

Wednesday, February 24, 2010

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Valerie Davis

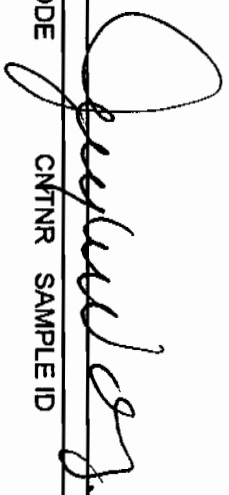
General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston, SC 29407

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 2/24/2010
TURNAROUND/REPORT DUE: 3/26/2010
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
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EPA.901.1	1	1	RE15-10-8388	R	2/19/2010	
	1	1	RE15-10-8389	R	2/19/2010	
	1	1	RE15-10-8390	R	2/19/2010	
	1	1	RE15-10-8391	R	2/19/2010	
	1	1	RE15-10-8392	R	2/19/2010	
EPA.906.0	1	1	RE15-10-8388	R	2/19/2010	
	1	1	RE15-10-8389	R	2/19/2010	
	1	1	RE15-10-8390	R	2/19/2010	
	1	1	RE15-10-8391	R	2/19/2010	

These Samples are on:

LANL Request Number: 10-2070
Per Agreement Number: 126310011
Project Cost Code: MR3A05529E00

Wednesday, February 24, 2010

Page 2 of 2
REQUEST NUMBER: 10-2070

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA.906.0	1	RE15-10-8392	R	2/19/2010	
	HASL-300:AM-241	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	HASL-300:ISOPU	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	HASL-300:ISOU	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	

Final Page of REQUEST NUMBER 10-2070

Wednesday, February 24, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2070

LOS ALAMOS

REQUEST NUMBER: 10-2070

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/26/2010

General Engineering Laboratories, Inc.,
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8389	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8389	1	POLY	H3	Ice	R
RE15-10-8388	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8388	1	POLY	H3	Ice	R
RE15-10-8390	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8390	1	POLY	H3	Ice	R
RE15-10-8392	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8392	1	POLY	H3	Ice	R
RE15-10-8391	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8391	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: 2508

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

SAMPLE ID: RE15-10-8409

WORK ORDER:

<u>AS PLANNED</u>		<u>AS COLLECTED</u>	<u>AS PLANNED</u>		<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		02/19/2010	MEDIA: QBT3		Alih
TIME COLLECTED (HH:MM)		0945	SUB-MEDIA: TUFF 1		NA
PRS ID:	15-009(h)	OK	SAMPLE TECH CODE: DC		OK
LOCATION ID:	UNK	15-610856	FIELD QC TYPE: FTB		
LOCATION TYPE:	GENERIC	OK	FIELD PREP: NA		
TOP DEPTH:	0		SAMPLE USAGE: QC		
BOTTOM DEPTH:	0		SCREEN/PORT DESC: NA		
FIELD MATRIX:	R	S	EXCAVATED: YES/NO/NA		
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA		
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA		

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

SAMPLE DESC: QC Sample of RE15-10-8391

SAMPLE COMMENTS: none

LOCATION DESC: 9h-4

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

Jon Roberson

REVIEWED BY (PRINT)

Larry A. Lopez

RELINQUISHED BY (Printed Name) Jon Roberson (Signature) Jon Roberson	Date/Time 2/19/10 1545	RECEIVED BY (Printed Name) Sherin Newwood (Signature) Sherin Newwood	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8388

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/19/2010		MEDIA:		QBT3	
TIME COLLECTED(HH:MM)		0844		SUB-MEDIA:		TUFF 1	
PRS ID:	15-009(h)	OK		SAMPLE TECH CODE:		HA	
LOCATION ID:	15-610856	↓		FIELD QC TYPE:		NA	
LOCATION TYPE:	GENERIC	↓		FIELD PREP:		NA	
TOP DEPTH:	0	6-0		SAMPLE USAGE:		INV	
BOTTOM DEPTH:	0	7.0		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA		NO/NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NO/NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		8260B	125 ML SEPTUM AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		Perchlorate+CN+ N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		
1		METALS+U-GEL	125 ML POLY	Ice		

SAMPLE DESC: Light brown ^{1/4" to 1/2"} fill with pumice and tuff fragments

SAMPLE COMMENTS: none

LOCATION DESC: below tank inlet 9h-2

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha \leq 20 dpm
 Beta/Gamma \leq 1924 dpm

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

COLLECTED BY (PRINT)

REVIEWED BY (PRINT)

Jon Roberson

LARRY A. LOPEZ

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) LARRY A. LOPEZ	2/19/10	(Printed Name) Sheri Sherwood	2/19/10
(Signature) Larry A. Lopez	1545	(Signature) Sheri Sherwood	1545
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8389

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/19/2010		MEDIA:		QBT3	
TIME COLLECTED(HH:MM)		10:00		SUB-MEDIA:		TUFF 1	
PRS ID: 15-009(h)		OK		SAMPLE TECH CODE:		HA	
LOCATION ID: 15-610856		↓		FIELD QC TYPE:		NA	
LOCATION TYPE: GENERIC		↓		FIELD PREP:		NA	
TOP DEPTH: 0		11.0		SAMPLE USAGE:		INV	
BOTTOM DEPTH: 0		13.0		SCREEN/PORT DESC:		NA	
FIELD MATRIX: R		5		EXCAVATED: YES/NO/NA		NO/NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA		NO/NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		8260B	125 ML SEPTUM AMBER GLASS	Ice		
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None		
1		H3	500 ML POLY	Ice		
1		Perchlorate+CN+ N03+pH	500 ML POLY	Ice		
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None		
1		METALS+U-GEL	125 ML POLY	Ice		

SAMPLE DESC: Light brown soil/tuff fill

SAMPLE COMMENTS: none

LOCATION DESC: 5' below inlet - 9h-2

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 25 dpm
Beta/Gamma = 2070 dpm

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

COLLECTED BY (PRINT)

REVIEWED BY (PRINT)

Jon Roberson

Lance A. Lopez

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Jon Roberson	2/19/10	(Printed Name) Sheri Sherwood	2/19/10
(Signature) Jon Roberson	1545	(Signature) Sheri Sherwood	1545
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8390

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):				MEDIA:		OBT3	
TIME COLLECTED (HH:MM)				SUB-MEDIA:		TUFF 1	
PRS ID:	15-009(h)	OK		SAMPLE TECH CODE:	HA	OK	
LOCATION ID:	15-610857	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC	OK		FIELD PREP:	NA		
TOP DEPTH:	0	6.5		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.5 8.0		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA	NO/NA		
COMPOSITE TYPE: NA				COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA	
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
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: Light brown fill with tuff fragments

SAMPLE COMMENTS: none

LOCATION DESC: below tank outlet 9h-4

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 15 dpm
Beta/Gamma = 2090 dpm

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

COLLECTED BY (PRINT)

Jon Roberson

REVIEWED BY (PRINT)

Larry A. Lopez

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Jon Roberson	2/19/10	(Printed Name) Sheri Sherwood	2/19/10
(Signature) Jon Roberson	1545	(Signature) Sheri Sherwood	1545
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8391

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/19/2010		MEDIA: QBT3		Fill	
TIME COLLECTED (HH:MM)		0940		SUB-MEDIA: TUFF 1		NA	
PRS ID:	15-009(h)	OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID:	15-610857	↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE:	GENERIC	↓		FIELD PREP: NA		↓	
TOP DEPTH:	0	38.2/41.0 +2.0 11.5		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH:	0	13.0		SCREEN/PORT DESC: NA			
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		8270C+NMED Exp	500 ML AMBER GLASS	Ice		
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: Light brown soil/tuff fill

SAMPLE COMMENTS: none FTB collected RE15-10-8409

LOCATION DESC: 5' below tank outlet (9h-4)

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 30 dpm
Beta/Gamma = 2190 dpm

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

COLLECTED BY (PRINT)

Jon Roberson

REVIEWED BY (PRINT)

Lacey A. Lopez

RELINQUISHED BY (Printed Name) Jon Roberson (Signature) <i>Jon Roberson</i>	Date/Time 2/19/10 1545	RECEIVED BY (Printed Name) Sherrif Newwood (Signature) <i>Sherrif Newwood</i>	Date/Time 2/19/10 1545
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8392

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/19/2010		MEDIA: OBT3		FILL	
TIME COLLECTED(HH:MM)		1450		SUB-MEDIA: TUFF 1		NA	
PRS ID:	15-009(h)	OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID:	15-610858	↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE:	GENERIC	↓		FIELD PREP: NA		↓	
TOP DEPTH:	0	5.7		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH:	0	6.5		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

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

SAMPLE DESC: Brown fill with tuff fragments, moist, some clay

SAMPLE COMMENTS:

NA

LOCATION DESC: 9h-5 leachfield

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha \leq 22 dpm
Beta/Gamma \leq 1955 dpm

PID $\frac{\text{Ambient Reading}}{\text{Reading}} = \text{ppm}$ 73m 2/19/10

COLLECTED BY (PRINT)

TLMcFarland

REVIEWED BY (PRINT)

Lacey A Lopez

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) <i>TLMcFarland</i>	Date/Time 2/19/10 1545	RECEIVED BY (Printed Name) <i>Sherry S. Herwood</i> (Signature) <i>Sherry S. Herwood</i>	Date/Time 2/19/10 1545
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2508

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

SAMPLE ID: RE15-10-8406

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/19/2010		MEDIA:		NA	
TIME COLLECTED (HH:MM)		1434		SUB-MEDIA:		OTHER	
PRS ID:	15-009(h)	OK		SAMPLE TECH CODE:		DC	
LOCATION ID:	UNK	15-610856		FIELD QC TYPE:		ER	
LOCATION TYPE:	GENERIC	OK		FIELD PREP:		UF	
TOP DEPTH:	0			SAMPLE USAGE:		QC	
BOTTOM DEPTH:	0			SCREEN/PORT DESC:		NA	
FIELD MATRIX:	W			EXCAVATED: YES/NO		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	METALS+U-GEL	1 LITER POLY	Nitric Acid	Y	
1		NO3NO2	250 ML POLY	Sulfuric Acid (Hydrogen Sulfate)	N	
1		SW-846:6850	250 ML POLY	Ice	Y	
1		TCN	500 ML POLY	Sodium Hydroxide	Y	

SAMPLE DESC: QC Sample of RE15-10-8406
RE15-10-8389

SAMPLE COMMENTS: none

LOCATION DESC: 9h-2 (5' below inlet)

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 22/19/10 dpm
Beta/Gamma = NA dpm

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

COLLECTED BY (PRINT)

REVIEWED BY (PRINT)

Jon Roberson

Larry A. Lopez

RELINQUISHED BY (Printed Name) Jon Roberson (Signature) <i>Jon Roberson</i>	Date/Time 2/19/10 1545	RECEIVED BY (Printed Name) Shew: Shewood (Signature) <i>Shew Shewood</i>	Date/Time 2/19/10 1545
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



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

ARS Sample Delivery Group: ARS2-10-00064
Client Sample ID: RE15-10-8388
Sample Collection Date: 02/19/10 08:44
Sample Matrix: Soil/Solid

Request or PO Number:
ARS Sample ID: ARS2-10-00064-010
Data Received: 02/22/10 00:00
Report Date: 02/22/10 23:02

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Yracer/Chem Recovery
GROSS ALPHA	48.48	31.38	33.91	31.90		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
GROSS BETA	43.78	15.97	17.73	16.88		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
NA-22	-0.05	47.19	0.15	47.19		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
K-40	32.62	11.36	1.63	11.40		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CO-60	0.00	0.00	0.16	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-134	-0.06	45.88	0.11	45.88		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-137	0.22	0.22	0.09	0.22		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
EU-152	0.13	0.23	0.41	0.23		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
PB-212	1.53	0.62	0.20	0.62		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
RA-228	2.99	1.22	0.39	1.23		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-235	0.65	1.23	0.77	1.23		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-238	5.83	4.70	1.94	4.69		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
AM-241	0.38	0.43	0.19	0.43		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
NOTES: % Moisture: 0.80										

Matthew J. Eder
Quality Assurance Review

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

LELAP Certificate # 30658

NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS2-10-00064
Client Sample ID: RE15-10-8389
Sample Collection Date: 02/19/10 10:00
Sample Matrix: Soil/Solid

Request or PD Number:
ARS Sample ID: ARS2-10-00064-011
Date Received: 02/22/10 00:00
Report Date: 02/22/10 23:02

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	138.28	53.35	37.46	58.97		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
GROSS BETA	106.43	22.62	18.42	26.10		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
NA-22	-0.04	43.31	0.14	43.31		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
K-40	21.77	8.89	1.49	8.91		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CO-60	0.00	0.00	0.14	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-134	0.04	0.11	0.16	0.11		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-137	0.05	0.10	0.08	0.10		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
EU-152	0.17	0.21	0.38	0.21		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
PB-212	1.53	0.59	0.18	0.59		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
RA-228	0.00	0.00	0.36	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-235	0.69	0.63	0.48	0.63		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-238	6.24	3.99	1.48	4.23		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
AM-241	0.31	0.27	0.09	0.27		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
NOTES: % Moisture: 0.97										

Matthew J. Eden
Quality Assurance Review

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

LELAP Certificate # 30658

NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS2-10-00064
Client Sample ID: RE15-10-8390
Sample Collection Date: 02/19/10 09:13
Sample Matrix: Soil/Solid

Request or PO Number:
ARS Sample ID: ARS2-10-00064-012
Date Received: 02/22/10 00:00
Report Date: 02/22/10 23:02

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	42.03	30.21	34.06	30.68		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
GROSS BETA	86.59	19.88	17.92	22.53		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
NA-22	-0.04	44.34	0.14	44.34		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
K-40	0.46	3.18	3.24	3.18		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CO-60	0.00	0.00	0.15	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-134	0.13	0.13	0.20	0.13		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-137	0.21	0.21	0.09	0.21		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
EU-152	-0.12	-0.19	0.38	-0.19		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
PB-212	1.57	0.57	0.15	0.57		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
RA-228	2.98	1.14	0.37	1.14		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-235	1.86	1.14	0.59	1.14		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-238	4.61	3.46	1.51	3.62		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
AM-241	0.36	0.39	0.13	0.35		pCi/g	EPA 901.1M	2/22/2010	ME	N/A

NOTES: % Moisture: 1.60

Matthew J. Eder
Quality Assurance Review

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

LELAP Certificate # 30658

NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS2-10-00064
Client Sample ID: RE15-10-8391
Sample Collection Date: 02/19/10 09:40
Sample Matrix: Soil/Solid

Request or PO Number:
ARS Sample ID: ARS2-10-00064-013
Date Received: 02/22/10 00:00
Report Date: 02/22/10 23:02

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	22.09	23.39	32.75	23.58		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
GROSS BETA	40.88	15.81	18.31	16.88		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
NA-22	-0.02	-0.15	0.17	-0.15		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
K-40	23.66	9.87	1.69	9.89		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CO-60	0.00	0.00	0.16	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-134	0.14	0.14	0.11	0.14		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-137	0.00	0.00	0.09	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
EU-152	-0.63	-3.10	0.48	-3.10		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
PB-212	1.73	0.64	0.18	0.64		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
RA-228	2.87	1.10	0.41	1.10		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-235	1.16	1.00	0.51	1.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-238	5.78	4.01	1.65	4.22		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
AM-241	0.46	0.38	0.14	0.38		pCi/g	EPA 901.1M	2/22/2010	ME	N/A

NOTES: % Moisture: 1.20

Quality Assurance Review

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

LELAP Certificate# 30658

NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS2-10-00064
Client Sample ID: RE15-10-8392
Sample Collection Date: 02/19/10 14:50
Sample Matrix: Soil/Solid

Request or PO Number:
ARS Sample ID: ARS2-10-00064-014
Date Received: 02/22/10 00:00
Report Date: 02/22/10 23:02


Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	TPU	Quel	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
GROSS ALPHA	74.03	38.36	33.91	39.42		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
GROSS BETA	67.28	18.66	17.73	20.40		pCi/g	EPA 900.0M	2/22/2010	NP	N/A
NA-22	0.08	0.19	0.16	0.19		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
K-40	1.36	4.92	2.17	4.92		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CO-60	0.10	0.20	0.16	0.20		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-134	-0.06	67.91	0.15	67.91		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
CS-137	0.00	0.00	0.09	0.00		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
EU-152	0.30	0.38	0.46	0.38		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
PB-211	1.37	0.60	0.20	0.60		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
RA-228	1.14	0.83	0.41	0.83		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-235	2.70	1.37	0.66	1.37		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
U-238	4.79	3.65	1.45	3.61		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
AM-241	0.04	0.28	0.16	0.28		pCi/g	EPA 901.1M	2/22/2010	ME	N/A
NOTES: % Moisture: 2.38										

Matthew S. Eder
Quality Assurance Review

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LELAP Certificate# 30658

NELAP Certificate # E87558

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

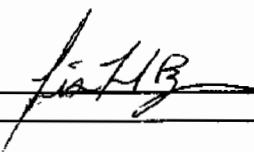
Section I.		
REQUEST NUMBER: <u>10-2070</u>	VALIDATION DATE: <u>04/05/10</u>	LAB CODE: <u>GEL</u>
CONTRACT LABORATORY NAME: <u>GEL Laboratories LLC</u>		
VALIDATOR: <u>Lisa Burgess</u> ORGANIZATION: <u>Analytical Quality Associates, Inc.</u>		
ANALYTICAL SUITE (CHECK ALL THAT APPLY):		
<input type="checkbox"/> TPH-GRO	<input type="checkbox"/> HIGH EXPLOSIVES	<input type="checkbox"/> DIOXIN FURANS
<input type="checkbox"/> TPH-DRO	<input type="checkbox"/> METALS	<input type="checkbox"/> PCB CONGENERS
<input type="checkbox"/> GENERAL CHEMISTRY	<input checked="" type="checkbox"/> RADIOCHEMISTRY	<input type="checkbox"/> LCMSMS HIGH EXPLOSIVES
		<input type="checkbox"/> LCMSMS PERCHLORATES
		<input type="checkbox"/> ORGANOCHLORINE PESTICIDES/POLYCHLORINATED BIPHENYLS
<input type="checkbox"/> OTHER (DESCRIBE): _____		


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

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


1. The gamma spec results that were rejected by the laboratory due to interference were Bi-211, Cd-109 and Ra-224 for all associated samples and, thus, were qualified R,R5a. The gamma spec results that were rejected by the laboratory due to low abundance were Cs-134 for sample RE15-10-8389 and Sr-85 for all samples except -8390 and, thus, were qualified R,R5a. In the duplicate sample for gamma spec, several results were also rejected by the laboratory. Sample data were not qualified as a result.
2. The alpha spec U-232 tracer %R was < the laboratory LAL in samples -8388 and -8390. The associated sample results were detects and, thus, were qualified J+,R3b. The alpha spec Am-243 tracer %R was > the laboratory UAL but ≤ 125 in the LCS. Since the tracer outlier occurred in a QC sample, no sample results were qualified.
3. An MS was not analyzed for tritium. However, an LCS was analyzed and met acceptance criteria, thus, no sample results were qualified.

Reviewed By: Charissa LewisLevel: IDate: 4/6/10


VALIDATOR'S SIGNATURE: 	DATE: <u>04/05/10</u>
Form 5119-1, Revision 0.0	LOS ALAMOS Environmental Restoration Project

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

Yes No N/A				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				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. The tracer is < the Lower Acceptance Level (LAL) but $\geq 10\%R$. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	UJ, R3a	J-, R3a
<input checked="" type="checkbox"/>	<input 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				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6	R, R6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6a	J-, R6a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Required matrix spike information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If LCS information is present, do not Reject. Qualify data based on LCS information. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6c	R, R6c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Duplicate, dilution, or reanalysis.	UJ, R88	J, R88
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. The LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used and/or under advisement by the LANL project chemist.	UJ, R, R19	J, R, R19
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Quantification of data via data validation did not occur based on Quality Control requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.	U, U_LAB	J, J_LAB NQ, NQ

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 24, 2010

Client Sample ID: RE15-10-8389
Sample ID: 248028001
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 9.22%

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	-0.000289	0.0176	+/-0.00218	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00433	0.0224	+/-0.0038	0.050	pCi/g		AYB1	03/23/10	1007	966453	4
Plutonium-239/240	U	0.000946	0.019	+/-0.00295	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.29	0.121	+/-0.120	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.122	0.0738	+/-0.028	0.100	pCi/g						
Uranium-238		1.73	0.085	+/-0.153	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0545	0.290	+/-0.0815	0.200	pCi/g		MXR1	03/12/10	1505	958220	8
Bismuth-211	UI	3.78	R,R5a	0.250	+/-0.217	pCi/g						
Bismuth-214		1.21		0.0952	+/-0.0824	pCi/g						
Cadmium-109	UI	3.77	R,R5a	1.16	+/-0.540	pCi/g						
Cerium-139	U	0.00119		0.0433	+/-0.0124	pCi/g						
Cesium-134	UI	0.145	R,R5a	0.0745	+/-0.0307	pCi/g						
Cesium-137	U	-0.0159		0.0519	+/-0.0157	pCi/g						
Cobalt-60	U	-0.00191		0.047	+/-0.0145	pCi/g						
Europium-152	U	-0.0759		0.121	+/-0.0428	pCi/g						
Lanthanum-140	U	-0.107		0.128	+/-0.0454	pCi/g						
Lead-212		1.54		0.0828	+/-0.0728	pCi/g						
Lead-214		1.37		0.091	+/-0.0872	pCi/g						
Mercury-203	U	0.0191		0.0587	+/-0.0171	pCi/g						
Potassium-40		22.4		0.483	+/-1.04	pCi/g						
Radium-223	U	-0.492		0.787	+/-0.295	pCi/g						
Radium-224	UI	3.67	R,R5a	0.858	+/-0.508	pCi/g						
Radium-226		1.21		0.0952	+/-0.0824	pCi/g						
Radium-228		1.91		0.178	+/-0.180	pCi/g						
Ruthenium-106	U	0.0209		0.418	+/-0.127	pCi/g						
Sodium-22	U	-0.0323		0.0539	+/-0.0177	pCi/g						
Strontium-85	UI	0.0704	R,R5a	0.0581	+/-0.0175	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8389
248028001

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		0.487	0.0426	+/-0.0387	0.080	pCi/g						
Thorium-227	U	-0.15	0.335	+/-0.103		pCi/g						
Thorium-231	U	-0.492	0.787	+/-0.295		pCi/g						
Thorium-234	U	0.198	2.45	+/-0.697	2.00	pCi/g						
Tin-113	U	0.0203	0.0608	+/-0.0172	0.100	pCi/g						
Uranium-235	U	0.0729	0.304	+/-0.0915	0.500	pCi/g						
Yttrium-88	U	-0.0145	0.0431	+/-0.0143	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	117	178	+/-55.6	250	pCi/L		KXX2	03/15/10	1825	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	84.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	60.5	(50%-105%)

Notes:

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

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8388
Sample ID: 248028002
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 7.56%

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	0.00286	0.0167	+/-0.00176	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00536	0.0237	+/-0.00311	0.050	pCi/g		AYB1	03/23/10	1007	966453	4
Plutonium-239/240	U	-0.000571	0.020	+/-0.00476	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.20	J+R3b	0.195	+/-0.210	0.100	pCi/g	AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.180	↓	0.119	+/-0.0434	0.100	pCi/g					
Uranium-238		2.98		0.137	+/-0.272	0.100	pCi/g					
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.343		0.380	+/-0.110	0.200	pCi/g	MXR1	03/12/10	1649	958220	8
Bismuth-211	UI	3.62	R,R5a	0.303	+/-0.244		pCi/g					
Bismuth-214		1.11		0.105	+/-0.0858	0.200	pCi/g					
Cadmium-109	UI	2.02	R,R5a	1.50	+/-0.638		pCi/g					
Cerium-139	U	0.00502		0.0474	+/-0.0139	0.050	pCi/g					
Cesium-134	U	0.0684		0.0928	+/-0.0252	0.100	pCi/g					
Cesium-137		0.0758		0.059	+/-0.0264	0.100	pCi/g					
Cobalt-60	U	0.00656		0.0594	+/-0.0173	0.100	pCi/g					
Europium-152	U	-0.0218		0.145	+/-0.043	0.200	pCi/g					
Lanthanum-140	U	0.00155		0.188	+/-0.0665		pCi/g					
Lead-212		1.47		0.088	+/-0.0784	0.100	pCi/g					
Lead-214		1.31		0.110	+/-0.0956	0.100	pCi/g					
Mercury-203	U	0.0601		0.0637	+/-0.0267	0.100	pCi/g					
Potassium-40		25.6		0.491	+/-1.25	1.00	pCi/g					
Radium-223	U	-0.419		0.926	+/-0.325		pCi/g					
Radium-224	UI	4.00	R,R5a	0.943	+/-0.617		pCi/g					
Radium-226		1.11		0.105	+/-0.0858		pCi/g					
Radium-228		1.49		0.210	+/-0.189	0.500	pCi/g					
Ruthenium-106	U	0.00942		0.453	+/-0.139	0.800	pCi/g					
Sodium-22	U	-0.0156		0.0629	+/-0.0196	0.080	pCi/g					
Strontium-85	UI	0.0939	R,R5a	0.075	+/-0.0215		pCi/g					
Thallium-208		0.440		0.0532	+/-0.038	0.080	pCi/g					

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

Report Date: March 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8388
248028002

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	0.130	0.408	+/-0.114		pCi/g						
Thorium-231	U	-0.419	0.926	+/-0.325		pCi/g						
Thorium-234		3.17	2.85	+/-1.04	2.00	pCi/g						
Tin-113	U	-0.0151	0.074	+/-0.0223	0.100	pCi/g						
Uranium-235	U	0.260	0.309	+/-0.140	0.500	pCi/g						
Yttrium-88	U	-0.0244	0.0414	+/-0.0159	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	89.2	181	+/-55.0	250	pCi/L		KXK2	03/15/10	1902	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.3	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	80.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	40.5 *	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 24, 2010

Client Sample ID: RE15-10-8390
Sample ID: 248028003
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 15.2%

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	0.00266	0.0159	+/-0.0022	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00653	0.0204	+/-0.0058	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.0158	0.0173	+/-0.0053	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.74	J+R3b	0.166	+/-0.245	0.100	pCi/g	AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.291	↓	0.102	+/-0.0532	0.100	pCi/g					
Uranium-238		3.96	↓	0.117	+/-0.339	0.100	pCi/g					
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0746		0.126	+/-0.0402	0.200	pCi/g	MXR1	03/12/10	1650	958220	8
Bismuth-211	UI	4.01	R,R5a	0.395	+/-0.312		pCi/g					
Bismuth-214		1.34		0.145	+/-0.117	0.200	pCi/g					
Cadmium-109	UI	4.01	R,R5a	1.08	+/-0.559		pCi/g					
Cerium-139	U	-0.0167		0.0586	+/-0.0181	0.050	pCi/g					
Cesium-134	U	0.0803		0.115	+/-0.0316	0.100	pCi/g					
Cesium-137	U	0.0535		0.0913	+/-0.0263	0.100	pCi/g					
Cobalt-60	U	-0.00266		0.0788	+/-0.0246	0.100	pCi/g					
Europium-152	U	0.0119		0.190	+/-0.0644	0.200	pCi/g					
Lanthanum-140	U	-0.195		0.175	+/-0.0699		pCi/g					
Lead-212		1.77		0.106	+/-0.114	0.100	pCi/g					
Lead-214		1.45		0.144	+/-0.120	0.100	pCi/g					
Mercury-203	U	0.0674		0.0774	+/-0.0331	0.100	pCi/g					
Potassium-40		23.8		0.614	+/-1.19	1.00	pCi/g					
Radium-223	U	0.169		1.19	+/-0.398		pCi/g					
Radium-224	UI	3.93	R,R5a	1.13	+/-0.642		pCi/g					
Radium-226		1.34		0.145	+/-0.117		pCi/g					
Radium-228		1.78		0.301	+/-0.203	0.500	pCi/g					
Ruthenium-106	U	0.0903		0.675	+/-0.204	0.800	pCi/g					
Sodium-22	U	-0.0571		0.0778	+/-0.0273	0.080	pCi/g					
Strontium-85	U	0.00146		0.0811	+/-0.0284		pCi/g					
Thallium-208		0.486		0.0684	+/-0.0468	0.080	pCi/g					

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8390
Sample ID: 248028003

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	0.147	0.498	+/-0.142		pCi/g						
Thorium-231	U	0.169	1.19	+/-0.398		pCi/g						
Thorium-234		4.26	1.22	+/-0.710	2.00	pCi/g						
Tin-113	U	-0.0132	0.0897	+/-0.0272	0.100	pCi/g						
Uranium-235	U	0.410	0.418	+/-0.124	0.500	pCi/g						
Yttrium-88	U	0.0053	0.0715	+/-0.0213	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	126	178	+/-56.2	250	pCi/L		KXX2	03/15/10	1940	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.6	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	90.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	49.0 *	(50%-105%)

Notes:

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

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- ** 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.

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8392
Sample ID: 248028004
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 19.5%

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	0.00349	0.0256	+/-0.00334	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00263	0.0224	+/-0.00339	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.006	0.0189	+/-0.00415	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.559	0.143	+/-0.0676	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236	U	0.0502	0.0874	+/-0.0202	0.100	pCi/g						
Uranium-238		0.639	0.101	+/-0.0746	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0102	0.285	+/-0.0947	0.200	pCi/g		MXR1	03/12/10	1650	958220	8
Bismuth-211	UI	4.16	R,R5a	0.397	+/-0.333	pCi/g						
Bismuth-214		1.26		0.145	+/-0.118	0.200	pCi/g					
Cadmium-109	UI	2.65	R,R5a	1.25	+/-0.626	pCi/g						
Cerium-139	U	-0.01		0.0584	+/-0.0186	0.050	pCi/g					
Cesium-134	U	0.0329		0.101	+/-0.030	0.100	pCi/g					
Cesium-137	U	-0.0255		0.0705	+/-0.0234	0.100	pCi/g					
Cobalt-60	U	0.0179		0.0911	+/-0.027	0.100	pCi/g					
Europium-152	U	-0.0596		0.197	+/-0.0713	0.200	pCi/g					
Lanthanum-140	U	-0.00862		0.255	+/-0.0842	pCi/g						
Lead-212		1.75		0.105	+/-0.108	0.100	pCi/g					
Lead-214		1.51		0.144	+/-0.128	0.100	pCi/g					
Mercury-203	U	0.0385		0.0843	+/-0.0275	0.100	pCi/g					
Potassium-40		36.7		0.616	+/-2.02	1.00	pCi/g					
Radium-223	U	-0.206		1.31	+/-0.462	pCi/g						
Radium-224	UI	2.71	R,R5a	1.13	+/-0.697	pCi/g						
Radium-226		1.26		0.145	+/-0.118	pCi/g						
Radium-228		1.58		0.294	+/-0.219	0.500	pCi/g					
Ruthenium-106	U	-0.0644		0.575	+/-0.176	0.800	pCi/g					
Sodium-22	U	0.0332		0.100	+/-0.0291	0.080	pCi/g					
Strontium-85	UI	0.127	R,R5a	0.104	+/-0.0308	pCi/g						
Thallium-208		0.557		0.0742	+/-0.0604	0.080	pCi/g					

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Project: LANL ER Project

Report Date: March 24, 2010

Client Sample ID: RE15-10-8392
Sample ID: 248028004

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	-0.0757	0.481	+/-0.146		pCi/g					
Thorium-231	U	-0.206	1.31	+/-0.462		pCi/g					
Thorium-234	U	2.24	2.37	+/-1.07	2.00	pCi/g					
Tin-113	U	-0.0153	0.0884	+/-0.0278	0.100	pCi/g					
Uranium-235	U	-0.0683	0.389	+/-0.124	0.500	pCi/g					
Yttrium-88	U	0.0199	0.0589	+/-0.0154	0.100	pCi/g					
Rad Liquid Scintillation Analysis											
<i>H3 "As Received"</i>											
Tritium	U	-112	179	+/-44.4	250	pCi/L		KXK2	03/15/10	2017 964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	54.5	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	86.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	52.5	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8391
Sample ID: 248028005
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 10.9%

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	0.00685	0.0161	+/-0.0027	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00158	0.025	+/-0.00403	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.00754	0.0212	+/-0.0038	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.42	0.111	+/-0.201	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.200	0.0679	+/-0.0351	0.100	pCi/g						
Uranium-238		3.11	0.0781	+/-0.252	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.393	0.501	+/-0.152	0.200	pCi/g		MXR1	03/12/10	1651	958220	8
Bismuth-211	UI	3.99	R,R5a	0.423	+/-0.341	pCi/g						
Bismuth-214		1.37		0.130	+/-0.117	pCi/g						
Cadmium-109	UI	1.97	R,R5a	1.74	+/-0.583	pCi/g						
Cerium-139	U	-0.0332	0.0626	+/-0.0195	0.050	pCi/g						
Cesium-134	U	0.0619	0.0958	+/-0.035	0.100	pCi/g						
Cesium-137		0.0913	0.0687	+/-0.0354	0.100	pCi/g						
Cobalt-60	U	0.0123	0.0721	+/-0.0215	0.100	pCi/g						
Europium-152	U	-0.0276	0.200	+/-0.0729	0.200	pCi/g						
Lanthanum-140	U	-0.00237	0.175	+/-0.0622		pCi/g						
Lead-212		1.85	0.114	+/-0.132	0.100	pCi/g						
Lead-214		1.45	0.154	+/-0.130	0.100	pCi/g						
Mercury-203	U	0.0447	0.0959	+/-0.027	0.100	pCi/g						
Potassium-40		23.7	0.617	+/-1.46	1.00	pCi/g						
Radium-223	U	-0.317	1.25	+/-0.433		pCi/g						
Radium-224	UI	5.21	R,R5a	1.22	+/-0.786	pCi/g						
Radium-226		1.37		0.130	+/-0.117	pCi/g						
Radium-228		1.86		0.254	+/-0.231	pCi/g						
Ruthenium-106	U	-0.146	0.588	+/-0.186	0.800	pCi/g						
Sodium-22	U	-0.0306	0.0706	+/-0.0237	0.080	pCi/g						
Strontium-85	UI	0.134	R,R5a	0.0898	+/-0.0257	pCi/g						
Thallium-208		0.553		0.0661	+/-0.0525	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8391
248028005

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	-0.244	0.516	+/-0.156		pCi/g						
Thorium-231	U	-0.317	1.25	+/-0.433		pCi/g						
Thorium-234	U	2.33	4.34	+/-1.22	2.00	pCi/g						
Tin-113	U	-0.0276	0.0889	+/-0.0272	0.100	pCi/g						
Uranium-235	U	-0.198	0.429	+/-0.133	0.500	pCi/g						
Yttrium-88	U	-0.0276	0.0593	+/-0.0209	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	87.9	178	+/-54.2	250	pCi/L		KXK2	03/15/10	2055	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	80.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	66.5	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

Wednesday, February 24, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2070

LOS ALAMOS

REQUEST NUMBER: 10-2070

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/26/2010

General Engineering Laboratories, Inc.,
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2480287.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8389	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8389	1	POLY	H3	Ice	R
RE15-10-8388	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8388	1	POLY	H3	Ice	R
RE15-10-8390	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8390	1	POLY	H3	Ice	R
RE15-10-8392	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8392	1	POLY	H3	Ice	R
RE15-10-8391	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8391	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

Wednesday, February 24, 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: 10-2070
Per Agreement Number: 126310011
Project Cost Code: MR3A05529E00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 2/24/2010

TURNAROUND/REPORT DUE: 3/26/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature: 

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1		1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
EPA:906.0		1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	

Wednesday, February 24, 2010

REQUEST NUMBER: 10-2070

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-906.0	1	RE15-10-8392	R	2/19/2010	
	HASL-300:AM-241	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	HASL-300:ISOPU	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	HASL-300:ISOU	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	

Final Page of REQUEST NUMBER 10-2070



March 03, 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: 248028
SDG: 10-2070

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 25, 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: 10-2070
Enclosures

Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Work Order #: 248028
SDG: 10-2070

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Raw Data.....	56
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Case Narrative

**Case Narrative for
Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Workorder #: 248028
SDG # : 10-2070**

March 03, 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 25, 2010 for analysis. The samples were prepared/analyzed within the required holding time. Shipping container temperatures were checked, documented, and within specifications. The samples were screened according to GEL Standard Operating Procedure. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. The containers for radiochemistry were received at 12-14C temperatures. Shipping container temperature was within specification (0 - 6C).

Sample Identification The laboratory received the following samples:

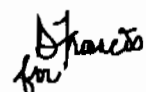
<u>Laboratory ID</u>	<u>Client ID</u>
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391

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 03 March 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 24, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2070

LOS ALAMOS

REQUEST NUMBER: 10-2070

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/26/2010

General Engineering Laboratories, Inc.,
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

2480287.

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8389	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8389	1	POLY	H3	Ice	R
RE15-10-8388	1	POLY	AM241+GS+ISOPU+ISO U	None	R
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RE15-10-8390	1	POLY	H3	Ice	R
RE15-10-8392	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8392	1	POLY	H3	Ice	R
RE15-10-8391	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8391	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

Wednesday, February 24, 2010

REQUEST NUMBER: 10-2070

**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: 10-2070

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 2/24/2010

TURNAROUND/REPORT DUE: 3/26/2010

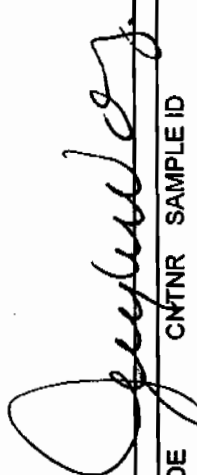
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CMTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	EPA:906.0	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	

Wednesday, February 24, 2010

REQUEST NUMBER: 10-2070

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	RE15-10-8392	R	2/19/2010	
	HASL-300:AM-241	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
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		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	
	HASL-300:ISOU	1	RE15-10-8388	R	2/19/2010	
		1	RE15-10-8389	R	2/19/2010	
		1	RE15-10-8390	R	2/19/2010	
		1	RE15-10-8391	R	2/19/2010	
		1	RE15-10-8392	R	2/19/2010	

Final Page of REQUEST NUMBER 10-2070



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL		SDG/ARCO/Work Order: 10-2070	
Received By: Greg Tyler		Date Received: 2/25/10	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		X	Maximum Counts Observed*: 80cpm
Classified Radioactive II by RSO?		X	
COC/Samples marked containing PCBs?		X	
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within 0 ≤ 6 deg. C?	X			Preservation Method: ice bags blue ice dry ice none other 0-6C 12-14C
3 Chain of custody documents included with shipment?	X			
4 Sample containers intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH:
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 1919 0C 7209 7850 1882 2C 7209 7850 1941 3C 7209 7850 2010 5C 7209 7850 2098 13C
 7209 7850 2146 1C 7209 7850 2076 2C 7209 7850 2043 3C 7209 7850 2157 6C 7209 7850 1908 14C
 7209 7850 1952 1C 7209 7850 2065 2C 7209 7850 2238 3C 7209 7850 1871 12C
 7209 7850 2054 1C 7209 7850 1996 3C 7209 7850 2124 3C 7209 7850 1893 12C
 7209 7850 1963 1C 7209 7850 2135 3C 7209 7850 1974 4C 7209 7850 1849 12C
 7209 7850 2021 2C 7209 7850 2032 3C 7209 7850 1985 4C 7209 7850 1838 13C
 7209 7850 2113 2C 7209 7850 2249 3C 7209 7850 2000 4C 7209 7850 1860 13C
 7209 7850 2102 2C 7209 7850 2168 3C 7209 7850 2087 4C 7209 7850 1850 13C

JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAGG BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 49.0 LB M
CAO: 0014178/CAFE2

BILL SENDER

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 63.0 LB MANT
CAO: 0014178/CAFE2450

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A0532VA00

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR1A015AGMM0

FedEx

FedEx

Express



2 of 2

7209 7850 1919

TRK 7209 7850 1908 0201

THU - 25FEB
PRIORITY OVERNIGHT

X CHSA

29

2 of 2

7209 7850 2146

Matr 7209 7850 2135 0201

THU - 25FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

LOS ALAMOS, NM 87545
UNITED STATES US

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR3A05529E00

FedEx

Express



UNITED STATES US

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

REF: 6B010AMR1A015AGMM0

FedEx

Express



2 of 3

7209 7850 1952

TRK 7209 7850 1941 0201

THU - 25FEB A1
PRIORITY OVERNIGHT

X CHSA

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CHS

1 of 2

TRK 7209 7850 2054

AN MASTER NM

THU - 25FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

ORIGIN ID: SAFA (505) 666-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

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

ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A0532VA00

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWMO



2 of 3
MPS# 7209 7850 1882
Matr# 7209 7850 1871 0201

XX CHSA



THU - 25FEB
PRIORITY OVERNIGHT

294

1 of 2
TRKH 0201 7209 7850 2076
MASTER

XX CHSA



THU - 25FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

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

SHIP DATE: 24FEB10
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWMO



TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR2A0515BYDO



2 of 2
MPS# 7209 7850 2065
Matr# 7209 7850 2054 0201

XX CHSA

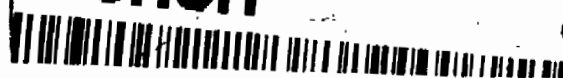


THU - 25FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

2 of 2
MPS# 7209 7850 1996
Matr# 7209 7850 1985 0201

XX CHSA



THU - 25FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

ORIGIN ID: SAFA (505) 865-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAG00 BLDG 1237 DPU 83
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTNGT: 51.0 LB MAN
CAD: 0014176/CAFE2450
BILL SENDER

ORIGIN ID: SAFA (505) 865-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAG00 BLDG 1237 DPU 83
LOS ALAMOS, NM 87545
UNITED STATES US

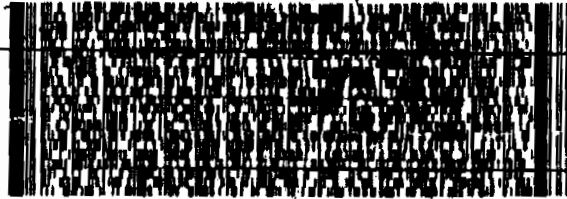
SHIP DATE: 24FEB10
ACTNGT: 51.0 LB MAN
CAD: 0014176/CAFE2450
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWMO

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A0223KY10



FedEx



FedEx Express



1 of 2
TRK# 7209 7850 2135
NN MASTER NN

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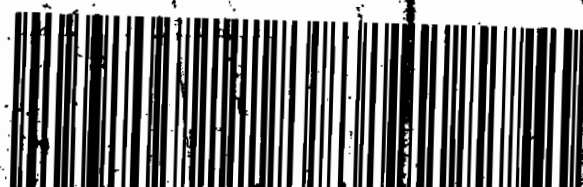
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JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAG00 BLDG 1237 DPU 83

ACTNGT: 50.0 LB MAN
CAD: 0014176/CAFE2450

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAG00 BLDG 1237 DPU 83

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
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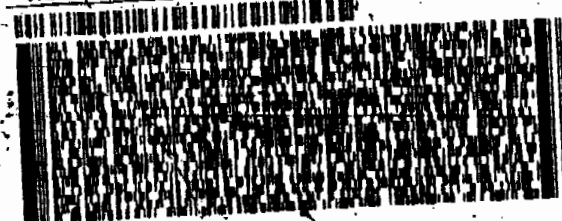
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(843) 556-8171
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Matr-M 7209 7850 2238 0201

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TRK# 7209 7850 2168

THU - 25FEB A1
PRIORITY OVERNIGHT

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

SHIP DATE: 24FEB10
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2450

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

SHIP DATE: 24FEB10
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2450

LOS ALAMOS, NM 87545
UNITED STATES US

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LOS ALAMOS, NM 87545
UNITED STATES US

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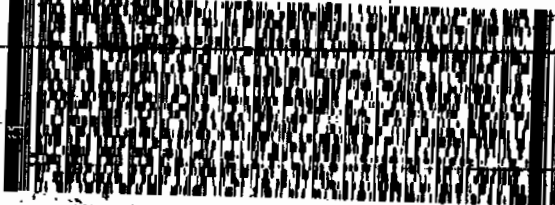
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1 of 3
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PRIORITY OVERNIGHT

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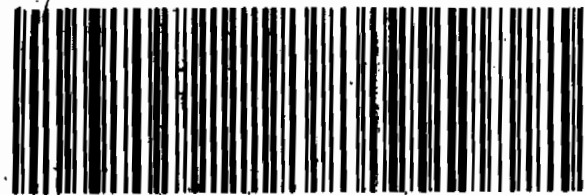
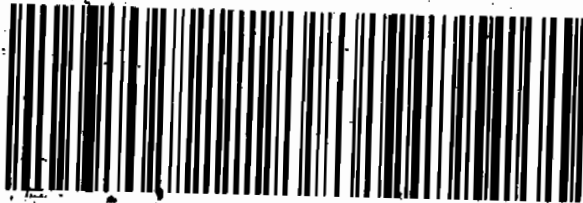
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PRIORITY OVERNIGHT

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

ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2450

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

SHIP DATE: 24FEB10
ACTWGT: 67.0 LB MAN
CAD: 0014176/CAFE2450

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

TO VALERIE DAVIS
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2040 SAVAGE RD

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

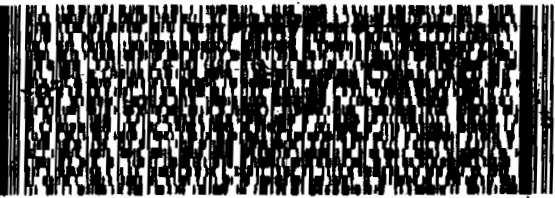
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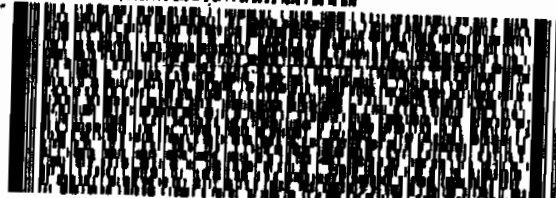
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TRK# 7209 7850 2238
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MPS# 7209 7850 2124
0283
Mstr# 7209 7850 2113 0281

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PRIORITY OVERNIGHT

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UNITED STATES MAIL PERMIT NO. 1000 CHARLESTON SC 29407

ORIGIN ID: SAFA (506) 666-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP D
ACTWGT
CAD: 06

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DATE: 24FEB10
48.8 LB MAN
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DER

JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 51.0 LB MAN
CAD: 0014178/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

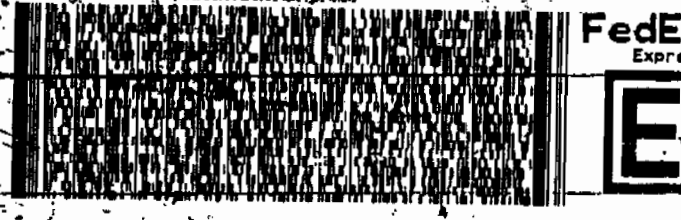
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TO VALERIE DAVIS
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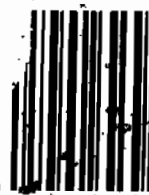


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TRKH
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PRIORITY OVERNIGHT

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LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR2A0515BYDO

JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 55.0 LB MAN
CAD: 0014178/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: 6B010AMR1A015AGWMO



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PRIORITY OVERNIGHT

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PRIORITY OVERNIGHT

MatrN 7209 7850 2076 0201

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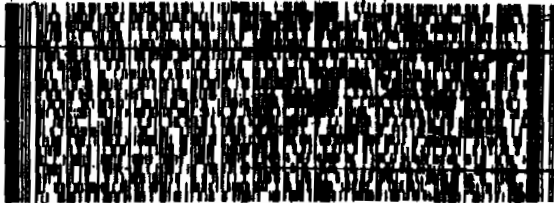


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JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 62.0 LB MAN
CAD: 0014176/CAFE24
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR2A0515BYDO



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ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 46.0 LB MAN
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TO VALERIE DAVIS
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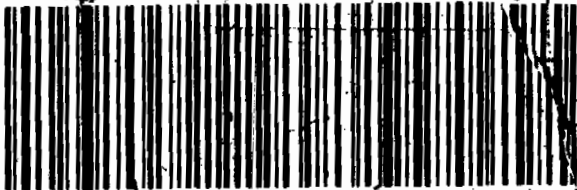
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Matr# 7209 7850 2000 0201

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PRIORITY OVERNIGHT

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

CAD: 0014176/CAFE2460
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A0532VA00



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PRIORITY OVERNIGHT

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

CAD: 0014176/CAFE2460
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
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PRIORITY OVERNIGHT

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THU - 25FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

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ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAB0 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
ACTWGT: 56.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171

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UNITED STATES MAIL PERMIT NO. 1000 CHARLESTON SC 29407



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ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
TAB0 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
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TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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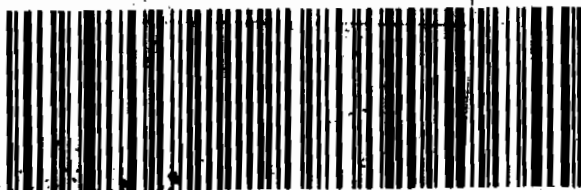


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XX CHSA

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29407
SC-US
CHS



2 of 3
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XX CHSA

THU - 25FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS



ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB
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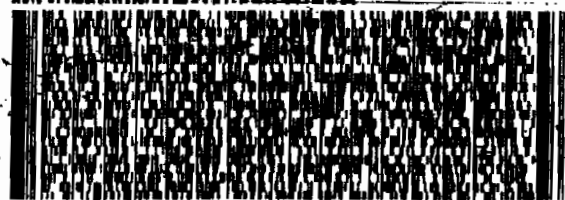
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CHARLESTON SC 29407

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ORIGIN ID: SAFA (505) 665-9968
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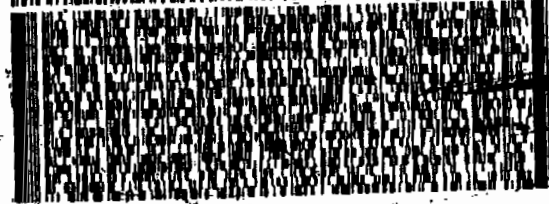
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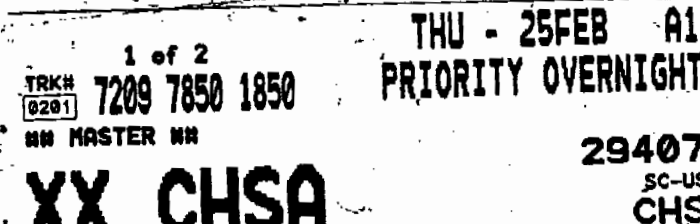
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29407
SC-US
CHS



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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 24FEB10
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TO VALERIE DAVIS
GENERAL ENGINEERING LAB
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CHARLESTON SC 29407

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PRIORITY OVERNIGHT

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

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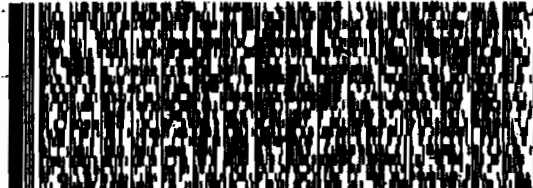
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GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 656-8171

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PRIORITY OVERNIGHT

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Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier Explanation

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

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Los Alamos National Laboratory (LANL)
SDG 10-2070**

Method/Analysis Information

Product: AM241
Analytical Method: DOE EML HASL-300, Am-05-RC Modified
Prep Method: Dry Soil Prep
Analytical Batch Number: 966171
Prep Batch Number: 958209

Sample ID	Client ID
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391
1202073424	Method Blank (MB)
1202073425	248028001(RE15-10-8389) Sample Duplicate (DUP)
1202073426	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 1202073424 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 248028001 (RE15-10-8389). The QC was from LANL work order 248028.

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

Samples 1202073424 (MB), 1202073425 (RE15-10-8389), 248028001 (RE15-10-8389), 248028002 (RE15-10-8388), 248028003 (RE15-10-8390), 248028004 (RE15-10-8392) and 248028005 (RE15-10-8391) were recounted to achieve 400 tracer counts.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population. Sample, 1202073426 (LCS), did not meet the client tracer yield requirements, however it is less than 110 percent and does meet the GEL standard tracer yield requirements.

Blank Decision Level

The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: ISOPU
Analytical Method: DOE EML HASL-300, Pu-11-RC Modified
Prep Method: Dry Soil Prep
Analytical Batch Number: 966453
Prep Batch Number: 958209

Sample ID	Client ID
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391
1202074009	Method Blank (MB)
1202074010	248028001(RE15-10-8389) Sample Duplicate (DUP)
1202074011	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 1202074009 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 248028001 (RE15-10-8389). The QC was from LANL work order 248028.

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:	ISOU
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	959837
Prep Batch Number:	958209

Sample ID	Client ID
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391
1202058683	Method Blank (MB)
1202058684	248028001(RE15-10-8389) Sample Duplicate (DUP)
1202058685	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 1202058683 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 248028001 (RE15-10-8389). The QC was from LANL work order 248028.

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 1202058683 (MB) was recounted due to poor resolution.

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. Samples 248028002 (RE15-10-8388) and 248028003 (RE15-10-8390) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

Blank Decision Level

The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	GAMMA SPEC
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	958220
Prep Batch Number:	958209

Sample ID	Client ID
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391
1202054952	Method Blank (MB)
1202054953	248028001(RE15-10-8389) Sample Duplicate (DUP)
1202054954	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 April 2009, May 2009, June 2009, October 2009 and February 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: 248028001 (RE15-10-8389). The QC was from LANL work order 248028.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The method blank 1202054952 (MB) result is greater than 1.65 times the CSU but less than the MDC is Bi-214 and Ra-226.

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 1202054952 (MB) result is greater than the decision level but less than the MDC is Bi-214 and Ra-226.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Bismuth-211	248028001	RE15-10-8389
			248028002	RE15-10-8388
			248028003	RE15-10-8390
			248028004	RE15-10-8392
			248028005	RE15-10-8391
			1202054953	RE15-10-8389(248028001DUP)
		Cadmium-109	248028001	RE15-10-8389
			248028002	RE15-10-8388
			248028003	RE15-10-8390
			248028004	RE15-10-8392
			248028005	RE15-10-8391
			1202054953	RE15-10-8389(248028001DUP)
		Radium-224	248028001	RE15-10-8389
			248028002	RE15-10-8388
			248028003	RE15-10-8390
			248028004	RE15-10-8392
			248028005	RE15-10-8391
			1202054953	RE15-10-8389(248028001DUP)
UI	Data rejected due to low abundance.	Cesium-134	248028001	RE15-10-8389
			1202054953	RE15-10-8389(248028001DUP)
		Strontium-85	248028001	RE15-10-8389
			248028002	RE15-10-8388
			248028004	RE15-10-8392
			248028005	RE15-10-8391

Method/Analysis Information

Product: H3
Analytical Method: GL-RAD-A-002
Analytical Batch Number: 964049

Sample ID	Client ID
248028001	RE15-10-8389
248028002	RE15-10-8388
248028003	RE15-10-8390
248028004	RE15-10-8392
248028005	RE15-10-8391
1202068192	Method Blank (MB)
1202068193	248028005(RE15-10-8391) Sample Duplicate (DUP)
1202068194	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 and August 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: 248028005 (RE15-10-8391). The QC was from LANL work order 248028.

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 1202068192 (MB) was recounted due to the quench number being outside the calibration range. Recount is 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 result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Certification Statement

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

Review Validation:

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

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

Reviewer/Date: _____

Paula Wilson 3/24/13

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: 10-2070 GEL Work Order: 248028

The Qualifiers in this report are defined as follows:

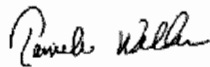
- * Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- ** Indicates the analyte is a surrogate compound.

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

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

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

Reviewed by



GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8389
Sample ID: 248028001
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 9.22%

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	-0.000289	0.0176	+/-0.00218	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00433	0.0224	+/-0.0038	0.050	pCi/g		AYB1	03/23/10	1007	966453	4
Plutonium-239/240	U	0.000946	0.019	+/-0.00295	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.29	0.121	+/-0.120	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.122	0.0738	+/-0.028	0.100	pCi/g						
Uranium-238		1.73	0.085	+/-0.153	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0545	0.290	+/-0.0815	0.200	pCi/g		MXR1	03/12/10	1505	958220	8
Bismuth-211	UI	3.78	0.250	+/-0.217		pCi/g						
Bismuth-214		1.21	0.0952	+/-0.0824	0.200	pCi/g						
Cadmium-109	UI	3.77	1.16	+/-0.540		pCi/g						
Cerium-139	U	0.00119	0.0433	+/-0.0124	0.050	pCi/g						
Cesium-134	UI	0.145	0.0745	+/-0.0307	0.100	pCi/g						
Cesium-137	U	-0.0159	0.0519	+/-0.0157	0.100	pCi/g						
Cobalt-60	U	-0.00191	0.047	+/-0.0145	0.100	pCi/g						
Europium-152	U	-0.0759	0.121	+/-0.0428	0.200	pCi/g						
Lanthanum-140	U	-0.107	0.128	+/-0.0454		pCi/g						
Lead-212		1.54	0.0828	+/-0.0728	0.100	pCi/g						
Lead-214		1.37	0.091	+/-0.0872	0.100	pCi/g						
Mercury-203	U	0.0191	0.0587	+/-0.0171	0.100	pCi/g						
Potassium-40		22.4	0.483	+/-1.04	1.00	pCi/g						
Radium-223	U	-0.492	0.787	+/-0.295		pCi/g						
Radium-224	UI	3.67	0.858	+/-0.508		pCi/g						
Radium-226		1.21	0.0952	+/-0.0824		pCi/g						
Radium-228		1.91	0.178	+/-0.180	0.500	pCi/g						
Ruthenium-106	U	0.0209	0.418	+/-0.127	0.800	pCi/g						
Sodium-22	U	-0.0323	0.0539	+/-0.0177	0.080	pCi/g						
Strontium-85	UI	0.0704	0.0581	+/-0.0175		pCi/g						

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Certificate of Analysis

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

Report Date: March 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8389
248028001

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		0.487	0.0426	+/-0.0387	0.080	pCi/g						
Thorium-227	U	-0.15	0.335	+/-0.103		pCi/g						
Thorium-231	U	-0.492	0.787	+/-0.295		pCi/g						
Thorium-234	U	0.198	2.45	+/-0.697	2.00	pCi/g						
Tin-113	U	0.0203	0.0608	+/-0.0172	0.100	pCi/g						
Uranium-235	U	0.0729	0.304	+/-0.0915	0.500	pCi/g						
Yttrium-88	U	-0.0145	0.0431	+/-0.0143	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	117	178	+/-55.6	250	pCi/L		KXK2	03/15/10	1825	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	84.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	60.5	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product

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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 24, 2010

Client Sample ID: RE15-10-8389 Project: LANL01004
Sample ID: 248028001 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
F Estimated Value
H Analytical holding time was exceeded
J Value is estimated
M M if above MDC and less than LLD
M Matrix Related Failure
N/A RPD or %Recovery limits do not apply.
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 24, 2010

Client Sample ID: RE15-10-8388
Sample ID: 248028002
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 7.56%

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	0.00286	0.0167	+/-0.00176	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00536	0.0237	+/-0.00311	0.050	pCi/g		AYB1	03/23/10	1007	966453	4
Plutonium-239/240	U	-0.000571	0.020	+/-0.00476	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.20	0.195	+/-0.210	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.180	0.119	+/-0.0434	0.100	pCi/g						
Uranium-238		2.98	0.137	+/-0.272	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.343	0.380	+/-0.110	0.200	pCi/g		MXR1	03/12/10	1649	958220	8
Bismuth-211	UI	3.62	0.303	+/-0.244		pCi/g						
Bismuth-214		1.11	0.105	+/-0.0858	0.200	pCi/g						
Cadmium-109	UI	2.02	1.50	+/-0.638		pCi/g						
Cerium-139	U	0.00502	0.0474	+/-0.0139	0.050	pCi/g						
Cesium-134	U	0.0684	0.0928	+/-0.0252	0.100	pCi/g						
Cesium-137		0.0758	0.059	+/-0.0264	0.100	pCi/g						
Cobalt-60	U	0.00656	0.0594	+/-0.0173	0.100	pCi/g						
Europium-152	U	-0.0218	0.145	+/-0.043	0.200	pCi/g						
Lanthanum-140	U	0.00155	0.188	+/-0.0665		pCi/g						
Lead-212		1.47	0.088	+/-0.0784	0.100	pCi/g						
Lead-214		1.31	0.110	+/-0.0956	0.100	pCi/g						
Mercury-203	U	0.0601	0.0637	+/-0.0267	0.100	pCi/g						
Potassium-40		25.6	0.491	+/-1.25	1.00	pCi/g						
Radium-223	U	-0.419	0.926	+/-0.325		pCi/g						
Radium-224	UI	4.00	0.943	+/-0.617		pCi/g						
Radium-226		1.11	0.105	+/-0.0858		pCi/g						
Radium-228		1.49	0.210	+/-0.189	0.500	pCi/g						
Ruthenium-106	U	0.00942	0.453	+/-0.139	0.800	pCi/g						
Sodium-22	U	-0.0156	0.0629	+/-0.0196	0.080	pCi/g						
Strontium-85	UI	0.0939	0.075	+/-0.0215		pCi/g						
Thallium-208		0.440	0.0532	+/-0.038	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 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8388
248028002

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	0.130	0.408	+/-0.114		pCi/g					
Thorium-231	U	-0.419	0.926	+/-0.325		pCi/g					
Thorium-234		3.17	2.85	+/-1.04	2.00	pCi/g					
Tin-113	U	-0.0151	0.074	+/-0.0223	0.100	pCi/g					
Uranium-235	U	0.260	0.309	+/-0.140	0.500	pCi/g					
Yttrium-88	U	-0.0244	0.0414	+/-0.0159	0.100	pCi/g					
Rad Liquid Scintillation Analysis											
<i>H3 "As Received"</i>											
Tritium	U	89.2	181	+/-55.0	250	pCi/L		KXK2	03/15/10	1902 964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.3	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	80.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	40.5 *	(50%-105%)

Notes:

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

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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 24, 2010

Client Sample ID: RE15-10-8388
Sample ID: 248028002

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
F Estimated Value
H Analytical holding time was exceeded
J Value is estimated
M M if above MDC and less than LLD
M Matrix Related Failure
N/A RPD or %Recovery limits do not apply.
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 24, 2010

Client Sample ID: RE15-10-8390
Sample ID: 248028003
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 15.2%

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	0.00266	0.0159	+/-0.0022	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00653	0.0204	+/-0.0058	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.0158	0.0173	+/-0.0053	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.74	0.166	+/-0.245	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.291	0.102	+/-0.0532	0.100	pCi/g						
Uranium-238		3.96	0.117	+/-0.339	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0746	0.126	+/-0.0402	0.200	pCi/g		MXR1	03/12/10	1650	958220	8
Bismuth-211	UI	4.01	0.395	+/-0.312		pCi/g						
Bismuth-214		1.34	0.145	+/-0.117	0.200	pCi/g						
Cadmium-109	UI	4.01	1.08	+/-0.559		pCi/g						
Cerium-139	U	-0.0167	0.0586	+/-0.0181	0.050	pCi/g						
Cesium-134	U	0.0803	0.115	+/-0.0316	0.100	pCi/g						
Cesium-137	U	0.0535	0.0913	+/-0.0263	0.100	pCi/g						
Cobalt-60	U	-0.00266	0.0788	+/-0.0246	0.100	pCi/g						
Europium-152	U	0.0119	0.190	+/-0.0644	0.200	pCi/g						
Lanthanum-140	U	-0.195	0.175	+/-0.0699		pCi/g						
Lead-212		1.77	0.106	+/-0.114	0.100	pCi/g						
Lead-214		1.45	0.144	+/-0.120	0.100	pCi/g						
Mercury-203	U	0.0674	0.0774	+/-0.0331	0.100	pCi/g						
Potassium-40		23.8	0.614	+/-1.19	1.00	pCi/g						
Radium-223	U	0.169	1.19	+/-0.398		pCi/g						
Radium-224	UI	3.93	1.13	+/-0.642		pCi/g						
Radium-226		1.34	0.145	+/-0.117		pCi/g						
Radium-228		1.78	0.301	+/-0.203	0.500	pCi/g						
Ruthenium-106	U	0.0903	0.675	+/-0.204	0.800	pCi/g						
Sodium-22	U	-0.0571	0.0778	+/-0.0273	0.080	pCi/g						
Strontium-85	U	0.00146	0.0811	+/-0.0284		pCi/g						
Thallium-208		0.486	0.0684	+/-0.0468	0.080	pCi/g						

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8390
Sample ID: 248028003
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	0.147	0.498	+/-0.142		pCi/g					
Thorium-231	U	0.169	1.19	+/-0.398		pCi/g					
Thorium-234		4.26	1.22	+/-0.710	2.00	pCi/g					
Tin-113	U	-0.0132	0.0897	+/-0.0272	0.100	pCi/g					
Uranium-235	U	0.410	0.418	+/-0.124	0.500	pCi/g					
Yttrium-88	U	0.0053	0.0715	+/-0.0213	0.100	pCi/g					
Rad Liquid Scintillation Analysis											
<i>H3 "As Received"</i>											
Tritium	U	126	178	+/-56.2	250	pCi/L		KXK2	03/15/10	1940 964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.6	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	90.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	49.0 *	(50%-105%)

Notes:

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

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 24, 2010

Client Sample ID: RE15-10-8390 Project: LANL01004
Sample ID: 248028003 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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BD Results are either below the MDC or tracer recovery is low

C Analyte has been confirmed by GC/MS analysis

D Results are reported from a diluted aliquot of the sample

F Estimated Value

H Analytical holding time was exceeded

J Value is estimated

M M if above MDC and less than LLD

M Matrix Related Failure

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

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 24, 2010

Client Sample ID: RE15-10-8392
Sample ID: 248028004
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 19.5%

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	0.00349	0.0256	+/-0.00334	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00263	0.0224	+/-0.00339	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.006	0.0189	+/-0.00415	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.559	0.143	+/-0.0676	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236	U	0.0502	0.0874	+/-0.0202	0.100	pCi/g						
Uranium-238		0.639	0.101	+/-0.0746	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0102	0.285	+/-0.0947	0.200	pCi/g		MXR1	03/12/10	1650	958220	8
Bismuth-211	UI	4.16	0.397	+/-0.333		pCi/g						
Bismuth-214		1.26	0.145	+/-0.118	0.200	pCi/g						
Cadmium-109	UI	2.65	1.25	+/-0.626		pCi/g						
Cerium-139	U	-0.01	0.0584	+/-0.0186	0.050	pCi/g						
Cesium-134	U	0.0329	0.101	+/-0.030	0.100	pCi/g						
Cesium-137	U	-0.0255	0.0705	+/-0.0234	0.100	pCi/g						
Cobalt-60	U	0.0179	0.0911	+/-0.027	0.100	pCi/g						
Europium-152	U	-0.0596	0.197	+/-0.0713	0.200	pCi/g						
Lanthanum-140	U	-0.00862	0.255	+/-0.0842		pCi/g						
Lead-212		1.75	0.105	+/-0.108	0.100	pCi/g						
Lead-214		1.51	0.144	+/-0.128	0.100	pCi/g						
Mercury-203	U	0.0385	0.0843	+/-0.0275	0.100	pCi/g						
Potassium-40		36.7	0.616	+/-2.02	1.00	pCi/g						
Radium-223	U	-0.206	1.31	+/-0.462		pCi/g						
Radium-224	UI	2.71	1.13	+/-0.697		pCi/g						
Radium-226		1.26	0.145	+/-0.118		pCi/g						
Radium-228		1.58	0.294	+/-0.219	0.500	pCi/g						
Ruthenium-106	U	-0.0644	0.575	+/-0.176	0.800	pCi/g						
Sodium-22	U	0.0332	0.100	+/-0.0291	0.080	pCi/g						
Strontium-85	UI	0.127	0.104	+/-0.0308		pCi/g						
Thallium-208		0.557	0.0742	+/-0.0604	0.080	pCi/g						

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 24, 2010

Client Sample ID:
Sample ID:

RE15-10-8392
248028004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
Rad Gamma Spec Analysis											
GAMMA SPEC "Dry Weight Corrected"											
Thorium-227	U	-0.0757	0.481	+/-0.146		pCi/g					
Thorium-231	U	-0.206	1.31	+/-0.462		pCi/g					
Thorium-234	U	2.24	2.37	+/-1.07	2.00	pCi/g					
Tin-113	U	-0.0153	0.0884	+/-0.0278	0.100	pCi/g					
Uranium-235	U	-0.0683	0.389	+/-0.124	0.500	pCi/g					
Yttrium-88	U	0.0199	0.0589	+/-0.0154	0.100	pCi/g					
Rad Liquid Scintillation Analysis											
H3 "As Received"											
Tritium	U	-112	179	+/-44.4	250	pCi/L		KXK2	03/15/10	2017 964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	54.5	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	86.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	52.5	(50%-105%)

Notes:

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

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 24, 2010

Client Sample ID: RE15-10-8392
Sample ID: 248028004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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BD Results are either below the MDC or tracer recovery is low

C Analyte has been confirmed by GC/MS analysis

D Results are reported from a diluted aliquot of the sample

F Estimated Value

H Analytical holding time was exceeded

J Value is estimated

M M if above MDC and less than LLD

M Matrix Related Failure

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

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 24, 2010

Client Sample ID: RE15-10-8391
Sample ID: 248028005
Matrix: R
Collect Date: 19-FEB-10
Receive Date: 25-FEB-10
Collector: Client
Moisture: 10.9%

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	0.00685	0.0161	+/-0.0027	0.050	pCi/g		AYB1	03/22/10	1625	966171	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00158	0.025	+/-0.00403	0.050	pCi/g		AYB1	03/23/10	1048	966453	4
Plutonium-239/240	U	0.00754	0.0212	+/-0.0038	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.42	0.111	+/-0.201	0.100	pCi/g		AYB1	03/12/10	1738	959837	7
Uranium-235/236		0.200	0.0679	+/-0.0351	0.100	pCi/g						
Uranium-238		3.11	0.0781	+/-0.252	0.100	pCi/g						
Rad Gamma Spec Analysis												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.393	0.501	+/-0.152	0.200	pCi/g		MXR1	03/12/10	1651	958220	8
Bismuth-211	UI	3.99	0.423	+/-0.341		pCi/g						
Bismuth-214		1.37	0.130	+/-0.117	0.200	pCi/g						
Cadmium-109	UI	1.97	1.74	+/-0.583		pCi/g						
Cerium-139	U	-0.0332	0.0626	+/-0.0195	0.050	pCi/g						
Cesium-134	U	0.0619	0.0958	+/-0.035	0.100	pCi/g						
Cesium-137		0.0913	0.0687	+/-0.0354	0.100	pCi/g						
Cobalt-60	U	0.0123	0.0721	+/-0.0215	0.100	pCi/g						
Europium-152	U	-0.0276	0.200	+/-0.0729	0.200	pCi/g						
Lanthanum-140	U	-0.00237	0.175	+/-0.0622		pCi/g						
Lead-212		1.85	0.114	+/-0.132	0.100	pCi/g						
Lead-214		1.45	0.154	+/-0.130	0.100	pCi/g						
Mercury-203	U	0.0447	0.0959	+/-0.027	0.100	pCi/g						
Potassium-40		23.7	0.617	+/-1.46	1.00	pCi/g						
Radium-223	U	-0.317	1.25	+/-0.433		pCi/g						
Radium-224	UI	5.21	1.22	+/-0.786		pCi/g						
Radium-226		1.37	0.130	+/-0.117		pCi/g						
Radium-228		1.86	0.254	+/-0.231	0.500	pCi/g						
Ruthenium-106	U	-0.146	0.588	+/-0.186	0.800	pCi/g						
Sodium-22	U	-0.0306	0.0706	+/-0.0237	0.080	pCi/g						
Strontium-85	UI	0.134	0.0898	+/-0.0257		pCi/g						
Thallium-208		0.553	0.0661	+/-0.0525	0.080	pCi/g						

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8391
Sample ID: 248028005

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	-0.244	0.516	+/-0.156		pCi/g						
Thorium-231	U	-0.317	1.25	+/-0.433		pCi/g						
Thorium-234	U	2.33	4.34	+/-1.22	2.00	pCi/g						
Tin-113	U	-0.0276	0.0889	+/-0.0272	0.100	pCi/g						
Uranium-235	U	-0.198	0.429	+/-0.133	0.500	pCi/g						
Yttrium-88	U	-0.0276	0.0593	+/-0.0209	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
<i>H3 "As Received"</i>												
Tritium	U	87.9	178	+/-54.2	250	pCi/L		KXK2	03/15/10	2055	964049	9

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	80.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	66.5	(50%-105%)

Notes:

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

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

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

Report Date: March 24, 2010

Client Sample ID: RE15-10-8391 Project: LANL01004
Sample ID: 248028005 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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BD Results are either below the MDC or tracer recovery is low

C Analyte has been confirmed by GC/MS analysis

D Results are reported from a diluted aliquot of the sample

F Estimated Value

H Analytical holding time was exceeded

J Value is estimated

M M if above MDC and less than LLD

M Matrix Related Failure

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

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

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QC Summary

Report Date: March 24, 2010

Page 1 of 6

Client : Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: Ms. Joylene Valdez
Workorder: 248028

Parmname		NOM		Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
Rad Alpha Spec													
Batch	959837												
	QC1202058684	248028001	DUP										
	Uranium-233/234				1.29		1.28	pCi/g	0.0127		(0-1)	AYB1	03/12/1009:14
				TPU:	+/-0.120		+/-0.104						
				Yield:	60.5		99.0						
	Uranium-235/236				0.122		0.110	pCi/g	0.125		(0-1)		
				TPU:	+/-0.028		+/-0.0196						
				Yield:	60.5		99.0						
	Uranium-238				1.73		1.72	pCi/g	0.0171		(0-1)		
				TPU:	+/-0.153		+/-0.134						
				Yield:	60.5		99.0						
	QC1202058685	LCS											
	Uranium-233/234						5.78	pCi/g					03/12/1009:14
				TPU:			+/-0.501						
				Yield:			97.8						
	Uranium-235/236						0.737	pCi/g					
				TPU:			+/-0.116						
				Yield:			97.8						
	Uranium-238	5.75					4.87	pCi/g		84.8	(75%-125%)		
				TPU:			+/-0.434						
				Yield:			97.8						
	QC1202058683	MB											
	Uranium-233/234				U		0.00761	pCi/g					03/16/1008:13
				TPU:			+/-0.0051						
				Yield:			83.4						
	Uranium-235/236				U		0.00	pCi/g					
				TPU:			+/-0.00418						
				Yield:			83.4						
	Uranium-238				U		0.00552	pCi/g					
				TPU:			+/-0.00392						
				Yield:			83.4						
Batch	966171												
	QC1202073425	248028001	DUP										
	Americium-241			U	-0.000289	U	-0.000354	pCi/g	0.0088		(0-1)	AYB1	03/22/1016:25
				TPU:	+/-0.00218		+/-0.00153						
				Yield:	78.7		83.7						
	QC1202073426	LCS											
	Americium-241			33.1			30.4	pCi/g		91.6	(75%-125%)		03/20/1020:00
				TPU:			+/-2.42						
				Yield:			109						
	QC1202073424	MB											
	Americium-241				U		-0.0108	pCi/g					03/22/1016:25
				TPU:			+/-0.00374						
				Yield:			100						
Batch	966453												

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QC Summary

Workorder: 248028

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch	966453									
QC1202074010	248028001	DUP								
Plutonium-238	U	0.00433	U	-7.83E-05	pCi/g	0.231		(0-1)	AYB1	03/23/1010:48
	TPU:	+/-0.0038		+/-0.00575						
	Yield:	84.7		78.7						
Plutonium-239/240	U	0.000946	U	-0.00149	pCi/g	0.137		(0-1)		
	TPU:	+/-0.00295		+/-0.00592						
	Yield:	84.7		78.7						
QC1202074011	LCS									
Plutonium-238				3.00	pCi/g			(75%-125%)		
	TPU:			+/-0.339						
	Yield:			87.6						
Plutonium-239/240	41.8			39.9	pCi/g		95.6	(75%-125%)		
	TPU:			+/-2.83						
	Yield:			87.6						
QC1202074009	MB									
Plutonium-238			U	0.00128	pCi/g					
	TPU:			+/-0.00398						
	Yield:			90.3						
Plutonium-239/240			U	0.00192	pCi/g					
	TPU:			+/-0.00487						
	Yield:			90.3						
Rad Gamma Spec										
Batch	958220									
QC1202054953	248028001	DUP								
Americium-241	U	0.0545	U	0.0259	pCi/g	0.145		(0-1)	MXR1	03/12/1019:14
	TPU:	+/-0.0815		+/-0.017						
Bismuth-211	UI	3.78	UI	4.28	pCi/g	0.512		(0-1)		
	TPU:	+/-0.217		+/-0.276						
Bismuth-214		1.21		1.39	pCi/g	0.480		(0-1)		
	TPU:	+/-0.0824		+/-0.102						
Cadmium-109	UI	3.77	UI	3.90	pCi/g	0.0743		(0-1)		
	TPU:	+/-0.540		+/-0.335						
Cerium-139	U	0.00119	U	-0.0214	pCi/g	0.531		(0-1)		
	TPU:	+/-0.0124		+/-0.00889						
Cesium-134	UI	0.145	UI	0.0784	pCi/g	0.537		(0-1)		
	TPU:	+/-0.0307		+/-0.031						
Cesium-137	U	-0.0159	U	0.000637	pCi/g	0.253		(0-1)		
	TPU:	+/-0.0157		+/-0.0171						
Cobalt-60	U	-0.00191	U	-0.0203	pCi/g	0.309		(0-1)		
	TPU:	+/-0.0145		+/-0.0153						
Europium-152	U	-0.0759	U	-0.00329	pCi/g	0.472		(0-1)		
	TPU:	+/-0.0428		+/-0.0341						
Lanthanum-140	U	-0.107	U	0.0272	pCi/g	0.715		(0-1)		
	TPU:	+/-0.0454		+/-0.0488						
Lead-212		1.54		1.72	pCi/g	0.502		(0-1)		
	TPU:	+/-0.0728		+/-0.105						
Lead-214		1.37		1.55	pCi/g	0.466		(0-1)		
	TPU:	+/-0.0872		+/-0.109						
Mercury-203	U	0.0191	U	0.030	pCi/g	0.173		(0-1)		
	TPU:	+/-0.0171		+/-0.0145						

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QC Summary

Workorder: 248028

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	958220										
Potassium-40		22.4		22.8	pCi/g	0.101		(0-1)			
	TPU:	+/-1.04		+/-1.13							
Radium-223	U	-0.492	U	-0.16	pCi/g	0.320		(0-1)			
	TPU:	+/-0.295		+/-0.224							
Radium-224	UI	3.67	UI	4.17	pCi/g	0.264		(0-1)			
	TPU:	+/-0.508		+/-0.439							
Radium-226		1.21		1.39	pCi/g	0.480		(0-1)			
	TPU:	+/-0.0824		+/-0.102							
Radium-228		1.91		1.85	pCi/g	0.0773		(0-1)			
	TPU:	+/-0.180		+/-0.156							
Ruthenium-106	U	0.0209	U	0.0817	pCi/g	0.130		(0-1)			
	TPU:	+/-0.127		+/-0.106							
Sodium-22	U	-0.0323	U	-0.0118	pCi/g	0.296		(0-1)			
	TPU:	+/-0.0177		+/-0.0168							
Strontium-85	UI	0.0704	U	0.0297	pCi/g	0.620		(0-1)			
	TPU:	+/-0.0175		+/-0.0154							
Thallium-208		0.487		0.495	pCi/g	0.0527		(0-1)			
	TPU:	+/-0.0387		+/-0.0391							
Thorium-227	U	-0.15	U	-0.0567	pCi/g	0.260		(0-1)			
	TPU:	+/-0.103		+/-0.0771							
Thorium-231	U	-0.492	U	-0.16	pCi/g	0.320		(0-1)			
	TPU:	+/-0.295		+/-0.224							
Thorium-234	U	0.198		2.03	pCi/g	0.905		(0-1)			
	TPU:	+/-0.697		+/-0.314							
Tin-113	U	0.0203	U	-0.00554	pCi/g	0.400		(0-1)			
	TPU:	+/-0.0172		+/-0.015							
Uranium-235	U	0.0729	U	0.0766	pCi/g	0.0122		(0-1)			
	TPU:	+/-0.0915		+/-0.0612							
Yttrium-88	U	-0.0145	U	0.019	pCi/g	0.605		(0-1)			
	TPU:	+/-0.0143		+/-0.0134							
QC1202054954	LCS										
Americium-241	15.9			13.6	pCi/g		85.8	(75%-125%)		03/12/10	17:15
	TPU:			+/-0.768							
Bismuth-211				2.38	pCi/g						
	TPU:			+/-0.375							
Bismuth-214				0.585	pCi/g						
	TPU:			+/-0.161							
Cadmium-109				29.0	pCi/g						
	TPU:			+/-2.03							
Cerium-139			U	0.0185	pCi/g						
	TPU:			+/-0.0239							
Cesium-134			U	0.0062	pCi/g						
	TPU:			+/-0.0473							
Cesium-137	5.55			5.42	pCi/g		97.6	(75%-125%)			
	TPU:			+/-0.196							
Cobalt-60	6.34			5.63	pCi/g		88.8	(75%-125%)			
	TPU:			+/-0.274							
Europium-152			U	-0.0966	pCi/g						
	TPU:			+/-0.113							
Lanthanum-140			U	-0.0191	pCi/g						
	TPU:			+/-0.0372							

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QC Summary

Workorder: 248028

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec									
Batch	958220								
Lead-212			0.814	pCi/g					
	TPU:		+/-0.106						
Lead-214			0.862	pCi/g					
	TPU:		+/-0.138						
Mercury-203		U	0.0165	pCi/g					
	TPU:		+/-0.0311						
Potassium-40		U	0.550	pCi/g					
	TPU:		+/-0.224						
Radium-223		U	-1.15	pCi/g					
	TPU:		+/-0.603						
Radium-224			8.66	pCi/g					
	TPU:		+/-1.11						
Radium-226			0.585	pCi/g					
	TPU:		+/-0.161						
Radium-228			0.746	pCi/g					
	TPU:		+/-0.282						
Ruthenium-106		U	-0.146	pCi/g					
	TPU:		+/-0.318						
Sodium-22		U	0.00762	pCi/g					
	TPU:		+/-0.0284						
Strontium-85		U	-0.145	pCi/g					
	TPU:		+/-0.0407						
Thallium-208			0.365	pCi/g					
	TPU:		+/-0.0672						
Thorium-227		U	-0.0961	pCi/g					
	TPU:		+/-0.239						
Thorium-231		U	-1.15	pCi/g					
	TPU:		+/-0.603						
Thorium-234		U	-0.966	pCi/g					
	TPU:		+/-1.44						
Tin-113		U	0.0181	pCi/g					
	TPU:		+/-0.0436						
Uranium-235		U	0.136	pCi/g					
	TPU:		+/-0.163						
Yttrium-88		U	0.0335	pCi/g					
	TPU:		+/-0.0186						
QC1202054952 MB									
Americium-241		U	-0.0688	pCi/g					03/12/1016:56
	TPU:		+/-0.0174						
Bismuth-211		U	-0.167	pCi/g					
	TPU:		+/-0.0697						
Bismuth-214		U	0.0568	pCi/g					
	TPU:		+/-0.0259						
Cadmium-109		U	-0.333	pCi/g					
	TPU:		+/-0.157						
Cerium-139		U	-0.000384	pCi/g					
	TPU:		+/-0.00769						
Cesium-134		U	-0.0102	pCi/g					
	TPU:		+/-0.0152						
Cesium-137		U	0.00523	pCi/g					
	TPU:		+/-0.0153						

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QC Summary

Workorder: 248028

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	958220										
Cobalt-60			U	0.0028	pCi/g						
	TPU:			+/-0.0144							
Europium-152			U	0.00884	pCi/g						
	TPU:			+/-0.0306							
Lanthanum-140			U	-0.00718	pCi/g						
	TPU:			+/-0.022							
Lead-212			U	0.0094	pCi/g						
	TPU:			+/-0.0194							
Lcad-214			U	-0.0834	pCi/g						
	TPU:			+/-0.0266							
Mercury-203			U	0.000646	pCi/g						
	TPU:			+/-0.00995							
Potassium-40			U	0.170	pCi/g						
	TPU:			+/-0.142							
Radium-223			U	-0.594	pCi/g						
	TPU:			+/-0.228							
Radium-224			U	-0.108	pCi/g						
	TPU:			+/-0.200							
Radium-226			U	0.0568	pCi/g						
	TPU:			+/-0.0259							
Radium-228			U	-0.0191	pCi/g						
	TPU:			+/-0.0591							
Ruthenium-106			U	-0.0173	pCi/g						
	TPU:			+/-0.119							
Sodium-22			U	-0.0273	pCi/g						
	TPU:			+/-0.0122							
Strontium-85			U	-0.0363	pCi/g						
	TPU:			+/-0.0171							
Thallium-208			U	0.0017	pCi/g						
	TPU:			+/-0.0142							
Thorium-227			U	0.00497	pCi/g						
	TPU:			+/-0.0735							
Thorium-231			U	-0.594	pCi/g						
	TPU:			+/-0.228							
Thorium-234			U	0.272	pCi/g						
	TPU:			+/-0.223							
Tin-113			U	0.00956	pCi/g						
	TPU:			+/-0.0124							
Uranium-235			U	-0.0089	pCi/g						
	TPU:			+/-0.0575							
Yttrium-88			U	-0.0276	pCi/g						
	TPU:			+/-0.0134							
Rad Liquid Scintillation											
Batch	964049										
QC1202068193	248028005	DUP									
Tritium			U	87.9	U	92.1	pCi/L	0.0195	(0-1)	KXK2	03/15/1022:10
			TPU:	+/-54.2		+/-54.0					
QC1202068194	LCS										
Tritium			5530			5500	pCi/L	99.3	(80%-120%)		03/15/1022:48
			TPU:			+/-456					

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QC Summary

Workorder: 248028

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation											
Batch	964049										
QC1202068192	MB										
Tritium		U		-36.1	pCi/L					03/17/10	15:23
	TPU:			+/-47.0							

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.
- 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#

959837

Product:

U

Date:

3/17/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		Case narrative
Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			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.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hlt 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:

Debbie Swan 8/17/10

Secondary Review Performed By:

Jett Caldwell 3/17/10

3/18
LANZ

Uranium Que Sheet

02-MAR-10

Batch #: 959837 Analyst: AYB1 First Client Due Date: 18-MAR-10 Internal Due Date: 08-MAR-10
 Tracer Isotope: U-232 Tracer Code: 12833-A Expiration Date: 12/1/10 Vol: 6.1
 LCS Isotope: U-238 LCS Code: Expiration Date: Vol: -
 Spike Isotope: U-238 Spike Code: Expiration Date: Vol: -
 Prep Date: 3/9/10 Initials: AYB Pipet ID: 2971058 Balance ID: 19350008
 Witness: JEH 3-9-10

Sample ID	Client Description	Type	Hazard Code	Mln CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Wet Allquot (g/g)	U Det #
248016001-1	RE46-10-13332	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	1	1	0.507	1
248016002-1	RE46-10-13329	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	2	2	0.510	2
248016003-1	RE46-10-13330	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	3	3	0.509	3
248016004-1	RE46-10-13331	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	4	4	0.512	4
248028001-1	RE15-10-8389	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	5	5	0.518	5
248028002-1	RE15-10-8388	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	6	6	0.501	6
248028003-1	RE15-10-8390	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	7	7	0.506	7
248028004-1	RE15-10-8392	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	8	8	0.505	8
248028005-1	RE15-10-8391	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	9	9	0.501	9
248054001-1	RE11-10-1611	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	10	10	0.515	10
248054002-1	RE11-10-1613	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	11	11	0.509	11
248054003-1	RE11-10-1608	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	12	12	0.506	12
248054004-1	RE11-10-1612	SAMPLE		.1 pCi/g	SOIL	LANL010	19-FEB-10	13	13	0.510	13
1202058683-1	MB for batch 959837	MB				QC ACCOUNT		14	14	1.0	14
1202058684-1	RE15-10-8389(248028001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	19-FEB-10	15	15	0.501	15
1202058685-1	LCS for batch 959837	LCS		.1 pCi/g	SOIL	QC ACCOUNT		16	16	0.106	16

*SEM 0244-A exp: 10/31/20

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

Data Reviewed By:

3/11/10
3/11/10

Blank Correction Report

Batch ID 959837

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202058684	DUP	Uranium-233/234	0.501 g	1.28	0.104	0.0679	.015189621	pCi/g	NO
		Uranium-235/236	0.501 g	0.110	0.0196	0.0414	0	pCi/g	NO
		Uranium-238	0.501 g	1.72	0.134	0.0477	.011017964	pCi/g	NO
1202058685	LCS	Uranium-233/234	0.106 g	5.78	0.501	0.323	.071792453	pCi/g	NO
		Uranium-235/236	0.106 g	0.737	0.116	0.198	0	pCi/g	NO
		Uranium-238	0.106 g	4.87	0.434	0.227	.052075472	pCi/g	NO
1202058683	MB	Uranium-233/234	1.00 g	0.00761	0.0051	0.0389	.00761	pCi/g	YES
		Uranium-235/236	1.00 g	0.00	0.00418	0.0238	0	pCi/g	NO
		Uranium-238	1.00 g	0.00552	0.00392	0.0274	.00552	pCi/g	YES
248016001	RE46-10-13332	Uranium-233/234	0.507 g	0.566	0.0588	0.0909	.015009862	pCi/g	NO
		Uranium-235/236	0.507 g	0.0558	0.0154	0.0555	0	pCi/g	NO
		Uranium-238	0.507 g	0.538	0.0568	0.0639	.010887574	pCi/g	NO
248016002	RE46-10-13329	Uranium-233/234	0.510 g	1.01	0.122	0.219	.014921569	pCi/g	NO
		Uranium-235/236	0.510 g	0.0479	0.0256	0.133	0	pCi/g	NO
		Uranium-238	0.510 g	0.938	0.113	0.154	.010823529	pCi/g	NO
248016003	RE46-10-13330	Uranium-233/234	0.509 g	0.989	0.103	0.145	.014950884	pCi/g	NO
		Uranium-235/236	0.509 g	0.070	0.0217	0.0886	0	pCi/g	NO
		Uranium-238	0.509 g	0.885	0.095	0.102	.010844794	pCi/g	NO
248016004	RE46-10-13331	Uranium-233/234	0.512 g	0.493	0.0549	0.098	.014863281	pCi/g	NO
		Uranium-235/236	0.512 g	0.0387	0.0145	0.0599	0	pCi/g	NO
		Uranium-238	0.512 g	0.521	0.0575	0.0689	.01078125	pCi/g	NO
248028001	RE15-10-8389	Uranium-233/234	0.518 g	1.29	0.120	0.121	.014691120	pCi/g	NO
		Uranium-235/236	0.518 g	0.122	0.028	0.0738	0	pCi/g	NO
		Uranium-238	0.518 g	1.73	0.153	0.085	.010656371	pCi/g	NO
248028002	RE15-10-8388	Uranium-233/234	0.501 g	2.20	0.210	0.195	.015189621	pCi/g	NO
		Uranium-235/236	0.501 g	0.180	0.0434	0.119	0	pCi/g	NO
		Uranium-238	0.501 g	2.98	0.272	0.137	.011017964	pCi/g	NO
248028003	RE15-10-8390	Uranium-233/234	0.506 g	2.74	0.245	0.166	.015039526	pCi/g	NO
		Uranium-235/236	0.506 g	0.291	0.0532	0.102	0	pCi/g	NO
		Uranium-238	0.506 g	3.96	0.339	0.117	.010909091	pCi/g	NO
248028004	RE15-10-8392	Uranium-233/234	0.505 g	0.559	0.0676	0.143	.015069307	pCi/g	NO
		Uranium-235/236	0.505 g	0.0502	0.0202	0.0874	0	pCi/g	NO
		Uranium-238	0.505 g	0.639	0.0746	0.101	.010930693	pCi/g	NO
248028005	RE15-10-8391	Uranium-233/234	0.501 g	2.42	0.201	0.111	.015189621	pCi/g	NO
		Uranium-235/236	0.501 g	0.200	0.0351	0.0679	0	pCi/g	NO
		Uranium-238	0.501 g	3.11	0.252	0.0781	.011017964	pCi/g	NO
248054001	RE11-10-1611	Uranium-233/234	0.515 g	2.92	0.255	0.155	.014776699	pCi/g	NO
		Uranium-235/236	0.515 g	0.129	0.0325	0.0844	0	pCi/g	NO
		Uranium-238	0.515 g	2.64	0.233	0.109	.010718447	pCi/g	NO
248054002	RE11-10-1613	Uranium-233/234	0.509 g	1.10	0.101	0.0992	.014950884	pCi/g	NO
		Uranium-235/236	0.509 g	0.0826	0.0225	0.0606	0	pCi/g	NO

Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
248054002	RE11-10-1613	Uranium-238	0.509 g	0.957	0.0906	0.0697	.010844794	pCi/g	NO
248054003	RE11-10-1608	Uranium-233/234	0.506 g	0.901	0.0989	0.161	.015039526	pCi/g	NO
		Uranium-235/236	0.506 g	0.0422	0.0201	0.098	0	pCi/g	NO
		Uranium-238	0.506 g	0.825	0.0918	0.113	.010909091	pCi/g	NO
248054004	RE11-10-1612	Uranium-233/234	0.510 g	1.98	0.161	0.095	.014921569	pCi/g	NO
		Uranium-235/236	0.510 g	0.117	0.0249	0.058	0	pCi/g	NO
		Uranium-238	0.510 g	2.11	0.170	0.0668	.010823529	pCi/g	NO

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

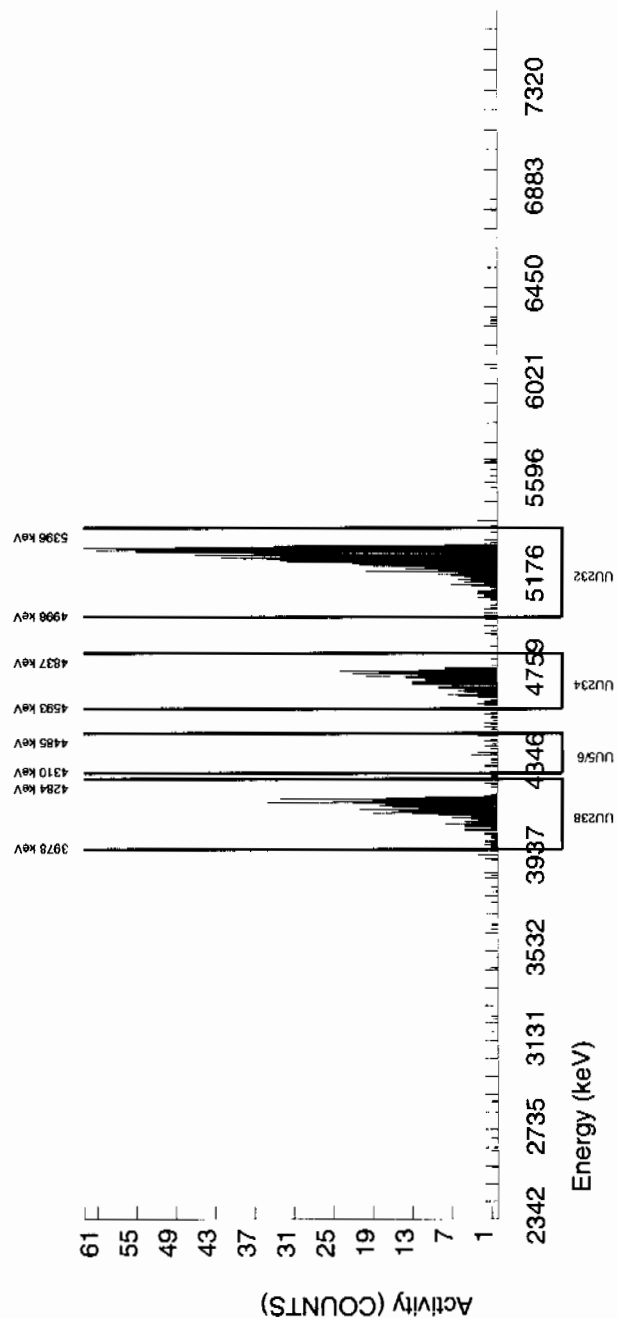
BATCH NUMBER : 959837	CHAMBER : 005	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248028001_UU	DETECTOR S/N : 79454	BKG FILE : B005.CNF;1111
SAMPLE QTY : 0.518 G	AVERAGE %EFFICIENCY : 33.5469	BKG DATE : 7-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 12-MAR-2010 17:38:56	BKG LIVE TIME(SEC) : 59999.99
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W005.CNF;339
% YIELD : 60.470		CAL DATE : 4-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5034E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 2.7232E+00 dpm		

NUCLIDE ACTIVITY SUMMARY									
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G
U232	5302.100	5265.584	68.899	914.000	913.000	1.000	1.0000	100.0000	3.92E+00
U-3/4	4763.020	4721.285	59.260	304.000	300.075	3.000	5.4790	100.0000	1.29E+00
U-235	4391.000	4416.534	85.402	24.000	23.000	1.000	2.4127	80.90000	1.22E-01
U-238	4184.730	4156.749	64.523	403.000	403.000	0.000	3.6781	100.0000	1.73E+00

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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	959837
SAMPLE ID	S0248028002_UU
SAMPLE QTY	0.501 G
SAMPLE DATE	19-FEB-2010 00:00:00
ANALYST	AYB1
% YIELD	40.464

CHAMBER : 006
DETECTOR S/N : 79455
AVERAGE %EFFICIENCY : 32.0671
COUNT DATE : 12-MAR-2000
ELAPSED LIVE TIME(SEC) : 60000.00

```
LIB FILE      : ENV_ALPHA_UU
BKG FILE     : B006.CNF:1124
BKG DATE     : 7-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE     : W006.CNF:363
CAL DATE     : 4-MAR-2010
```

TRACER	:	1283-H
ID	:	U232
NUCLIDE	:	4.5034E+00 dpm
NOMINAL	:	1.8223E+00 dpm
RESULTS	:	

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

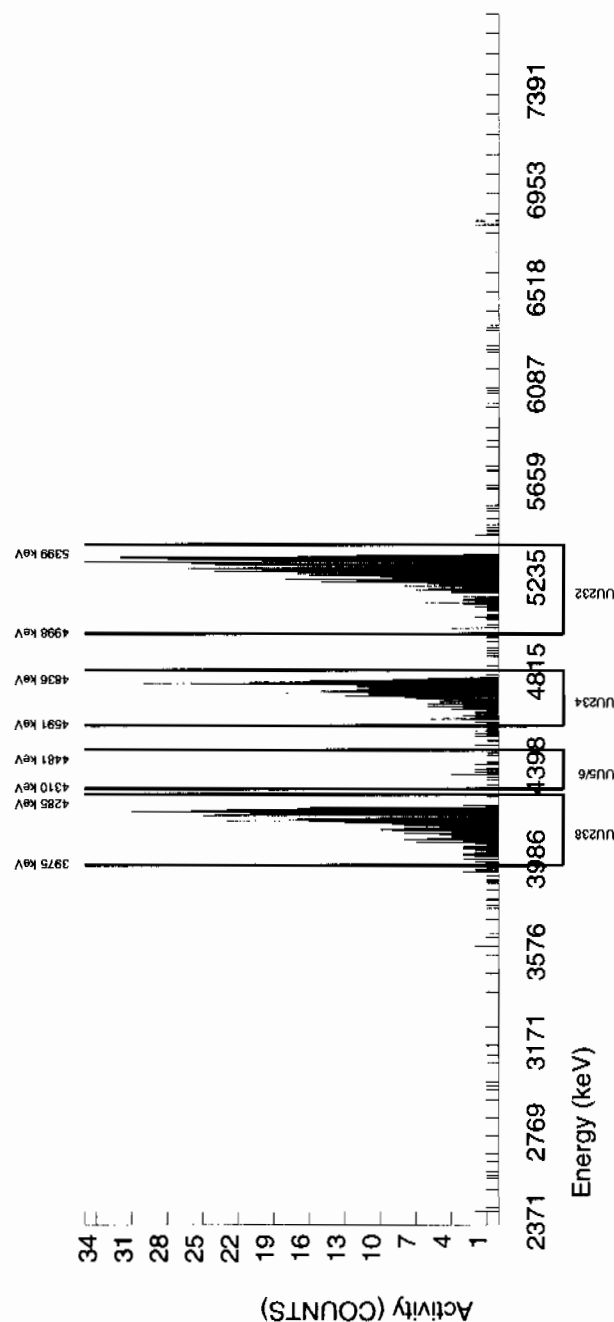
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5282.371	99.191	588.000	584.000	4.000	2.0000	100.0000	4.05E+00	3.56E-01	3.22E-02	8.33E-02	1.69E-01
U-3/4	4763.020	4744.823	52.186	318.000	317.409	0.000	5.4790	100.0000	2.20E+00	2.10E-01	8.83E-02	1.95E-01	1.23E-01
U-235	4391.000	4400.098	5.752	22.000	21.000	1.000	2.4127	80.90000	1.80E-01	4.34E-02	4.81E-02	1.19E-01	4.11E-02
U-238	4184.730	4166.489	60.216	430.000	430.000	0.000	3.6781	100.0000	2.98E+00	2.72E-01	5.93E-02	1.37E-01	1.44E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG Sg of U232 calculated as $\sqrt{\text{BKG AREA}}$.
- * Corrections made to the following net area
due to tracer impurity:
U-3/4

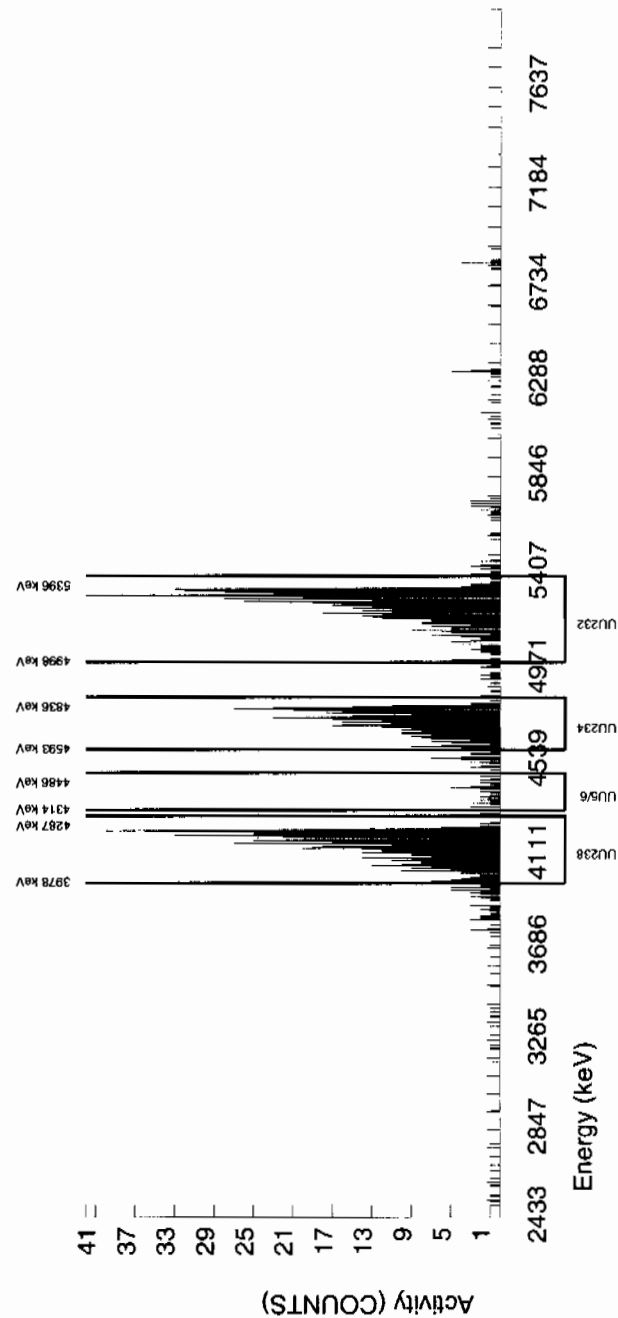


GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 959837				CHAMBER : 007				LIB FILE : ENV_ALPHA_UU					
SAMPLE ID : S0248028003_UU				DETECTOR S/N : 67607				BKG FILE : B007.CNF;1119					
SAMPLE QTY : 0.506 G				AVERAGE %EFFICIENCY : 30.8124				BKG DATE : 7-MAR-2010					
SAMPLE DATE : 19-FEB-2010 00:00:00				COUNT DATE : 12-MAR-2010 17:38:57				BKG LIVE TIME(SEC) : 59999.99					
ANALYST : AYB1				ELAPSED LIVE TIME(SEC) : 60000.00				EFF FILE : W007.CNF;314					
% YIELD : 49.035								CAL DATE : 4-MAR-2010					
TRACER				MS/MSD				LCS/LCSD					
ID : 1283-H				ID : 0244-A				ID : 0244-A					
NUCLIDE : U232				NUCLIDE : U-238				NUCLIDE : U-238					
NOMINAL : 4.5034E+00 dpm				NOMINAL : 5.7500E+00 pCi/G				NOMINAL : 5.7500E+00 pCi/G					
RESULTS : 2.2082E+00 dpm													
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5262.199	64.442	700.000	680.000	20.000	4.4721	100.0000	4.01E+00	3.44E-01	6.13E-02	1.39E-01	1.58E-01
U-3/4	4763.020	4727.314	87.957	469.000	464.311	4.000	5.4790	100.0000	2.74E+00	2.45E-01	7.51E-02	1.66E-01	1.28E-01
U-235	4391.000	4407.201	94.877	42.000	40.000	2.000	2.4127	80.90000	2.91E-01	5.32E-02	4.09E-02	1.01E-01	4.83E-02
U-238	4184.730	4152.971	65.557	674.000	672.000	2.000	3.6781	100.0000	3.96E+00	3.39E-01	5.04E-02	1.17E-01	1.53E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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 : 959837	CHAMBER : 008	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248028004_UU	DETECTOR S/N : 78788	BKG FILE : B008.CNF;1121
SAMPLE QTY : 0.505 G	AVERAGE %EFFICIENCY : 33.4538	BKG DATE : 7-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 12-MAR-2010 17:38:57	BKG LIVE TIME(SEC) : 59999.99
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W008.CNF;345
% YIELD : 52.535		CAL DATE : 4-MAR-2010

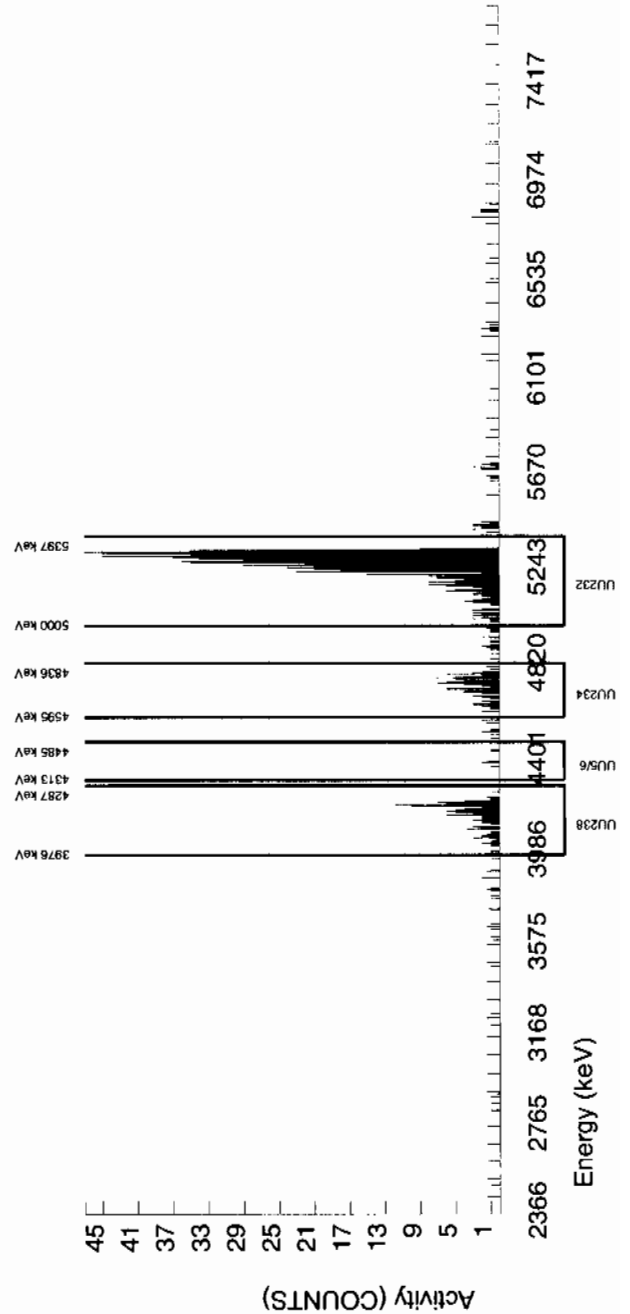
TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5034E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 2.3659E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5274.447	79.524	794.000	791.000	3.000	1.7321	100.0000	4.02E+00	3.31E-01	2.05E-02	5.47E-02	1.43E-01
U-3/4	4763.020	4735.812	82.727	111.000	110.199	0.000	5.4790	100.0000	5.59E-01	6.76E-02	6.47E-02	1.43E-01	5.33E-02
U-235	4391.000	4394.435	7.290	9.000	8.000	1.000	2.4127	80.900000	5.02E-02	2.02E-02	3.52E-02	8.74E-02	1.98E-02
U-238	4184.730	4155.695	23.991	127.000	126.000	1.000	3.6781	100.0000	6.39E-01	7.46E-02	4.34E-02	1.01E-01	5.74E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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

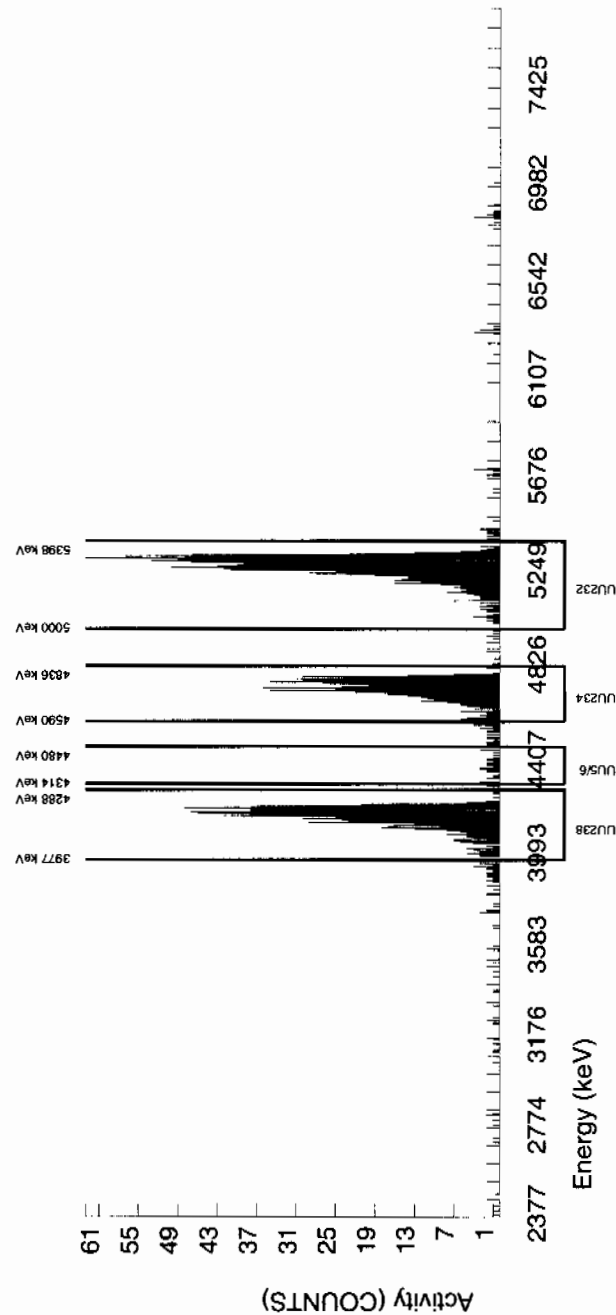
BATCH NUMBER : 959837	CHAMBER : 009	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248028005_UU	DETECTOR S/N : 72528	BKG FILE : B009.CNF;1112
SAMPLE QTY : 0.501 G	AVERAGE %EFFICIENCY : 34.3260	BKG DATE : 7-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 12-MAR-2010 17:38:57	BKG LIVE TIME(SEC) : 59999.99
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W009.CNF;309
% YIELD : 66.476		CAL DATE : 4-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5034E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 2.9937E+00 dpm		

NUCLIDE ACTIVITY SUMMARY									
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G
U232	5302.100	5277.439	70.427	1041.000	1027.000	14.000	3.7417	100.0000	4.05E+00
U-3/4	4763.020	4738.336	72.908	616.000	612.960	2.000	5.4790	100.0000	2.42E+00
U-235	4391.000	4396.779	0.000	42.000	41.000	1.000	2.4127	80.90000	2.00E-01
U-238	4184.730	4168.285	78.137	793.000	790.000	3.000	3.6781	100.0000	3.11E+00

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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 : 959837	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S1202058683_UU	BKG FILE : B168.CNF;179
SAMPLE QTY : 1.000 G	BKG DATE : 14-MAR-2010
SAMPLE DATE : 9-MAR-2010 00:00:00.	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	EFF FILE : W168.CNF;58
% YIELD : 83.436	CAL DATE : 22-FEB-2010

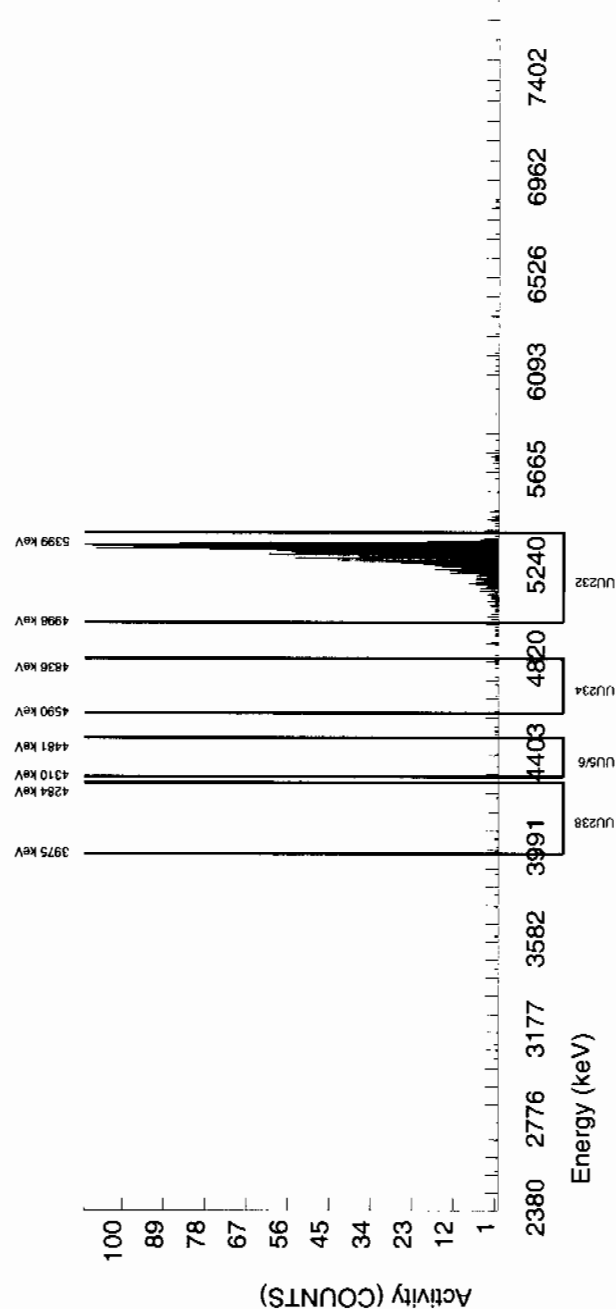
TRACER	LCS/LCSD
ID : 1283-H	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238
NOMINAL : 4.5012E+00 dpm	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 3.7556E+00 dpm	

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5304.641	55.834	1478.000	1468.000	10.000	3.1623	100.0000	2.03E+00	1.49E-01	1.02E-02	2.41E-02	5.33E-02
U-3/4	4763.020	4732.014	4.936	11.000	5.513	4.000	5.4790	100.0000	7.61E-03	5.10E-03	1.76E-02	3.89E-02	5.08E-03
U-235	4391.000	4365.332	93.775	3.000	0.000	3.000	2.4127	80.90000	0.00E+00	4.18E-03	9.58E-03	2.38E-02	4.18E-03
U-238	4184.730	4091.748	246.778	6.000	4.000	2.000	3.6781	100.0000	5.52E-03	3.92E-03	1.18E-02	2.74E-02	3.91E-03

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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 :	959837
SAMPLE ID :	S1202058684_UU
SAMPLE QTY :	0.501 G
SAMPLE DATE :	19-FEB-2010 00:00:00
ANALYST :	AYB1
% YIELD :	98.972

CHAMBER : 164
DETECTOR S/N : 70325
AVERAGE %EFFICIENCY : 37.7598
COUNT DATE : 12-MAR-
ELAPSED LIVE TIME(SEC) : 60000.0

LIB FILE	:	ENV_ALPHA_UU
BKG FILE	:	B164.CNF:176
BKG DATE	:	7-MAR-2010
BKG LIVE TIME(SEC)	:	60000.00
EFF FILE	:	W164.CNF:58
CAL DATE	:	22-FEB-2010

TRACER	:	1283-H
ID	:	U232
NUCLIDE	:	4.5034E+00 dpm
NOMINAL	:	4.4571E+00 dpm
RESULTS	:	

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

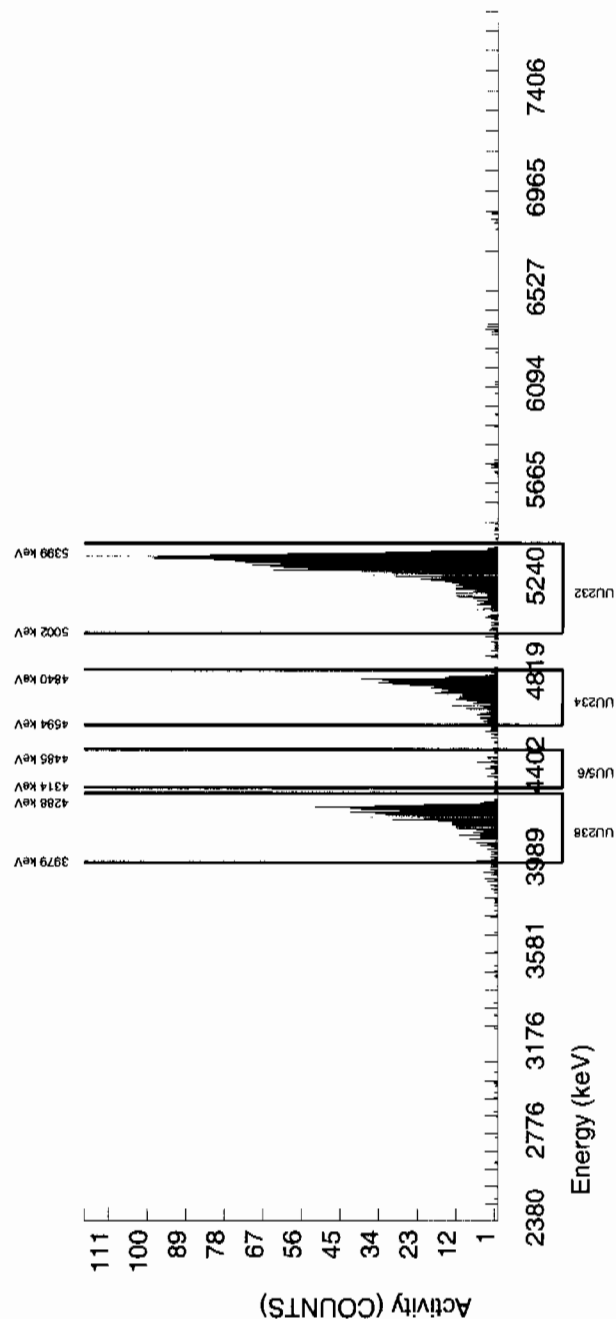
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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
U-232	5302.100	5299.788	73.229	1691.000	1682.000	9.000	3.0000	100.0000	4.05E+00	2.93E-01	1.68E-02	4.01E-02	9.93E-02
U-3/4	4763.020	4752.719	36.829	536.000	532.297	2.000	5.4790	100.0000	1.28E+00	1.04E-01	1.07E-02	6.79E-02	5.57E-02
U-235	4391.000	4412.322	6.633	37.000	37.000	0.000	2.4127	80.90000	1.10E-01	1.96E-02	3.67E-02	4.17E-02	1.81E-02
U-238	4184.730	4185.678	68.643	716.000	714.000	2.000	3.6781	100.0000	1.72E+00	1.34E-01	2.06E-02	4.44E-02	6.45E-02

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)
- * BKG Sg of U232 calculated as $\sqrt{\text{BKG AREA}}$.
- * Corrections made to the following net area
due to tracer impurity:
U-3/4



GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 959837 SAMPLE ID : S1202058685_UU SAMPLE QTY : 0.106 G SAMPLE DATE : 9-MAR-2010 00:00:00. ANALYST : AYB1 % YIELD : 97.842	CHAMBER : 165 DETECTOR S/N : 72544 AVERAGE %EFFICIENCY : 37.8780 COUNT DATE : 12-MAR-2010 09:14:43 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_UU BKG FILE : B165.CNF;176 BKG DATE : 7-MAR-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W165.CNF;58 CAL DATE : 22-FEB-2010
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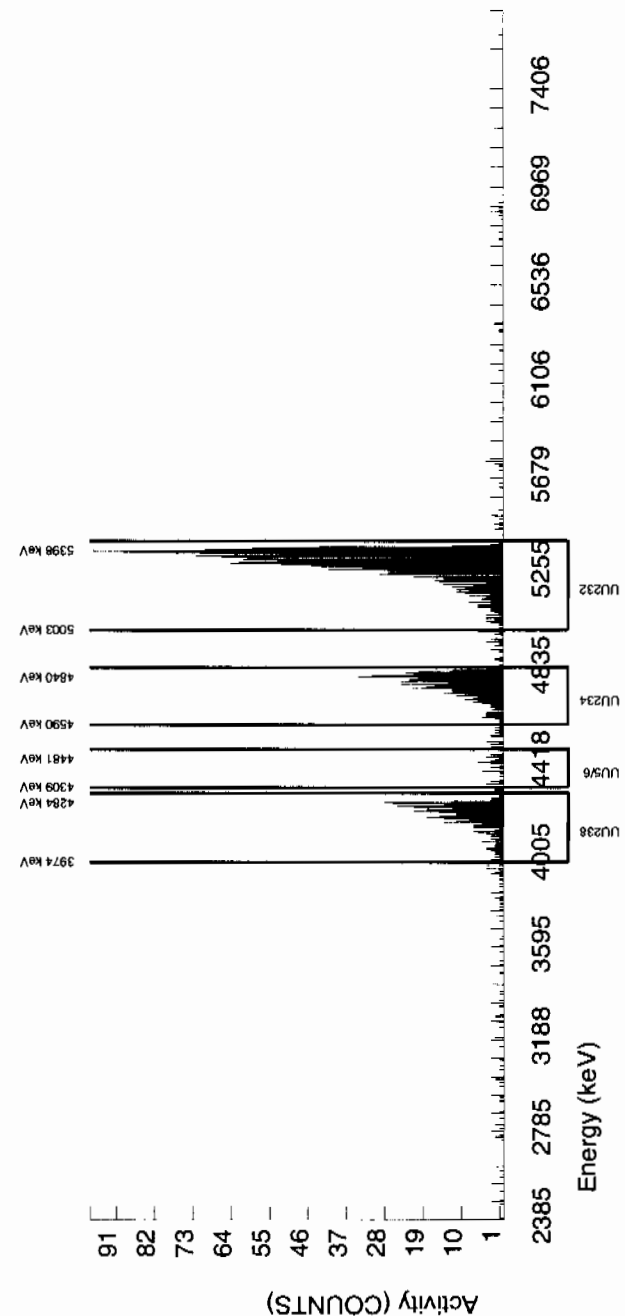
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5012E+00 dpm RESULTS : 4.4041E+00 dpm	MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G	LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G
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NUCLIDE ACTIVITY SUMMARY

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
U232	5302.100	5298.411	75.018	1673.000	1668.000	5.000	2.2361	100.0000	1.91E+01	1.50E+00	5.96E-02	1.50E-01	4.70E-01
U-3/4	4763.020	4761.793	70.840	506.000	504.311	0.000	5.4790	100.0000	5.78E+00	5.01E-01	1.46E-01	3.23E-01	2.58E-01
U-235	4391.000	4403.715	125.501	52.000	52.000	0.000	2.4127	80.90000	7.37E-01	1.16E-01	7.96E-02	1.98E-01	1.02E-01
U-238	4184.730	4181.365	72.990	428.000	425.000	3.000	3.6781	100.0000	4.87E+00	4.34E-01	9.81E-02	2.27E-01	2.38E-01

NOTES:

- * BKG Sg calculated via blank population.
(Sg updated 8-MAR-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: 966171 Product: Am Date: 3/23/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: Denise Green 3/23/10Secondary Review Performed By: Kathleen 3/23/10

3/25

LANL

Am/Cm Que Sheet

17-MAR-10

Batch #: 966171 Analyst: AYB1 First Client Due Date: 25-MAR-10 Internal Due Date: 19-MAR-10 Comments:
 Tracer(s): Am241/Cm244 Tracer Code: 445-96-2-2000 ✓ Expiration Date: 03/29/11 Vol: 9.1
 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: 3/19/10 Initials: AB Pipet ID: 4497063 Balance ID: / / / Witness: 840 03/19/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	Am/Cm Det #
248016001-3	RE46-10-13332	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	1	1	1.247	217
248016002-3	RE46-10-13329	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	2	2	1.270	218
248016003-3	RE46-10-13330	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	3	3	1.255	247
248016004-3	RE46-10-13331	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	4	4	1.243	220
248028001-3	RE15-10-8389	SAMPLE		.05 pCi/g	SOIL	LANL010	19-FEB-10	5	5	1.258	248
248028002-3	RE15-10-8388	SAMPLE		.05 pCi/g	SOIL	LANL010	19-FEB-10	6	6	1.262	249
248028003-3	RE15-10-8390	SAMPLE		.05 pCi/g	SOIL	LANL010	19-FEB-10	7	7	1.253	250
248028004-3	RE15-10-8392	SAMPLE		.05 pCi/g	SOIL	LANL010	19-FEB-10	8	8	1.248	251
248028005-3	RE15-10-8391	SAMPLE		.05 pCi/g	SOIL	LANL010	19-FEB-10	9	9	1.251	252
1202073424-1	MB for batch 966171	MB		UCF pCi/g to pCi/soil	QC ACCOUNT	QC ACCOUNT	19-FEB-10	10	10	1	253
1202073425-3	RE15-10-8389(248028001DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	19-FEB-10	11	11	1.241	254
1202073426-1	LCS for batch 966171	LCS		UCF pCi/g to pCi/soil	QC ACCOUNT	QC ACCOUNT	19-FEB-10	12	12	0.104	255

*SRM 0244-B exp: 04/30/20

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

Solid Sample Dissolution by: LEACH or DIGESTION
 Circle One

Data Reviewed By: 3/23/10

Blank Correction Report

Batch ID 966171

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202073425	DUP	Americium-241	1.24 g	-0.000354	0.00153	0.0169	-.00870968	pCi/g	NO
1202073426	LCS	Americium-241	0.104 g	30.4	2.42	0.287	-.10384615	pCi/g	NO
1202073424	MB	Americium-241	1.00 g	-0.0108	0.00374	0.0176	-.0108	pCi/g	NO
248016001	RE46-10-13332	Americium-241	1.25 g	-0.00241	0.00218	0.0269	-.00864	pCi/g	NO
248016002	RE46-10-13329	Americium-241	1.27 g	0.00732	0.00481	0.027	-.00850394	pCi/g	NO
248016003	RE46-10-13330	Americium-241	1.26 g	0.000654	0.00267	0.0162	-.00857143	pCi/g	NO
248016004	RE46-10-13331	Americium-241	1.24 g	0.00269	0.00236	0.0286	-.00870968	pCi/g	NO
248028001	RE15-10-8389	Americium-241	1.26 g	-0.000289	0.00218	0.0176	-.00857143	pCi/g	NO
248028002	RE15-10-8388	Americium-241	1.26 g	0.00286	0.00176	0.0167	-.00857143	pCi/g	NO
248028003	RE15-10-8390	Americium-241	1.25 g	0.00266	0.0022	0.0159	-.00864	pCi/g	NO
248028004	RE15-10-8392	Americium-241	1.25 g	0.00349	0.00334	0.0256	-.00864	pCi/g	NO
248028005	RE15-10-8391	Americium-241	1.25 g	0.00685	0.0027	0.0161	-.00864	pCi/g	NO

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 966171 SAMPLE ID : S0248028001_AM SAMPLE QTY : 1.258 G SAMPLE DATE : 19-FEB-2010 00:00:00 ANALYST : AYB1 % YIELD : 78.688	CHAMBER : 248 DETECTOR S/N : 79441 AVERAGE %EFFICIENCY : 40.4154 COUNT DATE : 22-MAR-2010 16:25:38 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_AM BKG FILE : B248.CNF:94 BKG DATE : 21-MAR-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W248.CNF:31 CAL DATE : 28-FEB-2010
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TRACER ID : 445-96-2-VV NUCLIDE : AM243 NOMINAL : 2.2753E+00 dpm RESULTS : 1.7904E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3153E+01 pCi/G	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3153E+01 pCi/G
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NUCLIDE ACTIVITY SUMMARY

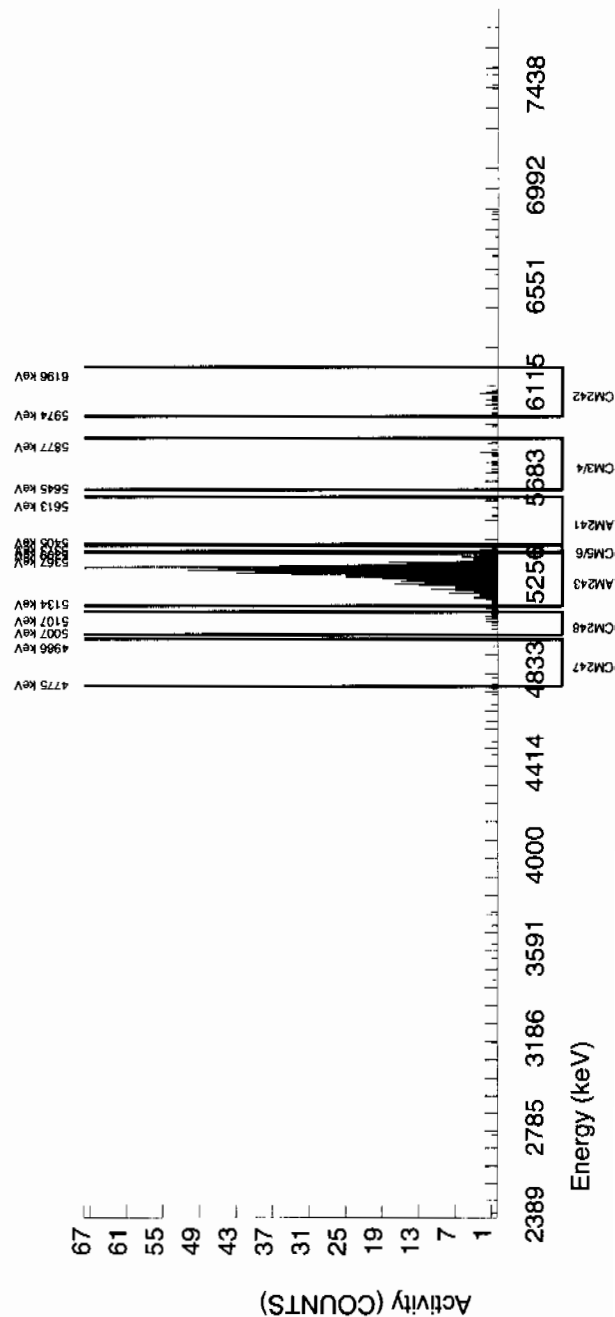
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5547.226	38.757	3.000	-0.256	2.000	2.7707	99.94000	-2.89E-04	2.18E-03	7.26E-03	1.76E-02	2.18E-03
AM243	5270.000	5281.945	36.775	726.000	722.000	4.000	2.0000	99.78000	8.15E-01	6.00E-02	5.25E-03	1.36E-02	3.05E-02
CM-242	6102.000	6050.909	33.836	21.000	21.000	0.000	4.0092	100.0000	2.71E-02	6.16E-03	1.05E-02	2.41E-02	5.91E-03
CM-3/4	5795.020	5789.710	87.306	18.000	14.000	4.000	4.8510	100.0000	1.58E-02	5.39E-03	1.27E-02	2.85E-02	5.30E-03
CM-5/6	5386.000	5381.068	0.000	16.000	16.000	0.000	6.1294	86.09000	2.09E-02	5.40E-03	1.86E-02	4.08E-02	5.23E-03
CM-247	4946.000	4872.186	162.411	4.000	3.000	1.000	6.3427	79.30000	4.26E-03	3.19E-03	2.10E-02	4.57E-02	3.17E-03
CM-248	5078.600	5072.104	29.324	13.000	11.000	2.000	11.0244	91.00000	1.36E-02	4.87E-03	3.17E-02	6.68E-02	4.79E-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 : 966171
SAMPLE ID : S0248028002_AM
SAMPLE QTY : 1.262 G
SAMPLE DATE : 19-FEB-2010 00:00
ANALYST : AYB1
% YIELD : 84.275

CHAMBER : 249
DETECTOR S/N : 79442
AVERAGE %EFFICIENCY : 39.6696
COUNT DATE : 22-MAR-2010 16:25:41
ELAPSED LIVE TIME(SEC) : 60000.00

```
LIB FILE : ENV_ALPHA_AM
BKG FILE : B249.CNF:91
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W249.CNF:33
CAL DATE : 28-FEB-2010
```

TRACER	:	445-96-2-VV
ID	:	AM243
NUCLIDE	:	2.2753E+00 dpm
NOMINAL	:	1.9175E+00 dpm
RESULTS	:	

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

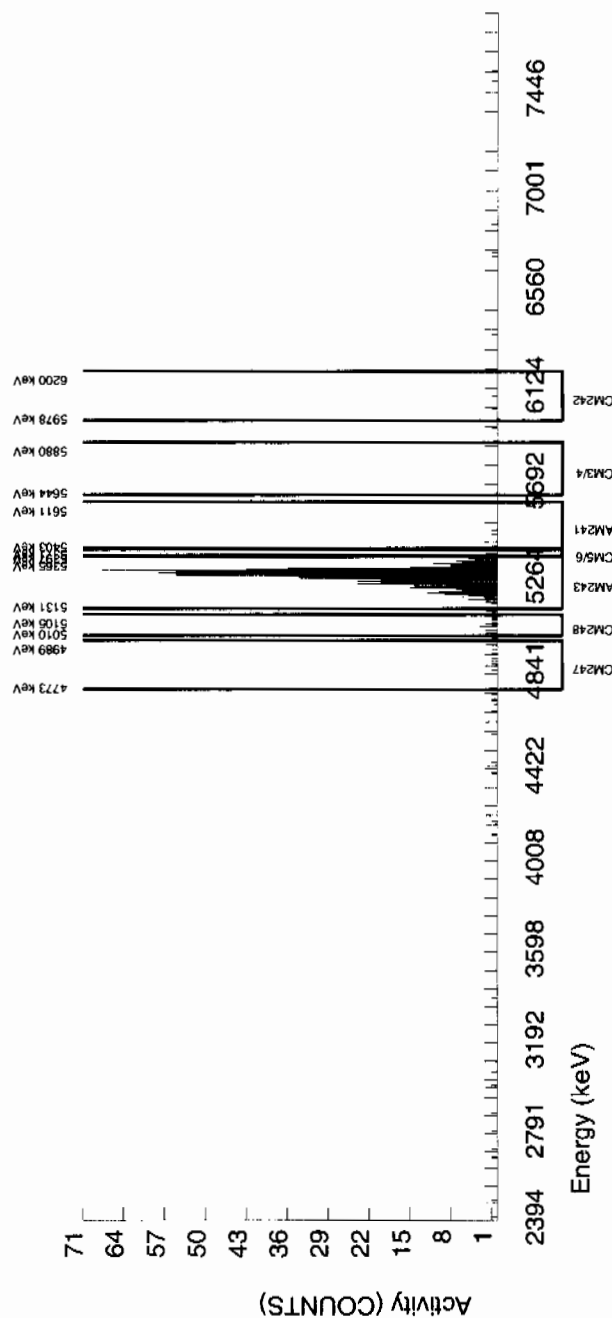
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5468.121	73.984	4.000	2.679	0.000	2.7707	99.94000	2.86E-03	1.76E-03	6.89E-03	1.67E-02	1.75E-03
AM-243	5270.000	5280.608	37.426	761.000	759.000	2.000	1.4142	99.78000	8.12E-01	5.89E-02	3.52E-03	9.94E-03	2.96E-02
CM-242	6102.000	6064.194	54.255	2.000	2.000	0.000	4.0092	100.0000	2.45E-03	1.74E-03	9.96E-03	2.28E-02	1.73E-03
CM-3/4	5795.020	5664.980	4.932	1.000	-1.000	2.000	4.8510	100.0000	-1.07E-03	1.86E-03	1.20E-02	2.70E-02	1.86E-03
CM-5/6	5386.000	5378.323	0.000	7.000	7.000	0.000	6.1294	86.09000	8.68E-03	3.33E-03	1.77E-02	3.87E-02	3.28E-03
CM-247	4946.000	4923.019	0.000	14.000	12.000	2.000	6.3427	79.30000	1.62E-02	5.48E-03	1.99E-02	4.34E-02	5.39E-03
CM-248	5078.600	5053.917	39.335	17.000	16.000	1.000	11.0244	91.00000	1.88E-02	5.12E-03	3.01E-02	6.34E-02	4.98E-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 : 966171				CHAMBER : 250				LIB FILE : ENV_ALPHA_AM					
SAMPLE ID : S0248028003_AM				DETECTOR S/N : 79443				BKG FILE : B250.CNF:91					
SAMPLE QTY : 1.253 G				AVERAGE %EFFICIENCY : 40.2400				BKG DATE : 21-MAR-2010					
SAMPLE DATE : 19-FEB-2010 00:00:00				COUNT DATE : 22-MAR-2010 16:25:43				BKG LIVE TIME(SEC) : 60000.00					
ANALYST : AYB1				ELAPSED LIVE TIME(SEC) : 60000.00				EFF FILE : W250.CNF:31					
% YIELD : 87.568								CAL DATE : 28-FEB-2010					
TRACER				MS/MSD				LCS/LCSD					
ID : 445-96-2-VV				ID : 0244-B				ID : 0244-B					
NUCLIDE : AM243				NUCLIDE : AM-241				NUCLIDE : AM-241					
NOMINAL : 2.2753E+00 dpm				NOMINAL : 3.3153E+01 pCi/g				NOMINAL : 3.3153E+01 pCi/g					
RESULTS : 1.9925E+00 dpm													
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/g	TPU 1-SIGMA	DLC pCi/g	MDC pCi/g	UNC pCi/g
AM-241	5479.150	5500.169	4.906	5.000	2.608	1.000	2.7707	99.94000	2.66E-03	2.20E-03	6.58E-03	1.59E-02	2.19E-03
AM243	5270.000	5273.358	36.822	801.000	800.000	1.000	1.0000	99.78000	8.18E-01	5.85E-02	2.38E-03	7.53E-03	2.90E-02
CM-242	6102.000	6011.227	4.906	7.000	7.000	0.000	4.0092	100.0000	8.18E-03	3.13E-03	9.52E-03	2.18E-02	3.09E-03
CM-3/4	5795.020	5736.060	39.251	3.000	3.000	0.000	4.8510	100.0000	3.07E-03	1.78E-03	1.15E-02	2.58E-02	1.77E-03
CM-5/6	5386.000	5379.787	8.126	9.000	9.000	0.000	6.1294	86.09000	1.07E-02	3.62E-03	1.69E-02	3.70E-02	3.56E-03
CM-247	4946.000	4890.236	4.906	7.000	7.000	0.000	6.3427	79.30000	9.01E-03	3.45E-03	1.90E-02	4.15E-02	3.40E-03
CM-248	5078.600	5083.671	11.346	9.000	9.000	0.000	11.0244	91.00000	1.01E-02	3.42E-03	2.88E-02	6.05E-02	3.36E-03

NOTES:

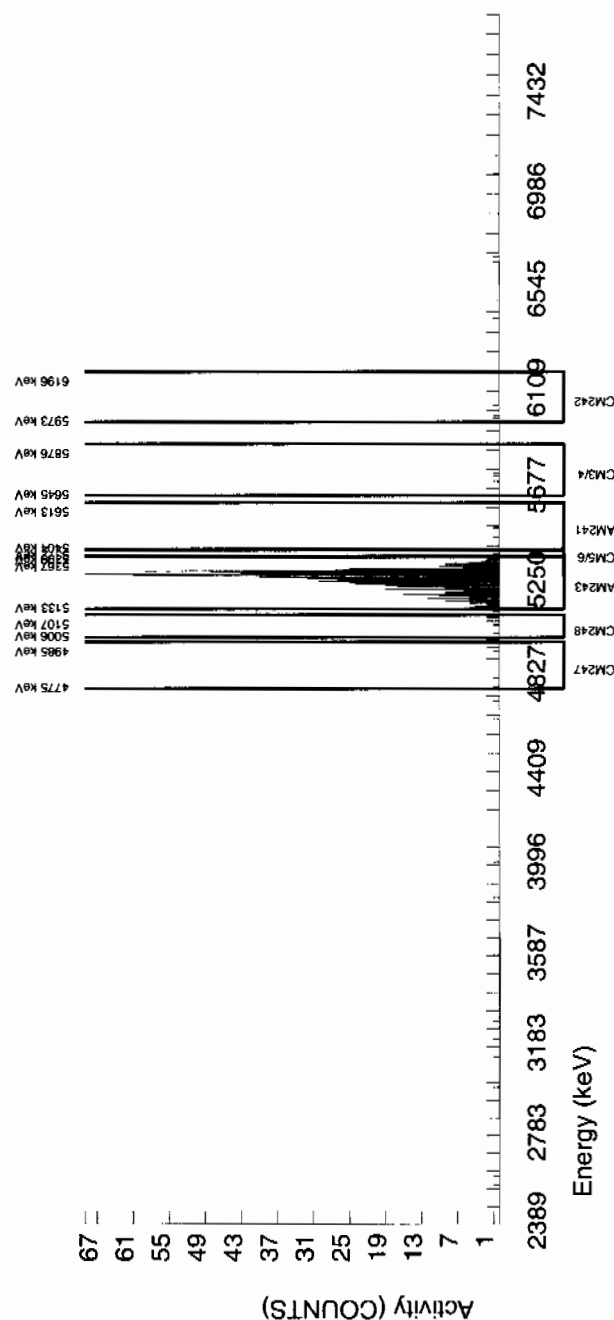
* BKG Sg calculated via blank population.

(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 : 966171
SAMPLE ID : S0248028004_AM
SAMPLE QTY : 1.248 G
SAMPLE DATE : 19-FEB-2010 00:00:00
ANALYST : AYB1
% YIELD : 54.460

CHAMBER : 251
DETECTOR S/N : 79444
AVERAGE %EFFICIENCY : 40.4400
COUNT DATE : 22-MAR-2010 16:25:46
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B251.CNF;91
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W251.CNF;31
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-VV
NUCLIDE : AM243
NOMINAL : 2.2753E+00 dpm
RESULTS : 1.2391E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

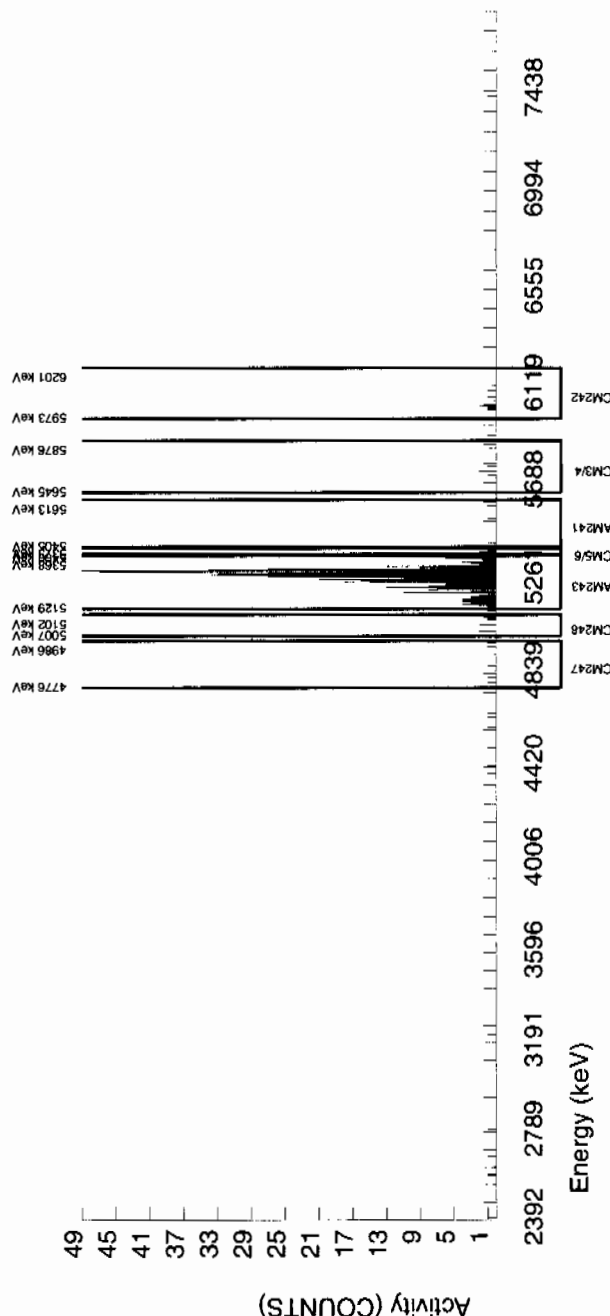
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

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	5497.015	158.052	4.000	2.130	1.000	2.7707	99.94000	3.49E-03	3.34E-03	1.06E-02	2.56E-02	3.33E-03
AM-243	5270.000	5274.920	35.669	506.000	500.000	6.000	2.4495	99.78000	8.21E-01	6.73E-02	9.36E-03	2.32E-02	3.72E-02
CM-242	6102.000	6039.957	17.287	12.000	12.000	0.000	4.0092	100.0000	2.25E-02	6.69E-03	1.53E-02	3.50E-02	6.51E-03
CM-3/4	5795.020	5759.812	4.939	6.000	5.000	1.000	4.8510	100.0000	8.22E-03	4.39E-03	1.85E-02	4.14E-02	4.35E-03
CM-5/6	5386.000	5380.539	0.000	10.000	10.000	0.000	6.1294	86.09000	1.90E-02	6.16E-03	2.71E-02	5.94E-02	6.02E-03
CM-247	4946.000	4894.615	0.000	10.000	5.000	5.000	6.3427	79.30000	1.03E-02	8.04E-03	3.05E-02	6.66E-02	8.00E-03
CM-248	5078.600	5054.916	29.635	7.000	7.000	0.000	11.0244	91.00000	1.26E-02	4.84E-03	4.62E-02	9.73E-02	4.76E-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	: 966171
SAMPLE ID	: S0248028005_AM
SAMPLE QTY	: 1.251 G
SAMPLE DATE	: 19-FEB-2010 00:00
ANALYST	: AYB1
% YIELD	: 89.056

CHAMBER : 252
DETECTOR S/N : 79445
AVERAGE %EFFICIENCY : 39.1229
COUNT DATE : 22-MAR-2000
ELAPSED LIVE TIME(SEC) : 60000.00

```
LIB FILE : ENV_ALPHA_AM
BKG FILE : B252.CNF:91
BKG DATE : 21-MAR-2010
TIME(SEC) : 60000.00
EFF FILE : W252.CNF:31
CAL DATE : 28-FEB-2010
```

TRACER	:	445-96-2-VV
ID	:	AM243
NUCLIDE	:	2.2753E+00 dpm
NOMINAL	:	2.0263E+00 dpm
RESULTS	:	

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3153E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG	%ABUN	ACTIVITY	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5513.526	182.759	8.000	6.624	0.000	2.7707	99.94000	6.85E-03	2.70E-03	6.67E-03	1.61E-02	2.66E-03
AM243	5270.000	5275.097	41.079	792.000	791.000	1.000	1.0000	99.78000	8.19E-01	5.88E-02	2.41E-03	7.63E-03	2.92E-02
CM-242	6102.000	6057.908	9.879	10.000	10.000	0.000	4.0092	100.0000	1.18E-02	3.82E-03	9.64E-03	2.21E-02	3.75E-03
CM-3/4	5795.020	5768.526	121.016	15.000	15.000	0.000	4.8510	100.0000	1.56E-02	4.13E-03	1.17E-02	2.61E-02	4.02E-03
CM-5/6	5386.000	5378.501	6.586	7.000	7.000	0.000	6.1294	86.09000	8.40E-03	3.22E-03	1.71E-02	3.75E-02	3.18E-03
CM-247	4946.000	4957.841	7.255	6.000	6.000	0.000	6.3427	79.30000	7.82E-03	3.23E-03	1.92E-02	4.20E-02	3.19E-03
CM-248	5078.600	5062.463	59.067	12.000	12.000	0.000	11.0244	91.00000	1.36E-02	4.02E-03	2.91E-02	6.13E-02	3.93E-03

NOTES:

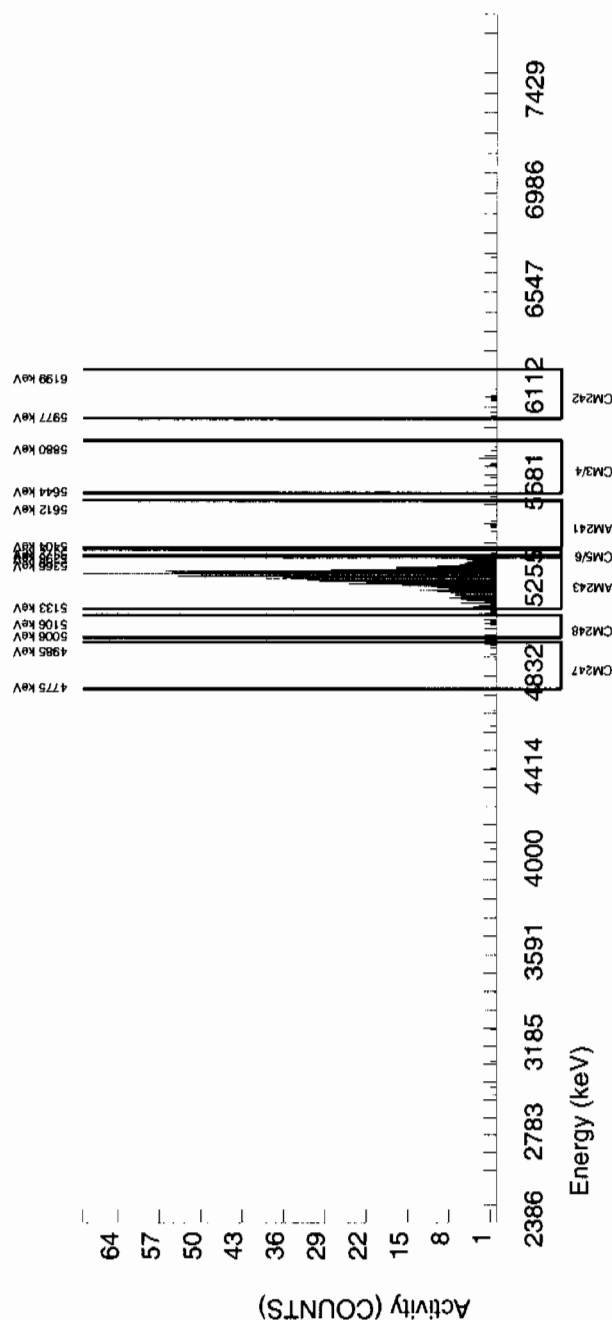
* BKG Sg calculated via blank population.

(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	: 966171
SAMPLE ID	: S120201
SAMPLE QTY	: 1.00
SAMPLE DATE	: 19-MAR-2019
ANALYST	: AYB1
% YIELD	: 99.987

ATCH NUMBER : 966171
 SAMPLE ID : S1202073424_AM
 SAMPLE QTY : 1.000 G
 SAMPLE DATE : 19-MAR-2010 00:00:00
 ANALYST : AYB1
 % YIELD : 99.987

CHAMBER : 253
DETECTOR S/N : 79446
AVERAGE %EFFICIENCY : 39.9556
COUNT DATE : 22-MAR-2000
ELAPSED LIVE TIME(SEC) : 60000.00

```
LIB FILE : ENV_ALPHA_AM
BKG FILE : B253.CNF:93
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W253.CNF:30
CAL DATE : 28-FEB-2010
```

TRACER	
ID	: 445-96-2-VV
NUCLIDE	: AM243
NOMINAL	: 2.2753E+00
RESULTS	: 2.2750E+00

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3148E+01 pCi/G

LCS/LCSD	
ID :	0244-B
NUCLIDE :	AM-241
NOMINAL :	3.3148E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

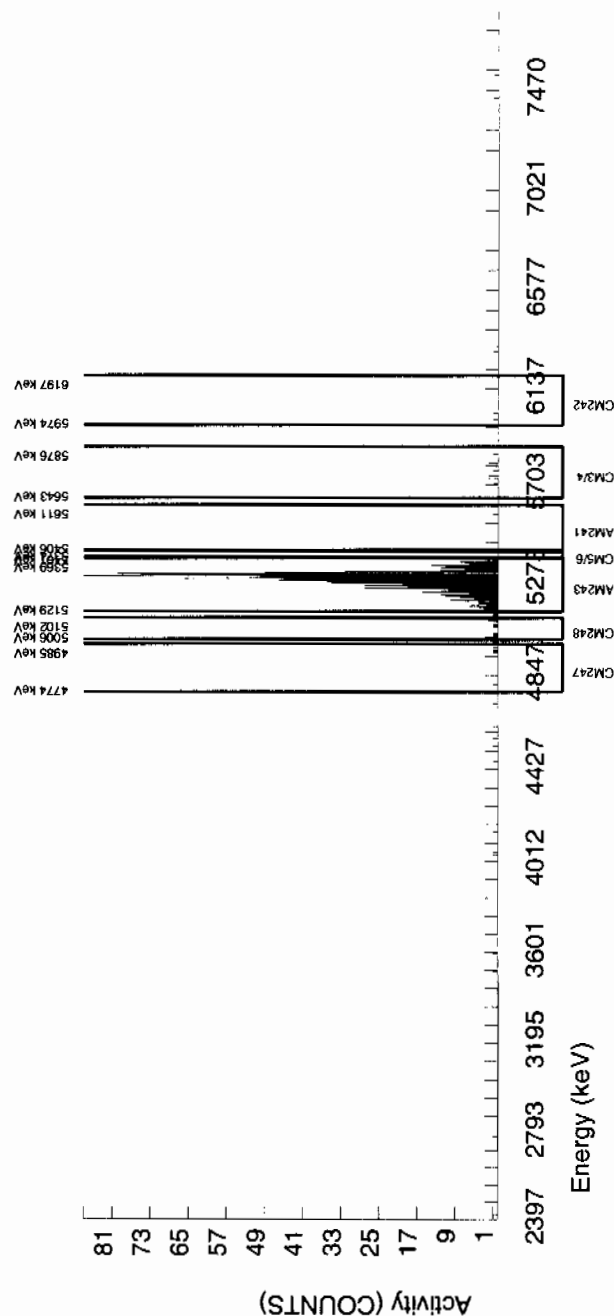
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG	%ABUN	ACTIVITY	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5591.888	0.000	2.000	-9.578	10.000	2.7707	99.94000	-1.08E-02	3.74E-03	7.27E-03	1.76E-02	3.74E-03
AM243	5270.000	5276.956	36.686	918.000	907.000	11.000	3.3166	99.78000	1.02E+00	7.16E-02	8.72E-03	2.05E-02	3.44E-02
CM-242	6102.000	6050.930	4.926	5.000	5.000	0.000	4.0092	100.0000	5.74E-03	2.59E-03	1.05E-02	2.41E-02	2.56E-03
CM-3/4	5795.020	5756.571	68.969	10.000	-3.000	13.000	4.8510	100.0000	-3.38E-03	5.41E-03	1.27E-02	2.85E-02	5.41E-03
CM-5/6	5386.000	5377.852	7.236	3.000	2.000	1.000	6.1294	86.09000	2.62E-03	2.62E-03	1.87E-02	4.09E-02	2.62E-03
CM-247	4946.000	4935.442	0.000	8.000	-4.000	12.000	6.3427	79.30000	-5.69E-03	6.36E-03	2.10E-02	4.58E-02	6.36E-03
CM-248	5078.600	5088.040	0.000	13.000	9.000	4.000	11.0244	91.00000	1.12E-02	5.15E-03	3.18E-02	6.69E-02	5.11E-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 : 966171	CHAMBER : 254	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S1202073425_AM	DETECTOR S/N : 79447	BKG FILE : B254.CNF:91
SAMPLE QTY : 1.241 G	AVERAGE %EFFICIENCY : 40.1306	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 22-MAR-2010 16:25:53	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W254.CNF:30
% YIELD : 83.746		CAL DATE : 28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-VV	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.2753E+00 dpm	NOMINAL : 3.3153E+01 pCi/G	NOMINAL : 3.3153E+01 pCi/G
RESULTS : 1.9055E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5544.757	113.515	2.000	-0.328	1.000	2.7707	99.94000	-3.54E-04	1.53E-03	6.97E-03	1.69E-02	1.53E-03
AM-243	5270.000	5276.897	56.325	763.000	763.000	3.000	1.7321	99.78000	8.26E-01	5.99E-02	4.36E-03	1.17E-02	3.00E-02
CM-242	6102.000	6053.100	118.450	7.000	7.000	0.000	4.0092	100.0000	8.66E-03	3.32E-03	1.01E-02	2.31E-02	3.27E-03
CM-3/4	5795.020	5757.561	9.871	12.000	12.000	0.000	4.8510	100.0000	1.30E-02	3.84E-03	1.22E-02	2.73E-02	3.75E-03
CM-5/6	5386.000	5385.705	0.000	9.000	8.000	1.000	6.1294	86.09000	1.00E-02	4.02E-03	1.79E-02	3.92E-02	3.97E-03
CM-247	4946.000	4875.456	4.935	13.000	9.000	4.000	6.3427	79.30000	1.23E-02	5.67E-03	2.01E-02	4.39E-02	5.62E-03
CM-248	5078.600	5056.990	72.798	25.000	22.000	3.000	11.0244	91.00000	2.61E-02	6.49E-03	3.04E-02	6.41E-02	6.28E-03

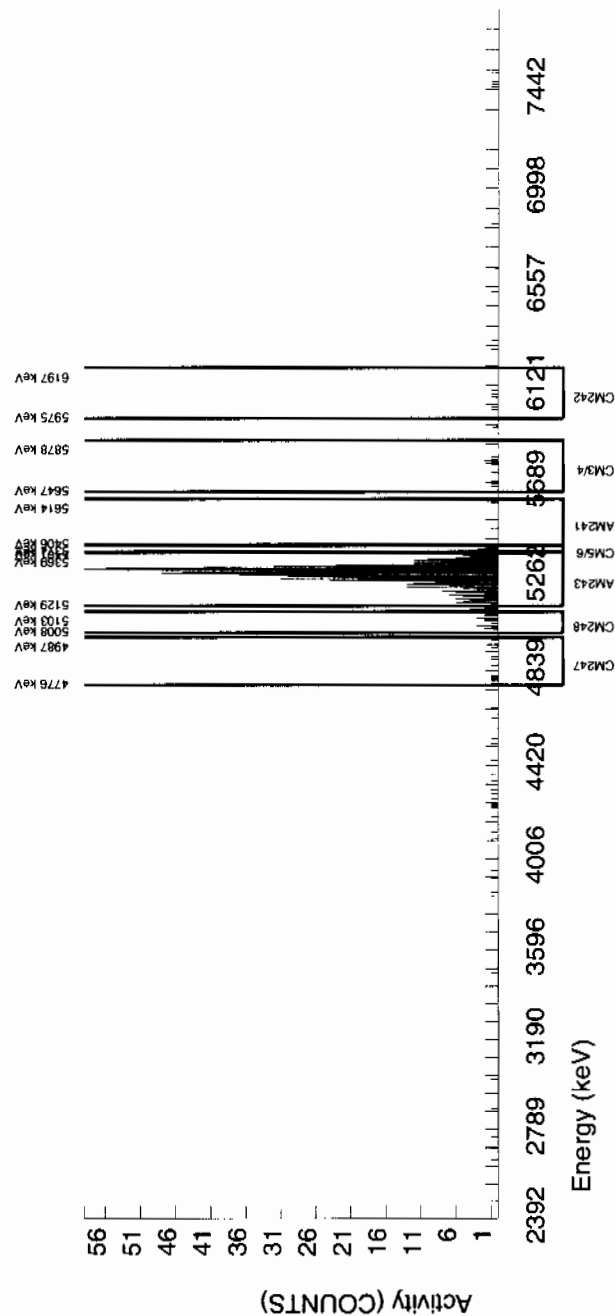
NOTES:

* 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 : 966171	CHAMBER : 230	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S1202073426_AM	DETECTOR S/N : 79423	BKG FILE : B230.CNF;89
SAMPLE QTY : 0.104 G	AVERAGE %EFFICIENCY : 38.1908	BKG DATE : 14-MAR-2010
SAMPLE DATE : 19-MAR-2010 00:00:00	COUNT DATE : 20-MAR-2010 20:00:23	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 30300.00	EFF FILE : W230.CNF;30
% YIELD : 108.711		CAL DATE : 28-FEB-2010

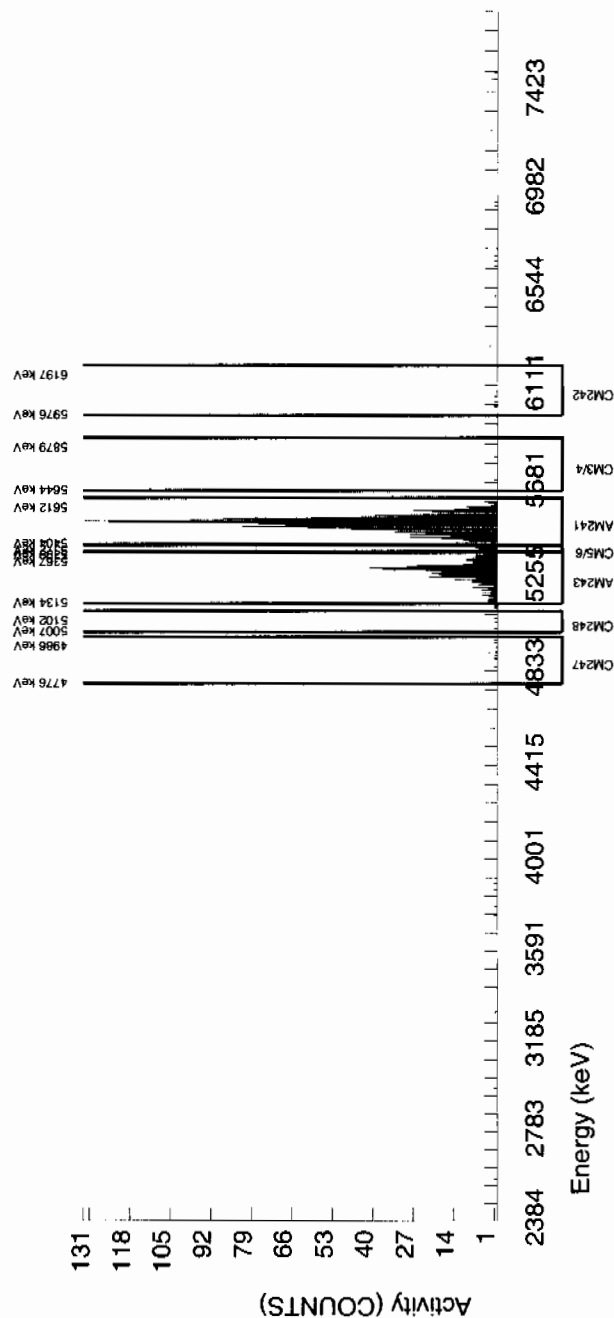
TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-VV	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.2753E+00 dpm	NOMINAL : 3.3148E+01 pCi/G	NOMINAL : 3.3148E+01 pCi/G
RESULTS : 2.4735E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5502.526	41.609	1471.000	1469.667	0.505	2.7707	99.94000	3.04E+01	2.42E+00	1.16E-01	2.87E-01	7.93E-01
AM243	5270.000	5281.242	51.700	476.000	476.000	0.000	0.0000	99.78000	9.85E+00	8.69E-01	0.00E+00	5.61E-02	4.52E-01
CM-242	6102.000	6048.315	68.755	5.000	5.000	0.000	4.0092	100.0000	1.04E-01	4.72E-02	1.67E-01	3.90E-01	4.66E-02
CM-3/4	5795.020	5748.036	99.107	2.000	2.000	0.000	4.8510	100.0000	4.13E-02	2.94E-02	2.02E-01	4.60E-01	2.92E-02
CM-5/6	5386.000	5384.411	19.644	49.000	49.000	0.000	6.1294	86.09000	1.18E+00	1.90E-01	2.97E-01	6.59E-01	1.68E-01
CM-247	4946.000	4919.020	118.928	7.000	6.495	0.505	6.3427	79.30000	1.69E-01	7.13E-02	3.33E-01	7.37E-01	7.02E-02
CM-248	5078.600	5052.348	0.000	5.000	5.000	0.000	11.0244	91.00000	1.14E-01	5.15E-02	5.05E-01	1.07E+00	5.08E-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# 966453 Product: PV Date: 3/24/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: JapLM1 - 3/24/10Secondary Review Performed By: [Signature] 3/24/103/25
LANL

PL

Plutonium Que Sheet

17-MAR-10

Batch #: 966453 Analyst: AYB1 First Client Due Date: 25-MAR-10 Internal Due Date: 19-MAR-10
Tracer Isotope(s): Pu-238 Tracer Code: 1430 C Expiration Date: 03/4/11 Vol: 6.1
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: 3/19/10 Initials: AYB Pipet ID: 4497063 Balance ID: 50410272
Witness: AYB 3/19/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry	Aliquot (g/1/1)	Pu Det #
248016001-3	RE46-10-13332	SAMPLE	.05 pCi/g		SOIL	LANL010	23-FEB-10	1	1		1.253	37
248016002-3	RE46-10-13329	SAMPLE	.05 pCi/g		SOIL	LANL010	23-FEB-10	2	2		1.251	38
248016003-3	RE46-10-13330	SAMPLE	.05 pCi/g		SOIL	LANL010	23-FEB-10	3	3		1.259	39
248016004-3	RE46-10-13331	SAMPLE	.05 pCi/g		SOIL	LANL010	23-FEB-10	4	4		1.257	40
248028001-3	RE15-10-8389	SAMPLE	.05 pCi/g		SOIL	LANL010	19-FEB-10	5	5		1.260	41
248028002-3	RE15-10-8388	SAMPLE	.05 pCi/g		SOIL	LANL010	19-FEB-10	6	6		1.259	42
248028003-3	RE15-10-8390	SAMPLE	.05 pCi/g		SOIL	LANL010	19-FEB-10	7	7		1.258	83
248028004-3	RE15-10-8392	SAMPLE	.05 pCi/g		SOIL	LANL010	19-FEB-10	8	8		1.253	84
248028005-3	RE15-10-8391	SAMPLE	.05 pCi/g		SOIL	LANL010	19-FEB-10	9	9		1.252	85
1202074009-1	MB for batch 966453	MB	UCF pCi/g to pCi/g		SOIL	QC ACCOUNT	19-FEB-10	10	10		1.252	86
1202074010-3	RE15-10-8389(248028001DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT	19-FEB-10	11	11		1.259	87
1202074011-1	LCS for batch 966453	LCS	UCF pCi/g to pCi/g		SOIL	QC ACCOUNT	19-FEB-10	12	12		0.101	88

AGM 0244-B exp: 04/30/20

Choose SOP Used: GL-RAD-A-01, GL-RAD-A-036, GL-RAD-A-045, GL-RAD-A-043
Solid Sample Dissolution by: LEACH or DIGESTION
Circle One

Data Reviewed By: SJA/LC-3/24/10

Blank Correction Report

Batch ID 966453

GEL Sample ID	Client sample ID	Parameter	Allquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202074010	DUP	Plutonium-238	1.26 g	-7.83E-05	0.00575	0.026	.001015873	pCi/g	YES
		Plutonium-239/240	1.26 g	-0.00149	0.00592	0.022	.001523810	pCi/g	YES
1202074011	LCS	Plutonium-238	0.101 g	3.00	0.339	0.297	.012673267	pCi/g	NO
		Plutonium-239/240	0.101 g	39.9	2.83	0.251	.019009901	pCi/g	NO
1202074009	MB	Plutonium-238	1.00 g	0.00128	0.00398	0.0303	.00128	pCi/g	YES
		Plutonium-239/240	1.00 g	0.00192	0.00487	0.0256	.00192	pCi/g	YES
248016001	RE46-10-13332	Plutonium-238	1.25 g	0.00584	0.0053	0.0211	.001024	pCi/g	NO
		Plutonium-239/240	1.25 g	-0.00165	0.00438	0.0178	.001536	pCi/g	YES
248016002	RE46-10-13329	Plutonium-238	1.25 g	0.013	0.00653	0.0233	.001024	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00675	0.00485	0.0197	.001536	pCi/g	YES
248016003	RE46-10-13330	Plutonium-238	1.26 g	0.0135	0.00785	0.0223	.001015873	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0055	0.00358	0.0188	.001523810	pCi/g	YES
248016004	RE46-10-13331	Plutonium-238	1.26 g	0.0023	0.00286	0.0239	.001015873	pCi/g	YES
		Plutonium-239/240	1.26 g	-0.00209	0.00288	0.0202	.001523810	pCi/g	YES
248028001	RE15-10-8389	Plutonium-238	1.26 g	0.00433	0.0038	0.0224	.001015873	pCi/g	YES
		Plutonium-239/240	1.26 g	0.000946	0.00295	0.019	.001523810	pCi/g	YES
248028002	RE15-10-8388	Plutonium-238	1.26 g	0.00536	0.00311	0.0237	.001015873	pCi/g	NO
		Plutonium-239/240	1.26 g	-0.000571	0.00476	0.020	.001523810	pCi/g	YES
248028003	RE15-10-8390	Plutonium-238	1.26 g	0.00653	0.0058	0.0204	.001015873	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0158	0.0053	0.0173	.001523810	pCi/g	NO
248028004	RE15-10-8392	Plutonium-238	1.25 g	0.00263	0.00339	0.0224	.001024	pCi/g	YES
		Plutonium-239/240	1.25 g	0.006	0.00415	0.0189	.001536	pCi/g	YES
248028005	RE15-10-8391	Plutonium-238	1.25 g	0.00158	0.00403	0.025	.001024	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00754	0.0038	0.0212	.001536	pCi/g	YES

GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 966453 SAMPLE ID : S0248028001_PU SAMPLE QTY : 1.260 G SAMPLE DATE : 19-FEB-2010 00:00:00 ANALYST : AYB1 % YIELD : 84.704</p>	<p>CHAMBER : 041 DETECTOR S/N : 78205 AVERAGE %EFFICIENCY : 34.7283 COUNT DATE : 23-MAR-2010 10:07:53 ELAPSED LIVE TIME(SEC) : 43199.99</p>	<p>LIB FILE : ENV_ALPHA_PU BKG FILE : B041.CNF;1120 BKG DATE : 21-MAR-2010 BKG LIVE TIME(SEC) : 6000.00 EFF FILE : W041.CNF;323 CAL DATE : 5-MAR-2010</p>
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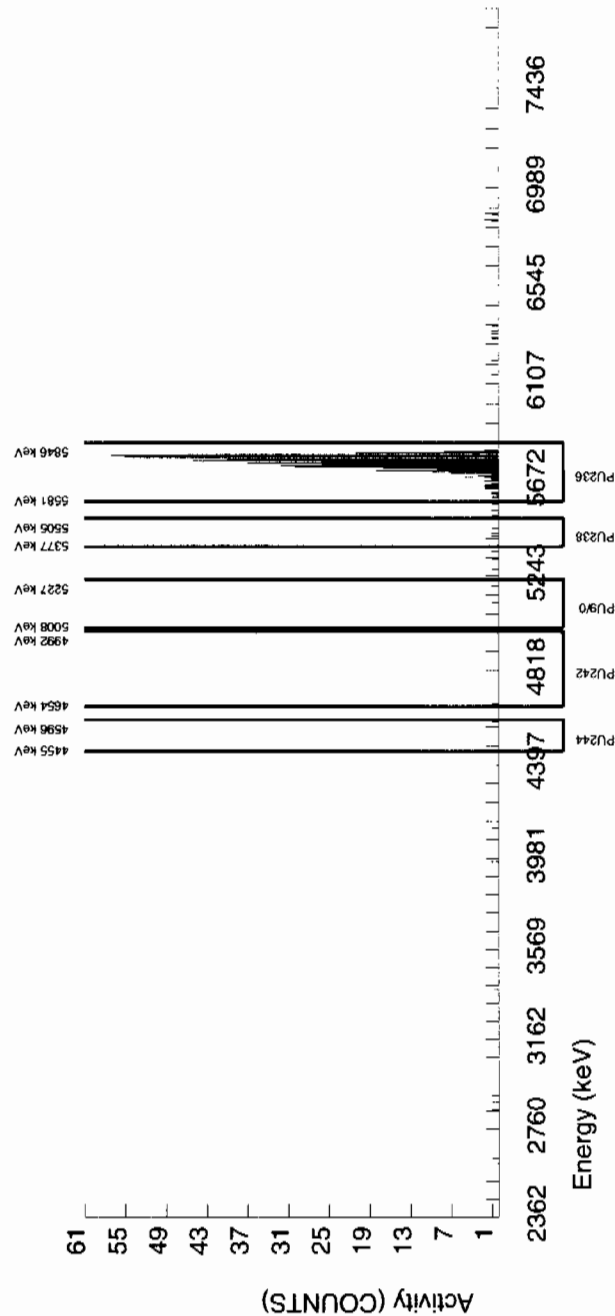
<p>TRACER ID : 1430-C NUCLIDE : PU-236 NOMINAL : 3.0280E+00 dpm RESULTS : 2.5648E+00 dpm</p>	<p>MS/MSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G</p>	<p>LCS/LCSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G</p>
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NUCLIDE ACTIVITY 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	5768.983	55.166	629.000	627.560	1.440	1.2000	100.0000	1.08E+00	7.61E-02	4.37E-03	1.33E-02	4.33E-02
PU-238	5499.000	5430.141	84.072	4.000	2.560	1.440	2.4495	99.900000	4.33E-03	3.80E-03	8.93E-03	2.24E-02	3.79E-03
PU-9/0	5155.000	5165.318	79.126	2.000	0.560	1.440	1.9732	99.900000	9.46E-04	2.95E-03	7.19E-03	1.90E-02	2.94E-03
PU242	4890.000	4669.832	4.945	1.000	-2.600	3.600	*****	100.0000	-4.39E-03	3.20E-03	4.54E-01	9.12E-01	3.20E-03
PU-244	4589.000	4590.918	4.945	1.000	-0.440	1.440	6.4609	99.900000	-7.43E-04	2.41E-03	2.36E-02	5.17E-02	2.41E-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 : 966453	CHAMBER : 042	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248028002_PU	DETECTOR S/N : 78793	BKG FILE : B042.CNF;1119
SAMPLE QTY : 1.259 G	AVERAGE %EFFICIENCY : 34.6417	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 23-MAR-2010 10:07:53	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 43199.99	EFF FILE : W042.CNF;296
% YIELD : 80.488		CAL DATE : 5-MAR-2010

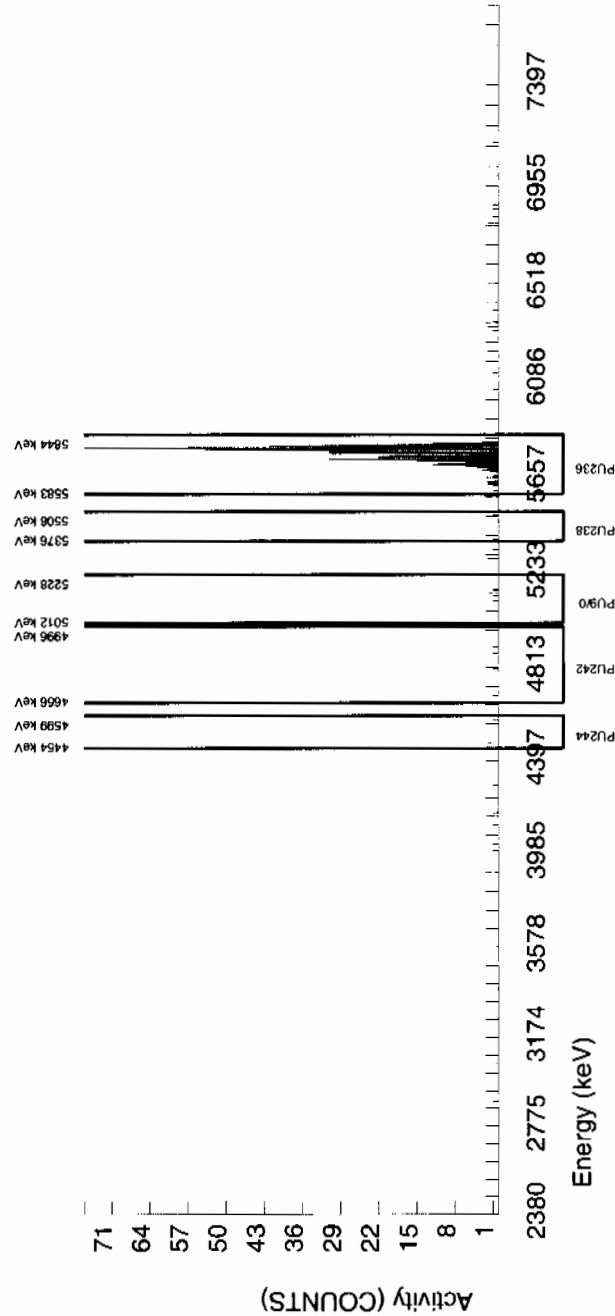
TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0280E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 2.4372E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5769.149	24.041	597.000	594.840	2.160	1.4697	100.0000	1.08E+00	7.76E-02	5.65E-03	1.61E-02	4.46E-02
PU-238	5499.000	5421.479	0.000	3.000	3.000	0.000	2.4495	99.90000	5.36E-03	3.11E-03	9.43E-03	2.37E-02	3.09E-03
PU-9/0	5155.000	5147.139	53.994	4.000	-0.320	4.320	1.9732	99.90000	-5.71E-04	4.76E-03	7.59E-03	2.00E-02	4.76E-03
PU242	4890.000	4824.453	211.067	4.000	-0.320	4.320	*****	100.0000	-5.70E-04	4.75E-03	4.79E-01	9.63E-01	4.75E-03
PU-244	4589.000	4583.424	4.909	1.000	1.000	0.000	6.4609	99.90000	1.78E-03	1.79E-03	2.49E-02	5.46E-02	1.78E-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 : 966453
 SAMPLE ID : S0248028003_PU
 SAMPLE QTY : 1.258 G
 SAMPLE DATE : 19-FEB-2010 00:00:00
 ANALYST : AYB1
 % YIELD : 90.343

CHAMBER : 083
 DETECTOR S/N : 64278
 AVERAGE %EFFICIENCY : 35.8135
 COUNT DATE : 23-MAR-2010 10:48:04
 ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_PU
 BKG FILE : B083.CNF;1034
 BKG DATE : 21-MAR-2010
 BKG LIVE TIME(SEC) : 60000.00
 EFF FILE : W083.CNF;294
 CAL DATE : 12-MAR-2010

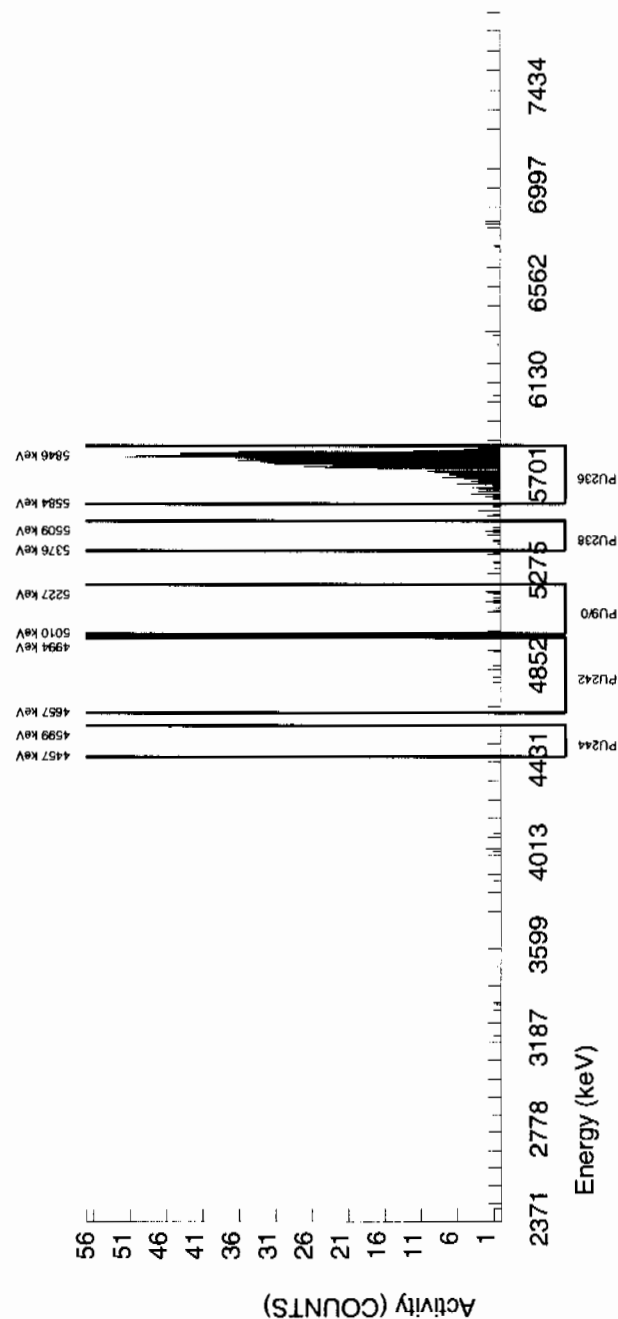
TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0280E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 2.7356E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5776.143	58.750	696.000	690.240	5.760	2.4000	100.0000	1.08E+00	7.41E-02	7.96E-03	2.01E-02	4.16E-02
PU-238	5499.000	5451.409	58.187	10.000	4.240	5.760	2.4495	99.900000	6.53E-03	5.80E-03	8.13E-03	2.04E-02	5.79E-03
PU-9/0	5155.000	5151.910	48.068	11.000	10.280	0.720	1.9732	99.900000	1.58E-02	5.30E-03	6.55E-03	1.73E-02	5.22E-03
PU242	4890.000	4856.799	136.613	4.000	1.120	2.880	*****	100.0000	1.72E-03	3.79E-03	4.13E-01	8.31E-01	3.79E-03
PU-244	4589.000	4528.010	0.000	0.000	-2.160	2.160	6.4609	99.900000	-3.32E-03	2.46E-03	2.14E-02	4.71E-02	2.46E-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 : 966453	CHAMBER : 084	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248028004_PU	DETECTOR S/N : 78265	BKG FILE : B084.CNF:1032
SAMPLE QTY : 1.253 G	AVERAGE %EFFICIENCY : 34.3452	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 23-MAR-2010 10:48:04	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W084.CNF:297
% YIELD : 86.393		CAL DATE : 12-MAR-2010

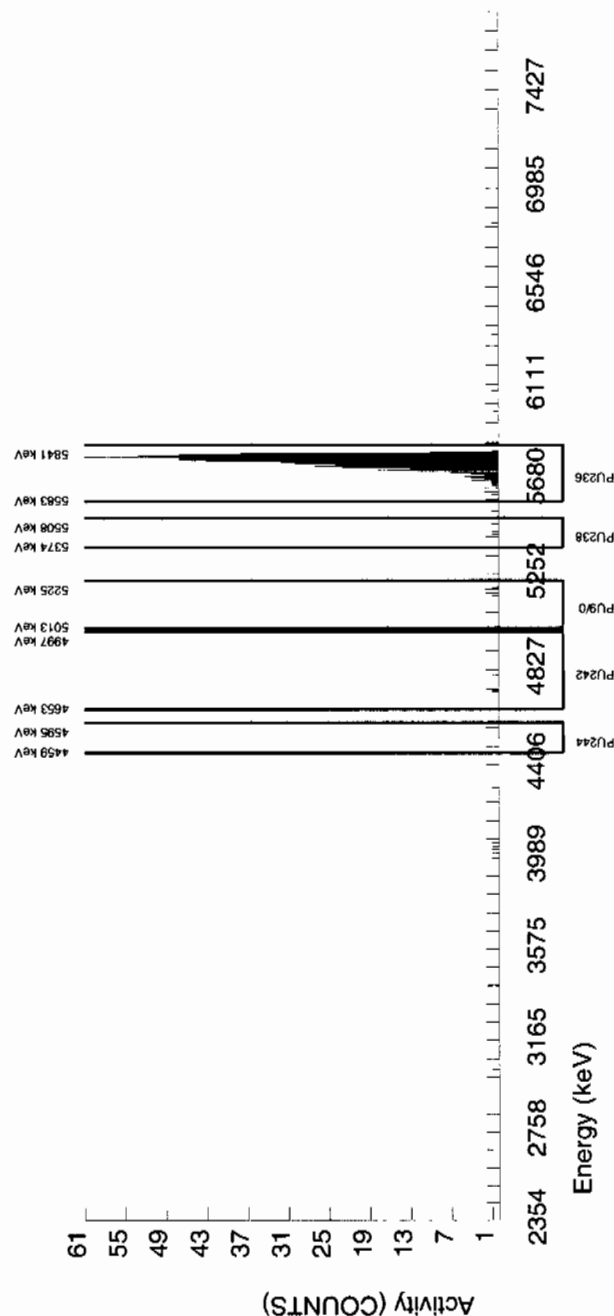
TRACER ID : 1430-C	MS/MSD ID : 0244-B	LCS/LCSD ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0280E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 2.6160E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5771.034	45.235	633.000	633.000	0.000	0.0000	100.0000	1.09E+00	7.62E-02	0.00E+00	4.56E-03	4.33E-02
PU-238	5499.000	5458.147	50.203	3.000	1.560	1.440	2.4495	99.900000	2.63E-03	3.39E-03	8.90E-03	2.24E-02	3.39E-03
PU-9/0	5155.000	5192.101	5.020	5.000	3.560	1.440	1.9732	99.900000	6.00E-03	4.15E-03	7.17E-03	1.89E-02	4.14E-03
PU242	4890.000	4762.153	69.656	3.000	2.280	0.720	*****	100.0000	3.84E-03	3.16E-03	4.53E-01	9.10E-01	3.16E-03
PU-244	4589.000	4526.991	0.000	0.000	0.000	0.000	6.4609	99.900000	0.00E+00	1.69E-03	2.35E-02	5.15E-02	1.68E-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	:	966453
SAMPLE ID	:	S02480
SAMPLE QTY	:	1.29
SAMPLE DATE	:	19-FEB-2019
ANALYST	:	AYB1
% YIELD	:	80.908

```
CHAMBER : 085
DETECTOR S/N : 78776
AVERAGE %EFFICIENCY : 32.8080
COUNT DATE : 23-MAR-2010 10:48:04
ELAPSED LIVE TIME(SEC) : 43200.00
```

```
LIB FILE : ENV_ALPHA_PU
BKG FILE : B085.CNF;1035
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W085.CNF;304
CAL DATE : 12-MAR-2010
```

TRACER

NUCLIDE	:	1430-C
NOMINAL	:	PU-236
RESULTS	:	3.0280E+00 dpm
	:	2.4499E+00 dpm

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

LCS/LCSD ID	NUCLIDE	NOMINAL
1	137Cs	1000
2	137Cs	1000
3	137Cs	1000
4	137Cs	1000
5	137Cs	1000
6	137Cs	1000
7	137Cs	1000
8	137Cs	1000
9	137Cs	1000
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12	137Cs	1000
13	137Cs	1000
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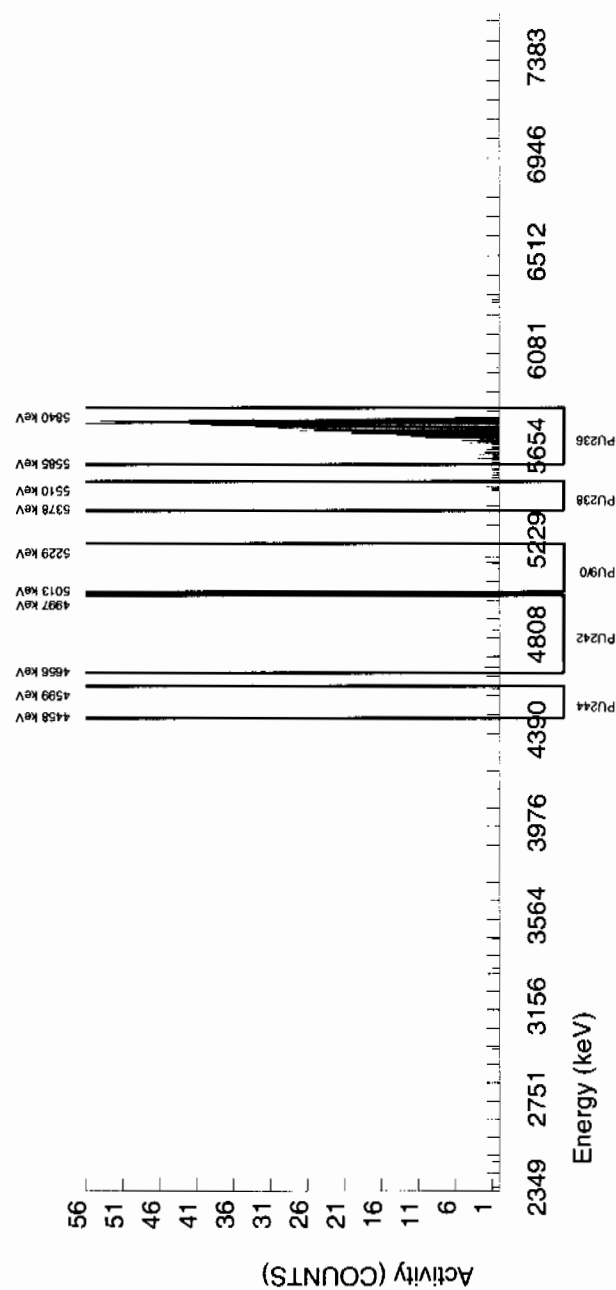
NUCLIDE ACTIVITY SUMMARY

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	5757.408	39.514	567.000	566.280	0.720	0.8485	100.0000	1.09E+00	7.91E-02	3.45E-03	1.20E-02	4.58E-02
PU-238	5499.000	5478.296	14.381	3.000	0.840	2.160	2.4495	99.90000	1.58E-03	4.03E-03	9.96E-03	2.50E-02	4.02E-03
PU-9/0	5155.000	5155.476	5.002	4.000	4.000	0.000	1.9732	99.90000	7.54E-03	3.80E-03	8.02E-03	2.12E-02	3.77E-03
PU242	4890.000	4754.839	5.002	5.000	4.280	0.720	*****	100.0000	8.06E-03	4.45E-03	5.06E-01	1.02E+00	4.42E-03
PU-244	4589.000	4588.507	5.002	1.000	1.000	0.000	6.4609	99.90000	1.88E-03	1.89E-03	2.63E-02	5.76E-02	1.88E-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 : 966453	CHAMBER : 086	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S1202074009_PU	DETECTOR S/N : 78198	BKG FILE : B086.CNF:1034
SAMPLE QTY : 1.000 G	AVERAGE %EFFICIENCY : 30.3911	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-MAR-2010 00:00:00	COUNT DATE : 23-MAR-2010 10:48:04	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W086.CNF:285
% YIELD : 90.273		CAL DATE : 12-MAR-2010

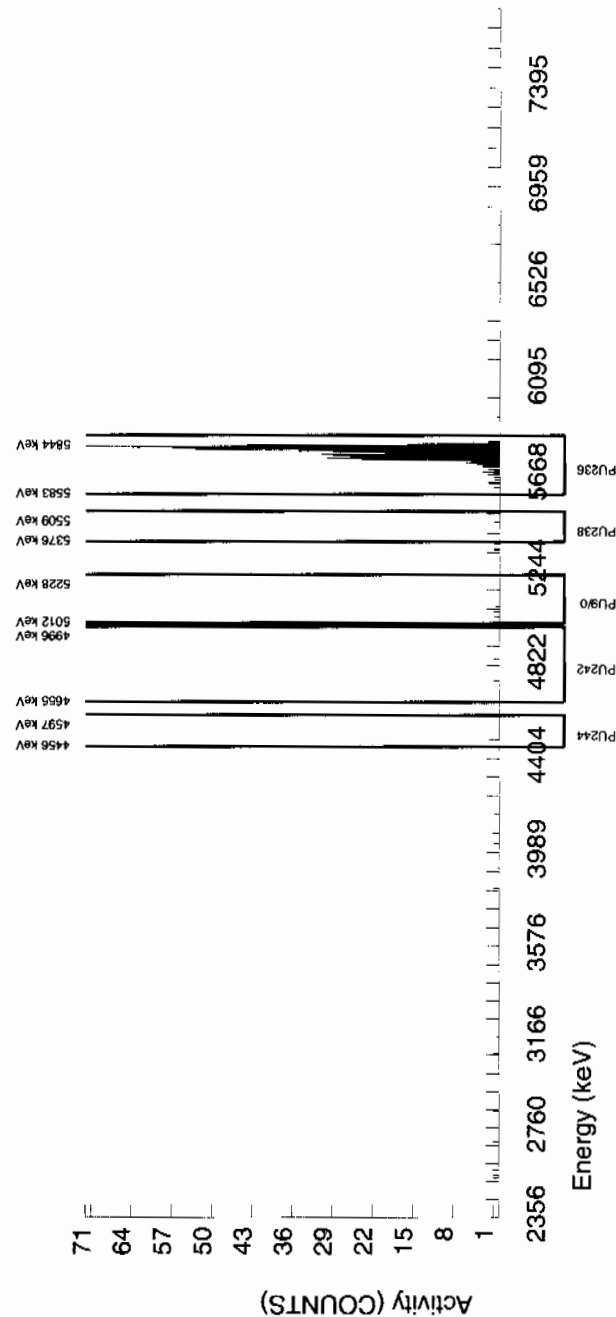
TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 2.9722E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 2.6831E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5776.464	25.976	586.000	585.280	0.720	0.8485	100.0000	1.34E+00	9.63E-02	4.17E-03	1.45E-02	5.54E-02
PU-238	5499.000	5423.843	85.467	2.000	0.560	1.440	2.4495	99.900000	1.28E-03	3.98E-03	1.21E-02	3.03E-02	3.98E-03
PU-9/0	5155.000	5069.676	45.247	3.000	0.840	2.160	1.9732	99.900000	1.92E-03	4.87E-03	9.72E-03	2.56E-02	4.87E-03
PU242	4890.000	4809.344	100.549	2.000	-0.160	2.160	*****	100.0000	-3.65E-04	4.30E-03	6.13E-01	1.23E+00	4.30E-03
PU-244	4589.000	4526.632	0.000	0.000	-0.720	0.720	6.4609	99.900000	-1.64E-03	2.82E-03	3.18E-02	6.98E-02	2.81E-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 : 966453	CHAMBER : 087	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S1202074010_PU	DETECTOR S/N : 78199	BKG FILE : B087.CNF;1041
SAMPLE QTY : 1.259 G	AVERAGE %EFFICIENCY : 32.3127	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-FEB-2010 00:00:00	COUNT DATE : 23-MAR-2010 10:48:04	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W087.CNF;278
% YIELD : 78.707		CAL DATE : 12-MAR-2010

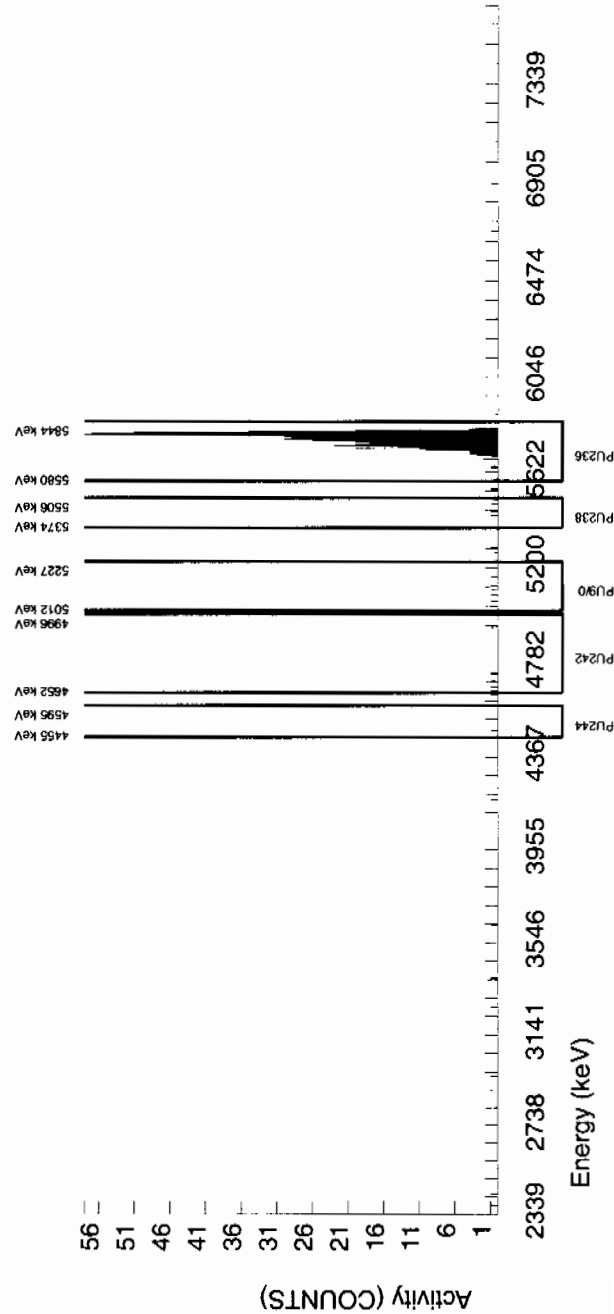
TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0280E+00 dpm	NOMINAL : 4.1778E+01 pCi/g	NOMINAL : 4.1778E+01 pCi/g
RESULTS : 2.3833E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/g	TPU 1-SIGMA	DLC pCi/g	MDC pCi/g	UNC pCi/g
PU-236	5749.000	5773.222	36.635	544.000	542.560	1.440	1.2000	100.0000	1.08E+00	7.99E-02	5.06E-03	1.54E-02	4.66E-02
PU-238	5499.000	5449.750	0.000	5.000	-0.040	5.040	2.4495	99.90000	-7.83E-05	5.75E-03	1.03E-02	2.60E-02	5.75E-03
PU-9/0	5155.000	5109.214	104.408	5.000	-0.760	5.760	1.9732	99.90000	-1.49E-03	5.92E-03	8.33E-03	2.20E-02	5.92E-03
PU242	4890.000	4766.578	268.477	7.000	5.560	1.440	*****	100.0000	1.09E-02	5.58E-03	5.25E-01	1.06E+00	5.54E-03
PU-244	4589.000	4491.299	4.972	1.000	-0.440	1.440	6.4609	99.90000	-8.61E-04	2.79E-03	2.73E-02	5.98E-02	2.79E-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 : 966453	CHAMBER : 088	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S1202074011_PU	DETECTOR S/N : 33452	BKG FILE : B088.CNF:1029
SAMPLE QTY : 0.101 G	AVERAGE %EFFICIENCY : 31.6430	BKG DATE : 21-MAR-2010
SAMPLE DATE : 19-MAR-2010 00:00:00	COUNT DATE : 23-MAR-2010 10:48:04	BKG LIVE TIME(SEC) : 60000.00
ANALYST : AYB1	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W088.CNF:288
% YIELD : 87.649		CAL DATE : 12-MAR-2010

TRACER ID : 1430-C	MS/MSD ID : 0244-B	LCS/LCSD ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 2.9722E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 2.6051E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

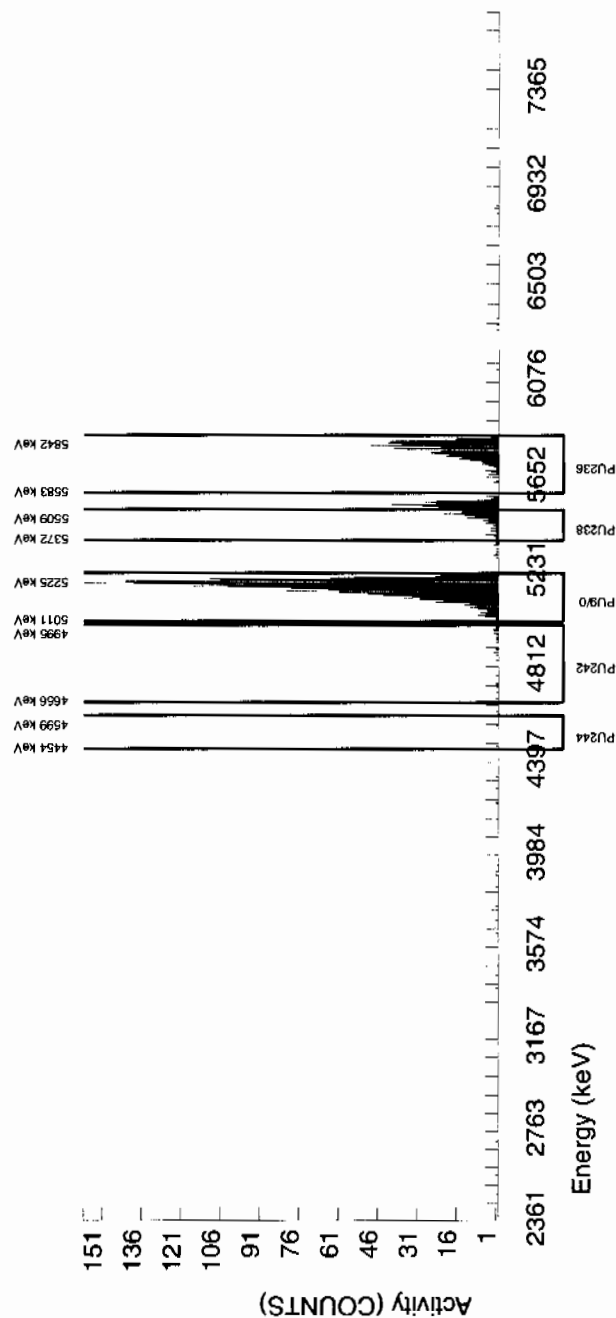
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5782.184	62.142	596.000	591.680	4.320	2.0785	100.0000	1.33E+01	1.04E+00	1.00E-01	2.61E-01	5.48E-01
PU-238	5498.000	5478.096	0.000	143.000	134.360	8.640	2.4495	99.900000	3.00E+00	3.39E-01	1.18E-01	2.97E-01	2.73E-01
PU-9/0	5155.000	5165.555	53.859	1790.000	1786.400	3.600	1.9732	99.900000	3.99E+01	2.83E+00	9.52E-02	2.51E-01	9.47E-01
PU242	4890.000	4881.326	99.992	24.000	23.280	0.720	*****	100.0000	5.20E-01	1.16E-01	6.01E+00	1.21E+01	1.11E-01
PU-244	4589.000	4518.467	89.993	2.000	2.000	0.000	6.4609	99.900000	4.47E-02	3.18E-02	3.12E-01	6.84E-01	3.16E-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

Batch# 958220 Product: RS Date: 3/16/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.			
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly 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 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: Heulan 3/16/10

Secondary Review Performed By: Heulan 3/17/10

LANL

3/25/10

Gamma Spec Que Sheet

03/16/2010

Batch #: 958220
 Analyst: PRO
 First Client Due Date: 03/25/2010
 Internal Due Date: 03/14/2010
 Gamma Spike Isotope: Mixed Gamma
 Spike Code: N/a
 Expiration Date: N/a
 Nominal Concentration: N/a
 Gamma LCS Isotope: Mixed Gamma
 LCS Code: 032-A
 Expiration Date: 12/2/10
 Vol: 1.0 mL
 Nominal Concentration: 400-241-15.9 Cs 137- 5.55 d
 Initials: MS
 Prep Date: 3/3/10
 Library: SOLIO
 Witness: N/a
 Col: 6.344

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Wet/Dry Aliquot (1/g / F)	Detector	Sealing Date/Time (if Applicable)
248016001-1	RE46-10-13332	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00	QAN	146.65	18	3/2/10
248016002-1	RE46-10-13329	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		144.73	23	
248016003-1	RE46-10-13330	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		128.56	13	
248016004-1	RE46-10-13331	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		181.84	5	3/3/10
248025001-1	CAPU-10-12542	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00		154.42	15	3/2/10
248025002-1	CAPU-10-12545	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00		118.30	18	
248025003-1	CAPU-10-12548	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		129.30	23	
248025004-1	CAPU-10-12541	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00		147.71	13	
248025005-1	CAPU-10-12550	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		162.97	15	
248025006-1	CAPU-10-12544	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00		135.41	18	
248025007-1	CAPU-10-12547	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00		138.01	23	
248028001-1	RE15-10-8389	SAMPLE		LANL010	SOIL	19-FEB-10 12:00:00		129.19	18	
248028002-1	RE15-10-8388	SAMPLE		LANL010	SOIL	19-FEB-10 12:00:00		133.93	4	
248028003-1	RE15-10-8390	SAMPLE		LANL010	SOIL	19-FEB-10 12:00:00		122.88	5	
248028004-1	RE15-10-8392	SAMPLE		LANL010	SOIL	19-FEB-10 12:00:00		106.52	12	
248028005-1	RE15-10-8391	SAMPLE		LANL010	SOIL	19-FEB-10 12:00:00		134.06	15	
1202054952-1	MB	MB		QC ACCOUNT	SOIL	3/3/10		181.84	13	3/3/10
1202054953-1	DUP RE15-10-8389(248028001)	DUP		QC ACCOUNT	SOIL	19-FEB-10 12:00:00		129.19	25	3/2/10
1202054954-1	LCS	LCS		QC ACCOUNT	SOIL	3/3/10		155.14	33	3/3/10

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: Seulim 3/16/10

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Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
958220	248016001	SAMPLE	12-MAR-10		Americium-241	0.07702	0.2426	0.200
					Thorium-234	-0.5837	2.025	2.00
958220	248016002	SAMPLE	12-MAR-10		Americium-241	-0.3635	0.3282	0.200
					Cerium-139	-0.01578	0.0546	0.050
					Sodium-22	0.02167	0.08676	0.080
					Thorium-234	1.602	2.929	2.00
958220	248016003	SAMPLE	12-MAR-10		Cerium-139	-0.01753	0.061	0.050
					Cesium-134	0.1227	0.1327	0.100
					Europium-152	0.1093	0.2138	0.200
					Sodium-22	-0.04915	0.1021	0.080
958220	248016004	SAMPLE	12-MAR-10					
958220	248025001	SAMPLE	12-MAR-10		Americium-241	-0.1133	0.5085	0.200
					Cerium-139	0.01376	0.06513	0.050
					Europium-152	0.00159	0.2024	0.200
					Thorium-234	-1.208	4	2.00
958220	248025002	SAMPLE	12-MAR-10		Americium-241	-0.01906	0.3334	0.200
					Thorium-234	1.791	2.974	2.00
958220	248025003	SAMPLE	12-MAR-10		Americium-241	-0.1792	0.3745	0.200
					Cerium-139	-0.04648	0.05715	0.050
					Cesium-134	0.05595	0.1017	0.100
					Sodium-22	-0.03888	0.08431	0.080
					Thorium-234	1.914	3.325	2.00
958220	248025004	SAMPLE	12-MAR-10		Cerium-139	-0.02042	0.05861	0.050
					Sodium-22	-0.04837	0.09406	0.080
958220	248025005	SAMPLE	12-MAR-10		Americium-241	-0.06764	0.5253	0.200
					Cerium-139	-0.01601	0.06253	0.050
					Thorium-234	0.04367	4.17	2.00
958220	248025006	SAMPLE	13-MAR-10		Americium-241	-0.1287	0.2815	0.200
					Thorium-234	0.4651	2.534	2.00
958220	248025007	SAMPLE	12-MAR-10		Americium-241	-0.1824	0.3649	0.200
					Cerium-139	-0.01872	0.05568	0.050
					Sodium-22	-0.01952	0.08803	0.080
					Thorium-234	1.168	3.215	2.00
958220	248028001	SAMPLE	12-MAR-10		Americium-241	0.05449	0.2903	0.200
					Thorium-234	0.1976	2.451	2.00
958220	248028002	SAMPLE	12-MAR-10		Americium-241	0.3425	0.3798	0.200
958220	248028003	SAMPLE	12-MAR-10		Cerium-139	-0.01668	0.05855	0.050
					Cesium-134	0.08034	0.1145	0.100
958220	248028004	SAMPLE	12-MAR-10		Americium-241	0.0102	0.2853	0.200
					Cerium-139	-0.01	0.05835	0.050
					Cesium-134	0.0329	0.1012	0.100
					Sodium-22	0.03315	0.1004	0.080
					Thorium-234	2.24	2.37	2.00
958220	248028005	SAMPLE	12-MAR-10		Americium-241	-0.3928	0.5013	0.200

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
958220	248028005	SAMPLE	12-MAR-10		Cerium-139	-0.0332	0.06256	0.050
					Thorium-234	2.333	4.341	2.00
958220	1202054952	MB	12-MAR-10					
958220	1202054953	DUP	12-MAR-10					
958220	1202054954	LCS	12-MAR-10		Cerium-139	0.0185	0.08474	0.050
					Cesium-134	0.0062	0.1636	0.100
					Europium-152	-0.09659	0.3139	0.200
					Mercury-203	0.0165	0.1121	0.100
					Ruthenium-106	-0.1462	1.049	0.800
					Sodium-22	0.00762	0.09482	0.080
					Thorium-234	-0.9658	4.59	2.00
					Tin-113	0.01806	0.1532	0.100
					Uranium-235	0.1358	0.5823	0.500

Gamma Review Report based on Result > MDA for Batch:958220

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248016001	23-FEB-10 12:00	12-MAR-10 10:51	17	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>	1.002	0.1191	pCi/g	0.1516	N	910.7 3	1.762	IDENTIFIED 9.767	<input type="checkbox"/>	
Annihilation Rad. HE	0.06651	0.02251	pCi/g	0.03123	N	510.5 1	2.057	IDENTIFIED 33.68	<input type="checkbox"/>	
Barium-137m <i>ML</i>	0.08964	0.01833	pCi/g	0.03894	N	661.1 2	1.107	IDENTIFIED 20.09	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	2.166	0.1568	pCi/g	0.217	Y	351.9 2	1.292	IDENTIFIED 6.488	<input checked="" type="checkbox"/> <i>UI</i>	
Bismuth-212 HE	1.161	0.2847	pCi/g	0.7541	N	0 3 0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	0.7056	0.05726	pCi/g	0.07999	0.200	609 2	1.531	IDENTIFIED 6.758	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	1.961	0.3906	pCi/g	1.168	Y	87.12 3	1.206	IDENTIFIED 19.38	<input checked="" type="checkbox"/> <i>UI</i>	
Cerium-143	1353	200.5	pCi/g	0	N	0 3 0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.0723	0.02277	pCi/g	0.05984	0.100	0 3 0	FAIL_ABUND	0	<input checked="" type="checkbox"/> <i>UI</i>	Data rejected due to low abundance.
Cesium-137 <i>✓</i>	0.09469	0.01936	pCi/g	0.04113	0.100	661.1 2	1.107	IDENTIFIED 20.09	<input type="checkbox"/>	
Gross Gamma	5.85	0.8125	pCi/g	1.859	N	0			<input type="checkbox"/>	
Lead-212 <i>✓</i>	0.9101	0.04877	pCi/g	0.0669	0.100	238.7 2	1.179	IDENTIFIED 3.965	<input type="checkbox"/>	
Lead-214 <i>✓</i>	0.7861	0.06089	pCi/g	0.07891	0.100	351.9 2	1.292	IDENTIFIED 6.488	<input type="checkbox"/>	
Neptunium-237 <i>ML</i>	0.5705	0.1284	pCi/g	0.2644	N	87.12 3	1.206	IDENTIFIED 19.38	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	22.93	1.053	pCi/g	0.3427	1.00	1460 1	2.219	IDENTIFIED 2.59	<input type="checkbox"/>	
Radium-224 <i>INT</i>	1.932	0.3319	pCi/g	0.716	Y	241.7 1	1.561	IDENTIFIED 16.95	<input checked="" type="checkbox"/> <i>UI</i>	
Radium-226 <i>✓</i>	0.7056	0.05726	pCi/g	0.07999	Y	609 2	1.531	IDENTIFIED 6.758	<input type="checkbox"/>	
Radium-228 <i>✓</i>	1.002	0.1191	pCi/g	0.1516	0.500	910.7 3	1.762	IDENTIFIED 9.767	<input type="checkbox"/>	
Thallium-208 <i>✓</i>	0.2941	0.03052	pCi/g	0.03724	0.080	582.9 1	1.536	IDENTIFIED 9.613	<input type="checkbox"/>	
Thorium-228 <i>ML</i>	0.9101	0.04877	pCi/g	0.0669	N	238.7 2	1.179	IDENTIFIED 3.965	<input type="checkbox"/>	
Thorium-232 <i>ML</i>	1.002	0.1191	pCi/g	0.1516	N	910.7 3	1.762	IDENTIFIED 9.767	<input type="checkbox"/>	
Tin-126 <i>ML</i>	0.1912	0.03808	pCi/g	0.1114	N	87.12 3	1.206	IDENTIFIED 19.38	<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
248016002	23-FEB-10 12:00	12-MAR-10 10:52	17	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>	1.983	0.2001	pCi/g	0.2106	N	910 3	1.841	IDENTIFIED 8.153	<input type="checkbox"/>	
Annihilation Rad.	0.1303	0.03056	pCi/g	0.0502	N	510.2 1	1.221	IDENTIFIED 23.28	<input type="checkbox"/>	
Barium-137m <i>ML</i>	0.1273	0.0285	pCi/g	0.06591	N	661 2	2.192	IDENTIFIED 22.24	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	3.605	0.2563	pCi/g	0.3478	Y	351.4 2	1.376	IDENTIFIED 6.318	<input checked="" type="checkbox"/> <i>UI</i>	
Bismuth-212 HE	1.762	0.6672	pCi/g	1.19	N	0 7 0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	1.168	0.09	pCi/g	0.1223	0.200	608.5 2	1.738	IDENTIFIED 6.707	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	2.654	0.5422	pCi/g	1.662	Y	86.91 3	1.14	IDENTIFIED 19.84	<input checked="" type="checkbox"/> <i>UI</i>	
Cerium-143	3365	474	pCi/g	0	N	0 7 0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1118	0.03337	pCi/g	0.09848	0.100	0 7 0	FAIL_ABUND	0	<input checked="" type="checkbox"/> <i>UI</i>	Data rejected due to low abundance.
Cesium-135 HE	0.4571	0.1159	pCi/g	0.2613	N	270 1	1.569	IDENTIFIED 25.06	<input type="checkbox"/>	
Cesium-137 <i>✓</i>	0.1345	0.03011	pCi/g	0.06963	0.100	661 2	2.192	IDENTIFIED 22.24	<input type="checkbox"/>	
Gross Gamma	8.676	1.211	pCi/g	3.382	N	0			<input type="checkbox"/>	
Iodine-135	2.33E+17	0	pCi/g	0	N	0 7 0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.641	0.08172	pCi/g	0.1029	0.100	238.3 2	1.175	IDENTIFIED 3.414	<input type="checkbox"/>	
Lead-214 <i>✓</i>	1.308	0.09978	pCi/g	0.1207	0.100	351.4 2	1.376	IDENTIFIED 6.318	<input type="checkbox"/>	

Neptunium-237	HE	0.7721	0.1773	pCi/g	0.4983	N	86.91	3	1.14	IDENTIFIED	19.84	<input type="checkbox"/>
Niobium-95	HE	0.1055	0.02527	pCi/g	0.09425	N	0	7	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-95m	LA	0.8404	0.09139	pCi/g	0.3127	N	0	7	0	NOT_IDENTI	0	<input type="checkbox"/>
Potassium-40	✓	28.14	1.384	pCi/g	0.4095	1.00	1459	1	2.305	IDENTIFIED	3.189	<input type="checkbox"/>
Radium-224	INT	3.513	0.5393	pCi/g	1.103	Y	241.4	1	1.681	IDENTIFIED	15.09	<input checked="" type="checkbox"/> UI
Radium-226	✓	1.168	0.09	pCi/g	0.1223	Y	608.5	2	1.738	IDENTIFIED	6.707	<input type="checkbox"/>
Radium-228	✓	1.983	0.2001	pCi/g	0.2106	0.500	910	3	1.841	IDENTIFIED	8.153	<input type="checkbox"/>
Technetium-99m		9.09E+17	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.4978	0.04354	pCi/g	0.06119	0.080	582.4	1	1.519	IDENTIFIED	8.125	<input type="checkbox"/>
Thorium-228	UU	1.641	0.08172	pCi/g	0.1029	N	238.3	2	1.175	IDENTIFIED	3.414	<input type="checkbox"/>
Thorium-232	UU	1.983	0.2001	pCi/g	0.2106	N	910	3	1.841	IDENTIFIED	8.153	<input type="checkbox"/>
Tin-126	HE	0.2587	0.05285	pCi/g	0.1666	N	86.91	3	1.14	IDENTIFIED	19.84	<input type="checkbox"/>
Total Uranium		4.74	2.38E-06	ug/g	4.3604	N	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		
248016003	23-FEB-10 12:00	12-MAR-10 11:14	17	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP		
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	UU	2.421	0.2744	pCi/g	0.3461	N	910.9	3	1.953	IDENTIFIED	9.779	<input type="checkbox"/>	
Americium-241	LA	0.1585	0.04257	pCi/g	0.1371	0.200	0	8	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Annihilation Rad.		0.2751	0.0517	pCi/g	0.06272	N	510.8	1	2.003	IDENTIFIED	18.23	<input type="checkbox"/>	
Bismuth-211	INT	3.954	0.3543	pCi/g	0.4448	Y	351.6	2	1.594	IDENTIFIED	7.591	<input checked="" type="checkbox"/> UI	
Bismuth-212	LA	3.985	0.6621	pCi/g	1.608	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	V	1.381	0.1221	pCi/g	0.1686	0.200	609	2	1.769	IDENTIFIED	7.15	<input type="checkbox"/>	
Cadmium-109	INT	3.307	0.5222	pCi/g	1.544	Y	87.24	3	1.186	IDENTIFIED	14.96	<input checked="" type="checkbox"/> UI	
Cerium-143		1971	355.5	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-135	HE	0.3854	0.1169	pCi/g	0.3701	N	0	8	0	NOT_IDENTI	0	<input type="checkbox"/>	
Gross Gamma		10.91	1.656	pCi/g	4.328	N	0					<input type="checkbox"/>	
Iodine-135		2.52E+17	0	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-210	HE	1.406	0.4769	pCi/g	1.019	N	46.61	1	1.358	IDENTIFIED	33.46	<input type="checkbox"/>	
Lead-212	V	1.946	0.1235	pCi/g	0.1181	0.100	238.6	2	1.443	IDENTIFIED	3.682	<input type="checkbox"/>	
Lead-214	V	1.435	0.1345	pCi/g	0.1618	0.100	351.6	2	1.594	IDENTIFIED	7.591	<input type="checkbox"/>	
Neptunium-237	UU	0.9618	0.1823	pCi/g	0.439	N	87.24	3	1.186	IDENTIFIED	14.96	<input type="checkbox"/>	
Niobium-95m	HE	0.3931	0.09448	pCi/g	0.3022	N	0	8	0	NOT_IDENTI	0	<input type="checkbox"/>	
Potassium-40	V	35.45	1.915	pCi/g	0.7046	1.00	1460	1	2.229	IDENTIFIED	3.031	<input type="checkbox"/>	
Radium-224	INT	4.916	0.8098	pCi/g	1.266	Y	241.5	1	1.895	IDENTIFIED	15.81	<input checked="" type="checkbox"/> UI	
Radium-226	V	1.381	0.1221	pCi/g	0.1686	Y	609	2	1.769	IDENTIFIED	7.15	<input type="checkbox"/>	
Radium-228	V	2.421	0.2744	pCi/g	0.3461	0.500	910.9	3	1.953	IDENTIFIED	9.779	<input type="checkbox"/>	
Sodium-24	HE	1.58E+06	4.41E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Strontium-85	LA	0.1331	0.02957	pCi/g	0.09895	Y	0	8	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Thallium-208	V	0.7103	0.06201	pCi/g	0.0806	0.080	582.8	1	1.553	IDENTIFIED	7.28	<input type="checkbox"/>	
Thorium-228	UU	1.946	0.1235	pCi/g	0.1181	N	238.6	2	1.443	IDENTIFIED	3.682	<input type="checkbox"/>	
Thorium-232	UU	2.421	0.2744	pCi/g	0.3461	N	910.9	3	1.953	IDENTIFIED	9.779	<input type="checkbox"/>	
Thorium-234	V	1.725	0.644	pCi/g	1.354	2.00	63.32	2	1.453	IDENTIFIED	36.06	<input type="checkbox"/>	
Tin-126	UU	0.3223	0.0509	pCi/g	0.1568	N	87.24	3	1.186	IDENTIFIED	14.96	<input type="checkbox"/>	
Total Uranium		5.1608	1.92E-06	ug/g	2.0183	N	0					<input type="checkbox"/>	
Uranium-238	HE	1.725	0.644	pCi/g	1.354	N	63.32	2	1.453	IDENTIFIED	36.06	<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
248016004	23-FEB-10 12:00	12-MAR-10 12:23	17	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>	0.7553	0.1119	pCi/g	0.1787	N	910.5	3	2.131 IDENTIFIED	13.39	<input type="checkbox"/>
Annihilation Rad.	0.1079	0.02804	pCi/g	0.03531	N	510.7	1	2.655 IDENTIFIED	25.78	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	1.524	0.1565	pCi/g	0.2545	Y	351.5	2	1.36 IDENTIFIED	9.48	<input checked="" type="checkbox"/> <i>UT</i>
Bismuth-212 HE	0.9584	0.2236	pCi/g	0.8684	N	0	5	0 NOT_IDENTI	0	<input type="checkbox"/>
Bismuth-214 <i>✓</i>	0.5165	0.06178	pCi/g	0.09193	0.200	609	2	1.174 IDENTIFIED	11.19	<input type="checkbox"/>
Cadmium-109 <i>INT</i>	0.9215	0.2279	pCi/g	0.7792	Y	86.81	3	1.391 IDENTIFIED	24.44	<input checked="" type="checkbox"/> <i>UT</i>
Cerium-143	1639	285.5	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Gross Gamma	4.06	0.6974	pCi/g	1.902	N	0				<input type="checkbox"/>
Iodine-133 HE	663.5	9538	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-212 <i>✓</i>	0.5763	0.05457	pCi/g	0.08713	0.100	238.1	2	1.188 IDENTIFIED	7.768	<input type="checkbox"/>
Lead-214 <i>✓</i>	0.553	0.05882	pCi/g	0.09075	0.100	351.5	2	1.36 IDENTIFIED	9.48	<input type="checkbox"/>
Neptunium-237 HE	0.268	0.07199	pCi/g	0.2541	N	86.81	3	1.391 IDENTIFIED	24.44	<input type="checkbox"/>
Niobium-95m <i>LA</i>	0.4946	0.06503	pCi/g	0.2267	N	0	5	0 NOT_IDENTI	0	<input type="checkbox"/>
Potassium-40 <i>✓</i>	15.77	0.7856	pCi/g	0.4062	1.00	1460	1	2.056 IDENTIFIED	3.891	<input type="checkbox"/>
Radium-224 <i>INT</i>	1.559	0.2664	pCi/g	0.7822	Y	241.3	1	1.442 IDENTIFIED	16.38	<input checked="" type="checkbox"/> <i>UT</i>
Radium-226 <i>✓</i>	0.5165	0.06178	pCi/g	0.09193	Y	609	2	1.174 IDENTIFIED	11.19	<input type="checkbox"/>
Radium-228 <i>✓</i>	0.7553	0.1119	pCi/g	0.1787	0.500	910.5	3	2.131 IDENTIFIED	13.39	<input type="checkbox"/>
Technetium-99m	3.05E+17	0	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 <i>✓</i>	0.1944	0.02893	pCi/g	0.0505	0.080	582.7	1	1.68 IDENTIFIED	14.42	<input type="checkbox"/>
Thorium-228 <i>ML</i>	0.5763	0.05457	pCi/g	0.08713	N	238.1	2	1.188 IDENTIFIED	7.768	<input type="checkbox"/>
Thorium-232 <i>ML</i>	0.7553	0.1119	pCi/g	0.1787	N	910.5	3	2.131 IDENTIFIED	13.39	<input type="checkbox"/>
Thorium-234 <i>✓</i>	0.8574	0.3242	pCi/g	0.76	2.00	62.89	2	1.293 IDENTIFIED	36.7	<input type="checkbox"/>
Tin-126 HE	0.08981	0.02221	pCi/g	0.07586	N	86.81	3	1.391 IDENTIFIED	24.44	<input type="checkbox"/>
Total Uranium	2.5827	9.65E-07	ug/g	1.1328	N	0				<input type="checkbox"/>
Uranium-238 HE	0.8574	0.3242	pCi/g	0.76	N	62.89	2	1.293 IDENTIFIED	36.7	<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
248025001	22-FEB-10 12:00	12-MAR-10 12:24	18	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>	1.933	0.206	pCi/g	0.2791	N	910.7	3	1.772 IDENTIFIED	8.768	<input type="checkbox"/>
Annihilation Rad.	0.1996	0.0397	pCi/g	0.0525	N	510.4	1	2.05 IDENTIFIED	19.42	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	5.013	0.3605	pCi/g	0.4205	Y	351.9	2	1.334 IDENTIFIED	5.197	<input checked="" type="checkbox"/> <i>UT</i>
Bismuth-212 HE	2.314	0.543	pCi/g	1.31	N	0	9	0 FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 <i>✓</i>	1.482	0.1178	pCi/g	0.1318	0.200	609.1	2	1.59 IDENTIFIED	6.195	<input type="checkbox"/>
Cerium-143	4412	688.1	pCi/g	0	N	0	9	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134 <i>LA</i>	0.129	0.03565	pCi/g	0.1032	0.100	0	9	0 FAIL_ABUND	0	<input checked="" type="checkbox"/> <i>UI</i> Data rejected due to low abundance.
Cesium-135 HE	0.4395	0.112	pCi/g	0.3705	N	0	9	0 NOT_IDENTI	0	<input type="checkbox"/>
Gross Gamma	11.03	1.624	pCi/g	3.541	N	0				<input type="checkbox"/>
Iodine-133 HE	64780	33680	pCi/g	0	N	0	9	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135	1.06E+18	0	pCi/g	0	N	0	9	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-212 <i>✓</i>	2.013	0.1373	pCi/g	0.1184	0.100	238.7	2	1.351 IDENTIFIED	3.295	<input type="checkbox"/>
Lead-214 <i>✓</i>	1.819	0.1401	pCi/g	0.1443	0.100	351.9	2	1.334 IDENTIFIED	5.197	<input type="checkbox"/>
Niobium-95m HE	0.4808	0.09777	pCi/g	0.3221	N	0	9	0 NOT_IDENTI	0	<input type="checkbox"/>

Potassium-40	✓	37.79	2.106	pCi/g	0.5526	1.00	1460	1	2.007	IDENTIFIED	2.63	<input type="checkbox"/>
Radium-224	INT	5.477	0.6336	pCi/g	1.268	Y	241.7	1	1.808	IDENTIFIED	10.17	✓ UI
Radium-226	✓	1.482	0.1178	pCi/g	0.1318	Y	609.1	2	1.59	IDENTIFIED	6.195	<input type="checkbox"/>
Radium-228	✓	1.933	0.206	pCi/g	0.2791	0.500	910.7	3	1.772	IDENTIFIED	8.768	<input type="checkbox"/>
Sodium-24	HE	2.25E+06	9.46E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Strontium-85	LA	0.1242	0.02576	pCi/g	0.08784	Y	0	9	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.6064	0.05311	pCi/g	0.05927	0.080	583	1	1.489	IDENTIFIED	7.469	<input type="checkbox"/>
Thorium-228	UL	2.013	0.1373	pCi/g	0.1184	N	238.7	2	1.351	IDENTIFIED	3.295	<input type="checkbox"/>
Thorium-232	UL	1.933	0.206	pCi/g	0.2791	N	910.7	3	1.772	IDENTIFIED	8.768	<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
248025002	22-FEB-10 12:00	12-MAR-10 12:54	18	SAMPLE	LOAD	I	LANL	LANL01004IGEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	UL	2.228	0.2155	pCi/g	0.1998	N	910.5	3	2.039	IDENTIFIED	6.903 <input type="checkbox"/>
Annihilation Rad.		0.174	0.03316	pCi/g	0.0418	N	510.4	1	1.991	IDENTIFIED	18.78 <input type="checkbox"/>
Bismuth-211	INT	5.038	0.2711	pCi/g	0.311	Y	351.8	2	1.293	IDENTIFIED	4.319 ✓ UI
Bismuth-212	✓	2.515	0.4197	pCi/g	0.6878	N	727	1	1.329	IDENTIFIED	15.49 <input type="checkbox"/>
Bismuth-214	✓	1.49	0.1113	pCi/g	0.1072	0.200	608.9	2	1.722	IDENTIFIED	5.965 <input type="checkbox"/>
Cadmium-109	INT	4.831	0.5867	pCi/g	1.349	Y	87.48	3	1.132	IDENTIFIED	11.24 ✓ UI
Cerium-143		4728	642.4	pCi/g	0	N	0	3	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-134	LA	0.1086	0.02619	pCi/g	0.08572	0.100	0	3	0	NOT_IDENTI	0 <input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.4558	0.1413	pCi/g	0.2419	N	269.7	1	1.358	IDENTIFIED	30.77 <input type="checkbox"/>
Gross Gamma		12.21	1.395	pCi/g	2.945	N	0				<input type="checkbox"/>
Lead-212	✓	2.111	0.09484	pCi/g	0.08954	0.100	238.6	2	1.235	IDENTIFIED	2.682 <input type="checkbox"/>
Lead-214	✓	1.828	0.1106	pCi/g	0.1131	0.100	351.8	2	1.293	IDENTIFIED	4.319 <input type="checkbox"/>
Mercury-203	INT	0.07278	0.02694	pCi/g	0.06089	0.100	277.9	1	1.427	IDENTIFIED	36.89 ✓ UI
Neptunium-237	UL	1.403	0.2251	pCi/g	0.4005	N	87.48	3	1.132	IDENTIFIED	11.24 <input type="checkbox"/>
Potassium-40	✓	38.46	1.699	pCi/g	0.4921	1.00	1460	1	2.384	IDENTIFIED	2.258 <input type="checkbox"/>
Radium-224	INT	4.914	0.5949	pCi/g	0.9584	Y	241.6	1	1.682	IDENTIFIED	11.78 ✓ UI
Radium-226	✓	1.49	0.1113	pCi/g	0.1072	Y	608.9	2	1.722	IDENTIFIED	5.965 <input type="checkbox"/>
Radium-228	✓	2.228	0.2155	pCi/g	0.1998	0.500	910.5	3	2.039	IDENTIFIED	6.903 <input type="checkbox"/>
Strontium-85	LA	0.08589	0.02173	pCi/g	0.07005	Y	0	3	0	NOT_IDENTI	0 <input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.6273	0.04732	pCi/g	0.05615	0.080	582.7	1	1.609	IDENTIFIED	6.45 <input type="checkbox"/>
Thorium-228	UL	2.111	0.09484	pCi/g	0.08954	N	238.6	2	1.235	IDENTIFIED	2.682 <input type="checkbox"/>
Thorium-232	UL	2.228	0.2155	pCi/g	0.1998	N	910.5	3	2.039	IDENTIFIED	6.903 <input type="checkbox"/>
Tin-126	UL	0.4701	0.0571	pCi/g	0.1321	N	87.48	3	1.132	IDENTIFIED	11.24 <input type="checkbox"/>
Total Uranium		5.3863	2.54E-06	ug/g	4.4268	N	0				<input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248025003	23-FEB-10 12:00	12-MAR-10 12:54	17	SAMPLE	LOAD	I	LANL	LANL01004IGEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	UL	1.826	0.206	pCi/g	0.2921	N	910.1	3	1.705	IDENTIFIED	9.588 <input type="checkbox"/>
Annihilation Rad.		0.2233	0.03992	pCi/g	0.05292	N	510.1	1	1.879	IDENTIFIED	17.64 <input type="checkbox"/>
Bismuth-211	INT	4.99	0.3178	pCi/g	0.3851	Y	351.3	2	1.376	IDENTIFIED	5.473 ✓ UI
Bismuth-212	✓	2.37	0.509	pCi/g	0.8674	N	726.4	1	1.887	IDENTIFIED	20.78 <input type="checkbox"/>
Bismuth-214	✓	1.552	0.1183	pCi/g	0.1279	0.200	608.4	2	1.609	IDENTIFIED	6.611 <input type="checkbox"/>

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AL</i>	1.906	0.1801	pCi/g	0.178	N	910.5 3	1.358	IDENTIFIED	6.589	<input type="checkbox"/>	
Annihilation Rad.	0.1437	0.02466	pCi/g	0.03393	N	510.6 1	1.973	IDENTIFIED	16.84	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	3.777	0.2166	pCi/g	0.2503	Y	351.9 2	1.293	IDENTIFIED	4.753	<input checked="" type="checkbox"/> <i>U</i>	
Bismuth-212 <i>LA</i>	1.931	0.3809	pCi/g	0.9393	N	0 7 0		FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	1.213	0.08239	pCi/g	0.09515	0.200	608.8 2	1.598	IDENTIFIED	5.093	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	3.768	0.5397	pCi/g	1.158	Y	87.24 3	1.39	IDENTIFIED	13.57	<input checked="" type="checkbox"/> <i>U</i>	
Cerium-143	15850	2266	pCi/g	0	N	0 7 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134 <i>LA</i>	0.1447	0.03074	pCi/g	0.07454	0.100	0 7 0		FAIL_ABUND	0	<input checked="" type="checkbox"/> <i>U</i>	Data rejected due to low abundance.
Europium-155 HE	0.1622	0.05439	pCi/g	0.1515	N	105.5 1	1.569	IDENTIFIED	33.35	<input type="checkbox"/>	
Gross Gamma	8.398	1.132	pCi/g	2.23	N	0				<input type="checkbox"/>	
Iodine-133 HE	3.46E+05	2.81E+05	pCi/g	0	N	0 7 0		SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	9.74E+21	0	pCi/g	0	N	0 7 0		SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.537	0.07284	pCi/g	0.08281	0.100	238.7 2	1.17	IDENTIFIED	3.077	<input type="checkbox"/>	
Lead-214 <i>✓</i>	1.371	0.08723	pCi/g	0.09099	0.100	351.9 2	1.293	IDENTIFIED	4.753	<input type="checkbox"/>	
Neptunium-237 <i>AL</i>	1.089	0.1933	pCi/g	0.3422	N	87.24 3	1.39	IDENTIFIED	13.57	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	22.39	1.043	pCi/g	0.4826	1.00	1460 1	2.28	IDENTIFIED	2.697	<input type="checkbox"/>	
Promethium-149 HE	239.4	238.6	pCi/g	0	N	0 7 0		SHORT_HLIF	0	<input type="checkbox"/>	
Radium-224 <i>INT</i>	3.667	0.5082	pCi/g	0.8582	Y	241.7 1	1.634	IDENTIFIED	13.57	<input checked="" type="checkbox"/> <i>U</i>	
Radium-226 <i>✓</i>	1.213	0.08239	pCi/g	0.09515	Y	608.8 2	1.598	IDENTIFIED	5.093	<input type="checkbox"/>	
Radium-228 <i>✓</i>	1.906	0.1801	pCi/g	0.178	0.500	910.5 3	1.358	IDENTIFIED	6.589	<input type="checkbox"/>	
Strontium-85 <i>LA</i>	0.07035	0.01746	pCi/g	0.05805	Y	0 7 0		NOT_IDENTI	0	<input checked="" type="checkbox"/> <i>U</i>	Data rejected due to low abundance.
Thallium-208 <i>✓</i>	0.4866	0.03867	pCi/g	0.0426	0.080	583 1	1.447	IDENTIFIED	6.916	<input type="checkbox"/>	
Thorium-228 <i>AL</i>	1.537	0.07284	pCi/g	0.08281	N	238.7 2	1.17	IDENTIFIED	3.077	<input type="checkbox"/>	
Thorium-232 <i>AL</i>	1.906	0.1801	pCi/g	0.178	N	910.5 3	1.358	IDENTIFIED	6.589	<input type="checkbox"/>	
Tin-126 <i>AL</i>	0.365	0.05229	pCi/g	0.1129	N	87.24 3	1.39	IDENTIFIED	13.57	<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
248028002	19-FEB-10 12:00	12-MAR-10 16:49	21.2	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AL</i>	1.49	0.1891	pCi/g	0.2097	N	911.8 3	1.59	IDENTIFIED	11.38	<input type="checkbox"/>	
Annihilation Rad. HE	0.1059	0.03521	pCi/g	0.04503	N	511.3 1	1.657	IDENTIFIED	33.13	<input type="checkbox"/>	
Barium-137m HE	0.07175	0.02498	pCi/g	0.05587	N	662 2	1.677	IDENTIFIED	34.72	<input type="checkbox"/>	
Bismuth-211 <i>INT</i>	3.62	0.2438	pCi/g	0.3025	Y	352.1 2	1.302	IDENTIFIED	5.827	<input checked="" type="checkbox"/> <i>U</i>	
Bismuth-212 HE	1.525	0.2811	pCi/g	1.067	N	0 6 0		NOT_IDENTI	0	<input type="checkbox"/>	
Bismuth-214 <i>✓</i>	1.108	0.08583	pCi/g	0.1053	0.200	609.7 2	1.606	IDENTIFIED	6.804	<input type="checkbox"/>	
Cadmium-109 <i>INT</i>	2.021	0.638	pCi/g	1.503	Y	87.37 3	1.081	IDENTIFIED	31	<input checked="" type="checkbox"/> <i>U</i>	
Cerium-143	6746	1639	pCi/g	0	N	0 6 0		SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-137 <i>✓</i>	0.0758	0.02639	pCi/g	0.05903	0.100	662 2	1.677	IDENTIFIED	34.72	<input type="checkbox"/>	
Gross Gamma	8.476	1.371	pCi/g	3.715	N	0				<input type="checkbox"/>	
Iodine-133 HE	4.75E+05	3.45E+05	pCi/g	0	N	0 6 0		SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	6.64E+20	0	pCi/g	0	N	0 6 0		SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212 <i>✓</i>	1.465	0.07841	pCi/g	0.08795	0.100	238.7 2	1.079	IDENTIFIED	3.504	<input type="checkbox"/>	
Lead-214 <i>✓</i>	1.314	0.0956	pCi/g	0.11	0.100	352.1 2	1.302	IDENTIFIED	5.827	<input type="checkbox"/>	
Neptunium-237 HE	0.5841	0.1943	pCi/g	0.4577	N	87.37 3	1.081	IDENTIFIED	31	<input type="checkbox"/>	
Potassium-40 <i>✓</i>	25.56	1.249	pCi/g	0.4905	1.00	1462 1	1.858	IDENTIFIED	3.355	<input type="checkbox"/>	
Radium-224 <i>INT</i>	4.004	0.6173	pCi/g	0.9428	Y	241.7 1	1.863	IDENTIFIED	15.05	<input checked="" type="checkbox"/> <i>U</i>	

Radium-226	✓	1.108	0.08583	pCi/g	0.1053	Y	609.7	2	1.606	IDENTIFIED	6.804	<input type="checkbox"/>
Radium-228	✓	1.49	0.1891	pCi/g	0.2097	0.500	911.8	3	1.59	IDENTIFIED	11.38	<input type="checkbox"/>
Sodium-24	HE	1.23E+08	3.28E+08	pCi/g	0	N	0	6	0	SHORT_HLIF	0	<input type="checkbox"/>
Strontium-85	LA	0.09387	0.02153	pCi/g	0.07497	Y	0	6	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.4401	0.03799	pCi/g	0.05324	0.080	583.5	1	1.452	IDENTIFIED	8.041	<input type="checkbox"/>
Thorium-228	u	1.465	0.07841	pCi/g	0.08795	N	238.7	2	1.079	IDENTIFIED	3.504	<input type="checkbox"/>
Thorium-232	u	1.49	0.1891	pCi/g	0.2097	N	911.8	3	1.59	IDENTIFIED	11.38	<input type="checkbox"/>
Thorium-234	✓	3.166	1.044	pCi/g	2.852	2.00	63.2	2	1.027	IDENTIFIED	31.39	<input type="checkbox"/>
Tin-126	HE	0.1957	0.0618	pCi/g	0.1553	N	87.37	3	1.081	IDENTIFIED	31	<input type="checkbox"/>
Total Uranium		9.5378	3.11E-06	ug/g	4.246	N		0				<input type="checkbox"/>
Uranium-238	HE	3.166	1.044	pCi/g	2.852	N	63.2	2	1.027	IDENTIFIED	31.39	<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
248028003	19-FEB-10 12:00	12-MAR-10 16:50	21.2	SAMPLE	LOAD	1	LANL	LANL01004	CEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	u	1.783	0.2027	pCi/g	0.3005	N	909.4	3	1.843	IDENTIFIED	9.431 <input type="checkbox"/>
Annihilation Rad.		0.1482	0.0425	pCi/g	0.05829	N	509.3	1	2.468	IDENTIFIED	28.49 <input type="checkbox"/>
Bismuth-211	INT	4.005	0.3118	pCi/g	0.3949	Y	351.1	2	1.431	IDENTIFIED	6.702 <input checked="" type="checkbox"/> U
Bismuth-212	HE	1.714	0.5093	pCi/g	1.345	N	0	7	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214	✓	1.343	0.1166	pCi/g	0.1447	0.200	608.1	2	1.537	IDENTIFIED	7.592 <input type="checkbox"/>
Cadmium-109	INT	4.014	0.5588	pCi/g	1.079	Y	86.72	3	1.606	IDENTIFIED	13.39 <input checked="" type="checkbox"/> U
Cadmium-115	HE	41.37	45.35	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Cerium-143		33780	4790	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-135	HE	0.4885	0.1403	pCi/g	0.2909	N	269.5	1	2.143	IDENTIFIED	28.22 <input type="checkbox"/>
Gadolinium-153	HE	0.1546	0.04731	pCi/g	0.1499	N	0	7	0	NOT_IDENTI	0 <input type="checkbox"/>
Gross Gamma		9.206	1.324	pCi/g	3.467	N		0			<input type="checkbox"/>
Iodine-133		1.28E+06	4.73E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Iodine-135		8.43E+21	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Lead-210	HE	1.047	0.4517	pCi/g	0.9476	N	45.96	1	1.391	IDENTIFIED	42.97 <input type="checkbox"/>
Lead-212	✓	1.772	0.1139	pCi/g	0.1055	0.100	238	3	1.244	IDENTIFIED	3.462 <input type="checkbox"/>
Lead-214	✓	1.453	0.12	pCi/g	0.1436	0.100	351.1	2	1.431	IDENTIFIED	6.702 <input type="checkbox"/>
Neptunium-237	u	1.16	0.2022	pCi/g	0.3105	N	86.72	3	1.606	IDENTIFIED	13.39 <input type="checkbox"/>
Niobium-95m	u	3.921	0.2538	pCi/g	0.2365	N	238	3	1.244	IDENTIFIED	3.462 <input type="checkbox"/>
Potassium-40	✓	23.79	1.191	pCi/g	0.6144	1.00	1458	1	2.001	IDENTIFIED	3.924 <input type="checkbox"/>
Promethium-149	HE	334.8	347.8	pCi/g	0	N	0	7	0	SHORT_HLIF	0 <input type="checkbox"/>
Radium-224	INT	3.934	0.6417	pCi/g	1.131	Y	240.9	1	1.633	IDENTIFIED	15.56 <input checked="" type="checkbox"/> U
Radium-226	✓	1.343	0.1166	pCi/g	0.1447	Y	608.1	2	1.537	IDENTIFIED	7.592 <input type="checkbox"/>
Radium-228	✓	1.783	0.2027	pCi/g	0.3005	0.500	909.4	3	1.843	IDENTIFIED	9.431 <input type="checkbox"/>
Thallium-208	✓	0.4856	0.04682	pCi/g	0.06844	0.080	582	1	1.291	IDENTIFIED	8.916 <input type="checkbox"/>
Thorium-228	u	1.772	0.1139	pCi/g	0.1055	N	238	3	1.244	IDENTIFIED	3.462 <input type="checkbox"/>
Thorium-232	u	1.783	0.2027	pCi/g	0.3005	N	909.4	3	1.843	IDENTIFIED	9.431 <input type="checkbox"/>
Thorium-234	✓	4.259	0.7097	pCi/g	1.224	2.00	62.89	2	1.234	IDENTIFIED	13.97 <input type="checkbox"/>
Tin-126	u	0.3888	0.05412	pCi/g	0.1044	N	86.72	3	1.606	IDENTIFIED	13.39 <input type="checkbox"/>
Total Uranium		12.861	2.11E-06	ug/g	1.8237	N		0			<input type="checkbox"/>
Uranium-238	u	4.259	0.7097	pCi/g	1.224	N	62.89	2	1.234	IDENTIFIED	13.97 <input type="checkbox"/>
Zinc-65	u	0.4597	0.102	pCi/g	0.178	N	1118	1	2.836	IDENTIFIED	21.92 <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
248028004	19-FEB-10 12:00	12-MAR-10 16:50	21.2	SAMPLE	LOAD	J	LANL	LANL01004IGEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	UL	1.582	0.2192	pCi/g 0.2936	N	911.3 3	1.651	IDENTIFIED 12.28	<input type="checkbox"/>	
Annihilation Rad. HE		0.146	0.05224	pCi/g 0.05748	N	511.5 1	1.765	IDENTIFIED 35.51	<input type="checkbox"/>	
Bismuth-211	INT	4.163	0.3331	pCi/g 0.3968	Y	352 2	1.328	IDENTIFIED 6.649	<input checked="" type="checkbox"/> UI	
Bismuth-212	HE	2.364	0.4925	pCi/g 1.427	N	0 3 0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.262	0.1182	pCi/g 0.1453	0.200	609.2 2	1.509	IDENTIFIED 7.799	<input type="checkbox"/>	
Cadmium-109	INT	2.647	0.626	pCi/g 1.248	Y	87.01 3	1.131	IDENTIFIED 23.19	<input checked="" type="checkbox"/> UI	
Cerium-143		11650	2509	pCi/g 0	N	0 3 0	SHORT_HLIF	0	<input type="checkbox"/>	
Gross Gamma		10.32	1.634	pCi/g 4.527	N	0			<input type="checkbox"/>	
Lead-212	✓	1.754	0.108	pCi/g 0.1054	0.100	238.7 2	1.123	IDENTIFIED 3.804	<input type="checkbox"/>	
Lead-214	✓	1.511	0.1279	pCi/g 0.1443	0.100	352 2	1.328	IDENTIFIED 6.649	<input type="checkbox"/>	
Neptunium-237	HE	0.7649	0.1979	pCi/g 0.4808	N	87.01 3	1.131	IDENTIFIED 23.19	<input type="checkbox"/>	
Potassium-40	✓	36.72	2.022	pCi/g 0.6155	1.00	1461 1	2.118	IDENTIFIED 3.122	<input type="checkbox"/>	
Radium-224	INT	2.713	0.6967	pCi/g 1.13	Y	241.1 1	1.508	IDENTIFIED 25.32	<input checked="" type="checkbox"/> UI	
Radium-226	✓	1.262	0.1182	pCi/g 0.1453	Y	609.2 2	1.509	IDENTIFIED 7.799	<input type="checkbox"/>	
Radium-228	✓	1.582	0.2192	pCi/g 0.2936	0.500	911.3 3	1.651	IDENTIFIED 12.28	<input type="checkbox"/>	
Strontium-85	LA	0.1269	0.03082	pCi/g 0.1039	Y	0 3 0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI	Data rejected due to low abundance.
Thallium-208	✓	0.5572	0.06043	pCi/g 0.07415	0.080	583.3 1	1.662	IDENTIFIED 9.748	<input type="checkbox"/>	
Thorium-228	UL	1.754	0.108	pCi/g 0.1054	N	238.7 2	1.123	IDENTIFIED 3.804	<input type="checkbox"/>	
Thorium-232	UL	1.582	0.2192	pCi/g 0.2936	N	911.3 3	1.651	IDENTIFIED 12.28	<input type="checkbox"/>	
Tin-126	HE	0.2563	0.06063	pCi/g 0.1621	N	87.01 3	1.131	IDENTIFIED 23.19	<input type="checkbox"/>	
Total Uranium		6.6325	3.20E-06 ug/g	3.5279	N	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
248028005	19-FEB-10 12:00	12-MAR-10 16:51	21.2	SAMPLE	LOAD	J	LANL	LANL01004IGEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	UL	1.864	0.2313	pCi/g 0.2538	N	911 3	1.739	IDENTIFIED 10.83	<input type="checkbox"/>	
Annihilation Rad.		0.1564	0.04039	pCi/g 0.05	N	511 1	1.746	IDENTIFIED 25.46	<input type="checkbox"/>	
Barium-137m	HE	0.08645	0.03354	pCi/g 0.06499	N	661.6 2	1.896	IDENTIFIED 38.58	<input type="checkbox"/>	
Bismuth-211	INT	3.993	0.3409	pCi/g 0.4231	Y	351.8 2	1.621	IDENTIFIED 6.94	<input checked="" type="checkbox"/> UI	
Bismuth-212	HE	2.266	0.52	pCi/g 1.316	N	0 6 0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.371	0.1169	pCi/g 0.1298	0.200	609.2 2	1.716	IDENTIFIED 6.925	<input type="checkbox"/>	
Cadmium-109	INT	1.972	0.5833	pCi/g 1.735	Y	87.52 3	1.211	IDENTIFIED 28.93	<input checked="" type="checkbox"/> UI	
Cadmium-115	HE	25.29	43.37	pCi/g 0	N	0 6 0	SHORT_HLIF	0	<input type="checkbox"/>	
Cerium-143		22290	3533	pCi/g 0	N	0 6 0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-137	✓	0.09133	0.03543	pCi/g 0.06866	0.100	661.6 2	1.896	IDENTIFIED 38.58	<input type="checkbox"/>	
Gross Gamma		9.468	1.488	pCi/g 4.588	N	0			<input type="checkbox"/>	
Lead-212	✓	1.849	0.1317	pCi/g 0.1142	0.100	238.7 2	1.449	IDENTIFIED 3.88	<input type="checkbox"/>	
Lead-214	✓	1.449	0.13	pCi/g 0.1539	0.100	351.8 2	1.621	IDENTIFIED 6.94	<input type="checkbox"/>	
Neptunium-237	HE	0.5698	0.1788	pCi/g 0.5152	N	87.52 3	1.211	IDENTIFIED 28.93	<input type="checkbox"/>	
Niobium-95m	LA	0.5923	0.1039	pCi/g 0.3403	N	0 6 0	NOT_IDENTI	0	<input type="checkbox"/>	
Potassium-40	✓	23.68	1.462	pCi/g 0.6173	1.00	1460 1	2.003	IDENTIFIED 3.74	<input type="checkbox"/>	
Promethium-149	HE	357	374.7	pCi/g 0	N	0 6 0	SHORT_HLIF	0	<input type="checkbox"/>	
Radium-224	INT	5.214	0.7862	pCi/g 1.223	Y	241.7 1	1.854	IDENTIFIED 14.03	<input checked="" type="checkbox"/> UI	

*** = 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
1202054954		12-MAR-10 17:15	0	LCS	LOAD	1		GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 HE	0.7463	0.282	pCi/g	0.5577	N	910.4 3	1.056	IDENTIFIED	37.32	☐	
Americium-241	13.64	0.7677	pCi/g	0.6947	0.200	59.42 1	0.9709	IDENTIFIED	3.166	☐	
Barium-137m	5.132	0.1846	pCi/g	0.1201	N	660.7 2	1.502	IDENTIFIED	2.528	☐	
Bismuth-211	2.376	0.3553	pCi/g	0.6315	Y	351.1 2	1.246	IDENTIFIED	15.46	☐	
Bismuth-214	0.5846	0.161	pCi/g	0.3489	0.200	0 8 0		FAIL_ABUND	0	☐	
Cadmium-109	29.02	2.026	pCi/g	2.616	Y	87.9 3	1.066	IDENTIFIED	4.994	☐	
Cerium-143 HE	52.17	12.13	pCi/g	32.81	N	0 8 0		FAIL_ABUND	0	☐	
Cesium-137	5.421	0.1955	pCi/g	0.1268	0.100	660.7 2	1.502	IDENTIFIED	2.528	☐	
Cobalt-57	0.1826	0.03299	pCi/g	0.07412	N	121.7 1	1.171	IDENTIFIED	17.82	☐	
Cobalt-60	5.111	0.2435	pCi/g	0.7214	0.100	0 8 0		NOT_IDENTI	0	☐	
Gross Gamma	24.26	2.694	pCi/g	3.127	N	0				☐	
Iodine-133 HE	41.11	80.27	pCi/g	0	N	0 8 0		SHORT_HLIF	0	☐	
Iodine-135 HE	7.80E+09	5.14E+09	pCi/g	0	N	0 8 0		SHORT_HLIF	0	☐	
Lead-212	0.8139	0.1057	pCi/g	0.1967	0.100	238.5 2	1.18	IDENTIFIED	12.47	☐	
Lead-214	0.8622	0.1383	pCi/g	0.2344	0.100	351.1 2	1.246	IDENTIFIED	15.46	☐	
Neptunium-237	8.533	1.075	pCi/g	0.7888	N	87.9 3	1.066	IDENTIFIED	4.994	☐	
Radium-224	2.353	0.723	pCi/g	2.342	Y	0 8 0		NOT_IDENTI	0	☐	
Radium-226	0.5846	0.161	pCi/g	0.3489	Y	0 8 0		FAIL_ABUND	0	☐	
Radium-228	0.7463	0.282	pCi/g	0.5577	0.500	910.4 3	1.056	IDENTIFIED	37.32	☐	
Silver-110m	1.598	0.08693	pCi/g	0.3264	N	0 8 0		NOT_IDENTI	0	☐	
Thallium-208	0.3652	0.06724	pCi/g	0.1242	0.080	581.9 1	1.776	IDENTIFIED	18.12	☐	
Thorium-228	0.8139	0.1057	pCi/g	0.1967	N	238.5 2	1.18	IDENTIFIED	12.47	☐	
Thorium-232 HE	0.7463	0.282	pCi/g	0.5577	N	910.4 3	1.056	IDENTIFIED	37.32	☐	
Tin-126	2.86	0.1997	pCi/g	0.2594	N	87.9 3	1.066	IDENTIFIED	4.994	☐	

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

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3/16/10

*** = 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
1202054954		12-MAR-10 17:15	0	LCS	LOAD	1		GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 HE	0.7463	0.282	pCi/g	0.5577	N	910.4	3	1.056 IDENTIFIED	37.32	<input type="checkbox"/>
Americium-241 ✓	13.64	0.7677	pCi/g	0.6947	0.200	59.42	1	0.9709 IDENTIFIED	3.166	<input type="checkbox"/>
Barium-137m	5.132	0.1846	pCi/g	0.1201	N	660.7	2	1.502 IDENTIFIED	2.528	<input type="checkbox"/>
Bismuth-211	2.376	0.3753	pCi/g	0.6315	Y	351.1	2	1.246 IDENTIFIED	15.46	<input type="checkbox"/>
Bismuth-214	0.5846	0.161	pCi/g	0.3489	0.200	0	5	0 FAIL_ABUND	0	<input type="checkbox"/>
Cadmium-109	29.02	2.026	pCi/g	2.616	Y	87.9	3	1.066 IDENTIFIED	4.994	<input type="checkbox"/>
Cerium-143	52.17	12.13	pCi/g	25.75	N	294.6	1	1.375 IDENTIFIED	20.87	<input type="checkbox"/>
Cesium-137 ✓	5.421	0.1955	pCi/g	0.1268	0.100	660.7	2	1.502 IDENTIFIED	2.528	<input type="checkbox"/>
Cobalt-57	0.1826	0.03299	pCi/g	0.07412	N	121.7	1	1.171 IDENTIFIED	17.82	<input type="checkbox"/>
Cobalt-60 ✓	5.634	0.2737	pCi/g	0.1062	0.100	1331	1	2.132 IDENTIFIED	3.194	<input type="checkbox"/>
Gross Gamma	24.26	2.694	pCi/g	3.127	N	0				<input type="checkbox"/>
Iodine-133 HE	41.11	80.27	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135 HE	7.80E+09	5.14E+09	pCi/g	0	N	0	5	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-212	0.8139	0.1057	pCi/g	0.1967	0.100	238.5	3	1.18 IDENTIFIED	12.47	<input type="checkbox"/>
Lead-214	0.8622	0.1383	pCi/g	0.2344	0.100	351.1	2	1.246 IDENTIFIED	15.46	<input type="checkbox"/>
Neptunium-237	8.533	1.075	pCi/g	0.7888	N	87.9	3	1.066 IDENTIFIED	4.994	<input type="checkbox"/>
Radium-224	8.655	1.107	pCi/g	2.006	Y	238.5	3	1.18 IDENTIFIED	12.47	<input type="checkbox"/>
Radium-226	0.5846	0.161	pCi/g	0.3489	Y	0	5	0 FAIL_ABUND	0	<input type="checkbox"/>
Radium-228	0.7463	0.282	pCi/g	0.5577	0.500	910.4	3	1.056 IDENTIFIED	37.32	<input type="checkbox"/>
Silver-110m	1.598	0.08693	pCi/g	0.3264	N	0	5	0 NOT_IDENTI	0	<input type="checkbox"/>
Thallium-208	0.3652	0.06724	pCi/g	0.1242	0.080	581.9	1	1.776 IDENTIFIED	18.12	<input type="checkbox"/>
Thorium-228	0.8139	0.1057	pCi/g	0.1967	N	238.5	3	1.18 IDENTIFIED	12.47	<input type="checkbox"/>
Thorium-232 HE	0.7463	0.282	pCi/g	0.5577	N	910.4	3	1.056 IDENTIFIED	37.32	<input type="checkbox"/>
Tin-126	2.86	0.1997	pCi/g	0.2594	N	87.9	3	1.066 IDENTIFIED	4.994	<input type="checkbox"/>

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

GEL QUALS

Batch ID: 958220

Report run on: March 17, 2010 3:15 PM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
248016001-1 12-MAR-2010 10:51	Bismuth-211	UI	UI	Data rejected due to interference.		2.166			
	Cadmium-109	UI	UI	Data rejected due to interference.		1.961			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.0723		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		1.932			
248016002-1 12-MAR-2010 10:52	Bismuth-211	UI	UI	Data rejected due to interference.		3.605			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.654			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1118		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.513			
248016003-1 12-MAR-2010 11:14	Americium-241	UI	UI	Data rejected due to low abundance.		.1585		.2	.2
	Bismuth-211	UI	UI	Data rejected due to interference.		3.954			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.307			
	Radium-224	UI	UI	Data rejected due to interference.		4.916			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1331			
248016004-1 12-MAR-2010 12:23	Bismuth-211	UI	UI	Data rejected due to interference.		1.524			
	Cadmium-109	UI	UI	Data rejected due to interference.		.9215			
	Radium-224	UI	UI	Data rejected due to interference.		1.559			
248025001-1 12-MAR-2010 12:24	Bismuth-211	UI	UI	Data rejected due to interference.		5.013			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.129		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.477			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1242			

GEL QUALS

Batch ID: 958220

Report run on: March 17, 2010 3:15 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
248025002-1 12-MAR-2010 12:54	Bismuth-211	UI	UI	Data rejected due to interference.		5.038			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.831			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1086		.1	.1
	Mercury-203	UI	UI	Data rejected due to interference.		.07278		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.914			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.08589			
248025003-1 12-MAR-2010 12:54	Bismuth-211	UI	UI	Data rejected due to interference.		4.99			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.637			
	Radium-224	UI	UI	Data rejected due to interference.		5.732			
248025004-1 12-MAR-2010 13:15	Bismuth-211	UI	UI	Data rejected due to interference.		4.179			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.856			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1397		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.65			
248025005-1 12-MAR-2010 14:28	Bismuth-211	UI	UI	Data rejected due to interference.		4.756			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.2085		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		5.488			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.09027			
248025007-1 12-MAR-2010 15:05	Bismuth-211	UI	UI	Data rejected due to interference.		4.325			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.603			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1426		.1	.1

GEL QUALS

Batch ID: 958220

Report run on: March 17, 2010 3:15 PM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
248025007-1 12-MAR-2010 15:05	Radium-224	UI	UI	Data rejected due to interference.		5.222			
248028001-1 12-MAR-2010 15:05	Bismuth-211	UI	UI	Data rejected due to interference.		3.777			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.768			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1447		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.667			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.07035			
248028002-1 12-MAR-2010 16:49	Bismuth-211	UI	UI	Data rejected due to interference.		3.62			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.021			
	Radium-224	UI	UI	Data rejected due to interference.		4.004			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.09387			
248028003-1 12-MAR-2010 16:50	Bismuth-211	UI	UI	Data rejected due to interference.		4.005			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.014			
	Radium-224	UI	UI	Data rejected due to interference.		3.934			
248028004-1 12-MAR-2010 16:50	Bismuth-211	UI	UI	Data rejected due to interference.		4.163			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.647			
	Radium-224	UI	UI	Data rejected due to interference.		2.713			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1269			
248028005-1 12-MAR-2010 16:51	Bismuth-211	UI	UI	Data rejected due to interference.		3.993			
	Cadmium-109	UI	UI	Data rejected due to interference.		1.972			

GEL QUALS

Batch ID: 9582220

Report run on: March 17, 2010 3:15 PM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
248028005-1 12-MAR-2010 16:51	Radium-224	UI	UI	Data rejected due to interference.		5.214			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1344			
1202054953-1 DUP 12-MAR-2010 19:14	Bismuth-211	UI	UI	Data rejected due to interference.		4.282			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.898			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.07844		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.168			
248025006-1 13-MAR-2010 13:56	Bismuth-211	UI	UI	Data rejected due to interference.		4.24			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.596			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.08417		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.628			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.06076			

VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 17:06:13.35

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028001.CNF;1
Sample date      : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 15:05:27
Sample ID        : G248028001      Sample quantity   : 1.29190E+02 GRAM
Detector name    : GAM18           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         : 958220           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	74.96	408	438	1.18	149.04	143	19	5.66E-02	10.1	2.40E+00
2	2	77.26*	576	380	0.93	153.63	143	19	8.00E-02	7.0	
3	4	87.24	299	454	1.39	173.59	164	27	4.16E-02	13.6	2.91E+00
4	4	90.12	180	388	1.17	179.34	164	27	2.50E-02	19.7	
5	4	92.84*	349	433	1.36	184.78	164	27	4.85E-02	12.4	
6	0	99.25*	73	360	1.65	197.61	195	8	1.02E-02	47.3	
7	0	105.51	90	299	1.57	210.11	208	7	1.25E-02	33.3	
8	0	129.01	64	386	1.58	257.09	254	8	8.82E-03	54.9	
9	0	185.81*	280	362	1.33	370.66	367	9	3.88E-02	14.4	
10	0	209.20	172	374	1.23	417.42	413	10	2.39E-02	22.4	
11	3	238.66*	1567	238	1.17	476.32	473	14	2.18E-01	3.1	2.31E+00
12	3	241.68*	349	325	1.63	482.37	473	14	4.85E-02	13.6	
13	0	270.52	140	344	1.58	540.03	535	13	1.94E-02	28.9	
14	2	295.19*	552	165	1.37	589.34	581	25	7.67E-02	6.0	1.08E+00
15	2	300.10*	147	202	1.71	599.16	581	25	2.05E-02	20.4	
16	0	328.05	144	218	1.50	655.05	650	12	2.00E-02	22.0	
17	0	338.24*	276	228	1.32	675.41	671	10	3.84E-02	12.1	
18	0	351.88*	915	220	1.29	702.68	697	12	1.27E-01	4.8	
19	0	462.37	123	126	1.82	923.61	919	11	1.71E-02	19.8	
20	0	510.55*	213	136	1.97	1019.94	1012	16	2.96E-02	16.8	
21	0	582.97*	560	178	1.45	1164.73	1157	16	7.78E-02	6.9	
22	0	608.85*	724	143	1.60	1216.48	1210	12	1.01E-01	5.1	
23	0	726.76	148	124	1.55	1452.24	1444	16	2.06E-02	18.7	
24	0	795.11	117	82	2.23	1588.91	1581	18	1.62E-02	20.7	
25	0	860.64	76	88	1.81	1719.95	1710	17	1.05E-02	30.9	
26	0	910.54*	471	90	1.36	1819.73	1812	16	6.54E-02	6.6	
27	0	933.75	38	104	1.20	1866.14	1859	15	5.26E-03	60.3	
28	0	968.41*	188	90	1.72	1935.45	1931	11	2.61E-02	12.7	
29	0	1119.49*	169	84	1.92	2237.55	2229	17	2.34E-02	15.0	
30	0	1238.89	84	173	2.41	2476.31	2463	26	1.16E-02	45.4	
31	0	1376.79	63	32	1.92	2752.09	2745	13	8.69E-03	22.6	
32	0	1459.51*	1556	27	2.28	2917.51	2906	22	2.16E-01	2.7	
33	0	1762.98	147	28	1.99	3524.42	3514	19	2.04E-02	12.0	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 17:06:15

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 15:05:27
Sample ID        : G248028001 Sample quantity : 129.19 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.63 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00
    
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Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.239E+01	2.085E+00	4.824E-01	3.661E-02	46.413
CD-109	+	88.03	*	3.768E+00	1.079E+00	1.107E+00	1.024E-01	3.403
SN-126		64.28		3.465E-01	5.260E-01	8.905E-01	1.316E-01	0.389
	+	86.94		1.518E+00	7.522E-01	4.529E-01	1.878E-01	3.351
	+	87.57	*	3.650E-01	1.046E-01	1.080E-01	9.947E-03	3.381
EU-155	+	86.55		4.437E-01	1.272E-01	1.332E-01	1.227E-02	3.332
	+	105.31	*	1.622E-01	1.088E-01	1.453E-01	1.038E-02	1.116
TL-208		277.37		6.277E-01	3.464E-01	5.634E-01	6.044E-02	1.114
	+	583.19	*	4.866E-01	7.734E-02	4.196E-02	3.284E-03	11.598
	+	860.56		6.025E-01	3.779E-01	3.439E-01	3.847E-02	1.752
BI-211		72.87		3.955E+00	3.277E+00	5.095E+00	4.207E-01	0.776
	+	351.06	*	3.777E+00	4.332E-01	2.445E-01	1.570E-02	15.446
PB-212	+	74.82		2.336E+00	5.578E-01	5.293E-01	6.786E-02	4.414
	+	77.11		1.863E+00	3.043E-01	2.995E-01	2.539E-02	6.220
	+	238.63	*	1.537E+00	1.457E-01	8.043E-02	5.798E-03	19.111
	+	300.09		2.166E+00	9.036E-01	9.694E-01	8.096E-02	2.235
BI-214	+	609.32	*	1.213E+00	1.648E-01	9.378E-02	8.428E-03	12.937
	+	1120.29		1.406E+00	4.431E-01	3.585E-01	3.452E-02	3.922
		1764.49		1.432E+00	3.487E-01	6.721E-01	4.086E-02	2.131
PB-214	+	74.82		4.140E+00	9.608E-01	9.381E-01	1.080E-01	4.414
	+	77.11		3.285E+00	6.010E-01	5.280E-01	6.245E-02	6.220
	+	242.00		2.074E+00	5.872E-01	4.370E-01	3.514E-02	4.746
	+	295.22		1.441E+00	2.125E-01	1.716E-01	1.490E-02	8.398
	+	351.93	*	1.371E+00	1.745E-01	8.891E-02	7.525E-03	15.417
RA-224	+	240.99	*	3.667E+00	1.016E+00	8.336E-01	4.644E-02	4.399
RA-226	+	609.32	*	1.213E+00	1.648E-01	9.378E-02	8.428E-03	12.937
	+	1120.29		1.406E+00	4.431E-01	3.585E-01	3.452E-02	3.922
		1764.49		1.432E+00	3.487E-01	6.721E-01	4.086E-02	2.131
AC-228	+	338.32		1.276E+00	6.096E-01	2.898E-01	1.195E-01	4.404
	+	911.20	*	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
	+	968.97		1.310E+00	4.661E-01	4.011E-01	1.001E-01	3.265
RA-228	+	338.32		1.276E+00	6.096E-01	2.898E-01	1.195E-01	4.404
	+	911.20	*	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
	+	968.97		1.310E+00	4.661E-01	4.011E-01	1.001E-01	3.265

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.336E+00	5.102E-01	5.293E-01	4.464E-02	4.414
	+	77.11		1.863E+00	3.043E-01	2.995E-01	2.539E-02	6.220
	+	238.63	*	1.537E+00	1.457E-01	8.043E-02	5.798E-03	19.111
	+	300.09		2.166E+00	1.588E+00	9.694E-01	5.902E-01	2.235
TH-232	+	338.32		1.276E+00	3.166E-01	2.898E-01	1.676E-02	4.404
	+	911.20	*	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
	+	968.97		1.310E+00	4.661E-01	4.011E-01	1.001E-01	3.265
U-235	+	89.96		2.246E+00	1.043E+00	1.116E+00	2.756E-01	2.013
	+	93.35		2.609E+00	8.835E-01	6.656E-01	1.531E-01	3.920
		143.76	*	7.287E-02	1.830E-01	2.926E-01	4.563E-02	0.249
		163.33		5.676E-02	3.575E-01	5.972E-01	9.918E-02	0.095
	+	185.72		1.857E-01	5.426E-02	5.539E-02	2.946E-03	3.353
		205.31		-1.670E-01	4.533E-01	6.478E-01	1.092E-01	-0.258
NP-237	+	86.48	*	1.089E+00	3.867E-01	3.272E-01	7.483E-02	3.329
		95.86		4.477E-01	1.097E+00	1.296E+00	3.081E-01	0.346
ANH-511	+	511.00	*	1.437E-01	4.933E-02	3.335E-02	2.202E-03	4.310

---- 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	*	7.509E-03	2.643E-01	4.367E-01	3.163E-02	0.017
NA-22		1274.54	*	-3.229E-02	3.548E-02	5.374E-02	3.657E-03	-0.601
NA-24		1368.63	*	-3.395E+02	3.548E-02	Half-Life too short		
SC-46		889.28	*	6.945E-03	3.178E-02	5.282E-02	5.891E-03	0.131
	+	1120.55		2.499E-01	7.697E-02	1.053E-01	7.273E-03	2.374
V-48		944.13		-3.487E-01	8.891E-01	1.397E+00	1.479E-01	-0.250
		983.53	*	2.565E-02	7.134E-02	1.188E-01	1.175E-02	0.216
		1312.11		9.180E-02	7.938E-02	1.428E-01	1.040E-02	0.643
CR-51		320.08	*	3.777E-01	3.427E-01	5.830E-01	3.747E-02	0.648
MN-54		834.85	*	-2.685E-03	3.272E-02	5.351E-02	5.481E-03	-0.050
CO-56		846.77	*	-3.664E-03	3.234E-02	5.264E-02	5.495E-03	-0.070
		1037.84		-2.646E-01	2.401E-01	3.638E-01	3.367E-02	-0.727
	+	1238.28		2.044E-01	1.861E-01	1.467E-01	9.780E-03	1.393
		1771.35		-1.033E+00	2.948E-01	2.725E-01	1.647E-02	-3.792
CO-57		122.06	*	7.615E-03	2.240E-02	3.646E-02	2.160E-03	0.209
		136.47		-1.171E-01	1.780E-01	2.749E-01	1.796E-02	-0.426
CO-58		810.76	*	-3.663E-02	3.236E-02	4.844E-02	4.782E-03	-0.756
FE-59		1099.45	*	-2.278E-02	8.125E-02	1.325E-01	1.090E-02	-0.172
		1291.59		-6.304E-03	1.021E-01	1.666E-01	1.400E-02	-0.038
CO-60		1173.23		6.841E-03	3.371E-02	5.664E-02	3.130E-03	0.121
		1332.49	*	-1.905E-03	2.890E-02	4.693E-02	3.546E-03	-0.041
ZN-65		1115.54	*	1.105E-01	8.451E-02	1.350E-01	9.508E-03	0.818
SE-75		121.12		8.831E-02	1.184E-01	1.956E-01	1.795E-02	0.451
		136.00		-4.641E-02	3.546E-02	5.300E-02	3.020E-03	-0.876
		264.66	*	-3.279E-02	3.862E-02	5.522E-02	3.159E-03	-0.594
		279.54		8.072E-04	9.278E-02	1.511E-01	9.348E-03	0.005
		400.66		2.240E-01	1.968E-01	3.472E-01	3.152E-02	0.645
SR-85		514.00	*	7.035E-02	3.493E-02	5.706E-02	3.780E-03	1.233

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88	898.04			-2.868E-02	3.305E-02	4.986E-02	5.652E-03	-0.575
	1836.06	*		-1.446E-02	2.853E-02	4.319E-02	2.460E-03	-0.335
Y-91	1204.77	*		6.127E+00	1.905E+01	3.212E+01	1.898E+00	0.191
NB-94	702.65	*		2.125E-03	2.689E-02	4.510E-02	3.700E-03	0.047
	871.09			-7.788E-04	2.442E-02	3.988E-02	4.326E-03	-0.020
NB-95	765.81	*		6.890E-02	4.014E-02	7.177E-02	6.566E-03	0.960
NB-95M	235.69	*		1.285E-01	1.205E-01	1.841E-01	1.356E-02	0.698
ZR-95	724.19			2.362E-01	9.238E-02	1.561E-01	1.445E-02	1.513
	756.73	*		4.310E-02	5.766E-02	1.002E-01	9.897E-03	0.430
MO-99	140.51			-1.189E+02	9.791E+01	1.399E+02	3.192E+01	-0.850
	181.07			3.527E+01	7.519E+01	1.136E+02	1.990E+01	0.310
	366.42			1.127E+01	3.188E+02	5.381E+02	3.109E+01	0.021
	739.50	*		-3.144E+01	4.503E+01	6.761E+01	1.070E+01	-0.465
	777.92			-6.474E+01	1.278E+02	2.037E+02	1.902E+01	-0.318
TC-99M	140.51	*		-7.367E+17	1.278E+02	Half-Life	too short	
RU-103	497.08	*		9.503E-03	3.366E-02	5.628E-02	7.187E-03	0.169
	610.33			1.392E+01	2.603E+00	2.591E+00	4.064E-01	5.373
RH-106	621.93	*		2.089E-02	2.540E-01	4.116E-01	5.134E-02	0.051
	1050.41			2.008E-01	1.918E+00	3.232E+00	2.762E-01	0.062
RU-106	621.93	*		2.089E-02	2.539E-01	4.116E-01	3.029E-02	0.051
	1050.41			2.008E-01	1.918E+00	3.232E+00	2.762E-01	0.062
AG-108M	433.94	*		-1.327E-02	2.226E-02	3.569E-02	2.301E-03	-0.372
	614.28			7.795E-03	3.217E-02	4.577E-02	3.497E-03	0.170
	722.91			3.048E-03	3.078E-02	4.458E-02	3.915E-03	0.068
AG-110M	657.76	*		9.849E-03	2.862E-02	4.897E-02	3.863E-03	0.201
	677.62			-8.044E-02	2.320E-01	3.793E-01	3.079E-02	-0.212
	706.68			-4.384E-02	1.664E-01	2.729E-01	2.326E-02	-0.161
	763.94			-1.083E-01	1.447E-01	2.287E-01	2.137E-02	-0.473
	884.68			1.188E-02	3.825E-02	6.404E-02	7.231E-03	0.186
	937.49			2.802E-02	9.924E-02	1.427E-01	1.562E-02	0.196
	1384.29			1.876E-01	1.376E-01	2.334E-01	1.806E-02	0.804
	1505.03			4.426E-02	2.185E-01	3.726E-01	2.674E-02	0.119
SN-113	391.69	*		2.026E-02	3.447E-02	5.952E-02	3.651E-03	0.340
CD-115	260.90			3.670E-04	3.447E-02	Half-Life	too short	
	492.35			-1.314E-04	3.447E-02	Half-Life	too short	
	527.90	*		-1.146E-05	3.447E-02	Half-Life	too short	
SN-117M	156.02			-2.948E+00	2.331E+00	3.751E+00	2.003E-01	-0.786
	158.56	*		-4.344E-03	5.539E-02	9.356E-02	4.973E-03	-0.046
TE-123M	159.00	*		3.640E-03	2.192E-02	3.737E-02	2.016E-03	0.097
SB-124	602.73			1.213E-02	3.893E-02	5.576E-02	4.033E-03	0.218
	645.85			-2.074E-01	4.072E-01	6.285E-01	5.080E-02	-0.330
	722.78			8.795E-03	3.298E-01	4.743E-01	4.127E-02	0.019
	1690.97	*		-7.125E-03	5.923E-02	9.604E-02	6.651E-03	-0.074
SB-125	427.87	*		1.296E-02	6.490E-02	1.093E-01	6.821E-03	0.119
	463.37			7.455E-01	2.993E-01	4.359E-01	3.110E-02	1.710
	600.60			5.154E-02	1.511E-01	2.430E-01	1.936E-02	0.212
	635.95			-7.885E-02	2.080E-01	3.250E-01	2.682E-02	-0.243
TE-125M	109.28	*		-5.158E+00	1.035E+01	1.449E+01	1.303E+00	-0.356
I-126	388.63			-2.077E-02	1.726E-01	2.875E-01	1.653E-02	-0.072

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126	666.33	*		1.098E-01	2.480E-01	4.260E-01	3.275E-02	0.258
	753.82			-6.027E-01	1.842E+00	2.983E+00	2.674E-01	-0.202
	414.70			1.185E-02	7.911E-02	1.331E-01	7.870E-03	0.089
	666.50			4.190E-02	8.666E-02	1.492E-01	1.147E-02	0.281
	695.00			8.343E-03	9.034E-02	1.517E-01	1.228E-02	0.055
SB-127	697.00			-1.058E-01	3.168E-01	5.189E-01	4.215E-02	-0.204
	720.70	*		-1.719E-01	1.755E-01	2.254E-01	1.909E-02	-0.762
	856.80			3.889E-01	5.791E-01	8.713E-01	9.241E-02	0.446
	252.40			4.127E+00	1.015E+01	1.672E+01	6.955E+00	0.247
	473.00			-8.603E-01	3.608E+00	5.865E+00	7.795E-01	-0.147
I-131	685.70	*		-6.482E-01	3.124E+00	5.156E+00	6.646E-01	-0.126
	783.70			6.887E+00	8.656E+00	1.491E+01	2.186E+00	0.462
	80.19			-3.910E-01	9.959E+00	1.157E+01	1.015E+00	-0.034
	284.31			-5.714E-01	1.955E+00	3.130E+00	2.013E-01	-0.183
	364.49	*		5.654E-02	1.387E-01	2.387E-01	1.557E-02	0.237
TE-132	636.99			3.652E-01	2.015E+00	3.284E+00	2.654E-01	0.111
	49.72			7.440E-01	8.574E+01	1.448E+02	1.784E+01	0.005
	111.76			7.347E-01	1.075E+02	1.735E+02	2.008E+01	0.004
	116.30			4.685E+01	9.433E+01	1.547E+02	1.764E+01	0.303
	228.16	*		-7.006E-01	2.117E+00	3.444E+00	5.455E-01	-0.203
BA-133	81.00			-3.872E-02	1.209E-01	1.372E-01	2.137E-02	-0.282
	276.40			7.207E-01	3.342E-01	5.231E-01	6.560E-02	1.378
	302.85			1.474E-01	1.226E-01	1.867E-01	2.125E-02	0.790
	356.01	*		-6.728E-03	3.465E-02	4.735E-02	5.335E-03	-0.142
	383.85			-8.906E-02	2.192E-01	3.596E-01	3.826E-02	-0.248
I-133	529.87	*		3.457E-01	2.192E-01	Half-Life	too short	
	875.33			-3.004E+00	2.192E-01	Half-Life	too short	
	1298.22			2.828E+01	2.192E-01	Half-Life	too short	
	563.25			4.646E-02	2.814E-01	4.626E-01	3.269E-02	0.100
	569.33			-9.302E-02	1.632E-01	2.459E-01	1.758E-02	-0.378
CS-134	604.72			1.572E-02	3.368E-02	4.871E-02	3.541E-03	0.323
	795.86	*		1.447E-01	6.148E-02	7.378E-02	7.136E-03	1.961
	801.95			-2.220E-01	3.625E-01	4.826E-01	4.708E-02	-0.460
	1365.19			-2.103E-01	9.143E-01	1.452E+00	1.156E-01	-0.145
	268.22	*		2.355E-01	1.474E-01	2.298E-01	1.737E-02	1.025
CS-135	546.56			4.681E+16	1.474E-01	Half-Life	too short	
	836.80			7.578E+16	1.474E-01	Half-Life	too short	
	1038.76			-2.106E+16	1.474E-01	Half-Life	too short	
	1131.51			-1.440E+15	1.474E-01	Half-Life	too short	
	1260.41	*		9.738E+15	1.474E-01	Half-Life	too short	
I-135	1457.56			4.503E+18	1.474E-01	Half-Life	too short	
	1678.03			-9.799E+15	1.474E-01	Half-Life	too short	
	1791.20			1.722E+16	1.474E-01	Half-Life	too short	
	153.25			1.034E+00	9.286E-01	1.632E+00	1.265E-01	0.633
	176.60			-7.687E-02	5.650E-01	9.458E-01	6.284E-02	-0.081
CS-136	273.65			-8.213E-01	6.877E-01	9.041E-01	6.103E-02	-0.908
	340.55			6.487E-01	1.957E-01	3.246E-01	2.036E-02	1.998
	818.51			5.983E-03	7.902E-02	1.308E-01	1.307E-02	0.046
	1048.07	*		2.515E-02	1.085E-01	1.847E-01	1.656E-02	0.136

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1235.36			1.054E+00	8.141E-01	1.259E+00	1.282E-01	0.837
BA-137M	661.66	*		-1.508E-02	2.975E-02	4.844E-02	3.692E-03	-0.311
CS-137	661.66	*		-1.593E-02	3.142E-02	5.117E-02	3.910E-03	-0.311
CE-139	165.86	*		1.194E-03	2.470E-02	4.181E-02	2.195E-03	0.029
BA-140	162.66			3.696E-01	9.176E-01	1.547E+00	9.558E-02	0.239
	304.85			-1.492E-01	1.615E+00	2.265E+00	6.468E-01	-0.066
	423.72			-6.554E-01	1.878E+00	3.040E+00	9.822E-01	-0.216
	537.26	*		-4.375E-02	2.823E-01	4.556E-01	1.526E-01	-0.096
LA-140	328.76	+		1.149E+00	5.116E-01	6.402E-01	4.156E-02	1.795
	487.02			7.406E-02	1.503E-01	2.545E-01	1.816E-02	0.291
	815.77			7.900E-02	3.459E-01	5.792E-01	6.268E-02	0.136
	1596.21	*		-1.073E-01	9.074E-02	1.282E-01	8.798E-03	-0.837
CE-141	145.44	*		2.954E-02	6.396E-02	1.026E-01	5.860E-03	0.288
CE-143	57.36			7.266E-03	6.396E-02	Half-Life	too short	
	293.27	*		1.585E-02	6.396E-02	Half-Life	too short	
	664.57			1.067E-02	6.396E-02	Half-Life	too short	
	721.93			-7.302E-03	6.396E-02	Half-Life	too short	
CE-144	80.12			-1.967E-01	3.252E+00	3.772E+00	3.266E-01	-0.052
	133.52	*		1.757E-01	1.880E-01	2.790E-01	3.859E-02	0.630
PM-144	476.78			-1.083E-02	4.989E-02	8.120E-02	5.963E-03	-0.133
	618.01			-1.036E-02	2.598E-02	4.073E-02	3.103E-03	-0.254
	696.49	*		-1.042E-02	2.934E-02	4.800E-02	3.898E-03	-0.217
PR-144	696.51	*		-7.613E-01	2.204E+00	3.608E+00	2.928E-01	-0.211
	1489.16			-2.183E+00	1.047E+01	1.651E+01	1.193E+00	-0.132
PM-146	453.88	*		6.977E-03	3.316E-02	5.557E-02	4.854E-03	0.126
	633.25			-1.359E-01	1.088E+00	1.732E+00	6.573E-01	-0.078
	735.93			-3.627E-02	1.074E-01	1.693E-01	4.750E-02	-0.214
	747.24			-1.496E-02	7.165E-02	1.171E-01	1.725E-02	-0.128
ND-147	91.11	+		1.063E+00	4.303E-01	6.921E-01	6.514E-02	1.536
	319.41			3.449E+00	3.893E+00	6.560E+00	3.791E-01	0.526
	531.02	*		-1.666E-01	6.394E-01	1.027E+00	1.433E-01	-0.162
PM-149	285.90	*		2.394E-04	6.394E-01	Half-Life	too short	
EU-152	121.78			4.604E-02	6.292E-02	1.040E-01	7.982E-03	0.443
	244.70			8.166E-02	2.884E-01	4.233E-01	2.365E-02	0.193
	344.28	*		-7.592E-02	8.559E-02	1.182E-01	7.710E-03	-0.642
	778.90			7.314E-02	1.999E-01	3.388E-01	3.168E-02	0.216
	964.08			5.350E-01	2.962E-01	4.680E-01	4.793E-02	1.143
	1085.87			-1.529E-01	2.991E-01	4.613E-01	3.574E-02	-0.331
	1112.07			-9.231E-02	2.644E-01	3.608E-01	2.568E-02	-0.256
	1408.01			2.000E-01	1.543E-01	2.780E-01	2.064E-02	0.719
GD-153	69.67			9.968E-02	1.907E+00	2.842E+00	2.307E-01	0.035
	97.43	*		3.745E-02	1.042E-01	1.221E-01	9.549E-03	0.307
	103.18			-4.324E-02	1.375E-01	1.523E-01	1.098E-02	-0.284
EU-154	123.07			-2.573E-02	4.532E-02	7.079E-02	6.685E-03	-0.363
	723.31			1.208E-01	1.444E-01	2.228E-01	2.092E-02	0.542
	873.19			-2.144E-02	2.016E-01	3.271E-01	4.456E-02	-0.066
	996.26			8.348E-02	2.960E-01	4.883E-01	8.789E-02	0.171
	1004.73			-1.583E-01	1.737E-01	2.579E-01	3.170E-02	-0.614
	1274.44	*		-6.504E-02	9.848E-02	1.524E-01	1.534E-02	-0.427

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	+	86.79		1.244E+00	3.564E-01	4.811E-01	4.401E-02	2.586
		197.04		-2.108E-01	4.753E-01	7.671E-01	4.120E-02	-0.275
		215.65		-4.564E-01	6.682E-01	1.038E+00	5.669E-02	-0.440
		298.57		2.358E-01	1.008E-01	1.787E-01	1.026E-02	1.320
		879.36	*	-4.785E-03	1.095E-01	1.785E-01	1.961E-02	-0.027
		962.29		8.964E-01	5.483E-01	8.652E-01	8.888E-02	1.036
		966.15		1.398E+00	2.955E-01	4.869E-01	4.969E-02	2.872
		1177.93		-1.644E-02	2.944E-01	4.850E-01	2.708E-02	-0.034
		1271.85		2.483E-01	5.748E-01	9.775E-01	6.606E-02	0.254
		80.57		7.324E-02	3.388E-01	4.009E-01	3.483E-02	0.183
HO-166M	+	184.41		1.475E-01	4.311E-02	5.806E-02	3.085E-03	2.541
		280.46		-9.761E-02	7.072E-02	1.070E-01	6.104E-03	-0.912
		410.95		1.993E-01	1.939E-01	3.396E-01	1.999E-02	0.587
		711.68	*	-1.504E-03	4.786E-02	7.964E-02	6.638E-03	-0.019
		752.31		-4.579E-02	1.979E-01	3.228E-01	2.886E-02	-0.142
		810.29		-5.845E-02	4.603E-02	6.796E-02	6.691E-03	-0.860
		67.75		-4.695E-02	1.185E-01	1.930E-01	1.552E-02	-0.243
TA-182	+	100.11		2.316E-01	2.197E-01	2.764E-01	2.078E-02	0.838
		152.43		3.004E-01	3.073E-01	5.055E-01	2.719E-02	0.594
		222.11		-1.253E-01	2.945E-01	4.791E-01	2.629E-02	-0.262
		1121.30		5.500E-01	1.618E-01	2.848E-01	1.962E-02	1.931
		1189.05		-1.942E-01	2.359E-01	3.642E-01	2.083E-02	-0.533
		1221.41	*	-1.322E-02	1.428E-01	2.338E-01	1.430E-02	-0.057
		1231.02		5.504E-01	4.323E-01	6.842E-01	4.268E-02	0.805
IR-192	+	295.96		1.128E+00	1.496E-01	2.574E-01	1.502E-02	4.381
		308.46		4.752E-02	7.917E-02	1.320E-01	7.690E-03	0.360
		316.51	*	-2.514E-03	2.958E-02	4.746E-02	2.753E-03	-0.053
		468.07		1.545E-03	5.805E-02	8.336E-02	5.948E-03	0.019
HG-203		70.83		3.325E-01	1.522E+00	2.283E+00	3.612E-01	0.146
		72.87		1.077E+00	9.030E-01	1.387E+00	2.128E-01	0.776
		279.20	*	1.907E-02	3.424E-02	5.718E-02	3.447E-03	0.334
BI-207	+	72.81		1.975E-01	1.877E-01	2.905E-01	2.397E-02	0.680
		74.97		6.735E-01	1.469E-01	2.203E-01	1.842E-02	3.057
		569.70		-5.441E-03	2.525E-02	3.903E-02	2.735E-03	-0.139
		1063.66	*	8.946E-03	4.002E-02	6.793E-02	5.607E-03	0.132
		1770.23		-1.418E-01	4.140E-01	5.333E-01	3.226E-02	-0.266
PB-210		46.54	*	2.010E+00	5.066E+00	8.523E+00	6.534E-01	0.236
PB-211		404.85	*	-9.166E-01	7.276E-01	8.898E-01	4.269E-01	-1.030
		427.09		3.241E-01	1.078E+00	1.810E+00	8.299E-01	0.179
		832.01		5.899E-01	8.823E-01	1.419E+00	7.397E-01	0.416
BI-212	+	727.33	*	1.931E+00	7.619E-01	9.284E-01	1.153E-01	2.080
		785.37		8.754E-01	2.744E+00	4.458E+00	4.213E-01	0.196
		1620.50		1.794E+00	1.784E+00	3.292E+00	2.226E-01	0.545
RN-219	+	271.23		5.936E-01	3.461E-01	3.756E-01	2.984E-02	1.580
		401.81	*	1.991E-01	3.108E-01	5.352E-01	7.195E-02	0.372
RA-223		81.07		-9.841E-02	2.730E-01	3.091E-01	2.695E-02	-0.318
		83.79		1.963E-01	1.204E-01	1.971E-01	1.757E-02	0.996
		94.87		1.205E+00	4.878E-01	7.271E-01	5.920E-02	1.657
		144.24		4.877E-01	6.081E-01	9.882E-01	6.872E-02	0.493

---- 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		1.251E-01	3.009E-01	5.182E-01	3.423E-02	0.241
	+	269.46		4.613E-01	2.678E-01	2.898E-01	1.719E-02	1.591
		323.87	*	-4.919E-01	5.904E-01	7.676E-01	1.237E-01	-0.641
	+	338.28		5.065E+00	1.327E+00	1.893E+00	1.938E-01	2.676
		79.69		9.656E-02	1.167E+00	1.839E+00	3.170E-01	0.053
		235.96		4.323E-01	1.479E-01	2.392E-01	1.905E-02	1.807
TH-227		256.23	*	-1.504E-01	2.062E-01	3.255E-01	3.297E-02	-0.462
	+	299.98		2.383E+00	1.008E+00	1.365E+00	1.496E-01	1.746
		304.50		-2.629E-01	1.411E+00	1.964E+00	2.992E-01	-0.134
		334.37		-1.713E-01	2.089E+00	2.066E+00	2.937E-01	-0.083
		79.80		-3.442E-01	2.110E+00	2.428E+00	5.289E-01	-0.142
		235.96		4.323E-01	1.471E-01	2.392E-01	1.720E-02	1.807
TH-229		256.23	*	-1.504E-01	2.064E-01	3.255E-01	3.886E-02	-0.462
	+	299.98		2.383E+00	1.008E+00	1.365E+00	1.496E-01	1.746
		304.50		-2.629E-01	1.411E+00	1.964E+00	2.992E-01	-0.134
		334.37		-1.713E-01	2.089E+00	2.066E+00	2.937E-01	-0.083
		85.43		4.239E-01	2.019E-01	3.330E-01	3.010E-02	1.273
	+	88.47		5.628E-01	1.612E-01	2.137E-01	1.958E-02	2.633
PA-231		193.51	*	3.021E-01	4.246E-01	7.287E-01	3.901E-02	0.415
		210.85		2.018E+00	8.320E-01	1.353E+00	7.357E-02	1.491
		283.69	*	8.612E-02	1.127E+00	1.840E+00	2.406E-01	0.047
TH-231	+	301.36		1.531E+00	6.452E-01	8.780E-01	9.057E-02	1.744
		81.07		-9.841E-02	2.730E-01	3.091E-01	2.695E-02	-0.318
		83.79		1.963E-01	1.204E-01	1.971E-01	1.757E-02	0.996
PA-233		94.87		1.205E+00	4.878E-01	7.271E-01	5.920E-02	1.657
		144.24		4.877E-01	6.081E-01	9.882E-01	6.872E-02	0.493
		154.21		1.251E-01	3.009E-01	5.182E-01	3.423E-02	0.241
	+	269.46		4.613E-01	2.678E-01	2.898E-01	1.719E-02	1.591
		323.87	*	-4.919E-01	5.904E-01	7.676E-01	1.237E-01	-0.641
	+	338.28		5.065E+00	1.327E+00	1.893E+00	1.938E-01	2.676
PA-234	+	300.13		1.078E+00	4.636E-01	6.198E-01	8.284E-02	1.740
		311.90	*	-3.110E-02	5.102E-02	7.952E-02	4.873E-03	-0.391
		340.48		2.206E+00	7.905E-01	1.033E+00	2.396E-01	2.136
PA-234M		94.67		5.532E-01	1.892E-01	2.761E-01	3.339E-02	2.004
	+	98.44		1.131E-01	1.241E-01	1.355E-01	7.542E-02	0.835
		111.00		-3.829E-02	1.610E-01	2.573E-01	2.760E-02	-0.149
		131.20		7.844E-02	1.013E-01	1.500E-01	8.539E-03	0.523
		569.50		-7.735E-02	2.223E-01	3.403E-01	2.384E-02	-0.227
		733.00		9.933E-02	2.999E-01	4.435E-01	9.850E-02	0.224
TH-234		880.51		6.886E-02	2.079E-01	3.490E-01	3.841E-02	0.197
		883.24		1.801E-02	2.213E-01	3.636E-01	2.457E-01	0.050
		926.50		1.587E-01	1.537E-01	2.326E-01	6.078E-02	0.682
		946.00	*	-3.249E-02	2.361E-01	3.793E-01	7.481E-02	-0.086
		949.00		5.152E-01	3.499E-01	6.252E-01	6.566E-02	0.824
		766.42		1.548E+01	1.277E+01	1.801E+01	9.153E+00	0.859
U-238		1001.03	*	1.364E+00	3.857E+00	6.405E+00	6.910E-01	0.213
		63.29	*	1.976E-01	1.394E+00	2.333E+00	4.202E-01	0.085
	+	92.59		3.454E+00	1.146E+00	1.293E+00	2.847E-01	2.672

Sample ID : G248028001

Acquisition date : 12-MAR-2010 15:05:27

---- 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		3.454E+00	9.057E-01	1.293E+00	1.095E-01	2.672
	+	99.53		2.052E-01	1.946E-01	2.490E-01	1.887E-02	0.824
		103.37		3.635E-02	1.186E-01	1.388E-01	9.985E-03	0.262
	+	106.12		1.290E-01	8.652E-02	1.272E-01	8.845E-03	1.014
		117.23	*	-5.012E-02	3.523E-01	5.634E-01	3.480E-02	-0.089
		228.18		-5.659E-02	1.703E-01	2.774E-01	1.530E-02	-0.204
		277.60		2.753E-01	1.557E-01	2.561E-01	1.458E-02	1.075
AM-241		59.54	*	5.449E-02	1.631E-01	2.761E-01	2.290E-02	0.197
CM-247		278.00		6.962E-01	6.463E-01	1.068E+00	6.084E-02	0.652
		287.50		5.901E-02	1.069E+00	1.610E+00	9.209E-02	0.037
CF-249		402.40	*	1.638E-02	2.833E-02	4.878E-02	2.840E-03	0.336
		252.80		2.530E-01	7.536E-01	1.256E+00	7.052E-02	0.201
		333.37		1.050E-02	2.152E-01	2.170E-01	1.255E-02	0.048
CF-251		388.16	*	-1.979E-03	3.007E-02	5.026E-02	2.889E-03	-0.039
		177.52	*	2.612E-02	1.077E-01	1.827E-01	9.655E-03	0.143
		227.38		2.842E-02	2.794E-01	4.640E-01	2.558E-02	0.061
		285.41		-1.609E-01	1.742E+00	2.818E+00	1.611E-01	-0.057

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]G248028001
* Acquisition date   : 12-MAR-2010 15:05:27 Detector SN#      :
* Detector ID        : GAM18                      Sensitivity   : 5.000
* Geometry           : CAN                        Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.63             Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G248028001             Analyst initials: MXR1
* Batch Number       : 958220                 Sample Quantity : 1.2919E+02 GRAM
* Recovery           : 1.00000                Carrier Weight  : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope      :
* MSD DPM            : 0.000                  MSD Isotope     :
* LCS DPM            : 0.000                  LCS Isotope     :
* LCSD DPM           : 0.000                  LCSD Isotope    :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.239E+01	2.044E+00	4.826E-01	0.000E+00
CD-109	3.768E+00	1.058E+00	1.158E+00	0.000E+00
SN-126	3.650E-01	1.025E-01	1.129E-01	0.000E+00
EU-155	1.622E-01	1.066E-01	1.515E-01	0.000E+00
TL-208	4.866E-01	7.579E-02	4.260E-02	0.000E+00
BI-211	3.777E+00	4.246E-01	2.503E-01	0.000E+00
PB-212	1.537E+00	1.428E-01	8.281E-02	0.000E+00
BI-214	1.213E+00	1.615E-01	9.515E-02	0.000E+00
PB-214	1.371E+00	1.710E-01	9.099E-02	0.000E+00
RA-224	3.667E+00	9.961E-01	8.582E-01	0.000E+00
RA-226	1.213E+00	1.615E-01	9.515E-02	0.000E+00
AC-228	1.906E+00	3.531E-01	1.780E-01	0.000E+00
RA-228	1.906E+00	3.531E-01	1.780E-01	0.000E+00
TH-228	1.537E+00	1.428E-01	8.281E-02	0.000E+00
TH-232	1.906E+00	3.531E-01	1.780E-01	0.000E+00
U-235	7.287E-02	1.793E-01	3.036E-01	0.000E+00
NP-237	1.089E+00	3.789E-01	3.422E-01	0.000E+00
ANH-511	1.437E-01	4.834E-02	3.393E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	7.509E-03	2.590E-01	4.448E-01	0.000E+00 NOT IDENT.
NA-22	-3.229E-02	3.477E-02	5.389E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	5.113E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	6.945E-03	3.115E-02	5.327E-02	0.000E+00 FAIL ABUN
V-48	2.565E-02	6.991E-02	1.196E-01	0.000E+00 NOT IDENT.
CR-51	3.777E-01	3.359E-01	5.975E-01	0.000E+00 NOT IDENT.
MN-54	-2.685E-03	3.206E-02	5.402E-02	0.000E+00 NOT IDENT.
CO-56	-3.664E-03	3.169E-02	5.313E-02	0.000E+00 FAIL ABUN
CO-57	7.615E-03	2.196E-02	3.793E-02	0.000E+00 NOT IDENT.

CO-58	-3.663E-02	3.171E-02	4.892E-02	0.000E+00	NOT IDENT.
FE-59	-2.278E-02	7.962E-02	1.332E-01	0.000E+00	NOT IDENT.
CO-60	-1.905E-03	2.832E-02	4.702E-02	0.000E+00	NOT IDENT.
ZN-65	1.105E-01	8.282E-02	1.356E-01	0.000E+00	NOT IDENT.
SE-75	-3.279E-02	3.785E-02	5.676E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.423E-02	5.805E-02	0.000E+00	NOT IDENT.
Y-88	-1.446E-02	2.796E-02	4.305E-02	0.000E+00	NOT IDENT.
Y-91	6.127E+00	1.867E+01	3.223E+01	0.000E+00	NOT IDENT.
NB-94	2.125E-03	2.635E-02	4.565E-02	0.000E+00	NOT IDENT.
NB-95	6.890E-02	3.934E-02	7.256E-02	0.000E+00	NOT IDENT.
NB-95M	1.285E-01	1.181E-01	1.896E-01	0.000E+00	NOT IDENT.
ZR-95	4.310E-02	5.650E-02	1.013E-01	0.000E+00	NOT IDENT.
MO-99	-3.144E+01	4.413E+01	6.839E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.376E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	9.503E-03	3.299E-02	5.728E-02	0.000E+00	FAIL ABUN
RH-106	2.089E-02	2.489E-01	4.175E-01	0.000E+00	NOT IDENT.
RU-106	2.089E-02	2.489E-01	4.175E-01	0.000E+00	NOT IDENT.
AG-108M	-1.327E-02	2.182E-02	3.641E-02	0.000E+00	NOT IDENT.
AG-110M	9.849E-03	2.804E-02	4.963E-02	0.000E+00	NOT IDENT.
SN-113	2.026E-02	3.378E-02	6.081E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.423E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-4.344E-03	5.428E-02	9.694E-02	0.000E+00	NOT IDENT.
TE-123M	3.640E-03	2.148E-02	3.872E-02	0.000E+00	NOT IDENT.
SB-124	-7.125E-03	5.804E-02	9.585E-02	0.000E+00	NOT IDENT.
SB-125	1.296E-02	6.360E-02	1.115E-01	0.000E+00	FAIL ABUN
TE-125M	-5.158E+00	1.015E+01	1.510E+01	0.000E+00	NOT IDENT.
I-126	1.098E-01	2.430E-01	4.316E-01	0.000E+00	NOT IDENT.
SB-126	-1.719E-01	1.720E-01	2.281E-01	0.000E+00	NOT IDENT.
SB-127	-6.482E-01	3.061E+00	5.222E+00	0.000E+00	NOT IDENT.
I-131	5.654E-02	1.359E-01	2.441E-01	0.000E+00	NOT IDENT.
TE-132	-7.006E-01	2.075E+00	3.549E+00	0.000E+00	NOT IDENT.
BA-133	-6.728E-03	3.396E-02	4.845E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.503E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.025E-02	7.454E-02	0.000E+00	FAIL ABUN
CS-135	2.355E-01	1.444E-01	2.362E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.950E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.515E-02	1.063E-01	1.857E-01	0.000E+00	NOT IDENT.
BA-137M	-1.508E-02	2.915E-02	4.908E-02	0.000E+00	NOT IDENT.
CS-137	-1.593E-02	3.080E-02	5.185E-02	0.000E+00	NOT IDENT.
CE-139	1.194E-03	2.421E-02	4.329E-02	0.000E+00	NOT IDENT.
BA-140	-4.375E-02	2.766E-01	4.632E-01	0.000E+00	NOT IDENT.
LA-140	-1.073E-01	8.892E-02	1.281E-01	0.000E+00	FAIL ABUN
CE-141	2.954E-02	6.268E-02	1.065E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.441E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.757E-01	1.842E-01	2.898E-01	0.000E+00	NOT IDENT.
PM-144	-1.042E-02	2.875E-02	4.860E-02	0.000E+00	NOT IDENT.
PR-144	-7.613E-01	2.160E+00	3.653E+00	0.000E+00	NOT IDENT.
PM-146	6.977E-03	3.250E-02	5.664E-02	0.000E+00	NOT IDENT.
ND-147	-1.666E-01	6.266E-01	1.044E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	4.677E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-7.592E-02	8.388E-02	1.211E-01	0.000E+00	NOT IDENT.
GD-153	3.745E-02	1.021E-01	1.275E-01	0.000E+00	NOT IDENT.
EU-154	-6.504E-02	9.651E-02	1.528E-01	0.000E+00	NOT IDENT.
TB-160	-4.785E-03	1.073E-01	1.800E-01	0.000E+00	FAIL ABUN
HO-166M	-1.504E-03	4.690E-02	8.061E-02	0.000E+00	FAIL ABUN
TA-182	-1.322E-02	1.400E-01	2.346E-01	0.000E+00	FAIL ABUN
IR-192	-2.514E-03	2.899E-02	4.865E-02	0.000E+00	FAIL ABUN
HG-203	1.907E-02	3.356E-02	5.873E-02	0.000E+00	NOT IDENT.
BI-207	8.946E-03	3.922E-02	6.831E-02	0.000E+00	FAIL ABUN
PB-210	2.010E+00	4.965E+00	8.994E+00	0.000E+00	NOT IDENT.
PB-211	-9.166E-01	7.130E-01	9.086E-01	0.000E+00	NOT IDENT.
BI-212	0.000E+00	7.466E-01	9.393E-01	0.000E+00	FAIL ABUN
RN-219	1.991E-01	3.046E-01	5.466E-01	0.000E+00	FAIL ABUN
RA-223	-4.919E-01	5.786E-01	7.866E-01	0.000E+00	FAIL ABUN
AC-227	-1.504E-01	2.021E-01	3.348E-01	0.000E+00	FAIL ABUN
TH-227	-1.504E-01	2.023E-01	3.348E-01	0.000E+00	FAIL ABUN
TH-229	3.021E-01	4.161E-01	7.527E-01	0.000E+00	FAIL ABUN
PA-231	8.612E-02	1.105E+00	1.889E+00	0.000E+00	FAIL ABUN
TH-231	-4.919E-01	5.786E-01	7.866E-01	0.000E+00	FAIL ABUN
PA-233	-3.110E-02	5.000E-02	8.153E-02	0.000E+00	FAIL ABUN
PA-234	-3.249E-02	2.314E-01	3.821E-01	0.000E+00	FAIL ABUN
PA-234M	1.364E+00	3.780E+00	6.448E+00	0.000E+00	NOT IDENT.
TH-234	1.976E-01	1.367E+00	2.451E+00	0.000E+00	FAIL ABUN
U-238	1.976E-01	1.367E+00	2.451E+00	0.000E+00	FAIL ABUN
NP-239	-5.012E-02	3.453E-01	5.864E-01	0.000E+00	FAIL ABUN
AM-241	5.449E-02	1.598E-01	2.903E-01	0.000E+00	NOT IDENT.
CM-247	1.638E-02	2.776E-02	4.982E-02	0.000E+00	NOT IDENT.
CF-249	-1.979E-03	2.947E-02	5.136E-02	0.000E+00	NOT IDENT.

CF-251	2.612E-02	1.055E-01	1.890E-01	0.000E+00 NOT IDENT.
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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 17:06:14.07

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028001.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 15:05:27
Sample ID          : G248028001 Sample quantity : 1.29190E+02 GRAM
Detector name      : GAM18 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           : 958220 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	1556	10.66*	1.894E+00	2.239E+01	2.239E+01	9.31
CD-109	88.03	299	3.70*	6.441E+00	3.650E+00	3.768E+00	28.65
SN-126	64.28	-----	9.60	3.245E+00	-----	Line Not Found	-----
	86.94	299	8.90	6.441E+00	1.518E+00	1.518E+00	49.57
	87.57	299	37.00*	6.441E+00	3.650E-01	3.650E-01	28.65
EU-155	86.55	299	30.70	6.441E+00	4.400E-01	4.437E-01	28.67
	105.31	90	21.10*	7.732E+00	1.608E-01	1.622E-01	67.07
TL-208	277.37	-----	6.60	6.258E+00	-----	Line Not Found	-----
	583.19	560	85.00*	3.934E+00	4.866E-01	4.866E-01	15.89
	860.56	76	12.50	2.914E+00	6.025E-01	6.025E-01	62.73
BI-211	72.87	-----	1.23	4.622E+00	-----	Line Not Found	-----
	351.06	915	12.92*	5.451E+00	3.777E+00	3.777E+00	11.47
PB-212	74.82	408	10.28	4.931E+00	2.336E+00	2.336E+00	23.88
	77.11	576	17.10	5.254E+00	1.863E+00	1.863E+00	16.33
	238.63	1567	43.60*	6.793E+00	1.537E+00	1.537E+00	9.48
	300.09	147	3.30	5.984E+00	2.166E+00	2.166E+00	41.71
BI-214	609.32	724	45.49*	3.814E+00	1.213E+00	1.213E+00	13.58
	1120.29	169	14.92	2.335E+00	1.406E+00	1.406E+00	31.52
	1764.49	-----	15.30	1.694E+00	-----	Line Not Found	-----
PB-214	74.82	408	5.80	4.931E+00	4.140E+00	4.140E+00	23.21
	77.11	576	9.70	5.254E+00	3.284E+00	3.285E+00	18.30
	242.00	349	7.25	6.748E+00	2.074E+00	2.074E+00	28.31
	295.22	552	18.42	6.041E+00	1.441E+00	1.441E+00	14.75
	351.93	915	35.60*	5.451E+00	1.371E+00	1.371E+00	12.73
RA-224	240.99	349	4.10*	6.748E+00	3.667E+00	3.667E+00	27.71
RA-226	609.32	724	45.49*	3.814E+00	1.213E+00	1.213E+00	13.58
	1120.29	169	14.92	2.335E+00	1.406E+00	1.406E+00	31.52
	1764.49	-----	15.30	1.694E+00	-----	Line Not Found	-----
AC-228	338.32	276	11.27	5.581E+00	1.276E+00	1.276E+00	47.76
	911.20	471	25.80*	2.781E+00	1.906E+00	1.906E+00	18.90
	968.97	188	15.80	2.640E+00	1.310E+00	1.310E+00	35.59
RA-228	338.32	276	11.27	5.581E+00	1.276E+00	1.276E+00	47.76

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	471	25.80*	2.781E+00	1.906E+00	1.906E+00	18.90
	968.97	188	15.80	2.640E+00	1.310E+00	1.310E+00	35.59
	74.82	408	10.28	4.931E+00	2.336E+00	2.336E+00	21.84
	77.11	576	17.10	5.254E+00	1.863E+00	1.863E+00	16.33
TH-232	238.63	1567	43.60*	6.793E+00	1.537E+00	1.537E+00	9.48
	300.09	147	3.30	5.984E+00	2.166E+00	2.166E+00	73.32
	338.32	276	11.27	5.581E+00	1.276E+00	1.276E+00	24.81
	911.20	471	25.80*	2.781E+00	1.906E+00	1.906E+00	18.90
U-235	968.97	188	15.80	2.640E+00	1.310E+00	1.310E+00	35.59
	89.96	180	3.47	6.716E+00	2.246E+00	2.246E+00	46.45
	93.35	349	5.60	6.949E+00	2.609E+00	2.609E+00	33.86
	143.76	-----	10.96*	8.222E+00	-----	Line Not Found	-----
NP-237	163.33	-----	5.08	8.005E+00	-----	Line Not Found	-----
	185.72	280	57.20	7.650E+00	1.857E-01	1.857E-01	29.22
	205.31	-----	5.01	7.323E+00	-----	Line Not Found	-----
	86.48	299	12.40*	6.441E+00	1.089E+00	1.089E+00	35.50
ANH-511	95.86	-----	2.68	7.180E+00	-----	Line Not Found	-----
	511.00	213	100.00*	4.311E+00	1.437E-01	1.437E-01	34.32

Flag: "*" = Keyline

Total number of lines in spectrum 33
Number of unidentified lines 5
Number of lines tentatively identified by NID 28 84.85%

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	2.239E+01	2.239E+01	0.209E+01	9.31	
CD-109	461.40D	1.03	3.650E+00	3.768E+00	1.079E+00	28.65	
SN-126	2.30E+05Y	1.00	3.650E-01	3.650E-01	1.046E-01	28.65	
EU-155	4.75Y	1.01	1.608E-01	1.622E-01	1.088E-01	67.07	
TL-208	1.41E+10Y	1.00	4.866E-01	4.866E-01	0.773E-01	15.89	
BI-211	7.04E+08Y	1.00	3.777E+00	3.777E+00	0.433E+00	11.47	
PB-212	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.146E+00	9.48	
BI-214	1600.00Y	1.00	1.213E+00	1.213E+00	0.165E+00	13.58	
PB-214	1600.00Y	1.00	1.371E+00	1.371E+00	0.174E+00	12.73	
RA-224	1.41E+10Y	1.00	3.667E+00	3.667E+00	1.016E+00	27.71	
RA-226	1600.00Y	1.00	1.213E+00	1.213E+00	0.165E+00	13.58	
AC-228	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.360E+00	18.90	
RA-228	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.360E+00	18.90	
TH-228	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.146E+00	9.48	
TH-232	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.360E+00	18.90	
U-235	7.04E+08Y	1.00	1.857E-01	1.857E-01	0.543E-01	29.22	K
NP-237	2.14E+06Y	1.00	1.089E+00	1.089E+00	0.387E+00	35.50	
ANH-511	1.00E+09Y	1.00	1.437E-01	1.437E-01	0.493E-01	34.32	
Total Activity :			4.851E+01	4.863E+01			

Grand Total Activity : 4.851E+01 4.863E+01

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

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

Unidentified Energy Lines
Sample ID : G248028001

Page : 4
Acquisition date : 12-MAR-2010 15:05:27

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	99.25	73	360	1.65	197.61	195	8	1.02E-02	94.5	7.40E+00	T
0	129.01	64	386	1.58	257.09	254	8	8.82E-03	****	8.25E+00	
0	209.20	172	374	1.23	417.42	413	10	2.39E-02	44.8	7.26E+00	
0	270.52	140	344	1.58	540.03	535	13	1.94E-02	57.8	6.35E+00	T
0	328.05	144	218	1.50	655.05	650	12	2.00E-02	44.0	5.68E+00	T
0	462.37	123	126	1.82	923.61	919	11	1.71E-02	39.5	4.60E+00	T
0	726.76	148	124	1.55	1452.24	1444	16	2.06E-02	37.5	3.34E+00	T
0	795.11	117	82	2.23	1588.91	1581	18	1.62E-02	41.4	3.11E+00	T
0	933.75	38	104	1.20	1866.14	1859	15	5.26E-03	****	2.72E+00	
0	1238.89	84	173	2.41	2476.31	2463	26	1.16E-02	90.8	2.15E+00	T
0	1376.79	63	32	1.92	2752.09	2745	13	8.69E-03	45.3	1.98E+00	
0	1762.98	147	28	1.99	3524.42	3514	19	2.04E-02	23.9	1.70E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028001.CNF;1
* Acquisition date   : 12-MAR-2010 15:05:27  Detector SN#      :
* Detector ID        : GAM18                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit    : 75.00000
* Elapsed real time  : 0 02:00:01.63          Half life ratio    : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00  Nuclide Library : SOLID
* Sample ID          : G248028001           Analyst initials: MXR1
* Batch Number       : 958220               Sample Quantity : 1.29190E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope      :
* MSD ID             :                      MSD Isotope      :
* LCS ID             : 1032-A               LCS Isotope      :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.239E+01	2.085E+00	4.824E-01	3.661E-02	46.413
CD-109	3.768E+00	1.079E+00	1.107E+00	1.024E-01	3.403
SN-126	3.650E-01	1.046E-01	1.080E-01	9.947E-03	3.381
EU-155	1.622E-01	1.088E-01	1.453E-01	1.038E-02	1.116
TL-208	4.866E-01	7.734E-02	4.196E-02	3.284E-03	11.598
BI-211	3.777E+00	4.332E-01	2.445E-01	1.570E-02	15.446
PB-212	1.537E+00	1.457E-01	8.043E-02	5.798E-03	19.111
BI-214	1.213E+00	1.648E-01	9.378E-02	8.428E-03	12.937
PB-214	1.371E+00	1.745E-01	8.891E-02	7.525E-03	15.417
RA-224	3.667E+00	1.016E+00	8.336E-01	4.644E-02	4.399
RA-226	1.213E+00	1.648E-01	9.378E-02	8.428E-03	12.937
AC-228	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
RA-228	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
TH-228	1.537E+00	1.457E-01	8.043E-02	5.798E-03	19.111
TH-232	1.906E+00	3.603E-01	1.766E-01	2.392E-02	10.793
U-235	1.857E-01	5.426E-02	2.926E-01	4.563E-02	0.635
NP-237	1.089E+00	3.867E-01	3.272E-01	7.483E-02	3.329
ANH-511	1.437E-01	4.933E-02	3.335E-02	2.202E-03	4.310

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.509E-03		2.643E-01	4.367E-01	3.163E-02	0.017
NA-22	-3.229E-02		3.548E-02	5.374E-02	3.657E-03	-0.601
NA-24	-3.395E+02		2.609E+02	Half-Life too short		
SC-46	6.945E-03		3.178E-02	5.282E-02	5.891E-03	0.131
V-48	2.565E-02		7.134E-02	1.188E-01	1.175E-02	0.216
CR-51	3.777E-01		3.427E-01	5.830E-01	3.747E-02	0.648
MN-54	-2.685E-03		3.272E-02	5.351E-02	5.481E-03	-0.050
CO-56	-3.664E-03		3.234E-02	5.264E-02	5.495E-03	-0.070
CO-57	7.615E-03		2.240E-02	3.646E-02	2.160E-03	0.209
CO-58	-3.663E-02		3.236E-02	4.844E-02	4.782E-03	-0.756
FE-59	-2.278E-02		8.125E-02	1.325E-01	1.090E-02	-0.172
CO-60	-1.905E-03		2.890E-02	4.693E-02	3.546E-03	-0.041
ZN-65	1.105E-01		8.451E-02	1.350E-01	9.508E-03	0.818
SE-75	-3.279E-02		3.862E-02	5.522E-02	3.159E-03	-0.594
SR-85	7.035E-02		3.493E-02	5.706E-02	3.780E-03	1.233
Y-88	-1.446E-02		2.853E-02	4.319E-02	2.460E-03	-0.335
Y-91	6.127E+00		1.905E+01	3.212E+01	1.898E+00	0.191
NB-94	2.125E-03		2.689E-02	4.510E-02	3.700E-03	0.047
NB-95	6.890E-02		4.014E-02	7.177E-02	6.566E-03	0.960
NB-95M	1.285E-01		1.205E-01	1.841E-01	1.356E-02	0.698
ZR-95	4.310E-02		5.766E-02	1.002E-01	9.897E-03	0.430
MO-99	-3.144E+01		4.503E+01	6.761E+01	1.070E+01	-0.465
TC-99M	-7.367E+17		3.253E+17	Half-Life too short		
RU-103	9.503E-03		3.366E-02	5.628E-02	7.187E-03	0.169
RH-106	2.089E-02		2.540E-01	4.116E-01	5.134E-02	0.051
RU-106	2.089E-02		2.539E-01	4.116E-01	3.029E-02	0.051
AG-108M	-1.327E-02		2.226E-02	3.569E-02	2.301E-03	-0.372
AG-110M	9.849E-03		2.862E-02	4.897E-02	3.863E-03	0.201
SN-113	2.026E-02		3.447E-02	5.952E-02	3.651E-03	0.340
CD-115	-1.146E-05		2.767E-05	Half-Life too short		
SN-117M	-4.344E-03		5.539E-02	9.356E-02	4.973E-03	-0.046
TE-123M	3.640E-03		2.192E-02	3.737E-02	2.016E-03	0.097
SB-124	-7.125E-03		5.923E-02	9.604E-02	6.651E-03	-0.074
SB-125	1.296E-02		6.490E-02	1.093E-01	6.821E-03	0.119
TE-125M	-5.158E+00		1.035E+01	1.449E+01	1.303E+00	-0.356
I-126	1.098E-01		2.480E-01	4.260E-01	3.275E-02	0.258
SB-126	-1.719E-01		1.755E-01	2.254E-01	1.909E-02	-0.762
SB-127	-6.482E-01		3.124E+00	5.156E+00	6.646E-01	-0.126
I-131	5.654E-02		1.387E-01	2.387E-01	1.557E-02	0.237
TE-132	-7.006E-01		2.117E+00	3.444E+00	5.455E-01	-0.203
BA-133	-6.728E-03		3.465E-02	4.735E-02	5.335E-03	-0.142
I-133	3.457E-01		2.808E-01	Half-Life too short		
CS-134	1.447E-01	+	6.148E-02	7.378E-02	7.136E-03	1.961
CS-135	2.355E-01		1.474E-01	2.298E-01	1.737E-02	1.025
I-135	9.738E+15		9.949E+15	Half-Life too short		
CS-136	2.515E-02		1.085E-01	1.847E-01	1.656E-02	0.136
BA-137M	-1.508E-02		2.975E-02	4.844E-02	3.692E-03	-0.311
CS-137	-1.593E-02		3.142E-02	5.117E-02	3.910E-03	-0.311

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-139	1.194E-03		2.470E-02	4.181E-02	2.195E-03	0.029
BA-140	-4.375E-02		2.823E-01	4.556E-01	1.526E-01	-0.096
LA-140	-1.073E-01		9.074E-02	1.282E-01	8.798E-03	-0.837
CE-141	2.954E-02		6.396E-02	1.026E-01	5.860E-03	0.288
CE-143	1.585E-02		2.266E-03	Half-Life too short		
CE-144	1.757E-01		1.880E-01	2.790E-01	3.859E-02	0.630
PM-144	-1.042E-02		2.934E-02	4.800E-02	3.898E-03	-0.217
PR-144	-7.613E-01		2.204E+00	3.608E+00	2.928E-01	-0.211
PM-146	6.977E-03		3.316E-02	5.557E-02	4.854E-03	0.126
ND-147	-1.666E-01		6.394E-01	1.027E+00	1.433E-01	-0.162
PM-149	2.394E-04		2.386E-04	Half-Life too short		
EU-152	-7.592E-02		8.559E-02	1.182E-01	7.710E-03	-0.642
GD-153	3.745E-02		1.042E-01	1.221E-01	9.549E-03	0.307
EU-154	-6.504E-02		9.848E-02	1.524E-01	1.534E-02	-0.427
TB-160	-4.785E-03		1.095E-01	1.785E-01	1.961E-02	-0.027
HO-166M	-1.504E-03		4.786E-02	7.964E-02	6.638E-03	-0.019
TA-182	-1.322E-02		1.428E-01	2.338E-01	1.430E-02	-0.057
IR-192	-2.514E-03		2.958E-02	4.746E-02	2.753E-03	-0.053
HG-203	1.907E-02		3.424E-02	5.718E-02	3.447E-03	0.334
BI-207	8.946E-03		4.002E-02	6.793E-02	5.607E-03	0.132
PB-210	2.010E+00		5.066E+00	8.523E+00	6.534E-01	0.236
PB-211	-9.166E-01		7.276E-01	8.898E-01	4.269E-01	-1.030
BI-212	1.931E+00	+	7.619E-01	9.284E-01	1.153E-01	2.080
RN-219	1.991E-01		3.108E-01	5.352E-01	7.195E-02	0.372
RA-223	-4.919E-01		5.904E-01	7.676E-01	1.237E-01	-0.641
AC-227	-1.504E-01		2.062E-01	3.255E-01	3.297E-02	-0.462
TH-227	-1.504E-01		2.064E-01	3.255E-01	3.886E-02	-0.462
TH-229	3.021E-01		4.246E-01	7.287E-01	3.901E-02	0.415
PA-231	8.612E-02		1.127E+00	1.840E+00	2.406E-01	0.047
TH-231	-4.919E-01		5.904E-01	7.676E-01	1.237E-01	-0.641
PA-233	-3.110E-02		5.102E-02	7.952E-02	4.873E-03	-0.391
PA-234	-3.249E-02		2.361E-01	3.793E-01	7.481E-02	-0.086
PA-234M	1.364E+00		3.857E+00	6.405E+00	6.910E-01	0.213
TH-234	1.976E-01		1.394E+00	2.333E+00	4.202E-01	0.085
U-238	1.976E-01		1.394E+00	2.333E+00	4.202E-01	0.085
NP-239	-5.012E-02		3.523E-01	5.634E-01	3.480E-02	-0.089
AM-241	5.449E-02		1.631E-01	2.761E-01	2.290E-02	0.197
CM-247	1.638E-02		2.833E-02	4.878E-02	2.840E-03	0.336
CF-249	-1.979E-03		3.007E-02	5.026E-02	2.889E-03	-0.039
CF-251	2.612E-02		1.077E-01	1.827E-01	9.655E-03	0.143

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248028001          *
* Acquisition date   : 12-MAR-2010 15:05:27 Detector SN#      :             *
* Detector ID        : GAM18                      Sensitivity   : 5.000        *
* Geometry           : CAN                        Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00             Abundance limit: 75.000       *
* Elapsed real time  : 0 02:00:01.63             Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G248028001             Analyst initials: MXR1          *
* Batch Number       : 958220                 Sample Quantity : 1.2919E+02 GRAM   *
* Recovery           : 1.00000                Carrier Weight  : 0.00000        *
*****
*
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope       :             *
* MSD DPM             : 0.000                  MSD Isotope     :             *
* LCS DPM             : 0.000                  LCS Isotope     :             *
* LCSD DPM            : 0.000                  LCSD Isotope    :             *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.239E+01	2.044E+00	2.415E-01	1.043E+00
CD-109	3.768E+00	1.058E+00	5.791E-01	5.397E-01
SN-126	3.650E-01	1.025E-01	5.646E-02	5.229E-02
EU-155	1.622E-01	1.066E-01	7.580E-02	5.439E-02
TL-208	4.866E-01	7.579E-02	2.131E-02	3.867E-02
BI-211	3.777E+00	4.246E-01	1.252E-01	2.166E-01
PB-212	1.537E+00	1.428E-01	4.143E-02	7.284E-02
BI-214	1.213E+00	1.615E-01	4.760E-02	8.239E-02
PB-214	1.371E+00	1.710E-01	4.552E-02	8.723E-02
RA-224	3.667E+00	9.961E-01	4.294E-01	5.082E-01
RA-226	1.213E+00	1.615E-01	4.760E-02	8.239E-02
AC-228	1.906E+00	3.531E-01	8.906E-02	1.801E-01
RA-228	1.906E+00	3.531E-01	8.906E-02	1.801E-01
TH-228	1.537E+00	1.428E-01	4.143E-02	7.284E-02
TH-232	1.906E+00	3.531E-01	8.906E-02	1.801E-01
U-235	7.287E-02	1.793E-01	1.519E-01	9.149E-02
NP-237	1.089E+00	3.789E-01	1.712E-01	1.933E-01
ANH-511	1.437E-01	4.834E-02	1.698E-02	2.466E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	7.509E-03	2.590E-01	2.225E-01	1.322E-01 NOT IDENT.
NA-22	-3.229E-02	3.477E-02	2.696E-02	1.774E-02 NOT IDENT.
NA-24	-3.395E+08	5.113E+08	0.000E+00	2.609E+08 SHORT HLIF
SC-46	6.945E-03	3.115E-02	2.665E-02	1.589E-02 FAIL ABUN
V-48	2.565E-02	6.991E-02	5.986E-02	3.567E-02 NOT IDENT.
CR-51	3.777E-01	3.359E-01	2.989E-01	1.714E-01 NOT IDENT.
MN-54	-2.685E-03	3.206E-02	2.703E-02	1.636E-02 NOT IDENT.
CO-56	-3.664E-03	3.169E-02	2.658E-02	1.617E-02 FAIL ABUN
CO-57	7.615E-03	2.196E-02	1.898E-02	1.120E-02 NOT IDENT.

CO-58	-3.663E-02	3.171E-02	2.448E-02	1.618E-02	NOT IDENT.
FE-59	-2.278E-02	7.962E-02	6.665E-02	4.062E-02	NOT IDENT.
CO-60	-1.905E-03	2.832E-02	2.352E-02	1.445E-02	NOT IDENT.
ZN-65	1.105E-01	8.282E-02	6.786E-02	4.225E-02	NOT IDENT.
SE-75	-3.279E-02	3.785E-02	2.840E-02	1.931E-02	NOT IDENT.
SR-85	7.035E-02	3.423E-02	2.904E-02	1.746E-02	NOT IDENT.
Y-88	-1.446E-02	2.796E-02	2.154E-02	1.427E-02	NOT IDENT.
Y-91	6.127E+00	1.867E+01	1.613E+01	9.525E+00	NOT IDENT.
NB-94	2.125E-03	2.635E-02	2.284E-02	1.345E-02	NOT IDENT.
NB-95	6.890E-02	3.934E-02	3.630E-02	2.007E-02	NOT IDENT.
NB-95M	1.285E-01	1.181E-01	9.488E-02	6.026E-02	NOT IDENT.
ZR-95	4.310E-02	5.650E-02	5.070E-02	2.883E-02	NOT IDENT.
MO-99	-3.144E+01	4.413E+01	3.422E+01	2.251E+01	NOT IDENT.
TC-99M	-7.367E+23	6.376E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	9.503E-03	3.299E-02	2.866E-02	1.683E-02	FAIL ABUN
RH-106	2.089E-02	2.489E-01	2.089E-01	1.270E-01	NOT IDENT.
RU-106	2.089E-02	2.489E-01	2.089E-01	1.270E-01	NOT IDENT.
AG-108M	-1.327E-02	2.182E-02	1.821E-02	1.113E-02	NOT IDENT.
AG-110M	9.849E-03	2.804E-02	2.483E-02	1.431E-02	NOT IDENT.
SN-113	2.026E-02	3.378E-02	3.043E-02	1.724E-02	NOT IDENT.
CD-115	-1.146E+01	5.423E+01	0.000E+00	2.767E+01	SHORT HLIF
SN-117M	-4.344E-03	5.428E-02	4.850E-02	2.770E-02	NOT IDENT.
TE-123M	3.640E-03	2.148E-02	1.937E-02	1.096E-02	NOT IDENT.
SB-124	-7.125E-03	5.804E-02	4.795E-02	2.961E-02	NOT IDENT.
SB-125	1.296E-02	6.360E-02	5.578E-02	3.245E-02	FAIL ABUN
TE-125M	-5.158E+00	1.015E+01	7.554E+00	5.177E+00	NOT IDENT.
I-126	1.098E-01	2.430E-01	2.159E-01	1.240E-01	NOT IDENT.
SB-126	-1.719E-01	1.720E-01	1.141E-01	8.773E-02	NOT IDENT.
SB-127	-6.482E-01	3.061E+00	2.612E+00	1.562E+00	NOT IDENT.
I-131	5.654E-02	1.359E-01	1.221E-01	6.933E-02	NOT IDENT.
TE-132	-7.006E-01	2.075E+00	1.775E+00	1.058E+00	NOT IDENT.
BA-133	-6.728E-03	3.396E-02	2.424E-02	1.733E-02	NOT IDENT.
I-133	3.457E+05	5.503E+05	0.000E+00	2.808E+05	SHORT HLIF
CS-134	1.447E-01	6.025E-02	3.729E-02	3.074E-02	FAIL ABUN
CS-135	2.355E-01	1.444E-01	1.182E-01	7.370E-02	NOT IDENT.
I-135	9.738E+21	1.950E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.515E-02	1.063E-01	9.292E-02	5.426E-02	NOT IDENT.
BA-137M	-1.508E-02	2.915E-02	2.455E-02	1.487E-02	NOT IDENT.
CS-137	-1.593E-02	3.080E-02	2.594E-02	1.571E-02	NOT IDENT.
CE-139	1.194E-03	2.421E-02	2.166E-02	1.235E-02	NOT IDENT.
BA-140	-4.375E-02	2.766E-01	2.317E-01	1.411E-01	NOT IDENT.
LA-140	-1.073E-01	8.892E-02	6.408E-02	4.537E-02	FAIL ABUN
CE-141	2.954E-02	6.268E-02	5.327E-02	3.198E-02	NOT IDENT.
CE-143	1.585E+04	4.441E+03	0.000E+00	2.266E+03	SHORT HLIF
CE-144	1.757E-01	1.842E-01	1.450E-01	9.399E-02	NOT IDENT.
PM-144	-1.042E-02	2.875E-02	2.431E-02	1.467E-02	NOT IDENT.
PR-144	-7.613E-01	2.160E+00	1.828E+00	1.102E+00	NOT IDENT.
PM-146	6.977E-03	3.250E-02	2.834E-02	1.658E-02	NOT IDENT.
ND-147	-1.666E-01	6.266E-01	5.224E-01	3.197E-01	FAIL ABUN
PM-149	2.394E+02	4.677E+02	0.000E+00	2.386E+02	SHORT HLIF
EU-152	-7.592E-02	8.388E-02	6.056E-02	4.280E-02	NOT IDENT.
GD-153	3.745E-02	1.021E-01	6.378E-02	5.209E-02	NOT IDENT.
EU-154	-6.504E-02	9.651E-02	7.646E-02	4.924E-02	NOT IDENT.
TB-160	-4.785E-03	1.073E-01	9.007E-02	5.474E-02	FAIL ABUN
HO-166M	-1.504E-03	4.690E-02	4.033E-02	2.393E-02	FAIL ABUN
TA-182	-1.322E-02	1.400E-01	1.174E-01	7.142E-02	FAIL ABUN
IR-192	-2.514E-03	2.899E-02	2.434E-02	1.479E-02	FAIL ABUN
HG-203	1.907E-02	3.356E-02	2.938E-02	1.712E-02	NOT IDENT.
BI-207	8.946E-03	3.922E-02	3.418E-02	2.001E-02	FAIL ABUN
PB-210	2.010E+00	4.965E+00	4.500E+00	2.533E+00	NOT IDENT.
PB-211	-9.166E-01	7.130E-01	4.546E-01	3.638E-01	NOT IDENT.
BI-212	1.931E+00	7.466E-01	4.699E-01	3.809E-01	FAIL ABUN
RN-219	1.991E-01	3.046E-01	2.734E-01	1.554E-01	FAIL ABUN
RA-223	-4.919E-01	5.786E-01	3.935E-01	2.952E-01	FAIL ABUN
AC-227	-1.504E-01	2.021E-01	1.675E-01	1.031E-01	FAIL ABUN
TH-227	-1.504E-01	2.023E-01	1.675E-01	1.032E-01	FAIL ABUN
TH-229	3.021E-01	4.161E-01	3.766E-01	2.123E-01	FAIL ABUN
PA-231	8.612E-02	1.105E+00	9.452E-01	5.635E-01	FAIL ABUN
TH-231	-4.919E-01	5.786E-01	3.935E-01	2.952E-01	FAIL ABUN
PA-233	-3.110E-02	5.000E-02	4.079E-02	2.551E-02	FAIL ABUN
PA-234	-3.249E-02	2.314E-01	1.912E-01	1.180E-01	FAIL ABUN
PA-234M	1.364E+00	3.780E+00	3.226E+00	1.929E+00	NOT IDENT.
TH-234	1.976E-01	1.367E+00	1.226E+00	6.972E-01	FAIL ABUN
U-238	1.976E-01	1.367E+00	1.226E+00	6.972E-01	FAIL ABUN
NP-239	-5.012E-02	3.453E-01	2.934E-01	1.762E-01	FAIL ABUN
AM-241	5.449E-02	1.598E-01	1.452E-01	8.153E-02	NOT IDENT.
CM-247	1.638E-02	2.776E-02	2.492E-02	1.416E-02	NOT IDENT.
CF-249	-1.979E-03	2.947E-02	2.569E-02	1.504E-02	NOT IDENT.

CF-251	2.612E-02	1.055E-01	9.454E-02	5.384E-02 NOT IDENT.
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*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT             *
*****

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ENERGY	MDA COUNTS
46.54	302.1916
49.72	283.6941
57.36	0.0000
59.54	309.2059
63.29	347.1806
63.29	347.1806
64.28	352.1189
67.75	388.6786
69.67	387.2047
70.83	371.2051
72.81	382.2239
72.87	382.2939
72.87	382.2939
74.82	391.0027
74.82	391.0027
74.82	391.0027
74.97	391.1774
77.11	393.6530
77.11	393.6530
77.11	393.6530
79.69	396.5940
79.80	416.9708
80.12	417.3511
80.19	417.4323
80.57	391.0191
81.00	418.3893
81.07	418.4726
81.07	418.4726
83.79	362.6183
83.79	362.6183
85.43	364.2442
86.48	365.2767
86.55	365.3465
86.79	365.5779
86.94	365.7268
87.57	366.3422
88.03	366.7905
88.47	367.2167
89.96	368.6552
91.11	369.7575
92.59	371.1666
92.59	371.1666
93.35	371.8849
94.67	305.7739
94.87	305.9275
94.87	305.9275
95.86	310.8292
97.43	290.1964
98.44	323.2383
99.53	308.4140
100.11	308.8461
103.18	313.2241
103.37	281.7116
105.31	302.0703
106.12	317.5035
109.28	341.7276
111.00	330.7027
111.76	329.1109
116.30	316.1018
117.23	323.2652
121.12	286.4299
121.78	286.8242
122.06	303.4852
123.07	330.5664
131.20	304.1063
133.52	270.0439
136.00	347.0864

136.47	322.5037
140.51	397.9503
140.51	0.0000
143.76	340.7022
144.24	323.7791
144.24	323.7791
145.44	324.4905
152.43	293.6129
153.25	288.7852
154.21	295.4047
154.21	295.4047
156.02	319.1953
158.56	272.8975
159.00	266.9135
162.66	289.9060
163.33	299.1346
165.86	312.0103
176.60	327.4393
177.52	319.7139
181.07	320.9264
184.41	293.1072
185.72	321.9128
193.51	285.5280
197.04	296.3705
205.31	320.3558
210.85	270.7957
215.65	311.2733
222.11	291.2064
227.38	259.9747
228.16	268.0610
228.18	268.0673
235.69	278.1324
235.96	270.3228
235.96	270.3228
238.63	310.8725
238.63	310.8725
240.99	292.2908
242.00	250.0482
244.70	239.6869
252.40	217.7155
252.80	219.8362
256.23	256.1598
256.23	256.1598
260.90	0.0000
264.66	224.9246
268.22	218.4434
269.46	231.9030
269.46	231.9030
271.23	239.9862
273.65	300.7399
276.40	188.9489
277.37	207.4005
277.60	207.4524
278.00	231.2633
279.20	222.3626
279.54	236.9967
280.46	270.5331
283.69	201.5197
284.31	210.0140
285.41	214.4467
285.90	0.0000
287.50	211.0811
293.27	0.0000
295.22	199.7685
295.96	199.9243
298.57	200.4664
299.98	200.7577
299.98	200.7577
300.09	200.7808
300.09	200.7808
300.13	200.7865
301.36	180.4044
302.85	170.4541
304.50	189.5211
304.50	189.5211
304.85	186.1729
308.46	172.4972
311.90	199.9693

316.51	194.4058
319.41	171.1321
320.08	166.9077
323.87	207.1227
323.87	207.1227
328.76	181.4308
333.37	171.2487
334.37	180.2008
334.37	180.2008
338.28	181.9643
338.28	181.9643
338.32	181.9718
338.32	181.9718
338.32	181.9718
340.48	169.7414
340.55	169.7508
344.28	202.5706
351.06	162.9156
351.93	163.0425
356.01	145.2601
364.49	139.1301
366.42	144.7949
383.85	164.4300
388.16	161.3367
388.63	160.4785
391.69	145.1675
400.66	133.1984
401.81	150.1052
402.40	150.1769
404.85	214.9624
410.95	156.8459
414.70	146.9508
423.72	129.9677
427.09	120.7957
427.87	125.6256
433.94	151.0701
453.88	145.5725
463.37	110.7490
468.07	120.9275
473.00	133.8152
476.78	137.1319
477.60	132.2759
487.02	129.1716
492.35	0.0000
497.08	122.0611
511.00	113.1081
514.00	112.9950
527.90	0.0000
529.87	0.0000
531.02	128.9193
537.26	122.2452
546.56	0.0000
563.25	122.1530
569.33	126.7989
569.50	121.5706
569.70	121.5876
583.19	107.7798
600.60	135.2173
602.73	135.3843
604.72	155.1564
609.32	144.8383
609.32	144.8383
610.33	123.4537
614.28	123.7317
618.01	127.2274
621.93	116.7038
621.93	116.7038
633.25	106.5678
635.95	108.9038
636.99	101.3396
645.85	112.7820
657.76	123.9807
661.66	150.0070
661.66	150.0070
664.57	0.0000
666.33	127.3142
666.50	127.3254
677.62	106.7269

685.70	123.9515
695.00	135.7841
696.49	149.0075
696.51	149.0107
697.00	148.1089
702.65	127.8542
706.68	120.5781
711.68	118.0471
720.70	117.0879
721.93	0.0000
722.78	97.6758
722.91	97.6821
723.31	94.4442
724.19	89.5975
727.33	89.4637
733.00	81.8063
735.93	94.8819
739.50	109.1456
747.24	97.0609
752.31	94.4072
753.82	100.2591
756.73	86.8835
763.94	159.8303
765.81	122.1599
766.42	131.8939
777.92	109.2041
778.90	94.6220
783.70	109.4958
785.37	113.1379
795.86	97.3282
801.95	98.0186
810.29	111.8160
810.76	109.8618
815.77	86.3008
818.51	90.3779
832.01	97.9123
834.85	130.0450
836.80	0.0000
846.77	93.5146
856.80	81.3665
860.56	85.9771
871.09	73.1528
873.19	74.2342
875.33	0.0000
879.36	78.5039
880.51	73.4414
883.24	82.7155
884.68	77.6560
889.28	80.8757
898.04	94.5250
911.20	87.8032
911.20	87.8032
911.20	87.8032
926.50	60.5791
937.49	76.9492
944.13	86.8687
946.00	85.8855
949.00	63.9661
962.29	95.7667
964.08	108.4905
966.15	103.1495
968.97	153.2306
968.97	153.2306
968.97	153.2306
983.53	74.3850
996.26	87.5554
1001.03	85.5729
1004.73	100.6859
1037.84	88.2839
1038.76	0.0000
1048.07	72.7550
1050.41	75.6154
1050.41	75.6154
1063.66	77.8501
1085.87	76.5675
1099.45	96.8701
1112.07	83.4595
1115.54	81.8860

1120.29	85.3652
1120.29	85.3652
1120.55	85.3746
1121.30	80.3730
1131.51	0.0000
1173.23	81.7646
1177.93	90.6646
1189.05	93.9241
1204.77	102.2626
1221.41	82.0418
1231.02	79.8093
1235.36	121.6156
1238.28	104.3372
1260.41	0.0000
1271.85	65.2562
1274.44	84.3955
1274.54	90.4269
1291.59	64.6339
1298.22	0.0000
1312.11	46.7380
1332.49	50.0835
1365.19	44.3647
1368.63	0.0000
1384.29	33.8857
1408.01	40.7234
1457.56	0.0000
1460.82	51.9036
1489.16	40.5552
1505.03	39.3853
1596.21	46.0635
1620.50	24.1348
1678.03	0.0000
1690.97	22.5810
1764.49	26.6276
1764.49	26.6276
1770.23	26.6618
1771.35	96.0088
1791.20	0.0000
1836.06	28.4059

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248028001

Total Uranium Activity	6.2145E-01	ug/g
Total Uranium Counting Unc.	4.0664E+00	ug/g
Total Uranium Tpu	2.0747E-06	ug/g
Total Uranium Mda	3.6480E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 958220                          SAMPLE ID   : G248028001
*  ANALYST       : MXR1                             DETECTOR    : GAM18
*  SAMPLE DATE   : 19-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 12-MAR-2010 15:05:27.94          SAMPLE ALQT  : 129.190 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.398E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.132E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 2.230E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.083E+00

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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 18:49:53.11

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028002.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:49:27
Sample ID          : G248028002      Sample quantity   : 1.33930E+02 GRAM
Detector name      : GAM04           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.23  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 958220           Detector SN#      :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.20*	86	244	1.03	126.43	124	6	1.19E-02	31.4	
2	3	74.86	328	309	1.15	149.76	145	17	4.55E-02	10.7	1.03E+00
3	3	77.12	459	289	1.02	154.28	145	17	6.37E-02	7.7	
4	0	87.37	130	496	1.08	174.78	170	8	1.80E-02	31.0	
5	0	92.81*	355	322	1.15	185.67	183	7	4.93E-02	10.3	
6	0	129.16	91	299	1.02	258.36	254	9	1.27E-02	35.7	
7	0	144.13	65	349	0.81	288.31	284	9	9.03E-03	53.2	
8	0	186.12*	299	365	1.39	372.30	367	11	4.16E-02	13.9	
9	0	209.15	72	293	1.04	418.36	413	10	1.00E-02	45.9	
10	5	238.74*	1099	154	1.08	477.55	472	17	1.53E-01	3.5	1.22E+00
11	5	241.67	280	193	1.86	483.40	472	17	3.89E-02	15.1	
12	0	270.42	90	188	1.30	540.91	537	10	1.25E-02	30.5	
13	0	278.03	55	164	1.59	556.13	551	9	7.64E-03	44.3	
14	0	295.28*	359	130	1.11	590.64	586	9	4.99E-02	7.9	
15	0	300.30	55	116	1.40	600.67	597	7	7.65E-03	35.2	
16	0	327.98	72	138	1.22	656.04	652	9	1.00E-02	31.6	
17	0	338.38	264	130	1.41	676.84	671	10	3.67E-02	10.1	
18	0	352.11*	605	150	1.30	704.31	698	12	8.40E-02	5.8	
19	0	463.35	71	67	1.21	926.79	922	9	9.90E-03	23.9	
20	0	511.27*	103	166	1.66	1022.64	1015	17	1.43E-02	33.1	
21	0	583.55*	327	86	1.45	1167.19	1162	12	4.55E-02	8.0	
22	0	609.74*	425	86	1.61	1219.57	1214	13	5.91E-02	6.8	
23	0	662.02*	51	60	1.68	1324.14	1318	11	7.04E-03	34.7	
24	0	861.65	47	57	1.51	1723.37	1716	13	6.58E-03	36.2	
25	0	911.80*	226	83	1.59	1823.67	1817	16	3.15E-02	11.4	
26	0	969.04	207	74	1.73	1938.13	1928	20	2.88E-02	12.4	
27	0	1002.17*	30	38	1.73	2004.38	1996	15	4.12E-03	49.9	
28	0	1121.40*	91	52	1.37	2242.82	2236	13	1.26E-02	19.8	
29	0	1461.68*	1044	28	1.86	2923.25	2913	19	1.45E-01	3.4	
30	0	1592.75	30	24	0.85	3185.32	3175	20	4.15E-03	47.8	
31	0	1632.62	22	9	0.78	3265.04	3254	17	3.09E-03	36.9	
32	0	1731.01	20	12	1.02	3461.76	3452	16	2.76E-03	45.0	
33	0	1765.66*	74	7	1.90	3531.04	3525	13	1.03E-02	14.3	
34	0	1849.25	13	4	0.94	3698.16	3694	8	1.74E-03	39.2	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 18:49:55

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Configuration      : DKAL00:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:49:27
Sample ID         : G248028002 Sample quantity : 133.93 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA4 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.23 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	*	2.556E+01	2.498E+00	4.896E-01	3.480E-02	52.207
CD-109	+	88.03	*	2.021E+00	1.276E+00	1.428E+00	1.716E-01	1.415
SN-126	+	64.28		1.220E+00	7.944E-01	1.049E+00	1.808E-01	1.163
	+	86.94		8.137E-01	6.102E-01	6.006E-01	2.533E-01	1.355
	+	87.57	*	1.957E-01	1.236E-01	1.475E-01	1.769E-02	1.327
BA-137M	+	661.66	*	7.175E-02	4.995E-02	5.497E-02	2.681E-03	1.305
CS-137	+	661.66	*	7.580E-02	5.277E-02	5.807E-02	2.849E-03	1.305
CE-141	+	145.44	*	9.284E-02	9.906E-02	1.063E-01	7.134E-03	0.874
HG-203		70.83		6.419E-01	1.640E+00	2.528E+00	4.495E-01	0.254
		72.87		4.372E-01	9.299E-01	1.435E+00	2.479E-01	0.305
	+	279.20	*	6.007E-02	5.335E-02	6.166E-02	4.274E-03	0.974
TL-208	+	277.37		5.412E-01	4.830E-01	5.349E-01	6.025E-02	1.012
	+	583.19	*	4.401E-01	7.597E-02	5.225E-02	3.279E-03	8.422
	+	860.56		6.095E-01	4.445E-01	4.108E-01	3.426E-02	1.484
BI-211		72.87		1.604E+00	3.405E+00	5.265E+00	6.036E-01	0.305
	+	351.06	*	3.620E+00	4.875E-01	2.943E-01	1.989E-02	12.301
PB-212	+	74.82		2.451E+00	6.426E-01	5.893E-01	8.855E-02	4.159
	+	77.11		1.913E+00	3.670E-01	3.291E-01	3.775E-02	5.814
	+	238.63	*	1.465E+00	1.568E-01	8.498E-02	6.874E-03	17.242
	+	300.09		1.146E+00	8.140E-01	1.111E+00	9.923E-02	1.032
BI-214	+	609.32	*	1.108E+00	1.717E-01	1.035E-01	7.671E-03	10.705
	+	1120.29		1.255E+00	5.118E-01	4.465E-01	4.185E-02	2.810
	+	1764.49		1.427E+00	4.158E-01	2.670E-01	1.627E-02	5.344
PB-214	+	74.82		4.345E+00	1.112E+00	1.045E+00	1.455E-01	4.159
	+	77.11		3.373E+00	7.043E-01	5.802E-01	8.197E-02	5.814
	+	242.00		2.264E+00	7.104E-01	5.170E-01	4.567E-02	4.380
	+	295.22		1.323E+00	2.428E-01	2.016E-01	1.868E-02	6.562
	+	351.93	*	1.314E+00	1.912E-01	1.070E-01	9.330E-03	12.274
RA-224	+	240.99	*	4.004E+00	1.235E+00	9.111E-01	6.074E-02	4.395
RA-226	+	609.32	*	1.108E+00	1.717E-01	1.035E-01	7.671E-03	10.705
	+	1120.29		1.255E+00	5.118E-01	4.465E-01	4.185E-02	2.810
	+	1764.49		1.427E+00	4.158E-01	2.670E-01	1.627E-02	5.344
AC-228	+	338.32		1.761E+00	8.103E-01	3.376E-01	1.394E-01	5.218
	+	911.20	*	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181

Sample ID : G248028002

Acquisition date : 12-MAR-2010 16:49:27

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	+	968.97		2.357E+00	8.138E-01	3.252E-01	7.837E-02	7.246
	+	338.32		1.761E+00	8.103E-01	3.376E-01	1.394E-01	5.218
	+	911.20	*	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181
TH-228	+	968.97		2.357E+00	8.138E-01	3.252E-01	7.837E-02	7.246
	+	74.82		2.451E+00	5.974E-01	5.893E-01	6.784E-02	4.159
	+	77.11		1.913E+00	3.670E-01	3.291E-01	3.775E-02	5.814
	+	238.63	*	1.465E+00	1.568E-01	8.498E-02	6.874E-03	17.242
TH-232	+	300.09		1.146E+00	1.068E+00	1.111E+00	6.770E-01	1.032
	+	338.32		1.761E+00	3.740E-01	3.376E-01	2.122E-02	5.218
	+	911.20	*	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181
	+	968.97		2.357E+00	8.138E-01	3.252E-01	7.837E-02	7.246
TH-234	+	63.29	*	3.166E+00	2.087E+00	2.694E+00	5.423E-01	1.175
	+	92.59		4.302E+00	1.326E+00	1.163E+00	2.677E-01	3.700
U-235		89.96		8.154E-01	1.159E+00	1.424E+00	3.668E-01	0.572
	+	93.35		3.249E+00	1.026E+00	6.584E-01	1.575E-01	4.935
	+	143.76	*	2.601E-01	2.800E-01	2.964E-01	4.739E-02	0.878
		163.33		-8.752E-02	3.929E-01	6.288E-01	1.068E-01	-0.139
	+	185.72		2.575E-01	7.368E-02	6.179E-02	3.984E-03	4.168
NP-237		205.31		-1.637E-01	5.116E-01	7.103E-01	1.226E-01	-0.230
	+	86.48	*	5.841E-01	3.886E-01	4.346E-01	1.048E-01	1.344
		95.86		-7.407E-01	9.632E-01	1.346E+00	3.307E-01	-0.550
	+	63.29	*	3.166E+00	2.087E+00	2.694E+00	5.423E-01	1.175
U-238	+	92.59		4.302E+00	9.973E-01	1.163E+00	1.257E-01	3.700
	+	511.00	*	1.059E-01	7.042E-02	4.410E-02	2.466E-03	2.402

---- 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	*	1.260E-01	3.004E-01	5.067E-01	3.355E-02	0.249
NA-22		1274.54	*	-1.557E-02	3.924E-02	6.264E-02	4.096E-03	-0.248
NA-24		1368.63	*	1.232E+02	3.924E-02	Half-Life too short		
SC-46		889.28	*	-2.558E-02	4.035E-02	6.211E-02	5.024E-03	-0.412
	+	1120.55		2.232E-01	8.980E-02	1.339E-01	8.771E-03	1.667
V-48		944.13		3.521E-01	1.038E+00	1.763E+00	1.409E-01	0.200
		983.53	*	3.201E-02	8.811E-02	1.493E-01	1.157E-02	0.214
		1312.11		2.876E-02	9.842E-02	1.698E-01	1.144E-02	0.169
CR-51		320.08	*	1.290E-01	3.876E-01	6.613E-01	4.651E-02	0.195
MN-54		834.85	*	9.759E-03	3.805E-02	6.430E-02	4.653E-03	0.152
CO-56		846.77	*	-1.109E-02	4.064E-02	6.545E-02	4.856E-03	-0.170
		1037.84		-2.242E-01	3.201E-01	4.726E-01	3.715E-02	-0.474
		1238.28		1.488E-01	9.776E-02	1.815E-01	1.208E-02	0.820
		1771.35		-4.435E-02	2.209E-01	2.837E-01	1.722E-02	-0.156
CO-57		122.06	*	-8.516E-03	2.202E-02	3.550E-02	2.464E-03	-0.240
		136.47		5.113E-02	1.872E-01	3.099E-01	2.301E-02	0.165
CO-58		810.76	*	4.066E-03	3.561E-02	5.974E-02	4.124E-03	0.068
FE-59		1099.45	*	-4.183E-02	1.007E-01	1.555E-01	1.188E-02	-0.269
		1291.59		-8.136E-02	1.325E-01	2.060E-01	1.665E-02	-0.395
CO-60		1173.23		-1.338E-03	4.181E-02	6.705E-02	3.988E-03	-0.020

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		6.563E-03	3.463E-02	5.916E-02	4.054E-03	0.111
ZN-65	1115.54	*		-2.509E-02	9.573E-02	1.277E-01	8.448E-03	-0.196
SE-75	121.12			-2.573E-02	1.167E-01	1.897E-01	1.876E-02	-0.136
	136.00			-3.137E-02	3.724E-02	5.836E-02	3.913E-03	-0.537
	264.66	*		-8.388E-04	4.117E-02	6.737E-02	4.533E-03	-0.012
	279.54			4.071E-02	1.093E-01	1.674E-01	1.183E-02	0.243
	400.66			-7.678E-02	2.389E-01	3.851E-01	3.455E-02	-0.199
SR-85	514.00	*		9.387E-02	4.305E-02	7.342E-02	4.101E-03	1.279
Y-88	898.04			-2.410E-02	4.258E-02	6.607E-02	5.466E-03	-0.365
	1836.06	*		-2.442E-02	3.186E-02	4.154E-02	2.424E-03	-0.588
Y-91	1204.77	*		4.491E+00	2.605E+01	4.248E+01	2.603E+00	0.106
NB-94	702.65	*		-1.666E-03	3.162E-02	5.278E-02	2.844E-03	-0.032
	871.09			-1.607E-03	3.240E-02	5.317E-02	4.146E-03	-0.030
NB-95	765.81	*		-9.492E-03	4.649E-02	7.625E-02	4.752E-03	-0.124
NB-95M	235.69	*		3.526E-02	1.393E-01	1.996E-01	1.643E-02	0.177
ZR-95	724.19			-2.376E-01	9.977E-02	1.321E-01	8.878E-03	-1.799
	756.73	*		5.653E-02	7.256E-02	1.286E-01	9.423E-03	0.439
MO-99	140.51			-4.455E+01	1.069E+02	1.500E+02	3.462E+01	-0.297
	181.07			1.785E+01	8.491E+01	1.234E+02	2.207E+01	0.145
	366.42			-1.955E+02	3.907E+02	6.250E+02	3.737E+01	-0.313
	739.50	*		-3.611E+01	5.188E+01	8.064E+01	1.164E+01	-0.448
	777.92			-1.466E+02	1.537E+02	2.321E+02	1.486E+01	-0.632
TC-99M	140.51	*		-3.309E+17	1.537E+02	Half-Life too short		
RU-103	497.08	*		4.972E-03	3.886E-02	6.387E-02	7.884E-03	0.078
	610.33			1.273E+01	2.562E+00	3.116E+00	4.621E-01	4.086
RH-106	621.93	*		9.416E-03	2.775E-01	4.452E-01	5.033E-02	0.021
	1050.41			1.114E+00	2.657E+00	4.497E+00	3.251E-01	0.248
RU-106	621.93	*		9.416E-03	2.775E-01	4.452E-01	2.287E-02	0.021
	1050.41			1.114E+00	2.657E+00	4.497E+00	3.251E-01	0.248
AG-108M	433.94	*		-5.973E-03	2.815E-02	4.549E-02	2.768E-03	-0.131
	614.28			2.796E-02	3.248E-02	5.062E-02	2.855E-03	0.552
	722.91			-7.085E-02	3.805E-02	5.368E-02	3.256E-03	-1.320
AG-110M	657.76	*		-1.470E-02	3.512E-02	4.881E-02	2.608E-03	-0.301
	677.62			1.471E-01	2.992E-01	5.220E-01	2.862E-02	0.282
	706.68			4.701E-02	1.965E-01	3.356E-01	1.955E-02	0.140
	763.94			-6.639E-02	1.598E-01	2.571E-01	1.679E-02	-0.258
	884.68			9.295E-03	4.831E-02	8.107E-02	6.737E-03	0.115
	937.49			-3.108E-02	1.091E-01	1.737E-01	1.453E-02	-0.179
	1384.29			6.714E-02	1.579E-01	2.763E-01	1.972E-02	0.243
	1505.03			-1.320E-01	2.453E-01	3.663E-01	2.472E-02	-0.360
SN-113	391.69	*		-1.511E-02	4.466E-02	7.216E-02	4.348E-03	-0.209
CD-115	260.90			-8.875E-05	4.466E-02	Half-Life too short		
	492.35			-7.299E-05	4.466E-02	Half-Life too short		
	527.90	*		-2.729E-05	4.466E-02	Half-Life too short		
SN-117M	156.02			-1.015E+00	2.993E+00	4.784E+00	3.068E-01	-0.212
	158.56	*		2.111E-03	7.000E-02	1.137E-01	7.272E-03	0.019
TE-123M	159.00	*		1.629E-03	2.738E-02	4.452E-02	2.878E-03	0.037
SB-124	602.73			1.556E-02	3.859E-02	6.201E-02	3.254E-03	0.251
	645.85			-3.447E-01	4.611E-01	7.265E-01	4.215E-02	-0.475

---- 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		-4.046E-01	3.795E-01	5.767E-01	3.430E-02	-0.702
		1690.97	*	-7.727E-03	7.557E-02	1.208E-01	8.241E-03	-0.064
		427.87	*	-4.082E-02	8.701E-02	1.381E-01	8.164E-03	-0.296
	+	463.37		6.518E-01	3.143E-01	4.870E-01	3.220E-02	1.338
		600.60		-1.276E-02	1.617E-01	2.574E-01	1.608E-02	-0.050
TE-125M		635.95		-1.811E-01	2.662E-01	3.968E-01	2.448E-02	-0.457
		109.28	*	-3.464E+00	9.680E+00	1.573E+01	1.589E+00	-0.220
	I-126	388.63		4.019E-02	2.232E-01	3.676E-01	2.085E-02	0.109
SB-126		666.33	*	-9.142E-02	3.316E-01	4.709E-01	2.323E-02	-0.194
		753.82		1.778E+00	2.361E+00	4.180E+00	2.536E-01	0.425
		414.70		5.172E-02	9.818E-02	1.674E-01	9.474E-03	0.309
		666.50		3.551E-02	1.085E-01	1.650E-01	8.145E-03	0.215
		695.00		-6.492E-02	1.021E-01	1.623E-01	8.587E-03	-0.400
SB-127		697.00		-1.520E-01	3.440E-01	5.557E-01	2.954E-02	-0.274
		720.70	*	1.027E-02	1.778E-01	2.990E-01	1.681E-02	0.034
		856.80		-8.242E-02	6.973E-01	9.816E-01	7.434E-02	-0.084
		252.40		-3.599E+00	1.057E+01	1.741E+01	7.269E+00	-0.207
		473.00		-3.832E+00	4.311E+00	6.449E+00	8.386E-01	-0.594
I-131		685.70	*	-3.638E+00	3.518E+00	5.318E+00	6.067E-01	-0.684
		783.70		6.735E-02	1.009E+01	1.678E+01	2.181E+00	0.004
		80.19		-2.533E+00	8.389E+00	1.240E+01	1.444E+00	-0.204
		284.31		3.750E-01	2.116E+00	3.603E+00	2.616E-01	0.104
		364.49	*	9.108E-02	1.665E-01	2.867E-01	1.927E-02	0.318
TE-132		636.99		4.097E-02	2.506E+00	4.005E+00	2.374E-01	0.010
		49.72		-4.404E+01	1.360E+02	2.282E+02	3.563E+01	-0.193
		111.76		5.971E+01	1.176E+02	1.978E+02	2.453E+01	0.302
		116.30		1.018E+02	9.837E+01	1.682E+02	2.039E+01	0.606
		228.16	*	-2.649E+00	2.596E+00	3.820E+00	6.220E-01	-0.693
BA-133		81.00		-1.121E-01	1.083E-01	1.516E-01	2.629E-02	-0.740
		276.40		3.449E-01	4.238E-01	5.750E-01	7.478E-02	0.600
		302.85		-1.248E-02	1.345E-01	1.975E-01	2.331E-02	-0.063
		356.01	*	1.869E-02	4.090E-02	6.225E-02	7.117E-03	0.300
		383.85		-1.905E-01	2.606E-01	4.075E-01	4.332E-02	-0.468
I-133		529.87	*	4.750E-01	2.606E-01	Half-Life	too short	
		875.33		1.243E+01	2.606E-01	Half-Life	too short	
		1298.22		7.877E+00	2.606E-01	Half-Life	too short	
CS-134		563.25		2.905E-01	3.425E-01	5.900E-01	3.280E-02	0.492
		569.33		2.308E-02	1.902E-01	3.093E-01	1.729E-02	0.075
		604.72		-2.163E-03	3.551E-02	4.925E-02	2.595E-03	-0.044
		795.86	*	6.835E-02	5.045E-02	9.162E-02	6.175E-03	0.746
		801.95		-2.688E-01	3.763E-01	5.822E-01	3.965E-02	-0.462
CS-135		1365.19		-2.263E-01	1.277E+00	2.077E+00	1.526E-01	-0.109
		268.22	*	7.995E-02	1.547E-01	2.394E-01	1.996E-02	0.334
	I-135	546.56		-8.486E+15	1.547E-01	Half-Life	too short	
		836.80		-1.231E+16	1.547E-01	Half-Life	too short	
		1038.76		-7.494E+16	1.547E-01	Half-Life	too short	
I-135		1131.51		1.570E+15	1.547E-01	Half-Life	too short	
		1260.41	*	6.638E+14	1.547E-01	Half-Life	too short	
		1457.56		4.555E+17	1.547E-01	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	1678.03			-4.106E+16	1.547E-01	Half-Life	too short	
	1791.20			-1.031E+16	1.547E-01	Half-Life	too short	
	153.25			1.375E+00	1.128E+00	1.920E+00	1.636E-01	0.716
	176.60			2.455E-01	6.268E-01	1.030E+00	7.792E-02	0.238
	273.65			-5.153E-01	9.531E-01	9.575E-01	7.268E-02	-0.538
	340.55			4.576E-01	2.175E-01	3.639E-01	2.444E-02	1.258
	818.51			-1.500E-02	9.763E-02	1.594E-01	1.118E-02	-0.094
	1048.07	*		-2.014E-02	1.547E-01	2.480E-01	1.906E-02	-0.081
CE-139	1235.36			-7.604E-01	8.093E-01	1.246E+00	1.271E-01	-0.610
	165.86	*		5.022E-03	2.789E-02	4.551E-02	2.892E-03	0.110
BA-140	162.66			-1.173E-01	1.013E+00	1.631E+00	1.164E-01	-0.072
	304.85			-6.211E-01	1.760E+00	2.659E+00	7.640E-01	-0.234
LA-140	423.72			1.012E+00	2.549E+00	4.272E+00	1.378E+00	0.237
	537.26	*		2.190E-01	3.512E-01	5.853E-01	1.947E-01	0.374
	328.76			8.267E-01	5.255E-01	7.107E-01	4.992E-02	1.163
	487.02			9.693E-02	1.804E-01	3.058E-01	1.964E-02	0.317
	815.77			-1.659E-01	4.143E-01	6.591E-01	5.385E-02	-0.252
CE-143	1596.21	*		1.545E-03	1.330E-01	1.880E-01	1.238E-02	0.008
	57.36			-2.481E-02	1.330E-01	Half-Life	too short	
	293.27	*		6.746E-03	1.330E-01	Half-Life	too short	
	664.57			2.366E-02	1.330E-01	Half-Life	too short	
CE-144	721.93			-1.298E-02	1.330E-01	Half-Life	too short	
	80.12			-8.518E-01	2.724E+00	4.025E+00	4.651E-01	-0.212
PM-144	133.52	*		-5.993E-03	1.992E-01	2.907E-01	4.150E-02	-0.021
	476.78			1.686E-02	5.588E-02	9.341E-02	6.293E-03	0.180
PR-144	618.01			-3.235E-02	2.878E-02	4.053E-02	2.253E-03	-0.798
	696.49	*		-6.101E-03	3.127E-02	5.160E-02	2.744E-03	-0.118
	696.51	*		-5.622E-01	2.355E+00	3.872E+00	2.056E-01	-0.145
PM-146	1489.16			-8.464E+00	1.026E+01	1.401E+01	9.481E-01	-0.604
	453.88	*		-4.507E-03	3.804E-02	6.167E-02	5.160E-03	-0.073
	633.25			-6.938E-01	1.380E+00	2.056E+00	7.722E-01	-0.337
ND-147	735.93			1.208E-01	1.371E-01	2.393E-01	6.533E-02	0.505
	747.24			-4.508E-02	8.421E-02	1.329E-01	1.754E-02	-0.339
	91.11			5.518E-01	5.593E-01	7.223E-01	8.473E-02	0.764
	319.41			3.100E+00	4.330E+00	7.549E+00	4.869E-01	0.411
	531.02	*		3.948E-01	7.393E-01	1.249E+00	1.675E-01	0.316
PM-149	285.90	*		-3.836E-04	7.393E-01	Half-Life	too short	
EU-152	121.78			-3.433E-02	6.202E-02	9.903E-02	8.413E-03	-0.347
	244.70			-1.246E-01	3.227E-01	4.379E-01	2.922E-02	-0.285
	344.28	*		-2.184E-02	8.598E-02	1.409E-01	9.746E-03	-0.155
	778.90			-1.114E-01	2.272E-01	3.596E-01	2.307E-02	-0.310
	964.08			3.685E-01	3.377E-01	5.363E-01	4.223E-02	0.687
GD-153	1085.87			-2.173E-01	3.975E-01	6.056E-01	4.181E-02	-0.359
	1112.07			1.029E-01	2.682E-01	4.530E-01	3.008E-02	0.227
	1408.01			-7.270E-02	1.840E-01	2.897E-01	1.981E-02	-0.251
	69.67			6.490E-01	1.982E+00	3.234E+00	3.735E-01	0.201
	97.43	*		-2.640E-02	8.337E-02	1.300E-01	1.276E-02	-0.203
	103.18			-7.372E-02	1.067E-01	1.712E-01	1.523E-02	-0.431
EU-154	123.07			2.470E-02	4.336E-02	7.311E-02	7.390E-03	0.338

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		723.31		-3.001E-01	1.706E-01	2.424E-01	1.676E-02	-1.238
		873.19		2.029E-01	2.635E-01	4.654E-01	5.276E-02	0.436
		996.26		-2.320E-01	3.524E-01	4.337E-01	7.380E-02	-0.535
		1004.73		6.460E-02	2.364E-01	3.465E-01	3.777E-02	0.186
		1274.44	*	-4.534E-02	1.122E-01	1.789E-01	1.769E-02	-0.253
EU-155	+	86.55		2.379E-01	1.503E-01	1.900E-01	2.276E-02	1.252
		105.31	*	1.310E-01	1.000E-01	1.734E-01	1.511E-02	0.755
TB-160	+	86.79		6.675E-01	4.215E-01	5.376E-01	6.415E-02	1.242
		197.04		4.027E-01	5.764E-01	9.282E-01	6.040E-02	0.434
		215.65		4.257E-01	7.333E-01	1.205E+00	7.943E-02	0.353
		298.57		5.501E-02	1.616E-01	1.822E-01	1.198E-02	0.302
		879.36	*	-4.950E-02	1.306E-01	2.062E-01	1.635E-02	-0.240
		962.29		-7.156E-02	6.105E-01	8.503E-01	6.705E-02	-0.084
		966.15		5.509E-01	2.506E-01	4.360E-01	3.427E-02	1.264
		1177.93		-1.046E-02	3.796E-01	6.091E-01	3.639E-02	-0.017
		1271.85		1.305E-01	7.041E-01	1.202E+00	7.823E-02	0.109
HO-166M		80.57		-5.381E-02	2.912E-01	4.334E-01	5.015E-02	-0.124
		184.41		1.042E-01	3.963E-02	6.389E-02	4.115E-03	1.632
		280.46		-1.753E-02	8.162E-02	1.194E-01	7.933E-03	-0.147
		410.95		8.561E-02	2.313E-01	3.902E-01	2.207E-02	0.219
		711.68	*	-3.180E-02	5.431E-02	8.622E-02	4.745E-03	-0.369
		752.31		6.000E-02	2.540E-01	4.323E-01	2.613E-02	0.139
		810.29		1.446E-02	5.092E-02	8.683E-02	5.965E-03	0.167
TA-182		67.75		6.815E-03	1.318E-01	2.226E-01	2.590E-02	0.031
		100.11		1.553E-01	1.720E-01	2.951E-01	2.762E-02	0.526
		152.43		2.614E-01	3.404E-01	5.714E-01	3.681E-02	0.458
		222.11		-4.365E-02	3.463E-01	5.472E-01	3.621E-02	-0.080
	+	1121.30		6.101E-01	2.454E-01	3.697E-01	2.418E-02	1.650
		1189.05		1.851E-01	3.350E-01	5.673E-01	3.425E-02	0.326
		1221.41	*	9.375E-02	1.980E-01	3.458E-01	2.152E-02	0.271
		1231.02		-9.829E-02	4.857E-01	8.008E-01	5.028E-02	-0.123
IR-192	+	295.96		1.035E+00	1.780E-01	2.910E-01	1.941E-02	3.558
		308.46		3.733E-02	8.858E-02	1.522E-01	1.001E-02	0.245
		316.51	*	-4.140E-03	3.297E-02	5.480E-02	3.558E-03	-0.076
		468.07		5.559E-02	6.951E-02	1.081E-01	7.108E-03	0.514
BI-207		72.81		7.654E-02	1.957E-01	3.015E-01	3.457E-02	0.254
	+	74.97		7.067E-01	1.720E-01	2.434E-01	2.788E-02	2.903
		569.70		1.880E-03	2.945E-02	4.767E-02	2.574E-03	0.039
		1063.66	*	7.200E-03	5.039E-02	8.306E-02	5.907E-03	0.087
		1770.23		1.660E-01	4.604E-01	7.141E-01	4.338E-02	0.233
PB-210		46.54	*	2.561E+00	8.036E+00	1.391E+01	1.214E+00	0.184
PB-211		404.85	*	-7.660E-03	6.456E-01	1.064E+00	5.101E-01	-0.007
		427.09		-8.985E-01	1.526E+00	2.309E+00	1.058E+00	-0.389
		832.01		7.529E-02	1.004E+00	1.671E+00	8.628E-01	0.045
BI-212		727.33	*	1.525E+00	5.621E-01	1.051E+00	1.120E-01	1.451
		785.37		4.197E+00	2.967E+00	5.485E+00	3.570E-01	0.765
		1620.50		2.048E+00	2.454E+00	4.516E+00	2.949E-01	0.453
RN-219	+	271.23		5.317E-01	3.277E-01	4.077E-01	3.538E-02	1.304
		401.81	*	-2.392E-01	3.680E-01	5.767E-01	7.711E-02	-0.415

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07	-2.577E-01	2.426E-01	3.422E-01	3.967E-02	-0.753
		83.79	-3.008E-03	1.408E-01	2.110E-01	2.475E-02	-0.014
		94.87	5.692E-01	4.574E-01	7.216E-01	7.441E-02	0.789
	+	144.24	8.717E-01	9.307E-01	1.097E+00	8.556E-02	0.795
		154.21	1.388E-01	3.762E-01	6.207E-01	4.653E-02	0.224
AC-227	+	269.46	4.131E-01	2.537E-01	3.215E-01	2.214E-02	1.285
		323.87	* -4.187E-01	6.504E-01	8.993E-01	1.470E-01	-0.466
	+	338.28	6.989E+00	1.597E+00	2.327E+00	2.451E-01	3.004
		79.69	-6.398E-01	1.343E+00	1.961E+00	3.700E-01	-0.326
		235.96	6.171E-02	1.579E-01	2.284E-01	2.004E-02	0.270
TH-227		256.23	* 1.302E-01	2.271E-01	3.951E-01	4.247E-02	0.330
	+	299.98	1.261E+00	8.999E-01	1.416E+00	1.616E-01	0.890
		304.50	-4.852E-01	1.574E+00	2.265E+00	3.521E-01	-0.214
		334.37	-4.185E-01	1.696E+00	2.437E+00	3.520E-01	-0.172
		79.80	-7.258E-01	1.773E+00	2.597E+00	5.998E-01	-0.279
TH-229		235.96	6.171E-02	1.579E-01	2.284E-01	1.845E-02	0.270
		256.23	* 1.302E-01	2.272E-01	3.951E-01	4.926E-02	0.330
	+	299.98	1.261E+00	8.999E-01	1.416E+00	1.616E-01	0.890
		304.50	-4.852E-01	1.574E+00	2.265E+00	3.521E-01	-0.214
		334.37	-4.185E-01	1.696E+00	2.437E+00	3.520E-01	-0.172
PA-231		85.43	2.429E-01	2.299E-01	3.591E-01	4.250E-02	0.676
	+	88.47	3.018E-01	1.905E-01	2.297E-01	2.730E-02	1.314
		193.51	* -2.151E-02	4.932E-01	7.893E-01	5.122E-02	-0.027
		210.85	7.169E-01	9.320E-01	1.389E+00	9.133E-02	0.516
		283.69	* 4.111E-01	1.212E+00	2.081E+00	2.810E-01	0.198
TH-231	+	301.36	8.101E-01	5.773E-01	9.038E-01	9.751E-02	0.896
		81.07	-2.577E-01	2.426E-01	3.422E-01	3.967E-02	-0.753
		83.79	-3.008E-03	1.408E-01	2.110E-01	2.475E-02	-0.014
		94.87	5.692E-01	4.574E-01	7.216E-01	7.441E-02	0.789
	+	144.24	8.717E-01	9.307E-01	1.097E+00	8.556E-02	0.795
PA-233		154.21	1.388E-01	3.762E-01	6.207E-01	4.653E-02	0.224
	+	269.46	4.131E-01	2.537E-01	3.215E-01	2.214E-02	1.285
		323.87	* -4.187E-01	6.504E-01	8.993E-01	1.470E-01	-0.466
	+	338.28	6.989E+00	1.597E+00	2.327E+00	2.451E-01	3.004
	+	300.13	5.706E-01	4.095E-01	6.415E-01	8.813E-02	0.889
PA-234		311.90	* -3.184E-04	5.555E-02	9.309E-02	6.350E-03	-0.003
		340.48	1.640E+00	7.787E-01	1.163E+00	2.712E-01	1.411
		94.67	2.924E-01	1.723E-01	2.726E-01	3.724E-02	1.073
		98.44	6.698E-02	9.282E-02	1.457E-01	8.150E-02	0.460
		111.00	1.577E-01	1.707E-01	2.913E-01	3.384E-02	0.542
PA-234M		131.20	-5.745E-02	1.039E-01	1.467E-01	9.837E-03	-0.392
		569.50	9.566E-02	2.567E-01	4.263E-01	2.303E-02	0.224
		733.00	-5.796E-01	4.010E-01	5.577E-01	1.186E-01	-1.039
		880.51	1.656E-03	2.473E-01	4.078E-01	3.241E-02	0.004
		883.24	1.772E-01	2.862E-01	4.584E-01	3.078E-01	0.387
PA-234M		926.50	6.397E-02	1.536E-01	2.623E-01	6.584E-02	0.244
		946.00	* -6.515E-02	2.803E-01	4.475E-01	8.269E-02	-0.146
		949.00	2.096E-01	4.088E-01	7.050E-01	5.616E-02	0.297
		766.42	7.572E+00	1.208E+01	2.001E+01	1.008E+01	0.379

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	1001.03	*	6.558E+00	6.574E+00	7.786E+00	7.098E-01	0.842
		99.53		1.456E-01	1.548E-01	2.658E-01	2.513E-02	0.548
		103.37		-5.591E-02	9.482E-02	1.528E-01	1.356E-02	-0.366
		106.12		8.415E-02	7.805E-02	1.345E-01	1.144E-02	0.626
		117.23	*	-2.141E-01	3.693E-01	5.916E-01	4.341E-02	-0.362
		228.18		-2.111E-01	2.035E-01	3.028E-01	2.010E-02	-0.697
AM-241	+	277.60		2.474E-01	2.196E-01	2.874E-01	1.912E-02	0.861
		59.54	*	3.425E-01	2.194E-01	3.584E-01	4.525E-02	0.956
CM-247	+	278.00		1.051E+00	9.328E-01	1.220E+00	8.114E-02	0.861
		287.50		-2.665E-02	1.017E+00	1.711E+00	1.133E-01	-0.016
CF-249		402.40	*	-6.059E-03	3.346E-02	5.450E-02	3.075E-03	-0.111
		252.80		9.963E-02	7.854E-01	1.342E+00	8.960E-02	0.074
		333.37		1.563E-01	1.967E-01	2.680E-01	1.697E-02	0.583
CF-251		388.16	*	1.360E-02	3.831E-02	6.380E-02	3.623E-03	0.213
		177.52	*	-1.048E-02	1.210E-01	1.942E-01	1.244E-02	-0.054
		227.38		-1.540E-01	3.322E-01	5.134E-01	3.406E-02	-0.300
		285.41		-1.748E+00	1.838E+00	2.917E+00	1.933E-01	-0.599

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]G248028002
* Acquisition date   : 12-MAR-2010 16:49:27 Detector SN#      :
* Detector ID        : GAM04                      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 02:00:01.23             Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G248028002              Analyst initials: MXR1
* Batch Number       : 958220                  Sample Quantity : 1.3393E+02 GRAM
* Recovery           : 1.00000                 Carrier Weight  : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 5-MAY-2009 14:25:41 MS Isotope       :
* MSD DPM            : 0.000                    MSD Isotope   :
* LCS DPM            : 0.000                    LCS Isotope   :
* LCSD DPM           : 0.000                    LCSD Isotope  :
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.556E+01	2.448E+00	4.905E-01	0.000E+00
CD-109	2.021E+00	1.251E+00	1.503E+00	0.000E+00
SN-126	1.957E-01	1.211E-01	1.553E-01	0.000E+00
BA-137M	7.175E-02	4.895E-02	5.587E-02	0.000E+00
CS-137	7.580E-02	5.172E-02	5.903E-02	0.000E+00
CE-141	9.284E-02	9.708E-02	1.109E-01	0.000E+00
HG-203	6.007E-02	5.228E-02	6.365E-02	0.000E+00
TL-208	4.401E-01	7.445E-02	5.324E-02	0.000E+00
BI-211	3.620E+00	4.778E-01	3.025E-01	0.000E+00
PB-212	1.465E+00	1.537E-01	8.795E-02	0.000E+00
BI-214	1.108E+00	1.682E-01	1.053E-01	0.000E+00
PB-214	1.314E+00	1.874E-01	1.100E-01	0.000E+00
RA-224	4.004E+00	1.210E+00	9.428E-01	0.000E+00
RA-226	1.108E+00	1.682E-01	1.053E-01	0.000E+00
AC-228	1.490E+00	3.707E-01	2.097E-01	0.000E+00
RA-228	1.490E+00	3.707E-01	2.097E-01	0.000E+00
TH-228	1.465E+00	1.537E-01	8.795E-02	0.000E+00
TH-232	1.490E+00	3.707E-01	2.097E-01	0.000E+00
TH-234	3.166E+00	2.045E+00	2.852E+00	0.000E+00
U-235	2.601E-01	2.744E-01	3.094E-01	0.000E+00
NP-237	5.841E-01	3.808E-01	4.577E-01	0.000E+00
U-238	3.166E+00	2.045E+00	2.852E+00	0.000E+00
ANH-511	1.059E-01	6.901E-02	4.503E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	1.260E-01	2.944E-01	5.180E-01	0.000E+00 NOT IDENT.
NA-22	-1.557E-02	3.845E-02	6.292E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	6.435E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	-2.558E-02	3.954E-02	6.280E-02	0.000E+00 FAIL ABUN

V-48	3.201E-02	8.635E-02	1.507E-01	0.000E+00	NOT IDENT.
CR-51	1.290E-01	3.799E-01	6.809E-01	0.000E+00	NOT IDENT.
MN-54	9.759E-03	3.729E-02	6.509E-02	0.000E+00	NOT IDENT.
CO-56	-1.109E-02	3.983E-02	6.623E-02	0.000E+00	NOT IDENT.
CO-57	-8.516E-03	2.158E-02	3.716E-02	0.000E+00	NOT IDENT.
CO-58	4.066E-03	3.490E-02	6.050E-02	0.000E+00	NOT IDENT.
FE-59	-4.183E-02	9.865E-02	1.567E-01	0.000E+00	NOT IDENT.
CO-60	6.563E-03	3.393E-02	5.938E-02	0.000E+00	NOT IDENT.
ZN-65	-2.509E-02	9.382E-02	1.286E-01	0.000E+00	NOT IDENT.
SE-75	-8.388E-04	4.035E-02	6.960E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.219E-02	7.497E-02	0.000E+00	NOT IDENT.
Y-88	-2.442E-02	3.122E-02	4.144E-02	0.000E+00	NOT IDENT.
Y-91	4.491E+00	2.552E+01	4.272E+01	0.000E+00	NOT IDENT.
NB-94	-1.666E-03	3.099E-02	5.360E-02	0.000E+00	NOT IDENT.
NB-95	-9.492E-03	4.556E-02	7.730E-02	0.000E+00	NOT IDENT.
NB-95M	3.526E-02	1.365E-01	2.066E-01	0.000E+00	NOT IDENT.
ZR-95	5.653E-02	7.111E-02	1.304E-01	0.000E+00	NOT IDENT.
MO-99	-3.611E+01	5.085E+01	8.181E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.848E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	4.972E-03	3.809E-02	6.526E-02	0.000E+00	FAIL ABUN
RH-106	9.416E-03	2.719E-01	4.531E-01	0.000E+00	NOT IDENT.
RU-106	9.416E-03	2.719E-01	4.531E-01	0.000E+00	NOT IDENT.
AG-108M	-5.973E-03	2.758E-02	4.659E-02	0.000E+00	NOT IDENT.
AG-110M	-1.470E-02	3.441E-02	4.962E-02	0.000E+00	NOT IDENT.
SN-113	-1.511E-02	4.377E-02	7.404E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	6.690E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	2.111E-03	6.860E-02	1.185E-01	0.000E+00	NOT IDENT.
TE-123M	1.629E-03	2.683E-02	4.640E-02	0.000E+00	NOT IDENT.
SB-124	-7.727E-03	7.406E-02	1.207E-01	0.000E+00	NOT IDENT.
SB-125	-4.082E-02	8.527E-02	1.415E-01	0.000E+00	FAIL ABUN
TE-125M	-3.464E+00	9.486E+00	1.650E+01	0.000E+00	NOT IDENT.
I-126	-9.142E-02	3.250E-01	4.786E-01	0.000E+00	NOT IDENT.
SB-126	1.027E-02	1.743E-01	3.035E-01	0.000E+00	NOT IDENT.
SB-127	-3.638E+00	3.448E+00	5.402E+00	0.000E+00	NOT IDENT.
I-131	9.108E-02	1.632E-01	2.945E-01	0.000E+00	NOT IDENT.
TE-132	-2.649E+00	2.545E+00	3.957E+00	0.000E+00	NOT IDENT.
BA-133	1.869E-02	4.008E-02	6.398E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	6.764E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.835E-02	4.944E-02	9.283E-02	0.000E+00	NOT IDENT.
CS-135	7.995E-02	1.516E-01	2.473E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.771E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.014E-02	1.516E-01	2.500E-01	0.000E+00	NOT IDENT.
CE-139	5.022E-03	2.733E-02	4.740E-02	0.000E+00	NOT IDENT.
BA-140	2.190E-01	3.442E-01	5.972E-01	0.000E+00	NOT IDENT.
LA-140	1.545E-03	1.304E-01	1.880E-01	0.000E+00	FAIL ABUN
CE-143	0.000E+00	3.212E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-5.993E-03	1.952E-01	3.039E-01	0.000E+00	NOT IDENT.
PM-144	-6.101E-03	3.065E-02	5.240E-02	0.000E+00	NOT IDENT.
PR-144	-5.622E-01	2.308E+00	3.932E+00	0.000E+00	NOT IDENT.
PM-146	-4.507E-03	3.728E-02	6.311E-02	0.000E+00	NOT IDENT.
ND-147	3.948E-01	7.245E-01	1.274E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	5.068E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.184E-02	8.426E-02	1.449E-01	0.000E+00	NOT IDENT.
GD-153	-2.640E-02	8.170E-02	1.366E-01	0.000E+00	NOT IDENT.
EU-154	-4.534E-02	1.099E-01	1.797E-01	0.000E+00	NOT IDENT.
EU-155	1.310E-01	9.800E-02	1.820E-01	0.000E+00	FAIL ABUN
TB-160	-4.950E-02	1.280E-01	2.086E-01	0.000E+00	FAIL ABUN
HO-166M	-3.180E-02	5.322E-02	8.753E-02	0.000E+00	NOT IDENT.
TA-182	9.375E-02	1.940E-01	3.476E-01	0.000E+00	FAIL ABUN
IR-192	-4.140E-03	3.231E-02	5.644E-02	0.000E+00	FAIL ABUN
BI-207	7.200E-03	4.939E-02	8.371E-02	0.000E+00	FAIL ABUN
PB-210	2.561E+00	7.875E+00	1.480E+01	0.000E+00	NOT IDENT.
PB-211	-7.660E-03	6.327E-01	1.091E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.509E-01	1.067E+00	0.000E+00	NOT IDENT.
RN-219	-2.392E-01	3.607E-01	5.915E-01	0.000E+00	FAIL ABUN
RA-223	-4.187E-01	6.374E-01	9.258E-01	0.000E+00	FAIL ABUN
AC-227	1.302E-01	2.225E-01	4.084E-01	0.000E+00	FAIL ABUN
TH-227	1.302E-01	2.227E-01	4.084E-01	0.000E+00	FAIL ABUN
TH-229	-2.151E-02	4.833E-01	8.199E-01	0.000E+00	FAIL ABUN
PA-231	4.111E-01	1.188E+00	2.147E+00	0.000E+00	FAIL ABUN
TH-231	-4.187E-01	6.374E-01	9.258E-01	0.000E+00	FAIL ABUN
PA-233	-3.184E-04	5.444E-02	9.590E-02	0.000E+00	FAIL ABUN
PA-234	-6.515E-02	2.747E-01	4.519E-01	0.000E+00	NOT IDENT.
PA-234M	6.558E+00	6.442E+00	7.855E+00	0.000E+00	FAIL ABUN
NP-239	-2.141E-01	3.619E-01	6.198E-01	0.000E+00	FAIL ABUN
AM-241	3.425E-01	2.150E-01	3.798E-01	0.000E+00	NOT IDENT.
CM-247	-6.059E-03	3.280E-02	5.589E-02	0.000E+00	FAIL ABUN
CF-249	1.360E-02	3.754E-02	6.548E-02	0.000E+00	NOT IDENT.

CF-251	-1.048E-02	1.186E-01	2.020E-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]G248028002.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:49:27
Sample ID          : G248028002          Sample quantity   : 1.33930E+02 GRAM
Detector name      : GAM04              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.23  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 958220             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	1044	10.66*	1.074E+00	2.556E+01	2.556E+01	9.77
CD-109	88.03	130	3.70*	5.028E+00	1.957E+00	2.021E+00	63.14
SN-126	64.28	86	9.60	2.055E+00	1.220E+00	1.220E+00	65.11
	86.94	130	8.90	5.028E+00	8.137E-01	8.137E-01	74.99
	87.57	130	37.00*	5.028E+00	1.957E-01	1.957E-01	63.14
BA-137M	661.66	51	89.90*	2.207E+00	7.166E-02	7.175E-02	69.62
CS-137	661.66	51	85.10*	2.207E+00	7.570E-02	7.580E-02	69.62
CE-141	145.44	65	48.29*	6.394E+00	5.903E-02	9.284E-02	106.69
HG-203	70.83	-----	3.69	3.109E+00	-----	Line Not Found	-----
	72.87	-----	6.19	3.384E+00	-----	Line Not Found	-----
	279.20	55	81.56*	4.319E+00	4.379E-02	6.007E-02	88.81
TL-208	277.37	55	6.60	4.319E+00	5.412E-01	5.412E-01	89.26
	583.19	327	85.00*	2.454E+00	4.401E-01	4.401E-01	17.26
	860.56	47	12.50	1.742E+00	6.095E-01	6.095E-01	72.93
BI-211	72.87	-----	1.23	3.384E+00	-----	Line Not Found	-----
	351.06	605	12.92*	3.625E+00	3.620E+00	3.620E+00	13.47
PB-212	74.82	328	10.28	3.645E+00	2.451E+00	2.451E+00	26.21
	77.11	459	17.10	3.929E+00	1.913E+00	1.913E+00	19.18
	238.63	1099	43.60*	4.824E+00	1.465E+00	1.465E+00	10.70
	300.09	55	3.30	4.080E+00	1.146E+00	1.146E+00	71.00
BI-214	609.32	425	45.49*	2.366E+00	1.108E+00	1.108E+00	15.50
	1120.29	91	14.92	1.356E+00	1.255E+00	1.255E+00	40.79
	1764.49	74	15.30	9.526E-01	1.427E+00	1.427E+00	29.15
PB-214	74.82	328	5.80	3.645E+00	4.345E+00	4.345E+00	25.60
	77.11	459	9.70	3.929E+00	3.373E+00	3.373E+00	20.88
	242.00	280	7.25	4.782E+00	2.264E+00	2.264E+00	31.37
	295.22	359	18.42	4.131E+00	1.323E+00	1.323E+00	18.36
	351.93	605	35.60*	3.625E+00	1.314E+00	1.314E+00	14.55
RA-224	240.99	280	4.10*	4.782E+00	4.004E+00	4.004E+00	30.83
RA-226	609.32	425	45.49*	2.366E+00	1.108E+00	1.108E+00	15.50
	1120.29	91	14.92	1.356E+00	1.255E+00	1.255E+00	40.79
	1764.49	74	15.30	9.526E-01	1.427E+00	1.427E+00	29.15

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AC-228	338.32	264	11.27	3.734E+00	1.761E+00	1.761E+00	46.01
	911.20	226	25.80*	1.651E+00	1.490E+00	1.490E+00	25.39
	968.97	207	15.80	1.559E+00	2.357E+00	2.357E+00	34.54
RA-228	338.32	264	11.27	3.734E+00	1.761E+00	1.761E+00	46.01
	911.20	226	25.80*	1.651E+00	1.490E+00	1.490E+00	25.39
	968.97	207	15.80	1.559E+00	2.357E+00	2.357E+00	34.54
TH-228	74.82	328	10.28	3.645E+00	2.451E+00	2.451E+00	24.37
	77.11	459	17.10	3.929E+00	1.913E+00	1.913E+00	19.18
	238.63	1099	43.60*	4.824E+00	1.465E+00	1.465E+00	10.70
TH-232	300.09	55	3.30	4.080E+00	1.146E+00	1.146E+00	93.16
	338.32	264	11.27	3.734E+00	1.761E+00	1.761E+00	21.23
	911.20	226	25.80*	1.651E+00	1.490E+00	1.490E+00	25.39
TH-234	968.97	207	15.80	1.559E+00	2.357E+00	2.357E+00	34.54
	63.29	86	3.70*	2.055E+00	3.166E+00	3.166E+00	65.93
	92.59	355	4.23	5.471E+00	4.302E+00	4.302E+00	30.84
U-235	89.96	-----	3.47	5.251E+00	-----	Line Not Found	-----
	93.35	355	5.60	5.471E+00	3.249E+00	3.249E+00	31.57
	143.76	65	10.96*	6.394E+00	2.601E-01	2.601E-01	107.68
	163.33	-----	5.08	6.104E+00	-----	Line Not Found	-----
	185.72	299	57.20	5.693E+00	2.575E-01	2.575E-01	28.61
	205.31	-----	5.01	5.352E+00	-----	Line Not Found	-----
NP-237	86.48	130	12.40*	5.028E+00	5.841E-01	5.841E-01	66.53
	95.86	-----	2.68	5.677E+00	-----	Line Not Found	-----
	63.29	86	3.70*	2.055E+00	3.166E+00	3.166E+00	65.93
U-238	92.59	355	4.23	5.471E+00	4.302E+00	4.302E+00	23.18
	511.00	103	100.00*	2.729E+00	1.059E-01	1.059E-01	66.49

Flag: "*" = Keyline

Summary of Nuclide Activity
Sample ID : G248028002

Page : 3
Acquisition date : 12-MAR-2010 16:49:27

Total number of lines in spectrum 34
Number of unidentified lines 6
Number of lines tentatively identified by NID 28 82.35%

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	2.556E+01	2.556E+01	0.250E+01	9.77	
CD-109	461.40D	1.03	1.957E+00	2.021E+00	1.276E+00	63.14	
SN-126	2.30E+05Y	1.00	1.957E-01	1.957E-01	1.236E-01	63.14	
BA-137M	30.08Y	1.00	7.166E-02	7.175E-02	4.995E-02	69.62	
CS-137	30.08Y	1.00	7.570E-02	7.580E-02	5.277E-02	69.62	
CE-141	32.51D	1.57	5.903E-02	9.284E-02	9.906E-02	106.69	
HG-203	46.59D	1.37	4.379E-02	6.007E-02	5.335E-02	88.81	
TL-208	1.41E+10Y	1.00	4.401E-01	4.401E-01	0.760E-01	17.26	
BI-211	7.04E+08Y	1.00	3.620E+00	3.620E+00	0.488E+00	13.47	
PB-212	1.41E+10Y	1.00	1.465E+00	1.465E+00	0.157E+00	10.70	
BI-214	1600.00Y	1.00	1.108E+00	1.108E+00	0.172E+00	15.50	
PB-214	1600.00Y	1.00	1.314E+00	1.314E+00	0.191E+00	14.55	
RA-224	1.41E+10Y	1.00	4.004E+00	4.004E+00	1.235E+00	30.83	
RA-226	1600.00Y	1.00	1.108E+00	1.108E+00	0.172E+00	15.50	
AC-228	1.41E+10Y	1.00	1.490E+00	1.490E+00	0.378E+00	25.39	
RA-228	1.41E+10Y	1.00	1.490E+00	1.490E+00	0.378E+00	25.39	
TH-228	1.41E+10Y	1.00	1.465E+00	1.465E+00	0.157E+00	10.70	
TH-232	1.41E+10Y	1.00	1.490E+00	1.490E+00	0.378E+00	25.39	
TH-234	4.47E+09Y	1.00	3.166E+00	3.166E+00	2.087E+00	65.93	
U-235	7.04E+08Y	1.00	2.601E-01	2.601E-01	2.800E-01	107.68	
NP-237	2.14E+06Y	1.00	5.841E-01	5.841E-01	3.886E-01	66.53	
U-238	4.47E+09Y	1.00	3.166E+00	3.166E+00	2.087E+00	65.93	
ANH-511	1.00E+09Y	1.00	1.059E-01	1.059E-01	0.704E-01	66.49	

Total Activity : 5.424E+01 5.435E+01

Grand Total Activity : 5.424E+01 5.435E+01

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

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

Unidentified Energy Lines
Sample ID : G248028002

Page : 4
Acquisition date : 12-MAR-2010 16:49:27

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.16	91	299	1.02	258.36	254	9	1.27E-02	71.3	6.50E+00	
0	209.15	72	293	1.04	418.36	413	10	1.00E-02	91.9	5.29E+00	
0	270.42	90	188	1.30	540.91	537	10	1.25E-02	61.0	4.41E+00	T
0	327.98	72	138	1.22	656.04	652	9	1.00E-02	63.2	3.82E+00	T
0	463.35	71	67	1.21	926.79	922	9	9.90E-03	47.8	2.95E+00	T
0	1002.17	30	38	1.73	2004.38	1996	15	4.12E-03	99.8	1.51E+00	T
0	1592.75	30	24	0.85	3185.32	3175	20	4.15E-03	95.6	1.01E+00	
0	1632.62	22	9	0.78	3265.04	3254	17	3.09E-03	73.7	9.94E-01	
0	1731.01	20	12	1.02	3461.76	3452	16	2.76E-03	90.0	9.62E-01	
0	1849.25	13	4	0.94	3698.16	3694	8	1.74E-03	78.4	9.35E-01	

Flags: "T" = Tentatively associated


```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028002.CNF;1
* Acquisition date   : 12-MAR-2010 16:49:27   Detector SN#      :
* Detector ID        : GAM04                   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 02:00:01.23           Half life ratio      : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G248028002             Analyst initials: MXR1
* Batch Number       : 958220                 Sample Quantity  : 1.33930E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 5-MAY-2009 14:25:41.36MS 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	2.556E+01	2.498E+00	4.896E-01	3.480E-02	52.207
CD-109	2.021E+00	1.276E+00	1.428E+00	1.716E-01	1.415
SN-126	1.957E-01	1.236E-01	1.475E-01	1.769E-02	1.327
BA-137M	7.175E-02	4.995E-02	5.497E-02	2.681E-03	1.305
CS-137	7.580E-02	5.277E-02	5.807E-02	2.849E-03	1.305
CE-141	9.284E-02	9.906E-02	1.063E-01	7.134E-03	0.874
HG-203	6.007E-02	5.335E-02	6.166E-02	4.274E-03	0.974
TL-208	4.401E-01	7.597E-02	5.225E-02	3.279E-03	8.422
BI-211	3.620E+00	4.875E-01	2.943E-01	1.989E-02	12.301
PB-212	1.465E+00	1.568E-01	8.498E-02	6.874E-03	17.242
BI-214	1.108E+00	1.717E-01	1.035E-01	7.671E-03	10.705
PB-214	1.314E+00	1.912E-01	1.070E-01	9.330E-03	12.274
RA-224	4.004E+00	1.235E+00	9.111E-01	6.074E-02	4.395
RA-226	1.108E+00	1.717E-01	1.035E-01	7.671E-03	10.705
AC-228	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181
RA-228	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181
TH-228	1.465E+00	1.568E-01	8.498E-02	6.874E-03	17.242
TH-232	1.490E+00	3.782E-01	2.075E-01	2.336E-02	7.181

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-234	3.166E+00	2.087E+00	2.694E+00	5.423E-01	1.175
U-235	2.601E-01	2.800E-01	2.964E-01	4.739E-02	0.878
NP-237	5.841E-01	3.886E-01	4.346E-01	1.048E-01	1.344
U-238	3.166E+00	2.087E+00	2.694E+00	5.423E-01	1.175
ANH-511	1.059E-01	7.042E-02	4.410E-02	2.466E-03	2.402

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.260E-01		3.004E-01	5.067E-01	3.355E-02	0.249
NA-22	-1.557E-02		3.924E-02	6.264E-02	4.096E-03	-0.248
NA-24	1.232E+02		3.283E+02	Half-Life	too short	
SC-46	-2.558E-02		4.035E-02	6.211E-02	5.024E-03	-0.412
V-48	3.201E-02		8.811E-02	1.493E-01	1.157E-02	0.214
CR-51	1.290E-01		3.876E-01	6.613E-01	4.651E-02	0.195
MN-54	9.759E-03		3.805E-02	6.430E-02	4.653E-03	0.152
CO-56	-1.109E-02		4.064E-02	6.545E-02	4.856E-03	-0.170
CO-57	-8.516E-03		2.202E-02	3.550E-02	2.464E-03	-0.240
CO-58	4.066E-03		3.561E-02	5.974E-02	4.124E-03	0.068
FE-59	-4.183E-02		1.007E-01	1.555E-01	1.188E-02	-0.269
CO-60	6.563E-03		3.463E-02	5.916E-02	4.054E-03	0.111
ZN-65	-2.509E-02		9.573E-02	1.277E-01	8.448E-03	-0.196
SE-75	-8.388E-04		4.117E-02	6.737E-02	4.533E-03	-0.012
SR-85	9.387E-02		4.305E-02	7.342E-02	4.101E-03	1.279
Y-88	-2.442E-02		3.186E-02	4.154E-02	2.424E-03	-0.588
Y-91	4.491E+00		2.605E+01	4.248E+01	2.603E+00	0.106
NB-94	-1.666E-03		3.162E-02	5.278E-02	2.844E-03	-0.032
NB-95	-9.492E-03		4.649E-02	7.625E-02	4.752E-03	-0.124
NB-95M	3.526E-02		1.393E-01	1.996E-01	1.643E-02	0.177
ZR-95	5.653E-02		7.256E-02	1.286E-01	9.423E-03	0.439
MO-99	-3.611E+01		5.188E+01	8.064E+01	1.164E+01	-0.448
TC-99M	-3.309E+17		4.004E+17	Half-Life	too short	
RU-103	4.972E-03		3.886E-02	6.387E-02	7.884E-03	0.078
RH-106	9.416E-03		2.775E-01	4.452E-01	5.033E-02	0.021
RU-106	9.416E-03		2.775E-01	4.452E-01	2.287E-02	0.021
AG-108M	-5.973E-03		2.815E-02	4.549E-02	2.768E-03	-0.131
AG-110M	-1.470E-02		3.512E-02	4.881E-02	2.608E-03	-0.301
SN-113	-1.511E-02		4.466E-02	7.216E-02	4.348E-03	-0.209
CD-115	-2.729E-05		3.414E-05	Half-Life	too short	
SN-117M	2.111E-03		7.000E-02	1.137E-01	7.272E-03	0.019
TE-123M	1.629E-03		2.738E-02	4.452E-02	2.878E-03	0.037
SB-124	-7.727E-03		7.557E-02	1.208E-01	8.241E-03	-0.064
SB-125	-4.082E-02		8.701E-02	1.381E-01	8.164E-03	-0.296
TE-125M	-3.464E+00		9.680E+00	1.573E+01	1.589E+00	-0.220
I-126	-9.142E-02		3.316E-01	4.709E-01	2.323E-02	-0.194
SB-126	1.027E-02		1.778E-01	2.990E-01	1.681E-02	0.034
SB-127	-3.638E+00		3.518E+00	5.318E+00	6.067E-01	-0.684

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131	9.108E-02		1.665E-01	2.867E-01	1.927E-02	0.318
TE-132	-2.649E+00		2.596E+00	3.820E+00	6.220E-01	-0.693
BA-133	1.869E-02		4.090E-02	6.225E-02	7.117E-03	0.300
I-133	4.750E-01		3.451E-01	Half-Life	too short	
CS-134	6.835E-02		5.045E-02	9.162E-02	6.175E-03	0.746
CS-135	7.995E-02		1.547E-01	2.394E-01	1.996E-02	0.334
I-135	6.638E+14		1.414E+16	Half-Life	too short	
CS-136	-2.014E-02		1.547E-01	2.480E-01	1.906E-02	-0.081
CE-139	5.022E-03		2.789E-02	4.551E-02	2.892E-03	0.110
BA-140	2.190E-01		3.512E-01	5.853E-01	1.947E-01	0.374
LA-140	1.545E-03		1.330E-01	1.880E-01	1.238E-02	0.008
CE-143	6.746E-03		1.639E-03	Half-Life	too short	
CE-144	-5.993E-03		1.992E-01	2.907E-01	4.150E-02	-0.021
PM-144	-6.101E-03		3.127E-02	5.160E-02	2.744E-03	-0.118
PR-144	-5.622E-01		2.355E+00	3.872E+00	2.056E-01	-0.145
PM-146	-4.507E-03		3.804E-02	6.167E-02	5.160E-03	-0.073
ND-147	3.948E-01		7.393E-01	1.249E+00	1.675E-01	0.316
PM-149	-3.836E-04		2.586E-04	Half-Life	too short	
EU-152	-2.184E-02		8.598E-02	1.409E-01	9.746E-03	-0.155
GD-153	-2.640E-02		8.337E-02	1.300E-01	1.276E-02	-0.203
EU-154	-4.534E-02		1.122E-01	1.789E-01	1.769E-02	-0.253
EU-155	1.310E-01		1.000E-01	1.734E-01	1.511E-02	0.755
TB-160	-4.950E-02		1.306E-01	2.062E-01	1.635E-02	-0.240
HO-166M	-3.180E-02		5.431E-02	8.622E-02	4.745E-03	-0.369
TA-182	9.375E-02		1.980E-01	3.458E-01	2.152E-02	0.271
IR-192	-4.140E-03		3.297E-02	5.480E-02	3.558E-03	-0.076
BI-207	7.200E-03		5.039E-02	8.306E-02	5.907E-03	0.087
PB-210	2.561E+00		8.036E+00	1.391E+01	1.214E+00	0.184
PB-211	-7.660E-03		6.456E-01	1.064E+00	5.101E-01	-0.007
BI-212	1.525E+00		5.621E-01	1.051E+00	1.120E-01	1.451
RN-219	-2.392E-01		3.680E-01	5.767E-01	7.711E-02	-0.415
RA-223	-4.187E-01		6.504E-01	8.993E-01	1.470E-01	-0.466
AC-227	1.302E-01		2.271E-01	3.951E-01	4.247E-02	0.330
TH-227	1.302E-01		2.272E-01	3.951E-01	4.926E-02	0.330
TH-229	-2.151E-02		4.932E-01	7.893E-01	5.122E-02	-0.027
PA-231	4.111E-01		1.212E+00	2.081E+00	2.810E-01	0.198
TH-231	-4.187E-01		6.504E-01	8.993E-01	1.470E-01	-0.466
PA-233	-3.184E-04		5.555E-02	9.309E-02	6.350E-03	-0.003
PA-234	-6.515E-02		2.803E-01	4.475E-01	8.269E-02	-0.146
PA-234M	6.558E+00	+	6.574E+00	7.786E+00	7.098E-01	0.842
NP-239	-2.141E-01		3.693E-01	5.916E-01	4.341E-02	-0.362
AM-241	3.425E-01		2.194E-01	3.584E-01	4.525E-02	0.956
CM-247	-6.059E-03		3.346E-02	5.450E-02	3.075E-03	-0.111
CF-249	1.360E-02		3.831E-02	6.380E-02	3.623E-03	0.213
CF-251	-1.048E-02		1.210E-01	1.942E-01	1.244E-02	-0.054

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]G248028002
* Acquisition date   : 12-MAR-2010 16:49:27 Detector SN#    :
* Detector ID        : GAM04                               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 02:00:01.23                      Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G248028002                      Analyst initials: MXR1
* Batch Number       : 958220                          Sample Quantity : 1.3393E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight  : 0.00000
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 5-MAY-2009 14:25:41 MS Isotope      :
* MSD DPM             : 0.000                          MSD Isotope      :
* LCS DPM             : 0.000                          LCS Isotope      :
* LCSD DPM            : 0.000                          LCSD Isotope     :
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.556E+01	2.448E+00	2.454E-01	1.249E+00
CD-109	2.021E+00	1.251E+00	7.520E-01	6.380E-01
SN-126	1.957E-01	1.211E-01	7.770E-02	6.180E-02
BA-137M	7.175E-02	4.895E-02	2.795E-02	2.498E-02
CS-137	7.580E-02	5.172E-02	2.953E-02	2.639E-02
CE-141	9.284E-02	9.708E-02	5.550E-02	4.953E-02
HG-203	6.007E-02	5.228E-02	3.184E-02	2.668E-02
TL-208	4.401E-01	7.445E-02	2.663E-02	3.799E-02
BI-211	3.620E+00	4.778E-01	1.514E-01	2.438E-01
PB-212	1.465E+00	1.537E-01	4.400E-02	7.841E-02
BI-214	1.108E+00	1.682E-01	5.270E-02	8.583E-02
PB-214	1.314E+00	1.874E-01	5.505E-02	9.560E-02
RA-224	4.004E+00	1.210E+00	4.717E-01	6.173E-01
RA-226	1.108E+00	1.682E-01	5.270E-02	8.583E-02
AC-228	1.490E+00	3.707E-01	1.049E-01	1.891E-01
RA-228	1.490E+00	3.707E-01	1.049E-01	1.891E-01
TH-228	1.465E+00	1.537E-01	4.400E-02	7.841E-02
TH-232	1.490E+00	3.707E-01	1.049E-01	1.891E-01
TH-234	3.166E+00	2.045E+00	1.427E+00	1.044E+00
U-235	2.601E-01	2.744E-01	1.548E-01	1.400E-01
NP-237	5.841E-01	3.808E-01	2.290E-01	1.943E-01
U-238	3.166E+00	2.045E+00	1.427E+00	1.044E+00
ANH-511	1.059E-01	6.901E-02	2.253E-02	3.521E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	1.260E-01	2.944E-01	2.592E-01	1.502E-01 NOT IDENT.
NA-22	-1.557E-02	3.845E-02	3.148E-02	1.962E-02 NOT IDENT.
NA-24	1.232E+08	6.435E+08	0.000E+00	3.283E+08 SHORT HLIF
SC-46	-2.558E-02	3.954E-02	3.142E-02	2.017E-02 FAIL ABUN

V-48	3.201E-02	8.635E-02	7.541E-02	4.405E-02	NOT IDENT.
CR-51	1.290E-01	3.799E-01	3.407E-01	1.938E-01	NOT IDENT.
MN-54	9.759E-03	3.729E-02	3.256E-02	1.903E-02	NOT IDENT.
CO-56	-1.109E-02	3.983E-02	3.313E-02	2.032E-02	NOT IDENT.
CO-57	-8.516E-03	2.158E-02	1.859E-02	1.101E-02	NOT IDENT.
CO-58	4.066E-03	3.490E-02	3.027E-02	1.780E-02	NOT IDENT.
FE-59	-4.183E-02	9.865E-02	7.837E-02	5.033E-02	NOT IDENT.
CO-60	6.563E-03	3.393E-02	2.971E-02	1.731E-02	NOT IDENT.
ZN-65	-2.509E-02	9.382E-02	6.433E-02	4.787E-02	NOT IDENT.
SE-75	-8.388E-04	4.035E-02	3.482E-02	2.059E-02	NOT IDENT.
SR-85	9.387E-02	4.219E-02	3.751E-02	2.153E-02	NOT IDENT.
Y-88	-2.442E-02	3.122E-02	2.073E-02	1.593E-02	NOT IDENT.
Y-91	4.491E+00	2.552E+01	2.137E+01	1.302E+01	NOT IDENT.
NB-94	-1.666E-03	3.099E-02	2.681E-02	1.581E-02	NOT IDENT.
NB-95	-9.492E-03	4.556E-02	3.867E-02	2.325E-02	NOT IDENT.
NB-95M	3.526E-02	1.365E-01	1.034E-01	6.963E-02	NOT IDENT.
ZR-95	5.653E-02	7.111E-02	6.526E-02	3.628E-02	NOT IDENT.
MO-99	-3.611E+01	5.085E+01	4.093E+01	2.594E+01	NOT IDENT.
TC-99M	-3.309E+23	7.848E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	4.972E-03	3.809E-02	3.265E-02	1.943E-02	FAIL ABUN
RH-106	9.416E-03	2.719E-01	2.267E-01	1.387E-01	NOT IDENT.
RU-106	9.416E-03	2.719E-01	2.267E-01	1.387E-01	NOT IDENT.
AG-108M	-5.973E-03	2.758E-02	2.331E-02	1.407E-02	NOT IDENT.
AG-110M	-1.470E-02	3.441E-02	2.483E-02	1.756E-02	NOT IDENT.
SN-113	-1.511E-02	4.377E-02	3.704E-02	2.233E-02	NOT IDENT.
CD-115	-2.729E+01	6.690E+01	0.000E+00	3.414E+01	SHORT HLIF
SN-117M	2.111E-03	6.860E-02	5.929E-02	3.500E-02	NOT IDENT.
TE-123M	1.629E-03	2.683E-02	2.321E-02	1.369E-02	NOT IDENT.
SB-124	-7.727E-03	7.406E-02	6.038E-02	3.779E-02	NOT IDENT.
SB-125	-4.082E-02	8.527E-02	7.078E-02	4.350E-02	FAIL ABUN
TE-125M	-3.464E+00	9.486E+00	8.256E+00	4.840E+00	NOT IDENT.
I-126	-9.142E-02	3.250E-01	2.394E-01	1.658E-01	NOT IDENT.
SB-126	1.027E-02	1.743E-01	1.518E-01	8.892E-02	NOT IDENT.
SB-127	-3.638E+00	3.448E+00	2.702E+00	1.759E+00	NOT IDENT.
I-131	9.108E-02	1.632E-01	1.473E-01	8.324E-02	NOT IDENT.
TE-132	-2.649E+00	2.545E+00	1.980E+00	1.298E+00	NOT IDENT.
BA-133	1.869E-02	4.008E-02	3.201E-02	2.045E-02	NOT IDENT.
I-133	4.750E+05	6.764E+05	0.000E+00	3.451E+05	SHORT HLIF
CS-134	6.835E-02	4.944E-02	4.644E-02	2.522E-02	NOT IDENT.
CS-135	7.995E-02	1.516E-01	1.237E-01	7.737E-02	NOT IDENT.
I-135	6.638E+20	2.771E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.014E-02	1.516E-01	1.251E-01	7.733E-02	NOT IDENT.
CE-139	5.022E-03	2.733E-02	2.372E-02	1.394E-02	NOT IDENT.
BA-140	2.190E-01	3.442E-01	2.988E-01	1.756E-01	NOT IDENT.
LA-140	1.545E-03	1.304E-01	9.407E-02	6.652E-02	FAIL ABUN
CE-143	6.746E+03	3.212E+03	0.000E+00	1.639E+03	SHORT HLIF
CE-144	-5.993E-03	1.952E-01	1.520E-01	9.959E-02	NOT IDENT.
PM-144	-6.101E-03	3.065E-02	2.622E-02	1.564E-02	NOT IDENT.
PR-144	-5.622E-01	2.308E+00	1.967E+00	1.178E+00	NOT IDENT.
PM-146	-4.507E-03	3.728E-02	3.157E-02	1.902E-02	NOT IDENT.
ND-147	3.948E-01	7.245E-01	6.376E-01	3.696E-01	NOT IDENT.
PM-149	-3.836E+02	5.068E+02	0.000E+00	2.586E+02	SHORT HLIF
EU-152	-2.184E-02	8.426E-02	7.250E-02	4.299E-02	NOT IDENT.
GD-153	-2.640E-02	8.170E-02	6.835E-02	4.168E-02	NOT IDENT.
EU-154	-4.534E-02	1.099E-01	8.990E-02	5.608E-02	NOT IDENT.
EU-155	1.310E-01	9.800E-02	9.107E-02	5.000E-02	FAIL ABUN
TB-160	-4.950E-02	1.280E-01	1.043E-01	6.530E-02	FAIL ABUN
HO-166M	-3.180E-02	5.322E-02	4.379E-02	2.715E-02	NOT IDENT.
TA-182	9.375E-02	1.940E-01	1.739E-01	9.900E-02	FAIL ABUN
IR-192	-4.140E-03	3.231E-02	2.823E-02	1.648E-02	FAIL ABUN
BI-207	7.200E-03	4.939E-02	4.188E-02	2.520E-02	FAIL ABUN
PB-210	2.561E+00	7.875E+00	7.404E+00	4.018E+00	NOT IDENT.
PB-211	-7.660E-03	6.327E-01	5.457E-01	3.228E-01	NOT IDENT.
BI-212	1.525E+00	5.509E-01	5.337E-01	2.811E-01	NOT IDENT.
RN-219	-2.392E-01	3.607E-01	2.959E-01	1.840E-01	FAIL ABUN
RA-223	-4.187E-01	6.374E-01	4.632E-01	3.252E-01	FAIL ABUN
AC-227	1.302E-01	2.225E-01	2.043E-01	1.135E-01	FAIL ABUN
TH-227	1.302E-01	2.227E-01	2.043E-01	1.136E-01	FAIL ABUN
TH-229	-2.151E-02	4.833E-01	4.102E-01	2.466E-01	FAIL ABUN
PA-231	4.111E-01	1.188E+00	1.074E+00	6.060E-01	FAIL ABUN
TH-231	-4.187E-01	6.374E-01	4.632E-01	3.252E-01	FAIL ABUN
PA-233	-3.184E-04	5.444E-02	4.798E-02	2.778E-02	FAIL ABUN
PA-234	-6.515E-02	2.747E-01	2.261E-01	1.402E-01	NOT IDENT.
PA-234M	6.558E+00	6.442E+00	3.930E+00	3.287E+00	FAIL ABUN
NP-239	-2.141E-01	3.619E-01	3.101E-01	1.846E-01	FAIL ABUN
AM-241	3.425E-01	2.150E-01	1.900E-01	1.097E-01	NOT IDENT.
CM-247	-6.059E-03	3.280E-02	2.796E-02	1.673E-02	FAIL ABUN
CF-249	1.360E-02	3.754E-02	3.276E-02	1.915E-02	NOT IDENT.

CF-251

-1.048E-02

1.186E-01

1.011E-01

6.050E-02 NOT IDENT.

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 SAVAGE ROAD                          *
*                                     CHARLESTON ,SC 29417                      *
*                                     GAMMA SPECTROSCOPY BACKGROUND REPORT      *
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ENERGY	MDA COUNTS
46.54	197.1750
49.72	210.2230
57.36	0.0000
59.54	171.2026
63.29	250.0728
63.29	250.0728
64.28	290.0704
67.75	273.5273
69.67	262.2405
70.83	244.1161
72.81	258.9103
72.87	258.9449
72.87	258.9449
74.82	286.2111
74.82	286.2111
74.82	286.2111
74.97	286.3047
77.11	287.6409
77.11	287.6409
77.11	287.6409
79.69	308.6950
79.80	308.7662
80.12	308.9737
80.19	309.0186
80.57	307.8727
81.00	359.7399
81.07	359.7910
81.07	359.7910
83.79	351.9979
83.79	351.9979
85.43	323.6200
86.48	418.3033
86.55	418.3622
86.79	418.5591
86.94	418.6859
87.57	446.5303
88.03	398.8474
88.47	385.0380
89.96	343.5694
91.11	344.3338
92.59	423.7924
92.59	423.7924
93.35	242.9250
94.67	246.3957
94.87	247.9220
94.87	247.9220
95.86	287.1445
97.43	261.4865
98.44	238.5055
99.53	239.9434
100.11	235.3722
103.18	281.2856
103.37	276.5286
105.31	232.6885
106.12	232.0418
109.28	266.6349
111.00	235.9534
111.76	258.8946
116.30	220.1821
117.23	262.2343
121.12	214.8983
121.78	221.1259
122.06	221.2237
123.07	193.5026
131.20	249.7361
133.52	233.7933
136.00	260.7198

136.47	230.2048
140.51	265.5140
140.51	0.0000
143.76	254.3331
144.24	254.5058
144.24	254.5058
145.44	254.9337
152.43	245.8818
153.25	243.0119
154.21	270.5924
154.21	270.5924
156.02	282.8134
158.56	247.8970
159.00	242.7630
162.66	230.1343
163.33	233.5173
165.86	223.6249
176.60	212.6030
177.52	231.2064
181.07	227.8568
184.41	254.9068
185.72	238.9342
193.51	222.3800
197.04	196.7426
205.31	229.2287
210.85	208.7240
215.65	186.1034
222.11	202.1223
227.38	197.5059
228.16	207.9455
228.18	207.9492
235.69	203.7596
235.96	203.8136
235.96	203.8136
238.63	188.1852
238.63	188.1852
240.99	188.6180
242.00	188.8037
244.70	162.0050
252.40	143.0130
252.80	137.8002
256.23	154.0916
256.23	154.0916
260.90	0.0000
264.66	146.0340
268.22	149.5558
269.46	142.5928
269.46	142.5928
271.23	142.8174
273.65	164.5938
276.40	148.2541
277.37	137.3115
277.60	137.3395
278.00	136.4883
279.20	146.6997
279.54	135.2328
280.46	141.1023
283.69	122.7271
284.31	126.4029
285.41	144.5972
285.90	0.0000
287.50	123.1276
293.27	0.0000
295.22	138.5131
295.96	131.3042
298.57	142.5533
299.98	128.8139
299.98	128.8139
300.09	131.7546
300.09	131.7546
300.13	131.7590
301.36	120.1672
302.85	129.1189
304.50	130.7622
304.50	130.7622
304.85	135.9429
308.46	116.0755
311.90	119.1699

316.51	128.8808
319.41	110.5892
320.08	121.8051
323.87	135.7824
323.87	135.7824
328.76	137.7956
333.37	97.7015
334.37	126.3568
334.37	126.3568
338.28	118.8094
338.28	118.8094
338.32	118.8133
338.32	118.8133
338.32	118.8133
340.48	120.8965
340.55	120.9023
344.28	119.3459
351.06	112.3301
351.93	112.4003
356.01	97.8313
364.49	87.4717
366.42	102.9934
383.85	110.0998
388.16	99.6747
388.63	103.6159
391.69	122.4422
400.66	106.4262
401.81	110.4534
402.40	102.6035
404.85	101.7804
410.95	106.1559
414.70	93.4865
423.72	94.0273
427.09	113.2759
427.87	108.3164
433.94	101.6827
453.88	86.6264
463.37	90.1941
468.07	67.4228
473.00	87.6147
476.78	68.1793
477.60	68.2126
487.02	76.8951
492.35	0.0000
497.08	70.0190
511.00	85.3073
514.00	67.5142
527.90	0.0000
529.87	0.0000
531.02	62.8135
537.26	66.2269
546.56	0.0000
563.25	66.0430
569.33	77.1081
569.50	71.6840
569.70	78.2073
583.19	69.9883
600.60	70.5879
602.73	65.6130
604.72	76.0332
609.32	73.0999
609.32	73.0999
610.33	73.1362
614.28	46.1843
618.01	72.2919
621.93	56.8256
621.93	56.8256
633.25	71.6895
635.95	76.2655
636.99	63.9580
645.85	69.4015
657.76	64.9444
661.66	69.8997
661.66	69.8997
664.57	0.0000
666.33	77.3239
666.50	62.1673
677.62	63.0838

685.70	71.5654
695.00	78.3013
696.49	68.2124
696.51	69.1351
697.00	72.8378
702.65	73.0133
706.68	62.9548
711.68	67.7282
720.70	57.7405
721.93	0.0000
722.78	82.9595
722.91	105.3361
723.31	101.6233
724.19	113.7853
727.33	43.8927
733.00	94.5445
735.93	48.7348
739.50	64.7633
747.24	57.4347
752.31	57.5539
753.82	53.8118
756.73	52.9307
763.94	76.7819
765.81	86.3256
766.42	74.0105
777.92	66.7239
778.90	56.2603
783.70	64.9636
785.37	45.8871
795.86	64.3125
801.95	65.4251
810.29	43.4344
810.76	44.4075
815.77	54.1652
818.51	56.1578
832.01	64.2275
834.85	65.2694
836.80	0.0000
846.77	59.6880
856.80	52.3776
860.56	47.2043
871.09	50.3451
873.19	40.5045
875.33	0.0000
879.36	46.5341
880.51	42.5916
883.24	38.6667
884.68	48.6064
889.28	58.6212
898.04	59.7993
911.20	46.0562
911.20	46.0562
911.20	46.0562
926.50	36.2347
937.49	53.5448
944.13	39.4894
946.00	47.6196
949.00	39.5541
962.29	59.4242
964.08	56.0621
966.15	45.8998
968.97	37.7751
968.97	37.7751
968.97	37.7751
983.53	42.0590
996.26	41.2031
1001.03	40.2340
1004.73	44.7573
1037.84	51.1414
1038.76	0.0000
1048.07	54.4451
1050.41	47.1511
1050.41	47.1511
1063.66	43.1341
1085.87	55.0748
1099.45	53.1714
1112.07	35.2252
1115.54	46.3019

1120.29	48.1487
1120.29	48.1487
1120.55	53.5034
1121.30	53.5156
1131.51	0.0000
1173.23	44.5415
1177.93	51.1263
1189.05	51.2846
1204.77	65.7568
1221.41	52.2941
1231.02	63.4690
1235.36	81.9600
1238.28	54.3762
1260.41	0.0000
1271.85	37.1956
1274.44	40.0133
1274.54	39.0828
1291.59	44.8652
1298.22	0.0000
1312.11	31.0087
1332.49	24.5586
1365.19	31.4263
1368.63	0.0000
1384.29	24.8775
1408.01	32.7203
1457.56	0.0000
1460.82	18.5160
1489.16	17.6572
1505.03	20.6753
1596.21	18.9461
1620.50	15.1501
1678.03	0.0000
1690.97	12.3013
1764.49	8.9192
1764.49	8.9192
1770.23	8.9293
1771.35	8.9310
1791.20	0.0000
1836.06	13.7183

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248028002

Total Uranium Activity	9.5378E+00	ug/g
Total Uranium Counting Unc.	6.0860E+00	ug/g
Total Uranium Tpu	3.1051E-06	ug/g
Total Uranium Mda	4.2460E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 958220          SAMPLE ID   : G248028002
*  ANALYST       : MXR1           DETECTOR    : GAM04
*  SAMPLE DATE   : 19-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 12-MAR-2010 16:49:27.81  SAMPLE ALQT: 133.930 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.476E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.371E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.715E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.799E+00

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VAX/VMS Nuclide Identification Report Generated 16-MAR-2010 12:06:31.04

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028003.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:06
Sample ID          : G248028003          Sample quantity  : 1.22880E+02 GRAM
Detector name      : GAM05              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.79  0.0%
Energy tolerance   : 2.60000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity      : 5.00000
Batch ID           : 958220             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	45.96*	111	513	1.39	92.91	88	10	1.54E-02	43.0	
2	0	52.71*	89	429	1.30	106.39	103	8	1.24E-02	42.2	
3	0	62.89*	416	810	1.23	126.76	122	10	5.78E-02	14.0	
4	1	74.14*	646	699	1.45	149.26	143	22	8.97E-02	8.7	4.09E+00
5	1	76.62*	1009	483	1.20	154.22	143	22	1.40E-01	5.1	
6	2	83.53*	221	482	1.60	168.04	164	28	3.08E-02	18.2	1.49E+00
7	2	86.72	371	577	1.61	174.42	164	28	5.15E-02	13.4	
8	2	89.46	280	445	1.28	179.89	164	28	3.89E-02	14.8	
9	2	92.27*	773	424	1.37	185.52	164	28	1.07E-01	6.3	
10	0	127.89	155	423	1.35	256.75	252	11	2.15E-02	26.9	
11	0	185.17*	392	383	1.35	371.29	366	12	5.45E-02	11.4	
12	0	208.61	76	283	1.76	418.15	414	9	1.06E-02	41.4	
13	3	238.03*	1209	169	1.24	476.99	470	19	1.68E-01	3.5	1.65E+00
14	3	240.94	250	272	1.63	482.80	470	19	3.48E-02	15.6	
15	0	269.48	111	236	2.14	539.87	535	11	1.55E-02	28.2	
16	0	276.85	56	185	1.36	554.60	550	11	7.77E-03	48.9	
17	2	294.52*	436	149	1.70	589.93	585	20	6.05E-02	7.2	3.86E+00
18	2	299.25	90	169	1.91	599.39	585	20	1.26E-02	29.5	
19	0	326.65	73	165	1.24	654.19	649	12	1.01E-02	37.2	
20	0	337.46	207	180	1.25	675.79	671	10	2.87E-02	14.0	
21	0	351.12*	597	215	1.43	703.10	697	14	8.29E-02	6.7	
22	0	462.22	75	107	1.02	925.23	921	10	1.05E-02	28.0	
23	0	509.33*	124	167	2.47	1019.40	1011	18	1.72E-02	28.5	
24	0	582.01*	306	94	1.29	1164.69	1158	13	4.25E-02	8.9	
25	0	608.12*	435	126	1.54	1216.89	1210	16	6.04E-02	7.6	
26	0	726.83	69	81	1.96	1454.18	1443	14	9.62E-03	29.1	
27	0	859.10	62	45	1.28	1718.54	1713	13	8.67E-03	25.6	
28	0	909.43*	228	45	1.84	1819.12	1812	15	3.16E-02	9.4	
29	0	967.60*	121	102	1.75	1935.36	1928	14	1.68E-02	20.7	
30	0	1117.90	90	62	2.84	2235.70	2225	16	1.25E-02	21.9	
31	0	1458.26*	834	38	2.00	2915.69	2908	19	1.16E-01	3.9	
32	0	1761.60*	60	7	3.43	3521.53	3515	13	8.32E-03	16.5	

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

VMS Nuclide Identification Report V3.1 Generated 16-MAR-2010 12:06:33

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:06
Sample ID         : G248028003 Sample quantity : 122.88 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA5 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.79 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 2.60 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	*	2.379E+01	2.382E+00	6.154E-01	3.827E-02	38.656
ZN-65	+	1115.54	*	4.597E-01	2.040E-01	1.777E-01	1.241E-02	2.587
NB-95M	+	235.69	*	3.921E+00	5.076E-01	2.313E-01	2.533E-02	16.958
CD-109	+	88.03	*	4.014E+00	1.118E+00	1.042E+00	7.934E-02	3.853
SN-126	+	64.28		1.642E+00	5.201E-01	4.531E-01	6.753E-02	3.623
	+	86.94		1.616E+00	7.937E-01	4.182E-01	1.722E-01	3.865
	+	87.57	*	3.888E-01	1.082E-01	1.008E-01	7.675E-03	3.858
CS-135	+	268.22	*	4.885E-01	2.806E-01	2.849E-01	3.048E-02	1.715
HG-203		70.83		4.629E-01	1.158E+00	1.700E+00	2.669E-01	0.272
	+	72.87		5.437E+00	1.253E+00	9.529E-01	1.442E-01	5.705
	+	279.20	*	6.737E-02	6.615E-02	7.582E-02	7.192E-03	0.889
TL-208	+	277.37		6.070E-01	5.984E-01	6.714E-01	8.737E-02	0.904
	+	583.19	*	4.856E-01	9.364E-02	6.771E-02	4.973E-03	7.172
	+	860.56		9.585E-01	4.997E-01	4.961E-01	5.034E-02	1.932
PB-210	+	46.54	*	1.047E+00	9.034E-01	9.079E-01	7.003E-02	1.153
BI-211	+	72.87		1.995E+01	3.804E+00	3.496E+00	2.752E-01	5.705
	+	351.06	*	4.005E+00	6.236E-01	3.881E-01	3.076E-02	10.318
PB-212	+	74.82		2.387E+00	5.109E-01	4.197E-01	5.241E-02	5.687
	+	77.11		2.249E+00	2.876E-01	2.534E-01	1.973E-02	8.874
	+	238.63	*	1.772E+00	2.278E-01	1.032E-01	1.117E-02	17.177
	+	300.09		2.087E+00	1.253E+00	1.410E+00	1.514E-01	1.480
BI-214	+	609.32	*	1.343E+00	2.332E-01	1.433E-01	1.209E-02	9.370
	+	1120.29		1.468E+00	6.588E-01	5.322E-01	5.113E-02	2.758
		1764.49		9.261E-01	4.154E-01	8.136E-01	4.704E-02	1.138
PB-214	+	74.82		4.230E+00	8.737E-01	7.439E-01	8.291E-02	5.687
	+	77.11		3.965E+00	6.033E-01	4.468E-01	5.067E-02	8.874
	+	242.00		2.225E+00	7.371E-01	5.775E-01	6.561E-02	3.853
	+	295.22		1.777E+00	3.226E-01	2.492E-01	2.763E-02	7.130
	+	351.93	*	1.453E+00	2.401E-01	1.412E-01	1.360E-02	10.295
RA-223	+	81.07		5.693E-01	2.115E-01	2.470E-01	1.905E-02	2.304
	+	83.79		3.457E-01	1.285E-01	1.494E-01	1.146E-02	2.314
	+	94.87		5.348E+00	8.045E-01	7.147E-01	6.295E-02	7.483
		144.24		1.084E+00	7.995E-01	1.339E+00	1.735E-01	0.809
		154.21		3.098E-01	4.604E-01	7.605E-01	9.023E-02	0.407

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	269.46		5.623E-01	3.219E-01	3.183E-01	3.054E-02	1.767
		323.87	*	1.685E-01	7.956E-01	1.166E+00	2.002E-01	0.145
	+	338.28		6.116E+00	1.850E+00	1.658E+00	1.911E-01	3.690
RA-224	+	240.99	*	3.934E+00	1.283E+00	1.106E+00	1.082E-01	3.557
RA-226	+	609.32	*	1.343E+00	2.332E-01	1.433E-01	1.209E-02	9.370
	+	1120.29		1.468E+00	6.588E-01	5.322E-01	5.113E-02	2.758
		1764.49		9.261E-01	4.154E-01	8.136E-01	4.704E-02	1.138
AC-228	+	338.32		1.541E+00	7.721E-01	4.178E-01	1.736E-01	3.689
	+	911.20	*	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961
	+	968.97		1.635E+00	7.866E-01	4.189E-01	1.032E-01	3.904
RA-228	+	338.32		1.541E+00	7.721E-01	4.178E-01	1.736E-01	3.689
	+	911.20	*	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961
	+	968.97		1.635E+00	7.866E-01	4.189E-01	1.032E-01	3.904
TH-228	+	74.82		2.387E+00	4.560E-01	4.197E-01	3.322E-02	5.687
	+	77.11		2.249E+00	2.876E-01	2.534E-01	1.973E-02	8.874
	+	238.63	*	1.772E+00	2.278E-01	1.032E-01	1.117E-02	17.177
	+	300.09		2.087E+00	1.775E+00	1.410E+00	8.636E-01	1.480
TH-229	+	85.43		9.787E-01	2.725E-01	2.521E-01	1.928E-02	3.881
	+	88.47		4.554E-01	1.398E-01	1.558E-01	1.198E-02	2.923
		193.51	*	-6.426E-01	6.456E-01	9.832E-01	9.819E-02	-0.654
	+	210.85		1.582E+00	1.319E+00	1.587E+00	1.581E-01	0.996
TH-231	+	81.07		5.693E-01	2.115E-01	2.470E-01	1.905E-02	2.304
	+	83.79		3.457E-01	1.285E-01	1.494E-01	1.146E-02	2.314
	+	94.87		5.348E+00	8.045E-01	7.147E-01	6.295E-02	7.483
		144.24		1.084E+00	7.995E-01	1.339E+00	1.735E-01	0.809
		154.21		3.098E-01	4.604E-01	7.605E-01	9.023E-02	0.407
	+	269.46		5.623E-01	3.219E-01	3.183E-01	3.054E-02	1.767
		323.87	*	1.685E-01	7.956E-01	1.166E+00	2.002E-01	0.145
	+	338.28		6.116E+00	1.850E+00	1.658E+00	1.911E-01	3.690
TH-232	+	338.32		1.541E+00	4.476E-01	4.178E-01	3.275E-02	3.689
	+	911.20	*	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961
	+	968.97		1.635E+00	7.866E-01	4.189E-01	1.032E-01	3.904
TH-234	+	63.29	*	4.259E+00	1.419E+00	1.177E+00	2.136E-01	3.619
	+	92.59		7.194E+00	1.819E+00	8.952E-01	1.969E-01	8.036
U-235	+	89.96		3.150E+00	1.209E+00	1.082E+00	2.639E-01	2.910
	+	93.35		5.434E+00	1.423E+00	6.727E-01	1.552E-01	8.078
		143.76	*	4.101E-01	2.481E-01	4.057E-01	7.739E-02	1.011
		163.33		-1.522E-01	5.113E-01	8.121E-01	1.525E-01	-0.187
	+	185.72		3.691E-01	9.199E-02	7.688E-02	7.673E-03	4.800
		205.31		-3.645E-01	6.681E-01	8.934E-01	1.682E-01	-0.408
NP-237	+	86.48	*	1.160E+00	4.044E-01	2.998E-01	6.689E-02	3.870
		95.86		1.422E-01	1.013E+00	1.463E+00	3.528E-01	0.097
U-238	+	63.29	*	4.259E+00	1.419E+00	1.177E+00	2.136E-01	3.619
	+	92.59		7.194E+00	1.082E+00	8.952E-01	7.523E-02	8.036
ANH-511	+	511.00	*	1.482E-01	8.499E-02	5.758E-02	3.685E-03	2.575

---- 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	*	-3.408E-01	4.375E-01	6.462E-01	4.627E-02	-0.527

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		-5.711E-02	5.466E-02	7.773E-02	4.527E-03	-0.735
NA-24	1368.63	*		-7.949E+02	5.466E-02	Half-Life too short		
SC-46	889.28	*		6.742E-03	4.703E-02	7.887E-02	7.922E-03	0.085
	1120.55			1.629E-01	8.124E-02	1.384E-01	9.523E-03	1.176
V-48	944.13			-6.159E-01	1.479E+00	2.343E+00	2.266E-01	-0.263
	983.53	*		3.231E-02	1.231E-01	2.071E-01	1.897E-02	0.156
	1312.11			-6.149E-02	1.258E-01	1.907E-01	1.106E-02	-0.322
CR-51	320.08	*		1.235E-02	5.332E-01	8.069E-01	7.130E-02	0.015
MN-54	834.85	*		-2.063E-03	5.152E-02	8.527E-02	7.812E-03	-0.024
CO-56	846.77	*		-2.280E-02	4.805E-02	7.605E-02	7.112E-03	-0.300
	1037.84			1.446E-01	4.092E-01	6.929E-01	6.106E-02	0.209
	1238.28			1.369E-01	1.251E-01	2.196E-01	1.357E-02	0.623
	1771.35			4.265E-02	2.906E-01	4.918E-01	2.840E-02	0.087
CO-57	122.06	*		-3.934E-03	3.029E-02	4.523E-02	6.417E-03	-0.087
	136.47			-1.124E-01	2.514E-01	3.868E-01	5.180E-02	-0.291
CO-58	810.76	*		1.578E-02	4.646E-02	7.961E-02	7.006E-03	0.198
FE-59	1099.45	*		-2.198E-02	1.283E-01	2.062E-01	1.670E-02	-0.107
	1291.59			8.592E-02	1.608E-01	2.757E-01	2.048E-02	0.312
CO-60	1173.23			-8.819E-03	5.637E-02	9.035E-02	5.241E-03	-0.098
	1332.49	*		-2.657E-03	4.919E-02	7.886E-02	4.563E-03	-0.034
SE-75	121.12			-1.417E-01	1.536E-01	2.381E-01	3.720E-02	-0.595
	136.00			-1.122E-02	4.716E-02	7.568E-02	9.869E-03	-0.148
	264.66	*		-7.224E-03	5.790E-02	8.359E-02	7.980E-03	-0.086
	279.54			1.997E-02	1.366E-01	2.006E-01	1.922E-02	0.100
	400.66			2.345E-01	3.268E-01	5.589E-01	5.096E-02	0.420
SR-85	514.00	*		1.462E-03	5.687E-02	8.011E-02	5.135E-03	0.018
Y-88	898.04			1.565E-04	5.613E-02	9.282E-02	9.490E-03	0.002
	1836.06	*		5.303E-03	4.265E-02	7.178E-02	4.107E-03	0.074
Y-91	1204.77	*		3.845E+01	2.914E+01	5.264E+01	3.059E+00	0.730
NB-94	702.65	*		2.249E-02	4.431E-02	7.667E-02	5.486E-03	0.293
	871.09			3.162E-02	4.198E-02	7.390E-02	7.202E-03	0.428
NB-95	765.81	*		1.012E-01	6.343E-02	1.154E-01	9.336E-03	0.877
ZR-95	724.19			2.823E-01	1.392E-01	2.578E-01	2.139E-02	1.095
	756.73	*		-5.568E-02	9.550E-02	1.517E-01	1.353E-02	-0.367
MO-99	140.51			-8.502E+01	1.279E+02	1.929E+02	4.910E+01	-0.441
	181.07			5.446E+01	1.083E+02	1.556E+02	3.025E+01	0.350
	366.42			-1.194E+02	5.240E+02	8.537E+02	5.860E+01	-0.140
	739.50	*		2.279E+01	7.185E+01	1.228E+02	1.875E+01	0.186
	777.92			1.039E+02	2.148E+02	3.707E+02	3.067E+01	0.280
TC-99M	140.51	*		-6.322E+17	2.148E+02	Half-Life too short		
RU-103	497.08	*		-1.505E-02	5.343E-02	8.520E-02	1.081E-02	-0.177
	610.33			1.543E+01	3.334E+00	3.408E+00	5.239E-01	4.527
RH-106	621.93	*		9.027E-02	4.079E-01	6.683E-01	8.044E-02	0.135
	1050.41			1.194E+00	3.152E+00	5.350E+00	4.356E-01	0.223
RU-106	621.93	*		9.027E-02	4.078E-01	6.683E-01	4.405E-02	0.135
	1050.41			1.194E+00	3.152E+00	5.350E+00	4.356E-01	0.223
AG-108M	433.94	*		3.098E-03	3.766E-02	6.207E-02	4.008E-03	0.050
	614.28			-3.174E-03	5.143E-02	7.095E-02	4.935E-03	-0.045
	722.91			6.575E-04	5.665E-02	8.182E-02	6.356E-03	0.008

Sample ID : G248028003

Acquisition date : 12-MAR-2010 16:50:06

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AG-110M		657.76	*	7.042E-03	4.953E-02	8.038E-02	5.557E-03	0.088
		677.62		1.656E-01	4.094E-01	7.059E-01	5.019E-02	0.235
		706.68		-7.323E-03	2.718E-01	4.543E-01	3.411E-02	-0.016
		763.94		8.537E-02	2.212E-01	3.785E-01	3.146E-02	0.226
		884.68		3.188E-02	5.692E-02	9.909E-02	1.012E-02	0.322
		937.49		-1.502E-01	1.395E-01	2.047E-01	2.053E-02	-0.734
		1384.29		1.278E-01	1.552E-01	2.895E-01	1.784E-02	0.442
		1505.03		4.911E-01	3.692E-01	7.076E-01	4.160E-02	0.694
SN-113		391.69	*	-1.317E-02	5.437E-02	8.825E-02	5.474E-03	-0.149
CD-115		260.90		-7.329E-04	5.437E-02	Half-Life	too short	
		492.35		9.837E-05	5.437E-02	Half-Life	too short	
		527.90	*	4.137E-05	5.437E-02	Half-Life	too short	
SN-117M		156.02		-1.594E+00	3.631E+00	5.748E+00	6.338E-01	-0.277
		158.56	*	-5.712E-02	8.864E-02	1.388E-01	1.492E-02	-0.412
TE-123M		159.00	*	-1.730E-02	3.500E-02	5.520E-02	5.932E-03	-0.313
SB-124		602.73		4.342E-02	5.145E-02	7.875E-02	5.186E-03	0.551
		645.85		-1.138E-01	6.318E-01	9.993E-01	7.219E-02	-0.114
		722.78		-3.559E-02	6.024E-01	8.637E-01	6.630E-02	-0.041
		1690.97	*	-2.121E-03	8.067E-02	1.325E-01	8.424E-03	-0.016
SB-125		427.87	*	4.511E-02	1.140E-01	1.916E-01	1.200E-02	0.235
	+	463.37		7.945E-01	4.488E-01	6.705E-01	4.752E-02	1.185
		600.60		-9.291E-03	2.358E-01	3.428E-01	2.536E-02	-0.027
		635.95		9.058E-02	3.294E-01	5.423E-01	4.058E-02	0.167
TE-125M		109.28	*	-6.210E+00	1.177E+01	1.844E+01	2.395E+00	-0.337
I-126		388.63		1.507E-02	2.783E-01	4.601E-01	2.738E-02	0.033
		666.33	*	-7.903E-02	4.047E-01	6.394E-01	4.246E-02	-0.124
		753.82		3.419E+00	3.086E+00	5.562E+00	4.398E-01	0.615
SB-126		414.70		2.515E-02	1.287E-01	2.140E-01	1.275E-02	0.117
		666.50		-3.265E-02	1.407E-01	2.216E-01	1.472E-02	-0.147
		695.00		-9.898E-02	1.508E-01	2.209E-01	1.556E-02	-0.448
		697.00		-3.777E-01	5.283E-01	7.728E-01	5.467E-02	-0.489
		720.70	*	-3.995E-02	2.831E-01	4.018E-01	2.981E-02	-0.099
	+	856.80		2.243E+00	1.167E+00	1.670E+00	1.588E-01	1.343
SB-127		252.40		1.272E+00	1.408E+01	2.369E+01	1.003E+01	0.054
		473.00		5.794E+00	5.622E+00	9.765E+00	1.297E+00	0.593
		685.70	*	-2.389E+00	4.793E+00	7.718E+00	9.490E-01	-0.309
		783.70		6.828E+00	1.330E+01	2.295E+01	3.219E+00	0.297
I-131		80.19		7.650E+00	8.857E+00	9.836E+00	7.719E-01	0.778
		284.31		5.211E-01	2.881E+00	4.731E+00	4.565E-01	0.110
		364.49	*	6.018E-02	2.252E-01	3.779E-01	2.860E-02	0.159
		636.99		1.961E+00	3.157E+00	5.345E+00	3.895E-01	0.367
TE-132		49.72		1.058E+01	2.243E+01	2.470E+01	2.944E+00	0.429
		111.76		-3.126E+01	1.392E+02	2.205E+02	3.390E+01	-0.142
		116.30		6.396E+01	1.186E+02	1.963E+02	3.164E+01	0.326
		228.16	*	-1.170E+00	3.026E+00	4.998E+00	8.923E-01	-0.234
BA-133	+	81.00		2.514E-01	9.888E-02	1.234E-01	1.854E-02	2.038
	+	276.40		5.617E-01	5.549E-01	6.737E-01	9.806E-02	0.834
		302.85		8.904E-02	1.731E-01	2.597E-01	3.425E-02	0.343
		356.01	*	2.219E-02	5.402E-02	8.010E-02	9.678E-03	0.277

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133		383.85		1.913E-01	3.553E-01	6.031E-01	6.551E-02	0.317
		529.87	*	1.278E+00	3.553E-01	Half-Life	too short	
		875.33		9.564E+00	3.553E-01	Half-Life	too short	
CS-134		1298.22		-4.132E+01	3.553E-01	Half-Life	too short	
		563.25		-1.486E-01	4.613E-01	7.172E-01	4.764E-02	-0.207
		569.33		5.289E-02	2.448E-01	3.999E-01	2.679E-02	0.132
		604.72		1.223E-01	5.032E-02	8.514E-02	5.631E-03	1.436
		795.86	*	8.034E-02	6.321E-02	1.138E-01	9.799E-03	0.706
		801.95		-9.219E-03	4.796E-01	7.975E-01	6.932E-02	-0.012
I-135		1365.19		4.363E-01	1.304E+00	2.212E+00	1.413E-01	0.197
		546.56		3.536E+16	1.304E+00	Half-Life	too short	
		836.80		1.342E+17	1.304E+00	Half-Life	too short	
		1038.76		4.761E+16	1.304E+00	Half-Life	too short	
		1131.51		3.704E+15	1.304E+00	Half-Life	too short	
		1260.41	*	8.427E+15	1.304E+00	Half-Life	too short	
	+	1457.56		6.143E+18	1.304E+00	Half-Life	too short	
		1678.03		-7.636E+16	1.304E+00	Half-Life	too short	
CS-136		1791.20		-6.963E+16	1.304E+00	Half-Life	too short	
		153.25		8.668E-01	1.370E+00	2.261E+00	2.854E-01	0.383
		176.60		-2.486E-01	7.806E-01	1.235E+00	1.328E-01	-0.201
		273.65		-5.632E-01	1.320E+00	1.209E+00	1.216E-01	-0.466
		340.55		4.734E-02	2.615E-01	3.812E-01	3.103E-02	0.124
		818.51		3.931E-02	1.262E-01	2.152E-01	1.919E-02	0.183
		1048.07	*	1.112E-02	1.729E-01	2.851E-01	2.443E-02	0.039
		1235.36		5.135E-01	1.086E+00	1.823E+00	1.806E-01	0.282
BA-137M		661.66	*	5.066E-02	4.979E-02	8.561E-02	5.629E-03	0.592
CS-137		661.66	*	5.351E-02	5.260E-02	9.043E-02	5.966E-03	0.592
CE-139		165.86	*	-1.668E-02	3.614E-02	5.700E-02	5.658E-03	-0.293
BA-140		162.66		1.181E-02	1.322E+00	2.131E+00	2.298E-01	0.006
		304.85		-6.691E-02	2.387E+00	3.446E+00	1.010E+00	-0.019
		423.72		-1.634E+00	3.327E+00	5.222E+00	1.687E+00	-0.313
LA-140	+	537.26	*	5.008E-02	4.284E-01	7.013E-01	2.345E-01	0.071
		328.76		9.287E-01	6.963E-01	8.392E-01	7.258E-02	1.107
		487.02		-9.328E-02	2.296E-01	3.632E-01	2.551E-02	-0.257
		815.77		6.215E-03	5.764E-01	9.588E-01	9.441E-02	0.006
		1596.21	*	-1.954E-01	1.398E-01	1.755E-01	1.031E-02	-1.113
CE-141		145.44	*	-3.429E-02	8.403E-02	1.336E-01	1.633E-02	-0.257
CE-143		57.36		3.260E-03	8.403E-02	Half-Life	too short	
	+	293.27	*	3.378E-02	8.403E-02	Half-Life	too short	
		664.57		-2.467E-02	8.403E-02	Half-Life	too short	
		721.93		-1.833E-02	8.403E-02	Half-Life	too short	
CE-144		80.12		2.542E+00	2.873E+00	3.195E+00	2.469E-01	0.796
		133.52	*	4.565E-02	2.613E-01	3.739E-01	6.835E-02	0.122
PM-144		476.78		-6.248E-02	8.195E-02	1.211E-01	8.801E-03	-0.516
		618.01		-9.264E-03	4.174E-02	6.606E-02	4.563E-03	-0.140
		696.49	*	-2.717E-02	4.832E-02	7.152E-02	5.059E-03	-0.380
PR-144		696.51	*	-2.060E+00	3.627E+00	5.365E+00	3.791E-01	-0.384
		1489.16		-5.811E+00	1.425E+01	2.218E+01	1.303E+00	-0.262
PM-146		453.88	*	3.507E-03	5.265E-02	8.653E-02	7.539E-03	0.041

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	633.25		-1.938E+00	1.931E+00	2.604E+00	9.840E-01	-0.744
		735.93		-9.925E-02	1.838E-01	2.907E-01	8.063E-02	-0.341
		747.24		-1.170E-01	1.248E-01	1.883E-01	2.659E-02	-0.621
		91.11		4.170E+00	6.449E-01	9.462E-01	8.423E-02	4.407
		319.41		6.335E-01	5.608E+00	9.137E+00	7.669E-01	0.069
PM-149	*	531.02		5.931E-01	1.016E+00	1.716E+00	2.371E-01	0.346
		285.90		3.348E-04	1.016E+00	Half-Life too short		
EU-152		121.78		-3.977E-02	8.675E-02	1.272E-01	1.900E-02	-0.313
		244.70		9.448E-02	3.896E-01	5.787E-01	5.642E-02	0.163
		344.28	*	1.191E-02	1.288E-01	1.866E-01	1.533E-02	0.064
		778.90		3.132E-02	3.410E-01	5.721E-01	4.741E-02	0.055
		964.08		1.133E+00	4.955E-01	8.324E-01	7.842E-02	1.361
GD-153		1085.87		-9.710E-02	5.183E-01	8.282E-01	6.235E-02	-0.117
		1112.07		-2.139E-01	4.845E-01	6.377E-01	4.490E-02	-0.335
		1408.01		5.800E-02	2.011E-01	3.485E-01	2.036E-02	0.166
		69.67		1.922E-01	1.352E+00	1.970E+00	1.566E-01	0.098
		97.43	*	1.546E-01	9.462E-02	1.450E-01	1.344E-02	1.066
EU-154		103.18		-7.148E-02	1.160E-01	1.849E-01	1.911E-02	-0.387
		123.07		4.432E-03	6.425E-02	9.174E-02	1.461E-02	0.048
		723.31		1.991E-01	2.571E-01	3.984E-01	3.367E-02	0.500
		873.19		2.798E-01	3.460E-01	6.104E-01	7.789E-02	0.458
		996.26		-2.956E-03	4.985E-01	8.187E-01	1.445E-01	-0.004
EU-155	+	1004.73		-1.998E-01	2.947E-01	4.538E-01	5.361E-02	-0.440
		1274.44	*	-1.582E-01	1.551E-01	2.207E-01	2.082E-02	-0.717
		86.55		4.726E-01	1.317E-01	1.733E-01	1.340E-02	2.726
		105.31	*	8.221E-02	1.109E-01	1.854E-01	2.008E-02	0.443
		86.79		1.326E+00	3.692E-01	4.874E-01	3.717E-02	2.721
TB-160	+	197.04		-3.671E-01	7.333E-01	1.122E+00	1.120E-01	-0.327
		215.65		1.117E-01	8.892E-01	1.507E+00	1.499E-01	0.074
		298.57		3.115E-01	1.860E-01	2.449E-01	2.180E-02	1.272
		879.36	*	-1.142E-01	1.857E-01	2.896E-01	2.861E-02	-0.394
		962.29		4.719E-01	8.662E-01	1.297E+00	1.225E-01	0.364
HO-166M	+	966.15		1.309E+00	5.545E-01	7.474E-01	7.021E-02	1.751
		1177.93		-2.342E-01	5.145E-01	7.976E-01	4.628E-02	-0.294
		1271.85		-3.689E-01	9.266E-01	1.433E+00	8.328E-02	-0.257
		80.57		3.287E-01	3.052E-01	3.441E-01	2.656E-02	0.955
		184.41		2.932E-01	7.308E-02	9.194E-02	9.174E-03	3.189
TA-182	+	280.46		-3.763E-02	1.044E-01	1.475E-01	1.366E-02	-0.255
		410.95		-1.182E-01	3.061E-01	4.917E-01	2.919E-02	-0.240
		711.68	*	-6.833E-02	7.014E-02	1.077E-01	7.844E-03	-0.635
		752.31		4.714E-01	3.448E-01	6.301E-01	4.968E-02	0.748
		810.29		-2.001E-02	6.759E-02	1.093E-01	9.588E-03	-0.183
		67.75		3.494E-02	9.841E-02	1.226E-01	9.817E-03	0.285
		100.11		1.466E-02	1.843E-01	3.023E-01	2.951E-02	0.049
		152.43		1.443E-01	4.264E-01	6.972E-01	7.953E-02	0.207
		222.11		3.422E-01	4.093E-01	7.105E-01	7.047E-02	0.482
		1121.30		2.877E-01	2.064E-01	3.376E-01	2.317E-02	0.852
		1189.05		-1.146E-01	4.266E-01	6.769E-01	3.930E-02	-0.169
		1221.41	*	2.048E-01	2.647E-01	4.574E-01	2.659E-02	0.448

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IR-192	+	1231.02		-4.166E-01	6.928E-01	1.068E+00	6.210E-02	-0.390
		295.96		1.391E+00	2.362E-01	3.490E-01	3.146E-02	3.987
		308.46		1.743E-02	1.156E-01	1.939E-01	1.690E-02	0.090
		316.51	*	4.566E-03	4.091E-02	6.842E-02	5.807E-03	0.067
BI-207	+	468.07		-1.574E-02	9.113E-02	1.264E-01	8.943E-03	-0.125
		72.81		1.148E+00	2.189E-01	2.908E-01	2.290E-02	3.947
		74.97		6.881E-01	1.312E-01	2.226E-01	1.742E-02	3.091
		569.70		-5.925E-03	3.871E-02	6.151E-02	4.026E-03	-0.096
		1063.66	*	4.704E-03	6.166E-02	1.017E-01	8.055E-03	0.046
PB-211	+	1770.23		9.249E-02	5.815E-01	9.842E-01	5.685E-02	0.094
		404.85	*	-5.204E-01	9.575E-01	1.472E+00	7.064E-01	-0.354
		427.09		7.650E-03	1.860E+00	3.053E+00	1.400E+00	0.003
BI-212	+	832.01		1.957E+00	1.661E+00	2.420E+00	1.257E+00	0.809
		727.33	*	1.714E+00	1.019E+00	1.335E+00	1.565E-01	1.284
		785.37		-7.847E-02	3.981E+00	6.620E+00	5.552E-01	-0.012
RN-219	+	1620.50		4.762E-01	2.577E+00	4.402E+00	2.583E-01	0.108
		271.23		7.238E-01	4.161E-01	5.196E-01	5.679E-02	1.393
		401.81	*	1.887E-01	5.018E-01	8.427E-01	1.135E-01	0.224
AC-227	+	79.69		-8.784E-01	1.167E+00	1.594E+00	2.680E-01	-0.551
		235.96		4.416E+00	5.872E-01	5.449E-01	6.194E-02	8.104
		256.23	*	1.469E-01	2.844E-01	4.870E-01	6.227E-02	0.302
		299.98		2.295E+00	1.387E+00	1.762E+00	2.269E-01	1.302
		304.50		3.311E-01	2.057E+00	3.011E+00	4.999E-01	0.110
TH-227	+	334.37		1.790E+00	2.412E+00	3.460E+00	5.271E-01	0.517
		79.80		1.823E+00	1.894E+00	2.080E+00	4.460E-01	0.876
		235.96		4.416E+00	5.673E-01	5.449E-01	5.906E-02	8.104
		256.23	*	1.469E-01	2.846E-01	4.870E-01	6.945E-02	0.302
		299.98		2.295E+00	1.387E+00	1.762E+00	2.269E-01	1.302
PA-231	+	304.50		3.311E-01	2.057E+00	3.011E+00	4.999E-01	0.110
		334.37		1.790E+00	2.412E+00	3.460E+00	5.271E-01	0.517
		283.69	*	-1.460E-01	1.716E+00	2.692E+00	4.021E-01	-0.054
		301.36		1.475E+00	8.896E-01	1.132E+00	1.393E-01	1.303
		300.13		1.039E+00	6.328E-01	8.020E-01	1.201E-01	1.295
PA-233	+	311.90	*	-3.357E-03	7.318E-02	1.214E-01	1.073E-02	-0.028
		340.48		2.740E-01	8.183E-01	1.203E+00	2.860E-01	0.228
		94.67		1.938E+00	3.390E-01	3.094E-01	3.870E-02	6.264
PA-234	+	98.44		1.261E-01	1.197E-01	1.546E-01	8.648E-02	0.815
		111.00		-3.804E-03	2.050E-01	3.274E-01	4.774E-02	-0.012
		131.20		5.694E-02	1.335E-01	1.936E-01	2.599E-02	0.294
		569.50		5.617E-02	3.343E-01	5.443E-01	3.562E-02	0.103
		733.00		-5.978E-02	4.763E-01	7.514E-01	1.639E-01	-0.080
		880.51		-3.674E-02	3.437E-01	5.632E-01	5.575E-02	-0.065
		883.24		3.311E-01	4.057E-01	6.101E-01	4.112E-01	0.543
		926.50		-8.207E-02	2.264E-01	3.597E-01	9.258E-02	-0.228
		946.00	*	1.906E-01	3.948E-01	6.749E-01	1.300E-01	0.282
		949.00		7.445E-01	5.982E-01	1.079E+00	1.037E-01	0.690
PA-234M		766.42		2.374E+01	1.973E+01	2.856E+01	1.446E+01	0.831
NP-239		1001.03	*	5.126E+00	6.617E+00	1.134E+01	1.159E+00	0.452
		99.53		1.219E-01	1.644E-01	2.753E-01	2.658E-02	0.443

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		103.37		1.053E-02	1.019E-01	1.671E-01	1.734E-02	0.063
		106.12		7.840E-02	8.932E-02	1.497E-01	1.633E-02	0.524
		117.23	*	8.053E-02	4.404E-01	7.218E-01	9.492E-02	0.112
		228.18		-9.165E-02	2.396E-01	3.965E-01	3.919E-02	-0.231
	+	277.60		2.774E-01	2.723E-01	3.378E-01	3.144E-02	0.821
AM-241		59.54	*	7.460E-02	8.047E-02	1.211E-01	1.084E-02	0.616
CM-247	+	278.00		1.178E+00	1.157E+00	1.428E+00	1.328E-01	0.825
		287.50		1.432E+00	1.442E+00	2.395E+00	2.186E-01	0.598
		402.40	*	2.000E-02	4.680E-02	7.886E-02	4.640E-03	0.254
CF-249		252.80		3.282E-02	1.052E+00	1.767E+00	1.707E-01	0.019
		333.37		-3.280E-02	3.065E-01	3.427E-01	2.739E-02	-0.096
		388.16	*	2.099E-02	4.794E-02	8.101E-02	4.838E-03	0.259
CF-251		177.52	*	-1.245E-01	1.498E-01	2.307E-01	2.298E-02	-0.540
		227.38		-2.546E-01	3.944E-01	6.444E-01	6.372E-02	-0.395
		285.41		5.917E-01	2.459E+00	4.153E+00	3.807E-01	0.142

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]G248028003      *
* Acquisition date   : 12-MAR-2010 16:50:06 Detector SN#                   *
* Detector ID        : GAM05 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 2.600                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.79 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID        : G248028003 Analyst initials: MXR1                   *
* Batch Number     : 958220 Sample Quantity : 1.2288E+02 GRAM            *
* Recovery         : 1.00000 Carrier Weight : 0.00000                    *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME : 11-JUN-2009 16:41:00 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.379E+01	2.334E+00	6.144E-01	0.000E+00
ZN-65	4.597E-01	1.999E-01	1.780E-01	0.000E+00
NB-95M	3.921E+00	4.975E-01	2.365E-01	0.000E+00
CD-109	4.014E+00	1.095E+00	1.079E+00	0.000E+00
SN-126	3.888E-01	1.061E-01	1.044E-01	0.000E+00
CS-135	4.885E-01	2.750E-01	2.909E-01	0.000E+00
HG-203	6.737E-02	6.483E-02	7.737E-02	0.000E+00
TL-208	4.856E-01	9.177E-02	6.844E-02	0.000E+00
PB-210	1.047E+00	8.853E-01	9.476E-01	0.000E+00
BI-211	4.005E+00	6.111E-01	3.949E-01	0.000E+00
PB-212	1.772E+00	2.232E-01	1.055E-01	0.000E+00
BI-214	1.343E+00	2.286E-01	1.447E-01	0.000E+00
PB-214	1.453E+00	2.353E-01	1.436E-01	0.000E+00
RA-223	1.685E-01	7.797E-01	1.188E+00	0.000E+00
RA-224	3.934E+00	1.258E+00	1.131E+00	0.000E+00
RA-226	1.343E+00	2.286E-01	1.447E-01	0.000E+00
AC-228	1.783E+00	3.974E-01	3.005E-01	0.000E+00
RA-228	1.783E+00	3.974E-01	3.005E-01	0.000E+00
TH-228	1.772E+00	2.232E-01	1.055E-01	0.000E+00
TH-229	-6.426E-01	6.327E-01	1.008E+00	0.000E+00
TH-231	1.685E-01	7.797E-01	1.188E+00	0.000E+00
TH-232	1.783E+00	3.974E-01	3.005E-01	0.000E+00
TH-234	4.259E+00	1.391E+00	1.224E+00	0.000E+00
U-235	4.101E-01	2.432E-01	4.175E-01	0.000E+00
NP-237	1.160E+00	3.963E-01	3.105E-01	0.000E+00
U-238	4.259E+00	1.391E+00	1.224E+00	0.000E+00
ANH-511	1.482E-01	8.329E-02	5.829E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)
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BE-7	-3.408E-01	4.288E-01	6.548E-01	0.000E+00	NOT IDENT.
NA-22	-5.711E-02	5.356E-02	7.775E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.972E+08	0.000E+00	0.000E+00	SHORT HLIF
SC-46	6.742E-03	4.609E-02	7.927E-02	0.000E+00	NOT IDENT.
V-48	3.231E-02	1.207E-01	2.078E-01	0.000E+00	NOT IDENT.
CR-51	1.235E-02	5.225E-01	8.219E-01	0.000E+00	NOT IDENT.
MN-54	-2.063E-03	5.049E-02	8.578E-02	0.000E+00	NOT IDENT.
CO-56	-2.280E-02	4.709E-02	7.649E-02	0.000E+00	NOT IDENT.
CO-57	-3.934E-03	2.968E-02	4.664E-02	0.000E+00	NOT IDENT.
CO-58	1.578E-02	4.553E-02	8.011E-02	0.000E+00	NOT IDENT.
FE-59	-2.198E-02	1.258E-01	2.067E-01	0.000E+00	NOT IDENT.
CO-60	-2.657E-03	4.821E-02	7.883E-02	0.000E+00	NOT IDENT.
SE-75	-7.224E-03	5.674E-02	8.535E-02	0.000E+00	NOT IDENT.
SR-85	1.462E-03	5.574E-02	8.110E-02	0.000E+00	NOT IDENT.
Y-88	5.303E-03	4.179E-02	7.145E-02	0.000E+00	NOT IDENT.
Y-91	3.845E+01	2.855E+01	5.270E+01	0.000E+00	NOT IDENT.
NB-94	2.249E-02	4.343E-02	7.730E-02	0.000E+00	NOT IDENT.
NB-95	1.012E-01	6.216E-02	1.162E-01	0.000E+00	NOT IDENT.
ZR-95	-5.568E-02	9.359E-02	1.528E-01	0.000E+00	NOT IDENT.
MO-99	2.279E+01	7.042E+01	1.237E+02	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.527E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.505E-02	5.236E-02	8.629E-02	0.000E+00	FAIL ABUN
RH-106	9.027E-02	3.997E-01	6.749E-01	0.000E+00	NOT IDENT.
RU-106	9.027E-02	3.996E-01	6.749E-01	0.000E+00	NOT IDENT.
AG-108M	3.098E-03	3.691E-02	6.298E-02	0.000E+00	NOT IDENT.
AG-110M	7.042E-03	4.854E-02	8.112E-02	0.000E+00	NOT IDENT.
SN-113	-1.317E-02	5.329E-02	8.965E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	8.888E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-5.712E-02	8.687E-02	1.426E-01	0.000E+00	NOT IDENT.
TE-123M	-1.730E-02	4.340E-02	5.674E-02	0.000E+00	NOT IDENT.
SB-124	-2.121E-03	7.906E-02	1.320E-01	0.000E+00	NOT IDENT.
SB-125	4.511E-02	1.118E-01	1.944E-01	0.000E+00	FAIL ABUN
TE-125M	-6.210E+00	1.154E+01	1.904E+01	0.000E+00	NOT IDENT.
I-126	-7.903E-02	3.966E-01	6.451E-01	0.000E+00	NOT IDENT.
SB-126	-3.995E-02	2.774E-01	4.050E-01	0.000E+00	FAIL ABUN
SB-127	-2.389E+00	4.697E+00	7.784E+00	0.000E+00	NOT IDENT.
I-131	6.018E-02	2.207E-01	3.843E-01	0.000E+00	NOT IDENT.
TE-132	-1.170E+00	2.966E+00	5.114E+00	0.000E+00	NOT IDENT.
BA-133	2.219E-02	5.293E-02	8.147E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	9.269E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.034E-02	6.195E-02	1.145E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.752E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.112E-02	1.694E-01	2.859E-01	0.000E+00	NOT IDENT.
BA-137M	5.066E-02	4.880E-02	8.638E-02	0.000E+00	NOT IDENT.
CS-137	5.351E-02	5.155E-02	9.125E-02	0.000E+00	NOT IDENT.
CE-139	-1.668E-02	3.542E-02	5.855E-02	0.000E+00	NOT IDENT.
BA-140	5.008E-02	4.198E-01	7.095E-01	0.000E+00	NOT IDENT.
LA-140	-1.954E-01	1.370E-01	1.750E-01	0.000E+00	FAIL ABUN
CE-141	-3.429E-02	8.235E-02	1.374E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	9.388E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	4.565E-02	2.561E-01	3.851E-01	0.000E+00	NOT IDENT.
PM-144	-2.717E-02	4.736E-02	7.212E-02	0.000E+00	NOT IDENT.
PR-144	-2.060E+00	3.554E+00	5.409E+00	0.000E+00	NOT IDENT.
PM-146	3.507E-03	5.160E-02	8.774E-02	0.000E+00	NOT IDENT.
ND-147	5.931E-01	9.959E-01	1.736E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	6.817E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	1.191E-02	1.263E-01	1.899E-01	0.000E+00	NOT IDENT.
GD-153	0.000E+00	9.272E-02	1.499E-01	0.000E+00	NOT IDENT.
EU-154	-1.582E-01	1.520E-01	2.208E-01	0.000E+00	NOT IDENT.
EU-155	8.221E-02	1.087E-01	1.915E-01	0.000E+00	FAIL ABUN
TB-160	-1.142E-01	1.820E-01	2.911E-01	0.000E+00	FAIL ABUN
HO-166M	-6.833E-02	6.874E-02	1.085E-01	0.000E+00	FAIL ABUN
TA-182	2.048E-01	2.594E-01	4.578E-01	0.000E+00	NOT IDENT.
IR-192	4.566E-03	4.009E-02	6.971E-02	0.000E+00	FAIL ABUN
BI-207	4.704E-03	6.043E-02	1.020E-01	0.000E+00	FAIL ABUN
PB-211	-5.204E-01	9.384E-01	1.495E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	9.983E-01	1.345E+00	0.000E+00	FAIL ABUN
RN-219	1.887E-01	4.917E-01	8.558E-01	0.000E+00	FAIL ABUN
AC-227	1.469E-01	2.788E-01	4.975E-01	0.000E+00	FAIL ABUN
TH-227	1.469E-01	2.789E-01	4.975E-01	0.000E+00	FAIL ABUN
PA-231	-1.460E-01	1.682E+00	2.747E+00	0.000E+00	FAIL ABUN
PA-233	-3.357E-03	7.171E-02	1.237E-01	0.000E+00	FAIL ABUN
PA-234	1.906E-01	3.869E-01	6.778E-01	0.000E+00	FAIL ABUN
PA-234M	5.126E+00	6.485E+00	1.138E+01	0.000E+00	NOT IDENT.
NP-239	8.053E-02	4.316E-01	7.447E-01	0.000E+00	FAIL ABUN
AM-241	7.460E-02	7.886E-02	1.260E-01	0.000E+00	NOT IDENT.
CM-247	2.000E-02	4.586E-02	8.009E-02	0.000E+00	FAIL ABUN
CF-249	2.099E-02	4.698E-02	8.231E-02	0.000E+00	NOT IDENT.

CF-251	-1.245E-01	1.468E-01	2.367E-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]G248028003.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:06
Sample ID          : G248028003 Sample quantity      : 1.22880E+02 GRAM
Detector name      : GAM05 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.79 0.0%
Energy tolerance   : 2.60000 keV Analyst Initials    : MXR1
Abundance limit    : 75.00000 Sensitivity           : 5.00000
Batch ID           : 958220 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	834	10.66*	1.005E+00	2.379E+01	2.379E+01	10.01
ZN-65	1115.54	90	50.60*	1.260E+00	4.328E-01	4.597E-01	44.38
NB-95M	235.69	1209	24.80*	4.781E+00	3.116E+00	3.921E+00	12.95
CD-109	88.03	371	3.70*	7.868E+00	3.888E+00	4.014E+00	27.84
SN-126	64.28	416	9.60	8.063E+00	1.642E+00	1.642E+00	31.69
	86.94	371	8.90	7.868E+00	1.616E+00	1.616E+00	49.10
	87.57	371	37.00*	7.868E+00	3.888E-01	3.888E-01	27.84
CS-135	268.22	111	16.00*	4.357E+00	4.885E-01	4.885E-01	57.44
HG-203	70.83	-----	3.69	8.065E+00	-----	Line Not Found	-----
	72.87	646	6.19	8.042E+00	3.964E+00	5.437E+00	23.04
	279.20	56	81.56*	4.267E+00	4.912E-02	6.737E-02	98.18
TL-208	277.37	56	6.60	4.267E+00	6.070E-01	6.070E-01	98.59
	583.19	306	85.00*	2.263E+00	4.856E-01	4.856E-01	19.28
	860.56	62	12.50	1.592E+00	9.585E-01	9.585E-01	52.14
PB-210	46.54	111	4.25*	7.602E+00	1.045E+00	1.047E+00	86.28
BI-211	72.87	646	1.23	8.042E+00	1.995E+01	1.995E+01	19.07
	351.06	597	12.92*	3.522E+00	4.005E+00	4.005E+00	15.57
PB-212	74.82	646	10.28	8.042E+00	2.387E+00	2.387E+00	21.41
	77.11	1009	17.10	8.017E+00	2.249E+00	2.249E+00	12.79
	238.63	1209	43.60*	4.781E+00	1.772E+00	1.772E+00	12.85
	300.09	90	3.30	4.014E+00	2.087E+00	2.087E+00	60.03
BI-214	609.32	435	45.49*	2.175E+00	1.343E+00	1.343E+00	17.37
	1120.29	90	14.92	1.260E+00	1.468E+00	1.468E+00	44.88
	1764.49	-----	15.30	8.612E-01	-----	Line Not Found	-----
PB-214	74.82	646	5.80	8.042E+00	4.230E+00	4.230E+00	20.65
	77.11	1009	9.70	8.017E+00	3.965E+00	3.965E+00	15.22
	242.00	250	7.25	4.739E+00	2.225E+00	2.225E+00	33.13
	295.22	436	18.42	4.065E+00	1.777E+00	1.777E+00	18.15
	351.93	597	35.60*	3.522E+00	1.453E+00	1.453E+00	16.52
RA-223	81.07	221	15.00	7.922E+00	5.693E-01	5.693E-01	37.16
	83.79	221	24.70	7.922E+00	3.457E-01	3.457E-01	37.16
	94.87	773	5.69	7.762E+00	5.348E+00	5.348E+00	15.04

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	144.24	-----	3.27	6.545E+00	-----	Line Not Found	-----
	154.21	-----	5.70	6.318E+00	-----	Line Not Found	-----
	269.46	111	13.90	4.357E+00	5.623E-01	5.623E-01	57.25
	323.87	-----	3.99*	3.766E+00	-----	Line Not Found	-----
	338.28	207	2.84	3.640E+00	6.116E+00	6.116E+00	30.24
RA-224	240.99	250	4.10*	4.739E+00	3.934E+00	3.934E+00	32.62
RA-226	609.32	435	45.49*	2.175E+00	1.343E+00	1.343E+00	17.37
	1120.29	90	14.92	1.260E+00	1.468E+00	1.468E+00	44.88
	1764.49	-----	15.30	8.612E-01	-----	Line Not Found	-----
AC-228	338.32	207	11.27	3.640E+00	1.541E+00	1.541E+00	50.09
	911.20	228	25.80*	1.513E+00	1.783E+00	1.783E+00	22.74
	968.97	121	15.80	1.431E+00	1.635E+00	1.635E+00	48.10
RA-228	338.32	207	11.27	3.640E+00	1.541E+00	1.541E+00	50.09
	911.20	228	25.80*	1.513E+00	1.783E+00	1.783E+00	22.74
	968.97	121	15.80	1.431E+00	1.635E+00	1.635E+00	48.10
TH-228	74.82	646	10.28	8.042E+00	2.387E+00	2.387E+00	19.11
	77.11	1009	17.10	8.017E+00	2.249E+00	2.249E+00	12.79
	238.63	1209	43.60*	4.781E+00	1.772E+00	1.772E+00	12.85
	300.09	90	3.30	4.014E+00	2.087E+00	2.087E+00	85.08
TH-229	85.43	371	14.70	7.868E+00	9.786E-01	9.787E-01	27.84
	88.47	280	24.00	7.818E+00	4.554E-01	4.554E-01	30.70
	193.51	-----	4.41*	5.516E+00	-----	Line Not Found	-----
	210.85	76	2.80	5.247E+00	1.582E+00	1.582E+00	83.40
TH-231	81.07	221	15.00	7.922E+00	5.693E-01	5.693E-01	37.16
	83.79	221	24.70	7.922E+00	3.457E-01	3.457E-01	37.16
	94.87	773	5.69	7.762E+00	5.348E+00	5.348E+00	15.04
	144.24	-----	3.27	6.545E+00	-----	Line Not Found	-----
	154.21	-----	5.70	6.318E+00	-----	Line Not Found	-----
	269.46	111	13.90	4.357E+00	5.623E-01	5.623E-01	57.25
	323.87	-----	3.99*	3.766E+00	-----	Line Not Found	-----
	338.28	207	2.84	3.640E+00	6.116E+00	6.116E+00	30.24
TH-232	338.32	207	11.27	3.640E+00	1.541E+00	1.541E+00	29.04
	911.20	228	25.80*	1.513E+00	1.783E+00	1.783E+00	22.74
	968.97	121	15.80	1.431E+00	1.635E+00	1.635E+00	48.10
TH-234	63.29	416	3.70*	8.063E+00	4.259E+00	4.259E+00	33.33
	92.59	773	4.23	7.762E+00	7.194E+00	7.194E+00	25.29
U-235	89.96	280	3.47	7.818E+00	3.150E+00	3.150E+00	38.39
	93.35	773	5.60	7.762E+00	5.434E+00	5.434E+00	26.18
	143.76	-----	10.96*	6.557E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.119E+00	-----	Line Not Found	-----
	185.72	392	57.20	5.673E+00	3.691E-01	3.691E-01	24.92
	205.31	-----	5.01	5.304E+00	-----	Line Not Found	-----
NP-237	86.48	371	12.40*	7.868E+00	1.160E+00	1.160E+00	34.85
	95.86	-----	2.68	7.688E+00	-----	Line Not Found	-----
U-238	63.29	416	3.70*	8.063E+00	4.259E+00	4.259E+00	33.33
	92.59	773	4.23	7.762E+00	7.194E+00	7.194E+00	15.04
ANH-511	511.00	124	100.00*	2.551E+00	1.482E-01	1.482E-01	57.33

Flag: "*" = Keyline

Total number of lines in spectrum 32
Number of unidentified lines 3
Number of lines tentatively identified by NID 29 90.63%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.379E+01	2.379E+01	0.238E+01	10.01	
ZN-65	244.06D	1.06	4.328E-01	4.597E-01	2.040E-01	44.38	
NB-95M	64.03D	1.26	3.116E+00	3.921E+00	0.508E+00	12.95	
CD-109	461.40D	1.03	3.888E+00	4.014E+00	1.118E+00	27.84	
SN-126	2.30E+05Y	1.00	3.888E-01	3.888E-01	1.082E-01	27.84	
CS-135	2.30E+06Y	1.00	4.885E-01	4.885E-01	2.806E-01	57.44	
HG-203	46.59D	1.37	4.912E-02	6.737E-02	6.615E-02	98.18	
TL-208	1.41E+10Y	1.00	4.856E-01	4.856E-01	0.936E-01	19.28	
PB-210	22.20Y	1.00	1.045E+00	1.047E+00	0.903E+00	86.28	
BI-211	7.04E+08Y	1.00	4.005E+00	4.005E+00	0.624E+00	15.57	
PB-212	1.41E+10Y	1.00	1.772E+00	1.772E+00	0.228E+00	12.85	
BI-214	1600.00Y	1.00	1.343E+00	1.343E+00	0.233E+00	17.37	
PB-214	1600.00Y	1.00	1.453E+00	1.453E+00	0.240E+00	16.52	
RA-223	7.04E+08Y	1.00	3.457E-01	3.457E-01	1.285E-01	37.16	K
RA-224	1.41E+10Y	1.00	3.934E+00	3.934E+00	1.283E+00	32.62	
RA-226	1600.00Y	1.00	1.343E+00	1.343E+00	0.233E+00	17.37	
AC-228	1.41E+10Y	1.00	1.783E+00	1.783E+00	0.405E+00	22.74	
RA-228	1.41E+10Y	1.00	1.783E+00	1.783E+00	0.405E+00	22.74	
TH-228	1.41E+10Y	1.00	1.772E+00	1.772E+00	0.228E+00	12.85	
TH-229	7340.00Y	1.00	4.554E-01	4.554E-01	1.398E-01	30.70	K
TH-231	7.04E+08Y	1.00	3.457E-01	3.457E-01	1.285E-01	37.16	K
TH-232	1.41E+10Y	1.00	1.783E+00	1.783E+00	0.405E+00	22.74	
TH-234	4.47E+09Y	1.00	4.259E+00	4.259E+00	1.419E+00	33.33	
U-235	7.04E+08Y	1.00	3.691E-01	3.691E-01	0.920E-01	24.92	K
NP-237	2.14E+06Y	1.00	1.160E+00	1.160E+00	0.404E+00	34.85	
U-238	4.47E+09Y	1.00	4.259E+00	4.259E+00	1.419E+00	33.33	
ANH-511	1.00E+09Y	1.00	1.482E-01	1.482E-01	0.850E-01	57.33	
Total Activity :			6.599E+01	6.697E+01			

Grand Total Activity : 6.599E+01 6.697E+01

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

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

Unidentified Energy Lines
Sample ID : G248028003

Page : 4
Acquisition date : 12-MAR-2010 16:50:06

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	52.71	89	429	1.30	106.39	103	8	1.24E-02	84.5	7.88E+00	
0	127.89	155	423	1.35	256.75	252	11	2.15E-02	53.9	6.93E+00	
0	326.65	73	165	1.24	654.19	649	12	1.01E-02	74.5	3.74E+00	T
0	462.22	75	107	1.02	925.23	921	10	1.05E-02	56.0	2.78E+00	T
0	726.83	69	81	1.96	1454.18	1443	14	9.62E-03	58.3	1.85E+00	T
0	1761.60	60	7	3.43	3521.53	3515	13	8.32E-03	33.1	8.62E-01	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028003.CNF;1
* Acquisition date   : 12-MAR-2010 16:50:06  Detector SN#      :
* Detector ID        : GAM05                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 2.60000
* Elapsed live time  : 0 02:00:00.00          Abundance limit    : 75.00000
* Elapsed real time  : 0 02:00:01.79          Half life ratio   : 8.00000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 19-FEB-2010 12:00:00  Nuclide Library   : SOLID
* Sample ID          : G248028003            Analyst initials: MXR1
* Batch Number       : 958220                Sample Quantity  : 1.22880E+02 GRAM
*****
*                               QC DATA                                *
*
* CALIB. DATE/TIME   : 11-JUN-2009 16:41:00.5MS Isotope       :
* MSD ID              :                      MSD Isotope       :
* LCS ID              : 1032-A                LCS Isotope      :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.379E+01	2.382E+00	6.154E-01	3.827E-02	38.656
ZN-65	4.597E-01	2.040E-01	1.777E-01	1.241E-02	2.587
NB-95M	3.921E+00	5.076E-01	2.313E-01	2.533E-02	16.958
CD-109	4.014E+00	1.118E+00	1.042E+00	7.934E-02	3.853
SN-126	3.888E-01	1.082E-01	1.008E-01	7.675E-03	3.858
CS-135	4.885E-01	2.806E-01	2.849E-01	3.048E-02	1.715
HG-203	6.737E-02	6.615E-02	7.582E-02	7.192E-03	0.889
TL-208	4.856E-01	9.364E-02	6.771E-02	4.973E-03	7.172
PB-210	1.047E+00	9.034E-01	9.079E-01	7.003E-02	1.153
BI-211	4.005E+00	6.236E-01	3.881E-01	3.076E-02	10.318
PB-212	1.772E+00	2.278E-01	1.032E-01	1.117E-02	17.177
BI-214	1.343E+00	2.332E-01	1.433E-01	1.209E-02	9.370
PB-214	1.453E+00	2.401E-01	1.412E-01	1.360E-02	10.295
RA-223	3.457E-01	1.285E-01	1.166E+00	2.002E-01	0.296
RA-224	3.934E+00	1.283E+00	1.106E+00	1.082E-01	3.557
RA-226	1.343E+00	2.332E-01	1.433E-01	1.209E-02	9.370
AC-228	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961
RA-228	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.772E+00	2.278E-01	1.032E-01	1.117E-02	17.177
TH-229	4.554E-01	1.398E-01	9.832E-01	9.819E-02	0.463
TH-231	3.457E-01	1.285E-01	1.166E+00	2.002E-01	0.296
TH-232	1.783E+00	4.055E-01	2.991E-01	3.796E-02	5.961
TH-234	4.259E+00	1.419E+00	1.177E+00	2.136E-01	3.619
U-235	3.691E-01	9.199E-02	4.057E-01	7.739E-02	0.910
NP-237	1.160E+00	4.044E-01	2.998E-01	6.689E-02	3.870
U-238	4.259E+00	1.419E+00	1.177E+00	2.136E-01	3.619
ANH-511	1.482E-01	8.499E-02	5.758E-02	3.685E-03	2.575

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.408E-01		4.375E-01	6.462E-01	4.627E-02	-0.527
NA-22	-5.711E-02		5.466E-02	7.773E-02	4.527E-03	-0.735
NA-24	-7.949E+02		4.067E+02	Half-Life	too short	
SC-46	6.742E-03		4.703E-02	7.887E-02	7.922E-03	0.085
V-48	3.231E-02		1.231E-01	2.071E-01	1.897E-02	0.156
CR-51	1.235E-02		5.332E-01	8.069E-01	7.130E-02	0.015
MN-54	-2.063E-03		5.152E-02	8.527E-02	7.812E-03	-0.024
CO-56	-2.280E-02		4.805E-02	7.605E-02	7.112E-03	-0.300
CO-57	-3.934E-03		3.029E-02	4.523E-02	6.417E-03	-0.087
CO-58	1.578E-02		4.646E-02	7.961E-02	7.006E-03	0.198
FE-59	-2.198E-02		1.283E-01	2.062E-01	1.670E-02	-0.107
CO-60	-2.657E-03		4.919E-02	7.886E-02	4.563E-03	-0.034
SE-75	-7.224E-03		5.790E-02	8.359E-02	7.980E-03	-0.086
SR-85	1.462E-03		5.687E-02	8.011E-02	5.135E-03	0.018
Y-88	5.303E-03		4.265E-02	7.178E-02	4.107E-03	0.074
Y-91	3.845E+01		2.914E+01	5.264E+01	3.059E+00	0.730
NB-94	2.249E-02		4.431E-02	7.667E-02	5.486E-03	0.293
NB-95	1.012E-01		6.343E-02	1.154E-01	9.336E-03	0.877
ZR-95	-5.568E-02		9.550E-02	1.517E-01	1.353E-02	-0.367
MO-99	2.279E+01		7.185E+01	1.228E+02	1.875E+01	0.186
TC-99M	-6.322E+17		4.861E+17	Half-Life	too short	
RU-103	-1.505E-02		5.343E-02	8.520E-02	1.081E-02	-0.177
RH-106	9.027E-02		4.079E-01	6.683E-01	8.044E-02	0.135
RU-106	9.027E-02		4.078E-01	6.683E-01	4.405E-02	0.135
AG-108M	3.098E-03		3.766E-02	6.207E-02	4.008E-03	0.050
AG-110M	7.042E-03		4.953E-02	8.038E-02	5.557E-03	0.088
SN-113	-1.317E-02		5.437E-02	8.825E-02	5.474E-03	-0.149
CD-115	4.137E-05		4.535E-05	Half-Life	too short	
SN-117M	-5.712E-02		8.864E-02	1.388E-01	1.492E-02	-0.412
TE-123M	-1.730E-02		3.500E-02	5.520E-02	5.932E-03	-0.313
SB-124	-2.121E-03		8.067E-02	1.325E-01	8.424E-03	-0.016
SB-125	4.511E-02		1.140E-01	1.916E-01	1.200E-02	0.235
TE-125M	-6.210E+00		1.177E+01	1.844E+01	2.395E+00	-0.337
I-126	-7.903E-02		4.047E-01	6.394E-01	4.246E-02	-0.124

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126	-3.995E-02		2.831E-01	4.018E-01	2.981E-02	-0.099
SB-127	-2.389E+00		4.793E+00	7.718E+00	9.490E-01	-0.309
I-131	6.018E-02		2.252E-01	3.779E-01	2.860E-02	0.159
TE-132	-1.170E+00		3.026E+00	4.998E+00	8.923E-01	-0.234
BA-133	2.219E-02		5.402E-02	8.010E-02	9.678E-03	0.277
I-133	1.278E+00		4.729E-01	Half-Life too short		
CS-134	8.034E-02		6.321E-02	1.138E-01	9.799E-03	0.706
I-135	8.427E+15		1.914E+16	Half-Life too short		
CS-136	1.112E-02		1.729E-01	2.851E-01	2.443E-02	0.039
BA-137M	5.066E-02		4.979E-02	8.561E-02	5.629E-03	0.592
CS-137	5.351E-02		5.260E-02	9.043E-02	5.966E-03	0.592
CE-139	-1.668E-02		3.614E-02	5.700E-02	5.658E-03	-0.293
BA-140	5.008E-02		4.284E-01	7.013E-01	2.345E-01	0.071
LA-140	-1.954E-01		1.398E-01	1.755E-01	1.031E-02	-1.113
CE-141	-3.429E-02		8.403E-02	1.336E-01	1.633E-02	-0.257
CE-143	3.378E-02	+	4.790E-03	Half-Life too short		
CE-144	4.565E-02		2.613E-01	3.739E-01	6.835E-02	0.122
PM-144	-2.717E-02		4.832E-02	7.152E-02	5.059E-03	-0.380
PR-144	-2.060E+00		3.627E+00	5.365E+00	3.791E-01	-0.384
PM-146	3.507E-03		5.265E-02	8.653E-02	7.539E-03	0.041
ND-147	5.931E-01		1.016E+00	1.716E+00	2.371E-01	0.346
PM-149	3.348E-04		3.478E-04	Half-Life too short		
EU-152	1.191E-02		1.288E-01	1.866E-01	1.533E-02	0.064
GD-153	1.546E-01		9.462E-02	1.450E-01	1.344E-02	1.066
EU-154	-1.582E-01		1.551E-01	2.207E-01	2.082E-02	-0.717
EU-155	8.221E-02		1.109E-01	1.854E-01	2.008E-02	0.443
TB-160	-1.142E-01		1.857E-01	2.896E-01	2.861E-02	-0.394
HO-166M	-6.833E-02		7.014E-02	1.077E-01	7.844E-03	-0.635
TA-182	2.048E-01		2.647E-01	4.574E-01	2.659E-02	0.448
IR-192	4.566E-03		4.091E-02	6.842E-02	5.807E-03	0.067
BI-207	4.704E-03		6.166E-02	1.017E-01	8.055E-03	0.046
PB-211	-5.204E-01		9.575E-01	1.472E+00	7.064E-01	-0.354
BI-212	1.714E+00	+	1.019E+00	1.335E+00	1.565E-01	1.284
RN-219	1.887E-01		5.018E-01	8.427E-01	1.135E-01	0.224
AC-227	1.469E-01		2.844E-01	4.870E-01	6.227E-02	0.302
TH-227	1.469E-01		2.846E-01	4.870E-01	6.945E-02	0.302
PA-231	-1.460E-01		1.716E+00	2.692E+00	4.021E-01	-0.054
PA-233	-3.357E-03		7.318E-02	1.214E-01	1.073E-02	-0.028
PA-234	1.906E-01		3.948E-01	6.749E-01	1.300E-01	0.282
PA-234M	5.126E+00		6.617E+00	1.134E+01	1.159E+00	0.452
NP-239	8.053E-02		4.404E-01	7.218E-01	9.492E-02	0.112
AM-241	7.460E-02		8.047E-02	1.211E-01	1.084E-02	0.616
CM-247	2.000E-02		4.680E-02	7.886E-02	4.640E-03	0.254
CF-249	2.099E-02		4.794E-02	8.101E-02	4.838E-03	0.259
CF-251	-1.245E-01		1.498E-01	2.307E-01	2.298E-02	-0.540

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]G248028003           *
* Acquisition date   : 12-MAR-2010 16:50:06 Detector SN# :                 *
* Detector ID        : GAM05 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 2.600                       *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000            *
* Elapsed real time  : 0 02:00:01.79 Half life ratio : 8.000             *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248028003 Analyst initials: MXR1                  *
* Batch Number       : 958220 Sample Quantity : 1.2288E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                                *
*
* CALIB. DATE/TIME  : 11-JUN-2009 16:41:00 MS Isotope :                 *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.379E+01	2.334E+00	3.074E-01	1.191E+00
ZN-65	4.597E-01	1.999E-01	8.908E-02	1.020E-01
NB-95M	3.921E+00	4.975E-01	1.183E-01	2.538E-01
CD-109	4.014E+00	1.095E+00	5.397E-01	5.588E-01
SN-126	3.888E-01	1.061E-01	5.221E-02	5.412E-02
CS-135	4.885E-01	2.750E-01	1.455E-01	1.403E-01
HG-203	6.737E-02	6.483E-02	3.871E-02	3.308E-02
TL-208	4.856E-01	9.177E-02	3.424E-02	4.682E-02
PB-210	1.047E+00	8.853E-01	4.741E-01	4.517E-01
BI-211	4.005E+00	6.111E-01	1.976E-01	3.118E-01
PB-212	1.772E+00	2.232E-01	5.278E-02	1.139E-01
BI-214	1.343E+00	2.286E-01	7.241E-02	1.166E-01
PB-214	1.453E+00	2.353E-01	7.186E-02	1.200E-01
RA-223	1.685E-01	7.797E-01	5.943E-01	3.978E-01
RA-224	3.934E+00	1.258E+00	5.657E-01	6.417E-01
RA-226	1.343E+00	2.286E-01	7.241E-02	1.166E-01
AC-228	1.783E+00	3.974E-01	1.503E-01	2.027E-01
RA-228	1.783E+00	3.974E-01	1.503E-01	2.027E-01
TH-228	1.772E+00	2.232E-01	5.278E-02	1.139E-01
TH-229	-6.426E-01	6.327E-01	5.043E-01	3.228E-01
TH-231	1.685E-01	7.797E-01	5.943E-01	3.978E-01
TH-232	1.783E+00	3.974E-01	1.503E-01	2.027E-01
TH-234	4.259E+00	1.391E+00	6.121E-01	7.097E-01
U-235	4.101E-01	2.432E-01	2.089E-01	1.241E-01
NP-237	1.160E+00	3.963E-01	1.553E-01	2.022E-01
U-238	4.259E+00	1.391E+00	6.121E-01	7.097E-01
ANH-511	1.482E-01	8.329E-02	2.916E-02	4.250E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
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BE-7	-3.408E-01	4.288E-01	3.276E-01	2.188E-01	NOT IDENT.
NA-22	-5.711E-02	5.356E-02	3.890E-02	2.733E-02	NOT IDENT.
NA-24	-7.949E+08	7.972E+08	0.000E+00	4.067E+08	SHORT HLIF
SC-46	6.742E-03	4.609E-02	3.966E-02	2.351E-02	NOT IDENT.
V-48	3.231E-02	1.207E-01	1.040E-01	6.156E-02	NOT IDENT.
CR-51	1.235E-02	5.225E-01	4.112E-01	2.666E-01	NOT IDENT.
MN-54	-2.063E-03	5.049E-02	4.291E-02	2.576E-02	NOT IDENT.
CO-56	-2.280E-02	4.709E-02	3.827E-02	2.403E-02	NOT IDENT.
CO-57	-3.934E-03	2.968E-02	2.333E-02	1.514E-02	NOT IDENT.
CO-58	1.578E-02	4.553E-02	4.008E-02	2.323E-02	NOT IDENT.
FE-59	-2.198E-02	1.258E-01	1.034E-01	6.417E-02	NOT IDENT.
CO-60	-2.657E-03	4.821E-02	3.944E-02	2.460E-02	NOT IDENT.
SE-75	-7.224E-03	5.674E-02	4.270E-02	2.895E-02	NOT IDENT.
SR-85	1.462E-03	5.574E-02	4.057E-02	2.844E-02	NOT IDENT.
Y-88	5.303E-03	4.179E-02	3.575E-02	2.132E-02	NOT IDENT.
Y-91	3.845E+01	2.855E+01	2.636E+01	1.457E+01	NOT IDENT.
NB-94	2.249E-02	4.343E-02	3.867E-02	2.216E-02	NOT IDENT.
NB-95	1.012E-01	6.216E-02	5.815E-02	3.172E-02	NOT IDENT.
ZR-95	-5.568E-02	9.359E-02	7.645E-02	4.775E-02	NOT IDENT.
MO-99	2.279E+01	7.042E+01	6.190E+01	3.593E+01	NOT IDENT.
TC-99M	-6.322E+23	9.527E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.505E-02	5.236E-02	4.317E-02	2.671E-02	FAIL ABUN
RH-106	9.027E-02	3.997E-01	3.376E-01	2.040E-01	NOT IDENT.
RU-106	9.027E-02	3.996E-01	3.376E-01	2.039E-01	NOT IDENT.
AG-108M	3.098E-03	3.691E-02	3.151E-02	1.883E-02	NOT IDENT.
AG-110M	7.042E-03	4.854E-02	4.058E-02	2.477E-02	NOT IDENT.
SN-113	-1.317E-02	5.329E-02	4.485E-02	2.719E-02	NOT IDENT.
CD-115	4.137E+01	8.888E+01	0.000E+00	4.535E+01	SHORT HLIF
SN-117M	-5.712E-02	8.687E-02	7.136E-02	4.432E-02	NOT IDENT.
TE-123M	-1.730E-02	3.430E-02	2.838E-02	1.750E-02	NOT IDENT.
SB-124	-2.121E-03	7.906E-02	6.605E-02	4.034E-02	NOT IDENT.
SB-125	4.511E-02	1.118E-01	9.727E-02	5.702E-02	FAIL ABUN
TE-125M	-6.210E+00	1.154E+01	9.524E+00	5.887E+00	NOT IDENT.
I-126	-7.903E-02	3.966E-01	3.227E-01	2.024E-01	NOT IDENT.
SB-126	-3.995E-02	2.774E-01	2.026E-01	1.415E-01	FAIL ABUN
SB-127	-2.389E+00	4.697E+00	3.894E+00	2.397E+00	NOT IDENT.
I-131	6.018E-02	2.207E-01	1.923E-01	1.126E-01	NOT IDENT.
TE-132	-1.170E+00	2.966E+00	2.558E+00	1.513E+00	NOT IDENT.
BA-133	2.219E-02	5.293E-02	4.076E-02	2.701E-02	FAIL ABUN
I-133	1.278E+06	9.269E+05	0.000E+00	4.729E+05	SHORT HLIF
CS-134	8.034E-02	6.195E-02	5.730E-02	3.161E-02	NOT IDENT.
I-135	8.427E+21	3.752E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.112E-02	1.694E-01	1.430E-01	8.643E-02	NOT IDENT.
BA-137M	5.066E-02	4.880E-02	4.321E-02	2.490E-02	NOT IDENT.
CS-137	5.351E-02	5.155E-02	4.565E-02	2.630E-02	NOT IDENT.
CE-139	-1.668E-02	3.542E-02	2.929E-02	1.807E-02	NOT IDENT.
BA-140	5.008E-02	4.198E-01	3.550E-01	2.142E-01	NOT IDENT.
LA-140	-1.954E-01	1.370E-01	8.754E-02	6.990E-02	FAIL ABUN
CE-141	-3.429E-02	8.235E-02	6.876E-02	4.202E-02	NOT IDENT.
CE-143	3.378E+04	9.388E+03	0.000E+00	4.790E+03	SHORT HLIF
CE-144	4.565E-02	2.561E-01	1.927E-01	1.307E-01	NOT IDENT.
PM-144	-2.717E-02	4.736E-02	3.608E-02	2.416E-02	NOT IDENT.
PR-144	-2.060E+00	3.554E+00	2.706E+00	1.813E+00	NOT IDENT.
PM-146	3.507E-03	5.160E-02	4.390E-02	2.632E-02	NOT IDENT.
ND-147	5.931E-01	9.959E-01	8.687E-01	5.081E-01	FAIL ABUN
PM-149	3.348E+02	6.817E+02	0.000E+00	3.478E+02	SHORT HLIF
EU-152	1.191E-02	1.263E-01	9.499E-02	6.442E-02	NOT IDENT.
GD-153	1.546E-01	9.272E-02	7.501E-02	4.731E-02	NOT IDENT.
EU-154	-1.582E-01	1.520E-01	1.105E-01	7.756E-02	NOT IDENT.
EU-155	8.221E-02	1.087E-01	9.583E-02	5.546E-02	FAIL ABUN
TB-160	-1.142E-01	1.820E-01	1.456E-01	9.284E-02	FAIL ABUN
HO-166M	-6.833E-02	6.874E-02	5.429E-02	3.507E-02	FAIL ABUN
TA-182	2.048E-01	2.594E-01	2.290E-01	1.323E-01	NOT IDENT.
IR-192	4.566E-03	4.009E-02	3.487E-02	2.045E-02	FAIL ABUN
BI-207	4.704E-03	6.043E-02	5.103E-02	3.083E-02	FAIL ABUN
PB-211	-5.204E-01	9.384E-01	7.479E-01	4.788E-01	NOT IDENT.
BI-212	1.714E+00	9.983E-01	6.731E-01	5.093E-01	FAIL ABUN
RN-219	1.887E-01	4.917E-01	4.282E-01	2.509E-01	FAIL ABUN
AC-227	1.469E-01	2.788E-01	2.489E-01	1.422E-01	FAIL ABUN
TH-227	1.469E-01	2.789E-01	2.489E-01	1.423E-01	FAIL ABUN
PA-231	-1.460E-01	1.682E+00	1.374E+00	8.580E-01	FAIL ABUN
PA-233	-3.357E-03	7.171E-02	6.190E-02	3.659E-02	FAIL ABUN
PA-234	1.906E-01	3.869E-01	3.391E-01	1.974E-01	FAIL ABUN
PA-234M	5.126E+00	6.485E+00	5.696E+00	3.309E+00	NOT IDENT.
NP-239	8.053E-02	4.316E-01	3.726E-01	2.202E-01	FAIL ABUN
AM-241	7.460E-02	7.886E-02	6.304E-02	4.024E-02	NOT IDENT.
CM-247	2.000E-02	4.586E-02	4.007E-02	2.340E-02	FAIL ABUN
CF-249	2.099E-02	4.698E-02	4.118E-02	2.397E-02	NOT IDENT.

CF-251	-1.245E-01	1.468E-01	1.184E-01	7.488E-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	428.3882
49.72	374.1902
57.36	0.0000
59.54	533.5737
63.29	611.1853
63.29	611.1853
64.28	610.6875
67.75	604.2554
69.67	637.3262
70.83	641.4796
72.81	594.1897
72.87	594.2379
72.87	594.2379
74.82	595.7640
74.82	595.7640
74.82	595.7640
74.97	595.8787
77.11	597.5288
77.11	597.5288
77.11	597.5288
79.69	599.4886
79.80	430.5432
80.12	430.7162
80.19	430.7542
80.57	430.9585
81.00	431.1892
81.07	431.2271
81.07	431.2271
83.79	423.0590
83.79	423.0590
85.43	423.9001
86.48	424.4351
86.55	424.4706
86.79	424.5914
86.94	424.6687
87.57	424.9862
88.03	425.2182
88.47	425.4390
89.96	426.1834
91.11	426.7554
92.59	427.4837
92.59	427.4837
93.35	421.3733
94.67	456.0916
94.87	487.0404
94.87	487.0404
95.86	440.4511
97.43	348.4214
98.44	365.3832
99.53	383.5015
100.11	397.0132
103.18	412.6729
103.37	379.9826
105.31	374.6115
106.12	376.9875
109.28	418.4304
111.00	386.1355
111.76	393.6693
116.30	354.9980
117.23	359.4826
121.12	377.5478
121.78	354.8299
122.06	341.0084
123.07	334.3750
131.20	336.9531
133.52	344.4293
136.00	355.3619

136.47	359.7455
140.51	397.1553
140.51	0.0000
143.76	324.8118
144.24	331.3391
144.24	331.3391
145.44	376.4818
152.43	343.3350
153.25	325.3195
154.21	335.2515
154.21	335.2515
156.02	352.9769
158.56	350.4849
159.00	347.3749
162.66	324.6094
163.33	331.2813
165.86	329.7841
176.60	291.0024
177.52	308.7237
181.07	286.2867
184.41	313.4186
185.72	307.3359
193.51	334.5820
197.04	306.5560
205.31	311.0356
210.85	265.5762
215.65	265.5450
222.11	236.8634
227.38	260.3670
228.16	251.4235
228.18	251.4269
235.69	238.6622
235.96	238.7038
235.96	238.7038
238.63	228.4485
238.63	228.4485
240.99	228.7888
242.00	193.8305
244.70	198.7451
252.40	197.2329
252.80	200.9688
256.23	196.7682
256.23	196.7682
260.90	0.0000
264.66	188.7883
268.22	196.9389
269.46	184.1492
269.46	184.1492
271.23	205.0522
273.65	205.3396
276.40	182.2960
277.37	176.6821
277.60	160.5938
278.00	162.1890
279.20	181.0282
279.54	168.5764
280.46	181.1580
283.69	185.4022
284.31	178.4242
285.41	180.4149
285.90	0.0000
287.50	156.4012
293.27	0.0000
295.22	171.9536
295.96	172.0247
298.57	172.2713
299.98	172.0866
299.98	172.0866
300.09	172.0977
300.09	172.0977
300.13	172.1021
301.36	167.4775
302.85	154.9633
304.50	164.5968
304.50	164.5968
304.85	169.3775
308.46	163.6793
311.90	164.9329

316.51	152.9102
319.41	152.0791
320.08	157.2988
323.87	143.9044
323.87	143.9044
328.76	190.7554
333.37	173.5291
334.37	156.2552
334.37	156.2552
338.28	144.9664
338.28	144.9664
338.32	144.9701
338.32	144.9701
338.32	144.9701
340.48	170.9280
340.55	170.9345
344.28	151.8645
351.06	154.6446
351.93	154.7106
356.01	131.6184
364.49	131.1800
366.42	138.1600
383.85	134.3548
388.16	133.6306
388.63	140.5907
391.69	137.8123
400.66	133.3948
401.81	138.4451
402.40	142.4659
404.85	169.5497
410.95	156.0095
414.70	129.2205
423.72	135.7614
427.09	126.8952
427.87	125.9308
433.94	132.3177
453.88	121.2036
463.37	83.5030
468.07	97.3205
473.00	82.1172
476.78	107.9416
477.60	109.0045
487.02	106.3143
492.35	0.0000
497.08	103.6243
511.00	106.2620
514.00	118.2031
527.90	0.0000
529.87	0.0000
531.02	87.1196
537.26	82.0581
546.56	0.0000
563.25	98.7603
569.33	77.6890
569.50	77.6926
569.70	87.2771
583.19	83.7685
600.60	87.5993
602.73	62.7995
604.72	73.6152
609.32	99.2639
609.32	99.2639
610.33	106.1333
614.28	95.4673
618.01	94.1431
621.93	85.5962
621.93	85.5962
633.25	95.7043
635.95	71.8411
636.99	65.3320
645.85	75.3475
657.76	99.7512
661.66	88.9003
661.66	88.9003
664.57	0.0000
666.33	95.6257
666.50	95.6299
677.62	84.5664

685.70	84.7788
695.00	96.1099
696.49	97.0789
696.51	97.0789
697.00	100.7926
702.65	91.7027
706.68	88.1058
711.68	82.6661
720.70	78.2322
721.93	0.0000
722.78	92.6600
722.91	94.2597
723.31	84.6850
724.19	80.1788
727.33	76.7863
733.00	76.2742
735.93	83.2637
739.50	73.0488
747.24	82.6003
752.31	59.2214
753.82	60.1875
756.73	81.8864
763.94	90.5430
765.81	83.0425
766.42	84.9445
777.92	71.0190
778.90	79.5635
783.70	72.0834
785.37	78.7581
795.86	72.3277
801.95	56.2440
810.29	60.1956
810.76	50.6472
815.77	67.9406
818.51	60.3301
832.01	59.5895
834.85	88.4905
836.80	0.0000
846.77	60.7903
856.80	53.0737
860.56	48.1455
871.09	50.4977
873.19	49.5536
875.33	0.0000
879.36	68.1230
880.51	59.3817
883.24	43.8373
884.68	43.8538
889.28	48.7834
898.04	66.4934
911.20	67.2768
911.20	67.2768
911.20	67.2768
926.50	65.9872
937.49	70.1160
944.13	66.2748
946.00	58.3878
949.00	52.4889
962.29	76.6453
964.08	73.2704
966.15	93.7659
968.97	44.3556
968.97	44.3556
968.97	44.3556
983.53	60.9156
996.26	71.1170
1001.03	60.1660
1004.73	78.2841
1037.84	51.5790
1038.76	0.0000
1048.07	47.6445
1050.41	48.6836
1050.41	48.6836
1063.66	47.8128
1085.87	55.2063
1099.45	60.4980
1112.07	72.2705
1115.54	56.5957

1120.29	49.4434
1120.29	49.4434
1120.55	49.4453
1121.30	47.6869
1131.51	0.0000
1173.23	61.4607
1177.93	69.8625
1189.05	72.1136
1204.77	48.2311
1221.41	61.0208
1231.02	92.7624
1235.36	81.2391
1238.28	68.6182
1260.41	0.0000
1271.85	49.9490
1274.44	57.4167
1274.54	57.4167
1291.59	35.2062
1298.22	0.0000
1312.11	41.7723
1332.49	36.5580
1365.19	19.4736
1368.63	0.0000
1384.29	14.8901
1408.01	24.3015
1457.56	0.0000
1460.82	21.4662
1489.16	21.8104
1505.03	15.2143
1596.21	29.9361
1620.50	15.5128
1678.03	0.0000
1690.97	9.8061
1764.49	10.4150
1764.49	10.4150
1770.23	14.8917
1771.35	12.9084
1791.20	0.0000
1836.06	12.0322

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248028003

Total Uranium Activity	1.2861E+01	ug/g
Total Uranium Counting Unc.	4.1399E+00	ug/g
Total Uranium Tpu	2.1122E-06	ug/g
Total Uranium Mda	1.8237E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 958220                      SAMPLE ID   : G248028003          *
*  ANALYST       : MXR1                        DETECTOR    : GAM05           *
*  SAMPLE DATE   : 19-FEB-2010 12:00:00.00    COUNT TIME   : 0 02:00:00.00      *
*  ANALYSIS DATE : 12-MAR-2010 16:50:06.47    SAMPLE ALQT  : 122.880 GRAM       *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.206E+00
GROSS GAMMA ERROR (pCi/GRAM )   : 1.324E+00
GROSS GAMMA MDA (pCi/GRAM )     : 3.467E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.689E+00

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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 18:51:29.73

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028004.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:59
Sample ID          : G248028004          Sample quantity  : 1.06520E+02 GRAM
Detector name      : GAM12              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time : 0 02:00:01.35  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 958220             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*	75	365	1.57	125.55	122	8	1.04E-02	47.1	
2	4	74.82*	356	349	1.06	148.87	143	23	4.94E-02	9.8	2.16E+00
3	4	77.17	507	324	0.95	153.56	143	23	7.04E-02	7.2	
4	0	87.01*	149	371	1.13	173.24	171	7	2.07E-02	23.2	
5	5	89.99	111	184	1.01	179.21	177	13	1.54E-02	19.2	1.26E+00
6	5	92.94*	220	428	1.67	185.11	177	13	3.05E-02	20.2	
7	0	209.33	70	260	0.91	417.93	414	9	9.74E-03	43.2	
8	2	238.66*	1014	146	1.12	476.60	472	17	1.41E-01	3.8	4.15E+00
9	2	241.05	147	185	1.51	481.39	472	17	2.04E-02	25.3	
10	2	242.25	94	164	1.39	483.78	472	17	1.31E-02	28.0	
11	4	270.09	132	156	1.88	539.47	533	28	1.83E-02	20.1	1.53E+00
12	4	277.35	72	140	1.90	553.98	533	28	1.01E-02	35.3	
13	0	295.31*	304	177	1.36	589.92	584	12	4.23E-02	10.6	
14	0	300.24	66	126	1.16	599.77	596	10	9.12E-03	34.2	
15	0	330.31	142	227	5.54	659.92	649	20	1.97E-02	27.7	
16	0	338.32	234	166	1.36	675.95	669	15	3.25E-02	13.6	
17	0	351.96*	537	153	1.33	703.22	697	14	7.46E-02	6.6	
18	0	463.09	63	77	1.62	925.51	921	11	8.73E-03	29.5	
19	0	511.51*	109	189	1.77	1022.35	1012	20	1.51E-02	35.5	
20	0	583.32*	318	122	1.66	1165.95	1160	15	4.41E-02	9.7	
21	0	609.21*	371	98	1.51	1217.73	1211	14	5.16E-02	7.8	
22	0	727.50	88	52	1.99	1454.29	1448	12	1.22E-02	19.8	
23	0	770.39	82	90	3.05	1540.06	1530	20	1.14E-02	30.5	
24	0	860.77	35	41	1.81	1720.79	1715	11	4.81E-03	39.8	
25	0	911.34*	187	76	1.65	1821.91	1816	12	2.59E-02	12.3	
26	0	969.02*	107	53	1.18	1937.24	1932	11	1.49E-02	16.6	
27	0	1120.58	68	51	1.94	2240.26	2234	12	9.42E-03	24.3	
28	0	1460.73*	1194	29	2.12	2920.25	2909	20	1.66E-01	3.1	
29	0	1587.93	36	0	1.81	3174.50	3168	13	5.00E-03	16.7	
30	0	1728.83	18	3	4.06	3456.12	3450	12	2.50E-03	30.4	
31	0	1744.32	14	0	1.33	3487.07	3480	13	1.94E-03	26.7	
32	0	1764.30*	68	4	2.03	3527.00	3520	16	9.44E-03	14.6	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 18:51:31

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:59
Sample ID        : G248028004 Sample quantity : 106.52 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA12 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.35 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	*	3.672E+01	4.043E+00	6.196E-01	5.619E-02	59.267
CD-109	+	88.03	*	2.647E+00	1.252E+00	1.237E+00	1.164E-01	2.140
SN-126	+	64.28		8.633E-01	8.232E-01	9.080E-01	1.321E-01	0.951
	+	86.94		1.066E+00	6.633E-01	6.618E-01	2.747E-01	1.610
	+	87.57	*	2.563E-01	1.213E-01	1.607E-01	1.505E-02	1.596
TL-208	+	277.37		9.198E-01	6.587E-01	6.941E-01	8.717E-02	1.325
	+	583.19	*	5.572E-01	1.209E-01	7.425E-02	7.062E-03	7.504
	+	860.56		5.761E-01	4.622E-01	4.901E-01	5.221E-02	1.176
BI-211		72.87		3.493E+00	4.146E+00	6.336E+00	5.073E-01	0.551
	+	351.06	*	4.163E+00	6.662E-01	3.962E-01	3.531E-02	10.505
PB-212	+	74.82		2.674E+00	6.254E-01	6.882E-01	8.737E-02	3.885
	+	77.11		2.183E+00	3.645E-01	3.957E-01	3.301E-02	5.517
	+	238.63	*	1.754E+00	2.159E-01	1.051E-01	1.017E-02	16.690
	+	300.09		1.769E+00	1.224E+00	1.392E+00	1.472E-01	1.271
BI-214	+	609.32	*	1.262E+00	2.364E-01	1.456E-01	1.512E-02	8.666
	+	1120.29		1.195E+00	5.956E-01	5.937E-01	6.505E-02	2.012
	+	1764.49		1.656E+00	5.050E-01	3.498E-01	2.961E-02	4.734
PB-214	+	74.82		4.740E+00	1.076E+00	1.220E+00	1.388E-01	3.885
	+	77.11		3.848E+00	7.167E-01	6.975E-01	8.184E-02	5.517
	+	242.00		9.904E-01	5.632E-01	6.390E-01	6.597E-02	1.550
	+	295.22		1.451E+00	3.453E-01	2.474E-01	2.684E-02	5.864
	+	351.93	*	1.511E+00	2.557E-01	1.441E-01	1.510E-02	10.482
RA-224	+	240.99	*	2.713E+00	1.393E+00	1.126E+00	9.616E-02	2.409
RA-226	+	609.32	*	1.262E+00	2.364E-01	1.456E-01	1.512E-02	8.666
	+	1120.29		1.195E+00	5.956E-01	5.937E-01	6.505E-02	2.012
	+	1764.49		1.656E+00	5.050E-01	3.498E-01	2.961E-02	4.734
AC-228	+	338.32		2.017E+00	1.005E+00	3.966E-01	1.654E-01	5.085
	+	911.20	*	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
	+	968.97		1.564E+00	6.484E-01	6.123E-01	1.522E-01	2.554
RA-228	+	338.32		2.017E+00	1.005E+00	3.966E-01	1.654E-01	5.085
	+	911.20	*	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
	+	968.97		1.564E+00	6.484E-01	6.123E-01	1.522E-01	2.554
TH-228	+	74.82		2.674E+00	5.696E-01	6.882E-01	5.671E-02	3.885
	+	77.11		2.183E+00	3.645E-01	3.957E-01	3.301E-02	5.517

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	1.754E+00	2.159E-01	1.051E-01	1.017E-02	16.690
	+	300.09		1.769E+00	1.624E+00	1.392E+00	8.520E-01	1.271
TH-232	+	338.32		2.017E+00	5.767E-01	3.966E-01	3.389E-02	5.085
	+	911.20	*	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
	+	968.97		1.564E+00	6.484E-01	6.123E-01	1.522E-01	2.554
TH-234	+	63.29	*	2.240E+00	2.148E+00	2.344E+00	4.175E-01	0.956
	+	92.59		3.135E+00	1.444E+00	1.072E+00	2.386E-01	2.923
NP-237	+	86.48	*	7.649E-01	3.958E-01	4.763E-01	1.092E-01	1.606
		95.86		-8.954E-03	1.094E+00	1.587E+00	3.818E-01	-0.006
U-238	+	63.29	*	2.240E+00	2.148E+00	2.344E+00	4.175E-01	0.956
	+	92.59		3.135E+00	1.296E+00	1.072E+00	9.688E-02	2.923
ANH-511	+	511.00	*	1.460E-01	1.045E-01	5.752E-02	5.033E-03	2.538

---- 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	*	3.000E-01	4.380E-01	7.370E-01	6.838E-02	0.407
NA-22		1274.54	*	3.315E-02	5.814E-02	1.010E-01	8.612E-03	0.328
NA-24		1368.63	*	-3.658E+01	5.814E-02	Half-Life too short		
SC-46		889.28	*	3.985E-03	5.181E-02	8.447E-02	8.653E-03	0.047
	+	1120.55		2.125E-01	1.050E-01	1.591E-01	1.378E-02	1.336
V-48		944.13		1.977E-01	1.600E+00	2.605E+00	2.623E-01	0.076
		983.53	*	-4.434E-02	1.197E-01	1.941E-01	1.908E-02	-0.228
		1312.11		7.830E-02	1.202E-01	2.129E-01	1.846E-02	0.368
CR-51		320.08	*	-5.028E-02	5.132E-01	8.373E-01	7.599E-02	-0.060
MN-54		834.85	*	-3.819E-02	5.047E-02	7.612E-02	7.597E-03	-0.502
CO-56		846.77	*	2.498E-02	5.395E-02	9.134E-02	9.171E-03	0.273
		1037.84		5.596E-02	4.157E-01	7.040E-01	6.933E-02	0.079
		1238.28		1.968E-01	1.368E-01	2.471E-01	2.130E-02	0.796
		1771.35		-6.197E-02	2.548E-01	3.427E-01	2.895E-02	-0.181
CO-57		122.06	*	-9.788E-03	2.856E-02	4.508E-02	3.738E-03	-0.217
		136.47		-8.847E-02	2.437E-01	3.781E-01	3.311E-02	-0.234
CO-58		810.76	*	6.974E-03	4.676E-02	7.738E-02	7.638E-03	0.090
FE-59		1099.45	*	-1.194E-01	1.278E-01	1.920E-01	1.836E-02	-0.622
		1291.59		-8.544E-02	1.748E-01	2.711E-01	2.646E-02	-0.315
CO-60		1173.23		3.338E-02	6.175E-02	1.069E-01	8.626E-03	0.312
		1332.49	*	1.787E-02	5.393E-02	9.169E-02	8.025E-03	0.195
ZN-65		1115.54	*	-1.551E-02	1.257E-01	1.768E-01	1.543E-02	-0.088
SE-75		121.12		-1.755E-03	1.476E-01	2.372E-01	2.569E-02	-0.007
		136.00		-1.185E-02	4.716E-02	7.362E-02	6.001E-03	-0.161
		264.66	*	-6.452E-03	5.917E-02	8.546E-02	7.417E-03	-0.075
		279.54		4.920E-02	1.448E-01	2.162E-01	1.945E-02	0.228
		400.66		-1.877E-01	3.207E-01	4.955E-01	5.317E-02	-0.379
SR-85		514.00	*	1.269E-01	6.164E-02	1.039E-01	9.105E-03	1.221
Y-88		898.04		3.099E-02	4.884E-02	8.438E-02	8.707E-03	0.367
		1836.06	*	1.987E-02	3.073E-02	5.933E-02	4.912E-03	0.335
Y-91		1204.77	*	7.948E+00	3.106E+01	5.247E+01	4.310E+00	0.151
NB-94		702.65	*	-3.978E-02	4.232E-02	6.380E-02	5.870E-03	-0.624

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		871.09		1.796E-02	4.441E-02	7.476E-02	7.595E-03	0.240
NB-95		765.81	*	6.598E-03	6.051E-02	8.687E-02	8.336E-03	0.076
NB-95M		235.69	*	8.351E-02	1.568E-01	2.391E-01	2.340E-02	0.349
ZR-95		724.19		4.881E-02	1.396E-01	2.068E-01	2.071E-02	0.236
		756.73	*	1.926E-02	9.940E-02	1.655E-01	1.715E-02	0.116
MO-99		140.51		-5.327E+01	1.268E+02	1.944E+02	4.578E+01	-0.274
		181.07		-4.439E+01	9.249E+01	1.528E+02	2.834E+01	-0.291
		366.42		-3.559E+02	5.378E+02	8.317E+02	6.941E+01	-0.428
		739.50	*	6.142E+01	7.140E+01	1.248E+02	2.025E+01	0.492
		777.92		7.369E+01	2.300E+02	3.392E+02	3.280E+01	0.217
TC-99M		140.51	*	-3.967E+17	2.300E+02	Half-Life	too short	
RU-103		497.08	*	-3.775E-03	5.200E-02	8.720E-02	1.222E-02	-0.043
	+	610.33		1.450E+01	3.294E+00	3.724E+00	6.152E-01	3.893
RH-106		621.93	*	-6.443E-02	3.527E-01	5.760E-01	7.759E-02	-0.112
		1050.41		1.637E+00	3.075E+00	5.401E+00	5.039E-01	0.303
RU-106		621.93	*	-6.443E-02	3.526E-01	5.760E-01	5.153E-02	-0.112
		1050.41		1.637E+00	3.075E+00	5.401E+00	5.039E-01	0.303
AG-108M		433.94	*	-1.315E-02	3.622E-02	5.659E-02	4.903E-03	-0.232
		614.28		5.529E-02	4.792E-02	7.749E-02	7.143E-03	0.714
		722.91		-1.220E-02	5.232E-02	7.220E-02	6.923E-03	-0.169
AG-110M		657.76	*	5.415E-03	4.133E-02	6.915E-02	6.344E-03	0.078
		677.62		8.400E-02	4.095E-01	6.871E-01	6.369E-02	0.122
		706.68		-4.963E-02	2.700E-01	4.373E-01	4.137E-02	-0.113
		763.94		1.273E-01	2.000E-01	3.083E-01	3.021E-02	0.413
		884.68		-4.603E-02	6.748E-02	1.013E-01	1.060E-02	-0.454
		937.49		-4.542E-02	1.452E-01	2.260E-01	2.343E-02	-0.201
		1384.29		5.260E-02	2.073E-01	3.499E-01	3.159E-02	0.150
		1505.03		-1.502E-01	3.556E-01	5.375E-01	4.744E-02	-0.279
SN-113		391.69	*	-1.527E-02	5.565E-02	8.835E-02	7.396E-03	-0.173
CD-115		260.90		4.846E-04	5.565E-02	Half-Life	too short	
		492.35		-4.260E-05	5.565E-02	Half-Life	too short	
		527.90	*	-4.716E-05	5.565E-02	Half-Life	too short	
SN-117M		156.02		-2.823E+00	3.647E+00	5.544E+00	4.424E-01	-0.509
		158.56	*	4.589E-02	8.547E-02	1.394E-01	1.111E-02	0.329
TE-123M		159.00	*	1.564E-02	3.399E-02	5.521E-02	4.432E-03	0.283
SB-124		602.73		2.002E-02	5.697E-02	8.550E-02	7.645E-03	0.234
		645.85		-3.023E-01	5.905E-01	9.299E-01	8.756E-02	-0.325
		722.78		-1.149E-01	5.649E-01	7.828E-01	7.448E-02	-0.147
		1690.97	*	-1.485E-02	9.554E-02	1.547E-01	1.390E-02	-0.096
SB-125		427.87	*	3.538E-02	1.077E-01	1.780E-01	1.514E-02	0.199
	+	463.37		7.475E-01	4.467E-01	6.262E-01	5.760E-02	1.194
		600.60		8.913E-02	2.132E-01	3.661E-01	3.498E-02	0.243
		635.95		1.093E-01	3.273E-01	5.577E-01	5.365E-02	0.196
TE-125M		109.28	*	9.970E+00	1.227E+01	2.051E+01	2.111E+00	0.486
I-126		388.63		-7.906E-02	2.822E-01	4.483E-01	3.642E-02	-0.176
		666.33	*	1.004E-02	3.585E-01	5.940E-01	5.319E-02	0.017
		753.82		-5.589E-02	3.233E+00	5.288E+00	5.037E-01	-0.011
SB-126		414.70		-2.009E-02	1.271E-01	2.028E-01	1.674E-02	-0.099
		666.50		7.230E-03	1.253E-01	2.081E-01	1.864E-02	0.035

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		695.00		-6.009E-02	1.424E-01	2.265E-01	2.072E-02	-0.265
		697.00		6.882E-01	4.788E-01	8.702E-01	7.973E-02	0.791
		720.70	*	6.631E-03	2.881E-01	4.112E-01	3.832E-02	0.016
		856.80		-4.228E-01	8.843E-01	1.142E+00	1.152E-01	-0.370
		252.40		-3.952E+00	1.474E+01	2.402E+01	1.011E+01	-0.165
		473.00		-4.131E+00	6.123E+00	9.194E+00	1.335E+00	-0.449
I-131		685.70	*	-3.943E+00	4.625E+00	6.957E+00	9.488E-01	-0.567
		783.70		9.572E+00	1.217E+01	2.122E+01	3.154E+00	0.451
		80.19		-1.078E+01	9.026E+00	1.402E+01	1.224E+00	-0.769
TE-132		284.31		-1.300E+00	3.013E+00	4.674E+00	4.282E-01	-0.278
		364.49	*	1.338E-01	2.266E-01	3.839E-01	3.414E-02	0.348
		636.99		1.388E+00	3.194E+00	5.484E+00	5.192E-01	0.253
BA-133		49.72		4.728E+01	7.044E+01	1.206E+02	1.510E+01	0.392
		111.76		-2.322E+01	1.493E+02	2.369E+02	3.009E+01	-0.098
		116.30		1.125E+02	1.200E+02	2.011E+02	2.548E+01	0.560
		228.16	*	-3.296E-01	3.126E+00	5.204E+00	8.902E-01	-0.063
I-133		81.00		-1.780E-01	1.111E-01	1.647E-01	2.562E-02	-1.081
	+	276.40		8.511E-01	6.120E-01	7.411E-01	1.048E-01	1.148
		302.85		6.506E-02	1.678E-01	2.508E-01	3.285E-02	0.259
		356.01	*	-4.597E-03	5.135E-02	7.261E-02	9.314E-03	-0.063
CS-134		383.85		-5.421E-02	3.547E-01	5.692E-01	6.900E-02	-0.095
		529.87	*	-5.422E-02	3.547E-01	Half-Life	too short	
		875.33		1.829E+00	3.547E-01	Half-Life	too short	
I-135		1298.22		-1.790E+01	3.547E-01	Half-Life	too short	
		563.25		3.058E-01	4.485E-01	7.856E-01	7.047E-02	0.389
		569.33		-1.846E-01	2.405E-01	3.768E-01	3.397E-02	-0.490
		604.72		3.325E-03	4.573E-02	6.665E-02	5.973E-03	0.050
CS-135		795.86	*	3.290E-02	6.003E-02	1.015E-01	9.973E-03	0.324
		801.95		5.745E-01	5.005E-01	8.957E-01	8.820E-02	0.641
		1365.19		-2.139E-01	1.506E+00	2.414E+00	2.215E-01	-0.089
I-135		268.22	*	2.395E-01	2.080E-01	3.268E-01	3.264E-02	0.733
		546.56		2.788E+16	2.080E-01	Half-Life	too short	
		836.80		3.607E+15	2.080E-01	Half-Life	too short	
		1038.76		-3.310E+16	2.080E-01	Half-Life	too short	
CS-136		1131.51		7.265E+15	2.080E-01	Half-Life	too short	
		1260.41	*	-4.312E+16	2.080E-01	Half-Life	too short	
		1457.56		4.387E+18	2.080E-01	Half-Life	too short	
		1678.03		-4.450E+16	2.080E-01	Half-Life	too short	
		1791.20		-3.694E+16	2.080E-01	Half-Life	too short	
		153.25		2.055E+00	1.413E+00	2.384E+00	2.324E-01	0.862
BA-137M		176.60		6.443E-02	7.329E-01	1.248E+00	1.123E-01	0.052
		273.65		-1.291E-02	7.531E-01	1.247E+00	1.171E-01	-0.010
		340.55		5.553E-01	2.835E-01	4.612E-01	4.090E-02	1.204
		818.51		3.653E-02	1.179E-01	1.981E-01	1.963E-02	0.184
CE-139		1048.07	*	9.444E-02	1.724E-01	3.035E-01	2.941E-02	0.311
		1235.36		1.236E+00	1.102E+00	1.956E+00	2.265E-01	0.632
CS-137		661.66	*	-2.409E-02	4.423E-02	6.691E-02	5.969E-03	-0.360
		661.66	*	-2.545E-02	4.672E-02	7.068E-02	6.317E-03	-0.360
CE-139		165.86	*	-1.000E-02	3.720E-02	5.802E-02	4.619E-03	-0.172

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-140	162.66			4.736E-01	1.355E+00	2.185E+00	1.877E-01	0.217
	304.85			-5.695E-02	2.334E+00	3.365E+00	9.853E-01	-0.017
	423.72			-1.342E+00	3.260E+00	5.037E+00	1.653E+00	-0.267
	537.26	*		-1.207E-01	4.677E-01	7.669E-01	2.605E-01	-0.157
LA-140	328.76			5.249E-01	5.840E-01	8.963E-01	8.144E-02	0.586
	487.02			-3.535E-02	2.452E-01	3.868E-01	3.553E-02	-0.091
	815.77			2.755E-01	5.160E-01	8.864E-01	9.549E-02	0.311
	1596.21	*		-8.615E-03	1.684E-01	2.565E-01	2.248E-02	-0.034
CE-141	145.44	*		-1.438E-03	8.464E-02	1.348E-01	1.104E-02	-0.011
CE-143	57.36			2.562E-02	8.464E-02	Half-Life	too short	
	293.27	*		1.165E-02	8.464E-02	Half-Life	too short	
	664.57			-1.536E-02	8.464E-02	Half-Life	too short	
	721.93			-1.419E-02	8.464E-02	Half-Life	too short	
CE-144	80.12			-3.428E+00	2.931E+00	4.561E+00	3.927E-01	-0.752
	133.52	*		-3.779E-02	2.322E-01	3.685E-01	5.530E-02	-0.103
PM-144	476.78			3.229E-02	8.251E-02	1.360E-01	1.272E-02	0.237
	618.01			-2.799E-03	3.997E-02	6.604E-02	6.063E-03	-0.042
PR-144	696.49	*		3.250E-02	4.478E-02	7.780E-02	7.131E-03	0.418
	696.51	*		2.489E+00	3.366E+00	5.854E+00	5.362E-01	0.425
PM-146	1489.16			-1.498E+00	1.442E+01	2.297E+01	2.029E+00	-0.065
	453.88	*		-2.494E-02	4.885E-02	7.478E-02	7.844E-03	-0.334
	633.25			2.130E-01	1.643E+00	2.752E+00	1.053E+00	0.077
	735.93			-4.340E-02	1.814E-01	2.904E-01	8.213E-02	-0.149
ND-147	747.24			2.553E-02	1.167E-01	1.951E-01	2.948E-02	0.131
	91.11	+		9.411E-01	3.737E-01	8.574E-01	8.424E-02	1.098
	319.41			-2.366E-01	5.777E+00	9.461E+00	8.165E-01	-0.025
	531.02	*		1.645E-02	9.930E-01	1.669E+00	2.514E-01	0.010
PM-149	285.90	*		-1.160E-04	9.930E-01	Half-Life	too short	
EU-152	121.78			-2.310E-02	7.993E-02	1.265E-01	1.216E-02	-0.183
	244.70			1.824E-02	4.043E-01	5.953E-01	5.094E-02	0.031
	344.28	*		-5.956E-02	1.427E-01	1.966E-01	1.775E-02	-0.303
	778.90			1.132E-01	3.274E-01	5.063E-01	4.898E-02	0.223
	964.08			6.492E-01	4.094E-01	6.750E-01	6.719E-02	0.962
	1085.87			-1.005E-01	5.123E-01	8.381E-01	7.552E-02	-0.120
	1112.07			1.772E-01	3.829E-01	6.389E-01	5.591E-02	0.277
	1408.01			1.202E-01	2.186E-01	3.834E-01	3.380E-02	0.313
GD-153	69.67			-1.151E+00	2.294E+00	3.286E+00	2.557E-01	-0.350
	97.43	*		-1.085E-01	1.112E-01	1.500E-01	1.312E-02	-0.723
	103.18			-1.308E-01	1.299E-01	1.996E-01	1.699E-02	-0.655
EU-154	123.07			-8.731E-03	5.850E-02	9.329E-02	1.034E-02	-0.094
	723.31			-1.136E-01	2.393E-01	3.192E-01	3.239E-02	-0.356
	873.19			-8.257E-02	3.800E-01	6.021E-01	7.865E-02	-0.137
	996.26			-5.609E-01	4.199E-01	5.796E-01	1.046E-01	-0.968
EU-155	1004.73			6.104E-02	2.563E-01	4.393E-01	5.468E-02	0.139
	1274.44	*		9.365E-02	1.644E-01	2.853E-01	3.224E-02	0.328
	86.55	+		3.116E-01	1.474E-01	2.177E-01	2.033E-02	1.431
TB-160	105.31	*		1.530E-02	1.253E-01	2.039E-01	1.745E-02	0.075
	86.79	+		8.742E-01	4.135E-01	6.101E-01	5.664E-02	1.433
	197.04			4.760E-01	6.707E-01	1.165E+00	9.577E-02	0.409

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		215.65		-3.307E-01	8.733E-01	1.438E+00	1.204E-01	-0.230
		298.57		2.588E-01	1.832E-01	2.323E-01	2.014E-02	1.114
		879.36	*	9.712E-03	1.957E-01	3.183E-01	3.246E-02	0.031
		962.29		6.934E-02	8.408E-01	1.235E+00	1.231E-01	0.056
		966.15		9.440E-01	3.627E-01	6.236E-01	6.199E-02	1.514
		1177.93		1.958E-01	4.944E-01	8.476E-01	6.859E-02	0.231
		1271.85		1.740E-01	9.679E-01	1.623E+00	1.380E-01	0.107
HO-166M		80.57		-4.413E-01	3.122E-01	4.792E-01	4.146E-02	-0.921
		184.41		2.489E-02	4.353E-02	7.623E-02	6.184E-03	0.326
		280.46		6.386E-03	1.051E-01	1.536E-01	1.332E-02	0.042
		410.95		4.487E-02	3.044E-01	4.968E-01	4.088E-02	0.090
		711.68	*	3.627E-02	7.844E-02	1.338E-01	1.239E-02	0.271
		752.31		-2.198E-03	3.465E-01	5.673E-01	5.398E-02	-0.004
		810.29		9.759E-03	6.557E-02	1.085E-01	1.069E-02	0.090
TA-182		67.75		-3.028E-02	1.395E-01	2.173E-01	1.664E-02	-0.139
		100.11		2.089E-01	2.038E-01	3.454E-01	2.979E-02	0.605
		152.43		3.156E-01	4.444E-01	7.297E-01	5.830E-02	0.433
		222.11		-3.406E-01	4.166E-01	6.683E-01	5.628E-02	-0.510
	+	1121.30		5.808E-01	2.870E-01	4.330E-01	3.748E-02	1.341
		1189.05		-1.020E-01	4.044E-01	6.530E-01	5.317E-02	-0.156
		1221.41	*	1.263E-01	2.856E-01	4.881E-01	4.046E-02	0.259
		1231.02		-3.086E-01	6.612E-01	1.046E+00	8.718E-02	-0.295
IR-192	+	295.96		1.136E+00	2.603E-01	3.562E-01	3.112E-02	3.189
		308.46		-7.381E-02	1.155E-01	1.817E-01	1.581E-02	-0.406
		316.51	*	-1.799E-02	4.334E-02	6.926E-02	5.995E-03	-0.260
		468.07		6.338E-02	9.507E-02	1.426E-01	1.312E-02	0.444
HG-203		70.83		7.140E-02	1.884E+00	2.786E+00	4.365E-01	0.026
		72.87		9.521E-01	1.137E+00	1.727E+00	2.626E-01	0.551
		279.20	*	3.847E-02	5.489E-02	8.404E-02	7.469E-03	0.458
BI-207		72.81		1.785E-01	2.381E-01	3.626E-01	2.901E-02	0.492
	+	74.97		7.710E-01	1.640E-01	2.685E-01	2.193E-02	2.872
		569.70		-2.442E-02	3.680E-02	5.818E-02	5.179E-03	-0.420
		1063.66	*	-3.692E-02	6.312E-02	9.883E-02	9.108E-03	-0.374
		1770.23		1.243E-01	4.884E-01	7.578E-01	6.404E-02	0.164
PB-210		46.54	*	2.909E-01	3.772E+00	6.059E+00	5.598E-01	0.048
PB-211		404.85	*	-8.511E-01	9.789E-01	1.336E+00	6.453E-01	-0.637
		427.09		-2.567E-01	1.833E+00	2.916E+00	1.347E+00	-0.088
		832.01		-1.889E-01	1.329E+00	2.127E+00	1.108E+00	-0.089
BI-212	+	727.33	*	2.364E+00	9.849E-01	1.431E+00	1.858E-01	1.652
		785.37		1.093E+00	3.598E+00	6.048E+00	5.873E-01	0.181
		1620.50		4.023E-01	2.672E+00	4.432E+00	3.870E-01	0.091
RN-219	+	271.23		1.006E+00	4.181E-01	5.286E-01	5.436E-02	1.903
		401.81	*	-1.719E-01	4.791E-01	7.530E-01	1.100E-01	-0.228
RA-223		81.07		-4.112E-01	2.458E-01	3.715E-01	3.232E-02	-1.107
		83.79		5.328E-03	2.032E-01	2.354E-01	2.111E-02	0.023
		94.87		1.646E+00	5.531E-01	9.093E-01	8.079E-02	1.810
		144.24		-1.859E-01	8.254E-01	1.295E+00	1.178E-01	-0.144
		154.21		2.812E-01	4.633E-01	7.575E-01	6.718E-02	0.371
	+	269.46		7.816E-01	3.223E-01	4.235E-01	3.735E-02	1.846

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227	+	323.87	*	-2.055E-01	9.238E-01	1.303E+00	2.258E-01	-0.158
		338.28		8.003E+00	2.386E+00	2.748E+00	3.302E-01	2.913
		79.69		-1.732E+00	1.465E+00	2.240E+00	3.856E-01	-0.773
		235.96		3.010E-01	1.888E-01	3.028E-01	3.104E-02	0.994
		256.23	*	-7.572E-02	2.928E-01	4.798E-01	5.778E-02	-0.158
TH-227	+	299.98		1.946E+00	1.354E+00	1.749E+00	2.229E-01	1.112
		304.50		-1.154E-02	2.023E+00	2.921E+00	4.834E-01	-0.004
		334.37		3.347E+00	2.438E+00	3.112E+00	4.841E-01	1.076
		79.80		-2.267E+00	1.954E+00	2.954E+00	6.429E-01	-0.768
		235.96		3.010E-01	1.885E-01	3.028E-01	2.925E-02	0.994
TH-229	+	256.23	*	-7.572E-02	2.928E-01	4.798E-01	6.525E-02	-0.158
		299.98		1.946E+00	1.749E+00	2.229E-01	2.229E-01	1.112
		304.50		-1.154E-02	2.023E+00	2.921E+00	4.834E-01	-0.004
		334.37		3.347E+00	2.438E+00	3.112E+00	4.841E-01	1.076
		85.43		2.431E-01	3.450E-01	4.189E-01	3.828E-02	0.580
PA-231	+	88.47		3.952E-01	1.869E-01	2.679E-01	2.511E-02	1.475
		193.51	*	2.995E-01	5.774E-01	9.970E-01	8.167E-02	0.300
		210.85		1.665E+00	1.170E+00	1.869E+00	1.558E-01	0.891
		283.69	*	-8.494E-01	1.829E+00	2.701E+00	3.948E-01	-0.314
		301.36		1.250E+00	8.683E-01	1.147E+00	1.398E-01	1.090
TH-231	+	81.07		-4.112E-01	2.458E-01	3.715E-01	3.232E-02	-1.107
		83.79		5.328E-03	2.032E-01	2.354E-01	2.111E-02	0.023
		94.87		1.646E+00	5.531E-01	9.093E-01	8.079E-02	1.810
		144.24		-1.859E-01	8.254E-01	1.295E+00	1.178E-01	-0.144
		154.21		2.812E-01	4.633E-01	7.575E-01	6.718E-02	0.371
PA-233	+	269.46		7.816E-01	3.223E-01	4.235E-01	3.735E-02	1.846
		323.87	*	-2.055E-01	9.238E-01	1.303E+00	2.258E-01	-0.158
		338.28		8.003E+00	2.386E+00	2.748E+00	3.302E-01	2.913
		300.13		8.806E-01	6.162E-01	7.938E-01	1.179E-01	1.109
		311.90	*	2.475E-02	7.516E-02	1.261E-01	1.121E-02	0.196
PA-234	+	340.48		1.950E+00	9.936E-01	1.466E+00	3.524E-01	1.330
		94.67		7.188E-01	2.180E-01	3.447E-01	4.343E-02	2.085
		98.44		3.707E-02	1.050E-01	1.681E-01	9.377E-02	0.221
		111.00		-1.108E-01	2.243E-01	3.501E-01	4.162E-02	-0.316
		131.20		-7.886E-02	1.227E-01	1.900E-01	1.546E-02	-0.415
PA-234M	+	569.50		-2.061E-01	3.273E-01	5.192E-01	4.622E-02	-0.397
		733.00		2.969E-01	4.832E-01	7.383E-01	1.662E-01	0.402
		880.51		-8.532E-02	3.732E-01	5.901E-01	6.022E-02	-0.145
		883.24		5.010E-02	3.631E-01	5.935E-01	4.003E-01	0.084
		926.50		4.072E-02	2.180E-01	3.581E-01	9.253E-02	0.114
U-235	+	946.00	*	-2.862E-02	4.108E-01	6.565E-01	1.278E-01	-0.044
		949.00		1.472E-02	6.172E-01	9.954E-01	9.993E-02	0.015
		766.42		9.776E+00	1.660E+01	2.409E+01	1.226E+01	0.406
		1001.03	*	2.621E+00	5.470E+00	9.729E+00	1.063E+00	0.269
		89.96		1.979E+00	9.060E-01	1.649E+00	4.097E-01	1.200
	+	93.35		2.368E+00	1.103E+00	1.198E+00	2.784E-01	1.976
		143.76	*	-6.830E-02	2.471E-01	3.865E-01	6.439E-02	-0.177
		163.33		3.904E-01	5.284E-01	8.615E-01	1.520E-01	0.453
		185.72		9.982E-02	5.719E-02	1.029E-01	8.358E-03	0.970

Sample ID : G248028004

Acquisition date : 12-MAR-2010 16:50:59

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		205.31		-7.801E-02	6.472E-01	9.535E-01	1.716E-01	-0.082
		99.53		2.115E-01	1.882E-01	3.162E-01	2.734E-02	0.669
		103.37		-3.871E-02	1.140E-01	1.816E-01	1.545E-02	-0.213
		106.12		5.955E-02	9.821E-02	1.632E-01	1.376E-02	0.365
		117.23	*	-3.506E-03	4.459E-01	7.181E-01	5.951E-02	-0.005
AM-241		228.18		-2.849E-02	2.477E-01	4.122E-01	3.488E-02	-0.069
	+	277.60		4.204E-01	2.986E-01	3.618E-01	3.135E-02	1.162
		59.54	*	1.020E-02	1.894E-01	2.820E-01	2.222E-02	0.036
CM-247	+	278.00		1.785E+00	1.268E+00	1.565E+00	1.356E-01	1.141
		287.50		1.170E+00	1.458E+00	2.512E+00	2.179E-01	0.466
		402.40	*	-9.676E-03	4.340E-02	6.901E-02	5.636E-03	-0.140
CF-249		252.80		-2.668E-01	1.097E+00	1.801E+00	1.548E-01	-0.148
		333.37		4.457E-01	2.582E-01	3.472E-01	2.975E-02	1.284
		388.16	*	1.599E-02	4.757E-02	7.898E-02	6.420E-03	0.202
CF-251		177.52	*	7.134E-02	1.417E-01	2.455E-01	1.977E-02	0.291
		227.38		1.932E-01	4.124E-01	7.053E-01	5.965E-02	0.274
		285.41		-9.696E-01	2.579E+00	4.167E+00	3.614E-01	-0.233

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]G248028004      *
* Acquisition date   : 12-MAR-2010 16:50:59 Detector SN#      :             *
* Detector ID        : GAM12                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.35           Half life ratio : 8.000        *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G248028004           Analyst initials: MXR1          *
* Batch Number       : 958220              Sample Quantity : 1.0652E+02 GRAM   *
* Recovery           : 1.00000             Carrier Weight  : 0.00000         *
*****
*
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                                    *
* CALIB. DATE/TIME   : 25-FEB-2010 20:55:17 MS Isotope      :                *
* MSD DPM             : 0.000              MSD Isotope      :                *
* LCS DPM             : 0.000              LCS Isotope      :                *
* LCSD DPM            : 0.000              LCSD Isotope     :                *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.672E+01	3.962E+00	6.155E-01	0.000E+00
CD-109	2.647E+00	1.227E+00	1.248E+00	0.000E+00
SN-126	2.563E-01	1.188E-01	1.621E-01	0.000E+00
TL-208	5.572E-01	1.184E-01	7.415E-02	0.000E+00
BI-211	4.163E+00	6.529E-01	3.968E-01	0.000E+00
PB-212	1.754E+00	2.116E-01	1.054E-01	0.000E+00
BI-214	1.262E+00	2.317E-01	1.453E-01	0.000E+00
PB-214	1.511E+00	2.506E-01	1.443E-01	0.000E+00
RA-224	2.713E+00	1.365E+00	1.130E+00	0.000E+00
RA-226	1.262E+00	2.317E-01	1.453E-01	0.000E+00
AC-228	1.582E+00	4.297E-01	2.936E-01	0.000E+00
RA-228	1.582E+00	4.297E-01	2.936E-01	0.000E+00
TH-228	1.754E+00	2.116E-01	1.054E-01	0.000E+00
TH-232	1.582E+00	4.297E-01	2.936E-01	0.000E+00
TH-234	2.240E+00	2.105E+00	2.370E+00	0.000E+00
NP-237	7.649E-01	3.879E-01	4.808E-01	0.000E+00
U-238	2.240E+00	2.105E+00	2.370E+00	0.000E+00
ANH-511	1.460E-01	1.024E-01	5.748E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	3.000E-01	4.292E-01	7.368E-01	0.000E+00 NOT IDENT.
NA-22	3.315E-02	5.698E-02	1.004E-01	0.000E+00 NOT IDENT.
NA-24	0.000E+00	6.629E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	3.985E-03	5.077E-02	8.414E-02	0.000E+00 FAIL ABUN
V-48	-4.434E-02	1.173E-01	1.933E-01	0.000E+00 NOT IDENT.
CR-51	-5.028E-02	5.030E-01	8.389E-01	0.000E+00 NOT IDENT.
MN-54	-3.819E-02	4.946E-02	7.585E-02	0.000E+00 NOT IDENT.
CO-56	2.498E-02	5.287E-02	9.101E-02	0.000E+00 NOT IDENT.
CO-57	-9.788E-03	2.799E-02	4.541E-02	0.000E+00 NOT IDENT.

CO-58	6.974E-03	4.582E-02	7.713E-02	0.000E+00	NOT IDENT.
FE-59	-1.194E-01	1.252E-01	1.911E-01	0.000E+00	NOT IDENT.
CO-60	1.787E-02	5.285E-02	9.113E-02	0.000E+00	NOT IDENT.
ZN-65	-1.551E-02	1.232E-01	1.759E-01	0.000E+00	NOT IDENT.
SE-75	-6.452E-03	5.798E-02	8.572E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	6.040E-02	1.039E-01	0.000E+00	NOT IDENT.
Y-88	1.987E-02	3.011E-02	5.886E-02	0.000E+00	NOT IDENT.
Y-91	7.948E+00	3.044E+01	5.218E+01	0.000E+00	NOT IDENT.
NB-94	-3.978E-02	4.147E-02	6.364E-02	0.000E+00	NOT IDENT.
NB-95	6.598E-03	5.930E-02	8.661E-02	0.000E+00	NOT IDENT.
NB-95M	8.351E-02	1.536E-01	2.399E-01	0.000E+00	NOT IDENT.
ZR-95	1.926E-02	9.741E-02	1.650E-01	0.000E+00	NOT IDENT.
MO-99	6.142E+01	6.997E+01	1.245E+02	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.341E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.775E-03	5.096E-02	8.716E-02	0.000E+00	FAIL ABUN
RH-106	-6.443E-02	3.457E-01	5.750E-01	0.000E+00	NOT IDENT.
RU-106	-6.443E-02	3.456E-01	5.750E-01	0.000E+00	NOT IDENT.
AG-108M	-1.315E-02	3.549E-02	5.660E-02	0.000E+00	NOT IDENT.
AG-110M	5.415E-03	4.050E-02	6.900E-02	0.000E+00	NOT IDENT.
SN-113	-1.527E-02	5.453E-02	8.842E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	8.622E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	4.589E-02	8.376E-02	1.402E-01	0.000E+00	NOT IDENT.
TE-123M	1.564E-02	3.331E-02	5.553E-02	0.000E+00	NOT IDENT.
SB-124	-1.485E-02	9.363E-02	1.535E-01	0.000E+00	NOT IDENT.
SB-125	3.538E-02	1.056E-01	1.780E-01	0.000E+00	FAIL ABUN
TE-125M	9.970E+00	1.203E+01	2.067E+01	0.000E+00	NOT IDENT.
I-126	1.004E-02	3.513E-01	5.927E-01	0.000E+00	NOT IDENT.
SB-126	6.631E-03	2.823E-01	4.101E-01	0.000E+00	NOT IDENT.
SB-127	-3.943E+00	4.532E+00	6.941E+00	0.000E+00	NOT IDENT.
I-131	1.338E-01	2.220E-01	3.844E-01	0.000E+00	NOT IDENT.
TE-132	-3.296E-01	3.063E+00	5.224E+00	0.000E+00	NOT IDENT.
BA-133	-4.597E-03	5.032E-02	7.271E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	8.656E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.290E-02	5.883E-02	1.012E-01	0.000E+00	NOT IDENT.
CS-135	2.395E-01	2.038E-01	3.278E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.237E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	9.444E-02	1.689E-01	3.021E-01	0.000E+00	NOT IDENT.
BA-137M	-2.409E-02	4.334E-02	6.676E-02	0.000E+00	NOT IDENT.
CS-137	-2.545E-02	4.579E-02	7.053E-02	0.000E+00	NOT IDENT.
CE-139	-1.000E-02	3.645E-02	5.835E-02	0.000E+00	NOT IDENT.
BA-140	-1.207E-01	4.583E-01	7.661E-01	0.000E+00	NOT IDENT.
LA-140	-8.615E-03	1.651E-01	2.546E-01	0.000E+00	NOT IDENT.
CE-141	-1.438E-03	8.295E-02	1.357E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.918E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-3.779E-02	2.276E-01	3.711E-01	0.000E+00	NOT IDENT.
PM-144	3.250E-02	4.389E-02	7.762E-02	0.000E+00	NOT IDENT.
PR-144	2.489E+00	3.299E+00	5.840E+00	0.000E+00	NOT IDENT.
PM-146	-2.494E-02	4.787E-02	7.478E-02	0.000E+00	NOT IDENT.
ND-147	1.645E-02	9.732E-01	1.668E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	7.228E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-5.956E-02	1.398E-01	1.969E-01	0.000E+00	NOT IDENT.
GD-153	-1.085E-01	1.090E-01	1.513E-01	0.000E+00	NOT IDENT.
EU-154	9.365E-02	1.611E-01	2.836E-01	0.000E+00	NOT IDENT.
EU-155	1.530E-02	1.228E-01	2.056E-01	0.000E+00	FAIL ABUN
TB-160	9.712E-03	1.917E-01	3.171E-01	0.000E+00	FAIL ABUN
HO-166M	3.627E-02	7.687E-02	1.334E-01	0.000E+00	NOT IDENT.
TA-182	1.263E-01	2.799E-01	4.854E-01	0.000E+00	FAIL ABUN
IR-192	-1.799E-02	4.247E-02	6.940E-02	0.000E+00	FAIL ABUN
HG-203	3.847E-02	5.380E-02	8.427E-02	0.000E+00	NOT IDENT.
BI-207	-3.692E-02	6.186E-02	9.835E-02	0.000E+00	FAIL ABUN
PB-210	2.909E-01	3.697E+00	6.136E+00	0.000E+00	NOT IDENT.
PB-211	-8.511E-01	9.593E-01	1.336E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	9.652E-01	1.427E+00	0.000E+00	FAIL ABUN
RN-219	-1.719E-01	4.695E-01	7.535E-01	0.000E+00	FAIL ABUN
RA-223	-2.055E-01	9.053E-01	1.305E+00	0.000E+00	FAIL ABUN
AC-227	-7.572E-02	2.869E-01	4.813E-01	0.000E+00	FAIL ABUN
TH-227	-7.572E-02	2.870E-01	4.813E-01	0.000E+00	FAIL ABUN
TH-229	2.995E-01	5.658E-01	1.002E+00	0.000E+00	FAIL ABUN
PA-231	-8.494E-01	1.792E+00	2.708E+00	0.000E+00	FAIL ABUN
TH-231	-2.055E-01	9.053E-01	1.305E+00	0.000E+00	FAIL ABUN
PA-233	2.475E-02	7.365E-02	1.263E-01	0.000E+00	FAIL ABUN
PA-234	-2.862E-02	4.026E-01	6.538E-01	0.000E+00	NOT IDENT.
PA-234M	2.621E+00	5.361E+00	9.686E+00	0.000E+00	NOT IDENT.
U-235	-6.830E-02	2.422E-01	3.890E-01	0.000E+00	FAIL ABUN
NP-239	-3.506E-03	4.370E-01	7.236E-01	0.000E+00	FAIL ABUN
AM-241	1.020E-02	1.856E-01	2.853E-01	0.000E+00	NOT IDENT.
CM-247	-9.676E-03	4.253E-02	6.905E-02	0.000E+00	FAIL ABUN
CF-249	1.599E-02	4.662E-02	7.905E-02	0.000E+00	NOT IDENT.

CF-251	7.134E-02	1.389E-01	2.468E-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]G248028004.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:50:59
Sample ID          : G248028004           Sample quantity  : 1.06520E+02 GRAM
Detector name      : GAM12                Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00        Elapsed real time: 0 02:00:01.35  0.0%
Energy tolerance   : 1.50000 keV          Analyst Initials  : MXR1
Abundance limit    : 75.00000             Sensitivity         : 5.00000
Batch ID           : 958220               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	1194	10.66*	1.075E+00	3.672E+01	3.672E+01	11.01
CD-109	88.03	149	3.70*	5.530E+00	2.563E+00	2.647E+00	47.30
SN-126	64.28	75	9.60	3.188E+00	8.633E-01	8.633E-01	95.35
	86.94	149	8.90	5.530E+00	1.066E+00	1.066E+00	62.24
	87.57	149	37.00*	5.530E+00	2.563E-01	2.563E-01	47.30
TL-208	277.37	72	6.60	4.203E+00	9.198E-01	9.198E-01	71.62
	583.19	318	85.00*	2.364E+00	5.572E-01	5.572E-01	21.69
	860.56	35	12.50	1.694E+00	5.761E-01	5.761E-01	80.23
BI-211	72.87	-----	1.23	4.356E+00	-----	Line Not Found	-----
	351.06	537	12.92*	3.520E+00	4.163E+00	4.163E+00	16.01
PB-212	74.82	356	10.28	4.557E+00	2.674E+00	2.674E+00	23.39
	77.11	507	17.10	4.782E+00	2.183E+00	2.183E+00	16.70
	238.63	1014	43.60*	4.675E+00	1.754E+00	1.754E+00	12.31
	300.09	66	3.30	3.965E+00	1.769E+00	1.769E+00	69.19
BI-214	609.32	371	45.49*	2.280E+00	1.262E+00	1.262E+00	18.74
	1120.29	68	14.92	1.341E+00	1.195E+00	1.195E+00	49.86
	1764.49	68	15.30	9.452E-01	1.656E+00	1.656E+00	30.49
PB-214	74.82	356	5.80	4.557E+00	4.740E+00	4.740E+00	22.70
	77.11	507	9.70	4.782E+00	3.848E+00	3.848E+00	18.62
	242.00	94	7.25	4.627E+00	9.904E-01	9.904E-01	56.87
	295.22	304	18.42	4.014E+00	1.451E+00	1.451E+00	23.80
	351.93	537	35.60*	3.520E+00	1.511E+00	1.511E+00	16.93
RA-224	240.99	147	4.10*	4.643E+00	2.713E+00	2.713E+00	51.36
RA-226	609.32	371	45.49*	2.280E+00	1.262E+00	1.262E+00	18.74
	1120.29	68	14.92	1.341E+00	1.195E+00	1.195E+00	49.86
	1764.49	68	15.30	9.452E-01	1.656E+00	1.656E+00	30.49
AC-228	338.32	234	11.27	3.627E+00	2.017E+00	2.017E+00	49.84
	911.20	187	25.80*	1.610E+00	1.582E+00	1.582E+00	27.71
	968.97	107	15.80	1.525E+00	1.564E+00	1.564E+00	41.46
RA-228	338.32	234	11.27	3.627E+00	2.017E+00	2.017E+00	49.84
	911.20	187	25.80*	1.610E+00	1.582E+00	1.582E+00	27.71
	968.97	107	15.80	1.525E+00	1.564E+00	1.564E+00	41.46

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	356	10.28	4.557E+00	2.674E+00	2.674E+00	21.30
	77.11	507	17.10	4.782E+00	2.183E+00	2.183E+00	16.70
	238.63	1014	43.60*	4.675E+00	1.754E+00	1.754E+00	12.31
	300.09	66	3.30	3.965E+00	1.769E+00	1.769E+00	91.78
TH-232	338.32	234	11.27	3.627E+00	2.017E+00	2.017E+00	28.59
	911.20	187	25.80*	1.610E+00	1.582E+00	1.582E+00	27.71
	968.97	107	15.80	1.525E+00	1.564E+00	1.564E+00	41.46
TH-234	63.29	75	3.70*	3.188E+00	2.240E+00	2.240E+00	95.91
	92.59	220	4.23	5.842E+00	3.135E+00	3.135E+00	46.07
NP-237	86.48	149	12.40*	5.530E+00	7.649E-01	7.649E-01	51.74
	95.86	-----	2.68	5.962E+00	-----	Line Not Found	-----
U-238	63.29	75	3.70*	3.188E+00	2.240E+00	2.240E+00	95.91
	92.59	220	4.23	5.842E+00	3.135E+00	3.135E+00	41.34
ANH-511	511.00	109	100.00*	2.630E+00	1.460E-01	1.460E-01	71.56

Flag: "*" = Keyline

Summary of Nuclide Activity
Sample ID : G248028004

Page : 3
Acquisition date : 12-MAR-2010 16:50:59

Total number of lines in spectrum 32
Number of unidentified lines 6
Number of lines tentatively identified by NID 26 81.25%

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	3.672E+01	3.672E+01	0.404E+01	11.01	
CD-109	461.40D	1.03	2.563E+00	2.647E+00	1.252E+00	47.30	
SN-126	2.30E+05Y	1.00	2.563E-01	2.563E-01	1.213E-01	47.30	
TL-208	1.41E+10Y	1.00	5.572E-01	5.572E-01	1.209E-01	21.69	
BI-211	7.04E+08Y	1.00	4.163E+00	4.163E+00	0.666E+00	16.01	
PB-212	1.41E+10Y	1.00	1.754E+00	1.754E+00	0.216E+00	12.31	
BI-214	1600.00Y	1.00	1.262E+00	1.262E+00	0.236E+00	18.74	
PB-214	1600.00Y	1.00	1.511E+00	1.511E+00	0.256E+00	16.93	
RA-224	1.41E+10Y	1.00	2.713E+00	2.713E+00	1.393E+00	51.36	
RA-226	1600.00Y	1.00	1.262E+00	1.262E+00	0.236E+00	18.74	
AC-228	1.41E+10Y	1.00	1.582E+00	1.582E+00	0.438E+00	27.71	
RA-228	1.41E+10Y	1.00	1.582E+00	1.582E+00	0.438E+00	27.71	
TH-228	1.41E+10Y	1.00	1.754E+00	1.754E+00	0.216E+00	12.31	
TH-232	1.41E+10Y	1.00	1.582E+00	1.582E+00	0.438E+00	27.71	
TH-234	4.47E+09Y	1.00	2.240E+00	2.240E+00	2.148E+00	95.91	
NP-237	2.14E+06Y	1.00	7.649E-01	7.649E-01	3.958E-01	51.74	
U-238	4.47E+09Y	1.00	2.240E+00	2.240E+00	2.148E+00	95.91	
ANH-511	1.00E+09Y	1.00	1.460E-01	1.460E-01	1.045E-01	71.56	
Total Activity :			6.465E+01	6.474E+01			

Grand Total Activity : 6.465E+01 6.474E+01

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

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

Unidentified Energy Lines
Sample ID : G248028004

Page : 4
Acquisition date : 12-MAR-2010 16:50:59

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	89.99	111	184	1.01	179.21	177	13	1.54E-02	38.5	5.70E+00	T
0	209.33	70	260	0.91	417.93	414	9	9.74E-03	86.4	5.10E+00	
4	270.09	132	156	1.88	539.47	533	28	1.83E-02	40.3	4.28E+00	T
0	330.31	142	227	5.54	659.92	649	20	1.97E-02	55.5	3.69E+00	
0	463.09	63	77	1.62	925.51	921	11	8.73E-03	59.0	2.85E+00	T
0	727.50	88	52	1.99	1454.29	1448	12	1.22E-02	39.6	1.96E+00	T
0	770.39	82	90	3.05	1540.06	1530	20	1.14E-02	61.0	1.87E+00	
0	1587.93	36	0	1.81	3174.50	3168	13	5.00E-03	33.3	1.01E+00	
0	1728.83	18	3	4.06	3456.12	3450	12	2.50E-03	60.8	9.57E-01	
0	1744.32	14	0	1.33	3487.07	3480	13	1.94E-03	53.5	9.52E-01	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028004.CNF;1
* Acquisition date   : 12-MAR-2010 16:50:59   Detector SN#      :
* Detector ID        : GAM12                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit     : 75.00000
* Elapsed real time  : 0 02:00:01.35          Half life ratio    : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 19-FEB-2010 12:00:00   Nuclide Library   : SOLID
* Sample ID          : G248028004             Analyst initials  : MXR1
* Batch Number       : 958220                 Sample Quantity   : 1.06520E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 25-FEB-2010 20:55:17.3MS Isotope        :
* MSD ID              :                      MSD Isotope        :
* LCS ID              : 1032-A                LCS Isotope        :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.672E+01	4.043E+00	6.196E-01	5.619E-02	59.267
CD-109	2.647E+00	1.252E+00	1.237E+00	1.164E-01	2.140
SN-126	2.563E-01	1.213E-01	1.607E-01	1.505E-02	1.596
TL-208	5.572E-01	1.209E-01	7.425E-02	7.062E-03	7.504
BI-211	4.163E+00	6.662E-01	3.962E-01	3.531E-02	10.505
PB-212	1.754E+00	2.159E-01	1.051E-01	1.017E-02	16.690
BI-214	1.262E+00	2.364E-01	1.456E-01	1.512E-02	8.666
PB-214	1.511E+00	2.557E-01	1.441E-01	1.510E-02	10.482
RA-224	2.713E+00	1.393E+00	1.126E+00	9.616E-02	2.409
RA-226	1.262E+00	2.364E-01	1.456E-01	1.512E-02	8.666
AC-228	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
RA-228	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
TH-228	1.754E+00	2.159E-01	1.051E-01	1.017E-02	16.690
TH-232	1.582E+00	4.384E-01	2.948E-01	3.783E-02	5.368
TH-234	2.240E+00	2.148E+00	2.344E+00	4.175E-01	0.956
NP-237	7.649E-01	3.958E-01	4.763E-01	1.092E-01	1.606
U-238	2.240E+00	2.148E+00	2.344E+00	4.175E-01	0.956
ANH-511	1.460E-01	1.045E-01	5.752E-02	5.033E-03	2.538

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	3.000E-01		4.380E-01	7.370E-01	6.838E-02	0.407
NA-22	3.315E-02		5.814E-02	1.010E-01	8.612E-03	0.328
NA-24	-3.658E+01		3.382E+02	Half-Life	too short	
SC-46	3.985E-03		5.181E-02	8.447E-02	8.653E-03	0.047
V-48	-4.434E-02		1.197E-01	1.941E-01	1.908E-02	-0.228
CR-51	-5.028E-02		5.132E-01	8.373E-01	7.599E-02	-0.060
MN-54	-3.819E-02		5.047E-02	7.612E-02	7.597E-03	-0.502
CO-56	2.498E-02		5.395E-02	9.134E-02	9.171E-03	0.273
CO-57	-9.788E-03		2.856E-02	4.508E-02	3.738E-03	-0.217
CO-58	6.974E-03		4.676E-02	7.738E-02	7.638E-03	0.090
FE-59	-1.194E-01		1.278E-01	1.920E-01	1.836E-02	-0.622
CO-60	1.787E-02		5.393E-02	9.169E-02	8.025E-03	0.195
ZN-65	-1.551E-02		1.257E-01	1.768E-01	1.543E-02	-0.088
SE-75	-6.452E-03		5.917E-02	8.546E-02	7.417E-03	-0.075
SR-85	1.269E-01		6.164E-02	1.039E-01	9.105E-03	1.221
Y-88	1.987E-02		3.073E-02	5.933E-02	4.912E-03	0.335
Y-91	7.948E+00		3.106E+01	5.247E+01	4.310E+00	0.151
NB-94	-3.978E-02		4.232E-02	6.380E-02	5.870E-03	-0.624
NB-95	6.598E-03		6.051E-02	8.687E-02	8.336E-03	0.076
NB-95M	8.351E-02		1.568E-01	2.391E-01	2.340E-02	0.349
ZR-95	1.926E-02		9.940E-02	1.655E-01	1.715E-02	0.116
MO-99	6.142E+01		7.140E+01	1.248E+02	2.025E+01	0.492
TC-99M	-3.967E+17		4.766E+17	Half-Life	too short	
RU-103	-3.775E-03		5.200E-02	8.720E-02	1.222E-02	-0.043
RH-106	-6.443E-02		3.527E-01	5.760E-01	7.759E-02	-0.112
RU-106	-6.443E-02		3.526E-01	5.760E-01	5.153E-02	-0.112
AG-108M	-1.315E-02		3.622E-02	5.659E-02	4.903E-03	-0.232
AG-110M	5.415E-03		4.133E-02	6.915E-02	6.344E-03	0.078
SN-113	-1.527E-02		5.565E-02	8.835E-02	7.396E-03	-0.173
CD-115	-4.716E-05		4.399E-05	Half-Life	too short	
SN-117M	4.589E-02		8.547E-02	1.394E-01	1.111E-02	0.329
TE-123M	1.564E-02		3.399E-02	5.521E-02	4.432E-03	0.283
SB-124	-1.485E-02		9.554E-02	1.547E-01	1.390E-02	-0.096
SB-125	3.538E-02		1.077E-01	1.780E-01	1.514E-02	0.199
TE-125M	9.970E+00		1.227E+01	2.051E+01	2.111E+00	0.486
I-126	1.004E-02		3.585E-01	5.940E-01	5.319E-02	0.017
SB-126	6.631E-03		2.881E-01	4.112E-01	3.832E-02	0.016
SB-127	-3.943E+00		4.625E+00	6.957E+00	9.488E-01	-0.567
I-131	1.338E-01		2.266E-01	3.839E-01	3.414E-02	0.348
TE-132	-3.296E-01		3.126E+00	5.204E+00	8.902E-01	-0.063
BA-133	-4.597E-03		5.135E-02	7.261E-02	9.314E-03	-0.063
I-133	-5.422E-02		4.416E-01	Half-Life	too short	
CS-134	3.290E-02		6.003E-02	1.015E-01	9.973E-03	0.324
CS-135	2.395E-01		2.080E-01	3.268E-01	3.264E-02	0.733
I-135	-4.312E+16		2.162E+16	Half-Life	too short	
CS-136	9.444E-02		1.724E-01	3.035E-01	2.941E-02	0.311
BA-137M	-2.409E-02		4.423E-02	6.691E-02	5.969E-03	-0.360
CS-137	-2.545E-02		4.672E-02	7.068E-02	6.317E-03	-0.360

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-139	-1.000E-02		3.720E-02	5.802E-02	4.619E-03	-0.172
BA-140	-1.207E-01		4.677E-01	7.669E-01	2.605E-01	-0.157
LA-140	-8.615E-03		1.684E-01	2.565E-01	2.248E-02	-0.034
CE-141	-1.438E-03		8.464E-02	1.348E-01	1.104E-02	-0.011
CE-143	1.165E-02		2.509E-03	Half-Life	too short	
CE-144	-3.779E-02		2.322E-01	3.685E-01	5.530E-02	-0.103
PM-144	3.250E-02		4.478E-02	7.780E-02	7.131E-03	0.418
PR-144	2.489E+00		3.366E+00	5.854E+00	5.362E-01	0.425
PM-146	-2.494E-02		4.885E-02	7.478E-02	7.844E-03	-0.334
ND-147	1.645E-02		9.930E-01	1.669E+00	2.514E-01	0.010
PM-149	-1.160E-04		3.688E-04	Half-Life	too short	
EU-152	-5.956E-02		1.427E-01	1.966E-01	1.775E-02	-0.303
GD-153	-1.085E-01		1.112E-01	1.500E-01	1.312E-02	-0.723
EU-154	9.365E-02		1.644E-01	2.853E-01	3.224E-02	0.328
EU-155	1.530E-02		1.253E-01	2.039E-01	1.745E-02	0.075
TB-160	9.712E-03		1.957E-01	3.183E-01	3.246E-02	0.031
HO-166M	3.627E-02		7.844E-02	1.338E-01	1.239E-02	0.271
TA-182	1.263E-01		2.856E-01	4.881E-01	4.046E-02	0.259
IR-192	-1.799E-02		4.334E-02	6.926E-02	5.995E-03	-0.260
HG-203	3.847E-02		5.489E-02	8.404E-02	7.469E-03	0.458
BI-207	-3.692E-02		6.312E-02	9.883E-02	9.108E-03	-0.374
PB-210	2.909E-01		3.772E+00	6.059E+00	5.598E-01	0.048
PB-211	-8.511E-01		9.789E-01	1.336E+00	6.453E-01	-0.637
BI-212	2.364E+00	+	9.849E-01	1.431E+00	1.858E-01	1.652
RN-219	-1.719E-01		4.791E-01	7.530E-01	1.100E-01	-0.228
RA-223	-2.055E-01		9.238E-01	1.303E+00	2.258E-01	-0.158
AC-227	-7.572E-02		2.928E-01	4.798E-01	5.778E-02	-0.158
TH-227	-7.572E-02		2.928E-01	4.798E-01	6.525E-02	-0.158
TH-229	2.995E-01		5.774E-01	9.970E-01	8.167E-02	0.300
PA-231	-8.494E-01		1.829E+00	2.701E+00	3.948E-01	-0.314
TH-231	-2.055E-01		9.238E-01	1.303E+00	2.258E-01	-0.158
PA-233	2.475E-02		7.516E-02	1.261E-01	1.121E-02	0.196
PA-234	-2.862E-02		4.108E-01	6.565E-01	1.278E-01	-0.044
PA-234M	2.621E+00		5.470E+00	9.729E+00	1.063E+00	0.269
U-235	-6.830E-02		2.471E-01	3.865E-01	6.439E-02	-0.177
NP-239	-3.506E-03		4.459E-01	7.181E-01	5.951E-02	-0.005
AM-241	1.020E-02		1.894E-01	2.820E-01	2.222E-02	0.036
CM-247	-9.676E-03		4.340E-02	6.901E-02	5.636E-03	-0.140
CF-249	1.599E-02		4.757E-02	7.898E-02	6.420E-03	0.202
CF-251	7.134E-02		1.417E-01	2.455E-01	1.977E-02	0.291

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]G248028004          *
* Acquisition date   : 12-MAR-2010 16:50:59 Detector SN#      :             *
* Detector ID        : GAM12                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance : 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit  : 75.000     *
* Elapsed real time  : 0 02:00:01.35                               Half life ratio  : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G248028004                               Analyst initials: MXR1        *
* Batch Number       : 958220                                   Sample Quantity : 1.0652E+02 GRAM *
* Recovery           : 1.00000                                Carrier Weight   : 0.00000     *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 25-FEB-2010 20:55:17 MS Isotope           :             *
* MSD DPM             : 0.000                                       MSD Isotope      :             *
* LCS DPM             : 0.000                                       LCS Isotope      :             *
* LCSD DPM            : 0.000                                       LCSD Isotope     :             *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.672E+01	3.962E+00	3.079E-01	2.022E+00
CD-109	2.647E+00	1.227E+00	6.243E-01	6.260E-01
SN-126	2.563E-01	1.188E-01	8.112E-02	6.063E-02
TL-208	5.572E-01	1.184E-01	3.710E-02	6.043E-02
BI-211	4.163E+00	6.529E-01	1.985E-01	3.331E-01
PB-212	1.754E+00	2.116E-01	5.276E-02	1.080E-01
BI-214	1.262E+00	2.317E-01	7.272E-02	1.182E-01
PB-214	1.511E+00	2.506E-01	7.221E-02	1.279E-01
RA-224	2.713E+00	1.365E+00	5.654E-01	6.967E-01
RA-226	1.262E+00	2.317E-01	7.272E-02	1.182E-01
AC-228	1.582E+00	4.297E-01	1.469E-01	2.192E-01
RA-228	1.582E+00	4.297E-01	1.469E-01	2.192E-01
TH-228	1.754E+00	2.116E-01	5.276E-02	1.080E-01
TH-232	1.582E+00	4.297E-01	1.469E-01	2.192E-01
TH-234	2.240E+00	2.105E+00	1.185E+00	1.074E+00
NP-237	7.649E-01	3.879E-01	2.405E-01	1.979E-01
U-238	2.240E+00	2.105E+00	1.185E+00	1.074E+00
ANH-511	1.460E-01	1.024E-01	2.876E-02	5.224E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	3.000E-01	4.292E-01	3.686E-01	2.190E-01 NOT IDENT.
NA-22	3.315E-02	5.698E-02	5.023E-02	2.907E-02 NOT IDENT.
NA-24	-3.658E+07	6.629E+08	0.000E+00	3.382E+08 SHORT HLIF
SC-46	3.985E-03	5.077E-02	4.210E-02	2.590E-02 FAIL ABUN
V-48	-4.434E-02	1.173E-01	9.668E-02	5.987E-02 NOT IDENT.
CR-51	-5.028E-02	5.030E-01	4.197E-01	2.566E-01 NOT IDENT.
MN-54	-3.819E-02	4.946E-02	3.795E-02	2.523E-02 NOT IDENT.
CO-56	2.498E-02	5.287E-02	4.553E-02	2.697E-02 NOT IDENT.
CO-57	-9.788E-03	2.799E-02	2.272E-02	1.428E-02 NOT IDENT.

CO-58	6.974E-03	4.582E-02	3.859E-02	2.338E-02	NOT IDENT.
FE-59	-1.194E-01	1.252E-01	9.559E-02	6.388E-02	NOT IDENT.
CO-60	1.787E-02	5.285E-02	4.559E-02	2.696E-02	NOT IDENT.
ZN-65	-1.551E-02	1.232E-01	8.802E-02	6.287E-02	NOT IDENT.
SE-75	-6.452E-03	5.798E-02	4.289E-02	2.958E-02	NOT IDENT.
SR-85	1.269E-01	6.040E-02	5.196E-02	3.082E-02	NOT IDENT.
Y-88	1.987E-02	3.011E-02	2.945E-02	1.536E-02	NOT IDENT.
Y-91	7.948E+00	3.044E+01	2.610E+01	1.553E+01	NOT IDENT.
NB-94	-3.978E-02	4.147E-02	3.184E-02	2.116E-02	NOT IDENT.
NB-95	6.598E-03	5.930E-02	4.333E-02	3.026E-02	NOT IDENT.
NB-95M	8.351E-02	1.536E-01	1.200E-01	7.839E-02	NOT IDENT.
ZR-95	1.926E-02	9.741E-02	8.255E-02	4.970E-02	NOT IDENT.
MO-99	6.142E+01	6.997E+01	6.228E+01	3.570E+01	NOT IDENT.
TC-99M	-3.967E+23	9.341E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.775E-03	5.096E-02	4.361E-02	2.600E-02	FAIL ABUN
RH-106	-6.443E-02	3.457E-01	2.876E-01	1.764E-01	NOT IDENT.
RU-106	-6.443E-02	3.456E-01	2.876E-01	1.763E-01	NOT IDENT.
AG-108M	-1.315E-02	3.549E-02	2.832E-02	1.811E-02	NOT IDENT.
AG-110M	5.415E-03	4.050E-02	3.452E-02	2.066E-02	NOT IDENT.
SN-113	-1.527E-02	5.453E-02	4.424E-02	2.782E-02	NOT IDENT.
CD-115	-4.716E+01	8.622E+01	0.000E+00	4.399E+01	SHORT HLIF
SN-117M	4.589E-02	8.376E-02	7.015E-02	4.273E-02	NOT IDENT.
TE-123M	1.564E-02	3.331E-02	2.778E-02	1.699E-02	NOT IDENT.
SB-124	-1.485E-02	9.363E-02	7.681E-02	4.777E-02	NOT IDENT.
SB-125	3.538E-02	1.056E-01	8.907E-02	5.387E-02	FAIL ABUN
TE-125M	9.970E+00	1.203E+01	1.034E+01	6.136E+00	NOT IDENT.
I-126	1.004E-02	3.513E-01	2.965E-01	1.793E-01	NOT IDENT.
SB-126	6.631E-03	2.823E-01	2.052E-01	1.440E-01	NOT IDENT.
SB-127	-3.943E+00	4.532E+00	3.472E+00	2.312E+00	NOT IDENT.
I-131	1.338E-01	2.220E-01	1.923E-01	1.133E-01	NOT IDENT.
TE-132	-3.296E-01	3.063E+00	2.613E+00	1.563E+00	NOT IDENT.
BA-133	-4.597E-03	5.032E-02	3.638E-02	2.568E-02	FAIL ABUN
I-133	-5.422E+04	8.656E+05	0.000E+00	4.416E+05	SHORT HLIF
CS-134	3.290E-02	5.883E-02	5.062E-02	3.002E-02	NOT IDENT.
CS-135	2.395E-01	2.038E-01	1.640E-01	1.040E-01	NOT IDENT.
I-135	-4.312E+22	4.237E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	9.444E-02	1.689E-01	1.511E-01	8.619E-02	NOT IDENT.
BA-137M	-2.409E-02	4.334E-02	3.340E-02	2.211E-02	NOT IDENT.
CS-137	-2.545E-02	4.579E-02	3.529E-02	2.336E-02	NOT IDENT.
CE-139	-1.000E-02	3.645E-02	2.919E-02	1.860E-02	NOT IDENT.
BA-140	-1.207E-01	4.583E-01	3.833E-01	2.338E-01	NOT IDENT.
LA-140	-8.615E-03	1.651E-01	1.274E-01	8.422E-02	NOT IDENT.
CE-141	-1.438E-03	8.295E-02	6.787E-02	4.232E-02	NOT IDENT.
CE-143	1.165E+04	4.918E+03	0.000E+00	2.509E+03	SHORT HLIF
CE-144	-3.779E-02	2.276E-01	1.857E-01	1.161E-01	NOT IDENT.
PM-144	3.250E-02	4.389E-02	3.883E-02	2.239E-02	NOT IDENT.
PR-144	2.489E+00	3.299E+00	2.921E+00	1.683E+00	NOT IDENT.
PM-146	-2.494E-02	4.787E-02	3.741E-02	2.442E-02	NOT IDENT.
ND-147	1.645E-02	9.732E-01	8.344E-01	4.965E-01	FAIL ABUN
PM-149	-1.160E+02	7.228E+02	0.000E+00	3.688E+02	SHORT HLIF
EU-152	-5.956E-02	1.398E-01	9.853E-02	7.133E-02	NOT IDENT.
GD-153	-1.085E-01	1.090E-01	7.571E-02	5.562E-02	NOT IDENT.
EU-154	9.365E-02	1.611E-01	1.419E-01	8.219E-02	NOT IDENT.
EU-155	1.530E-02	1.228E-01	1.029E-01	6.263E-02	FAIL ABUN
TB-160	9.712E-03	1.917E-01	1.586E-01	9.783E-02	FAIL ABUN
HO-166M	3.627E-02	7.687E-02	6.675E-02	3.922E-02	NOT IDENT.
TA-182	1.263E-01	2.799E-01	2.428E-01	1.428E-01	FAIL ABUN
IR-192	-1.799E-02	4.247E-02	3.472E-02	2.167E-02	FAIL ABUN
HG-203	3.847E-02	5.380E-02	4.216E-02	2.745E-02	NOT IDENT.
BI-207	-3.692E-02	6.186E-02	4.921E-02	3.156E-02	FAIL ABUN
PB-210	2.909E-01	3.697E+00	3.070E+00	1.886E+00	NOT IDENT.
PB-211	-8.511E-01	9.593E-01	6.686E-01	4.895E-01	NOT IDENT.
BI-212	2.364E+00	9.652E-01	7.141E-01	4.925E-01	FAIL ABUN
RN-219	-1.719E-01	4.695E-01	3.770E-01	2.395E-01	FAIL ABUN
RA-223	-2.055E-01	9.053E-01	6.531E-01	4.619E-01	FAIL ABUN
AC-227	-7.572E-02	2.869E-01	2.408E-01	1.464E-01	FAIL ABUN
TH-227	-7.572E-02	2.870E-01	2.408E-01	1.464E-01	FAIL ABUN
TH-229	2.995E-01	5.658E-01	5.012E-01	2.887E-01	FAIL ABUN
PA-231	-8.494E-01	1.792E+00	1.355E+00	9.145E-01	FAIL ABUN
TH-231	-2.055E-01	9.053E-01	6.531E-01	4.619E-01	FAIL ABUN
PA-233	2.475E-02	7.365E-02	6.320E-02	3.758E-02	FAIL ABUN
PA-234	-2.862E-02	4.026E-01	3.271E-01	2.054E-01	NOT IDENT.
PA-234M	2.621E+00	5.361E+00	4.846E+00	2.735E+00	NOT IDENT.
U-235	-6.830E-02	2.422E-01	1.946E-01	1.236E-01	FAIL ABUN
NP-239	-3.506E-03	4.370E-01	3.620E-01	2.230E-01	FAIL ABUN
AM-241	1.020E-02	1.856E-01	1.427E-01	9.471E-02	NOT IDENT.
CM-247	-9.676E-03	4.253E-02	3.455E-02	2.170E-02	FAIL ABUN
CF-249	1.599E-02	4.662E-02	3.955E-02	2.379E-02	NOT IDENT.

CF-251	7.134E-02	1.389E-01	1.235E-01	7.086E-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	229.3386
49.72	203.0596
57.36	0.0000
59.54	274.6543
63.29	287.4006
63.29	287.4006
64.28	314.5227
67.75	340.1416
69.67	352.6142
70.83	347.5446
72.81	368.5139
72.87	368.5608
72.87	368.5608
74.82	387.1427
74.82	387.1427
74.82	387.1427
74.97	387.2664
77.11	388.9999
77.11	388.9999
77.11	388.9999
79.69	391.0575
79.80	391.1439
80.12	391.3971
80.19	391.4521
80.57	391.7505
81.00	392.0902
81.07	392.1451
81.07	392.1451
83.79	343.1897
83.79	343.1897
85.43	350.4348
86.48	392.7255
86.55	392.7780
86.79	394.4980
86.94	394.6133
87.57	407.4324
88.03	228.6089
88.47	228.7986
89.96	229.4400
91.11	259.4493
92.59	260.1565
92.59	260.1565
93.35	260.5183
94.67	192.3386
94.87	192.4071
94.87	192.4071
95.86	239.7617
97.43	265.5762
98.44	221.4455
99.53	208.1987
100.11	209.4618
103.18	268.7678
103.37	246.6263
105.31	256.9945
106.12	239.2651
109.28	233.0354
111.00	267.9927
111.76	253.2959
116.30	194.5917
117.23	214.3630
121.12	196.0492
121.78	208.2388
122.06	214.8721
123.07	219.5708
131.20	250.9668
133.52	228.5103
136.00	214.8437

136.47	222.7844
140.51	244.2033
140.51	0.0000
143.76	250.9181
144.24	247.7037
144.24	247.7037
145.44	241.3378
152.43	235.6124
153.25	205.0983
154.21	223.6084
154.21	223.6084
156.02	243.5685
158.56	196.1758
159.00	200.8751
162.66	220.2492
163.33	212.3551
165.86	231.5409
176.60	193.5004
177.52	192.8280
181.07	233.4109
184.41	239.6304
185.72	226.6561
193.51	186.4941
197.04	198.0171
205.31	232.4668
210.85	195.8212
215.65	190.9137
222.11	205.0949
227.38	182.0199
228.16	186.8058
228.18	186.8089
235.69	161.7693
235.96	161.8115
235.96	161.8115
238.63	170.8597
238.63	170.8597
240.99	171.2401
242.00	171.4026
244.70	158.6164
252.40	158.7909
252.80	160.7519
256.23	162.2038
256.23	162.2038
260.90	0.0000
264.66	138.4299
268.22	141.9464
269.46	137.0793
269.46	137.0793
271.23	137.2873
273.65	137.5733
276.40	137.8962
277.37	138.0110
277.60	138.0370
278.00	138.0847
279.20	135.5000
279.54	135.5382
280.46	129.4058
283.69	151.1219
284.31	147.4757
285.41	152.6437
285.90	0.0000
287.50	130.3638
293.27	0.0000
295.22	124.6796
295.96	124.7529
298.57	90.9935
299.98	91.0959
299.98	91.0959
300.09	123.5851
300.09	123.5851
300.13	123.5889
301.36	123.7088
302.85	107.9782
304.50	119.2493
304.50	119.2493
304.85	119.2822
308.46	129.5894
311.90	119.9432

316.51	132.4089
319.41	125.6657
320.08	129.7519
323.87	150.1010
323.87	150.1010
328.76	132.8336
333.37	60.9558
334.37	61.0007
334.37	61.0007
338.28	97.8823
338.28	97.8823
338.32	97.8853
338.32	97.8853
338.32	97.8853
340.48	117.6469
340.55	117.6539
344.28	145.8266
351.06	121.4282
351.93	121.5038
356.01	94.1794
364.49	92.4521
366.42	113.3792
383.85	108.4112
388.16	98.1654
388.63	111.9230
391.69	107.9159
400.66	112.8029
401.81	103.3023
402.40	99.0793
404.85	123.7775
410.95	108.1894
414.70	98.7818
423.72	98.2593
427.09	94.1341
427.87	84.4365
433.94	97.7879
453.88	85.7636
463.37	72.9700
468.07	72.7239
473.00	96.7187
476.78	83.5567
477.60	79.1372
487.02	89.6399
492.35	0.0000
497.08	82.0255
511.00	85.3694
514.00	89.4477
527.90	0.0000
529.87	0.0000
531.02	78.9327
537.26	89.3153
546.56	0.0000
563.25	73.7018
569.33	88.8955
569.50	86.0950
569.70	86.1040
583.19	82.9039
600.60	71.2463
602.73	74.4874
604.72	77.7289
609.32	84.8911
609.32	84.8911
610.33	84.2941
614.28	60.5486
618.01	74.6999
621.93	60.4422
621.93	60.4422
633.25	59.7915
635.95	61.7953
636.99	60.8574
645.85	62.0703
657.76	61.4219
661.66	68.3645
661.66	68.3645
664.57	0.0000
666.33	64.5885
666.50	64.5933
677.62	70.8047

685.70	68.0886
695.00	83.2166
696.49	67.4090
696.51	67.4090
697.00	55.5242
702.65	84.4771
706.68	72.6739
711.68	66.8381
720.70	65.0841
721.93	0.0000
722.78	68.4801
722.91	68.4835
723.31	71.8346
724.19	66.8473
727.33	58.2322
733.00	45.2834
735.93	64.4797
739.50	51.4557
747.24	54.6500
752.31	63.8875
753.82	66.9684
756.73	63.9982
763.94	42.4459
765.81	59.4684
766.42	61.1821
777.92	51.2122
778.90	46.8404
783.70	45.1666
785.37	49.3043
795.86	52.5938
801.95	45.4792
810.29	42.5105
810.76	43.5555
815.77	39.4807
818.51	42.6406
832.01	66.8906
834.85	77.4218
836.80	0.0000
846.77	52.5378
856.80	50.9695
860.56	40.1264
871.09	49.8136
873.19	60.4567
875.33	0.0000
879.36	55.2729
880.51	58.4858
883.24	48.9615
884.68	63.8950
889.28	49.0637
898.04	35.3042
911.20	55.8810
911.20	55.8810
911.20	55.8810
926.50	45.3674
937.49	55.2907
944.13	57.5844
946.00	57.6194
949.00	58.7646
962.29	65.5767
964.08	43.7432
966.15	51.0679
968.97	81.0531
968.97	81.0531
968.97	81.0531
983.53	57.7731
996.26	55.2429
1001.03	34.1177
1004.73	45.2357
1037.84	49.4309
1038.76	0.0000
1048.07	37.4219
1050.41	39.3203
1050.41	39.3203
1063.66	50.7568
1085.87	55.8214
1099.45	60.7943
1112.07	42.3296
1115.54	50.7145

1120.29	52.5584
1120.29	52.5584
1120.55	49.6958
1121.30	54.0762
1131.51	0.0000
1173.23	57.2259
1177.93	52.4443
1189.05	57.4731
1204.77	60.6528
1221.41	66.8213
1231.02	73.8892
1235.36	64.1087
1238.28	67.1201
1260.41	0.0000
1271.85	42.8163
1274.44	41.8479
1274.54	41.8496
1291.59	46.0356
1298.22	0.0000
1312.11	25.1495
1332.49	35.3888
1365.19	26.5004
1368.63	0.0000
1384.29	27.6471
1408.01	21.6255
1457.56	0.0000
1460.82	18.7654
1489.16	16.7884
1505.03	25.2725
1596.21	23.2031
1620.50	14.0368
1678.03	0.0000
1690.97	13.1470
1764.49	9.5295
1764.49	9.5295
1770.23	6.6782
1771.35	6.6797
1791.20	0.0000
1836.06	3.8647

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248028004

Total Uranium Activity	6.6325E+00	ug/g
Total Uranium Counting Unc.	6.2648E+00	ug/g
Total Uranium Tpu	3.1963E-06	ug/g
Total Uranium Mda	3.5279E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*   BATCH ID      : 958220          SAMPLE ID   : G248028004
*   ANALYST       : MXR1            DETECTOR    : GAM12
*   SAMPLE DATE   : 19-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*   ANALYSIS DATE : 12-MAR-2010 16:50:59.06  SAMPLE ALQT: 106.520 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.032E+01
GROSS GAMMA ERROR (pCi/GRAM ) : 1.634E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.527E+00
GROSS GAMMA DLC (pCi/GRAM ) : 2.197E+00

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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 18:52:47.00

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028005.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:51:56
Sample ID          : G248028005      Sample quantity   : 1.34060E+02 GRAM
Detector name      : GAM15           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.30 0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 958220           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	74.82*	293	489	1.60	148.56	140	20	4.08E-02	16.6	9.40E-01
2	2	77.16*	542	424	1.53	153.25	140	20	7.53E-02	8.6	
3	1	87.52	113	414	1.21	173.97	168	24	1.56E-02	28.9	3.28E+00
4	1	89.90	158	461	1.48	178.73	168	24	2.19E-02	25.7	
5	1	92.94*	380	355	1.49	184.80	168	24	5.28E-02	11.6	
6	0	186.04*	270	371	1.57	370.99	365	12	3.76E-02	16.1	
7	0	209.16	83	267	1.01	417.23	414	8	1.15E-02	36.0	
8	2	238.73*	1185	224	1.45	476.37	468	23	1.65E-01	3.9	6.92E-01
9	2	241.75*	311	247	1.85	482.39	468	23	4.33E-02	14.0	
10	0	270.23	65	221	1.92	539.37	535	10	9.04E-03	44.4	
11	0	295.02*	425	190	1.40	588.94	581	15	5.91E-02	8.8	
12	0	300.89*	115	164	1.89	600.67	596	12	1.59E-02	24.7	
13	0	328.19	54	174	1.03	655.27	651	10	7.45E-03	47.9	
14	0	338.20*	211	182	1.50	675.30	670	11	2.93E-02	14.4	
15	0	351.85*	579	221	1.62	702.59	696	14	8.04E-02	6.9	
16	0	463.53	83	106	2.25	925.96	919	13	1.15E-02	28.1	
17	0	510.98*	135	146	1.75	1020.86	1013	18	1.88E-02	25.5	
18	0	582.89*	368	118	1.67	1164.69	1156	14	5.11E-02	8.3	
19	0	609.19*	471	116	1.72	1217.30	1210	15	6.55E-02	6.9	
20	0	661.56	55	88	1.90	1322.04	1315	14	7.63E-03	38.6	
21	0	727.16*	99	73	2.02	1453.25	1446	16	1.37E-02	22.1	
22	0	795.46	28	59	1.15	1589.88	1583	11	3.92E-03	56.4	
23	0	860.62*	37	55	1.83	1720.22	1713	13	5.12E-03	46.8	
24	0	910.97*	257	89	1.74	1820.93	1813	18	3.56E-02	10.8	
25	0	934.08	50	60	7.04	1867.16	1858	18	6.92E-03	33.1	
26	5	963.98	51	47	2.41	1926.96	1922	28	7.12E-03	27.2	2.13E+00
27	5	968.54*	143	46	2.04	1936.09	1922	28	1.98E-02	13.3	
28	0	1001.20*	39	38	2.18	2001.41	1995	14	5.44E-03	39.0	
29	0	1120.00*	101	60	1.47	2239.07	2231	16	1.40E-02	20.1	
30	0	1377.05	39	20	1.92	2753.29	2745	16	5.42E-03	30.2	
31	0	1460.06	871	33	2.00	2919.39	2911	19	1.21E-01	3.7	
32	0	1589.54	35	17	5.10	3178.43	3170	19	4.82E-03	34.3	
33	0	1763.98*	77	9	2.36	3527.45	3521	12	1.08E-02	14.6	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 18:52:49

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028005.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:51:56
Sample ID         : G248028005 Sample quantity : 134.06 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA15 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:01.30 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type   : Empirical Efficiencies at : Peak Energy
Abundance limit   : 75.00 WTM error limit : 3.00
  
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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	*	2.368E+01	2.924E+00	6.161E-01	6.054E-02	38.435
CD-109	+	88.03	*	1.972E+00	1.167E+00	1.648E+00	2.046E-01	1.196
SN-126		64.28		1.074E+00	8.882E-01	1.499E+00	2.537E-01	0.717
	+	86.94		7.939E-01	5.690E-01	6.759E-01	2.858E-01	1.174
	+	87.57	*	1.910E-01	1.130E-01	1.608E-01	1.990E-02	1.187
BA-137M	+	661.66	*	8.645E-02	6.708E-02	6.393E-02	5.256E-03	1.352
CS-137	+	661.66	*	9.133E-02	7.087E-02	6.754E-02	5.564E-03	1.352
TL-208		277.37		5.624E-01	5.035E-01	8.515E-01	1.204E-01	0.661
	+	583.19	*	5.527E-01	1.049E-01	6.485E-02	5.931E-03	8.523
	+	860.56		5.243E-01	4.934E-01	4.756E-01	4.650E-02	1.103
BI-211		72.87		1.196E+01	4.891E+00	8.345E+00	9.558E-01	1.433
	+	351.06	*	3.993E+00	6.817E-01	4.115E-01	4.099E-02	9.702
PB-212	+	74.82		2.476E+00	9.012E-01	7.876E-01	1.187E-01	3.144
	+	77.11		2.545E+00	5.277E-01	4.393E-01	5.092E-02	5.793
	+	238.63	*	1.849E+00	2.634E-01	1.103E-01	1.318E-02	16.760
	+	300.09		2.781E+00	1.416E+00	1.321E+00	1.609E-01	2.105
BI-214	+	609.32	*	1.371E+00	2.338E-01	1.275E-01	1.270E-02	10.750
	+	1120.29		1.545E+00	6.438E-01	5.019E-01	5.435E-02	3.078
	+	1764.49		1.657E+00	5.065E-01	3.851E-01	3.377E-02	4.302
PB-214	+	74.82		4.389E+00	1.578E+00	1.396E+00	1.951E-01	3.144
	+	77.11		4.487E+00	1.001E+00	7.745E-01	1.102E-01	5.793
	+	242.00		2.949E+00	9.055E-01	6.707E-01	8.355E-02	4.397
	+	295.22		1.822E+00	3.919E-01	2.580E-01	3.215E-02	7.061
	+	351.93	*	1.449E+00	2.600E-01	1.497E-01	1.701E-02	9.684
RA-224	+	240.99	*	5.214E+00	1.572E+00	1.182E+00	1.304E-01	4.411
RA-226	+	609.32	*	1.371E+00	2.338E-01	1.275E-01	1.270E-02	10.750
	+	1120.29		1.545E+00	6.438E-01	5.019E-01	5.435E-02	3.078
	+	1764.49		1.657E+00	5.065E-01	3.851E-01	3.377E-02	4.302
AC-228	+	338.32		1.622E+00	8.263E-01	4.665E-01	1.959E-01	3.476
	+	911.20	*	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
	+	968.97		1.796E+00	6.505E-01	4.177E-01	1.026E-01	4.299
RA-228	+	338.32		1.622E+00	8.263E-01	4.665E-01	1.959E-01	3.476
	+	911.20	*	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
	+	968.97		1.796E+00	6.505E-01	4.177E-01	1.026E-01	4.299

Sample ID : G248028005

Acquisition date : 12-MAR-2010 16:51:56

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.476E+00	8.689E-01	7.876E-01	9.107E-02	3.144
	+	77.11		2.545E+00	5.277E-01	4.393E-01	5.092E-02	5.793
	+	238.63	*	1.849E+00	2.634E-01	1.103E-01	1.318E-02	16.760
	+	300.09		2.781E+00	2.195E+00	1.321E+00	8.128E-01	2.105
TH-232	+	338.32		1.622E+00	4.945E-01	4.665E-01	4.599E-02	3.476
	+	911.20	*	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
	+	968.97		1.796E+00	6.505E-01	4.177E-01	1.026E-01	4.299
U-235	+	89.96		2.747E+00	1.584E+00	1.652E+00	4.298E-01	1.663
	+	93.35		3.929E+00	1.321E+00	9.793E-01	2.382E-01	4.012
		143.76	*	-1.982E-01	2.666E-01	4.106E-01	7.306E-02	-0.483
		163.33		1.842E-01	5.343E-01	8.709E-01	1.654E-01	0.211
	+	185.72		2.726E-01	9.240E-02	8.281E-02	8.963E-03	3.291
		205.31		7.048E-03	7.345E-01	1.022E+00	1.979E-01	0.007
NP-237	+	86.48	*	5.698E-01	3.577E-01	4.891E-01	1.188E-01	1.165
		95.86		-3.926E-01	1.331E+00	1.873E+00	4.690E-01	-0.210
ANH-511	+	511.00	*	1.564E-01	8.077E-02	4.896E-02	4.230E-03	3.194

---- 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	*	-4.312E-02	3.988E-01	6.451E-01	5.996E-02	-0.067
NA-22		1274.54	*	-3.059E-02	4.734E-02	7.025E-02	6.382E-03	-0.435
NA-24		1368.63	*	-4.984E+02	4.734E-02	Half-Life too short		
SC-46		889.28	*	1.249E-03	4.651E-02	7.701E-02	7.157E-03	0.016
	+	1120.55		2.748E-01	1.130E-01	1.556E-01	1.323E-02	1.767
V-48		944.13		-1.026E+00	1.221E+00	1.768E+00	1.635E-01	-0.580
		983.53	*	7.239E-03	1.064E-01	1.758E-01	1.607E-02	0.041
		1312.11		5.215E-02	1.174E-01	1.994E-01	1.879E-02	0.262
CR-51		320.08	*	2.105E-01	5.181E-01	8.777E-01	9.315E-02	0.240
MN-54		834.85	*	7.315E-03	4.534E-02	7.582E-02	6.881E-03	0.096
CO-56		846.77	*	8.264E-03	4.505E-02	7.585E-02	6.922E-03	0.109
		1037.84		-3.960E-01	3.592E-01	5.135E-01	4.815E-02	-0.771
		1238.28		1.762E-01	1.172E-01	2.104E-01	1.891E-02	0.837
		1771.35		-9.137E-01	4.317E-01	4.827E-01	4.217E-02	-1.893
CO-57		122.06	*	-1.428E-02	3.209E-02	5.115E-02	5.153E-03	-0.279
		136.47		-1.378E-01	2.760E-01	4.378E-01	4.652E-02	-0.315
CO-58		810.76	*	-5.052E-02	5.044E-02	7.642E-02	6.870E-03	-0.661
FE-59		1099.45	*	-3.372E-02	1.177E-01	1.865E-01	1.740E-02	-0.181
		1291.59		2.956E-02	1.579E-01	2.603E-01	2.689E-02	0.114
CO-60		1173.23		1.748E-02	5.575E-02	9.308E-02	7.576E-03	0.188
		1332.49	*	1.225E-02	4.298E-02	7.186E-02	6.908E-03	0.171
ZN-65		1115.54	*	-2.303E-02	1.142E-01	1.545E-01	1.320E-02	-0.149
SE-75		121.12		-4.826E-02	1.680E-01	2.697E-01	3.303E-02	-0.179
		136.00		-1.513E-02	5.379E-02	8.614E-02	8.721E-03	-0.176
		264.66	*	-3.496E-02	6.208E-02	8.650E-02	9.485E-03	-0.404
		279.54		8.718E-02	1.442E-01	2.466E-01	2.730E-02	0.354
		400.66		1.235E-01	3.060E-01	5.151E-01	5.644E-02	0.240
SR-85		514.00	*	1.344E-01	5.135E-02	8.793E-02	7.597E-03	1.528

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88	898.04			3.160E-03	5.284E-02	8.766E-02	8.209E-03	0.036
	1836.06	*		-2.764E-02	4.179E-02	5.939E-02	5.001E-03	-0.465
Y-91	1204.77	*		-2.330E-01	2.805E+01	4.545E+01	3.831E+00	-0.005
NB-94	702.65	*		1.726E-02	3.862E-02	6.660E-02	5.623E-03	0.259
	871.09			-1.146E-02	3.418E-02	5.452E-02	5.028E-03	-0.210
NB-95	765.81	*		-6.231E-03	5.567E-02	9.155E-02	8.021E-03	-0.068
NB-95M	235.69	*		5.923E-01	2.078E-01	3.287E-01	3.960E-02	1.802
ZR-95	724.19			1.333E-01	1.313E-01	2.077E-01	1.929E-02	0.642
	756.73	*		3.561E-02	8.973E-02	1.539E-01	1.479E-02	0.231
MO-99	140.51			-5.084E+01	1.343E+02	2.109E+02	5.131E+01	-0.241
	181.07			4.513E+01	1.220E+02	1.739E+02	3.457E+01	0.260
	366.42			-4.628E+02	5.797E+02	9.107E+02	8.346E+01	-0.508
	739.50	*		1.623E+01	6.429E+01	1.093E+02	1.723E+01	0.148
	777.92			-2.739E+01	1.782E+02	2.926E+02	2.581E+01	-0.094
TC-99M	140.51	*		-3.792E+17	1.782E+02	Half-Life too short		
RU-103	497.08	*		-3.871E-03	4.878E-02	7.889E-02	1.103E-02	-0.049
	610.33		+	1.575E+01	3.364E+00	3.687E+00	5.994E-01	4.271
RH-106	621.93	*		-1.460E-01	3.720E-01	5.779E-01	7.579E-02	-0.253
	1050.41			4.945E-02	3.025E+00	4.956E+00	4.404E-01	0.010
RU-106	621.93	*		-1.460E-01	3.717E-01	5.779E-01	4.856E-02	-0.253
	1050.41			4.945E-02	3.025E+00	4.956E+00	4.404E-01	0.010
AG-108M	433.94	*		-2.845E-02	3.704E-02	5.754E-02	5.086E-03	-0.494
	614.28			9.747E-03	4.837E-02	6.856E-02	5.980E-03	0.142
	722.91			-2.814E-02	4.807E-02	6.443E-02	5.687E-03	-0.437
AG-110M	657.76	*		-1.210E-02	4.419E-02	6.201E-02	5.277E-03	-0.195
	677.62			1.224E-01	3.203E-01	5.534E-01	4.740E-02	0.221
	706.68			-3.687E-02	2.522E-01	4.174E-01	3.638E-02	-0.088
	763.94			-2.228E-01	2.040E-01	3.093E-01	2.779E-02	-0.720
	884.68			-2.288E-02	5.378E-02	8.504E-02	8.107E-03	-0.269
	937.49			1.343E-01	1.359E-01	2.180E-01	2.082E-02	0.616
	1384.29			8.961E-02	1.952E-01	3.035E-01	2.987E-02	0.295
	1505.03			-1.214E-01	3.053E-01	4.768E-01	4.557E-02	-0.255
SN-113	391.69	*		-2.762E-02	5.441E-02	8.662E-02	7.523E-03	-0.319
CD-115	260.90			-4.888E-04	5.441E-02	Half-Life too short		
	492.35			-1.299E-04	5.441E-02	Half-Life too short		
	527.90	*		2.529E-05	5.441E-02	Half-Life too short		
SN-117M	156.02			2.904E+00	3.827E+00	6.342E+00	6.610E-01	0.458
	158.56	*		-4.924E-02	9.308E-02	1.464E-01	1.535E-02	-0.336
TE-123M	159.00	*		-2.166E-02	3.692E-02	5.789E-02	6.100E-03	-0.374
SB-124	602.73			-3.960E-02	5.996E-02	7.725E-02	6.547E-03	-0.513
	645.85			6.306E-02	6.480E-01	1.048E+00	9.239E-02	0.060
	722.78			-3.173E-01	5.170E-01	6.902E-01	6.037E-02	-0.460
	1690.97	*		1.636E-02	7.983E-02	1.372E-01	1.293E-02	0.119
SB-125	427.87	*		4.169E-02	1.126E-01	1.888E-01	1.643E-02	0.221
	463.37		+	8.570E-01	4.875E-01	6.235E-01	5.776E-02	1.375
	600.60			1.028E-02	2.358E-01	3.589E-01	3.276E-02	0.029
	635.95			-4.062E-01	3.128E-01	4.388E-01	3.979E-02	-0.926
TE-125M	109.28	*		-4.619E+00	1.341E+01	2.156E+01	2.564E+00	-0.214
I-126	388.63			-1.323E-01	2.932E-01	4.506E-01	3.834E-02	-0.294

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126	666.33	*		-1.444E-01	3.979E-01	5.530E-01	4.560E-02	-0.261
	753.82			1.681E+00	2.731E+00	4.771E+00	4.152E-01	0.352
	414.70			-1.071E-01	1.366E-01	2.133E-01	1.813E-02	-0.502
	666.50			-4.398E-02	1.391E-01	1.944E-01	1.603E-02	-0.226
	695.00			-1.035E-02	1.256E-01	2.090E-01	1.756E-02	-0.050
	697.00			-1.123E-01	4.361E-01	7.161E-01	6.024E-02	-0.157
SB-127	720.70	*		-2.001E-01	2.795E-01	3.697E-01	3.156E-02	-0.541
	856.80			5.900E-01	8.405E-01	1.300E+00	1.191E-01	0.454
	252.40			2.913E+00	1.550E+01	2.611E+01	1.114E+01	0.112
	473.00			2.834E+00	5.473E+00	9.237E+00	1.343E+00	0.307
	685.70	*		-4.329E-01	4.429E+00	7.363E+00	9.690E-01	-0.059
	783.70			1.302E+01	1.195E+01	2.129E+01	3.049E+00	0.612
I-131	80.19			-1.459E+01	1.217E+01	1.637E+01	1.937E+00	-0.892
	284.31			1.307E+00	3.081E+00	5.237E+00	5.843E-01	0.250
	364.49	*		-4.101E-02	2.423E-01	3.961E-01	3.842E-02	-0.104
TE-132	636.99			-3.219E+00	2.988E+00	4.298E+00	3.827E-01	-0.749
	49.72			5.087E+01	2.053E+02	3.442E+02	5.726E+01	0.148
	111.76			-6.599E+01	1.595E+02	2.554E+02	3.574E+01	-0.258
	116.30			-2.846E+01	1.335E+02	2.152E+02	2.998E+01	-0.132
BA-133	228.16	*		-1.743E+00	3.398E+00	5.571E+00	1.031E+00	-0.313
	81.00			-3.362E-01	1.915E-01	1.943E-01	3.399E-02	-1.730
	276.40			5.260E-01	4.978E-01	7.909E-01	1.231E-01	0.665
	302.85			1.564E-01	1.907E-01	2.899E-01	4.171E-02	0.540
I-133	356.01	*		1.607E-02	5.802E-02	8.495E-02	1.148E-02	0.189
	383.85			9.396E-02	3.656E-01	6.107E-01	7.604E-02	0.154
	529.87	*		-5.603E-01	3.656E-01	Half-Life	too short	
	875.33			-7.386E+00	3.656E-01	Half-Life	too short	
CS-134	1298.22			-5.487E+01	3.656E-01	Half-Life	too short	
	563.25			5.196E-01	4.418E-01	7.702E-01	6.672E-02	0.675
	569.33			2.248E-02	2.260E-01	3.681E-01	3.197E-02	0.061
	604.72			1.727E-02	4.479E-02	6.475E-02	5.497E-03	0.267
+ I-135	795.86	*		6.194E-02	7.005E-02	9.455E-02	8.474E-03	0.655
	801.95			-4.757E-01	5.578E-01	7.724E-01	6.934E-02	-0.616
	1365.19			1.900E-01	1.246E+00	2.127E+00	2.125E-01	0.089
	268.22	*		1.311E-01	2.177E-01	3.281E-01	3.937E-02	0.400
CS-135 I-135	546.56			-2.300E+16	2.177E-01	Half-Life	too short	
	836.80			8.617E+15	2.177E-01	Half-Life	too short	
	1038.76			-1.275E+17	2.177E-01	Half-Life	too short	
	1131.51			-2.875E+15	2.177E-01	Half-Life	too short	
	1260.41	*		-7.827E+15	2.177E-01	Half-Life	too short	
	1457.56			5.023E+18	2.177E-01	Half-Life	too short	
	1678.03			-4.997E+16	2.177E-01	Half-Life	too short	
	1791.20			-8.943E+15	2.177E-01	Half-Life	too short	
	153.25			1.122E+00	1.457E+00	2.414E+00	2.841E-01	0.465
	176.60			-1.844E-01	8.622E-01	1.371E+00	1.574E-01	-0.135
CS-136	273.65			-1.306E+00	1.079E+00	1.433E+00	1.641E-01	-0.912
	340.55			7.594E-01	3.216E-01	5.092E-01	5.145E-02	1.491
	818.51			-1.077E-01	1.115E-01	1.674E-01	1.510E-02	-0.643
	1048.07	*		-6.537E-02	1.716E-01	2.699E-01	2.498E-02	-0.242

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1235.36			5.367E-01	1.013E+00	1.705E+00	2.019E-01	0.315
CE-139	165.86	*		-3.320E-02	3.892E-02	6.006E-02	6.411E-03	-0.553
BA-140	162.66			6.530E-01	1.383E+00	2.268E+00	2.509E-01	0.288
	304.85			-1.271E+00	2.602E+00	3.581E+00	1.070E+00	-0.355
	423.72			1.223E-01	3.352E+00	5.508E+00	1.811E+00	0.022
	537.26	*		-1.398E-01	4.174E-01	6.539E-01	2.218E-01	-0.214
LA-140	328.76	+		7.127E-01	6.861E-01	9.343E-01	9.798E-02	0.763
	487.02			9.358E-02	2.220E-01	3.723E-01	3.413E-02	0.251
	815.77			5.520E-02	4.757E-01	7.980E-01	7.952E-02	0.069
	1596.21	*		-2.371E-03	1.244E-01	1.750E-01	1.641E-02	-0.014
CE-141	145.44	*		2.985E-02	9.009E-02	1.474E-01	1.524E-02	0.203
CE-143	57.36			2.865E-03	9.009E-02	Half-Life	too short	
	293.27	*		2.229E-02	9.009E-02	Half-Life	too short	
	664.57			1.855E-02	9.009E-02	Half-Life	too short	
	721.93			-2.892E-02	9.009E-02	Half-Life	too short	
CE-144	80.12			-4.342E+00	3.958E+00	5.361E+00	6.301E-01	-0.810
	133.52	*		-1.383E-01	2.664E-01	4.217E-01	6.805E-02	-0.328
PM-144	476.78			-4.269E-02	7.721E-02	1.208E-01	1.132E-02	-0.354
	618.01			2.031E-02	3.954E-02	6.451E-02	5.592E-03	0.315
	696.49	*		-1.883E-02	4.100E-02	6.632E-02	5.581E-03	-0.284
PR-144	696.51	*		-9.872E-01	3.046E+00	4.978E+00	4.187E-01	-0.198
	1489.16			4.220E+00	1.387E+01	2.411E+01	2.309E+00	0.175
PM-146	453.88	*		6.133E-02	5.214E-02	9.086E-02	9.609E-03	0.675
	633.25			-2.307E-01	1.590E+00	2.518E+00	9.602E-01	-0.092
	735.93			-8.261E-02	1.858E-01	2.731E-01	7.654E-02	-0.302
	747.24			-1.069E-02	1.003E-01	1.657E-01	2.422E-02	-0.064
ND-147	91.11	+		1.306E+00	6.917E-01	1.066E+00	1.320E-01	1.226
	319.41			2.622E+00	5.816E+00	9.878E+00	1.012E+00	0.265
	531.02	*		-2.774E-01	9.463E-01	1.498E+00	2.240E-01	-0.185
PM-149	285.90	*		3.570E-04	9.463E-01	Half-Life	too short	
EU-152	121.78			-4.488E-02	9.075E-02	1.443E-01	1.614E-02	-0.311
	244.70			4.758E-01	4.401E-01	6.813E-01	7.509E-02	0.698
	344.28	*		-2.757E-02	1.459E-01	1.942E-01	1.977E-02	-0.142
	778.90			-6.947E-02	2.869E-01	4.675E-01	4.125E-02	-0.149
	964.08	+		6.934E-01	3.823E-01	6.570E-01	6.043E-02	1.055
	1085.87			-2.907E-01	4.597E-01	7.016E-01	6.109E-02	-0.414
	1112.07			8.156E-02	3.685E-01	5.322E-01	4.554E-02	0.153
	1408.01			1.620E-01	2.104E-01	3.813E-01	3.673E-02	0.425
GD-153	69.67			3.761E-01	3.014E+00	4.391E+00	5.012E-01	0.086
	97.43	*		1.029E-01	1.204E-01	1.797E-01	1.983E-02	0.573
	103.18			-1.955E-01	1.452E-01	2.222E-01	2.349E-02	-0.880
EU-154	123.07			3.308E-02	6.381E-02	1.056E-01	1.318E-02	0.313
	723.31			-8.598E-02	2.253E-01	3.105E-01	2.928E-02	-0.277
	873.19			-8.311E-03	2.878E-01	4.745E-01	5.857E-02	-0.018
	996.26			-4.783E-01	4.764E-01	5.551E-01	9.832E-02	-0.862
	1004.73			-1.504E-02	2.544E-01	3.546E-01	4.247E-02	-0.042
	1274.44	*		-9.985E-02	1.343E-01	1.962E-01	2.301E-02	-0.509
EU-155	86.55	+		2.321E-01	1.374E-01	2.280E-01	2.812E-02	1.018
	105.31	*		7.230E-02	1.312E-01	2.184E-01	2.300E-02	0.331

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	+	86.79		6.512E-01	3.853E-01	6.377E-01	7.841E-02	1.021
		197.04		3.553E-01	7.430E-01	1.212E+00	1.321E-01	0.293
		215.65		7.604E-01	9.935E-01	1.678E+00	1.846E-01	0.453
		298.57		3.968E-01	2.240E-01	2.671E-01	2.826E-02	1.486
		879.36	*	4.058E-02	1.635E-01	2.763E-01	2.557E-02	0.147
		962.29		1.626E+00	7.209E-01	1.260E+00	1.159E-01	1.291
		966.15		1.619E+00	3.581E-01	6.800E-01	6.251E-02	2.381
		1177.93		-7.615E-02	4.486E-01	7.166E-01	5.864E-02	-0.106
		1271.85		-9.577E-01	8.874E-01	1.247E+00	1.129E-01	-0.768
		80.57		-5.372E-01	4.528E-01	5.613E-01	6.613E-02	-0.957
HO-166M		184.41		1.756E-01	5.779E-02	8.804E-02	9.520E-03	1.995
		280.46		-3.287E-02	1.080E-01	1.777E-01	1.919E-02	-0.185
		410.95		9.357E-02	3.063E-01	5.116E-01	4.342E-02	0.183
		711.68	*	-5.451E-02	7.136E-02	1.122E-01	9.528E-03	-0.486
		752.31		-8.526E-02	2.921E-01	4.747E-01	4.128E-02	-0.180
		810.29		-5.154E-02	7.171E-02	1.118E-01	1.003E-02	-0.461
		67.75		-2.636E-01	2.231E-01	3.014E-01	3.439E-02	-0.875
		100.11		3.650E-01	2.462E-01	3.982E-01	4.298E-02	0.917
		152.43		-1.462E-02	4.561E-01	7.350E-01	7.601E-02	-0.020
		222.11		3.347E-01	4.567E-01	7.881E-01	8.686E-02	0.425
TA-182	+	1121.30		7.512E-01	3.090E-01	4.266E-01	3.626E-02	1.761
		1189.05		-2.003E-01	3.817E-01	5.877E-01	4.869E-02	-0.341
		1221.41	*	-4.236E-02	2.507E-01	4.001E-01	3.434E-02	-0.106
		1231.02		-5.436E-01	6.373E-01	9.535E-01	8.269E-02	-0.570
		295.96	+	1.426E+00	2.928E-01	3.598E-01	3.839E-02	3.963
		308.46		-4.529E-02	1.332E-01	2.046E-01	2.142E-02	-0.221
		316.51	*	-2.343E-02	4.504E-02	7.263E-02	7.489E-03	-0.323
		468.07		-1.866E-02	8.851E-02	1.220E-01	1.128E-02	-0.153
		70.83		8.279E-01	2.418E+00	3.553E+00	6.297E-01	0.233
		72.87		3.259E+00	1.398E+00	2.275E+00	3.928E-01	1.433
HG-203	+	279.20	*	4.466E-02	5.390E-02	9.287E-02	1.021E-02	0.481
		72.81		6.407E-01	2.791E-01	4.765E-01	5.457E-02	1.345
		74.97	+	7.139E-01	2.504E-01	3.375E-01	3.884E-02	2.115
		569.70		1.126E-02	3.466E-02	5.741E-02	4.918E-03	0.196
		1063.66	*	2.046E-02	5.960E-02	1.007E-01	8.880E-03	0.203
		1770.23		-3.174E+00	9.836E-01	8.761E-01	7.658E-02	-3.623
		46.54	*	-1.878E-01	1.250E+01	2.041E+01	2.513E+00	-0.009
		404.85	*	-1.071E+00	1.020E+00	1.335E+00	6.455E-01	-0.802
		427.09		4.103E-01	1.890E+00	3.123E+00	1.445E+00	0.131
		832.01		-6.438E-01	1.194E+00	1.809E+00	9.397E-01	-0.356
BI-212	+	727.33	*	2.266E+00	1.040E+00	1.297E+00	1.612E-01	1.747
		785.37		4.692E+00	3.609E+00	6.551E+00	5.800E-01	0.716
		1620.50		4.712E+00	2.708E+00	5.498E+00	5.117E-01	0.857
		271.23	+	4.471E-01	4.011E-01	5.346E-01	6.533E-02	0.836
		401.81	*	2.958E-01	4.739E-01	8.057E-01	1.191E-01	0.367
		81.07		-7.708E-01	4.218E-01	4.380E-01	5.175E-02	-1.760
		83.79		-5.725E-04	2.301E-01	2.799E-01	3.365E-02	-0.002
		94.87		2.045E+00	7.342E-01	1.127E+00	1.276E-01	1.814
		144.24		-2.490E-01	8.766E-01	1.386E+00	1.531E-01	-0.180

----- 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		4.279E-01	4.801E-01	7.986E-01	8.845E-02	0.536
	+	269.46		3.474E-01	3.111E-01	4.126E-01	4.553E-02	0.842
		323.87	*	-3.171E-01	8.668E-01	1.209E+00	2.195E-01	-0.262
	+	338.28		6.436E+00	2.036E+00	2.788E+00	3.621E-01	2.308
		79.69		6.818E-01	1.946E+00	2.846E+00	5.402E-01	0.240
		235.96		1.103E+00	2.719E-01	4.166E-01	5.177E-02	2.649
		256.23	*	-2.443E-01	3.109E-01	4.988E-01	6.902E-02	-0.490
TH-227	+	299.98		3.059E+00	1.573E+00	1.904E+00	2.684E-01	1.606
		304.50		-9.917E-01	2.240E+00	3.119E+00	5.483E-01	-0.318
		334.37		-6.851E-01	3.177E+00	3.500E+00	5.726E-01	-0.196
		79.80		-1.642E+00	2.617E+00	3.625E+00	8.405E-01	-0.453
		235.96		1.103E+00	2.692E-01	4.166E-01	4.976E-02	2.649
		256.23	*	-2.443E-01	3.113E-01	4.988E-01	7.587E-02	-0.490
	+	299.98		3.059E+00	1.573E+00	1.904E+00	2.684E-01	1.606
TH-229		304.50		-9.917E-01	2.240E+00	3.119E+00	5.483E-01	-0.318
		334.37		-6.851E-01	3.177E+00	3.500E+00	5.726E-01	-0.196
		85.43		1.851E-01	3.233E-01	4.744E-01	5.771E-02	0.390
	+	88.47		2.944E-01	1.742E-01	3.032E-01	3.737E-02	0.971
		193.51	*	-6.950E-02	6.593E-01	1.050E+00	1.142E-01	-0.066
		210.85		9.321E-01	1.299E+00	1.973E+00	2.167E-01	0.472
		283.69	*	9.564E-01	1.759E+00	3.000E+00	4.783E-01	0.319
PA-231	+	301.36		1.965E+00	1.008E+00	1.263E+00	1.716E-01	1.555
TH-231		81.07		-7.708E-01	4.218E-01	4.380E-01	5.175E-02	-1.760
		83.79		-5.725E-04	2.301E-01	2.799E-01	3.365E-02	-0.002
		94.87		2.045E+00	7.342E-01	1.127E+00	1.276E-01	1.814
PA-233		144.24		-2.490E-01	8.766E-01	1.386E+00	1.531E-01	-0.180
		154.21		4.279E-01	4.801E-01	7.986E-01	8.845E-02	0.536
	+	269.46		3.474E-01	3.111E-01	4.126E-01	4.553E-02	0.842
		323.87	*	-3.171E-01	8.668E-01	1.209E+00	2.195E-01	-0.262
	+	338.28		6.436E+00	2.036E+00	2.788E+00	3.621E-01	2.308
	+	300.13		1.384E+00	7.196E-01	8.680E-01	1.392E-01	1.595
		311.90	*	-2.408E-02	8.035E-02	1.307E-01	1.383E-02	-0.184
PA-234		340.48		2.563E+00	1.161E+00	1.605E+00	3.935E-01	1.597
		94.67		1.053E+00	2.955E-01	4.280E-01	6.176E-02	2.460
		98.44		2.159E-01	1.773E-01	1.978E-01	1.112E-01	1.091
PA-234M		111.00		1.251E-01	2.309E-01	3.831E-01	5.085E-02	0.327
		131.20		1.183E-01	1.369E-01	2.283E-01	2.292E-02	0.518
		569.50		1.148E-01	3.068E-01	5.101E-01	4.370E-02	0.225
		733.00		2.896E-01	4.801E-01	7.323E-01	1.625E-01	0.395
		880.51		1.326E-01	3.110E-01	5.263E-01	4.873E-02	0.252
		883.24		4.775E-02	3.196E-01	5.327E-01	3.586E-01	0.090
		926.50		-9.115E-03	2.239E-01	3.150E-01	8.037E-02	-0.029
		946.00	*	-1.130E-01	3.183E-01	5.035E-01	9.595E-02	-0.225
		949.00		4.918E-02	4.949E-01	8.220E-01	7.591E-02	0.060
		766.42		9.219E+00	1.452E+01	2.392E+01	1.214E+01	0.385
	+	1001.03	*	9.564E+00	7.526E+00	1.002E+01	1.039E+00	0.954
		63.29	*	2.333E+00	2.441E+00	4.100E+00	8.130E-01	0.569
	+	92.59		5.201E+00	1.714E+00	1.848E+00	4.328E-01	2.815
U-238		63.29	*	2.333E+00	2.441E+00	4.100E+00	8.130E-01	0.569

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		5.201E+00	1.348E+00	1.848E+00	2.148E-01	2.815
NP-239		99.53		3.639E-01	2.289E-01	3.588E-01	3.890E-02	1.014
		103.37		-8.786E-02	1.260E-01	1.996E-01	2.108E-02	-0.440
		106.12		4.472E-02	1.053E-01	1.745E-01	1.816E-02	0.256
	*	117.23		1.212E-01	4.878E-01	8.014E-01	8.088E-02	0.151
		228.18		-1.380E-01	2.686E-01	4.416E-01	4.872E-02	-0.312
		277.60		2.090E-01	2.309E-01	3.896E-01	4.218E-02	0.537
AM-241	*	59.54		-3.928E-01	3.039E-01	4.729E-01	5.551E-02	-0.830
CM-247		278.00		1.067E+00	9.541E-01	1.658E+00	1.795E-01	0.644
		287.50		9.764E-02	1.762E+00	2.515E+00	2.697E-01	0.039
	*	402.40		1.083E-02	4.400E-02	7.340E-02	6.207E-03	0.148
CF-249		252.80		-6.733E-02	1.149E+00	1.920E+00	2.111E-01	-0.035
		333.37		-1.853E-01	4.101E-01	3.685E-01	3.673E-02	-0.503
	*	388.16		1.983E-03	5.001E-02	7.926E-02	6.756E-03	0.025
CF-251	*	177.52		-6.621E-02	1.730E-01	2.671E-01	2.874E-02	-0.248
		227.38		-2.691E-01	4.454E-01	7.293E-01	8.044E-02	-0.369
		285.41		4.861E-01	2.658E+00	4.472E+00	4.806E-01	0.109

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]G248028005      *
* Acquisition date   : 12-MAR-2010 16:51:56 Detector SN#                   *
* Detector ID        : GAM15 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.30 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248028005 Analyst initials: MXR1                  *
* Batch Number       : 958220 Sample Quantity : 1.3406E+02 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 3-FEB-2010 11:04:32 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	2.368E+01	2.866E+00	6.173E-01	0.000E+00
CD-109	1.972E+00	1.143E+00	1.735E+00	0.000E+00
SN-126	1.910E-01	1.107E-01	1.694E-01	0.000E+00
BA-137M	8.645E-02	6.574E-02	6.499E-02	0.000E+00
CS-137	9.133E-02	6.945E-02	6.866E-02	0.000E+00
TL-208	5.527E-01	1.028E-01	6.607E-02	0.000E+00
BI-211	3.993E+00	6.681E-01	4.231E-01	0.000E+00
PB-212	1.849E+00	2.581E-01	1.142E-01	0.000E+00
BI-214	1.371E+00	2.292E-01	1.298E-01	0.000E+00
PB-214	1.449E+00	2.548E-01	1.539E-01	0.000E+00
RA-224	5.214E+00	1.541E+00	1.223E+00	0.000E+00
RA-226	1.371E+00	2.292E-01	1.298E-01	0.000E+00
AC-228	1.864E+00	4.534E-01	2.538E-01	0.000E+00
RA-228	1.864E+00	4.534E-01	2.538E-01	0.000E+00
TH-228	1.849E+00	2.581E-01	1.142E-01	0.000E+00
TH-232	1.864E+00	4.534E-01	2.538E-01	0.000E+00
U-235	-1.982E-01	2.613E-01	4.287E-01	0.000E+00
NP-237	5.698E-01	3.505E-01	5.152E-01	0.000E+00
ANH-511	1.564E-01	7.916E-02	5.000E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-4.312E-02	3.908E-01	6.596E-01	0.000E+00 NOT IDENT.
NA-22	-3.059E-02	4.639E-02	7.056E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	7.307E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	1.249E-03	4.558E-02	7.787E-02	0.000E+00 FAIL ABUN
V-48	7.239E-03	1.043E-01	1.775E-01	0.000E+00 NOT IDENT.
CR-51	2.105E-01	5.077E-01	9.039E-01	0.000E+00 NOT IDENT.
MN-54	7.315E-03	4.443E-02	7.676E-02	0.000E+00 NOT IDENT.
CO-56	8.264E-03	4.415E-02	7.676E-02	0.000E+00 NOT IDENT.

CO-57	-1.428E-02	3.145E-02	5.357E-02	0.000E+00	NOT IDENT.
CO-58	-5.052E-02	4.943E-02	7.740E-02	0.000E+00	NOT IDENT.
FE-59	-3.372E-02	1.154E-01	1.879E-01	0.000E+00	NOT IDENT.
CO-60	1.225E-02	4.212E-02	7.212E-02	0.000E+00	NOT IDENT.
ZN-65	-2.303E-02	1.119E-01	1.555E-01	0.000E+00	NOT IDENT.
SE-75	-3.496E-02	6.084E-02	8.938E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.032E-02	8.980E-02	0.000E+00	NOT IDENT.
Y-88	-2.764E-02	4.096E-02	5.925E-02	0.000E+00	NOT IDENT.
Y-91	-2.330E-01	2.749E+01	4.570E+01	0.000E+00	NOT IDENT.
NB-94	1.726E-02	3.784E-02	6.763E-02	0.000E+00	NOT IDENT.
NB-95	-6.231E-03	5.456E-02	9.282E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.037E-01	3.403E-01	0.000E+00	NOT IDENT.
ZR-95	3.561E-02	8.793E-02	1.561E-01	0.000E+00	NOT IDENT.
MO-99	1.623E+01	6.301E+01	1.109E+02	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.889E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.871E-03	4.781E-02	8.061E-02	0.000E+00	FAIL ABUN
RH-106	-1.460E-01	3.646E-01	5.881E-01	0.000E+00	NOT IDENT.
RU-106	-1.460E-01	3.643E-01	5.881E-01	0.000E+00	NOT IDENT.
AG-108M	-2.845E-02	3.630E-02	5.894E-02	0.000E+00	NOT IDENT.
AG-110M	-1.210E-02	4.330E-02	6.304E-02	0.000E+00	NOT IDENT.
SN-113	-2.762E-02	5.332E-02	8.888E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	8.501E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-4.924E-02	9.122E-02	1.526E-01	0.000E+00	NOT IDENT.
TE-123M	-2.166E-02	3.618E-02	6.035E-02	0.000E+00	NOT IDENT.
SB-124	1.636E-02	7.823E-02	1.371E-01	0.000E+00	NOT IDENT.
SB-125	4.169E-02	1.104E-01	1.934E-01	0.000E+00	FAIL ABUN
TE-125M	-4.619E+00	1.314E+01	2.262E+01	0.000E+00	NOT IDENT.
I-126	-1.444E-01	3.899E-01	5.621E-01	0.000E+00	NOT IDENT.
SB-126	-2.001E-01	2.739E-01	3.753E-01	0.000E+00	NOT IDENT.
SB-127	-4.329E-01	4.341E+00	7.481E+00	0.000E+00	NOT IDENT.
I-131	-4.101E-02	2.374E-01	4.070E-01	0.000E+00	NOT IDENT.
TE-132	-1.743E+00	3.330E+00	5.771E+00	0.000E+00	NOT IDENT.
BA-133	1.607E-02	5.686E-02	8.732E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	8.814E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.194E-02	6.865E-02	9.579E-02	0.000E+00	FAIL ABUN
CS-135	1.311E-01	2.134E-01	3.390E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.425E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.537E-02	1.682E-01	2.721E-01	0.000E+00	NOT IDENT.
CE-139	-3.320E-02	3.814E-02	6.256E-02	0.000E+00	NOT IDENT.
BA-140	-1.398E-01	4.091E-01	6.673E-01	0.000E+00	NOT IDENT.
LA-140	-2.371E-03	1.219E-01	1.751E-01	0.000E+00	FAIL ABUN
CE-141	2.985E-02	8.829E-02	1.539E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.925E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.383E-01	2.611E-01	4.409E-01	0.000E+00	NOT IDENT.
PM-144	-1.883E-02	4.018E-02	6.736E-02	0.000E+00	NOT IDENT.
PR-144	-9.872E-01	2.985E+00	5.056E+00	0.000E+00	NOT IDENT.
PM-146	6.133E-02	5.110E-02	9.300E-02	0.000E+00	NOT IDENT.
ND-147	-2.774E-01	9.274E-01	1.529E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	7.343E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.757E-02	1.430E-01	1.997E-01	0.000E+00	FAIL ABUN
GD-153	1.029E-01	1.180E-01	1.889E-01	0.000E+00	NOT IDENT.
EU-154	-9.985E-02	1.316E-01	1.971E-01	0.000E+00	NOT IDENT.
EU-155	7.230E-02	1.286E-01	2.293E-01	0.000E+00	FAIL ABUN
TB-160	4.058E-02	1.602E-01	2.794E-01	0.000E+00	FAIL ABUN
HO-166M	-5.451E-02	6.994E-02	1.139E-01	0.000E+00	NOT IDENT.
TA-182	-4.236E-02	2.457E-01	4.022E-01	0.000E+00	FAIL ABUN
IR-192	-2.343E-02	4.414E-02	7.482E-02	0.000E+00	FAIL ABUN
HG-203	4.466E-02	5.282E-02	9.587E-02	0.000E+00	NOT IDENT.
BI-207	2.046E-02	5.840E-02	1.014E-01	0.000E+00	FAIL ABUN
PB-210	-1.878E-01	1.225E+01	2.172E+01	0.000E+00	NOT IDENT.
PB-211	-1.071E+00	9.992E-01	1.369E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.019E+00	1.316E+00	0.000E+00	FAIL ABUN
RN-219	2.958E-01	4.645E-01	8.264E-01	0.000E+00	FAIL ABUN
RA-223	-3.171E-01	8.494E-01	1.245E+00	0.000E+00	FAIL ABUN
AC-227	-2.443E-01	3.047E-01	5.156E-01	0.000E+00	FAIL ABUN
TH-227	-2.443E-01	3.051E-01	5.156E-01	0.000E+00	FAIL ABUN
TH-229	-6.950E-02	6.462E-01	1.091E+00	0.000E+00	FAIL ABUN
PA-231	9.564E-01	1.724E+00	3.096E+00	0.000E+00	FAIL ABUN
TH-231	-3.171E-01	8.494E-01	1.245E+00	0.000E+00	FAIL ABUN
PA-233	-2.408E-02	7.874E-02	1.347E-01	0.000E+00	FAIL ABUN
PA-234	-1.130E-01	3.120E-01	5.085E-01	0.000E+00	NOT IDENT.
PA-234M	9.564E+00	7.375E+00	1.011E+01	0.000E+00	FAIL ABUN
TH-234	2.333E+00	2.392E+00	4.341E+00	0.000E+00	FAIL ABUN
U-238	2.333E+00	2.392E+00	4.341E+00	0.000E+00	FAIL ABUN
NP-239	1.212E-01	4.781E-01	8.398E-01	0.000E+00	NOT IDENT.
AM-241	-3.928E-01	2.979E-01	5.013E-01	0.000E+00	NOT IDENT.
CM-247	1.083E-02	4.312E-02	7.528E-02	0.000E+00	NOT IDENT.
CF-249	1.983E-03	4.901E-02	8.135E-02	0.000E+00	NOT IDENT.

CF-251	-6.621E-02	1.696E-01	2.779E-01	0.000E+00 NOT IDENT.
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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 18:52:47.76

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028005.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 16:51:56
Sample ID          : G248028005 Sample quantity : 1.34060E+02 GRAM
Detector name      : GAM15 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.30 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 958220 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	871	10.66*	9.665E-01	2.368E+01	2.368E+01	12.35
CD-109	88.03	113	3.70*	4.462E+00	1.910E+00	1.972E+00	59.17
SN-126	64.28	-----	9.60	1.941E+00	-----	Line Not Found	-----
	86.94	113	8.90	4.462E+00	7.939E-01	7.939E-01	71.67
	87.57	113	37.00*	4.462E+00	1.910E-01	1.910E-01	59.17
BA-137M	661.66	55	89.90*	1.982E+00	8.633E-02	8.645E-02	77.60
CS-137	661.66	55	85.10*	1.982E+00	9.120E-02	9.133E-02	77.60
TL-208	277.37	-----	6.60	3.705E+00	-----	Line Not Found	-----
	583.19	368	85.00*	2.191E+00	5.527E-01	5.527E-01	18.98
	860.56	37	12.50	1.576E+00	5.243E-01	5.243E-01	94.10
BI-211	72.87	-----	1.23	3.001E+00	-----	Line Not Found	-----
	351.06	579	12.92*	3.141E+00	3.993E+00	3.993E+00	17.07
PB-212	74.82	293	10.28	3.228E+00	2.476E+00	2.476E+00	36.40
	77.11	542	17.10	3.490E+00	2.545E+00	2.545E+00	20.73
	238.63	1185	43.60*	4.114E+00	1.849E+00	1.849E+00	14.25
	300.09	115	3.30	3.501E+00	2.781E+00	2.781E+00	50.93
BI-214	609.32	471	45.49*	2.117E+00	1.371E+00	1.371E+00	17.06
	1120.29	101	14.92	1.227E+00	1.545E+00	1.545E+00	41.67
	1764.49	77	15.30	8.555E-01	1.657E+00	1.657E+00	30.57
PB-214	74.82	293	5.80	3.228E+00	4.389E+00	4.389E+00	35.96
	77.11	542	9.70	3.490E+00	4.487E+00	4.487E+00	22.31
	242.00	311	7.25	4.079E+00	2.949E+00	2.949E+00	30.71
	295.22	425	18.42	3.549E+00	1.821E+00	1.822E+00	21.51
	351.93	579	35.60*	3.141E+00	1.449E+00	1.449E+00	17.94
RA-224	240.99	311	4.10*	4.079E+00	5.214E+00	5.214E+00	30.16
RA-226	609.32	471	45.49*	2.117E+00	1.371E+00	1.371E+00	17.06
	1120.29	101	14.92	1.227E+00	1.545E+00	1.545E+00	41.67
	1764.49	77	15.30	8.555E-01	1.657E+00	1.657E+00	30.57
AC-228	338.32	211	11.27	3.228E+00	1.622E+00	1.622E+00	50.95
	911.20	257	25.80*	1.494E+00	1.864E+00	1.864E+00	24.82
	968.97	143	15.80	1.410E+00	1.796E+00	1.796E+00	36.23
RA-228	338.32	211	11.27	3.228E+00	1.622E+00	1.622E+00	50.95

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	257	25.80*	1.494E+00	1.864E+00	1.864E+00	24.82
	968.97	143	15.80	1.410E+00	1.796E+00	1.796E+00	36.23
	74.82	293	10.28	3.228E+00	2.476E+00	2.476E+00	35.09
	77.11	542	17.10	3.490E+00	2.545E+00	2.545E+00	20.73
TH-232	238.63	1185	43.60*	4.114E+00	1.849E+00	1.849E+00	14.25
	300.09	115	3.30	3.501E+00	2.781E+00	2.781E+00	78.93
	338.32	211	11.27	3.228E+00	1.622E+00	1.622E+00	30.49
	911.20	257	25.80*	1.494E+00	1.864E+00	1.864E+00	24.82
U-235	968.97	143	15.80	1.410E+00	1.796E+00	1.796E+00	36.23
	89.96	158	3.47	4.638E+00	2.747E+00	2.747E+00	57.64
	93.35	380	5.60	4.837E+00	3.929E+00	3.929E+00	33.64
	143.76	-----	10.96*	5.506E+00	-----	Line Not Found	-----
NP-237	163.33	-----	5.08	5.224E+00	-----	Line Not Found	-----
	185.72	270	57.20	4.856E+00	2.726E-01	2.726E-01	33.90
	205.31	-----	5.01	4.560E+00	-----	Line Not Found	-----
	86.48	113	12.40*	4.462E+00	5.698E-01	5.698E-01	62.77
ANH-511	95.86	-----	2.68	5.004E+00	-----	Line Not Found	-----
	511.00	135	100.00*	2.419E+00	1.564E-01	1.564E-01	51.65

Flag: "*" = Keyline

Summary of Nuclide Activity
Sample ID : G248028005

Page : 3
Acquisition date : 12-MAR-2010 16:51:56

Total number of lines in spectrum 33
Number of unidentified lines 4
Number of lines tentatively identified by NID 29 87.88%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.368E+01	2.368E+01	0.292E+01	12.35	
CD-109	461.40D	1.03	1.910E+00	1.972E+00	1.167E+00	59.17	
SN-126	2.30E+05Y	1.00	1.910E-01	1.910E-01	1.130E-01	59.17	
BA-137M	30.08Y	1.00	8.633E-02	8.645E-02	6.708E-02	77.60	
CS-137	30.08Y	1.00	9.120E-02	9.133E-02	7.087E-02	77.60	
TL-208	1.41E+10Y	1.00	5.527E-01	5.527E-01	1.049E-01	18.98	
BI-211	7.04E+08Y	1.00	3.993E+00	3.993E+00	0.682E+00	17.07	
PB-212	1.41E+10Y	1.00	1.849E+00	1.849E+00	0.263E+00	14.25	
BI-214	1600.00Y	1.00	1.371E+00	1.371E+00	0.234E+00	17.06	
PB-214	1600.00Y	1.00	1.449E+00	1.449E+00	0.260E+00	17.94	
RA-224	1.41E+10Y	1.00	5.214E+00	5.214E+00	1.572E+00	30.16	
RA-226	1600.00Y	1.00	1.371E+00	1.371E+00	0.234E+00	17.06	
AC-228	1.41E+10Y	1.00	1.864E+00	1.864E+00	0.463E+00	24.82	
RA-228	1.41E+10Y	1.00	1.864E+00	1.864E+00	0.463E+00	24.82	
TH-228	1.41E+10Y	1.00	1.849E+00	1.849E+00	0.263E+00	14.25	
TH-232	1.41E+10Y	1.00	1.864E+00	1.864E+00	0.463E+00	24.82	
U-235	7.04E+08Y	1.00	2.726E-01	2.726E-01	0.924E-01	33.90	K
NP-237	2.14E+06Y	1.00	5.698E-01	5.698E-01	3.577E-01	62.77	
ANH-511	1.00E+09Y	1.00	1.564E-01	1.564E-01	0.808E-01	51.65	
Total Activity :			5.020E+01	5.026E+01			

Grand Total Activity : 5.020E+01 5.026E+01

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

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

Unidentified Energy Lines
Sample ID : G248028005

Page : 4
Acquisition date : 12-MAR-2010 16:51:56

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.16	83	267	1.01	417.23	414	8	1.15E-02	72.1	4.50E+00	
0	270.23	65	221	1.92	539.37	535	10	9.04E-03	88.9	3.77E+00	T
0	328.19	54	174	1.03	655.27	651	10	7.45E-03	95.7	3.30E+00	T
0	463.53	83	106	2.25	925.96	919	13	1.15E-02	56.1	2.59E+00	T
0	727.16	99	73	2.02	1453.25	1446	16	1.37E-02	44.2	1.83E+00	T
0	795.46	28	59	1.15	1589.88	1583	11	3.92E-03	****	1.69E+00	T
0	934.08	50	60	7.04	1867.16	1858	18	6.92E-03	66.2	1.46E+00	
5	963.98	51	47	2.41	1926.96	1922	28	7.12E-03	54.4	1.42E+00	T
0	1001.20	39	38	2.18	2001.41	1995	14	5.44E-03	78.0	1.37E+00	T
0	1377.05	39	20	1.92	2753.29	2745	16	5.42E-03	60.4	1.01E+00	
0	1589.54	35	17	5.10	3178.43	3170	19	4.82E-03	68.7	9.08E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248028005.CNF;1
* Acquisition date   : 12-MAR-2010 16:51:56   Detector SN#      :
* Detector ID        : GAM15                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.30          Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 19-FEB-2010 12:00:00   Nuclide Library : SOLID
* Sample ID          : G248028005             Analyst initials: MXR1
* Batch Number       : 958220                 Sample Quantity  : 1.34060E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 3-FEB-2010 11:04:32.11MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope      :
*****

```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.368E+01	2.924E+00	6.161E-01	6.054E-02	38.435
CD-109	1.972E+00	1.167E+00	1.648E+00	2.046E-01	1.196
SN-126	1.910E-01	1.130E-01	1.608E-01	1.990E-02	1.187
BA-137M	8.645E-02	6.708E-02	6.393E-02	5.256E-03	1.352
CS-137	9.133E-02	7.087E-02	6.754E-02	5.564E-03	1.352
TL-208	5.527E-01	1.049E-01	6.485E-02	5.931E-03	8.523
BI-211	3.993E+00	6.817E-01	4.115E-01	4.099E-02	9.702
PB-212	1.849E+00	2.634E-01	1.103E-01	1.318E-02	16.760
BI-214	1.371E+00	2.338E-01	1.275E-01	1.270E-02	10.750
PB-214	1.449E+00	2.600E-01	1.497E-01	1.701E-02	9.684
RA-224	5.214E+00	1.572E+00	1.182E+00	1.304E-01	4.411
RA-226	1.371E+00	2.338E-01	1.275E-01	1.270E-02	10.750
AC-228	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
RA-228	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
TH-228	1.849E+00	2.634E-01	1.103E-01	1.318E-02	16.760
TH-232	1.864E+00	4.626E-01	2.511E-01	3.042E-02	7.423
U-235	2.726E-01	9.240E-02	4.106E-01	7.306E-02	0.664
NP-237	5.698E-01	3.577E-01	4.891E-01	1.188E-01	1.165

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.564E-01	8.077E-02	4.896E-02	4.230E-03	3.194

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-4.312E-02		3.988E-01	6.451E-01	5.996E-02	-0.067
NA-22	-3.059E-02		4.734E-02	7.025E-02	6.382E-03	-0.435
NA-24	-4.984E+02		3.728E+02	Half-Life too short		
SC-46	1.249E-03		4.651E-02	7.701E-02	7.157E-03	0.016
V-48	7.239E-03		1.064E-01	1.758E-01	1.607E-02	0.041
CR-51	2.105E-01		5.181E-01	8.777E-01	9.315E-02	0.240
MN-54	7.315E-03		4.534E-02	7.582E-02	6.881E-03	0.096
CO-56	8.264E-03		4.505E-02	7.585E-02	6.922E-03	0.109
CO-57	-1.428E-02		3.209E-02	5.115E-02	5.153E-03	-0.279
CO-58	-5.052E-02		5.044E-02	7.642E-02	6.870E-03	-0.661
FE-59	-3.372E-02		1.177E-01	1.865E-01	1.740E-02	-0.181
CO-60	1.225E-02		4.298E-02	7.186E-02	6.908E-03	0.171
ZN-65	-2.303E-02		1.142E-01	1.545E-01	1.320E-02	-0.149
SE-75	-3.496E-02		6.208E-02	8.650E-02	9.485E-03	-0.404
SR-85	1.344E-01		5.135E-02	8.793E-02	7.597E-03	1.528
Y-88	-2.764E-02		4.179E-02	5.939E-02	5.001E-03	-0.465
Y-91	-2.330E-01		2.805E+01	4.545E+01	3.831E+00	-0.005
NB-94	1.726E-02		3.862E-02	6.660E-02	5.623E-03	0.259
NB-95	-6.231E-03		5.567E-02	9.155E-02	8.021E-03	-0.068
NB-95M	5.923E-01		2.078E-01	3.287E-01	3.960E-02	1.802
ZR-95	3.561E-02		8.973E-02	1.539E-01	1.479E-02	0.231
MO-99	1.623E+01		6.429E+01	1.093E+02	1.723E+01	0.148
TC-99M	-3.792E+17		5.046E+17	Half-Life too short		
RU-103	-3.871E-03		4.878E-02	7.889E-02	1.103E-02	-0.049
RH-106	-1.460E-01		3.720E-01	5.779E-01	7.579E-02	-0.253
RU-106	-1.460E-01		3.717E-01	5.779E-01	4.856E-02	-0.253
AG-108M	-2.845E-02		3.704E-02	5.754E-02	5.086E-03	-0.494
AG-110M	-1.210E-02		4.419E-02	6.201E-02	5.277E-03	-0.195
SN-113	-2.762E-02		5.441E-02	8.662E-02	7.523E-03	-0.319
CD-115	2.529E-05		4.337E-05	Half-Life too short		
SN-117M	-4.924E-02		9.308E-02	1.464E-01	1.535E-02	-0.336
TE-123M	-2.166E-02		3.692E-02	5.789E-02	6.100E-03	-0.374
SB-124	1.636E-02		7.983E-02	1.372E-01	1.293E-02	0.119
SB-125	4.169E-02		1.126E-01	1.888E-01	1.643E-02	0.221
TE-125M	-4.619E+00		1.341E+01	2.156E+01	2.564E+00	-0.214
I-126	-1.444E-01		3.979E-01	5.530E-01	4.560E-02	-0.261
SB-126	-2.001E-01		2.795E-01	3.697E-01	3.156E-02	-0.541
SB-127	-4.329E-01		4.429E+00	7.363E+00	9.690E-01	-0.059
I-131	-4.101E-02		2.423E-01	3.961E-01	3.842E-02	-0.104
TE-132	-1.743E+00		3.398E+00	5.571E+00	1.031E+00	-0.313
BA-133	1.607E-02		5.802E-02	8.495E-02	1.148E-02	0.189
I-133	-5.603E-01		4.497E-01	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	6.194E-02	+	7.005E-02	9.455E-02	8.474E-03	0.655
CS-135	1.311E-01		2.177E-01	3.281E-01	3.937E-02	0.400
I-135	-7.827E+15		1.747E+16	Half-Life	too short	
CS-136	-6.537E-02		1.716E-01	2.699E-01	2.498E-02	-0.242
CE-139	-3.320E-02		3.892E-02	6.006E-02	6.411E-03	-0.553
BA-140	-1.398E-01		4.174E-01	6.539E-01	2.218E-01	-0.214
LA-140	-2.371E-03		1.244E-01	1.750E-01	1.641E-02	-0.014
CE-141	2.985E-02		9.009E-02	1.474E-01	1.524E-02	0.203
CE-143	2.229E-02		3.533E-03	Half-Life	too short	
CE-144	-1.383E-01		2.664E-01	4.217E-01	6.805E-02	-0.328
PM-144	-1.883E-02		4.100E-02	6.632E-02	5.581E-03	-0.284
PR-144	-9.872E-01		3.046E+00	4.978E+00	4.187E-01	-0.198
PM-146	6.133E-02		5.214E-02	9.086E-02	9.609E-03	0.675
ND-147	-2.774E-01		9.463E-01	1.498E+00	2.240E-01	-0.185
PM-149	3.570E-04		3.747E-04	Half-Life	too short	
EU-152	-2.757E-02		1.459E-01	1.942E-01	1.977E-02	-0.142
GD-153	1.029E-01		1.204E-01	1.797E-01	1.983E-02	0.573
EU-154	-9.985E-02		1.343E-01	1.962E-01	2.301E-02	-0.509
EU-155	7.230E-02		1.312E-01	2.184E-01	2.300E-02	0.331
TB-160	4.058E-02		1.635E-01	2.763E-01	2.557E-02	0.147
HO-166M	-5.451E-02		7.136E-02	1.122E-01	9.528E-03	-0.486
TA-182	-4.236E-02		2.507E-01	4.001E-01	3.434E-02	-0.106
IR-192	-2.343E-02		4.504E-02	7.263E-02	7.489E-03	-0.323
HG-203	4.466E-02		5.390E-02	9.287E-02	1.021E-02	0.481
BI-207	2.046E-02		5.960E-02	1.007E-01	8.880E-03	0.203
PB-210	-1.878E-01		1.250E+01	2.041E+01	2.513E+00	-0.009
PB-211	-1.071E+00		1.020E+00	1.335E+00	6.455E-01	-0.802
BI-212	2.266E+00	+	1.040E+00	1.297E+00	1.612E-01	1.747
RN-219	2.958E-01		4.739E-01	8.057E-01	1.191E-01	0.367
RA-223	-3.171E-01		8.668E-01	1.209E+00	2.195E-01	-0.262
AC-227	-2.443E-01		3.109E-01	4.988E-01	6.902E-02	-0.490
TH-227	-2.443E-01		3.113E-01	4.988E-01	7.587E-02	-0.490
TH-229	-6.950E-02		6.593E-01	1.050E+00	1.142E-01	-0.066
PA-231	9.564E-01		1.759E+00	3.000E+00	4.783E-01	0.319
TH-231	-3.171E-01		8.668E-01	1.209E+00	2.195E-01	-0.262
PA-233	-2.408E-02		8.035E-02	1.307E-01	1.383E-02	-0.184
PA-234	-1.130E-01		3.183E-01	5.035E-01	9.595E-02	-0.225
PA-234M	9.564E+00	+	7.526E+00	1.002E+01	1.039E+00	0.954
TH-234	2.333E+00		2.441E+00	4.100E+00	8.130E-01	0.569
U-238	2.333E+00		2.441E+00	4.100E+00	8.130E-01	0.569
NP-239	1.212E-01		4.878E-01	8.014E-01	8.088E-02	0.151
AM-241	-3.928E-01		3.039E-01	4.729E-01	5.551E-02	-0.830
CM-247	1.083E-02		4.400E-02	7.340E-02	6.207E-03	0.148
CF-249	1.983E-03		5.001E-02	7.926E-02	6.756E-03	0.025
CF-251	-6.621E-02		1.730E-01	2.671E-01	2.874E-02	-0.248

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248028005          *
* Acquisition date   : 12-MAR-2010 16:51:56 Detector SN#                   *
* Detector ID        : GAM15 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.30 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G248028005 Analyst initials: MXR1                  *
* Batch Number       : 958220 Sample Quantity : 1.3406E+02 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 3-FEB-2010 11:04:32 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	2.368E+01	2.866E+00	3.088E-01	1.462E+00
CD-109	1.972E+00	1.143E+00	8.682E-01	5.833E-01
SN-126	1.910E-01	1.107E-01	8.474E-02	5.649E-02
BA-137M	8.645E-02	6.574E-02	3.252E-02	3.354E-02
CS-137	9.133E-02	6.945E-02	3.435E-02	3.543E-02
TL-208	5.527E-01	1.028E-01	3.305E-02	5.246E-02
BI-211	3.993E+00	6.681E-01	2.117E-01	3.409E-01
PB-212	1.849E+00	2.581E-01	5.713E-02	1.317E-01
BI-214	1.371E+00	2.292E-01	6.494E-02	1.169E-01
PB-214	1.449E+00	2.548E-01	7.697E-02	1.300E-01
RA-224	5.214E+00	1.541E+00	6.121E-01	7.862E-01
RA-226	1.371E+00	2.292E-01	6.494E-02	1.169E-01
AC-228	1.864E+00	4.534E-01	1.270E-01	2.313E-01
RA-228	1.864E+00	4.534E-01	1.270E-01	2.313E-01
TH-228	1.849E+00	2.581E-01	5.713E-02	1.317E-01
TH-232	1.864E+00	4.534E-01	1.270E-01	2.313E-01
U-235	-1.982E-01	2.613E-01	2.145E-01	1.333E-01
NP-237	5.698E-01	3.505E-01	2.577E-01	1.788E-01
ANH-511	1.564E-01	7.916E-02	2.502E-02	4.039E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-4.312E-02	3.908E-01	3.300E-01	1.994E-01 NOT IDENT.
NA-22	-3.059E-02	4.639E-02	3.530E-02	2.367E-02 NOT IDENT.
NA-24	-4.984E+08	7.307E+08	0.000E+00	3.728E+08 SHORT HLIF
SC-46	1.249E-03	4.558E-02	3.896E-02	2.326E-02 FAIL ABUN
V-48	7.239E-03	1.043E-01	8.878E-02	5.319E-02 NOT IDENT.
CR-51	2.105E-01	5.077E-01	4.522E-01	2.591E-01 NOT IDENT.
MN-54	7.315E-03	4.443E-02	3.840E-02	2.267E-02 NOT IDENT.
CO-56	8.264E-03	4.415E-02	3.840E-02	2.253E-02 NOT IDENT.

CO-57	-1.428E-02	3.145E-02	2.680E-02	1.604E-02	NOT IDENT.
CO-58	-5.052E-02	4.943E-02	3.872E-02	2.522E-02	NOT IDENT.
FE-59	-3.372E-02	1.154E-01	9.400E-02	5.886E-02	NOT IDENT.
CO-60	1.225E-02	4.212E-02	3.608E-02	2.149E-02	NOT IDENT.
ZN-65	-2.303E-02	1.119E-01	7.781E-02	5.708E-02	NOT IDENT.
SE-75	-3.496E-02	6.084E-02	4.471E-02	3.104E-02	NOT IDENT.
SR-85	1.344E-01	5.032E-02	4.493E-02	2.568E-02	NOT IDENT.
Y-88	-2.764E-02	4.096E-02	2.964E-02	2.090E-02	NOT IDENT.
Y-91	-2.330E-01	2.749E+01	2.286E+01	1.402E+01	NOT IDENT.
NB-94	1.726E-02	3.784E-02	3.384E-02	1.931E-02	NOT IDENT.
NB-95	-6.231E-03	5.456E-02	4.644E-02	2.784E-02	NOT IDENT.
NB-95M	5.923E-01	2.037E-01	1.702E-01	1.039E-01	NOT IDENT.
ZR-95	3.561E-02	8.793E-02	7.810E-02	4.486E-02	NOT IDENT.
MO-99	1.623E+01	6.301E+01	5.549E+01	3.215E+01	NOT IDENT.
TC-99M	-3.792E+23	9.889E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.871E-03	4.781E-02	4.033E-02	2.439E-02	FAIL ABUN
RH-106	-1.460E-01	3.646E-01	2.942E-01	1.860E-01	NOT IDENT.
RU-106	-1.460E-01	3.643E-01	2.942E-01	1.859E-01	NOT IDENT.
AG-108M	-2.845E-02	3.630E-02	2.949E-02	1.852E-02	NOT IDENT.
AG-110M	-1.210E-02	4.330E-02	3.154E-02	2.209E-02	NOT IDENT.
SN-113	-2.762E-02	5.332E-02	4.447E-02	2.721E-02	NOT IDENT.
CD-115	2.529E+01	8.501E+01	0.000E+00	4.337E+01	SHORT HLIF
SN-117M	-4.924E-02	9.122E-02	7.634E-02	4.654E-02	NOT IDENT.
TE-123M	-2.166E-02	3.618E-02	3.019E-02	1.846E-02	NOT IDENT.
SB-124	1.636E-02	7.823E-02	6.861E-02	3.991E-02	NOT IDENT.
SB-125	4.169E-02	1.104E-01	9.675E-02	5.632E-02	FAIL ABUN
TE-125M	-4.619E+00	1.314E+01	1.131E+01	6.704E+00	NOT IDENT.
I-126	-1.444E-01	3.899E-01	2.812E-01	1.989E-01	NOT IDENT.
SB-126	-2.001E-01	2.739E-01	1.878E-01	1.398E-01	NOT IDENT.
SB-127	-4.329E-01	4.341E+00	3.743E+00	2.215E+00	NOT IDENT.
I-131	-4.101E-02	2.374E-01	2.036E-01	1.211E-01	NOT IDENT.
TE-132	-1.743E+00	3.330E+00	2.887E+00	1.699E+00	NOT IDENT.
BA-133	1.607E-02	5.686E-02	4.369E-02	2.901E-02	NOT IDENT.
I-133	-5.603E+05	8.814E+05	0.000E+00	4.497E+05	SHORT HLIF
CS-134	6.194E-02	6.865E-02	4.792E-02	3.502E-02	FAIL ABUN
CS-135	1.311E-01	2.134E-01	1.696E-01	1.089E-01	NOT IDENT.
I-135	-7.827E+21	3.425E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.537E-02	1.682E-01	1.361E-01	8.580E-02	NOT IDENT.
CE-139	-3.320E-02	3.814E-02	3.130E-02	1.946E-02	NOT IDENT.
BA-140	-1.398E-01	4.091E-01	3.338E-01	2.087E-01	NOT IDENT.
LA-140	-2.371E-03	1.219E-01	8.759E-02	6.220E-02	FAIL ABUN
CE-141	2.985E-02	8.829E-02	7.699E-02	4.505E-02	NOT IDENT.
CE-143	2.229E+04	6.925E+03	0.000E+00	3.533E+03	SHORT HLIF
CE-144	-1.383E-01	2.611E-01	2.206E-01	1.332E-01	NOT IDENT.
PM-144	-1.883E-02	4.018E-02	3.370E-02	2.050E-02	NOT IDENT.
PR-144	-9.872E-01	2.985E+00	2.529E+00	1.523E+00	NOT IDENT.
PM-146	6.133E-02	5.110E-02	4.653E-02	2.607E-02	NOT IDENT.
ND-147	-2.774E-01	9.274E-01	7.649E-01	4.732E-01	FAIL ABUN
PM-149	3.570E+02	7.343E+02	0.000E+00	3.747E+02	SHORT HLIF
EU-152	-2.757E-02	1.430E-01	9.993E-02	7.294E-02	FAIL ABUN
GD-153	1.029E-01	1.180E-01	9.448E-02	6.019E-02	NOT IDENT.
EU-154	-9.985E-02	1.316E-01	9.859E-02	6.715E-02	NOT IDENT.
EU-155	7.230E-02	1.286E-01	1.147E-01	6.561E-02	FAIL ABUN
TB-160	4.058E-02	1.602E-01	1.398E-01	8.173E-02	FAIL ABUN
HO-166M	-5.451E-02	6.994E-02	5.700E-02	3.568E-02	NOT IDENT.
TA-182	-4.236E-02	2.457E-01	2.012E-01	1.254E-01	FAIL ABUN
IR-192	-2.343E-02	4.414E-02	3.743E-02	2.252E-02	FAIL ABUN
HG-203	4.466E-02	5.282E-02	4.796E-02	2.695E-02	NOT IDENT.
BI-207	2.046E-02	5.840E-02	5.075E-02	2.980E-02	FAIL ABUN
PB-210	-1.878E-01	1.225E+01	1.087E+01	6.251E+00	NOT IDENT.
PB-211	-1.071E+00	9.992E-01	6.848E-01	5.098E-01	NOT IDENT.
BI-212	2.266E+00	1.019E+00	6.585E-01	5.200E-01	FAIL ABUN
RN-219	2.958E-01	4.645E-01	4.134E-01	2.370E-01	FAIL ABUN
RA-223	-3.171E-01	8.494E-01	6.230E-01	4.334E-01	FAIL ABUN
AC-227	-2.443E-01	3.047E-01	2.580E-01	1.554E-01	FAIL ABUN
TH-227	-2.443E-01	3.051E-01	2.580E-01	1.556E-01	FAIL ABUN
TH-229	-6.950E-02	6.462E-01	5.456E-01	3.297E-01	FAIL ABUN
PA-231	9.564E-01	1.724E+00	1.549E+00	8.795E-01	FAIL ABUN
TH-231	-3.171E-01	8.494E-01	6.230E-01	4.334E-01	FAIL ABUN
PA-233	-2.408E-02	7.874E-02	6.737E-02	4.018E-02	FAIL ABUN
PA-234	-1.130E-01	3.120E-01	2.544E-01	1.592E-01	NOT IDENT.
PA-234M	9.564E+00	7.375E+00	5.059E+00	3.763E+00	FAIL ABUN
TH-234	2.333E+00	2.392E+00	2.172E+00	1.221E+00	FAIL ABUN
U-238	2.333E+00	2.392E+00	2.172E+00	1.221E+00	FAIL ABUN
NP-239	1.212E-01	4.781E-01	4.201E-01	2.439E-01	NOT IDENT.
AM-241	-3.928E-01	2.979E-01	2.508E-01	1.520E-01	NOT IDENT.
CM-247	1.083E-02	4.312E-02	3.766E-02	2.200E-02	NOT IDENT.
CF-249	1.983E-03	4.901E-02	4.070E-02	2.500E-02	NOT IDENT.

CF-251	-6.621E-02	1.696E-01	1.390E-01	8.651E-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	292.0303
49.72	306.0577
57.36	0.0000
59.54	388.5963
63.29	355.5955
63.29	355.5955
64.28	351.2149
67.75	456.1818
69.67	394.3115
70.83	387.0384
72.81	401.9360
72.87	401.9678
72.87	401.9678
74.82	403.0109
74.82	403.0109
74.82	403.0109
74.97	403.0914
77.11	404.2189
77.11	404.2189
77.11	404.2189
79.69	445.9147
79.80	484.3413
80.12	484.5374
80.19	484.5799
80.57	482.0129
81.00	546.9774
81.07	547.0254
81.07	547.0254
83.79	465.8798
83.79	465.8798
85.43	466.8161
86.48	416.0359
86.55	416.0722
86.79	416.1903
86.94	416.2675
87.57	416.5826
88.03	416.8127
88.47	417.0316
89.96	417.7690
91.11	418.3345
92.59	419.0561
92.59	419.0561
93.35	419.4248
94.67	358.0197
94.87	389.0285
94.87	389.0285
95.86	391.0972
97.43	315.0656
98.44	289.2736
99.53	302.7151
100.11	302.9093
103.18	398.3948
103.37	365.6135
105.31	328.3007
106.12	340.9454
109.28	379.2933
111.00	338.5597
111.76	382.3457
116.30	342.4828
117.23	316.7552
121.12	329.4868
121.78	344.3541
122.06	345.4965
123.07	314.3967
131.20	355.9259
133.52	394.7986
136.00	378.7269

136.47	388.4422
140.51	376.0159
140.51	0.0000
143.76	382.4481
144.24	360.1657
144.24	360.1657
145.44	345.5680
152.43	345.5124
153.25	310.2078
154.21	305.0705
154.21	305.0705
156.02	305.5369
158.56	331.0712
159.00	335.5196
162.66	295.2816
163.33	297.6159
165.86	339.5861
176.60	307.3608
177.52	326.2532
181.07	322.5196
184.41	344.5421
185.72	312.8261
193.51	289.0663
197.04	279.7783
205.31	321.1293
210.85	319.6733
215.65	259.9977
222.11	263.1523
227.38	290.4839
228.16	280.6120
228.18	280.6158
235.69	253.3043
235.96	253.3482
235.96	253.3482
238.63	231.1559
238.63	231.1559
240.99	231.5035
242.00	231.6527
244.70	205.6510
252.40	209.1066
252.80	214.7104
256.23	235.5662
256.23	235.5662
260.90	0.0000
264.66	200.4130
268.22	205.5088
269.46	166.7086
269.46	166.7086
271.23	221.4705
273.65	285.8221
276.40	209.1789
277.37	206.6125
277.60	216.0349
278.00	208.5667
279.20	209.6532
279.54	212.5150
280.46	229.5631
283.69	182.8578
284.31	188.5815
285.41	191.5292
285.90	0.0000
287.50	185.7746
293.27	0.0000
295.22	167.6047
295.96	137.6190
298.57	137.8190
299.98	137.9252
299.98	137.9252
300.09	137.9341
300.09	137.9341
300.13	137.9376
301.36	158.6548
302.85	165.1364
304.50	187.5343
304.50	187.5343
304.85	187.5703
308.46	186.3450
311.90	177.1163

316.51	182.3508
319.41	152.8337
320.08	158.6554
323.87	167.0005
323.87	167.0005
328.76	189.9639
333.37	213.0068
334.37	193.7427
334.37	193.7427
338.28	169.8624
338.28	169.8624
338.32	169.8666
338.32	169.8666
338.32	169.8666
340.48	174.9111
340.55	174.9166
344.28	167.4565
351.06	165.0927
351.93	165.1628
356.01	146.8890
364.49	153.3968
366.42	171.2558
383.85	143.8955
388.16	134.2403
388.63	146.2033
391.69	139.4377
400.66	120.0088
401.81	117.0686
402.40	127.1085
404.85	163.3203
410.95	143.6721
414.70	162.0259
423.72	133.3680
427.09	127.4920
427.87	124.4985
433.94	143.0912
453.88	103.3647
463.37	100.6881
468.07	96.0768
473.00	89.7368
476.78	114.6666
477.60	102.3028
487.02	93.3530
492.35	0.0000
497.08	89.5567
511.00	82.7113
514.00	66.3844
527.90	0.0000
529.87	0.0000
531.02	93.8889
537.26	89.8767
546.56	0.0000
563.25	84.3252
569.33	87.7176
569.50	82.3746
569.70	83.4501
583.19	85.9961
600.60	105.4409
602.73	117.2412
604.72	90.2466
609.32	88.9408
609.32	88.9408
610.33	101.2699
614.28	92.3503
618.01	80.9838
621.93	88.2299
621.93	88.2299
633.25	75.4418
635.95	91.9222
636.99	86.4815
645.85	86.7322
657.76	78.7214
661.66	76.3231
661.66	76.3231
664.57	0.0000
666.33	88.4082
666.50	88.4141
677.62	59.1497

685.70	78.7571
695.00	87.3466
696.49	97.6129
696.51	93.8943
697.00	91.1193
702.65	81.0315
706.68	89.5254
711.68	95.2639
720.70	94.7227
721.93	0.0000
722.78	85.1416
722.91	85.1453
723.31	88.3698
724.19	75.5357
727.33	69.4397
733.00	64.4545
735.93	84.0426
739.50	68.7494
747.24	61.3541
752.31	68.0625
753.82	60.5260
756.73	71.9365
763.94	105.2842
765.81	94.9015
766.42	87.3244
777.92	63.8035
778.90	69.5365
783.70	59.1392
785.37	58.2126
795.86	63.9912
801.95	90.7627
810.29	83.6051
810.76	86.4990
815.77	52.9333
818.51	68.3840
832.01	76.3689
834.85	72.5571
836.80	0.0000
846.77	55.3208
856.80	53.3839
860.56	51.7665
871.09	48.8403
873.19	47.8894
875.33	0.0000
879.36	52.8618
880.51	47.0020
883.24	53.8945
884.68	55.8751
889.28	56.9238
898.04	67.8713
911.20	55.2697
911.20	55.2697
911.20	55.2697
926.50	52.6520
937.49	39.1719
944.13	54.2791
946.00	51.7694
949.00	52.8048
962.29	41.1244
964.08	44.5714
966.15	51.0249
968.97	51.0602
968.97	51.0602
968.97	51.0602
983.53	54.2538
996.26	62.1927
1001.03	33.2934
1004.73	45.0067
1037.84	59.0195
1038.76	0.0000
1048.07	58.1388
1050.41	55.1096
1050.41	55.1096
1063.66	48.1092
1085.87	61.7236
1099.45	58.8137
1112.07	42.5709
1115.54	53.2533

1120.29	49.7539
1120.29	49.7539
1120.55	49.7578
1121.30	62.2070
1131.51	0.0000
1173.23	61.8520
1177.93	60.8651
1189.05	67.3177
1204.77	65.4259
1221.41	72.0037
1231.02	90.1811
1235.36	77.5179
1238.28	60.5625
1260.41	0.0000
1271.85	56.6921
1274.44	46.0182
1274.54	44.9497
1291.59	40.8049
1298.22	0.0000
1312.11	32.3438
1332.49	28.1413
1365.19	22.4037
1368.63	0.0000
1384.29	22.9517
1408.01	25.4048
1457.56	0.0000
1460.82	23.7488
1489.16	18.1399
1505.03	24.8919
1596.21	13.6133
1620.50	8.7866
1678.03	0.0000
1690.97	9.8748
1764.49	14.9843
1764.49	14.9843
1770.23	81.9857
1771.35	52.0000
1791.20	0.0000
1836.06	18.1777

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248028005

Total Uranium Activity	6.8501E+00	ug/g
Total Uranium Counting Unc.	7.1185E+00	ug/g
Total Uranium Tpu	3.6319E-06	ug/g
Total Uranium Mda	6.4621E+00	ug/g

```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 958220          SAMPLE ID   : G248028005
*  ANALYST       : MXR1           DETECTOR    : GAM15
*  SAMPLE DATE   : 19-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 12-MAR-2010 16:51:56.47  SAMPLE ALQT: 134.060 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.468E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.488E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.588E+00
GROSS GAMMA DLC (pCi/GRAM ) : 2.232E+00

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VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 18:56:36.76

```
*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054952.CNF;1
Sample date        : 3-MAR-2010 00:00:00. Acquisition date : 12-MAR-2010 16:56:14
Sample ID          : G1202054952      Sample quantity   : 1.81840E+02 GRAM
Detector name      : GAM13             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:00.85  0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 958220            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****
No peaks were found
```

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 18:56:39

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054952.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-MAR-2010 00:00:00   Acquisition date : 12-MAR-2010 16:56:14
Sample ID        : G1202054952           Sample quantity  : 181.84 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA13              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:00.85   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type  : Empirical              Efficiencies at   : Peak Energy
Abundance limit  : 75.00                  WTM error limit   : 3.00

```

Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	477.60	*	-6.652E-02	2.016E-01	3.241E-01	3.144E-02	-0.205	
NA-22	1274.54	*	-2.729E-02	2.436E-02	3.316E-02	2.802E-03	-0.823	
NA-24	1368.63	*	1.050E-04	2.436E-02	Half-Life too short			
K-40	1460.82	*	1.699E-01	2.834E-01	4.899E-01	4.384E-02	0.347	
SC-46	889.28	*	-1.356E-02	2.708E-02	4.224E-02	3.585E-03	-0.321	
	1120.55		-2.207E-03	3.166E-02	4.835E-02	3.971E-03	-0.046	
V-48	944.13		-1.651E-01	4.853E-01	7.658E-01	6.487E-02	-0.216	
	983.53	*	1.668E-02	3.976E-02	6.819E-02	5.767E-03	0.245	
	1312.11		-4.775E-03	3.950E-02	6.451E-02	5.533E-03	-0.074	
CR-51	320.08	*	-1.961E-01	2.162E-01	3.219E-01	3.131E-02	-0.609	
MN-54	834.85	*	4.950E-03	2.607E-02	4.406E-02	3.816E-03	0.112	
CO-56	846.77	*	1.060E-02	2.829E-02	4.857E-02	4.191E-03	0.218	
	1037.84		2.098E-02	2.105E-01	3.473E-01	3.077E-02	0.060	
	1238.28		2.004E-02	4.811E-02	8.406E-02	7.197E-03	0.238	
	1771.35		-1.608E-01	1.905E-01	2.541E-01	2.133E-02	-0.633	
CO-57	122.06	*	1.622E-03	1.355E-02	2.174E-02	2.705E-03	0.075	
	136.47		-9.597E-02	1.080E-01	1.726E-01	2.039E-02	-0.556	
CO-58	810.76	*	-1.516E-02	2.280E-02	3.481E-02	3.040E-03	-0.435	
FE-59	1099.45	*	-2.726E-02	5.788E-02	8.830E-02	7.943E-03	-0.309	
	1291.59		-2.943E-02	7.105E-02	1.114E-01	1.078E-02	-0.264	
CO-60	1173.23		2.757E-03	2.821E-02	4.612E-02	3.708E-03	0.060	
	1332.49	*	2.800E-03	2.879E-02	4.839E-02	4.185E-03	0.058	
ZN-65	1115.54	*	-4.613E-02	5.498E-02	7.865E-02	6.478E-03	-0.586	
SE-75	121.12		2.170E-02	7.097E-02	1.152E-01	1.636E-02	0.188	
	136.00		-6.106E-03	2.004E-02	3.325E-02	3.793E-03	-0.184	
	264.66	*	-5.125E-03	2.357E-02	3.768E-02	3.540E-03	-0.136	
	279.54		-2.185E-02	6.021E-02	9.481E-02	9.180E-03	-0.230	
	400.66		2.437E-02	1.440E-01	2.443E-01	2.728E-02	0.100	
SR-85	514.00	*	-3.630E-02	3.423E-02	5.256E-02	4.799E-03	-0.691	
Y-88	898.04		5.325E-03	2.951E-02	4.960E-02	4.215E-03	0.107	
	1836.06	*	-2.757E-02	2.685E-02	3.514E-02	2.904E-03	-0.784	
Y-91	1204.77	*	3.259E-01	1.139E+01	1.913E+01	1.563E+00	0.017	
NB-94	702.65	*	-1.710E-02	2.585E-02	3.880E-02	3.393E-03	-0.441	
	871.09		1.029E-04	2.519E-02	4.170E-02	3.567E-03	0.002	

---- 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	*		1.651E-03	2.496E-02	4.198E-02	3.679E-03	0.039
NB-95M	235.69	*		-1.065E-01	7.019E-02	1.028E-01	1.072E-02	-1.036
ZR-95	724.19			-1.323E-02	5.839E-02	9.595E-02	9.096E-03	-0.138
	756.73	*		2.165E-02	4.630E-02	8.080E-02	7.802E-03	0.268
MO-99	140.51			8.183E-01	3.059E+00	5.213E+00	1.288E+00	0.157
	181.07			2.078E-02	2.532E+00	4.212E+00	7.948E-01	0.005
	366.42			-4.009E+00	1.610E+01	2.662E+01	2.388E+00	-0.151
	739.50	*		-3.953E-01	2.086E+00	3.427E+00	5.429E-01	-0.115
	777.92			-4.465E+00	6.522E+00	1.013E+01	8.865E-01	-0.441
TC-99M	140.51	*		1.768E+03	6.522E+00	Half-Life too short		
RU-103	497.08	*		2.789E-03	2.462E-02	4.098E-02	5.850E-03	0.068
	610.33			3.464E-01	4.860E-01	8.318E-01	1.375E-01	0.416
RH-106	621.93	*		-1.731E-02	2.380E-01	3.836E-01	5.158E-02	-0.045
	1050.41			-1.354E+00	1.881E+00	2.799E+00	2.344E-01	-0.484
RU-106	621.93	*		-1.731E-02	2.380E-01	3.836E-01	3.418E-02	-0.045
	1050.41			-1.354E+00	1.881E+00	2.799E+00	2.344E-01	-0.484
AG-108M	433.94	*		5.008E-03	1.917E-02	3.256E-02	2.988E-03	0.154
	614.28			-3.231E-02	2.528E-02	3.564E-02	3.285E-03	-0.907
	722.91			-4.259E-03	2.614E-02	4.323E-02	3.906E-03	-0.099
CD-109	88.03	*		-3.330E-01	3.147E-01	4.716E-01	4.768E-02	-0.706
AG-110M	657.76	*		-1.768E-02	2.538E-02	3.808E-02	3.411E-03	-0.464
	677.62			1.598E-02	2.394E-01	3.883E-01	3.477E-02	0.041
	706.68			-1.546E-02	1.600E-01	2.546E-01	2.290E-02	-0.061
	763.94			4.696E-03	1.013E-01	1.701E-01	1.531E-02	0.028
	884.68			3.466E-02	3.441E-02	6.260E-02	5.501E-03	0.554
	937.49			3.782E-02	7.788E-02	1.346E-01	1.183E-02	0.281
	1384.29			6.844E-02	1.070E-01	1.928E-01	1.719E-02	0.355
	1505.03			-9.587E-02	2.019E-01	3.055E-01	2.657E-02	-0.314
SN-113	391.69	*		9.556E-03	2.471E-02	4.267E-02	3.809E-03	0.224
CD-115	260.90			-1.170E+00	1.455E+01	2.354E+01	2.200E+00	-0.050
	492.35			-2.538E+00	4.881E+00	7.686E+00	6.996E-01	-0.330
	527.90	*		-3.503E-01	1.531E+00	2.465E+00	2.252E-01	-0.142
SN-117M	156.02			8.616E-01	9.138E-01	1.603E+00	1.539E-01	0.538
	158.56	*		9.106E-05	2.241E-02	3.754E-02	3.514E-03	0.002
TE-123M	159.00	*		-1.295E-03	1.493E-02	2.488E-02	2.331E-03	-0.052
SB-124	602.73			-1.132E-02	2.742E-02	4.299E-02	3.867E-03	-0.263
	645.85			4.045E-02	3.380E-01	5.530E-01	5.125E-02	0.073
	722.78			-3.407E-02	2.473E-01	4.100E-01	3.673E-02	-0.083
	1690.97	*		6.736E-03	6.439E-02	1.066E-01	9.484E-03	0.063
SB-125	427.87	*		-4.121E-02	5.834E-02	9.146E-02	8.265E-03	-0.451
	463.37			2.157E-02	1.717E-01	2.875E-01	2.774E-02	0.075
	600.60			-1.458E-02	1.366E-01	2.203E-01	2.118E-02	-0.066
	635.95			7.401E-02	1.787E-01	3.017E-01	2.873E-02	0.245
TE-125M	109.28	*		2.078E+00	4.565E+00	7.435E+00	9.606E-01	0.279
I-126	388.63			-1.160E-02	7.435E-02	1.232E-01	1.072E-02	-0.094
	666.33	*		-8.481E-02	1.264E-01	1.906E-01	1.656E-02	-0.445
	753.82			1.516E-01	9.228E-01	1.568E+00	1.375E-01	0.097
SB-126	414.70			1.066E-02	3.721E-02	6.340E-02	5.584E-03	0.168
	666.50			-2.934E-02	4.275E-02	6.435E-02	5.590E-03	-0.456

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		695.00		2.451E-02	4.652E-02	7.817E-02	6.830E-03	0.313
		697.00		8.119E-02	1.588E-01	2.665E-01	2.329E-02	0.305
		720.70	*	5.694E-02	7.784E-02	1.384E-01	1.212E-02	0.411
SN-126		856.80		-1.919E-01	2.539E-01	3.870E-01	3.328E-02	-0.496
		64.28		-1.808E-01	1.699E-01	2.927E-01	4.760E-02	-0.618
		86.94		-1.303E-01	1.407E-01	1.967E-01	8.200E-02	-0.662
		87.57	*	-3.908E-02	3.107E-02	4.588E-02	4.638E-03	-0.852
SB-127		252.40		-1.810E-01	9.254E-01	1.483E+00	6.129E-01	-0.122
		473.00		-1.267E-01	4.342E-01	7.017E-01	8.339E-02	-0.181
		685.70	*	8.507E-02	3.733E-01	6.142E-01	6.191E-02	0.139
		783.70		2.543E-01	9.105E-01	1.559E+00	1.745E-01	0.163
I-131		80.19		-3.573E-01	1.117E+00	1.676E+00	1.701E-01	-0.213
		284.31		2.337E-01	5.267E-01	8.812E-01	8.600E-02	0.265
		364.49	*	-1.519E-02	4.820E-02	7.940E-02	7.468E-03	-0.191
		636.99		-2.512E-01	6.628E-01	1.029E+00	9.552E-02	-0.244
TE-132		49.72		-4.551E-01	6.228E-01	9.799E-01	1.096E-01	-0.464
		111.76		-2.995E+00	6.175E+00	8.807E+00	1.097E+00	-0.340
		116.30		2.927E-01	4.873E+00	7.736E+00	9.880E-01	0.038
		228.16	*	-1.458E-02	1.286E-01	2.095E-01	3.198E-02	-0.070
BA-133		81.00		-1.545E-02	3.704E-02	5.513E-02	9.043E-03	-0.280
		276.40		1.445E-01	2.044E-01	3.465E-01	5.054E-02	0.417
		302.85		7.940E-03	9.307E-02	1.509E-01	2.048E-02	0.053
		356.01	*	-1.166E-02	3.096E-02	4.940E-02	6.549E-03	-0.236
		383.85		4.082E-02	1.783E-01	3.042E-01	3.811E-02	0.134
I-133		529.87	*	-2.665E-06	1.783E-01	Half-Life	too short	
		875.33		5.098E-04	1.783E-01	Half-Life	too short	
		1298.22		1.126E-03	1.783E-01	Half-Life	too short	
CS-134		563.25		-7.536E-02	2.566E-01	4.083E-01	3.749E-02	-0.185
		569.33		-2.048E-02	1.339E-01	2.155E-01	1.984E-02	-0.095
		604.72		-1.393E-02	2.594E-02	4.026E-02	3.626E-03	-0.346
		795.86	*	-1.021E-02	3.036E-02	4.881E-02	4.293E-03	-0.209
		801.95		2.137E-01	2.698E-01	4.831E-01	4.239E-02	0.442
CS-135		1365.19		1.156E+00	8.758E-01	1.696E+00	1.539E-01	0.682
		268.22	*	-2.571E-02	8.539E-02	1.355E-01	1.438E-02	-0.190
I-135		546.56		9.575E+03	8.539E-02	Half-Life	too short	
		836.80		1.633E+04	8.539E-02	Half-Life	too short	
		1038.76		-1.524E+03	8.539E-02	Half-Life	too short	
		1131.51		2.194E+03	8.539E-02	Half-Life	too short	
		1260.41	*	-1.179E+03	8.539E-02	Half-Life	too short	
		1457.56		-1.323E+04	8.539E-02	Half-Life	too short	
		1678.03		8.560E+03	8.539E-02	Half-Life	too short	
		1791.20		3.919E+03	8.539E-02	Half-Life	too short	
CS-136		153.25		-5.038E-02	3.368E-01	5.603E-01	6.347E-02	-0.090
		176.60		-1.069E-01	1.980E-01	3.185E-01	3.064E-02	-0.336
		273.65		-2.960E-02	2.252E-01	3.621E-01	3.638E-02	-0.082
		340.55		6.850E-02	6.632E-02	1.139E-01	1.082E-02	0.601
		818.51		8.346E-03	3.938E-02	6.687E-02	5.818E-03	0.125
		1048.07	*	-1.690E-02	5.749E-02	9.037E-02	7.905E-03	-0.187
		1235.36		8.871E-02	2.441E-01	4.243E-01	4.889E-02	0.209

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BA-137M	661.66	*		4.954E-03	2.899E-02	4.420E-02	3.835E-03	0.112
CS-137	661.66	*		5.234E-03	3.063E-02	4.669E-02	4.059E-03	0.112
CE-139	165.86	*		-3.836E-04	1.537E-02	2.564E-02	2.215E-03	-0.015
BA-140	162.66			-5.333E-02	3.555E-01	5.474E-01	5.210E-02	-0.097
	304.85			-2.792E-02	6.608E-01	1.062E+00	3.132E-01	-0.026
	423.72			3.504E-01	9.400E-01	1.600E+00	5.274E-01	0.219
	537.26	*		-1.174E-01	1.466E-01	2.139E-01	7.282E-02	-0.549
LA-140	328.76			1.850E-01	1.421E-01	2.474E-01	2.406E-02	0.748
	487.02			5.566E-02	7.165E-02	1.253E-01	1.203E-02	0.444
	815.77			6.408E-02	1.606E-01	2.784E-01	2.701E-02	0.230
	1596.21	*		-7.180E-03	4.391E-02	6.959E-02	6.017E-03	-0.103
CE-141	145.44	*		-7.039E-03	2.902E-02	4.815E-02	5.149E-03	-0.146
CE-143	57.36			1.382E+00	1.226E+01	2.015E+01	2.429E+00	0.069
	293.27	*		-3.397E-01	4.952E+00	7.960E+00	1.731E+00	-0.043
	664.57			4.715E+01	5.695E+01	9.618E+01	2.888E+01	0.490
	721.93			4.089E+01	6.063E+01	1.058E+02	2.967E+01	0.387
CE-144	80.12			-3.126E-01	9.491E-01	1.423E+00	1.442E-01	-0.220
	133.52	*		5.702E-02	1.020E-01	1.764E-01	3.020E-02	0.323
PM-144	476.78			-5.802E-02	4.501E-02	6.576E-02	6.429E-03	-0.882
	618.01			1.975E-02	2.261E-02	3.953E-02	3.621E-03	0.500
	696.49	*		1.712E-02	2.754E-02	4.660E-02	4.073E-03	0.367
PR-144	696.51	*		1.261E+00	2.053E+00	3.473E+00	3.035E-01	0.363
	1489.16			5.351E+00	9.550E+00	1.704E+01	1.483E+00	0.314
PM-146	453.88	*		2.089E-02	2.874E-02	5.018E-02	5.468E-03	0.416
	633.25			4.395E-02	9.473E-01	1.542E+00	5.898E-01	0.029
	735.93			5.682E-02	9.840E-02	1.718E-01	4.823E-02	0.331
	747.24			-7.355E-03	6.378E-02	1.055E-01	1.548E-02	-0.070
ND-147	91.11			3.391E-01	1.128E-01	1.908E-01	2.078E-02	1.777
	319.41			-8.303E-01	1.569E+00	2.416E+00	2.250E-01	-0.344
	531.02	*		5.537E-02	2.798E-01	4.670E-01	7.124E-02	0.119
PM-149	285.90	*		-1.442E+00	9.930E+00	1.589E+01	2.537E+00	-0.091
EU-152	121.78			6.548E-03	3.958E-02	6.368E-02	8.494E-03	0.103
	244.70			-1.915E-02	1.822E-01	2.956E-01	2.745E-02	-0.065
	344.28	*		8.842E-03	6.124E-02	9.903E-02	9.553E-03	0.089
	778.90			6.508E-03	1.795E-01	3.007E-01	2.632E-02	0.022
	964.08			-3.221E-02	1.826E-01	2.937E-01	2.487E-02	-0.110
	1085.87			9.381E-02	2.650E-01	4.491E-01	3.729E-02	0.209
	1112.07			6.000E-02	1.924E-01	3.245E-01	2.673E-02	0.185
	1408.01			9.911E-02	1.362E-01	2.461E-01	2.140E-02	0.403
GD-153	69.67			2.860E-01	4.535E-01	7.586E-01	7.786E-02	0.377
	97.43	*		-1.794E-02	4.279E-02	6.296E-02	6.719E-03	-0.285
	103.18			8.877E-03	5.401E-02	8.679E-02	9.589E-03	0.102
EU-154	123.07			1.120E-03	2.536E-02	4.310E-02	6.209E-03	0.026
	723.31			-1.520E-02	1.168E-01	1.937E-01	1.865E-02	-0.078
	873.19			-2.130E-02	2.160E-01	3.537E-01	4.189E-02	-0.060
	996.26			-6.340E-04	2.524E-01	4.131E-01	7.181E-02	-0.002
	1004.73			-2.513E-01	1.499E-01	1.861E-01	2.140E-02	-1.351
	1274.44	*		-7.542E-02	6.975E-02	9.548E-02	1.073E-02	-0.790
EU-155	86.55			-3.409E-03	3.679E-02	5.873E-02	5.982E-03	-0.058

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TB-160	105.31	*		5.334E-03	5.227E-02	8.360E-02	9.424E-03	0.064
	86.79			-4.822E-02	9.378E-02	1.460E-01	1.476E-02	-0.330
	197.04			-1.539E-01	3.287E-01	5.109E-01	4.573E-02	-0.301
	215.65			2.917E-01	3.818E-01	6.577E-01	5.990E-02	0.443
	298.57			-1.384E-02	6.458E-02	1.026E-01	9.614E-03	-0.135
	879.36	*		-1.943E-02	1.001E-01	1.622E-01	1.383E-02	-0.120
	962.29			-2.181E-01	3.238E-01	4.893E-01	4.144E-02	-0.446
	966.15			1.649E-01	1.235E-01	2.290E-01	1.939E-02	0.720
HO-166M	1177.93			-5.513E-02	2.270E-01	3.550E-01	2.861E-02	-0.155
	1271.85			-1.300E-01	3.728E-01	5.884E-01	4.960E-02	-0.221
	80.57			-3.948E-02	1.057E-01	1.581E-01	1.602E-02	-0.250
	184.41			-1.127E-02	2.529E-02	4.379E-02	3.867E-03	-0.257
	280.46			-5.537E-02	4.884E-02	7.159E-02	6.716E-03	-0.773
	410.95			-3.764E-02	1.617E-01	2.656E-01	2.333E-02	-0.142
	711.68	*		5.073E-02	4.659E-02	8.204E-02	7.183E-03	0.618
	752.31			9.096E-02	1.828E-01	3.202E-01	2.808E-02	0.284
TA-182	810.29			-2.131E-02	3.845E-02	5.990E-02	5.218E-03	-0.356
	67.75			-6.539E-03	2.780E-02	4.451E-02	4.587E-03	-0.147
	100.11			9.268E-03	8.668E-02	1.309E-01	1.420E-02	0.071
	152.43			-7.525E-02	1.734E-01	2.836E-01	2.819E-02	-0.265
	222.11			-8.497E-02	1.864E-01	2.969E-01	2.718E-02	-0.286
	1121.30			4.194E-03	8.876E-02	1.377E-01	1.130E-02	0.030
	1189.05			8.807E-02	1.889E-01	3.224E-01	2.613E-02	0.273
	1221.41	*		-3.711E-03	9.727E-02	1.618E-01	1.333E-02	-0.023
IR-192	1231.02			-5.073E-04	2.687E-01	4.490E-01	3.714E-02	-0.001
	295.96			-5.058E-02	6.510E-02	9.250E-02	8.726E-03	-0.547
	308.46			3.431E-02	5.941E-02	9.952E-02	9.346E-03	0.345
	316.51	*		1.423E-02	2.232E-02	3.743E-02	3.496E-03	0.380
HG-203	468.07			-2.372E-02	4.496E-02	7.130E-02	6.874E-03	-0.333
	70.83			-4.002E-02	3.401E-01	5.471E-01	9.293E-02	-0.073
	72.87			-1.838E-01	2.126E-01	3.244E-01	5.342E-02	-0.567
BI-207	279.20	*		6.457E-04	1.991E-02	3.235E-02	3.100E-03	0.020
	72.81			-4.648E-02	5.287E-02	8.112E-02	8.281E-03	-0.573
	74.97			3.003E-02	3.166E-02	5.342E-02	5.438E-03	0.562
	569.70			-1.606E-02	2.119E-02	3.203E-02	2.912E-03	-0.501
TL-208	1063.66	*		-9.710E-03	3.664E-02	5.768E-02	4.817E-03	-0.168
	1770.23			-4.422E-01	4.009E-01	4.972E-01	4.174E-02	-0.889
	277.37			5.902E-02	2.223E-01	3.671E-01	4.795E-02	0.161
	583.19	*		1.701E-03	2.830E-02	4.509E-02	4.346E-03	0.038
PB-210	860.56			1.783E-01	2.178E-01	3.648E-01	3.364E-02	0.489
	46.54	*		-2.891E-01	3.208E-01	5.156E-01	5.644E-02	-0.561
BI-211	72.87			-8.000E-01	9.198E-01	1.412E+00	1.441E-01	-0.567
	351.06	*		-1.665E-01	1.393E-01	1.992E-01	1.898E-02	-0.836
PB-211	404.85	*		-3.111E-01	4.601E-01	6.856E-01	3.319E-01	-0.454
	427.09			-7.829E-01	1.064E+00	1.564E+00	7.243E-01	-0.501
	832.01			-1.121E-01	7.335E-01	1.196E+00	6.205E-01	-0.094
BI-212	727.33	*		-1.318E-01	3.240E-01	5.208E-01	6.542E-02	-0.253
	785.37			-7.600E-01	2.130E+00	3.425E+00	2.996E-01	-0.222
	1620.50			5.411E-01	1.435E+00	2.525E+00	2.177E-01	0.214

---- 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			5.910E-02	1.116E-01	1.847E-01	2.600E-02	0.320
	77.11			-6.598E-02	7.470E-02	1.079E-01	1.095E-02	-0.612
	238.63	*		9.397E-03	3.889E-02	6.428E-02	6.640E-03	0.146
	300.09			4.095E-02	5.398E-01	8.403E-01	9.376E-02	0.049
BI-214	609.32	*		5.679E-02	5.182E-02	9.135E-02	9.503E-03	0.622
	1120.29			-1.364E-02	1.957E-01	2.988E-01	3.168E-02	-0.046
	1764.49			1.877E-01	1.927E-01	3.594E-01	3.021E-02	0.522
PB-214	74.82			1.047E-01	1.976E-01	3.273E-01	4.224E-02	0.320
	77.11			-1.163E-01	1.320E-01	1.901E-01	2.488E-02	-0.612
	242.00			-4.208E-01	2.375E-01	3.266E-01	3.571E-02	-1.288
	295.22			8.401E-03	9.119E-02	1.391E-01	1.589E-02	0.060
	351.93	*		-8.344E-02	5.316E-02	7.298E-02	8.031E-03	-1.143
RN-219	271.23			-8.973E-02	1.457E-01	2.126E-01	2.316E-02	-0.422
	401.81	*		-3.706E-02	2.433E-01	4.021E-01	6.007E-02	-0.092
RA-223	81.07			-3.585E-02	8.391E-02	1.250E-01	1.266E-02	-0.287
	83.79			3.942E-03	5.113E-02	7.742E-02	7.831E-03	0.051
	94.87			-1.466E+00	3.376E-01	3.817E-01	4.012E-02	-3.842
	144.24			-2.399E-01	3.957E-01	6.230E-01	7.162E-02	-0.385
	154.21			-1.068E-02	2.072E-01	3.466E-01	3.642E-02	-0.031
	269.46			-1.923E-02	1.087E-01	1.638E-01	1.560E-02	-0.117
	323.87	*		-5.939E-01	4.560E-01	6.096E-01	1.078E-01	-0.974
	338.28			-5.948E-01	6.709E-01	9.249E-01	1.156E-01	-0.643
RA-224	240.99	*		-1.080E-01	3.991E-01	6.186E-01	5.734E-02	-0.175
RA-226	609.32	*		5.679E-02	5.182E-02	9.135E-02	9.503E-03	0.622
	1120.29			-1.364E-02	1.957E-01	2.988E-01	3.168E-02	-0.046
	1764.49			1.877E-01	1.927E-01	3.594E-01	3.021E-02	0.522
AC-227	79.69			-3.036E-01	4.828E-01	7.084E-01	1.278E-01	-0.429
	235.96			-1.262E-01	9.008E-02	1.332E-01	1.447E-02	-0.947
	256.23	*		4.971E-03	1.470E-01	2.401E-01	3.018E-02	0.021
	299.98			3.335E-02	5.928E-01	9.216E-01	1.219E-01	0.036
	304.50			-8.779E-01	1.125E+00	1.699E+00	2.875E-01	-0.517
	334.37			1.160E-01	1.068E+00	1.725E+00	2.749E-01	0.067
TH-227	79.80			-3.917E-01	6.399E-01	9.369E-01	2.101E-01	-0.418
	235.96			-1.262E-01	8.998E-02	1.332E-01	1.373E-02	-0.947
	256.23	*		4.971E-03	1.470E-01	2.401E-01	3.377E-02	0.021
	299.98			3.335E-02	5.928E-01	9.216E-01	1.219E-01	0.036
	304.50			-8.779E-01	1.125E+00	1.699E+00	2.875E-01	-0.517
	334.37			1.160E-01	1.068E+00	1.725E+00	2.749E-01	0.067
AC-228	338.32			-1.478E-01	1.792E-01	2.336E-01	9.774E-02	-0.633
	911.20	*		-1.909E-02	1.181E-01	1.883E-01	2.161E-02	-0.101
	968.97			-8.042E-02	1.960E-01	2.941E-01	7.149E-02	-0.273
RA-228	338.32			-1.478E-01	1.792E-01	2.336E-01	9.774E-02	-0.633
	911.20	*		-1.909E-02	1.181E-01	1.883E-01	2.161E-02	-0.101
	968.97			-8.042E-02	1.960E-01	2.941E-01	7.149E-02	-0.273
TH-228	74.82			5.910E-02	1.114E-01	1.847E-01	1.892E-02	0.320
	77.11			-6.598E-02	7.470E-02	1.079E-01	1.095E-02	-0.612
	238.63	*		9.397E-03	3.889E-02	6.428E-02	6.640E-03	0.146
	300.09			4.095E-02	5.403E-01	8.403E-01	5.153E-01	0.049
TH-229	85.43			1.600E-02	8.336E-02	1.264E-01	1.278E-02	0.127

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	88.47			-8.136E-02	5.117E-02	7.392E-02	7.491E-03	-1.101
	193.51	*		3.690E-01	2.938E-01	5.187E-01	4.626E-02	0.711
	210.85			3.894E-02	4.904E-01	7.773E-01	7.050E-02	0.050
PA-231	283.69	*		1.004E-01	8.202E-01	1.341E+00	2.017E-01	0.075
	301.36			5.759E-01	3.715E-01	6.241E-01	7.922E-02	0.923
TH-231	81.07			-3.585E-02	8.391E-02	1.250E-01	1.266E-02	-0.287
	83.79			3.942E-03	5.113E-02	7.742E-02	7.831E-03	0.051
	94.87			-1.466E+00	3.376E-01	3.817E-01	4.012E-02	-3.842
	144.24			-2.399E-01	3.957E-01	6.230E-01	7.162E-02	-0.385
	154.21			-1.068E-02	2.072E-01	3.466E-01	3.642E-02	-0.031
	269.46			-1.923E-02	1.087E-01	1.638E-01	1.560E-02	-0.117
	323.87	*		-5.939E-01	4.560E-01	6.096E-01	1.078E-01	-0.974
	338.28			-5.948E-01	6.709E-01	9.249E-01	1.156E-01	-0.643
TH-232	338.32			-1.478E-01	1.687E-01	2.336E-01	2.151E-02	-0.633
	911.20	*		-1.909E-02	1.181E-01	1.883E-01	2.161E-02	-0.101
	968.97			-8.042E-02	1.960E-01	2.941E-01	7.149E-02	-0.273
PA-233	300.13			2.231E-02	2.688E-01	4.187E-01	6.396E-02	0.053
	311.90	*		-3.554E-02	4.332E-02	6.523E-02	6.241E-03	-0.545
	340.48			4.072E-01	3.886E-01	6.504E-01	1.579E-01	0.626
PA-234	94.67			-4.267E-01	1.241E-01	1.470E-01	2.026E-02	-2.902
	98.44			-2.543E-02	4.910E-02	6.846E-02	3.845E-02	-0.371
	111.00			2.326E-02	9.711E-02	1.561E-01	2.242E-02	0.149
	131.20			-7.375E-02	5.628E-02	8.751E-02	1.028E-02	-0.843
	569.50			-9.080E-02	1.894E-01	2.952E-01	2.684E-02	-0.308
	733.00			-7.023E-02	2.487E-01	4.045E-01	9.002E-02	-0.174
	880.51			-6.335E-02	2.081E-01	3.329E-01	2.837E-02	-0.190
	883.24			9.583E-02	2.232E-01	3.693E-01	2.482E-01	0.260
	926.50			2.177E-02	1.238E-01	2.076E-01	5.238E-02	0.105
	946.00	*		1.296E-02	2.075E-01	3.436E-01	6.423E-02	0.038
	949.00			9.060E-02	2.897E-01	4.937E-01	4.182E-02	0.184
PA-234M	766.42			-4.730E+00	7.499E+00	1.107E+01	5.618E+00	-0.427
	1001.03	*		-1.899E+00	3.533E+00	5.076E+00	4.981E-01	-0.374
TH-234	63.29	*		2.719E-01	4.451E-01	8.109E-01	1.564E-01	0.335
	92.59			-3.281E-02	4.390E-01	8.004E-01	1.827E-01	-0.041
U-235	89.96			-3.297E+00	9.610E-01	5.369E-01	1.354E-01	-6.141
	93.35			-1.170E-01	3.276E-01	5.930E-01	1.413E-01	-0.197
	143.76	*		-8.898E-03	1.150E-01	1.863E-01	3.373E-02	-0.048
	163.33			-5.393E-02	2.562E-01	3.926E-01	7.100E-02	-0.137
	185.72			-7.862E-03	3.214E-02	5.604E-02	4.955E-03	-0.140
	205.31			-1.867E-01	2.865E-01	4.371E-01	8.018E-02	-0.427
NP-237	86.48	*		-1.073E-03	9.106E-02	1.461E-01	3.400E-02	-0.007
	95.86			-3.659E+00	1.080E+00	6.560E-01	1.624E-01	-5.579
U-238	63.29	*		2.719E-01	4.451E-01	8.109E-01	1.564E-01	0.335
	92.59			-3.281E-02	4.390E-01	8.004E-01	8.303E-02	-0.041
NP-239	99.53			-2.658E-02	8.657E-02	1.282E-01	1.385E-02	-0.207
	103.37			5.053E-02	4.804E-02	8.083E-02	8.941E-03	0.625
	106.12			9.771E-04	4.173E-02	6.641E-02	7.471E-03	0.015
	117.23	*		6.580E-02	2.198E-01	3.536E-01	4.265E-02	0.186
	228.18			-1.332E-02	1.230E-01	2.005E-01	1.844E-02	-0.066

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		277.60		2.925E-02	1.013E-01	1.676E-01	1.572E-02	0.175
AM-241		59.54	*	-6.879E-02	3.474E-02	4.964E-02	5.504E-03	-1.386
CM-247		278.00		1.082E-01	4.206E-01	6.947E-01	6.516E-02	0.156
		287.50		-2.435E-01	7.358E-01	1.160E+00	1.088E-01	-0.210
		402.40	*	-8.265E-03	2.222E-02	3.605E-02	3.148E-03	-0.229
CF-249		252.80		-3.413E-02	5.399E-01	8.766E-01	8.170E-02	-0.039
		333.37		4.855E-02	1.104E-01	1.828E-01	1.689E-02	0.266
		388.16	*	-1.598E-02	2.424E-02	3.850E-02	3.354E-03	-0.415
CF-251		177.52	*	-3.445E-02	6.941E-02	1.120E-01	9.808E-03	-0.308
		227.38		5.073E-02	1.939E-01	3.237E-01	2.975E-02	0.157
		285.41		-1.230E-01	1.265E+00	2.031E+00	1.906E-01	-0.061
ANH-511		511.00	*	-3.588E-02	3.560E-02	5.965E-02	5.444E-03	-0.602

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]G1202054952      *
* Acquisition date   : 12-MAR-2010 16:56:14 Detector SN#      :              *
* Detector ID        : GAM13                      Sensitivity   : 5.000        *
* Geometry           : CAN                          Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:00.85              Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 3-MAR-2010 00:00:00 Nuclide Library : SOLID            *
* Sample ID          : G1202054952              Analyst initials: MXR1         *
* Batch Number       : 958220                    Sample Quantity : 1.8184E+02 GRAM *
* Recovery           : 1.00000                  Carrier Weight  : 0.00000      *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                                         *
* CALIB. DATE/TIME   : 10-FEB-2010 14:02:26 MS Isotope      :                *
* MSD DPM             : 0.000                      MSD Isotope :                *
* LCS DPM             : 0.000                      LCS Isotope  :                *
* LCSD DPM            : 0.000                      LCSD Isotope :                *
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Combined Activity-MDA Report

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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-6.652E-02	1.976E-01	3.438E-01	0.000E+00 NOT IDENT.
NA-22	-2.729E-02	2.388E-02	3.389E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	1.246E+03	0.000E+00	0.000E+00 SHORT HLIF
K-40	1.699E-01	2.777E-01	4.981E-01	0.000E+00 NOT IDENT.
SC-46	-1.356E-02	2.654E-02	4.378E-02	0.000E+00 NOT IDENT.
V-48	1.668E-02	3.896E-02	7.041E-02	0.000E+00 NOT IDENT.
CR-51	-1.961E-01	2.119E-01	3.465E-01	0.000E+00 NOT IDENT.
MN-54	4.950E-03	2.555E-02	4.578E-02	0.000E+00 NOT IDENT.
CO-56	1.060E-02	2.772E-02	5.044E-02	0.000E+00 NOT IDENT.
CO-57	1.622E-03	1.328E-02	2.420E-02	0.000E+00 NOT IDENT.
CO-58	-1.516E-02	2.234E-02	3.621E-02	0.000E+00 NOT IDENT.
FE-59	-2.726E-02	5.672E-02	9.078E-02	0.000E+00 NOT IDENT.
CO-60	2.800E-03	2.821E-02	4.937E-02	0.000E+00 NOT IDENT.
ZN-65	-4.613E-02	5.388E-02	8.082E-02	0.000E+00 NOT IDENT.
SE-75	-5.125E-03	2.310E-02	4.083E-02	0.000E+00 NOT IDENT.
SR-85	-3.630E-02	3.355E-02	5.562E-02	0.000E+00 NOT IDENT.
Y-88	-2.757E-02	2.631E-02	3.540E-02	0.000E+00 NOT IDENT.
Y-91	3.259E-01	1.116E+01	1.960E+01	0.000E+00 NOT IDENT.
NB-94	-1.710E-02	2.533E-02	4.058E-02	0.000E+00 NOT IDENT.
NB-95	1.651E-03	2.446E-02	4.376E-02	0.000E+00 NOT IDENT.
NB-95M	-1.065E-01	6.879E-02	1.118E-01	0.000E+00 NOT IDENT.
ZR-95	2.165E-02	4.537E-02	8.427E-02	0.000E+00 NOT IDENT.
MO-99	-3.953E-01	2.044E+00	3.578E+00	0.000E+00 NOT IDENT.
TC-99M	0.000E+00	6.474E+09	0.000E+00	0.000E+00 SHORT HLIF
RU-103	2.789E-03	2.412E-02	4.342E-02	0.000E+00 NOT IDENT.
RH-106	-1.731E-02	2.333E-01	4.031E-01	0.000E+00 NOT IDENT.

RU-106	-1.731E-02	2.333E-01	4.031E-01	0.000E+00	NOT IDENT.
AG-108M	5.008E-03	1.878E-02	3.466E-02	0.000E+00	NOT IDENT.
CD-109	-3.330E-01	3.084E-01	5.305E-01	0.000E+00	NOT IDENT.
AG-110M	-1.768E-02	2.488E-02	3.993E-02	0.000E+00	NOT IDENT.
SN-113	9.556E-03	2.421E-02	4.560E-02	0.000E+00	NOT IDENT.
CD-115	-3.503E-01	1.501E+00	2.606E+00	0.000E+00	NOT IDENT.
SN-117M	9.106E-05	2.196E-02	4.141E-02	0.000E+00	NOT IDENT.
TE-123M	-1.295E-03	1.463E-02	2.745E-02	0.000E+00	NOT IDENT.
SB-124	6.736E-03	6.310E-02	1.077E-01	0.000E+00	NOT IDENT.
SB-125	-4.121E-02	5.717E-02	9.743E-02	0.000E+00	NOT IDENT.
TE-125M	2.078E+00	4.474E+00	8.304E+00	0.000E+00	NOT IDENT.
I-126	-8.481E-02	1.239E-01	1.997E-01	0.000E+00	NOT IDENT.
SB-126	5.694E-02	7.629E-02	1.446E-01	0.000E+00	NOT IDENT.
SN-126	-3.908E-02	3.045E-02	5.162E-02	0.000E+00	NOT IDENT.
SB-127	8.507E-02	3.658E-01	6.430E-01	0.000E+00	NOT IDENT.
I-131	-1.519E-02	4.723E-02	8.507E-02	0.000E+00	NOT IDENT.
TE-132	-1.458E-02	1.260E-01	2.282E-01	0.000E+00	NOT IDENT.
BA-133	-1.166E-02	3.034E-02	5.298E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.579E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	-1.021E-02	2.975E-02	5.081E-02	0.000E+00	NOT IDENT.
CS-135	-2.571E-02	8.368E-02	1.468E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.505E+09	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.690E-02	5.634E-02	9.308E-02	0.000E+00	NOT IDENT.
BA-137M	4.954E-03	2.841E-02	4.633E-02	0.000E+00	NOT IDENT.
CS-137	5.234E-03	3.001E-02	4.895E-02	0.000E+00	NOT IDENT.
CE-139	-3.836E-04	1.506E-02	2.824E-02	0.000E+00	NOT IDENT.
BA-140	-1.174E-01	1.436E-01	2.259E-01	0.000E+00	NOT IDENT.
LA-140	-7.180E-03	4.304E-02	7.049E-02	0.000E+00	NOT IDENT.
CE-141	-7.039E-03	2.844E-02	5.326E-02	0.000E+00	NOT IDENT.
CE-143	-3.397E-01	4.853E+00	8.596E+00	0.000E+00	NOT IDENT.
CE-144	5.702E-02	9.994E-02	1.958E-01	0.000E+00	NOT IDENT.
PM-144	1.712E-02	2.699E-02	4.876E-02	0.000E+00	NOT IDENT.
PR-144	1.261E+00	2.012E+00	3.634E+00	0.000E+00	NOT IDENT.
PM-146	2.089E-02	2.816E-02	5.334E-02	0.000E+00	NOT IDENT.
ND-147	5.537E-02	2.742E-01	4.936E-01	0.000E+00	NOT IDENT.
PM-149	-1.442E+00	9.731E+00	1.717E+01	0.000E+00	NOT IDENT.
EU-152	8.842E-03	6.002E-02	1.063E-01	0.000E+00	NOT IDENT.
GD-153	-1.794E-02	4.194E-02	7.058E-02	0.000E+00	NOT IDENT.
EU-154	-7.542E-02	6.836E-02	9.760E-02	0.000E+00	NOT IDENT.
EU-155	5.334E-03	5.122E-02	9.349E-02	0.000E+00	NOT IDENT.
TB-160	-1.943E-02	9.810E-02	1.682E-01	0.000E+00	NOT IDENT.
HO-166M	5.073E-02	4.566E-02	8.576E-02	0.000E+00	NOT IDENT.
TA-182	-3.711E-03	9.532E-02	1.657E-01	0.000E+00	NOT IDENT.
IR-192	1.423E-02	2.187E-02	4.031E-02	0.000E+00	NOT IDENT.
HG-203	6.457E-04	1.951E-02	3.499E-02	0.000E+00	NOT IDENT.
BI-207	-9.710E-03	3.590E-02	5.938E-02	0.000E+00	NOT IDENT.
TL-208	1.701E-03	2.773E-02	4.749E-02	0.000E+00	NOT IDENT.
PB-210	-2.891E-01	3.144E-01	5.919E-01	0.000E+00	NOT IDENT.
BI-211	-1.665E-01	1.366E-01	2.138E-01	0.000E+00	NOT IDENT.
PB-211	-3.111E-01	4.509E-01	7.318E-01	0.000E+00	NOT IDENT.
BI-212	-1.318E-01	3.175E-01	5.440E-01	0.000E+00	NOT IDENT.
PB-212	9.397E-03	3.811E-02	6.991E-02	0.000E+00	NOT IDENT.
BI-214	5.679E-02	5.079E-02	9.605E-02	0.000E+00	NOT IDENT.
PB-214	-8.344E-02	5.209E-02	7.830E-02	0.000E+00	NOT IDENT.
RN-219	-3.706E-02	2.384E-01	4.294E-01	0.000E+00	NOT IDENT.
RA-223	-5.939E-01	4.469E-01	6.560E-01	0.000E+00	NOT IDENT.
RA-224	-1.080E-01	3.911E-01	6.726E-01	0.000E+00	NOT IDENT.
RA-226	5.679E-02	5.079E-02	9.605E-02	0.000E+00	NOT IDENT.
AC-227	4.971E-03	1.440E-01	2.605E-01	0.000E+00	NOT IDENT.
TH-227	4.971E-03	1.440E-01	2.605E-01	0.000E+00	NOT IDENT.
AC-228	-1.909E-02	1.158E-01	1.950E-01	0.000E+00	NOT IDENT.
RA-228	-1.909E-02	1.158E-01	1.950E-01	0.000E+00	NOT IDENT.
TH-228	9.397E-03	3.811E-02	6.991E-02	0.000E+00	NOT IDENT.
TH-229	3.690E-01	2.880E-01	5.683E-01	0.000E+00	NOT IDENT.
PA-231	1.004E-01	8.038E-01	1.449E+00	0.000E+00	NOT IDENT.
TH-231	-5.939E-01	4.469E-01	6.560E-01	0.000E+00	NOT IDENT.
TH-232	-1.909E-02	1.158E-01	1.950E-01	0.000E+00	NOT IDENT.
PA-233	-3.554E-02	4.245E-02	7.028E-02	0.000E+00	NOT IDENT.
PA-234	1.296E-02	2.034E-01	3.553E-01	0.000E+00	NOT IDENT.
PA-234M	-1.899E+00	3.462E+00	5.238E+00	0.000E+00	NOT IDENT.
TH-234	2.719E-01	4.362E-01	9.219E-01	0.000E+00	NOT IDENT.
U-235	-8.898E-03	1.127E-01	2.062E-01	0.000E+00	NOT IDENT.
NP-237	-1.073E-03	8.924E-02	1.644E-01	0.000E+00	NOT IDENT.
U-238	2.719E-01	4.362E-01	9.219E-01	0.000E+00	NOT IDENT.
NP-239	6.580E-02	2.154E-01	3.941E-01	0.000E+00	NOT IDENT.
AM-241	-6.879E-02	3.404E-02	5.654E-02	0.000E+00	NOT IDENT.
CM-247	-8.265E-03	2.177E-02	3.849E-02	0.000E+00	NOT IDENT.
CF-249	-1.598E-02	2.376E-02	4.116E-02	0.000E+00	NOT IDENT.

CF-251	-3.445E-02	6.802E-02	1.231E-01	0.000E+00 NOT IDENT.
ANH-511	-3.588E-02	3.489E-02	6.313E-02	0.000E+00 NOT IDENT.


```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                          *
*                                     Charleston, SC 29414                       *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054952.CNF;1
Sample date        : 3-MAR-2010 00:00:00. Acquisition date : 12-MAR-2010 16:56:14
Sample ID          : G1202054952      Sample quantity   : 1.81840E+02 GRAM
Detector name      : GAM13             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:00.85  0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 958220            Detector SN#      :
Matrix Spike ID    :                   LCS ID            : 1032-A
*****
```

Nuclide Line Activity Report

Flag: "*" = Keyline

Summary of Nuclide Activity
Sample ID : G1202054952

Page : 2
Acquisition date : 12-MAR-2010 16:56:14

**** 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 : G1202054952

Page : 3
Acquisition date : 12-MAR-2010 16:56:14

None

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054952.CNF;1
* Acquisition date   : 12-MAR-2010 16:56:14   Detector SN#      :
* Detector ID        : GAM13                   Sensitivity       : 5.00000
* Geometry           : CAN                     Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00           Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:00.85           Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 3-MAR-2010 00:00:00.   Nuclide Library : SOLID
* Sample ID          : G1202054952           Analyst initials: MXR1
* Batch Number       : 958220                Sample Quantity : 1.81840E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 10-FEB-2010 14:02:26.9MS 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 K.L. (pCi/GRAM) Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-6.652E-02	2.016E-01	3.241E-01	3.144E-02	-0.205
NA-22	-2.729E-02	2.436E-02	3.316E-02	2.802E-03	-0.823
NA-24	1.050E-04	6.359E-04	Half-Life too short		
K-40	1.699E-01	2.834E-01	4.899E-01	4.384E-02	0.347
SC-46	-1.356E-02	2.708E-02	4.224E-02	3.585E-03	-0.321
V-48	1.668E-02	3.976E-02	6.819E-02	5.767E-03	0.245
CR-51	-1.961E-01	2.162E-01	3.219E-01	3.131E-02	-0.609
MN-54	4.950E-03	2.607E-02	4.406E-02	3.816E-03	0.112
CO-56	1.060E-02	2.829E-02	4.857E-02	4.191E-03	0.218
CO-57	1.622E-03	1.355E-02	2.174E-02	2.705E-03	0.075
CO-58	-1.516E-02	2.280E-02	3.481E-02	3.040E-03	-0.435
FE-59	-2.726E-02	5.788E-02	8.830E-02	7.943E-03	-0.309
CO-60	2.800E-03	2.879E-02	4.839E-02	4.185E-03	0.058
ZN-65	-4.613E-02	5.498E-02	7.865E-02	6.478E-03	-0.586
SE-75	-5.125E-03	2.357E-02	3.768E-02	3.540E-03	-0.136
SR-85	-3.630E-02	3.423E-02	5.256E-02	4.799E-03	-0.691
Y-88	-2.757E-02	2.685E-02	3.514E-02	2.904E-03	-0.784

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	3.259E-01		1.139E+01	1.913E+01	1.563E+00	0.017
NB-94	-1.710E-02		2.585E-02	3.880E-02	3.393E-03	-0.441
NB-95	1.651E-03		2.496E-02	4.198E-02	3.679E-03	0.039
NB-95M	-1.065E-01		7.019E-02	1.028E-01	1.072E-02	-1.036
ZR-95	2.165E-02		4.630E-02	8.080E-02	7.802E-03	0.268
MO-99	-3.953E-01		2.086E+00	3.427E+00	5.429E-01	-0.115
TC-99M	1.768E+03		3.303E+03	Half-Life	too short	
RU-103	2.789E-03		2.462E-02	4.098E-02	5.850E-03	0.068
RH-106	-1.731E-02		2.380E-01	3.836E-01	5.158E-02	-0.045
RU-106	-1.731E-02		2.380E-01	3.836E-01	3.418E-02	-0.045
AG-108M	5.008E-03		1.917E-02	3.256E-02	2.988E-03	0.154
CD-109	-3.330E-01		3.147E-01	4.716E-01	4.768E-02	-0.706
AG-110M	-1.768E-02		2.538E-02	3.808E-02	3.411E-03	-0.464
SN-113	9.556E-03		2.471E-02	4.267E-02	3.809E-03	0.224
CD-115	-3.503E-01		1.531E+00	2.465E+00	2.252E-01	-0.142
SN-117M	9.106E-05		2.241E-02	3.754E-02	3.514E-03	0.002
TE-123M	-1.295E-03		1.493E-02	2.488E-02	2.331E-03	-0.052
SB-124	6.736E-03		6.439E-02	1.066E-01	9.484E-03	0.063
SB-125	-4.121E-02		5.834E-02	9.146E-02	8.265E-03	-0.451
TE-125M	2.078E+00		4.565E+00	7.435E+00	9.606E-01	0.279
I-126	-8.481E-02		1.264E-01	1.906E-01	1.656E-02	-0.445
SB-126	5.694E-02		7.784E-02	1.384E-01	1.212E-02	0.411
SN-126	-3.908E-02		3.107E-02	4.588E-02	4.638E-03	-0.852
SB-127	8.507E-02		3.733E-01	6.142E-01	6.191E-02	0.139
I-131	-1.519E-02		4.820E-02	7.940E-02	7.468E-03	-0.191
TE-132	-1.458E-02		1.286E-01	2.095E-01	3.198E-02	-0.070
BA-133	-1.166E-02		3.096E-02	4.940E-02	6.549E-03	-0.236
I-133	-2.665E-06		2.846E-05	Half-Life	too short	
CS-134	-1.021E-02		3.036E-02	4.881E-02	4.293E-03	-0.209
CS-135	-2.571E-02		8.539E-02	1.355E-01	1.438E-02	-0.190
I-135	-1.179E+03		2.299E+03	Half-Life	too short	
CS-136	-1.690E-02		5.749E-02	9.037E-02	7.905E-03	-0.187
BA-137M	4.954E-03		2.899E-02	4.420E-02	3.835E-03	0.112
CS-137	5.234E-03		3.063E-02	4.669E-02	4.059E-03	0.112
CE-139	-3.836E-04		1.537E-02	2.564E-02	2.215E-03	-0.015
BA-140	-1.174E-01		1.466E-01	2.139E-01	7.282E-02	-0.549
LA-140	-7.180E-03		4.391E-02	6.959E-02	6.017E-03	-0.103
CE-141	-7.039E-03		2.902E-02	4.815E-02	5.149E-03	-0.146
CE-143	-3.397E-01		4.952E+00	7.960E+00	1.731E+00	-0.043
CE-144	5.702E-02		1.020E-01	1.764E-01	3.020E-02	0.323
PM-144	1.712E-02		2.754E-02	4.660E-02	4.073E-03	0.367
PR-144	1.261E+00		2.053E+00	3.473E+00	3.035E-01	0.363
PM-146	2.089E-02		2.874E-02	5.018E-02	5.468E-03	0.416
ND-147	5.537E-02		2.798E-01	4.670E-01	7.124E-02	0.119
PM-149	-1.442E+00		9.930E+00	1.589E+01	2.537E+00	-0.091
EU-152	8.842E-03		6.124E-02	9.903E-02	9.553E-03	0.089
GD-153	-1.794E-02		4.279E-02	6.296E-02	6.719E-03	-0.285
EU-154	-7.542E-02		6.975E-02	9.548E-02	1.073E-02	-0.790

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	5.334E-03		5.227E-02	8.360E-02	9.424E-03	0.064
TB-160	-1.943E-02		1.001E-01	1.622E-01	1.383E-02	-0.120
HO-166M	5.073E-02		4.659E-02	8.204E-02	7.183E-03	0.618
TA-182	-3.711E-03		9.727E-02	1.618E-01	1.333E-02	-0.023
IR-192	1.423E-02		2.232E-02	3.743E-02	3.496E-03	0.380
HG-203	6.457E-04		1.991E-02	3.235E-02	3.100E-03	0.020
BI-207	-9.710E-03		3.664E-02	5.768E-02	4.817E-03	-0.168
TL-208	1.701E-03		2.830E-02	4.509E-02	4.346E-03	0.038
PB-210	-2.891E-01		3.208E-01	5.156E-01	5.644E-02	-0.561
BI-211	-1.665E-01		1.393E-01	1.992E-01	1.898E-02	-0.836
PB-211	-3.111E-01		4.601E-01	6.856E-01	3.319E-01	-0.454
BI-212	-1.318E-01		3.240E-01	5.208E-01	6.542E-02	-0.253
PB-212	9.397E-03		3.889E-02	6.428E-02	6.640E-03	0.146
BI-214	5.679E-02		5.182E-02	9.135E-02	9.503E-03	0.622
PB-214	-8.344E-02		5.316E-02	7.298E-02	8.031E-03	-1.143
RN-219	-3.706E-02		2.433E-01	4.021E-01	6.007E-02	-0.092
RA-223	-5.939E-01		4.560E-01	6.096E-01	1.078E-01	-0.974
RA-224	-1.080E-01		3.991E-01	6.186E-01	5.734E-02	-0.175
RA-226	5.679E-02		5.182E-02	9.135E-02	9.503E-03	0.622
AC-227	4.971E-03		1.470E-01	2.401E-01	3.018E-02	0.021
TH-227	4.971E-03		1.470E-01	2.401E-01	3.377E-02	0.021
AC-228	-1.909E-02		1.181E-01	1.883E-01	2.161E-02	-0.101
RA-228	-1.909E-02		1.181E-01	1.883E-01	2.161E-02	-0.101
TH-228	9.397E-03		3.889E-02	6.428E-02	6.640E-03	0.146
TH-229	3.690E-01		2.938E-01	5.187E-01	4.626E-02	0.711
PA-231	1.004E-01		8.202E-01	1.341E+00	2.017E-01	0.075
TH-231	-5.939E-01		4.560E-01	6.096E-01	1.078E-01	-0.974
TH-232	-1.909E-02		1.181E-01	1.883E-01	2.161E-02	-0.101
PA-233	-3.554E-02		4.332E-02	6.523E-02	6.241E-03	-0.545
PA-234	1.296E-02		2.075E-01	3.436E-01	6.423E-02	0.038
PA-234M	-1.899E+00		3.533E+00	5.076E+00	4.981E-01	-0.374
TH-234	2.719E-01		4.451E-01	8.109E-01	1.564E-01	0.335
U-235	-8.898E-03		1.150E-01	1.863E-01	3.373E-02	-0.048
NP-237	-1.073E-03		9.106E-02	1.461E-01	3.400E-02	-0.007
U-238	2.719E-01		4.451E-01	8.109E-01	1.564E-01	0.335
NP-239	6.580E-02		2.198E-01	3.536E-01	4.265E-02	0.186
AM-241	-6.879E-02		3.474E-02	4.964E-02	5.504E-03	-1.386
CM-247	-8.265E-03		2.222E-02	3.605E-02	3.148E-03	-0.229
CF-249	-1.598E-02		2.424E-02	3.850E-02	3.354E-03	-0.415
CF-251	-3.445E-02		6.941E-02	1.120E-01	9.808E-03	-0.308
ANH-511	-3.588E-02		3.560E-02	5.965E-02	5.444E-03	-0.602

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202054952          *
* Acquisition date   : 12-MAR-2010 16:56:14 Detector SN#      :              *
* Detector ID        : GAM13 Sensitivity      : 5.000             *
* Geometry           : CAN Energy tolerance: 1.500             *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 02:00:00.85 Half life ratio : 8.000     *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 3-MAR-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202054952 Analyst initials: MXR1           *
* Batch Number      : 958220 Sample Quantity : 1.8184E+02 GRAM        *
* Recovery          : 1.00000 Carrier Weight : 0.00000             *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 10-FEB-2010 14:02:26 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 ----					
BE-7	-6.652E-02	1.976E-01	1.720E-01	1.008E-01	NOT IDENT.
NA-22	-2.729E-02	2.388E-02	1.696E-02	1.218E-02	NOT IDENT.
NA-24	1.050E+02	1.246E+03	0.000E+00	6.359E+02	SHORT HLIF
K-40	1.699E-01	2.777E-01	2.492E-01	1.417E-01	NOT IDENT.
SC-46	-1.356E-02	2.654E-02	2.190E-02	1.354E-02	NOT IDENT.
V-48	1.668E-02	3.896E-02	3.523E-02	1.988E-02	NOT IDENT.
CR-51	-1.961E-01	2.119E-01	1.733E-01	1.081E-01	NOT IDENT.
MN-54	4.950E-03	2.555E-02	2.291E-02	1.303E-02	NOT IDENT.
CO-56	1.060E-02	2.772E-02	2.523E-02	1.414E-02	NOT IDENT.
CO-57	1.622E-03	1.328E-02	1.210E-02	6.775E-03	NOT IDENT.
CO-58	-1.516E-02	2.234E-02	1.812E-02	1.140E-02	NOT IDENT.
FE-59	-2.726E-02	5.672E-02	4.541E-02	2.894E-02	NOT IDENT.
CO-60	2.800E-03	2.821E-02	2.470E-02	1.439E-02	NOT IDENT.
ZN-65	-4.613E-02	5.388E-02	4.043E-02	2.749E-02	NOT IDENT.
SE-75	-5.125E-03	2.310E-02	2.043E-02	1.179E-02	NOT IDENT.
SR-85	-3.630E-02	3.355E-02	2.783E-02	1.712E-02	NOT IDENT.
Y-88	-2.757E-02	2.631E-02	1.771E-02	1.342E-02	NOT IDENT.
Y-91	3.259E-01	1.116E+01	9.806E+00	5.695E+00	NOT IDENT.
NB-94	-1.710E-02	2.533E-02	2.030E-02	1.292E-02	NOT IDENT.
NB-95	1.651E-03	2.446E-02	2.189E-02	1.248E-02	NOT IDENT.
NB-95M	-1.065E-01	6.879E-02	5.595E-02	3.509E-02	NOT IDENT.
ZR-95	2.165E-02	4.537E-02	4.216E-02	2.315E-02	NOT IDENT.
MO-99	-3.953E-01	2.044E+00	1.790E+00	1.043E+00	NOT IDENT.
TC-99M	1.768E+09	6.474E+09	0.000E+00	3.303E+09	SHORT HLIF
RU-103	2.789E-03	2.412E-02	2.172E-02	1.231E-02	NOT IDENT.
RH-106	-1.731E-02	2.333E-01	2.017E-01	1.190E-01	NOT IDENT.

RU-106	-1.731E-02	2.333E-01	2.017E-01	1.190E-01	NOT IDENT.
AG-108M	5.008E-03	1.878E-02	1.734E-02	9.583E-03	NOT IDENT.
CD-109	-3.330E-01	3.084E-01	2.654E-01	1.573E-01	NOT IDENT.
AG-110M	-1.768E-02	2.488E-02	1.997E-02	1.269E-02	NOT IDENT.
SN-113	9.556E-03	2.421E-02	2.281E-02	1.235E-02	NOT IDENT.
CD-115	-3.503E-01	1.501E+00	1.304E+00	7.657E-01	NOT IDENT.
SN-117M	9.106E-05	2.196E-02	2.072E-02	1.121E-02	NOT IDENT.
TE-123M	-1.295E-03	1.463E-02	1.373E-02	7.467E-03	NOT IDENT.
SB-124	6.736E-03	6.310E-02	5.390E-02	3.220E-02	NOT IDENT.
SB-125	-4.121E-02	5.717E-02	4.875E-02	2.917E-02	NOT IDENT.
TE-125M	2.078E+00	4.474E+00	4.155E+00	2.283E+00	NOT IDENT.
I-126	-8.481E-02	1.239E-01	9.993E-02	6.320E-02	NOT IDENT.
SB-126	5.694E-02	7.629E-02	7.233E-02	3.892E-02	NOT IDENT.
SN-126	-3.908E-02	3.045E-02	2.583E-02	1.554E-02	NOT IDENT.
SB-127	8.507E-02	3.658E-01	3.217E-01	1.866E-01	NOT IDENT.
I-131	-1.519E-02	4.723E-02	4.256E-02	2.410E-02	NOT IDENT.
TE-132	-1.458E-02	1.260E-01	1.142E-01	6.430E-02	NOT IDENT.
BA-133	-1.166E-02	3.034E-02	2.650E-02	1.548E-02	NOT IDENT.
I-133	-2.665E+00	5.579E+01	0.000E+00	2.846E+01	SHORT HLIF
CS-134	-1.021E-02	2.975E-02	2.542E-02	1.518E-02	NOT IDENT.
CS-135	-2.571E-02	8.368E-02	7.343E-02	4.269E-02	NOT IDENT.
I-135	-1.179E+09	4.505E+09	0.000E+00	2.299E+09	SHORT HLIF
CS-136	-1.690E-02	5.634E-02	4.657E-02	2.875E-02	NOT IDENT.
BA-137M	4.954E-03	2.841E-02	2.318E-02	1.450E-02	NOT IDENT.
CS-137	5.234E-03	3.001E-02	2.449E-02	1.531E-02	NOT IDENT.
CE-139	-3.836E-04	1.506E-02	1.413E-02	7.685E-03	NOT IDENT.
BA-140	-1.174E-01	1.436E-01	1.130E-01	7.328E-02	NOT IDENT.
LA-140	-7.180E-03	4.304E-02	3.527E-02	2.196E-02	NOT IDENT.
CE-141	-7.039E-03	2.844E-02	2.665E-02	1.451E-02	NOT IDENT.
CE-143	-3.397E-01	4.853E+00	4.300E+00	2.476E+00	NOT IDENT.
CE-144	5.702E-02	9.994E-02	9.794E-02	5.099E-02	NOT IDENT.
PM-144	1.712E-02	2.699E-02	2.439E-02	1.377E-02	NOT IDENT.
PR-144	1.261E+00	2.012E+00	1.818E+00	1.027E+00	NOT IDENT.
PM-146	2.089E-02	2.816E-02	2.669E-02	1.437E-02	NOT IDENT.
ND-147	5.537E-02	2.742E-01	2.470E-01	1.399E-01	NOT IDENT.
PM-149	-1.442E+00	9.731E+00	8.591E+00	4.965E+00	NOT IDENT.
EU-152	8.842E-03	6.002E-02	5.319E-02	3.062E-02	NOT IDENT.
GD-153	-1.794E-02	4.194E-02	3.531E-02	2.140E-02	NOT IDENT.
EU-154	-7.542E-02	6.836E-02	4.883E-02	3.488E-02	NOT IDENT.
EU-155	5.334E-03	5.122E-02	4.677E-02	2.613E-02	NOT IDENT.
TB-160	-1.943E-02	9.810E-02	8.415E-02	5.005E-02	NOT IDENT.
HO-166M	5.073E-02	4.566E-02	4.291E-02	2.330E-02	NOT IDENT.
TA-182	-3.711E-03	9.532E-02	8.289E-02	4.863E-02	NOT IDENT.
IR-192	1.423E-02	2.187E-02	2.017E-02	1.116E-02	NOT IDENT.
HG-203	6.457E-04	1.951E-02	1.751E-02	9.954E-03	NOT IDENT.
BI-207	-9.710E-03	3.590E-02	2.971E-02	1.832E-02	NOT IDENT.
TL-208	1.701E-03	2.773E-02	2.376E-02	1.415E-02	NOT IDENT.
PB-210	-2.891E-01	3.144E-01	2.961E-01	1.604E-01	NOT IDENT.
BI-211	-1.665E-01	1.366E-01	1.069E-01	6.967E-02	NOT IDENT.
PB-211	-3.111E-01	4.509E-01	3.661E-01	2.300E-01	NOT IDENT.
BI-212	-1.318E-01	3.175E-01	2.722E-01	1.620E-01	NOT IDENT.
PB-212	9.397E-03	3.811E-02	3.498E-02	1.944E-02	NOT IDENT.
BI-214	5.679E-02	5.079E-02	4.805E-02	2.591E-02	NOT IDENT.
PB-214	-8.344E-02	5.209E-02	3.917E-02	2.658E-02	NOT IDENT.
RN-219	-3.706E-02	2.384E-01	2.148E-01	1.216E-01	NOT IDENT.
RA-223	-5.939E-01	4.469E-01	3.282E-01	2.280E-01	NOT IDENT.
RA-224	-1.080E-01	3.911E-01	3.365E-01	1.995E-01	NOT IDENT.
RA-226	5.679E-02	5.079E-02	4.805E-02	2.591E-02	NOT IDENT.
AC-227	4.971E-03	1.440E-01	1.303E-01	7.349E-02	NOT IDENT.
TH-227	4.971E-03	1.440E-01	1.303E-01	7.349E-02	NOT IDENT.
AC-228	-1.909E-02	1.158E-01	9.754E-02	5.906E-02	NOT IDENT.
RA-228	-1.909E-02	1.158E-01	9.754E-02	5.906E-02	NOT IDENT.
TH-228	9.397E-03	3.811E-02	3.498E-02	1.944E-02	NOT IDENT.
TH-229	3.690E-01	2.880E-01	2.843E-01	1.469E-01	NOT IDENT.
PA-231	1.004E-01	8.038E-01	7.250E-01	4.101E-01	NOT IDENT.
TH-231	-5.939E-01	4.469E-01	3.282E-01	2.280E-01	NOT IDENT.
TH-232	-1.909E-02	1.158E-01	9.754E-02	5.906E-02	NOT IDENT.
PA-233	-3.554E-02	4.245E-02	3.516E-02	2.166E-02	NOT IDENT.
PA-234	1.296E-02	2.034E-01	1.777E-01	1.038E-01	NOT IDENT.
PA-234M	-1.899E+00	3.462E+00	2.621E+00	1.766E+00	NOT IDENT.
TH-234	2.719E-01	4.362E-01	4.612E-01	2.226E-01	NOT IDENT.
U-235	-8.898E-03	1.127E-01	1.032E-01	5.751E-02	NOT IDENT.
NP-237	-1.073E-03	8.924E-02	8.225E-02	4.553E-02	NOT IDENT.
U-238	2.719E-01	4.362E-01	4.612E-01	2.226E-01	NOT IDENT.
NP-239	6.580E-02	2.154E-01	1.971E-01	1.099E-01	NOT IDENT.
AM-241	-6.879E-02	3.404E-02	2.829E-02	1.737E-02	NOT IDENT.
CM-247	-8.265E-03	2.177E-02	1.925E-02	1.111E-02	NOT IDENT.
CF-249	-1.598E-02	2.376E-02	2.059E-02	1.212E-02	NOT IDENT.

CF-251	-3.445E-02	6.802E-02	6.156E-02	3.470E-02	NOT IDENT.
ANH-511	-3.588E-02	3.489E-02	3.158E-02	1.780E-02	NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	184.9078
49.72	199.7505
57.36	171.3006
59.54	273.4144
63.29	161.4822
63.29	161.4822
64.28	195.3081
67.75	187.5071
69.67	166.1521
70.83	186.7708
72.81	215.3555
72.87	215.3853
72.87	215.3853
74.82	192.7867
74.82	192.7867
74.82	192.7867
74.97	177.8526
77.11	231.4612
77.11	231.4612
77.11	231.4612
79.69	206.7952
79.80	206.8448
80.12	197.2352
80.19	197.2648
80.57	199.5963
81.00	197.6101
81.07	197.6397
81.07	197.6397
83.79	188.9574
83.79	188.9574
85.43	170.9741
86.48	190.0186
86.55	190.0459
86.79	201.1289
86.94	217.6834
87.57	216.8635
88.03	212.6595
88.47	249.2440
89.96	599.5417
91.11	290.4817
92.59	193.4808
92.59	193.4808
93.35	184.8604
94.67	530.3282
94.87	552.8719
94.87	552.8719
95.86	511.4031
97.43	170.6057
98.44	167.5583
99.53	167.9016
100.11	139.8816
103.18	163.3660
103.37	133.9155
105.31	159.4426
106.12	159.6747
109.28	147.9549
111.00	164.5051
111.76	154.3548
116.30	164.8404
117.23	159.2842
121.12	146.5620
121.78	142.3266
122.06	142.3915
123.07	143.5055
131.20	190.8403
133.52	143.1934
136.00	157.2079

136.47	171.7021
140.51	162.7885
140.51	0.0000
143.76	148.1155
144.24	167.3143
144.24	167.3143
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152.43	149.0286
153.25	150.1189
154.21	153.0844
154.21	153.0844
156.02	130.3534
158.56	146.5748
159.00	149.4463
162.66	139.9189
163.33	140.0425
165.86	137.6992
176.60	138.6539
177.52	140.7147
181.07	150.8831
184.41	148.6225
185.72	146.9371
193.51	115.3466
197.04	149.8866
205.31	137.5487
210.85	118.6258
215.65	105.3360
222.11	124.0776
227.38	109.6728
228.16	123.8596
228.18	123.8624
235.69	174.5445
235.96	174.5917
235.96	174.5917
238.63	124.1715
238.63	124.1715
240.99	137.7284
242.00	175.6520
244.70	113.6600
252.40	105.2303
252.80	102.1746
256.23	105.6171
256.23	105.6171
260.90	98.8037
264.66	91.8457
268.22	98.4321
269.46	90.1572
269.46	90.1572
271.23	105.0034
273.65	111.5494
276.40	91.7817
277.37	99.2539
277.60	98.2179
278.00	94.0274
279.20	93.0703
279.54	100.5041
280.46	111.1748
283.69	88.1330
284.31	82.8690
285.41	94.6467
285.90	97.8792
287.50	102.2783
293.27	108.1447
295.22	99.7462
295.96	115.9069
298.57	110.7876
299.98	116.3040
299.98	116.3040
300.09	116.3147
300.09	116.3147
300.13	116.3188
301.36	80.8605
302.85	118.7448
304.50	136.2052
304.50	136.2052
304.85	114.6193
308.46	95.4417
311.90	120.7288

316.51	99.3493
319.41	110.5258
320.08	118.2486
323.87	115.3148
323.87	115.3148
328.76	83.7906
333.37	85.2010
334.37	93.0190
334.37	93.0190
338.28	108.8518
338.28	108.8518
338.32	108.8548
338.32	108.8548
338.32	108.8548
340.48	80.1079
340.55	80.1123
344.28	85.9212
351.06	82.9982
351.93	97.6427
356.01	97.2646
364.49	100.5924
366.42	92.5670
383.85	74.4286
388.16	84.7912
388.63	75.5998
391.69	62.8253
400.66	66.9305
401.81	74.4248
402.40	76.3165
404.85	83.9004
410.95	91.7314
414.70	81.6379
423.72	71.7389
427.09	87.9776
427.87	83.2896
433.94	70.3117
453.88	68.3098
463.37	68.7067
468.07	88.3107
473.00	81.7585
476.78	91.6982
477.60	74.1742
487.02	62.8094
492.35	74.8171
497.08	66.1371
511.00	99.4946
514.00	173.4127
527.90	72.3094
529.87	0.0000
531.02	63.3799
537.26	76.7162
546.56	0.0000
563.25	70.6155
569.33	62.6248
569.50	68.7911
569.70	70.8513
583.19	61.0022
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602.73	80.3932
604.72	88.8308
609.32	57.6090
609.32	57.6090
610.33	61.8290
614.28	78.7482
618.01	49.4372
621.93	67.4469
621.93	67.4469
633.25	48.7391
635.95	43.4974
636.99	53.0713
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657.76	67.5189
661.66	60.1248
661.66	60.1248
664.57	49.4534
666.33	73.1631
666.50	73.1697
677.62	62.7238

685.70	55.3529
695.00	65.3892
696.49	64.3411
696.51	64.3411
697.00	64.3555
702.65	72.1682
706.68	63.5324
711.68	48.3012
720.70	51.4268
721.93	49.6165
722.78	58.8255
722.91	58.8294
723.31	56.9998
724.19	57.0213
727.33	50.6517
733.00	49.8494
735.93	40.6681
739.50	47.2086
747.24	45.5038
752.31	40.9456
753.82	46.5586
756.73	42.8854
763.94	44.8818
765.81	44.9160
766.42	53.3505
777.92	56.4197
778.90	47.0347
783.70	46.1827
785.37	50.9293
795.86	48.3002
801.95	37.0235
810.29	43.8110
810.76	40.0090
815.77	35.3138
818.51	42.0396
832.01	52.8214
834.85	48.0713
836.80	0.0000
846.77	46.3555
856.80	56.2229
860.56	33.0039
871.09	44.8255
873.19	49.7362
875.33	0.0000
879.36	48.8708
880.51	47.9134
883.24	41.1096
884.68	31.3379
889.28	47.0850
898.04	43.2964
911.20	47.4531
911.20	47.4531
911.20	47.4531
926.50	37.7688
937.49	36.9149
944.13	40.9992
946.00	37.0233
949.00	31.0511
962.29	47.2902
964.08	43.2913
966.15	30.2246
968.97	45.3799
968.97	45.3799
968.97	45.3799
983.53	34.4538
996.26	38.6687
1001.03	33.6331
1004.73	52.0407
1037.84	37.1265
1038.76	0.0000
1048.07	40.3505
1050.41	47.6284
1050.41	47.6284
1063.66	38.4679
1085.87	31.4050
1099.45	39.9436
1112.07	28.4886
1115.54	39.0806

1120.29	28.5579
1120.29	28.5579
1120.55	28.5601
1121.30	27.5086
1131.51	0.0000
1173.23	31.1512
1177.93	37.6461
1189.05	29.1335
1204.77	28.7976
1221.41	25.1986
1231.02	33.6872
1235.36	30.9162
1238.28	30.9410
1260.41	0.0000
1271.85	23.6537
1274.44	29.3512
1274.54	29.3512
1291.59	28.5331
1298.22	0.0000
1312.11	23.9066
1332.49	27.8773
1365.19	13.5708
1368.63	0.0000
1384.29	17.5317
1408.01	20.5737
1457.56	0.0000
1460.82	15.8761
1489.16	15.9827
1505.03	23.0602
1596.21	16.3761
1620.50	9.2605
1678.03	0.0000
1690.97	16.7132
1764.49	12.7261
1764.49	12.7261
1770.23	22.2971
1771.35	20.1782
1791.20	0.0000
1836.06	18.8257

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202054952

Total Uranium Activity	8.0487E-01	ug/g
Total Uranium Counting Unc.	1.2989E+00	ug/g
Total Uranium Tpu	6.6268E-07	ug/g
Total Uranium Mda	1.3730E+00	ug/g

THERE ARE NO PEAKS !

VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 23:15:08.24

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKAl00:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054953.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 19:14:41
Sample ID          : G1202054953          Sample quantity  : 1.29190E+02 GRAM
Detector name      : GAM25                Detector geometry: CAN
Elapsed live time  : 0 04:00:00.00        Elapsed real time: 0 04:00:03.79  0.0%
Energy tolerance   : 1.50000 keV          Analyst Initials : MXR1
Abundance limit    : 75.00000             Sensitivity       : 5.00000
Batch ID           : 958220               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	46.53*	377	835	0.92	92.63	88	9	2.62E-02	15.8	
2	0	63.30*	505	1052	0.79	126.15	122	7	3.50E-02	12.2	
3	2	72.75	160	832	0.85	145.05	143	22	1.11E-02	27.4	1.92E+00
4	2	74.82*	1514	791	0.86	149.20	143	22	1.05E-01	3.8	
5	2	77.08*	2399	729	0.90	153.72	143	22	1.67E-01	2.7	
6	5	84.07*	330	1010	1.31	167.70	164	30	2.29E-02	17.4	6.60E+00
7	5	87.19*	904	944	1.27	173.94	164	30	6.28E-02	6.7	
8	5	89.83	614	767	1.13	179.21	164	30	4.26E-02	8.6	
9	5	92.70*	1126	801	1.34	184.95	164	30	7.82E-02	5.9	
10	0	105.31	85	778	0.55	210.17	206	8	5.88E-03	58.1	
11	0	128.86*	104	741	0.94	257.27	254	8	7.20E-03	47.7	
12	0	186.01*	510	716	1.18	371.55	367	10	3.54E-02	11.3	
13	0	209.18*	256	490	1.33	417.90	414	9	1.77E-02	17.2	
14	4	238.64*	2749	379	0.97	476.80	472	16	1.91E-01	2.3	3.49E+00
15	4	241.69*	622	512	1.61	482.91	472	16	4.32E-02	9.1	
16	0	270.18	208	424	1.47	539.88	535	10	1.44E-02	19.8	
17	0	276.63	111	479	0.99	552.78	547	12	7.72E-03	40.5	
18	1	295.16*	1008	211	1.11	589.84	583	28	7.00E-02	4.0	2.75E+00
19	1	300.12	176	261	1.30	599.76	583	28	1.23E-02	17.2	
20	0	328.29	172	387	1.39	656.10	651	12	1.20E-02	24.0	
21	0	338.34	591	342	1.22	676.19	672	11	4.11E-02	7.3	
22	0	351.89*	1480	360	1.13	703.30	697	12	1.03E-01	3.7	
23	0	409.90	119	260	1.63	819.30	815	10	8.26E-03	27.0	
24	0	463.07	212	165	1.24	925.65	921	11	1.47E-02	13.6	
25	0	510.77*	207	262	1.73	1021.04	1014	14	1.44E-02	21.1	
26	0	583.14*	723	193	1.35	1165.77	1160	12	5.02E-02	5.5	
27	0	609.25*	1045	189	1.46	1217.99	1212	12	7.26E-02	4.1	
28	0	727.30	194	146	1.44	1454.10	1448	13	1.34E-02	14.8	
29	0	768.02	74	166	1.04	1535.53	1530	11	5.17E-03	35.4	
30	0	795.22	77	183	2.11	1589.93	1582	14	5.35E-03	39.1	
31	0	860.20	146	105	1.63	1719.89	1712	15	1.01E-02	17.4	
32	0	911.17*	553	108	1.50	1821.82	1816	12	3.84E-02	5.8	
33	0	968.04	363	175	1.74	1935.56	1926	18	2.59E-02	10.0	
34	0	1002.45	57	118	4.37	2004.38	1998	15	3.99E-03	43.6	
35	0	1120.05*	201	88	1.69	2239.59	2233	13	1.40E-02	12.1	
36	0	1238.36	85	200	2.12	2476.21	2469	19	5.87E-03	41.5	
37	0	1460.70*	1857	62	2.06	2920.94	2911	18	1.29E-01	2.6	
38	1	1587.64	51	15	2.24	3174.83	3169	25	3.55E-03	20.0	1.40E+00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	1	1592.26	49	16	2.41	3184.06	3169	25	3.37E-03	24.5	
40	0	1730.03	45	33	1.52	3459.64	3451	17	3.10E-03	33.4	
41	0	1764.38*	165	10	2.28	3528.34	3521	14	1.15E-02	9.4	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 23:15:10

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054953.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 19:14:41
Sample ID         : G1202054953 Sample quantity   : 129.19 GRAM
Sample type       : SOLID Sample geometry      :
Detector name     : GAMMA25 Detector geometry: CAN
Elapsed live time: 0 04:00:00.00 Elapsed real time: 0 04:00:03.79 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	*	2.283E+01	2.268E+00	3.808E-01	3.243E-02	59.962
CD-109	+	88.03	*	3.898E+00	6.701E-01	4.675E-01	5.023E-02	8.338
SN-126	+	64.28		7.811E-01	2.281E-01	1.980E-01	3.155E-02	3.945
	+	86.94		1.569E+00	6.897E-01	1.873E-01	7.835E-02	8.379
	+	87.57	*	3.774E-01	6.489E-02	4.517E-02	4.844E-03	8.355
EU-155	+	86.55		4.588E-01	7.909E-02	5.466E-02	5.872E-03	8.393
	+	105.31	*	6.653E-02	7.767E-02	8.056E-02	9.521E-03	0.826
TL-208	+	277.37		5.151E-01	4.233E-01	3.552E-01	5.105E-02	1.450
	+	583.19	*	4.948E-01	7.822E-02	3.815E-02	4.297E-03	12.969
	+	860.56		9.617E-01	3.490E-01	3.106E-01	3.246E-02	3.096
PB-210	+	46.54	*	1.405E+00	4.656E-01	3.630E-01	3.718E-02	3.871
BI-211	+	72.87		1.945E+00	1.085E+00	1.567E+00	1.582E-01	1.241
	+	351.06	*	4.282E+00	5.523E-01	2.045E-01	2.155E-02	20.936
PB-212	+	74.82		2.207E+00	3.535E-01	1.887E-01	2.654E-02	11.696
	+	77.11		2.112E+00	2.450E-01	1.143E-01	1.172E-02	18.472
	+	238.63	*	1.716E+00	2.107E-01	5.890E-02	6.730E-03	29.127
	+	300.09		1.749E+00	6.416E-01	7.265E-01	9.116E-02	2.408
BI-214	+	609.32	*	1.390E+00	2.040E-01	7.916E-02	9.585E-03	17.562
	+	1120.29		1.403E+00	3.728E-01	3.121E-01	3.403E-02	4.494
	+	1764.49		1.666E+00	3.407E-01	2.455E-01	2.022E-02	6.788
PB-214	+	74.82		3.911E+00	5.866E-01	3.344E-01	4.311E-02	11.696
	+	77.11		3.723E+00	5.299E-01	2.016E-01	2.651E-02	18.472
	+	242.00		2.357E+00	5.153E-01	3.589E-01	4.313E-02	6.567
	+	295.22		1.766E+00	2.674E-01	1.281E-01	1.641E-02	13.789
	+	351.93	*	1.554E+00	2.180E-01	7.442E-02	8.840E-03	20.883
RA-224	+	240.99	*	4.168E+00	8.786E-01	6.322E-01	6.643E-02	6.593
RA-226	+	609.32	*	1.390E+00	2.040E-01	7.916E-02	9.585E-03	17.562
	+	1120.29		1.403E+00	3.728E-01	3.121E-01	3.403E-02	4.494
	+	1764.49		1.666E+00	3.407E-01	2.455E-01	2.022E-02	6.788
AC-228	+	338.32		1.898E+00	8.455E-01	2.395E-01	1.009E-01	7.924
	+	911.20	*	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304
	+	968.97		2.096E+00	6.663E-01	2.876E-01	7.079E-02	7.290
RA-228	+	338.32		1.898E+00	8.455E-01	2.395E-01	1.009E-01	7.924
	+	911.20	*	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	968.97		2.096E+00	6.663E-01	2.876E-01	7.079E-02	7.290
	+	74.82		2.207E+00	2.821E-01	1.887E-01	1.930E-02	11.696
	+	77.11		2.112E+00	2.450E-01	1.143E-01	1.172E-02	18.472
	+	238.63	*	1.716E+00	2.107E-01	5.890E-02	6.730E-03	29.127
	+	300.09		1.749E+00	1.235E+00	7.265E-01	4.475E-01	2.408
TH-229	+	85.43		3.438E-01	1.249E-01	1.126E-01	1.196E-02	3.053
	+	88.47		5.819E-01	1.000E-01	6.993E-02	7.530E-03	8.322
		193.51	*	8.786E-02	3.037E-01	5.008E-01	4.776E-02	0.175
		210.85		8.038E-01	6.021E-01	8.971E-01	8.890E-02	0.896
TH-232	+	338.32		1.898E+00	3.390E-01	2.395E-01	2.496E-02	7.924
	+	911.20	*	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304
	+	968.97		2.096E+00	6.663E-01	2.876E-01	7.079E-02	7.290
TH-234	+	63.29	*	2.027E+00	6.278E-01	5.125E-01	9.729E-02	3.954
	+	92.59		4.183E+00	1.084E+00	4.205E-01	9.719E-02	9.946
U-235	+	89.96		2.756E+00	8.469E-01	4.869E-01	1.241E-01	5.660
	+	93.35		3.159E+00	8.460E-01	3.188E-01	7.683E-02	9.910
		143.76	*	7.661E-02	1.225E-01	1.976E-01	3.629E-02	0.388
		163.33		2.885E-01	2.683E-01	4.277E-01	7.800E-02	0.675
	+	185.72		2.020E-01	4.951E-02	3.929E-02	3.679E-03	5.142
		205.31		1.032E-01	3.254E-01	4.661E-01	8.732E-02	0.221
NP-237	+	86.48	*	1.126E+00	3.054E-01	1.341E-01	3.156E-02	8.396
		95.86		7.837E-03	4.197E-01	6.488E-01	1.623E-01	0.012
U-238	+	63.29	*	2.027E+00	6.278E-01	5.125E-01	9.729E-02	3.954
	+	92.59		4.183E+00	6.717E-01	4.205E-01	4.621E-02	9.946
ANH-511	+	511.00	*	1.073E-01	4.659E-02	3.057E-02	3.146E-03	3.509

---- 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	*	-2.312E-02	2.233E-01	3.617E-01	3.828E-02	-0.064
NA-22		1274.54	*	-1.182E-02	3.363E-02	5.388E-02	4.418E-03	-0.219
NA-24		1368.63	*	-9.202E+01	3.363E-02	Half-Life too short		
SC-46		889.28	*	-1.322E-02	2.996E-02	4.717E-02	4.517E-03	-0.280
	+	1120.55		2.498E-01	6.425E-02	9.610E-02	8.262E-03	2.599
V-48		944.13		-2.661E-01	8.777E-01	1.389E+00	1.303E-01	-0.192
		983.53	*	-1.438E-03	6.711E-02	1.079E-01	1.000E-02	-0.013
		1312.11		5.499E-02	7.395E-02	1.284E-01	1.046E-02	0.428
CR-51		320.08	*	-9.603E-02	2.633E-01	4.367E-01	4.847E-02	-0.220
MN-54		834.85	*	6.368E-03	2.957E-02	4.898E-02	4.971E-03	0.130
CO-56		846.77	*	-7.220E-03	3.145E-02	5.064E-02	5.081E-03	-0.143
		1037.84		-1.165E-01	2.270E-01	3.668E-01	3.478E-02	-0.318
	+	1238.28		1.737E-01	1.450E-01	1.396E-01	1.184E-02	1.244
		1771.35		-1.407E+00	3.302E-01	2.750E-01	2.264E-02	-5.117
CO-57		122.06	*	2.933E-03	1.296E-02	2.201E-02	2.838E-03	0.133
		136.47		8.747E-02	1.100E-01	1.878E-01	2.302E-02	0.466
CO-58		810.76	*	-3.447E-02	2.962E-02	4.435E-02	4.602E-03	-0.777
FE-59		1099.45	*	-3.422E-02	6.998E-02	1.126E-01	1.061E-02	-0.304
		1291.59		3.766E-02	9.838E-02	1.662E-01	1.561E-02	0.227

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-60	1173.23			2.023E-02	3.289E-02	5.656E-02	4.655E-03	0.358
	1332.49	*		-2.032E-02	3.060E-02	4.563E-02	3.706E-03	-0.445
ZN-65	1115.54	*		-3.948E-02	7.350E-02	9.973E-02	8.614E-03	-0.396
SE-75	121.12			4.037E-02	6.890E-02	1.179E-01	1.721E-02	0.342
	136.00			8.937E-03	2.151E-02	3.645E-02	4.325E-03	0.245
	264.66	*		-2.851E-03	3.123E-02	4.707E-02	5.159E-03	-0.061
	279.54			-4.317E-03	7.805E-02	1.095E-01	1.250E-02	-0.039
	400.66			-2.351E-01	1.766E-01	2.701E-01	3.118E-02	-0.870
SR-85	514.00	*		2.968E-02	3.071E-02	4.630E-02	4.777E-03	0.641
Y-88	898.04			-8.492E-03	3.057E-02	4.867E-02	4.629E-03	-0.175
	1836.06	*		1.898E-02	2.670E-02	4.801E-02	3.923E-03	0.395
Y-91	1204.77	*		9.737E+00	1.676E+01	2.868E+01	2.360E+00	0.339
NB-94	702.65	*		3.459E-03	2.405E-02	4.031E-02	4.426E-03	0.086
	871.09			2.329E-03	2.384E-02	3.913E-02	3.828E-03	0.060
NB-95	765.81	*		6.682E-02	3.759E-02	6.024E-02	6.434E-03	1.109
NB-95M	235.69	*		6.872E-02	9.081E-02	1.343E-01	1.542E-02	0.512
ZR-95	724.19			6.413E-02	7.694E-02	1.178E-01	1.353E-02	0.544
	756.73	*		5.792E-02	5.641E-02	9.808E-02	1.125E-02	0.591
MO-99	140.51			4.446E+01	5.770E+01	9.688E+01	2.413E+01	0.459
	181.07			-4.416E+00	5.529E+01	8.084E+01	1.543E+01	-0.055
	366.42			1.069E+02	2.975E+02	5.037E+02	4.937E+01	0.212
	739.50	*		2.377E+01	4.321E+01	7.351E+01	1.255E+01	0.323
	777.92			-1.344E+02	1.208E+02	1.829E+02	1.939E+01	-0.735
TC-99M	140.51	*		4.693E+17	1.208E+02	Half-Life too short		
RU-103	497.08	*		-6.662E-03	2.982E-02	4.776E-02	7.154E-03	-0.139
	610.33			1.602E+01	3.124E+00	2.450E+00	4.326E-01	6.538
RH-106	621.93	*		8.171E-02	2.128E-01	3.648E-01	5.428E-02	0.224
	1050.41			-1.245E+00	1.859E+00	2.968E+00	2.669E-01	-0.419
RU-106	621.93	*		8.171E-02	2.127E-01	3.648E-01	3.995E-02	0.224
	1050.41			-1.245E+00	1.859E+00	2.968E+00	2.669E-01	-0.419
AG-108M	433.94	*		-2.206E-03	1.922E-02	3.140E-02	3.085E-03	-0.070
	614.28			2.120E-02	2.525E-02	3.933E-02	4.383E-03	0.539
	722.91			1.126E-02	2.870E-02	4.268E-02	4.748E-03	0.264
AG-110M	657.76	*		-7.704E-02	2.911E-02	3.971E-02	4.474E-03	-1.940
	677.62			-5.516E-02	2.336E-01	3.697E-01	4.157E-02	-0.149
	706.68			-9.586E-02	1.529E-01	2.445E-01	2.730E-02	-0.392
	763.94			8.002E-02	1.306E-01	1.962E-01	2.136E-02	0.408
	884.68			-6.151E-03	3.491E-02	5.607E-02	5.538E-03	-0.110
	937.49			-9.629E-02	8.694E-02	1.289E-01	1.248E-02	-0.747
	1384.29			-8.498E-02	1.163E-01	1.756E-01	1.481E-02	-0.484
	1505.03			6.262E-03	2.169E-01	3.516E-01	2.915E-02	0.018
SN-113	391.69	*		-5.538E-03	3.004E-02	4.936E-02	4.610E-03	-0.112
CD-115	260.90			-2.208E-04	3.004E-02	Half-Life too short		
	492.35			2.741E-05	3.004E-02	Half-Life too short		
	527.90	*		3.891E-07	3.004E-02	Half-Life too short		
SN-117M	156.02			-1.587E+00	1.779E+00	2.857E+00	2.850E-01	-0.555
	158.56	*		3.530E-02	4.270E-02	7.238E-02	7.027E-03	0.488
TE-123M	159.00	*		7.219E-03	1.681E-02	2.821E-02	2.740E-03	0.256
SB-124	602.73			1.607E-03	3.028E-02	4.672E-02	5.078E-03	0.034

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		645.85		-1.717E-01	3.476E-01	5.646E-01	6.450E-02	-0.304
		722.78		1.325E-01	3.103E-01	4.627E-01	5.119E-02	0.286
		1690.97	*	6.203E-03	5.361E-02	9.047E-02	7.839E-03	0.069
		427.87	*	1.152E-02	6.030E-02	1.001E-01	9.666E-03	0.115
	+	463.37		9.666E-01	2.815E-01	3.863E-01	4.036E-02	2.502
TE-125M		600.60		4.595E-02	1.181E-01	2.030E-01	2.309E-02	0.226
		635.95		-1.153E-01	1.912E-01	3.093E-01	3.575E-02	-0.373
	*	109.28		5.109E+00	5.762E+00	8.818E+00	1.183E+00	0.579
I-126		388.63		5.588E-02	1.498E-01	2.525E-01	2.319E-02	0.221
	*	666.33		-3.575E-01	2.557E-01	3.936E-01	4.357E-02	-0.908
SB-126		753.82		2.045E+00	1.801E+00	3.153E+00	3.391E-01	0.648
		414.70		8.400E-02	7.785E-02	1.204E-01	1.127E-02	0.698
		666.50		-7.146E-02	8.637E-02	1.380E-01	1.527E-02	-0.518
		695.00		-2.704E-02	8.070E-02	1.318E-01	1.451E-02	-0.205
		697.00		-5.933E-02	2.855E-01	4.699E-01	5.169E-02	-0.126
SB-127		720.70	*	6.242E-02	1.602E-01	2.383E-01	2.601E-02	0.262
		856.80		2.953E-02	5.516E-01	7.827E-01	7.774E-02	0.038
		252.40		6.888E-01	8.098E+00	1.299E+01	5.532E+00	0.053
		473.00		-3.503E+00	3.212E+00	4.825E+00	7.440E-01	-0.726
	*	685.70		-1.312E+00	2.939E+00	4.767E+00	7.173E-01	-0.275
I-131		783.70		6.242E+00	7.892E+00	1.350E+01	2.090E+00	0.462
		80.19		-2.510E+00	3.279E+00	4.570E+00	4.783E-01	-0.549
		284.31		4.278E-01	1.545E+00	2.476E+00	2.851E-01	0.173
TE-132		364.49	*	-1.008E-02	1.217E-01	2.022E-01	2.083E-02	-0.050
		636.99		-5.994E-02	1.863E+00	3.120E+00	3.569E-01	-0.019
		49.72		3.548E+00	7.364E+00	1.115E+01	1.512E+00	0.318
		111.76		-4.664E+01	6.928E+01	1.069E+02	1.661E+01	-0.436
		116.30		-2.099E+01	5.419E+01	9.048E+01	1.427E+01	-0.232
BA-133		228.16	*	-3.205E-01	1.681E+00	2.688E+00	4.865E-01	-0.119
		81.00		-4.552E-02	4.033E-02	5.453E-02	9.040E-03	-0.835
	+	276.40		4.766E-01	3.929E-01	3.933E-01	6.200E-02	1.212
		302.85		2.398E-02	7.946E-02	1.360E-01	2.001E-02	0.176
	*	356.01		-1.375E-02	3.014E-02	4.300E-02	5.997E-03	-0.320
I-133		383.85		-5.832E-03	1.968E-01	3.263E-01	4.217E-02	-0.018
	*	529.87		-4.460E-01	1.968E-01	Half-Life	too short	
		875.33		-7.308E-01	1.968E-01	Half-Life	too short	
CS-134		1298.22		-2.474E+01	1.968E-01	Half-Life	too short	
		563.25		2.884E-01	2.662E-01	4.500E-01	4.827E-02	0.641
		569.33		-8.032E-02	1.459E-01	2.188E-01	2.361E-02	-0.367
		604.72		-8.159E-03	2.552E-02	3.658E-02	3.985E-03	-0.223
	+	795.86	*	7.844E-02	6.191E-02	6.824E-02	7.184E-03	1.149
CS-135		801.95		3.115E-02	3.193E-01	4.799E-01	5.024E-02	0.065
		1365.19		-5.909E-01	8.966E-01	1.366E+00	1.173E-01	-0.433
	*	268.22		1.294E-01	1.116E-01	1.664E-01	2.008E-02	0.778
		546.56		-1.964E+16	1.116E-01	Half-Life	too short	
		836.80		1.019E+17	1.116E-01	Half-Life	too short	
I-135		1038.76		-6.345E+16	1.116E-01	Half-Life	too short	
		1131.51		8.821E+15	1.116E-01	Half-Life	too short	
	*	1260.41		-4.358E+15	1.116E-01	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1457.56		4.124E+18	1.116E-01	Half-Life	too short	
		1678.03		-1.831E+16	1.116E-01	Half-Life	too short	
		1791.20		2.600E+16	1.116E-01	Half-Life	too short	
		153.25		3.966E-01	6.700E-01	1.130E+00	1.320E-01	0.351
		176.60		-1.833E-02	3.959E-01	6.500E-01	6.503E-02	-0.028
		273.65		-7.555E-02	5.934E-01	6.470E-01	7.542E-02	-0.117
		340.55		4.170E-01	1.581E-01	2.540E-01	2.708E-02	1.642
		818.51		-1.153E-02	7.101E-02	1.151E-01	1.186E-02	-0.100
BA-137M		1048.07	*	-9.667E-02	1.026E-01	1.598E-01	1.495E-02	-0.605
		1235.36		3.801E-01	7.197E-01	1.061E+00	1.218E-01	0.358
		661.66	*	6.030E-04	3.234E-02	5.409E-02	5.991E-03	0.011
		661.66	*	6.370E-04	3.416E-02	5.714E-02	6.337E-03	0.011
CE-139		165.86	*	-2.137E-02	1.779E-02	2.805E-02	2.501E-03	-0.762
BA-140		162.66		5.808E-01	6.908E-01	1.111E+00	1.090E-01	0.523
		304.85		-5.285E-01	1.271E+00	1.775E+00	5.331E-01	-0.298
		423.72		-1.660E-01	1.841E+00	3.016E+00	9.992E-01	-0.055
		537.26	*	-2.018E-01	2.657E-01	3.935E-01	1.355E-01	-0.513
LA-140	+	328.76		9.579E-01	4.714E-01	5.130E-01	5.642E-02	1.867
		487.02		7.383E-02	1.294E-01	2.167E-01	2.287E-02	0.341
		815.77		2.867E-01	3.088E-01	5.361E-01	5.991E-02	0.535
		1596.21	*	2.723E-02	9.752E-02	1.455E-01	1.210E-02	0.187
CE-141		145.44	*	-1.589E-03	4.059E-02	6.760E-02	7.519E-03	-0.024
CE-143		57.36		-2.185E-03	4.059E-02	Half-Life	too short	
		293.27	*	1.215E-02	4.059E-02	Half-Life	too short	
		664.57		-5.222E-03	4.059E-02	Half-Life	too short	
		721.93		6.691E-03	4.059E-02	Half-Life	too short	
CE-144		80.12		-8.042E-01	1.050E+00	1.464E+00	1.518E-01	-0.549
		133.52	*	-6.941E-02	1.099E-01	1.711E-01	2.983E-02	-0.406
PM-144		476.78		1.754E-03	4.154E-02	6.786E-02	7.228E-03	0.026
		618.01		-2.213E-02	2.222E-02	3.510E-02	3.906E-03	-0.630
		696.49	*	-1.934E-03	2.575E-02	4.270E-02	4.700E-03	-0.045
PR-144		696.51	*	-1.409E-01	1.934E+00	3.207E+00	3.528E-01	-0.044
		1489.16		-1.004E+01	8.303E+00	1.107E+01	9.169E-01	-0.907
PM-146		453.88	*	2.225E-02	2.910E-02	4.926E-02	5.692E-03	0.452
		633.25		6.756E-01	9.860E-01	1.659E+00	6.437E-01	0.407
		735.93		-5.241E-02	1.061E-01	1.688E-01	4.860E-02	-0.310
		747.24		1.499E-04	6.731E-02	1.114E-01	1.778E-02	0.001
ND-147	+	91.11		1.322E+00	2.728E-01	3.438E-01	3.948E-02	3.846
		319.41		-1.981E+00	2.986E+00	4.881E+00	5.245E-01	-0.406
		531.02	*	-2.453E-01	5.511E-01	8.623E-01	1.386E-01	-0.284
		285.90	*	-7.935E-05	5.511E-01	Half-Life	too short	
EU-152		121.78		1.488E-02	3.689E-02	6.290E-02	8.657E-03	0.237
		244.70		-3.311E-02	2.115E-01	2.989E-01	3.162E-02	-0.111
		344.28	*	-3.294E-03	6.822E-02	1.004E-01	1.078E-02	-0.033
		778.90		-7.704E-02	1.745E-01	2.787E-01	2.953E-02	-0.276
		964.08		4.929E-01	2.486E-01	3.978E-01	3.710E-02	1.239
		1085.87		-5.570E-02	2.737E-01	4.506E-01	3.968E-02	-0.124
		1112.07		-1.179E-01	2.409E-01	3.573E-01	3.091E-02	-0.330
		1408.01		1.534E-01	1.347E-01	2.405E-01	1.976E-02	0.638

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153		69.67		-2.625E-02	5.918E-01	8.591E-01	8.589E-02	-0.031
		97.43	*	-5.362E-02	4.448E-02	6.257E-02	7.047E-03	-0.857
		103.18		-9.216E-04	5.577E-02	8.565E-02	9.944E-03	-0.011
EU-154		123.07		-1.772E-02	2.660E-02	4.374E-02	6.473E-03	-0.405
		723.31		3.586E-02	1.318E-01	1.940E-01	2.252E-02	0.185
		873.19		9.870E-02	1.935E-01	3.263E-01	4.158E-02	0.302
		996.26		1.644E-01	2.946E-01	4.307E-01	7.656E-02	0.382
		1004.73		-8.935E-02	2.125E-01	2.435E-01	2.938E-02	-0.367
		1274.44	*	-4.122E-02	9.545E-02	1.519E-01	1.680E-02	-0.271
TB-160	+	86.79		1.289E+00	2.216E-01	2.482E-01	2.651E-02	5.194
		197.04		-1.946E-01	3.536E-01	5.647E-01	5.430E-02	-0.345
		215.65		2.229E-01	4.647E-01	7.653E-01	7.661E-02	0.291
		298.57		1.947E-01	7.534E-02	1.337E-01	1.472E-02	1.456
		879.36	*	-3.863E-02	1.009E-01	1.594E-01	1.545E-02	-0.242
		962.29		1.025E+00	4.687E-01	7.642E-01	7.133E-02	1.341
		966.15		9.487E-01	2.137E-01	3.843E-01	3.582E-02	2.469
		1177.93		-2.490E-01	2.878E-01	4.490E-01	3.696E-02	-0.555
		1271.85		1.545E-01	5.396E-01	9.061E-01	7.423E-02	0.170
HO-166M		80.57		-1.064E-01	1.133E-01	1.565E-01	1.626E-02	-0.680
		184.41		5.680E-02	2.605E-02	4.063E-02	3.793E-03	1.398
		280.46		5.967E-03	5.726E-02	8.109E-02	9.044E-03	0.074
	+	410.95		4.531E-01	2.479E-01	3.116E-01	2.903E-02	1.454
		711.68	*	9.358E-04	4.287E-02	7.132E-02	7.809E-03	0.013
		752.31		-1.015E-01	1.971E-01	3.150E-01	3.390E-02	-0.322
		810.29		-2.945E-02	4.104E-02	6.384E-02	6.615E-03	-0.461
TA-182		67.75		6.042E-03	3.468E-02	5.409E-02	5.381E-03	0.112
		100.11		3.737E-02	8.865E-02	1.456E-01	1.663E-02	0.257
		152.43		-7.874E-02	2.040E-01	3.347E-01	3.459E-02	-0.235
		222.11		-2.253E-02	2.272E-01	3.656E-01	3.708E-02	-0.062
	+	1121.30		6.826E-01	1.756E-01	2.640E-01	2.268E-02	2.585
		1189.05		-1.205E-01	2.374E-01	3.799E-01	3.127E-02	-0.317
		1221.41	*	3.494E-02	1.469E-01	2.461E-01	2.024E-02	0.142
		1231.02		2.314E-02	4.106E-01	5.851E-01	4.809E-02	0.040
IR-192	+	295.96		1.384E+00	1.898E-01	2.207E-01	2.445E-02	6.273
		308.46		1.450E-02	6.419E-02	1.020E-01	1.114E-02	0.142
		316.51	*	3.792E-03	2.209E-02	3.752E-02	4.052E-03	0.101
		468.07		7.861E-02	5.094E-02	8.036E-02	8.412E-03	0.978
HG-203		70.83		3.460E-01	5.010E-01	7.400E-01	1.248E-01	0.468
	+	72.87		5.312E-01	3.043E-01	4.825E-01	7.912E-02	1.101
		279.20	*	3.004E-02	2.902E-02	4.313E-02	4.887E-03	0.696
BI-207	+	72.81		1.119E-01	6.245E-02	1.003E-01	1.012E-02	1.116
	+	74.97		6.362E-01	8.098E-02	9.452E-02	9.609E-03	6.731
		569.70		-1.284E-02	2.252E-02	3.372E-02	3.607E-03	-0.381
		1063.66	*	1.553E-02	3.908E-02	6.698E-02	5.978E-03	0.232
		1770.23		1.298E-01	3.558E-01	5.384E-01	4.433E-02	0.241
PB-211		404.85	*	5.354E-01	6.093E-01	8.480E-01	4.114E-01	0.631
		427.09		1.847E-01	1.022E+00	1.691E+00	7.850E-01	0.109
		832.01		2.543E-01	7.649E-01	1.259E+00	6.563E-01	0.202
BI-212	+	727.33	*	2.056E+00	6.726E-01	8.491E-01	1.199E-01	2.422

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	785.37		1.828E+00	2.350E+00	4.029E+00	4.251E-01	0.454
		1620.50		2.390E+00	1.772E+00	3.326E+00	2.765E-01	0.718
		271.23		5.776E-01	2.397E-01	2.845E-01	3.515E-02	2.030
		401.81	*	1.003E-01	2.737E-01	4.594E-01	6.994E-02	0.218
RA-223	+	81.07		-1.068E-01	9.036E-02	1.232E-01	1.283E-02	-0.867
		83.79		2.046E-01	7.435E-02	9.049E-02	9.535E-03	2.261
		94.87		3.353E-01	2.166E-01	3.465E-01	3.851E-02	0.968
		144.24		5.038E-01	4.098E-01	6.693E-01	7.967E-02	0.753
AC-227	+	154.21		9.229E-02	2.202E-01	3.700E-01	4.020E-02	0.249
		269.46		4.488E-01	1.847E-01	2.229E-01	2.483E-02	2.013
		323.87	*	-1.596E-01	4.477E-01	6.498E-01	1.198E-01	-0.246
		338.28		7.530E+00	1.488E+00	1.686E+00	2.262E-01	4.467
TH-227	+	79.69		-4.165E-01	5.158E-01	7.125E-01	1.294E-01	-0.585
		235.96		1.189E-01	1.040E-01	1.557E-01	1.849E-02	0.764
		256.23	*	-5.667E-02	1.542E-01	2.419E-01	3.310E-02	-0.234
		299.98		1.924E+00	7.189E-01	1.015E+00	1.464E-01	1.895
PA-231	+	304.50		-5.036E-01	1.104E+00	1.548E+00	2.764E-01	-0.325
		334.37		3.349E-02	1.313E+00	1.637E+00	2.733E-01	0.020
		79.80		-5.326E-01	6.849E-01	9.424E-01	2.123E-01	-0.565
		235.96		1.189E-01	1.040E-01	1.557E-01	1.771E-02	0.764
TH-231	+	256.23	*	-5.667E-02	1.543E-01	2.419E-01	3.645E-02	-0.234
		299.98		1.924E+00	7.189E-01	1.015E+00	1.464E-01	1.895
		304.50		-5.036E-01	1.104E+00	1.548E+00	2.764E-01	-0.325
		334.37		3.349E-02	1.313E+00	1.637E+00	2.733E-01	0.020
PA-233	+	283.69	*	4.631E-01	8.687E-01	1.405E+00	2.276E-01	0.330
		301.36		1.236E+00	4.595E-01	6.417E-01	8.933E-02	1.926
		81.07		-1.068E-01	9.036E-02	1.232E-01	1.283E-02	-0.867
		83.79		2.046E-01	7.435E-02	9.049E-02	9.535E-03	2.261
PA-234	+	94.87		3.353E-01	2.166E-01	3.465E-01	3.851E-02	0.968
		144.24		5.038E-01	4.098E-01	6.693E-01	7.967E-02	0.753
		154.21		9.229E-02	2.202E-01	3.700E-01	4.020E-02	0.249
		269.46		4.488E-01	1.847E-01	2.229E-01	2.483E-02	2.013
PA-234M	+	323.87	*	-1.596E-01	4.477E-01	6.498E-01	1.198E-01	-0.246
		338.28		7.530E+00	1.488E+00	1.686E+00	2.262E-01	4.467
		300.13		8.707E-01	3.320E-01	4.570E-01	7.458E-02	1.905
		311.90	*	6.962E-03	3.851E-02	6.549E-02	7.234E-03	0.106
PA-234M	+	340.48		1.439E+00	5.912E-01	7.985E-01	1.977E-01	1.803
		94.67		2.034E-01	8.446E-02	1.324E-01	1.885E-02	1.536
		98.44		6.146E-02	5.759E-02	7.164E-02	4.031E-02	0.858
		111.00		-8.811E-02	9.179E-02	1.501E-01	2.219E-02	-0.587
PA-234M	+	131.20		4.221E-02	6.398E-02	9.454E-02	1.154E-02	0.446
		569.50		-1.118E-01	1.999E-01	2.996E-01	3.204E-02	-0.373
		733.00		1.261E-01	2.932E-01	4.355E-01	1.009E-01	0.290
		880.51		8.136E-02	1.892E-01	3.176E-01	3.074E-02	0.256
PA-234M	+	883.24		-7.465E-02	2.034E-01	3.118E-01	2.100E-01	-0.239
		926.50		1.335E-01	1.298E-01	2.183E-01	5.580E-02	0.611
		946.00	*	1.555E-02	2.260E-01	3.671E-01	7.021E-02	0.042
		949.00		2.984E-01	3.320E-01	5.680E-01	5.322E-02	0.525
PA-234M		766.42		1.883E+01	1.356E+01	1.567E+01	8.010E+00	1.202

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	1001.03	*	6.438E+00	5.649E+00	6.036E+00	6.322E-01	1.067
		99.53		1.184E-01	8.169E-02	1.317E-01	1.500E-02	0.899
		103.37		1.300E-02	4.981E-02	7.726E-02	8.979E-03	0.168
	+	106.12		5.292E-02	6.178E-02	6.944E-02	8.191E-03	0.762
		117.23	*	-2.213E-01	1.947E-01	3.145E-01	3.945E-02	-0.704
AM-241		228.18		-2.597E-02	1.292E-01	2.065E-01	2.119E-02	-0.126
	+	277.60		2.354E-01	1.923E-01	1.910E-01	2.127E-02	1.233
		59.54	*	2.593E-02	3.401E-02	5.123E-02	5.323E-03	0.506
	+	278.00		9.999E-01	8.167E-01	8.121E-01	9.048E-02	1.231
		287.50		6.430E-02	7.620E-01	1.210E+00	1.343E-01	0.053
CF-249		402.40	*	1.710E-02	2.545E-02	4.326E-02	3.987E-03	0.395
		252.80		-6.445E-03	5.864E-01	9.368E-01	1.005E-01	-0.007
		333.37		5.495E-02	1.584E-01	1.770E-01	1.862E-02	0.310
		388.16	*	4.811E-03	2.623E-02	4.387E-02	4.034E-03	0.110
		177.52	*	-4.408E-03	7.494E-02	1.229E-01	1.128E-02	-0.036
CF-251		227.38		4.935E-02	2.111E-01	3.434E-01	3.519E-02	0.144
		285.41		-3.871E-01	1.353E+00	2.110E+00	2.346E-01	-0.183

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]G1202054953      *
* Acquisition date   : 12-MAR-2010 19:14:41 Detector SN#      :              *
* Detector ID        : GAM25                      Sensitivity    : 5.000        *
* Geometry           : CAN                          Energy tolerance: 1.500      *
* Elapsed live time  : 0 04:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 04:00:03.79              Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202054953              Analyst initials: MXR1         *
* Batch Number       : 958220                    Sample Quantity : 1.2919E+02 GRAM *
* Recovery           : 1.00000                  Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope       :
* MSD DPM            : 0.000                      MSD Isotope   :
* LCS DPM            : 0.000                      LCS Isotope   :
* LCSD DPM           : 0.000                      LCSD Isotope  :
*****

```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.283E+01	2.223E+00	3.810E-01	0.000E+00
CD-109	3.898E+00	6.567E-01	4.887E-01	0.000E+00
SN-126	3.774E-01	6.360E-02	4.723E-02	0.000E+00
EU-155	6.653E-02	7.612E-02	8.399E-02	0.000E+00
TL-208	4.948E-01	7.666E-02	3.873E-02	0.000E+00
PB-210	1.405E+00	4.563E-01	3.831E-01	0.000E+00
BI-211	4.282E+00	5.413E-01	2.093E-01	0.000E+00
PB-212	1.716E+00	2.065E-01	6.065E-02	0.000E+00
BI-214	1.390E+00	1.999E-01	8.032E-02	0.000E+00
PB-214	1.554E+00	2.137E-01	7.617E-02	0.000E+00
RA-224	4.168E+00	8.610E-01	6.508E-01	0.000E+00
RA-226	1.390E+00	1.999E-01	8.032E-02	0.000E+00
AC-228	1.854E+00	3.060E-01	1.654E-01	0.000E+00
RA-228	1.854E+00	3.060E-01	1.654E-01	0.000E+00
TH-228	1.716E+00	2.065E-01	6.065E-02	0.000E+00
TH-229	8.786E-02	2.976E-01	5.173E-01	0.000E+00
TH-232	1.854E+00	3.060E-01	1.654E-01	0.000E+00
TH-234	2.027E+00	6.153E-01	5.384E-01	0.000E+00
U-235	7.661E-02	1.200E-01	2.050E-01	0.000E+00
NP-237	1.126E+00	2.993E-01	1.403E-01	0.000E+00
U-238	2.027E+00	6.153E-01	5.384E-01	0.000E+00
ANH-511	1.073E-01	4.566E-02	3.110E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	-2.312E-02	2.188E-01	3.684E-01	0.000E+00 NOT IDENT.
NA-22	-1.182E-02	3.296E-02	5.403E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	5.279E+08	0.000E+00	0.000E+00 SHORT HLIF
SC-46	-1.322E-02	2.937E-02	4.757E-02	0.000E+00 FAIL ABUN
V-48	-1.438E-03	6.577E-02	1.087E-01	0.000E+00 NOT IDENT.

CR-51	-9.603E-02	2.581E-01	4.476E-01	0.000E+00	NOT IDENT.
MN-54	6.368E-03	2.898E-02	4.945E-02	0.000E+00	NOT IDENT.
CO-56	-7.220E-03	3.082E-02	5.111E-02	0.000E+00	FAIL ABUN
CO-57	2.933E-03	1.270E-02	2.289E-02	0.000E+00	NOT IDENT.
CO-58	-3.447E-02	2.903E-02	4.480E-02	0.000E+00	NOT IDENT.
FE-59	-3.422E-02	6.858E-02	1.132E-01	0.000E+00	NOT IDENT.
CO-60	-2.032E-02	2.999E-02	4.571E-02	0.000E+00	NOT IDENT.
ZN-65	-3.948E-02	7.203E-02	1.002E-01	0.000E+00	NOT IDENT.
SE-75	-2.851E-03	3.061E-02	4.838E-02	0.000E+00	NOT IDENT.
SR-85	2.968E-02	3.010E-02	4.711E-02	0.000E+00	NOT IDENT.
Y-88	1.898E-02	2.616E-02	4.785E-02	0.000E+00	NOT IDENT.
Y-91	9.737E+00	1.642E+01	2.878E+01	0.000E+00	NOT IDENT.
NB-94	3.459E-03	2.357E-02	4.081E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	3.684E-02	6.089E-02	0.000E+00	NOT IDENT.
NB-95M	6.872E-02	8.900E-02	1.383E-01	0.000E+00	NOT IDENT.
ZR-95	5.792E-02	5.528E-02	9.917E-02	0.000E+00	NOT IDENT.
MO-99	2.377E+01	4.235E+01	7.436E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.151E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-6.662E-03	2.922E-02	4.862E-02	0.000E+00	FAIL ABUN
RH-106	8.171E-02	2.086E-01	3.700E-01	0.000E+00	NOT IDENT.
RU-106	8.171E-02	2.084E-01	3.700E-01	0.000E+00	NOT IDENT.
AG-108M	-2.206E-03	1.884E-02	3.203E-02	0.000E+00	NOT IDENT.
AG-110M	-7.704E-02	2.853E-02	4.024E-02	0.000E+00	NOT IDENT.
SN-113	-5.538E-03	2.944E-02	5.043E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	5.224E+01	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	3.530E-02	4.185E-02	7.499E-02	0.000E+00	NOT IDENT.
TE-123M	7.219E-03	1.648E-02	2.923E-02	0.000E+00	NOT IDENT.
SB-124	6.203E-03	5.254E-02	9.029E-02	0.000E+00	NOT IDENT.
SB-125	1.152E-02	5.909E-02	1.022E-01	0.000E+00	FAIL ABUN
TE-125M	5.109E+00	5.647E+00	9.188E+00	0.000E+00	NOT IDENT.
I-126	-3.575E-01	2.506E-01	3.988E-01	0.000E+00	NOT IDENT.
SB-126	6.242E-02	1.570E-01	2.411E-01	0.000E+00	NOT IDENT.
SB-127	-1.312E+00	2.881E+00	4.827E+00	0.000E+00	NOT IDENT.
I-131	-1.008E-02	1.193E-01	2.068E-01	0.000E+00	NOT IDENT.
TE-132	-3.205E-01	1.647E+00	2.769E+00	0.000E+00	NOT IDENT.
BA-133	-1.375E-02	2.954E-02	4.400E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	5.817E+05	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.067E-02	6.894E-02	0.000E+00	FAIL ABUN
CS-135	1.294E-01	1.093E-01	1.710E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.198E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.667E-02	1.006E-01	1.607E-01	0.000E+00	NOT IDENT.
BA-137M	6.030E-04	3.169E-02	5.481E-02	0.000E+00	NOT IDENT.
CS-137	6.370E-04	3.348E-02	5.790E-02	0.000E+00	NOT IDENT.
CE-139	-2.137E-02	1.743E-02	2.904E-02	0.000E+00	NOT IDENT.
BA-140	-2.018E-01	2.604E-01	4.001E-01	0.000E+00	NOT IDENT.
LA-140	2.723E-02	9.557E-02	1.454E-01	0.000E+00	FAIL ABUN
CE-141	-1.589E-03	3.978E-02	7.013E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.607E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-6.941E-02	1.077E-01	1.777E-01	0.000E+00	NOT IDENT.
PM-144	-1.934E-03	2.524E-02	4.324E-02	0.000E+00	NOT IDENT.
PR-144	-1.409E-01	1.895E+00	3.247E+00	0.000E+00	NOT IDENT.
PM-146	2.225E-02	2.852E-02	5.021E-02	0.000E+00	NOT IDENT.
ND-147	-2.453E-01	5.401E-01	8.768E-01	0.000E+00	FAIL ABUN
PM-149	0.000E+00	3.923E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-3.294E-03	6.685E-02	1.028E-01	0.000E+00	NOT IDENT.
GD-153	-5.362E-02	4.359E-02	6.531E-02	0.000E+00	NOT IDENT.
EU-154	-4.122E-02	9.354E-02	1.523E-01	0.000E+00	NOT IDENT.
TB-160	-3.863E-02	9.884E-02	1.608E-01	0.000E+00	FAIL ABUN
HO-166M	9.358E-04	4.201E-02	7.218E-02	0.000E+00	FAIL ABUN
TA-182	3.494E-02	1.440E-01	2.469E-01	0.000E+00	FAIL ABUN
IR-192	3.792E-03	2.165E-02	3.846E-02	0.000E+00	FAIL ABUN
HG-203	3.004E-02	2.844E-02	4.430E-02	0.000E+00	FAIL ABUN
BI-207	1.553E-02	3.830E-02	6.736E-02	0.000E+00	FAIL ABUN
PB-211	5.354E-01	5.971E-01	8.660E-01	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.591E-01	8.590E-01	0.000E+00	FAIL ABUN
RN-219	1.003E-01	2.682E-01	4.692E-01	0.000E+00	FAIL ABUN
RA-223	-1.596E-01	4.388E-01	6.659E-01	0.000E+00	FAIL ABUN
AC-227	-5.667E-02	1.511E-01	2.488E-01	0.000E+00	FAIL ABUN
TH-227	-5.667E-02	1.512E-01	2.488E-01	0.000E+00	FAIL ABUN
PA-231	4.631E-01	8.513E-01	1.443E+00	0.000E+00	FAIL ABUN
TH-231	-1.596E-01	4.388E-01	6.659E-01	0.000E+00	FAIL ABUN
PA-233	6.962E-03	3.774E-02	6.716E-02	0.000E+00	FAIL ABUN
PA-234	1.555E-02	2.215E-01	3.699E-01	0.000E+00	NOT IDENT.
PA-234M	0.000E+00	5.536E+00	6.076E+00	0.000E+00	FAIL ABUN
NP-239	-2.213E-01	1.908E-01	3.273E-01	0.000E+00	FAIL ABUN
AM-241	2.593E-02	3.333E-02	5.387E-02	0.000E+00	NOT IDENT.
CM-247	1.710E-02	2.494E-02	4.418E-02	0.000E+00	FAIL ABUN
CF-249	4.811E-03	2.571E-02	4.483E-02	0.000E+00	NOT IDENT.

Unidentified Energy Lines
Sample ID : G1202054953

Page : 4
Acquisition date : 12-MAR-2010 19:14:41

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.86	104	741	0.94	257.27	254	8	7.20E-03	95.4	8.04E+00	
0	209.18	256	490	1.33	417.90	414	9	1.77E-02	34.4	5.90E+00	
0	270.18	208	424	1.47	539.88	535	10	1.44E-02	39.6	4.84E+00	T
0	328.29	172	387	1.39	656.10	651	12	1.20E-02	48.0	4.12E+00	T
0	409.90	119	260	1.63	819.30	815	10	8.26E-03	53.9	3.41E+00	T
0	463.07	212	165	1.24	925.65	921	11	1.47E-02	27.2	3.06E+00	T
0	727.30	194	146	1.44	1454.10	1448	13	1.34E-02	29.5	2.05E+00	T
0	768.02	74	166	1.04	1535.53	1530	11	5.17E-03	70.8	1.95E+00	
0	795.22	77	183	2.11	1589.93	1582	14	5.35E-03	78.2	1.89E+00	T
0	1002.45	57	118	4.37	2004.38	1998	15	3.99E-03	87.1	1.54E+00	T
0	1238.36	85	200	2.12	2476.21	2469	19	5.87E-03	83.1	1.28E+00	T
1	1587.64	51	15	2.24	3174.83	3169	25	3.55E-03	40.1	1.03E+00	
1	1592.26	49	16	2.41	3184.06	3169	25	3.37E-03	49.0	1.03E+00	
0	1730.03	45	33	1.52	3459.64	3451	17	3.10E-03	66.9	9.57E-01	

Flags: "T" = Tentatively associated

Total number of lines in spectrum 41
Number of unidentified lines 6
Number of lines tentatively identified by NID 35 85.37%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.283E+01	2.283E+01	0.227E+01	9.93	
CD-109	461.40D	1.03	3.774E+00	3.898E+00	0.670E+00	17.19	
SN-126	2.30E+05Y	1.00	3.774E-01	3.774E-01	0.649E-01	17.19	
EU-155	4.75Y	1.01	6.597E-02	6.653E-02	7.767E-02	116.75	
TL-208	1.41E+10Y	1.00	4.948E-01	4.948E-01	0.782E-01	15.81	
PB-210	22.20Y	1.00	1.403E+00	1.405E+00	0.466E+00	33.13	
BI-211	7.04E+08Y	1.00	4.282E+00	4.282E+00	0.552E+00	12.90	
PB-212	1.41E+10Y	1.00	1.716E+00	1.716E+00	0.211E+00	12.28	
BI-214	1600.00Y	1.00	1.390E+00	1.390E+00	0.204E+00	14.68	
PB-214	1600.00Y	1.00	1.554E+00	1.554E+00	0.218E+00	14.03	
RA-224	1.41E+10Y	1.00	4.168E+00	4.168E+00	0.879E+00	21.08	
RA-226	1600.00Y	1.00	1.390E+00	1.390E+00	0.204E+00	14.68	
AC-228	1.41E+10Y	1.00	1.854E+00	1.854E+00	0.312E+00	16.84	
RA-228	1.41E+10Y	1.00	1.854E+00	1.854E+00	0.312E+00	16.84	
TH-228	1.41E+10Y	1.00	1.716E+00	1.716E+00	0.211E+00	12.28	
TH-229	7340.00Y	1.00	5.819E-01	5.819E-01	1.000E-01	17.19	K
TH-232	1.41E+10Y	1.00	1.854E+00	1.854E+00	0.312E+00	16.84	
TH-234	4.47E+09Y	1.00	2.027E+00	2.027E+00	0.628E+00	30.98	
U-235	7.04E+08Y	1.00	2.020E-01	2.020E-01	0.495E-01	24.51	K
NP-237	2.14E+06Y	1.00	1.126E+00	1.126E+00	0.305E+00	27.12	
U-238	4.47E+09Y	1.00	2.027E+00	2.027E+00	0.628E+00	30.98	
ANH-511	1.00E+09Y	1.00	1.073E-01	1.073E-01	0.466E-01	43.43	
Total Activity :			5.680E+01	5.692E+01			

Grand Total Activity : 5.680E+01 5.692E+01

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

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

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	591	11.27	4.018E+00	1.898E+00	1.898E+00	44.55
	911.20	553	25.80*	1.678E+00	1.854E+00	1.854E+00	16.84
	968.97	363	15.80	1.590E+00	2.096E+00	2.096E+00	31.78
TH-228	74.82	1514	10.28	9.694E+00	2.207E+00	2.207E+00	12.78
	77.11	2399	17.10	9.652E+00	2.112E+00	2.112E+00	11.60
	238.63	2749	43.60*	5.339E+00	1.716E+00	1.716E+00	12.28
TH-229	300.09	176	3.30	4.442E+00	1.749E+00	1.749E+00	70.58
	85.43	330	14.70	9.490E+00	3.438E-01	3.438E-01	36.34
	88.47	904	24.00	9.405E+00	5.819E-01	5.819E-01	17.19
TH-232	193.51	-----	4.41*	6.239E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.863E+00	-----	Line Not Found	-----
	338.32	591	11.27	4.018E+00	1.898E+00	1.898E+00	17.86
TH-234	911.20	553	25.80*	1.678E+00	1.854E+00	1.854E+00	16.84
	968.97	363	15.80	1.590E+00	2.096E+00	2.096E+00	31.78
	63.29	505	3.70*	9.778E+00	2.027E+00	2.027E+00	30.98
U-235	92.59	1126	4.23	9.242E+00	4.183E+00	4.183E+00	25.91
	89.96	614	3.47	9.329E+00	2.756E+00	2.756E+00	30.73
	93.35	1126	5.60	9.242E+00	3.159E+00	3.159E+00	26.78
NP-237	143.76	-----	10.96*	7.568E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.998E+00	-----	Line Not Found	-----
	185.72	510	57.20	6.415E+00	2.020E-01	2.020E-01	24.51
U-238	205.31	-----	5.01	5.979E+00	-----	Line Not Found	-----
	86.48	904	12.40*	9.405E+00	1.126E+00	1.126E+00	27.12
	95.86	-----	2.68	9.143E+00	-----	Line Not Found	-----
ANH-511	63.29	505	3.70*	9.778E+00	2.027E+00	2.027E+00	30.98
	92.59	1126	4.23	9.242E+00	4.183E+00	4.183E+00	16.06
	511.00	207	100.00*	2.808E+00	1.073E-01	1.073E-01	43.43

Flag: "*" = Keyline

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054953.CNF;1
Sample date        : 19-FEB-2010 12:00:00 Acquisition date : 12-MAR-2010 19:14:41
Sample ID          : G1202054953 Sample quantity       : 1.29190E+02 GRAM
Detector name      : GAM25 Detector geometry: CAN
Elapsed live time  : 0 04:00:00.00 Elapsed real time: 0 04:00:03.79 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity          : 5.00000
Batch ID           : 958220 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	1857	10.66*	1.108E+00	2.283E+01	2.283E+01	9.93
CD-109	88.03	904	3.70*	9.405E+00	3.774E+00	3.898E+00	17.19
SN-126	64.28	505	9.60	9.778E+00	7.811E-01	7.811E-01	29.21
	86.94	904	8.90	9.405E+00	1.569E+00	1.569E+00	43.95
	87.57	904	37.00*	9.405E+00	3.774E-01	3.774E-01	17.19
EU-155	86.55	904	30.70	9.405E+00	4.549E-01	4.588E-01	17.24
	105.31	85	21.10*	8.833E+00	6.597E-02	6.653E-02	116.75
TL-208	277.37	111	6.60	4.748E+00	5.151E-01	5.151E-01	82.19
	583.19	723	85.00*	2.497E+00	4.948E-01	4.948E-01	15.81
	860.56	146	12.50	1.766E+00	9.617E-01	9.617E-01	36.30
PB-210	46.54	377	4.25*	9.190E+00	1.403E+00	1.405E+00	33.13
BI-211	72.87	160	1.23	9.726E+00	1.945E+00	1.945E+00	55.80
	351.06	1480	12.92*	3.886E+00	4.282E+00	4.282E+00	12.90
PB-212	74.82	1514	10.28	9.694E+00	2.207E+00	2.207E+00	16.02
	77.11	2399	17.10	9.652E+00	2.112E+00	2.112E+00	11.60
	238.63	2749	43.60*	5.339E+00	1.716E+00	1.716E+00	12.28
	300.09	176	3.30	4.442E+00	1.749E+00	1.749E+00	36.68
BI-214	609.32	1045	45.49*	2.401E+00	1.390E+00	1.390E+00	14.68
	1120.29	201	14.92	1.398E+00	1.403E+00	1.403E+00	26.58
	1764.49	165	15.30	9.413E-01	1.666E+00	1.666E+00	20.45
PB-214	74.82	1514	5.80	9.694E+00	3.911E+00	3.911E+00	15.00
	77.11	2399	9.70	9.652E+00	3.723E+00	3.723E+00	14.23
	242.00	622	7.25	5.286E+00	2.357E+00	2.357E+00	21.86
	295.22	1008	18.42	4.503E+00	1.766E+00	1.766E+00	15.14
	351.93	1480	35.60*	3.886E+00	1.554E+00	1.554E+00	14.03
RA-224	240.99	622	4.10*	5.286E+00	4.168E+00	4.168E+00	21.08
RA-226	609.32	1045	45.49*	2.401E+00	1.390E+00	1.390E+00	14.68
	1120.29	201	14.92	1.398E+00	1.403E+00	1.403E+00	26.58
	1764.49	165	15.30	9.413E-01	1.666E+00	1.666E+00	20.45
AC-228	338.32	591	11.27	4.018E+00	1.898E+00	1.898E+00	44.55
	911.20	553	25.80*	1.678E+00	1.854E+00	1.854E+00	16.84
	968.97	363	15.80	1.590E+00	2.096E+00	2.096E+00	31.78

CF-251	-4.408E-03	7.344E-02	1.272E-01	0.000E+00 NOT IDENT.
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---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	2.020E-01	4.951E-02	1.976E-01	3.629E-02	1.023
NP-237	1.126E+00	3.054E-01	1.341E-01	3.156E-02	8.396
U-238	2.027E+00	6.278E-01	5.125E-01	9.729E-02	3.954
ANH-511	1.073E-01	4.659E-02	3.057E-02	3.146E-03	3.509

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.312E-02		2.233E-01	3.617E-01	3.828E-02	-0.064
NA-22	-1.182E-02		3.363E-02	5.388E-02	4.418E-03	-0.219
NA-24	-9.202E+01		2.694E+02	Half-Life too short		
SC-46	-1.322E-02		2.996E-02	4.717E-02	4.517E-03	-0.280
V-48	-1.438E-03		6.711E-02	1.079E-01	1.000E-02	-0.013
CR-51	-9.603E-02		2.633E-01	4.367E-01	4.847E-02	-0.220
MN-54	6.368E-03		2.957E-02	4.898E-02	4.971E-03	0.130
CO-56	-7.220E-03		3.145E-02	5.064E-02	5.081E-03	-0.143
CO-57	2.933E-03		1.296E-02	2.201E-02	2.838E-03	0.133
CO-58	-3.447E-02		2.962E-02	4.435E-02	4.602E-03	-0.777
FE-59	-3.422E-02		6.998E-02	1.126E-01	1.061E-02	-0.304
CO-60	-2.032E-02		3.060E-02	4.563E-02	3.706E-03	-0.445
ZN-65	-3.948E-02		7.350E-02	9.973E-02	8.614E-03	-0.396
SE-75	-2.851E-03		3.123E-02	4.707E-02	5.159E-03	-0.061
SR-85	2.968E-02		3.071E-02	4.630E-02	4.777E-03	0.641
Y-88	1.898E-02		2.670E-02	4.801E-02	3.923E-03	0.395
Y-91	9.737E+00		1.676E+01	2.868E+01	2.360E+00	0.339
NB-94	3.459E-03		2.405E-02	4.031E-02	4.426E-03	0.086
NB-95	6.682E-02		3.759E-02	6.024E-02	6.434E-03	1.109
NB-95M	6.872E-02		9.081E-02	1.343E-01	1.542E-02	0.512
ZR-95	5.792E-02		5.641E-02	9.808E-02	1.125E-02	0.591
MO-99	2.377E+01		4.321E+01	7.351E+01	1.255E+01	0.323
TC-99M	4.693E+17		3.138E+17	Half-Life too short		
RU-103	-6.662E-03		2.982E-02	4.776E-02	7.154E-03	-0.139
RH-106	8.171E-02		2.128E-01	3.648E-01	5.428E-02	0.224
RU-106	8.171E-02		2.127E-01	3.648E-01	3.995E-02	0.224
AG-108M	-2.206E-03		1.922E-02	3.140E-02	3.085E-03	-0.070
AG-110M	-7.704E-02		2.911E-02	3.971E-02	4.474E-03	-1.940
SN-113	-5.538E-03		3.004E-02	4.936E-02	4.610E-03	-0.112
CD-115	3.891E-07		2.665E-05	Half-Life too short		
SN-117M	3.530E-02		4.270E-02	7.238E-02	7.027E-03	0.488
TE-123M	7.219E-03		1.681E-02	2.821E-02	2.740E-03	0.256
SB-124	6.203E-03		5.361E-02	9.047E-02	7.839E-03	0.069
SB-125	1.152E-02		6.030E-02	1.001E-01	9.666E-03	0.115
TE-125M	5.109E+00		5.762E+00	8.818E+00	1.183E+00	0.579
I-126	-3.575E-01		2.557E-01	3.936E-01	4.357E-02	-0.908
SB-126	6.242E-02		1.602E-01	2.383E-01	2.601E-02	0.262
SB-127	-1.312E+00		2.939E+00	4.767E+00	7.173E-01	-0.275
I-131	-1.008E-02		1.217E-01	2.022E-01	2.083E-02	-0.050

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054953.CNF;1 *
* Acquisition date   : 12-MAR-2010 19:14:41  Detector SN#      :             *
* Detector ID        : GAM25                  Sensitivity       : 5.00000      *
* Geometry           : CAN                    Energy tolerance   : 1.50000      *
* Elapsed live time  : 0 04:00:00.00          Abundance limit    : 75.00000      *
* Elapsed real time  : 0 04:00:03.79          Half life ratio   : 8.00000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00  Nuclide Library   : SOLID        *
* Sample ID          : G1202054953          Analyst initials: MXR1          *
* Batch Number       : 958220               Sample Quantity  : 1.29190E+02 GRAM   *
*****
*
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43.34MS Isotope       :             *
* MSD ID             :                      MSD Isotope       :             *
* LCS ID             : 1032-A               LCS Isotope       :             *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.283E+01	2.268E+00	3.808E-01	3.243E-02	59.962
CD-109	3.898E+00	6.701E-01	4.675E-01	5.023E-02	8.338
SN-126	3.774E-01	6.489E-02	4.517E-02	4.844E-03	8.355
EU-155	6.653E-02	7.767E-02	8.056E-02	9.521E-03	0.826
TL-208	4.948E-01	7.822E-02	3.815E-02	4.297E-03	12.969
PB-210	1.405E+00	4.656E-01	3.630E-01	3.718E-02	3.871
BI-211	4.282E+00	5.523E-01	2.045E-01	2.155E-02	20.936
PB-212	1.716E+00	2.107E-01	5.890E-02	6.730E-03	29.127
BI-214	1.390E+00	2.040E-01	7.916E-02	9.585E-03	17.562
PB-214	1.554E+00	2.180E-01	7.442E-02	8.840E-03	20.883
RA-224	4.168E+00	8.786E-01	6.322E-01	6.643E-02	6.593
RA-226	1.390E+00	2.040E-01	7.916E-02	9.585E-03	17.562
AC-228	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304
RA-228	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304
TH-228	1.716E+00	2.107E-01	5.890E-02	6.730E-03	29.127
TH-229	5.819E-01	1.000E-01	5.008E-01	4.776E-02	1.162
TH-232	1.854E+00	3.122E-01	1.640E-01	2.005E-02	11.304
TH-234	2.027E+00	6.278E-01	5.125E-01	9.729E-02	3.954

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	2.020E-01	4.951E-02	1.976E-01	3.629E-02	1.023
NP-237	1.126E+00	3.054E-01	1.341E-01	3.156E-02	8.396
U-238	2.027E+00	6.278E-01	5.125E-01	9.729E-02	3.954
ANH-511	1.073E-01	4.659E-02	3.057E-02	3.146E-03	3.509

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.312E-02		2.233E-01	3.617E-01	3.828E-02	-0.064
NA-22	-1.182E-02		3.363E-02	5.388E-02	4.418E-03	-0.219
NA-24	-9.202E+01		2.694E+02	Half-Life	too short	
SC-46	-1.322E-02		2.996E-02	4.717E-02	4.517E-03	-0.280
V-48	-1.438E-03		6.711E-02	1.079E-01	1.000E-02	-0.013
CR-51	-9.603E-02		2.633E-01	4.367E-01	4.847E-02	-0.220
MN-54	6.368E-03		2.957E-02	4.898E-02	4.971E-03	0.130
CO-56	-7.220E-03		3.145E-02	5.064E-02	5.081E-03	-0.143
CO-57	2.933E-03		1.296E-02	2.201E-02	2.838E-03	0.133
CO-58	-3.447E-02		2.962E-02	4.435E-02	4.602E-03	-0.777
FE-59	-3.422E-02		6.998E-02	1.126E-01	1.061E-02	-0.304
CO-60	-2.032E-02		3.060E-02	4.563E-02	3.706E-03	-0.445
ZN-65	-3.948E-02		7.350E-02	9.973E-02	8.614E-03	-0.396
SE-75	-2.851E-03		3.123E-02	4.707E-02	5.159E-03	-0.061
SR-85	2.968E-02		3.071E-02	4.630E-02	4.777E-03	0.641
Y-88	1.898E-02		2.670E-02	4.801E-02	3.923E-03	0.395
Y-91	9.737E+00		1.676E+01	2.868E+01	2.360E+00	0.339
NB-94	3.459E-03		2.405E-02	4.031E-02	4.426E-03	0.086
NB-95	6.682E-02		3.759E-02	6.024E-02	6.434E-03	1.109
NB-95M	6.872E-02		9.081E-02	1.343E-01	1.542E-02	0.512
ZR-95	5.792E-02		5.641E-02	9.808E-02	1.125E-02	0.591
MO-99	2.377E+01		4.321E+01	7.351E+01	1.255E+01	0.323
TC-99M	4.693E+17		3.138E+17	Half-Life	too short	
RU-103	-6.662E-03		2.982E-02	4.776E-02	7.154E-03	-0.139
RH-106	8.171E-02		2.128E-01	3.648E-01	5.428E-02	0.224
RU-106	8.171E-02		2.127E-01	3.648E-01	3.995E-02	0.224
AG-108M	-2.206E-03		1.922E-02	3.140E-02	3.085E-03	-0.070
AG-110M	-7.704E-02		2.911E-02	3.971E-02	4.474E-03	-1.940
SN-113	-5.538E-03		3.004E-02	4.936E-02	4.610E-03	-0.112
CD-115	3.891E-07		2.665E-05	Half-Life	too short	
SN-117M	3.530E-02		4.270E-02	7.238E-02	7.027E-03	0.488
TE-123M	7.219E-03		1.681E-02	2.821E-02	2.740E-03	0.256
SB-124	6.203E-03		5.361E-02	9.047E-02	7.839E-03	0.069
SB-125	1.152E-02		6.030E-02	1.001E-01	9.666E-03	0.115
TE-125M	5.109E+00		5.762E+00	8.818E+00	1.183E+00	0.579
I-126	-3.575E-01		2.557E-01	3.936E-01	4.357E-02	-0.908
SB-126	6.242E-02		1.602E-01	2.383E-01	2.601E-02	0.262
SB-127	-1.312E+00		2.939E+00	4.767E+00	7.173E-01	-0.275
I-131	-1.008E-02		1.217E-01	2.022E-01	2.083E-02	-0.050

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-132	-3.205E-01		1.681E+00	2.688E+00	4.865E-01	-0.119
BA-133	-1.375E-02		3.014E-02	4.300E-02	5.997E-03	-0.320
I-133	-4.460E-01		2.968E-01	Half-Life	too short	
CS-134	7.844E-02	+	6.191E-02	6.824E-02	7.184E-03	1.149
CS-135	1.294E-01		1.116E-01	1.664E-01	2.008E-02	0.778
I-135	-4.358E+15		1.632E+16	Half-Life	too short	
CS-136	-9.667E-02		1.026E-01	1.598E-01	1.495E-02	-0.605
BA-137M	6.030E-04		3.234E-02	5.409E-02	5.991E-03	0.011
CS-137	6.370E-04		3.416E-02	5.714E-02	6.337E-03	0.011
CE-139	-2.137E-02		1.779E-02	2.805E-02	2.501E-03	-0.762
BA-140	-2.018E-01		2.657E-01	3.935E-01	1.355E-01	-0.513
LA-140	2.723E-02		9.752E-02	1.455E-01	1.210E-02	0.187
CE-141	-1.589E-03		4.059E-02	6.760E-02	7.519E-03	-0.024
CE-143	1.215E-02		1.840E-03	Half-Life	too short	
CE-144	-6.941E-02		1.099E-01	1.711E-01	2.983E-02	-0.406
PM-144	-1.934E-03		2.575E-02	4.270E-02	4.700E-03	-0.045
PR-144	-1.409E-01		1.934E+00	3.207E+00	3.528E-01	-0.044
PM-146	2.225E-02		2.910E-02	4.926E-02	5.692E-03	0.452
ND-147	-2.453E-01		5.511E-01	8.623E-01	1.386E-01	-0.284
PM-149	-7.935E-05		2.001E-04	Half-Life	too short	
EU-152	-3.294E-03		6.822E-02	1.004E-01	1.078E-02	-0.033
GD-153	-5.362E-02		4.448E-02	6.257E-02	7.047E-03	-0.857
EU-154	-4.122E-02		9.545E-02	1.519E-01	1.680E-02	-0.271
TB-160	-3.863E-02		1.009E-01	1.594E-01	1.545E-02	-0.242
HO-166M	9.358E-04		4.287E-02	7.132E-02	7.809E-03	0.013
TA-182	3.494E-02		1.469E-01	2.461E-01	2.024E-02	0.142
IR-192	3.792E-03		2.209E-02	3.752E-02	4.052E-03	0.101
HG-203	3.004E-02		2.902E-02	4.313E-02	4.887E-03	0.696
BI-207	1.553E-02		3.908E-02	6.698E-02	5.978E-03	0.232
PB-211	5.354E-01		6.093E-01	8.480E-01	4.114E-01	0.631
BI-212	2.056E+00	+	6.726E-01	8.491E-01	1.199E-01	2.422
RN-219	1.003E-01		2.737E-01	4.594E-01	6.994E-02	0.218
RA-223	-1.596E-01		4.477E-01	6.498E-01	1.198E-01	-0.246
AC-227	-5.667E-02		1.542E-01	2.419E-01	3.310E-02	-0.234
TH-227	-5.667E-02		1.543E-01	2.419E-01	3.645E-02	-0.234
PA-231	4.631E-01		8.687E-01	1.405E+00	2.276E-01	0.330
TH-231	-1.596E-01		4.477E-01	6.498E-01	1.198E-01	-0.246
PA-233	6.962E-03		3.851E-02	6.549E-02	7.234E-03	0.106
PA-234	1.555E-02		2.260E-01	3.671E-01	7.021E-02	0.042
PA-234M	6.438E+00	+	5.649E+00	6.036E+00	6.322E-01	1.067
NP-239	-2.213E-01		1.947E-01	3.145E-01	3.945E-02	-0.704
AM-241	2.593E-02		3.401E-02	5.123E-02	5.323E-03	0.506
CM-247	1.710E-02		2.545E-02	4.326E-02	3.987E-03	0.395
CF-249	4.811E-03		2.623E-02	4.387E-02	4.034E-03	0.110
CF-251	-4.408E-03		7.494E-02	1.229E-01	1.128E-02	-0.036

VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202054953          *
* Acquisition date   : 12-MAR-2010 19:14:41 Detector SN#      :              *
* Detector ID        : GAM25 Sensitivity      : 5.000              *
* Geometry           : CAN Energy tolerance: 1.500              *
* Elapsed live time  : 0 04:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 04:00:03.79 Half life ratio : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 19-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202054953 Analyst initials: MXR1          *
* Batch Number       : 958220 Sample Quantity : 1.2919E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000            *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope           :          *
* MSD DPM             : 0.000 MSD Isotope                       :          *
* LCS DPM             : 0.000 LCS Isotope                       :          *
* LCSD DPM            : 0.000 LCSD Isotope                     :          *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.283E+01	2.223E+00	1.906E-01	1.134E+00
CD-109	3.898E+00	6.567E-01	2.445E-01	3.351E-01
SN-126	3.774E-01	6.360E-02	2.363E-02	3.245E-02
EU-155	6.653E-02	7.612E-02	4.202E-02	3.884E-02
TL-208	4.948E-01	7.666E-02	1.938E-02	3.911E-02
PB-210	1.405E+00	4.563E-01	1.917E-01	2.328E-01
BI-211	4.282E+00	5.413E-01	1.047E-01	2.762E-01
PB-212	1.716E+00	2.065E-01	3.034E-02	1.054E-01
BI-214	1.390E+00	1.999E-01	4.018E-02	1.020E-01
PB-214	1.554E+00	2.137E-01	3.811E-02	1.090E-01
RA-224	4.168E+00	8.610E-01	3.256E-01	4.393E-01
RA-226	1.390E+00	1.999E-01	4.018E-02	1.020E-01
AC-228	1.854E+00	3.060E-01	8.273E-02	1.561E-01
RA-228	1.854E+00	3.060E-01	8.273E-02	1.561E-01
TH-228	1.716E+00	2.065E-01	3.034E-02	1.054E-01
TH-229	8.786E-02	2.976E-01	2.588E-01	1.518E-01
TH-232	1.854E+00	3.060E-01	8.273E-02	1.561E-01
TH-234	2.027E+00	6.153E-01	2.694E-01	3.139E-01
U-235	7.661E-02	1.200E-01	1.026E-01	6.124E-02
NP-237	1.126E+00	2.993E-01	7.017E-02	1.527E-01
U-238	2.027E+00	6.153E-01	2.694E-01	3.139E-01
ANH-511	1.073E-01	4.566E-02	1.556E-02	2.329E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-2.312E-02	2.188E-01	1.843E-01	1.117E-01 NOT IDENT.
NA-22	-1.182E-02	3.296E-02	2.703E-02	1.682E-02 NOT IDENT.
NA-24	-9.202E+07	5.279E+08	0.000E+00	2.694E+08 SHORT HLIF
SC-46	-1.322E-02	2.937E-02	2.380E-02	1.498E-02 FAIL ABUN
V-48	-1.438E-03	6.577E-02	5.436E-02	3.356E-02 NOT IDENT.

CR-51	-9.603E-02	2.581E-01	2.239E-01	1.317E-01	NOT IDENT.
MN-54	6.368E-03	2.898E-02	2.474E-02	1.478E-02	NOT IDENT.
CO-56	-7.220E-03	3.082E-02	2.557E-02	1.573E-02	FAIL ABUN
CO-57	2.933E-03	1.270E-02	1.145E-02	6.481E-03	NOT IDENT.
CO-58	-3.447E-02	2.903E-02	2.241E-02	1.481E-02	NOT IDENT.
FE-59	-3.422E-02	6.858E-02	5.664E-02	3.499E-02	NOT IDENT.
CO-60	-2.032E-02	2.999E-02	2.287E-02	1.530E-02	NOT IDENT.
ZN-65	-3.948E-02	7.203E-02	5.014E-02	3.675E-02	NOT IDENT.
SE-75	-2.851E-03	3.061E-02	2.421E-02	1.562E-02	NOT IDENT.
SR-85	2.968E-02	3.010E-02	2.357E-02	1.536E-02	NOT IDENT.
Y-88	1.898E-02	2.616E-02	2.394E-02	1.335E-02	NOT IDENT.
Y-91	9.737E+00	1.642E+01	1.440E+01	8.378E+00	NOT IDENT.
NB-94	3.459E-03	2.357E-02	2.042E-02	1.202E-02	NOT IDENT.
NB-95	6.682E-02	3.684E-02	3.046E-02	1.879E-02	NOT IDENT.
NB-95M	6.872E-02	8.900E-02	6.921E-02	4.541E-02	NOT IDENT.
ZR-95	5.792E-02	5.528E-02	4.961E-02	2.820E-02	NOT IDENT.
MO-99	2.377E+01	4.235E+01	3.720E+01	2.161E+01	NOT IDENT.
TC-99M	4.693E+23	6.151E+23	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-6.662E-03	2.922E-02	2.432E-02	1.491E-02	FAIL ABUN
RH-106	8.171E-02	2.086E-01	1.851E-01	1.064E-01	NOT IDENT.
RU-106	8.171E-02	2.084E-01	1.851E-01	1.063E-01	NOT IDENT.
AG-108M	-2.206E-03	1.884E-02	1.602E-02	9.612E-03	NOT IDENT.
AG-110M	-7.704E-02	2.853E-02	2.013E-02	1.456E-02	NOT IDENT.
SN-113	-5.538E-03	2.944E-02	2.523E-02	1.502E-02	NOT IDENT.
CD-115	3.891E-01	5.224E+01	0.000E+00	2.665E+01	SHORT HLIF
SN-117M	3.530E-02	4.185E-02	3.752E-02	2.135E-02	NOT IDENT.
TE-123M	7.219E-03	1.648E-02	1.462E-02	8.407E-03	NOT IDENT.
SB-124	6.203E-03	5.254E-02	4.517E-02	2.680E-02	NOT IDENT.
SB-125	1.152E-02	5.909E-02	5.111E-02	3.015E-02	FAIL ABUN
TE-125M	5.109E+00	5.647E+00	4.597E+00	2.881E+00	NOT IDENT.
I-126	-3.575E-01	2.506E-01	1.995E-01	1.279E-01	NOT IDENT.
SB-126	6.242E-02	1.570E-01	1.206E-01	8.011E-02	NOT IDENT.
SB-127	-1.312E+00	2.881E+00	2.415E+00	1.470E+00	NOT IDENT.
I-131	-1.008E-02	1.193E-01	1.035E-01	6.085E-02	NOT IDENT.
TE-132	-3.205E-01	1.647E+00	1.386E+00	8.405E-01	NOT IDENT.
BA-133	-1.375E-02	2.954E-02	2.201E-02	1.507E-02	FAIL ABUN
I-133	-4.460E+05	5.817E+05	0.000E+00	2.968E+05	SHORT HLIF
CS-134	7.844E-02	6.067E-02	3.449E-02	3.095E-02	FAIL ABUN
CS-135	1.294E-01	1.093E-01	8.554E-02	5.578E-02	NOT IDENT.
I-135	-4.358E+21	3.198E+22	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.667E-02	1.006E-01	8.041E-02	5.131E-02	NOT IDENT.
BA-137M	6.030E-04	3.169E-02	2.742E-02	1.617E-02	NOT IDENT.
CS-137	6.370E-04	3.348E-02	2.897E-02	1.708E-02	NOT IDENT.
CE-139	-2.137E-02	1.743E-02	1.453E-02	8.893E-03	NOT IDENT.
BA-140	-2.018E-01	2.604E-01	2.002E-01	1.329E-01	NOT IDENT.
LA-140	2.723E-02	9.557E-02	7.274E-02	4.876E-02	FAIL ABUN
CE-141	-1.589E-03	3.978E-02	3.509E-02	2.029E-02	NOT IDENT.
CE-143	1.215E+04	3.607E+03	0.000E+00	1.840E+03	SHORT HLIF
CE-144	-6.941E-02	1.077E-01	8.892E-02	5.497E-02	NOT IDENT.
PM-144	-1.934E-03	2.524E-02	2.163E-02	1.288E-02	NOT IDENT.
PR-144	-1.409E-01	1.895E+00	1.625E+00	9.670E-01	NOT IDENT.
PM-146	2.225E-02	2.852E-02	2.512E-02	1.455E-02	NOT IDENT.
ND-147	-2.453E-01	5.401E-01	4.387E-01	2.756E-01	FAIL ABUN
PM-149	-7.935E+01	3.923E+02	0.000E+00	2.001E+02	SHORT HLIF
EU-152	-3.294E-03	6.685E-02	5.142E-02	3.411E-02	NOT IDENT.
GD-153	-5.362E-02	4.359E-02	3.268E-02	2.224E-02	NOT IDENT.
EU-154	-4.122E-02	9.354E-02	7.621E-02	4.772E-02	NOT IDENT.
TB-160	-3.863E-02	9.884E-02	8.044E-02	5.043E-02	FAIL ABUN
HO-166M	9.358E-04	4.201E-02	3.611E-02	2.144E-02	FAIL ABUN
TA-182	3.494E-02	1.440E-01	1.235E-01	7.345E-02	FAIL ABUN
IR-192	3.792E-03	2.165E-02	1.924E-02	1.105E-02	FAIL ABUN
HG-203	3.004E-02	2.844E-02	2.216E-02	1.451E-02	FAIL ABUN
BI-207	1.553E-02	3.830E-02	3.370E-02	1.954E-02	FAIL ABUN
PB-211	5.354E-01	5.971E-01	4.333E-01	3.047E-01	NOT IDENT.
BI-212	2.056E+00	6.591E-01	4.298E-01	3.363E-01	FAIL ABUN
RN-219	1.003E-01	2.682E-01	2.348E-01	1.368E-01	FAIL ABUN
RA-223	-1.596E-01	4.388E-01	3.332E-01	2.239E-01	FAIL ABUN
AC-227	-5.667E-02	1.511E-01	1.245E-01	7.711E-02	FAIL ABUN
TH-227	-5.667E-02	1.512E-01	1.245E-01	7.713E-02	FAIL ABUN
PA-231	4.631E-01	8.513E-01	7.220E-01	4.343E-01	FAIL ABUN
TH-231	-1.596E-01	4.388E-01	3.332E-01	2.239E-01	FAIL ABUN
PA-233	6.962E-03	3.774E-02	3.360E-02	1.925E-02	FAIL ABUN
PA-234	1.555E-02	2.215E-01	1.851E-01	1.130E-01	NOT IDENT.
PA-234M	6.438E+00	5.536E+00	3.040E+00	2.825E+00	FAIL ABUN
NP-239	-2.213E-01	1.908E-01	1.638E-01	9.735E-02	FAIL ABUN
AM-241	2.593E-02	3.333E-02	2.695E-02	1.701E-02	NOT IDENT.
CM-247	1.710E-02	2.494E-02	2.210E-02	1.272E-02	FAIL ABUN
CF-249	4.811E-03	2.571E-02	2.243E-02	1.312E-02	NOT IDENT.

CF-251	-4.408E-03	7.344E-02	6.362E-02	3.747E-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	439.0136
49.72	479.9273
57.36	0.0000
59.54	640.7584
63.29	753.3777
63.29	753.3777
64.28	757.6432
67.75	771.3517
69.67	801.8219
70.83	759.6667
72.81	769.4547
72.87	769.6089
72.87	769.6089
74.82	774.5634
74.82	774.5634
74.82	774.5634
74.97	774.9415
77.11	780.3038
77.11	780.3038
77.11	780.3038
79.69	786.6660
79.80	786.9346
80.12	787.7156
80.19	787.8848
80.57	788.8100
81.00	789.8546
81.07	790.0237
81.07	790.0237
83.79	534.3013
83.79	534.3013
85.43	536.9138
86.48	538.5721
86.55	538.6823
86.79	539.0559
86.94	539.2961
87.57	540.2838
88.03	541.0012
88.47	541.6885
89.96	543.9974
91.11	545.7692
92.59	592.7224
92.59	592.7224
93.35	593.9709
94.67	596.1290
94.87	596.4537
94.87	596.4537
95.86	552.5413
97.43	598.0499
98.44	477.4361
99.53	483.1534
100.11	528.5616
103.18	502.6987
103.37	492.6259
105.31	485.5528
106.12	512.9467
109.28	488.1795
111.00	574.7808
111.76	551.2568
116.30	490.6705
117.23	493.5121
121.12	449.4801
121.78	460.9324
122.06	463.0201
123.07	504.6175
131.20	459.5201
133.52	482.2345
136.00	446.5600

136.47	433.0857
140.51	460.9738
140.51	0.0000
143.76	508.2056
144.24	476.6604
144.24	476.6604
145.44	532.5538
152.43	510.0977
153.25	479.2531
154.21	486.8394
154.21	486.8394
156.02	523.1700
158.56	442.3794
159.00	460.1707
162.66	434.9525
163.33	421.8047
165.86	500.2103
176.60	432.6212
177.52	438.2941
181.07	457.4960
184.41	469.1108
185.72	456.4133
193.51	399.4587
197.04	455.3420
205.31	381.1002
210.85	369.9954
215.65	363.0167
222.11	409.2014
227.38	353.9286
228.16	365.1077
228.18	365.1180
235.69	394.4860
235.96	394.6257
235.96	394.6257
238.63	411.9117
238.63	411.9117
240.99	413.1892
242.00	413.7362
244.70	318.0146
252.40	311.1192
252.80	313.5095
256.23	313.7368
256.23	313.7368
260.90	0.0000
264.66	323.3395
268.22	298.4688
269.46	306.0859
269.46	306.0859
271.23	280.7139
273.65	281.5197
276.40	270.0312
277.37	270.3374
277.60	270.4092
278.00	241.5479
279.20	260.8907
279.54	286.9184
280.46	268.1943
283.69	245.4571
284.31	257.2159
285.41	280.7430
285.90	0.0000
287.50	267.4536
293.27	0.0000
295.22	247.1956
295.96	247.4014
298.57	248.1132
299.98	248.4948
299.98	248.4948
300.09	248.5248
300.09	248.5248
300.13	248.5377
301.36	248.8721
302.85	249.2752
304.50	263.0469
304.50	263.0469
304.85	253.1893
308.46	242.7522
311.90	249.9105

316.51	247.5235
319.41	266.3310
320.08	265.6121
323.87	274.2715
323.87	274.2715
328.76	251.5779
333.37	219.7815
334.37	220.0012
334.37	220.0012
338.28	257.6678
338.28	257.6678
338.32	257.6764
338.32	257.6764
338.32	257.6764
340.48	265.6055
340.55	265.6230
344.28	245.8591
351.06	232.0089
351.93	232.2027
356.01	251.6432
364.49	214.2084
366.42	213.6475
383.85	242.0255
388.16	226.5590
388.63	212.1884
391.69	226.2983
400.66	255.3517
401.81	226.3359
402.40	225.4731
404.85	219.0986
410.95	215.5141
414.70	178.3171
423.72	215.6226
427.09	202.2659
427.87	196.4108
433.94	190.3624
453.88	184.2148
463.37	176.3304
468.07	134.9817
473.00	178.6438
476.78	157.4017
477.60	162.6776
487.02	157.5436
492.35	0.0000
497.08	169.2003
511.00	161.3203
514.00	170.1660
527.90	0.0000
529.87	0.0000
531.02	153.8664
537.26	170.7247
546.56	0.0000
563.25	154.9718
569.33	166.6078
569.50	166.6263
569.70	166.6447
583.19	143.5779
600.60	150.3000
602.73	162.2109
604.72	169.9230
609.32	163.7617
609.32	163.7617
610.33	173.5154
614.28	124.0177
618.01	168.2479
621.93	134.9091
621.93	134.9091
633.25	124.7939
635.95	158.9944
636.99	146.2171
645.85	137.7195
657.76	242.8715
661.66	173.4577
661.66	173.4577
664.57	0.0000
666.33	239.3562
666.50	216.9393
677.62	144.8863

685.70	157.8101
695.00	168.0981
696.49	168.2321
696.51	168.2364
697.00	174.9348
702.65	153.5278
706.68	158.6321
711.68	141.8032
720.70	125.1440
721.93	0.0000
722.78	125.2805
722.91	125.2900
723.31	130.1353
724.19	126.9799
727.33	142.9631
733.00	117.8676
735.93	144.5620
739.50	128.3004
747.24	123.9242
752.31	142.8241
753.82	112.5854
756.73	119.6112
763.94	124.6287
765.81	119.8191
766.42	129.7058
777.92	136.7096
778.90	118.9365
783.70	125.1725
785.37	131.2395
795.86	109.9141
801.95	125.9813
810.29	121.7326
810.76	132.8282
815.77	87.7498
818.51	108.0606
832.01	131.0912
834.85	149.5768
836.80	0.0000
846.77	129.9238
856.80	116.4655
860.56	102.9346
871.09	99.2766
873.19	90.0522
875.33	0.0000
879.36	100.6754
880.51	87.2259
883.24	101.8832
884.68	100.9075
889.28	113.6171
898.04	107.7678
911.20	110.4756
911.20	110.4756
911.20	110.4756
926.50	85.7718
937.49	136.1563
944.13	117.3289
946.00	109.9455
949.00	96.1875
962.29	93.1244
964.08	109.3190
966.15	114.0742
968.97	114.2023
968.97	114.2023
968.97	114.2023
983.53	98.6093
996.26	88.9381
1001.03	103.6511
1004.73	85.5891
1037.84	104.1949
1038.76	0.0000
1048.07	108.2974
1050.41	113.9512
1050.41	113.9512
1063.66	105.2018
1085.87	101.3643
1099.45	105.6289
1112.07	118.7342
1115.54	115.4493

1120.29	92.8397
1120.29	92.8397
1120.55	92.8477
1121.30	94.5008
1131.51	0.0000
1173.23	105.4651
1177.93	135.6706
1189.05	128.3960
1204.77	108.5339
1221.41	117.9736
1231.02	123.4116
1235.36	148.9788
1238.28	109.7218
1260.41	0.0000
1271.85	83.9214
1274.44	107.9868
1274.54	105.9871
1291.59	78.4063
1298.22	0.0000
1312.11	62.7165
1332.49	71.2476
1365.19	63.7205
1368.63	0.0000
1384.29	66.1432
1408.01	47.8661
1457.56	0.0000
1460.82	44.3584
1489.16	42.5749
1505.03	51.3105
1596.21	37.7709
1620.50	29.2701
1678.03	0.0000
1690.97	22.0976
1764.49	27.3760
1764.49	27.3760
1770.23	18.8458
1771.35	138.0740
1791.20	0.0000
1836.06	20.8704

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202054953

Total Uranium Activity	6.0647E+00	ug/g
Total Uranium Counting Unc.	1.8313E+00	ug/g
Total Uranium Tpu	9.3436E-07	ug/g
Total Uranium Mda	8.0275E-01	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 958220                      SAMPLE ID   : G1202054953          *
*  ANALYST       : MXR1                        DETECTOR    : GAM25             *
*  SAMPLE DATE   : 19-FEB-2010 12:00:00.00    COUNT TIME   : 0 04:00:00.00      *
*  ANALYSIS DATE : 12-MAR-2010 19:14:41.62    SAMPLE ALQT  : 129.190 GRAM        *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.396E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.052E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.690E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.315E+00

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VAX/VMS Nuclide Identification Report Generated 16-MAR-2010 14:55:54.73

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054954.CNF;1
Sample date        : 3-MAR-2010 00:00:00. Acquisition date : 12-MAR-2010 17:15:25
Sample ID          : G1202054954      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM23            Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00    Elapsed real time: 0 01:00:01.52  0.0%
Energy tolerance   : 2.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 958220           Detector SN#      :
Matrix Spike ID    :                  LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	59.42	2092	611	0.97	118.83	113	11	5.81E-01	3.2	
2	1	74.56	148	320	1.38	149.12	143	15	4.10E-02	22.9	1.47E+00
3	1	76.99	215	296	1.14	153.99	143	15	5.97E-02	14.8	
4	0	87.90	1156	538	1.07	175.79	170	12	3.21E-01	5.0	
5	0	93.33*	83	354	3.73	186.66	182	11	2.31E-02	46.4	
6	0	121.73	200	307	1.17	243.45	239	10	5.55E-02	17.8	
7	0	185.14*	107	354	3.94	370.28	363	13	2.97E-02	38.0	
8	0	238.51*	341	387	1.18	477.01	470	11	9.46E-02	12.5	
9	0	294.62	135	190	1.37	589.24	584	10	3.76E-02	20.9	
10	0	337.53	51	200	1.22	675.06	670	10	1.42E-02	53.7	
11	0	351.06*	219	203	1.25	702.12	695	14	6.08E-02	15.5	
12	0	581.93*	147	115	1.78	1163.86	1155	15	4.07E-02	18.1	
13	0	608.31*	121	183	1.56	1216.63	1209	17	3.36E-02	27.3	
14	0	660.74	1950	101	1.50	1321.48	1314	15	5.42E-01	2.5	
15	0	910.39*	61	119	1.06	1820.78	1816	11	1.69E-02	37.3	
16	0	967.98	65	72	1.63	1935.95	1931	11	1.79E-02	28.3	
17	0	1171.71	1366	91	2.18	2343.42	2335	20	3.79E-01	3.2	
18	0	1330.80	1252	49	2.13	2661.60	2651	23	3.48E-01	3.2	

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


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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054954.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 3-MAR-2010 00:00:00   Acquisition date : 12-MAR-2010 17:15:25
Sample ID        : G1202054954           Sample quantity  : 155.44 GRAM
Sample type      : SOLID                  Sample geometry  :
Detector name    : GAMMA23               Detector geometry: CAN
Elapsed live time: 0 01:00:00.00         Elapsed real time: 0 01:00:01.52   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance  : 2.50 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	*	1.826E-01	6.598E-02	6.882E-02	4.057E-03	2.653
		136.47		3.958E-01	3.289E-01	5.662E-01	3.675E-02	0.699
CO-60	+	1173.23		5.495E+00	4.712E-01	1.385E-01	7.816E-03	39.660
	+	1332.49	*	5.634E+00	5.474E-01	1.051E-01	7.712E-03	53.631
CD-109	+	88.03	*	2.902E+01	4.053E+00	2.410E+00	2.352E-01	12.044
SN-126		64.28		-6.481E-01	1.069E+00	1.536E+00	2.337E-01	-0.422
	+	86.94		1.189E+01	5.088E+00	1.002E+00	4.166E-01	11.869
	+	87.57	*	2.860E+00	3.994E-01	2.389E-01	2.325E-02	11.971
BA-137M	+	661.66	*	5.132E+00	3.691E-01	1.165E-01	5.950E-03	44.065
CS-137	+	661.66	*	5.421E+00	3.910E-01	1.230E-01	6.319E-03	44.065
CE-143	+	57.36		5.642E+03	6.929E+02	3.346E+02	3.544E+01	16.861
	+	293.27	*	5.217E+01	2.426E+01	2.444E+01	5.003E+00	2.134
		664.57		6.401E+02	2.668E+02	3.471E+02	1.013E+02	1.844
		721.93		-2.343E+02	1.998E+02	2.761E+02	7.541E+01	-0.848
TL-208		277.37		-9.155E-03	7.080E-01	1.128E+00	1.218E-01	-0.008
	+	583.19	*	3.652E-01	1.345E-01	1.200E-01	7.774E-03	3.042
		860.56		3.723E-01	7.040E-01	1.213E+00	1.096E-01	0.307
BI-211	+	72.87		1.439E+01	6.716E+00	8.196E+00	7.229E-01	1.756
	+	351.06	*	2.376E+00	7.506E-01	6.023E-01	3.925E-02	3.944
PB-212	+	74.82		1.722E+00	8.209E-01	9.959E-01	1.313E-01	1.729
	+	77.11		1.413E+00	4.375E-01	6.051E-01	5.444E-02	2.334
	+	238.63	*	8.139E-01	2.114E-01	1.858E-01	1.348E-02	4.382
		300.09		-3.623E-01	1.582E+00	2.389E+00	2.017E-01	-0.152
PB-214	+	74.82		3.052E+00	1.445E+00	1.765E+00	2.103E-01	1.729
	+	77.11		2.490E+00	7.981E-01	1.067E+00	1.302E-01	2.334
		242.00		1.505E-01	7.741E-01	1.097E+00	8.870E-02	0.137
	+	295.22		8.991E-01	3.836E-01	4.287E-01	3.759E-02	2.097
	+	351.93	*	8.622E-01	2.765E-01	2.236E-01	1.909E-02	3.856
RA-224	+	240.99	*	8.655E+00	2.213E+00	1.895E+00	1.068E-01	4.568
AC-228	+	338.32		6.151E-01	7.080E-01	7.172E-01	2.958E-01	0.858
	+	911.20	*	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367
	+	968.97		1.368E+00	8.419E-01	9.337E-01	2.270E-01	1.465
RA-228	+	338.32		6.151E-01	7.080E-01	7.172E-01	2.958E-01	0.858
	+	911.20	*	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	968.97		1.368E+00	8.419E-01	9.337E-01	2.270E-01	1.465
	+	74.82		1.722E+00	8.039E-01	9.959E-01	8.932E-02	1.729
	+	77.11		1.413E+00	4.375E-01	6.051E-01	5.444E-02	2.334
	+	238.63	*	8.139E-01	2.114E-01	1.858E-01	1.348E-02	4.382
		300.09		-3.623E-01	1.597E+00	2.389E+00	1.455E+00	-0.152
TH-229	+	85.43		7.198E+00	1.005E+00	6.086E-01	5.811E-02	11.827
	+	88.47		4.409E+00	6.157E-01	3.640E-01	3.520E-02	12.112
		193.51	*	-3.014E-01	9.646E-01	1.539E+00	8.151E-02	-0.196
		210.85		1.623E+00	1.577E+00	2.659E+00	1.444E-01	0.610
TH-232	+	338.32		6.151E-01	6.620E-01	7.172E-01	4.236E-02	0.858
	+	911.20	*	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367
	+	968.97		1.368E+00	8.419E-01	9.337E-01	2.270E-01	1.465
U-235	+	89.96		3.049E+01	8.219E+00	2.017E+00	5.020E-01	15.117
	+	93.35		1.274E+00	1.218E+00	1.119E+00	2.590E-01	1.139
		143.76	*	1.358E-01	3.265E-01	5.428E-01	8.453E-02	0.250
		163.33		3.565E-02	7.185E-01	1.173E+00	1.943E-01	0.030
	+	185.72		1.643E-01	1.250E-01	1.202E-01	6.292E-03	1.367
		205.31		-1.075E+00	8.924E-01	1.329E+00	2.240E-01	-0.809
NP-237	+	86.48	*	8.533E+00	2.150E+00	7.262E-01	1.676E-01	11.750
		95.86		3.190E-01	1.576E+00	2.320E+00	5.546E-01	0.138
AM-241	+	59.54	*	1.364E+01	1.535E+00	6.338E-01	5.898E-02	21.519

---- 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	*	2.292E-01	6.641E-01	1.115E+00	7.575E-02	0.205
NA-22		1274.54	*	7.620E-03	5.626E-02	9.365E-02	6.289E-03	0.081
NA-24		1368.63	*	-1.423E-03	5.626E-02	Half-Life too short		
K-40		1460.82	*	5.499E-01	4.476E-01	8.938E-01	6.687E-02	0.615
SC-46		889.28	*	-1.865E-02	9.818E-02	1.615E-01	1.443E-02	-0.115
		1120.55		5.995E-02	1.133E-01	1.932E-01	1.259E-02	0.310
V-48		944.13		-1.464E-01	1.931E+00	3.190E+00	2.780E-01	-0.046
		983.53	*	-3.130E-02	1.428E-01	2.327E-01	1.936E-02	-0.134
		1312.11		-2.650E-02	8.809E-02	1.360E-01	9.678E-03	-0.195
CR-51		320.08	*	1.754E-01	5.996E-01	1.020E+00	6.681E-02	0.172
MN-54		834.85	*	1.492E-02	8.088E-02	1.369E-01	1.084E-02	0.109
CO-56		846.77	*	-1.507E-04	8.205E-02	1.371E-01	1.115E-02	-0.001
		1037.84		9.084E-02	7.160E-01	1.199E+00	9.818E-02	0.076
		1238.28		3.808E-02	1.024E-01	1.755E-01	1.167E-02	0.217
		1771.35		4.452E-02	2.555E-01	4.446E-01	2.750E-02	0.100
CO-58		810.76	*	-3.124E-03	8.504E-02	1.421E-01	1.067E-02	-0.022
FE-59		1099.45	*	9.088E-02	2.023E-01	3.438E-01	2.647E-02	0.264
		1291.59		-5.939E-02	1.557E-01	2.376E-01	1.972E-02	-0.250
ZN-65		1115.54	*	-5.194E-02	2.163E-01	3.493E-01	2.307E-02	-0.149
SE-75	+	121.12		9.377E-01	3.451E-01	4.609E-01	4.225E-02	2.034
		136.00		2.712E-02	6.288E-02	1.050E-01	5.932E-03	0.258
		264.66	*	-4.888E-02	8.545E-02	1.323E-01	7.703E-03	-0.369
		279.54		1.041E-02	1.863E-01	3.151E-01	1.984E-02	0.033

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	400.66			-3.052E-01	5.292E-01	8.508E-01	7.713E-02	-0.359
SR-85	514.00	*		-1.445E-01	8.146E-02	1.192E-01	6.917E-03	-1.213
Y-88	898.04			-4.604E-02	1.037E-01	1.675E-01	1.532E-02	-0.275
	1836.06	*		3.345E-02	3.722E-02	7.709E-02	4.539E-03	0.434
Y-91	1204.77	*		-8.561E+00	2.578E+01	4.015E+01	2.395E+00	-0.213
NB-94	702.65	*		7.131E-02	7.061E-02	1.222E-01	6.983E-03	0.584
	871.09			1.357E-04	8.391E-02	1.400E-01	1.202E-02	0.001
NB-95	765.81	*		5.648E-02	8.422E-02	1.420E-01	9.541E-03	0.398
NB-95M	235.69	*		3.273E-01	2.673E-01	4.025E-01	2.980E-02	0.813
ZR-95	724.19			2.745E-01	1.835E-01	3.259E-01	2.296E-02	0.842
	756.73	*		8.924E-02	1.424E-01	2.402E-01	1.853E-02	0.372
MO-99	140.51			-2.591E+00	9.313E+00	1.503E+01	3.425E+00	-0.172
	181.07			5.025E+00	8.769E+00	1.284E+01	2.245E+00	0.391
	366.42			-8.964E+00	5.196E+01	8.586E+01	5.031E+00	-0.104
	739.50	*		-2.593E+00	6.471E+00	1.003E+01	1.466E+00	-0.258
	777.92			3.631E+00	1.811E+01	3.085E+01	2.136E+00	0.118
TC-99M	140.51	*		-5.502E+03	1.811E+01	Half-Life too short		
RU-103	497.08	*		-6.207E-03	7.619E-02	1.252E-01	1.557E-02	-0.050
	610.33	+		5.483E+00	3.102E+00	3.053E+00	4.554E-01	1.796
RH-106	621.93	*		-1.462E-01	6.366E-01	1.015E+00	1.159E-01	-0.144
	1050.41			-2.559E+00	6.218E+00	9.932E+00	7.472E-01	-0.258
RU-106	621.93	*		-1.462E-01	6.364E-01	1.015E+00	5.456E-02	-0.144
	1050.41			-2.559E+00	6.218E+00	9.932E+00	7.472E-01	-0.258
AG-108M	433.94	*		-1.179E-02	6.790E-02	1.113E-01	6.955E-03	-0.106
	614.28			7.625E-02	7.975E-02	1.232E-01	7.217E-03	0.619
	722.91			-8.641E-02	8.394E-02	1.244E-01	7.983E-03	-0.695
AG-110M	657.76	*		1.598E+00	1.739E-01	3.166E-01	1.760E-02	5.047
	677.62			-2.110E-01	5.461E-01	8.506E-01	4.875E-02	-0.248
	706.68			-3.786E-01	4.473E-01	6.723E-01	4.128E-02	-0.563
	763.94			-1.859E-01	3.451E-01	5.298E-01	3.704E-02	-0.351
	884.68			3.833E-02	1.283E-01	2.177E-01	1.985E-02	0.176
	937.49			-1.710E-01	2.872E-01	4.575E-01	4.154E-02	-0.374
	1384.29			5.142E-02	1.893E-01	3.241E-01	2.454E-02	0.159
	1505.03			-2.571E-03	3.892E-01	6.262E-01	4.447E-02	-0.004
SN-113	391.69	*		1.806E-02	8.720E-02	1.466E-01	9.029E-03	0.123
CD-115	260.90			7.409E+00	4.877E+01	7.863E+01	4.516E+00	0.094
	492.35			-1.263E+01	1.489E+01	2.309E+01	1.348E+00	-0.547
	527.90	*		1.134E+00	4.460E+00	7.430E+00	4.288E-01	0.153
SN-117M	156.02			3.380E-01	2.890E+00	4.739E+00	2.480E-01	0.071
	158.56	*		4.864E-03	7.033E-02	1.150E-01	5.978E-03	0.042
TE-123M	159.00	*		-1.864E-02	4.657E-02	7.452E-02	3.932E-03	-0.250
SB-124	602.73			2.541E-02	8.514E-02	1.232E-01	6.756E-03	0.206
	645.85			1.069E-01	9.692E-01	1.584E+00	9.511E-02	0.067
	722.78			-8.086E-01	7.926E-01	1.176E+00	7.414E-02	-0.688
	1690.97	*		6.945E-02	1.147E-01	2.135E-01	1.494E-02	0.325
SB-125	427.87	*		5.266E-04	1.962E-01	3.248E-01	1.974E-02	0.002
	463.37			8.325E-01	6.827E-01	1.187E+00	8.044E-02	0.701
	600.60			-1.688E-01	4.090E-01	5.800E-01	3.739E-02	-0.291
	635.95			-2.648E-01	5.881E-01	9.218E-01	5.866E-02	-0.287

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-125M	109.28	*		1.993E+00	1.502E+01	2.492E+01	2.263E+00	0.080
I-126	388.63			-9.993E-02	2.539E-01	4.130E-01	2.388E-02	-0.242
	666.33	*		-1.225E-01	3.632E-01	4.861E-01	2.515E-02	-0.252
	753.82			-2.716E-01	2.886E+00	4.601E+00	3.001E-01	-0.059
SB-126	414.70			-2.800E-02	1.189E-01	1.946E-01	1.132E-02	-0.144
	666.50			-4.128E-02	1.230E-01	1.646E-01	8.524E-03	-0.251
	695.00			-4.927E-03	1.225E-01	1.971E-01	1.103E-02	-0.025
	697.00			1.617E-01	4.276E-01	7.090E-01	3.991E-02	0.228
	720.70	*		-1.111E-01	2.234E-01	3.454E-01	2.070E-02	-0.322
	856.80			9.809E-02	8.263E-01	1.391E+00	1.157E-01	0.071
SB-127	252.40			-6.678E-01	3.138E+00	4.950E+00	2.013E+00	-0.135
	473.00			-2.025E-01	1.411E+00	2.305E+00	2.229E-01	-0.088
	685.70	*		3.927E-01	1.020E+00	1.697E+00	1.262E-01	0.231
	783.70			-6.342E-01	2.865E+00	4.733E+00	4.688E-01	-0.134
I-131	80.19			-9.452E-01	5.811E+00	8.439E+00	7.758E-01	-0.112
	284.31			-5.980E-01	1.701E+00	2.818E+00	1.811E-01	-0.212
	364.49	*		6.061E-02	1.494E-01	2.542E-01	1.649E-02	0.238
	636.99			-1.573E+00	2.186E+00	3.356E+00	2.015E-01	-0.469
TE-132	49.72			-1.577E+00	1.691E+01	2.838E+01	2.689E+00	-0.056
	111.76			9.627E+00	1.636E+01	2.764E+01	2.205E+00	0.348
	116.30			5.771E+00	1.656E+01	2.437E+01	1.871E+00	0.237
	228.16	*		4.101E-02	4.271E-01	6.900E-01	9.238E-02	0.059
BA-133	81.00			-1.162E-01	2.090E-01	2.752E-01	4.364E-02	-0.422
	276.40			4.102E-01	6.436E-01	1.060E+00	1.335E-01	0.387
	302.85			-6.346E-02	2.582E-01	4.287E-01	4.907E-02	-0.148
	356.01	*		9.910E-03	8.995E-02	1.317E-01	1.491E-02	0.075
	383.85			1.469E-01	5.815E-01	9.807E-01	1.046E-01	0.150
I-133	529.87	*		4.111E-05	5.815E-01	Half-Life	too short	
	875.33			-2.585E-03	5.815E-01	Half-Life	too short	
	1298.22			-3.749E-03	5.815E-01	Half-Life	too short	
CS-134	563.25			-5.063E-02	7.385E-01	1.203E+00	6.962E-02	-0.042
	569.33			-2.580E-02	3.828E-01	6.216E-01	3.614E-02	-0.042
	604.72			3.987E-02	8.004E-02	1.178E-01	6.484E-03	0.338
	795.86	*		6.200E-03	9.467E-02	1.595E-01	1.165E-02	0.039
	801.95			1.927E-01	8.511E-01	1.449E+00	1.071E-01	0.133
	1365.19			-5.992E-02	1.482E+00	2.383E+00	1.855E-01	-0.025
CS-135	268.22	*		2.606E-01	3.097E-01	5.147E-01	3.932E-02	0.506
I-135	546.56			-7.761E+03	3.097E-01	Half-Life	too short	
	836.80			-2.363E+04	3.097E-01	Half-Life	too short	
	1038.76			-3.813E+04	3.097E-01	Half-Life	too short	
	1131.51			-2.182E+03	3.097E-01	Half-Life	too short	
	1260.41	*		7.795E+03	3.097E-01	Half-Life	too short	
	1457.56			8.951E+03	3.097E-01	Half-Life	too short	
	1678.03			1.110E+04	3.097E-01	Half-Life	too short	
	1791.20			7.526E+03	3.097E-01	Half-Life	too short	
CS-136	153.25			-1.120E-01	1.075E+00	1.747E+00	1.340E-01	-0.064
	176.60			-2.993E-01	6.270E-01	9.943E-01	6.502E-02	-0.301
	273.65			-8.814E-01	7.566E-01	1.129E+00	7.709E-02	-0.781
	340.55			1.288E-01	2.265E-01	3.430E-01	2.184E-02	0.376

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		818.51		1.097E-02	1.300E-01	2.189E-01	1.670E-02	0.050
		1048.07	*	1.302E-01	1.910E-01	3.310E-01	2.635E-02	0.393
		1235.36		3.306E-01	5.125E-01	9.079E-01	9.239E-02	0.364
CE-139		165.86	*	1.850E-02	4.785E-02	7.928E-02	4.042E-03	0.233
BA-140		162.66		-5.112E-01	9.991E-01	1.588E+00	9.625E-02	-0.322
		304.85		1.661E-01	1.878E+00	3.168E+00	9.055E-01	0.052
		423.72		5.785E-01	3.139E+00	5.242E+00	1.692E+00	0.110
		537.26	*	1.772E-01	3.920E-01	6.550E-01	2.181E-01	0.271
LA-140		328.76		4.461E-01	4.160E-01	7.313E-01	4.832E-02	0.610
		487.02		1.985E-01	2.115E-01	3.678E-01	2.429E-02	0.540
		815.77		1.618E-01	5.562E-01	9.495E-01	8.270E-02	0.170
		1596.21	*	-1.910E-02	7.432E-02	1.163E-01	7.979E-03	-0.164
CE-141		145.44	*	-2.726E-02	9.273E-02	1.497E-01	8.441E-03	-0.182
CE-144		80.12		-8.144E-01	4.952E+00	7.191E+00	6.591E-01	-0.113
		133.52	*	-3.908E-01	3.248E-01	4.958E-01	6.848E-02	-0.788
PM-144		476.78		1.151E-01	1.430E-01	2.459E-01	1.697E-02	0.468
		618.01		-1.908E-02	6.450E-02	1.024E-01	5.911E-03	-0.186
		696.49	*	7.911E-03	7.401E-02	1.204E-01	6.769E-03	0.066
PR-144		696.51	*	6.207E-01	5.525E+00	8.991E+00	5.054E-01	0.069
		1489.16		-1.007E+01	1.907E+01	2.722E+01	1.943E+00	-0.370
PM-146		453.88	*	4.721E-02	9.948E-02	1.682E-01	1.429E-02	0.281
		633.25		2.524E+00	3.050E+00	5.010E+00	1.883E+00	0.504
		735.93		-1.648E-01	3.018E-01	4.571E-01	1.252E-01	-0.360
		747.24		2.967E-03	2.040E-01	3.284E-01	4.401E-02	0.009
ND-147	+	91.11		4.730E-01	4.411E-01	5.340E-01	5.252E-02	0.886
		319.41		-1.801E-01	4.471E+00	7.484E+00	4.421E-01	-0.024
		531.02	*	1.385E-01	8.208E-01	1.359E+00	1.836E-01	0.102
PM-149		285.90	*	1.737E-01	3.117E+01	5.254E+01	7.448E+00	0.003
EU-152	+	121.78		5.324E-01	1.941E-01	2.611E-01	1.999E-02	2.039
		244.70		-5.905E-01	6.298E-01	9.612E-01	5.437E-02	-0.614
		344.28	*	-9.659E-02	2.265E-01	2.992E-01	1.982E-02	-0.323
		778.90		-4.717E-02	5.264E-01	8.777E-01	6.091E-02	-0.054
		964.08		1.120E+00	7.663E-01	1.233E+00	1.051E-01	0.908
		1085.87		-5.397E-01	9.398E-01	1.476E+00	1.038E-01	-0.366
		1112.07		-5.479E-01	7.503E-01	1.163E+00	7.729E-02	-0.471
		1408.01		8.251E-02	2.537E-01	4.349E-01	3.163E-02	0.190
GD-153		69.67		-2.308E+00	3.430E+00	4.853E+00	4.240E-01	-0.476
		97.43	*	-1.455E-02	1.504E-01	2.174E-01	1.776E-02	-0.067
		103.18		7.438E-02	1.770E-01	2.977E-01	2.224E-02	0.250
EU-154	+	123.07		3.763E-01	1.388E-01	1.819E-01	1.715E-02	2.068
		723.31		-2.828E-01	3.831E-01	5.826E-01	4.211E-02	-0.485
		873.19		-1.757E-01	6.571E-01	1.074E+00	1.278E-01	-0.164
		996.26		2.755E-01	8.880E-01	1.500E+00	2.589E-01	0.184
		1004.73		-1.305E-01	5.356E-01	8.784E-01	9.878E-02	-0.149
		1274.44	*	2.165E-02	1.599E-01	2.661E-01	2.662E-02	0.081
EU-155	+	86.55		3.460E+00	4.851E-01	5.297E-01	5.149E-02	6.532
		105.31	*	-9.352E-02	1.731E-01	2.790E-01	2.056E-02	-0.335
TB-160	+	86.79		8.735E+00	1.220E+00	1.367E+00	1.321E-01	6.390
		197.04		3.264E-01	9.468E-01	1.555E+00	8.280E-02	0.210

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		215.65		7.549E-02	1.319E+00	2.133E+00	1.165E-01	0.035
		298.57		-2.953E-02	2.192E-01	3.181E-01	1.869E-02	-0.093
		879.36	*	-4.451E-02	3.198E-01	5.280E-01	4.617E-02	-0.084
		962.29		1.989E+00	1.343E+00	2.169E+00	1.852E-01	0.917
	+	966.15		9.803E-01	5.606E-01	8.610E-01	7.318E-02	1.139
		1177.93		-2.341E-01	5.898E-01	7.664E-01	4.360E-02	-0.305
		1271.85		-5.371E-01	8.823E-01	1.298E+00	8.662E-02	-0.414
		80.57		-5.311E-01	5.671E-01	7.899E-01	7.263E-02	-0.672
	+	184.41		1.305E-01	9.929E-02	1.064E-01	5.563E-03	1.226
		280.46		-3.557E-02	1.491E-01	2.485E-01	1.447E-02	-0.143
		410.95		1.600E-01	5.111E-01	8.617E-01	5.010E-02	0.186
		711.68	*	1.924E-02	1.235E-01	2.015E-01	1.180E-02	0.095
TA-182		752.31		-9.678E-02	5.867E-01	9.298E-01	6.042E-02	-0.104
		810.29		-3.832E-02	1.359E-01	2.232E-01	1.669E-02	-0.172
		67.75		7.012E-02	2.027E-01	3.330E-01	2.899E-02	0.211
		100.11		4.647E-02	2.880E-01	4.631E-01	3.624E-02	0.100
		152.43		1.364E-01	5.722E-01	9.439E-01	4.989E-02	0.145
		222.11		-3.810E-01	6.345E-01	9.911E-01	5.461E-02	-0.384
		1121.30		2.012E-02	3.189E-01	5.264E-01	3.423E-02	0.038
		1189.05		-6.237E-02	4.682E-01	7.545E-01	4.378E-02	-0.083
		1221.41	*	5.803E-02	2.564E-01	4.311E-01	2.646E-02	0.135
		1231.02		-7.140E-01	5.850E-01	7.773E-01	4.849E-02	-0.918
	+	295.96		6.319E-01	2.665E-01	3.813E-01	2.273E-02	1.657
		308.46		6.509E-02	1.739E-01	2.974E-01	1.772E-02	0.219
IR-192		316.51	*	-9.600E-03	6.222E-02	1.036E-01	6.144E-03	-0.093
		468.07		-6.405E-02	1.562E-01	2.519E-01	1.699E-02	-0.254
		70.83		-1.517E+00	2.435E+00	3.442E+00	5.554E-01	-0.441
	+	72.87		3.305E+00	1.601E+00	2.201E+00	3.444E-01	1.502
		279.20	*	1.650E-02	6.225E-02	1.063E-01	6.529E-03	0.155
	+	72.81		8.276E-01	3.862E-01	5.477E-01	4.830E-02	1.511
	+	74.97		4.961E-01	2.315E-01	3.567E-01	3.174E-02	1.391
		569.70		-1.772E-02	6.002E-02	9.580E-02	5.397E-03	-0.185
		1063.66	*	-3.068E-02	1.312E-01	2.125E-01	1.561E-02	-0.144
		1770.23		-5.578E-01	6.062E-01	7.258E-01	4.493E-02	-0.769
		46.54	*	-8.777E+00	1.008E+01	1.641E+01	1.267E+00	-0.535
		404.85	*	2.370E-01	1.502E+00	2.507E+00	1.202E+00	0.095
PB-210		427.09		3.067E-01	3.324E+00	5.526E+00	2.532E+00	0.056
PB-211		832.01		2.298E+00	2.532E+00	3.995E+00	2.067E+00	0.575
BI-212		727.33	*	1.166E+00	1.153E+00	1.978E+00	2.149E-01	0.589
		785.37		1.048E+01	6.734E+00	1.238E+01	8.729E-01	0.847
		1620.50		1.310E+00	3.058E+00	5.555E+00	3.768E-01	0.236
BI-214	+	609.32	*	5.846E-01	3.221E-01	3.377E-01	2.561E-02	1.731
		1120.29		3.170E-01	6.967E-01	1.182E+00	1.105E-01	0.268
		1764.49		2.823E-01	4.137E-01	7.806E-01	4.853E-02	0.362
RN-219		271.23		5.460E-01	4.601E-01	7.752E-01	6.220E-02	0.704
		401.81	*	-4.400E-01	8.662E-01	1.396E+00	1.875E-01	-0.315
RA-223		81.07		-2.470E-01	4.729E-01	6.255E-01	5.772E-02	-0.395
		83.79		-1.146E-01	2.589E-01	3.699E-01	3.484E-02	-0.310
	+	94.87		1.254E+00	1.169E+00	1.193E+00	1.018E-01	1.051

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		144.24		1.764E-01	1.107E+00	1.823E+00	1.258E-01	0.097
		154.21		-1.348E-01	6.560E-01	1.061E+00	6.919E-02	-0.127
		269.46		4.418E-01	3.602E-01	6.087E-01	3.673E-02	0.726
		323.87	*	-1.152E+00	1.205E+00	1.895E+00	3.061E-01	-0.608
RA-226	+	338.28		2.441E+00	2.635E+00	3.433E+00	3.539E-01	0.711
	+	609.32	*	5.846E-01	3.221E-01	3.377E-01	2.561E-02	1.731
		1120.29		3.170E-01	6.967E-01	1.182E+00	1.105E-01	0.268
AC-227		1764.49		2.823E-01	4.137E-01	7.806E-01	4.853E-02	0.362
		79.69		5.933E-01	2.468E+00	3.654E+00	6.394E-01	0.162
		235.96		8.558E-01	3.659E-01	5.715E-01	4.574E-02	1.498
		256.23	*	-9.610E-02	4.770E-01	7.550E-01	7.686E-02	-0.127
		299.98		-1.799E-01	1.814E+00	2.639E+00	2.911E-01	-0.068
		304.50		-8.189E-01	3.019E+00	5.001E+00	7.643E-01	-0.164
TH-227		334.37		-3.104E-01	3.925E+00	5.684E+00	8.110E-01	-0.055
		79.80		8.511E-01	3.256E+00	4.820E+00	1.060E+00	0.177
		235.96		8.558E-01	3.647E-01	5.715E-01	4.133E-02	1.498
		256.23	*	-9.610E-02	4.771E-01	7.550E-01	9.045E-02	-0.127
		299.98		-1.799E-01	1.814E+00	2.639E+00	2.911E-01	-0.068
		304.50		-8.189E-01	3.019E+00	5.001E+00	7.643E-01	-0.164
PA-231		334.37		-3.104E-01	3.925E+00	5.684E+00	8.110E-01	-0.055
		283.69	*	-7.401E-01	2.629E+00	4.367E+00	5.735E-01	-0.169
		301.36		2.709E-01	1.027E+00	1.706E+00	1.772E-01	0.159
TH-231		81.07		-2.470E-01	4.729E-01	6.255E-01	5.772E-02	-0.395
		83.79		-1.146E-01	2.589E-01	3.699E-01	3.484E-02	-0.310
	+	94.87		1.254E+00	1.169E+00	1.193E+00	1.018E-01	1.051
		144.24		1.764E-01	1.107E+00	1.823E+00	1.258E-01	0.097
		154.21		-1.348E-01	6.560E-01	1.061E+00	6.919E-02	-0.127
		269.46		4.418E-01	3.602E-01	6.087E-01	3.673E-02	0.726
		323.87	*	-1.152E+00	1.205E+00	1.895E+00	3.061E-01	-0.608
PA-233	+	338.28		2.441E+00	2.635E+00	3.433E+00	3.539E-01	0.711
		300.13		-1.878E-01	7.876E-01	1.188E+00	1.595E-01	-0.158
		311.90	*	-1.388E-02	1.219E-01	2.035E-01	1.273E-02	-0.068
		340.48		7.955E-01	1.301E+00	1.958E+00	4.549E-01	0.406
PA-234	+	94.67		4.545E-01	4.255E-01	4.409E-01	5.451E-02	1.031
		98.44		-1.636E-01	1.925E-01	2.320E-01	1.292E-01	-0.705
		111.00		1.293E-01	2.962E-01	4.973E-01	5.378E-02	0.260
		131.20		8.846E-02	1.670E-01	2.804E-01	1.585E-02	0.316
		569.50		-5.499E-02	5.289E-01	8.565E-01	4.826E-02	-0.064
		733.00		-9.682E-02	7.565E-01	1.204E+00	2.572E-01	-0.080
		880.51		-1.710E-01	6.973E-01	1.143E+00	1.002E-01	-0.150
		883.24		3.127E-01	7.705E-01	1.269E+00	8.535E-01	0.246
		926.50		2.805E-02	4.568E-01	7.623E-01	1.933E-01	0.037
		946.00	*	4.802E-01	8.213E-01	1.406E+00	2.642E-01	0.342
		949.00		-9.166E-03	1.182E+00	1.961E+00	1.699E-01	-0.005
PA-234M		766.42		1.912E+01	2.600E+01	4.103E+01	2.070E+01	0.466
		1001.03	*	8.778E-02	1.125E+01	1.863E+01	1.777E+00	0.005
TH-234		63.29	*	-9.658E-01	2.871E+00	4.194E+00	7.716E-01	-0.230
	+	92.59		1.687E+00	1.609E+00	1.809E+00	4.015E-01	0.932
U-238		63.29	*	-9.658E-01	2.871E+00	4.194E+00	7.716E-01	-0.230

---- 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		1.687E+00	1.572E+00	1.809E+00	1.610E-01	0.932
		99.53		-9.984E-02	2.901E-01	4.362E-01	3.445E-02	-0.229
		103.37		2.638E-02	1.646E-01	2.738E-01	2.040E-02	0.096
		106.12		-4.027E-02	1.391E-01	2.268E-01	1.626E-02	-0.178
	*	117.23		2.105E-01	7.482E-01	1.097E+00	6.826E-02	0.192
CM-247		228.18		3.784E-02	4.090E-01	6.608E-01	3.669E-02	0.057
		277.60		-3.110E-02	3.244E-01	5.147E-01	2.992E-02	-0.060
		278.00		-2.131E-01	1.286E+00	2.151E+00	1.251E-01	-0.099
		287.50		8.001E-01	2.382E+00	3.865E+00	2.260E-01	0.207
	*	402.40		3.967E-03	7.974E-02	1.327E-01	7.693E-03	0.030
CF-249		252.80		-1.185E-01	1.827E+00	2.916E+00	1.663E-01	-0.041
		333.37		2.770E-02	4.106E-01	6.009E-01	3.551E-02	0.046
CF-251	*	388.16		-4.966E-02	8.041E-02	1.290E-01	7.466E-03	-0.385
	*	177.52		9.867E-03	2.269E-01	3.565E-01	1.845E-02	0.028
	*	227.38		8.332E-02	6.646E-01	1.076E+00	5.966E-02	0.077
ANH-511		285.41		-1.225E+00	4.045E+00	6.717E+00	3.923E-01	-0.182
	*	511.00		3.343E-02	7.173E-02	1.290E-01	7.494E-03	0.259

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]G1202054954      *
* Acquisition date   : 12-MAR-2010 17:15:25 Detector SN#                   *
* Detector ID        : GAM23 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 2.500                        *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 01:00:01.52 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 3-MAR-2010 00:00:00 Nuclide Library : SOLID           *
* Sample ID         : G1202054954 Analyst initials: MXR1                  *
* Batch Number      : 958220 Sample Quantity : 1.5544E+02 GRAM            *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME  : 2-JUN-2009 11:17:00 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
CO-57	1.826E-01	6.466E-02	7.412E-02	0.000E+00
CO-60	5.634E+00	5.365E-01	1.062E-01	0.000E+00
CD-109	2.902E+01	3.972E+00	2.616E+00	0.000E+00
SN-126	2.860E+00	3.914E-01	2.594E-01	0.000E+00
BA-137M	5.132E+00	3.617E-01	1.201E-01	0.000E+00
CS-137	5.421E+00	3.832E-01	1.268E-01	0.000E+00
CE-143	5.217E+01	2.377E+01	2.575E+01	0.000E+00
TL-208	3.652E-01	1.318E-01	1.242E-01	0.000E+00
BI-211	2.376E+00	7.356E-01	6.315E-01	0.000E+00
PB-212	8.139E-01	2.072E-01	1.967E-01	0.000E+00
PB-214	8.622E-01	2.710E-01	2.344E-01	0.000E+00
RA-224	8.655E+00	2.169E+00	2.006E+00	0.000E+00
AC-228	7.463E-01	5.527E-01	5.577E-01	0.000E+00
RA-228	7.463E-01	5.527E-01	5.577E-01	0.000E+00
TH-228	8.139E-01	2.072E-01	1.967E-01	0.000E+00
TH-229	-3.014E-01	9.453E-01	1.639E+00	0.000E+00
TH-232	7.463E-01	5.527E-01	5.577E-01	0.000E+00
U-235	1.358E-01	3.200E-01	5.823E-01	0.000E+00
NP-237	8.533E+00	2.107E+00	7.888E-01	0.000E+00
AM-241	1.364E+01	1.505E+00	6.947E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error) Ided	MDA (pCi/GRAM)	
BE-7	2.292E-01	6.508E-01	1.160E+00	0.000E+00 NOT IDENT.
NA-22	7.620E-03	5.514E-02	9.482E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.358E+03	0.000E+00	0.000E+00 SHORT HLIF
K-40	5.499E-01	4.387E-01	9.015E-01	0.000E+00 NOT IDENT.
SC-46	-1.865E-02	9.621E-02	1.652E-01	0.000E+00 NOT IDENT.
V-48	-3.130E-02	1.399E-01	2.373E-01	0.000E+00 NOT IDENT.
CR-51	1.754E-01	5.876E-01	1.072E+00	0.000E+00 NOT IDENT.

MN-54	1.492E-02	7.926E-02	1.403E-01	0.000E+00	NOT IDENT.
CO-56	-1.507E-04	8.041E-02	1.404E-01	0.000E+00	NOT IDENT.
CO-58	-3.124E-03	8.334E-02	1.457E-01	0.000E+00	NOT IDENT.
FE-59	9.088E-02	1.982E-01	3.495E-01	0.000E+00	NOT IDENT.
ZN-65	-5.194E-02	2.120E-01	3.549E-01	0.000E+00	NOT IDENT.
SE-75	-4.888E-02	8.374E-02	1.397E-01	0.000E+00	FAIL ABUN
SR-85	-1.445E-01	7.983E-02	1.237E-01	0.000E+00	NOT IDENT.
Y-88	3.345E-02	3.648E-02	7.724E-02	0.000E+00	NOT IDENT.
Y-91	-8.561E+00	2.527E+01	4.071E+01	0.000E+00	NOT IDENT.
NB-94	7.131E-02	6.920E-02	1.258E-01	0.000E+00	NOT IDENT.
NB-95	5.648E-02	8.254E-02	1.458E-01	0.000E+00	NOT IDENT.
NB-95M	3.273E-01	2.619E-01	4.264E-01	0.000E+00	NOT IDENT.
ZR-95	8.924E-02	1.396E-01	2.467E-01	0.000E+00	NOT IDENT.
MO-99	-2.593E+00	6.342E+00	1.031E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.937E+10	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-6.207E-03	7.466E-02	1.300E-01	0.000E+00	FAIL ABUN
RH-106	-1.462E-01	6.238E-01	1.049E+00	0.000E+00	NOT IDENT.
RU-106	-1.462E-01	6.237E-01	1.049E+00	0.000E+00	NOT IDENT.
AG-108M	-1.179E-02	6.654E-02	1.160E-01	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	1.704E-01	3.264E-01	0.000E+00	NOT IDENT.
SN-113	1.806E-02	8.545E-02	1.532E-01	0.000E+00	NOT IDENT.
CD-115	1.134E+00	4.371E+00	7.706E+00	0.000E+00	NOT IDENT.
SN-117M	4.864E-03	6.893E-02	1.231E-01	0.000E+00	NOT IDENT.
TE-123M	-1.864E-02	4.564E-02	7.973E-02	0.000E+00	NOT IDENT.
SB-124	6.945E-02	1.124E-01	2.144E-01	0.000E+00	NOT IDENT.
SB-125	5.266E-04	1.923E-01	3.388E-01	0.000E+00	NOT IDENT.
TE-125M	1.993E+00	1.472E+01	2.691E+01	0.000E+00	NOT IDENT.
I-126	-1.225E-01	3.559E-01	5.010E-01	0.000E+00	NOT IDENT.
SB-126	-1.111E-01	2.189E-01	3.553E-01	0.000E+00	NOT IDENT.
SB-127	3.927E-01	9.992E-01	1.748E+00	0.000E+00	NOT IDENT.
I-131	6.061E-02	1.464E-01	2.662E-01	0.000E+00	NOT IDENT.
TE-132	4.101E-02	4.185E-01	7.315E-01	0.000E+00	NOT IDENT.
BA-133	9.910E-03	8.815E-02	1.380E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.573E+02	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.200E-03	9.278E-02	1.636E-01	0.000E+00	NOT IDENT.
CS-135	2.606E-01	3.035E-01	5.434E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.007E+10	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.302E-01	1.872E-01	3.369E-01	0.000E+00	NOT IDENT.
CE-139	1.850E-02	4.689E-02	8.474E-02	0.000E+00	NOT IDENT.
BA-140	1.772E-01	3.841E-01	6.790E-01	0.000E+00	NOT IDENT.
LA-140	-1.910E-02	7.284E-02	1.170E-01	0.000E+00	NOT IDENT.
CE-141	-2.726E-02	9.087E-02	1.605E-01	0.000E+00	NOT IDENT.
CE-144	-3.908E-01	3.183E-01	5.328E-01	0.000E+00	NOT IDENT.
PM-144	7.911E-03	7.253E-02	1.239E-01	0.000E+00	NOT IDENT.
PR-144	6.207E-01	5.415E+00	9.256E+00	0.000E+00	NOT IDENT.
PM-146	4.721E-02	9.749E-02	1.751E-01	0.000E+00	NOT IDENT.
ND-147	1.385E-01	8.043E-01	1.410E+00	0.000E+00	FAIL ABUN
PM-149	1.737E-01	3.055E+01	5.538E+01	0.000E+00	NOT IDENT.
EU-152	-9.659E-02	2.219E-01	3.139E-01	0.000E+00	FAIL ABUN
GD-153	-1.455E-02	1.473E-01	2.354E-01	0.000E+00	NOT IDENT.
EU-154	2.165E-02	1.567E-01	2.694E-01	0.000E+00	FAIL ABUN
EU-155	-9.352E-02	1.696E-01	3.016E-01	0.000E+00	FAIL ABUN
TB-160	-4.451E-02	3.134E-01	5.401E-01	0.000E+00	FAIL ABUN
HO-166M	1.924E-02	1.210E-01	2.073E-01	0.000E+00	FAIL ABUN
TA-182	5.803E-02	2.512E-01	4.369E-01	0.000E+00	NOT IDENT.
IR-192	-9.600E-03	6.098E-02	1.089E-01	0.000E+00	FAIL ABUN
HG-203	1.650E-02	6.101E-02	1.121E-01	0.000E+00	FAIL ABUN
BI-207	-3.068E-02	1.286E-01	2.163E-01	0.000E+00	FAIL ABUN
PB-210	-8.777E+00	9.882E+00	1.809E+01	0.000E+00	NOT IDENT.
PB-211	2.370E-01	1.472E+00	2.618E+00	0.000E+00	NOT IDENT.
BI-212	1.166E+00	1.130E+00	2.033E+00	0.000E+00	NOT IDENT.
BI-214	0.000E+00	3.157E-01	3.489E-01	0.000E+00	FAIL ABUN
RN-219	-4.400E-01	8.489E-01	1.458E+00	0.000E+00	NOT IDENT.
RA-223	-1.152E+00	1.181E+00	1.990E+00	0.000E+00	FAIL ABUN
RA-226	0.000E+00	3.157E-01	3.489E-01	0.000E+00	FAIL ABUN
AC-227	-9.610E-02	4.675E-01	7.980E-01	0.000E+00	NOT IDENT.
TH-227	-9.610E-02	4.675E-01	7.980E-01	0.000E+00	NOT IDENT.
PA-231	-7.401E-01	2.576E+00	4.604E+00	0.000E+00	NOT IDENT.
TH-231	-1.152E+00	1.181E+00	1.990E+00	0.000E+00	FAIL ABUN
PA-233	-1.388E-02	1.195E-01	2.140E-01	0.000E+00	NOT IDENT.
PA-234	4.802E-01	8.048E-01	1.435E+00	0.000E+00	FAIL ABUN
PA-234M	8.778E-02	1.103E+01	1.899E+01	0.000E+00	NOT IDENT.
TH-234	-9.658E-01	2.813E+00	4.590E+00	0.000E+00	FAIL ABUN
U-238	-9.658E-01	2.813E+00	4.590E+00	0.000E+00	FAIL ABUN
NP-239	2.105E-01	7.333E-01	1.182E+00	0.000E+00	NOT IDENT.
CM-247	3.967E-03	7.814E-02	1.387E-01	0.000E+00	NOT IDENT.
CF-249	-4.966E-02	7.881E-02	1.349E-01	0.000E+00	NOT IDENT.
CF-251	9.867E-03	2.224E-01	3.804E-01	0.000E+00	NOT IDENT.

ANH-511	3.343E-02	7.029E-02	1.339E-01	0.000E+00 NOT IDENT.
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VAX/VMS Nuclide Identification Report Generated 16-MAR-2010 14:55:55.55

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202054954.CNF;1
Sample date        : 3-MAR-2010 00:00:00. Acquisition date : 12-MAR-2010 17:15:25
Sample ID          : G1202054954      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM23             Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00     Elapsed real time: 0 01:00:01.52  0.0%
Energy tolerance   : 2.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 958220             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	200	85.60*	6.333E+00	1.781E-01	1.826E-01	36.14
	136.47	-----	10.68	6.271E+00	-----	Line Not Found	-----
CO-60	1173.23	1366	99.85	1.207E+00	5.476E+00	5.495E+00	8.57
	1332.49	1252	99.98*	1.077E+00	5.614E+00	5.634E+00	9.72
CD-109	88.03	1156	3.70*	5.276E+00	2.860E+01	2.902E+01	13.97
SN-126	64.28	-----	9.60	2.723E+00	-----	Line Not Found	-----
	86.94	1156	8.90	5.276E+00	1.189E+01	1.189E+01	42.79
	87.57	1156	37.00*	5.276E+00	2.860E+00	2.860E+00	13.97
BA-137M	661.66	1950	89.90*	2.043E+00	5.129E+00	5.132E+00	7.19
CS-137	661.66	1950	85.10*	2.043E+00	5.418E+00	5.421E+00	7.21
CE-143	57.36	2092	11.70	2.064E+00	4.185E+01	5.642E+03	12.28
	293.27	135	42.80*	3.951E+00	3.870E-01	5.217E+01	46.50
	664.57	-----	5.69	2.032E+00	-----	Line Not Found	-----
	721.93	-----	5.39	1.888E+00	-----	Line Not Found	-----
TL-208	277.37	-----	6.60	4.139E+00	-----	Line Not Found	-----
	583.19	147	85.00*	2.280E+00	3.652E-01	3.652E-01	36.82
	860.56	-----	12.50	1.609E+00	-----	Line Not Found	-----
BI-211	72.87	148	1.23	4.027E+00	1.439E+01	1.439E+01	46.67
	351.06	219	12.92*	3.445E+00	2.376E+00	2.376E+00	31.60
PB-212	74.82	148	10.28	4.027E+00	1.722E+00	1.722E+00	47.67
	77.11	215	17.10	4.297E+00	1.413E+00	1.413E+00	30.97
	238.63	341	43.60*	4.636E+00	8.139E-01	8.139E-01	25.98
	300.09	-----	3.30	3.896E+00	-----	Line Not Found	-----
PB-214	74.82	148	5.80	4.027E+00	3.052E+00	3.052E+00	47.34
	77.11	215	9.70	4.297E+00	2.490E+00	2.490E+00	32.05
	242.00	-----	7.25	4.586E+00	-----	Line Not Found	-----
	295.22	135	18.42	3.951E+00	8.991E-01	8.991E-01	42.66
	351.93	219	35.60*	3.445E+00	8.621E-01	8.622E-01	32.08
RA-224	240.99	341	4.10*	4.636E+00	8.655E+00	8.655E+00	25.57
AC-228	338.32	51	11.27	3.553E+00	6.151E-01	6.151E-01	115.11
	911.20	61	25.80*	1.527E+00	7.463E-01	7.463E-01	75.57
	968.97	65	15.80	1.442E+00	1.368E+00	1.368E+00	61.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	51	11.27	3.553E+00	6.151E-01	6.151E-01	115.11
	911.20	61	25.80*	1.527E+00	7.463E-01	7.463E-01	75.57
	968.97	65	15.80	1.442E+00	1.368E+00	1.368E+00	61.56
TH-228	74.82	148	10.28	4.027E+00	1.722E+00	1.722E+00	46.69
	77.11	215	17.10	4.297E+00	1.413E+00	1.413E+00	30.97
	238.63	341	43.60*	4.636E+00	8.139E-01	8.139E-01	25.98
TH-229	300.09	-----	3.30	3.896E+00	-----	Line Not Found	-----
	85.43	1156	14.70	5.276E+00	7.198E+00	7.198E+00	13.97
	88.47	1156	24.00	5.276E+00	4.409E+00	4.409E+00	13.97
TH-232	193.51	-----	4.41*	5.353E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.059E+00	-----	Line Not Found	-----
	338.32	51	11.27	3.553E+00	6.151E-01	6.151E-01	107.63
U-235	911.20	61	25.80*	1.527E+00	7.463E-01	7.463E-01	75.57
	968.97	65	15.80	1.442E+00	1.368E+00	1.368E+00	61.56
	89.96	1156	3.47	5.276E+00	3.049E+01	3.049E+01	26.95
NP-237	93.35	83	5.60	5.624E+00	1.274E+00	1.274E+00	95.62
	143.76	-----	10.96*	6.189E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.887E+00	-----	Line Not Found	-----
AM-241	185.72	107	57.20	5.500E+00	1.643E-01	1.643E-01	76.09
	205.31	-----	5.01	5.150E+00	-----	Line Not Found	-----
	86.48	1156	12.40*	5.276E+00	8.533E+00	8.533E+00	25.19
AM-241	95.86	-----	2.68	5.757E+00	-----	Line Not Found	-----
	59.54	2092	35.90*	2.064E+00	1.364E+01	1.364E+01	11.26

Flag: "*" = Keyline

Total number of lines in spectrum 18
Number of unidentified lines 0
Number of lines tentatively identified by NID 18 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	271.74D	1.03	1.781E-01	1.826E-01	0.660E-01	36.14	
CO-60	5.27Y	1.00	5.614E+00	5.634E+00	0.547E+00	9.72	
CD-109	461.40D	1.01	2.860E+01	2.902E+01	0.405E+01	13.97	
SN-126	2.30E+05Y	1.00	2.860E+00	2.860E+00	0.399E+00	13.97	
BA-137M	30.08Y	1.00	5.129E+00	5.132E+00	0.369E+00	7.19	
CS-137	30.08Y	1.00	5.418E+00	5.421E+00	0.391E+00	7.21	
CE-143	33.04H	135.	3.870E-01	5.217E+01	2.426E+01	46.50	
TL-208	1.41E+10Y	1.00	3.652E-01	3.652E-01	1.345E-01	36.82	
BI-211	7.04E+08Y	1.00	2.376E+00	2.376E+00	0.751E+00	31.60	
PB-212	1.41E+10Y	1.00	8.139E-01	8.139E-01	2.114E-01	25.98	
PB-214	1600.00Y	1.00	8.621E-01	8.622E-01	2.765E-01	32.08	
RA-224	1.41E+10Y	1.00	8.655E+00	8.655E+00	2.213E+00	25.57	
AC-228	1.41E+10Y	1.00	7.463E-01	7.463E-01	5.640E-01	75.57	
RA-228	1.41E+10Y	1.00	7.463E-01	7.463E-01	5.640E-01	75.57	
TH-228	1.41E+10Y	1.00	8.139E-01	8.139E-01	2.114E-01	25.98	
TH-229	7340.00Y	1.00	4.409E+00	4.409E+00	0.616E+00	13.97	K
TH-232	1.41E+10Y	1.00	7.463E-01	7.463E-01	5.640E-01	75.57	
U-235	7.04E+08Y	1.00	1.643E-01	1.643E-01	1.250E-01	76.09	K
NP-237	2.14E+06Y	1.00	8.533E+00	8.533E+00	2.150E+00	25.19	
AM-241	432.60Y	1.00	1.364E+01	1.364E+01	0.154E+01	11.26	

Total Activity : 9.105E+01 1.433E+02

Grand Total Activity : 9.105E+01 1.433E+02

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

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

Unidentified Energy Lines
Sample ID : G1202054954

Page : 4
Acquisition date : 12-MAR-2010 17:15:25

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	608.31	121	183	1.56	1216.63	1209	17	3.36E-02	54.6	2.19E+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]G1202054954.CNF;1
* Acquisition date   : 12-MAR-2010 17:15:25  Detector SN#      :
* Detector ID        : GAM23                      Sensitivity    : 5.00000
* Geometry           : CAN                      Energy tolerance: 2.50000
* Elapsed live time  : 0 01:00:00.00           Abundance limit  : 75.00000
* Elapsed real time  : 0 01:00:01.52           Half life ratio   : 8.00000
*****
*                               SAMPLE DATA                            *
*
* Sample date        : 3-MAR-2010 00:00:00.   Nuclide Library  : SOLID
* Sample ID          : G1202054954           Analyst initials: MXR1
* Batch Number       : 958220                Sample Quantity  : 1.55440E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00.62MS Isotope       :
* MSD ID             :                          MSD Isotope    :
* LCS ID             : 1032-A                  LCS Isotope     :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	1.826E-01	6.598E-02	6.882E-02	4.057E-03	2.653
CO-60	5.634E+00	5.474E-01	1.051E-01	7.712E-03	53.631
CD-109	2.902E+01	4.053E+00	2.410E+00	2.352E-01	12.044
SN-126	2.860E+00	3.994E-01	2.389E-01	2.325E-02	11.971
BA-137M	5.132E+00	3.691E-01	1.165E-01	5.950E-03	44.065
CS-137	5.421E+00	3.910E-01	1.230E-01	6.319E-03	44.065
CE-143	5.217E+01	2.426E+01	2.444E+01	5.003E+00	2.134
TL-208	3.652E-01	1.345E-01	1.200E-01	7.774E-03	3.042
BI-211	2.376E+00	7.506E-01	6.023E-01	3.925E-02	3.944
PB-212	8.139E-01	2.114E-01	1.858E-01	1.348E-02	4.382
PB-214	8.622E-01	2.765E-01	2.236E-01	1.909E-02	3.856
RA-224	8.655E+00	2.213E+00	1.895E+00	1.068E-01	4.568
AC-228	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367
RA-228	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367
TH-228	8.139E-01	2.114E-01	1.858E-01	1.348E-02	4.382
TH-229	4.409E+00	6.157E-01	1.539E+00	8.151E-02	2.865
TH-232	7.463E-01	5.640E-01	5.458E-01	6.483E-02	1.367
U-235	1.643E-01	1.250E-01	5.428E-01	8.453E-02	0.303

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	8.533E+00	2.150E+00	7.262E-01	1.676E-01	11.750
AM-241	1.364E+01	1.535E+00	6.338E-01	5.898E-02	21.519

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.292E-01		6.641E-01	1.115E+00	7.575E-02	0.205
NA-22	7.620E-03		5.626E-02	9.365E-02	6.289E-03	0.081
NA-24	-1.423E-03		1.203E-03	Half-Life too short		
K-40	5.499E-01		4.476E-01	8.938E-01	6.687E-02	0.615
SC-46	-1.865E-02		9.818E-02	1.615E-01	1.443E-02	-0.115
V-48	-3.130E-02		1.428E-01	2.327E-01	1.936E-02	-0.134
CR-51	1.754E-01		5.996E-01	1.020E+00	6.681E-02	0.172
MN-54	1.492E-02		8.088E-02	1.369E-01	1.084E-02	0.109
CO-56	-1.507E-04		8.205E-02	1.371E-01	1.115E-02	-0.001
CO-58	-3.124E-03		8.504E-02	1.421E-01	1.067E-02	-0.022
FE-59	9.088E-02		2.023E-01	3.438E-01	2.647E-02	0.264
ZN-65	-5.194E-02		2.163E-01	3.493E-01	2.307E-02	-0.149
SE-75	-4.888E-02		8.545E-02	1.323E-01	7.703E-03	-0.369
SR-85	-1.445E-01		8.146E-02	1.192E-01	6.917E-03	-1.213
Y-88	3.345E-02		3.722E-02	7.709E-02	4.539E-03	0.434
Y-91	-8.561E+00		2.578E+01	4.015E+01	2.395E+00	-0.213
NB-94	7.131E-02		7.061E-02	1.222E-01	6.983E-03	0.584
NB-95	5.648E-02		8.422E-02	1.420E-01	9.541E-03	0.398
NB-95M	3.273E-01		2.673E-01	4.025E-01	2.980E-02	0.813
ZR-95	8.924E-02		1.424E-01	2.402E-01	1.853E-02	0.372
MO-99	-2.593E+00		6.471E+00	1.003E+01	1.466E+00	-0.258
TC-99M	-5.502E+03		9.883E+03	Half-Life too short		
RU-103	-6.207E-03		7.619E-02	1.252E-01	1.557E-02	-0.050
RH-106	-1.462E-01		6.366E-01	1.015E+00	1.159E-01	-0.144
RU-106	-1.462E-01		6.364E-01	1.015E+00	5.456E-02	-0.144
AG-108M	-1.179E-02		6.790E-02	1.113E-01	6.955E-03	-0.106
AG-110M	1.598E+00		1.739E-01	3.166E-01	1.760E-02	5.047
SN-113	1.806E-02		8.720E-02	1.466E-01	9.029E-03	0.123
CD-115	1.134E+00		4.460E+00	7.430E+00	4.288E-01	0.153
SN-117M	4.864E-03		7.033E-02	1.150E-01	5.978E-03	0.042
TE-123M	-1.864E-02		4.657E-02	7.452E-02	3.932E-03	-0.250
SB-124	6.945E-02		1.147E-01	2.135E-01	1.494E-02	0.325
SB-125	5.266E-04		1.962E-01	3.248E-01	1.974E-02	0.002
TE-125M	1.993E+00		1.502E+01	2.492E+01	2.263E+00	0.080
I-126	-1.225E-01		3.632E-01	4.861E-01	2.515E-02	-0.252
SB-126	-1.111E-01		2.234E-01	3.454E-01	2.070E-02	-0.322
SB-127	3.927E-01		1.020E+00	1.697E+00	1.262E-01	0.231
I-131	6.061E-02		1.494E-01	2.542E-01	1.649E-02	0.238
TE-132	4.101E-02		4.271E-01	6.900E-01	9.238E-02	0.059
BA-133	9.910E-03		8.995E-02	1.317E-01	1.491E-02	0.075
I-133	4.111E-05		8.027E-05	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	6.200E-03		9.467E-02	1.595E-01	1.165E-02	0.039
CS-135	2.606E-01		3.097E-01	5.147E-01	3.932E-02	0.506
I-135	7.795E+03		5.137E+03	Half-Life too short		
CS-136	1.302E-01		1.910E-01	3.310E-01	2.635E-02	0.393
CE-139	1.850E-02		4.785E-02	7.928E-02	4.042E-03	0.233
BA-140	1.772E-01		3.920E-01	6.550E-01	2.181E-01	0.271
LA-140	-1.910E-02		7.432E-02	1.163E-01	7.979E-03	-0.164
CE-141	-2.726E-02		9.273E-02	1.497E-01	8.441E-03	-0.182
CE-144	-3.908E-01		3.248E-01	4.958E-01	6.848E-02	-0.788
PM-144	7.911E-03		7.401E-02	1.204E-01	6.769E-03	0.066
PR-144	6.207E-01		5.525E+00	8.991E+00	5.054E-01	0.069
PM-146	4.721E-02		9.948E-02	1.682E-01	1.429E-02	0.281
ND-147	1.385E-01		8.208E-01	1.359E+00	1.836E-01	0.102
PM-149	1.737E-01		3.117E+01	5.254E+01	7.448E+00	0.003
EU-152	-9.659E-02		2.265E-01	2.992E-01	1.982E-02	-0.323
GD-153	-1.455E-02		1.504E-01	2.174E-01	1.776E-02	-0.067
EU-154	2.165E-02		1.599E-01	2.661E-01	2.662E-02	0.081
EU-155	-9.352E-02		1.731E-01	2.790E-01	2.056E-02	-0.335
TB-160	-4.451E-02		3.198E-01	5.280E-01	4.617E-02	-0.084
HO-166M	1.924E-02		1.235E-01	2.015E-01	1.180E-02	0.095
TA-182	5.803E-02		2.564E-01	4.311E-01	2.646E-02	0.135
IR-192	-9.600E-03		6.222E-02	1.036E-01	6.144E-03	-0.093
HG-203	1.650E-02		6.225E-02	1.063E-01	6.529E-03	0.155
BI-207	-3.068E-02		1.312E-01	2.125E-01	1.561E-02	-0.144
PB-210	-8.777E+00		1.008E+01	1.641E+01	1.267E+00	-0.535
PB-211	2.370E-01		1.502E+00	2.507E+00	1.202E+00	0.095
BI-212	1.166E+00		1.153E+00	1.978E+00	2.149E-01	0.589
BI-214	5.846E-01	+	3.221E-01	3.377E-01	2.561E-02	1.731
RN-219	-4.400E-01		8.662E-01	1.396E+00	1.875E-01	-0.315
RA-223	-1.152E+00		1.205E+00	1.895E+00	3.061E-01	-0.608
RA-226	5.846E-01	+	3.221E-01	3.377E-01	2.561E-02	1.731
AC-227	-9.610E-02		4.770E-01	7.550E-01	7.686E-02	-0.127
TH-227	-9.610E-02		4.771E-01	7.550E-01	9.045E-02	-0.127
PA-231	-7.401E-01		2.629E+00	4.367E+00	5.735E-01	-0.169
TH-231	-1.152E+00		1.205E+00	1.895E+00	3.061E-01	-0.608
PA-233	-1.388E-02		1.219E-01	2.035E-01	1.273E-02	-0.068
PA-234	4.802E-01		8.213E-01	1.406E+00	2.642E-01	0.342
PA-234M	8.778E-02		1.125E+01	1.863E+01	1.777E+00	0.005
TH-234	-9.658E-01		2.871E+00	4.194E+00	7.716E-01	-0.230
U-238	-9.658E-01		2.871E+00	4.194E+00	7.716E-01	-0.230
NP-239	2.105E-01		7.482E-01	1.097E+00	6.826E-02	0.192
CM-247	3.967E-03		7.974E-02	1.327E-01	7.693E-03	0.030
CF-249	-4.966E-02		8.041E-02	1.290E-01	7.466E-03	-0.385
CF-251	9.867E-03		2.269E-01	3.565E-01	1.845E-02	0.028
ANH-511	3.343E-02		7.173E-02	1.290E-01	7.494E-03	0.259

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]G1202054954            *
* Acquisition date   : 12-MAR-2010 17:15:25 Detector SN#      :                *
* Detector ID        : GAM23                      Sensitivity   : 5.000          *
* Geometry           : CAN                        Energy tolerance: 2.500          *
* Elapsed live time  : 0 01:00:00.00             Abundance limit : 75.000          *
* Elapsed real time  : 0 01:00:01.52             Half life ratio : 8.000          *
*****
*
*                               SAMPLE DATA                                  *
*
* Sample date        : 3-MAR-2010 00:00:00 Nuclide Library : SOLID              *
* Sample ID          : G1202054954             Analyst initials: MXR1            *
* Batch Number       : 958220                  Sample Quantity : 1.5544E+02 GRAM    *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000          *
*****
*
*                               QC DATA                                     *
*
* CALIB. DATE/TIME  : 2-JUN-2009 11:17:00 MS Isotope         :                *
* MSD DPM           : 0.000                      MSD Isotope   :                *
* LCS DPM           : 0.000                      LCS Isotope    :                *
* LCSD DPM          : 0.000                      LCSD Isotope   :                *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
CO-57	1.826E-01	6.466E-02	3.708E-02	3.299E-02
CO-60	5.634E+00	5.365E-01	5.314E-02	2.737E-01
CD-109	2.902E+01	3.972E+00	1.309E+00	2.026E+00
SN-126	2.860E+00	3.914E-01	1.298E-01	1.997E-01
BA-137M	5.132E+00	3.617E-01	6.007E-02	1.846E-01
CS-137	5.421E+00	3.832E-01	6.345E-02	1.955E-01
CE-143	5.217E+01	2.377E+01	1.288E+01	1.213E+01
TL-208	3.652E-01	1.318E-01	6.213E-02	6.724E-02
BI-211	2.376E+00	7.356E-01	3.159E-01	3.753E-01
PB-212	8.139E-01	2.072E-01	9.841E-02	1.057E-01
PB-214	8.622E-01	2.710E-01	1.173E-01	1.383E-01
RA-224	8.655E+00	2.169E+00	1.004E+00	1.107E+00
AC-228	7.463E-01	5.527E-01	2.790E-01	2.820E-01
RA-228	7.463E-01	5.527E-01	2.790E-01	2.820E-01
TH-228	8.139E-01	2.072E-01	9.841E-02	1.057E-01
TH-229	-3.014E-01	9.453E-01	8.197E-01	4.823E-01
TH-232	7.463E-01	5.527E-01	2.790E-01	2.820E-01
U-235	1.358E-01	3.200E-01	2.913E-01	1.632E-01
NP-237	8.533E+00	2.107E+00	3.946E-01	1.075E+00
AM-241	1.364E+01	1.505E+00	3.476E-01	7.677E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	2.292E-01	6.508E-01	5.802E-01	3.320E-01 NOT IDENT.
NA-22	7.620E-03	5.514E-02	4.744E-02	2.813E-02 NOT IDENT.
NA-24	-1.423E+03	2.358E+03	0.000E+00	1.203E+03 SHORT HLIF
K-40	5.499E-01	4.387E-01	4.510E-01	2.238E-01 NOT IDENT.
SC-46	-1.865E-02	9.621E-02	8.264E-02	4.909E-02 NOT IDENT.
V-48	-3.130E-02	1.399E-01	1.187E-01	7.138E-02 NOT IDENT.
CR-51	1.754E-01	5.876E-01	5.365E-01	2.998E-01 NOT IDENT.

MN-54	1.492E-02	7.926E-02	7.018E-02	4.044E-02	NOT IDENT.
CO-56	-1.507E-04	8.041E-02	7.022E-02	4.103E-02	NOT IDENT.
CO-58	-3.124E-03	8.334E-02	7.287E-02	4.252E-02	NOT IDENT.
FE-59	9.088E-02	1.982E-01	1.749E-01	1.011E-01	NOT IDENT.
ZN-65	-5.194E-02	2.120E-01	1.776E-01	1.081E-01	NOT IDENT.
SE-75	-4.888E-02	8.374E-02	6.991E-02	4.272E-02	FAIL ABUN
SR-85	-1.445E-01	7.983E-02	6.190E-02	4.073E-02	NOT IDENT.
Y-88	3.345E-02	3.648E-02	3.864E-02	1.861E-02	NOT IDENT.
Y-91	-8.561E+00	2.527E+01	2.037E+01	1.289E+01	NOT IDENT.
NB-94	7.131E-02	6.920E-02	6.292E-02	3.530E-02	NOT IDENT.
NB-95	5.648E-02	8.254E-02	7.293E-02	4.211E-02	NOT IDENT.
NB-95M	3.273E-01	2.619E-01	2.133E-01	1.336E-01	NOT IDENT.
ZR-95	8.924E-02	1.396E-01	1.234E-01	7.120E-02	NOT IDENT.
MO-99	-2.593E+00	6.342E+00	5.158E+00	3.236E+00	NOT IDENT.
TC-99M	-5.502E+09	1.937E+10	0.000E+00	9.883E+09	SHORT HLIF
RU-103	-6.207E-03	7.466E-02	6.505E-02	3.809E-02	FAIL ABUN
RH-106	-1.462E-01	6.238E-01	5.246E-01	3.183E-01	NOT IDENT.
RU-106	-1.462E-01	6.237E-01	5.246E-01	3.182E-01	NOT IDENT.
AG-108M	-1.179E-02	6.654E-02	5.805E-02	3.395E-02	NOT IDENT.
AG-110M	1.598E+00	1.704E-01	1.633E-01	8.693E-02	NOT IDENT.
SN-113	1.806E-02	8.545E-02	7.666E-02	4.360E-02	NOT IDENT.
CD-115	1.134E+00	4.371E+00	3.855E+00	2.230E+00	NOT IDENT.
SN-117M	4.864E-03	6.893E-02	6.158E-02	3.517E-02	NOT IDENT.
TE-123M	-1.864E-02	4.564E-02	3.989E-02	2.328E-02	NOT IDENT.
SB-124	6.945E-02	1.124E-01	1.073E-01	5.736E-02	NOT IDENT.
SB-125	5.266E-04	1.923E-01	1.695E-01	9.809E-02	NOT IDENT.
TE-125M	1.993E+00	1.472E+01	1.346E+01	7.509E+00	NOT IDENT.
I-126	-1.225E-01	3.559E-01	2.506E-01	1.816E-01	NOT IDENT.
SB-126	-1.111E-01	2.189E-01	1.777E-01	1.117E-01	NOT IDENT.
SB-127	3.927E-01	9.992E-01	8.743E-01	5.098E-01	NOT IDENT.
I-131	6.061E-02	1.464E-01	1.332E-01	7.468E-02	NOT IDENT.
TE-132	4.101E-02	4.185E-01	3.660E-01	2.135E-01	NOT IDENT.
BA-133	9.910E-03	8.815E-02	6.905E-02	4.498E-02	NOT IDENT.
I-133	4.111E+01	1.573E+02	0.000E+00	8.027E+01	SHORT HLIF
CS-134	6.200E-03	9.278E-02	8.183E-02	4.734E-02	NOT IDENT.
CS-135	2.606E-01	3.035E-01	2.719E-01	1.549E-01	NOT IDENT.
I-135	7.795E+09	1.007E+10	0.000E+00	5.137E+09	SHORT HLIF
CS-136	1.302E-01	1.872E-01	1.686E-01	9.550E-02	NOT IDENT.
CE-139	1.850E-02	4.689E-02	4.239E-02	2.392E-02	NOT IDENT.
BA-140	1.772E-01	3.841E-01	3.397E-01	1.960E-01	NOT IDENT.
LA-140	-1.910E-02	7.284E-02	5.853E-02	3.716E-02	NOT IDENT.
CE-141	-2.726E-02	9.087E-02	8.029E-02	4.636E-02	NOT IDENT.
CE-144	-3.908E-01	3.183E-01	2.666E-01	1.624E-01	NOT IDENT.
PM-144	7.911E-03	7.253E-02	6.200E-02	3.700E-02	NOT IDENT.
PR-144	6.207E-01	5.415E+00	4.631E+00	2.763E+00	NOT IDENT.
PM-146	4.721E-02	9.749E-02	8.760E-02	4.974E-02	NOT IDENT.
ND-147	1.385E-01	8.043E-01	7.053E-01	4.104E-01	FAIL ABUN
PM-149	1.737E-01	3.055E+01	2.770E+01	1.559E+01	NOT IDENT.
EU-152	-9.659E-02	2.219E-01	1.570E-01	1.132E-01	FAIL ABUN
GD-153	-1.455E-02	1.473E-01	1.178E-01	7.518E-02	NOT IDENT.
EU-154	2.165E-02	1.567E-01	1.348E-01	7.993E-02	FAIL ABUN
EU-155	-9.352E-02	1.696E-01	1.509E-01	8.653E-02	FAIL ABUN
TB-160	-4.451E-02	3.134E-01	2.702E-01	1.599E-01	FAIL ABUN
HO-166M	1.924E-02	1.210E-01	1.037E-01	6.173E-02	FAIL ABUN
TA-182	5.803E-02	2.512E-01	2.186E-01	1.282E-01	NOT IDENT.
IR-192	-9.600E-03	6.098E-02	5.447E-02	3.111E-02	FAIL ABUN
HG-203	1.650E-02	6.101E-02	5.609E-02	3.113E-02	FAIL ABUN
BI-207	-3.068E-02	1.286E-01	1.082E-01	6.562E-02	FAIL ABUN
PB-210	-8.777E+00	9.882E+00	9.050E+00	5.042E+00	NOT IDENT.
PB-211	2.370E-01	1.472E+00	1.310E+00	7.509E-01	NOT IDENT.
BI-212	1.166E+00	1.130E+00	1.017E+00	5.765E-01	NOT IDENT.
BI-214	5.846E-01	3.157E-01	1.746E-01	1.610E-01	FAIL ABUN
RN-219	-4.400E-01	8.489E-01	7.296E-01	4.331E-01	NOT IDENT.
RA-223	-1.152E+00	1.181E+00	9.958E-01	6.026E-01	FAIL ABUN
RA-226	5.846E-01	3.157E-01	1.746E-01	1.610E-01	FAIL ABUN
AC-227	-9.610E-02	4.675E-01	3.993E-01	2.385E-01	NOT IDENT.
TH-227	-9.610E-02	4.675E-01	3.993E-01	2.385E-01	NOT IDENT.
PA-231	-7.401E-01	2.576E+00	2.303E+00	1.314E+00	NOT IDENT.
TH-231	-1.152E+00	1.181E+00	9.958E-01	6.026E-01	FAIL ABUN
PA-233	-1.388E-02	1.195E-01	1.071E-01	6.095E-02	NOT IDENT.
PA-234	4.802E-01	8.048E-01	7.178E-01	4.106E-01	FAIL ABUN
PA-234M	8.778E-02	1.103E+01	9.499E+00	5.626E+00	NOT IDENT.
TH-234	-9.658E-01	2.813E+00	2.297E+00	1.435E+00	FAIL ABUN
U-238	-9.658E-01	2.813E+00	2.297E+00	1.435E+00	FAIL ABUN
NP-239	2.105E-01	7.333E-01	5.915E-01	3.741E-01	NOT IDENT.
CM-247	3.967E-03	7.814E-02	6.937E-02	3.987E-02	NOT IDENT.
CF-249	-4.966E-02	7.881E-02	6.751E-02	4.021E-02	NOT IDENT.
CF-251	9.867E-03	2.224E-01	1.903E-01	1.134E-01	NOT IDENT.

ANH-511	3.343E-02	7.029E-02	6.701E-02	3.586E-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	376.7578
49.72	418.8892
57.36	536.0447
59.54	444.2586
63.29	322.5481
63.29	322.5481
64.28	337.9188
67.75	311.0195
69.67	343.6132
70.83	342.6791
72.81	295.4081
72.87	295.4332
72.87	295.4332
74.82	341.9532
74.82	341.9532
74.82	341.9532
74.97	342.0236
77.11	394.1926
77.11	394.1926
77.11	394.1926
79.69	371.2139
79.80	371.2675
80.12	395.7811
80.19	395.8176
80.57	446.2795
81.00	422.9097
81.07	422.9487
81.07	422.9487
83.79	431.3289
83.79	431.3289
85.43	410.7741
86.48	429.7378
86.55	429.7771
86.79	426.8345
86.94	426.9160
87.57	427.2536
88.03	427.4996
88.47	427.7338
89.96	285.1681
91.11	285.5712
92.59	286.0849
92.59	286.0849
93.35	246.1045
94.67	243.3931
94.87	249.6542
94.87	249.6542
95.86	239.0807
97.43	253.5215
98.44	283.4075
99.53	271.5529
100.11	252.9751
103.18	251.4873
103.37	261.3289
105.31	279.5554
106.12	278.8258
109.28	266.9910
111.00	245.7762
111.76	237.0868
116.30	242.9996
117.23	244.8265
121.12	261.7764
121.78	262.5515
122.06	262.6268
123.07	278.2906
131.20	234.7990
133.52	281.7863
136.00	241.9612

136.47	217.7623
140.51	273.4946
140.51	0.0000
143.76	243.7263
144.24	256.0766
144.24	256.0766
145.44	267.5929
152.43	266.1986
153.25	267.4188
154.21	273.8214
154.21	273.8214
156.02	259.8231
158.56	255.2313
159.00	264.6309
162.66	256.1302
163.33	241.7496
165.86	229.7896
176.60	245.4668
177.52	237.5506
181.07	237.5038
184.41	286.0519
185.72	282.3303
193.51	276.3789
197.04	251.5368
205.31	290.6191
210.85	233.6469
215.65	252.8168
222.11	258.3079
227.38	238.5521
228.16	241.9487
228.18	241.9521
235.69	268.1590
235.96	276.9725
235.96	276.9725
238.63	279.2224
238.63	279.2224
240.99	253.2762
242.00	253.4449
244.70	261.1661
252.40	217.0622
252.80	210.4710
256.23	205.3805
256.23	205.3805
260.90	195.9644
264.66	222.0926
268.22	205.8026
269.46	200.3617
269.46	200.3617
271.23	194.9774
273.65	245.7635
276.40	170.8585
277.37	188.9539
277.60	191.2292
278.00	187.2254
279.20	179.2530
279.54	183.7942
280.46	186.5982
283.69	191.4729
284.31	194.2532
285.41	198.8997
285.90	191.7239
287.50	178.7770
293.27	187.7054
295.22	192.4637
295.96	195.5786
298.57	192.8332
299.98	192.9882
299.98	192.9882
300.09	196.6918
300.09	196.6918
300.13	196.6971
301.36	179.4535
302.85	191.7814
304.50	189.2185
304.50	189.2185
304.85	184.6850
308.46	173.1500
311.90	178.0717

316.51	174.8431
319.41	171.4347
320.08	160.4339
323.87	187.5594
323.87	187.5594
328.76	159.3352
333.37	193.4687
334.37	198.2162
334.37	198.2162
338.28	162.9367
338.28	162.9367
338.32	162.9388
338.32	162.9388
338.32	162.9388
340.48	161.5711
340.55	161.5775
344.28	171.8531
351.06	142.4629
351.93	148.4646
356.01	148.7738
364.49	162.3082
366.42	174.7428
383.85	147.6625
388.16	167.0596
388.63	166.1432
391.69	152.0418
400.66	183.4178
401.81	179.6725
402.40	171.0729
404.85	162.6068
410.95	159.2073
414.70	167.2136
423.72	158.1948
427.09	159.4055
427.87	158.4892
433.94	176.4684
453.88	167.1923
463.37	183.6682
468.07	194.9175
473.00	159.6282
476.78	133.0660
477.60	139.0720
487.02	105.7063
492.35	135.9187
497.08	121.1595
511.00	127.8751
514.00	200.6093
527.90	110.4796
529.87	0.0000
531.02	106.5535
537.26	91.5491
546.56	0.0000
563.25	105.8013
569.33	97.8018
569.50	97.8087
569.70	101.9342
583.19	106.9182
600.60	116.0125
602.73	102.4554
604.72	107.7381
609.32	107.5641
609.32	107.5641
610.33	102.7266
614.28	81.9459
618.01	98.4636
621.93	96.4989
621.93	96.4989
633.25	78.9716
635.95	107.5009
636.99	115.9727
645.85	91.9978
657.76	81.3928
661.66	90.3561
661.66	90.3561
664.57	62.0689
666.33	83.3975
666.50	83.4013
677.62	69.4561

685.70	80.3503
695.00	98.8573
696.49	101.0546
696.51	101.0546
697.00	95.6945
702.65	81.8614
706.68	107.8491
711.68	82.0952
720.70	94.2408
721.93	121.3680
722.78	119.2302
722.91	119.2356
723.31	117.0835
724.19	75.9080
727.33	91.1777
733.00	80.4624
735.93	85.9762
739.50	83.8898
747.24	81.9031
752.31	87.4961
753.82	86.4429
756.73	73.3761
763.94	102.0684
765.81	84.5552
766.42	86.7669
777.92	73.4700
778.90	81.7590
783.70	99.3516
785.37	70.8684
795.86	85.8536
801.95	85.0802
810.29	100.1140
810.76	95.4917
815.77	88.2005
818.51	93.8430
832.01	80.2103
834.85	92.4077
836.80	0.0000
846.77	83.3470
856.80	100.4801
860.56	102.4625
871.09	98.0417
873.19	92.4373
875.33	0.0000
879.36	96.3700
880.51	103.0169
883.24	101.1985
884.68	106.9146
889.28	112.7295
898.04	115.8394
911.20	91.4688
911.20	91.4688
911.20	91.4688
926.50	104.2676
937.49	118.9494
944.13	119.1512
946.00	104.7888
949.00	109.6791
962.29	82.7410
964.08	86.0887
966.15	142.4525
968.97	89.5091
968.97	89.5091
968.97	89.5091
983.53	98.9827
996.26	88.5839
1001.03	94.5351
1004.73	93.6445
1037.84	81.6086
1038.76	0.0000
1048.07	71.9485
1050.41	92.6995
1050.41	92.6995
1063.66	92.9864
1085.87	90.4816
1099.45	78.7911
1112.07	100.0203
1115.54	100.0976

1120.29	85.1764
1120.29	85.1764
1120.55	85.1799
1121.30	92.2096
1131.51	0.0000
1173.23	54.7449
1177.93	36.5332
1189.05	39.6729
1204.77	28.5776
1221.41	28.6779
1231.02	36.9463
1235.36	21.5717
1238.28	24.6680
1260.41	0.0000
1271.85	23.8039
1274.44	19.6742
1274.54	19.6749
1291.59	23.8984
1298.22	0.0000
1312.11	21.9100
1332.49	25.1416
1365.19	11.5966
1368.63	0.0000
1384.29	10.5811
1408.01	13.8173
1457.56	0.0000
1460.82	4.2933
1489.16	16.1829
1505.03	12.9829
1596.21	9.4224
1620.50	7.5692
1678.03	0.0000
1690.97	7.6582
1764.49	10.6551
1764.49	10.6551
1770.23	10.6647
1771.35	4.8485
1791.20	0.0000
1836.06	1.9590

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202054954

Total Uranium Activity	-2.8103E+00	ug/g
Total Uranium Counting Unc.	8.3711E+00	ug/g
Total Uranium Tpu	4.2710E-06	ug/g
Total Uranium Mda	6.8336E+00	ug/g

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*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 958220          SAMPLE ID   : G1202054954
*  ANALYST       : MXR1            DETECTOR    : GAM23
*  SAMPLE DATE   : 3-MAR-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00
*  ANALYSIS DATE: 12-MAR-2010 17:15:25.57  SAMPLE ALQT: 155.440 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.426E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 2.694E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.127E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.517E+00

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Radiochemistry Batch Checklist, Rev10

Batch# 964049 Product: H3 Date: 3/23/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [Signature] 3/23/10

Secondary Review Performed By: [Signature] 3/23/10

LANL

3/12 - 3/23/10 5 of 505

Tritium Que Sheet

17-MAR-10

Batch #: 964049 Analyst: KLK First Client Due Date: 23-MAR-10 Internal Due Date: 12-MAR-10

Spike Isotope: Hydrogen-3

Spike Code: 0134-K

Expiration Date: 3/27/10

Vol: 0.1

LCS Isotope: Hydrogen-3

LCS Code: 0134-K

Expiration Date: 3/27/10

Vol: 0.1

Prep Date: 3/12/10

Initials: KLK

Pipet ID: 2970968

Witness: EK 3/12/10

* recopied: 28 3/17/10

Sample ID	Client Samp ID	Type	Hazard Code	Min CRDL	Matrix	Client	Sample Date	Aliquot In vial (g/mL)	LSC Rack #	Dist Rtg #	Vol added for Dist (mL)	Initial Sample Aliquot (g/mL)	Final Wt (g)	Moisture Dist (mL)	Total
247964003-1	RE36-10-8489	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	16-FEB-10	10	1	1	551.39	551.39	544.70	16.69	31.19
247964001-1	RE36-10-8489	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	47-2	2	453.93	453.93	430.14	23.79	
247964002-1	RE36-10-8486	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	41	3	464.45	464.45	448.66	15.79	
247964003-1	RE36-10-8487	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	42	4	471.93	471.93	446.45	25.48	
247964004-1	RE36-10-8462	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	43	5	473.97	473.97	446.86	27.11	
247964005-1	RE36-10-8463	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	44	6	481.30	481.30	449.92	31.38	
247969001-1	RE36-10-8490	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	45	7	537.59	537.59	516.17	21.42	
247969002-1	RE36-10-8470	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	46	8	498.47	498.47	467.56	30.91	
247969003-1	RE36-10-8476	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	47	9	485.30	485.30	464.92	20.38	
247969004-1	RE36-10-8480	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	48	10	441.61	441.61	393.92	47.69	
247969005-1	RE36-10-8474	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	49	11	402.71	402.71	351.16	51.55	
247969006-1	RE36-10-8478	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	50	12	545.30	545.30	519.67	25.63	
247969007-1	RE36-10-8483	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	51	13	423.95	423.95	414.20	9.75	
247969008-1	RE36-10-8482	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	20-FEB-10	10	52	14	497.38	497.38	472.51	24.87	
248028001-1	RE15-10-8389	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	53	15	421.49	421.49	382.71	38.78	
248028002-1	RE15-10-8388	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	54	16	446.11	446.11	412.21	33.90	
248028003-1	RE15-10-8390	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	55	17	478.79	478.79	406.01	72.78	
248028004-1	RE15-10-8392	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	56	18	440.35	440.35	394.48	45.87	
248028005-1	RE15-10-8391	SAMPLE	25 pCi/mL SOIL	25 pCi/mL SOIL	LANL010	LANL010	19-FEB-10	10	57	19	445.60	445.60	397.03	48.57	
1202068192-1	MB for batch 964049	MB	25 pCi/mL SOIL	25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT		10	58-2	20	20.00	20.00	0	20.00	
1202068193-1	RE15-10-8391(248028005DUP)	DUP	25 pCi/mL SOIL	25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT	19-FEB-10	10	59	19	445.60	445.60	397.03	48.57	
1202068194-1	LCS for batch 964049	LCS	25 pCi/mL SOIL	25 pCi/mL SOIL	QC ACCOUNT	QC ACCOUNT		10	60	21	20.00	20.00	0	20.00	

Bkg Rack #: 33, 37, 47, 58-1
Dailies ✓
dailies ✓

Bkg prepared with dead water? Yes/No

Instrument Used (circle as appropriate): LS6000 (Red) 7065155, LS6500 (Blue) 7067083, LS6500 (Gold) 7070506, LS6500 (Green) 7067404, Wallace (Yellow) 4140123, LS6000 (Brown) 7060655, Wallace (Pink) 2200082, Wallace (White) 4140299, Purple 7069123, Silver 7060656, Orange DG06095769

Calibration Used: Ecosci Ultra 110 mL sample/13 mL Ecosci Ultra

Data Reviewed By: KLK 3/23/10

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

DATE	3/12/2010	INITIALS	KXK2	BATCH NUMBER	964049				
Sample #	Flask (g)	Sample Wet (g)	Sample Wet & Flask (g)	% Moisture of Sample (Balance Interface using % Moisture Batch)	Total Moisture in Sample (mL)	Sample Dry (g)	Sample Dry & Flask (g)	mLs aliquoted into LSC vial	Collection Tube Number
247774003	200	551.32	751.32	0.042	6.62	544.70	744.70	40	
247964001	200	453.93	653.93	0.048	21.79	432.14	632.14	10	
247964002	200	464.45	664.45	0.034	15.79	448.66	648.66	10	
247964003	200	471.93	671.93	0.054	25.48	446.45	646.45	10	
247964004	200	473.97	673.97	0.015	7.11	466.86	666.86	7	
247964005	200	421.30	621.30	0.027	11.38	408.92	608.92	8	
247969001	200	537.59	737.59	0.051	27.42	510.17	710.17	10	
247969002	200	498.47	698.47	0.062	30.91	467.56	667.56	10	
247969003	200	485.30	685.30	0.042	20.38	464.92	664.92	10	
247969004	200	441.61	641.61	0.108	47.69	393.92	593.92	10	
247969005	200	402.71	602.71	0.128	51.55	351.16	551.16	10	
247969006	200	545.30	745.30	0.047	25.63	519.67	719.67	10	
247969007	200	423.95	623.95	0.023	9.75	414.20	614.20	8	
247969008	200	497.38	697.38	0.050	24.87	472.51	672.51	10	
248028001	200	421.49	621.49	0.092	38.78	382.71	582.71	10	
248028002	200	446.11	646.11	0.076	33.90	412.21	612.21	10	
248028003	200	478.79	678.79	0.152	72.78	406.01	606.01	10	
248028004	200	440.35	640.35	0.195	85.87	354.48	554.48	10	
248028005	200	445.60	645.60	0.109	48.57	397.03	597.03	10	
MB	200	20.00	220.00	1.000	20.00	0.00	200.00	10	
DUP	200	445.60	645.60	0.109	48.57	397.03	597.03	10	
LCS	200	20.00	220.00	1.000	20.00	0.00	200.00	10	

Tritium Solid

Filename : H3VAC.XLS
File type : Excel
Version # : 1.2.5

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

LCS S/N : 0134-K
LCS Exp Date : 3/27/2010
LCS Activity (dpm/ml): 2457.20
LCS Volume Added: 0.10

Batch : 964049
Analyst : KXK2
Prep Date : 3/12/2010

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

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

Pipet, 0.1 ml Sidev : +/- 0.000701 ml
Pipet, 0.5 ml Sidev : +/- 0.002564 ml
Pipet, 1.0 ml Sidev : +/- 0.005480 ml
Pipet, 5.0 ml Sidev : +/- 0.025729 ml

Sample Characteristics			Total Moisture		Sample Aliquot in Vial		Sample Aliquot Sidev.		Dry Sample Weight (g)		% Moisture of Sample		Rig number		Sample Date/Time	
Pos.	Sample ID	Wet Sample Weight (g)	Moisture L	L	Sample Aliquot L	L	Sample Aliquot L	L	Weight (g)	Weight (g)	%	%	number	number	Date/Time	Date/Time
1	247964001.1	453.93	0.0218	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	432.14	432.14	4.80%	4.80%	2	2	2/19/2010 12:00	2/19/2010 12:00
2	247964002.1	464.45	0.0158	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	448.66	448.66	3.40%	3.40%	3	3	2/19/2010 12:00	2/19/2010 12:00
3	247964003.1	471.93	0.0255	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	446.45	446.45	5.40%	5.40%	4	4	2/19/2010 12:00	2/19/2010 12:00
4	247964004.1	473.97	0.0071	0.0070	0.0070	0.0070	2.5729E-05	2.5729E-05	466.86	466.86	1.50%	1.50%	5	5	2/19/2010 12:00	2/19/2010 12:00
5	247964005.1	421.30	0.0114	0.0080	0.0080	0.0080	2.5729E-05	2.5729E-05	409.92	409.92	2.70%	2.70%	6	6	2/19/2010 12:00	2/19/2010 12:00
6	247969001.1	537.59	0.0274	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	510.17	510.17	5.10%	5.10%	7	7	2/20/2010 12:00	2/20/2010 12:00
7	247969002.1	498.47	0.0309	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	467.56	467.56	6.20%	6.20%	8	8	2/20/2010 12:00	2/20/2010 12:00
8	247969003.1	485.30	0.0204	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	464.92	464.92	4.20%	4.20%	9	9	2/20/2010 12:00	2/20/2010 12:00
9	247969004.1	441.61	0.0477	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	393.92	393.92	10.80%	10.80%	10	10	2/20/2010 12:00	2/20/2010 12:00
10	247969005.1	402.71	0.0516	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	351.16	351.16	12.80%	12.80%	11	11	2/20/2010 12:00	2/20/2010 12:00
11	247969006.1	545.30	0.0256	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	519.67	519.67	4.70%	4.70%	12	12	2/20/2010 12:00	2/20/2010 12:00
12	247969007.1	423.85	0.0098	0.0080	0.0080	0.0080	2.5729E-05	2.5729E-05	414.20	414.20	2.30%	2.30%	13	13	2/20/2010 12:00	2/20/2010 12:00
13	247969008.1	497.38	0.0249	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	472.51	472.51	5.00%	5.00%	14	14	2/20/2010 12:00	2/20/2010 12:00
14	248028001.1	421.49	0.0388	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	382.71	382.71	9.20%	9.20%	15	15	2/19/2010 12:00	2/19/2010 12:00
15	248028002.1	446.11	0.0339	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	412.21	412.21	7.60%	7.60%	16	16	2/19/2010 12:00	2/19/2010 12:00
16	248028003.1	478.79	0.0728	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	406.01	406.01	15.20%	15.20%	17	17	2/19/2010 12:00	2/19/2010 12:00
17	248028004.1	440.35	0.0859	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	354.48	354.48	19.50%	19.50%	18	18	2/19/2010 12:00	2/19/2010 12:00
18	248028005.1	445.60	0.0486	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	397.03	397.03	10.90%	10.90%	19	19	2/19/2010 12:00	2/19/2010 12:00
19	1202068192.1	20.00	0.0200	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	0.00	0.00	100.00%	100.00%	20	20	3/12/2010 0:00	3/12/2010 0:00
20	1202068193.1	445.60	0.0486	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	397.03	397.03	10.90%	10.90%	19	19	2/19/2010 12:00	2/19/2010 12:00
21	1202068194.1	20.00	0.0200	0.0100	0.0100	0.0100	2.5729E-05	2.5729E-05	0.00	0.00	100.00%	100.00%	21	21	3/12/2010 0:00	3/12/2010 0:00

Count raw data				Background				Calibration Data				Detector				Backgrounds	
Pos.	Rack	Position #	Counting Time (min.)	Quench#	Gross cpm	Background cpm	Count Time (min.)	Count Start Date/Time	Sample Decay	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Error (cpm/dpm)	Rack Position #	Count Start Date/Time	
1	47-2		120	117.3	3.27	2.72	120	3/19/2010 14:45	0.996	LSCGOLD	8/20/2009	8/31/2010	0.1811	0.00792	47-1	3/19/2010 12:41	
2	41		35.0297	762.66	1.75	1.86	50	3/15/2010 10:24	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2754	0.00792	38	3/15/2010 8:47	
3	42		35.0297	761.36	1.81	1.86	50	3/15/2010 11:02	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2733	0.00792	38	3/15/2010 8:47	
4	40		60.0297	759.63	1.43	1.04	60	3/22/2010 17:53	0.995	LSCORANGE	7/23/2009	7/31/2010	0.2705	0.00792	39	3/22/2010 16:51	
5	44		50.0297	763.97	1.82	1.86	50	3/15/2010 12:17	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2775	0.00792	38	3/15/2010 8:47	
6	45		35.0297	764.73	1.87	1.86	50	3/15/2010 13:08	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2787	0.00792	38	3/15/2010 8:47	
7	46		35.0297	758.12	2.68	1.86	50	3/15/2010 13:47	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2697	0.00792	38	3/15/2010 8:47	
8	47		35.0297	756.76	1.43	1.86	50	3/15/2010 14:25	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2658	0.00792	38	3/15/2010 8:47	
9	48		35.0297	756.01	2.16	1.86	50	3/15/2010 15:02	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2645	0.00792	38	3/15/2010 8:47	
10	49		35.0297	758.97	1.43	1.86	50	3/15/2010 15:40	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2694	0.00792	38	3/15/2010 8:47	
11	50		35.0297	760.81	2.24	1.86	50	3/15/2010 16:17	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2721	0.00792	38	3/15/2010 8:47	
12	51		35.0296	761.87	1.81	1.86	50	3/15/2010 16:55	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2741	0.00792	38	3/15/2010 8:47	
13	52		50.0296	756.87	1.69	1.86	50	3/15/2010 17:32	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2660	0.00792	38	3/15/2010 8:47	
14	53		35.0296	761.41	2.57	1.86	50	3/15/2010 18:25	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2734	0.00792	38	3/15/2010 8:47	
15	54		35.013	758.42	2.39	1.86	50	3/15/2010 19:02	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2685	0.00792	38	3/15/2010 8:47	
16	55		35.0296	760.82	2.62	1.86	50	3/15/2010 19:40	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2724	0.00792	38	3/15/2010 8:47	
17	56		35.0296	760.37	1.19	1.86	50	3/15/2010 20:17	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2717	0.00792	38	3/15/2010 8:47	
18	57		35.0296	760.94	2.39	1.86	50	3/15/2010 20:55	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2726	0.00792	38	3/15/2010 8:47	
19	58-2		120	729.69	2.53	2.69	120	3/17/2010 15:23	0.999	LSCYELLOW	8/21/2009	8/31/2010	0.2000	0.00792	58-1	3/17/2010 13:21	
20	59		35.0296	762.33	2.42	1.86	50	3/15/2010 22:10	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2749	0.00792	38	3/15/2010 8:47	
21	60		15.0296	770.89	37.04	1.86	50	3/15/2010 22:48	0.999	LSCORANGE	7/23/2009	7/31/2010	0.2884	0.00792	38	3/15/2010 8:47	

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 1202068193.1

Results Pos.	Decision Level	Critical Level	Required MDC	MDC	Sample Act. Conc.	Sample Act. Error	Net Count Rate	Net Count Rate Error	1 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
									Counting Uncertainty	Total Prop. Uncertainty						
	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	CPM	CPM	pCi/L	pCi/L						
1	123.9121	87.4830	250	181.2104	137.3762	0.406	0.550	0.223	55.8048	56.6191		SAMPLE				
2	114.8300	81.1416	250	176.3429	-18.0586	2.684	-0.110	0.296	48.4807	48.4618		SAMPLE				
3	115.8139	81.7656	250	177.6990	-8.2716	5.961	-0.050	0.298	48.3110	49.3121		SAMPLE				
4	103.8821	73.2004	250	158.3477	93.2317	0.520	0.390	0.203	48.4914	48.9254		SAMPLE				
5	129.3934	91.3529	250	194.9179	-8.1463	6.780	-0.040	0.271	55.2343	55.2350		SAMPLE				
6	113.5442	80.1632	250	174.2165	1.6219	30.093	0.010	0.301	48.8084	48.8095		SAMPLE				
7	117.3625	82.8589	250	180.0752	137.4680	0.411	0.820	0.337	56.5247	57.3298		SAMPLE				
8	119.0712	84.0653	250	182.6969	-73.1364	0.650	-0.430	0.278	47.5022	47.5034		SAMPLE				
9	118.6278	84.4583	250	183.5510	51.2639	1.048	0.300	0.314	53.7226	53.8411		SAMPLE				
10	117.4706	82.9353	250	180.2411	-72.1533	0.650	-0.430	0.279	48.8637	46.8649		SAMPLE				
11	116.3177	82.1213	250	178.4721	63.1376	0.837	0.380	0.318	52.8361	53.0188		SAMPLE				
12	144.3148	101.8875	250	221.4294	-10.3072	5.961	-0.050	0.298	61.4461	61.4474		SAMPLE				
13	107.9921	76.2434	250	162.6791	-28.8953	1.567	-0.170	0.266	45.2771	45.2778		SAMPLE				
14	115.7851	81.7453	250	177.6549	117.4274	0.468	0.710	0.332	54.9894	55.5943		SAMPLE				
15	117.9013	83.2393	250	180.9067	89.2467	0.613	0.530	0.325	54.6783	55.0305		SAMPLE				
16	116.1926	82.0330	250	178.2801	126.1392	0.440	0.760	0.335	55.5381	56.2286		SAMPLE				
17	116.5056	82.2540	250	178.7604	-111.5013	0.398	-0.670	0.267	44.3905	44.3917		SAMPLE				
18	116.1105	81.9750	250	178.1542	87.9034	0.613	0.530	0.325	53.8471	54.1940		SAMPLE				
19	111.2132	78.5174	250	162.6705	-36.0678	1.304	-0.160	0.209	47.0158	47.0160		SAMPLE				
20	115.1613	81.3049	250	176.6979	92.1198	0.582	0.560	0.326	53.6234	54.0059	248028005.1	MB	0.0%	0.0195	5534.2351	99.3%
21	146.0612	103.1205	250	237.4319	5497.3234	0.046	35.180	1.582	247.1545	455.7176		LCS				

REGISTRY

MON 15 MAR 2010 8:45

*** DIRECTORY PATH :S:\LSC\O\DA\964049A0 ***

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

00A PROGRAM MODE

6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	38	BKG	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	39	247774003	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
3	40	247964001	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
4	41	247964002	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
5	42	247964003	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
6	43	247964004	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
7	44	247964005	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
8	45	247969001	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
9	46	247969002	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
10	47	247969003	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
11	48	247969004	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
12	49	247969005	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
13	50	247969006	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
14	51	247969007	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
15	52	247969008	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
16	53	248028001	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
17	54	248028002	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
18	55	248028003	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
19	56	248028004	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
20	57	248028005	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
21	58	1202068192	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
22	59	1202068193	35:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
23	60	1202068194	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
1 LRSUM DCOS G
2 GSUM G

MEMORY SPLIT
L*R
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					

Page 1

LISTING
INSTRUMENT NUMBER

Y
1

REGISTRY

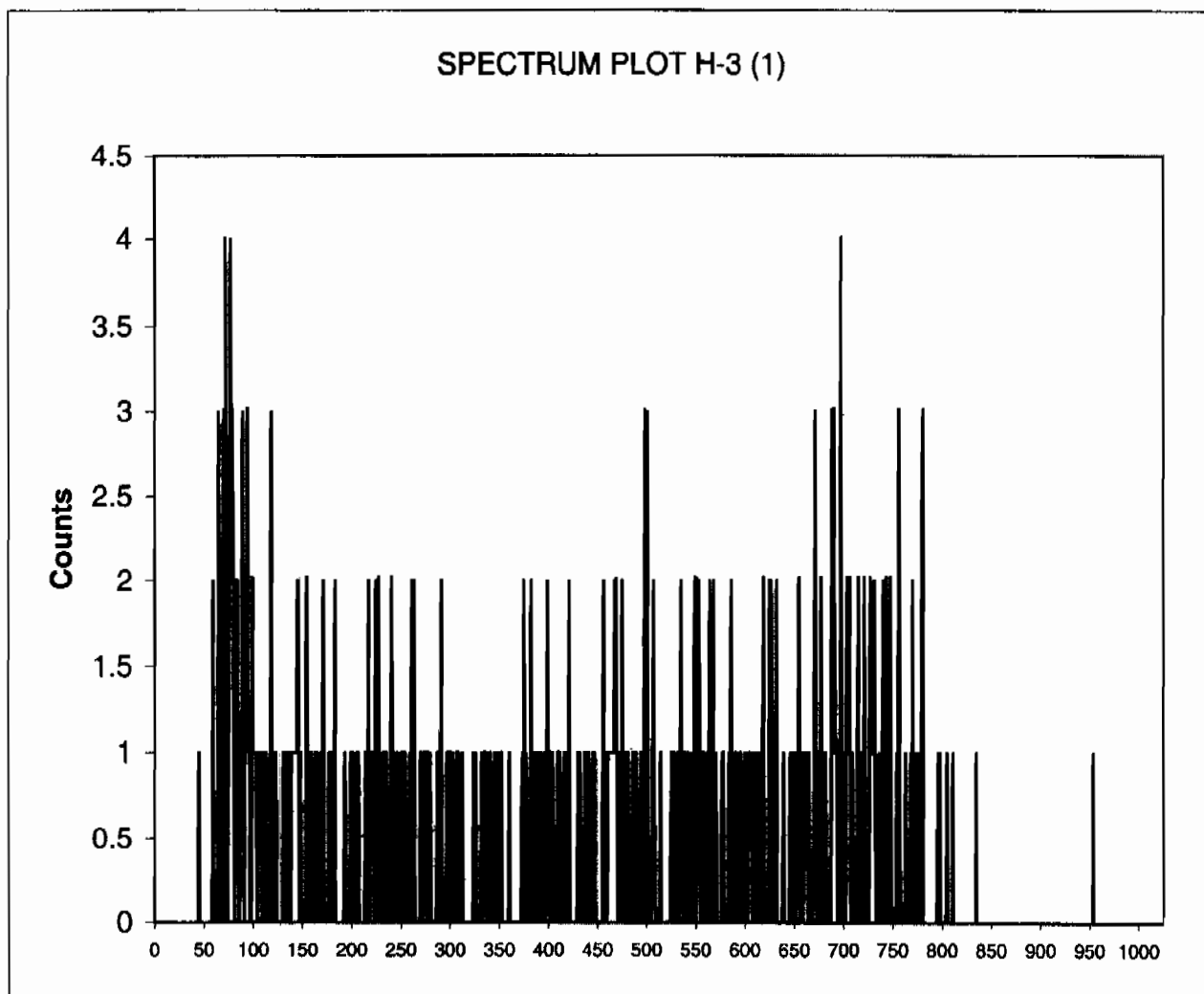
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	Q013801N.001 15 MAR 2010	9:38				
38	BKG	50:01.780	732.56	1.86	3.06	7.91
39	Q023901N.001 15 MAR 2010	9:45				
	247774003	4:10.780	766.60	2467.18	2712.90	2717.55
	Q034001N.001 15 MAR 2010	10:22				
	40 247964001	35:00.780	763.08	3.18	4.38	8.88
	Q044101N.001 15 MAR 2010	11:00				
	41 247964002	35:01.780	762.66	1.75	2.83	7.77
	Q054201N.001 15 MAR 2010	11:38				
	42 247964003	35:01.780	761.36	1.81	2.77	7.42
	Q064301N.001 15 MAR 2010	12:15				
	43 247964004	35:01.780	761.06	1.95	3.21	8.21
	Q074401N.001 15 MAR 2010	13:08				
	44 247964005	50:01.779	763.97	1.82	3.10	8.01
	Q084501N.001 15 MAR 2010	13:45				
	45 247969001	35:01.779	764.73	1.87	3.06	7.77
	Q094601N.001 15 MAR 2010	14:23				
	46 247969002	35:01.779	759.12	2.68	4.29	9.08
	Q104701N.001 15 MAR 2010	15:01				
	47 247969003	35:01.779	756.76	1.43	2.68	7.53
	Q114801N.001 15 MAR 2010	15:38				
	48 247969004	35:01.779	756.01	2.16	3.44	9.17
	Q124901N.001 15 MAR 2010	16:16				
	49 247969005	35:01.779	758.97	1.43	2.68	7.56
	Q135001N.001 15 MAR 2010	16:53				
	50 247969006	35:01.779	760.61	2.24	4.03	9.55
	Q145101N.001 15 MAR 2010	17:31				
	51 247969007	35:01.778	761.87	1.81	2.92	8.50
	Q155201N.001 15 MAR 2010	18:23				
	52 247969008	50:01.778	756.87	1.69	3.04	7.46
	Q165301N.001 15 MAR 2010	19:01				
	53 248028001	35:01.778	761.41	2.57	4.03	9.75
	Q175401N.001 15 MAR 2010	19:38				
	54 248028002	35:00.778	758.42	2.39	3.88	9.29
	Q185501N.001 15 MAR 2010	20:16				
	55 248028003	35:01.777	760.82	2.62	4.14	9.43
	Q195601N.001 15 MAR 2010	20:53				
	56 248028004	35:01.777	760.37	1.19	2.60	7.48
	Q205701N.001 15 MAR 2010	21:31				
	57 248028005	35:01.777	760.94	2.39	3.71	8.76
	Q215801N.001 15 MAR 2010	22:09				
	58 1202068192	35:01.777	771.26	1.28	2.62	7.80
	Q225901N.001 15 MAR 2010	22:46				
	59 1202068193	35:01.776	762.33	2.42	3.94	8.94
	Q236001N.001 15 MAR 2010	23:04				
	60 1202068194	15:01.776	770.89	37.04	41.95	46.92

Instrument Type: Quantulus
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File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 1, BKG, 50.02967:
Quench: 732.56
Start, End, X-Axis 50-175

Channel Counts



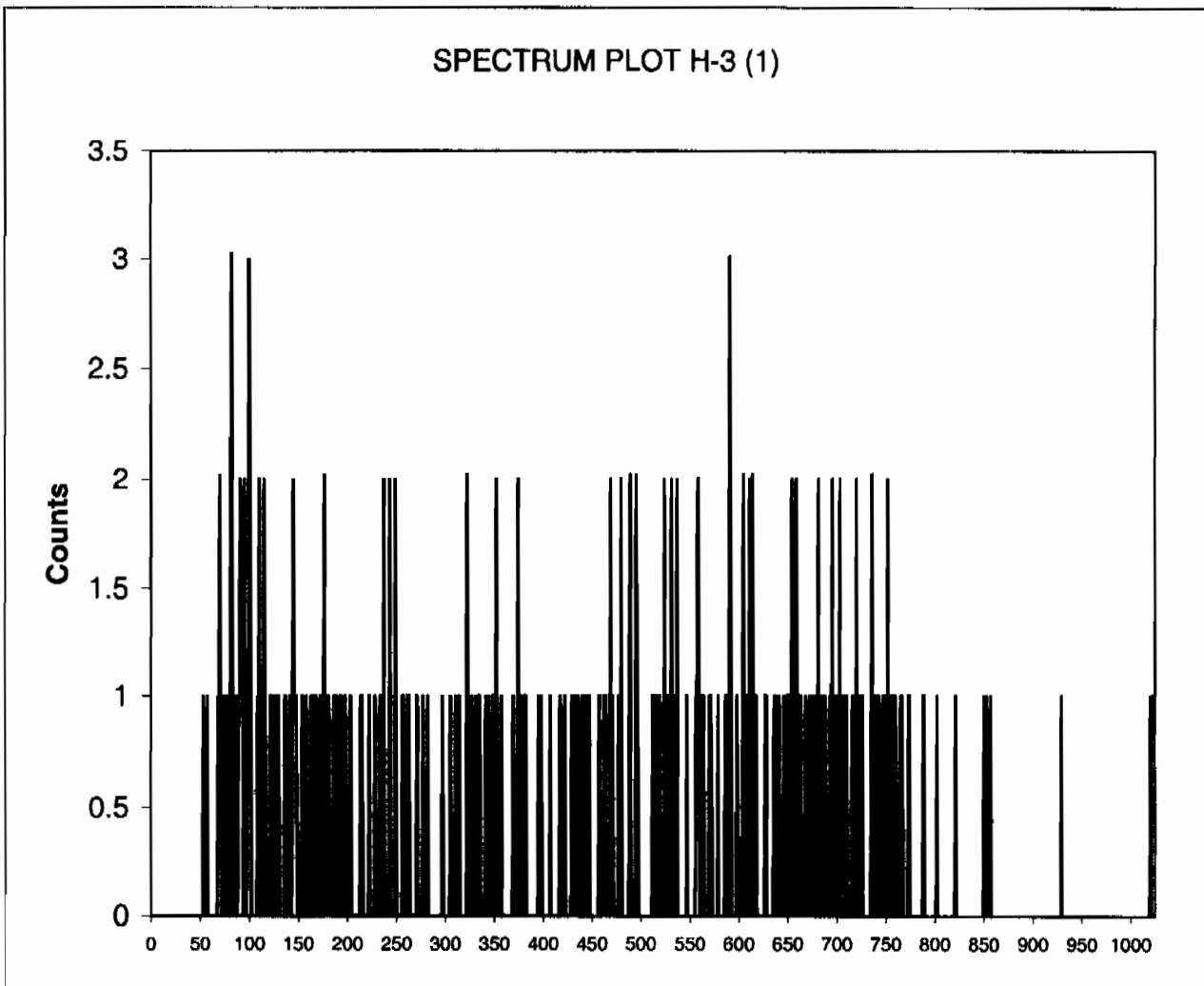
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Comments: ORANGE

Sample, Rack-Pos, Time: 4, 247964002, 35.02967:
Quench: 762.66
Start, End, X-Axis 50-175

Channel Counts



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32 0
33 0
34 0
35 0

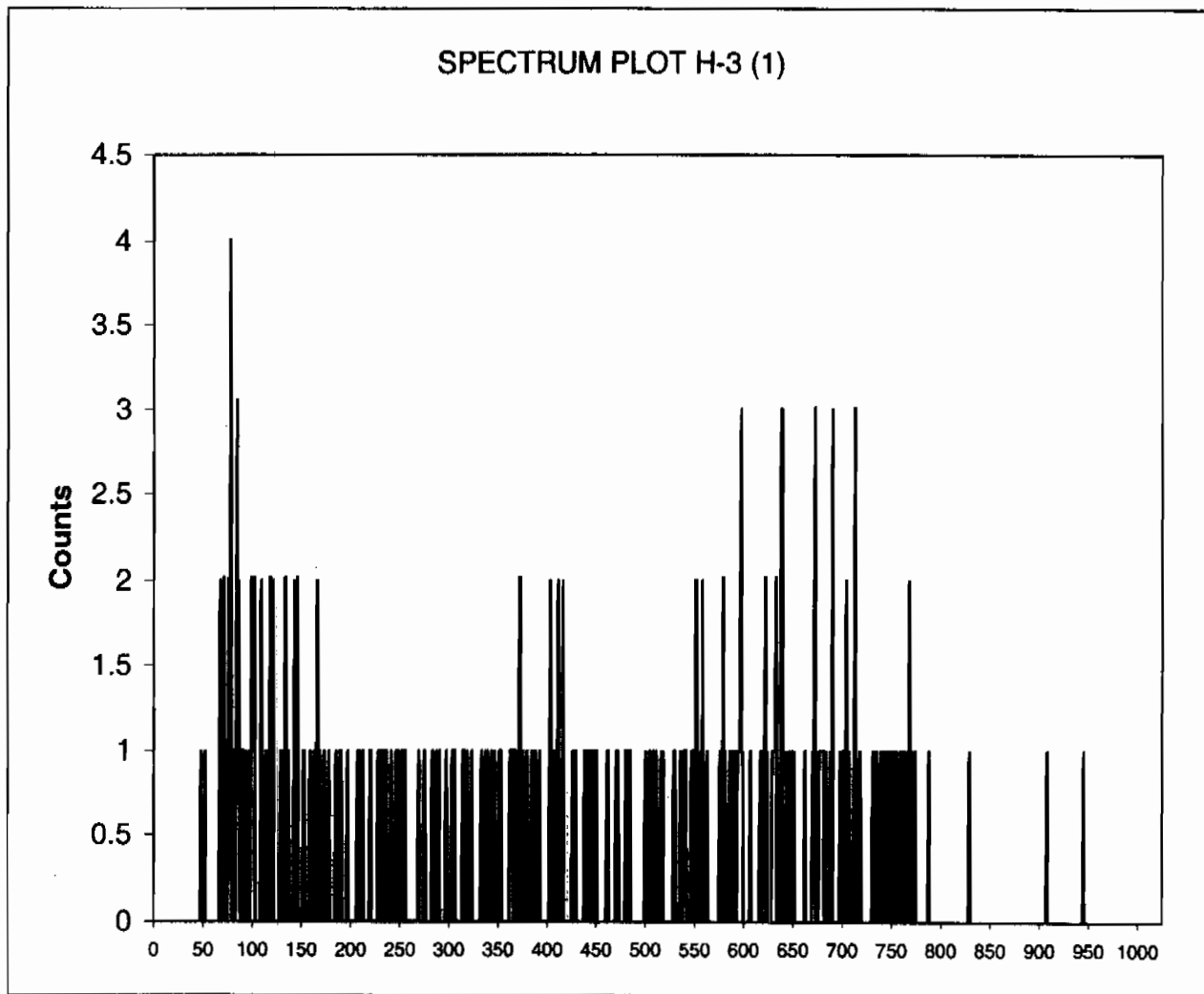
Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
MON 15 MAR 2010 8:45
s:\sc\files\orange\964049A0\SQ054201N.001.xls
s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 5, 247964003, 35.02967:
Quench: 761.36
Start, End, X-Axis 50-175

Channel Counts



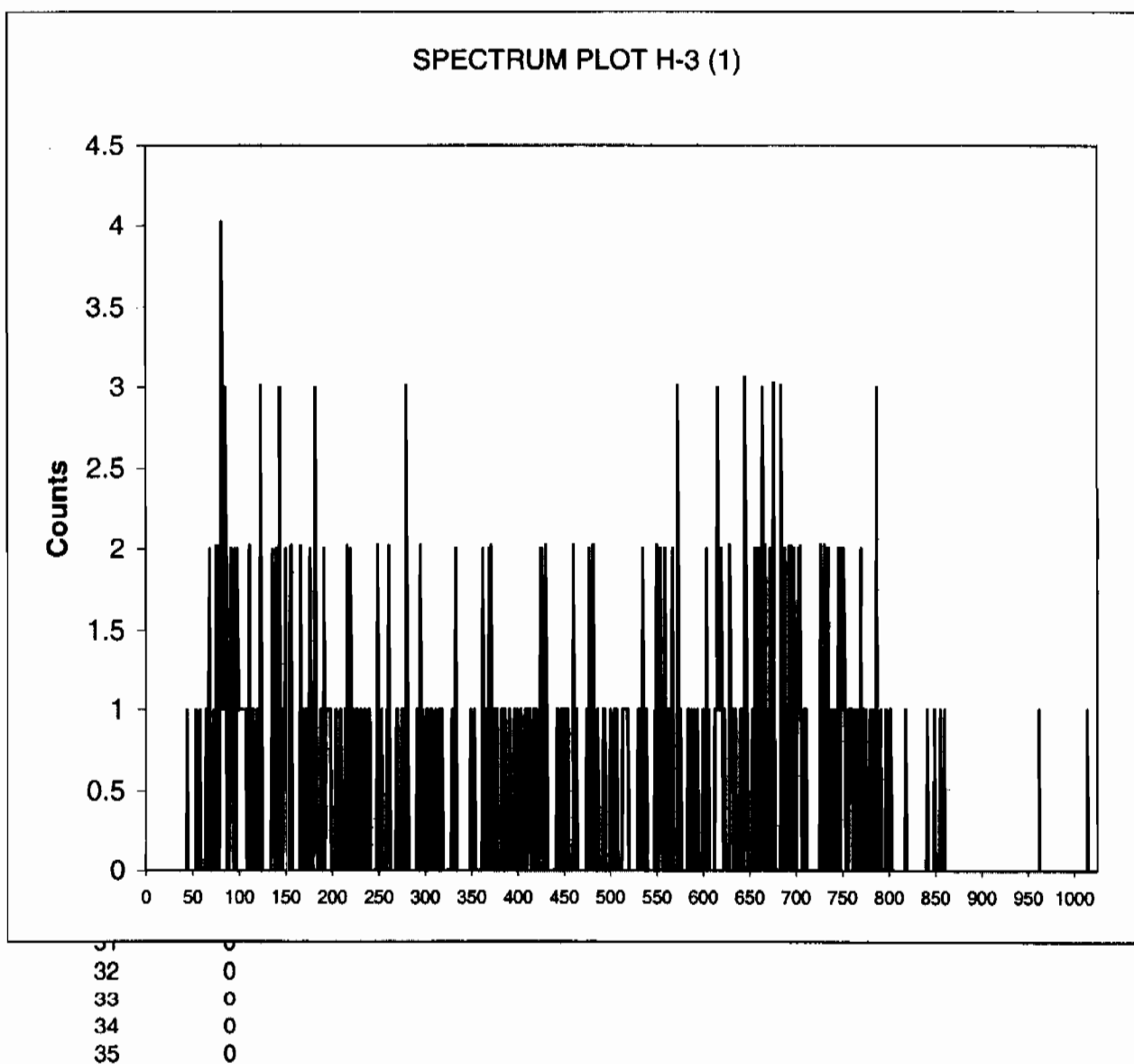
31 0
32 0
33 0
34 0
35 0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ074401N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 7, 247964005, 50.02965:
Quench: 763.97
Start, End, X-Axis 50-175

Channel Counts

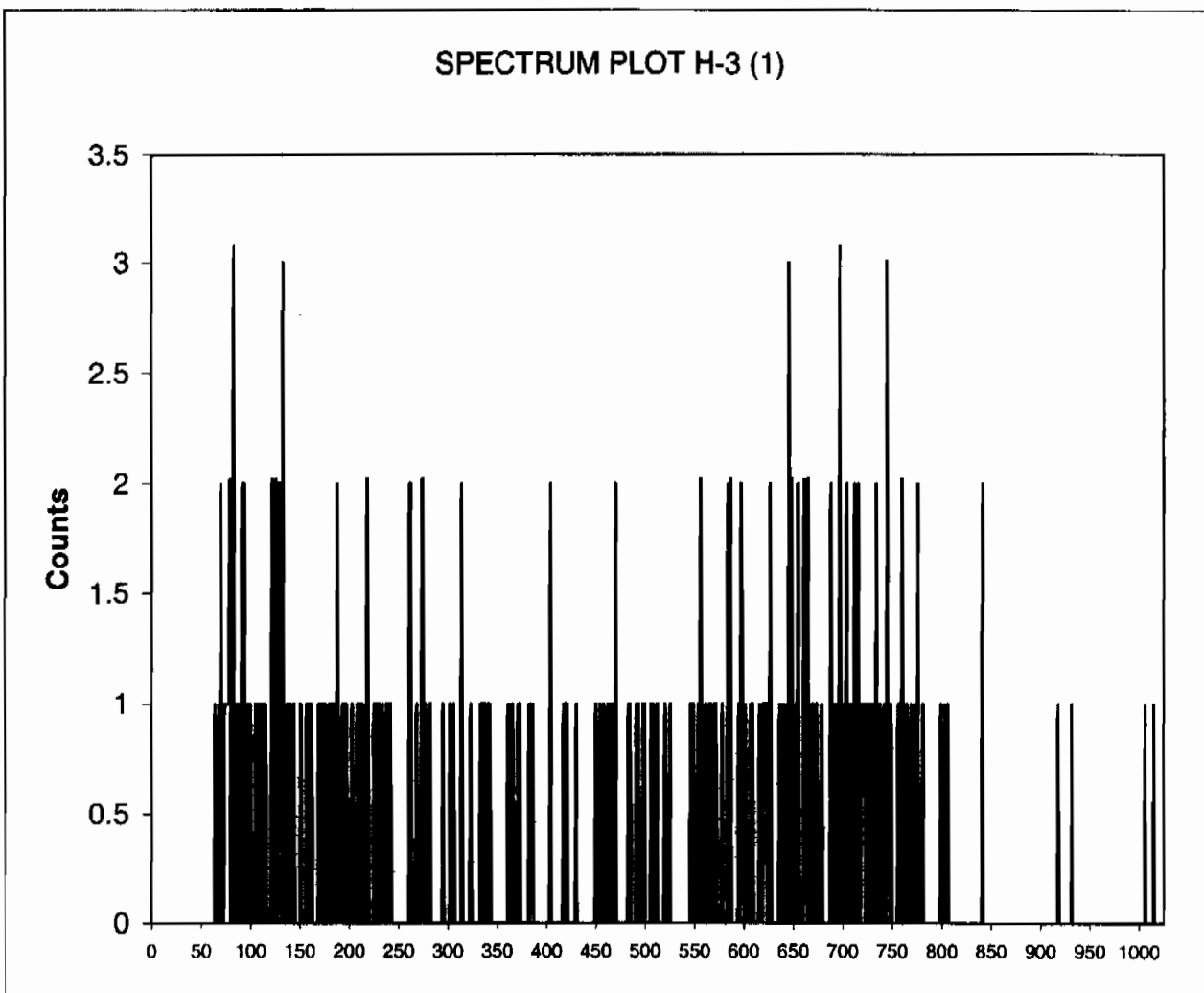


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ084501N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 8, 247969001, 35.02965:
Quench: 764.73
Start, End, X-Axis 50-175

Channel Counts



31	0
32	0
33	0
34	0
35	0

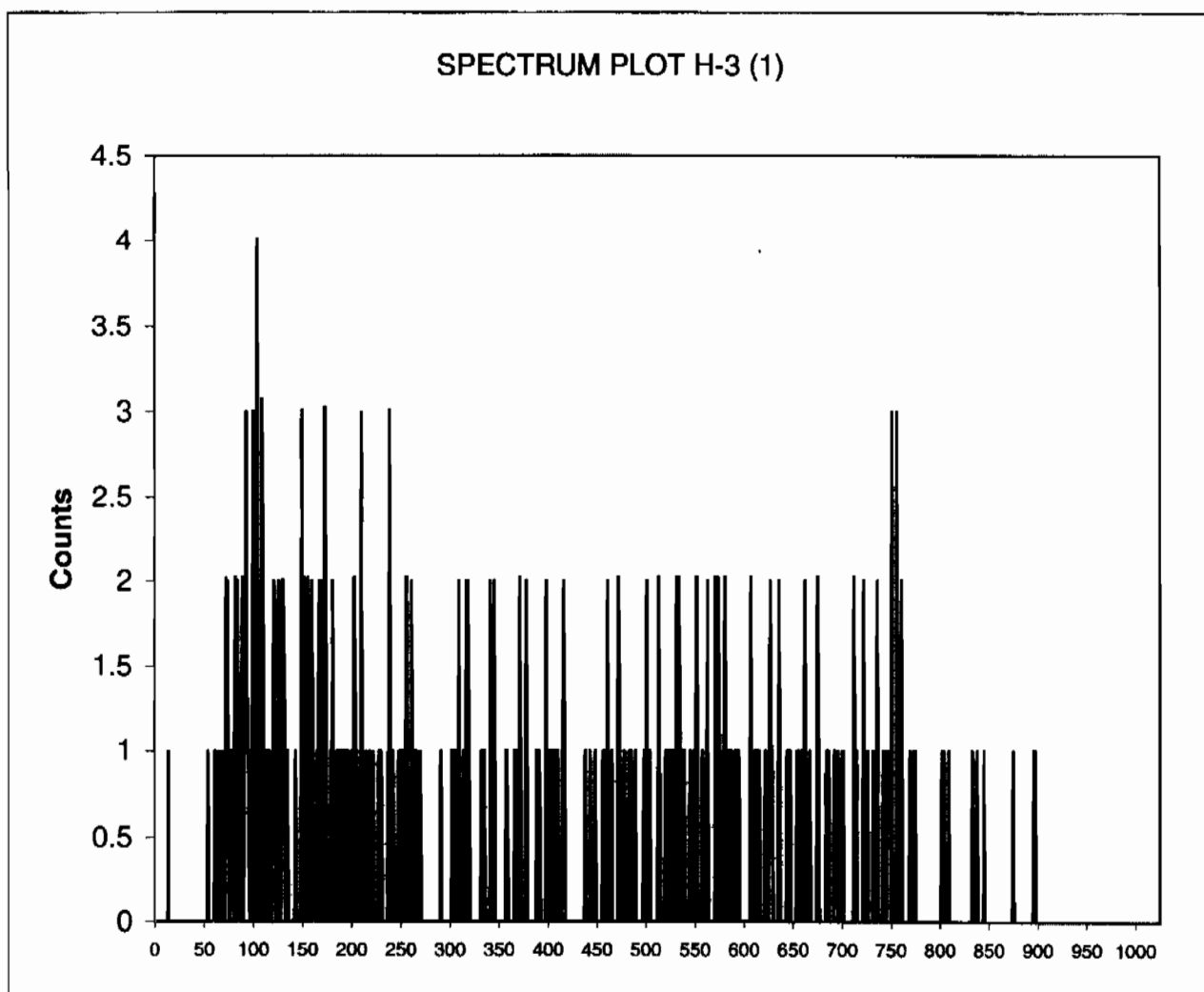
Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
MON 15 MAR 2010 8:45
s:\sc\files\orange\964049A0\SQ094601N.001.xls
s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 9, 247969002, 35.02965:
Quench: 759.12
Start, End, X-Axis 50-175

Channel Counts



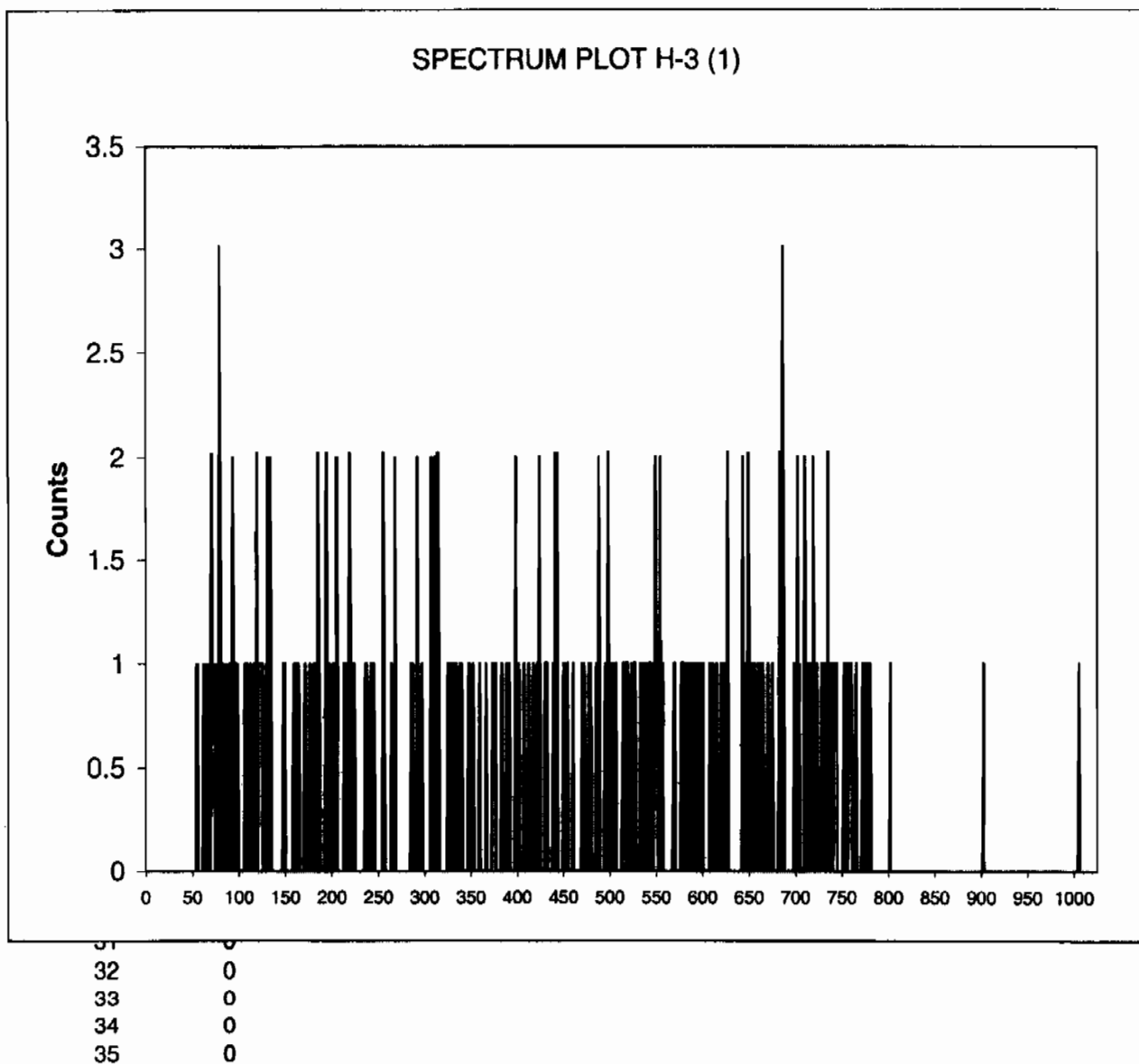
31	0
32	0
33	0
34	0
35	0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ104701N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 10, 247969003, 35.02965:
Quench: 756.76
Start, End, X-Axis 50-175

Channel Counts

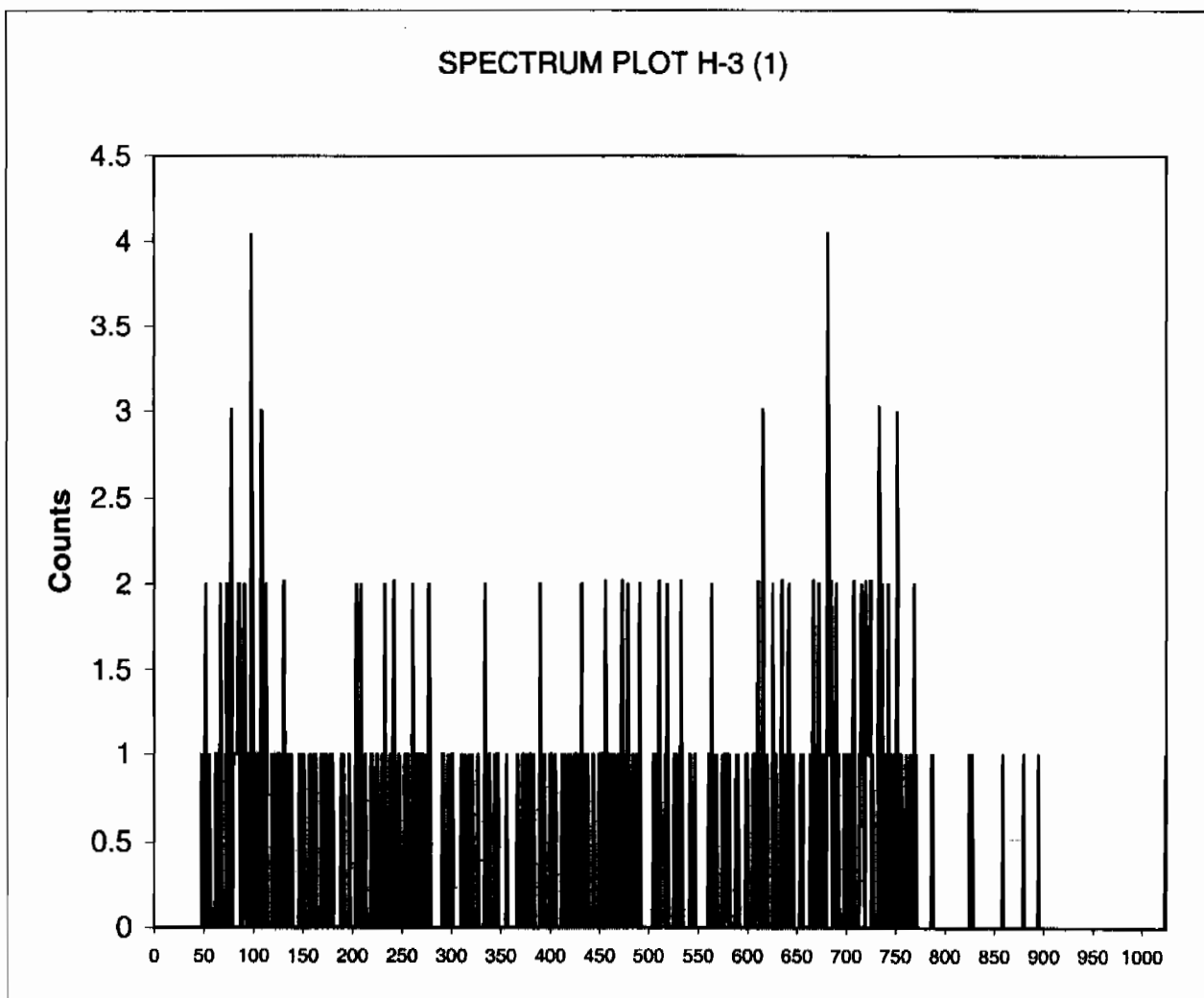


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ114801N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 11, 247969004, 35.02965:
Quench: 756.01
Start, End, X-Axis 50-175

Channel Counts



31 0
32 0
33 0
34 0
35 0

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

Quantulus
MON 15 MAR 2010 8:45
s:\sc\files\orange\964049A0\SQ124901N.001.xls
s:\sc\files\orange\964049A0\U964049A0.xls

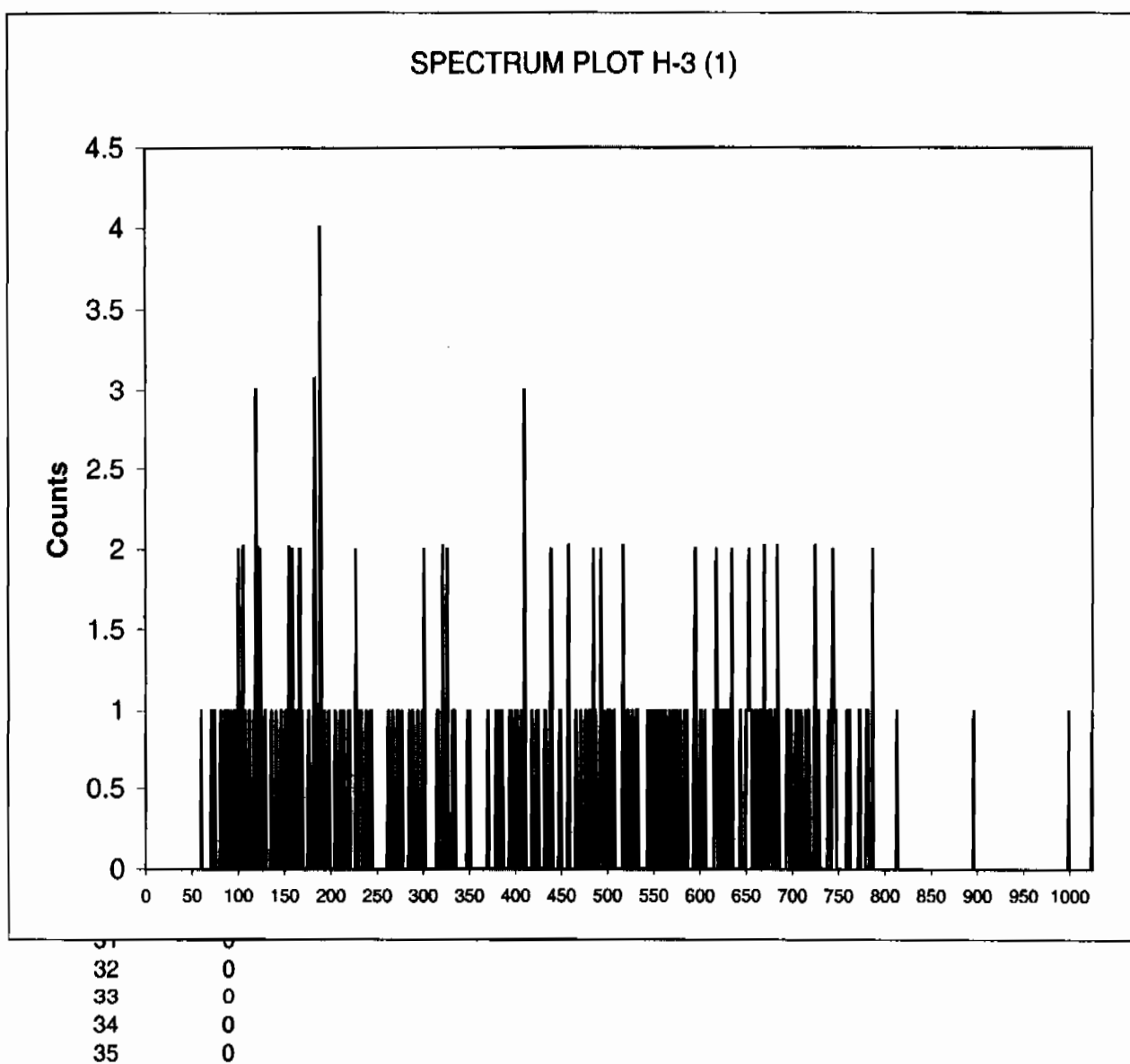
ID:
Comments:

H-3 (1)
ORANGE

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

12, 247969005, 35.02965:
758.97
50-175

Channel Counts

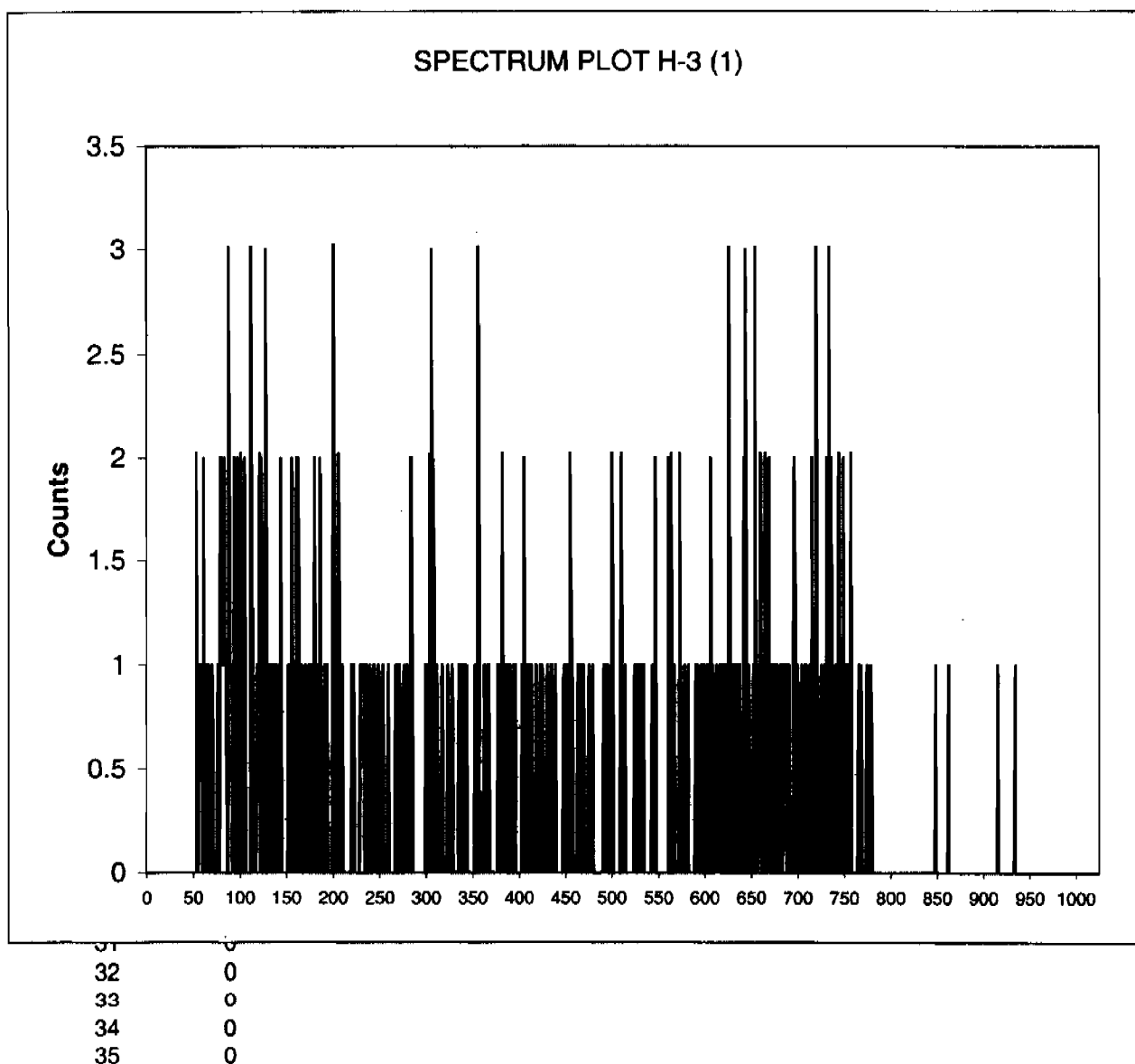


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\scfiles\orange\964049A0\SQ135001N.001.xls
File Info: s:\scfiles\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 13, 247969006, 35.02965:
Quench: 760.61
Start, End, X-Axis 50-175

Channel Counts



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

Quantulus
MON 15 MAR 2010 8:45
s:\sc\files\orange\964049A0\SQ145101N.001.xls
s:\sc\files\orange\964049A0\U964049A0.xls

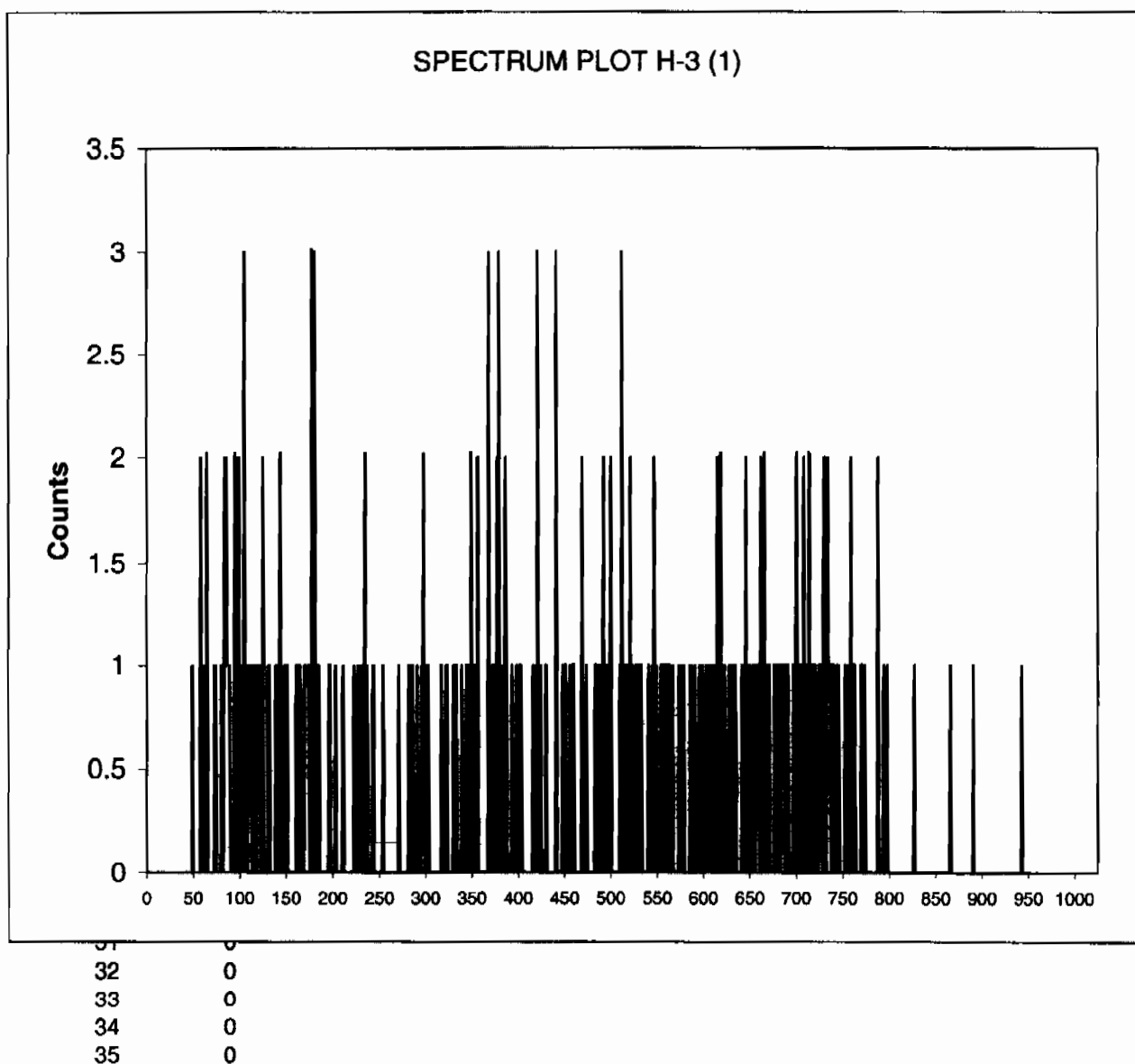
ID:
Comments:

H-3 (1)
ORANGE

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

14, 247969007, 35.02963:
761.87
50-175

Channel Counts

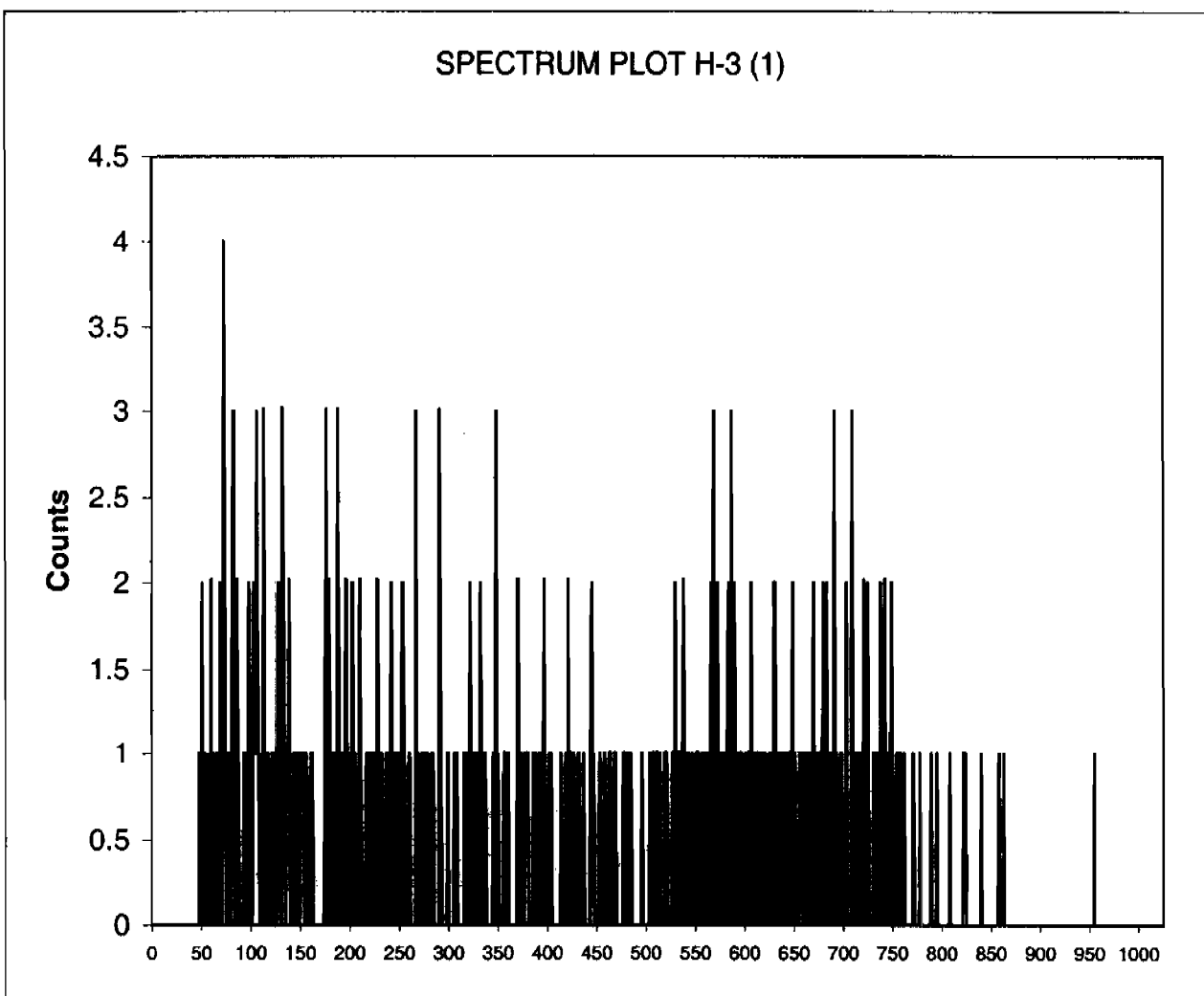


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ155201N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 15, 247969008, 50.02963:
Quench: 756.87
Start, End, X-Axis 50-175

Channel Counts



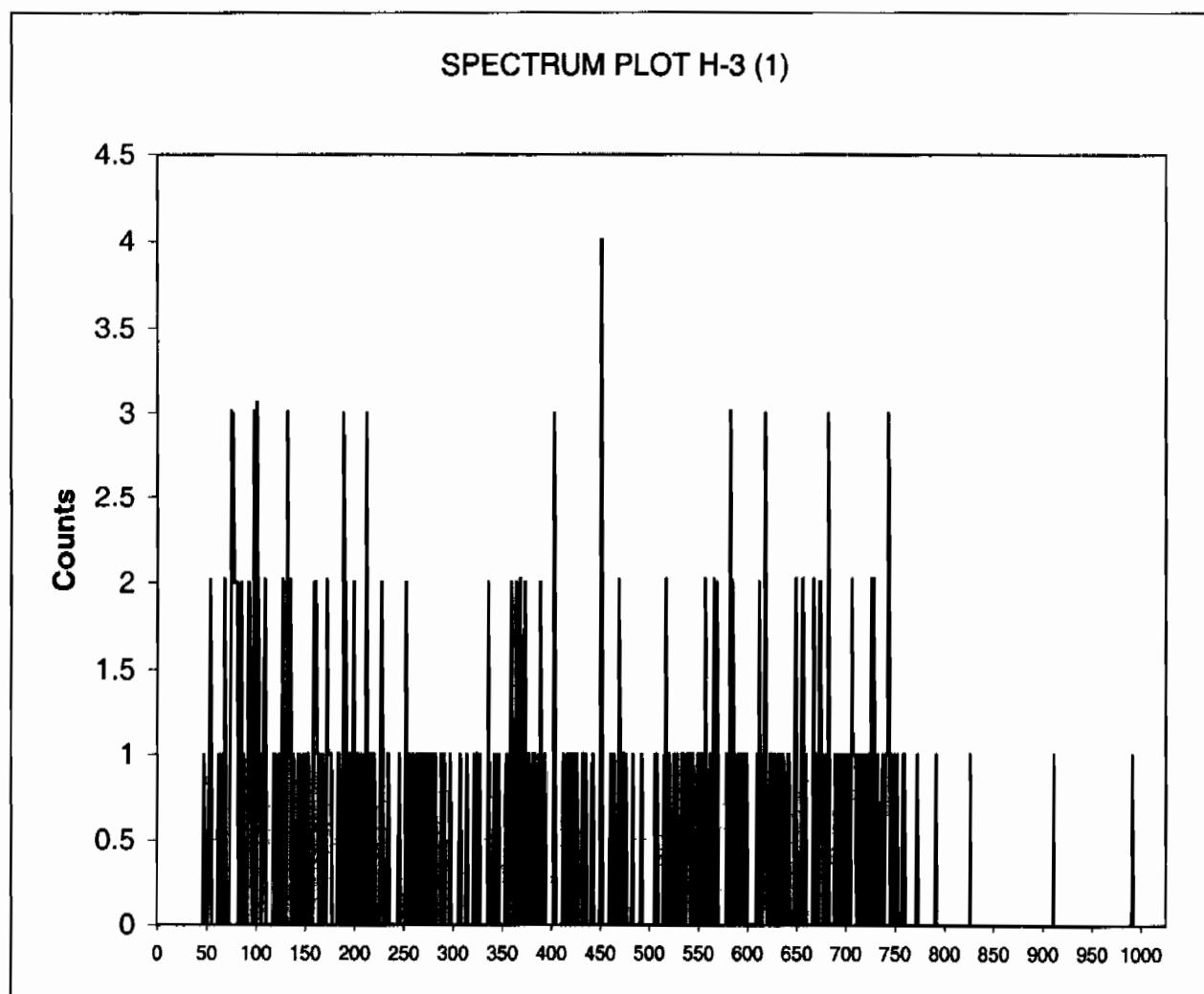
31 0
32 0
33 0
34 0
35 0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ165301N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 16, 248028001, 35.02963:
Quench: 761.41
Start, End, X-Axis 50-175

Channel Counts



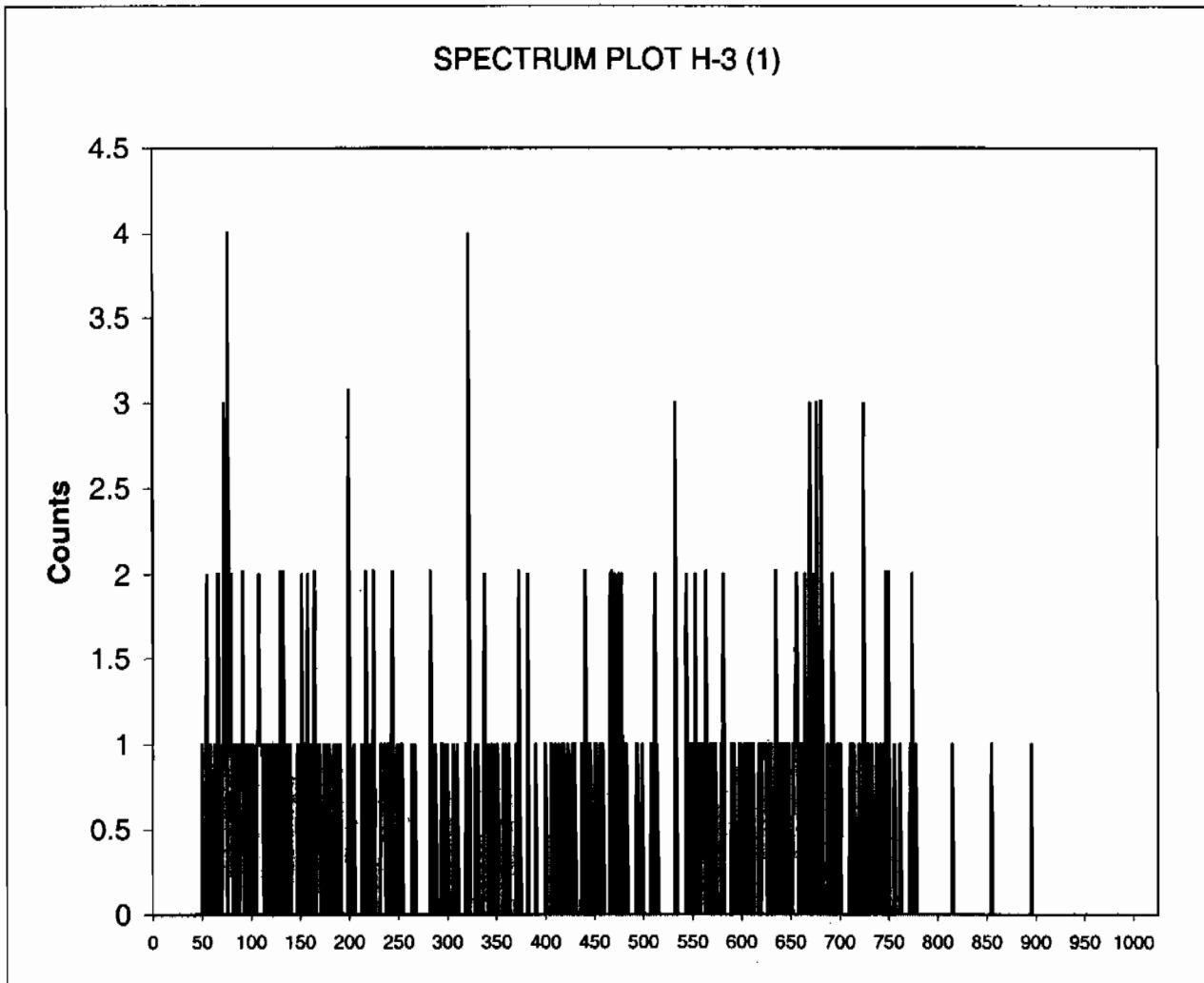
31 0
32 0
33 0
34 0
35 0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ175401N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 17, 248028002, 35.01297:
Quench: 758.42
Start, End, X-Axis 50-175

Channel Counts

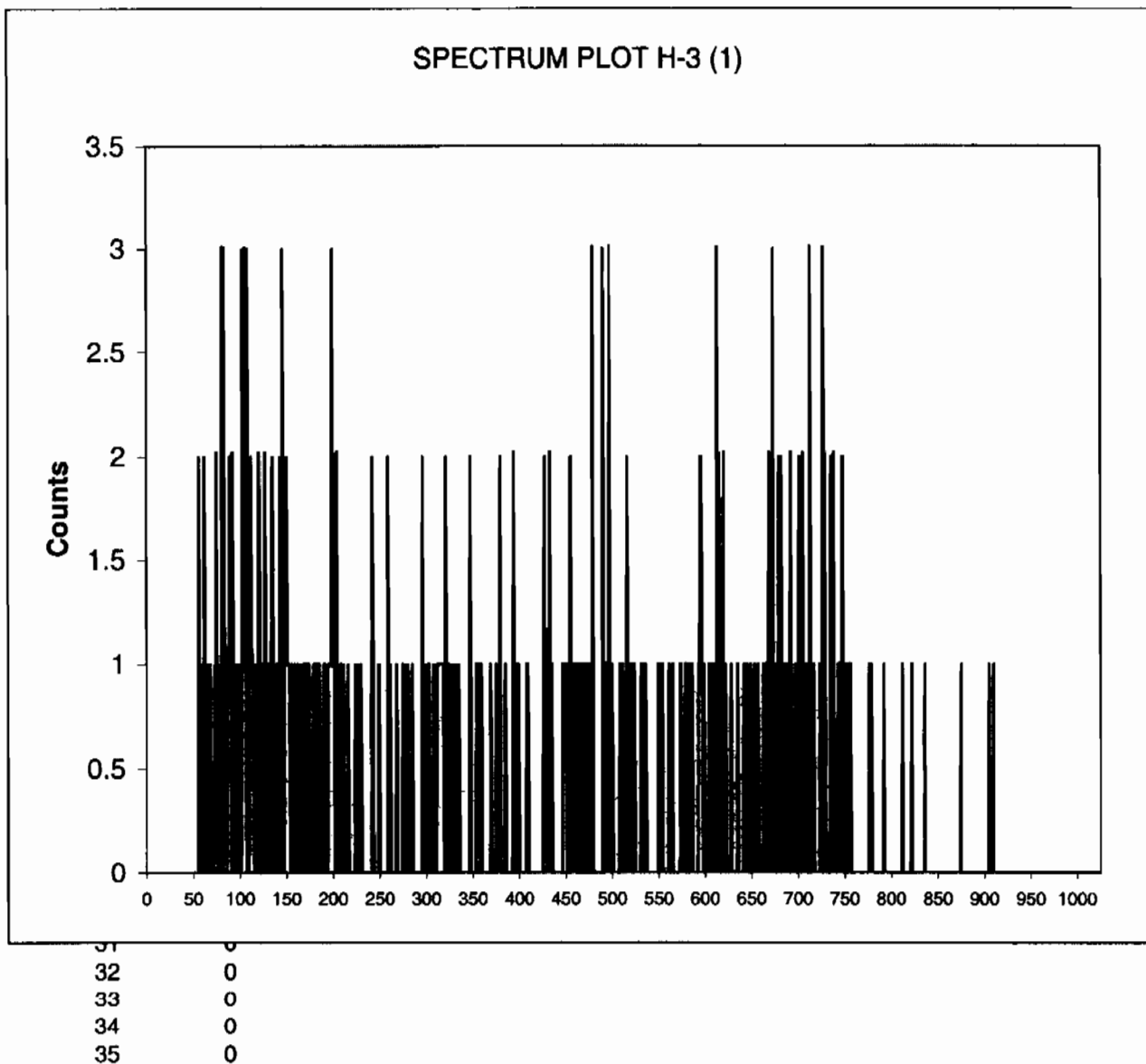


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ185501N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 18, 248028003, 35.02962:
Quench: 760.82
Start, End, X-Axis 50-175

Channel Counts

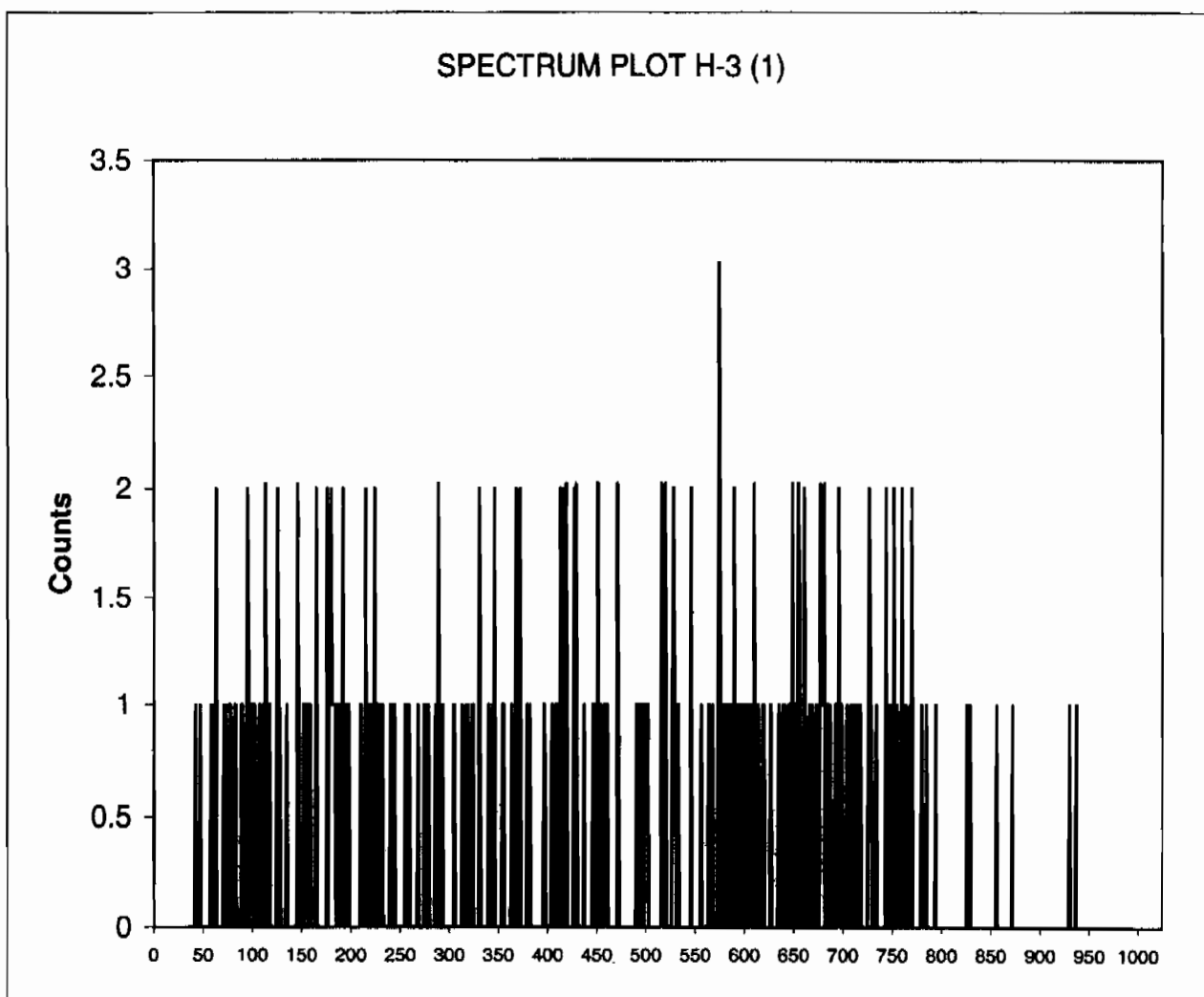


Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ195601N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 19, 248028004, 35.02962:
Quench: 760.37
Start, End, X-Axis 50-175

Channel Counts



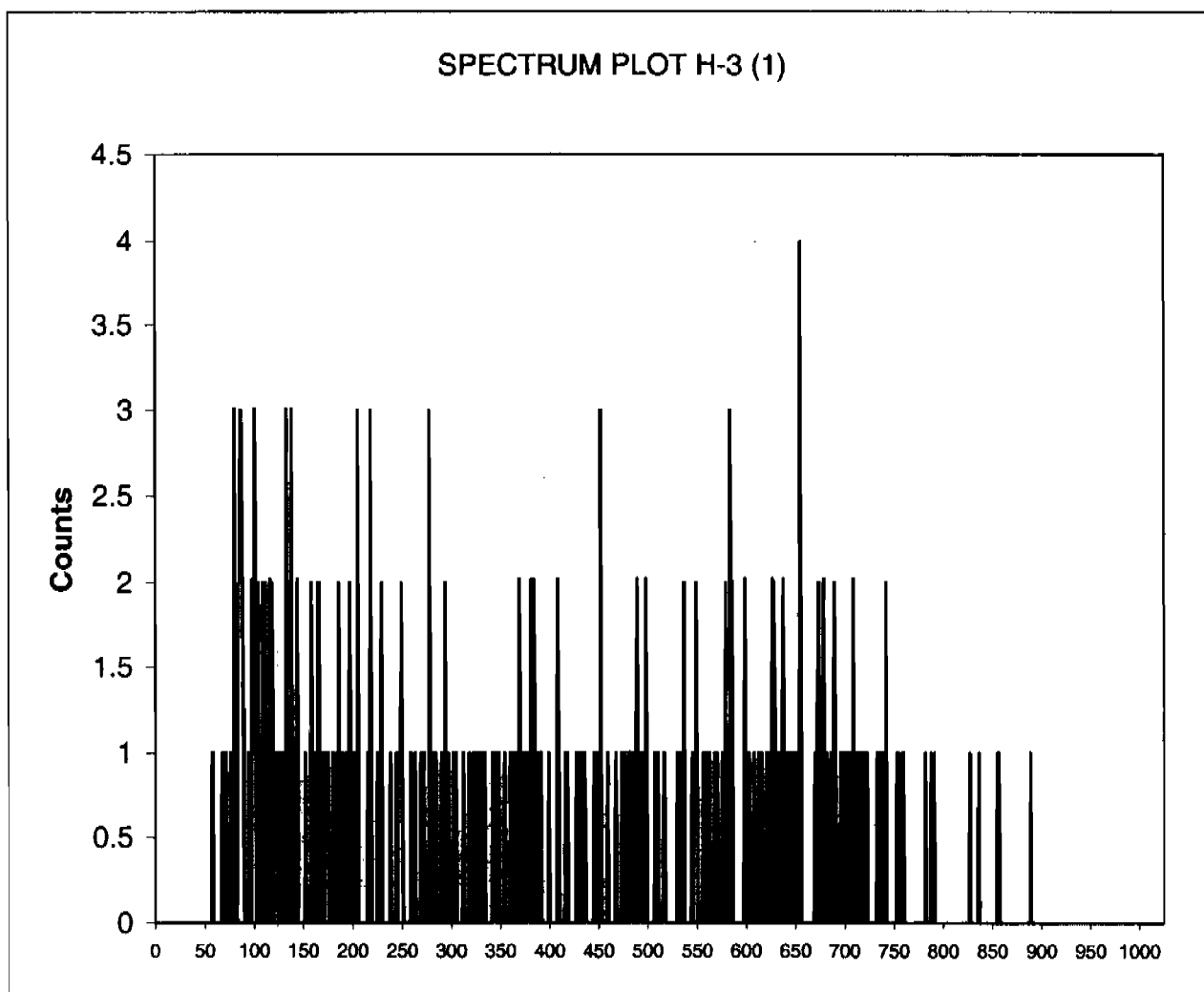
31	0
32	0
33	0
34	0
35	0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ205701N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 20, 248028005, 35.02962:
Quench: 760.94
Start, End, X-Axis 50-175

Channel Counts



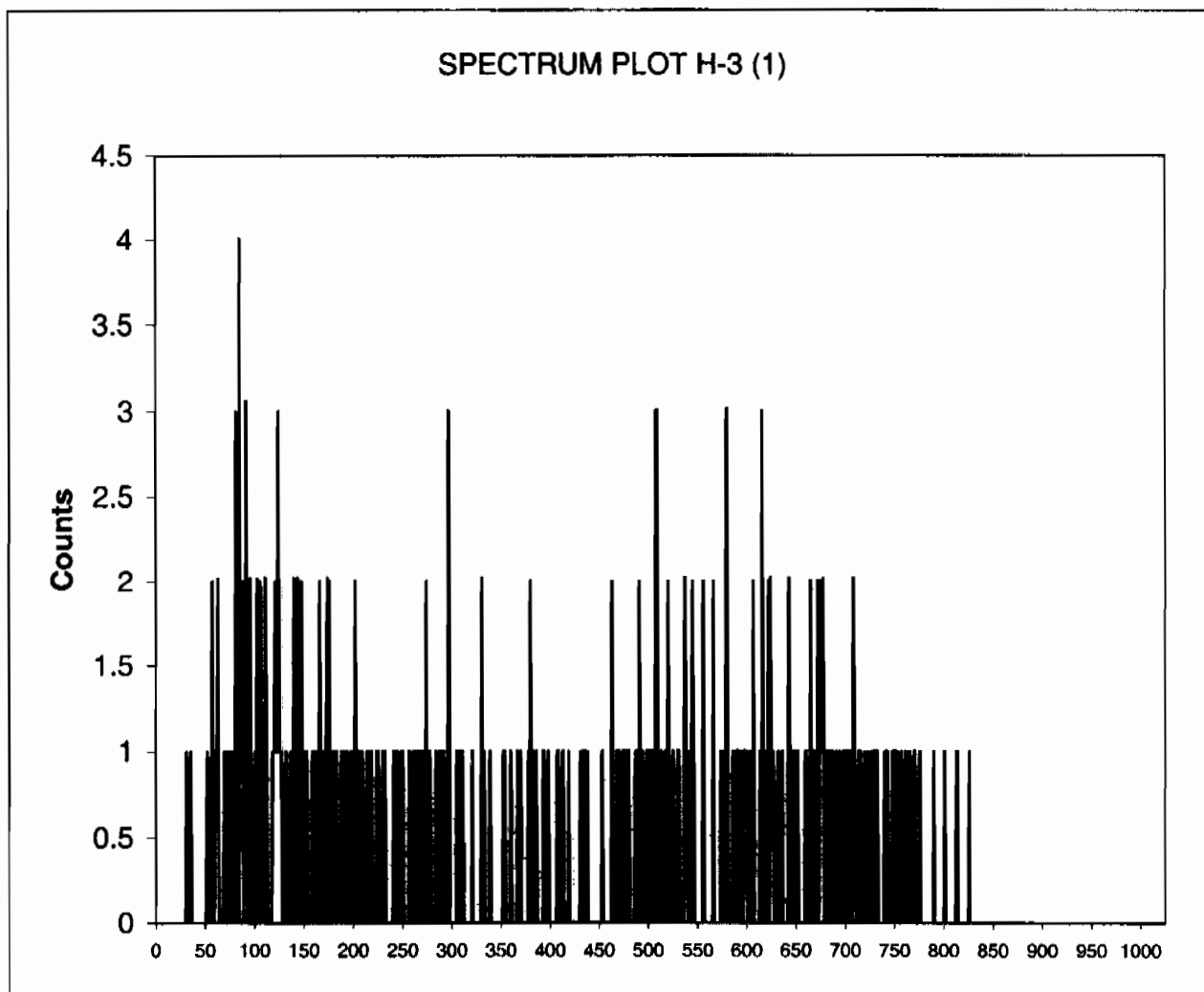
31 0
32 0
33 0
34 0
35 0

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ225901N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 22, 1202068193, 35.0296:
Quench: 762.33
Start, End, X-Axis 50-175

Channel Counts



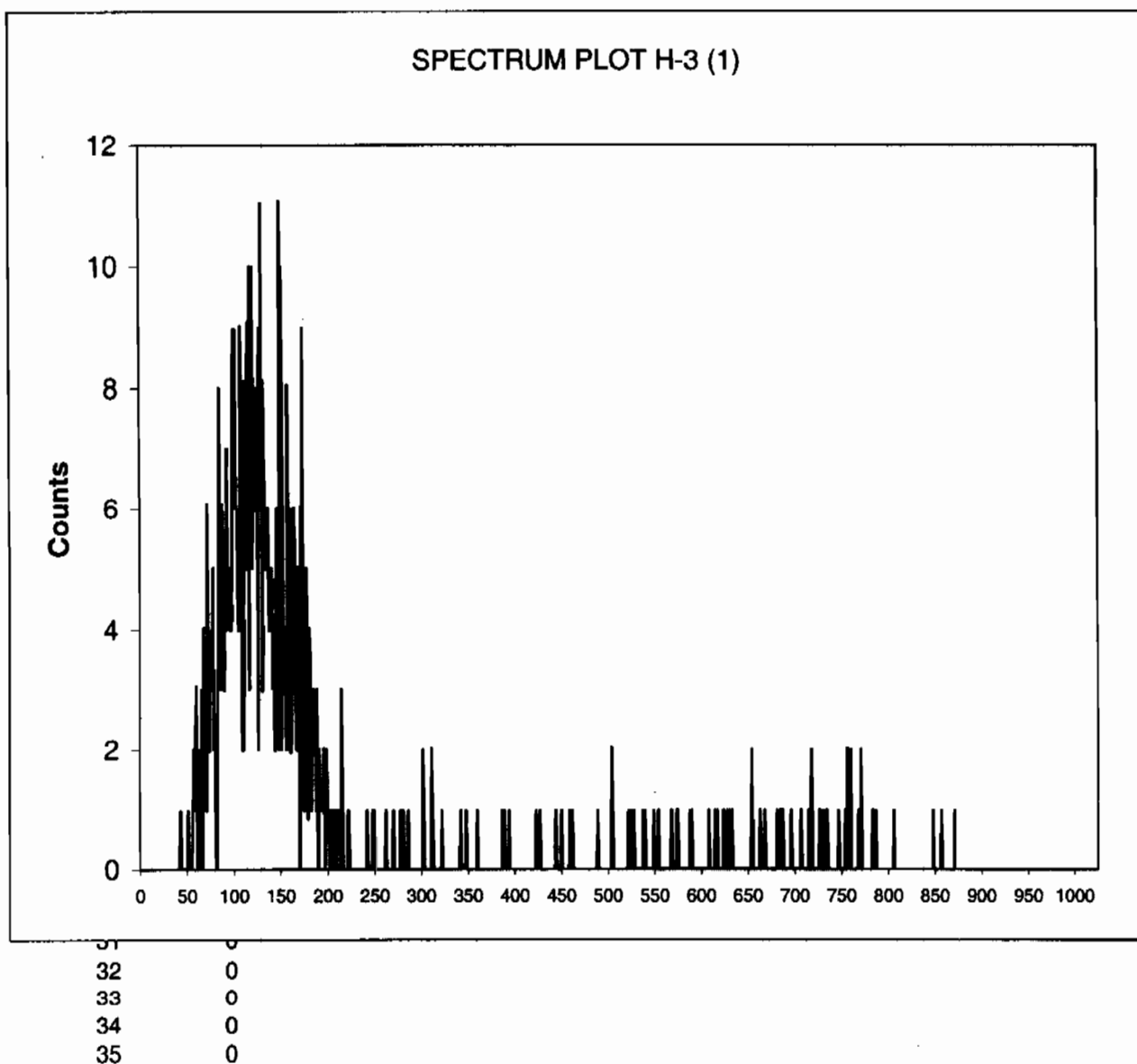
32	0
33	0
34	0
35	1

Instrument Type: Quantulus
Data Capture Date: MON 15 MAR 2010 8:45
FileName: s:\sc\files\orange\964049A0\SQ236001N.001.xls
File Info: s:\sc\files\orange\964049A0\U964049A0.xls

ID: H-3 (1)
Comments: ORANGE

Sample, Rack-Pos, Time: 23, 1202068194, 15.0296:
Quench: 770.89
Start, End, X-Axis 50-175

Channel Counts



PROTOCOL : 10 H-3 120 min
DATE : 2010/03/17
TIME : 13:21
ID : P10AS259

H-3

Wallac 1414 WinSpectral v1.40 S/N 4140127

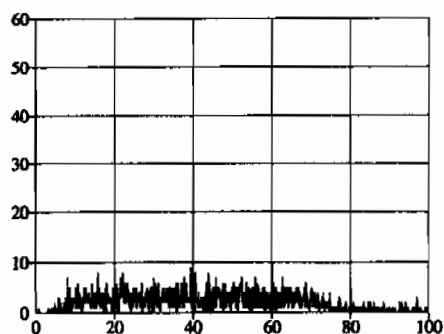
Counting mode : DPM
Quench Index : SQP(E)
Isotope(s) : H3
H3 = ,12.43 y
Protocol name : H-3 120 min
Counting time : 7200
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.00
Minimum cpm : 0.00 Checking time: 10
Sp. library of Isotope H3 : Wallac
Vial type : Diffuse
Liquid system : HiSafe
Advanced modes : Chemillum
Output to Display :
POS,DPM1,CPMw2,CLMM,FNCT2,
RACK,RACKPOS,FNCT1,SQPE,DATE,
TIME,CPMw1,CPM,CPM1,CTIME
Additions to Display : Listing,Header,Spectrum
Header : H-3
Spectrum : Rnd.Cos,Beta
Window 1 : 25- 190 /Beta
Window 2 : 25- 190 /Rnd.Cos
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 : CTIME/60
FNCT2 = FNCT2 : CPMW1-CPMW2
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

Total activity:

H3 20.6 DPM 0.000 kBq

H-3

Rack_position **Count_Time(min)** **Quench_number** **H-3_CPM** **Run_Date**
 6kg 58 1 120.00 734.15 2.69 3/17/2010 1:21 PM

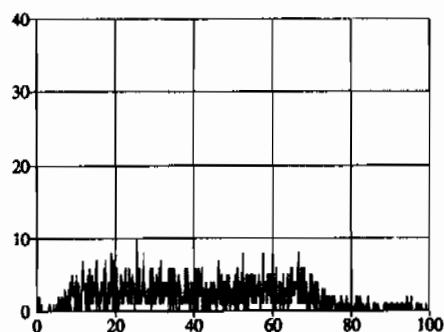


Counts
Chem

Counts
Beta

Gross_B_CPM **LUMEX**
 2.80 0.00
Lumex_CPM **DPM**
 0.10 10.40

Rack_position **Count_Time(min)** **Quench_number** **H-3_CPM** **Run_Date**
 mb 58 2 120.00 729.69 2.53 3/17/2010 3:23 PM



Counts
Chem

Counts
Beta

Gross_B_CPM **LUMEX**
 2.60 0.00
Lumex_CPM **DPM**
 0.10 10.20

ID: TRITIUM

19 MAR 2010 12:39

USER: 5

COMMENT: GOLD

PRESET TIME : 120.00

DATA CALC :	CPM	H# :	YES	SAMPLE REPEATS:	1	PRINTER	:	STD
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: 0.0 - 235.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

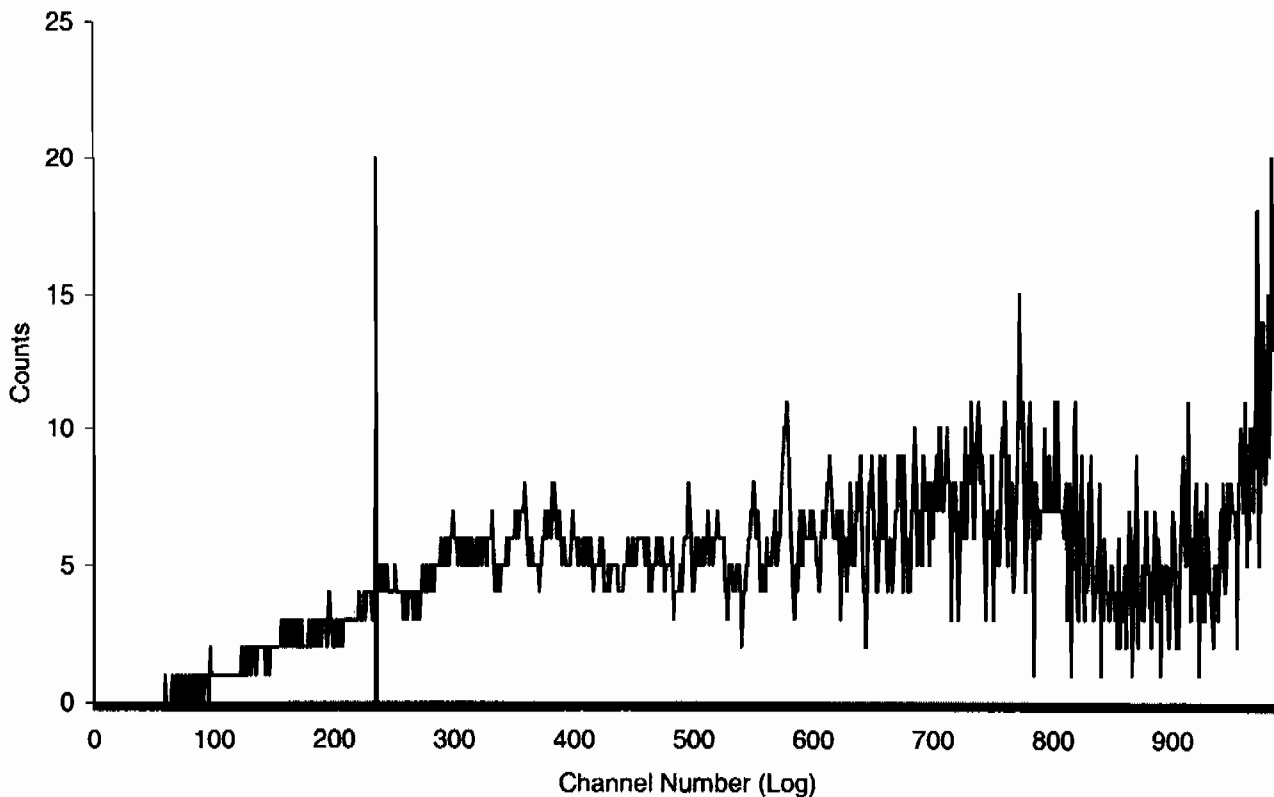
CHAN: 0.0 - 1000.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

S/N	POS	TIME MIN	H#	WIND1		WIND2		LUMEX %	ELAPSED TIME
				CPM	%ERROR	CPM	%ERROR		
1	47-1	120.00	118.1	2.72	11.56	44.54	2.74	0.60	123.12
2	47-2	120.00	117.3	3.27	10.29	42.72	2.80	0.37	246.70
5	47-3	120.00	117.3	3.09	10.52	44.72	2.73	0.24	370.20
MISSING SAMPLE									
7	47-7	INVALID SAMPLE COUNT: H# ABORT: COUNT RATE TOO LOW							
8	47-8	INVALID SAMPLE COUNT: H# ABORT: COUNT RATE TOO LOW							
9	47-9	INVALID SAMPLE COUNT: H# ABORT: COUNT RATE TOO LOW							

Sample Count Start Time:	19 Mar 2010 12:41:56		
Data Capture Date	19 Mar 2010 14:42:23		
User Filename	S05031947-1A.XLS		
	U05031947-1A.XLS		
Spectrum Type	Log Counts		
User Number	05		
User Id	TRITIUM		
User Comment	GOLD		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	47-1	120.00
H#, Total Counts:	118.1	5625	
Win1: Tritium - Start, End, Counts:	0	235	330
Win2: - Start, End, Counts:	0	990	4841

SPECTRUM PLOT

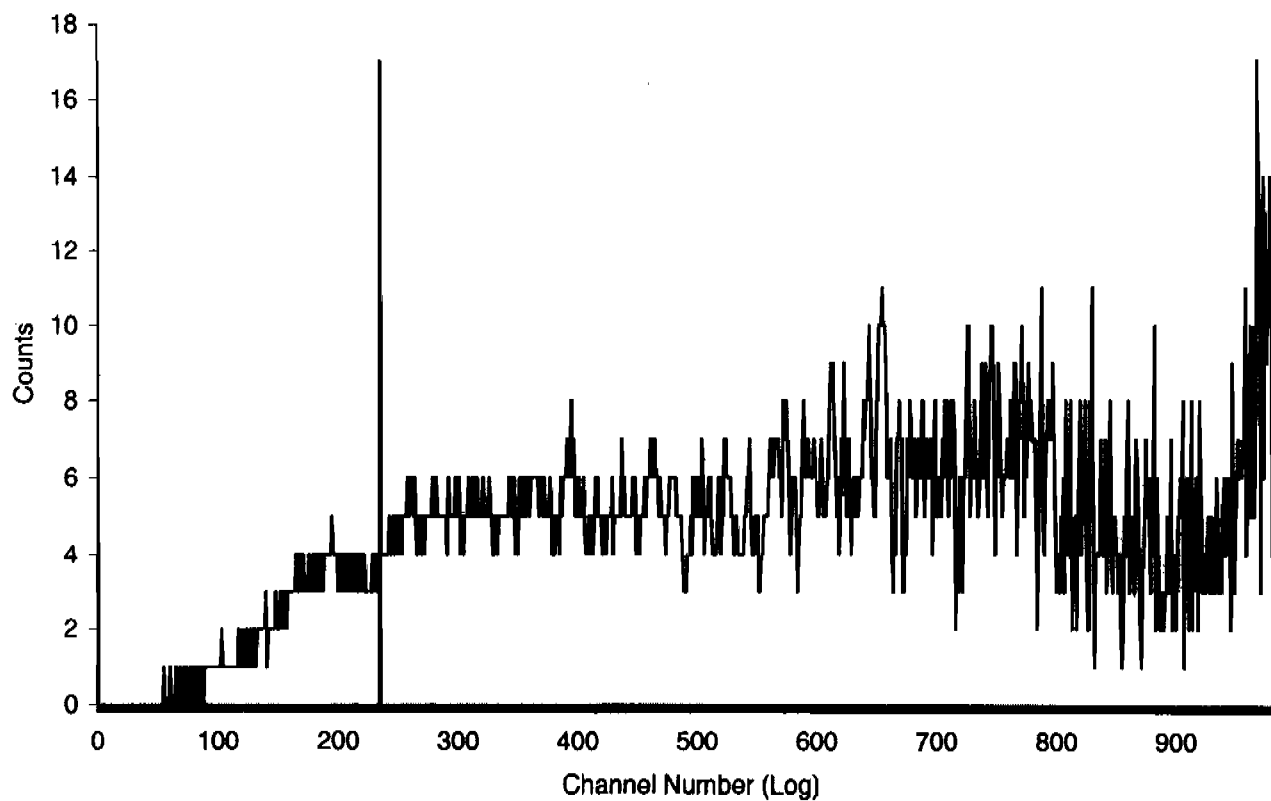
USER 05 - TRITIUM



Sample Count Start Time:	19 Mar 2010 14:45:31		
Data Capture Date	19 Mar 2010 16:45:58		
User Filename	S05031947-2A.XLS		
	U05031947-1A.XLS		
Spectrum Type	Log Counts		
User Number	05		
User Id	TRITIUM		
User Comment	GOLD		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	47-2	120.00
H#, Total Counts:	117.3	5542	
Win1: Tritium - Start, End, Counts:	0	235	396
Win2: - Start, End, Counts:	0	990	4663

SPECTRUM PLOT

USER 05 - TRITIUM



REGISTRY

MON 22 MAR 2010 16:49

*** DIRECTORY PATH :S:\LSC\O\DA\964049A1 ***

PARAMETER GROUP: 8
ID: H-3 (2)

00A PROGRAM MODE 6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	39	BKG	60:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	40	247964005	60:00	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. 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
Q013901N.001	22 MAR 2010	17:52				
39	BKG	60:01.780	761.94	1.04	2.13	7.53
Q024001N.001	22 MAR 2010	18:54				
40	247964005	60:01.780	759.63	1.43	3.10	8.25

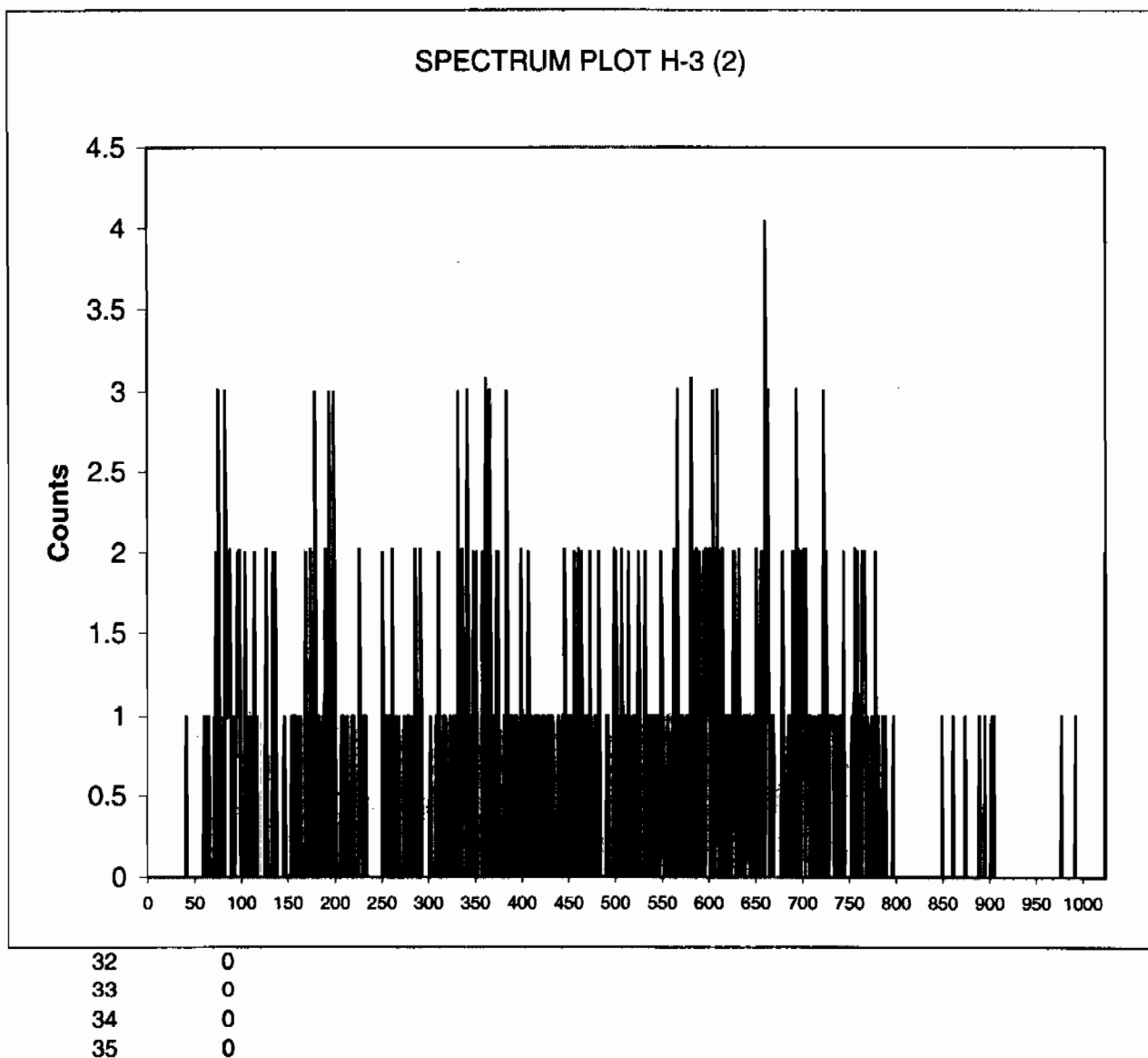
Instrument Type:
Data Capture Date:
FileName:
File Info:

Quantulus
MON 22 MAR 2010 16:49
s:\sc\files\orange\964049A1\SQ013901N.001.xls
s:\sc\files\orange\964049A1\U964049A1.xls

ID: H-3 (2)
Comments: ORANGE

Sample, Rack-Pos, Time: 1, BKG, 60.02967:
Quench: 761.94
Start, End, X-Axis 50-175

Channel Counts

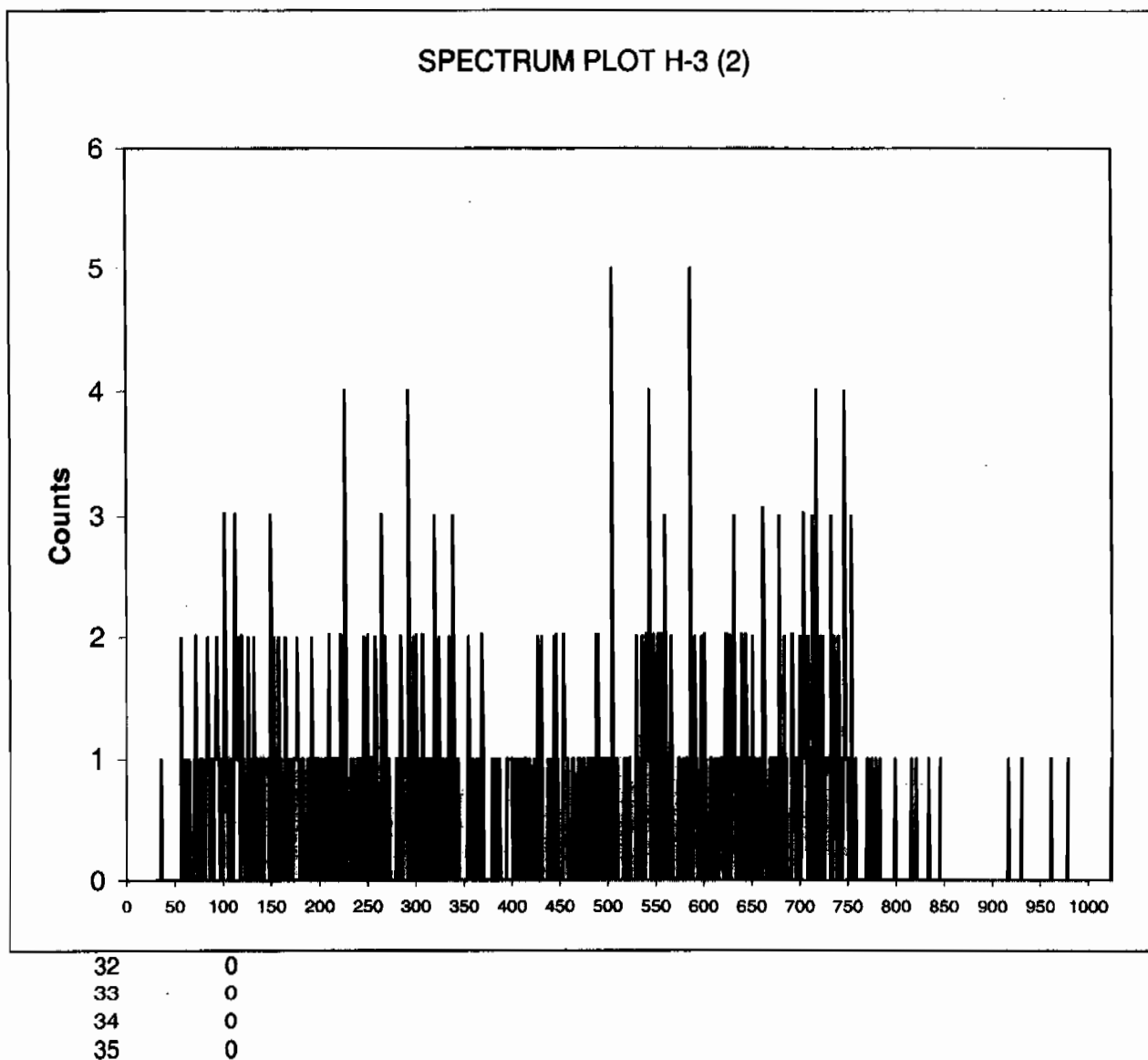


Instrument Type: Quantulus
Data Capture Date: MON 22 MAR 2010 16:49
FileName: s:\scfiles\orange\964049A1\SQ024001N.001.xls
File Info: s:\scfiles\orange\964049A1\U964049A1.xls

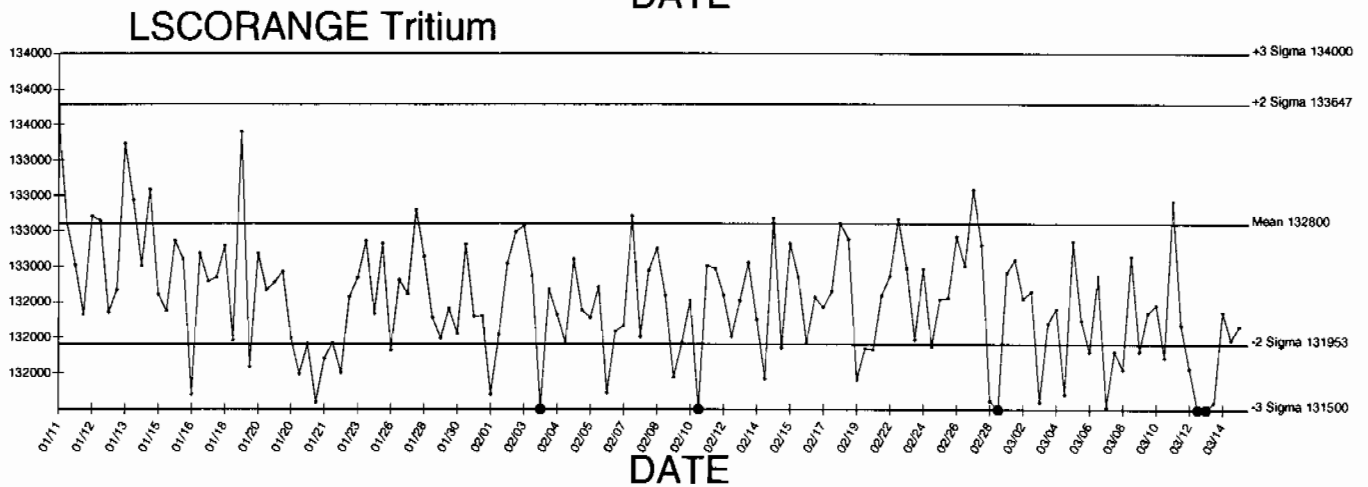
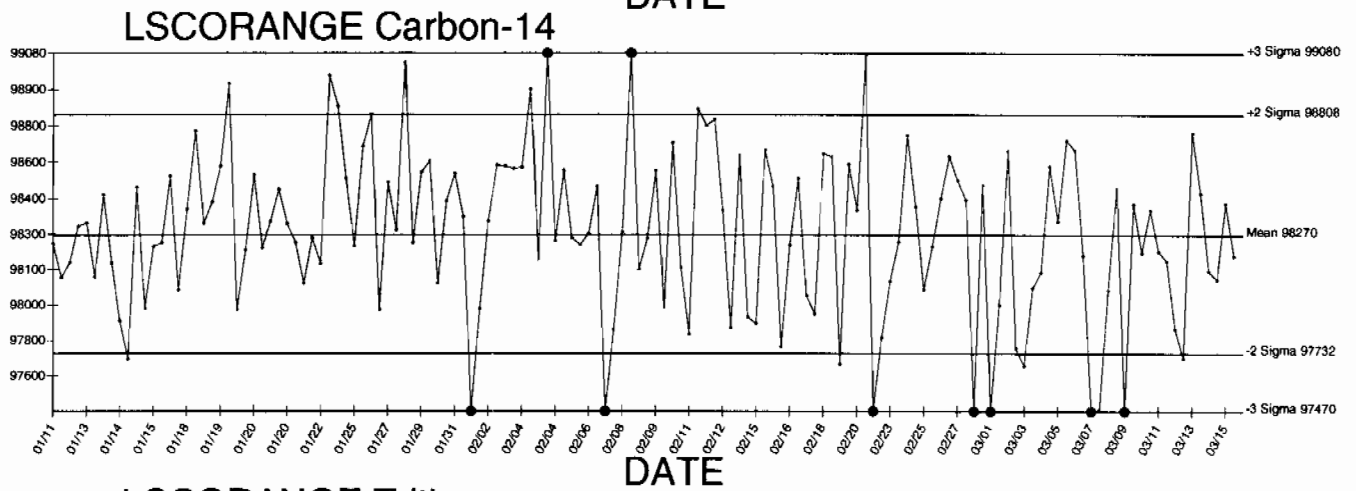
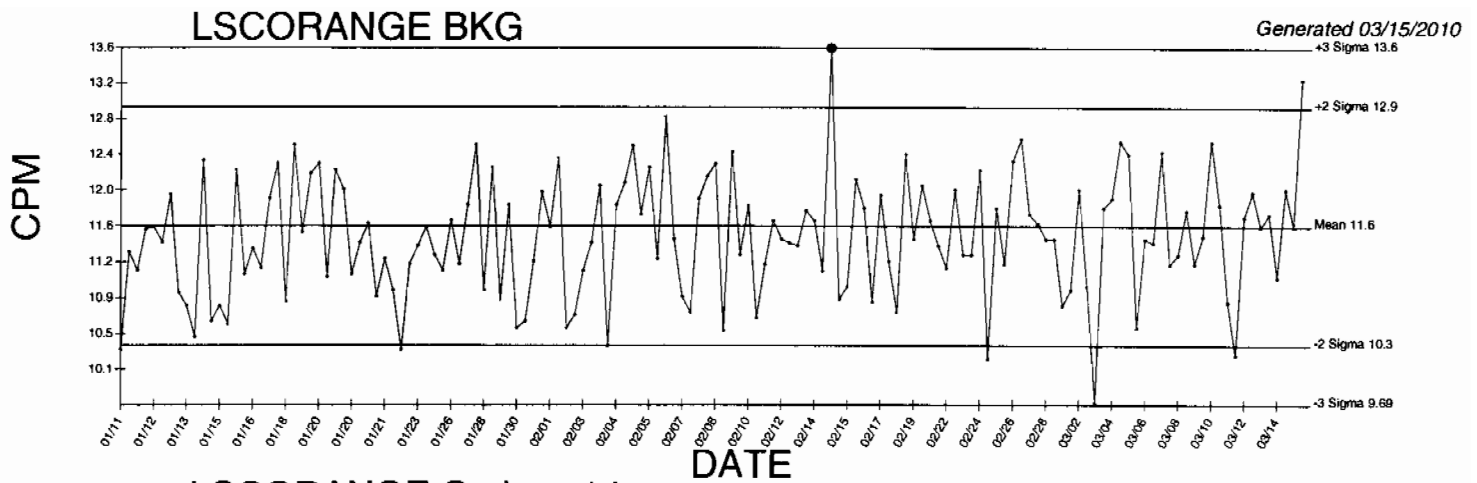
ID: H-3 (2)
Comments: ORANGE

Sample, Rack-Pos, Time: 2, 247964005, 60.02967:
Quench: 759.63
Start, End, X-Axis 50-175

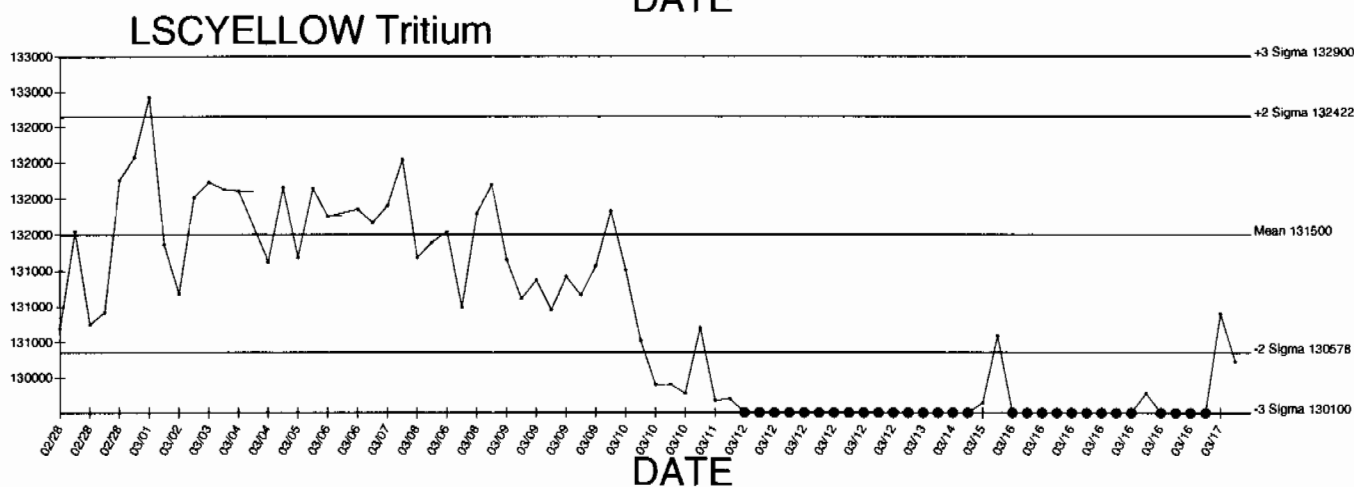
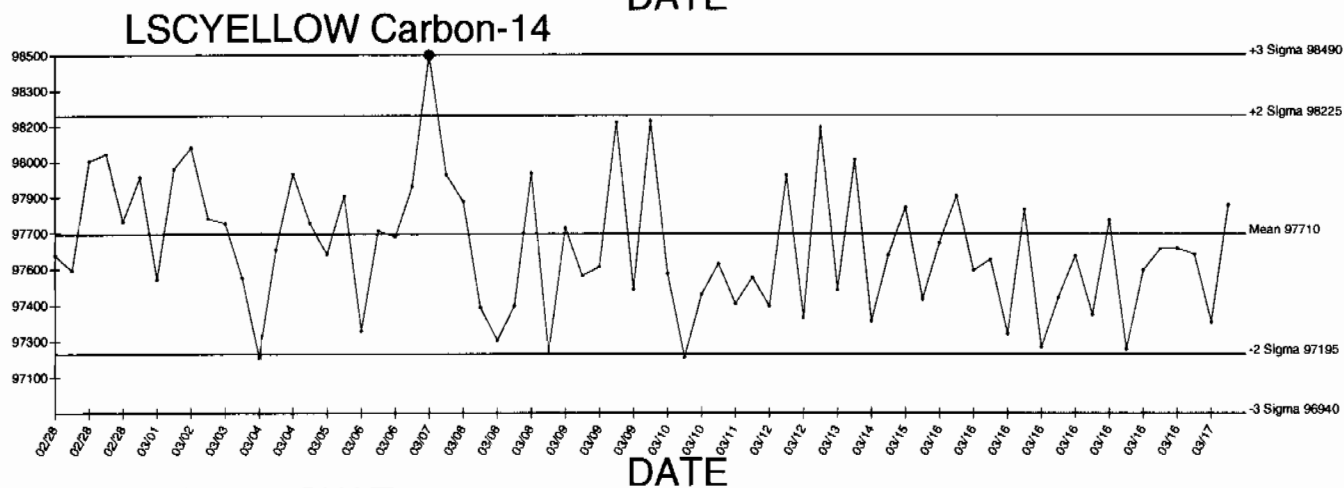
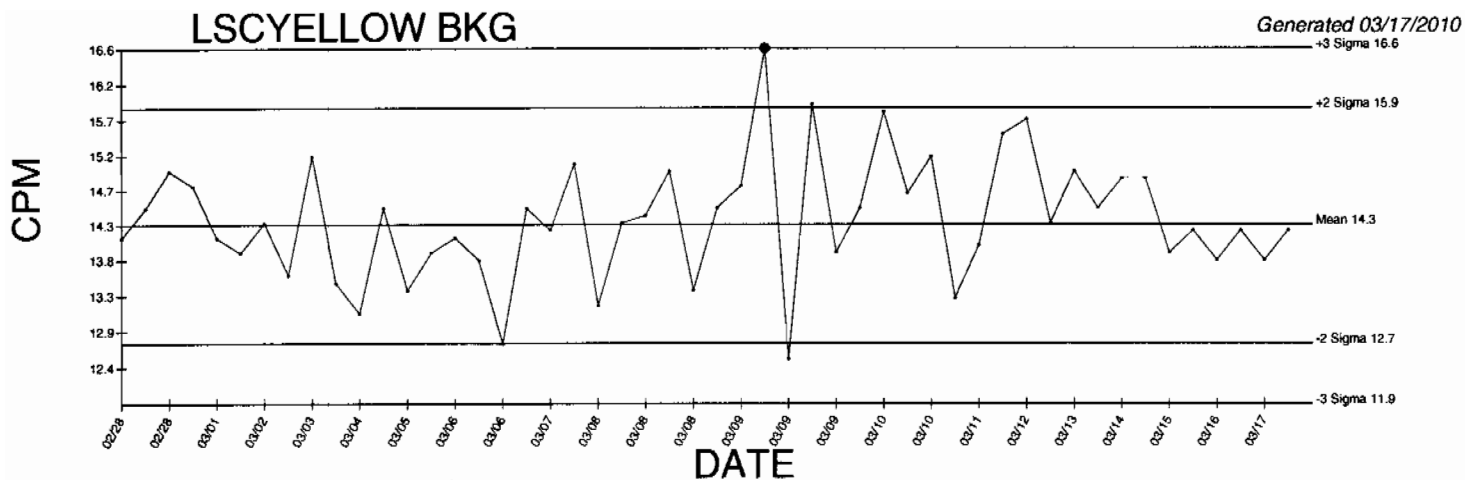
Channel Counts



BACKGROUND AND EFFICIENCY DATA

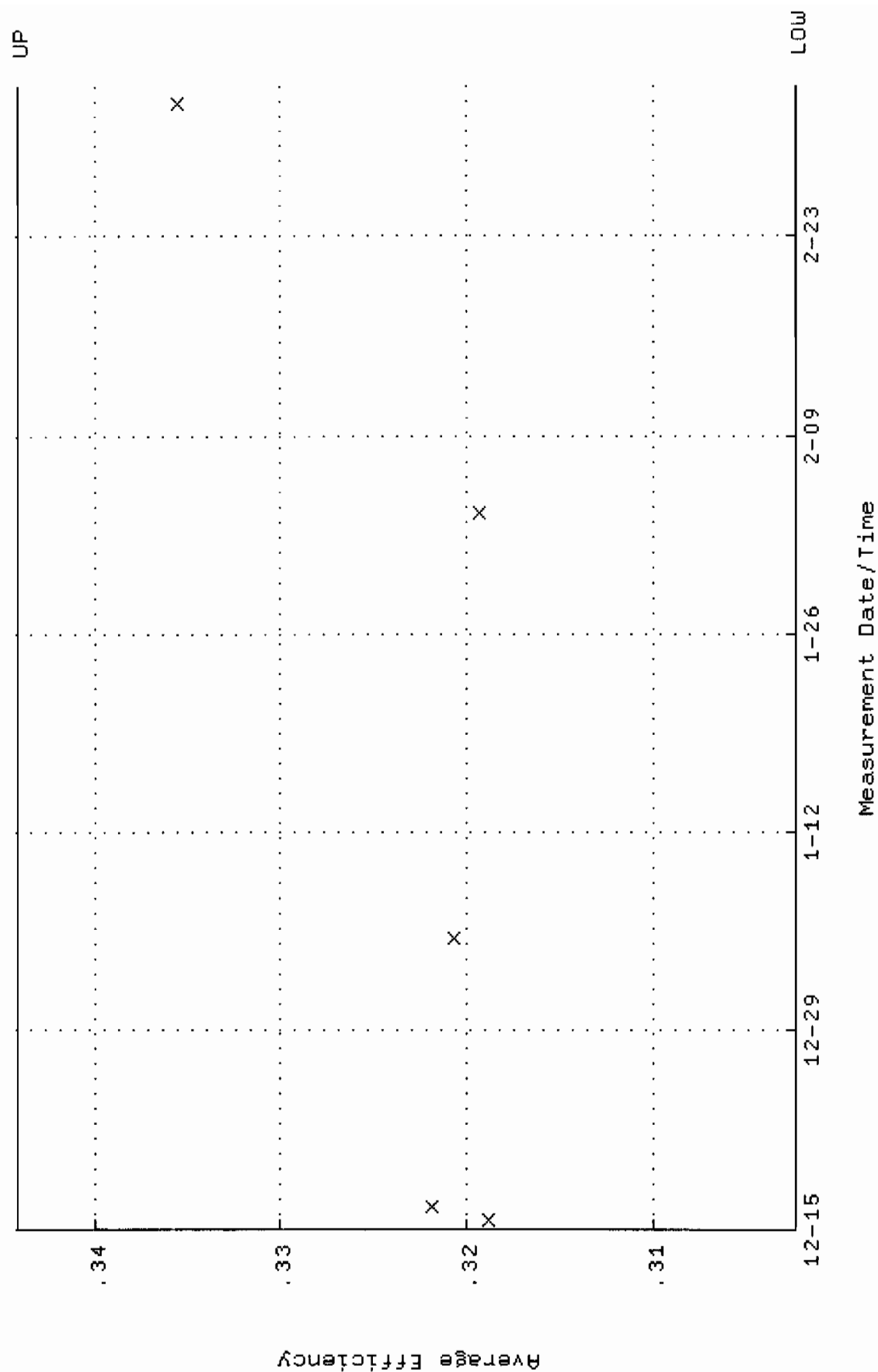


● Denotes Outlier

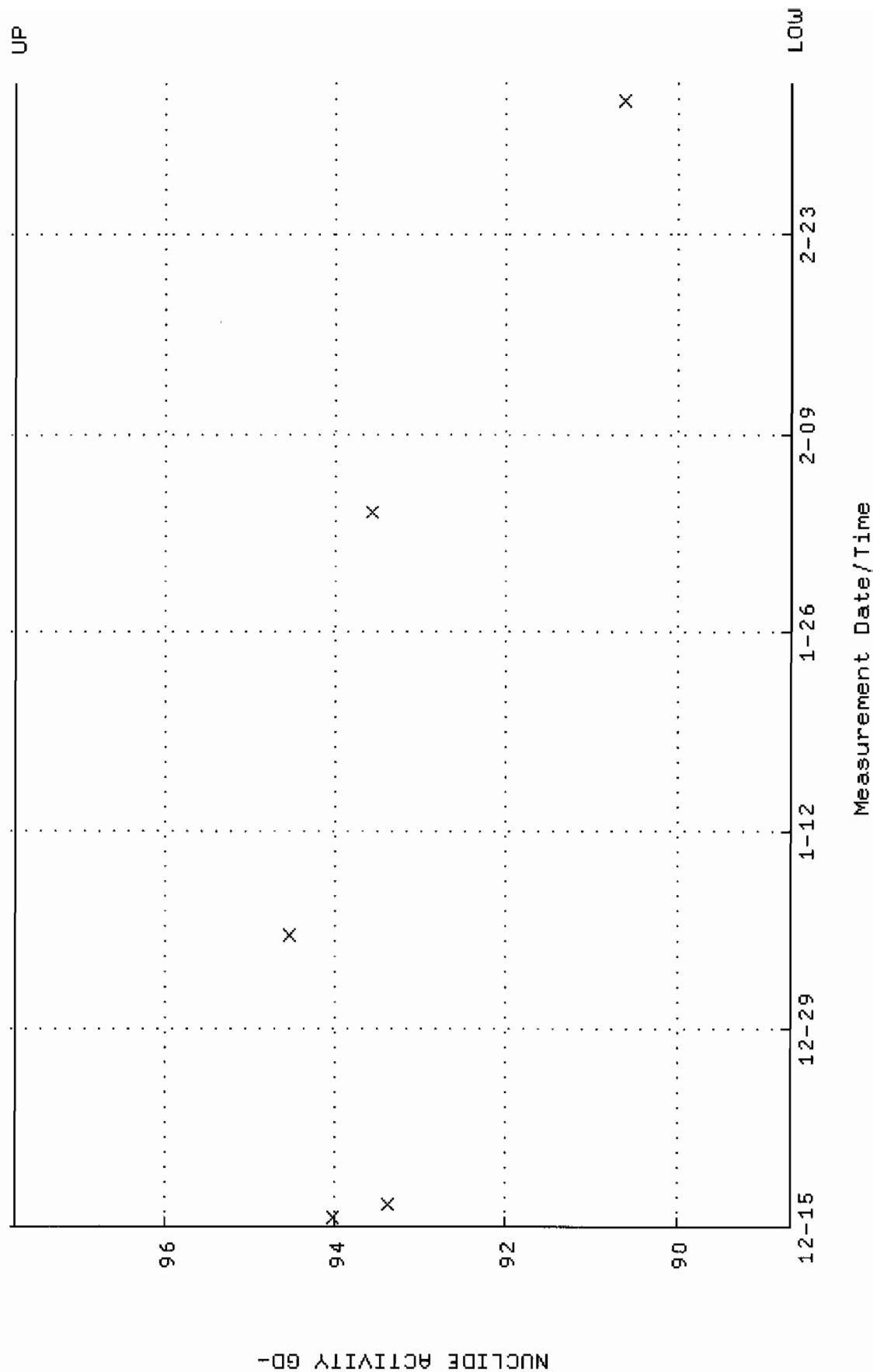


● Denotes Outlier

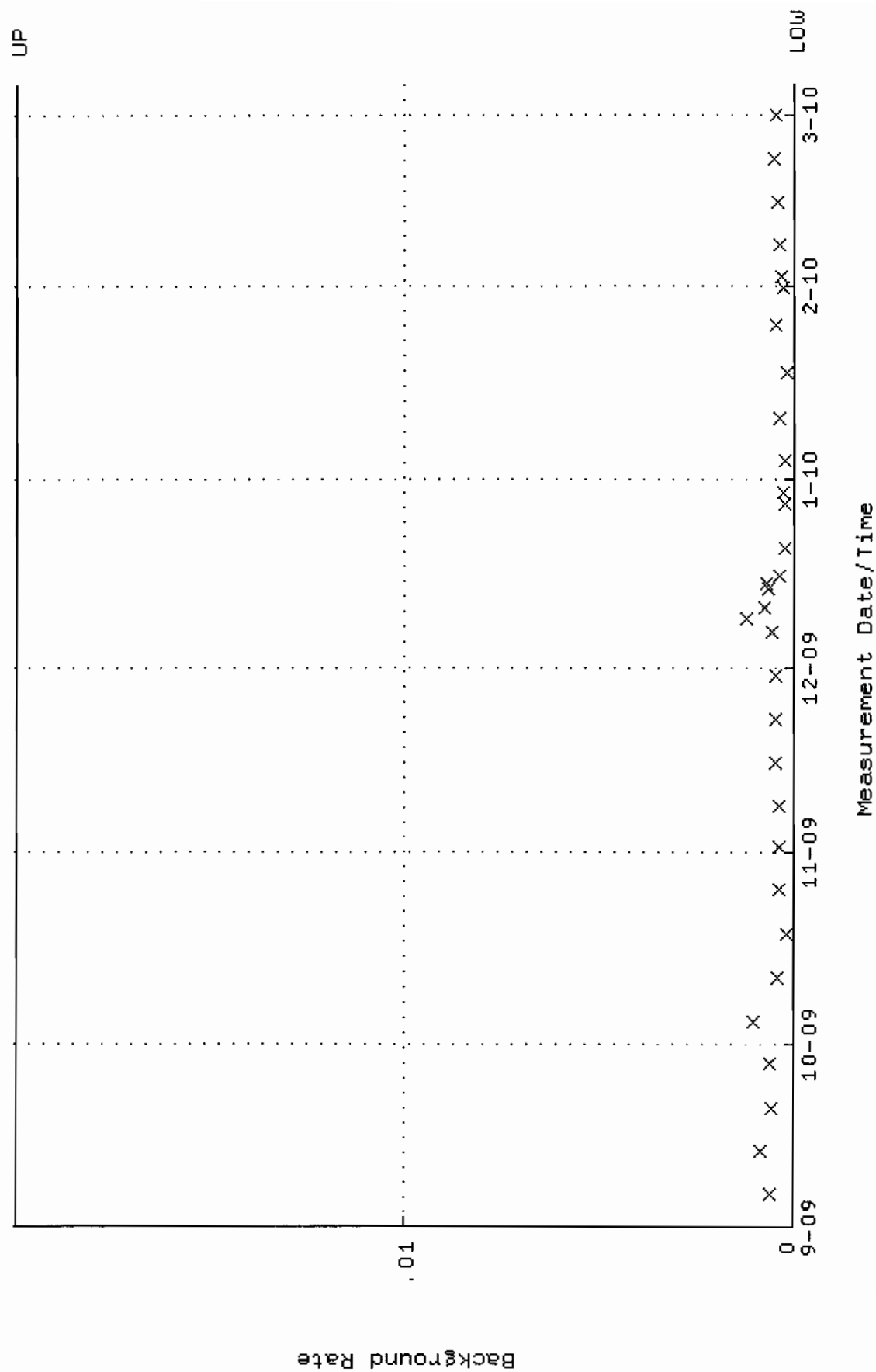
QA filename : DKA100:[ENV_ALPHA.QA.W]W005.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.302314 through 0.344088



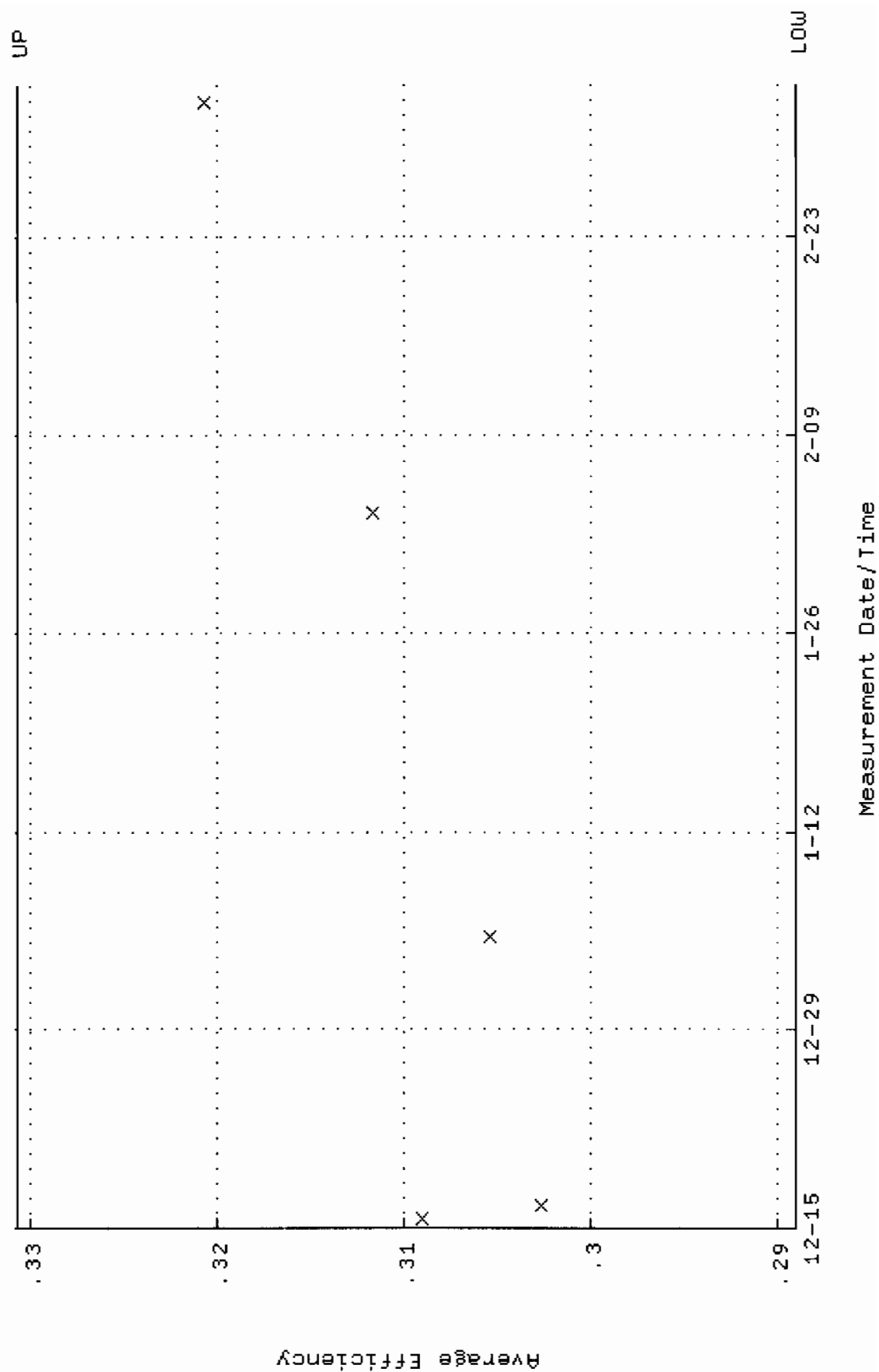
QA filename : DKA100:[ENV_ALPHA.QA.W]W005.QAF;6
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 15-DEC-2009 14:48:34 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 88.6685 through 97.7693



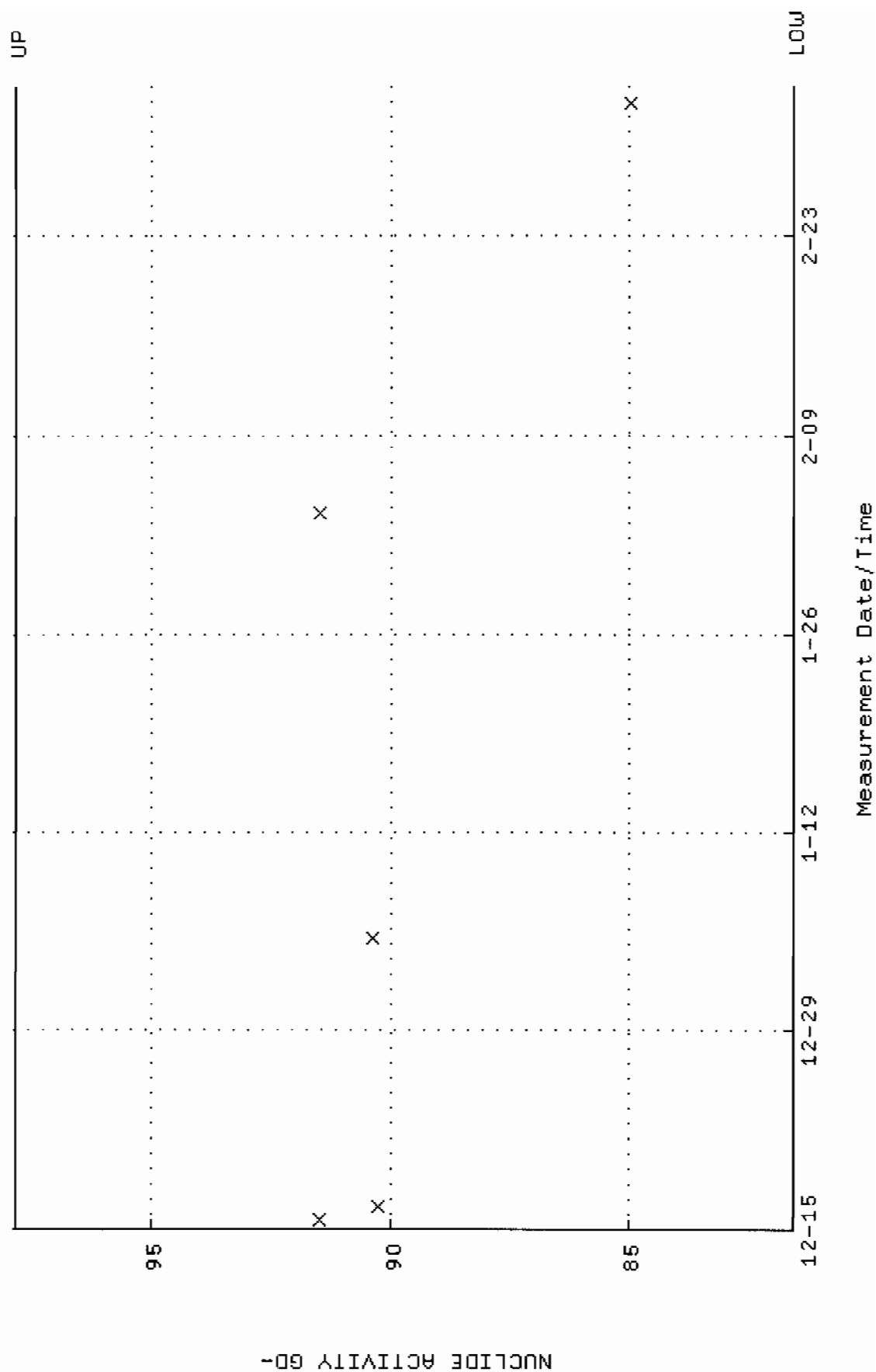
QA filename : DKA100:[ENV_ALPHA.QA.B]B005.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:00 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



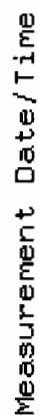
QA filename : DKA100:[ENV_ALPHA.QA.W]W006.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.288996 through 0.330714



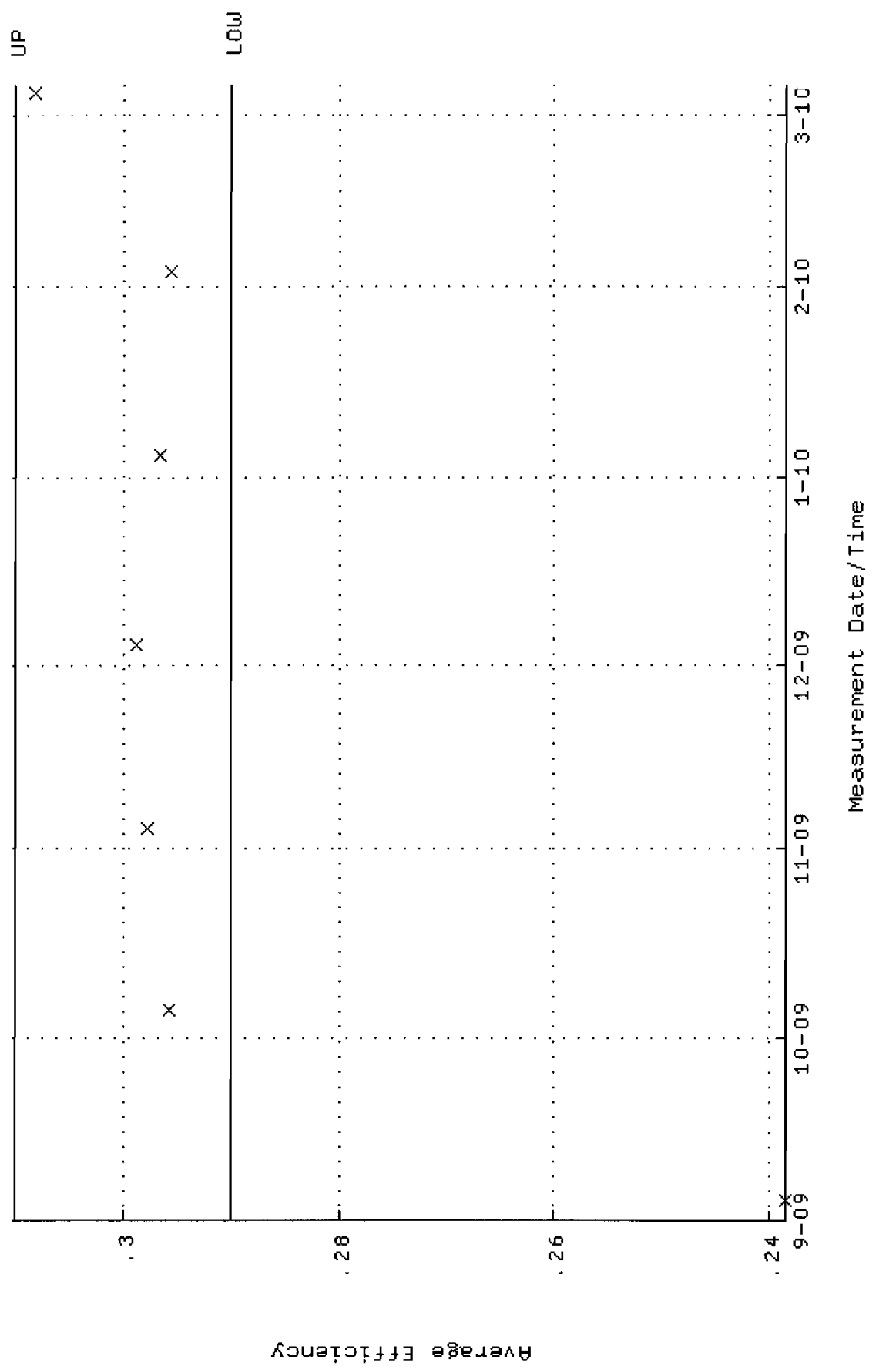
QA filename : DKA100:[ENV_ALPHA.QA.W]W006.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 81.5567 through 97.8515



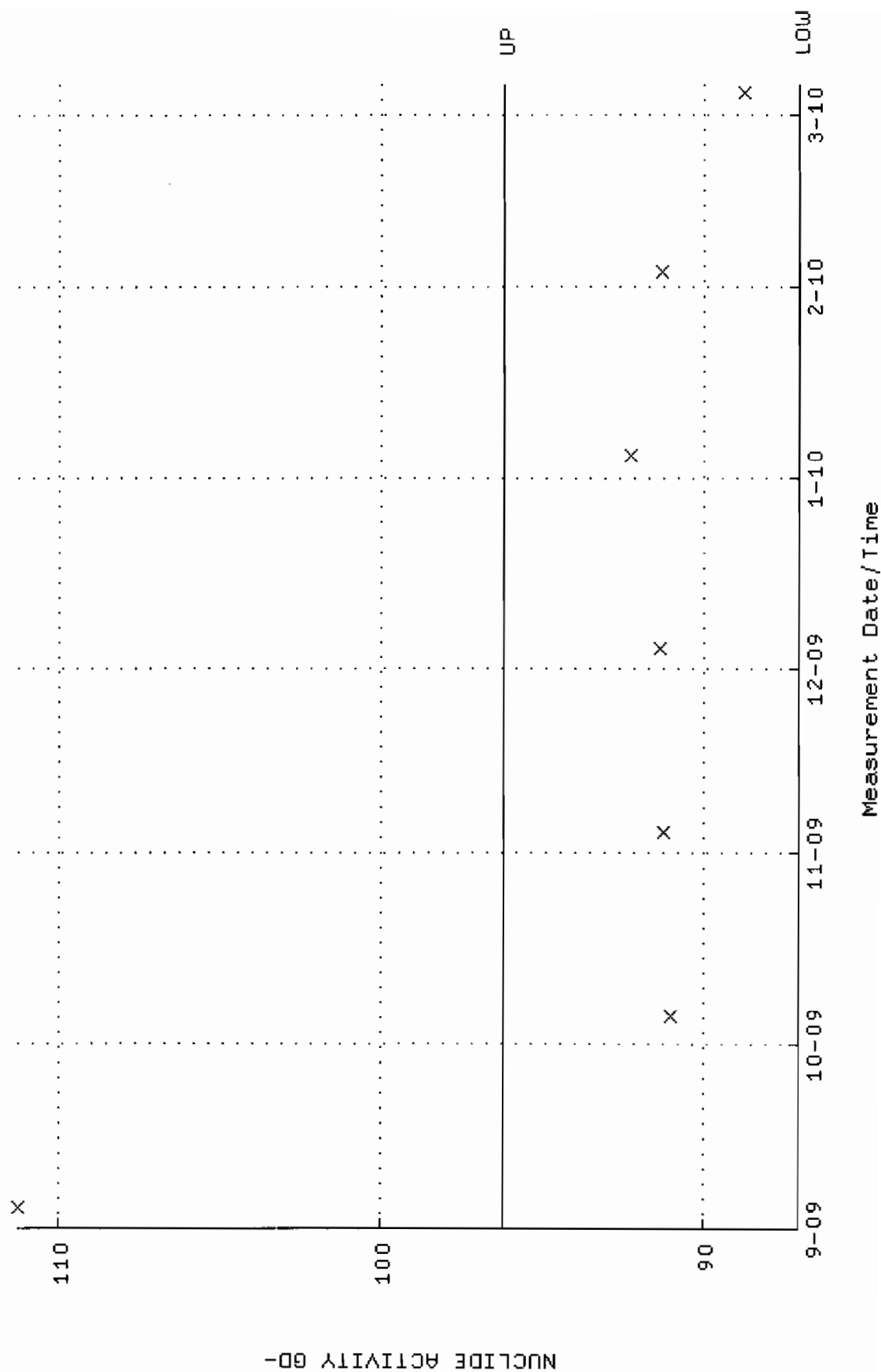
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



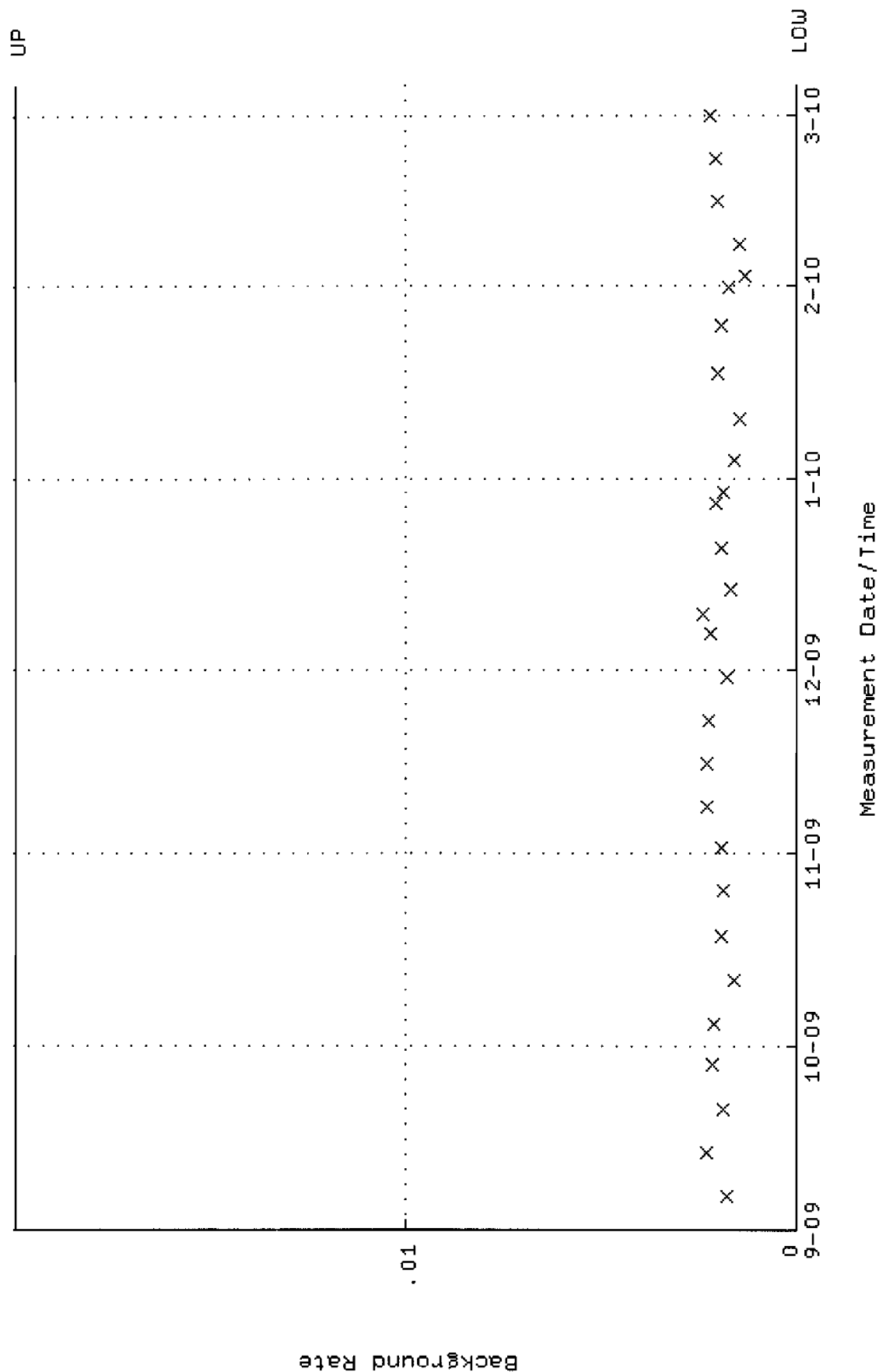
QA filename : DKA100:[ENV_ALPHA.QA.W]W007.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper lmts: 0.290108 through 0.310108



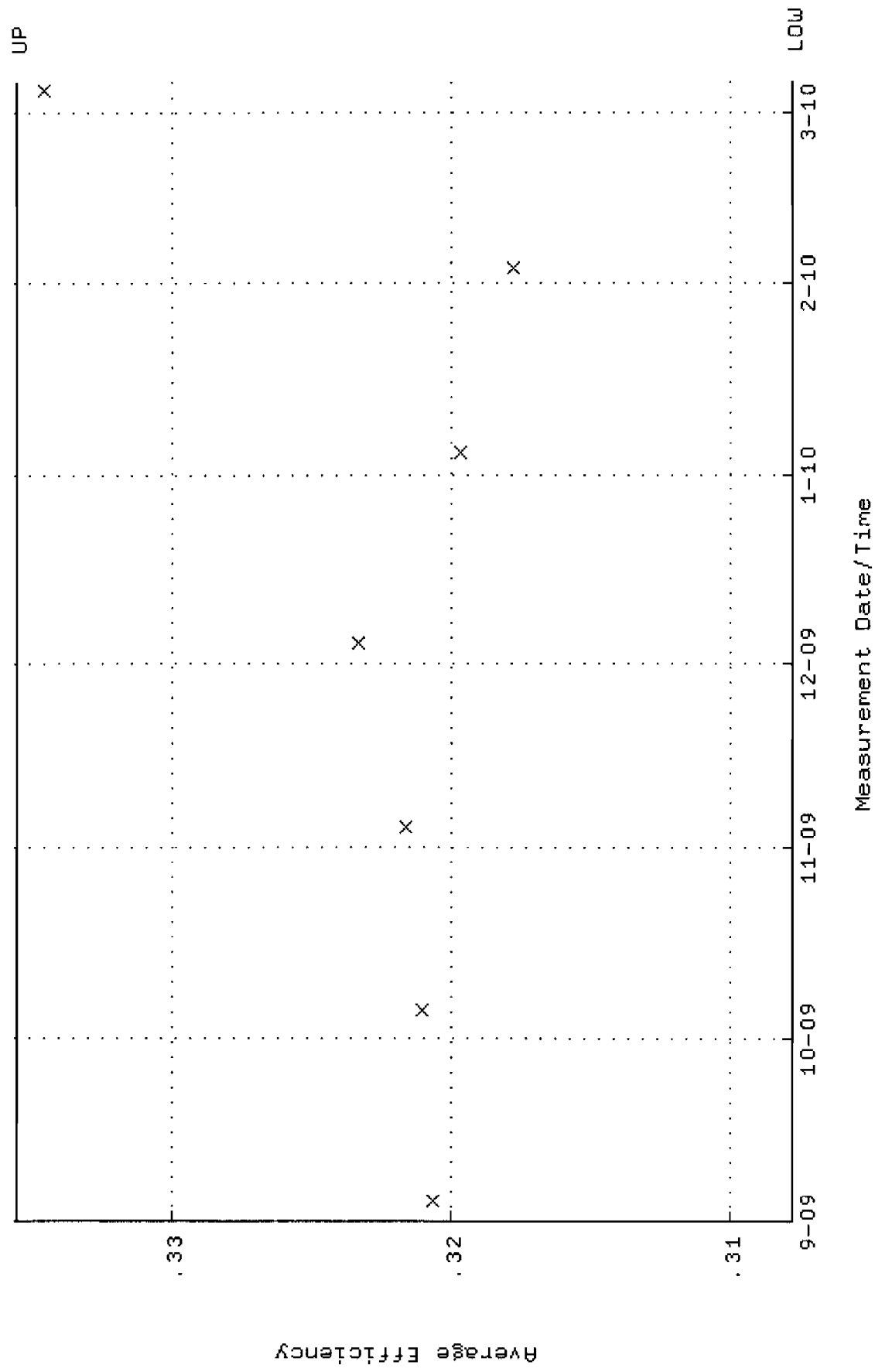
QA filename : DKA100:[ENV_ALPHA.QA.W]W007.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 87.0687 through 96.2339



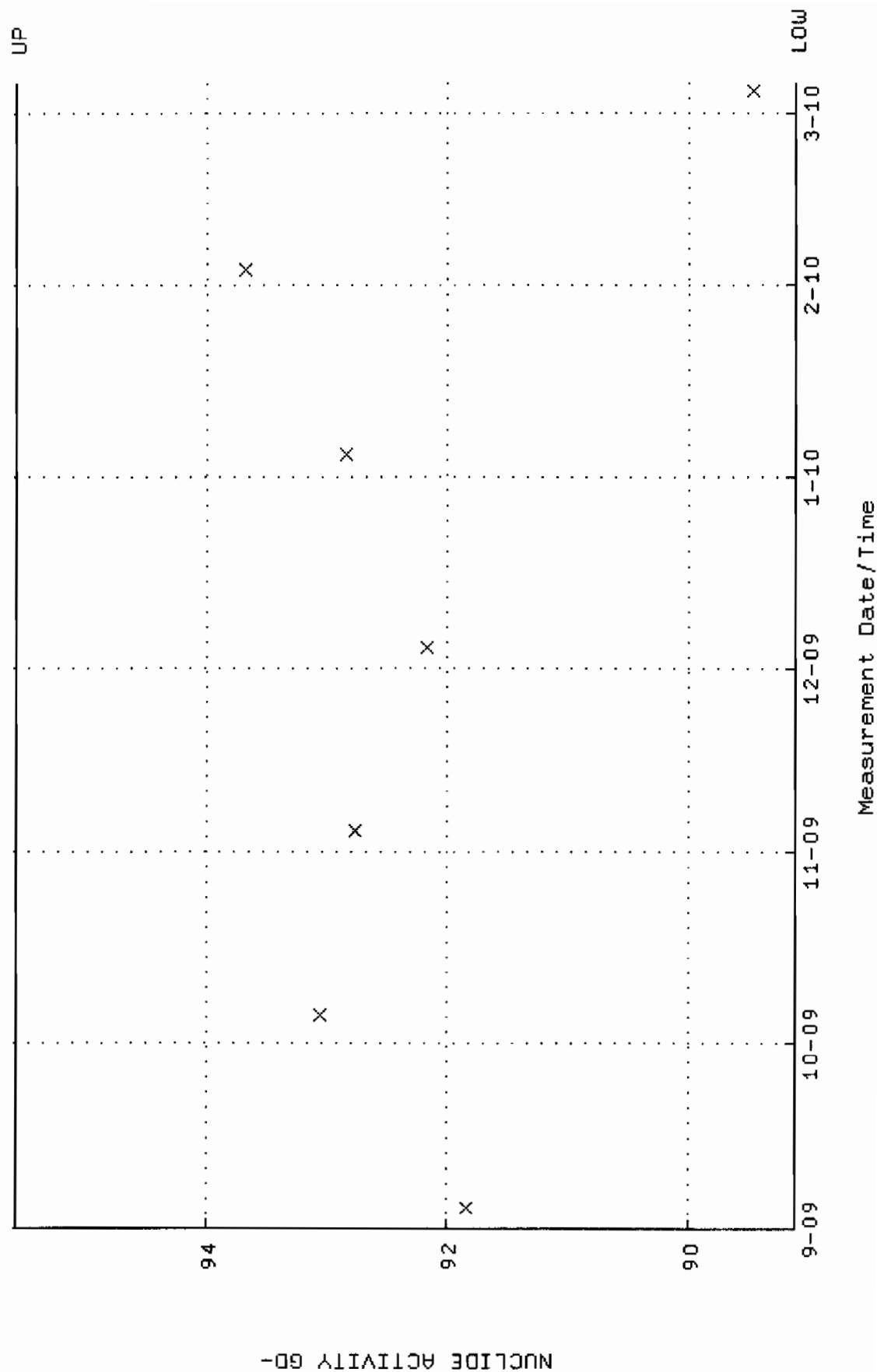
QA filename : DKA100:[ENV_ALPHA.QA.B]B007.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:01 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



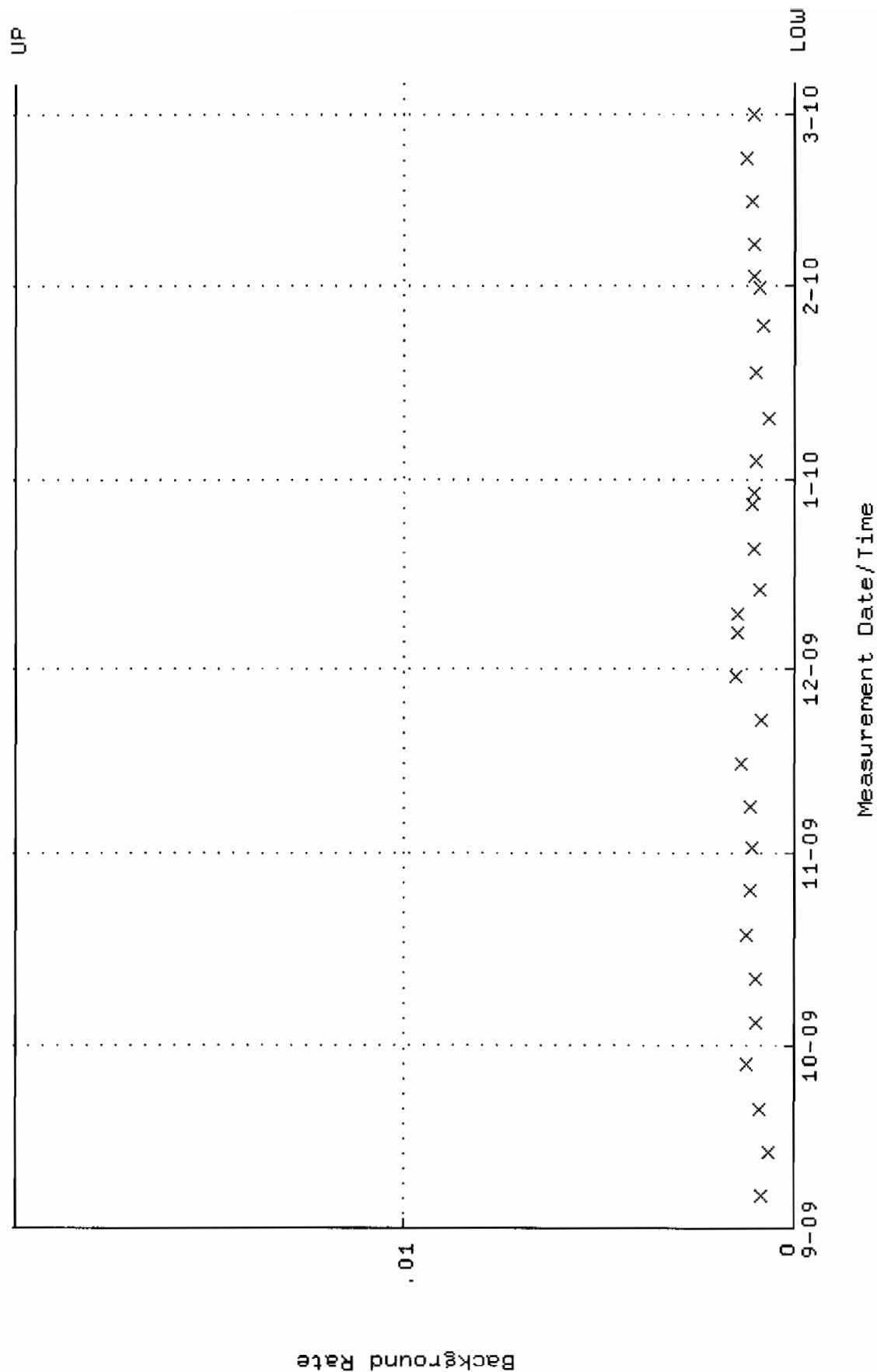
QA filename : DKA100:[ENV_ALPHA.QA.W]W008.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.307754 through 0.335576



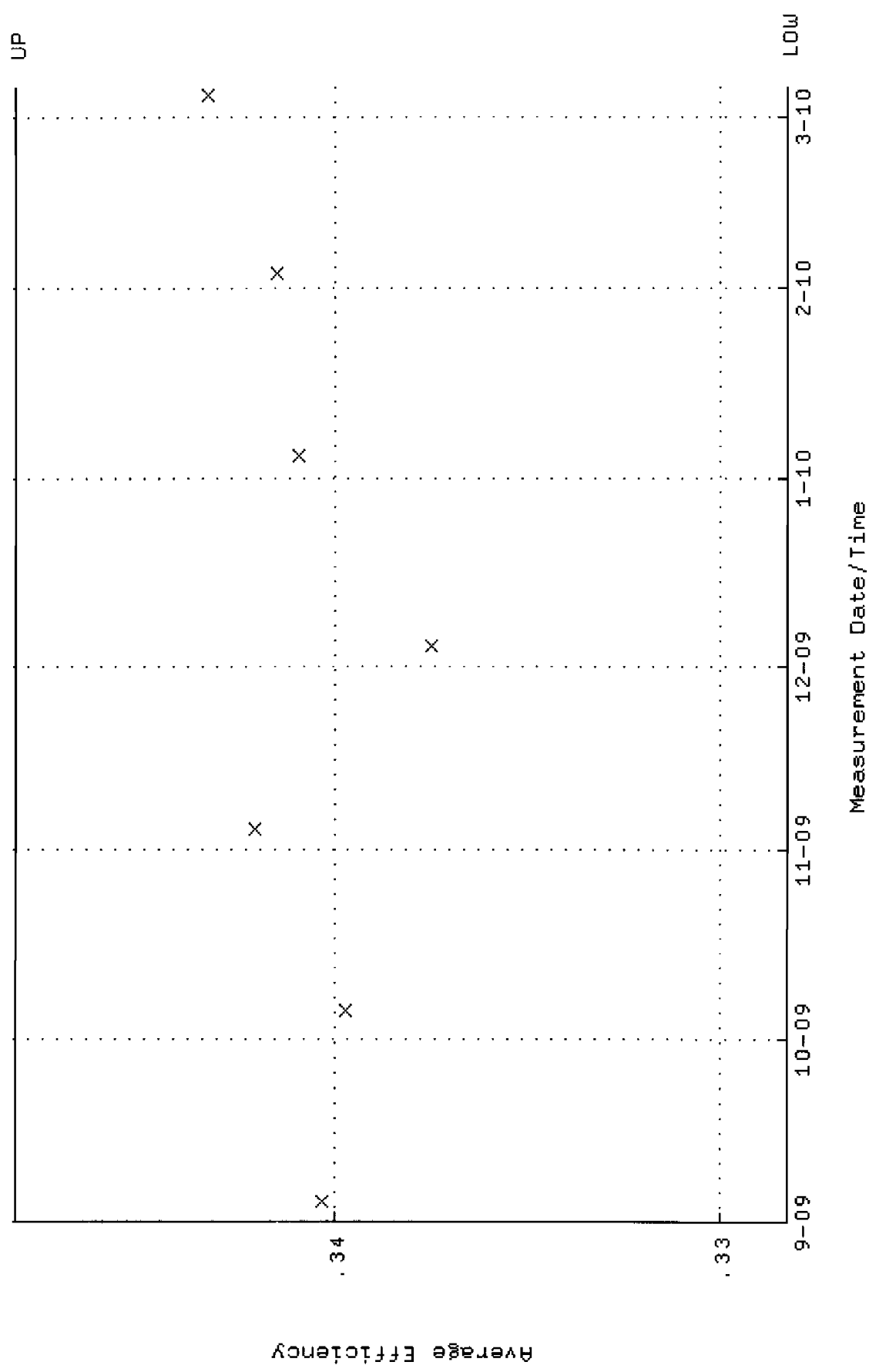
QA filename : DKA100:[ENV_ALPHA.QA.W]W008.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 89.1115 through 95.5851



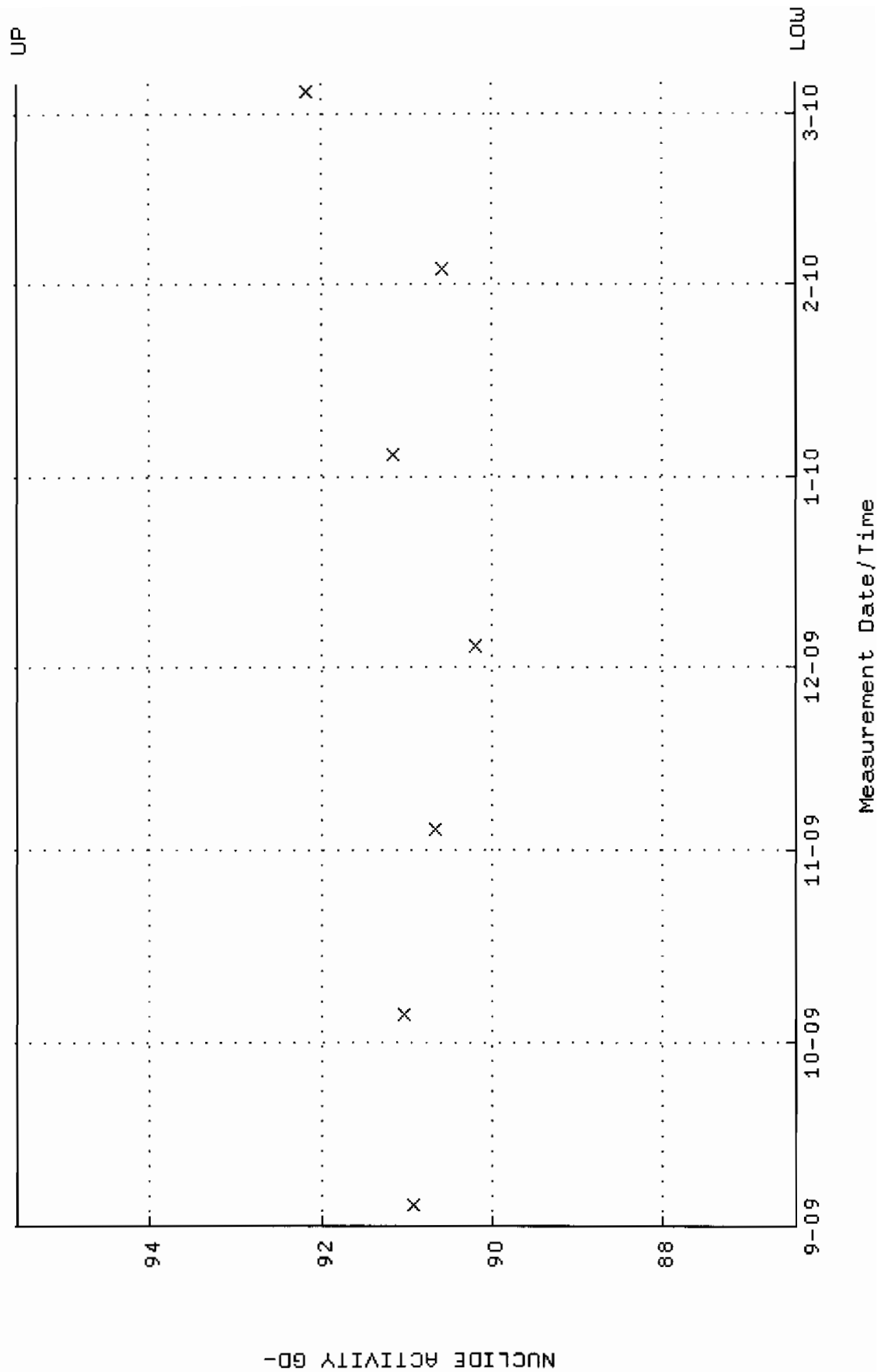
QA filename : DKA100:[ENV_ALPHA.QA.B]B008.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:01 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



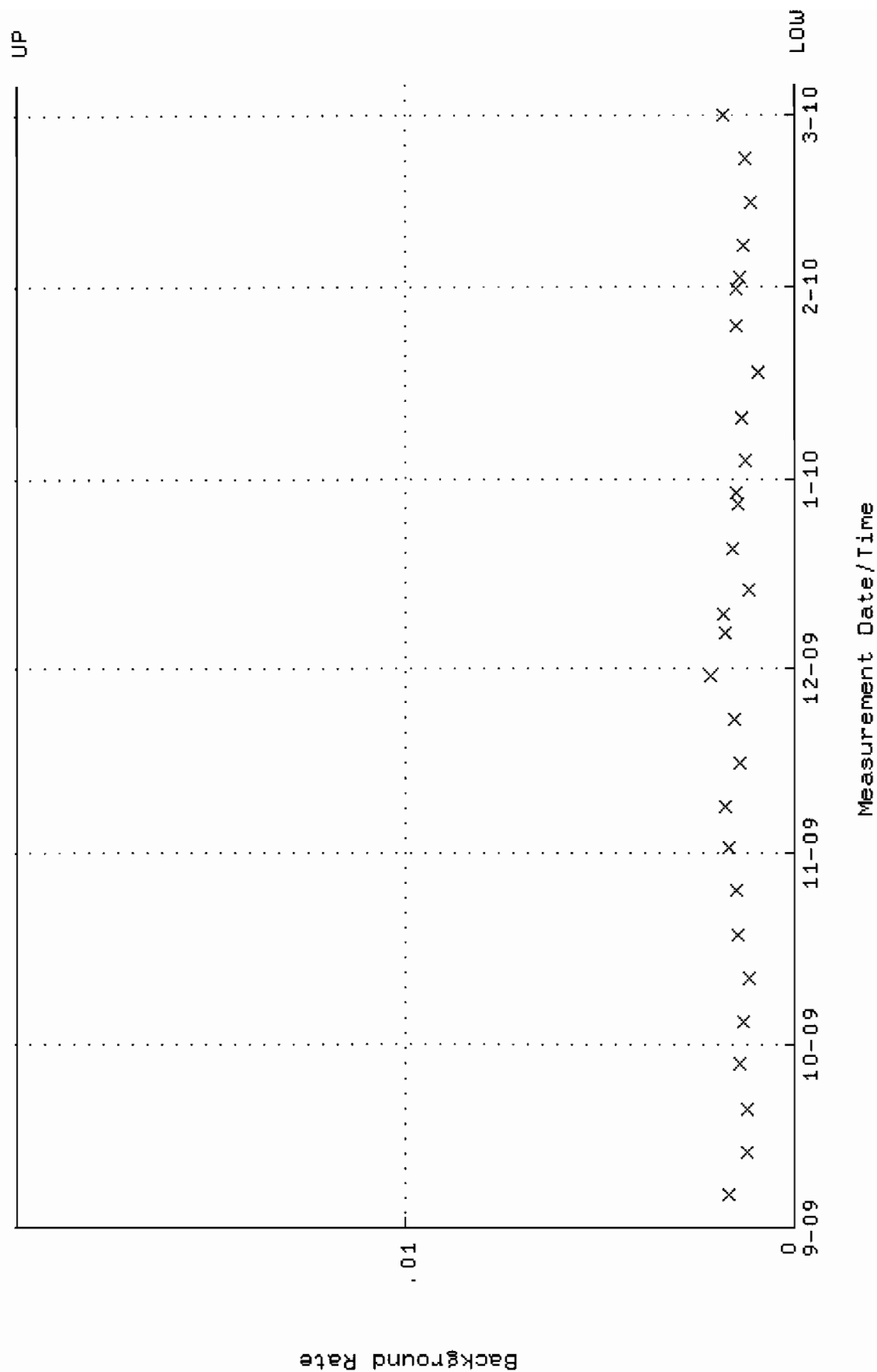
QA filename : DKA100:[ENV_ALPHA.QA.W]W009.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.328261 through 0.348261



QA filename : DKA100:[ENV_ALPHA.QA.W]W009.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 4-SEP-2009 07:36:40 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.4475 through 95.5473



QA filename : OKA100:[ENV_ALPHA.QA.B]B009.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:01 through 5-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

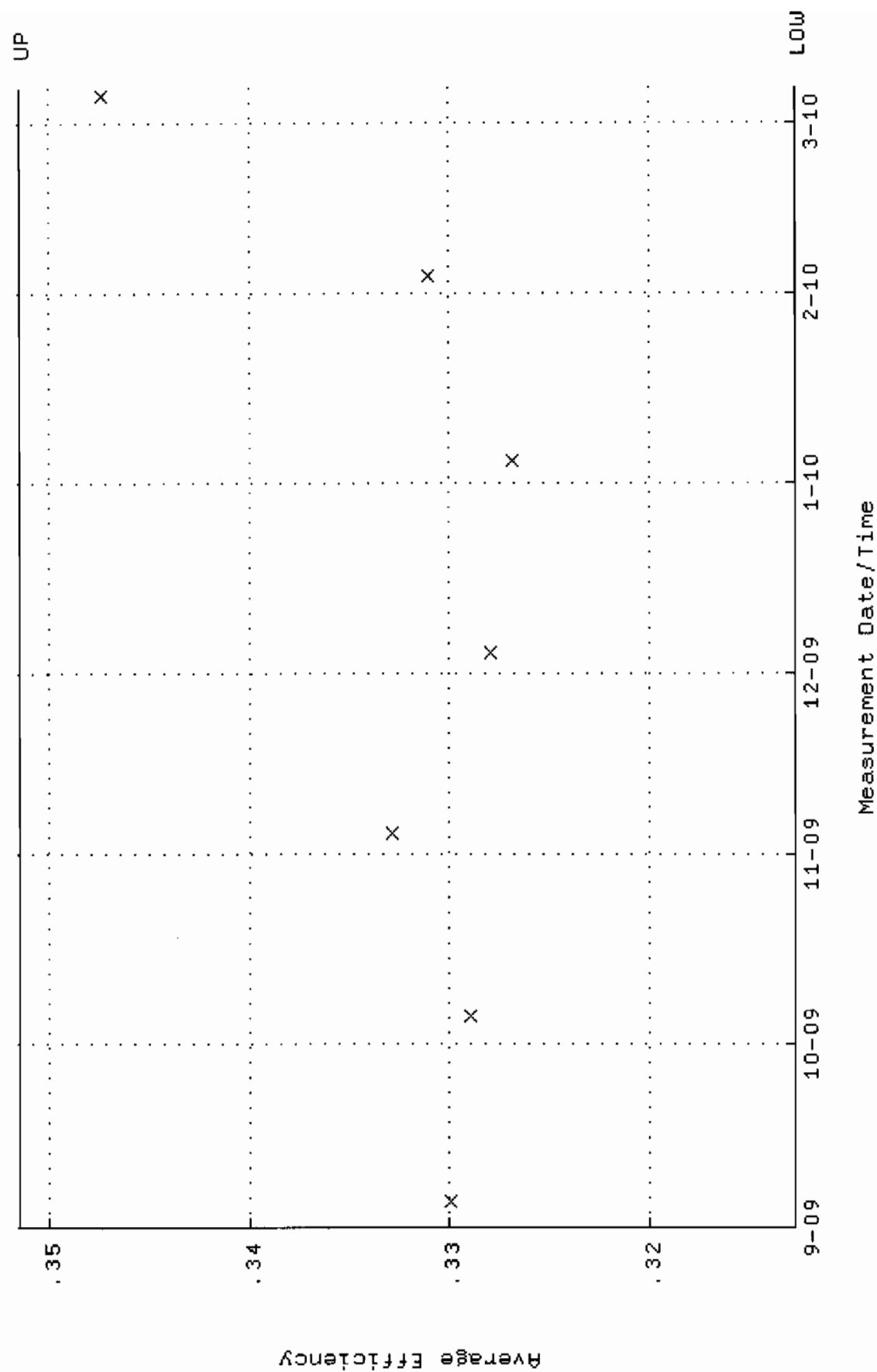


QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5

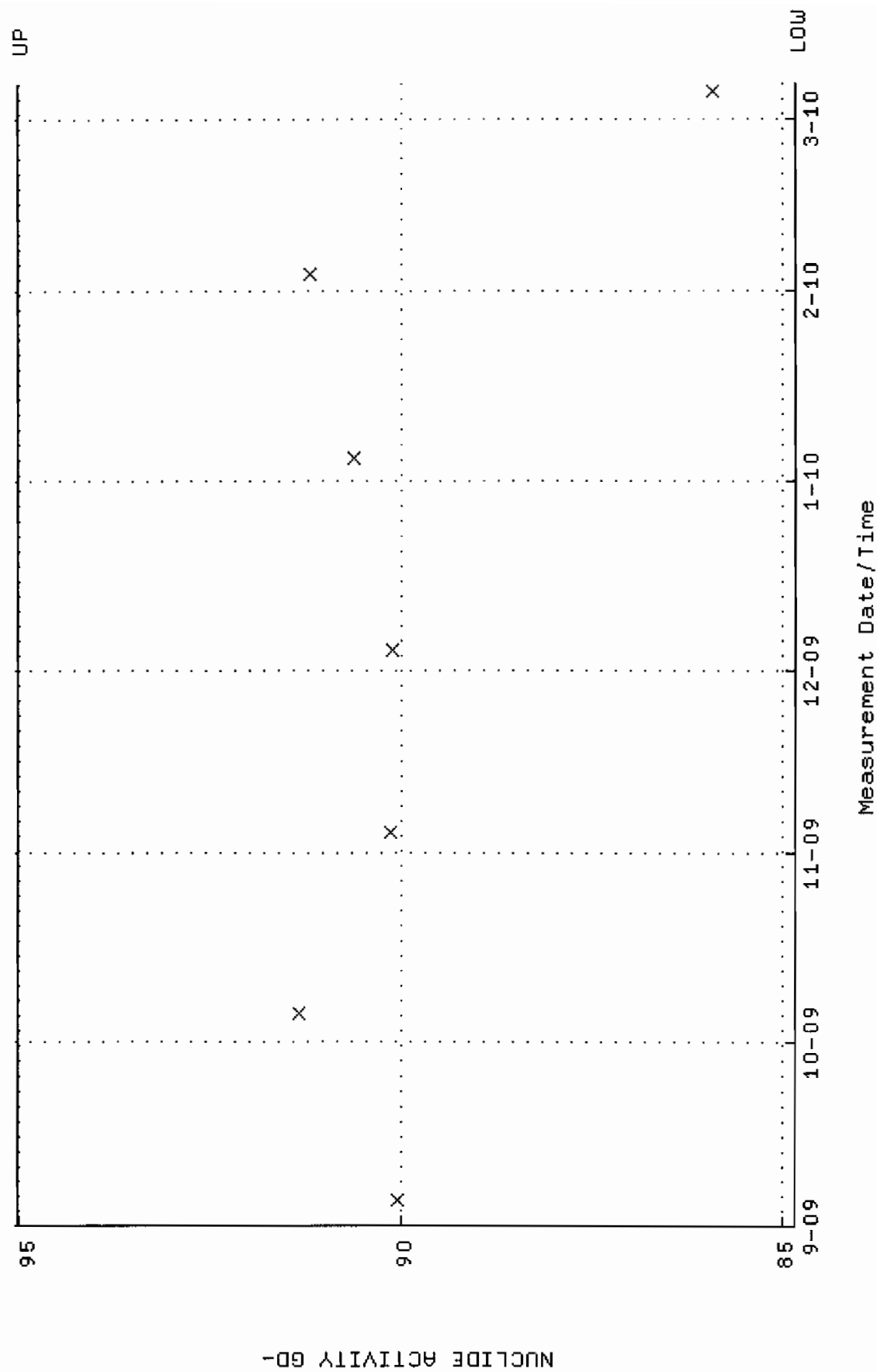
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00

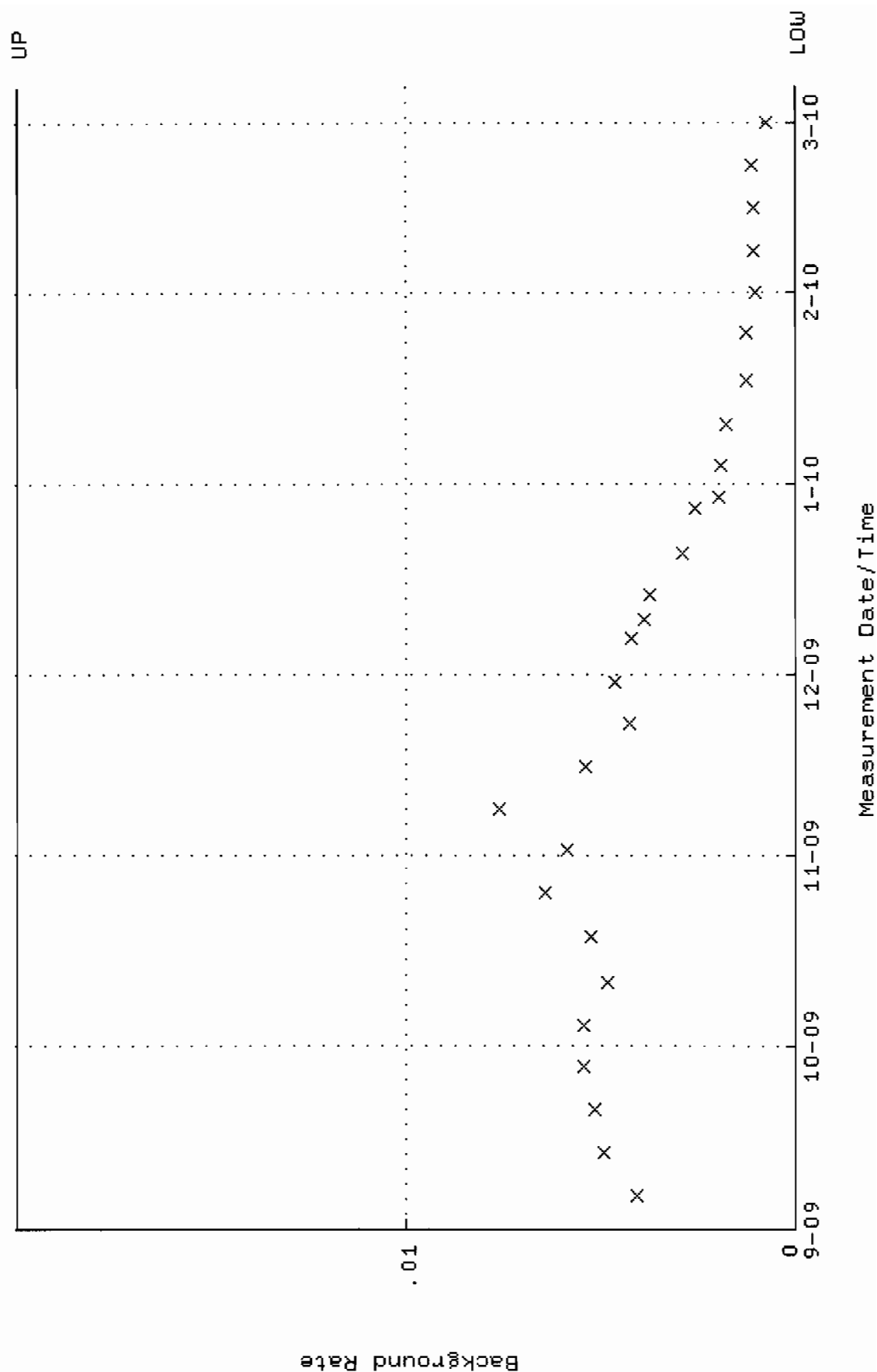
Lower/Upper Lmts: 0.312659 through 0.351485



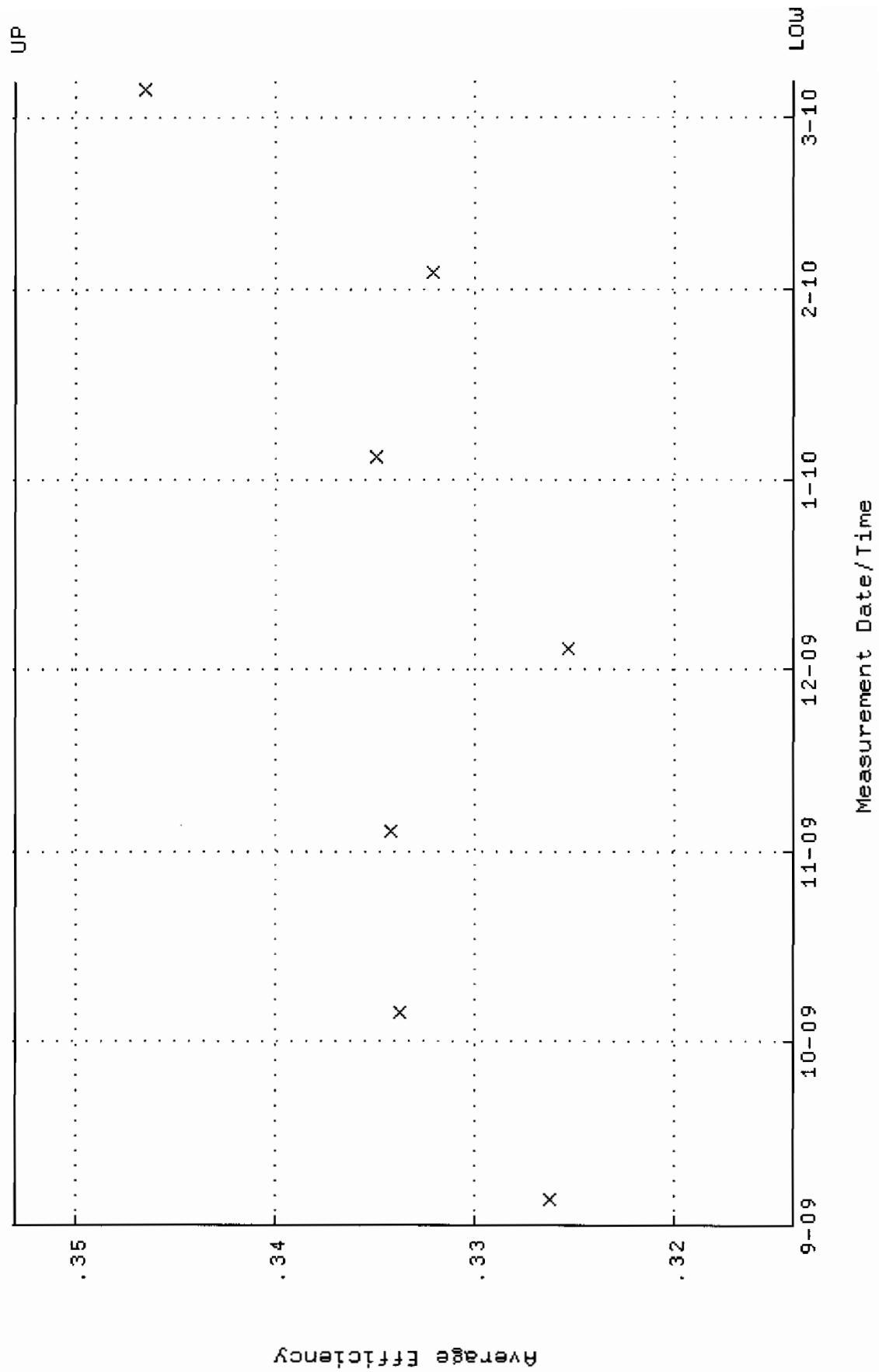
QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
 Lower/Upper Lmts: 84.8316 through 95.0248



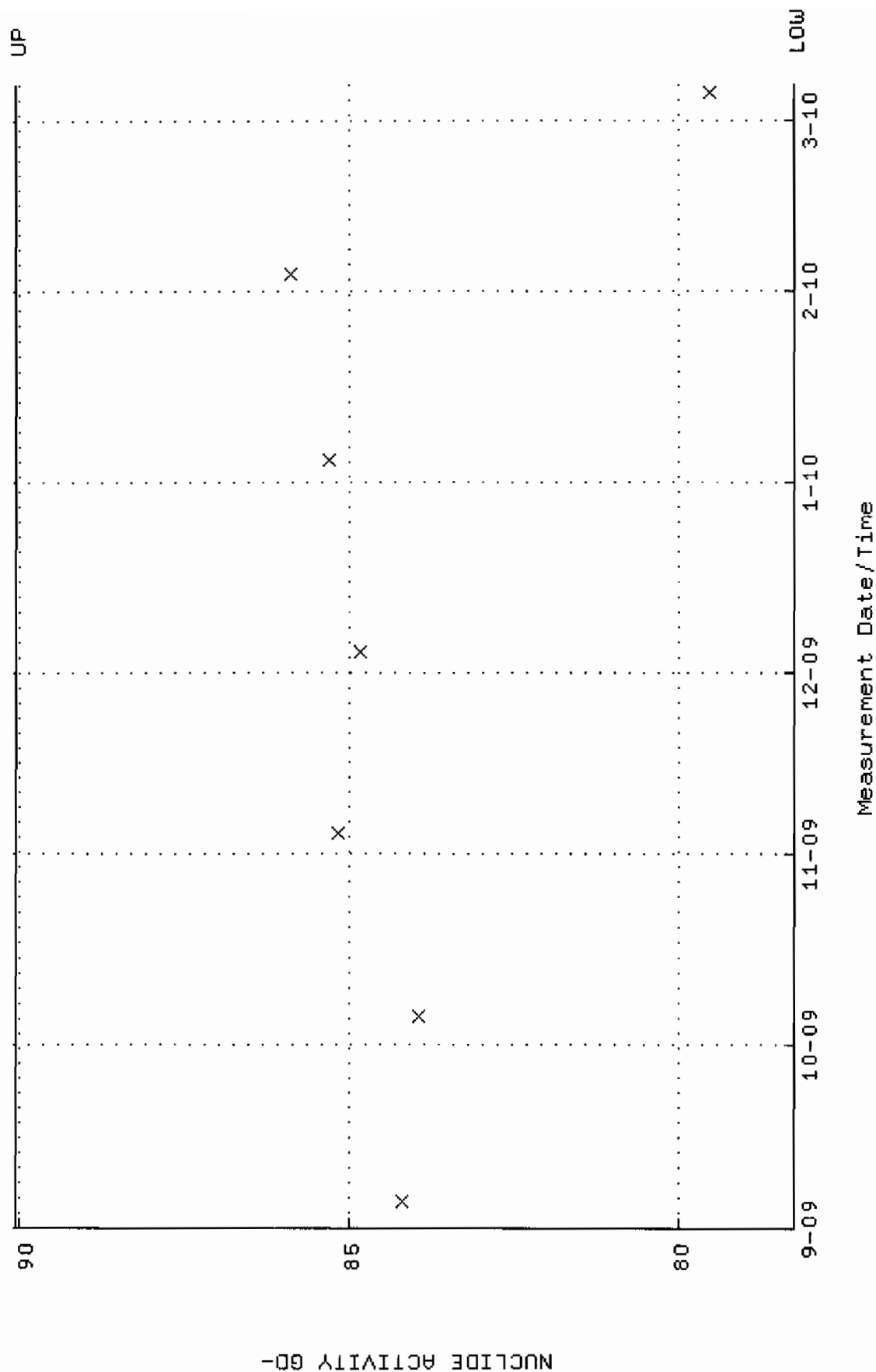
QA filename : DKA100:[ENV_ALPHA.QA.B]B041.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



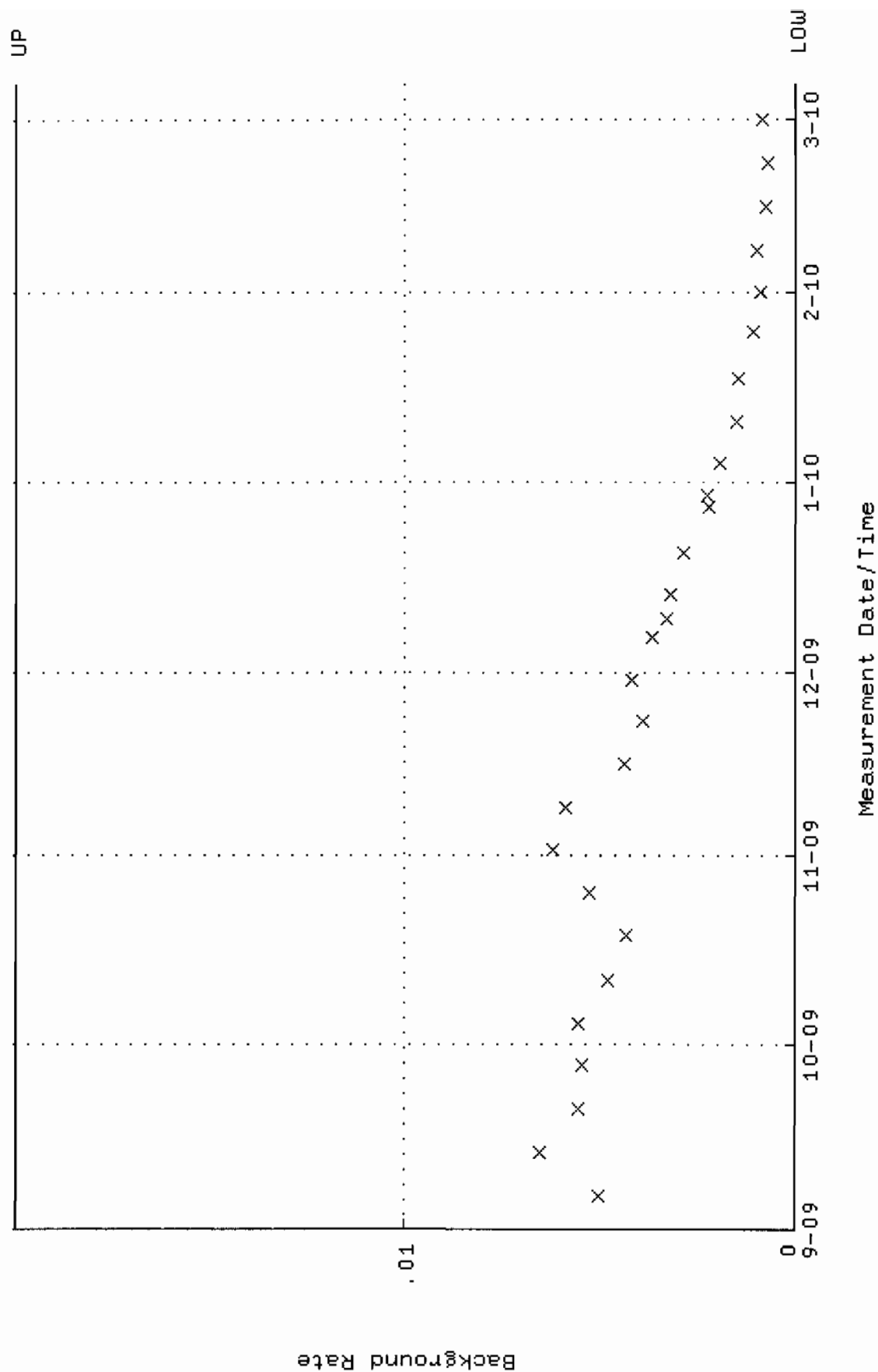
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.314079 through 0.353023



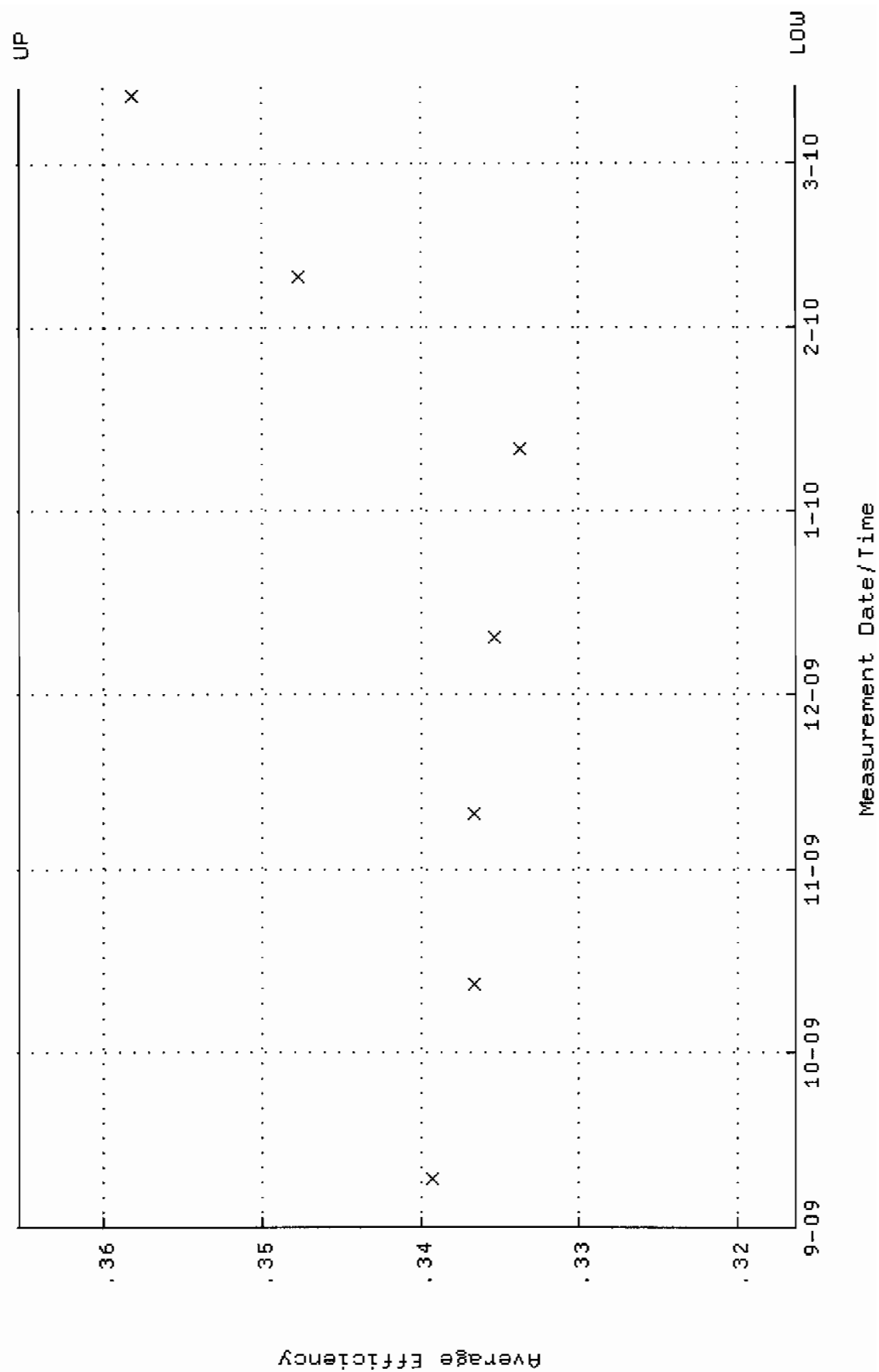
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
 Lower/Upper Lmts: 78.2587 through 90.0439



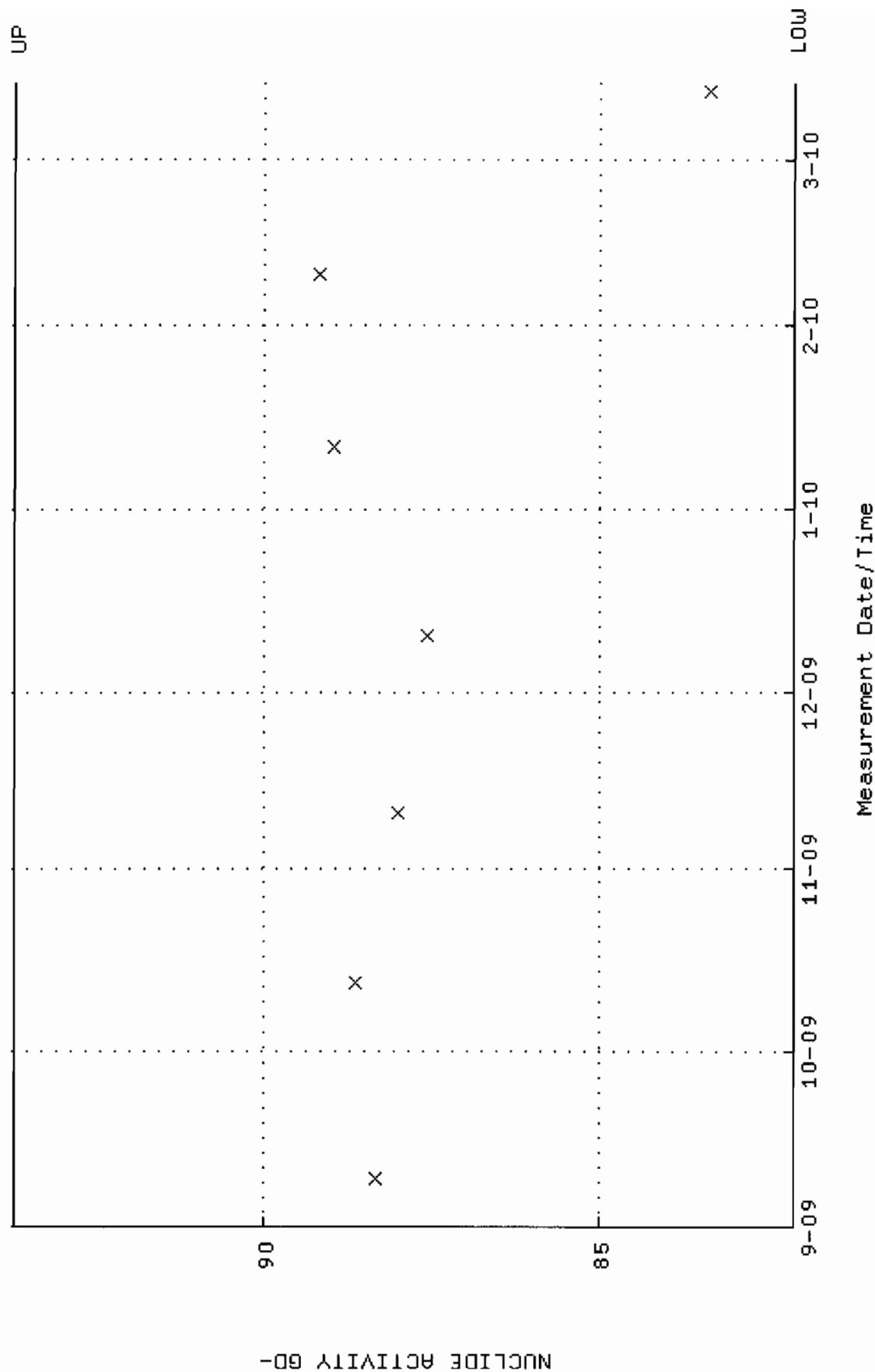
QA filename : DKA100:[ENV_ALPHA.QA.B]B042.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



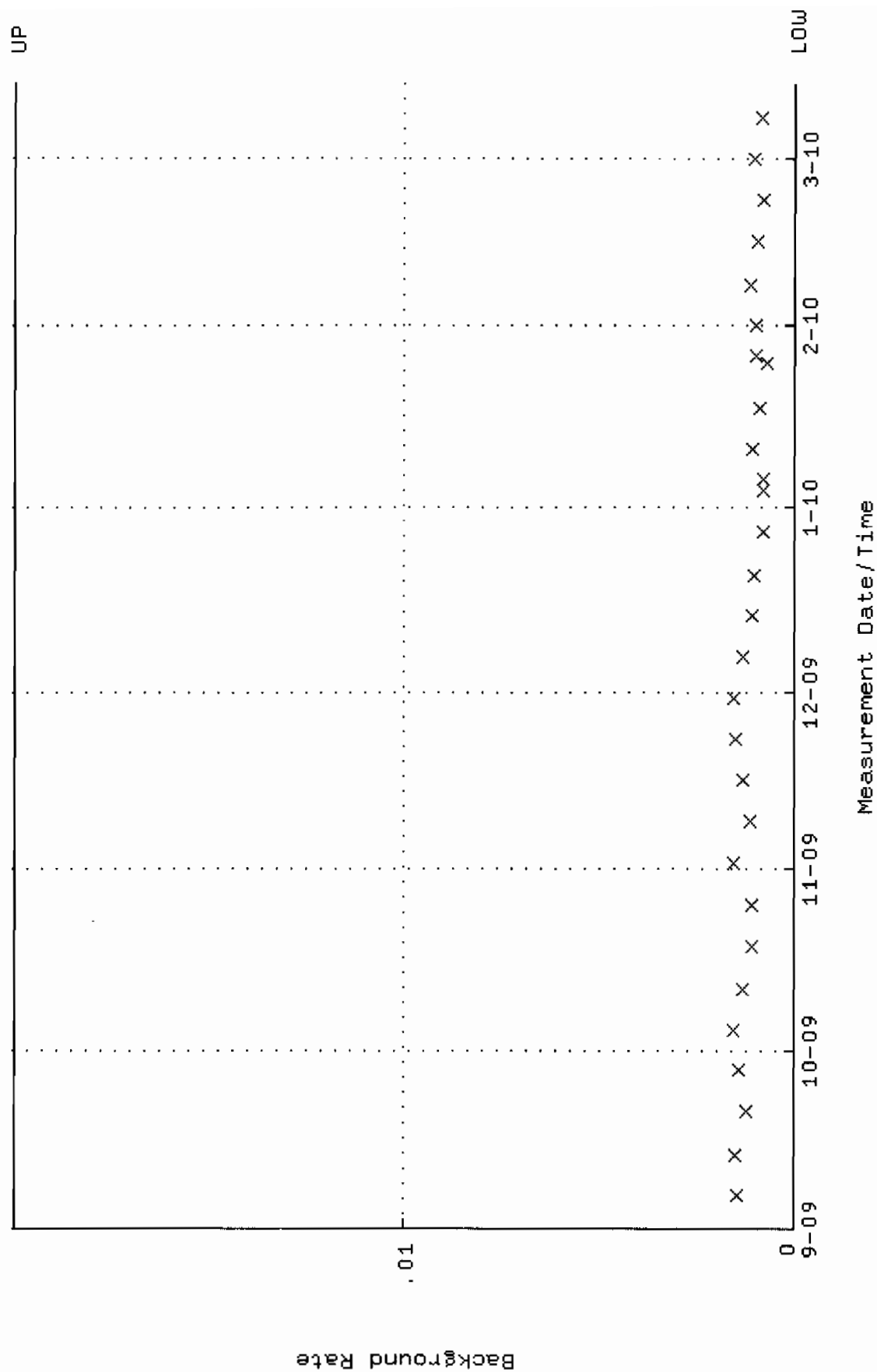
QA filename : DKA100:[ENV_ALPHA.QA.W]W083.QAF;5
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.316282 through 0.365366



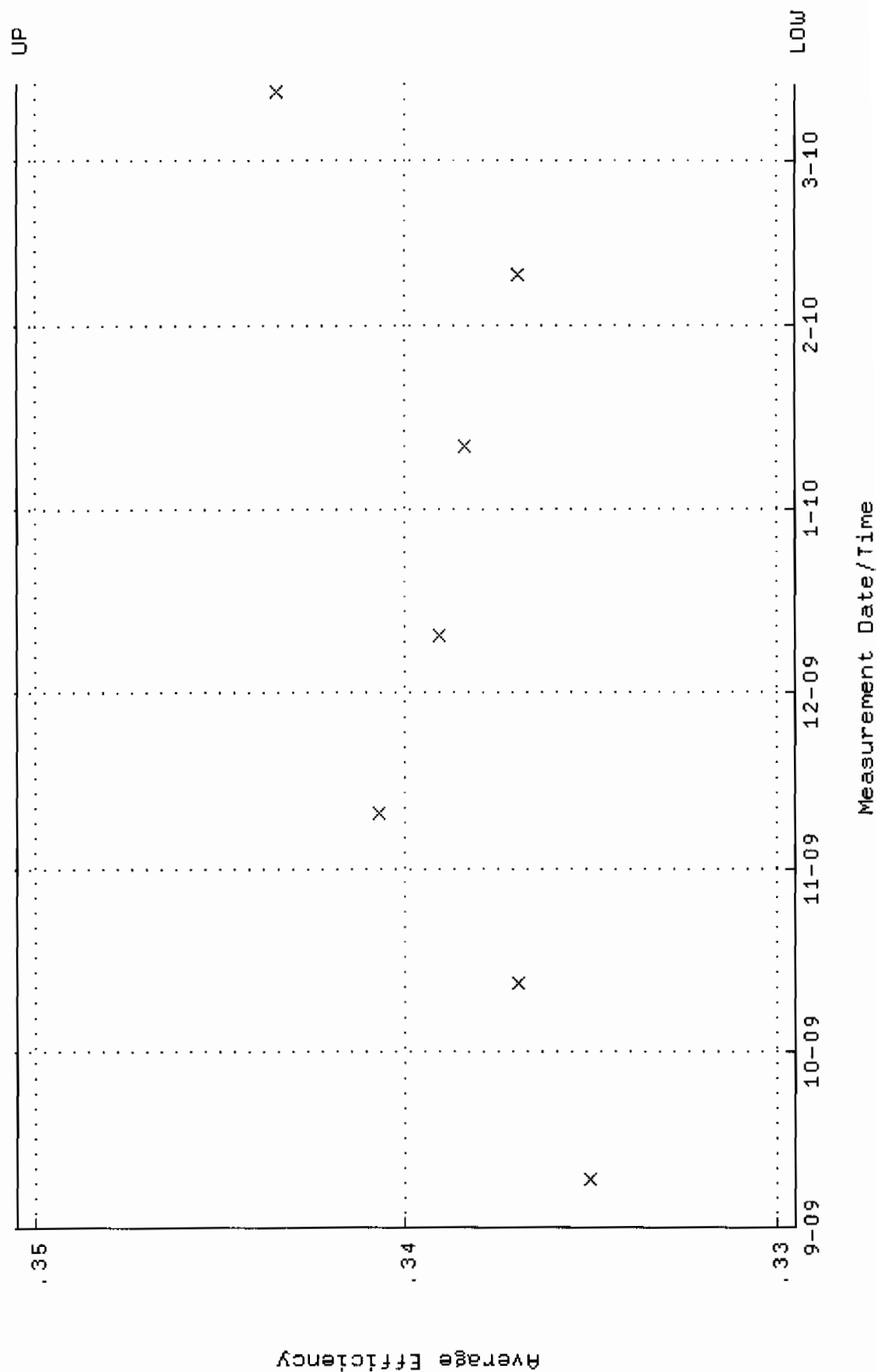
QA filename : DKA100:[ENV_ALPHA.QA.W]W083.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 82.1020 through 93.7348



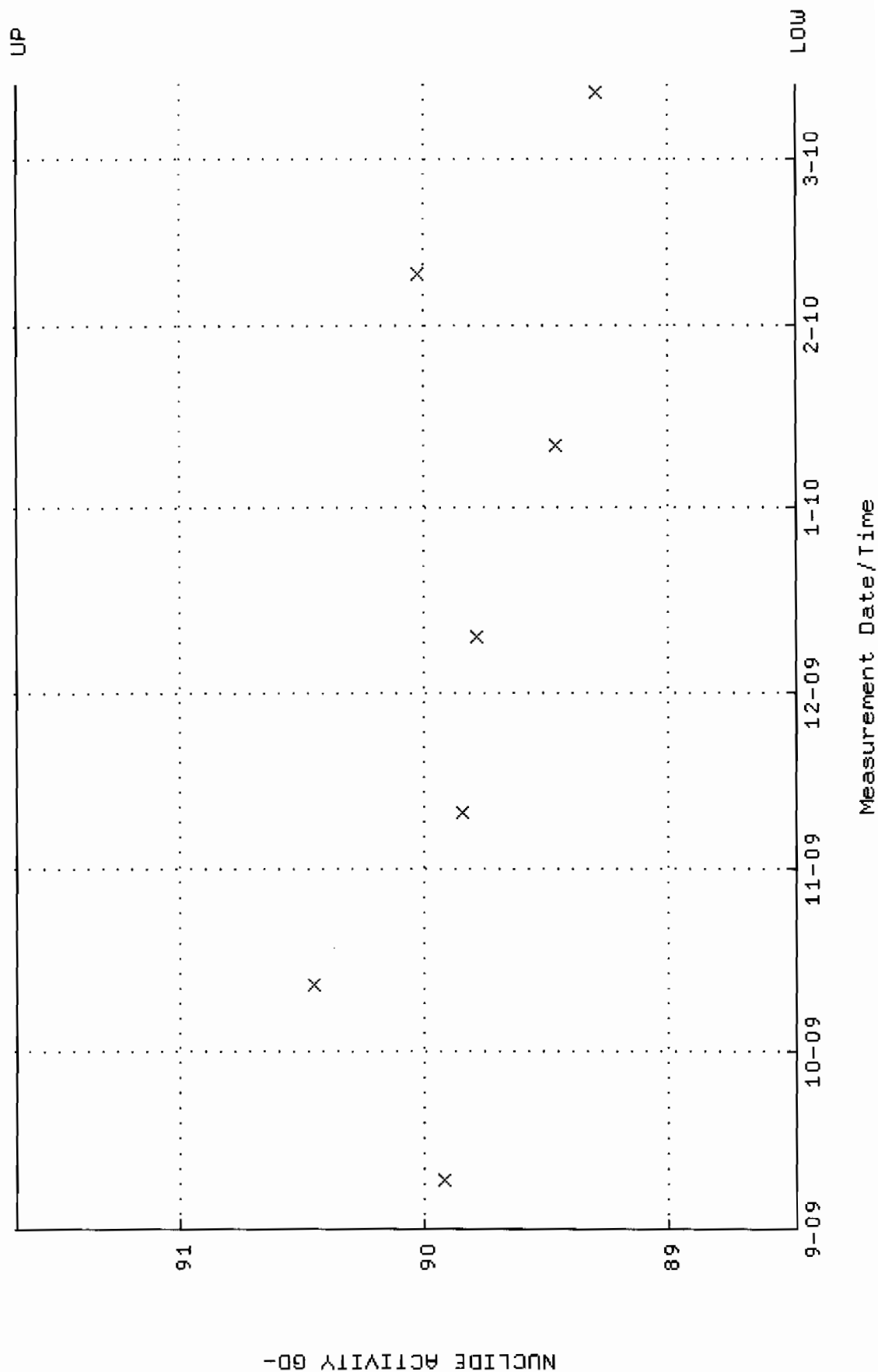
QA filename : DKA100:[ENV_ALPHA.QA.B]B083.QAF;3
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



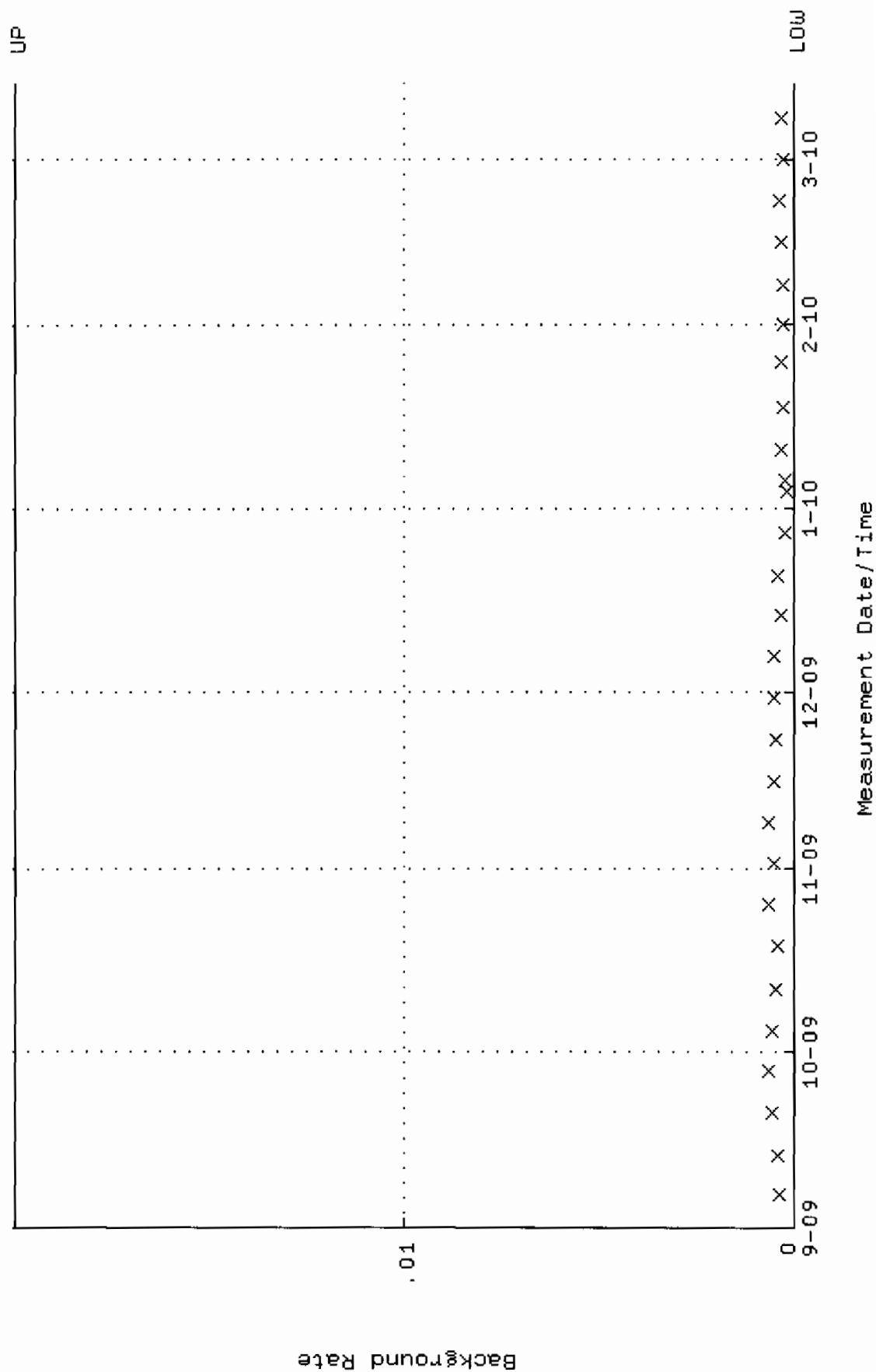
QA filename : DKA100:[ENV_ALPHA.QA.W]W084.QAF;5
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.329490 through 0.350492



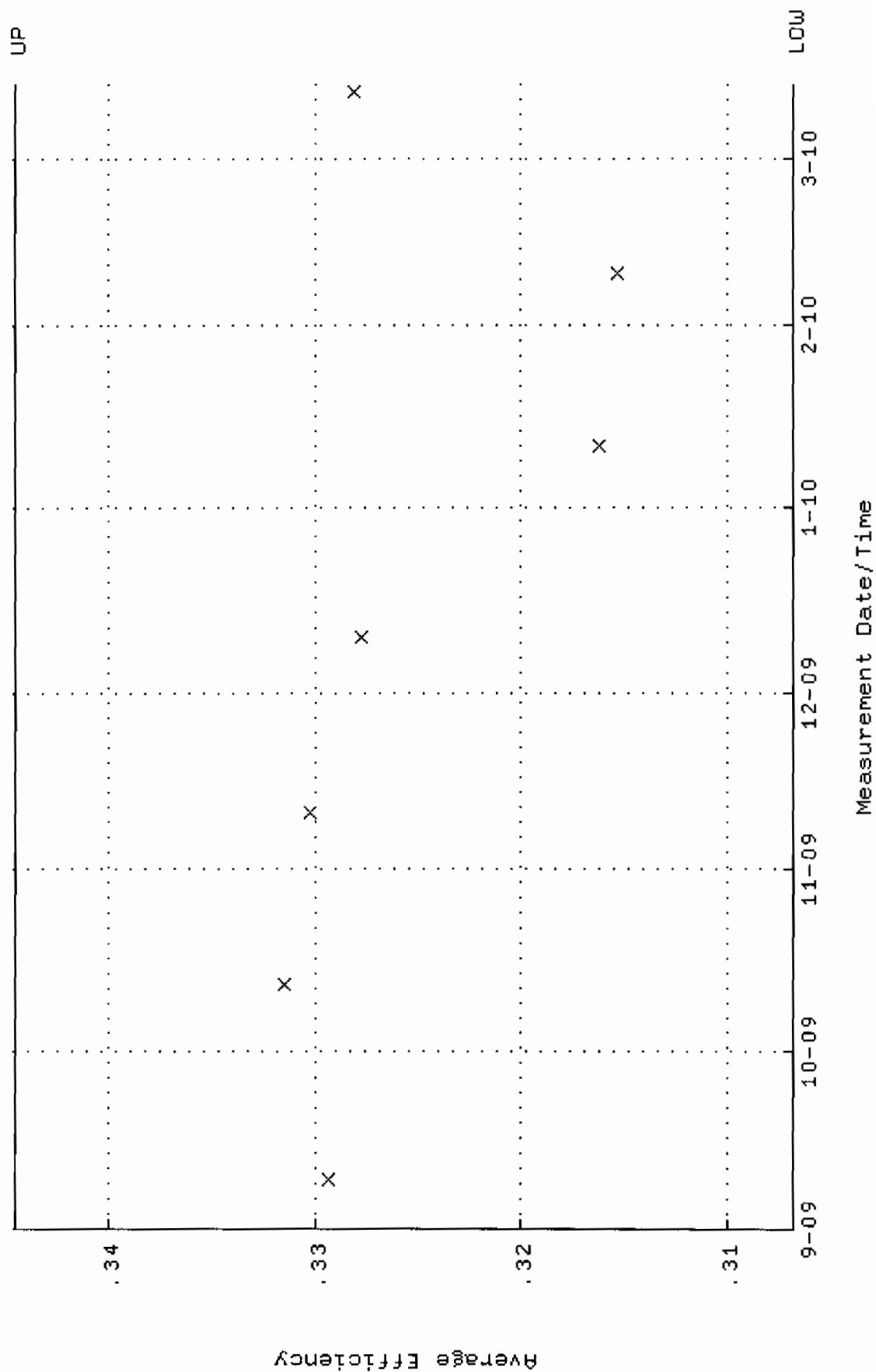
QA filename : DKA100:[ENV_ALPHA.QA.W]W084.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 88.4771 through 91.6651



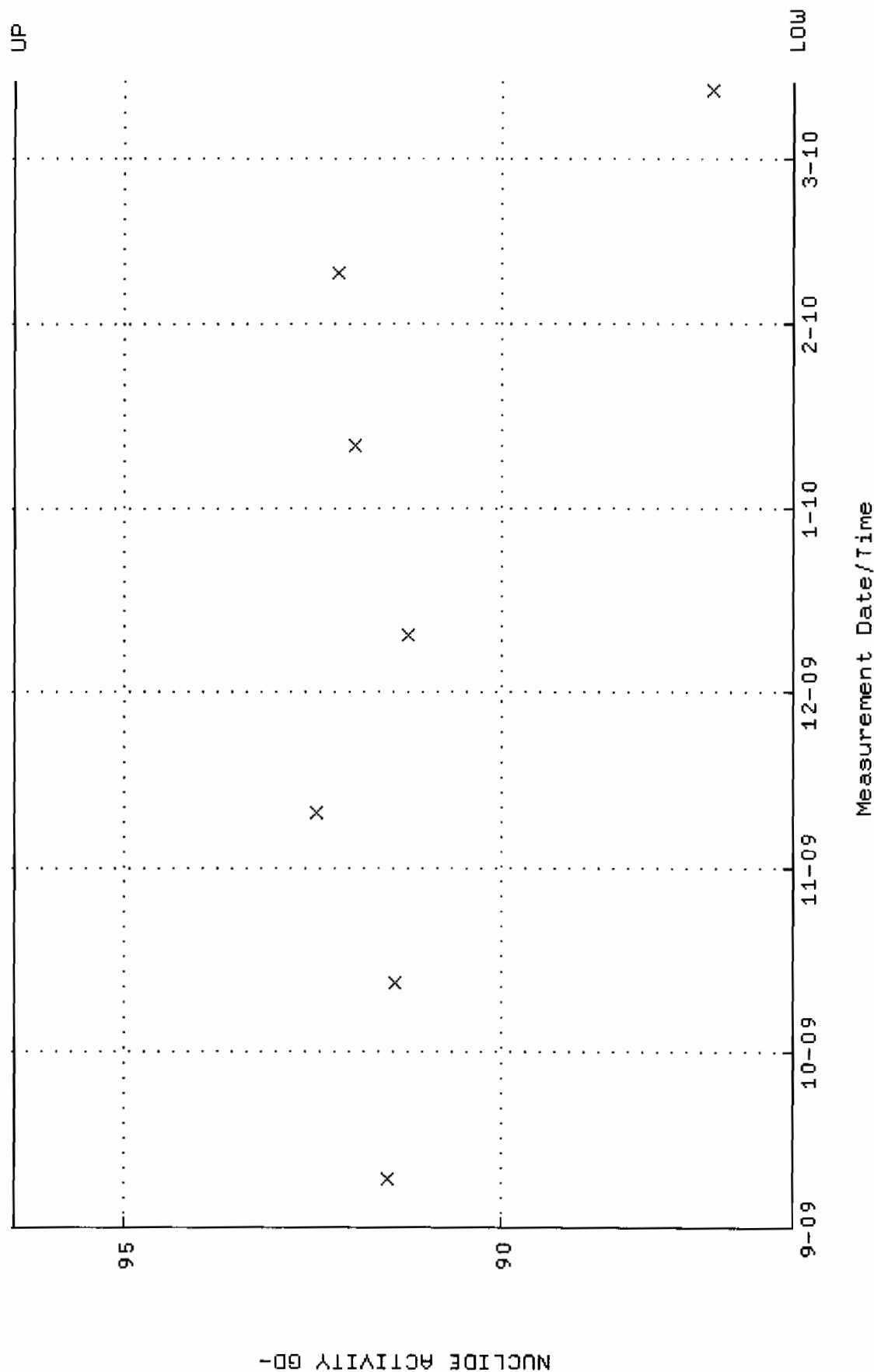
QA filename : DKA100:[ENV_ALPHA.QA.B]B084.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



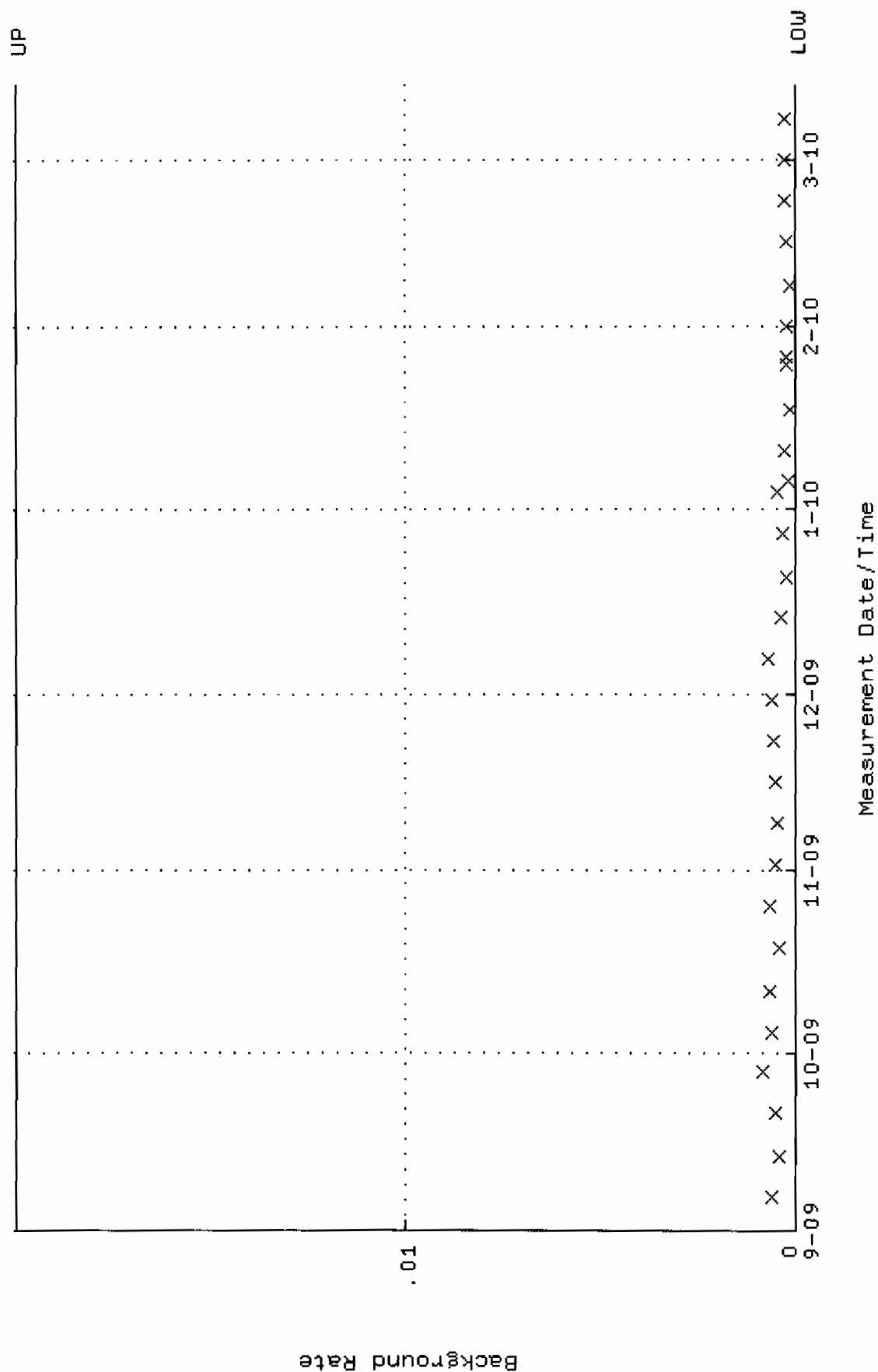
QA filename : DKA100:[ENV_ALPHA.QA.W]W085.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.306815 through 0.344543



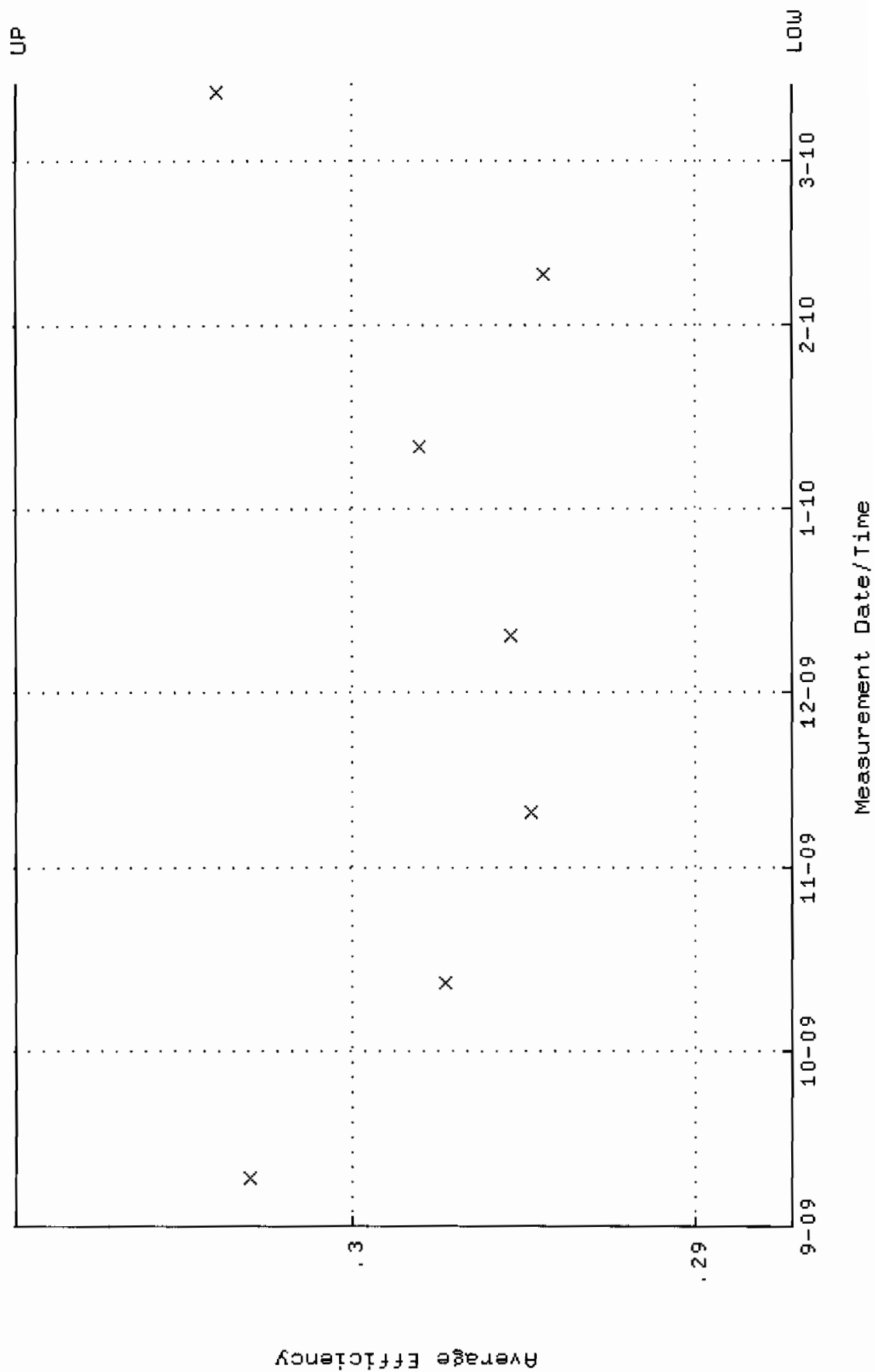
QA filename : DKA100:[ENV_ALPHA.QA.W]W085.QAF;6
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.1313 through 96.4525



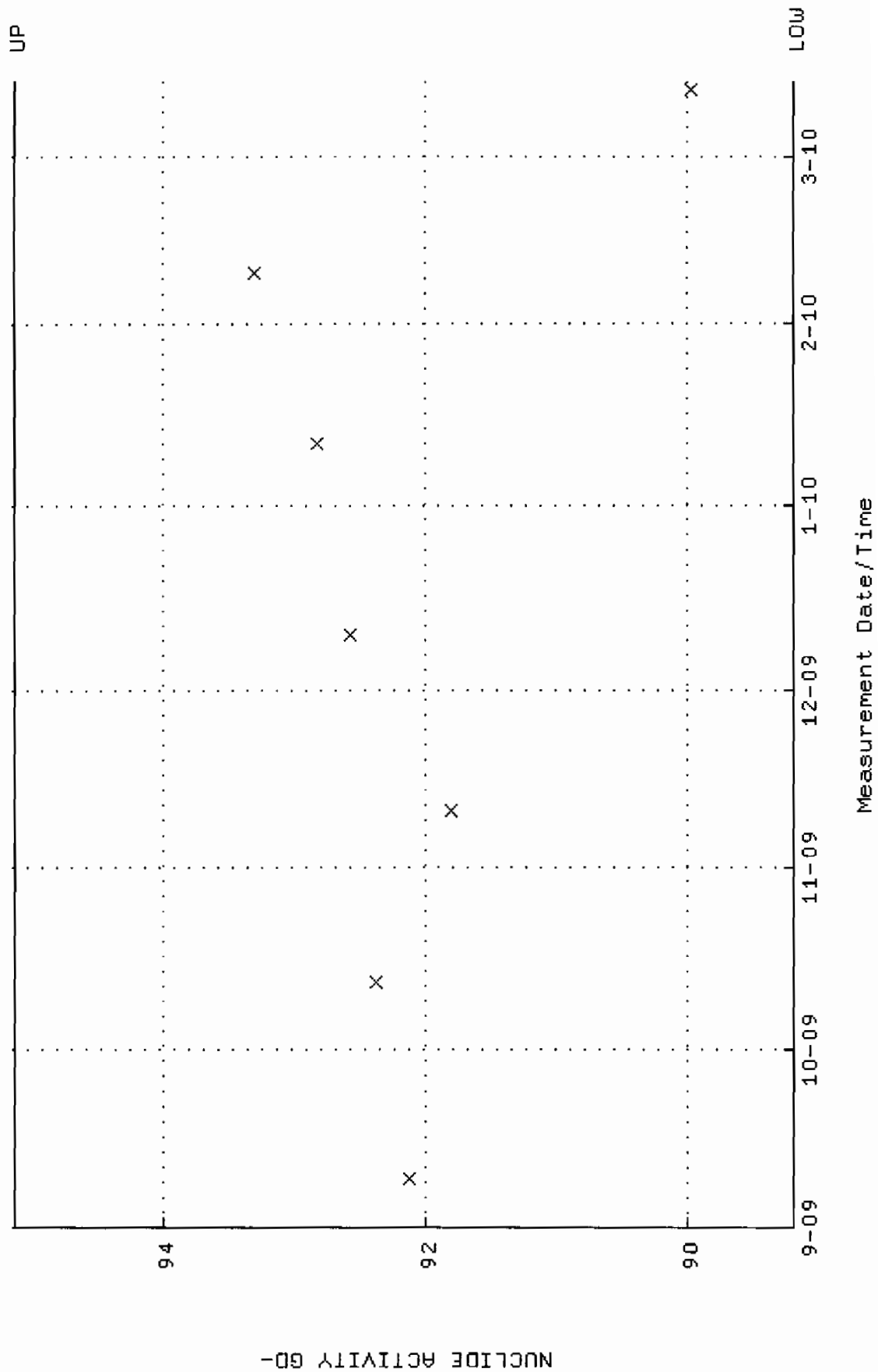
QA filename : DKA100:[ENV_ALPHA.QA.B]B085.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



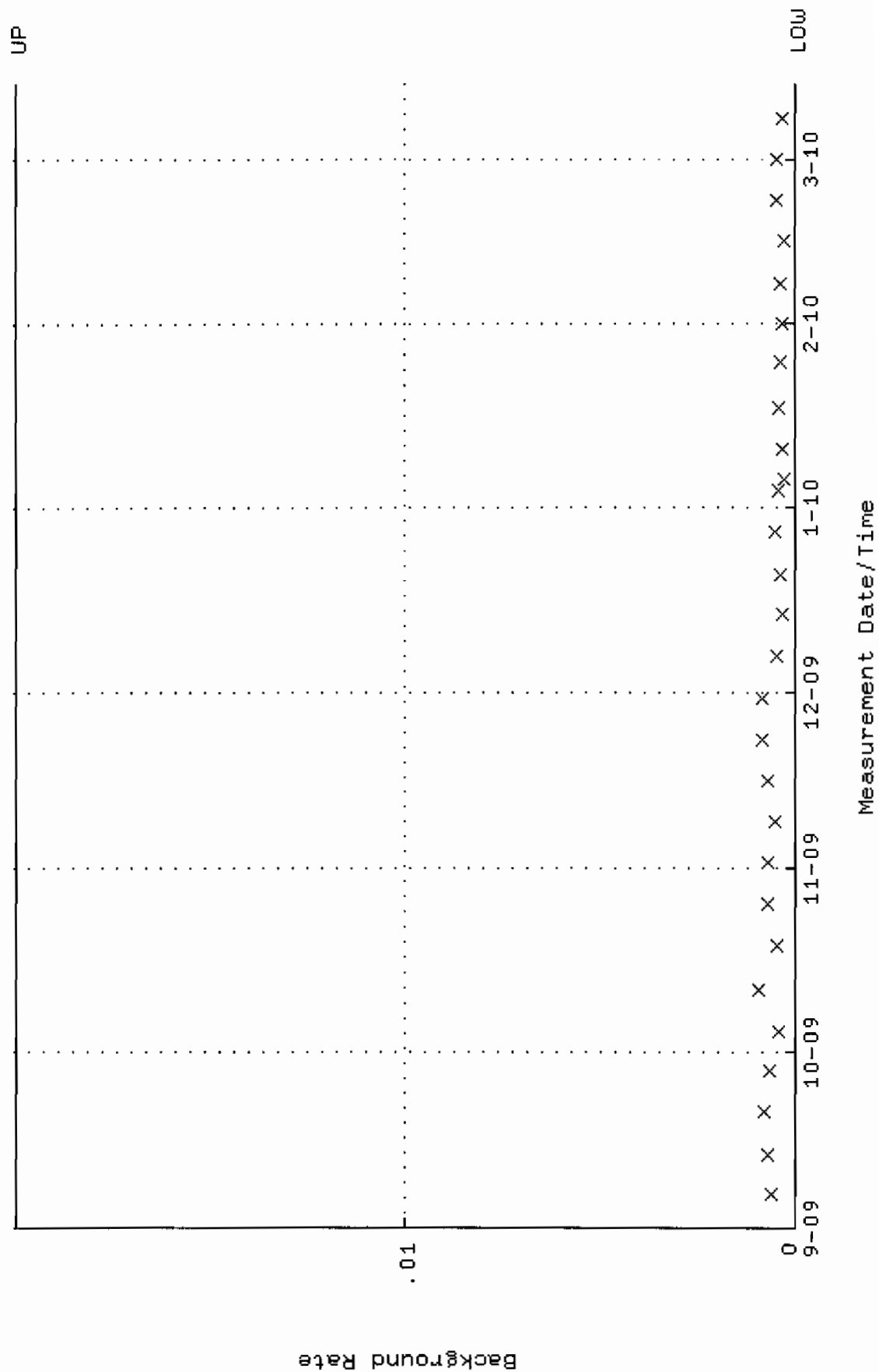
QA filename : DKA100:[ENV_ALPHA.QA.W]W086.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.287158 through 0.309794



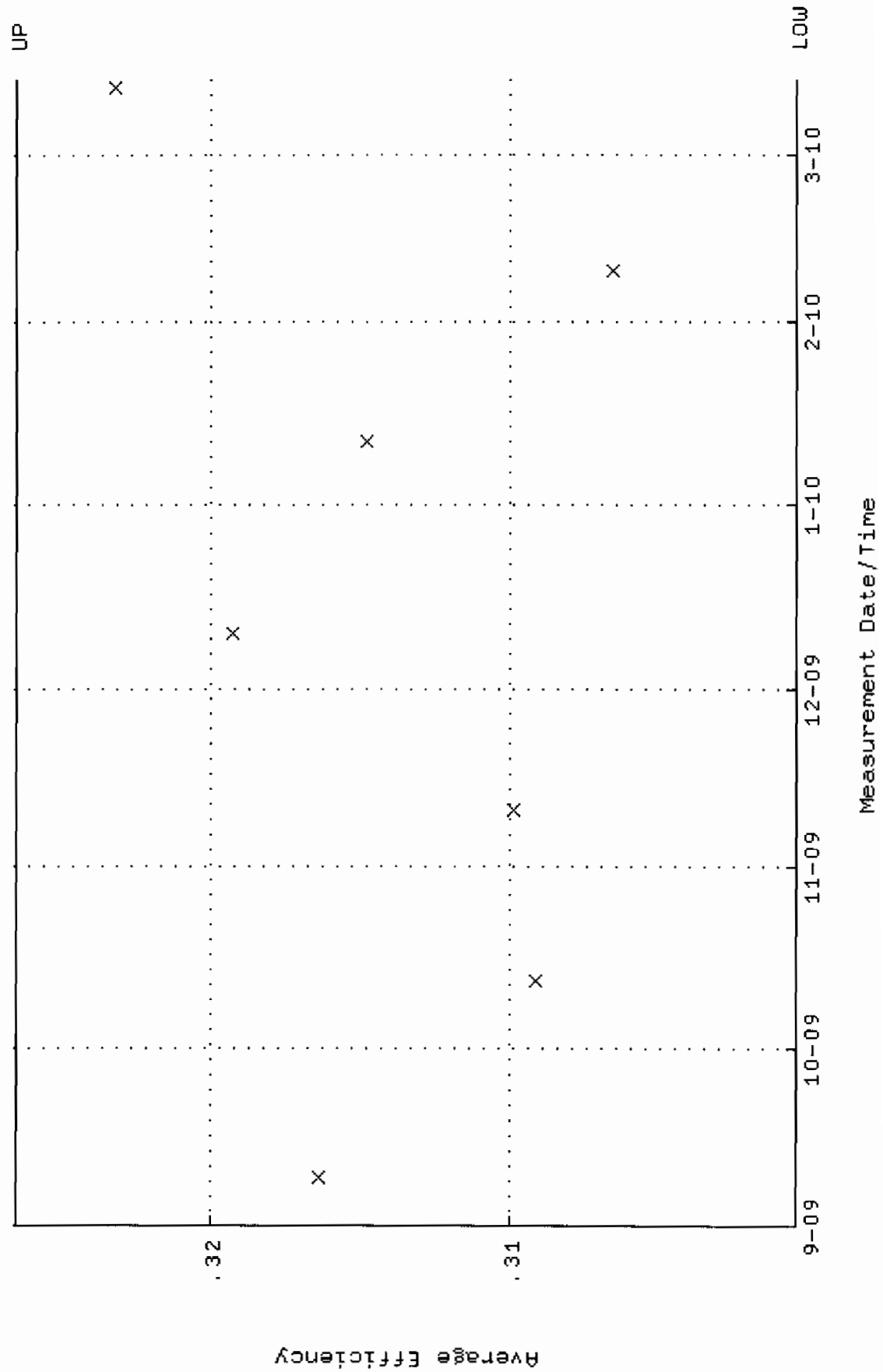
QA filename : DKA100:[ENV_ALPHA.QA.W]W086.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 89.1886 through 95.1274



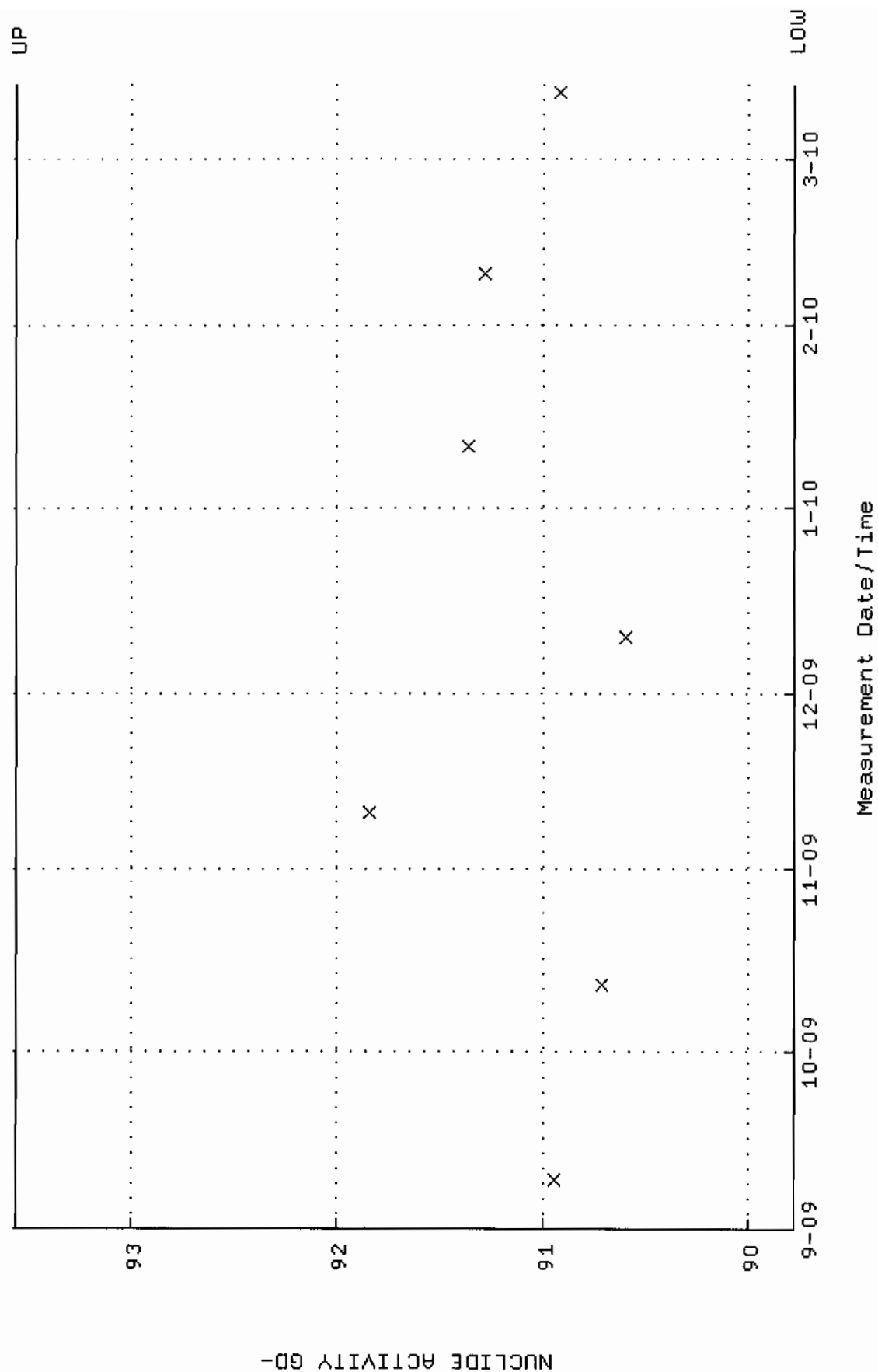
QA filename : DKA100: [ENV_ALPHA.QA.B]B086.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



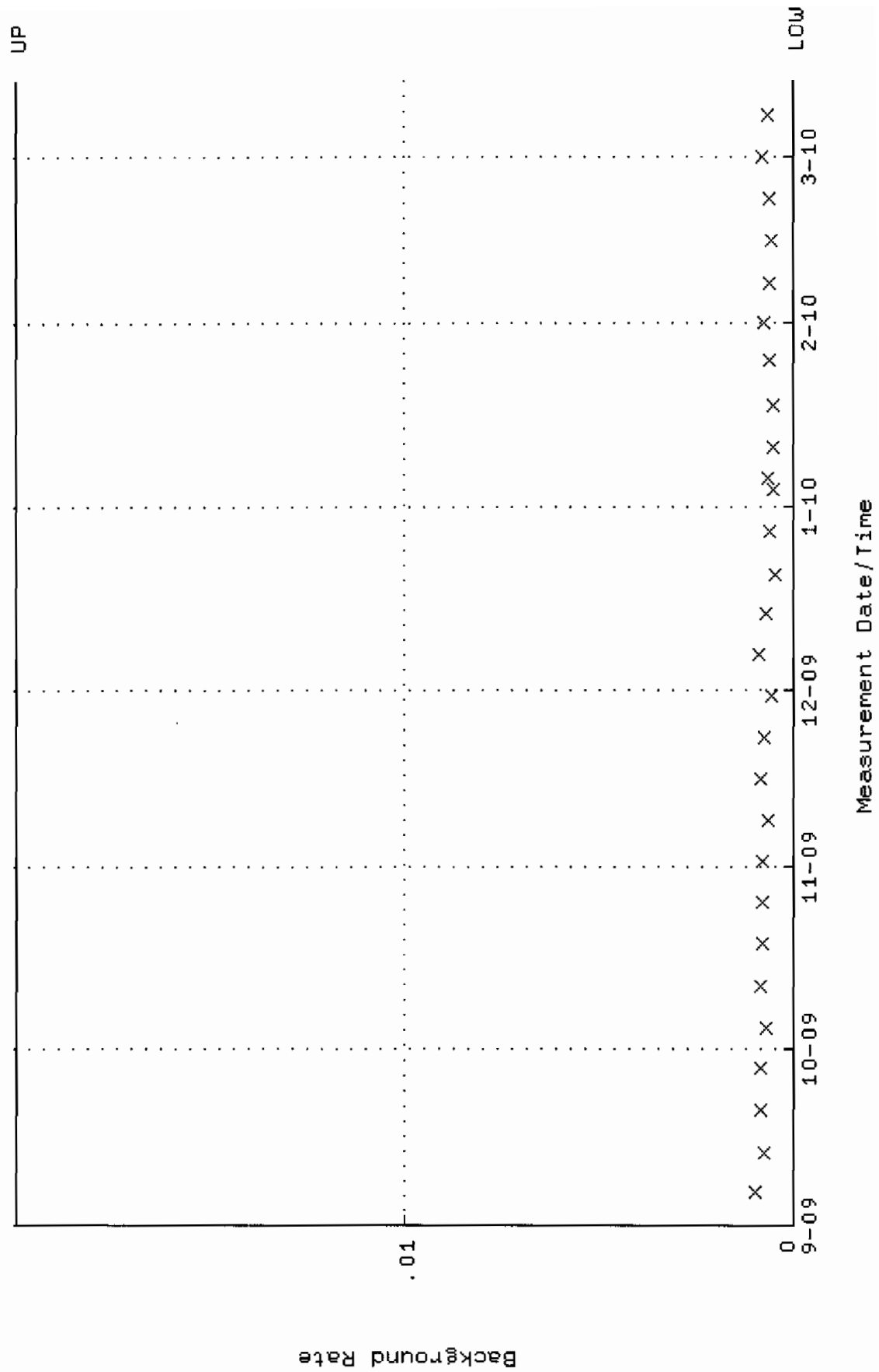
QA filename : DKA100:[ENV_ALPHA.QA.W]W087.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.300487 through 0.326465



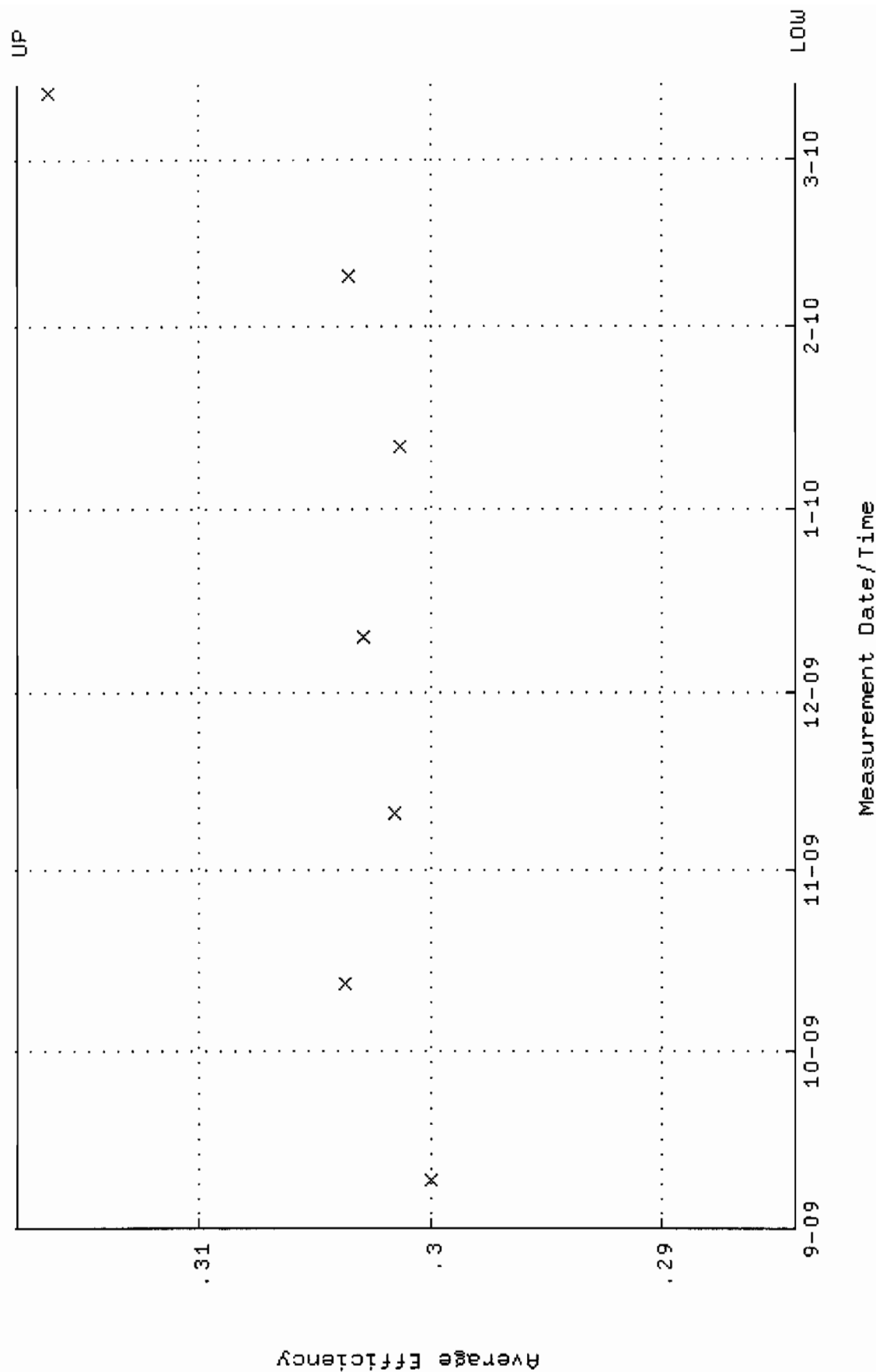
QA filename : DKA100:[ENV_ALPHA.QA.W]W087.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 89.7763 through 93.5625



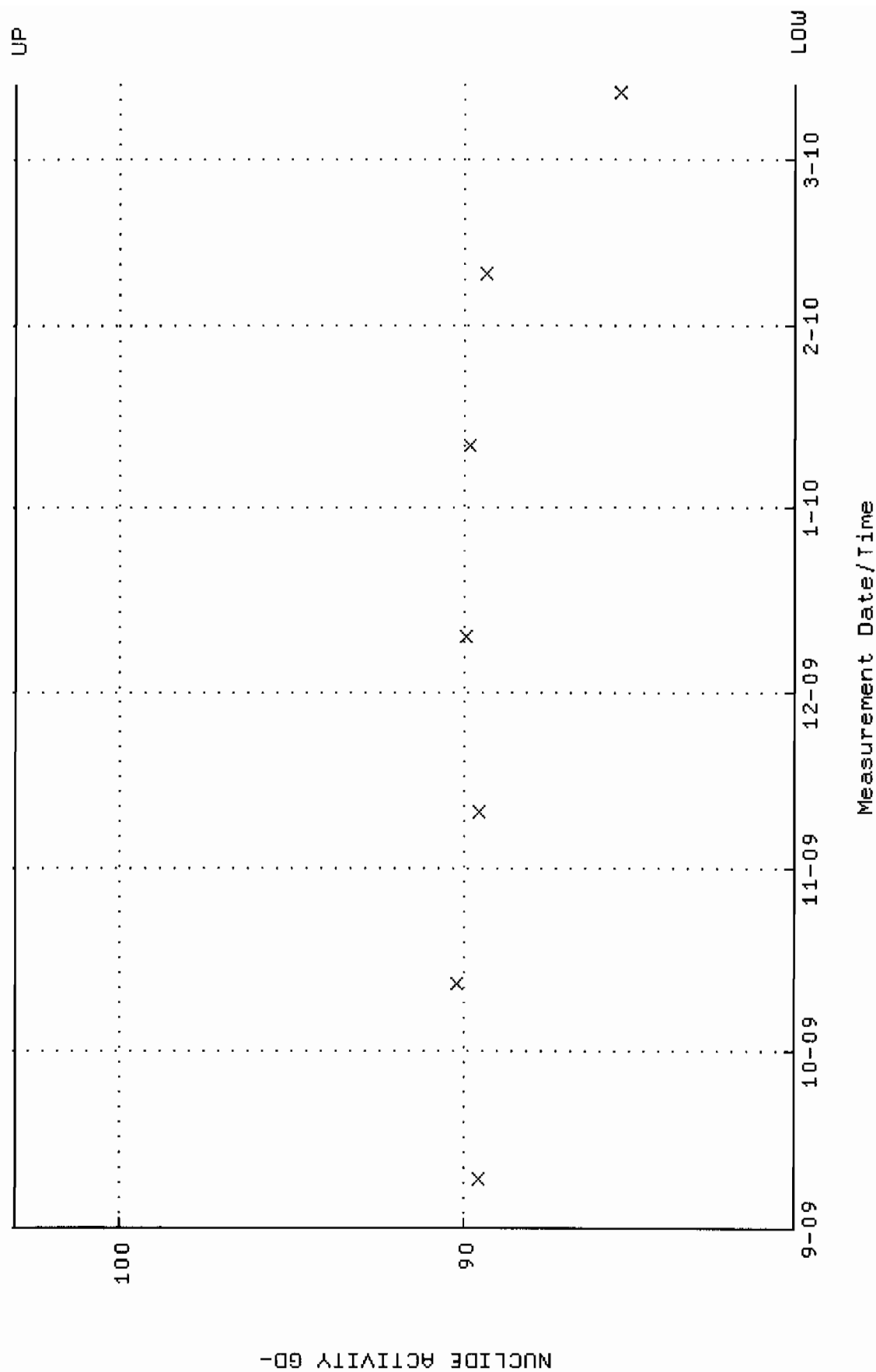
QA filename : DKA100:[ENV_ALPHA.QA.B]B087.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



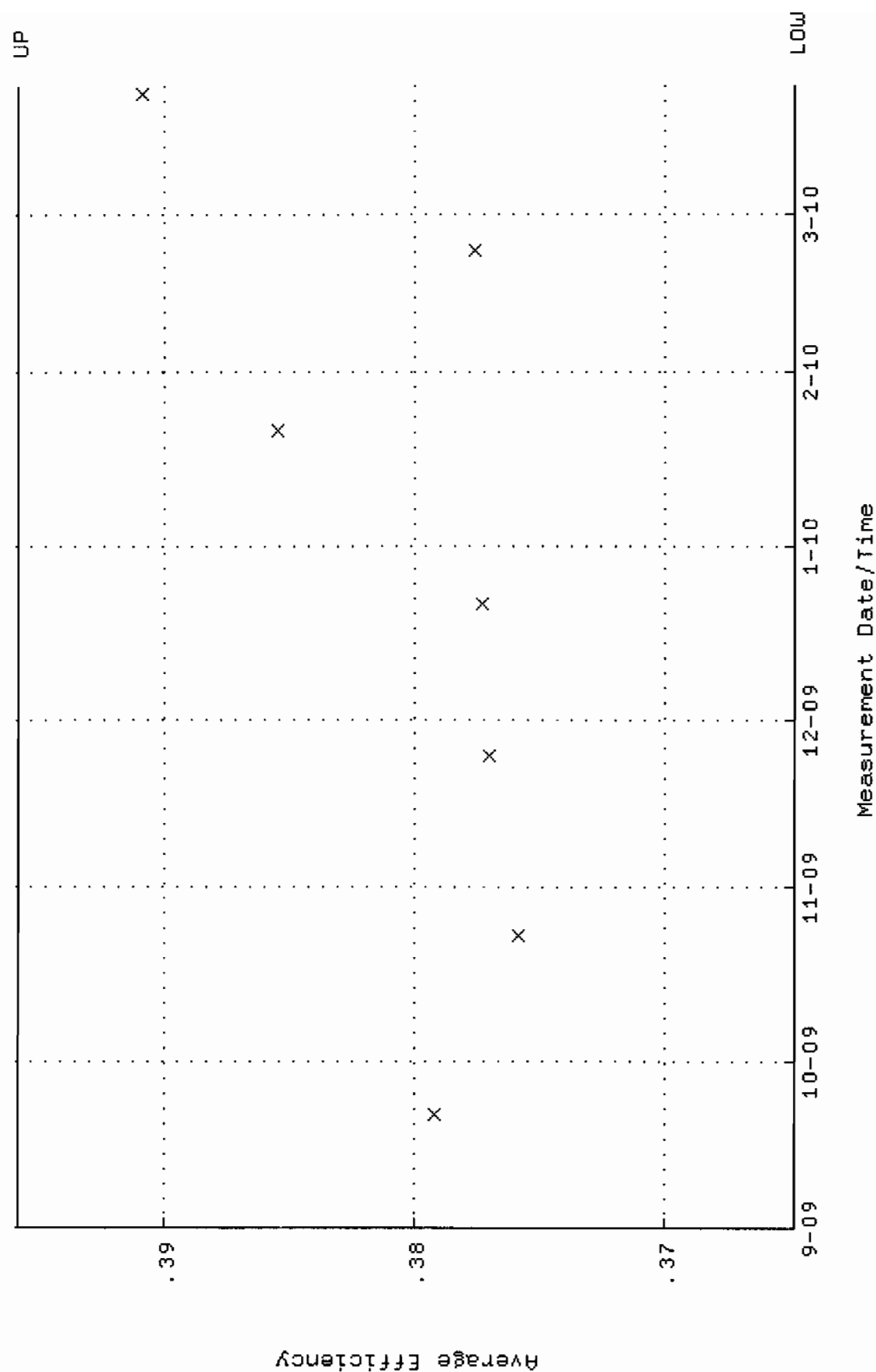
QA filename : DKA100:[ENV_ALPHA.QA.W]W088.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.284264 through 0.317864



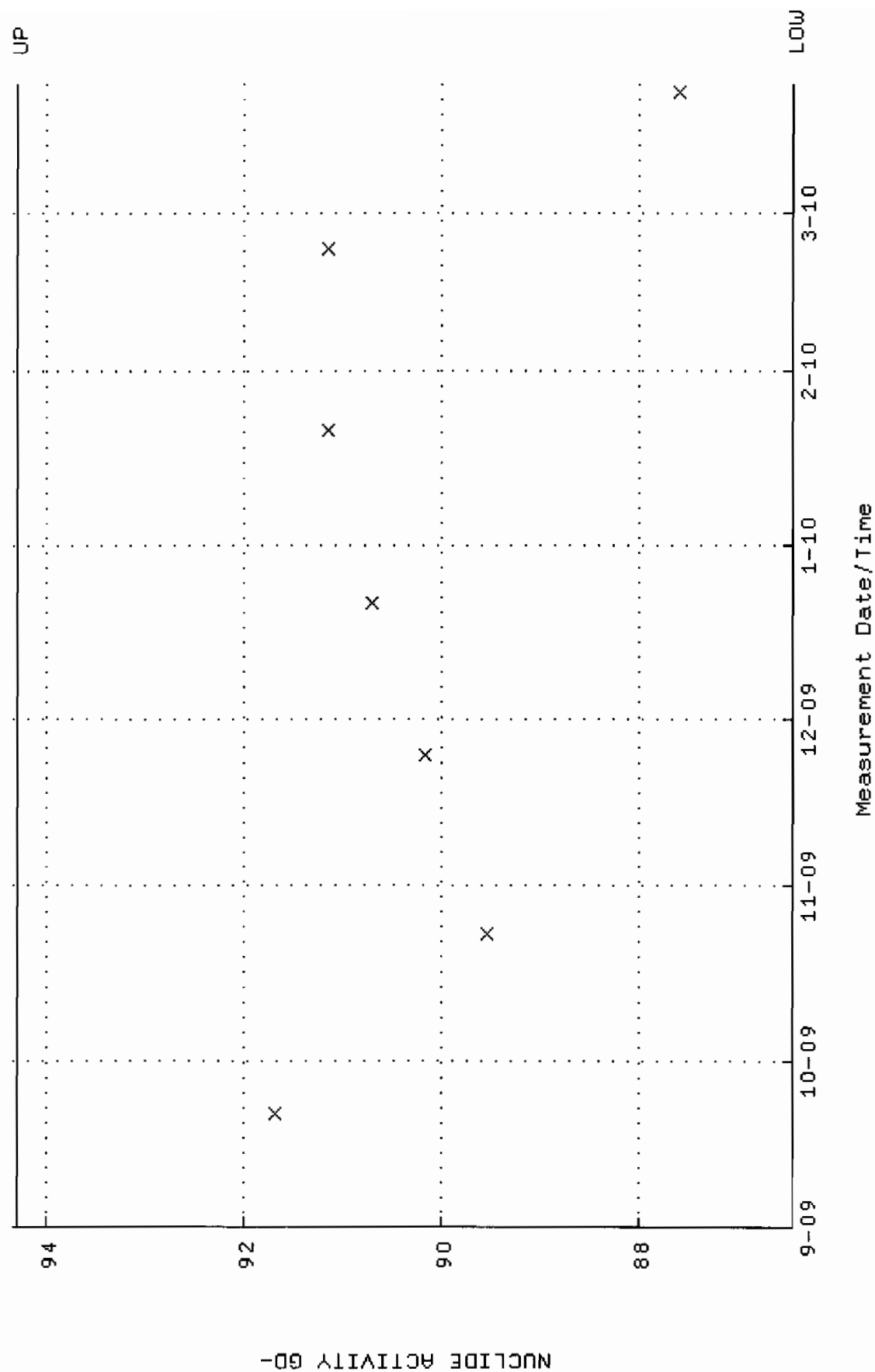
QA filename : DKA100:[ENV_ALPHA.QA.W]W088.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
 Lower/Upper Lmts: 80.4493 through 103.037



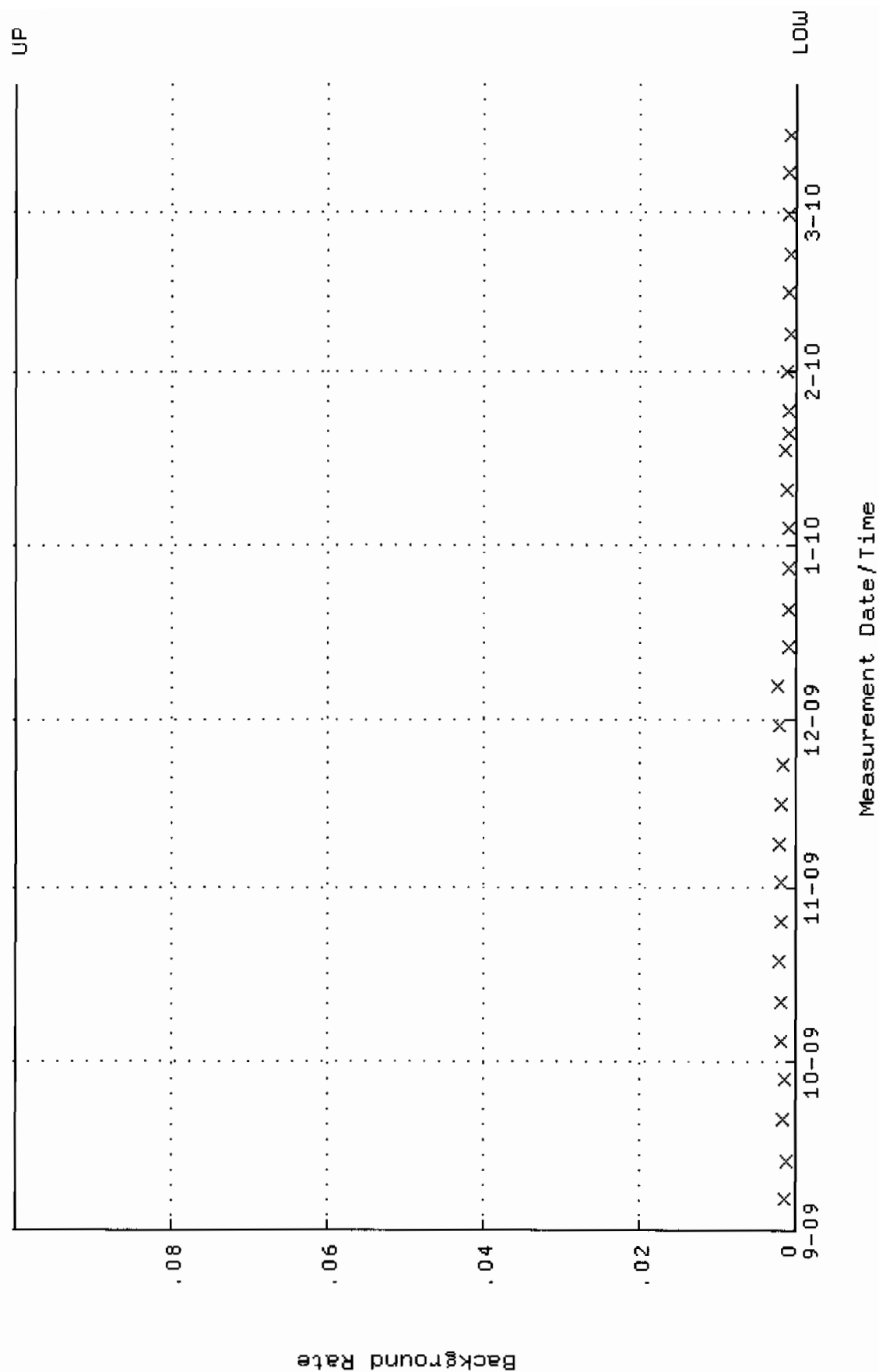
QA filename : DKA100:[ENV_ALPHA.QA.W]w164.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 21-SEP-2009 09:28:39 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.364871 through 0.395783



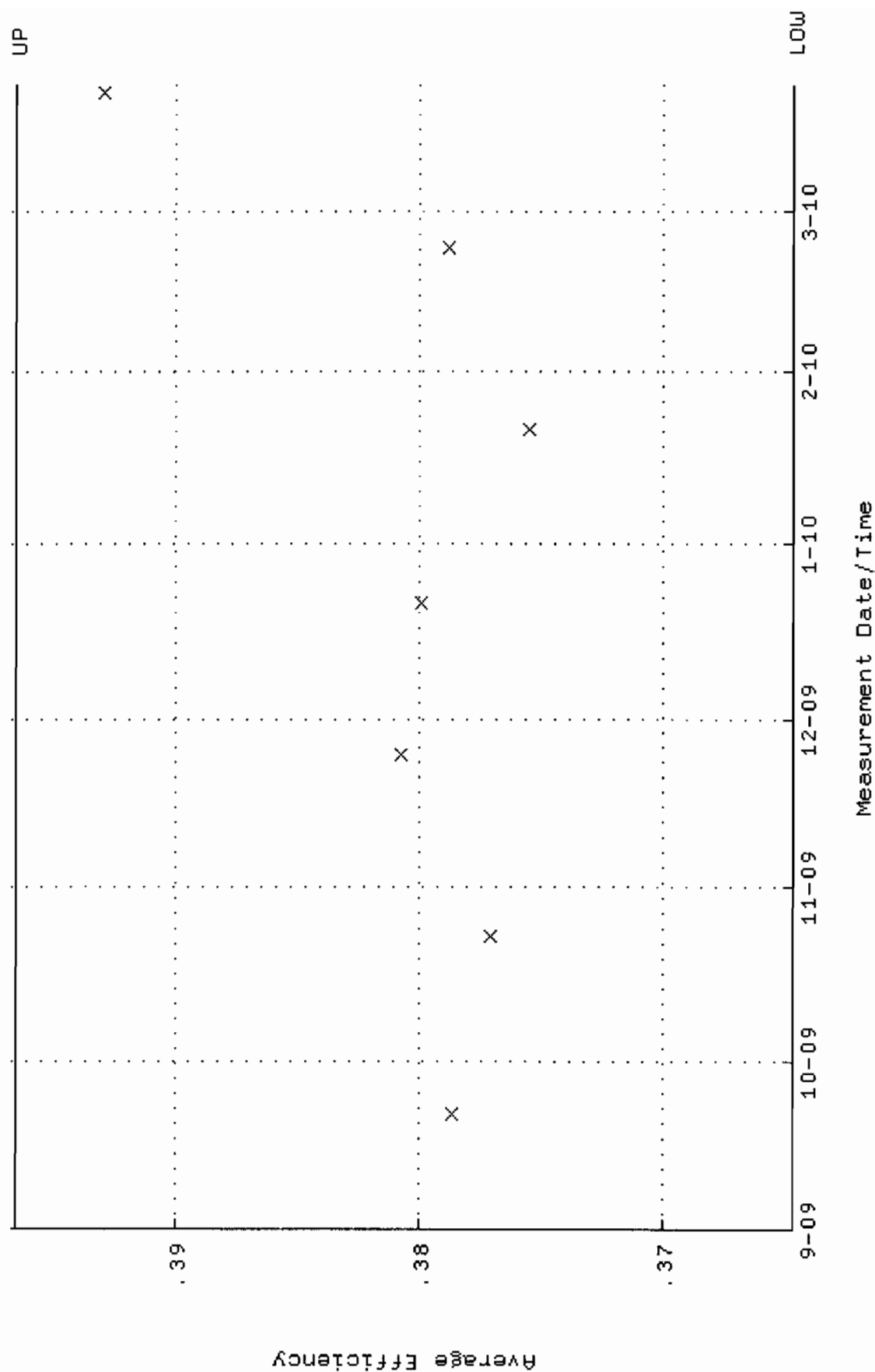
QA filename : DKA100:[ENV_ALPHA.QA.W]W164.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 21-SEP-2009 09:28:39 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.4520 through 94.3102



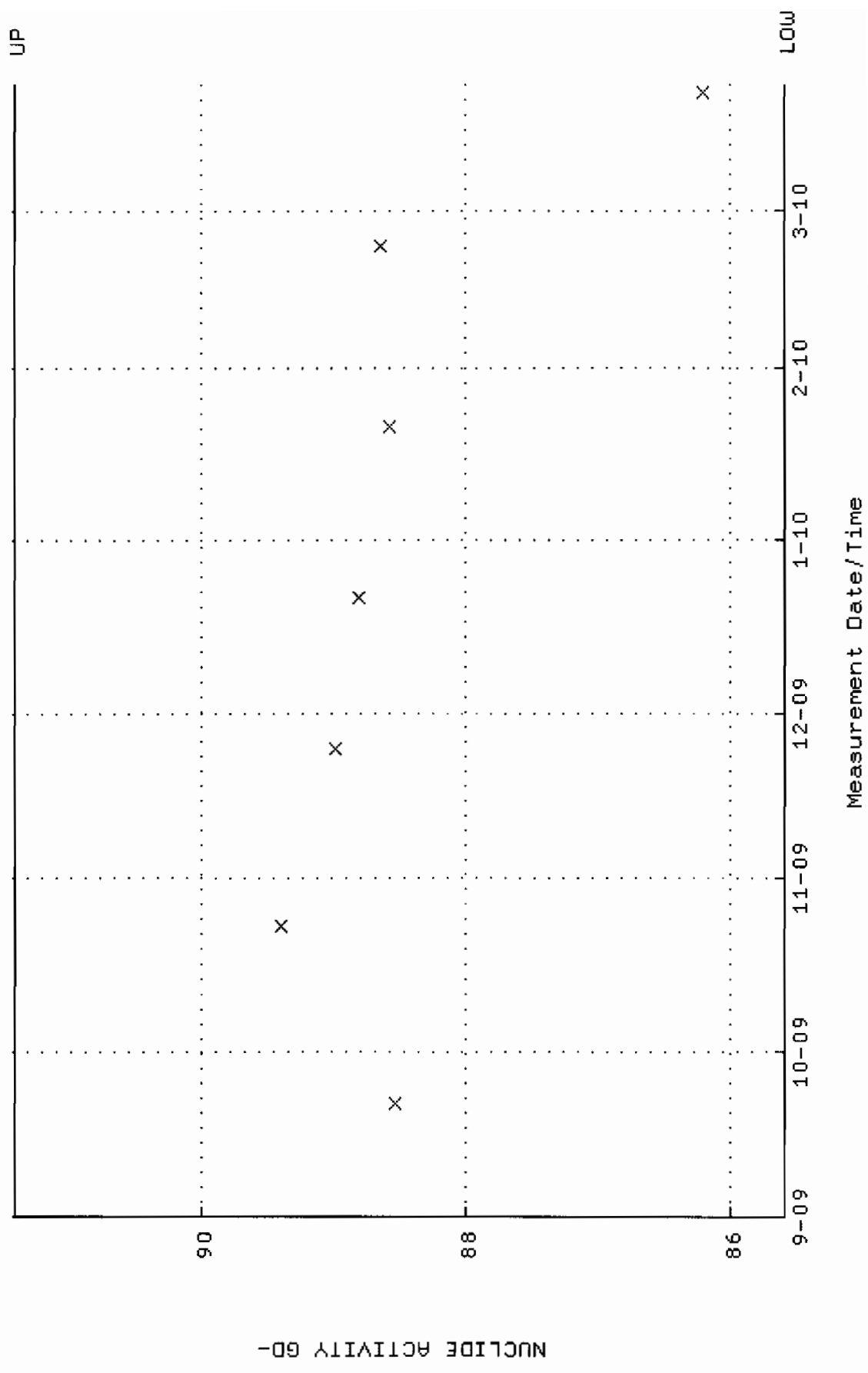
QA filename : DKA100:[ENV_ALPHA.QA.B]B164.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 15:44:26 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



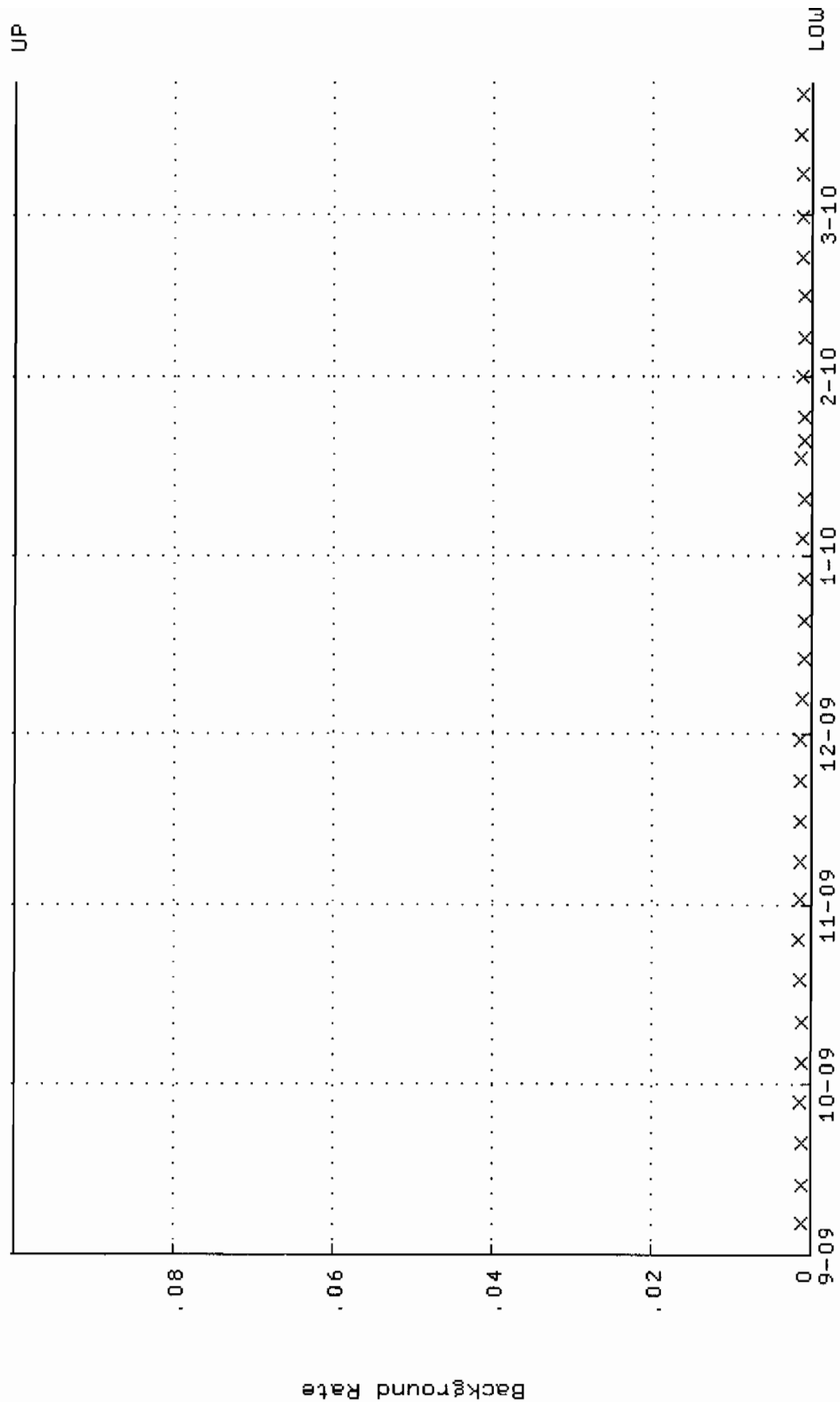
QA filename : DKA100:[ENV_ALPHA.QA.W]W165.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 21-SEP-2009 09:28:46 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.364660 through 0.396652



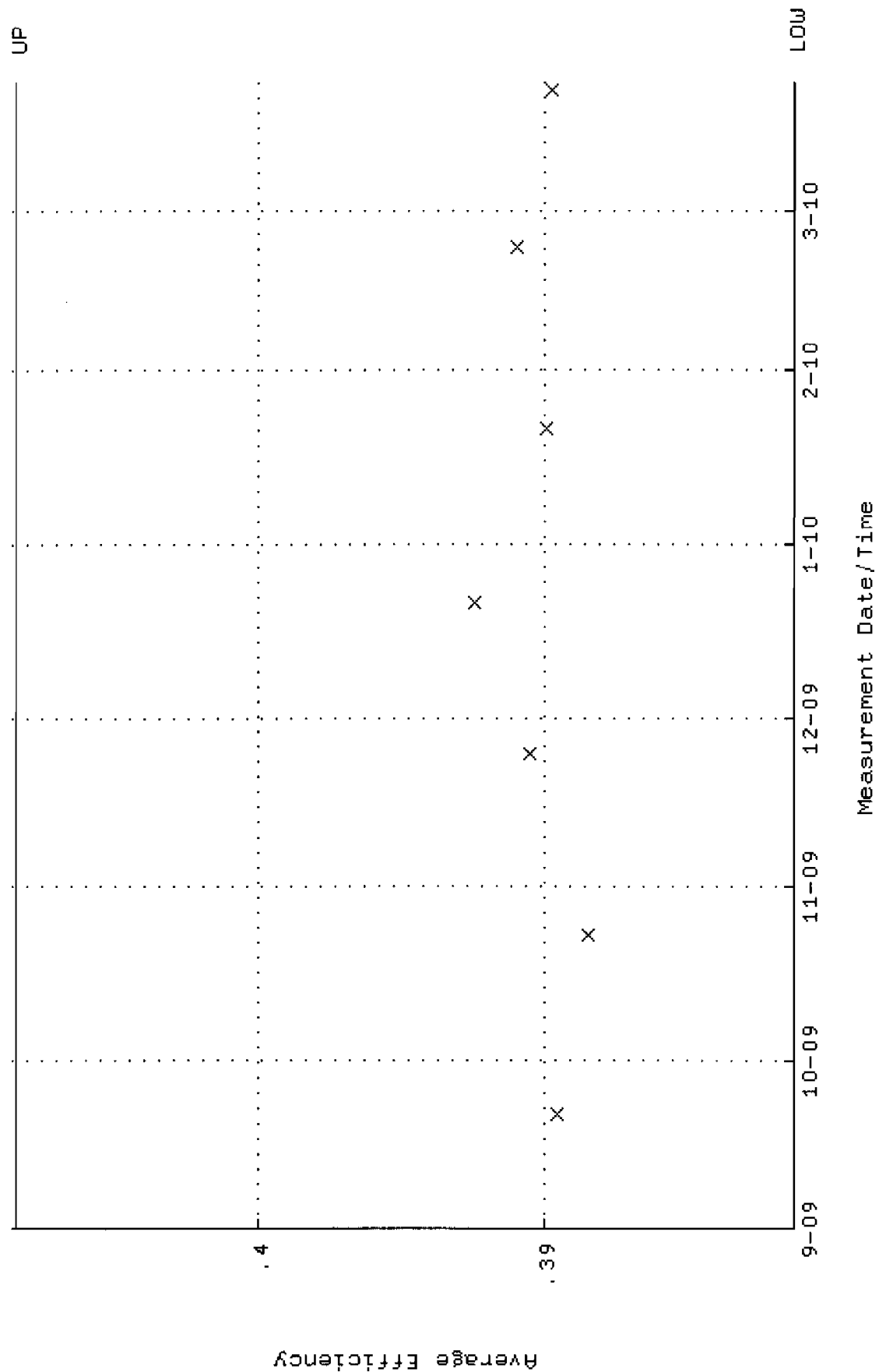
QA filename : OKA100:[ENV_ALPHA.QA.W]W165.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 21-SEP-2009 09:28:46 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 85.5935 through 91.4009



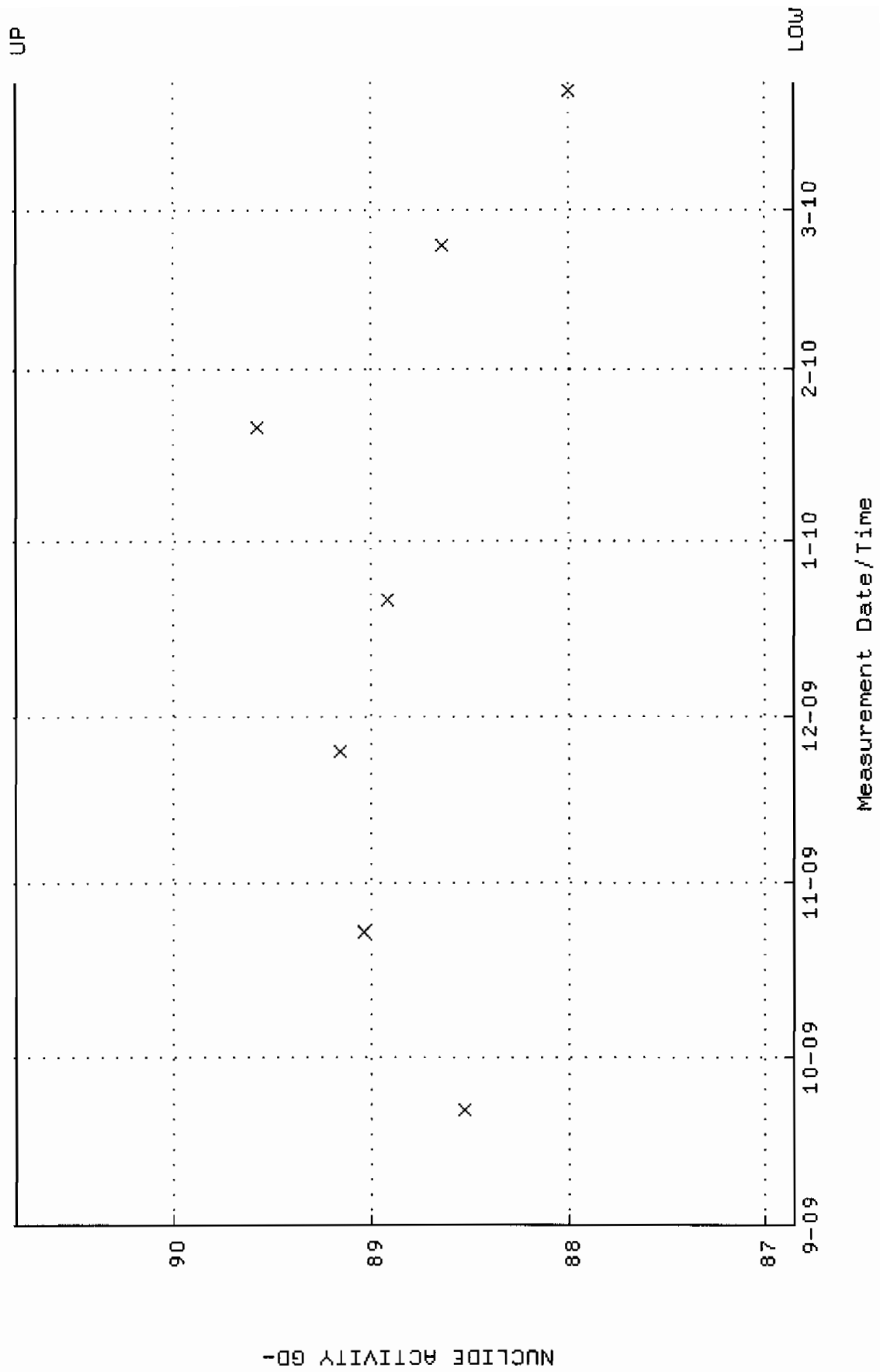
QA filename : DKA100:[ENV_ALPHA.QA.B]B165.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 15:44:31 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



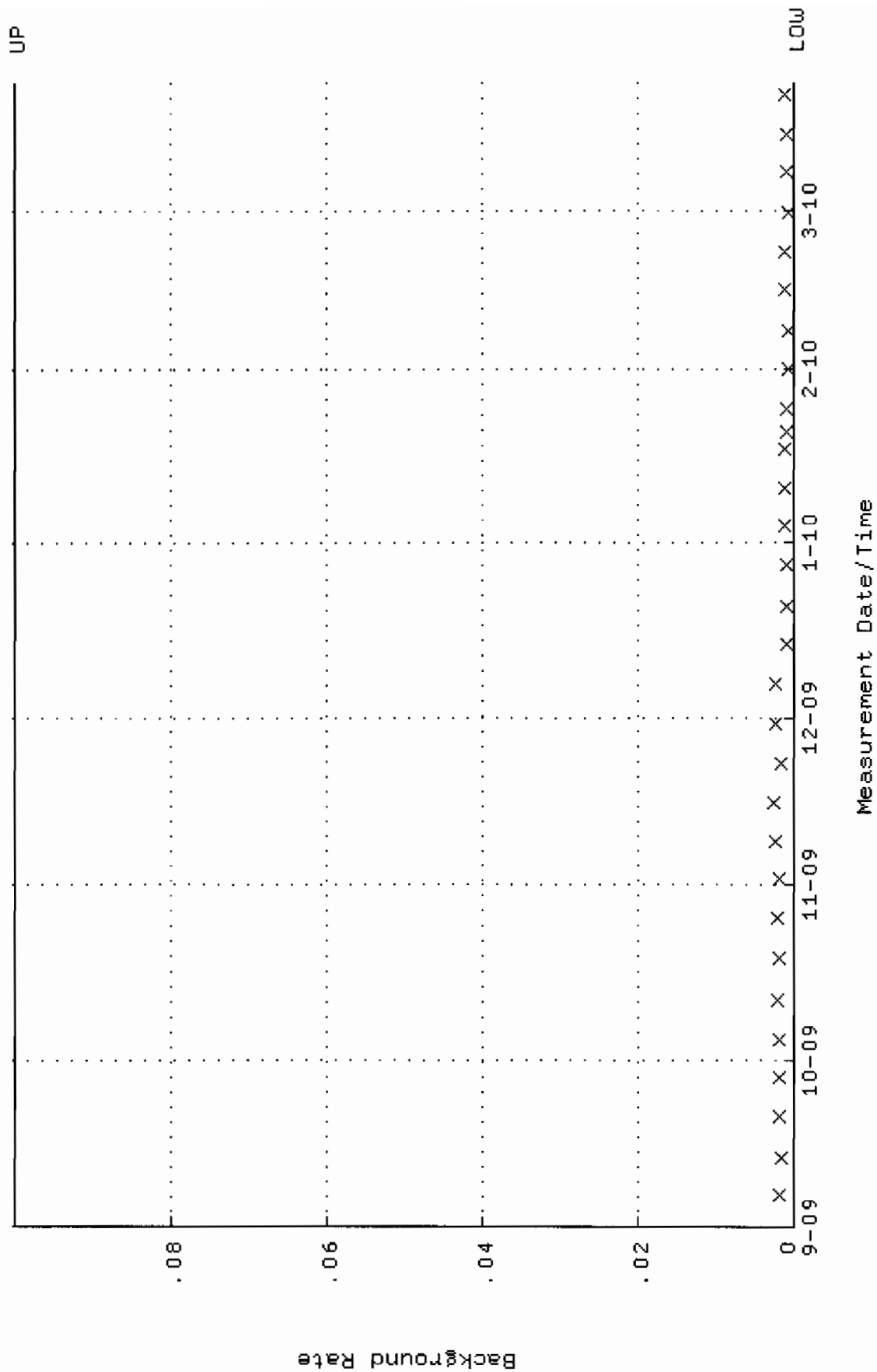
QA filename : DKA100: [ENV_ALPHA.QA.W]U168.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 21-SEP-2009 09:29:07 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.381339 through 0.408495



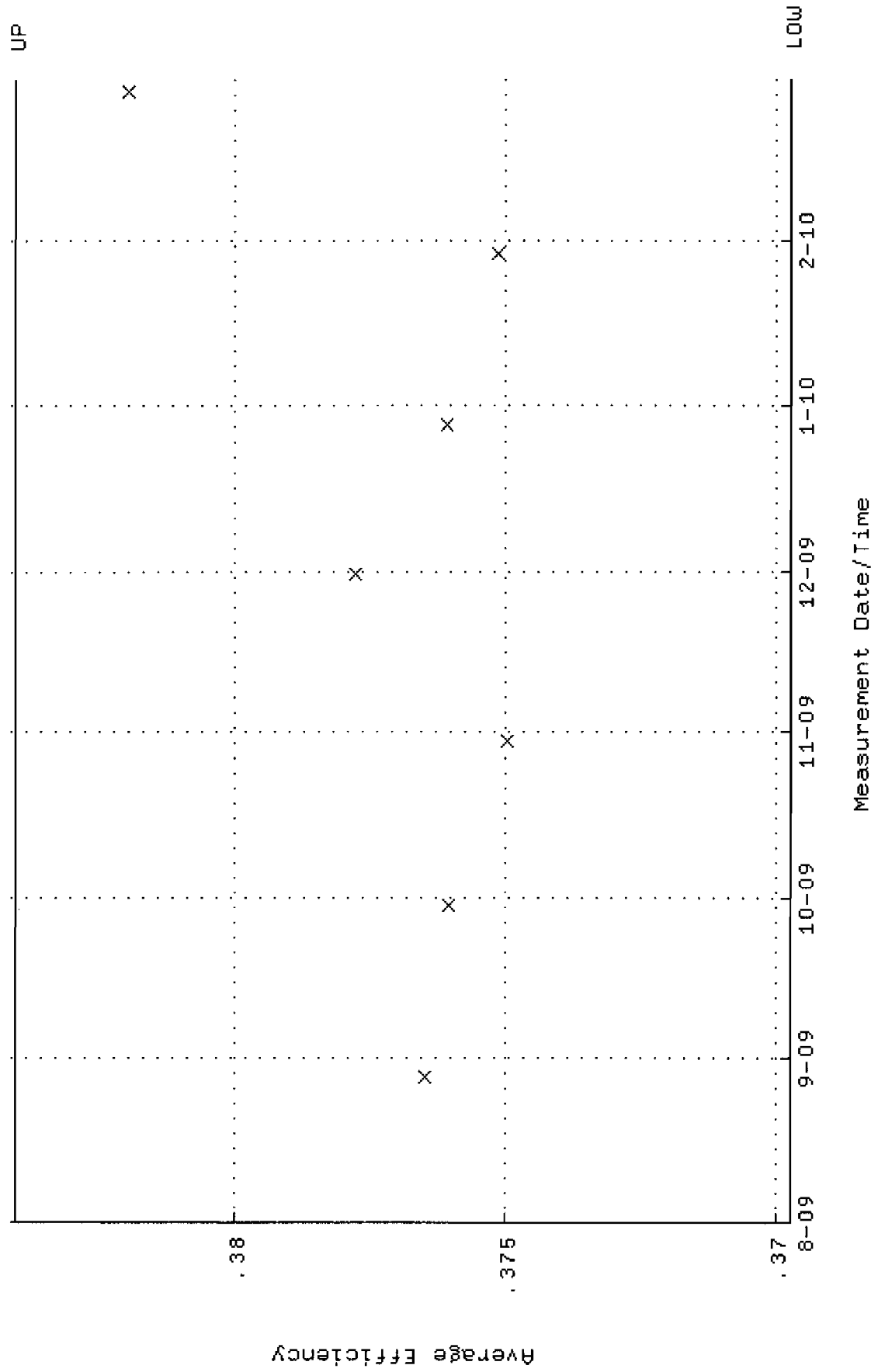
QA filename : DKA100:[ENV_ALPHA.QA.W]w168.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 21-SEP-2009 09:29:07 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 86.8544 through 90.7976



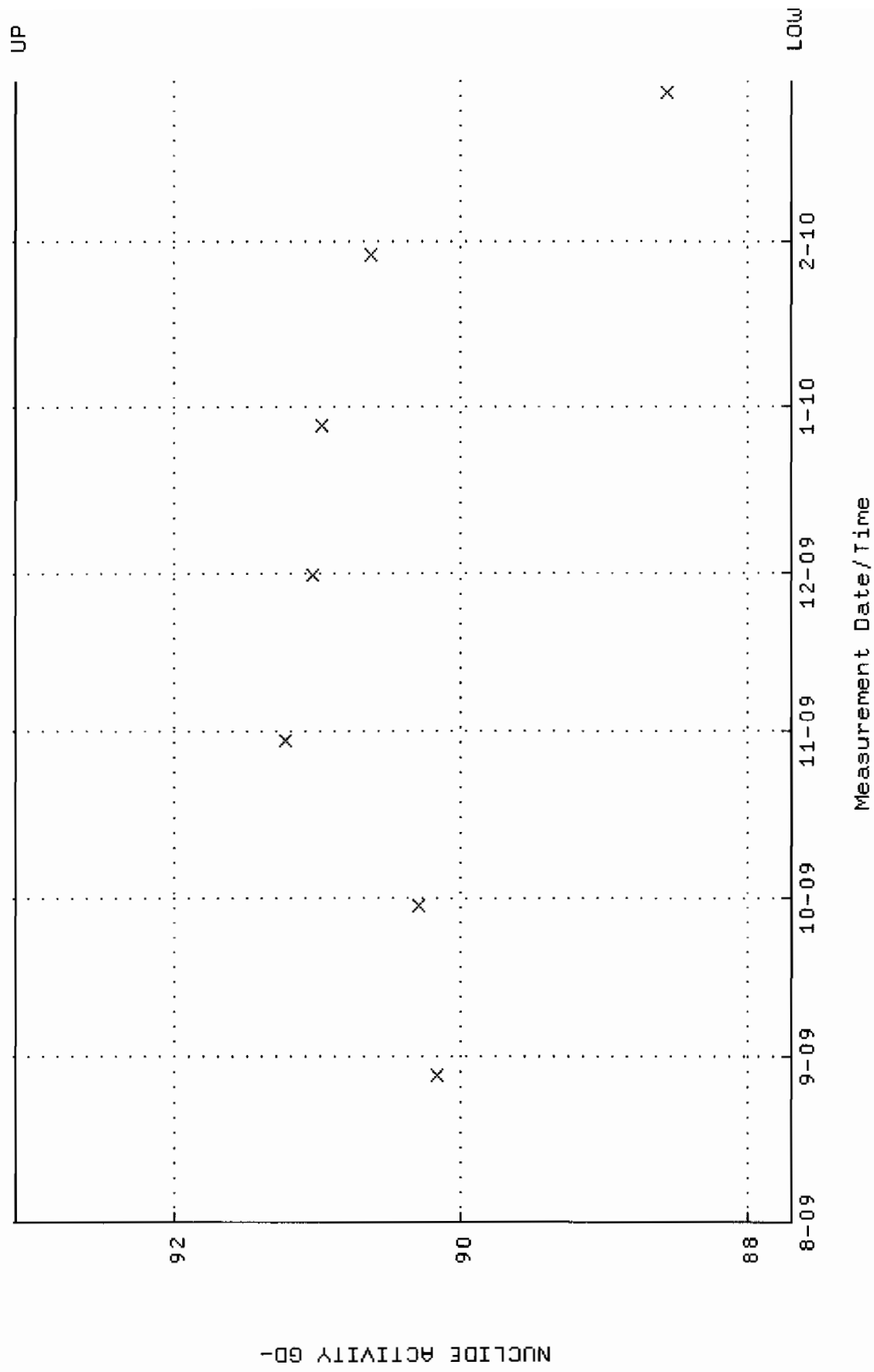
QA filename : DKA100:[ENV_ALPHA.QA.B]B168.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 6-SEP-2009 15:44:44 through 23-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



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

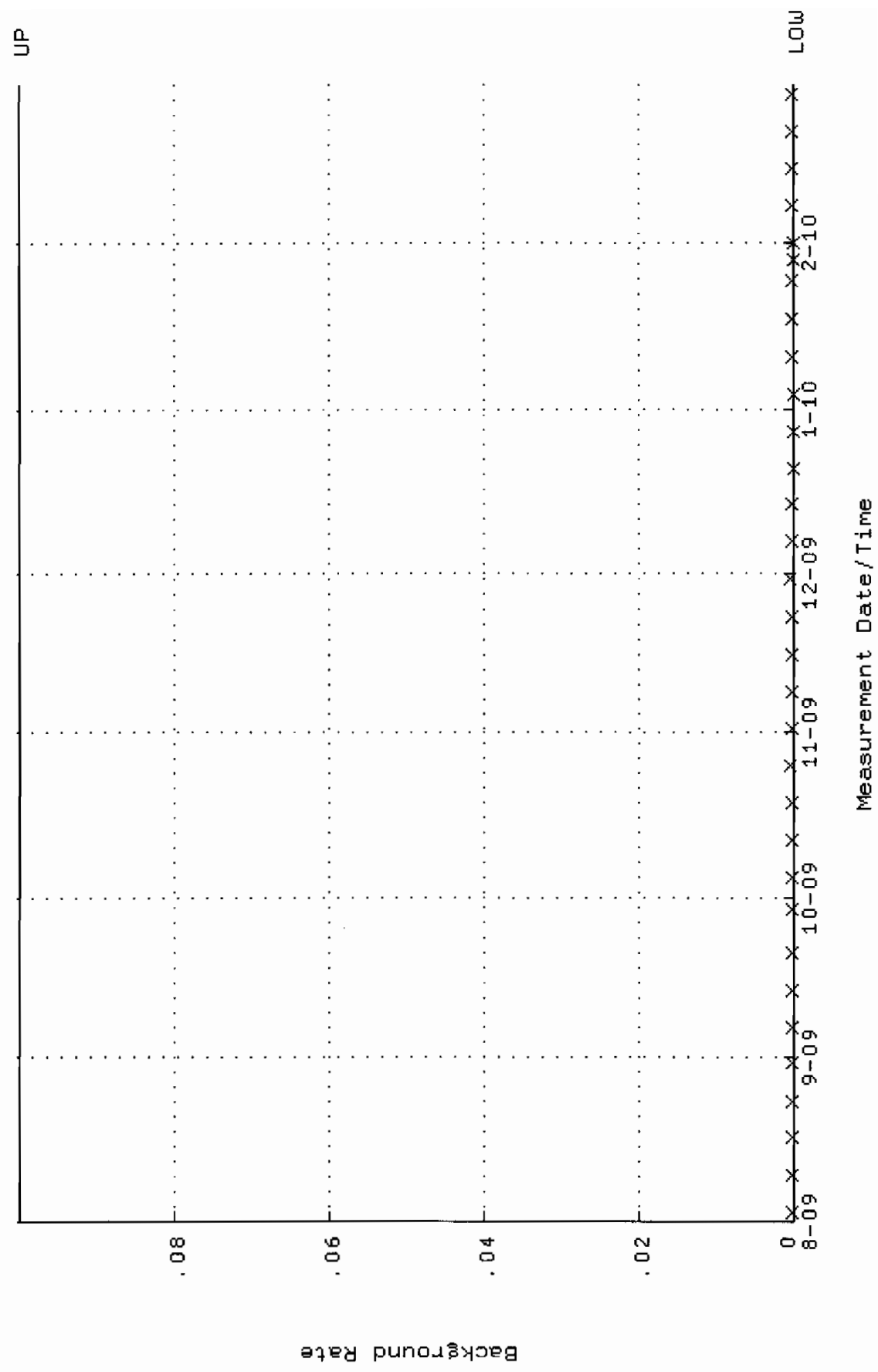


QA filename : DKA100:[ENV_ALPHA.QA.B]B230.QAF;1

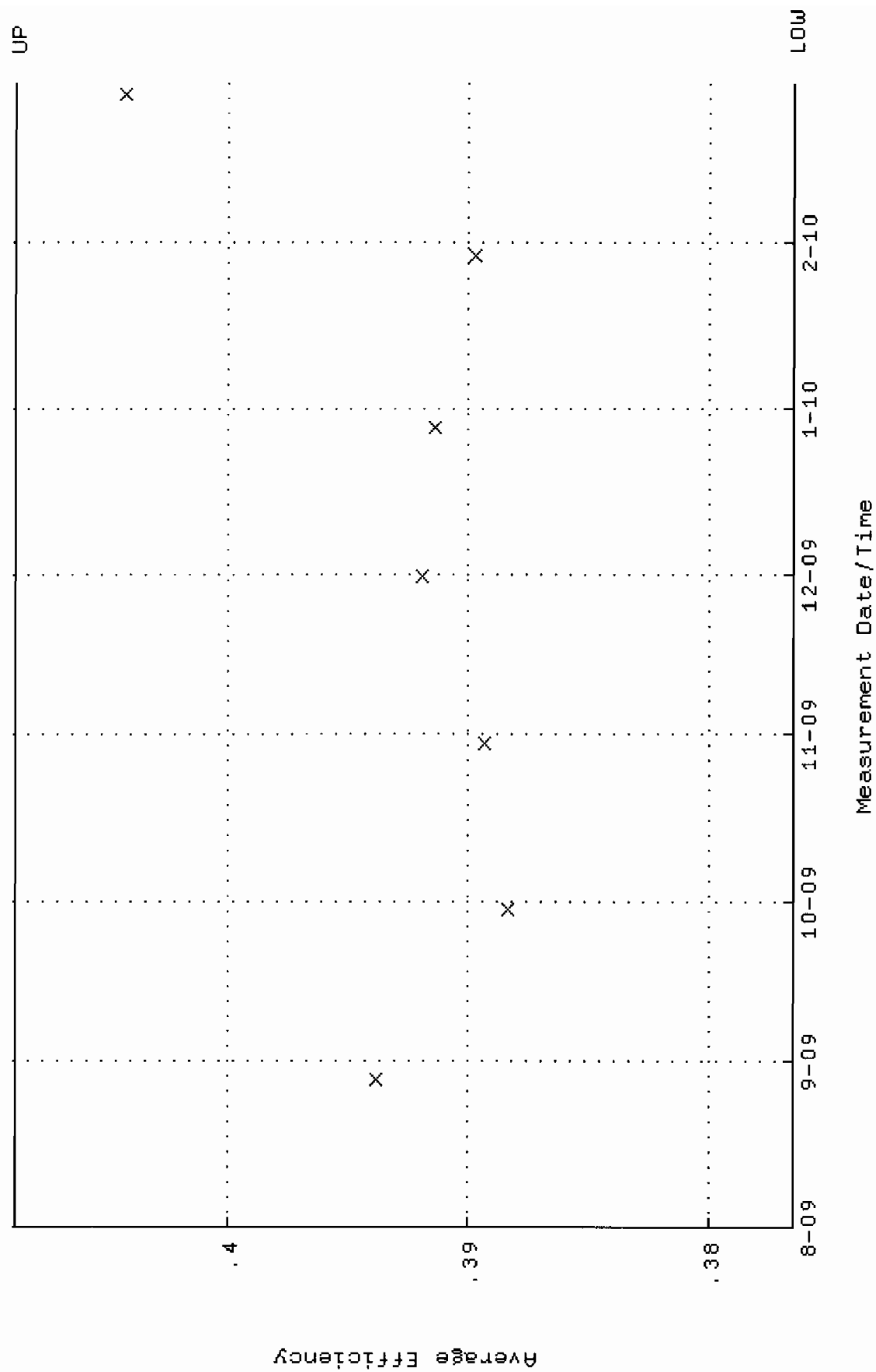
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:26:38 through 2-MAR-2010 12:00:00

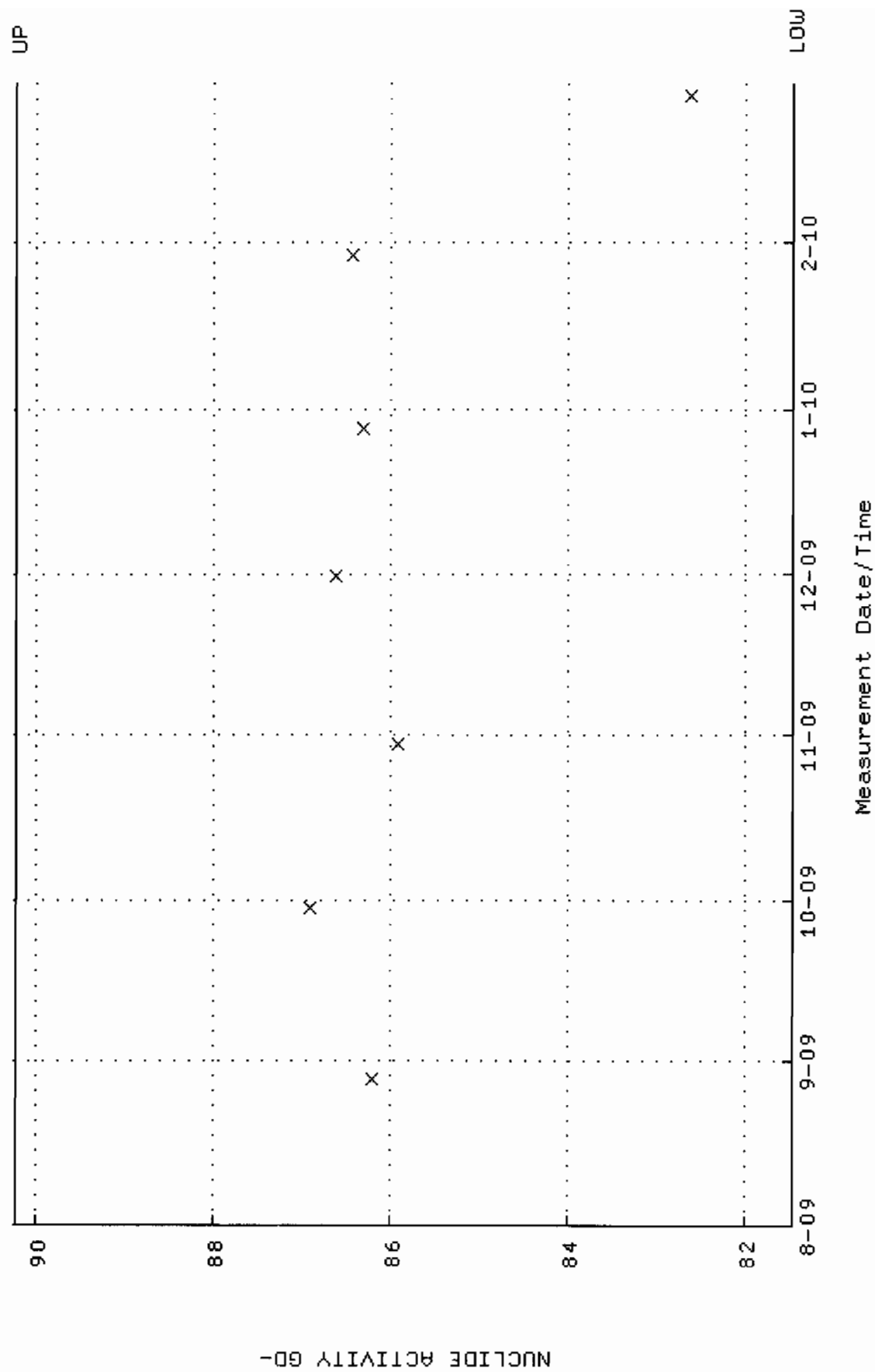
Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV_ALPHA.QA.W]U248.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:09:55 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.376481 through 0.408807



QA filename : DKA100:[ENV_ALPHA.QA.W]w248.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:09:55 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 81.4745 through 90.2275

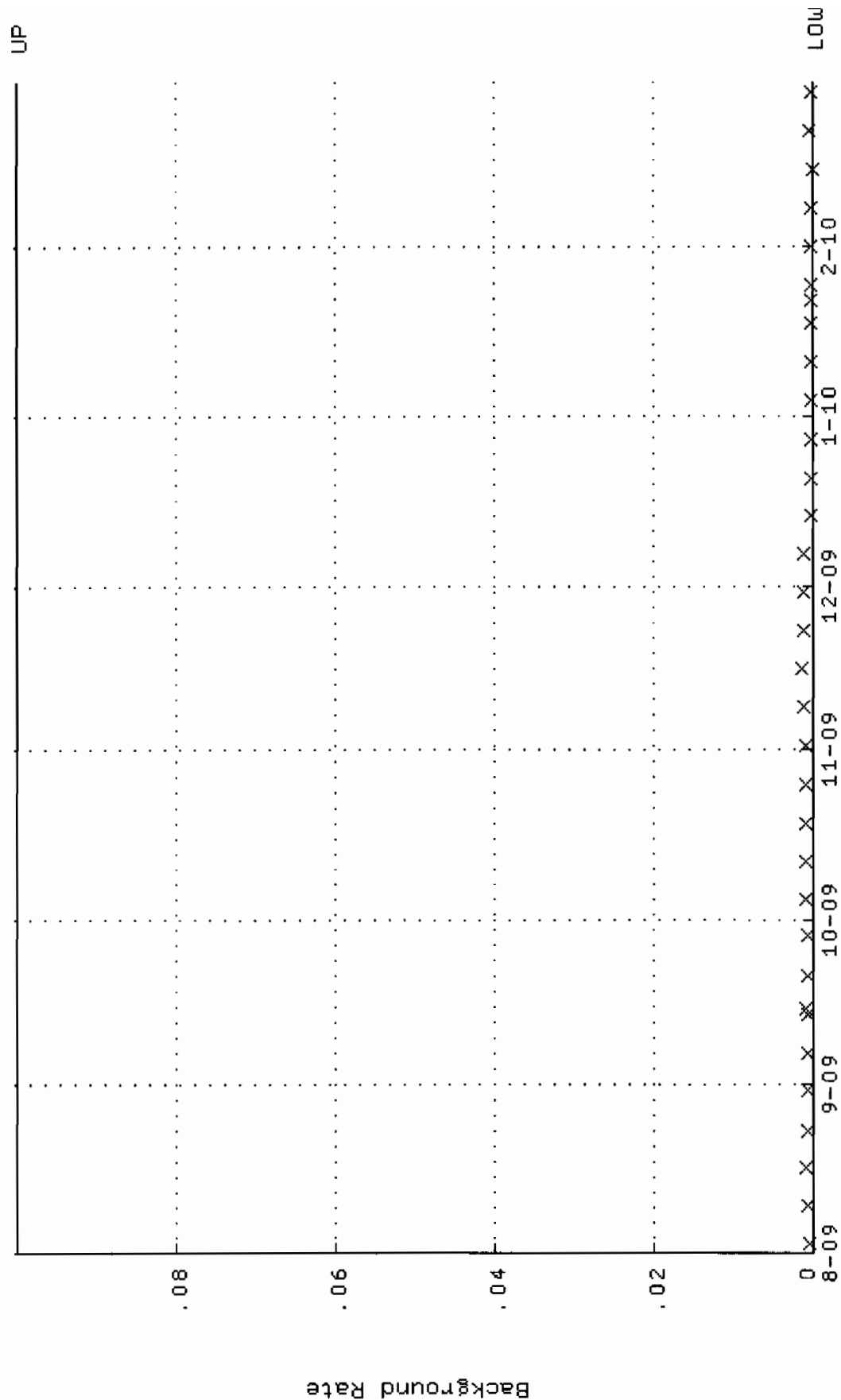


QA filename : DKA100:[ENV_ALPHA.QA.B]B248.QAF;1

Parameter Name : BACKRATE (Background Rate)

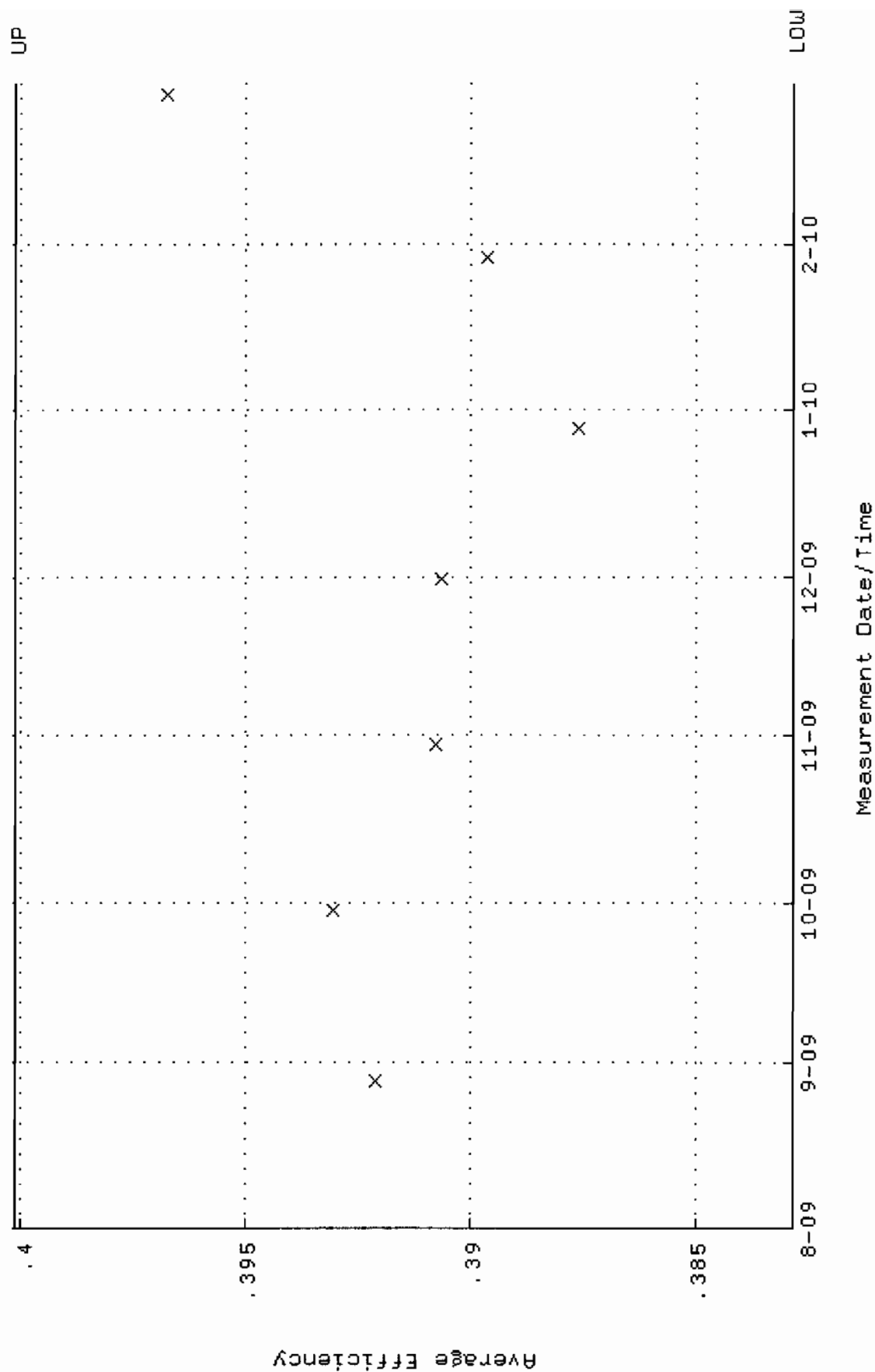
Start/End Dates : 2-AUG-2009 17:27:59 through 2-MAR-2010 12:00:00

Lower/Upper Lmts: 0.000000E+00 through 0.100000

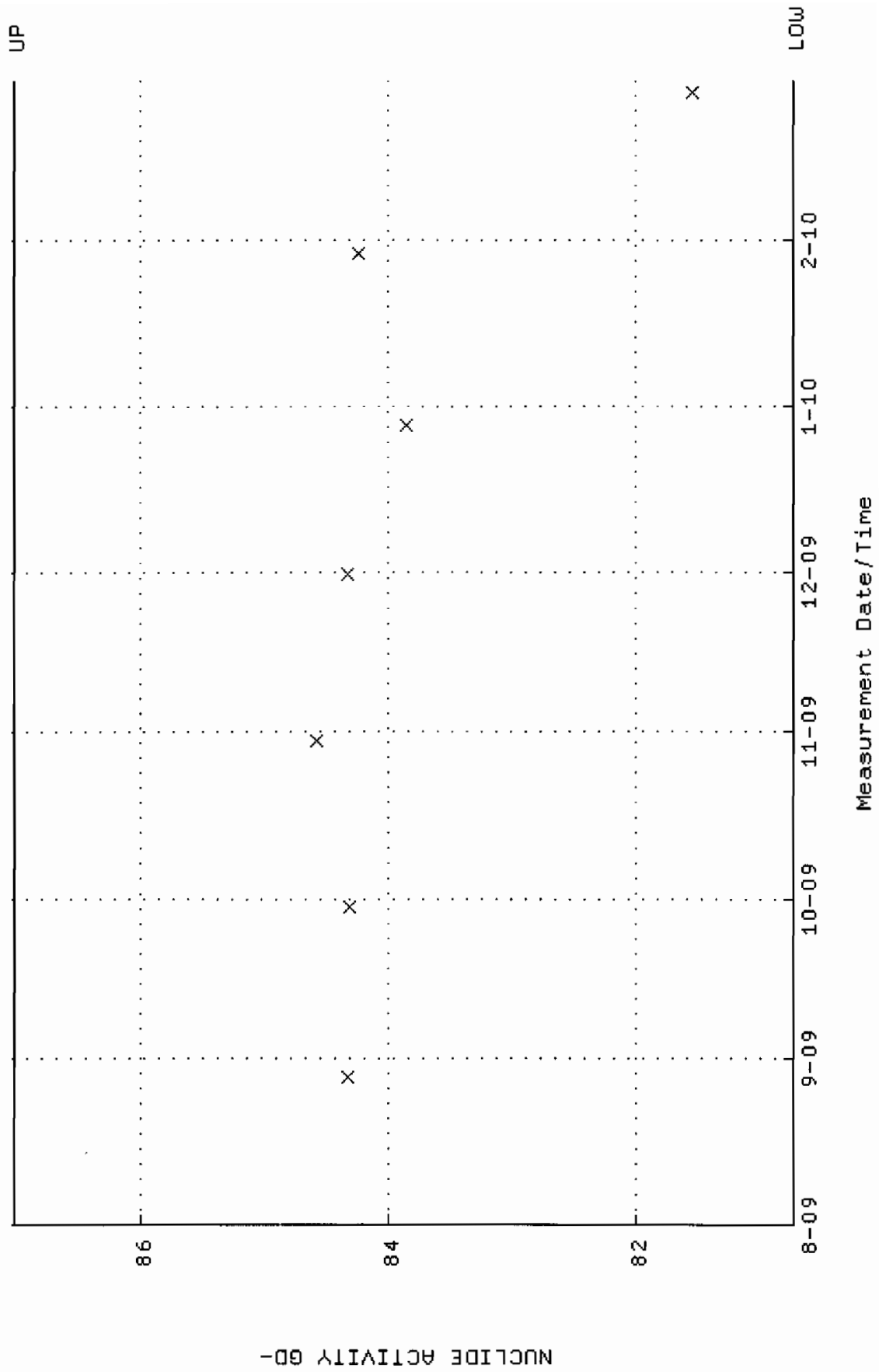


Measurement Date/Time

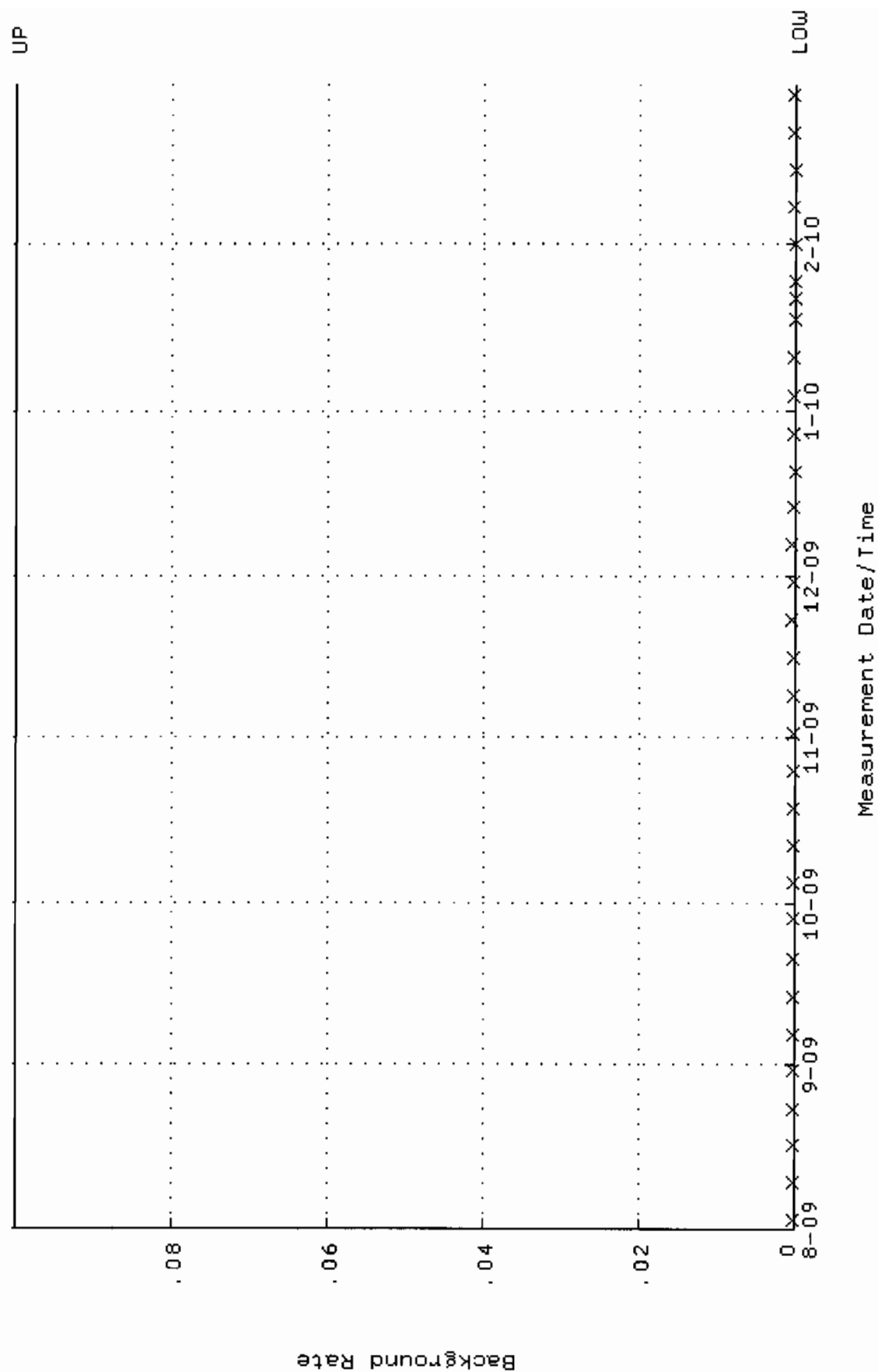
QA filename : DKA100:[ENV_ALPHA.QA.W]W249.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:01 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.382845 through 0.400115



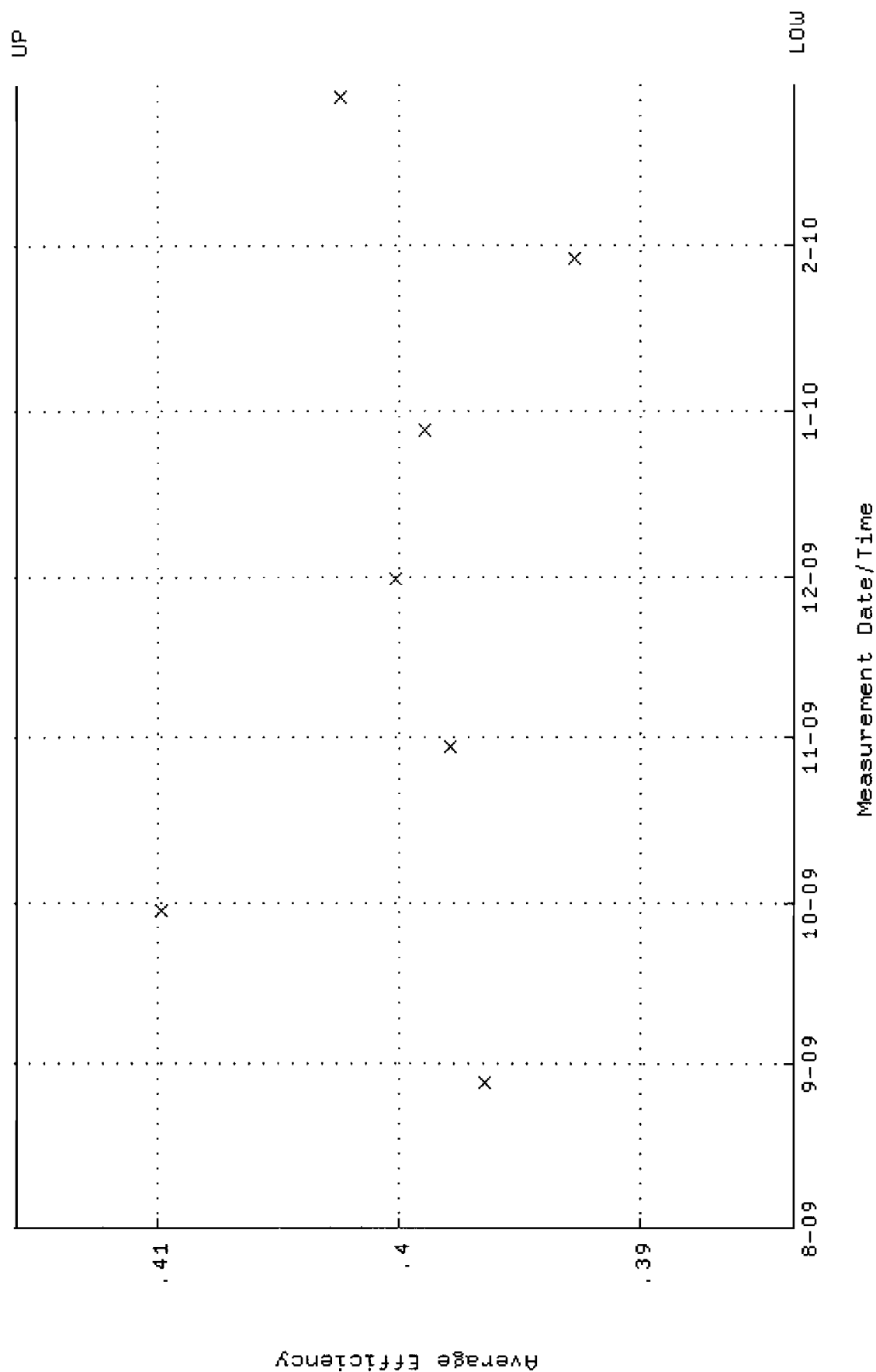
QA filename : DKA100:[ENV_ALPHA.QA.W]W249.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:01 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 80.7258 through 87.0246



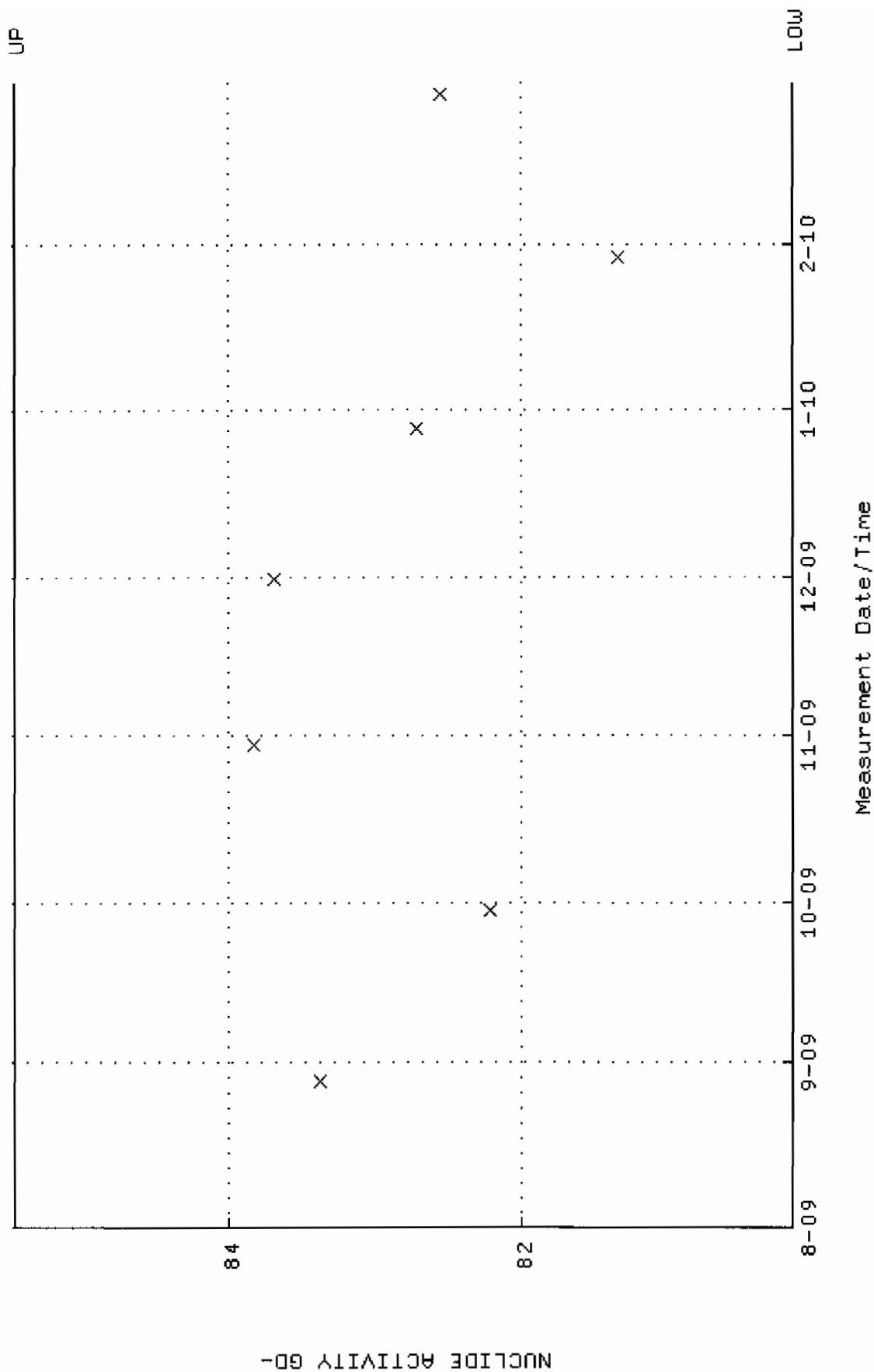
QA filename : DKA100:[ENV_ALPHA.QA.B]B249.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:28:04 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV_ALPHA.QA.W]W250.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:06 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.383673 through 0.415835



QA filename : DKA100:[ENV_ALPHA.QA.W]W250.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:06 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 80.1497 through 85.4585

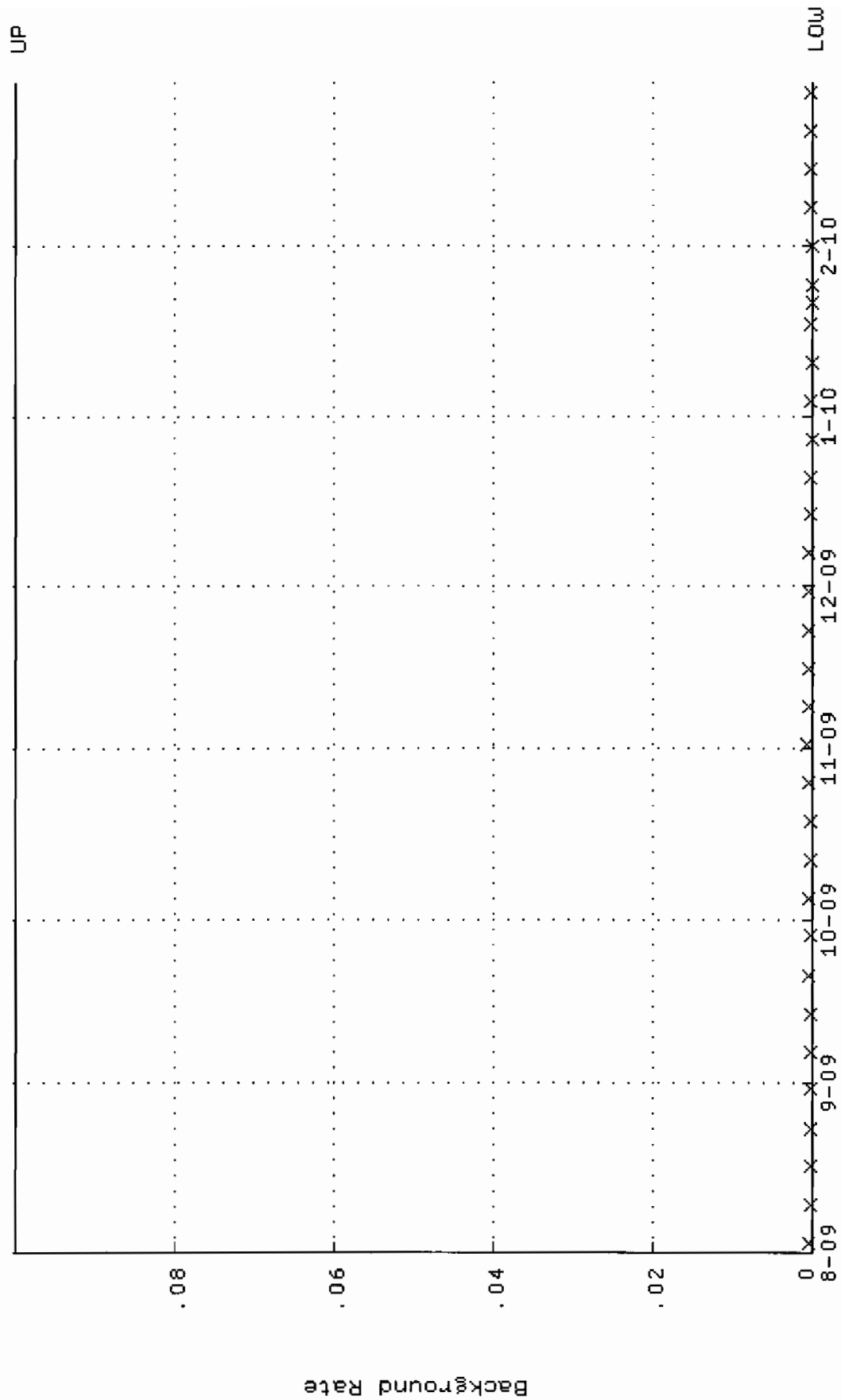


QA filename : DKA100:[ENV_ALPHA.QA.B]B250.QAF;1

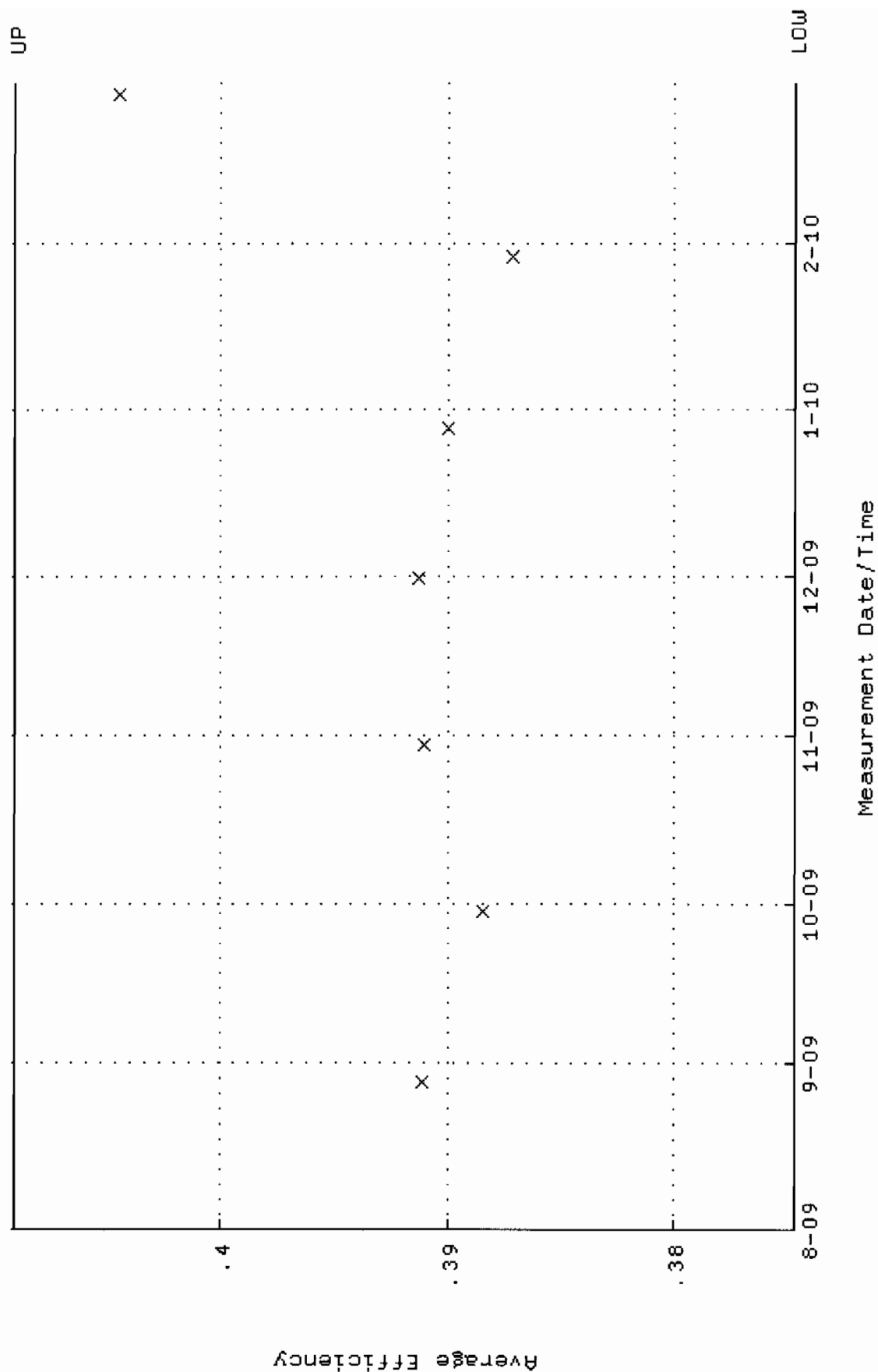
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:28:08 through 2-MAR-2010 12:00:00

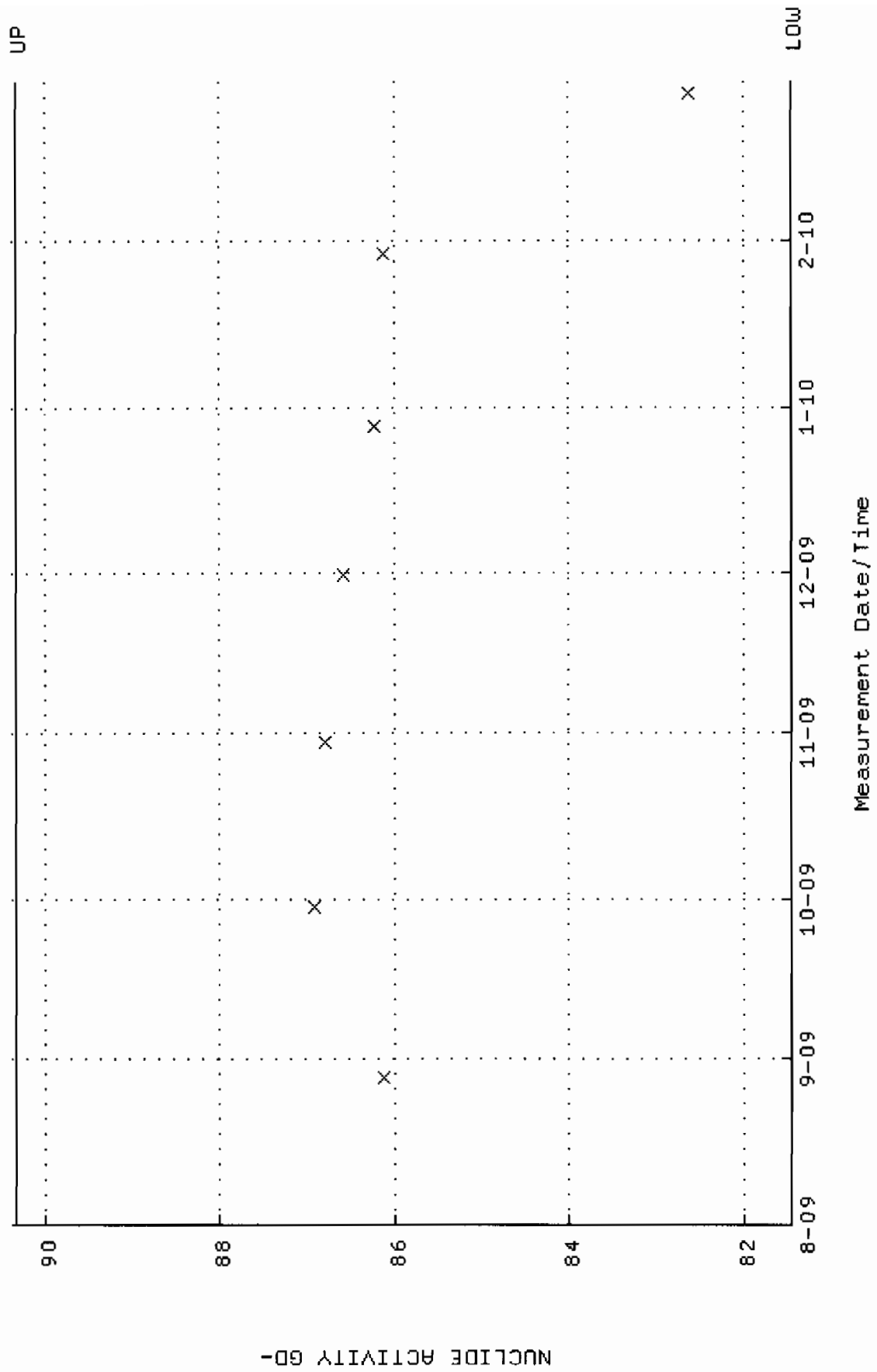
Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV_ALPHA.QA.W]W251.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:12 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.374659 through 0.409089



QA filename : DKA100:[ENV_ALPHA.QA.W]W251.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:12 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 81.4582 through 90.3490

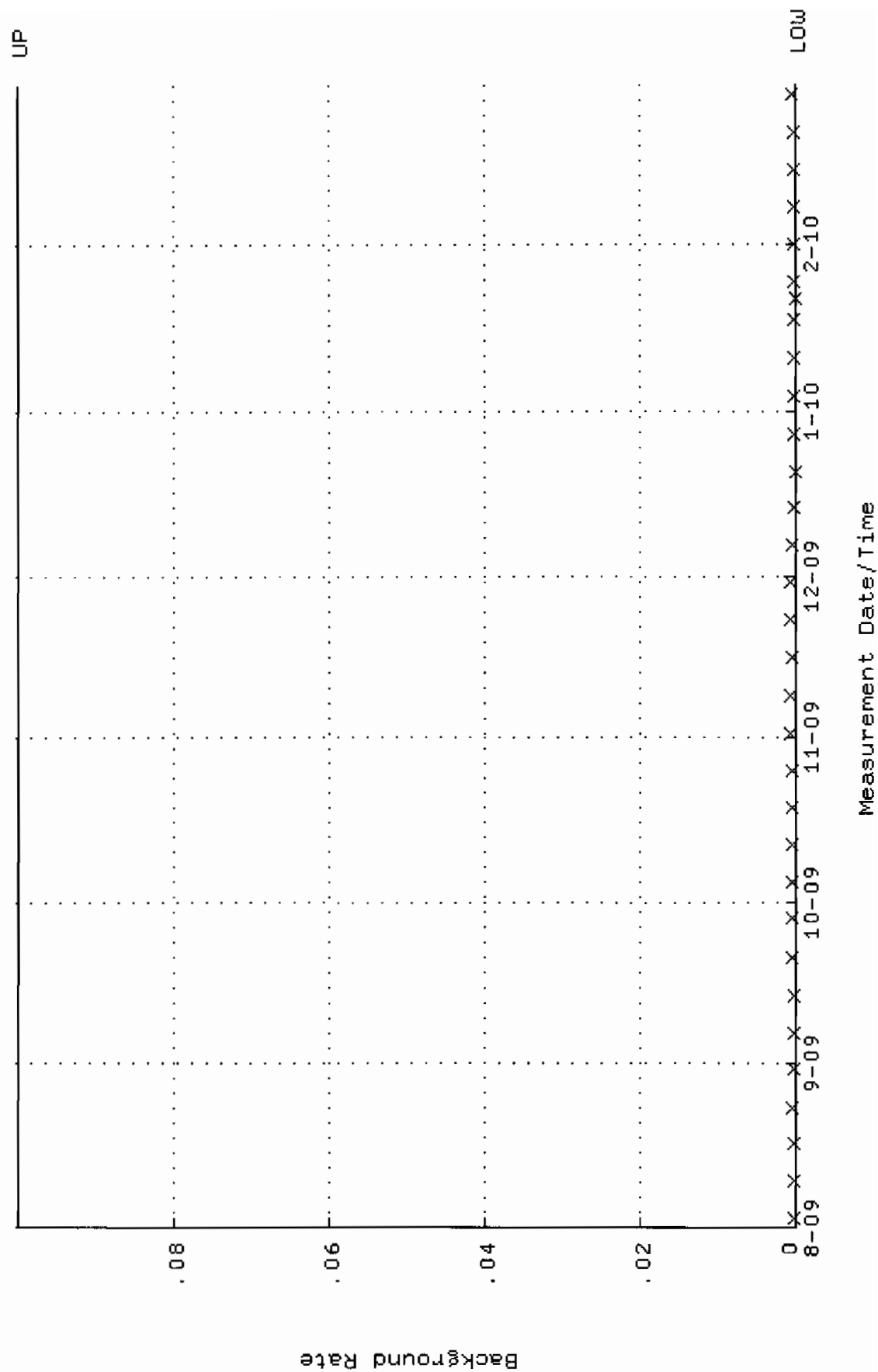


QA filename : DKA100:[ENV_ALPHA.QA.B]B251.QAF;1

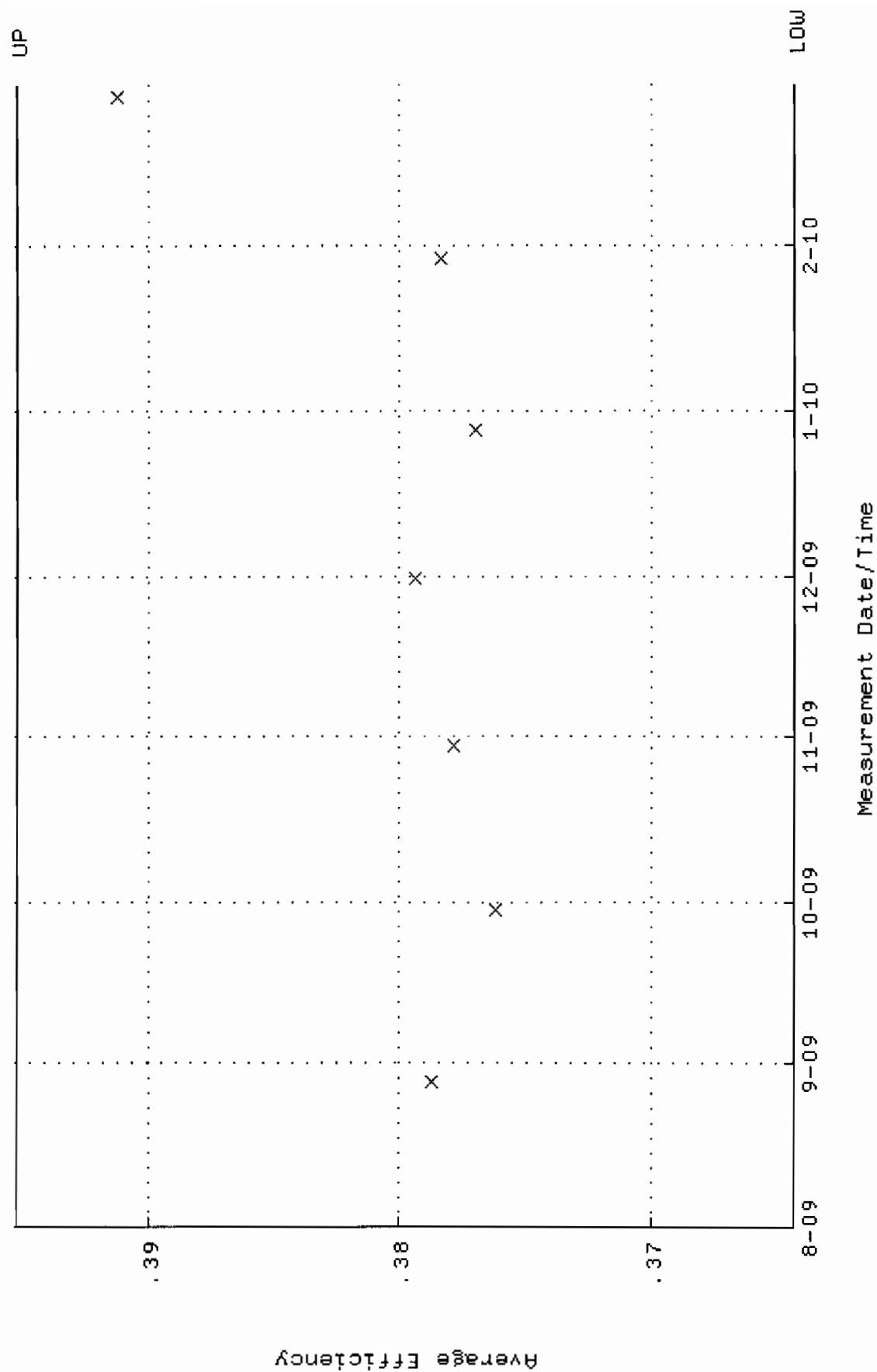
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:28:13 through 2-MAR-2010 12:00:00

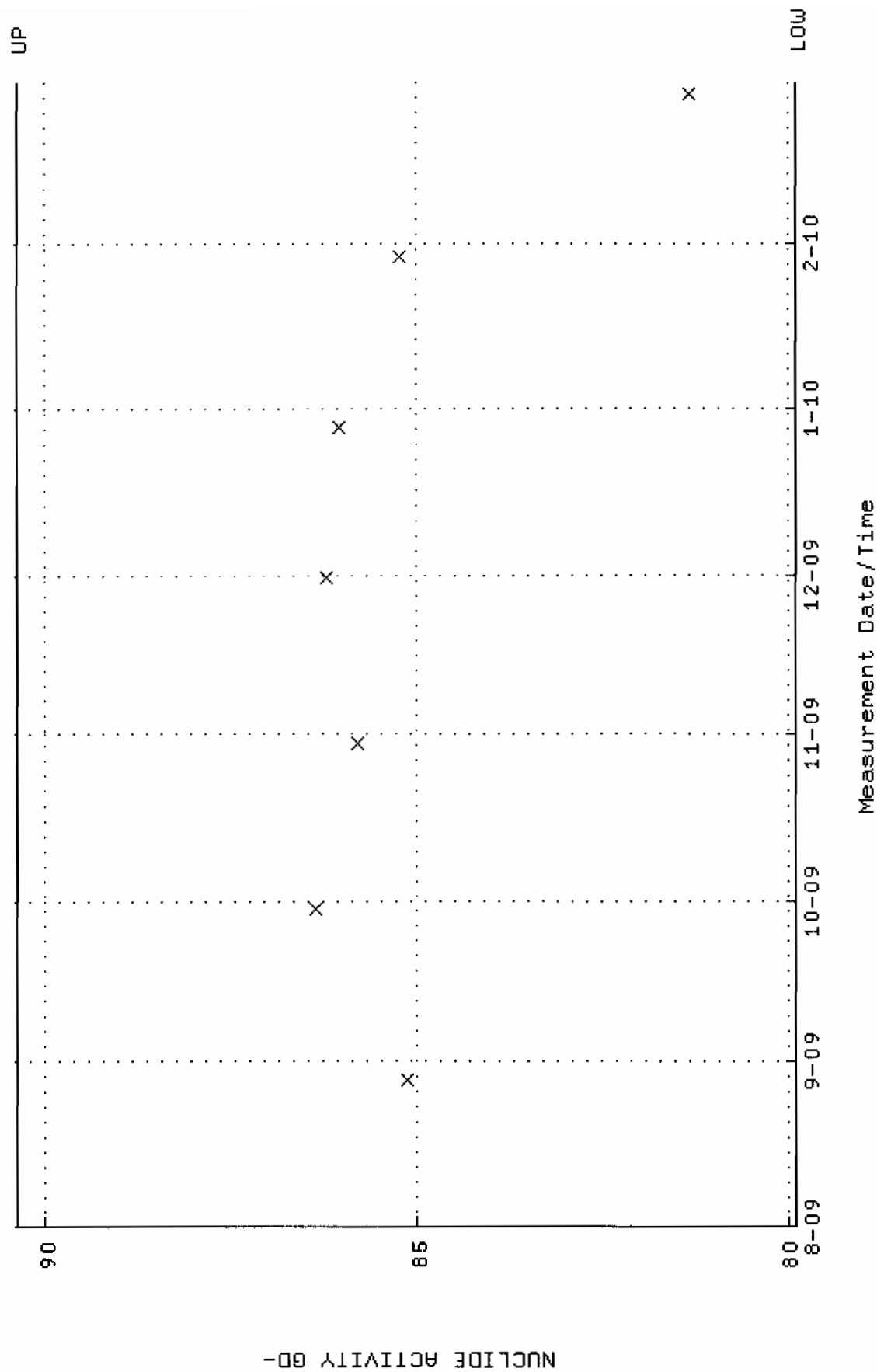
Lower/Upper Lmts: 0.000000E+00 through 0.100000



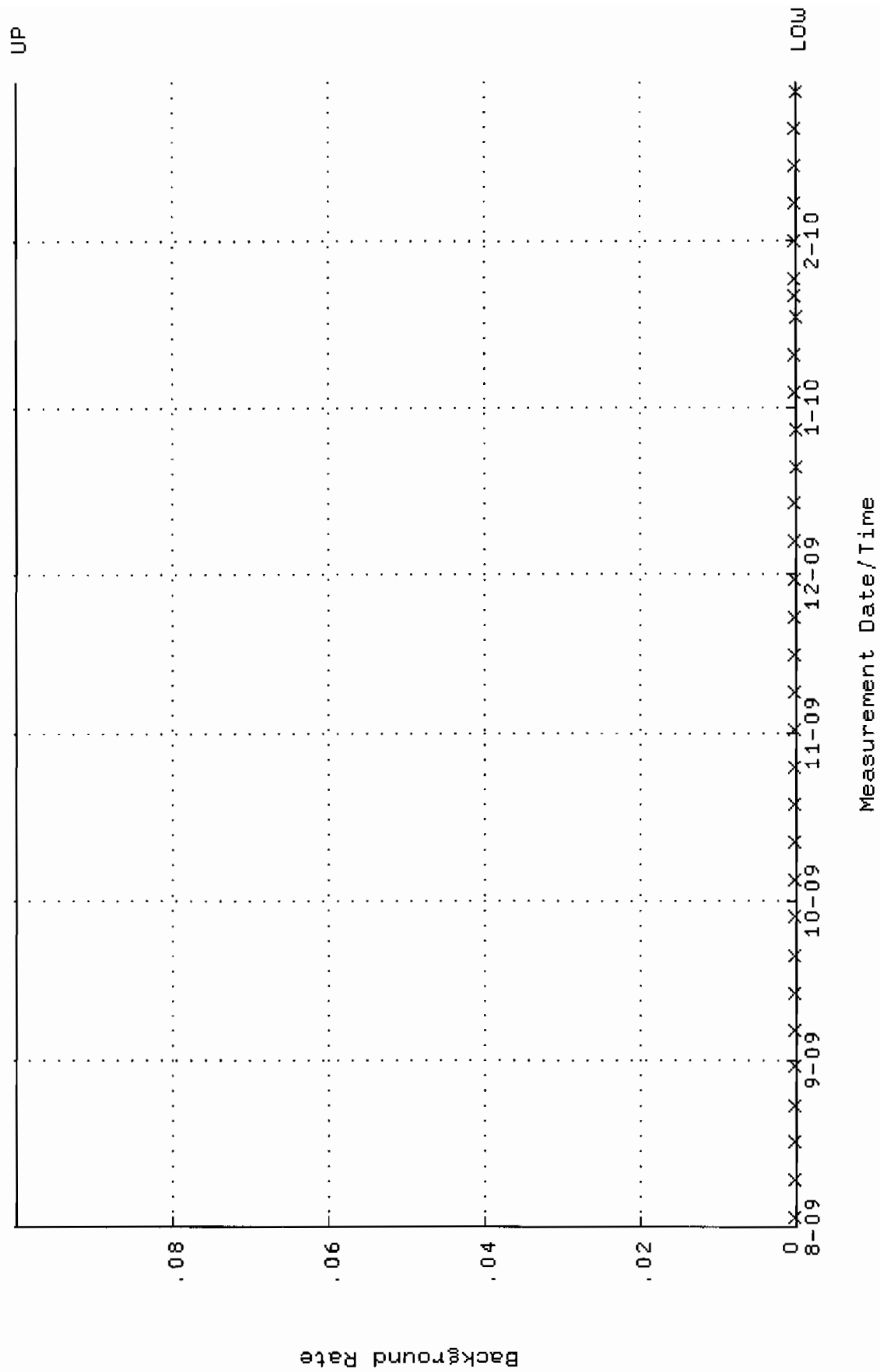
QA filename : DKA100:[ENV_ALPHA.QA.W]W252.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:17 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.364281 through 0.395267



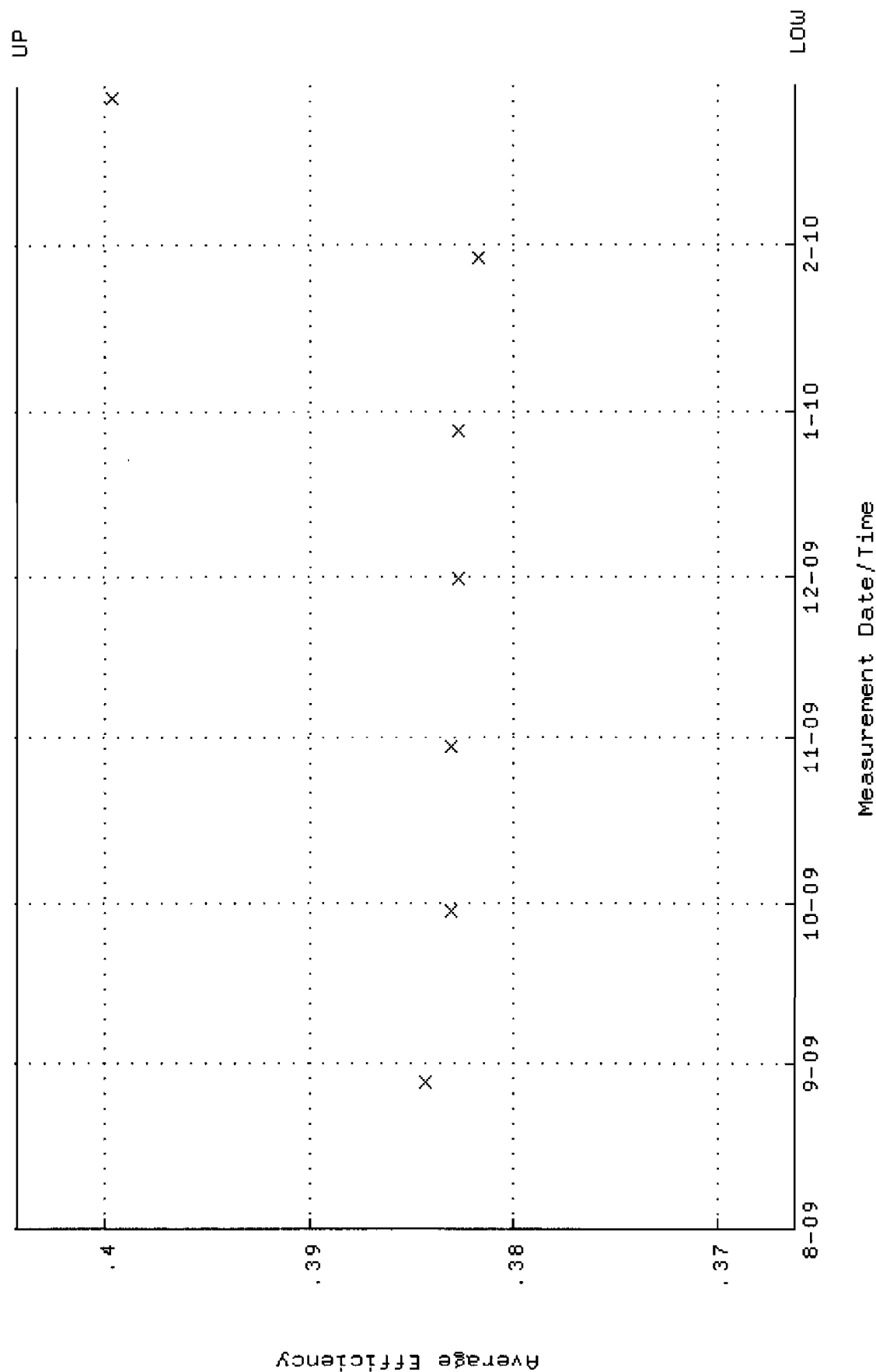
QA filename : DKA100:[ENV_ALPHA.QA.W]W252.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:17 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 79.9099 through 90.3785



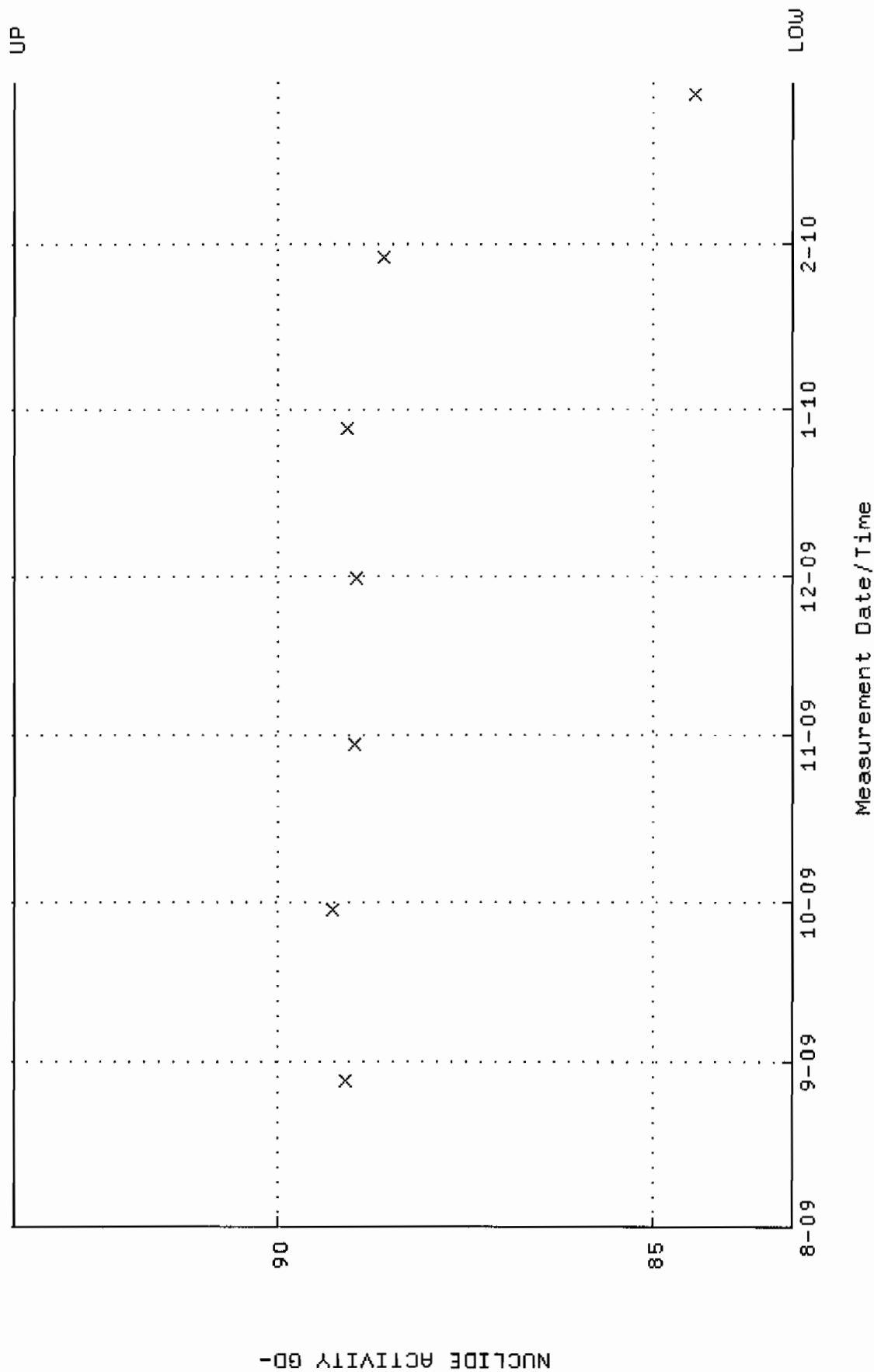
QA filename : DKA100:[ENV_ALPHA.QA.B]B252.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:28:18 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



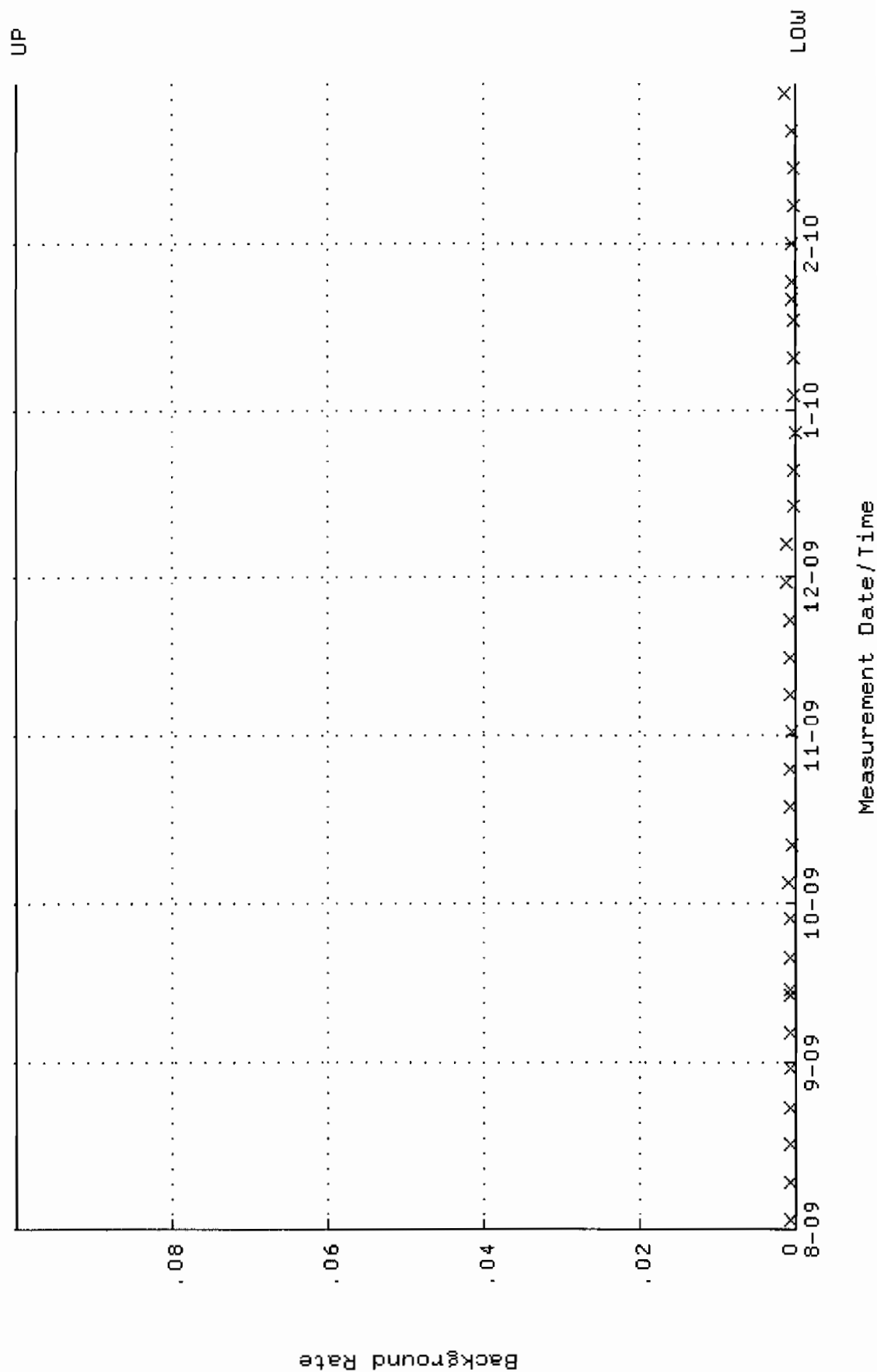
QA filename : DKA100:[ENV_ALPHA.QA.W]U253.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:22 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.366220 through 0.404308



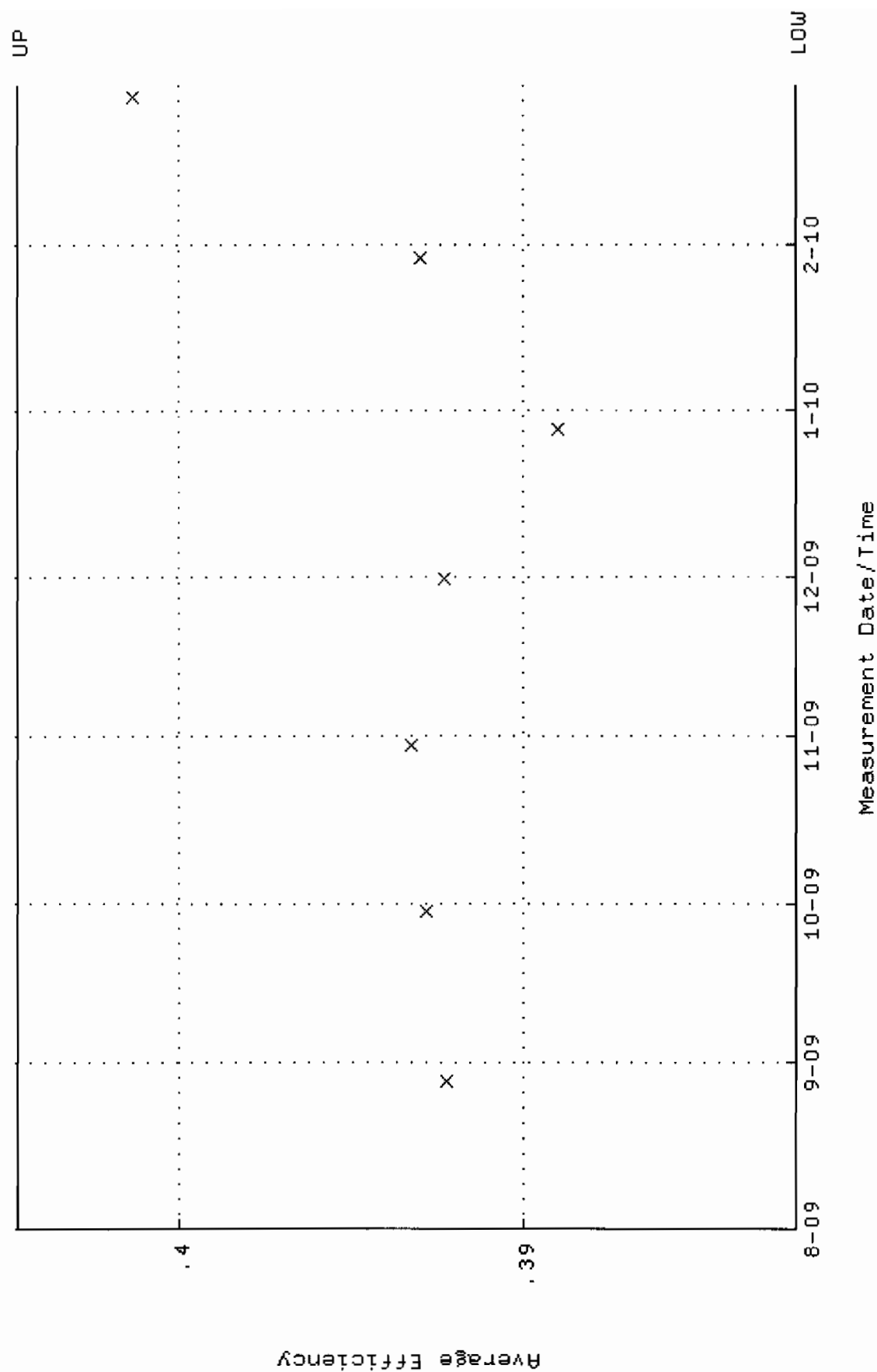
QA filename : DKA100:[ENV_ALPHA.QA.W]W253.QAF;1
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:22 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 83.1439 through 93.5297



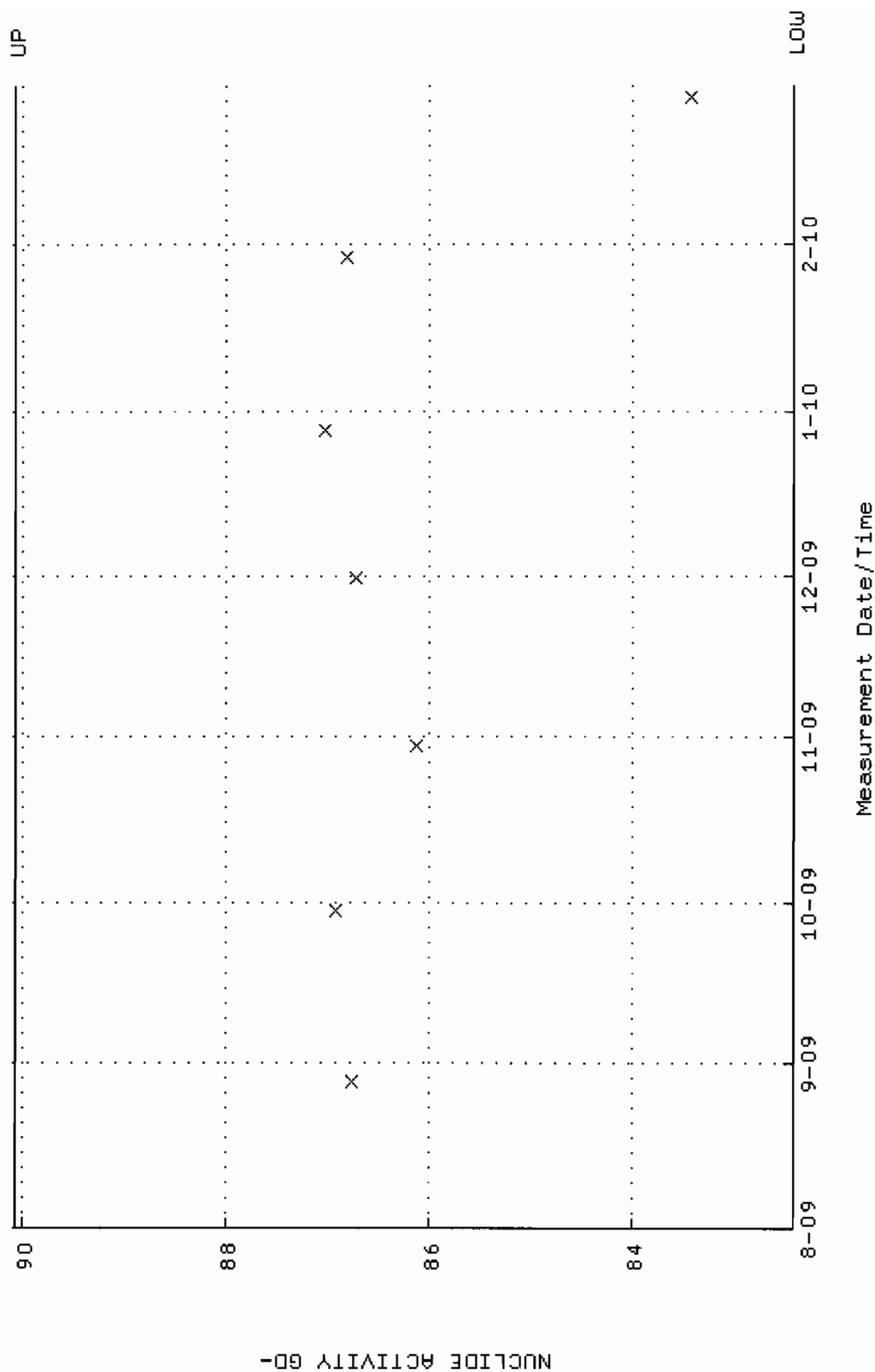
QA filename : DKA100:[ENV_ALPHA.QA.B]B253.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:28:23 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



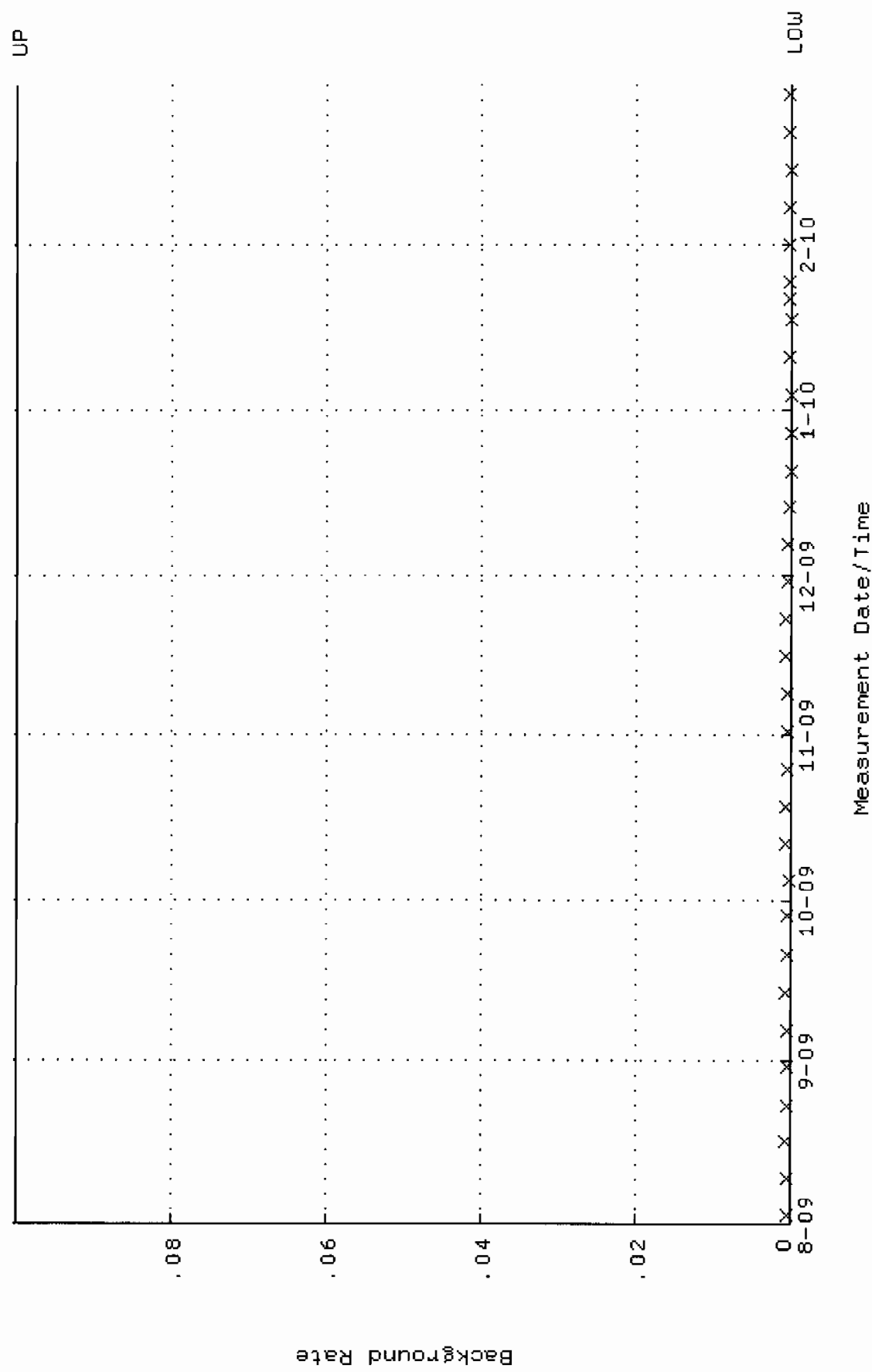
QA filename : DKA100:[ENV_ALPHA.QA.W]U254.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 28-AUG-2009 07:10:27 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.382064 through 0.404708



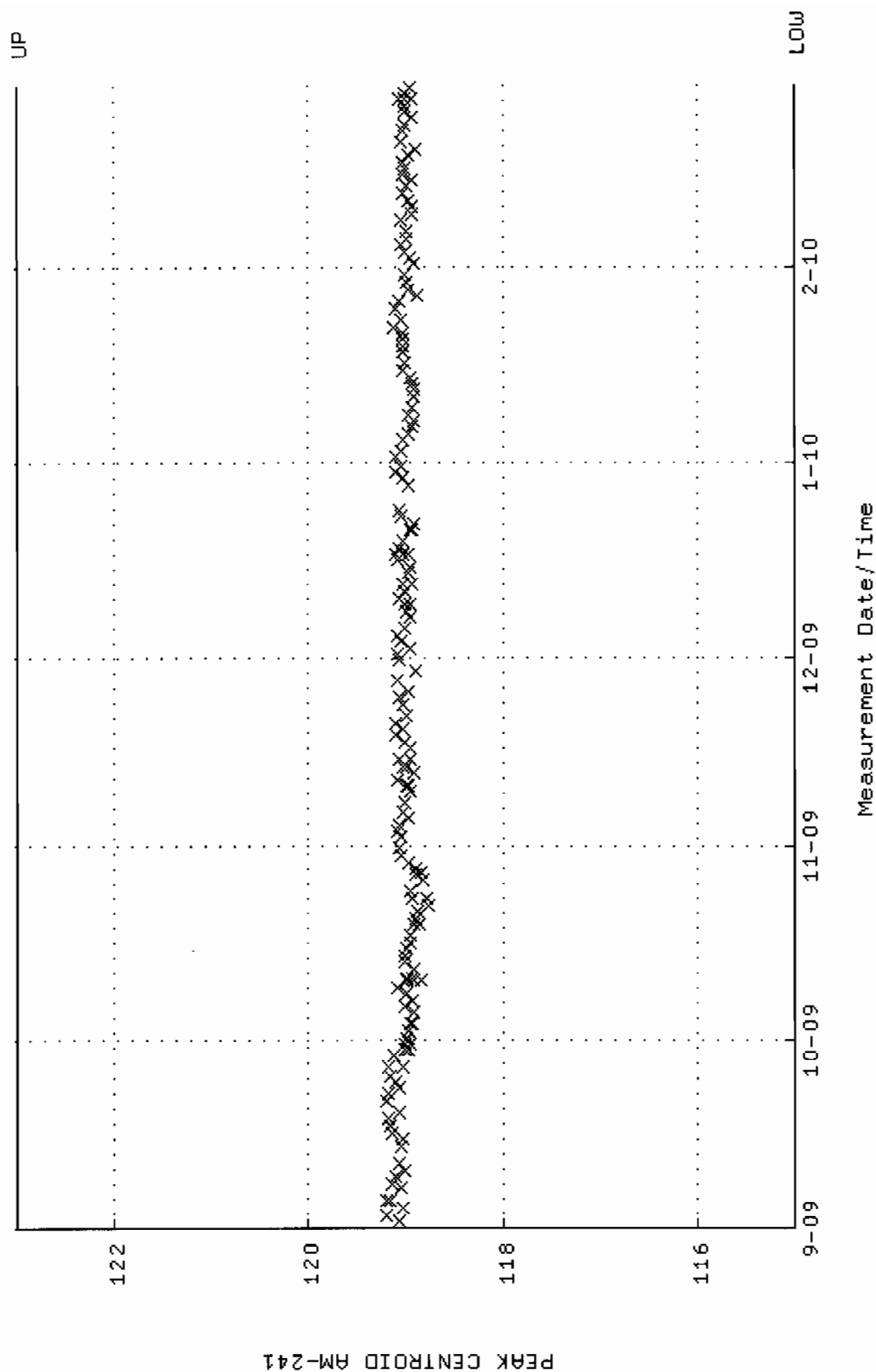
QA filename : DKA100:[ENV_ALPHA.QA.W]W254.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 28-AUG-2009 07:10:27 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 82.4132 through 90.0734



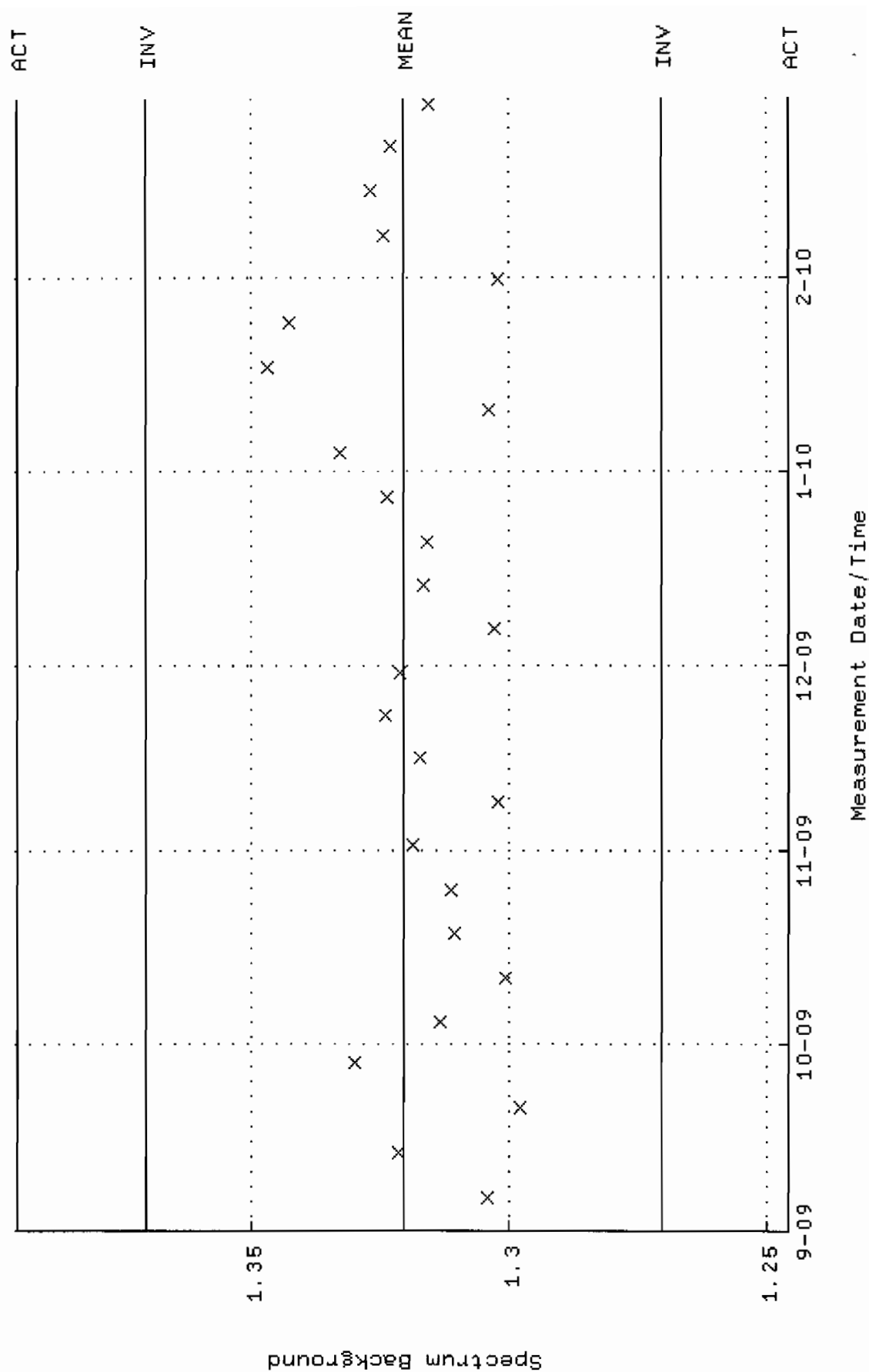
QA filename : DKA100:[ENV_ALPHA.QA.B]B254.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-AUG-2009 17:28:28 through 2-MAR-2010 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



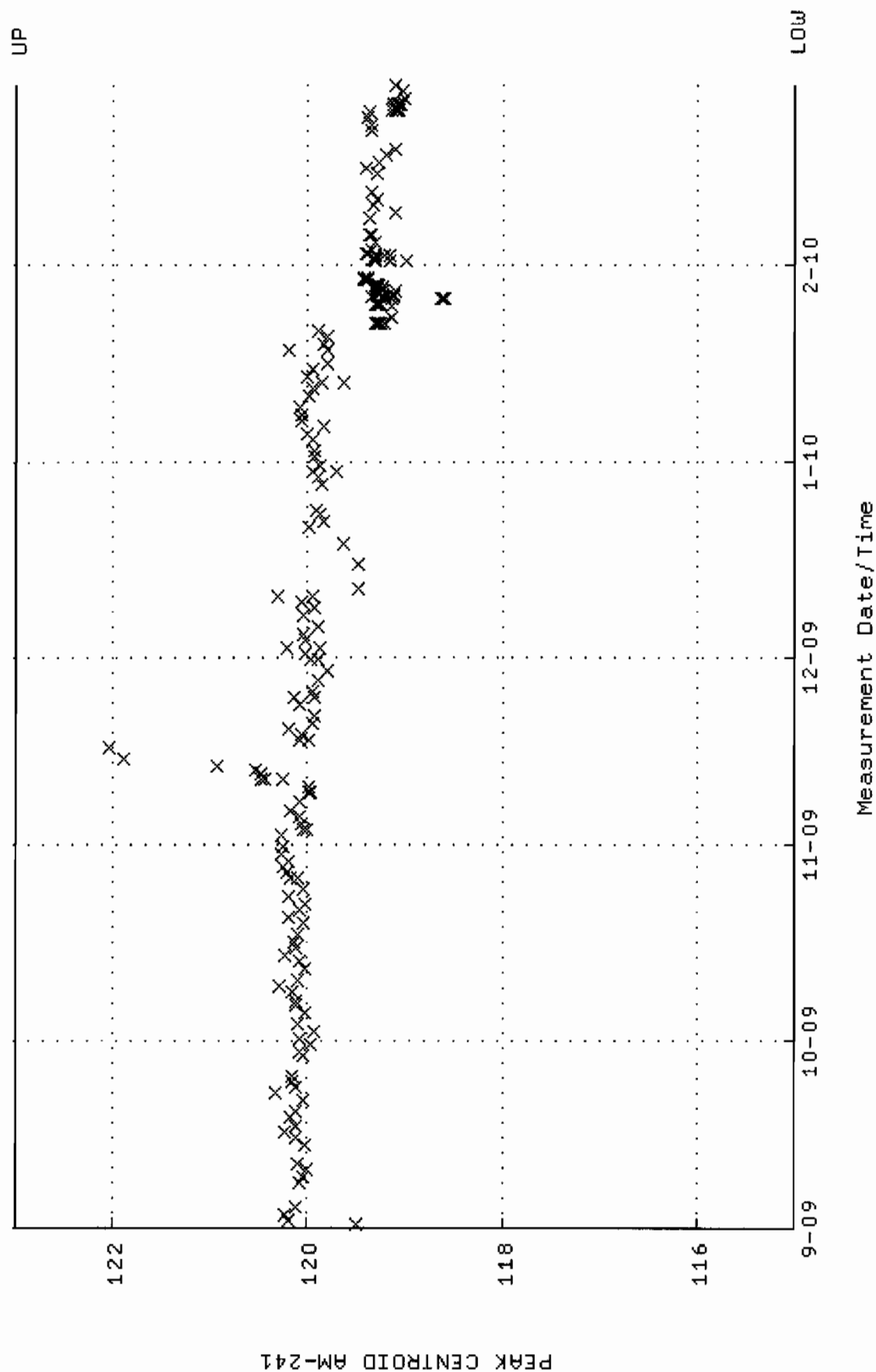
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM04-CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 05:22:58 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



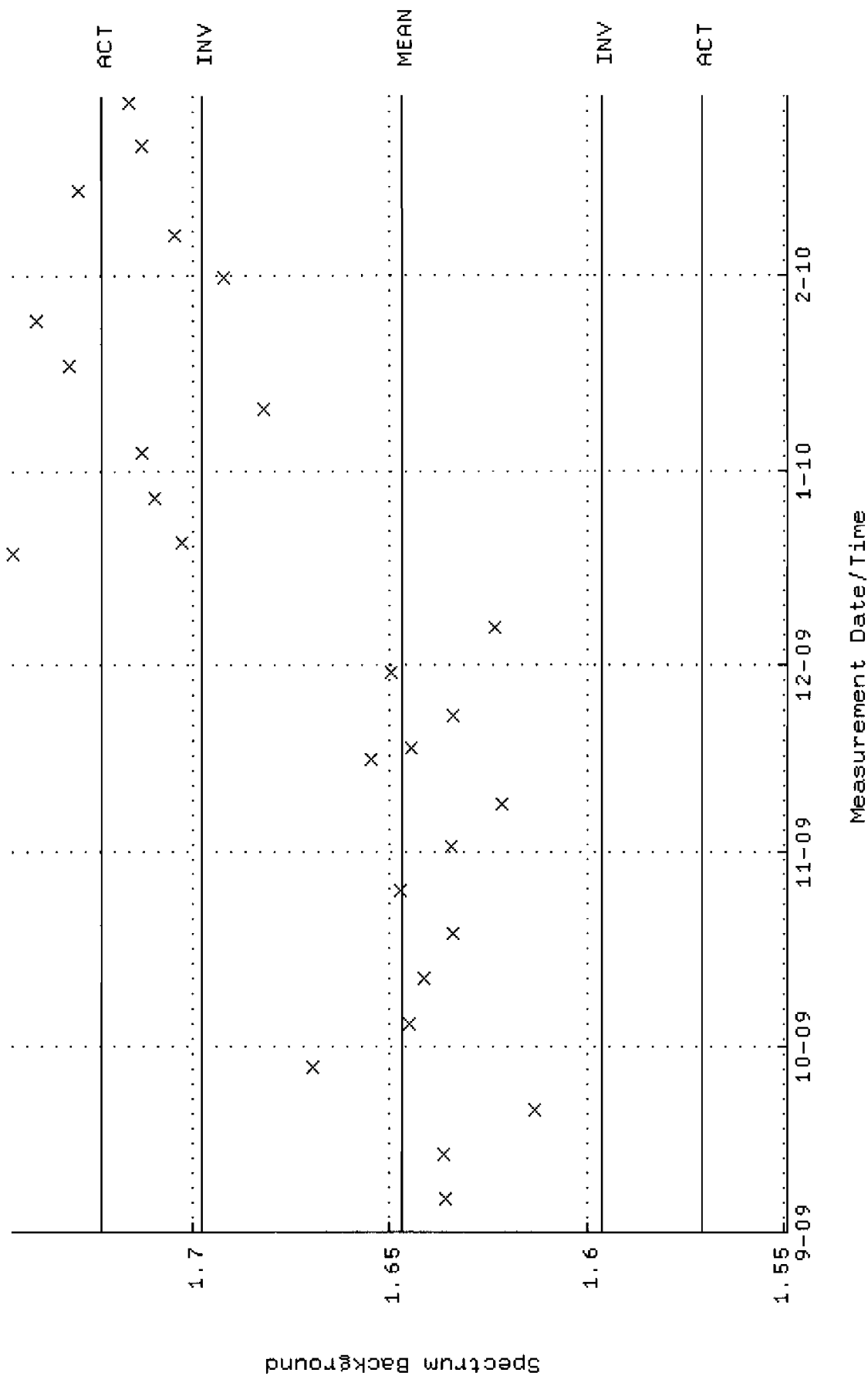
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM04.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:38:33 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.32050 +- 2.495234E-02 (1.89 %)



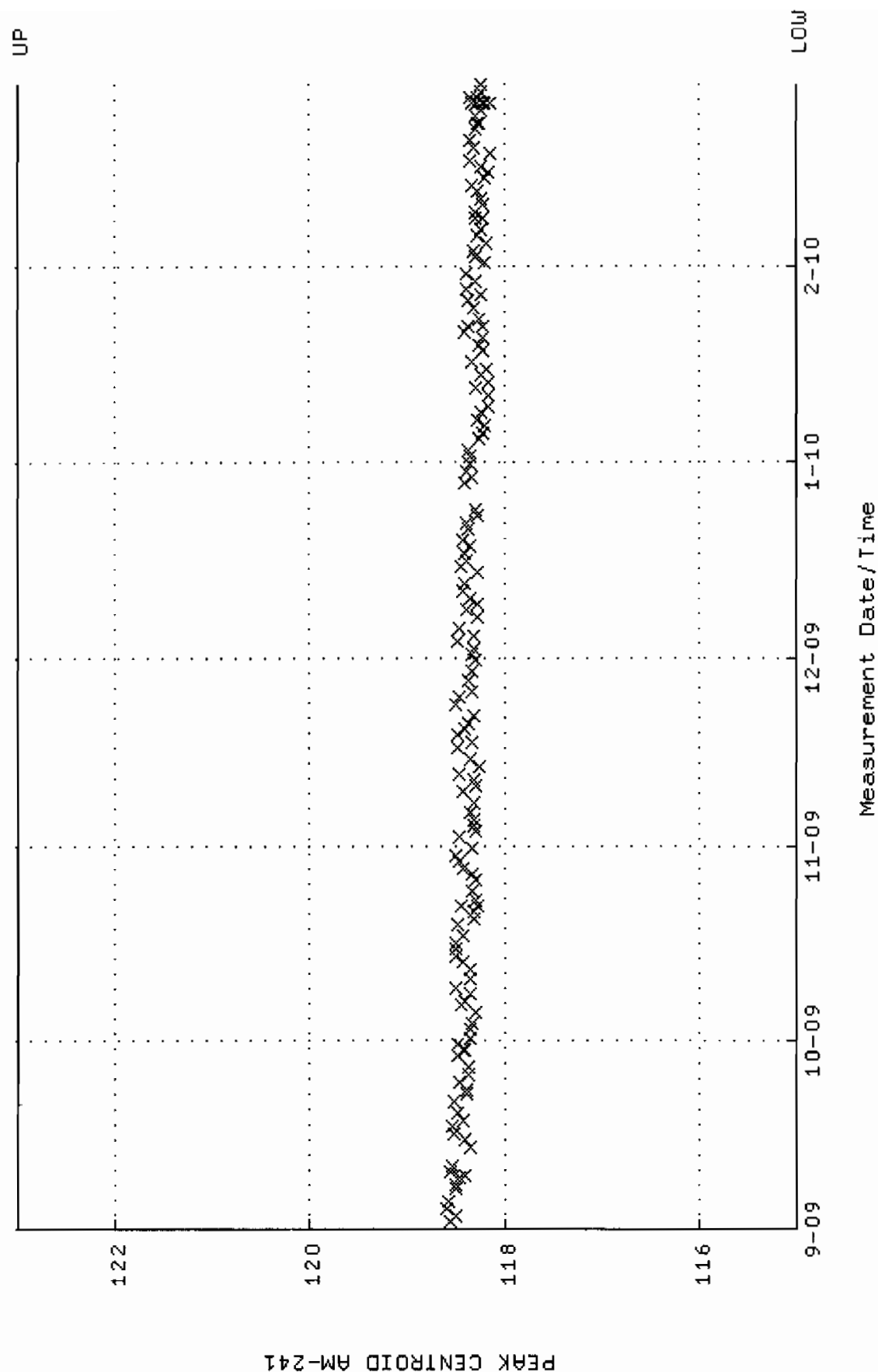
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM05_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 1-SEP-2009 14:54:46 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



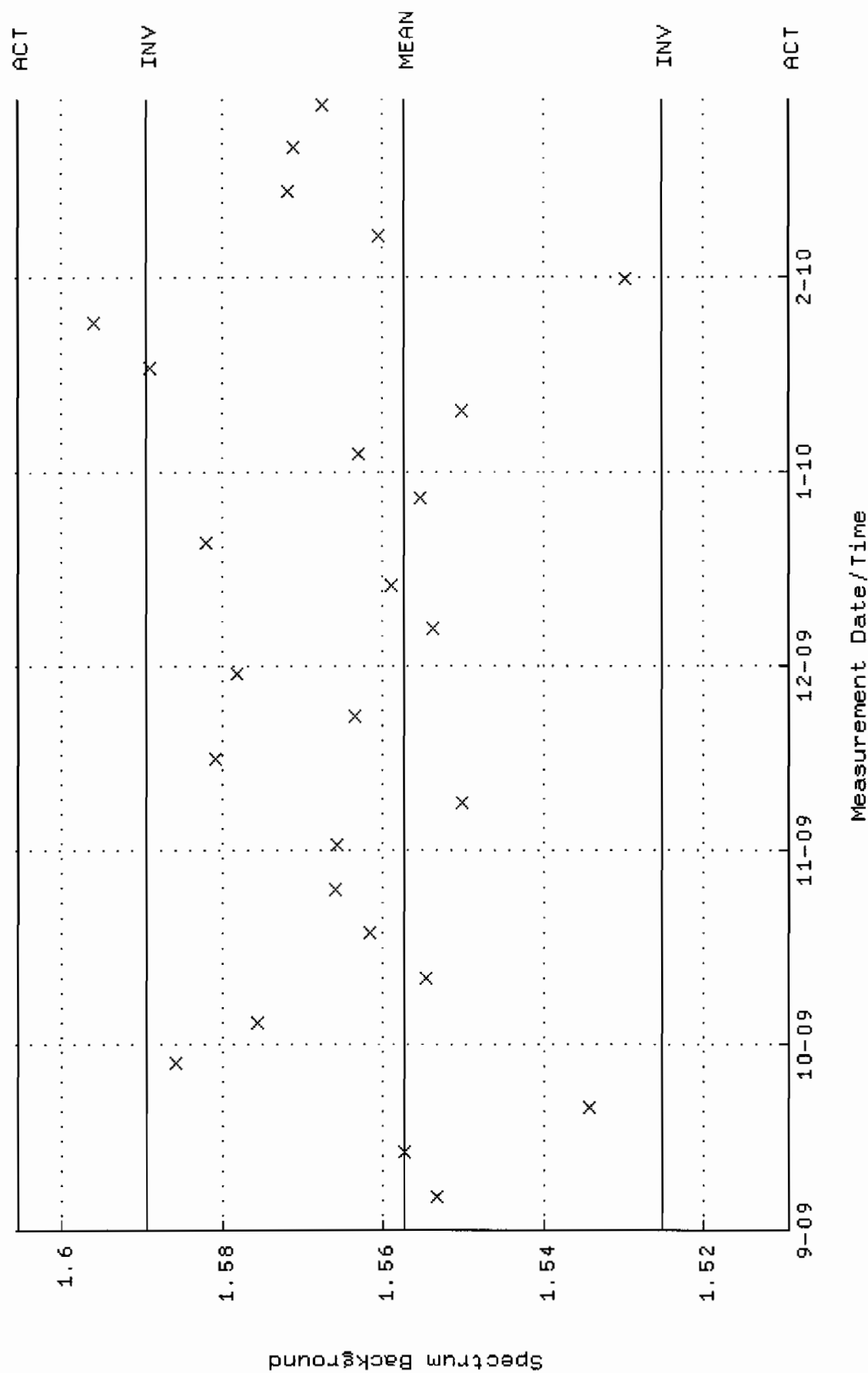
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM05.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:39:04 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.64719 +- 2.547087E-02 (1.55 %)



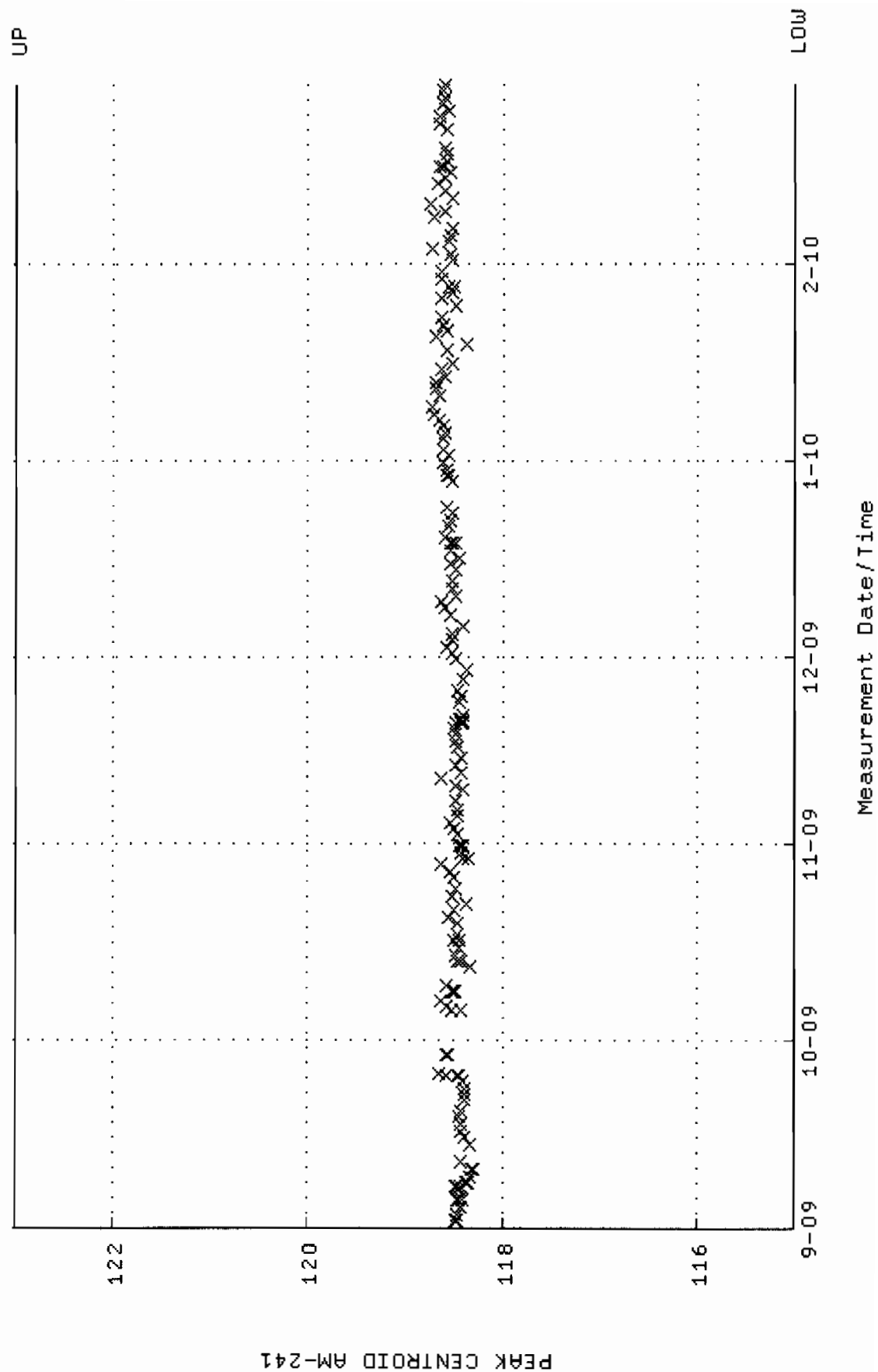
QA filename : DKA100:[CANBERRA,GAMMA,SCUSR.QA]QCC_GAM12_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 07:07:38 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



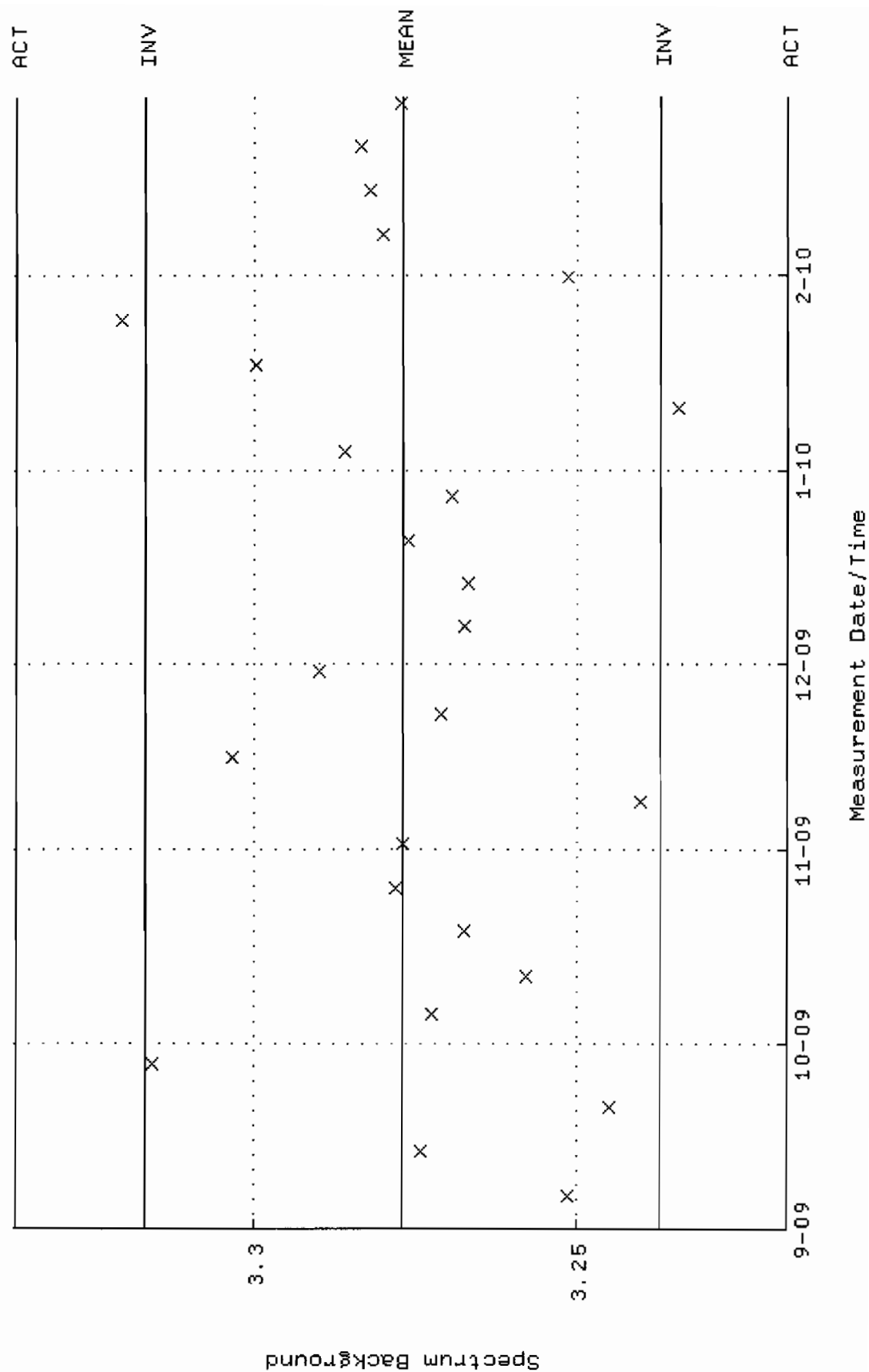
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM12.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:42:20 through 1-MAR-2010 12:00:00
 Mean \pm Std Dev : 1.55746 \pm 1.601675E-02 (1.03 %)



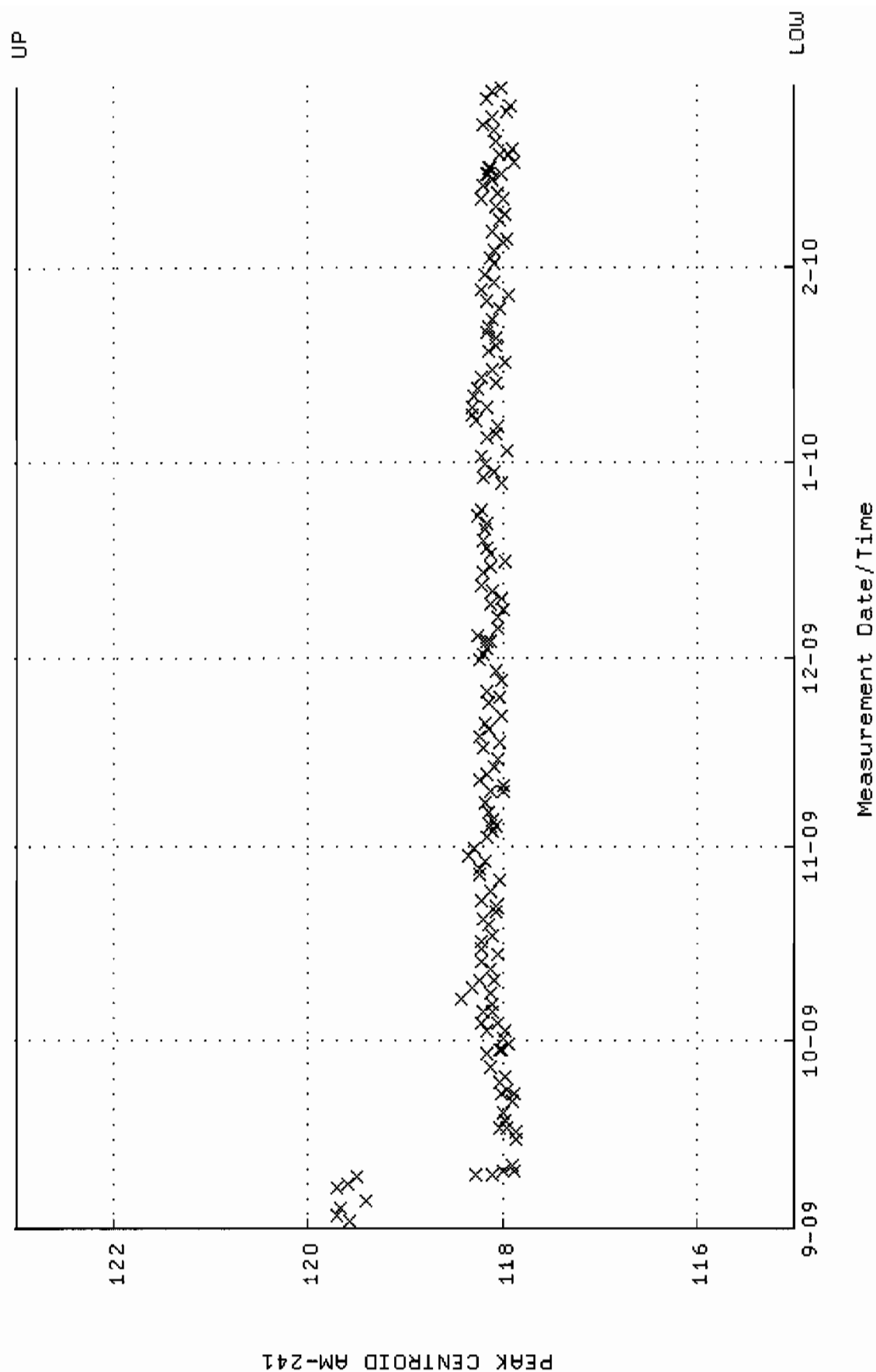
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM13_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 04:40:27 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



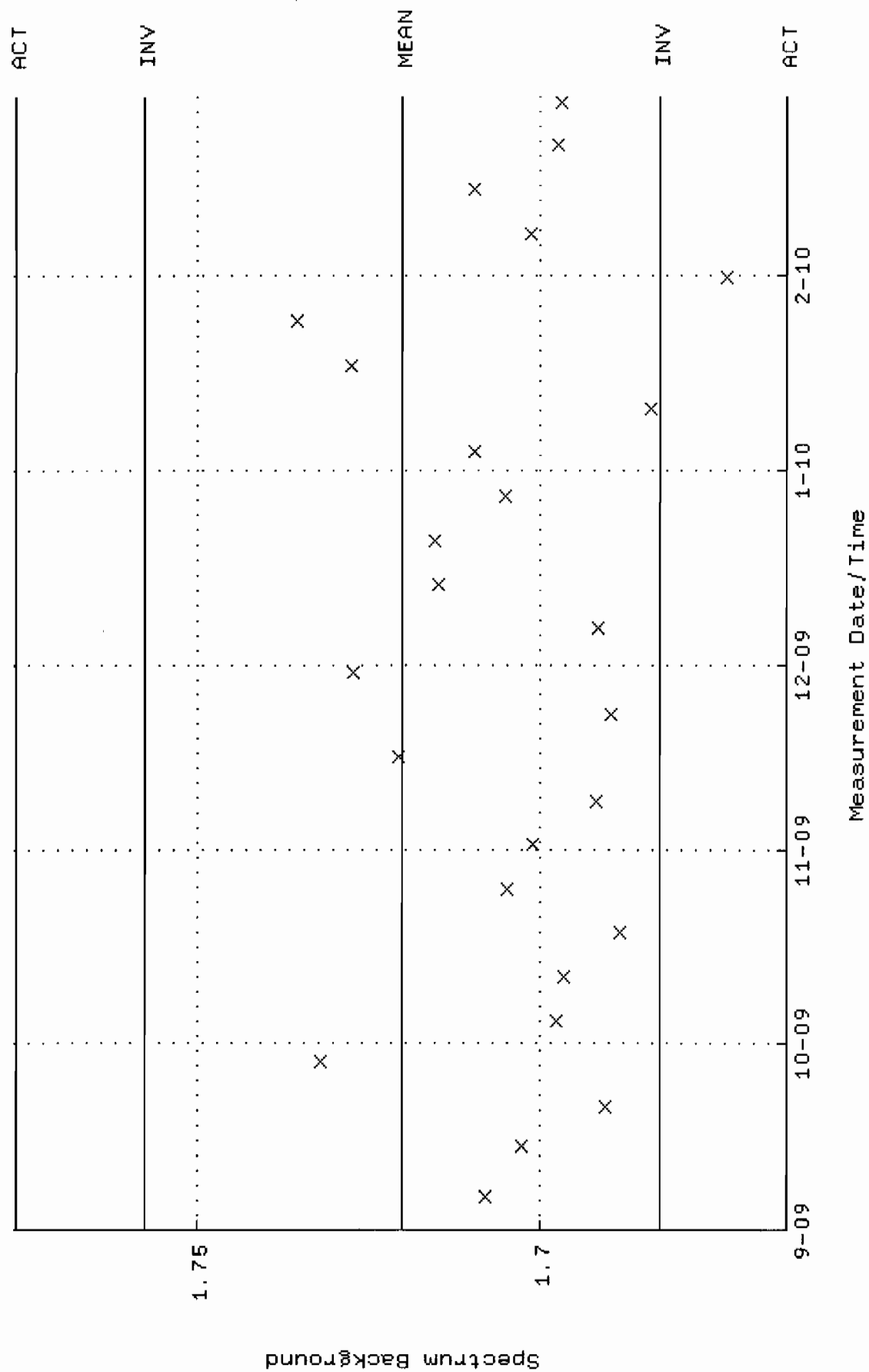
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM13.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:42:44 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 3.27712 +- 1.999120E-02 (0.61 %)



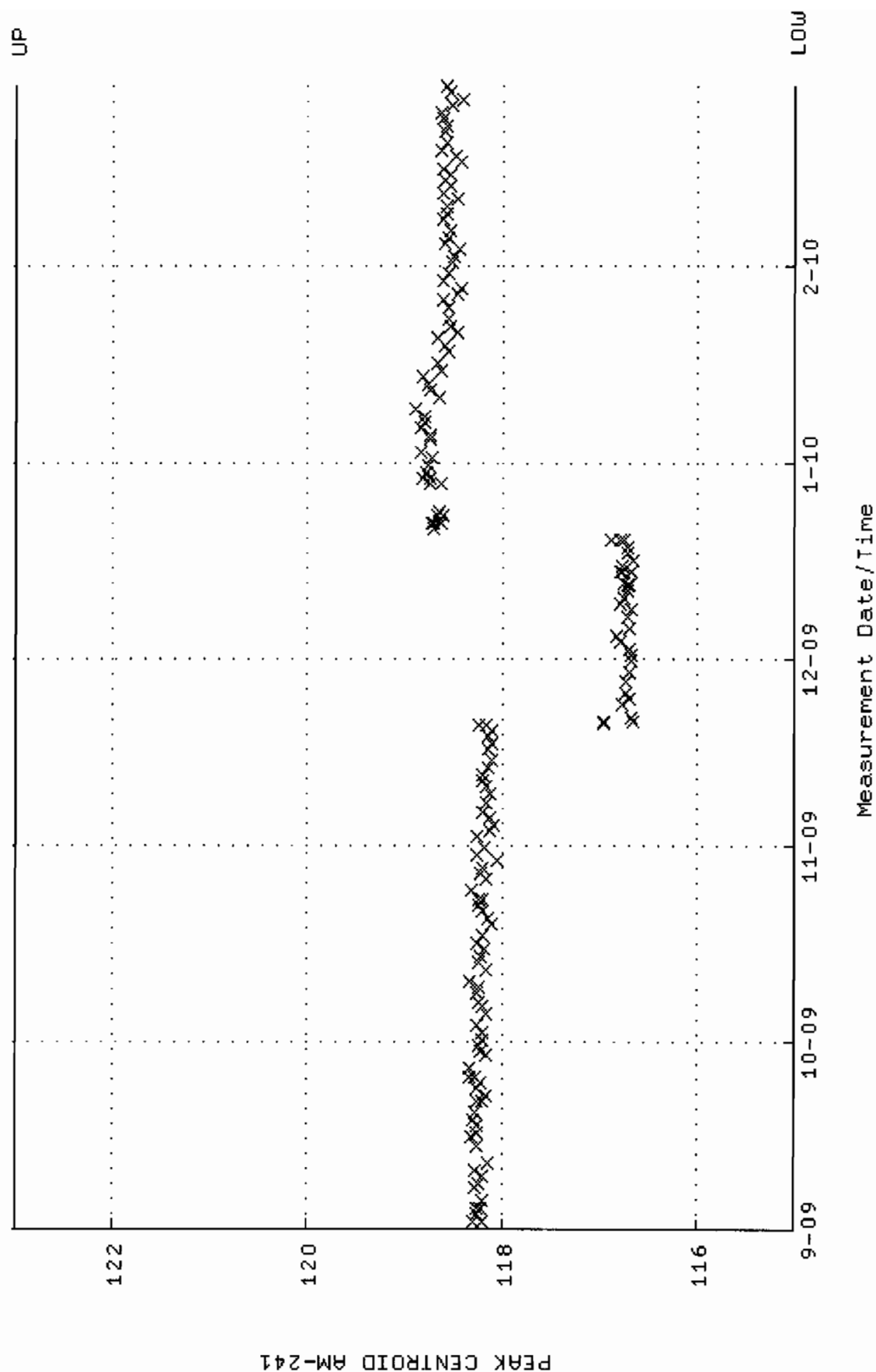
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM15-CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 06:32:23 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



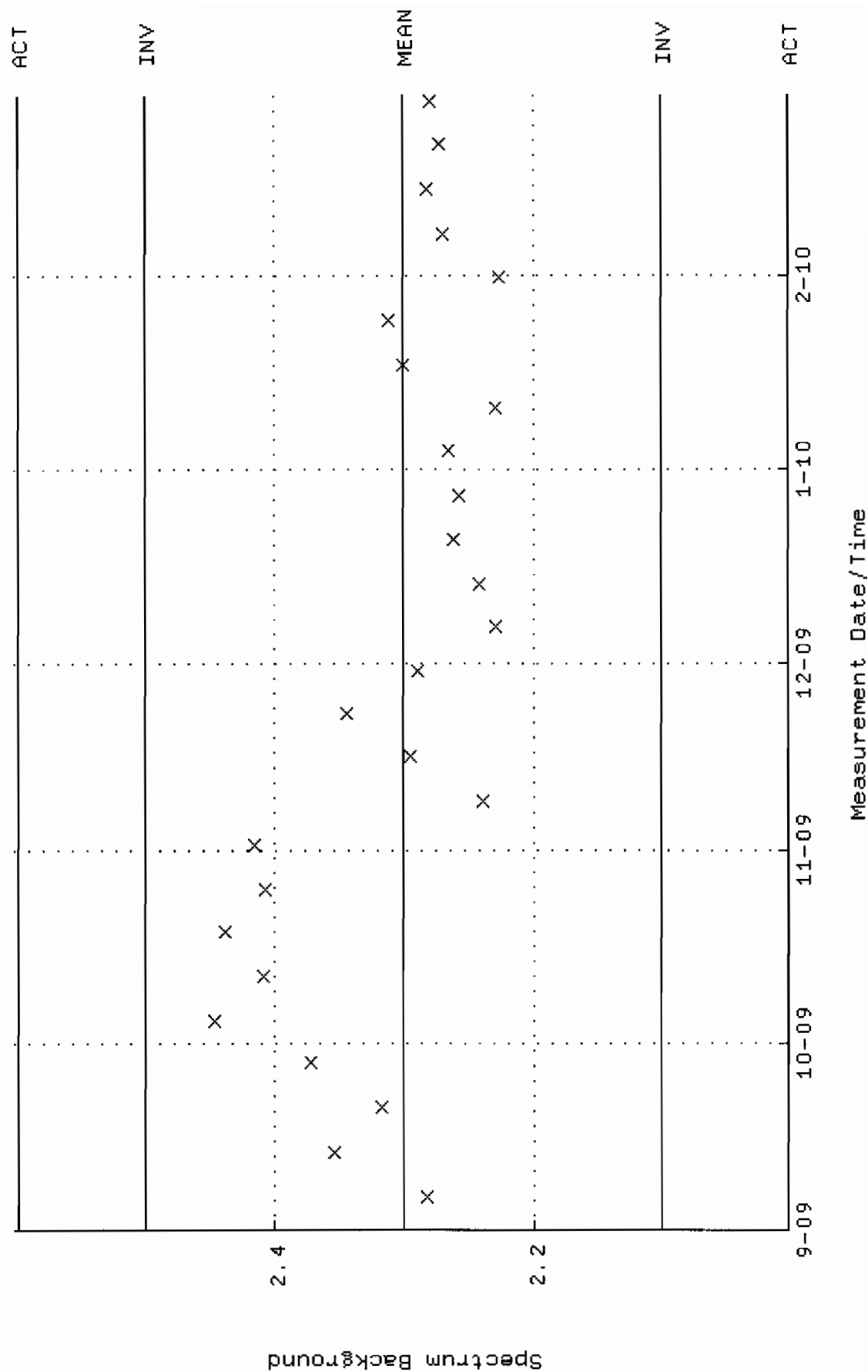
QA filename : DKA100:[CANBERRA,GAMMA,SCUSR,QA]LBC_GAM15.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:43:44 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)



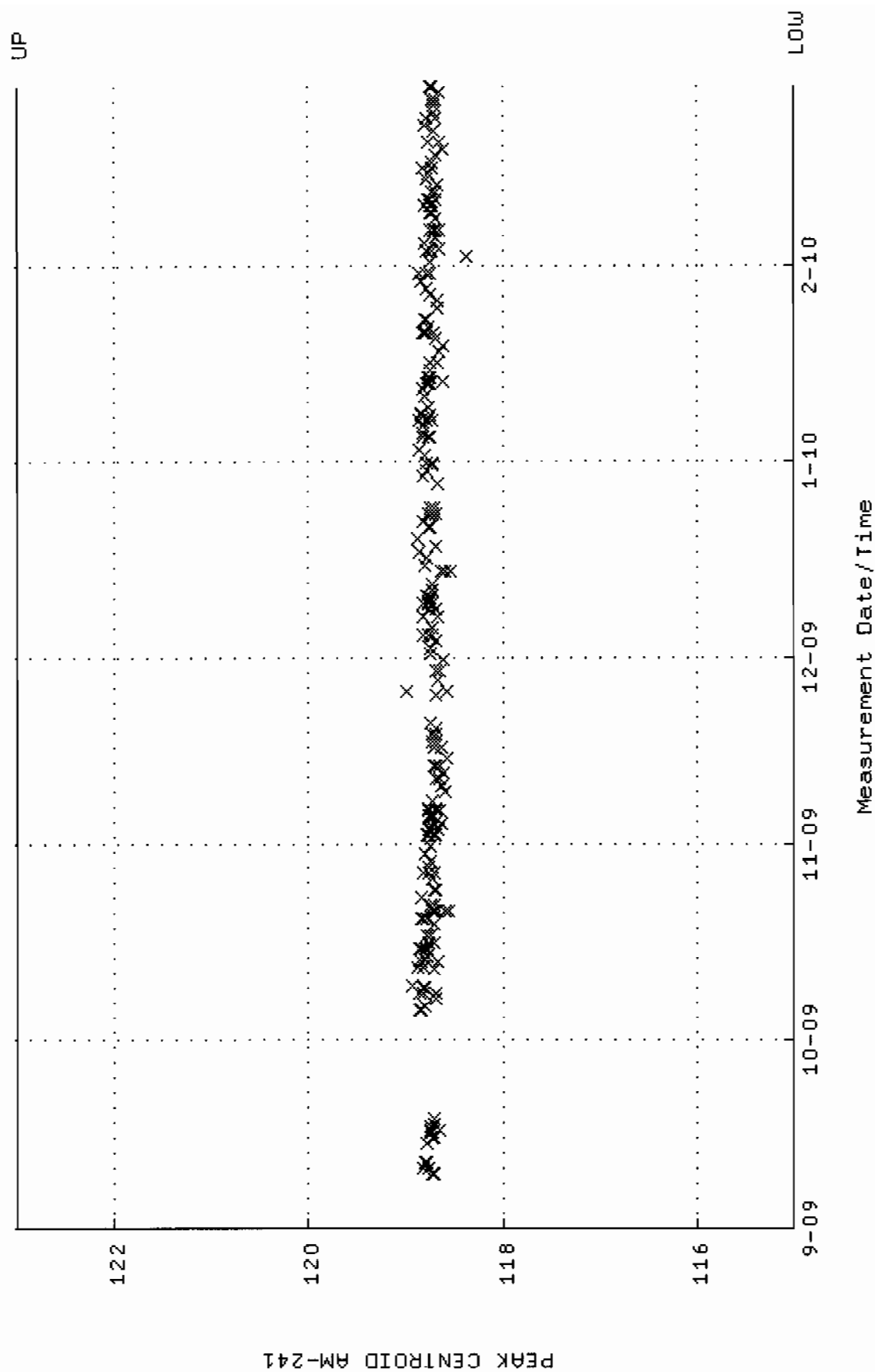
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM18_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 2-SEP-2009 06:13:07 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



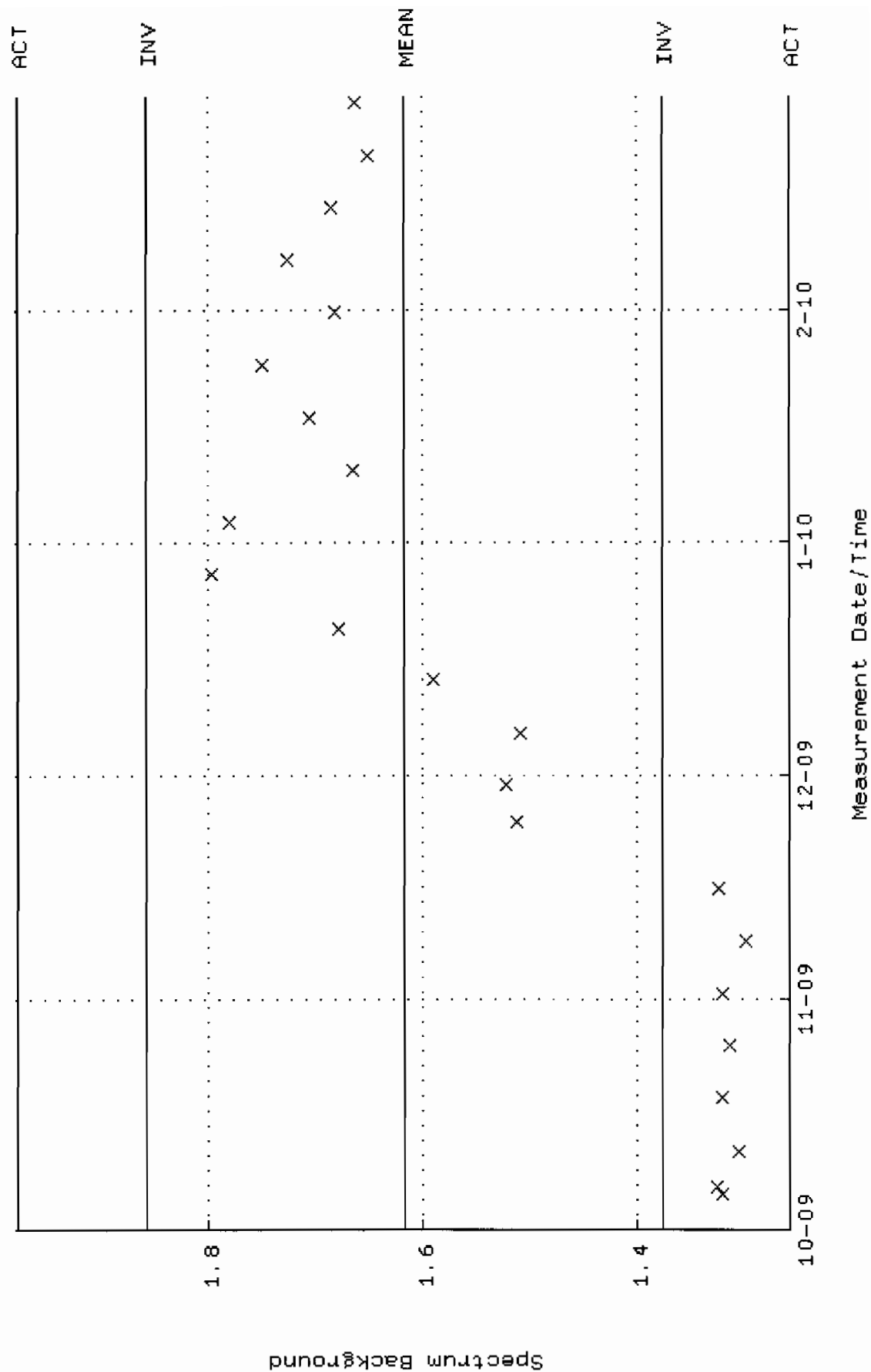
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM18.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 6-SEP-2009 11:45:03 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



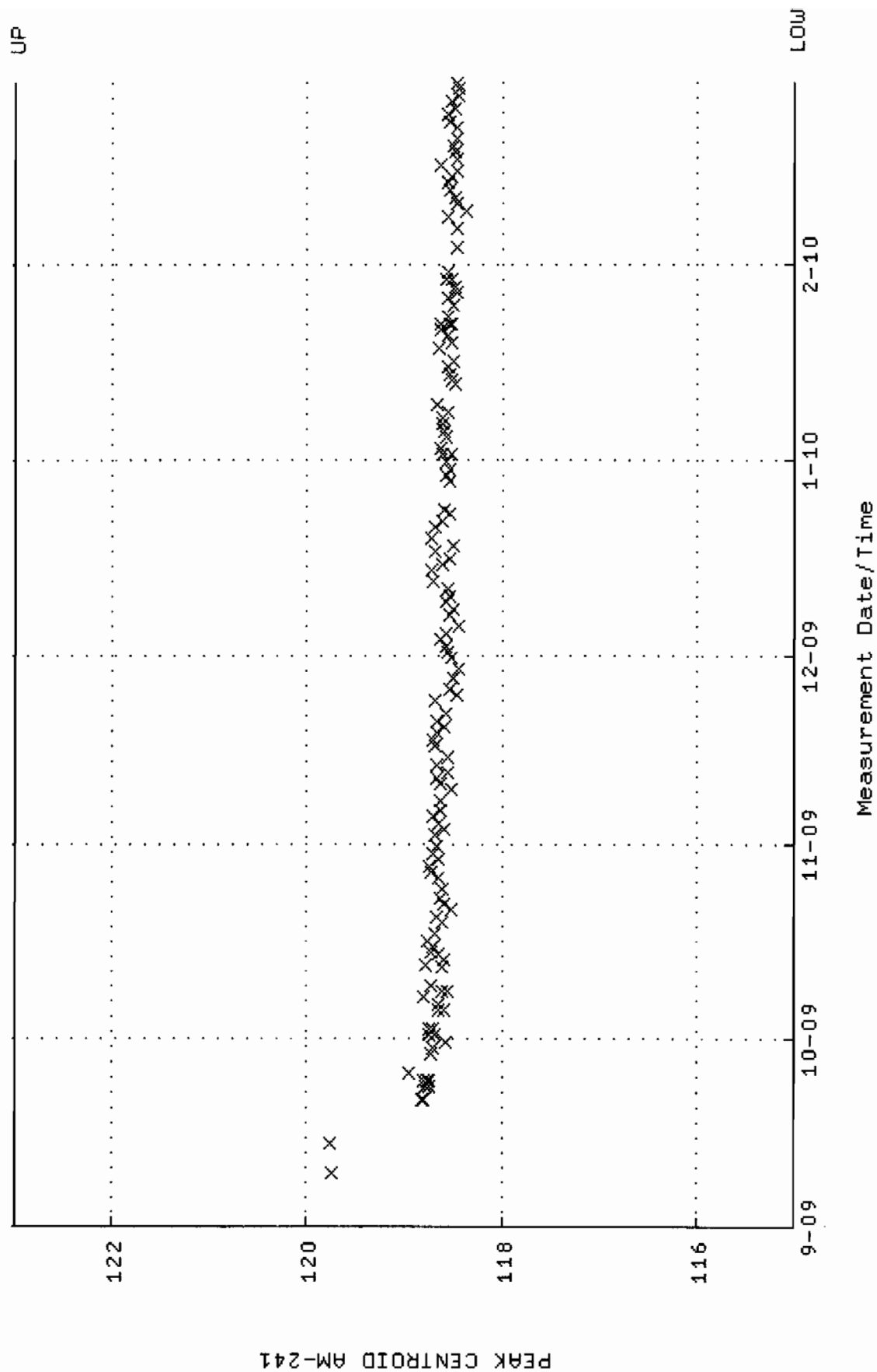
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM23_CAN.QAF;1
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
 Start/End Dates : 9-SEP-2009 16:19:12 through 1-MAR-2010 12:00:00
 Lower/Upper Lmts: 115.000 through 123.000



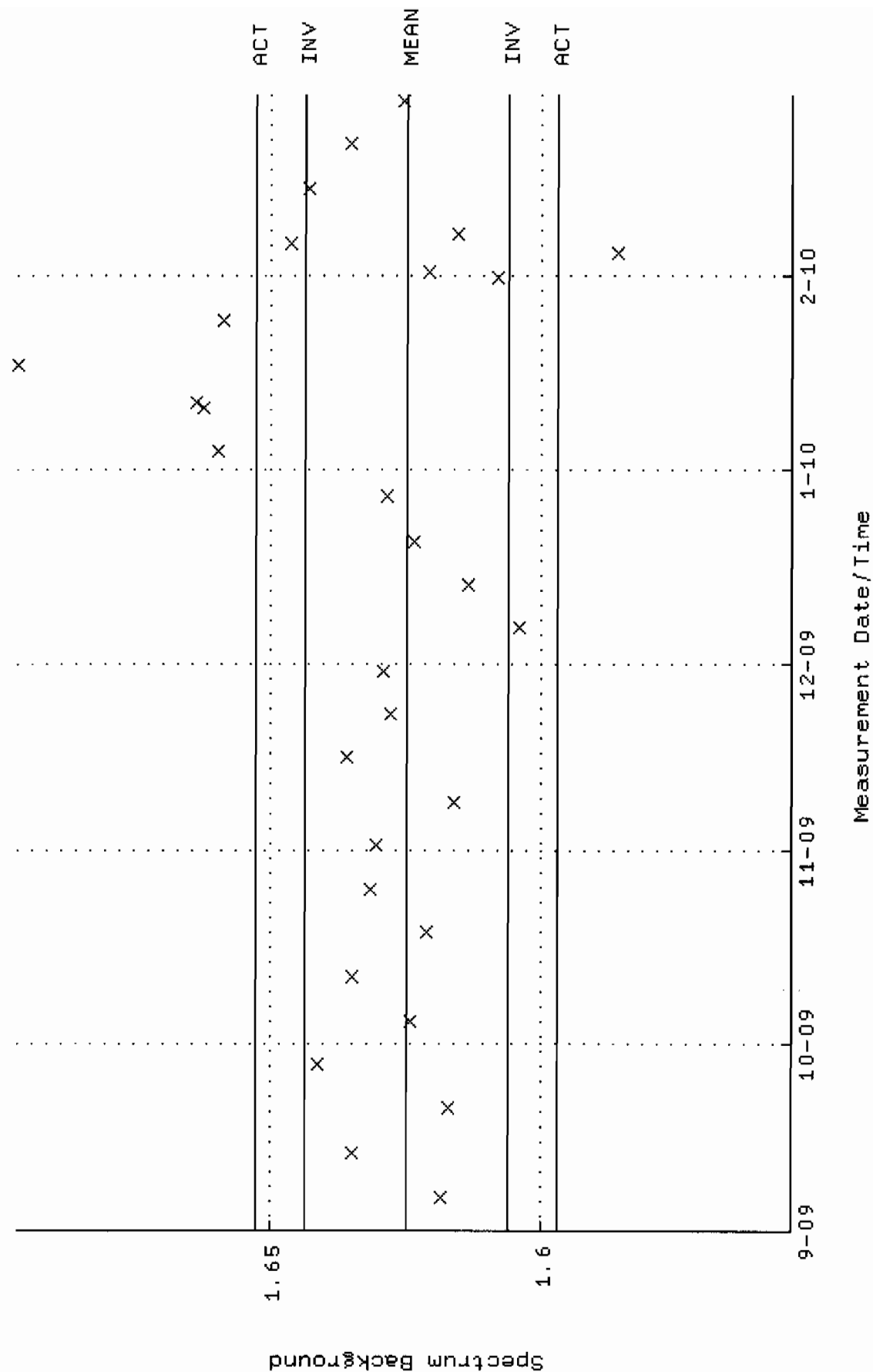
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM23.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 5-OCT-2009 15:13:53 through 1-MAR-2010 12:00:00
 Mean +- Std Dev : 1.61827 +- 0.119991 (7.41 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM25_2LMB.QAF;1
 Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)
 Start/End Dates : 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 %)



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 (μ Ci) = 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

2C-5-023-061a

Standard Traceability Log Rad

Source Material Info	
Parent Code:	0134
Prepared By:	Angela Johnson
Carrier Conc:	DI WATER
Reference Date:	03/01/1996
Ampoule Mass (g):	5 g
Uncertainty:	+/- 2.5 %
LogBook No:	RC S 023 061

A Solution Material Info	
Isotope:	Tritium
Prepared By:	Angela Johnson
Prep Date:	02/21/2001
Verification Date:	09/10/2008
Expiration Date:	03/27/2010
Primary Code:	0134-A
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	2741.3099
	0134-K N2	1073.2000	54.0000	1019.2000	1.0000	2678.242955
	0134-K N3	1085.2000	54.0000	1031.2000	1.0000	2709.776428
Mean Value (Counting) =	2709.776428		104.954429	Pass		2709.776428
Stdev =	31.53347278		0.01163693	Rule 3 (Pass/Fail)		

Certificate Value = 2581.86 dpm/mL
 Lower Limit = 2646.709482 dpm/mL
 Upper Limit = 2772.843373 dpm/mL
 Rule 1 Pass/Fail Fail *exception taken due to full recovery of standard
 Two sigma = 63.06694556 dpm/mL
 10 % of Mean = 270.9776428 dpm/mL
 Rule 2 (Pass/Fail) Pass

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 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

Plan Distributions 4/9/09
 Amanda J. 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. Analytics maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE	GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432 y	3339	3.0
Cd-109	88	462.6 d	4815	3.3
Co-57	122	271.79 d	2409	3.0
Ce-139	166	137.6 d	3408	2.8
Hg-203	279	46.61 d	7522	2.7
Sn-113	392	115.1 d	4728	2.6
Cs-137	662	30.07 y	2973	3.0
Y-88	898	106.6 d	11600	2.6
Co-60	1173	5.2714 y	5780	2.7
Co-60	1332	5.2714 y	5783	2.6
Y-88	1836	106.6 d	12260	2.6

5.31725 grams 4M HCl solution.
P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY: M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED: W.M. [Signature] 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/30/06
RC-S-045-073-0
Laboratory

1380 Seaboard Industrial Blvd.
 Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytiscinc.com

ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS BATCH 127

CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method 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

$(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$

$(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$

$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$

$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
-----------	----------	--------------	---------------	------	-------------	-------------------	-----------------

GEL Laboratories LLC

Version 1.0 9/18/2000

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Am-241

Isotope	Result	pCi/L - Ver. IAR - 1
Mixed Gamma N1	2534	pCi/L - Ver. IAR - 3
Mixed Gamma N2	2510	pCi/L - Ver. IAR - 5
Mixed Gamma N3	2413	

Mean Value (Counting) = 2485.67
Stdev = 64.065
Pass
Rule 3 (Pass/Fail)

Certificate Value = 2485.68018
Lower Limit = 2357.536524
Upper Limit = 2613.796809
Rule 1 (Pass/Fail) Pass
Two sigma = 128.1301422
10 % of Mean = 248.5666667
Rule 2 (Pass/Fail) Pass

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

M. Stamps
12/2/09
independent
12/2/09

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Cs-137

Isotope	Result	pCi/L - Ver. IAR-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)

*12/2/09
12/2/09
12/2/09*

Certificate Value =

Lower Limit =

Upper Limit =

Rule 1 (Pass/Fail)

Two sigma =

10 % of Mean =

Rule 2 (Pass/Fail)

pCi/L

pCi/L

pCi/L

933.44144

829.597644

944.202356

Pass

57.30235597

88.69000000

Pass

Verification Rules

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - Ver-1ae-5
Mixed Gamma N1	1572	pCi/L - Ver-3ae-2
Mixed Gamma N2	1495	pCi/L - Ver-1ae-3
Mixed Gamma N3	1501	

Mean Value (Counting) =
Stdev =

1522.67
42.829

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

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 4/14/2000 *lett c held 12/1/04*

angela d. johnson 12/13/04

TRM

Invoice:

5 boxes of TRM-1
 10 " " TRM-2 and 3
 5 " each of TRM-1 through 6
 7 " baghouse dirt

Use 1/4 gm x 10 samples WITH together
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
Th-230	471 ± 11	24.5 ± 0.6	58.5 ± 2.1	44.0 ± 1.6
Ra-226	489 ± 17	25.4 ± 0.9	60.3 ± 2.3	42.9 ± 1.2
Pb-210	24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATA 4/14/2000

Amanda L. Lehn 4/30/04
lett & dated 5/1/04

PREPARATION AND CHARACTERIZATION OF THE PERFORMANCE EVALUATION SOIL SAMPLE PEM-1

INTRODUCTION

Rust Geotech (Rust) was contracted by Los Alamos National Laboratory (LANL) to prepare and characterize a soil performance evaluation sample designated PEM-1. This report describes sample preparation, homogeneity assessment, and determination of the concentrations of 28 elements and radioactive isotopes in the sample.

SAMPLE PREPARATION

Rust received nine five-gallon buckets of soil from LANL. The soils were dried overnight in ovens at 103 °C. The large pieces of leaves and sticks were removed and the soils were ground with ceramic-plate grinders to a particle size that passed through a 325 mesh screen. The samples were blended at the proportions specified by LANL for 48 hours in a 3-cubic-foot cross-flow blender. The sample identifications and the amounts used are listed in Table 1.

Table 1. Sample Identifications and Amounts Used to Prepare PEM-1

LANL Sample ID	Amount Used (kg)
AAA 1592	1.7
AAA 2505-1	10.9
AAA 2505-2	12.8
AAA 2750-1	8.4
AAA 2750-2	8.4
AAA 3205	12.6
AAA 8581	4.2
AAB 3417	12.8
AAB 3475	12.6

The blended sample was transferred to three five-gallon plastic containers. While the sample was being transferred, 10 samples were taken at pre-determined time intervals to be used for homogeneity assessment and sample characterization. These samples are believed to be representative of the bulk material.

9911627-01-20

AR/COC- 602945

Attention Nancy Slater At GEL
Not for Log-In

ANALYSIS REQUEST AND CHAIN OF CUSTODY

Press F1 for Instructions for each field.

SF 2001-COC (10-97)
Supervisor (5-07) JAW

Internal Lab
Batch No.

SARWR No. N/A

Dept. No./Mail Stop: 7132 / 1042
Project/Task Manager: PAM PUISSANT
Project Name:
Record Center Code: N/A
Logbook Ref. No.: N/A
Service Order No.:
Tech Area VI
Room N/A
ER Sample ID or Sample Location Detail
050484 - 001 PEM-1
050486 - 001 TRM-2
050488 - 001 NRM-2 NBHD

Contract No.: AJ-2480A
Case No.: 10204 1-3
SMO Authorization: [Signature]
Bill to: Sandia National Laboratories
Supplier Services, Dept.
P.O. Box 5800 MS 0154

Date Samples Shipped: 11-16-99 SMO USE
Carrier/Waybill No.: 426794
Lab Contact: EDIE KENT
Lab Destination: G.E.L.
SMO Contact/Phone: Doug Salimi / 844-3110
Send Report to SMO: Suzi Jensen/844-3184

Location		Tech Area VI		Reference LOV (available at SMO)		LAB USE	
Building	N/A	Room	N/A	Sample Type	Method	Parameter & Method Requested	Lab Sample ID
Sample No. - Fraction	Sample Location Detail			Type	Volume	Preservative	
050484 - 001	PEM-1			P	1 L	4C	SA
050486 - 001	TRM-2			G	1 L	4C	SA
050488 - 001	NRM-2 NBHD			G	1 L	4C	SA
-							
-							
-							
-							
-							
-							
-							

RMMA ☐ Yes ☒ No Ref. No.
Sample Disposal ☐ Return to Client ☒ Disposal by lab
Turnaround Time ☒ Normal ☐ Rush Required Report Date
Signature: [Signature]
Name: Douglas E. Perry
Sample Team Members
1. Relinquished by [Signature] Date 11-16-99 Time 0900
1. Received by [Signature] Date [] Time []
2. Relinquished by [Signature] Date [] Time []
2. Received by [Signature] Date [] Time []
3. Relinquished by [Signature] Date [] Time []
3. Received by [Signature] Date [] Time []

Special Instructions/QC Requirements
EDD ☐ Yes ☒ No
Raw data package ☐ Yes ☒ No
These "samples" are well characterized and materials being sent to GEL are held at Hawk Division. Please list as separate report.

Sample Tracking (SMO USE)
Data Entered (mm/dd/yyyy) [] [] [] [] [] []
QC Initials: [] []
Company/Organization/Phone
Weston / 7577 / 845-0887

Relinquished by		Received by		Date	
1. Relinquished by	[Signature]	1. Received by	[Signature]	Date	Time
2. Relinquished by	[Signature]	2. Received by	[Signature]	Date	Time
3. Relinquished by	[Signature]	3. Received by	[Signature]	Date	Time
4. Relinquished by	[Signature]	4. Received by	[Signature]	Date	Time
5. Relinquished by	[Signature]	5. Received by	[Signature]	Date	Time
6. Relinquished by	[Signature]	6. Received by	[Signature]	Date	Time

Original To Accompany Samples, Laboratory Copy (White)
1st Copy To Accompany Samples, Return to SMO (Blue)
2nd Copy SMO Suspense Copy (Yellow)
3rd Copy Field Copy (Pink)

CERTIFICATE OF CALIBRATION

ALPHA STANDARD SOLUTION

Radionuclide	Am-243	Customer:	GENERAL ENGINEERING LABS
Half Life:	7380 \pm 40 years	P.O.No.:	9290-RAD
Catalog No.:	7243	Reference Date:	January 1 1994 12:00 PST.
Source No.:	445-96-2	Contained Radioactivity:	(Am-243) 101.2 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(NO ₃) ₃ in 2N HNO ₃
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	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	03/09/2010
Expiration Date:	03/09/2011
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/mL	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/mL	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/mL	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/mL	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/mL	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/mL	01/05/1995	01/05/1996

05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009
09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009

01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Tara Sides	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/14/2009	09/14/2010
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
03/09/2010	Ashley Drochter	.011	1000	445-96-2-VV	22.7878 dpm/mL	03/09/2010	03/09/2011
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

Verification for Am-243 Standard 445-96-2-VV

A.Drochter 3/15/2010	Isotope	Value	Uncertainty
	445-96-2-VV #1	1.040	0.1630
	445-96-2-VV #2	0.964	0.1480
	445-96-2-VV #3	0.970	0.1550
Mean Value (Counting) =	0.991	96.72	Pass
Stdev =	0.042253205	Rule 3 (Pass/Fail)	
Target =	1.025		
Lower Limit =	0.906826923		
Upper Limit =	1.075839743		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.08450641		
10 % of Mean =	0.099133333		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard **445-96-2-VV** 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.

Handwritten signature 3/15/10
 3/16/10



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*

Page 402 of 505

Signed: *MAH*

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: *all*

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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(4.8051 \text{ g}) * (170.8 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (100 \text{ mL}) = 492.4266 \text{ dpm/mL}$
$(4.8051 \text{ g}) * (170.8 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0610 \text{ g/mL}) / (100 \text{ mL}) = 464.1156 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/27/2010	Bethany Fiem	33.0429	200	1430-B	76.6786262 dpm/mL	01/27/2010	01/27/2011
03/01/2010	Ashley Drochter	15.2331	200	1430-C	35.3496 dpm/mL	03/01/2010	03/01/2011

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for Plutonium-236 Standard 1430-C

	Isotope	Value	Uncertainty
A. Drochter 3/4/2010	1430-C	2.760	0.4480
	1430-C	2.770	0.4520
	1430-C	2.950	0.4850
Mean Value (Counting) =	2.827	104.54659 % of Known Value	
Stdev =	0.106926766		
Target =	2.70		
Lower Limit =	2.612813134		
Upper Limit =	3.040520199		
Rule 1 Pass/Fail	Pass	Pass	Pass
Two sigma =	0.213853532		
10 % of Mean =	0.282666667		
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.

file 3/5/10
h 3/5/10



Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
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Tel 404-352-8677
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www.analytiscinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

78747-278

1283

U-232 5 mL Liquid in Flame Sealed Vial

Customer: GEL Laboratories, LLC
P.O. No.: 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-Life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

Comments:

Impurities: U-233 <0.3%, Am-241 <0.15%
5.20453 grams 1M HNO₃ solution.

Source Prepared By: WLS

W. Mao, Radiochemist

QA Approved: DM Montgomery

D. M. Montgomery, QA Manager

Date: 12-11-08

Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1283	Isotope:	Uranium-232
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3	Prep Date:	12/16/2008
Reference Date:	12/09/2008	Verification Date:	12/30/2008
Ampoule Mass (g):	5.20453 g	Expiration Date:	12/30/2009
Uncertainty:	+/- 5 %	Primary Code:	1283-A
LogBook No:	RC-S-051-002	Dilution(mL):	100 mL
		Mass of Parent(g):	5.0245 g
		Density(g/mL):	1.0285
		Balance ID:	

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$

$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$

$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/02/2009	12/02/2010
12/30/2008	Tina Schoneman	.49	250	1283-D	4.1438 dpm/mL	01/09/2009	01/09/2010
01/14/2009	Mary Aders	25.0528	1000	1283-E	52.9659 dpm/ml	01/15/2009	01/15/2010
12/02/2009	Julie Strock	2.076	250	1283-F	17.5561 dpm/mL	01/09/2009	12/30/2009
12/02/2009	Julie Strock	.517	250	1283-G	4.3721 dpm/mL	01/08/2010	12/02/2010
12/09/2009	Ashley Drochter	21.56	1000	1283-H	45.58 dpm/mL	12/09/2009	12/09/2010

Verification for Uranium-232 Standard 1283-H

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	99.66904	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: 958220

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248016001	SAMPLE	MXR1	GAM18	12-MAR-10 10:51	DONE	CAN	23-APR-09 00:00
248016002	SAMPLE	MXR1	GAM23	12-MAR-10 10:52	DONE	CAN	02-JUN-09 00:00
248016003	SAMPLE	MXR1	GAM13	12-MAR-10 11:14	DONE	CAN	11-FEB-10 00:00
248016004	SAMPLE	MXR1	GAM05	12-MAR-10 12:23	DONE	CAN	11-JUN-09 00:00
248025001	SAMPLE	MXR1	GAM15	12-MAR-10 12:24	DONE	CAN	03-FEB-10 00:00
248025002	SAMPLE	MXR1	GAM18	12-MAR-10 12:54	DONE	CAN	23-APR-09 00:00
248025003	SAMPLE	MXR1	GAM23	12-MAR-10 12:54	DONE	CAN	02-JUN-09 00:00
248025004	SAMPLE	MXR1	GAM13	12-MAR-10 13:15	DONE	CAN	11-FEB-10 00:00
248025005	SAMPLE	MXR1	GAM15	12-MAR-10 14:28	DONE	CAN	03-FEB-10 00:00
248025007	SAMPLE	MXR1	GAM23	12-MAR-10 15:05	DONE	CAN	02-JUN-09 00:00
248028001	SAMPLE	MXR1	GAM18	12-MAR-10 15:05	DONE	CAN	23-APR-09 00:00
248028002	SAMPLE	MXR1	GAM04	12-MAR-10 16:49	DONE	CAN	05-MAY-09 00:00
248028003	SAMPLE	MXR1	GAM05	12-MAR-10 16:50	DONE	CAN	11-JUN-09 00:00
248028004	SAMPLE	MXR1	GAM12	12-MAR-10 16:50	DONE	CAN	25-FEB-10 00:00
248028005	SAMPLE	MXR1	GAM15	12-MAR-10 16:51	DONE	CAN	03-FEB-10 00:00
1202054952	MB	MXR1	GAM13	12-MAR-10 16:56	DONE	CAN	11-FEB-10 00:00
1202054954	LCS	MXR1	GAM23	12-MAR-10 17:15	DONE	CAN	02-JUN-09 00:00
1202054953	DUP	MXR1	GAM25	12-MAR-10 19:14	DONE	CAN	07-OCT-09 00:00
248025006	SAMPLE	MXR1	GAM18	13-MAR-10 13:56	DONE	CAN	23-APR-09 00:00

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 959837

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248054004	SAMPLE	AYB1	1162	12-MAR-10 09:14	DUSE		
1202058683	MB	AYB1	1163	12-MAR-10 09:14	DUSE		
1202058684	DUP	AYB1	1164	12-MAR-10 09:14	DONE		
1202058685	LCS	AYB1	1165	12-MAR-10 09:14	DONE		
248054003	SAMPLE	AYB1	1115	12-MAR-10 17:37	DONE		
248016001	SAMPLE	AYB1	1001	12-MAR-10 17:38	DONE		
248016002	SAMPLE	AYB1	1002	12-MAR-10 17:38	DONE		
248016003	SAMPLE	AYB1	1003	12-MAR-10 17:38	DONE		
248016004	SAMPLE	AYB1	1004	12-MAR-10 17:38	DONE		
248028001	SAMPLE	AYB1	1005	12-MAR-10 17:38	DONE		
248028002	SAMPLE	AYB1	1006	12-MAR-10 17:38	DONE		
248028003	SAMPLE	AYB1	1007	12-MAR-10 17:38	DONE		
248028004	SAMPLE	AYB1	1008	12-MAR-10 17:38	DONE		
248028005	SAMPLE	AYB1	1009	12-MAR-10 17:38	DONE		
248054001	SAMPLE	AYB1	1010	12-MAR-10 17:38	DONE		
248054002	SAMPLE	AYB1	1011	12-MAR-10 17:38	DONE		
248054004	SAMPLE	AYB1	1167	16-MAR-10 08:13	DONE		
1202058683	MB	AYB1	1168	16-MAR-10 08:13	DONE		

Instrument Run Log

Instrument Type: LSC

Batch ID: 964049

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
247964002	SAMPLE	KXK2	LSCORANGE	15-MAR-10 10:24	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247964003	SAMPLE	KXK2	LSCORANGE	15-MAR-10 11:02	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247964005	SAMPLE	KXK2	LSCORANGE	15-MAR-10 12:17	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969001	SAMPLE	KXK2	LSCORANGE	15-MAR-10 13:09	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969002	SAMPLE	KXK2	LSCORANGE	15-MAR-10 13:47	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969003	SAMPLE	KXK2	LSCORANGE	15-MAR-10 14:25	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969004	SAMPLE	KXK2	LSCORANGE	15-MAR-10 15:02	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969005	SAMPLE	KXK2	LSCORANGE	15-MAR-10 15:40	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969006	SAMPLE	KXK2	LSCORANGE	15-MAR-10 16:17	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969007	SAMPLE	KXK2	LSCORANGE	15-MAR-10 16:55	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
247969008	SAMPLE	KXK2	LSCORANGE	15-MAR-10 17:32	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
248028001	SAMPLE	KXK2	LSCORANGE	15-MAR-10 18:25	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
248028002	SAMPLE	KXK2	LSCORANGE	15-MAR-10 19:02	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
248028003	SAMPLE	KXK2	LSCORANGE	15-MAR-10 19:40	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
248028004	SAMPLE	KXK2	LSCORANGE	15-MAR-10 20:17	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
248028005	SAMPLE	KXK2	LSCORANGE	15-MAR-10 20:55	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
1202068193	DUP	KXK2	LSCORANGE	15-MAR-10 22:10	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
1202068194	LCS	KXK2	LSCORANGE	15-MAR-10 22:48	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00
1202068192	MB	KXK2	LSCYELLOW	17-MAR-10 15:23	DONE	10mL DW/13mL Ecoscint Ultra	21-AUG-09 00:00
247964001	SAMPLE	KXK2	LSCGOLD	19-MAR-10 14:45	DONE	10mL DW/13mL Ecoscint Ultra	20-AUG-09 00:00
247964004	SAMPLE	KXK2	LSCORANGE	22-MAR-10 17:53	DONE	10mL DW/13mL Ecoscint Ultra	24-JUL-09 00:00

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 966171

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248016001	SAMPLE	AYB1	1217	20-MAR-10 19:59	DONE		
248016002	SAMPLE	AYB1	1218	20-MAR-10 19:59	DONE		
248016004	SAMPLE	AYB1	1220	20-MAR-10 19:59	DONE		
1202073426	LCS	AYB1	1230	20-MAR-10 20:00	DONE		
248016003	SAMPLE	AYB1	1247	22-MAR-10 16:25	DONE		
248028001	SAMPLE	AYB1	1248	22-MAR-10 16:25	DONE		
248028002	SAMPLE	AYB1	1249	22-MAR-10 16:25	DONE		
248028003	SAMPLE	AYB1	1250	22-MAR-10 16:25	DONE		
248028004	SAMPLE	AYB1	1251	22-MAR-10 16:25	DONE		
248028005	SAMPLE	AYB1	1252	22-MAR-10 16:25	DONE		
1202073424	MB	AYB1	1253	22-MAR-10 16:25	DONE		
1202073425	DUP	AYB1	1254	22-MAR-10 16:25	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 966453

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248016001	SAMPLE	AYB1	1037	23-MAR-10 10:07	DONE		
248016002	SAMPLE	AYB1	1038	23-MAR-10 10:07	DONE		
248016003	SAMPLE	AYB1	1039	23-MAR-10 10:07	DONE		
248016004	SAMPLE	AYB1	1040	23-MAR-10 10:07	DONE		
248028001	SAMPLE	AYB1	1041	23-MAR-10 10:07	DONE		
248028002	SAMPLE	AYB1	1042	23-MAR-10 10:07	DONE		
248028003	SAMPLE	AYB1	1083	23-MAR-10 10:48	DONE		
248028004	SAMPLE	AYB1	1084	23-MAR-10 10:48	DONE		
248028005	SAMPLE	AYB1	1085	23-MAR-10 10:48	DONE		
1202074009	MB	AYB1	1086	23-MAR-10 10:48	DONE		
1202074010	DUP	AYB1	1087	23-MAR-10 10:48	DONE		
1202074011	LCS	AYB1	1088	23-MAR-10 10:48	DONE		