E-02	0.769
	695.00			-4.410E-02	1.059E-01	1.563E-01	9.979E-03	-0.282
	697.00			-2.162E-01	3.474E-01	5.314E-01	3.406E-02	-0.407
	720.70	*		-4.716E-03	2.205E-01	3.057E-01	2.058E-02	-0.015
	856.80			-1.294E+00	6.429E-01	8.783E-01	7.665E-02	-1.473
SB-127	252.40			-2.068E+00	1.016E+01	1.677E+01	6.960E+00	-0.123
	473.00			2.392E+00	3.785E+00	6.450E+00	8.156E-01	0.371
	685.70	*		-9.507E-02	3.209E+00	5.149E+00	5.916E-01	-0.018
	783.70			8.619E+00	8.365E+00	1.451E+01	1.915E+00	0.594
I-131	80.19			-4.262E+00	7.984E+00	1.108E+01	8.941E-01	-0.385
	284.31			-5.459E-01	2.302E+00	3.573E+00	2.331E-01	-0.153
	364.49	*		3.718E-02	1.665E-01	2.789E-01	1.777E-02	0.133
	636.99			1.008E-01	2.366E+00	3.849E+00	2.586E-01	0.026
TE-132	49.72			-5.485E+01	3.780E+01	5.782E+01	6.427E+00	-0.949
	111.76			9.403E+00	9.821E+01	1.590E+02	1.857E+01	0.059
	116.30			-6.845E+01	8.372E+01	1.299E+02	1.507E+01	-0.527
	228.16	*		1.533E+00	2.126E+00	3.641E+00	5.684E-01	0.421
BA-133	81.00			-2.480E-01	1.397E-01	1.434E-01	2.180E-02	-1.730
	276.40	+		3.382E-01	4.157E-01	5.986E-01	7.544E-02	0.565
	302.85			-1.411E-01	1.412E-01	2.222E-01	2.537E-02	-0.635
	356.01	*		1.566E-02	4.330E-02	6.404E-02	7.178E-03	0.245
	383.85			-1.444E-01	2.865E-01	4.585E-01	4.816E-02	-0.315
I-133	529.87	*		-1.492E-01	2.865E-01	Half-Life	too short	
	875.33			3.521E+00	2.865E-01	Half-Life	too short	
	1298.22			-1.353E+01	2.865E-01	Half-Life	too short	
CS-134	563.25			-1.007E-01	4.381E-01	6.024E-01	3.662E-02	-0.167
	569.33	+		8.296E-01	3.665E-01	4.895E-01	3.003E-02	1.695
	604.72			1.335E-02	3.695E-02	5.381E-02	3.236E-03	0.248
	795.86	*		8.932E-02	5.329E-02	8.992E-02	7.078E-03	0.993
	801.95			-2.863E-01	4.172E-01	6.054E-01	4.810E-02	-0.473
	1365.19			-5.487E-01	1.315E+00	2.087E+00	1.581E-01	-0.263
CS-135	268.22	*		3.737E-01	1.844E-01	2.959E-01	2.270E-02	1.263
I-135	546.56			1.509E+15	1.844E-01	Half-Life	too short	
	836.80			1.277E+15	1.844E-01	Half-Life	too short	
	1038.76			-1.766E+14	1.844E-01	Half-Life	too short	
	1131.51			-1.239E+15	1.844E-01	Half-Life	too short	
	1260.41	*		2.865E+14	1.844E-01	Half-Life	too short	
	1457.56			9.643E+16	1.844E-01	Half-Life	too short	
	1678.03			-2.809E+15	1.844E-01	Half-Life	too short	
	1791.20			9.895E+14	1.844E-01	Half-Life	too short	
CS-136	153.25			1.568E+00	1.173E+00	1.963E+00	1.590E-01	0.799
	176.60			-4.121E-01	6.683E-01	1.037E+00	7.009E-02	-0.397
	273.65			2.007E-01	1.004E+00	1.004E+00	6.894E-02	0.200
	340.55			5.072E-01	2.116E-01	3.676E-01	2.288E-02	1.380
	818.51			-5.275E-04	9.211E-02	1.546E-01	1.260E-02	-0.003

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1048.07	*		-8.710E-03	1.396E-01	2.306E-01	1.855E-02	-0.038
	1235.36			1.005E-01	8.640E-01	1.240E+00	1.250E-01	0.081
BA-137M	661.66	*		-4.698E-02	3.778E-02	5.504E-02	3.273E-03	-0.854
CS-137	661.66	*		-4.963E-02	3.992E-02	5.814E-02	3.471E-03	-0.854
CE-139	165.86	*		-2.725E-02	3.137E-02	4.823E-02	2.590E-03	-0.565
BA-140	162.66			2.623E-01	1.061E+00	1.715E+00	1.092E-01	0.153
	304.85			-1.610E+00	1.821E+00	2.801E+00	8.003E-01	-0.575
	423.72			-1.467E+00	2.487E+00	3.866E+00	1.246E+00	-0.379
	537.26	*		6.010E-02	3.078E-01	5.091E-01	1.697E-01	0.118
LA-140	328.76	+		1.018E+00	5.177E-01	7.365E-01	4.779E-02	1.382
	487.02			-5.269E-02	1.605E-01	2.563E-01	1.686E-02	-0.206
	815.77			-2.609E-01	4.102E-01	6.507E-01	5.965E-02	-0.401
	1596.21	*		-3.415E-03	1.286E-01	2.085E-01	1.382E-02	-0.016
CE-141	145.44	*		8.269E-02	7.239E-02	1.208E-01	7.709E-03	0.685
CE-143	57.36			-1.144E-03	7.239E-02	Half-Life	too short	
	293.27	*		1.322E-02	7.239E-02	Half-Life	too short	
	664.57			9.925E-03	7.239E-02	Half-Life	too short	
	721.93			-3.263E-03	7.239E-02	Half-Life	too short	
CE-144	80.12			-1.295E+00	2.863E+00	3.986E+00	3.174E-01	-0.325
	133.52	*		1.300E-01	2.218E-01	3.202E-01	4.565E-02	0.406
PM-144	476.78			-4.668E-02	6.249E-02	9.689E-02	6.634E-03	-0.482
	618.01			-3.038E-02	3.251E-02	4.875E-02	3.084E-03	-0.623
	696.49	*		-1.810E-02	3.320E-02	5.109E-02	3.275E-03	-0.354
PR-144	696.51	*		-1.362E+00	2.491E+00	3.832E+00	2.454E-01	-0.355
	1489.16			-2.889E+00	1.046E+01	1.620E+01	1.119E+00	-0.178
PM-146	453.88	*		2.574E-02	4.221E-02	7.021E-02	5.893E-03	0.367
	633.25			-8.395E-01	1.397E+00	2.091E+00	7.880E-01	-0.402
	735.93			3.128E-03	1.554E-01	2.366E-01	6.519E-02	0.013
	747.24			-3.179E-02	9.895E-02	1.547E-01	2.126E-02	-0.205
ND-147	91.11	+		7.395E-01	4.344E-01	6.993E-01	6.432E-02	1.057
	319.41			2.253E+00	4.538E+00	7.720E+00	4.482E-01	0.292
	531.02	*		1.601E-01	6.272E-01	1.046E+00	1.420E-01	0.153
PM-149	285.90	*		1.502E-04	6.272E-01	Half-Life	too short	
EU-152	121.78			-1.233E-02	7.250E-02	1.159E-01	9.996E-03	-0.106
	244.70			2.696E-01	3.456E-01	5.269E-01	3.035E-02	0.512
	344.28	*		-4.910E-02	1.009E-01	1.529E-01	9.883E-03	-0.321
	778.90			-2.083E-01	2.564E-01	3.798E-01	2.869E-02	-0.548
	964.08	+		6.278E-01	3.728E-01	5.892E-01	5.136E-02	1.066
	1085.87			-2.973E-01	3.655E-01	5.553E-01	3.917E-02	-0.535
	1112.07			-2.485E-02	3.193E-01	4.690E-01	3.105E-02	-0.053
	1408.01	+		3.237E-01	1.974E-01	3.319E-01	2.339E-02	0.975
GD-153	69.67			2.415E+00	1.852E+00	2.766E+00	1.978E-01	0.873
	97.43	*		4.776E-02	9.201E-02	1.335E-01	1.070E-02	0.358
	103.18			2.351E-02	1.123E-01	1.828E-01	1.410E-02	0.129
EU-154	123.07			-6.433E-02	5.640E-02	8.268E-02	8.448E-03	-0.778
	723.31			2.738E-02	1.862E-01	2.634E-01	2.068E-02	0.104
	873.19			1.238E-01	2.576E-01	4.490E-01	5.460E-02	0.276
	996.26			-1.542E-01	4.084E-01	5.545E-01	9.609E-02	-0.278
	1004.73			1.618E-01	1.855E-01	3.019E-01	3.425E-02	0.536

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EU-155	+	1274.44	*	-5.930E-02	1.121E-01	1.732E-01	1.712E-02	-0.342
		86.55		3.018E-01	1.321E-01	1.855E-01	1.610E-02	1.627
		105.31	*	-1.417E-02	1.058E-01	1.700E-01	1.315E-02	-0.083
TB-160	+	86.79		8.378E-01	3.666E-01	5.101E-01	4.396E-02	1.642
		197.04		5.201E-01	5.776E-01	1.002E+00	5.554E-02	0.519
		215.65		1.588E-02	8.449E-01	1.237E+00	6.977E-02	0.013
		298.57		2.241E-01	1.311E-01	2.093E-01	1.221E-02	1.071
		879.36	*	1.829E-02	1.395E-01	2.362E-01	2.145E-02	0.077
		962.29		8.635E-01	6.332E-01	1.037E+00	9.062E-02	0.833
		966.15		4.594E-01	2.728E-01	5.419E-01	4.712E-02	0.848
		1177.93		1.125E-01	3.513E-01	5.976E-01	3.219E-02	0.188
		1271.85		3.656E-02	6.686E-01	1.107E+00	7.187E-02	0.033
		80.57		-4.385E-01	3.362E-01	4.134E-01	3.308E-02	-1.061
HO-166M		184.41		9.911E-02	3.773E-02	6.772E-02	3.704E-03	1.464
		280.46		-9.018E-03	8.896E-02	1.280E-01	7.464E-03	-0.070
		410.95		2.349E-01	2.320E-01	4.045E-01	2.238E-02	0.581
		711.68	*	3.951E-02	6.164E-02	1.045E-01	6.903E-03	0.378
		752.31		-1.164E-02	2.741E-01	4.396E-01	3.153E-02	-0.026
		810.29		-5.440E-03	5.945E-02	9.458E-02	7.582E-03	-0.058
		67.75		-5.918E-02	1.246E-01	1.739E-01	1.223E-02	-0.340
		100.11		2.027E-01	1.927E-01	3.003E-01	2.363E-02	0.675
		152.43		4.158E-01	3.844E-01	6.393E-01	3.769E-02	0.650
		222.11		-4.346E-02	3.584E-01	5.985E-01	3.395E-02	-0.073
TA-182	+	1121.30		9.171E-01	2.408E-01	3.857E-01	2.492E-02	2.378
		1189.05		3.437E-02	3.235E-01	5.274E-01	2.986E-02	0.065
		1221.41	*	-1.051E-01	2.050E-01	3.230E-01	1.932E-02	-0.325
		1231.02		-4.174E-01	5.523E-01	7.770E-01	4.722E-02	-0.537
		295.96		1.161E+00	1.764E-01	3.025E-01	1.793E-02	3.837
		308.46		-4.019E-04	9.757E-02	1.622E-01	9.550E-03	-0.002
		316.51	*	-1.658E-02	3.549E-02	5.753E-02	3.358E-03	-0.288
		468.07		-4.853E-02	7.866E-02	1.048E-01	6.981E-03	-0.463
		70.83		1.592E+00	1.537E+00	2.252E+00	3.459E-01	0.707
		72.87		2.995E+00	1.065E+00	1.527E+00	2.272E-01	1.961
HG-203		279.20	*	3.635E-02	4.520E-02	6.892E-02	4.240E-03	0.527
		72.81		5.970E-01	2.115E-01	3.248E-01	2.392E-02	1.838
		74.97		7.886E-01	1.579E-01	2.393E-01	1.801E-02	3.296
BI-207	+	569.70		9.742E-02	4.559E-02	7.433E-02	4.435E-03	1.311
		1063.66	*	-3.753E-02	4.828E-02	7.364E-02	5.450E-03	-0.510
		1770.23		-1.479E-01	6.169E-01	8.025E-01	4.793E-02	-0.184
PB-210		46.54	*	-5.556E-01	2.214E+00	3.623E+00	2.653E-01	-0.153
PB-211		404.85	*	-1.111E+00	8.787E-01	1.039E+00	4.983E-01	-1.069
		427.09		4.430E-01	1.477E+00	2.454E+00	1.124E+00	0.181
		832.01		-3.003E-02	1.002E+00	1.677E+00	8.691E-01	-0.018
BI-212	+	727.33	*	2.071E+00	1.015E+00	1.126E+00	1.271E-01	1.839
		785.37		3.176E+00	3.104E+00	5.408E+00	4.136E-01	0.587
		1620.50		7.132E-01	2.434E+00	4.129E+00	2.705E-01	0.173
RN-219	+	271.23		6.337E-01	3.873E-01	4.347E-01	3.499E-02	1.458
		401.81	*	3.416E-01	3.778E-01	6.525E-01	8.682E-02	0.524
RA-223		81.07		-5.663E-01	3.077E-01	3.240E-01	2.608E-02	-1.748

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		83.79		-2.726E-01	2.168E-01	2.015E-01	1.674E-02	-1.353
		94.87		1.885E+00	5.306E-01	8.331E-01	6.819E-02	2.263
		144.24		5.739E-01	7.054E-01	1.146E+00	8.647E-02	0.501
		154.21		2.862E-01	4.176E-01	6.851E-01	4.788E-02	0.418
	+	269.46		4.924E-01	2.998E-01	3.454E-01	2.097E-02	1.426
		323.87	*	-3.359E-02	7.134E-01	1.025E+00	1.651E-01	-0.033
	+	338.28		7.934E+00	1.561E+00	2.303E+00	2.354E-01	3.445
		79.69		2.542E+00	1.495E+00	2.172E+00	3.670E-01	1.170
		235.96		1.511E+00	2.419E-01	3.895E-01	3.152E-02	3.880
		256.23	*	9.273E-02	2.504E-01	4.250E-01	4.344E-02	0.218
TH-227		299.98		1.271E+00	9.939E-01	1.540E+00	1.695E-01	0.825
		304.50		-2.407E+00	1.690E+00	2.552E+00	3.893E-01	-0.943
		334.37		2.083E-01	1.747E+00	2.753E+00	3.912E-01	0.076
		79.80		2.540E+00	1.946E+00	2.794E+00	6.011E-01	0.909
		235.96		1.511E+00	2.363E-01	3.895E-01	2.855E-02	3.880
		256.23	*	9.273E-02	2.505E-01	4.250E-01	5.107E-02	0.218
		299.98		1.271E+00	9.939E-01	1.540E+00	1.695E-01	0.825
		304.50		-2.407E+00	1.690E+00	2.552E+00	3.893E-01	-0.943
		334.37		2.083E-01	1.747E+00	2.753E+00	3.912E-01	0.076
		85.43		4.639E-01	2.551E-01	3.815E-01	3.234E-02	1.216
TH-229	+	88.47		3.830E-01	1.676E-01	2.422E-01	2.108E-02	1.581
		193.51	*	1.811E-01	5.188E-01	8.844E-01	4.884E-02	0.205
	+	210.85		3.564E+00	1.513E+00	1.595E+00	8.957E-02	2.235
		283.69	*	-1.376E+00	1.557E+00	2.214E+00	2.907E-01	-0.622
		301.36		7.991E-01	5.914E-01	9.855E-01	1.021E-01	0.811
		81.07		-5.663E-01	3.077E-01	3.240E-01	2.608E-02	-1.748
		83.79		-2.726E-01	2.168E-01	2.015E-01	1.674E-02	-1.353
		94.87		1.885E+00	5.306E-01	8.331E-01	6.819E-02	2.263
		144.24		5.739E-01	7.054E-01	1.146E+00	8.647E-02	0.501
		154.21		2.862E-01	4.176E-01	6.851E-01	4.788E-02	0.418
PA-231	+	269.46		4.924E-01	2.998E-01	3.454E-01	2.097E-02	1.426
		323.87	*	-3.359E-02	7.134E-01	1.025E+00	1.651E-01	-0.033
	+	338.28		7.934E+00	1.561E+00	2.303E+00	2.354E-01	3.445
		300.13		4.737E-01	4.537E-01	6.932E-01	9.290E-02	0.683
		311.90	*	2.878E-02	6.063E-02	1.032E-01	6.375E-03	0.279
		340.48		1.872E+00	8.221E-01	1.238E+00	2.872E-01	1.512
		94.67		7.887E-01	2.100E-01	3.115E-01	3.774E-02	2.532
		98.44		4.177E-02	1.035E-01	1.456E-01	8.106E-02	0.287
		111.00		1.391E-01	1.856E-01	3.067E-01	3.452E-02	0.454
	+	131.20		2.772E-01	1.788E-01	1.756E-01	1.179E-02	1.579
PA-233		569.50		9.136E-01	4.073E-01	6.672E-01	3.981E-02	1.369
		733.00		2.543E-01	4.203E-01	6.223E-01	1.343E-01	0.409
		880.51		-1.193E-01	2.710E-01	4.356E-01	3.964E-02	-0.274
		883.24		-5.799E-02	2.814E-01	4.581E-01	3.082E-01	-0.127
		926.50		1.641E-01	1.776E-01	3.111E-01	7.919E-02	0.527
		946.00	*	-2.882E-01	3.113E-01	4.693E-01	8.871E-02	-0.614
		949.00		6.328E-01	4.579E-01	8.419E-01	7.480E-02	0.752
		766.42		2.095E+01	1.587E+01	2.148E+01	1.086E+01	0.975
	+	1001.03	*	7.328E+00	8.005E+00	8.745E+00	8.454E-01	0.838
PA-234M								

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.53		6.254E-02	1.860E-01	2.672E-01	2.110E-02	0.234
		103.37		2.969E-02	1.010E-01	1.649E-01	1.270E-02	0.180
		106.12		-5.570E-02	8.516E-02	1.340E-01	1.017E-02	-0.416
		117.23	*	-9.195E-02	3.935E-01	6.279E-01	4.534E-02	-0.146
		228.18		1.566E-01	2.160E-01	3.721E-01	2.120E-02	0.421
	+	277.60		1.671E-01	2.045E-01	2.873E-01	1.675E-02	0.582
AM-241		59.54	*	3.025E-02	1.450E-01	2.091E-01	1.552E-02	0.145
CM-247	+	278.00		7.097E-01	8.686E-01	1.230E+00	7.171E-02	0.577
		287.50		1.009E+00	1.185E+00	2.051E+00	1.197E-01	0.492
		402.40	*	2.273E-02	3.497E-02	5.987E-02	3.288E-03	0.380
CF-249		252.80		9.797E-02	9.199E-01	1.546E+00	8.940E-02	0.063
		333.37		5.787E-02	1.856E-01	2.958E-01	1.705E-02	0.196
		388.16	*	4.900E-03	3.888E-02	6.465E-02	3.534E-03	0.076
CF-251		177.52	*	-3.657E-02	1.340E-01	2.113E-01	1.147E-02	-0.173
		227.38		2.426E-01	3.501E-01	6.025E-01	3.432E-02	0.403
		285.41		1.088E+00	2.087E+00	3.563E+00	2.079E-01	0.305
ANH-511		511.00	*	6.011E-02	4.387E-02	8.201E-02	4.818E-03	0.733

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]G247360004      *
* Acquisition date   : 4-MAR-2010 12:44:36 Detector SN# :                    *
* Detector ID        : GAM14 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.45 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G247360004 Analyst initials: MXR1                  *
* Batch Number       : 955027 Sample Quantity : 1.2822E+02 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope :                    *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.467E+01	2.371E+00	6.036E-01	0.000E+00
CD-109	2.560E+00	1.098E+00	1.262E+00	0.000E+00
SN-126	2.484E-01	1.065E-01	1.228E-01	0.000E+00
TL-208	4.962E-01	8.158E-02	5.513E-02	0.000E+00
BI-211	4.290E+00	5.159E-01	3.132E-01	0.000E+00
PB-212	1.696E+00	1.628E-01	9.260E-02	0.000E+00
BI-214	1.356E+00	1.907E-01	1.135E-01	0.000E+00
PB-214	1.557E+00	2.053E-01	1.139E-01	0.000E+00
RA-224	4.330E+00	1.143E+00	9.919E-01	0.000E+00
RA-226	1.356E+00	1.907E-01	1.135E-01	0.000E+00
AC-228	1.723E+00	3.548E-01	2.265E-01	0.000E+00
RA-228	1.723E+00	3.548E-01	2.265E-01	0.000E+00
TH-228	1.696E+00	1.628E-01	9.260E-02	0.000E+00
TH-232	1.723E+00	3.548E-01	2.265E-01	0.000E+00
TH-234	1.851E+00	1.639E+00	1.897E+00	0.000E+00
U-235	2.337E-01	2.103E-01	3.605E-01	0.000E+00
NP-237	7.413E-01	3.525E-01	4.098E-01	0.000E+00
U-238	1.851E+00	1.639E+00	1.897E+00	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-4.408E-02	3.087E-01	5.202E-01	0.000E+00 NOT IDENT.
NA-22	-2.010E-02	3.894E-02	6.176E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	1.713E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	1.070E-03	4.236E-02	7.304E-02	0.000E+00 FAIL ABUN
V-48	-6.058E-02	7.762E-02	1.222E-01	0.000E+00 NOT IDENT.
CR-51	3.511E-01	4.170E-01	7.349E-01	0.000E+00 NOT IDENT.
MN-54	-1.478E-02	3.657E-02	6.081E-02	0.000E+00 NOT IDENT.
CO-56	8.742E-03	3.822E-02	6.718E-02	0.000E+00 FAIL ABUN
CO-57	-2.583E-02	2.572E-02	4.207E-02	0.000E+00 NOT IDENT.

CO-58	-2.790E-02	4.196E-02	6.507E-02	0.000E+00	NOT IDENT.
FE-59	-5.247E-02	8.834E-02	1.411E-01	0.000E+00	NOT IDENT.
CO-60	-9.164E-03	3.381E-02	5.471E-02	0.000E+00	NOT IDENT.
ZN-65	-6.444E-04	9.629E-02	1.405E-01	0.000E+00	NOT IDENT.
SE-75	7.322E-03	4.839E-02	7.438E-02	0.000E+00	NOT IDENT.
SR-85	-1.473E-01	5.248E-02	7.529E-02	0.000E+00	NOT IDENT.
Y-88	3.845E-02	3.206E-02	6.439E-02	0.000E+00	NOT IDENT.
Y-91	1.218E+01	2.412E+01	4.231E+01	0.000E+00	NOT IDENT.
NB-94	-4.775E-05	3.279E-02	5.465E-02	0.000E+00	NOT IDENT.
NB-95	6.793E-02	4.742E-02	8.623E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.716E-01	3.014E-01	0.000E+00	NOT IDENT.
ZR-95	-5.072E-03	7.566E-02	1.249E-01	0.000E+00	NOT IDENT.
MO-99	-2.269E+01	4.255E+01	6.726E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.134E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.870E-02	3.836E-02	6.736E-02	0.000E+00	FAIL ABUN
RH-106	1.650E-02	3.056E-01	5.150E-01	0.000E+00	NOT IDENT.
RU-106	1.650E-02	3.056E-01	5.150E-01	0.000E+00	NOT IDENT.
AG-108M	-1.339E-02	2.852E-02	4.734E-02	0.000E+00	NOT IDENT.
AG-110M	-9.918E-03	3.423E-02	5.594E-02	0.000E+00	NOT IDENT.
SN-113	-4.009E-02	4.430E-02	7.205E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	4.350E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-6.629E-02	7.293E-02	1.186E-01	0.000E+00	NOT IDENT.
TE-123M	-1.656E-02	2.970E-02	4.903E-02	0.000E+00	NOT IDENT.
SB-124	-5.976E-03	6.705E-02	1.086E-01	0.000E+00	NOT IDENT.
SB-125	8.050E-02	8.536E-02	1.543E-01	0.000E+00	FAIL ABUN
TE-125M	-2.559E+00	1.026E+01	1.741E+01	0.000E+00	NOT IDENT.
I-126	4.165E-01	2.923E-01	5.365E-01	0.000E+00	NOT IDENT.
SB-126	-4.716E-03	2.161E-01	3.092E-01	0.000E+00	NOT IDENT.
SB-127	-9.507E-02	3.145E+00	5.212E+00	0.000E+00	NOT IDENT.
I-131	3.718E-02	1.631E-01	2.851E-01	0.000E+00	NOT IDENT.
TE-132	1.533E+00	2.083E+00	3.748E+00	0.000E+00	NOT IDENT.
BA-133	1.566E-02	4.244E-02	6.547E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.561E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.932E-02	5.222E-02	9.080E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.807E-01	3.038E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.502E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.710E-03	1.368E-01	2.318E-01	0.000E+00	NOT IDENT.
BA-137M	-4.698E-02	3.703E-02	5.573E-02	0.000E+00	NOT IDENT.
CS-137	-4.963E-02	3.912E-02	5.888E-02	0.000E+00	NOT IDENT.
CE-139	-2.725E-02	3.074E-02	4.988E-02	0.000E+00	NOT IDENT.
BA-140	6.010E-02	3.016E-01	5.172E-01	0.000E+00	NOT IDENT.
LA-140	-3.415E-03	1.260E-01	2.082E-01	0.000E+00	FAIL ABUN
CE-141	8.269E-02	7.094E-02	1.251E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.616E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.300E-01	2.173E-01	3.322E-01	0.000E+00	NOT IDENT.
PM-144	-1.810E-02	3.254E-02	5.169E-02	0.000E+00	NOT IDENT.
PR-144	-1.362E+00	2.441E+00	3.877E+00	0.000E+00	NOT IDENT.
PM-146	2.574E-02	4.136E-02	7.151E-02	0.000E+00	NOT IDENT.
ND-147	1.601E-01	6.147E-01	1.063E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.020E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-4.910E-02	9.891E-02	1.564E-01	0.000E+00	FAIL ABUN
GD-153	4.776E-02	9.017E-02	1.391E-01	0.000E+00	NOT IDENT.
EU-154	-5.930E-02	1.099E-01	1.736E-01	0.000E+00	NOT IDENT.
EU-155	-1.417E-02	1.037E-01	1.770E-01	0.000E+00	FAIL ABUN
TB-160	1.829E-02	1.367E-01	2.381E-01	0.000E+00	FAIL ABUN
HO-166M	3.951E-02	6.041E-02	1.057E-01	0.000E+00	NOT IDENT.
TA-182	-1.051E-01	2.009E-01	3.240E-01	0.000E+00	FAIL ABUN
IR-192	-1.658E-02	3.478E-02	5.892E-02	0.000E+00	FAIL ABUN
HG-203	3.635E-02	4.430E-02	7.072E-02	0.000E+00	NOT IDENT.
BI-207	-3.753E-02	4.732E-02	7.402E-02	0.000E+00	FAIL ABUN
PB-210	-5.556E-01	2.169E+00	3.817E+00	0.000E+00	NOT IDENT.
PB-211	-1.111E+00	8.611E-01	1.061E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	9.950E-01	1.139E+00	0.000E+00	FAIL ABUN
RN-219	3.416E-01	3.702E-01	6.658E-01	0.000E+00	FAIL ABUN
RA-223	-3.359E-02	6.991E-01	1.049E+00	0.000E+00	FAIL ABUN
AC-227	9.273E-02	2.454E-01	4.367E-01	0.000E+00	NOT IDENT.
TH-227	9.273E-02	2.455E-01	4.367E-01	0.000E+00	NOT IDENT.
TH-229	1.811E-01	5.084E-01	9.124E-01	0.000E+00	FAIL ABUN
PA-231	-1.376E+00	1.526E+00	2.271E+00	0.000E+00	NOT IDENT.
TH-231	-3.359E-02	6.991E-01	1.049E+00	0.000E+00	FAIL ABUN
PA-233	2.878E-02	5.942E-02	1.057E-01	0.000E+00	NOT IDENT.
PA-234	-2.882E-01	3.051E-01	4.726E-01	0.000E+00	FAIL ABUN
PA-234M	7.328E+00	7.845E+00	8.798E+00	0.000E+00	FAIL ABUN
NP-239	-9.195E-02	3.856E-01	6.527E-01	0.000E+00	FAIL ABUN
AM-241	3.025E-02	1.421E-01	2.195E-01	0.000E+00	NOT IDENT.
CM-247	2.273E-02	3.427E-02	6.109E-02	0.000E+00	FAIL ABUN
CF-249	4.900E-03	3.810E-02	6.600E-02	0.000E+00	NOT IDENT.
CF-251	-3.657E-02	1.314E-01	2.183E-01	0.000E+00	NOT IDENT.

ANH-511 6.011E-02 4.300E-02 8.337E-02 0.000E+00 NOT IDENT.

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G247360004.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 12:44:36.
Sample ID         : G247360004          Sample quantity   : 1.28220E+02 GRAM
Detector name     : GAM14              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00      Elapsed real time: 0 02:00:01.45  0.0%
Energy tolerance  : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit   : 75.00000           Sensitivity       : 5.00000
Batch ID          : 955027             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	1460.82	1088	10.66*	1.211E+00	2.467E+01	2.467E+01	9.81
CD-109	88.03	221	3.70*	7.053E+00	2.484E+00	2.560E+00	43.75
SN-126	64.28	108	9.60	4.627E+00	7.133E-01	7.133E-01	89.78
	86.94	221	8.90	7.053E+00	1.033E+00	1.033E+00	59.59
	87.57	221	37.00*	7.053E+00	2.484E-01	2.484E-01	43.75
TL-208	277.37	41	6.60	5.006E+00	3.656E-01	3.656E-01	122.74
	583.19	397	85.00*	2.759E+00	4.962E-01	4.962E-01	16.78
	860.56	-----	12.50	1.944E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	5.875E+00	-----	Line Not Found	-----
	351.06	791	12.92*	4.178E+00	4.290E+00	4.290E+00	12.27
PB-212	74.82	585	10.28	6.085E+00	2.735E+00	2.735E+00	22.26
	77.11	783	17.10	6.311E+00	2.123E+00	2.123E+00	15.33
	238.63	1406	43.60*	5.569E+00	1.696E+00	1.696E+00	9.80
	300.09	-----	3.30	4.718E+00	-----	Line Not Found	-----
BI-214	609.32	559	45.49*	2.655E+00	1.356E+00	1.356E+00	14.35
	1120.29	148	14.92	1.524E+00	1.900E+00	1.900E+00	27.10
	1764.49	104	15.30	1.059E+00	1.883E+00	1.883E+00	21.44
PB-214	74.82	585	5.80	6.085E+00	4.848E+00	4.848E+00	21.54
	77.11	783	9.70	6.311E+00	3.743E+00	3.743E+00	17.41
	242.00	335	7.25	5.520E+00	2.449E+00	2.449E+00	27.54
	295.22	451	18.42	4.778E+00	1.499E+00	1.499E+00	16.50
	351.93	791	35.60*	4.178E+00	1.557E+00	1.557E+00	13.45
RA-224	240.99	335	4.10*	5.520E+00	4.330E+00	4.330E+00	26.93
RA-226	609.32	559	45.49*	2.655E+00	1.356E+00	1.356E+00	14.35
	1120.29	148	14.92	1.524E+00	1.900E+00	1.900E+00	27.10
	1764.49	104	15.30	1.059E+00	1.883E+00	1.883E+00	21.44
AC-228	338.32	332	11.27	4.309E+00	1.999E+00	1.999E+00	44.51
	911.20	280	25.80*	1.843E+00	1.723E+00	1.723E+00	21.01
	968.97	185	15.80	1.741E+00	1.966E+00	1.966E+00	33.25
RA-228	338.32	332	11.27	4.309E+00	1.999E+00	1.999E+00	44.51
	911.20	280	25.80*	1.843E+00	1.723E+00	1.723E+00	21.01
	968.97	185	15.80	1.741E+00	1.966E+00	1.966E+00	33.25

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	585	10.28	6.085E+00	2.735E+00	2.735E+00	20.06
	77.11	783	17.10	6.311E+00	2.123E+00	2.123E+00	15.33
	238.63	1406	43.60*	5.569E+00	1.696E+00	1.696E+00	9.80
	300.09	-----	3.30	4.718E+00	-----	Line Not Found	-----
TH-232	338.32	332	11.27	4.309E+00	1.999E+00	1.999E+00	17.76
	911.20	280	25.80*	1.843E+00	1.723E+00	1.723E+00	21.01
	968.97	185	15.80	1.741E+00	1.966E+00	1.966E+00	33.25
	63.29	108	3.70*	4.627E+00	1.851E+00	1.851E+00	90.37
U-235	92.59	243	4.23	7.327E+00	2.297E+00	2.297E+00	45.04
	89.96	143	3.47	7.205E+00	1.675E+00	1.675E+00	63.00
	93.35	243	5.60	7.327E+00	1.735E+00	1.735E+00	45.55
	143.76	-----	10.96*	7.372E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.992E+00	-----	Line Not Found	-----
	185.72	164	57.20	6.522E+00	1.287E-01	1.287E-01	56.43
	205.31	-----	5.01	6.150E+00	-----	Line Not Found	-----
	86.48	221	12.40*	7.053E+00	7.413E-01	7.413E-01	48.52
NP-237	95.86	-----	2.68	7.425E+00	-----	Line Not Found	-----
	63.29	108	3.70*	4.627E+00	1.851E+00	1.851E+00	90.37
U-238	92.59	243	4.23	7.327E+00	2.297E+00	2.297E+00	40.20

Flag: "*" = Keyline

Total number of lines in spectrum 36
Number of unidentified lines 4
Number of lines tentatively identified by NID 32 88.89%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.467E+01	2.467E+01	0.242E+01	9.81	
CD-109	461.40D	1.03	2.484E+00	2.560E+00	1.120E+00	43.75	
SN-126	2.30E+05Y	1.00	2.484E-01	2.484E-01	1.087E-01	43.75	
TL-208	1.41E+10Y	1.00	4.962E-01	4.962E-01	0.832E-01	16.78	
BI-211	7.04E+08Y	1.00	4.290E+00	4.290E+00	0.526E+00	12.27	
PB-212	1.41E+10Y	1.00	1.696E+00	1.696E+00	0.166E+00	9.80	
BI-214	1600.00Y	1.00	1.356E+00	1.356E+00	0.195E+00	14.35	
PB-214	1600.00Y	1.00	1.557E+00	1.557E+00	0.209E+00	13.45	
RA-224	1.41E+10Y	1.00	4.330E+00	4.330E+00	1.166E+00	26.93	
RA-226	1600.00Y	1.00	1.356E+00	1.356E+00	0.195E+00	14.35	
AC-228	1.41E+10Y	1.00	1.723E+00	1.723E+00	0.362E+00	21.01	
RA-228	1.41E+10Y	1.00	1.723E+00	1.723E+00	0.362E+00	21.01	
TH-228	1.41E+10Y	1.00	1.696E+00	1.696E+00	0.166E+00	9.80	
TH-232	1.41E+10Y	1.00	1.723E+00	1.723E+00	0.362E+00	21.01	
TH-234	4.47E+09Y	1.00	1.851E+00	1.851E+00	1.672E+00	90.37	
U-235	7.04E+08Y	1.00	1.287E-01	1.287E-01	0.726E-01	56.43	K
NP-237	2.14E+06Y	1.00	7.413E-01	7.413E-01	3.597E-01	48.52	
U-238	4.47E+09Y	1.00	1.851E+00	1.851E+00	1.672E+00	90.37	
Total Activity :			5.392E+01	5.400E+01			

Grand Total Activity : 5.392E+01 5.400E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.98	147	476	4.84	259.37	254	13	2.03E-02	64.1	7.58E+00	T
0	209.39	207	368	1.55	418.06	413	14	2.88E-02	42.1	6.07E+00	T
0	269.90	119	278	1.53	538.98	534	13	1.66E-02	60.6	5.10E+00	T
1	328.01	104	165	1.77	655.11	649	44	1.45E-02	50.5	4.41E+00	T
0	462.58	149	101	2.32	924.06	917	15	2.07E-02	33.6	3.35E+00	T
0	567.99	121	126	2.50	1134.78	1128	13	1.68E-02	43.7	2.82E+00	T
0	727.34	107	99	0.89	1453.38	1444	18	1.49E-02	47.7	2.27E+00	T
0	794.95	48	43	1.56	1588.58	1584	9	6.69E-03	59.1	2.09E+00	T
2	964.93	55	62	1.98	1928.50	1924	20	7.61E-03	58.7	1.75E+00	T
0	1002.06	35	66	0.98	2002.78	1994	16	4.93E-03	****	1.69E+00	T
0	1239.04	69	56	2.00	2476.83	2471	12	9.58E-03	49.9	1.39E+00	T
0	1379.19	48	17	1.88	2757.27	2750	17	6.67E-03	48.8	1.27E+00	
0	1408.58	29	12	1.44	2816.07	2809	12	4.02E-03	60.6	1.25E+00	T
0	1511.14	51	14	6.60	3021.33	3012	20	7.02E-03	46.8	1.18E+00	
0	1730.09	31	3	1.31	3459.59	3454	12	4.35E-03	41.9	1.07E+00	
0	1848.02	18	3	1.66	3695.69	3688	12	2.43E-03	70.5	1.03E+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]G247360004.CNF;1 *
* Acquisition date   : 4-MAR-2010 12:44:36.  Detector SN#      :          *
* Detector ID        : GAM14                      Sensitivity    : 5.00000    *
* Geometry           : CAN                      Energy tolerance: 1.50000    *
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000    *
* Elapsed real time  : 0 02:00:01.45             Half life ratio : 8.00000    *
*****
*
*                               SAMPLE DATA                               *
*
* Sample date        : 12-FEB-2010 12:00:00  Nuclide Library : SOLID        *
* Sample ID          : G247360004             Analyst initials: MXR1         *
* Batch Number       : 955027                 Sample Quantity : 1.28220E+02 GRAM *
*****
*
*                               QC DATA                                *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06.61MS Isotope      :          *
* MSD ID             :                      MSD Isotope       :          *
* LCS ID             : 1032-A                 LCS Isotope      :          *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.467E+01	2.419E+00	6.035E-01	4.382E-02	40.878
CD-109	2.560E+00	1.120E+00	1.209E+00	1.057E-01	2.118
SN-126	2.484E-01	1.087E-01	1.177E-01	1.024E-02	2.111
TL-208	4.962E-01	8.324E-02	5.433E-02	3.707E-03	9.133
BI-211	4.290E+00	5.264E-01	3.063E-01	1.941E-02	14.006
PB-212	1.696E+00	1.662E-01	9.003E-02	6.615E-03	18.832
BI-214	1.356E+00	1.946E-01	1.120E-01	8.930E-03	12.112
PB-214	1.557E+00	2.095E-01	1.114E-01	9.357E-03	13.977
RA-224	4.330E+00	1.166E+00	9.645E-01	5.544E-02	4.489
RA-226	1.356E+00	1.946E-01	1.120E-01	8.930E-03	12.112
AC-228	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
RA-228	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
TH-228	1.696E+00	1.662E-01	9.003E-02	6.615E-03	18.832
TH-232	1.723E+00	3.620E-01	2.248E-01	2.715E-02	7.666
TH-234	1.851E+00	1.672E+00	1.809E+00	3.180E-01	1.023
U-235	1.287E-01	7.260E-02	3.478E-01	5.521E-02	0.370
NP-237	7.413E-01	3.597E-01	3.925E-01	8.893E-02	1.889
U-238	1.851E+00	1.672E+00	1.809E+00	3.180E-01	1.023

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-4.408E-02		3.150E-01	5.111E-01	3.443E-02	-0.086
NA-22	-2.010E-02		3.973E-02	6.161E-02	4.025E-03	-0.326
NA-24	1.630E+02		8.740E+01	Half-Life	too short	
SC-46	1.070E-03		4.323E-02	7.246E-02	6.696E-03	0.015
V-48	-6.058E-02		7.920E-02	1.214E-01	1.031E-02	-0.499
CR-51	3.511E-01		4.255E-01	7.176E-01	4.630E-02	0.489
MN-54	-1.478E-02		3.732E-02	6.027E-02	5.056E-03	-0.245
CO-56	8.742E-03		3.900E-02	6.660E-02	5.709E-03	0.131
CO-57	-2.583E-02		2.625E-02	4.050E-02	2.881E-03	-0.638
CO-58	-2.790E-02		4.281E-02	6.446E-02	5.187E-03	-0.433
FE-59	-5.247E-02		9.014E-02	1.405E-01	1.081E-02	-0.374
CO-60	-9.164E-03		3.450E-02	5.463E-02	3.893E-03	-0.168
ZN-65	-6.444E-04		9.826E-02	1.398E-01	9.192E-03	-0.005
SE-75	7.322E-03		4.938E-02	7.243E-02	4.254E-03	0.101
SR-85	-1.473E-01		5.356E-02	7.406E-02	4.356E-03	-1.989
Y-88	3.845E-02		3.271E-02	6.462E-02	3.670E-03	0.595
Y-91	1.218E+01		2.461E+01	4.217E+01	2.453E+00	0.289
NB-94	-4.775E-05		3.346E-02	5.401E-02	3.503E-03	-0.001
NB-95	6.793E-02		4.839E-02	8.535E-02	6.285E-03	0.796
NB-95M	8.580E-01		1.751E-01	2.929E-01	2.197E-02	2.929
ZR-95	-5.072E-03		7.721E-02	1.236E-01	1.024E-02	-0.041
MO-99	-2.269E+01		4.342E+01	6.654E+01	9.934E+00	-0.341
TC-99M	-2.075E+16		1.599E+16	Half-Life	too short	
RU-103	1.870E-02		3.914E-02	6.622E-02	8.242E-03	0.282
RH-106	1.650E-02		3.118E-01	5.081E-01	5.951E-02	0.032
RU-106	1.650E-02		3.118E-01	5.081E-01	3.038E-02	0.032
AG-108M	-1.339E-02		2.911E-02	4.645E-02	2.810E-03	-0.288
AG-110M	-9.918E-03		3.493E-02	5.523E-02	3.489E-03	-0.180
SN-113	-4.009E-02		4.521E-02	7.058E-02	4.130E-03	-0.568
CD-115	6.804E-06		2.219E-05	Half-Life	too short	
SN-117M	-6.629E-02		7.442E-02	1.146E-01	6.484E-03	-0.578
TE-123M	-1.656E-02		3.031E-02	4.738E-02	2.710E-03	-0.349
SB-124	-5.976E-03		6.842E-02	1.088E-01	7.384E-03	-0.055
SB-125	8.050E-02		8.710E-02	1.513E-01	8.857E-03	0.532
TE-125M	-2.559E+00		1.047E+01	1.673E+01	1.601E+00	-0.153
I-126	4.165E-01		2.983E-01	5.298E-01	3.182E-02	0.786
SB-126	-4.716E-03		2.205E-01	3.057E-01	2.058E-02	-0.015
SB-127	-9.507E-02		3.209E+00	5.149E+00	5.916E-01	-0.018
I-131	3.718E-02		1.665E-01	2.789E-01	1.777E-02	0.133
TE-132	1.533E+00		2.126E+00	3.641E+00	5.684E-01	0.421
BA-133	1.566E-02		4.330E-02	6.404E-02	7.178E-03	0.245
I-133	-1.492E-01		1.307E-01	Half-Life	too short	
CS-134	8.932E-02	+	5.329E-02	8.992E-02	7.078E-03	0.993
CS-135	3.737E-01		1.844E-01	2.959E-01	2.270E-02	1.263
I-135	2.865E+14		7.663E+14	Half-Life	too short	
CS-136	-8.710E-03		1.396E-01	2.306E-01	1.855E-02	-0.038
BA-137M	-4.698E-02		3.778E-02	5.504E-02	3.273E-03	-0.854
CS-137	-4.963E-02		3.992E-02	5.814E-02	3.471E-03	-0.854

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-139	-2.725E-02		3.137E-02	4.823E-02	2.590E-03	-0.565
BA-140	6.010E-02		3.078E-01	5.091E-01	1.697E-01	0.118
LA-140	-3.415E-03		1.286E-01	2.085E-01	1.382E-02	-0.016
CE-141	8.269E-02		7.239E-02	1.208E-01	7.709E-03	0.685
CE-143	1.322E-02		1.845E-03	Half-Life	too short	
CE-144	1.300E-01		2.218E-01	3.202E-01	4.565E-02	0.406
PM-144	-1.810E-02		3.320E-02	5.109E-02	3.275E-03	-0.354
PR-144	-1.362E+00		2.491E+00	3.832E+00	2.454E-01	-0.355
PM-146	2.574E-02		4.221E-02	7.021E-02	5.893E-03	0.367
ND-147	1.601E-01		6.272E-01	1.046E+00	1.420E-01	0.153
PM-149	1.502E-04		2.051E-04	Half-Life	too short	
EU-152	-4.910E-02		1.009E-01	1.529E-01	9.883E-03	-0.321
GD-153	4.776E-02		9.201E-02	1.335E-01	1.070E-02	0.358
EU-154	-5.930E-02		1.121E-01	1.732E-01	1.712E-02	-0.342
EU-155	-1.417E-02		1.058E-01	1.700E-01	1.315E-02	-0.083
TB-160	1.829E-02		1.395E-01	2.362E-01	2.145E-02	0.077
HO-166M	3.951E-02		6.164E-02	1.045E-01	6.903E-03	0.378
TA-182	-1.051E-01		2.050E-01	3.230E-01	1.932E-02	-0.325
IR-192	-1.658E-02		3.549E-02	5.753E-02	3.358E-03	-0.288
HG-203	3.635E-02		4.520E-02	6.892E-02	4.240E-03	0.527
BI-207	-3.753E-02		4.828E-02	7.364E-02	5.450E-03	-0.510
PB-210	-5.556E-01		2.214E+00	3.623E+00	2.653E-01	-0.153
PB-211	-1.111E+00		8.787E-01	1.039E+00	4.983E-01	-1.069
BI-212	2.071E+00	+	1.015E+00	1.126E+00	1.271E-01	1.839
RN-219	3.416E-01		3.778E-01	6.525E-01	8.682E-02	0.524
RA-223	-3.359E-02		7.134E-01	1.025E+00	1.651E-01	-0.033
AC-227	9.273E-02		2.504E-01	4.250E-01	4.344E-02	0.218
TH-227	9.273E-02		2.505E-01	4.250E-01	5.107E-02	0.218
TH-229	1.811E-01		5.188E-01	8.844E-01	4.884E-02	0.205
PA-231	-1.376E+00		1.557E+00	2.214E+00	2.907E-01	-0.622
TH-231	-3.359E-02		7.134E-01	1.025E+00	1.651E-01	-0.033
PA-233	2.878E-02		6.063E-02	1.032E-01	6.375E-03	0.279
PA-234	-2.882E-01		3.113E-01	4.693E-01	8.871E-02	-0.614
PA-234M	7.328E+00	+	8.005E+00	8.745E+00	8.454E-01	0.838
NP-239	-9.195E-02		3.935E-01	6.279E-01	4.534E-02	-0.146
AM-241	3.025E-02		1.450E-01	2.091E-01	1.552E-02	0.145
CM-247	2.273E-02		3.497E-02	5.987E-02	3.288E-03	0.380
CF-249	4.900E-03		3.888E-02	6.465E-02	3.534E-03	0.076
CF-251	-3.657E-02		1.340E-01	2.113E-01	1.147E-02	-0.173
ANH-511	6.011E-02		4.387E-02	8.201E-02	4.818E-03	0.733

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]G247360004          *
* Acquisition date   : 4-MAR-2010 12:44:36 Detector SN#                   *
* Detector ID        : GAM14 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.45 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G247360004 Analyst initials: MXR1                 *
* Batch Number       : 955027 Sample Quantity : 1.2822E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*                                     *                                       *
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.467E+01	2.371E+00	3.020E-01	1.210E+00
CD-109	2.560E+00	1.098E+00	6.312E-01	5.602E-01
SN-126	2.484E-01	1.065E-01	6.146E-02	5.435E-02
TL-208	4.962E-01	8.158E-02	2.758E-02	4.162E-02
BI-211	4.290E+00	5.159E-01	1.567E-01	2.632E-01
PB-212	1.696E+00	1.628E-01	4.633E-02	8.308E-02
BI-214	1.356E+00	1.907E-01	5.679E-02	9.729E-02
PB-214	1.557E+00	2.053E-01	5.699E-02	1.047E-01
RA-224	4.330E+00	1.143E+00	4.962E-01	5.829E-01
RA-226	1.356E+00	1.907E-01	5.679E-02	9.729E-02
AC-228	1.723E+00	3.548E-01	1.133E-01	1.810E-01
RA-228	1.723E+00	3.548E-01	1.133E-01	1.810E-01
TH-228	1.696E+00	1.628E-01	4.633E-02	8.308E-02
TH-232	1.723E+00	3.548E-01	1.133E-01	1.810E-01
TH-234	1.851E+00	1.639E+00	9.491E-01	8.362E-01
U-235	2.337E-01	2.103E-01	1.803E-01	1.073E-01
NP-237	7.413E-01	3.525E-01	2.050E-01	1.798E-01
U-238	1.851E+00	1.639E+00	9.491E-01	8.362E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-4.408E-02	3.087E-01	2.602E-01	1.575E-01 NOT IDENT.
NA-22	-2.010E-02	3.894E-02	3.090E-02	1.987E-02 NOT IDENT.
NA-24	1.630E+08	1.713E+08	0.000E+00	8.740E+07 SHORT HLIF
SC-46	1.070E-03	4.236E-02	3.654E-02	2.161E-02 FAIL ABUN
V-48	-6.058E-02	7.762E-02	6.112E-02	3.960E-02 NOT IDENT.
CR-51	3.511E-01	4.170E-01	3.676E-01	2.128E-01 NOT IDENT.
MN-54	-1.478E-02	3.657E-02	3.043E-02	1.866E-02 NOT IDENT.
CO-56	8.742E-03	3.822E-02	3.361E-02	1.950E-02 FAIL ABUN
CO-57	-2.583E-02	2.572E-02	2.105E-02	1.312E-02 NOT IDENT.

CO-58	-2.790E-02	4.196E-02	3.255E-02	2.141E-02	NOT IDENT.
FE-59	-5.247E-02	8.834E-02	7.059E-02	4.507E-02	NOT IDENT.
CO-60	-9.164E-03	3.381E-02	2.737E-02	1.725E-02	NOT IDENT.
ZN-65	-6.444E-04	9.629E-02	7.027E-02	4.913E-02	NOT IDENT.
SE-75	7.322E-03	4.839E-02	3.721E-02	2.469E-02	NOT IDENT.
SR-85	-1.473E-01	5.248E-02	3.767E-02	2.678E-02	NOT IDENT.
Y-88	3.845E-02	3.206E-02	3.221E-02	1.636E-02	NOT IDENT.
Y-91	1.218E+01	2.412E+01	2.117E+01	1.230E+01	NOT IDENT.
NB-94	-4.775E-05	3.279E-02	2.734E-02	1.673E-02	NOT IDENT.
NB-95	6.793E-02	4.742E-02	4.314E-02	2.419E-02	NOT IDENT.
NB-95M	8.580E-01	1.716E-01	1.508E-01	8.757E-02	NOT IDENT.
ZR-95	-5.072E-03	7.566E-02	6.247E-02	3.860E-02	NOT IDENT.
MO-99	-2.269E+01	4.255E+01	3.365E+01	2.171E+01	NOT IDENT.
TC-99M	-2.075E+22	3.134E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.870E-02	3.836E-02	3.370E-02	1.957E-02	FAIL ABUN
RH-106	1.650E-02	3.056E-01	2.577E-01	1.559E-01	NOT IDENT.
RU-106	1.650E-02	3.056E-01	2.577E-01	1.559E-01	NOT IDENT.
AG-108M	-1.339E-02	2.852E-02	2.369E-02	1.455E-02	NOT IDENT.
AG-110M	-9.918E-03	3.423E-02	2.798E-02	1.746E-02	NOT IDENT.
SN-113	-4.009E-02	4.430E-02	3.605E-02	2.260E-02	NOT IDENT.
CD-115	6.804E+00	4.350E+01	0.000E+00	2.219E+01	SHORT HLIF
SN-117M	-6.629E-02	7.293E-02	5.934E-02	3.721E-02	NOT IDENT.
TE-123M	-1.656E-02	2.970E-02	2.453E-02	1.516E-02	NOT IDENT.
SB-124	-5.976E-03	6.705E-02	5.431E-02	3.421E-02	NOT IDENT.
SB-125	8.050E-02	8.536E-02	7.718E-02	4.355E-02	FAIL ABUN
TE-125M	-2.559E+00	1.026E+01	8.710E+00	5.234E+00	NOT IDENT.
I-126	4.165E-01	2.923E-01	2.684E-01	1.491E-01	NOT IDENT.
SB-126	-4.716E-03	2.161E-01	1.547E-01	1.102E-01	NOT IDENT.
SB-127	-9.507E-02	3.145E+00	2.607E+00	1.604E+00	NOT IDENT.
I-131	3.718E-02	1.631E-01	1.426E-01	8.323E-02	NOT IDENT.
TE-132	1.533E+00	2.083E+00	1.875E+00	1.063E+00	NOT IDENT.
BA-133	1.566E-02	4.244E-02	3.276E-02	2.165E-02	FAIL ABUN
I-133	-1.492E+05	2.561E+05	0.000E+00	1.307E+05	SHORT HLIF
CS-134	8.932E-02	5.222E-02	4.543E-02	2.664E-02	FAIL ABUN
CS-135	3.737E-01	1.807E-01	1.520E-01	9.221E-02	NOT IDENT.
I-135	2.865E+20	1.502E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.710E-03	1.368E-01	1.160E-01	6.979E-02	NOT IDENT.
BA-137M	-4.698E-02	3.703E-02	2.788E-02	1.889E-02	NOT IDENT.
CS-137	-4.963E-02	3.912E-02	2.946E-02	1.996E-02	NOT IDENT.
CE-139	-2.725E-02	3.074E-02	2.495E-02	1.568E-02	NOT IDENT.
BA-140	6.010E-02	3.016E-01	2.588E-01	1.539E-01	NOT IDENT.
LA-140	-3.415E-03	1.260E-01	1.042E-01	6.431E-02	FAIL ABUN
CE-141	8.269E-02	7.094E-02	6.261E-02	3.620E-02	NOT IDENT.
CE-143	1.322E+04	3.616E+03	0.000E+00	1.845E+03	SHORT HLIF
CE-144	1.300E-01	2.173E-01	1.662E-01	1.109E-01	NOT IDENT.
PM-144	-1.810E-02	3.254E-02	2.586E-02	1.660E-02	NOT IDENT.
PR-144	-1.362E+00	2.441E+00	1.940E+00	1.245E+00	NOT IDENT.
PM-146	2.574E-02	4.136E-02	3.578E-02	2.110E-02	NOT IDENT.
ND-147	1.601E-01	6.147E-01	5.317E-01	3.136E-01	FAIL ABUN
PM-149	1.502E+02	4.020E+02	0.000E+00	2.051E+02	SHORT HLIF
EU-152	-4.910E-02	9.891E-02	7.824E-02	5.046E-02	FAIL ABUN
GD-153	4.776E-02	9.017E-02	6.960E-02	4.601E-02	NOT IDENT.
EU-154	-5.930E-02	1.099E-01	8.684E-02	5.606E-02	NOT IDENT.
EU-155	-1.417E-02	1.037E-01	8.854E-02	5.290E-02	FAIL ABUN
TB-160	1.829E-02	1.367E-01	1.191E-01	6.976E-02	FAIL ABUN
HO-166M	3.951E-02	6.041E-02	5.287E-02	3.082E-02	NOT IDENT.
TA-182	-1.051E-01	2.009E-01	1.621E-01	1.025E-01	FAIL ABUN
IR-192	-1.658E-02	3.478E-02	2.948E-02	1.775E-02	FAIL ABUN
HG-203	3.635E-02	4.430E-02	3.538E-02	2.260E-02	NOT IDENT.
BI-207	-3.753E-02	4.732E-02	3.703E-02	2.414E-02	FAIL ABUN
PB-210	-5.556E-01	2.169E+00	1.910E+00	1.107E+00	NOT IDENT.
PB-211	-1.111E+00	8.611E-01	5.306E-01	4.393E-01	NOT IDENT.
BI-212	2.071E+00	9.950E-01	5.697E-01	5.077E-01	FAIL ABUN
RN-219	3.416E-01	3.702E-01	3.331E-01	1.889E-01	FAIL ABUN
RA-223	-3.359E-02	6.991E-01	5.249E-01	3.567E-01	FAIL ABUN
AC-227	9.273E-02	2.454E-01	2.185E-01	1.252E-01	NOT IDENT.
TH-227	9.273E-02	2.455E-01	2.185E-01	1.253E-01	NOT IDENT.
TH-229	1.811E-01	5.084E-01	4.565E-01	2.594E-01	FAIL ABUN
PA-231	-1.376E+00	1.526E+00	1.136E+00	7.784E-01	NOT IDENT.
TH-231	-3.359E-02	6.991E-01	5.249E-01	3.567E-01	FAIL ABUN
PA-233	2.878E-02	5.942E-02	5.290E-02	3.032E-02	NOT IDENT.
PA-234	-2.882E-01	3.051E-01	2.364E-01	1.557E-01	FAIL ABUN
PA-234M	7.328E+00	7.845E+00	4.402E+00	4.002E+00	FAIL ABUN
NP-239	-9.195E-02	3.856E-01	3.266E-01	1.967E-01	FAIL ABUN
AM-241	3.025E-02	1.421E-01	1.098E-01	7.251E-02	NOT IDENT.
CM-247	2.273E-02	3.427E-02	3.056E-02	1.748E-02	FAIL ABUN
CF-249	4.900E-03	3.810E-02	3.302E-02	1.944E-02	NOT IDENT.
CF-251	-3.657E-02	1.314E-01	1.092E-01	6.702E-02	NOT IDENT.

ANH-511 6.011E-02 4.300E-02 4.171E-02 2.194E-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
46.54	397.3036
49.72	467.1209
57.36	0.0000
59.54	481.6441
63.29	517.4370
63.29	517.4370
64.28	555.2425
67.75	638.6274
69.67	548.1674
70.83	568.7836
72.81	640.0242
72.87	640.0593
72.87	640.0593
74.82	624.6769
74.82	624.6769
74.82	624.6769
74.97	624.7635
77.11	625.9750
77.11	625.9750
77.11	625.9750
79.69	607.0259
79.80	607.0854
80.12	657.7195
80.19	657.7601
80.57	694.1602
81.00	754.7455
81.07	754.7920
81.07	754.7920
83.79	759.3805
83.79	759.3805
85.43	633.7029
86.48	627.5004
86.55	627.5366
86.79	510.7149
86.94	510.7812
87.57	511.0502
88.03	511.2455
88.47	511.4334
89.96	512.0636
91.11	512.5463
92.59	513.1636
92.59	513.1636
93.35	513.4786
94.67	391.6359
94.87	391.6991
94.87	391.6991
95.86	453.3657
97.43	368.6028
98.44	387.6804
99.53	405.1031
100.11	366.2388
103.18	400.6693
103.37	400.7278
105.31	405.6062
106.12	429.4739
109.28	413.2632
111.00	373.9135
111.76	402.1520
116.30	391.5655
117.23	360.4345
121.12	318.0020
121.78	357.2370
122.06	398.5755
123.07	421.0543
131.20	402.1350
133.52	315.1956
136.00	338.5039

136.47	347.3798
140.51	392.4734
140.51	0.0000
143.76	355.8244
144.24	358.1343
144.24	358.1343
145.44	355.0938
152.43	368.8020
153.25	352.3640
154.21	383.6115
154.21	383.6115
156.02	368.4898
158.56	393.4993
159.00	369.1408
162.66	326.4775
163.33	313.2286
165.86	362.8058
176.60	349.2889
177.52	338.2300
181.07	334.7609
184.41	336.5719
185.72	336.8087
193.51	316.4453
197.04	307.0366
205.31	279.7566
210.85	288.1585
215.65	273.5621
222.11	296.1932
227.38	267.4323
228.16	271.2215
228.18	271.2250
235.69	253.0502
235.96	282.4024
235.96	282.4024
238.63	257.7218
238.63	257.7218
240.99	258.0035
242.00	258.1223
244.70	220.0159
252.40	236.9499
252.80	225.7968
256.23	230.8125
256.23	230.8125
260.90	0.0000
264.66	201.6544
268.22	212.9233
269.46	217.7361
269.46	217.7361
271.23	220.5129
273.65	193.0183
276.40	169.6772
277.37	200.7306
277.60	203.9513
278.00	208.7021
279.20	195.0442
279.54	182.4867
280.46	191.9976
283.69	224.2262
284.31	204.5241
285.41	189.2407
285.90	0.0000
287.50	181.8281
293.27	0.0000
295.22	238.4531
295.96	315.1805
298.57	183.9192
299.98	195.1279
299.98	195.1279
300.09	203.0677
300.09	203.0677
300.13	203.0703
301.36	192.8546
302.85	236.3266
304.50	246.0196
304.50	246.0196
304.85	227.9325
308.46	183.3703
311.90	161.6228

316.51	189.6976
319.41	177.4415
320.08	169.4917
323.87	180.9490
323.87	180.9490
328.76	178.0783
333.37	178.3877
334.37	178.4554
334.37	178.4554
338.28	178.7151
338.28	178.7151
338.32	178.7197
338.32	178.7197
338.32	178.7197
340.48	178.8619
340.55	178.8665
344.28	179.1149
351.06	148.0155
351.93	148.0620
356.01	131.2641
364.49	136.5410
366.42	154.2004
383.85	154.1597
388.16	142.5875
388.63	142.6105
391.69	161.4655
400.66	123.4406
401.81	112.6209
402.40	120.5480
404.85	170.0936
410.95	117.9178
414.70	155.7639
423.72	136.3210
427.09	119.5356
427.87	107.6085
433.94	133.7743
453.88	109.3873
463.37	98.7357
468.07	124.4369
473.00	99.0240
476.78	118.3568
477.60	101.1853
487.02	94.3657
492.35	0.0000
497.08	83.4504
511.00	123.6373
514.00	287.3716
527.90	0.0000
529.87	0.0000
531.02	65.7656
537.26	77.2046
546.56	0.0000
563.25	114.0391
569.33	117.6857
569.50	117.6912
569.70	117.6968
583.19	87.5478
600.60	88.9927
602.73	85.5486
604.72	90.8328
609.32	98.6357
609.32	98.6357
610.33	96.2120
614.28	84.0508
618.01	104.1119
621.93	85.2656
621.93	85.2656
633.25	86.5645
635.95	86.6225
636.99	82.4180
645.85	63.5376
657.76	88.1490
661.66	115.8737
661.66	115.8737
664.57	0.0000
666.33	75.5623
666.50	75.5658
677.62	90.7068

685.70	75.9125
695.00	82.5081
696.49	85.7520
696.51	85.7520
697.00	91.1218
702.65	85.8750
706.68	103.1461
711.68	75.2979
720.70	80.8429
721.93	0.0000
722.78	84.4761
722.91	84.4799
723.31	73.7019
724.19	73.7169
727.33	79.8860
733.00	64.8560
735.93	71.6587
739.50	83.3540
747.24	80.2456
752.31	74.9078
753.82	64.0732
756.73	77.1553
763.94	106.6659
765.81	78.3984
766.42	69.6969
777.92	86.2481
778.90	78.6234
783.70	59.0282
785.37	60.1428
795.86	65.7598
801.95	79.2575
810.29	68.1606
810.76	79.1613
815.77	72.4585
818.51	64.2407
832.01	76.3856
834.85	78.2729
836.80	0.0000
846.77	60.0025
856.80	100.8259
860.56	68.5033
871.09	62.1555
873.19	49.1883
875.33	0.0000
879.36	57.6129
880.51	65.0610
883.24	63.2367
884.68	64.1849
889.28	71.6925
898.04	66.2216
911.20	61.7166
911.20	61.7166
911.20	61.7166
926.50	49.7080
937.49	53.5732
944.13	68.6974
946.00	75.3125
949.00	48.9806
962.29	59.8966
964.08	66.3933
966.15	58.5892
968.97	58.6207
968.97	58.6207
968.97	58.6207
983.53	55.9355
996.26	61.9051
1001.03	46.6054
1004.73	27.7377
1037.84	47.8739
1038.76	0.0000
1048.07	59.4722
1050.41	64.2956
1050.41	64.2956
1063.66	56.7505
1085.87	58.9026
1099.45	55.1700
1112.07	53.8334
1115.54	56.5686

1120.29	52.4509
1120.29	52.4509
1120.55	53.2879
1121.30	53.2946
1131.51	0.0000
1173.23	54.8766
1177.93	50.9971
1189.05	58.9502
1204.77	69.9340
1221.41	76.0475
1231.02	85.7251
1235.36	74.6613
1238.28	56.0213
1260.41	0.0000
1271.85	39.8210
1274.44	45.8128
1274.54	45.8128
1291.59	38.9429
1298.22	0.0000
1312.11	47.0784
1332.49	31.1476
1365.19	35.3390
1368.63	0.0000
1384.29	13.8862
1408.01	37.5932
1457.56	0.0000
1460.82	32.7591
1489.16	17.4725
1505.03	21.1900
1596.21	31.2842
1620.50	20.9229
1678.03	0.0000
1690.97	11.6128
1764.49	9.5892
1764.49	9.5892
1770.23	21.9333
1771.35	16.4525
1791.20	0.0000
1836.06	6.4487

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G247360004

Total Uranium Activity	5.6138E+00	ug/g
Total Uranium Counting Unc.	4.8771E+00	ug/g
Total Uranium Tpu	2.4883E-06	ug/g
Total Uranium Mda	2.8248E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 955027          SAMPLE ID   : G247360004
*  ANALYST       : MXR1            DETECTOR    : GAM14
*  SAMPLE DATE   : 12-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 4-MAR-2010 12:44:36.34  SAMPLE ALQT: 128.220 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.519E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.402E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 5.218E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 2.550E+00

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VAX/VMS Nuclide Identification Report Generated 5-MAR-2010 10:33:53.33

```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047453.CNF;1
Sample date        : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:46:31.
Sample ID          : G1202047453      Sample quantity  : 1.45340E+02 GRAM
Detector name      : GAM17            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:09.03 0.1%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity      : 5.00000
Batch ID           : 955027           Detector SN#      :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****
No peaks were found
```

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047453.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:46:31
Sample ID        : G1202047453 Sample quantity : 145.34 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA17 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:09.03 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

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-4.134E-03	1.984E-01	3.243E-01	3.085E-02	-0.013
NA-22		1274.54	*	5.135E-03	1.971E-02	3.429E-02	2.888E-03	0.150
NA-24		1368.63	*	1.538E-04	1.971E-02	Half-Life too short		
K-40		1460.82	*	-9.750E-02	2.762E-01	4.581E-01	4.067E-02	-0.213
SC-46		889.28	*	-2.560E-02	2.538E-02	3.338E-02	2.922E-03	-0.767
		1120.55		-1.271E-02	3.046E-02	4.517E-02	3.790E-03	-0.281
V-48		944.13		1.652E-01	4.011E-01	7.189E-01	6.290E-02	0.230
		983.53	*	-3.735E-03	3.419E-02	5.478E-02	4.778E-03	-0.068
		1312.11		2.929E-02	3.298E-02	6.729E-02	5.712E-03	0.435
CR-51		320.08	*	3.710E-02	1.768E-01	3.043E-01	2.904E-02	0.122
MN-54		834.85	*	-2.505E-04	2.576E-02	4.278E-02	3.762E-03	-0.006
CO-56		846.77	*	4.115E-03	2.216E-02	3.812E-02	3.351E-03	0.108
		1037.84		2.303E-02	1.874E-01	3.141E-01	2.854E-02	0.073
		1238.28		1.737E-02	4.428E-02	7.751E-02	6.661E-03	0.224
		1771.35		1.347E-01	1.994E-01	3.825E-01	3.230E-02	0.352
CO-57		122.06	*	7.716E-03	1.117E-02	1.952E-02	2.287E-03	0.395
		136.47		-2.334E-02	8.852E-02	1.417E-01	1.594E-02	-0.165
CO-58		810.76	*	-1.455E-02	2.677E-02	4.065E-02	3.580E-03	-0.358
FE-59		1099.45	*	-3.555E-02	5.474E-02	7.600E-02	6.974E-03	-0.468
		1291.59		3.466E-02	6.503E-02	1.186E-01	1.143E-02	0.292
CO-60		1173.23		1.222E-03	2.352E-02	3.854E-02	3.148E-03	0.032
		1332.49	*	-9.831E-03	2.505E-02	3.800E-02	3.238E-03	-0.259
ZN-65		1115.54	*	3.275E-03	5.037E-02	8.302E-02	6.990E-03	0.039
SE-75		121.12		4.459E-02	5.832E-02	1.023E-01	1.388E-02	0.436
		136.00		-4.188E-03	1.754E-02	2.819E-02	3.049E-03	-0.149
		264.66	*	-8.103E-03	2.463E-02	3.744E-02	3.440E-03	-0.216
		279.54		6.855E-02	5.288E-02	1.004E-01	9.524E-03	0.683
		400.66		3.040E-02	1.414E-01	2.407E-01	2.643E-02	0.126
SR-85		514.00	*	-1.214E-01	3.846E-02	4.071E-02	3.637E-03	-2.981
Y-88		898.04		-2.149E-02	2.871E-02	4.096E-02	3.598E-03	-0.525
		1836.06	*	3.184E-02	2.932E-02	6.133E-02	5.115E-03	0.519
Y-91		1204.77	*	-2.706E+00	1.218E+01	1.869E+01	1.542E+00	-0.145
NB-94		702.65	*	-4.061E-03	2.040E-02	3.330E-02	2.857E-03	-0.122
		871.09		4.823E-04	2.464E-02	4.097E-02	3.596E-03	0.012

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	765.81	*		-4.791E-03	2.477E-02	4.018E-02	3.510E-03	-0.119
NB-95M	235.69	*		-1.779E-01	7.720E-02	9.199E-02	9.409E-03	-1.933
ZR-95	724.19			-1.403E-02	5.021E-02	8.046E-02	7.537E-03	-0.174
	756.73	*		9.281E-03	3.252E-02	5.772E-02	5.548E-03	0.161
MO-99	140.51			1.572E+00	2.927E+00	5.018E+00	1.228E+00	0.313
	181.07			-3.087E+00	2.661E+00	3.653E+00	6.845E-01	-0.845
	366.42			1.051E+00	1.822E+01	3.061E+01	2.679E+00	0.034
	739.50	*		-1.500E-01	2.440E+00	4.054E+00	6.401E-01	-0.037
	777.92			-7.138E-01	7.130E+00	1.172E+01	1.026E+00	-0.061
TC-99M	140.51	*		2.707E+04	7.130E+00	Half-Life too short		
RU-103	497.08	*		-4.735E-03	2.167E-02	3.420E-02	4.839E-03	-0.138
	610.33			-3.594E-01	5.236E-01	7.327E-01	1.203E-01	-0.491
RH-106	621.93	*		-1.459E-01	2.211E-01	3.159E-01	4.201E-02	-0.462
	1050.41			1.686E-01	1.728E+00	2.875E+00	2.475E-01	0.059
RU-106	621.93	*		-1.459E-01	2.206E-01	3.159E-01	2.744E-02	-0.462
	1050.41			1.686E-01	1.728E+00	2.875E+00	2.475E-01	0.059
AG-108M	433.94	*		-5.040E-03	1.786E-02	2.836E-02	2.542E-03	-0.178
	614.28			4.692E-04	2.141E-02	3.459E-02	3.115E-03	0.014
	722.91			-2.211E-02	2.080E-02	2.777E-02	2.476E-03	-0.796
CD-109	88.03	*		1.041E-02	2.700E-01	4.279E-01	4.177E-02	0.024
AG-110M	657.76	*		-1.911E-05	2.001E-02	3.204E-02	2.792E-03	-0.001
	677.62			-3.199E-02	1.726E-01	2.649E-01	2.315E-02	-0.121
	706.68			-8.777E-02	1.376E-01	2.092E-01	1.849E-02	-0.420
	763.94			-6.071E-03	8.900E-02	1.472E-01	1.320E-02	-0.041
	884.68			-3.925E-03	3.471E-02	5.636E-02	5.091E-03	-0.070
	937.49			-2.676E-02	5.695E-02	8.277E-02	7.497E-03	-0.323
	1384.29			6.720E-02	1.019E-01	1.890E-01	1.666E-02	0.356
	1505.03			1.075E-01	1.906E-01	3.593E-01	3.107E-02	0.299
SN-113	391.69	*		-1.054E-02	2.660E-02	4.210E-02	3.658E-03	-0.250
CD-115	260.90			-4.161E-01	1.966E+01	3.107E+01	2.839E+00	-0.013
	492.35			-3.892E-01	5.401E+00	8.737E+00	7.778E-01	-0.045
	527.90	*		-2.670E-01	1.880E+00	2.999E+00	2.681E-01	-0.089
SN-117M	156.02			-7.947E-02	8.395E-01	1.358E+00	1.251E-01	-0.059
	158.56	*		-8.822E-03	1.952E-02	3.031E-02	2.725E-03	-0.291
TE-123M	159.00	*		-2.166E-03	1.281E-02	2.054E-02	1.849E-03	-0.105
SB-124	602.73			-1.639E-02	2.381E-02	3.397E-02	2.983E-03	-0.482
	645.85			2.203E-01	2.922E-01	5.276E-01	4.770E-02	0.418
	722.78			-3.214E-01	2.140E-01	2.571E-01	2.271E-02	-1.250
	1690.97	*		-4.529E-03	6.524E-02	1.051E-01	9.370E-03	-0.043
SB-125	427.87	*		-3.091E-02	5.168E-02	7.796E-02	6.872E-03	-0.397
	463.37			6.291E-03	1.646E-01	2.718E-01	2.570E-02	0.023
	600.60			-1.606E-02	1.225E-01	1.936E-01	1.823E-02	-0.083
	635.95			5.677E-02	1.915E-01	3.214E-01	2.991E-02	0.177
TE-125M	109.28	*		-1.227E+00	3.670E+00	5.908E+00	7.330E-01	-0.208
I-126	388.63			-2.280E-02	7.729E-02	1.239E-01	1.048E-02	-0.184
	666.33	*		2.854E-02	9.389E-02	1.592E-01	1.344E-02	0.179
	753.82			-1.455E-01	6.191E-01	9.792E-01	8.531E-02	-0.149
SB-126	414.70			-1.296E-02	3.881E-02	6.175E-02	5.295E-03	-0.210
	666.50			1.496E-02	3.157E-02	5.520E-02	4.661E-03	0.271

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-126	695.00			1.932E-02	4.078E-02	7.298E-02	6.242E-03	0.265
	697.00			-1.834E-01	1.446E-01	1.970E-01	1.686E-02	-0.931
	720.70	*		-4.285E-02	7.103E-02	1.078E-01	9.307E-03	-0.397
	856.80			-1.604E-01	2.408E-01	3.509E-01	3.083E-02	-0.457
	64.28			-6.701E-02	1.246E-01	2.121E-01	3.386E-02	-0.316
SB-127	86.94			1.011E-02	1.159E-01	1.854E-01	7.716E-02	0.055
	87.57	*		-3.968E-04	2.729E-02	4.322E-02	4.217E-03	-0.009
	252.40			-5.331E-01	1.031E+00	1.495E+00	6.175E-01	-0.357
	473.00			-2.299E-02	4.542E-01	7.401E-01	8.796E-02	-0.031
	685.70	*		0.000E+00	3.756E-01	5.993E-01	6.045E-02	0.000
I-131	783.70			4.097E-01	9.811E-01	1.745E+00	1.984E-01	0.235
	80.19			-1.063E+00	8.338E-01	1.243E+00	1.214E-01	-0.855
	284.31			-1.707E-01	5.004E-01	8.161E-01	7.813E-02	-0.209
	364.49	*		1.940E-02	4.404E-02	7.723E-02	7.109E-03	0.251
	636.99			2.336E-02	7.552E-01	1.218E+00	1.104E-01	0.019
TE-132	49.72			-4.161E-01	5.764E-01	8.686E-01	9.646E-02	-0.479
	111.76			7.419E-01	5.642E+00	8.993E+00	1.082E+00	0.082
	116.30			7.660E-01	4.633E+00	7.788E+00	9.574E-01	0.098
	228.16	*		1.312E-02	1.352E-01	2.184E-01	3.328E-02	0.060
	81.00			-1.508E-02	2.420E-02	3.832E-02	6.195E-03	-0.393
BA-133	276.40			-1.235E-01	1.869E-01	2.952E-01	4.268E-02	-0.418
	302.85			1.379E-02	7.611E-02	1.308E-01	1.757E-02	0.105
	356.01	*		-6.530E-03	2.388E-02	3.864E-02	5.068E-03	-0.169
	383.85			-4.844E-03	1.576E-01	2.611E-01	3.228E-02	-0.019
	529.87	*		4.391E-05	1.576E-01	Half-Life	too short	
I-133	875.33			-1.191E-03	1.576E-01	Half-Life	too short	
	1298.22			-1.141E-03	1.576E-01	Half-Life	too short	
	563.25			-1.472E-01	2.368E-01	3.455E-01	3.104E-02	-0.426
	569.33			-3.370E-02	1.365E-01	2.129E-01	1.918E-02	-0.158
	604.72			-1.663E-02	2.305E-02	3.299E-02	2.901E-03	-0.504
CS-134	795.86	*		3.974E-03	2.717E-02	4.650E-02	4.108E-03	0.085
	801.95			3.671E-02	2.977E-01	4.786E-01	4.225E-02	0.077
	1365.19			-4.904E-02	7.847E-01	1.291E+00	1.158E-01	-0.038
	268.22	*		-3.277E-02	8.375E-02	1.259E-01	1.314E-02	-0.260
	546.56			-1.739E+03	8.375E-02	Half-Life	too short	
I-135	836.80			1.798E+05	8.375E-02	Half-Life	too short	
	1038.76			-8.120E+04	8.375E-02	Half-Life	too short	
	1131.51			-3.320E+04	8.375E-02	Half-Life	too short	
	1260.41	*		4.639E+03	8.375E-02	Half-Life	too short	
	1457.56			7.397E+04	8.375E-02	Half-Life	too short	
CS-136	1678.03			-1.092E+02	8.375E-02	Half-Life	too short	
	1791.20			-4.321E+04	8.375E-02	Half-Life	too short	
	153.25			2.448E-01	3.354E-01	5.809E-01	6.367E-02	0.421
	176.60			1.606E-02	1.885E-01	3.084E-01	2.887E-02	0.052
	273.65			1.805E-01	2.194E-01	3.782E-01	3.728E-02	0.477
	340.55			4.867E-02	6.085E-02	1.102E-01	1.026E-02	0.442
	818.51			3.715E-02	4.302E-02	8.037E-02	7.067E-03	0.462
	1048.07	*		3.085E-03	5.915E-02	9.757E-02	8.753E-03	0.032
	1235.36			2.001E-01	2.576E-01	4.768E-01	5.508E-02	0.420

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-137M	661.66	*		-2.431E-02	2.346E-02	2.943E-02	2.479E-03	-0.826
CS-137	661.66	*		-2.568E-02	2.479E-02	3.109E-02	2.624E-03	-0.826
CE-139	165.86	*		-5.397E-03	1.375E-02	2.147E-02	1.790E-03	-0.251
BA-140	162.66			-3.257E-02	3.149E-01	5.082E-01	4.678E-02	-0.064
	304.85			-2.688E-01	6.054E-01	9.678E-01	2.849E-01	-0.278
	423.72			1.437E-01	9.100E-01	1.532E+00	5.041E-01	0.094
	537.26	*		-1.258E-01	1.516E-01	2.031E-01	6.903E-02	-0.620
LA-140	328.76			-2.192E-02	1.152E-01	1.892E-01	1.805E-02	-0.116
	487.02			2.264E-02	6.490E-02	1.115E-01	1.049E-02	0.203
	815.77			1.985E-02	1.989E-01	3.360E-01	3.287E-02	0.059
	1596.21	*		-1.258E-02	4.561E-02	6.903E-02	5.958E-03	-0.182
CE-141	145.44	*		4.558E-04	2.509E-02	4.120E-02	4.202E-03	0.011
CE-143	57.36			-5.524E+00	1.530E+01	2.535E+01	3.024E+00	-0.218
	293.27	*		-2.857E+00	6.515E+00	1.048E+01	2.284E+00	-0.273
	664.57			-3.673E+01	6.858E+01	9.634E+01	2.896E+01	-0.381
	721.93			-9.198E+01	8.312E+01	1.063E+02	2.991E+01	-0.865
CE-144	80.12			-8.268E-01	6.626E-01	9.911E-01	9.653E-02	-0.834
	133.52	*		5.433E-02	8.706E-02	1.508E-01	2.519E-02	0.360
PM-144	476.78			1.906E-02	4.169E-02	7.232E-02	6.934E-03	0.264
	618.01			-3.559E-03	2.010E-02	3.134E-02	2.804E-03	-0.114
	696.49	*		-1.515E-02	2.320E-02	3.542E-02	3.031E-03	-0.428
PR-144	696.51	*		-1.152E+00	1.729E+00	2.633E+00	2.254E-01	-0.437
	1489.16			-8.054E-01	9.988E+00	1.626E+01	1.406E+00	-0.050
PM-146	453.88	*		1.430E-02	2.409E-02	4.279E-02	4.589E-03	0.334
	633.25			-2.068E-01	1.068E+00	1.661E+00	6.342E-01	-0.125
	735.93			-1.774E-02	9.156E-02	1.487E-01	4.169E-02	-0.119
	747.24			7.136E-02	6.534E-02	1.251E-01	1.831E-02	0.570
ND-147	91.11			4.008E-02	7.481E-02	1.296E-01	1.365E-02	0.309
	319.41			-3.488E-01	1.334E+00	2.178E+00	1.986E-01	-0.160
	531.02	*		1.027E-01	2.970E-01	5.049E-01	7.642E-02	0.203
PM-149	285.90	*		7.919E+00	1.058E+01	1.922E+01	3.047E+00	0.412
EU-152	121.78			3.730E-02	3.248E-02	5.846E-02	7.406E-03	0.638
	244.70			-2.565E-02	1.755E-01	2.746E-01	2.489E-02	-0.093
	344.28	*		3.912E-04	6.012E-02	1.008E-01	9.530E-03	0.004
	778.90			-1.074E-01	1.749E-01	2.626E-01	2.299E-02	-0.409
	964.08			-4.691E-02	1.696E-01	2.642E-01	2.309E-02	-0.178
	1085.87			-2.832E-01	2.510E-01	2.952E-01	2.512E-02	-0.959
	1112.07			-1.921E-02	1.736E-01	2.748E-01	2.314E-02	-0.070
	1408.01			4.761E-02	1.151E-01	2.109E-01	1.814E-02	0.226
GD-153	69.67			-1.652E-01	3.567E-01	5.806E-01	5.700E-02	-0.285
	97.43	*		-2.188E-02	3.528E-02	5.163E-02	5.278E-03	-0.424
	103.18			-7.138E-03	4.072E-02	6.674E-02	7.032E-03	-0.107
EU-154	123.07			3.461E-03	2.261E-02	3.788E-02	5.225E-03	0.091
	723.31			-8.610E-02	9.671E-02	1.359E-01	1.293E-02	-0.634
	873.19			4.564E-02	1.869E-01	3.230E-01	3.878E-02	0.141
	996.26			-1.297E-01	2.259E-01	3.225E-01	5.648E-02	-0.402
	1004.73			-1.423E-01	1.323E-01	1.599E-01	1.870E-02	-0.890
	1274.44	*		2.304E-02	5.260E-02	9.659E-02	1.084E-02	0.239
EU-155	86.55			4.463E-03	3.347E-02	5.373E-02	5.282E-03	0.083

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	105.31	*		2.183E-02	3.942E-02	6.881E-02	7.391E-03	0.317
	86.79			9.842E-03	8.508E-02	1.364E-01	1.330E-02	0.072
	197.04			-1.196E-02	3.128E-01	4.854E-01	4.215E-02	-0.025
	215.65			1.826E-01	3.688E-01	6.212E-01	5.504E-02	0.294
	298.57			-3.200E-03	5.631E-02	9.460E-02	8.683E-03	-0.034
	879.36	*		5.338E-02	9.482E-02	1.711E-01	1.500E-02	0.312
	962.29			4.702E-02	3.078E-01	5.202E-01	4.547E-02	0.090
	966.15			-3.956E-03	1.110E-01	1.812E-01	1.584E-02	-0.022
	1177.93			-1.640E-01	1.843E-01	2.225E-01	1.820E-02	-0.737
	1271.85			2.206E-01	3.187E-01	6.147E-01	5.169E-02	0.359
HO-166M	80.57			-6.004E-02	6.957E-02	1.080E-01	1.052E-02	-0.556
	184.41			-2.387E-03	1.993E-02	3.411E-02	2.916E-03	-0.070
	280.46			1.464E-02	4.178E-02	7.336E-02	6.736E-03	0.200
	410.95			5.149E-02	1.515E-01	2.607E-01	2.229E-02	0.198
	711.68	*		1.875E-02	4.157E-02	7.419E-02	6.385E-03	0.253
	752.31			-7.490E-02	1.285E-01	1.859E-01	1.619E-02	-0.403
	810.29			-2.803E-02	4.134E-02	6.098E-02	5.357E-03	-0.460
	67.75			-2.038E-02	2.397E-02	3.597E-02	3.543E-03	-0.567
	100.11			5.907E-03	6.484E-02	1.090E-01	1.130E-02	0.054
	152.43			7.518E-02	1.700E-01	2.884E-01	2.742E-02	0.261
TA-182	222.11			2.485E-03	1.658E-01	2.658E-01	2.369E-02	0.009
	1121.30			-3.252E-02	7.909E-02	1.165E-01	9.774E-03	-0.279
	1189.05			1.024E-01	1.596E-01	2.955E-01	2.427E-02	0.347
	1221.41	*		-3.705E-02	8.634E-02	1.211E-01	1.005E-02	-0.306
	1231.02			-1.940E-01	2.519E-01	3.251E-01	2.705E-02	-0.597
	295.96			1.675E-02	5.928E-02	9.462E-02	8.744E-03	0.177
	308.46			2.635E-02	5.629E-02	9.894E-02	9.101E-03	0.266
	316.51	*		-8.227E-03	1.790E-02	2.855E-02	2.612E-03	-0.288
	468.07			4.224E-03	3.997E-02	6.654E-02	6.286E-03	0.063
	70.83			1.819E-01	2.732E-01	4.832E-01	8.080E-02	0.376
HG-203	72.87			-3.652E-01	1.969E-01	2.685E-01	4.352E-02	-1.360
	279.20	*		2.451E-02	1.800E-02	3.429E-02	3.219E-03	0.715
BI-207	72.81			-8.923E-02	4.733E-02	6.670E-02	6.523E-03	-1.338
	74.97			-1.193E-02	3.078E-02	5.000E-02	4.880E-03	-0.239
	569.70			-2.600E-03	2.078E-02	3.302E-02	2.936E-03	-0.079
TL-208	1063.66	*		4.945E-03	2.338E-02	4.047E-02	3.470E-03	0.122
	1770.23			-5.015E-02	4.136E-01	6.532E-01	5.518E-02	-0.077
	277.37			-1.324E-01	2.070E-01	3.284E-01	4.242E-02	-0.403
	583.19	*		-7.554E-03	2.883E-02	4.584E-02	4.331E-03	-0.165
PB-210	860.56			1.164E-01	1.922E-01	3.491E-01	3.283E-02	0.333
BI-211	46.54	*		6.654E-02	3.034E-01	5.383E-01	5.803E-02	0.124
	72.87			-1.570E+00	8.221E-01	1.155E+00	1.129E-01	-1.360
PB-211	351.06	*		-4.231E-03	1.224E-01	1.960E-01	1.830E-02	-0.022
	404.85	*		2.428E-01	4.375E-01	7.464E-01	3.611E-01	0.325
	427.09			-6.569E-01	9.450E-01	1.327E+00	6.140E-01	-0.495
BI-212	832.01			-1.400E-01	6.203E-01	9.830E-01	5.100E-01	-0.142
	727.33	*		3.017E-01	3.116E-01	5.937E-01	7.410E-02	0.508
	785.37			-6.733E-01	1.965E+00	3.092E+00	2.709E-01	-0.218
	1620.50			1.015E+00	1.703E+00	3.246E+00	2.797E-01	0.313

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-212		74.82		-4.139E-02	1.069E-01	1.735E-01	2.391E-02	-0.239
		77.11		-6.369E-02	6.329E-02	9.874E-02	9.625E-03	-0.645
		238.63	*	-1.342E-02	3.884E-02	6.687E-02	6.772E-03	-0.201
		300.09		-1.816E-01	4.162E-01	6.705E-01	7.374E-02	-0.271
BI-214		609.32	*	-1.285E-02	5.577E-02	8.461E-02	8.646E-03	-0.152
		1120.29		-7.517E-02	1.876E-01	2.792E-01	2.999E-02	-0.269
		1764.49		-2.139E-02	1.839E-01	2.989E-01	2.528E-02	-0.072
		74.82		-7.335E-02	1.894E-01	3.075E-01	3.867E-02	-0.239
PB-214		77.11		-1.123E-01	1.120E-01	1.741E-01	2.223E-02	-0.645
		242.00		-1.850E-01	2.251E-01	3.061E-01	3.289E-02	-0.604
		295.22		-1.552E-02	8.307E-02	1.261E-01	1.420E-02	-0.123
		351.93	*	9.206E-03	4.374E-02	7.186E-02	7.786E-03	0.128
RN-219		271.23		-4.289E-02	1.312E-01	1.992E-01	2.135E-02	-0.215
		401.81	*	6.785E-02	2.305E-01	3.961E-01	5.862E-02	0.171
RA-223		81.07		-3.067E-02	5.464E-02	8.736E-02	8.508E-03	-0.351
		83.79		1.181E-02	4.022E-02	6.597E-02	6.427E-03	0.179
		94.87		-6.811E-01	2.191E-01	2.681E-01	2.705E-02	-2.540
		144.24		-1.608E-01	3.457E-01	5.044E-01	5.560E-02	-0.319
		154.21		1.924E-02	1.940E-01	3.198E-01	3.238E-02	0.060
		269.46		3.681E-02	9.250E-02	1.534E-01	1.431E-02	0.240
		323.87	*	-1.134E-01	3.625E-01	5.883E-01	1.034E-01	-0.193
		338.28		-4.356E-01	5.473E-01	8.353E-01	1.032E-01	-0.521
		240.99	*	-6.718E-01	4.338E-01	5.483E-01	4.959E-02	-1.225
		609.32	*	-1.285E-02	5.577E-02	8.461E-02	8.646E-03	-0.152
RA-226		1120.29		-7.517E-02	1.876E-01	2.792E-01	2.999E-02	-0.269
		1764.49		-2.139E-02	1.839E-01	2.989E-01	2.528E-02	-0.072
		79.69		-4.369E-01	3.516E-01	5.184E-01	9.239E-02	-0.843
		235.96		-2.211E-01	9.811E-02	1.177E-01	1.256E-02	-1.878
AC-227		256.23	*	-7.979E-02	1.377E-01	2.023E-01	2.511E-02	-0.395
		299.98		-2.096E-01	4.568E-01	7.336E-01	9.601E-02	-0.286
		304.50		-2.304E-01	9.208E-01	1.514E+00	2.547E-01	-0.152
		334.37		8.055E-01	9.152E-01	1.665E+00	2.635E-01	0.484
		79.80		-4.333E-01	4.501E-01	6.808E-01	1.515E-01	-0.636
		235.96		-2.211E-01	9.782E-02	1.177E-01	1.189E-02	-1.878
		256.23	*	-7.979E-02	1.378E-01	2.023E-01	2.817E-02	-0.395
		299.98		-2.096E-01	4.568E-01	7.336E-01	9.601E-02	-0.286
TH-227		304.50		-2.304E-01	9.208E-01	1.514E+00	2.547E-01	-0.152
		334.37		8.055E-01	9.152E-01	1.665E+00	2.635E-01	0.484
		338.32		-1.134E-01	1.448E-01	2.091E-01	8.740E-02	-0.543
		911.20	*	-4.080E-02	9.922E-02	1.497E-01	1.750E-02	-0.273
		968.97		-7.420E-02	1.607E-01	2.457E-01	5.997E-02	-0.302
		338.32		-1.134E-01	1.448E-01	2.091E-01	8.740E-02	-0.543
		911.20	*	-4.080E-02	9.922E-02	1.497E-01	1.750E-02	-0.273
		968.97		-7.420E-02	1.607E-01	2.457E-01	5.997E-02	-0.302
AC-228		74.82		-4.139E-02	1.068E-01	1.735E-01	1.705E-02	-0.239
		77.11		-6.369E-02	6.329E-02	9.874E-02	9.625E-03	-0.645
		238.63	*	-1.342E-02	3.884E-02	6.687E-02	6.772E-03	-0.201
		300.09		-1.816E-01	4.304E-01	6.705E-01	4.110E-01	-0.271
TH-229		85.43		-5.174E-02	7.233E-02	1.102E-01	1.074E-02	-0.470

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	88.47			9.100E-03	3.981E-02	6.382E-02	6.243E-03	0.143
	193.51	*		-2.036E-02	2.598E-01	4.159E-01	3.597E-02	-0.049
	210.85			-6.865E-03	4.250E-01	6.812E-01	6.006E-02	-0.010
PA-231	283.69	*		-3.234E-01	7.307E-01	1.177E+00	1.756E-01	-0.275
	301.36			5.578E-02	2.969E-01	5.105E-01	6.407E-02	0.109
TH-231	81.07			-3.067E-02	5.464E-02	8.736E-02	8.508E-03	-0.351
	83.79			1.181E-02	4.022E-02	6.597E-02	6.427E-03	0.179
	94.87			-6.811E-01	2.191E-01	2.681E-01	2.705E-02	-2.540
	144.24			-1.608E-01	3.457E-01	5.044E-01	5.560E-02	-0.319
	154.21			1.924E-02	1.940E-01	3.198E-01	3.238E-02	0.060
	269.46			3.681E-02	9.250E-02	1.534E-01	1.431E-02	0.240
	323.87	*		-1.134E-01	3.625E-01	5.883E-01	1.034E-01	-0.193
	338.28			-4.356E-01	5.473E-01	8.353E-01	1.032E-01	-0.521
TH-232	338.32			-1.134E-01	1.372E-01	2.091E-01	1.884E-02	-0.543
	911.20	*		-4.080E-02	9.922E-02	1.497E-01	1.750E-02	-0.273
	968.97			-7.420E-02	1.607E-01	2.457E-01	5.997E-02	-0.302
PA-233	300.13			-7.694E-02	2.066E-01	3.349E-01	5.077E-02	-0.230
	311.90	*		-2.207E-02	3.886E-02	6.169E-02	5.787E-03	-0.358
	340.48			2.644E-01	3.358E-01	5.988E-01	1.449E-01	0.442
PA-234	94.67			-1.682E-01	7.644E-02	1.025E-01	1.380E-02	-1.640
	98.44			-1.092E-02	3.864E-02	5.744E-02	3.220E-02	-0.190
	111.00			6.771E-02	7.627E-02	1.353E-01	1.879E-02	0.500
	131.20			-3.008E-02	4.683E-02	7.226E-02	8.024E-03	-0.416
	569.50			-6.454E-02	1.903E-01	2.927E-01	2.603E-02	-0.221
	733.00			1.242E-02	2.532E-01	4.283E-01	9.514E-02	0.029
	880.51			5.212E-02	2.006E-01	3.463E-01	3.036E-02	0.150
	883.24			3.662E-02	1.979E-01	3.356E-01	2.257E-01	0.109
	926.50			3.183E-02	9.994E-02	1.754E-01	4.442E-02	0.181
	946.00	*		-1.886E-02	1.800E-01	2.899E-01	5.457E-02	-0.065
	949.00			-1.653E-01	2.829E-01	4.085E-01	3.573E-02	-0.405
PA-234M	766.42			-7.556E-01	6.828E+00	1.121E+01	5.690E+00	-0.067
	1001.03	*		2.601E+00	2.876E+00	5.486E+00	5.505E-01	0.474
TH-234	63.29	*		9.330E-02	3.225E-01	5.752E-01	1.094E-01	0.162
	92.59			1.578E-01	3.178E-01	5.768E-01	1.306E-01	0.274
U-235	89.96			-1.256E+00	4.444E-01	3.605E-01	9.039E-02	-3.484
	93.35			6.971E-02	2.397E-01	4.325E-01	1.023E-01	0.161
	143.76	*		1.301E-02	9.934E-02	1.531E-01	2.727E-02	0.085
	163.33			9.053E-02	2.136E-01	3.607E-01	6.466E-02	0.251
	185.72			-7.807E-03	2.594E-02	4.367E-02	3.740E-03	-0.179
	205.31			-4.909E-02	2.303E-01	3.614E-01	6.582E-02	-0.136
NP-237	86.48	*		3.846E-04	8.292E-02	1.319E-01	3.050E-02	0.003
	95.86			-2.868E-01	3.681E-01	5.662E-01	1.392E-01	-0.507
U-238	63.29	*		9.330E-02	3.225E-01	5.752E-01	1.094E-01	0.162
	92.59			1.578E-01	3.162E-01	5.768E-01	5.755E-02	0.274
NP-239	99.53			-5.167E-03	6.858E-02	1.050E-01	1.085E-02	-0.049
	103.37			4.968E-03	3.673E-02	6.197E-02	6.536E-03	0.080
	106.12			1.165E-02	3.099E-02	5.334E-02	5.711E-03	0.218
	117.23	*		-3.351E-02	1.726E-01	2.807E-01	3.198E-02	-0.119
	228.18			1.072E-02	1.081E-01	1.747E-01	1.565E-02	0.061

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-241	277.60			-4.950E-02	9.211E-02	1.478E-01	1.357E-02	-0.335
	59.54	*		6.859E-03	2.652E-02	4.386E-02	4.657E-03	0.156
CM-247	278.00			-6.578E-02	3.879E-01	6.472E-01	5.940E-02	-0.102
	287.50			-2.534E-01	6.317E-01	1.023E+00	9.397E-02	-0.248
	402.40	*		9.796E-03	2.197E-02	3.835E-02	3.257E-03	0.255
CF-249	252.80			-2.074E-01	5.113E-01	7.707E-01	7.017E-02	-0.269
	333.37			-4.958E-03	9.434E-02	1.574E-01	1.423E-02	-0.031
	388.16	*		-6.418E-03	2.264E-02	3.628E-02	3.073E-03	-0.177
CF-251	177.52	*		8.374E-03	6.108E-02	1.004E-01	8.508E-03	0.083
	227.38			-6.930E-03	1.806E-01	2.875E-01	2.574E-02	-0.024
	285.41			8.105E-01	1.052E+00	1.923E+00	1.766E-01	0.421
ANH-511	511.00	*		-1.722E-02	3.896E-02	7.214E-02	6.443E-03	-0.239

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047453      *
* Acquisition date   : 4-MAR-2010 12:46:31 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 02:00:09.03             Half life ratio: 8.000       *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 22-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID           : G1202047453             Analyst initials: MXR1        *
* Batch Number        : 955027                   Sample Quantity : 1.4534E+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

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

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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-4.134E-03	1.944E-01	3.346E-01	0.000E+00 NOT IDENT.
NA-22	5.135E-03	1.932E-02	3.458E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.560E+03	0.000E+00	0.000E+00 SHORT HLIF
K-40	-9.750E-02	2.707E-01	4.605E-01	0.000E+00 NOT IDENT.
SC-46	-2.560E-02	2.487E-02	3.395E-02	0.000E+00 NOT IDENT.
V-48	-3.735E-03	3.351E-02	5.559E-02	0.000E+00 NOT IDENT.
CR-51	3.710E-02	1.733E-01	3.168E-01	0.000E+00 NOT IDENT.
MN-54	-2.505E-04	2.525E-02	4.358E-02	0.000E+00 NOT IDENT.
CO-56	4.115E-03	2.172E-02	3.882E-02	0.000E+00 NOT IDENT.
CO-57	7.716E-03	1.094E-02	2.075E-02	0.000E+00 NOT IDENT.
CO-58	-1.455E-02	2.623E-02	4.144E-02	0.000E+00 NOT IDENT.
FE-59	-3.555E-02	5.364E-02	7.693E-02	0.000E+00 NOT IDENT.
CO-60	-9.831E-03	2.455E-02	3.829E-02	0.000E+00 NOT IDENT.
ZN-65	3.275E-03	4.936E-02	8.401E-02	0.000E+00 NOT IDENT.
SE-75	-8.103E-03	2.414E-02	3.914E-02	0.000E+00 NOT IDENT.
SR-85	-1.214E-01	3.769E-02	4.194E-02	0.000E+00 NOT IDENT.
Y-88	3.184E-02	2.873E-02	6.133E-02	0.000E+00 NOT IDENT.
Y-91	-2.706E+00	1.194E+01	1.887E+01	0.000E+00 NOT IDENT.
NB-94	-4.061E-03	1.999E-02	3.406E-02	0.000E+00 NOT IDENT.
NB-95	-4.791E-03	2.427E-02	4.101E-02	0.000E+00 NOT IDENT.
NB-95M	-1.779E-01	7.566E-02	9.641E-02	0.000E+00 NOT IDENT.
ZR-95	9.281E-03	3.187E-02	5.893E-02	0.000E+00 NOT IDENT.
MO-99	-1.500E-01	2.391E+00	4.141E+00	0.000E+00 NOT IDENT.
TC-99M	0.000E+00	4.933E+10	0.000E+00	0.000E+00 SHORT HLIF
RU-103	-4.735E-03	2.123E-02	3.525E-02	0.000E+00 NOT IDENT.
RH-106	-1.459E-01	2.167E-01	3.240E-01	0.000E+00 NOT IDENT.

RU-106	-1.459E-01	2.162E-01	3.240E-01	0.000E+00	NOT IDENT.
AG-108M	-5.040E-03	1.751E-02	2.932E-02	0.000E+00	NOT IDENT.
CD-109	1.041E-02	2.646E-01	4.580E-01	0.000E+00	NOT IDENT.
AG-110M	-1.911E-05	1.961E-02	3.282E-02	0.000E+00	NOT IDENT.
SN-113	-1.054E-02	2.607E-02	4.363E-02	0.000E+00	NOT IDENT.
CD-115	-2.670E-01	1.843E+00	3.087E+00	0.000E+00	NOT IDENT.
SN-117M	-8.822E-03	1.913E-02	3.204E-02	0.000E+00	NOT IDENT.
TE-123M	-2.166E-03	1.255E-02	2.171E-02	0.000E+00	NOT IDENT.
SB-124	-4.529E-03	6.394E-02	1.053E-01	0.000E+00	NOT IDENT.
SB-125	-3.091E-02	5.064E-02	8.063E-02	0.000E+00	NOT IDENT.
TE-125M	-1.227E+00	3.597E+00	6.295E+00	0.000E+00	NOT IDENT.
I-126	2.854E-02	9.201E-02	1.631E-01	0.000E+00	NOT IDENT.
SB-126	-4.285E-02	6.961E-02	1.102E-01	0.000E+00	NOT IDENT.
SN-126	-3.968E-04	2.674E-02	4.626E-02	0.000E+00	NOT IDENT.
SB-127	0.000E+00	3.680E-01	6.132E-01	0.000E+00	NOT IDENT.
I-131	1.940E-02	4.316E-02	8.017E-02	0.000E+00	NOT IDENT.
TE-132	1.312E-02	1.325E-01	2.291E-01	0.000E+00	NOT IDENT.
BA-133	-6.530E-03	2.341E-02	4.013E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.045E+02	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.974E-03	2.663E-02	4.742E-02	0.000E+00	NOT IDENT.
CS-135	-3.277E-02	8.207E-02	1.316E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.169E+10	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.085E-03	5.797E-02	9.887E-02	0.000E+00	NOT IDENT.
BA-137M	-2.431E-02	2.299E-02	3.014E-02	0.000E+00	NOT IDENT.
CS-137	-2.568E-02	2.429E-02	3.184E-02	0.000E+00	NOT IDENT.
CE-139	-5.397E-03	1.347E-02	2.268E-02	0.000E+00	NOT IDENT.
BA-140	-1.258E-01	1.486E-01	2.090E-01	0.000E+00	NOT IDENT.
LA-140	-1.258E-02	4.469E-02	6.926E-02	0.000E+00	NOT IDENT.
CE-141	4.558E-04	2.459E-02	4.363E-02	0.000E+00	NOT IDENT.
CE-143	-2.857E+00	6.384E+00	1.093E+01	0.000E+00	NOT IDENT.
CE-144	5.433E-02	8.531E-02	1.599E-01	0.000E+00	NOT IDENT.
PM-144	-1.515E-02	2.273E-02	3.623E-02	0.000E+00	NOT IDENT.
PR-144	-1.152E+00	1.694E+00	2.694E+00	0.000E+00	NOT IDENT.
PM-146	1.430E-02	2.360E-02	4.420E-02	0.000E+00	NOT IDENT.
ND-147	1.027E-01	2.911E-01	5.197E-01	0.000E+00	NOT IDENT.
PM-149	7.919E+00	1.037E+01	2.006E+01	0.000E+00	NOT IDENT.
EU-152	3.912E-04	5.892E-02	1.047E-01	0.000E+00	NOT IDENT.
GD-153	-2.188E-02	3.457E-02	5.514E-02	0.000E+00	NOT IDENT.
EU-154	2.304E-02	5.154E-02	9.743E-02	0.000E+00	NOT IDENT.
EU-155	2.183E-02	3.863E-02	7.338E-02	0.000E+00	NOT IDENT.
TB-160	5.338E-02	9.292E-02	1.741E-01	0.000E+00	NOT IDENT.
HO-166M	1.875E-02	4.074E-02	7.586E-02	0.000E+00	NOT IDENT.
TA-182	-3.705E-02	8.461E-02	1.223E-01	0.000E+00	NOT IDENT.
IR-192	-8.227E-03	1.754E-02	2.973E-02	0.000E+00	NOT IDENT.
HG-203	2.451E-02	1.764E-02	3.580E-02	0.000E+00	NOT IDENT.
BI-207	4.945E-03	2.291E-02	4.100E-02	0.000E+00	NOT IDENT.
TL-208	-7.554E-03	2.825E-02	4.709E-02	0.000E+00	NOT IDENT.
PB-210	6.654E-02	2.973E-01	5.838E-01	0.000E+00	NOT IDENT.
BI-211	-4.231E-03	1.200E-01	2.037E-01	0.000E+00	NOT IDENT.
PB-211	2.428E-01	4.288E-01	7.730E-01	0.000E+00	NOT IDENT.
BI-212	3.017E-01	3.053E-01	6.067E-01	0.000E+00	NOT IDENT.
PB-212	-1.342E-02	3.806E-02	7.006E-02	0.000E+00	NOT IDENT.
BI-214	-1.285E-02	5.466E-02	8.682E-02	0.000E+00	NOT IDENT.
PB-214	9.206E-03	4.286E-02	7.465E-02	0.000E+00	NOT IDENT.
RN-219	6.785E-02	2.259E-01	4.103E-01	0.000E+00	NOT IDENT.
RA-223	-1.134E-01	3.552E-01	6.123E-01	0.000E+00	NOT IDENT.
RA-224	-6.718E-01	4.252E-01	5.744E-01	0.000E+00	NOT IDENT.
RA-226	-1.285E-02	5.466E-02	8.682E-02	0.000E+00	NOT IDENT.
AC-227	-7.979E-02	1.350E-01	2.116E-01	0.000E+00	NOT IDENT.
TH-227	-7.979E-02	1.351E-01	2.116E-01	0.000E+00	NOT IDENT.
AC-228	-4.080E-02	9.724E-02	1.522E-01	0.000E+00	NOT IDENT.
RA-228	-4.080E-02	9.724E-02	1.522E-01	0.000E+00	NOT IDENT.
TH-228	-1.342E-02	3.806E-02	7.006E-02	0.000E+00	NOT IDENT.
TH-229	-2.036E-02	2.547E-01	4.378E-01	0.000E+00	NOT IDENT.
PA-231	-3.234E-01	7.161E-01	1.228E+00	0.000E+00	NOT IDENT.
TH-231	-1.134E-01	3.552E-01	6.123E-01	0.000E+00	NOT IDENT.
TH-232	-4.080E-02	9.724E-02	1.522E-01	0.000E+00	NOT IDENT.
PA-233	-2.207E-02	3.808E-02	6.426E-02	0.000E+00	NOT IDENT.
PA-234	-1.886E-02	1.764E-01	2.944E-01	0.000E+00	NOT IDENT.
PA-234M	2.601E+00	2.819E+00	5.565E+00	0.000E+00	NOT IDENT.
TH-234	9.330E-02	3.160E-01	6.199E-01	0.000E+00	NOT IDENT.
U-235	1.301E-02	9.736E-02	1.622E-01	0.000E+00	NOT IDENT.
NP-237	3.846E-04	8.127E-02	1.412E-01	0.000E+00	NOT IDENT.
U-238	9.330E-02	3.160E-01	6.199E-01	0.000E+00	NOT IDENT.
NP-239	-3.351E-02	1.691E-01	2.987E-01	0.000E+00	NOT IDENT.
AM-241	6.859E-03	2.599E-02	4.733E-02	0.000E+00	NOT IDENT.
CM-247	9.796E-03	2.153E-02	3.972E-02	0.000E+00	NOT IDENT.
CF-249	-6.418E-03	2.219E-02	3.761E-02	0.000E+00	NOT IDENT.

CF-251	8.374E-03	5.986E-02	1.059E-01	0.000E+00	NOT IDENT.
ANH-511	-1.722E-02	3.818E-02	7.432E-02	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                      *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047453.CNF;1
Sample date        : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:46:31.
Sample ID          : G1202047453      Sample quantity   : 1.45340E+02 GRAM
Detector name      : GAM17            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:09.03 0.1%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 955027           Detector SN#      :
Matrix Spike ID    :                  LCS ID            : 1032-A
*****

```

Nuclide Line Activity Report

Flag: "*" = Keyline

Summary of Nuclide Activity
Sample ID : G1202047453

Page : 2
Acquisition date : 4-MAR-2010 12:46:31

**** There are no nuclides meeting summary criteria ****

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

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

Unidentified Energy Lines
Sample ID : G1202047453

Page : 3
Acquisition date : 4-MAR-2010 12:46:31

None

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047453.CNF;1 *
* Acquisition date   : 4-MAR-2010 12:46:31.  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 02:00:09.03             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 22-FEB-2010 00:00:00  Nuclide Library : SOLID          *
* Sample ID          : G1202047453           Analyst initials: MXR1          *
* Batch Number       : 955027                Sample Quantity : 1.45340E+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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-4.134E-03		1.984E-01	3.243E-01	3.085E-02	-0.013
NA-22	5.135E-03		1.971E-02	3.429E-02	2.888E-03	0.150
NA-24	1.538E-04		1.306E-03	Half-Life too short		
K-40	-9.750E-02		2.762E-01	4.581E-01	4.067E-02	-0.213
SC-46	-2.560E-02		2.538E-02	3.338E-02	2.922E-03	-0.767
V-48	-3.735E-03		3.419E-02	5.478E-02	4.778E-03	-0.068
CR-51	3.710E-02		1.768E-01	3.043E-01	2.904E-02	0.122
MN-54	-2.505E-04		2.576E-02	4.278E-02	3.762E-03	-0.006
CO-56	4.115E-03		2.216E-02	3.812E-02	3.351E-03	0.108
CO-57	7.716E-03		1.117E-02	1.952E-02	2.287E-03	0.395
CO-58	-1.455E-02		2.677E-02	4.065E-02	3.580E-03	-0.358
FE-59	-3.555E-02		5.474E-02	7.600E-02	6.974E-03	-0.468
CO-60	-9.831E-03		2.505E-02	3.800E-02	3.238E-03	-0.259
ZN-65	3.275E-03		5.037E-02	8.302E-02	6.990E-03	0.039
SE-75	-8.103E-03		2.463E-02	3.744E-02	3.440E-03	-0.216
SR-85	-1.214E-01		3.846E-02	4.071E-02	3.637E-03	-2.981
Y-88	3.184E-02		2.932E-02	6.133E-02	5.115E-03	0.519

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	-2.706E+00		1.218E+01	1.869E+01	1.542E+00	-0.145
NB-94	-4.061E-03		2.040E-02	3.330E-02	2.857E-03	-0.122
NB-95	-4.791E-03		2.477E-02	4.018E-02	3.510E-03	-0.119
NB-95M	-1.779E-01		7.720E-02	9.199E-02	9.409E-03	-1.933
ZR-95	9.281E-03		3.252E-02	5.772E-02	5.548E-03	0.161
MO-99	-1.500E-01		2.440E+00	4.054E+00	6.401E-01	-0.037
TC-99M	2.707E+04		2.517E+04	Half-Life too short		
RU-103	-4.735E-03		2.167E-02	3.420E-02	4.839E-03	-0.138
RH-106	-1.459E-01		2.211E-01	3.159E-01	4.201E-02	-0.462
RU-106	-1.459E-01		2.206E-01	3.159E-01	2.744E-02	-0.462
AG-108M	-5.040E-03		1.786E-02	2.836E-02	2.542E-03	-0.178
CD-109	1.041E-02		2.700E-01	4.279E-01	4.177E-02	0.024
AG-110M	-1.911E-05		2.001E-02	3.204E-02	2.792E-03	-0.001
SN-113	-1.054E-02		2.660E-02	4.210E-02	3.658E-03	-0.250
CD-115	-2.670E-01		1.880E+00	2.999E+00	2.681E-01	-0.089
SN-117M	-8.822E-03		1.952E-02	3.031E-02	2.725E-03	-0.291
TE-123M	-2.166E-03		1.281E-02	2.054E-02	1.849E-03	-0.105
SB-124	-4.529E-03		6.524E-02	1.051E-01	9.370E-03	-0.043
SB-125	-3.091E-02		5.168E-02	7.796E-02	6.872E-03	-0.397
TE-125M	-1.227E+00		3.670E+00	5.908E+00	7.330E-01	-0.208
I-126	2.854E-02		9.389E-02	1.592E-01	1.344E-02	0.179
SB-126	-4.285E-02		7.103E-02	1.078E-01	9.307E-03	-0.397
SN-126	-3.968E-04		2.729E-02	4.322E-02	4.217E-03	-0.009
SB-127	0.000E+00		3.756E-01	5.993E-01	6.045E-02	0.000
I-131	1.940E-02		4.404E-02	7.723E-02	7.109E-03	0.251
TE-132	1.312E-02		1.352E-01	2.184E-01	3.328E-02	0.060
BA-133	-6.530E-03		2.388E-02	3.864E-02	5.068E-03	-0.169
I-133	4.391E-05		5.331E-05	Half-Life too short		
CS-134	3.974E-03		2.717E-02	4.650E-02	4.108E-03	0.085
CS-135	-3.277E-02		8.375E-02	1.259E-01	1.314E-02	-0.260
I-135	4.639E+03		2.127E+04	Half-Life too short		
CS-136	3.085E-03		5.915E-02	9.757E-02	8.753E-03	0.032
BA-137M	-2.431E-02		2.346E-02	2.943E-02	2.479E-03	-0.826
CS-137	-2.568E-02		2.479E-02	3.109E-02	2.624E-03	-0.826
CE-139	-5.397E-03		1.375E-02	2.147E-02	1.790E-03	-0.251
BA-140	-1.258E-01		1.516E-01	2.031E-01	6.903E-02	-0.620
LA-140	-1.258E-02		4.561E-02	6.903E-02	5.958E-03	-0.182
CE-141	4.558E-04		2.509E-02	4.120E-02	4.202E-03	0.011
CE-143	-2.857E+00		6.515E+00	1.048E+01	2.284E+00	-0.273
CE-144	5.433E-02		8.706E-02	1.508E-01	2.519E-02	0.360
PM-144	-1.515E-02		2.320E-02	3.542E-02	3.031E-03	-0.428
PR-144	-1.152E+00		1.729E+00	2.633E+00	2.254E-01	-0.437
PM-146	1.430E-02		2.409E-02	4.279E-02	4.589E-03	0.334
ND-147	1.027E-01		2.970E-01	5.049E-01	7.642E-02	0.203
PM-149	7.919E+00		1.058E+01	1.922E+01	3.047E+00	0.412
EU-152	3.912E-04		6.012E-02	1.008E-01	9.530E-03	0.004
GD-153	-2.188E-02		3.528E-02	5.163E-02	5.278E-03	-0.424
EU-154	2.304E-02		5.260E-02	9.659E-02	1.084E-02	0.239

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	2.183E-02		3.942E-02	6.881E-02	7.391E-03	0.317
TB-160	5.338E-02		9.482E-02	1.711E-01	1.500E-02	0.312
HO-166M	1.875E-02		4.157E-02	7.419E-02	6.385E-03	0.253
TA-182	-3.705E-02		8.634E-02	1.211E-01	1.005E-02	-0.306
IR-192	-8.227E-03		1.790E-02	2.855E-02	2.612E-03	-0.288
HG-203	2.451E-02		1.800E-02	3.429E-02	3.219E-03	0.715
BI-207	4.945E-03		2.338E-02	4.047E-02	3.470E-03	0.122
TL-208	-7.554E-03		2.883E-02	4.584E-02	4.331E-03	-0.165
PB-210	6.654E-02		3.034E-01	5.383E-01	5.803E-02	0.124
BI-211	-4.231E-03		1.224E-01	1.960E-01	1.830E-02	-0.022
PB-211	2.428E-01		4.375E-01	7.464E-01	3.611E-01	0.325
BI-212	3.017E-01		3.116E-01	5.937E-01	7.410E-02	0.508
PB-212	-1.342E-02		3.884E-02	6.687E-02	6.772E-03	-0.201
BI-214	-1.285E-02		5.577E-02	8.461E-02	8.646E-03	-0.152
PB-214	9.206E-03		4.374E-02	7.186E-02	7.786E-03	0.128
RN-219	6.785E-02		2.305E-01	3.961E-01	5.862E-02	0.171
RA-223	-1.134E-01		3.625E-01	5.883E-01	1.034E-01	-0.193
RA-224	-6.718E-01		4.338E-01	5.483E-01	4.959E-02	-1.225
RA-226	-1.285E-02		5.577E-02	8.461E-02	8.646E-03	-0.152
AC-227	-7.979E-02		1.377E-01	2.023E-01	2.511E-02	-0.395
TH-227	-7.979E-02		1.378E-01	2.023E-01	2.817E-02	-0.395
AC-228	-4.080E-02		9.922E-02	1.497E-01	1.750E-02	-0.273
RA-228	-4.080E-02		9.922E-02	1.497E-01	1.750E-02	-0.273
TH-228	-1.342E-02		3.884E-02	6.687E-02	6.772E-03	-0.201
TH-229	-2.036E-02		2.598E-01	4.159E-01	3.597E-02	-0.049
PA-231	-3.234E-01		7.307E-01	1.177E+00	1.756E-01	-0.275
TH-231	-1.134E-01		3.625E-01	5.883E-01	1.034E-01	-0.193
TH-232	-4.080E-02		9.922E-02	1.497E-01	1.750E-02	-0.273
PA-233	-2.207E-02		3.886E-02	6.169E-02	5.787E-03	-0.358
PA-234	-1.886E-02		1.800E-01	2.899E-01	5.457E-02	-0.065
PA-234M	2.601E+00		2.876E+00	5.486E+00	5.505E-01	0.474
TH-234	9.330E-02		3.225E-01	5.752E-01	1.094E-01	0.162
U-235	1.301E-02		9.934E-02	1.531E-01	2.727E-02	0.085
NP-237	3.846E-04		8.292E-02	1.319E-01	3.050E-02	0.003
U-238	9.330E-02		3.225E-01	5.752E-01	1.094E-01	0.162
NP-239	-3.351E-02		1.726E-01	2.807E-01	3.198E-02	-0.119
AM-241	6.859E-03		2.652E-02	4.386E-02	4.657E-03	0.156
CM-247	9.796E-03		2.197E-02	3.835E-02	3.257E-03	0.255
CF-249	-6.418E-03		2.264E-02	3.628E-02	3.073E-03	-0.177
CF-251	8.374E-03		6.108E-02	1.004E-01	8.508E-03	0.083
ANH-511	-1.722E-02		3.896E-02	7.214E-02	6.443E-03	-0.239

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]G1202047453          *
* Acquisition date   : 4-MAR-2010 12:46:31 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 02:00:09.03              Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 22-FEB-2010 00:00:00 Nuclide Library : SOLID           *
* Sample ID          : G1202047453              Analyst initials: MXR1         *
* Batch Number       : 955027                   Sample Quantity : 1.4534E+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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act Error	DLC (pCi/GRAM)	TPU
---- Non-Identified Nuclides ----				
Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-4.134E-03	1.944E-01	1.674E-01	9.918E-02 NOT IDENT.
NA-22	5.135E-03	1.932E-02	1.730E-02	9.856E-03 NOT IDENT.
NA-24	1.538E+02	2.560E+03	0.000E+00	1.306E+03 SHORT HLIF
K-40	-9.750E-02	2.707E-01	2.304E-01	1.381E-01 NOT IDENT.
SC-46	-2.560E-02	2.487E-02	1.699E-02	1.269E-02 NOT IDENT.
V-48	-3.735E-03	3.351E-02	2.781E-02	1.710E-02 NOT IDENT.
CR-51	3.710E-02	1.733E-01	1.585E-01	8.841E-02 NOT IDENT.
MN-54	-2.505E-04	2.525E-02	2.180E-02	1.288E-02 NOT IDENT.
CO-56	4.115E-03	2.172E-02	1.942E-02	1.108E-02 NOT IDENT.
CO-57	7.716E-03	1.094E-02	1.038E-02	5.584E-03 NOT IDENT.
CO-58	-1.455E-02	2.623E-02	2.073E-02	1.338E-02 NOT IDENT.
FE-59	-3.555E-02	5.364E-02	3.849E-02	2.737E-02 NOT IDENT.
CO-60	-9.831E-03	2.455E-02	1.915E-02	1.252E-02 NOT IDENT.
ZN-65	3.275E-03	4.936E-02	4.203E-02	2.518E-02 NOT IDENT.
SE-75	-8.103E-03	2.414E-02	1.958E-02	1.232E-02 NOT IDENT.
SR-85	-1.214E-01	3.769E-02	2.098E-02	1.923E-02 NOT IDENT.
Y-88	3.184E-02	2.873E-02	3.068E-02	1.466E-02 NOT IDENT.
Y-91	-2.706E+00	1.194E+01	9.443E+00	6.089E+00 NOT IDENT.
NB-94	-4.061E-03	1.999E-02	1.704E-02	1.020E-02 NOT IDENT.
NB-95	-4.791E-03	2.427E-02	2.052E-02	1.238E-02 NOT IDENT.
NB-95M	-1.779E-01	7.566E-02	4.823E-02	3.860E-02 NOT IDENT.
ZR-95	9.281E-03	3.187E-02	2.948E-02	1.626E-02 NOT IDENT.
MO-99	-1.500E-01	2.391E+00	2.072E+00	1.220E+00 NOT IDENT.
TC-99M	2.707E+10	4.933E+10	0.000E+00	2.517E+10 SHORT HLIF
RU-103	-4.735E-03	2.123E-02	1.764E-02	1.083E-02 NOT IDENT.
RH-106	-1.459E-01	2.167E-01	1.621E-01	1.106E-01 NOT IDENT.

RU-106	-1.459E-01	2.162E-01	1.621E-01	1.103E-01	NOT IDENT.
AG-108M	-5.040E-03	1.751E-02	1.467E-02	8.932E-03	NOT IDENT.
CD-109	1.041E-02	2.646E-01	2.292E-01	1.350E-01	NOT IDENT.
AG-110M	-1.911E-05	1.961E-02	1.642E-02	1.001E-02	NOT IDENT.
SN-113	-1.054E-02	2.607E-02	2.183E-02	1.330E-02	NOT IDENT.
CD-115	-2.670E-01	1.843E+00	1.545E+00	9.402E-01	NOT IDENT.
SN-117M	-8.822E-03	1.913E-02	1.603E-02	9.759E-03	NOT IDENT.
TE-123M	-2.166E-03	1.255E-02	1.086E-02	6.405E-03	NOT IDENT.
SB-124	-4.529E-03	6.394E-02	5.267E-02	3.262E-02	NOT IDENT.
SB-125	-3.091E-02	5.064E-02	4.034E-02	2.584E-02	NOT IDENT.
TE-125M	-1.227E+00	3.597E+00	3.149E+00	1.835E+00	NOT IDENT.
I-126	2.854E-02	9.201E-02	8.158E-02	4.694E-02	NOT IDENT.
SB-126	-4.285E-02	6.961E-02	5.513E-02	3.551E-02	NOT IDENT.
SN-126	-3.968E-04	2.674E-02	2.314E-02	1.364E-02	NOT IDENT.
SB-127	0.000E+00	3.680E-01	3.068E-01	0.000E+00	NOT IDENT.
I-131	1.940E-02	4.316E-02	4.011E-02	2.202E-02	NOT IDENT.
TE-132	1.312E-02	1.325E-01	1.146E-01	6.759E-02	NOT IDENT.
BA-133	-6.530E-03	2.341E-02	2.008E-02	1.194E-02	NOT IDENT.
I-133	4.391E+01	1.045E+02	0.000E+00	5.331E+01	SHORT HLIF
CS-134	3.974E-03	2.663E-02	2.372E-02	1.359E-02	NOT IDENT.
CS-135	-3.277E-02	8.207E-02	6.582E-02	4.187E-02	NOT IDENT.
I-135	4.639E+09	4.169E+10	0.000E+00	2.127E+10	SHORT HLIF
CS-136	3.085E-03	5.797E-02	4.946E-02	2.958E-02	NOT IDENT.
BA-137M	-2.431E-02	2.299E-02	1.508E-02	1.173E-02	NOT IDENT.
CS-137	-2.568E-02	2.429E-02	1.593E-02	1.239E-02	NOT IDENT.
CE-139	-5.397E-03	1.347E-02	1.134E-02	6.874E-03	NOT IDENT.
BA-140	-1.258E-01	1.486E-01	1.045E-01	7.581E-02	NOT IDENT.
LA-140	-1.258E-02	4.469E-02	3.465E-02	2.280E-02	NOT IDENT.
CE-141	4.558E-04	2.459E-02	2.183E-02	1.255E-02	NOT IDENT.
CE-143	-2.857E+00	6.384E+00	5.466E+00	3.257E+00	NOT IDENT.
CE-144	5.433E-02	8.531E-02	8.002E-02	4.353E-02	NOT IDENT.
PM-144	-1.515E-02	2.273E-02	1.813E-02	1.160E-02	NOT IDENT.
PR-144	-1.152E+00	1.694E+00	1.348E+00	8.645E-01	NOT IDENT.
PM-146	1.430E-02	2.360E-02	2.211E-02	1.204E-02	NOT IDENT.
ND-147	1.027E-01	2.911E-01	2.600E-01	1.485E-01	NOT IDENT.
PM-149	7.919E+00	1.037E+01	1.004E+01	5.290E+00	NOT IDENT.
EU-152	3.912E-04	5.892E-02	5.240E-02	3.006E-02	NOT IDENT.
GD-153	-2.188E-02	3.457E-02	2.759E-02	1.764E-02	NOT IDENT.
EU-154	2.304E-02	5.154E-02	4.874E-02	2.630E-02	NOT IDENT.
EU-155	2.183E-02	3.863E-02	3.671E-02	1.971E-02	NOT IDENT.
TB-160	5.338E-02	9.292E-02	8.710E-02	4.741E-02	NOT IDENT.
HO-166M	1.875E-02	4.074E-02	3.795E-02	2.079E-02	NOT IDENT.
TA-182	-3.705E-02	8.461E-02	6.119E-02	4.317E-02	NOT IDENT.
IR-192	-8.227E-03	1.754E-02	1.487E-02	8.949E-03	NOT IDENT.
HG-203	2.451E-02	1.764E-02	1.791E-02	8.998E-03	NOT IDENT.
BI-207	4.945E-03	2.291E-02	2.051E-02	1.169E-02	NOT IDENT.
TL-208	-7.554E-03	2.825E-02	2.356E-02	1.441E-02	NOT IDENT.
PB-210	6.654E-02	2.973E-01	2.921E-01	1.517E-01	NOT IDENT.
BI-211	-4.231E-03	1.200E-01	1.019E-01	6.121E-02	NOT IDENT.
PB-211	2.428E-01	4.288E-01	3.867E-01	2.188E-01	NOT IDENT.
BI-212	3.017E-01	3.053E-01	3.036E-01	1.558E-01	NOT IDENT.
PB-212	-1.342E-02	3.806E-02	3.505E-02	1.942E-02	NOT IDENT.
BI-214	-1.285E-02	5.466E-02	4.344E-02	2.789E-02	NOT IDENT.
PB-214	9.206E-03	4.286E-02	3.735E-02	2.187E-02	NOT IDENT.
RN-219	6.785E-02	2.259E-01	2.053E-01	1.153E-01	NOT IDENT.
RA-223	-1.134E-01	3.552E-01	3.063E-01	1.812E-01	NOT IDENT.
RA-224	-6.718E-01	4.252E-01	2.874E-01	2.169E-01	NOT IDENT.
RA-226	-1.285E-02	5.466E-02	4.344E-02	2.789E-02	NOT IDENT.
AC-227	-7.979E-02	1.350E-01	1.059E-01	6.886E-02	NOT IDENT.
TH-227	-7.979E-02	1.351E-01	1.059E-01	6.891E-02	NOT IDENT.
AC-228	-4.080E-02	9.724E-02	7.613E-02	4.961E-02	NOT IDENT.
RA-228	-4.080E-02	9.724E-02	7.613E-02	4.961E-02	NOT IDENT.
TH-228	-1.342E-02	3.806E-02	3.505E-02	1.942E-02	NOT IDENT.
TH-229	-2.036E-02	2.547E-01	2.190E-01	1.299E-01	NOT IDENT.
PA-231	-3.234E-01	7.161E-01	6.144E-01	3.653E-01	NOT IDENT.
TH-231	-1.134E-01	3.552E-01	3.063E-01	1.812E-01	NOT IDENT.
TH-232	-4.080E-02	9.724E-02	7.613E-02	4.961E-02	NOT IDENT.
PA-233	-2.207E-02	3.808E-02	3.215E-02	1.943E-02	NOT IDENT.
PA-234	-1.886E-02	1.764E-01	1.473E-01	9.000E-02	NOT IDENT.
PA-234M	2.601E+00	2.819E+00	2.784E+00	1.438E+00	NOT IDENT.
TH-234	9.330E-02	3.160E-01	3.101E-01	1.612E-01	NOT IDENT.
U-235	1.301E-02	9.736E-02	8.116E-02	4.967E-02	NOT IDENT.
NP-237	3.846E-04	8.127E-02	7.066E-02	4.146E-02	NOT IDENT.
U-238	9.330E-02	3.160E-01	3.101E-01	1.612E-01	NOT IDENT.
NP-239	-3.351E-02	1.691E-01	1.494E-01	8.628E-02	NOT IDENT.
AM-241	6.859E-03	2.599E-02	2.368E-02	1.326E-02	NOT IDENT.
CM-247	9.796E-03	2.153E-02	1.987E-02	1.098E-02	NOT IDENT.
CF-249	-6.418E-03	2.219E-02	1.881E-02	1.132E-02	NOT IDENT.

CF-251	8.374E-03	5.986E-02	5.299E-02	3.054E-02	NOT IDENT.
ANH-511	-1.722E-02	3.818E-02	3.718E-02	1.948E-02	NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	49.9409
49.72	58.8154
57.36	72.9436
59.54	63.0030
63.29	65.3453
63.29	65.3453
64.28	79.4792
67.75	72.2196
69.67	69.8925
70.83	59.4347
72.81	109.6044
72.87	109.6194
72.87	109.6194
74.82	90.4062
74.82	90.4062
74.82	90.4062
74.97	90.4365
77.11	92.6611
77.11	92.6611
77.11	92.6611
79.69	89.5581
79.80	81.4352
80.12	83.3015
80.19	83.3137
80.57	71.5986
81.00	67.1280
81.07	66.2305
81.07	66.2305
83.79	59.3068
83.79	59.3068
85.43	85.1388
86.48	72.4761
86.55	69.7335
86.79	69.7668
86.94	71.6246
87.57	68.9568
88.03	63.4985
88.47	56.1854
89.96	159.8135
91.11	89.8077
92.59	57.5675
92.59	57.5675
93.35	61.3708
94.67	144.4902
94.87	167.8583
94.87	167.8583
95.86	87.8233
97.43	69.3404
98.44	61.0208
99.53	56.4398
100.11	58.3830
103.18	56.8134
103.37	51.1493
105.31	47.5235
106.12	47.5911
109.28	61.2513
111.00	49.9129
111.76	59.5882
116.30	59.0723
117.23	61.1024
121.12	52.7039
121.78	45.9202
122.06	51.8053
123.07	55.8044
131.20	65.4327
133.52	48.7488
136.00	59.9121

136.47	54.9575
140.51	44.2251
140.51	0.0000
143.76	49.4805
144.24	61.6398
144.24	61.6398
145.44	53.6464
152.43	61.3220
153.25	57.2977
154.21	64.5439
154.21	64.5439
156.02	57.5119
158.56	54.6153
159.00	54.6471
162.66	62.1619
163.33	53.9202
165.86	57.2173
176.60	51.6662
177.52	48.5573
181.07	62.5489
184.41	51.0908
185.72	58.6322
193.51	52.7120
197.04	54.0044
205.31	50.1447
210.85	49.3515
215.65	46.2981
222.11	43.2835
227.38	46.8668
228.16	43.5536
228.18	43.5544
235.69	109.1487
235.96	109.1783
235.96	109.1783
238.63	53.0409
238.63	53.0409
240.99	92.7538
242.00	69.0681
244.70	49.9503
252.40	46.8882
252.80	45.7617
256.23	48.2051
256.23	48.2051
260.90	49.5674
264.66	47.4246
268.22	45.2580
269.46	34.8523
269.46	34.8523
271.23	48.8710
273.65	36.1496
276.40	51.7267
277.37	53.5258
277.60	50.0263
278.00	45.6539
279.20	26.3667
279.54	26.3745
280.46	34.3142
283.69	41.4692
284.31	39.7262
285.41	27.3930
285.90	27.4046
287.50	41.6062
293.27	46.2585
295.22	36.5331
295.96	32.0982
298.57	42.8914
299.98	45.6250
299.98	45.6250
300.09	45.6297
300.09	45.6297
300.13	44.7365
301.36	40.3033
302.85	40.3535
304.50	46.6942
304.50	46.6942
304.85	49.4023
308.46	43.2415
311.90	51.4927

316.51	39.8965
319.41	37.2620
320.08	33.6442
323.87	42.8656
323.87	42.8656
328.76	33.8739
333.37	34.9135
334.37	27.5844
334.37	27.5844
338.28	49.8002
338.28	49.8002
338.32	49.8018
338.32	49.8018
338.32	49.8018
340.48	30.4843
340.55	30.4858
344.28	43.5411
351.06	27.0016
351.93	23.2922
356.01	37.3792
364.49	28.2069
366.42	33.8956
383.85	27.6406
388.16	32.5022
388.63	35.3814
391.69	38.3301
400.66	27.9575
401.81	27.0143
402.40	27.9902
404.85	27.0686
410.95	32.0307
414.70	40.8663
423.72	28.3818
427.09	33.3468
427.87	30.4196
433.94	30.5360
453.88	19.9445
463.37	28.0820
468.07	27.1549
473.00	28.2427
476.78	25.2724
477.60	29.3301
487.02	21.3550
492.35	22.4401
497.08	23.5229
511.00	42.2597
514.00	117.6973
527.90	28.0876
529.87	0.0000
531.02	26.0506
537.26	29.2740
546.56	0.0000
563.25	28.6133
569.33	28.7023
569.50	29.7679
569.70	26.5816
583.19	23.5509
600.60	26.9928
602.73	28.1011
604.72	32.4554
609.32	23.8537
609.32	23.8537
610.33	26.0347
614.28	19.5634
618.01	20.6867
621.93	28.3613
621.93	28.3613
633.25	27.4155
635.95	20.8624
636.99	23.0694
645.85	13.2367
657.76	15.5266
661.66	18.8869
661.66	18.8869
664.57	18.9118
666.33	12.2468
666.50	11.1343
677.62	14.5464

685.70	17.9668
695.00	19.8440
696.49	27.9795
696.51	27.9802
697.00	33.4030
702.65	19.9096
706.68	25.3832
711.68	19.0779
720.70	22.7985
721.93	25.5473
722.78	26.4696
722.91	20.9942
723.31	20.9976
724.19	18.2656
727.33	11.8882
733.00	20.1663
735.93	18.3550
739.50	17.4632
747.24	11.9866
752.31	12.0114
753.82	9.2451
756.73	8.3305
763.94	14.8527
765.81	19.5086
766.42	18.5845
777.92	16.8025
778.90	22.4121
783.70	14.9699
785.37	18.7246
795.86	14.1010
801.95	17.9034
810.29	22.6875
810.76	22.6916
815.77	21.7877
818.51	14.2244
832.01	16.2031
834.85	20.0366
836.80	0.0000
846.77	11.5005
856.80	20.2002
860.56	13.4853
871.09	17.4045
873.19	13.5471
875.33	0.0000
879.36	13.5772
880.51	15.5230
883.24	14.5671
884.68	17.4894
889.28	20.4381
898.04	21.4774
911.20	12.7499
911.20	12.7499
911.20	12.7499
926.50	8.8737
937.49	10.8864
944.13	7.9352
946.00	11.9104
949.00	15.8965
962.29	13.9713
964.08	15.9770
966.15	13.9894
968.97	12.0021
968.97	12.0021
968.97	12.0021
983.53	11.0548
996.26	15.1370
1001.03	8.0855
1004.73	17.2021
1037.84	11.2481
1038.76	0.0000
1048.07	14.3616
1050.41	13.3453
1050.41	13.3453
1063.66	5.1538
1085.87	17.6417
1099.45	15.6299
1112.07	10.4590
1115.54	10.4697

1120.29	15.7266
1120.29	15.7266
1120.55	15.7273
1121.30	13.6335
1131.51	0.0000
1173.23	8.5164
1177.93	12.7916
1189.05	6.4157
1204.77	12.8877
1221.41	8.6309
1231.02	14.0620
1235.36	8.6637
1238.28	8.6707
1260.41	0.0000
1271.85	3.2808
1274.44	3.2830
1274.54	4.3775
1291.59	5.4963
1298.22	0.0000
1312.11	2.7628
1332.49	10.1831
1365.19	7.4671
1368.63	0.0000
1384.29	3.7513
1408.01	5.6597
1457.56	0.0000
1460.82	7.6419
1489.16	8.6543
1505.03	4.8254
1596.21	6.8949
1620.50	3.9606
1678.03	0.0000
1690.97	7.0353
1764.49	3.0607
1764.49	3.0607
1770.23	7.1498
1771.35	4.0864
1791.20	0.0000
1836.06	2.0694

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202047453

Total Uranium Activity	2.8358E-01	ug/g
Total Uranium Counting Unc.	9.4133E-01	ug/g
Total Uranium Tpu	4.8027E-07	ug/g
Total Uranium Mda	9.2343E-01	ug/g

THERE ARE NO PEAKS !

VAX/VMS Nuclide Identification Report Generated 5-MAR-2010 10:38:35.70

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047454.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 16:10:34.
Sample ID          : G1202047454      Sample quantity   : 8.05700E+01 GRAM
Detector name      : GAM10             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:00.81  0.0%
Energy tolerance   : 3.00000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 955027            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	63.17*	72	227	1.68	126.50	124	7	9.99E-03	38.4	
2	2	74.63*	233	296	1.18	149.41	144	15	3.24E-02	14.3	2.40E+00
3	2	76.94*	336	253	1.05	154.02	144	15	4.66E-02	9.7	
4	3	92.68*	243	244	1.31	185.47	171	22	3.38E-02	14.3	1.34E+00
5	0	186.10*	155	295	1.28	372.15	367	12	2.15E-02	24.5	
6	0	209.25	64	215	1.23	418.41	414	9	8.88E-03	43.3	
7	3	238.85*	870	144	1.27	477.56	473	19	1.21E-01	4.2	2.86E+00
8	3	241.91	196	191	1.62	483.69	473	19	2.73E-02	16.2	
9	0	295.55*	270	185	1.45	590.87	584	13	3.75E-02	12.2	
10	0	300.49	52	154	0.69	600.76	597	10	7.23E-03	46.6	
11	0	338.70	192	129	1.43	677.11	671	11	2.67E-02	13.5	
12	0	352.42*	425	77	1.33	704.55	701	8	5.90E-02	6.3	
13	0	512.10*	75	161	1.86	1023.71	1015	19	1.05E-02	46.4	
14	0	584.10*	219	67	1.38	1167.65	1163	12	3.04E-02	10.5	
15	0	610.17*	364	65	1.78	1219.76	1212	14	5.06E-02	7.3	
16	0	662.78	532	59	1.50	1324.95	1319	12	7.38E-02	5.2	
17	0	728.83	66	51	1.91	1457.00	1451	16	9.16E-03	26.6	
18	0	912.97*	144	44	1.46	1825.18	1819	14	1.99E-02	13.3	
19	0	970.44*	111	54	1.05	1940.10	1934	13	1.54E-02	17.6	
20	0	1002.52*	20	18	2.32	2004.26	1999	9	2.73E-03	47.2	
21	0	1122.56*	55	46	1.99	2244.32	2239	15	7.58E-03	31.9	
22	0	1379.56	54	12	3.85	2758.39	2748	23	7.49E-03	21.3	
23	0	1463.24*	652	5	2.37	2925.80	2916	20	9.06E-02	4.1	
24	0	1767.56*	61	0	1.83	3534.71	3528	13	8.41E-03	14.4	

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

VMS Nuclide Identification Report V3.1 Generated 5-MAR-2010 10:38:38

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047454.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
 Sample title : MXR1
 Sample date : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 16:10:34
 Sample ID : G1202047454 Sample quantity : 80.570 GRAM
 Sample type : SOLID Sample geometry :
 Detector name : GAMMA10 Detector geometry: CAN
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.81 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 3.00 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	+	1460.82	*	2.579E+01	3.054E+00	5.877E-01	5.062E-02	43.888
SR-85	+	514.00	*	1.553E-01	1.444E-01	7.977E-02	5.095E-03	1.946
BA-137M	+	661.66	*	1.173E+00	1.356E-01	7.687E-02	3.793E-03	15.263
CS-137	+	661.66	*	1.239E+00	1.434E-01	8.121E-02	4.030E-03	15.263
TL-208		277.37		3.606E-01	5.142E-01	8.892E-01	9.891E-02	0.406
	+	583.19	*	4.572E-01	1.005E-01	7.815E-02	5.239E-03	5.850
		860.56		5.131E-01	4.136E-01	7.522E-01	7.346E-02	0.682
BI-211	+	72.87		2.285E+01	7.017E+00	7.812E+00	8.591E-01	2.924
	+	351.06	*	3.948E+00	5.716E-01	4.273E-01	3.116E-02	9.241
PB-212	+	74.82		2.733E+00	8.807E-01	8.824E-01	1.292E-01	3.098
	+	77.11		2.196E+00	4.872E-01	4.946E-01	5.408E-02	4.440
	+	238.63	*	1.820E+00	2.074E-01	1.218E-01	9.310E-03	14.945
	+	300.09		1.687E+00	1.578E+00	1.558E+00	1.390E-01	1.083
BI-214	+	609.32	*	1.476E+00	2.431E-01	1.464E-01	1.123E-02	10.086
	+	1120.29		1.206E+00	7.785E-01	6.510E-01	6.397E-02	1.853
		1764.49		7.903E-01	4.279E-01	8.651E-01	5.777E-02	0.914
PB-214	+	74.82		4.845E+00	1.537E+00	1.564E+00	2.114E-01	3.098
	+	77.11		3.871E+00	9.164E-01	8.720E-01	1.194E-01	4.440
	+	242.00		2.490E+00	8.356E-01	7.403E-01	6.253E-02	3.363
	+	295.22		1.549E+00	4.030E-01	3.088E-01	2.846E-02	5.017
	+	351.93	*	1.433E+00	2.220E-01	1.552E-01	1.420E-02	9.231
RA-224	+	240.99	*	4.403E+00	1.455E+00	1.305E+00	8.009E-02	3.375
RA-226	+	609.32	*	1.476E+00	2.431E-01	1.464E-01	1.123E-02	10.086
	+	1120.29		1.206E+00	7.785E-01	6.510E-01	6.397E-02	1.853
		1764.49		7.903E-01	4.279E-01	8.651E-01	5.777E-02	0.914
AC-228	+	338.32		1.986E+00	9.819E-01	4.547E-01	1.881E-01	4.368
	+	911.20	*	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
	+	968.97		2.008E+00	8.629E-01	5.651E-01	1.393E-01	3.553
RA-228	+	338.32		1.986E+00	9.819E-01	4.547E-01	1.881E-01	4.368
	+	911.20	*	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
	+	968.97		2.008E+00	8.629E-01	5.651E-01	1.393E-01	3.553
TH-228	+	74.82		2.733E+00	8.402E-01	8.824E-01	9.716E-02	3.098
	+	77.11		2.196E+00	4.872E-01	4.946E-01	5.408E-02	4.440
	+	238.63	*	1.820E+00	2.074E-01	1.218E-01	9.310E-03	14.945

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	+	300.09		1.687E+00	1.878E+00	1.558E+00	9.498E-01	1.083
	+	338.32		1.986E+00	5.543E-01	4.547E-01	3.048E-02	4.368
	+	911.20	*	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
TH-234	+	968.97		2.008E+00	8.629E-01	5.651E-01	1.393E-01	3.553
	+	63.29	*	4.006E+00	3.178E+00	4.015E+00	8.051E-01	0.998
	+	92.59		4.683E+00	1.712E+00	1.475E+00	3.357E-01	3.175
U-235	+	89.96		5.709E+00	2.178E+00	1.860E+00	4.738E-01	3.069
	+	93.35		3.538E+00	1.315E+00	1.105E+00	2.615E-01	3.203
		143.76	*	2.346E-01	2.790E-01	4.533E-01	7.143E-02	0.518
		163.33		-1.276E-01	6.131E-01	9.400E-01	1.568E-01	-0.136
	+	185.72		2.111E-01	1.040E-01	7.969E-02	4.485E-03	2.649
		205.31		-3.977E-01	7.016E-01	9.981E-01	1.696E-01	-0.398
U-238	+	63.29	*	4.006E+00	3.178E+00	4.015E+00	8.051E-01	0.998
	+	92.59		4.683E+00	1.423E+00	1.475E+00	1.509E-01	3.175
ANH-511	+	511.00	*	1.201E-01	1.117E-01	6.136E-02	3.931E-03	1.957

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	1.697E-01	4.985E-01	8.267E-01	6.145E-02	0.205
NA-22		1274.54	*	2.710E-02	6.106E-02	1.067E-01	8.267E-03	0.254
NA-24		1368.63	*	-2.547E+02	6.106E-02	Half-Life too short		
SC-46		889.28	*	1.191E-02	4.344E-02	7.377E-02	7.301E-03	0.161
	+	1120.55		2.127E-01	1.366E-01	1.806E-01	1.297E-02	1.178
V-48		944.13		6.444E-01	1.536E+00	2.616E+00	2.535E-01	0.246
		983.53	*	3.522E-02	1.146E-01	1.930E-01	1.784E-02	0.183
		1312.11		2.017E-02	1.267E-01	2.151E-01	1.796E-02	0.094
CR-51		320.08	*	-9.774E-02	5.315E-01	8.691E-01	6.270E-02	-0.112
MN-54		834.85	*	2.133E-02	5.008E-02	8.574E-02	7.326E-03	0.249
CO-56		846.77	*	6.107E-03	6.285E-02	9.990E-02	8.822E-03	0.061
		1037.84		-2.612E-01	4.320E-01	6.403E-01	5.752E-02	-0.408
		1238.28		2.223E-02	1.336E-01	2.278E-01	1.699E-02	0.098
CO-57		1771.35		1.069E+00	4.689E-01	9.819E-01	6.507E-02	1.088
		122.06	*	1.275E-02	3.407E-02	5.627E-02	3.711E-03	0.227
		136.47		-4.009E-02	2.666E-01	4.260E-01	2.974E-02	-0.094
CO-58		810.76	*	-2.449E-02	5.376E-02	8.255E-02	6.605E-03	-0.297
FE-59		1099.45	*	-6.029E-02	1.353E-01	2.048E-01	1.709E-02	-0.294
		1291.59		-7.342E-02	1.790E-01	2.811E-01	2.601E-02	-0.261
CO-60		1173.23		-4.330E-02	6.037E-02	9.289E-02	5.728E-03	-0.466
		1332.49	*	-5.557E-02	5.373E-02	7.454E-02	6.478E-03	-0.745
ZN-65		1115.54	*	-1.322E-01	1.490E-01	1.860E-01	1.355E-02	-0.711
SE-75		121.12		-2.631E-02	1.802E-01	2.898E-01	2.794E-02	-0.091
		136.00		7.869E-03	5.134E-02	8.348E-02	5.186E-03	0.094
		264.66	*	-1.140E-02	5.622E-02	9.293E-02	5.929E-03	-0.123
Y-88		279.54		1.089E-01	1.494E-01	2.594E-01	1.779E-02	0.420
		400.66		-2.495E-01	3.595E-01	5.550E-01	5.403E-02	-0.450
		898.04		3.255E-02	5.401E-02	9.434E-02	9.584E-03	0.345
		1836.06	*	-1.643E-02	4.625E-02	6.737E-02	4.133E-03	-0.244

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	1204.77	*		-1.162E+01	3.026E+01	4.843E+01	3.216E+00	-0.240
NB-94	702.65	*		2.111E-02	4.588E-02	7.928E-02	4.514E-03	0.266
	871.09			-1.635E-02	4.754E-02	7.481E-02	7.056E-03	-0.219
NB-95	765.81	*		-3.162E-02	5.993E-02	9.406E-02	6.564E-03	-0.336
NB-95M	235.69	*		-7.321E-02	1.863E-01	2.631E-01	2.047E-02	-0.278
ZR-95	724.19			5.484E-03	1.287E-01	1.867E-01	1.326E-02	0.029
	756.73	*		6.841E-02	9.955E-02	1.755E-01	1.386E-02	0.390
MO-99	140.51			-1.318E+01	1.066E+02	1.662E+02	3.811E+01	-0.079
	181.07			9.393E+00	8.698E+01	1.239E+02	2.181E+01	0.076
	366.42			2.410E+02	4.554E+02	7.769E+02	5.261E+01	0.310
	739.50	*		-1.848E+01	5.654E+01	9.043E+01	1.327E+01	-0.204
	777.92			1.240E+02	1.716E+02	3.030E+02	2.195E+01	0.409
TC-99M	140.51	*		-7.424E+15	1.716E+02	Half-Life	too short	
RU-103	497.08	*		1.062E-02	5.966E-02	9.757E-02	1.245E-02	0.109
	610.33			1.666E+01	3.479E+00	4.315E+00	6.455E-01	3.861
RH-106	621.93	*		-8.045E-02	4.163E-01	6.863E-01	7.852E-02	-0.117
	1050.41			1.190E-01	3.087E+00	5.009E+00	4.179E-01	0.024
RU-106	621.93	*		-8.045E-02	4.162E-01	6.863E-01	3.726E-02	-0.117
	1050.41			1.190E-01	3.087E+00	5.009E+00	4.179E-01	0.024
AG-108M	433.94	*		-2.102E-03	4.086E-02	6.613E-02	4.689E-03	-0.032
	614.28			-1.500E-02	5.213E-02	7.347E-02	4.371E-03	-0.204
	722.91			5.425E-03	5.333E-02	7.795E-02	5.048E-03	0.070
CD-109	88.03	*		2.920E+00	1.289E+00	2.226E+00	2.524E-01	1.312
AG-110M	657.76	*		-3.161E-02	5.402E-02	7.234E-02	3.920E-03	-0.437
	677.62			3.564E-02	4.141E-01	6.959E-01	3.912E-02	0.051
	706.68			-2.207E-01	2.985E-01	4.627E-01	2.839E-02	-0.477
	763.94			-1.834E-01	2.080E-01	3.116E-01	2.253E-02	-0.589
	884.68			4.368E-02	5.930E-02	1.056E-01	1.059E-02	0.413
	937.49			-2.059E-01	1.650E-01	2.318E-01	2.326E-02	-0.888
	1384.29			1.701E-01	2.536E-01	4.107E-01	3.622E-02	0.414
	1505.03			-2.074E-01	3.923E-01	5.818E-01	4.767E-02	-0.356
SN-113	391.69	*		-4.097E-02	6.355E-02	9.888E-02	7.051E-03	-0.414
CD-115	260.90			1.184E-04	6.355E-02	Half-Life	too short	
	492.35			-1.787E-04	6.355E-02	Half-Life	too short	
	527.90	*		-2.251E-05	6.355E-02	Half-Life	too short	
SN-117M	156.02			2.861E+00	3.845E+00	6.398E+00	3.622E-01	0.447
	158.56	*		-6.083E-03	8.931E-02	1.423E-01	7.982E-03	-0.043
TE-123M	159.00	*		-2.384E-02	3.870E-02	5.762E-02	3.273E-03	-0.414
SB-124	602.73			-1.902E-02	5.618E-02	8.276E-02	4.671E-03	-0.230
	645.85			2.427E-01	7.021E-01	1.209E+00	7.176E-02	0.201
	722.78			6.433E-02	5.684E-01	8.321E-01	5.297E-02	0.077
	1690.97	*		2.313E-02	1.066E-01	1.975E-01	1.505E-02	0.117
SB-125	427.87	*		1.451E-01	1.261E-01	2.222E-01	1.546E-02	0.653
	463.37			1.499E-01	3.908E-01	6.506E-01	4.859E-02	0.230
	600.60			-1.483E-02	2.264E-01	3.785E-01	2.496E-02	-0.039
	635.95			-3.531E-02	3.609E-01	5.991E-01	3.801E-02	-0.059
TE-125M	109.28	*		5.250E+00	1.349E+01	2.239E+01	2.190E+00	0.234
I-126	388.63			3.168E-01	3.004E-01	5.268E-01	3.580E-02	0.601
	666.33	*		4.410E-01	4.008E-01	6.644E-01	3.333E-02	0.664

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126		753.82		-2.968E+00	3.219E+00	4.821E+00	3.242E-01	-0.616
		414.70		-1.531E-02	1.440E-01	2.330E-01	1.579E-02	-0.066
		666.50		1.084E-01	1.352E-01	2.175E-01	1.092E-02	0.498
		695.00		6.742E-02	1.348E-01	2.342E-01	1.299E-02	0.288
		697.00		2.528E-01	4.663E-01	8.129E-01	4.540E-02	0.311
		720.70	*	1.470E-01	2.476E-01	4.247E-01	2.568E-02	0.346
SN-126	+	856.80		-8.241E-01	8.914E-01	1.312E+00	1.191E-01	-0.628
		64.28		1.544E+00	1.215E+00	1.519E+00	2.597E-01	1.017
		86.94		1.081E+00	6.929E-01	9.200E-01	3.863E-01	1.175
		87.57	*	2.806E-01	1.256E-01	2.170E-01	2.455E-02	1.293
SB-127		252.40		1.482E+00	1.380E+01	2.329E+01	9.681E+00	0.064
		473.00		-1.773E+00	5.935E+00	9.353E+00	1.225E+00	-0.190
		685.70	*	3.160E+00	4.039E+00	7.209E+00	7.994E-01	0.438
		783.70		-1.482E+01	1.236E+01	1.769E+01	2.318E+00	-0.838
I-131		80.19		9.218E+00	1.107E+01	1.707E+01	1.886E+00	0.540
		284.31		-5.688E-01	2.854E+00	4.697E+00	3.328E-01	-0.121
		364.49	*	-8.074E-02	2.402E-01	3.849E-01	2.849E-02	-0.210
		636.99		1.339E+00	3.195E+00	5.544E+00	3.376E-01	0.242
TE-132		49.72		-3.818E+01	1.527E+02	2.529E+02	3.947E+01	-0.151
		111.76		3.803E+01	1.261E+02	2.083E+02	2.457E+01	0.183
		116.30		4.417E+01	1.107E+02	1.834E+02	2.116E+01	0.241
		228.16	*	6.759E-01	2.841E+00	4.848E+00	7.645E-01	0.139
BA-133		81.00		6.374E-02	1.450E-01	2.190E-01	3.713E-02	0.291
	+	276.40		2.943E-01	4.690E-01	8.081E-01	1.041E-01	0.364
		302.85		3.049E-01	2.862E-01	3.155E-01	3.726E-02	0.966
		356.01	*	-1.320E-02	6.379E-02	9.018E-02	1.064E-02	-0.146
I-133		383.85		-3.171E-02	3.974E-01	6.471E-01	7.270E-02	-0.049
	*	529.87		-1.614E-01	3.974E-01	Half-Life	too short	
		875.33		6.662E+00	3.974E-01	Half-Life	too short	
		1298.22		9.666E+00	3.974E-01	Half-Life	too short	
CS-134		563.25		-1.705E-02	4.709E-01	7.490E-01	4.597E-02	-0.023
		569.33		-5.645E-02	2.572E-01	4.024E-01	2.469E-02	-0.140
		604.72		-3.512E-02	4.869E-02	6.476E-02	3.661E-03	-0.542
		795.86	*	9.746E-02	6.208E-02	1.165E-01	8.983E-03	0.836
		801.95		-4.558E-01	5.387E-01	7.804E-01	6.111E-02	-0.584
		1365.19		6.581E-01	1.767E+00	3.078E+00	2.779E-01	0.214
CS-135		268.22	*	-8.409E-02	2.091E-01	3.418E-01	2.763E-02	-0.246
I-135		546.56		1.051E+15	2.091E-01	Half-Life	too short	
		836.80		4.423E+15	2.091E-01	Half-Life	too short	
		1038.76		-6.691E+15	2.091E-01	Half-Life	too short	
		1131.51		-2.268E+14	2.091E-01	Half-Life	too short	
		1260.41	*	-7.965E+13	2.091E-01	Half-Life	too short	
		1457.56		-8.413E+15	2.091E-01	Half-Life	too short	
		1678.03		7.580E+14	2.091E-01	Half-Life	too short	
		1791.20		-1.473E+15	2.091E-01	Half-Life	too short	
		153.25		1.205E+00	1.508E+00	2.512E+00	2.009E-01	0.480
		176.60		6.522E-02	8.285E-01	1.324E+00	9.077E-02	0.049
CS-136		273.65		-1.376E+00	9.155E-01	1.391E+00	1.022E-01	-0.989
		340.55	+	1.538E+00	4.309E-01	5.184E-01	3.697E-02	2.967

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		818.51		-2.937E-02	1.385E-01	2.228E-01	1.821E-02	-0.132
		1048.07	*	-8.217E-02	1.850E-01	2.806E-01	2.457E-02	-0.293
		1235.36		-1.681E+00	1.109E+00	1.565E+00	1.677E-01	-1.074
CE-139		165.86	*	6.785E-03	4.070E-02	6.557E-02	3.581E-03	0.103
BA-140		162.66		1.249E-01	1.480E+00	2.306E+00	1.474E-01	0.054
		304.85		-3.721E-01	2.546E+00	3.665E+00	1.053E+00	-0.102
		423.72		-5.984E-01	3.501E+00	5.614E+00	1.822E+00	-0.107
		537.26	*	-1.167E-02	4.479E-01	7.156E-01	2.389E-01	-0.016
LA-140		328.76		5.318E-01	5.304E-01	9.279E-01	6.771E-02	0.573
		487.02		3.516E-02	2.334E-01	3.816E-01	2.758E-02	0.092
		815.77		-1.851E-01	5.800E-01	9.209E-01	8.438E-02	-0.201
		1596.21	*	-1.503E-01	1.956E-01	2.801E-01	2.174E-02	-0.537
CE-141		145.44	*	1.223E-03	9.539E-02	1.497E-01	9.163E-03	0.008
CE-143		57.36		-1.609E-02	9.539E-02	Half-Life	too short	
	+	293.27	*	1.755E-02	9.539E-02	Half-Life	too short	
	+	664.57		4.875E-01	9.539E-02	Half-Life	too short	
		721.93		-4.380E-03	9.539E-02	Half-Life	too short	
CE-144		80.12		3.122E+00	3.910E+00	6.022E+00	6.608E-01	0.518
		133.52	*	2.582E-02	2.557E-01	4.148E-01	5.833E-02	0.062
PM-144		476.78		3.555E-02	9.259E-02	1.542E-01	1.162E-02	0.231
		618.01		-2.535E-02	4.263E-02	6.775E-02	3.963E-03	-0.374
		696.49	*	3.121E-02	4.526E-02	7.986E-02	4.459E-03	0.391
PR-144		696.51	*	2.329E+00	3.395E+00	5.989E+00	3.339E-01	0.389
		1489.16		1.708E+00	1.608E+01	2.698E+01	2.228E+00	0.063
PM-146		453.88	*	3.133E-02	5.914E-02	9.973E-02	9.058E-03	0.314
		633.25		3.623E-01	1.792E+00	3.049E+00	1.146E+00	0.119
		735.93		-8.424E-02	2.274E-01	3.082E-01	8.448E-02	-0.273
		747.24		-1.120E-01	1.265E-01	1.883E-01	2.539E-02	-0.595
ND-147	+	91.11		2.544E+00	7.785E-01	1.001E+00	1.116E-01	2.542
		319.41		3.008E-01	5.642E+00	9.380E+00	6.228E-01	0.032
		531.02	*	-1.852E-01	9.979E-01	1.570E+00	2.155E-01	-0.118
PM-149		285.90	*	-2.068E-04	9.979E-01	Half-Life	too short	
EU-152		121.78		1.673E-02	9.720E-02	1.589E-01	1.305E-02	0.105
	+	244.70		2.379E+00	7.863E-01	7.245E-01	4.469E-02	3.284
		344.28	*	5.688E-03	1.322E-01	2.027E-01	1.493E-02	0.028
		778.90		3.120E-01	3.340E-01	6.018E-01	4.371E-02	0.518
		964.08		8.105E-02	4.063E-01	5.886E-01	5.576E-02	0.138
		1085.87		5.274E-01	5.460E-01	9.765E-01	7.600E-02	0.540
		1112.07		1.752E-01	4.181E-01	7.056E-01	5.175E-02	0.248
		1408.01		-7.677E-02	2.603E-01	4.105E-01	3.500E-02	-0.187
GD-153		69.67		-1.840E+00	3.203E+00	4.580E+00	5.107E-01	-0.402
		97.43	*	-3.535E-02	1.270E-01	1.822E-01	1.696E-02	-0.194
		103.18		-1.721E-02	1.495E-01	2.426E-01	2.051E-02	-0.071
EU-154		123.07		-1.064E-02	6.950E-02	1.117E-01	1.102E-02	-0.095
		723.31		1.656E-02	2.373E-01	3.453E-01	2.515E-02	0.048
		873.19		3.036E-01	3.849E-01	6.805E-01	8.531E-02	0.446
		996.26		2.611E-02	5.810E-01	8.187E-01	1.450E-01	0.032
	+	1004.73		3.248E-01	3.091E-01	5.194E-01	6.184E-02	0.625
		1274.44	*	6.826E-02	1.740E-01	3.023E-01	3.242E-02	0.226

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155		86.55		2.015E-01	1.761E-01	2.711E-01	3.069E-02	0.743
		105.31	*	5.109E-02	1.429E-01	2.372E-01	1.966E-02	0.215
TB-160		86.79		8.826E-01	4.379E-01	7.495E-01	8.444E-02	1.178
		197.04		-1.170E-01	8.461E-01	1.300E+00	7.453E-02	-0.090
		215.65		3.288E-01	9.982E-01	1.716E+00	1.015E-01	0.192
	+	298.57		2.494E-01	2.328E-01	2.647E-01	1.730E-02	0.942
		879.36	*	-2.163E-01	1.970E-01	2.771E-01	2.672E-02	-0.780
		962.29		-6.718E-01	6.660E-01	8.944E-01	8.491E-02	-0.751
		966.15		6.497E-01	2.824E-01	5.260E-01	4.971E-02	1.235
		1177.93		5.609E-01	5.293E-01	9.756E-01	6.084E-02	0.575
		1271.85		-6.457E-01	1.151E+00	1.794E+00	1.380E-01	-0.360
HO-166M		80.57		3.846E-01	4.186E-01	6.480E-01	7.117E-02	0.594
	+	184.41		1.677E-01	8.264E-02	8.494E-02	4.771E-03	1.974
		280.46		-4.694E-02	1.124E-01	1.829E-01	1.176E-02	-0.257
		410.95		3.240E-01	3.392E-01	5.896E-01	3.998E-02	0.550
		711.68	*	2.120E-02	8.210E-02	1.396E-01	8.192E-03	0.152
		752.31		7.058E-02	3.675E-01	6.195E-01	4.146E-02	0.114
		810.29		-5.336E-02	7.874E-02	1.177E-01	9.379E-03	-0.453
TA-182		67.75		-6.523E-02	2.013E-01	3.135E-01	3.541E-02	-0.208
		100.11		4.895E-02	2.425E-01	4.004E-01	3.558E-02	0.122
		152.43		-1.030E-01	4.891E-01	7.752E-01	4.448E-02	-0.133
		222.11		-1.195E-02	4.478E-01	7.556E-01	4.513E-02	-0.016
	+	1121.30		5.828E-01	3.741E-01	5.078E-01	3.640E-02	1.148
		1189.05		-1.667E-01	4.493E-01	7.225E-01	4.626E-02	-0.231
		1221.41	*	1.806E-02	3.023E-01	5.074E-01	3.499E-02	0.036
		1231.02		2.874E-03	6.896E-01	1.151E+00	8.108E-02	0.002
IR-192	+	295.96		1.201E+00	3.028E-01	4.046E-01	2.673E-02	2.969
		308.46		4.074E-02	1.296E-01	2.195E-01	1.459E-02	0.186
		316.51	*	-2.300E-02	4.404E-02	7.018E-02	4.666E-03	-0.328
		468.07		-7.217E-02	1.019E-01	1.551E-01	1.151E-02	-0.465
HG-203		70.83		3.260E-02	2.527E+00	3.749E+00	6.563E-01	0.009
	+	72.87		6.132E+00	2.044E+00	2.371E+00	4.024E-01	2.586
		279.20	*	3.004E-02	5.564E-02	9.562E-02	6.421E-03	0.314
BI-207	+	72.81		1.315E+00	4.038E-01	5.005E-01	5.505E-02	2.627
	+	74.97		7.880E-01	2.420E-01	3.642E-01	3.987E-02	2.164
		569.70		-3.457E-03	4.024E-02	6.383E-02	3.806E-03	-0.054
		1063.66	*	1.913E-02	6.295E-02	1.058E-01	8.611E-03	0.181
	+	1770.23		4.216E+00	1.249E+00	2.374E+00	1.575E-01	1.776
PB-210		46.54	*	-4.311E+00	1.162E+01	1.876E+01	1.841E+00	-0.230
PB-211		404.85	*	1.123E-02	9.260E-01	1.513E+00	7.278E-01	0.007
		427.09		1.495E+00	2.246E+00	3.661E+00	1.682E+00	0.408
		832.01		-7.629E-01	1.360E+00	1.999E+00	1.036E+00	-0.382
BI-212	+	727.33	*	2.137E+00	1.162E+00	1.374E+00	1.499E-01	1.555
		785.37		5.662E+00	4.420E+00	8.094E+00	5.993E-01	0.700
		1620.50		-1.075E+00	3.727E+00	5.771E+00	4.401E-01	-0.186
RN-219		271.23		5.807E-01	3.255E-01	5.877E-01	4.967E-02	0.988
		401.81	*	-2.778E-01	5.532E-01	8.670E-01	1.205E-01	-0.320
RA-223		81.07		1.208E-01	3.264E-01	4.919E-01	5.410E-02	0.246
		83.79		-7.573E-02	2.049E-01	2.949E-01	3.274E-02	-0.257

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227	+	94.87		3.482E+00	1.058E+00	9.712E-01	9.489E-02	3.585
		144.24		1.014E+00	9.235E-01	1.527E+00	1.116E-01	0.664
		154.21		3.442E-01	5.262E-01	8.709E-01	5.994E-02	0.395
		269.46		2.975E-01	2.481E-01	4.396E-01	2.896E-02	0.677
		323.87	*	-6.221E-01	8.844E-01	1.388E+00	2.282E-01	-0.448
	+	338.28		7.880E+00	2.298E+00	3.215E+00	3.468E-01	2.451
	+	79.69		1.422E+01	3.803E+00	2.935E+00	5.435E-01	4.846
	+	235.96		4.533E+00	5.393E-01	3.100E-01	2.590E-02	14.621
		256.23	*	-1.292E-01	3.401E-01	5.580E-01	5.855E-02	-0.232
	+	299.98		1.856E+00	1.741E+00	2.125E+00	2.423E-01	0.873
TH-227		304.50		-3.710E-01	2.328E+00	3.348E+00	5.209E-01	-0.111
		334.37		1.041E+00	2.327E+00	3.518E+00	5.139E-01	0.296
	+	79.80		1.878E+01	5.609E+00	3.882E+00	8.854E-01	4.837
	+	235.96		4.533E+00	5.164E-01	3.100E-01	2.362E-02	14.621
		256.23	*	-1.292E-01	3.402E-01	5.580E-01	6.834E-02	-0.232
TH-229	+	299.98		1.856E+00	1.741E+00	2.125E+00	2.423E-01	0.873
		304.50		-3.710E-01	2.328E+00	3.348E+00	5.209E-01	-0.111
		334.37		1.041E+00	2.327E+00	3.518E+00	5.139E-01	0.296
		85.43		5.906E-01	3.384E-01	5.343E-01	5.976E-02	1.105
		88.47		4.096E-01	1.897E-01	3.278E-01	3.677E-02	1.250
PA-231		193.51	*	-1.927E-01	7.401E-01	1.154E+00	6.580E-02	-0.167
	+	210.85		1.909E+00	1.656E+00	2.021E+00	1.186E-01	0.944
		283.69	*	-1.114E+00	1.820E+00	2.906E+00	3.899E-01	-0.383
TH-231	+	301.36		1.192E+00	1.118E+00	1.387E+00	1.496E-01	0.859
PA-233		81.07		1.208E-01	3.264E-01	4.919E-01	5.410E-02	0.246
		83.79		-7.573E-02	2.049E-01	2.949E-01	3.274E-02	-0.257
	+	94.87		3.482E+00	1.058E+00	9.712E-01	9.489E-02	3.585
		144.24		1.014E+00	9.235E-01	1.527E+00	1.116E-01	0.664
		154.21		3.442E-01	5.262E-01	8.709E-01	5.994E-02	0.395
		269.46		2.975E-01	2.481E-01	4.396E-01	2.896E-02	0.677
		323.87	*	-6.221E-01	8.844E-01	1.388E+00	2.282E-01	-0.448
	+	338.28		7.880E+00	2.298E+00	3.215E+00	3.468E-01	2.451
	+	300.13		8.399E-01	7.904E-01	9.664E-01	1.327E-01	0.869
		311.90	*	6.925E-02	8.246E-02	1.440E-01	9.969E-03	0.481
PA-234	+	340.48		5.029E+00	1.802E+00	1.735E+00	4.069E-01	2.899
PA-234M	+	94.67		1.262E+00	3.996E-01	3.704E-01	4.910E-02	3.407
		98.44		1.526E-01	1.559E-01	2.060E-01	1.151E-01	0.741
		111.00		2.348E-02	2.414E-01	3.948E-01	4.482E-02	0.059
		131.20		-1.316E-01	1.420E-01	2.178E-01	1.364E-02	-0.604
		569.50		-5.596E-02	3.548E-01	5.587E-01	3.333E-02	-0.100
		733.00		-1.612E-01	5.592E-01	7.696E-01	1.647E-01	-0.209
		880.51		-2.550E-01	3.503E-01	5.177E-01	5.007E-02	-0.493
		883.24		1.091E-01	3.507E-01	5.834E-01	3.931E-01	0.187
		926.50		-1.166E-01	2.427E-01	3.699E-01	9.517E-02	-0.315
		946.00	*	-2.598E-01	4.341E-01	6.527E-01	1.258E-01	-0.398
NP-237		949.00		6.862E-02	6.145E-01	1.012E+00	9.758E-02	0.068
	+	766.42		-4.768E-01	1.495E+01	2.464E+01	1.244E+01	-0.019
	+	1001.03	*	6.895E+00	6.547E+00	1.113E+01	1.148E+00	0.620
		86.48	*	4.985E-01	4.455E-01	6.670E-01	1.587E-01	0.747

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	95.86			-5.316E-01	1.293E+00	1.828E+00	4.451E-01	-0.291
	99.53			1.237E-01	2.179E-01	3.659E-01	3.283E-02	0.338
	103.37			3.483E-02	1.333E-01	2.204E-01	1.858E-02	0.158
	106.12			9.960E-03	1.138E-01	1.863E-01	1.507E-02	0.053
	117.23	*		2.070E-01	5.121E-01	8.491E-01	5.923E-02	0.244
	228.18			6.917E-02	2.814E-01	4.806E-01	2.897E-02	0.144
AM-241	277.60			1.772E-01	2.317E-01	4.028E-01	2.583E-02	0.440
	59.54	*		2.621E-01	3.262E-01	5.099E-01	6.549E-02	0.514
CM-247	278.00			7.028E-01	9.950E-01	1.724E+00	1.106E-01	0.408
	287.50			1.980E-01	1.599E+00	2.684E+00	1.738E-01	0.074
CF-249	402.40	*		-1.651E-02	4.936E-02	7.851E-02	5.331E-03	-0.210
	252.80			-4.131E-01	1.257E+00	2.071E+00	1.291E-01	-0.199
	333.37			-6.653E-02	2.533E-01	3.579E-01	2.394E-02	-0.186
	388.16	*		2.933E-02	5.577E-02	9.459E-02	6.427E-03	0.310
CF-251	177.52	*		4.531E-03	1.664E-01	2.650E-01	1.472E-02	0.017
	227.38			2.100E-01	4.528E-01	7.818E-01	4.706E-02	0.269
	285.41			-1.852E+00	2.758E+00	4.396E+00	2.840E-01	-0.421

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]G1202047454      *
* Acquisition date   : 4-MAR-2010 16:10:34 Detector SN#      :              *
* Detector ID        : GAM10                      Sensitivity   : 5.000        *
* Geometry           : CAN                        Energy tolerance: 3.000        *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:00.81              Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID          : G1202047454              Analyst initials: MXR1         *
* Batch Number       : 955027                   Sample Quantity : 8.0570E+01 GRAM  *
* Recovery           : 1.00000                  Carrier Weight  : 0.00000        *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope      :
* MSD DPM             : 0.000                      MSD Isotope :
* LCS DPM             : 0.000                      LCS Isotope  :
* LCSD DPM            : 0.000                      LCSD Isotope :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.579E+01	2.993E+00	5.790E-01	0.000E+00
SR-85	1.553E-01	1.415E-01	7.803E-02	0.000E+00
BA-137M	1.173E+00	1.329E-01	7.532E-02	0.000E+00
CS-137	1.239E+00	1.406E-01	7.957E-02	0.000E+00
TL-208	4.572E-01	9.854E-02	7.651E-02	0.000E+00
BI-211	3.948E+00	5.602E-01	4.168E-01	0.000E+00
PB-212	1.820E+00	2.033E-01	1.185E-01	0.000E+00
BI-214	1.476E+00	2.382E-01	1.433E-01	0.000E+00
PB-214	1.433E+00	2.176E-01	1.514E-01	0.000E+00
RA-224	4.403E+00	1.426E+00	1.270E+00	0.000E+00
RA-226	1.476E+00	2.382E-01	1.433E-01	0.000E+00
AC-228	1.494E+00	4.314E-01	3.402E-01	0.000E+00
RA-228	1.494E+00	4.314E-01	3.402E-01	0.000E+00
TH-228	1.820E+00	2.033E-01	1.185E-01	0.000E+00
TH-232	1.494E+00	4.314E-01	3.402E-01	0.000E+00
TH-234	4.006E+00	3.115E+00	3.870E+00	0.000E+00
U-235	2.346E-01	2.734E-01	4.395E-01	0.000E+00
U-238	4.006E+00	3.115E+00	3.870E+00	0.000E+00
ANH-511	1.201E-01	1.094E-01	6.002E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	1.697E-01	4.886E-01	8.083E-01	0.000E+00 NOT IDENT.
NA-22	2.710E-02	5.984E-02	1.051E-01	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.958E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	1.191E-02	4.257E-02	7.244E-02	0.000E+00 FAIL ABUN
V-48	3.522E-02	1.123E-01	1.896E-01	0.000E+00 NOT IDENT.
CR-51	-9.774E-02	5.209E-01	8.474E-01	0.000E+00 NOT IDENT.
MN-54	2.133E-02	4.908E-02	8.415E-02	0.000E+00 NOT IDENT.
CO-56	6.107E-03	6.159E-02	9.806E-02	0.000E+00 NOT IDENT.

CO-57	1.275E-02	3.339E-02	5.449E-02	0.000E+00	NOT IDENT.
CO-58	-2.449E-02	5.269E-02	8.100E-02	0.000E+00	NOT IDENT.
FE-59	-6.029E-02	1.326E-01	2.014E-01	0.000E+00	NOT IDENT.
CO-60	-5.557E-02	5.265E-02	7.339E-02	0.000E+00	NOT IDENT.
ZN-65	-1.322E-01	1.460E-01	1.829E-01	0.000E+00	NOT IDENT.
SE-75	-1.140E-02	5.510E-02	9.049E-02	0.000E+00	NOT IDENT.
Y-88	-1.643E-02	4.532E-02	6.648E-02	0.000E+00	NOT IDENT.
Y-91	-1.162E+01	2.966E+01	4.765E+01	0.000E+00	NOT IDENT.
NB-94	2.111E-02	4.496E-02	7.772E-02	0.000E+00	NOT IDENT.
NB-95	-3.162E-02	5.873E-02	9.226E-02	0.000E+00	NOT IDENT.
NB-95M	-7.321E-02	1.826E-01	2.559E-01	0.000E+00	NOT IDENT.
ZR-95	6.841E-02	9.756E-02	1.721E-01	0.000E+00	NOT IDENT.
MO-99	-1.848E+01	5.541E+01	8.868E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.892E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.062E-02	5.847E-02	9.541E-02	0.000E+00	FAIL ABUN
RH-106	-8.045E-02	4.080E-01	6.722E-01	0.000E+00	NOT IDENT.
RU-106	-8.045E-02	4.079E-01	6.722E-01	0.000E+00	NOT IDENT.
AG-108M	-2.102E-03	4.004E-02	6.461E-02	0.000E+00	NOT IDENT.
CD-109	0.000E+00	1.263E+00	2.151E+00	0.000E+00	NOT IDENT.
AG-110M	-3.161E-02	5.294E-02	7.089E-02	0.000E+00	NOT IDENT.
SN-113	-4.097E-02	6.228E-02	9.654E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	7.085E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-6.083E-03	8.753E-02	1.381E-01	0.000E+00	NOT IDENT.
TE-123M	-2.384E-02	3.792E-02	5.591E-02	0.000E+00	NOT IDENT.
SB-124	2.313E-02	1.045E-01	1.947E-01	0.000E+00	NOT IDENT.
SB-125	1.451E-01	1.236E-01	2.171E-01	0.000E+00	NOT IDENT.
TE-125M	5.250E+00	1.322E+01	2.167E+01	0.000E+00	NOT IDENT.
I-126	4.410E-01	3.928E-01	6.511E-01	0.000E+00	NOT IDENT.
SB-126	1.470E-01	2.427E-01	4.164E-01	0.000E+00	NOT IDENT.
SN-126	0.000E+00	1.230E-01	2.096E-01	0.000E+00	FAIL ABUN
SB-127	3.160E+00	3.958E+00	7.066E+00	0.000E+00	NOT IDENT.
I-131	-8.074E-02	2.354E-01	3.757E-01	0.000E+00	NOT IDENT.
TE-132	6.759E-01	2.784E+00	4.715E+00	0.000E+00	NOT IDENT.
BA-133	-1.320E-02	6.251E-02	8.799E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.368E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.746E-02	6.084E-02	1.143E-01	0.000E+00	NOT IDENT.
CS-135	-8.409E-02	2.049E-01	3.329E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.129E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.217E-02	1.813E-01	2.758E-01	0.000E+00	FAIL ABUN
CE-139	6.785E-03	3.989E-02	6.363E-02	0.000E+00	NOT IDENT.
BA-140	-1.167E-02	4.390E-01	7.002E-01	0.000E+00	NOT IDENT.
LA-140	-1.503E-01	1.917E-01	2.761E-01	0.000E+00	NOT IDENT.
CE-141	1.223E-03	9.348E-02	1.451E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	5.797E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.582E-02	2.506E-01	4.020E-01	0.000E+00	NOT IDENT.
PM-144	3.121E-02	4.436E-02	7.828E-02	0.000E+00	NOT IDENT.
PR-144	2.329E+00	3.327E+00	5.871E+00	0.000E+00	NOT IDENT.
PM-146	3.133E-02	5.796E-02	9.747E-02	0.000E+00	NOT IDENT.
ND-147	-1.852E-01	9.780E-01	1.536E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	5.504E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	5.688E-03	1.296E-01	1.978E-01	0.000E+00	FAIL ABUN
GD-153	-3.535E-02	1.245E-01	1.761E-01	0.000E+00	NOT IDENT.
EU-154	6.826E-02	1.706E-01	2.976E-01	0.000E+00	FAIL ABUN
EU-155	5.109E-02	1.401E-01	2.295E-01	0.000E+00	NOT IDENT.
TB-160	-2.163E-01	1.931E-01	2.720E-01	0.000E+00	FAIL ABUN
HO-166M	2.120E-02	8.046E-02	1.368E-01	0.000E+00	FAIL ABUN
TA-182	1.806E-02	2.962E-01	4.992E-01	0.000E+00	FAIL ABUN
IR-192	-2.300E-02	4.316E-02	6.842E-02	0.000E+00	FAIL ABUN
HG-203	3.004E-02	5.452E-02	9.314E-02	0.000E+00	FAIL ABUN
BI-207	1.913E-02	6.169E-02	1.040E-01	0.000E+00	FAIL ABUN
PB-210	-4.311E+00	1.139E+01	1.804E+01	0.000E+00	NOT IDENT.
PB-211	1.123E-02	9.074E-01	1.478E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.139E+00	1.347E+00	0.000E+00	FAIL ABUN
RN-219	-2.778E-01	5.421E-01	8.466E-01	0.000E+00	NOT IDENT.
RA-223	-6.221E-01	8.667E-01	1.353E+00	0.000E+00	FAIL ABUN
AC-227	-1.292E-01	3.333E-01	5.432E-01	0.000E+00	FAIL ABUN
TH-227	-1.292E-01	3.334E-01	5.432E-01	0.000E+00	FAIL ABUN
TH-229	-1.927E-01	7.253E-01	1.121E+00	0.000E+00	FAIL ABUN
PA-231	-1.114E+00	1.784E+00	2.831E+00	0.000E+00	FAIL ABUN
TH-231	-6.221E-01	8.667E-01	1.353E+00	0.000E+00	FAIL ABUN
PA-233	6.925E-02	8.081E-02	1.404E-01	0.000E+00	FAIL ABUN
PA-234	-2.598E-01	4.255E-01	6.411E-01	0.000E+00	FAIL ABUN
PA-234M	6.895E+00	6.416E+00	1.093E+01	0.000E+00	FAIL ABUN
NP-237	4.985E-01	4.366E-01	6.443E-01	0.000E+00	NOT IDENT.
NP-239	2.070E-01	5.019E-01	8.220E-01	0.000E+00	NOT IDENT.
AM-241	2.621E-01	3.196E-01	4.913E-01	0.000E+00	NOT IDENT.
CM-247	-1.651E-02	4.838E-02	7.667E-02	0.000E+00	NOT IDENT.
CF-249	2.933E-02	5.465E-02	9.235E-02	0.000E+00	NOT IDENT.

CF-251	4.531E-03	1.631E-01	2.573E-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]G1202047454.CNF;1
Sample date        : 12-FEB-2010 12:00:00 Acquisition date : 4-MAR-2010 16:10:34.
Sample ID          : G1202047454 Sample quantity : 8.05700E+01 GRAM
Detector name      : GAM10 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.81 0.0%
Energy tolerance   : 3.00000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 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	1460.82	652	10.66*	1.106E+00	2.579E+01	2.579E+01	11.84
SR-85	514.00	75	96.00*	2.924E+00	1.251E-01	1.553E-01	92.99
BA-137M	661.66	532	89.90*	2.351E+00	1.172E+00	1.173E+00	11.56
CS-137	661.66	532	85.10*	2.351E+00	1.238E+00	1.239E+00	11.57
TL-208	277.37	-----	6.60	4.609E+00	-----	Line Not Found	-----
	583.19	219	85.00*	2.624E+00	4.572E-01	4.572E-01	21.99
	860.56	-----	12.50	1.841E+00	-----	Line Not Found	-----
BI-211	72.87	233	1.23	3.868E+00	2.285E+01	2.285E+01	30.72
	351.06	425	12.92*	3.883E+00	3.948E+00	3.948E+00	14.48
PB-212	74.82	233	10.28	3.868E+00	2.733E+00	2.733E+00	32.22
	77.11	336	17.10	4.163E+00	2.196E+00	2.196E+00	22.19
	238.63	870	43.60*	5.111E+00	1.820E+00	1.820E+00	11.40
	300.09	52	3.30	4.355E+00	1.687E+00	1.687E+00	93.53
BI-214	609.32	364	45.49*	2.528E+00	1.476E+00	1.476E+00	16.47
	1120.29	55	14.92	1.412E+00	1.206E+00	1.206E+00	64.54
	1764.49	-----	15.30	9.764E-01	-----	Line Not Found	-----
PB-214	74.82	233	5.80	3.868E+00	4.845E+00	4.845E+00	31.72
	77.11	336	9.70	4.163E+00	3.871E+00	3.871E+00	23.67
	242.00	196	7.25	5.067E+00	2.490E+00	2.490E+00	33.56
	295.22	270	18.42	4.407E+00	1.549E+00	1.549E+00	26.02
	351.93	425	35.60*	3.883E+00	1.433E+00	1.433E+00	15.49
RA-224	240.99	196	4.10*	5.067E+00	4.403E+00	4.403E+00	33.05
RA-226	609.32	364	45.49*	2.528E+00	1.476E+00	1.476E+00	16.47
	1120.29	55	14.92	1.412E+00	1.206E+00	1.206E+00	64.54
	1764.49	-----	15.30	9.764E-01	-----	Line Not Found	-----
AC-228	338.32	192	11.27	3.997E+00	1.986E+00	1.986E+00	49.45
	911.20	144	25.80*	1.736E+00	1.494E+00	1.494E+00	29.47
	968.97	111	15.80	1.634E+00	2.008E+00	2.008E+00	42.98
RA-228	338.32	192	11.27	3.997E+00	1.986E+00	1.986E+00	49.45
	911.20	144	25.80*	1.736E+00	1.494E+00	1.494E+00	29.47
	968.97	111	15.80	1.634E+00	2.008E+00	2.008E+00	42.98
TH-228	74.82	233	10.28	3.868E+00	2.733E+00	2.733E+00	30.74

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	336	17.10	4.163E+00	2.196E+00	2.196E+00	22.19
	238.63	870	43.60*	5.111E+00	1.820E+00	1.820E+00	11.40
	300.09	52	3.30	4.355E+00	1.687E+00	1.687E+00	111.29
TH-232	338.32	192	11.27	3.997E+00	1.986E+00	1.986E+00	27.91
	911.20	144	25.80*	1.736E+00	1.494E+00	1.494E+00	29.47
	968.97	111	15.80	1.634E+00	2.008E+00	2.008E+00	42.98
TH-234	63.29	72	3.70*	2.260E+00	4.006E+00	4.006E+00	79.34
	92.59	243	4.23	5.718E+00	4.683E+00	4.683E+00	36.56
U-235	89.96	243	3.47	5.718E+00	5.709E+00	5.709E+00	38.14
	93.35	243	5.60	5.718E+00	3.538E+00	3.538E+00	37.18
	143.76	-----	10.96*	6.659E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.375E+00	-----	Line Not Found	-----
	185.72	155	57.20	5.974E+00	2.111E-01	2.111E-01	49.27
	205.31	-----	5.01	5.638E+00	-----	Line Not Found	-----
U-238	63.29	72	3.70*	2.260E+00	4.006E+00	4.006E+00	79.34
	92.59	243	4.23	5.718E+00	4.683E+00	4.683E+00	30.39
ANH-511	511.00	75	100.00*	2.924E+00	1.201E-01	1.201E-01	92.99

Flag: "*" = Keyline

Total number of lines in spectrum 24
Number of unidentified lines 1
Number of lines tentatively identified by NID 23 95.83%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.579E+01	2.579E+01	0.305E+01	11.84	
SR-85	64.84D	1.24	1.251E-01	1.553E-01	1.444E-01	92.99	
BA-137M	30.08Y	1.00	1.172E+00	1.173E+00	0.136E+00	11.56	
CS-137	30.08Y	1.00	1.238E+00	1.239E+00	0.143E+00	11.57	
TL-208	1.41E+10Y	1.00	4.572E-01	4.572E-01	1.005E-01	21.99	
BI-211	7.04E+08Y	1.00	3.948E+00	3.948E+00	0.572E+00	14.48	
PB-212	1.41E+10Y	1.00	1.820E+00	1.820E+00	0.207E+00	11.40	
BI-214	1600.00Y	1.00	1.476E+00	1.476E+00	0.243E+00	16.47	
PB-214	1600.00Y	1.00	1.433E+00	1.433E+00	0.222E+00	15.49	
RA-224	1.41E+10Y	1.00	4.403E+00	4.403E+00	1.455E+00	33.05	
RA-226	1600.00Y	1.00	1.476E+00	1.476E+00	0.243E+00	16.47	
AC-228	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.440E+00	29.47	
RA-228	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.440E+00	29.47	
TH-228	1.41E+10Y	1.00	1.820E+00	1.820E+00	0.207E+00	11.40	
TH-232	1.41E+10Y	1.00	1.494E+00	1.494E+00	0.440E+00	29.47	
TH-234	4.47E+09Y	1.00	4.006E+00	4.006E+00	3.178E+00	79.34	
U-235	7.04E+08Y	1.00	2.111E-01	2.111E-01	1.040E-01	49.27	K
U-238	4.47E+09Y	1.00	4.006E+00	4.006E+00	3.178E+00	79.34	
ANH-511	1.00E+09Y	1.00	1.201E-01	1.201E-01	1.117E-01	92.99	
Total Activity :			5.798E+01	5.802E+01			

Grand Total Activity : 5.798E+01 5.802E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.25	64	215	1.23	418.41	414	9	8.88E-03	86.5	5.57E+00	T
0	728.83	66	51	1.91	1457.00	1451	16	9.16E-03	53.3	2.16E+00	T
0	1002.52	20	18	2.32	2004.26	1999	9	2.73E-03	94.4	1.58E+00	T
0	1379.56	54	12	3.85	2758.39	2748	23	7.49E-03	42.6	1.16E+00	
0	1767.56	61	0	1.83	3534.71	3528	13	8.41E-03	28.9	9.76E-01	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047454.CNF;1
* Acquisition date   : 4-MAR-2010 16:10:34.  Detector SN#      :
* Detector ID        : GAM10                      Sensitivity    : 5.00000
* Geometry           : CAN                      Energy tolerance: 3.00000
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:00.81             Half life ratio : 8.00000
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G1202047454           Analyst initials: MXR1
* Batch Number       : 955027                Sample Quantity : 8.05700E+01 GRAM
*****
*
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08.8MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A                LCS Isotope      :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.579E+01	3.054E+00	5.877E-01	5.062E-02	43.888
SR-85	1.553E-01	1.444E-01	7.977E-02	5.095E-03	1.946
BA-137M	1.173E+00	1.356E-01	7.687E-02	3.793E-03	15.263
CS-137	1.239E+00	1.434E-01	8.121E-02	4.030E-03	15.263
TL-208	4.572E-01	1.005E-01	7.815E-02	5.239E-03	5.850
BI-211	3.948E+00	5.716E-01	4.273E-01	3.116E-02	9.241
PB-212	1.820E+00	2.074E-01	1.218E-01	9.310E-03	14.945
BI-214	1.476E+00	2.431E-01	1.464E-01	1.123E-02	10.086
PB-214	1.433E+00	2.220E-01	1.552E-01	1.420E-02	9.231
RA-224	4.403E+00	1.455E+00	1.305E+00	8.009E-02	3.375
RA-226	1.476E+00	2.431E-01	1.464E-01	1.123E-02	10.086
AC-228	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
RA-228	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
TH-228	1.820E+00	2.074E-01	1.218E-01	9.310E-03	14.945
TH-232	1.494E+00	4.402E-01	3.464E-01	4.385E-02	4.312
TH-234	4.006E+00	3.178E+00	4.015E+00	8.051E-01	0.998
U-235	2.111E-01	1.040E-01	4.533E-01	7.143E-02	0.466
U-238	4.006E+00	3.178E+00	4.015E+00	8.051E-01	0.998

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.201E-01	1.117E-01	6.136E-02	3.931E-03	1.957

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.697E-01		4.985E-01	8.267E-01	6.145E-02	0.205
NA-22	2.710E-02		6.106E-02	1.067E-01	8.267E-03	0.254
NA-24	-2.547E+02		1.509E+02	Half-Life	too short	
SC-46	1.191E-02		4.344E-02	7.377E-02	7.301E-03	0.161
V-48	3.522E-02		1.146E-01	1.930E-01	1.784E-02	0.183
CR-51	-9.774E-02		5.315E-01	8.691E-01	6.270E-02	-0.112
MN-54	2.133E-02		5.008E-02	8.574E-02	7.326E-03	0.249
CO-56	6.107E-03		6.285E-02	9.990E-02	8.822E-03	0.061
CO-57	1.275E-02		3.407E-02	5.627E-02	3.711E-03	0.227
CO-58	-2.449E-02		5.376E-02	8.255E-02	6.605E-03	-0.297
FE-59	-6.029E-02		1.353E-01	2.048E-01	1.709E-02	-0.294
CO-60	-5.557E-02		5.373E-02	7.454E-02	6.478E-03	-0.745
ZN-65	-1.322E-01		1.490E-01	1.860E-01	1.355E-02	-0.711
SE-75	-1.140E-02		5.622E-02	9.293E-02	5.929E-03	-0.123
Y-88	-1.643E-02		4.625E-02	6.737E-02	4.133E-03	-0.244
Y-91	-1.162E+01		3.026E+01	4.843E+01	3.216E+00	-0.240
NB-94	2.111E-02		4.588E-02	7.928E-02	4.514E-03	0.266
NB-95	-3.162E-02		5.993E-02	9.406E-02	6.564E-03	-0.336
NB-95M	-7.321E-02		1.863E-01	2.631E-01	2.047E-02	-0.278
ZR-95	6.841E-02		9.955E-02	1.755E-01	1.386E-02	0.390
MO-99	-1.848E+01		5.654E+01	9.043E+01	1.327E+01	-0.204
TC-99M	-7.424E+15		3.006E+16	Half-Life	too short	
RU-103	1.062E-02		5.966E-02	9.757E-02	1.245E-02	0.109
RH-106	-8.045E-02		4.163E-01	6.863E-01	7.852E-02	-0.117
RU-106	-8.045E-02		4.162E-01	6.863E-01	3.726E-02	-0.117
AG-108M	-2.102E-03		4.086E-02	6.613E-02	4.689E-03	-0.032
CD-109	2.920E+00		1.289E+00	2.226E+00	2.524E-01	1.312
AG-110M	-3.161E-02		5.402E-02	7.234E-02	3.920E-03	-0.437
SN-113	-4.097E-02		6.355E-02	9.888E-02	7.051E-03	-0.414
CD-115	-2.251E-05		3.615E-05	Half-Life	too short	
SN-117M	-6.083E-03		8.931E-02	1.423E-01	7.982E-03	-0.043
TE-123M	-2.384E-02		3.870E-02	5.762E-02	3.273E-03	-0.414
SB-124	2.313E-02		1.066E-01	1.975E-01	1.505E-02	0.117
SB-125	1.451E-01		1.261E-01	2.222E-01	1.546E-02	0.653
TE-125M	5.250E+00		1.349E+01	2.239E+01	2.190E+00	0.234
I-126	4.410E-01		4.008E-01	6.644E-01	3.333E-02	0.664
SB-126	1.470E-01		2.476E-01	4.247E-01	2.568E-02	0.346
SN-126	2.806E-01		1.256E-01	2.170E-01	2.455E-02	1.293
SB-127	3.160E+00		4.039E+00	7.209E+00	7.994E-01	0.438
I-131	-8.074E-02		2.402E-01	3.849E-01	2.849E-02	-0.210
TE-132	6.759E-01		2.841E+00	4.848E+00	7.645E-01	0.139
BA-133	-1.320E-02		6.379E-02	9.018E-02	1.064E-02	-0.146

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	-1.614E-01		2.229E-01	Half-Life too short		
CS-134	9.746E-02		6.208E-02	1.165E-01	8.983E-03	0.836
CS-135	-8.409E-02		2.091E-01	3.418E-01	2.763E-02	-0.246
I-135	-7.965E+13		1.597E+15	Half-Life too short		
CS-136	-8.217E-02		1.850E-01	2.806E-01	2.457E-02	-0.293
CE-139	6.785E-03		4.070E-02	6.557E-02	3.581E-03	0.103
BA-140	-1.167E-02		4.479E-01	7.156E-01	2.389E-01	-0.016
LA-140	-1.503E-01		1.956E-01	2.801E-01	2.174E-02	-0.537
CE-141	1.223E-03		9.539E-02	1.497E-01	9.163E-03	0.008
CE-143	1.755E-02	+	2.958E-03	Half-Life too short		
CE-144	2.582E-02		2.557E-01	4.148E-01	5.833E-02	0.062
PM-144	3.121E-02		4.526E-02	7.986E-02	4.459E-03	0.391
PR-144	2.329E+00		3.395E+00	5.989E+00	3.339E-01	0.389
PM-146	3.133E-02		5.914E-02	9.973E-02	9.058E-03	0.314
ND-147	-1.852E-01		9.979E-01	1.570E+00	2.155E-01	-0.118
PM-149	-2.068E-04		2.808E-04	Half-Life too short		
EU-152	5.688E-03		1.322E-01	2.027E-01	1.493E-02	0.028
GD-153	-3.535E-02		1.270E-01	1.822E-01	1.696E-02	-0.194
EU-154	6.826E-02		1.740E-01	3.023E-01	3.242E-02	0.226
EU-155	5.109E-02		1.429E-01	2.372E-01	1.966E-02	0.215
TB-160	-2.163E-01		1.970E-01	2.771E-01	2.672E-02	-0.780
HO-166M	2.120E-02		8.210E-02	1.396E-01	8.192E-03	0.152
TA-182	1.806E-02		3.023E-01	5.074E-01	3.499E-02	0.036
IR-192	-2.300E-02		4.404E-02	7.018E-02	4.666E-03	-0.328
HG-203	3.004E-02		5.564E-02	9.562E-02	6.421E-03	0.314
BI-207	1.913E-02		6.295E-02	1.058E-01	8.611E-03	0.181
PB-210	-4.311E+00		1.162E+01	1.876E+01	1.841E+00	-0.230
PB-211	1.123E-02		9.260E-01	1.513E+00	7.278E-01	0.007
BI-212	2.137E+00	+	1.162E+00	1.374E+00	1.499E-01	1.555
RN-219	-2.778E-01		5.532E-01	8.670E-01	1.205E-01	-0.320
RA-223	-6.221E-01		8.844E-01	1.388E+00	2.282E-01	-0.448
AC-227	-1.292E-01		3.401E-01	5.580E-01	5.855E-02	-0.232
TH-227	-1.292E-01		3.402E-01	5.580E-01	6.834E-02	-0.232
TH-229	-1.927E-01		7.401E-01	1.154E+00	6.580E-02	-0.167
PA-231	-1.114E+00		1.820E+00	2.906E+00	3.899E-01	-0.383
TH-231	-6.221E-01		8.844E-01	1.388E+00	2.282E-01	-0.448
PA-233	6.925E-02		8.246E-02	1.440E-01	9.969E-03	0.481
PA-234	-2.598E-01		4.341E-01	6.527E-01	1.258E-01	-0.398
PA-234M	6.895E+00	+	6.547E+00	1.113E+01	1.148E+00	0.620
NP-237	4.985E-01		4.455E-01	6.670E-01	1.587E-01	0.747
NP-239	2.070E-01		5.121E-01	8.491E-01	5.923E-02	0.244
AM-241	2.621E-01		3.262E-01	5.099E-01	6.549E-02	0.514
CM-247	-1.651E-02		4.936E-02	7.851E-02	5.331E-03	-0.210
CF-249	2.933E-02		5.577E-02	9.459E-02	6.427E-03	0.310
CF-251	4.531E-03		1.664E-01	2.650E-01	1.472E-02	0.017

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202047454          *
* Acquisition date   : 4-MAR-2010 16:10:34 Detector SN#                   *
* Detector ID        : GAM10 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 3.000                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:00.81 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 12-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202047454 Analyst initials: MXR1                 *
* Batch Number       : 955027 Sample Quantity : 8.0570E+01 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                   *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.579E+01	2.993E+00	2.897E-01	1.527E+00
SR-85	1.553E-01	1.415E-01	3.904E-02	7.219E-02
BA-137M	1.173E+00	1.329E-01	3.768E-02	6.782E-02
CS-137	1.239E+00	1.406E-01	3.981E-02	7.172E-02
TL-208	4.572E-01	9.854E-02	3.828E-02	5.027E-02
BI-211	3.948E+00	5.602E-01	2.085E-01	2.858E-01
PB-212	1.820E+00	2.033E-01	5.927E-02	1.037E-01
BI-214	1.476E+00	2.382E-01	7.171E-02	1.215E-01
PB-214	1.433E+00	2.176E-01	7.577E-02	1.110E-01
RA-224	4.403E+00	1.426E+00	6.352E-01	7.276E-01
RA-226	1.476E+00	2.382E-01	7.171E-02	1.215E-01
AC-228	1.494E+00	4.314E-01	1.702E-01	2.201E-01
RA-228	1.494E+00	4.314E-01	1.702E-01	2.201E-01
TH-228	1.820E+00	2.033E-01	5.927E-02	1.037E-01
TH-232	1.494E+00	4.314E-01	1.702E-01	2.201E-01
TH-234	4.006E+00	3.115E+00	1.936E+00	1.589E+00
U-235	2.346E-01	2.734E-01	2.199E-01	1.395E-01
U-238	4.006E+00	3.115E+00	1.936E+00	1.589E+00
ANH-511	1.201E-01	1.094E-01	3.003E-02	5.583E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	1.697E-01	4.886E-01	4.044E-01	2.493E-01 NOT IDENT.
NA-22	2.710E-02	5.984E-02	5.256E-02	3.053E-02 NOT IDENT.
NA-24	-2.547E+08	2.958E+08	0.000E+00	1.509E+08 SHORT HLIF
SC-46	1.191E-02	4.257E-02	3.624E-02	2.172E-02 FAIL ABUN
V-48	3.522E-02	1.123E-01	9.486E-02	5.729E-02 NOT IDENT.
CR-51	-9.774E-02	5.209E-01	4.239E-01	2.658E-01 NOT IDENT.
MN-54	2.133E-02	4.908E-02	4.210E-02	2.504E-02 NOT IDENT.
CO-56	6.107E-03	6.159E-02	4.906E-02	3.143E-02 NOT IDENT.

CO-57	1.275E-02	3.339E-02	2.726E-02	1.703E-02	NOT IDENT.
CO-58	-2.449E-02	5.269E-02	4.052E-02	2.688E-02	NOT IDENT.
FE-59	-6.029E-02	1.326E-01	1.008E-01	6.766E-02	NOT IDENT.
CO-60	-5.557E-02	5.265E-02	3.672E-02	2.686E-02	NOT IDENT.
ZN-65	-1.322E-01	1.460E-01	9.152E-02	7.450E-02	NOT IDENT.
SE-75	-1.140E-02	5.510E-02	4.527E-02	2.811E-02	NOT IDENT.
Y-88	-1.643E-02	4.532E-02	3.326E-02	2.312E-02	NOT IDENT.
Y-91	-1.162E+01	2.966E+01	2.384E+01	1.513E+01	NOT IDENT.
NB-94	2.111E-02	4.496E-02	3.888E-02	2.294E-02	NOT IDENT.
NB-95	-3.162E-02	5.873E-02	4.616E-02	2.996E-02	NOT IDENT.
NB-95M	-7.321E-02	1.826E-01	1.280E-01	9.316E-02	NOT IDENT.
ZR-95	6.841E-02	9.756E-02	8.610E-02	4.977E-02	NOT IDENT.
MO-99	-1.848E+01	5.541E+01	4.437E+01	2.827E+01	NOT IDENT.
TC-99M	-7.424E+21	5.892E+22	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.062E-02	5.847E-02	4.774E-02	2.983E-02	FAIL ABUN
RH-106	-8.045E-02	4.080E-01	3.363E-01	2.082E-01	NOT IDENT.
RU-106	-8.045E-02	4.079E-01	3.363E-01	2.081E-01	NOT IDENT.
AG-108M	-2.102E-03	4.004E-02	3.233E-02	2.043E-02	NOT IDENT.
CD-109	2.920E+00	1.263E+00	1.076E+00	6.443E-01	NOT IDENT.
AG-110M	-3.161E-02	5.294E-02	3.546E-02	2.701E-02	NOT IDENT.
SN-113	-4.097E-02	6.228E-02	4.830E-02	3.177E-02	NOT IDENT.
CD-115	-2.251E+01	7.085E+01	0.000E+00	3.615E+01	SHORT HLIF
SN-117M	-6.083E-03	8.753E-02	6.908E-02	4.466E-02	NOT IDENT.
TE-123M	-2.384E-02	3.792E-02	2.797E-02	1.935E-02	NOT IDENT.
SB-124	2.313E-02	1.045E-01	9.742E-02	5.332E-02	NOT IDENT.
SB-125	1.451E-01	1.236E-01	1.086E-01	6.305E-02	NOT IDENT.
TE-125M	5.250E+00	1.322E+01	1.084E+01	6.745E+00	NOT IDENT.
I-126	4.410E-01	3.928E-01	3.257E-01	2.004E-01	NOT IDENT.
SB-126	1.470E-01	2.427E-01	2.083E-01	1.238E-01	NOT IDENT.
SN-126	2.806E-01	1.230E-01	1.049E-01	6.278E-02	FAIL ABUN
SB-127	3.160E+00	3.958E+00	3.535E+00	2.020E+00	NOT IDENT.
I-131	-8.074E-02	2.354E-01	1.879E-01	1.201E-01	NOT IDENT.
TE-132	6.759E-01	2.784E+00	2.359E+00	1.421E+00	NOT IDENT.
BA-133	-1.320E-02	6.251E-02	4.402E-02	3.189E-02	FAIL ABUN
I-133	-1.614E+05	4.368E+05	0.000E+00	2.229E+05	SHORT HLIF
CS-134	9.746E-02	6.084E-02	5.720E-02	3.104E-02	NOT IDENT.
CS-135	-8.409E-02	2.049E-01	1.665E-01	1.046E-01	NOT IDENT.
I-135	-7.965E+19	3.129E+21	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.217E-02	1.813E-01	1.380E-01	9.249E-02	FAIL ABUN
CE-139	6.785E-03	3.989E-02	3.184E-02	2.035E-02	NOT IDENT.
BA-140	-1.167E-02	4.390E-01	3.503E-01	2.240E-01	NOT IDENT.
LA-140	-1.503E-01	1.917E-01	1.381E-01	9.781E-02	NOT IDENT.
CE-141	1.223E-03	9.348E-02	7.261E-02	4.770E-02	NOT IDENT.
CE-143	1.755E+04	5.797E+03	0.000E+00	2.958E+03	SHORT HLIF
CE-144	2.582E-02	2.506E-01	2.011E-01	1.278E-01	NOT IDENT.
PM-144	3.121E-02	4.436E-02	3.917E-02	2.263E-02	NOT IDENT.
PR-144	2.329E+00	3.327E+00	2.937E+00	1.698E+00	NOT IDENT.
PM-146	3.133E-02	5.796E-02	4.876E-02	2.957E-02	NOT IDENT.
ND-147	-1.852E-01	9.780E-01	7.683E-01	4.990E-01	FAIL ABUN
PM-149	-2.068E+02	5.504E+02	0.000E+00	2.808E+02	SHORT HLIF
EU-152	5.688E-03	1.296E-01	9.893E-02	6.611E-02	FAIL ABUN
GD-153	-3.535E-02	1.245E-01	8.811E-02	6.351E-02	NOT IDENT.
EU-154	6.826E-02	1.706E-01	1.489E-01	8.702E-02	FAIL ABUN
EU-155	5.109E-02	1.401E-01	1.148E-01	7.147E-02	NOT IDENT.
TB-160	-2.163E-01	1.931E-01	1.361E-01	9.851E-02	FAIL ABUN
HO-166M	2.120E-02	8.046E-02	6.847E-02	4.105E-02	FAIL ABUN
TA-182	1.806E-02	2.962E-01	2.498E-01	1.511E-01	FAIL ABUN
IR-192	-2.300E-02	4.316E-02	3.423E-02	2.202E-02	FAIL ABUN
HG-203	3.004E-02	5.452E-02	4.660E-02	2.782E-02	FAIL ABUN
BI-207	1.913E-02	6.169E-02	5.203E-02	3.147E-02	FAIL ABUN
PB-210	-4.311E+00	1.139E+01	9.026E+00	5.809E+00	NOT IDENT.
PB-211	1.123E-02	9.074E-01	7.393E-01	4.630E-01	NOT IDENT.
BI-212	2.137E+00	1.139E+00	6.739E-01	5.812E-01	FAIL ABUN
RN-219	-2.778E-01	5.421E-01	4.235E-01	2.766E-01	NOT IDENT.
RA-223	-6.221E-01	8.667E-01	6.771E-01	4.422E-01	FAIL ABUN
AC-227	-1.292E-01	3.333E-01	2.717E-01	1.701E-01	FAIL ABUN
TH-227	-1.292E-01	3.334E-01	2.717E-01	1.701E-01	FAIL ABUN
TH-229	-1.927E-01	7.253E-01	5.609E-01	3.700E-01	FAIL ABUN
PA-231	-1.114E+00	1.784E+00	1.416E+00	9.101E-01	FAIL ABUN
TH-231	-6.221E-01	8.667E-01	6.771E-01	4.422E-01	FAIL ABUN
PA-233	6.925E-02	8.081E-02	7.024E-02	4.123E-02	FAIL ABUN
PA-234	-2.598E-01	4.255E-01	3.207E-01	2.171E-01	FAIL ABUN
PA-234M	6.895E+00	6.416E+00	5.470E+00	3.273E+00	FAIL ABUN
NP-237	4.985E-01	4.366E-01	3.223E-01	2.228E-01	NOT IDENT.
NP-239	2.070E-01	5.019E-01	4.113E-01	2.561E-01	NOT IDENT.
AM-241	2.621E-01	3.196E-01	2.458E-01	1.631E-01	NOT IDENT.
CM-247	-1.651E-02	4.838E-02	3.836E-02	2.468E-02	NOT IDENT.
CF-249	2.933E-02	5.465E-02	4.620E-02	2.788E-02	NOT IDENT.

CF-251

4.531E-03

1.631E-01

1.288E-01

8.319E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	212.8622
49.72	200.8762
57.36	0.0000
59.54	184.1396
63.29	243.8477
63.29	243.8477
64.28	244.8706
67.75	251.6593
69.67	250.6739
70.83	235.3111
72.81	259.6245
72.87	259.6571
72.87	259.6571
74.82	265.5793
74.82	265.5793
74.82	265.5793
74.97	265.6609
77.11	266.8079
77.11	266.8079
77.11	266.8079
79.69	239.5789
79.80	227.7960
80.12	227.9381
80.19	227.9699
80.57	225.1750
81.00	232.7762
81.07	232.8073
81.07	232.8073
83.79	278.7366
83.79	278.7366
85.43	230.2563
86.48	308.6055
86.55	308.6464
86.79	267.8105
86.94	267.8855
87.57	268.1963
88.03	268.4226
88.47	268.6379
89.96	269.3645
91.11	269.9220
92.59	270.6335
92.59	270.6335
93.35	270.9962
94.67	271.6232
94.87	184.0175
94.87	184.0175
95.86	198.0449
97.43	204.6896
98.44	165.2580
99.53	188.0476
100.11	194.3690
103.18	202.5601
103.37	193.3672
105.31	200.1720
106.12	207.6667
109.28	187.9506
111.00	195.7482
111.76	179.3023
116.30	177.4093
117.23	174.5057
121.12	195.6121
121.78	192.6280
122.06	187.4125
123.07	203.5967
131.20	230.6508
133.52	181.8868
136.00	174.9479

136.47	185.8662
140.51	196.6596
140.51	0.0000
143.76	187.6876
144.24	179.0697
144.24	179.0697
145.44	197.9430
152.43	215.1736
153.25	192.1993
154.21	195.7472
154.21	195.7472
156.02	178.4554
158.56	173.4561
159.00	174.6622
162.66	181.0289
163.33	192.3575
165.86	185.0896
176.60	164.6988
177.52	167.1455
181.07	155.8286
184.41	170.1593
185.72	158.3552
193.51	199.0430
197.04	195.1438
205.31	186.9858
210.85	168.2458
215.65	163.3696
222.11	154.5770
227.38	151.7689
228.16	160.8681
228.18	160.8708
235.69	160.7413
235.96	160.7820
235.96	160.7820
238.63	157.0043
238.63	157.0043
240.99	157.3435
242.00	157.4887
244.70	143.0917
252.40	135.9926
252.80	148.9087
256.23	154.8904
256.23	154.8904
260.90	0.0000
264.66	120.7304
268.22	155.5611
269.46	134.2771
269.46	134.2771
271.23	125.1384
273.65	183.4091
276.40	130.3676
277.37	132.3489
277.60	127.6805
278.00	131.4786
279.20	131.6089
279.54	125.0629
280.46	142.0970
283.69	125.4871
284.31	116.1102
285.41	127.5513
285.90	0.0000
287.50	120.1942
293.27	0.0000
295.22	134.0775
295.96	134.1549
298.57	106.9329
299.98	107.0508
299.98	107.0508
300.09	107.0593
300.09	107.0593
300.13	107.0627
301.36	107.1653
302.85	96.5595
304.50	113.5636
304.50	113.5636
304.85	113.5943
308.46	103.9032
311.90	93.5647

316.51	100.6659
319.41	95.0631
320.08	104.8162
323.87	133.3333
323.87	133.3333
328.76	108.4171
333.37	103.4875
334.37	87.8705
334.37	87.8705
338.28	89.4934
338.28	89.4934
338.32	89.4962
338.32	89.4962
338.32	89.4962
340.48	96.1346
340.55	96.1405
344.28	94.8135
351.06	98.4386
351.93	98.2991
356.01	105.1472
364.49	101.1495
366.42	82.2277
383.85	96.3655
388.16	93.5835
388.63	82.4189
391.69	107.0492
400.66	104.5821
401.81	100.5541
402.40	93.4064
404.85	85.3253
410.95	84.6163
414.70	101.3601
423.72	89.4368
427.09	81.2813
427.87	71.9364
433.94	85.7987
453.88	77.2718
463.37	87.2676
468.07	98.1683
473.00	90.9480
476.78	76.1265
477.60	80.4520
487.02	62.5366
492.35	0.0000
497.08	69.3799
511.00	68.8000
514.00	68.9077
527.90	0.0000
529.87	0.0000
531.02	60.6850
537.26	57.5558
546.56	0.0000
563.25	59.4196
569.33	55.0966
569.50	55.1011
569.70	55.1056
583.19	64.8937
600.60	62.9878
602.73	65.2692
604.72	71.6436
609.32	60.4909
609.32	60.4909
610.33	60.5183
614.28	65.8333
618.01	67.1703
621.93	60.8357
621.93	60.8357
633.25	50.0265
635.95	58.4350
636.99	51.9654
645.85	54.9625
657.76	63.9858
661.66	56.2764
661.66	56.2764
664.57	0.0000
666.33	39.1581
666.50	39.1612
677.62	52.8801

685.70	38.8469
695.00	50.4108
696.49	48.5372
696.51	48.5384
697.00	50.4522
702.65	56.2934
706.68	69.7653
711.68	53.6266
720.70	42.7159
721.93	0.0000
722.78	48.0945
722.91	48.0969
723.31	46.5020
724.19	43.3092
727.33	43.3641
733.00	51.5091
735.93	54.7921
739.50	49.3826
747.24	55.3579
752.31	48.6560
753.82	61.3419
756.73	40.9408
763.94	57.6705
765.81	62.6031
766.42	56.7468
777.92	40.2893
778.90	35.3892
783.70	67.9505
785.37	41.3868
795.86	33.6348
801.95	42.6336
810.29	45.7473
810.76	41.7765
815.77	46.8348
818.51	50.8718
832.01	49.1136
834.85	43.1438
836.80	0.0000
846.77	47.3557
856.80	58.6443
860.56	38.4731
871.09	45.7262
873.19	33.5567
875.33	0.0000
879.36	48.9129
880.51	39.7570
883.24	28.5701
884.68	24.5004
889.28	22.4941
898.04	29.7385
911.20	51.4990
911.20	51.4990
911.20	51.4990
926.50	43.4776
937.49	51.9446
944.13	36.4398
946.00	47.9215
949.00	38.5826
962.29	43.0512
964.08	38.4194
966.15	17.4748
968.97	45.4746
968.97	45.4746
968.97	45.4746
983.53	30.5725
996.26	38.8079
1001.03	36.0387
1004.73	14.1488
1037.84	38.5857
1038.76	0.0000
1048.07	36.5533
1050.41	26.8958
1050.41	26.8958
1063.66	24.8418
1085.87	28.2636
1099.45	39.2854
1112.07	32.8550
1115.54	53.2460

1120.29	40.2492
1120.29	40.2492
1120.55	40.2528
1121.30	36.6016
1131.51	0.0000
1173.23	45.4829
1177.93	32.5291
1189.05	47.5406
1204.77	43.0595
1221.41	51.7102
1231.02	48.0698
1235.36	64.1650
1238.28	44.3819
1260.41	0.0000
1271.85	45.7168
1274.44	30.4987
1274.54	29.5456
1291.59	31.5874
1298.22	0.0000
1312.11	22.1278
1332.49	30.9401
1365.19	19.4906
1368.63	0.0000
1384.29	16.7822
1408.01	24.6104
1457.56	0.0000
1460.82	10.2489
1489.16	12.0327
1505.03	20.1253
1596.21	28.7326
1620.50	19.5961
1678.03	0.0000
1690.97	5.2313
1764.49	1.8196
1764.49	1.8196
1770.23	3.6433
1771.35	3.6441
1791.20	0.0000
1836.06	9.6837

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202047454

Total Uranium Activity	1.2027E+01	ug/g
Total Uranium Counting Unc.	9.2675E+00	ug/g
Total Uranium Tpu	4.7283E-06	ug/g
Total Uranium Mda	5.7608E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON , SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 955027          SAMPLE ID   : G1202047454
*  ANALYST       : MXR1           DETECTOR    : GAM10
*  SAMPLE DATE   : 12-FEB-2010 12:00:00.00 COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 4-MAR-2010 16:10:34.04 SAMPLE ALQT: 80.570 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.797E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.448E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.483E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.679E+00

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VAX/VMS Nuclide Identification Report Generated 5-MAR-2010 10:35:17.99

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047455.CNF;1
Sample date       : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:48:27.
Sample ID        : G1202047455 Sample quantity  : 1.55440E+02 GRAM
Detector name    : GAM18 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.85 0.1%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity      : 5.00000
Batch ID        : 955027 Detector SN#      :
Matrix Spike ID  : LCS ID : 1032-A
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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	59.68*	2461	419	0.97	118.49	112	13	6.84E-01	2.4	1.26E+00
2	0	77.86*	126	727	0.84	154.83	150	8	3.50E-02	38.9	
3	3	88.12	1687	383	1.10	175.34	170	22	4.69E-01	3.1	4.43E+00
4	3	89.96	94	341	1.11	179.03	170	22	2.62E-02	44.9	
5	0	122.19	282	458	1.10	243.47	238	11	7.84E-02	15.9	
6	0	154.33	51	294	1.00	307.71	303	8	1.42E-02	60.0	
7	0	185.77*	129	536	1.35	370.58	366	13	3.59E-02	38.2	
8	0	208.87	135	353	1.14	416.77	412	10	3.75E-02	27.4	
9	0	238.64*	790	370	1.20	476.29	472	8	2.19E-01	5.6	
10	0	241.68*	117	332	2.01	482.36	480	8	3.26E-02	28.8	
11	0	295.31*	196	320	1.25	589.59	585	11	5.45E-02	19.2	
12	0	338.32*	176	296	1.34	675.58	670	11	4.89E-02	20.5	
13	0	351.87*	370	315	1.18	702.68	696	13	1.03E-01	11.3	
14	0	583.15*	292	235	1.82	1165.09	1156	15	8.10E-02	12.9	
15	0	609.01*	265	221	1.42	1216.80	1209	15	7.36E-02	13.8	
16	0	661.31	3544	239	1.65	1321.38	1312	18	9.84E-01	2.0	
17	0	726.99*	77	114	1.91	1452.70	1447	12	2.15E-02	30.3	
18	0	910.41*	220	157	2.26	1819.46	1811	15	6.10E-02	14.3	
19	0	968.24*	84	195	1.36	1935.11	1931	12	2.34E-02	35.1	
20	0	1172.51	2937	133	1.94	2343.58	2335	19	8.16E-01	2.1	
21	0	1331.59	2696	63	2.17	2661.68	2650	21	7.49E-01	2.1	
22	0	1763.28*	63	0	2.25	3525.01	3518	14	1.75E-02	13.5	

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

VMS Nuclide Identification Report V3.1 Generated 5-MAR-2010 10:35:21

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Configuration       : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047455.CNF;1
Analyses by        : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title       : MXR1
Sample date        : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:48:27
Sample ID          : G1202047455 Sample quantity : 155.44 GRAM
Sample type        : SOLID Sample geometry :
Detector name      : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.85 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
CO-57	+	122.06	*	1.997E-01	6.447E-02	5.642E-02	3.342E-03	3.540
		136.47		3.498E-01	2.677E-01	4.505E-01	2.943E-02	0.776
CO-60	+	1173.23		6.348E+00	4.394E-01	1.045E-01	5.776E-03	60.733
	+	1332.49	*	6.449E+00	5.544E-01	6.656E-02	5.029E-03	96.885
CD-109	+	88.03	*	3.427E+01	3.811E+00	1.781E+00	1.646E-01	19.246
SN-126		64.28		9.118E-02	8.950E-01	1.349E+00	1.995E-01	0.068
	+	86.94		1.402E+01	5.883E+00	7.399E-01	3.069E-01	18.953
	+	87.57	*	3.373E+00	3.751E-01	1.764E-01	1.625E-02	19.124
BA-137M	+	661.66	*	5.309E+00	4.553E-01	8.022E-02	6.115E-03	66.175
CS-137	+	661.66	*	5.608E+00	4.819E-01	8.475E-02	6.476E-03	66.175
TL-208		277.37		3.388E-01	5.625E-01	9.379E-01	1.006E-01	0.361
	+	583.19	*	4.211E-01	1.137E-01	8.372E-02	6.552E-03	5.030
		860.56		2.711E-01	4.985E-01	8.393E-01	9.387E-02	0.323
BI-211		72.87		-9.223E+00	5.832E+00	7.965E+00	6.577E-01	-1.158
	+	351.06	*	2.540E+00	5.948E-01	4.745E-01	3.047E-02	5.354
PB-212		74.82		1.945E-01	6.912E-01	1.035E+00	1.327E-01	0.188
	+	77.11		6.662E-01	5.208E-01	5.525E-01	4.683E-02	1.206
	+	238.63	*	1.288E+00	1.710E-01	1.489E-01	1.073E-02	8.652
		300.09		1.643E+00	1.246E+00	1.902E+00	1.588E-01	0.864
BI-214	+	609.32	*	7.374E-01	2.144E-01	1.553E-01	1.396E-02	4.748
		1120.29		3.437E-01	4.632E-01	8.002E-01	7.705E-02	0.430
	+	1764.49		1.170E+00	3.239E-01	4.897E-01	2.978E-02	2.390
PB-214		74.82		3.447E-01	1.225E+00	1.834E+00	2.112E-01	0.188
	+	77.11		1.174E+00	9.232E-01	9.739E-01	1.152E-01	1.206
	+	242.00		1.159E+00	6.742E-01	9.203E-01	7.399E-02	1.260
	+	295.22		8.515E-01	3.354E-01	3.307E-01	2.871E-02	2.575
	+	351.93	*	9.220E-01	2.218E-01	1.725E-01	1.460E-02	5.344
RA-224	+	240.99	*	2.050E+00	1.186E+00	1.567E+00	8.730E-02	1.308
RA-226	+	609.32	*	7.374E-01	2.144E-01	1.553E-01	1.396E-02	4.748
		1120.29		3.437E-01	4.632E-01	8.002E-01	7.705E-02	0.430
	+	1764.49		1.170E+00	3.239E-01	4.897E-01	2.978E-02	2.390
AC-228	+	338.32		1.351E+00	7.862E-01	5.525E-01	2.277E-01	2.445
	+	911.20	*	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
	+	968.97		9.763E-01	7.265E-01	7.653E-01	1.909E-01	1.276

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	+	338.32		1.351E+00	7.862E-01	5.525E-01	2.277E-01	2.445
	+	911.20	*	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
	+	968.97		9.763E-01	7.265E-01	7.653E-01	1.909E-01	1.276
TH-228		74.82		1.945E-01	6.910E-01	1.035E+00	8.726E-02	0.188
	+	77.11		6.662E-01	5.208E-01	5.525E-01	4.683E-02	1.206
	+	238.63	*	1.288E+00	1.710E-01	1.489E-01	1.073E-02	8.652
		300.09		1.643E+00	1.592E+00	1.902E+00	1.158E+00	0.864
TH-232	+	338.32		1.351E+00	5.604E-01	5.525E-01	3.196E-02	2.445
	+	911.20	*	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
	+	968.97		9.763E-01	7.265E-01	7.653E-01	1.909E-01	1.276
AM-241	+	59.54	*	1.333E+01	1.284E+00	5.222E-01	4.331E-02	25.529

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-1.917E-01	4.711E-01	7.609E-01	5.512E-02	-0.252
NA-22		1274.54	*	-9.503E-03	4.467E-02	7.169E-02	4.878E-03	-0.133
NA-24		1368.63	*	-4.105E-03	4.467E-02	Half-Life too short		
K-40		1460.82	*	1.130E+00	4.972E-01	9.791E-01	7.430E-02	1.154
SC-46		889.28	*	-4.648E-02	6.953E-02	1.091E-01	1.217E-02	-0.426
		1120.55		6.038E-02	7.436E-02	1.291E-01	8.919E-03	0.468
V-48		944.13		5.077E-01	1.372E+00	2.267E+00	2.399E-01	0.224
		983.53	*	-3.610E-02	1.086E-01	1.723E-01	1.704E-02	-0.210
		1312.11		-3.211E-02	7.193E-02	1.119E-01	8.154E-03	-0.287
CR-51		320.08	*	-1.543E-01	4.667E-01	7.386E-01	4.748E-02	-0.209
MN-54		834.85	*	3.682E-02	6.137E-02	1.039E-01	1.064E-02	0.354
CO-56		846.77	*	6.654E-02	6.199E-02	1.073E-01	1.121E-02	0.620
		1037.84		-3.210E-02	5.031E-01	8.391E-01	7.767E-02	-0.038
		1238.28		4.792E-02	8.033E-02	1.392E-01	9.279E-03	0.344
		1771.35		-4.261E-01	3.524E-01	4.903E-01	2.963E-02	-0.869
CO-58		810.76	*	-6.311E-02	5.893E-02	9.019E-02	8.904E-03	-0.700
FE-59		1099.45	*	2.641E-02	1.404E-01	2.363E-01	1.944E-02	0.112
		1291.59		7.591E-02	1.304E-01	2.256E-01	1.896E-02	0.337
ZN-65		1115.54	*	6.896E-02	1.447E-01	2.467E-01	1.738E-02	0.279
SE-75	+	121.12		1.028E+00	3.396E-01	3.944E-01	3.618E-02	2.608
		136.00		6.998E-02	5.083E-02	8.585E-02	4.892E-03	0.815
		264.66	*	-5.340E-02	5.989E-02	9.366E-02	5.358E-03	-0.570
		279.54		6.738E-02	1.557E-01	2.581E-01	1.597E-02	0.261
		400.66		-4.843E-01	3.701E-01	5.771E-01	5.238E-02	-0.839
SR-85		514.00	*	-1.418E-01	6.075E-02	8.750E-02	5.797E-03	-1.621
Y-88		898.04		-6.389E-02	7.348E-02	1.134E-01	1.286E-02	-0.563
		1836.06	*	-9.754E-03	3.946E-02	6.201E-02	3.532E-03	-0.157
Y-91		1204.77	*	1.746E+01	2.279E+01	3.990E+01	2.358E+00	0.438
NB-94		702.65	*	3.549E-02	4.598E-02	7.995E-02	6.560E-03	0.444
		871.09		3.511E-03	5.973E-02	9.813E-02	1.064E-02	0.036
NB-95		765.81	*	1.479E-02	5.763E-02	9.683E-02	8.858E-03	0.153
NB-95M		235.69	*	1.226E-01	1.886E-01	2.820E-01	2.076E-02	0.435
ZR-95		724.19		6.624E-02	1.422E-01	2.115E-01	1.957E-02	0.313

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99		756.73	*	-2.900E-02	9.932E-02	1.617E-01	1.597E-02	-0.179
		140.51		-5.575E+00	9.310E+00	1.421E+01	3.242E+00	-0.392
		181.07		7.611E+00	8.211E+00	1.259E+01	2.205E+00	0.604
		366.42		-2.443E+01	4.433E+01	7.277E+01	4.204E+00	-0.336
		739.50	*	-6.261E-01	5.371E+00	8.859E+00	1.402E+00	-0.071
TC-99M		777.92		3.573E+00	1.779E+01	2.975E+01	2.778E+00	0.120
RU-103		140.51	*	-9.155E+04	1.779E+01	Half-Life too short		
+ RH-106		497.08	*	-6.848E-02	5.638E-02	8.545E-02	1.091E-02	-0.801
		610.33		7.016E+00	2.230E+00	2.550E+00	3.999E-01	2.752
RU-106		621.93	*	-2.905E-02	4.688E-01	7.527E-01	9.388E-02	-0.039
		1050.41		-3.009E-01	4.268E+00	7.108E+00	6.075E-01	-0.042
AG-108M		621.93	*	-2.905E-02	4.687E-01	7.527E-01	5.539E-02	-0.039
		1050.41		-3.009E-01	4.268E+00	7.108E+00	6.075E-01	-0.042
AG-110M		433.94	*	-3.742E-02	4.596E-02	7.335E-02	4.728E-03	-0.510
		614.28		3.642E-03	5.875E-02	8.217E-02	6.278E-03	0.044
		722.91		-1.711E-02	5.927E-02	8.281E-02	7.272E-03	-0.207
		657.76	*	7.506E-01	1.033E-01	1.720E-01	1.357E-02	4.363
		677.62		-5.206E-02	4.168E-01	6.927E-01	5.623E-02	-0.075
		706.68		-2.487E-02	2.952E-01	4.902E-01	4.177E-02	-0.051
		763.94		-1.056E-01	2.279E-01	3.670E-01	3.429E-02	-0.288
		884.68		3.644E-02	8.189E-02	1.373E-01	1.550E-02	0.265
		937.49		-1.333E-01	2.102E-01	3.292E-01	3.604E-02	-0.405
		1384.29		-1.734E-01	1.646E-01	2.281E-01	1.765E-02	-0.760
SN-113		1505.03		-1.305E-03	2.958E-01	4.939E-01	3.545E-02	-0.003
CD-115		391.69	*	-4.212E-02	6.414E-02	1.042E-01	6.391E-03	-0.404
		260.90		1.930E+01	4.522E+01	7.544E+01	4.259E+00	0.256
		492.35		1.122E+01	1.399E+01	2.393E+01	1.549E+00	0.469
		527.90	*	1.348E+00	4.091E+00	6.811E+00	4.578E-01	0.198
SN-117M		156.02		-1.088E-01	2.482E+00	3.711E+00	1.982E-01	-0.029
TE-123M		158.56	*	7.023E-02	5.546E-02	9.259E-02	4.921E-03	0.758
		159.00	*	5.224E-02	3.468E-02	6.036E-02	3.257E-03	0.865
SB-124		602.73		-2.195E-02	5.671E-02	7.619E-02	5.510E-03	-0.288
		645.85		-9.561E-01	7.106E-01	1.034E+00	8.361E-02	-0.924
		722.78		-1.473E-01	5.655E-01	7.922E-01	6.892E-02	-0.186
		1690.97	*	-2.882E-02	8.225E-02	1.280E-01	8.868E-03	-0.225
SB-125		427.87	*	2.135E-01	1.420E-01	2.509E-01	1.566E-02	0.851
		463.37		3.879E-01	4.476E-01	7.663E-01	5.468E-02	0.506
		600.60		2.617E-02	2.461E-01	3.775E-01	3.008E-02	0.069
		635.95		1.839E-01	4.075E-01	6.732E-01	5.556E-02	0.273
TE-125M		109.28	*	-5.480E+00	1.267E+01	2.007E+01	1.798E+00	-0.273
I-126		388.63		-1.153E-01	1.921E-01	3.132E-01	1.800E-02	-0.368
		666.33	*	3.797E-02	2.590E-01	3.797E-01	2.919E-02	0.100
SB-126		753.82		2.176E+00	2.068E+00	3.622E+00	3.247E-01	0.601
		414.70		3.099E-02	8.742E-02	1.482E-01	8.763E-03	0.209
		666.50		2.919E-03	8.733E-02	1.267E-01	9.747E-03	0.023
		695.00		-2.570E-03	8.069E-02	1.346E-01	1.089E-02	-0.019
		697.00		-1.519E-01	2.812E-01	4.542E-01	3.689E-02	-0.334
		720.70	*	5.165E-02	1.747E-01	2.571E-01	2.177E-02	0.201
		856.80		2.836E-01	6.184E-01	1.038E+00	1.101E-01	0.273

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	252.40			-1.433E+00	2.631E+00	4.101E+00	1.669E+00	-0.349
	473.00			-4.084E-01	1.156E+00	1.876E+00	1.903E-01	-0.218
	685.70	*		-1.931E-01	8.033E-01	1.324E+00	1.273E-01	-0.146
	783.70			1.560E+00	2.268E+00	3.886E+00	4.619E-01	0.401
I-131	80.19			-9.500E-01	5.128E+00	7.486E+00	6.506E-01	-0.127
	284.31			-7.446E-01	1.465E+00	2.325E+00	1.469E-01	-0.320
	364.49	*		-2.146E-02	1.118E-01	1.868E-01	1.198E-02	-0.115
	636.99			8.263E-02	1.634E+00	2.636E+00	2.107E-01	0.031
TE-132	49.72			1.464E+01	1.770E+01	3.055E+01	2.788E+00	0.479
	111.76			-3.570E+00	1.712E+01	2.730E+01	2.205E+00	-0.131
	116.30			-8.189E+00	1.556E+01	2.318E+01	1.818E+00	-0.353
	228.16	*		9.199E-02	3.947E-01	6.559E-01	8.855E-02	0.140
BA-133	81.00			-9.212E-02	1.580E-01	2.252E-01	3.507E-02	-0.409
	276.40			4.180E-01	5.221E-01	8.753E-01	1.098E-01	0.478
	302.85			-2.770E-01	2.065E-01	3.087E-01	3.513E-02	-0.897
	356.01	*		-1.031E-02	6.934E-02	9.536E-02	1.074E-02	-0.108
	383.85			6.284E-01	4.374E-01	7.711E-01	8.204E-02	0.815
I-133	529.87	*		8.070E-05	4.374E-01	Half-Life	too short	
	875.33			6.419E-03	4.374E-01	Half-Life	too short	
	1298.22			-6.304E-03	4.374E-01	Half-Life	too short	
CS-134	563.25			-3.535E-03	5.013E-01	8.149E-01	5.758E-02	-0.004
	569.33			-1.500E-02	2.784E-01	4.501E-01	3.218E-02	-0.033
	604.72			3.072E-02	5.093E-02	7.472E-02	5.433E-03	0.411
	795.86	*		-5.942E-03	6.947E-02	1.141E-01	1.104E-02	-0.052
	801.95			-1.715E-02	5.831E-01	9.661E-01	9.425E-02	-0.018
	1365.19			5.797E-01	1.186E+00	2.062E+00	1.642E-01	0.281
CS-135	268.22	*		1.501E-01	2.202E-01	3.698E-01	2.795E-02	0.406
I-135	546.56			-1.576E+05	2.202E-01	Half-Life	too short	
	836.80			4.319E+05	2.202E-01	Half-Life	too short	
	1038.76			-1.136E+05	2.202E-01	Half-Life	too short	
	1131.51			-9.683E+04	2.202E-01	Half-Life	too short	
	1260.41	*		3.560E+04	2.202E-01	Half-Life	too short	
	1457.56			3.576E+05	2.202E-01	Half-Life	too short	
	1678.03			9.355E+04	2.202E-01	Half-Life	too short	
	1791.20			-1.454E+04	2.202E-01	Half-Life	too short	
CS-136	153.25	+		9.199E-01	1.106E+00	1.489E+00	1.152E-01	0.618
	176.60			-3.321E-02	4.954E-01	8.313E-01	5.511E-02	-0.040
	273.65			-8.008E-01	5.893E-01	8.999E-01	6.061E-02	-0.890
	340.55			3.508E-01	1.925E-01	2.980E-01	1.865E-02	1.177
	818.51			4.065E-02	9.348E-02	1.577E-01	1.574E-02	0.258
	1048.07	*		-6.435E-02	1.420E-01	2.312E-01	2.071E-02	-0.278
	1235.36			4.608E-01	4.286E-01	7.677E-01	7.816E-02	0.600
CE-139	165.86	*		2.331E-02	3.641E-02	6.300E-02	3.307E-03	0.370
BA-140	162.66			-1.023E+00	7.737E-01	1.232E+00	7.612E-02	-0.831
	304.85			-2.175E-01	1.510E+00	2.423E+00	6.919E-01	-0.090
	423.72			-2.336E+00	2.434E+00	3.671E+00	1.186E+00	-0.636
	537.26	*		8.127E-02	3.061E-01	5.053E-01	1.692E-01	0.161
LA-140	328.76			4.026E-01	3.391E-01	5.737E-01	3.725E-02	0.702
	487.02			1.094E-02	1.696E-01	2.801E-01	1.998E-02	0.039

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		815.77		1.377E-01	4.079E-01	6.848E-01	7.411E-02	0.201
		1596.21	*	2.768E-02	7.920E-02	1.370E-01	9.401E-03	0.202
CE-141		145.44	*	-3.923E-02	7.693E-02	1.190E-01	6.797E-03	-0.330
CE-143		57.36		6.228E+02	2.971E+02	4.715E+02	4.739E+01	1.321
		293.27	*	3.808E+01	2.289E+01	3.355E+01	6.905E+00	1.135
		664.57		4.467E+03	1.376E+03	7.272E+02	2.170E+02	6.143
		721.93		-7.870E+01	2.039E+02	2.807E+02	7.880E+01	-0.280
CE-144		80.12		-8.080E-01	4.080E+00	5.953E+00	5.154E-01	-0.136
		133.52	*	-4.599E-01	2.739E-01	3.900E-01	5.393E-02	-1.179
PM-144		476.78		-5.935E-02	1.010E-01	1.616E-01	1.186E-02	-0.367
		618.01		1.837E-02	4.624E-02	7.636E-02	5.814E-03	0.241
		696.49	*	-3.260E-02	4.658E-02	7.447E-02	6.044E-03	-0.438
PR-144		696.51	*	-2.446E+00	3.477E+00	5.557E+00	4.510E-01	-0.440
		1489.16		-2.494E+00	1.612E+01	2.556E+01	1.847E+00	-0.098
PM-146		453.88	*	-6.382E-03	6.788E-02	1.119E-01	9.778E-03	-0.057
		633.25		-9.782E-01	2.185E+00	3.366E+00	1.277E+00	-0.291
		735.93		4.259E-02	2.008E-01	3.375E-01	9.468E-02	0.126
		747.24		-1.781E-02	1.397E-01	2.301E-01	3.389E-02	-0.077
ND-147	+	91.11		4.752E-01	4.290E-01	4.455E-01	4.192E-02	1.067
		319.41		-4.231E-01	3.512E+00	5.622E+00	3.246E-01	-0.075
		531.02	*	-6.251E-02	6.209E-01	1.009E+00	1.408E-01	-0.062
PM-149		285.90	*	1.793E+01	3.188E+01	5.295E+01	7.481E+00	0.339
EU-152	+	121.78		5.813E-01	1.898E-01	2.243E-01	1.722E-02	2.591
		244.70		2.120E-01	4.849E-01	7.180E-01	4.011E-02	0.295
		344.28	*	-4.599E-02	1.648E-01	2.254E-01	1.470E-02	-0.204
		778.90		-1.126E-02	4.127E-01	6.817E-01	6.374E-02	-0.017
		964.08		1.477E-01	6.084E-01	8.612E-01	8.821E-02	0.172
		1085.87		1.463E-01	6.098E-01	1.031E+00	7.988E-02	0.142
		1112.07		-2.001E-02	5.119E-01	8.496E-01	6.047E-02	-0.024
		1408.01		8.299E-02	1.869E-01	3.211E-01	2.385E-02	0.258
GD-153		69.67		-1.003E+00	2.652E+00	4.317E+00	3.504E-01	-0.232
		97.43	*	-8.140E-02	1.327E-01	1.859E-01	1.453E-02	-0.438
		103.18		-1.635E-01	1.496E-01	2.300E-01	1.658E-02	-0.711
EU-154	+	123.07		4.108E-01	1.360E-01	1.575E-01	1.487E-02	2.608
		723.31		-9.904E-02	2.722E-01	3.778E-01	3.547E-02	-0.262
		873.19		3.218E-01	4.844E-01	8.199E-01	1.117E-01	0.392
		996.26		-1.748E-01	6.315E-01	1.002E+00	1.805E-01	-0.174
		1004.73		6.926E-02	3.546E-01	5.798E-01	7.128E-02	0.119
		1274.44	*	-1.952E-02	1.262E-01	2.039E-01	2.052E-02	-0.096
EU-155		86.55		1.772E+00	2.684E-01	3.934E-01	3.624E-02	4.505
		105.31	*	9.644E-02	1.422E-01	2.370E-01	1.693E-02	0.407
TB-160	+	86.79		1.038E+01	1.155E+00	1.118E+00	1.023E-01	9.290
		197.04		3.248E-01	6.910E-01	1.175E+00	6.310E-02	0.276
		215.65		2.103E-01	9.864E-01	1.651E+00	9.010E-02	0.127
		298.57		2.088E-01	1.702E-01	2.591E-01	1.488E-02	0.806
		879.36	*	-9.291E-02	2.251E-01	3.588E-01	3.941E-02	-0.259
		962.29		4.529E-01	1.072E+00	1.537E+00	1.579E-01	0.295
		966.15		8.977E-01	4.487E-01	6.897E-01	7.038E-02	1.302
		1177.93		7.582E-01	5.151E-01	8.354E-01	4.664E-02	0.908

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85		2.253E-01	6.685E-01	1.137E+00	7.686E-02	0.198
		80.57		-1.865E-01	4.523E-01	6.527E-01	5.671E-02	-0.286
	+	184.41		1.133E-01	8.668E-02	8.040E-02	4.272E-03	1.409
		280.46		-8.244E-02	1.273E-01	2.012E-01	1.147E-02	-0.410
		410.95		-9.414E-02	3.606E-01	5.949E-01	3.502E-02	-0.158
TA-182		711.68	*	-5.020E-02	8.501E-02	1.362E-01	1.135E-02	-0.369
		752.31		1.219E-01	4.046E-01	6.828E-01	6.105E-02	0.178
		810.29		-1.470E-01	9.482E-02	1.396E-01	1.374E-02	-1.053
		67.75		-1.724E-01	1.686E-01	2.690E-01	2.162E-02	-0.641
		100.11		2.432E-01	2.390E-01	4.039E-01	3.036E-02	0.602
		152.43		1.772E-02	5.174E-01	7.272E-01	3.912E-02	0.024
		222.11		2.694E-02	4.911E-01	8.151E-01	4.474E-02	0.033
		1121.30		1.024E-01	2.076E-01	3.546E-01	2.443E-02	0.289
		1189.05		-6.257E-02	3.326E-01	5.410E-01	3.093E-02	-0.116
		1221.41	*	-1.018E-02	1.748E-01	2.865E-01	1.753E-02	-0.036
IR-192	+	1231.02		-3.675E-01	4.585E-01	6.977E-01	4.352E-02	-0.527
		295.96		6.030E-01	2.344E-01	3.040E-01	1.774E-02	1.983
		308.46		6.599E-02	1.339E-01	2.213E-01	1.289E-02	0.298
		316.51	*	-7.452E-04	4.731E-02	7.620E-02	4.419E-03	-0.010
		468.07		-5.429E-02	1.072E-01	1.729E-01	1.234E-02	-0.314
HG-203		70.83		1.335E+00	1.937E+00	3.257E+00	5.152E-01	0.410
		72.87		-2.144E+00	1.384E+00	1.852E+00	2.840E-01	-1.158
BI-207		279.20	*	4.844E-02	5.270E-02	8.907E-02	5.369E-03	0.544
		72.81		-5.437E-01	3.358E-01	4.575E-01	3.776E-02	-1.188
		74.97		7.303E-02	1.988E-01	2.986E-01	2.496E-02	0.245
		569.70		-6.147E-03	4.333E-02	6.969E-02	4.884E-03	-0.088
		1063.66	*	2.756E-02	8.739E-02	1.485E-01	1.226E-02	0.186
PB-210		1770.23		4.162E-01	5.856E-01	9.516E-01	5.757E-02	0.437
		46.54	*	-4.539E+00	8.713E+00	1.447E+01	1.110E+00	-0.314
PB-211		404.85	*	7.325E-01	1.118E+00	1.828E+00	8.769E-01	0.401
		427.09		5.115E+00	3.335E+00	4.316E+00	1.979E+00	1.185
		832.01		-1.099E-01	1.627E+00	2.663E+00	1.389E+00	-0.041
BI-212	+	727.33	*	1.680E+00	1.038E+00	1.408E+00	1.749E-01	1.193
		785.37		1.793E+00	4.715E+00	7.959E+00	7.522E-01	0.225
RN-219		1620.50		2.381E+00	2.975E+00	5.382E+00	3.640E-01	0.442
		271.23		1.477E-01	3.362E-01	5.586E-01	4.437E-02	0.264
RA-223		401.81	*	-3.834E-01	5.977E-01	9.663E-01	1.299E-01	-0.397
		81.07		-2.181E-01	3.568E-01	5.092E-01	4.441E-02	-0.428
		83.79		1.184E-01	2.069E-01	3.115E-01	2.777E-02	0.380
		94.87		6.087E-01	6.598E-01	1.006E+00	8.196E-02	0.605
		144.24		5.735E-01	9.098E-01	1.477E+00	1.027E-01	0.388
AC-227	+	154.21		5.322E-01	6.397E-01	8.483E-01	5.603E-02	0.627
		269.46		3.466E-01	2.564E-01	4.414E-01	2.617E-02	0.785
		323.87	*	-7.260E-01	9.457E-01	1.452E+00	2.339E-01	-0.500
	+	338.28		5.361E+00	2.270E+00	2.913E+00	2.983E-01	1.840
		79.69		-6.320E-01	2.070E+00	3.002E+00	5.175E-01	-0.211
AC-227		235.96		3.645E-01	2.487E-01	3.837E-01	3.057E-02	0.950
		256.23	*	1.462E-01	3.563E-01	5.939E-01	6.016E-02	0.246
		299.98		1.789E+00	1.375E+00	2.089E+00	2.289E-01	0.856

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		304.50		-9.856E-02	2.294E+00	3.702E+00	5.639E-01	-0.027
		334.37		1.007E+00	2.857E+00	4.090E+00	5.815E-01	0.246
		79.80		-6.792E-01	2.721E+00	3.956E+00	8.618E-01	-0.172
		235.96		3.645E-01	2.483E-01	3.837E-01	2.759E-02	0.950
		256.23	*	1.462E-01	3.564E-01	5.939E-01	7.090E-02	0.246
		299.98		1.789E+00	1.375E+00	2.089E+00	2.289E-01	0.856
TH-229		304.50		-9.856E-02	2.294E+00	3.702E+00	5.639E-01	-0.027
		334.37		1.007E+00	2.857E+00	4.090E+00	5.815E-01	0.246
		85.43		2.155E-01	3.457E-01	5.206E-01	4.706E-02	0.414
	+	88.47		5.201E+00	5.783E-01	6.403E-01	5.866E-02	8.122
		193.51	*	-1.139E-01	7.175E-01	1.152E+00	6.170E-02	-0.099
		210.85		1.786E+00	1.322E+00	2.067E+00	1.123E-01	0.864
PA-231		283.69	*	-1.176E+00	2.151E+00	3.402E+00	4.449E-01	-0.346
		301.36		5.598E-01	8.997E-01	1.321E+00	1.363E-01	0.424
TH-231		81.07		-2.181E-01	3.568E-01	5.092E-01	4.441E-02	-0.428
		83.79		1.184E-01	2.069E-01	3.115E-01	2.777E-02	0.380
		94.87		6.087E-01	6.598E-01	1.006E+00	8.196E-02	0.605
		144.24		5.735E-01	9.098E-01	1.477E+00	1.027E-01	0.388
	+	154.21		5.322E-01	6.397E-01	8.483E-01	5.603E-02	0.627
		269.46		3.466E-01	2.564E-01	4.414E-01	2.617E-02	0.785
PA-233		323.87	*	-7.260E-01	9.457E-01	1.452E+00	2.339E-01	-0.500
	+	338.28		5.361E+00	2.270E+00	2.913E+00	2.983E-01	1.840
		300.13		8.206E-01	6.261E-01	9.470E-01	1.266E-01	0.867
		311.90	*	9.438E-04	9.150E-02	1.478E-01	9.054E-03	0.006
		340.48		2.065E+00	1.151E+00	1.641E+00	3.808E-01	1.258
		94.67		2.794E-01	2.433E-01	3.729E-01	4.510E-02	0.749
PA-234		98.44		4.875E-02	1.452E-01	2.109E-01	1.174E-01	0.231
		111.00		-3.730E-02	2.550E-01	4.078E-01	4.375E-02	-0.091
		131.20		5.120E-02	1.419E-01	2.302E-01	1.310E-02	0.222
		569.50		-3.266E-02	3.860E-01	6.229E-01	4.365E-02	-0.052
		733.00		1.541E-01	5.889E-01	8.620E-01	1.914E-01	0.179
		880.51		-2.101E-01	4.687E-01	7.448E-01	8.196E-02	-0.282
		883.24		2.187E-01	4.996E-01	8.017E-01	5.418E-01	0.273
		926.50		-2.816E-01	3.419E-01	5.182E-01	1.354E-01	-0.544
		946.00	*	-3.901E-01	5.936E-01	9.193E-01	1.813E-01	-0.424
		949.00		5.850E-01	8.380E-01	1.409E+00	1.480E-01	0.415
	PA-234M	766.42		4.699E+00	1.636E+01	2.724E+01	1.385E+01	0.172
		1001.03	*	-1.972E+00	7.700E+00	1.219E+01	1.316E+00	-0.162
	TH-234	63.29	*	2.536E-01	2.405E+00	3.630E+00	6.539E-01	0.070
		92.59		-3.660E-01	9.152E-01	1.494E+00	3.290E-01	-0.245
U-235	+	89.96		1.963E+00	1.827E+00	2.779E+00	6.866E-01	0.706
		93.35		-1.339E-01	6.892E-01	1.136E+00	2.613E-01	-0.118
		143.76	*	2.602E-01	2.696E-01	4.400E-01	6.862E-02	0.591
		163.33		-8.547E-01	5.581E-01	8.531E-01	1.417E-01	-1.002
	+	185.72		1.426E-01	1.091E-01	1.106E-01	5.883E-03	1.290
		205.31		2.198E-01	7.136E-01	1.062E+00	1.791E-01	0.207
NP-237		86.48	*	3.806E+00	1.010E+00	9.313E-01	2.130E-01	4.086
U-238		95.86		-1.018E+00	1.424E+00	1.957E+00	4.654E-01	-0.520
		63.29	*	2.536E-01	2.405E+00	3.630E+00	6.539E-01	0.070

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	92.59			-3.660E-01	9.122E-01	1.494E+00	1.265E-01	-0.245
	99.53			2.632E-01	2.280E-01	3.864E-01	2.929E-02	0.681
	103.37			-1.291E-01	1.368E-01	2.119E-01	1.524E-02	-0.609
	106.12			4.547E-02	1.147E-01	1.888E-01	1.312E-02	0.241
	117.23	*		-2.327E-01	6.309E-01	8.840E-01	5.460E-02	-0.263
CM-247	228.18			7.437E-02	3.169E-01	5.268E-01	2.906E-02	0.141
	277.60			1.647E-01	2.573E-01	4.303E-01	2.451E-02	0.383
	278.00			6.331E-01	1.099E+00	1.833E+00	1.044E-01	0.345
	287.50			6.224E-01	1.782E+00	2.941E+00	1.682E-01	0.212
	402.40	*		-2.276E-02	5.445E-02	8.928E-02	5.198E-03	-0.255
CF-249	252.80			-2.955E-01	1.304E+00	2.117E+00	1.189E-01	-0.140
	333.37			-1.515E-01	3.101E-01	4.198E-01	2.428E-02	-0.361
CF-251	388.16	*		-5.204E-02	6.020E-02	9.696E-02	5.573E-03	-0.537
	177.52	*		-3.421E-02	1.648E-01	2.749E-01	1.453E-02	-0.124
	227.38			-6.732E-02	5.162E-01	8.492E-01	4.681E-02	-0.079
	285.41			6.337E-01	3.187E+00	5.227E+00	2.988E-01	0.121
ANH-511	511.00	*		5.910E-02	5.340E-02	9.925E-02	6.555E-03	0.596

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047455      *
* Acquisition date   : 4-MAR-2010 12:48:27 Detector SN# :                   *
* Detector ID        : GAM18                                           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 01:00:01.85                               Half life ratio : 8.000  *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 22-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202047455                               Analyst initials: MXR1    *
* Batch Number       : 955027                                     Sample Quantity : 1.5544E+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)	
CO-57	1.997E-01	6.318E-02	6.077E-02	0.000E+00
CO-60	6.449E+00	5.433E-01	6.730E-02	0.000E+00
CD-109	3.427E+01	3.735E+00	1.933E+00	0.000E+00
SN-126	3.373E+00	3.676E-01	1.915E-01	0.000E+00
BA-137M	5.309E+00	4.462E-01	8.270E-02	0.000E+00
CS-137	5.608E+00	4.722E-01	8.737E-02	0.000E+00
TL-208	4.211E-01	1.115E-01	8.660E-02	0.000E+00
BI-211	2.540E+00	5.829E-01	4.975E-01	0.000E+00
PB-212	1.288E+00	1.676E-01	1.576E-01	0.000E+00
BI-214	7.374E-01	2.101E-01	1.605E-01	0.000E+00
PB-214	9.220E-01	2.174E-01	1.809E-01	0.000E+00
RA-224	2.050E+00	1.163E+00	1.659E+00	0.000E+00
RA-226	7.374E-01	2.101E-01	1.605E-01	0.000E+00
AC-228	1.479E+00	4.576E-01	4.217E-01	0.000E+00
RA-228	1.479E+00	4.576E-01	4.217E-01	0.000E+00
TH-228	1.288E+00	1.676E-01	1.576E-01	0.000E+00
TH-232	1.479E+00	4.576E-01	4.217E-01	0.000E+00
AM-241	1.333E+01	1.258E+00	5.724E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-1.917E-01	4.617E-01	7.913E-01	0.000E+00 NOT IDENT.
NA-22	-9.503E-03	4.377E-02	7.258E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	4.853E+03	0.000E+00	0.000E+00 SHORT HLIF
K-40	0.000E+00	4.873E-01	9.874E-01	0.000E+00 NOT IDENT.
SC-46	-4.648E-02	6.814E-02	1.115E-01	0.000E+00 NOT IDENT.
V-48	-3.610E-02	1.064E-01	1.757E-01	0.000E+00 NOT IDENT.
CR-51	-1.543E-01	4.573E-01	7.762E-01	0.000E+00 NOT IDENT.
MN-54	3.682E-02	6.014E-02	1.064E-01	0.000E+00 NOT IDENT.
CO-56	6.654E-02	6.075E-02	1.099E-01	0.000E+00 NOT IDENT.

CO-58	-6.311E-02	5.775E-02	9.246E-02	0.000E+00	NOT IDENT.
FE-59	2.641E-02	1.376E-01	2.402E-01	0.000E+00	NOT IDENT.
ZN-65	6.896E-02	1.418E-01	2.507E-01	0.000E+00	NOT IDENT.
SE-75	-5.340E-02	5.870E-02	9.891E-02	0.000E+00	FAIL ABUN
SR-85	-1.418E-01	5.954E-02	9.081E-02	0.000E+00	NOT IDENT.
Y-88	-9.754E-03	3.867E-02	6.214E-02	0.000E+00	NOT IDENT.
Y-91	1.746E+01	2.233E+01	4.046E+01	0.000E+00	NOT IDENT.
NB-94	3.549E-02	4.506E-02	8.229E-02	0.000E+00	NOT IDENT.
NB-95	1.479E-02	5.648E-02	9.943E-02	0.000E+00	NOT IDENT.
NB-95M	1.226E-01	1.848E-01	2.987E-01	0.000E+00	NOT IDENT.
ZR-95	-2.900E-02	9.733E-02	1.661E-01	0.000E+00	NOT IDENT.
MO-99	-6.261E-01	5.263E+00	9.105E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.495E+11	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-6.848E-02	5.525E-02	8.877E-02	0.000E+00	FAIL ABUN
RH-106	-2.905E-02	4.594E-01	7.772E-01	0.000E+00	NOT IDENT.
RU-106	-2.905E-02	4.594E-01	7.772E-01	0.000E+00	NOT IDENT.
AG-108M	-3.742E-02	4.504E-02	7.647E-02	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	1.013E-01	1.774E-01	0.000E+00	NOT IDENT.
SN-113	-4.212E-02	6.286E-02	1.089E-01	0.000E+00	NOT IDENT.
CD-115	1.348E+00	4.010E+00	7.064E+00	0.000E+00	NOT IDENT.
SN-117M	7.023E-02	5.435E-02	9.908E-02	0.000E+00	NOT IDENT.
TE-123M	5.224E-02	3.399E-02	6.458E-02	0.000E+00	NOT IDENT.
SB-124	-2.882E-02	8.061E-02	1.286E-01	0.000E+00	NOT IDENT.
SB-125	2.135E-01	1.392E-01	2.617E-01	0.000E+00	NOT IDENT.
TE-125M	-5.480E+00	1.242E+01	2.168E+01	0.000E+00	NOT IDENT.
I-126	3.797E-02	2.539E-01	3.913E-01	0.000E+00	NOT IDENT.
SB-126	5.165E-02	1.712E-01	2.645E-01	0.000E+00	NOT IDENT.
SB-127	-1.931E-01	7.872E-01	1.364E+00	0.000E+00	NOT IDENT.
I-131	-2.146E-02	1.096E-01	1.957E-01	0.000E+00	NOT IDENT.
TE-132	9.199E-02	3.868E-01	6.954E-01	0.000E+00	NOT IDENT.
BA-133	-1.031E-02	6.795E-02	9.995E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.138E+02	0.000E+00	0.000E+00	SHORT HLIF
CS-134	-5.942E-03	6.808E-02	1.171E-01	0.000E+00	NOT IDENT.
CS-135	1.501E-01	2.158E-01	3.904E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	5.534E+10	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.435E-02	1.392E-01	2.353E-01	0.000E+00	FAIL ABUN
CE-139	2.331E-02	3.568E-02	6.734E-02	0.000E+00	NOT IDENT.
BA-140	8.127E-02	2.999E-01	5.238E-01	0.000E+00	NOT IDENT.
LA-140	2.768E-02	7.762E-02	1.378E-01	0.000E+00	NOT IDENT.
CE-141	-3.923E-02	7.539E-02	1.277E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.243E+01	3.534E+01	0.000E+00	NOT IDENT.
CE-144	-4.599E-01	2.684E-01	4.191E-01	0.000E+00	NOT IDENT.
PM-144	-3.260E-02	4.565E-02	7.666E-02	0.000E+00	NOT IDENT.
PR-144	-2.446E+00	3.407E+00	5.721E+00	0.000E+00	NOT IDENT.
PM-146	-6.382E-03	6.652E-02	1.166E-01	0.000E+00	NOT IDENT.
ND-147	-6.251E-02	6.085E-01	1.046E+00	0.000E+00	FAIL ABUN
PM-149	1.793E+01	3.124E+01	5.582E+01	0.000E+00	NOT IDENT.
EU-152	-4.599E-02	1.615E-01	2.364E-01	0.000E+00	FAIL ABUN
GD-153	-8.140E-02	1.301E-01	2.013E-01	0.000E+00	NOT IDENT.
EU-154	-1.952E-02	1.237E-01	2.064E-01	0.000E+00	FAIL ABUN
EU-155	9.644E-02	1.394E-01	2.561E-01	0.000E+00	NOT IDENT.
TB-160	-9.291E-02	2.206E-01	3.670E-01	0.000E+00	FAIL ABUN
HO-166M	-5.020E-02	8.331E-02	1.401E-01	0.000E+00	FAIL ABUN
TA-182	-1.018E-02	1.713E-01	2.904E-01	0.000E+00	NOT IDENT.
IR-192	-7.452E-04	4.636E-02	8.010E-02	0.000E+00	FAIL ABUN
HG-203	4.844E-02	5.165E-02	9.394E-02	0.000E+00	NOT IDENT.
BI-207	2.756E-02	8.564E-02	1.511E-01	0.000E+00	NOT IDENT.
PB-210	-4.539E+00	8.538E+00	1.596E+01	0.000E+00	NOT IDENT.
PB-211	7.325E-01	1.095E+00	1.909E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.017E+00	1.448E+00	0.000E+00	FAIL ABUN
RN-219	-3.834E-01	5.857E-01	1.009E+00	0.000E+00	NOT IDENT.
RA-223	-7.260E-01	9.268E-01	1.525E+00	0.000E+00	FAIL ABUN
AC-227	1.462E-01	3.492E-01	6.278E-01	0.000E+00	NOT IDENT.
TH-227	1.462E-01	3.493E-01	6.278E-01	0.000E+00	NOT IDENT.
TH-229	-1.139E-01	7.032E-01	1.227E+00	0.000E+00	FAIL ABUN
PA-231	-1.176E+00	2.108E+00	3.587E+00	0.000E+00	NOT IDENT.
TH-231	-7.260E-01	9.268E-01	1.525E+00	0.000E+00	FAIL ABUN
PA-233	9.438E-04	8.967E-02	1.554E-01	0.000E+00	NOT IDENT.
PA-234	-3.901E-01	5.817E-01	9.385E-01	0.000E+00	NOT IDENT.
PA-234M	-1.972E+00	7.546E+00	1.243E+01	0.000E+00	NOT IDENT.
TH-234	2.536E-01	2.357E+00	3.973E+00	0.000E+00	NOT IDENT.
U-235	2.602E-01	2.642E-01	4.720E-01	0.000E+00	FAIL ABUN
NP-237	0.000E+00	9.897E-01	1.012E+00	0.000E+00	NOT IDENT.
U-238	2.536E-01	2.357E+00	3.973E+00	0.000E+00	NOT IDENT.
NP-239	-2.327E-01	6.183E-01	9.531E-01	0.000E+00	NOT IDENT.
CM-247	-2.276E-02	5.336E-02	9.327E-02	0.000E+00	NOT IDENT.
CF-249	-5.204E-02	5.900E-02	1.014E-01	0.000E+00	NOT IDENT.
CF-251	-3.421E-02	1.615E-01	2.933E-01	0.000E+00	NOT IDENT.

ANH-511	5.910E-02	5.234E-02	1.030E-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]G1202047455.CNF;1
Sample date        : 22-FEB-2010 00:00:00 Acquisition date : 4-MAR-2010 12:48:27.
Sample ID          : G1202047455 Sample quantity : 1.55440E+02 GRAM
Detector name      : GAM18 Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00 Elapsed real time: 0 01:00:01.85 0.1%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 955027 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-57	122.06	282	85.60*	8.187E+00	1.944E-01	1.997E-01	32.28
	136.47	-----	10.68	8.255E+00	-----	Line Not Found	-----
CO-60	1173.23	2937	99.85	2.247E+00	6.324E+00	6.348E+00	6.92
	1332.49	2696	99.98*	2.027E+00	6.424E+00	6.449E+00	8.60
CD-109	88.03	1687	3.70*	6.528E+00	3.373E+01	3.427E+01	11.12
SN-126	64.28	-----	9.60	3.245E+00	-----	Line Not Found	-----
	86.94	1687	8.90	6.528E+00	1.402E+01	1.402E+01	41.95
	87.57	1687	37.00*	6.528E+00	3.373E+00	3.373E+00	11.12
BA-137M	661.66	3544	89.90*	3.589E+00	5.305E+00	5.309E+00	8.58
CS-137	661.66	3544	85.10*	3.589E+00	5.605E+00	5.608E+00	8.59
TL-208	277.37	-----	6.60	6.258E+00	-----	Line Not Found	-----
	583.19	292	85.00*	3.933E+00	4.211E-01	4.211E-01	27.01
	860.56	-----	12.50	2.914E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.622E+00	-----	Line Not Found	-----
	351.06	370	12.92*	5.451E+00	2.540E+00	2.540E+00	23.41
PB-212	74.82	-----	10.28	4.910E+00	-----	Line Not Found	-----
	77.11	126	17.10	5.336E+00	6.662E-01	6.662E-01	78.17
	238.63	790	43.60*	6.793E+00	1.288E+00	1.288E+00	13.28
	300.09	-----	3.30	5.984E+00	-----	Line Not Found	-----
BI-214	609.32	265	45.49*	3.813E+00	7.374E-01	7.374E-01	29.07
	1120.29	-----	14.92	2.334E+00	-----	Line Not Found	-----
	1764.49	63	15.30	1.695E+00	1.170E+00	1.170E+00	27.68
PB-214	74.82	-----	5.80	4.910E+00	-----	Line Not Found	-----
	77.11	126	9.70	5.336E+00	1.174E+00	1.174E+00	78.61
	242.00	117	7.25	6.748E+00	1.159E+00	1.159E+00	58.15
	295.22	196	18.42	6.040E+00	8.515E-01	8.515E-01	39.39
	351.93	370	35.60*	5.451E+00	9.220E-01	9.220E-01	24.06
RA-224	240.99	117	4.10*	6.748E+00	2.050E+00	2.050E+00	57.86
RA-226	609.32	265	45.49*	3.813E+00	7.374E-01	7.374E-01	29.07
	1120.29	-----	14.92	2.334E+00	-----	Line Not Found	-----
	1764.49	63	15.30	1.695E+00	1.170E+00	1.170E+00	27.68
AC-228	338.32	176	11.27	5.580E+00	1.351E+00	1.351E+00	58.20

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	911.20	220	25.80*	2.781E+00	1.479E+00	1.479E+00	31.58
	968.97	84	15.80	2.641E+00	9.763E-01	9.763E-01	74.42
	338.32	176	11.27	5.580E+00	1.351E+00	1.351E+00	58.20
	911.20	220	25.80*	2.781E+00	1.479E+00	1.479E+00	31.58
TH-228	968.97	84	15.80	2.641E+00	9.763E-01	9.763E-01	74.42
	74.82	-----	10.28	4.910E+00	-----	Line Not Found	-----
	77.11	126	17.10	5.336E+00	6.662E-01	6.662E-01	78.17
	238.63	790	43.60*	6.793E+00	1.288E+00	1.288E+00	13.28
TH-232	300.09	-----	3.30	5.984E+00	-----	Line Not Found	-----
	338.32	176	11.27	5.580E+00	1.351E+00	1.351E+00	41.48
	911.20	220	25.80*	2.781E+00	1.479E+00	1.479E+00	31.58
	968.97	84	15.80	2.641E+00	9.763E-01	9.763E-01	74.42
AM-241	59.54	2461	35.90*	2.484E+00	1.333E+01	1.333E+01	9.63

Flag: "*" = Keyline

Total number of lines in spectrum 22
Number of unidentified lines 1
Number of lines tentatively identified by NID 21 95.45%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	271.74D	1.03	1.944E-01	1.997E-01	0.645E-01	32.28	
CO-60	5.27Y	1.00	6.424E+00	6.449E+00	0.554E+00	8.60	
CD-109	461.40D	1.02	3.373E+01	3.427E+01	0.381E+01	11.12	
SN-126	2.30E+05Y	1.00	3.373E+00	3.373E+00	0.375E+00	11.12	
BA-137M	30.08Y	1.00	5.305E+00	5.309E+00	0.455E+00	8.58	
CS-137	30.08Y	1.00	5.605E+00	5.608E+00	0.482E+00	8.59	
TL-208	1.41E+10Y	1.00	4.211E-01	4.211E-01	1.137E-01	27.01	
BI-211	7.04E+08Y	1.00	2.540E+00	2.540E+00	0.595E+00	23.41	
PB-212	1.41E+10Y	1.00	1.288E+00	1.288E+00	0.171E+00	13.28	
BI-214	1600.00Y	1.00	7.374E-01	7.374E-01	2.144E-01	29.07	
PB-214	1600.00Y	1.00	9.220E-01	9.220E-01	2.218E-01	24.06	
RA-224	1.41E+10Y	1.00	2.050E+00	2.050E+00	1.186E+00	57.86	
RA-226	1600.00Y	1.00	7.374E-01	7.374E-01	2.144E-01	29.07	
AC-228	1.41E+10Y	1.00	1.479E+00	1.479E+00	0.467E+00	31.58	
RA-228	1.41E+10Y	1.00	1.479E+00	1.479E+00	0.467E+00	31.58	
TH-228	1.41E+10Y	1.00	1.288E+00	1.288E+00	0.171E+00	13.28	
TH-232	1.41E+10Y	1.00	1.479E+00	1.479E+00	0.467E+00	31.58	
AM-241	432.60Y	1.00	1.333E+01	1.333E+01	0.128E+01	9.63	
Total Activity :			8.239E+01	8.296E+01			

Grand Total Activity : 8.239E+01 8.296E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines
Sample ID : G1202047455

Page : 4
Acquisition date : 4-MAR-2010 12:48:27

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	89.96	94	341	1.11	179.03	170	22	2.62E-02	89.8	6.70E+00	T
0	154.33	51	294	1.00	307.71	303	8	1.42E-02	****	8.12E+00	T
0	185.77	129	536	1.35	370.58	366	13	3.59E-02	76.3	7.65E+00	T
0	208.87	135	353	1.14	416.77	412	10	3.75E-02	54.9	7.26E+00	
0	726.99	77	114	1.91	1452.70	1447	12	2.15E-02	60.5	3.34E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                         *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202047455.CNF;1 *
* Acquisition date   : 4-MAR-2010 12:48:27.  Detector SN#      :             *
* Detector ID        : GAM18                      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 01:00:01.85             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                         *
* Sample date        : 22-FEB-2010 00:00:00  Nuclide Library : SOLID          *
* Sample ID          : G1202047455             Analyst initials: MXR1         *
* Batch Number       : 955027                  Sample Quantity : 1.55440E+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
CO-57	1.997E-01	6.447E-02	5.642E-02	3.342E-03	3.540
CO-60	6.449E+00	5.544E-01	6.656E-02	5.029E-03	96.885
CD-109	3.427E+01	3.811E+00	1.781E+00	1.646E-01	19.246
SN-126	3.373E+00	3.751E-01	1.764E-01	1.625E-02	19.124
BA-137M	5.309E+00	4.553E-01	8.022E-02	6.115E-03	66.175
CS-137	5.608E+00	4.819E-01	8.475E-02	6.476E-03	66.175
TL-208	4.211E-01	1.137E-01	8.372E-02	6.552E-03	5.030
BI-211	2.540E+00	5.948E-01	4.745E-01	3.047E-02	5.354
PB-212	1.288E+00	1.710E-01	1.489E-01	1.073E-02	8.652
BI-214	7.374E-01	2.144E-01	1.553E-01	1.396E-02	4.748
PB-214	9.220E-01	2.218E-01	1.725E-01	1.460E-02	5.344
RA-224	2.050E+00	1.186E+00	1.567E+00	8.730E-02	1.308
RA-226	7.374E-01	2.144E-01	1.553E-01	1.396E-02	4.748
AC-228	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
RA-228	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
TH-228	1.288E+00	1.710E-01	1.489E-01	1.073E-02	8.652
TH-232	1.479E+00	4.669E-01	4.127E-01	5.589E-02	3.583
AM-241	1.333E+01	1.284E+00	5.222E-01	4.331E-02	25.529

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.917E-01		4.711E-01	7.609E-01	5.512E-02	-0.252
NA-22	-9.503E-03		4.467E-02	7.169E-02	4.878E-03	-0.133
NA-24	-4.105E-03		2.476E-03	Half-Life too short		
K-40	1.130E+00		4.972E-01	9.791E-01	7.430E-02	1.154
SC-46	-4.648E-02		6.953E-02	1.091E-01	1.217E-02	-0.426
V-48	-3.610E-02		1.086E-01	1.723E-01	1.704E-02	-0.210
CR-51	-1.543E-01		4.667E-01	7.386E-01	4.748E-02	-0.209
MN-54	3.682E-02		6.137E-02	1.039E-01	1.064E-02	0.354
CO-56	6.654E-02		6.199E-02	1.073E-01	1.121E-02	0.620
CO-58	-6.311E-02		5.893E-02	9.019E-02	8.904E-03	-0.700
FE-59	2.641E-02		1.404E-01	2.363E-01	1.944E-02	0.112
ZN-65	6.896E-02		1.447E-01	2.467E-01	1.738E-02	0.279
SE-75	-5.340E-02		5.989E-02	9.366E-02	5.358E-03	-0.570
SR-85	-1.418E-01		6.075E-02	8.750E-02	5.797E-03	-1.621
Y-88	-9.754E-03		3.946E-02	6.201E-02	3.532E-03	-0.157
Y-91	1.746E+01		2.279E+01	3.990E+01	2.358E+00	0.438
NB-94	3.549E-02		4.598E-02	7.995E-02	6.560E-03	0.444
NB-95	1.479E-02		5.763E-02	9.683E-02	8.858E-03	0.153
NB-95M	1.226E-01		1.886E-01	2.820E-01	2.076E-02	0.435
ZR-95	-2.900E-02		9.932E-02	1.617E-01	1.597E-02	-0.179
MO-99	-6.261E-01		5.371E+00	8.859E+00	1.402E+00	-0.071
TC-99M	-9.155E+04		7.630E+04	Half-Life too short		
RU-103	-6.848E-02		5.638E-02	8.545E-02	1.091E-02	-0.801
RH-106	-2.905E-02		4.688E-01	7.527E-01	9.388E-02	-0.039
RU-106	-2.905E-02		4.687E-01	7.527E-01	5.539E-02	-0.039
AG-108M	-3.742E-02		4.596E-02	7.335E-02	4.728E-03	-0.510
AG-110M	7.506E-01		1.033E-01	1.720E-01	1.357E-02	4.363
SN-113	-4.212E-02		6.414E-02	1.042E-01	6.391E-03	-0.404
CD-115	1.348E+00		4.091E+00	6.811E+00	4.578E-01	0.198
SN-117M	7.023E-02		5.546E-02	9.259E-02	4.921E-03	0.758
TE-123M	5.224E-02		3.468E-02	6.036E-02	3.257E-03	0.865
SB-124	-2.882E-02		8.225E-02	1.280E-01	8.868E-03	-0.225
SB-125	2.135E-01		1.420E-01	2.509E-01	1.566E-02	0.851
TE-125M	-5.480E+00		1.267E+01	2.007E+01	1.798E+00	-0.273
I-126	3.797E-02		2.590E-01	3.797E-01	2.919E-02	0.100
SB-126	5.165E-02		1.747E-01	2.571E-01	2.177E-02	0.201
SB-127	-1.931E-01		8.033E-01	1.324E+00	1.273E-01	-0.146
I-131	-2.146E-02		1.118E-01	1.868E-01	1.198E-02	-0.115
TE-132	9.199E-02		3.947E-01	6.559E-01	8.855E-02	0.140
BA-133	-1.031E-02		6.934E-02	9.536E-02	1.074E-02	-0.108
I-133	8.070E-05		1.091E-04	Half-Life too short		
CS-134	-5.942E-03		6.947E-02	1.141E-01	1.104E-02	-0.052
CS-135	1.501E-01		2.202E-01	3.698E-01	2.795E-02	0.406
I-135	3.560E+04		2.824E+04	Half-Life too short		
CS-136	-6.435E-02		1.420E-01	2.312E-01	2.071E-02	-0.278
CE-139	2.331E-02		3.641E-02	6.300E-02	3.307E-03	0.370
BA-140	8.127E-02		3.061E-01	5.053E-01	1.692E-01	0.161
LA-140	2.768E-02		7.920E-02	1.370E-01	9.401E-03	0.202

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-141	-3.923E-02		7.693E-02	1.190E-01	6.797E-03	-0.330
CE-143	3.808E+01		2.289E+01	3.355E+01	6.905E+00	1.135
CE-144	-4.599E-01		2.739E-01	3.900E-01	5.393E-02	-1.179
PM-144	-3.260E-02		4.658E-02	7.447E-02	6.044E-03	-0.438
PR-144	-2.446E+00		3.477E+00	5.557E+00	4.510E-01	-0.440
PM-146	-6.382E-03		6.788E-02	1.119E-01	9.778E-03	-0.057
ND-147	-6.251E-02		6.209E-01	1.009E+00	1.408E-01	-0.062
PM-149	1.793E+01		3.188E+01	5.295E+01	7.481E+00	0.339
EU-152	-4.599E-02		1.648E-01	2.254E-01	1.470E-02	-0.204
GD-153	-8.140E-02		1.327E-01	1.859E-01	1.453E-02	-0.438
EU-154	-1.952E-02		1.262E-01	2.039E-01	2.052E-02	-0.096
EU-155	9.644E-02		1.422E-01	2.370E-01	1.693E-02	0.407
TB-160	-9.291E-02		2.251E-01	3.588E-01	3.941E-02	-0.259
HO-166M	-5.020E-02		8.501E-02	1.362E-01	1.135E-02	-0.369
TA-182	-1.018E-02		1.748E-01	2.865E-01	1.753E-02	-0.036
IR-192	-7.452E-04		4.731E-02	7.620E-02	4.419E-03	-0.010
HG-203	4.844E-02		5.270E-02	8.907E-02	5.369E-03	0.544
BI-207	2.756E-02		8.739E-02	1.485E-01	1.226E-02	0.186
PB-210	-4.539E+00		8.713E+00	1.447E+01	1.110E+00	-0.314
PB-211	7.325E-01		1.118E+00	1.828E+00	8.769E-01	0.401
BI-212	1.680E+00	+	1.038E+00	1.408E+00	1.749E-01	1.193
RN-219	-3.834E-01		5.977E-01	9.663E-01	1.299E-01	-0.397
RA-223	-7.260E-01		9.457E-01	1.452E+00	2.339E-01	-0.500
AC-227	1.462E-01		3.563E-01	5.939E-01	6.016E-02	0.246
TH-227	1.462E-01		3.564E-01	5.939E-01	7.090E-02	0.246
TH-229	-1.139E-01		7.175E-01	1.152E+00	6.170E-02	-0.099
PA-231	-1.176E+00		2.151E+00	3.402E+00	4.449E-01	-0.346
TH-231	-7.260E-01		9.457E-01	1.452E+00	2.339E-01	-0.500
PA-233	9.438E-04		9.150E-02	1.478E-01	9.054E-03	0.006
PA-234	-3.901E-01		5.936E-01	9.193E-01	1.813E-01	-0.424
PA-234M	-1.972E+00		7.700E+00	1.219E+01	1.316E+00	-0.162
TH-234	2.536E-01		2.405E+00	3.630E+00	6.539E-01	0.070
U-235	2.602E-01		2.696E-01	4.400E-01	6.862E-02	0.591
NP-237	3.806E+00		1.010E+00	9.313E-01	2.130E-01	4.086
U-238	2.536E-01		2.405E+00	3.630E+00	6.539E-01	0.070
NP-239	-2.327E-01		6.309E-01	8.840E-01	5.460E-02	-0.263
CM-247	-2.276E-02		5.445E-02	8.928E-02	5.198E-03	-0.255
CF-249	-5.204E-02		6.020E-02	9.696E-02	5.573E-03	-0.537
CF-251	-3.421E-02		1.648E-01	2.749E-01	1.453E-02	-0.124
ANH-511	5.910E-02		5.340E-02	9.925E-02	6.555E-03	0.596

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]G1202047455          *
* Acquisition date   : 4-MAR-2010 12:48:27 Detector SN#      :              *
* Detector ID        : GAM18                      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 01:00:01.85              Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 22-FEB-2010 00:00:00 Nuclide Library : SOLID           *
* Sample ID          : G1202047455              Analyst initials: MXR1        *
* Batch Number       : 955027                    Sample Quantity : 1.5544E+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
CO-57	1.997E-01	6.318E-02	3.040E-02	3.223E-02
CO-60	6.449E+00	5.433E-01	3.367E-02	2.772E-01
CD-109	3.427E+01	3.735E+00	9.673E-01	1.906E+00
SN-126	3.373E+00	3.676E-01	9.583E-02	1.876E-01
BA-137M	5.309E+00	4.462E-01	4.138E-02	2.276E-01
CS-137	5.608E+00	4.722E-01	4.371E-02	2.409E-01
TL-208	4.211E-01	1.115E-01	4.333E-02	5.687E-02
BI-211	2.540E+00	5.829E-01	2.489E-01	2.974E-01
PB-212	1.288E+00	1.676E-01	7.886E-02	8.552E-02
BI-214	7.374E-01	2.101E-01	8.028E-02	1.072E-01
PB-214	9.220E-01	2.174E-01	9.049E-02	1.109E-01
RA-224	2.050E+00	1.163E+00	8.300E-01	5.932E-01
RA-226	7.374E-01	2.101E-01	8.028E-02	1.072E-01
AC-228	1.479E+00	4.576E-01	2.110E-01	2.335E-01
RA-228	1.479E+00	4.576E-01	2.110E-01	2.335E-01
TH-228	1.288E+00	1.676E-01	7.886E-02	8.552E-02
TH-232	1.479E+00	4.576E-01	2.110E-01	2.335E-01
AM-241	1.333E+01	1.258E+00	2.864E-01	6.419E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-1.917E-01	4.617E-01	3.959E-01	2.356E-01 NOT IDENT.
NA-22	-9.503E-03	4.377E-02	3.631E-02	2.233E-02 NOT IDENT.
NA-24	-4.105E+03	4.853E+03	0.000E+00	2.476E+03 SHORT HLIF
K-40	1.130E+00	4.873E-01	4.940E-01	2.486E-01 NOT IDENT.
SC-46	-4.648E-02	6.814E-02	5.580E-02	3.477E-02 NOT IDENT.
V-48	-3.610E-02	1.064E-01	8.791E-02	5.430E-02 NOT IDENT.
CR-51	-1.543E-01	4.573E-01	3.884E-01	2.333E-01 NOT IDENT.
MN-54	3.682E-02	6.014E-02	5.325E-02	3.068E-02 NOT IDENT.
CO-56	6.654E-02	6.075E-02	5.499E-02	3.099E-02 NOT IDENT.

CO-58	-6.311E-02	5.775E-02	4.626E-02	2.946E-02	NOT IDENT.
FE-59	2.641E-02	1.376E-01	1.202E-01	7.020E-02	NOT IDENT.
ZN-65	6.896E-02	1.418E-01	1.254E-01	7.234E-02	NOT IDENT.
SE-75	-5.340E-02	5.870E-02	4.949E-02	2.995E-02	FAIL ABUN
SR-85	-1.418E-01	5.954E-02	4.543E-02	3.038E-02	NOT IDENT.
Y-88	-9.754E-03	3.867E-02	3.109E-02	1.973E-02	NOT IDENT.
Y-91	1.746E+01	2.233E+01	2.024E+01	1.139E+01	NOT IDENT.
NB-94	3.549E-02	4.506E-02	4.117E-02	2.299E-02	NOT IDENT.
NB-95	1.479E-02	5.648E-02	4.974E-02	2.881E-02	NOT IDENT.
NB-95M	1.226E-01	1.848E-01	1.495E-01	9.430E-02	NOT IDENT.
ZR-95	-2.900E-02	9.733E-02	8.311E-02	4.966E-02	NOT IDENT.
MO-99	-6.261E-01	5.263E+00	4.555E+00	2.685E+00	NOT IDENT.
TC-99M	-9.155E+10	1.495E+11	0.000E+00	7.630E+10	SHORT HLIF
RU-103	-6.848E-02	5.525E-02	4.441E-02	2.819E-02	FAIL ABUN
RH-106	-2.905E-02	4.594E-01	3.888E-01	2.344E-01	NOT IDENT.
RU-106	-2.905E-02	4.594E-01	3.888E-01	2.344E-01	NOT IDENT.
AG-108M	-3.742E-02	4.504E-02	3.826E-02	2.298E-02	NOT IDENT.
AG-110M	7.506E-01	1.013E-01	8.873E-02	5.167E-02	NOT IDENT.
SN-113	-4.212E-02	6.286E-02	5.450E-02	3.207E-02	NOT IDENT.
CD-115	1.348E+00	4.010E+00	3.534E+00	2.046E+00	NOT IDENT.
SN-117M	7.023E-02	5.435E-02	4.957E-02	2.773E-02	NOT IDENT.
TE-123M	5.224E-02	3.399E-02	3.231E-02	1.734E-02	NOT IDENT.
SB-124	-2.882E-02	8.061E-02	6.434E-02	4.113E-02	NOT IDENT.
SB-125	2.135E-01	1.392E-01	1.309E-01	7.100E-02	NOT IDENT.
TE-125M	-5.480E+00	1.242E+01	1.084E+01	6.335E+00	NOT IDENT.
I-126	3.797E-02	2.539E-01	1.958E-01	1.295E-01	NOT IDENT.
SB-126	5.165E-02	1.712E-01	1.323E-01	8.735E-02	NOT IDENT.
SB-127	-1.931E-01	7.872E-01	6.824E-01	4.017E-01	NOT IDENT.
I-131	-2.146E-02	1.096E-01	9.791E-02	5.592E-02	NOT IDENT.
TE-132	9.199E-02	3.868E-01	3.479E-01	1.974E-01	NOT IDENT.
BA-133	-1.031E-02	6.795E-02	5.000E-02	3.467E-02	NOT IDENT.
I-133	8.070E+01	2.138E+02	0.000E+00	1.091E+02	SHORT HLIF
CS-134	-5.942E-03	6.808E-02	5.856E-02	3.473E-02	NOT IDENT.
CS-135	1.501E-01	2.158E-01	1.953E-01	1.101E-01	NOT IDENT.
I-135	3.560E+10	5.534E+10	0.000E+00	2.824E+10	SHORT HLIF
CS-136	-6.435E-02	1.392E-01	1.177E-01	7.101E-02	FAIL ABUN
CE-139	2.331E-02	3.568E-02	3.369E-02	1.821E-02	NOT IDENT.
BA-140	8.127E-02	2.999E-01	2.621E-01	1.530E-01	NOT IDENT.
LA-140	2.768E-02	7.762E-02	6.895E-02	3.960E-02	NOT IDENT.
CE-141	-3.923E-02	7.539E-02	6.386E-02	3.847E-02	NOT IDENT.
CE-143	3.808E+01	2.243E+01	1.768E+01	1.144E+01	NOT IDENT.
CE-144	-4.599E-01	2.684E-01	2.097E-01	1.370E-01	NOT IDENT.
PM-144	-3.260E-02	4.565E-02	3.835E-02	2.329E-02	NOT IDENT.
PR-144	-2.446E+00	3.407E+00	2.862E+00	1.738E+00	NOT IDENT.
PM-146	-6.382E-03	6.652E-02	5.832E-02	3.394E-02	NOT IDENT.
ND-147	-6.251E-02	6.085E-01	5.235E-01	3.105E-01	FAIL ABUN
PM-149	1.793E+01	3.124E+01	2.792E+01	1.594E+01	NOT IDENT.
EU-152	-4.599E-02	1.615E-01	1.183E-01	8.239E-02	FAIL ABUN
GD-153	-8.140E-02	1.301E-01	1.007E-01	6.637E-02	NOT IDENT.
EU-154	-1.952E-02	1.237E-01	1.033E-01	6.312E-02	FAIL ABUN
EU-155	9.644E-02	1.394E-01	1.281E-01	7.111E-02	NOT IDENT.
TB-160	-9.291E-02	2.206E-01	1.836E-01	1.126E-01	FAIL ABUN
HO-166M	-5.020E-02	8.331E-02	7.011E-02	4.251E-02	FAIL ABUN
TA-182	-1.018E-02	1.713E-01	1.453E-01	8.739E-02	NOT IDENT.
IR-192	-7.452E-04	4.636E-02	4.008E-02	2.365E-02	FAIL ABUN
HG-203	4.844E-02	5.165E-02	4.700E-02	2.635E-02	NOT IDENT.
BI-207	2.756E-02	8.564E-02	7.560E-02	4.369E-02	NOT IDENT.
PB-210	-4.539E+00	8.538E+00	7.984E+00	4.356E+00	NOT IDENT.
PB-211	7.325E-01	1.095E+00	9.551E-01	5.588E-01	NOT IDENT.
BI-212	1.680E+00	1.017E+00	7.243E-01	5.188E-01	FAIL ABUN
RN-219	-3.834E-01	5.857E-01	5.050E-01	2.988E-01	NOT IDENT.
RA-223	-7.260E-01	9.268E-01	7.630E-01	4.729E-01	FAIL ABUN
AC-227	1.462E-01	3.492E-01	3.141E-01	1.781E-01	NOT IDENT.
TH-227	1.462E-01	3.493E-01	3.141E-01	1.782E-01	NOT IDENT.
TH-229	-1.139E-01	7.032E-01	6.139E-01	3.588E-01	FAIL ABUN
PA-231	-1.176E+00	2.108E+00	1.794E+00	1.075E+00	NOT IDENT.
TH-231	-7.260E-01	9.268E-01	7.630E-01	4.729E-01	FAIL ABUN
PA-233	9.438E-04	8.967E-02	7.774E-02	4.575E-02	NOT IDENT.
PA-234	-3.901E-01	5.817E-01	4.695E-01	2.968E-01	NOT IDENT.
PA-234M	-1.972E+00	7.546E+00	6.219E+00	3.850E+00	NOT IDENT.
TH-234	2.536E-01	2.357E+00	1.988E+00	1.202E+00	NOT IDENT.
U-235	2.602E-01	2.642E-01	2.361E-01	1.348E-01	FAIL ABUN
NP-237	3.806E+00	9.897E-01	5.061E-01	5.049E-01	NOT IDENT.
U-238	2.536E-01	2.357E+00	1.988E+00	1.202E+00	NOT IDENT.
NP-239	-2.327E-01	6.183E-01	4.768E-01	3.154E-01	NOT IDENT.
CM-247	-2.276E-02	5.336E-02	4.666E-02	2.723E-02	NOT IDENT.
CF-249	-5.204E-02	5.900E-02	5.072E-02	3.010E-02	NOT IDENT.
CF-251	-3.421E-02	1.615E-01	1.468E-01	8.241E-02	NOT IDENT.

ANH-511	5.910E-02	5.234E-02	5.154E-02	2.670E-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
46.54	375.7455
49.72	407.5858
57.36	489.3340
59.54	421.8984
63.29	321.2364
63.29	321.2364
64.28	332.2412
67.75	353.2571
69.67	363.1248
70.83	347.0381
72.81	514.9811
72.87	515.0754
72.87	515.0754
74.82	512.2369
74.82	512.2369
74.82	512.2369
74.97	512.4659
77.11	484.6779
77.11	484.6779
77.11	484.6779
79.69	406.4195
79.80	403.5682
80.12	403.9362
80.19	404.0148
80.57	417.8830
81.00	421.3778
81.07	421.4617
81.07	421.4617
83.79	396.0490
83.79	396.0490
85.43	412.9512
86.48	449.0112
86.55	449.0970
86.79	353.2301
86.94	353.3739
87.57	353.9685
88.03	354.4016
88.47	354.8135
89.96	356.2034
91.11	357.2685
92.59	358.6299
92.59	358.6299
93.35	359.3240
94.67	277.3659
94.87	277.5052
94.87	277.5052
95.86	321.7082
97.43	319.8402
98.44	286.2223
99.53	260.3223
100.11	264.8748
103.18	307.9509
103.37	300.7034
105.31	260.7344
106.12	275.0281
109.28	301.6187
111.00	294.1966
111.76	301.1473
116.30	303.7184
117.23	302.0407
121.12	293.0145
121.78	293.4178
122.06	293.5889
123.07	252.8833
131.20	280.0242
133.52	325.1779
136.00	234.0289

136.47	234.2395
140.51	295.3270
140.51	0.0000
143.76	258.1078
144.24	275.5566
144.24	275.5566
145.44	307.2303
152.43	291.8652
153.25	291.2355
154.21	265.0753
154.21	265.0753
156.02	274.3497
158.56	222.5572
159.00	224.2376
162.66	291.6846
163.33	305.3666
165.86	258.3696
176.60	277.4138
177.52	281.4575
181.07	276.9639
184.41	304.8904
185.72	306.2322
193.51	297.5249
197.04	276.6750
205.31	280.8807
210.85	272.3257
215.65	300.2743
222.11	320.3270
227.38	327.4117
228.16	313.0640
228.18	313.0713
235.69	322.3808
235.96	327.2328
235.96	327.2328
238.63	385.4184
238.63	385.4184
240.99	373.8141
242.00	401.3512
244.70	242.8827
252.40	259.0411
252.80	251.0973
256.23	251.0974
256.23	251.0974
260.90	231.0838
264.66	259.6857
268.22	250.4708
269.46	238.4818
269.46	238.4818
271.23	268.8257
273.65	325.3196
276.40	266.2273
277.37	268.5837
277.60	268.6508
278.00	272.9203
279.20	253.5350
279.54	262.9832
280.46	298.6270
283.69	278.7864
284.31	270.6150
285.41	253.1517
285.90	244.9116
287.50	242.1841
293.27	263.2843
295.22	268.4720
295.96	268.6813
298.57	224.0133
299.98	212.4420
299.98	212.4420
300.09	212.4664
300.09	212.4664
300.13	212.4725
301.36	236.5681
302.85	286.5760
304.50	234.7672
304.50	234.7672
304.85	245.5261
308.46	221.7821
311.90	219.3212

316.51	218.1665
319.41	214.4567
320.08	222.1824
323.87	252.3765
323.87	252.3765
328.76	220.7772
333.37	261.7031
334.37	230.3054
334.37	230.3054
338.28	239.3106
338.28	239.3106
338.32	239.3205
338.32	239.3205
338.32	239.3205
340.48	221.0175
340.55	221.0297
344.28	230.6643
351.06	222.0561
351.93	222.2292
356.01	209.8202
364.49	219.5365
366.42	227.1470
383.85	191.0695
388.16	250.7633
388.63	234.2617
391.69	235.7816
400.66	249.6306
401.81	230.2856
402.40	223.8662
404.85	208.4201
410.95	227.2856
414.70	210.0643
423.72	240.9620
427.09	177.8646
427.87	192.2452
433.94	234.2543
453.88	230.0046
463.37	231.5958
468.07	253.9477
473.00	228.2731
476.78	218.0298
477.60	209.2724
487.02	199.7192
492.35	169.5372
497.08	206.1031
511.00	175.7215
514.00	313.6877
527.90	161.3367
529.87	0.0000
531.02	164.7302
537.26	156.1451
546.56	0.0000
563.25	146.1660
569.33	147.7574
569.50	148.8192
569.70	148.8400
583.19	155.3298
600.60	126.7662
602.73	142.5098
604.72	128.4053
609.32	143.7654
609.32	143.7654
610.33	139.5564
614.28	152.4231
618.01	138.0094
621.93	152.3633
621.93	152.3633
633.25	157.6769
635.95	138.3078
636.99	153.6439
645.85	169.7205
657.76	125.9487
661.66	132.5215
661.66	132.5215
664.57	124.8262
666.33	121.7788
666.50	121.7896
677.62	128.0723

685.70	136.0671
695.00	131.1019
696.49	147.1332
696.51	147.1364
697.00	142.4845
702.65	123.1536
706.68	142.2445
711.68	141.6565
720.70	120.3403
721.93	138.3147
722.78	136.7461
722.91	136.7549
723.31	141.6663
724.19	136.8398
727.33	120.7352
733.00	116.1649
735.93	117.5597
739.50	124.4643
747.24	132.6178
752.31	132.9407
753.82	117.6117
756.73	137.0829
763.94	148.2063
765.81	142.5199
766.42	144.5014
777.92	148.2056
778.90	155.1020
783.70	128.0710
785.37	136.9751
795.86	147.4670
801.95	124.2133
810.29	170.1978
810.76	157.3696
815.77	136.8910
818.51	134.0771
832.01	158.8577
834.85	160.0553
836.80	0.0000
846.77	127.7028
856.80	156.5294
860.56	164.8737
871.09	156.4658
873.19	140.3331
875.33	0.0000
879.36	152.9297
880.51	149.9429
883.24	133.7745
884.68	135.8980
889.28	184.2737
898.04	182.8853
911.20	173.5405
911.20	173.5405
911.20	173.5405
926.50	195.3973
937.49	199.3819
944.13	168.5043
946.00	200.0503
949.00	162.5368
962.29	193.3404
964.08	204.3238
966.15	208.1086
968.97	201.8417
968.97	201.8417
968.97	201.8417
983.53	172.1481
996.26	155.8914
1001.03	144.4043
1004.73	132.8197
1037.84	145.9007
1038.76	0.0000
1048.07	151.1066
1050.41	144.6962
1050.41	144.6962
1063.66	134.1273
1085.87	119.1050
1099.45	136.7578
1112.07	148.7963
1115.54	143.2408

1120.29	129.1239
1120.29	129.1239
1120.55	124.3551
1121.30	129.1710
1131.51	0.0000
1173.23	108.0461
1177.93	71.6543
1189.05	70.4431
1204.77	61.9475
1221.41	50.4112
1231.02	69.3994
1235.36	47.6535
1238.28	52.6654
1260.41	0.0000
1271.85	39.1537
1274.44	47.2213
1274.54	48.2277
1291.59	46.4556
1298.22	0.0000
1312.11	48.7701
1332.49	35.7739
1365.19	22.6982
1368.63	0.0000
1384.29	40.4554
1408.01	27.1489
1457.56	0.0000
1460.82	23.3036
1489.16	36.2863
1505.03	29.0701
1596.21	28.7897
1620.50	26.0656
1678.03	0.0000
1690.97	21.5992
1764.49	31.9531
1764.49	31.9531
1770.23	14.2196
1771.35	48.0044
1791.20	0.0000
1836.06	21.3044

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202047455

Total Uranium Activity	8.7489E-01	ug/g
Total Uranium Counting Unc.	7.0123E+00	ug/g
Total Uranium Tpu	3.5777E-06	ug/g
Total Uranium Mda	5.9147E+00	ug/g

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*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 955027          SAMPLE ID   : G1202047455
*  ANALYST       : MXR1            DETECTOR    : GAM18
*  SAMPLE DATE   : 22-FEB-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00
*  ANALYSIS DATE: 4-MAR-2010 12:48:27.23  SAMPLE ALQT: 155.440 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.689E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 2.657E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.714E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.321E+00

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Radiochemistry Batch Checklist, Rev10

Batch# 956742 Product: H3 Date: 3-12-10

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.			NA
Aux data is correct.	✓		
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hlt 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 REMR, 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] 3/13/10

LANL 3-13-10

Tritium Que Sheet

01-MAR-10

Batch #: 956742

Analyst: KKK2 First Client Due Date 13-MAR-10 Internal Due Date: 03-MAR-10

Spike Isotope: Hydrogen-3

Spike Code: _____ Expiration Date: _____ Vol: _____

LCS Isotope: Hydrogen-3

LCS Code: 0134K Expiration Date: 3/27/10 Vol: 0.1

Prep Date: 3/11/10

Initials: JK Pipet ID: 2910968

Witness: JK 3/2/10

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)	Dist Vol (mL)	LSC Rack #
247344001-1	RE15-10-8208	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-2	1		629.19	609.69	19.50	45-1
247344002-1	RE15-10-8203	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-3	2		656.61	644.13	12.48	45-2
247344003-1	RE15-10-8206	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-4	3		543.22	530.73	12.49	45-3
247344004-1	RE15-10-8207	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-5	4		584.52	574.00	10.52	45-4
247344005-1	RE15-10-8204	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-6	5		484.09	474.41	9.68	45-5
247344006-1	RE15-10-8202	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-7	6		526.52	516.52	10.00	45-6
247344007-1	RE15-10-8209	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-8	7		538.62	529.46	9.16	45-7
247344008-1	RE15-10-8205	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-9	8		488.40	478.14	10.26	45-8
247344009-1	RE15-10-8227	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-10	9		490.81	480.83	7.98	45-9
247344010-1	RE15-10-8228	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-11	10		507.26	499.65	7.61	45-10
247344011-1	RE15-10-8212	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	3-12	11		233.14	148.28	84.86	45-11
247360001-1	RE36-10-7427	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	5-1	12		245.14	120.12	125.02	45-12
247360002-1	RE36-10-7423	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	5-2	13		465.60	425.56	40.04	45-13
247360003-1	RE36-10-7428	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	5-3	14		513.00	469.40	43.61	45-14
247360004-1	RE36-10-7424	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	12-FEB-10	10	5-4	15		548.91	511.04	37.87	45-15
247551001-1	RE15-10-8349	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	15-FEB-10	10	5-5	16		576.98	556.21	20.77	45-16
247551002-1	RE15-10-8348	SAMPLE		.25 pCi/mL SOIL	LANL010	LANL010	15-FEB-10	10	5-6	17		534.79	522.49	12.30	45-17
247552002-1	WST15-10-8894	SAMPLE		.25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT	15-FEB-10	10	5-7	18		20.00	0.00	20.00	45-18
1202051381-1	MB for batch 956742	MB		.25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT	12-FEB-10	10	5-8	19		233.14	148.28	84.86	45-19
1202051382-1	RE36-10-7427(247360001DUP)	DUP		.25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT	12-FEB-10	10	5-9	20		20.00	0.00	20.00	45-20
1202051383-1	LCS for batch 956742	LCS		.25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT	12-FEB-10	10	5-10	21		20.00	0.00	20.00	45-21

Bkg Rack #: 3-12-10
dailies ✓ 3/15/10

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) 4140127, LS6000 (Brown) 7060655, Wallac

(Pink) 2200083, Wallac (White) 4140299, Purple 7069123, Silver 7060656, Orange DG06095168

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

DATE	2/25/2010		INITIALS	KXK2		BATCH NUMBER	956742		
Sample #	Sample Wet (g)	Flask Weight (g)	Flask & Sample Wet (g)	% Moisture of Sample (Balance Interface using % Moisture Batch)	Total Moisture in Sample (mL)	Sample Dry (g)	Flask & Sample Dry (g)	mLs aliquoted into LSC vial	Collection Tube Number
247344001	629.19	200.00	829.19	0.031	19.50	609.69	809.69	10	
247344002	9.00	200.00	200.00	0.011	0.00	9.00	200.00	40	
247344003	656.61	200.00	856.61	0.019	12.48	644.13	844.13	10	
247344004	543.22	200.00	743.22	0.023	12.49	530.73	730.73	10	
247344005	584.52	200.00	784.52	0.018	10.52	574.00	774.00	10	
247344006	484.09	200.00	684.09	0.020	9.68	474.41	674.41	10	
247344007	526.52	200.00	726.52	0.019	10.00	516.52	716.52	8	
247344008	538.62	200.00	738.62	0.017	9.16	529.46	729.46	7	
247344009	488.40	200.00	688.40	0.021	10.26	478.14	678.14	10	
247344010	498.81	200.00	698.81	0.016	7.98	490.83	690.83	7	
247344011	507.26	200.00	707.26	0.015	7.61	499.65	699.65	6	
247360001	233.14	200.00	433.14	0.364	84.86	148.28	348.28	10	
247360002	245.14	200.00	445.14	0.510	125.02	120.12	320.12	10	
247360003	465.60	200.00	665.60	0.086	40.04	425.56	625.56	10	
247360004	513.00	200.00	713.00	0.085	43.61	469.40	669.40	10	
247551001	548.91	200.00	748.91	0.069	37.87	511.04	711.04	10	
247551002	576.98	200.00	776.98	0.036	20.77	556.21	756.21	10	
247552002	534.79	200.00	734.79	0.023	12.30	522.49	722.49	9	
MB	20	200.00	220.00	1.000	20.00	0.00	200.00	10	
DUP	233.14	200.00	433.14	0.364	84.86	148.28	348.28	10	
LSC	20	200.00	220.00	1.000	20.00	0.00	200.00	10	

Tritium Solid

Filename : H3VAC.XLS
File type : Excel
Version # : 1.2.6

Batch : 958742
Analyst : KXK2
Prep Date : 3/1/2010

H-3 Abundance : 1
Method Uncertainty : 0.0691
Geometry: 10mL DW/13mL
Eosclint Ultra

Spike S/N :
Spike Exp Date :
Spike Activity (dpm/ml):
Spike Volume Added:

N/A
N/A
N/A
N/A

LCS S/N : 0134-K
LCS Exp Date : 3/27/2010
LCS Activity (dpm/ml): 2461.37
LCS Volume Added: 0.10

Procedure Code : LSC_VH3S
Parname : Tritium
Required MDC : 250 pCi/L
Half-life of Tritium : 12.32 years

Pipet, 0.1 ml Sidev : +/- 0.000701 ml
Pipet, 0.5 ml Sidev : +/- 0.002584 ml
Pipet, 1.0 ml Sidev : +/- 0.005480 ml
Pipet, 5.0 ml Sidev : +/- 0.025729 ml

Sample Characteristics

Pos.	Sample ID	Wet Sample Weight (g)	Total Moisture L	Sample Aliquot in Vial L	Sample Aliquot Sidev. L	Dry Sample Weight (g)	% Moisture of Sample	Rig number	Sample Date/Time
1	247344001.1	629.19	0.0195	0.0100	2.5729E-05	609.89	3.10%	1	2/12/2010 12:00
2	247344003.1	656.61	0.0125	0.0100	2.5729E-05	644.13	1.90%	3	2/12/2010 12:00
3	247344004.1	543.22	0.0125	0.0100	2.5729E-05	530.73	2.30%	4	2/12/2010 12:00
4	247344005.1	584.52	0.0105	0.0100	2.5729E-05	574.00	1.80%	5	2/12/2010 12:00
5	247344006.1	484.09	0.0097	0.0100	2.5729E-05	474.41	2.00%	6	2/12/2010 12:00
6	247344007.1	526.52	0.0100	0.0080	2.5729E-05	516.52	1.90%	7	2/12/2010 12:00
7	247344008.1	538.62	0.0092	0.0070	2.5729E-05	529.46	1.70%	8	2/12/2010 12:00
8	247344009.1	488.40	0.0103	0.0100	2.5729E-05	478.14	2.10%	9	2/12/2010 12:00
9	247344010.1	498.81	0.0080	0.0070	2.5729E-05	490.83	1.60%	10	2/12/2010 12:00
10	247344011.1	507.26	0.0076	0.0060	2.5729E-05	499.65	1.50%	11	2/12/2010 12:00
11	247360001.1	233.14	0.0849	0.0100	2.5729E-05	148.28	36.40%	12	2/12/2010 12:00
12	247360002.1	245.14	0.1250	0.0100	2.5729E-05	120.12	51.00%	13	2/12/2010 12:00
13	247360003.1	465.60	0.0400	0.0100	2.5729E-05	425.56	8.60%	14	2/12/2010 12:00
14	247360004.1	513.00	0.0436	0.0100	2.5729E-05	469.40	8.50%	15	2/12/2010 12:00
15	247551001.1	548.91	0.0379	0.0100	2.5729E-05	511.04	6.90%	16	2/15/2010 12:00
16	247551002.1	576.98	0.0208	0.0100	2.5729E-05	556.21	3.60%	17	2/15/2010 12:00
17	247552002.1	534.79	0.0123	0.0090	2.5729E-05	522.49	2.30%	18	2/15/2010 12:00
18	1202051381.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	19	3/1/2010 0:00
19	1202051382.1	233.14	0.0849	0.0100	2.5729E-05	148.28	36.40%	12	2/12/2010 12:00
20	1202051383.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	20	3/1/2010 0:00

Count raw data				Background				Calibration Data				Backgrounds			
Pos.	Rack Position #	Counting Time (min.)	Quench#	Gross cpm	cpm	Count Time (min.)	Count Start Date/Time	Sample Decay	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Rack Position #	Count Start Date/Time
1	45-2	15	115.1	167.8	3.13	15	3/9/2010 6:44	0.998	LSCRED	8/21/2009	8/31/2010	0.2077	0.00792	45-1	3/9/2010 6:28
2	45-3	15	114.4	523.47	3.13	15	3/9/2010 7:01	0.996	LSCRED	8/21/2009	8/31/2010	0.2080	0.00792	45-1	3/9/2010 6:28
3	45-4	15	114.4	167.73	3.13	15	3/9/2010 7:17	0.996	LSCRED	8/21/2009	8/31/2010	0.2080	0.00792	45-1	3/9/2010 6:28
4	45-5	15	113.2	1304.73	3.13	15	3/9/2010 7:34	0.996	LSCRED	8/21/2009	8/31/2010	0.2085	0.00792	45-1	3/9/2010 6:28
5	45-6	15	112.8	3987.8	3.13	15	3/9/2010 7:50	0.996	LSCRED	8/21/2009	8/31/2010	0.2086	0.00792	45-1	3/9/2010 6:28
6	45-7	15	114.4	497.27	3.13	15	3/9/2010 8:08	0.996	LSCRED	8/21/2009	8/31/2010	0.2080	0.00792	45-1	3/9/2010 6:28
7	45-8	15	114.4	1049.53	3.13	15	3/9/2010 8:23	0.996	LSCRED	8/21/2009	8/31/2010	0.2080	0.00792	45-1	3/9/2010 6:28
8	45-9	15	112.7	4040.47	3.13	15	3/9/2010 8:39	0.996	LSCRED	8/21/2009	8/31/2010	0.2087	0.00792	45-1	3/9/2010 6:28
9	45-10	15	114.8	399.2	3.13	15	3/9/2010 8:55	0.996	LSCRED	8/21/2009	8/31/2010	0.2078	0.00792	45-1	3/9/2010 6:28
10	45-11	15	115.5	352.93	3.13	15	3/9/2010 9:12	0.996	LSCRED	8/21/2009	8/31/2010	0.2075	0.00792	45-1	3/9/2010 6:28
11	25-2	90	116.8	4.12	3.62	90	3/12/2010 7:08	0.996	LSCRED	8/21/2009	8/31/2010	0.2069	0.00792	25-1	3/12/2010 5:35
12	23	50.0297	781.2	1.53	0.87	50	3/9/2010 16:17	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2730	0.00792	21	3/9/2010 14:32
13	24	50.0296	755.72	1.51	0.67	50	3/9/2010 17:09	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2641	0.00792	21	3/9/2010 14:32
14	25	30.0297	758.98	1.84	1.87	30	3/11/2010 14:04	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2694	0.00792	22	3/11/2010 13:32
15	26	30.0297	755.24	3.3	1.87	30	3/11/2010 14:37	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2633	0.00792	22	3/11/2010 13:32
16	27	30.0297	781.16	3.81	1.67	30	3/11/2010 15:09	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2730	0.00792	22	3/11/2010 13:32
17	37	2.99642	797.19	3407.39	1.48	15	3/9/2010 10:01	0.997	LSCPINK	8/21/2009	8/31/2010	0.1803	0.00792	31	3/9/2010 8:15
18	57-2	95	120.2	3.55	2.95	95	3/11/2010 18:49	0.998	LSCBROWN	9/9/2008	9/30/2010	0.2289	0.00792	57-1	3/11/2010 17:11
19	29	30.0297	762.28	2.21	1.87	30	3/11/2010 16:14	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2748	0.00792	22	3/11/2010 13:32
20	40	15.0297	805.01	23.38	1.48	15	3/9/2010 10:40	0.999	LSCPINK	8/21/2009	8/31/2010	0.1687	0.00792	31	3/9/2010 8:15

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 1202051382.1

Results		Decision Level		Critical Level		Required MDC		MDC		Sample Act. Conc.		Sample Act. Error		Net Count Rate		Net Count Rate Error		1 SIGMA Counting Uncertainty		1 SIGMA Total Prop. Uncertainty		Sample QC		Sample Type		RPD		RER		Nominal pCi/L		Recovery	
Pos.	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	CPM	CPM	CPM	CPM	pCi/L	pCi/L	pCi/L	pCi/L												
1	327.7016	231.3601	250	506.2625	35850.5275	0.022	164.670	3.376	734.9276	2602.8117	SAMPLE																						
2	327.2218	231.0214	250	505.5213	113118.0559	0.014	520.340	5.925	1288.0702	7982.9928	SAMPLE																						
3	327.2223	231.0218	250	505.5221	35782.8816	0.022	164.600	3.375	733.7026	2597.9461	SAMPLE																						
4	328.4706	230.4910	250	504.3608	282308.6177	0.011	1301.600	9.338	2025.2638	19766.1225	SAMPLE																						
5	328.2406	230.3286	250	504.0054	863840.2207	0.010	3984.870	16.311	3535.3460	60254.1990	SAMPLE																						
6	409.0301	288.7787	250	631.9060	134278.9037	0.015	494.140	5.776	1569.5342	9490.0584	SAMPLE																						
7	467.4638	330.0334	250	722.1796	324873.8994	0.012	1046.400	8.377	2601.8503	22814.5603	SAMPLE																						
8	328.1862	230.2903	250	503.9215	874910.1896	0.010	4037.340	16.419	3558.0055	61039.1061	SAMPLE																						
9	467.8522	330.3077	250	722.7797	123107.1264	0.016	396.070	5.179	1609.7440	8735.8684	SAMPLE																						
10	546.6581	395.9453	250	844.5260	127039.3109	0.017	349.800	4.872	1769.4337	9044.1889	SAMPLE																						
11	144.5099	102.0253	250	211.3396	109.3361	0.587	0.500	0.283	64.1273	84.5779	SAMPLE																						
12	71.9664	50.8089	250	111.5491	109.3093	0.332	0.660	0.219	36.2748	37.0651	SAMPLE																						
13	74.4105	52.5344	250	115.3375	109.5966	0.341	0.640	0.218	37.3501	38.1221	SAMPLE																						
14	138.0514	97.4655	250	211.7033	-6.0367	11.716	-0.030	0.351	59.0114	59.0127	SAMPLE																						
15	141.2099	99.8954	250	216.5470	245.5754	0.290	1.430	0.415	71.2556	73.2796	SAMPLE																						
16	136.1953	96.1551	250	208.8570	321.3271	0.224	1.940	0.435	72.0352	75.4315	SAMPLE																						
17	561.7050	396.5886	250	1106.7297	1066792.5926	0.013	3405.910	33.723	10562.7116	75070.0579	SAMPLE																						
18	114.4414	80.7968	250	167.8171	118.2536	0.436	0.600	0.262	51.5535	52.2072	MB																						
19	135.3608	95.5959	250	207.5773	55.9700	1.084	0.340	0.369	60.6780	60.8031	DUP																						
20	276.4074	195.1480	250	443.6492	5854.2021	0.059	21.900	1.286	343.7942	533.3280	LCS																						
																				247360001.1			0.0%	0.2128			5543.8203		105.6%				

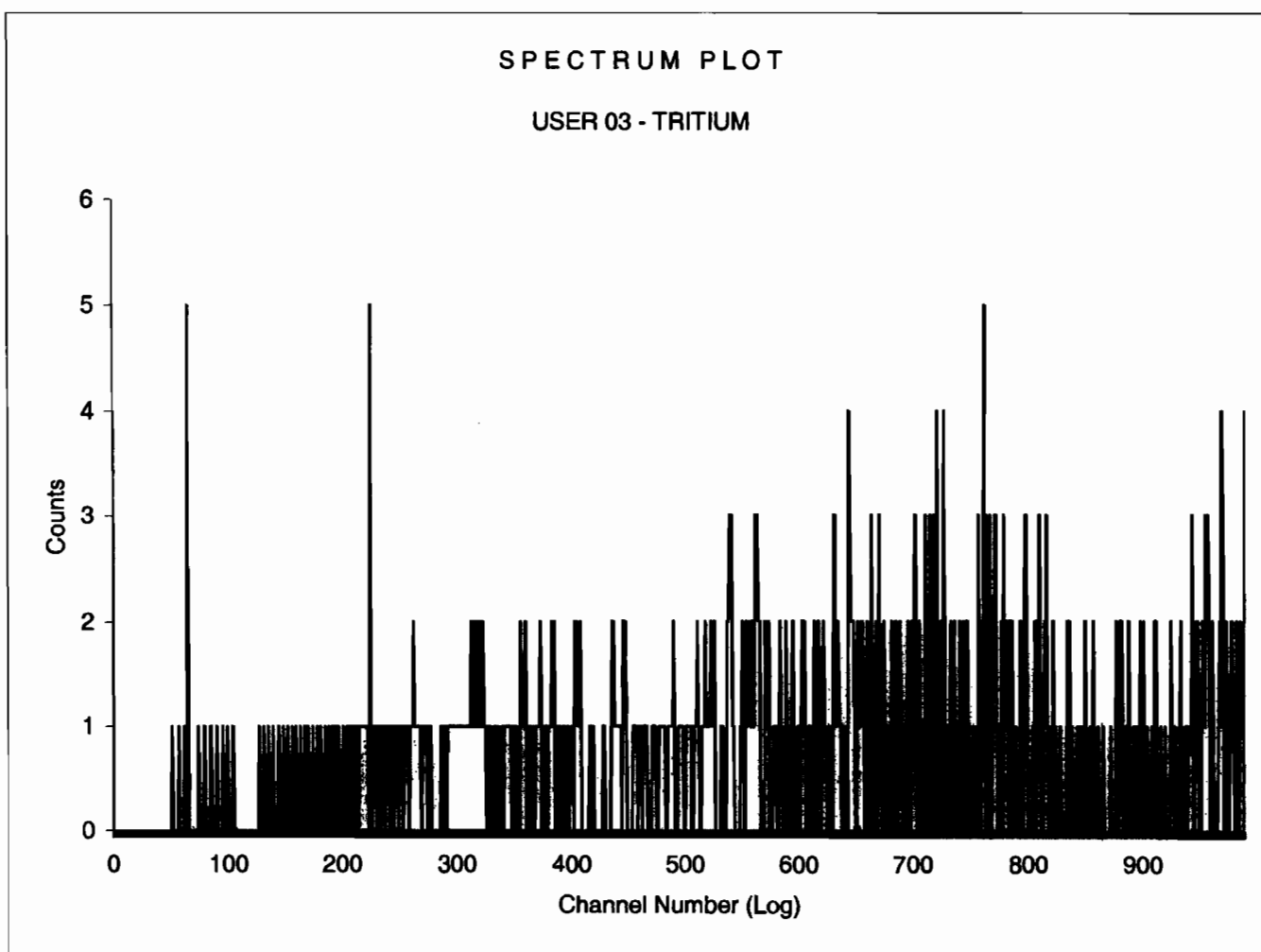
Instrument Type LS 6000
 Data Capture Date 09 Mar 2010 06:27:42
 User Filename C:\LSCCAPTURE\RED\USER03\UN030901.BSF

User Number 3
 User Id TRITIUM
 User Comments RED

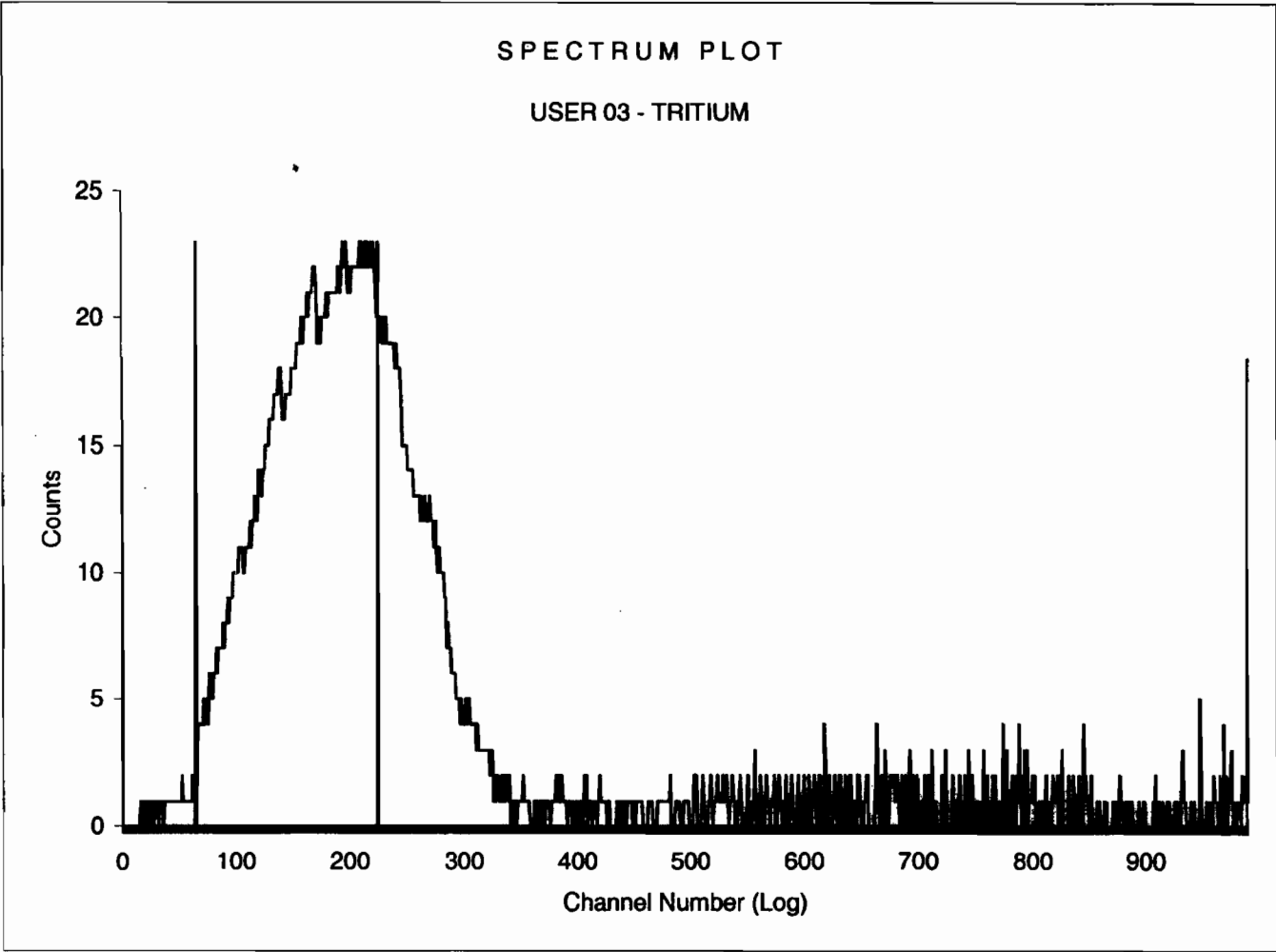
Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	Raw CPM2	CPM Iso1	%Err1	CPM Iso2	%Err2	LumEx	EITime
1	45-1	15.00	114.4	3.73	46.47	3.13	31.85	45.87	7.67	1.41	15.86
2	45-2	15.00	115.1	168.20	275.67	167.80	3.99	275.27	3.11	0.19	32.23
3	45-3	15.00	114.4	523.87	795.73	523.47	2.26	795.33	1.83	0.07	48.60
4	45-4	15.00	114.4	168.13	283.67	167.73	3.99	283.27	3.07	0.18	64.96
5	45-5	15.00	113.2	1305.13	1921.00	1304.73	1.43	1920.60	1.18	0.03	81.32
6	45-6	15.00	112.8	3988.27	5841.07	3987.80	0.82	5840.60	0.68	0.00	97.73
7	45-7	15.00	114.4	497.67	751.87	497.27	2.32	751.47	1.88	0.07	114.10
8	45-8	15.00	114.4	1049.93	1552.00	1049.53	1.59	1551.60	1.31	0.04	130.47
9	45-9	15.00	112.7	4040.93	5932.07	4040.47	0.81	5931.60	0.67	0.00	146.89
10	45-10	15.00	114.8	399.67	620.07	399.20	2.59	619.60	2.08	0.10	163.27
11	45-11	15.00	115.5	353.33	548.33	352.93	2.75	547.93	2.21	0.10	179.63

Sample Count Start Time:	9 Mar 2010 06:28:34		
Data Capture Date	09 Mar 2010 06:43:03		
User Filename	S03030945-1A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	45-1	15.00
H#, Total Counts:	114.4	794	
Win1: Tritium - Start, End, Counts:	65	225	47
Win2: - Start, End, Counts:	0	990	689



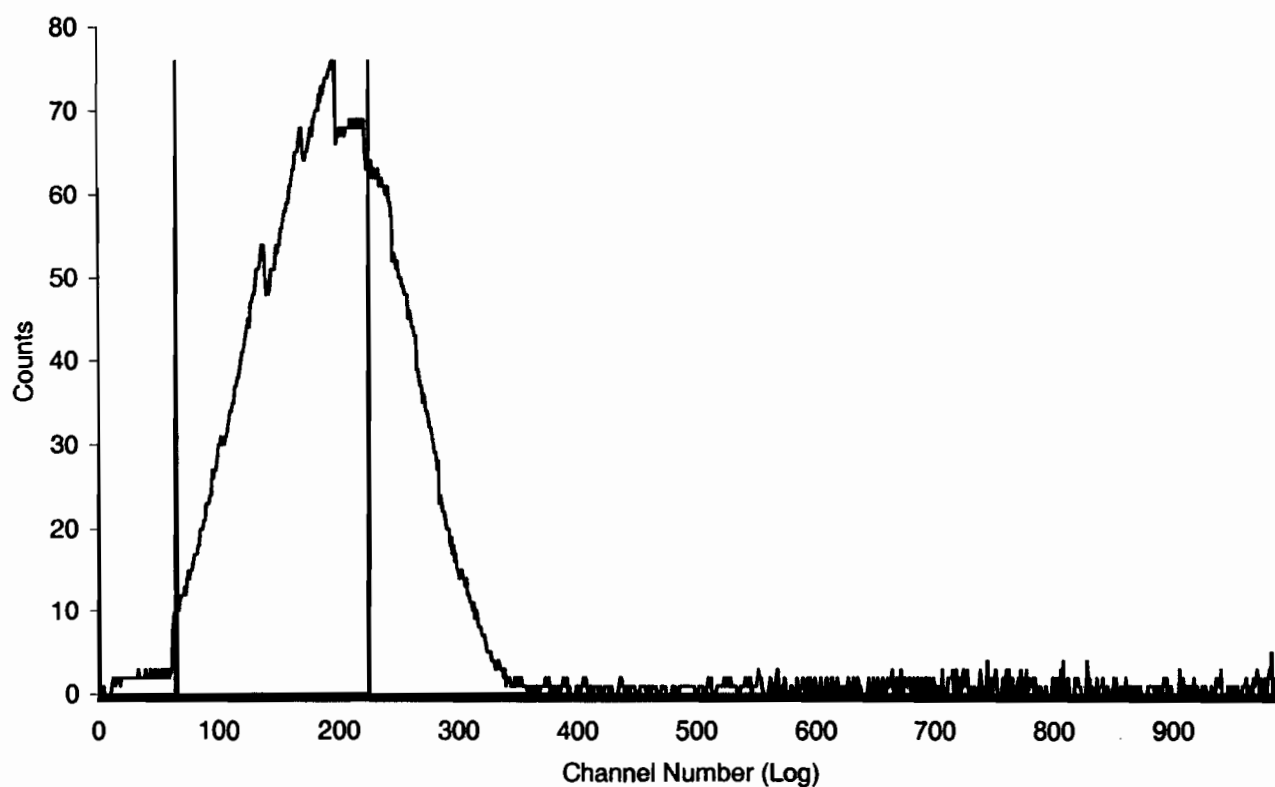
Sample Count Start Time:	9 Mar 2010 06:44:56		
Data Capture Date	09 Mar 2010 06:59:25		
User Filename	S03030945-2A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	45-2	15.00
H#, Total Counts:	115.1	4239	
Win1: Tritium - Start, End, Counts:	65	225	2534
Win2: - Start, End, Counts:	0	990	4131



Sample Count Start Time:	9 Mar 2010 07:01:18		
Data Capture Date	09 Mar 2010 07:15:47		
User Filename	S03030945-3A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	45-3	15.00
H#, Total Counts:	114.4	12073	
Win1: Tritium - Start, End, Counts:	65	225	7904
Win2: - Start, End, Counts:	0	990	11933

SPECTRUM PLOT

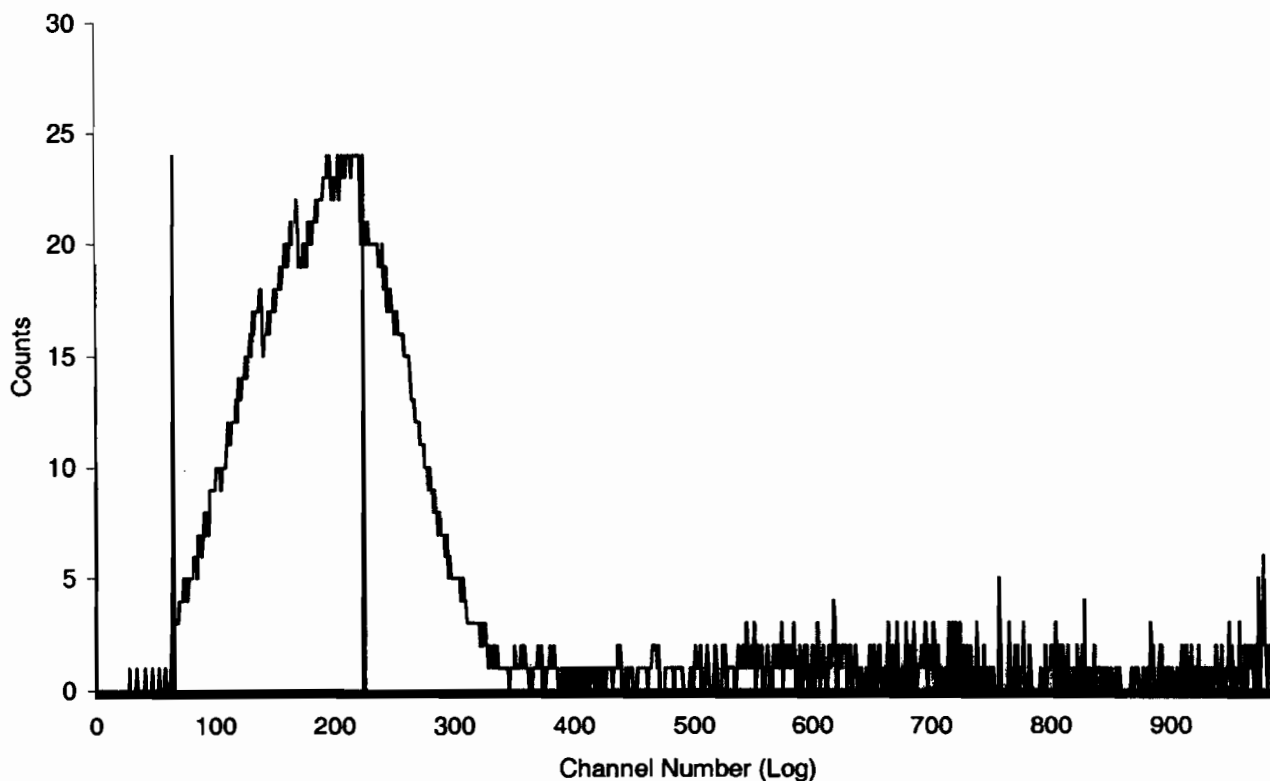
USER 03 - TRITIUM



Sample Count Start Time:	9 Mar 2010 07:17:40		
Data Capture Date	09 Mar 2010 07:32:08		
User Filename	S03030945-4A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	45-4	15.00
H#, Total Counts:	114.4	4229	
Win1: Tritium - Start, End, Counts:	65	225	2533
Win2: - Start, End, Counts:	0	990	4217

SPECTRUM PLOT

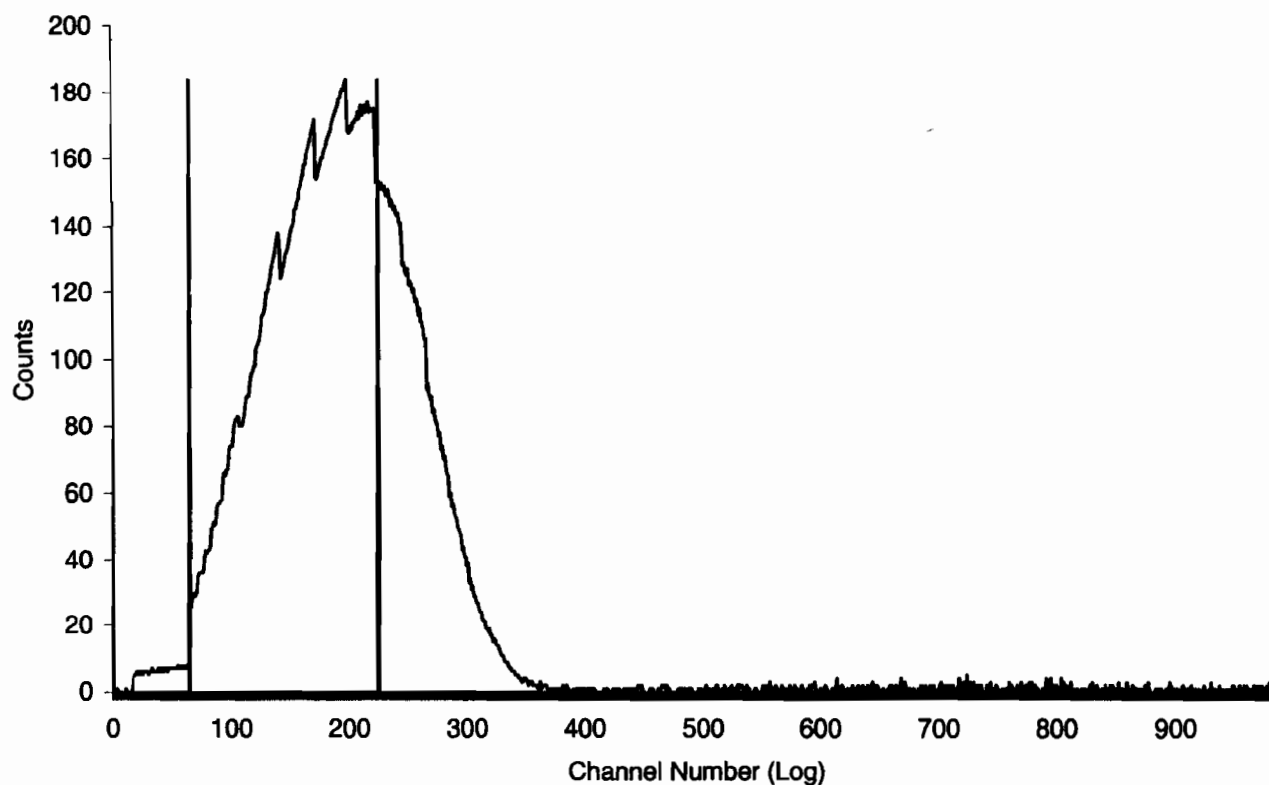
USER 03 - TRITIUM



Sample Count Start Time:	9 Mar 2010 07:34:01		
Data Capture Date	09 Mar 2010 07:49:27		
User Filename	S03030945-5A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	45-5	15.00
H#, Total Counts:	113.2	28975	
Win1: Tritium - Start, End, Counts:	65	225	19716
Win2: - Start, End, Counts:	0	990	28807

SPECTRUM PLOT

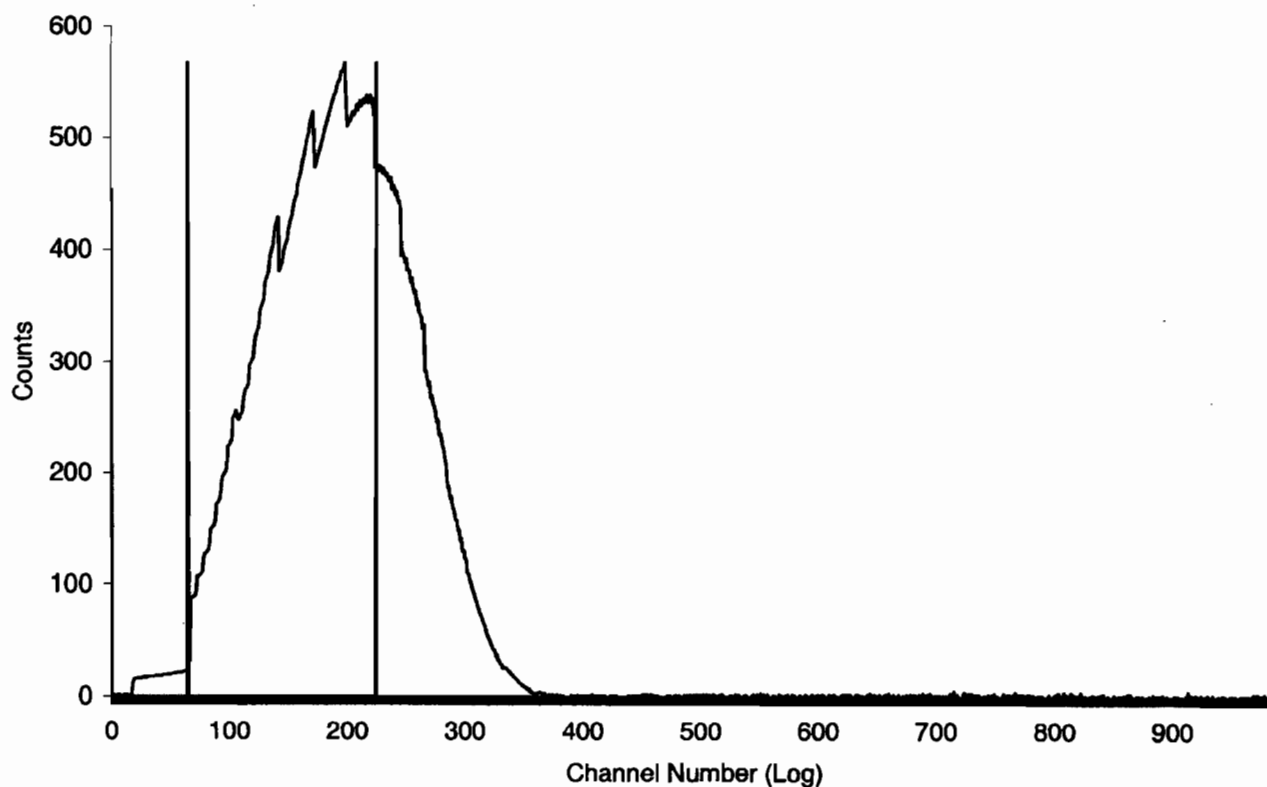
USER 03 - TRITIUM



Sample Count Start Time:	9 Mar 2010 07:50:26		
Data Capture Date	09 Mar 2010 08:04:56		
User Filename	S03030945-6A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	45-6	15.00
H#, Total Counts:	112.8	87690	
Win1: Tritium - Start, End, Counts:	65	225	60271
Win2: - Start, End, Counts:	0	990	87598

SPECTRUM PLOT

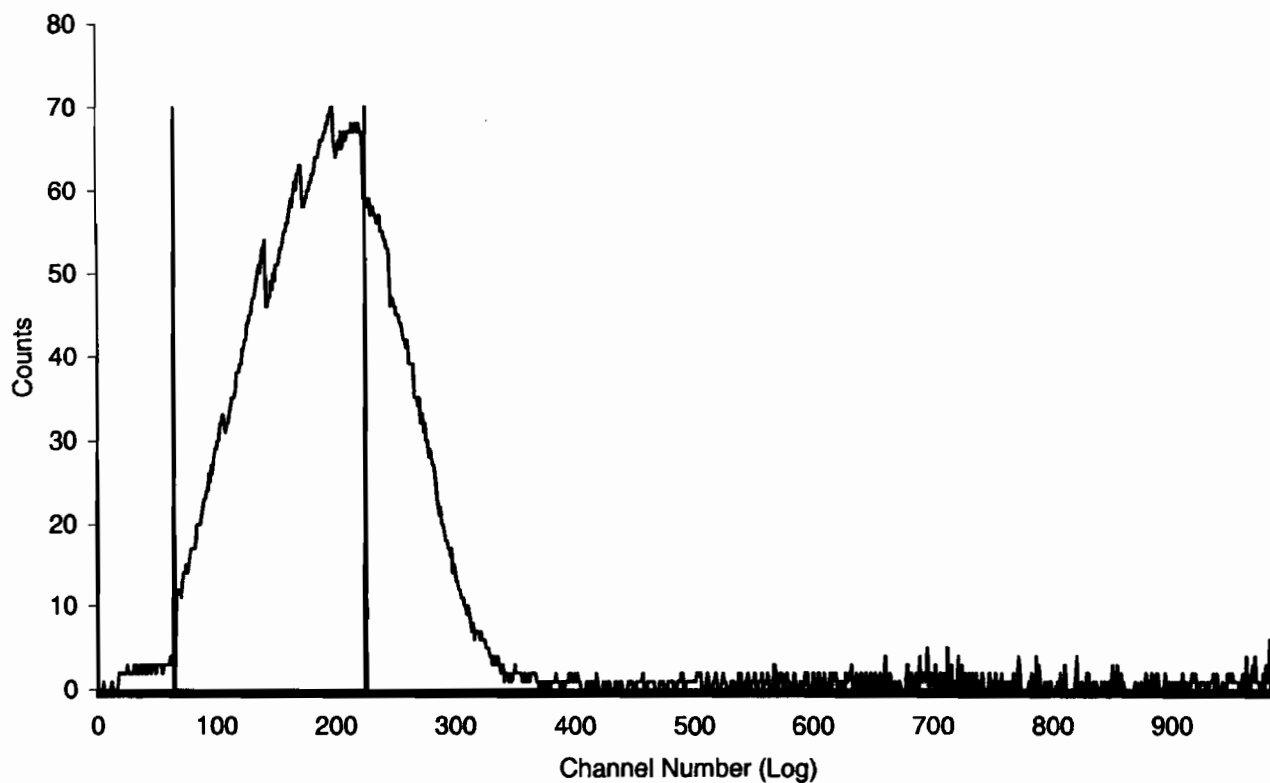
USER 03 - TRITIUM



Sample Count Start Time:	9 Mar 2010 08:06:48		
Data Capture Date	09 Mar 2010 08:21:18		
User Filename	S03030945-7A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	45-7	15.00
H#, Total Counts:	114.4	11442	
Win1: Tritium - Start, End, Counts:	65	225	7515
Win2: - Start, End, Counts:	0	990	11274

SPECTRUM PLOT

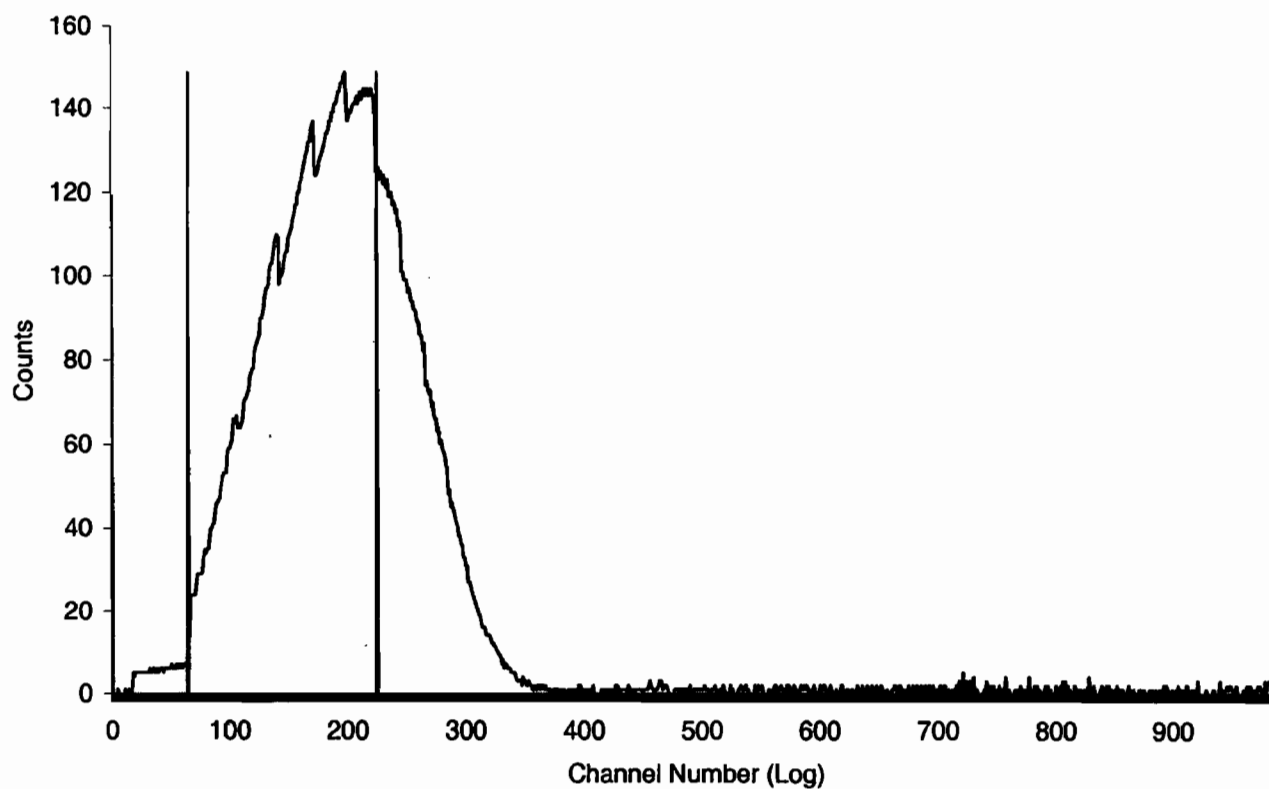
USER 03 - TRITIUM



Sample Count Start Time:	9 Mar 2010 08:23:10		
Data Capture Date	09 Mar 2010 08:37:40		
User Filename	S03030945-8A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	45-8	15.00
H#, Total Counts:	114.4	23367	
Win1: Tritium - Start, End, Counts:	65	225	15862
Win2: - Start, End, Counts:	0	990	23269

SPECTRUM PLOT

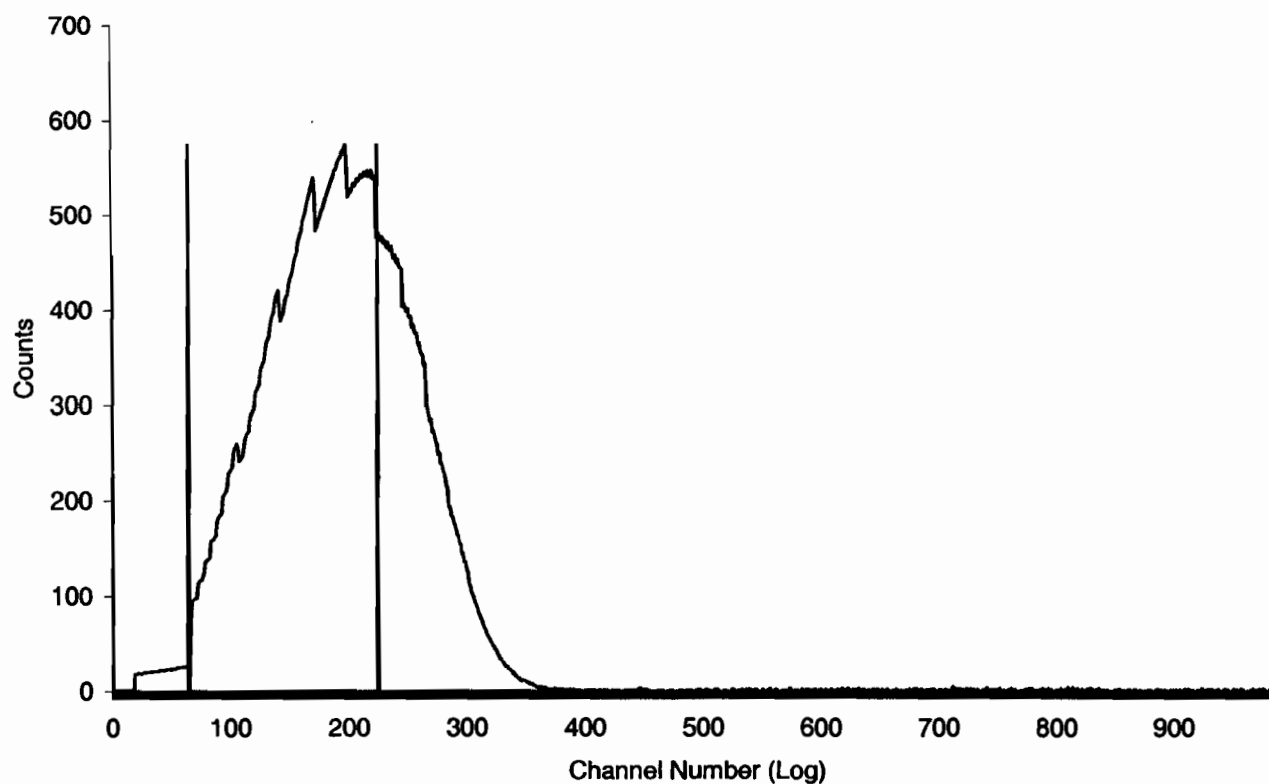
USER 03 - TRITIUM



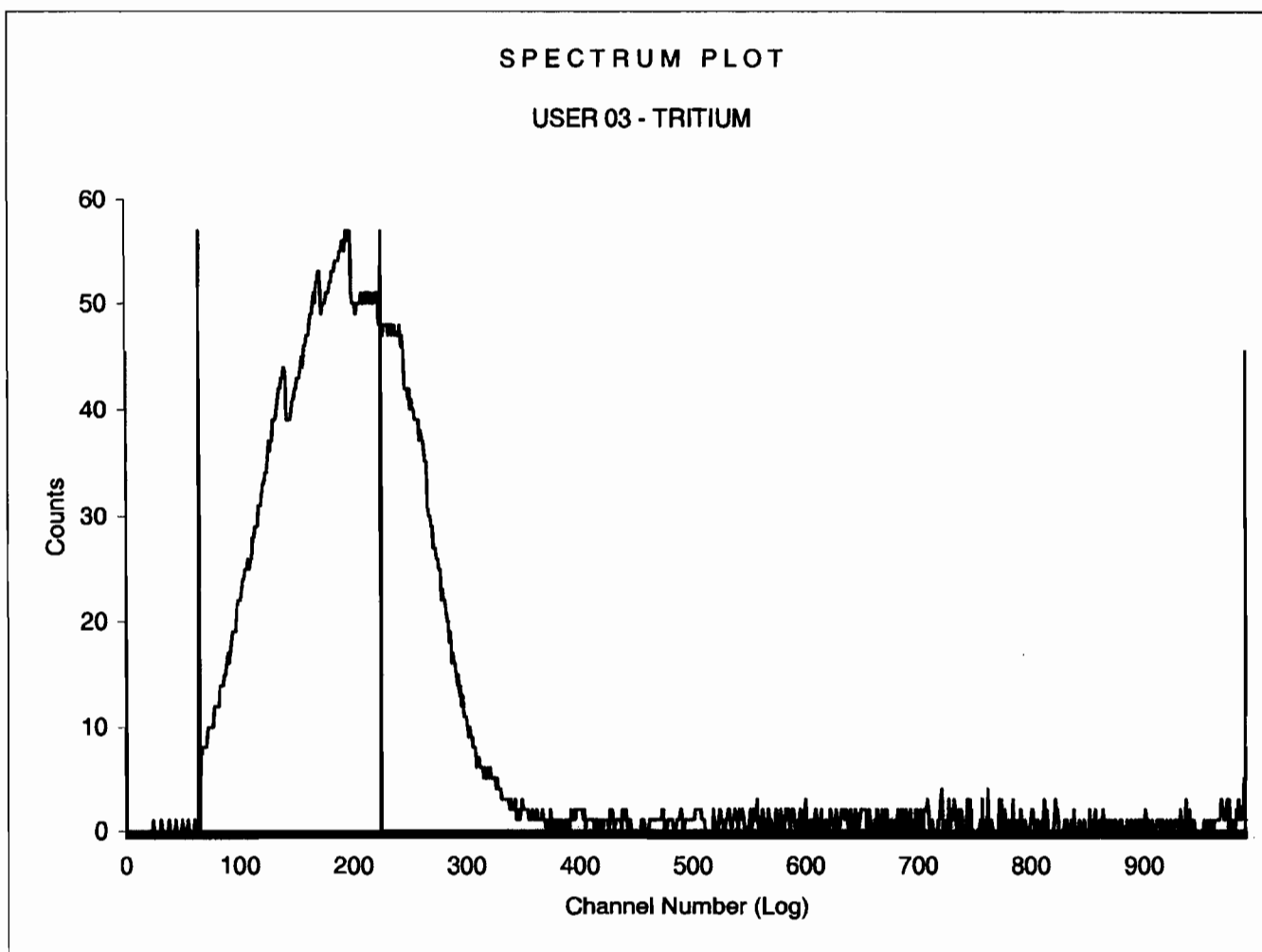
Sample Count Start Time:	9 Mar 2010 08:39:35		
Data Capture Date	09 Mar 2010 08:54:05		
User Filename	S03030945-9A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	45-9	15.00
H#, Total Counts:	112.7	89046	
Win1: Tritium - Start, End, Counts:	65	225	61062
Win2: - Start, End, Counts:	0	990	88957

SPECTRUM PLOT

USER 03 - TRITIUM



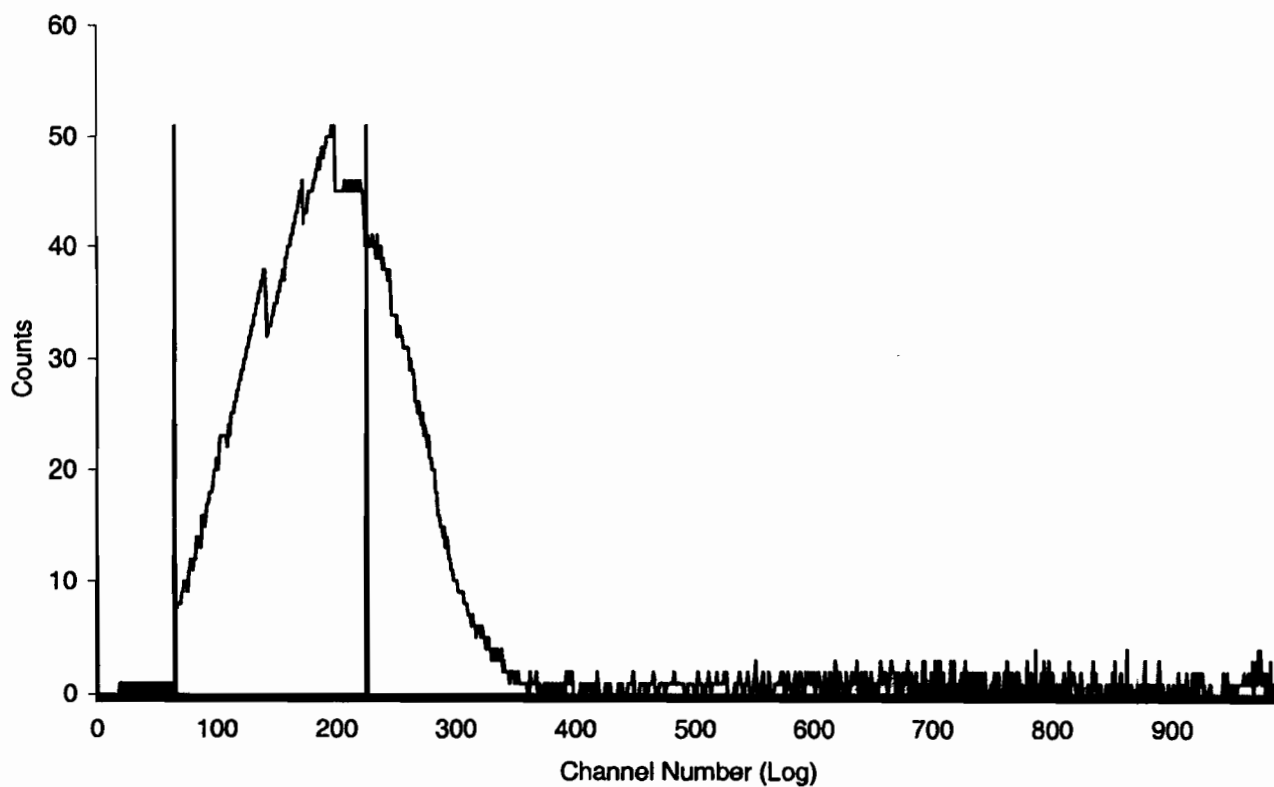
Sample Count Start Time:	9 Mar 2010 08:55:58		
Data Capture Date	09 Mar 2010 09:10:27		
User Filename	S03030945-10A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	45-10	15.00
H#, Total Counts:	114.8	9286	
Win1: Tritium - Start, End, Counts:	65	225	6036
Win2: - Start, End, Counts:	0	990	9198



Sample Count Start Time:	9 Mar 2010 09:12:20		
Data Capture Date	09 Mar 2010 09:26:49		
User Filename	S03030945-11A.XLS		
	U03030945-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	11	45-11	15.00
H#, Total Counts:	115.5	8241	
Win1: Tritium - Start, End, Counts:	65	225	5333
Win2: - Start, End, Counts:	0	990	8157

SPECTRUM PLOT

USER 03 - TRITIUM



REGISTRY

TUE 9 MAR 2010 14:30

*** DIRECTORY PATH :S:\LSC\O\DA\956742A0 ***

PARAMETER GROUP: 8
ID: H-3 (1)

00A PROGRAM MODE 6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	21	BKG	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	22	247360001	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
3	23	247360002	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
4	24	247360003	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
5	1	1	10:00	6.0E01	2.6E01	1	1	Y	1/10	1:00

NUMBER OF CYCLES 1
COINCIDENCE BIAS (L/H) L

JP 3/10/10

MCA INPUT	TRIGG.	INHIBIT	MEMORY SPLIT
1 LRSUM	DCOS	G	L*R
2 GSUM	G		L*R

WINDOW	CHANNELS	MCA	HALF
1	50- 175	1	2
2	5- 320	1	2
3	1- 1024	1	2
4	50- 320	1	1
5	50- 270	1	1
6	60- 220	1	1
7	1- 1024	2	1
8	1- 1024	2	2

SELECTED PRINTOUT FOR TERMINAL 1 (A)

SELECTED PRINTOUT FOR TERMINAL 2 (B)

1. POS	2. ID	3. CTIME	4. SQP	5. CPM1	6. CPM2	7. CPM3
SEND SPECTRA		12				
RESOLUTION OF SPECTRA	1024					
LISTING	Y					
INSTRUMENT NUMBER	1					

POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
Q012101N.001	9 MAR 2010 15:23					
21	BKG	50:01.780	761.59	.87	2.25	6.56
Q022201N.001	9 MAR 2010 16:15					
22	247360001	50:01.780	760.29	1.92	3.23	7.63
Q032301N.001	9 MAR 2010 17:08					
23	247360002	50:01.780	761.20	1.53	2.88	8.16
Q042401N.001	9 MAR 2010 18:00					
24	247360003	50:01.773	755.72	1.51	3.04	7.79
Q050101N.001	9 MAR 2010 18:04					
1	1	0:01.773	916.30	5020.00	23207.00	100380.00

JP 3/10/10

Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
TUE 9 MAR 2010 14:30
s:\sc\files\orange\956742A0\SQ012101N.001.xls
s:\sc\files\orange\956742A0\U956742A0.xls

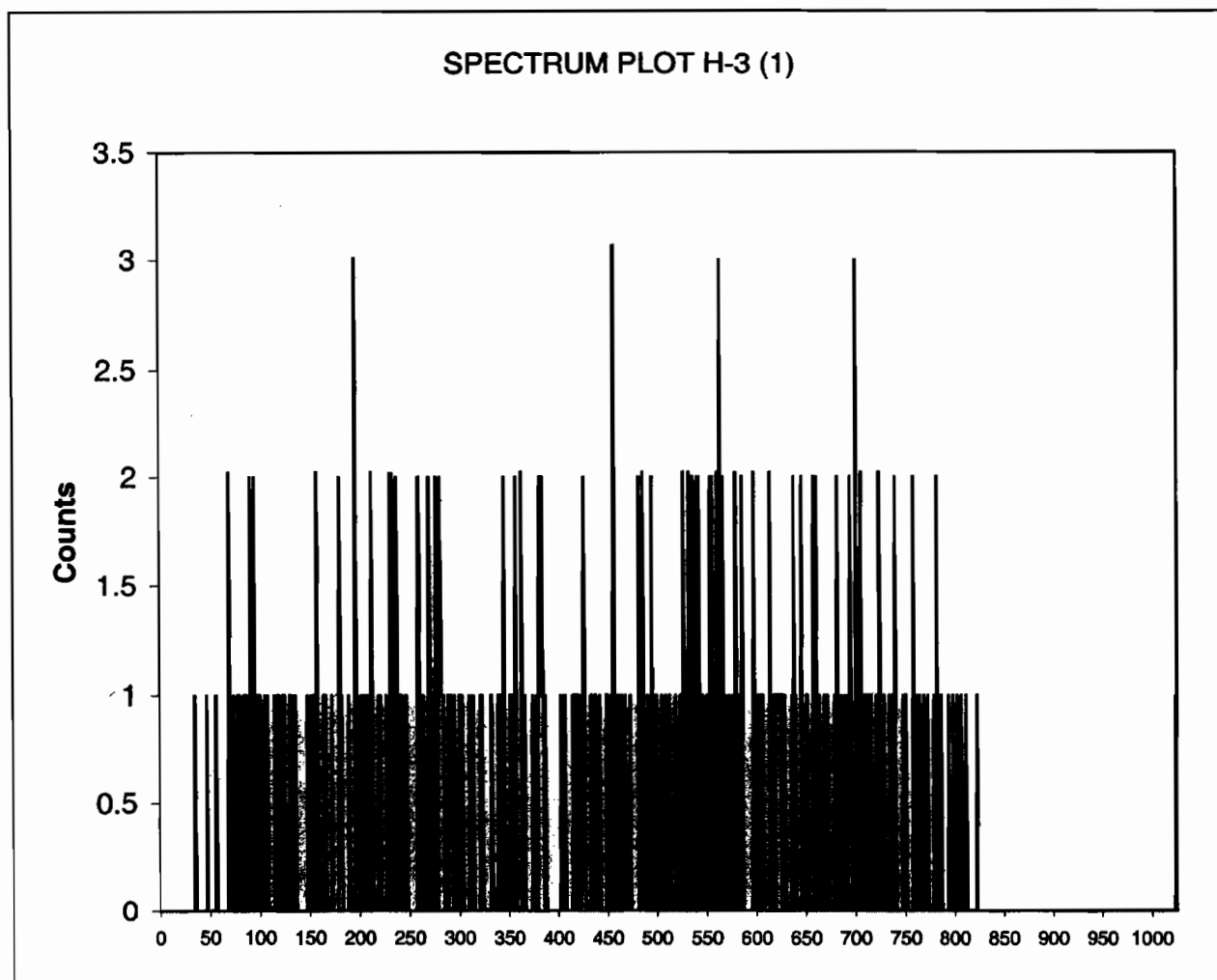
ID:
Comments:

H-3 (1)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

1, BKG, 50.02967:
761.59
50-175

Channel Counts



32 0
33 0
34 0
35 1

Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
TUE 9 MAR 2010 14:30
s:\sc\files\orange\956742A0\SQ032301N.001.xls
s:\sc\files\orange\956742A0\U956742A0.xls

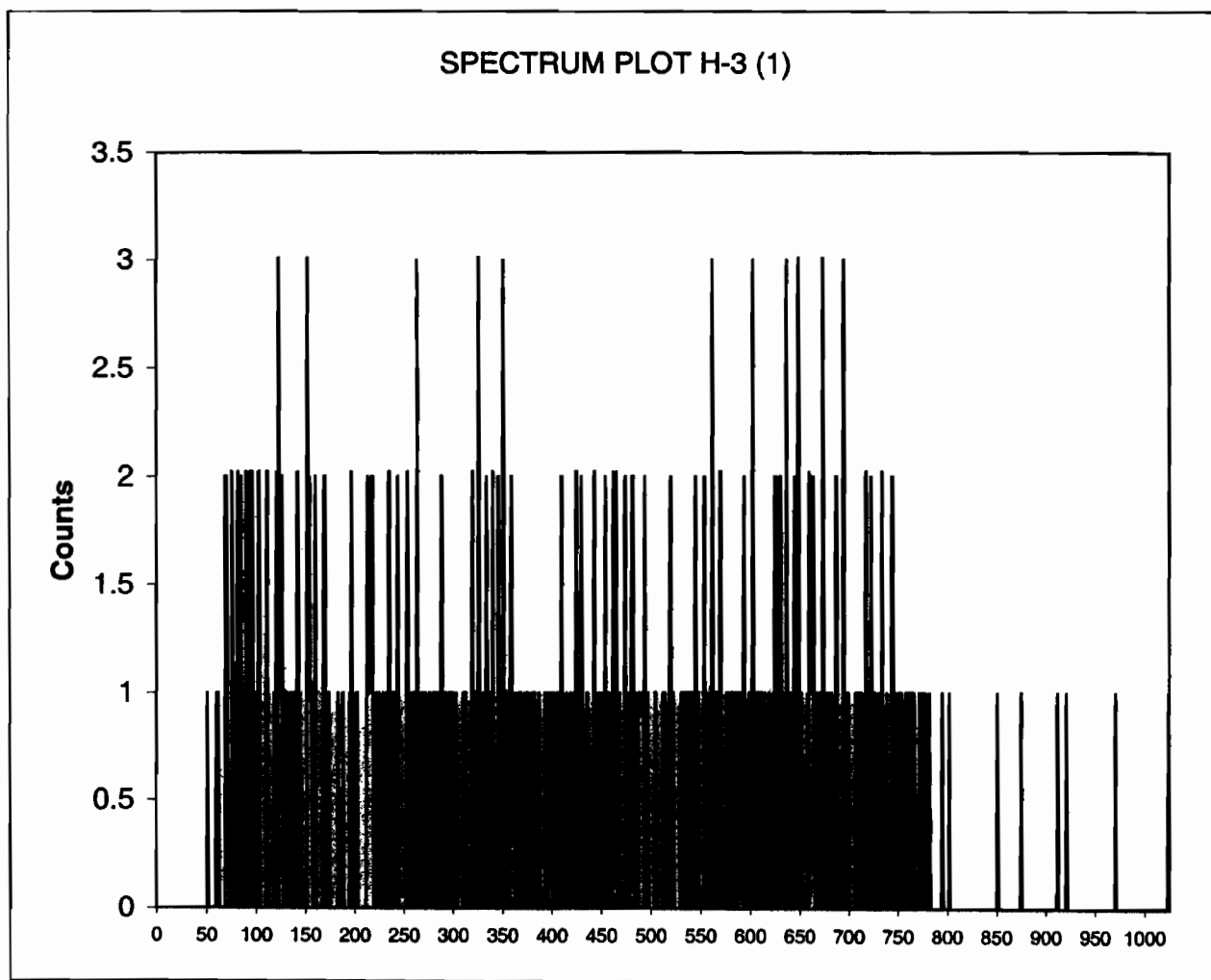
ID:
Comments:

H-3 (1)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

3, 247360002, 50.02967:
761.2
50-175

Channel Counts



32	0
33	0
34	0
35	0

Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
TUE 9 MAR 2010 14:30
s:\sc\files\orange\956742A0\SQ042401N.001.xls
s:\sc\files\orange\956742A0\U956742A0.xls

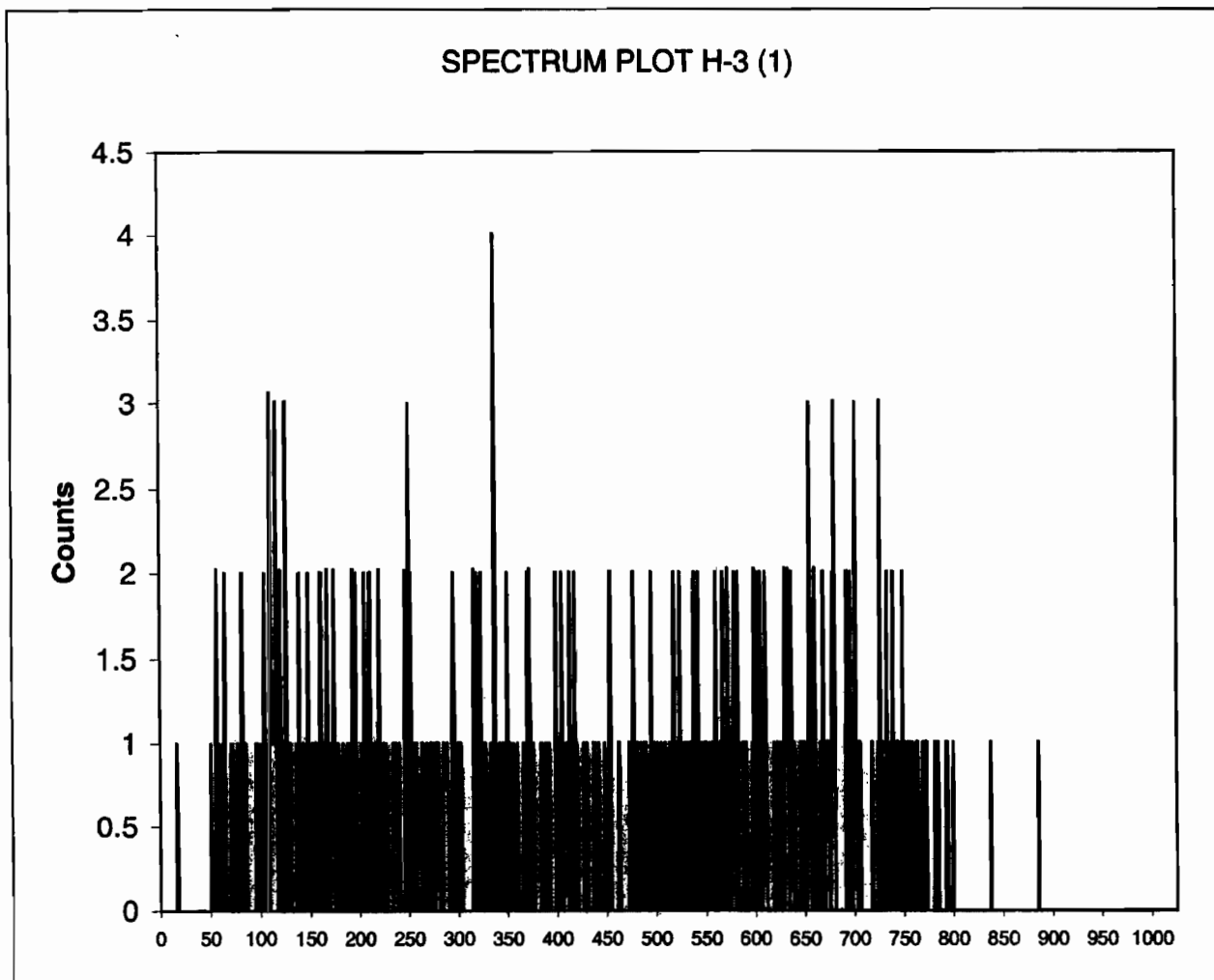
ID:
Comments:

H-3 (1)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

4, 247360003, 50.02955:
755.72
50-175

Channel Counts



32	0
33	0
34	0
35	0

REGISTRY

TUE 9 MAR 2010 8:13

*** DIRECTORY PATH :S:\LSC\Q\DA\956742A0 ***

PARAMETER GROUP: 8
ID: H-3(3)

00A PROGRAM MODE 6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	31	BKG	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	32	247360002	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
3	33	247360003	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
4	34	247360004	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
5	35	247551001	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
6	36	247551002	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
7	37	247552002	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
8	38	1202051381	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
9	39	1202051382	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
10	40	1202051383	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00

NUMBER OF CYCLES 1
COINCIDENCE BIAS (L/H) L

MCA INPUT	TRIGG.	INHIBIT	MEMORY SPLIT
1 LRSUM	DCOS	G	L*R
2 GSUM	G		L*R

WINDOW	CHANNELS	MCA	HALF
1	1- 174	1	2
2	1- 174	1	2
3	60- 220	1	2
4	50- 320	1	1
5	50- 270	1	1
6	60- 220	1	1
7	1- 1024	2	1
8	1- 1024	2	2

SELECTED PRINTOUT FOR TERMINAL 1 (A)

SELECTED PRINTOUT FOR TERMINAL 2 (B)

1.	2.	3.	4.	5.	6.	7.
POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
SEND SPECTRA		12				
RESOLUTION OF SPECTRA	1024					
LISTING	Y					
INSTRUMENT NUMBER	1					

POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
Q013101N.001	9 MAR 2010	8:31				
31	BKG	15:01.785	804.56	1.48	1.48	1.81
Q023201N.001	9 MAR 2010	8:48				
32	247360002	15:01.778	803.43	.04	.04	1.34
Q033301N.001	9 MAR 2010	9:06				

Page 1

REGISTRY

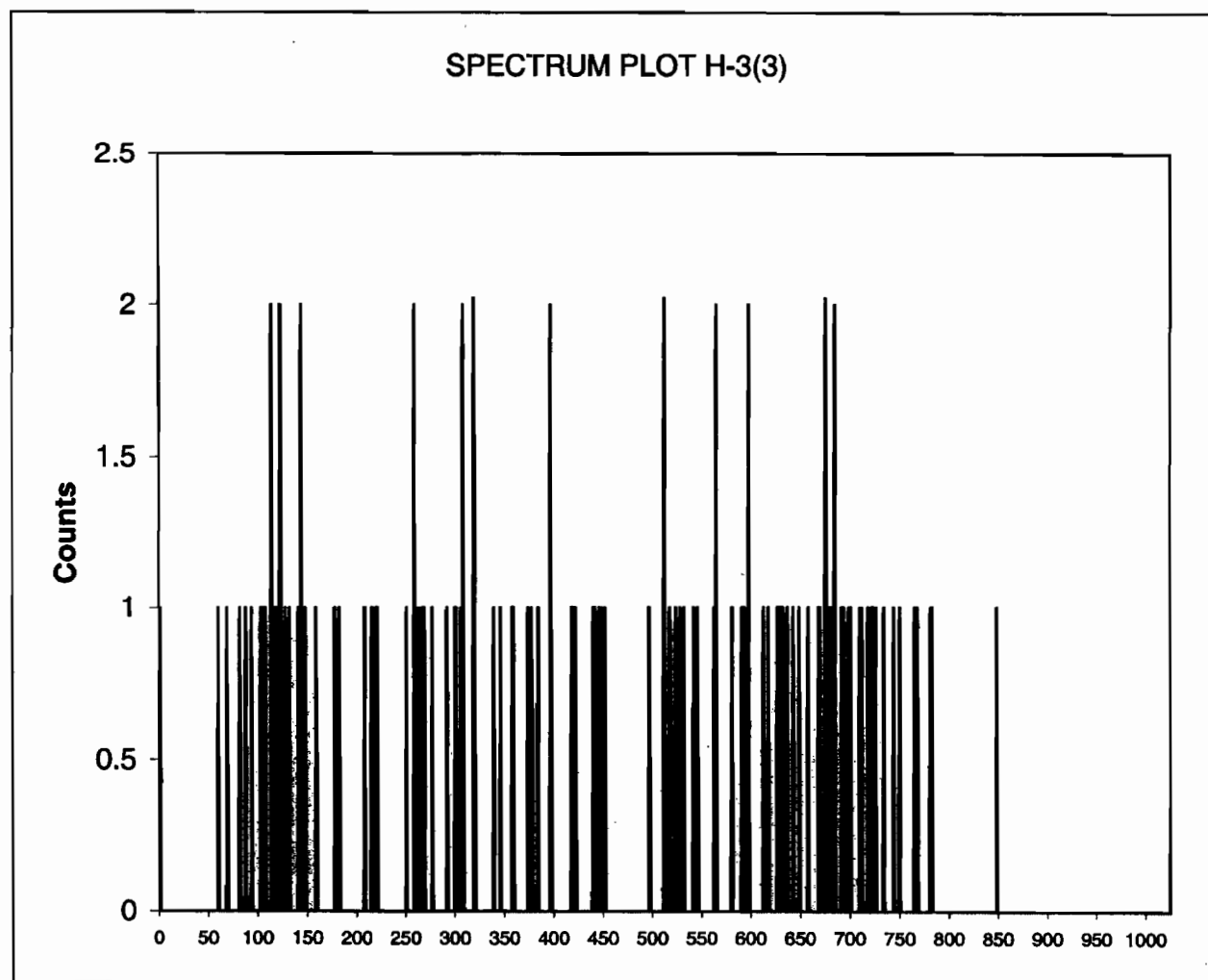
3-12-10 33 247360003 15:01.785 802.68 .74 .74 1.14
Q043401N.001 9 MAR 2010 9:23
34 247360004 15:01.785 804.55 1.07 1.07 1.61
Q053501N.001 9 MAR 2010 9:41
35 247551001 15:01.785 804.27 1.68 1.68 2.15
Q063601N.001 9 MAR 2010 9:58
36 247551002 15:01.785 803.52 2.76 2.76 3.30
Q073701N.001 9 MAR 2010 10:04
37 247552002 2:59.785 797.19 3407.39 3407.39 3590.45
Q083801N.001 9 MAR 2010 10:21
38 1202051381 15:01.778 798.38 1.01 1.01 1.21
Q093901N.001 9 MAR 2010 10:39
39 1202051382 15:01.784 806.74 1.01 1.01 1.81
Q104001N.001 9 MAR 2010 10:56
40 1202051383 15:01.784 805.01 23.38 23.38 25.74

Instrument Type: Quantulus
Data Capture Date: TUE 9 MAR 2010 8:13
FileName: s:\sc\files\pink\956742A0\SQ013101N.001.xls
File Info: s:\sc\files\pink\956742A0\U956742A0.xls

ID: H-3(3)
Comments: PINK

Sample, Rack-Pos, Time: 1, BKG, 15.02975:
Quench: 804.56
Start, End, X-Axis 1-174

Channel Counts



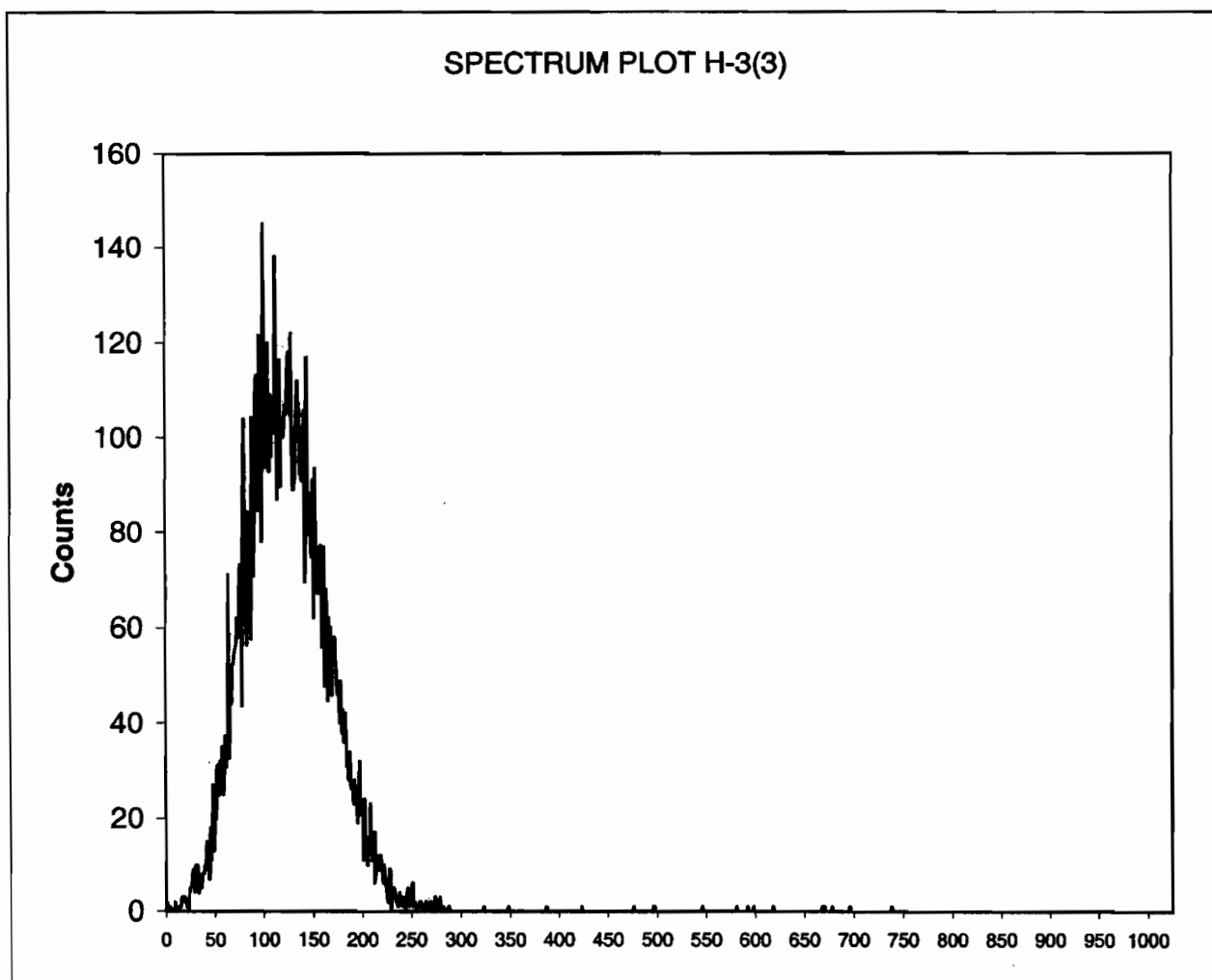
32	0
33	0
34	0
35	0

Instrument Type: Quantulus
Data Capture Date: TUE 9 MAR 2010 8:13
FileName: s:\sc\files\pink\956742A0\SQ073701N.001.xls
File Info: s:\sc\files\pink\956742A0\U956742A0.xls

ID: H-3(3)
Comments: PINK

Sample, Rack-Pos, Time: 7, 247552002, 2.996417:
Quench: 797.19
Start, End, X-Axis 1-174

Channel Counts



32	10
33	4
34	5
35	8

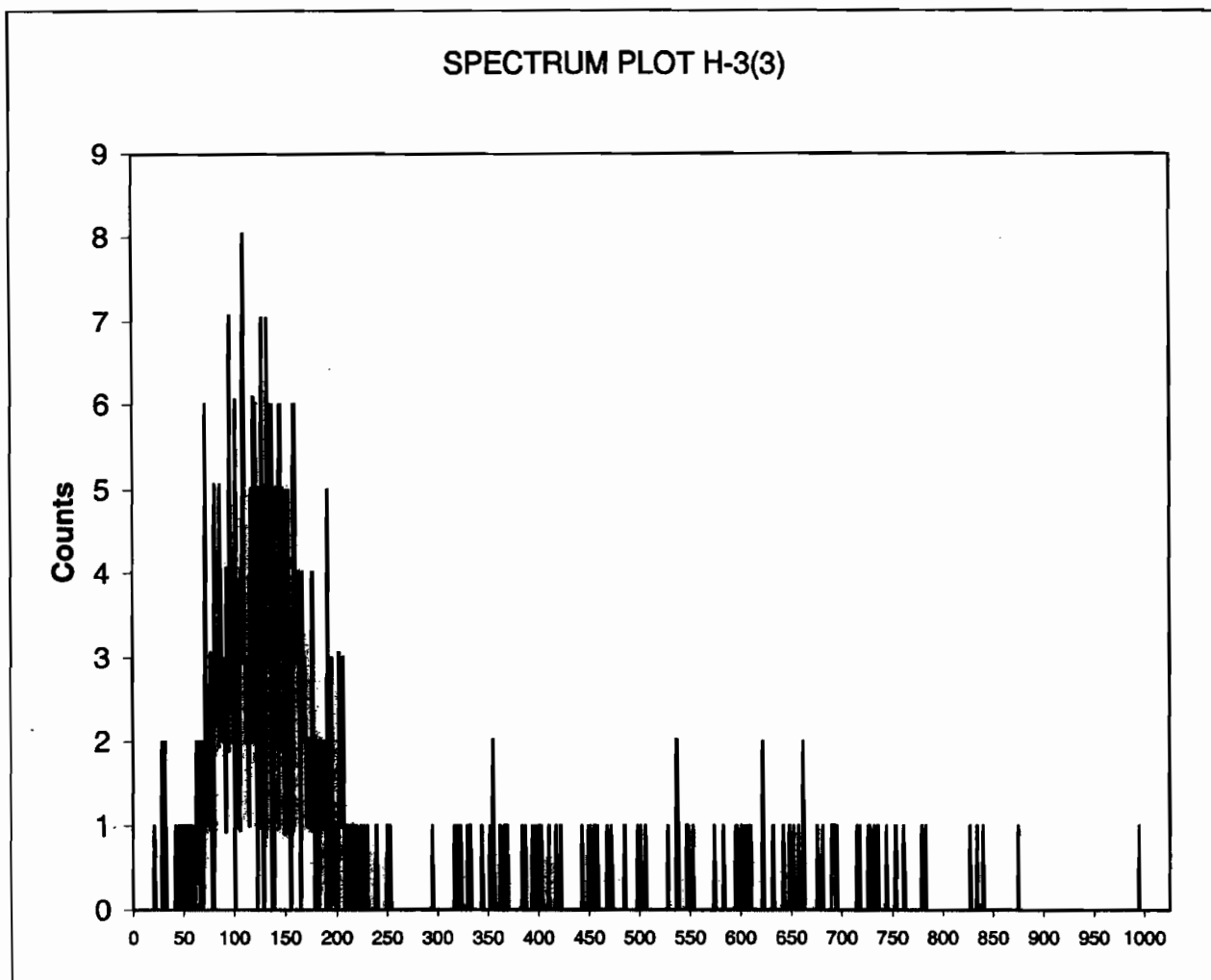
Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
TUE 9 MAR 2010 8:13
s:\scfiles\pink\956742A0\SQ104001N.001.xls
s:\scfiles\pink\956742A0\U956742A0.xls

ID: H-3(3)
Comments: PINK

Sample, Rack-Pos, Time: 10, 1202051383, 15.02973:
Quench: 805.01
Start, End, X-Axis 1-174

Channel Counts



32	2
33	0
34	0
35	0

REGISTRY

THU 11 MAR 2010 13:30

*** DIRECTORY PATH :S:\LSC\O\DA\956742A2 ***

PARAMETER GROUP: 8
ID: H-3 (2)

00A PROGRAM MODE 6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	22	BKG	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	25	247360004	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
3	26	247551001	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
4	27	247551002	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
5	28	1202051381	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
6	29	1202051382	30:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
NUMBER OF CYCLES			1							
COINCIDENCE BIAS (L/H)			L							

MCA INPUT	TRIGG.	INHIBIT	MEMORY SPLIT
1 LRSUM	DCOS	G	L*R
2 GSUM	G		L*R

WINDOW	CHANNELS	MCA	HALF
1	50- 175	1	2
2	5- 320	1	2
3	1- 1024	1	2
4	50- 320	1	1
5	50- 270	1	1
6	60- 220	1	1
7	1- 1024	2	1
8	1- 1024	2	2

SELECTED PRINTOUT FOR TERMINAL 1 (A)

SELECTED PRINTOUT FOR TERMINAL 2 (B)

1.	2.	3.	4.	5.	6.	7.
POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
SEND SPECTRA 12						
RESOLUTION OF SPECTRA 1024						
LISTING Y						
INSTRUMENT NUMBER 1						

POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
Q012201N.001	11 MAR 2010	14:03				
22	BKG	30:01.780	759.32	1.87	3.30	8.31
Q022501N.001	11 MAR 2010	14:35				
25	247360004	30:01.780	758.98	1.84	3.13	7.83
Q032601N.001	11 MAR 2010	15:08				
26	247551001	30:01.780	755.24	3.30	4.56	10.22
Q042701N.001	11 MAR 2010	15:40				
27	247551002	30:01.780	761.16	3.81	5.35	10.80
Q052801N.001 11 MAR 2010 16:13						

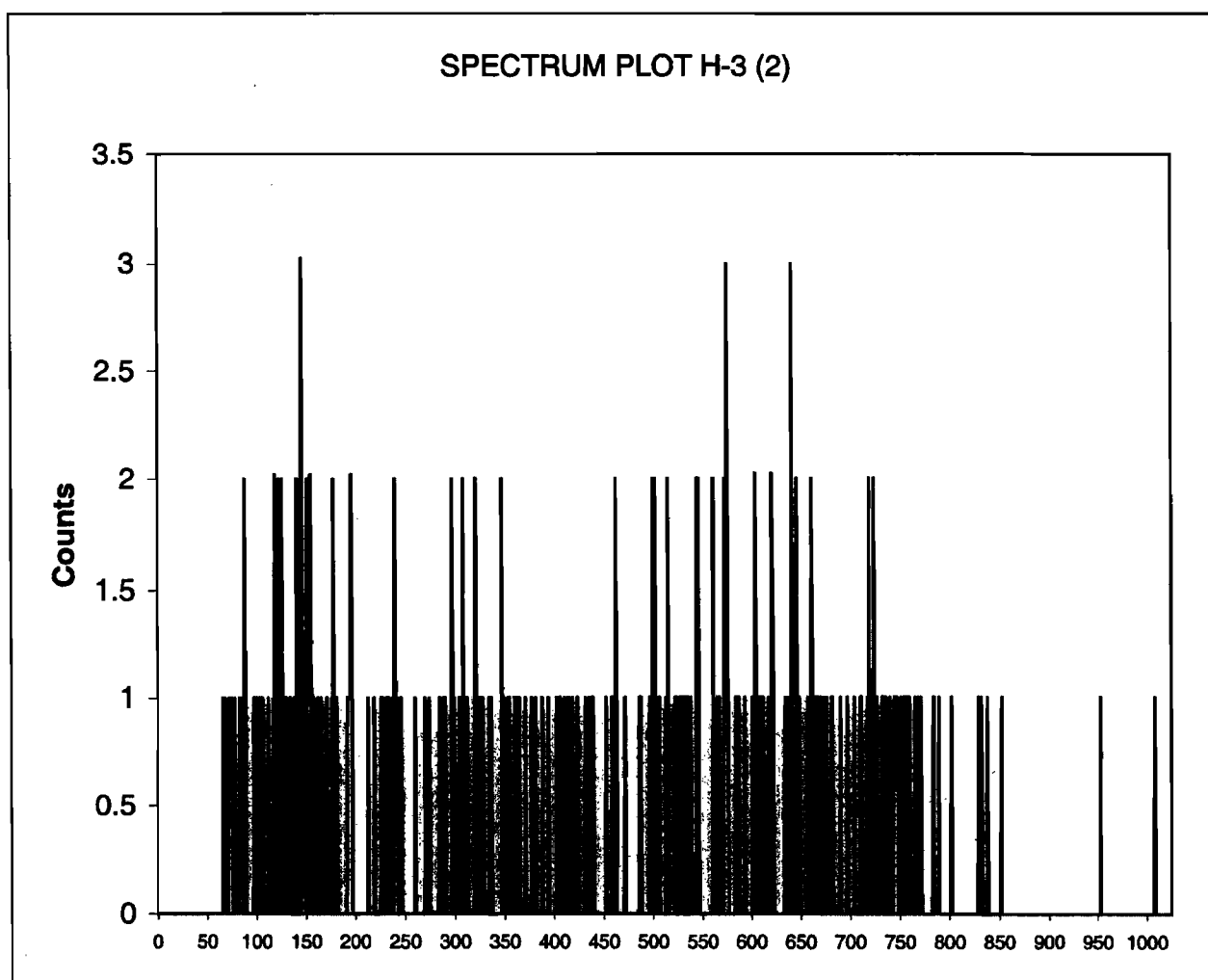
3-12-10 28 1202051381 30:01.780 754.26 .71 2.28 6.81
Q062901N.001 11 MAR 2010 16:45
29 1202051382 30:01.780 762.28 2.21 3.68 8.48

Instrument Type: Quantulus
Data Capture Date: THU 11 MAR 2010 13:30
FileName: s:\sc\files\orange\956742A2\SQ012201N.001.xls
File Info: s:\sc\files\orange\956742A2\U956742A2.xls

ID: H-3 (2)
Comments: ORANGE

Sample, Rack-Pos, Time: 1, BKG, 30.02967:
Quench: 759.32
Start, End, X-Axis 50-175

Channel Counts



32	0
33	0
34	0
35	0

Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
THU 11 MAR 2010 13:30
s:\sc\files\orange\956742A2\SQ022501N.001.xls
s:\sc\files\orange\956742A2\U956742A2.xls

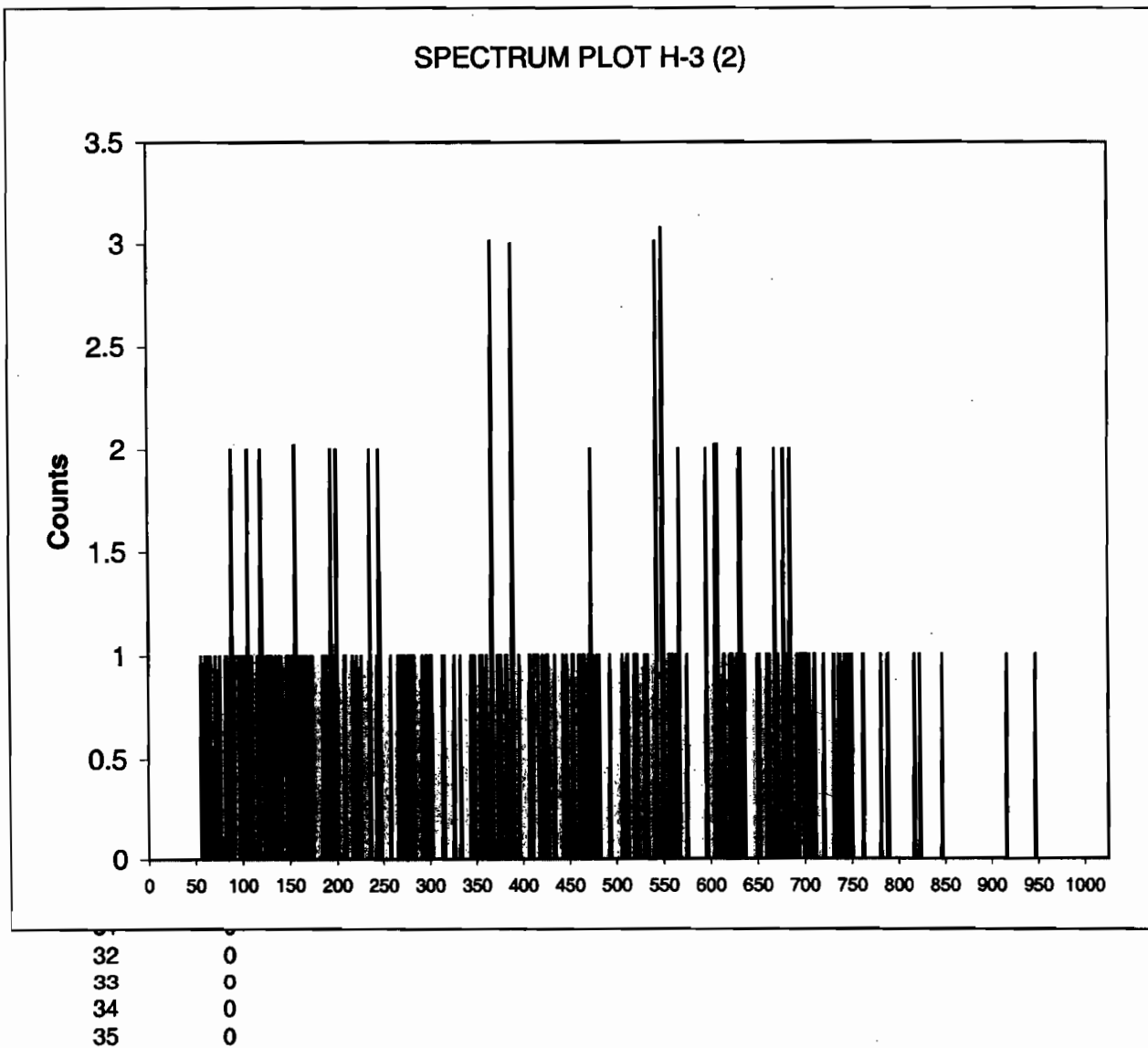
ID:
Comments:

H-3 (2)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

2, 247360004, 30.02967:
758.98
50-175

Channel Counts



Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
THU 11 MAR 2010 13:30
s:\lsc\files\orange\956742A2\SQ032601N.001.xls
s:\lsc\files\orange\956742A2\U956742A2.xls

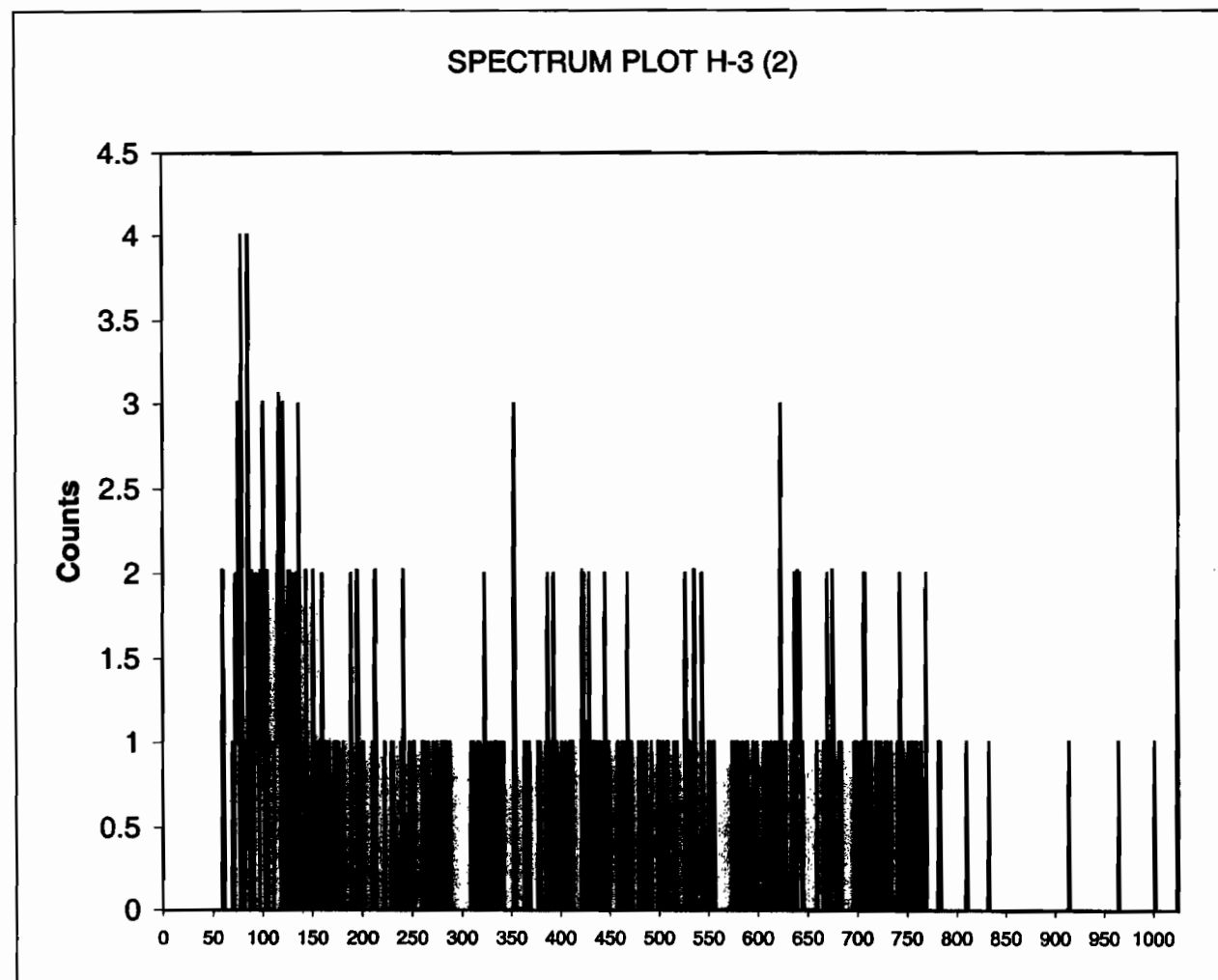
ID:
Comments:

H-3 (2)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

3, 247551001, 30.02967:
755.24
50-175

Channel Counts



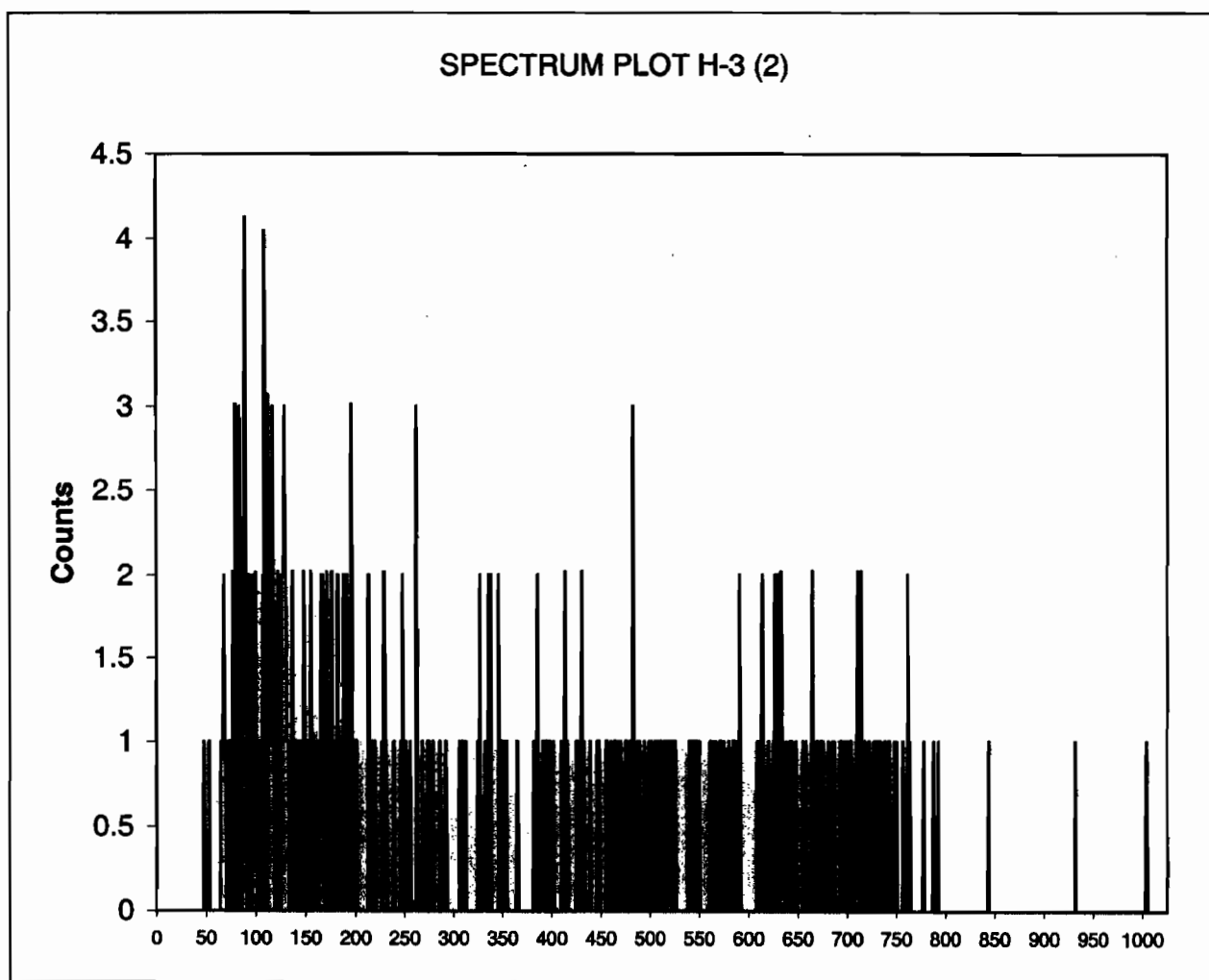
32	0
33	0
34	0
35	0

Instrument Type: Quantulus
Data Capture Date: THU 11 MAR 2010 13:30
FileName: s:\sc\files\orange\956742A2\SQ042701N.001.xls
File Info: s:\sc\files\orange\956742A2\U956742A2.xls

ID: H-3 (2)
Comments: ORANGE

Sample, Rack-Pos, Time: 4, 247551002, 30.02967:
Quench: 761.16
Start, End, X-Axis 50-175

Channel Counts



32	0
33	0
34	0
35	0

Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
THU 11 MAR 2010 13:30
s:\sc\files\orange\956742A2\SQ062901N.001.xls
s:\sc\files\orange\956742A2\U956742A2.xls

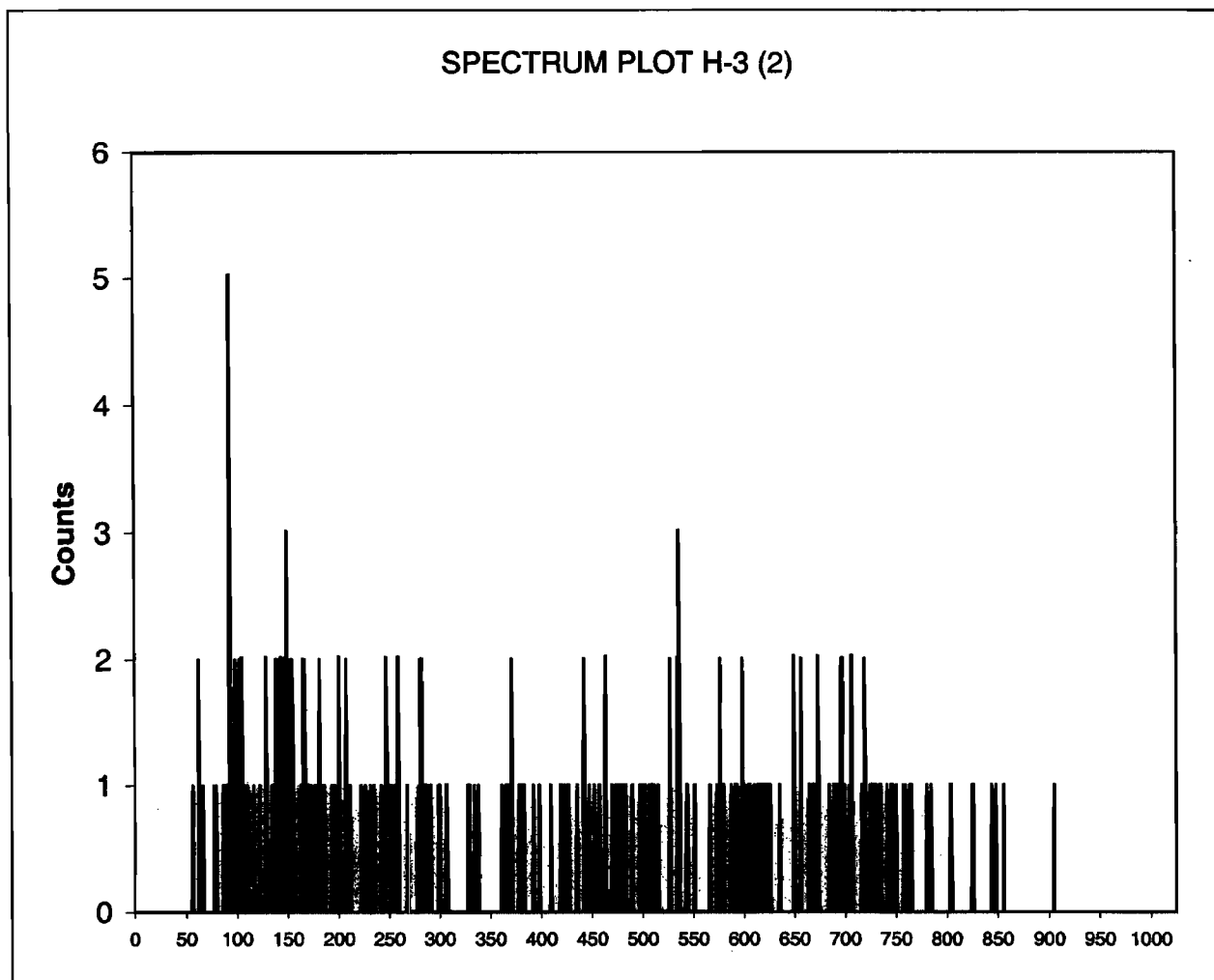
ID:
Comments:

H-3 (2)
ORANGE

Sample, Rack-Pos, Time:
Quench:
Start, End, X-Axis

6, 1202051382, 30.02967:
762.28
50-175

Channel Counts



32	0
33	0
34	0
35	0

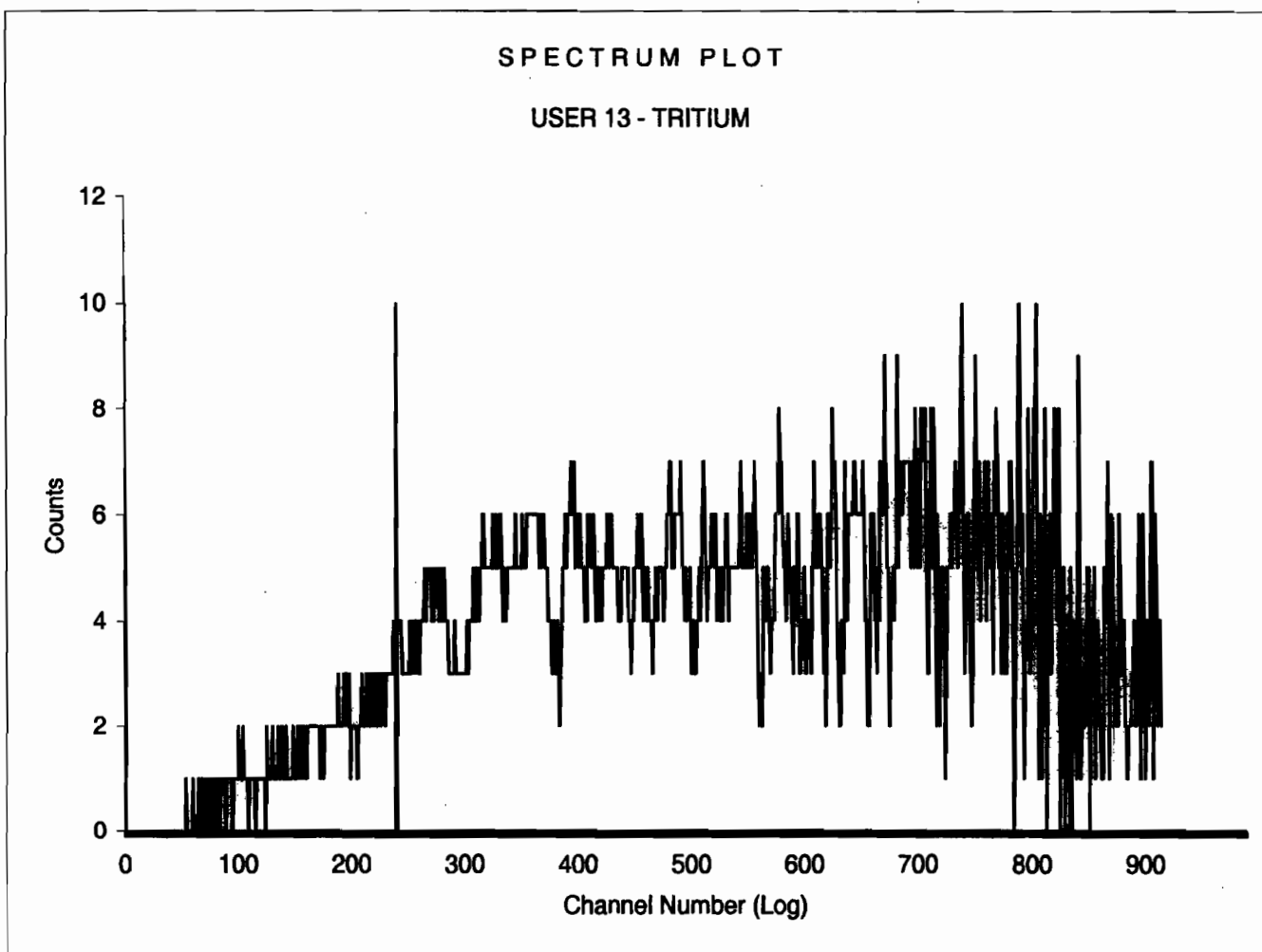
Instrument Type LS 6000
 Data Capture Date 11 Mar 2010 17:09:03
 User Filename C:\SCCAPTURE\BROWNUSER13\UN031101.BSF

User Number 13
 User Id TRITIUM
 User Comments BROWN

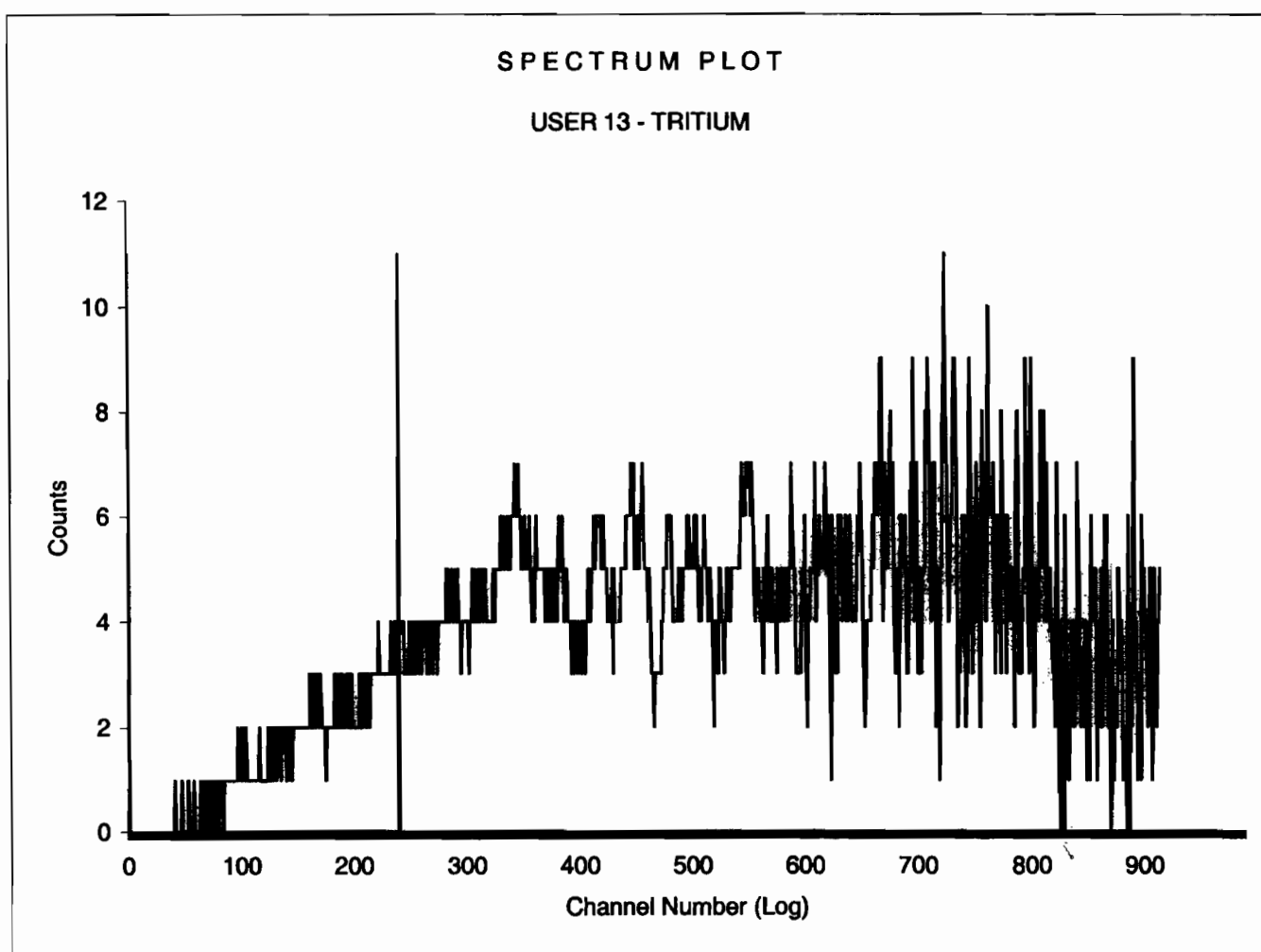
Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	57-1	95.00	124.7	3.02	2.95	12.10	0.21	97.41
2	57-2	95.00	120.2	3.71	3.55	11.13	0.40	195.42

Sample Count Start Time:	11 Mar 2010 17:11:28		
Data Capture Date	11 Mar 2010 18:46:52		
User Filename	S13031157-1A.XLS		
	U13031157-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	57-1	95.00
H#, Total Counts:	124.7	3462	
Win1: Tritium - Start, End, Counts:	0	240	284
Win2: - Start, End, Counts:	0	990	3462



Sample Count Start Time:	11 Mar 2010 18:49:28		
Data Capture Date	11 Mar 2010 20:24:52		
User Filename	S13031157-2A.XLS		
	U13031157-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	57-2	95.00
H#, Total Counts:	120.2	3442	
Win1: Tritium - Start, End, Counts:	0	240	341
Win2: - Start, End, Counts:	0	990	3442



ID: TRITIUM

12 MAR 2010 05:45

USER: 3

COMMENT: RED

```

PRESET TIME :      65.00
DATA CALC   :      CPM  H#   : YES  SAMPLE REPEATS:   1  PRINTER      : EDIT
COUNT BLANK :      NO  IC#  : NO   REPLICATES   :   1  RS232       : EDIT
TWO PHASE    :      NO  AQC  : NO   CYCLE REPEATS :   1  DISK        : OFF
SCINTILLATOR:  LIQUID  LUMEX: YES  LOW SAMPLE REJ:   0
LOW LEVEL   :      NO  HALF LIFE CORRECTION DATE:      none

```

```

CHAN:  65.0 - 225.0  %ERROR: 0.00  FACTOR:  1.000000  BKG. SUB:      0
CHAN:   0.0 - 990.0  %ERROR: 0.00  FACTOR:  1.000000  BKG. SUB:      0

```

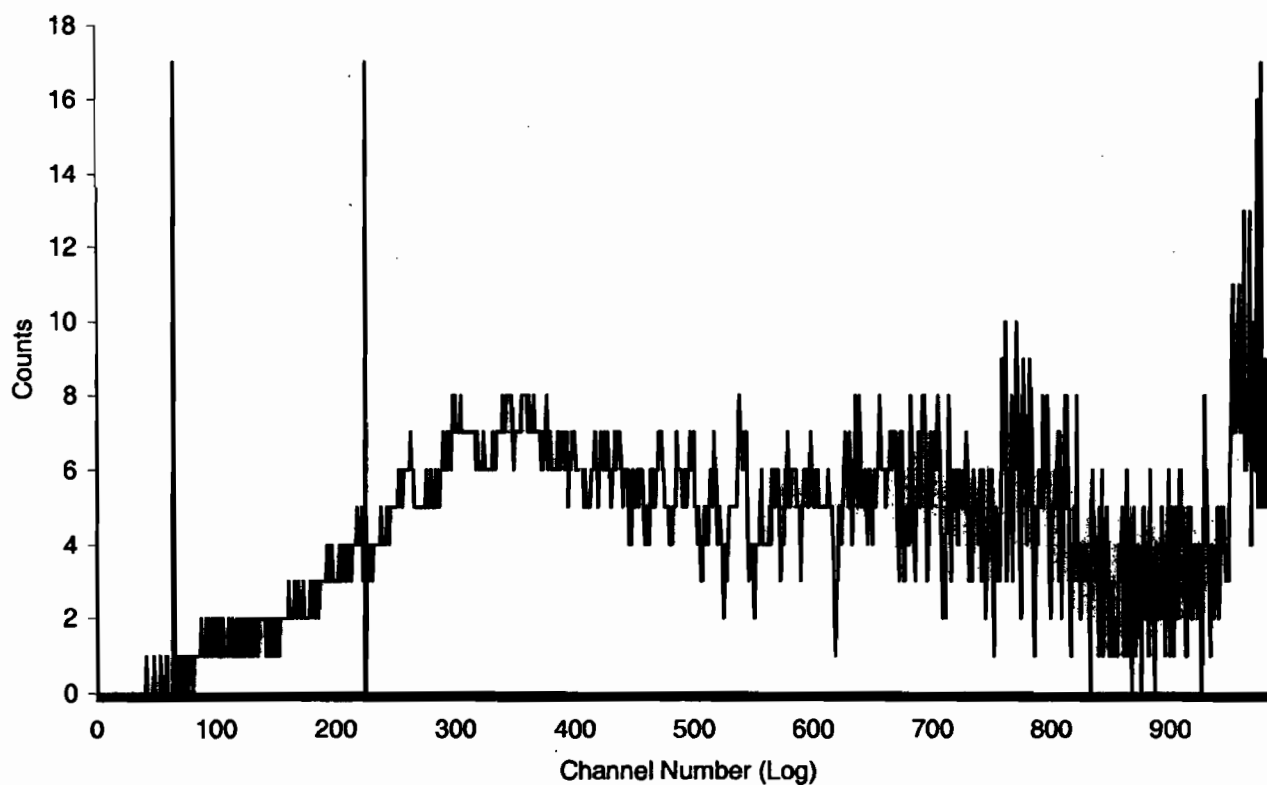
ALPHA-BETA DISCRIMINATION: NO

SAM NO	POS	TIME MIN	H#	WIND1		WIND2		LUMEX %	ELAPSED TIME
				CPM	%ERROR	CPM	%ERROR		
1	25-1	90.00	128.5	3.62	11.62	49.00	3.02	0.75	92.56
2	25-2	90.00	116.8	4.12	11.07	48.61	3.04	1.13	185.79
MISSING SAMPLE									
6	25-6	0.25	116.8	4.00	200.00	40.00	63.25	9.87	187.09
7	25-7	0.05	116.8	60.00	115.47	140.00	75.59	24.96	187.82

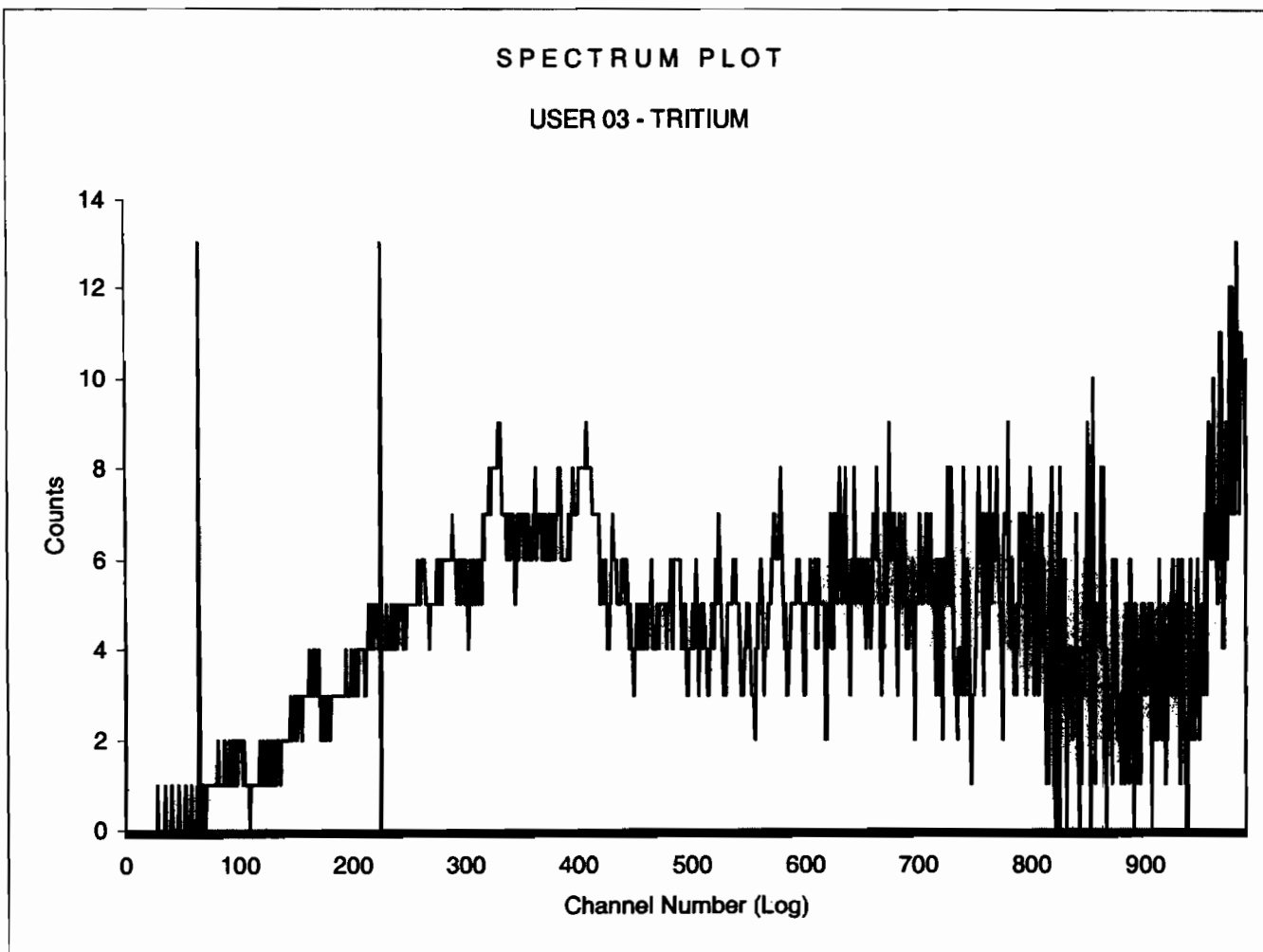
Sample Count Start Time:	12 Mar 2010 05:35:10
Data Capture Date	12 Mar 2010 07:05:37
User Filename	S03031225-1A.XLS
	U03031225-1A.XLS
Spectrum Type	Log Counts
User Number	03
User Id	TRITIUM
User Comment	RED
Scintillator	LIQUID
Sample, Rack-Pos, Time:	1 25-1 90.00
H#, Total Counts:	128.5 5147
Win1: Tritium - Start, End, Counts:	65 225 328
Win2: - Start, End, Counts:	0 990 4421

SPECTRUM PLOT

USER 03 - TRITIUM

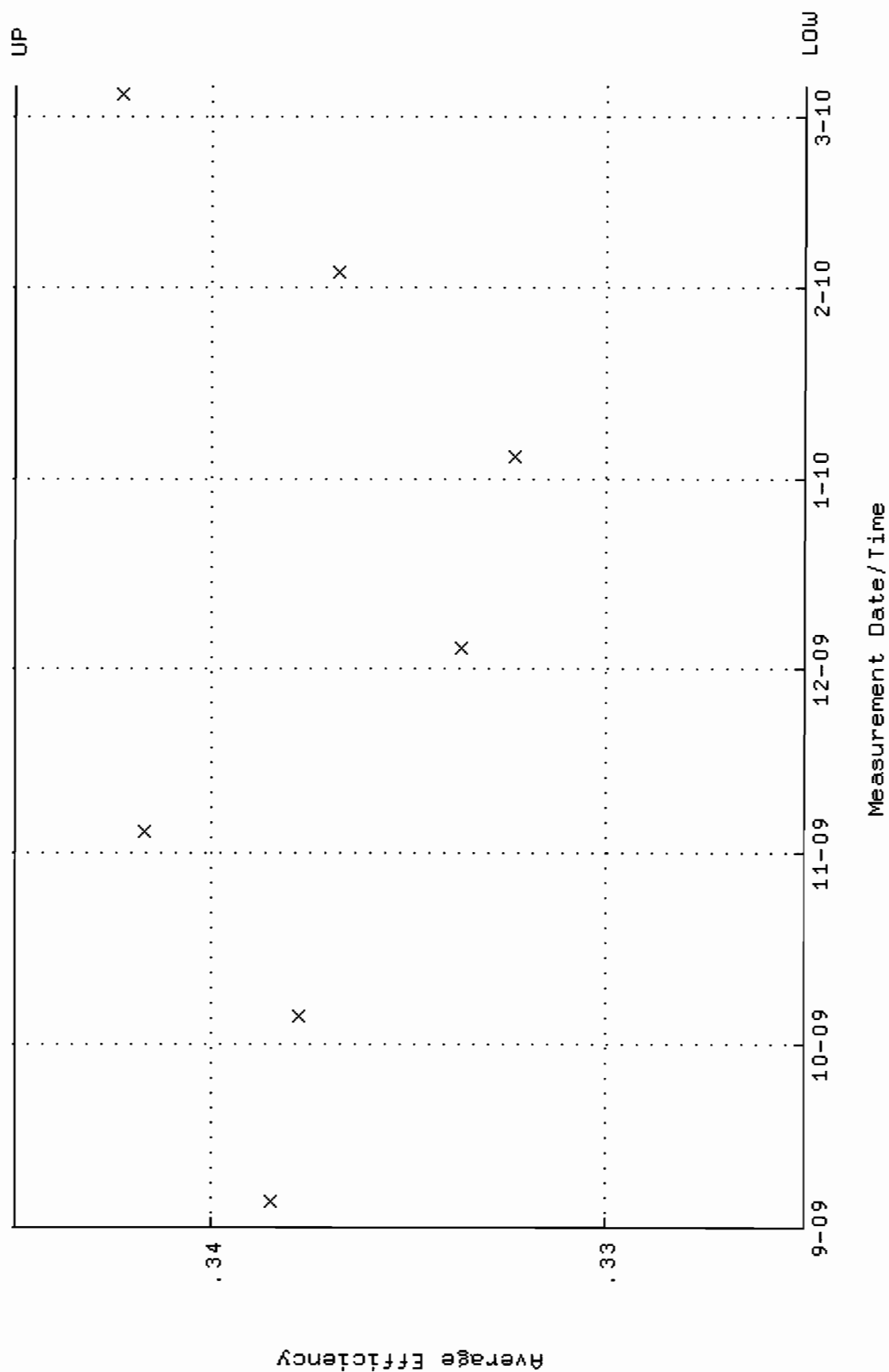


Sample Count Start Time:	12 Mar 2010 07:08:23		
Data Capture Date	12 Mar 2010 08:39:36		
User Filename	S03031225-2A.XLS		
	U03031225-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	25-2	90.00
H#, Total Counts:	116.8	4982	
Win1: Tritium - Start, End, Counts:	65	225	374
Win2: - Start, End, Counts:	0	990	4382

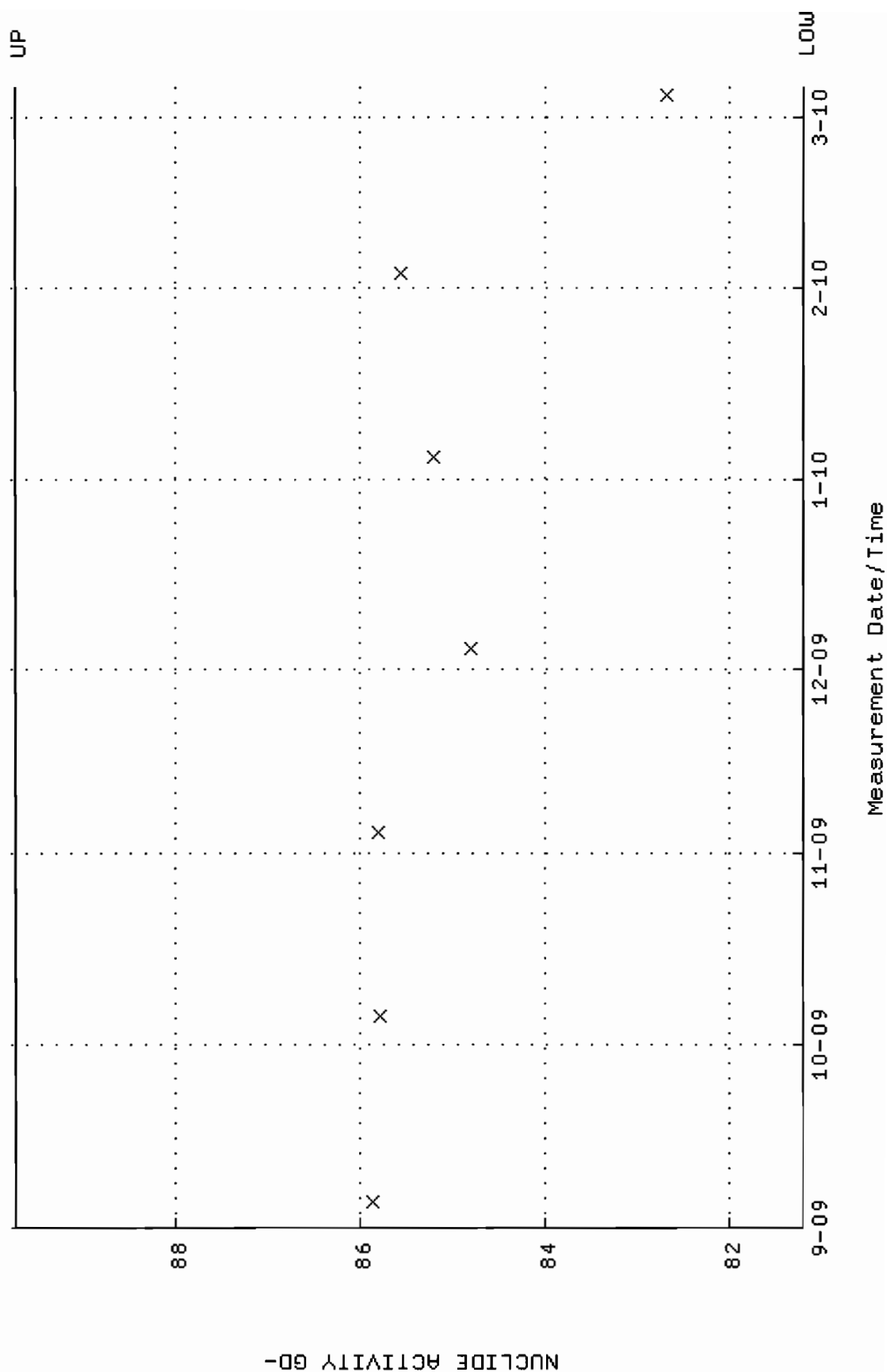


BACKGROUND AND EFFICIENCY DATA

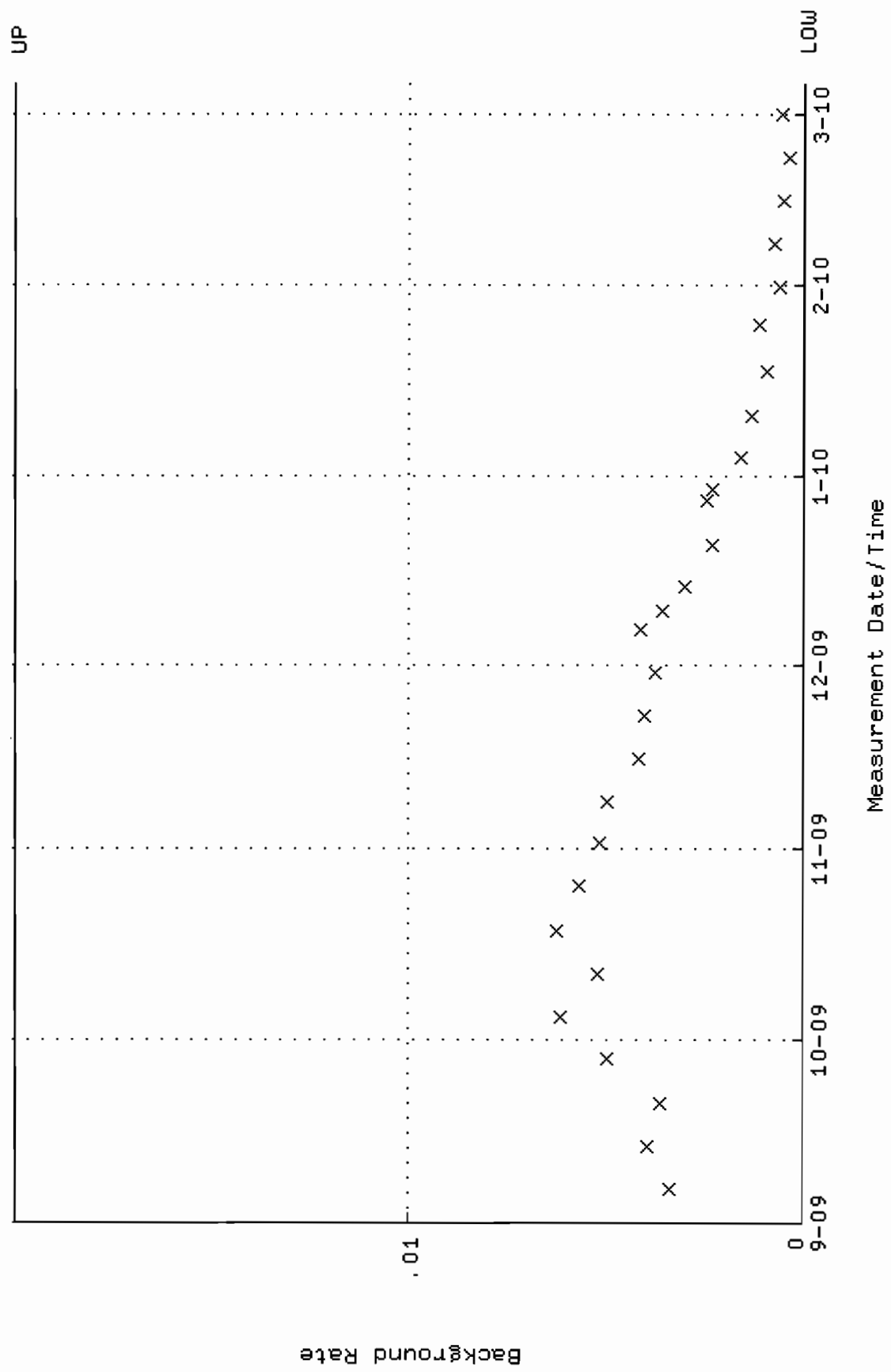
QA filename : DKA100:[ENV_ALPHA.QA.W]W027.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.324980 through 0.344980



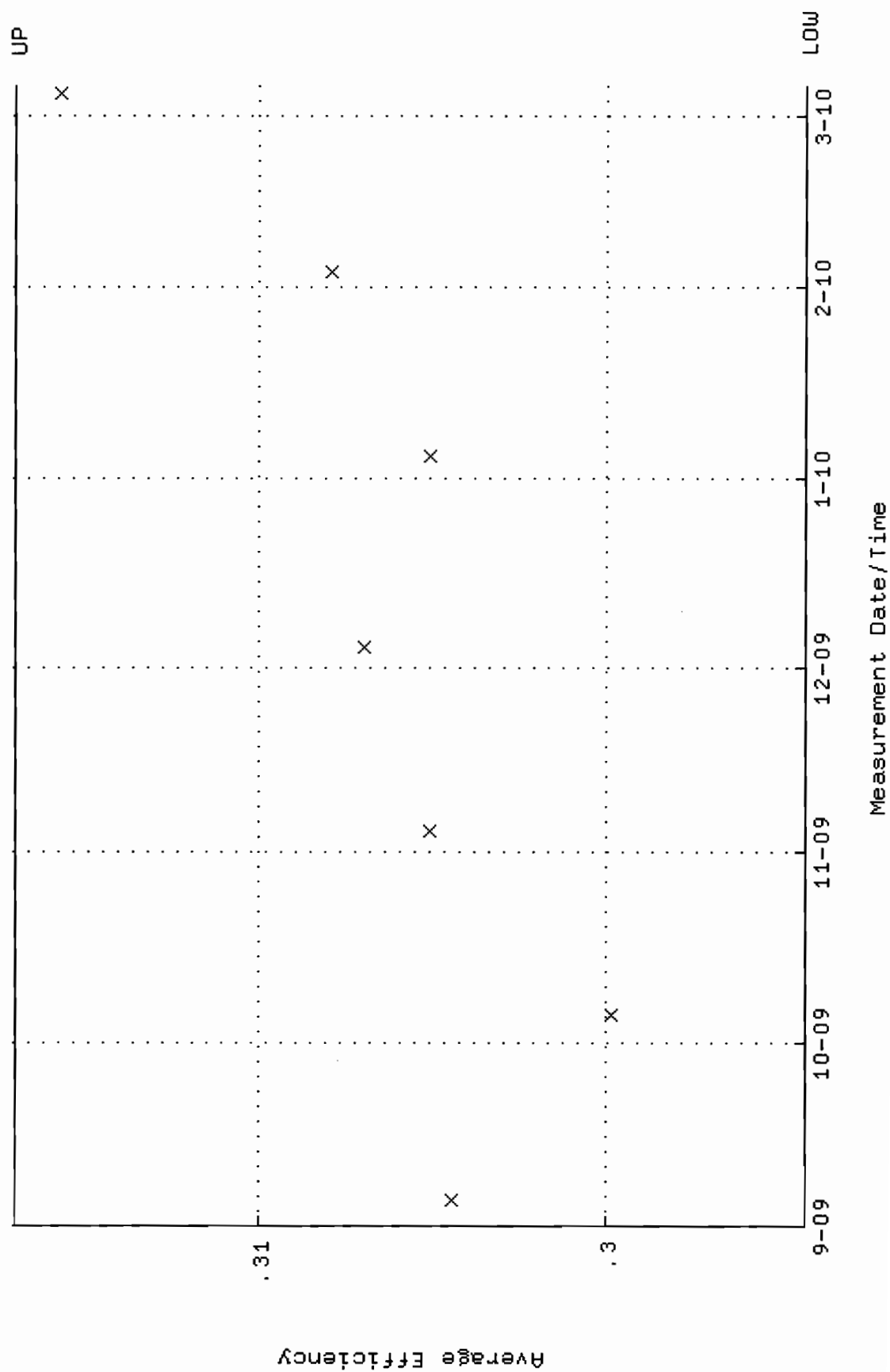
QA filename : DKA100:[ENV_ALPHA.QA.W]W027.QAF;4
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 81.2030 through 89.7506



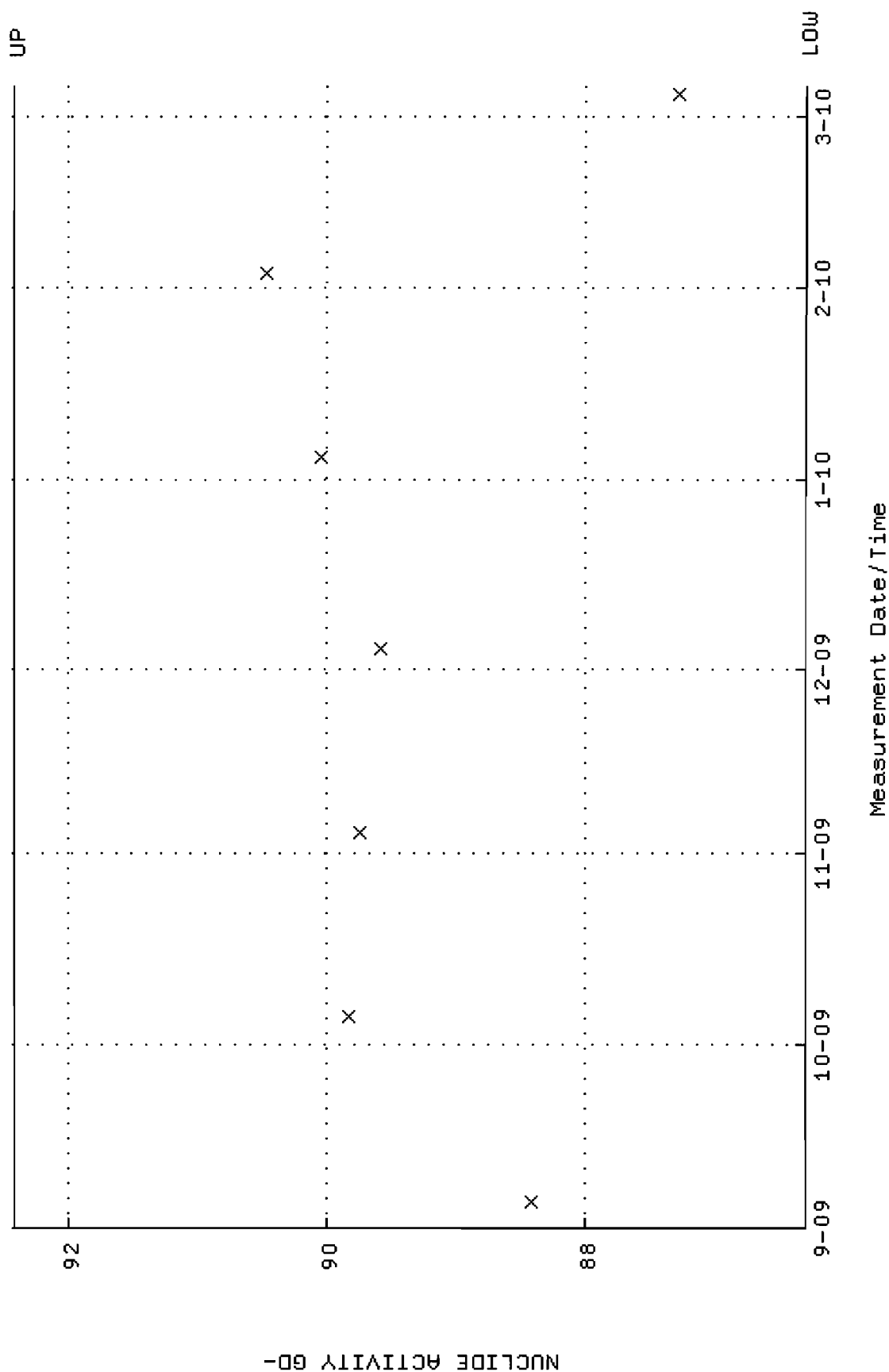
QA filename : DKA100:[ENV_ALPHA.QA.B]B027.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:03 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



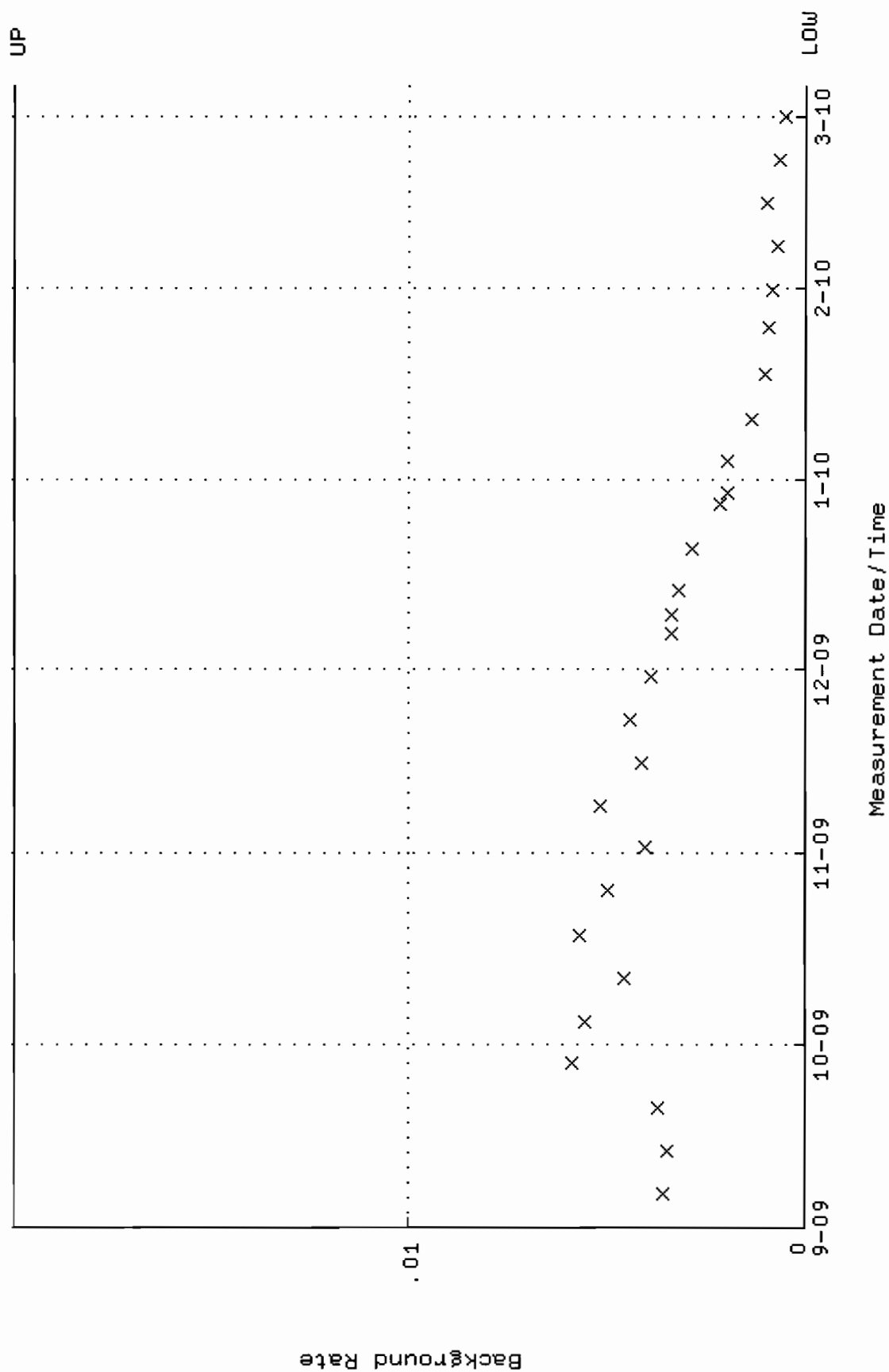
QA filename : DKA100:[ENV_ALPHA.QA.W]W028.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.294270 through 0.317026



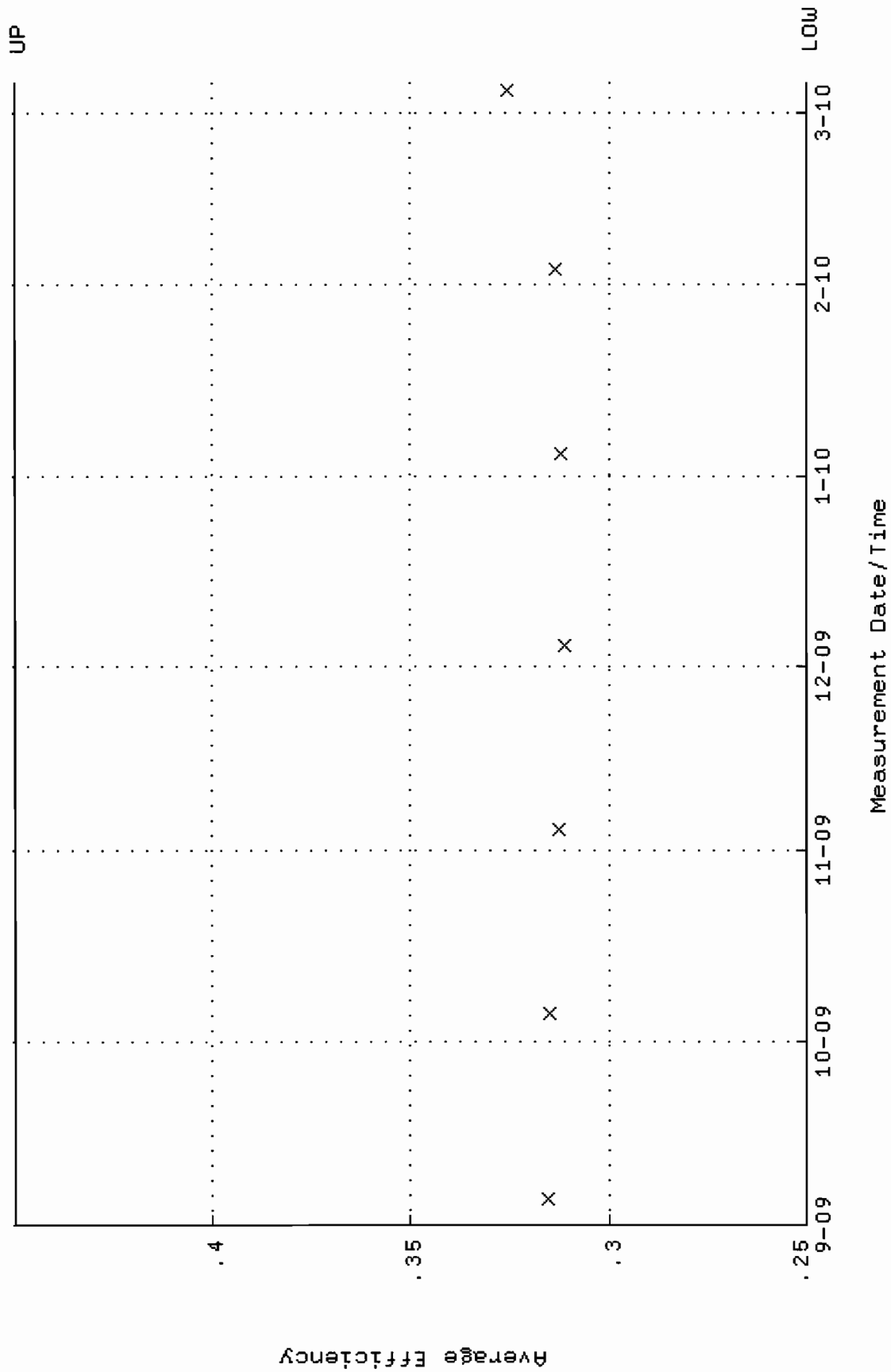
QA filename : DKA100:[ENV_ALPHA.QA.W]W028.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.3036 through 92.4168



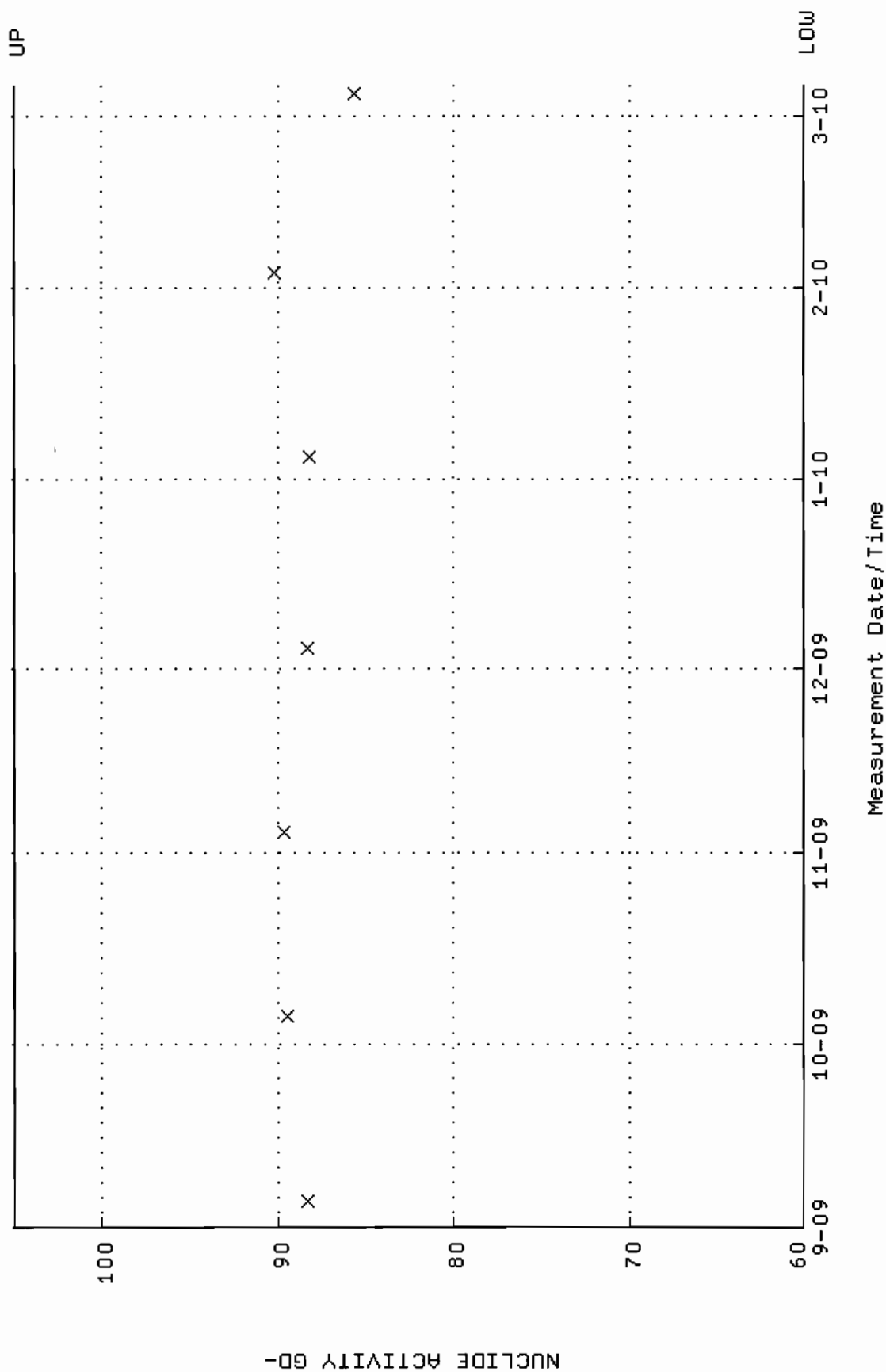
QA filename : DKA100:[ENV_ALPHA.QA.B]B028.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:03 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



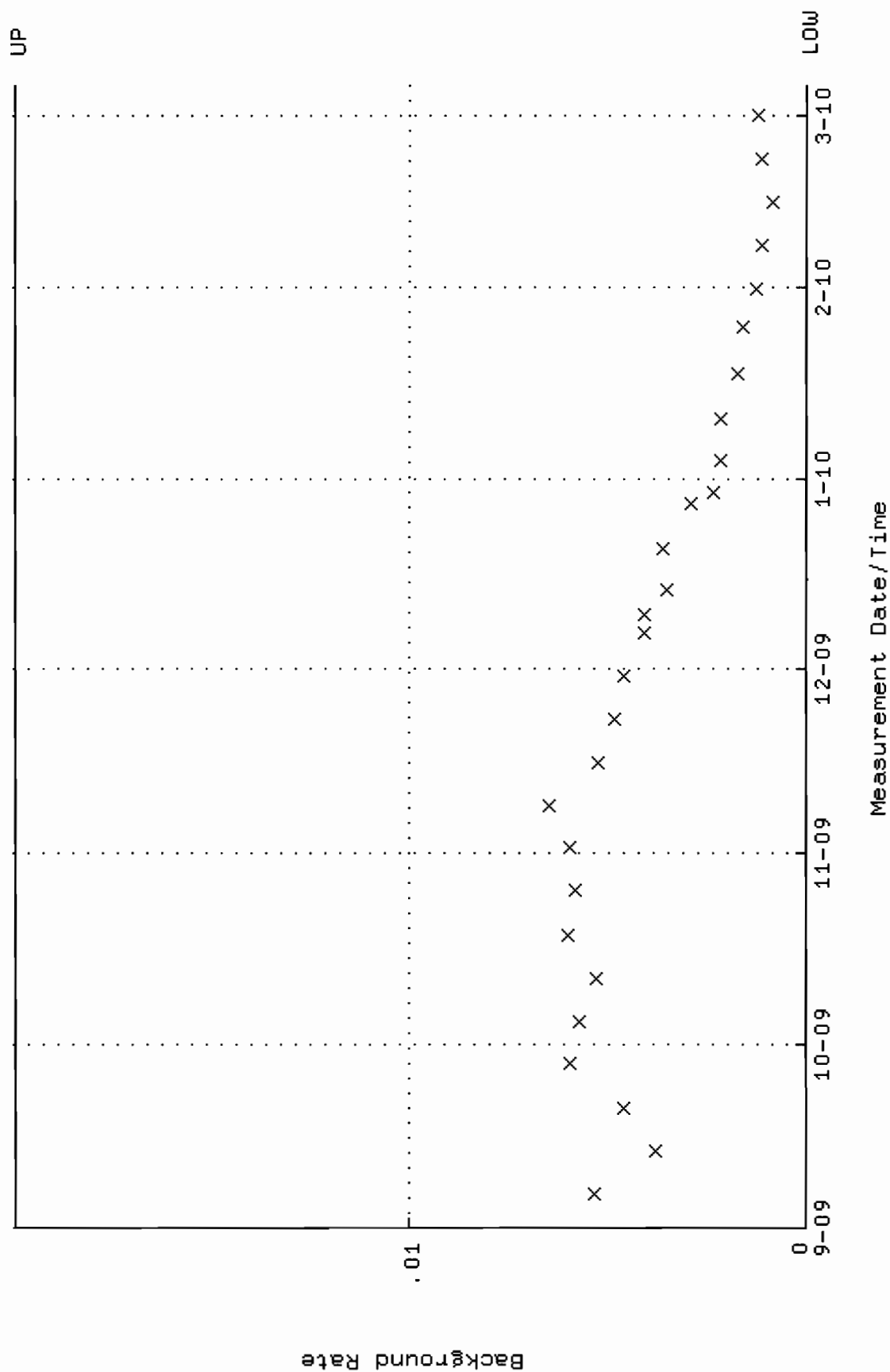
QA filename : DKA100:[ENV_ALPHA.QA.W]W029.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.250000 through 0.450000



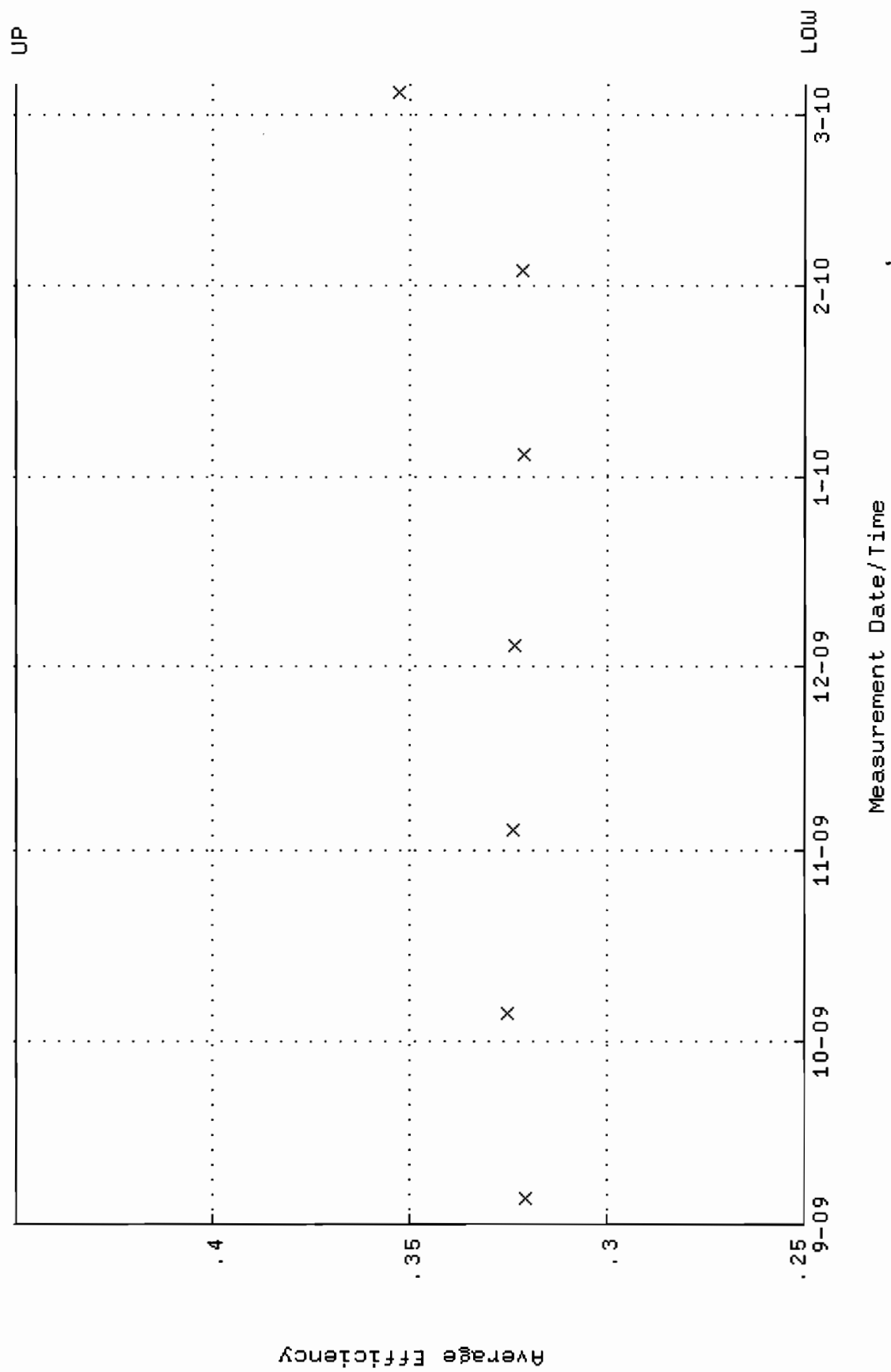
QA filename : DKA100:[ENV_ALPHA.QA.W]W029.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 60.0000 through 105.000



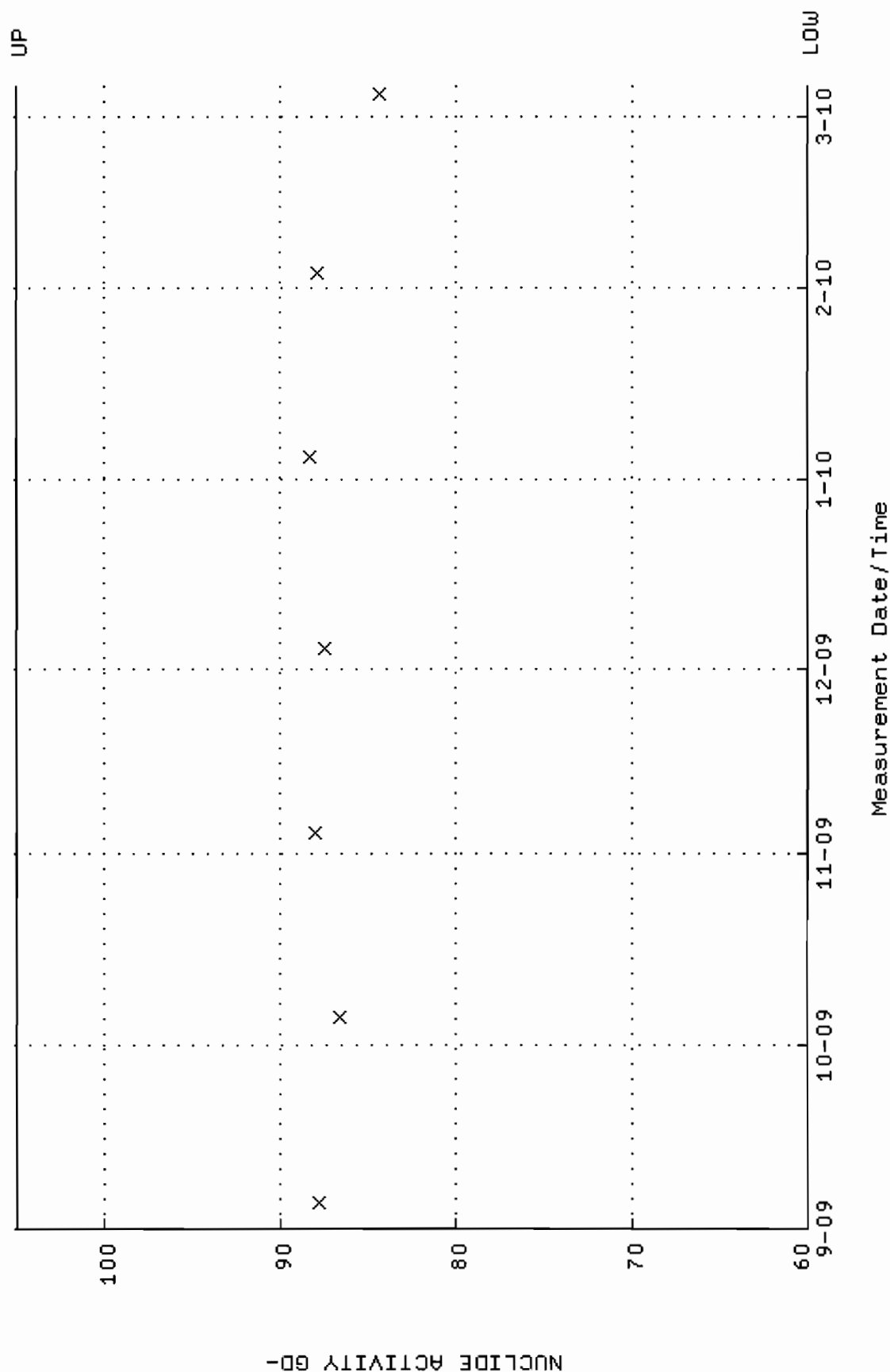
QA filename : DKA100:[ENV_ALPHA.QA.B]B029.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:03 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



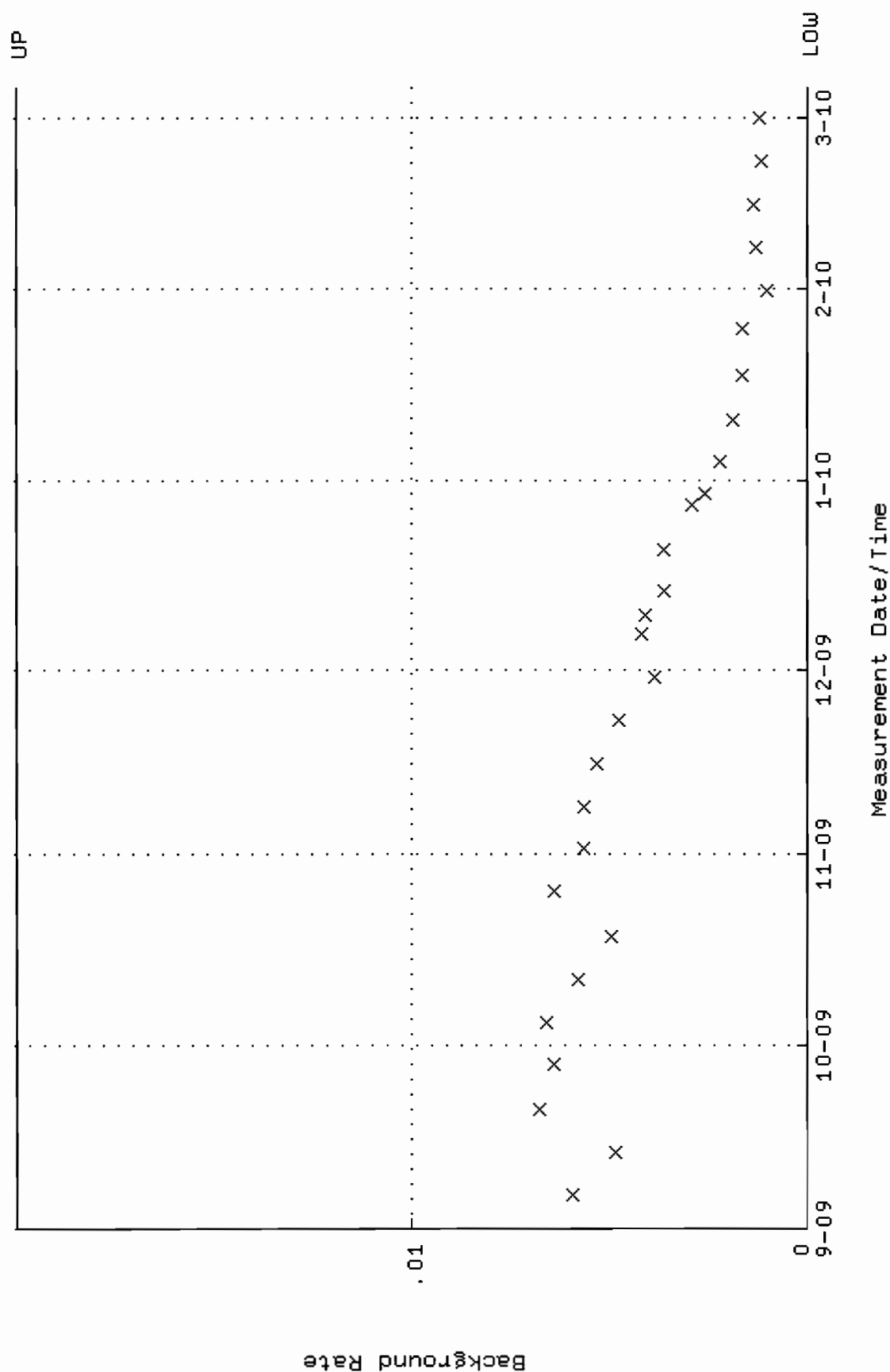
QA filename : DKA100:[ENV_ALPHA.QA.W]W030.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.250000 through 0.450000



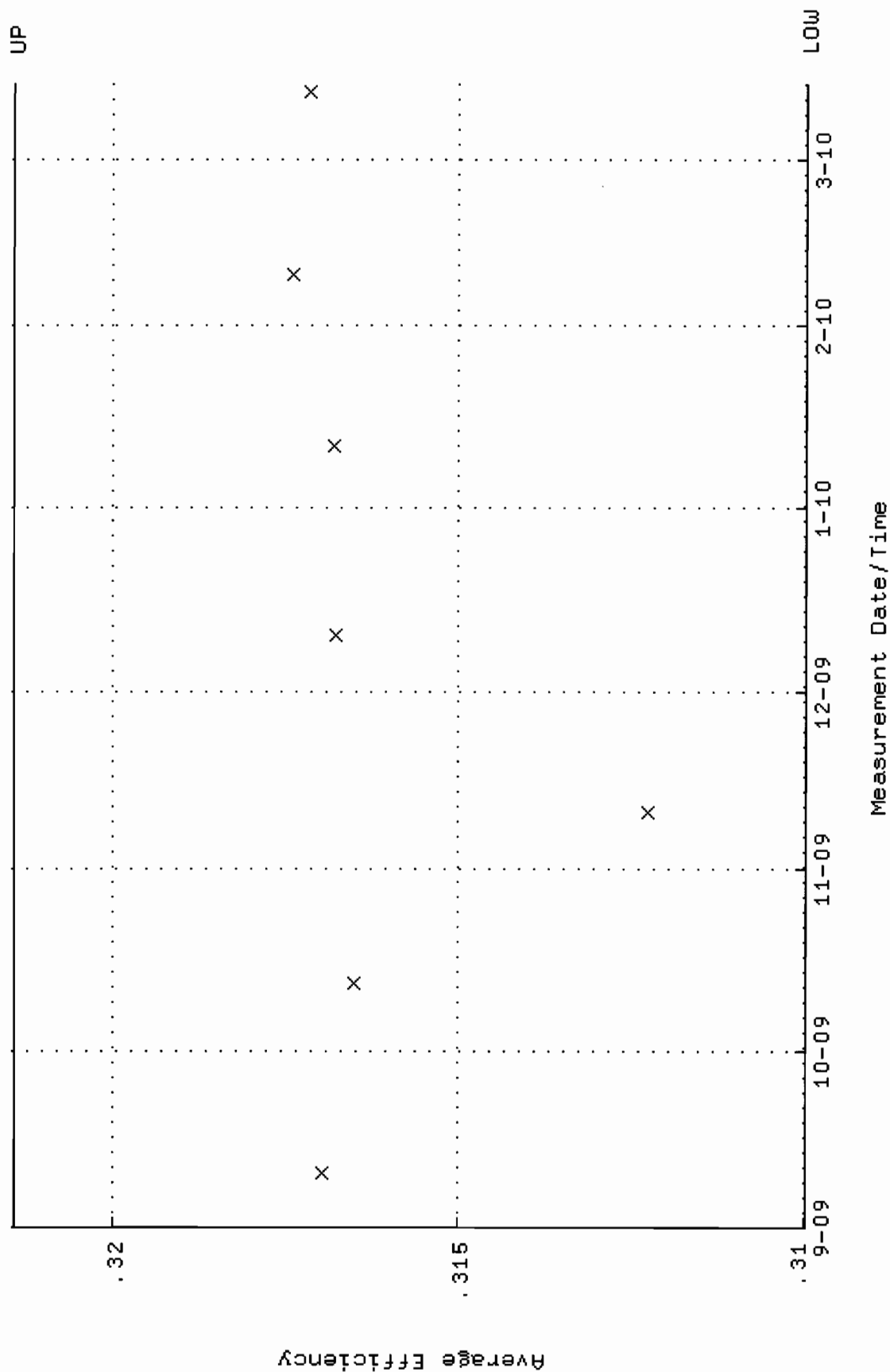
QA filename : DKA100:[ENV_ALPHA.QA.W]W030.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:08 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 60.0000 through 105.000



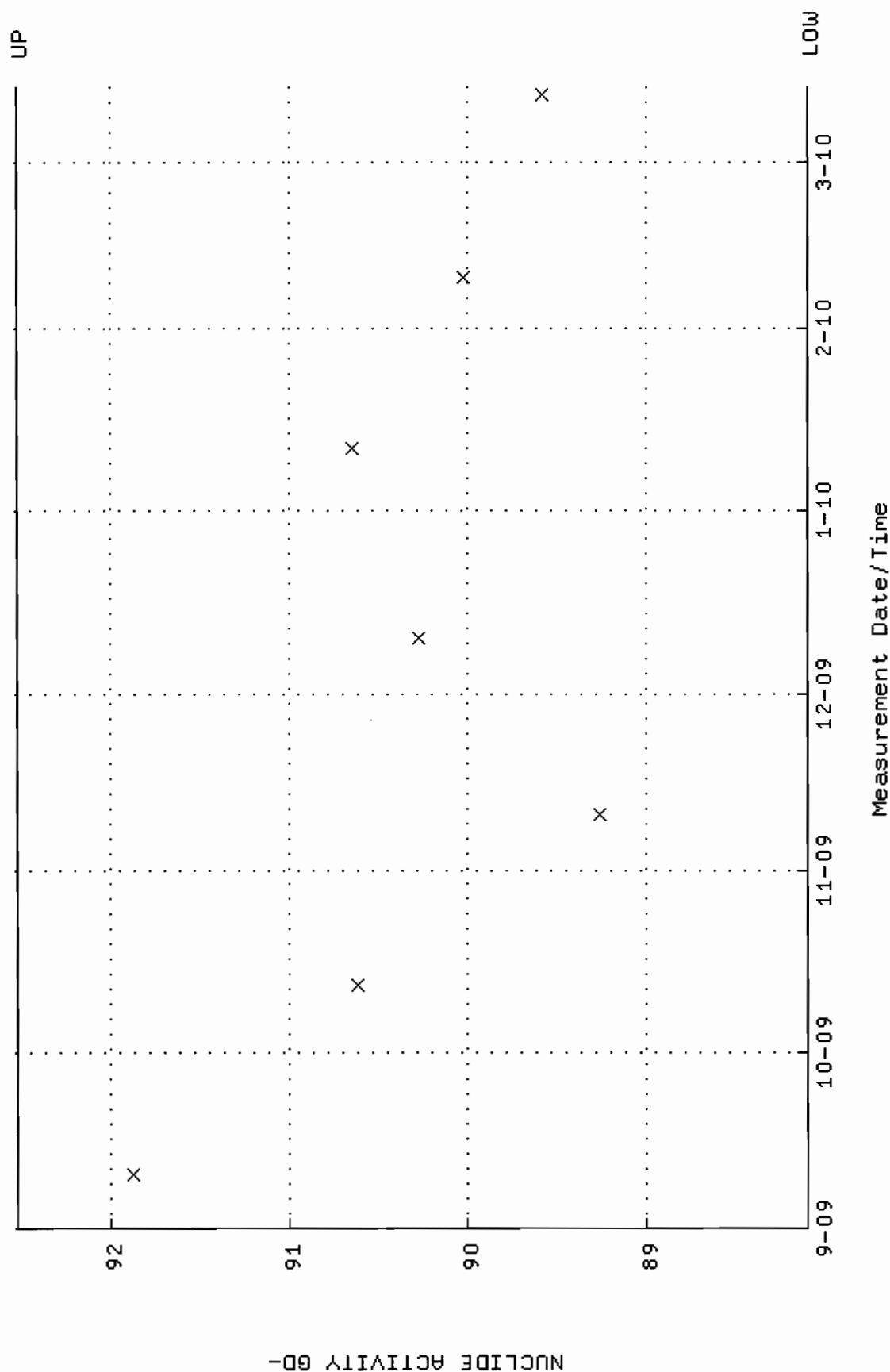
QA filename : DKA100:[ENV_ALPHA.QA.B]B030.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:03 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



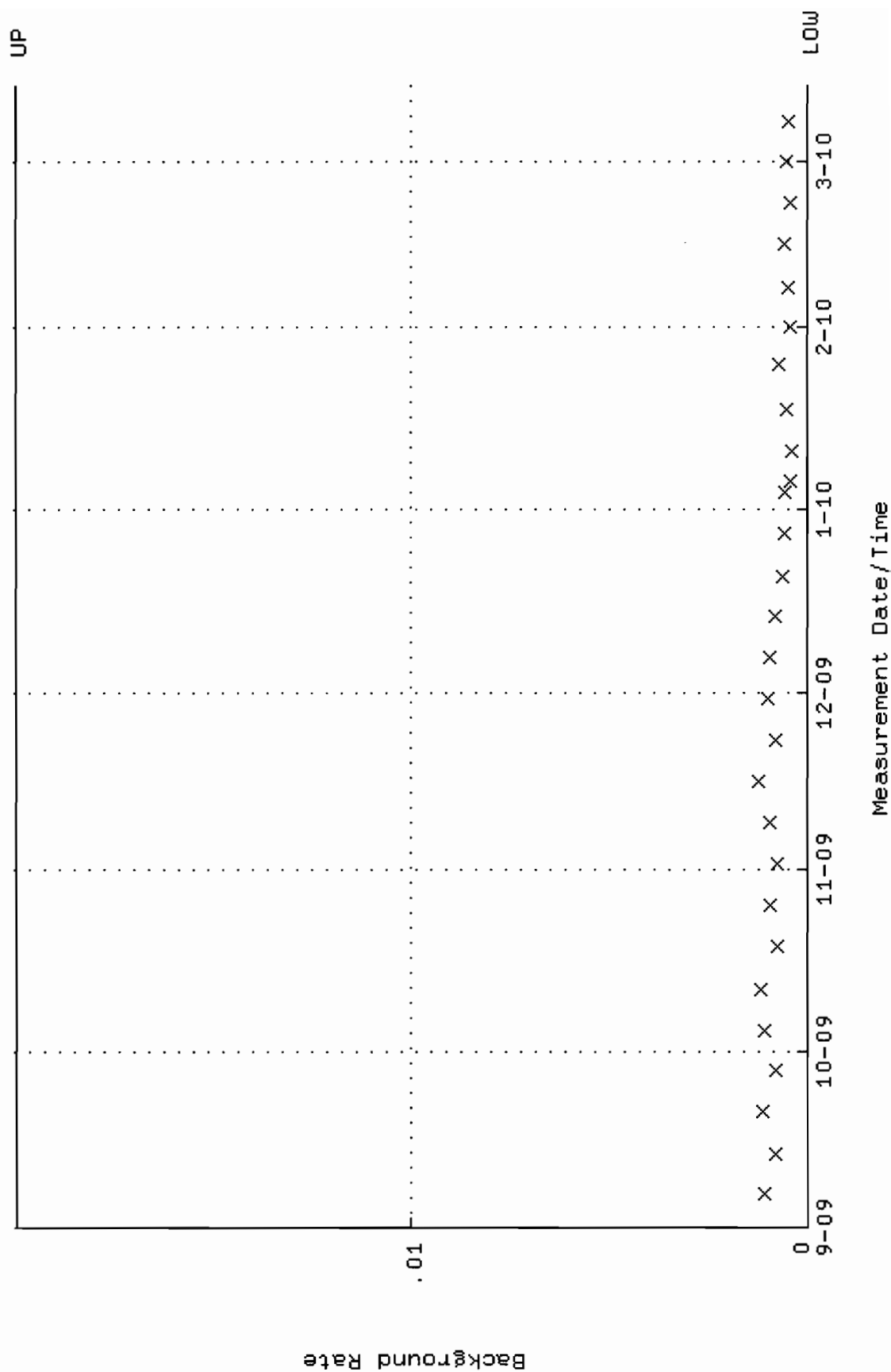
QA filename : DKA100:[ENV_ALPHA.QA.W]W074.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.309960 through 0.321424



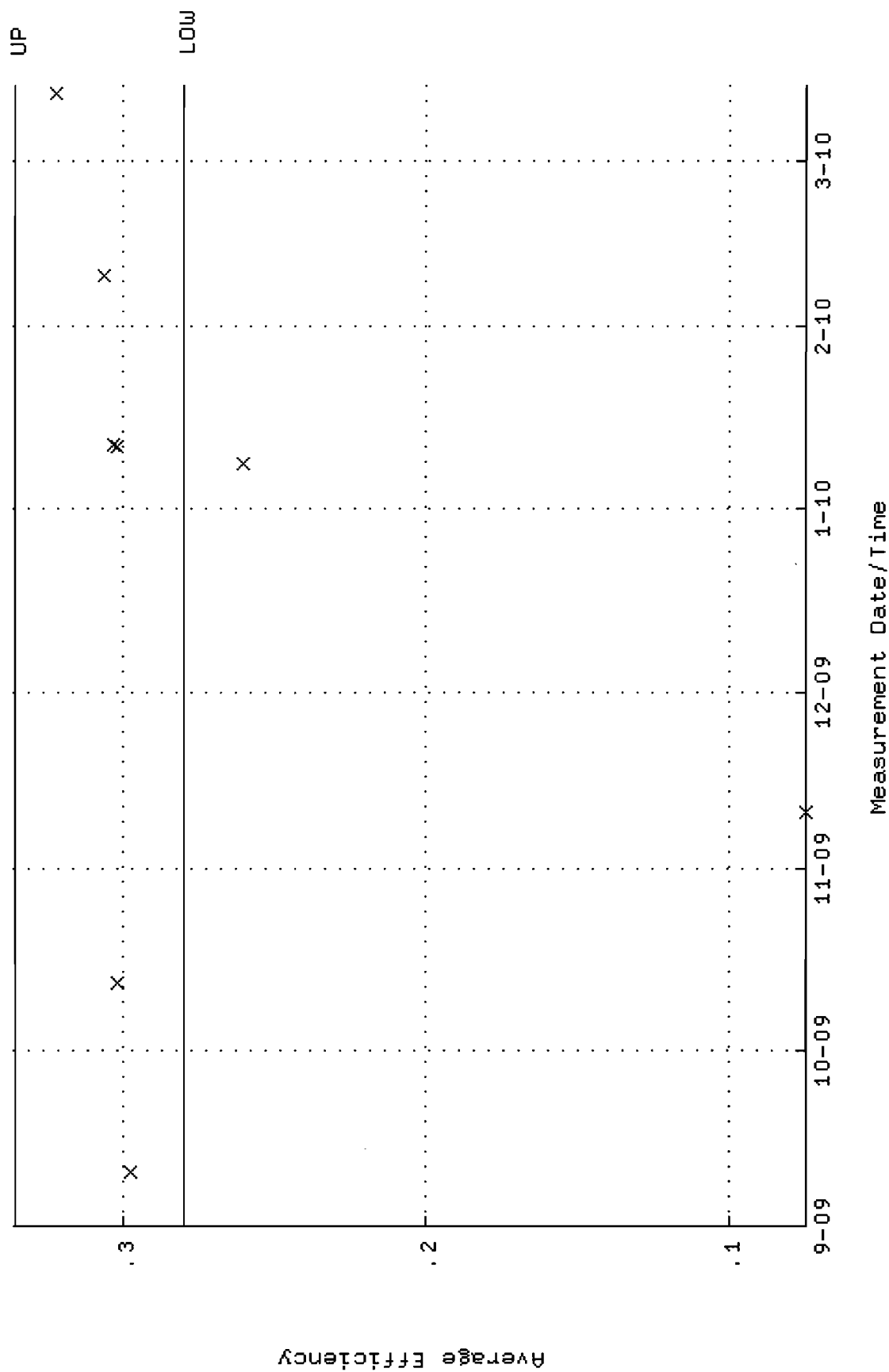
QA filename : DKA100:[ENV_ALPHA.QA.W]W074.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 88.0938 through 92.5190



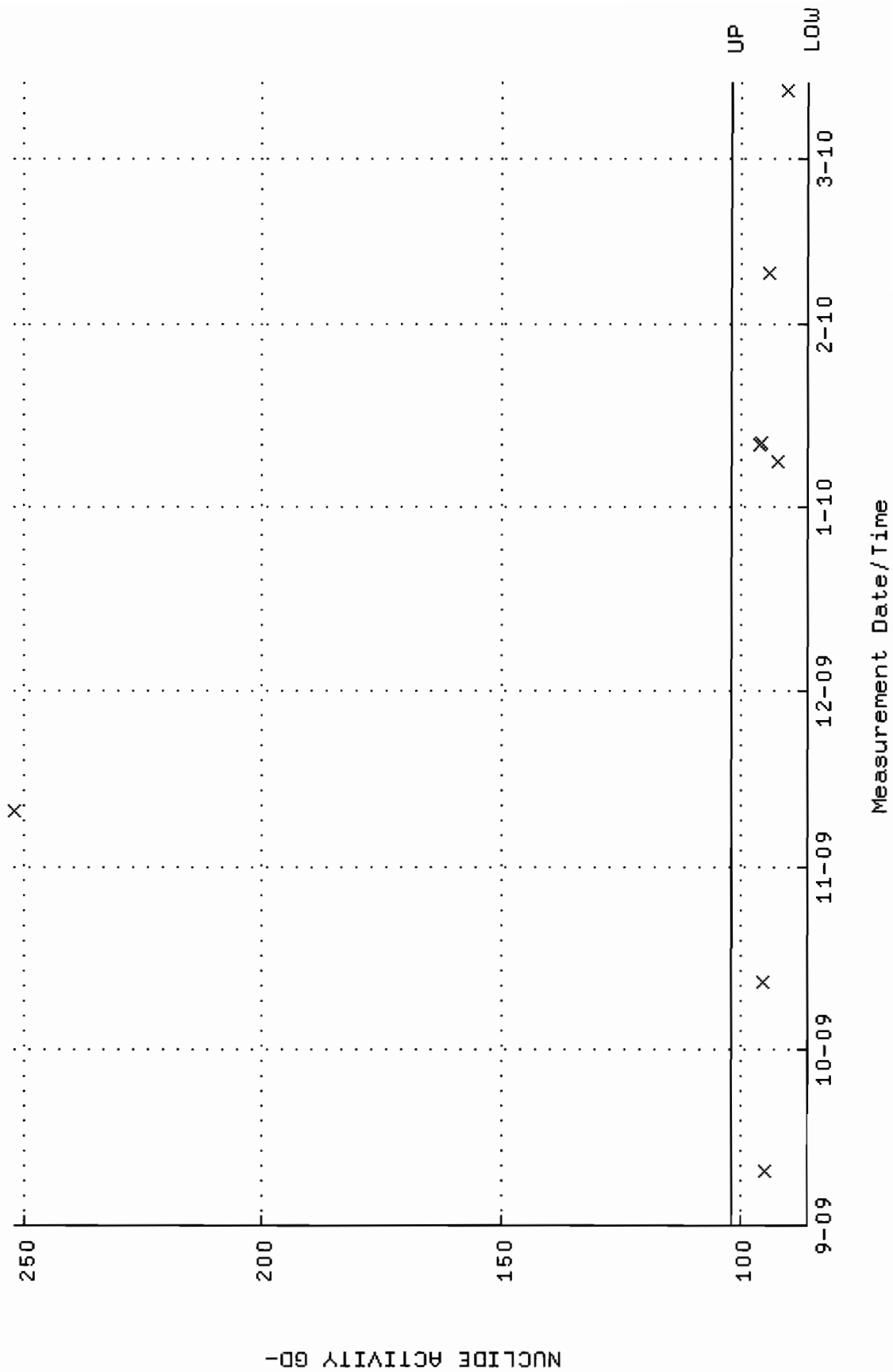
QA filename : DKA100:[ENV_ALPHA.QA.B]B074.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



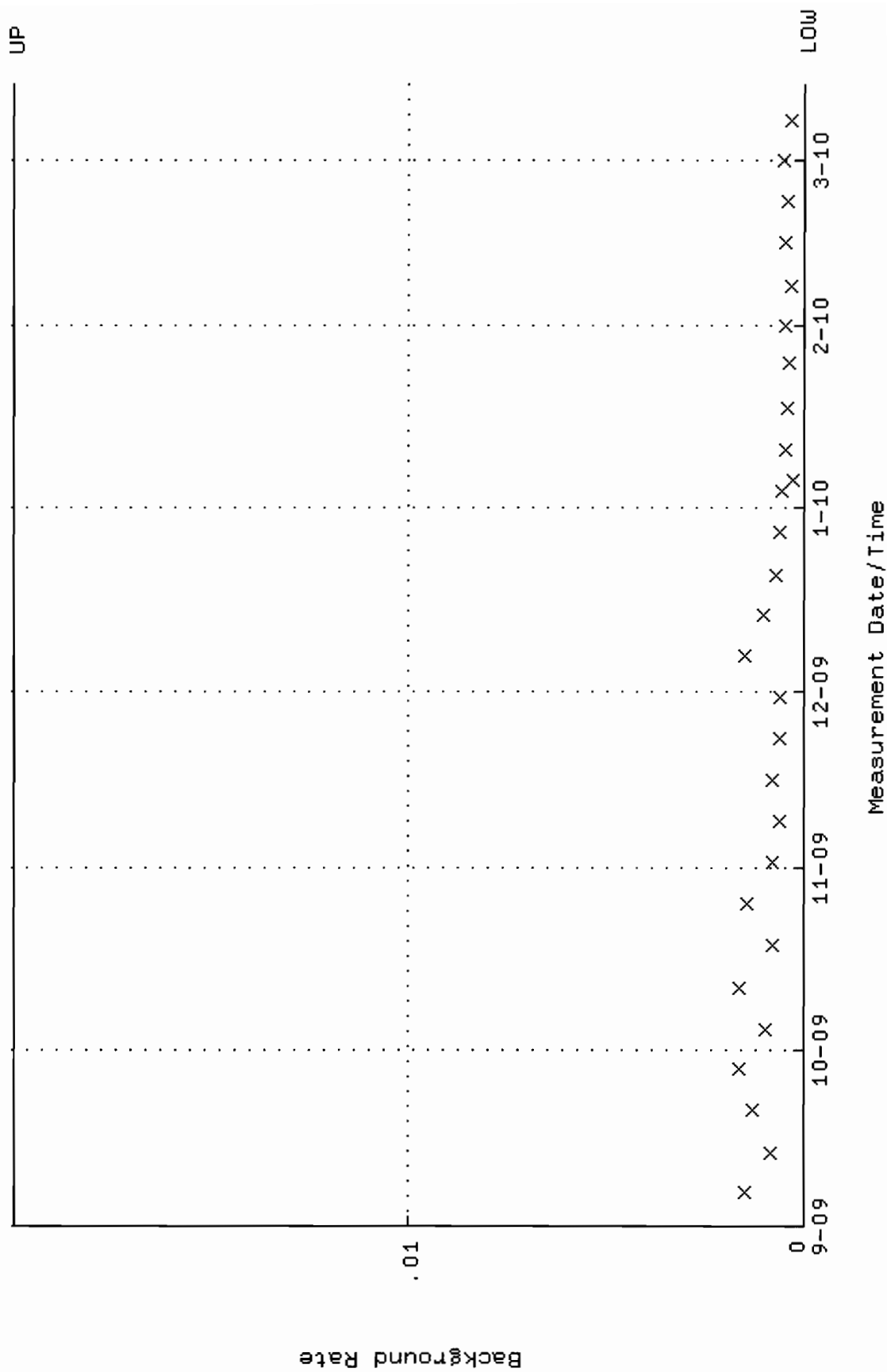
QA filename : DKA100:[ENV_ALPHA.QA.W]W075.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.279983 through 0.335803



QA filename : DKA100:[ENV-ALPHA,QA.W]W075.QAF;3
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.1031 through 102.173



QA filename : DKA100:[ENV_ALPHA.QA.B]B075.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

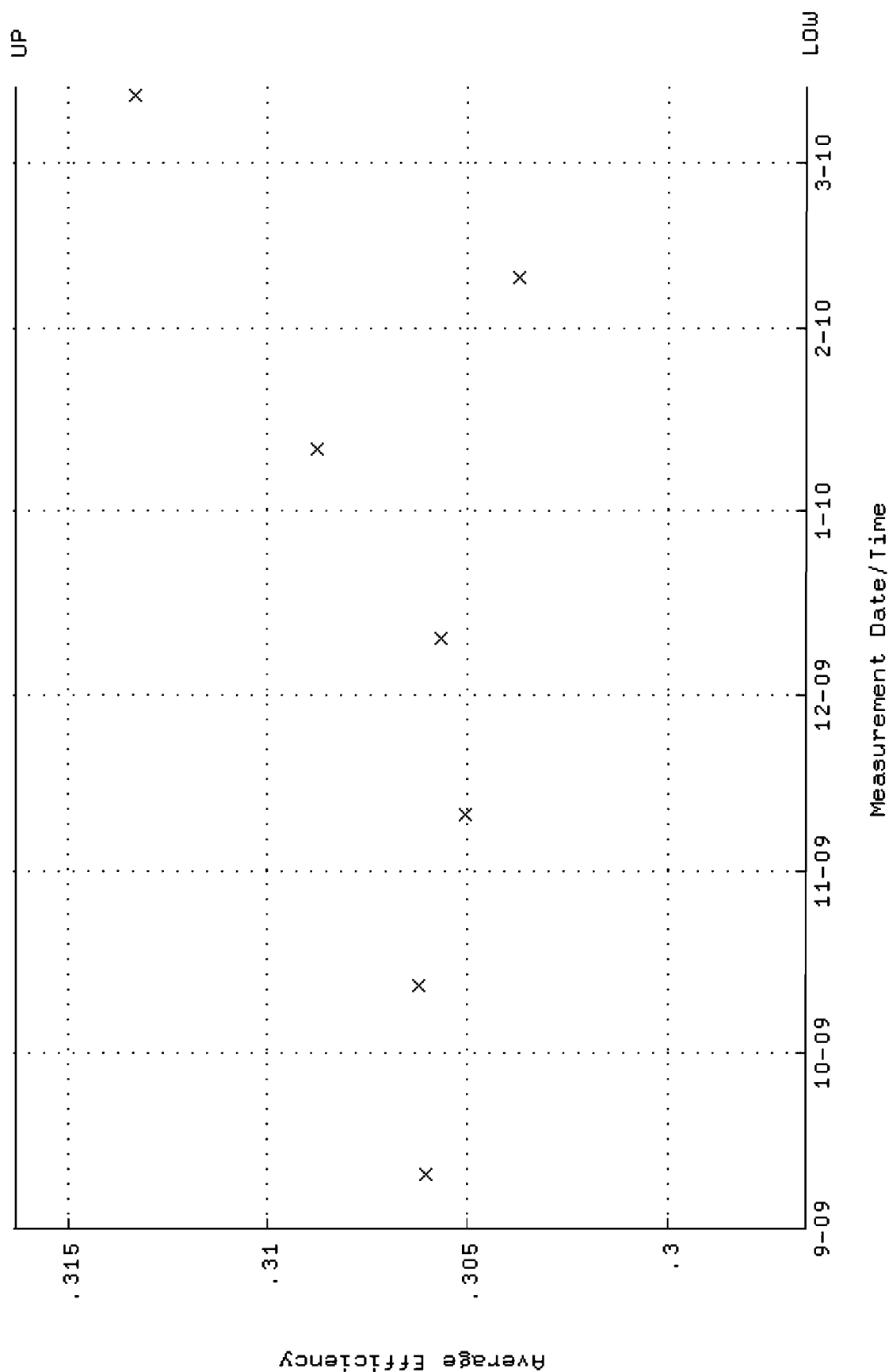


QA filename : DKA100:[ENV_ALPHA.QA.W]W076.QAF;2

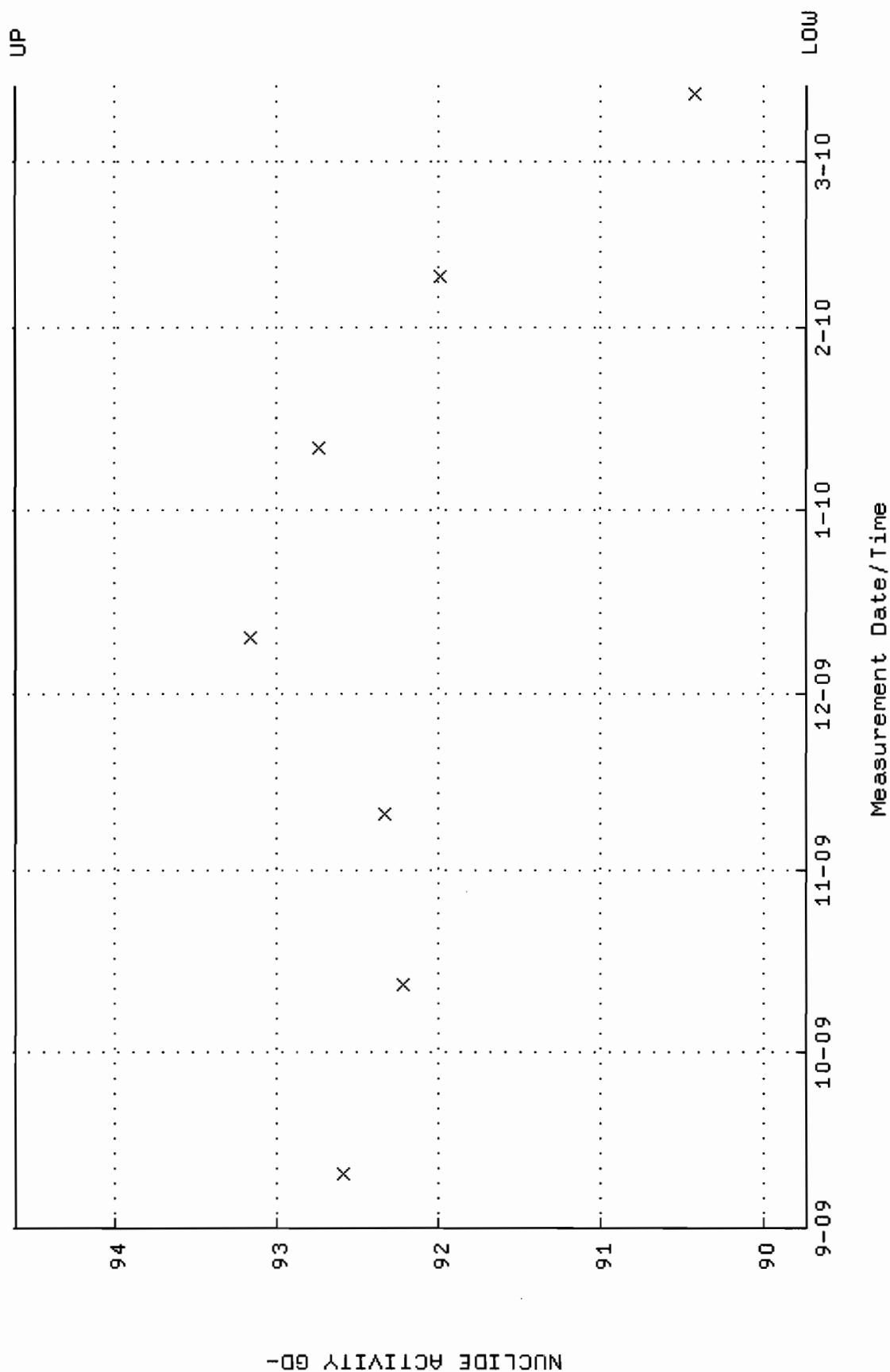
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00

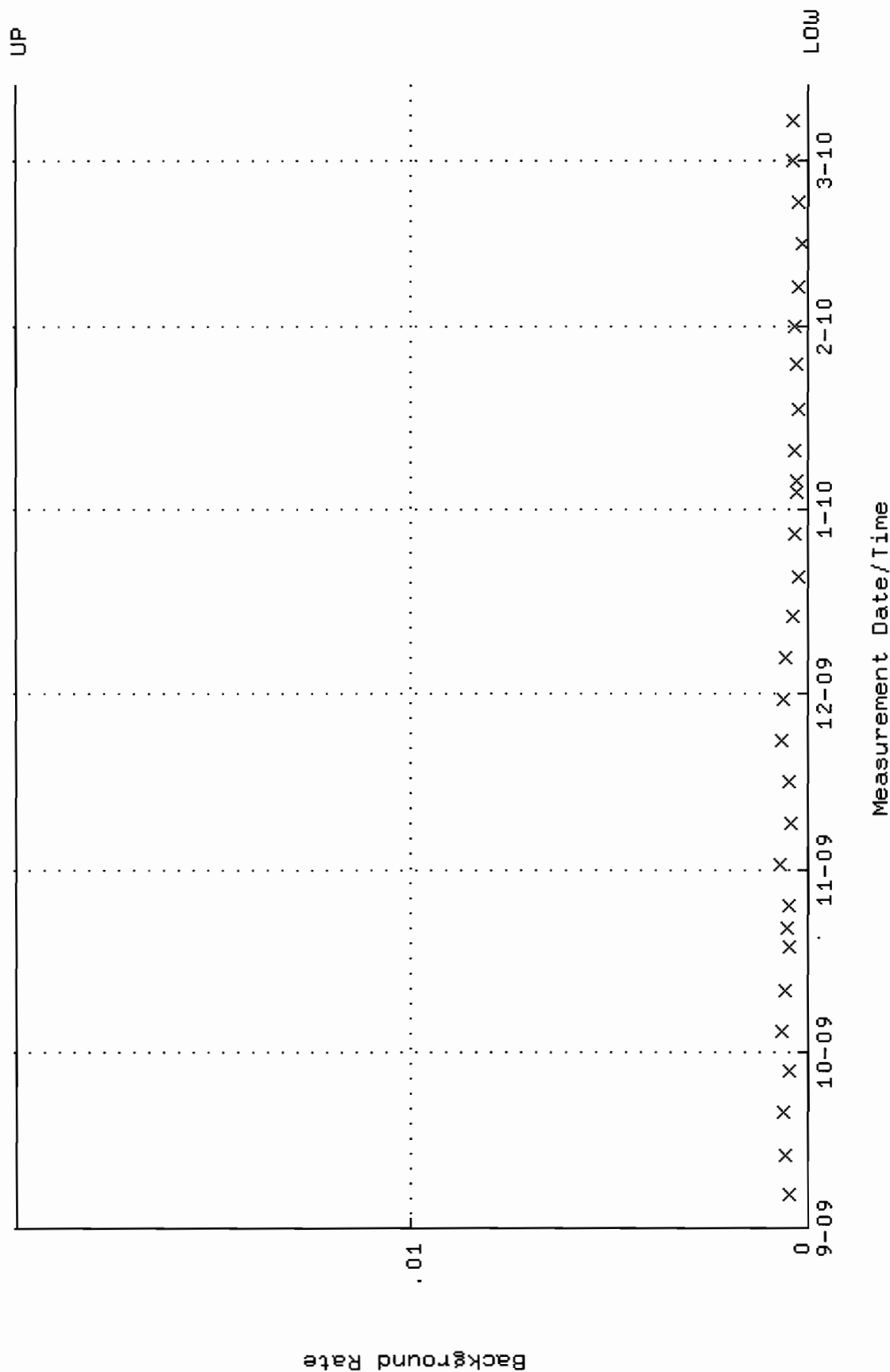
Lower/Upper Lmts: 0.296554 through 0.316286



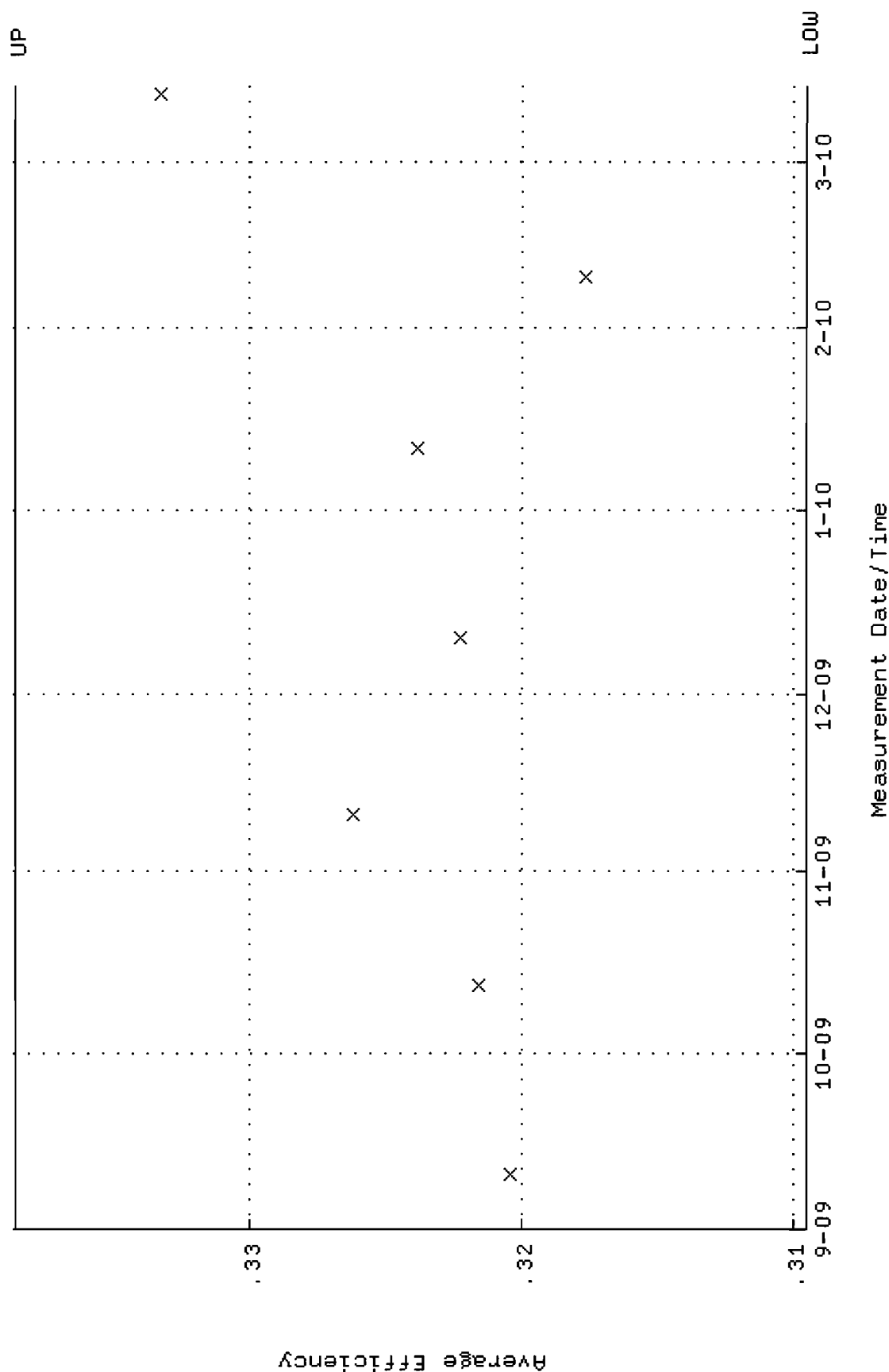
QA filename : DKA100:[ENV_ALPHA.QA.W]W076.QAF;2
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 89.7306 through 94.6123



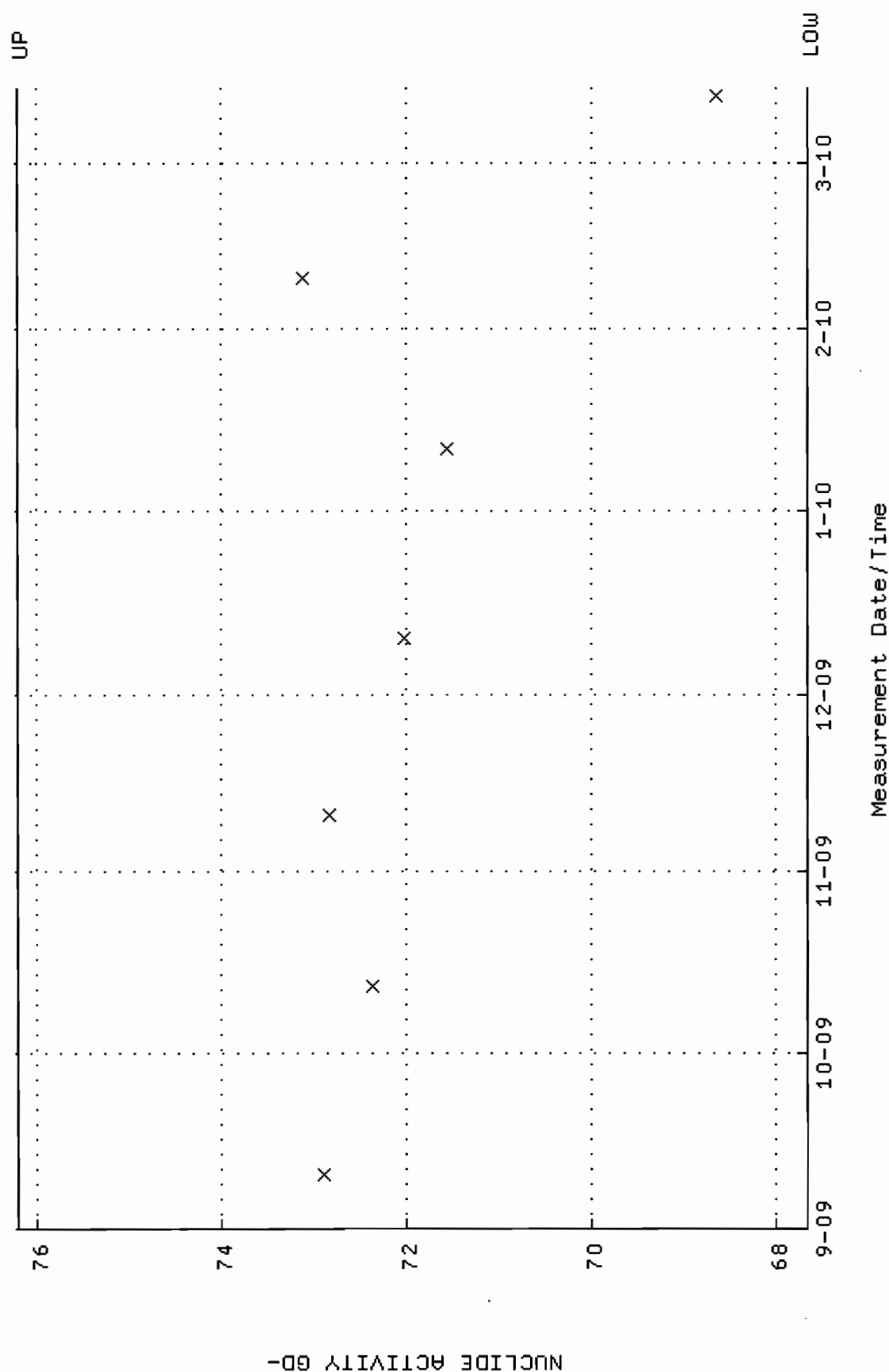
QA filename : DKA100:[ENV_ALPHA.QA.B]B076.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



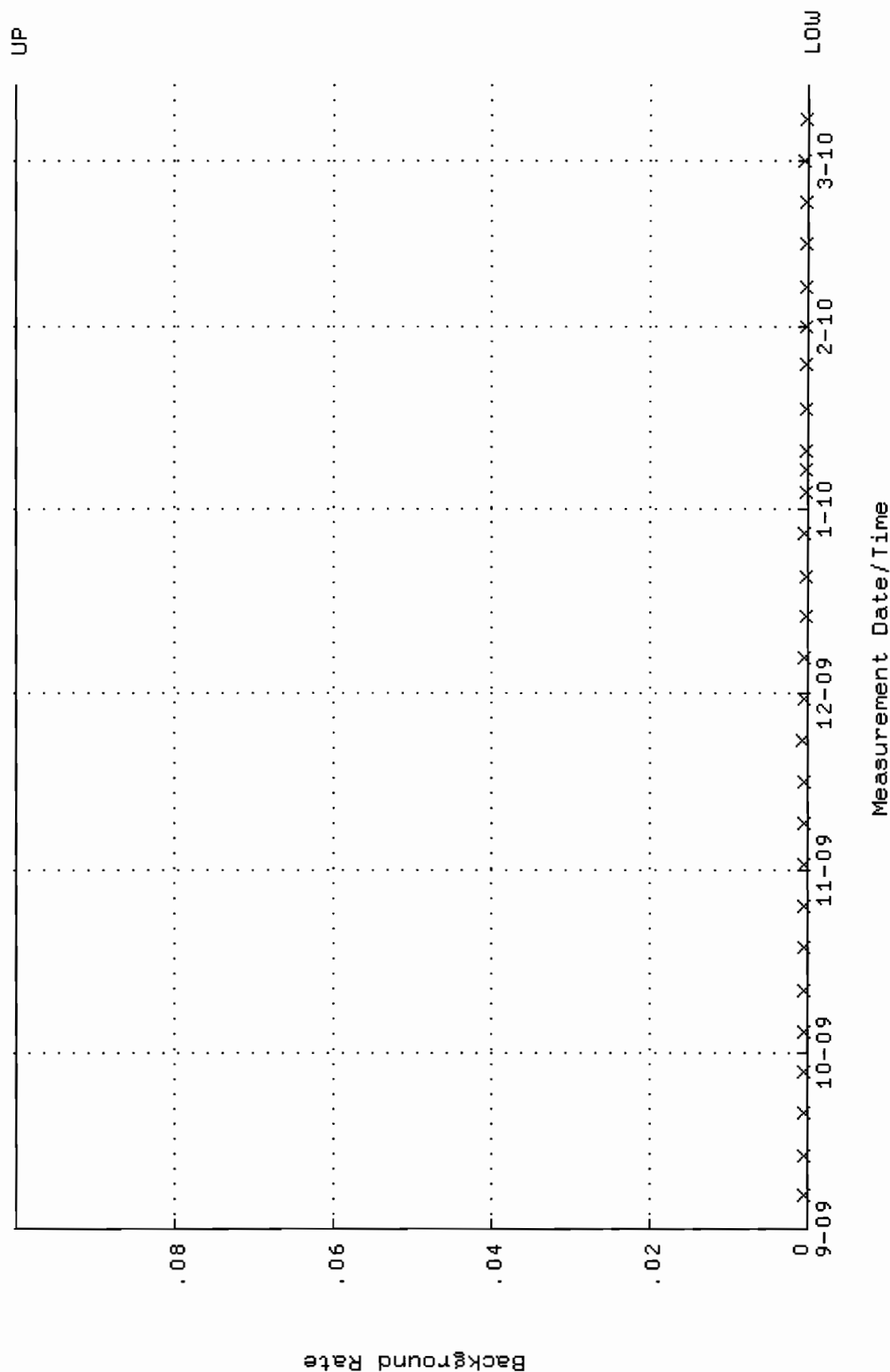
QA filename : DKA100:[ENV_ALPHA.QA.W]W105.QAF;2
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 10-SEP-2009 08:05:49 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.309544 through 0.338666



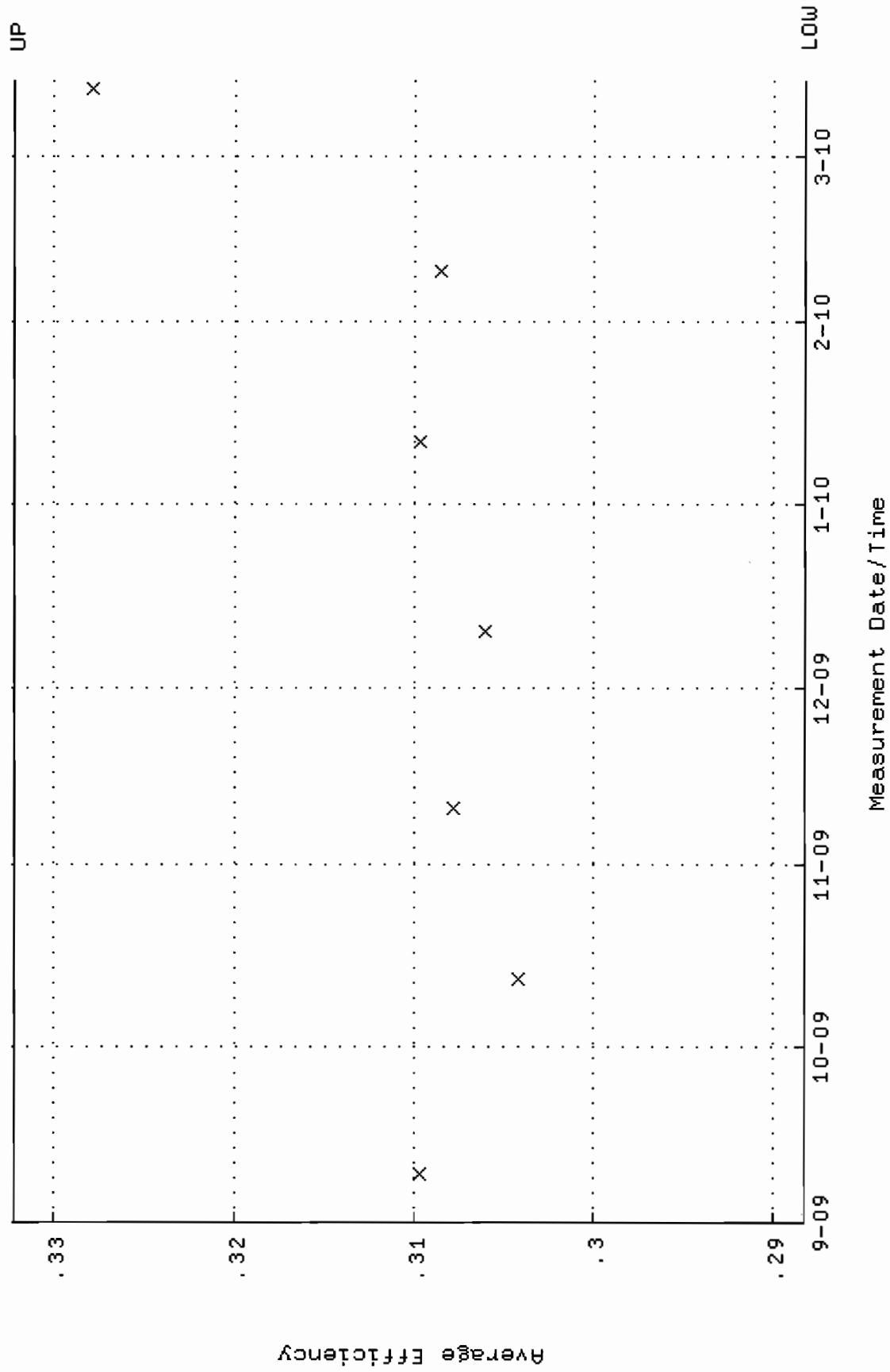
QA filename : DKA100:[ENV_ALPHA.QA.W]w105.QAF;2
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 10-SEP-2009 08:05:49 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 67.6585 through 76.2091



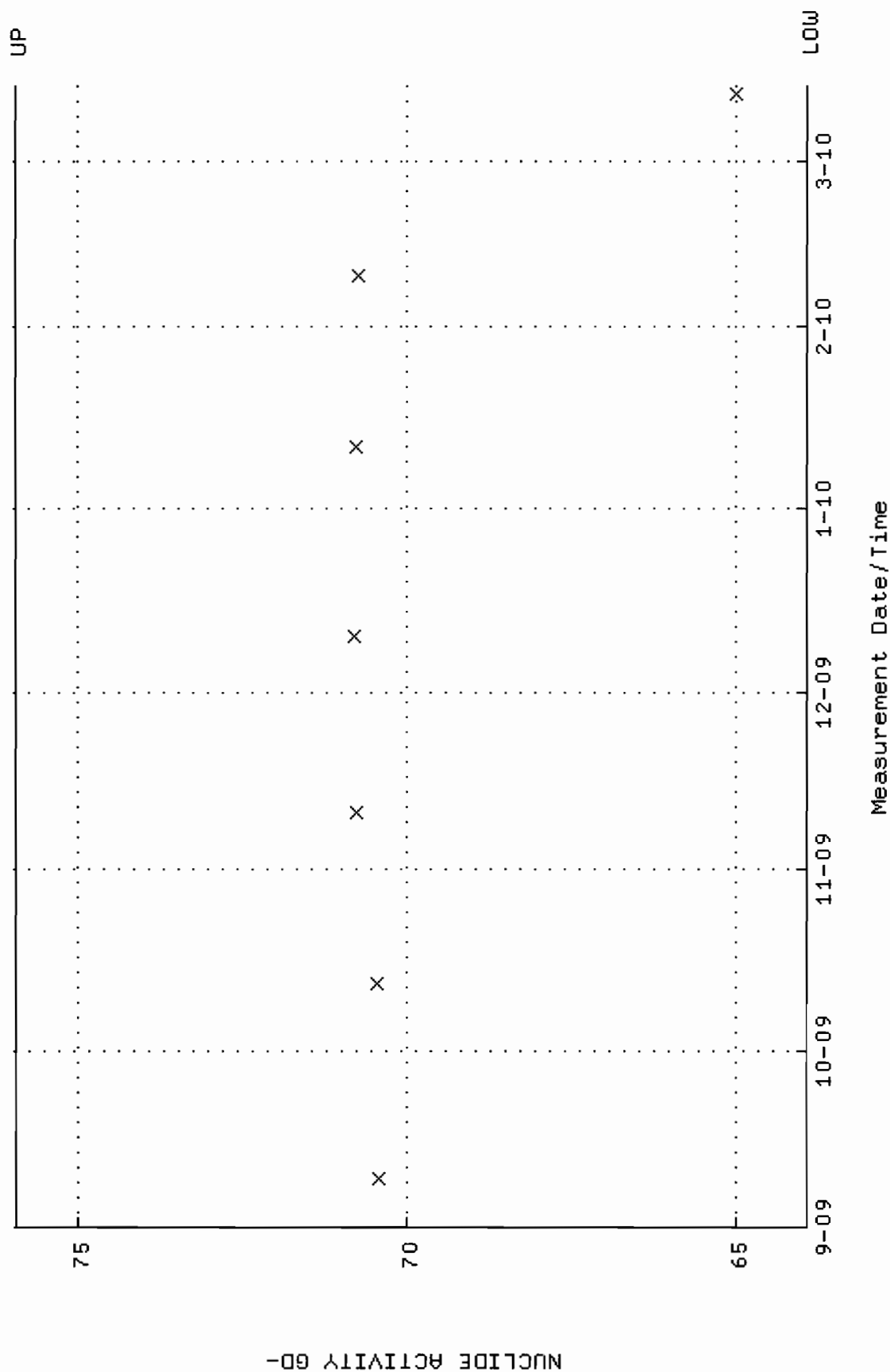
QA filename : DKA100:[ENV_ALPHA.QA.B]B105.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:11 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



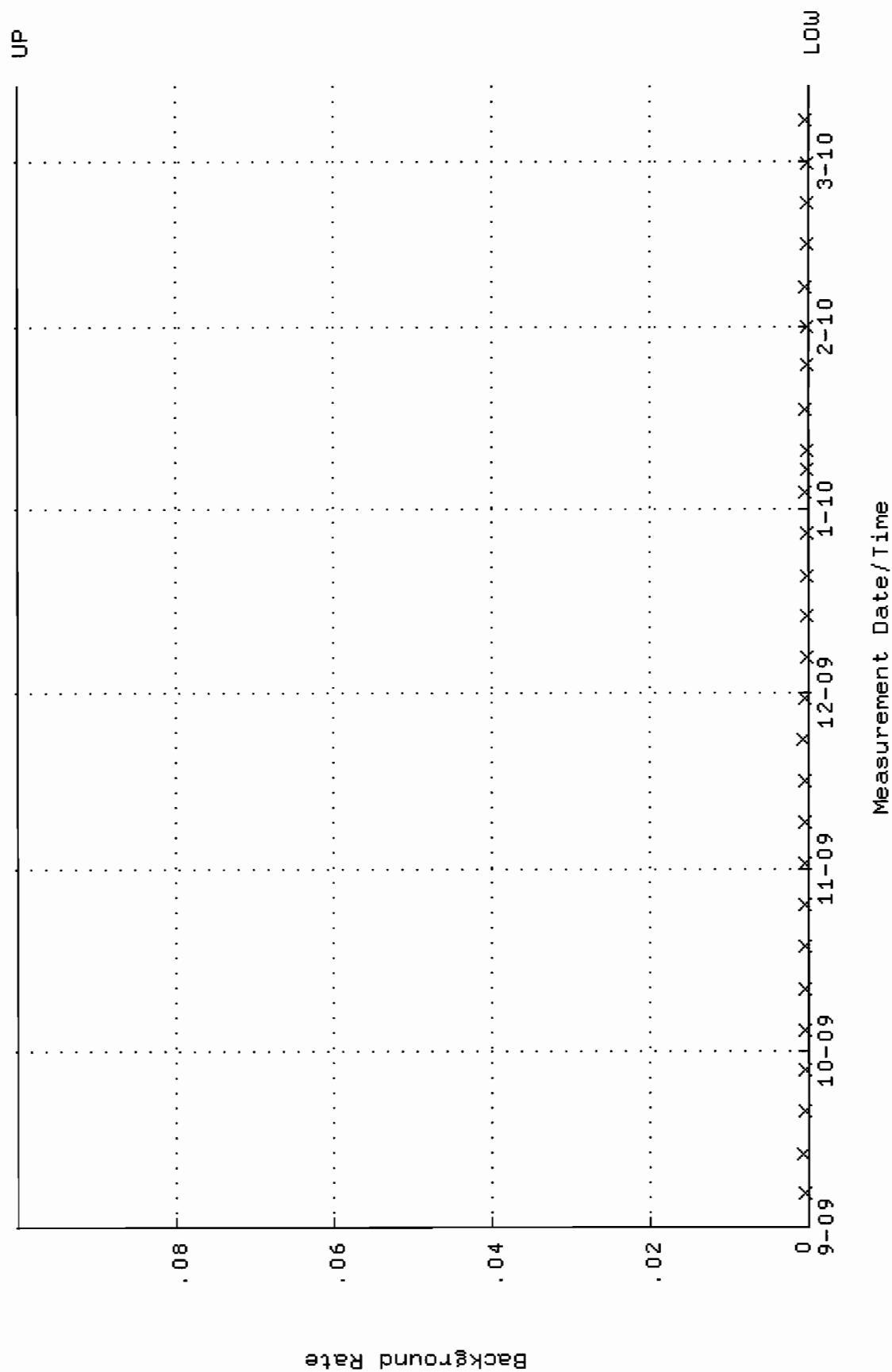
QA filename : DKA100:[ENV_ALPHA.QA.W]w107.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.288232 through 0.332218



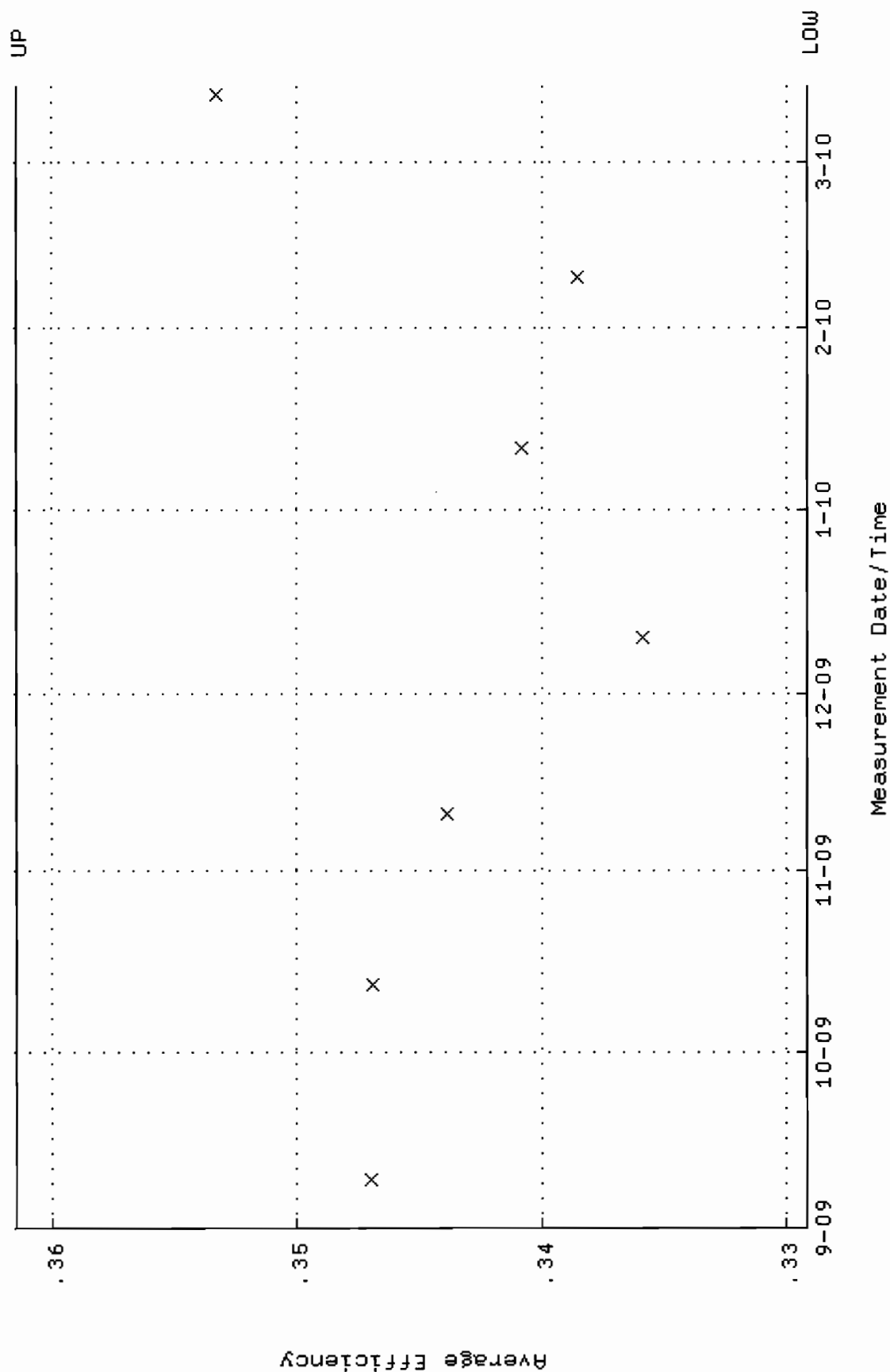
QA filename : DKA100:[ENV_ALPHA.QA.W]w107.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 63.9135 through 75.9257



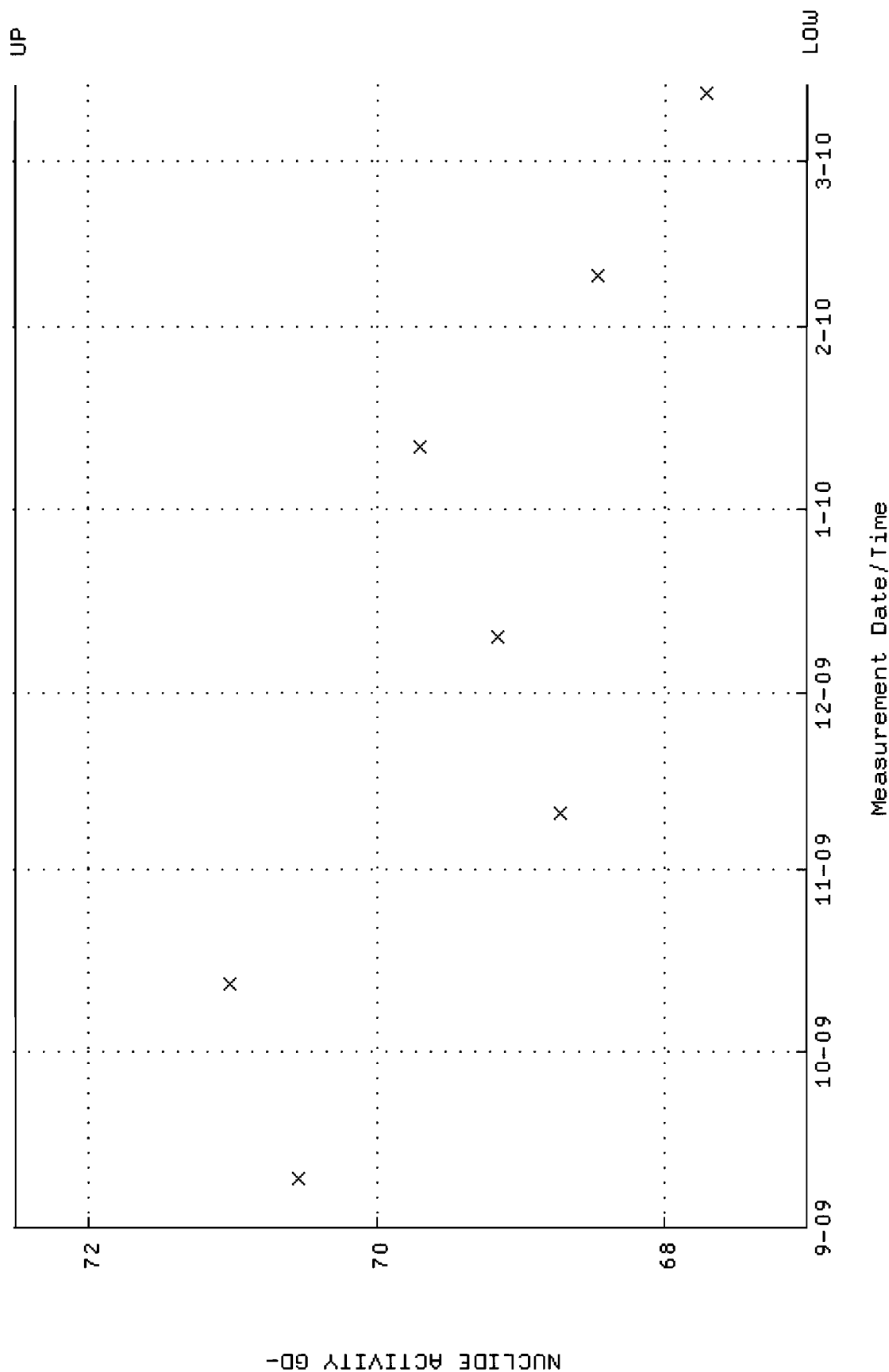
QA filename : DKA100:[ENV_ALPHA.QA.B]B107.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:12 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



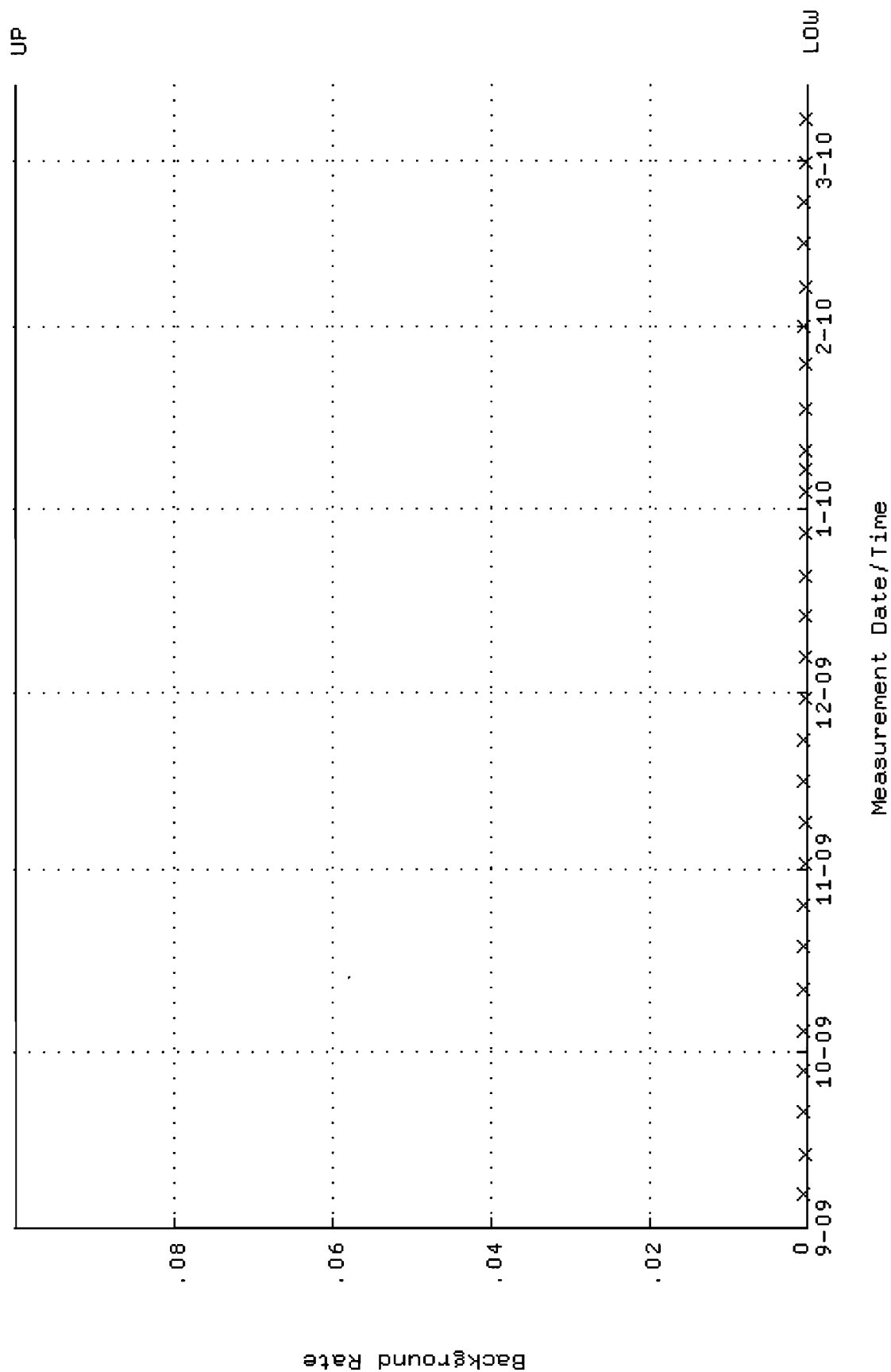
QA filename : DKA100:[ENV_ALPHA.QA.W]w108.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.329201 through 0.361417



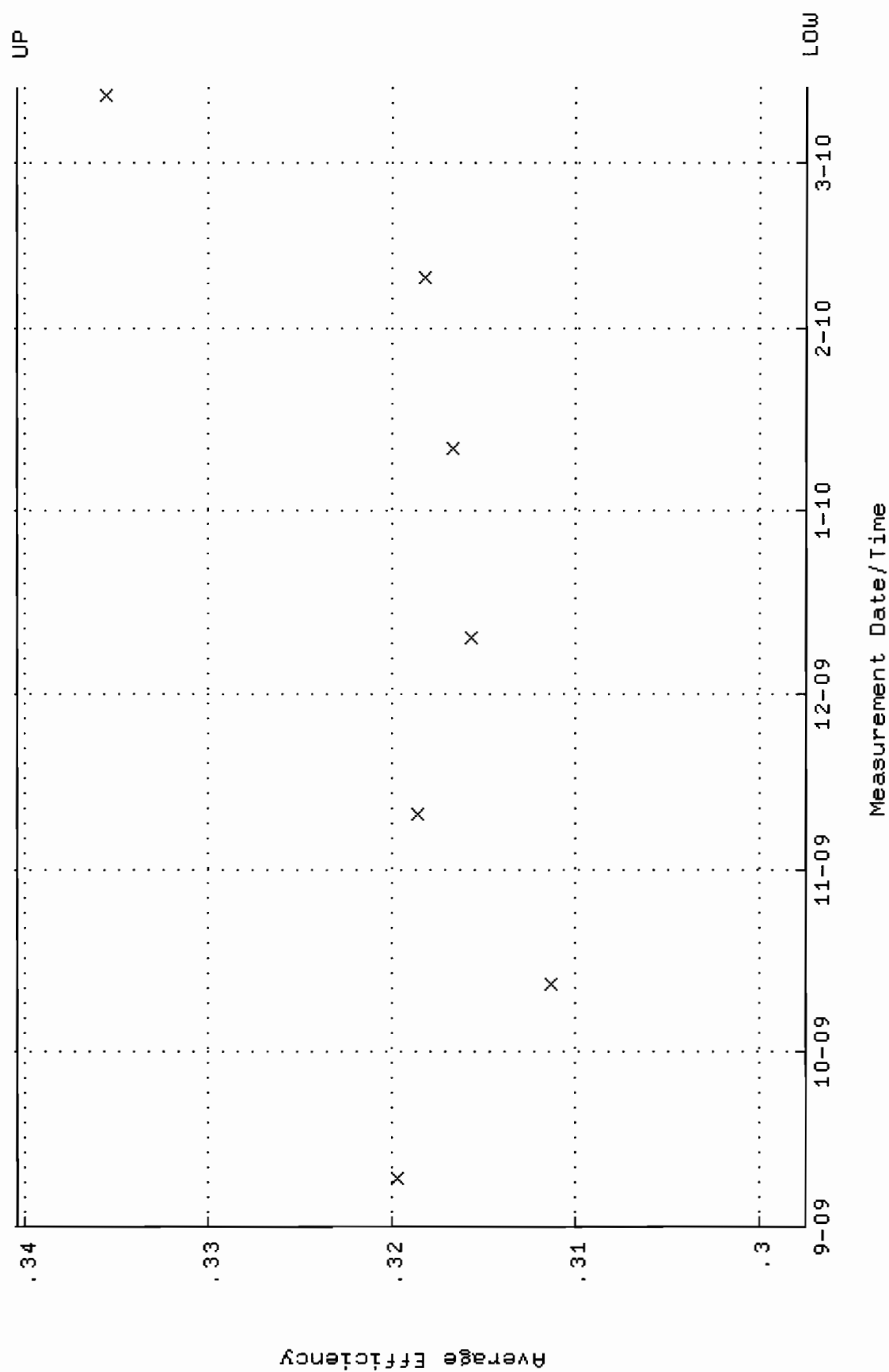
QA filename : DKA100:[ENV_ALPHA.QA.W]w108.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 67.0155 through 72.5031



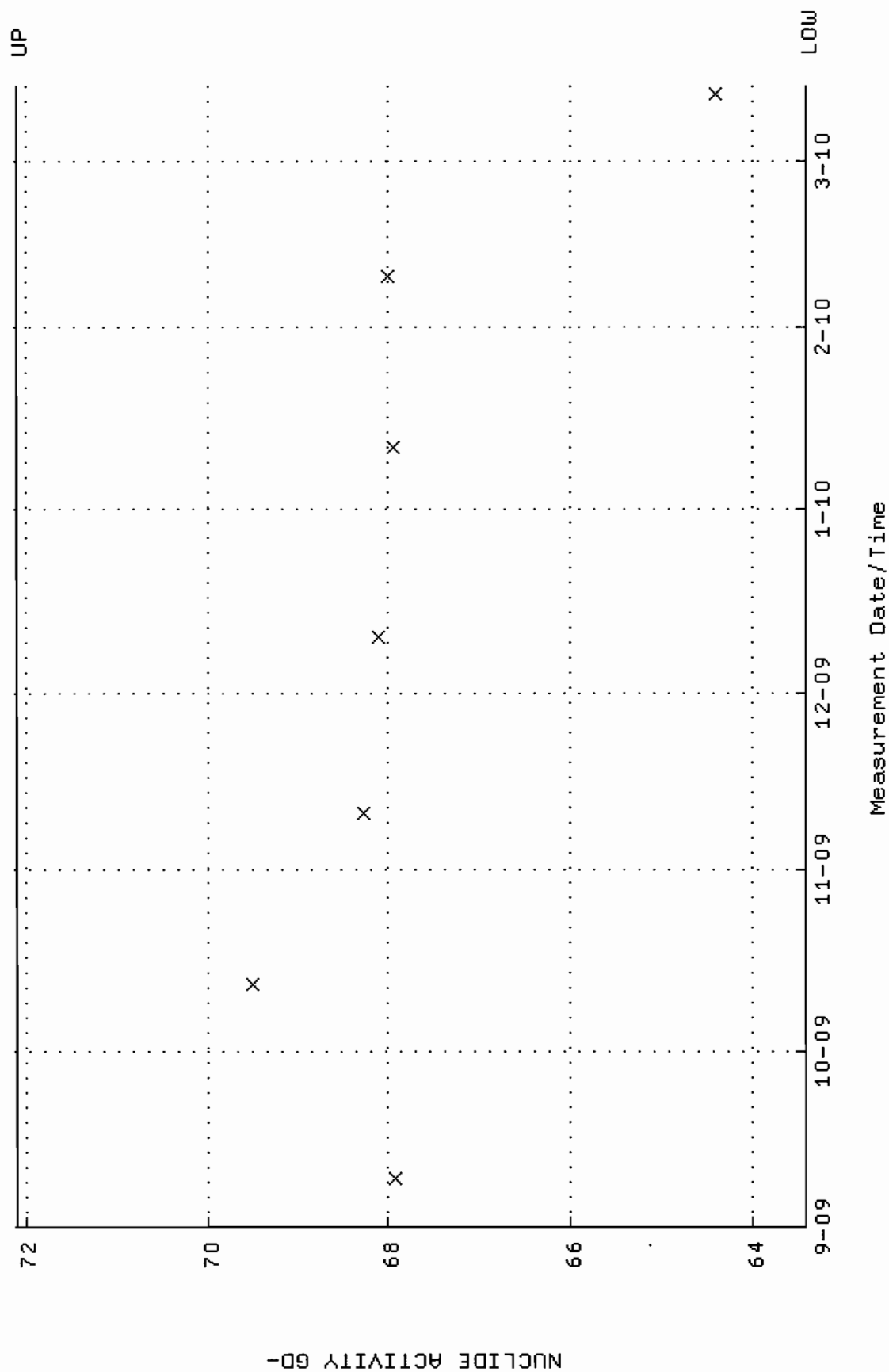
QA filename : DKA100:[ENV_ALPHA.QA.B]B108.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:12 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



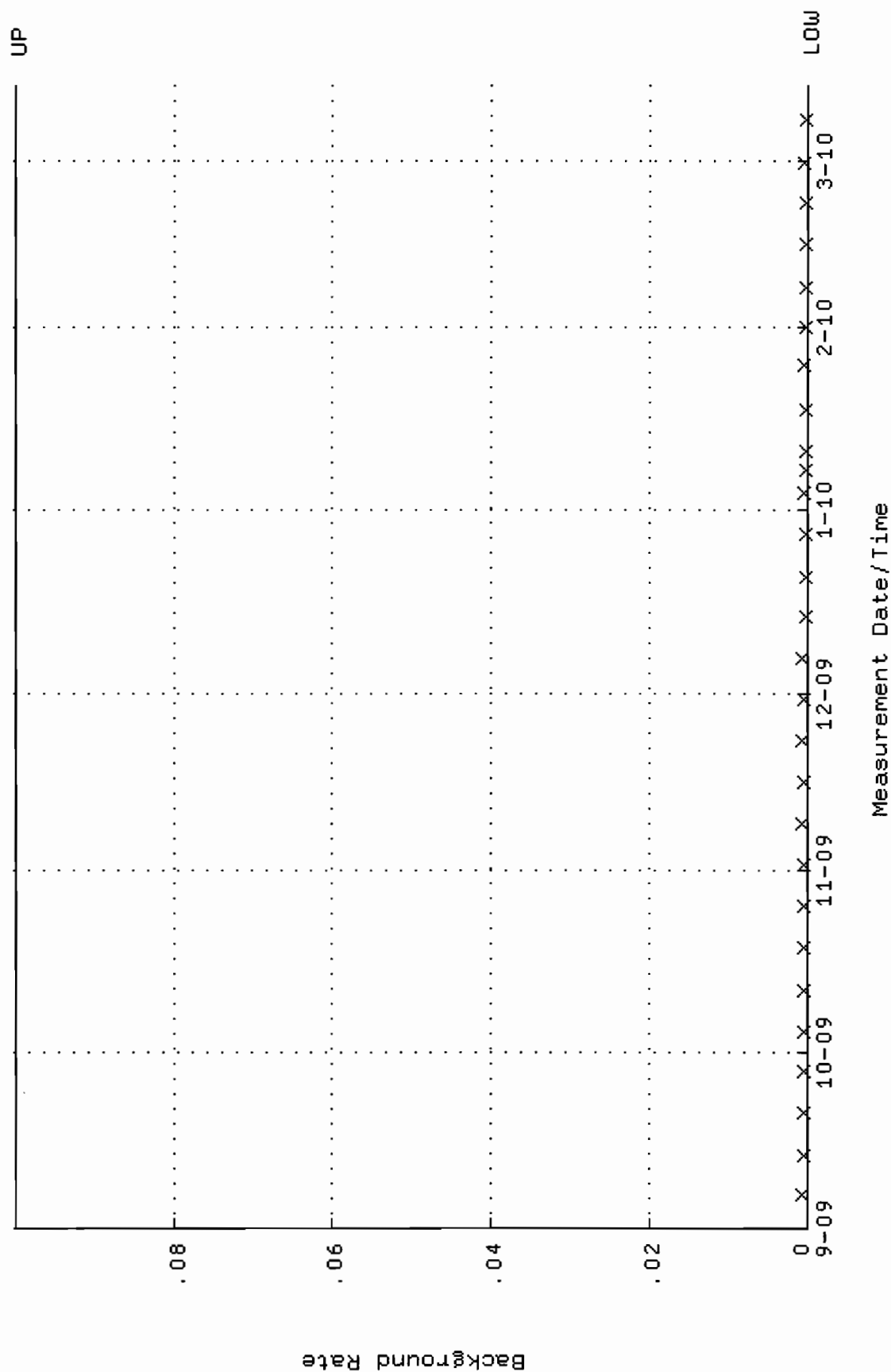
QA filename : DKA100:[ENV_ALPHA.QA.W]W112.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.297499 through 0.340389



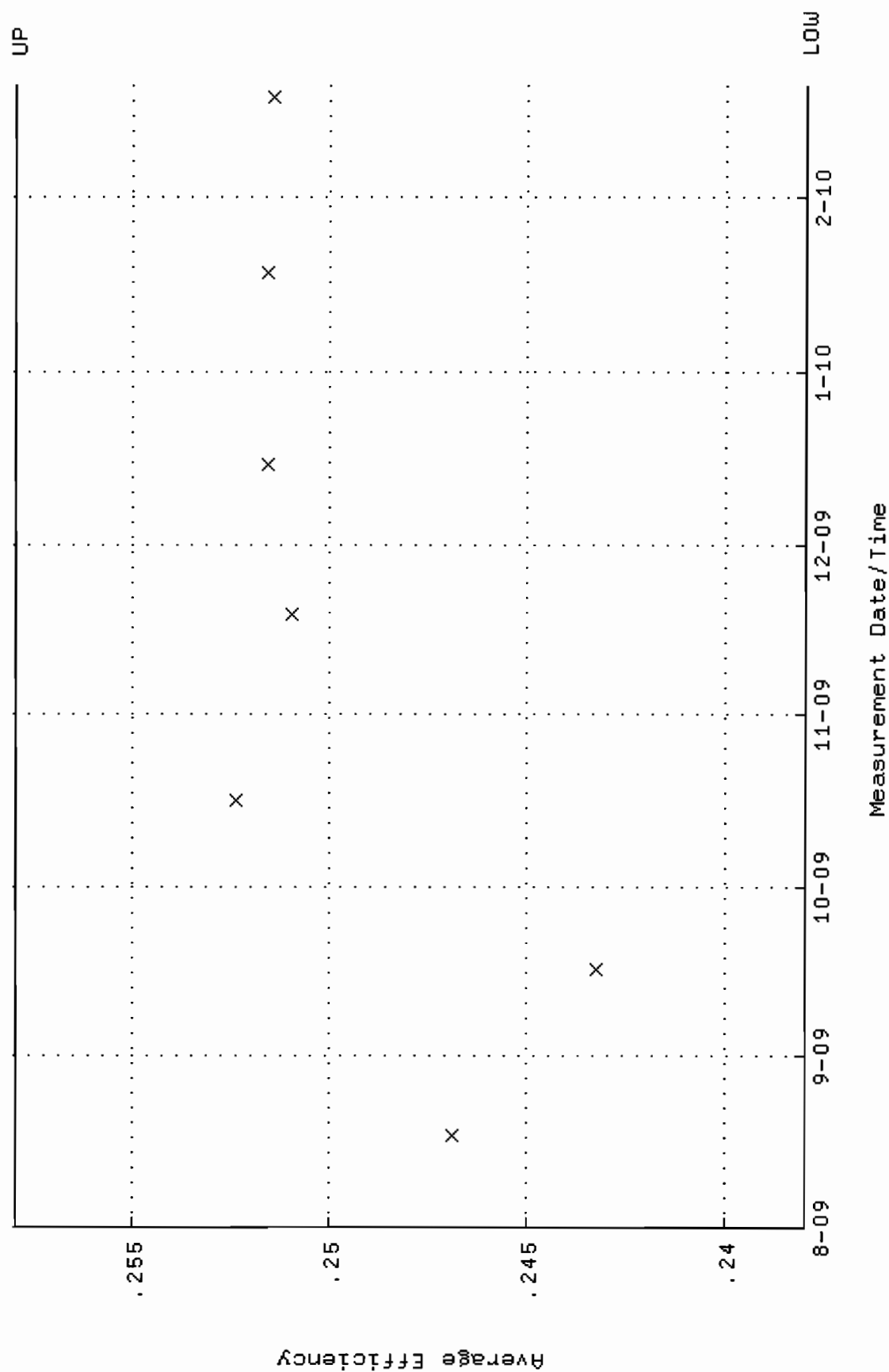
QA filename : DKA100:[ENV_ALPHA.QA.W]w112.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:52 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 63.4111 through 72.0947



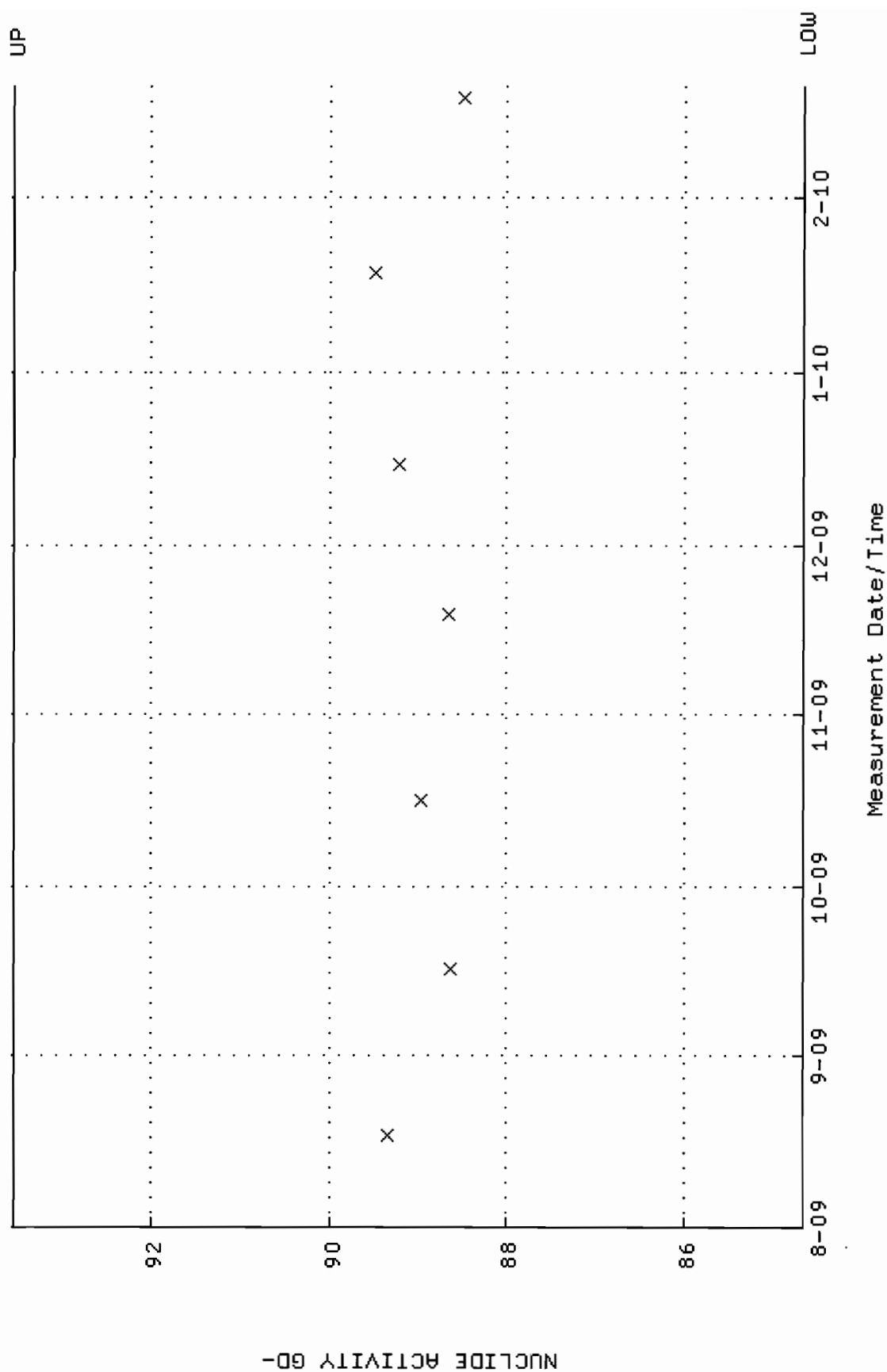
QA filename : DKA100:[ENV_ALPHA.QA.B]B112.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:12 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



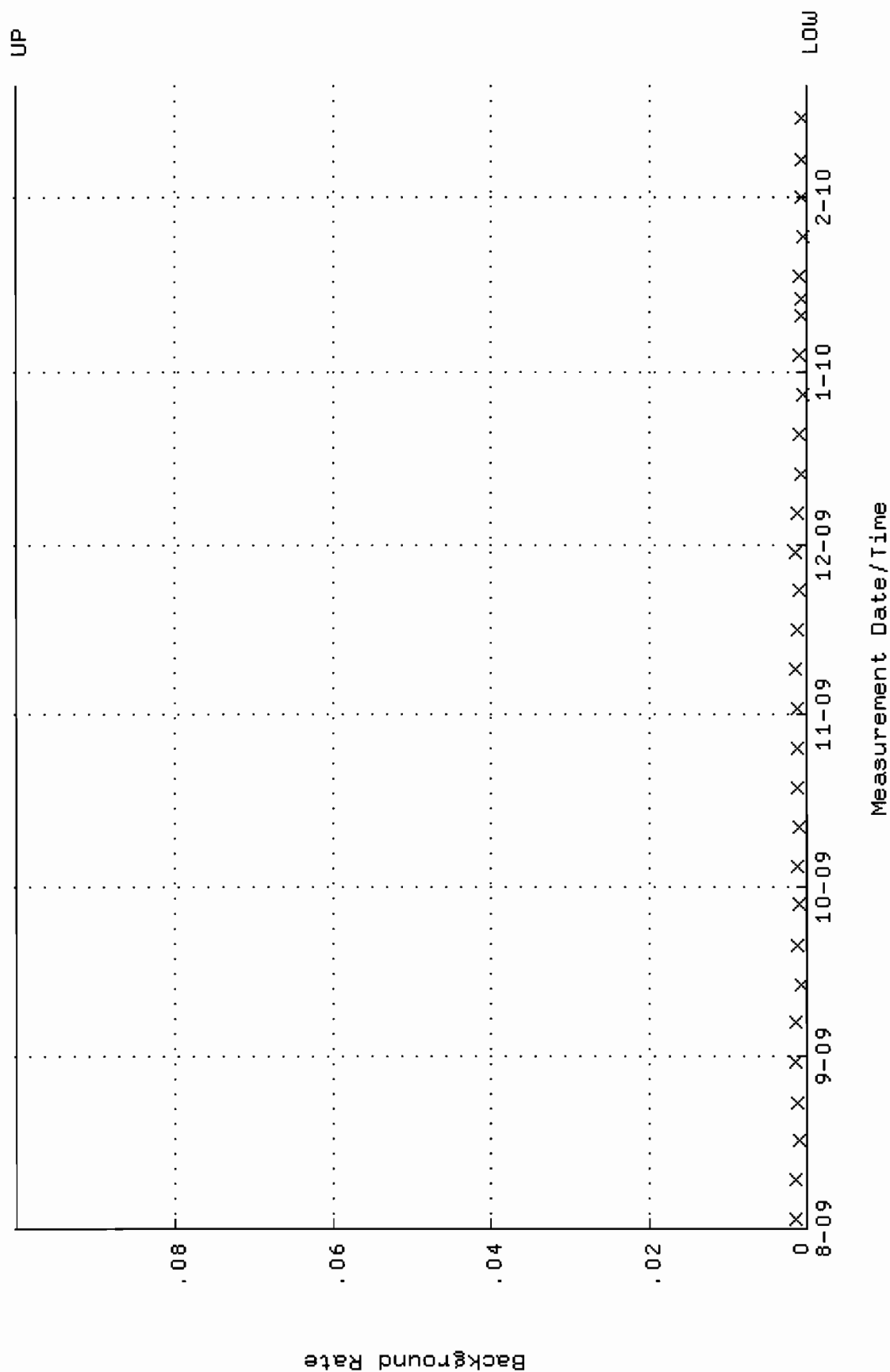
QA filename : DKA100:[ENV_ALPHA.QA.W]W144.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.237963 through 0.257963



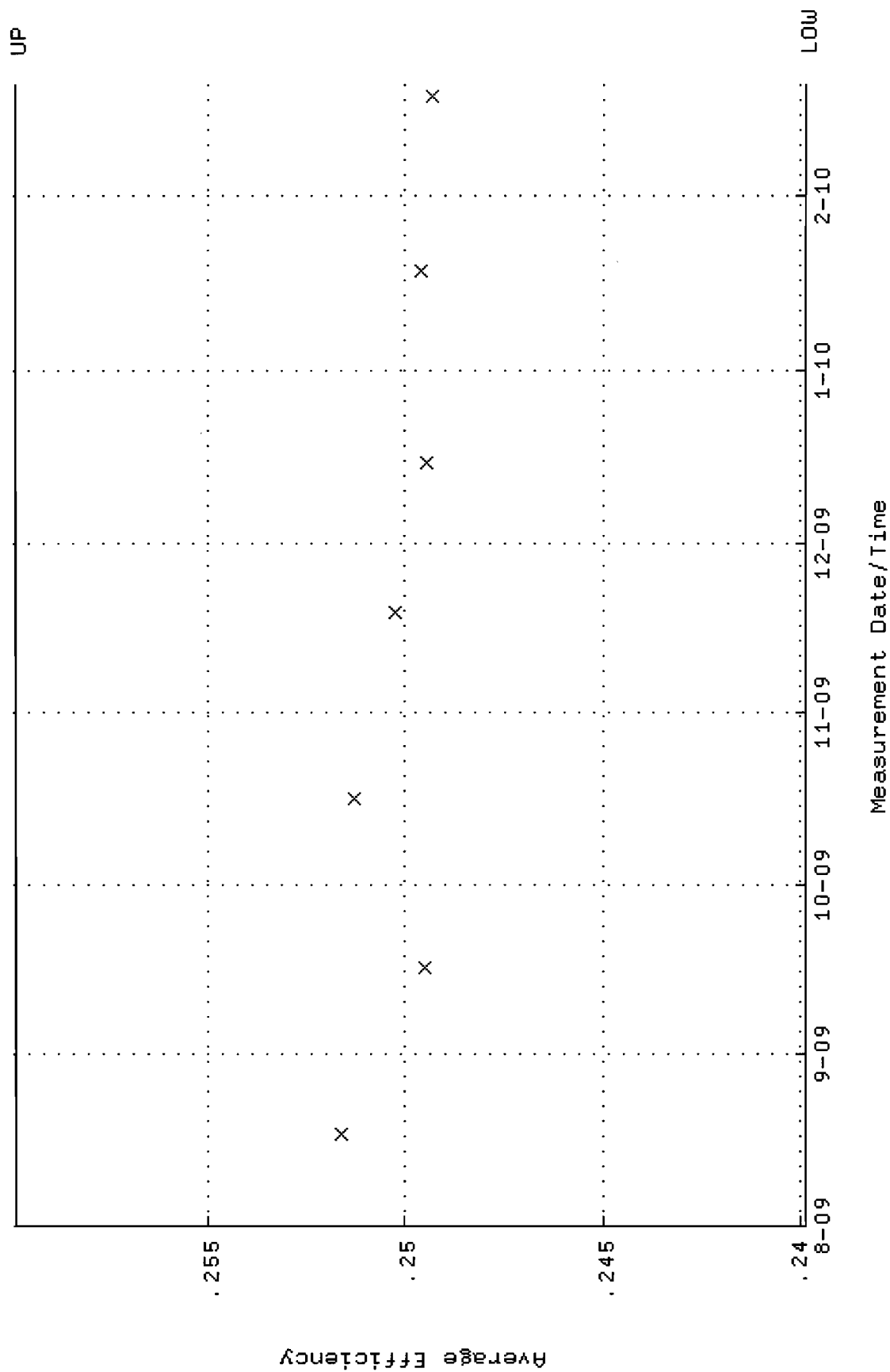
QA filename : DKA100:[ENV_ALPHA.QA.W]W144.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.6507 through 93.5613



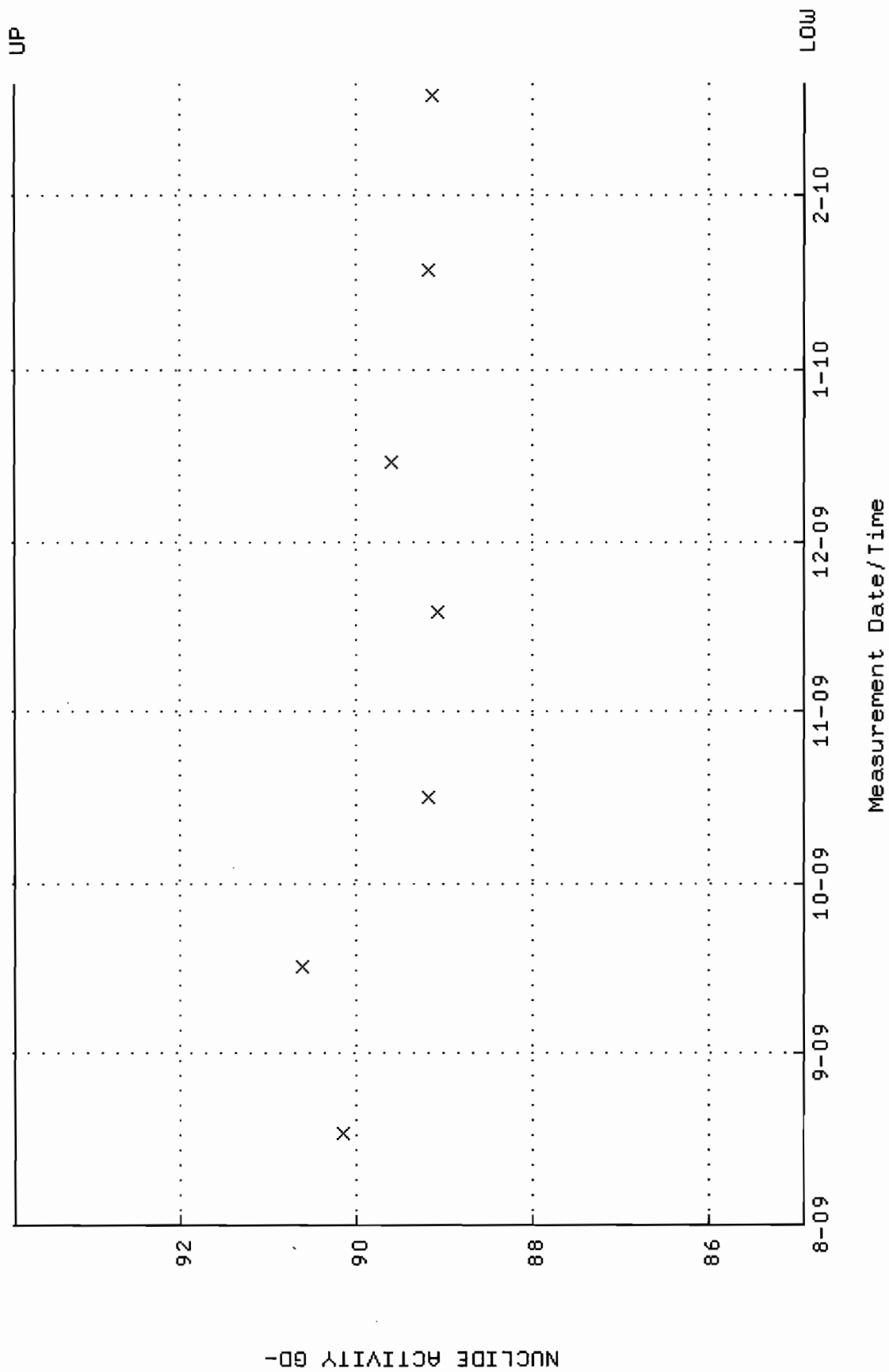
QA filename : DKA100:[ENV_ALPHA.QA.B]B144.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:12 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



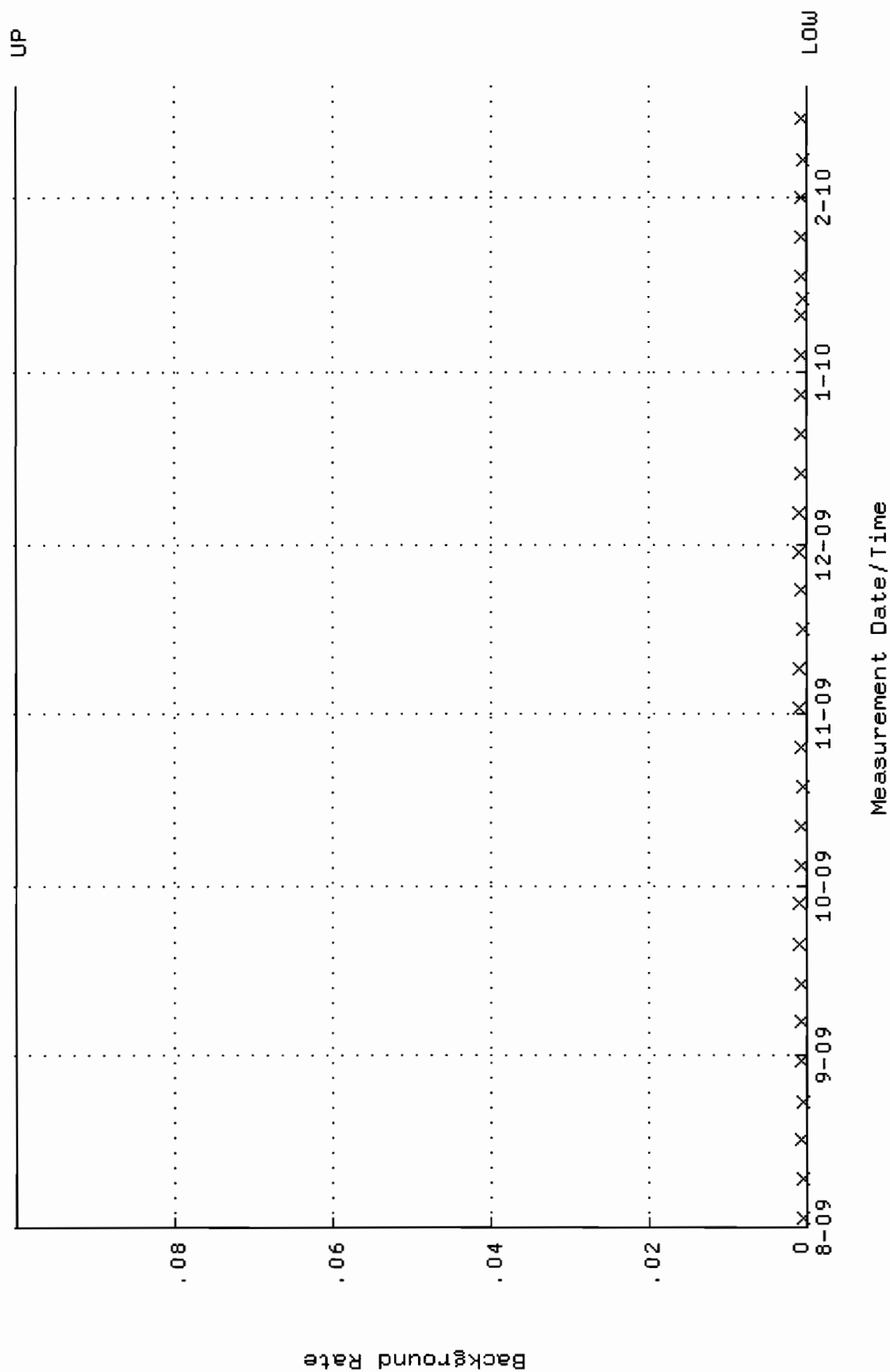
QA filename : DKA100:[ENV_ALPHA.QA.W]W145.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-AUG-2009 10:06:50 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.239850 through 0.259850



QA filename : DKA100:[ENV_ALPHA.QA.W]W145.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 10:06:50 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.9354 through 93.8760



QA filename : DKA100:[ENV_ALPHA.QA.B]B145.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:16 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

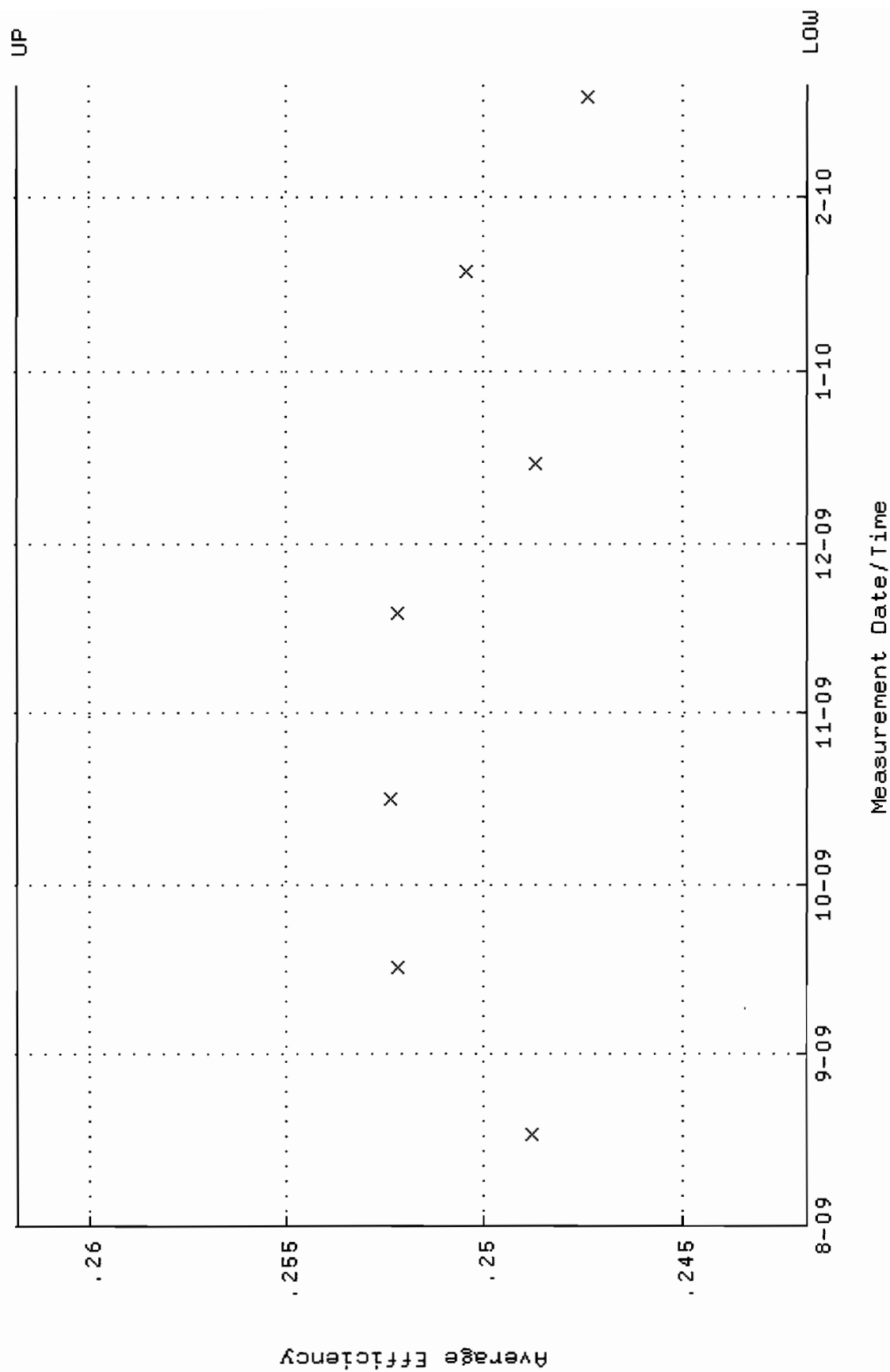


QA filename : DKA100:[ENV_ALPHA.QA.W]W146.QAF;2

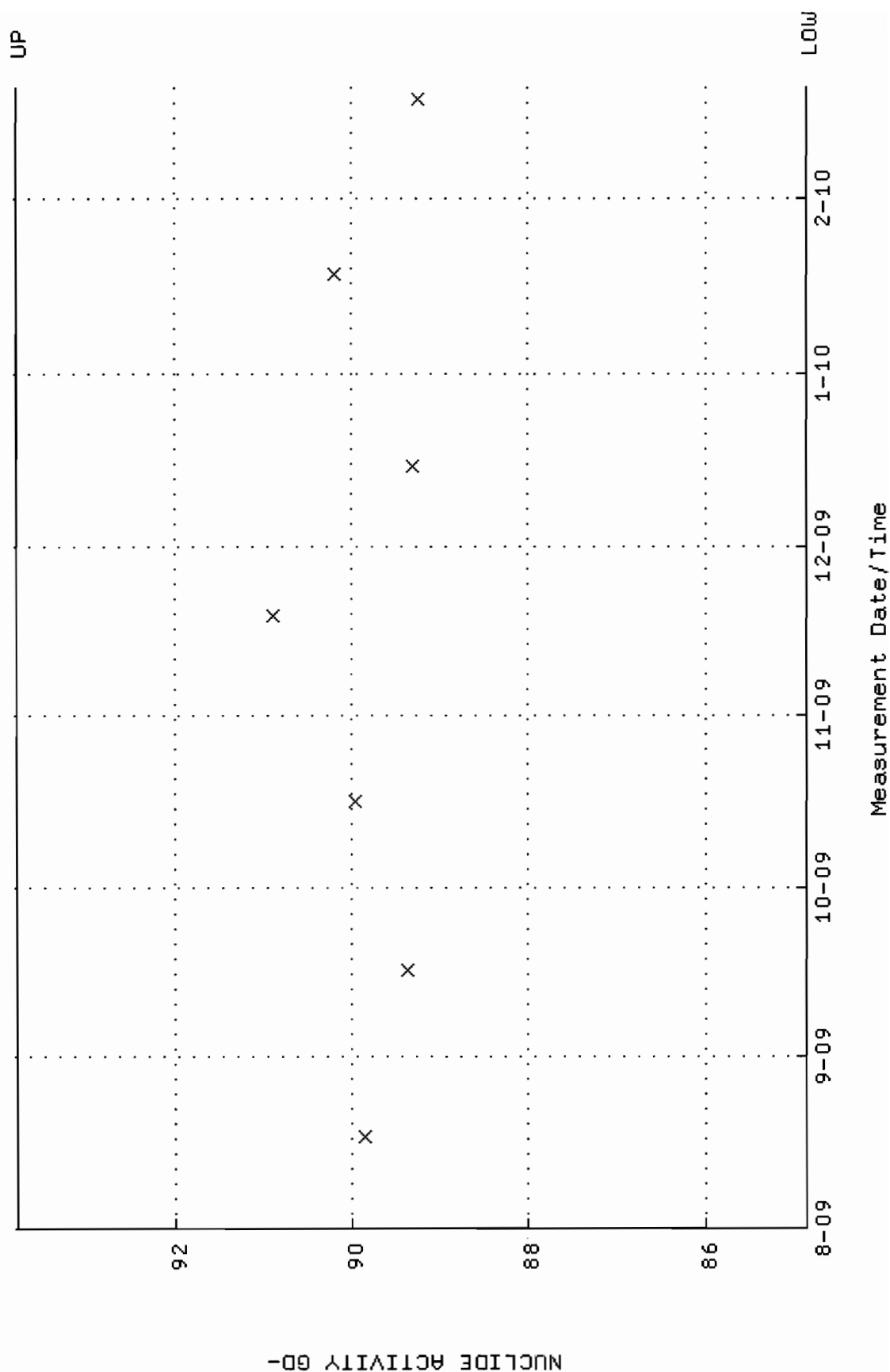
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 17-AUG-2009 10:06:56 through 20-FEB-2010 12:00:00

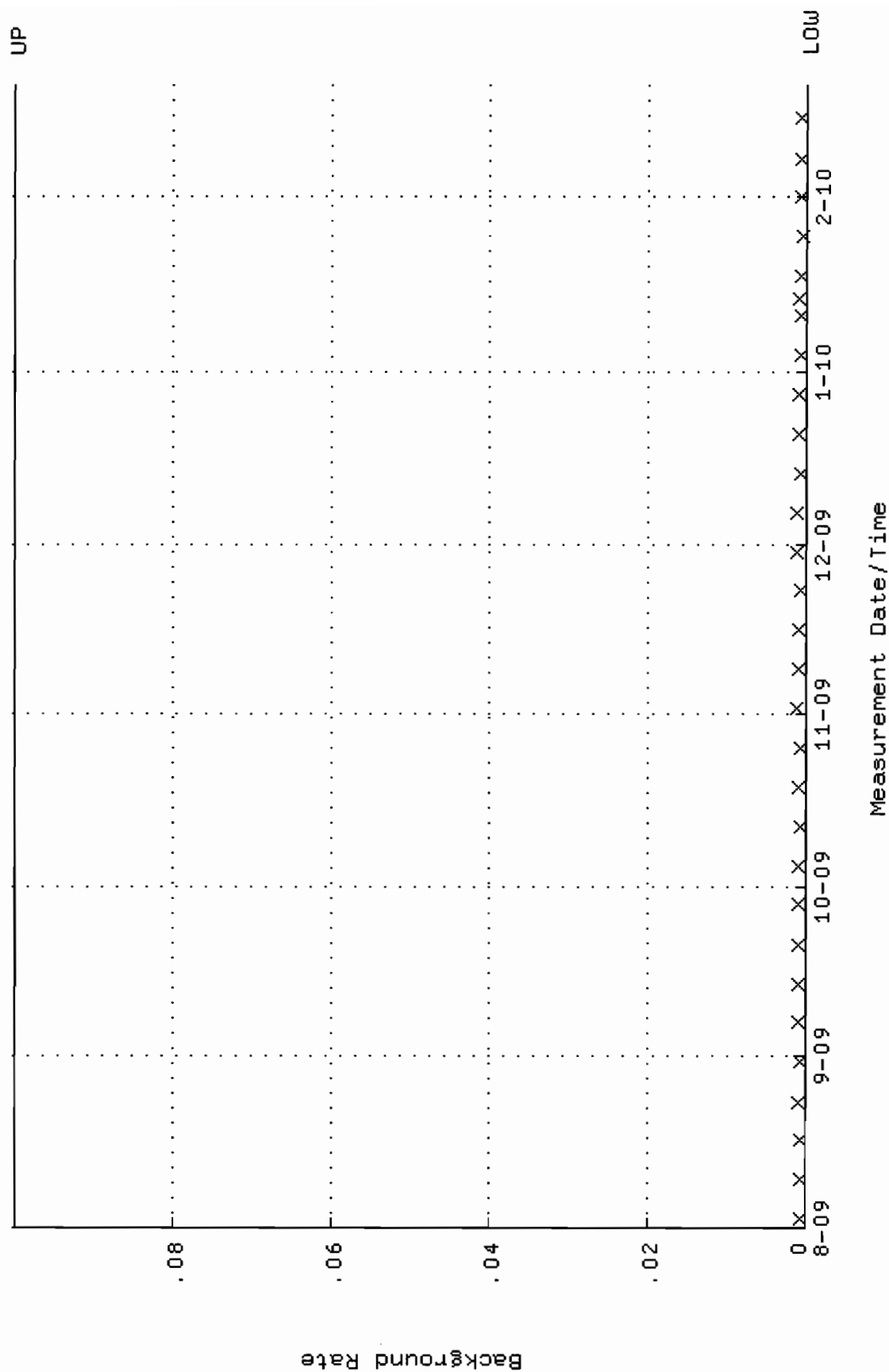
Lower/Upper Lmts: 0.241831 through 0.261831



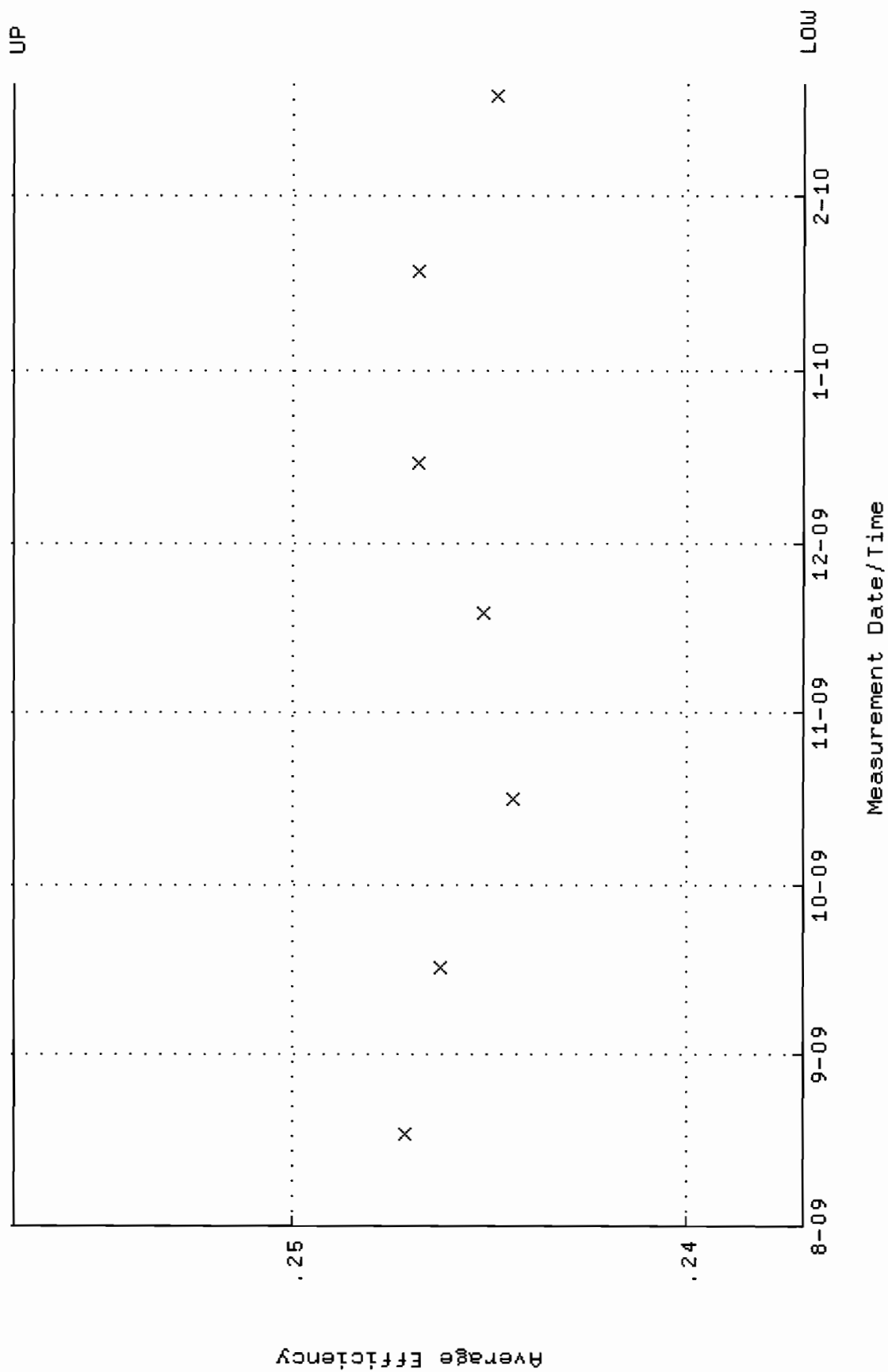
QA filename : DKA100:[ENV_ALPHA.QA.W]w146.QAF;2
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 10:06:56 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.8578 through 93.7902



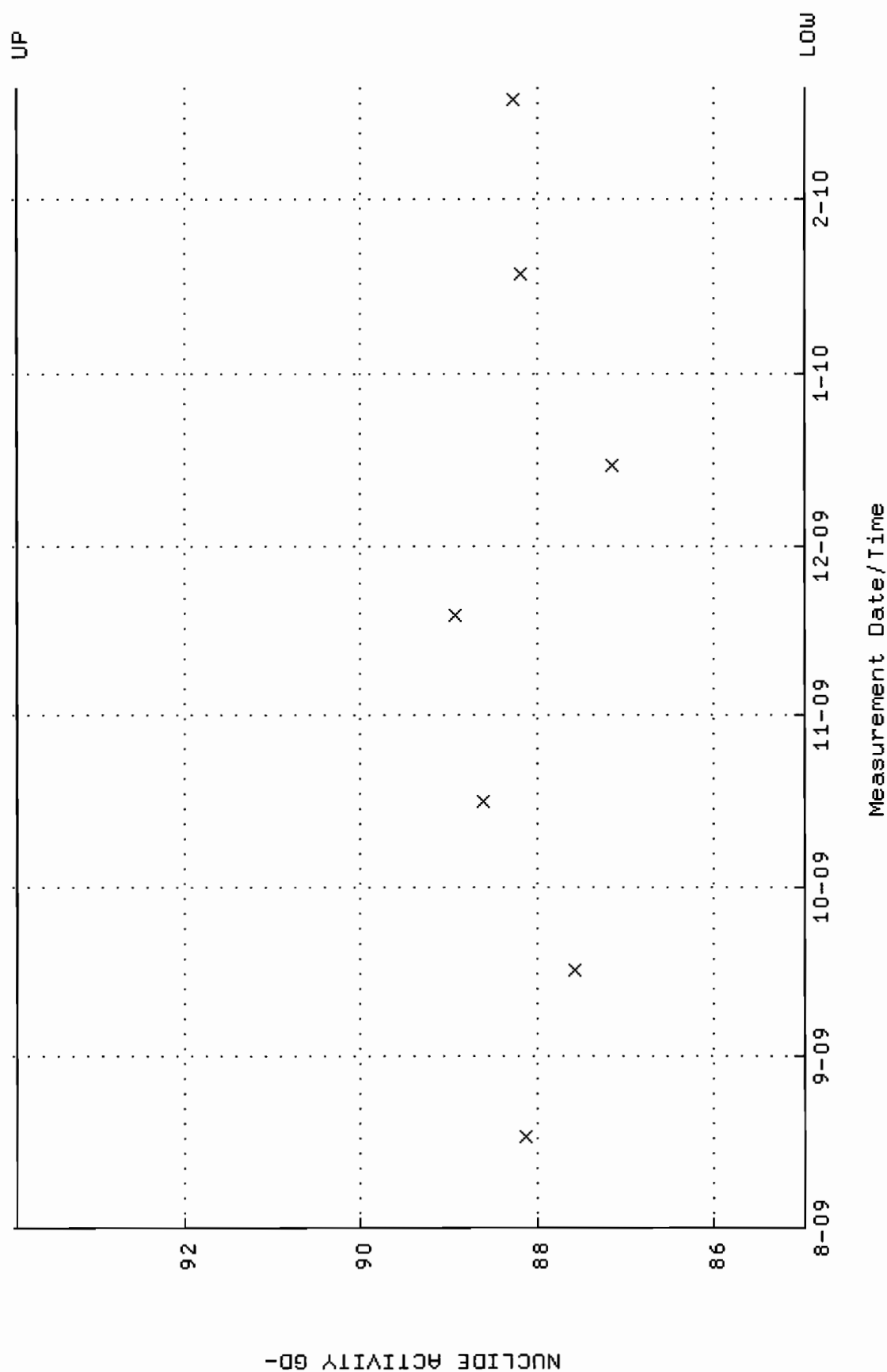
QA filename : DKA100:[ENV_ALPHA.QA.B]B146.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:20 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



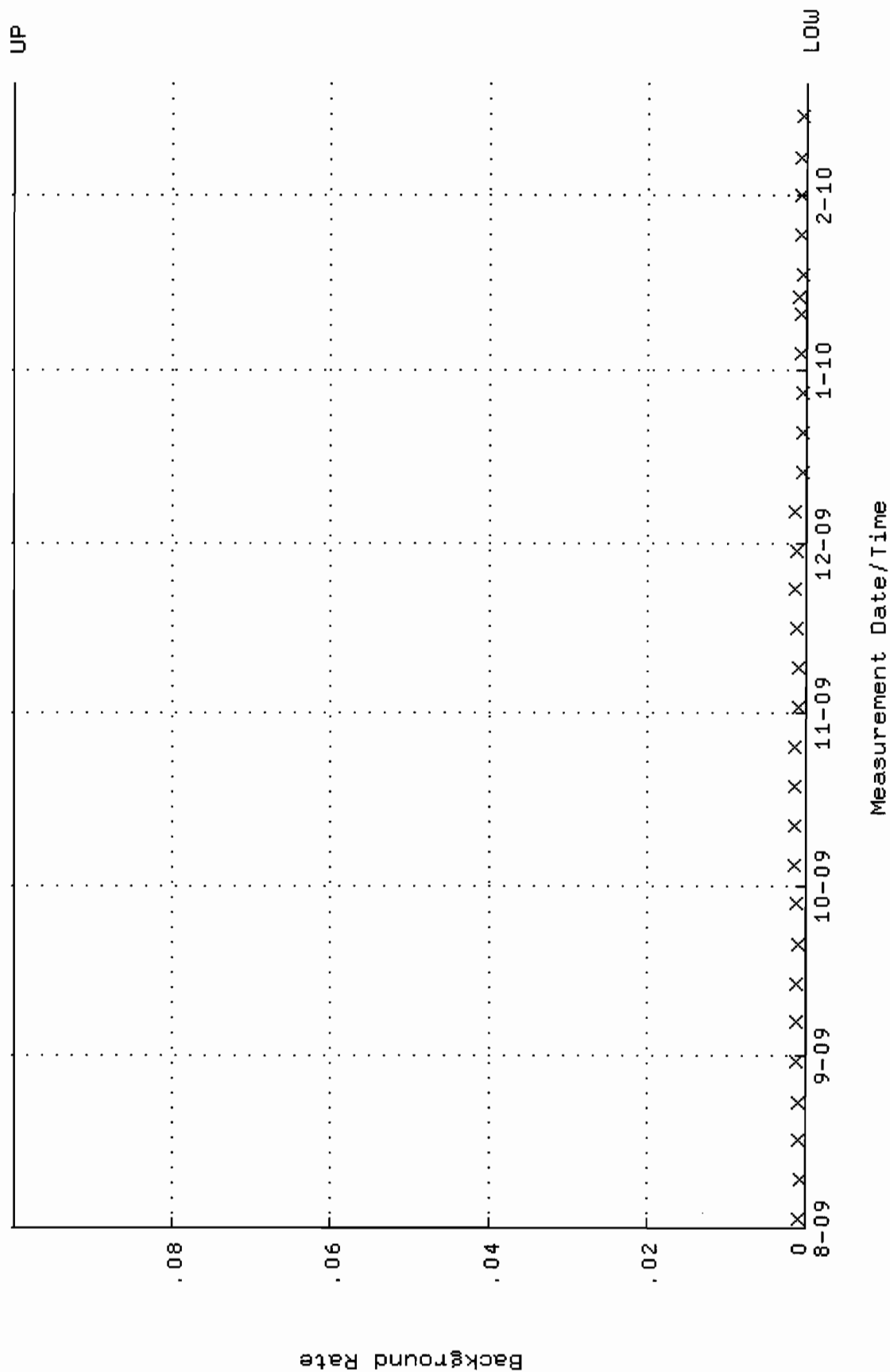
QA filename : DKA100:[ENV_ALPHA.QA.W]W147.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-AUG-2009 10:07:03 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.237046 through 0.257046



QA filename : DKA100:[ENV_ALPHA.QA.W]w147.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 10:07:03 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.9777 through 93.9227



QA filename : DKA100:[ENV_ALPHA.QA.B]B147.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:24 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

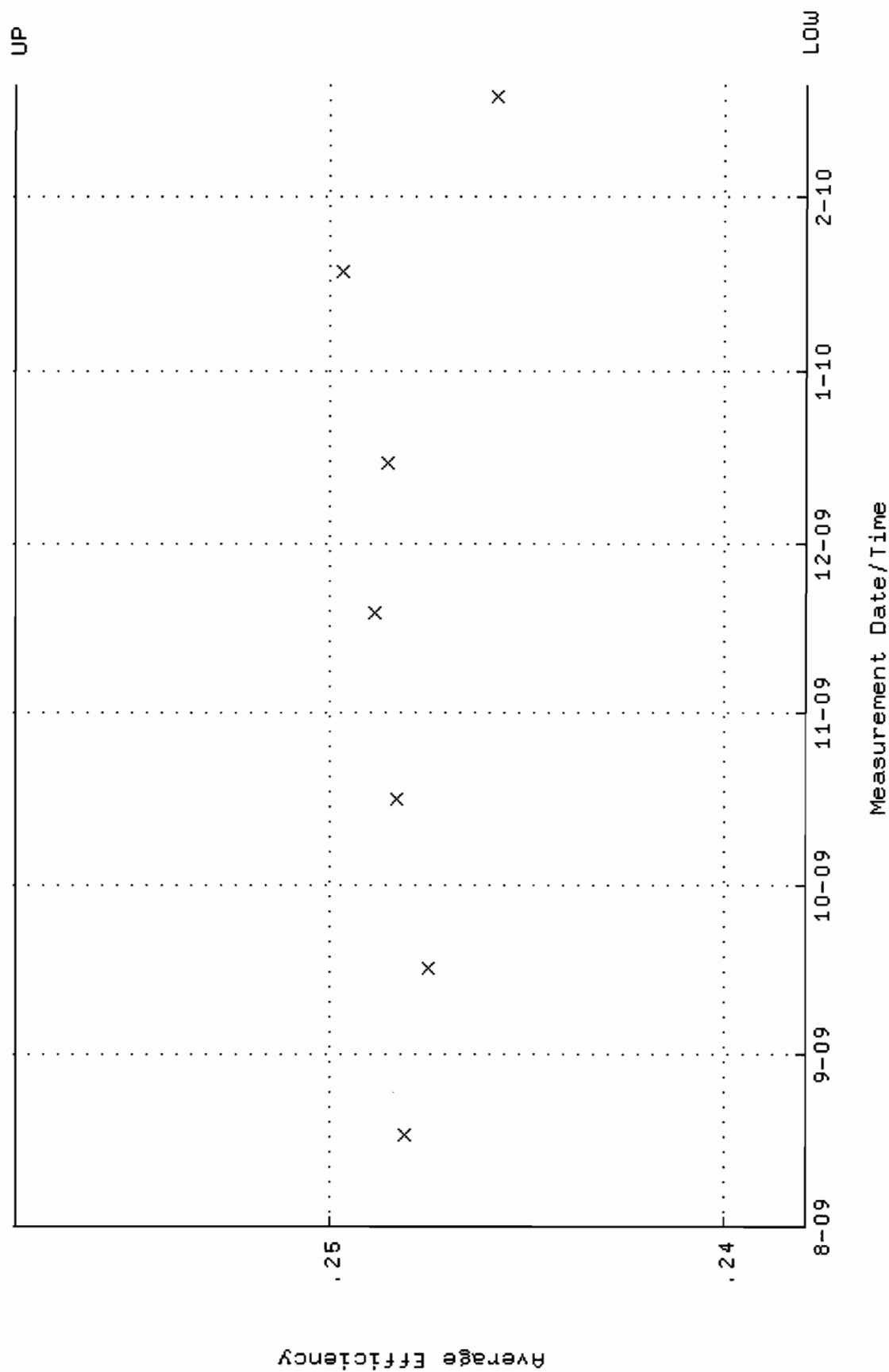


QA filename : DKA100:[ENV_ALPHA.QA.W]W148.QAF;1

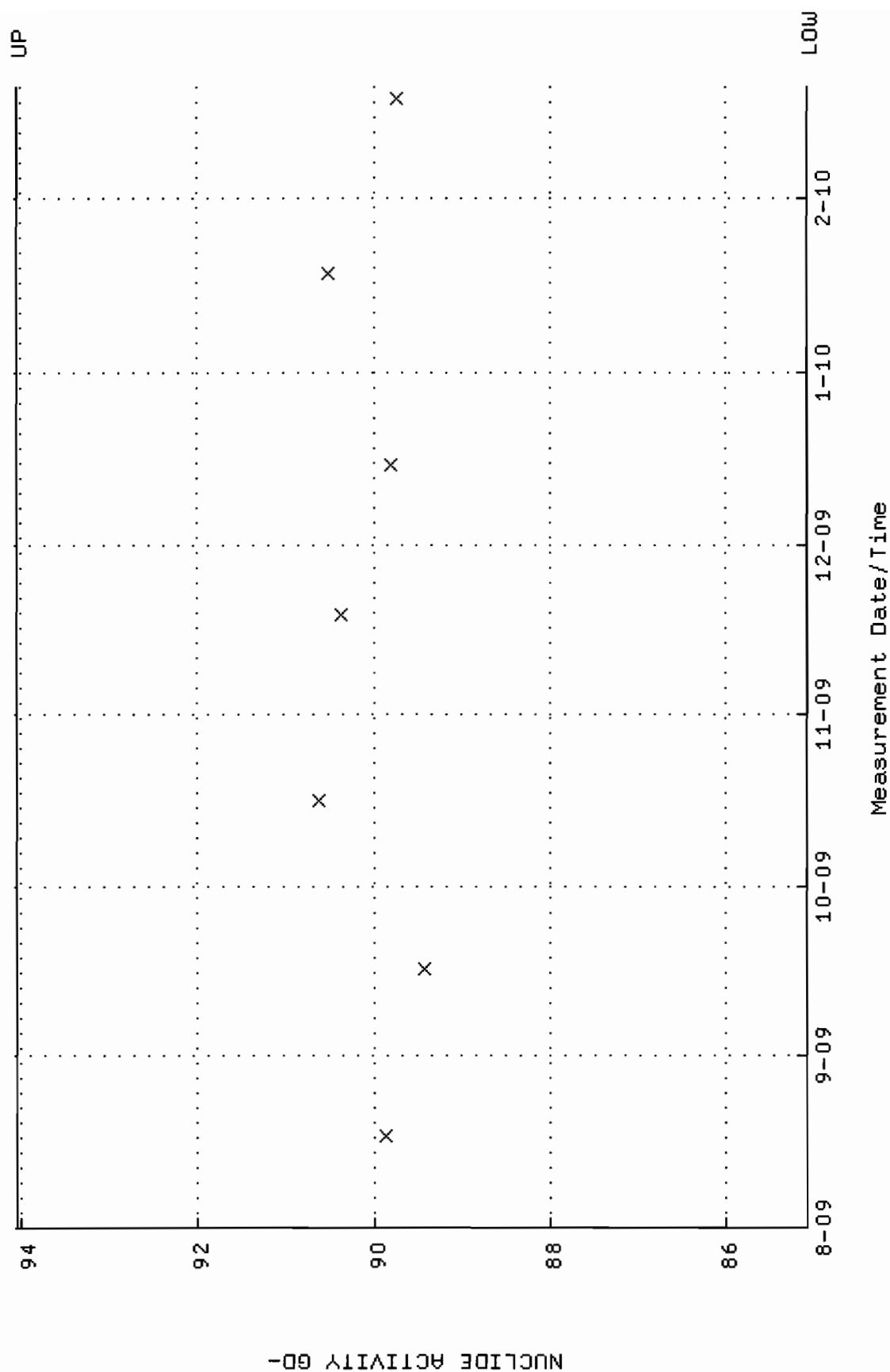
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 17-AUG-2009 10:07:10 through 20-FEB-2010 12:00:00

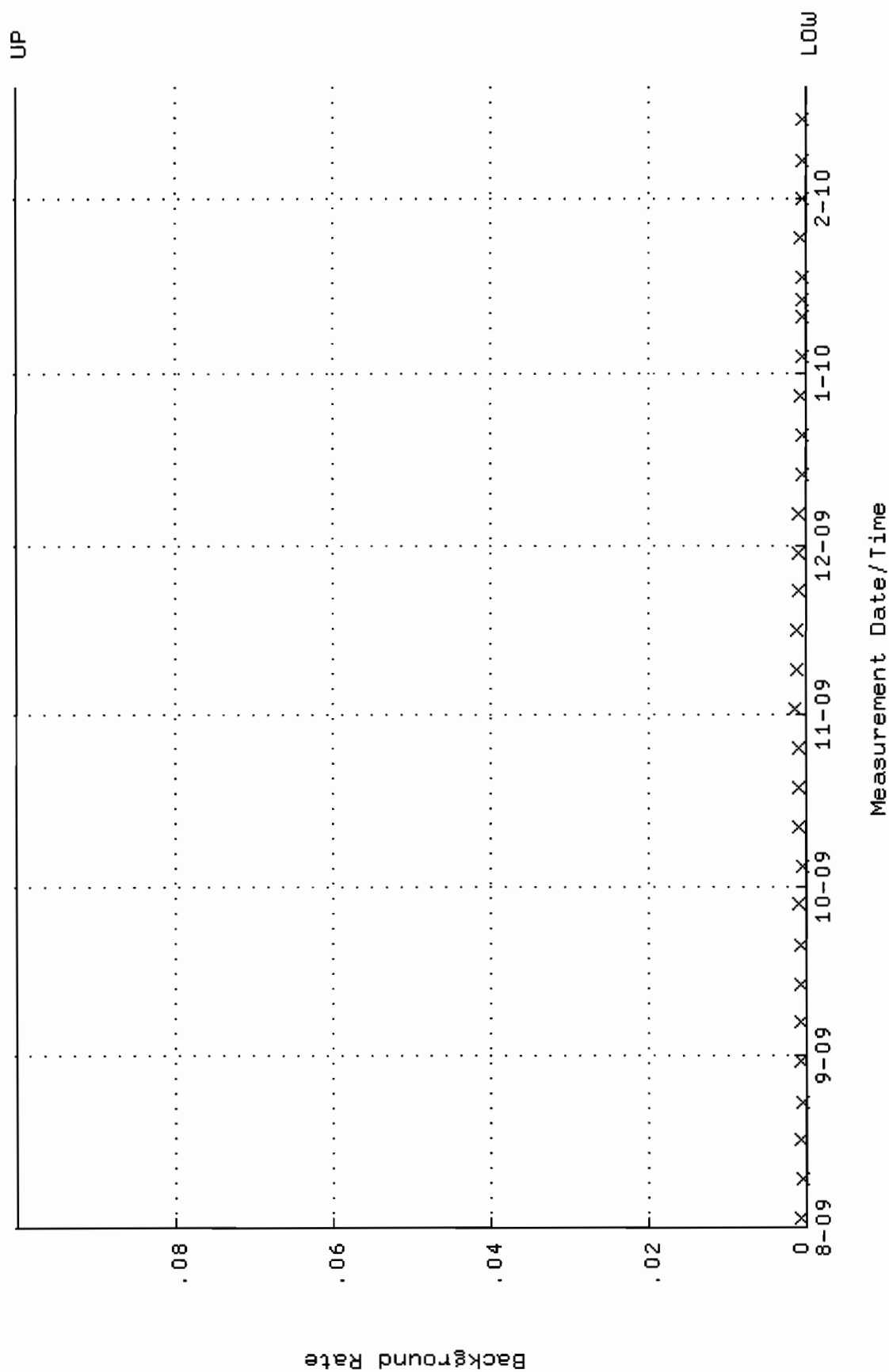
Lower/Upper Lmts: 0.237934 through 0.257934



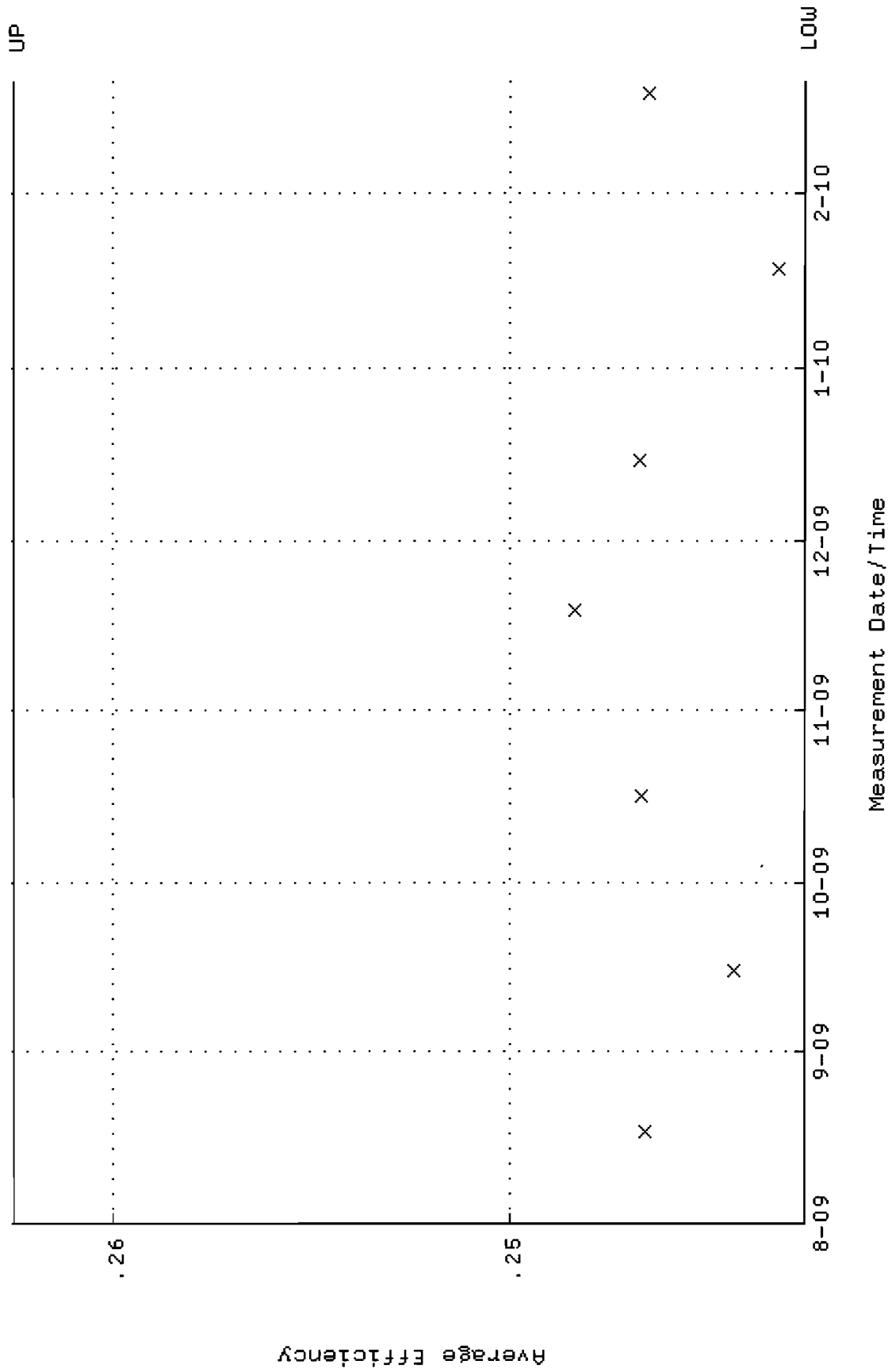
QA filename : DKA100:[ENV_ALPHA.QA.W]W148.QAF;1
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-AUG-2009 10:07:10 through 20-FEB-2010 12:00:00
Lower/Upper Lmts: 85.0831 through 94.0393



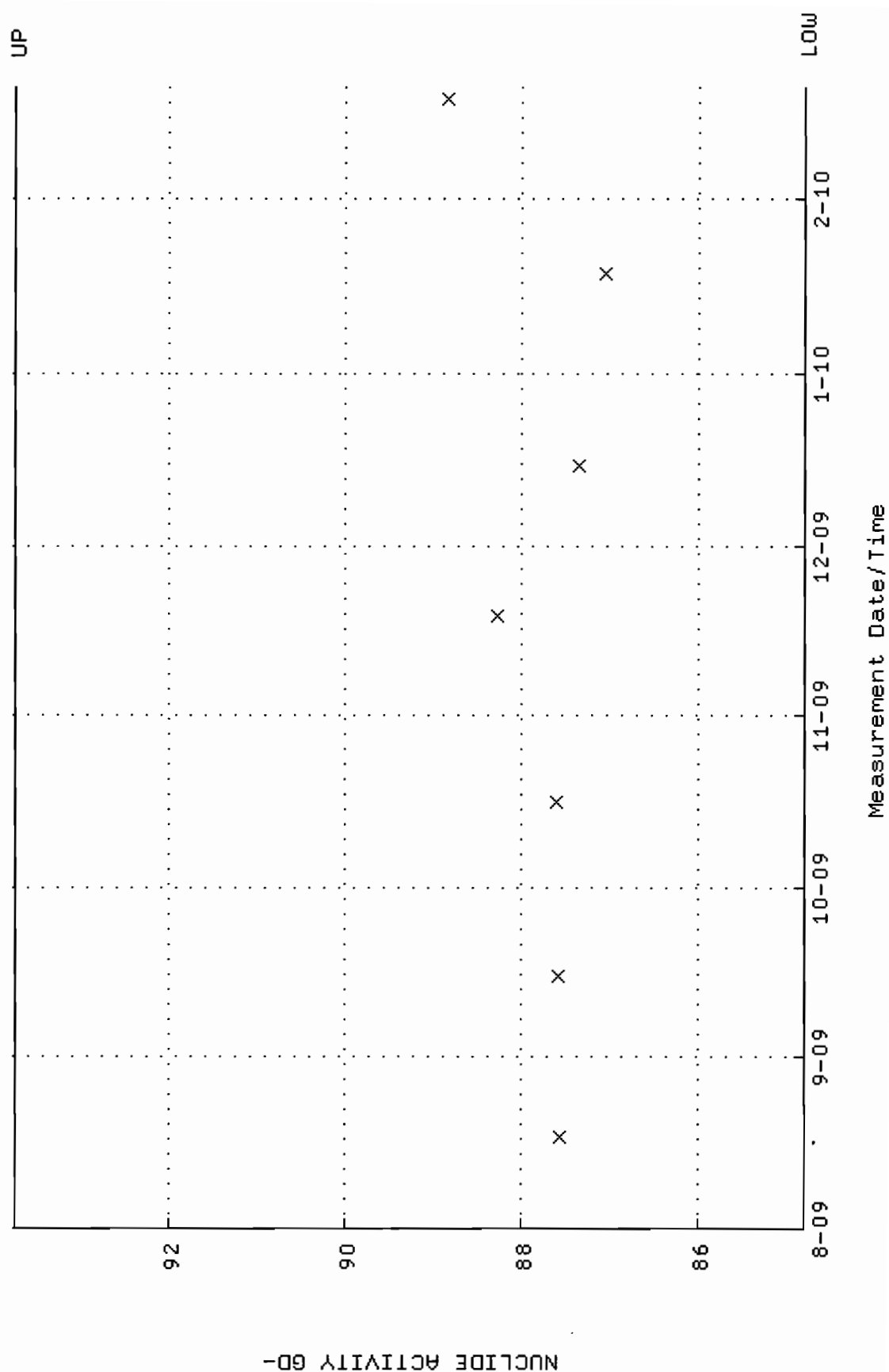
QA filename : DKA100:[ENV_ALPHA.QA.B]B148.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:28 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



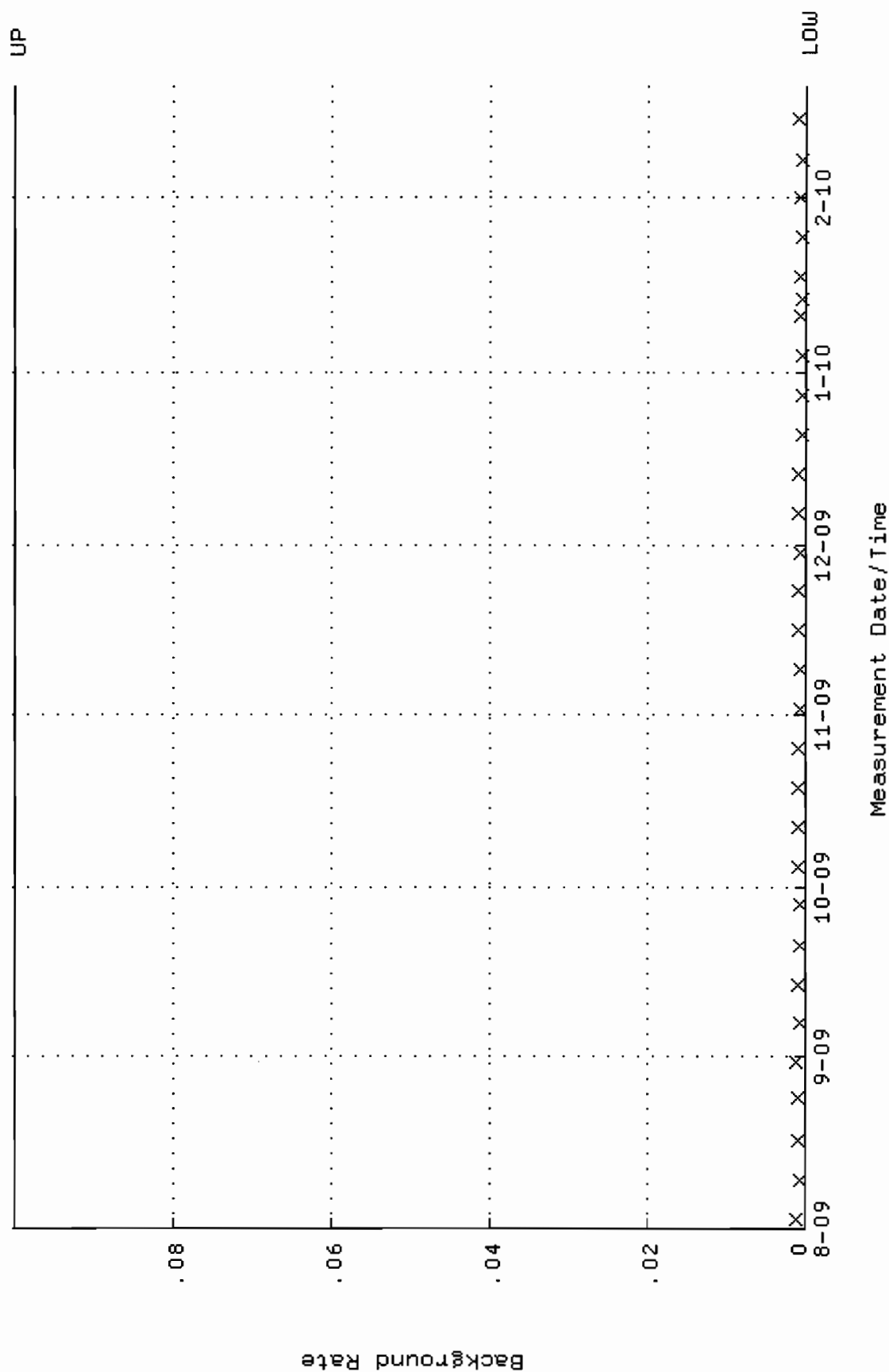
QA filename : DKA100:[ENV_ALPHA.QA.W]W149.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-AUG-2009 09:46:49 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.242495 through 0.262495



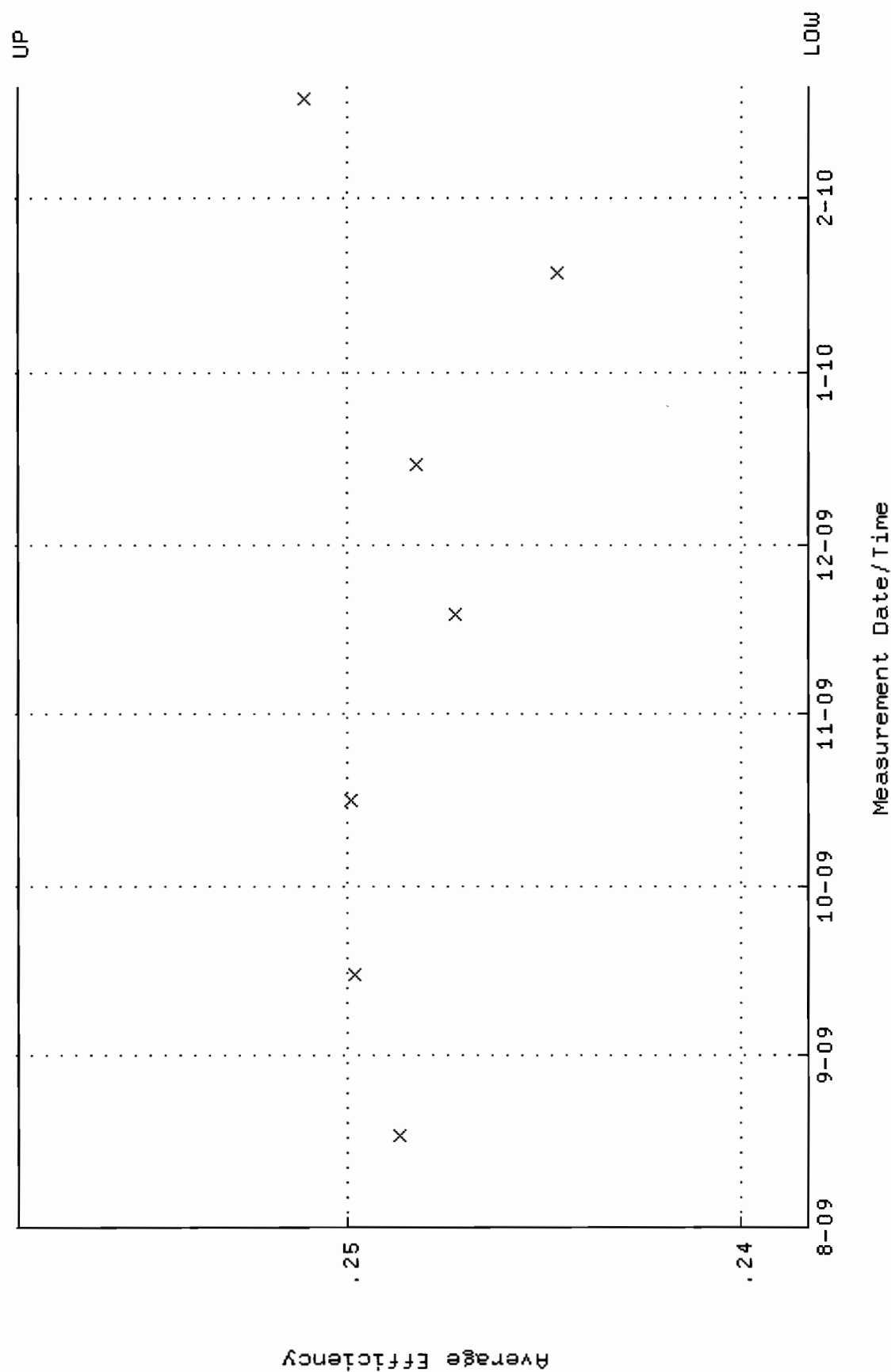
QA filename : DKA100:[ENV_ALPHA.QA.W]W149.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 09:46:49 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.8126 through 93.7402



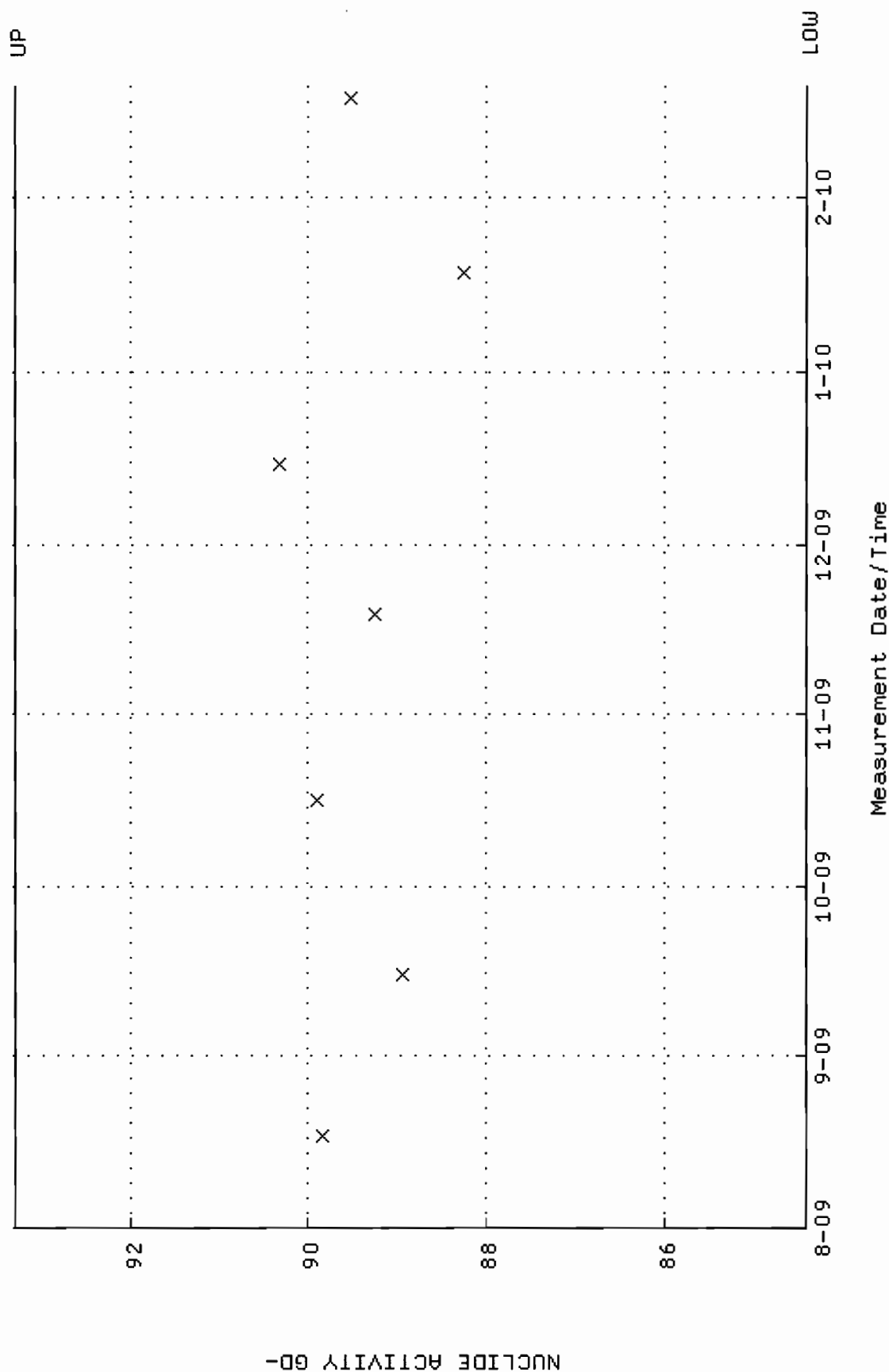
QA filename : DKA100:[ENV_ALPHA.QA.B]B149.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:32 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



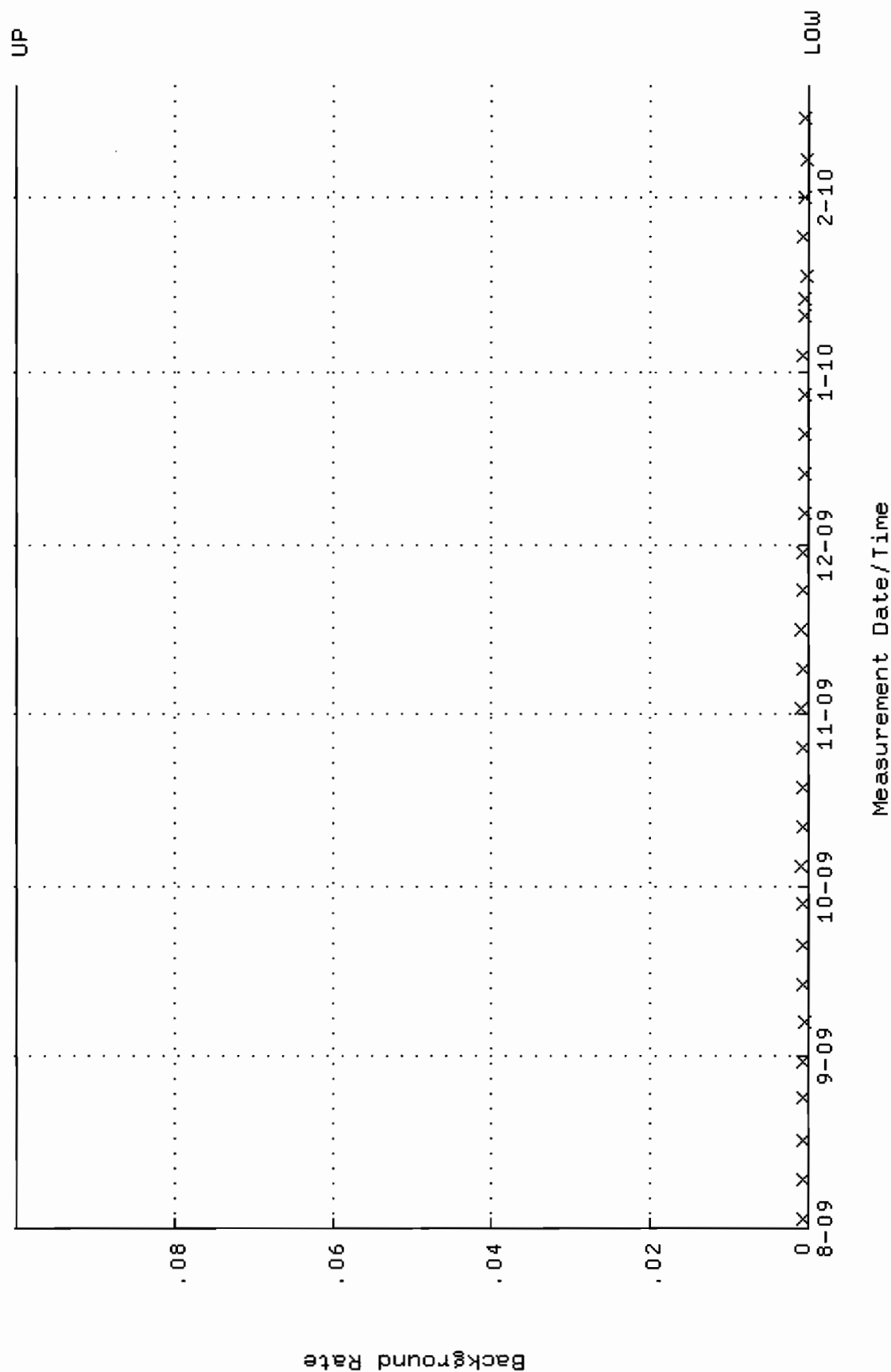
QA filename : DKA100:[ENV_ALPHA.QA.W]W150.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-AUG-2009 09:47:06 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.238314 through 0.258314



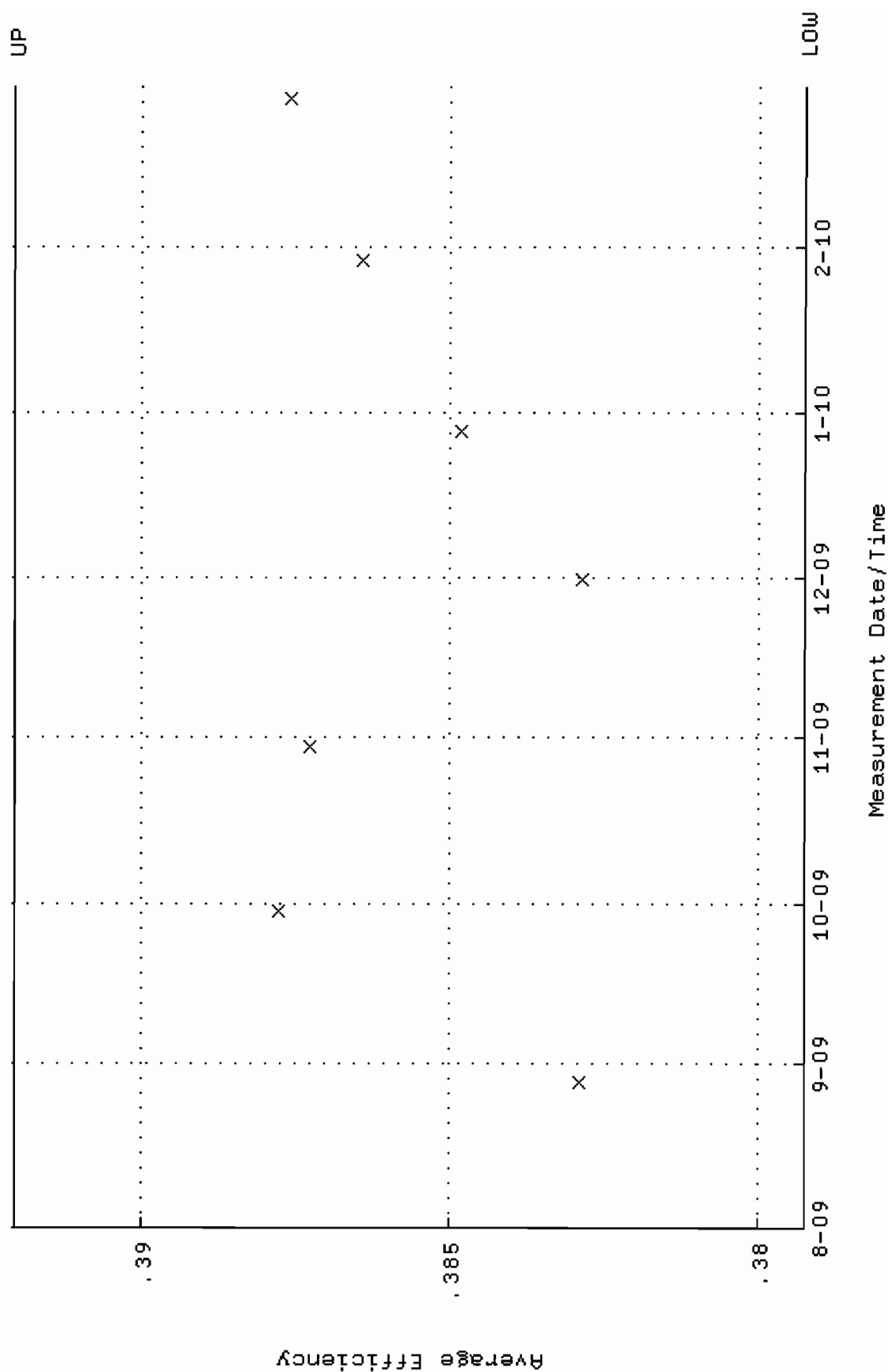
QA filename : DKA100:[ENV_ALPHA.QA.W]W150.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-AUG-2009 09:47:06 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 84.4039 through 93.2885



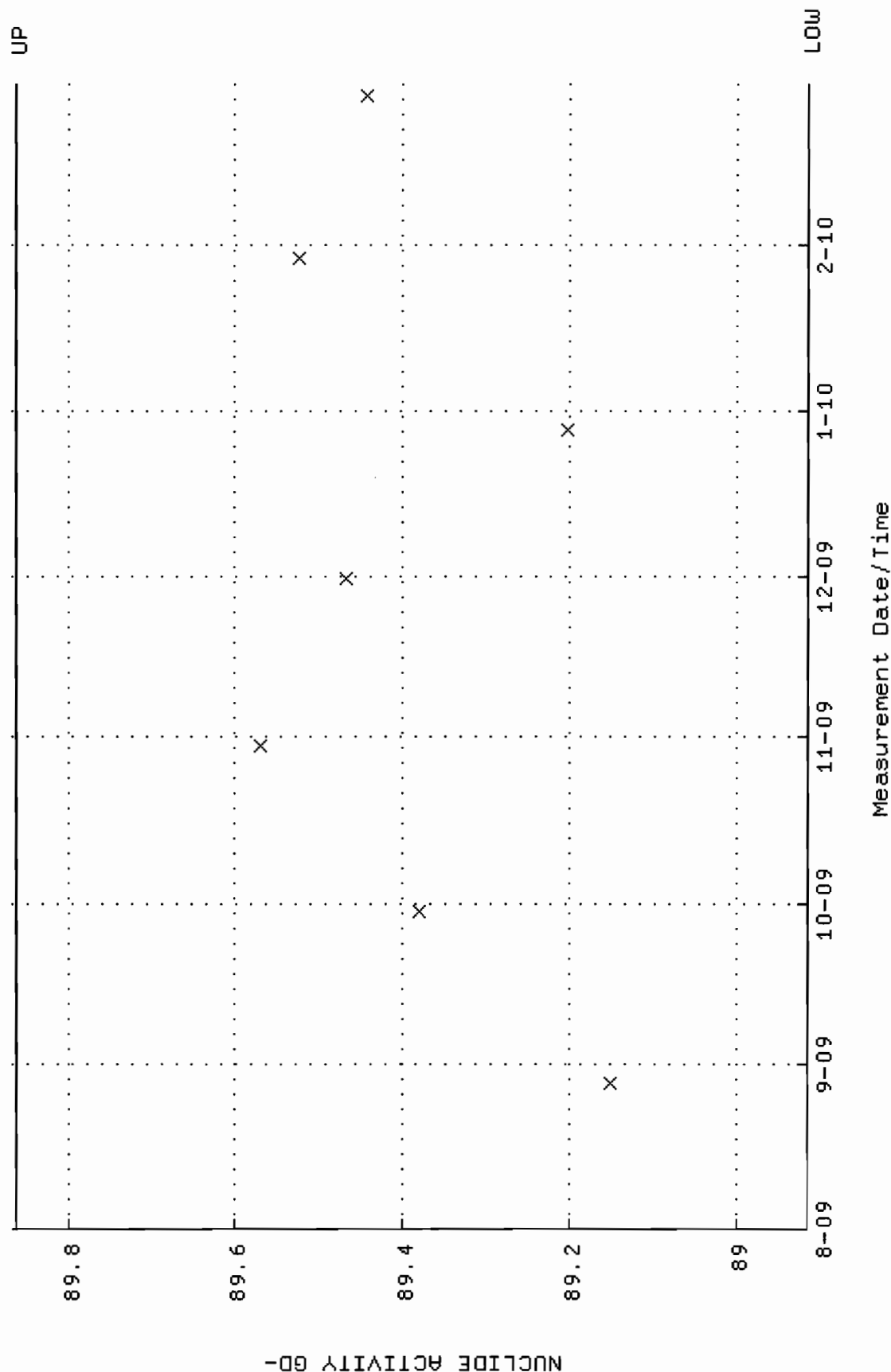
QA filename : DKA100:[ENV_ALPHA.QA.B]B150.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:14:36 through 20-FEB-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



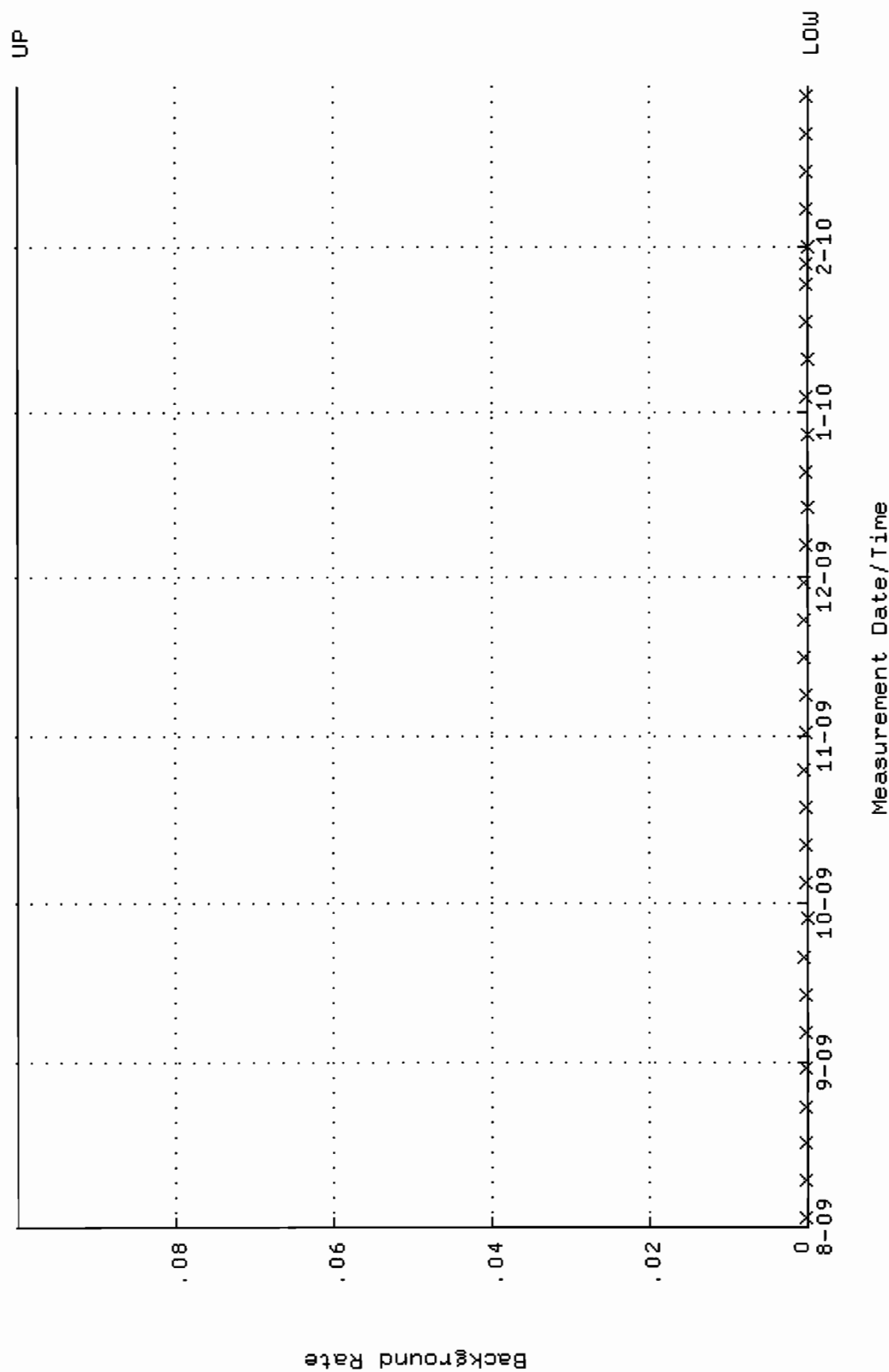
QA filename : DKA100:[ENV_ALPHA.QA.W]W227.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:03 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.379260 through 0.392050



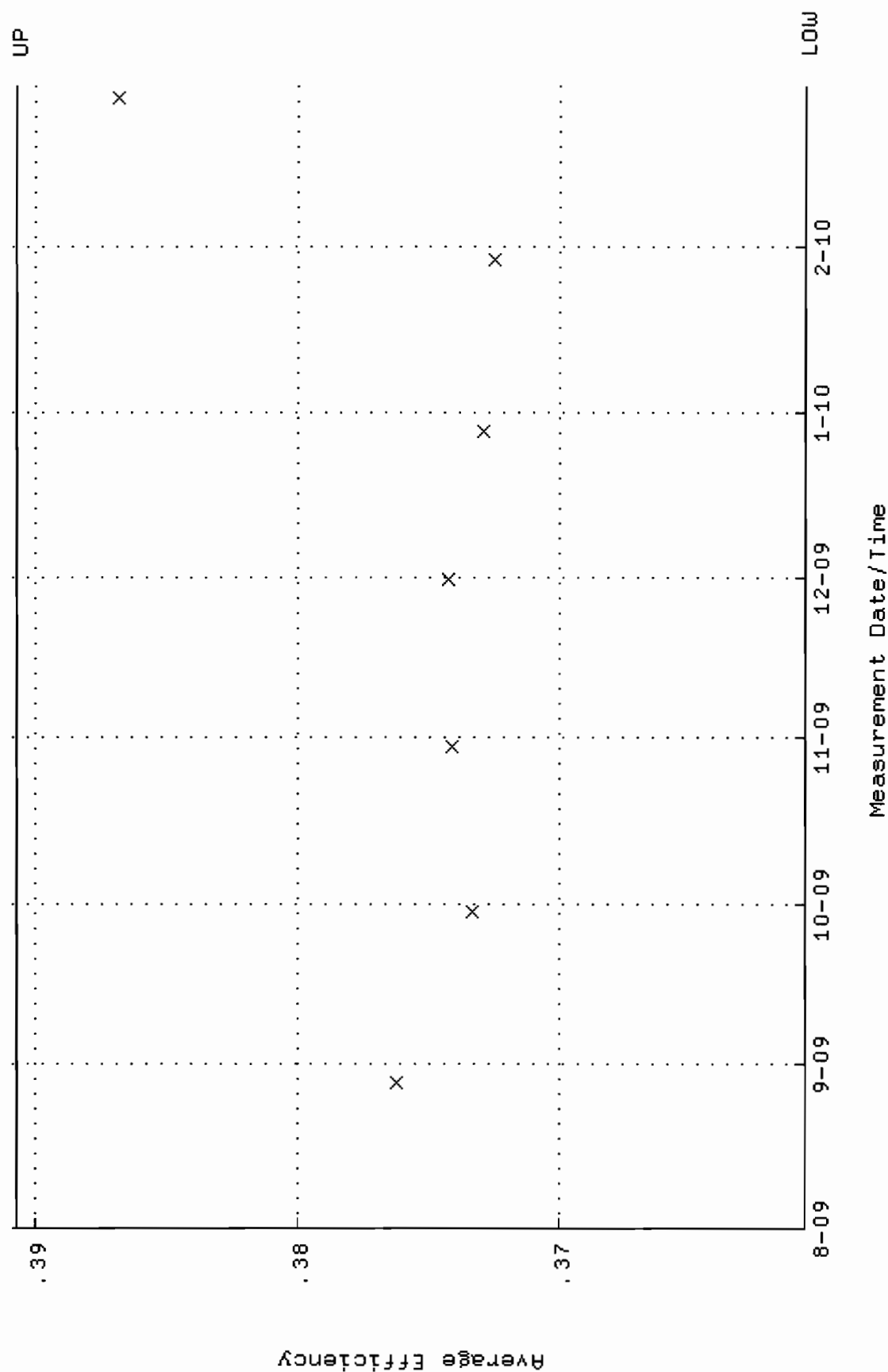
QA filename : DKA100:[ENV_ALPHA.QA.W]W227.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:08:03 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 88.9145 through 89.8637



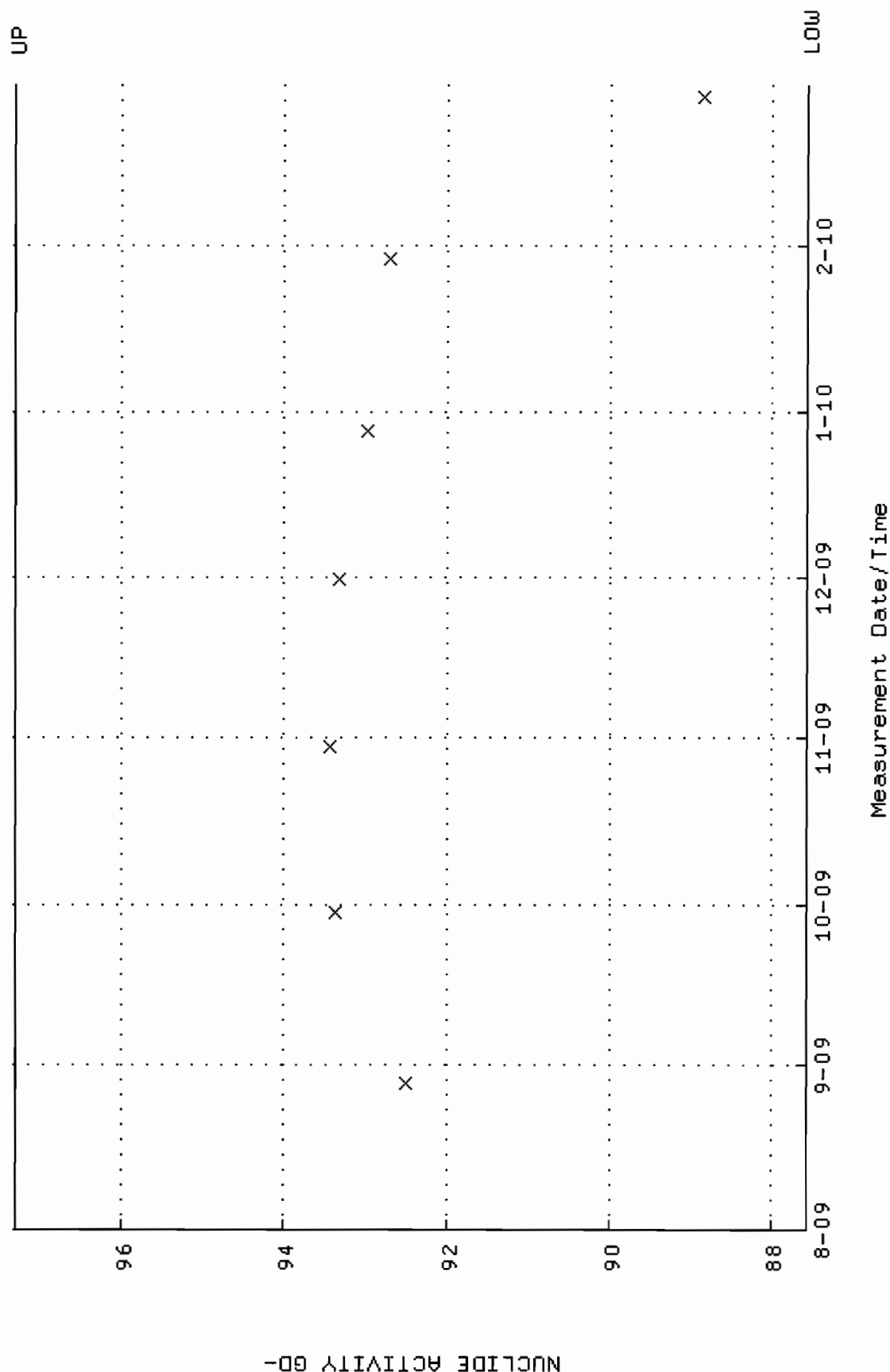
QA filename : DKA100:[ENV_ALPHA.QA.B]B227.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:24 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



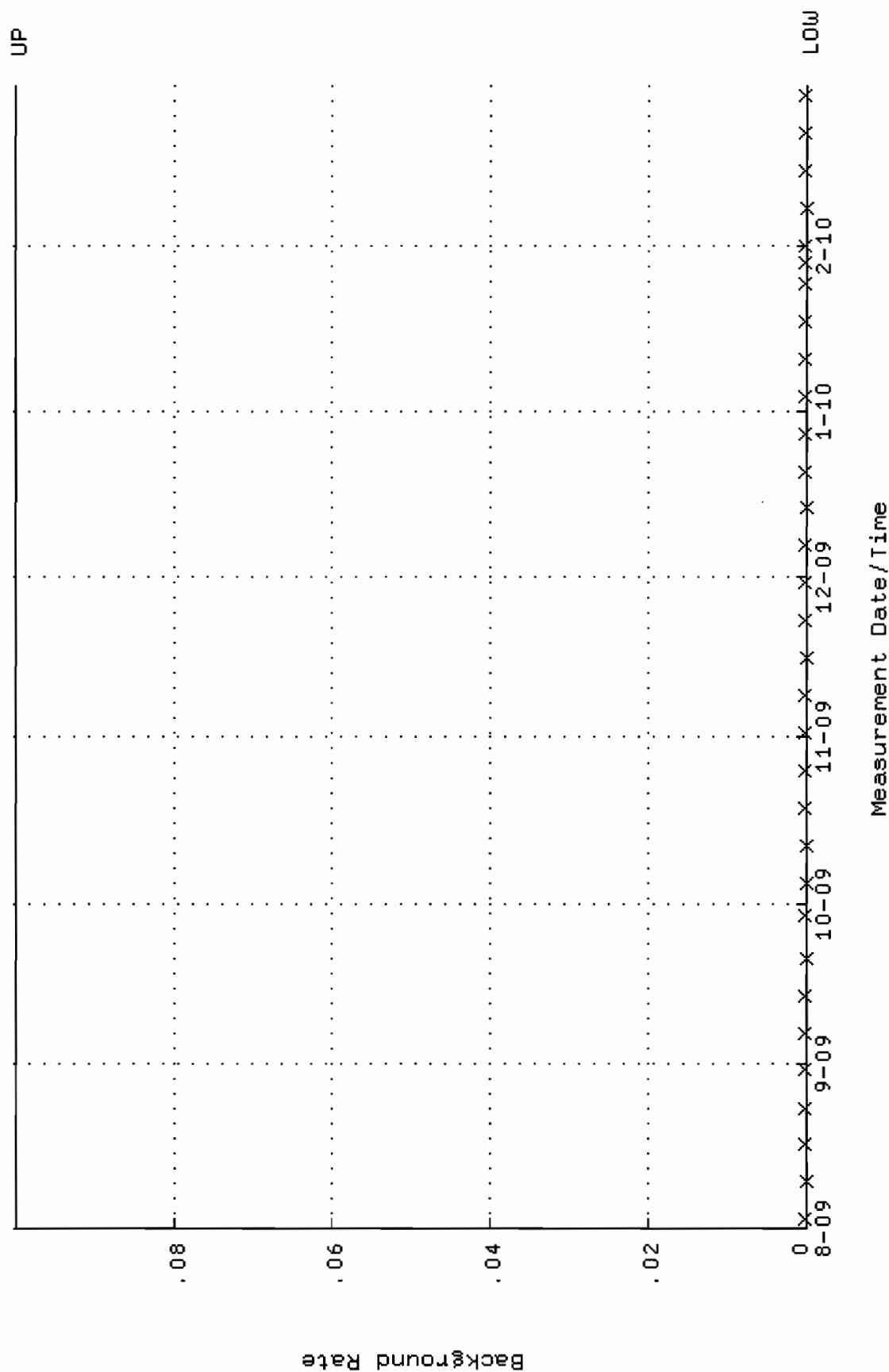
QA filename : DKA100:[ENV_ALPHA.QA.W]W229.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:15 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.360663 through 0.390815



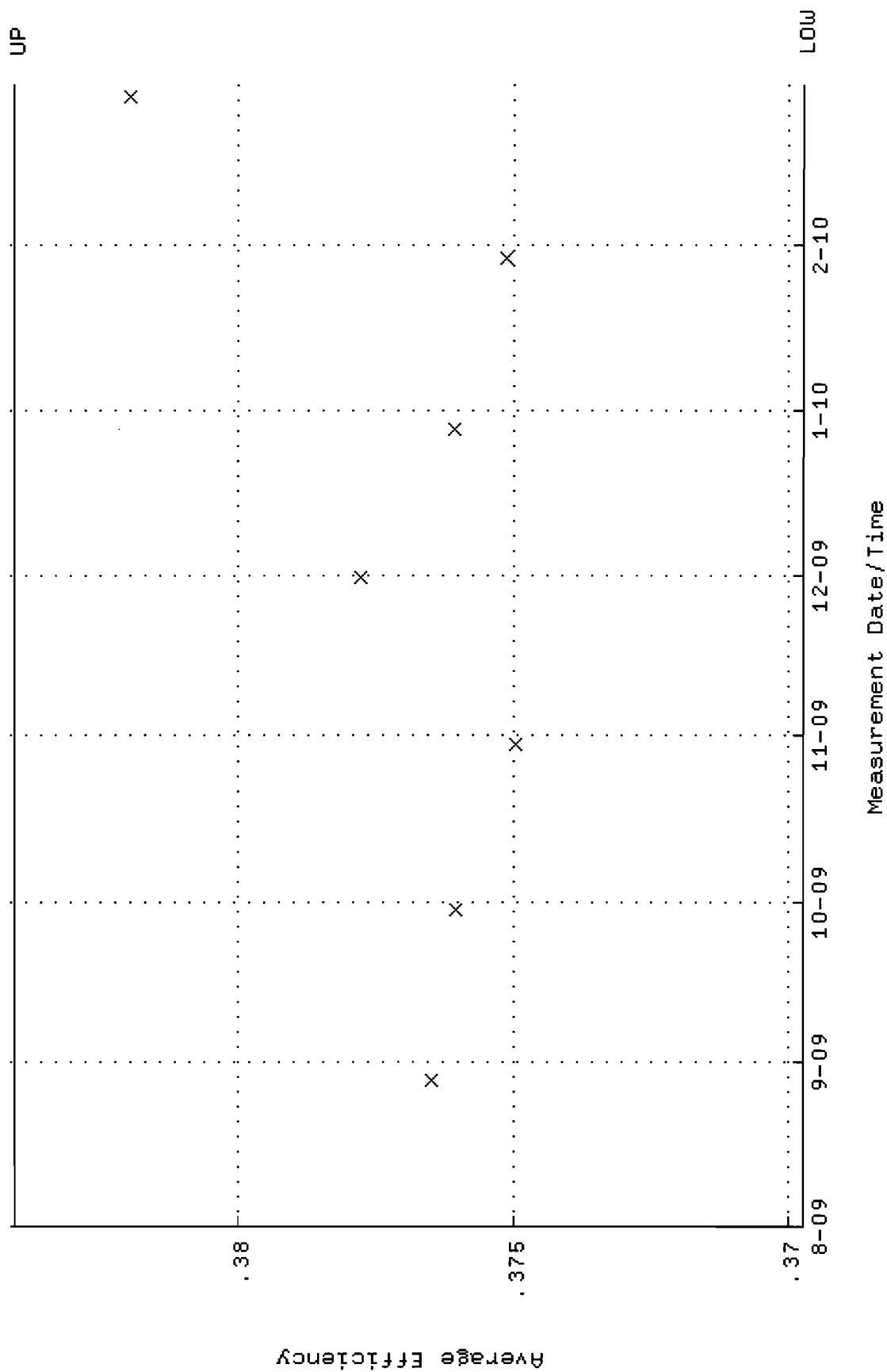
QA filename : DKA100:[ENV_ALPHA.QA.W]W229.QAF;1
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:15 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.5648 through 97.3078



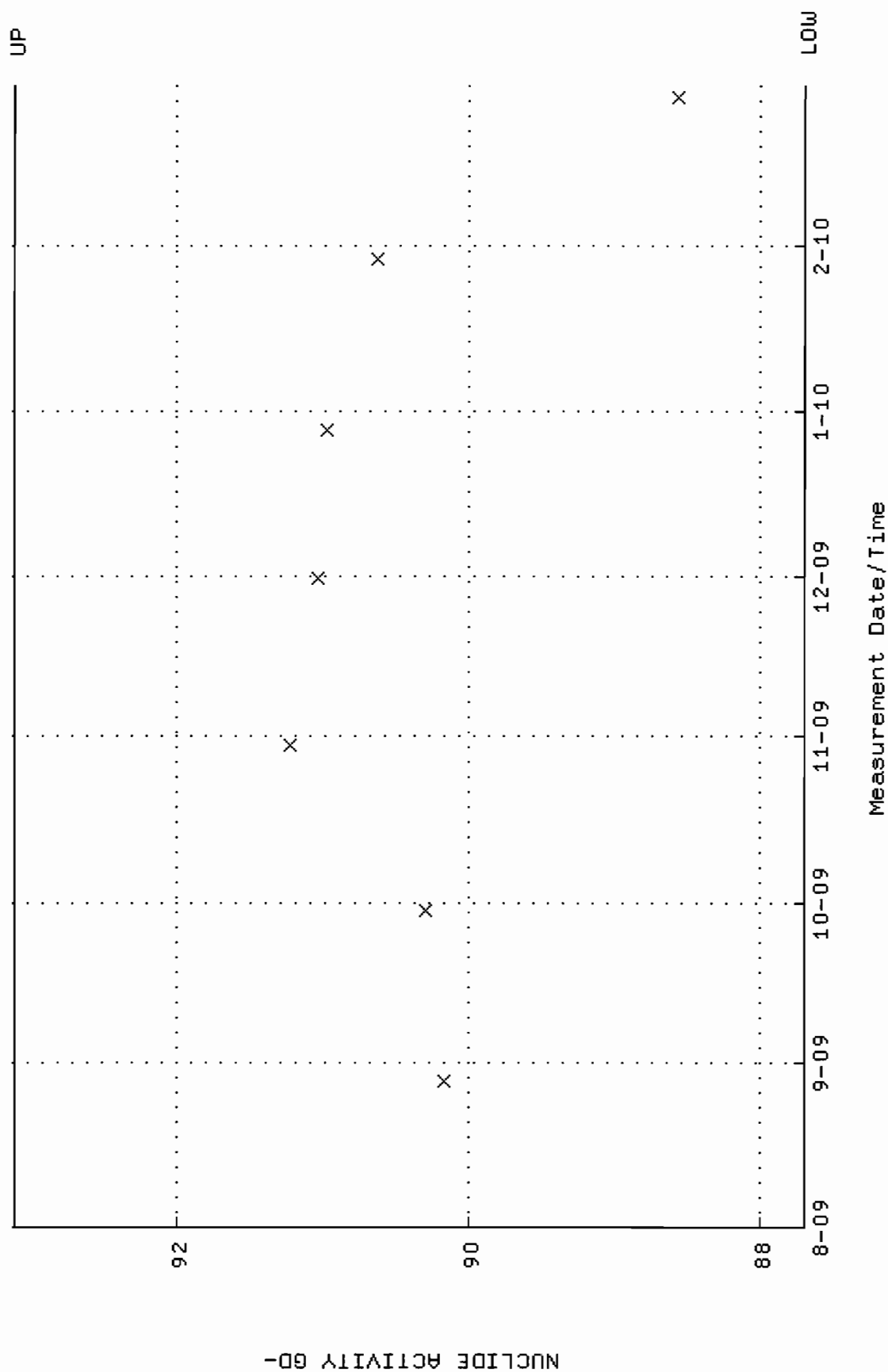
QA filename : DKA100:[ENV_ALPHA.QA.B]B229.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:34 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



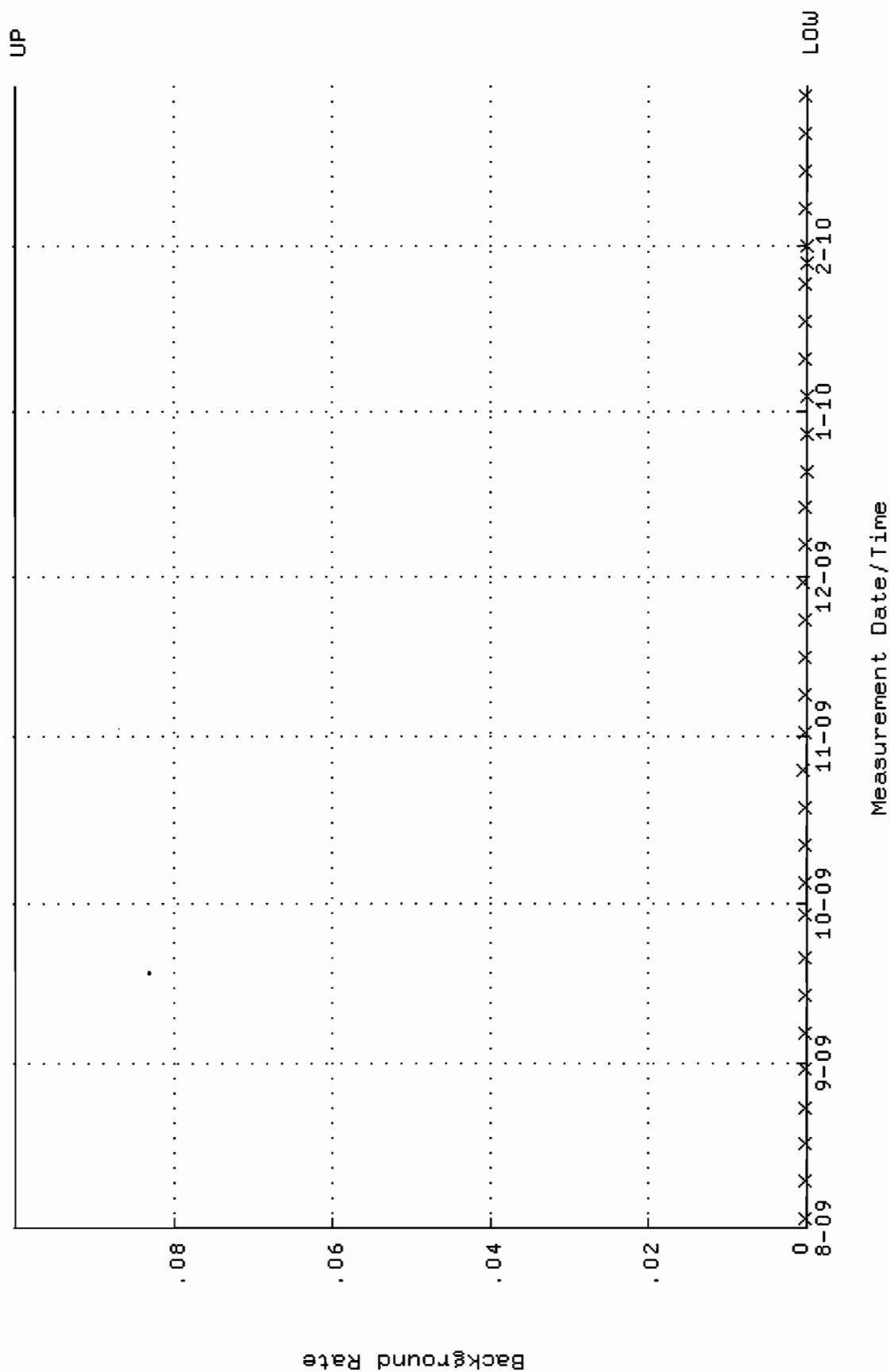
QA filename : DKA100:[ENV_ALPHA.QA.W]W230.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:19 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.369716 through 0.384082



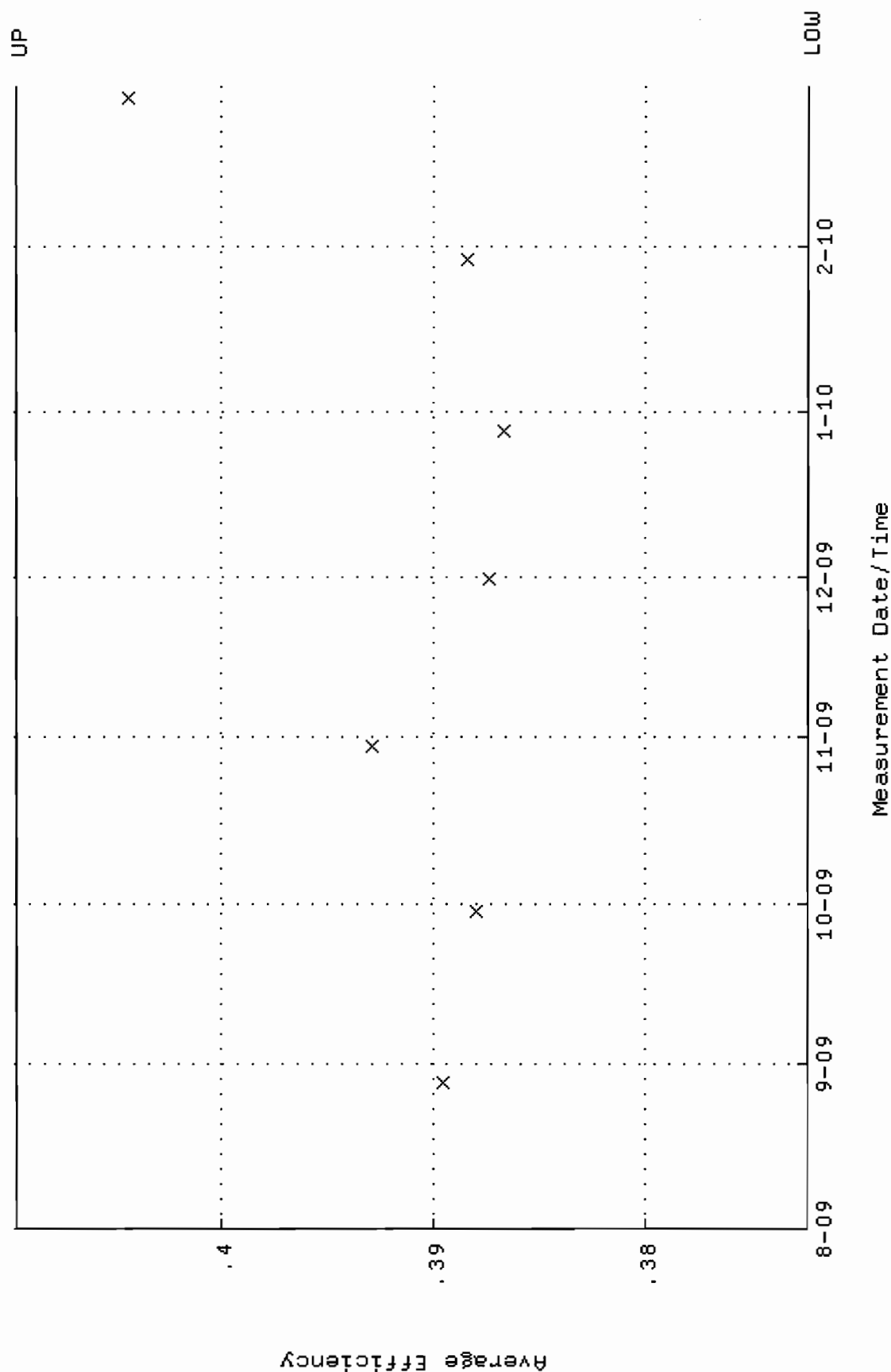
QA filename : DKA100:[ENV-ALPHA.QA.W]W230.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:08:19 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 87.6979 through 93.1141



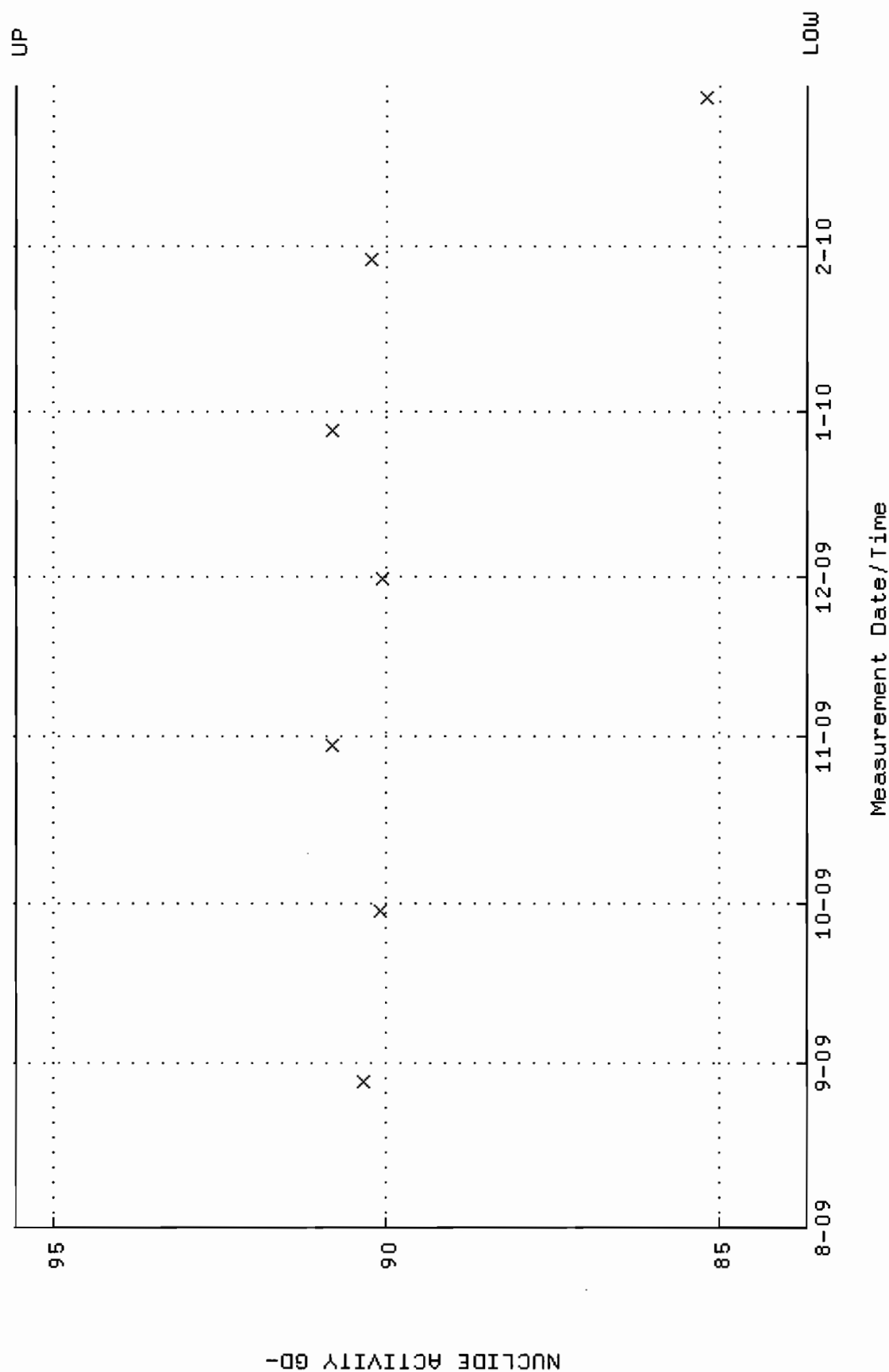
QA filename : DKA100:[ENV_ALPHA.QA.B]B230.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:38 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



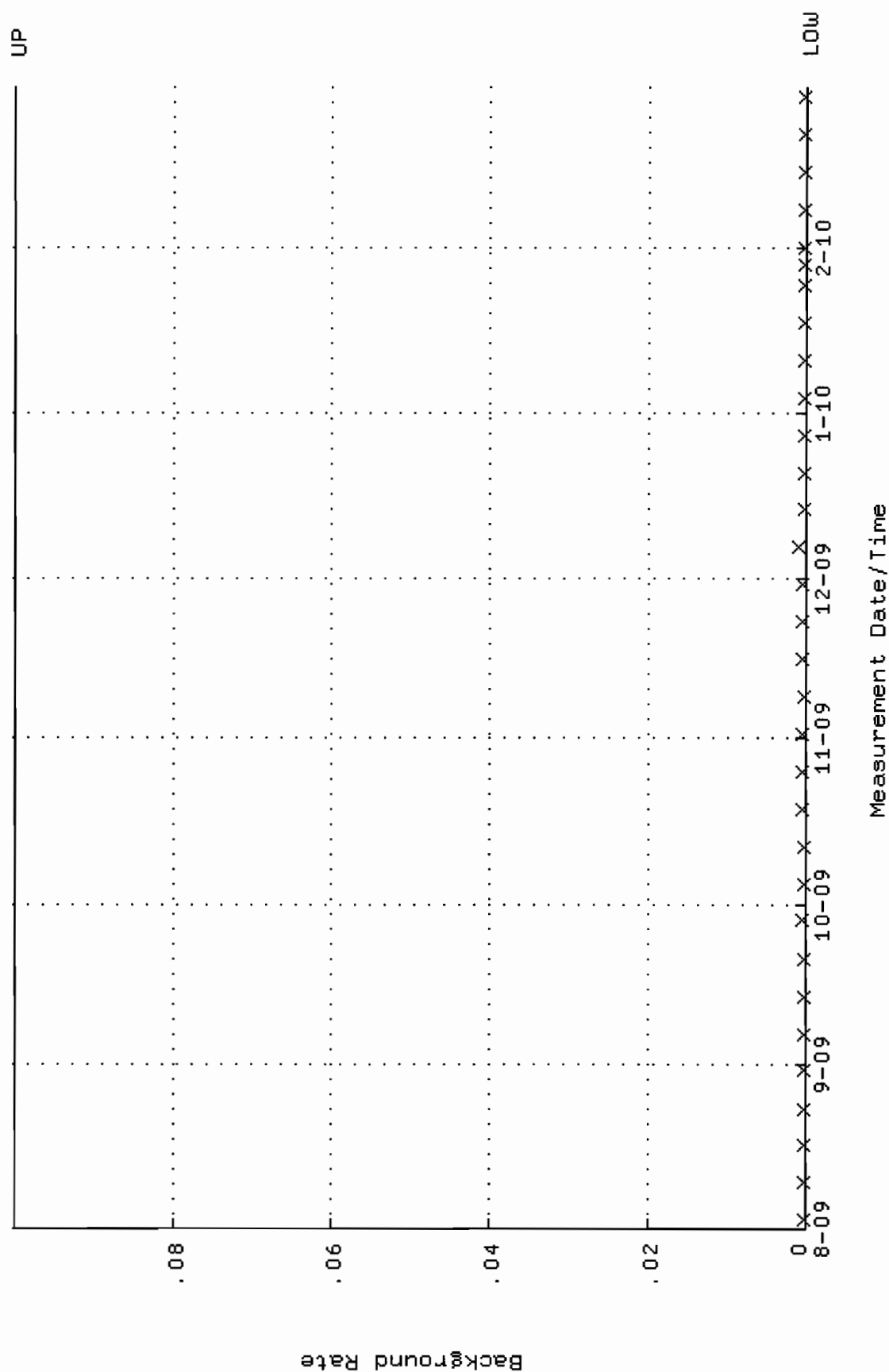
QA filename : DKA100:[ENV_ALPHA.QA.W]W231.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:24 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.372352 through 0.409678



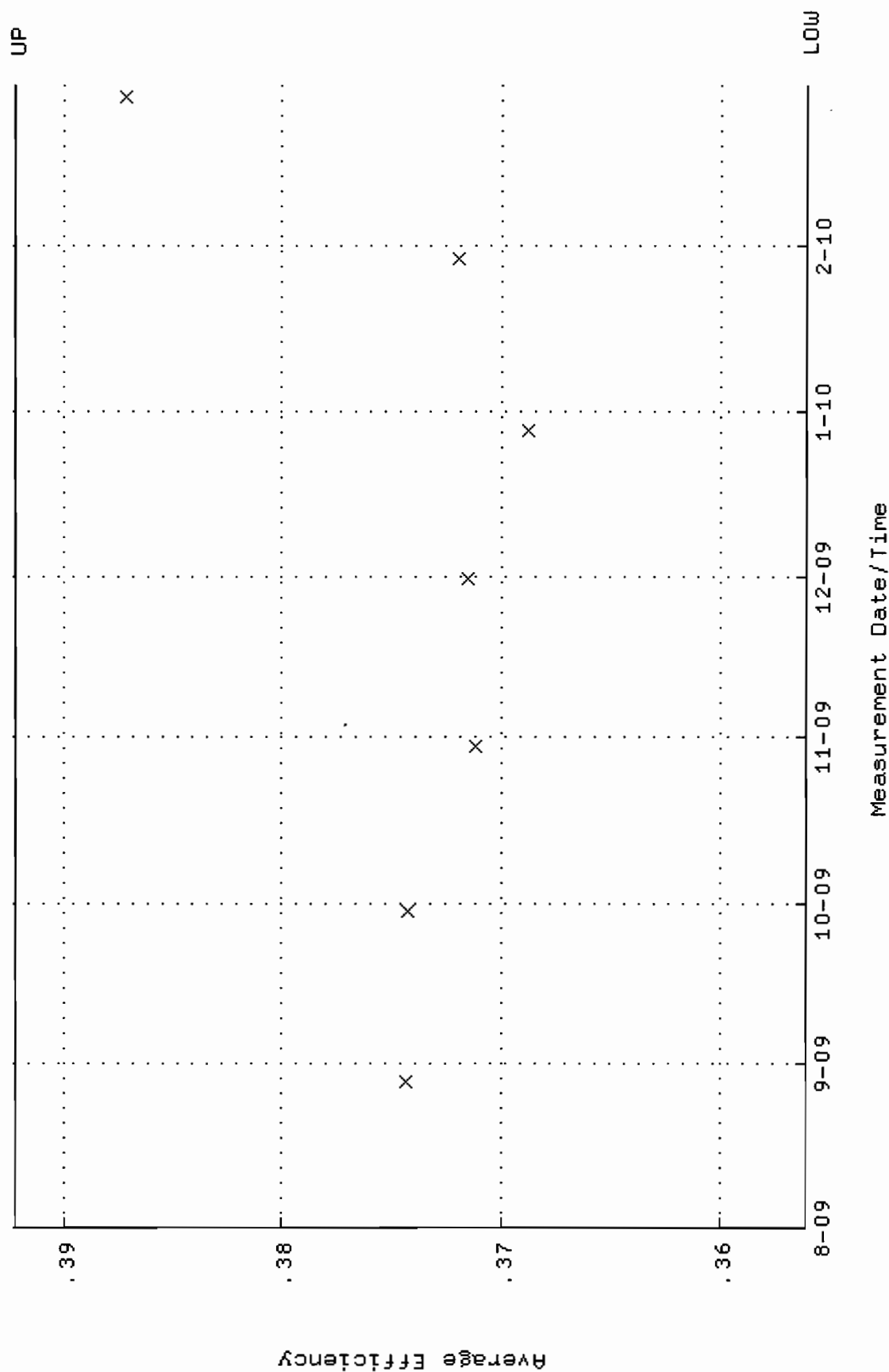
QA filename : DKA100:[ENV_ALPHA.QA.W]W231.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:08:24 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 83.6949 through 95.5595



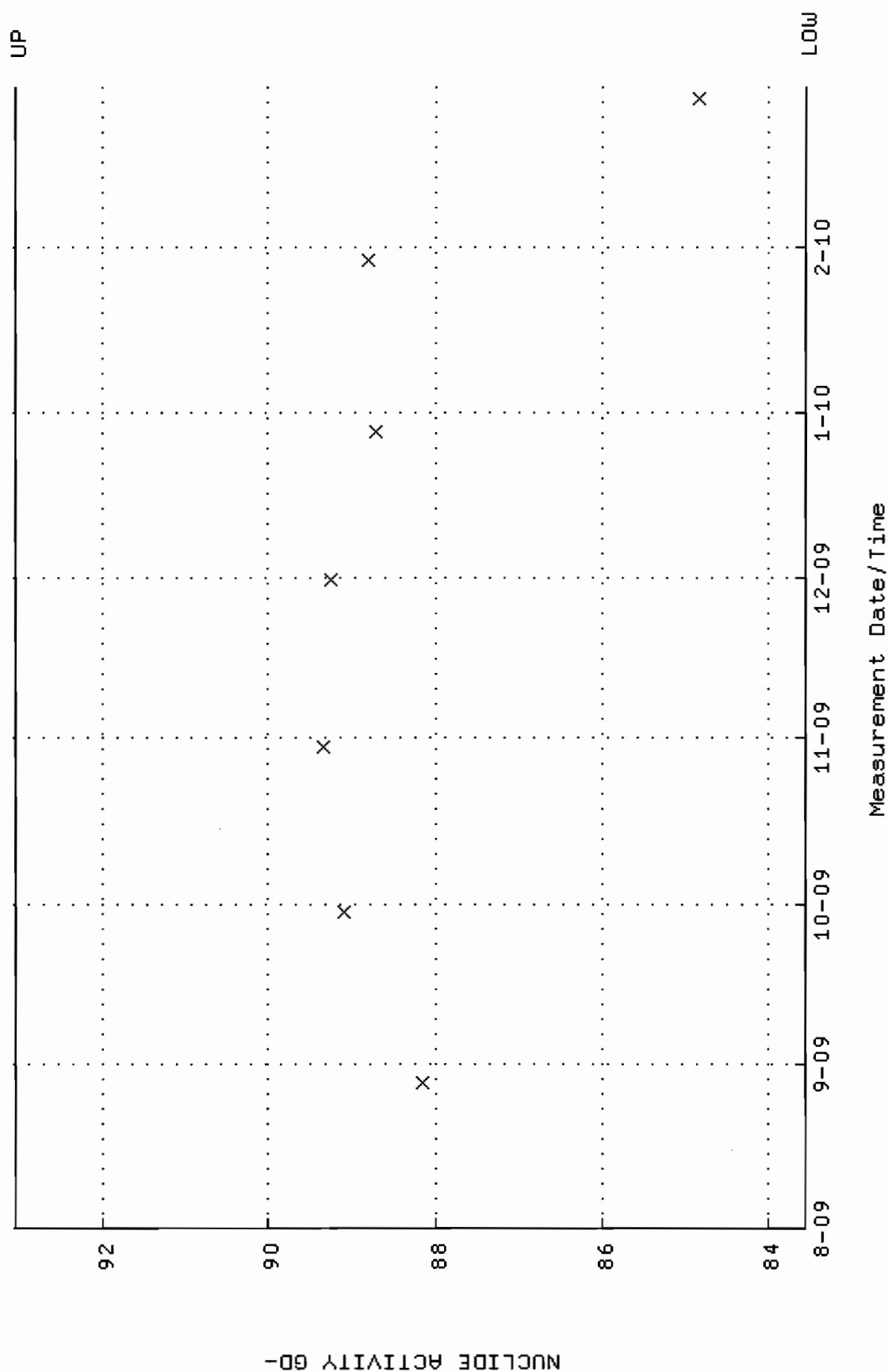
QA filename : DKA100:[ENV_ALPHA.QA.B]B231.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:43 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



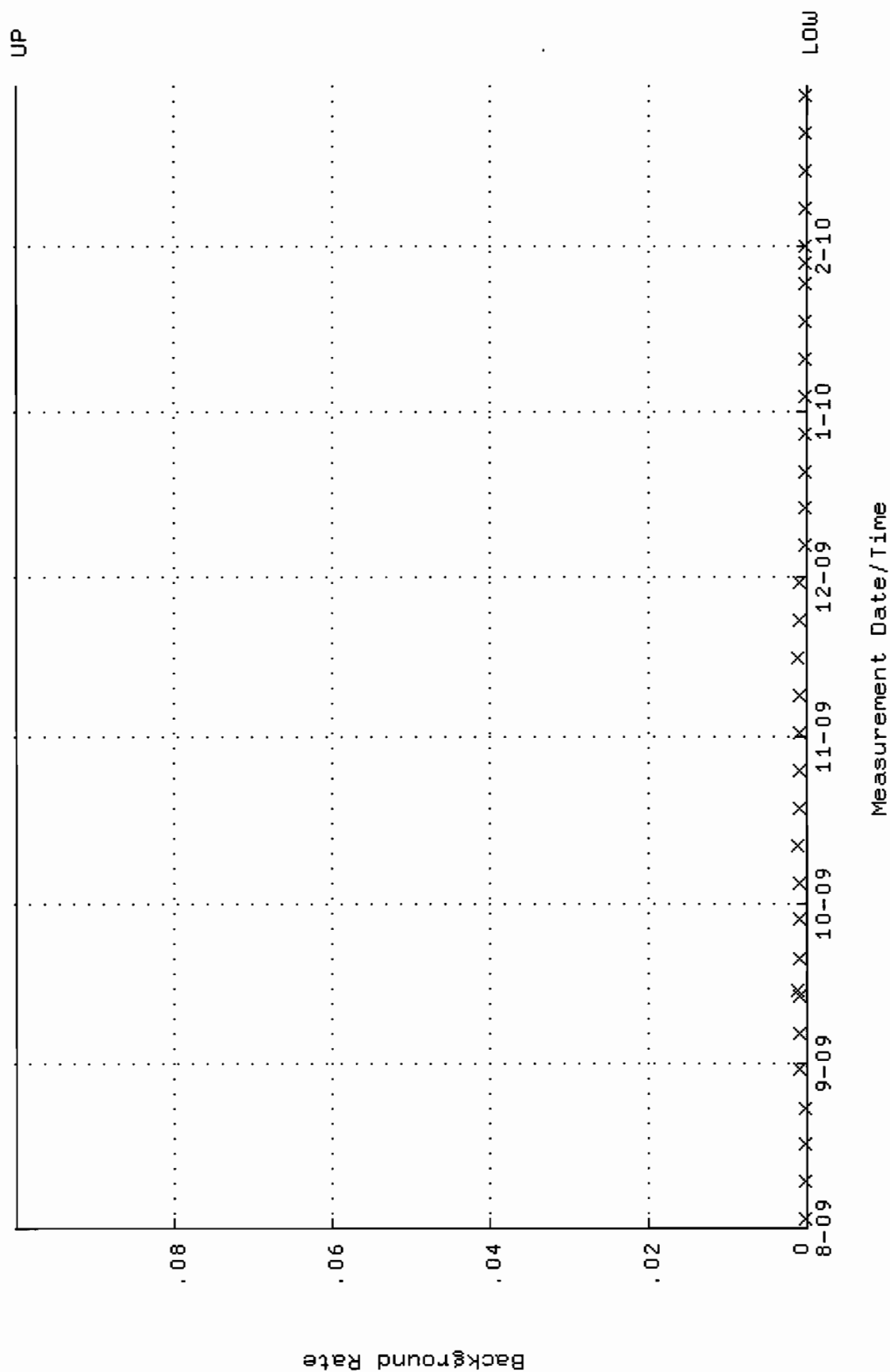
QA filename : DKA100:[ENV_ALPHA.QA.W]W232.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:30 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.356063 through 0.392181



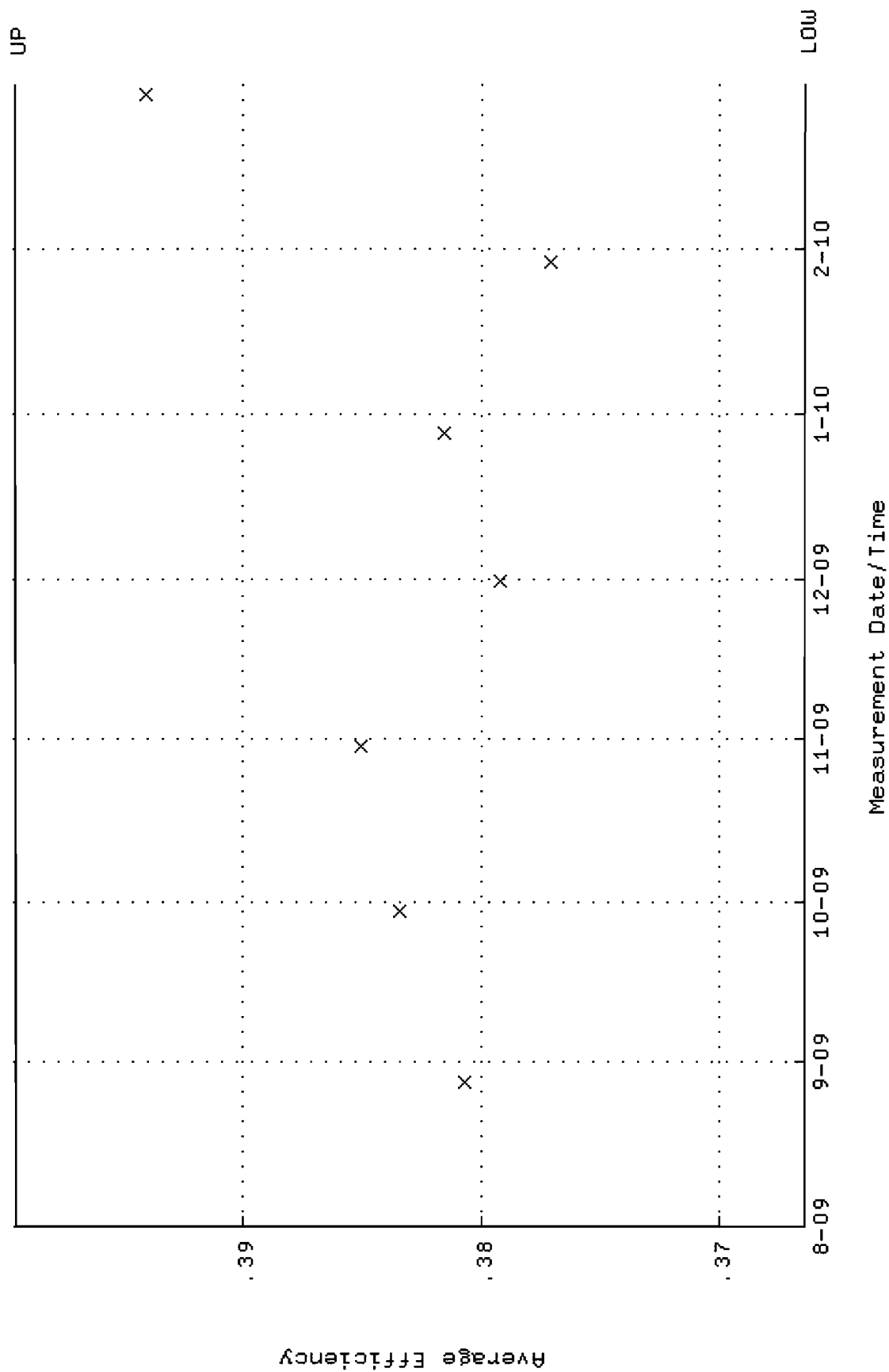
QA filename : DKA100:[ENV_ALPHA.QA.W]W232.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:08:30 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 83.5615 through 93.0435



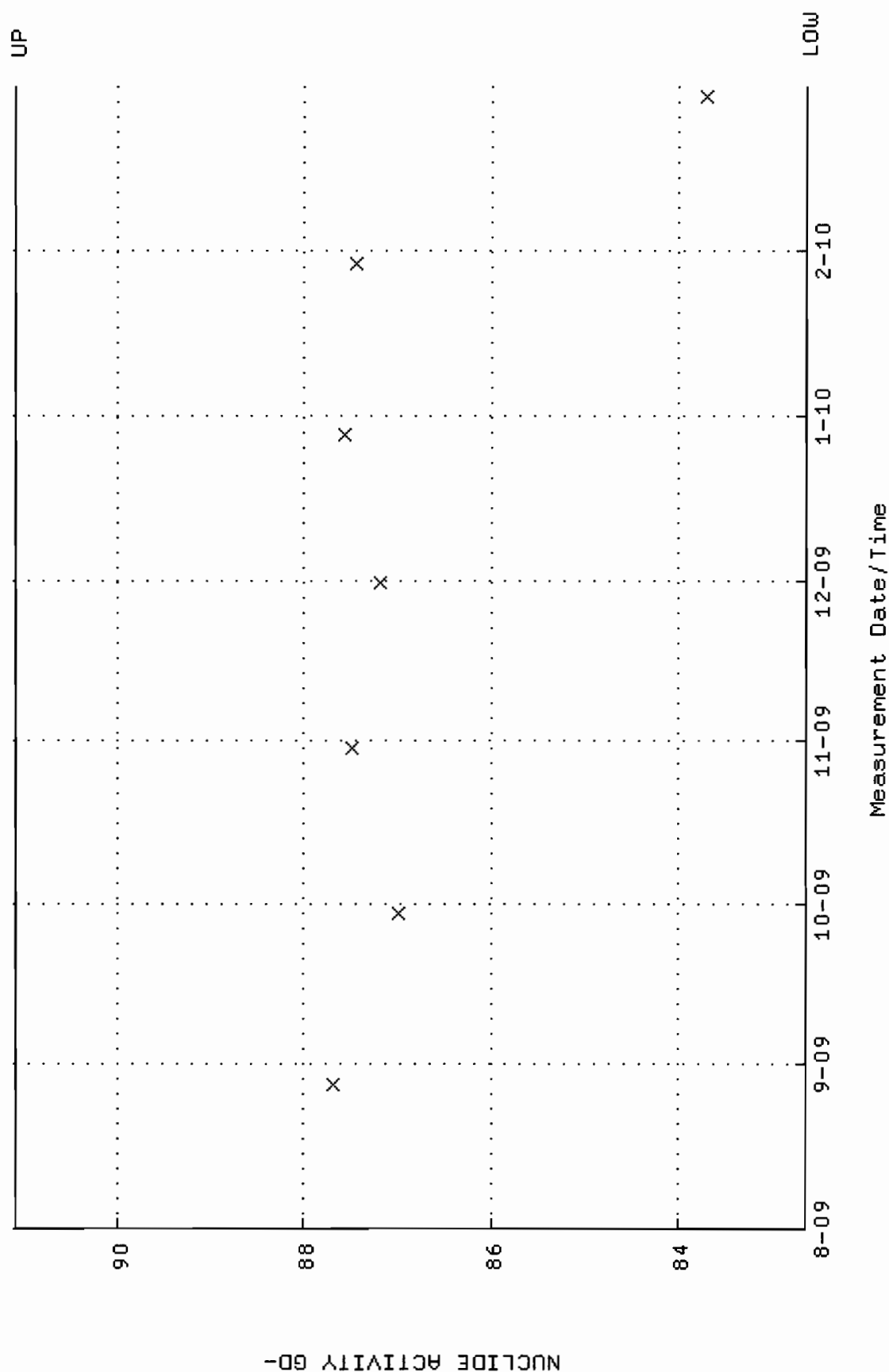
QA filename : DKA100:[ENV_ALPHA.QA.B]B232.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:47 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



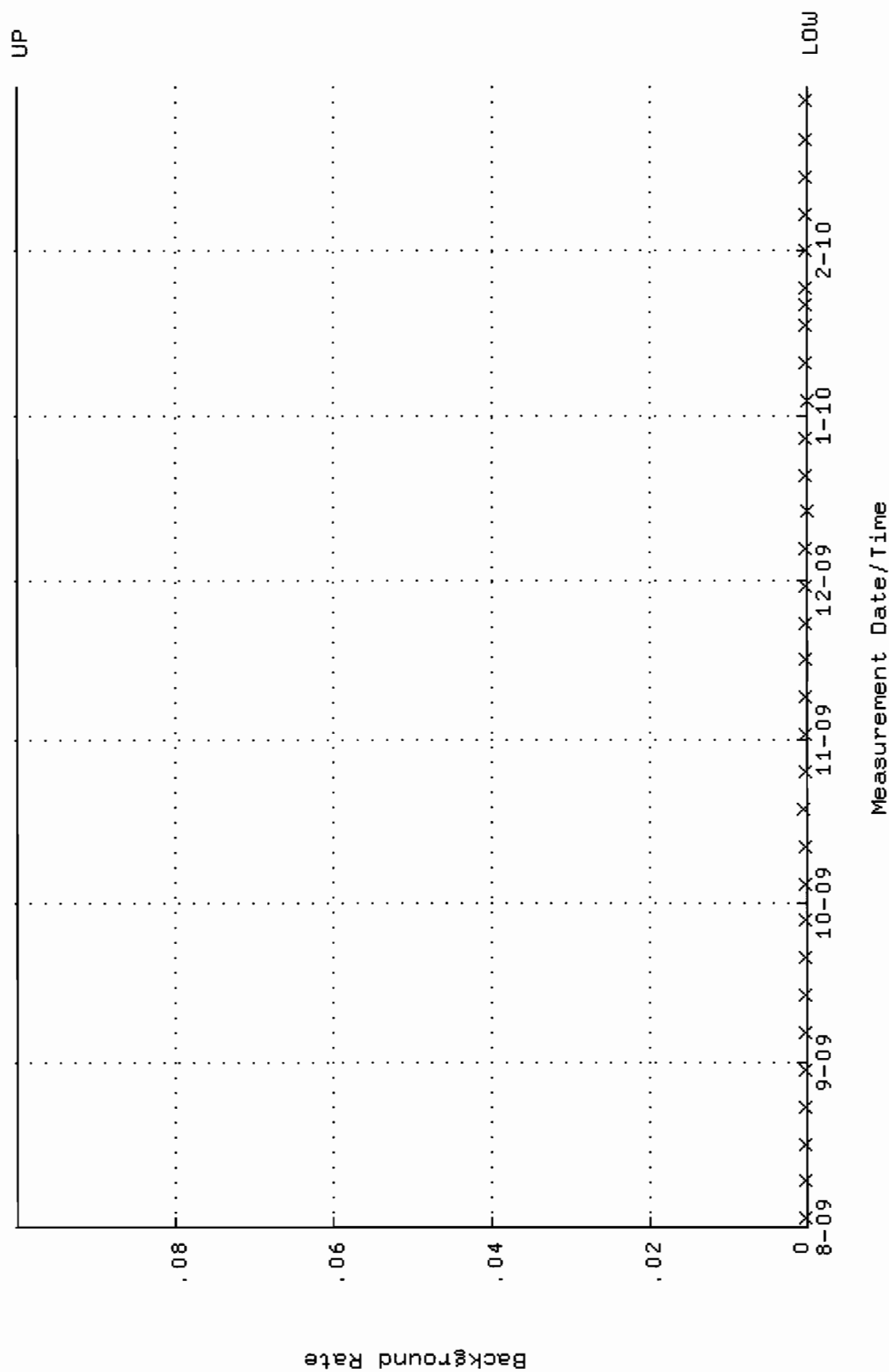
QA filename : DKA100:[ENV_ALPHA.QA.W]W233.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:08:35 through 3-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.366381 through 0.399563



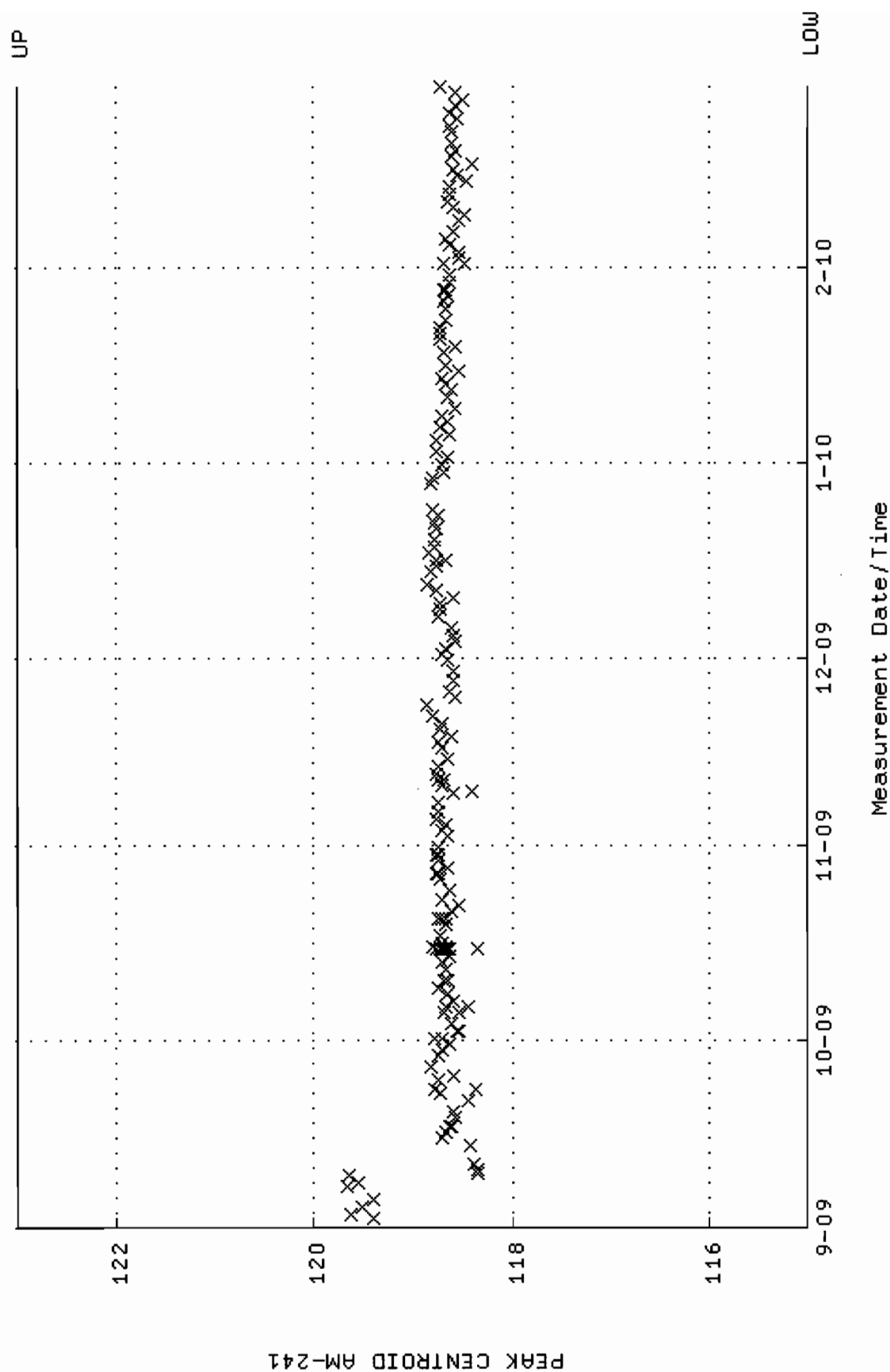
QA filename : DKA100:[ENV-ALPHA.QA.W]W233.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:08:35 through 3-MAR-2010 12:00:00
 Lower/Upper Lmts: 82.6177 through 91.1049



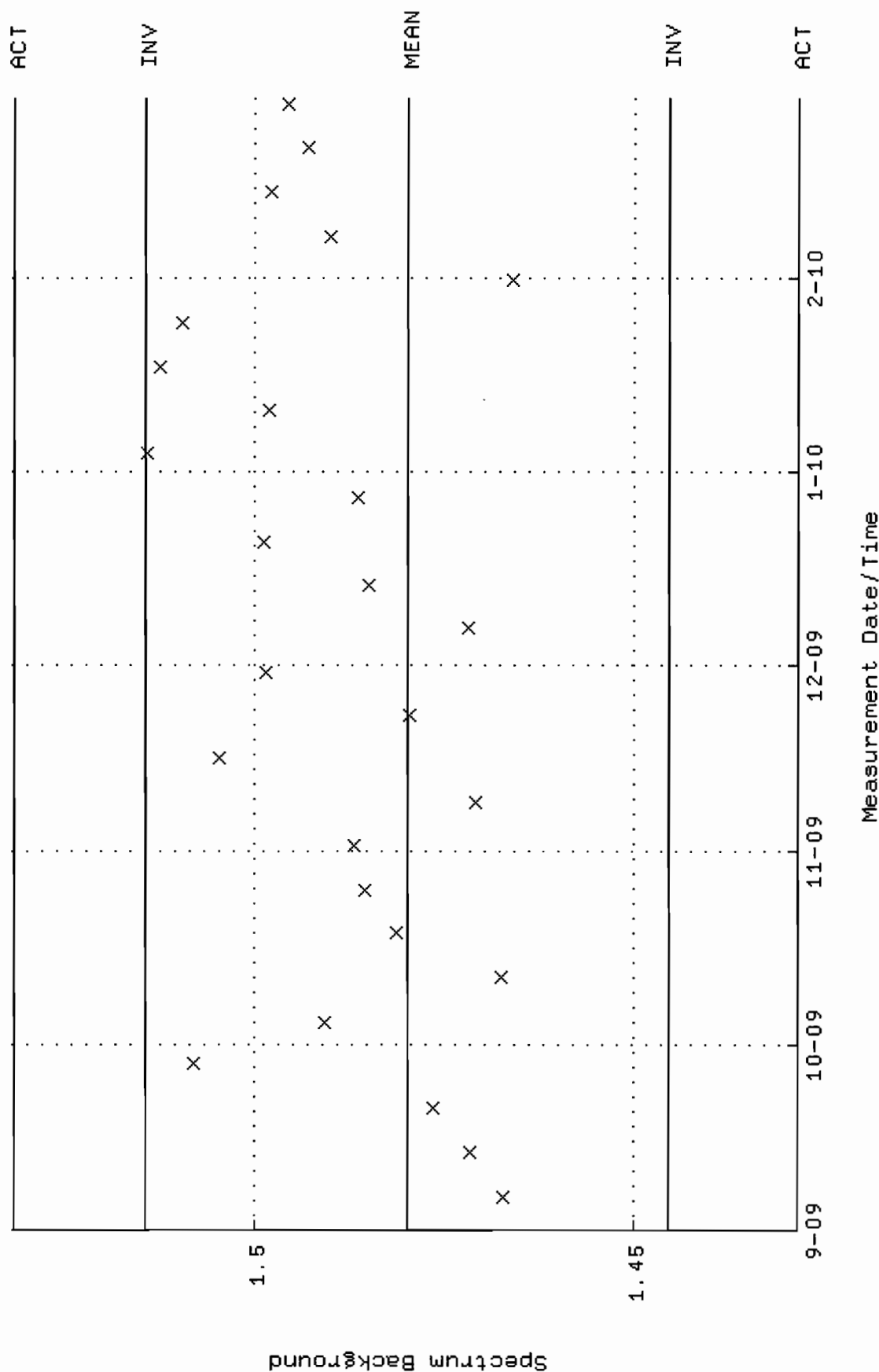
QA filename : DKA100:[ENV_ALPHA.QA.B]B233.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:26:52 through 3-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



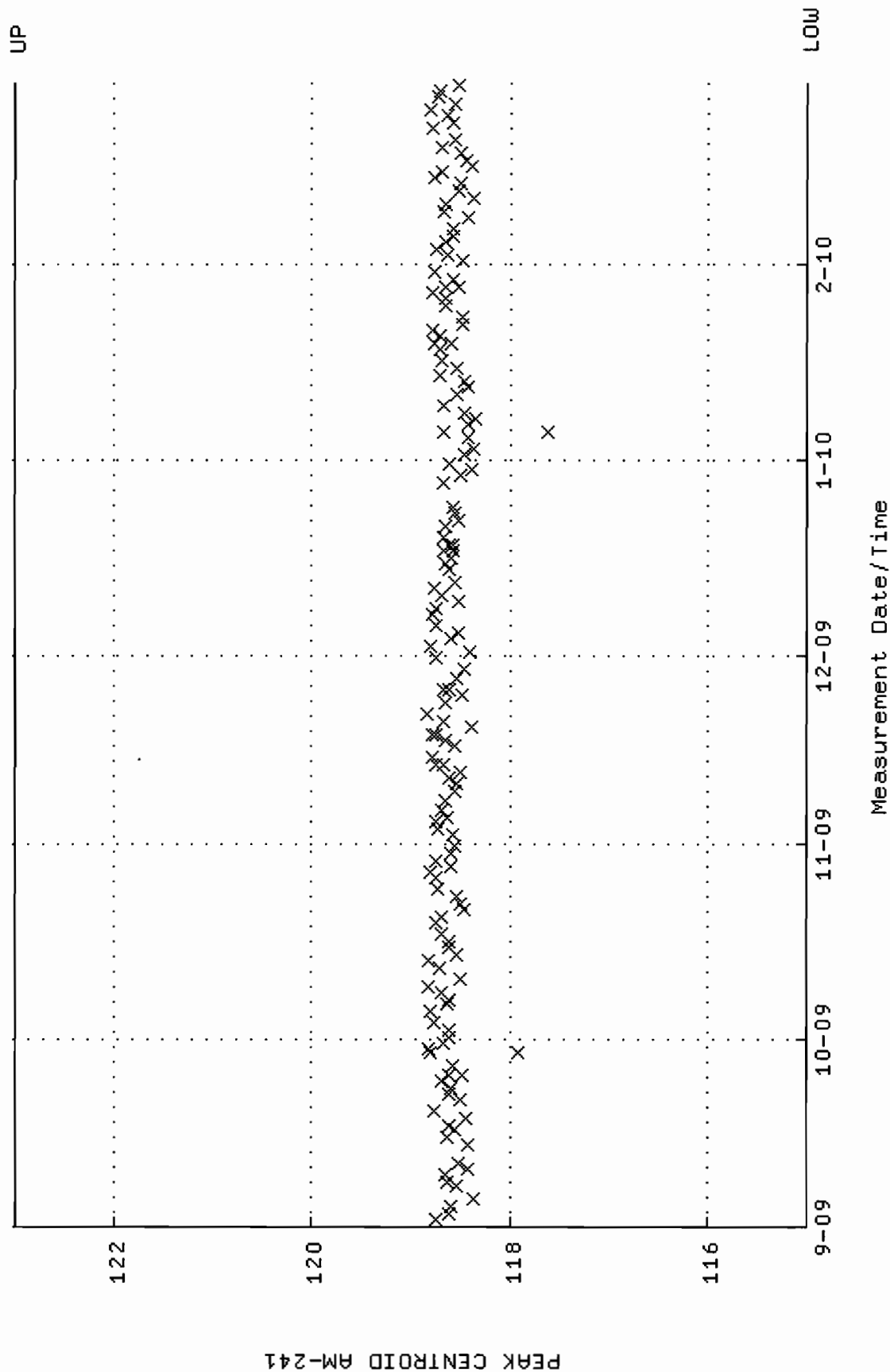
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM10_500MLMB.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 10:11:44 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



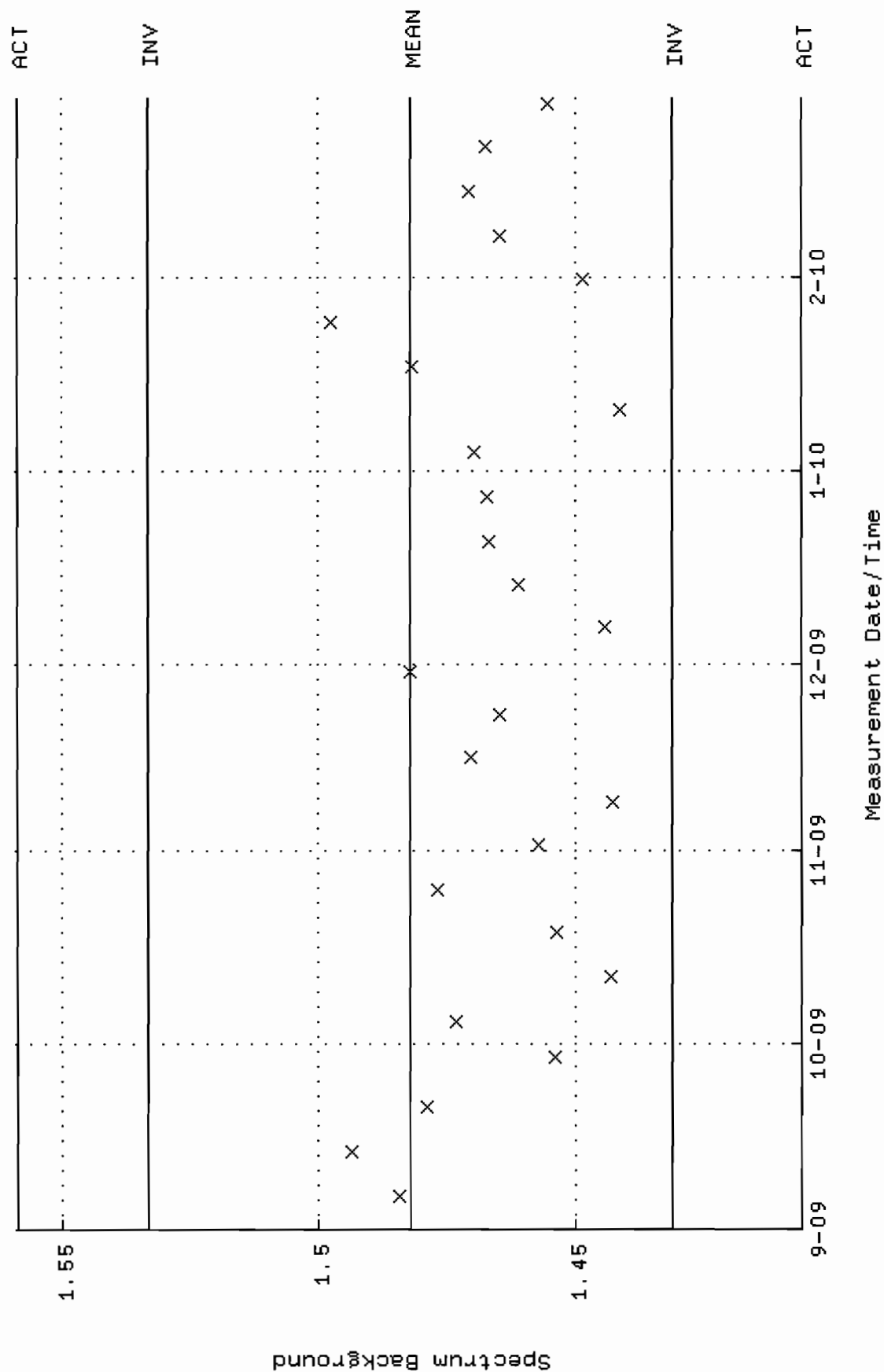
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM10.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:41:20 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.48000 +- 1.723892E-02 (1.16 %)



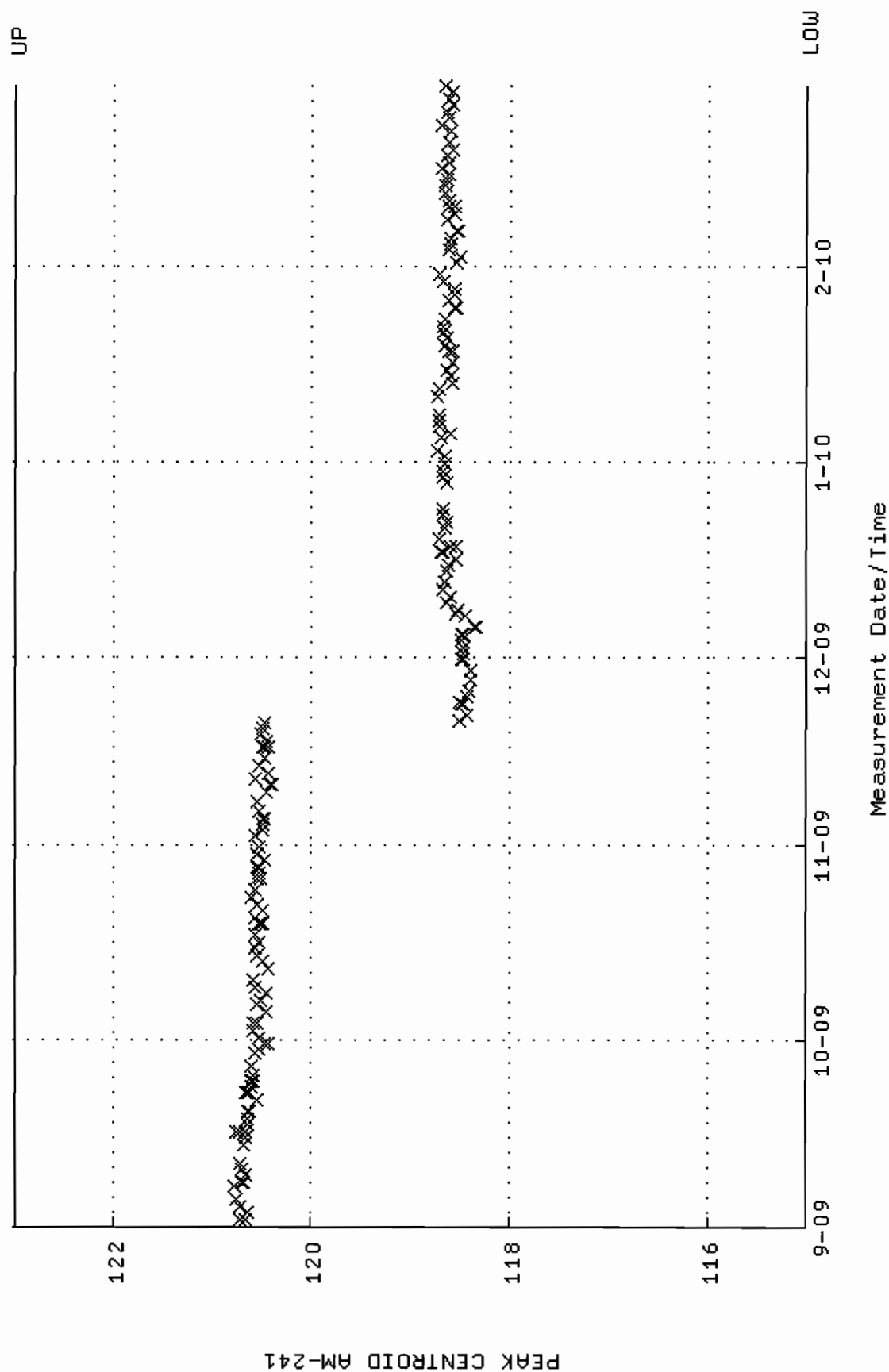
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM14_2LMB.QAF;1
 Parameter Name : PSCENTROD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 04:40:36 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



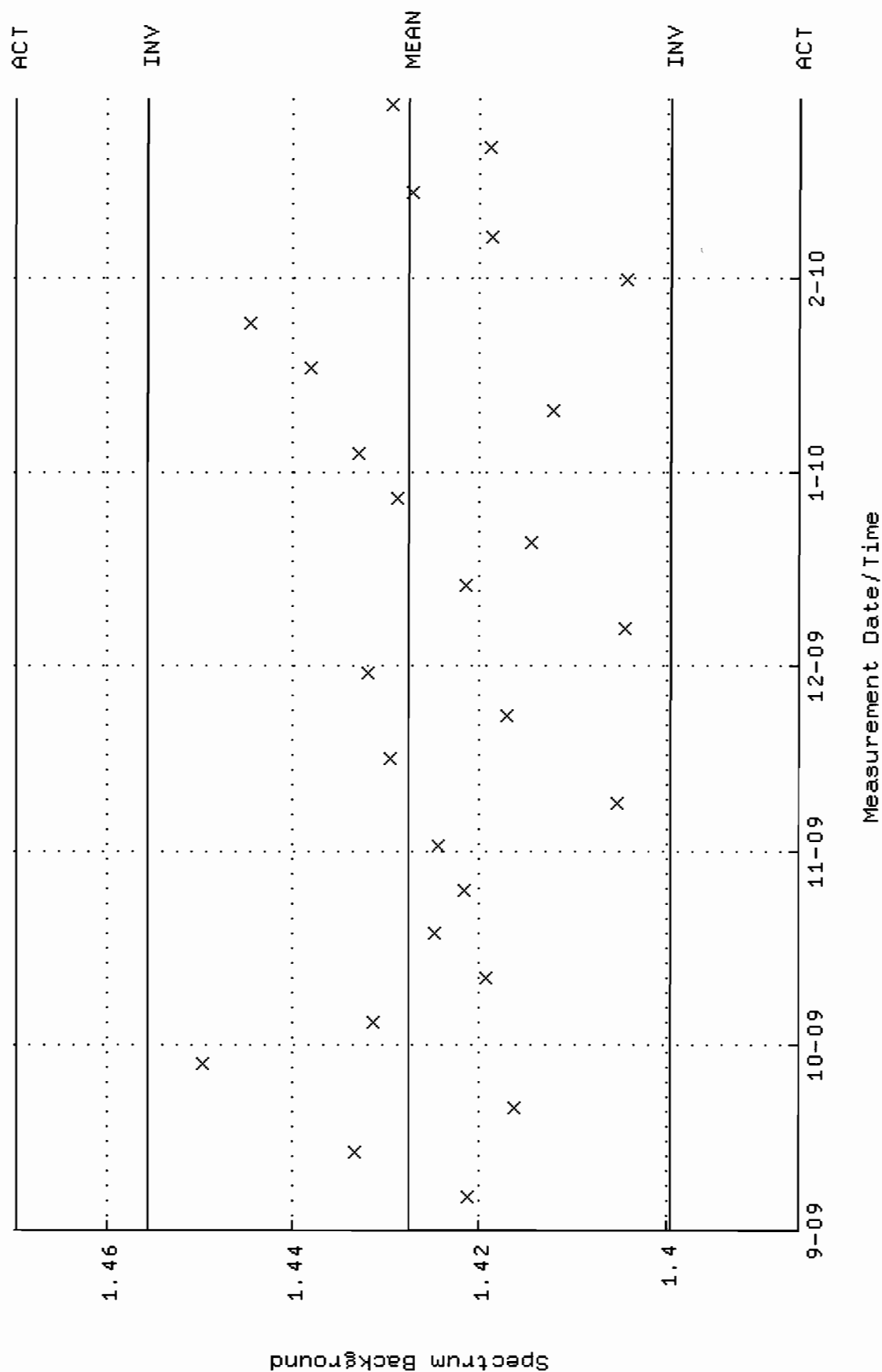
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM14.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:43:20 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)



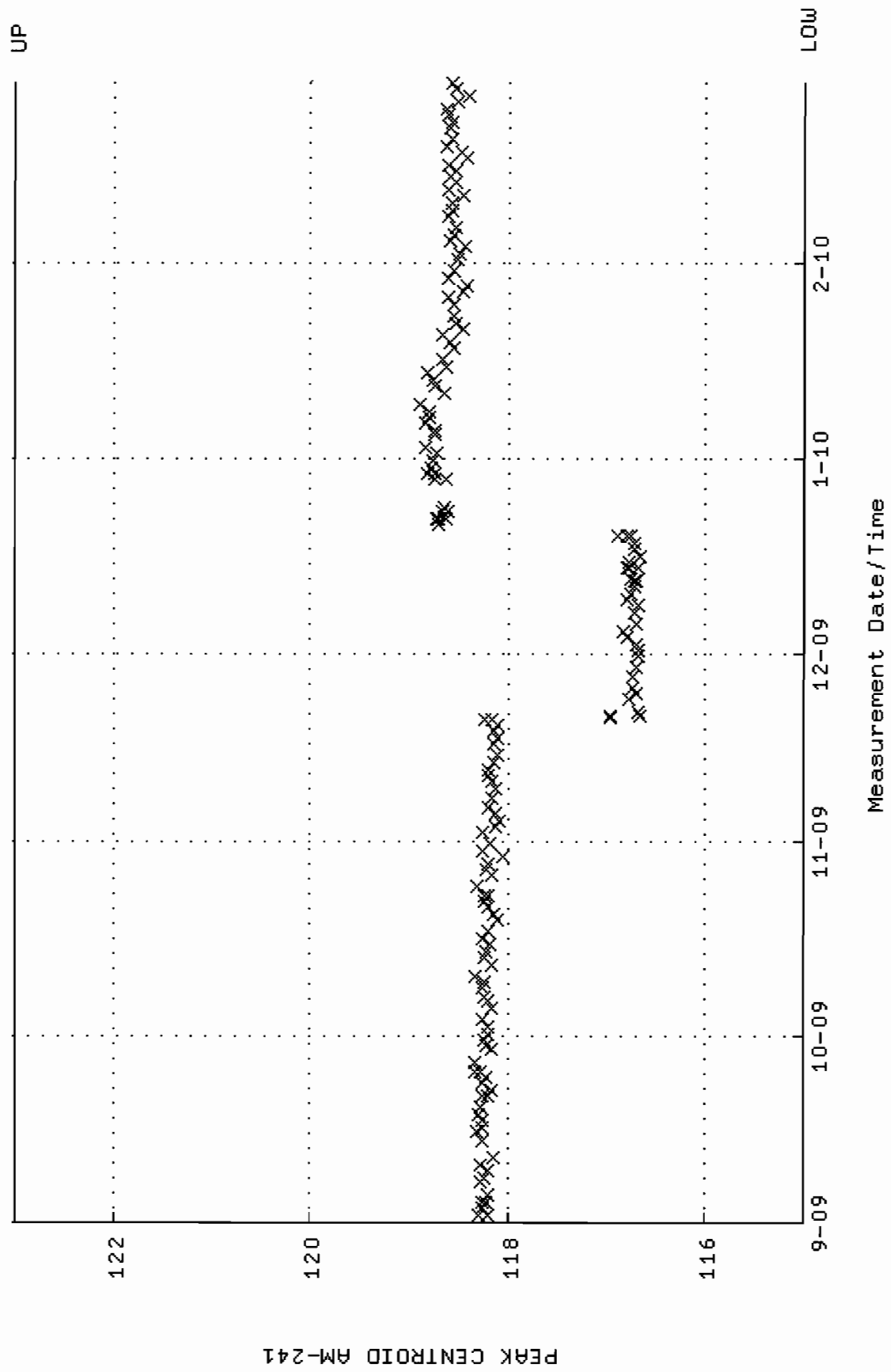
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM17_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 05:06:49 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



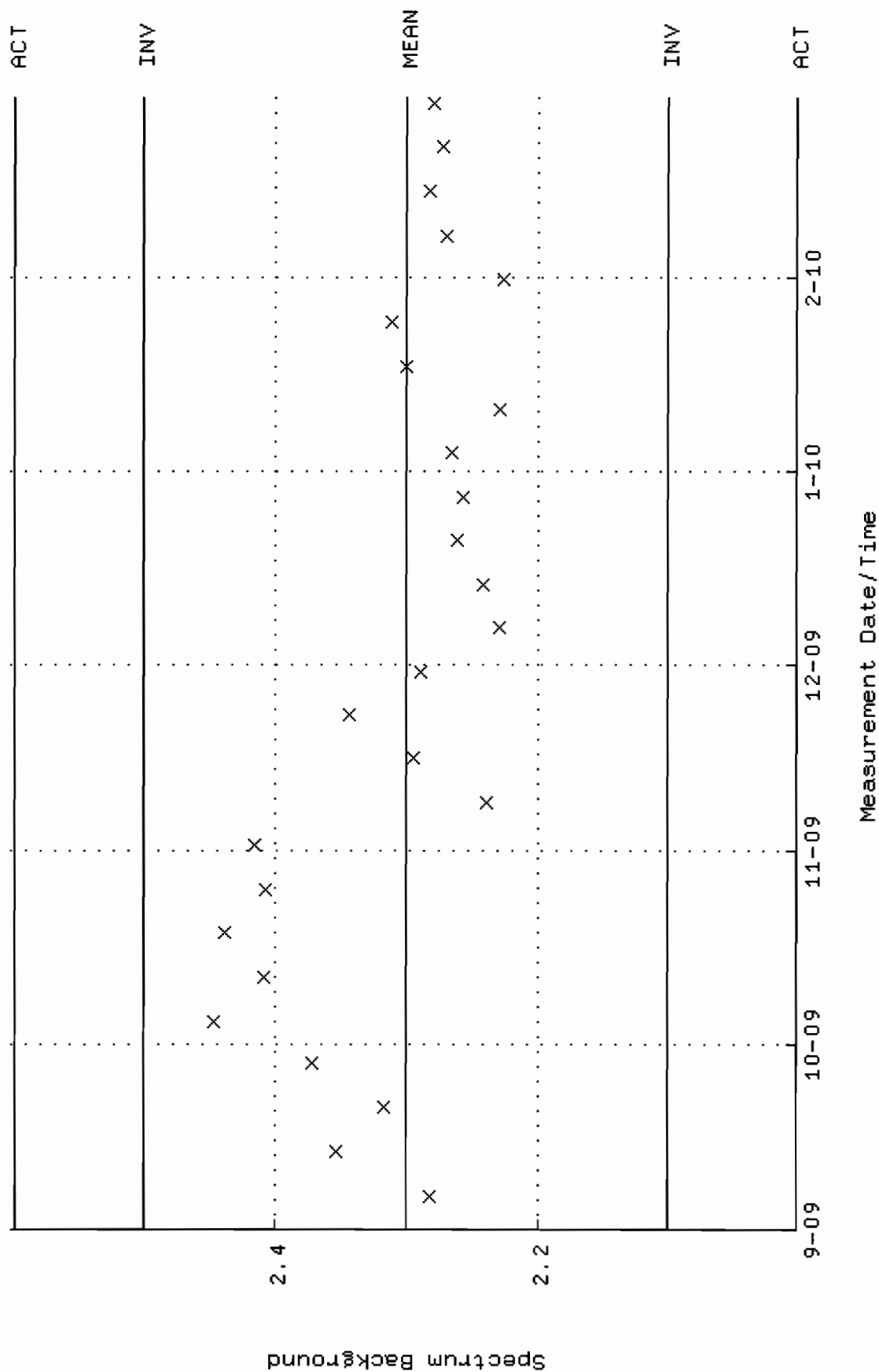
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM17.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:44:33 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



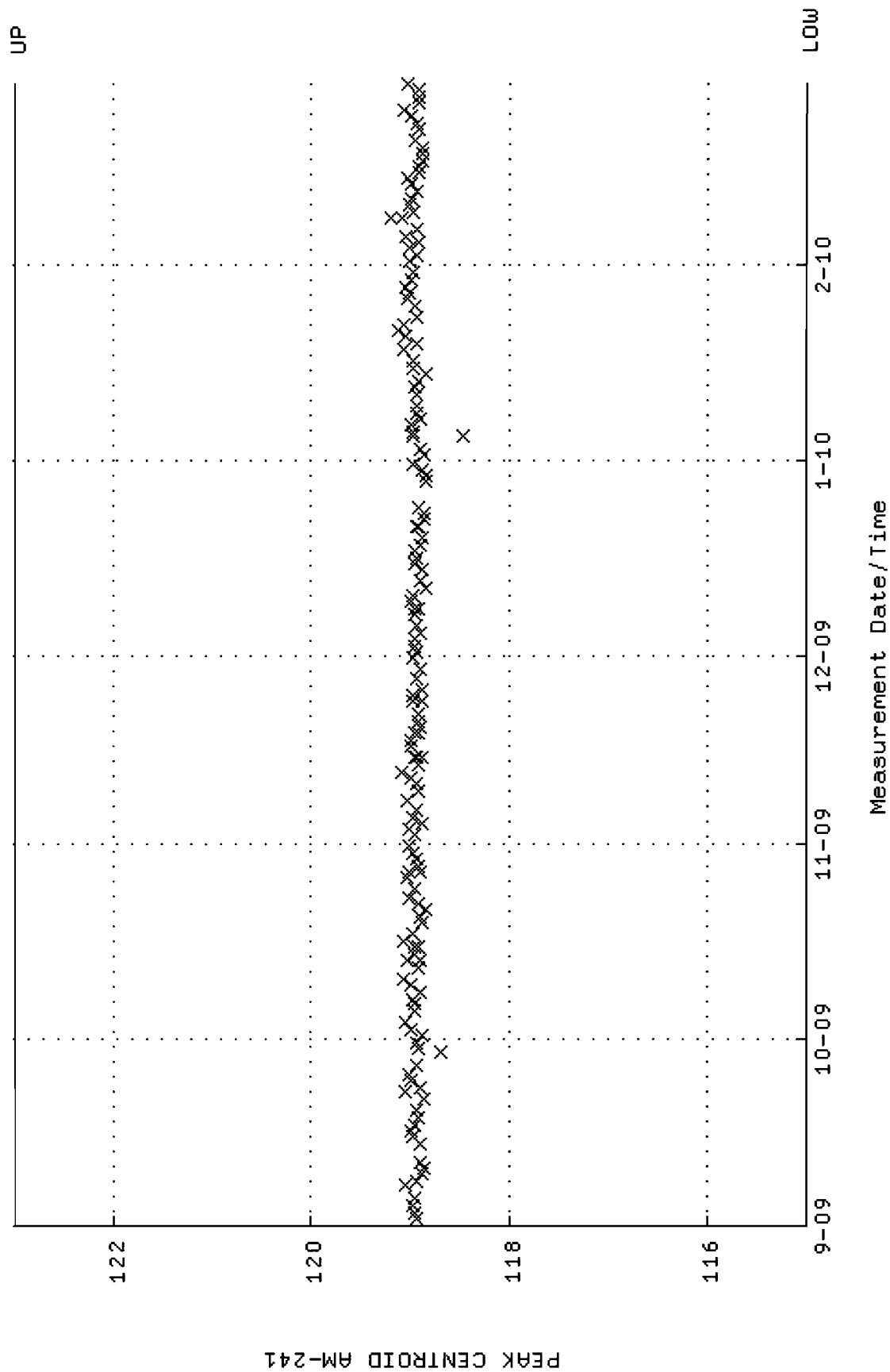
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM18_CAN.QAF;1
 Parameter Name : PSCENTROD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 06:13:07 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



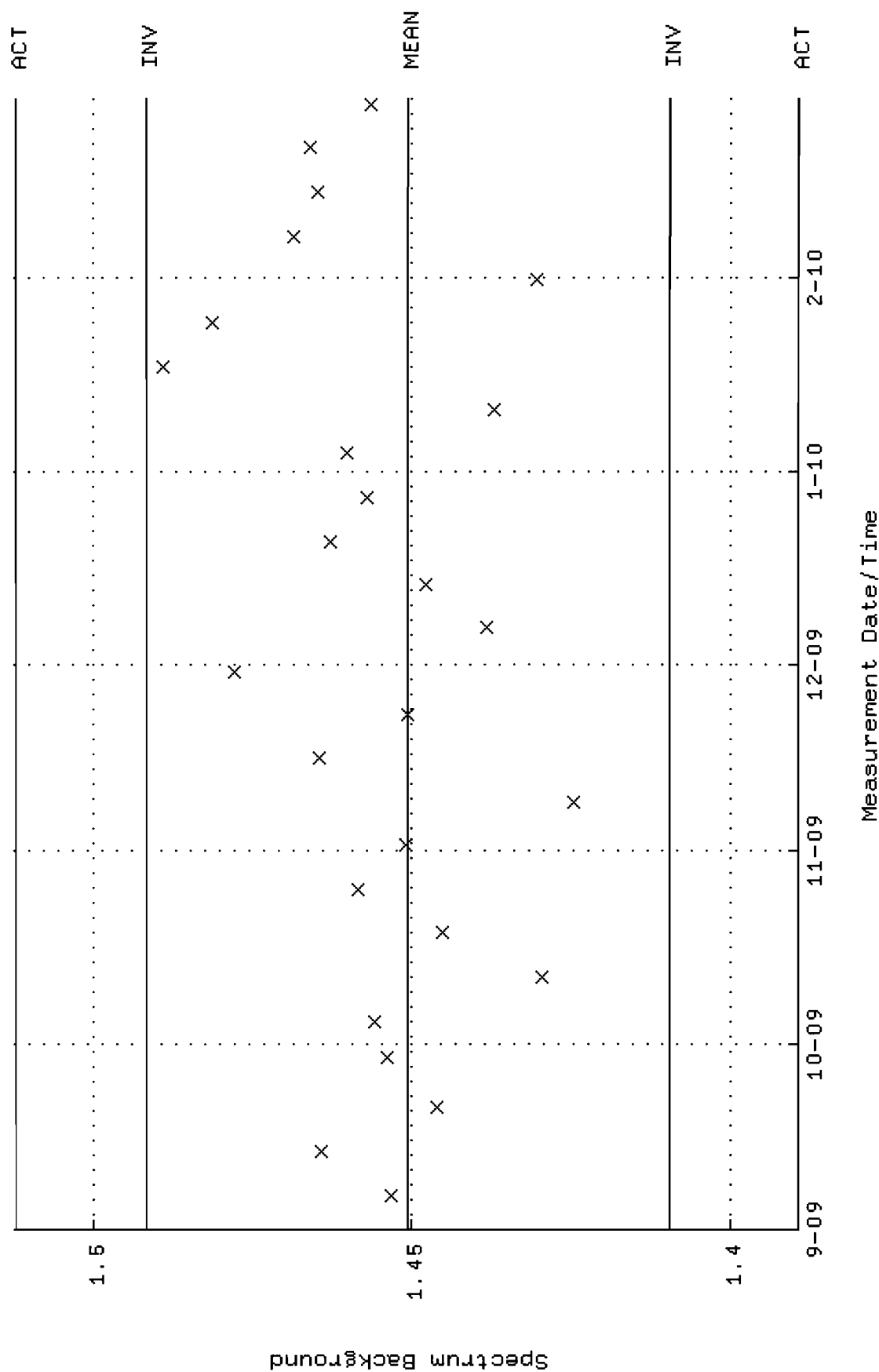
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM18.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:45:03 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



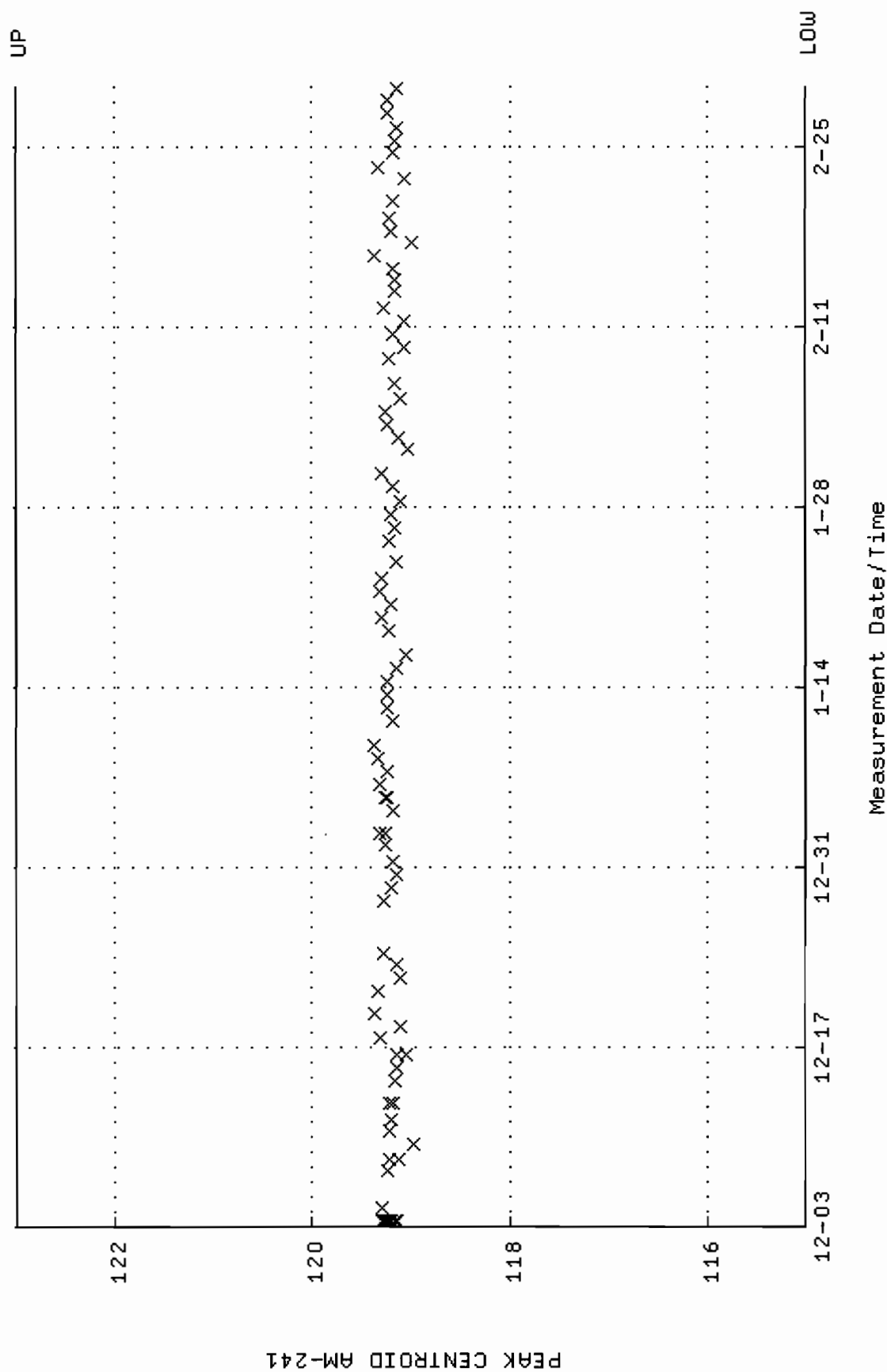
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 05:06:58 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



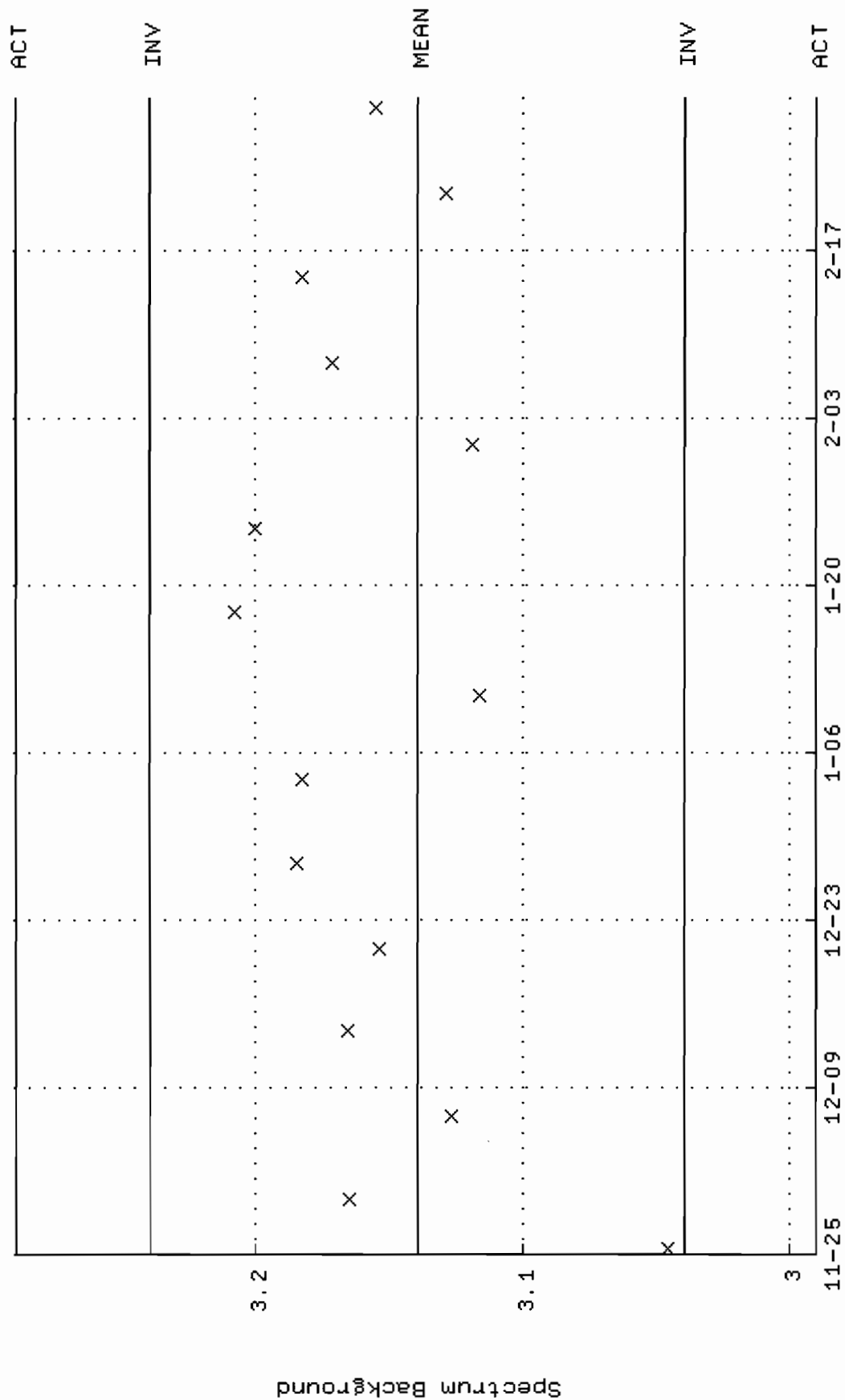
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM19.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:45:39 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



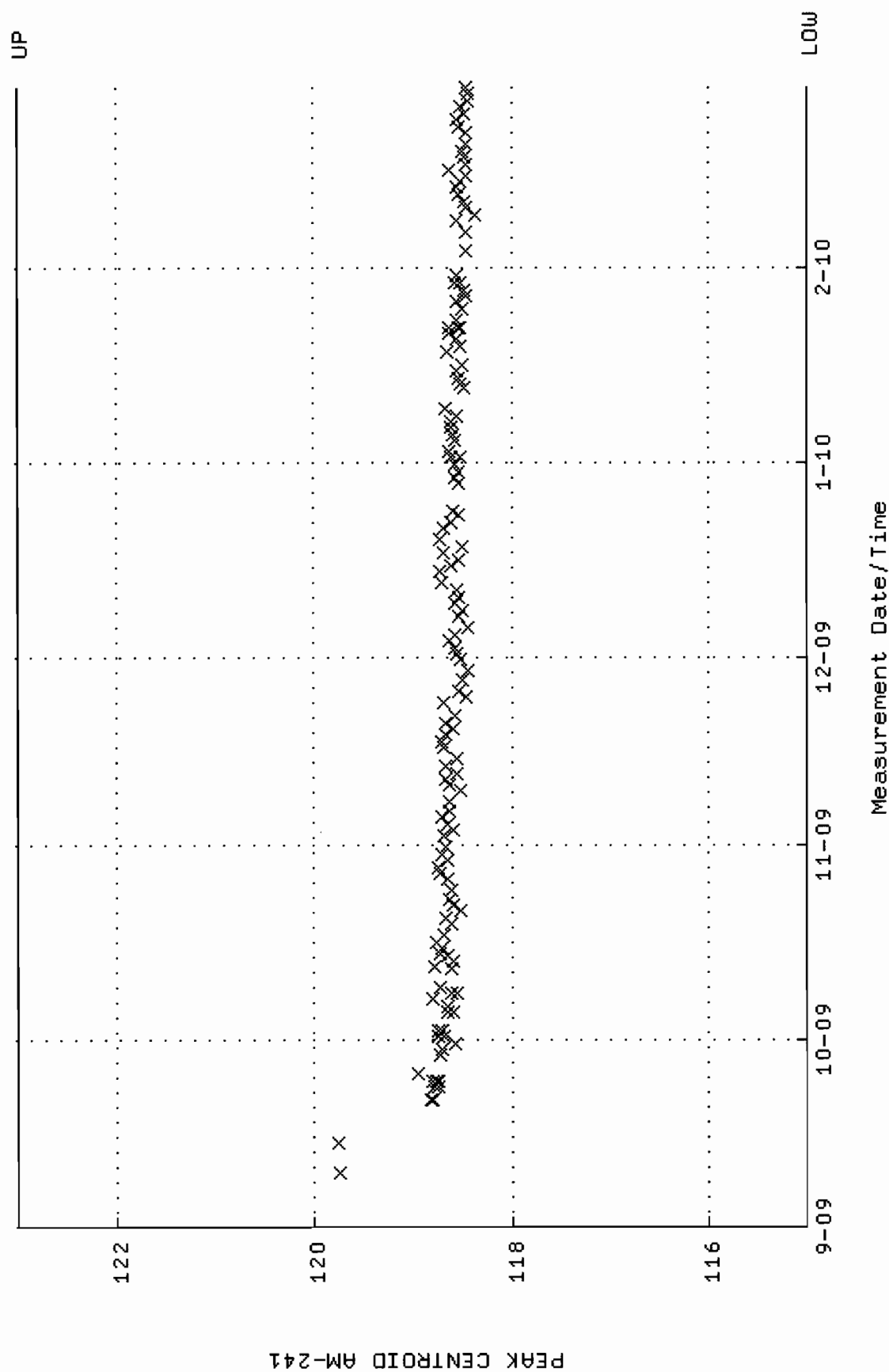
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM22_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 3-DEC-2009 09:11:39 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



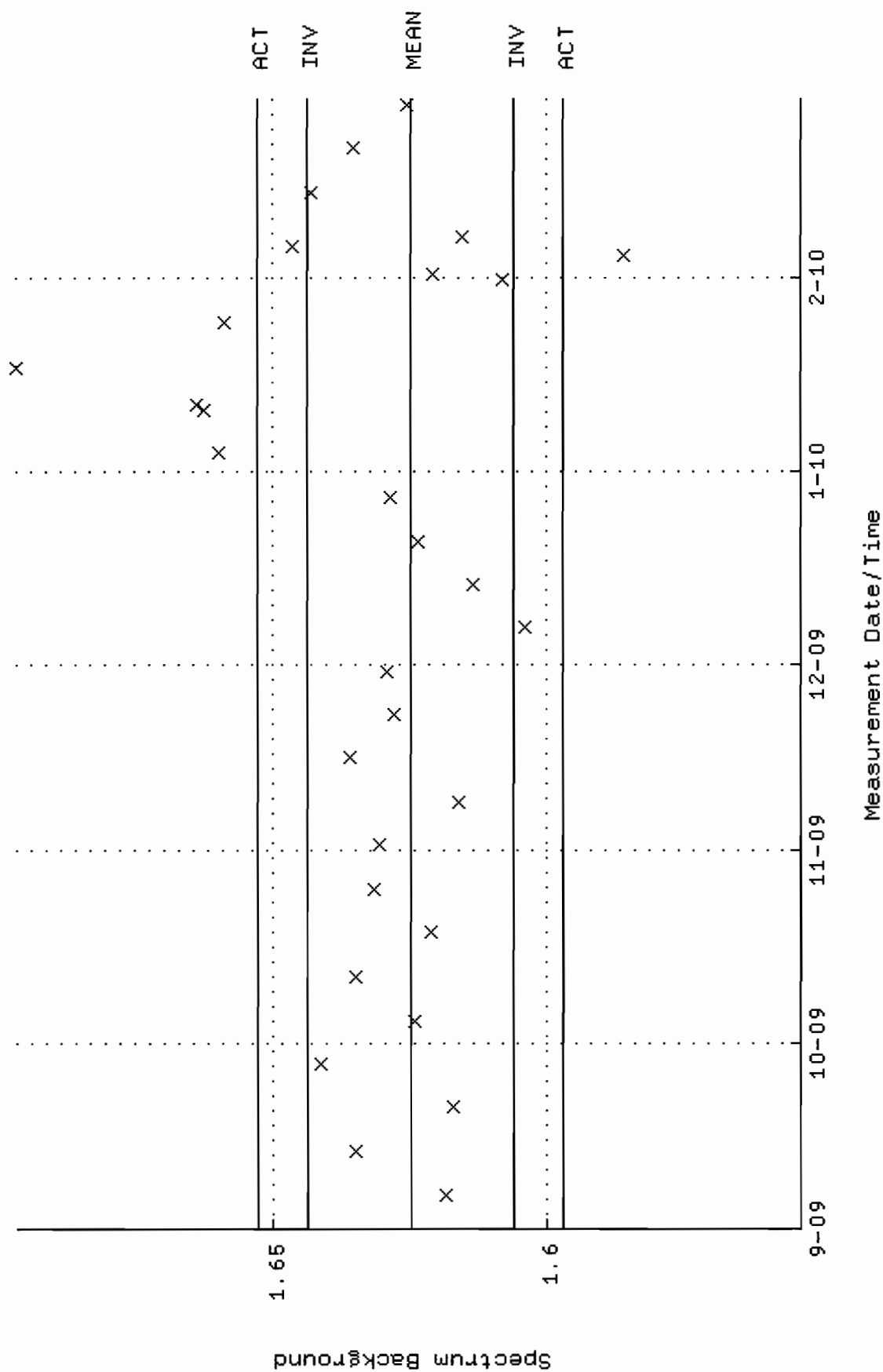
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM22.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 25-NOV-2009 10:28:37 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)

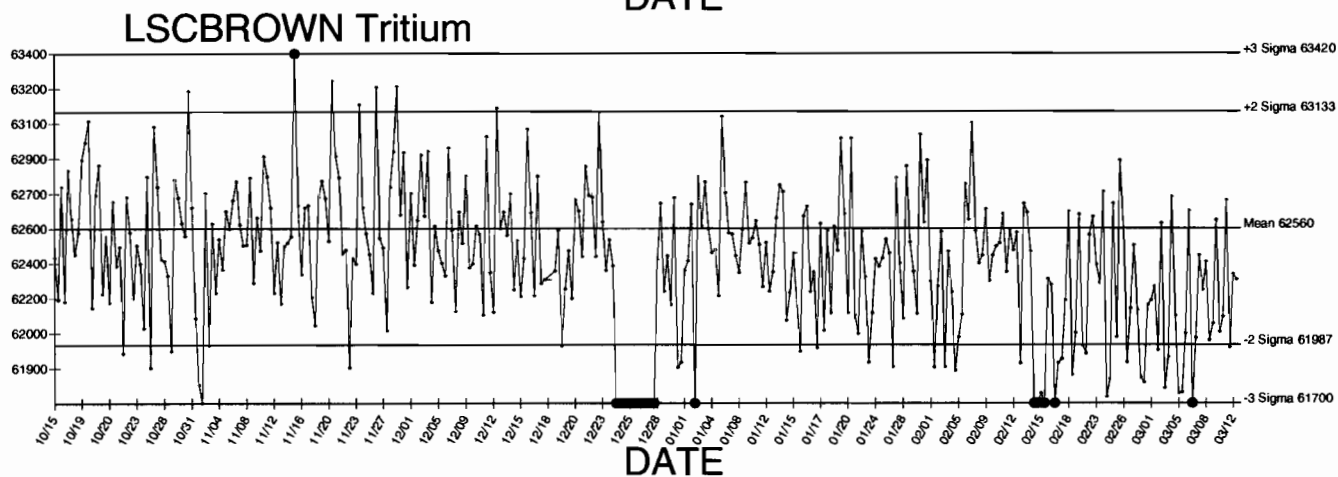
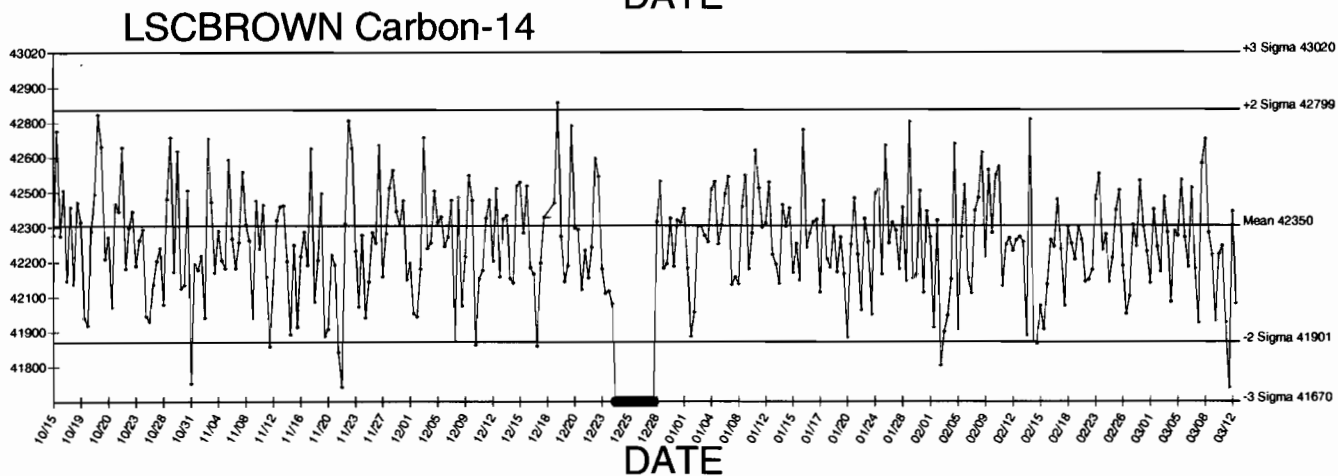
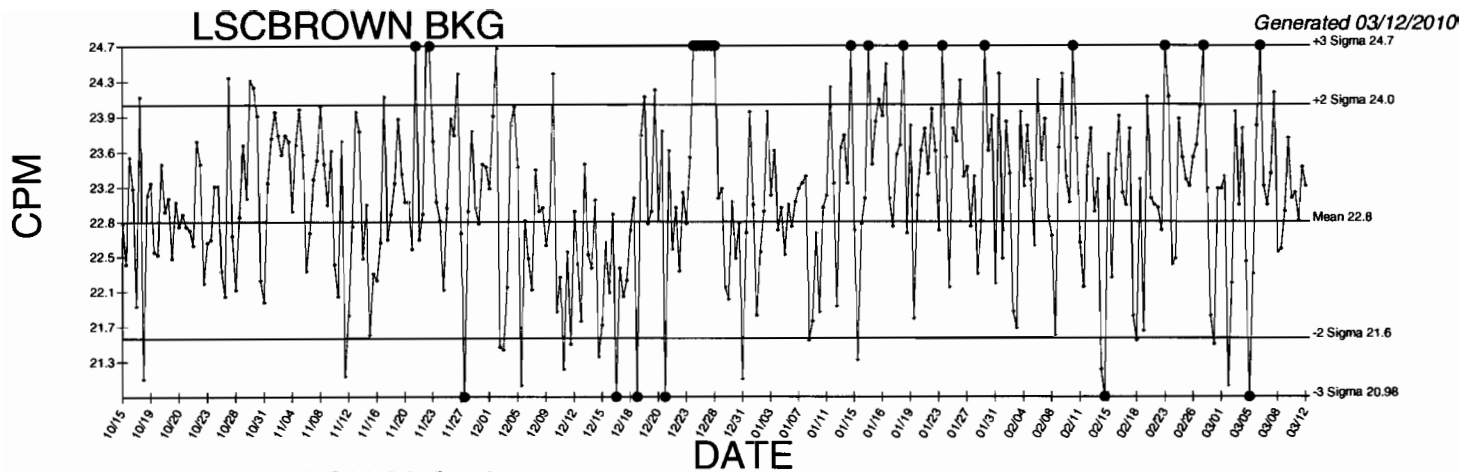


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM25_2LMB.QAF;1
 Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)
 Start/End Dates : 9-SEP-2009 16:18:34 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000

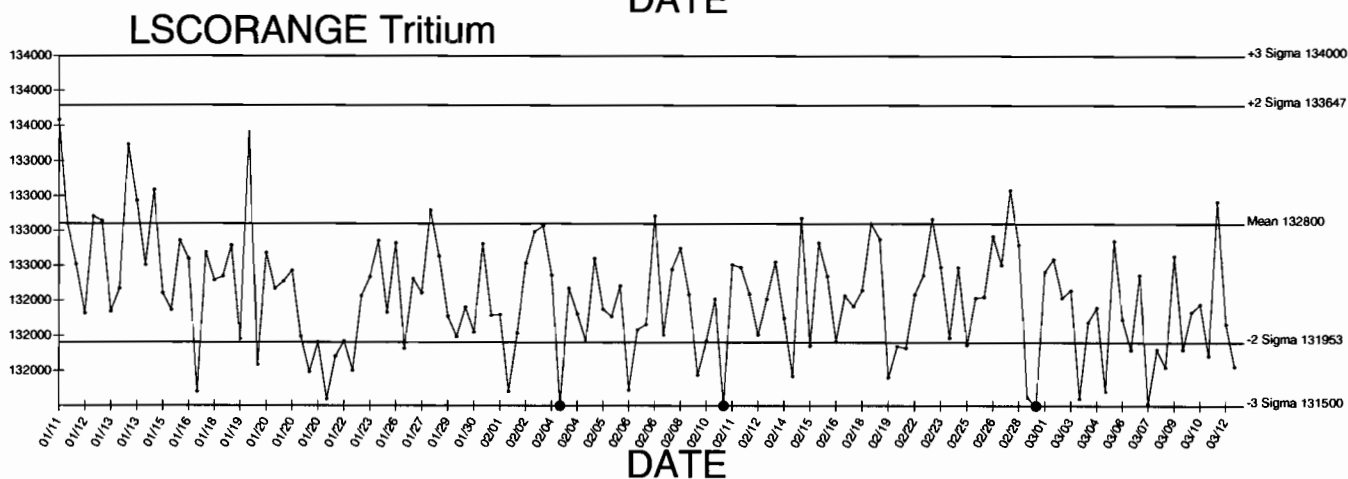
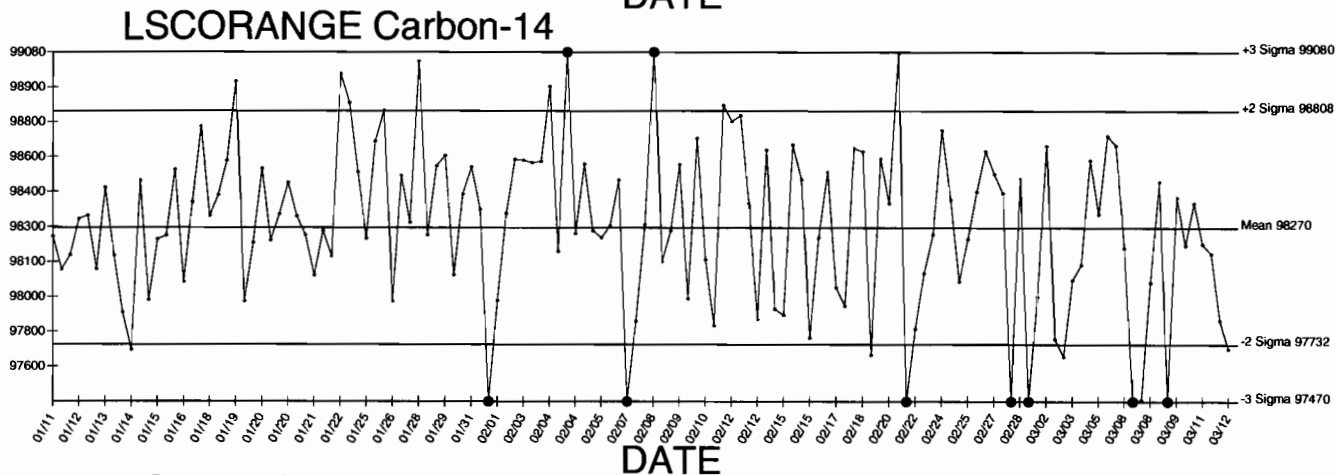
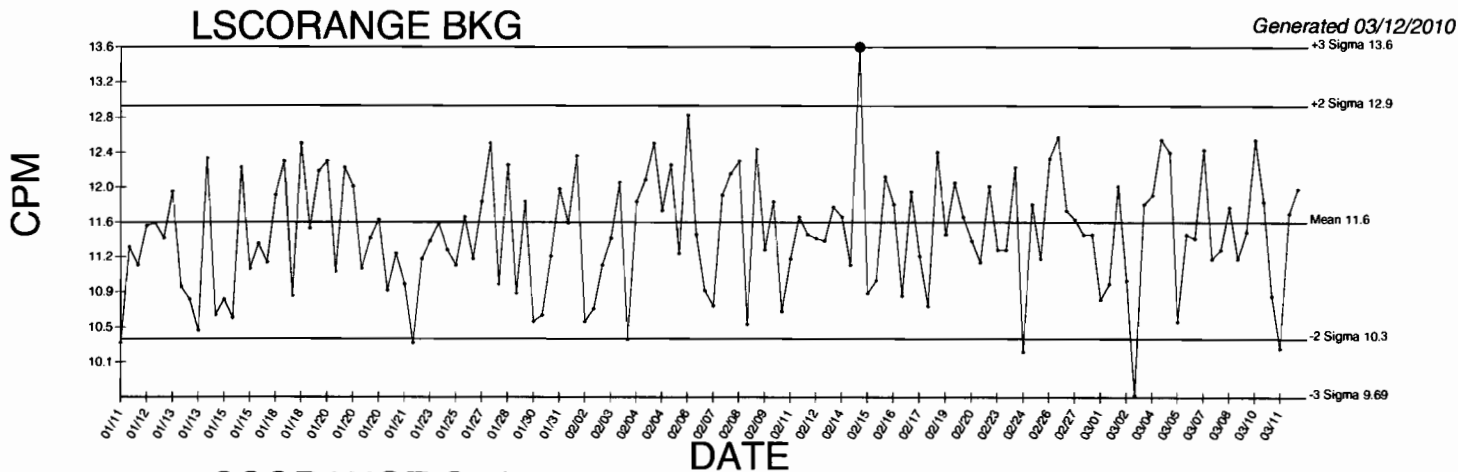


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM25.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:47:27 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.62502 +- 9.370414E-03 (0.58 %)

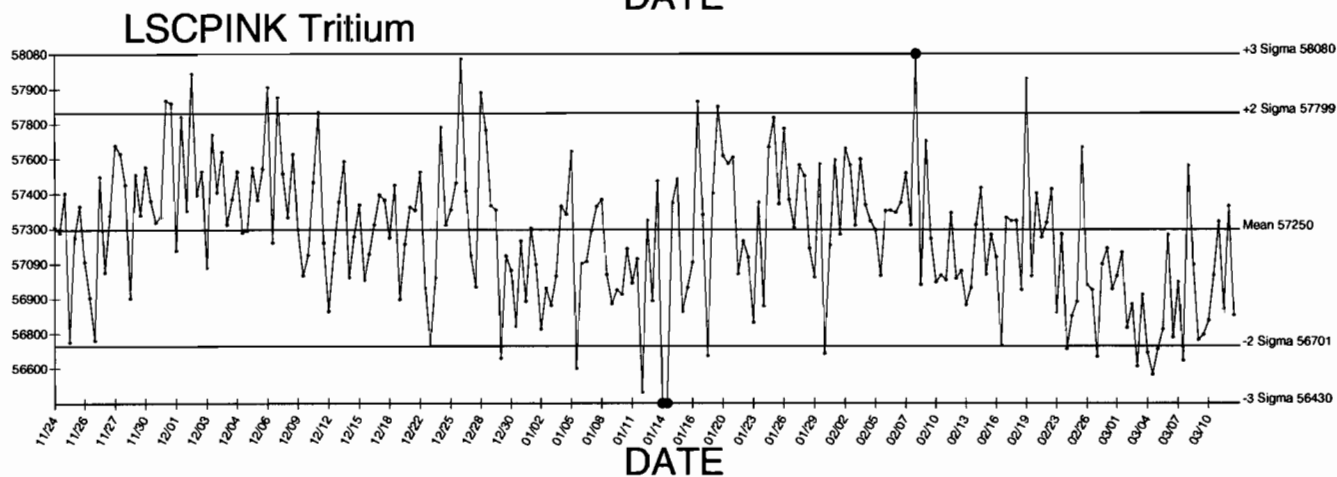
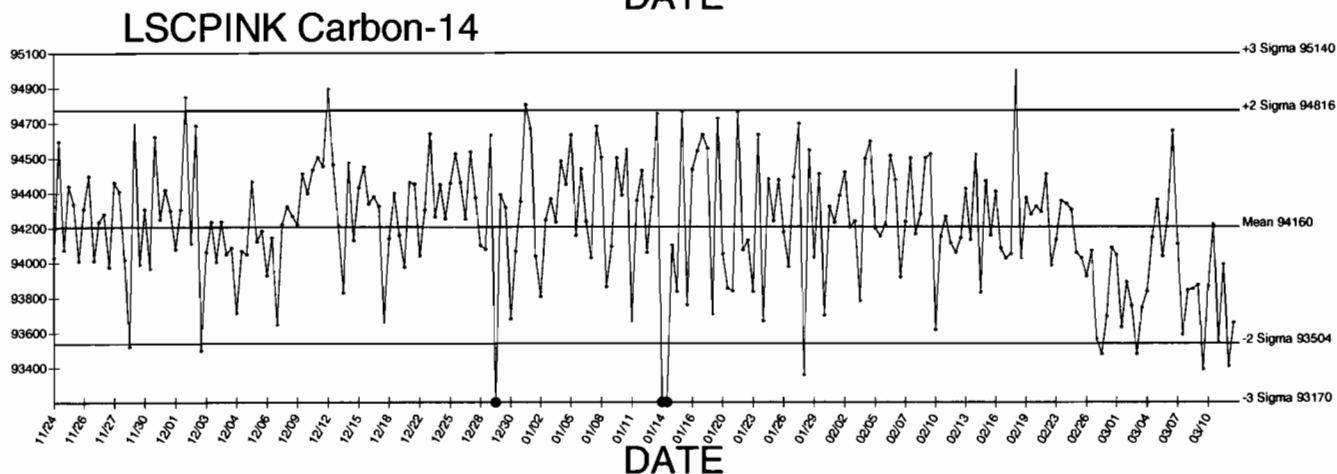
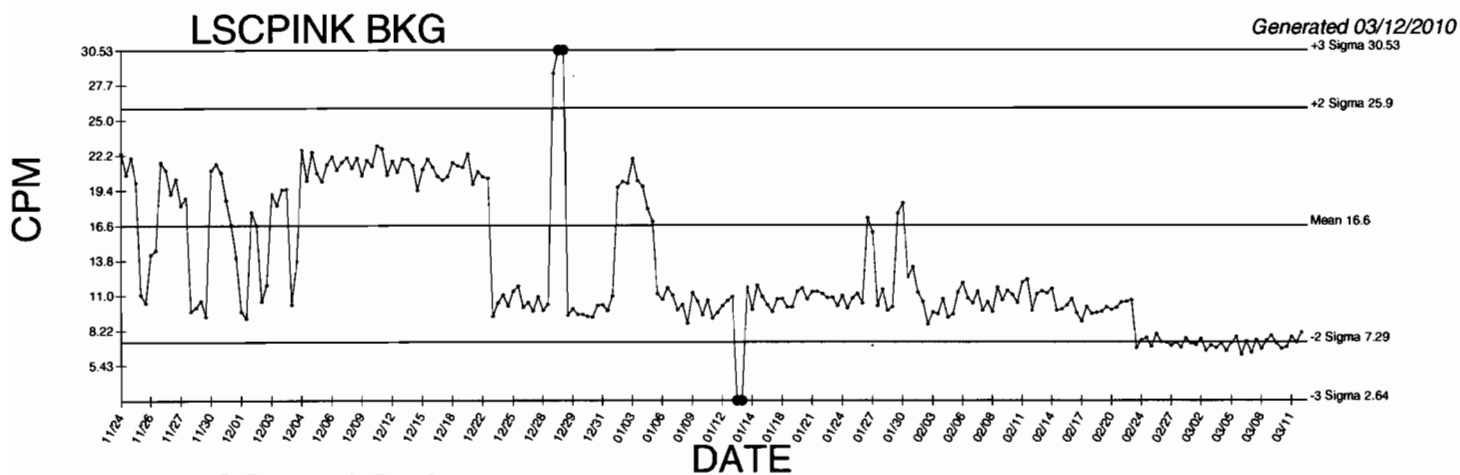




● Denotes Outlier



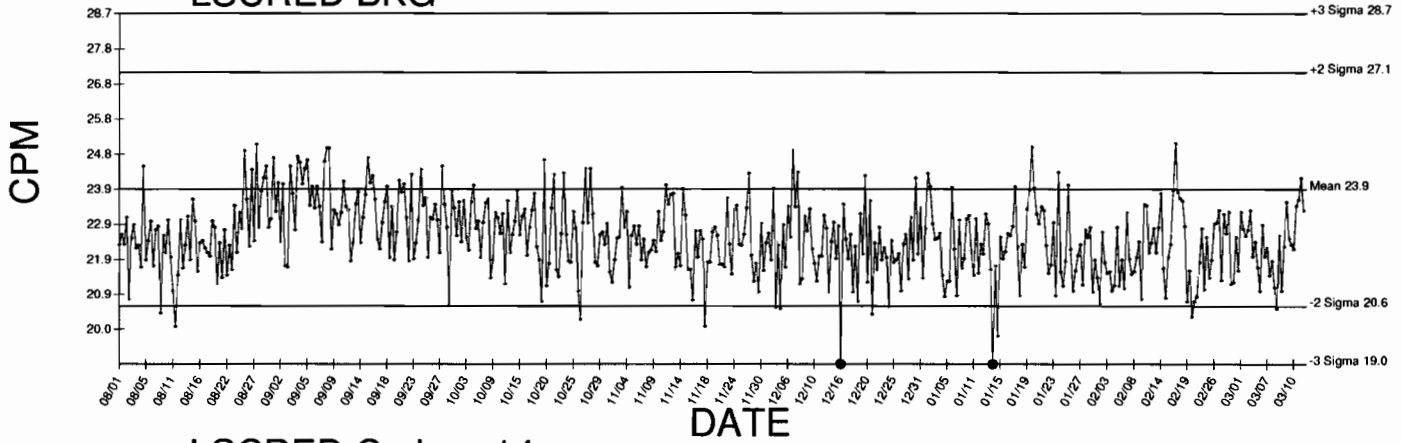
● Denotes Outlier



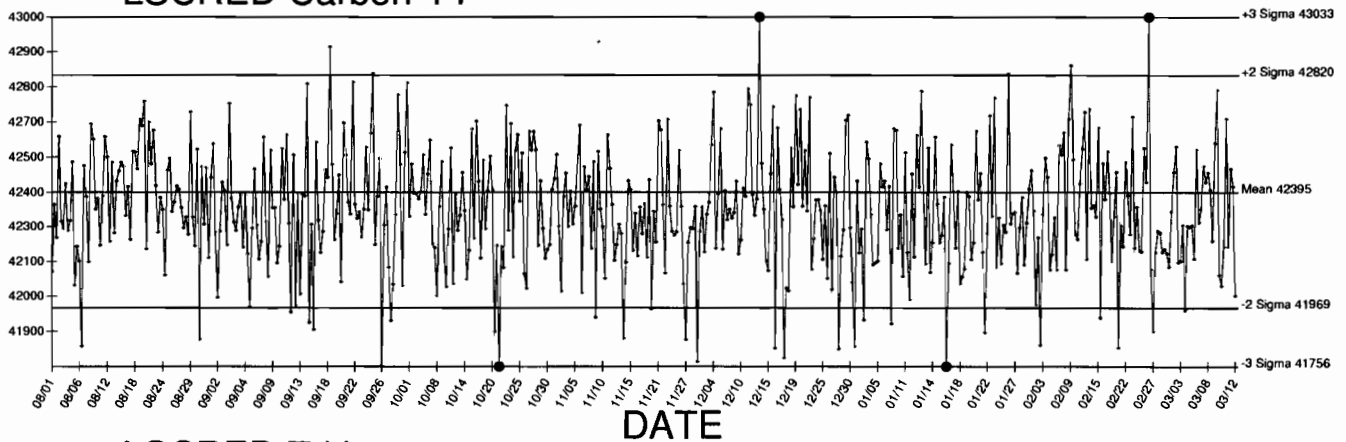
● Denotes Outlier

LSCRED BKG

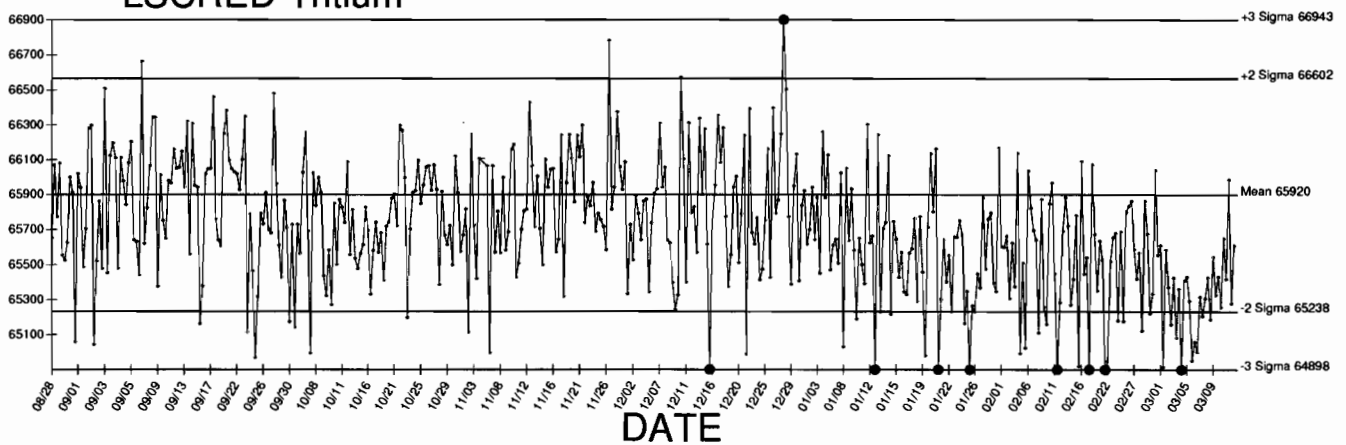
Generated 03/12/2010



LSCRED Carbon-14



LSCRED Tritium



● Denotes Outlier

STANDARDS DATA

0134



CALIBRATION
No. 0146

Description

Radionuclide: TRITIUM (HYDROGEN-3)

Product code: TRY-64

Chemical form: water

Batch: 111

Measurement

Reference time: 1200 GMT on 1 March 1996

Radioactive concentration of tritium: 488.0 kilobecquerels per gram of water

which is equivalent to: 13.19 microcuries per gram of water

or: 2.93×10^7 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 ± 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) = 3.7×10^{10} becquerels exactly.

Useful conversion factors are:

1 microcurie (μCi) = 3.7×10^4 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

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W.F. Case

Page 1 of 2

2C-5-023-061a

Amersham
The Health Science Group

Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0134	Isotope:	Tritium
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	DI WATER	Prep Date:	02/21/2001
Reference Date:	03/01/1996	Verification Date:	09/10/2008
Ampoule Mass (g):	5 g	Expiration Date:	03/27/2010
Uncertainty:	+/- 2.5 %	Primary Code:	0134-A
LogBook No:	RC S 023 061	Dilution(mL):	100 mL
		Mass of Parent(g):	3.3659 g
		Density(g/mL):	1.0004
		Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 985535.5200 \text{ dpm/mL}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0004 \text{ g/mL}) / (100 \text{ mL}) = 985180.3116 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
07/20/2004	Amanda Fehr	5.86	1000	0134-H	5773.1566 dpm/mL	07/25/2006	07/25/2007
12/20/2005	Amanda Fehr	5.5451	1000	0134-I	5462.92 dpm/mL	12/20/2006	12/20/2007
07/11/2007	Daniel Roy	5.5863	1000	0134-J	5503.5128 dpm/ml	07/29/2008	07/29/2009
03/25/2009	Mary Aders	5.4917	1000	0134-K	5410.3147 dpm/ml	03/27/2009	03/27/2010

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for H-3 Standard 0134-K

M. Aders	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Source DPM/mL
4/9/2009	0134-K N1	1097.2000	54.0000	1043.2000	1.0000	2741.3098
	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
					Average =	2709.776428

Mean Value (Counting) = 2709.776428
 Stddev = 31.53347278

Certificate Value = 2581.86 dpm/mL
 Lower Limit = 2646.709482 dpm/mL
 Upper Limit = 2772.843373 dpm/mL
 Rule 1 Pass/Fail **Fail**
 Two sigma = 63.06694556 dpm/mL
 10 % of Mean = 270.9776428 dpm/mL
 Rule 2 (Pass/Fail) **Pass**

*exception taken due to full recovery of standard

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for H-3 source 0134-K by transferring 0.1 mL portions of the standard into glass liquid scintillation vials. Ten mL of 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:
 Verified by 4/9/09
 Amanda L. Dehn 4/9/09

1032

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

74047-278

5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Analytix maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE		GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432	y	3339	3.0
Cd-109	88	462.6	d	4815	3.3
Co-57	122	271.79	d	2409	3.0
Ce-139	166	137.6	d	3408	2.8
Hg-203	279	46.61	d	7522	2.7
Sn-113	392	115.1	d	4728	2.6
Cs-137	662	30.07	y	2973	3.0
Y-88	898	106.6	d	11600	2.6
Co-60	1173	5.2714	y	5780	2.7
Co-60	1332	5.2714	y	5783	2.6
Y-88	1836	106.6	d	12260	2.6

5.31725 grams 4M HCl solution.

P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED:

J.M. [Signature] 11-28-06

This standard will expire one year after the calibration date.

Rec'd 11/30/06
RC-S-045-073-c

1380 Seaboard Industrial Blvd.
 Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytisc.com

ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS
BATCH 127
CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method ¹	Statistics ²	Calibration ²	Peak Fitting ²	Geometry ²	Impurities ²	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)

²As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.

Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1032	Isotope:	Mixed Gamma
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL	Prep Date:	11/30/2006
Reference Date:	10/01/2006	Verification Date:	12/02/2009
Ampoule Mass (g):	5.31725 g	Expiration Date:	12/02/2010
Uncertainty:	+/- 2.81 %	Primary Code:	1032-A
LogBook No:	RC-S-045-073	Dilution(mL):	100 mL
		Mass of Parent(g):	5.2579 g
		Density(g/mL):	1.0611
		Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Am-241

Isotope	Result	pCi/L - Ver. IAR-1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L
		Ver. IAR-3
		Ver. IAR-5
Mean Value (Counting) =	100.00	Pass
Stdev =	2485.67	Rule 3 (Pass/Fail)
	64.065	

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 (Pass/Fail)
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

2485.68018
2357.536524
2613.796809
Pass
128.1301422
248.5666667
Pass

pCi/L
pCi/L
pCi/L

M. Stamps
12/2/09
independent
12/4/09

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Cs-137

Isotope	Result	pCi/L - VER-TAR-1
Mixed Gamma N1	854.2	pCi/L
Mixed Gamma N2	907.6	pCi/L
Mixed Gamma N3	898.9	pCi/L

Mean Value (Counting) =
Stdev =

886.90
28.651
95.01
Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 (Pass/Fail)
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

933.44144
829.597644
944.202356
Pass
57.30235597
88.69000000
Pass
pCi/L
pCi/L
pCi/L

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Handwritten:
12/2/09
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 - JAG-5
Mixed Gamma N1	1572	pCi/L - VER - JAG-2
Mixed Gamma N2	1495	pCi/L - VER - JAG-3
Mixed Gamma N3	1501	

Mean Value (Counting) =
Stdev =

98.50 Pass
Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 (Pass/Fail)
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

1545.8378
1437.008431
1608.324902
Pass
85.65823564
152.26666667
Pass

pCi/L
pCi/L
pCi/L

U.S. Stamp issued 12/2/09
12/2/09

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

0244-A Characterization

Sample #	Uranium-233/234 Result (pCi/g)	Uranium-238 Result (pCi/g)	Thorium-230 Result (pCi/g)
0244-A 1	6.59	6.12	25.3
0244-A 2	6.36	6.07	28.5
0244-A 3	5.78	5.53	26.5
0244-A 4	6.48	5.97	25.5
0244-A 5	5.65	5.59	26.2
0244-A 6	6.96	5.78	27.0
0244-A 7	5.95	5.75	24.2
0244-A 8	5.29	5.67	27.2
0244-A 9	5.51	6.05	24.3
0244-A 10	6.37	5.57	25.6
0244-A 11	6.50	5.80	25.8
0244-A 12	6.13	5.42	22.4
0244-A 13	5.49	5.24	24.7
0244-A 14	6.19	5.21	26.9
0244-A 15	6.50	6.27	27.6
0244-A 16	6.50	5.24	24.9
0244-A 17	6.25	6.05	24.7
0244-A 18	6.14	6.00	25.4
0244-A 19	6.19	6.14	26.4
0244-A 20	5.67	5.61	23.2
Mean Value	6.13	5.75	25.62
1 sigma	0.439	0.325	1.493
2 sigma	0.878	0.650	2.986
75% Limit	4.60	4.31	19.22
125% Limit	7.66	7.19	32.03
Expected Result	6.2 +/- 4.0	6.0 +/- 4.0	24.5 +/- 0.6
Achieved Results	6.13 +/- 0.439	5.75 +/- 0.325	25.62 +/- 1.493

REFERENCE DATA 4/11/2000 *lett c held 12/1/04*

angela d. johnson 12/3/04

TRM

Invoice:

5 bottles of TRM-1
 10 " " TRM-2 and 3
 5 " each of TRM-1 through 6
 7 " baghouse dirt

use 1/4 gm x 10 samples WITH Together
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
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	484 ± 24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

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 μ 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(NO₃)₃ in 2N HNO₃
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 μ Ci/g

Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) intergrated under: 228, 278 keV.
Branching ratio(s) used: 0.108, 0.1420 gamma rays per decay.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration: $\pm 3.0\%$
b. Random uncertainty in assay: $\pm 0.4\%$
c. Random uncertainty in weighing(s): $\pm 0.0\%$
d. Total uncertainty at the 99% confidence level: $\pm 3.0\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

Anna H. Khan
QUALITY CONTROL

Jan 3, 1994
Date Signed

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE

☒ 1. STANDARD WIPE TEST

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001 μCi beta-gamma or 0.0001 μCi 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 μCi beta-gamma or 0.0001 μCi 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 μCi beta-gamma or 0.0001 μCi 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 μCi beta-gamma or 0.0001 μCi 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 μCi beta-gamma or 0.0001 μCi alpha at the time of shipment.

Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	445-96-2	Isotope:	Americium-243
Prepared By:	Genie Bost	Prepared By:	Angela Johnson
Carrier Conc:	2M HNO3	Prep Date:	01/05/1994
Reference Date:	01/01/1994	Verification Date:	05/11/2009
Ampoule Mass (g):	5.3739 g	Expiration Date:	05/11/2010
Uncertainty:	+/- 3 %	Primary Code:	445-96-2-A
LogBook No:	RC S 005 032	Dilution(mL):	100 mL
		Mass of Parent(g):	5.3419 g
		Density(g/mL):	1.0785
		Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

(Mass of parent(g)) * (Parm Activity (uCi/g)) * (conversion dpm to uCi) / (Dilution Vol) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (uCi/g)) * (conversion dpm to uCi) / Density (g/mL)/ (Dilution Vol) = Parent Activity (dpm/g)
(5.3419 g) * (18.84 uCi/g) * (2220000 dpm/uCi) / (100 mL) = 2234238.9912 dpm/mL
(5.3419 g) * (18.84 uCi/g) * (2220000 dpm/uCi) / (1.0785 g/mL) / (100 mL) = 2071617.0528 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}Pu also containing 2 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}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}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

Date of Issue: 4 November 2009

Checked by: *Ch Ali*

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Signed: *Arvic Harms*

Name: Dr Arvic Harms

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(Authorised Signatory)

for Managing Director

RESULTS

Principal radionuclide:	^{236}Pu
Reference time:	2009-07-01 12:00 UTC
Activity concentration of principal radionuclide:	170.8 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}Ra :	11.0 mBq g^{-1}
Expanded uncertainty:	$\pm 4.0 \text{ mBq g}^{-1} (\pm 36 \%)$
Activity concentration of ^{232}U :	0.67 Bq g^{-1}
Expanded uncertainty:	$\pm 0.12 \text{ Bq g}^{-1} (\pm 18 \%)$
Activity concentration of ^{228}Th :	11.38 mBq g^{-1}
Expanded uncertainty:	$\pm 0.46 \text{ mBq g}^{-1} (\pm 4 \%)$
Activity concentration of ^{237}Np :	5.00 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.

Reference: 2009100356

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Checked by: *ac all*

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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}Pu is 1044 (6) days and is taken from the evaluations published in *Nuclear Data Sheets*.
- [3]. The recommended half life of ^{226}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.
- [4]. The recommended half life of ^{232}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.
- [5]. The recommended half life of ^{237}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.
- [6]. The recommended half life of ^{228}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.

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		A Solution Material Info	
Parent Code:	1430	Isotope:	Plutonium-236
Prepared By:	Ashley Drochter	Prepared By:	Ashley Drochter
Carrier Conc:	2 M HNO3	Prep Date:	01/27/2010
Reference Date:	07/01/2009	Verification Date:	01/27/2010
Ampoule Mass (g):	4.97 g	Expiration Date:	01/27/2011
Uncertainty:	+/- .36 %	Primary Code:	1430-A
LogBook No:	RC-S-051-149	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

(Mass of parent(g)) * (Parm Activity (Bq/g)) * (conversion dpm to Bq) / (Dilution Vol) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (Bq/g)) * (conversion dpm to Bq) / Density (g/mL)/ (Dilution Vol) = Parent Activity (dpm/g)
(4.8051 g) * (170.8 Bq/g) * (60 dpm/Bq) / (100 mL) = 492.4266 dpm/mL
(4.8051 g) * (170.8 Bq/g) * (60 dpm/Bq) / (1.0610 g/mL) / (100 mL) = 464.1156 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.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

78747-278

1283

U-232 5 mL Liquid in Flame Sealed Vial

Customer: GEL Laboratories, LLC
P.O. No.: 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-Life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

Comments:

Impurities: U-233 <0.3%, Am-241 <0.15%
5.20453 grams 1M HNO₃ 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

Analyst: A. Drochter	Serial #	Value	Uncertainty					
Date: 12/10/09	1283-H N1	2.020	pCi/L	0.238	pCi/L			
	1283-H N2	2.000	pCi/L	0.234	pCi/L			
	1283-H N3	2.060	pCi/L	0.242	pCi/L			
Mean Value (Counting) =	2.027	pCi/L	99.86904	Pass				
Stdev =	0.030550505	pCi/L	Rule 3 (Pass/Fail)					
Target =	2.033	pCi/L						
Lower Limit =	1.965565657	pCi/L						
Upper Limit =	2.087767676	pCi/L						
Rule 1 Pass/Fail	Pass							
Two sigma =	0.061101009							
10 % of Mean =	0.202666667							
Rule 2 (Pass/Fail)	Pass							

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard 1283-H using 0.1 mL for each source. Each standard was combined with 0.1 mL of U-238 standard 1163-G and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

A. Drochter
12/14/09

RUNLOGS

Instrument Run Log

Instrument Type: GAMMA SPECTROMETER

Batch ID: 955027

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247323001	SAMPLE	MXR1	GAM15	03-MAR-10 23:25	DONE	CAN	03-FEB-10 00:00
247323002	SAMPLE	MXR1	GAM05	04-MAR-10 10:09	DONE	CAN	11-JUN-09 00:00
247323003	SAMPLE	MXR1	GAM04	04-MAR-10 10:10	DONE	CAN	05-MAY-09 00:00
247323004	SAMPLE	MXR1	GAM15	04-MAR-10 10:11	DONE	CAN	03-FEB-10 00:00
247323005	SAMPLE	MXR1	GAM22	04-MAR-10 10:12	DONE	CAN	02-DEC-09 00:00
247323006	SAMPLE	MXR1	GAM25	04-MAR-10 10:13	DONE	CAN	07-OCT-09 00:00
247325001	SAMPLE	MXR1	GAM19	04-MAR-10 10:14	DONE	CAN	12-MAR-09 00:00
247337001	SAMPLE	MXR1	GAM14	04-MAR-10 10:15	DONE	CAN	06-MAR-09 00:00
247337002	SAMPLE	MXR1	GAM17	04-MAR-10 10:16	DONE	CAN	06-JAN-10 00:00
247337003	SAMPLE	MXR1	GAM18	04-MAR-10 10:17	DONE	CAN	23-APR-09 00:00
247337004	SAMPLE	MXR1	GAM21	04-MAR-10 10:18	DONE	CAN	28-JUL-09 00:00
247337005	SAMPLE	MXR1	GAM20	04-MAR-10 10:19	DONE	CAN	26-AUG-09 00:00
247337006	SAMPLE	MXR1	GAM06	04-MAR-10 10:46	DONE	CAN	16-FEB-10 00:00
247323007	SAMPLE	MXR1	GAM01	04-MAR-10 10:50	DONE	CAN	12-JAN-10 00:00
247337007	SAMPLE	MXR1	GAM16	04-MAR-10 12:40	DONE	CAN	16-NOV-09 00:00
247360001	SAMPLE	MXR1	GAM22	04-MAR-10 12:41	DONE	CAN	02-DEC-09 00:00
247360002	SAMPLE	MXR1	GAM25	04-MAR-10 12:42	DONE	CAN	07-OCT-09 00:00
247360003	SAMPLE	MXR1	GAM19	04-MAR-10 12:43	DONE	CAN	12-MAR-09 00:00
247360004	SAMPLE	MXR1	GAM14	04-MAR-10 12:44	DONE	CAN	06-MAR-09 00:00
1202047453	MB	MXR1	GAM17	04-MAR-10 12:46	DONE	CAN	06-JAN-10 00:00
1202047455	LCS	MXR1	GAM18	04-MAR-10 12:48	DONE	CAN	23-APR-09 00:00
1202047454	DUP	MXR1	GAM10	04-MAR-10 16:10	DONE	CAN	16-MAR-09 00:00

Instrument Run Log

Instrument Type: LSC

Batch ID: 956742

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247344001	SAMPLE	KXK2	LSCRED	09-MAR-10 06:44	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344003	SAMPLE	KXK2	LSCRED	09-MAR-10 07:01	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344004	SAMPLE	KXK2	LSCRED	09-MAR-10 07:17	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344005	SAMPLE	KXK2	LSCRED	09-MAR-10 07:34	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344006	SAMPLE	KXK2	LSCRED	09-MAR-10 07:50	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344007	SAMPLE	KXK2	LSCRED	09-MAR-10 08:06	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344008	SAMPLE	KXK2	LSCRED	09-MAR-10 08:23	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344009	SAMPLE	KXK2	LSCRED	09-MAR-10 08:39	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344010	SAMPLE	KXK2	LSCRED	09-MAR-10 08:55	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247344011	SAMPLE	KXK2	LSCRED	09-MAR-10 09:12	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247552002	SAMPLE	KXK2	LSCPINK	09-MAR-10 10:01	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
1202051383	LCS	KXK2	LSCPINK	09-MAR-10 10:40	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247360002	SAMPLE	KXK2	LSCORANGE	09-MAR-10 16:17	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247360003	SAMPLE	KXK2	LSCORANGE	09-MAR-10 17:09	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247360004	SAMPLE	KXK2	LSCORANGE	11-MAR-10 14:04	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247551001	SAMPLE	KXK2	LSCORANGE	11-MAR-10 14:37	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247551002	SAMPLE	KXK2	LSCORANGE	11-MAR-10 15:09	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
1202051382	DUP	KXK2	LSCORANGE	11-MAR-10 16:14	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
1202051381	MB	KXK2	LSCBROWN	11-MAR-10 18:49	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
247360001	SAMPLE	KXK2	LSCRED	12-MAR-10 07:08	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 957096

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247323001	SAMPLE	JXH2	1211	06-MAR-10 12:07	DONE		
247323002	SAMPLE	JXH2	1212	06-MAR-10 12:07	DONE		
247323003	SAMPLE	JXH2	1213	06-MAR-10 12:07	DONE		
247323004	SAMPLE	JXH2	1214	06-MAR-10 12:07	DUSE		
247323005	SAMPLE	JXH2	1215	06-MAR-10 12:07	DONE		
247323006	SAMPLE	JXH2	1216	06-MAR-10 12:07	DONE		
247323007	SAMPLE	JXH2	1217	06-MAR-10 12:07	DONE		
247325001	SAMPLE	JXH2	1218	06-MAR-10 12:07	DONE		
247327002	SAMPLE	JXH2	1219	06-MAR-10 12:07	DONE		
247337001	SAMPLE	JXH2	1220	06-MAR-10 12:07	DONE		
247337002	SAMPLE	JXH2	1221	06-MAR-10 12:07	DONE		
247337003	SAMPLE	JXH2	1222	06-MAR-10 12:07	DONE		
247337004	SAMPLE	JXH2	1223	06-MAR-10 12:07	DONE		
247337005	SAMPLE	JXH2	1224	06-MAR-10 12:07	DONE		
247337006	SAMPLE	JXH2	1225	06-MAR-10 12:07	DONE		
247337007	SAMPLE	JXH2	1226	06-MAR-10 12:07	DONE		
247360001	SAMPLE	JXH2	1227	06-MAR-10 12:07	DONE		
247360002	SAMPLE	JXH2	1228	06-MAR-10 12:07	DUSE		
247360003	SAMPLE	JXH2	1229	06-MAR-10 12:07	DONE		
247360004	SAMPLE	JXH2	1230	06-MAR-10 12:08	DONE		
1202052134	MB	JXH2	1231	06-MAR-10 12:08	DONE		
1202052135	DUP	JXH2	1232	06-MAR-10 12:08	DONE		
1202052136	LCS	JXH2	1233	06-MAR-10 12:08	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 957099

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247323001	SAMPLE	JXH2	1234	06-MAR-10 12:08	DUSE		
247323002	SAMPLE	JXH2	1235	06-MAR-10 12:08	DUSE		
247323003	SAMPLE	JXH2	1236	06-MAR-10 12:08	DUSE		
247323004	SAMPLE	JXH2	1237	06-MAR-10 12:08	DUSE		
247323005	SAMPLE	JXH2	1238	06-MAR-10 12:08	DUSE		
247323006	SAMPLE	JXH2	1239	06-MAR-10 12:08	DUSE		
247323007	SAMPLE	JXH2	1240	06-MAR-10 12:08	DUSE		
247325001	SAMPLE	JXH2	1241	06-MAR-10 12:08	DUSE		
247327002	SAMPLE	JXH2	1242	06-MAR-10 12:08	DUSE		
247337001	SAMPLE	JXH2	1243	06-MAR-10 12:08	DUSE		
247337002	SAMPLE	JXH2	1244	06-MAR-10 12:08	DUSE		
247337003	SAMPLE	JXH2	1245	06-MAR-10 12:08	DUSE		
247337004	SAMPLE	JXH2	1246	06-MAR-10 12:08	DUSE		
247337005	SAMPLE	JXH2	1247	06-MAR-10 12:08	DUSE		
247337006	SAMPLE	JXH2	1248	06-MAR-10 12:08	DUSE		
247337007	SAMPLE	JXH2	1249	06-MAR-10 12:09	DUSE		
247360001	SAMPLE	JXH2	1250	06-MAR-10 12:09	DUSE		
247360002	SAMPLE	JXH2	1251	06-MAR-10 12:09	DUSE		
247360003	SAMPLE	JXH2	1252	06-MAR-10 12:09	DUSE		
247360004	SAMPLE	JXH2	1253	06-MAR-10 12:09	DUSE		
1202052141	MB	JXH2	1254	06-MAR-10 12:09	DUSE		
1202052142	DUP	JXH2	1255	06-MAR-10 12:09	DUSE		
1202052143	LCS	JXH2	1256	06-MAR-10 12:09	DUSE		
247323006	SAMPLE	JXH2	1089	13-MAR-10 14:27	DONE		
247323007	SAMPLE	JXH2	1090	13-MAR-10 14:27	DONE		
247325001	SAMPLE	JXH2	1091	13-MAR-10 14:27	DONE		
247337001	SAMPLE	JXH2	1093	13-MAR-10 14:27	DONE		
247337002	SAMPLE	JXH2	1094	13-MAR-10 14:27	DONE		
247337003	SAMPLE	JXH2	1095	13-MAR-10 14:27	DONE		
247337004	SAMPLE	JXH2	1097	13-MAR-10 14:27	DUSE		
247337005	SAMPLE	JXH2	1099	13-MAR-10 14:27	DONE		
247337006	SAMPLE	JXH2	1100	13-MAR-10 14:27	DONE		
247337007	SAMPLE	JXH2	1101	13-MAR-10 14:27	DONE		
247360003	SAMPLE	JXH2	1105	13-MAR-10 14:27	DONE		
247360004	SAMPLE	JXH2	1107	13-MAR-10 14:27	DONE		
1202052141	MB	JXH2	1108	13-MAR-10 14:27	DONE		
1202052143	LCS	JXH2	1112	13-MAR-10 14:27	DONE		
247323001	SAMPLE	JXH2	1077	13-MAR-10 14:53	DONE		
247323002	SAMPLE	JXH2	1079	13-MAR-10 14:53	DONE		
247323003	SAMPLE	JXH2	1080	13-MAR-10 14:53	DONE		
247323004	SAMPLE	JXH2	1081	13-MAR-10 14:53	DONE		
247323005	SAMPLE	JXH2	1082	13-MAR-10 14:53	DONE		
247360001	SAMPLE	JXH2	1074	15-MAR-10 12:59	DONE		
247360002	SAMPLE	JXH2	1075	15-MAR-10 12:59	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202052142	DUP	JXH2	1076	15-MAR-10 12:59	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 957101

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247323001	SAMPLE	JXH2	1118	06-MAR-10 12:13	DONE		
247323002	SAMPLE	JXH2	1125	06-MAR-10 12:14	DONE		
247323003	SAMPLE	JXH2	1126	06-MAR-10 12:14	DONE		
247323004	SAMPLE	JXH2	1127	06-MAR-10 12:14	DONE		
247323005	SAMPLE	JXH2	1128	06-MAR-10 12:14	DONE		
247323006	SAMPLE	JXH2	1129	06-MAR-10 12:14	DONE		
247323007	SAMPLE	JXH2	1130	06-MAR-10 12:14	DONE		
247325001	SAMPLE	JXH2	1131	06-MAR-10 12:14	DONE		
247327002	SAMPLE	JXH2	1132	06-MAR-10 12:14	DONE		
247337001	SAMPLE	JXH2	1133	06-MAR-10 12:14	DONE		
247337002	SAMPLE	JXH2	1138	06-MAR-10 12:14	DONE		
247337003	SAMPLE	JXH2	1139	06-MAR-10 12:14	DONE		
247337004	SAMPLE	JXH2	1140	06-MAR-10 12:14	DONE		
247337005	SAMPLE	JXH2	1141	06-MAR-10 12:14	DONE		
247337006	SAMPLE	JXH2	1142	06-MAR-10 12:14	DONE		
247337007	SAMPLE	JXH2	1143	06-MAR-10 12:15	DONE		
247360001	SAMPLE	JXH2	1144	06-MAR-10 12:15	DONE		
247360002	SAMPLE	JXH2	1145	06-MAR-10 12:15	DONE		
247360003	SAMPLE	JXH2	1146	06-MAR-10 12:15	DONE		
247360004	SAMPLE	JXH2	1147	06-MAR-10 12:15	DONE		
1202052148	MB	JXH2	1148	06-MAR-10 12:15	DONE		
1202052149	DUP	JXH2	1149	06-MAR-10 12:15	DONE		
1202052150	LCS	JXH2	1150	06-MAR-10 12:15	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 962678

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247323004	SAMPLE	JXH2	1026	11-MAR-10 16:55	DONE		
247360002	SAMPLE	JXH2	1027	11-MAR-10 16:55	DONE		
1202065275	MB	JXH2	1028	11-MAR-10 16:55	DONE		
1202065276	DUP	JXH2	1029	11-MAR-10 16:55	DONE		
1202065277	LCS	JXH2	1030	11-MAR-10 16:55	DONE		