

Wednesday, February 03, 2010

Page 1 of 3  
REQUEST NUMBER: 10-1569

**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: 10-1569  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 2/3/2010

TURNAROUND/REPORT DUE: 3/5/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ERS MO CONTACT:

Signature:

*Valerie Davis*

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
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EPA:901.1		1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	

Wednesday, February 03, 2010

REQUEST NUMBER: 10-1569

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:906.0						
		1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
HASL-300:AM-241						
		1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
HASL-300:ISOPU						
		1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
TOTAL SAMPLES						
		4	RE15-10-8300	R	2/1/2010	

Wednesday, February 03, 2010

REQUEST NUMBER: 10-1569

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
HASL-300:ISOU						
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	

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Wednesday, February 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1569

**LOS ALAMOS**

REQUEST NUMBER: 10-1569

**NATIONAL LABORATORY**

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/5/2010

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
RE15-10-8304	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8304	1	POLY	H3	Ice	R
RE15-10-8305	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8305	1	POLY	H3	Ice	R
RE15-10-8306	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8306	1	POLY	H3	Ice	R
RE15-10-8307	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8307	1	POLY	H3	Ice	R
RE15-10-8309	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8309	1	POLY	H3	Ice	R
RE15-10-8308	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8308	1	POLY	H3	Ice	R
RE15-10-8301	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8301	1	POLY	H3	Ice	R
RE15-10-8300	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8300	1	POLY	H3	Ice	R
RE15-10-8324	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8324	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: 2506

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

SAMPLE ID: RE15-10-8300

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	OBT3		SED
TIME COLLECTED (HH:MM)		1309		SUB-MEDIA:	TUFF 1		OK
PRS ID:	15-009(b)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610829			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.3		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	SED		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		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: 2506-01-10 dark brown moist sand numerous rocks and few roots  
brown

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-6 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  5 dpm  
Beta/Gamma  $\leq$  1900 dpm

HE NEG

PID Ambient Reading 0.0  
0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) <u>Nickolas Gallegos</u> (Signature) <u>[Signature]</u>	Date/Time 2-1-10 4:14	RECEIVED BY (Printed Name) <u>Sherry Shewood</u> (Signature) <u>[Signature]</u>	Date/Time 2-1-10 1614
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8301

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		1317		SUB-MEDIA:	TUFF1		↓
PRS ID:	15-009(b)		OK	SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610829		↓	FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC		↓	FIELD PREP:	NA		↓
TOP DEPTH:	0		1.0	SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0		2.0	SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R		OK	EXCAVATED: YES/NO/NA	NO		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO			WATER FLOWING: YES/NO/NA	NO		
BOREHOLE DECLINATION:	NA			BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		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: pinkish gray tuff, roots

FR: RE15-10 - 8328

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-6 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2280 dpm

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

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT)

T. McFarlane

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nickolas Gallagos	2-1-10	(Printed Name) Sherry Sherwood	2/1/10
(Signature) [Signature]	4:14	(Signature) [Signature]	1614
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8304

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1110		SUB-MEDIA:	TUFF 1		OK
PRS ID:	15-009(b)		OK	SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610831		↓	FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC		↓	FIELD PREP:	NA		↓
TOP DEPTH:	0		1.0	SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0		2.0	SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R		SED	EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
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+ NO3+pH	500 ML POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: moist grey, black and brown silty sand, some roots, organic matter, rocks

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-9 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  11 dpm  
 Beta/Gamma  $\leq$  2250 dpm

PID Ambient 0.0  
 Reading 0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) Nikola Gallegos	Date/Time 2-1-10 1615	RECEIVED BY (Printed Name) Sherrill Sherwood	Date/Time 2/1/10 1615
RELINQUISHED BY (Signature) [Signature]	Date/Time	RECEIVED BY (Signature) [Signature]	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8305

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010	MEDIA:	QBT3	RS 02-01-10	Atth	SED
TIME COLLECTED (HH:MM)		1056	SUB-MEDIA:	TUFF 1		NA	OK
PRS ID:	15-009(b)	OK	SAMPLE TECH CODE:	HA		OK	
LOCATION ID:	15-610831	↓	FIELD QC TYPE:	NA		↓	
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA		↓	
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV		↓	
BOTTOM DEPTH:	0	1.0	SCREEN/PORT DESC:	NA			
FIELD MATRIX:	R	SED	EXCAVATED: YES/NO/NA	NA			
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	NA			
BOREHOLE: YES/NO/NA	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: black + brown organic rich clayey silt, with roots and bark, pine needles, moist,

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-9 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 22 dpm  
Beta/Gamma ≤ 9130 dpmHE Neg  
PID  $\frac{\text{Ambient Reading}}{0.0}$  ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TL McFarland

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nicholas Gallegos	2-1-10	(Printed Name) Sherri Sherwood	2/1/10
(Signature) [Signature]	4/14	(Signature) [Signature]	1614
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8306

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	OBT3		SED
TIME COLLECTED (HH:MM)		1130		SUB-MEDIA:	TUFF 1		OK
PRS ID:	15-009(b)		OK	SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610832		↓	FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC		↓	FIELD PREP:	NA		↓
TOP DEPTH:	0		0.0	SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0		1.0	SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R		SED	EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				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+NO3+pH	500 ML POLY	Ice	Y	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: brown silty clay, organic matter, roots, wood, rocks  
moist

FD: RE15-10-8324

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-8 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 11 dpm  
Beta/Gamma ≤ 2050 dpmHE NEG  
PID  $\frac{\text{Ambient Reading}}{0.0}$  0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarlane

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nicholas Gallegos	2-1-10	(Printed Name) Sherri Sherwood	2/1/10
(Signature)	4:14	(Signature)	1614
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8307

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		1141		SUB-MEDIA:	TUFF 1		NA
PRS ID:	15-009(b)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610832			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	1.5		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO	NA			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	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 moist clay silt, some wood, gray tuff fragments, roots

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-8 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  11 dpm  
 Beta/Gamma  $\leq$  1824 dpm

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

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) Nicholas Gallegos (Signature)	Date/Time 2-1-10 4:14	RECEIVED BY (Printed Name) Sherry Newman (Signature)	Date/Time 2/1/10 1614
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8308

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1200		SUB-MEDIA:	TUFF 1		OK
PRS ID:	15-009(b)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610833	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	0.5		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	SED		EXCAVATED: YES (NO) NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES (NO) NA
BOREHOLE: YES (NO) NA		BOREHOLE DECLINATION:	NA	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	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: greyish brown rocky sand

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-7 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 11 dpm  
Beta/Gamma ≤ 1845 dpm

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

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nicholas Gallegos	2-1-10	(Printed Name) Sherrif Newwood	2/1/10
(Signature) [Signature]	4:15	(Signature) [Signature]	1615
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8309

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	OBT3		OK
TIME COLLECTED (HH:MM)		1253		SUB-MEDIA:	TUFF 1		↓
PRS ID:	15-009(b)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	15-610833	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	OK		EXCAVATED: YES/NO/NA	NO/NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO/NA			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	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: Light brown tuff, few roots

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-7 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 27 dpm  
Beta/Gamma = 2650 dpm

PID Ambient Reading 0.0 ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) T L McFarlane

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nickolas Gallegos	2-1-10	(Printed Name) Sherrif Newwood	2/1/10
(Signature) [Signature]	4:15	(Signature) [Signature]	1615
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8324

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	QBT3		SED
TIME COLLECTED (HH:MM)		1130		SUB-MEDIA:	TUFF 1		OK
PRS ID:	15-009(b)	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	UNK	15-610832		FIELD QC TYPE:	ED		
LOCATION TYPE:	GENERIC	OK		FIELD PREP:	NA		
TOP DEPTH:	Q	0.0		SAMPLE USAGE:	QC		✓
BOTTOM DEPTH:	Q	1.0		SCREEN/PORT DESC:		NA	
FIELD MATRIX:	R	SED		EXCAVATED: YES / <input checked="" type="radio"/> NO / NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES / <input checked="" type="radio"/> NO / NA		BOREHOLE DECLINATION:	NA	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8502-01-10 8082+8270+NME D-EXP	500 ML AMBER GLASS	Ice	Y	
1		8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		H3	500 ML POLY	Ice	Y	
1		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: QC Sample of RE15-10-8306

brown silty clay, organic matter, roots, wood, rocks  
mast

SAMPLE COMMENTS:

NA

LOCATION DESC: 9b-8 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  11 dpm  
Beta/Gamma  $\leq$  2050 dpm

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

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT)

TLMcFarlane

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nicholas Gallegos	2-1-10	(Printed Name) Sherrif Sherwood	2/1/10
(Signature) <i>[Signature]</i>	4:15	(Signature) <i>[Signature]</i>	16:5
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8328

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	02/01/2010	MEDIA:	NA
TIME COLLECTED (HH:MM)	1330	SUB-MEDIA:	OTHER
PRS ID: 15-009(b)	OK	SAMPLE TECH CODE:	DC
LOCATION ID: UNK	15-610829	FIELD QC TYPE:	FR
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	NA
COMPOSITE TYPE: NA	COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA	NO
BOREHOLE: YES/NO/NA	BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	METALS+U-GEL	1 LITER POLY	Nitric Acid	Y	
1		NO3NO2	250 ML POLY	Sulfuric Acid (Hydrogen Sulfate)	NO	
1		SW-846:6850	250 ML POLY	Ice	Y	
1	✓	TCN	500 ML POLY	Sodium Hydroxide	Y	

SAMPLE DESC: QC Sample of RE15-10-8301

## SAMPLE COMMENTS:

RS 02-01-10-05 Rinsate

LOCATION DESC: 9b-6 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) <u>Nickolas Gallegos</u> (Signature) <u>[Signature]</u>	Date/Time <u>2-1-10</u> <u>04:15</u>	RECEIVED BY (Printed Name) <u>Sherris Newwood</u> (Signature) <u>[Signature]</u>	Date/Time <u>2/1/10</u> <u>1615</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2506

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

SAMPLE ID: RE15-10-8332

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		02/01/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		1050		SUB-MEDIA:	OTHER		
PRS ID:	15-009(b)	RS 02-01-10 15-610831		SAMPLE TECH CODE:	DC		
LOCATION ID:	UNK	15-610831		FIELD QC TYPE:	FTB		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	QC		
BOTTOM DEPTH:	0			SCREEN/PORT DESC:			NA
FIELD MATRIX:	S			EXCAVATED: YES/NO NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO NA			
BOREHOLE: YES/NO NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

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

SAMPLE DESC: QC Sample of RE15-10-8305

## SAMPLE COMMENTS:

FTB

## LOCATION DESC:

NA

## FIELD SCREENING/MEASUREMENT RESULTS:

NA

## COLLECTED BY (PRINT)

R Saunders

## REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Nicholas Gallegos	2-1-10	(Printed Name) Kevin Sherwood	2/1/10
(Signature) [Signature]	4:15	(Signature) [Signature]	1615
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

## Rad Screening Data Release Form

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

RE 15-10-7332  
7333  
7334  
7335  
7336  
7337  
7338  
7339  
7342  
8304  
8305  
8306  
8307

RE 15-10-8308  
8309  
8300  
8301  
8324  
7981  
7982  
7983  
7984  
7985

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

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

RE 15-10-7344 ] rinsate  
RE 15-10-8328

RE 15-10-8332 FTB


Reason:

.....  
Print Last Name McFarland

Signature

Tracy R.

Date 2/01/10

DATA VALIDATION COVER SHEET	
<div style="display: flex; justify-content: space-between;"> <div>5119-1</div> <div style="text-align: center;">Data Validation Cover Sheet</div> </div>	<div style="text-align: center;">Records Use only</div> 

Section I.							
REQUEST NUMBER: <u>10-1569</u>		VALIDATION DATE: <u>03/24/10</u>		LAB CODE: <u>GEL</u>			
CONTRACT LABORATORY NAME: <u>GEL Laboratories LLC</u>							
VALIDATOR: <u>David Schwent</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"/> LCMSMS PERCHLORATES				
<input type="checkbox"/> TPH-DRO	<input type="checkbox"/> METALS	<input type="checkbox"/> PCB CONGENERS	<input type="checkbox"/> ORGANOCHLORINE PESTICIDES/POLYCHLORINATED BIPHENYLS				
<input type="checkbox"/> GENERAL CHEMISTRY	<input checked="" type="checkbox"/> RADIOCHEMISTRY	<input type="checkbox"/> LCMSMS HIGH EXPLOSIVES					
<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. All reported sample results that were rejected by the laboratory due to interference or low abundance were qualified R,R5a. In the QC samples, several results were also rejected by the laboratory. No sample data were qualified as a result.
2. The %R of alpha spec isotopic tracer U-232 for sample RE15-10-8304 was < the laboratory LAL. All associated sample results were detects and, thus, were qualified J+,R3b.
3. It should be noted that no MS analysis was performed for the tritium analysis. However, an LCS analysis was performed and was within acceptance limits. No sample data were qualified as a result.

Reviewed by: Susan Ball


Level: I

Date: 3/25/10

DATA VALIDATION COVER SHEET	
5119-1	Records Use only
Data Validation Cover Sheet	
VALIDATOR'S SIGNATURE: <u>David Schwartz</u> DATE: <u>03/24/10</u>	
Form 5119-1, Revision 0.0	LOS ALAMOS Environmental Restoration Project


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

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The holding time was >1 and ≤2 times the applicable holding time requirement.	UJ, R9	J-, R9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The holding time was >2 times the applicable holding time requirement.	R, R9a	J-, R9a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. The results for the affected analytes are considered not detected (U) because the associated sample concentration was less than or equal to the MDC.	U, R5	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.	R, R5a	R, R5a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The MDC and/or TPU documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R5b	J-, R5b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. The results for the affected analytes should be regarded as not detected (U) because the associated sample concentration was less than 3X the 1 sigma TPU.	U, R11	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. The sample result is ≤5X the concentration of the related analyte in the method blank.	U, R4	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5X.	N/A	J, R4a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. The sample result is ≤5X the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.	U, R4d	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R4e	R, R4e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

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

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



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

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6	R, R6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6a	J-, R6a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input 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 3, 2010

Client Sample ID: RE15-10-8304  
 Sample ID: 246341001  
 Matrix: R  
 Collect Date: 01-FEB-10  
 Receive Date: 05-FEB-10  
 Collector: Client  
 Moisture: 20.3%

Project: LANL01004  
 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0101	0.0189	+/-0.00351	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00131	0.0214	+/-0.00131	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.0131	0.0161	+/-0.00418	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		89.1	J+,R3b	0.196	+/-7.01	0.100	pCi/g	JXD2	02/22/10	1241	950645	3
Uranium-235/236		5.24		0.125	+/-0.467	0.100	pCi/g					
Uranium-238		92.3		0.134	+/-7.26	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.788		1.09	+/-0.361	0.200	pCi/g	MXR1	02/18/10	1256	950786	5
Bismuth-211	UI	4.17	R,R5a	0.539	+/-0.415		pCi/g					
Bismuth-214		1.19		0.173	+/-0.126	0.200	pCi/g					
Cadmium-109	U	2.40		4.42	+/-2.06		pCi/g					
Cerium-139	UI	0.144	R,R5a	0.116	+/-0.0389	0.050	pCi/g					
Cesium-134	UI	0.143	R,R5a	0.140	+/-0.0468	0.100	pCi/g					
Cesium-137		0.301		0.0979	+/-0.054	0.100	pCi/g					
Cobalt-60	U	0.0232		0.0959	+/-0.0285	0.100	pCi/g					
Europium-152	U	-0.105		0.256	+/-0.0986	0.200	pCi/g					
Lanthanum-140	U	0.0413		0.254	+/-0.0773		pCi/g					
Lead-212	UI	1.91	R,R5a	0.336	+/-0.141	0.100	pCi/g					
Lead-214		1.45		0.196	+/-0.149	0.100	pCi/g					
Mercury-203	U	0.0727		0.128	+/-0.0368	0.100	pCi/g					
Potassium-40		33.6		0.897	+/-2.00	1.00	pCi/g					
Radium-223	U	-0.452		1.84	+/-0.564		pCi/g					
Radium-224	UI	6.66	R,R5a	1.80	+/-1.18		pCi/g					
Radium-226		1.19		0.173	+/-0.126		pCi/g					
Radium-228		1.83		0.285	+/-0.229	0.500	pCi/g					
Ruthenium-106	U	0.00758		0.794	+/-0.247	0.800	pCi/g					
Sodium-22	U	-0.0273		0.0916	+/-0.0301	0.080	pCi/g					
Strontium-85	UI	0.146	R,R5a	0.120	+/-0.0377		pCi/g					

DJS  
03/24/10

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8304  
246341001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
GAMMA SPEC "Dry Weight Corrected"												
Thallium-208		0.579		0.0917	+/-0.0677	0.080	pCi/g					
Thorium-227	UI	3.42	R,R5a	1.28	+/-0.753		pCi/g					
Thorium-231	U	-0.452		1.84	+/-0.564		pCi/g					
Thorium-234		114		7.49	+/-12.0	2.00	pCi/g					
Tin-113	U	0.0229		0.129	+/-0.0386	0.100	pCi/g					
Uranium-235		6.36		0.750	+/-0.728	0.500	pCi/g					
Yttrium-88	U	0.00933		0.0735	+/-0.0216	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>												
H3 "As Received"												
Tritium	U	53.4		173	+/-52.0	250	pCi/L		KXK2	02/19/10	0855 953095	6

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	45.1 *	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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**Certificate of Analysis**

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8305  
 Sample ID: 246341002  
 Matrix: R  
 Collect Date: 01-FEB-10  
 Receive Date: 05-FEB-10  
 Collector: Client  
 Moisture: 38.4%

Project: LANL01004  
 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0377	0.018	+/-0.00689	0.050	pCi/g		JXD2	02/20/10	1337	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00671	0.0219	+/-0.00302	0.050	pCi/g		JXD2	02/20/10	1431	950644	3
Plutonium-239/240		0.134	0.0165	+/-0.0151	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		303	2.17	+/-31.3	0.100	pCi/g		JXD2	03/01/10	1029	956088	4
Uranium-235/236		20.3	1.42	+/-2.63	0.100	pCi/g						
Uranium-238		311	1.50	+/-32.1	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	UI	4.75	R,R5a	0.894	+/-0.765	0.200	pCi/g	MXR1	02/18/10	1257	950786	7
Bismuth-211	UI	3.96	R,R5a	0.615	+/-0.426		pCi/g					
Bismuth-214		1.38		0.184	+/-0.133	0.200	pCi/g					
Cadmium-109	U	-30.2		6.01	+/-3.22		pCi/g					
Cerium-139	UI	0.287	R,R5a	0.155	+/-0.0523	0.050	pCi/g					
Cesium-134	U	0.104		0.141	+/-0.0424	0.100	pCi/g					
Cesium-137		2.54		0.108	+/-0.152	0.100	pCi/g					
Cobalt-60	U	-0.0249		0.0702	+/-0.0226	0.100	pCi/g					
Europium-152	U	0.00343		0.296	+/-0.103	0.200	pCi/g					
Lanthanum-140	U	-0.185		0.185	+/-0.0648		pCi/g					
Lead-212		1.71		0.186	+/-0.140	0.100	pCi/g					
Lead-214		1.38		0.214	+/-0.153	0.100	pCi/g					
Mercury-203	U	0.0603		0.140	+/-0.0434	0.100	pCi/g					
Potassium-40		26.6		0.709	+/-1.46	1.00	pCi/g					
Radium-223	U	-0.748		2.03	+/-0.624		pCi/g					
Radium-224	UI	5.09	R,R5a	2.12	+/-1.17		pCi/g					
Radium-226		1.38		0.184	+/-0.133		pCi/g					
Radium-228		1.80		0.281	+/-0.209	0.500	pCi/g					
Ruthenium-106	U	0.00999		0.872	+/-0.266	0.800	pCi/g					
Sodium-22	U	-0.022		0.082	+/-0.0258	0.080	pCi/g					
Strontium-85	UI	0.183	R,R5a	0.113	+/-0.0377		pCi/g					
Thallium-208		0.516		0.104	+/-0.0555	0.080	pCi/g					

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8305  
246341002

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	UI	3.76	R,R5a	1.52	+/-0.619		pCi/g					
Thorium-231	U	-0.748		2.03	+/-0.624		pCi/g					
Thorium-234		476		7.14	+/-41.7	2.00	pCi/g					
Tin-113	U	-0.0658		0.136	+/-0.0426	0.100	pCi/g					
Uranium-235		28.1		1.03	+/-2.55	0.500	pCi/g					
Yttrium-88	UI	0.0852	R,R5a	0.0838	+/-0.0235	0.100	pCi/g					

### **Rad Liquid Scintillation Analysis**

*H3 "As Received"*

Tritium	U	51.6		174	+/-52.0	250	pCi/L	KXK2	02/19/10	1033	953095	8
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### **The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	80.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	57.5	(50%-105%)

### **Notes:**

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

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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8306  
Sample ID: 246341003  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 21.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00392	0.0228	+/-0.00238	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00349	0.019	+/-0.00202	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240		0.0268	0.0143	+/-0.00597	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		8.26	0.0974	+/-0.614	0.100	pCi/g		JXD2	02/20/10	1057	950645	3
Uranium-235/236		0.525	0.0621	+/-0.0624	0.100	pCi/g						
Uranium-238		10.1	0.0665	+/-0.744	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0428	0.452	+/-0.143	0.200	pCi/g		MXR1	02/18/10	1309	950786	4
Bismuth-211	UI	3.78	R,R5a	0.326	+/-0.256	pCi/g						
Bismuth-214		1.06		0.108	+/-0.0852	0.200	pCi/g					
Cadmium-109	UI	2.90	R,R5a	1.85	+/-0.704	pCi/g						
Cerium-139	U	-0.0241		0.0528	+/-0.0165	0.050	pCi/g					
Cesium-134	U	0.0363		0.0818	+/-0.0231	0.100	pCi/g					
Cesium-137		0.496		0.0596	+/-0.0403	0.100	pCi/g					
Cobalt-60	U	-0.0205		0.065	+/-0.0208	0.100	pCi/g					
Europium-152	U	-0.0641		0.152	+/-0.0469	0.200	pCi/g					
Lanthanum-140	U	-0.0743		0.123	+/-0.0448	pCi/g						
Lead-212		1.71		0.0953	+/-0.0862	0.100	pCi/g					
Lead-214		1.32		0.113	+/-0.0956	0.100	pCi/g					
Mercury-203	U	0.00913		0.0735	+/-0.0213	0.100	pCi/g					
Potassium-40		25.9		0.597	+/-1.40	1.00	pCi/g					
Radium-223	U	-0.361		1.10	+/-0.335	pCi/g						
Radium-224	UI	5.06	R,R5a	1.09	+/-0.555	pCi/g						
Radium-226		1.06		0.108	+/-0.0852	pCi/g						
Radium-228		1.59		0.235	+/-0.194	0.500	pCi/g					
Ruthenium-106	U	-0.0343		0.523	+/-0.158	0.800	pCi/g					
Sodium-22	U	0.0126		0.0776	+/-0.0226	0.080	pCi/g					
Strontium-85	U	0.0416		0.0651	+/-0.0209	pCi/g						
Thallium-208		0.483		0.0541	+/-0.0425	0.080	pCi/g					

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8306  
246341003

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.188	0.643	+/-0.183		pCi/g					
Thorium-231	U	-0.361	1.10	+/-0.335		pCi/g					
Thorium-234		11.3	3.31	+/-1.92	2.00	pCi/g					
Tin-113	U	-0.00107	0.0761	+/-0.0228	0.100	pCi/g					
Uranium-235	U	0.335	0.360	+/-0.175	0.500	pCi/g					
Yttrium-88	U	0.00731	0.0679	+/-0.0205	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium		376	173	+/-63.5	250	pCi/L		KXK2	02/19/10 1211	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.3	(50%-105%)

### Notes:

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

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

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8307  
Sample ID: 246341004  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 14.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00602	0.0207	+/-0.00282	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00242	0.0198	+/-0.00296	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00725	0.0149	+/-0.00454	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.63	0.0929	+/-0.210	0.100	pCi/g		JXD2	02/20/10	1057	950645	3
Uranium-235/236		0.0774	0.0592	+/-0.0206	0.100	pCi/g						
Uranium-238		2.82	0.0634	+/-0.224	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0524	0.197	+/-0.0664	0.200	pCi/g		MXR1	02/18/10	1310	950786	4
Bismuth-211	UI	4.25	R,R5a	0.286	+/-0.372	pCi/g						
Bismuth-214		1.28		0.114	+/-0.105	pCi/g						
Cadmium-109	UI	3.47	R,R5a	1.01	+/-0.465	pCi/g						
Cerium-139	U	-0.0117		0.0463	+/-0.0138	pCi/g						
Cesium-134	U	0.0912		0.0927	+/-0.0364	pCi/g						
Cesium-137		0.177		0.0619	+/-0.032	pCi/g						
Cobalt-60	U	0.0307		0.0769	+/-0.0221	pCi/g						
Europium-152	U	-0.0121		0.150	+/-0.0529	pCi/g						
Lanthanum-140	U	-0.00375		0.133	+/-0.0402	pCi/g						
Lead-212		1.83		0.0869	+/-0.141	pCi/g						
Lead-214		1.48		0.0996	+/-0.135	pCi/g						
Mercury-203	U	0.0472		0.0634	+/-0.028	pCi/g						
Potassium-40		28.6		0.640	+/-1.51	pCi/g						
Radium-223	U	-0.371		0.954	+/-0.351	pCi/g						
Radium-224	UI	5.32	R,R5a	0.990	+/-0.774	pCi/g						
Radium-226		1.28		0.114	+/-0.105	pCi/g						
Radium-228		1.87		0.193	+/-0.176	pCi/g						
Ruthenium-106	U	0.125		0.490	+/-0.143	pCi/g						
Sodium-22	U	-0.0281		0.0595	+/-0.0211	pCi/g						
Strontium-85	U	0.0555		0.0621	+/-0.0185	pCi/g						
Thallium-208		0.600		0.0596	+/-0.0518	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8307  
Sample ID: 246341004  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.00687	0.579	+/-0.175		pCi/g						
Thorium-231	U	-0.371	0.954	+/-0.351		pCi/g						
Thorium-234		4.20	1.73	+/-0.910	2.00	pCi/g						
Tin-113	U	-0.038	0.0661	+/-0.0206	0.100	pCi/g						
Uranium-235	U	0.272	0.301	+/-0.135	0.500	pCi/g						
Yttrium-88	U	0.000163	0.0519	+/-0.0158	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		732	175	+/-81.9	250	pCi/L		KXX2	02/19/10	1349	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	91.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.5	(50%-105%)

### Notes:

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

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8309  
Sample ID: 246341005  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 10.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.000502	0.0207	+/-0.0013	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00135	0.0221	+/-0.00303	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00135	0.0166	+/-0.00303	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.65	0.0996	+/-0.142	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236	U	0.0585	0.0635	+/-0.0187	0.100	pCi/g						
Uranium-238		1.53	0.068	+/-0.134	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0661	0.221	+/-0.0739	0.200	pCi/g		MXR1	02/18/10	1310	950786	4
Bismuth-211	UI	3.90	R,R5a	0.297	+/-0.292	pCi/g						
Bismuth-214		1.22		0.0922	+/-0.0993	pCi/g						
Cadmium-109	UI	3.20	R,R5a	1.07	+/-0.506	pCi/g						
Cerium-139	U	-0.00371		0.0433	+/-0.0126	pCi/g						
Cesium-134	UI	0.0829	R,R5a	0.0823	+/-0.0294	pCi/g						
Cesium-137	U	0.0338		0.0588	+/-0.0165	pCi/g						
Cobalt-60	U	-0.0246		0.0555	+/-0.0186	pCi/g						
Europium-152	U	-0.0958		0.135	+/-0.0415	pCi/g						
Lanthanum-140	U	-0.054		0.130	+/-0.043	pCi/g						
Lead-212		1.69		0.0854	+/-0.113	pCi/g						
Lead-214		1.36		0.104	+/-0.108	pCi/g						
Mercury-203	U	0.0497		0.0659	+/-0.0207	pCi/g						
Potassium-40		29.4		0.415	+/-1.53	pCi/g						
Radium-223	U	0.569		1.01	+/-0.326	pCi/g						
Radium-224	UI	4.08	R,R5a	0.972	+/-0.536	pCi/g						
Radium-226		1.22		0.0922	+/-0.0993	pCi/g						
Radium-228		1.72		0.197	+/-0.168	pCi/g						
Ruthenium-106	U	-0.0087		0.459	+/-0.139	pCi/g						
Sodium-22	U	-0.0354		0.0639	+/-0.0215	pCi/g						
Strontium-85	U	0.0175		0.0542	+/-0.0174	pCi/g						
Thallium-208		0.556		0.0535	+/-0.0453	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 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8309  
246341005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0185	0.548	+/-0.163		pCi/g						
Thorium-231	U	0.569	1.01	+/-0.326		pCi/g						
Thorium-234		2.19	1.88	+/-0.802	2.00	pCi/g						
Tin-113	U	-0.0102	0.065	+/-0.0191	0.100	pCi/g						
Uranium-235	U	0.256	0.334	+/-0.0947	0.500	pCi/g						
Yttrium-88	U	-0.00294	0.0448	+/-0.014	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		282	173	+/-59.4	250	pCi/L		KXK2	02/19/10	1527	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.5	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8308  
Sample ID: 246341006  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 27.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.000696	0.0198	+/-0.00663	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00117	0.0191	+/-0.00203	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240		0.0152	0.0144	+/-0.00488	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.74	0.0881	+/-0.216	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236		0.207	0.0562	+/-0.0333	0.100	pCi/g						
Uranium-238		5.14	0.0601	+/-0.387	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.000827	0.268	+/-0.0821	0.200	pCi/g		MXR1	02/18/10	1312	950786	4
Bismuth-211	UI	3.64	R,R5a	0.302	+/-0.257	pCi/g						
Bismuth-214		1.24		0.107	+/-0.0917	0.200	pCi/g					
Cadmium-109	UI	4.04	R,R5a	1.23	+/-0.554	pCi/g						
Cerium-139	U	-0.027		0.0474	+/-0.0146	0.050	pCi/g					
Cesium-134	UI	0.129	R,R5a	0.0896	+/-0.0319	0.100	pCi/g					
Cesium-137		0.224		0.0674	+/-0.0319	0.100	pCi/g					
Cobalt-60	U	0.00658		0.0691	+/-0.0206	0.100	pCi/g					
Europium-152	U	-0.0462		0.150	+/-0.047	0.200	pCi/g					
Lanthanum-140	U	-0.0521		0.135	+/-0.0441	pCi/g						
Lead-212		1.60		0.0815	+/-0.0762	0.100	pCi/g					
Lead-214		1.27		0.105	+/-0.0954	0.100	pCi/g					
Mercury-203	U	0.0331		0.0696	+/-0.0216	0.100	pCi/g					
Potassium-40		28.9		0.566	+/-1.33	1.00	pCi/g					
Radium-223	U	0.252		1.00	+/-0.323	pCi/g						
Radium-224	UI	4.31	R,R5a	0.928	+/-0.527	pCi/g						
Radium-226		1.24		0.107	+/-0.0917	pCi/g						
Radium-228		1.48		0.201	+/-0.166	0.500	pCi/g					
Ruthenium-106	U	-0.115		0.537	+/-0.161	0.800	pCi/g					
Sodium-22	U	-0.0303		0.0714	+/-0.023	0.080	pCi/g					
Strontium-85	U	0.0325		0.0593	+/-0.0191	pCi/g						
Thallium-208		0.485		0.0575	+/-0.0454	0.080	pCi/g					

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8308  
246341006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
GAMMA SPEC "Dry Weight Corrected"											
Thorium-227	U	-0.143	0.579	+/-0.193		pCi/g					
Thorium-231	U	0.252	1.00	+/-0.323		pCi/g					
Thorium-234		7.04	2.24	+/-1.30	2.00	pCi/g					
Tin-113	U	-0.0487	0.0666	+/-0.0214	0.100	pCi/g					
Uranium-235		0.425	0.346	+/-0.124	0.500	pCi/g					
Yttrium-88	U	-0.0206	0.0456	+/-0.0159	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
H3 "As Received"											
Tritium	U	53.9	175	+/-52.4	250	pCi/L		KXK2	02/19/10	1705 953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	96.7	(50%-105%)

### Notes:

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

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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8301  
Sample ID: 246341007  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 5.98%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.00312	0.0196	+/-0.00361	0.050	pCi/g		JXD2	02/19/10 1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00227	0.0185	+/-0.00161	0.050	pCi/g		JXD2	02/20/10 1431	950644	2
Plutonium-239/240	U	0.00113	0.0139	+/-0.00253	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		1.66	0.0942	+/-0.142	0.100	pCi/g		JXD2	02/20/10 1058	950645	3
Uranium-235/236		0.0784	0.060	+/-0.0209	0.100	pCi/g					
Uranium-238		1.65	0.0643	+/-0.141	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.0959	0.207	+/-0.0651	0.200	pCi/g		MXR1	02/18/10 1312	950786	4
Bismuth-211	UI	4.63	R,R5a	0.327	+/-0.321	pCi/g					
Bismuth-214		1.50		0.105	+/-0.116	pCi/g					
Cadmium-109	UI	4.36	R,R5a	1.12	+/-0.545	pCi/g					
Cerium-139	U	-0.0189		0.0477	+/-0.015	pCi/g					
Cesium-134	UI	0.124	R,R5a	0.0972	+/-0.028	pCi/g					
Cesium-137	U	0.00061		0.0646	+/-0.0189	pCi/g					
Cobalt-60	U	-0.0153		0.0621	+/-0.0202	pCi/g					
Europium-152	U	-0.0501		0.152	+/-0.0504	pCi/g					
Lanthanum-140	U	-0.0804		0.116	+/-0.0505	pCi/g					
Lead-212		1.98		0.0919	+/-0.120	pCi/g					
Lead-214		1.61		0.114	+/-0.119	pCi/g					
Mercury-203	U	0.0205		0.077	+/-0.0221	pCi/g					
Potassium-40		36.9		0.475	+/-1.87	pCi/g					
Radium-223	U	-0.307		1.09	+/-0.377	pCi/g					
Radium-224	UI	4.88	R,R5a	1.05	+/-0.635	pCi/g					
Radium-226		1.50		0.105	+/-0.116	pCi/g					
Radium-228		2.08		0.200	+/-0.187	pCi/g					
Ruthenium-106	U	0.0205		0.510	+/-0.157	pCi/g					
Sodium-22	U	0.0381		0.0855	+/-0.0248	pCi/g					
Strontium-85	U	0.0453		0.0669	+/-0.0214	pCi/g					
Thallium-208		0.664		0.0529	+/-0.0523	pCi/g					

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## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8301  
Sample ID: 246341007

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.150	0.642	+/-0.184		pCi/g					
Thorium-231	U	-0.307	1.09	+/-0.377		pCi/g					
Thorium-234		3.28	1.76	+/-0.788	2.00	pCi/g					
Tin-113	U	-0.0494	0.067	+/-0.0218	0.100	pCi/g					
Uranium-235	U	-0.0647	0.347	+/-0.108	0.500	pCi/g					
Yttrium-88	U	-0.000155	0.0514	+/-0.0157	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium		677	173	+/-78.5	250	pCi/L		KXX2	02/19/10	1843 953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	94.3	(50%-105%)

### Notes:

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

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

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8300  
Sample ID: 246341008  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 30.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.000643	0.0192	+/-0.00192	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0204	+/-0.00176	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00997	0.0153	+/-0.00398	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.11	0.106	+/-0.106	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236		0.0937	0.0677	+/-0.0231	0.100	pCi/g						
Uranium-238		1.41	0.0725	+/-0.129	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0449	0.0891	+/-0.0247	0.200	pCi/g		MXR1	02/18/10	1324	950786	4
Bismuth-211	UI	4.17	R,R5a	0.329	+/-0.298	pCi/g						
Bismuth-214		1.46		0.123	+/-0.126	pCi/g						
Cadmium-109	UI	3.63	R,R5a	0.759	+/-0.384	pCi/g						
Cerium-139	U	-0.00428		0.0428	+/-0.0122	pCi/g						
Cesium-134	U	0.0538		0.108	+/-0.0307	pCi/g						
Cesium-137	U	-0.0378		0.0843	+/-0.0272	pCi/g						
Cobalt-60	U	-0.0272		0.0697	+/-0.0229	pCi/g						
Europium-152	U	-0.0706		0.159	+/-0.0511	pCi/g						
Lanthanum-140	U	-0.206		0.0757	+/-0.0544	pCi/g						
Lead-212		1.73		0.117	+/-0.107	pCi/g						
Lead-214		1.45		0.114	+/-0.110	pCi/g						
Mercury-203	U	-0.0134		0.0694	+/-0.021	pCi/g						
Potassium-40		35.4		0.781	+/-1.96	pCi/g						
Radium-223	U	0.110		1.13	+/-0.378	pCi/g						
Radium-224	UI	2.68	R,R5a	1.04	+/-0.540	pCi/g						
Radium-226		1.46		0.123	+/-0.126	pCi/g						
Radium-228		2.02		0.286	+/-0.250	pCi/g						
Ruthenium-106	U	-0.214		0.646	+/-0.205	pCi/g						
Sodium-22	U	-0.0626		0.0986	+/-0.0343	pCi/g						
Strontium-85	U	-0.0246		0.0622	+/-0.0224	pCi/g						
Thallium-208		0.608		0.0724	+/-0.0571	pCi/g						

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8300  
246341008

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	-0.0691	0.581	+/-0.173		pCi/g					
Thorium-231	U	0.110	1.13	+/-0.378		pCi/g					
Thorium-234		1.82	0.794	+/-0.380	2.00	pCi/g					
Tin-113	U	-0.00614	0.0768	+/-0.0239	0.100	pCi/g					
Uranium-235	U	0.115	0.298	+/-0.0894	0.500	pCi/g					
Yttrium-88	U	-0.00836	0.0738	+/-0.0239	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	0.00	173	+/-50.9	250	pCi/L		KXX2	02/19/10 2021	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	82.2	(50%-105%)

### Notes:

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

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

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8324  
Sample ID: 246341009  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 20.9%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00842	0.0181	+/-0.00352	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00234	0.0191	+/-0.00286	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240		0.0257	0.0144	+/-0.0061	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		7.64	0.0951	+/-0.567	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236		0.349	0.0607	+/-0.0478	0.100	pCi/g						
Uranium-238		10.0	0.0649	+/-0.737	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.199	0.273	+/-0.0873	0.200	pCi/g		MXR1	02/18/10	1349	950786	4
Bismuth-211	UI	3.84	R,R5a	0.328	+/-0.238	pCi/g						
Bismuth-214		1.04		0.115	+/-0.0934	0.200	pCi/g					
Cadmium-109	UI	4.01	R,R5a	1.44	+/-0.508	pCi/g						
Cerium-139	U	0.00171		0.0567	+/-0.0171	0.050	pCi/g					
Cesium-134	UI	0.109	R,R5a	0.090	+/-0.0299	0.100	pCi/g					
Cesium-137		0.605		0.0642	+/-0.0449	0.100	pCi/g					
Cobalt-60	U	-0.0173		0.0613	+/-0.0196	0.100	pCi/g					
Europium-152	U	0.0859		0.162	+/-0.0585	0.200	pCi/g					
Lanthanum-140	U	-0.0199		0.143	+/-0.0456	pCi/g						
Lead-212		1.73		0.0923	+/-0.0837	0.100	pCi/g					
Lead-214		1.34		0.120	+/-0.0898	0.100	pCi/g					
Mercury-203	U	0.0404		0.0779	+/-0.0219	0.100	pCi/g					
Potassium-40		27.1		0.523	+/-1.30	1.00	pCi/g					
Radium-223	U	-0.0098		1.14	+/-0.336	pCi/g						
Radium-224	UI	4.48	R,R5a	1.05	+/-0.613	pCi/g						
Radium-226		1.04		0.115	+/-0.0934	pCi/g						
Radium-228		1.52		0.231	+/-0.178	0.500	pCi/g					
Ruthenium-106	U	0.164		0.552	+/-0.162	0.800	pCi/g					
Sodium-22	U	-0.0115		0.0744	+/-0.0231	0.080	pCi/g					
Strontium-85	UI	0.0777	R,R5a	0.0672	+/-0.020	pCi/g						
Thallium-208		0.497		0.0617	+/-0.048	0.080	pCi/g					

DJS  
03/24/10

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8324  
246341009

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.292	0.706	+/-0.201		pCi/g						
Thorium-231	U	-0.0098	1.14	+/-0.336		pCi/g						
Thorium-234		9.91	2.15	+/-1.43	2.00	pCi/g						
Tin-113	U	0.0164	0.0765	+/-0.0222	0.100	pCi/g						
Uranium-235		0.519	0.375	+/-0.170	0.500	pCi/g						
Yttrium-88	U	-0.00616	0.0501	+/-0.0162	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		363	174	+/-62.9	250	pCi/L		KXX2	02/19/10	2200	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	95.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	91.6	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

Wednesday, February 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1569

LOS ALAMOS

REQUEST NUMBER: 10-1569

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/5/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

246341%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8304	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8304	1	POLY	H3	Ice	R
RE15-10-8305	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8305	1	POLY	H3	Ice	R
RE15-10-8306	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8306	1	POLY	H3	Ice	R
RE15-10-8307	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8307	1	POLY	H3	Ice	R
RE15-10-8309	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8309	1	POLY	H3	Ice	R
RE15-10-8308	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8308	1	POLY	H3	Ice	R
RE15-10-8301	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8301	1	POLY	H3	Ice	R
RE15-10-8300	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8300	1	POLY	H3	Ice	R
RE15-10-8324	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8324	1	POLY	H3	Ice	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

2/3/10

1400

Printed Name

Signature

Patricia Dover Dent 2/5/10 09:00

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

Page 5 of 901

Wednesday, February 03, 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: 10-1569

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

**SHIP DATE: 2/3/2010**

**TURNAROUND/REPORT DUE: 3/5/2010**

**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	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	

Wednesday, February 03, 2010

Page 2 of 3

REQUEST NUMBER: 10-1569

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:AM-241	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:ISOPU	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:ISOPU	1	RE15-10-8300	R	2/1/2010	

Wednesday, February 03, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOU	1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	

Final Page of REQUEST NUMBER 10-1569



February 11, 2010

[www.gel.com](http://www.gel.com)

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

Re: LANL ER Project  
Work Order: 246341  
SDG: 10-1569

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 05, 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: 10-1569  
Enclosures



**Los Alamos National Laboratory (72733-001-09)**  
**LANL ER Project**  
**Work Order #: 246341**  
**SDG: 10-1569**

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# Case Narrative

**Case Narrative for  
Los Alamos National Laboratory (72733-001-09)  
LANL ER Project  
Workorder #: 246341  
SDG # : 10-1569**

**February 11, 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 05, 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 9-14C 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>
246341001	RE15-10-8304
246341002	RE15-10-8305
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324

**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 11 February 2010**

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

# **Chain of Custody and Supporting Documentation**

Wednesday, February 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1569

LOS ALAMOS

REQUEST NUMBER: 10-1569

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/5/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

246341°/-

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE15-10-8304	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8304	1	POLY	H3	Ice	R
RE15-10-8305	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8305	1	POLY	H3	Ice	R
RE15-10-8306	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8306	1	POLY	H3	Ice	R
RE15-10-8307	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8307	1	POLY	H3	Ice	R
RE15-10-8309	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8309	1	POLY	H3	Ice	R
RE15-10-8308	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8308	1	POLY	H3	Ice	R
RE15-10-8301	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8301	1	POLY	H3	Ice	R
RE15-10-8300	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8300	1	POLY	H3	Ice	R
RE15-10-8324	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE15-10-8324	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 03, 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: 2/3/2010

TURNAROUND/REPORT DUE: 3/5/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature: 

Page 1 of 3

REQUEST NUMBER: 10-1569

These Samples are on:

LANL Request Number: 10-1569

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	



Wednesday, February 03, 2010

Page 2 of 3

REQUEST NUMBER: 10-1569

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-906.0	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:AM-241	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:ISOPU	1	RE15-10-8300	R	2/1/2010	
		1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	
	HASL-300:ISOPU	1	RE15-10-8300	R	2/1/2010	

Wednesday, February 03, 2010

REQUEST NUMBER: 10-1569

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOU	1	RE15-10-8301	R	2/1/2010	
		1	RE15-10-8304	R	2/1/2010	
		1	RE15-10-8305	R	2/1/2010	
		1	RE15-10-8306	R	2/1/2010	
		1	RE15-10-8307	R	2/1/2010	
		1	RE15-10-8308	R	2/1/2010	
		1	RE15-10-8309	R	2/1/2010	
		1	RE15-10-8324	R	2/1/2010	

Final Page of REQUEST NUMBER 10-1569



Laboratories LLC

## SAMPLE RECEIPT &amp; REVIEW FORM

Client: LANL			SDG/ARCO/Work Order: 10-1569		
Received By: Patricia Dover-Dent			Date Received: February 5, 2009		
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*: 80 CPM	
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 (describe) 3-6                      9-14C
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: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			X	Sample ID's affected: time written on containers, not on COC
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: FEDEX#S

7209 7849 9021 3C	7209 7849 8963 4C	7209 7849 8724 6C	7209 7849 8665 12C
7209 7849 9065 3C	7209 7849 8805 4C	7209 7849 9043 6C	7209 7849 8676 13C
7209 7849 9010 3C	7209 7849 8779 4C	7209 7849 8827 6C	7209 7849 9000 14C
7209 7849 8780 4C	7209 7849 8838 5C	7209 7849 9124 6C	
7209 7849 8735 4C	7209 7849 8816 5C	7209 7849 8941 9C	
7209 7849 8713 4C	7209 7849 8790 5C	7209 7849 8952 10C	
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ORIGIN ID: SAFR (505) 555-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 93

SHIP DATE: 04FEB10  
ACTWT: 52.8 LB MAN  
CAD: 0014176/CAFE244

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

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REF: 6B010AMR1A015AGWKO

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ORIGIN ID: SAFR (505) 555-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 93

SHIP DATE: 04FEB10  
ACTWT: 52.8 LB MAN  
CAD: 0014176/CAFE2449

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PRIORITY OVERNIGHT

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ORIGIN ID: SAFR (505) 555-9968  
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TAGS BLDG 1237 DPU 93

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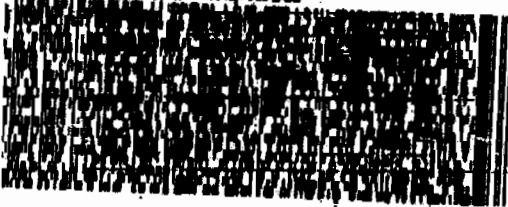
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ALAMOS, NM 87545  
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(843) 556-8171  
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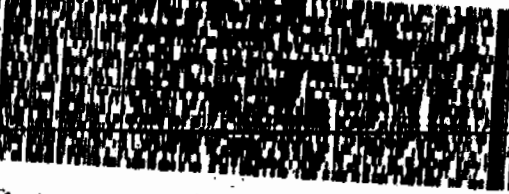
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(843) 556-8171  
REF: 68010AMR3A0528A00

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PRIORITY OVERNIGHT

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SHIP DATE: 04FEB10  
ACTING: 50.0 LB MAN  
CRO: 6814176/CAFE2449

ALAMOS NATL LAB  
BLDG 1237 DPU 83

ALAMOS, NM 87545  
UNITED STATES US

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171  
REF: 68010AMR3A0528A00

SHIP DATE: 04FEB10  
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2 of 2  
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7209 7849 8983 (0201)

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FRI - 05FEB A1  
PRIORITY OVERNIGHT

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CHS

ORIGIN: SAFA (505) 555-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 CPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
ACTWGT: 57.0 LB MAN  
CRD: 0014176/CAFE2449  
BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 555-8171  
REF: 000100NR1A015AGWKO



1 of 2  
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# MASTER #

FRI - 05FEB A1  
PRIORITY OVERNIGHT

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PRIORITY OVERNIGHT

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UNITED STATES US  
VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 555-8171  
REF: 000100NR1A015AGWKO



1 of 2  
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PRIORITY OVERNIGHT

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29407  
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CHS

ORIGIN: SAFA (505) 555-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 CPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 555-8171  
REF: 000100NR1A015AGWKO



2 of 2  
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# MASTER #

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PRIORITY OVERNIGHT

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29407  
SC-US  
CHS



ORIGIN: SAFA (505) 555-8968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 CPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
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(843) 555-8171  
REF: 000100NR1A015AGWKO



TRKH 7209 7849 8838

FRI - 05FEB A1  
PRIORITY OVERNIGHT

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SC-US  
CHS



V ID: SAFA (805) 665-9968  
VE VALDEZ  
LOS ALAMOS NATL LAB  
BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
ACTNGT: 50.0 LB MAN  
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ERAL ENGINEERING LAB  
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IGIN ID: SAFA (805) 665-9968  
LENE VALDEZ  
LOS ALAMOS NATL LAB  
30 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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FRI - 05FEB A1  
PRIORITY OVERNIGHT

29407  
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CHS

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

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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ORIGIN ID: SAFA (805) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
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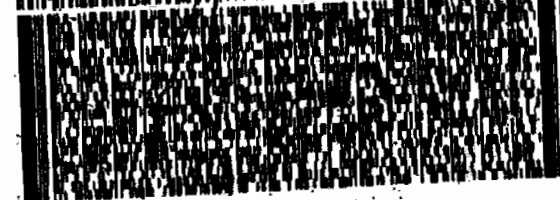
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MPSH 7209 7849 8702

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PRIORITY OVERNIGHT

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ORIGIN ID: SAFA (505) 555-9908  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
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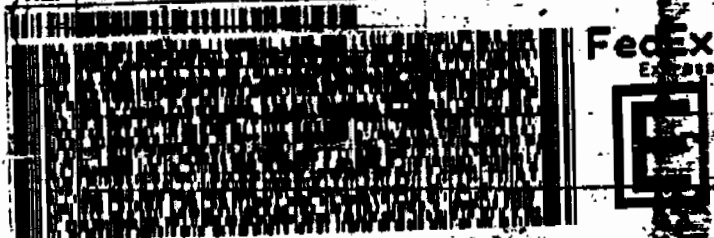
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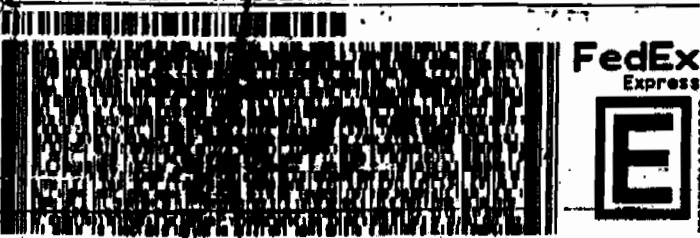
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(843) 555-9171  
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ORIGIN ID: SAFA (505) 555-9908  
JOYLENE VALDEZ  
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LOS ALAMOS, NM 87545  
UNITED STATES US

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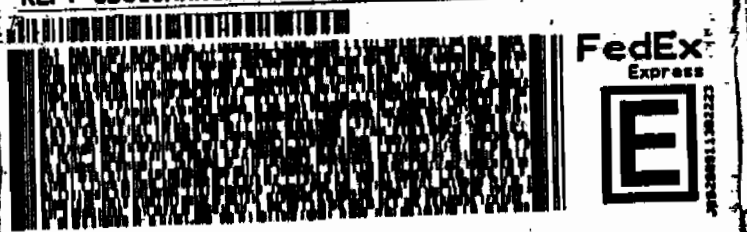
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LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 83  
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UNITED STATES US

ACTWGT: 50.0 LB MAN  
CRD: 0014176/CAFE2449

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JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGO BLDG 1237 DPU 83  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
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ACTWGT: 52.0 LB MAN  
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JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
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LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 04FEB10  
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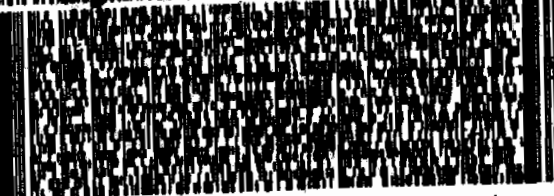
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JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63

CAD: 8014176/CAFE2449

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UNITED STATES US

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TAGS BLDG 1237 DPU 63

LOS ALAMOS, NM 87545  
UNITED STATES US

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JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGS BLDG 1237 DPU 63

CAD: 8014176/CAFE2449

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2040 SAVAGE RD

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FRI - 05FEB A1  
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SHIP DATE: 04FEB10  
ACTING: 30.8 LB MAX  
CAD: 8014176/CAFE2449

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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 10-1569**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 950643  
**Prep Batch Number:** 950428

<b>Sample ID</b>	<b>Client ID</b>
246341001	RE15-10-8304
246341002	RE15-10-8305
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324
1202037247	Method Blank (MB)
1202037248	246341001(RE15-10-8304) Sample Duplicate (DUP)
1202037249	Laboratory Control Sample (LCS)

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

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**

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

**Sample Geometry**

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

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

Aliquot for sample 1202037247 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 246341001 (RE15-10-8304). The QC was from LANL work order 246341.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

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

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

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

Sample 246341002 (RE15-10-8305) was recounted to verify results.

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

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>ISOPU</b>
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	950644
Prep Batch Number:	950428

<b>Sample ID</b>	<b>Client ID</b>
246341001	RE15-10-8304
246341002	RE15-10-8305
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324
1202037250	Method Blank (MB)
1202037251	246341001(RE15-10-8304) Sample Duplicate (DUP)
1202037252	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

Aliquot for sample 1202037250 (MB) was changed to 1.0 per client request.



**Designated QC**

The following sample was used for QC: 246341001 (RE15-10-8304). The QC was from LANL work order 246341.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

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

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

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

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

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

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	ISOU
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	950645
Prep Batch Number:	950428

<b>Sample ID</b>	<b>Client ID</b>
246341001	RE15-10-8304
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324
1202037253	Method Blank (MB)
1202037254	246341001(RE15-10-8304) Sample Duplicate (DUP)
1202037255	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

Aliquot for sample 1202037253 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 246341001 (RE15-10-8304). The QC was from LANL work order 246341.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The U-233/234, U-235/236 and U-238 blank results are greater than 1.65 times the CSU but less than the MDC.

## **Technical Information:**

### **Holding Time**

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

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

Samples 1202037254 (RE15-10-8304) and 246341001 (RE15-10-8304) were 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. Sample 246341001 (RE15-10-8304) 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 U-233/234 and U-238 blank results are greater than the decision level but less than the MDC.

### **Qualifier information**

Manual qualifiers were not required.

## **Method/Analysis Information**

<b>Product:</b>	<b>ISOU</b>
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	956088
Prep Batch Number:	950428

<b>Sample ID</b>	<b>Client ID</b>
246341002	RE15-10-8305
1202050050	Method Blank (MB)
1202050051	246341002(RE15-10-8305) Sample Duplicate (DUP)
1202050052	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

Aliquot for sample 1202050050 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 246341002 (RE15-10-8305). The QC was from LANL work order 246341.

##### **QC Information**

Refer to Data Exception Report (DER).

##### **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 246341002 (RE15-10-8305) was reprepared with a smaller aliquot due to a prohibitively large count rate. Samples were recounted with a shorter count time in the attempt to mitigate activity related tailing.

#### **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. The following DER was generated for this SDG: DER 798339 was generated due to Peak Centroid Values Off. 1. The peak centroid for the blank,

1202050050, is greater than 50 keV from the expected energy. 1. The blank meets the tracer yield requirements and the tracer counts are within the expected region of interest. There is no activity in the blank. Reporting results.

#### **Manual Integration**

Manual integration of alpha spectroscopy spectra 1202050050 (MB) was performed to fully separate counts in Regions of Interest which would have been biased.

#### **Additional Comments**

The MDCs are calculated using a blank population.

#### **Blank Decision Level**

The blank result is less than the decision level.

#### **Qualifier information**

Manual qualifiers were not required.

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

<b>Product:</b>	<b>GAMMA SPEC</b>
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	950786
Prep Batch Number:	950428

<b>Sample ID</b>	<b>Client ID</b>
246341001	RE15-10-8304
246341002	RE15-10-8305
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324
1202037546	Method Blank (MB)
1202037547	246341002(RE15-10-8305) Sample Duplicate (DUP)
1202037548	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in February 2009, March 2009, July 2009, August 2009, November 2009, December 2009, January 2010 and February 2010.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 246341002 (RE15-10-8305). The QC was from LANL work order 246341.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank 1202037546 (MB) result is greater than 1.65 times the CSU but less than the MDC for Cd-109, Cs-137, and U-235.

#### **Technical Information:**

##### **Holding Time**

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

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

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

#### **Miscellaneous Information:**

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

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

##### **Additional Comments**

Additional comments were not required for this sample set.

**Blank Decision Level**

The blank 1202037546 (MB) result is greater than the decision level but less than the MDC for Cd-109, Th-234, and U-235.

**Qualifier information**

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Americium-241	246341002	RE15-10-8305
			246341001	RE15-10-8304
			246341002	RE15-10-8305
			246341003	RE15-10-8306
			246341004	RE15-10-8307
			246341006	RE15-10-8308
			246341007	RE15-10-8301
			246341008	RE15-10-8300
			246341009	RE15-10-8324
		Cadmium-109	1202037547	RE15-10-8305(246341002DUP)
			246341003	RE15-10-8306
			246341004	RE15-10-8307
			246341005	RE15-10-8309
			246341006	RE15-10-8308
			246341007	RE15-10-8301
			246341008	RE15-10-8300
			246341009	RE15-10-8324
		Radium-224	246341001	RE15-10-8304
			246341002	RE15-10-8305
			246341003	RE15-10-8306
			246341004	RE15-10-8307
			246341005	RE15-10-8309
			246341006	RE15-10-8308
			246341007	RE15-10-8301

UI	Data rejected due to low abundance.		246341008	RE15-10-8300
			246341009	RE15-10-8324
			1202037547	RE15-10-8305(246341002DUP)
		Americium-241	1202037547	RE15-10-8305(246341002DUP)
		Bismuth-211	246341005	RE15-10-8309
		Cerium-139	246341001	RE15-10-8304
			246341002	RE15-10-8305
			1202037547	RE15-10-8305(246341002DUP)
		Cesium-134	246341001	RE15-10-8304
			246341005	RE15-10-8309
			246341006	RE15-10-8308
			246341007	RE15-10-8301
			246341009	RE15-10-8324
		Lead-212	246341001	RE15-10-8304
		Strontium-85	246341001	RE15-10-8304
			246341002	RE15-10-8305
			246341009	RE15-10-8324
			1202037546	MB for batch 950786
		Thorium-227	246341001	RE15-10-8304
			246341002	RE15-10-8305
			1202037547	RE15-10-8305(246341002DUP)
		Yttrium-88	246341002	RE15-10-8305

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

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



<b>Sample ID</b>	<b>Client ID</b>
246341001	RE15-10-8304
246341002	RE15-10-8305
246341003	RE15-10-8306
246341004	RE15-10-8307
246341005	RE15-10-8309
246341006	RE15-10-8308
246341007	RE15-10-8301
246341008	RE15-10-8300
246341009	RE15-10-8324
1202042910	Method Blank (MB)
1202042911	246341001(RE15-10-8304) Sample Duplicate (DUP)
1202042912	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in August 2009 and September 2009.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 246341001 (RE15-10-8304). The QC was from LANL work order 246341.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank result is less than 1.65 times the CSU.

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

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

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

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

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

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

**Review Validation:**

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

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

Reviewer/Date: Kath Bellamy 3/4/10

DATA EXCEPTION REPORT			
<b>Mo.Day Yr.</b> 03-MAR-10	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> ALPHA SPECTROMETER	<b>Test / Method:</b> DOE EML HASL-300, U-02-RC Modified	<b>Matrix Type:</b> Solid	<b>Client Code:</b> LANL
<b>Batch ID:</b> 956088	<b>Sample Numbers:</b> See below		
<b>Potentially affected work order(s)(SDG): 246341(10-1569)</b> <b>Application Issues:</b> Peak Centroid Values Off			
<b>Specification and Requirements</b> <b>Exception Description:</b>		<b>DER Disposition:</b>	
1. The peak centroid for the blank, 1202050050, is greater than 50 keV from the expected energy.		1. The blank meets the tracer yield requirements and the tracer counts are within the expected region of interest. There is no activity in the blank. Reporting results.	

**Originator's Name:**  
Joseph Moulden      03-MAR-10

**Data Validator/Group Leader:**  
Kate Gellatly      03-MAR-10

# SAMPLE DATA SUMMARY

## **GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - [www.gel.com](http://www.gel.com)

### **Certificate of Analysis Report for**

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

Client SDG: 10-1569 GEL Work Order: 246341

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

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

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

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

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

Reviewed by



# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8304  
Sample ID: 246341001  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 20.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0101	0.0189	+/-0.00351	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00131	0.0214	+/-0.00131	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.0131	0.0161	+/-0.00418	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		89.1	0.196	+/-7.01	0.100	pCi/g		JXD2	02/22/10	1241	950645	3
Uranium-235/236		5.24	0.125	+/-0.467	0.100	pCi/g						
Uranium-238		92.3	0.134	+/-7.26	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.788	1.09	+/-0.361	0.200	pCi/g		MXR1	02/18/10	1256	950786	5
Bismuth-211	UI	4.17	0.539	+/-0.415		pCi/g						
Bismuth-214		1.19	0.173	+/-0.126	0.200	pCi/g						
Cadmium-109	U	2.40	4.42	+/-2.06		pCi/g						
Cerium-139	UI	0.144	0.116	+/-0.0389	0.050	pCi/g						
Cesium-134	UI	0.143	0.140	+/-0.0468	0.100	pCi/g						
Cesium-137		0.301	0.0979	+/-0.054	0.100	pCi/g						
Cobalt-60	U	0.0232	0.0959	+/-0.0285	0.100	pCi/g						
Europium-152	U	-0.105	0.256	+/-0.0986	0.200	pCi/g						
Lanthanum-140	U	0.0413	0.254	+/-0.0773		pCi/g						
Lead-212	UI	1.91	0.336	+/-0.141	0.100	pCi/g						
Lead-214		1.45	0.196	+/-0.149	0.100	pCi/g						
Mercury-203	U	0.0727	0.128	+/-0.0368	0.100	pCi/g						
Potassium-40		33.6	0.897	+/-2.00	1.00	pCi/g						
Radium-223	U	-0.452	1.84	+/-0.564		pCi/g						
Radium-224	UI	6.66	1.80	+/-1.18		pCi/g						
Radium-226		1.19	0.173	+/-0.126		pCi/g						
Radium-228		1.83	0.285	+/-0.229	0.500	pCi/g						
Ruthenium-106	U	0.00758	0.794	+/-0.247	0.800	pCi/g						
Sodium-22	U	-0.0273	0.0916	+/-0.0301	0.080	pCi/g						
Strontium-85	UI	0.146	0.120	+/-0.0377		pCi/g						

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8304  
Sample ID: 246341001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thallium-208		0.579	0.0917	+/-0.0677	0.080	pCi/g					
Thorium-227	UI	3.42	1.28	+/-0.753		pCi/g					
Thorium-231	U	-0.452	1.84	+/-0.564		pCi/g					
Thorium-234		114	7.49	+/-12.0	2.00	pCi/g					
Tin-113	U	0.0229	0.129	+/-0.0386	0.100	pCi/g					
Uranium-235		6.36	0.750	+/-0.728	0.500	pCi/g					
Yttrium-88	U	0.00933	0.0735	+/-0.0216	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	53.4	173	+/-52.0	250	pCi/L		KXK2	02/19/10	0855 953095	6

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	45.1 *	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

\*\* Analyte is a surrogate compound

< Result is less than value reported

> Result is greater than value reported

A The TIC is a suspected aldol-condensation product

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

BD Results are either below the MDC or tracer recovery is low

C Analyte has been confirmed by GC/MS analysis

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### Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8304  
Sample ID: 246341001

Project: LANL01004  
Client ID: LANL010

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

D Results are reported from a diluted aliquot of the sample  
F Estimated Value  
H Analytical holding time was exceeded  
J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
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 3, 2010

Client Sample ID: RE15-10-8305  
Sample ID: 246341002  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 38.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0377	0.018	+/-0.00689	0.050	pCi/g		JXD2	02/20/10	1337	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00671	0.0219	+/-0.00302	0.050	pCi/g		JXD2	02/20/10	1431	950644	3
Plutonium-239/240		0.134	0.0165	+/-0.0151	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		303	2.17	+/-31.3	0.100	pCi/g		JXD2	03/01/10	1029	956088	4
Uranium-235/236		20.3	1.42	+/-2.63	0.100	pCi/g						
Uranium-238		311	1.50	+/-32.1	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	UI	4.75	0.894	+/-0.765	0.200	pCi/g		MXR1	02/18/10	1257	950786	7
Bismuth-211	UI	3.96	0.615	+/-0.426		pCi/g						
Bismuth-214		1.38	0.184	+/-0.133	0.200	pCi/g						
Cadmium-109	U	-30.2	6.01	+/-3.22		pCi/g						
Cerium-139	UI	0.287	0.155	+/-0.0523	0.050	pCi/g						
Cesium-134	U	0.104	0.141	+/-0.0424	0.100	pCi/g						
Cesium-137		2.54	0.108	+/-0.152	0.100	pCi/g						
Cobalt-60	U	-0.0249	0.0702	+/-0.0226	0.100	pCi/g						
Europium-152	U	0.00343	0.296	+/-0.103	0.200	pCi/g						
Lanthanum-140	U	-0.185	0.185	+/-0.0648		pCi/g						
Lead-212		1.71	0.186	+/-0.140	0.100	pCi/g						
Lead-214		1.38	0.214	+/-0.153	0.100	pCi/g						
Mercury-203	U	0.0603	0.140	+/-0.0434	0.100	pCi/g						
Potassium-40		26.6	0.709	+/-1.46	1.00	pCi/g						
Radium-223	U	-0.748	2.03	+/-0.624		pCi/g						
Radium-224	UI	5.09	2.12	+/-1.17		pCi/g						
Radium-226		1.38	0.184	+/-0.133		pCi/g						
Radium-228		1.80	0.281	+/-0.209	0.500	pCi/g						
Ruthenium-106	U	0.00999	0.872	+/-0.266	0.800	pCi/g						
Sodium-22	U	-0.022	0.082	+/-0.0258	0.080	pCi/g						
Strontium-85	UI	0.183	0.113	+/-0.0377		pCi/g						
Thallium-208		0.516	0.104	+/-0.0555	0.080	pCi/g						

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## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8305  
246341002

Project: LANL01004  
Client ID: LANL010

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

*GAMMA SPEC "Dry Weight Corrected"*

Thorium-227	UI	3.76	1.52	+/-0.619		pCi/g						
Thorium-231	U	-0.748	2.03	+/-0.624		pCi/g						
Thorium-234		476	7.14	+/-41.7	2.00	pCi/g						
Tin-113	U	-0.0658	0.136	+/-0.0426	0.100	pCi/g						
Uranium-235		28.1	1.03	+/-2.55	0.500	pCi/g						
Yttrium-88	UI	0.0852	0.0838	+/-0.0235	0.100	pCi/g						

### Rad Liquid Scintillation Analysis

*H3 "As Received"*

Tritium	U	51.6	174	+/-52.0	250	pCi/L		KXX2	02/19/10	1033	953095	8
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### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	80.6	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	57.5	(50%-105%)

### Notes:

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

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

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8305  
Sample ID: 246341002  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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C Analyte has been confirmed by GC/MS analysis  
D Results are reported from a diluted aliquot of the sample  
F Estimated Value  
H Analytical holding time was exceeded  
J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8306  
Sample ID: 246341003  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 21.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00392	0.0228	+/-0.00238	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00349	0.019	+/-0.00202	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240		0.0268	0.0143	+/-0.00597	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		8.26	0.0974	+/-0.614	0.100	pCi/g		JXD2	02/20/10	1057	950645	3
Uranium-235/236		0.525	0.0621	+/-0.0624	0.100	pCi/g						
Uranium-238		10.1	0.0665	+/-0.744	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0428	0.452	+/-0.143	0.200	pCi/g		MXR1	02/18/10	1309	950786	4
Bismuth-211	UI	3.78	0.326	+/-0.256		pCi/g						
Bismuth-214		1.06	0.108	+/-0.0852	0.200	pCi/g						
Cadmium-109	UI	2.90	1.85	+/-0.704		pCi/g						
Cerium-139	U	-0.0241	0.0528	+/-0.0165	0.050	pCi/g						
Cesium-134	U	0.0363	0.0818	+/-0.0231	0.100	pCi/g						
Cesium-137		0.496	0.0596	+/-0.0403	0.100	pCi/g						
Cobalt-60	U	-0.0205	0.065	+/-0.0208	0.100	pCi/g						
Europium-152	U	-0.0641	0.152	+/-0.0469	0.200	pCi/g						
Lanthanum-140	U	-0.0743	0.123	+/-0.0448		pCi/g						
Lead-212		1.71	0.0953	+/-0.0862	0.100	pCi/g						
Lead-214		1.32	0.113	+/-0.0956	0.100	pCi/g						
Mercury-203	U	0.00913	0.0735	+/-0.0213	0.100	pCi/g						
Potassium-40		25.9	0.597	+/-1.40	1.00	pCi/g						
Radium-223	U	-0.361	1.10	+/-0.335		pCi/g						
Radium-224	UI	5.06	1.09	+/-0.555		pCi/g						
Radium-226		1.06	0.108	+/-0.0852		pCi/g						
Radium-228		1.59	0.235	+/-0.194	0.500	pCi/g						
Ruthenium-106	U	-0.0343	0.523	+/-0.158	0.800	pCi/g						
Sodium-22	U	0.0126	0.0776	+/-0.0226	0.080	pCi/g						
Strontium-85	U	0.0416	0.0651	+/-0.0209		pCi/g						
Thallium-208		0.483	0.0541	+/-0.0425	0.080	pCi/g						

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8306  
Sample ID: 246341003

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.188	0.643	+/-0.183		pCi/g						
Thorium-231	U	-0.361	1.10	+/-0.335		pCi/g						
Thorium-234		11.3	3.31	+/-1.92	2.00	pCi/g						
Tin-113	U	-0.00107	0.0761	+/-0.0228	0.100	pCi/g						
Uranium-235	U	0.335	0.360	+/-0.175	0.500	pCi/g						
Yttrium-88	U	0.00731	0.0679	+/-0.0205	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		376	173	+/-63.5	250	pCi/L		KXK2	02/19/10	1211	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	78.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	87.3	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8306 Project: LANL01004  
Sample ID: 246341003 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy—Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8307  
Sample ID: 246341004  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 14.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00602	0.0207	+/-0.00282	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00242	0.0198	+/-0.00296	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00725	0.0149	+/-0.00454	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.63	0.0929	+/-0.210	0.100	pCi/g		JXD2	02/20/10	1057	950645	3
Uranium-235/236		0.0774	0.0592	+/-0.0206	0.100	pCi/g						
Uranium-238		2.82	0.0634	+/-0.224	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0524	0.197	+/-0.0664	0.200	pCi/g		MXR1	02/18/10	1310	950786	4
Bismuth-211	UI	4.25	0.286	+/-0.372		pCi/g						
Bismuth-214		1.28	0.114	+/-0.105	0.200	pCi/g						
Cadmium-109	UI	3.47	1.01	+/-0.465		pCi/g						
Cerium-139	U	-0.0117	0.0463	+/-0.0138	0.050	pCi/g						
Cesium-134	U	0.0912	0.0927	+/-0.0364	0.100	pCi/g						
Cesium-137		0.177	0.0619	+/-0.032	0.100	pCi/g						
Cobalt-60	U	0.0307	0.0769	+/-0.0221	0.100	pCi/g						
Europium-152	U	-0.0121	0.150	+/-0.0529	0.200	pCi/g						
Lanthanum-140	U	-0.00375	0.133	+/-0.0402		pCi/g						
Lead-212		1.83	0.0869	+/-0.141	0.100	pCi/g						
Lead-214		1.48	0.0996	+/-0.135	0.100	pCi/g						
Mercury-203	U	0.0472	0.0634	+/-0.028	0.100	pCi/g						
Potassium-40		28.6	0.640	+/-1.51	1.00	pCi/g						
Radium-223	U	-0.371	0.954	+/-0.351		pCi/g						
Radium-224	UI	5.32	0.990	+/-0.774		pCi/g						
Radium-226		1.28	0.114	+/-0.105		pCi/g						
Radium-228		1.87	0.193	+/-0.176	0.500	pCi/g						
Ruthenium-106	U	0.125	0.490	+/-0.143	0.800	pCi/g						
Sodium-22	U	-0.0281	0.0595	+/-0.0211	0.080	pCi/g						
Strontium-85	U	0.0555	0.0621	+/-0.0185		pCi/g						
Thallium-208		0.600	0.0596	+/-0.0518	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8307  
Sample ID: 246341004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.00687	0.579	+/-0.175		pCi/g						
Thorium-231	U	-0.371	0.954	+/-0.351		pCi/g						
Thorium-234		4.20	1.73	+/-0.910	2.00	pCi/g						
Tin-113	U	-0.038	0.0661	+/-0.0206	0.100	pCi/g						
Uranium-235	U	0.272	0.301	+/-0.135	0.500	pCi/g						
Yttrium-88	U	0.000163	0.0519	+/-0.0158	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		732	175	+/-81.9	250	pCi/L		KXK2	02/19/10	1349	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	91.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.5	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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



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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8307  
Sample ID: 246341004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8309  
Sample ID: 246341005  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 10.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.000502	0.0207	+/-0.0013	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00135	0.0221	+/-0.00303	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00135	0.0166	+/-0.00303	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.65	0.0996	+/-0.142	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236	U	0.0585	0.0635	+/-0.0187	0.100	pCi/g						
Uranium-238		1.53	0.068	+/-0.134	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.0661	0.221	+/-0.0739	0.200	pCi/g		MXR1	02/18/10	1310	950786	4
Bismuth-211	UI	3.90	0.297	+/-0.292		pCi/g						
Bismuth-214		1.22	0.0922	+/-0.0993	0.200	pCi/g						
Cadmium-109	UI	3.20	1.07	+/-0.506		pCi/g						
Cerium-139	U	-0.00371	0.0433	+/-0.0126	0.050	pCi/g						
Cesium-134	UI	0.0829	0.0823	+/-0.0294	0.100	pCi/g						
Cesium-137	U	0.0338	0.0588	+/-0.0165	0.100	pCi/g						
Cobalt-60	U	-0.0246	0.0555	+/-0.0186	0.100	pCi/g						
Europium-152	U	-0.0958	0.135	+/-0.0415	0.200	pCi/g						
Lanthanum-140	U	-0.054	0.130	+/-0.043		pCi/g						
Lead-212		1.69	0.0854	+/-0.113	0.100	pCi/g						
Lead-214		1.36	0.104	+/-0.108	0.100	pCi/g						
Mercury-203	U	0.0497	0.0659	+/-0.0207	0.100	pCi/g						
Potassium-40		29.4	0.415	+/-1.53	1.00	pCi/g						
Radium-223	U	0.569	1.01	+/-0.326		pCi/g						
Radium-224	UI	4.08	0.972	+/-0.536		pCi/g						
Radium-226		1.22	0.0922	+/-0.0993		pCi/g						
Radium-228		1.72	0.197	+/-0.168	0.500	pCi/g						
Ruthenium-106	U	-0.0087	0.459	+/-0.139	0.800	pCi/g						
Sodium-22	U	-0.0354	0.0639	+/-0.0215	0.080	pCi/g						
Strontium-85	U	0.0175	0.0542	+/-0.0174		pCi/g						
Thallium-208		0.556	0.0535	+/-0.0453	0.080	pCi/g						

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8309  
Sample ID: 246341005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0185	0.548	+/-0.163		pCi/g						
Thorium-231	U	0.569	1.01	+/-0.326		pCi/g						
Thorium-234		2.19	1.88	+/-0.802	2.00	pCi/g						
Tin-113	U	-0.0102	0.065	+/-0.0191	0.100	pCi/g						
Uranium-235	U	0.256	0.334	+/-0.0947	0.500	pCi/g						
Yttrium-88	U	-0.00294	0.0448	+/-0.014	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		282	173	+/-59.4	250	pCi/L		KXK2	02/19/10	1527	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.5	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8309  
Sample ID: 246341005  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8308  
Sample ID: 246341006  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 27.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.000696	0.0198	+/-0.00663	0.050	pCi/g		JXD2	02/19/10	1553 950643	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	-0.00117	0.0191	+/-0.00203	0.050	pCi/g		JXD2	02/20/10	1431 950644	2
Plutonium-239/240		0.0152	0.0144	+/-0.00488	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		2.74	0.0881	+/-0.216	0.100	pCi/g		JXD2	02/20/10	1058 950645	3
Uranium-235/236		0.207	0.0562	+/-0.0333	0.100	pCi/g					
Uranium-238		5.14	0.0601	+/-0.387	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	-0.000827	0.268	+/-0.0821	0.200	pCi/g		MXR1	02/18/10	1312 950786	4
Bismuth-211	UI	3.64	0.302	+/-0.257		pCi/g					
Bismuth-214		1.24	0.107	+/-0.0917	0.200	pCi/g					
Cadmium-109	UI	4.04	1.23	+/-0.554		pCi/g					
Cerium-139	U	-0.027	0.0474	+/-0.0146	0.050	pCi/g					
Cesium-134	UI	0.129	0.0896	+/-0.0319	0.100	pCi/g					
Cesium-137		0.224	0.0674	+/-0.0319	0.100	pCi/g					
Cobalt-60	U	0.00658	0.0691	+/-0.0206	0.100	pCi/g					
Europium-152	U	-0.0462	0.150	+/-0.047	0.200	pCi/g					
Lanthanum-140	U	-0.0521	0.135	+/-0.0441		pCi/g					
Lead-212		1.60	0.0815	+/-0.0762	0.100	pCi/g					
Lead-214		1.27	0.105	+/-0.0954	0.100	pCi/g					
Mercury-203	U	0.0331	0.0696	+/-0.0216	0.100	pCi/g					
Potassium-40		28.9	0.566	+/-1.33	1.00	pCi/g					
Radium-223	U	0.252	1.00	+/-0.323		pCi/g					
Radium-224	UI	4.31	0.928	+/-0.527		pCi/g					
Radium-226		1.24	0.107	+/-0.0917		pCi/g					
Radium-228		1.48	0.201	+/-0.166	0.500	pCi/g					
Ruthenium-106	U	-0.115	0.537	+/-0.161	0.800	pCi/g					
Sodium-22	U	-0.0303	0.0714	+/-0.023	0.080	pCi/g					
Strontium-85	U	0.0325	0.0593	+/-0.0191		pCi/g					
Thallium-208		0.485	0.0575	+/-0.0454	0.080	pCi/g					

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8308  
Sample ID: 246341006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.143	0.579	+/-0.193		pCi/g						
Thorium-231	U	0.252	1.00	+/-0.323		pCi/g						
Thorium-234		7.04	2.24	+/-1.30	2.00	pCi/g						
Tin-113	U	-0.0487	0.0666	+/-0.0214	0.100	pCi/g						
Uranium-235		0.425	0.346	+/-0.124	0.500	pCi/g						
Yttrium-88	U	-0.0206	0.0456	+/-0.0159	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium	U	53.9	175	+/-52.4	250	pCi/L		KXK2	02/19/10	1705	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.4	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	96.7	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
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- A The TIC is a suspected aldol-condensation product
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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded

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Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID:  
Sample ID:

RE15-10-8308  
246341006

Project: LANL01004  
Client ID: LANL010

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

J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8301  
Sample ID: 246341007  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 5.98%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00312	0.0196	+/-0.00361	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00227	0.0185	+/-0.00161	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240	U	0.00113	0.0139	+/-0.00253	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.66	0.0942	+/-0.142	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236		0.0784	0.060	+/-0.0209	0.100	pCi/g						
Uranium-238		1.65	0.0643	+/-0.141	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0959	0.207	+/-0.0651	0.200	pCi/g		MXR1	02/18/10	1312	950786	4
Bismuth-211	UI	4.63	0.327	+/-0.321		pCi/g						
Bismuth-214		1.50	0.105	+/-0.116	0.200	pCi/g						
Cadmium-109	UI	4.36	1.12	+/-0.545		pCi/g						
Cerium-139	U	-0.0189	0.0477	+/-0.015	0.050	pCi/g						
Cesium-134	UI	0.124	0.0972	+/-0.028	0.100	pCi/g						
Cesium-137	U	0.00061	0.0646	+/-0.0189	0.100	pCi/g						
Cobalt-60	U	-0.0153	0.0621	+/-0.0202	0.100	pCi/g						
Europium-152	U	-0.0501	0.152	+/-0.0504	0.200	pCi/g						
Lanthanum-140	U	-0.0804	0.116	+/-0.0505		pCi/g						
Lead-212		1.98	0.0919	+/-0.120	0.100	pCi/g						
Lead-214		1.61	0.114	+/-0.119	0.100	pCi/g						
Mercury-203	U	0.0205	0.077	+/-0.0221	0.100	pCi/g						
Potassium-40		36.9	0.475	+/-1.87	1.00	pCi/g						
Radium-223	U	-0.307	1.09	+/-0.377		pCi/g						
Radium-224	UI	4.88	1.05	+/-0.635		pCi/g						
Radium-226		1.50	0.105	+/-0.116		pCi/g						
Radium-228		2.08	0.200	+/-0.187	0.500	pCi/g						
Ruthenium-106	U	0.0205	0.510	+/-0.157	0.800	pCi/g						
Sodium-22	U	0.0381	0.0855	+/-0.0248	0.080	pCi/g						
Strontium-85	U	0.0453	0.0669	+/-0.0214		pCi/g						
Thallium-208		0.664	0.0529	+/-0.0523	0.080	pCi/g						



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Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8301  
Sample ID: 246341007  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.150	0.642	+/-0.184		pCi/g						
Thorium-231	U	-0.307	1.09	+/-0.377		pCi/g						
Thorium-234		3.28	1.76	+/-0.788	2.00	pCi/g						
Tin-113	U	-0.0494	0.067	+/-0.0218	0.100	pCi/g						
Uranium-235	U	-0.0647	0.347	+/-0.108	0.500	pCi/g						
Yttrium-88	U	-0.000155	0.0514	+/-0.0157	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		677	173	+/-78.5	250	pCi/L		KXXK2	02/19/10	1843	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	94.3	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8301  
Sample ID: 246341007  
Project: LANL01004  
Client ID: LANL010

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

J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8300  
Sample ID: 246341008  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 30.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.000643	0.0192	+/-0.00192	0.050	pCi/g		JXD2	02/19/10	1553 950643	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00	0.0204	+/-0.00176	0.050	pCi/g		JXD2	02/20/10	1431 950644	2
Plutonium-239/240	U	0.00997	0.0153	+/-0.00398	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		1.11	0.106	+/-0.106	0.100	pCi/g		JXD2	02/20/10	1058 950645	3
Uranium-235/236		0.0937	0.0677	+/-0.0231	0.100	pCi/g					
Uranium-238		1.41	0.0725	+/-0.129	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.0449	0.0891	+/-0.0247	0.200	pCi/g		MXR1	02/18/10	1324 950786	4
Bismuth-211	UI	4.17	0.329	+/-0.298		pCi/g					
Bismuth-214		1.46	0.123	+/-0.126	0.200	pCi/g					
Cadmium-109	UI	3.63	0.759	+/-0.384		pCi/g					
Cerium-139	U	-0.00428	0.0428	+/-0.0122	0.050	pCi/g					
Cesium-134	U	0.0538	0.108	+/-0.0307	0.100	pCi/g					
Cesium-137	U	-0.0378	0.0843	+/-0.0272	0.100	pCi/g					
Cobalt-60	U	-0.0272	0.0697	+/-0.0229	0.100	pCi/g					
Europium-152	U	-0.0706	0.159	+/-0.0511	0.200	pCi/g					
Lanthanum-140	U	-0.206	0.0757	+/-0.0544		pCi/g					
Lead-212		1.73	0.117	+/-0.107	0.100	pCi/g					
Lead-214		1.45	0.114	+/-0.110	0.100	pCi/g					
Mercury-203	U	-0.0134	0.0694	+/-0.021	0.100	pCi/g					
Potassium-40		35.4	0.781	+/-1.96	1.00	pCi/g					
Radium-223	U	0.110	1.13	+/-0.378		pCi/g					
Radium-224	UI	2.68	1.04	+/-0.540		pCi/g					
Radium-226		1.46	0.123	+/-0.126		pCi/g					
Radium-228		2.02	0.286	+/-0.250	0.500	pCi/g					
Ruthenium-106	U	-0.214	0.646	+/-0.205	0.800	pCi/g					
Sodium-22	U	-0.0626	0.0986	+/-0.0343	0.080	pCi/g					
Strontium-85	U	-0.0246	0.0622	+/-0.0224		pCi/g					
Thallium-208		0.608	0.0724	+/-0.0571	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 3, 2010

Client Sample ID: RE15-10-8300  
Sample ID: 246341008

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	-0.0691	0.581	+/-0.173		pCi/g					
Thorium-231	U	0.110	1.13	+/-0.378		pCi/g					
Thorium-234		1.82	0.794	+/-0.380	2.00	pCi/g					
Tin-113	U	-0.00614	0.0768	+/-0.0239	0.100	pCi/g					
Uranium-235	U	0.115	0.298	+/-0.0894	0.500	pCi/g					
Yttrium-88	U	-0.00836	0.0738	+/-0.0239	0.100	pCi/g					
<b>Rad Liquid Scintillation Analysis</b>											
<i>H3 "As Received"</i>											
Tritium	U	0.00	173	+/-50.9	250	pCi/L	KXK2	02/19/10	2021	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	84.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	82.2	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: March 3, 2010

Client Sample ID: RE15-10-8300  
Sample ID: 246341008

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8324  
Sample ID: 246341009  
Matrix: R  
Collect Date: 01-FEB-10  
Receive Date: 05-FEB-10  
Collector: Client  
Moisture: 20.9%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00842	0.0181	+/-0.00352	0.050	pCi/g		JXD2	02/19/10	1553	950643	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00234	0.0191	+/-0.00286	0.050	pCi/g		JXD2	02/20/10	1431	950644	2
Plutonium-239/240		0.0257	0.0144	+/-0.0061	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		7.64	0.0951	+/-0.567	0.100	pCi/g		JXD2	02/20/10	1058	950645	3
Uranium-235/236		0.349	0.0607	+/-0.0478	0.100	pCi/g						
Uranium-238		10.0	0.0649	+/-0.737	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.199	0.273	+/-0.0873	0.200	pCi/g		MXR1	02/18/10	1349	950786	4
Bismuth-211	UI	3.84	0.328	+/-0.238		pCi/g						
Bismuth-214		1.04	0.115	+/-0.0934	0.200	pCi/g						
Cadmium-109	UI	4.01	1.44	+/-0.508		pCi/g						
Cerium-139	U	0.00171	0.0567	+/-0.0171	0.050	pCi/g						
Cesium-134	UI	0.109	0.090	+/-0.0299	0.100	pCi/g						
Cesium-137		0.605	0.0642	+/-0.0449	0.100	pCi/g						
Cobalt-60	U	-0.0173	0.0613	+/-0.0196	0.100	pCi/g						
Europium-152	U	0.0859	0.162	+/-0.0585	0.200	pCi/g						
Lanthanum-140	U	-0.0199	0.143	+/-0.0456		pCi/g						
Lead-212		1.73	0.0923	+/-0.0837	0.100	pCi/g						
Lead-214		1.34	0.120	+/-0.0898	0.100	pCi/g						
Mercury-203	U	0.0404	0.0779	+/-0.0219	0.100	pCi/g						
Potassium-40		27.1	0.523	+/-1.30	1.00	pCi/g						
Radium-223	U	-0.0098	1.14	+/-0.336		pCi/g						
Radium-224	UI	4.48	1.05	+/-0.613		pCi/g						
Radium-226		1.04	0.115	+/-0.0934		pCi/g						
Radium-228		1.52	0.231	+/-0.178	0.500	pCi/g						
Ruthenium-106	U	0.164	0.552	+/-0.162	0.800	pCi/g						
Sodium-22	U	-0.0115	0.0744	+/-0.0231	0.080	pCi/g						
Strontium-85	UI	0.0777	0.0672	+/-0.020		pCi/g						
Thallium-208		0.497	0.0617	+/-0.048	0.080	pCi/g						

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## Certificate of Analysis

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

Report Date: March 3, 2010

Client Sample ID: RE15-10-8324  
Sample ID: 246341009

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.292	0.706	+/-0.201		pCi/g						
Thorium-231	U	-0.0098	1.14	+/-0.336		pCi/g						
Thorium-234		9.91	2.15	+/-1.43	2.00	pCi/g						
Tin-113	U	0.0164	0.0765	+/-0.0222	0.100	pCi/g						
Uranium-235		0.519	0.375	+/-0.170	0.500	pCi/g						
Yttrium-88	U	-0.00616	0.0501	+/-0.0162	0.100	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>												
<i>H3 "As Received"</i>												
Tritium		363	174	+/-62.9	250	pCi/L		KXK2	02/19/10	2200	953095	5

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	92.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	95.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	91.6	(50%-105%)

### Notes:

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

The Qualifiers in this report are defined as follows :

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

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### 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 3, 2010

Client Sample ID: RE15-10-8324 Project: LANL01004  
Sample ID: 246341009 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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J Value is estimated  
M M if above MDC and less than LLD  
M Matrix Related Failure  
N/A RPD or %Recovery limits do not apply.  
ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.



# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

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## QC Summary

Report Date: March 3, 2010

Page 1 of 7

Client : Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico  
Contact: Ms. Joylene Valdez  
Workorder: 246341

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	950643										
QC1202037248	246341001	DUP									
Americium-241			U	0.0101	U	0.00425	pCi/g	0.501	(0-1)	JXD2	02/19/1015:53
			TPU:	+/-0.00351		+/-0.00228					
			Yield:	92.3		89.9					
QC1202037249	LCS										
Americium-241			33.2			34.1	pCi/g	103	(75%-125%)		
			TPU:			+/-2.16					
			Yield:			92.6					
QC1202037247	MB										
Americium-241				U	-0.00228	pCi/g					
			TPU:			+/-0.00153					
			Yield:			87.4					
Batch	950644										
QC1202037251	246341001	DUP									
Plutonium-238			U	0.00131	U	0.00	pCi/g	0.173	(0-1)	JXD2	02/20/1013:40
			TPU:	+/-0.00131		+/-0.00246					
			Yield:	84.6		73.8					
Plutonium-239/240			U	0.0131		0.0197	pCi/g	0.358	(0-1)		
			TPU:	+/-0.00418		+/-0.00501					
			Yield:	84.6		73.8					
QC1202037252	LCS										
Plutonium-238						7.06	pCi/g		(75%-125%)		02/20/1013:39
			TPU:			+/-0.543					
			Yield:			82.2					
Plutonium-239/240			41.8			40.5	pCi/g	96.9	(75%-125%)		
			TPU:			+/-2.38					
			Yield:			82.2					
QC1202037250	MB										
Plutonium-238				U	-0.00153	pCi/g					02/20/1013:40
			TPU:			+/-0.00342					
			Yield:			77.2					
Plutonium-239/240				U	-0.00459	pCi/g					
			TPU:			+/-0.00306					
			Yield:			77.2					
Batch	950645										
QC1202037254	246341001	DUP									
Uranium-233/234				89.1		83.7	pCi/g	0.205	(0-1)	JXD2	02/22/1012:41
			TPU:	+/-7.01		+/-6.31					
			Yield:	45.1		56.7					
Uranium-235/236				5.24		4.90	pCi/g	0.193	(0-1)		
			TPU:	+/-0.467		+/-0.413					
			Yield:	45.1		56.7					
Uranium-238				92.3		86.1	pCi/g	0.224	(0-1)		
			TPU:	+/-7.26		+/-6.49					

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## QC Summary

Workorder: 246341

Page 2 of 7

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	950645										
		Yield:	45.1	56.7							
QC1202037255	LCS			6.25	pCi/g			(75%-125%)		02/20/1011:06	
Uranium-233/234		TPU:		+/-0.600							
		Yield:		84.3							
Uranium-235/236			U	0.0984	pCi/g			(75%-125%)			
		TPU:		+/-0.0607							
		Yield:		84.3							
Uranium-238	5.75			5.97	pCi/g		104	(75%-125%)			
		TPU:		+/-0.577							
		Yield:		84.3							
QC1202037253	MB										
Uranium-233/234			U	0.0307	pCi/g					02/20/1010:58	
		TPU:		+/-0.00859							
		Yield:		94.6							
Uranium-235/236			U	0.009	pCi/g						
		TPU:		+/-0.00454							
		Yield:		94.6							
Uranium-238			U	0.0309	pCi/g						
		TPU:		+/-0.00899							
		Yield:		94.6							
Batch	956088										
QC1202050051	246341002	DUP									
Uranium-233/234			303	319	pCi/g	0.127		(0-1)	JXD2	03/01/1010:29	
		TPU:	+/-31.3	+/-32.7							
		Yield:	57.5	56.4							
Uranium-235/236			20.3	23.0	pCi/g	0.239		(0-1)			
		TPU:	+/-2.63	+/-2.88							
		Yield:	57.5	56.4							
Uranium-238			311	342	pCi/g	0.231		(0-1)			
		TPU:	+/-32.1	+/-35.1							
		Yield:	57.5	56.4							
QC1202050052	LCS										
Uranium-233/234				5.88	pCi/g			(75%-125%)		03/01/1010:29	
		TPU:		+/-0.861							
		Yield:		80.4							
Uranium-235/236			U	0.250	pCi/g			(75%-125%)			
		TPU:		+/-0.160							
		Yield:		80.4							
Uranium-238	5.75			6.65	pCi/g		116	(75%-125%)			
		TPU:		+/-0.943							
		Yield:		80.4							
QC1202050050	MB										
Uranium-233/234			U	0.0059	pCi/g					03/01/1010:29	
		TPU:		+/-0.00845							
		Yield:		94.6							
Uranium-235/236			U	0.00584	pCi/g						
		TPU:		+/-0.00793							
		Yield:		94.6							
Uranium-238			U	0.0204	pCi/g						

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## QC Summary

Workorder: 246341

Page 3 of 7

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	956088										
		TPU:		+/-0.0128							
		Yield:		94.6							
Rad Gamma Spec											
Batch	950786										
QC1202037547 246341002 DUP											
Americium-241	UI	4.75	UI	1.76	pCi/g	1.35		(0-1)	MXR1	02/18/10	13:52
	TPU:	+/-0.765		+/-0.340							
Bismuth-211	UI	3.96	UI	4.39	pCi/g	0.248		(0-1)			
	TPU:	+/-0.426		+/-0.435							
Bismuth-214		1.38		1.34	pCi/g	0.074		(0-1)			
	TPU:	+/-0.133		+/-0.165							
Cadmium-109	U	-30.2	U	-33.1	pCi/g	0.218		(0-1)			
	TPU:	+/-3.22		+/-3.47							
Cerium-139	UI	0.287	UI	0.188	pCi/g	0.444		(0-1)			
	TPU:	+/-0.0523		+/-0.0591							
Cesium-134	U	0.104	U	0.148	pCi/g	0.230		(0-1)			
	TPU:	+/-0.0424		+/-0.0542							
Cesium-137		2.54		2.53	pCi/g	0.0183		(0-1)			
	TPU:	+/-0.152		+/-0.149							
Cobalt-60	U	-0.0249	U	0.011	pCi/g	0.360		(0-1)			
	TPU:	+/-0.0226		+/-0.0273							
Europium-152	U	0.00343	U	-0.0371	pCi/g	0.0954		(0-1)			
	TPU:	+/-0.103		+/-0.110							
Lanthanum-140	U	-0.185	U	0.142	pCi/g	1.13		(0-1)			
	TPU:	+/-0.0648		+/-0.0801							
Lead-212		1.71		1.43	pCi/g	0.534		(0-1)			
	TPU:	+/-0.140		+/-0.126							
Lead-214		1.38		1.53	pCi/g	0.239		(0-1)			
	TPU:	+/-0.153		+/-0.157							
Mercury-203	U	0.0603	U	-0.0115	pCi/g	0.388		(0-1)			
	TPU:	+/-0.0434		+/-0.049							
Potassium-40		26.6		25.9	pCi/g	0.108		(0-1)			
	TPU:	+/-1.46		+/-1.51							
Radium-223	U	-0.748	U	-0.934	pCi/g	0.0687		(0-1)			
	TPU:	+/-0.624		+/-0.731							
Radium-224	UI	5.09	UI	3.30	pCi/g	0.430		(0-1)			
	TPU:	+/-1.17		+/-0.919							
Radium-226		1.38		1.34	pCi/g	0.074		(0-1)			
	TPU:	+/-0.133		+/-0.165							
Radium-228		1.80		1.76	pCi/g	0.0382		(0-1)			
	TPU:	+/-0.209		+/-0.262							
Ruthenium-106	U	0.00999	U	0.309	pCi/g	0.250		(0-1)			
	TPU:	+/-0.266		+/-0.332							
Sodium-22	U	-0.022	U	-0.00153	pCi/g	0.186		(0-1)			
	TPU:	+/-0.0258		+/-0.0291							
Strontium-85	UI	0.183	U	0.0786	pCi/g	0.634		(0-1)			
	TPU:	+/-0.0377		+/-0.0449							
Thallium-208		0.516		0.538	pCi/g	0.0805		(0-1)			
	TPU:	+/-0.0555		+/-0.080							
Thorium-227	UI	3.76	UI	1.72	pCi/g	0.871		(0-1)			

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## QC Summary

Workorder: 246341

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	950786										
Thorium-231	U	TPU:	+/-0.619	+/-0.556	pCi/g	0.0687		(0-1)			
			-0.748	-0.934							
		TPU:	+/-0.624	+/-0.731							
Thorium-234	U		476	559	pCi/g	0.454		(0-1)			
		TPU:	+/-41.7	+/-48.9							
			-0.0658	-0.0882							
Tin-113	U	TPU:	+/-0.0426	+/-0.0532	pCi/g	0.116		(0-1)			
			28.1	31.7							
		TPU:	+/-2.55	+/-2.85							
Uranium-235	U		0.0852	-0.0753	pCi/g	1.42		(0-1)			
		TPU:	+/-0.0235	+/-0.0329							
		QC1202037548 LCS									
Americium-241	15.9			13.0	pCi/g		81.9	(75%-125%)		02/18/10	14:48
Bismuth-211		TPU:		+/-0.714	pCi/g						
				2.08							
		TPU:		+/-0.408							
Bismuth-214				0.942	pCi/g						
		TPU:		+/-0.152							
				31.8							
Cadmium-109		TPU:		+/-1.94	pCi/g						
				-0.004							
		TPU:		+/-0.0218							
Cerium-139	U			0.101	pCi/g						
		TPU:		+/-0.0545							
				5.88							
Cesium-134	5.56			5.88	pCi/g		106	(75%-125%)			
Cesium-137	6.39	TPU:		+/-0.295	pCi/g		96.1	(75%-125%)			
				6.14							
		TPU:		+/-0.325							
Cobalt-60	U			-0.0915	pCi/g						
		TPU:		+/-0.0955							
				-0.0615							
Europium-152	U	TPU:		+/-0.0444	pCi/g						
				1.13							
		TPU:		+/-0.094							
Lead-212				0.724	pCi/g						
		TPU:		+/-0.143							
				-0.0256							
Lead-214	U	TPU:		+/-0.0319	pCi/g						
				0.690							
		TPU:		+/-0.334							
Mercury-203	U			-0.369	pCi/g						
		TPU:		+/-0.627							
				2.92							
Potassium-40		TPU:		+/-0.894	pCi/g						
				0.942							
		TPU:		+/-0.152							
Radium-223				1.11	pCi/g						
		TPU:		+/-0.459							
				0.115							
Radium-224	U	TPU:		+/-0.328	pCi/g						
				-0.0268							
		TPU:		-0.0268							

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	950786										
Strontium-85		TPU:		+/-0.0315							
			U	0.0305	pCi/g						
Thallium-208		TPU:		+/-0.0411							
				0.488	pCi/g						
Thorium-227		TPU:	U	+/-0.0713							
				-0.0931	pCi/g						
Thorium-231		TPU:	U	+/-0.371							
				-0.369	pCi/g						
Thorium-234		TPU:	U	+/-0.627							
				0.0907	pCi/g						
Tin-113		TPU:	U	+/-0.469							
				-0.0862	pCi/g						
Uranium-235		TPU:	U	+/-0.0471							
				0.309	pCi/g						
Yttrium-88		TPU:	U	+/-0.154							
				0.0447	pCi/g						
		TPU:		+/-0.0272							
QC1202037546 MB											
Americium-241			U	0.0413	pCi/g					02/18/10	13:52
		TPU:		+/-0.0373							
Bismuth-211			U	0.0336	pCi/g						
		TPU:		+/-0.0596							
Bismuth-214			U	-0.0506	pCi/g						
		TPU:		+/-0.0219							
Cadmium-109			U	0.304	pCi/g						
		TPU:		+/-0.174							
Cerium-139			U	0.000183	pCi/g						
		TPU:		+/-0.00688							
Cesium-134			U	0.00524	pCi/g						
		TPU:		+/-0.0107							
Cesium-137			U	0.0148	pCi/g						
		TPU:		+/-0.00817							
Cobalt-60			U	-0.00208	pCi/g						
		TPU:		+/-0.00903							
Europium-152			U	0.00631	pCi/g						
		TPU:		+/-0.025							
Lanthanum-140			U	0.0112	pCi/g						
		TPU:		+/-0.0141							
Lead-212			U	0.0209	pCi/g						
		TPU:		+/-0.0189							
Lead-214			U	0.0202	pCi/g						
		TPU:		+/-0.0207							
Mercury-203			U	-0.00146	pCi/g						
		TPU:		+/-0.00907							
Potassium-40			U	0.0193	pCi/g						
		TPU:		+/-0.135							
Radium-223			U	0.126	pCi/g						
		TPU:		+/-0.176							
Radium-224			U	0.0635	pCi/g						
		TPU:		+/-0.171							
Radium-226			U	-0.0506	pCi/g						

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## QC Summary

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	950786										
		TPU:		+/-0.0219							
Radium-228			U	0.00106	pCi/g						
		TPU:		+/-0.0338							
Ruthenium-106			U	-0.0335	pCi/g						
		TPU:		+/-0.0801							
Sodium-22			U	-0.0124	pCi/g						
		TPU:		+/-0.00836							
Strontium-85			UI	0.0434	pCi/g						
		TPU:		+/-0.012							
Thallium-208			U	-0.00756	pCi/g						
		TPU:		+/-0.0114							
Thorium-227			U	-0.121	pCi/g						
		TPU:		+/-0.0951							
Thorium-231			U	0.126	pCi/g						
		TPU:		+/-0.176							
Thorium-234			U	0.683	pCi/g						
		TPU:		+/-0.595							
Tin-113			U	0.0141	pCi/g						
		TPU:		+/-0.0112							
Uranium-235			U	0.101	pCi/g						
		TPU:		+/-0.0522							
Yttrium-88			U	0.00966	pCi/g						
		TPU:		+/-0.00992							
<b>Rad Liquid Scintillation</b>											
Batch	953095										
QC1202042911	246341001	DUP									
Tritium			U	53.4	U	15.2	pCi/L	0.185	(0-1)	KXK2	02/20/1018:50
		TPU:		+/-52.0		+/-51.0					
QC1202042912	LCS										
Tritium		5550				5090	pCi/L		91.7 (80%-120%)		02/20/1020:27
		TPU:				+/-447					
QC1202042910	MB										
Tritium			U	15.2		15.2	pCi/L				02/20/1017:12
		TPU:		+/-50.9							

### Notes:

The Qualifiers in this report are defined as follows:

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

## GEL LABORATORIES LLC

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### QC Summary

Workorder: 246341

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Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
H	Analytical holding time was exceeded									
J	Value is estimated									
M	M if above MDC and less than LLD									
M	Matrix Related Failure									
N/A	RPD or %Recovery limits do not apply.									
ND	Analyte concentration is not detected above the detection limit									
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	QC Samples were not spiked with this compound									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

\*\* Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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



**RAW DATA**

## Radiochemistry Batch Checklist, Rev10

Batch# 456643 Product: Am Date: 2/22/10

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

J. Pl M-L- 2/22/10

Secondary Review Performed By:

loghew 2/22/10

2/16 2/26

LANL

# Am/Cm Que Sheet

08-FEB-10

Batch #: 950643 Analyst: JXD2 First Client Due Date: 26-FEB-10 Internal Due Date: 16-FEB-10 Comments:  
 Tracer(s): Am241/Cm244 Tracer Code: 445-26-2-53 Expiration Date: 05/4/10 Vol: 0.1  
 LCS Isotope(s): Am241/Cm244 LCS Code(s): Spike Code(s): Expiration Date: Vol(s):  
 Spike Isotope(s): Am241/Cm244 Spike Code(s): Expiration Date: Vol(s):  
 Prep Date: 02/16/10 Initials: JXD Pipet ID: 2826017 Balance ID: 50+10272 Witness: JET 2-16-10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Ally	Aliquot	Am/Cm	Det #
246312001-1	RE16-10-1313	SAMPLE	.05	pCi/g	SOIL	LANL010	29-JAN-10	1	1	1.279		80	
246328001-1	RE15-10-7332	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	2	2	1.269		81	
246328002-1	RE15-10-7333	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	3	3	1.254		82	
246328003-1	RE15-10-7336	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	4	4	1.267		83	
246328004-1	RE15-10-7337	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	5	5	1.265		84	
246328005-1	RE15-10-7334	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	6	6	1.258		85	
246328006-1	RE15-10-7335	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	7	7	1.254		86	
246328007-1	RE15-10-7338	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	8	8	1.257		87	
246328008-1	RE15-10-7339	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	9	9	1.269		88	
246328009-1	RE15-10-7342	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	10	10	1.279		89	
246341001-1	RE15-10-8304	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	11	11	1.266		90	
246341002-1	RE15-10-8305	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	12	12	1.252		231	
246341003-1	RE15-10-8306	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	13	13	1.273		92	
246341004-1	RE15-10-8307	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	14	14	1.272		93	
246341005-1	RE15-10-8309	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	15	15	1.268		94	
246341006-1	RE15-10-8308	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	16	16	1.279		95	
246341007-1	RE15-10-8301	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	17	17	1.257		97	
246341008-1	RE15-10-8300	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	18	18	1.290		99	
246341009-1	RE15-10-8324	SAMPLE	.05	pCi/g	SOIL	LANL010	01-FEB-10	19	19	1.276		100	
1202037247-1	MB for batch 950643	MB	.05	pCi/g	SOIL	QC ACCOUNT		20	20			101	
1202037248-1	RE15-10-8304(246341001DUP)	DUP	.05	pCi/g	SOIL	QC ACCOUNT	01-FEB-10	21	21	1.265		102	
1202037249-1	LCS for batch 950643	LCS	.05	pCi/g	SOIL	QC ACCOUNT		22	22	0.100		103	

\*SRM 0244-B Exp 4/30/20 0.100g

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

Solid Sample Dissolution by: LEACH or DIGESTION

Data Reviewed By: JDL RLC - 2/22/10

# Blank Correction Report

**Batch ID 950643**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202037248	DUP	Americium-241	1.27 g	0.00425	0.00228	0.0193	-0.00179528	pCi/g	NO
1202037249	LCS	Americium-241	0.100 g	34.1	2.16	0.237	-0.0228	pCi/g	NO
1202037247	MB	Americium-241	1.00 g	-0.00228	0.00153	0.0244	-0.00228	pCi/g	NO
246312001	RE16-10-1313	Americium-241	1.28 g	0.00534	0.00254	0.0189	-0.00178125	pCi/g	NO
246328001	RE15-10-7332	Americium-241	1.27 g	0.000491	0.00115	0.0182	-0.00179528	pCi/g	NO
246328002	RE15-10-7333	Americium-241	1.26 g	-0.00181	0.00209	0.0193	-0.00180952	pCi/g	NO
246328003	RE15-10-7336	Americium-241	1.27 g	-0.00548	0.00513	0.0195	-0.00179528	pCi/g	NO
246328004	RE15-10-7337	Americium-241	1.27 g	0.00187	0.00152	0.0195	-0.00179528	pCi/g	NO
246328005	RE15-10-7334	Americium-241	1.26 g	0.00441	0.00294	0.0198	-0.00180952	pCi/g	NO
246328006	RE15-10-7335	Americium-241	1.25 g	0.00223	0.00174	0.0215	-0.001824	pCi/g	NO
246328007	RE15-10-7338	Americium-241	1.26 g	0.0024	0.00591	0.0224	-0.00180952	pCi/g	NO
246328008	RE15-10-7339	Americium-241	1.27 g	-0.0005	0.00631	0.0207	-0.00179528	pCi/g	NO
246328009	RE15-10-7342	Americium-241	1.28 g	-0.00443	0.00265	0.0211	-0.00178125	pCi/g	NO
246341001	RE15-10-8304	Americium-241	1.27 g	0.0101	0.00351	0.0189	-0.00179528	pCi/g	NO
246341002	RE15-10-8305	Americium-241	1.25 g	0.0377	0.00689	0.018	-0.001824	pCi/g	NO
246341003	RE15-10-8306	Americium-241	1.27 g	0.00392	0.00238	0.0228	-0.00179528	pCi/g	NO
246341004	RE15-10-8307	Americium-241	1.27 g	0.00602	0.00282	0.0207	-0.00179528	pCi/g	NO
246341005	RE15-10-8309	Americium-241	1.27 g	-0.000502	0.0013	0.0207	-0.00179528	pCi/g	NO
246341006	RE15-10-8308	Americium-241	1.28 g	0.000696	0.00663	0.0198	-0.00178125	pCi/g	NO
246341007	RE15-10-8301	Americium-241	1.26 g	0.00312	0.00361	0.0196	-0.00180952	pCi/g	NO
246341008	RE15-10-8300	Americium-241	1.29 g	0.000643	0.00192	0.0192	-0.00176744	pCi/g	NO
246341009	RE15-10-8324	Americium-241	1.28 g	0.00842	0.00352	0.0181	-0.00178125	pCi/g	NO

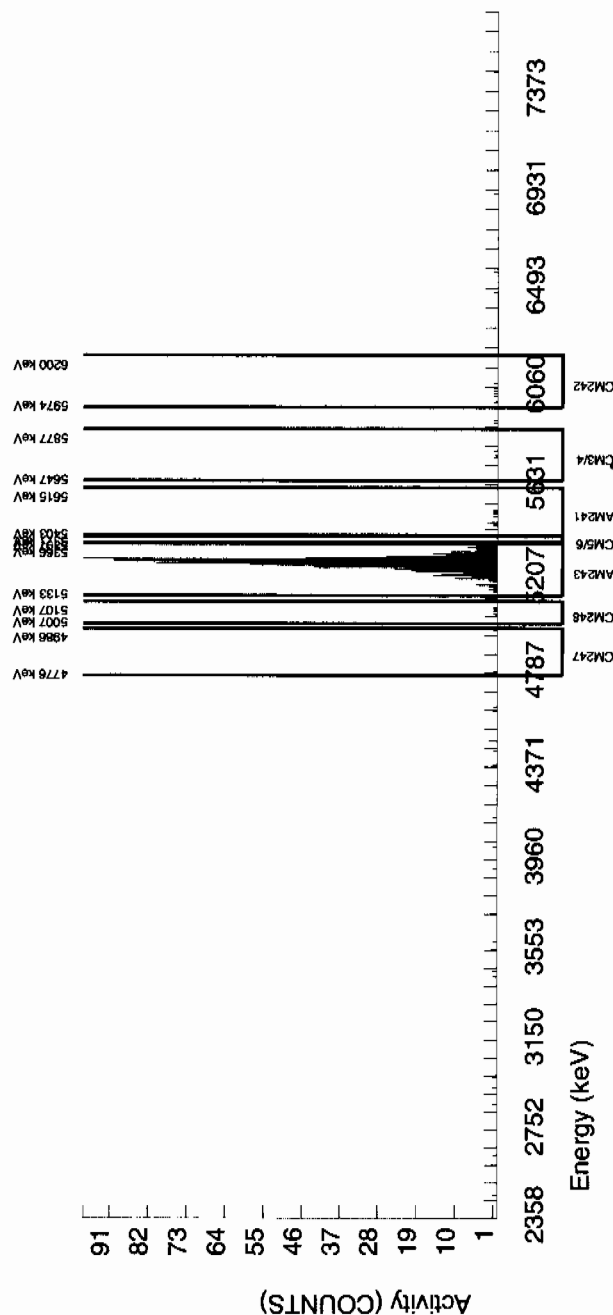
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341001_AM SAMPLE QTY : 1.266 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 92.288				CHAMBER : 090 DETECTOR S/N : 78263 AVERAGE %EFFICIENCY : 32.5428 COUNT DATE : 19-FEB-2010 15:53:24 ELAPSED LIVE TIME(SEC) : 59999.99				LIB FILE : ENV_ALPHA_AM BKG FILE : B090.CNF;725 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W090.CNF;201 CAL DATE : 9-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.6916E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5474.801	4.894	10.000	8.479	0.000	2.8409	99.94000	1.01E-02	3.51E-03	7.83E-03	1.89E-02	3.45E-03
AM243	5270.000	5283.189	30.727	875.000	874.000	1.000	1.0000	99.78000	1.04E+00	7.28E-02	2.76E-03	8.74E-03	3.51E-02
CM-242	6102.000	6043.055	78.303	6.000	5.000	1.000	4.3413	100.00000	6.42E-03	3.42E-03	1.20E-02	2.71E-02	3.40E-03
CM-3/4	5795.020	5768.395	34.258	3.000	2.000	1.000	5.1799	100.00000	2.37E-03	2.38E-03	1.43E-02	3.18E-02	2.37E-03
CM-5/6	5386.000	5384.054	0.000	0.000	0.000	0.000	14.2480	86.09000	0.00E+00	1.38E-03	4.56E-02	9.50E-02	1.38E-03
CM-247	4946.000	4921.088	0.000	3.000	0.000	3.000	13.7917	79.30000	3.56E-10	3.66E-03	4.79E-02	9.99E-02	3.66E-03
CM-248	5078.600	5067.225	0.000	6.000	6.000	0.000	19.5080	91.00000	7.81E-03	3.22E-03	5.91E-02	1.22E-01	3.19E-03

## NOTES:

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

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area  
due to tracer impurity:  
AM-241

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341002_AM SAMPLE QTY : 1.252 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 82.096	CHAMBER : 231 DETECTOR S/N : 79424 AVERAGE %EFFICIENCY : 38.8428 COUNT DATE : 20-FEB-2010 13:37:19 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_AM BKG FILE : B231.CNF:80 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W231.CNF:28 CAL DATE : 29-JAN-2010
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TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.3944E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G
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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	5506.539	46.012	35.000	33.385	0.000	2.8409	99.94000	3.77E-02	6.89E-03	7.46E-03	1.80E-02	6.52E-03
AM243	5270.000	5288.804	36.978	931.000	928.000	3.000	1.7321	99.78000	1.05E+00	7.10E-02	4.56E-03	1.22E-02	3.46E-02
CM-242	6102.000	6030.549	4.934	6.000	6.000	0.000	4.3413	100.00000	7.37E-03	3.04E-03	1.14E-02	2.58E-02	3.01E-03
CM-3/4	5795.020	5777.163	4.934	6.000	5.000	1.000	5.1799	100.00000	5.65E-03	3.01E-03	1.36E-02	3.02E-02	2.99E-03
CM-5/6	5386.000	5377.537	0.000	23.000	23.000	0.000	14.2480	86.09000	3.01E-02	6.53E-03	4.34E-02	9.04E-02	6.29E-03
CM-247	4946.000	4946.641	4.934	1.000	0.000	1.000	13.7917	79.30000	0.00E+00	2.01E-03	4.56E-02	9.52E-02	2.01E-03
CM-248	5078.600	5068.242	4.934	10.000	9.000	1.000	19.5080	91.00000	1.12E-02	4.16E-03	5.63E-02	1.16E-01	4.11E-03

## NOTES:

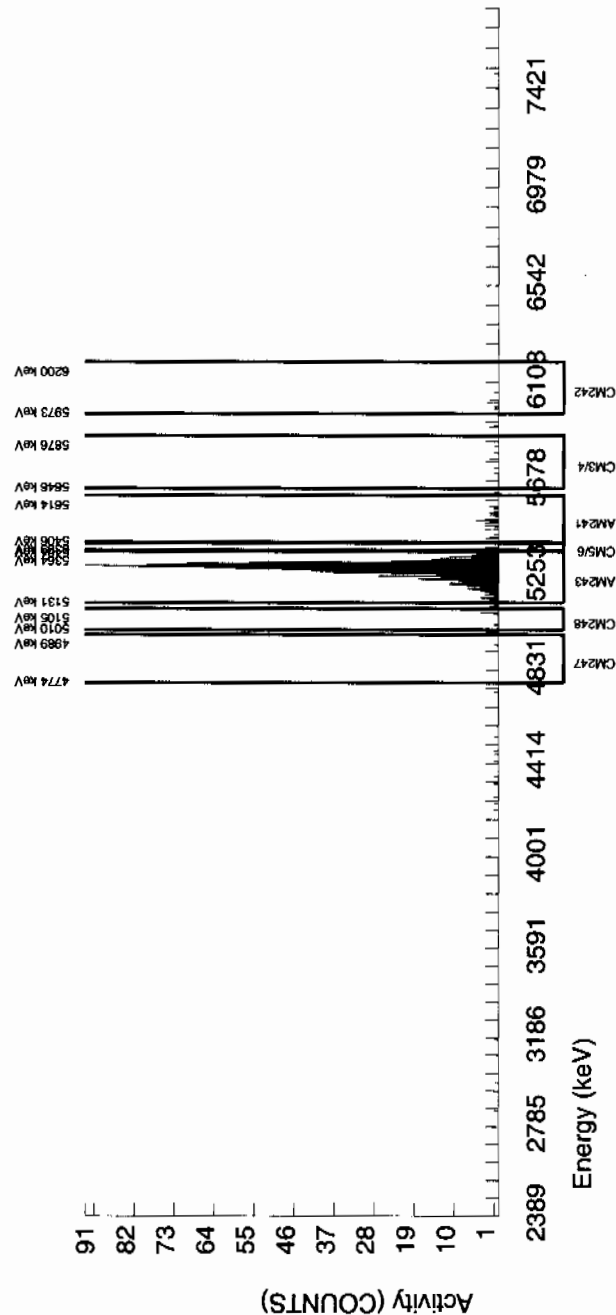
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:

AM-241



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341003_AM SAMPLE QTY : 1.273 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 78.524				CHAMBER : 092 DETECTOR S/N : 79457 AVERAGE %EFFICIENCY : 31.5514 COUNT DATE : 19-FEB-2010 15:53:24 ELAPSED LIVE TIME(SEC) : 59999.99				LIB FILE : ENV_ALPHA_AM BKG FILE : B092.CNF.726 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W092.CNF.235 CAL DATE : 9-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.2902E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5480.072	53.847	4.000	2.745	0.000	2.8409	99.94000	3.92E-03	2.38E-03	9.44E-03	2.28E-02	2.37E-03
AM243	5270.000	5271.908	27.790	723.000	721.000	2.000	1.4142	99.78000	1.03E+00	7.60E-02	4.71E-03	1.33E-02	3.85E-02
CM-242	6102.000	6005.900	48.952	2.000	2.000	0.000	4.3413	100.0000	3.10E-03	2.20E-03	1.44E-02	3.27E-02	2.19E-03
CM-3/4	5795.020	5757.733	4.895	7.000	6.000	1.000	5.1799	100.0000	8.59E-03	4.08E-03	1.72E-02	3.83E-02	4.05E-03
CM-5/6	5386.000	5377.828	4.895	1.000	1.000	0.000	14.2480	86.09000	1.66E-03	1.66E-03	5.50E-02	1.14E-01	1.66E-03
CM-247	4946.000	4892.717	0.000	3.000	1.000	2.000	13.7917	79.30000	1.80E-03	4.03E-03	5.78E-02	1.20E-01	4.03E-03
CM-248	5078.600	5047.632	48.952	4.000	4.000	0.000	19.5080	91.00000	6.28E-03	3.16E-03	7.12E-02	1.47E-01	3.14E-03

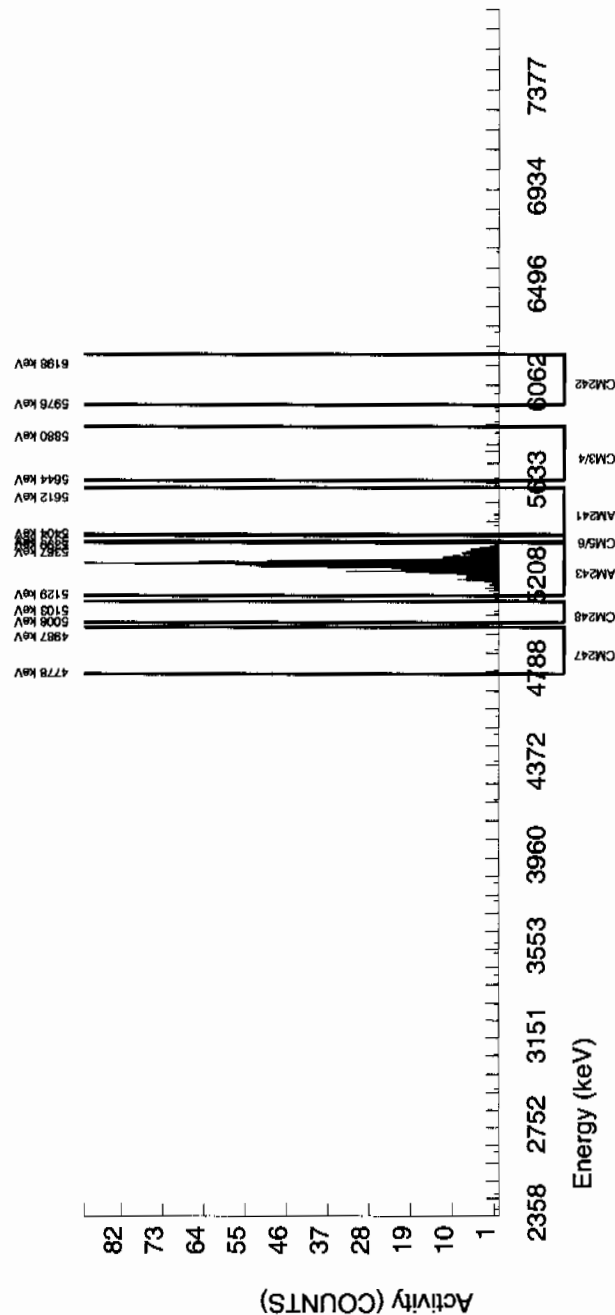
## NOTES:

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

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area  
due to tracer impurity:

AM-241



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341004_AM SAMPLE QTY : 1.272 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 85.647	CHAMBER : 093 DETECTOR S/N : 33206 AVERAGE %EFFICIENCY : 31.7762 COUNT DATE : 19-FEB-2010 15:53:24 ELAPSED LIVE TIME(SEC) : 59999.99	LIB FILE : ENV_ALPHA_AM BKG FILE : B093.CNF:714 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W093.CNF:201 CAL DATE : 9-FEB-2010
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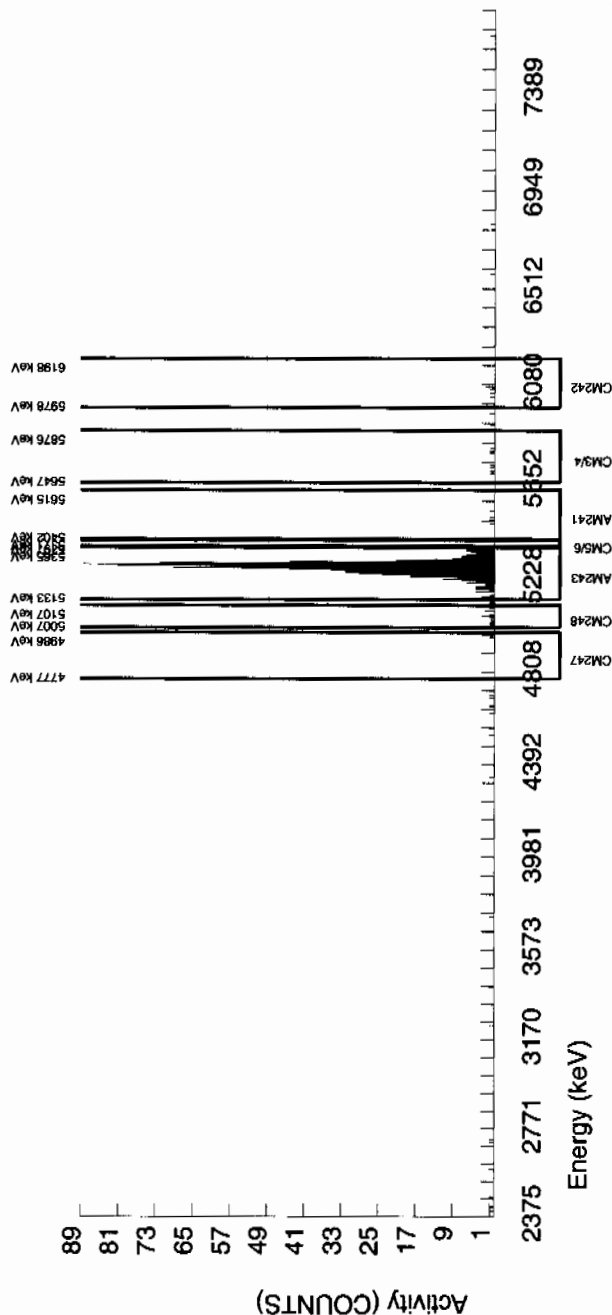
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.4979E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G
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## NUCLIDE ACTIVITY SUMMARY

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	5495.966	7.215	6.000	4.622	0.000	2.8409	99.94000	6.02E-03	2.82E-03	8.60E-03	2.07E-02	2.80E-03
AM243	5270.000	5281.078	29.215	794.000	792.000	2.000	1.4142	99.78000	1.03E+00	7.43E-02	4.29E-03	1.21E-02	3.68E-02
CM-242	6102.000	6053.929	4.913	7.000	7.000	0.000	4.3413	100.0000	9.88E-03	3.78E-03	1.31E-02	2.98E-02	3.73E-03
CM-3/4	5795.020	5746.547	108.078	8.000	7.000	1.000	5.1799	100.0000	9.13E-03	3.95E-03	1.57E-02	3.49E-02	3.91E-03
CM-5/6	5386.000	5377.959	8.341	5.000	5.000	0.000	14.2480	86.09000	7.56E-03	3.41E-03	5.01E-02	1.04E-01	3.38E-03
CM-247	4946.000	4970.247	4.913	1.000	-2.000	3.000	13.7917	79.30000	-3.28E-03	3.28E-03	5.26E-02	1.10E-01	3.28E-03
CM-248	5078.600	5064.719	4.913	8.000	8.000	0.000	19.5080	91.00000	1.14E-02	4.11E-03	6.49E-02	1.34E-01	4.04E-03

## NOTES:

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





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341005_AM SAMPLE QTY : 1.268 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 89.344	CHAMBER : 094 DETECTOR S/N : 78267 AVERAGE %EFFICIENCY : 30.6536 COUNT DATE : 19-FEB-2010 15:53:24 ELAPSED LIVE TIME(SEC) : 59999.99	LIB FILE : ENV_ALPHA_AM BKG FILE : B094.CNF:715 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W094.CNF:193 CAL DATE : 9-FEB-2010
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TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.6058E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G
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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	5539.895	4.943	1.000	-0.387	0.000	2.8409	99.94000	-5.02E-04	1.30E-03	8.58E-03	2.07E-02	1.30E-03
AM243	5270.000	5286.557	31.698	797.000	797.000	0.000	0.0000	99.78000	1.04E+00	7.43E-02	0.00E+00	3.52E-03	3.67E-02
CM-242	6102.000	6039.154	34.604	5.000	5.000	0.000	4.3413	100.0000	7.03E-03	3.18E-03	1.31E-02	2.97E-02	3.14E-03
CM-3/4	5795.020	5726.367	44.490	3.000	3.000	0.000	5.1799	100.0000	3.90E-03	2.26E-03	1.56E-02	3.48E-02	2.25E-03
CM-5/6	5386.000	5373.836	0.000	7.000	7.000	0.000	14.2480	86.09000	1.05E-02	4.04E-03	4.99E-02	1.04E-01	3.99E-03
CM-247	4946.000	4893.433	0.000	7.000	7.000	0.000	13.7917	79.30000	1.15E-02	4.39E-03	5.25E-02	1.09E-01	4.33E-03
CM-248	5078.600	5090.109	9.269	5.000	5.000	0.000	19.5080	91.00000	7.13E-03	3.22E-03	6.47E-02	1.33E-01	3.19E-03

## NOTES:

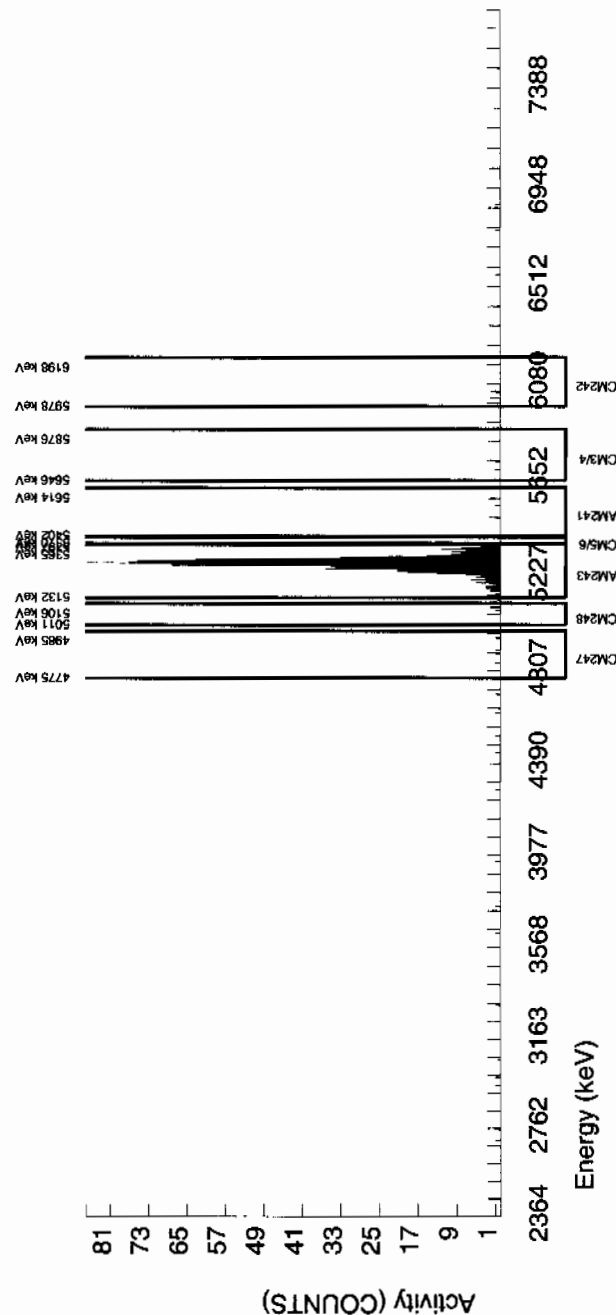
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:

AM-241



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<b>BATCH NUMBER :</b> 950643 <b>SAMPLE ID :</b> S0246341006_AM <b>SAMPLE QTY :</b> 1.279 G <b>SAMPLE DATE :</b> 1-FEB-2010 00:00:00. <b>ANALYST :</b> JXD2 <b>% YIELD :</b> 92.410		<b>CHAMBER :</b> 095 <b>DETECTOR S/N :</b> 64279 <b>AVERAGE %EFFICIENCY :</b> 30.7522 <b>COUNT DATE :</b> 19-FEB-2010 15:53:25 <b>ELAPSED LIVE TIME(SEC) :</b> 60000.00	<b>LIB FILE :</b> ENV_ALPHA_AM <b>BKG FILE :</b> B095.CNF:681 <b>BKG DATE :</b> 14-FEB-2010 <b>BKG LIVE TIME(SEC) :</b> 60000.00 <b>EFF FILE :</b> W095.CNF:209 <b>CAL DATE :</b> 9-FEB-2010
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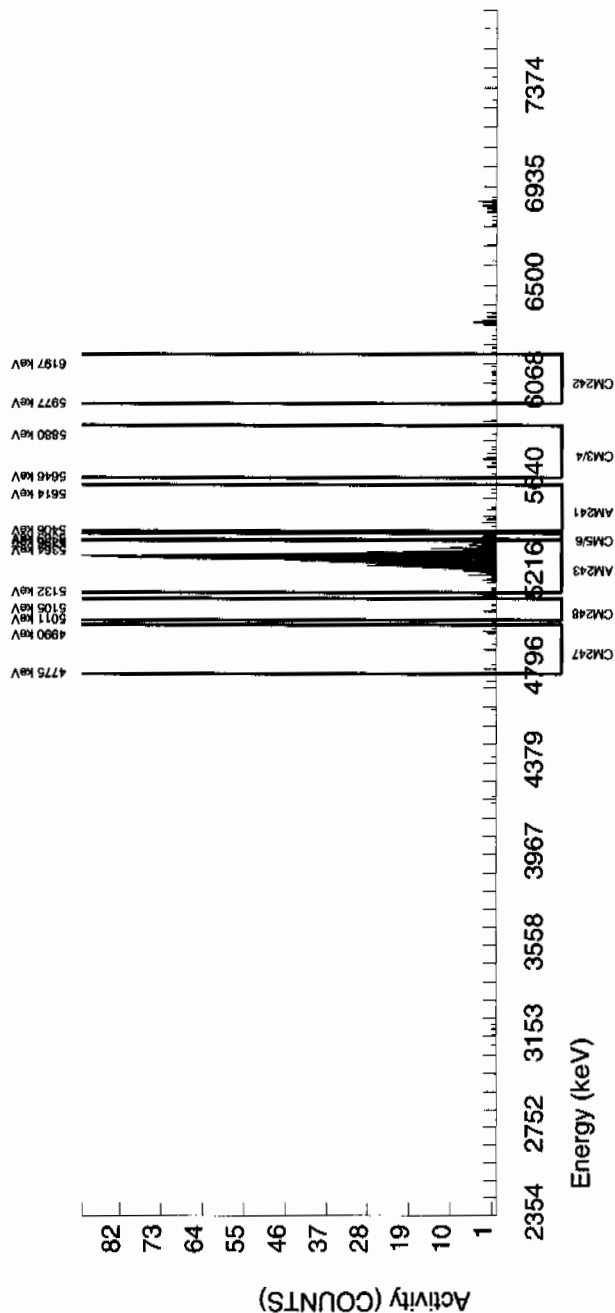
<b>TRACER</b> <b>ID :</b> 445-96-2-SS <b>NUCLIDE :</b> AM243 <b>NOMINAL :</b> 2.9166E+00 dpm <b>RESULTS :</b> 2.6952E+00 dpm	<b>MS/MSD</b> <b>ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3155E+01 pCi/G	<b>LCS/LCSD</b> <b>ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3155E+01 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	5487.695	59.326	16.000	0.561	14.000	2.8409	99.94000	6.96E-04	6.63E-03	8.20E-03	1.98E-02	6.63E-03
AM243	5270.000	5288.350	31.418	831.000	827.000	4.000	2.0000	99.78000	1.03E+00	7.17E-02	5.78E-03	1.49E-02	3.59E-02
CM-242	6102.000	6080.229	158.204	11.000	6.000	5.000	4.3413	100.0000	8.06E-03	5.40E-03	1.25E-02	2.84E-02	5.37E-03
CM-3/4	5795.020	5736.711	56.751	18.000	2.000	16.000	5.1799	100.0000	2.48E-03	7.24E-03	1.49E-02	3.32E-02	7.24E-03
CM-5/6	5386.000	5377.128	0.000	11.000	11.000	0.000	14.2480	86.09000	1.58E-02	4.87E-03	4.77E-02	9.93E-02	4.77E-03
CM-247	4946.000	4902.367	4.844	6.000	1.000	5.000	13.7917	79.30000	1.56E-03	5.18E-03	5.01E-02	1.05E-01	5.18E-03
CM-248	5078.600	5066.009	0.000	6.000	5.000	1.000	19.5080	91.00000	6.81E-03	3.63E-03	6.18E-02	1.27E-01	3.60E-03

## NOTES:

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341007_AM SAMPLE QTY : 1.257 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 84.134	CHAMBER : 097 DETECTOR S/N : 67599 AVERAGE %EFFICIENCY : 34.5530 COUNT DATE : 19-FEB-2010 15:53:25 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_AM BKG FILE : B097.CNF;675 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W097.CNF;193 CAL DATE : 9-FEB-2010
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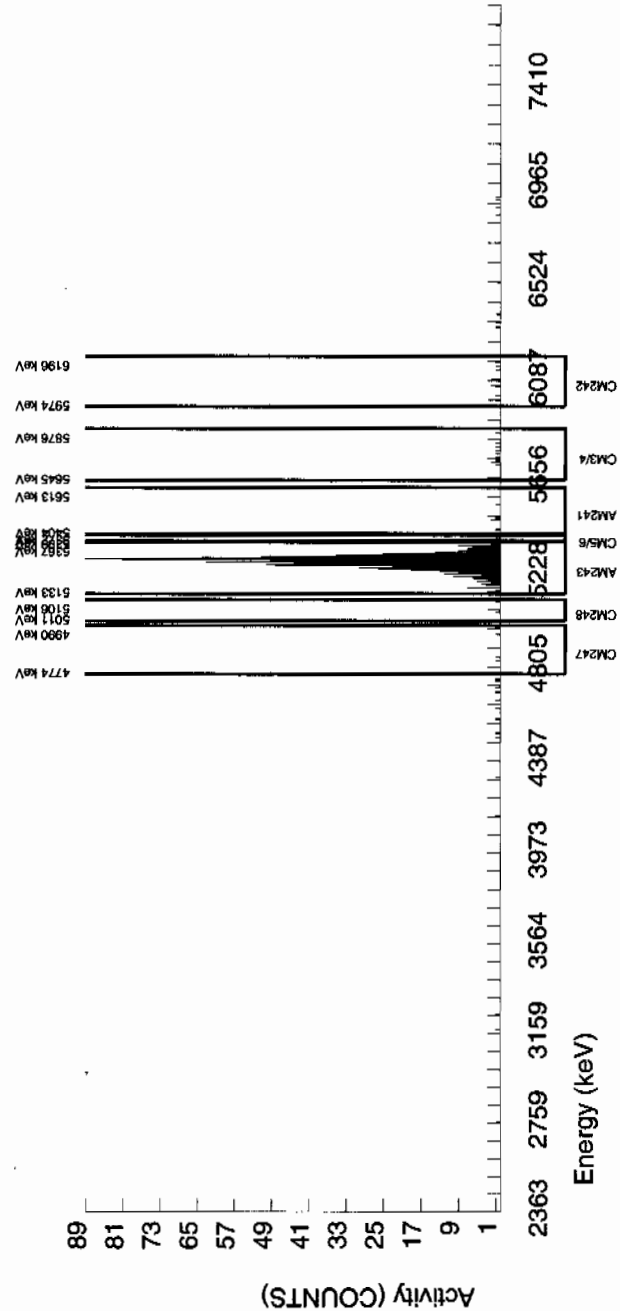
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.4538E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/g	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/g
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NUCLIDE ACTIVITY SUMMARY

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	5472.675	7.225	7.000	2.528	3.000	2.8409	99.94000	3.12E-03	3.61E-03	8.15E-03	1.96E-02	3.60E-03
AM243	5270.000	5281.725	41.767	851.000	846.000	5.000	2.2361	99.78000	1.05E+00	7.26E-02	6.43E-03	1.62E-02	3.61E-02
CM-242	6102.000	6099.762	31.823	11.000	10.000	1.000	4.3413	100.0000	1.34E-02	4.70E-03	1.24E-02	2.82E-02	4.63E-03
CM-3/4	5795.020	5765.830	7.225	12.000	5.000	7.000	5.1799	100.0000	6.18E-03	5.40E-03	1.49E-02	3.30E-02	5.38E-03
CM-5/6	5386.000	5376.438	0.000	6.000	6.000	0.000	14.2480	86.09000	8.59E-03	3.55E-03	4.75E-02	9.88E-02	3.51E-03
CM-247	4946.000	4887.540	167.260	5.000	2.000	3.000	13.7917	79.30000	3.11E-03	4.40E-03	4.99E-02	1.04E-01	4.40E-03
CM-248	5078.600	5074.477	49.194	3.000	3.000	0.000	19.5080	91.00000	4.06E-03	2.36E-03	6.15E-02	1.27E-01	2.35E-03

NOTES:

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



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<b>BATCH NUMBER :</b> 950643 <b>SAMPLE ID :</b> S0246341008_AM <b>SAMPLE QTY :</b> 1.290 G <b>SAMPLE DATE :</b> 1-FEB-2010 00:00:00. <b>ANALYST :</b> JXD2 <b>% YIELD :</b> 85.536		<b>CHAMBER :</b> 099 <b>DETECTOR S/N :</b> 70317 <b>AVERAGE %EFFICIENCY :</b> 33.8661 <b>COUNT DATE :</b> 19-FEB-2010 15:53:25 <b>ELAPSED LIVE TIME(SEC) :</b> 60000.00	<b>LIB FILE :</b> ENV_ALPHA_AM <b>BKG FILE :</b> B099.CNF:678 <b>BKG DATE :</b> 14-FEB-2010 <b>BKG LIVE TIME(SEC) :</b> 60000.00 <b>EFF FILE :</b> W099.CNF:193 <b>CAL DATE :</b> 9-FEB-2010
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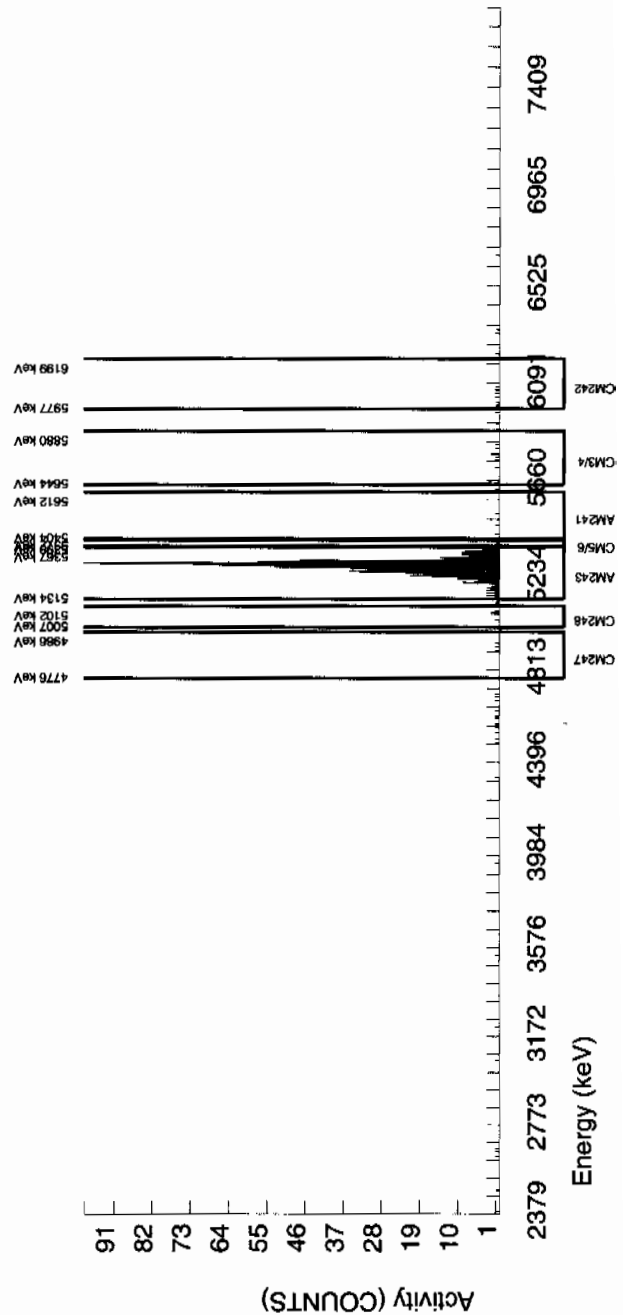
<b>TRACER ID :</b> 445-96-2-SS <b>NUCLIDE :</b> AM243 <b>NOMINAL :</b> 2.9166E+00 dpm <b>RESULTS :</b> 2.4947E+00 dpm	<b>MS/MSD ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3155E+01 pCi/G	<b>LCS/LCSD ID :</b> 0244-B <b>NUCLIDE :</b> AM-241 <b>NOMINAL :</b> 3.3155E+01 pCi/G
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## 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	5473.277	88.237	3.000	0.533	1.000	2.8409	99.94000	6.43E-04	1.92E-03	7.97E-03	1.92E-02	1.92E-03
AM243	5270.000	5285.635	28.071	845.000	843.000	2.000	1.4142	98.78000	1.02E+00	7.07E-02	3.97E-03	1.12E-02	3.52E-02
CM-242	6102.000	6041.132	88.237	7.000	6.000	1.000	4.3413	100.00000	7.84E-03	3.73E-03	1.22E-02	2.76E-02	3.70E-03
CM-3/4	5795.020	5778.665	9.191	9.000	8.000	1.000	5.1799	100.00000	9.66E-03	3.86E-03	1.45E-02	3.23E-02	3.82E-03
CM-5/6	5386.000	5378.682	0.000	9.000	9.000	0.000	14.2480	86.09000	1.26E-02	4.27E-03	4.64E-02	9.66E-02	4.20E-03
CM-247	4946.000	4917.786	38.604	4.000	2.000	2.000	13.7917	79.30000	3.04E-03	3.73E-03	4.88E-02	1.02E-01	3.72E-03
CM-248	5078.600	5051.320	70.927	8.000	8.000	0.000	19.5080	91.00000	1.06E-02	3.80E-03	6.01E-02	1.24E-01	3.75E-03

## NOTES:

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S0246341009_AM SAMPLE QTY : 1.276 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 91.956	CHAMBER : 100 DETECTOR S/N : 79456 AVERAGE %EFFICIENCY : 33.8558 COUNT DATE : 19-FEB-2010 15:53:25 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_AM BKG FILE : B100.CNF:679 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W100.CNF:201 CAL DATE : 9-FEB-2010
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TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.6820E+00 dpm	MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G	LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G
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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	5503.598	8.251	10.000	7.423	1.000	2.8409	99.94000	8.42E-03	3.52E-03	7.50E-03	1.81E-02	3.48E-03
AM-243	5270.000	5277.463	29.358	906.000	906.000	0.000	0.0000	99.78000	1.03E+00	7.01E-02	0.00E+00	3.08E-03	3.42E-02
CM-242	6102.000	6024.296	41.155	10.000	7.000	3.000	4.3413	100.0000	8.61E-03	4.46E-03	1.15E-02	2.60E-02	4.43E-03
CM-3/4	5795.020	5760.907	7.138	9.000	9.000	0.000	5.1799	100.0000	1.02E-02	3.46E-03	1.37E-02	3.04E-02	3.41E-03
CM-5/6	5386.000	5371.642	0.000	3.000	3.000	0.000	14.2480	86.09000	3.95E-03	2.29E-03	4.37E-02	9.09E-02	2.28E-03
CM-247	4946.000	4873.448	38.877	6.000	5.000	1.000	13.7917	79.30000	7.15E-03	3.81E-03	4.59E-02	9.56E-02	3.78E-03
CM-248	5078.600	5086.653	7.138	6.000	6.000	0.000	19.5080	91.00000	7.48E-03	3.08E-03	5.66E-02	1.16E-01	3.05E-03

## NOTES:

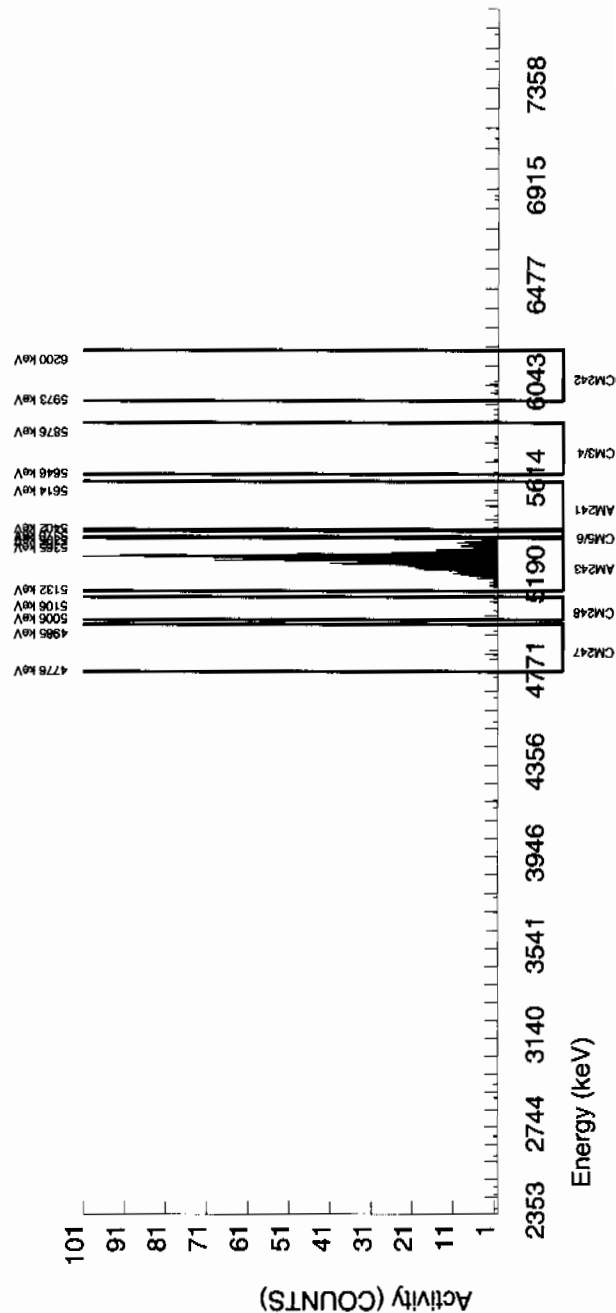
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:

AM-241



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950643 SAMPLE ID : S1202037247_AM SAMPLE QTY : 1.000 G SAMPLE DATE : 16-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 87.353	CHAMBER : 101 DETECTOR S/N : 64253 AVERAGE %EFFICIENCY : 33.7124 COUNT DATE : 19-FEB-2010 15:53:26 ELAPSED LIVE TIME(SEC) : 59999.99	LIB FILE : ENV_ALPHA_AM BKG FILE : B101.CNF;682 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W101.CNF;180 CAL DATE : 9-FEB-2010
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TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.5477E+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	5508.673	0.000	0.000	-1.491	0.000	2.8409	99.94000	-2.28E-03	1.53E-03	1.01E-02	2.44E-02	1.53E-03
AM-243	5270.000	5265.958	65.570	857.000	857.000	0.000	0.0000	99.78000	1.31E+00	9.07E-02	0.00E+00	4.15E-03	4.49E-02
CM-242	6102.000	6072.854	79.003	4.000	4.000	0.000	4.3413	100.0000	6.22E-03	3.13E-03	1.54E-02	3.50E-02	3.11E-03
CM-3/4	5795.020	5760.306	4.938	1.000	0.000	1.000	5.1799	100.0000	0.00E+00	2.17E-03	1.84E-02	4.10E-02	2.16E-03
CM-5/6	5386.000	5379.881	6.121	5.000	5.000	0.000	14.2480	86.09000	8.88E-03	4.01E-03	5.89E-02	1.23E-01	3.97E-03
CM-247	4946.000	4896.948	70.362	19.000	17.000	2.000	13.7917	79.30000	3.28E-02	9.06E-03	6.19E-02	1.29E-01	8.84E-03
CM-248	5078.600	5066.877	48.760	21.000	21.000	0.000	19.5080	91.00000	3.53E-02	7.99E-03	7.63E-02	1.57E-01	7.70E-03

## NOTES:

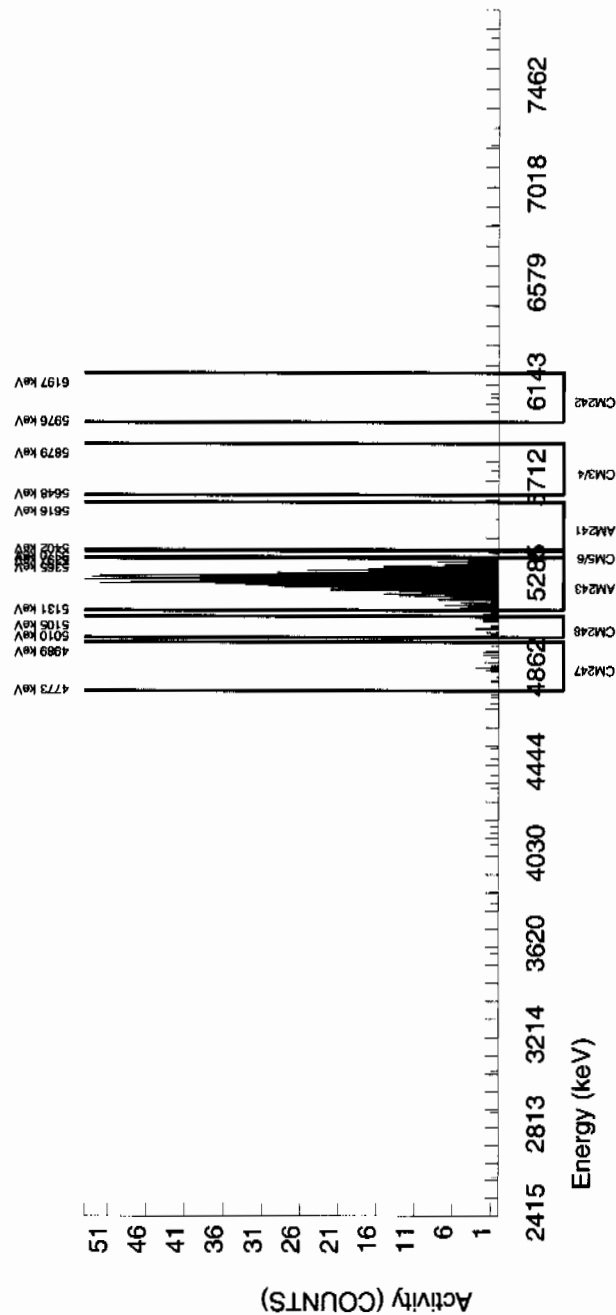
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as sqrt(BKG AREA).

\* Corrections made to the following net area due to tracer impurity:

AM-241



**GEL Laboratories LLC**  
**ALPHA SPECTROSCOPY REPORT**

BATCH NUMBER : 950643 SAMPLE ID : S1202037248_AM SAMPLE QTY : 1.265 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 89.867				CHAMBER : 102 DETECTOR S/N : 72525 AVERAGE %EFFICIENCY : 32.7311 COUNT DATE : 19-FEB-2010 15:53:26 ELAPSED LIVE TIME(SEC) : 59999.99				LIB FILE : ENV_ALPHA_AM BKG FILE : B102.CNF:680 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W102.CNF:194 CAL DATE : 9-FEB-2010					
TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.6210E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3155E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5511.207	7.160	5.000	3.510	0.000	2.8409	99.94000	4.25E-03	2.28E-03	8.01E-03	1.93E-02	2.27E-03
AM243	5270.000	5280.869	34.148	858.000	856.000	2.000	1.4142	99.78000	1.04E+00	7.18E-02	3.99E-03	1.13E-02	3.56E-02
CM-242	6102.000	6036.723	43.872	4.000	3.000	1.000	4.3413	100.0000	3.94E-03	2.94E-03	1.22E-02	2.77E-02	2.93E-03
CM-3/4	5795.020	5770.877	58.495	4.000	4.000	0.000	5.1799	100.0000	4.85E-03	2.44E-03	1.46E-02	3.25E-02	2.43E-03
CM-5/6	5386.000	5375.157	0.000	7.000	7.000	0.000	14.2480	86.09000	9.84E-03	3.77E-03	4.66E-02	9.70E-02	3.72E-03
CM-247	4946.000	4833.440	0.000	4.000	4.000	0.000	13.7917	79.30000	6.11E-03	3.08E-03	4.90E-02	1.02E-01	3.05E-03
CM-248	5078.600	5083.245	0.000	6.000	6.000	0.000	19.5080	91.00000	7.98E-03	3.29E-03	6.04E-02	1.24E-01	3.26E-03

## NOTES:

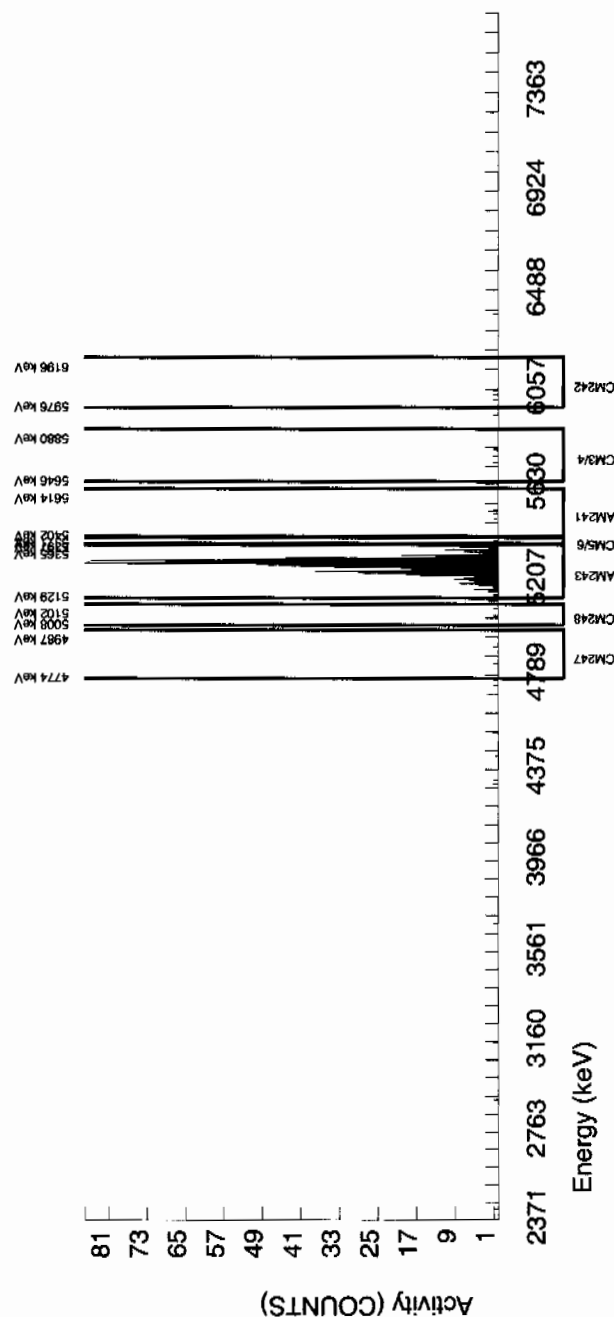
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of AM243 calculated as  $\sqrt{\text{BKG AREA}}$ .

\* Corrections made to the following net area due to tracer impurity:

AM-241



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950643 SAMPLE ID : S1202037249_AM SAMPLE QTY : 0.100 G SAMPLE DATE : 16-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 92.595</p>	<p>CHAMBER : 103 DETECTOR S/N : 79461 AVERAGE %EFFICIENCY : 32.6574 COUNT DATE : 19-FEB-2010 15:53:26 ELAPSED LIVE TIME(SEC) : 59999.99</p>	<p>LIB FILE : ENV_ALPHA_AM BKG FILE : B103.CNF;684 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W103.CNF;198 CAL DATE : 9-FEB-2010</p>
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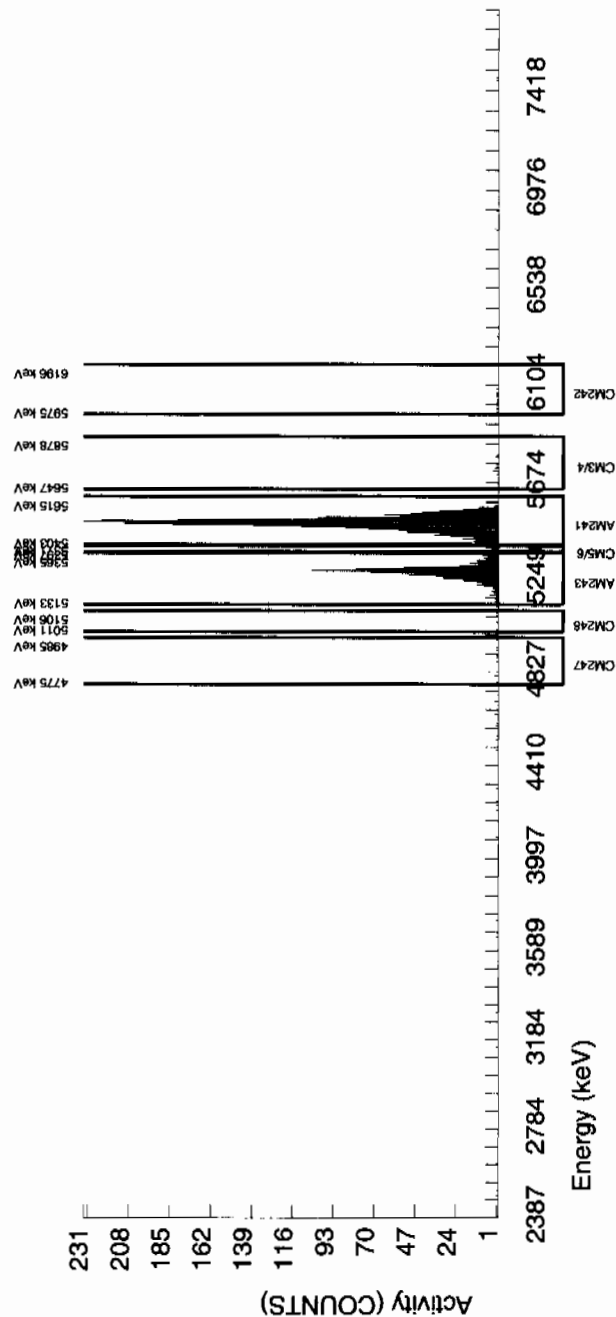
<p>TRACER ID : 445-96-2-SS NUCLIDE : AM243 NOMINAL : 2.9166E+00 dpm RESULTS : 2.7006E+00 dpm</p>	<p>MS/MSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3153E+01 pCi/g</p>	<p>LCS/LCSD ID : 0244-B NUCLIDE : AM-241 NOMINAL : 3.3153E+01 pCi/g</p>
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## NUCLIDE 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
AM-241	5479.150	5502.414	32.487	2289.000	2287.469	0.000	2.8409	99.94000	3.41E+01	2.16E+00	9.85E-02	2.37E-01	7.13E-01
AM243	5270.000	5283.376	28.493	881.000	880.000	1.000	1.0000	99.78000	1.31E+01	9.03E-01	3.47E-02	1.10E-01	4.43E-01
CM-242	6102.000	6040.914	98.529	12.000	12.000	0.000	4.3413	100.0000	1.82E-01	5.36E-02	1.50E-01	3.41E-01	5.25E-02
CM-3/4	5795.020	5754.447	57.886	11.000	11.000	0.000	5.1799	100.0000	1.64E-01	5.04E-02	1.80E-01	3.99E-01	4.94E-02
CM-5/6	5386.000	5385.801	0.000	34.000	34.000	0.000	14.2480	86.09000	5.88E-01	1.07E-01	5.74E-01	1.19E+00	1.01E-01
CM-247	4946.000	4885.758	4.926	9.000	8.000	1.000	13.7917	79.30000	1.50E-01	6.01E-02	6.03E-01	1.26E+00	5.94E-02
CM-248	5078.600	5078.003	0.000	6.000	4.000	2.000	19.5080	91.00000	6.55E-02	4.65E-02	7.43E-01	1.53E+00	4.63E-02

## NOTES:

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





# Radiochemistry Batch Checklist, Rev10

Batch# 950644 Product: Pu Date: 2/21/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
HK 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: [Signature] 2/21/10

Secondary Review Performed By: [Signature] 2/22/10

LANL

# Plutonium Que Sheet

08-FEB-10

Batch #: 950644 Analyst: JXD2 First Client Due Date: 26-FEB-10 Internal Due Date: 16-FEB-10

Tracer Isotope(s): Pu-239/Pu-238 Tracer Code: 1575-A Expiration Date: 01/08/11 Vol: 0.1  
 LCS Isotope(s): Pu-239/Pu-238 LCS Code: Expiration Date: Vol:   
 Spike Isotope(s): Pu-239/Pu-238 Spike Code: Expiration Date: Vol:   
 Prep Date: 02/06/10 Initials: JXD0 Pipet ID: 277657 Balance ID: 30102722

Witness: JXD 2-16-10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Ally	Aliquot	Pu Det #
246312001-1	RE16-10-1313	SAMPLE	.05 pC/g		SOIL	LANL010	29-JAN-10	1	1	1.279	13	
246328001-1	RE15-10-7332	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	2	2	1.269	14	
246328002-1	RE15-10-7333	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	3	3	1.259	16	
246328003-1	RE15-10-7336	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	4	4	1.267	17	
246328004-1	RE15-10-7337	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	5	5	1.265	18	
246328005-1	RE15-10-7334	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	6	6	1.258	31	
246328006-1	RE15-10-7335	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	7	7	1.254	33	
246328007-1	RE15-10-7338	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	8	8	1.257	35	
246328008-1	RE15-10-7339	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	9	9	1.269	36	
246328009-1	RE15-10-7342	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	10	10	1.279	77	
246341001-1	RE15-10-8304	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	11	11	1.266	79	
246341002-1	RE15-10-8305	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	12	12	1.252	80	
246341003-1	RE15-10-8306	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	13	13	1.273	81	
246341004-1	RE15-10-8307	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	14	14	1.272	82	
246341005-1	RE15-10-8309	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	15	15	1.268	107	
246341006-1	RE15-10-8308	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	16	16	1.279	108	
246341007-1	RE15-10-8301	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	17	17	1.257	109	
246341008-1	RE15-10-8300	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	18	18	1.290	111	
246341009-1	RE15-10-8324	SAMPLE	.05 pC/g		SOIL	LANL010	01-FEB-10	19	19	1.276	112	
1202037250-1	MB for batch 950644	MB	.05 pC/g		SOIL	QC ACCOUNT		20	20	1	253	
1202037251-1	RE15-10-8304(246341001DUP)	DUP	.05 pC/g		SOIL	QC ACCOUNT		21	21	1.265	254	
1202037252-1	LCS for batch 950644	LCS	.05 pC/g		SOIL	QC ACCOUNT	01-FEB-10	22	22	0.100	305	262

\*SLM 0244-B exp 04/30/20 0.100g

Choose SOP Used: GL-RAD-A-015 GL-RAD-A-036, RAD-A-043  
 Solid Sample Dissolution by: LEACH or DIGESTION  
 Circle One

Data Reviewed By: JXD 2/24/10

# Blank Correction Report

**Batch ID 950644**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202037251	DUP	Plutonium-238	1.27 g	0.00	0.00246	0.0201	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0197	0.00501	0.0151	-.00361417	pCi/g	NO
1202037252	LCS	Plutonium-238	0.100 g	7.06	0.543	0.337	-.0153	pCi/g	NO
		Plutonium-239/240	0.100 g	40.5	2.38	0.254	-.0459	pCi/g	NO
1202037250	MB	Plutonium-238	1.00 g	-0.00153	0.00342	0.025	-.00153	pCi/g	NO
		Plutonium-239/240	1.00 g	-0.00459	0.00306	0.0188	-.00459	pCi/g	NO
246312001	RE16-10-1313	Plutonium-238	1.28 g	0.00	0.00488	0.0178	-.00119531	pCi/g	NO
		Plutonium-239/240	1.28 g	0.00	0.00218	0.0134	-.00358594	pCi/g	NO
246328001	RE15-10-7332	Plutonium-238	1.27 g	0.009	0.0107	0.021	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0154	0.0052	0.0158	-.00361417	pCi/g	NO
246328002	RE15-10-7333	Plutonium-238	1.26 g	-0.0051	0.0057	0.0208	-.00121429	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00127	0.00221	0.0157	-.00364286	pCi/g	NO
246328003	RE15-10-7336	Plutonium-238	1.27 g	0.00296	0.00755	0.0242	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00	0.00296	0.0182	-.00361417	pCi/g	NO
246328004	RE15-10-7337	Plutonium-238	1.27 g	0.00129	0.00501	0.0211	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00259	0.00183	0.0159	-.00361417	pCi/g	NO
246328005	RE15-10-7334	Plutonium-238	1.26 g	0.00245	0.00245	0.020	-.00121429	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00245	0.0049	0.0151	-.00364286	pCi/g	NO
246328006	RE15-10-7335	Plutonium-238	1.25 g	0.00271	0.00192	0.0222	-.001224	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00407	0.00236	0.0167	-.003672	pCi/g	NO
246328007	RE15-10-7338	Plutonium-238	1.26 g	-0.00411	0.00362	0.0224	-.00121429	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00548	0.00699	0.0168	-.00364286	pCi/g	NO
246328008	RE15-10-7339	Plutonium-238	1.27 g	0.00358	0.00267	0.0195	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00119	0.00267	0.0147	-.00361417	pCi/g	NO
246328009	RE15-10-7342	Plutonium-238	1.28 g	0.00483	0.00452	0.0197	-.00119531	pCi/g	NO
		Plutonium-239/240	1.28 g	0.00	0.00171	0.0148	-.00358594	pCi/g	NO
246341001	RE15-10-8304	Plutonium-238	1.27 g	0.00131	0.00131	0.0214	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0131	0.00418	0.0161	-.00361417	pCi/g	NO
246341002	RE15-10-8305	Plutonium-238	1.25 g	0.00671	0.00302	0.0219	-.001224	pCi/g	NO
		Plutonium-239/240	1.25 g	0.134	0.0151	0.0165	-.003672	pCi/g	NO
246341003	RE15-10-8306	Plutonium-238	1.27 g	0.00349	0.00202	0.019	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0268	0.00597	0.0143	-.00361417	pCi/g	NO
246341004	RE15-10-8307	Plutonium-238	1.27 g	0.00242	0.00296	0.0198	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00725	0.00454	0.0149	-.00361417	pCi/g	NO
246341005	RE15-10-8309	Plutonium-238	1.27 g	-0.00135	0.00303	0.0221	-.00120472	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00135	0.00303	0.0166	-.00361417	pCi/g	NO
246341006	RE15-10-8308	Plutonium-238	1.28 g	-0.00117	0.00203	0.0191	-.00119531	pCi/g	NO
		Plutonium-239/240	1.28 g	0.0152	0.00488	0.0144	-.00358594	pCi/g	NO
246341007	RE15-10-8301	Plutonium-238	1.26 g	0.00227	0.00161	0.0185	-.00121429	pCi/g	NO

*20m*  
*2/22/10*

## Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
246341007	RE15-10-8301	Plutonium-239/240	1.26 g	0.00113	0.00253	0.0139	-.00364286	pCi/g	NO
246341008	RE15-10-8300	Plutonium-238	1.29 g	0.00	0.00176	0.0204	-.00118605	pCi/g	NO
		Plutonium-239/240	1.29 g	0.00997	0.00398	0.0153	-.00355814	pCi/g	NO
246341009	RE15-10-8324	Plutonium-238	1.28 g	0.00234	0.00286	0.0191	-.00119531	pCi/g	NO
		Plutonium-239/240	1.28 g	0.0257	0.0061	0.0144	-.00358594	pCi/g	NO

# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<b>BATCH NUMBER</b> : 950644 <b>SAMPLE ID</b> : S0246341001_PU <b>SAMPLE QTY</b> : 1.266 G <b>SAMPLE DATE</b> : 1-FEB-2010 00:00:00. <b>ANALYST</b> : JXD2 <b>% YIELD</b> : 84.568	<b>CHAMBER</b> : 079 <b>DETECTOR S/N</b> : 79466 <b>AVERAGE %EFFICIENCY</b> : 32.2486 <b>COUNT DATE</b> : 20-FEB-2010 14:31:54 <b>ELAPSED LIVE TIME(SEC)</b> : 59999.99	<b>LIB FILE</b> : ENV_ALPHA_PU <b>BKG FILE</b> : B079.CNF;1018 <b>BKG DATE</b> : 14-FEB-2010 <b>BKG LIVE TIME(SEC)</b> : 59999.99 <b>EFF FILE</b> : W079.CNF;268 <b>CAL DATE</b> : 9-FEB-2010
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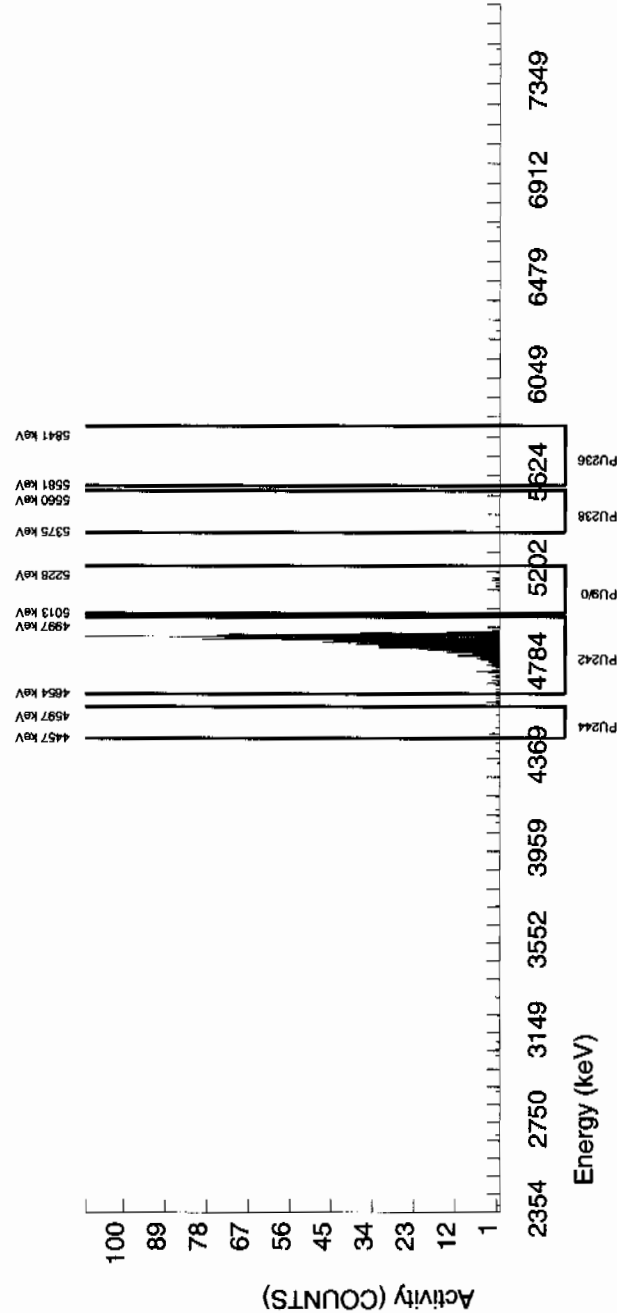
<b>TRACER</b> <b>ID</b> : 1375-A <b>NUCLIDE</b> : PU242 <b>NOMINAL</b> : 3.3808E+00 dpm <b>RESULTS</b> : 2.8590E+00 dpm	<b>MS/MSD</b> <b>ID</b> : 0244-B <b>NUCLIDE</b> : PU-9/0 <b>NOMINAL</b> : 4.1778E+01 pCi/G	<b>LCS/LCSD</b> <b>ID</b> : 0244-B <b>NUCLIDE</b> : PU-9/0 <b>NOMINAL</b> : 4.1778E+01 pCi/G
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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	5711.009	0.000	0.000	0.000	0.000	2.6925	100.0000	0.00E+00	1.32E-03	8.17E-03	1.99E-02	1.32E-03
PU-238	5499.000	5406.821	4.918	1.000	1.000	0.000	2.9312	99.900000	1.31E-03	1.31E-03	8.91E-03	2.14E-02	1.31E-03
PU-9/0	5155.000	5161.734	14.651	10.000	10.000	0.000	2.0604	99.900000	1.31E-02	4.18E-03	6.26E-03	1.61E-02	4.13E-03
PU242	4890.000	4888.022	28.030	924.000	922.000	2.000	1.4142	100.0000	1.20E+00	7.37E-02	4.29E-03	1.21E-02	3.97E-02
PU-244	4589.000	4504.898	4.918	7.000	7.000	0.000	3.7241	99.900000	9.14E-03	3.49E-03	1.13E-02	2.62E-02	3.46E-03

## NOTES:

\* Sg calculated via blank population.  
 (Sg updated 10-FEB-2010)  
 \* Sg of PU242 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950644  SAMPLE ID : S0246341002_PU  SAMPLE QTY : 1.252 G  SAMPLE DATE : 1-FEB-2010 00:00:00.  ANALYST : JXD2  % YIELD : 80.576</p>	<p>CHAMBER : 080  DETECTOR S/N : 78197  AVERAGE %EFFICIENCY : 33.2957  COUNT DATE : 20-FEB-2010 14:31:54  ELAPSED LIVE TIME(SEC) : 59999.99</p>	<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B080.CNF;1019  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 59999.99  EFF FILE : W080.CNF;276  CAL DATE : 9-FEB-2010</p>
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<p>TRACER  ID : 1375-A  NUCLIDE : PU242  NOMINAL : 3.3808E+00 dpm  RESULTS : 2.7241E+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

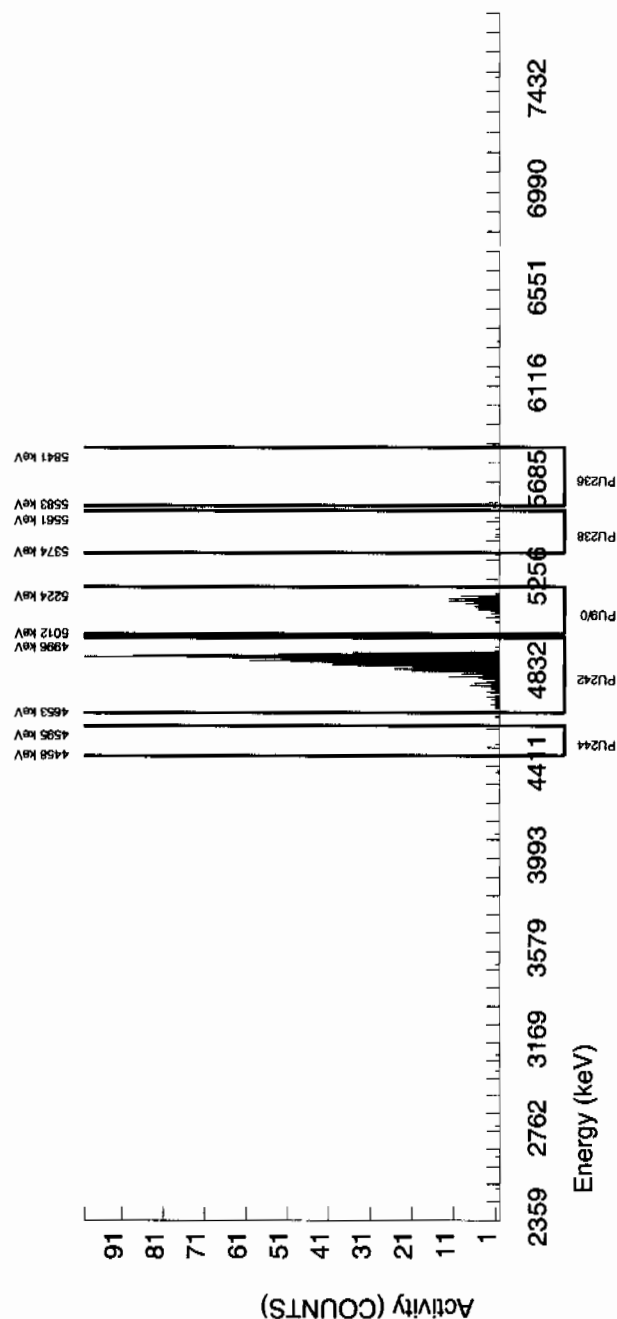
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5711.379	0.000	0.000	0.000	0.000	2.6925	100.0000	0.00E+00	1.36E-03	8.40E-03	2.04E-02	1.36E-03
PU-238	5499.000	5461.474	150.577	5.000	5.000	0.000	2.9312	99.900000	6.71E-03	3.02E-03	9.15E-03	2.19E-02	3.00E-03
PU-9/0	5155.000	5154.233	35.286	100.000	100.000	0.000	2.0604	99.900000	1.34E-01	1.51E-02	6.43E-03	1.65E-02	1.34E-02
PU242	4890.000	4887.498	35.748	910.000	907.000	3.000	1.7321	100.0000	1.22E+00	7.49E-02	5.40E-03	1.44E-02	4.05E-02
PU-244	4589.000	4489.576	0.000	3.000	2.000	1.000	3.7241	99.900000	2.68E-03	2.69E-03	1.16E-02	2.69E-02	2.68E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU242 calculated as sqrt(BKG AREA).



**GEL Laboratories LLC**  
**ALPHA SPECTROSCOPY REPORT**

BATCH NUMBER	: 950644
SAMPLE ID	: S0246341003_PU
SAMPLE QTY	: 1.273 G
SAMPLE DATE	: 1-FEB-2010 00:00:00.
ANALYST	: JXD2
% YIELD	: 94.467

CHAMBER : 081  
DETECTOR S/N : 79996  
AVERAGE %EFFICIENCY : 32.2195  
COUNT DATE : 20-FEB-2010 14:31:54  
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE	:	ENV_ALPHA_PU
BKG FILE	:	B081.CNF:1026
BKG DATE	:	14-FEB-2010
BKG LIVE TIME(SEC)	:	59999.99
EFF FILE	:	W081.CNF:274
CAL DATE	:	9-FEB-2010

TRACER ID : 1375-A  
NUCLIDE : PU242  
NOMINAL : 3.3808E+00 dpm  
RESULTS : 3.1937E+00 dpm

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

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

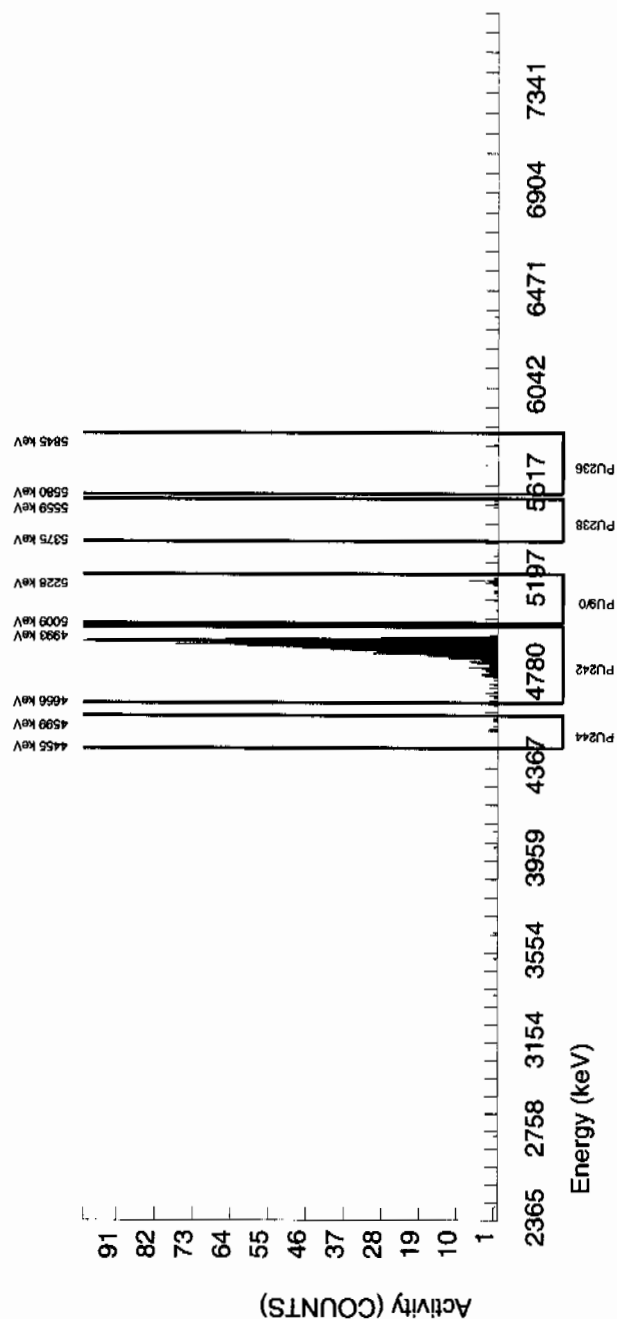
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5797.458	4.879	1.000	1.000	0.000	2.6925	100.0000	1.18E-03	1.18E-03	7.28E-03	1.77E-02	1.18E-03
PU-238	5499.000	5541.763	29.272	3.000	3.000	0.000	2.9312	99.900000	3.49E-03	2.02E-03	7.94E-03	1.90E-02	2.02E-03
PU-9/0	5155.000	5182.347	6.830	24.000	23.000	1.000	2.0604	99.900000	2.68E-02	5.97E-03	5.58E-03	1.43E-02	5.82E-03
PU242	4890.000	4907.831	40.103	1030.000	1029.000	1.000	1.0000	100.0000	1.20E+00	7.10E-02	2.70E-03	8.56E-02	3.73E-02
PU-244	4589.000	4551.181	4.879	7.000	7.000	0.000	3.7241	99.900000	8.15E-03	3.11E-03	1.01E-02	2.33E-02	3.08E-03

## NOTES:

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

\* Sg of PU242 calculated as  $\sqrt{\text{BKG AREA}}$ .



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

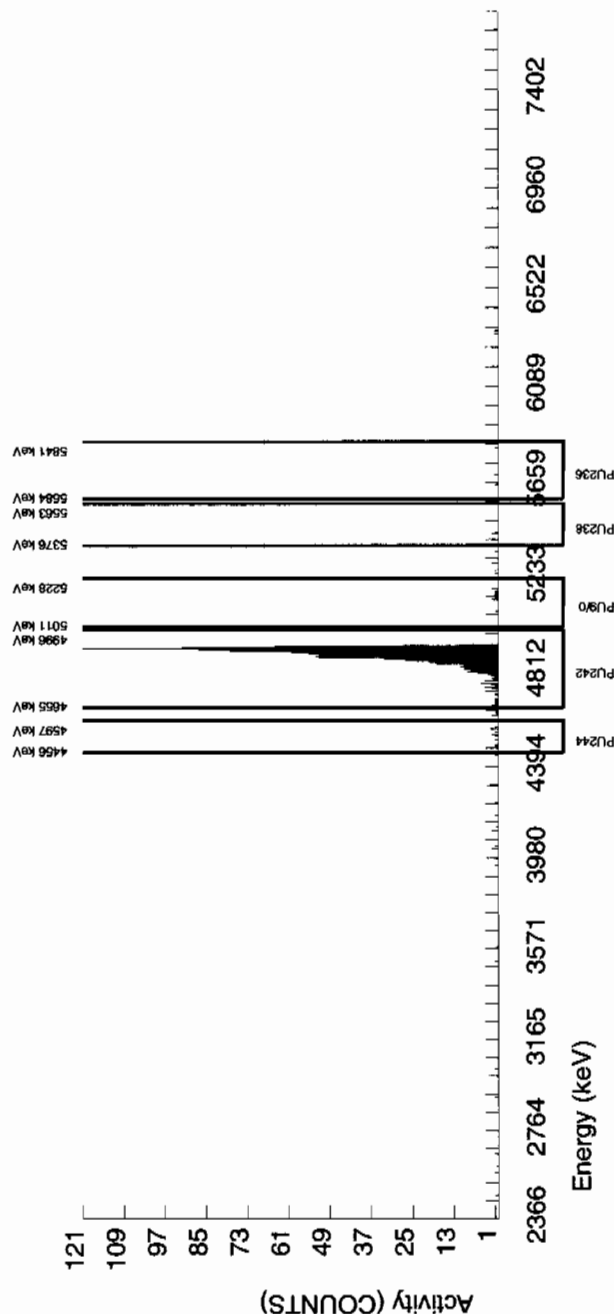
<p>BATCH NUMBER : 950644  SAMPLE ID : S0246341004_PU  SAMPLE QTY : 1.272 G  SAMPLE DATE : 1-FEB-2010 00:00:00.  ANALYST : JXD2  % YIELD : 91.171</p>	<p>CHAMBER : 082  DETECTOR S/N : 79997  AVERAGE %EFFICIENCY : 32.1841  COUNT DATE : 20-FEB-2010 14:31:54  ELAPSED LIVE TIME(SEC) : 59999.99</p>	<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B082.CNF;1016  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 59999.99  EFF FILE : W082.CNF;257  CAL DATE : 9-FEB-2010</p>
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<p>TRACER  ID : 1375-A  NUCLIDE : PU242  NOMINAL : 3.3808E+00 dpm  RESULTS : 3.0823E+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	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	5723.074	158.154	3.000	3.000	0.000	2.6925	100.0000	3.67E-03	2.13E-03	7.56E-03	1.84E-02	2.12E-03
PU-238	5499.000	5428.264	7.259	4.000	2.000	2.9312	99.900000	2.42E-03	2.96E-03	8.24E-03	1.97E-02	2.96E-03	2.96E-03
PU-9/0	5155.000	5154.400	49.320	10.000	6.000	4.000	2.0604	99.900000	7.25E-03	4.54E-03	5.79E-03	1.49E-02	4.52E-03
PU242	4890.000	4890.730	25.165	994.000	992.000	2.000	1.4142	100.0000	1.20E+00	7.18E-02	3.97E-03	1.12E-02	3.81E-02
PU-244	4589.000	4516.271	7.259	10.000	10.000	0.000	3.7241	99.900000	1.21E-02	3.87E-03	1.05E-02	2.42E-02	3.82E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of PU242 calculated as sqrt(BKG AREA).





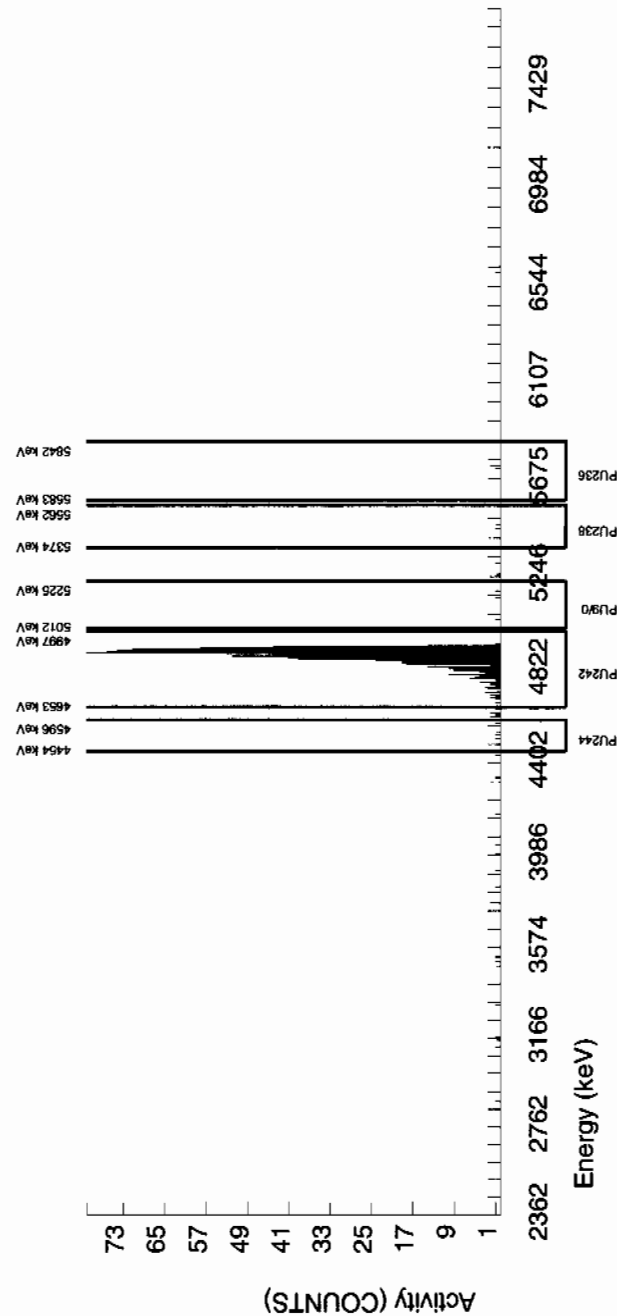
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950644 SAMPLE ID : S0246341005_PU SAMPLE QTY : 1.268 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 85.137				CHAMBER : 107 DETECTOR S/N : 67578 AVERAGE %EFFICIENCY : 30.8518 COUNT DATE : 20-FEB-2010 14:31:58 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA.PU BKG FILE : B107.CNF:684 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W107.CNF:232 CAL DATE : 9-FEB-2010					
TRACER ID : 1375-A NUCLIDE : PU242 NOMINAL : 3.3808E+00 dpm RESULTS : 2.8783E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5735.616	4.970	3.000	2.000	1.000	2.6925	100.0000	2.74E-03	2.74E-03	8.47E-03	2.06E-02	2.74E-03
PU-238	5499.000	5473.303	19.879	2.000	-1.000	3.000	2.9312	99.900000	-1.35E-03	3.03E-03	9.23E-03	2.21E-02	3.03E-03
PU-9/0	5155.000	5132.715	129.214	3.000	1.000	2.000	2.0604	99.900000	1.35E-03	3.03E-03	6.49E-03	1.66E-02	3.03E-03
PU242	4890.000	4889.086	50.101	891.000	888.000	3.000	1.7321	100.0000	1.20E+00	7.45E-02	5.45E-03	1.46E-02	4.04E-02
PU-244	4589.000	4558.916	0.000	6.000	6.000	0.000	3.7241	99.900000	8.12E-03	3.34E-03	1.17E-02	2.71E-02	3.32E-03

## NOTES:

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

\* Sg of PU242 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950644 SAMPLE ID : S0246341006_PU SAMPLE QTY : 1.279 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 89.050	CHAMBER : 108 DETECTOR S/N : 78778 AVERAGE %EFFICIENCY : 33.8473 COUNT DATE : 20-FEB-2010 14:31:58 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_PU BKG FILE : B108.CNF;682 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W108.CNF;213 CAL DATE : 9-FEB-2010
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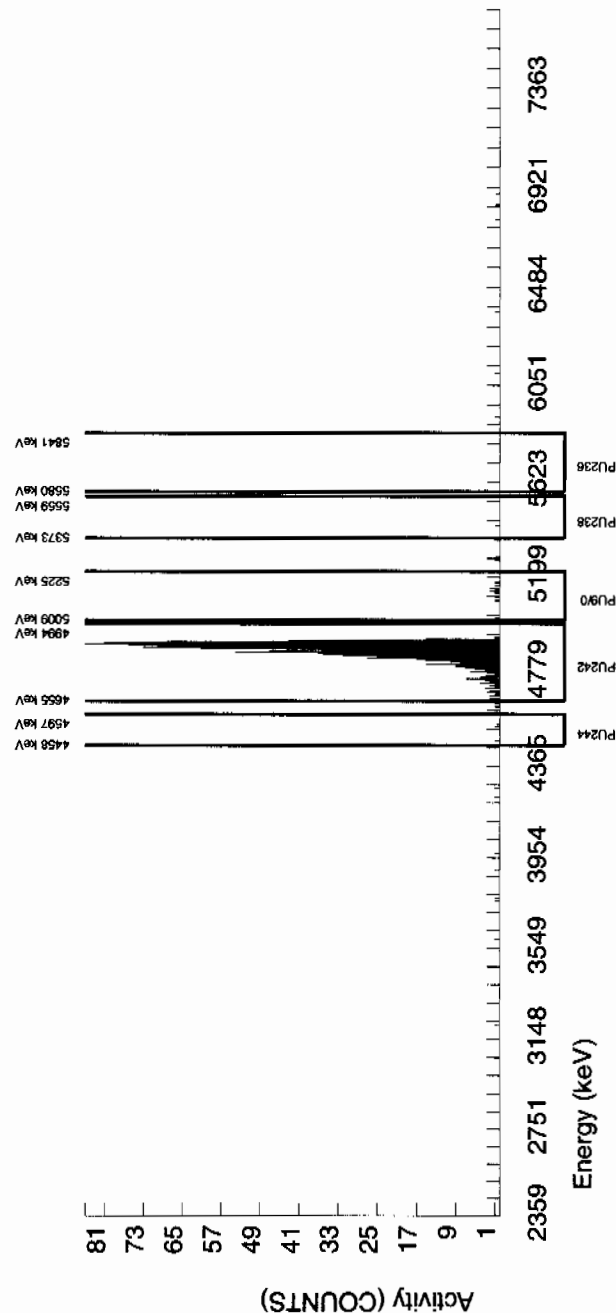
<b>TRACER</b> ID : 1375-A NUCLEIDE : PU242 NOMINAL : 3.3808E+00 dpm RESULTS : 3.0106E+00 dpm	<b>MS/MSD</b> ID : 0244-B NUCLEIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G	<b>LCS/LCSD</b> ID : 0244-B NUCLEIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G
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## NUCLEIDE ACTIVITY SUMMARY

NUCLEIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5611.876	4.872	1.000	0.000	1.000	2.6925	100.0000	0.00E+00	1.68E-03	7.32E-03	1.78E-02	1.67E-03
PU-238	5499.000	5431.246	4.872	1.000	-1.000	2.000	2.9312	99.900000	-1.17E-03	2.03E-03	7.98E-03	1.91E-02	2.03E-03
PU-9/0	5155.000	5135.169	21.926	15.000	13.000	2.000	2.0604	99.900000	1.52E-02	4.88E-03	5.61E-03	1.44E-02	4.82E-03
PU242	4890.000	4879.231	52.052	1019.000	1019.000	0.000	0.0000	100.0000	1.19E+00	7.09E-02	0.00E+00	3.17E-03	3.73E-02
PU-244	4589.000	4513.177	87.705	4.000	3.000	1.000	3.7241	99.900000	3.51E-03	2.62E-03	1.01E-02	2.34E-02	2.62E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of PU242 calculated as sqrt(BKG AREA).

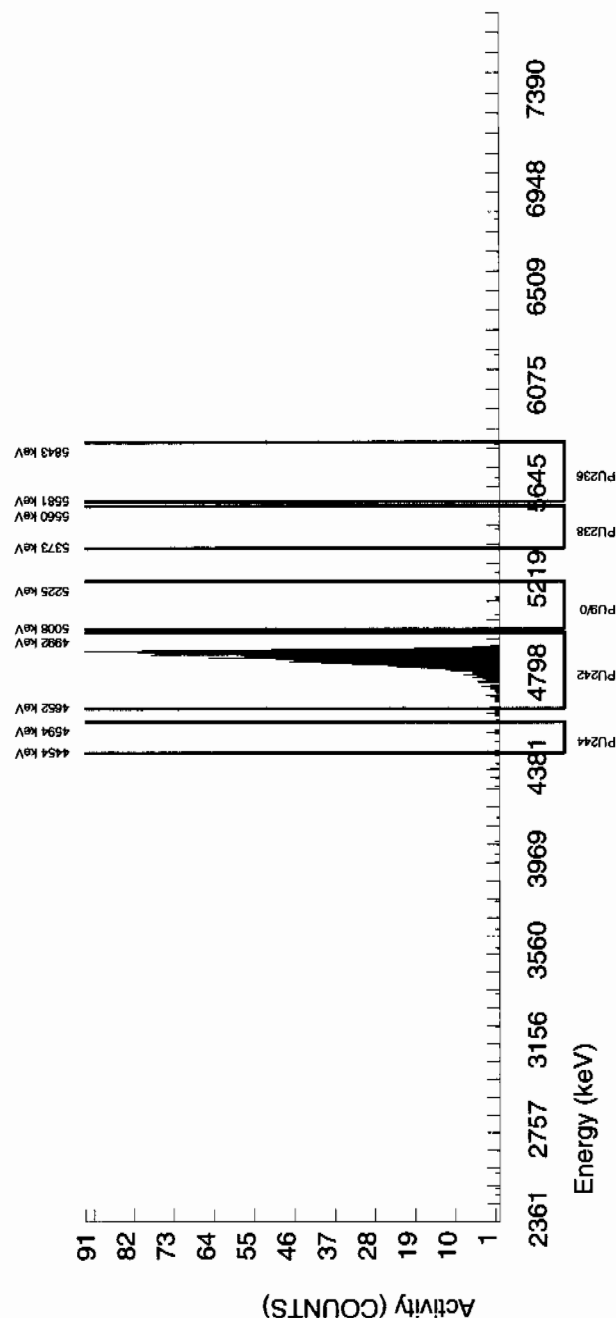


BATCH NUMBER : 950644 SAMPLE ID : S0246341007_PU SAMPLE QTY : 1.257 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 88.861				CHAMBER : 109 DETECTOR S/N : 79463 AVERAGE %EFFICIENCY : 35.6501 COUNT DATE : 20-FEB-2010 14:31:58 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_PU BKG FILE : B109.CNF;680 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W109.CNF;194 CAL DATE : 9-FEB-2010					
TRACER ID : 1375-A NUCLIDE : PU242 NOMINAL : 3.3808E+00 dpm RESULTS : 3.0042E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5765.464	137.605	2.000	2.000	0.000	2.6925	100.0000	2.29E-03	1.63E-03	7.09E-03	1.72E-02	1.62E-03
PU-238	5499.000	5471.581	19.658	2.000	2.000	0.000	2.9312	99.90000	2.27E-03	1.61E-03	7.72E-03	1.85E-02	1.60E-03
PU-9/0	5155.000	5129.536	83.546	3.000	1.000	2.000	2.0604	99.90000	1.13E-03	2.53E-03	5.43E-03	1.39E-02	2.53E-03
PU242	4890.000	4879.881	55.099	1074.000	1071.000	3.000	1.7321	100.0000	1.21E+00	7.13E-02	4.56E-03	1.22E-02	3.71E-02
PU-244	4589.000	4546.427	54.059	5.000	5.000	0.000	3.7241	99.90000	5.66E-03	2.55E-03	9.81E-03	2.27E-02	2.53E-03

## NOTES:

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

\* Sg of PU242 calculated as  $\sqrt{\text{BKG AREA}}$ .



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950644  SAMPLE ID : S0246341008_PU  SAMPLE QTY : 1.290 G  SAMPLE DATE : 1-FEB-2010 00:00:00.  ANALYST : JXD2  % YIELD : 84.661</p>	<p>CHAMBER : 111  DETECTOR S/N : 79462  AVERAGE %EFFICIENCY : 33.1216  COUNT DATE : 20-FEB-2010 14:31:58  ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B111.CNF:679  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W111.CNF:209  CAL DATE : 9-FEB-2010</p>
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<p>TRACER  ID : 1375-A  NUCLIDE : PU242  NOMINAL : 3.3808E+00 dpm  RESULTS : 2.8622E+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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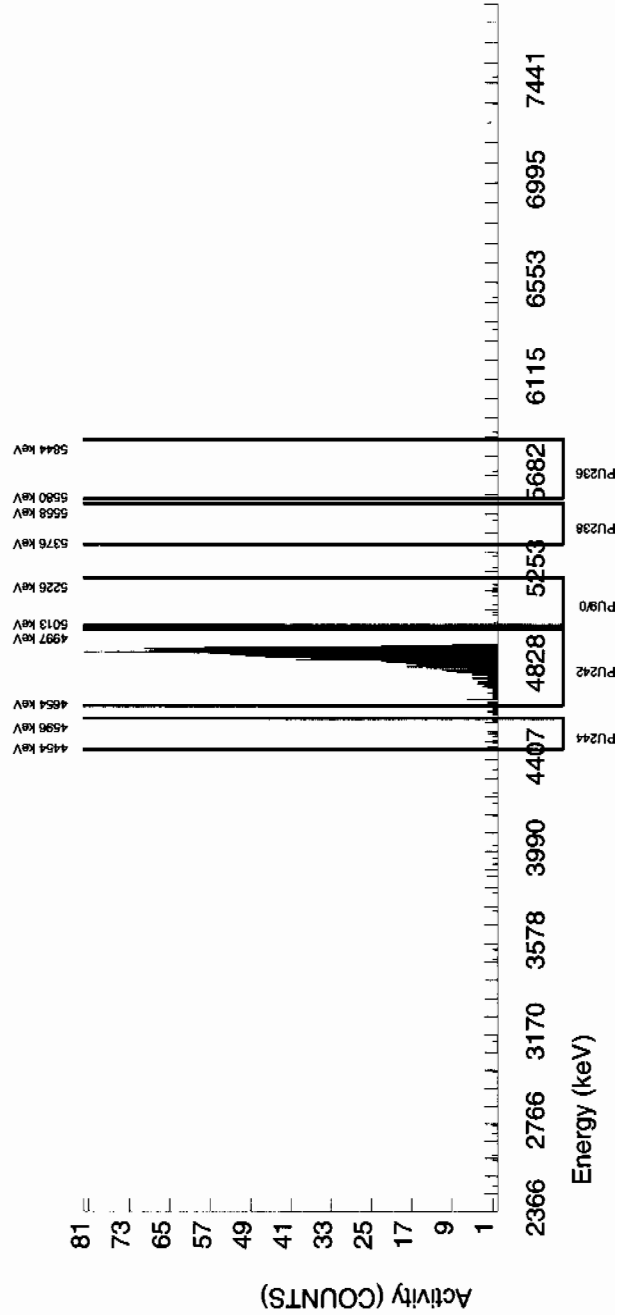
## NUCLIDE ACTIVITY SUMMARY

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	5708.848	4.969	1.000	0.000	1.000	2.6925	100.0000	0.00E+00	1.79E-03	7.80E-03	1.90E-02	1.78E-03
PU-238	5499.000	5488.220	4.969	1.000	0.000	1.000	2.9312	99.900000	0.00E+00	1.76E-03	8.50E-03	2.04E-02	1.76E-03
PU-9/0	5155.000	5129.472	159.016	9.000	8.000	1.000	2.0604	99.900000	9.97E-03	3.98E-03	5.97E-03	1.53E-02	3.94E-03
PU242	4890.000	4877.141	49.816	950.000	948.000	2.000	1.4142	100.0000	1.18E+00	7.18E-02	4.10E-03	1.16E-02	3.84E-02
PU-244	4589.000	4522.209	69.569	13.000	11.000	2.000	3.7241	99.900000	1.37E-02	4.88E-03	1.08E-02	2.50E-02	4.83E-03

## NOTES:

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

\* Sg of PU242 calculated as sqrt(BKG AREA).



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950644  
SAMPLE ID : S0246341009\_PU  
SAMPLE QTY : 1.276 G  
SAMPLE DATE : 1-FEB-2010 00:00:00.  
ANALYST : JXD2  
% YIELD : 95.110

CHAMBER : 112  
DETECTOR S/N : 78261  
AVERAGE %EFFICIENCY : 31.8150  
COUNT DATE : 20-FEB-2010 14:31:58  
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV\_ALPHA\_PU  
BKG FILE : B112.CNF;687  
BKG DATE : 14-FEB-2010  
BKG LIVE TIME(SEC) : 60000.00  
EFF FILE : W112.CNF;221  
CAL DATE : 15-FEB-2010

TRACER  
ID : 1375-A  
NUCLIDE : PU242  
NOMINAL : 3.3808E+00 dpm  
RESULTS : 3.2155E+00 dpm

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

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

## NUCLIDE ACTIVITY SUMMARY

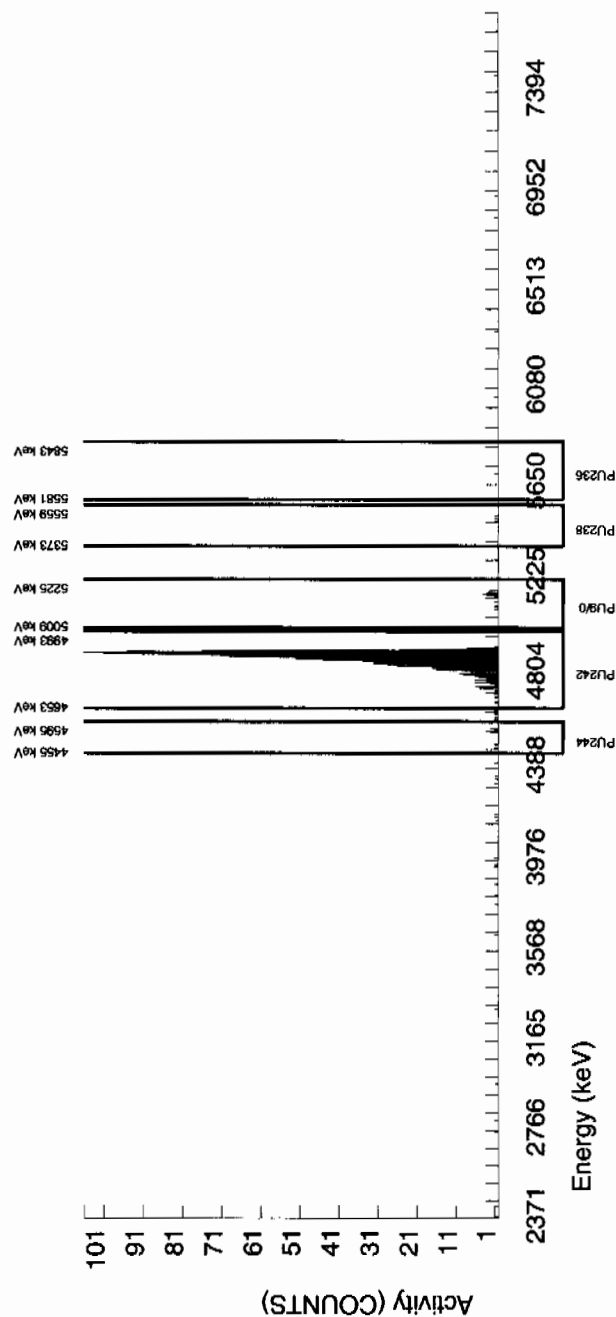
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5703.538	4.904	1.000	1.000	0.000	2.6925	100.0000	1.18E-03	1.18E-03	7.31E-03	1.78E-02	1.18E-03
PU-238	5499.000	5471.537	132.400	4.000	2.000	2.000	2.9312	99.90000	2.34E-03	2.86E-03	7.96E-03	1.91E-02	2.86E-03
PU-9/0	5155.000	5149.917	35.960	24.000	22.000	2.000	2.0604	99.90000	2.57E-02	6.10E-03	5.60E-03	1.44E-02	5.95E-03
PU242	4890.000	4876.216	35.405	1025.000	1023.000	2.000	1.4142	100.0000	1.19E+00	7.11E-02	3.84E-03	1.08E-02	3.74E-02
PU-244	4589.000	4541.376	19.002	10.000	10.000	0.000	3.7241	99.90000	1.17E-02	3.74E-03	1.01E-02	2.34E-02	3.69E-03

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

\* Sg of PU242 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950644  SAMPLE ID : S1202037250_PU  SAMPLE QTY : 1.000 G  SAMPLE DATE : 16-FEB-2010 00:00:00  ANALYST : JXD2  % YIELD : 77.185</p>		<p>CHAMBER : 253  DETECTOR S/N : 79446  AVERAGE %EFFICIENCY : 38.1689  COUNT DATE : 20-FEB-2010 13:40:15  ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B253.CNF;82  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W253.CNF;28  CAL DATE : 29-JAN-2010</p>
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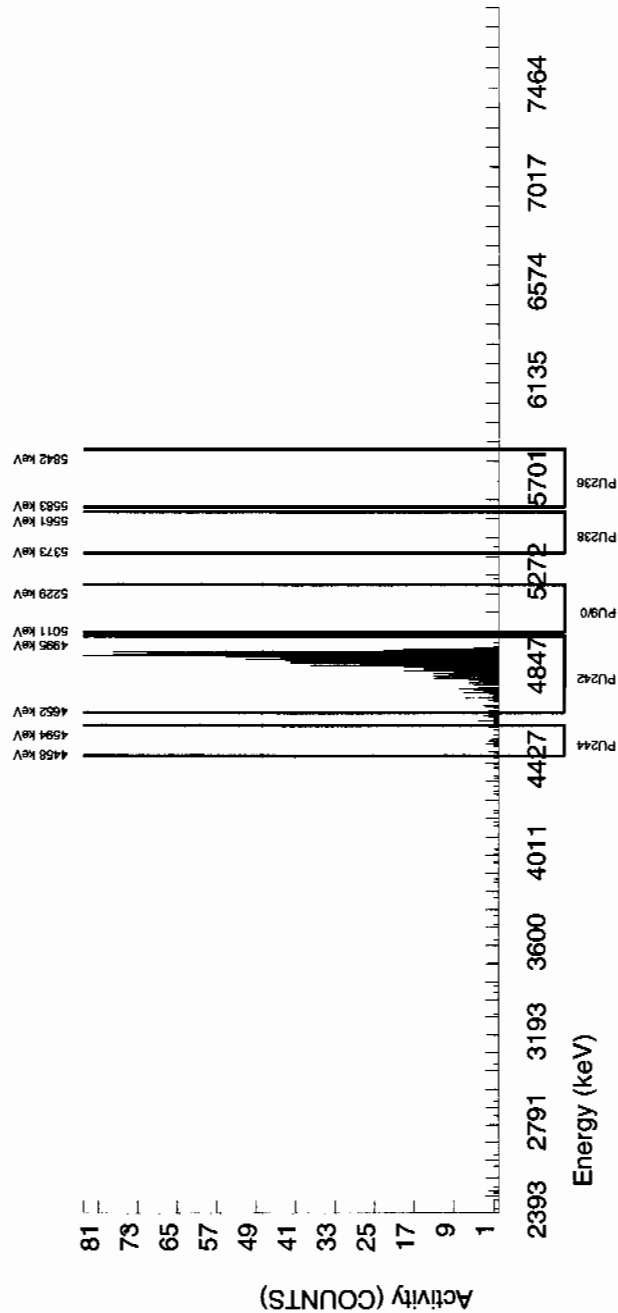
<p>TRACER  ID : 1375-A  NUCLIDE : PU242  NOMINAL : 3.3808E+00 dpm  RESULTS : 2.6095E+00 dpm</p>	<p>MS/MSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>	<p>LCS/LCSD  ID : 0244-B  NUCLIDE : PU-9/0  NOMINAL : 4.1778E+01 pCi/G</p>
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## NUCLIDE 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	5711.991	0.000	0.000	-1.000	1.000	2.6925	100.0000	-1.53E-03	2.17E-03	9.58E-03	2.33E-02	2.17E-03
PU-238	5499.000	5469.849	123.538	2.000	-1.000	3.000	2.9312	99.900000	-1.53E-03	3.42E-03	1.04E-02	2.50E-02	3.42E-03
PU-9/0	5155.000	5119.959	0.000	0.000	-3.000	3.000	2.0604	99.900000	-4.59E-03	3.06E-03	7.34E-03	1.88E-02	3.06E-03
PU242	4890.000	4883.382	41.761	998.000	986.000	2.000	1.4142	100.0000	1.52E+00	9.12E-02	5.03E-03	1.42E-02	4.84E-02
PU-244	4589.000	4532.644	0.000	20.000	20.000	0.000	3.7241	99.900000	3.06E-02	7.02E-03	1.33E-02	3.07E-02	6.84E-03

## NOTES:

- \* Sg calculated via blank population.  
(Sg updated 10-FEB-2010)
- \* Sg of PU242 calculated as sqrt(BKG AREA).



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950644  SAMPLE ID : S1202037251_PU  SAMPLE QTY : 1.265 G  SAMPLE DATE : 1-FEB-2010 00:00:00.  ANALYST : JXD2  % YIELD : 73.846</p>		<p>CHAMBER : 254  DETECTOR S/N : 79447  AVERAGE %EFFICIENCY : 39.2943  COUNT DATE : 20-FEB-2010 13:40:17  ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_PU  BKG FILE : B254.CNF:80  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W254.CNF:28  CAL DATE : 29-JAN-2010</p>
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<p>TRACER ID : 1375-A  NUCLIDE : PU242  NOMINAL : 3.3808E+00 dpm  RESULTS : 2.4965E+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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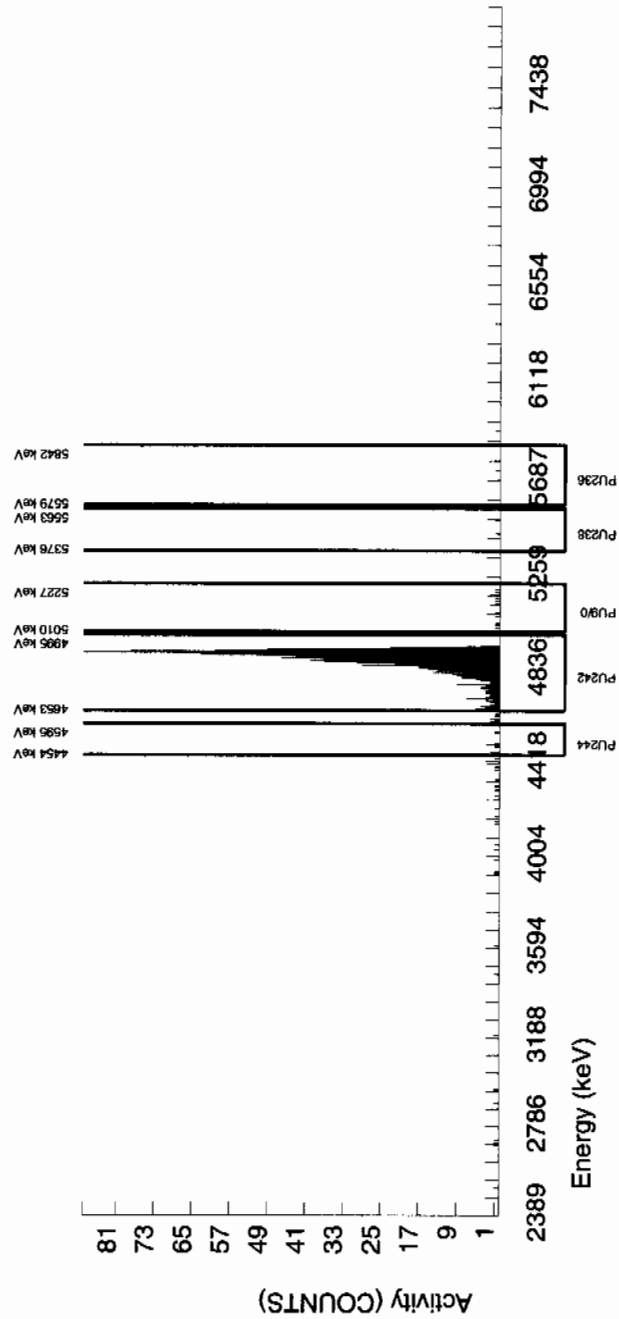
## NUCLIDE ACTIVITY SUMMARY

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	5734.831	4.937	1.000	-1.000	2.000	2.6925	100.0000	-1.24E-03	2.15E-03	7.69E-03	1.87E-02	2.15E-03
PU-238	5499.000	5485.743	59.245	2.000	0.000	2.000	2.9312	99.900000	0.00E+00	2.46E-03	8.38E-03	2.01E-02	2.46E-03
PU-9/0	5155.000	5127.402	49.267	16.000	16.000	0.000	2.0604	99.900000	1.97E-02	5.01E-03	5.89E-03	1.51E-02	4.91E-03
PU242	4890.000	4883.540	41.277	981.000	981.000	0.000	0.0000	100.0000	1.20E+00	7.23E-02	0.00E+00	3.33E-03	3.84E-02
PU-244	4589.000	4521.480	4.937	8.000	8.000	0.000	3.7241	99.900000	9.83E-03	3.51E-03	1.06E-02	2.46E-02	3.47E-03

## NOTES:

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

\* Sg of PU242 calculated as sqrt(BKG AREA).



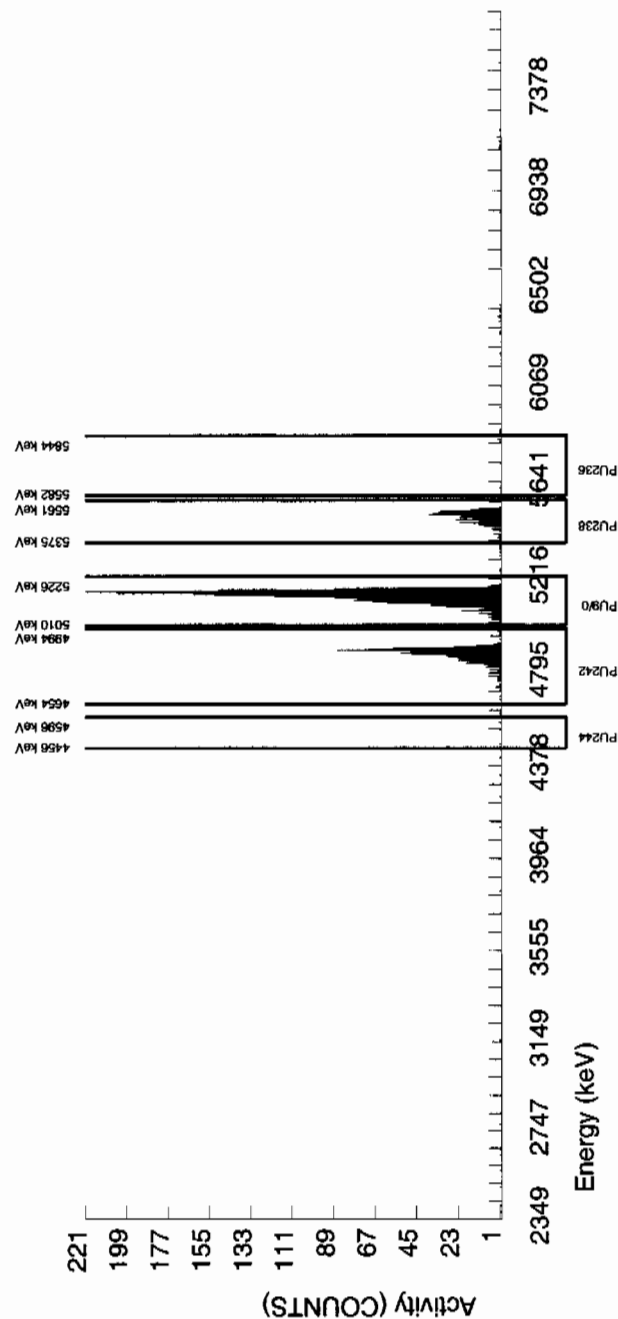
**GEL Laboratories LLC**  
**ALPHA SPECTROSCOPY REPORT**

BATCH NUMBER : 950644 SAMPLE ID : S1202037252_PU SAMPLE QTY : 0.100 G SAMPLE DATE : 16-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 82.240				CHAMBER : 202 DETECTOR S/N : 78903 AVERAGE %EFFICIENCY : 26.5796 COUNT DATE : 20-FEB-2010 13:39:52 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_PU BKG FILE : B202.CNF;100 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W202.CNF;49 CAL DATE : 22-JAN-2010					
TRACER ID : 1375-A NUCLIDE : PU242 NOMINAL : 3.3808E+00 dpm RESULTS : 2.7803E+00 dpm				MS/MSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G				LCS/LCSD ID : 0244-B NUCLIDE : PU-9/0 NOMINAL : 4.1778E+01 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5776.848	4.951	4.000	-3.000	7.000	2.6925	100.0000	-6.20E-02	6.86E-02	1.29E-01	3.14E-01	6.86E-02
PU-238	5499.000	5491.391	49.954	345.000	342.000	3.000	2.9312	99.900000	7.06E+00	5.43E-01	1.41E-01	3.37E-01	3.85E-01
PU-9/0	5155.000	5145.786	34.290	1962.000	1961.000	1.000	2.0604	99.900000	4.05E+01	2.38E+00	9.89E-02	2.54E-01	9.14E-01
PU242	4890.000	4883.783	32.618	739.000	739.000	0.000	0.0000	100.0000	1.52E+01	9.99E-01	0.00E+00	5.58E-02	5.60E-01
PU-244	4589.000	4537.422	7.272	7.000	7.000	0.000	3.7241	99.900000	1.44E-01	5.51E-02	1.79E-01	4.13E-01	5.46E-02

## NOTES:

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

\* Sg of PU242 calculated as  $\sqrt{\text{BKG AREA}}$ .





# Radiochemistry Batch Checklist, Rev10

Batch# 950645 Product: U Date: 2/23/10

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.	✓		case narrative
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.	✓		case narrative
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly 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
Allquot 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: E. H. 2/23/10

Secondary Review Performed By: not done 2/23/10

LAWL

# Uranium Que Sheet

08-FEB-10

Batch #: 950645

Analyst: JXD2

First Client Due Date: 26-FEB-10

Internal Due Date: 16-FEB-10

Tracer Isotope: U-232/U-236 Tracer Code: 1283-H Expiration Date: 12/01/10 Vol: 0.1

LCS Isotope: U-238 LCS Code: Expiration Date: Vol: 0.1

Spike Isotope: U-238 Spike Code: Expiration Date: Vol: 0.1

Prep Date: 02/01/10 Initials: JHD Pipet ID: 2576578 Balance ID: 50410272

Witness: JEH 2-16-10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Allquot @ 1/1/0	U Det #
246312001-1	RE16-10-1313	SAMPLE		.1 pCi/g	SOIL	LANL010	29-JAN-10	1	1	0.513	1
246328001-1	RE15-10-7332	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	2	2	0.519	2
246328002-1	RE15-10-7333	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	3	3	0.525	3
246328003-1	RE15-10-7336	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	4	4	0.521	4
246328004-1	RE15-10-7337	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	5	5	0.520	5
246328005-1	RE15-10-7334	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	6	6	0.511	6
246328006-1	RE15-10-7335	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	7	7	0.503	7
246328007-1	RE15-10-7338	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	8	8	0.529	8
246328008-1	RE15-10-7339	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	9	9	0.517	9
246328009-1	RE15-10-7342	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	10	10	0.506	10
246341001-1	RE15-10-8304	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	11	11	0.523	11
246341002-1	RE15-10-8305	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	12	12	0.502	12
246341003-1	RE15-10-8306	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	13	13	0.524	13
246341004-1	RE15-10-8307	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	14	14	0.506	14
246341005-1	RE15-10-8309	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	15	15	0.509	15
246341006-1	RE15-10-8308	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	16	16	0.518	16
246341007-1	RE15-10-8301	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	17	17	0.509	17
246341008-1	RE15-10-8300	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	18	18	0.522	18
246341009-1	RE15-10-8324	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	19	19	0.513	19
1202037253-1	MB for batch 950645	MB		.1 pCi/g	SOIL	QC ACCOUNT		20	20	1.0	129
1202037254-1	RE15-10-8304(246341001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	01-FEB-10	21	21	0.533	123
1202037255-1	LCS for batch 950645	LCS		.1 pCi/g	SOIL	QC ACCOUNT		22	22	0.104	185

\* SRM 0244-A

Exp 10/31/20

0.104g

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION

Data Reviewed By: 2/23/10

Circle One

# Blank Correction Report

**Batch ID 950645**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202037254	DUP	Uranium-233/234	0.533 g	83.7	6.31	0.146	.057598499	pCi/g	NO
		Uranium-235/236	0.533 g	4.90	0.413	0.0933	.016885553	pCi/g	NO
		Uranium-238	0.533 g	86.1	6.49	0.100	.057973734	pCi/g	NO
1202037255	LCS	Uranium-233/234	0.104 g	6.25	0.600	0.502	.295192308	pCi/g	NO
		Uranium-235/236	0.104 g	0.0984	0.0607	0.320	.086538462	pCi/g	YES
		Uranium-238	0.104 g	5.97	0.577	0.343	.297115385	pCi/g	NO
1202037253	MB	Uranium-233/234	1.00 g	0.0307	0.00859	0.0459	.0307	pCi/g	YES
		Uranium-235/236	1.00 g	0.009	0.00454	0.0293	.009	pCi/g	YES
		Uranium-238	1.00 g	0.0309	0.00899	0.0313	.0309	pCi/g	YES
246312001	RE16-10-1313	Uranium-233/234	0.513 g	0.746	0.0691	0.0709	.059844055	pCi/g	NO
		Uranium-235/236	0.513 g	0.0486	0.0143	0.0452	.017543860	pCi/g	YES
		Uranium-238	0.513 g	0.904	0.0804	0.0484	.060233918	pCi/g	NO
246328001	RE15-10-7332	Uranium-233/234	0.519 g	0.819	0.0887	0.121	.059152216	pCi/g	NO
		Uranium-235/236	0.519 g	0.0595	0.0256	0.0774	.017341040	pCi/g	YES
		Uranium-238	0.519 g	1.22	0.117	0.0829	.059537572	pCi/g	NO
246328002	RE15-10-7333	Uranium-233/234	0.525 g	0.918	0.0817	0.0714	.058476190	pCi/g	NO
		Uranium-235/236	0.525 g	0.0455	0.013	0.0455	.017142857	pCi/g	YES
		Uranium-238	0.525 g	2.48	0.191	0.0487	.058857143	pCi/g	NO
246328003	RE15-10-7336	Uranium-233/234	0.521 g	0.533	0.0566	0.0832	.058925144	pCi/g	NO
		Uranium-235/236	0.521 g	0.0163	0.010	0.053	.017274472	pCi/g	YES
		Uranium-238	0.521 g	1.14	0.101	0.0568	.059309021	pCi/g	NO
246328004	RE15-10-7337	Uranium-233/234	0.520 g	0.745	0.068	0.0667	.059038462	pCi/g	NO
		Uranium-235/236	0.520 g	0.0327	0.0141	0.0426	.017307692	pCi/g	YES
		Uranium-238	0.520 g	1.86	0.146	0.0456	.059423077	pCi/g	NO
246328005	RE15-10-7334	Uranium-233/234	0.511 g	1.32	0.114	0.0865	.060078278	pCi/g	NO
		Uranium-235/236	0.511 g	0.161	0.0285	0.0552	.017612524	pCi/g	NO
		Uranium-238	0.511 g	4.14	0.314	0.0591	.060469667	pCi/g	NO
246328006	RE15-10-7335	Uranium-233/234	0.503 g	0.809	0.0763	0.0805	.061033797	pCi/g	NO
		Uranium-235/236	0.503 g	0.0473	0.0151	0.0513	.017892644	pCi/g	YES
		Uranium-238	0.503 g	1.41	0.119	0.0549	.061431412	pCi/g	NO
246328007	RE15-10-7338	Uranium-233/234	0.529 g	1.11	0.097	0.077	.058034026	pCi/g	NO
		Uranium-235/236	0.529 g	0.102	0.0208	0.0491	.017013233	pCi/g	NO
		Uranium-238	0.529 g	2.95	0.226	0.0526	.058412098	pCi/g	NO
246328008	RE15-10-7339	Uranium-233/234	0.517 g	0.993	0.0895	0.0804	.059381044	pCi/g	NO
		Uranium-235/236	0.517 g	0.0748	0.0204	0.0512	.017408124	pCi/g	YES
		Uranium-238	0.517 g	1.66	0.137	0.0549	.059767892	pCi/g	NO
246328009	RE15-10-7342	Uranium-233/234	0.506 g	0.548	0.0551	0.0737	.060671937	pCi/g	NO
		Uranium-235/236	0.506 g	0.0289	0.0104	0.047	.017786561	pCi/g	YES
		Uranium-238	0.506 g	0.864	0.0786	0.0503	.061067194	pCi/g	NO
246341001	RE15-10-8304	Uranium-233/234	0.523 g	89.1	7.01	0.196	.058699809	pCi/g	NO
		Uranium-235/236	0.523 g	5.24	0.467	0.125	.017208413	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
246341001	RE15-10-8304	Uranium-238	0.523 g	92.3	7.26	0.134	.059082218	pCi/g	NO
246341003	RE15-10-8306	Uranium-233/234	0.524 g	8.26	0.614	0.0974	.058587786	pCi/g	NO
		Uranium-235/236	0.524 g	0.525	0.0624	0.0621	.017175573	pCi/g	NO
		Uranium-238	0.524 g	10.1	0.744	0.0665	.058969466	pCi/g	NO
246341004	RE15-10-8307	Uranium-233/234	0.506 g	2.63	0.210	0.0929	.060671937	pCi/g	NO
		Uranium-235/236	0.506 g	0.0774	0.0206	0.0592	.017786561	pCi/g	YES
		Uranium-238	0.506 g	2.82	0.224	0.0634	.061067194	pCi/g	NO
246341005	RE15-10-8309	Uranium-233/234	0.509 g	1.65	0.142	0.0996	.060314342	pCi/g	NO
		Uranium-235/236	0.509 g	0.0585	0.0187	0.0635	.017681729	pCi/g	YES
		Uranium-238	0.509 g	1.53	0.134	0.068	.060707269	pCi/g	NO
246341006	RE15-10-8308	Uranium-233/234	0.518 g	2.74	0.216	0.0881	.059266409	pCi/g	NO
		Uranium-235/236	0.518 g	0.207	0.0333	0.0562	.017374517	pCi/g	NO
		Uranium-238	0.518 g	5.14	0.387	0.0601	.059652510	pCi/g	NO
246341007	RE15-10-8301	Uranium-233/234	0.509 g	1.68	0.142	0.0942	.060314342	pCi/g	NO
		Uranium-235/236	0.509 g	0.0784	0.0209	0.060	.017681729	pCi/g	YES
		Uranium-238	0.509 g	1.65	0.141	0.0643	.060707269	pCi/g	NO
246341008	RE15-10-8300	Uranium-233/234	0.522 g	1.11	0.106	0.106	.058812261	pCi/g	NO
		Uranium-235/236	0.522 g	0.0937	0.0231	0.0677	.017241379	pCi/g	NO
		Uranium-238	0.522 g	1.41	0.129	0.0725	.059195402	pCi/g	NO
246341009	RE15-10-8324	Uranium-233/234	0.513 g	7.64	0.567	0.0951	.059844055	pCi/g	NO
		Uranium-235/236	0.513 g	0.349	0.0478	0.0607	.017543860	pCi/g	NO
		Uranium-238	0.513 g	10.0	0.737	0.0849	.060233918	pCi/g	NO

2/21/0

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950645 SAMPLE ID : S0246341001_UU SAMPLE QTY : 0.523 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 45.055		CHAMBER : 121 DETECTOR S/N : 75545 AVERAGE %EFFICIENCY : 24.6447 COUNT DATE : 22-FEB-2010 12:41:39 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_UU BKG FILE : B121.CNF:449 BKG DATE : 21-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W121.CNF:119 CAL DATE : 18-FEB-2010
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 2.0301E+00 dpm	MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G	LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G	
NUCLIDE ACTIVITY SUMMARY			
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM
U232	5302.100	5287.215	97.706
U-3/4	4763.020	4743.671	78.263
U-235	4391.000	4394.835	83.284
U-238	4184.730	4171.088	80.552
	GROSS AREA	NET AREA	BKG AREA
	505.000	500.000	5.000
	11494.000	11492.494	1.000
	547.000	547.000	0.000
	11897.000	11897.000	0.000
	%ABUN	BKG Sg	ACTIVITY pCi/G
	100.0000	2.2361	3.88E+00
	100.0000	4.8416	8.91E+01
	80.90000	2.2152	5.24E+00
	100.0000	3.1208	9.23E+01
			TPU 1-SIGMA
			3.50E-01
			7.01E+00
			4.67E-01
			7.26E+00
			DLC pCi/G
			4.03E-02
			8.74E-02
			4.94E-02
			5.63E-02
			MDC pCi/G
			1.02E-01
			1.96E-01
			1.25E-01
			1.34E-01
			UNC pCi/G
			1.75E-01
			8.32E-01
			2.24E-01
			8.46E-01

## NOTES:

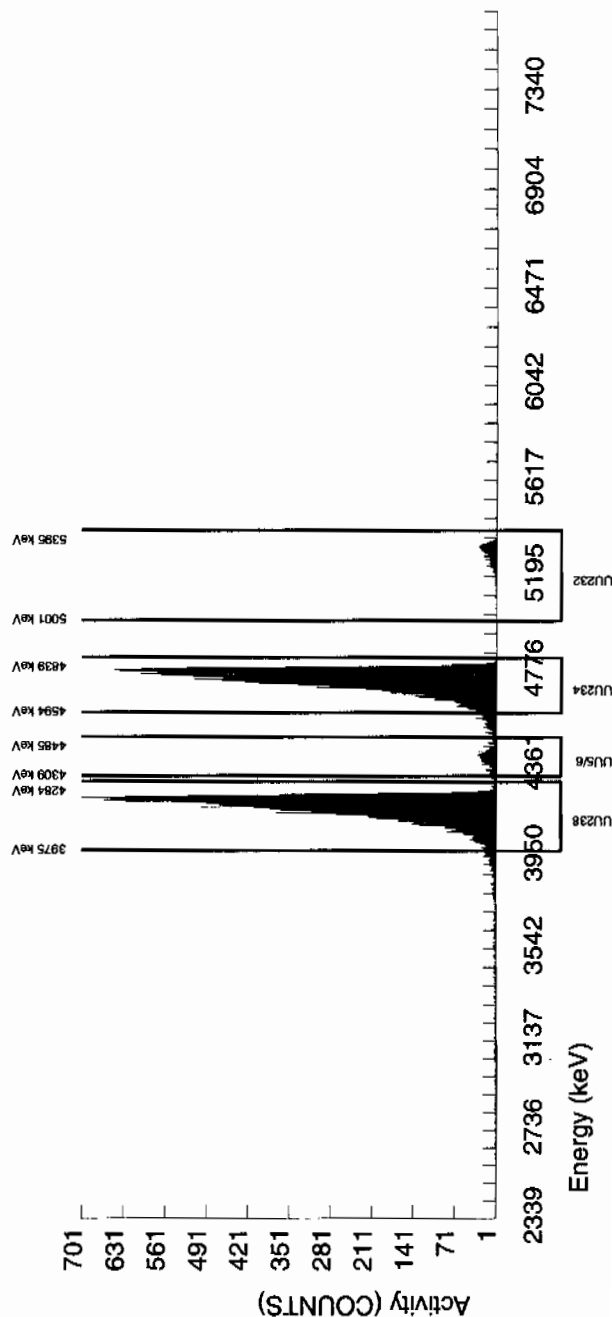
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

\* Corrections made to the following net area  
due to tracer impurity:

U-3/4

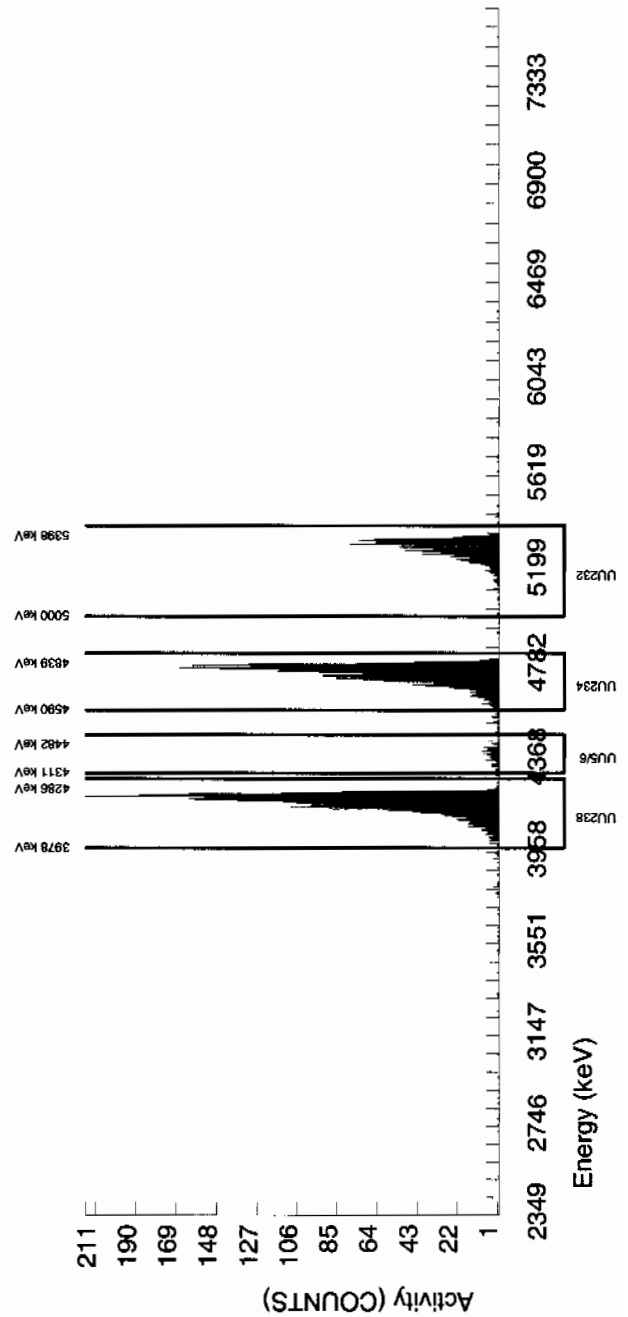


TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5057E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 3.9323E+00 dpm		

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-232	5302.100	5297.957	67.641	1007.000	1003.000	4.000	2.0000	100.0000	3.87E+00	3.02E-01	1.80E-02	4.64E-02	1.23E-01
U-3/4	4763.020	4794.216	63.855	2140.000	2138.985	0.000	4.8416	100.0000	8.26E+00	6.14E-01	4.35E-02	9.74E-02	1.79E-01
U-235	4391.000	4394.018	49.263	110.000	110.000	0.000	2.2152	80.90000	5.25E-01	6.24E-02	2.46E-02	6.21E-02	5.00E-02
U-238	4184.730	4182.930	60.162	2614.000	2614.000	0.000	3.1208	100.0000	1.01E+01	7.44E-01	2.80E-02	6.65E-02	1.97E-01

## U-3/4



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950645 SAMPLE ID : S0246341004_UU SAMPLE QTY : 0.506 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 92.533				CHAMBER : 120 DETECTOR S/N : 74430 AVERAGE %EFFICIENCY : 26.1342 COUNT DATE : 20-FEB-2010 10:57:49 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B120.CNF;464 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W120.CNF;128 CAL DATE : 18-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 4.1692E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5306.423	68.051	1091.000	1089.000	2.000	1.4142	100.0000	4.01E+00	3.08E-01	1.21E-02	3.42E-02	1.22E-01
U-3/4	4763.020	4762.958	63.458	717.000	714.898	1.000	4.8416	100.0000	2.63E+00	2.10E-01	4.15E-02	9.29E-02	9.86E-02
U-235	4391.000	4407.263	101.109	18.000	17.000	1.000	2.2152	80.90000	7.74E-02	2.06E-02	2.34E-02	5.92E-02	1.98E-02
U-238	4184.730	4191.684	68.462	766.000	766.000	0.000	3.1208	100.0000	2.82E+00	2.24E-01	2.67E-02	6.34E-02	1.02E-01

## NOTES:

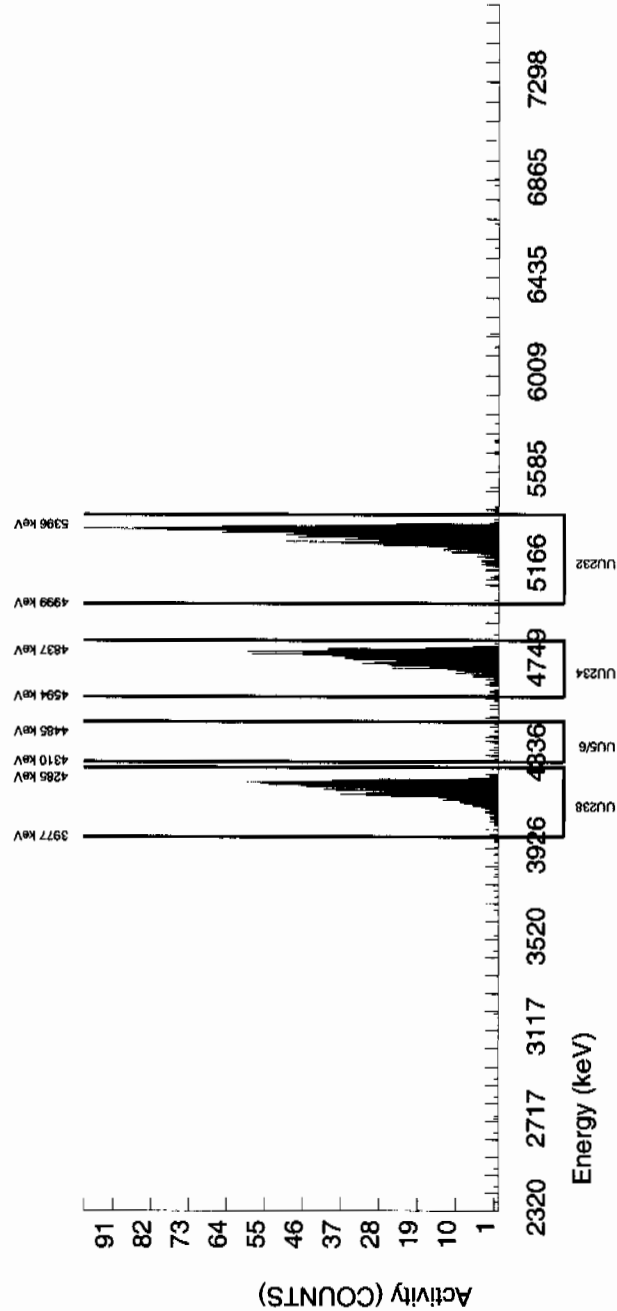
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

\* Corrections made to the following net area  
due to tracer impurity:

U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950645  SAMPLE ID : S0246341005_UU  SAMPLE QTY : 0.509 G  SAMPLE DATE : 1-FEB-2010 00:00:00.  ANALYST : JXD2  % YIELD : 90.481</p>		<p>CHAMBER : 130  DETECTOR S/N : 76228  AVERAGE %EFFICIENCY : 24.7879  COUNT DATE : 20-FEB-2010 10:58:14  ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_UU  BKG FILE : B130.CNF;450  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W130.CNF;132  CAL DATE : 18-FEB-2010</p>
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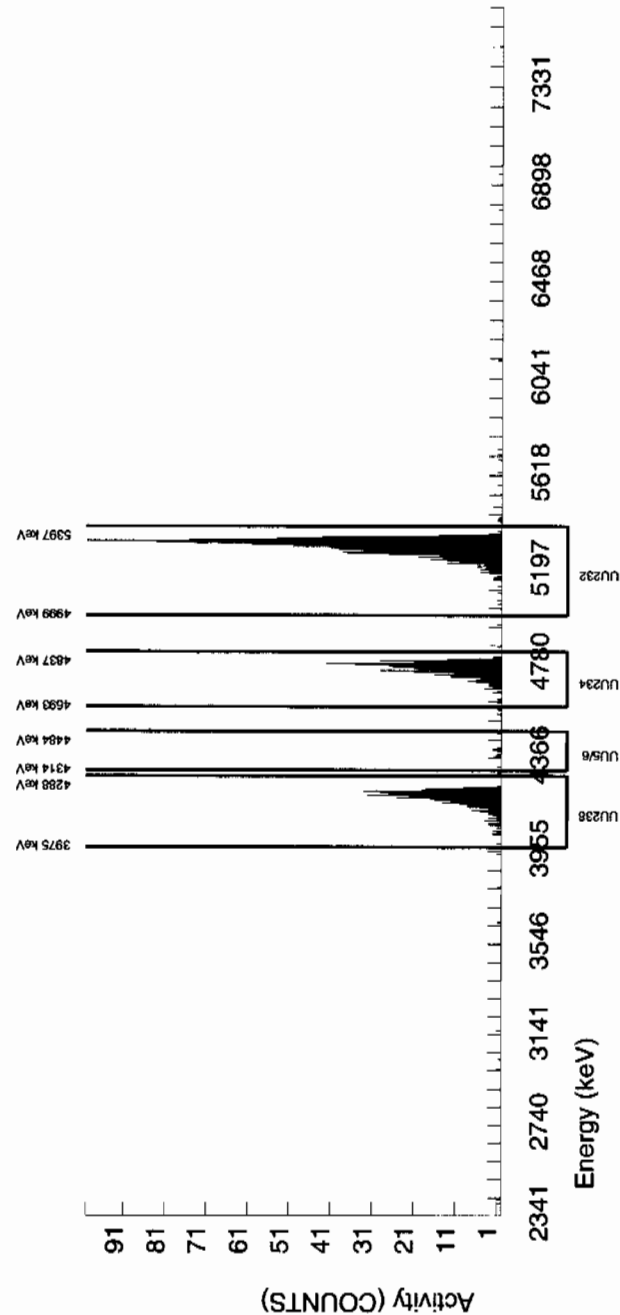
<p>TRACER  ID : 1283-H  NUCLIDE : U232  NOMINAL : 4.5057E+00 dpm  RESULTS : 4.0768E+00 dpm</p>	<p>MS/MSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/g</p>	<p>LCS/LCSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/g</p>
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## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/g	TPU 1-SIGMA	DLG pCi/g	MDC pCi/g	UNC pCi/g
U232	5302.100	5309.595	29.661	1015.000	1010.000	5.000	2.2361	100.0000	3.99E+00	3.10E-01	2.05E-02	5.17E-02	1.26E-01
U-3/4	4763.020	4764.228	45.195	418.000	416.978	0.000	4.8416	100.0000	1.65E+00	1.42E-01	4.44E-02	9.96E-02	8.06E-02
U-235	4391.000	4406.193	37.237	13.000	12.000	1.000	2.2152	80.90000	5.85E-02	1.87E-02	2.51E-02	6.35E-02	1.82E-02
U-238	4184.730	4191.757	46.079	389.000	389.000	0.000	3.1208	100.0000	1.53E+00	1.34E-01	2.86E-02	6.80E-02	7.78E-02

## NOTES:

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





BATCH NUMBER : 950645 SAMPLE ID : S0246341006_UU SAMPLE QTY : 0.518 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 96.722				CHAMBER : 142 DETECTOR S/N : 64261 AVERAGE %EFFICIENCY : 25.7599 COUNT DATE : 20-FEB-2010 10:58:42 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B142.CNF;394 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W142.CNF;111 CAL DATE : 19-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 4.3580E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5302.973	55.845	1130.000	1122.000	8.000	2.8284	100.0000	3.92E+00	3.00E-01	2.30E-02	5.54E-02	1.18E-01
U-3/4	4763.020	4753.892	61.938	785.000	783.864	0.000	4.8416	100.0000	2.74E+00	2.16E-01	3.93E-02	8.81E-02	9.77E-02
U-235	4391.000	4398.246	57.148	48.000	48.000	0.000	2.2152	80.90000	2.07E-01	3.33E-02	2.22E-02	5.62E-02	2.99E-02
U-238	4184.730	4186.422	52.605	1475.000	1474.000	1.000	3.1208	100.0000	5.14E+00	3.87E-01	2.53E-02	6.01E-02	1.34E-01

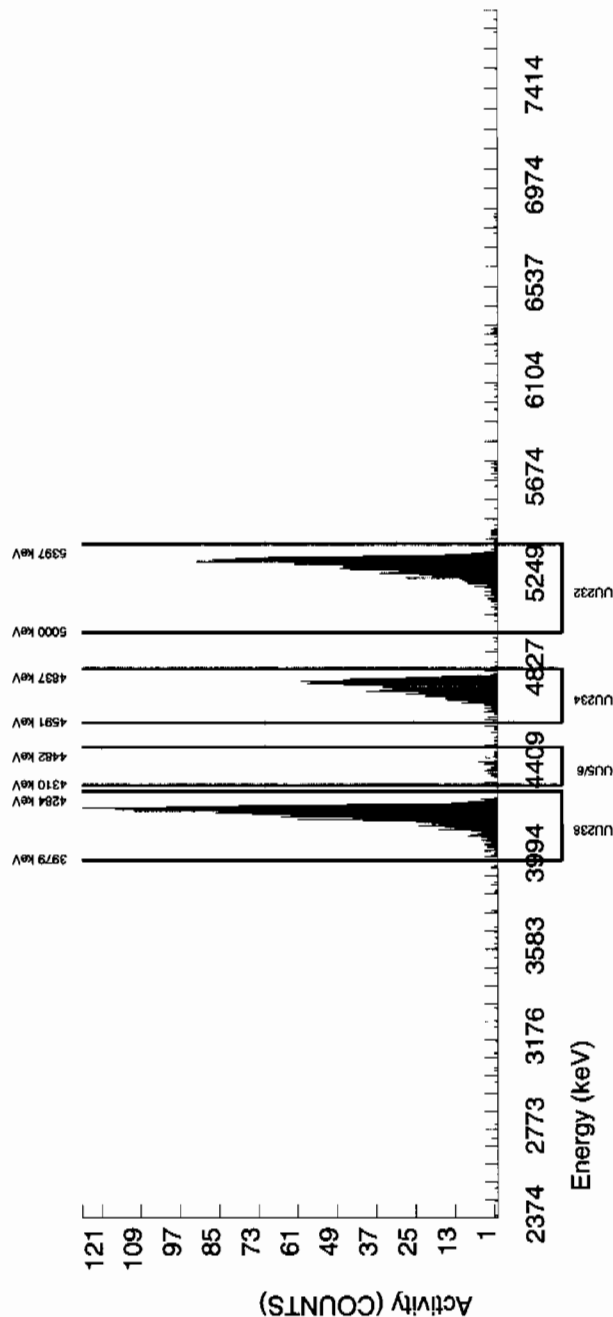
## NOTES:

\* Sq calculated via blank population.

(Sg updated 10-FEB-2010)

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

\* Corrections made to the following net area due to tracer impurity:



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950645 SAMPLE ID : S0246341007_UU SAMPLE QTY : 0.509 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 94.343	CHAMBER : 144 DETECTOR S/N : 75551 AVERAGE %EFFICIENCY : 25.1386 COUNT DATE : 20-FEB-2010 10:58:48 ELAPSED LIVE TIME(SEC) : 60000.00	LIB FILE : ENV_ALPHA_UU BKG FILE : B144.CNF;395 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W144.CNF;108 CAL DATE : 19-FEB-2010
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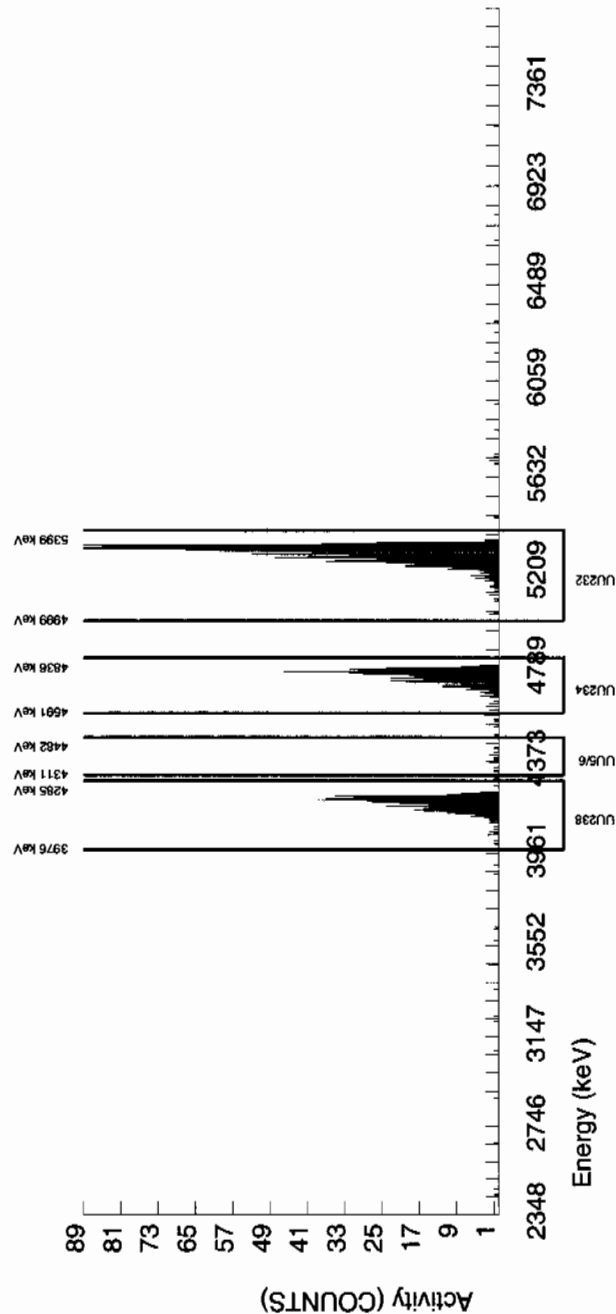
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 4.2508E+00 dpm	MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G	LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G
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## NUCLIDE ACTIVITY SUMMARY

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	5301.585	59.101	1073.000	1068.000	5.000	2.2361	100.0000	3.99E+00	3.08E-01	1.94E-02	4.89E-02	1.23E-01
U-3/4	4763.020	4759.326	32.965	447.000	445.919	0.000	4.8416	100.0000	1.66E+00	1.42E-01	4.20E-02	9.42E-02	7.88E-02
U-235	4391.000	4388.281	38.973	18.000	17.000	1.000	2.2152	80.90000	7.84E-02	2.09E-02	2.38E-02	6.00E-02	2.01E-02
U-238	4184.730	4187.875	49.995	443.000	443.000	0.000	3.1208	100.0000	1.65E+00	1.41E-01	2.71E-02	6.43E-02	7.85E-02

## NOTES:

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



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

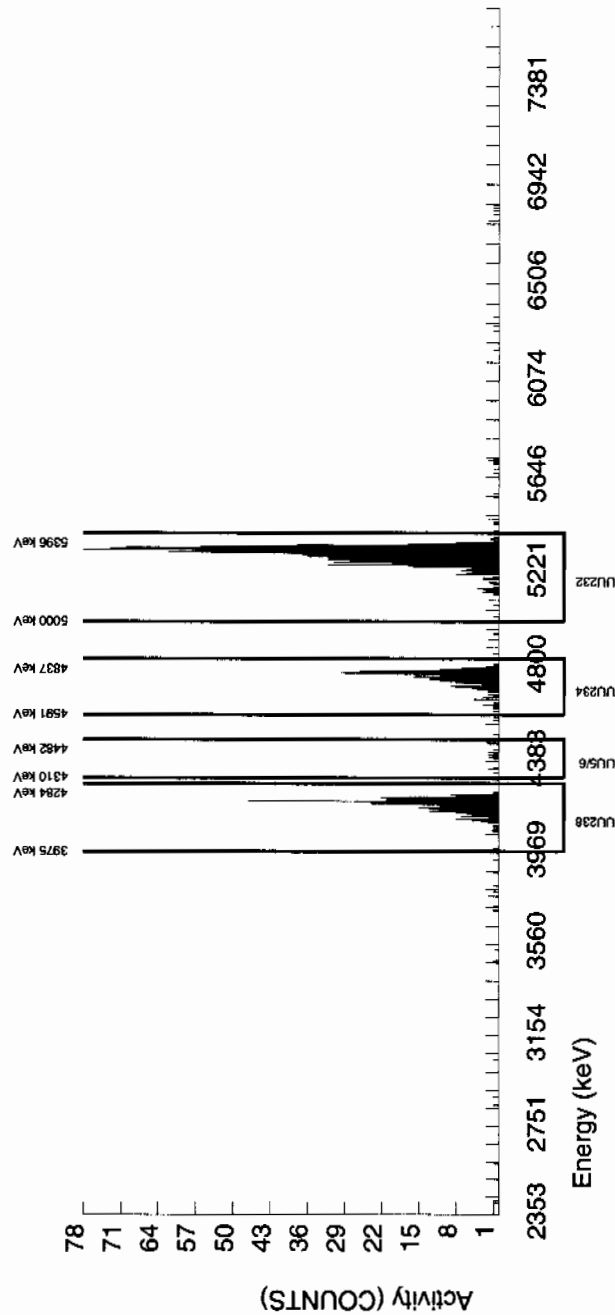
<p>BATCH NUMBER : 950645 SAMPLE ID : S0246341008_UU SAMPLE QTY : 0.522 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 82.213</p>	<p>CHAMBER : 145 DETECTOR S/N : 72526 AVERAGE %EFFICIENCY : 24.9308 COUNT DATE : 20-FEB-2010 10:58:51 ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_UU BKG FILE : B145.CNF:393 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W145.CNF:113 CAL DATE : 19-FEB-2010</p>
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<p>TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 3.7043E+00 dpm</p>	<p>MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G</p>	<p>LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G</p>
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NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5301.947	38.464	929.000	923.000	6.000	2.4495	100.0000	3.89E+00	3.12E-01	2.40E-02	5.94E-02	1.29E-01
U-3/4	4763.020	4755.629	29.274	265.000	263.066	1.000	4.8416	100.0000	1.11E+00	1.06E-01	4.74E-02	1.06E-01	6.85E-02
U-235	4391.000	4406.821	114.056	18.000	18.000	0.000	2.2152	80.90000	9.37E-02	2.31E-02	2.68E-02	6.77E-02	2.21E-02
U-238	4184.730	4189.131	14.667	337.000	336.000	1.000	3.1208	100.0000	1.41E+00	1.29E-01	3.06E-02	7.25E-02	7.74E-02

## NOTES:

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950645 SAMPLE ID : S0246341009_UU SAMPLE QTY : 0.513 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 91.611				CHAMBER : 128 DETECTOR S/N : 75549 AVERAGE %EFFICIENCY : 25.4275 COUNT DATE : 20-FEB-2010 10:58:09 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B128.CNF:461 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W128.CNF:135 CAL DATE : 18-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 4.1277E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5307.697	66.275	1051.000	1049.000	2.000	1.4142	100.0000	3.96E+00	3.06E-01	1.24E-02	3.50E-02	1.22E-01
U-3/4	4763.020	4762.408	69.405	2028.000	2026.938	0.000	4.8416	100.0000	7.64E+00	5.67E-01	4.25E-02	9.51E-02	1.70E-01
U-235	4391.000	4396.757	63.265	76.000	75.000	1.000	2.2152	80.90000	3.49E-01	4.78E-02	2.40E-02	6.07E-02	4.09E-02
U-238	4184.730	4189.128	51.462	2663.000	2662.000	1.000	3.1208	100.0000	1.00E+01	7.37E-01	2.74E-02	6.49E-02	1.95E-01

## NOTES:

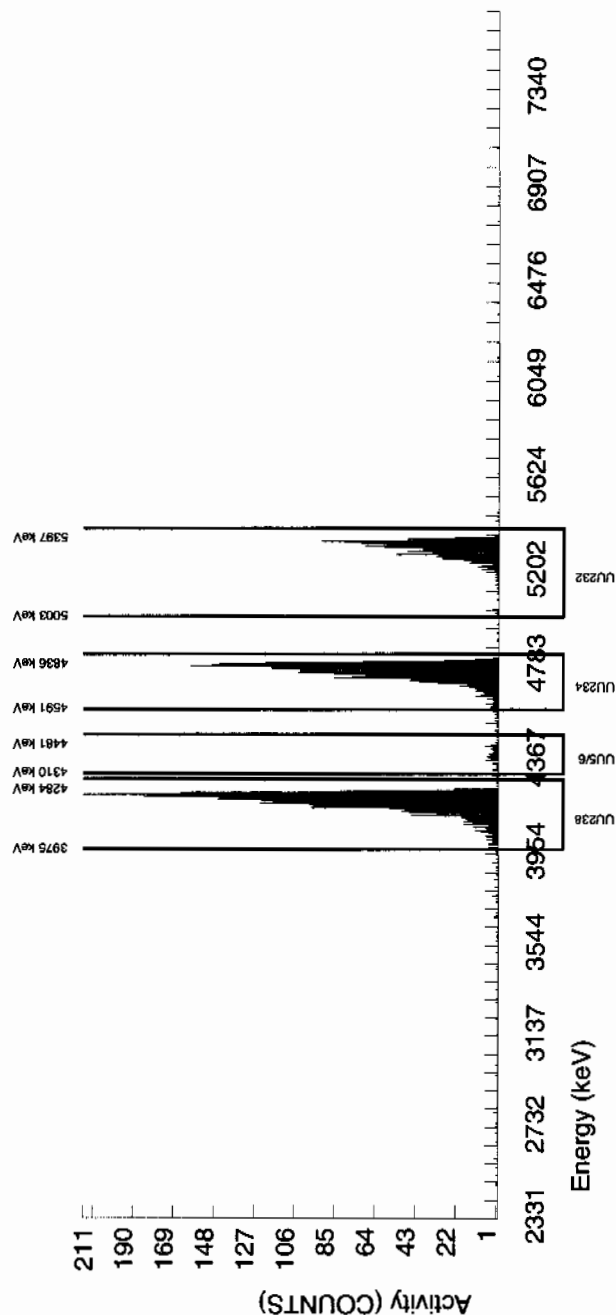
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

\* Corrections made to the following net area  
due to tracer impurity:

U-3/4



# GEL Laboratories LLC ALPHA SPECTROSCOPY REPORT

<p>BATCH NUMBER : 950645  SAMPLE ID : S1202037253_UU  SAMPLE QTY : 1.000 G  SAMPLE DATE : 16-FEB-2010 00:00:00  ANALYST : JXD2  % YIELD : 94.622</p>	<p>CHAMBER : 129  DETECTOR S/N : 76227  AVERAGE %EFFICIENCY : 26.1672  COUNT DATE : 20-FEB-2010 10:58:12  ELAPSED LIVE TIME(SEC) : 60000.00</p>	<p>LIB FILE : ENV_ALPHA_UU  BKG FILE : B129.CNF;450  BKG DATE : 14-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W129.CNF;130  CAL DATE : 18-FEB-2010</p>
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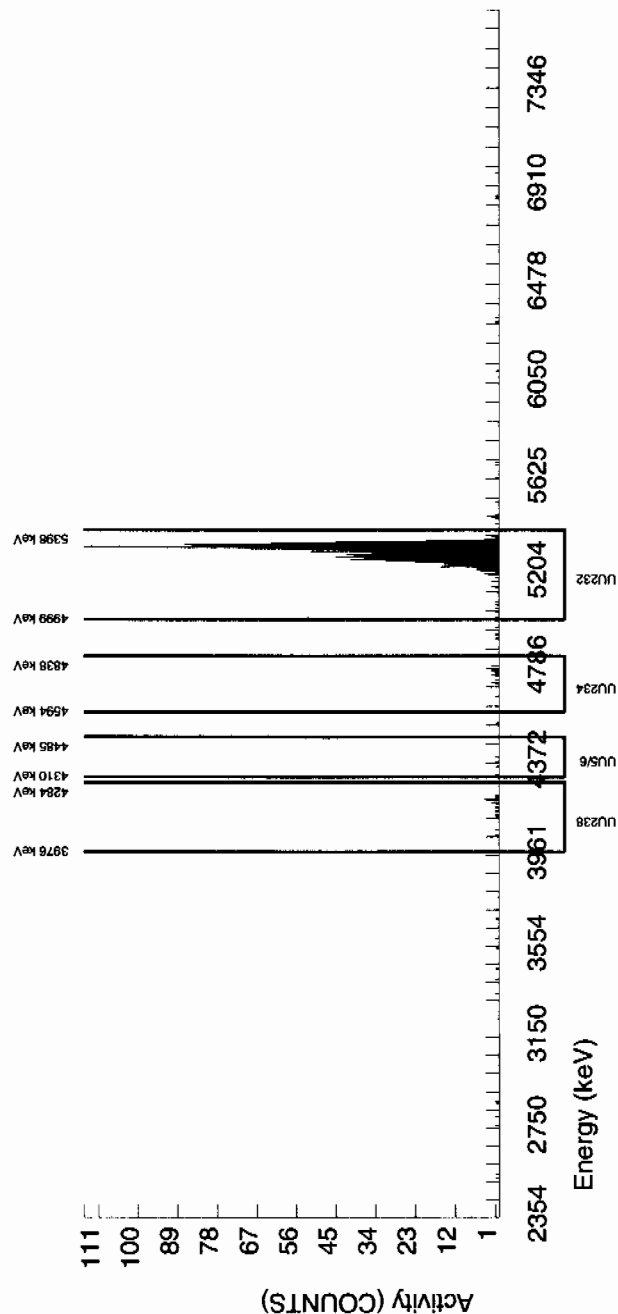
<p>TRACER  ID : 1283-H  NUCLIDE : U232  NOMINAL : 4.5038E+00 dpm  RESULTS : 4.2616E+00 dpm</p>	<p>MS/MSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/G</p>	<p>LCS/LCSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/G</p>
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## NUCLIDE 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
U232	5302.100	5306.875	28.413	1119.000	1115.000	4.000	2.0000	100.0000	2.03E+00	1.55E-01	8.46E-03	2.19E-02	6.10E-02
U-3/4	4763.020	4762.649	72.759	20.000	16.871	2.000	4.8416	100.0000	3.07E-02	8.59E-03	2.05E-02	4.59E-02	8.31E-03
U-235	4391.000	4367.687	78.925	4.000	4.000	0.000	2.2152	80.90000	9.00E-03	4.54E-03	1.16E-02	2.93E-02	4.50E-03
U-238	4184.730	4172.959	5.729	20.000	17.000	3.000	3.1208	100.0000	3.09E-02	8.99E-03	1.32E-02	3.13E-02	8.72E-03

## NOTES:

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

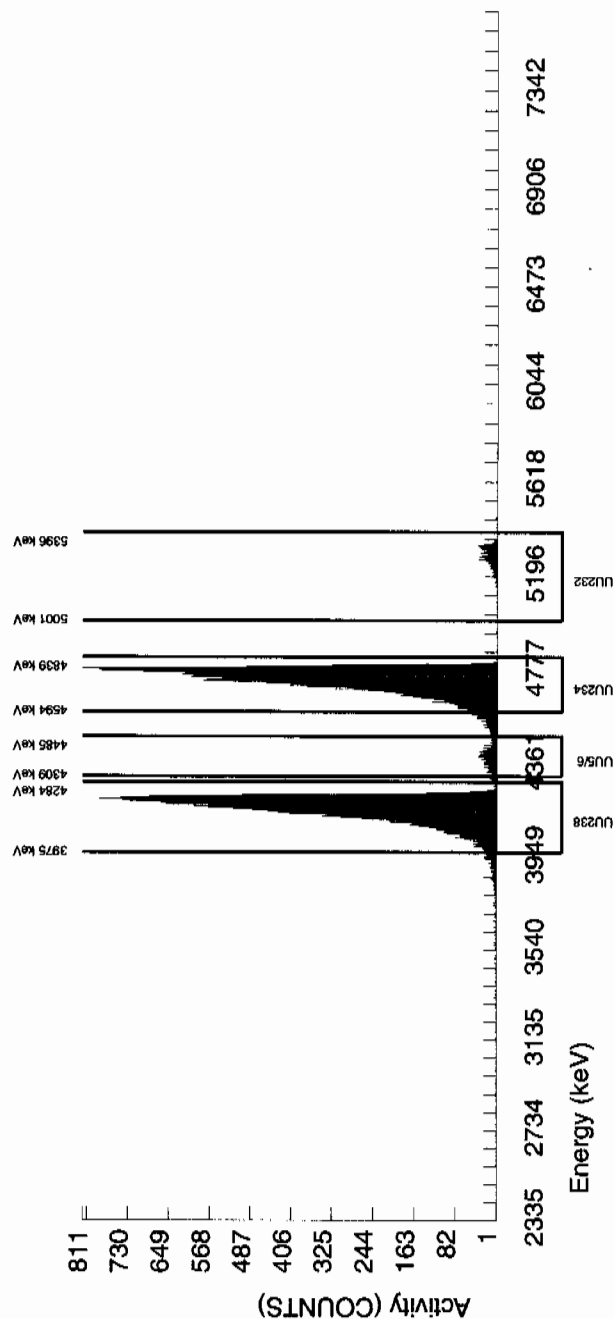
BATCH NUMBER : 950645 SAMPLE ID : S1202037254_UU SAMPLE QTY : 0.533 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 56.657				CHAMBER : 122 DETECTOR S/N : 75546 AVERAGE %EFFICIENCY : 25.7131 COUNT DATE : 22-FEB-2010 12:41:41 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B122.CNF:451 BKG DATE : 21-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W122.CNF:122 CAL DATE : 18-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 2.5528E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5286.452	74.596	663.000	656.000	7.000	2.6458	100.0000	3.81E+00	3.22E-01	3.57E-02	8.71E-02	1.50E-01
U-3/4	4763.020	4743.118	75.850	14429.000	14427.336	1.000	4.8416	100.0000	8.37E+01	6.31E+00	6.53E-02	1.46E-01	6.97E-01
U-235	4391.000	4395.728	108.000	685.000	684.000	1.000	2.2152	80.90000	4.90E+00	4.13E-01	3.70E-02	9.33E-02	1.88E-01
U-238	4184.730	4169.501	83.080	14847.000	14847.000	0.000	3.1208	100.0000	8.61E+01	6.49E+00	4.21E-02	1.00E-01	7.07E-01

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

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

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 950645 SAMPLE ID : S1202037255_UU SAMPLE QTY : 0.104 G SAMPLE DATE : 16-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 84.267				CHAMBER : 185 DETECTOR S/N : 68615 AVERAGE %EFFICIENCY : 25.8251 COUNT DATE : 20-FEB-2010 11:06:37 ELAPSED LIVE TIME(SEC) : 60000.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B185.CNF;154 BKG DATE : 14-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W185.CNF;53 CAL DATE : 22-JAN-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5038E+00 dpm RESULTS : 3.7953E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5310.129	36.168	981.000	980.000	1.000	1.0000	100.0000	1.95E+01	1.64E+00	4.63E-02	1.47E-01	6.24E-01
U-3/4	4763.020	4761.928	58.643	316.000	314.008	1.000	4.8416	100.0000	6.25E+00	6.00E-01	2.24E-01	5.02E-01	3.54E-01
U-235	4391.000	4421.467	88.041	5.000	4.000	1.000	2.2152	80.90000	9.84E-02	6.07E-02	1.27E-01	3.20E-01	6.03E-02
U-238	4184.730	4194.101	40.771	300.000	300.000	0.000	3.1208	100.0000	5.97E+00	5.77E-01	1.44E-01	3.43E-01	3.45E-01

## NOTES:

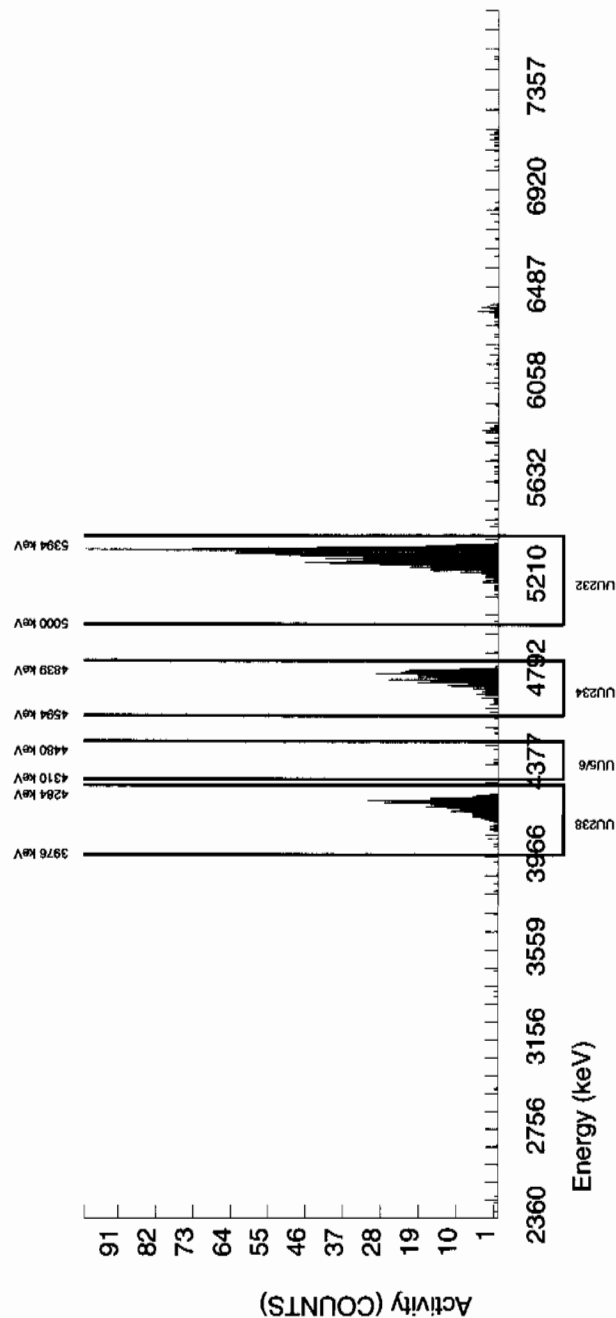
\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

\* Corrections made to the following net area  
due to tracer impurity:

U-3/4



# Radiochemistry Batch Checklist, Rev10

Batch# 956088 Product: u Date: 3/2/10

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)	✓		case narrative
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly 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 DER # 798339
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.	✓		N/A DER # 798339
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] 3/2/10

Secondary Review Performed By: [Signature] 3/2/10

LANL

2/27 - 3/5



✓P

# Uranium Que Sheet

22-FEB-10

Batch #: 956088

Analyst: JXD2

First Client Due Date: 05-MAR-10

Internal Due Date: 27-FEB-10

Tracer Isotope: U-232 U-236 Tracer Code: 1283-H Expiration Date: 12/07/10 Vol: 0.1

LCS Isotope: U-238 LCS Code: Expiration Date: Vol: 1

Spike Isotope: U-238 Spike Code: Expiration Date: Vol: 1

Prep Date: 02/23/10 Initials: JAO Pipet ID: 297058 Balance ID: 50410272

Witness: JAO 2/23/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot	U Det #
246341002-2	RE15-10-8305	SAMPLE		.1 pCi/g	SOIL	LANL010	01-FEB-10	1	1	0.101	1654
1202050050-1	MB for batch 956088	MB		UCF pCi/g to pCi	SOIL	QC ACCOUNT		2	2	1	1665
1202050051-2	RE15-10-8305(246341002DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	01-FEB-10	3	3	0.105	1686
1202050052-1	LCS for batch 956088	LCS		UCF pCi/g to pCi	SOIL	QC ACCOUNT		4	4	0.108	1697

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

3/2/10

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION  
Circle One

Data Reviewed By: J. JAO 3/2/10

# Blank Correction Report

**Batch ID 956088**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202050051	DUP	Uranium-233/234	0.105 g	319	32.7	2.08	.056190476	pCi/g	NO
		Uranium-235/236	0.105 g	23.0	2.88	1.36	.055619048	pCi/g	NO
		Uranium-238	0.105 g	342	35.1	1.44	.194285714	pCi/g	NO
1202050052	LCS	Uranium-233/234	0.108 g	5.88	0.861	1.50	.054629630	pCi/g	NO
		Uranium-235/236	0.108 g	0.250	0.160	0.980	.054074074	pCi/g	YES
		Uranium-238	0.108 g	6.65	0.943	1.04	.188888889	pCi/g	NO
1202050050	MB	Uranium-233/234	1.00 g	0.0059	0.00845	0.127	.0059	pCi/g	YES
		Uranium-235/236	1.00 g	0.00584	0.00793	0.0832	.00584	pCi/g	YES
		Uranium-238	1.00 g	0.0204	0.0128	0.0879	.0204	pCi/g	YES
246341002	RE15-10-8305	Uranium-233/234	0.101 g	303	31.3	2.17	.058415842	pCi/g	NO
		Uranium-235/236	0.101 g	20.3	2.63	1.42	.057821782	pCi/g	NO
		Uranium-238	0.101 g	311	32.1	1.50	.201980198	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

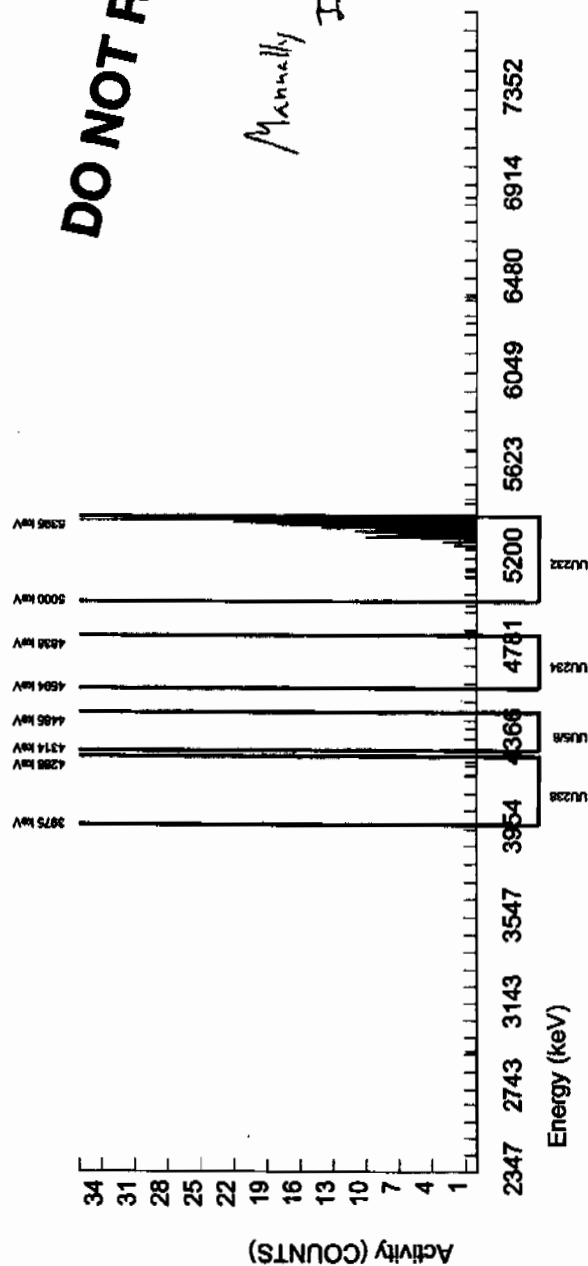
<p>BATCH NUMBER : 956088  SAMPLE ID : S1202050050_UU  SAMPLE QTY : 1.000 G  SAMPLE DATE : 23-FEB-2010 00:00:00  ANALYST : JXD2  % YIELD : 91.983</p>	<p>CHAMBER : 005  DETECTOR S/N : 79454  AVERAGE %EFFICIENCY : 31.9230  COUNT DATE : 1-MAR-2010 10:29:17  ELAPSED LIVE TIME(SEC) : 14399.99</p>	<p>LIB FILE : ENV ALPHA UU  BKG FILE : B005.CNF:1109  BKG DATE : 28-FEB-2010  BKG LIVE TIME(SEC) : 60000.00  EFF FILE : W005.CNF:337  CAL DATE : 3-FEB-2010</p>
<p>TRACER  ID : 1283-H  NUCLIDE : U232  NOMINAL : 4.5030E+00 dpm  RESULTS : 4.1420E+00 dpm</p>	<p>MS/MSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/G</p>	<p>LCS/LCSD  ID : 0244-A  NUCLIDE : U-238  NOMINAL : 5.7500E+00 pCi/G</p>

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5351.232	26.829	318.000	317.280	0.720	0.8485	100.0000	2.03E+00	2.06E-01	9.94E-03	3.72E-02	1.14E-01
U-3/4	4763.020	4809.528	49.260	2.000	0.959	0.720	4.8416	100.0000	6.13E-03	8.71E-03	5.67E-02	1.31E-01	8.70E-03
U-235	4391.000	4417.389	4.926	1.000	0.760	0.240	2.2152	80.90000	6.00E-03	8.15E-03	3.21E-02	8.55E-02	8.13E-03
U-238	4184.730	4178.853	275.855	4.000	3.280	0.720	3.1208	100.0000	2.10E-02	1.32E-02	3.89E-02	9.04E-02	1.31E-02

NOTES:

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 956088 SAMPLE ID : S0246341002_UU SAMPLE QTY : 0.101 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 57.475	CHAMBER : 004 DETECTOR S/N : 68548 AVERAGE %EFFICIENCY : 30.4786 COUNT DATE : 1-MAR-2010 10:29:17 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : ENV_ALPHA.UU BKG FILE : B004.CNF;1123 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W004.CNF;330 CAL DATE : 3-FEB-2010
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TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 2.5896E+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

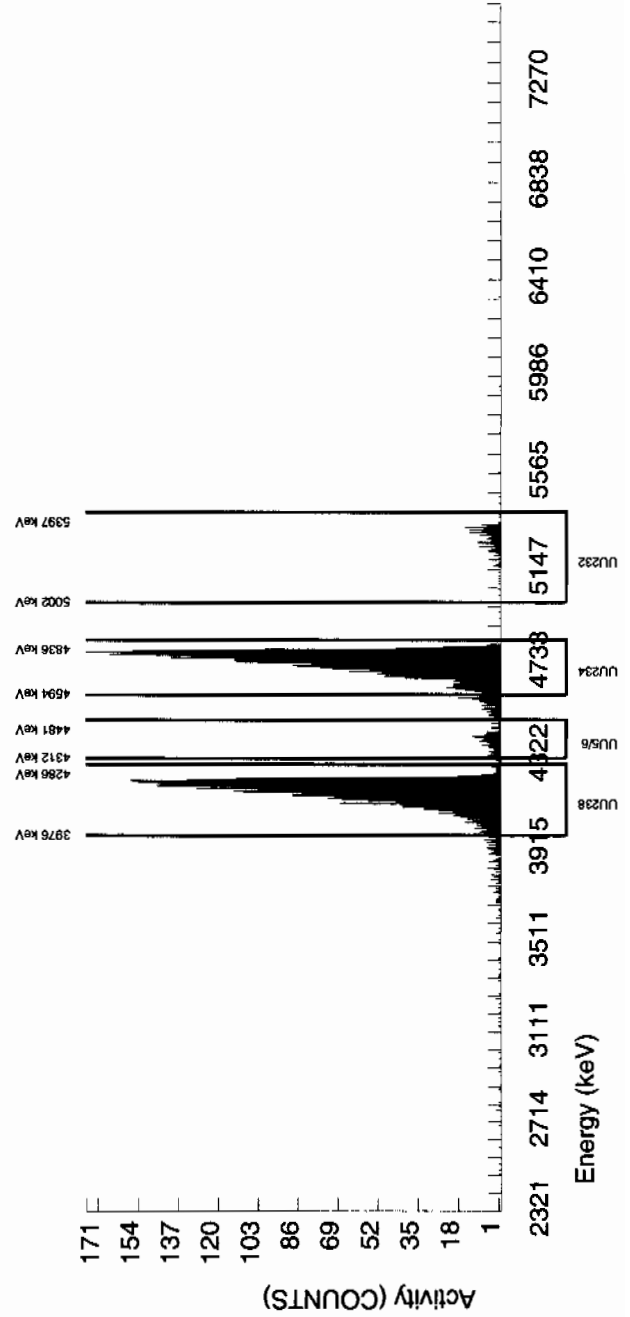
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5279.368	89.633	190.000	189.280	0.720	0.8485	100.0000	2.01E+01	2.51E+00	1.65E-01	6.17E-01	1.46E+00
U-3/4	4763.020	4741.915	62.884	2853.000	2852.808	0.000	4.8416	100.0000	3.03E+02	3.13E+01	9.41E-01	2.17E+00	5.67E+00
U-235	4391.000	4394.665	51.120	155.000	155.000	0.000	2.2152	80.90000	2.03E+01	2.63E+00	5.32E-01	1.42E+00	1.63E+00
U-238	4184.730	4167.310	77.901	2931.000	2930.040	0.960	3.1208	100.0000	3.11E+02	3.21E+01	6.06E-01	1.50E+00	5.74E+00

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

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

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

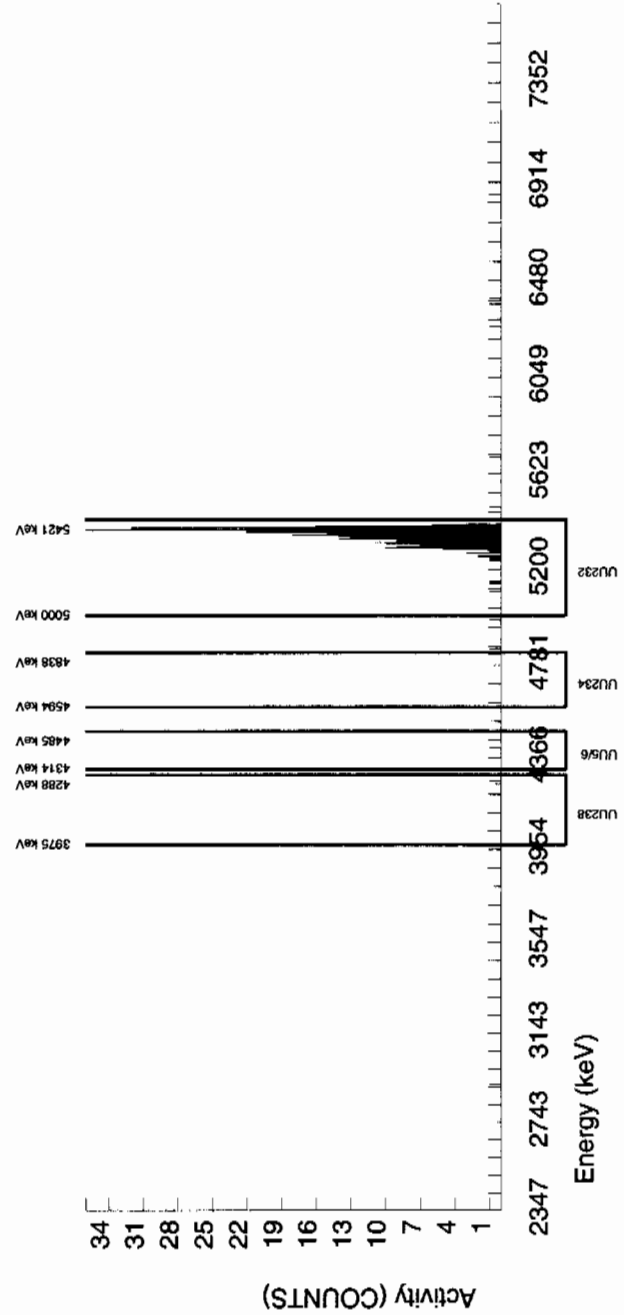
BATCH NUMBER : 956088 SAMPLE ID : S1202050050_UU SAMPLE QTY : 1.000 G SAMPLE DATE : 23-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 94.592				CHAMBER : 005 DETECTOR S/N : 79454 AVERAGE %EFFICIENCY : 31.9230 COUNT DATE : 1-MAR-2010 10:29:17 ELAPSED LIVE TIME(SEC) : 14399.99				LIB FILE : ENV_ALPHA_UU BKG FILE : B005.CNF;1109 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W005.CNF;337 CAL DATE : 3-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5030E+00 dpm RESULTS : 4.2595E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5352.626	26.829	327.000	326.280	0.720	0.8485	100.0000	2.03E+00	2.05E-01	9.66E-03	3.62E-02	1.12E-01
U-3/4	4763.020	4809.528	49.260	2.000	0.950	0.720	4.8416	100.0000	5.90E-03	8.45E-03	5.51E-02	1.27E-01	8.44E-03
U-235	4391.000	4417.389	4.926	1.000	0.760	0.240	2.2152	80.90000	5.84E-03	7.93E-03	3.12E-02	8.32E-02	7.90E-03
U-238	4184.730	4178.853	275.855	4.000	3.280	0.720	3.1208	100.0000	2.04E-02	1.28E-02	3.55E-02	8.79E-02	1.27E-02

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

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

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

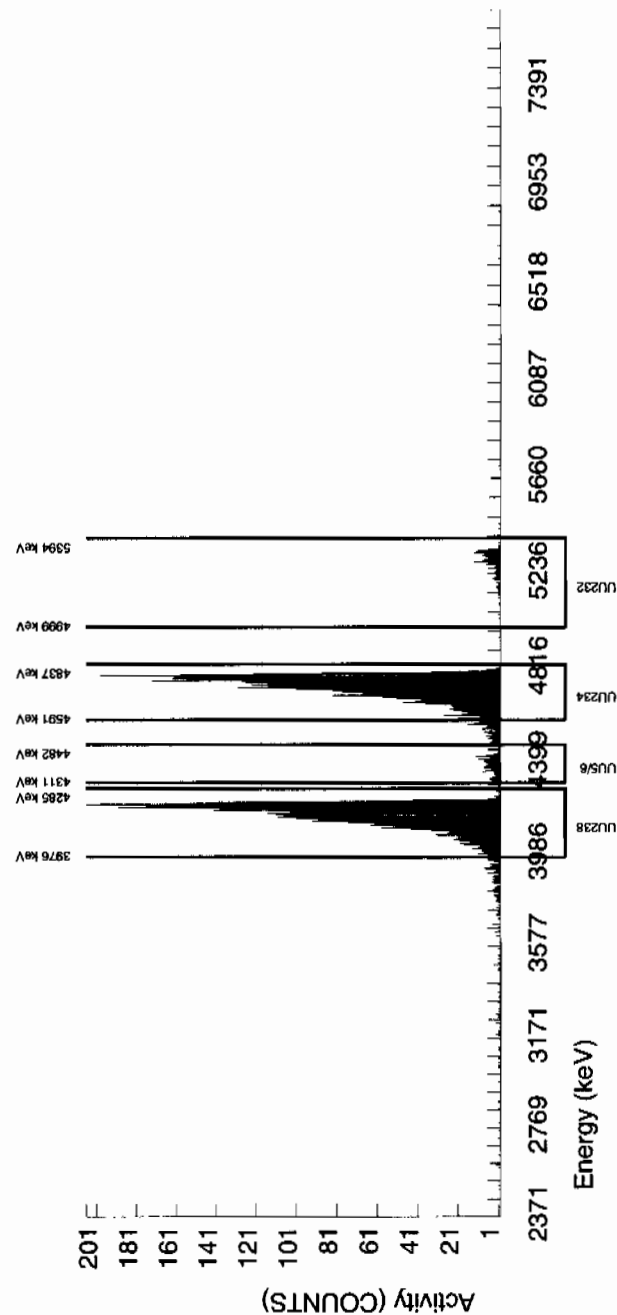
BATCH NUMBER : 956088 SAMPLE ID : S1202050051_UU SAMPLE QTY : 0.105 G SAMPLE DATE : 1-FEB-2010 00:00:00. ANALYST : JXD2 % YIELD : 56.424				CHAMBER : 006 DETECTOR S/N : 79455 AVERAGE %EFFICIENCY : 31.1643 COUNT DATE : 1-MAR-2010 10:29:17 ELAPSED LIVE TIME(SEC) : 14399.99				LIB FILE : ENV_ALPHA_UU BKG FILE : B006.CNF;1122 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W006.CNF;361 CAL DATE : 3-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5057E+00 dpm RESULTS : 2.5423E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5284.342	64.338	190.000	190.000	0.000	0.0000	100.0000	1.93E+01	2.41E+00	0.00E+00	2.75E-01	1.40E+00
U-3/4	4763.020	4741.852	68.130	3137.000	3136.808	0.000	4.8416	100.0000	3.19E+02	3.27E+01	9.02E-01	2.08E+00	5.69E+00
U-235	4391.000	4401.148	108.166	183.000	182.760	0.240	2.2152	80.90000	2.30E+01	2.88E+00	5.10E-01	1.36E+00	1.70E+00
U-238	4184.730	4168.137	73.192	3364.000	3363.280	0.720	3.1208	100.0000	3.42E+02	3.51E+01	5.81E-01	1.44E+00	5.90E+00

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

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

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

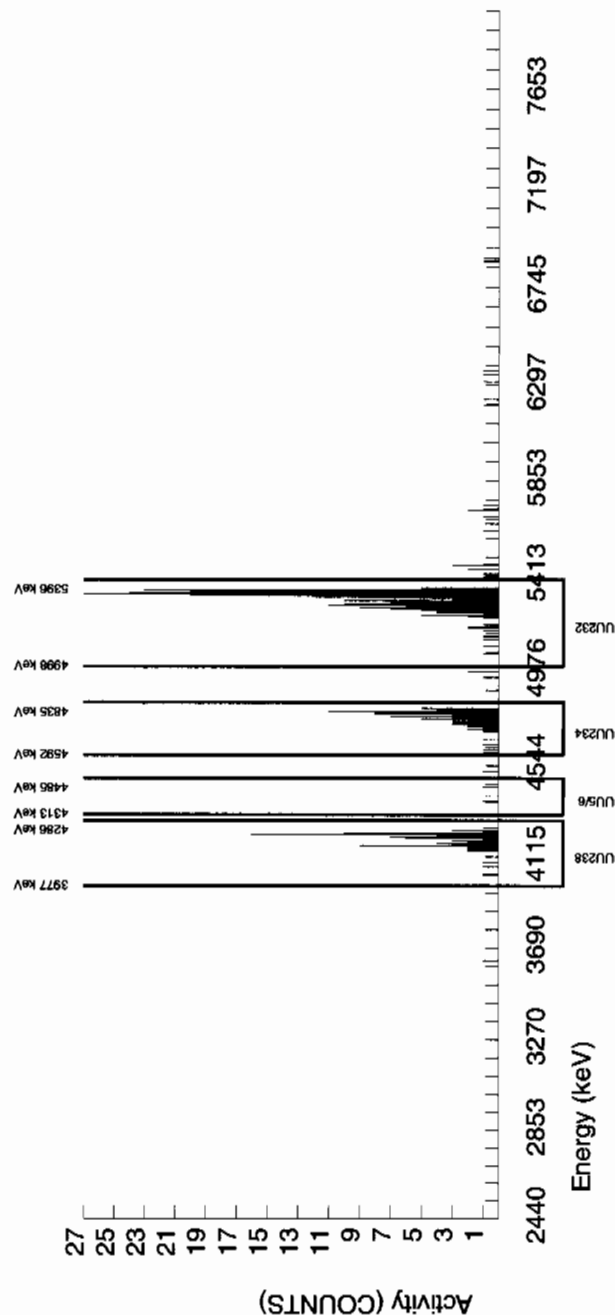
BATCH NUMBER : 956088 SAMPLE ID : S1202050052_UU SAMPLE QTY : 0.108 G SAMPLE DATE : 23-FEB-2010 00:00:00 ANALYST : JXD2 % YIELD : 80.353				CHAMBER : 007 DETECTOR S/N : 67607 AVERAGE %EFFICIENCY : 29.5407 COUNT DATE : 1-MAR-2010 10:29:21 ELAPSED LIVE TIME(SEC) : 14400.00				LIB FILE : ENV_ALPHA_UU BKG FILE : B007.CNF;1117 BKG DATE : 28-FEB-2010 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W007.CNF;312 CAL DATE : 3-FEB-2010					
TRACER ID : 1283-H NUCLIDE : U232 NOMINAL : 4.5030E+00 dpm RESULTS : 3.6183E+00 dpm				MS/MSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G				LCS/LCSD ID : 0244-A NUCLIDE : U-238 NOMINAL : 5.7500E+00 pCi/G					
NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5308.514	31.451	262.000	256.480	5.520	2.3495	100.0000	1.88E+01	2.13E+00	3.15E-01	8.29E-01	1.19E+00
U-3/4	4763.020	4767.278	26.310	81.000	80.260	0.480	4.8416	100.0000	5.88E+00	8.61E-01	6.49E-01	1.50E+00	6.58E-01
U-235	4391.000	4412.947	71.922	3.000	2.760	0.240	2.2152	80.90000	2.50E-01	1.60E-01	3.67E-01	9.80E-01	1.58E-01
U-238	4184.730	4199.791	58.222	92.000	90.800	1.200	3.1208	100.0000	6.65E+00	9.43E-01	4.19E-01	1.04E+00	7.03E-01

## NOTES:

\* Sg calculated via blank population.

(Sg updated 10-FEB-2010)

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

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

# Radiochemistry Batch Checklist, Rev10

Batch#: 950786 Product: Y-S Date: 2/22/10

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 statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			NA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			NA
Aliquot Correction completed if required.			NA
Review sample historical results if available (if REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: KObt 2/22/10

Secondary Review Performed By: SEulcu 2/23/10

LANL

2/26



# Gamma Spec Que Sheet

1.4-2/18/10

02/12/2010

Batch #: 950786

Analyst: MXR1

First Client Due Date: 02/26/2010

Internal Due Date: 02/16/2010

Gamma Spike Isotope: Mixed Gamma

Spike Code: n/a

Expiration Date: n/a

Vol: n/a

Nominal Concentration: n/a

640 6.390

Gamma LCS Isotope: Mixed Gamma

LCS Code: 1032-A

Expiration Date: 12/2/10

Vol: 1.0 mL

Nominal Concentration: 5.559

15.90

Initials: MS

Prep Date: 2/11/10

Library: SOLID

Witness: n/a

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Detector	Sealing Date/Time (if Applicable)
246312001-1	RE16-10-1313	SAMPLE	LANL010	SOIL	29-JAN-10 12:00:00	RF	can	140.78	15
246328001-1	RE15-10-7332	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		157.11	22
246328002-1	RE15-10-7333	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		151.13	11
246328003-1	RE15-10-7336	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		171.26	16
246328004-1	RE15-10-7337	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		160.61	12
246328005-1	RE15-10-7334	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		156.00	20
246328006-1	RE15-10-7335	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		122.42	25
246328007-1	RE15-10-7338	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		163.13	19
246328008-1	RE15-10-7339	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		125.38	1
246328009-1	RE15-10-7342	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		166.62	7
246341001-1	RE15-10-8304	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		109.74	15
246341002-1	RE15-10-8305	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		98.67	22
246341003-1	RE15-10-8306	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		128.30	16
246341004-1	RE15-10-8307	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		119.41	11
246341005-1	RE15-10-8309	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		140.62	16
246341006-1	RE15-10-8308	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		140.98	12
246341007-1	RE15-10-8301	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		127.62	20
246341008-1	RE15-10-8300	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		130.57	21
246341009-1	RE15-10-8324	SAMPLE	LANL010	SOIL	01-FEB-10 12:00:00	RF		130.73	14
1202037546-1	MB	MB	QC ACCOUNT	QC ACCOUNT	2/11/10	RF		171.26	1
1202037547-1	DUP RE15-10-8305(246341002)	DUP	QC ACCOUNT	QC ACCOUNT	2/11/10	RF		95.15	7
1202037548-1	LCS	LCS	QC ACCOUNT	QC ACCOUNT	2/11/10	RF		155.44	17

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: W. E. E. 2/12/10  
W. E. E. 2/12/10 Page 1 of 1  
 ✓ no history  
 ✓ data files

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
950786	246312001	SAMPLE	18-FEB-10		Americium-241	-0.1267	0.4363	0.200
					Cerium-139	0.02697	0.05612	0.050
					Thorium-234	0.5324	3.414	2.00
950786	246328001	SAMPLE	18-FEB-10					
950786	246328002	SAMPLE	18-FEB-10					
950786	246328003	SAMPLE	18-FEB-10					
950786	246328004	SAMPLE	18-FEB-10					
950786	246328005	SAMPLE	18-FEB-10					
950786	246328006	SAMPLE	18-FEB-10		Sodium-22	-0.00122	0.09075	0.080
950786	246328007	SAMPLE	18-FEB-10		Americium-241	2.74E-05	0.2018	0.200
950786	246328008	SAMPLE	18-FEB-10		Americium-241	0.0357	0.325	0.200
					Cerium-139	-0.00743	0.05977	0.050
					Cesium-134	0.06784	0.1014	0.100
					Sodium-22	-0.02056	0.09109	0.080
950786	246328009	SAMPLE	18-FEB-10					
950786	246341001	SAMPLE	18-FEB-10		Americium-241	0.7881	1.094	0.200
					Europium-152	-0.1048	0.2561	0.200
					Mercury-203	0.07269	0.1275	0.100
					Sodium-22	-0.02731	0.09164	0.080
					Tin-113	0.02289	0.1294	0.100
950786	246341002	SAMPLE	18-FEB-10		Cesium-134	0.1035	0.141	0.100
					Europium-152	0.00343	0.296	0.200
					Mercury-203	0.06025	0.1399	0.100
					Ruthenium-106	0.00999	0.872	0.800
					Sodium-22	-0.02197	0.082	0.080
					Tin-113	-0.06584	0.1356	0.100
950786	246341003	SAMPLE	18-FEB-10		Americium-241	0.04275	0.4515	0.200
					Cerium-139	-0.02409	0.05282	0.050
950786	246341004	SAMPLE	18-FEB-10					
950786	246341005	SAMPLE	18-FEB-10		Americium-241	-0.06809	0.2212	0.200
950786	246341006	SAMPLE	18-FEB-10		Americium-241	-0.00083	0.2682	0.200
950786	246341007	SAMPLE	18-FEB-10		Americium-241	0.09593	0.2072	0.200
					Sodium-22	0.03805	0.08554	0.080
950786	246341008	SAMPLE	18-FEB-10		Cesium-134	0.05379	0.1075	0.100
					Sodium-22	-0.06261	0.09861	0.080
950786	246341009	SAMPLE	18-FEB-10		Americium-241	0.1985	0.2728	0.200
					Cerium-139	0.00171	0.05669	0.050
950786	1202037546	MB	18-FEB-10					
950786	1202037547	DUP	18-FEB-10		Cesium-134	0.148	0.1862	0.100
					Europium-152	-0.03714	0.3409	0.200
					Mercury-203	-0.01147	0.1604	0.100
					Ruthenium-106	0.3087	1.12	0.800

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
950786	1202037547	DUP	18-FEB-10		Sodium-22	-0.00153	0.09498	0.080
					Tin-113	-0.08817	0.1651	0.100
950786	1202037548	LCS	18-FEB-10		Cerium-139	-0.004	0.07556	0.050
					Cesium-134	0.1008	0.1995	0.100
					Europium-152	-0.09154	0.3255	0.200
					Mercury-203	-0.02564	0.1115	0.100
					Potassium-40	0.6903	1.302	1.00
					Ruthenium-106	0.1153	1.108	0.800
					Sodium-22	-0.02684	0.09346	0.080
					Tin-113	-0.08615	0.1536	0.100
					Uranium-235	0.3087	0.561	0.500
					Yttrium-88	0.04469	0.1083	0.100

# GEL QUALS

Batch ID: 950786

Report run on: February 22, 2010 4:16 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246312001-1 18-FEB-2010 10:53	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.172			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.556			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1043			
246328001-1 18-FEB-2010 10:54	Bismuth-211	UI	UI	UI	Data rejected due to interference.		1.855			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.413			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.326			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1051			
246328002-1 18-FEB-2010 11:05	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.011			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.356			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.761			
246328003-1 18-FEB-2010 11:06	Bismuth-211	UI	UI	UI	Data rejected due to interference.		1.768			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.244			
246328004-1 18-FEB-2010 11:08	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.036			
	Cadmium-109	UI	UI	UI	Data rejected due to low abundance.		1.619			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.746			
246328005-1 18-FEB-2010 11:08	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.181			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.954			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.06534		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.597			

# GEL QUALS

Batch ID: 950786

Report run on: February 22, 2010 4:16 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246328005-1 18-FEB-2010 11:08	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.0518			
246328006-1 18-FEB-2010 11:16	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.604			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		5.101			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1112		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.314			
246328007-1 18-FEB-2010 11:16	Bismuth-211	UI	UI	UI	Data rejected due to interference.		1.951			
	Cadmium-109	UI	UI	UI	Data rejected due to low abundance.		1.31			
	Radium-224	UI	UI	UI	Data rejected due to interference.		1.263			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.08662			
246328008-1 18-FEB-2010 11:47	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.247			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.737			
	Mercury-203	UI	UI	UI	Data rejected due to interference.		.1003		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.124			
246328009-1 18-FEB-2010 11:48	Bismuth-211	UI	UI	UI	Data rejected due to interference.		1.888			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.187			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.178			
246341001-1 18-FEB-2010 12:56	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.172			
	Cerium-139	UI	UI	UI	Data rejected due to low abundance.		.1435		.05	.05
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.143		.1	.1

# GEL QUALS

Batch ID: 950786

Report run on: February 22, 2010 4:16 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246341001-1 18-FEB-2010 12:56	Lead-212	UI	UI	UI	Data rejected due to low abundance.		1.914		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		6.655			
	Strontium-86	UI	UI	UI	Data rejected due to low abundance.		.1462			
	Thorium-227	UI	UI	UI	Data rejected due to low abundance.		3.424			
246341002-1 18-FEB-2010 12:57	Americium-241	UI	UI	UI	Data rejected due to interference.		4.754		.2	.2
	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.963			
	Cerium-139	UI	UI	UI	Data rejected due to low abundance.		.2872		.05	.05
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.092			
	Strontium-86	UI	UI	UI	Data rejected due to low abundance.		.1839			
	Thorium-227	UI	UI	UI	Data rejected due to low abundance.		3.761			
246341003-1 18-FEB-2010 13:09	Yttrium-88	UI	UI	UI	Data rejected due to low abundance.		.08519		.1	.1
	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.779			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.898			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.06			
246341004-1 18-FEB-2010 13:10	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.25			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.469			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.323			
	Bismuth-211	UI	UI	UI	Data rejected due to low abundance.		3.902			
246341005-1 18-FEB-2010 13:10	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.197			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.08292		.1	.1

# GEL QUALS

Batch ID: 950786

Report run on: February 22, 2010 4:16 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
246341005-1 18-FEB-2010 13:10	Radium-224	UI	UI	UI	Data rejected due to interference.		4.077			
246341006-1 18-FEB-2010 13:12	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.637			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.037			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1289		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.312			
246341007-1 18-FEB-2010 13:12	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.627			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.359			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1241		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.879			
246341008-1 18-FEB-2010 13:24	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.167			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.634			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.676			
246341009-1 18-FEB-2010 13:49	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.838			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.009			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1089		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.482			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07767			
1202037546-1 MB 18-FEB-2010 13:52	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.04335			
1202037547-1 DUP	Americium-241	UI	UI	UI	Data rejected due to low abundance.		1.763		.2	.2

# GEL QUALS

Batch ID: 950786

Report run on: February 22, 2010 4:16 PM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
1202037547-1 DUP 18-FEB-2010 13:52	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.391			
	Cerium-139	UI	UI	UI	Data rejected due to low abundance.		.1882		.05	.05
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.298			
	Thorium-227	UI	UI	UI	Data rejected due to low abundance.		1.715			



## Gamma Review Report based on Result &gt; MDA for Batch:950786

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246312001	29-JAN-10 12:00	18-FEB-10 10:53	20	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	*** FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	0.9248	0.1551	pCi/g 0.2134	N	911.5	3	1.792 IDENTIFIED	15.71	<input type="checkbox"/>
Americium-243	HE	0.1793	0.05892	pCi/g 0.1095	N	75.15	1	1.937 IDENTIFIED	32.36	<input type="checkbox"/>
Annihilation Rad.	—	0.1273	0.03274	pCi/g 0.04817	N	510.9	1	2.331 IDENTIFIED	25.35	<input type="checkbox"/>
Bismuth-211	INT	2.172	0.2202	pCi/g 0.3291	Y	352	4	1.304 IDENTIFIED	8.84	<input checked="" type="checkbox"/> UI
Bismuth-212	HE	0.727	0.1655	pCi/g 0.6151	N	0	12	0 NOT_IDENTI	0	<input type="checkbox"/>
Bismuth-214	✓	0.6238	0.07887	pCi/g 0.1193	0.200	609.5	4	1.411 IDENTIFIED	11.63	<input type="checkbox"/>
Bromine-77	HE	14.36	21.62	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Cadmium-115	HE	6.113	21.8	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Cerium-143	—	6606	1231	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Gross Gamma	—	6.22	1.213	pCi/g 2.206	N	0				<input type="checkbox"/>
Iodine-123	HE	1.00E+09	1.39E+09	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135	—	2.80E+20	0	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	HE	19.33	4.485	pCi/g 15.26	N	0	12	0 NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	✓	0.9829	0.07929	pCi/g 0.1016	0.100	238.8	4	1.28 IDENTIFIED	5.443	<input type="checkbox"/>
Lead-214	✓	0.7554	0.0791	pCi/g 0.1256	0.100	352	4	1.304 IDENTIFIED	8.84	<input type="checkbox"/>
Polonium-212	NR	0.9829	0.07929	pCi/g 0.1016	N	238.8	4	1.28 IDENTIFIED	5.443	<input type="checkbox"/>
Polonium-214	NR	0.7554	0.0791	pCi/g 0.1256	N	352	4	1.304 IDENTIFIED	8.84	<input type="checkbox"/>
Polonium-216	NR	0.9829	0.07929	pCi/g 0.1016	N	238.8	4	1.28 IDENTIFIED	5.443	<input type="checkbox"/>
Polonium-218	NR	0.7554	0.0791	pCi/g 0.1256	N	352	4	1.304 IDENTIFIED	8.84	<input type="checkbox"/>
Potassium-40	✓	27.58	1.611	pCi/g 0.4994	1.00	1461	1	2.251 IDENTIFIED	3.155	<input type="checkbox"/>
Promethium-149	HE	327.1	208.5	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Radium-224	INT	2.556	0.6439	pCi/g 1.156	Y	241.7	1	1.854 IDENTIFIED	24.58	<input checked="" type="checkbox"/> UI
Radium-226	✓	0.6238	0.07887	pCi/g 0.1193	Y	609.5	4	1.411 IDENTIFIED	11.63	<input type="checkbox"/>
Radium-228	✓	0.9248	0.1551	pCi/g 0.2134	0.500	911.5	3	1.792 IDENTIFIED	15.71	<input type="checkbox"/>
Strontium-85	LA	0.1043	0.02419	pCi/g 0.0823	Y	0	12	0 NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-200	HE	77.4	5019	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.3019	0.03648	pCi/g 0.0611	0.080	583.4	1	1.749 IDENTIFIED	11.18	<input type="checkbox"/>
Thorium-228	NR	1.003	0.08088	pCi/g 0.1037	N	238.8	4	1.28 IDENTIFIED	5.443	<input type="checkbox"/>
Thorium-230	NR	0.6238	0.07886	pCi/g 0.1193	N	609.5	4	1.411 IDENTIFIED	11.63	<input type="checkbox"/>
Thorium-232	NR	0.9248	0.1551	pCi/g 0.2134	N	911.5	3	1.792 IDENTIFIED	15.71	<input type="checkbox"/>
Titanium-44	—	0.2016	0.03234	pCi/g 0.08693	N	0	12	0 FAIL_ABUND	0	<input type="checkbox"/>
Uranium-234	NR	0.6238	0.07886	pCi/g 0.1193	N	609.5	4	1.411 IDENTIFIED	11.63	<input type="checkbox"/>
Zirconium-97	—	5.63E+08	1.25E+08	pCi/g 0	N	0	12	0 SHORT_HLIF	0	<input type="checkbox"/>

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246328001	01-FEB-10 12:00	18-FEB-10 10:54	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	✓	0.7343	0.1047	pCi/g 0.133	N	911.2	3	1.722 IDENTIFIED	12.62	<input type="checkbox"/>
Americium-243	INT	0.1844	0.02651	pCi/g 0.05816	N	74.85	1	1.399 IDENTIFIED	13.78	<input type="checkbox"/>
Annihilation Rad.	HE	0.07057	0.02395	pCi/g 0.02951	N	510.9	1	2.492 IDENTIFIED	33.57	<input type="checkbox"/>
Bismuth-211	INT	1.855	0.1754	pCi/g 0.2328	Y	351.9	4	1.289 IDENTIFIED	7.461	<input checked="" type="checkbox"/> UI



Lead-212	✓	0.8878	0.07307	pCi/g	0.06332	0.100	238.6	4	0.9983	IDENTIFIED	4.325	<input type="checkbox"/>	
Lead-214	✓	0.6997	0.0728	pCi/g	0.08011	0.100	352	4	1.016	IDENTIFIED	7.632	<input type="checkbox"/>	
Lutetium-177	HE	2.643	0.6742	pCi/g	1.765	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	HE	0.3904	0.08975	pCi/g	0.2702	N	87.09	3	0.8524	IDENTIFIED	20	<input type="checkbox"/>	
Polonium-212	NR	0.8878	0.07307	pCi/g	0.06332	N	238.6	4	0.9983	IDENTIFIED	4.325	<input type="checkbox"/>	
Polonium-214	NR	0.6997	0.0728	pCi/g	0.08011	N	352	4	1.016	IDENTIFIED	7.632	<input type="checkbox"/>	
Polonium-216	NR	0.8878	0.07307	pCi/g	0.06332	N	238.6	4	0.9983	IDENTIFIED	4.325	<input type="checkbox"/>	
Polonium-218	NR	0.6997	0.0728	pCi/g	0.08011	N	352	4	1.016	IDENTIFIED	7.632	<input type="checkbox"/>	
Potassium-40	✓	23.57	1.25	pCi/g	0.336	1.00	1461	1	1.911	IDENTIFIED	3.067	<input type="checkbox"/>	
Radium-224	INT	2.761	0.4262	pCi/g	0.7207	Y	241.7	1	1.574	IDENTIFIED	13.9	<input checked="" type="checkbox"/>	
Radium-226	✓	0.6506	0.0691	pCi/g	0.07673	Y	609.4	4	1.307	IDENTIFIED	8.991	<input type="checkbox"/>	
Radium-228	✓	0.8714	0.1158	pCi/g	0.1498	0.500	911.4	3	1.566	IDENTIFIED	11.82	<input type="checkbox"/>	
Thallium-200	HE	350.4	546.6	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.2926	0.03111	pCi/g	0.03834	0.080	583.3	1	1.22	IDENTIFIED	9.159	<input type="checkbox"/>	
Thorium-228	NR	0.903	0.07432	pCi/g	0.0644	N	238.6	4	0.9983	IDENTIFIED	4.325	<input type="checkbox"/>	
Thorium-230	NR	0.6506	0.06909	pCi/g	0.07672	N	609.4	4	1.307	IDENTIFIED	8.991	<input type="checkbox"/>	
Thorium-232	NR	0.8714	0.1158	pCi/g	0.1498	N	911.4	3	1.566	IDENTIFIED	11.82	<input type="checkbox"/>	
Thorium-234	✓	2.061	0.6317	pCi/g	1.223	2.00	63.36	2	0.9598	IDENTIFIED	29.4	<input type="checkbox"/>	
Tin-126	HE	0.1329	0.02731	pCi/g	0.08381	N	87.09	3	0.8524	IDENTIFIED	20	<input type="checkbox"/>	
Titanium-44	-	0.2266	0.01821	pCi/g	0.04401	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	-	6.1648	1.88E-06	ug/g	1.8216	N	0					<input type="checkbox"/>	
Uranium-234	NR	0.6506	0.06909	pCi/g	0.07672	N	609.4	4	1.307	IDENTIFIED	8.991	<input type="checkbox"/>	
Uranium-238	HE	2.061	0.6317	pCi/g	1.223	N	63.36	2	0.9598	IDENTIFIED	29.4	<input type="checkbox"/>	
Zirconium-97	HE	2.61E+06	4.18E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue		
246328003	01-FEB-10 12:00	18-FEB-10 11:06	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	✓	0.6431	0.08155	pCi/g	0.1106	N	911.1	3	1.512	IDENTIFIED 11.2	<input type="checkbox"/>	
Americium-243	INT	0.1707	0.02149	pCi/g	0.05405	N	74.91	1	1.02	IDENTIFIED 11.88	<input type="checkbox"/>	
Bismuth-211	INT	1.768	0.1776	pCi/g	0.1971	Y	351.8	4	1.15	IDENTIFIED 8.436	<input checked="" type="checkbox"/>	UL
Bismuth-212	HE	0.5061	0.1284	pCi/g	0.2503	N	727	1	2.013	IDENTIFIED 24.83	<input type="checkbox"/>	
Bismuth-214	✓	0.4793	0.0525	pCi/g	0.07888	0.200	609.3	4	1.465	IDENTIFIED 9.596	<input type="checkbox"/>	
Cerium-143	-	550.9	138.9	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Gross Gamma	-	4.204	0.7818	pCi/g	1.586	N	0				<input type="checkbox"/>	
Iodine-123	HE	2.56E+06	1.78E+07	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-133	HE	370.2	7327	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212	✓	0.6498	0.0497	pCi/g	0.05566	0.100	238.5	4	0.9711	IDENTIFIED 4.844	<input type="checkbox"/>	
Lead-214	✓	0.6151	0.06384	pCi/g	0.06871	0.100	351.8	4	1.15	IDENTIFIED 8.436	<input type="checkbox"/>	
Lutetium-177	HE	1.668	0.5409	pCi/g	1.445	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>	
Niobium-97	HE	5133	1.92E+05	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212	NR	0.6498	0.0497	pCi/g	0.05566	N	238.5	4	0.9711	IDENTIFIED 4.844	<input type="checkbox"/>	
Polonium-214	NR	0.6151	0.06384	pCi/g	0.06871	N	351.8	4	1.15	IDENTIFIED 8.436	<input type="checkbox"/>	
Polonium-216	NR	0.6498	0.0497	pCi/g	0.05566	N	238.5	4	0.9711	IDENTIFIED 4.844	<input type="checkbox"/>	
Polonium-218	NR	0.6151	0.06384	pCi/g	0.06871	N	351.8	4	1.15	IDENTIFIED 8.436	<input type="checkbox"/>	
Potassium-40	✓	16.35	0.8987	pCi/g	0.288	1.00	1461	1	1.807	IDENTIFIED 3.301	<input type="checkbox"/>	
Radium-224	INT	2.244	0.4057	pCi/g	0.6333	Y	241.6	1	1.736	IDENTIFIED 17.22	<input checked="" type="checkbox"/>	UL



Titanium-44	✓	0.1656	0.01613	pCi/g	0.05096	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	NR	3.2789	2.04E-06	ug/g	2.3069	N			0			<input type="checkbox"/>	
Uranium-234	NR	0.5927	0.06318	pCi/g	0.08504	N	608.8	4	1.43	IDENTIFIED	9.833	<input type="checkbox"/>	
Zirconium-97	✓	1.57E+07	4.69E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue		
246328005	01-FEB-10 12:00	18-FEB-10 11:08	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	✓	0.8709	0.1165	pCi/g	0.1574	N	911.2	3	1.309	IDENTIFIED	11.9	<input type="checkbox"/>	
Americium-243	INT	0.1678	0.02235	pCi/g	0.06	N	74.89	1	0.9578	IDENTIFIED	12.69	<input type="checkbox"/>	
Annihilation Rad.	✓	0.08866	0.02658	pCi/g	0.03238	N	510.7	1	1.606	IDENTIFIED	29.62	<input type="checkbox"/>	
Barium-137m	NR	0.09329	0.01728	pCi/g	0.03694	N	661.5	2	1.016	IDENTIFIED	17.83	<input type="checkbox"/>	
Bismuth-210	HE	2.707	1.016	pCi/g	2.575	N	46.72	3	1.235	IDENTIFIED	37.25	<input type="checkbox"/>	
Bismuth-211	INT	2.181	0.1904	pCi/g	0.2231	Y	351.9	4	1.18	IDENTIFIED	7.305	<input checked="" type="checkbox"/>	UI
Bismuth-212	HE	0.7591	0.1596	pCi/g	0.481	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	0.7231	0.06592	pCi/g	0.07579	0.200	609.3	4	1.391	IDENTIFIED	7.221	<input type="checkbox"/>	
Cadmium-109	INT	1.954	0.3682	pCi/g	0.84	Y	87.41	3	1.267	IDENTIFIED	18.24	<input checked="" type="checkbox"/>	UI
Cerium-143	✓	648.3	160.3	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.06534	0.01604	pCi/g	0.06304	0.100	0	11	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137	✓	0.09861	0.01827	pCi/g	0.03905	0.100	661.5	2	1.016	IDENTIFIED	17.83	<input type="checkbox"/>	
Gross Gamma	✓	5.839	0.8061	pCi/g	1.778	N			0			<input type="checkbox"/>	
Iodine-123	HE	3.77E+07	2.11E+07	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-133	HE	2000	9351	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	✓	8.52E+16		pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	
Krypton-85	HE	9.909	2.868	pCi/g	9.8	N	0	11	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-210	HE	2.707	1.016	pCi/g	2.575	N	46.72	3	1.235	IDENTIFIED	37.25	<input type="checkbox"/>	
Lead-212	✓	0.9113	0.06128	pCi/g	0.06679	0.100	238.6	4	1.216	IDENTIFIED	4.117	<input type="checkbox"/>	
Lead-214	✓	0.7586	0.06914	pCi/g	0.07776	0.100	351.9	4	1.18	IDENTIFIED	7.305	<input type="checkbox"/>	
Neptunium-237	NR	0.5626	0.1208	pCi/g	0.2774	N	87.41	3	1.267	IDENTIFIED	18.24	<input type="checkbox"/>	
Polonium-210	HE	2.707	1.015	pCi/g	2.575	N	46.72	3	1.235	IDENTIFIED	37.25	<input type="checkbox"/>	
Polonium-212	NR	0.9113	0.06128	pCi/g	0.06679	N	238.6	4	1.216	IDENTIFIED	4.117	<input type="checkbox"/>	
Polonium-214	NR	0.7586	0.06914	pCi/g	0.07776	N	351.9	4	1.18	IDENTIFIED	7.305	<input type="checkbox"/>	
Polonium-216	NR	0.9113	0.06128	pCi/g	0.06679	N	238.6	4	1.216	IDENTIFIED	4.117	<input type="checkbox"/>	
Polonium-218	NR	0.7586	0.06914	pCi/g	0.07776	N	351.9	4	1.18	IDENTIFIED	7.305	<input type="checkbox"/>	
Potassium-40	✓	21.19	1.123	pCi/g	0.337	1.00	1461	1	1.758	IDENTIFIED	3.014	<input type="checkbox"/>	
Radium-224	INT	2.597	0.4079	pCi/g	0.7597	Y	241.6	1	1.613	IDENTIFIED	14.95	<input checked="" type="checkbox"/>	UI
Radium-226	✓	0.7231	0.06592	pCi/g	0.07579	Y	609.3	4	1.391	IDENTIFIED	7.221	<input type="checkbox"/>	
Radium-228	✓	0.8709	0.1165	pCi/g	0.1574	0.500	911.2	3	1.309	IDENTIFIED	11.9	<input type="checkbox"/>	
Sodium-24	HE	3.50E+05	1.58E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>	
Strontium-85	LA	0.0518	0.01499	pCi/g	0.05123	Y	0	11	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208	✓	0.2916	0.03256	pCi/g	0.03935	0.080	583.1	1	1.425	IDENTIFIED	9.91	<input type="checkbox"/>	
Thorium-228	NR	0.9268	0.06232	pCi/g	0.06793	N	238.6	4	1.216	IDENTIFIED	4.117	<input type="checkbox"/>	
Thorium-230	NR	0.7231	0.06592	pCi/g	0.07579	N	609.3	4	1.391	IDENTIFIED	7.221	<input type="checkbox"/>	
Thorium-232	NR	0.8709	0.1165	pCi/g	0.1574	N	911.2	3	1.309	IDENTIFIED	11.9	<input type="checkbox"/>	
Thorium-234	✓	3.084	0.7025	pCi/g	1.303	2.00	63.21	2	0.9937	IDENTIFIED	21.06	<input type="checkbox"/>	
Tin-126	NR	0.1916	0.03609	pCi/g	0.08258	N	87.41	3	1.267	IDENTIFIED	18.24	<input type="checkbox"/>	
Titanium-44	✓	0.2043	0.01755	pCi/g	0.0547	N	0	11	0	FAIL_ABUND	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
246328007	01-FEB-10 12:00	18-FEB-10 11:16	17	SAMPLE	LOAD	1	LANL	LANL01004KEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	0.8491	0.1159	pCi/g	0.175	N	911.2	3	1.794 IDENTIFIED	12.42	<input type="checkbox"/>
Americium-243 INT	0.2155	0.03376	pCi/g	0.06961	N	74.86	1	1.617 IDENTIFIED	15.16	<input type="checkbox"/>
Annihilation Rad. HE	0.05903	0.02536	pCi/g	0.0342	N	510.8	1	2.78 IDENTIFIED	42.86	<input type="checkbox"/>
Barium-137m NR	0.1228	0.02286	pCi/g	0.03959	N	662.4	2	1.015 IDENTIFIED	18.38	<input type="checkbox"/>
Bismuth-211 INT	1.951	0.1662	pCi/g	0.2372	Y	351.7	4	1.432 IDENTIFIED	7.9	<input checked="" type="checkbox"/> UI
Bismuth-212 ✓	0.7138	0.1896	pCi/g	0.3303	N	727.1	1	1.46 IDENTIFIED	26.23	<input type="checkbox"/>
Bismuth-214 ✓	0.5743	0.05829	pCi/g	0.08475	0.200	609.2	4	1.425 IDENTIFIED	9.358	<input type="checkbox"/>
Cadmium-109 LA	1.31	0.5244	pCi/g	1.297	Y	0	10	0 NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cerium-143 -	1115	203	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-137 ✓	0.1298	0.02416	pCi/g	0.04185	0.100	662.4	2	1.015 IDENTIFIED	18.38	<input type="checkbox"/>
Gross Gamma -	5.153	0.9036	pCi/g	2.417	N	0				<input type="checkbox"/>
Iodine-135 -	2.64E+17	0	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85 HE	16.57	3.002	pCi/g	11.13	N	0	10	0 NOT_IDENTI	0	<input type="checkbox"/>
Lead-212 ✓	0.6464	0.05187	pCi/g	0.09137	0.100	238.4	4	1.297 IDENTIFIED	7.167	<input type="checkbox"/>
Lead-214 ✓	0.6786	0.06047	pCi/g	0.08268	0.100	351.7	4	1.432 IDENTIFIED	7.9	<input type="checkbox"/>
Neptunium-237 NR	0.8269	0.1743	pCi/g	0.3291	N	86.21	2	3.651 IDENTIFIED	17.85	<input type="checkbox"/>
Niobium-95m -	0.3229	0.05891	pCi/g	0.2017	N	0	10	0 NOT_IDENTI	0	<input type="checkbox"/>
Polonium-212 NR	0.6464	0.05187	pCi/g	0.09137	N	238.4	4	1.297 IDENTIFIED	7.167	<input type="checkbox"/>
Polonium-214 NR	0.6786	0.06047	pCi/g	0.08268	N	351.7	4	1.432 IDENTIFIED	7.9	<input type="checkbox"/>
Polonium-216 NR	0.6464	0.05187	pCi/g	0.09137	N	238.4	4	1.297 IDENTIFIED	7.167	<input type="checkbox"/>
Polonium-218 NR	0.6786	0.06047	pCi/g	0.08268	N	351.7	4	1.432 IDENTIFIED	7.9	<input type="checkbox"/>
Potassium-40 ✓	17.58	0.8764	pCi/g	0.3556	1.00	1461	1	1.999 IDENTIFIED	3.315	<input type="checkbox"/>
Radium-224 INT	1.263	0.3434	pCi/g	1.039	Y	241.8	1	1.834 IDENTIFIED	27.03	<input checked="" type="checkbox"/> UI
Radium-226 ✓	0.5743	0.05829	pCi/g	0.08475	Y	609.2	4	1.425 IDENTIFIED	9.358	<input type="checkbox"/>
Radium-228 ✓	0.8491	0.1159	pCi/g	0.175	0.500	911.2	3	1.794 IDENTIFIED	12.42	<input type="checkbox"/>
Sodium-24 HE	3.45E+06	1.92E+06	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Strontium-85 LA	0.08662	0.0157	pCi/g	0.0582	Y	0	10	0 NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-200 HE	362.3	519.5	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 ✓	0.2702	0.0282	pCi/g	0.04575	0.080	583.1	1	1.701 IDENTIFIED	9.866	<input type="checkbox"/>
Thorium-228 NR	0.6574	0.05275	pCi/g	0.09293	N	238.4	4	1.297 IDENTIFIED	7.167	<input type="checkbox"/>
Thorium-230 NR	0.5743	0.05829	pCi/g	0.08475	N	609.2	4	1.425 IDENTIFIED	9.358	<input type="checkbox"/>
Thorium-232 NR	0.8491	0.1159	pCi/g	0.175	N	911.2	3	1.794 IDENTIFIED	12.42	<input type="checkbox"/>
Thorium-234 ✓	2.302	0.635	pCi/g	1.628	2.00	63.39	2	1.243 IDENTIFIED	26.16	<input type="checkbox"/>
Tin-126 NR	0.2816	0.05176	pCi/g	0.121	N	86.21	2	3.651 IDENTIFIED	17.85	<input type="checkbox"/>
Titanium-44 -	0.1975	0.02009	pCi/g	0.06146	N	0	10	0 FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium -	6.8673	1.89E-06	ug/g	2.4247	N	0				<input type="checkbox"/>
Uranium-234 NR	0.5743	0.05829	pCi/g	0.08475	N	609.2	4	1.425 IDENTIFIED	9.358	<input type="checkbox"/>
Uranium-238 HE	2.302	0.635	pCi/g	1.628	N	63.39	2	1.243 IDENTIFIED	26.16	<input type="checkbox"/>
Zirconium-97 -	2.31E+07	4.39E+06	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246328008	01-FEB-10 12:00	18-FEB-10 11:47	17	SAMPLE	LOAD	1	LANL	LANL01004KEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 ✓	1.931	0.2073	pCi/g	0.2842	N	911.6	3	1.466 IDENTIFIED	9.038	<input type="checkbox"/>



Americium-243	INT	0.4082	0.05093	pCi/g 0.1102	N	74.82	1	1.305	IDENTIFIED	11.76	<input type="checkbox"/>	
Annihilation Rad. HE		0.1253	0.03785	pCi/g 0.05147	N	511.4	1	2.487	IDENTIFIED	29.91	<input type="checkbox"/>	
Bismuth-211	INT	4.247	0.3567	pCi/g 0.39	Y	352.2	4	1.281	IDENTIFIED	7.065	<input checked="" type="checkbox"/>	W
Bismuth-212	—	1.834	0.3871	pCi/g 0.883	N	0	6	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.323	0.116	pCi/g 0.1393	0.200	609.5	4	1.645	IDENTIFIED	7.247	<input type="checkbox"/>	
Cadmium-109	INT	2.737	0.6371	pCi/g 1.824	Y	87.35	3	1.201	IDENTIFIED	22.8	<input checked="" type="checkbox"/>	W
Cerium-143	—	1025	256.2	pCi/g 0	N	0	6	0	SHORT_HLIF	0	<input type="checkbox"/>	
Gross Gamma	—	10.19	1.426	pCi/g 2.664	N	0					<input type="checkbox"/>	
Iodine-123	HE	3.16E+07	3.55E+07	pCi/g 0	N	0	6	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.836	0.1158	pCi/g 0.1057	0.100	239	4	1.253	IDENTIFIED	3.759	<input type="checkbox"/>	
Lead-214	✓	1.477	0.1299	pCi/g 0.136	0.100	352.2	4	1.281	IDENTIFIED	7.065	<input type="checkbox"/>	
Lutetium-177	HE	3.816	1.14	pCi/g 2.821	N	0	6	0	FAIL_ABUND	0	<input type="checkbox"/>	
Mercury-203	INT	0.1003	0.02888	pCi/g 0.08242	0.100	277.8	1	0.8451	IDENTIFIED	28.4	<input checked="" type="checkbox"/>	W
Neptunium-237	HE	0.7878	0.2006	pCi/g 0.5005	N	87.35	3	1.201	IDENTIFIED	22.8	<input type="checkbox"/>	
Polonium-212	NR	1.836	0.1158	pCi/g 0.1057	N	239	4	1.253	IDENTIFIED	3.759	<input type="checkbox"/>	
Polonium-214	NR	1.477	0.1299	pCi/g 0.136	N	352.2	4	1.281	IDENTIFIED	7.065	<input type="checkbox"/>	
Polonium-216	NR	1.836	0.1158	pCi/g 0.1057	N	239	4	1.253	IDENTIFIED	3.759	<input type="checkbox"/>	
Polonium-218	NR	1.477	0.1299	pCi/g 0.136	N	352.2	4	1.281	IDENTIFIED	7.065	<input type="checkbox"/>	
Potassium-40	✓	35.5	1.91	pCi/g 0.6094	1.00	1461	1	1.982	IDENTIFIED	3.032	<input type="checkbox"/>	
Radium-224	INT	4.124	0.6559	pCi/g 1.203	Y	242	1	1.553	IDENTIFIED	15.24	<input checked="" type="checkbox"/>	W
Radium-226	✓	1.323	0.116	pCi/g 0.1393	Y	609.5	4	1.645	IDENTIFIED	7.247	<input type="checkbox"/>	
Radium-228	✓	1.931	0.2073	pCi/g 0.2842	0.500	911.6	3	1.466	IDENTIFIED	9.038	<input type="checkbox"/>	
Thallium-208	✓	0.4928	0.05088	pCi/g 0.07036	0.080	583.5	1	1.471	IDENTIFIED	9.273	<input type="checkbox"/>	
Thorium-228	NR	1.868	0.1178	pCi/g 0.1075	N	239	4	1.253	IDENTIFIED	3.759	<input type="checkbox"/>	
Thorium-230	NR	1.323	0.116	pCi/g 0.1393	N	609.5	4	1.645	IDENTIFIED	7.247	<input type="checkbox"/>	
Thorium-232	NR	1.931	0.2073	pCi/g 0.2842	N	911.6	3	1.466	IDENTIFIED	9.038	<input type="checkbox"/>	
Thorium-234	✓	4.222	1.438	pCi/g 2.62	2.00	63.38	2	1.496	IDENTIFIED	32.9	<input type="checkbox"/>	
Tin-126	HE	0.2683	0.06245	pCi/g 0.1854	N	87.35	3	1.201	IDENTIFIED	22.8	<input type="checkbox"/>	
Titanium-44	—	0.4475	0.03641	pCi/g 0.09571	N	0	6	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	12.597	4.28E-06	ug/g 3.9002	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.323	0.116	pCi/g 0.1393	N	609.5	4	1.645	IDENTIFIED	7.247	<input type="checkbox"/>	
Uranium-238	HE	4.222	1.438	pCi/g 2.62	N	63.38	2	1.496	IDENTIFIED	32.9	<input type="checkbox"/>	
Zirconium-97	HE	4.87E+06	7.03E+06	pCi/g 0	N	0	6	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue	
246328009	01-FEB-10 12:00	18-FEB-10 11:48	17	SAMPLE	LOAD	1	LANL	LANL01004IGEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228 ✓	0.7704	0.09778	pCi/g	0.1546	N	911.6	3	1.787	IDENTIFIED	11.28	<input type="checkbox"/>
Americium-243 INT	0.09477	0.01737	pCi/g	0.05364	N	74.88	1	0.85	IDENTIFIED	17.88	<input type="checkbox"/>
Annihilation Rad. HE	0.05454	0.02594	pCi/g	0.03504	N	511.5	1	1.737	IDENTIFIED	47.35	<input type="checkbox"/>
Bismuth-210 HE	3.45	1.167	pCi/g	2.098	N	46.55	3	0.9142	IDENTIFIED	33.51	<input type="checkbox"/>
* Bismuth-211 INT	1.888	0.1559	pCi/g	0.2142	Y	352.1	4	1.406	IDENTIFIED	6.93	<input checked="" type="checkbox"/> W
Bismuth-212 HE	0.6382	0.1456	pCi/g	0.4659	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 ✓	0.5119	0.05843	pCi/g	0.07413	0.200	609.6	4	1.308	IDENTIFIED	10.18	<input type="checkbox"/>
* Cadmium-109 INT	1.187	0.2955	pCi/g	0.935	Y	87.11	3	1.08	IDENTIFIED	24.44	<input checked="" type="checkbox"/> W
Cerium-143 —	527.6	141.5	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Gross Gamma —	4.413	0.8168	pCi/g	1.737	N	0					<input type="checkbox"/>





Lead-214	✓	1.451	0.1494	pCi/g 0.1964	0.100	352	4	1.578	IDENTIFIED	8.628	<input type="checkbox"/>	
Niobium-95	INT	0.6816	0.07617	pCi/g 0.1082	N	766.6	1	1.838	IDENTIFIED	10.28	<input type="checkbox"/>	
Niobium-95m	HE	0.4346	0.1274	pCi/g 0.3974	N	0	23	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-97	HE	2.61E+05	6.12E+05	pCi/g 0	N	0	23	0	SHORT_HLIF	0	<input type="checkbox"/>	
Polonium-212	NR	1.914	0.1413	pCi/g 0.3364	N	0	23	0	FAIL_ABUND	0	<input type="checkbox"/>	
Polonium-214	NR	1.451	0.1494	pCi/g 0.1964	N	352	4	1.578	IDENTIFIED	8.628	<input type="checkbox"/>	
Polonium-216	NR	1.914	0.1413	pCi/g 0.3364	N	0	23	0	FAIL_ABUND	0	<input type="checkbox"/>	
Polonium-218	NR	1.451	0.1494	pCi/g 0.1964	N	352	4	1.578	IDENTIFIED	8.628	<input type="checkbox"/>	
Potassium-40	✓	33.63	2.001	pCi/g 0.8972	1.00	1461	1	2.075	IDENTIFIED	3.358	<input type="checkbox"/>	
Protactinium-234m	✓	152.1	11.58	pCi/g 10.84	N	1001	1	2.015	IDENTIFIED	5.574	<input type="checkbox"/>	
Radium-224	INT	6.655	1.178	pCi/g 1.797	Y	241.5	1	2.04	IDENTIFIED	16.83	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.191	0.1257	pCi/g 0.1733	Y	609.4	4	1.562	IDENTIFIED	9.317	<input type="checkbox"/>	
Radium-228	✓	1.827	0.229	pCi/g 0.285	0.500	911	3	1.964	IDENTIFIED	11.07	<input type="checkbox"/>	
Rhenium-183	—	1.521	0.2119	pCi/g 0.5156	N	0	23	0	FAIL_ABUND	0	<input type="checkbox"/>	
Strontium-85	LA	0.1462	0.03773	pCi/g 0.12	Y	0	23	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Technetium-99m	—	1.29E+19	0	pCi/g 0	N	0	23	0	SHORT_HLIF	0	<input type="checkbox"/>	
Tellurium-125m	NR	98.5	19.58	pCi/g 36.79	N	109.3	1	1.877	IDENTIFIED	18.99	<input type="checkbox"/>	
Thallium-200	HE	1176	1322	pCi/g 0	N	0	23	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.5792	0.06773	pCi/g 0.0917	0.080	583	1	1.729	IDENTIFIED	10.76	<input type="checkbox"/>	
Thorium-227	LA	3.424	0.7532	pCi/g 1.283	Y	0	23	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thorium-228	NR	1.946	0.1437	pCi/g 0.3422	N	0	23	0	FAIL_ABUND	0	<input type="checkbox"/>	
Thorium-230	NR	1.191	0.1257	pCi/g 0.1733	N	609.4	4	1.562	IDENTIFIED	9.317	<input type="checkbox"/>	
Thorium-232	NR	1.827	0.229	pCi/g 0.285	N	911	3	1.964	IDENTIFIED	11.07	<input type="checkbox"/>	
Thorium-234	✓	113.5	11.96	pCi/g 7.491	2.00	63.36	2	1.276	IDENTIFIED	4.018	<input type="checkbox"/>	
Total Uranium	—	340.62	3.56E-05	ug/g 11.151	N	0					<input type="checkbox"/>	
Tungsten-181	NR	17.75	1.323	pCi/g 3.08	N	0	23	0	NOT_IDENTI	0	<input type="checkbox"/>	
Uranium-231	NR	24.77	3.678	pCi/g 8.301	N	0	23	0	FAIL_ABUND	0	<input type="checkbox"/>	
Uranium-234	NR	1.191	0.1257	pCi/g 0.1733	N	609.4	4	1.562	IDENTIFIED	9.317	<input type="checkbox"/>	
Uranium-235	✓	6.361	0.7282	pCi/g 0.7501	0.500	144	2	1.348	IDENTIFIED	6.864	<input type="checkbox"/>	
Uranium-238	NR	113.5	11.96	pCi/g 7.491	N	63.36	2	1.276	IDENTIFIED	4.018	<input type="checkbox"/>	
Zirconium-97	—	3.89E+07	1.15E+07	pCi/g 0	N	0	23	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
246341002	01-FEB-10 12:00	18-FEB-10 12:57	17	SAMPLE	LOAD	1	LANL	LANL01004	GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err (%)	Qual	Qual Comment
Actinium-227	—	3.761	0.5929	pCi/g 1.519	N	0	22	0	NOT_IDENTI	0	<input type="checkbox"/>
Actinium-228	✓	1.8	0.2088	pCi/g 0.2809	N	911.2	3	2.095	IDENTIFIED	9.522	<input type="checkbox"/>
Americium-241	NVP	4.754	0.7646	pCi/g 0.8937	0.200	59.52	1	2.48	IDENTIFIED	15.6	<input checked="" type="checkbox"/> UI
Americium-243	HE	0.5023	0.137	pCi/g 0.3491	N	74.67	1	1.153	IDENTIFIED	26.97	<input type="checkbox"/>
Annihilation Rad.	HE	0.1897	0.06572	pCi/g 0.07986	N	510.9	1	2.279	IDENTIFIED	34.27	<input type="checkbox"/>
Arsenic-73	NR	20.07	3.339	pCi/g 5.218	N	53.59	1	2.414	IDENTIFIED	16.21	<input type="checkbox"/>
Barium-137m	NR	2.401	0.1434	pCi/g 0.1023	N	661.6	2	1.713	IDENTIFIED	2.808	<input type="checkbox"/>
Bismuth-211	INT	3.963	0.4263	pCi/g 0.6145	Y	351.8	4	1.296	IDENTIFIED	9.046	<input checked="" type="checkbox"/> UI
Bismuth-212	HE	1.162	0.343	pCi/g 0.7946	N	727.6	1	2.169	IDENTIFIED	28.91	<input type="checkbox"/>
Bismuth-214	✓	1.381	0.1326	pCi/g 0.1838	0.200	609.2	4	1.474	IDENTIFIED	7.641	<input type="checkbox"/>
Cerium-139	LA	0.2872	0.05225	pCi/g 0.1549	0.050	0	22	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cerium-141	—	5.525	0.2854	pCi/g 0.5042	N	0	22	0	NOT_IDENTI	0	<input type="checkbox"/>

Cerium-143	—	1848	461.2	pCi/g 0	N	0	22	0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-137	✓	2.538	0.1518	pCi/g 0.1081	0.100	661.6	2	1.713	IDENTIFIED 2.808	<input type="checkbox"/>	
Cobalt-57	INT	0.3169	0.05652	pCi/g 0.1377	N	121	1	1.087	IDENTIFIED 17.35	<input type="checkbox"/>	
Curium-243	HE	0.8246	0.2487	pCi/g 0.5739	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Europium-155	—	1.378	0.2374	pCi/g 0.6642	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Gadolinium-153	—	6.832	0.375	pCi/g 0.6552	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Gold-195	—	19.93	1.094	pCi/g 1.883	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Gross Gamma	—	104.3	6.147	pCi/g 15.86	N		0			<input type="checkbox"/>	
Krypton-85	HE	35.03	7.202	pCi/g 21.6	N	0	22	0	NOT_IDENTI 0	<input type="checkbox"/>	
Lead-212	✓	1.714	0.1401	pCi/g 0.1862	0.100	238.6	4	1.279	IDENTIFIED 4.813	<input type="checkbox"/>	
Lead-214	✓	1.379	0.1526	pCi/g 0.2141	0.100	351.8	4	1.296	IDENTIFIED 9.046	<input type="checkbox"/>	
Molybdenum-99	—	162.4	26.8	pCi/g 74.63	N	0	22	0	NOT_IDENTI 0	<input type="checkbox"/>	
Niobium-95	INT	2.714	0.175	pCi/g 0.1192	N	766.4	1	2.03	IDENTIFIED 3.422	<input type="checkbox"/>	
Niobium-97	—	7.47E+06	8.50E+05	pCi/g 0	N	0	22	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212	NR	1.714	0.1401	pCi/g 0.1862	N	238.6	4	1.279	IDENTIFIED 4.813	<input type="checkbox"/>	
Polonium-214	NR	1.379	0.1526	pCi/g 0.2141	N	351.8	4	1.296	IDENTIFIED 9.046	<input type="checkbox"/>	
Polonium-216	NR	1.714	0.1401	pCi/g 0.1862	N	238.6	4	1.279	IDENTIFIED 4.813	<input type="checkbox"/>	
Polonium-218	NR	1.379	0.1526	pCi/g 0.2141	N	351.8	4	1.296	IDENTIFIED 9.046	<input type="checkbox"/>	
Potassium-40	✓	26.58	1.458	pCi/g 0.7091	1.00	1461	1	2.562	IDENTIFIED 3.015	<input type="checkbox"/>	
Protactinium-234	—	1.804	0.3762	pCi/g 0.9574	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Protactinium-234m	✓	695.2	41.78	pCi/g 10.43	N	1001	1	2.033	IDENTIFIED 1.811	<input type="checkbox"/>	
Radium-224	INT	5.092	1.168	pCi/g 2.117	Y	241.6	1	1.886	IDENTIFIED 22.06	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.381	0.1326	pCi/g 0.1838	Y	609.2	4	1.474	IDENTIFIED 7.641	<input type="checkbox"/>	
Radium-228	✓	1.8	0.2088	pCi/g 0.2809	0.500	911.2	3	2.095	IDENTIFIED 9.522	<input type="checkbox"/>	
Rhenium-183	INT	7.341	0.4551	pCi/g 0.5339	N	163.3	1	1.162	IDENTIFIED 3.866	<input type="checkbox"/>	
Rubidium-84	NR	0.6646	0.124	pCi/g 0.1784	N	880.7	1	4.115	IDENTIFIED 17.79	<input type="checkbox"/>	
Silver-110m	—	0.3057	0.04277	pCi/g 0.1305	N	0	22	0	NOT_IDENTI 0	<input type="checkbox"/>	
Strontium-85	LA	0.1833	0.03768	pCi/g 0.113	Y	0	22	0	NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Tellurium-125m	INT	307.6	32.22	pCi/g 52.38	N	109	1	1.747	IDENTIFIED 9.166	<input type="checkbox"/>	
Terbium-160	—	1.298	0.242	pCi/g 0.4451	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Thallium-200	HE	2036	1432	pCi/g 0	N	0	22	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.5163	0.05547	pCi/g 0.1042	0.080	583.2	1	1.67	IDENTIFIED 9.275	<input type="checkbox"/>	
Thorium-227	LA	3.761	0.6194	pCi/g 1.519	Y	0	22	0	FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thorium-228	NR	1.743	0.1425	pCi/g 0.1894	N	238.6	4	1.279	IDENTIFIED 4.813	<input type="checkbox"/>	
Thorium-229	—	4.527	0.7824	pCi/g 2.145	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Thorium-230	NR	1.381	0.1326	pCi/g 0.1838	N	609.2	4	1.474	IDENTIFIED 7.641	<input type="checkbox"/>	
Thorium-232	NR	1.8	0.2088	pCi/g 0.2809	N	911.2	3	2.095	IDENTIFIED 9.522	<input type="checkbox"/>	
Thorium-234	✓	476.4	41.68	pCi/g 7.141	2.00	63.26	2	0.9828	IDENTIFIED 0.8902	<input type="checkbox"/>	
Titanium-44	—	0.4093	0.07002	pCi/g 0.229	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	—	1430.2	0.00012	ug/g 10.631	N		0			<input type="checkbox"/>	
Tungsten-181	NR	16.6	1	pCi/g 2.6	N	57.17	1	2.091	IDENTIFIED 20.64	<input type="checkbox"/>	
Uranium-231	NR	96.18	10.06	pCi/g 8.368	N	94.54	1	1.695	IDENTIFIED 9.446	<input type="checkbox"/>	
Uranium-234	NR	1.381	0.1326	pCi/g 0.1838	N	609.2	4	1.474	IDENTIFIED 7.641	<input type="checkbox"/>	
Uranium-235	✓	28.07	2.549	pCi/g 1.029	0.500	143.8	1	1.147	IDENTIFIED 2.164	<input type="checkbox"/>	
Uranium-238	NR	476.4	41.68	pCi/g 7.141	N	63.26	2	0.9828	IDENTIFIED 0.8902	<input type="checkbox"/>	
Xenon-127	—	0.659	0.08349	pCi/g 0.2339	N	0	22	0	FAIL_ABUND 0	<input type="checkbox"/>	
Yttrium-88	LA	0.08519	0.0235	pCi/g 0.08382	0.100	0	22	0	NOT_IDENTI 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.



Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246341004	01-FEB-10 12:00	18-FEB-10 13:10	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	✓ 1.87	0.1761	pCi/g	0.1933	N	911.5	3	1.401 IDENTIFIED	7.185	<input type="checkbox"/>
Americium-243	JNT 0.3325	0.03286	pCi/g	0.07592	N	74.86	1	0.81 IDENTIFIED	9.013	<input type="checkbox"/>
Annihilation Rad.	— 0.1144	0.03107	pCi/g	0.04514	N	511	1	2.018 IDENTIFIED	26.62	<input type="checkbox"/>
Barium-137m	NR 0.1669	0.03026	pCi/g	0.0586	N	661.7	2	1.165 IDENTIFIED	17.5	<input type="checkbox"/>
Bismuth-211	JNT 4.25	0.3715	pCi/g	0.2858	Y	351.9	4	1.118 IDENTIFIED	5.757	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Bismuth-212	HE 1.232	0.2875	pCi/g	0.7097	N	0	10	0 FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓ 1.278	0.1045	pCi/g	0.1143	0.200	609.4	4	1.511 IDENTIFIED	5.908	<input type="checkbox"/>
Cadmium-109	JNT 3.469	0.4645	pCi/g	1.008	Y	87.12	3	1.082 IDENTIFIED	12.54	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Cerium-143	— 910.9	232.6	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Cesium-137	✓ 0.1765	0.03199	pCi/g	0.06194	0.100	661.7	2	1.165 IDENTIFIED	17.5	<input type="checkbox"/>
Gold-195	HE 0.3731	0.1043	pCi/g	0.3577	N	0	10	0 FAIL_ABUND	0	<input type="checkbox"/>
Gross Gamma	— 10.76	1.561	pCi/g	3.946	N	0				<input type="checkbox"/>
Iodine-123	HE 4.62E+07	2.95E+07	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135	— 3.76E+17	0	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Lead-212	✓ 1.828	0.1409	pCi/g	0.08693	0.100	238.6	4	0.9498 IDENTIFIED	3.224	<input type="checkbox"/>
Lead-214	✓ 1.478	0.1348	pCi/g	0.09964	0.100	351.9	4	1.118 IDENTIFIED	5.757	<input type="checkbox"/>
Lutetium-177	— 5.284	0.8162	pCi/g	2.456	N	0	10	0 FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	JNT 0.9983	0.1688	pCi/g	0.3003	N	87.12	3	1.082 IDENTIFIED	12.54	<input type="checkbox"/>
Niobium-97	HE 3.69E+05	3.40E+05	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	NR 1.828	0.1409	pCi/g	0.08693	N	238.6	4	0.9498 IDENTIFIED	3.224	<input type="checkbox"/>
Polonium-214	NR 1.478	0.1348	pCi/g	0.09964	N	351.9	4	1.118 IDENTIFIED	5.757	<input type="checkbox"/>
Polonium-216	NR 1.828	0.1409	pCi/g	0.08693	N	238.6	4	0.9498 IDENTIFIED	3.224	<input type="checkbox"/>
Polonium-218	NR 1.478	0.1348	pCi/g	0.09964	N	351.9	4	1.118 IDENTIFIED	5.757	<input type="checkbox"/>
Potassium-40	✓ 28.62	1.51	pCi/g	0.6398	1.00	1461	1	1.976 IDENTIFIED	3.021	<input type="checkbox"/>
Radium-224	JNT 5.323	0.7744	pCi/g	0.9895	Y	241.6	1	1.66 IDENTIFIED	12.91	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Radium-226	✓ 1.278	0.1045	pCi/g	0.1143	Y	609.4	4	1.511 IDENTIFIED	5.908	<input type="checkbox"/>
Radium-228	✓ 1.87	0.1761	pCi/g	0.1933	0.500	911.5	3	1.401 IDENTIFIED	7.185	<input type="checkbox"/>
Sodium-24	HE 1.06E+06	2.84E+06	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓ 0.6004	0.05178	pCi/g	0.05957	0.080	583.3	1	1.29 IDENTIFIED	6.725	<input type="checkbox"/>
Thorium-228	NR 1.86	0.1434	pCi/g	0.08841	N	238.6	4	0.9498 IDENTIFIED	3.224	<input type="checkbox"/>
Thorium-230	NR 1.278	0.1045	pCi/g	0.1143	N	609.4	4	1.511 IDENTIFIED	5.908	<input type="checkbox"/>
Thorium-232	NR 1.87	0.1761	pCi/g	0.1933	N	911.5	3	1.401 IDENTIFIED	7.185	<input type="checkbox"/>
Thorium-234	✓ 4.2	0.9103	pCi/g	1.734	2.00	63.32	2	1.008 IDENTIFIED	19.85	<input type="checkbox"/>
Tin-126	NR 0.34	0.04553	pCi/g	0.09913	N	87.12	3	1.082 IDENTIFIED	12.54	<input type="checkbox"/>
Titanium-44	— 0.4048	0.02758	pCi/g	0.06316	N	0	10	0 FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium	— 12.62	2.71E-06	ug/g	2.5818	N	0				<input type="checkbox"/>
Uranium-234	NR 1.278	0.1045	pCi/g	0.1143	N	609.4	4	1.511 IDENTIFIED	5.908	<input type="checkbox"/>
Uranium-238	NR 4.2	0.9103	pCi/g	1.734	N	63.32	2	1.008 IDENTIFIED	19.85	<input type="checkbox"/>
Zirconium-97	HE 4.72E+06	6.02E+06	pCi/g	0	N	0	10	0 SHORT_HLIF	0	<input type="checkbox"/>

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246341005	01-FEB-10 12:00	18-FEB-10 13:10	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	✓ 1.719	0.1684	pCi/g	0.1966	N	911.2	3	1.605 IDENTIFIED	7.791	<input type="checkbox"/>

Americium-243	INT	0.3829	0.03274	pCi/g	0.07645	N	74.83	1	0.8167	IDENTIFIED	7.477	<input type="checkbox"/>	
Annihilation Rad.	—	0.1365	0.03159	pCi/g	0.04121	N	510.6	1	1.637	IDENTIFIED	22.65	<input type="checkbox"/>	
Bismuth-211	INT	3.902	0.2923	pCi/g	0.2972	Y	351.8	4	1.165	IDENTIFIED	5.131	<input checked="" type="checkbox"/>	✓
Bismuth-212	✓	0.9882	0.255	pCi/g	0.3918	N	727.5	1	1.14	IDENTIFIED	25.27	<input type="checkbox"/>	
Bismuth-214	✓	1.218	0.09931	pCi/g	0.0922	0.200	609.2	4	1.389	IDENTIFIED	6.211	<input type="checkbox"/>	
Cadmium-109	INT	3.197	0.5063	pCi/g	1.066	Y	87.31	3	1.161	IDENTIFIED	15.1	<input checked="" type="checkbox"/>	✓
Cerium-143	—	1164	235.7	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.08292	0.02937	pCi/g	0.08229	0.100	0	7	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma	—	9.797	1.341	pCi/g	3.667	N	0					<input type="checkbox"/>	
Iodine-123	HE	1.31E+07	3.06E+07	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.687	0.1126	pCi/g	0.08542	0.100	238.6	4	0.9672	IDENTIFIED	3.087	<input type="checkbox"/>	
Lead-214	✓	1.357	0.1077	pCi/g	0.1036	0.100	351.8	4	1.165	IDENTIFIED	5.131	<input type="checkbox"/>	
Lutetium-177	HE	2.971	0.8169	pCi/g	2.329	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	NR	0.9202	0.1739	pCi/g	0.3654	N	87.31	3	1.161	IDENTIFIED	15.1	<input type="checkbox"/>	
Polonium-212	NR	1.687	0.1126	pCi/g	0.08542	N	238.6	4	0.9672	IDENTIFIED	3.087	<input type="checkbox"/>	
Polonium-214	NR	1.357	0.1077	pCi/g	0.1036	N	351.8	4	1.165	IDENTIFIED	5.131	<input type="checkbox"/>	
Polonium-216	NR	1.687	0.1126	pCi/g	0.08542	N	238.6	4	0.9672	IDENTIFIED	3.087	<input type="checkbox"/>	
Polonium-218	NR	1.357	0.1077	pCi/g	0.1036	N	351.8	4	1.165	IDENTIFIED	5.131	<input type="checkbox"/>	
Potassium-40	✓	29.4	1.529	pCi/g	0.4153	1.00	1461	1	1.865	IDENTIFIED	2.78	<input type="checkbox"/>	
Radium-224	INT	4.077	0.5361	pCi/g	0.9721	Y	241.5	1	1.518	IDENTIFIED	11.94	<input checked="" type="checkbox"/>	✓
Radium-226	✓	1.218	0.09931	pCi/g	0.0922	Y	609.2	4	1.389	IDENTIFIED	6.211	<input type="checkbox"/>	
Radium-228	✓	1.719	0.1684	pCi/g	0.1966	0.500	911.2	3	1.605	IDENTIFIED	7.791	<input type="checkbox"/>	
Rhenium-188	HE	0.3071	0.1271	pCi/g	0.2402	N	154	1	1.007	IDENTIFIED	41.14	<input type="checkbox"/>	
Sodium-24	HE	9.77E+05	2.75E+06	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.5562	0.04534	pCi/g	0.05347	0.080	583.1	1	1.262	IDENTIFIED	6.472	<input type="checkbox"/>	
Thorium-228	NR	1.716	0.1145	pCi/g	0.08688	N	238.6	4	0.9672	IDENTIFIED	3.087	<input type="checkbox"/>	
Thorium-230	NR	1.218	0.09931	pCi/g	0.0922	N	609.2	4	1.389	IDENTIFIED	6.211	<input type="checkbox"/>	
Thorium-232	NR	1.719	0.1684	pCi/g	0.1966	N	911.2	3	1.605	IDENTIFIED	7.791	<input type="checkbox"/>	
Thorium-234	✓	2.185	0.8016	pCi/g	1.882	2.00	63.25	2	0.7795	IDENTIFIED	35.64	<input type="checkbox"/>	
Tin-126	NR	0.3134	0.04962	pCi/g	0.105	N	87.31	3	1.161	IDENTIFIED	15.1	<input type="checkbox"/>	
Titanium-44	—	0.3666	0.02537	pCi/g	0.06567	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	6.6177	2.39E-06	ug/g	2.8017	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.218	0.09931	pCi/g	0.0922	N	609.2	4	1.389	IDENTIFIED	6.211	<input type="checkbox"/>	
Uranium-238	HE	2.185	0.8016	pCi/g	1.882	N	63.25	2	0.7795	IDENTIFIED	35.64	<input type="checkbox"/>	
Zirconium-97	—	1.50E+07	5.60E+06	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246341006	01-FEB-10 12:00	18-FEB-10 13:12	17.1	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	1.484	0.1659	pCi/g	0.2005	N	910.8	3	1.89	IDENTIFIED 9.74
Americium-243	INT	0.353	0.03957	pCi/g	0.09873	N	74.67	1	1.017	IDENTIFIED 10.68
Annihilation Rad.	HE	0.09935	0.03135	pCi/g	0.04365	N	510.4	1	1.758	IDENTIFIED 31.41
Barium-137m	NR	0.2122	0.03013	pCi/g	0.06375	N	661.4	2	1.412	IDENTIFIED 13.83
Bismuth-211	INT	3.637	0.2572	pCi/g	0.3019	Y	351.6	4	1.331	IDENTIFIED 6.334
Bismuth-212	—	1.069	0.1932	pCi/g	0.6524	N	0	11	0	FAIL_ABUND 0
Bismuth-214	✓	1.237	0.09166	pCi/g	0.1074	0.200	608.9	4	1.298	IDENTIFIED 6.159
Cadmium-109	INT	4.037	0.5542	pCi/g	1.23	Y	86.99	3	1.188	IDENTIFIED 13.2

Cerium-143	—	2186	325.5	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134	LA	0.1289	0.03187	pCi/g 0.08959	0.100	0	11	0	FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137	✓	0.2243	0.03186	pCi/g 0.06739	0.100	661.4	2	1.412	IDENTIFIED 13.83	<input type="checkbox"/>	
Gross Gamma	—	10.31	1.414	pCi/g 3.676	N		0			<input type="checkbox"/>	
Iodine-123	HE	2.15E+07	3.18E+07	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135	—	1.32E+17	0	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212	✓	1.595	0.07624	pCi/g 0.08152	0.100	238.4	4	1.068	IDENTIFIED 3.2	<input type="checkbox"/>	
Lead-214	✓	1.265	0.09535	pCi/g 0.1052	0.100	351.6	4	1.331	IDENTIFIED 6.334	<input type="checkbox"/>	
Lutetium-177	HE	3.655	0.9393	pCi/g 2.367	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	—	1.162	0.1995	pCi/g 0.385	N	86.99	3	1.188	IDENTIFIED 13.2	<input type="checkbox"/>	
Polonium-212	NR	1.595	0.07624	pCi/g 0.08152	N	238.4	4	1.068	IDENTIFIED 3.2	<input type="checkbox"/>	
Polonium-214	NR	1.265	0.09535	pCi/g 0.1052	N	351.6	4	1.331	IDENTIFIED 6.334	<input type="checkbox"/>	
Polonium-216	NR	1.595	0.07624	pCi/g 0.08152	N	238.4	4	1.068	IDENTIFIED 3.2	<input type="checkbox"/>	
Polonium-218	NR	1.265	0.09535	pCi/g 0.1052	N	351.6	4	1.331	IDENTIFIED 6.334	<input type="checkbox"/>	
Potassium-40	✓	28.88	1.328	pCi/g 0.5656	1.00	1460	1	2.196	IDENTIFIED 2.906	<input type="checkbox"/>	
Protactinium-234m	HE	13.67	3.66	pCi/g 10.16	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>	
Radium-224	INT	4.312	0.5272	pCi/g 0.9277	Y	241.4	1	1.922	IDENTIFIED 11.91	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.237	0.09166	pCi/g 0.1074	Y	608.9	4	1.298	IDENTIFIED 6.159	<input type="checkbox"/>	
Radium-228	✓	1.484	0.1659	pCi/g 0.2005	0.500	910.8	3	1.89	IDENTIFIED 9.74	<input type="checkbox"/>	
Technetium-99m	—	3.82E+18	0	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-200	HE	953.2	758.7	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.4846	0.04544	pCi/g 0.05749	0.080	582.7	1	1.383	IDENTIFIED 8.669	<input type="checkbox"/>	
Thorium-228	NR	1.623	0.07755	pCi/g 0.08291	N	238.4	4	1.068	IDENTIFIED 3.2	<input type="checkbox"/>	
Thorium-230	NR	1.237	0.09166	pCi/g 0.1074	N	608.9	4	1.298	IDENTIFIED 6.159	<input type="checkbox"/>	
Thorium-232	NR	1.484	0.1659	pCi/g 0.2005	N	910.8	3	1.89	IDENTIFIED 9.74	<input type="checkbox"/>	
Thorium-234	✓	7.044	1.295	pCi/g 2.235	2.00	63.18	2	0.9201	IDENTIFIED 16.29	<input type="checkbox"/>	
Tin-126	INT	0.3956	0.05431	pCi/g 0.1211	N	86.99	3	1.188	IDENTIFIED 13.2	<input type="checkbox"/>	
Titanium-44	—	0.3954	0.02902	pCi/g 0.07748	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	—	21.153	3.85E-06	ug/g 3.3272	N		0			<input type="checkbox"/>	
Uranium-234	NR	1.237	0.09166	pCi/g 0.1074	N	608.9	4	1.298	IDENTIFIED 6.159	<input type="checkbox"/>	
Uranium-235	✓	0.4252	0.1241	pCi/g 0.3464	0.500	143.2	1	1.231	IDENTIFIED 28.03	<input type="checkbox"/>	
Uranium-238	NR	7.044	1.295	pCi/g 2.235	N	63.18	2	0.9201	IDENTIFIED 16.29	<input type="checkbox"/>	
Zirconium-97	✓	2.23E+07	6.82E+06	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
246341007	01-FEB-10 12:00	18-FEB-10 13:12	17.1	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	2.079	0.1871	pCi/g 0.2004	N	911.2	3	1.31	IDENTIFIED 6.594	<input type="checkbox"/>	
Americium-243	INT	0.5021	0.0429	pCi/g 0.08063	N	74.96	1	1.367	IDENTIFIED 7.529	<input type="checkbox"/>	
Annihilation Rad.	—	0.1858	0.03444	pCi/g 0.04323	N	510.5	1	1.482	IDENTIFIED 17.94	<input type="checkbox"/>	
Bismuth-211	INT	4.627	0.3205	pCi/g 0.3271	Y	351.9	4	1.309	IDENTIFIED 5.011	<input checked="" type="checkbox"/>	UI
Bismuth-212	HE	1.018	0.26	pCi/g 0.6912	N	0	8	0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	✓	1.5	0.116	pCi/g 0.1051	0.200	609.4	4	1.332	IDENTIFIED 5.372	<input type="checkbox"/>	
Cadmium-109	INT	4.359	0.5447	pCi/g 1.123	Y	87.3	3	1.275	IDENTIFIED 11.58	<input checked="" type="checkbox"/>	UI
Cerium-143	—	1718	298.8	pCi/g 0	N	0	8	0	SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134	LA	0.1241	0.02801	pCi/g 0.09724	0.100	0	8	0	FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma	—	11.66	1.52	pCi/g 3.735	N		0			<input type="checkbox"/>	



Iodine-123	HE	2.72E+07	3.30E+07	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.981	0.12	pCi/g	0.09193	0.100	238.6	4	1.084	IDENTIFIED	2.905	<input type="checkbox"/>	
Lead-214	✓	1.609	0.1191	pCi/g	0.114	0.100	351.9	4	1.309	IDENTIFIED	5.011	<input type="checkbox"/>	
Neptunium-237	NR	1.254	0.2033	pCi/g	0.3265	N	87.3	3	1.275	IDENTIFIED	11.58	<input type="checkbox"/>	
Polonium-212	NR	1.981	0.12	pCi/g	0.09193	N	238.6	4	1.084	IDENTIFIED	2.905	<input type="checkbox"/>	
Polonium-214	NR	1.609	0.1191	pCi/g	0.114	N	351.9	4	1.309	IDENTIFIED	5.011	<input type="checkbox"/>	
Polonium-216	NR	1.981	0.12	pCi/g	0.09193	N	238.6	4	1.084	IDENTIFIED	2.905	<input type="checkbox"/>	
Polonium-218	NR	1.609	0.1191	pCi/g	0.114	N	351.9	4	1.309	IDENTIFIED	5.011	<input type="checkbox"/>	
Potassium-40	✓	36.91	1.865	pCi/g	0.475	1.00	1461	1	1.822	IDENTIFIED	2.555	<input type="checkbox"/>	
Radium-224	INT	4.879	0.6347	pCi/g	1.046	Y	241.5	1	1.615	IDENTIFIED	12.08	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.5	0.116	pCi/g	0.1051	Y	609.4	4	1.332	IDENTIFIED	5.372	<input type="checkbox"/>	
Radium-228	✓	2.079	0.1871	pCi/g	0.2004	0.500	911.2	3	1.31	IDENTIFIED	6.594	<input type="checkbox"/>	
Sodium-24	HE	1.45E+06	3.05E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-200	HE	303.1	757.5	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.6637	0.05232	pCi/g	0.05291	0.080	583.4	1	1.27	IDENTIFIED	5.975	<input type="checkbox"/>	
Thorium-228	NR	2.015	0.1221	pCi/g	0.0935	N	238.6	4	1.084	IDENTIFIED	2.905	<input type="checkbox"/>	
Thorium-230	NR	1.5	0.116	pCi/g	0.1051	N	609.4	4	1.332	IDENTIFIED	5.372	<input type="checkbox"/>	
Thorium-232	NR	2.079	0.1871	pCi/g	0.2004	N	911.2	3	1.31	IDENTIFIED	6.594	<input type="checkbox"/>	
Thorium-234	✓	3.283	0.7878	pCi/g	1.763	2.00	63.45	2	1.301	IDENTIFIED	22.37	<input type="checkbox"/>	
Tin-126	NR	0.4272	0.05338	pCi/g	0.1104	N	87.3	3	1.275	IDENTIFIED	11.58	<input type="checkbox"/>	
Titanium-44	—	0.4324	0.02838	pCi/g	0.08059	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	NR	9.7367	2.34E-06	ug/g	2.625	N	0					<input type="checkbox"/>	
Uranium-234	NR	1.5	0.116	pCi/g	0.1051	N	609.4	4	1.332	IDENTIFIED	5.372	<input type="checkbox"/>	
Uranium-238	HE	3.283	0.7878	pCi/g	1.763	N	63.45	2	1.301	IDENTIFIED	22.37	<input type="checkbox"/>	
Zirconium-97	—	2.04E+07	6.45E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
246341008	01-FEB-10 12:00	18-FEB-10 13:24	17.1	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	✓	2.015	0.2499	pCi/g	0.286	N	910.7	3	1.576	IDENTIFIED 11.03
Americium-243	INT	0.3711	0.02668	pCi/g	0.04861	N	74.84	1	0.7965	IDENTIFIED 5.803
Annihilation Rad.	HE	0.09848	0.03542	pCi/g	0.05479	N	510.5	1	1.526	IDENTIFIED 35.65
Bismuth-210	NR	2.404	0.3953	pCi/g	0.6778	N	46.49	3	0.589	IDENTIFIED 15.74
Bismuth-211	INT	4.167	0.2978	pCi/g	0.3286	Y	351.6	4	1.033	IDENTIFIED 5.545
Bismuth-212	HE	0.9328	0.3193	pCi/g	0.8092	N	0	8	0	FAIL_ABUND 0
Bismuth-214	✓	1.464	0.1255	pCi/g	0.1227	0.200	608.9	4	1.24	IDENTIFIED 6.207
Cadmium-109	INT	3.634	0.3836	pCi/g	0.7593	Y	87.21	3	0.9759	IDENTIFIED 9.466
Cerium-143	—	1172	244.6	pCi/g	0	N	0	8	0	SHORT_HLIF 0
Gross Gamma	—	10.53	1.335	pCi/g	3.909	N	0			
Iodine-133	HE	25530	15600	pCi/g	0	N	0	8	0	SHORT_HLIF 0
Lead-210	✓	2.404	0.3953	pCi/g	0.6778	N	46.49	3	0.589	IDENTIFIED 15.74
Lead-212	✓	1.73	0.107	pCi/g	0.1173	0.100	238.5	4	0.9575	IDENTIFIED 3.676
Lead-214	✓	1.45	0.1103	pCi/g	0.1139	0.100	351.6	4	1.033	IDENTIFIED 5.545
Lawrencium-177	HE	3.677	0.7682	pCi/g	2.36	N	0	8	0	FAIL_ABUND 0
Neptunium-237	NR	1.046	0.1544	pCi/g	0.2239	N	87.21	3	0.9759	IDENTIFIED 9.466
Polonium-210	NR	2.404	0.3925	pCi/g	0.6778	N	46.49	3	0.589	IDENTIFIED 15.74
Polonium-212	NR	1.73	0.107	pCi/g	0.1173	N	238.5	4	0.9575	IDENTIFIED 3.676



Polonium-214	NK	1.45	0.1103	pCi/g 0.1139	N	351.6	4	1.033	IDENTIFIED	5.545	<input type="checkbox"/>	
Polonium-216	NK	1.73	0.107	pCi/g 0.1173	N	238.5	4	0.9575	IDENTIFIED	3.676	<input type="checkbox"/>	
Polonium-218	NK	1.45	0.1103	pCi/g 0.1139	N	351.6	4	1.033	IDENTIFIED	5.545	<input type="checkbox"/>	
Potassium-40	✓	35.43	1.957	pCi/g 0.7805	1.00	1460	1	1.895	IDENTIFIED	3.506	<input type="checkbox"/>	
Radium-224	INT	2.676	0.5402	pCi/g 1.041	Y	241.4	1	0.9721	IDENTIFIED	19.69	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.464	0.1255	pCi/g 0.1227	Y	608.9	4	1.24	IDENTIFIED	6.207	<input type="checkbox"/>	
Radium-228	✓	2.015	0.2499	pCi/g 0.286	0.500	910.7	3	1.576	IDENTIFIED	11.03	<input type="checkbox"/>	
Technetium-99m	—	1.79E+18	0	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-200	HE	764	832	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	
Thallium-208	✓	0.6078	0.05705	pCi/g 0.07243	0.080	582.8	1	1.209	IDENTIFIED	7.646	<input type="checkbox"/>	
Thorium-228	NK	1.76	0.1088	pCi/g 0.1193	N	238.5	4	0.9575	IDENTIFIED	3.676	<input type="checkbox"/>	
Thorium-230	NK	1.464	0.1255	pCi/g 0.1227	N	608.9	4	1.24	IDENTIFIED	6.207	<input type="checkbox"/>	
Thorium-232	NK	2.015	0.2499	pCi/g 0.286	N	910.7	3	1.576	IDENTIFIED	11.03	<input type="checkbox"/>	
Thorium-234	✓	1.82	0.3798	pCi/g 0.7938	2.00	63.33	2	0.7908	IDENTIFIED	18.9	<input type="checkbox"/>	
Tin-126	NK	0.3561	0.0376	pCi/g 0.07653	N	87.21	3	0.9759	IDENTIFIED	9.466	<input type="checkbox"/>	
Titanium-44	—	0.3813	0.02212	pCi/g 0.03826	N	0	8	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	5.4687	1.13E-06	ug/g 1.1835	N	0					<input type="checkbox"/>	
Uranium-234	NK	1.464	0.1255	pCi/g 0.1227	N	608.9	4	1.24	IDENTIFIED	6.207	<input type="checkbox"/>	
Uranium-238	NK	1.82	0.3798	pCi/g 0.7938	N	63.33	2	0.7908	IDENTIFIED	18.9	<input type="checkbox"/>	
Zirconium-97	HE	1.47E+07	7.49E+06	pCi/g 0	N	0	8	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue	
246341009	01-FEB-10 12:00	18-FEB-10 13:49	17.1	SAMPLE	LOAD	1	LANL	LANL01004IGEL		N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment	
Actinium-228	✓	1.524	0.1775	pCi/g 0.2309	N	911.4	3	1.705	IDENTIFIED	10.06	<input type="checkbox"/>	
Americium-243	INT	0.3799	0.0421	pCi/g 0.1011	N	74.8	1	1.353	IDENTIFIED	10.42	<input type="checkbox"/>	
Annihilation Rad.	✓	0.1393	0.03044	pCi/g 0.04938	N	510.6	1	2.221	IDENTIFIED	21.65	<input type="checkbox"/>	
Barium-137m	NR	0.5722	0.04246	pCi/g 0.06069	N	661.6	2	1.412	IDENTIFIED	6.799	<input type="checkbox"/>	
Bismuth-211	INT	3.838	0.238	pCi/g 0.3284	Y	351.7	4	1.392	IDENTIFIED	5.332	<input checked="" type="checkbox"/>	UI
Bismuth-212	—	1.304	0.2696	pCi/g 0.7081	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.038	0.09338	pCi/g 0.1147	0.200	609.2	4	1.473	IDENTIFIED	8.08	<input type="checkbox"/>	
Cadmium-109	INT	4.009	0.5083	pCi/g 1.442	Y	87.39	3	1.553	IDENTIFIED	11.91	<input checked="" type="checkbox"/>	UI
Cerium-141	HE	0.197	0.0423	pCi/g 0.1349	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Cerium-143	—	3194	430.9	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.1089	0.02991	pCi/g 0.09003	0.100	0	13	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137	✓	0.6049	0.04492	pCi/g 0.06415	0.100	661.6	2	1.412	IDENTIFIED	6.799	<input type="checkbox"/>	
Gross Gamma	—	10.75	1.411	pCi/g 4.425	N	0					<input type="checkbox"/>	
Krypton-85	HE	14.84	3.818	pCi/g 12.83	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-212	✓	1.731	0.08372	pCi/g 0.09234	0.100	238.5	4	1.33	IDENTIFIED	3.183	<input type="checkbox"/>	
Lead-214	✓	1.335	0.08981	pCi/g 0.1201	0.100	351.7	4	1.392	IDENTIFIED	5.332	<input type="checkbox"/>	
Lutetium-177	HE	2.813	0.8764	pCi/g 2.551	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	NR	1.154	0.1886	pCi/g 0.4372	N	87.39	3	1.553	IDENTIFIED	11.91	<input type="checkbox"/>	
Niobium-95m	—	0.7647	0.08758	pCi/g 0.2972	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Niobium-97	—	1.12E+06	4.05E+05	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Polonium-212	NR	1.731	0.08372	pCi/g 0.09234	N	238.5	4	1.33	IDENTIFIED	3.183	<input type="checkbox"/>	
Polonium-214	NR	1.335	0.08981	pCi/g 0.1201	N	351.7	4	1.392	IDENTIFIED	5.332	<input type="checkbox"/>	
Polonium-216	NR	1.731	0.08372	pCi/g 0.09234	N	238.5	4	1.33	IDENTIFIED	3.183	<input type="checkbox"/>	

Polonium-218	NR	1.335	0.08981	pCi/g	0.1201	N	351.7	4	1.392	IDENTIFIED	5.332	<input type="checkbox"/>	
Potassium-40	✓	27.06	1.3	pCi/g	0.5231	1.00	1461	1	1.916	IDENTIFIED	3.144	<input type="checkbox"/>	
Protactinium-234m HE		10.47	4.857	pCi/g	10.03	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Radium-224	INT	4.482	0.613	pCi/g	1.05	Y	241.6	1	1.874	IDENTIFIED	13.37	<input checked="" type="checkbox"/>	UI
Radium-226	✓	1.038	0.09338	pCi/g	0.1147	Y	609.2	4	1.473	IDENTIFIED	8.08	<input type="checkbox"/>	
Radium-228	✓	1.524	0.1775	pCi/g	0.2309	0.500	911.4	3	1.705	IDENTIFIED	10.06	<input type="checkbox"/>	
Strontium-85	LA	0.07767	0.01998	pCi/g	0.06716	Y	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208	✓	0.4974	0.04796	pCi/g	0.06171	0.080	582.9	1	1.602	IDENTIFIED	9.015	<input type="checkbox"/>	
Thorium-228	NR	1.761	0.08516	pCi/g	0.09392	N	238.5	4	1.33	IDENTIFIED	3.183	<input type="checkbox"/>	
Thorium-230	NR	1.038	0.09338	pCi/g	0.1147	N	609.2	4	1.473	IDENTIFIED	8.08	<input type="checkbox"/>	
Thorium-232	NR	1.524	0.1775	pCi/g	0.2309	N	911.4	3	1.705	IDENTIFIED	10.06	<input type="checkbox"/>	
Thorium-234	✓	9.912	1.433	pCi/g	2.152	2.00	63.36	2	1.25	IDENTIFIED	11.62	<input type="checkbox"/>	
Tin-126	NR	0.3929	0.04982	pCi/g	0.1541	N	87.39	3	1.553	IDENTIFIED	11.91	<input type="checkbox"/>	
Titanium-44	—	0.3799	0.0308	pCi/g	0.08761	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	29.729	4.26E-06	ug/g	3.2047	N	0					<input type="checkbox"/>	
Tungsten-181	—	1.808	0.2361	pCi/g	0.7682	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Uranium-234	NR	1.038	0.09338	pCi/g	0.1147	N	609.2	4	1.473	IDENTIFIED	8.08	<input type="checkbox"/>	
Uranium-235	✓	0.5193	0.1695	pCi/g	0.3751	0.500	143.8	1	0.8742	IDENTIFIED	31.58	<input type="checkbox"/>	
Uranium-238	NR	9.912	1.433	pCi/g	2.152	N	63.36	2	1.25	IDENTIFIED	11.62	<input type="checkbox"/>	
Zirconium-97	—	1.91E+07	8.04E+06	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202037546		18-FEB-10 13:52	0	MB	LOAD	1		GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Iodine-123 HE	31.71	95.1	pCi/g	0	N	0	6	0	SHORT_HLIF	0
Iodine-135 HE	1.29E+07	6.72E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0
Krypton-85 HE	9.152	2.526	pCi/g	9.108	N	0	6	0	NOT_IDENTI	0
Sodium-24 HE	0.9748	34.6	pCi/g	0	N	0	6	0	SHORT_HLIF	0
Strontium-85 LA	0.04335	0.01196	pCi/g	0.04314	Y	0	6	0	NOT_IDENTI	0
Total Uranium	2.0778	1.77E-06	ug/g	1.4058	N	0				
Zirconium-97 HE	361.2	320.7	pCi/g	0	N	0	6	0	SHORT_HLIF	0

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202037547	01-FEB-10 12:00	18-FEB-10 13:52	17.1	DUP	LOAD	1		LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-227 HE	1.715	0.5495	pCi/g	1.641	N	0	22	0	FAIL_ABUND	0
Actinium-228 ✓	1.764	0.2621	pCi/g	0.3422	N	911.5	3	1.939	IDENTIFIED	13.67
Americium-241 LA	1.763	0.3397	pCi/g	1.005	0.200	0	22	0	NOT_IDENTI	0
Annihilation Rad. HE	0.1862	0.06255	pCi/g	0.1085	N	511.4	1	1.998	IDENTIFIED	33.3
Arsenic-73 HE	7.686	2.548	pCi/g	4.644	N	53.16	1	1.354	IDENTIFIED	32.93
Barium-137m NR	2.39	0.1407	pCi/g	0.1279	N	661.8	2	1.44	IDENTIFIED	3.881
Bismuth-211 INT	4.391	0.4352	pCi/g	0.733	Y	352	4	1.284	IDENTIFIED	8.84
Bismuth-214 ✓	1.337	0.1645	pCi/g	0.2337	0.200	609.7	4	1.433	IDENTIFIED	11.17
Cerium-139 LA	0.1882	0.05912	pCi/g	0.1699	0.050	0	22	0	NOT_IDENTI	0
Cerium-141 —	5.94	0.2957	pCi/g	0.5845	N	0	22	0	NOT_IDENTI	0
Cerium-143 —	2216	523.3	pCi/g	0	N	0	22	0	SHORT_HLIF	0
Cesium-137 ✓	2.527	0.1489	pCi/g	0.1352	0.100	661.8	2	1.44	IDENTIFIED	3.881

Cobalt-57	HE	0.241	0.07319	pCi/g 0.1537	N	120.7	1	1.285	IDENTIFIED	30.07	<input type="checkbox"/>	
Curium-243	HE	1.057	0.2392	pCi/g 0.6409	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Europium-155	—	2.459	0.2792	pCi/g 0.7455	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Gadolinium-153	—	7.673	0.4175	pCi/g 0.7355	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Gold-195	—	22.38	1.218	pCi/g 2.144	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Gross Gamma	—	107.2	5.866	pCi/g 25.88	N	0					<input type="checkbox"/>	
Iodine-123	HE	2.02E+08	1.34E+08	pCi/g 0	N	0	22	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-133	HE	10630	33960	pCi/g 0	N	0	22	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-212	✓	1.43	0.1258	pCi/g 0.237	0.100	238.7	4	1.124	IDENTIFIED	7.387	<input type="checkbox"/>	
Lead-214	✓	1.527	0.1566	pCi/g 0.2526	0.100	352	4	1.284	IDENTIFIED	8.84	<input type="checkbox"/>	
Lutetium-177	HE	7.206	1.778	pCi/g 5.487	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Niobium-95	NR	2.901	0.1741	pCi/g 0.1473	N	766.6	1	1.433	IDENTIFIED	3.904	<input type="checkbox"/>	
Polonium-212	NR	1.43	0.1258	pCi/g 0.237	N	238.7	4	1.124	IDENTIFIED	7.387	<input type="checkbox"/>	
Polonium-214	NR	1.527	0.1566	pCi/g 0.2526	N	352	4	1.284	IDENTIFIED	8.84	<input type="checkbox"/>	
Polonium-216	NR	1.43	0.1258	pCi/g 0.237	N	238.7	4	1.124	IDENTIFIED	7.387	<input type="checkbox"/>	
Polonium-218	NR	1.527	0.1566	pCi/g 0.2526	N	352	4	1.284	IDENTIFIED	8.84	<input type="checkbox"/>	
Potassium-40	✓	25.94	1.506	pCi/g 0.7623	1.00	1461	1	1.833	IDENTIFIED	3.907	<input type="checkbox"/>	
Protactinium-234	HE	1.594	0.4706	pCi/g 1.154	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Protactinium-234m	✓	747.2	42.1	pCi/g 13.17	N	1001	1	1.757	IDENTIFIED	2.336	<input type="checkbox"/>	
Radium-224	INT	3.298	0.9189	pCi/g 2.658	Y	241.5	1	1.479	IDENTIFIED	27.54	<input checked="" type="checkbox"/>	42
Radium-226	✓	1.337	0.1645	pCi/g 0.2337	Y	609.7	4	1.433	IDENTIFIED	11.17	<input type="checkbox"/>	
Radium-228	✓	1.764	0.2621	pCi/g 0.3422	0.500	911.5	3	1.939	IDENTIFIED	13.67	<input type="checkbox"/>	
Rhenium-183	—	8.057	0.4483	pCi/g 0.9265	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Rubidium-84	HE	0.3793	0.0842	pCi/g 0.2999	N	0	22	0	NOT_IDENTI	0	<input type="checkbox"/>	
Technetium-99m	—	3.92E+19	0	pCi/g 0	N	0	22	0	SHORT_HLIF	0	<input type="checkbox"/>	
Tellurium-125m	—	414.7	40.75	pCi/g 59.74	N	109.2	1	1.849	IDENTIFIED	8.346	<input type="checkbox"/>	
Thallium-208	✓	0.5381	0.07995	pCi/g 0.1227	0.080	583.6	1	1.323	IDENTIFIED	14.07	<input type="checkbox"/>	
Thorium-227	LA	1.715	0.5556	pCi/g 1.641	Y	0	22	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thorium-228	NR	1.454	0.128	pCi/g 0.241	N	238.7	4	1.124	IDENTIFIED	7.387	<input type="checkbox"/>	
Thorium-229	HE	2.45	0.7932	pCi/g 2.422	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Thorium-230	NR	1.337	0.1645	pCi/g 0.2337	N	609.7	4	1.433	IDENTIFIED	11.17	<input type="checkbox"/>	
Thorium-232	NR	1.764	0.2621	pCi/g 0.3422	N	911.5	3	1.939	IDENTIFIED	13.67	<input type="checkbox"/>	
Thorium-234	✓	558.7	48.93	pCi/g 7.729	2.00	63.26	2	1.042	IDENTIFIED	1.006	<input type="checkbox"/>	
Titanium-44	HE	0.3234	0.09599	pCi/g 0.2468	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium	—	1676.8	0.00015	ug/g 11.507	N	0					<input type="checkbox"/>	
Tungsten-181	—	26.91	1.286	pCi/g 2.795	N	0	22	0	NOT_IDENTI	0	<input type="checkbox"/>	
Uranium-231	NR	83.91	9.5	pCi/g 8.96	N	94.7	1	1.264	IDENTIFIED	10.38	<input type="checkbox"/>	
Uranium-234	NR	1.337	0.1645	pCi/g 0.2337	N	609.7	4	1.433	IDENTIFIED	11.17	<input type="checkbox"/>	
Uranium-235	✓	31.72	2.851	pCi/g 1.161	0.500	143.9	1	1.084	IDENTIFIED	2.416	<input type="checkbox"/>	
Uranium-238	NR	558.7	48.93	pCi/g 7.729	N	63.26	2	1.042	IDENTIFIED	1.006	<input type="checkbox"/>	
Xenon-127	NR	0.6044	0.08756	pCi/g 0.2515	N	0	22	0	FAIL_ABUND	0	<input type="checkbox"/>	
Zirconium-97	HE	1.16E+07	1.53E+07	pCi/g 0	N	0	22	0	SHORT_HLIF	0	<input type="checkbox"/>	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue	
1202037548		18-FEB-10 14:48	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	1.113	0.4591	pCi/g 0.9232	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/> <input type="text"/>

Americium-241	13.03	0.7136	pCi/g 0.2408	0.200	59.55	1	0.8585	IDENTIFIED	1.347	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Americium-243	0.1884	0.03632	pCi/g 0.09742	N	74.94	1	0.9799	IDENTIFIED	18.65	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annihilation Rad. HE	0.1566	0.06075	pCi/g 0.1151	N	510.7	1	1.841	IDENTIFIED	38.54	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barium-137m	5.558	0.2784	pCi/g 0.1416	N	661.2	2	1.399	IDENTIFIED	2.708	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bismuth-211	2.082	0.4079	pCi/g 0.6924	Y	351.7	4	1.146	IDENTIFIED	19.03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bismuth-214	0.9422	0.1523	pCi/g 0.2269	0.200	608.9	4	1.538	IDENTIFIED	15.35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cadmium-109	31.76	1.943	pCi/g 1.753	Y	88.03	2	1.006	IDENTIFIED	3.685	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cesium-137	5.875	0.2947	pCi/g 0.1497	0.100	661.2	2	1.399	IDENTIFIED	2.708	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cobalt-57	0.2359	0.03854	pCi/g 0.06373	N	122.2	1	0.9563	IDENTIFIED	15.25	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cobalt-60	6.14	0.3248	pCi/g 0.1011	0.100	1332	1	1.793	IDENTIFIED	3.135	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gross Gamma	26.9	2.767	pCi/g 5.577	N	0					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iodine-135 HE	4.13E+07	2.78E+07	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead-212	1.133	0.09395	pCi/g 0.1618	0.100	238.6	4	1.026	IDENTIFIED	6.58	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead-214	0.7242	0.1431	pCi/g 0.2414	0.100	351.7	4	1.146	IDENTIFIED	19.03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neptunium-237	3.158	0.4188	pCi/g 0.8706	N	0	9	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Niobium-97	233.7	89.16	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polonium-212	1.133	0.09395	pCi/g 0.1618	N	238.6	4	1.026	IDENTIFIED	6.58	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polonium-214	0.7242	0.1431	pCi/g 0.2414	N	351.7	4	1.146	IDENTIFIED	19.03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polonium-216	1.133	0.09395	pCi/g 0.1618	N	238.6	4	1.026	IDENTIFIED	6.58	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polonium-218	0.7242	0.1431	pCi/g 0.2414	N	351.7	4	1.146	IDENTIFIED	19.03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radium-224	2.918	0.8936	pCi/g 1.843	Y	241.5	1	1.505	IDENTIFIED	30.29	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radium-226	0.9422	0.1523	pCi/g 0.2269	Y	608.9	4	1.538	IDENTIFIED	15.35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radium-228	1.113	0.4591	pCi/g 0.9232	0.500	0	9	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sodium-24 HE	81.22	117	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thallium-208	0.4877	0.07128	pCi/g 0.1319	0.080	582.9	1	1.158	IDENTIFIED	13.83	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thorium-228	1.142	0.09467	pCi/g 0.1631	N	238.6	4	1.026	IDENTIFIED	6.58	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thorium-230	0.9422	0.1523	pCi/g 0.2269	N	608.9	4	1.538	IDENTIFIED	15.35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thorium-232 HE	1.113	0.4591	pCi/g 0.9232	N	0	9	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tin-126	3.157	0.1931	pCi/g 0.174	N	88.03	2	1.006	IDENTIFIED	3.685	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Titanium-44	0.2146	0.0248	pCi/g 0.08036	N	0	9	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uranium-234	0.9422	0.1523	pCi/g 0.2269	N	608.9	4	1.538	IDENTIFIED	15.35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zirconium-97 HE	1459	1314	pCi/g 0	N	0	9	0	SHORT_HLIF	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
950786	246341008	SAMPLE	18-FEB-10	Lead-214	1.45	0.1103	pCi/g	0.05698	0.100
				Potassium-40	35.43	1.957	pCi/g	0.3905	1.00
				Radium-224	2.676	0.5402	pCi/g	0.5206	Y
				Radium-226	1.464	0.1255	pCi/g	0.0614	Y
				Radium-228	2.015	0.2499	pCi/g	0.1431	0.500
				Technetium-99m	1.79E+18	0	pCi/g	0	N
				Thallium-200	764	832	pCi/g	0	N
				Thallium-208	0.6078	0.05705	pCi/g	0.03624	0.080
				Thorium-234	1.82	0.3798	pCi/g	0.3971	2.00
				Zirconium-97	1.47E+07	7.49E+08	pCi/g	0	N
950786	246341009	SAMPLE	18-FEB-10	Americium-241	0.1985	0.08734	pCi/g	0.1365	0.200
				Bismuth-211	3.838	0.238	pCi/g	0.1643	Y
				Bismuth-214	1.038	0.09338	pCi/g	0.05739	0.200
				Cadmium-109	4.009	0.5083	pCi/g	0.7214	Y
				Cerium-143	3194	430.9	pCi/g	0	N
				Cesium-134	0.1089	0.02991	pCi/g	0.04504	0.100
				Cesium-137	0.6049	0.04492	pCi/g	0.03209	0.100
				Europium-152	0.08593	0.06847	pCi/g	0.08099	0.200
				Gross Gamma	10.75	1.411	pCi/g	2.165	N
				Krypton-85	14.84	3.818	pCi/g	6.419	N
				Lead-212	1.731	0.08372	pCi/g	0.0462	0.100
				Lead-214	1.335	0.08981	pCi/g	0.06011	0.100
				Mercury-203	0.04035	0.02193	pCi/g	0.03899	0.100
				Niobium-97	1.12E+06	4.05E+05	pCi/g	0	N
				Potassium-40	27.06	1.3	pCi/g	0.2617	1.00
				Protactinium-234m	10.47	4.857	pCi/g	5.02	N
				Radium-224	4.482	0.613	pCi/g	0.5254	Y
				Radium-226	1.038	0.09338	pCi/g	0.05739	Y
				Radium-228	1.524	0.1775	pCi/g	0.1155	0.500
				Strontium-85	0.07767	0.01998	pCi/g	0.0336	Y
				Thallium-208	0.4974	0.04796	pCi/g	0.03087	0.080
				Thorium-234	9.912	1.433	pCi/g	1.077	2.00
				Uranium-235	0.5193	0.1695	pCi/g	0.1877	0.500
				Uranium-238	9.912	1.433	pCi/g	1.077	N
				Zirconium-97	1.91E+07	8.04E+06	pCi/g	0	N
950786	1202037546	MB	18-FEB-10	Cadmium-109	0.3036	0.1739	pCi/g	0.2997	Y
				Iodine-123	31.71	95.1	pCi/g	0	N

246341009

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
950786	1202037546	MB	18-FEB-10	Iodine-135	1.29E+07	6.72E+06	pCi/g	0	N
				Krypton-85	9.152	2.526	pCi/g	4.557	N
				Strontium-85	0.04335	0.01196	pCi/g	0.02158	Y ✓
				Thorium-234	0.6827	0.5951	pCi/g	0.4723	2.00
				Uranium-235	0.1008	0.05219	pCi/g	0.09558	0.500
				Zirconium-97	361.2	320.7	pCi/g	0	N
950786	1202037547	DUP	18-FEB-10	Americium-241	1.763	0.3397	pCi/g	0.5029	0.200
				Antimony-122	6.272	4.14	pCi/g	6.264	N
				Arsenic-73	7.686	2.548	pCi/g	2.323	N
				Bismuth-211	4.391	0.4352	pCi/g	0.3667	Y
				Bismuth-214	1.337	0.1645	pCi/g	0.1169	0.200
				Cerium-139	0.1882	0.05912	pCi/g	0.08501	0.050
				Cerium-141	5.94	0.2957	pCi/g	0.2924	N
				Cerium-143	2216	523.3	pCi/g	0	N
				Cesium-134	0.148	0.05416	pCi/g	0.08313	0.100
				Cesium-137	2.527	0.1489	pCi/g	0.06766	0.100
				Gadolinium-153	7.673	0.4175	pCi/g	0.368	N
				Gold-195	22.38	1.218	pCi/g	1.073	N
				Gross Gamma	107.2	5.866	pCi/g	12.85	N
				Iodine-123	2.02E+08	1.34E+08	pCi/g	0	N
				Iodine-133	10630	33960	pCi/g	0	N
				Krypton-85	15.02	8.589	pCi/g	13.07	N
				Lanthanum-140	0.1415	0.08011	pCi/g	0.1298	Y
				Lead-212	1.43	0.1258	pCi/g	0.1186	0.100
				Lead-214	1.527	0.1566	pCi/g	0.1264	0.100
				Lutetium-177	7.206	1.778	pCi/g	2.745	N
				Potassium-40	25.94	1.506	pCi/g	0.3814	1.00
				Protactinium-234m	747.2	42.1	pCi/g	6.588	Y
				Radium-224	3.298	0.9189	pCi/g	1.33	Y
				Radium-226	1.337	0.1645	pCi/g	0.1169	Y
				Radium-228	1.764	0.2621	pCi/g	0.1712	0.500
				Rhenium-183	8.057	0.4483	pCi/g	0.4635	N
				Strontium-85	0.07883	0.04485	pCi/g	0.0684	Y
				Technetium-99m	3.92E+19	0	pCi/g	0	N
				Tellurium-125m	414.7	40.75	pCi/g	29.89	N
				Thallium-208	0.5381	0.07895	pCi/g	0.06136	0.080
				Thorium-227	1.715	0.5556	pCi/g	0.8209	Y

no z/kz/10

VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 14:57:14.83

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341001.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 12:56:46
Sample ID          : G246341001      Sample quantity   : 1.09740E+02 GRAM
Detector name      : GAM15           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:02.14  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 950786          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.36*	2305	1550	1.28	125.66	119	12	3.20E-01	4.0	
2	0	77.55*	165	1472	1.16	154.03	150	7	2.30E-02	39.8	
3	0	84.20	419	1888	1.16	167.32	163	9	5.82E-02	19.3	
4	0	92.74*	8266	3164	1.41	184.39	176	16	1.15E+00	1.9	
5	0	98.73	576	1106	1.32	196.38	193	9	8.00E-02	11.3	
6	7	109.29	365	1161	1.88	217.50	205	30	5.07E-02	19.0	3.82E+00
7	7	112.85	822	1547	2.70	224.62	205	30	1.14E-01	11.7	
8	0	144.00*	1075	1010	1.35	286.91	282	13	1.49E-01	6.9	
9	0	163.39*	459	794	1.13	325.68	321	11	6.37E-02	12.9	
10	0	185.90*	5229	870	1.33	370.72	365	14	7.26E-01	1.9	
11	0	205.60*	370	419	1.32	410.10	406	9	5.13E-02	11.5	
12	0	209.50	83	333	0.78	417.91	415	8	1.15E-02	39.7	
13	3	238.76*	1027	272	1.29	476.43	469	22	1.43E-01	4.4	8.10E-01
14	3	241.54*	314	354	2.04	481.99	469	22	4.36E-02	16.8	
15	0	257.46	246	406	2.93	513.82	507	17	3.42E-02	19.8	
16	0	295.28*	325	280	1.25	589.47	584	12	4.52E-02	11.9	
17	0	338.45*	202	315	1.59	675.81	670	15	2.81E-02	20.5	
18	0	351.97*	496	268	1.58	702.84	697	15	6.89E-02	8.6	
19	0	462.86	72	115	1.12	924.61	921	9	9.99E-03	29.3	
20	0	510.91*	106	269	2.05	1020.72	1013	19	1.47E-02	41.0	
21	0	582.97*	312	161	1.73	1164.86	1159	16	4.34E-02	10.8	
22	0	609.36*	341	136	1.56	1217.64	1210	14	4.74E-02	9.3	
23	0	661.94	148	120	2.01	1322.81	1317	13	2.06E-02	17.5	
24	0	728.96*	165	100	2.56	1456.86	1447	23	2.29E-02	18.5	
25	0	766.65	289	108	1.84	1532.24	1523	18	4.02E-02	10.3	
26	0	794.84*	54	61	0.97	1588.63	1583	11	7.44E-03	32.4	
27	0	911.00*	221	68	1.96	1820.99	1814	17	3.07E-02	11.1	
28	5	964.16	62	29	3.22	1927.33	1921	21	8.68E-03	23.9	1.65E+00
29	5	968.69*	136	32	1.98	1936.39	1921	21	1.89E-02	12.6	
30	0	1001.02	510	56	2.02	2001.07	1994	18	7.09E-02	5.6	
31	0	1120.14*	102	45	1.52	2239.34	2232	15	1.41E-02	17.9	
32	0	1378.45	31	20	1.34	2756.10	2748	14	4.33E-03	35.8	
33	0	1460.72*	1014	26	2.08	2920.69	2914	17	1.41E-01	3.4	
34	0	1588.40	18	8	1.47	3176.14	3171	10	2.48E-03	40.0	
35	0	1764.66*	58	8	1.71	3528.81	3523	11	8.09E-03	17.6	
36	0	1846.99	19	0	2.91	3693.53	3687	12	2.64E-03	22.9	

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

VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 14:57:17

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 12:56:46
Sample ID        : G246341001             Sample quantity  : 109.74 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA15                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:02.14   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                 Half life ratio   : 8.00
Errors propagated: Yes                       Systematic Error  : 0.00 %
Efficiency type  : Empirical                 Efficiencies at   : Peak Energy
Abundance limit  : 75.00                     WTM error limit  : 3.00
    
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.363E+01	4.003E+00	9.023E-01	8.866E-02	37.269
NB-95	+	765.79	*	6.816E-01	1.523E-01	1.083E-01	9.487E-03	6.295
TE-125M	+	109.28	*	9.850E+01	3.916E+01	3.632E+01	4.267E+00	2.712
BA-137M	+	661.65	*	2.844E-01	1.021E-01	9.262E-02	7.615E-03	3.070
CS-137	+	661.65	*	3.006E-01	1.080E-01	9.791E-02	8.066E-03	3.070
CE-141	+	145.44	*	1.987E+00	3.411E-01	2.328E-01	2.406E-02	8.534
LU-177	+	112.95		4.620E+01	1.182E+01	7.567E+00	7.693E-01	6.106
	+	208.36	*	3.332E+00	2.673E+00	3.456E+00	3.790E-01	0.964
TL-208		277.35		1.110E+00	6.522E-01	1.130E+00	1.578E-01	0.983
	+	510.84		6.950E-01	5.753E-01	3.551E-01	4.263E-02	1.957
	+	583.14	*	5.792E-01	1.355E-01	9.161E-02	8.389E-03	6.322
		860.37		6.887E-01	4.544E-01	8.253E-01	8.071E-02	0.834
BI-211		72.87		1.631E+01	1.118E+01	1.654E+01	1.894E+00	0.987
	+	351.07	*	4.172E+00	8.308E-01	5.369E-01	5.346E-02	7.771
BI-214	+	609.31	*	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
	+	1120.29		1.877E+00	7.034E-01	6.183E-01	6.666E-02	3.036
	+	1764.49		1.475E+00	5.347E-01	4.401E-01	3.859E-02	3.351
PB-214		74.81		1.528E+00	2.239E+00	3.275E+00	4.481E-01	0.467
	+	77.11		1.525E+00	1.231E+00	1.738E+00	2.411E-01	0.877
		87.30		-1.314E-01	3.208E+00	3.320E+00	4.832E-01	-0.040
	+	241.98		3.510E+00	1.258E+00	9.439E-01	1.168E-01	3.718
	+	295.21		1.635E+00	4.383E-01	4.050E-01	4.993E-02	4.037
	+	351.92	*	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
PO-214		74.81		1.528E+00	2.239E+00	3.275E+00	4.481E-01	0.467
	+	77.11		1.525E+00	1.231E+00	1.738E+00	2.411E-01	0.877
		87.30		-1.314E-01	3.208E+00	3.320E+00	4.832E-01	-0.040
	+	241.98		3.510E+00	1.258E+00	9.439E-01	1.168E-01	3.718
	+	295.21		1.635E+00	4.383E-01	4.050E-01	4.993E-02	4.037
	+	351.92	*	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
PO-218		74.81		1.528E+00	2.239E+00	3.275E+00	4.481E-01	0.467
	+	77.11		1.525E+00	1.231E+00	1.738E+00	2.411E-01	0.877
		87.30		-1.314E-01	3.208E+00	3.320E+00	4.832E-01	-0.040
	+	241.98		3.510E+00	1.258E+00	9.439E-01	1.168E-01	3.718
	+	295.21		1.635E+00	4.383E-01	4.050E-01	4.993E-02	4.037



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	351.92	*	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
RA-224	+	240.98	*	6.655E+00	2.357E+00	1.784E+00	1.968E-01	3.730
RA-226	+	609.31	*	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
	+	1120.29		1.877E+00	7.034E-01	6.183E-01	6.666E-02	3.036
	+	1764.49		1.475E+00	5.347E-01	4.401E-01	3.859E-02	3.351
AC-228	+	338.32		1.881E+00	1.098E+00	6.303E-01	2.618E-01	2.985
	+	911.07	*	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
	+	969.11		1.988E+00	6.852E-01	4.363E-01	1.028E-01	4.556
RA-228	+	338.32		1.881E+00	1.098E+00	6.303E-01	2.618E-01	2.985
	+	911.07	*	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
	+	969.11		1.988E+00	6.852E-01	4.363E-01	1.028E-01	4.556
TH-230	+	609.31	*	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
	+	1120.29		1.877E+00	7.034E-01	6.183E-01	6.666E-02	3.036
	+	1764.49		1.475E+00	5.347E-01	4.401E-01	3.859E-02	3.351
TH-232	+	338.32		1.881E+00	7.939E-01	6.303E-01	6.214E-02	2.985
	+	911.07	*	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
	+	969.11		1.988E+00	6.852E-01	4.363E-01	1.028E-01	4.556
PA-234M	+	766.42		1.767E+02	9.678E+01	2.810E+01	1.426E+01	6.290
	+	1001.03	*	1.521E+02	2.315E+01	1.087E+01	1.127E+00	13.988
TH-234	+	63.29	*	1.135E+02	2.392E+01	7.367E+00	1.435E+00	15.407
	+	92.38		1.083E+02	2.171E+01	2.630E+00	5.184E-01	41.191
U-234	+	609.31	*	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
	+	1120.29		1.877E+00	7.034E-01	6.183E-01	6.666E-02	3.036
	+	1764.49		1.475E+00	5.347E-01	4.401E-01	3.859E-02	3.351
U-235		89.95		2.464E+01	9.096E+00	6.828E+00	2.184E+00	3.609
	+	93.35		1.302E+02	3.819E+01	3.125E+00	9.076E-01	41.679
		105.00		5.943E+00	3.261E+00	4.517E+00	1.374E+00	1.316
	+	143.76	*	6.361E+00	1.456E+00	7.420E-01	1.360E-01	8.573
	+	163.35		6.394E+00	2.087E+00	1.640E+00	3.289E-01	3.898
	+	185.71		6.817E+00	7.802E-01	1.475E-01	1.596E-02	46.225
	+	205.31		5.906E+00	1.813E+00	1.669E+00	3.379E-01	3.538
U-238	+	63.29	*	1.135E+02	2.392E+01	7.367E+00	1.435E+00	15.407
	+	92.38		1.083E+02	1.322E+01	2.630E+00	3.065E-01	41.191
ANH-511	+	511.00	*	1.501E-01	1.236E-01	7.673E-02	6.629E-03	1.957

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.764E-01	5.423E-01	9.106E-01	8.466E-02	0.304
NA-22		1274.54	*	-2.731E-02	6.021E-02	9.207E-02	8.364E-03	-0.297
NA-24		1368.53	*	-2.480E+00	6.021E-02	Half-Life too short		
AL-26		1129.67		-1.109E+00	2.472E+00	3.746E+00	3.164E-01	-0.296
		1808.65	*	6.803E-03	3.420E-02	5.875E-02	5.026E-03	0.116
TI-44		67.85		-3.361E-01	1.812E-01	2.422E-01	2.763E-02	-1.388
	+	78.38	*	1.641E-01	1.319E-01	1.920E-01	2.238E-02	0.855
SC-46		889.25	*	1.601E-02	6.479E-02	1.090E-01	1.013E-02	0.147
	+	1120.51		3.265E-01	1.204E-01	1.802E-01	1.533E-02	1.812
V-48		944.10		1.037E+00	1.414E+00	2.472E+00	2.285E-01	0.419

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	983.50		*	2.614E-02	1.093E-01	1.834E-01	1.677E-02	0.142
	1312.09			-3.348E-02	1.299E-01	2.031E-01	1.914E-02	-0.165
CR-51	320.08		*	2.458E-01	6.504E-01	1.098E+00	1.166E-01	0.224
MN-52	744.21			1.085E+00	5.688E-01	1.037E+00	8.979E-02	1.046
	848.13			-1.672E+00	1.253E+01	2.052E+01	1.874E+00	-0.081
	935.52			2.428E-01	4.465E-01	7.702E-01	7.135E-02	0.315
	1246.25			-1.217E+00	1.340E+01	2.149E+01	1.894E+00	-0.057
	1333.61			-6.418E-01	8.912E+00	1.422E+01	1.367E+00	-0.045
	1434.06		*	5.959E-01	4.358E-01	8.367E-01	8.054E-02	0.712
MN-54	834.83		*	2.100E-02	5.681E-02	9.668E-02	8.774E-03	0.217
CO-56	846.75		*	-4.836E-02	6.275E-02	9.730E-02	8.878E-03	-0.497
	977.42			-1.139E+00	4.023E+00	6.417E+00	5.878E-01	-0.177
	1037.82			-6.229E-02	4.289E-01	6.915E-01	6.489E-02	-0.090
	1175.09			-6.822E-01	3.319E+00	5.285E+00	4.311E-01	-0.129
	1238.25			2.031E-01	1.508E-01	2.661E-01	2.391E-02	0.763
	1360.21			-5.055E-01	1.393E+00	2.223E+00	2.141E-01	-0.227
	1771.40			3.672E-03	3.491E-01	4.910E-01	4.289E-02	0.007
CO-57	122.06		*	5.487E-02	6.115E-02	1.012E-01	1.020E-02	0.542
	136.48			-2.511E-01	4.717E-01	7.514E-01	7.990E-02	-0.334
CO-58	810.76		*	-1.851E-02	6.299E-02	1.022E-01	9.189E-03	-0.181
FE-59	142.65		+	8.455E+01	1.445E+01	1.488E+01	1.512E+00	5.681
	192.34			-9.033E-01	2.176E+00	2.968E+00	4.442E-01	-0.304
	1099.22		*	-7.083E-02	1.265E-01	1.938E-01	1.808E-02	-0.366
	1291.56			-5.420E-02	1.893E-01	2.959E-01	3.056E-02	-0.183
CO-60	1173.22			-2.398E-02	6.388E-02	9.991E-02	8.132E-03	-0.240
	1332.49		*	2.321E-02	5.702E-02	9.637E-02	9.265E-03	0.241
ZN-65	1115.52		*	1.507E-02	1.499E-01	2.120E-01	1.811E-02	0.071
GE-68	1077.35		*	-8.791E-01	1.935E+00	3.025E+00	2.648E-01	-0.291
AS-73	53.44		*	1.763E+00	4.394E+00	7.350E+00	9.542E-01	0.240
AS-74	595.88		*	2.263E-02	1.554E-01	2.531E-01	2.151E-02	0.089
	634.78			3.302E-01	5.495E-01	9.254E-01	7.727E-02	0.357
SE-75	66.05			1.031E+01	1.906E+01	2.794E+01	3.588E+00	0.369
	96.73			9.430E+00	3.887E+00	4.178E+00	6.402E-01	2.257
	121.11			3.504E-01	3.597E-01	5.528E-01	6.837E-02	0.634
	136.00			-1.178E-01	9.086E-02	1.407E-01	1.424E-02	-0.838
	198.60			-6.860E+00	3.765E+00	5.496E+00	6.415E-01	-1.248
	264.65		*	-2.703E-02	8.466E-02	1.207E-01	1.323E-02	-0.224
	279.53			1.739E-01	1.904E-01	3.277E-01	3.627E-02	0.531
	303.91			-4.447E+00	3.659E+00	5.682E+00	7.357E-01	-0.783
	400.65			1.763E-01	4.388E-01	7.358E-01	8.082E-02	0.240
BR-77	87.88			6.019E+02	1.553E+03	1.633E+03	2.026E+02	0.369
	200.40			3.166E+02	6.412E+02	9.132E+02	9.977E+01	0.347
	239.00		+	5.384E+02	7.576E+01	9.552E+01	1.054E+01	5.636
	249.79			7.388E+01	2.261E+02	3.358E+02	3.696E+01	0.220
	281.68			-3.694E+02	2.796E+02	4.361E+02	4.704E+01	-0.847
	297.23			6.953E+02	2.196E+02	3.475E+02	3.684E+01	2.001
	303.76			-6.273E+02	5.388E+02	8.432E+02	8.857E+01	-0.744
	439.47			3.601E+02	4.226E+02	7.229E+02	6.196E+01	0.498
	484.57			-9.360E+01	6.436E+02	1.039E+03	8.971E+01	-0.090

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	520.65	*		-7.736E+00	3.273E+01	4.913E+01	4.243E+00	-0.157
	574.64			-2.511E+02	5.984E+02	9.092E+02	7.778E+01	-0.276
	578.91			3.803E+01	2.623E+02	3.706E+02	3.166E+01	0.103
	585.48			3.596E+03	7.687E+02	1.299E+03	1.108E+02	2.769
	755.35			2.921E+02	4.450E+02	7.745E+02	6.746E+01	0.377
	817.79			-1.312E+02	3.643E+02	5.872E+02	5.286E+01	-0.223
SR-82	698.33			2.477E+01	5.656E+01	9.719E+01	8.183E+00	0.255
	776.49	*		-1.316E-01	6.537E-01	1.039E+00	9.159E-02	-0.127
	1395.20			-1.241E+01	1.659E+01	2.499E+01	2.408E+00	-0.496
RB-83	520.41	*		-3.385E-02	1.296E-01	1.863E-01	1.609E-02	-0.182
	529.64			-2.779E-02	1.687E-01	2.705E-01	2.334E-02	-0.103
	552.65			-5.297E-01	3.447E-01	4.939E-01	4.247E-02	-1.073
RB-84	881.50	*		2.598E-02	1.162E-01	1.954E-01	1.810E-02	0.133
KR-85	513.99	*		2.795E+01	1.442E+01	2.289E+01	1.978E+00	1.221
SR-85	513.99	*		1.462E-01	7.546E-02	1.198E-01	1.035E-02	1.221
RB-86	1076.63	*		8.469E-02	1.275E+00	2.095E+00	1.834E-01	0.040
Y-88	898.02			-4.739E-02	6.693E-02	1.026E-01	9.607E-03	-0.462
	1836.01	*		9.330E-03	4.321E-02	7.404E-02	6.236E-03	0.126
ZR-88	392.90	*		3.693E-02	5.310E-02	9.034E-02	7.605E-03	0.409
Y-91	1204.90	*		1.091E+01	3.031E+01	5.062E+01	4.267E+00	0.216
NB-94	702.63	*		-4.883E-03	5.431E-02	9.035E-02	7.627E-03	-0.054
	871.10			-1.513E-02	5.370E-02	8.676E-02	8.002E-03	-0.174
NB-95M	235.69	*		4.346E-01	2.548E-01	3.944E-01	4.746E-02	1.102
ZR-95	724.18			1.975E-01	1.678E-01	2.668E-01	2.482E-02	0.740
	756.15	*		8.817E-02	1.139E-01	1.960E-01	1.877E-02	0.450
NB-97	657.90	*		2.611E-01	1.139E-01	Half-Life	too short	
	1024.50			-5.097E+01	1.139E-01	Half-Life	too short	
ZR-97	254.15			7.066E+01	1.139E-01	Half-Life	too short	
	355.39			4.836E+01	1.139E-01	Half-Life	too short	
	507.63	*		3.890E+01	1.139E-01	Half-Life	too short	
	602.52			8.350E+01	1.139E-01	Half-Life	too short	
	1021.30			-3.237E+01	1.139E-01	Half-Life	too short	
	1147.95			-5.301E+00	1.139E-01	Half-Life	too short	
	1362.66			3.967E+01	1.139E-01	Half-Life	too short	
	1750.46			1.771E+01	1.139E-01	Half-Life	too short	
MO-99	140.51			7.110E+01	1.110E+02	1.581E+02	4.458E+01	0.450
	181.06			9.906E+01	6.937E+01	9.912E+01	1.923E+01	0.999
	366.43			1.806E+01	2.290E+02	3.795E+02	3.478E+01	0.048
	739.58	*		-7.144E+00	4.029E+01	5.946E+01	9.033E+00	-0.120
	778.00			-7.405E+01	8.629E+01	1.340E+02	1.182E+01	-0.553
TC-99M	140.51	*		1.292E+13	8.629E+01	Half-Life	too short	
RH-101	127.23			-1.128E-02	7.310E-02	1.181E-01	1.185E-02	-0.095
	198.01	*		-4.075E-02	6.606E-02	1.006E-01	1.098E-02	-0.405
	325.23			-2.019E-01	3.729E-01	6.022E-01	6.101E-02	-0.335
RH-102	418.52			2.110E-01	4.542E-01	7.647E-01	6.510E-02	0.276
	475.06	*		-1.307E-02	4.820E-02	7.728E-02	6.668E-03	-0.169
	631.29			-3.492E-02	8.465E-02	1.315E-01	1.100E-02	-0.265
	697.49			-7.579E-03	1.236E-01	2.061E-01	1.735E-02	-0.037
+	766.84			1.682E+00	3.759E-01	5.045E-01	4.422E-02	3.334

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1046.59		-3.269E-02	1.512E-01	2.417E-01	2.152E-02	-0.135
		1112.84		2.063E-01	3.755E-01	5.623E-01	4.809E-02	0.367
RU-103		497.08	*	-6.854E-02	6.671E-02	9.972E-02	1.413E-02	-0.687
	+	610.33		1.331E+01	3.320E+00	3.958E+00	6.570E-01	3.361
RH-106	+	511.85		7.526E-01	6.198E-01	6.821E-01	5.893E-02	1.103
		621.84	*	7.580E-03	4.930E-01	7.939E-01	1.049E-01	0.010
		1050.47		1.827E+00	3.107E+00	5.375E+00	4.775E-01	0.340
RU-106	+	511.85		7.526E-01	6.198E-01	6.821E-01	5.893E-02	1.103
		621.84	*	7.580E-03	4.930E-01	7.939E-01	6.672E-02	0.010
		1050.47		1.827E+00	3.107E+00	5.375E+00	4.775E-01	0.340
AG-108M		433.93	*	-9.953E-03	5.601E-02	9.082E-02	8.085E-03	-0.110
		614.37		4.411E-02	6.490E-02	9.638E-02	8.461E-03	0.458
		722.95		-2.549E-03	7.165E-02	1.028E-01	9.139E-03	-0.025
CD-109		88.03	*	2.397E+00	4.120E+00	4.359E+00	5.411E-01	0.550
AG-110M		657.75	*	7.880E-03	6.610E-02	9.681E-02	8.238E-03	0.081
		677.61		-1.136E-01	4.594E-01	7.565E-01	6.476E-02	-0.150
		706.67		4.869E-02	3.376E-01	5.697E-01	4.960E-02	0.085
		763.93		1.387E+00	3.853E-01	6.663E-01	5.991E-02	2.082
		884.67		-3.983E-02	7.854E-02	1.242E-01	1.184E-02	-0.321
		937.48		-3.534E-02	1.579E-01	2.546E-01	2.432E-02	-0.139
		1384.27		-3.265E-02	2.397E-01	3.335E-01	3.286E-02	-0.098
IN-111		171.28		1.100E+00	3.447E+00	5.590E+00	5.988E-01	0.197
		245.39	*	5.247E-01	3.245E+00	4.780E+00	5.268E-01	0.110
IN-113M		391.69	*	2.289E-02	7.718E-02	1.289E-01	1.120E-02	0.178
SN-113		391.69	*	2.289E-02	7.718E-02	1.289E-01	1.120E-02	0.178
IN-114M		190.27	*	1.057E-01	4.149E-01	5.839E-01	6.340E-02	0.181
CD-115		260.90		3.496E+02	4.599E+02	6.967E+02	7.633E+01	0.502
		492.35		3.271E+01	1.067E+02	1.771E+02	1.530E+01	0.185
		527.90	*	-1.350E+01	3.124E+01	4.913E+01	4.240E+00	-0.275
SN-117M		156.02		1.923E+00	5.549E+00	9.028E+00	9.410E-01	0.213
		158.56	*	-6.569E-02	1.569E-01	2.169E-01	2.274E-02	-0.303
SB-122		563.90	*	-2.264E+00	5.445E+00	8.546E+00	7.331E-01	-0.265
		692.80		-5.699E+01	1.082E+02	1.744E+02	1.464E+01	-0.327
I-123		159.00	*	-7.520E+01	1.082E+02	Half-Life	too short	
		528.96		-3.721E+03	1.082E+02	Half-Life	too short	
TE-123M		159.00	*	-3.288E-02	7.480E-02	1.033E-01	1.088E-02	-0.318
I-124		602.71	*	1.023E+00	1.601E+00	2.363E+00	2.002E-01	0.433
		722.78		-9.195E-01	1.026E+01	1.464E+01	1.251E+00	-0.063
		1325.50		-1.989E+01	7.200E+01	1.121E+02	1.071E+01	-0.177
		1376.25		9.157E+01	6.945E+01	1.186E+02	1.143E+01	0.772
		1509.49		3.541E+00	3.228E+01	5.436E+01	5.192E+00	0.065
		1691.02		-7.391E-01	6.759E+00	1.091E+01	9.899E-01	-0.068
SB-124		602.71		4.421E-02	6.916E-02	1.021E-01	8.652E-03	0.433
		645.85		2.457E-01	8.299E-01	1.361E+00	1.203E-01	0.181
		709.31		3.425E+00	4.509E+00	7.888E+00	6.687E-01	0.434
		713.82		-1.559E+00	2.717E+00	4.358E+00	5.210E-01	-0.358
		722.78		-5.758E-02	6.425E-01	9.168E-01	8.008E-02	-0.063
	+	968.20		2.092E+01	5.605E+00	1.005E+01	9.237E-01	2.081
		1045.16		-3.997E+00	3.435E+00	4.879E+00	4.347E-01	-0.819

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		1325.50		-1.330E+00	4.816E+00	7.500E+00	7.162E-01	-0.177
		1368.21		-5.050E-01	2.581E+00	4.037E+00	5.711E-01	-0.125
		1436.60		1.854E+00	5.702E+00	9.874E+00	9.503E-01	0.188
		1691.02	*	-1.092E-02	9.984E-02	1.611E-01	1.514E-02	-0.068
		427.89	*	3.398E-02	1.528E-01	2.535E-01	2.208E-02	0.134
I-126	+	463.38		9.263E-01	5.502E-01	8.663E-01	8.048E-02	1.069
		600.56		8.861E-02	2.875E-01	4.608E-01	4.205E-02	0.192
		635.90		1.076E-01	3.948E-01	6.483E-01	5.875E-02	0.166
SB-126		388.63		2.490E-02	3.859E-01	6.375E-01	5.424E-02	0.039
		666.33	*	9.708E-02	3.490E-01	5.187E-01	4.277E-02	0.187
		753.82		6.979E-02	2.502E+00	4.178E+00	3.637E-01	0.017
		223.80		-1.139E+00	7.922E+00	1.326E+01	1.462E+00	-0.086
		278.60		8.125E+00	4.797E+00	8.397E+00	9.084E-01	0.968
SN-126	+	296.50		1.812E+01	4.725E+00	6.016E+00	6.382E-01	3.013
		414.70		-6.213E-03	1.360E-01	2.226E-01	1.892E-02	-0.028
		415.30		-2.565E+00	1.123E+01	1.818E+01	1.546E+00	-0.141
		555.20		5.499E+00	7.264E+00	1.232E+01	1.059E+00	0.446
		573.80		-1.894E+00	1.940E+00	2.913E+00	2.493E-01	-0.650
		593.00		-1.063E-01	1.683E+00	2.701E+00	2.297E-01	-0.039
		656.30		2.555E+00	6.956E+00	1.041E+01	8.588E-01	0.245
		666.33		4.075E-02	1.465E-01	2.177E-01	1.795E-02	0.187
		675.00		1.034E+00	3.410E+00	5.829E+00	4.835E-01	0.177
		695.00		4.133E-02	1.305E-01	2.230E-01	1.873E-02	0.185
		697.00		-5.095E-02	4.783E-01	7.951E-01	6.689E-02	-0.064
		720.50	*	-5.066E-02	2.828E-01	3.998E-01	3.413E-02	-0.127
		856.80		-7.524E-01	8.360E-01	1.283E+00	1.176E-01	-0.587
		989.30		-9.872E-01	2.165E+00	3.406E+00	3.108E-01	-0.290
		1034.80		-3.870E+00	1.429E+01	2.278E+01	2.040E+00	-0.170
SB-127	+	1213.00		-6.317E+00	8.092E+00	1.218E+01	1.036E+00	-0.519
		64.28		4.493E+01	8.418E+00	4.806E+00	8.137E-01	9.348
		86.94		1.279E-01	1.696E+00	1.763E+00	7.455E-01	0.073
XE-127		87.57	*	4.953E-02	4.038E-01	4.206E-01	5.205E-02	0.118
		61.10		2.319E+03	5.050E+02	6.500E+02	9.025E+01	3.568
		252.40		-5.007E+00	1.237E+01	1.735E+01	7.416E+00	-0.289
		290.80		-1.962E+01	6.212E+01	8.822E+01	1.177E+01	-0.222
		411.60		1.333E+01	2.824E+01	4.742E+01	7.625E+00	0.281
		444.90		2.147E+00	2.305E+01	3.792E+01	4.943E+00	0.057
		473.00		-3.466E+00	4.020E+00	6.167E+00	8.255E-01	-0.562
		543.00		-3.412E+01	3.994E+01	6.049E+01	8.984E+00	-0.564
		603.60		1.102E+01	2.937E+01	4.224E+01	5.465E+00	0.261
		685.20	*	2.597E-01	2.752E+00	4.641E+00	5.463E-01	0.056
XE-127		698.50		1.746E+01	3.404E+01	5.858E+01	9.453E+00	0.298
		722.20		-4.322E+01	7.393E+01	9.979E+01	1.167E+01	-0.433
		783.80		1.486E+01	8.642E+00	1.556E+01	2.039E+00	0.955
		57.60		8.413E+00	3.166E+01	4.644E+01	5.459E+00	0.181
	+	145.22		2.181E+01	3.727E+00	3.854E+00	3.930E-01	5.659
		172.10		1.386E-01	2.662E-01	4.340E-01	4.652E-02	0.319
XE-127		202.84	*	1.414E-01	1.179E-01	1.716E-01	1.877E-02	0.824
		374.96		-1.521E-01	3.430E-01	5.519E-01	4.924E-02	-0.276

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131	80.18			-1.101E+01	2.705E+01	2.759E+01	3.258E+00	-0.399
	284.30			-1.914E-01	3.047E+00	5.069E+00	5.644E-01	-0.038
	364.48	*		-8.133E-02	2.278E-01	3.688E-01	3.565E-02	-0.221
	636.97			-1.926E+00	2.773E+00	4.193E+00	3.712E-01	-0.459
	722.89			-7.769E-01	1.423E+01	2.037E+01	1.756E+00	-0.038
TE-132	49.72			-1.493E+02	1.791E+02	2.893E+02	4.484E+01	-0.516
	111.76	+		1.036E+03	2.761E+02	2.401E+02	3.030E+01	4.316
	116.30			1.622E+02	1.168E+02	1.715E+02	2.152E+01	0.946
BA-133	228.16	*		-4.776E-01	1.771E+00	2.946E+00	5.154E-01	-0.162
	53.15			1.456E+01	1.883E+01	3.165E+01	4.134E+00	0.460
	79.62			2.024E+00	6.412E+00	6.754E+00	1.160E+00	0.300
	81.00			2.258E-01	4.726E-01	5.001E-01	8.908E-02	0.452
	276.40			5.485E-01	6.363E-01	1.088E+00	1.728E-01	0.504
	302.84			-4.551E-02	2.484E-01	3.989E-01	5.820E-02	-0.114
	356.01	*		6.166E-02	8.196E-02	1.231E-01	1.693E-02	0.501
I-133	383.85			2.086E-01	5.173E-01	8.684E-01	1.097E-01	0.240
	510.53	+		7.107E+00	5.173E-01	Half-Life	too short	
	529.87	*		-1.232E-03	5.173E-01	Half-Life	too short	
	706.58			4.753E-01	5.173E-01	Half-Life	too short	
	856.28			-4.733E+00	5.173E-01	Half-Life	too short	
	875.33			6.474E-01	5.173E-01	Half-Life	too short	
	1236.41			6.800E+00	5.173E-01	Half-Life	too short	
	1298.22			-4.533E-01	5.173E-01	Half-Life	too short	
	475.35			2.557E-01	3.148E+00	5.159E+00	4.452E-01	0.050
	563.23			-1.131E-02	5.657E-01	9.135E-01	7.913E-02	-0.012
CS-134	569.32			1.779E-01	3.280E-01	5.480E-01	4.759E-02	0.325
	604.70			-7.981E-03	6.114E-02	8.378E-02	7.112E-03	-0.095
	795.84	+	*	1.430E-01	9.362E-02	1.398E-01	1.253E-02	1.023
	801.93			-4.445E-01	6.356E-01	9.094E-01	8.164E-02	-0.489
	1038.57			2.962E-01	5.152E+00	8.482E+00	7.582E-01	0.035
	1167.94			1.170E-01	3.663E+00	5.970E+00	4.883E-01	0.020
	1365.15			1.156E+00	1.670E+00	3.018E+00	3.013E-01	0.383
	268.24	*		1.456E-01	2.640E-01	4.501E-01	5.401E-02	0.324
	288.45			8.341E+12	2.640E-01	Half-Life	too short	
	417.63			-1.371E+10	2.640E-01	Half-Life	too short	
I-135	546.56			1.555E+12	2.640E-01	Half-Life	too short	
	836.80			-1.920E+12	2.640E-01	Half-Life	too short	
	1038.76			-6.260E+11	2.640E-01	Half-Life	too short	
	1124.00			6.481E+12	2.640E-01	Half-Life	too short	
	1131.51			4.333E+10	2.640E-01	Half-Life	too short	
	1260.41	*		-7.099E+11	2.640E-01	Half-Life	too short	
	1457.56			1.123E+14	2.640E-01	Half-Life	too short	
	1678.03			1.731E+11	2.640E-01	Half-Life	too short	
	1706.46			1.193E+11	2.640E-01	Half-Life	too short	
	1791.20			-1.229E+12	2.640E-01	Half-Life	too short	
	66.91			-6.969E+00	3.477E+00	4.425E+00	7.590E-01	-1.575
	86.29			5.682E+00	6.074E+00	6.469E+00	1.004E+00	0.878
	153.22			3.769E-01	1.592E+00	2.584E+00	2.899E-01	0.146
	163.89	+		1.603E+01	4.520E+00	5.347E+00	6.138E-01	2.997

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	176.55			-8.281E-02	8.643E-01	1.383E+00	1.543E-01	-0.060
	273.65			-2.091E+00	8.975E-01	1.305E+00	1.477E-01	-1.602
	340.57			8.680E-01	2.893E-01	4.687E-01	4.701E-02	1.852
	818.51			-3.980E-02	1.289E-01	2.086E-01	1.880E-02	-0.191
	1048.07	*		1.029E-01	1.545E-01	2.697E-01	2.495E-02	0.382
	1235.34			9.812E-01	1.059E+00	1.822E+00	2.172E-01	0.538
CE-139	165.85	*		1.435E-01	7.773E-02	1.150E-01	1.227E-02	1.249
BA-140	162.64	+		1.132E+01	3.171E+00	3.822E+00	4.205E-01	2.961
	304.84			-2.739E+00	2.515E+00	3.767E+00	1.080E+00	-0.727
	423.70			-1.241E-01	3.447E+00	5.640E+00	1.827E+00	-0.022
	537.32	*		-1.213E-01	4.709E-01	7.472E-01	2.476E-01	-0.162
LA-140	328.77			-1.662E-01	5.556E-01	9.085E-01	9.520E-02	-0.183
	432.53			-1.426E-01	3.890E+00	6.360E+00	5.709E-01	-0.022
	487.03			-3.653E-02	2.450E-01	3.953E-01	3.624E-02	-0.092
	751.79			-2.522E+00	2.809E+00	4.341E+00	4.170E-01	-0.581
	815.85			3.803E-01	5.739E-01	9.965E-01	9.913E-02	0.382
	867.82			-1.144E-01	2.301E+00	3.790E+00	3.653E-01	-0.030
	919.63			-1.634E+00	5.139E+00	6.957E+00	7.791E-01	-0.235
	925.24			2.700E+00	1.884E+00	3.443E+00	3.370E-01	0.784
	1596.49	*		4.129E-02	1.545E-01	2.553E-01	2.393E-02	0.162
CE-143	57.37			2.423E-03	1.545E-01	Half-Life	too short	
	231.56			-4.056E-03	1.545E-01	Half-Life	too short	
	293.26	*		2.477E-03	1.545E-01	Half-Life	too short	
	350.59	+		8.718E-02	1.545E-01	Half-Life	too short	
	490.36			5.243E-04	1.545E-01	Half-Life	too short	
	664.57			9.890E-03	1.545E-01	Half-Life	too short	
	721.93			-4.448E-03	1.545E-01	Half-Life	too short	
CE-144	80.11			-3.883E+00	1.061E+01	1.085E+01	1.275E+00	-0.358
	133.54	*		-9.698E-02	4.670E-01	7.521E-01	1.234E-01	-0.129
PM-144	476.78			3.218E-02	1.126E-01	1.866E-01	1.761E-02	0.172
	618.01			-2.148E-02	5.165E-02	7.967E-02	6.902E-03	-0.270
	696.49	*		-2.856E-03	5.469E-02	9.123E-02	7.676E-03	-0.031
	778.57			-3.549E+00	3.638E+00	5.593E+00	4.936E-01	-0.634
PR-144	696.49	*		-1.937E-01	3.710E+00	6.188E+00	5.204E-01	-0.031
	1489.15			-1.221E+01	1.596E+01	2.323E+01	2.225E+00	-0.526
PM-146	453.90	*		2.202E-02	7.230E-02	1.202E-01	1.287E-02	0.183
	633.02			-9.808E-01	2.123E+00	3.232E+00	1.206E+00	-0.303
	735.90			-1.849E-01	2.903E-01	3.838E-01	1.098E-01	-0.482
	747.13			-2.884E-01	1.648E-01	2.342E-01	3.295E-02	-1.231
ND-147	91.11			4.482E+01	5.767E+00	3.111E+00	3.851E-01	14.406
	319.41			6.677E-01	6.339E+00	1.057E+01	1.083E+00	0.063
	439.89			8.966E+00	1.113E+01	1.900E+01	1.629E+00	0.472
	531.02	*		-2.686E-01	9.962E-01	1.584E+00	2.369E-01	-0.170
PM-149	285.90	*		3.871E+01	2.962E+02	4.965E+02	8.350E+01	0.078
EU-152	121.78			1.708E-01	1.835E-01	2.938E-01	3.292E-02	0.581
	244.69			1.330E-01	6.441E-01	9.508E-01	1.048E-01	0.140
	344.27	*		-1.048E-01	1.971E-01	2.549E-01	2.595E-02	-0.411
	443.98			-7.703E-01	1.630E+00	2.592E+00	2.224E-01	-0.297
	778.89			-3.517E-01	4.158E-01	6.466E-01	5.705E-02	-0.544

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153		867.32		2.073E-01	1.225E+00	2.054E+00	1.891E-01	0.101
	+	964.01		1.050E+00	5.120E-01	8.209E-01	7.550E-02	1.280
		1085.78		-1.704E-01	5.375E-01	8.477E-01	7.382E-02	-0.201
		1112.02		5.107E-01	4.947E-01	8.090E-01	6.922E-02	0.631
		1407.95		-3.690E-02	2.652E-01	4.353E-01	4.194E-02	-0.085
		69.67		-5.469E-01	5.589E+00	8.892E+00	1.015E+00	-0.062
	+	83.37		1.635E+02	6.610E+01	8.455E+01	1.013E+01	1.934
	+	97.43	*	1.285E+00	3.232E-01	4.337E-01	4.786E-02	2.964
		103.18		-5.577E-03	4.206E-01	4.324E-01	4.572E-02	-0.013
		123.07		7.447E-02	1.243E-01	2.044E-01	2.553E-02	0.364
EU-154		247.94		2.236E-01	7.065E-01	1.048E+00	1.402E-01	0.213
		591.81		-6.298E-01	1.142E+00	1.579E+00	1.830E-01	-0.399
		723.30		5.529E-02	2.989E-01	4.384E-01	4.150E-02	0.126
		756.87		1.434E+00	1.255E+00	2.156E+00	2.597E-01	0.665
		873.19		2.024E-01	4.855E-01	8.271E-01	1.049E-01	0.245
		996.32		7.402E-01	6.590E-01	1.035E+00	1.864E-01	0.715
		1004.76		1.168E+00	4.655E-01	7.846E-01	9.398E-02	1.488
		1274.45	*	-7.590E-02	1.681E-01	2.570E-01	2.997E-02	-0.295
		48.70		-4.794E+00	1.558E+01	2.569E+01	3.448E+00	-0.187
		60.01		2.456E+01	2.300E+01	3.425E+01	3.868E+00	0.717
TB-160		86.54		2.726E-01	4.985E-01	5.272E-01	6.502E-02	0.517
		105.31	*	5.916E-01	2.833E-01	4.595E-01	4.841E-02	1.288
		86.79		1.987E-01	1.341E+00	1.399E+00	1.720E-01	0.142
		197.04		3.304E-01	1.124E+00	1.772E+00	1.932E-01	0.186
		215.65		1.382E-01	1.441E+00	2.304E+00	2.535E-01	0.060
		298.57		2.461E-01	2.206E-01	3.379E-01	3.575E-02	0.728
		879.36	*	-1.835E-01	2.391E-01	3.708E-01	3.431E-02	-0.495
		962.29		1.588E+00	8.385E-01	1.429E+00	1.315E-01	1.111
		966.15		1.742E+00	3.943E-01	7.568E-01	6.956E-02	2.302
		1177.93		-1.020E-01	5.347E-01	8.526E-01	6.977E-02	-0.120
HO-166M		1271.85		-9.522E-02	9.851E-01	1.574E+00	1.425E-01	-0.060
		80.57		-4.347E-01	1.345E+00	1.378E+00	1.623E-01	-0.315
	+	184.41		5.113E+00	5.851E-01	3.298E-01	3.567E-02	15.501
		280.46		-2.292E-02	1.471E-01	2.440E-01	2.635E-02	-0.094
		410.95		2.580E-01	4.067E-01	6.892E-01	5.850E-02	0.374
		711.68	*	-4.102E-02	9.876E-02	1.606E-01	1.363E-02	-0.256
		752.31		-1.411E-01	4.051E-01	6.573E-01	5.716E-02	-0.215
		810.29		-4.815E-02	9.360E-02	1.492E-01	1.338E-02	-0.323
		51.35		-8.447E+01	1.747E+02	2.864E+02	3.860E+01	-0.295
		52.39		3.950E+01	8.559E+01	1.434E+02	1.901E+01	0.276
TM-171		59.40		1.295E+02	1.249E+02	1.861E+02	2.098E+01	0.696
		66.72	*	-1.659E+02	1.076E+02	1.461E+02	1.667E+01	-1.136
		88.36		1.193E+00	9.561E-01	1.029E+00	1.270E-01	1.160
		201.83		-7.438E-03	6.686E-02	9.258E-02	1.012E-02	-0.080
		306.84	*	-3.110E-02	4.207E-02	6.738E-02	7.045E-03	-0.462
		401.10		4.057E+00	1.131E+01	1.893E+01	1.600E+00	0.214
		52.97		5.927E+00	8.642E+00	1.451E+01	1.903E+00	0.408
		54.07		1.242E+00	4.388E+00	7.322E+00	9.373E-01	0.170
		61.30		5.665E+01	9.818E+00	1.272E+01	1.446E+00	4.452



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HF-181		121.62		9.941E-01	9.469E-01	1.521E+00	1.530E-01	0.654
		147.16		1.410E+00	1.660E+00	2.410E+00	2.467E-01	0.585
		171.86		3.934E-01	1.042E+00	1.692E+00	1.813E-01	0.233
		218.09		5.214E-01	1.563E+00	2.659E+00	2.927E-01	0.196
		268.79		1.144E+00	1.362E+00	2.342E+00	2.553E-01	0.488
		319.02		2.265E-02	4.363E-01	7.261E-01	7.442E-02	0.031
		367.43		1.097E+00	1.538E+00	2.625E+00	2.398E-01	0.418
		413.65	*	-1.346E-01	2.908E-01	4.645E-01	3.947E-02	-0.290
		56.28		-1.651E+00	4.743E+00	7.530E+00	9.140E-01	-0.219
		57.53		6.311E-01	2.655E+00	3.893E+00	4.584E-01	0.162
		65.20		4.663E+01	6.948E+00	7.958E+00	9.086E-01	5.859
		133.02		7.521E-02	1.543E-01	2.530E-01	2.543E-02	0.297
		136.25		-1.312E+00	1.083E+00	1.683E+00	1.696E-01	-0.779
W-181		345.85		1.821E-01	5.295E-01	5.337E-01	5.170E-02	0.341
		482.03	*	-3.651E-02	7.364E-02	1.162E-01	1.003E-02	-0.314
		56.28		-6.328E-01	1.819E+00	2.887E+00	3.505E-01	-0.219
		57.53		2.414E-01	1.019E+00	1.494E+00	1.760E-01	0.162
TA-182		65.20	*	1.775E+01	2.646E+00	3.030E+00	3.460E-01	5.859
		67.75		-6.788E-01	4.299E-01	5.830E-01	6.654E-02	-1.164
	+	100.10		3.012E+00	7.575E-01	9.131E-01	9.857E-02	3.298
		152.43		-8.257E-03	7.454E-01	1.202E+00	1.243E-01	-0.007
		222.10		-2.107E-01	6.267E-01	1.042E+00	1.149E-01	-0.202
	+	1001.68		6.776E+01	9.745E+00	1.434E+01	1.302E+00	4.726
	+	1121.28		8.980E-01	3.312E-01	4.930E-01	4.190E-02	1.822
RE-183		1189.05		3.540E-02	4.786E-01	7.818E-01	6.478E-02	0.045
		1221.42	*	1.015E-01	2.805E-01	4.694E-01	4.029E-02	0.216
		1230.97		-1.506E-01	7.257E-01	1.154E+00	1.001E-01	-0.130
		57.98		4.916E-01	1.004E+00	1.480E+00	1.725E-01	0.332
		59.32		5.263E-01	5.236E-01	7.797E-01	8.805E-02	0.675
		67.20		-1.548E+00	7.867E-01	1.043E+00	1.190E-01	-1.485
	+	162.32	*	1.521E+00	4.237E-01	5.104E-01	5.400E-02	2.980
	+	208.81		2.503E+00	2.008E+00	3.023E+00	3.317E-01	0.828
RE-184		291.72		4.047E-01	1.938E+00	2.840E+00	3.031E-01	0.143
		57.98		1.791E+00	3.657E+00	5.394E+00	6.284E-01	0.332
		59.32		1.916E+00	1.907E+00	2.839E+00	3.206E-01	0.675
		67.20		-5.641E+00	2.866E+00	3.798E+00	4.335E-01	-1.485
		161.27		1.978E+00	9.945E-01	1.468E+00	1.549E-01	1.347
OS-185		216.55		3.230E-01	4.952E-01	8.296E-01	9.129E-02	0.389
		252.85	*	3.007E-02	4.561E-01	6.676E-01	7.341E-02	0.045
		318.01		-2.786E-01	7.671E-01	1.251E+00	1.285E-01	-0.223
		792.07		-1.619E+00	2.005E+00	2.636E+00	2.342E-01	-0.614
		903.28		6.385E-02	1.660E+00	2.462E+00	2.294E-01	0.026
		920.93		-5.073E-01	7.188E-01	1.046E+00	9.716E-02	-0.485
		59.72		1.607E+00	1.383E+00	2.063E+00	2.325E-01	0.779
		61.14		5.069E+00	9.848E-01	1.344E+00	1.526E-01	3.772
		69.30		-4.970E-01	1.011E+00	1.591E+00	1.816E-01	-0.312
		592.07		-2.805E+00	4.526E+00	6.504E+00	5.533E-01	-0.431
		646.12	*	1.546E-02	6.969E-02	1.137E-01	9.436E-03	0.136
		717.42		1.912E-01	1.424E+00	2.401E+00	2.045E-01	0.080

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-188		874.81		3.234E-01	9.599E-01	1.627E+00	1.503E-01	0.199
		880.27		-2.415E-02	1.279E+00	2.111E+00	1.955E-01	-0.011
		155.03	*	3.195E-01	3.855E-01	6.339E-01	6.592E-02	0.504
		477.96		1.854E+00	5.232E+00	8.709E+00	7.517E-01	0.213
W-188		633.10		-8.341E-01	4.234E+00	6.694E+00	5.595E-01	-0.125
	+	63.58		4.650E+03	6.491E+02	5.287E+02	6.035E+01	8.795
		227.08		2.391E+00	2.218E+01	3.745E+01	4.130E+00	0.064
		290.67	*	-5.121E+00	1.550E+01	2.200E+01	2.351E+00	-0.233
IR-192	+	295.96		1.269E+00	3.312E-01	4.255E-01	4.539E-02	2.983
		308.46		2.877E-02	1.658E-01	2.778E-01	2.907E-02	0.104
		316.51	*	-1.134E-02	6.013E-02	9.898E-02	1.021E-02	-0.115
		468.07		5.394E-02	1.241E-01	1.816E-01	1.678E-02	0.297
AU-195		604.41		2.156E-01	8.201E-01	1.168E+00	1.509E-01	0.185
		612.46		3.709E+00	1.469E+00	2.397E+00	2.335E-01	1.548
		65.12		8.833E+00	1.285E+00	1.431E+00	1.634E-01	6.174
		66.83		-7.748E-01	3.684E-01	4.841E-01	5.526E-02	-1.600
TL-200		75.70		1.588E+00	7.019E-01	1.032E+00	1.190E-01	1.539
	+	98.88	*	3.749E+00	9.429E-01	1.206E+00	1.315E-01	3.108
		129.76		9.961E+00	6.508E+00	1.085E+01	1.088E+00	0.918
		367.94	*	1.176E-03	6.508E+00	Half-Life	too short	
TL-201		579.30		1.127E-02	6.508E+00	Half-Life	too short	
		828.27		-4.295E-03	6.508E+00	Half-Life	too short	
		1205.75		1.172E-02	6.508E+00	Half-Life	too short	
		68.90		-3.453E+01	2.649E+01	3.874E+01	4.421E+00	-0.891
TL-202		70.82		-3.549E+00	1.377E+01	2.258E+01	2.580E+00	-0.157
		80.30		-1.791E+01	3.862E+01	3.927E+01	4.620E+00	-0.456
		135.34		-2.092E+02	9.259E+01	1.368E+02	1.377E+01	-1.530
		167.43	*	-1.789E+01	2.691E+01	3.661E+01	3.911E+00	-0.489
HG-203		68.90		-2.235E+00	1.715E+00	2.508E+00	2.862E-01	-0.891
		70.82		-2.291E-01	8.887E-01	1.458E+00	1.665E-01	-0.157
		80.30		-1.156E+00	2.494E+00	2.536E+00	2.984E-01	-0.456
		439.56	*	1.122E-01	1.303E-01	2.230E-01	1.911E-02	0.503
BI-207		70.83		-8.931E-01	3.555E+00	5.831E+00	9.057E-01	-0.153
		72.87		3.339E+00	2.312E+00	3.384E+00	5.146E-01	0.987
		82.60		1.154E+01	4.798E+00	6.354E+00	1.018E+00	1.816
		279.20	*	7.269E-02	7.350E-02	1.267E-01	1.395E-02	0.574
TL-207		72.80		8.495E-01	6.527E-01	9.646E-01	1.105E-01	0.881
		74.97		3.807E-01	3.789E-01	5.570E-01	6.411E-02	0.683
	+	84.90		2.103E+00	8.503E-01	1.064E+00	1.289E-01	1.977
		569.67		3.252E-02	5.115E-02	8.593E-02	7.361E-03	0.378
		1063.62	*	5.486E-03	7.413E-02	1.220E-01	1.077E-02	0.045
		1770.23		-2.990E-01	6.778E-01	8.129E-01	7.106E-02	-0.368
		81.07		5.102E-01	1.040E+00	1.103E+00	1.303E-01	0.463
	+	83.78		1.386E+00	5.606E-01	7.116E-01	8.554E-02	1.948
		94.90		2.307E+01	2.889E+00	2.025E+00	2.292E-01	11.393
		122.32		4.064E+00	4.194E+00	6.946E+00	7.369E-01	0.585
	+	144.24		2.062E+01	3.634E+00	3.721E+00	4.116E-01	5.540
		154.21		4.450E-01	8.804E-01	1.438E+00	1.596E-01	0.310
		269.46		4.448E-01	3.163E-01	5.511E-01	6.084E-02	0.807

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-209		323.87	*	-4.523E-01	1.128E+00	1.832E+00	3.389E-01	-0.247
	+	338.28		7.856E+00	3.386E+00	3.684E+00	4.867E-01	2.132
		445.03		5.245E-01	3.809E+00	6.280E+00	7.575E-01	0.084
		260.50		2.589E+01	1.920E+01	2.975E+01	3.260E+00	0.870
		262.80		-1.362E+01	4.938E+01	7.060E+01	7.727E+00	-0.193
BI-210		896.60	*	8.288E-01	1.152E+01	1.913E+01	1.783E+00	0.043
		46.50	*	1.755E+01	2.545E+01	4.291E+01	5.284E+00	0.409
		46.50	*	1.755E+01	2.545E+01	4.291E+01	5.284E+00	0.409
PB-210		46.50	*	1.755E+01	2.544E+01	4.291E+01	5.005E+00	0.409
PB-211		404.84	*	-1.939E-01	1.588E+00	2.585E+00	1.620E+00	-0.075
BI-212		427.08		1.628E+00	3.542E+00	5.715E+00	3.551E+00	0.285
		831.96		-1.830E-01	1.812E+00	2.975E+00	1.866E+00	-0.062
		727.18	*	1.170E+00	5.549E-01	9.904E-01	9.869E-02	1.181
		785.46		5.222E+00	2.989E+00	5.451E+00	4.826E-01	0.958
		1620.62		3.157E-01	2.082E+00	3.511E+00	3.268E-01	0.090
PB-212		74.81		8.867E-01	1.301E+00	1.901E+00	2.817E-01	0.467
PO-212	+	77.11		8.894E-01	7.147E-01	1.098E+00	1.272E-01	0.810
		87.30		-7.669E-02	1.873E+00	1.938E+00	3.079E-01	-0.040
	+	238.63	*	1.914E+00	2.826E-01	3.340E-01	3.977E-02	5.730
		300.09		2.003E+00	1.435E+00	2.223E+00	2.685E-01	0.901
		74.81		8.867E-01	1.301E+00	1.901E+00	2.817E-01	0.467
PO-215	+	77.11		8.894E-01	7.147E-01	1.098E+00	1.272E-01	0.810
		87.30		-7.669E-02	1.873E+00	1.938E+00	3.079E-01	-0.040
	+	115.19		3.564E+01	1.018E+01	1.633E+01	1.653E+00	2.183
	+	238.63	*	1.914E+00	2.826E-01	3.340E-01	3.977E-02	5.730
		300.09		2.003E+00	1.435E+00	2.223E+00	2.685E-01	0.901
PO-216		81.07		5.102E-01	1.040E+00	1.103E+00	1.303E-01	0.463
	+	83.78		1.386E+00	5.606E-01	7.116E-01	8.554E-02	1.948
		94.90		2.307E+01	2.889E+00	2.025E+00	2.292E-01	11.393
	+	122.32		4.064E+00	4.194E+00	6.946E+00	7.369E-01	0.585
	+	144.24		2.062E+01	3.634E+00	3.721E+00	4.116E-01	5.540
PO-216		154.21		4.450E-01	8.804E-01	1.438E+00	1.596E-01	0.310
		269.46		4.448E-01	3.163E-01	5.511E-01	6.084E-02	0.807
	+	323.87	*	-4.523E-01	1.128E+00	1.832E+00	3.389E-01	-0.247
	+	338.28		7.856E+00	3.386E+00	3.684E+00	4.867E-01	2.132
		445.03		5.245E-01	3.809E+00	6.280E+00	7.575E-01	0.084
RN-219		74.81		8.867E-01	1.301E+00	1.901E+00	2.817E-01	0.467
	+	77.11		8.894E-01	7.147E-01	1.098E+00	1.272E-01	0.810
		87.30		-7.669E-02	1.873E+00	1.938E+00	3.079E-01	-0.040
	+	238.63	*	1.914E+00	2.826E-01	3.340E-01	3.977E-02	5.730
		300.09		2.003E+00	1.435E+00	2.223E+00	2.685E-01	0.901
RA-223		271.23		6.445E-01	4.085E-01	7.115E-01	8.729E-02	0.906
		401.81	*	9.085E-02	6.961E-01	1.152E+00	1.720E-01	0.079
RN-220		549.76	*	1.416E+01	4.306E+01	7.120E+01	6.126E+00	0.199
RA-223		81.07		5.102E-01	1.040E+00	1.103E+00	1.303E-01	0.463
	+	83.78		1.386E+00	5.606E-01	7.116E-01	8.554E-02	1.948
		94.90		2.307E+01	2.889E+00	2.025E+00	2.292E-01	11.393
	+	122.32		4.064E+00	4.194E+00	6.946E+00	7.369E-01	0.585
	+	144.24		2.062E+01	3.634E+00	3.721E+00	4.116E-01	5.540

---- 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		4.450E-01	8.804E-01	1.438E+00	1.596E-01	0.310
		269.46		4.448E-01	3.163E-01	5.511E-01	6.084E-02	0.807
		323.87	*	-4.523E-01	1.128E+00	1.832E+00	3.389E-01	-0.247
	+	338.28		7.856E+00	3.386E+00	3.684E+00	4.867E-01	2.132
		445.03		5.245E-01	3.809E+00	6.280E+00	7.575E-01	0.084
		79.80		-1.515E+00	8.224E+00	8.477E+00	1.944E+00	-0.179
		236.00		1.423E+00	5.115E-01	7.795E-01	1.095E-01	1.825
	+	256.20	*	3.424E+00	1.471E+00	1.274E+00	2.139E-01	2.687
		286.10		-1.938E-02	2.738E+00	4.565E+00	6.698E-01	-0.004
		299.80		3.236E+00	2.710E+00	4.109E+00	7.611E-01	0.788
TH-227		304.40		-4.909E+00	3.343E+00	4.964E+00	9.621E-01	-0.989
		334.20		2.421E+00	4.378E+00	6.488E+00	1.300E+00	0.373
		79.80		-1.515E+00	8.224E+00	8.477E+00	1.966E+00	-0.179
	+	94.00		4.186E+02	9.807E+01	2.170E+01	4.998E+00	19.295
		236.00		1.423E+00	5.061E-01	7.795E-01	1.017E-01	1.825
	+	256.20	*	3.424E+00	1.506E+00	1.274E+00	2.459E-01	2.687
		286.10		-1.938E-02	2.738E+00	4.565E+00	4.591E+00	-0.004
		299.80		3.236E+00	2.710E+00	4.109E+00	7.611E-01	0.788
		304.40		-4.909E+00	3.343E+00	4.964E+00	9.621E-01	-0.989
		334.20		2.421E+00	4.378E+00	6.488E+00	1.300E+00	0.373
TH-228		74.81		9.019E-01	1.320E+00	1.933E+00	2.234E-01	0.467
	+	77.11		9.046E-01	7.270E-01	1.116E+00	1.294E-01	0.810
		87.30		-7.801E-02	1.905E+00	1.971E+00	2.434E-01	-0.040
	+	238.63	*	1.946E+00	2.875E-01	3.397E-01	4.045E-02	5.730
		300.09		2.037E+00	1.882E+00	2.261E+00	1.347E+00	0.901
TH-229	+	85.43		2.075E+00	8.392E-01	1.048E+00	1.275E-01	1.981
		88.47		7.566E-01	5.515E-01	5.947E-01	7.329E-02	1.272
	+	100.00		3.089E+00	7.769E-01	9.472E-01	1.023E-01	3.261
		193.63	*	4.094E-01	1.019E+00	1.596E+00	1.736E-01	0.257
	+	210.97		1.923E+00	1.543E+00	2.348E+00	2.578E-01	0.819
PA-231		283.67	*	-1.738E+00	2.669E+00	4.304E+00	7.100E-01	-0.404
		301.29		2.062E+00	1.074E+00	1.681E+00	2.296E-01	1.227
TH-231		81.07		5.102E-01	1.040E+00	1.103E+00	1.303E-01	0.463
	+	83.78		1.386E+00	5.606E-01	7.116E-01	8.554E-02	1.948
		94.90		2.307E+01	2.889E+00	2.025E+00	2.292E-01	11.393
	+	122.32		4.064E+00	4.194E+00	6.946E+00	7.369E-01	0.585
		144.24		2.062E+01	3.634E+00	3.721E+00	4.116E-01	5.540
		154.21		4.450E-01	8.804E-01	1.438E+00	1.596E-01	0.310
		269.46		4.448E-01	3.163E-01	5.511E-01	6.084E-02	0.807
		323.87	*	-4.523E-01	1.128E+00	1.832E+00	3.389E-01	-0.247
	+	338.28		7.856E+00	3.386E+00	3.684E+00	4.867E-01	2.132
		445.03		5.245E-01	3.809E+00	6.280E+00	7.575E-01	0.084
U-231	+	84.21		8.199E+01	3.315E+01	4.187E+01	5.049E+00	1.958
	+	92.29		5.677E+02	6.927E+01	3.155E+01	3.682E+00	17.993
		95.87	*	2.477E+01	7.356E+00	8.188E+00	9.173E-01	3.025
	+	108.00		2.908E+01	1.144E+01	1.295E+01	1.337E+00	2.246
PA-233		75.28		1.923E+01	1.143E+01	1.646E+01	2.822E+00	1.168
		86.59		3.768E+00	8.134E+00	8.522E+00	2.404E+00	0.442
		300.12		1.038E+00	7.496E-01	1.149E+00	1.847E-01	0.903

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234		311.98	*	8.276E-02	1.120E-01	1.917E-01	2.027E-02	0.432
		340.50		3.973E+00	1.552E+00	2.075E+00	5.040E-01	1.915
		398.62		-1.427E+00	3.558E+00	5.691E+00	1.512E+00	-0.251
		415.76		-1.233E+00	2.656E+00	4.219E+00	9.074E-01	-0.292
	+	63.00		1.323E+02	2.513E+01	1.577E+01	2.714E+00	8.389
		94.67		2.169E+01	3.265E+00	1.606E+00	2.317E-01	13.506
	+	98.44		1.508E+00	9.136E-01	4.928E-01	2.769E-01	3.060
	+	99.86		7.817E+00	1.966E+00	2.433E+00	2.631E-01	3.213
		111.00		4.102E+00	7.644E-01	9.821E-01	1.304E-01	4.177
		131.20		3.664E-01	2.434E-01	4.053E-01	4.069E-02	0.904
		152.70		-8.698E-02	7.104E-01	1.142E+00	2.053E-01	-0.076
	+	186.00		1.841E+02	5.910E+01	1.250E+01	3.986E+00	14.726
		226.40		-8.052E-02	6.916E-01	1.159E+00	1.725E-01	-0.070
		227.20		1.494E-02	7.324E-01	1.233E+00	1.360E-01	0.012
		248.90		1.145E-01	1.613E+00	2.362E+00	5.536E-01	0.048
		293.70		5.536E+00	1.832E+00	2.573E+00	4.733E-01	2.152
		369.80		6.645E-01	1.468E+00	2.464E+00	5.412E-01	0.270
		568.70		4.819E-01	1.673E+00	2.754E+00	2.360E-01	0.175
		569.50		2.078E-01	4.562E-01	7.583E-01	6.495E-02	0.274
		574.00		-2.205E+00	2.473E+00	3.737E+00	3.197E-01	-0.590
		699.00		7.454E-01	1.122E+00	1.942E+00	3.687E-01	0.384
		706.10		-6.284E-01	1.704E+00	2.743E+00	1.223E+00	-0.229
		733.00		-2.591E-01	6.767E-01	9.313E-01	2.066E-01	-0.278
		742.81		6.581E+00	5.116E+00	4.882E+00	3.282E+00	1.348
	+	796.30		2.774E+00	1.950E+00	2.693E+00	7.310E-01	1.030
		805.60		-1.801E-01	1.642E+00	2.514E+00	7.728E-01	-0.072
		819.60		-5.177E-01	1.931E+00	3.120E+00	1.189E+00	-0.166
		826.30		-3.051E-01	1.182E+00	1.905E+00	8.537E-01	-0.160
		831.60		-3.193E-01	9.459E-01	1.519E+00	4.552E-01	-0.210
		876.40		1.286E+00	1.902E+00	2.419E+00	2.488E+00	0.532
		880.51		1.883E-01	4.497E-01	7.667E-01	7.100E-02	0.246
		883.24		-6.943E-02	4.585E-01	7.444E-01	5.011E-01	-0.093
		899.00		-1.120E+00	1.413E+00	2.009E+00	8.811E-01	-0.557
		925.00		2.219E+00	1.772E+00	3.203E+00	2.973E-01	0.693
		926.50		4.071E-01	2.786E-01	4.816E-01	1.229E-01	0.845
		946.00	*	4.556E-01	4.388E-01	7.736E-01	1.474E-01	0.589
		949.00		-5.814E-02	6.317E-01	1.031E+00	9.517E-02	-0.056
		980.50		-4.772E-02	1.009E+00	1.650E+00	1.510E-01	-0.029
		1394.10		-1.685E-01	1.605E+00	2.637E+00	1.720E+00	-0.064
NP-236		94.67		1.654E+01	2.004E+00	1.221E+00	1.385E-01	13.548
	+	98.44		1.140E+00	2.867E-01	3.725E-01	4.075E-02	3.060
		111.00		3.103E+00	5.149E-01	7.429E-01	7.591E-02	4.177
		160.31	*	4.799E-03	2.069E-01	2.912E-01	3.065E-02	0.016
NP-237		86.50	*	7.432E-01	1.226E+00	1.290E+00	3.096E-01	0.576
		95.87		1.592E+01	5.986E+00	5.261E+00	1.350E+00	3.025
NP-239	+	99.55		2.606E+00	6.553E-01	8.201E-01	8.890E-02	3.177
		117.00	*	1.870E-01	5.268E-01	7.587E-01	7.660E-02	0.247
	+	209.75		1.937E+00	1.554E+00	2.332E+00	2.559E-01	0.831
		228.18		-1.059E-01	3.845E-01	6.399E-01	7.059E-02	-0.165

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		277.60		5.348E-01	3.106E-01	5.443E-01	5.894E-02	0.983
		334.30		9.711E-01	2.487E+00	3.666E+00	3.646E-01	0.265
AM-241		59.54	*	7.881E-01	7.221E-01	1.076E+00	1.263E-01	0.733
AM-243		74.67	*	1.957E-01	2.099E-01	3.085E-01	3.547E-02	0.634
		86.72		1.160E+01	4.519E+01	4.732E+01	5.815E+00	0.245
		117.66		-8.526E+00	1.065E+01	1.468E+01	1.481E+00	-0.581
		142.18		3.514E+02	6.388E+01	8.934E+01	9.067E+00	3.933
CM-243	+	99.55		2.682E+00	6.744E-01	8.440E-01	9.149E-02	3.177
		103.76	*	1.890E-01	3.866E-01	4.085E-01	4.304E-02	0.463
		117.00		1.924E-01	5.420E-01	7.807E-01	7.882E-02	0.247
	+	209.75		1.910E+00	1.532E+00	2.299E+00	2.523E-01	0.831
		228.18		-1.070E-01	3.885E-01	6.467E-01	7.134E-02	-0.165
		277.60		5.393E-01	3.132E-01	5.489E-01	5.943E-02	0.983
AM-246		798.80		3.827E-02	2.338E-01	3.407E-01	3.037E-02	0.112
		1036.00		-2.118E-01	4.290E-01	6.673E-01	5.972E-02	-0.317
		1062.04		7.369E-02	3.225E-01	5.388E-01	4.758E-02	0.137
		1078.86	*	1.190E-01	2.072E-01	3.561E-01	3.114E-02	0.334
CM-247		278.00		2.015E+00	1.310E+00	2.286E+00	2.475E-01	0.881
		287.40		4.950E-01	2.210E+00	3.717E+00	3.986E-01	0.133
		402.60	*	-1.124E-02	6.313E-02	1.028E-01	8.692E-03	-0.109
CF-249		252.85		1.119E-01	1.698E+00	2.485E+00	2.733E-01	0.045
		333.44		5.531E-02	3.337E-01	4.850E-01	4.832E-02	0.114
		387.95	*	1.961E-02	6.828E-02	1.140E-01	9.728E-03	0.172
CF-251		176.60	*	-7.969E-02	2.710E-01	4.308E-01	4.632E-02	-0.185
		227.00		-9.752E-02	6.593E-01	1.103E+00	1.217E-01	-0.088
		285.00		2.915E-01	3.047E+00	5.102E+00	5.486E-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]G246341001      *
* Acquisition date   : 18-FEB-2010 12:56:46 Detector SN#                   *
* Detector ID        : GAM15                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:02.14                               Half life ratio  : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341001                               Analyst initials: MXR1        *
* Batch Number       : 950786                                   Sample Quantity : 1.0974E+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	3.363E+01	3.923E+00	8.972E-01	0.000E+00
NB-95	6.816E-01	1.493E-01	1.082E-01	0.000E+00
TE-125M	9.850E+01	3.838E+01	3.679E+01	0.000E+00
BA-137M	2.844E-01	1.001E-01	9.263E-02	0.000E+00
CS-137	3.006E-01	1.058E-01	9.792E-02	0.000E+00
CE-141	1.987E+00	3.342E-01	2.353E-01	0.000E+00
LU-177	3.332E+00	2.619E+00	3.484E+00	0.000E+00
TL-208	5.792E-01	1.327E-01	9.170E-02	0.000E+00
BI-211	4.172E+00	8.142E-01	5.394E-01	0.000E+00
BI-214	1.191E+00	2.464E-01	1.733E-01	0.000E+00
PB-214	1.451E+00	2.928E-01	1.964E-01	0.000E+00
PO-214	1.451E+00	2.928E-01	1.964E-01	0.000E+00
PO-218	1.451E+00	2.928E-01	1.964E-01	0.000E+00
RA-224	6.655E+00	2.310E+00	1.797E+00	0.000E+00
RA-226	1.191E+00	2.464E-01	1.733E-01	0.000E+00
AC-228	1.827E+00	4.489E-01	2.850E-01	0.000E+00
RA-228	1.827E+00	4.489E-01	2.850E-01	0.000E+00
TH-230	1.191E+00	2.464E-01	1.733E-01	0.000E+00
TH-232	1.827E+00	4.489E-01	2.850E-01	0.000E+00
PA-234M	1.521E+02	2.269E+01	1.084E+01	0.000E+00
TH-234	1.135E+02	2.344E+01	7.491E+00	0.000E+00
U-234	1.191E+00	2.464E-01	1.733E-01	0.000E+00
U-235	6.361E+00	1.427E+00	7.501E-01	0.000E+00
U-238	1.135E+02	2.344E+01	7.491E+00	0.000E+00
ANH-511	1.501E-01	1.212E-01	7.687E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	2.764E-01	5.315E-01	9.127E-01	0.000E+00 NOT IDENT.
NA-22	-2.731E-02	5.901E-02	9.164E-02	0.000E+00 NOT IDENT.

NA-24	0.000E+00	9.004E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	6.803E-03	3.352E-02	5.832E-02	0.000E+00	NOT IDENT.
TI-44	1.641E-01	1.293E-01	1.950E-01	0.000E+00	FAIL ABUN
SC-46	1.601E-02	6.350E-02	1.088E-01	0.000E+00	FAIL ABUN
V-48	2.614E-02	1.071E-01	1.829E-01	0.000E+00	NOT IDENT.
CR-51	2.458E-01	6.374E-01	1.104E+00	0.000E+00	NOT IDENT.
MN-52	5.959E-01	4.271E-01	8.321E-01	0.000E+00	NOT IDENT.
MN-54	2.100E-02	5.567E-02	9.653E-02	0.000E+00	NOT IDENT.
CO-56	-4.836E-02	6.149E-02	9.713E-02	0.000E+00	NOT IDENT.
CO-57	5.487E-02	5.993E-02	1.024E-01	0.000E+00	NOT IDENT.
CO-58	-1.851E-02	6.173E-02	1.021E-01	0.000E+00	NOT IDENT.
FE-59	-7.083E-02	1.240E-01	1.931E-01	0.000E+00	FAIL ABUN
CO-60	2.321E-02	5.588E-02	9.589E-02	0.000E+00	NOT IDENT.
ZN-65	1.507E-02	1.469E-01	2.112E-01	0.000E+00	NOT IDENT.
GE-68	-8.791E-01	1.896E+00	3.015E+00	0.000E+00	NOT IDENT.
AS-73	1.763E+00	4.306E+00	7.482E+00	0.000E+00	NOT IDENT.
AS-74	2.263E-02	1.523E-01	2.533E-01	0.000E+00	NOT IDENT.
SE-75	-2.703E-02	8.297E-02	1.215E-01	0.000E+00	NOT IDENT.
BR-77	-7.736E+00	3.208E+01	4.922E+01	0.000E+00	FAIL ABUN
SR-82	-1.316E-01	6.406E-01	1.038E+00	0.000E+00	NOT IDENT.
RB-83	-3.385E-02	1.270E-01	1.866E-01	0.000E+00	NOT IDENT.
RB-84	2.598E-02	1.139E-01	1.950E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	1.413E+01	2.293E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	7.395E-02	1.200E-01	0.000E+00	NOT IDENT.
RB-86	8.469E-02	1.249E+00	2.087E+00	0.000E+00	NOT IDENT.
Y-88	9.330E-03	4.234E-02	7.350E-02	0.000E+00	NOT IDENT.
ZR-88	3.693E-02	5.203E-02	9.068E-02	0.000E+00	NOT IDENT.
Y-91	1.091E+01	2.971E+01	5.040E+01	0.000E+00	NOT IDENT.
NB-94	-4.883E-03	5.322E-02	9.031E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.497E-01	3.974E-01	0.000E+00	NOT IDENT.
ZR-95	8.817E-02	1.116E-01	1.958E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.199E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.251E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-7.144E+00	3.949E+01	5.942E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.988E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-4.075E-02	6.474E-02	1.015E-01	0.000E+00	NOT IDENT.
RH-102	-1.307E-02	4.724E-02	7.747E-02	0.000E+00	FAIL ABUN
RU-103	-6.854E-02	6.538E-02	9.993E-02	0.000E+00	FAIL ABUN
RH-106	7.580E-03	4.831E-01	7.943E-01	0.000E+00	FAIL ABUN
RU-106	7.580E-03	4.831E-01	7.943E-01	0.000E+00	FAIL ABUN
AG-108M	-9.953E-03	5.489E-02	9.110E-02	0.000E+00	NOT IDENT.
CD-109	2.397E+00	4.037E+00	4.422E+00	0.000E+00	NOT IDENT.
AG-110M	7.880E-03	6.478E-02	9.682E-02	0.000E+00	NOT IDENT.
IN-111	5.247E-01	3.180E+00	4.815E+00	0.000E+00	NOT IDENT.
IN-113M	2.289E-02	7.564E-02	1.294E-01	0.000E+00	NOT IDENT.
SN-113	2.289E-02	7.564E-02	1.294E-01	0.000E+00	NOT IDENT.
IN-114M	1.057E-01	4.066E-01	5.892E-01	0.000E+00	NOT IDENT.
CD-115	-1.350E+01	3.062E+01	4.921E+01	0.000E+00	NOT IDENT.
SN-117M	-6.569E-02	1.538E-01	2.191E-01	0.000E+00	NOT IDENT.
SB-122	-2.264E+00	5.336E+00	8.556E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.676E+08	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.288E-02	7.330E-02	1.043E-01	0.000E+00	NOT IDENT.
I-124	1.023E+00	1.569E+00	2.365E+00	0.000E+00	NOT IDENT.
SB-124	-1.092E-02	9.784E-02	1.601E-01	0.000E+00	FAIL ABUN
SB-125	3.398E-02	1.497E-01	2.543E-01	0.000E+00	FAIL ABUN
I-126	9.708E-02	3.420E-01	5.187E-01	0.000E+00	NOT IDENT.
SB-126	-5.066E-02	2.771E-01	3.996E-01	0.000E+00	FAIL ABUN
SN-126	4.953E-02	3.958E-01	4.267E-01	0.000E+00	FAIL ABUN
SB-127	2.597E-01	2.697E+00	4.641E+00	0.000E+00	NOT IDENT.
XE-127	1.414E-01	1.156E-01	1.730E-01	0.000E+00	FAIL ABUN
I-131	-8.133E-02	2.232E-01	3.704E-01	0.000E+00	NOT IDENT.
TE-132	-4.776E-01	1.735E+00	2.969E+00	0.000E+00	FAIL ABUN
BA-133	6.166E-02	8.032E-02	1.237E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.336E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	9.174E-02	1.396E-01	0.000E+00	FAIL ABUN
CS-135	1.456E-01	2.588E-01	4.530E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.038E+18	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.029E-01	1.514E-01	2.688E-01	0.000E+00	FAIL ABUN
CE-139	0.000E+00	7.617E-02	1.161E-01	0.000E+00	NOT IDENT.
BA-140	-1.213E-01	4.614E-01	7.484E-01	0.000E+00	FAIL ABUN
LA-140	4.129E-02	1.514E-01	2.537E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	9.553E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-9.698E-02	4.576E-01	7.607E-01	0.000E+00	NOT IDENT.
PM-144	-2.856E-03	5.359E-02	9.120E-02	0.000E+00	NOT IDENT.
PR-144	-1.937E-01	3.635E+00	6.186E+00	0.000E+00	NOT IDENT.
PM-146	2.202E-02	7.085E-02	1.205E-01	0.000E+00	NOT IDENT.
ND-147	-2.686E-01	9.763E-01	1.587E+00	0.000E+00	NOT IDENT.
PM-149	3.871E+01	2.903E+02	4.995E+02	0.000E+00	NOT IDENT.



EU-152	-1.048E-01	1.932E-01	2.561E-01	0.000E+00	FAIL ABUN
GD-153	0.000E+00	3.168E-01	4.396E-01	0.000E+00	FAIL ABUN
EU-154	-7.590E-02	1.648E-01	2.558E-01	0.000E+00	NOT IDENT.
EU-155	0.000E+00	2.777E-01	4.655E-01	0.000E+00	NOT IDENT.
TB-160	-1.835E-01	2.344E-01	3.700E-01	0.000E+00	NOT IDENT.
HO-166M	-4.102E-02	9.679E-02	1.605E-01	0.000E+00	FAIL ABUN
TM-171	-1.659E+02	1.055E+02	1.485E+02	0.000E+00	NOT IDENT.
LU-176	-3.110E-02	4.123E-02	6.775E-02	0.000E+00	NOT IDENT.
LU-177M	-1.346E-01	2.849E-01	4.661E-01	0.000E+00	NOT IDENT.
HF-181	-3.651E-02	7.216E-02	1.165E-01	0.000E+00	NOT IDENT.
W-181	0.000E+00	2.593E+00	3.080E+00	0.000E+00	NOT IDENT.
TA-182	1.015E-01	2.749E-01	4.673E-01	0.000E+00	FAIL ABUN
RE-183	0.000E+00	4.152E-01	5.156E-01	0.000E+00	FAIL ABUN
RE-184	3.007E-02	4.470E-01	6.722E-01	0.000E+00	NOT IDENT.
OS-185	1.546E-02	6.829E-02	1.137E-01	0.000E+00	NOT IDENT.
RE-188	3.195E-01	3.778E-01	6.405E-01	0.000E+00	NOT IDENT.
W-188	-5.121E+00	1.519E+01	2.213E+01	0.000E+00	FAIL ABUN
IR-192	-1.134E-02	5.893E-02	9.951E-02	0.000E+00	FAIL ABUN
AU-195	0.000E+00	9.240E-01	1.223E+00	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.592E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.789E+01	2.638E+01	3.697E+01	0.000E+00	NOT IDENT.
TL-202	1.122E-01	1.277E-01	2.236E-01	0.000E+00	NOT IDENT.
HG-203	7.269E-02	7.203E-02	1.275E-01	0.000E+00	NOT IDENT.
BI-207	5.486E-03	7.265E-02	1.216E-01	0.000E+00	FAIL ABUN
TL-207	-4.523E-01	1.105E+00	1.841E+00	0.000E+00	FAIL ABUN
PO-209	8.288E-01	1.129E+01	1.909E+01	0.000E+00	NOT IDENT.
BI-210	1.755E+01	2.494E+01	4.372E+01	0.000E+00	NOT IDENT.
PB-210	1.755E+01	2.494E+01	4.372E+01	0.000E+00	NOT IDENT.
PO-210	1.755E+01	2.493E+01	4.372E+01	0.000E+00	NOT IDENT.
PB-211	-1.939E-01	1.556E+00	2.595E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.438E-01	9.897E-01	0.000E+00	NOT IDENT.
PB-212	0.000E+00	2.770E-01	3.364E-01	0.000E+00	FAIL ABUN
PO-212	0.000E+00	2.770E-01	3.364E-01	0.000E+00	FAIL ABUN
PO-215	-4.523E-01	1.105E+00	1.841E+00	0.000E+00	FAIL ABUN
PO-216	0.000E+00	2.770E-01	3.364E-01	0.000E+00	FAIL ABUN
RN-219	9.085E-02	6.821E-01	1.156E+00	0.000E+00	NOT IDENT.
RN-220	1.416E+01	4.220E+01	7.130E+01	0.000E+00	NOT IDENT.
RA-223	-4.523E-01	1.105E+00	1.841E+00	0.000E+00	FAIL ABUN
AC-227	0.000E+00	1.441E+00	1.283E+00	0.000E+00	FAIL ABUN
TH-227	0.000E+00	1.476E+00	1.283E+00	0.000E+00	FAIL ABUN
TH-228	0.000E+00	2.817E-01	3.422E-01	0.000E+00	FAIL ABUN
TH-229	4.094E-01	9.990E-01	1.610E+00	0.000E+00	FAIL ABUN
PA-231	-1.738E+00	2.615E+00	4.330E+00	0.000E+00	NOT IDENT.
TH-231	-4.523E-01	1.105E+00	1.841E+00	0.000E+00	FAIL ABUN
U-231	0.000E+00	7.209E+00	8.301E+00	0.000E+00	FAIL ABUN
PA-233	8.276E-02	1.098E-01	1.927E-01	0.000E+00	NOT IDENT.
PA-234	4.556E-01	4.301E-01	7.716E-01	0.000E+00	FAIL ABUN
NP-236	4.799E-03	2.027E-01	2.941E-01	0.000E+00	FAIL ABUN
NP-237	7.432E-01	1.202E+00	1.308E+00	0.000E+00	NOT IDENT.
NP-239	1.870E-01	5.162E-01	7.682E-01	0.000E+00	FAIL ABUN
AM-241	7.881E-01	7.077E-01	1.094E+00	0.000E+00	NOT IDENT.
AM-243	1.957E-01	2.057E-01	3.133E-01	0.000E+00	NOT IDENT.
CM-243	1.890E-01	3.789E-01	4.139E-01	0.000E+00	FAIL ABUN
AM-246	1.190E-01	2.030E-01	3.548E-01	0.000E+00	NOT IDENT.
CM-247	-1.124E-02	6.187E-02	1.032E-01	0.000E+00	NOT IDENT.
CF-249	1.961E-02	6.691E-02	1.145E-01	0.000E+00	NOT IDENT.
CF-251	-7.969E-02	2.656E-01	4.349E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341001.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 12:56:46
Sample ID          : G246341001          Sample quantity  : 1.09740E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:02.14  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1014	10.67*	9.662E-01	3.363E+01	3.363E+01	11.90
NB-95	765.79	289	99.81*	1.749E+00	5.666E-01	6.816E-01	22.35
TE-125M	109.28	365	0.28*	5.489E+00	8.031E+01	9.850E+01	39.76
BA-137M	661.65	148	89.98*	1.981E+00	2.841E-01	2.844E-01	35.91
CS-137	661.65	148	85.12*	1.981E+00	3.003E-01	3.006E-01	35.91
CE-141	145.44	1075	48.40*	5.504E+00	1.380E+00	1.987E+00	17.17
LU-177	112.95	822	6.40	5.554E+00	7.913E+00	4.620E+01	25.59
	208.36	83	11.00*	4.499E+00	5.706E-01	3.332E+00	80.22
TL-208	277.35	-----	6.80	3.705E+00	-----	Line Not Found	-----
	510.84	106	21.60	2.419E+00	6.950E-01	6.950E-01	82.78
	583.14	312	84.20*	2.191E+00	5.792E-01	5.792E-01	23.39
	860.37	-----	12.46	1.576E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.001E+00	-----	Line Not Found	-----
	351.07	496	12.94*	3.141E+00	4.172E+00	4.172E+00	19.91
BI-214	609.31	341	46.30*	2.117E+00	1.191E+00	1.191E+00	21.11
	1120.29	102	15.10	1.227E+00	1.877E+00	1.877E+00	37.47
	1764.49	58	15.80	8.553E-01	1.475E+00	1.475E+00	36.26
PB-214	74.81	-----	6.21	3.227E+00	-----	Line Not Found	-----
	77.11	165	10.50	3.533E+00	1.525E+00	1.525E+00	80.72
	87.30	-----	4.67	4.444E+00	-----	Line Not Found	-----
	241.98	314	7.49	4.081E+00	3.510E+00	3.510E+00	35.86
	295.21	325	19.20	3.547E+00	1.635E+00	1.635E+00	26.81
	351.92	496	37.20*	3.141E+00	1.451E+00	1.451E+00	20.59
PO-214	74.81	-----	6.21	3.227E+00	-----	Line Not Found	-----
	77.11	165	10.50	3.533E+00	1.525E+00	1.525E+00	80.72
	87.30	-----	4.67	4.444E+00	-----	Line Not Found	-----
	241.98	314	7.49	4.081E+00	3.510E+00	3.510E+00	35.86
	295.21	325	19.20	3.547E+00	1.635E+00	1.635E+00	26.81
	351.92	496	37.20*	3.141E+00	1.451E+00	1.451E+00	20.59
PO-218	74.81	-----	6.21	3.227E+00	-----	Line Not Found	-----
	77.11	165	10.50	3.533E+00	1.525E+00	1.525E+00	80.72
	87.30	-----	4.67	4.444E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	241.98	314	7.49	4.081E+00	3.510E+00	3.510E+00	35.86
	295.21	325	19.20	3.547E+00	1.635E+00	1.635E+00	26.81
	351.92	496	37.20*	3.141E+00	1.451E+00	1.451E+00	20.59
RA-224	240.98	314	3.95*	4.081E+00	6.655E+00	6.655E+00	35.42
RA-226	609.31	341	46.30*	2.117E+00	1.191E+00	1.191E+00	21.11
	1120.29	102	15.10	1.227E+00	1.877E+00	1.877E+00	37.47
	1764.49	58	15.80	8.553E-01	1.475E+00	1.475E+00	36.26
AC-228	338.32	202	11.40	3.227E+00	1.881E+00	1.881E+00	58.39
	911.07	221	27.70*	1.494E+00	1.827E+00	1.827E+00	25.07
	969.11	136	16.60	1.410E+00	1.988E+00	1.988E+00	34.46
RA-228	338.32	202	11.40	3.227E+00	1.881E+00	1.881E+00	58.39
	911.07	221	27.70*	1.494E+00	1.827E+00	1.827E+00	25.07
	969.11	136	16.60	1.410E+00	1.988E+00	1.988E+00	34.46
TH-230	609.31	341	46.30*	2.117E+00	1.191E+00	1.191E+00	21.11
	1120.29	102	15.10	1.227E+00	1.877E+00	1.877E+00	37.47
	1764.49	58	15.80	8.553E-01	1.475E+00	1.475E+00	36.26
TH-232	338.32	202	11.40	3.227E+00	1.881E+00	1.881E+00	42.20
	911.07	221	27.70*	1.494E+00	1.827E+00	1.827E+00	25.07
	969.11	136	16.60	1.410E+00	1.988E+00	1.988E+00	34.46
PA-234M	766.42	289	0.32	1.749E+00	1.767E+02	1.767E+02	54.77
	1001.03	510	0.84*	1.366E+00	1.521E+02	1.521E+02	15.23
TH-234	63.29	2305	3.80*	1.828E+00	1.135E+02	1.135E+02	21.07
	92.38	8266	5.41	4.825E+00	1.083E+02	1.083E+02	20.04
U-234	609.31	341	46.30*	2.117E+00	1.191E+00	1.191E+00	21.11
	1120.29	102	15.10	1.227E+00	1.877E+00	1.877E+00	37.47
	1764.49	58	15.80	8.553E-01	1.475E+00	1.475E+00	36.26
U-235	89.95	-----	2.70	4.641E+00	-----	Line Not Found	-----
	93.35	8266	4.50	4.825E+00	1.302E+02	1.302E+02	29.33
	105.00	-----	2.10	5.378E+00	-----	Line Not Found	-----
	143.76	1075	10.50*	5.504E+00	6.361E+00	6.361E+00	22.90
	163.35	459	4.70	5.223E+00	6.394E+00	6.394E+00	32.65
	185.71	5229	54.00	4.859E+00	6.817E+00	6.817E+00	11.44
	205.31	370	4.70	4.556E+00	5.906E+00	5.906E+00	30.69
U-238	63.29	2305	3.80*	1.828E+00	1.135E+02	1.135E+02	21.07
	92.38	8266	5.41	4.825E+00	1.083E+02	1.083E+02	12.20
ANH-511	511.00	106	100.00*	2.419E+00	1.501E-01	1.501E-01	82.35

Flag: "\*" = Keyline

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.363E+01	3.363E+01	0.400E+01	11.90	
NB-95	64.02D	1.20	5.666E-01	6.816E-01	1.523E-01	22.35	
TE-125M	58.00D	1.23	8.031E+01	9.850E+01	3.916E+01	39.76	
BA-137M	30.17Y	1.00	2.841E-01	2.844E-01	1.021E-01	35.91	
CS-137	30.17Y	1.00	3.003E-01	3.006E-01	1.080E-01	35.91	
CE-141	32.50D	1.44	1.380E+00	1.987E+00	0.341E+00	17.17	
LU-177	6.71D	5.84	5.706E-01	3.332E+00	2.673E+00	80.22	
TL-208	1.41E+10Y	1.00	5.792E-01	5.792E-01	1.355E-01	23.39	
BI-211	7.04E+08Y	1.00	4.172E+00	4.172E+00	0.831E+00	19.91	
BI-214	1600.00Y	1.00	1.191E+00	1.191E+00	0.251E+00	21.11	
PB-214	1600.00Y	1.00	1.451E+00	1.451E+00	0.299E+00	20.59	
PO-214	1600.00Y	1.00	1.451E+00	1.451E+00	0.299E+00	20.59	
PO-218	1600.00Y	1.00	1.451E+00	1.451E+00	0.299E+00	20.59	
RA-224	1.41E+10Y	1.00	6.655E+00	6.655E+00	2.357E+00	35.42	
RA-226	1600.00Y	1.00	1.191E+00	1.191E+00	0.251E+00	21.11	
AC-228	1.41E+10Y	1.00	1.827E+00	1.827E+00	0.458E+00	25.07	
RA-228	1.41E+10Y	1.00	1.827E+00	1.827E+00	0.458E+00	25.07	
TH-230	4.47E+09Y	1.00	1.191E+00	1.191E+00	0.251E+00	21.11	
TH-232	1.41E+10Y	1.00	1.827E+00	1.827E+00	0.458E+00	25.07	
PA-234M	4.47E+09Y	1.00	1.521E+02	1.521E+02	0.232E+02	15.23	
TH-234	4.47E+09Y	1.00	1.135E+02	1.135E+02	0.239E+02	21.07	
U-234	4.47E+09Y	1.00	1.191E+00	1.191E+00	0.251E+00	21.11	
U-235	7.04E+08Y	1.00	6.361E+00	6.361E+00	1.456E+00	22.90	
U-238	4.47E+09Y	1.00	1.135E+02	1.135E+02	0.239E+02	21.07	
ANH-511	1.00E+09Y	1.00	1.501E-01	1.501E-01	1.236E-01	82.35	
Total Activity :			5.286E+02	5.503E+02			

Grand Total Activity : 5.286E+02 5.503E+02

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

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

Unidentified Energy Lines  
Sample ID : G246341001

Page : 4  
Acquisition date : 18-FEB-2010 12:56:46

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	84.20	419	1888	1.16	167.32	163	9	5.82E-02	38.6	4.19E+00	T
0	98.73	576	1106	1.32	196.38	193	9	8.00E-02	22.7	5.14E+00	T
3	238.76	1027	272	1.29	476.43	469	22	1.43E-01	8.7	4.11E+00	T
0	257.46	246	406	2.93	513.82	507	17	3.42E-02	39.5	3.90E+00	T
0	462.86	72	115	1.12	924.61	921	9	9.99E-03	58.7	2.60E+00	T
0	728.96	165	100	2.56	1456.86	1447	23	2.29E-02	36.9	1.83E+00	
0	794.84	54	61	0.97	1588.63	1583	11	7.44E-03	64.9	1.69E+00	T
5	964.16	62	29	3.22	1927.33	1921	21	8.68E-03	47.9	1.42E+00	T
0	1378.45	31	20	1.34	2756.10	2748	14	4.33E-03	71.6	1.01E+00	
0	1588.40	18	8	1.47	3176.14	3171	10	2.48E-03	80.0	9.08E-01	
0	1846.99	19	0	2.91	3693.53	3687	12	2.64E-03	45.9	8.40E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341001.CNF;1
* Acquisition date   : 18-FEB-2010 12:56:46  Detector SN#      :
* Detector ID        : GAM15                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit   : 75.00000
* Elapsed real time  : 0 02:00:02.14          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00.  Nuclide Library   : SOLID
* Sample ID          : G246341001            Analyst initials: MXR1
* Batch Number       : 950786                Sample Quantity  : 1.09740E+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	3.363E+01	4.003E+00	9.023E-01	8.866E-02	37.269
NB-95	6.816E-01	1.523E-01	1.083E-01	9.487E-03	6.295
TE-125M	9.850E+01	3.916E+01	3.632E+01	4.267E+00	2.712
BA-137M	2.844E-01	1.021E-01	9.262E-02	7.615E-03	3.070
CS-137	3.006E-01	1.080E-01	9.791E-02	8.066E-03	3.070
CE-141	1.987E+00	3.411E-01	2.328E-01	2.406E-02	8.534
LU-177	3.332E+00	2.673E+00	3.456E+00	3.790E-01	0.964
TL-208	5.792E-01	1.355E-01	9.161E-02	8.389E-03	6.322
BI-211	4.172E+00	8.308E-01	5.369E-01	5.346E-02	7.771
BI-214	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
PB-214	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
PO-214	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
PO-218	1.451E+00	2.988E-01	1.955E-01	2.194E-02	7.425
RA-224	6.655E+00	2.357E+00	1.784E+00	1.968E-01	3.730
RA-226	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
AC-228	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
RA-228	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
TH-230	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.827E+00	4.581E-01	2.857E-01	3.365E-02	6.396
PA-234M	1.521E+02	2.315E+01	1.087E+01	1.127E+00	13.988
TH-234	1.135E+02	2.392E+01	7.367E+00	1.435E+00	15.407
U-234	1.191E+00	2.514E-01	1.732E-01	1.717E-02	6.879
U-235	6.361E+00	1.456E+00	7.420E-01	1.360E-01	8.573
U-238	1.135E+02	2.392E+01	7.367E+00	1.435E+00	15.407
ANH-511	1.501E-01	1.236E-01	7.673E-02	6.629E-03	1.957

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.764E-01		5.423E-01	9.106E-01	8.466E-02	0.304
NA-22	-2.731E-02		6.021E-02	9.207E-02	8.364E-03	-0.297
NA-24	-2.480E+00		4.594E+00	Half-Life	too short	
AL-26	6.803E-03		3.420E-02	5.875E-02	5.026E-03	0.116
TI-44	1.641E-01	+	1.319E-01	1.920E-01	2.238E-02	0.855
SC-46	1.601E-02		6.479E-02	1.090E-01	1.013E-02	0.147
V-48	2.614E-02		1.093E-01	1.834E-01	1.677E-02	0.142
CR-51	2.458E-01		6.504E-01	1.098E+00	1.166E-01	0.224
MN-52	5.959E-01		4.358E-01	8.367E-01	8.054E-02	0.712
MN-54	2.100E-02		5.681E-02	9.668E-02	8.774E-03	0.217
CO-56	-4.836E-02		6.275E-02	9.730E-02	8.878E-03	-0.497
CO-57	5.487E-02		6.115E-02	1.012E-01	1.020E-02	0.542
CO-58	-1.851E-02		6.299E-02	1.022E-01	9.189E-03	-0.181
FE-59	-7.083E-02		1.265E-01	1.938E-01	1.808E-02	-0.366
CO-60	2.321E-02		5.702E-02	9.637E-02	9.265E-03	0.241
ZN-65	1.507E-02		1.499E-01	2.120E-01	1.811E-02	0.071
GE-68	-8.791E-01		1.935E+00	3.025E+00	2.648E-01	-0.291
AS-73	1.763E+00		4.394E+00	7.350E+00	9.542E-01	0.240
AS-74	2.263E-02		1.554E-01	2.531E-01	2.151E-02	0.089
SE-75	-2.703E-02		8.466E-02	1.207E-01	1.323E-02	-0.224
BR-77	-7.736E+00		3.273E+01	4.913E+01	4.243E+00	-0.157
SR-82	-1.316E-01		6.537E-01	1.039E+00	9.159E-02	-0.127
RB-83	-3.385E-02		1.296E-01	1.863E-01	1.609E-02	-0.182
RB-84	2.598E-02		1.162E-01	1.954E-01	1.810E-02	0.133
KR-85	2.795E+01		1.442E+01	2.289E+01	1.978E+00	1.221
SR-85	1.462E-01		7.546E-02	1.198E-01	1.035E-02	1.221
RB-86	8.469E-02		1.275E+00	2.095E+00	1.834E-01	0.040
Y-88	9.330E-03		4.321E-02	7.404E-02	6.236E-03	0.126
ZR-88	3.693E-02		5.310E-02	9.034E-02	7.605E-03	0.409
Y-91	1.091E+01		3.031E+01	5.062E+01	4.267E+00	0.216
NB-94	-4.883E-03		5.431E-02	9.035E-02	7.627E-03	-0.054
NB-95M	4.346E-01		2.548E-01	3.944E-01	4.746E-02	1.102
ZR-95	8.817E-02		1.139E-01	1.960E-01	1.877E-02	0.450
NB-97	2.611E-01		6.116E-01	Half-Life	too short	
ZR-97	3.890E+01		1.148E+01	Half-Life	too short	
MO-99	-7.144E+00		4.029E+01	5.946E+01	9.033E+00	-0.120

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	1.292E+13		1.014E+13	Half-Life too short		
RH-101	-4.075E-02		6.606E-02	1.006E-01	1.098E-02	-0.405
RH-102	-1.307E-02		4.820E-02	7.728E-02	6.668E-03	-0.169
RU-103	-6.854E-02		6.671E-02	9.972E-02	1.413E-02	-0.687
RH-106	7.580E-03		4.930E-01	7.939E-01	1.049E-01	0.010
RU-106	7.580E-03		4.930E-01	7.939E-01	6.672E-02	0.010
AG-108M	-9.953E-03		5.601E-02	9.082E-02	8.085E-03	-0.110
CD-109	2.397E+00		4.120E+00	4.359E+00	5.411E-01	0.550
AG-110M	7.880E-03		6.610E-02	9.681E-02	8.238E-03	0.081
IN-111	5.247E-01		3.245E+00	4.780E+00	5.268E-01	0.110
IN-113M	2.289E-02		7.718E-02	1.289E-01	1.120E-02	0.178
SN-113	2.289E-02		7.718E-02	1.289E-01	1.120E-02	0.178
IN-114M	1.057E-01		4.149E-01	5.839E-01	6.340E-02	0.181
CD-115	-1.350E+01		3.124E+01	4.913E+01	4.240E+00	-0.275
SN-117M	-6.569E-02		1.569E-01	2.169E-01	2.274E-02	-0.303
SB-122	-2.264E+00		5.445E+00	8.546E+00	7.331E-01	-0.265
I-123	-7.520E+01		8.553E+01	Half-Life too short		
TE-123M	-3.288E-02		7.480E-02	1.033E-01	1.088E-02	-0.318
I-124	1.023E+00		1.601E+00	2.363E+00	2.002E-01	0.433
SB-124	-1.092E-02		9.984E-02	1.611E-01	1.514E-02	-0.068
SB-125	3.398E-02		1.528E-01	2.535E-01	2.208E-02	0.134
I-126	9.708E-02		3.490E-01	5.187E-01	4.277E-02	0.187
SB-126	-5.066E-02		2.828E-01	3.998E-01	3.413E-02	-0.127
SN-126	4.953E-02		4.038E-01	4.206E-01	5.205E-02	0.118
SB-127	2.597E-01		2.752E+00	4.641E+00	5.463E-01	0.056
XE-127	1.414E-01		1.179E-01	1.716E-01	1.877E-02	0.824
I-131	-8.133E-02		2.278E-01	3.688E-01	3.565E-02	-0.221
TE-132	-4.776E-01		1.771E+00	2.946E+00	5.154E-01	-0.162
BA-133	6.166E-02		8.196E-02	1.231E-01	1.693E-02	0.501
I-133	-1.232E-03		2.212E-02	Half-Life too short		
CS-134	1.430E-01	+	9.362E-02	1.398E-01	1.253E-02	1.023
CS-135	1.456E-01		2.640E-01	4.501E-01	5.401E-02	0.324
I-135	-7.099E+11		5.298E+11	Half-Life too short		
CS-136	1.029E-01		1.545E-01	2.697E-01	2.495E-02	0.382
CE-139	1.435E-01		7.773E-02	1.150E-01	1.227E-02	1.249
BA-140	-1.213E-01		4.709E-01	7.472E-01	2.476E-01	-0.162
LA-140	4.129E-02		1.545E-01	2.553E-01	2.393E-02	0.162
CE-143	2.477E-03		4.874E-04	Half-Life too short		
CE-144	-9.698E-02		4.670E-01	7.521E-01	1.234E-01	-0.129
PM-144	-2.856E-03		5.469E-02	9.123E-02	7.676E-03	-0.031
PR-144	-1.937E-01		3.710E+00	6.188E+00	5.204E-01	-0.031
PM-146	2.202E-02		7.230E-02	1.202E-01	1.287E-02	0.183
ND-147	-2.686E-01		9.962E-01	1.584E+00	2.369E-01	-0.170
PM-149	3.871E+01		2.962E+02	4.965E+02	8.350E+01	0.078
EU-152	-1.048E-01		1.971E-01	2.549E-01	2.595E-02	-0.411
GD-153	1.285E+00	+	3.232E-01	4.337E-01	4.786E-02	2.964
EU-154	-7.590E-02		1.681E-01	2.570E-01	2.997E-02	-0.295
EU-155	5.916E-01		2.833E-01	4.595E-01	4.841E-02	1.288



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	-1.835E-01		2.391E-01	3.708E-01	3.431E-02	-0.495
HO-166M	-4.102E-02		9.876E-02	1.606E-01	1.363E-02	-0.256
TM-171	-1.659E+02		1.076E+02	1.461E+02	1.667E+01	-1.136
LU-176	-3.110E-02		4.207E-02	6.738E-02	7.045E-03	-0.462
LU-177M	-1.346E-01		2.908E-01	4.645E-01	3.947E-02	-0.290
HF-181	-3.651E-02		7.364E-02	1.162E-01	1.003E-02	-0.314
W-181	1.775E+01		2.646E+00	3.030E+00	3.460E-01	5.859
TA-182	1.015E-01		2.805E-01	4.694E-01	4.029E-02	0.216
RE-183	1.521E+00	+	4.237E-01	5.104E-01	5.400E-02	2.980
RE-184	3.007E-02		4.561E-01	6.676E-01	7.341E-02	0.045
OS-185	1.546E-02		6.969E-02	1.137E-01	9.436E-03	0.136
RE-188	3.195E-01		3.855E-01	6.339E-01	6.592E-02	0.504
W-188	-5.121E+00		1.550E+01	2.200E+01	2.351E+00	-0.233
IR-192	-1.134E-02		6.013E-02	9.898E-02	1.021E-02	-0.115
AU-195	3.749E+00	+	9.429E-01	1.206E+00	1.315E-01	3.108
TL-200	1.176E-03		1.322E-03	Half-Life too short		
TL-201	-1.789E+01		2.691E+01	3.661E+01	3.911E+00	-0.489
TL-202	1.122E-01		1.303E-01	2.230E-01	1.911E-02	0.503
HG-203	7.269E-02		7.350E-02	1.267E-01	1.395E-02	0.574
BI-207	5.486E-03		7.413E-02	1.220E-01	1.077E-02	0.045
TL-207	-4.523E-01		1.128E+00	1.832E+00	3.389E-01	-0.247
PO-209	8.288E-01		1.152E+01	1.913E+01	1.783E+00	0.043
BI-210	1.755E+01		2.545E+01	4.291E+01	5.284E+00	0.409
PB-210	1.755E+01		2.545E+01	4.291E+01	5.284E+00	0.409
PO-210	1.755E+01		2.544E+01	4.291E+01	5.005E+00	0.409
PB-211	-1.939E-01		1.588E+00	2.585E+00	1.620E+00	-0.075
BI-212	1.170E+00		5.549E-01	9.904E-01	9.869E-02	1.181
PB-212	1.914E+00	+	2.826E-01	3.340E-01	3.977E-02	5.730
PO-212	1.914E+00	+	2.826E-01	3.340E-01	3.977E-02	5.730
PO-215	-4.523E-01		1.128E+00	1.832E+00	3.389E-01	-0.247
PO-216	1.914E+00	+	2.826E-01	3.340E-01	3.977E-02	5.730
RN-219	9.085E-02		6.961E-01	1.152E+00	1.720E-01	0.079
RN-220	1.416E+01		4.306E+01	7.120E+01	6.126E+00	0.199
RA-223	-4.523E-01		1.128E+00	1.832E+00	3.389E-01	-0.247
AC-227	3.424E+00	+	1.471E+00	1.274E+00	2.139E-01	2.687
TH-227	3.424E+00	+	1.506E+00	1.274E+00	2.459E-01	2.687
TH-228	1.946E+00	+	2.875E-01	3.397E-01	4.045E-02	5.730
TH-229	4.094E-01		1.019E+00	1.596E+00	1.736E-01	0.257
PA-231	-1.738E+00		2.669E+00	4.304E+00	7.100E-01	-0.404
TH-231	-4.523E-01		1.128E+00	1.832E+00	3.389E-01	-0.247
U-231	2.477E+01		7.356E+00	8.188E+00	9.173E-01	3.025
PA-233	8.276E-02		1.120E-01	1.917E-01	2.027E-02	0.432
PA-234	4.556E-01		4.388E-01	7.736E-01	1.474E-01	0.589
NP-236	4.799E-03		2.069E-01	2.912E-01	3.065E-02	0.016
NP-237	7.432E-01		1.226E+00	1.290E+00	3.096E-01	0.576
NP-239	1.870E-01		5.268E-01	7.587E-01	7.660E-02	0.247
AM-241	7.881E-01		7.221E-01	1.076E+00	1.263E-01	0.733
AM-243	1.957E-01		2.099E-01	3.085E-01	3.547E-02	0.634

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.890E-01		3.866E-01	4.085E-01	4.304E-02	0.463
AM-246	1.190E-01		2.072E-01	3.561E-01	3.114E-02	0.334
CM-247	-1.124E-02		6.313E-02	1.028E-01	8.692E-03	-0.109
CF-249	1.961E-02		6.828E-02	1.140E-01	9.728E-03	0.172
CF-251	-7.969E-02		2.710E-01	4.308E-01	4.632E-02	-0.185

# 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]G246341001          *
* Acquisition date   : 18-FEB-2010 12:56:46 Detector SN# :                 *
* Detector ID        : GAM15                      Sensitivity   : 5.000      *
* Geometry           : CAN                        Energy tolerance: 1.500     *
* Elapsed live time   : 0 02:00:00.00              Abundance limit : 75.000    *
* Elapsed real time   : 0 02:00:02.14              Half life ratio : 8.000    *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID           : G246341001              Analyst initials: MXR1       *
* Batch Number        : 950786                  Sample Quantity : 1.0974E+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	3.363E+01	3.923E+00	4.489E-01	2.001E+00
NB-95	6.816E-01	1.493E-01	5.412E-02	7.617E-02
TE-125M	9.850E+01	3.838E+01	1.840E+01	1.958E+01
BA-137M	2.844E-01	1.001E-01	4.634E-02	5.106E-02
CS-137	3.006E-01	1.058E-01	4.899E-02	5.398E-02
CE-141	1.987E+00	3.342E-01	1.177E-01	1.705E-01
LU-177	3.332E+00	2.619E+00	1.743E+00	1.336E+00
TL-208	5.792E-01	1.327E-01	4.588E-02	6.773E-02
BI-211	4.172E+00	8.142E-01	2.699E-01	4.154E-01
BI-214	1.191E+00	2.464E-01	8.669E-02	1.257E-01
PB-214	1.451E+00	2.928E-01	9.825E-02	1.494E-01
PO-214	1.451E+00	2.928E-01	9.825E-02	1.494E-01
PO-218	1.451E+00	2.928E-01	9.825E-02	1.494E-01
RA-224	6.655E+00	2.310E+00	8.990E-01	1.178E+00
RA-226	1.191E+00	2.464E-01	8.669E-02	1.257E-01
AC-228	1.827E+00	4.489E-01	1.426E-01	2.290E-01
RA-228	1.827E+00	4.489E-01	1.426E-01	2.290E-01
TH-230	1.191E+00	2.464E-01	8.669E-02	1.257E-01
TH-232	1.827E+00	4.489E-01	1.426E-01	2.290E-01
PA-234M	1.521E+02	2.269E+01	5.423E+00	1.158E+01
TH-234	1.135E+02	2.344E+01	3.748E+00	1.196E+01
U-234	1.191E+00	2.464E-01	8.669E-02	1.257E-01
U-235	6.361E+00	1.427E+00	3.753E-01	7.282E-01
U-238	1.135E+02	2.344E+01	3.748E+00	1.196E+01
ANH-511	1.501E-01	1.212E-01	3.846E-02	6.182E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	2.764E-01	5.315E-01	4.566E-01	2.712E-01 NOT IDENT.
NA-22	-2.731E-02	5.901E-02	4.585E-02	3.011E-02 NOT IDENT.

NA-24	-2.480E+06	9.004E+06	0.000E+00	4.594E+06	SHORT HLIF
AL-26	6.803E-03	3.352E-02	2.918E-02	1.710E-02	NOT IDENT.
TI-44	1.641E-01	1.293E-01	9.753E-02	6.595E-02	FAIL ABUN
SC-46	1.601E-02	6.350E-02	5.444E-02	3.240E-02	FAIL ABUN
V-48	2.614E-02	1.071E-01	9.151E-02	5.464E-02	NOT IDENT.
CR-51	2.458E-01	6.374E-01	5.522E-01	3.252E-01	NOT IDENT.
MN-52	5.959E-01	4.271E-01	4.163E-01	2.179E-01	NOT IDENT.
MN-54	2.100E-02	5.567E-02	4.829E-02	2.841E-02	NOT IDENT.
CO-56	-4.836E-02	6.149E-02	4.859E-02	3.137E-02	NOT IDENT.
CO-57	5.487E-02	5.993E-02	5.125E-02	3.057E-02	NOT IDENT.
CO-58	-1.851E-02	6.173E-02	5.107E-02	3.149E-02	NOT IDENT.
FE-59	-7.083E-02	1.240E-01	9.660E-02	6.326E-02	FAIL ABUN
CO-60	2.321E-02	5.588E-02	4.797E-02	2.851E-02	NOT IDENT.
ZN-65	1.507E-02	1.469E-01	1.057E-01	7.493E-02	NOT IDENT.
GE-68	-8.791E-01	1.896E+00	1.508E+00	9.675E-01	NOT IDENT.
AS-73	1.763E+00	4.306E+00	3.743E+00	2.197E+00	NOT IDENT.
AS-74	2.263E-02	1.523E-01	1.267E-01	7.771E-02	NOT IDENT.
SE-75	-2.703E-02	8.297E-02	6.079E-02	4.233E-02	NOT IDENT.
BR-77	-7.736E+00	3.208E+01	2.462E+01	1.637E+01	FAIL ABUN
SR-82	-1.316E-01	6.406E-01	5.194E-01	3.268E-01	NOT IDENT.
RB-83	-3.385E-02	1.270E-01	9.338E-02	6.480E-02	NOT IDENT.
RB-84	2.598E-02	1.139E-01	9.755E-02	5.811E-02	NOT IDENT.
KR-85	2.795E+01	1.413E+01	1.147E+01	7.211E+00	NOT IDENT.
SR-85	1.462E-01	7.395E-02	6.003E-02	3.773E-02	NOT IDENT.
RB-86	8.469E-02	1.249E+00	1.044E+00	6.374E-01	NOT IDENT.
Y-88	9.330E-03	4.234E-02	3.677E-02	2.160E-02	NOT IDENT.
ZR-88	3.693E-02	5.203E-02	4.537E-02	2.655E-02	NOT IDENT.
Y-91	1.091E+01	2.971E+01	2.522E+01	1.516E+01	NOT IDENT.
NB-94	-4.883E-03	5.322E-02	4.518E-02	2.715E-02	NOT IDENT.
NB-95M	4.346E-01	2.497E-01	1.988E-01	1.274E-01	NOT IDENT.
ZR-95	8.817E-02	1.116E-01	9.795E-02	5.696E-02	NOT IDENT.
NB-97	2.611E+05	1.199E+06	0.000E+00	6.116E+05	SHORT HLIF
ZR-97	3.890E+07	2.251E+07	0.000E+00	1.148E+07	SHORT HLIF
MO-99	-7.144E+00	3.949E+01	2.973E+01	2.015E+01	NOT IDENT.
TC-99M	1.292E+19	1.988E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-4.075E-02	6.474E-02	5.079E-02	3.303E-02	NOT IDENT.
RH-102	-1.307E-02	4.724E-02	3.876E-02	2.410E-02	FAIL ABUN
RU-103	-6.854E-02	6.538E-02	4.999E-02	3.335E-02	FAIL ABUN
RH-106	7.580E-03	4.831E-01	3.974E-01	2.465E-01	FAIL ABUN
RU-106	7.580E-03	4.831E-01	3.974E-01	2.465E-01	FAIL ABUN
AG-108M	-9.953E-03	5.489E-02	4.558E-02	2.801E-02	NOT IDENT.
CD-109	2.397E+00	4.037E+00	2.212E+00	2.060E+00	NOT IDENT.
AG-110M	7.880E-03	6.478E-02	4.844E-02	3.305E-02	NOT IDENT.
IN-111	5.247E-01	3.180E+00	2.409E+00	1.623E+00	NOT IDENT.
IN-113M	2.289E-02	7.564E-02	6.474E-02	3.859E-02	NOT IDENT.
SN-113	2.289E-02	7.564E-02	6.474E-02	3.859E-02	NOT IDENT.
IN-114M	1.057E-01	4.066E-01	2.948E-01	2.075E-01	NOT IDENT.
CD-115	-1.350E+01	3.062E+01	2.462E+01	1.562E+01	NOT IDENT.
SN-117M	-6.569E-02	1.538E-01	1.096E-01	7.847E-02	NOT IDENT.
SB-122	-2.264E+00	5.336E+00	4.281E+00	2.722E+00	NOT IDENT.
I-123	-7.520E+07	1.676E+08	0.000E+00	8.553E+07	SHORT HLIF
TE-123M	-3.288E-02	7.330E-02	5.219E-02	3.740E-02	NOT IDENT.
I-124	1.023E+00	1.569E+00	1.183E+00	8.005E-01	NOT IDENT.
SB-124	-1.092E-02	9.784E-02	8.008E-02	4.992E-02	FAIL ABUN
SB-125	3.398E-02	1.497E-01	1.272E-01	7.639E-02	FAIL ABUN
I-126	9.708E-02	3.420E-01	2.595E-01	1.745E-01	NOT IDENT.
SB-126	-5.066E-02	2.771E-01	1.999E-01	1.414E-01	FAIL ABUN
SN-126	4.953E-02	3.958E-01	2.135E-01	2.019E-01	FAIL ABUN
SB-127	2.597E-01	2.697E+00	2.322E+00	1.376E+00	NOT IDENT.
XE-127	1.414E-01	1.156E-01	8.657E-02	5.896E-02	FAIL ABUN
I-131	-8.133E-02	2.232E-01	1.853E-01	1.139E-01	NOT IDENT.
TE-132	-4.776E-01	1.735E+00	1.485E+00	8.854E-01	FAIL ABUN
BA-133	6.166E-02	8.032E-02	6.189E-02	4.098E-02	NOT IDENT.
I-133	-1.232E+03	4.336E+04	0.000E+00	2.212E+04	SHORT HLIF
CS-134	1.430E-01	9.174E-02	6.983E-02	4.681E-02	FAIL ABUN
CS-135	1.456E-01	2.588E-01	2.266E-01	1.320E-01	NOT IDENT.
I-135	-7.099E+17	1.038E+18	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.029E-01	1.514E-01	1.345E-01	7.725E-02	FAIL ABUN
CE-139	1.435E-01	7.617E-02	5.808E-02	3.886E-02	NOT IDENT.
BA-140	-1.213E-01	4.614E-01	3.744E-01	2.354E-01	FAIL ABUN
LA-140	4.129E-02	1.514E-01	1.269E-01	7.727E-02	NOT IDENT.
CE-143	2.477E+03	9.553E+02	0.000E+00	4.874E+02	SHORT HLIF
CE-144	-9.698E-02	4.576E-01	3.806E-01	2.335E-01	NOT IDENT.
PM-144	-2.856E-03	5.359E-02	4.563E-02	2.734E-02	NOT IDENT.
PR-144	-1.937E-01	3.635E+00	3.095E+00	1.855E+00	NOT IDENT.
PM-146	2.202E-02	7.085E-02	6.031E-02	3.615E-02	NOT IDENT.
ND-147	-2.686E-01	9.763E-01	7.938E-01	4.981E-01	NOT IDENT.
PM-149	3.871E+01	2.903E+02	2.499E+02	1.481E+02	NOT IDENT.

EU-152	-1.048E-01	1.932E-01	1.281E-01	9.855E-02	FAIL ABUN
GD-153	1.285E+00	3.168E-01	2.199E-01	1.616E-01	FAIL ABUN
EU-154	-7.590E-02	1.648E-01	1.280E-01	8.407E-02	NOT IDENT.
EU-155	5.916E-01	2.777E-01	2.329E-01	1.417E-01	NOT IDENT.
TB-160	-1.835E-01	2.344E-01	1.851E-01	1.196E-01	NOT IDENT.
HO-166M	-4.102E-02	9.679E-02	8.029E-02	4.938E-02	FAIL ABUN
TM-171	-1.659E+02	1.055E+02	7.428E+01	5.382E+01	NOT IDENT.
LU-176	-3.110E-02	4.123E-02	3.390E-02	2.103E-02	NOT IDENT.
LU-177M	-1.346E-01	2.849E-01	2.332E-01	1.454E-01	NOT IDENT.
HF-181	-3.651E-02	7.216E-02	5.828E-02	3.682E-02	NOT IDENT.
W-181	1.775E+01	2.593E+00	1.541E+00	1.323E+00	NOT IDENT.
TA-182	1.015E-01	2.749E-01	2.338E-01	1.402E-01	FAIL ABUN
RE-183	1.521E+00	4.152E-01	2.579E-01	2.119E-01	FAIL ABUN
RE-184	3.007E-02	4.470E-01	3.363E-01	2.281E-01	NOT IDENT.
OS-185	1.546E-02	6.829E-02	5.690E-02	3.484E-02	NOT IDENT.
RE-188	3.195E-01	3.778E-01	3.204E-01	1.928E-01	NOT IDENT.
W-188	-5.121E+00	1.519E+01	1.107E+01	7.750E+00	FAIL ABUN
IR-192	-1.134E-02	5.893E-02	4.978E-02	3.007E-02	FAIL ABUN
AU-195	3.749E+00	9.240E-01	6.116E-01	4.714E-01	FAIL ABUN
TL-200	1.176E+03	2.592E+03	0.000E+00	1.322E+03	SHORT HLIF
TL-201	-1.789E+01	2.638E+01	1.850E+01	1.346E+01	NOT IDENT.
TL-202	1.122E-01	1.277E-01	1.119E-01	6.515E-02	NOT IDENT.
HG-203	7.269E-02	7.203E-02	6.378E-02	3.675E-02	NOT IDENT.
BI-207	5.486E-03	7.265E-02	6.085E-02	3.707E-02	FAIL ABUN
TL-207	-4.523E-01	1.105E+00	9.211E-01	5.639E-01	FAIL ABUN
PO-209	8.288E-01	1.129E+01	9.552E+00	5.761E+00	NOT IDENT.
BI-210	1.755E+01	2.494E+01	2.187E+01	1.272E+01	NOT IDENT.
PB-210	1.755E+01	2.494E+01	2.187E+01	1.272E+01	NOT IDENT.
PO-210	1.755E+01	2.493E+01	2.187E+01	1.272E+01	NOT IDENT.
PB-211	-1.939E-01	1.556E+00	1.298E+00	7.941E-01	NOT IDENT.
BI-212	1.170E+00	5.438E-01	4.952E-01	2.774E-01	NOT IDENT.
PB-212	1.914E+00	2.770E-01	1.683E-01	1.413E-01	FAIL ABUN
PO-212	1.914E+00	2.770E-01	1.683E-01	1.413E-01	FAIL ABUN
PO-215	-4.523E-01	1.105E+00	9.211E-01	5.639E-01	FAIL ABUN
PO-216	1.914E+00	2.770E-01	1.683E-01	1.413E-01	FAIL ABUN
RN-219	9.085E-02	6.821E-01	5.783E-01	3.480E-01	NOT IDENT.
RN-220	1.416E+01	4.220E+01	3.567E+01	2.153E+01	NOT IDENT.
RA-223	-4.523E-01	1.105E+00	9.211E-01	5.639E-01	FAIL ABUN
AC-227	3.424E+00	1.441E+00	6.418E-01	7.354E-01	FAIL ABUN
TH-227	3.424E+00	1.476E+00	6.418E-01	7.532E-01	FAIL ABUN
TH-228	1.946E+00	2.817E-01	1.712E-01	1.437E-01	FAIL ABUN
TH-229	4.094E-01	9.990E-01	8.055E-01	5.097E-01	FAIL ABUN
PA-231	-1.738E+00	2.615E+00	2.166E+00	1.334E+00	NOT IDENT.
TH-231	-4.523E-01	1.105E+00	9.211E-01	5.639E-01	FAIL ABUN
U-231	2.477E+01	7.209E+00	4.153E+00	3.678E+00	FAIL ABUN
PA-233	8.276E-02	1.098E-01	9.641E-02	5.602E-02	NOT IDENT.
PA-234	4.556E-01	4.301E-01	3.860E-01	2.194E-01	FAIL ABUN
NP-236	4.799E-03	2.027E-01	1.472E-01	1.034E-01	FAIL ABUN
NP-237	7.432E-01	1.202E+00	6.545E-01	6.132E-01	NOT IDENT.
NP-239	1.870E-01	5.162E-01	3.843E-01	2.634E-01	FAIL ABUN
AM-241	7.881E-01	7.077E-01	5.475E-01	3.611E-01	NOT IDENT.
AM-243	1.957E-01	2.057E-01	1.567E-01	1.050E-01	NOT IDENT.
CM-243	1.890E-01	3.789E-01	2.071E-01	1.933E-01	FAIL ABUN
AM-246	1.190E-01	2.030E-01	1.775E-01	1.036E-01	NOT IDENT.
CM-247	-1.124E-02	6.187E-02	5.161E-02	3.156E-02	NOT IDENT.
CF-249	1.961E-02	6.691E-02	5.727E-02	3.414E-02	NOT IDENT.
CF-251	-7.969E-02	2.656E-01	2.176E-01	1.355E-01	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	757.1328
46.50	757.1328
46.50	757.1328
48.70	821.1146
49.72	864.6131
51.35	887.0994
52.39	860.7539
52.97	857.7177
53.15	857.9678
53.44	893.0120
54.07	919.9230
56.28	1007.5096
56.28	1007.5156
57.37	0.0000
57.53	990.2111
57.53	990.2141
57.60	990.3174
57.98	983.1431
57.98	983.1431
59.32	994.4766
59.32	994.4766
59.40	994.5977
59.54	994.8066
59.72	995.0781
60.01	1032.8434
61.10	1042.3195
61.14	1042.3807
61.30	1061.3317
63.00	1024.3470
63.29	1024.7792
63.29	1024.7792
63.58	1025.2124
64.28	1040.9265
65.12	1057.8567
65.20	1057.9792
65.20	1057.9792
66.05	1162.8339
66.72	1187.4977
66.83	1256.8091
66.91	1256.9531
67.20	1257.4658
67.20	1257.4658
67.75	1274.1631
67.85	1321.5439
68.90	1323.4768
68.90	1323.4768
69.30	1281.4159
69.67	1287.7089
70.82	1410.8911
70.82	1410.8911
70.83	1410.9130
72.80	1400.2206
72.87	1387.6799
72.87	1387.6799
74.67	1540.2717
74.81	1585.0255
74.81	1585.0255
74.81	1585.0255
74.81	1585.0255
74.81	1585.0255
74.81	1585.0255
74.81	1585.0255
74.97	1585.3606
75.28	1570.1144
75.70	1570.9767
77.11	1598.9546
77.11	1598.9546

77.11	1598.9546
77.11	1598.9546
77.11	1598.9546
77.11	1598.9546
77.11	1598.9546
78.38	1683.3510
79.62	1582.1389
79.80	1646.4409
79.80	1646.4409
80.11	1647.0885
80.18	1647.2330
80.30	1647.4845
80.30	1647.4845
80.57	1648.0441
81.00	1532.8707
81.07	1533.0052
81.07	1533.0052
81.07	1533.0052
81.07	1533.0052
82.60	1600.1035
83.37	1592.7944
83.78	1593.6058
83.78	1593.6058
83.78	1593.6058
83.78	1593.6058
84.21	1784.1163
84.90	1914.3174
85.43	1871.2887
86.29	1873.2469
86.50	1873.7224
86.54	1873.8075
86.59	1873.9210
86.72	1874.2191
86.79	1874.3680
86.94	1874.7157
87.30	1875.5247
87.30	1875.5247
87.30	1875.5247
87.30	1875.5247
87.30	1875.5247
87.30	1875.5247
87.30	1875.5247
87.57	1876.1348
87.88	1876.8302
88.03	1877.1708
88.36	1829.4465
88.47	1829.6884
89.95	1990.7021
91.11	1842.6978
92.29	1845.2377
92.38	1845.4320
92.38	1845.4320
93.35	1847.5000
94.00	1848.8879
94.67	1212.3756
94.67	1212.3848
94.90	1245.2588
94.90	1245.2588
94.90	1245.2588
94.90	1245.2588
95.87	1246.6362
95.87	1246.6362
96.73	1247.8549
97.43	1248.8354
98.44	1356.4756
98.44	1356.4806
98.88	1003.5509
99.55	921.8016
99.55	921.8016
99.86	933.0306
100.00	933.1767
100.10	933.2811
103.18	936.4330
103.76	924.6952
105.00	832.4562
105.31	832.7340
108.00	835.1200
109.28	836.2466

111.00	837.7467
111.00	837.7467
111.76	838.4073
112.95	839.4351
115.19	841.3581
116.30	821.1260
117.00	846.7049
117.00	846.7049
117.66	900.6372
121.11	789.3680
121.62	780.9917
121.78	789.4875
122.06	787.3131
122.32	778.0861
122.32	778.0861
122.32	778.0861
122.32	778.0861
123.07	804.8555
127.23	807.0391
129.76	724.5978
131.20	730.8627
133.02	753.2625
133.54	770.5618
135.34	865.1385
136.00	805.1925
136.25	806.4389
136.48	757.7861
140.51	741.3798
140.51	0.0000
142.18	795.4026
142.65	817.9311
143.76	727.5060
144.24	727.8125
144.24	727.8125
144.24	727.8125
144.24	727.8125
145.22	728.4412
145.44	728.5815
147.16	690.8951
152.43	695.3303
152.70	700.8710
153.22	685.0276
154.21	693.1461
154.21	693.1461
154.21	693.1461
154.21	693.1461
155.03	664.5010
156.02	689.8871
158.56	720.1340
159.00	0.0000
159.00	723.8564
160.31	707.3062
161.27	704.3990
162.32	680.6933
162.64	703.4502
163.35	640.8607
163.89	641.1443
165.85	602.5435
167.43	645.1604
171.28	583.7407
171.86	579.6349
172.10	575.3687
176.55	583.9612
176.60	597.1582
181.06	544.5786
184.41	643.1452
185.71	592.4863
186.00	592.6130
190.27	457.8555
192.34	478.1055
193.63	449.8400
197.04	443.6325
198.01	487.4474
198.60	570.2318
200.40	452.3054
201.83	508.2463
202.84	501.4468
205.31	505.9132



208.36	341.5941
208.81	341.7008
209.75	365.3182
209.75	365.3182
210.97	394.7461
215.65	399.7841
216.55	384.7117
218.09	397.2811
222.10	395.6333
223.80	376.0972
226.40	353.9962
227.00	354.1363
227.08	340.5012
227.20	340.5263
228.16	348.0318
228.18	348.0364
228.18	348.0364
231.56	0.0000
235.69	347.9120
236.00	347.9816
236.00	347.9816
238.63	327.4708
238.63	327.4708
238.63	327.4708
238.63	327.4708
239.00	327.5471
240.98	327.9611
241.98	328.1703
241.98	328.1703
241.98	328.1703
244.69	314.6132
245.39	293.2556
247.94	284.4970
248.90	292.3600
249.79	278.6660
252.40	302.2484
252.85	280.7370
252.85	280.7370
254.15	0.0000
256.20	271.7296
256.20	271.7296
260.50	254.1546
260.90	254.2147
262.80	249.8494
264.65	264.1101
268.24	269.0332
268.79	270.0555
269.46	250.5303
269.46	250.5303
269.46	250.5303
269.46	250.5303
271.23	243.3057
273.65	367.3517
276.40	264.6917
277.35	238.5405
277.60	237.6384
277.60	237.6384
278.00	252.7227
278.60	243.4132
279.20	263.2417
279.53	257.6476
280.46	281.3089
281.68	311.6337
283.67	278.9959
284.30	262.1249
285.00	262.2301
285.90	269.9160
286.10	277.4948
286.10	277.4948
287.40	274.8657
288.45	0.0000
290.67	296.5078
290.80	296.5307
291.72	280.9026
293.26	0.0000
293.70	300.1723
295.21	300.7398
295.21	300.7398

295.21	300.7398
295.96	300.5473
296.50	303.8047
297.23	280.1816
298.57	237.6190
299.80	217.1703
299.80	217.1703
300.09	209.2793
300.09	209.2793
300.09	209.2793
300.09	209.2793
300.12	209.2820
301.29	191.9649
302.84	248.7600
303.76	274.5176
303.91	274.5387
304.40	281.2871
304.40	281.2871
304.84	264.1881
306.84	245.3766
308.46	223.6140
311.98	220.2070
316.51	228.4184
318.01	227.6380
319.02	213.3444
319.41	217.2353
320.08	204.8097
323.87	237.9757
323.87	237.9757
323.87	237.9757
323.87	237.9757
325.23	238.1445
328.77	246.3122
333.44	229.1524
334.20	206.6406
334.20	206.6406
334.30	213.1089
338.28	212.5706
338.28	212.5706
338.28	212.5706
338.28	212.5706
338.32	212.5760
338.32	212.5760
338.32	212.5760
340.50	187.8675
340.57	187.8746
344.27	208.3470
345.85	170.5118
350.59	0.0000
351.07	188.8634
351.92	206.2092
351.92	206.2092
351.92	206.2092
355.39	0.0000
356.01	174.6348
364.48	188.7961
366.43	179.1296
367.43	169.3692
367.94	0.0000
369.80	181.3923
374.96	188.7547
383.85	180.6137
387.95	181.9523
388.63	184.9919
391.69	180.2731
391.69	180.2731
392.90	168.4162
398.62	186.8402
400.65	173.0105
401.10	173.0464
401.81	177.1037
402.60	187.1781
404.84	185.3636
410.95	163.7660
411.60	159.7938
413.65	173.0162
414.70	160.0132
415.30	160.0559

415.76	161.0957
417.63	0.0000
418.52	139.1135
423.70	155.5941
427.08	147.7288
427.89	152.8414
432.53	162.2754
433.93	166.4324
439.47	141.3958
439.56	141.4009
439.89	143.4544
443.98	166.1259
444.90	149.8765
445.03	149.8855
445.03	149.8855
445.03	149.8855
445.03	149.8855
453.90	143.2778
463.38	141.7852
468.07	128.6743
473.00	160.9074
475.06	144.5237
475.35	138.3462
476.78	137.3933
477.59	130.2036
477.96	136.4247
482.03	150.1047
484.57	131.6028
487.03	130.6942
490.36	0.0000
492.35	123.6935
497.08	136.4178
507.63	0.0000
510.53	0.0000
510.84	136.0993
511.00	136.1072
511.85	136.1509
511.85	136.1509
513.99	139.7567
513.99	139.7567
520.41	135.0942
520.65	136.6079
527.90	122.2276
528.96	0.0000
529.64	117.0378
529.87	0.0000
531.02	117.0974
537.32	125.8303
543.00	143.0486
546.56	0.0000
549.76	116.8455
552.65	153.1230
555.20	107.4974
563.23	114.2126
563.90	125.9829
568.70	125.1294
569.32	118.7397
569.50	121.9572
569.67	117.6833
573.80	141.4263
574.00	137.1500
574.64	120.2718
578.91	103.7562
579.30	0.0000
583.14	112.8673
585.48	121.9246
591.81	126.3004
592.07	126.6969
593.00	114.3330
595.88	106.8891
600.56	109.3437
602.52	0.0000
602.71	99.2041
602.71	99.2041
603.60	110.0586
604.41	110.0884
604.70	120.9304
609.31	113.8876

609.31	113.8876
609.31	113.8876
609.31	113.8876
610.33	115.7370
612.46	104.9622
614.37	86.9199
618.01	100.0814
621.84	96.9418
621.84	96.9418
631.29	100.5239
633.02	96.2070
633.10	89.6495
634.78	73.2911
635.90	79.8847
636.97	99.6157
645.85	97.7110
646.12	97.7175
656.30	108.5850
657.75	114.9333
657.90	0.0000
661.65	107.5880
661.65	107.5880
664.57	0.0000
666.33	97.8805
666.33	97.8805
675.00	95.1145
677.61	95.1941
685.20	83.3771
692.80	107.7163
695.00	95.7096
696.49	111.5576
696.49	111.5576
697.00	115.2939
697.49	116.2415
698.33	104.1797
698.50	104.1842
699.00	98.6180
702.63	117.3560
706.10	118.4140
706.58	0.0000
706.67	110.0416
709.31	95.1954
711.68	115.8110
713.82	115.8867
717.42	97.3011
720.50	97.9272
721.93	0.0000
722.20	106.0070
722.78	96.3867
722.78	96.3867
722.89	96.3909
722.95	96.3930
723.30	93.1880
724.18	86.7857
727.18	97.5868
733.00	99.9045
735.90	112.8931
739.58	142.6816
742.81	92.3834
744.21	99.0228
747.13	143.4710
751.79	94.5170
752.31	87.9141
753.82	89.8433
755.35	80.4225
756.15	79.4951
756.87	74.9670
763.93	92.6807
765.79	97.7465
766.42	97.7653
766.84	97.7758
776.49	94.4981
778.00	100.9450
778.57	104.7721
778.89	101.9234
783.80	79.1719
785.46	82.0720
792.07	126.2073

795.84	67.2713
796.30	70.5634
798.80	75.5377
801.93	86.9258
805.60	73.8982
810.29	92.2539
810.76	88.4212
815.85	76.0330
817.79	84.7397
818.51	84.7577
819.60	82.8558
826.30	70.4588
828.27	0.0000
831.60	84.0936
831.96	80.2340
834.83	80.2965
836.80	0.0000
846.75	90.2603
848.13	70.8747
856.28	0.0000
856.80	98.2876
860.37	64.2880
867.32	66.3578
867.82	70.2700
871.10	79.1213
873.19	75.2548
874.81	75.2877
875.33	0.0000
876.40	69.4501
879.36	95.9344
880.27	80.2900
880.51	72.4613
881.50	74.4383
883.24	78.3919
884.67	81.3620
889.25	76.5511
896.60	71.7792
898.02	82.6260
899.00	83.6304
903.28	67.9626
911.07	55.2674
911.07	55.2674
911.07	55.2674
919.63	62.7343
920.93	73.6099
925.00	50.5103
925.24	47.5420
926.50	45.5751
935.52	52.6291
937.48	62.5886
944.10	52.7407
946.00	47.7871
949.00	59.7791
962.29	44.5515
964.01	42.9991
966.15	43.0210
968.20	43.0429
969.11	41.1931
969.11	41.1931
969.11	41.1931
977.42	53.1704
980.50	53.2103
983.50	53.2480
989.30	70.4258
996.32	53.5559
1001.03	61.5423
1001.68	61.5523
1004.76	60.5872
1021.30	0.0000
1024.50	0.0000
1034.80	58.9794
1036.00	60.0131
1037.82	50.8789
1038.57	46.8180
1038.76	0.0000
1045.16	61.1597
1046.59	48.9434
1048.07	38.7592

1050.47	42.8630
1050.47	42.8630
1062.04	51.1617
1063.62	53.2272
1076.63	59.5435
1077.35	68.7939
1078.86	50.3279
1085.78	51.4343
1099.22	54.6843
1112.02	45.0081
1112.84	53.2220
1115.52	60.3538
1120.29	51.8270
1120.29	51.8270
1120.29	51.8270
1120.29	51.8270
1120.51	51.8290
1121.28	46.2109
1124.00	0.0000
1129.67	61.1863
1131.51	0.0000
1147.95	0.0000
1167.94	60.7376
1173.22	61.8520
1175.09	62.9248
1177.93	62.9639
1189.05	68.3695
1204.90	70.7050
1205.75	0.0000
1213.00	83.5068
1221.42	58.2383
1230.97	76.3857
1235.34	79.6387
1236.41	0.0000
1238.25	77.5625
1246.25	59.5957
1260.41	0.0000
1271.85	42.7865
1274.45	47.0884
1274.54	47.0902
1291.56	49.3953
1298.22	0.0000
1312.09	44.2015
1325.50	42.1548
1325.50	42.1548
1332.49	32.4707
1333.61	33.5594
1360.21	33.5742
1362.66	0.0000
1365.15	23.3372
1368.21	31.6007
1368.53	0.0000
1376.25	26.1914
1384.27	26.2305
1394.10	28.1553
1395.20	36.6101
1407.95	33.8730
1434.06	17.9623
1436.60	27.4292
1457.56	0.0000
1460.81	34.1982
1489.15	25.7777
1509.49	28.7434
1596.49	26.0931
1620.62	27.3369
1678.03	0.0000
1691.02	13.8252
1691.02	13.8252
1706.46	0.0000
1750.46	0.0000
1764.49	13.9854
1764.49	13.9854
1764.49	13.9854
1764.49	13.9854
1770.23	13.9976
1771.40	12.2500
1791.20	0.0000
1808.65	8.0455

1836.01

10.0984

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341001

Total Uranium Activity	3.4062E+02	ug/g
Total Uranium Counting Unc.	6.9743E+01	ug/g
Total Uranium Tpu	3.5583E-05	ug/g
Total Uranium Mda	1.1151E+01	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 950786          SAMPLE ID   : G246341001
*  ANALYST       : MXR1            DETECTOR    : GAM15
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 18-FEB-2010 12:56:46.96  SAMPLE ALQT: 109.740 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.832E+01
GROSS GAMMA ERROR (pCi/GRAM ) : 2.606E+00
GROSS GAMMA MDA (pCi/GRAM ) : 8.853E+00
GROSS GAMMA DLC (pCi/GRAM ) : 4.348E+00

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## VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 14:58:10.08

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341002.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 12:57:15
Sample ID          : G246341002      Sample quantity      : 9.86700E+01 GRAM
Detector name      : GAM22           Detector geometry    : CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time  : 0 02:00:08.97  0.1%
Energy tolerance   : 1.50000 keV     Analyst Initials   : MXR1
Abundance limit    : 75.00000        Sensitivity        : 5.00000
Batch ID           : 950786          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	10	53.59	1179	8649	2.41	107.45	101	30	1.64E-01	16.2	3.24E+00
2	10	57.17	1007	9424	2.09	114.60	101	30	1.40E-01	20.6	
3	10	59.52	1631	10926	2.48	119.30	101	30	2.27E-01	15.6	
4	10	61.99*	2368	8085	1.88	124.24	101	30	3.29E-01	9.9	
5	10	63.26*	20595	4439	0.98	126.77	101	30	2.86E+00	0.9	
6	2	74.67*	536	7351	1.15	149.58	146	12	7.44E-02	27.0	1.27E+00
7	2	77.08*	678	5285	0.86	154.39	146	12	9.41E-02	16.6	
8	0	84.06*	3296	9575	1.18	168.33	165	8	4.58E-01	5.4	
9	5	92.56*	55007	9497	1.14	185.32	181	14	7.64E+00	0.5	4.03E+01
10	5	94.54	3364	9311	1.70	189.27	181	14	4.67E-01	9.4	
11	0	98.49	4363	4974	1.12	197.17	194	9	6.06E-01	3.3	
12	6	105.40	624	3779	1.10	210.98	206	26	8.67E-02	16.7	6.24E+00
13	6	108.98	1578	5300	1.75	218.12	206	26	2.19E-01	9.2	
14	6	111.05	1694	4688	1.50	222.26	206	26	2.35E-01	8.5	
15	6	112.77*	3257	3596	1.18	225.70	206	26	4.52E-01	3.7	
16	0	121.04	584	3225	1.09	242.22	239	8	8.10E-02	17.4	
17	0	131.44	222	2874	0.97	262.99	260	7	3.08E-02	40.6	
18	0	143.76*	6480	3706	1.15	287.62	283	10	9.00E-01	2.2	
19	0	163.32	3062	3131	1.16	326.71	322	10	4.25E-01	3.9	
20	0	185.71*	32932	3254	1.20	371.44	366	12	4.57E+00	0.7	
21	0	194.77	406	1344	1.10	389.54	385	8	5.65E-02	16.4	
22	4	202.15	623	1395	1.55	404.29	400	16	8.65E-02	11.4	3.22E+00
23	4	205.32	2765	1051	1.20	410.61	400	16	3.84E-01	2.7	
24	3	238.63*	1348	920	1.28	477.17	472	16	1.87E-01	4.8	1.99E+00
25	3	241.57	352	1222	1.89	483.06	472	16	4.90E-02	22.1	
26	0	258.22	750	1079	1.26	516.32	510	12	1.04E-01	9.5	
27	0	295.35*	413	881	1.24	590.52	584	11	5.74E-02	14.9	
28	0	338.45*	235	624	1.53	676.66	671	10	3.27E-02	21.1	
29	0	351.82*	728	837	1.30	703.38	697	13	1.01E-01	9.0	
30	0	510.88*	214	715	2.28	1021.27	1011	22	2.98E-02	34.3	
31	0	569.82*	47	399	2.10	1139.06	1132	11	6.48E-03	85.3	
32	0	583.23*	449	324	1.67	1165.88	1161	11	6.24E-02	9.3	
33	0	609.16*	641	352	1.47	1217.70	1210	15	8.90E-02	7.6	
34	0	661.57	2037	306	1.71	1322.47	1316	12	2.83E-01	2.8	
35	0	727.57	120	273	2.17	1454.41	1448	12	1.67E-02	28.9	
36	0	742.36	532	388	2.05	1483.96	1474	17	7.39E-02	9.5	
37	0	766.41	1898	404	2.03	1532.05	1523	19	2.64E-01	3.4	
38	0	786.19	274	300	1.93	1571.59	1566	12	3.81E-02	14.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	880.66	237	236	4.12	1760.46	1749	22	3.29E-02	17.8	
40	0	911.17*	365	149	2.09	1821.45	1813	17	5.08E-02	9.5	
41	0	946.30	154	144	1.69	1891.70	1887	13	2.14E-02	18.3	
42	0	969.31*	170	262	1.22	1937.71	1929	22	2.36E-02	26.4	
43	0	1000.98*	3956	194	2.03	2001.02	1993	19	5.50E-01	1.8	
44	0	1120.49*	142	108	1.87	2240.01	2233	17	1.98E-02	19.4	
45	0	1238.79	57	133	1.99	2476.59	2467	13	7.86E-03	44.1	
46	0	1460.69*	1423	54	2.56	2920.41	2908	22	1.98E-01	3.0	
47	0	1738.03	75	29	2.46	3475.23	3467	19	1.04E-02	20.7	
48	0	1764.22*	137	14	3.21	3527.64	3516	20	1.90E-02	12.2	
49	0	1831.87	49	24	3.11	3662.99	3651	18	6.81E-03	24.6	
50	0	1875.28	39	8	2.62	3749.85	3743	12	5.39E-03	20.5	

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

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 14:58:14

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 12:57:15
Sample ID         : G246341002           Sample quantity  : 98.670 GRAM
Sample type       : SOLID                 Sample geometry   :
Detector name     : GAMMA22              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:08.97   0.1%
Peak Width (FWHM) : 3.00                  Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV              Half life ratio   : 8.00
Errors propagated : Yes                   Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                  WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.658E+01	2.915E+00	7.156E-01	6.556E-02	37.144
CO-57	+	122.06	*	3.169E-01	1.130E-01	1.383E-01	1.140E-02	2.292
		136.48		-7.778E-02	6.654E-01	1.087E+00	1.009E-01	-0.072
AS-73	+	53.44	*	2.007E+01	6.679E+00	5.232E+00	3.954E-01	3.835
RB-84	+	881.50	*	6.646E-01	2.479E-01	1.798E-01	2.011E-02	3.696
NB-95	+	765.79	*	2.714E+00	3.501E-01	1.202E-01	1.314E-02	22.582
TE-125M	+	109.28	*	3.076E+02	6.444E+01	5.259E+01	5.328E+00	5.849
BA-137M	+	661.65	*	2.401E+00	2.868E-01	1.031E-01	1.087E-02	23.297
CS-137	+	661.65	*	2.538E+00	3.035E-01	1.089E-01	1.150E-02	23.297
W-181	+	56.28		7.084E+00	2.968E+00	2.271E+00	1.654E-01	3.120
	+	57.53		4.064E+00	1.703E+00	1.211E+00	8.703E-02	3.356
		65.20	*	1.660E+01	2.001E+00	2.608E+00	1.944E-01	6.365
RE-183	+	57.98		4.160E+00	1.743E+00	1.209E+00	8.650E-02	3.441
	+	59.32		3.397E+00	1.087E+00	6.475E-01	4.580E-02	5.246
		67.20		-2.381E+00	8.309E-01	1.151E+00	8.737E-02	-2.068
	+	162.32	*	7.341E+00	9.101E-01	5.365E-01	5.176E-02	13.682
		208.81		1.210E+00	2.414E+00	3.510E+00	3.968E-01	0.345
		291.72		-4.286E-01	2.064E+00	3.010E+00	4.101E-01	-0.142
TL-208		277.35		1.178E+00	7.847E-01	1.266E+00	2.087E-01	0.931
	+	510.84		8.784E-01	6.129E-01	3.722E-01	4.851E-02	2.360
	+	583.14	*	5.163E-01	1.109E-01	1.050E-01	1.138E-02	4.919
		860.37		8.379E-01	4.709E-01	8.133E-01	9.477E-02	1.030
BI-211		72.87		2.510E+01	1.284E+01	1.907E+01	1.526E+00	1.316
	+	351.07	*	3.963E+00	8.525E-01	6.184E-01	7.215E-02	6.409
BI-212	+	727.18	*	1.162E+00	6.860E-01	8.008E-01	9.565E-02	1.451
	+	785.46		1.683E+01	5.093E+00	5.077E+00	5.581E-01	3.316
		1620.62		9.865E-01	1.448E+00	2.566E+00	2.237E-01	0.384
PB-212	+	74.81		3.099E+00	1.715E+00	2.155E+00	2.674E-01	1.438
	+	77.11		2.218E+00	7.588E-01	1.227E+00	1.026E-01	1.808
		87.30		-1.728E+01	3.256E+00	2.656E+00	3.647E-01	-6.508
	+	238.63	*	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
		300.09		2.904E+00	1.632E+00	2.458E+00	3.585E-01	1.181
PO-212	+	74.81		3.099E+00	1.715E+00	2.155E+00	2.674E-01	1.438
	+	77.11		2.218E+00	7.588E-01	1.227E+00	1.026E-01	1.808

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-214		87.30		-1.728E+01	3.256E+00	2.656E+00	3.647E-01	-6.508
		115.19		7.453E+01	1.541E+01	2.178E+01	1.804E+00	3.422
	+	238.63	*	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
		300.09		2.904E+00	1.632E+00	2.458E+00	3.585E-01	1.181
	+	609.31	*	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
PB-214	+	1120.29		1.529E+00	6.180E-01	5.260E-01	5.812E-02	2.906
	+	1764.49		1.922E+00	4.969E-01	2.886E-01	2.404E-02	6.660
	+	74.81		5.339E+00	2.939E+00	3.713E+00	4.092E-01	1.438
	+	77.11		3.802E+00	1.333E+00	2.103E+00	2.379E-01	1.808
		87.30		-2.961E+01	5.250E+00	4.550E+00	5.535E-01	-6.508
PO-214	+	241.98		2.686E+00	1.241E+00	1.100E+00	1.513E-01	2.441
	+	295.21		1.372E+00	4.568E-01	4.354E-01	6.483E-02	3.152
	+	351.92	*	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397
	+	74.81		5.339E+00	2.939E+00	3.713E+00	4.092E-01	1.438
	+	77.11		3.802E+00	1.333E+00	2.103E+00	2.379E-01	1.808
PO-216		87.30		-2.961E+01	5.250E+00	4.550E+00	5.535E-01	-6.508
	+	241.98		2.686E+00	1.241E+00	1.100E+00	1.513E-01	2.441
	+	295.21		1.372E+00	4.568E-01	4.354E-01	6.483E-02	3.152
	+	351.92	*	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397
	+	74.81		3.099E+00	1.715E+00	2.155E+00	2.674E-01	1.438
PO-218	+	77.11		2.218E+00	7.588E-01	1.227E+00	1.026E-01	1.808
		87.30		-1.728E+01	3.256E+00	2.656E+00	3.647E-01	-6.508
	+	238.63	*	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
		300.09		2.904E+00	1.632E+00	2.458E+00	3.585E-01	1.181
	+	74.81		5.339E+00	2.939E+00	3.713E+00	4.092E-01	1.438
RA-224	+	77.11		3.802E+00	1.333E+00	2.103E+00	2.379E-01	1.808
		87.30		-2.961E+01	5.250E+00	4.550E+00	5.535E-01	-6.508
	+	241.98		2.686E+00	1.241E+00	1.100E+00	1.513E-01	2.441
	+	295.21		1.372E+00	4.568E-01	4.354E-01	6.483E-02	3.152
	+	351.92	*	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397
RA-226	+	240.98	*	5.092E+00	2.336E+00	2.129E+00	2.665E-01	2.392
	+	609.31	*	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
	+	1120.29		1.529E+00	6.180E-01	5.260E-01	5.812E-02	2.906
	+	1764.49		1.922E+00	4.969E-01	2.886E-01	2.404E-02	6.660
	+	338.32		1.421E+00	8.470E-01	6.974E-01	2.934E-01	2.037
AC-228	+	911.07	*	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
	+	969.11		1.471E+00	8.547E-01	4.987E-01	1.204E-01	2.950
	+	338.32		1.421E+00	8.470E-01	6.974E-01	2.934E-01	2.037
	+	911.07	*	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
	+	969.11		1.471E+00	8.547E-01	4.987E-01	1.204E-01	2.950
TH-228	+	74.81		3.152E+00	1.719E+00	2.191E+00	1.806E-01	1.438
	+	77.11		2.256E+00	7.718E-01	1.248E+00	1.044E-01	1.808
		87.30		-1.758E+01	2.807E+00	2.701E+00	2.542E-01	-6.508
	+	238.63	*	1.743E+00	2.849E-01	1.905E-01	2.517E-02	9.150
	+	300.09		2.953E+00	2.393E+00	2.500E+00	1.504E+00	1.181
TH-230	+	609.31	*	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
	+	1120.29		1.529E+00	6.180E-01	5.260E-01	5.812E-02	2.906
	+	1764.49		1.922E+00	4.969E-01	2.886E-01	2.404E-02	6.660
U-231	+	84.21		4.164E+02	5.892E+01	5.239E+01	4.750E+00	7.948

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.29		2.582E+03	2.365E+02	2.155E+01	1.965E+00	119.820
	+	95.87	*	9.618E+01	2.011E+01	8.400E+00	7.459E-01	11.451
	+	108.00		9.081E+01	1.831E+01	1.554E+01	1.307E+00	5.842
TH-232	+	338.32		1.421E+00	6.235E-01	6.974E-01	8.294E-02	2.037
	+	911.07	*	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
	+	969.11		1.471E+00	8.547E-01	4.987E-01	1.204E-01	2.950
PA-234M	+	766.42		7.035E+02	3.633E+02	3.118E+01	1.596E+01	22.564
	+	1001.03	*	6.952E+02	8.355E+01	1.052E+01	1.205E+00	66.094
TH-234	+	63.29	*	4.764E+02	8.335E+01	7.162E+00	1.247E+00	66.510
	+	92.38		4.927E+02	9.038E+01	4.109E+00	7.529E-01	119.888
U-234	+	609.31	*	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
	+	1120.29		1.529E+00	6.180E-01	5.260E-01	5.812E-02	2.906
	+	1764.49		1.922E+00	4.969E-01	2.886E-01	2.404E-02	6.660
U-235		89.95		3.046E+01	1.123E+01	9.173E+00	2.849E+00	3.320
	+	93.35		5.923E+02	1.670E+02	4.911E+00	1.383E+00	120.597
	+	105.00		1.349E+01	6.037E+00	5.810E+00	1.732E+00	2.323
	+	143.76	*	2.807E+01	5.099E+00	1.034E+00	1.823E-01	27.160
	+	163.35		3.086E+01	6.499E+00	2.260E+00	4.426E-01	13.658
	+	185.71		3.049E+01	3.217E+00	1.879E-01	1.968E-02	162.246
	+	205.31		3.085E+01	6.504E+00	1.938E+00	3.945E-01	15.922
U-238	+	63.29	*	4.764E+02	8.335E+01	7.162E+00	1.247E+00	66.510
	+	92.38		4.927E+02	4.512E+01	4.109E+00	3.744E-01	119.888
AM-241	+	59.54	*	4.754E+00	1.529E+00	8.963E-01	7.006E-02	5.305
AM-243	+	74.67	*	5.023E-01	2.740E-01	3.503E-01	2.855E-02	1.434
		86.72		-3.567E+02	5.768E+01	6.275E+01	5.863E+00	-5.684
		117.66		-2.449E+01	1.928E+01	2.042E+01	1.687E+00	-1.199
		142.18		1.592E+03	1.606E+02	1.439E+02	1.271E+01	11.061
ANH-511	+	511.00	*	1.897E-01	1.314E-01	8.042E-02	8.058E-03	2.359

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.060E-01	6.415E-01	1.047E+00	1.093E-01	0.197
NA-22		1274.54	*	-2.197E-02	5.156E-02	8.273E-02	7.129E-03	-0.266
NA-24		1368.53	*	-5.468E+00	5.156E-02	Half-Life too short		
AL-26		1129.67		-1.798E-01	2.377E+00	3.245E+00	2.826E-01	-0.055
		1808.65	*	3.815E-02	3.572E-02	6.595E-02	5.394E-03	0.578
TI-44		67.85		-2.140E-01	1.740E-01	2.689E-01	2.052E-02	-0.796
	+	78.38	*	4.093E-01	1.400E-01	2.297E-01	1.948E-02	1.781
SC-46		889.25	*	3.367E-02	6.600E-02	9.713E-02	1.087E-02	0.347
	+	1120.51		2.659E-01	1.060E-01	1.416E-01	1.252E-02	1.878
V-48		944.10		5.579E+00	1.936E+00	3.099E+00	3.362E-01	1.800
		983.50	*	1.189E-01	1.072E-01	1.858E-01	1.949E-02	0.640
		1312.09		-2.788E-02	1.019E-01	1.646E-01	1.450E-02	-0.169
CR-51		320.08	*	1.110E-01	7.272E-01	1.221E+00	1.582E-01	0.091
MN-52		744.21		5.002E+00	9.279E-01	1.355E+00	1.472E-01	3.692
		848.13		2.657E+00	1.331E+01	2.237E+01	2.491E+00	0.119
		935.52		3.561E-01	4.445E-01	7.623E-01	8.322E-02	0.467

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1246.25			-2.530E-01	1.172E+01	1.800E+01	1.521E+00	-0.014
	1333.61			-2.391E+00	7.348E+00	1.177E+01	1.050E+00	-0.203
	1434.06	*		5.968E-01	4.068E-01	7.360E-01	6.577E-02	0.811
MN-54	834.83	*		-3.870E-02	5.745E-02	9.275E-02	1.030E-02	-0.417
CO-56	846.75	*		-1.545E-02	6.262E-02	1.031E-01	1.148E-02	-0.150
	977.42			-4.656E+00	5.140E+00	6.621E+00	6.983E-01	-0.703
	1037.82			-3.061E-01	4.061E-01	6.287E-01	6.483E-02	-0.487
	1175.09			9.134E-03	2.528E+00	4.219E+00	3.397E-01	0.002
+	1238.25			1.729E-01	1.532E-01	2.114E-01	1.831E-02	0.818
	1360.21			-5.295E-02	1.174E+00	1.922E+00	1.717E-01	-0.028
	1771.40			6.479E-03	2.970E-01	4.159E-01	3.455E-02	0.016
CO-58	810.76	*		4.618E-03	6.470E-02	1.086E-01	1.202E-02	0.043
FE-59	142.65	+		3.731E+02	3.689E+01	2.510E+01	2.221E+00	14.864
	192.34			2.987E+00	2.742E+00	3.771E+00	5.600E-01	0.792
	1099.22	*		-1.523E-02	1.153E-01	1.857E-01	1.820E-02	-0.082
	1291.56			6.565E-02	1.477E-01	2.517E-01	2.481E-02	0.261
CO-60	1173.22			-7.933E-03	5.032E-02	8.311E-02	6.684E-03	-0.095
	1332.49	*		-2.489E-02	4.517E-02	7.087E-02	6.320E-03	-0.351
ZN-65	1115.52	*		8.241E-03	1.277E-01	1.771E-01	1.580E-02	0.047
GE-68	1077.35	*		9.505E-01	1.473E+00	2.500E+00	2.356E-01	0.380
AS-74	595.88	*		-3.363E-02	1.687E-01	2.775E-01	2.877E-02	-0.121
	634.78			-9.620E-01	6.609E-01	1.012E+00	1.061E-01	-0.951
SE-75	66.05			-5.457E+01	1.961E+01	2.686E+01	2.563E+00	-2.032
	96.73			4.197E+01	7.210E+00	5.858E+00	8.063E-01	7.165
+	121.11			1.715E+00	6.239E-01	7.942E-01	8.682E-02	2.159
	136.00			-3.426E-02	1.309E-01	2.049E-01	1.778E-02	-0.167
	198.60			1.218E+00	6.317E+00	6.666E+00	7.791E-01	0.183
	264.65	*		-1.436E-02	9.457E-02	1.459E-01	1.964E-02	-0.098
	279.53			4.477E-02	2.244E-01	3.607E-01	5.120E-02	0.124
	303.91			-5.258E+00	4.068E+00	6.478E+00	9.872E-01	-0.812
	400.65			-6.315E-03	4.749E-01	7.793E-01	9.121E-02	-0.008
BR-77	87.88			-1.230E+04	2.468E+03	2.256E+03	2.139E+02	-5.452
	200.40			1.980E+03	7.975E+02	1.178E+03	1.296E+02	1.680
+	239.00			4.821E+02	7.579E+01	8.315E+01	1.035E+01	5.798
	249.79			-3.300E+01	2.423E+02	3.899E+02	5.013E+01	-0.085
	281.68			-3.344E+02	3.240E+02	4.976E+02	6.932E+01	-0.672
	297.23			5.717E+02	2.233E+02	3.334E+02	4.484E+01	1.715
	303.76			-7.499E+02	5.978E+02	9.587E+02	1.268E+02	-0.782
	439.47			5.376E+01	4.653E+02	7.604E+02	7.319E+01	0.071
	484.57			-1.791E+02	7.496E+02	1.199E+03	1.185E+02	-0.149
	520.65	*		1.701E+01	3.658E+01	5.619E+01	5.655E+00	0.303
	574.64			-4.235E+02	7.428E+02	1.030E+03	1.060E+02	-0.411
	578.91			7.576E+01	2.972E+02	4.307E+02	4.439E+01	0.176
	585.48			3.521E+03	7.516E+02	1.145E+03	1.182E+02	3.076
	755.35			2.407E+02	5.195E+02	8.572E+02	9.346E+01	0.281
SR-82	817.79			-6.066E+01	3.668E+02	6.085E+02	6.738E+01	-0.100
	698.33			2.948E+00	6.429E+01	1.052E+02	1.125E+01	0.028
	776.49	*		-9.651E-01	8.062E-01	1.160E+00	1.272E-01	-0.832
	1395.20			3.074E+00	1.368E+01	2.288E+01	2.046E+00	0.134

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RB-83	520.41	*		5.982E-02	1.400E-01	2.147E-01	2.161E-02	0.279
	529.64			-8.021E-02	1.948E-01	3.217E-01	3.251E-02	-0.249
	552.65			-3.924E-01	3.527E-01	5.615E-01	5.730E-02	-0.699
KR-85	513.99	*		3.503E+01	1.440E+01	2.175E+01	2.182E+00	1.611
SR-85	513.99	*		1.833E-01	7.536E-02	1.138E-01	1.142E-02	1.611
RB-86	1076.63	*		3.531E-01	1.006E+00	1.677E+00	1.582E-01	0.211
Y-88	898.02			-6.638E-03	6.088E-02	1.003E-01	1.127E-02	-0.066
	1836.01	*		8.519E-02	4.701E-02	8.463E-02	6.843E-03	1.007
ZR-88	392.90	*		-4.831E-03	5.852E-02	9.599E-02	8.938E-03	-0.050
Y-91	1204.90	*		-2.273E+01	2.059E+01	3.156E+01	2.595E+00	-0.720
NB-94	702.63	*		1.718E-02	6.133E-02	1.011E-01	1.083E-02	0.170
	871.10			-1.679E-02	6.000E-02	8.349E-02	9.326E-03	-0.201
NB-95M	235.69	*		8.957E-02	2.919E-01	4.178E-01	5.523E-02	0.214
ZR-95	724.18			1.859E-01	1.800E-01	2.648E-01	3.019E-02	0.702
	756.15	*		1.045E-01	1.351E-01	2.153E-01	2.499E-02	0.485
NB-97	657.90	*		7.468E+00	1.351E-01	Half-Life	too short	
	1024.50			1.727E+01	1.351E-01	Half-Life	too short	
ZR-97	254.15			-1.228E+01	1.351E-01	Half-Life	too short	
	355.39			3.337E+01	1.351E-01	Half-Life	too short	
	507.63	*		5.980E+01	1.351E-01	Half-Life	too short	
	602.52			4.260E+01	1.351E-01	Half-Life	too short	
	1021.30			-3.805E+01	1.351E-01	Half-Life	too short	
	1147.95			-3.981E+01	1.351E-01	Half-Life	too short	
	1362.66			2.400E+01	1.351E-01	Half-Life	too short	
	1750.46			-1.861E+01	1.351E-01	Half-Life	too short	
MO-99	140.51			-2.599E+01	1.475E+02	2.187E+02	6.067E+01	-0.119
	181.06			1.026E+01	9.362E+01	1.366E+02	2.614E+01	0.075
	366.43			-8.347E+00	2.540E+02	4.198E+02	4.453E+01	-0.020
	739.58	*		1.624E+02	5.359E+01	7.522E+01	1.245E+01	2.159
	778.00			-7.819E+01	1.141E+02	1.640E+02	1.800E+01	-0.477
TC-99M	140.51	*		-4.726E+12	1.141E+02	Half-Life	too short	
RH-101	127.23			-7.474E-02	1.192E-01	1.650E-01	1.379E-02	-0.453
	198.01	*		6.958E-03	1.148E-01	1.205E-01	1.314E-02	0.058
	325.23			7.031E-02	4.125E-01	6.921E-01	8.603E-02	0.102
RH-102	418.52			-6.771E-01	5.232E-01	8.117E-01	7.703E-02	-0.834
	475.06	*		6.773E-02	5.697E-02	9.511E-02	9.353E-03	0.712
	631.29			8.211E-02	9.042E-02	1.538E-01	1.611E-02	0.534
	697.49			-6.747E-03	1.381E-01	2.253E-01	2.409E-02	-0.030
+	766.84			6.695E+00	8.638E-01	7.612E-01	8.326E-02	8.796
	1046.59			5.377E-02	1.500E-01	2.456E-01	2.408E-02	0.219
	1112.84			1.459E-01	3.029E-01	4.377E-01	3.918E-02	0.333
RU-103	497.08	*		1.142E-02	7.755E-02	1.255E-01	1.883E-02	0.091
+	610.33			1.543E+01	3.604E+00	3.375E+00	5.966E-01	4.571
RH-106	511.85	+		9.511E-01	6.589E-01	5.704E-01	5.717E-02	1.668
	621.84	*		9.987E-03	5.316E-01	8.786E-01	1.283E-01	0.011
	1050.47			-2.516E+00	2.891E+00	4.423E+00	4.317E-01	-0.569
RU-106	511.85	+		9.511E-01	6.589E-01	5.704E-01	5.717E-02	1.668
	621.84	*		9.987E-03	5.316E-01	8.786E-01	9.177E-02	0.011
	1050.47			-2.516E+00	2.891E+00	4.423E+00	4.317E-01	-0.569



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AG-108M	433.93	*	-8.515E-03	5.985E-02	9.707E-02	9.609E-03	-0.088	
	614.37		4.682E-02	7.163E-02	1.053E-01	1.127E-02	0.445	
	722.95		7.289E-03	7.583E-02	1.064E-01	1.177E-02	0.069	
CD-109	88.03	*	-3.022E+01	6.442E+00	6.028E+00	5.721E-01	-5.012	
AG-110M	657.75	*	3.057E-01	8.555E-02	1.315E-01	1.414E-02	2.324	
	677.61		-3.169E-01	5.036E-01	8.006E-01	8.656E-02	-0.396	
	706.67		7.802E-02	3.802E-01	6.250E-01	6.827E-02	0.125	
	763.93		8.051E+00	1.046E+00	1.090E+00	1.212E-01	7.389	
	884.67		1.999E-01	9.318E-02	1.471E-01	1.678E-02	1.359	
	937.48		1.775E-02	1.591E-01	2.540E-01	2.833E-02	0.070	
	1384.27		-3.584E-01	2.115E-01	2.921E-01	2.680E-02	-1.227	
IN-111	171.28		-2.322E-02	4.664E+00	7.760E+00	7.745E-01	-0.003	
	245.39	*	2.805E+00	4.005E+00	5.773E+00	7.325E-01	0.486	
IN-113M	391.69	*	-6.584E-02	8.524E-02	1.365E-01	1.304E-02	-0.482	
SN-113	391.69	*	-6.584E-02	8.524E-02	1.365E-01	1.304E-02	-0.482	
IN-114M	190.27	*	1.945E-02	6.605E-01	6.922E-01	7.359E-02	0.028	
CD-115	260.90		8.634E+02	5.743E+02	8.332E+02	1.107E+02	1.036	
	492.35		-1.700E+01	1.219E+02	1.954E+02	1.939E+01	-0.087	
	527.90	*	1.705E+01	3.616E+01	6.144E+01	6.205E+00	0.277	
SN-117M	156.02		-4.133E+00	7.146E+00	1.186E+01	1.112E+00	-0.349	
	158.56	*	-4.957E-02	1.979E-01	2.901E-01	2.752E-02	-0.171	
SB-122	563.90	*	-6.432E-01	6.971E+00	9.958E+00	1.021E+00	-0.065	
	692.80		9.184E+01	1.258E+02	2.107E+02	2.250E+01	0.436	
I-123	159.00	*	-5.392E+01	1.258E+02	Half-Life	too short		
	528.96		-1.249E+03	1.258E+02	Half-Life	too short		
TE-123M	159.00	*	-2.357E-02	9.433E-02	1.382E-01	1.320E-02	-0.170	
I-124	602.71	*	8.474E-01	1.730E+00	2.526E+00	2.623E-01	0.336	
	722.78		3.712E-01	1.087E+01	1.519E+01	1.639E+00	0.024	
	1325.50		2.754E+01	5.487E+01	9.398E+01	8.346E+00	0.293	
	1376.25		8.582E+01	5.367E+01	9.739E+01	8.704E+00	0.881	
	1509.49		7.400E+01	3.101E+01	5.832E+01	5.183E+00	1.269	
	1691.02		4.346E+00	6.428E+00	1.140E+01	9.745E-01	0.381	
SB-124	602.71		3.661E-02	7.472E-02	1.091E-01	1.133E-02	0.336	
	645.85		-1.498E-01	8.751E-01	1.430E+00	1.564E-01	-0.105	
	709.31		7.365E-03	5.029E+00	8.203E+00	8.812E-01	0.001	
	713.82		8.953E-01	2.904E+00	4.718E+00	6.441E-01	0.190	
	722.78		2.325E-02	6.807E-01	9.510E-01	1.040E-01	0.024	
	+ 968.20		1.548E+01	8.346E+00	7.967E+00	8.471E-01	1.944	
	1045.16		2.979E+00	3.159E+00	5.444E+00	5.348E-01	0.547	
	1325.50		1.842E+00	3.670E+00	6.286E+00	5.582E-01	0.293	
	1368.21		-4.444E-01	2.211E+00	3.571E+00	4.885E-01	-0.124	
	1436.60		3.877E+00	5.211E+00	9.010E+00	8.052E-01	0.430	
	1691.02	*	6.419E-02	9.495E-02	1.683E-01	1.497E-02	0.381	
SB-125	427.89	*	-4.937E-02	1.688E-01	2.727E-01	2.646E-02	-0.181	
	463.38		4.511E-01	5.215E-01	8.655E-01	8.975E-02	0.521	
	600.56		6.668E-02	3.220E-01	4.989E-01	5.444E-02	0.134	
	635.90		-2.759E-01	4.602E-01	7.384E-01	8.169E-02	-0.374	
I-126	388.63		3.661E-01	4.250E-01	7.151E-01	6.771E-02	0.512	
	666.33	*	6.404E-02	4.067E-01	5.775E-01	6.102E-02	0.111	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126		753.82		1.435E+00	2.919E+00	4.822E+00	5.255E-01	0.298
		223.80		-6.392E+00	9.921E+00	1.590E+01	1.886E+00	-0.402
		278.60		4.346E+00	5.680E+00	9.217E+00	1.288E+00	0.471
	+	296.50		1.521E+01	4.974E+00	5.763E+00	7.764E-01	2.639
		414.70		3.993E-04	1.537E-01	2.515E-01	2.380E-02	0.002
		415.30		9.192E+00	1.256E+01	2.099E+01	1.987E+00	0.438
		555.20		2.239E+00	7.869E+00	1.325E+01	1.354E+00	0.169
		573.80		-1.131E+00	2.359E+00	3.291E+00	3.385E-01	-0.344
		593.00		-4.218E-01	1.772E+00	2.913E+00	3.016E-01	-0.145
		656.30		4.900E-01	7.285E+00	1.031E+01	1.086E+00	0.048
		666.33		2.688E-02	1.707E-01	2.424E-01	2.561E-02	0.111
		675.00		-7.118E-01	3.626E+00	5.891E+00	6.246E-01	-0.121
		695.00		-1.345E-01	1.581E-01	2.490E-01	2.660E-02	-0.540
		697.00		-2.278E-01	5.425E-01	8.715E-01	9.319E-02	-0.261
		720.50	*	-2.771E-01	3.149E-01	4.126E-01	4.449E-02	-0.672
		856.80		-7.650E-01	8.331E-01	1.322E+00	1.474E-01	-0.579
		989.30		-4.819E+00	2.051E+00	2.783E+00	2.903E-01	-1.732
		1034.80		-3.860E+00	1.225E+01	1.958E+01	1.947E+00	-0.197
		1213.00		1.718E+00	5.560E+00	9.427E+00	7.794E-01	0.182
SN-126	+	64.28		1.886E+02	2.753E+01	6.054E+00	8.793E-01	31.144
SB-127		86.94		-1.302E+01	5.691E+00	2.375E+00	9.861E-01	-5.483
		87.57	*	-3.621E+00	5.907E-01	5.756E-01	5.435E-02	-6.291
	+	61.10		3.353E+03	7.546E+02	6.010E+02	6.455E+01	5.579
		252.40		-6.621E+00	1.483E+01	2.017E+01	8.732E+00	-0.328
		290.80		4.384E+01	6.496E+01	9.715E+01	1.537E+01	0.451
		411.60		2.623E+01	3.137E+01	5.223E+01	8.672E+00	0.502
		444.90		-1.170E+01	2.596E+01	4.150E+01	5.714E+00	-0.282
		473.00		4.957E-02	4.562E+00	7.380E+00	1.047E+00	0.007
		543.00		9.852E+00	4.303E+01	7.241E+01	1.144E+01	0.136
		603.60		1.821E+01	3.098E+01	4.535E+01	6.471E+00	0.402
		685.20	*	-4.429E+00	3.366E+00	5.118E+00	6.908E-01	-0.865
		698.50		3.200E-01	3.832E+01	6.261E+01	1.092E+01	0.005
		722.20		-3.071E+01	7.841E+01	1.064E+02	1.428E+01	-0.289
		783.80		4.659E+01	1.420E+01	2.029E+01	2.969E+00	2.297
XE-127	+	57.60		1.269E+02	5.319E+01	4.248E+01	3.051E+00	2.988
	+	145.22		9.623E+01	9.513E+00	5.988E+00	5.355E-01	16.071
		172.10		8.040E-02	3.635E-01	6.063E-01	6.068E-02	0.133
	+	202.84	*	6.590E-01	1.670E-01	2.351E-01	2.606E-02	2.803
		374.96		3.143E-01	3.708E-01	6.259E-01	6.372E-02	0.502
I-131		80.18		1.433E+01	3.149E+01	3.649E+01	3.182E+00	0.393
		284.30		5.900E-01	3.536E+00	5.672E+00	8.024E-01	0.104
		364.48	*	-1.430E-01	2.507E-01	4.070E-01	4.514E-02	-0.351
		636.97		-1.233E+00	3.124E+00	5.061E+00	5.516E-01	-0.244
		722.89		1.119E+00	1.506E+01	2.109E+01	2.288E+00	0.053
TE-132		49.72		1.826E+02	1.172E+02	1.781E+02	1.947E+01	1.025
	+	111.76		1.553E+03	3.153E+02	3.818E+02	4.263E+01	4.068
		116.30		3.047E+02	1.792E+02	2.348E+02	2.612E+01	1.298
		228.16	*	1.662E+00	2.229E+00	3.653E+00	6.628E-01	0.455
BA-133	+	53.15		8.360E+01	2.783E+01	2.412E+01	1.830E+00	3.466

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	79.62		-8.151E+00	7.655E+00	8.525E+00	1.297E+00	-0.956
		81.00		2.459E-01	5.796E-01	6.696E-01	1.067E-01	0.367
		276.40		9.688E-01	7.821E-01	1.260E+00	2.280E-01	0.769
		302.84		-2.457E-01	2.733E-01	4.438E-01	7.401E-02	-0.554
		356.01	*	3.695E-02	9.189E-02	1.342E-01	2.005E-02	0.275
		383.85		-4.652E-01	5.594E-01	8.924E-01	1.194E-01	-0.521
		510.53		8.985E+00	5.594E-01	Half-Life	too short	
		529.87	*	-2.001E-02	5.594E-01	Half-Life	too short	
		706.58		8.406E-01	5.594E-01	Half-Life	too short	
		856.28		-3.922E+00	5.594E-01	Half-Life	too short	
		875.33		1.269E-01	5.594E-01	Half-Life	too short	
		1236.41		9.054E+00	5.594E-01	Half-Life	too short	
CS-134	+	1298.22		-9.111E-01	5.594E-01	Half-Life	too short	
		475.35		4.263E+00	3.719E+00	6.203E+00	6.101E-01	0.687
		563.23		-1.133E-01	7.397E-01	1.053E+00	1.087E-01	-0.108
		569.32		2.924E-01	4.999E-01	6.260E-01	6.491E-02	0.467
		604.70		2.446E-02	6.399E-02	9.289E-02	9.672E-03	0.263
		795.84	*	1.035E-01	8.474E-02	1.422E-01	1.574E-02	0.728
		801.93		-1.279E+00	7.337E-01	1.068E+00	1.182E-01	-1.198
		1038.57		-2.920E+00	4.909E+00	7.691E+00	7.615E-01	-0.380
		1167.94		1.427E-01	2.859E+00	4.787E+00	3.890E-01	0.030
		1365.15		8.376E-01	1.467E+00	2.525E+00	2.352E-01	0.332
CS-135		268.24	*	7.344E-02	3.231E-01	5.215E-01	7.543E-02	0.141
I-135		288.45		2.312E+12	3.231E-01	Half-Life	too short	
		417.63		-2.676E+12	3.231E-01	Half-Life	too short	
		546.56		3.349E+12	3.231E-01	Half-Life	too short	
		836.80		2.123E+11	3.231E-01	Half-Life	too short	
		1038.76		-2.123E+12	3.231E-01	Half-Life	too short	
		1124.00		1.678E+13	3.231E-01	Half-Life	too short	
		1131.51		-1.227E+11	3.231E-01	Half-Life	too short	
		1260.41	*	-5.185E+11	3.231E-01	Half-Life	too short	
		1457.56		1.192E+14	3.231E-01	Half-Life	too short	
		1678.03		-5.484E+09	3.231E-01	Half-Life	too short	
		1706.46		-1.196E+12	3.231E-01	Half-Life	too short	
		1791.20		-6.461E+11	3.231E-01	Half-Life	too short	
CS-136		66.91		-1.035E+01	3.751E+00	4.850E+00	7.214E-01	-2.135
		86.29		-1.312E+01	6.161E+00	8.360E+00	1.113E+00	-1.569
		153.22		1.545E+00	2.085E+00	3.521E+00	3.596E-01	0.439
	+	163.89		7.736E+01	1.017E+01	8.653E+00	9.215E-01	8.940
		176.55		-5.700E-01	1.207E+00	1.987E+00	2.103E-01	-0.287
		273.65		-1.560E+00	1.070E+00	1.614E+00	2.284E-01	-0.967
		340.57		6.430E-01	2.959E-01	4.479E-01	5.366E-02	1.436
		818.51		-4.799E-02	1.304E-01	2.143E-01	2.375E-02	-0.224
		1048.07	*	-2.924E-02	1.537E-01	2.429E-01	2.457E-02	-0.120
		1235.34		1.814E+00	9.290E-01	1.475E+00	1.724E-01	1.230
CE-139		165.85	*	2.872E-01	1.045E-01	1.556E-01	1.526E-02	1.845
BA-140	+	162.64		5.463E+01	6.967E+00	6.086E+00	6.154E-01	8.977
		304.84		-1.967E+00	2.705E+00	4.351E+00	1.295E+00	-0.452
		423.70		2.750E+00	3.850E+00	6.266E+00	2.047E+00	0.439

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140	537.32	*		4.483E-02	5.167E-01	8.667E-01	2.909E-01	0.052
	328.77			5.167E-01	6.038E-01	1.024E+00	1.294E-01	0.504
	432.53			-2.762E+00	4.231E+00	6.731E+00	6.705E-01	-0.410
	487.03			2.624E-02	2.830E-01	4.579E-01	4.746E-02	0.057
	751.79			-1.070E+00	3.438E+00	5.369E+00	6.247E-01	-0.199
	815.85			-9.685E-02	5.594E-01	9.280E-01	1.100E-01	-0.104
	867.82			-1.204E+00	2.387E+00	3.866E+00	4.454E-01	-0.311
	919.63			-1.128E+01	6.036E+00	7.485E+00	9.498E-01	-1.507
	925.24			5.193E+00	2.141E+00	3.780E+00	4.320E-01	1.374
	1596.49	*		-1.852E-01	1.296E-01	1.870E-01	1.640E-02	-0.990
CE-141	145.44	*		5.525E+00	5.708E-01	5.065E-01	4.611E-02	10.908
CE-143	57.37		+	5.589E-02	5.708E-01	Half-Life	too short	
	231.56			-5.274E-03	5.708E-01	Half-Life	too short	
	293.26	*		1.848E-03	5.708E-01	Half-Life	too short	
	350.59		+	8.282E-02	5.708E-01	Half-Life	too short	
	490.36			-4.326E-03	5.708E-01	Half-Life	too short	
	664.57			1.271E-01	5.708E-01	Half-Life	too short	
	721.93			-2.373E-03	5.708E-01	Half-Life	too short	
CE-144	80.11			4.486E+00	1.233E+01	1.427E+01	1.233E+00	0.314
	133.54	*		3.187E-01	7.152E-01	1.075E+00	1.669E-01	0.296
PM-144	476.78			7.742E-02	1.309E-01	2.154E-01	2.274E-02	0.359
	618.01			3.893E-03	5.469E-02	8.865E-02	9.425E-03	0.044
	696.49	*		-2.933E-02	6.274E-02	1.006E-01	1.076E-02	-0.292
	778.57			-1.402E+00	4.902E+00	6.949E+00	7.627E-01	-0.202
PR-144	696.49	*		-1.989E+00	4.256E+00	6.822E+00	7.294E-01	-0.292
	1489.15			-1.060E+01	1.540E+01	2.335E+01	2.080E+00	-0.454
PM-146	453.90	*		4.092E-02	8.549E-02	1.407E-01	1.635E-02	0.291
	633.02			-6.662E-01	2.337E+00	3.786E+00	1.433E+00	-0.176
	735.90			1.162E-01	3.392E-01	4.560E-01	1.338E-01	0.255
	747.13			-9.863E-02	1.955E-01	2.623E-01	4.073E-02	-0.376
ND-147	91.11		+	2.798E+02	2.751E+01	5.044E+00	4.984E-01	55.474
	319.41			2.043E+00	7.032E+00	1.185E+01	1.500E+00	0.172
	439.89			-8.806E-01	1.227E+01	1.993E+01	1.919E+00	-0.044
	531.02	*		-5.980E-01	1.154E+00	1.892E+00	3.001E-01	-0.316
PM-149	285.90	*		-2.358E+02	3.414E+02	5.296E+02	1.002E+02	-0.445
EU-152	121.78		+	9.155E-01	3.297E-01	4.233E-01	4.064E-02	2.163
	244.69			7.300E-01	7.712E-01	1.117E+00	1.414E-01	0.653
	344.27	*		3.428E-03	2.061E-01	2.979E-01	3.581E-02	0.012
	443.98			-2.554E-01	1.778E+00	2.878E+00	2.778E-01	-0.089
	778.89			1.562E-01	5.533E-01	8.090E-01	8.877E-02	0.193
	867.32			-1.425E+00	1.315E+00	2.058E+00	2.298E-01	-0.692
	964.01			6.889E-01	4.227E-01	6.601E-01	7.044E-02	1.044
	1085.78			-1.431E-01	4.713E-01	7.498E-01	6.986E-02	-0.191
	1112.02			3.354E-01	4.096E-01	6.298E-01	5.644E-02	0.533
	1407.95			3.221E-02	2.243E-01	3.719E-01	3.325E-02	0.087
GD-153	69.67			1.112E+01	6.410E+00	1.016E+01	7.888E-01	1.094
	83.37		+	8.303E+02	1.175E+02	1.225E+02	1.100E+01	6.776
	97.43	*	+	6.832E+00	7.500E-01	6.577E-01	5.784E-02	10.388
	103.18			6.084E-01	5.296E-01	6.094E-01	5.207E-02	0.998

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154		123.07		6.797E-02	1.983E-01	2.807E-01	3.114E-02	0.242
		247.94		2.747E-01	7.612E-01	1.239E+00	1.842E-01	0.222
		591.81		-6.563E-01	1.098E+00	1.735E+00	2.256E-01	-0.378
		723.30		5.290E-02	3.242E-01	4.565E-01	5.265E-02	0.116
		756.87		4.347E-01	1.512E+00	2.296E+00	3.149E-01	0.189
		873.19		1.474E-01	5.224E-01	7.571E-01	1.072E-01	0.195
		996.32		8.172E+00	1.746E+00	1.739E+00	3.247E-01	4.699
		1004.76		1.393E+01	1.944E+00	1.632E+00	2.106E-01	8.539
		1274.45	*	-6.313E-02	1.438E-01	2.304E-01	2.604E-02	-0.274
		48.70		4.693E+00	9.606E+00	1.460E+01	1.189E+00	0.321
EU-155	+	60.01		1.548E+02	4.951E+01	3.389E+01	2.407E+00	4.566
		86.54		-1.264E+00	5.051E-01	6.916E-01	6.504E-02	-1.828
	+	105.31	*	1.378E+00	4.747E-01	6.668E-01	5.724E-02	2.067
TB-160		86.79		-1.051E+01	1.711E+00	1.869E+00	1.748E-01	-5.623
		197.04		1.842E+00	2.020E+00	2.194E+00	2.386E-01	0.839
		215.65		-1.252E+00	1.649E+00	2.642E+00	3.053E-01	-0.474
		298.57		2.343E-01	2.399E-01	3.606E-01	4.833E-02	0.650
	+	879.36	*	1.298E+00	4.841E-01	4.487E-01	5.018E-02	2.892
		962.29		9.789E-01	7.467E-01	1.153E+00	1.232E-01	0.849
		966.15		1.414E+00	3.758E-01	6.075E-01	6.471E-02	2.327
		1177.93		-4.689E-02	4.070E-01	6.737E-01	5.436E-02	-0.070
		1271.85		1.347E-01	8.142E-01	1.364E+00	1.172E-01	0.099
		80.57		2.140E+00	1.571E+00	1.838E+00	1.597E-01	1.164
HO-166M	+	184.41		2.287E+01	2.413E+00	5.785E-01	6.032E-02	39.524
		280.46		-8.698E-02	1.747E-01	2.750E-01	3.841E-02	-0.316
		410.95		1.488E-01	4.426E-01	7.322E-01	6.912E-02	0.203
		711.68	*	-6.666E-02	1.094E-01	1.711E-01	1.839E-02	-0.390
		752.31		7.955E-02	4.844E-01	7.908E-01	8.614E-02	0.101
		810.29		1.360E-02	9.553E-02	1.608E-01	1.778E-02	0.085
TM-171		51.35		1.790E+02	1.268E+02	1.934E+02	1.509E+01	0.926
	+	52.39		3.488E+02	1.161E+02	1.047E+02	8.039E+00	3.330
	+	59.40		8.149E+02	2.607E+02	1.807E+02	1.277E+01	4.509
		66.72	*	-3.629E+02	1.157E+02	1.589E+02	1.201E+01	-2.283
LU-176		88.36		-1.402E-01	1.272E+00	1.447E+00	1.369E-01	-0.097
	+	201.83		3.892E-01	9.861E-02	1.227E-01	1.356E-02	3.172
		306.84	*	1.823E-02	4.621E-02	7.826E-02	1.027E-02	0.233
LU-177		401.10		-3.177E+00	1.233E+01	2.006E+01	1.880E+00	-0.158
	+	112.95		1.328E+02	1.480E+01	1.648E+01	1.370E+00	8.059
		208.36	*	2.547E+00	3.263E+00	4.770E+00	5.384E-01	0.534
LU-177M	+	52.97		3.765E+01	1.253E+01	1.097E+01	8.348E-01	3.432
	+	54.07		2.134E+01	7.102E+00	5.776E+00	4.326E-01	3.694
	+	61.30		6.229E+01	1.311E+01	1.232E+01	8.860E-01	5.058
	+	121.62		4.734E+00	1.689E+00	2.194E+00	1.807E-01	2.158
		147.16		-7.108E-01	2.108E+00	3.105E+00	2.800E-01	-0.229
		171.86		3.260E-01	1.424E+00	2.376E+00	2.376E-01	0.137
		218.09		-7.259E-01	1.865E+00	3.017E+00	3.515E-01	-0.241
		268.79		1.039E+00	1.655E+00	2.688E+00	3.654E-01	0.387
		319.02		2.020E-02	4.905E-01	8.217E-01	1.041E-01	0.025
		367.43		8.231E-01	1.678E+00	2.812E+00	2.969E-01	0.293

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HF-181		413.65	*	-1.053E-01	3.277E-01	5.308E-01	5.020E-02	-0.198
	+	56.28		1.847E+01	7.739E+00	6.429E+00	4.683E-01	2.873
	+	57.53		1.059E+01	4.437E+00	3.552E+00	2.553E-01	2.981
		65.20		4.360E+01	5.254E+00	6.849E+00	5.106E-01	6.365
		133.02		2.868E-01	2.378E-01	3.611E-01	3.078E-02	0.794
		136.25		-3.335E-01	1.559E+00	2.442E+00	2.107E-01	-0.137
TA-182		345.85		-2.614E-01	4.277E-01	6.006E-01	6.946E-02	-0.435
		482.03	*	-3.797E-02	8.290E-02	1.315E-01	1.298E-02	-0.289
		67.75		-6.313E-01	4.210E-01	6.465E-01	4.931E-02	-0.976
		100.10		7.192E+00	1.128E+00	1.246E+00	1.080E-01	5.771
		152.43		8.284E-01	9.801E-01	1.658E+00	1.530E-01	0.500
		222.10		4.132E-01	7.685E-01	1.265E+00	1.493E-01	0.327
	+	1001.68		3.098E+02	3.386E+01	2.328E+01	2.399E+00	13.304
	+	1121.28		7.313E-01	2.916E-01	3.872E-01	3.419E-02	1.889
		1189.05		-3.320E-01	3.751E-01	5.902E-01	4.800E-02	-0.563
		1221.42	*	3.810E-02	2.239E-01	3.759E-01	3.126E-02	0.101
RE-184		1230.97		-1.523E-01	6.456E-01	8.928E-01	7.472E-02	-0.171
	+	57.98		1.516E+01	6.351E+00	5.019E+00	3.592E-01	3.020
	+	59.32		1.237E+01	3.957E+00	2.750E+00	1.945E-01	4.498
		67.20		-8.673E+00	3.027E+00	4.194E+00	3.183E-01	-2.068
		161.27		7.863E+00	1.481E+00	2.073E+00	1.991E-01	3.793
		216.55		1.724E-01	5.722E-01	9.405E-01	1.090E-01	0.183
		252.85	*	-3.792E-01	5.640E-01	7.726E-01	1.002E-01	-0.491
		318.01		3.183E-01	8.412E-01	1.421E+00	1.806E-01	0.224
		792.07		-2.171E-01	2.128E+00	2.915E+00	3.209E-01	-0.074
		903.28		2.711E-01	1.633E+00	2.341E+00	2.614E-01	0.116
		920.93		-1.018E+00	8.068E-01	1.149E+00	1.268E-01	-0.886
	+	59.72		9.223E+00	2.950E+00	2.026E+00	1.434E-01	4.553
OS-185	+	61.14		6.854E+00	1.442E+00	1.235E+00	8.872E-02	5.549
		69.30		1.564E+00	1.102E+00	1.829E+00	1.415E-01	0.855
		592.07		-2.697E+00	4.421E+00	7.153E+00	7.404E-01	-0.377
		646.12	*	9.895E-03	7.325E-02	1.212E-01	1.273E-02	0.082
		717.42		-1.704E-01	1.519E+00	2.463E+00	2.653E-01	-0.069
		874.81		3.278E-01	1.033E+00	1.501E+00	1.678E-01	0.218
	+	880.27		7.198E+00	2.685E+00	2.587E+00	2.893E-01	2.782
		155.03	*	-2.153E-01	4.998E-01	8.319E-01	7.765E-02	-0.259
RE-188		477.96		1.497E+00	6.130E+00	9.983E+00	9.833E-01	0.150
		633.10		-1.191E+00	4.785E+00	7.807E+00	8.179E-01	-0.153
	+	63.58		1.952E+04	1.472E+03	7.050E+02	5.180E+01	27.684
W-188		227.08		2.830E+01	2.809E+01	4.641E+01	5.563E+00	0.610
		290.67	*	1.178E+01	1.623E+01	2.433E+01	3.323E+00	0.484
	+	295.96		1.065E+00	3.485E-01	4.088E-01	5.531E-02	2.606
IR-192		308.46		3.703E-02	1.819E-01	3.068E-01	4.016E-02	0.121
		316.51	*	2.892E-02	6.563E-02	1.110E-01	1.419E-02	0.260
		468.07		-1.100E-01	1.314E-01	2.043E-01	2.113E-02	-0.538
		604.41		5.077E-01	8.688E-01	1.272E+00	1.813E-01	0.399
		612.46		4.845E+00	1.559E+00	2.394E+00	2.752E-01	2.024
AU-195		65.12		9.837E+00	1.036E+00	1.247E+00	9.290E-02	7.888
		66.83		-1.163E+00	3.841E-01	5.295E-01	4.005E-02	-2.196

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	75.70		1.638E+00	8.932E-01	1.188E+00	9.787E-02	1.378
	+	98.88	*	1.993E+01	2.188E+00	1.890E+00	1.648E-01	10.545
		129.76		7.889E+00	9.970E+00	1.511E+01	1.273E+00	0.522
TL-200		367.94	*	2.036E-03	9.970E+00	Half-Life	too short	
		579.30		1.637E-02	9.970E+00	Half-Life	too short	
		828.27		1.045E-02	9.970E+00	Half-Life	too short	
		1205.75		-9.862E-03	9.970E+00	Half-Life	too short	
TL-201		68.90		2.646E+01	2.688E+01	4.458E+01	3.436E+00	0.594
		70.82		2.485E+01	1.736E+01	2.585E+01	2.028E+00	0.961
		80.30		4.954E+01	4.481E+01	5.234E+01	4.534E+00	0.947
		135.34		2.474E+01	1.362E+02	2.041E+02	1.754E+01	0.121
		167.43	*	3.035E+00	3.521E+01	5.171E+01	5.097E+00	0.059
TL-202		68.90		1.713E+00	1.740E+00	2.886E+00	2.224E-01	0.594
		70.82		1.604E+00	1.121E+00	1.669E+00	1.309E-01	0.961
		80.30		3.199E+00	2.893E+00	3.380E+00	2.928E-01	0.947
		439.56	*	1.140E-02	1.435E-01	2.342E-01	2.255E-02	0.049
HG-203		70.83		6.434E+00	4.534E+00	6.673E+00	8.761E-01	0.964
		72.87		5.138E+00	2.678E+00	3.903E+00	5.000E-01	1.316
	+	82.60		6.317E+01	1.121E+01	8.835E+00	1.230E+00	7.149
		279.20	*	6.025E-02	8.678E-02	1.407E-01	1.991E-02	0.428
BI-207		72.80		1.405E+00	7.488E-01	1.112E+00	8.895E-02	1.264
	+	74.97		9.018E-01	4.919E-01	6.513E-01	5.325E-02	1.385
	+	84.90		1.068E+01	1.511E+00	1.525E+00	1.394E-01	7.004
	+	569.67		4.549E-02	7.777E-02	9.787E-02	1.005E-02	0.465
		1063.62	*	9.943E-03	6.607E-02	1.087E-01	1.044E-02	0.091
		1770.23		7.149E-01	6.876E-01	1.111E+00	9.232E-02	0.644
TL-207		81.07		6.117E-01	1.277E+00	1.479E+00	1.292E-01	0.414
	+	83.78		7.042E+00	9.963E-01	1.038E+00	9.360E-02	6.785
	+	94.90		1.435E+01	3.000E+00	2.226E+00	1.990E-01	6.445
	+	122.32		2.180E+01	7.810E+00	9.927E+00	8.834E-01	2.196
	+	144.24		9.097E+01	9.815E+00	6.249E+00	6.186E-01	14.558
		154.21		3.066E-01	1.135E+00	1.908E+00	1.928E-01	0.161
		269.46		4.829E-01	3.874E-01	6.321E-01	8.681E-02	0.764
		323.87	*	-7.475E-01	1.248E+00	2.038E+00	4.050E-01	-0.367
	+	338.28		5.932E+00	2.655E+00	3.418E+00	5.056E-01	1.735
		445.03		-2.018E+00	4.275E+00	6.829E+00	8.775E-01	-0.296
PO-209		260.50		7.759E+01	2.577E+01	3.680E+01	4.885E+00	2.108
		262.80		-9.659E+00	6.226E+01	8.685E+01	1.160E+01	-0.111
		896.60	*	4.037E+00	1.057E+01	1.785E+01	2.000E+00	0.226
BI-210		46.50	*	-1.333E+01	1.225E+01	2.025E+01	1.881E+00	-0.658
PB-210		46.50	*	-1.333E+01	1.225E+01	2.025E+01	1.881E+00	-0.658
PO-210		46.50	*	-1.333E+01	1.224E+01	2.025E+01	1.703E+00	-0.658
PB-211		404.84	*	-1.502E+00	1.966E+00	2.752E+00	1.728E+00	-0.546
		427.08		-6.895E-01	3.773E+00	6.082E+00	3.787E+00	-0.113
		831.96		-1.521E-01	1.879E+00	3.121E+00	1.968E+00	-0.049
PO-215		81.07		6.117E-01	1.277E+00	1.479E+00	1.292E-01	0.414
	+	83.78		7.042E+00	9.963E-01	1.038E+00	9.360E-02	6.785
	+	94.90		1.435E+01	3.000E+00	2.226E+00	1.990E-01	6.445
	+	122.32		2.180E+01	7.810E+00	9.927E+00	8.834E-01	2.196

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	144.24		9.097E+01	9.815E+00	6.249E+00	6.186E-01	14.558
		154.21		3.066E-01	1.135E+00	1.908E+00	1.928E-01	0.161
		269.46		4.829E-01	3.874E-01	6.321E-01	8.681E-02	0.764
		323.87	*	-7.475E-01	1.248E+00	2.038E+00	4.050E-01	-0.367
	+	338.28		5.932E+00	2.655E+00	3.418E+00	5.056E-01	1.735
		445.03		-2.018E+00	4.275E+00	6.829E+00	8.775E-01	-0.296
		271.23		2.657E-01	5.003E-01	8.106E-01	1.201E-01	0.328
		401.81	*	2.734E-01	7.575E-01	1.255E+00	1.942E-01	0.218
	RN-220	549.76	*	-6.843E+01	4.655E+01	7.280E+01	7.421E+00	-0.940
	RA-223	81.07		6.117E-01	1.277E+00	1.479E+00	1.292E-01	0.414
AC-227	+	83.78		7.042E+00	9.963E-01	1.038E+00	9.360E-02	6.785
	+	94.90		1.435E+01	3.000E+00	2.226E+00	1.990E-01	6.445
	+	122.32		2.180E+01	7.810E+00	9.927E+00	8.834E-01	2.196
	+	144.24		9.097E+01	9.815E+00	6.249E+00	6.186E-01	14.558
		154.21		3.066E-01	1.135E+00	1.908E+00	1.928E-01	0.161
		269.46		4.829E-01	3.874E-01	6.321E-01	8.681E-02	0.764
		323.87	*	-7.475E-01	1.248E+00	2.038E+00	4.050E-01	-0.367
	+	338.28		5.932E+00	2.655E+00	3.418E+00	5.056E-01	1.735
		445.03		-2.018E+00	4.275E+00	6.829E+00	8.775E-01	-0.296
		79.80		-7.941E+00	9.743E+00	1.087E+01	2.338E+00	-0.730
TH-227		236.00		9.739E-01	5.634E-01	8.127E-01	1.226E-01	1.198
		256.20	*	3.761E+00	1.186E+00	1.528E+00	2.788E-01	2.462
		286.10		-2.573E+00	3.146E+00	4.856E+00	8.276E-01	-0.530
		299.80		4.742E+00	3.100E+00	4.561E+00	9.237E-01	1.040
		304.40		-5.010E+00	3.688E+00	5.725E+00	1.201E+00	-0.875
		334.20		-1.180E+00	4.843E+00	6.941E+00	1.469E+00	-0.170
	+	79.80		-7.941E+00	9.747E+00	1.087E+01	2.368E+00	-0.730
	+	94.00		1.148E+02	3.321E+01	3.328E+01	7.298E+00	3.449
		236.00		9.739E-01	5.611E-01	8.127E-01	1.150E-01	1.198
		256.20	*	3.761E+00	1.239E+00	1.528E+00	3.144E-01	2.462
TH-229		286.10		-2.573E+00	4.056E+00	4.856E+00	4.902E+00	-0.530
		299.80		4.742E+00	3.100E+00	4.561E+00	9.237E-01	1.040
		304.40		-5.010E+00	3.688E+00	5.725E+00	1.201E+00	-0.875
		334.20		-1.180E+00	4.843E+00	6.941E+00	1.469E+00	-0.170
	+	85.43		1.054E+01	1.491E+00	1.443E+00	1.327E-01	7.307
		88.47		2.988E-01	7.343E-01	8.414E-01	7.948E-02	0.355
		100.00		8.415E+00	1.135E+00	1.324E+00	1.148E-01	6.357
	+	193.63	*	4.527E+00	1.565E+00	2.156E+00	2.318E-01	2.099
		210.97		1.882E+00	1.747E+00	2.699E+00	3.073E-01	0.697
	PA-231	283.67	*	-4.951E-01	3.056E+00	4.858E+00	9.071E-01	-0.102
TH-231		301.29		1.552E+00	1.128E+00	1.819E+00	2.892E-01	0.853
		81.07		6.117E-01	1.277E+00	1.479E+00	1.292E-01	0.414
	+	83.78		7.042E+00	9.963E-01	1.038E+00	9.360E-02	6.785
	+	94.90		1.435E+01	3.000E+00	2.226E+00	1.990E-01	6.445
	+	122.32		2.180E+01	7.810E+00	9.927E+00	8.834E-01	2.196
	+	144.24		9.097E+01	9.815E+00	6.249E+00	6.186E-01	14.558
		154.21		3.066E-01	1.135E+00	1.908E+00	1.928E-01	0.161
		269.46		4.829E-01	3.874E-01	6.321E-01	8.681E-02	0.764
		323.87	*	-7.475E-01	1.248E+00	2.038E+00	4.050E-01	-0.367



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233	+	338.28		5.932E+00	2.655E+00	3.418E+00	5.056E-01	1.735
		445.03		-2.018E+00	4.275E+00	6.829E+00	8.775E-01	-0.296
	+	75.28		2.631E+01	1.474E+01	1.901E+01	2.874E+00	1.384
		86.59		-6.178E+01	1.870E+01	1.121E+01	3.034E+00	-5.510
		300.12		1.501E+00	8.580E-01	1.270E+00	2.291E-01	1.182
		311.98	*	-2.934E-02	1.189E-01	1.979E-01	2.592E-02	-0.148
		340.50		2.977E+00	1.462E+00	1.976E+00	4.972E-01	1.506
PA-234		398.62		-3.497E-01	3.818E+00	6.250E+00	1.680E+00	-0.056
		415.76		2.753E+00	3.023E+00	4.993E+00	1.094E+00	0.551
	+	63.00		5.553E+02	8.289E+01	2.074E+01	3.073E+00	26.768
	+	94.67		1.023E+01	2.326E+00	1.882E+00	2.379E-01	5.437
	+	98.44		8.017E+00	4.506E+00	7.668E-01	4.279E-01	10.456
	+	99.86		4.156E+01	4.562E+00	3.505E+00	3.041E-01	11.856
	+	111.00		6.433E+00	1.332E+00	1.478E+00	1.758E-01	4.351
	+	131.20		4.864E-01	3.976E-01	5.693E-01	4.821E-02	0.854
		152.70		7.307E-01	9.360E-01	1.572E+00	2.730E-01	0.465
	+	186.00		8.232E+02	2.618E+02	2.177E+01	6.919E+00	37.809
		226.40		7.646E-01	8.764E-01	1.441E+00	2.246E-01	0.531
		227.20		7.771E-01	9.298E-01	1.534E+00	1.839E-01	0.507
		248.90		-6.571E-01	1.733E+00	2.761E+00	6.722E-01	-0.238
		293.70		5.503E+00	1.896E+00	2.493E+00	5.042E-01	2.207
		369.80		2.143E-01	1.584E+00	2.628E+00	5.929E-01	0.082
	+	568.70		1.480E+00	2.531E+00	3.203E+00	3.288E-01	0.462
	+	569.50		4.037E-01	6.902E-01	8.655E-01	8.890E-02	0.466
		574.00		-1.584E+00	3.039E+00	4.229E+00	4.350E-01	-0.374
		699.00		4.958E-02	1.284E+00	2.100E+00	4.223E-01	0.024
		706.10		1.195E+00	1.959E+00	3.146E+00	1.417E+00	0.380
		733.00		6.728E-01	1.216E+00	1.116E+00	2.583E-01	0.603
	+	742.81		2.563E+01	1.799E+01	6.303E+00	4.258E+00	4.066
		796.30		2.285E+00	1.745E+00	2.769E+00	7.727E-01	0.825
		805.60		2.432E-01	1.745E+00	2.842E+00	8.930E-01	0.086
		819.60		-1.190E-01	1.945E+00	3.242E+00	1.253E+00	-0.037
		826.30		-1.707E-01	1.332E+00	2.209E+00	1.000E+00	-0.077
		831.60		-9.703E-02	9.765E-01	1.622E+00	4.973E-01	-0.060
		876.40		1.387E+00	2.055E+00	2.236E+00	2.304E+00	0.620
	+	880.51		2.565E+00	9.568E-01	9.316E-01	1.042E-01	2.753
		883.24		1.522E+00	1.171E+00	9.254E-01	6.256E-01	1.645
		899.00		-2.331E-01	1.209E+00	1.975E+00	8.750E-01	-0.118
		925.00		5.690E+00	2.010E+00	3.573E+00	3.931E-01	1.593
		926.50		5.272E-01	3.176E-01	5.118E-01	1.340E-01	1.030
	+	946.00	*	1.804E+00	7.524E-01	9.653E-01	1.919E-01	1.869
		949.00		2.164E+00	8.177E-01	1.315E+00	1.420E-01	1.647
		980.50		1.413E+00	1.123E+00	1.777E+00	1.868E-01	0.796
	1394.10			3.983E-01	1.398E+00	2.313E+00	1.506E+00	0.172
NP-236	+	94.67		7.762E+00	1.623E+00	1.435E+00	1.285E-01	5.410
	+	98.44		6.060E+00	6.652E-01	5.796E-01	5.067E-02	10.456
	+	111.00		4.866E+00	9.191E-01	1.118E+00	9.331E-02	4.351
NP-237		160.31	*	3.396E-02	2.602E-01	3.840E-01	3.671E-02	0.088
		86.50	*	-3.014E+00	1.378E+00	1.687E+00	3.821E-01	-1.786

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	95.87		6.180E+01	1.925E+01	7.008E+00	1.733E+00	8.819
	+	99.55		1.385E+01	1.521E+00	1.241E+00	1.079E-01	11.158
		117.00	*	9.670E-01	9.140E-01	1.039E+00	8.591E-02	0.930
		209.75		2.495E+00	1.865E+00	2.748E+00	3.116E-01	0.908
		228.18		3.596E-01	4.817E-01	7.937E-01	9.549E-02	0.453
		277.60		4.180E-01	3.728E-01	6.067E-01	8.456E-02	0.689
CM-243		334.30		4.828E-01	2.699E+00	3.937E+00	4.748E-01	0.123
	+	99.55		1.426E+01	1.565E+00	1.278E+00	1.110E-01	11.158
		103.76	*	8.246E-01	4.975E-01	5.762E-01	4.912E-02	1.431
		117.00		9.950E-01	9.404E-01	1.070E+00	8.840E-02	0.930
		209.75		2.460E+00	1.839E+00	2.710E+00	3.072E-01	0.908
		228.18		3.634E-01	4.868E-01	8.021E-01	9.650E-02	0.453
AM-246		277.60		4.214E-01	3.758E-01	6.117E-01	8.526E-02	0.689
		798.80		1.562E-01	2.498E-01	4.123E-01	4.547E-02	0.379
		1036.00		-1.138E-01	3.702E-01	5.923E-01	5.881E-02	-0.192
		1062.04		2.633E-01	2.855E-01	4.911E-01	4.724E-02	0.536
CM-247		1078.86	*	1.028E-01	1.655E-01	2.806E-01	2.640E-02	0.366
		278.00		1.173E+00	1.534E+00	2.490E+00	3.475E-01	0.471
		287.40		2.604E-01	2.500E+00	4.001E+00	5.505E-01	0.065
CF-249		402.60	*	3.627E-02	6.795E-02	1.132E-01	1.062E-02	0.320
		252.85		-1.412E+00	2.100E+00	2.876E+00	3.732E-01	-0.491
		333.44		-2.395E-01	3.600E-01	5.065E-01	6.127E-02	-0.473
CF-251		387.95	*	5.954E-02	7.478E-02	1.257E-01	1.194E-02	0.474
		176.60	*	-1.812E-01	3.760E-01	6.191E-01	6.289E-02	-0.293
		227.00		8.690E-01	8.282E-01	1.369E+00	1.640E-01	0.635
		285.00		-1.728E+00	3.556E+00	5.587E+00	7.728E-01	-0.309

## 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]G246341002      *
* Acquisition date   : 18-FEB-2010 12:57:15 Detector SN#      :              *
* Detector ID        : GAM22                                           Sensitivity   : 5.000      *
* Geometry           : CAN                                           Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:08.97 Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341002 Analyst initials: MXR1              *
* Batch Number       : 950786 Sample Quantity : 9.8670E+01 GRAM        *
* Recovery           : 1.00000 Carrier Weight : 0.00000              *
*****
*                                     QC DATA                              *
*
* Standard Weight    : 0.00000                                          *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope      :              *
* MSD DPM             : 0.000 MSD Isotope                  :              *
* LCS DPM             : 0.000 LCS Isotope                  :              *
* LCSD DPM            : 0.000 LCSD Isotope                 :              *
*****
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.658E+01	2.857E+00	7.091E-01	0.000E+00
CO-57	3.169E-01	1.108E-01	1.377E-01	0.000E+00
AS-73	2.007E+01	6.545E+00	5.218E+00	0.000E+00
RB-84	6.646E-01	2.430E-01	1.784E-01	0.000E+00
NB-95	2.714E+00	3.431E-01	1.192E-01	0.000E+00
TE-125M	3.076E+02	6.315E+01	5.238E+01	0.000E+00
BA-137M	2.401E+00	2.811E-01	1.023E-01	0.000E+00
CS-137	2.538E+00	2.975E-01	1.081E-01	0.000E+00
W-181	1.660E+01	1.961E+00	2.600E+00	0.000E+00
RE-183	7.341E+00	8.919E-01	5.339E-01	0.000E+00
TL-208	5.163E-01	1.087E-01	1.042E-01	0.000E+00
BI-211	3.963E+00	8.355E-01	6.145E-01	0.000E+00
BI-212	1.162E+00	6.723E-01	7.946E-01	0.000E+00
PB-212	1.714E+00	2.745E-01	1.862E-01	0.000E+00
PO-212	1.714E+00	2.745E-01	1.862E-01	0.000E+00
BI-214	1.381E+00	2.599E-01	1.838E-01	0.000E+00
PB-214	1.379E+00	2.991E-01	2.141E-01	0.000E+00
PO-214	1.379E+00	2.991E-01	2.141E-01	0.000E+00
PO-216	1.714E+00	2.745E-01	1.862E-01	0.000E+00
PO-218	1.379E+00	2.991E-01	2.141E-01	0.000E+00
RA-224	5.092E+00	2.289E+00	2.117E+00	0.000E+00
RA-226	1.381E+00	2.599E-01	1.838E-01	0.000E+00
AC-228	1.800E+00	4.092E-01	2.809E-01	0.000E+00
RA-228	1.800E+00	4.092E-01	2.809E-01	0.000E+00
TH-228	1.743E+00	2.792E-01	1.894E-01	0.000E+00
TH-230	1.381E+00	2.599E-01	1.838E-01	0.000E+00
U-231	9.618E+01	1.971E+01	8.368E+00	0.000E+00
TH-232	1.800E+00	4.092E-01	2.809E-01	0.000E+00
PA-234M	6.952E+02	8.188E+01	1.043E+01	0.000E+00
TH-234	4.764E+02	8.168E+01	7.141E+00	0.000E+00
U-234	1.381E+00	2.599E-01	1.838E-01	0.000E+00
U-235	2.807E+01	4.997E+00	1.029E+00	0.000E+00
U-238	4.764E+02	8.168E+01	7.141E+00	0.000E+00
AM-241	4.754E+00	1.499E+00	8.937E-01	0.000E+00

AM-243	5.023E-01	2.685E-01	3.491E-01	0.000E+00
ANH-511	1.897E-01	1.288E-01	7.986E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	2.060E-01	6.287E-01	1.040E+00	0.000E+00	NOT IDENT.
NA-22	-2.197E-02	5.052E-02	8.200E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.874E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	3.815E-02	3.501E-02	6.533E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	1.372E-01	2.290E-01	0.000E+00	FAIL ABUN
SC-46	3.367E-02	6.468E-02	9.635E-02	0.000E+00	FAIL ABUN
V-48	1.189E-01	1.051E-01	1.843E-01	0.000E+00	NOT IDENT.
CR-51	1.110E-01	7.127E-01	1.214E+00	0.000E+00	NOT IDENT.
MN-52	5.968E-01	3.987E-01	7.293E-01	0.000E+00	NOT IDENT.
MN-54	-3.870E-02	5.630E-02	9.200E-02	0.000E+00	NOT IDENT.
CO-56	-1.545E-02	6.137E-02	1.023E-01	0.000E+00	FAIL ABUN
CO-58	4.618E-03	6.341E-02	1.077E-01	0.000E+00	NOT IDENT.
FE-59	-1.523E-02	1.130E-01	1.841E-01	0.000E+00	FAIL ABUN
CO-60	-2.489E-02	4.426E-02	7.024E-02	0.000E+00	NOT IDENT.
ZN-65	8.241E-03	1.251E-01	1.756E-01	0.000E+00	NOT IDENT.
GE-68	9.505E-01	1.443E+00	2.478E+00	0.000E+00	NOT IDENT.
AS-74	-3.363E-02	1.653E-01	2.755E-01	0.000E+00	NOT IDENT.
SE-75	-1.436E-02	9.267E-02	1.451E-01	0.000E+00	FAIL ABUN
BR-77	1.701E+01	3.585E+01	5.579E+01	0.000E+00	FAIL ABUN
SR-82	-9.651E-01	7.901E-01	1.151E+00	0.000E+00	NOT IDENT.
RB-83	5.982E-02	1.372E-01	2.132E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	1.412E+01	2.160E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	7.385E-02	1.130E-01	0.000E+00	NOT IDENT.
RB-86	3.531E-01	9.861E-01	1.663E+00	0.000E+00	NOT IDENT.
Y-88	0.000E+00	4.607E-02	8.382E-02	0.000E+00	NOT IDENT.
ZR-88	-4.831E-03	5.735E-02	9.536E-02	0.000E+00	NOT IDENT.
Y-91	-2.273E+01	2.018E+01	3.129E+01	0.000E+00	NOT IDENT.
NB-94	1.718E-02	6.010E-02	1.003E-01	0.000E+00	NOT IDENT.
NB-95M	8.957E-02	2.860E-01	4.155E-01	0.000E+00	NOT IDENT.
ZR-95	1.045E-01	1.324E-01	2.136E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.667E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.435E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	0.000E+00	5.252E+01	7.463E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.630E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.958E-03	1.126E-01	1.199E-01	0.000E+00	NOT IDENT.
RH-102	6.773E-02	5.583E-02	9.445E-02	0.000E+00	FAIL ABUN
RU-103	1.142E-02	7.600E-02	1.246E-01	0.000E+00	FAIL ABUN
RH-106	9.987E-03	5.210E-01	8.720E-01	0.000E+00	FAIL ABUN
RU-106	9.987E-03	5.210E-01	8.720E-01	0.000E+00	FAIL ABUN
AG-108M	-8.515E-03	5.865E-02	9.642E-02	0.000E+00	NOT IDENT.
CD-109	-3.022E+01	6.313E+00	6.007E+00	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	8.384E-02	1.305E-01	0.000E+00	NOT IDENT.
IN-111	2.805E+00	3.925E+00	5.741E+00	0.000E+00	NOT IDENT.
IN-113M	-6.584E-02	8.354E-02	1.356E-01	0.000E+00	NOT IDENT.
SN-113	-6.584E-02	8.354E-02	1.356E-01	0.000E+00	NOT IDENT.
IN-114M	1.945E-02	6.473E-01	6.887E-01	0.000E+00	NOT IDENT.
CD-115	1.705E+01	3.544E+01	6.101E+01	0.000E+00	NOT IDENT.
SN-117M	-4.957E-02	1.940E-01	2.888E-01	0.000E+00	NOT IDENT.
SB-122	-6.432E-01	6.831E+00	9.886E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.115E+08	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.357E-02	9.244E-02	1.376E-01	0.000E+00	NOT IDENT.
I-124	8.474E-01	1.695E+00	2.507E+00	0.000E+00	NOT IDENT.
SB-124	6.419E-02	9.305E-02	1.667E-01	0.000E+00	FAIL ABUN
SB-125	-4.937E-02	1.654E-01	2.708E-01	0.000E+00	NOT IDENT.
I-126	6.404E-02	3.986E-01	5.731E-01	0.000E+00	NOT IDENT.
SB-126	-2.771E-01	3.086E-01	4.094E-01	0.000E+00	FAIL ABUN
SN-126	-3.621E+00	5.789E-01	5.735E-01	0.000E+00	FAIL ABUN
SB-127	-4.429E+00	3.299E+00	5.079E+00	0.000E+00	FAIL ABUN
XE-127	0.000E+00	1.636E-01	2.339E-01	0.000E+00	FAIL ABUN
I-131	-1.430E-01	2.457E-01	4.044E-01	0.000E+00	NOT IDENT.
TE-132	1.662E+00	2.184E+00	3.634E+00	0.000E+00	FAIL ABUN
BA-133	3.695E-02	9.005E-02	1.334E-01	0.000E+00	FAIL ABUN
I-133	0.000E+00	5.015E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.035E-01	8.305E-02	1.410E-01	0.000E+00	FAIL ABUN
CS-135	7.344E-02	3.167E-01	5.185E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.475E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.924E-02	1.507E-01	2.409E-01	0.000E+00	FAIL ABUN
CE-139	0.000E+00	1.024E-01	1.549E-01	0.000E+00	NOT IDENT.
BA-140	4.483E-02	5.064E-01	8.605E-01	0.000E+00	FAIL ABUN

LA-140	-1.852E-01	1.270E-01	1.853E-01	0.000E+00	NOT IDENT.
CE-141	0.000E+00	5.594E-01	5.042E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	9.039E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	3.187E-01	7.009E-01	1.070E+00	0.000E+00	NOT IDENT.
PM-144	-2.933E-02	6.149E-02	9.981E-02	0.000E+00	NOT IDENT.
PR-144	-1.989E+00	4.171E+00	6.770E+00	0.000E+00	NOT IDENT.
PM-146	4.092E-02	8.378E-02	1.397E-01	0.000E+00	NOT IDENT.
ND-147	-5.980E-01	1.131E+00	1.879E+00	0.000E+00	FAIL ABUN
PM-149	-2.358E+02	3.345E+02	5.264E+02	0.000E+00	NOT IDENT.
EU-152	3.428E-03	2.020E-01	2.960E-01	0.000E+00	FAIL ABUN
GD-153	0.000E+00	7.350E-01	6.552E-01	0.000E+00	FAIL ABUN
EU-154	-6.313E-02	1.409E-01	2.284E-01	0.000E+00	NOT IDENT.
EU-155	0.000E+00	4.652E-01	6.642E-01	0.000E+00	FAIL ABUN
TB-160	0.000E+00	4.744E-01	4.451E-01	0.000E+00	FAIL ABUN
HO-166M	-6.666E-02	1.072E-01	1.697E-01	0.000E+00	FAIL ABUN
TM-171	-3.629E+02	1.134E+02	1.585E+02	0.000E+00	FAIL ABUN
LU-176	1.823E-02	4.528E-02	7.778E-02	0.000E+00	FAIL ABUN
LU-177	2.547E+00	3.197E+00	4.745E+00	0.000E+00	FAIL ABUN
LU-177M	-1.053E-01	3.212E-01	5.273E-01	0.000E+00	FAIL ABUN
HF-181	-3.797E-02	8.125E-02	1.306E-01	0.000E+00	FAIL ABUN
TA-182	3.810E-02	2.194E-01	3.726E-01	0.000E+00	FAIL ABUN
RE-184	-3.792E-01	5.527E-01	7.682E-01	0.000E+00	FAIL ABUN
OS-185	9.895E-03	7.178E-02	1.203E-01	0.000E+00	FAIL ABUN
RE-188	-2.153E-01	4.898E-01	8.280E-01	0.000E+00	NOT IDENT.
W-188	1.178E+01	1.590E+01	2.419E+01	0.000E+00	FAIL ABUN
IR-192	2.892E-02	6.432E-02	1.103E-01	0.000E+00	FAIL ABUN
AU-195	0.000E+00	2.144E+00	1.883E+00	0.000E+00	FAIL ABUN
TL-200	0.000E+00	2.807E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	3.035E+00	3.450E+01	5.146E+01	0.000E+00	NOT IDENT.
TL-202	1.140E-02	1.406E-01	2.327E-01	0.000E+00	NOT IDENT.
HG-203	6.025E-02	8.504E-02	1.399E-01	0.000E+00	FAIL ABUN
BI-207	9.943E-03	6.475E-02	1.078E-01	0.000E+00	FAIL ABUN
TL-207	-7.475E-01	1.223E+00	2.025E+00	0.000E+00	FAIL ABUN
PO-209	4.037E+00	1.036E+01	1.771E+01	0.000E+00	NOT IDENT.
BI-210	-1.333E+01	1.201E+01	2.020E+01	0.000E+00	NOT IDENT.
PB-210	-1.333E+01	1.201E+01	2.020E+01	0.000E+00	NOT IDENT.
PO-210	-1.333E+01	1.199E+01	2.020E+01	0.000E+00	NOT IDENT.
PB-211	-1.502E+00	1.927E+00	2.734E+00	0.000E+00	NOT IDENT.
PO-215	-7.475E-01	1.223E+00	2.025E+00	0.000E+00	FAIL ABUN
RN-219	2.734E-01	7.424E-01	1.247E+00	0.000E+00	NOT IDENT.
RN-220	-6.843E+01	4.562E+01	7.228E+01	0.000E+00	NOT IDENT.
RA-223	-7.475E-01	1.223E+00	2.025E+00	0.000E+00	FAIL ABUN
AC-227	0.000E+00	1.162E+00	1.519E+00	0.000E+00	NOT IDENT.
TH-227	0.000E+00	1.214E+00	1.519E+00	0.000E+00	FAIL ABUN
TH-229	0.000E+00	1.533E+00	2.145E+00	0.000E+00	FAIL ABUN
PA-231	-4.951E-01	2.995E+00	4.829E+00	0.000E+00	NOT IDENT.
TH-231	-7.475E-01	1.223E+00	2.025E+00	0.000E+00	FAIL ABUN
PA-233	-2.934E-02	1.165E-01	1.967E-01	0.000E+00	FAIL ABUN
PA-234	0.000E+00	7.373E-01	9.574E-01	0.000E+00	FAIL ABUN
NP-236	3.396E-02	2.550E-01	3.822E-01	0.000E+00	FAIL ABUN
NP-237	-3.014E+00	1.350E+00	1.681E+00	0.000E+00	FAIL ABUN
NP-239	9.670E-01	8.957E-01	1.035E+00	0.000E+00	FAIL ABUN
CM-243	0.000E+00	4.875E-01	5.739E-01	0.000E+00	FAIL ABUN
AM-246	1.028E-01	1.622E-01	2.782E-01	0.000E+00	NOT IDENT.
CM-247	3.627E-02	6.659E-02	1.125E-01	0.000E+00	NOT IDENT.
CF-249	5.954E-02	7.328E-02	1.249E-01	0.000E+00	NOT IDENT.
CF-251	-1.812E-01	3.685E-01	6.160E-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]G246341002.CNF;1
Sample date       : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 12:57:15
Sample ID        : G246341002          Sample quantity   : 9.86700E+01 GRAM
Detector name    : GAM22              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:08.97  0.1%
Energy tolerance : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit  : 75.00000           Sensitivity      : 5.00000
Batch ID        : 950786              Detector SN#     :
Matrix Spike ID  :                    LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1423	10.67*	1.909E+00	2.658E+01	2.658E+01	10.97
CO-57	122.06	584	85.51*	8.558E+00	3.033E-01	3.169E-01	35.67
	136.48	-----	10.60	8.461E+00	-----	Line Not Found	-----
AS-73	53.44	1179	10.30*	2.514E+00	1.731E+01	2.007E+01	33.29
RB-84	881.50	237	67.70*	2.868E+00	4.637E-01	6.646E-01	37.30
NB-95	765.79	1898	99.81*	3.208E+00	2.255E+00	2.714E+00	12.90
TE-125M	109.28	1578	0.28*	8.457E+00	2.508E+02	3.076E+02	20.95
BA-137M	661.65	2037	89.98*	3.590E+00	2.398E+00	2.401E+00	11.95
CS-137	661.65	2037	85.12*	3.590E+00	2.535E+00	2.538E+00	11.96
W-181	56.28	1007	18.70	3.189E+00	6.423E+00	7.084E+00	41.90
	57.53	1007	32.60	3.189E+00	3.685E+00	4.064E+00	41.90
	65.20	-----	13.80*	4.674E+00	-----	Line Not Found	-----
RE-183	57.98	1007	34.20	3.189E+00	3.512E+00	4.160E+00	41.90
	59.32	1631	59.50	3.636E+00	2.868E+00	3.397E+00	31.99
	67.20	-----	25.30	5.016E+00	-----	Line Not Found	-----
	162.32	3062	23.40*	8.031E+00	6.198E+00	7.341E+00	12.40
	208.81	-----	2.97	7.192E+00	-----	Line Not Found	-----
	291.72	-----	3.17	6.010E+00	-----	Line Not Found	-----
TL-208	277.35	-----	6.80	6.182E+00	-----	Line Not Found	-----
	510.84	214	21.60	4.298E+00	8.784E-01	8.784E-01	69.78
	583.14	449	84.20*	3.930E+00	5.163E-01	5.163E-01	21.49
	860.37	-----	12.46	2.924E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	5.897E+00	-----	Line Not Found	-----
	351.07	728	12.94*	5.402E+00	3.963E+00	3.963E+00	21.51
BI-212	727.18	120	11.80*	3.341E+00	1.162E+00	1.162E+00	59.05
	785.46	274	1.97	3.144E+00	1.683E+01	1.683E+01	30.25
	1620.62	-----	2.75	1.789E+00	-----	Line Not Found	-----
PB-212	74.81	536	10.70	6.147E+00	3.099E+00	3.099E+00	55.34
	77.11	678	18.00	6.458E+00	2.218E+00	2.218E+00	34.22
	87.30	-----	8.00	7.486E+00	-----	Line Not Found	-----
	238.63	1348	44.60*	6.710E+00	1.714E+00	1.714E+00	16.35
	300.09	-----	3.41	5.916E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-212	74.81	536	10.70	6.147E+00	3.099E+00	3.099E+00	55.34
	77.11	678	18.00	6.458E+00	2.218E+00	2.218E+00	34.22
	87.30	-----	8.00	7.486E+00	-----	Line Not Found	-----
	115.19	-----	0.60	8.535E+00	-----	Line Not Found	-----
	238.63	1348	44.60*	6.710E+00	1.714E+00	1.714E+00	16.35
BI-214	300.09	-----	3.41	5.916E+00	-----	Line Not Found	-----
	609.31	641	46.30*	3.812E+00	1.381E+00	1.381E+00	19.20
	1120.29	142	15.10	2.345E+00	1.529E+00	1.529E+00	40.42
	1764.49	137	15.80	1.716E+00	1.922E+00	1.922E+00	25.85
	74.81	536	6.21	6.147E+00	5.339E+00	5.339E+00	55.05
PB-214	77.11	678	10.50	6.458E+00	3.802E+00	3.802E+00	35.06
	87.30	-----	4.67	7.486E+00	-----	Line Not Found	-----
	241.98	352	7.49	6.666E+00	2.686E+00	2.686E+00	46.21
	295.21	413	19.20	5.969E+00	1.372E+00	1.372E+00	33.29
	351.92	728	37.20*	5.402E+00	1.379E+00	1.379E+00	22.13
PO-214	74.81	536	6.21	6.147E+00	5.339E+00	5.339E+00	55.05
	77.11	678	10.50	6.458E+00	3.802E+00	3.802E+00	35.06
	87.30	-----	4.67	7.486E+00	-----	Line Not Found	-----
	241.98	352	7.49	6.666E+00	2.686E+00	2.686E+00	46.21
	295.21	413	19.20	5.969E+00	1.372E+00	1.372E+00	33.29
PO-216	351.92	728	37.20*	5.402E+00	1.379E+00	1.379E+00	22.13
	74.81	536	10.70	6.147E+00	3.099E+00	3.099E+00	55.34
	77.11	678	18.00	6.458E+00	2.218E+00	2.218E+00	34.22
	87.30	-----	8.00	7.486E+00	-----	Line Not Found	-----
	238.63	1348	44.60*	6.710E+00	1.714E+00	1.714E+00	16.35
PO-218	300.09	-----	3.41	5.916E+00	-----	Line Not Found	-----
	74.81	536	6.21	6.147E+00	5.339E+00	5.339E+00	55.05
	77.11	678	10.50	6.458E+00	3.802E+00	3.802E+00	35.06
	87.30	-----	4.67	7.486E+00	-----	Line Not Found	-----
	241.98	352	7.49	6.666E+00	2.686E+00	2.686E+00	46.21
RA-224	295.21	413	19.20	5.969E+00	1.372E+00	1.372E+00	33.29
	351.92	728	37.20*	5.402E+00	1.379E+00	1.379E+00	22.13
	240.98	352	3.95*	6.666E+00	5.092E+00	5.092E+00	45.87
	609.31	641	46.30*	3.812E+00	1.381E+00	1.381E+00	19.20
	1120.29	142	15.10	2.345E+00	1.529E+00	1.529E+00	40.42
AC-228	1764.49	137	15.80	1.716E+00	1.922E+00	1.922E+00	25.85
	338.32	235	11.40	5.524E+00	1.421E+00	1.421E+00	59.62
	911.07	365	27.70*	2.788E+00	1.800E+00	1.800E+00	23.20
	969.11	170	16.60	2.648E+00	1.471E+00	1.471E+00	58.10
	338.32	235	11.40	5.524E+00	1.421E+00	1.421E+00	59.62
RA-228	911.07	365	27.70*	2.788E+00	1.800E+00	1.800E+00	23.20
	969.11	170	16.60	2.648E+00	1.471E+00	1.471E+00	58.10
	74.81	536	10.70	6.147E+00	3.099E+00	3.152E+00	54.56
	77.11	678	18.00	6.458E+00	2.218E+00	2.256E+00	34.22
	87.30	-----	8.00	7.486E+00	-----	Line Not Found	-----
TH-228	238.63	1348	44.60*	6.710E+00	1.714E+00	1.743E+00	16.35
	300.09	-----	3.41	5.916E+00	-----	Line Not Found	-----
	609.31	641	46.30*	3.812E+00	1.381E+00	1.381E+00	19.20
	1120.29	142	15.10	2.345E+00	1.529E+00	1.529E+00	40.42

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-231	1764.49	137	15.80	1.716E+00	1.922E+00	1.922E+00	25.85
	84.21	3296	7.00	7.209E+00	2.485E+01	4.164E+02	14.15
	92.29	55007	17.30	7.852E+00	1.541E+02	2.582E+03	9.16
	95.87	3364	28.00*	7.964E+00	5.739E+00	9.618E+01	20.91
TH-232	108.00	1578	13.10	8.457E+00	5.418E+00	9.081E+01	20.16
	338.32	235	11.40	5.524E+00	1.421E+00	1.421E+00	43.89
	911.07	365	27.70*	2.788E+00	1.800E+00	1.800E+00	23.20
	969.11	170	16.60	2.648E+00	1.471E+00	1.471E+00	58.10
PA-234M	766.42	1898	0.32	3.208E+00	7.035E+02	7.035E+02	51.64
	1001.03	3956	0.84*	2.578E+00	6.952E+02	6.952E+02	12.02
TH-234	63.29	20595	3.80*	4.328E+00	4.764E+02	4.764E+02	17.50
	92.38	55007	5.41	7.852E+00	4.927E+02	4.927E+02	18.35
U-234	609.31	641	46.30*	3.812E+00	1.381E+00	1.381E+00	19.20
	1120.29	142	15.10	2.345E+00	1.529E+00	1.529E+00	40.42
	1764.49	137	15.80	1.716E+00	1.922E+00	1.922E+00	25.85
U-235	89.95	-----	2.70	7.683E+00	-----	Line Not Found	-----
	93.35	55007	4.50	7.852E+00	5.923E+02	5.923E+02	28.20
	105.00	624	2.10	8.381E+00	1.349E+01	1.349E+01	44.73
	143.76	6480	10.50*	8.364E+00	2.807E+01	2.807E+01	18.16
	163.35	3062	4.70	8.031E+00	3.086E+01	3.086E+01	21.06
	185.71	32932	54.00	7.610E+00	3.049E+01	3.049E+01	10.55
	205.31	2765	4.70	7.253E+00	3.085E+01	3.085E+01	21.08
	63.29	20595	3.80*	4.328E+00	4.764E+02	4.764E+02	17.50
U-238	92.38	55007	5.41	7.852E+00	4.927E+02	4.927E+02	9.16
	59.54	1631	35.90*	3.636E+00	4.754E+00	4.754E+00	32.16
AM-241	74.67	536	66.00*	6.147E+00	5.023E-01	5.023E-01	54.55
	86.72	-----	0.34	7.440E+00	-----	Line Not Found	-----
AM-243	117.66	-----	0.55	8.550E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.387E+00	-----	Line Not Found	-----
ANH-511	511.00	214	100.00*	4.298E+00	1.897E-01	1.897E-01	69.28

Flag: "\*" = Keyline



Total number of lines in spectrum 50  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 46 92.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.658E+01	2.658E+01	0.292E+01	10.97	
CO-57	270.90D	1.04	3.033E-01	3.169E-01	1.130E-01	35.67	
AS-73	80.30D	1.16	1.731E+01	2.007E+01	0.668E+01	33.29	
RB-84	32.90D	1.43	4.637E-01	6.646E-01	2.479E-01	37.30	
NB-95	64.02D	1.20	2.255E+00	2.714E+00	0.350E+00	12.90	
TE-125M	58.00D	1.23	2.508E+02	3.076E+02	0.644E+02	20.95	
BA-137M	30.17Y	1.00	2.398E+00	2.401E+00	0.287E+00	11.95	
CS-137	30.17Y	1.00	2.535E+00	2.538E+00	0.304E+00	11.96	
W-181	120.95D	1.10	3.685E+00	4.064E+00	1.703E+00	41.90	K
RE-183	70.00D	1.18	6.198E+00	7.341E+00	0.910E+00	12.40	
TL-208	1.41E+10Y	1.00	5.163E-01	5.163E-01	1.109E-01	21.49	
BI-211	7.04E+08Y	1.00	3.963E+00	3.963E+00	0.853E+00	21.51	
BI-212	1.41E+10Y	1.00	1.162E+00	1.162E+00	0.686E+00	59.05	
PB-212	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.280E+00	16.35	
PO-212	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.280E+00	16.35	
BI-214	1600.00Y	1.00	1.381E+00	1.381E+00	0.265E+00	19.20	
PB-214	1600.00Y	1.00	1.379E+00	1.379E+00	0.305E+00	22.13	
PO-214	1600.00Y	1.00	1.379E+00	1.379E+00	0.305E+00	22.13	
PO-216	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.280E+00	16.35	
PO-218	1600.00Y	1.00	1.379E+00	1.379E+00	0.305E+00	22.13	
RA-224	1.41E+10Y	1.00	5.092E+00	5.092E+00	2.336E+00	45.87	
RA-226	1600.00Y	1.00	1.381E+00	1.381E+00	0.265E+00	19.20	
AC-228	1.41E+10Y	1.00	1.800E+00	1.800E+00	0.418E+00	23.20	
RA-228	1.41E+10Y	1.00	1.800E+00	1.800E+00	0.418E+00	23.20	
TH-228	1.91Y	1.02	1.714E+00	1.743E+00	0.285E+00	16.35	
TH-230	4.47E+09Y	1.00	1.381E+00	1.381E+00	0.265E+00	19.20	
U-231	4.20D	16.8	5.739E+00	9.618E+01	2.011E+01	20.91	
TH-232	1.41E+10Y	1.00	1.800E+00	1.800E+00	0.418E+00	23.20	
PA-234M	4.47E+09Y	1.00	6.952E+02	6.952E+02	0.836E+02	12.02	
TH-234	4.47E+09Y	1.00	4.764E+02	4.764E+02	0.834E+02	17.50	
U-234	4.47E+09Y	1.00	1.381E+00	1.381E+00	0.265E+00	19.20	
U-235	7.04E+08Y	1.00	2.807E+01	2.807E+01	0.510E+01	18.16	
U-238	4.47E+09Y	1.00	4.764E+02	4.764E+02	0.834E+02	17.50	
AM-241	432.20Y	1.00	4.754E+00	4.754E+00	1.529E+00	32.16	
AM-243	7380.00Y	1.00	5.023E-01	5.023E-01	2.740E-01	54.55	
ANH-511	1.00E+09Y	1.00	1.897E-01	1.897E-01	1.314E-01	69.28	

Total Activity : 2.032E+03 2.185E+03

Grand Total Activity : 2.032E+03 2.185E+03

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
10	61.99	2368	8085	1.88	124.24	101	30	3.29E-01	19.8	4.10E+00	T
0	98.49	4363	4974	1.12	197.17	194	9	6.06E-01	6.6	8.15E+00	T
6	111.05	1694	4688	1.50	222.26	206	26	2.35E-01	16.9	8.49E+00	T
6	112.77	3257	3596	1.18	225.70	206	26	4.52E-01	7.4	8.51E+00	T
0	131.44	222	2874	0.97	262.99	260	7	3.08E-02	81.3	8.51E+00	T
0	194.77	406	1344	1.10	389.54	385	8	5.65E-02	32.8	7.44E+00	T
4	202.15	623	1395	1.55	404.29	400	16	8.65E-02	22.8	7.31E+00	T
0	258.22	750	1079	1.26	516.32	510	12	1.04E-01	19.0	6.43E+00	
0	569.82	47	399	2.10	1139.06	1132	11	6.48E-03	****	3.99E+00	T
0	742.36	532	388	2.05	1483.96	1474	17	7.39E-02	19.0	3.29E+00	T
0	946.30	154	144	1.69	1891.70	1887	13	2.14E-02	36.7	2.70E+00	T
0	1238.79	57	133	1.99	2476.59	2467	13	7.86E-03	88.2	2.16E+00	T
0	1738.03	75	29	2.46	3475.23	3467	19	1.04E-02	41.4	1.73E+00	
0	1831.87	49	24	3.11	3662.99	3651	18	6.81E-03	49.1	1.69E+00	
0	1875.28	39	8	2.62	3749.85	3743	12	5.39E-03	40.9	1.68E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341002.CNF;1
* Acquisition date   : 18-FEB-2010 12:57:15   Detector SN#      :
* Detector ID        : GAM22                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit     : 75.00000
* Elapsed real time  : 0 02:00:08.97          Half life ratio    : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00.   Nuclide Library   : SOLID
* Sample ID          : G246341002             Analyst initials  : MXR1
* Batch Number       : 950786                 Sample Quantity   : 9.86700E+01 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28.08MS Isotope      :
* MSD ID              :                          MSD Isotope   :
* LCS ID              : 1032-A                  LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.658E+01	2.915E+00	7.156E-01	6.556E-02	37.144
CO-57	3.169E-01	1.130E-01	1.383E-01	1.140E-02	2.292
AS-73	2.007E+01	6.679E+00	5.232E+00	3.954E-01	3.835
RB-84	6.646E-01	2.479E-01	1.798E-01	2.011E-02	3.696
NB-95	2.714E+00	3.501E-01	1.202E-01	1.314E-02	22.582
TE-125M	3.076E+02	6.444E+01	5.259E+01	5.328E+00	5.849
BA-137M	2.401E+00	2.868E-01	1.031E-01	1.087E-02	23.297
CS-137	2.538E+00	3.035E-01	1.089E-01	1.150E-02	23.297
W-181	4.064E+00	1.703E+00	2.608E+00	1.944E-01	1.558
RE-183	7.341E+00	9.101E-01	5.365E-01	5.176E-02	13.682
TL-208	5.163E-01	1.109E-01	1.050E-01	1.138E-02	4.919
BI-211	3.963E+00	8.525E-01	6.184E-01	7.215E-02	6.409
BI-212	1.162E+00	6.860E-01	8.008E-01	9.565E-02	1.451
PB-212	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
PO-212	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
BI-214	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
PB-214	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397
PO-214	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	1.714E+00	2.801E-01	1.873E-01	2.474E-02	9.150
PO-218	1.379E+00	3.052E-01	2.155E-01	2.747E-02	6.397
RA-224	5.092E+00	2.336E+00	2.129E+00	2.665E-01	2.392
RA-226	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
AC-228	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
RA-228	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
TH-228	1.743E+00	2.849E-01	1.905E-01	2.517E-02	9.150
TH-230	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
U-231	9.618E+01	2.011E+01	8.400E+00	7.459E-01	11.451
TH-232	1.800E+00	4.175E-01	2.832E-01	3.752E-02	6.356
PA-234M	6.952E+02	8.355E+01	1.052E+01	1.205E+00	66.094
TH-234	4.764E+02	8.335E+01	7.162E+00	1.247E+00	66.510
U-234	1.381E+00	2.652E-01	1.852E-01	2.153E-02	7.456
U-235	2.807E+01	5.099E+00	1.034E+00	1.823E-01	27.160
U-238	4.764E+02	8.335E+01	7.162E+00	1.247E+00	66.510
AM-241	4.754E+00	1.529E+00	8.963E-01	7.006E-02	5.305
AM-243	5.023E-01	2.740E-01	3.503E-01	2.855E-02	1.434
ANH-511	1.897E-01	1.314E-01	8.042E-02	8.058E-03	2.359

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.060E-01		6.415E-01	1.047E+00	1.093E-01	0.197
NA-22	-2.197E-02		5.156E-02	8.273E-02	7.129E-03	-0.266
NA-24	-5.468E+00		4.017E+00	Half-Life too short		
AL-26	3.815E-02		3.572E-02	6.595E-02	5.394E-03	0.578
TI-44	4.093E-01	+	1.400E-01	2.297E-01	1.948E-02	1.781
SC-46	3.367E-02		6.600E-02	9.713E-02	1.087E-02	0.347
V-48	1.189E-01		1.072E-01	1.858E-01	1.949E-02	0.640
CR-51	1.110E-01		7.272E-01	1.221E+00	1.582E-01	0.091
MN-52	5.968E-01		4.068E-01	7.360E-01	6.577E-02	0.811
MN-54	-3.870E-02		5.745E-02	9.275E-02	1.030E-02	-0.417
CO-56	-1.545E-02		6.262E-02	1.031E-01	1.148E-02	-0.150
CO-58	4.618E-03		6.470E-02	1.086E-01	1.202E-02	0.043
FE-59	-1.523E-02		1.153E-01	1.857E-01	1.820E-02	-0.082
CO-60	-2.489E-02		4.517E-02	7.087E-02	6.320E-03	-0.351
ZN-65	8.241E-03		1.277E-01	1.771E-01	1.580E-02	0.047
GE-68	9.505E-01		1.473E+00	2.500E+00	2.356E-01	0.380
AS-74	-3.363E-02		1.687E-01	2.775E-01	2.877E-02	-0.121
SE-75	-1.436E-02		9.457E-02	1.459E-01	1.964E-02	-0.098
BR-77	1.701E+01		3.658E+01	5.619E+01	5.655E+00	0.303
SR-82	-9.651E-01		8.062E-01	1.160E+00	1.272E-01	-0.832
RB-83	5.982E-02		1.400E-01	2.147E-01	2.161E-02	0.279
KR-85	3.503E+01		1.440E+01	2.175E+01	2.182E+00	1.611
SR-85	1.833E-01		7.536E-02	1.138E-01	1.142E-02	1.611
RB-86	3.531E-01		1.006E+00	1.677E+00	1.582E-01	0.211
Y-88	8.519E-02		4.701E-02	8.463E-02	6.843E-03	1.007

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-88	-4.831E-03		5.852E-02	9.599E-02	8.938E-03	-0.050
Y-91	-2.273E+01		2.059E+01	3.156E+01	2.595E+00	-0.720
NB-94	1.718E-02		6.133E-02	1.011E-01	1.083E-02	0.170
NB-95M	8.957E-02		2.919E-01	4.178E-01	5.523E-02	0.214
ZR-95	1.045E-01		1.351E-01	2.153E-01	2.499E-02	0.485
NB-97	7.468E+00		8.504E-01	Half-Life	too short	
ZR-97	5.980E+01		1.242E+01	Half-Life	too short	
MO-99	1.624E+02		5.359E+01	7.522E+01	1.245E+01	2.159
TC-99M	-4.726E+12		1.342E+13	Half-Life	too short	
RH-101	6.958E-03		1.148E-01	1.205E-01	1.314E-02	0.058
RH-102	6.773E-02		5.697E-02	9.511E-02	9.353E-03	0.712
RU-103	1.142E-02		7.755E-02	1.255E-01	1.883E-02	0.091
RH-106	9.987E-03		5.316E-01	8.786E-01	1.283E-01	0.011
RU-106	9.987E-03		5.316E-01	8.786E-01	9.177E-02	0.011
AG-108M	-8.515E-03		5.985E-02	9.707E-02	9.609E-03	-0.088
CD-109	-3.022E+01		6.442E+00	6.028E+00	5.721E-01	-5.012
AG-110M	3.057E-01		8.555E-02	1.315E-01	1.414E-02	2.324
IN-111	2.805E+00		4.005E+00	5.773E+00	7.325E-01	0.486
IN-113M	-6.584E-02		8.524E-02	1.365E-01	1.304E-02	-0.482
SN-113	-6.584E-02		8.524E-02	1.365E-01	1.304E-02	-0.482
IN-114M	1.945E-02		6.605E-01	6.922E-01	7.359E-02	0.028
CD-115	1.705E+01		3.616E+01	6.144E+01	6.205E+00	0.277
SN-117M	-4.957E-02		1.979E-01	2.901E-01	2.752E-02	-0.171
SB-122	-6.432E-01		6.971E+00	9.958E+00	1.021E+00	-0.065
I-123	-5.392E+01		1.079E+02	Half-Life	too short	
TE-123M	-2.357E-02		9.433E-02	1.382E-01	1.320E-02	-0.170
I-124	8.474E-01		1.730E+00	2.526E+00	2.623E-01	0.336
SB-124	6.419E-02		9.495E-02	1.683E-01	1.497E-02	0.381
SB-125	-4.937E-02		1.688E-01	2.727E-01	2.646E-02	-0.181
I-126	6.404E-02		4.067E-01	5.775E-01	6.102E-02	0.111
SB-126	-2.771E-01		3.149E-01	4.126E-01	4.449E-02	-0.672
SN-126	-3.621E+00		5.907E-01	5.756E-01	5.435E-02	-6.291
SB-127	-4.429E+00		3.366E+00	5.118E+00	6.908E-01	-0.865
XE-127	6.590E-01	+	1.670E-01	2.351E-01	2.606E-02	2.803
I-131	-1.430E-01		2.507E-01	4.070E-01	4.514E-02	-0.351
TE-132	1.662E+00		2.229E+00	3.653E+00	6.628E-01	0.455
BA-133	3.695E-02		9.189E-02	1.342E-01	2.005E-02	0.275
I-133	-2.001E-02		2.559E-02	Half-Life	too short	
CS-134	1.035E-01		8.474E-02	1.422E-01	1.574E-02	0.728
CS-135	7.344E-02		3.231E-01	5.215E-01	7.543E-02	0.141
I-135	-5.185E+11		3.814E+11	Half-Life	too short	
CS-136	-2.924E-02		1.537E-01	2.429E-01	2.457E-02	-0.120
CE-139	2.872E-01		1.045E-01	1.556E-01	1.526E-02	1.845
BA-140	4.483E-02		5.167E-01	8.667E-01	2.909E-01	0.052
LA-140	-1.852E-01		1.296E-01	1.870E-01	1.640E-02	-0.990
CE-141	5.525E+00		5.708E-01	5.065E-01	4.611E-02	10.908
CE-143	1.848E-03		4.612E-04	Half-Life	too short	
CE-144	3.187E-01		7.152E-01	1.075E+00	1.669E-01	0.296

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-144	-2.933E-02		6.274E-02	1.006E-01	1.076E-02	-0.292
PR-144	-1.989E+00		4.256E+00	6.822E+00	7.294E-01	-0.292
PM-146	4.092E-02		8.549E-02	1.407E-01	1.635E-02	0.291
ND-147	-5.980E-01		1.154E+00	1.892E+00	3.001E-01	-0.316
PM-149	-2.358E+02		3.414E+02	5.296E+02	1.002E+02	-0.445
EU-152	3.428E-03		2.061E-01	2.979E-01	3.581E-02	0.012
GD-153	6.832E+00	+	7.500E-01	6.577E-01	5.784E-02	10.388
EU-154	-6.313E-02		1.438E-01	2.304E-01	2.604E-02	-0.274
EU-155	1.378E+00	+	4.747E-01	6.668E-01	5.724E-02	2.067
TB-160	1.298E+00	+	4.841E-01	4.487E-01	5.018E-02	2.892
HO-166M	-6.666E-02		1.094E-01	1.711E-01	1.839E-02	-0.390
TM-171	-3.629E+02		1.157E+02	1.589E+02	1.201E+01	-2.283
LU-176	1.823E-02		4.621E-02	7.826E-02	1.027E-02	0.233
LU-177	2.547E+00		3.263E+00	4.770E+00	5.384E-01	0.534
LU-177M	-1.053E-01		3.277E-01	5.308E-01	5.020E-02	-0.198
HF-181	-3.797E-02		8.290E-02	1.315E-01	1.298E-02	-0.289
TA-182	3.810E-02		2.239E-01	3.759E-01	3.126E-02	0.101
RE-184	-3.792E-01		5.640E-01	7.726E-01	1.002E-01	-0.491
OS-185	9.895E-03		7.325E-02	1.212E-01	1.273E-02	0.082
RE-188	-2.153E-01		4.998E-01	8.319E-01	7.765E-02	-0.259
W-188	1.178E+01		1.623E+01	2.433E+01	3.323E+00	0.484
IR-192	2.892E-02		6.563E-02	1.110E-01	1.419E-02	0.260
AU-195	1.993E+01	+	2.188E+00	1.890E+00	1.648E-01	10.545
TL-200	2.036E-03		1.432E-03	Half-Life too short		
TL-201	3.035E+00		3.521E+01	5.171E+01	5.097E+00	0.059
TL-202	1.140E-02		1.435E-01	2.342E-01	2.255E-02	0.049
HG-203	6.025E-02		8.678E-02	1.407E-01	1.991E-02	0.428
BI-207	9.943E-03		6.607E-02	1.087E-01	1.044E-02	0.091
TL-207	-7.475E-01		1.248E+00	2.038E+00	4.050E-01	-0.367
PO-209	4.037E+00		1.057E+01	1.785E+01	2.000E+00	0.226
BI-210	-1.333E+01		1.225E+01	2.025E+01	1.881E+00	-0.658
PB-210	-1.333E+01		1.225E+01	2.025E+01	1.881E+00	-0.658
PO-210	-1.333E+01		1.224E+01	2.025E+01	1.703E+00	-0.658
PB-211	-1.502E+00		1.966E+00	2.752E+00	1.728E+00	-0.546
PO-215	-7.475E-01		1.248E+00	2.038E+00	4.050E-01	-0.367
RN-219	2.734E-01		7.575E-01	1.255E+00	1.942E-01	0.218
RN-220	-6.843E+01		4.655E+01	7.280E+01	7.421E+00	-0.940
RA-223	-7.475E-01		1.248E+00	2.038E+00	4.050E-01	-0.367
AC-227	3.761E+00		1.186E+00	1.528E+00	2.788E-01	2.462
TH-227	3.761E+00		1.239E+00	1.528E+00	3.144E-01	2.462
TH-229	4.527E+00	+	1.565E+00	2.156E+00	2.318E-01	2.099
PA-231	-4.951E-01		3.056E+00	4.858E+00	9.071E-01	-0.102
TH-231	-7.475E-01		1.248E+00	2.038E+00	4.050E-01	-0.367
PA-233	-2.934E-02		1.189E-01	1.979E-01	2.592E-02	-0.148
PA-234	1.804E+00	+	7.524E-01	9.653E-01	1.919E-01	1.869
NP-236	3.396E-02		2.602E-01	3.840E-01	3.671E-02	0.088
NP-237	-3.014E+00		1.378E+00	1.687E+00	3.821E-01	-1.786
NP-239	9.670E-01		9.140E-01	1.039E+00	8.591E-02	0.930

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	8.246E-01		4.975E-01	5.762E-01	4.912E-02	1.431
AM-246	1.028E-01		1.655E-01	2.806E-01	2.640E-02	0.366
CM-247	3.627E-02		6.795E-02	1.132E-01	1.062E-02	0.320
CF-249	5.954E-02		7.478E-02	1.257E-01	1.194E-02	0.474
CF-251	-1.812E-01		3.760E-01	6.191E-01	6.289E-02	-0.293

## 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]G246341002             *
* Acquisition date   : 18-FEB-2010 12:57:15 Detector SN#      :              *
* Detector ID        : GAM22                      Sensitivity   : 5.000         *
* Geometry           : CAN                      Energy tolerance: 1.500         *
* Elapsed live time  : 0 02:00:00.00             Abundance limit: 75.000        *
* Elapsed real time  : 0 02:00:08.97             Half life ratio : 8.000        *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G246341002              Analyst initials: MXR1          *
* Batch Number       : 950786                  Sample Quantity : 9.8670E+01 GRAM *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000        *
*****
*                               QC DATA                                   *
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope         :              *
* MSD DPM             : 0.000                      MSD Isotope   :              *
* LCS DPM             : 0.000                      LCS Isotope   :              *
* LCSD DPM            : 0.000                      LCSD Isotope  :              *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.658E+01	2.857E+00	3.548E-01	1.458E+00
CO-57	3.169E-01	1.108E-01	6.889E-02	5.652E-02
AS-73	2.007E+01	6.545E+00	2.611E+00	3.339E+00
RB-84	6.646E-01	2.430E-01	8.924E-02	1.240E-01
NB-95	2.714E+00	3.431E-01	5.965E-02	1.750E-01
TE-125M	3.076E+02	6.315E+01	2.620E+01	3.222E+01
BA-137M	2.401E+00	2.811E-01	5.117E-02	1.434E-01
CS-137	2.538E+00	2.975E-01	5.409E-02	1.518E-01
W-181	1.660E+01	1.961E+00	1.301E+00	1.000E+00
RE-183	7.341E+00	8.919E-01	2.671E-01	4.551E-01
TL-208	5.163E-01	1.087E-01	5.213E-02	5.547E-02
BI-211	3.963E+00	8.355E-01	3.074E-01	4.263E-01
BI-212	1.162E+00	6.723E-01	3.976E-01	3.430E-01
PB-212	1.714E+00	2.745E-01	9.318E-02	1.401E-01
PO-212	1.714E+00	2.745E-01	9.318E-02	1.401E-01
BI-214	1.381E+00	2.599E-01	9.198E-02	1.326E-01
PB-214	1.379E+00	2.991E-01	1.071E-01	1.526E-01
PO-214	1.379E+00	2.991E-01	1.071E-01	1.526E-01
PO-216	1.714E+00	2.745E-01	9.318E-02	1.401E-01
PO-218	1.379E+00	2.991E-01	1.071E-01	1.526E-01
RA-224	5.092E+00	2.289E+00	1.059E+00	1.168E+00
RA-226	1.381E+00	2.599E-01	9.198E-02	1.326E-01
AC-228	1.800E+00	4.092E-01	1.405E-01	2.088E-01
RA-228	1.800E+00	4.092E-01	1.405E-01	2.088E-01
TH-228	1.743E+00	2.792E-01	9.477E-02	1.425E-01
TH-230	1.381E+00	2.599E-01	9.197E-02	1.326E-01
U-231	9.618E+01	1.971E+01	4.186E+00	1.006E+01
TH-232	1.800E+00	4.092E-01	1.405E-01	2.088E-01
PA-234M	6.952E+02	8.188E+01	5.218E+00	4.178E+01
TH-234	4.764E+02	8.168E+01	3.573E+00	4.167E+01
U-234	1.381E+00	2.599E-01	9.197E-02	1.326E-01
U-235	2.807E+01	4.997E+00	5.147E-01	2.549E+00
U-238	4.764E+02	8.168E+01	3.573E+00	4.167E+01
AM-241	4.754E+00	1.499E+00	4.471E-01	7.646E-01



AM-243	5.023E-01	2.685E-01	1.747E-01	1.370E-01
ANH-511	1.897E-01	1.288E-01	3.995E-02	6.572E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	2.060E-01	6.287E-01	5.203E-01	3.208E-01	NOT IDENT.
NA-22	-2.197E-02	5.052E-02	4.102E-02	2.578E-02	NOT IDENT.
NA-24	-5.468E+06	7.874E+06	0.000E+00	4.017E+06	SHORT HLIF
AL-26	3.815E-02	3.501E-02	3.268E-02	1.786E-02	NOT IDENT.
TI-44	4.093E-01	1.372E-01	1.146E-01	7.002E-02	FAIL ABUN
SC-46	3.367E-02	6.468E-02	4.820E-02	3.300E-02	FAIL ABUN
V-48	1.189E-01	1.051E-01	9.219E-02	5.361E-02	NOT IDENT.
CR-51	1.110E-01	7.127E-01	6.073E-01	3.636E-01	NOT IDENT.
MN-52	5.968E-01	3.987E-01	3.649E-01	2.034E-01	NOT IDENT.
MN-54	-3.870E-02	5.630E-02	4.603E-02	2.872E-02	NOT IDENT.
CO-56	-1.545E-02	6.137E-02	5.119E-02	3.131E-02	FAIL ABUN
CO-58	4.618E-03	6.341E-02	5.389E-02	3.235E-02	NOT IDENT.
FE-59	-1.523E-02	1.130E-01	9.210E-02	5.767E-02	FAIL ABUN
CO-60	-2.489E-02	4.426E-02	3.514E-02	2.258E-02	NOT IDENT.
ZN-65	8.241E-03	1.251E-01	8.784E-02	6.385E-02	NOT IDENT.
GE-68	9.505E-01	1.443E+00	1.240E+00	7.364E-01	NOT IDENT.
AS-74	-3.363E-02	1.653E-01	1.378E-01	8.434E-02	NOT IDENT.
SE-75	-1.436E-02	9.267E-02	7.259E-02	4.728E-02	FAIL ABUN
BR-77	1.701E+01	3.585E+01	2.791E+01	1.829E+01	FAIL ABUN
SR-82	-9.651E-01	7.901E-01	5.759E-01	4.031E-01	NOT IDENT.
RB-83	5.982E-02	1.372E-01	1.067E-01	7.000E-02	NOT IDENT.
KR-85	3.503E+01	1.412E+01	1.080E+01	7.202E+00	NOT IDENT.
SR-85	1.833E-01	7.385E-02	5.653E-02	3.768E-02	NOT IDENT.
RB-86	3.531E-01	9.861E-01	8.317E-01	5.031E-01	NOT IDENT.
Y-88	8.519E-02	4.607E-02	4.194E-02	2.350E-02	NOT IDENT.
ZR-88	-4.831E-03	5.735E-02	4.771E-02	2.926E-02	NOT IDENT.
Y-91	-2.273E+01	2.018E+01	1.565E+01	1.029E+01	NOT IDENT.
NB-94	1.718E-02	6.010E-02	5.020E-02	3.066E-02	NOT IDENT.
NB-95M	8.957E-02	2.860E-01	2.079E-01	1.459E-01	NOT IDENT.
ZR-95	1.045E-01	1.324E-01	1.069E-01	6.754E-02	NOT IDENT.
NB-97	7.468E+06	1.667E+06	0.000E+00	8.504E+05	SHORT HLIF
ZR-97	5.980E+07	2.435E+07	0.000E+00	1.242E+07	SHORT HLIF
MO-99	1.624E+02	5.252E+01	3.734E+01	2.680E+01	NOT IDENT.
TC-99M	-4.726E+18	2.630E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.958E-03	1.126E-01	5.996E-02	5.742E-02	NOT IDENT.
RH-102	6.773E-02	5.583E-02	4.725E-02	2.848E-02	FAIL ABUN
RU-103	1.142E-02	7.600E-02	6.234E-02	3.878E-02	FAIL ABUN
RH-106	9.987E-03	5.210E-01	4.363E-01	2.658E-01	FAIL ABUN
RU-106	9.987E-03	5.210E-01	4.363E-01	2.658E-01	FAIL ABUN
AG-108M	-8.515E-03	5.865E-02	4.824E-02	2.992E-02	NOT IDENT.
CD-109	-3.022E+01	6.313E+00	3.005E+00	3.221E+00	NOT IDENT.
AG-110M	3.057E-01	8.384E-02	6.531E-02	4.277E-02	NOT IDENT.
IN-111	2.805E+00	3.925E+00	2.872E+00	2.002E+00	NOT IDENT.
IN-113M	-6.584E-02	8.354E-02	6.786E-02	4.262E-02	NOT IDENT.
SN-113	-6.584E-02	8.354E-02	6.786E-02	4.262E-02	NOT IDENT.
IN-114M	1.945E-02	6.473E-01	3.445E-01	3.303E-01	NOT IDENT.
CD-115	1.705E+01	3.544E+01	3.052E+01	1.808E+01	NOT IDENT.
SN-117M	-4.957E-02	1.940E-01	1.445E-01	9.897E-02	NOT IDENT.
SB-122	-6.432E-01	6.831E+00	4.946E+00	3.485E+00	NOT IDENT.
I-123	-5.392E+07	2.115E+08	0.000E+00	1.079E+08	SHORT HLIF
TE-123M	-2.357E-02	9.244E-02	6.883E-02	4.716E-02	NOT IDENT.
I-124	8.474E-01	1.695E+00	1.254E+00	8.648E-01	NOT IDENT.
SB-124	6.419E-02	9.305E-02	8.342E-02	4.748E-02	FAIL ABUN
SB-125	-4.937E-02	1.654E-01	1.355E-01	8.440E-02	NOT IDENT.
I-126	6.404E-02	3.986E-01	2.867E-01	2.034E-01	NOT IDENT.
SB-126	-2.771E-01	3.086E-01	2.048E-01	1.575E-01	FAIL ABUN
SN-126	-3.621E+00	5.789E-01	2.869E-01	2.953E-01	FAIL ABUN
SB-127	-4.429E+00	3.299E+00	2.541E+00	1.683E+00	FAIL ABUN
XE-127	6.590E-01	1.636E-01	1.170E-01	8.349E-02	FAIL ABUN
I-131	-1.430E-01	2.457E-01	2.023E-01	1.254E-01	NOT IDENT.
TE-132	1.662E+00	2.184E+00	1.818E+00	1.114E+00	FAIL ABUN
BA-133	3.695E-02	9.005E-02	6.672E-02	4.594E-02	FAIL ABUN
I-133	-2.001E+04	5.015E+04	0.000E+00	2.559E+04	SHORT HLIF
CS-134	1.035E-01	8.305E-02	7.056E-02	4.237E-02	FAIL ABUN
CS-135	7.344E-02	3.167E-01	2.594E-01	1.616E-01	NOT IDENT.
I-135	-5.185E+17	7.475E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.924E-02	1.507E-01	1.205E-01	7.687E-02	FAIL ABUN
CE-139	2.872E-01	1.024E-01	7.749E-02	5.225E-02	NOT IDENT.
BA-140	4.483E-02	5.064E-01	4.305E-01	2.584E-01	FAIL ABUN

LA-140	-1.852E-01	1.270E-01	9.271E-02	6.478E-02	NOT IDENT.
CE-141	5.525E+00	5.594E-01	2.523E-01	2.854E-01	NOT IDENT.
CE-143	1.848E+03	9.039E+02	0.000E+00	4.612E+02	SHORT HLIF
CE-144	3.187E-01	7.009E-01	5.356E-01	3.576E-01	NOT IDENT.
PM-144	-2.933E-02	6.149E-02	4.993E-02	3.137E-02	NOT IDENT.
PR-144	-1.989E+00	4.171E+00	3.387E+00	2.128E+00	NOT IDENT.
PM-146	4.092E-02	8.378E-02	6.991E-02	4.274E-02	NOT IDENT.
ND-147	-5.980E-01	1.131E+00	9.400E-01	5.768E-01	FAIL ABUN
PM-149	-2.358E+02	3.345E+02	2.634E+02	1.707E+02	NOT IDENT.
EU-152	3.428E-03	2.020E-01	1.481E-01	1.030E-01	FAIL ABUN
GD-153	6.832E+00	7.350E-01	3.278E-01	3.750E-01	FAIL ABUN
EU-154	-6.313E-02	1.409E-01	1.143E-01	7.191E-02	NOT IDENT.
EU-155	1.378E+00	4.652E-01	3.323E-01	2.374E-01	FAIL ABUN
TB-160	1.298E+00	4.744E-01	2.227E-01	2.420E-01	FAIL ABUN
HO-166M	-6.666E-02	1.072E-01	8.492E-02	5.468E-02	FAIL ABUN
TM-171	-3.629E+02	1.134E+02	7.927E+01	5.785E+01	FAIL ABUN
LU-176	1.823E-02	4.528E-02	3.891E-02	2.310E-02	FAIL ABUN
LU-177	2.547E+00	3.197E+00	2.374E+00	1.631E+00	FAIL ABUN
LU-177M	-1.053E-01	3.212E-01	2.638E-01	1.639E-01	FAIL ABUN
HF-181	-3.797E-02	8.125E-02	6.534E-02	4.145E-02	FAIL ABUN
TA-182	3.810E-02	2.194E-01	1.864E-01	1.119E-01	FAIL ABUN
RE-184	-3.792E-01	5.527E-01	3.843E-01	2.820E-01	FAIL ABUN
OS-185	9.895E-03	7.178E-02	6.016E-02	3.662E-02	FAIL ABUN
RE-188	-2.153E-01	4.898E-01	4.142E-01	2.499E-01	NOT IDENT.
W-188	1.178E+01	1.590E+01	1.210E+01	8.114E+00	FAIL ABUN
IR-192	2.892E-02	6.432E-02	5.520E-02	3.281E-02	FAIL ABUN
AU-195	1.993E+01	2.144E+00	9.419E-01	1.094E+00	FAIL ABUN
TL-200	2.036E+03	2.807E+03	0.000E+00	1.432E+03	SHORT HLIF
TL-201	3.035E+00	3.450E+01	2.575E+01	1.760E+01	NOT IDENT.
TL-202	1.140E-02	1.406E-01	1.164E-01	7.175E-02	NOT IDENT.
HG-203	6.025E-02	8.504E-02	6.997E-02	4.339E-02	FAIL ABUN
BI-207	9.943E-03	6.475E-02	5.393E-02	3.304E-02	FAIL ABUN
TL-207	-7.475E-01	1.223E+00	1.013E+00	6.238E-01	FAIL ABUN
PO-209	4.037E+00	1.036E+01	8.860E+00	5.286E+00	NOT IDENT.
BI-210	-1.333E+01	1.201E+01	1.011E+01	6.126E+00	NOT IDENT.
PB-210	-1.333E+01	1.201E+01	1.011E+01	6.126E+00	NOT IDENT.
PO-210	-1.333E+01	1.199E+01	1.011E+01	6.120E+00	NOT IDENT.
PB-211	-1.502E+00	1.927E+00	1.368E+00	9.830E-01	NOT IDENT.
PO-215	-7.475E-01	1.223E+00	1.013E+00	6.238E-01	FAIL ABUN
RN-219	2.734E-01	7.424E-01	6.239E-01	3.788E-01	NOT IDENT.
RN-220	-6.843E+01	4.562E+01	3.616E+01	2.327E+01	NOT IDENT.
RA-223	-7.475E-01	1.223E+00	1.013E+00	6.238E-01	FAIL ABUN
AC-227	3.761E+00	1.162E+00	7.599E-01	5.929E-01	NOT IDENT.
TH-227	3.761E+00	1.214E+00	7.599E-01	6.194E-01	FAIL ABUN
TH-229	4.527E+00	1.533E+00	1.073E+00	7.824E-01	FAIL ABUN
PA-231	-4.951E-01	2.995E+00	2.416E+00	1.528E+00	NOT IDENT.
TH-231	-7.475E-01	1.223E+00	1.013E+00	6.238E-01	FAIL ABUN
PA-233	-2.934E-02	1.165E-01	9.839E-02	5.943E-02	FAIL ABUN
PA-234	1.804E+00	7.373E-01	4.790E-01	3.762E-01	FAIL ABUN
NP-236	3.396E-02	2.550E-01	1.912E-01	1.301E-01	FAIL ABUN
NP-237	-3.014E+00	1.350E+00	8.412E-01	6.889E-01	FAIL ABUN
NP-239	9.670E-01	8.957E-01	5.179E-01	4.570E-01	FAIL ABUN
CM-243	8.246E-01	4.875E-01	2.871E-01	2.487E-01	FAIL ABUN
AM-246	1.028E-01	1.622E-01	1.392E-01	8.277E-02	NOT IDENT.
CM-247	3.627E-02	6.659E-02	5.626E-02	3.398E-02	NOT IDENT.
CF-249	5.954E-02	7.328E-02	6.246E-02	3.739E-02	NOT IDENT.
CF-251	-1.812E-01	3.685E-01	3.082E-01	1.880E-01	NOT IDENT.

\*\*\*\*\*  
 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	3786.1006
46.50	3786.1006
46.50	3786.1006
48.70	3772.3423
49.72	3719.8291
51.35	4025.5256
52.39	4253.6274
52.97	4264.3662
53.15	4267.6895
53.44	4273.0181
54.07	4284.5620
56.28	4324.4868
56.28	4324.5332
57.37	0.0000
57.53	4346.7925
57.53	4346.8276
57.60	4348.0405
57.98	4354.7568
57.98	4354.7568
59.32	4378.2637
59.32	4378.2637
59.40	4379.6514
59.54	4382.0884
59.72	4385.2251
60.01	4390.2622
61.10	4409.0820
61.14	4409.7642
61.30	4412.5098
63.00	4441.4800
63.29	4446.3887
63.29	4446.3887
63.58	4451.2744
64.28	4508.7837
65.12	4682.6113
65.20	4867.1489
65.20	4867.1489
66.05	5198.4497
66.72	5460.2090
66.83	5462.4141
66.91	5464.0259
67.20	5518.4995
67.20	5518.4995
67.75	5379.5254
67.85	5381.4819
68.90	5388.5171
68.90	5388.5171
69.30	5424.9360
69.67	5411.8374
70.82	5699.2412
70.82	5699.2412
70.83	5699.4448
72.80	6022.8979
72.87	6024.3633
72.87	6024.3633
74.67	6453.5723
74.81	6456.5952
74.81	6456.5952
74.81	6456.5952
74.81	6456.5952
74.81	6456.5952
74.81	6456.5952
74.81	6456.5952
74.97	6460.0728
75.28	6466.7681
75.70	6475.8032
77.11	6505.9971
77.11	6505.9971

77.11	6505.9971
77.11	6505.9971
77.11	6505.9971
77.11	6505.9971
77.11	6505.9971
78.38	7328.8916
79.62	7218.0938
79.80	7222.2427
79.80	7222.2427
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80.18	6987.2983
80.30	6810.9673
80.30	6810.9673
80.57	6816.7930
81.00	7249.8188
81.07	7251.4282
81.07	7251.4282
81.07	7251.4282
81.07	7251.4282
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83.37	7700.8857
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83.78	7971.1978
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83.78	7971.1978
84.21	7981.7627
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85.43	8061.6792
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86.50	8698.0039
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86.59	10201.2979
86.72	10205.3047
86.79	10207.3828
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87.30	10805.3252
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88.03	10861.4570
88.36	9372.6758
88.47	9375.7500
89.95	9910.7168
91.11	9870.8262
92.29	9705.9873
92.38	9708.4863
92.38	9708.4863
93.35	9735.2871
94.00	9753.2002
94.67	9771.4844
94.67	9771.6230
94.90	9777.9180
94.90	9777.9180
94.90	9777.9180
94.90	9777.9180
95.87	4059.4429
95.87	4059.4429
96.73	4069.1404
97.43	4076.9597
98.44	3879.8931
98.44	3879.9114
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99.55	3549.8940
99.86	3552.8472
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103.18	3388.7483
103.76	3476.4458
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105.31	3335.7825
108.00	3358.8308
109.28	3369.6873

111.00	3384.1826
111.00	3384.1826
111.76	3390.5552
112.95	3400.4902
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116.30	3027.3328
117.00	2866.3257
117.00	2866.3257
117.66	3294.6130
121.11	2888.3970
121.62	2925.1575
121.78	2926.2314
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122.32	3000.6956
122.32	3000.6956
122.32	3000.6956
122.32	3000.6956
123.07	2940.1182
127.23	2990.5859
129.76	2921.6648
131.20	2828.3179
133.02	2789.5955
133.54	2785.6387
135.34	2777.8755
136.00	2805.9756
136.25	2807.4666
136.48	2800.6897
140.51	2879.9971
140.51	0.0000
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142.65	2875.3328
143.76	2632.5029
144.24	2635.0562
144.24	2635.0562
144.24	2635.0562
144.24	2635.0562
145.22	2379.3308
145.44	2373.1296
147.16	2430.8372
152.43	2369.7615
152.70	2360.8706
153.22	2358.6292
154.21	2396.3638
154.21	2396.3638
154.21	2396.3638
154.21	2396.3638
155.03	2426.0229
156.02	2414.8525
158.56	2358.3066
159.00	0.0000
159.00	2369.1851
160.31	2327.1563
161.27	2359.7485
162.32	2326.8030
162.64	2321.0549
163.35	2324.0750
163.89	2286.8652
165.85	2237.6536
167.43	2250.0964
171.28	2260.2153
171.86	2283.4980
172.10	2284.4661
176.55	2388.7502
176.60	2388.9587
181.06	2460.6443
184.41	2522.8120
185.71	1905.3628
186.00	1906.2856
190.27	1353.8701
192.34	1309.0345
193.63	1337.4663
197.04	1277.0840
198.01	1279.0236
198.60	1268.2346
200.40	1330.9968
201.83	1386.8616
202.84	1389.0156
205.31	1394.2740

208.36	1246.8887
208.81	1223.4281
209.75	1152.1293
209.75	1152.1293
210.97	1154.2267
215.65	1180.6418
216.55	1100.2371
218.09	1155.0665
222.10	1115.2826
223.80	1175.9548
226.40	1053.5243
227.00	1028.4176
227.08	1028.5308
227.20	1039.1057
228.16	1018.6281
228.18	1018.6580
228.18	1018.6580
231.56	0.0000
235.69	1065.8771
236.00	1073.0713
236.00	1073.0713
238.63	1003.7723
238.63	1003.7723
238.63	1003.7723
238.63	1003.7723
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241.98	962.8618
241.98	962.8618
241.98	962.8618
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247.94	885.7324
248.90	914.6854
249.79	882.4998
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252.85	899.1246
252.85	899.1246
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256.20	832.0589
260.50	780.9268
260.90	783.0615
262.80	805.8494
264.65	816.6902
268.24	862.6259
268.79	856.6241
269.46	823.2531
269.46	823.2531
269.46	823.2531
269.46	823.2531
271.23	877.8967
273.65	987.6207
276.40	812.4337
277.35	774.5142
277.60	796.9366
277.60	796.9366
278.00	808.4248
278.60	815.6700
279.20	804.0198
279.53	804.3287
280.46	827.4854
281.68	818.6381
283.67	732.2275
284.30	722.6987
285.00	763.5974
285.90	767.7611
286.10	778.0285
286.10	778.0285
287.40	743.2651
288.45	0.0000
290.67	713.7563
290.80	713.8626
291.72	767.2723
293.26	0.0000
293.70	793.1201
295.21	795.9896
295.21	795.9896

295.21	795.9896
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296.50	818.3241
297.23	769.0383
298.57	689.8408
299.80	652.8298
299.80	652.8298
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300.09	631.7865
300.09	631.7865
300.09	631.7865
300.12	631.8034
301.29	668.3616
302.84	754.0613
303.76	758.4865
303.91	758.6078
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304.40	761.7695
304.84	715.4177
306.84	639.8752
308.46	638.2479
311.98	641.6024
316.51	615.9670
318.01	613.2393
319.02	641.7960
319.41	629.9686
320.08	626.6820
323.87	684.3467
323.87	684.3467
323.87	684.3467
323.87	684.3467
325.23	655.3528
328.77	636.1502
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334.20	650.4128
334.30	617.4048
338.28	616.7303
338.28	616.7303
338.28	616.7303
338.28	616.7303
338.32	616.7621
338.32	616.7621
338.32	616.7621
340.50	572.1489
340.57	572.1856
344.27	591.8003
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351.07	598.6641
351.92	599.1584
351.92	599.1584
351.92	599.1584
355.39	0.0000
356.01	561.6293
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366.43	539.2830
367.43	512.4582
367.94	0.0000
369.80	538.0493
374.96	481.6619
383.85	558.9260
387.95	519.2154
388.63	518.5387
391.69	576.8428
391.69	576.8428
392.90	543.4953
398.62	513.1083
400.65	519.0486
401.10	531.3322
401.81	507.4945
402.60	502.8071
404.84	560.3183
410.95	500.3481
411.60	476.2537
413.65	523.8767
414.70	498.8944
415.30	454.3244

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427.89	479.7206
432.53	488.7859
433.93	463.4820
439.47	466.6103
439.56	468.7218
439.89	477.1650
443.98	468.3040
444.90	486.3932
445.03	486.4444
445.03	486.4444
445.03	486.4444
445.03	486.4444
453.90	497.2274
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468.07	513.3467
473.00	472.6018
475.06	442.3513
475.35	442.4524
476.78	457.9057
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477.96	477.5880
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511.85	381.9652
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513.99	348.1014
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529.87	0.0000
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555.20	376.8717
563.23	401.0476
563.90	402.8529
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569.32	382.2566
569.50	370.0784
569.67	370.1180
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574.00	394.0373
574.64	392.5697
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579.30	0.0000
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592.07	366.5942
593.00	353.2966
595.88	359.7317
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602.71	332.9520
603.60	336.4647
604.41	334.9673
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609.31	341.2628



609.31	341.2628
609.31	341.2628
609.31	341.2628
610.33	336.1801
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614.37	303.4679
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621.84	312.4166
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661.65	353.3447
664.57	0.0000
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666.33	342.1840
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685.20	345.3590
692.80	324.2878
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696.49	383.3667
696.49	383.3667
697.00	383.4733
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698.33	364.2520
698.50	364.2881
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702.63	369.2108
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713.82	292.7938
717.42	291.2791
720.50	315.0405
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722.78	269.0846
722.78	269.0846
722.89	269.1004
722.95	269.1057
723.30	279.8534
724.18	272.8461
727.18	318.8185
733.00	288.4321
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742.81	286.2965
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747.13	333.8414
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752.31	301.8559
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755.35	301.2585
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766.84	327.4505
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792.07	333.9902

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836.80	0.0000
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856.80	260.5590
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867.82	220.7560
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873.19	187.7559
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875.33	0.0000
876.40	179.6286
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880.27	189.3047
880.51	189.3253
881.50	189.4077
883.24	185.2222
884.67	166.8057
889.25	162.0762
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911.07	152.8960
911.07	152.8960
911.07	152.8960
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925.00	154.7818
925.24	167.5349
926.50	181.3480
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946.00	159.1105
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969.11	153.6375
969.11	153.6375
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983.50	132.4512
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1001.68	165.7503
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1038.76	0.0000
1045.16	106.8836
1046.59	116.1963
1048.07	121.4076

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1050.47	134.9019
1062.04	106.5277
1063.62	122.1155
1076.63	103.9865
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1078.86	95.7478
1085.78	112.6821
1099.22	121.6236
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1112.84	103.2534
1115.52	127.3451
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1120.29	110.9216
1120.29	110.9216
1120.29	110.9216
1120.51	123.6106
1121.28	123.6433
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1147.95	0.0000
1167.94	116.5414
1173.22	115.8080
1175.09	111.1724
1177.93	113.1665
1189.05	148.6153
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1236.41	0.0000
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1260.41	0.0000
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1274.54	107.0694
1291.56	85.1362
1298.22	0.0000
1312.09	86.6653
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1325.50	68.2335
1332.49	79.2798
1333.61	76.3326
1360.21	65.9537
1362.66	0.0000
1365.15	60.0458
1368.21	74.1242
1368.53	0.0000
1376.25	57.2314
1384.27	100.6439
1394.10	57.5323
1395.20	60.5786
1407.95	68.9110
1434.06	57.1758
1436.60	66.4143
1457.56	0.0000
1460.81	67.8973
1489.15	66.3574
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1596.49	85.3491
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1678.03	0.0000
1691.02	33.0177
1691.02	33.0177
1706.46	0.0000
1750.46	0.0000
1764.49	19.5696
1764.49	19.5696
1764.49	19.5696
1764.49	19.5696
1770.23	32.0660
1771.40	28.5109
1791.20	0.0000
1808.65	22.9669

1836.01

18.0869

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341002

Total Uranium Activity	1.4302E+03	ug/g
Total Uranium Counting Unc.	2.4302E+02	ug/g
Total Uranium Tpu	1.2399E-04	ug/g
Total Uranium Mda	1.0631E+01	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950786                          SAMPLE ID   : G246341002
*  ANALYST       : MXR1                             DETECTOR    : GAM22
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 18-FEB-2010 12:57:15.69          SAMPLE ALQT  : 98.670 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.043E+02
GROSS GAMMA ERROR (pCi/GRAM ) : 6.147E+00
GROSS GAMMA MDA (pCi/GRAM ) : 1.586E+01
GROSS GAMMA DLC (pCi/GRAM ) : 7.869E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:09:57.56

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341003.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:09:32
Sample ID          : G246341003          Sample quantity  : 1.28300E+02 GRAM
Detector name      : GAM10              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.16  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             Detector SN#      :
Matrix Spike ID    :                   LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.98*	329	561	0.85	126.12	122	8	4.56E-02	13.8	
2	3	74.63*	377	499	1.21	149.39	143	21	5.23E-02	11.3	3.34E+00
3	3	76.86	624	543	1.28	153.86	143	21	8.67E-02	7.9	
4	4	83.89*	159	438	1.33	167.91	165	13	2.21E-02	22.5	1.19E+00
5	4	86.85	188	599	1.32	173.82	165	13	2.61E-02	23.6	
6	0	92.65*	989	827	1.15	185.42	181	11	1.37E-01	6.8	
7	0	128.78	90	331	1.17	257.60	254	7	1.24E-02	35.4	
8	0	143.18*	80	488	0.97	286.37	282	9	1.11E-02	51.7	
9	0	185.51*	669	391	1.07	370.96	366	10	9.29E-02	6.9	
10	0	209.10*	130	270	1.45	418.11	414	9	1.81E-02	24.6	
11	5	238.35*	1335	210	1.12	476.57	470	17	1.85E-01	3.3	3.87E+00
12	5	241.36*	347	190	1.84	482.58	470	17	4.81E-02	10.5	
13	0	269.78	118	204	1.52	539.38	535	9	1.64E-02	23.6	
14	0	294.96*	444	124	1.24	589.71	586	8	6.16E-02	6.5	
15	0	299.70*	57	152	1.12	599.18	595	8	7.87E-03	40.6	
16	0	338.03	272	146	1.13	675.78	671	9	3.77E-02	10.1	
17	0	351.55*	650	185	1.25	702.81	698	11	9.03E-02	5.7	
18	0	408.74	51	144	0.98	817.11	812	11	7.05E-03	48.1	
19	0	462.82	75	124	1.49	925.20	919	11	1.04E-02	31.2	
20	0	510.55*	72	184	1.86	1020.62	1013	15	9.95E-03	47.8	
21	0	582.84*	365	108	1.28	1165.13	1158	14	5.07E-02	8.1	
22	0	608.91*	426	107	1.39	1217.24	1212	13	5.92E-02	7.0	
23	0	661.16*	339	94	1.48	1321.70	1317	11	4.71E-02	7.7	
24	0	726.78*	125	59	0.95	1452.90	1447	12	1.74E-02	15.7	
25	0	785.77	46	39	1.14	1570.84	1566	10	6.40E-03	29.5	
26	0	860.38	63	53	1.42	1720.02	1715	10	8.69E-03	25.4	
27	0	911.02*	262	91	1.69	1821.28	1815	15	3.64E-02	10.5	
28	1	964.06	60	35	1.92	1927.35	1921	26	8.33E-03	24.6	9.91E-01
29	1	968.32*	164	32	1.93	1935.86	1921	26	2.27E-02	11.1	
30	0	1000.77*	77	35	2.58	2000.76	1995	12	1.07E-02	19.7	
31	0	1120.23*	76	90	1.70	2239.67	2234	16	1.06E-02	30.4	
32	0	1238.48*	57	60	1.54	2476.17	2469	15	7.97E-03	33.3	
33	0	1460.07*	1048	23	1.97	2919.45	2913	15	1.46E-01	3.3	
34	0	1763.83*	55	6	1.64	3527.24	3521	12	7.62E-03	17.8	

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

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341003.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 1-FEB-2010 12:00:00 Acquisition date : 18-FEB-2010 13:09:32  
 Sample ID : G246341003 Sample quantity : 128.30 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA10 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.16 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.594E+01	2.808E+00	5.974E-01	5.145E-02	43.419
CD-109	+	88.03	*	2.898E+00	1.407E+00	1.776E+00	2.013E-01	1.632
SN-126	+	64.28		4.485E+00	1.460E+00	1.212E+00	2.073E-01	3.700
	+	86.94		1.181E+00	7.463E-01	7.319E-01	3.073E-01	1.613
	+	87.57	*	2.840E-01	1.379E-01	1.842E-01	2.085E-02	1.541
BA-137M	+	661.65	*	4.688E-01	7.621E-02	5.568E-02	2.747E-03	8.419
CS-137	+	661.65	*	4.955E-01	8.061E-02	5.886E-02	2.921E-03	8.419
TL-208		277.35		4.520E-01	3.915E-01	6.734E-01	7.344E-02	0.671
	+	510.84		3.310E-01	3.184E-01	2.201E-01	2.314E-02	1.504
	+	583.14	*	4.830E-01	8.493E-02	5.331E-02	3.582E-03	9.060
	+	860.37		7.982E-01	4.136E-01	4.262E-01	4.162E-02	1.873
BI-211		72.87		8.547E+00	4.544E+00	7.099E+00	7.807E-01	1.204
	+	351.07	*	3.779E+00	5.128E-01	3.183E-01	2.320E-02	11.874
BI-212	+	727.18	*	1.435E+00	4.638E-01	4.535E-01	3.628E-02	3.164
	+	785.46		3.406E+00	2.026E+00	2.707E+00	2.005E-01	1.258
		1620.62		5.138E-01	1.178E+00	2.068E+00	1.577E-01	0.248
PB-212	+	74.81		2.663E+00	7.120E-01	6.907E-01	9.942E-02	3.855
	+	77.11		2.444E+00	4.681E-01	3.827E-01	4.184E-02	6.387
	+	87.30		1.313E+00	6.514E-01	8.558E-01	1.291E-01	1.535
	+	238.63	*	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
	+	300.09		1.115E+00	9.106E-01	1.214E+00	1.067E-01	0.918
PO-212	+	74.81		2.663E+00	7.120E-01	6.907E-01	9.942E-02	3.855
	+	77.11		2.444E+00	4.681E-01	3.827E-01	4.184E-02	6.387
	+	87.30		1.313E+00	6.514E-01	8.558E-01	1.291E-01	1.535
		115.19		-6.605E+00	4.063E+00	6.135E+00	4.389E-01	-1.077
	+	238.63	*	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
	+	300.09		1.115E+00	9.106E-01	1.214E+00	1.067E-01	0.918
BI-214	+	609.31	*	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
	+	1120.29		1.043E+00	6.415E-01	5.080E-01	4.965E-02	2.053
	+	1764.49		1.040E+00	3.772E-01	2.914E-01	1.946E-02	3.568
PB-214	+	74.81		4.588E+00	1.199E+00	1.190E+00	1.573E-01	3.855
	+	77.11		4.190E+00	8.636E-01	6.561E-01	8.743E-02	6.387
	+	87.30		2.250E+00	1.107E+00	1.466E+00	2.005E-01	1.535
	+	241.98		2.669E+00	6.043E-01	5.139E-01	4.275E-02	5.193



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.532E+00	2.427E-01	2.042E-01	1.844E-02	7.502
	+	351.92	*	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
	+	74.81		4.588E+00	1.199E+00	1.190E+00	1.573E-01	3.855
	+	77.11		4.190E+00	8.636E-01	6.561E-01	8.743E-02	6.387
	+	87.30		2.250E+00	1.107E+00	1.466E+00	2.005E-01	1.535
	+	241.98		2.669E+00	6.043E-01	5.139E-01	4.275E-02	5.193
PO-216	+	295.21		1.532E+00	2.427E-01	2.042E-01	1.844E-02	7.502
	+	351.92	*	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
	+	74.81		2.663E+00	7.120E-01	6.907E-01	9.942E-02	3.855
	+	77.11		2.444E+00	4.681E-01	3.827E-01	4.184E-02	6.387
	+	87.30		1.313E+00	6.514E-01	8.558E-01	1.291E-01	1.535
	+	238.63	*	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
PO-218	+	300.09		1.115E+00	9.106E-01	1.214E+00	1.067E-01	0.918
	+	74.81		4.588E+00	1.199E+00	1.190E+00	1.573E-01	3.855
	+	77.11		4.190E+00	8.636E-01	6.561E-01	8.743E-02	6.387
	+	87.30		2.250E+00	1.107E+00	1.466E+00	2.005E-01	1.535
	+	241.98		2.669E+00	6.043E-01	5.139E-01	4.275E-02	5.193
	+	295.21		1.532E+00	2.427E-01	2.042E-01	1.844E-02	7.502
RA-224	+	351.92	*	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
	+	240.98	*	5.060E+00	1.110E+00	1.055E+00	6.473E-02	4.798
RA-226	+	609.31	*	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
	+	1120.29		1.043E+00	6.415E-01	5.080E-01	4.965E-02	2.053
AC-228	+	1764.49		1.040E+00	3.772E-01	2.914E-01	1.946E-02	3.568
	+	338.32		1.743E+00	7.944E-01	3.705E-01	1.516E-01	4.704
	+	911.07	*	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832
	+	969.11		1.762E+00	5.718E-01	3.365E-01	7.957E-02	5.237
RA-228	+	338.32		1.743E+00	7.944E-01	3.705E-01	1.516E-01	4.704
	+	911.07	*	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832
	+	969.11		1.762E+00	5.718E-01	3.365E-01	7.957E-02	5.237
TH-228	+	74.81		2.708E+00	6.792E-01	7.025E-01	7.732E-02	3.855
	+	77.11		2.486E+00	4.761E-01	3.892E-01	4.256E-02	6.387
	+	87.30		1.336E+00	6.489E-01	8.705E-01	9.835E-02	1.535
	+	238.63	*	1.740E+00	1.754E-01	9.427E-02	7.151E-03	18.460
TH-230	+	300.09		1.134E+00	1.138E+00	1.234E+00	7.285E-01	0.918
	+	609.31	*	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
	+	1120.29		1.043E+00	6.414E-01	5.080E-01	4.965E-02	2.053
	+	1764.49		1.040E+00	3.772E-01	2.914E-01	1.946E-02	3.568
TH-232	+	338.32		1.743E+00	3.695E-01	3.705E-01	2.484E-02	4.704
	+	911.07	*	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832
	+	969.11		1.762E+00	5.718E-01	3.365E-01	7.957E-02	5.237
TH-234	+	63.29	*	1.133E+01	3.848E+00	3.156E+00	6.220E-01	3.591
	+	92.38		9.361E+00	2.175E+00	1.005E+00	1.902E-01	9.318
U-234	+	609.31	*	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
	+	1120.29		1.043E+00	6.414E-01	5.080E-01	4.965E-02	2.053
	+	1764.49		1.040E+00	3.772E-01	2.914E-01	1.946E-02	3.568
U-235	+	89.95		1.205E-01	2.001E+00	2.329E+00	7.349E-01	0.052
	+	93.35		1.125E+01	3.556E+00	1.194E+00	3.404E-01	9.423
	+	105.00		1.361E+00	1.258E+00	2.026E+00	6.022E-01	0.672
	+	143.76	*	3.345E-01	3.503E-01	3.476E-01	5.685E-02	0.962

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		163.35		2.633E-01	5.144E-01	8.361E-01	1.496E-01	0.315
	+	185.71		6.056E-01	9.026E-02	7.496E-02	4.219E-03	8.079
		205.31		-2.613E-02	5.669E-01	8.433E-01	1.517E-01	-0.031
NP-237	+	86.50	*	8.340E-01	4.401E-01	5.208E-01	1.224E-01	1.601
		95.87		-7.852E-01	1.227E+00	1.717E+00	4.291E-01	-0.457
U-238	+	63.29	*	1.133E+01	3.848E+00	3.156E+00	6.220E-01	3.591
	+	92.38		9.361E+00	1.587E+00	1.005E+00	1.032E-01	9.318
AM-243	+	74.67	*	4.317E-01	1.081E-01	1.125E-01	1.232E-02	3.838
	+	86.72		3.127E+01	1.519E+01	1.946E+01	2.191E+00	1.607
		117.66		-2.573E-01	4.045E+00	6.548E+00	4.544E-01	-0.039
	+	142.18		2.810E+01	2.911E+01	3.077E+01	1.836E+00	0.913
ANH-511	+	511.00	*	7.150E-02	6.851E-02	4.757E-02	3.047E-03	1.503

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	3.831E-02	3.236E-01	5.272E-01	3.921E-02	0.073
NA-22		1274.54	*	1.256E-02	4.528E-02	7.738E-02	5.993E-03	0.162
NA-24		1368.53	*	2.678E+00	4.528E-02	Half-Life too short		
AL-26		1129.67		1.332E+00	1.844E+00	3.094E+00	2.170E-01	0.431
		1808.65	*	7.144E-03	2.568E-02	4.432E-02	2.810E-03	0.161
TI-44		67.85		-1.969E-02	6.191E-02	1.016E-01	1.147E-02	-0.194
		78.38	*	1.725E-01	5.442E-02	8.502E-02	9.303E-03	2.029
SC-46		889.25	*	-1.242E-02	4.102E-02	6.509E-02	6.441E-03	-0.191
	+	1120.51		1.814E-01	1.109E-01	1.346E-01	9.668E-03	1.348
V-48		944.10		4.725E-01	8.782E-01	1.511E+00	1.464E-01	0.313
		983.50	*	-9.010E-04	8.234E-02	1.334E-01	1.234E-02	-0.007
		1312.09		7.488E-02	8.286E-02	1.514E-01	1.264E-02	0.495
CR-51		320.08	*	-2.726E-01	3.817E-01	6.057E-01	4.375E-02	-0.450
MN-52		744.21		-4.920E-02	2.915E-01	4.759E-01	3.105E-02	-0.103
		848.13		-7.099E+00	8.540E+00	1.285E+01	1.139E+00	-0.553
		935.52		3.886E-01	3.184E-01	5.745E-01	5.617E-02	0.676
		1246.25		-1.357E+00	1.038E+01	1.525E+01	1.111E+00	-0.089
		1333.61		1.208E+00	6.599E+00	1.117E+01	9.705E-01	0.108
		1434.06	*	-9.031E-02	2.846E-01	4.458E-01	3.767E-02	-0.203
MN-54		834.83	*	2.111E-02	3.796E-02	6.516E-02	5.566E-03	0.324
CO-56		846.75	*	-5.603E-02	3.965E-02	5.532E-02	4.885E-03	-1.013
		977.42		8.129E-01	3.214E+00	4.884E+00	4.551E-01	0.166
		1037.82		-1.301E-01	3.115E-01	4.792E-01	4.309E-02	-0.271
		1175.09		1.044E+00	2.159E+00	3.776E+00	2.339E-01	0.277
	+	1238.25		2.269E-01	1.519E-01	1.915E-01	1.428E-02	1.185
		1360.21		1.407E-01	1.007E+00	1.697E+00	1.466E-01	0.083
		1771.40		-1.704E-01	2.454E-01	3.388E-01	2.245E-02	-0.503
CO-57		122.06	*	3.094E-03	2.680E-02	4.364E-02	2.878E-03	0.071
		136.48		-8.001E-02	2.208E-01	3.503E-01	2.450E-02	-0.228
CO-58		810.76	*	-1.056E-02	3.959E-02	6.358E-02	5.087E-03	-0.166
FE-59	+	142.65		4.446E+00	4.607E+00	5.541E+00	3.302E-01	0.802
		192.34		4.506E-01	9.958E-01	1.609E+00	1.892E-01	0.280

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1099.22	*		-5.232E-03	1.005E-01	1.608E-01	1.342E-02	-0.033
	1291.56			5.316E-02	1.286E-01	2.228E-01	2.061E-02	0.239
CO-60	1173.22			-1.770E-02	4.493E-02	7.250E-02	4.470E-03	-0.244
	1332.49	*		-2.051E-02	4.158E-02	6.487E-02	5.637E-03	-0.316
ZN-65	1115.52	*		1.337E-02	1.035E-01	1.459E-01	1.063E-02	0.092
GE-68	1077.35	*		1.044E-01	1.238E+00	2.012E+00	1.594E-01	0.052
AS-73	53.44	*		-1.288E+00	1.714E+00	2.775E+00	3.673E-01	-0.464
AS-74	595.88	*		-1.699E-02	9.845E-02	1.636E-01	9.347E-03	-0.104
	634.78			-3.986E-01	3.496E-01	5.281E-01	2.787E-02	-0.755
SE-75	66.05			3.293E+00	7.352E+00	1.116E+01	1.437E+00	0.295
	96.73			5.714E-01	9.706E-01	1.451E+00	2.054E-01	0.394
	121.11			-2.566E-02	1.463E-01	2.354E-01	2.306E-02	-0.109
	136.00			-2.938E-02	4.163E-02	6.502E-02	4.038E-03	-0.452
	198.60			4.978E-02	1.824E+00	2.887E+00	2.045E-01	0.017
	264.65	*		-2.509E-02	4.738E-02	6.714E-02	4.282E-03	-0.374
	279.53			-5.584E-02	1.126E-01	1.835E-01	1.257E-02	-0.304
	303.91			2.400E+00	2.245E+00	3.523E+00	3.531E-01	0.681
	400.65			9.168E-02	2.497E-01	4.174E-01	4.076E-02	0.220
BR-77	87.88	+		1.096E+03	5.326E+02	6.655E+02	7.545E+01	1.648
	200.40			-1.568E+02	2.982E+02	4.588E+02	2.646E+01	-0.342
	239.00	+		4.826E+02	4.355E+01	6.819E+01	4.174E+00	7.077
	249.79			-4.793E+01	1.043E+02	1.709E+02	1.061E+01	-0.281
	281.68			-4.856E+01	1.584E+02	2.602E+02	1.675E+01	-0.187
	297.23			2.666E+02	1.315E+02	1.725E+02	1.126E+01	1.545
	303.76			4.449E+02	3.279E+02	5.256E+02	3.450E+01	0.846
	439.47			1.941E+02	2.490E+02	4.253E+02	2.860E+01	0.456
	484.57			1.400E+02	3.982E+02	6.591E+02	4.318E+01	0.212
	520.65	*		4.376E+00	1.760E+01	2.882E+01	1.829E+00	0.152
	574.64			-2.550E+02	3.583E+02	5.556E+02	3.289E+01	-0.459
	578.91			1.002E+02	1.469E+02	2.315E+02	1.361E+01	0.433
	585.48			1.076E+03	3.592E+02	6.441E+02	3.746E+01	1.670
	755.35			1.702E+02	2.993E+02	5.168E+02	3.492E+01	0.329
	817.79			-1.830E+01	2.287E+02	3.734E+02	3.040E+01	-0.049
SR-82	698.33			7.851E+00	3.533E+01	5.976E+01	3.353E+00	0.131
	776.49	*		-5.578E-01	3.853E-01	5.459E-01	3.936E-02	-1.022
	1395.20			-6.308E+00	1.223E+01	1.880E+01	1.609E+00	-0.336
RB-83	520.41	*		2.036E-02	6.756E-02	1.111E-01	7.050E-03	0.183
	529.64			-7.734E-02	1.110E-01	1.679E-01	1.055E-02	-0.461
	552.65			-1.975E-01	2.159E-01	3.194E-01	1.951E-02	-0.618
RB-84	881.50	*		6.553E-03	7.721E-02	1.273E-01	1.234E-02	0.051
KR-85	513.99	*		7.948E+00	7.973E+00	1.224E+01	7.818E-01	0.649
SR-85	513.99	*		4.159E-02	4.172E-02	6.405E-02	4.091E-03	0.649
RB-86	1076.63	*		-2.617E-01	8.642E-01	1.345E+00	1.067E-01	-0.195
Y-88	898.02			-4.422E-03	4.352E-02	7.041E-02	7.153E-03	-0.063
	1836.01	*		7.312E-03	4.093E-02	6.814E-02	4.180E-03	0.107
ZR-88	392.90	*		-3.371E-03	3.107E-02	5.048E-02	3.430E-03	-0.067
Y-91	1204.90	*		1.105E+01	1.919E+01	3.363E+01	2.234E+00	0.328
NB-94	702.63	*		-1.620E-02	3.388E-02	5.430E-02	3.091E-03	-0.298
	871.10			-2.634E-02	3.298E-02	4.938E-02	4.658E-03	-0.533

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	765.79	*		4.806E-02	4.990E-02	8.683E-02	6.059E-03	0.553
NB-95M	235.69	*		2.574E-01	1.470E-01	2.363E-01	1.833E-02	1.089
ZR-95	724.18			8.619E-02	1.163E-01	1.796E-01	1.280E-02	0.480
	756.15	*		3.676E-02	7.503E-02	1.288E-01	1.012E-02	0.285
NB-97	657.90	*		1.015E+00	7.503E-02	Half-Life	too short	
	1024.50			-4.019E+00	7.503E-02	Half-Life	too short	
ZR-97	254.15			2.177E+01	7.503E-02	Half-Life	too short	
	355.39			7.258E+00	7.503E-02	Half-Life	too short	
	507.63	*		2.085E+01	7.503E-02	Half-Life	too short	
	602.52			5.039E+01	7.503E-02	Half-Life	too short	
	1021.30			-3.565E+00	7.503E-02	Half-Life	too short	
	1147.95			-6.264E+00	7.503E-02	Half-Life	too short	
	1362.66			-4.107E+01	7.503E-02	Half-Life	too short	
	1750.46			-9.548E+00	7.503E-02	Half-Life	too short	
MO-99	140.51			-1.376E+01	5.303E+01	7.480E+01	2.019E+01	-0.184
	181.06			2.573E+01	3.288E+01	4.815E+01	8.220E+00	0.534
	366.43			5.452E+01	1.415E+02	2.377E+02	1.610E+01	0.229
	739.58	*		2.082E+00	1.806E+01	3.022E+01	4.247E+00	0.069
	778.00			-3.479E+01	5.081E+01	7.832E+01	5.674E+00	-0.444
TC-99M	140.51	*		-2.557E+12	5.081E+01	Half-Life	too short	
RH-101	127.23			3.104E-02	3.794E-02	5.701E-02	3.644E-03	0.545
	198.01	*		7.094E-03	3.311E-02	5.290E-02	3.039E-03	0.134
	325.23			-1.993E-01	2.299E-01	3.623E-01	2.413E-02	-0.550
RH-102	418.52			-2.956E-01	2.707E-01	4.043E-01	2.737E-02	-0.731
	475.06	*		1.447E-02	2.924E-02	4.890E-02	3.226E-03	0.296
	631.29			3.537E-02	4.955E-02	8.760E-02	4.661E-03	0.404
	697.49			3.446E-02	7.926E-02	1.325E-01	7.415E-03	0.260
	766.84			1.603E-01	1.312E-01	2.307E-01	1.615E-02	0.695
	1046.59			-1.149E-02	1.202E-01	1.922E-01	1.614E-02	-0.060
	1112.84			-9.197E-02	2.441E-01	3.512E-01	2.571E-02	-0.262
RU-103	497.08	*		-6.663E-04	4.132E-02	6.646E-02	8.623E-03	-0.010
	610.33			1.187E+01	2.474E+00	2.875E+00	4.408E-01	4.130
RH-106	511.85	+		3.584E-01	3.434E-01	4.100E-01	2.624E-02	0.874
	621.84	*		-3.430E-02	3.160E-01	5.155E-01	5.959E-02	-0.067
	1050.47			1.686E-01	2.337E+00	3.801E+00	3.170E-01	0.044
RU-106	511.85	+		3.584E-01	3.434E-01	4.100E-01	2.624E-02	0.874
	621.84	*		-3.430E-02	3.160E-01	5.155E-01	2.800E-02	-0.067
	1050.47			1.686E-01	2.337E+00	3.801E+00	3.170E-01	0.044
AG-108M	433.93	*		-6.110E-03	3.591E-02	5.774E-02	4.140E-03	-0.106
	614.37			-1.091E-02	4.333E-02	6.169E-02	3.721E-03	-0.177
	722.95			-1.490E-03	4.683E-02	6.723E-02	4.411E-03	-0.022
AG-110M	657.75	*		3.902E-02	3.610E-02	5.872E-02	3.181E-03	0.665
	677.61			-5.043E-02	2.862E-01	4.701E-01	2.639E-02	-0.107
	706.67			7.548E-02	2.013E-01	3.444E-01	2.108E-02	0.219
	763.93			-1.554E-01	1.939E-01	3.023E-01	2.188E-02	-0.514
	884.67			2.736E-02	5.196E-02	8.892E-02	8.913E-03	0.308
	937.48			-1.179E-01	1.114E-01	1.602E-01	1.607E-02	-0.736
	1384.27			-5.492E-02	1.648E-01	2.603E-01	2.298E-02	-0.211
IN-111	171.28			-1.277E+00	1.686E+00	2.589E+00	1.424E-01	-0.493

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	245.39	*		1.556E+00	1.701E+00	2.674E+00	1.651E-01	0.582
IN-113M	391.69	*		-1.065E-03	4.562E-02	7.453E-02	5.314E-03	-0.014
SN-113	391.69	*		-1.065E-03	4.562E-02	7.453E-02	5.314E-03	-0.014
IN-114M	190.27	*		-1.338E-01	2.185E-01	2.952E-01	1.674E-02	-0.453
CD-115	260.90			-1.940E+01	2.235E+02	3.728E+02	2.347E+01	-0.052
	492.35			1.403E+01	6.973E+01	1.140E+02	7.423E+00	0.123
	527.90	*		-2.923E+00	1.947E+01	3.085E+01	1.942E+00	-0.095
SN-117M	156.02			-2.221E+00	2.568E+00	3.948E+00	2.235E-01	-0.563
	158.56	*		-2.666E-03	6.174E-02	9.858E-02	5.529E-03	-0.027
SB-122	563.90	*		6.639E-01	3.409E+00	5.527E+00	3.324E-01	0.120
	692.80			-4.091E+01	6.822E+01	1.080E+02	5.948E+00	-0.379
I-123	159.00	*		1.424E+01	6.822E+01	Half-Life	too short	
	528.96			-4.259E+03	6.822E+01	Half-Life	too short	
TE-123M	159.00	*		6.155E-03	2.937E-02	4.742E-02	2.693E-03	0.130
I-124	602.71	*		9.114E-01	9.048E-01	1.511E+00	8.523E-02	0.603
	722.78			-1.344E-01	6.743E+00	9.695E+00	5.902E-01	-0.014
	1325.50			-1.089E+01	4.533E+01	7.286E+01	6.246E+00	-0.149
	1376.25			6.328E+01	4.845E+01	9.163E+01	7.885E+00	0.691
	1509.49			3.450E+01	2.517E+01	4.773E+01	3.902E+00	0.723
	1691.02			3.231E+00	4.586E+00	8.546E+00	6.146E-01	0.378
SB-124	602.71			3.932E-02	3.904E-02	6.517E-02	3.678E-03	0.603
	645.85			-8.795E-02	4.912E-01	8.103E-01	4.835E-02	-0.109
	709.31			-2.377E+00	2.845E+00	4.411E+00	2.568E-01	-0.539
	713.82			-3.250E-01	1.663E+00	2.720E+00	2.794E-01	-0.119
	722.78			-8.403E-03	4.217E-01	6.063E-01	3.849E-02	-0.014
+	968.20			1.855E+01	4.476E+00	7.679E+00	7.238E-01	2.416
	1045.16			5.613E-01	2.557E+00	4.222E+00	3.555E-01	0.133
	1325.50			-7.271E-01	3.028E+00	4.866E+00	4.172E-01	-0.149
	1368.21			6.852E-01	1.781E+00	3.090E+00	4.164E-01	0.222
	1436.60			5.402E-01	3.830E+00	6.437E+00	5.435E-01	0.084
	1691.02	*		4.766E-02	6.765E-02	1.261E-01	9.578E-03	0.378
SB-125	427.89	*		-2.007E-02	9.869E-02	1.584E-01	1.103E-02	-0.127
+	463.38			6.774E-01	4.255E-01	5.277E-01	3.958E-02	1.284
	600.56			9.239E-02	1.743E-01	3.032E-01	1.999E-02	0.305
	635.90			-1.047E-01	2.392E-01	3.856E-01	2.445E-02	-0.271
TE-125M	109.28	*		-6.054E-01	1.066E+01	1.733E+01	1.664E+00	-0.035
I-126	388.63			1.702E-01	2.326E-01	3.969E-01	2.697E-02	0.429
	666.33	*		-9.556E-02	2.204E-01	3.040E-01	1.525E-02	-0.314
	753.82			6.426E-01	1.636E+00	2.791E+00	1.877E-01	0.230
SB-126	223.80			1.428E+00	4.503E+00	7.701E+00	4.611E-01	0.185
	278.60			1.512E+00	2.858E+00	4.817E+00	3.092E-01	0.314
	296.50			1.234E+01	2.539E+00	3.826E+00	2.496E-01	3.224
	414.70			1.177E-01	8.051E-02	1.360E-01	9.215E-03	0.866
	415.30			8.816E+00	6.480E+00	1.122E+01	7.603E-01	0.786
	555.20			1.448E+00	4.486E+00	7.355E+00	4.478E-01	0.197
	573.80			-8.100E-02	1.148E+00	1.927E+00	1.142E-01	-0.042
	593.00			3.132E-01	1.009E+00	1.734E+00	9.959E-02	0.181
	656.30			1.944E+00	3.623E+00	5.609E+00	2.807E-01	0.347
	666.33			-4.011E-02	9.249E-02	1.276E-01	6.401E-03	-0.314

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SB-127		675.00		-6.404E-01	1.971E+00	3.195E+00	1.653E-01	-0.200
		695.00		3.654E-02	8.406E-02	1.445E-01	8.013E-03	0.253
		697.00		9.577E-02	3.059E-01	5.071E-01	2.832E-02	0.189
		720.50	*	6.836E-02	1.864E-01	2.794E-01	1.688E-02	0.245
		856.80		3.463E-02	5.827E-01	8.334E-01	7.565E-02	0.042
		989.30		7.670E-01	1.428E+00	2.437E+00	2.237E-01	0.315
		1034.80		-4.989E+00	1.022E+01	1.557E+01	1.335E+00	-0.320
		1213.00		-2.200E+00	5.409E+00	8.715E+00	5.896E-01	-0.252
		61.10		1.768E+02	1.476E+02	2.286E+02	3.321E+01	0.774
		252.40		-3.062E+00	5.879E+00	9.375E+00	3.916E+00	-0.327
		290.80		-1.709E+01	3.246E+01	4.561E+01	4.697E+00	-0.375
		411.60		-6.179E+00	1.865E+01	2.575E+01	3.927E+00	-0.240
		444.90		-4.407E+00	1.363E+01	2.158E+01	2.566E+00	-0.204
		473.00		5.444E-01	2.342E+00	3.848E+00	4.688E-01	0.141
		543.00		9.160E-01	2.411E+01	3.870E+01	5.261E+00	0.024
		603.60		-4.040E+00	1.781E+01	2.546E+01	2.875E+00	-0.159
		685.20	*	1.355E-01	1.844E+00	3.090E+00	3.053E-01	0.044
		698.50		1.173E+00	2.121E+01	3.543E+01	5.267E+00	0.033
		722.20		-1.984E+01	4.922E+01	6.770E+01	6.796E+00	-0.293
		783.80		6.077E+00	5.660E+00	9.053E+00	1.101E+00	0.671
XE-127		57.60		1.016E+00	1.095E+01	1.833E+01	2.330E+00	0.055
		145.22		6.699E-01	8.512E-01	1.269E+00	7.482E-02	0.528
		172.10		-1.584E-01	1.304E-01	1.953E-01	1.076E-02	-0.811
		202.84	*	1.664E-02	4.674E-02	8.041E-02	4.656E-03	0.207
I-131		374.96		-6.398E-02	2.044E-01	3.287E-01	2.230E-02	-0.195
		80.18		1.080E+00	7.201E+00	1.070E+01	1.180E+00	0.101
		284.30		-1.201E-01	1.724E+00	2.865E+00	2.023E-01	-0.042
		364.48	*	-8.070E-02	1.413E-01	2.241E-01	1.652E-02	-0.360
TE-132		636.97		-8.568E-01	1.575E+00	2.510E+00	1.514E-01	-0.341
		722.89		-2.573E-01	9.317E+00	1.338E+01	8.283E-01	-0.019
		49.72		-4.068E+01	6.911E+01	1.130E+02	1.659E+01	-0.360
		111.76		3.347E+01	5.165E+01	8.581E+01	9.051E+00	0.390
BA-133		116.30		-1.169E+00	4.457E+01	7.230E+01	7.412E+00	-0.016
		228.16	*	1.210E-01	1.029E+00	1.745E+00	2.592E-01	0.069
		53.15		-1.972E+00	7.289E+00	1.207E+01	1.599E+00	-0.163
		79.62		7.972E-01	1.744E+00	2.619E+00	4.365E-01	0.304
I-133		81.00		8.508E-02	1.560E-01	1.885E-01	3.257E-02	0.451
		276.40		4.257E-01	3.884E-01	6.647E-01	8.805E-02	0.640
		302.84		1.408E-01	1.514E-01	2.351E-01	2.834E-02	0.599
		356.01	*	1.953E-02	4.810E-02	7.170E-02	8.651E-03	0.272
I-133	+	383.85		-2.455E-01	2.982E-01	4.602E-01	5.261E-02	-0.533
		510.53		3.409E+00	2.982E-01	Half-Life	too short	
		529.87	*	-1.291E-02	2.982E-01	Half-Life	too short	
		706.58		7.502E-01	2.982E-01	Half-Life	too short	
CS-134		856.28		-2.208E+00	2.982E-01	Half-Life	too short	
		875.33		2.006E-01	2.982E-01	Half-Life	too short	
		1236.41		6.014E+00	2.982E-01	Half-Life	too short	
		1298.22		-7.742E-01	2.982E-01	Half-Life	too short	
		475.35		1.062E+00	1.911E+00	3.208E+00	2.116E-01	0.331

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135		563.23		3.031E-01	3.547E-01	6.043E-01	3.709E-02	0.502
		569.32		1.035E-01	2.155E-01	3.510E-01	2.153E-02	0.295
		604.70		-2.406E-02	3.628E-02	4.939E-02	2.793E-03	-0.487
		795.84	*	3.633E-02	4.629E-02	8.101E-02	6.245E-03	0.449
		801.93		4.722E-02	3.896E-01	6.486E-01	5.079E-02	0.073
		1038.57		-1.212E+00	3.772E+00	5.870E+00	4.999E-01	-0.206
		1167.94		6.728E-01	2.602E+00	4.454E+00	2.794E-01	0.151
		1365.15		-6.910E-01	1.240E+00	1.894E+00	1.709E-01	-0.365
		268.24	*	3.663E-01	1.763E-01	2.897E-01	2.341E-02	1.265
		288.45		6.831E+11	1.763E-01	Half-Life	too short	
		417.63		-2.802E+12	1.763E-01	Half-Life	too short	
		546.56		1.345E+12	1.763E-01	Half-Life	too short	
		836.80		-6.462E+11	1.763E-01	Half-Life	too short	
		1038.76		-6.324E+11	1.763E-01	Half-Life	too short	
		1124.00		-1.817E+12	1.763E-01	Half-Life	too short	
		1131.51		4.908E+11	1.763E-01	Half-Life	too short	
		1260.41	*	-7.311E+11	1.763E-01	Half-Life	too short	
		1457.56		1.106E+14	1.763E-01	Half-Life	too short	
		1678.03		-1.069E+12	1.763E-01	Half-Life	too short	
		1706.46		-1.053E+12	1.763E-01	Half-Life	too short	
		1791.20		5.814E+11	1.763E-01	Half-Life	too short	
CS-136 +		66.91		-1.199E+00	1.356E+00	1.914E+00	3.278E-01	-0.627
		86.29		4.103E+00	2.031E+00	2.582E+00	3.804E-01	1.589
		153.22		8.324E-01	7.627E-01	1.275E+00	9.128E-02	0.653
		163.89		8.719E-01	1.283E+00	2.106E+00	1.478E-01	0.414
		176.55		7.113E-02	4.258E-01	6.826E-01	4.296E-02	0.104
		273.65		-8.703E-01	5.838E-01	7.691E-01	5.489E-02	-1.132
		340.57		2.229E-01	1.486E-01	2.383E-01	1.676E-02	0.935
		818.51		-1.576E-02	7.955E-02	1.284E-01	1.049E-02	-0.123
		1048.07	*	-6.784E-02	1.263E-01	1.922E-01	1.683E-02	-0.353
		1235.34		5.316E-01	7.893E-01	1.221E+00	1.319E-01	0.435
CE-139 BA-140		165.85	*	-2.409E-02	3.306E-02	5.107E-02	2.789E-03	-0.472
		162.64		5.575E-01	8.968E-01	1.470E+00	9.229E-02	0.379
		304.84		-1.653E-01	1.406E+00	2.241E+00	6.154E-01	-0.074
		423.70		5.047E-01	2.121E+00	3.497E+00	1.118E+00	0.144
LA-140		537.32	*	-3.269E-02	2.738E-01	4.337E-01	1.414E-01	-0.075
		328.77		5.523E-01	3.390E-01	6.016E-01	4.383E-02	0.918
		432.53		1.546E+00	2.492E+00	4.203E+00	3.055E-01	0.368
		487.03		3.128E-02	1.554E-01	2.543E-01	1.838E-02	0.123
		751.79		-1.155E+00	1.892E+00	2.967E+00	2.324E-01	-0.389
		815.85		1.684E-01	3.434E-01	5.899E-01	5.396E-02	0.286
		867.82		5.456E-01	1.451E+00	2.463E+00	2.407E-01	0.222
		919.63		-9.267E-01	3.393E+00	5.045E+00	5.920E-01	-0.184
		925.24		1.549E-01	1.299E+00	2.142E+00	2.218E-01	0.072
		1596.49	*	-7.431E-02	8.958E-02	1.234E-01	9.579E-03	-0.602
CE-141 CE-143		145.44	*	2.995E-02	7.647E-02	1.118E-01	6.840E-03	0.268
		57.37		3.319E-03	7.647E-02	Half-Life	too short	
		231.56		-2.436E-03	7.647E-02	Half-Life	too short	
		293.26	*	2.445E-03	7.647E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	350.59		7.931E-02	7.647E-02	Half-Life	too short	
		490.36		4.490E-03	7.647E-02	Half-Life	too short	
		664.57		2.685E-03	7.647E-02	Half-Life	too short	
		721.93		-6.418E-04	7.647E-02	Half-Life	too short	
CE-144		80.11		5.634E-01	2.826E+00	4.208E+00	4.617E-01	0.134
		133.54	*	-7.055E-02	2.111E-01	3.353E-01	4.817E-02	-0.210
PM-144		476.78		5.765E-02	6.815E-02	1.165E-01	8.869E-03	0.495
		618.01		8.606E-03	3.177E-02	5.432E-02	3.174E-03	0.158
		696.49	*	2.639E-02	3.527E-02	6.025E-02	3.363E-03	0.438
		778.57		8.569E-01	2.065E+00	3.459E+00	2.511E-01	0.248
PR-144		696.49	*	1.790E+00	2.392E+00	4.087E+00	2.279E-01	0.438
		1489.15		-1.302E-01	1.238E+01	2.030E+01	1.677E+00	-0.006
PM-146		453.90	*	7.791E-03	4.257E-02	6.988E-02	6.454E-03	0.111
		633.02		1.981E-01	1.258E+00	2.130E+00	7.829E-01	0.093
		735.90		-9.076E-02	1.387E-01	2.122E-01	5.943E-02	-0.428
		747.13		2.407E-02	8.519E-02	1.444E-01	1.862E-02	0.167
ND-147		91.11		2.998E+00	7.141E-01	9.139E-01	1.019E-01	3.281
		319.41		-1.283E+00	3.633E+00	5.896E+00	3.914E-01	-0.218
		439.89		8.860E-01	6.670E+00	1.093E+01	7.350E-01	0.081
		531.02	*	3.782E-01	6.368E-01	1.065E+00	1.463E-01	0.355
PM-149		285.90	*	-4.898E+01	1.645E+02	2.698E+02	3.903E+01	-0.182
EU-152		121.78		1.318E-02	7.773E-02	1.268E-01	1.045E-02	0.104
		244.69		6.042E-02	3.290E-01	4.938E-01	3.046E-02	0.122
		344.27	*	-6.405E-02	9.380E-02	1.481E-01	1.091E-02	-0.432
		443.98		-5.698E-02	9.393E-01	1.518E+00	1.019E-01	-0.038
		778.89		1.124E-01	2.456E-01	4.016E-01	2.917E-02	0.280
		867.32		2.940E-01	8.041E-01	1.331E+00	1.243E-01	0.221
	+	964.01		7.431E-01	3.724E-01	5.966E-01	5.652E-02	1.246
		1085.78		-1.748E-01	4.109E-01	6.256E-01	4.870E-02	-0.279
		1112.02		-2.103E-01	3.410E-01	4.944E-01	3.626E-02	-0.425
		1407.95		7.736E-02	1.907E-01	3.305E-01	2.818E-02	0.234
GD-153		69.67		1.859E+00	2.417E+00	3.700E+00	4.127E-01	0.502
	+	83.37		4.489E+01	2.084E+01	3.167E+01	3.510E+00	1.418
		97.43	*	1.009E-01	1.008E-01	1.535E-01	1.429E-02	0.657
		103.18		7.649E-02	1.186E-01	1.980E-01	1.674E-02	0.386
EU-154		123.07		5.145E-03	5.340E-02	8.684E-02	8.582E-03	0.059
		247.94		3.021E-02	3.310E-01	5.586E-01	5.466E-02	0.054
		591.81		-1.683E-01	6.047E-01	9.970E-01	9.718E-02	-0.169
		723.30		-2.038E-02	2.009E-01	2.862E-01	2.097E-02	-0.071
		756.87		2.262E-01	8.018E-01	1.355E+00	1.455E-01	0.167
		873.19		1.787E-01	2.976E-01	5.132E-01	6.605E-02	0.348
		996.32		-6.744E-02	3.897E-01	5.291E-01	9.523E-02	-0.127
		1004.76		4.843E-02	2.390E-01	3.441E-01	4.097E-02	0.141
		1274.45	*	3.805E-02	1.267E-01	2.169E-01	2.310E-02	0.175
EU-155		48.70		-5.795E+00	6.072E+00	9.769E+00	1.173E+00	-0.593
		60.01		4.397E+00	8.960E+00	1.367E+01	1.684E+00	0.322
	+	86.54		3.423E-01	1.663E-01	2.142E-01	2.424E-02	1.598
		105.31	*	1.050E-01	1.226E-01	2.058E-01	1.707E-02	0.510
TB-160	+	86.79		9.307E-01	4.521E-01	5.789E-01	6.522E-02	1.608



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		197.04		2.536E-01	5.634E-01	9.105E-01	5.222E-02	0.278
		215.65		2.240E-01	7.190E-01	1.232E+00	7.285E-02	0.182
	+	298.57		1.652E-01	1.346E-01	1.911E-01	1.249E-02	0.864
		879.36	*	3.420E-02	1.498E-01	2.501E-01	2.411E-02	0.137
		962.29		8.280E-01	6.373E-01	1.043E+00	9.906E-02	0.794
		966.15		1.465E+00	3.128E-01	5.902E-01	5.578E-02	2.482
		1177.93		-2.504E-01	3.538E-01	5.510E-01	3.436E-02	-0.454
		1271.85		2.880E-01	7.356E-01	1.271E+00	9.780E-02	0.227
		80.57		1.106E-01	4.403E-01	5.233E-01	5.748E-02	0.211
	+	184.41		4.542E-01	6.770E-02	9.525E-02	5.349E-03	4.769
		280.46		-1.005E-01	8.695E-02	1.365E-01	8.780E-03	-0.736
		410.95		9.160E-02	2.691E-01	3.961E-01	2.686E-02	0.231
		711.68	*	3.929E-02	5.843E-02	1.021E-01	5.994E-03	0.385
		752.31		-9.984E-02	2.744E-01	4.404E-01	2.947E-02	-0.227
TM-171		810.29		-3.293E-02	5.976E-02	9.341E-02	7.443E-03	-0.352
		51.35		9.754E+01	6.791E+01	1.176E+02	1.546E+01	0.830
		52.39		4.574E+01	3.336E+01	5.767E+01	7.638E+00	0.793
		59.40		3.806E+00	4.935E+01	7.407E+01	9.202E+00	0.051
LU-176		66.72	*	-2.454E+01	4.348E+01	6.291E+01	7.167E+00	-0.390
		88.36		3.463E-01	3.320E-01	4.077E-01	4.586E-02	0.849
		201.83		-7.876E-03	2.810E-02	4.718E-02	2.727E-03	-0.167
		306.84	*	-1.126E-02	2.333E-02	3.766E-02	2.477E-03	-0.299
LU-177		401.10		1.488E+00	6.584E+00	1.091E+01	7.409E-01	0.136
		112.95		2.509E+00	2.260E+00	3.812E+00	2.806E-01	0.658
LU-177M	+	208.36	*	3.637E+00	1.805E+00	2.379E+00	1.390E-01	1.528
		52.97		2.912E-01	3.339E+00	5.607E+00	7.428E-01	0.052
HF-181		54.07		-2.815E+00	1.732E+00	2.654E+00	3.501E-01	-1.060
		61.30		4.733E+00	2.766E+00	4.340E+00	5.251E-01	1.091
		121.62		1.338E-01	3.985E-01	6.547E-01	4.332E-02	0.204
		147.16		-1.227E-01	7.497E-01	1.062E+00	6.214E-02	-0.116
		171.86		-6.066E-01	5.131E-01	7.704E-01	4.241E-02	-0.787
		218.09		-6.448E-01	8.136E-01	1.327E+00	7.878E-02	-0.486
	+	268.79		2.332E+00	1.113E+00	1.556E+00	9.885E-02	1.499
		319.02		-1.322E-01	2.529E-01	4.061E-01	2.694E-02	-0.326
		367.43		4.447E-01	9.392E-01	1.585E+00	1.073E-01	0.281
		413.65	*	1.261E-01	1.842E-01	2.800E-01	1.898E-02	0.450
		56.28		4.765E-01	1.740E+00	2.935E+00	3.791E-01	0.162
		57.53		5.675E-01	9.046E-01	1.539E+00	1.958E-01	0.369
		65.20		4.682E-01	1.498E+00	2.262E+00	2.613E-01	0.207
		133.02		-2.090E-02	7.296E-02	1.105E-01	6.861E-03	-0.189
W-181		136.25		-2.856E-01	4.971E-01	7.812E-01	4.781E-02	-0.366
		345.85		1.575E-01	1.981E-01	3.199E-01	2.151E-02	0.493
		482.03	*	-2.266E-02	4.447E-02	6.898E-02	4.528E-03	-0.328
		56.28		1.836E-01	6.674E-01	1.125E+00	1.454E-01	0.163
TA-182		57.53		2.180E-01	3.472E-01	5.907E-01	7.517E-02	0.369
		65.20	*	1.782E-01	5.702E-01	8.612E-01	9.950E-02	0.207
		67.75		-5.085E-02	1.497E-01	2.454E-01	2.772E-02	-0.207
		100.10		-1.859E-01	2.064E-01	3.249E-01	2.887E-02	-0.572
		152.43		2.857E-01	3.539E-01	5.861E-01	3.363E-02	0.487

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		222.10		6.701E-02	3.446E-01	5.868E-01	3.504E-02	0.114
	+	1001.68		7.542E+00	3.054E+00	4.821E+00	4.349E-01	1.564
	+	1121.28		4.989E-01	3.051E-01	3.723E-01	2.669E-02	1.340
		1189.05		3.722E-02	3.261E-01	5.508E-01	3.526E-02	0.068
		1221.42	*	-3.546E-02	2.034E-01	3.344E-01	2.306E-02	-0.106
		1230.97		-2.929E-01	5.816E-01	7.827E-01	5.513E-02	-0.374
RE-183		57.98		2.663E-02	3.639E-01	5.816E-01	7.358E-02	0.046
		59.32		7.333E-03	2.067E-01	3.097E-01	3.851E-02	0.024
		67.20		-1.308E-01	2.897E-01	4.504E-01	5.110E-02	-0.290
		162.32	*	9.068E-02	1.197E-01	1.972E-01	1.091E-02	0.460
	+	208.81		2.730E+00	1.355E+00	1.804E+00	1.055E-01	1.513
		291.72		-9.446E-01	1.024E+00	1.392E+00	9.048E-02	-0.678
RE-184		57.98		9.703E-02	1.326E+00	2.119E+00	2.681E-01	0.046
		59.32		2.670E-02	7.525E-01	1.128E+00	1.402E-01	0.024
		67.20		-4.765E-01	1.055E+00	1.641E+00	1.861E-01	-0.290
		161.27		-7.055E-02	3.814E-01	6.048E-01	3.358E-02	-0.117
		216.55		-1.463E-01	2.552E-01	4.210E-01	2.492E-02	-0.347
		252.85	*	4.084E-02	2.195E-01	3.716E-01	2.317E-02	0.110
		318.01		-1.276E-01	4.427E-01	7.216E-01	4.783E-02	-0.177
		792.07		-6.846E-01	1.103E+00	1.536E+00	1.160E-01	-0.446
		903.28		3.024E-02	1.125E+00	1.736E+00	1.749E-01	0.017
		920.93		-4.311E-01	4.812E-01	7.118E-01	7.060E-02	-0.606
OS-185		59.72		2.168E-01	5.436E-01	8.269E-01	1.023E-01	0.262
		61.14		3.818E-01	3.002E-01	4.677E-01	5.670E-02	0.816
		69.30		-2.522E-02	4.481E-01	6.642E-01	7.425E-02	-0.038
		592.07		-6.969E-01	2.503E+00	4.127E+00	2.373E-01	-0.169
		646.12	*	3.053E-03	4.131E-02	6.950E-02	3.571E-03	0.044
		717.42		-2.885E-01	9.619E-01	1.561E+00	9.338E-02	-0.185
		874.81		1.680E-01	5.955E-01	1.000E+00	9.531E-02	0.168
		880.27		3.520E-01	8.399E-01	1.424E+00	1.377E-01	0.247
RE-188		155.03	*	-9.958E-02	1.828E-01	2.856E-01	1.623E-02	-0.349
		477.96		-9.550E-01	3.176E+00	5.013E+00	3.300E-01	-0.190
		633.10		3.902E-01	2.585E+00	4.382E+00	2.322E-01	0.089
W-188	+	63.58		4.643E+02	1.396E+02	1.709E+02	2.010E+01	2.716
		227.08		-4.780E+00	1.282E+01	2.129E+01	1.281E+00	-0.225
		290.67	*	-7.940E-01	7.887E+00	1.147E+01	7.445E-01	-0.069
IR-192	+	295.96		1.189E+00	1.736E-01	2.942E-01	1.943E-02	4.043
		308.46		-5.540E-02	9.389E-02	1.505E-01	1.000E-02	-0.368
		316.51	*	4.605E-03	3.474E-02	5.800E-02	3.856E-03	0.079
		468.07		6.600E-03	7.027E-02	1.003E-01	7.438E-03	0.066
		604.41		-3.117E-01	5.008E-01	6.838E-01	7.700E-02	-0.456
		612.46		-1.652E-01	7.990E-01	1.144E+00	8.436E-02	-0.144
AU-195		65.12		8.912E-02	2.639E-01	3.990E-01	4.613E-02	0.223
		66.83		-1.353E-01	1.474E-01	2.091E-01	2.380E-02	-0.647
	+	75.70		1.407E+00	3.525E-01	5.667E-01	6.199E-02	2.483
		98.88	*	3.605E-01	2.622E-01	4.432E-01	4.022E-02	0.813
	+	129.76		5.111E+00	3.632E+00	5.271E+00	3.325E-01	0.970
TL-200		367.94	*	6.325E-04	3.632E+00	Half-Life too short		
		579.30		1.262E-02	3.632E+00	Half-Life too short		

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	828.27			-4.814E-03	3.632E+00	Half-Life too short		
	1205.75			4.297E-03	3.632E+00	Half-Life too short		
TL-201	68.90			-2.573E+00	1.104E+01	1.623E+01	1.819E+00	-0.158
	70.82			7.766E+00	5.960E+00	9.262E+00	1.027E+00	0.838
	80.30			4.670E+00	1.271E+01	1.522E+01	1.671E+00	0.307
	135.34			-3.606E+01	4.095E+01	6.342E+01	3.897E+00	-0.569
	167.43	*		-3.227E+00	1.173E+01	1.849E+01	1.011E+00	-0.175
TL-202	68.90			-1.663E-01	7.136E-01	1.049E+00	1.176E-01	-0.158
	70.82			5.006E-01	3.842E-01	5.971E-01	6.619E-02	0.838
	80.30			3.011E-01	8.197E-01	9.815E-01	1.078E-01	0.307
	439.56	*		5.138E-02	7.707E-02	1.307E-01	8.789E-03	0.393
HG-203	70.83			2.005E+00	1.550E+00	2.387E+00	3.649E-01	0.840
	72.87			1.750E+00	9.464E-01	1.453E+00	2.160E-01	1.204
	82.60			3.416E+00	1.627E+00	2.337E+00	3.596E-01	1.462
	279.20	*		9.132E-03	4.249E-02	7.164E-02	4.834E-03	0.127
BI-207	72.80			4.310E-01	2.622E-01	4.084E-01	4.492E-02	1.056
	74.97			7.749E-01	1.941E-01	2.830E-01	3.098E-02	2.738
	84.90			5.775E-01	2.681E-01	4.055E-01	4.524E-02	1.424
	569.67			1.924E-02	3.376E-02	5.532E-02	3.299E-03	0.348
	1063.62	*		3.908E-02	5.322E-02	9.212E-02	7.499E-03	0.424
	1770.23			-1.071E+00	6.260E-01	7.001E-01	4.645E-02	-1.529
TL-207	81.07			1.911E-01	3.431E-01	4.158E-01	4.573E-02	0.460
	83.78			3.807E-01	1.767E-01	2.693E-01	2.990E-02	1.414
	94.90			1.154E-01	2.911E-01	4.338E-01	4.236E-02	0.266
	122.32			1.849E-01	1.839E+00	2.993E+00	2.209E-01	0.062
	144.24			1.084E+00	1.124E+00	1.338E+00	9.805E-02	0.810
	154.21			1.144E-01	4.087E-01	6.625E-01	4.592E-02	0.173
	269.46			5.415E-01	2.586E-01	3.623E-01	2.390E-02	1.495
	323.87	*		-3.610E-01	6.701E-01	1.072E+00	1.805E-01	-0.337
	338.28			7.278E+00	1.670E+00	2.484E+00	2.746E-01	2.930
	445.03			-8.443E-01	2.235E+00	3.524E+00	3.809E-01	-0.240
PO-209	260.50			8.040E-01	9.082E+00	1.528E+01	9.619E-01	0.053
	262.80			-1.622E+00	2.468E+01	4.120E+01	2.600E+00	-0.039
	896.60	*		4.884E-01	7.906E+00	1.299E+01	1.310E+00	0.038
BI-210	46.50	*		1.004E+01	9.214E+00	1.602E+01	1.571E+00	0.627
PB-210	46.50	*		1.004E+01	9.214E+00	1.602E+01	1.571E+00	0.627
PO-210	46.50	*		1.004E+01	9.206E+00	1.602E+01	1.438E+00	0.627
PB-211	404.84	*		-4.737E-02	1.058E+00	1.506E+00	9.404E-01	-0.031
	427.08			-2.160E-01	2.162E+00	3.489E+00	2.160E+00	-0.062
	831.96			-2.601E-01	1.290E+00	2.067E+00	1.295E+00	-0.126
PO-215	81.07			1.911E-01	3.431E-01	4.158E-01	4.573E-02	0.460
	83.78			3.807E-01	1.767E-01	2.693E-01	2.990E-02	1.414
	94.90			1.154E-01	2.911E-01	4.338E-01	4.236E-02	0.266
	122.32			1.849E-01	1.839E+00	2.993E+00	2.209E-01	0.062
	144.24			1.084E+00	1.124E+00	1.338E+00	9.805E-02	0.810
	154.21			1.144E-01	4.087E-01	6.625E-01	4.592E-02	0.173
	269.46			5.415E-01	2.586E-01	3.623E-01	2.390E-02	1.495
	323.87	*		-3.610E-01	6.701E-01	1.072E+00	1.805E-01	-0.337
	338.28			7.278E+00	1.670E+00	2.484E+00	2.746E-01	2.930

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		-8.443E-01	2.235E+00	3.524E+00	3.809E-01	-0.240
		271.23		6.948E-01	3.339E-01	4.475E-01	3.813E-02	1.553
		401.81	*	6.096E-02	4.006E-01	6.606E-01	9.286E-02	0.092
RN-220		549.76	*	1.782E+01	2.790E+01	4.673E+01	2.865E+00	0.381
RA-223	+	81.07		1.911E-01	3.431E-01	4.158E-01	4.573E-02	0.460
		83.78		3.807E-01	1.767E-01	2.693E-01	2.990E-02	1.414
		94.90		1.154E-01	2.911E-01	4.338E-01	4.236E-02	0.266
	+	122.32		1.849E-01	1.839E+00	2.993E+00	2.209E-01	0.062
		144.24		1.084E+00	1.124E+00	1.338E+00	9.805E-02	0.810
		154.21		1.144E-01	4.087E-01	6.625E-01	4.592E-02	0.173
	+	269.46		5.415E-01	2.586E-01	3.623E-01	2.390E-02	1.495
		323.87	*	-3.610E-01	6.701E-01	1.072E+00	1.805E-01	-0.337
		338.28		7.278E+00	1.670E+00	2.484E+00	2.746E-01	2.930
AC-227	+	445.03		-8.443E-01	2.235E+00	3.524E+00	3.809E-01	-0.240
		79.80		8.989E-01	2.207E+00	3.303E+00	7.447E-01	0.272
		236.00		9.220E-01	2.966E-01	4.810E-01	5.108E-02	1.917
	+	256.20	*	1.880E-01	3.653E-01	6.261E-01	8.864E-02	0.300
		286.10		-1.288E-01	1.493E+00	2.478E+00	2.950E-01	-0.052
		299.80		2.066E+00	1.712E+00	2.421E+00	4.010E-01	0.853
	+	304.40		8.888E-01	1.909E+00	3.021E+00	5.307E-01	0.294
		334.20		6.011E-01	2.576E+00	3.800E+00	7.080E-01	0.158
TH-227	+	79.80		8.989E-01	2.207E+00	3.303E+00	7.534E-01	0.272
		94.00		3.617E+01	9.483E+00	5.042E+00	1.126E+00	7.175
		236.00		9.220E-01	2.927E-01	4.810E-01	4.449E-02	1.917
	+	256.20	*	1.880E-01	3.658E-01	6.261E-01	1.068E-01	0.300
		286.10		-1.288E-01	1.498E+00	2.478E+00	2.483E+00	-0.052
		299.80		2.066E+00	1.712E+00	2.421E+00	4.010E-01	0.853
	+	304.40		8.888E-01	1.909E+00	3.021E+00	5.307E-01	0.294
		334.20		6.011E-01	2.576E+00	3.800E+00	7.080E-01	0.158
TH-229	+	85.43		6.368E-01	3.093E-01	3.990E-01	4.464E-02	1.596
		88.47		1.987E-01	1.908E-01	2.343E-01	2.628E-02	0.848
		100.00		-1.852E-01	2.120E-01	3.341E-01	2.974E-02	-0.554
	+	193.63	*	1.852E-01	5.184E-01	8.346E-01	4.759E-02	0.222
		210.97		2.482E-01	8.139E-01	1.238E+00	7.267E-02	0.200
		283.67	*	-1.930E-01	1.506E+00	2.496E+00	3.510E-01	-0.077
PA-231		301.29		5.604E-01	6.362E-01	9.817E-01	1.069E-01	0.571
TH-231	+	81.07		1.911E-01	3.431E-01	4.158E-01	4.573E-02	0.460
		83.78		3.807E-01	1.767E-01	2.693E-01	2.990E-02	1.414
		94.90		1.154E-01	2.911E-01	4.338E-01	4.236E-02	0.266
	+	122.32		1.849E-01	1.839E+00	2.993E+00	2.209E-01	0.062
		144.24		1.084E+00	1.124E+00	1.338E+00	9.805E-02	0.810
		154.21		1.144E-01	4.087E-01	6.625E-01	4.592E-02	0.173
	+	269.46		5.415E-01	2.586E-01	3.623E-01	2.390E-02	1.495
		323.87	*	-3.610E-01	6.701E-01	1.072E+00	1.805E-01	-0.337
		338.28		7.278E+00	1.670E+00	2.484E+00	2.746E-01	2.930
U-231	+	445.03		-8.443E-01	2.235E+00	3.524E+00	3.809E-01	-0.240
		84.21		2.255E+01	1.047E+01	1.585E+01	1.763E+00	1.423
		92.29		4.913E+01	8.327E+00	9.066E+00	9.333E-01	5.420
		95.87	*	-1.224E+00	1.891E+00	2.676E+00	2.565E-01	-0.457

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-1.634E+00	3.150E+00	5.026E+00	3.956E-01	-0.325
	+	75.28		2.261E+01	6.351E+00	8.590E+00	1.440E+00	2.632
	+	86.59		5.560E+00	3.047E+00	3.475E+00	9.654E-01	1.600
	+	300.12		5.759E-01	4.744E-01	6.883E-01	9.481E-02	0.837
		311.98	*	-1.656E-02	6.248E-02	1.021E-01	7.065E-03	-0.162
		340.50		1.086E+00	6.998E-01	1.062E+00	2.466E-01	1.022
		398.62		-1.405E+00	2.086E+00	3.204E+00	8.363E-01	-0.438
PA-234		415.76		6.329E-01	1.537E+00	2.568E+00	5.362E-01	0.247
	+	63.00		1.321E+01	4.320E+00	5.084E+00	8.896E-01	2.598
		94.67		4.437E-01	2.120E-01	3.278E-01	4.345E-02	1.354
		98.44		1.726E-01	1.459E-01	1.806E-01	1.009E-01	0.956
		99.86		-4.503E-01	5.376E-01	8.487E-01	7.573E-02	-0.531
		111.00		-8.136E-02	2.144E-01	3.436E-01	3.901E-02	-0.237
		131.20		8.646E-02	1.184E-01	1.773E-01	1.111E-02	0.488
		152.70		4.157E-01	3.389E-01	5.613E-01	8.860E-02	0.741
	+	186.00		1.635E+01	5.477E+00	3.535E+00	1.079E+00	4.626
		226.40		-1.787E-01	4.008E-01	6.631E-01	7.736E-02	-0.269
		227.20		-1.644E-01	4.253E-01	7.058E-01	4.248E-02	-0.233
		248.90		-2.825E-01	7.422E-01	1.218E+00	2.631E-01	-0.232
	+	293.70		7.352E+00	1.537E+00	1.748E+00	2.858E-01	4.206
		369.80		2.163E-01	8.725E-01	1.452E+00	3.066E-01	0.149
		568.70		-2.020E-01	1.121E+00	1.741E+00	1.040E-01	-0.116
		569.50		1.572E-01	2.986E-01	4.879E-01	2.910E-02	0.322
		574.00		-3.461E-01	1.463E+00	2.426E+00	1.437E-01	-0.143
		699.00		5.472E-02	7.070E-01	1.183E+00	2.121E-01	0.046
		706.10		2.724E-01	1.036E+00	1.745E+00	7.700E-01	0.156
		733.00		1.090E-01	3.906E-01	5.809E-01	1.243E-01	0.188
		742.81		1.210E+00	1.541E+00	2.337E+00	1.565E+00	0.518
		796.30		7.278E-01	9.135E-01	1.569E+00	4.197E-01	0.464
		805.60		4.708E-02	1.014E+00	1.677E+00	5.104E-01	0.028
		819.60		1.636E-01	1.214E+00	2.019E+00	7.658E-01	0.081
		826.30		-1.909E-01	8.105E-01	1.296E+00	5.790E-01	-0.147
		831.60		-2.773E-01	6.695E-01	1.053E+00	3.139E-01	-0.263
		876.40		3.532E-01	9.308E-01	1.456E+00	1.498E+00	0.243
		880.51		1.318E-01	3.000E-01	5.095E-01	4.927E-02	0.259
		883.24		-2.992E-02	3.199E-01	5.180E-01	3.490E-01	-0.058
		899.00		-5.241E-01	9.305E-01	1.393E+00	6.136E-01	-0.376
		925.00		2.092E-01	1.211E+00	2.006E+00	1.982E-01	0.104
		926.50		1.761E-01	1.827E-01	3.156E-01	8.120E-02	0.558
		946.00	*	8.677E-02	2.781E-01	4.669E-01	8.996E-02	0.186
		949.00		-6.255E-02	4.278E-01	6.852E-01	6.604E-02	-0.091
		980.50		2.529E-01	7.472E-01	1.253E+00	1.163E-01	0.202
		1394.10		-1.378E-01	1.216E+00	1.972E+00	1.284E+00	-0.070
PA-234M		766.42		1.884E+01	1.639E+01	2.385E+01	1.204E+01	0.790
NP-236	+	1001.03	*	1.692E+01	6.906E+00	1.079E+01	1.113E+00	1.569
		94.67		3.424E-01	1.583E-01	2.492E-01	2.445E-02	1.374
		98.44		1.305E-01	8.357E-02	1.366E-01	1.249E-02	0.956
		111.00		-6.154E-02	1.621E-01	2.599E-01	1.963E-02	-0.237
		160.31	*	-7.997E-02	8.584E-02	1.315E-01	7.326E-03	-0.608

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		3.198E-02	1.765E-01	2.905E-01	2.606E-02	0.110
		117.00	*	-1.269E-01	2.063E-01	3.263E-01	2.282E-02	-0.389
	+	209.75		2.113E+00	1.049E+00	1.400E+00	8.199E-02	1.509
		228.18		2.439E-02	2.231E-01	3.781E-01	2.279E-02	0.064
		277.60		2.203E-01	1.865E-01	3.228E-01	2.070E-02	0.683
AM-241		334.30		3.549E-01	1.459E+00	2.156E+00	1.442E-01	0.165
		59.54	*	4.275E-02	2.856E-01	4.300E-01	5.522E-02	0.099
CM-243		99.55		3.291E-02	1.816E-01	2.989E-01	2.682E-02	0.110
		103.76	*	1.440E-01	1.088E-01	1.852E-01	1.552E-02	0.777
		117.00		-1.305E-01	2.123E-01	3.357E-01	2.348E-02	-0.389
	+	209.75		2.083E+00	1.034E+00	1.380E+00	8.084E-02	1.509
		228.18		2.464E-02	2.255E-01	3.821E-01	2.303E-02	0.064
AM-246		277.60		2.222E-01	1.881E-01	3.254E-01	2.087E-02	0.683
		798.80		-1.752E-01	1.457E-01	2.144E-01	1.652E-02	-0.817
		1036.00		-1.544E-01	2.998E-01	4.543E-01	3.886E-02	-0.340
		1062.04		-1.909E-03	2.403E-01	3.871E-01	3.161E-02	-0.005
		1078.86	*	3.243E-02	1.429E-01	2.357E-01	1.862E-02	0.138
CM-247		278.00		7.441E-01	7.704E-01	1.322E+00	8.481E-02	0.563
		287.40		8.383E-01	1.180E+00	2.036E+00	1.318E-01	0.412
		402.60	*	4.394E-03	3.980E-02	6.065E-02	4.118E-03	0.072
CF-249		252.85		1.520E-01	8.170E-01	1.384E+00	8.626E-02	0.110
		333.44		8.145E-02	1.915E-01	2.867E-01	1.917E-02	0.284
		387.95	*	4.098E-02	4.032E-02	6.987E-02	4.748E-03	0.586
CF-251		176.60	*	-2.771E-02	1.348E-01	2.125E-01	1.178E-02	-0.130
		227.00		-2.402E-01	3.805E-01	6.247E-01	3.758E-02	-0.385
		285.00		-1.576E+00	1.727E+00	2.738E+00	1.769E-01	-0.576

# 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]G246341003      *
* Acquisition date   : 18-FEB-2010 13:09:32 Detector SN#      :             *
* Detector ID        : GAM10                      Sensitivity    : 5.000      *
* Geometry           : CAN                      Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.16           Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341003           Analyst initials: MXR1          *
* Batch Number       : 950786              Sample Quantity : 1.2830E+02 GRAM *
* Recovery           : 1.00000             Carrier Weight  : 0.00000        *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                                     *
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope      :             *
* MSD DPM             : 0.000              MSD Isotope      :             *
* LCS DPM             : 0.000              LCS Isotope      :             *
* LCSD DPM           : 0.000              LCSD Isotope      :             *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.594E+01	2.752E+00	5.974E-01	0.000E+00
CD-109	2.898E+00	1.379E+00	1.854E+00	0.000E+00
SN-126	2.840E-01	1.352E-01	1.924E-01	0.000E+00
BA-137M	4.688E-01	7.469E-02	5.639E-02	0.000E+00
CS-137	4.955E-01	7.900E-02	5.960E-02	0.000E+00
TL-208	4.830E-01	8.323E-02	5.410E-02	0.000E+00
BI-211	3.779E+00	5.025E-01	3.255E-01	0.000E+00
BI-212	1.435E+00	4.545E-01	4.586E-01	0.000E+00
PB-212	1.711E+00	1.690E-01	9.533E-02	0.000E+00
PO-212	1.711E+00	1.690E-01	9.533E-02	0.000E+00
BI-214	1.063E+00	1.669E-01	1.081E-01	0.000E+00
PB-214	1.315E+00	1.873E-01	1.134E-01	0.000E+00
PO-214	1.315E+00	1.873E-01	1.134E-01	0.000E+00
PO-216	1.711E+00	1.690E-01	9.533E-02	0.000E+00
PO-218	1.315E+00	1.873E-01	1.134E-01	0.000E+00
RA-224	5.060E+00	1.088E+00	1.085E+00	0.000E+00
RA-226	1.063E+00	1.669E-01	1.081E-01	0.000E+00
AC-228	1.590E+00	3.801E-01	2.345E-01	0.000E+00
RA-228	1.590E+00	3.801E-01	2.345E-01	0.000E+00
TH-228	1.740E+00	1.719E-01	9.697E-02	0.000E+00
TH-230	1.063E+00	1.669E-01	1.081E-01	0.000E+00
TH-232	1.590E+00	3.801E-01	2.345E-01	0.000E+00
TH-234	1.133E+01	3.771E+00	3.310E+00	0.000E+00
U-234	1.063E+00	1.669E-01	1.081E-01	0.000E+00
U-235	3.345E-01	3.433E-01	3.603E-01	0.000E+00
NP-237	8.340E-01	4.313E-01	5.438E-01	0.000E+00
U-238	1.133E+01	3.771E+00	3.310E+00	0.000E+00
AM-243	4.317E-01	1.060E-01	1.177E-01	0.000E+00
ANH-511	7.150E-02	6.714E-02	4.836E-02	0.000E+00

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

Key-Line	Activity	K.L. Act error	MDA
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Nuclide	(pCi/GRAM	) Ided	(pCi/GRAM	)	
BE-7	3.831E-02	3.172E-01	5.366E-01	0.000E+00	NOT IDENT.
NA-22	1.256E-02	4.438E-02	7.755E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.168E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	7.144E-03	2.517E-02	4.417E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.334E-02	8.891E-02	0.000E+00	NOT IDENT.
SC-46	-1.242E-02	4.020E-02	6.561E-02	0.000E+00	FAIL ABUN
V-48	-9.010E-04	8.069E-02	1.343E-01	0.000E+00	NOT IDENT.
CR-51	-2.726E-01	3.741E-01	6.202E-01	0.000E+00	NOT IDENT.
MN-52	-9.031E-02	2.789E-01	4.460E-01	0.000E+00	NOT IDENT.
MN-54	2.111E-02	3.720E-02	6.574E-02	0.000E+00	NOT IDENT.
CO-56	-5.603E-02	3.885E-02	5.581E-02	0.000E+00	FAIL ABUN
CO-57	3.094E-03	2.627E-02	4.534E-02	0.000E+00	NOT IDENT.
CO-58	-1.056E-02	3.880E-02	6.419E-02	0.000E+00	NOT IDENT.
FE-59	-5.232E-03	9.853E-02	1.615E-01	0.000E+00	FAIL ABUN
CO-60	-2.051E-02	4.075E-02	6.498E-02	0.000E+00	NOT IDENT.
ZN-65	1.337E-02	1.015E-01	1.466E-01	0.000E+00	NOT IDENT.
GE-68	1.044E-01	1.213E+00	2.022E+00	0.000E+00	NOT IDENT.
AS-73	-1.288E+00	1.680E+00	2.919E+00	0.000E+00	NOT IDENT.
AS-74	-1.699E-02	9.648E-02	1.660E-01	0.000E+00	NOT IDENT.
SE-75	-2.509E-02	4.643E-02	6.895E-02	0.000E+00	NOT IDENT.
BR-77	4.376E+00	1.725E+01	2.930E+01	0.000E+00	FAIL ABUN
SR-82	-5.578E-01	3.776E-01	5.515E-01	0.000E+00	NOT IDENT.
RB-83	2.036E-02	6.620E-02	1.129E-01	0.000E+00	NOT IDENT.
RB-84	6.553E-03	7.567E-02	1.283E-01	0.000E+00	NOT IDENT.
KR-85	7.948E+00	7.814E+00	1.244E+01	0.000E+00	NOT IDENT.
SR-85	4.159E-02	4.088E-02	6.511E-02	0.000E+00	NOT IDENT.
RB-86	-2.617E-01	8.469E-01	1.352E+00	0.000E+00	NOT IDENT.
Y-88	7.312E-03	4.011E-02	6.790E-02	0.000E+00	NOT IDENT.
ZR-88	-3.371E-03	3.045E-02	5.153E-02	0.000E+00	NOT IDENT.
Y-91	1.105E+01	1.880E+01	3.374E+01	0.000E+00	NOT IDENT.
NB-94	-1.620E-02	3.320E-02	5.493E-02	0.000E+00	NOT IDENT.
NB-95	4.806E-02	4.890E-02	8.774E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.441E-01	2.431E-01	0.000E+00	NOT IDENT.
ZR-95	3.676E-02	7.353E-02	1.302E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.788E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.302E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	2.082E+00	1.770E+01	3.055E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.663E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	7.094E-03	3.245E-02	5.456E-02	0.000E+00	NOT IDENT.
RH-102	1.447E-02	2.865E-02	4.978E-02	0.000E+00	NOT IDENT.
RU-103	-6.663E-04	4.049E-02	6.760E-02	0.000E+00	FAIL ABUN
RH-106	-3.430E-02	3.097E-01	5.225E-01	0.000E+00	FAIL ABUN
RU-106	-3.430E-02	3.096E-01	5.225E-01	0.000E+00	FAIL ABUN
AG-108M	-6.110E-03	3.519E-02	5.885E-02	0.000E+00	NOT IDENT.
AG-110M	3.902E-02	3.538E-02	5.947E-02	0.000E+00	NOT IDENT.
IN-111	1.556E+00	1.667E+00	2.750E+00	0.000E+00	NOT IDENT.
IN-113M	-1.065E-03	4.471E-02	7.609E-02	0.000E+00	NOT IDENT.
SN-113	-1.065E-03	4.471E-02	7.609E-02	0.000E+00	NOT IDENT.
IN-114M	-1.338E-01	2.141E-01	3.047E-01	0.000E+00	NOT IDENT.
CD-115	-2.923E+00	1.909E+01	3.135E+01	0.000E+00	NOT IDENT.
SN-117M	-2.666E-03	6.050E-02	1.020E-01	0.000E+00	NOT IDENT.
SB-122	6.639E-01	3.341E+00	5.611E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.656E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	6.155E-03	2.878E-02	4.907E-02	0.000E+00	NOT IDENT.
I-124	9.114E-01	8.868E-01	1.532E+00	0.000E+00	NOT IDENT.
SB-124	4.766E-02	6.630E-02	1.258E-01	0.000E+00	FAIL ABUN
SB-125	-2.007E-02	9.671E-02	1.615E-01	0.000E+00	FAIL ABUN
TE-125M	-6.054E-01	1.045E+01	1.803E+01	0.000E+00	NOT IDENT.
I-126	-9.556E-02	2.160E-01	3.078E-01	0.000E+00	NOT IDENT.
SB-126	6.836E-02	1.827E-01	2.825E-01	0.000E+00	NOT IDENT.
SB-127	1.355E-01	1.807E+00	3.128E+00	0.000E+00	NOT IDENT.
XE-127	1.664E-02	4.580E-02	8.291E-02	0.000E+00	NOT IDENT.
I-131	-8.070E-02	1.385E-01	2.290E-01	0.000E+00	NOT IDENT.
TE-132	1.210E-01	1.009E+00	1.796E+00	0.000E+00	NOT IDENT.
BA-133	1.953E-02	4.714E-02	7.331E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.830E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.633E-02	4.536E-02	8.180E-02	0.000E+00	NOT IDENT.
CS-135	0.000E+00	1.728E-01	2.975E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.916E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.784E-02	1.238E-01	1.932E-01	0.000E+00	FAIL ABUN
CE-139	-2.409E-02	3.240E-02	5.282E-02	0.000E+00	NOT IDENT.
BA-140	-3.269E-02	2.683E-01	4.407E-01	0.000E+00	NOT IDENT.
LA-140	-7.431E-02	8.778E-02	1.233E-01	0.000E+00	NOT IDENT.
CE-141	2.995E-02	7.494E-02	1.158E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.963E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.055E-02	2.068E-01	3.479E-01	0.000E+00	NOT IDENT.



PM-144	2.639E-02	3.456E-02	6.097E-02	0.000E+00	NOT IDENT.
PR-144	1.790E+00	2.344E+00	4.136E+00	0.000E+00	NOT IDENT.
PM-146	7.791E-03	4.172E-02	7.118E-02	0.000E+00	NOT IDENT.
ND-147	3.782E-01	6.240E-01	1.082E+00	0.000E+00	NOT IDENT.
PM-149	-4.898E+01	1.612E+02	2.768E+02	0.000E+00	NOT IDENT.
EU-152	-6.405E-02	9.193E-02	1.515E-01	0.000E+00	FAIL ABUN
GD-153	1.009E-01	9.883E-02	1.600E-01	0.000E+00	FAIL ABUN
EU-154	3.805E-02	1.242E-01	2.174E-01	0.000E+00	NOT IDENT.
EU-155	1.050E-01	1.201E-01	2.143E-01	0.000E+00	FAIL ABUN
TB-160	3.420E-02	1.468E-01	2.521E-01	0.000E+00	FAIL ABUN
HO-166M	3.929E-02	5.726E-02	1.033E-01	0.000E+00	FAIL ABUN
TM-171	-2.454E+01	4.261E+01	6.594E+01	0.000E+00	NOT IDENT.
LU-176	-1.126E-02	2.287E-02	3.859E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	1.769E+00	2.452E+00	0.000E+00	FAIL ABUN
LU-177M	1.261E-01	1.805E-01	2.856E-01	0.000E+00	FAIL ABUN
HF-181	-2.266E-02	4.358E-02	7.019E-02	0.000E+00	NOT IDENT.
W-181	1.782E-01	5.588E-01	9.030E-01	0.000E+00	NOT IDENT.
TA-182	-3.546E-02	1.993E-01	3.354E-01	0.000E+00	FAIL ABUN
RE-183	9.068E-02	1.173E-01	2.041E-01	0.000E+00	FAIL ABUN
RE-184	4.084E-02	2.151E-01	3.819E-01	0.000E+00	NOT IDENT.
OS-185	3.053E-03	4.049E-02	7.041E-02	0.000E+00	NOT IDENT.
RE-188	-9.958E-02	1.791E-01	2.957E-01	0.000E+00	NOT IDENT.
W-188	-7.940E-01	7.729E+00	1.176E+01	0.000E+00	FAIL ABUN
IR-192	4.605E-03	3.405E-02	5.941E-02	0.000E+00	FAIL ABUN
AU-195	3.605E-01	2.569E-01	4.619E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.579E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-3.227E+00	1.150E+01	1.912E+01	0.000E+00	NOT IDENT.
TL-202	5.138E-02	7.553E-02	1.332E-01	0.000E+00	NOT IDENT.
HG-203	9.132E-03	4.164E-02	7.351E-02	0.000E+00	FAIL ABUN
BI-207	3.908E-02	5.216E-02	9.260E-02	0.000E+00	FAIL ABUN
TL-207	-3.610E-01	6.567E-01	1.098E+00	0.000E+00	FAIL ABUN
PO-209	4.884E-01	7.748E+00	1.309E+01	0.000E+00	NOT IDENT.
BI-210	1.004E+01	9.030E+00	1.688E+01	0.000E+00	NOT IDENT.
PB-210	1.004E+01	9.030E+00	1.688E+01	0.000E+00	NOT IDENT.
PO-210	1.004E+01	9.021E+00	1.688E+01	0.000E+00	NOT IDENT.
PB-211	-4.737E-02	1.037E+00	1.537E+00	0.000E+00	NOT IDENT.
PO-215	-3.610E-01	6.567E-01	1.098E+00	0.000E+00	FAIL ABUN
RN-219	6.096E-02	3.926E-01	6.742E-01	0.000E+00	FAIL ABUN
RN-220	1.782E+01	2.734E+01	4.746E+01	0.000E+00	NOT IDENT.
RA-223	-3.610E-01	6.567E-01	1.098E+00	0.000E+00	FAIL ABUN
AC-227	1.880E-01	3.580E-01	6.433E-01	0.000E+00	FAIL ABUN
TH-227	1.880E-01	3.585E-01	6.433E-01	0.000E+00	FAIL ABUN
TH-229	1.852E-01	5.080E-01	8.611E-01	0.000E+00	FAIL ABUN
PA-231	-1.930E-01	1.476E+00	2.560E+00	0.000E+00	NOT IDENT.
TH-231	-3.610E-01	6.567E-01	1.098E+00	0.000E+00	FAIL ABUN
U-231	-1.224E+00	1.854E+00	2.790E+00	0.000E+00	FAIL ABUN
PA-233	-1.656E-02	6.123E-02	1.046E-01	0.000E+00	FAIL ABUN
PA-234	8.677E-02	2.726E-01	4.702E-01	0.000E+00	FAIL ABUN
PA-234M	0.000E+00	6.767E+00	1.085E+01	0.000E+00	FAIL ABUN
NP-236	-7.997E-02	8.412E-02	1.360E-01	0.000E+00	NOT IDENT.
NP-239	-1.269E-01	2.022E-01	3.392E-01	0.000E+00	FAIL ABUN
AM-241	4.275E-02	2.799E-01	4.515E-01	0.000E+00	NOT IDENT.
CM-243	1.440E-01	1.066E-01	1.929E-01	0.000E+00	FAIL ABUN
AM-246	3.243E-02	1.401E-01	2.369E-01	0.000E+00	NOT IDENT.
CM-247	4.394E-03	3.901E-02	6.189E-02	0.000E+00	NOT IDENT.
CF-249	4.098E-02	3.951E-02	7.135E-02	0.000E+00	NOT IDENT.
CF-251	-2.771E-02	1.321E-01	2.196E-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]G246341003.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:09:32
Sample ID          : G246341003          Sample quantity  : 1.28300E+02 GRAM
Detector name      : GAM10              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.16  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             Detector SN#      :
Matrix Spike ID    :                   LCS ID            : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1048	10.67*	1.108E+00	2.594E+01	2.594E+01	10.83
CD-109	88.03	188	3.72*	5.239E+00	2.825E+00	2.898E+00	48.57
SN-126	64.28	329	9.60	2.233E+00	4.485E+00	4.485E+00	32.56
	86.94	188	8.90	5.239E+00	1.181E+00	1.181E+00	63.21
	87.57	188	37.00*	5.239E+00	2.840E-01	2.840E-01	48.57
BA-137M	661.65	339	89.98*	2.356E+00	4.683E-01	4.688E-01	16.26
CS-137	661.65	339	85.12*	2.356E+00	4.950E-01	4.955E-01	16.27
TL-208	277.35	-----	6.80	4.610E+00	-----	Line Not Found	-----
	510.84	72	21.60	2.931E+00	3.310E-01	3.310E-01	96.18
	583.14	365	84.20*	2.628E+00	4.830E-01	4.830E-01	17.58
	860.37	63	12.46	1.841E+00	7.982E-01	7.982E-01	51.81
BI-211	72.87	-----	1.27	3.633E+00	-----	Line Not Found	-----
	351.07	650	12.94*	3.890E+00	3.779E+00	3.779E+00	13.57
BI-212	727.18	125	11.80*	2.162E+00	1.435E+00	1.435E+00	32.32
	785.46	46	1.97	2.010E+00	3.406E+00	3.406E+00	59.49
	1620.62	-----	2.75	1.025E+00	-----	Line Not Found	-----
PB-212	74.81	377	10.70	3.867E+00	2.663E+00	2.663E+00	26.74
	77.11	624	18.00	4.153E+00	2.444E+00	2.444E+00	19.15
	87.30	188	8.00	5.239E+00	1.313E+00	1.313E+00	49.59
	238.63	1335	44.60*	5.118E+00	1.711E+00	1.711E+00	10.08
	300.09	57	3.41	4.363E+00	1.115E+00	1.115E+00	81.69
PO-212	74.81	377	10.70	3.867E+00	2.663E+00	2.663E+00	26.74
	77.11	624	18.00	4.153E+00	2.444E+00	2.444E+00	19.15
	87.30	188	8.00	5.239E+00	1.313E+00	1.313E+00	49.59
	115.19	-----	0.60	6.657E+00	-----	Line Not Found	-----
	238.63	1335	44.60*	5.118E+00	1.711E+00	1.711E+00	10.08
	300.09	57	3.41	4.363E+00	1.115E+00	1.115E+00	81.69
BI-214	609.31	426	46.30*	2.532E+00	1.063E+00	1.063E+00	16.02
	1120.29	76	15.10	1.415E+00	1.043E+00	1.043E+00	61.50
	1764.49	55	15.80	9.766E-01	1.040E+00	1.040E+00	36.28
PB-214	74.81	377	6.21	3.867E+00	4.588E+00	4.588E+00	26.12
	77.11	624	10.50	4.153E+00	4.190E+00	4.190E+00	20.61

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	188	4.67	5.239E+00	2.250E+00	2.250E+00	49.18
	241.98	347	7.49	5.075E+00	2.668E+00	2.669E+00	22.64
	295.21	444	19.20	4.413E+00	1.532E+00	1.532E+00	15.85
	351.92	650	37.20*	3.890E+00	1.314E+00	1.315E+00	14.54
	74.81	377	6.21	3.867E+00	4.588E+00	4.588E+00	26.12
	77.11	624	10.50	4.153E+00	4.190E+00	4.190E+00	20.61
	87.30	188	4.67	5.239E+00	2.250E+00	2.250E+00	49.18
PO-216	241.98	347	7.49	5.075E+00	2.668E+00	2.669E+00	22.64
	295.21	444	19.20	4.413E+00	1.532E+00	1.532E+00	15.85
	351.92	650	37.20*	3.890E+00	1.314E+00	1.315E+00	14.54
	74.81	377	10.70	3.867E+00	2.663E+00	2.663E+00	26.74
	77.11	624	18.00	4.153E+00	2.444E+00	2.444E+00	19.15
	87.30	188	8.00	5.239E+00	1.313E+00	1.313E+00	49.59
	238.63	1335	44.60*	5.118E+00	1.711E+00	1.711E+00	10.08
PO-218	300.09	57	3.41	4.363E+00	1.115E+00	1.115E+00	81.69
	74.81	377	6.21	3.867E+00	4.588E+00	4.588E+00	26.12
	77.11	624	10.50	4.153E+00	4.190E+00	4.190E+00	20.61
	87.30	188	4.67	5.239E+00	2.250E+00	2.250E+00	49.18
	241.98	347	7.49	5.075E+00	2.668E+00	2.669E+00	22.64
	295.21	444	19.20	4.413E+00	1.532E+00	1.532E+00	15.85
	351.92	650	37.20*	3.890E+00	1.314E+00	1.315E+00	14.54
RA-224	240.98	347	3.95*	5.075E+00	5.060E+00	5.060E+00	21.94
RA-226	609.31	426	46.30*	2.532E+00	1.063E+00	1.063E+00	16.02
AC-228	1120.29	76	15.10	1.415E+00	1.043E+00	1.043E+00	61.50
	1764.49	55	15.80	9.766E-01	1.040E+00	1.040E+00	36.28
	338.32	272	11.40	4.002E+00	1.743E+00	1.743E+00	45.58
	911.07	262	27.70*	1.740E+00	1.590E+00	1.590E+00	24.39
	969.11	164	16.60	1.637E+00	1.762E+00	1.762E+00	32.44
	338.32	272	11.40	4.002E+00	1.743E+00	1.743E+00	45.58
	911.07	262	27.70*	1.740E+00	1.590E+00	1.590E+00	24.39
TH-228	969.11	164	16.60	1.637E+00	1.762E+00	1.762E+00	32.44
	74.81	377	10.70	3.867E+00	2.663E+00	2.708E+00	25.08
	77.11	624	18.00	4.153E+00	2.444E+00	2.486E+00	19.15
	87.30	188	8.00	5.239E+00	1.313E+00	1.336E+00	48.57
	238.63	1335	44.60*	5.118E+00	1.711E+00	1.740E+00	10.08
	300.09	57	3.41	4.363E+00	1.115E+00	1.134E+00	100.39
	609.31	426	46.30*	2.532E+00	1.063E+00	1.063E+00	16.02
TH-230	1120.29	76	15.10	1.415E+00	1.043E+00	1.043E+00	61.50
	1764.49	55	15.80	9.766E-01	1.040E+00	1.040E+00	36.28
	338.32	272	11.40	4.002E+00	1.743E+00	1.743E+00	21.20
	911.07	262	27.70*	1.740E+00	1.590E+00	1.590E+00	24.39
	969.11	164	16.60	1.637E+00	1.762E+00	1.762E+00	32.44
	63.29	329	3.80*	2.233E+00	1.133E+01	1.133E+01	33.96
	92.38	989	5.41	5.716E+00	9.361E+00	9.361E+00	23.24
U-234	609.31	426	46.30*	2.532E+00	1.063E+00	1.063E+00	16.02
U-235	1120.29	76	15.10	1.415E+00	1.043E+00	1.043E+00	61.50
	1764.49	55	15.80	9.766E-01	1.040E+00	1.040E+00	36.28
	89.95	-----	2.70	5.508E+00	-----	Line Not Found	-----
	93.35	989	4.50	5.716E+00	1.125E+01	1.125E+01	31.60

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	105.00	-----	2.10	6.385E+00	-----	Line Not Found	-----
	143.76	80	10.50*	6.665E+00	3.345E-01	3.345E-01	104.73
	163.35	-----	4.70	6.374E+00	-----	Line Not Found	-----
	185.71	669	54.00	5.985E+00	6.056E-01	6.056E-01	14.90
	205.31	-----	4.70	5.638E+00	-----	Line Not Found	-----
NP-237	86.50	188	12.60*	5.239E+00	8.340E-01	8.340E-01	52.77
	95.87	-----	2.60	5.933E+00	-----	Line Not Found	-----
U-238	63.29	329	3.80*	2.233E+00	1.133E+01	1.133E+01	33.96
	92.38	989	5.41	5.716E+00	9.361E+00	9.361E+00	16.95
AM-243	74.67	377	66.00*	3.867E+00	4.317E-01	4.317E-01	25.05
	86.72	188	0.34	5.239E+00	3.127E+01	3.127E+01	48.57
	117.66	-----	0.55	6.694E+00	-----	Line Not Found	-----
	142.18	80	0.13	6.665E+00	2.810E+01	2.810E+01	103.61
ANH-511	511.00	72	100.00*	2.931E+00	7.150E-02	7.150E-02	95.82

Flag: "\*" = Keyline

Total number of lines in spectrum 34  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 33 97.06%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.594E+01	2.594E+01	0.281E+01	10.83	
CD-109	464.00D	1.03	2.825E+00	2.898E+00	1.407E+00	48.57	
SN-126	1.00E+05Y	1.00	2.840E-01	2.840E-01	1.379E-01	48.57	
BA-137M	30.17Y	1.00	4.683E-01	4.688E-01	0.762E-01	16.26	
CS-137	30.17Y	1.00	4.950E-01	4.955E-01	0.806E-01	16.27	
TL-208	1.41E+10Y	1.00	4.830E-01	4.830E-01	0.849E-01	17.58	
BI-211	7.04E+08Y	1.00	3.779E+00	3.779E+00	0.513E+00	13.57	
BI-212	1.41E+10Y	1.00	1.435E+00	1.435E+00	0.464E+00	32.32	
PB-212	1.41E+10Y	1.00	1.711E+00	1.711E+00	0.172E+00	10.08	
PO-212	1.41E+10Y	1.00	1.711E+00	1.711E+00	0.172E+00	10.08	
BI-214	1600.00Y	1.00	1.063E+00	1.063E+00	0.170E+00	16.02	
PB-214	1600.00Y	1.00	1.314E+00	1.315E+00	0.191E+00	14.54	
PO-214	1600.00Y	1.00	1.314E+00	1.315E+00	0.191E+00	14.54	
PO-216	1.41E+10Y	1.00	1.711E+00	1.711E+00	0.172E+00	10.08	
PO-218	1600.00Y	1.00	1.314E+00	1.315E+00	0.191E+00	14.54	
RA-224	1.41E+10Y	1.00	5.060E+00	5.060E+00	1.110E+00	21.94	
RA-226	1600.00Y	1.00	1.063E+00	1.063E+00	0.170E+00	16.02	
AC-228	1.41E+10Y	1.00	1.590E+00	1.590E+00	0.388E+00	24.39	
RA-228	1.41E+10Y	1.00	1.590E+00	1.590E+00	0.388E+00	24.39	
TH-228	1.91Y	1.02	1.711E+00	1.740E+00	0.175E+00	10.08	
TH-230	4.47E+09Y	1.00	1.063E+00	1.063E+00	0.170E+00	16.02	
TH-232	1.41E+10Y	1.00	1.590E+00	1.590E+00	0.388E+00	24.39	
TH-234	4.47E+09Y	1.00	1.133E+01	1.133E+01	0.385E+01	33.96	
U-234	4.47E+09Y	1.00	1.063E+00	1.063E+00	0.170E+00	16.02	
U-235	7.04E+08Y	1.00	3.345E-01	3.345E-01	3.503E-01	104.73	
NP-237	2.14E+06Y	1.00	8.340E-01	8.340E-01	4.401E-01	52.77	
U-238	4.47E+09Y	1.00	1.133E+01	1.133E+01	0.385E+01	33.96	
AM-243	7380.00Y	1.00	4.317E-01	4.317E-01	1.081E-01	25.05	
ANH-511	1.00E+09Y	1.00	7.150E-02	7.150E-02	6.851E-02	95.82	

Total Activity : 8.491E+01 8.501E+01

Grand Total Activity : 8.491E+01 8.501E+01

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

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

Unidentified Energy Lines  
Sample ID : G246341003

Page : 5  
Acquisition date : 18-FEB-2010 13:09:32

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	83.89	159	438	1.33	167.91	165	13	2.21E-02	45.1	4.95E+00	T
0	128.78	90	331	1.17	257.60	254	7	1.24E-02	70.8	6.76E+00	T
0	209.10	130	270	1.45	418.11	414	9	1.81E-02	49.3	5.57E+00	T
0	269.78	118	204	1.52	539.38	535	9	1.64E-02	47.3	4.70E+00	T
0	408.74	51	144	0.98	817.11	812	11	7.05E-03	96.1	3.48E+00	
0	462.82	75	124	1.49	925.20	919	11	1.04E-02	62.4	3.17E+00	T
1	964.06	60	35	1.92	1927.35	1921	26	8.33E-03	49.2	1.64E+00	T
0	1000.77	77	35	2.58	2000.76	1995	12	1.07E-02	39.5	1.58E+00	T
0	1238.48	57	60	1.54	2476.17	2469	15	7.97E-03	66.5	1.28E+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]G246341003.CNF;1
* Acquisition date   : 18-FEB-2010 13:09:32   Detector SN#      :
* Detector ID        : GAM10                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.16          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G246341003             Analyst initials: MXR1
* Batch Number       : 950786                 Sample Quantity : 1.28300E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08.8MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope    :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.594E+01	2.808E+00	5.974E-01	5.145E-02	43.419
CD-109	2.898E+00	1.407E+00	1.776E+00	2.013E-01	1.632
SN-126	2.840E-01	1.379E-01	1.842E-01	2.085E-02	1.541
BA-137M	4.688E-01	7.621E-02	5.568E-02	2.747E-03	8.419
CS-137	4.955E-01	8.061E-02	5.886E-02	2.921E-03	8.419
TL-208	4.830E-01	8.493E-02	5.331E-02	3.582E-03	9.060
BI-211	3.779E+00	5.128E-01	3.183E-01	2.320E-02	11.874
BI-212	1.435E+00	4.638E-01	4.535E-01	3.628E-02	3.164
PB-212	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
PO-212	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
BI-214	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
PB-214	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
PO-214	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
PO-216	1.711E+00	1.724E-01	9.268E-02	7.030E-03	18.460
PO-218	1.315E+00	1.911E-01	1.109E-01	9.949E-03	11.849
RA-224	5.060E+00	1.110E+00	1.055E+00	6.473E-02	4.798
RA-226	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
AC-228	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832
TH-228	1.740E+00	1.754E-01	9.427E-02	7.151E-03	18.460
TH-230	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
TH-232	1.590E+00	3.879E-01	2.327E-01	2.872E-02	6.832
TH-234	1.133E+01	3.848E+00	3.156E+00	6.220E-01	3.591
U-234	1.063E+00	1.703E-01	1.066E-01	8.113E-03	9.970
U-235	3.345E-01	3.503E-01	3.476E-01	5.685E-02	0.962
NP-237	8.340E-01	4.401E-01	5.208E-01	1.224E-01	1.601
U-238	1.133E+01	3.848E+00	3.156E+00	6.220E-01	3.591
AM-243	4.317E-01	1.081E-01	1.125E-01	1.232E-02	3.838
ANH-511	7.150E-02	6.851E-02	4.757E-02	3.047E-03	1.503

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	3.831E-02		3.236E-01	5.272E-01	3.921E-02	0.073
NA-22	1.256E-02		4.528E-02	7.738E-02	5.993E-03	0.162
NA-24	2.678E+00		3.147E+00	Half-Life too short		
AL-26	7.144E-03		2.568E-02	4.432E-02	2.810E-03	0.161
TI-44	1.725E-01		5.442E-02	8.502E-02	9.303E-03	2.029
SC-46	-1.242E-02		4.102E-02	6.509E-02	6.441E-03	-0.191
V-48	-9.010E-04		8.234E-02	1.334E-01	1.234E-02	-0.007
CR-51	-2.726E-01		3.817E-01	6.057E-01	4.375E-02	-0.450
MN-52	-9.031E-02		2.846E-01	4.458E-01	3.767E-02	-0.203
MN-54	2.111E-02		3.796E-02	6.516E-02	5.566E-03	0.324
CO-56	-5.603E-02		3.965E-02	5.532E-02	4.885E-03	-1.013
CO-57	3.094E-03		2.680E-02	4.364E-02	2.878E-03	0.071
CO-58	-1.056E-02		3.959E-02	6.358E-02	5.087E-03	-0.166
FE-59	-5.232E-03		1.005E-01	1.608E-01	1.342E-02	-0.033
CO-60	-2.051E-02		4.158E-02	6.487E-02	5.637E-03	-0.316
ZN-65	1.337E-02		1.035E-01	1.459E-01	1.063E-02	0.092
GE-68	1.044E-01		1.238E+00	2.012E+00	1.594E-01	0.052
AS-73	-1.288E+00		1.714E+00	2.775E+00	3.673E-01	-0.464
AS-74	-1.699E-02		9.845E-02	1.636E-01	9.347E-03	-0.104
SE-75	-2.509E-02		4.738E-02	6.714E-02	4.282E-03	-0.374
BR-77	4.376E+00		1.760E+01	2.882E+01	1.829E+00	0.152
SR-82	-5.578E-01		3.853E-01	5.459E-01	3.936E-02	-1.022
RB-83	2.036E-02		6.756E-02	1.111E-01	7.050E-03	0.183
RB-84	6.553E-03		7.721E-02	1.273E-01	1.234E-02	0.051
KR-85	7.948E+00		7.973E+00	1.224E+01	7.818E-01	0.649
SR-85	4.159E-02		4.172E-02	6.405E-02	4.091E-03	0.649
RB-86	-2.617E-01		8.642E-01	1.345E+00	1.067E-01	-0.195
Y-88	7.312E-03		4.093E-02	6.814E-02	4.180E-03	0.107
ZR-88	-3.371E-03		3.107E-02	5.048E-02	3.430E-03	-0.067
Y-91	1.105E+01		1.919E+01	3.363E+01	2.234E+00	0.328
NB-94	-1.620E-02		3.388E-02	5.430E-02	3.091E-03	-0.298
NB-95	4.806E-02		4.990E-02	8.683E-02	6.059E-03	0.553



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95M	2.574E-01		1.470E-01	2.363E-01	1.833E-02	1.089
ZR-95	3.676E-02		7.503E-02	1.288E-01	1.012E-02	0.285
NB-97	1.015E+00		3.463E-01	Half-Life too short		
ZR-97	2.085E+01		6.643E+00	Half-Life too short		
MO-99	2.082E+00		1.806E+01	3.022E+01	4.247E+00	0.069
TC-99M	-2.557E+12		4.930E+12	Half-Life too short		
RH-101	7.094E-03		3.311E-02	5.290E-02	3.039E-03	0.134
RH-102	1.447E-02		2.924E-02	4.890E-02	3.226E-03	0.296
RU-103	-6.663E-04		4.132E-02	6.646E-02	8.623E-03	-0.010
RH-106	-3.430E-02		3.160E-01	5.155E-01	5.959E-02	-0.067
RU-106	-3.430E-02		3.160E-01	5.155E-01	2.800E-02	-0.067
AG-108M	-6.110E-03		3.591E-02	5.774E-02	4.140E-03	-0.106
AG-110M	3.902E-02		3.610E-02	5.872E-02	3.181E-03	0.665
IN-111	1.556E+00		1.701E+00	2.674E+00	1.651E-01	0.582
IN-113M	-1.065E-03		4.562E-02	7.453E-02	5.314E-03	-0.014
SN-113	-1.065E-03		4.562E-02	7.453E-02	5.314E-03	-0.014
IN-114M	-1.338E-01		2.185E-01	2.952E-01	1.674E-02	-0.453
CD-115	-2.923E+00		1.947E+01	3.085E+01	1.942E+00	-0.095
SN-117M	-2.666E-03		6.174E-02	9.858E-02	5.529E-03	-0.027
SB-122	6.639E-01		3.409E+00	5.527E+00	3.324E-01	0.120
I-123	1.424E+01		3.396E+01	Half-Life too short		
TE-123M	6.155E-03		2.937E-02	4.742E-02	2.693E-03	0.130
I-124	9.114E-01		9.048E-01	1.511E+00	8.523E-02	0.603
SB-124	4.766E-02		6.765E-02	1.261E-01	9.578E-03	0.378
SB-125	-2.007E-02		9.869E-02	1.584E-01	1.103E-02	-0.127
TE-125M	-6.054E-01		1.066E+01	1.733E+01	1.664E+00	-0.035
I-126	-9.556E-02		2.204E-01	3.040E-01	1.525E-02	-0.314
SB-126	6.836E-02		1.864E-01	2.794E-01	1.688E-02	0.245
SB-127	1.355E-01		1.844E+00	3.090E+00	3.053E-01	0.044
XE-127	1.664E-02		4.674E-02	8.041E-02	4.656E-03	0.207
I-131	-8.070E-02		1.413E-01	2.241E-01	1.652E-02	-0.360
TE-132	1.210E-01		1.029E+00	1.745E+00	2.592E-01	0.069
BA-133	1.953E-02		4.810E-02	7.170E-02	8.651E-03	0.272
I-133	-1.291E-02		1.444E-02	Half-Life too short		
CS-134	3.633E-02		4.629E-02	8.101E-02	6.245E-03	0.449
CS-135	3.663E-01		1.763E-01	2.897E-01	2.341E-02	1.265
I-135	-7.311E+11		4.039E+11	Half-Life too short		
CS-136	-6.784E-02		1.263E-01	1.922E-01	1.683E-02	-0.353
CE-139	-2.409E-02		3.306E-02	5.107E-02	2.789E-03	-0.472
BA-140	-3.269E-02		2.738E-01	4.337E-01	1.414E-01	-0.075
LA-140	-7.431E-02		8.958E-02	1.234E-01	9.579E-03	-0.602
CE-141	2.995E-02		7.647E-02	1.118E-01	6.840E-03	0.268
CE-143	2.445E-03		3.553E-04	Half-Life too short		
CE-144	-7.055E-02		2.111E-01	3.353E-01	4.817E-02	-0.210
PM-144	2.639E-02		3.527E-02	6.025E-02	3.363E-03	0.438
PR-144	1.790E+00		2.392E+00	4.087E+00	2.279E-01	0.438
PM-146	7.791E-03		4.257E-02	6.988E-02	6.454E-03	0.111
ND-147	3.782E-01		6.368E-01	1.065E+00	1.463E-01	0.355

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149	-4.898E+01		1.645E+02	2.698E+02	3.903E+01	-0.182
EU-152	-6.405E-02		9.380E-02	1.481E-01	1.091E-02	-0.432
GD-153	1.009E-01		1.008E-01	1.535E-01	1.429E-02	0.657
EU-154	3.805E-02		1.267E-01	2.169E-01	2.310E-02	0.175
EU-155	1.050E-01		1.226E-01	2.058E-01	1.707E-02	0.510
TB-160	3.420E-02		1.498E-01	2.501E-01	2.411E-02	0.137
HO-166M	3.929E-02		5.843E-02	1.021E-01	5.994E-03	0.385
TM-171	-2.454E+01		4.348E+01	6.291E+01	7.167E+00	-0.390
LU-176	-1.126E-02		2.333E-02	3.766E-02	2.477E-03	-0.299
LU-177	3.637E+00	+	1.805E+00	2.379E+00	1.390E-01	1.528
LU-177M	1.261E-01		1.842E-01	2.800E-01	1.898E-02	0.450
HF-181	-2.266E-02		4.447E-02	6.898E-02	4.528E-03	-0.328
W-181	1.782E-01		5.702E-01	8.612E-01	9.950E-02	0.207
TA-182	-3.546E-02		2.034E-01	3.344E-01	2.306E-02	-0.106
RE-183	9.068E-02		1.197E-01	1.972E-01	1.091E-02	0.460
RE-184	4.084E-02		2.195E-01	3.716E-01	2.317E-02	0.110
OS-185	3.053E-03		4.131E-02	6.950E-02	3.571E-03	0.044
RE-188	-9.958E-02		1.828E-01	2.856E-01	1.623E-02	-0.349
W-188	-7.940E-01		7.887E+00	1.147E+01	7.445E-01	-0.069
IR-192	4.605E-03		3.474E-02	5.800E-02	3.856E-03	0.079
AU-195	3.605E-01		2.622E-01	4.432E-01	4.022E-02	0.813
TL-200	6.325E-04		8.058E-04	Half-Life	too short	
TL-201	-3.227E+00		1.173E+01	1.849E+01	1.011E+00	-0.175
TL-202	5.138E-02		7.707E-02	1.307E-01	8.789E-03	0.393
HG-203	9.132E-03		4.249E-02	7.164E-02	4.834E-03	0.127
BI-207	3.908E-02		5.322E-02	9.212E-02	7.499E-03	0.424
TL-207	-3.610E-01		6.701E-01	1.072E+00	1.805E-01	-0.337
PO-209	4.884E-01		7.906E+00	1.299E+01	1.310E+00	0.038
BI-210	1.004E+01		9.214E+00	1.602E+01	1.571E+00	0.627
PB-210	1.004E+01		9.214E+00	1.602E+01	1.571E+00	0.627
PO-210	1.004E+01		9.206E+00	1.602E+01	1.438E+00	0.627
PB-211	-4.737E-02		1.058E+00	1.506E+00	9.404E-01	-0.031
PO-215	-3.610E-01		6.701E-01	1.072E+00	1.805E-01	-0.337
RN-219	6.096E-02		4.006E-01	6.606E-01	9.286E-02	0.092
RN-220	1.782E+01		2.790E+01	4.673E+01	2.865E+00	0.381
RA-223	-3.610E-01		6.701E-01	1.072E+00	1.805E-01	-0.337
AC-227	1.880E-01		3.653E-01	6.261E-01	8.864E-02	0.300
TH-227	1.880E-01		3.658E-01	6.261E-01	1.068E-01	0.300
TH-229	1.852E-01		5.184E-01	8.346E-01	4.759E-02	0.222
PA-231	-1.930E-01		1.506E+00	2.496E+00	3.510E-01	-0.077
TH-231	-3.610E-01		6.701E-01	1.072E+00	1.805E-01	-0.337
U-231	-1.224E+00		1.891E+00	2.676E+00	2.565E-01	-0.457
PA-233	-1.656E-02		6.248E-02	1.021E-01	7.065E-03	-0.162
PA-234	8.677E-02		2.781E-01	4.669E-01	8.996E-02	0.186
PA-234M	1.692E+01	+	6.906E+00	1.079E+01	1.113E+00	1.569
NP-236	-7.997E-02		8.584E-02	1.315E-01	7.326E-03	-0.608
NP-239	-1.269E-01		2.063E-01	3.263E-01	2.282E-02	-0.389
AM-241	4.275E-02		2.856E-01	4.300E-01	5.522E-02	0.099

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.440E-01		1.088E-01	1.852E-01	1.552E-02	0.777
AM-246	3.243E-02		1.429E-01	2.357E-01	1.862E-02	0.138
CM-247	4.394E-03		3.980E-02	6.065E-02	4.118E-03	0.072
CF-249	4.098E-02		4.032E-02	6.987E-02	4.748E-03	0.586
CF-251	-2.771E-02		1.348E-01	2.125E-01	1.178E-02	-0.130

# 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]G246341003          *
* Acquisition date   : 18-FEB-2010 13:09:32 Detector SN#                  *
* Detector ID        : GAM10 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.16 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341003 Analyst initials: MXR1                  *
* Batch Number       : 950786 Sample Quantity : 1.2830E+02 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope                   :
* MSD DPM             : 0.000 MSD Isotope                                :
* LCS DPM             : 0.000 LCS Isotope                                :
* LCSD DPM            : 0.000 LCSD Isotope                               :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.594E+01	2.752E+00	2.989E-01	1.404E+00
CD-109	2.898E+00	1.379E+00	9.274E-01	7.037E-01
SN-126	2.840E-01	1.352E-01	9.624E-02	6.897E-02
BA-137M	4.688E-01	7.469E-02	2.821E-02	3.811E-02
CS-137	4.955E-01	7.900E-02	2.982E-02	4.030E-02
TL-208	4.830E-01	8.323E-02	2.706E-02	4.246E-02
BI-211	3.779E+00	5.025E-01	1.628E-01	2.564E-01
BI-212	1.435E+00	4.545E-01	2.294E-01	2.319E-01
PB-212	1.711E+00	1.690E-01	4.770E-02	8.621E-02
PO-212	1.711E+00	1.690E-01	4.770E-02	8.621E-02
BI-214	1.063E+00	1.669E-01	5.408E-02	8.515E-02
PB-214	1.315E+00	1.873E-01	5.676E-02	9.555E-02
PO-214	1.315E+00	1.873E-01	5.676E-02	9.555E-02
PO-216	1.711E+00	1.690E-01	4.770E-02	8.621E-02
PO-218	1.315E+00	1.873E-01	5.676E-02	9.555E-02
RA-224	5.060E+00	1.088E+00	5.426E-01	5.550E-01
RA-226	1.063E+00	1.669E-01	5.408E-02	8.515E-02
AC-228	1.590E+00	3.801E-01	1.173E-01	1.939E-01
RA-228	1.590E+00	3.801E-01	1.173E-01	1.939E-01
TH-228	1.740E+00	1.719E-01	4.851E-02	8.769E-02
TH-230	1.063E+00	1.669E-01	5.408E-02	8.515E-02
TH-232	1.590E+00	3.801E-01	1.173E-01	1.939E-01
TH-234	1.133E+01	3.771E+00	1.656E+00	1.924E+00
U-234	1.063E+00	1.669E-01	5.408E-02	8.515E-02
U-235	3.345E-01	3.433E-01	1.803E-01	1.751E-01
NP-237	8.340E-01	4.313E-01	2.721E-01	2.201E-01
U-238	1.133E+01	3.771E+00	1.656E+00	1.924E+00
AM-243	4.317E-01	1.060E-01	5.889E-02	5.407E-02
ANH-511	7.150E-02	6.714E-02	2.420E-02	3.425E-02

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

Key-Line Activity	K.L Act error	DLC	TPU
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Nuclide	(pCi/GRAM )		(pCi/GRAM )	
BE-7	3.831E-02	3.172E-01	2.685E-01	1.618E-01 NOT IDENT.
NA-22	1.256E-02	4.438E-02	3.880E-02	2.264E-02 NOT IDENT.
NA-24	2.678E+06	6.168E+06	0.000E+00	3.147E+06 SHORT HLIF
AL-26	7.144E-03	2.517E-02	2.210E-02	1.284E-02 NOT IDENT.
TI-44	1.725E-01	5.334E-02	4.448E-02	2.721E-02 NOT IDENT.
SC-46	-1.242E-02	4.020E-02	3.283E-02	2.051E-02 FAIL ABUN
V-48	-9.010E-04	8.069E-02	6.718E-02	4.117E-02 NOT IDENT.
CR-51	-2.726E-01	3.741E-01	3.103E-01	1.909E-01 NOT IDENT.
MN-52	-9.031E-02	2.789E-01	2.231E-01	1.423E-01 NOT IDENT.
MN-54	2.111E-02	3.720E-02	3.289E-02	1.898E-02 NOT IDENT.
CO-56	-5.603E-02	3.885E-02	2.792E-02	1.982E-02 FAIL ABUN
CO-57	3.094E-03	2.627E-02	2.268E-02	1.340E-02 NOT IDENT.
CO-58	-1.056E-02	3.880E-02	3.211E-02	1.980E-02 NOT IDENT.
FE-59	-5.232E-03	9.853E-02	8.082E-02	5.027E-02 FAIL ABUN
CO-60	-2.051E-02	4.075E-02	3.251E-02	2.079E-02 NOT IDENT.
ZN-65	1.337E-02	1.015E-01	7.332E-02	5.176E-02 NOT IDENT.
GE-68	1.044E-01	1.213E+00	1.012E+00	6.190E-01 NOT IDENT.
AS-73	-1.288E+00	1.680E+00	1.460E+00	8.571E-01 NOT IDENT.
AS-74	-1.699E-02	9.648E-02	8.303E-02	4.923E-02 NOT IDENT.
SE-75	-2.509E-02	4.643E-02	3.450E-02	2.369E-02 NOT IDENT.
BR-77	4.376E+00	1.725E+01	1.466E+01	8.800E+00 FAIL ABUN
SR-82	-5.578E-01	3.776E-01	2.759E-01	1.926E-01 NOT IDENT.
RB-83	2.036E-02	6.620E-02	5.649E-02	3.378E-02 NOT IDENT.
RB-84	6.553E-03	7.567E-02	6.420E-02	3.860E-02 NOT IDENT.
KR-85	7.948E+00	7.814E+00	6.226E+00	3.987E+00 NOT IDENT.
SR-85	4.159E-02	4.088E-02	3.258E-02	2.086E-02 NOT IDENT.
RB-86	-2.617E-01	8.469E-01	6.765E-01	4.321E-01 NOT IDENT.
Y-88	7.312E-03	4.011E-02	3.397E-02	2.046E-02 NOT IDENT.
ZR-88	-3.371E-03	3.045E-02	2.578E-02	1.554E-02 NOT IDENT.
Y-91	1.105E+01	1.880E+01	1.688E+01	9.593E+00 NOT IDENT.
NB-94	-1.620E-02	3.320E-02	2.748E-02	1.694E-02 NOT IDENT.
NB-95	4.806E-02	4.890E-02	4.389E-02	2.495E-02 NOT IDENT.
NB-95M	2.574E-01	1.441E-01	1.216E-01	7.350E-02 NOT IDENT.
ZR-95	3.676E-02	7.353E-02	6.511E-02	3.751E-02 NOT IDENT.
NB-97	1.015E+06	6.788E+05	0.000E+00	3.463E+05 SHORT HLIF
ZR-97	2.085E+07	1.302E+07	0.000E+00	6.643E+06 SHORT HLIF
MO-99	2.082E+00	1.770E+01	1.528E+01	9.030E+00 NOT IDENT.
TC-99M	-2.557E+18	9.663E+18	0.000E+00	0.000E+00 SHORT HLIF
RH-101	7.094E-03	3.245E-02	2.730E-02	1.656E-02 NOT IDENT.
RH-102	1.447E-02	2.865E-02	2.490E-02	1.462E-02 NOT IDENT.
RU-103	-6.663E-04	4.049E-02	3.382E-02	2.066E-02 FAIL ABUN
RH-106	-3.430E-02	3.097E-01	2.614E-01	1.580E-01 FAIL ABUN
RU-106	-3.430E-02	3.096E-01	2.614E-01	1.580E-01 FAIL ABUN
AG-108M	-6.110E-03	3.519E-02	2.944E-02	1.796E-02 NOT IDENT.
AG-110M	3.902E-02	3.538E-02	2.975E-02	1.805E-02 NOT IDENT.
IN-111	1.556E+00	1.667E+00	1.376E+00	8.506E-01 NOT IDENT.
IN-113M	-1.065E-03	4.471E-02	3.807E-02	2.281E-02 NOT IDENT.
SN-113	-1.065E-03	4.471E-02	3.807E-02	2.281E-02 NOT IDENT.
IN-114M	-1.338E-01	2.141E-01	1.525E-01	1.093E-01 NOT IDENT.
CD-115	-2.923E+00	1.909E+01	1.568E+01	9.737E+00 NOT IDENT.
SN-117M	-2.666E-03	6.050E-02	5.104E-02	3.087E-02 NOT IDENT.
SB-122	6.639E-01	3.341E+00	2.807E+00	1.705E+00 NOT IDENT.
I-123	1.424E+07	6.656E+07	0.000E+00	3.396E+07 SHORT HLIF
TE-123M	6.155E-03	2.878E-02	2.455E-02	1.468E-02 NOT IDENT.
I-124	9.114E-01	8.868E-01	7.665E-01	4.524E-01 NOT IDENT.
SB-124	4.766E-02	6.630E-02	6.293E-02	3.383E-02 FAIL ABUN
SB-125	-2.007E-02	9.671E-02	8.082E-02	4.934E-02 FAIL ABUN
TE-125M	-6.054E-01	1.045E+01	9.020E+00	5.331E+00 NOT IDENT.
I-126	-9.556E-02	2.160E-01	1.540E-01	1.102E-01 NOT IDENT.
SB-126	6.836E-02	1.827E-01	1.414E-01	9.319E-02 NOT IDENT.
SB-127	1.355E-01	1.807E+00	1.565E+00	9.219E-01 NOT IDENT.
XE-127	1.664E-02	4.580E-02	4.148E-02	2.337E-02 NOT IDENT.
I-131	-8.070E-02	1.385E-01	1.146E-01	7.065E-02 NOT IDENT.
TE-132	1.210E-01	1.009E+00	8.985E-01	5.146E-01 NOT IDENT.
BA-133	1.953E-02	4.714E-02	3.667E-02	2.405E-02 NOT IDENT.
I-133	-1.291E+04	2.830E+04	0.000E+00	1.444E+04 SHORT HLIF
CS-134	3.633E-02	4.536E-02	4.092E-02	2.314E-02 NOT IDENT.
CS-135	3.663E-01	1.728E-01	1.488E-01	8.815E-02 NOT IDENT.
I-135	-7.311E+17	7.916E+17	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-6.784E-02	1.238E-01	9.666E-02	6.315E-02 FAIL ABUN
CE-139	-2.409E-02	3.240E-02	2.642E-02	1.653E-02 NOT IDENT.
BA-140	-3.269E-02	2.683E-01	2.205E-01	1.369E-01 NOT IDENT.
LA-140	-7.431E-02	8.778E-02	6.168E-02	4.479E-02 NOT IDENT.
CE-141	2.995E-02	7.494E-02	5.794E-02	3.823E-02 NOT IDENT.
CE-143	2.445E+03	6.963E+02	0.000E+00	3.553E+02 SHORT HLIF
CE-144	-7.055E-02	2.068E-01	1.740E-01	1.055E-01 NOT IDENT.

PM-144	2.639E-02	3.456E-02	3.050E-02	1.763E-02	NOT IDENT.
PR-144	1.790E+00	2.344E+00	2.069E+00	1.196E+00	NOT IDENT.
PM-146	7.791E-03	4.172E-02	3.561E-02	2.128E-02	NOT IDENT.
ND-147	3.782E-01	6.240E-01	5.415E-01	3.184E-01	NOT IDENT.
PM-149	-4.898E+01	1.612E+02	1.385E+02	8.226E+01	NOT IDENT.
EU-152	-6.405E-02	9.193E-02	7.581E-02	4.690E-02	FAIL ABUN
GD-153	1.009E-01	9.883E-02	8.006E-02	5.042E-02	FAIL ABUN
EU-154	3.805E-02	1.242E-01	1.088E-01	6.335E-02	NOT IDENT.
EU-155	1.050E-01	1.201E-01	1.072E-01	6.130E-02	FAIL ABUN
TB-160	3.420E-02	1.468E-01	1.261E-01	7.488E-02	FAIL ABUN
HO-166M	3.929E-02	5.726E-02	5.169E-02	2.922E-02	FAIL ABUN
TM-171	-2.454E+01	4.261E+01	3.299E+01	2.174E+01	NOT IDENT.
LU-176	-1.126E-02	2.287E-02	1.931E-02	1.167E-02	NOT IDENT.
LU-177	3.637E+00	1.769E+00	1.227E+00	9.027E-01	FAIL ABUN
LU-177M	1.261E-01	1.805E-01	1.429E-01	9.209E-02	FAIL ABUN
HF-181	-2.266E-02	4.358E-02	3.512E-02	2.223E-02	NOT IDENT.
W-181	1.782E-01	5.588E-01	4.518E-01	2.851E-01	NOT IDENT.
TA-182	-3.546E-02	1.993E-01	1.678E-01	1.017E-01	FAIL ABUN
RE-183	9.068E-02	1.173E-01	1.021E-01	5.983E-02	FAIL ABUN
RE-184	4.084E-02	2.151E-01	1.911E-01	1.097E-01	NOT IDENT.
OS-185	3.053E-03	4.049E-02	3.523E-02	2.066E-02	NOT IDENT.
RE-188	-9.958E-02	1.791E-01	1.479E-01	9.138E-02	NOT IDENT.
W-188	-7.940E-01	7.729E+00	5.884E+00	3.943E+00	FAIL ABUN
IR-192	4.605E-03	3.405E-02	2.972E-02	1.737E-02	FAIL ABUN
AU-195	3.605E-01	2.569E-01	2.311E-01	1.311E-01	FAIL ABUN
TL-200	6.325E+02	1.579E+03	0.000E+00	8.058E+02	SHORT HLIF
TL-201	-3.227E+00	1.150E+01	9.565E+00	5.866E+00	NOT IDENT.
TL-202	5.138E-02	7.553E-02	6.665E-02	3.854E-02	NOT IDENT.
HG-203	9.132E-03	4.164E-02	3.678E-02	2.125E-02	FAIL ABUN
BI-207	3.908E-02	5.216E-02	4.633E-02	2.661E-02	FAIL ABUN
TL-207	-3.610E-01	6.567E-01	5.492E-01	3.350E-01	FAIL ABUN
PO-209	4.884E-01	7.748E+00	6.550E+00	3.953E+00	NOT IDENT.
BI-210	1.004E+01	9.030E+00	8.444E+00	4.607E+00	NOT IDENT.
PB-210	1.004E+01	9.030E+00	8.444E+00	4.607E+00	NOT IDENT.
PO-210	1.004E+01	9.021E+00	8.444E+00	4.603E+00	NOT IDENT.
PB-211	-4.737E-02	1.037E+00	7.689E-01	5.291E-01	NOT IDENT.
PO-215	-3.610E-01	6.567E-01	5.492E-01	3.350E-01	FAIL ABUN
RN-219	6.096E-02	3.926E-01	3.373E-01	2.003E-01	FAIL ABUN
RN-220	1.782E+01	2.734E+01	2.374E+01	1.395E+01	NOT IDENT.
RA-223	-3.610E-01	6.567E-01	5.492E-01	3.350E-01	FAIL ABUN
AC-227	1.880E-01	3.580E-01	3.219E-01	1.827E-01	FAIL ABUN
TH-227	1.880E-01	3.585E-01	3.219E-01	1.829E-01	FAIL ABUN
TH-229	1.852E-01	5.080E-01	4.308E-01	2.592E-01	FAIL ABUN
PA-231	-1.930E-01	1.476E+00	1.281E+00	7.532E-01	NOT IDENT.
TH-231	-3.610E-01	6.567E-01	5.492E-01	3.350E-01	FAIL ABUN
U-231	-1.224E+00	1.854E+00	1.396E+00	9.457E-01	FAIL ABUN
PA-233	-1.656E-02	6.123E-02	5.233E-02	3.124E-02	FAIL ABUN
PA-234	8.677E-02	2.726E-01	2.352E-01	1.391E-01	FAIL ABUN
PA-234M	1.692E+01	6.767E+00	5.430E+00	3.453E+00	FAIL ABUN
NP-236	-7.997E-02	8.412E-02	6.806E-02	4.292E-02	NOT IDENT.
NP-239	-1.269E-01	2.022E-01	1.697E-01	1.032E-01	FAIL ABUN
AM-241	4.275E-02	2.799E-01	2.259E-01	1.428E-01	NOT IDENT.
CM-243	1.440E-01	1.066E-01	9.650E-02	5.438E-02	FAIL ABUN
AM-246	3.243E-02	1.401E-01	1.185E-01	7.147E-02	NOT IDENT.
CM-247	4.394E-03	3.901E-02	3.096E-02	1.990E-02	NOT IDENT.
CF-249	4.098E-02	3.951E-02	3.569E-02	2.016E-02	NOT IDENT.
CF-251	-2.771E-02	1.321E-01	1.098E-01	6.742E-02	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
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46.50	282.2622
46.50	282.2622
46.50	282.2622
48.70	368.4991
49.72	356.6013
51.35	295.1993
52.39	296.9189
52.97	336.3867
53.15	347.6965
53.44	365.6281
54.07	388.5726
56.28	333.5490
56.28	333.5517
57.37	0.0000
57.53	331.7463
57.53	331.7477
57.60	359.0605
57.98	360.1415
57.98	360.1415
59.32	386.4921
59.32	386.4921
59.40	386.5650
59.54	386.6931
59.72	375.5211
60.01	375.7769
61.10	390.9506
61.14	390.9863
61.30	391.1310
63.00	395.0397
63.29	402.9202
63.29	402.9202
63.58	403.1848
64.28	428.1655
65.12	388.7996
65.20	388.8683
65.20	388.8683
66.05	382.4136
66.72	431.9275
66.83	457.9547
66.91	458.0348
67.20	430.0769
67.20	430.0769
67.75	422.3182
67.85	422.4098
68.90	438.3157
68.90	438.3157
69.30	441.5882
69.67	401.3681
70.82	384.9144
70.82	384.9144
70.83	384.9225
72.80	444.8529
72.87	444.9181
72.87	444.9181
74.67	446.5656
74.81	446.6936
74.81	446.6936
74.81	446.6936
74.81	446.6936
74.81	446.6936
74.81	446.6936
74.81	446.6936
74.97	446.8379
75.28	447.1194
75.70	447.4987
77.11	448.7669
77.11	448.7669

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77.11	448.7669
77.11	448.7669
77.11	448.7669
77.11	448.7669
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79.80	451.1544
79.80	451.1544
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80.18	451.4894
80.30	426.4233
80.30	426.4233
80.57	426.6475
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81.07	403.3350
81.07	403.3350
81.07	403.3350
81.07	403.3350
82.60	404.5199
83.37	378.3025
83.78	627.5204
83.78	627.5204
83.78	627.5204
83.78	627.5204
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84.90	628.8437
85.43	629.4668
86.29	630.4722
86.50	630.7195
86.54	630.7645
86.59	630.8223
86.72	630.9764
86.79	631.0535
86.94	631.2302
87.30	706.1688
87.30	706.1688
87.30	706.1688
87.30	706.1688
87.30	706.1688
87.30	706.1688
87.57	706.5171
87.88	639.8320
88.03	640.0076
88.36	532.1586
88.47	532.2640
89.95	642.2437
91.11	643.5827
92.29	517.7645
92.38	517.8480
92.38	517.8480
93.35	518.7352
94.00	519.3275
94.67	351.1809
94.67	351.1844
94.90	413.6819
94.90	413.6819
94.90	413.6819
94.90	413.6819
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95.87	420.4709
96.73	340.2336
97.43	336.0576
98.44	317.0505
98.44	317.0505
98.88	323.6171
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99.55	361.7981
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100.10	401.0101
103.18	342.3985
103.76	321.1121
105.00	336.2007
105.31	348.7533
108.00	378.2460
109.28	370.7093



111.00	405.0323
111.00	405.0323
111.76	374.2414
112.95	349.8682
115.19	417.0996
116.30	330.6741
117.00	348.8898
117.00	348.8898
117.66	321.8877
121.11	319.3190
121.62	298.3972
121.78	307.9931
122.06	307.0600
122.32	306.1173
122.32	306.1173
122.32	306.1173
122.32	306.1173
123.07	296.9118
127.23	315.2365
129.76	298.7052
131.20	281.6086
133.02	313.6189
133.54	313.1986
135.34	333.3952
136.00	333.6970
136.25	332.7299
136.48	327.4332
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140.51	0.0000
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142.65	347.5855
143.76	319.1780
144.24	317.7395
144.24	317.7395
144.24	317.7395
144.24	317.7395
145.22	313.2282
145.44	313.3186
147.16	307.4417
152.43	291.3120
152.70	273.7501
153.22	288.2884
154.21	299.7033
154.21	299.7033
154.21	299.7033
154.21	299.7033
155.03	326.5814
156.02	320.3330
158.56	287.9815
159.00	0.0000
159.00	282.5745
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161.27	316.8248
162.32	296.0062
162.64	302.8240
163.35	312.0302
163.89	305.5171
165.85	345.4943
167.43	320.2945
171.28	302.5523
171.86	316.3131
172.10	314.1414
176.55	280.5409
176.60	298.7296
181.06	277.4067
184.41	326.5683
185.71	316.7076
186.00	316.8087
190.27	290.6085
192.34	251.9605
193.63	253.4660
197.04	238.1219
198.01	252.3168
198.60	255.9640
200.40	280.9240
201.83	283.6780
202.84	256.8042
205.31	260.0930

208.36	280.6454
208.81	251.3211
209.75	227.3752
209.75	227.3752
210.97	255.9343
215.65	229.9605
216.55	252.3828
218.09	250.9841
222.10	243.0323
223.80	247.0107
226.40	259.2913
227.00	261.2344
227.08	251.3788
227.20	252.3066
228.16	240.8528
228.18	240.8569
228.18	240.8569
231.56	0.0000
235.69	251.9729
236.00	252.0472
236.00	252.0472
238.63	241.4055
238.63	241.4055
238.63	241.4055
238.63	241.4055
239.00	241.4866
240.98	241.9250
241.98	205.3691
241.98	205.3691
241.98	205.3691
244.69	178.1331
245.39	160.7125
247.94	177.5546
248.90	180.4551
249.79	177.8491
252.40	192.0436
252.85	179.2509
252.85	179.2509
254.15	0.0000
256.20	179.7775
256.20	179.7775
260.50	179.5246
260.90	180.5125
262.80	172.4621
264.65	184.2532
268.24	163.9473
268.79	168.4986
269.46	183.6985
269.46	183.6985
269.46	183.6985
269.46	183.6985
271.23	174.8202
273.65	254.5269
276.40	187.5793
277.35	184.9099
277.60	181.1937
277.60	181.1937
278.00	184.0700
278.60	196.3776
279.20	201.1736
279.53	219.0952
280.46	227.7317
281.68	198.7558
283.67	182.0949
284.30	177.4692
285.00	196.4600
285.90	182.4247
286.10	175.8366
286.10	175.8366
287.40	155.1989
288.45	0.0000
290.67	163.9565
290.80	179.1549
291.72	186.8843
293.26	0.0000
293.70	141.5253
295.21	161.4999
295.21	161.4999

295.21	161.4999
295.96	137.2039
296.50	137.2610
297.23	137.3401
298.57	137.4851
299.80	191.1346
299.80	191.1346
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300.09	175.8832
300.09	175.8832
300.09	175.8832
300.12	175.8860
301.29	169.9227
302.84	139.4748
303.76	128.8362
303.91	136.5224
304.40	149.6158
304.40	149.6158
304.84	164.4706
306.84	157.5837
308.46	163.5513
311.98	160.1311
316.51	154.8706
318.01	158.9200
319.02	160.0099
319.41	157.1451
320.08	165.9589
323.87	179.0754
323.87	179.0754
323.87	179.0754
323.87	179.0754
325.23	196.7910
328.77	152.3723
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334.20	158.4635
334.20	158.4635
334.30	158.4733
338.28	154.2041
338.28	154.2041
338.28	154.2041
338.28	154.2041
338.32	154.2088
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338.32	154.2088
340.50	129.2321
340.57	129.2381
344.27	152.0943
345.85	117.3286
350.59	0.0000
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351.92	139.0088
351.92	139.0088
351.92	139.0088
355.39	0.0000
356.01	132.2306
364.48	154.2256
366.43	135.3770
367.43	133.4607
367.94	0.0000
369.80	135.6818
374.96	137.1559
383.85	140.9980
387.95	116.9636
388.63	126.1721
391.69	133.5566
391.69	133.5566
392.90	129.5774
398.62	134.1443
400.65	113.8099
401.10	121.0213
401.81	119.0232
402.60	125.9254
404.84	128.2944
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411.60	118.9230
413.65	94.2657
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415.30	79.2260

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427.08	129.2146
427.89	135.5344
432.53	123.3638
433.93	138.1130
439.47	97.6247
439.56	100.7798
439.89	112.3487
443.98	106.3031
444.90	110.5708
445.03	110.5804
445.03	110.5804
445.03	110.5804
445.03	110.5804
453.90	100.5606
463.38	90.2475
468.07	87.0710
473.00	96.2979
475.06	95.3366
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476.78	91.1374
477.59	96.5410
477.96	108.3636
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511.85	108.3797
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513.99	94.5007
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574.00	96.4646
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578.91	64.7625
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602.71	69.1836
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604.41	99.0684
604.70	99.0816
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609.31	84.3206
609.31	84.3206
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614.37	94.9249
618.01	83.7329
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661.65	75.0352
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666.33	83.0152
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677.61	69.8773
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695.00	73.2383
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696.49	71.3782
697.00	78.0582
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698.33	79.0526
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699.00	81.9331
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722.78	78.5543
722.78	78.5543
722.89	78.5583
722.95	78.5603
723.30	83.3828
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739.58	63.9085
742.81	55.2633
744.21	67.9048
747.13	58.2700
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752.31	75.9034
753.82	67.1840
755.35	68.1970
756.15	70.1684
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763.93	118.2734
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766.84	91.0042
776.49	79.5524
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778.57	48.0534
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783.80	54.1661
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880.27	58.1021
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881.50	61.1851
883.24	69.3846
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889.25	61.3462
896.60	61.4985
898.02	60.5024
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911.07	67.9755
911.07	67.9755
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969.11	45.1269
969.11	45.1269
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983.50	56.9281
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1004.76	45.9835
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1036.00	48.2058
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1046.59	53.7329
1048.07	59.1304

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1050.47	48.4146
1062.04	52.8975
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1076.63	52.0383
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1078.86	45.5643
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1099.22	55.6518
1112.02	60.8426
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1120.29	63.6669
1120.29	63.6669
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1120.51	63.6726
1121.28	63.6867
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1147.95	0.0000
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1173.22	59.4063
1175.09	44.5762
1177.93	58.5524
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1235.34	64.7042
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1260.41	0.0000
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1274.54	43.8419
1291.56	37.3306
1298.22	0.0000
1312.09	25.0140
1325.50	31.8533
1325.50	31.8533
1332.49	40.6089
1333.61	32.8835
1360.21	27.2549
1362.66	0.0000
1365.15	32.1594
1368.21	24.3815
1368.53	0.0000
1376.25	23.4502
1384.27	31.3268
1394.10	28.4560
1395.20	33.3705
1407.95	26.5792
1434.06	23.7686
1436.60	22.7913
1457.56	0.0000
1460.81	26.9033
1489.15	22.0600
1509.49	20.1449
1596.49	22.5774
1620.62	13.4084
1678.03	0.0000
1691.02	7.3239
1691.02	7.3239
1706.46	0.0000
1750.46	0.0000
1764.49	10.9177
1764.49	10.9177
1764.49	10.9177
1764.49	10.9177
1770.23	36.1292
1771.40	18.0687
1791.20	0.0000
1808.65	7.4930

1836.01

16.1389



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341003

Total Uranium Activity	3.3865E+01	ug/g
Total Uranium Counting Unc.	1.1220E+01	ug/g
Total Uranium Tpu	5.7243E-06	ug/g
Total Uranium Mda	4.9276E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950786                          SAMPLE ID   : G246341003
*  ANALYST       : MXR1                             DETECTOR    : GAM10
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 18-FEB-2010 13:09:32.35          SAMPLE ALQT  : 128.300 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.043E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.425E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.522E+00
GROSS GAMMA DLC       (pCi/GRAM ) : 1.710E+00

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## VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:10:50.42

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341004.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:10:03
Sample ID          : G246341004      Sample quantity   : 1.19410E+02 GRAM
Detector name      : GAM11           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.77  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 950786          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	63.32*	218	518	1.01	125.52	122	8	3.02E-02	19.9	
2	3	74.86	404	453	0.81	148.62	145	14	5.62E-02	9.0	2.57E+00
3	3	77.10*	756	374	0.90	153.10	145	14	1.05E-01	5.4	
4	0	83.81*	89	456	1.13	166.53	164	7	1.24E-02	41.7	
5	3	87.12	271	354	1.08	173.16	170	23	3.77E-02	12.5	1.70E+00
6	3	89.91	187	408	1.09	178.75	170	23	2.60E-02	19.5	
7	3	92.66*	495	400	1.10	184.25	170	23	6.87E-02	8.6	
8	0	129.10	132	322	0.94	257.19	253	8	1.83E-02	25.2	
9	0	143.97*	64	290	1.70	286.94	283	8	8.86E-03	49.0	
10	0	185.85*	361	315	1.09	370.77	367	9	5.01E-02	10.8	
11	0	209.13	181	175	1.45	417.36	414	7	2.51E-02	14.3	
12	6	238.63*	1351	189	0.95	476.40	471	16	1.88E-01	3.2	4.32E+00
13	6	241.60	345	263	1.66	482.35	471	16	4.80E-02	12.9	
14	0	270.77	143	274	1.37	540.72	535	13	1.99E-02	25.3	
15	0	277.97	42	189	0.70	555.14	550	8	5.84E-03	58.8	
16	2	295.21	407	127	1.14	589.64	585	19	5.65E-02	6.7	1.71E+00
17	2	299.79	113	129	1.32	598.80	585	19	1.56E-02	20.4	
18	0	328.28	91	142	0.88	655.83	652	9	1.27E-02	25.6	
19	0	338.24*	285	229	1.12	675.75	670	13	3.96E-02	12.6	
20	0	351.90*	686	189	1.12	703.10	696	14	9.53E-02	5.8	
21	0	409.60	85	122	1.79	818.57	814	11	1.18E-02	27.4	
22	0	463.36	109	91	1.32	926.16	921	11	1.51E-02	19.7	
23	0	510.97*	107	123	2.02	1021.44	1015	12	1.49E-02	26.6	
24	0	583.29*	428	101	1.29	1166.17	1161	11	5.94E-02	6.7	
25	0	609.37*	484	92	1.51	1218.36	1214	10	6.72E-02	5.9	
26	0	661.67	115	72	1.16	1323.01	1317	12	1.59E-02	17.5	
27	0	727.73	103	97	1.34	1455.19	1448	14	1.43E-02	22.7	
28	0	768.59	44	82	0.88	1536.96	1530	13	6.16E-03	44.5	
29	0	795.59	45	69	1.60	1590.99	1584	12	6.28E-03	39.6	
30	0	862.18	33	110	1.69	1724.23	1719	17	4.65E-03	71.8	
31	0	911.45*	302	37	1.40	1822.82	1818	13	4.20E-02	7.2	
32	3	964.92*	41	61	2.10	1929.81	1922	23	5.63E-03	44.0	9.36E-01
33	3	969.18	199	36	1.48	1938.33	1922	23	2.77E-02	9.0	
34	0	1120.70	112	54	2.28	2241.48	2235	12	1.56E-02	16.2	
35	0	1238.05	68	24	1.64	2476.26	2472	10	9.51E-03	17.8	
36	0	1378.32	34	19	1.51	2756.88	2750	11	4.67E-03	30.6	
37	0	1461.22*	1190	14	1.98	2922.72	2917	17	1.65E-01	3.0	
38	0	1589.13	25	11	2.25	3178.59	3172	10	3.52E-03	30.8	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1631.33	17	4	1.45	3263.01	3259	8	2.41E-03	31.0	
40	0	1764.96*	108	9	1.60	3530.31	3521	16	1.50E-02	11.5	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:10:03
Sample ID        : G246341004             Sample quantity  : 119.41 GRAM
Sample type      : SOLID                  Sample geometry  :
Detector name    : GAMMA11                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.77    0.0%
Peak Width (FWHM): 3.00                   Confidence level : 5.00 %
Energy tolerance : 1.50 keV               Half life ratio  : 8.00
Errors propagated: Yes                    Systematic Error : 0.00 %
Efficiency type  : Empirical              Efficiencies at  : Peak Energy
Abundance limit  : 75.00                  WTM error limit  : 3.00

```

## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.862E+01	3.019E+00	6.415E-01	5.546E-02	44.623
CD-109	+	88.03	*	3.469E+00	9.291E-01	9.788E-01	9.282E-02	3.544
SN-126	+	64.28		1.662E+00	7.026E-01	6.252E-01	9.069E-02	2.659
	+	86.94		1.413E+00	6.856E-01	4.137E-01	1.717E-01	3.417
	+	87.57	*	3.400E-01	9.106E-02	9.624E-02	9.078E-03	3.532
BA-137M	+	661.65	*	1.669E-01	6.053E-02	5.821E-02	5.508E-03	2.868
CS-137	+	661.65	*	1.765E-01	6.399E-02	6.153E-02	5.832E-03	2.868
CE-141	+	145.44	*	8.487E-02	8.357E-02	9.677E-02	8.869E-03	0.877
HG-203		70.83		-7.400E-01	1.028E+00	1.433E+00	1.876E-01	-0.516
		72.87		9.708E-02	6.032E-01	8.811E-01	1.125E-01	0.110
	+	82.60		1.553E+00	1.314E+00	1.454E+00	2.020E-01	1.068
	+	279.20	*	4.719E-02	5.601E-02	6.235E-02	9.739E-03	0.757
TL-208	+	277.35		4.161E-01	4.951E-01	5.539E-01	9.821E-02	0.751
	+	510.84		5.297E-01	2.910E-01	2.069E-01	2.805E-02	2.560
	+	583.14	*	6.004E-01	1.036E-01	5.909E-02	6.381E-03	10.161
		860.37		7.834E-01	3.515E-01	6.203E-01	6.461E-02	1.263
BI-211		72.87		4.743E-01	2.946E+00	4.304E+00	3.419E-01	0.110
	+	351.07	*	4.250E+00	7.429E-01	2.819E-01	3.719E-02	15.076
PB-212	+	74.81		2.051E+00	4.483E-01	4.528E-01	5.601E-02	4.529
	+	77.11		2.193E+00	2.989E-01	2.595E-01	2.157E-02	8.452
	+	87.30		1.572E+00	4.495E-01	4.460E-01	6.121E-02	3.526
	+	238.63	*	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
	+	300.09		2.350E+00	1.031E+00	1.108E+00	1.776E-01	2.120
PO-212	+	74.81		2.051E+00	4.483E-01	4.528E-01	5.601E-02	4.529
	+	77.11		2.193E+00	2.989E-01	2.595E-01	2.157E-02	8.452
	+	87.30		1.572E+00	4.495E-01	4.460E-01	6.121E-02	3.526
		115.19		-6.356E-01	3.179E+00	5.374E+00	4.553E-01	-0.118
	+	238.63	*	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
	+	300.09		2.350E+00	1.031E+00	1.108E+00	1.776E-01	2.120
BI-214	+	609.31	*	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
	+	1120.29		1.523E+00	5.194E-01	4.850E-01	5.237E-02	3.141
	+	1764.49		2.005E+00	4.885E-01	2.567E-01	2.115E-02	7.811
PB-214	+	74.81		3.534E+00	7.458E-01	7.802E-01	8.566E-02	4.529
	+	77.11		3.760E+00	5.871E-01	4.449E-01	5.016E-02	8.452

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	87.30		2.694E+00	7.507E-01	7.640E-01	9.288E-02	3.526
	+	241.98		2.807E+00	8.319E-01	5.142E-01	7.491E-02	5.459
	+	295.21		1.490E+00	3.150E-01	1.940E-01	3.164E-02	7.681
	+	351.92	*	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
PO-214	+	74.81		3.534E+00	7.458E-01	7.802E-01	8.566E-02	4.529
	+	77.11		3.760E+00	5.871E-01	4.449E-01	5.016E-02	8.452
	+	87.30		2.694E+00	7.507E-01	7.640E-01	9.288E-02	3.526
	+	241.98		2.807E+00	8.319E-01	5.142E-01	7.491E-02	5.459
	+	295.21		1.490E+00	3.150E-01	1.940E-01	3.164E-02	7.681
	+	351.92	*	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
PO-216	+	74.81		2.051E+00	4.483E-01	4.528E-01	5.601E-02	4.529
	+	77.11		2.193E+00	2.989E-01	2.595E-01	2.157E-02	8.452
	+	87.30		1.572E+00	4.495E-01	4.460E-01	6.121E-02	3.526
	+	238.63	*	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
	+	300.09		2.350E+00	1.031E+00	1.108E+00	1.776E-01	2.120
PO-218	+	74.81		3.534E+00	7.458E-01	7.802E-01	8.566E-02	4.529
	+	77.11		3.760E+00	5.871E-01	4.449E-01	5.016E-02	8.452
	+	87.30		2.694E+00	7.507E-01	7.640E-01	9.288E-02	3.526
	+	241.98		2.807E+00	8.319E-01	5.142E-01	7.491E-02	5.459
	+	295.21		1.490E+00	3.150E-01	1.940E-01	3.164E-02	7.681
	+	351.92	*	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
RA-224	+	240.98	*	5.323E+00	1.549E+00	9.716E-01	1.301E-01	5.478
RA-226	+	609.31	*	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
	+	1120.29		1.523E+00	5.194E-01	4.850E-01	5.237E-02	3.141
	+	1764.49		2.005E+00	4.885E-01	2.567E-01	2.115E-02	7.811
AC-228	+	338.32		1.948E+00	9.624E-01	3.494E-01	1.487E-01	5.574
	+	911.07	*	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
	+	969.11		2.173E+00	6.463E-01	3.453E-01	8.184E-02	6.292
RA-228	+	338.32		1.948E+00	9.624E-01	3.494E-01	1.487E-01	5.574
	+	911.07	*	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
	+	969.11		2.173E+00	6.463E-01	3.453E-01	8.184E-02	6.292
TH-228	+	74.81		2.086E+00	4.129E-01	4.606E-01	3.768E-02	4.529
	+	77.11		2.231E+00	3.040E-01	2.640E-01	2.194E-02	8.452
	+	87.30		1.599E+00	4.283E-01	4.536E-01	4.264E-02	3.526
	+	238.63	*	1.860E+00	2.867E-01	8.681E-02	1.216E-02	21.422
	+	300.09		2.390E+00	1.745E+00	1.127E+00	6.822E-01	2.120
TH-230	+	609.31	*	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
	+	1120.29		1.523E+00	5.194E-01	4.850E-01	5.237E-02	3.141
	+	1764.49		2.005E+00	4.885E-01	2.567E-01	2.115E-02	7.811
TH-232	+	338.32		1.948E+00	5.554E-01	3.494E-01	4.712E-02	5.574
	+	911.07	*	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
	+	969.11		2.173E+00	6.463E-01	3.453E-01	8.184E-02	6.292
TH-234	+	63.29	*	4.200E+00	1.821E+00	1.678E+00	2.918E-01	2.504
	+	92.38		4.075E+00	1.027E+00	6.399E-01	1.174E-01	6.368
U-234	+	609.31	*	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
	+	1120.29		1.523E+00	5.194E-01	4.850E-01	5.237E-02	3.141
	+	1764.49		2.005E+00	4.885E-01	2.567E-01	2.115E-02	7.811
U-235	+	89.95		3.143E+00	1.565E+00	1.299E+00	4.034E-01	2.420
	+	93.35		4.899E+00	1.620E+00	7.660E-01	2.158E-01	6.396

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		105.00		1.135E-01	9.100E-01	1.564E+00	4.667E-01	0.073
	+	143.76	*	2.717E-01	2.707E-01	2.938E-01	5.194E-02	0.925
		163.35		6.582E-02	4.254E-01	7.157E-01	1.399E-01	0.092
	+	185.71		3.414E-01	8.230E-02	6.416E-02	6.804E-03	5.321
		205.31		4.263E-01	5.276E-01	8.080E-01	1.662E-01	0.528
NP-237	+	86.50	*	9.983E-01	3.375E-01	2.915E-01	6.599E-02	3.424
		95.87		3.894E-01	9.211E-01	1.340E+00	3.316E-01	0.291
U-238	+	63.29	*	4.200E+00	1.821E+00	1.678E+00	2.918E-01	2.504
	+	92.38		4.075E+00	7.968E-01	6.399E-01	5.860E-02	6.368
AM-243	+	74.67	*	3.325E-01	6.571E-02	7.358E-02	5.955E-03	4.518
	+	86.72		3.744E+01	1.003E+01	1.097E+01	1.024E+00	3.411
		117.66		-1.754E+00	3.354E+00	5.582E+00	4.721E-01	-0.314
		142.18		-6.239E+00	1.624E+01	2.401E+01	2.141E+00	-0.260
ANH-511	+	511.00	*	1.144E-01	6.213E-02	4.471E-02	4.781E-03	2.559

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-1.371E-01	2.960E-01	4.755E-01	5.381E-02	-0.288
NA-22		1274.54	*	-2.808E-02	4.228E-02	5.953E-02	4.889E-03	-0.472
NA-24		1368.53	*	1.061E+00	4.228E-02	Half-Life too short		
AL-26		1129.67		-1.016E+00	1.813E+00	2.820E+00	2.382E-01	-0.360
		1808.65	*	6.121E-03	2.062E-02	3.675E-02	3.000E-03	0.167
TI-44		67.85		-1.069E-02	3.749E-02	5.853E-02	4.435E-03	-0.183
	+	78.38	*	4.048E-01	5.516E-02	6.125E-02	5.163E-03	6.609
SC-46		889.25	*	5.757E-03	4.070E-02	6.913E-02	6.809E-03	0.083
	+	1120.51		2.650E-01	8.862E-02	1.371E-01	1.169E-02	1.933
V-48		944.10		-4.157E-01	8.977E-01	1.426E+00	1.379E-01	-0.291
		983.50	*	-3.447E-02	7.367E-02	1.166E-01	1.106E-02	-0.296
		1312.09		-2.798E-04	8.299E-02	1.345E-01	1.109E-02	-0.002
CR-51		320.08	*	2.694E-01	3.701E-01	6.181E-01	8.971E-02	0.436
MN-52		744.21		7.713E-02	3.219E-01	5.295E-01	5.144E-02	0.146
		848.13		2.364E+00	7.756E+00	1.343E+01	1.323E+00	0.176
		935.52		3.831E-01	3.314E-01	6.038E-01	5.863E-02	0.634
		1246.25		3.853E+00	9.509E+00	1.608E+01	1.313E+00	0.240
		1333.61		1.515E+00	7.298E+00	1.209E+01	9.994E-01	0.125
		1434.06	*	-1.986E-01	2.973E-01	4.253E-01	3.563E-02	-0.467
MN-54		834.83	*	-1.103E-02	3.594E-02	5.902E-02	5.812E-03	-0.187
CO-56		846.75	*	2.843E-02	3.582E-02	6.453E-02	6.358E-03	0.441
		977.42		1.733E+00	2.856E+00	5.026E+00	4.783E-01	0.345
		1037.82		-1.788E-01	3.026E-01	4.691E-01	4.502E-02	-0.381
		1175.09		2.170E+00	2.477E+00	4.350E+00	3.497E-01	0.499
	+	1238.25		2.657E-01	9.716E-02	1.748E-01	1.471E-02	1.521
		1360.21		-4.698E-01	9.115E-01	1.350E+00	1.121E-01	-0.348
		1771.40		-1.032E+00	3.789E-01	3.577E-01	2.944E-02	-2.884
CO-57		122.06	*	-1.738E-02	2.303E-02	3.784E-02	3.201E-03	-0.459
		136.48		5.346E-02	1.887E-01	3.222E-01	3.026E-02	0.166
CO-58		810.76	*	-7.233E-03	4.212E-02	6.620E-02	6.518E-03	-0.109

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
FE-59	+	142.65		3.612E+00	3.556E+00	3.963E+00	3.540E-01	0.911
		192.34		-2.815E-02	8.768E-01	1.449E+00	2.174E-01	-0.019
		1099.22	*	-5.548E-04	9.523E-02	1.568E-01	1.474E-02	-0.004
		1291.56		3.506E-02	1.288E-01	2.156E-01	2.034E-02	0.163
CO-60		1173.22		1.985E-02	4.902E-02	8.301E-02	6.669E-03	0.239
		1332.49	*	3.071E-02	4.425E-02	7.706E-02	6.367E-03	0.399
ZN-65		1115.52	*	-5.145E-02	1.056E-01	1.404E-01	1.204E-02	-0.367
GE-68		1077.35	*	-2.981E-01	1.273E+00	2.053E+00	1.823E-01	-0.145
AS-73		53.44	*	2.719E-01	6.226E-01	1.016E+00	7.628E-02	0.268
AS-74		595.88	*	2.608E-02	9.454E-02	1.586E-01	1.613E-02	0.164
		634.78		1.457E-01	3.709E-01	6.258E-01	6.121E-02	0.233
SE-75		66.05		-2.503E+00	4.202E+00	5.906E+00	5.613E-01	-0.424
		96.73		-3.749E-01	7.933E-01	1.096E+00	1.514E-01	-0.342
		121.11		2.190E-03	1.242E-01	2.112E-01	2.343E-02	0.010
		136.00		1.081E-02	3.516E-02	6.011E-02	5.292E-03	0.180
		198.60		4.238E-01	1.761E+00	2.842E+00	3.399E-01	0.149
		264.65	*	9.330E-03	4.226E-02	6.623E-02	9.734E-03	0.141
		279.53		1.643E-02	1.148E-01	1.671E-01	2.616E-02	0.098
		303.91		-1.578E+00	2.176E+00	2.872E+00	4.774E-01	-0.550
		400.65		2.601E-01	2.397E-01	4.285E-01	5.482E-02	0.607
BR-77	+	87.88		1.313E+03	3.516E+02	5.192E+02	4.917E+01	2.528
		200.40		-3.164E+00	2.628E+02	4.336E+02	4.904E+01	-0.007
	+	239.00		5.157E+02	7.608E+01	7.109E+01	9.445E+00	7.255
		249.79		9.421E+00	1.060E+02	1.733E+02	2.403E+01	0.054
		281.68		-3.758E+01	1.662E+02	2.343E+02	3.613E+01	-0.160
		297.23		1.949E+02	9.744E+01	1.667E+02	2.501E+01	1.169
		303.76		-2.239E+02	3.197E+02	4.239E+02	6.274E+01	-0.528
		439.47		2.055E+02	2.502E+02	4.405E+02	4.752E+01	0.467
		484.57		-1.923E+02	3.989E+02	6.411E+02	6.902E+01	-0.300
		520.65	*	4.735E+00	1.596E+01	2.712E+01	2.889E+00	0.175
		574.64		-1.907E+02	3.419E+02	5.348E+02	5.530E+01	-0.357
		578.91		1.063E+02	1.560E+02	2.420E+02	2.495E+01	0.439
		585.48		1.773E+03	4.387E+02	7.689E+02	7.886E+01	2.306
		755.35		3.072E+01	2.961E+02	4.809E+02	4.684E+01	0.064
		817.79		-2.307E+02	2.329E+02	3.289E+02	3.235E+01	-0.701
SR-82		698.33		-8.754E+00	3.578E+01	5.669E+01	5.437E+00	-0.154
		776.49	*	-3.329E-01	3.789E-01	5.478E-01	5.358E-02	-0.608
		1395.20		3.300E+00	1.014E+01	1.721E+01	1.436E+00	0.192
RB-83		520.41	*	1.440E-02	6.066E-02	1.026E-01	1.093E-02	0.140
		529.64		-9.799E-02	9.828E-02	1.479E-01	1.570E-02	-0.663
		552.65		-2.519E-01	1.918E-01	2.773E-01	2.909E-02	-0.908
RB-84		881.50	*	3.991E-02	7.163E-02	1.260E-01	1.241E-02	0.317
KR-85		513.99	*	1.061E+01	7.067E+00	1.175E+01	1.255E+00	0.903
SR-85		513.99	*	5.549E-02	3.698E-02	6.146E-02	6.565E-03	0.903
RB-86		1076.63	*	-2.528E-01	8.499E-01	1.361E+00	1.209E-01	-0.186
Y-88		898.02		-1.465E-02	3.581E-02	5.736E-02	5.668E-03	-0.255
		1836.01	*	1.626E-04	3.165E-02	5.214E-02	4.233E-03	0.003
ZR-88		392.90	*	-3.147E-03	2.838E-02	4.769E-02	5.086E-03	-0.066
Y-91		1204.90	*	-2.783E+00	1.770E+01	2.846E+01	2.304E+00	-0.098



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94		702.63	*	-1.274E-02	3.545E-02	5.563E-02	5.342E-03	-0.229
		871.10		-8.715E-03	3.300E-02	4.873E-02	4.803E-03	-0.179
NB-95		765.79	*	3.628E-02	4.239E-02	6.630E-02	6.472E-03	0.547
NB-95M		235.69	*	-4.883E-02	1.312E-01	1.863E-01	2.601E-02	-0.262
ZR-95		724.18		-1.401E-02	1.090E-01	1.512E-01	1.563E-02	-0.093
		756.15	*	4.444E-03	7.344E-02	1.188E-01	1.250E-02	0.037
NB-97		657.90	*	3.689E-01	7.344E-02	Half-Life	too short	
	1024.50			2.009E+01	7.344E-02	Half-Life	too short	
ZR-97		254.15		1.356E+01	7.344E-02	Half-Life	too short	
	355.39			2.230E+00	7.344E-02	Half-Life	too short	
	507.63	*		4.722E+00	7.344E-02	Half-Life	too short	
	602.52			1.672E+01	7.344E-02	Half-Life	too short	
	1021.30			3.404E+01	7.344E-02	Half-Life	too short	
	1147.95			-2.699E+01	7.344E-02	Half-Life	too short	
	1362.66			1.910E+01	7.344E-02	Half-Life	too short	
	1750.46			-3.921E+00	7.344E-02	Half-Life	too short	
MO-99		140.51		-3.135E+00	4.051E+01	6.046E+01	1.679E+01	-0.052
		181.06		-1.389E+01	2.665E+01	4.088E+01	7.842E+00	-0.340
		366.43		7.533E+01	1.358E+02	2.233E+02	2.706E+01	0.337
		739.58	*	-1.595E+00	1.966E+01	3.144E+01	4.976E+00	-0.051
		778.00		-2.933E+01	5.084E+01	7.626E+01	7.461E+00	-0.385
TC-99M		140.51	*	-5.828E+11	5.084E+01	Half-Life	too short	
RH-101		127.23		-8.758E-03	3.100E-02	4.654E-02	3.975E-03	-0.188
		198.01	*	9.145E-03	3.199E-02	5.174E-02	5.791E-03	0.177
		325.23		-2.038E-01	2.231E-01	2.844E-01	3.991E-02	-0.717
RH-102		418.52		1.713E-01	2.698E-01	4.723E-01	5.077E-02	0.363
		475.06	*	-4.748E-03	2.495E-02	4.102E-02	4.422E-03	-0.116
		631.29		-8.181E-04	5.400E-02	8.809E-02	8.651E-03	-0.009
		697.49		-6.090E-02	7.738E-02	1.162E-01	1.114E-02	-0.524
		766.84		1.397E-01	1.207E-01	1.916E-01	1.871E-02	0.729
		1046.59		-5.399E-02	1.164E-01	1.836E-01	1.671E-02	-0.294
		1112.84		1.247E-01	2.385E-01	3.912E-01	3.362E-02	0.319
RU-103		497.08	*	-1.472E-02	3.982E-02	6.427E-02	9.989E-03	-0.229
	+	610.33		1.428E+01	3.011E+00	3.248E+00	5.671E-01	4.396
RH-106	+	511.85		5.735E-01	3.115E-01	4.434E-01	4.740E-02	1.293
		621.84	*	1.245E-01	2.864E-01	4.861E-01	6.919E-02	0.256
		1050.47		1.450E+00	2.399E+00	4.183E+00	3.797E-01	0.347
RU-106	+	511.85		5.735E-01	3.115E-01	4.434E-01	4.740E-02	1.293
		621.84	*	1.245E-01	2.861E-01	4.861E-01	4.823E-02	0.256
		1050.47		1.450E+00	2.399E+00	4.183E+00	3.797E-01	0.347
AG-108M		433.93	*	1.789E-02	3.183E-02	5.535E-02	6.119E-03	0.323
		614.37		-2.021E-03	4.201E-02	5.991E-02	6.165E-03	-0.034
		722.95		5.602E-03	4.609E-02	6.601E-02	6.578E-03	0.085
AG-110M		657.75	*	1.806E-02	3.649E-02	5.520E-02	5.379E-03	0.327
		677.61		-2.643E-02	2.852E-01	4.589E-01	4.470E-02	-0.058
		706.67		-1.929E-02	2.200E-01	3.532E-01	3.472E-02	-0.055
		763.93		-1.166E-02	1.711E-01	2.376E-01	2.370E-02	-0.049
		884.67		-3.072E-02	4.796E-02	7.540E-02	7.612E-03	-0.407
		937.48		-8.915E-02	1.127E-01	1.738E-01	1.734E-02	-0.513

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-111	1384.27			-1.333E-03	1.728E-01	2.518E-01	2.161E-02	-0.005
	171.28			-8.968E-01	1.421E+00	2.292E+00	2.281E-01	-0.391
	245.39	*		6.009E-01	1.747E+00	2.605E+00	3.550E-01	0.231
IN-113M	391.69	*		-3.802E-02	4.127E-02	6.527E-02	7.100E-03	-0.582
SN-113	391.69	*		-3.802E-02	4.127E-02	6.527E-02	7.100E-03	-0.582
IN-114M	190.27	*		1.224E-01	1.811E-01	2.799E-01	3.029E-02	0.437
CD-115	260.90			-1.092E+02	2.214E+02	3.474E+02	5.027E+01	-0.314
	492.35			-2.446E+01	6.291E+01	1.016E+02	1.092E+01	-0.241
	527.90	*		-1.373E+01	1.746E+01	2.681E+01	2.848E+00	-0.512
SN-117M	156.02			-1.758E+00	2.272E+00	3.670E+00	3.436E-01	-0.479
	158.56	*		2.017E-02	5.364E-02	9.126E-02	8.625E-03	0.221
	563.90	*		-3.037E-01	3.139E+00	5.132E+00	5.346E-01	-0.059
I-123	692.80			7.722E+01	6.679E+01	1.188E+02	1.137E+01	0.650
	159.00	*		4.621E+01	6.679E+01	Half-Life too short		
	528.96			-4.757E+03	6.679E+01	Half-Life too short		
TE-123M	159.00	*		1.997E-02	2.554E-02	4.410E-02	4.196E-03	0.453
I-124	602.71	*		3.713E-01	9.216E-01	1.556E+00	1.572E-01	0.239
	722.78			8.064E-01	6.631E+00	9.498E+00	9.177E-01	0.085
	1325.50			1.131E+01	4.724E+01	7.885E+01	6.511E+00	0.143
	1376.25			8.362E+01	4.575E+01	8.331E+01	6.933E+00	1.004
	1509.49			7.759E+00	1.964E+01	3.472E+01	2.922E+00	0.223
	1691.02			-1.751E+00	5.480E+00	8.578E+00	7.152E-01	-0.204
SB-124	602.71			1.602E-02	3.976E-02	6.711E-02	6.784E-03	0.239
	645.85			-1.728E-01	4.679E-01	7.349E-01	7.437E-02	-0.235
	709.31			-2.129E+00	3.016E+00	4.569E+00	4.397E-01	-0.466
	713.82			6.931E-01	1.754E+00	2.927E+00	3.743E-01	0.237
	722.78			5.043E-02	4.147E-01	5.939E-01	5.838E-02	0.085
	968.20	+		2.287E+01	4.656E+00	8.285E+00	7.923E-01	2.761
	1045.16			-9.971E-01	2.402E+00	3.800E+00	3.463E-01	-0.262
	1325.50			7.554E-01	3.155E+00	5.267E+00	4.349E-01	0.143
	1368.21			6.874E-01	1.600E+00	2.751E+00	3.653E-01	0.250
	1436.60			-1.634E+00	3.404E+00	4.993E+00	4.184E-01	-0.327
	1691.02	*		-2.583E-02	8.083E-02	1.265E-01	1.100E-02	-0.204
	427.89	*		-5.041E-02	7.937E-02	1.268E-01	1.383E-02	-0.397
SB-125	463.38	+		1.047E+00	4.293E-01	5.754E-01	6.524E-02	1.820
	600.56			-1.470E-02	1.816E-01	2.960E-01	3.159E-02	-0.050
	635.90			-7.401E-02	2.594E-01	4.123E-01	4.283E-02	-0.180
TE-125M	109.28	*		4.277E+00	8.339E+00	1.450E+01	1.488E+00	0.295
I-126	388.63			1.383E-01	2.121E-01	3.727E-01	4.043E-02	0.371
	666.33	*		8.172E-02	2.326E-01	3.442E-01	3.262E-02	0.237
	753.82			8.459E-01	1.631E+00	2.748E+00	2.675E-01	0.308
SB-126	223.80			4.408E-01	4.197E+00	6.918E+00	8.641E-01	0.064
	278.60	+		3.064E+00	3.636E+00	4.700E+00	7.260E-01	0.652
	296.50	+		1.653E+01	3.337E+00	3.890E+00	5.845E-01	4.249
	414.70			-7.446E-02	8.953E-02	1.221E-01	1.312E-02	-0.610
	415.30			-1.412E+00	7.105E+00	1.036E+01	1.113E+00	-0.136
	555.20			9.491E-01	3.935E+00	6.627E+00	6.941E-01	0.143
	573.80			-9.479E-01	1.097E+00	1.665E+00	1.723E-01	-0.569
	593.00			-6.679E-01	9.817E-01	1.511E+00	1.541E-01	-0.442

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		656.30		1.610E+00	3.808E+00	5.722E+00	5.453E-01	0.281
		666.33		3.430E-02	9.765E-02	1.445E-01	1.369E-02	0.237
		675.00		1.886E+00	1.953E+00	3.453E+00	3.284E-01	0.546
		695.00		2.362E-02	8.600E-02	1.426E-01	1.366E-02	0.166
		697.00		-2.305E-01	3.042E-01	4.585E-01	4.395E-02	-0.503
		720.50	*	1.005E-02	1.742E-01	2.604E-01	2.514E-02	0.039
		856.80		6.569E-02	5.277E-01	7.869E-01	7.755E-02	0.083
		989.30		6.154E-01	1.243E+00	2.173E+00	2.055E-01	0.283
		1034.80		1.206E+00	9.363E+00	1.572E+01	1.443E+00	0.077
		1213.00		3.827E+00	5.683E+00	9.796E+00	7.944E-01	0.391
		61.10		3.939E+00	6.932E+01	1.018E+02	1.095E+01	0.039
		252.40		-1.762E+00	5.480E+00	8.644E+00	3.770E+00	-0.204
		290.80		-2.538E+00	3.168E+01	4.513E+01	7.744E+00	-0.056
		411.60		2.025E+01	1.706E+01	2.767E+01	4.806E+00	0.732
		444.90		1.058E+00	1.231E+01	2.078E+01	3.031E+00	0.051
		473.00		-1.180E+00	2.189E+00	3.447E+00	5.125E-01	-0.342
		543.00		1.636E+00	2.149E+01	3.575E+01	5.740E+00	0.046
		603.60		9.001E+00	1.736E+01	2.755E+01	3.874E+00	0.327
		685.20	*	2.103E+00	1.835E+00	3.253E+00	4.115E-01	0.646
		698.50		-4.041E+00	2.149E+01	3.422E+01	5.741E+00	-0.118
XE-127		722.20		8.404E+00	4.703E+01	6.782E+01	8.504E+00	0.124
		783.80		5.994E+00	5.092E+00	8.859E+00	1.219E+00	0.677
		57.60		-1.128E-02	4.738E+00	7.550E+00	5.435E-01	-0.001
	+	145.22		9.317E-01	9.173E-01	1.088E+00	9.799E-02	0.856
		172.10		8.114E-02	1.077E-01	1.853E-01	1.851E-02	0.438
I-131		202.84	*	-2.732E-02	4.466E-02	7.127E-02	8.145E-03	-0.383
		374.96		-1.181E-01	2.055E-01	3.094E-01	3.604E-02	-0.382
		80.18		3.533E-01	5.406E+00	6.849E+00	5.944E-01	0.052
		284.30		-2.096E-01	1.647E+00	2.634E+00	4.115E-01	-0.080
		364.48	*	-1.029E-01	1.358E-01	2.013E-01	2.530E-02	-0.511
TE-132		636.97		-1.152E-01	1.682E+00	2.728E+00	2.782E-01	-0.042
		722.89		1.115E+00	9.168E+00	1.313E+01	1.277E+00	0.085
		49.72		-2.941E+00	2.004E+01	3.191E+01	3.472E+00	-0.092
		111.76		-7.165E+00	4.016E+01	6.806E+01	7.691E+00	-0.105
		116.30		-2.337E+01	3.639E+01	6.020E+01	6.784E+00	-0.388
BA-133		228.16	*	-5.113E-01	9.812E-01	1.534E+00	2.854E-01	-0.333
		53.15		1.045E+00	2.654E+00	4.322E+00	3.258E-01	0.242
		79.62		2.461E-01	1.129E+00	1.648E+00	2.502E-01	0.149
		81.00		3.110E-02	9.485E-02	1.223E-01	1.947E-02	0.254
		276.40		3.483E-01	5.144E-01	6.245E-01	1.200E-01	0.558
I-133		302.84		-6.622E-03	1.396E-01	1.967E-01	3.530E-02	-0.034
		356.01	*	-1.737E-02	4.479E-02	6.038E-02	9.737E-03	-0.288
		383.85		1.281E-01	2.774E-01	4.827E-01	6.970E-02	0.265
	+	510.53		5.456E+00	2.774E-01	Half-Life too short		
		529.87	*	-2.237E-02	2.774E-01	Half-Life too short		
		706.58		-3.373E-02	2.774E-01	Half-Life too short		
		856.28		1.147E+00	2.774E-01	Half-Life too short		
		875.33		-1.210E-01	2.774E-01	Half-Life too short		
		1236.41		6.568E+00	2.774E-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-134	1298.22			-5.345E-01	2.774E-01	Half-Life	too short	
	475.35			-8.292E-01	1.633E+00	2.609E+00	2.813E-01	-0.318
	563.23			1.277E-01	3.335E-01	5.664E-01	5.941E-02	0.225
	569.32			1.715E-01	1.927E-01	3.307E-01	3.465E-02	0.518
	604.70			-1.641E-03	3.856E-02	5.514E-02	5.573E-03	-0.030
	795.84	*		9.116E-02	7.281E-02	9.232E-02	9.107E-03	0.987
	801.93			1.121E-01	4.168E-01	6.617E-01	6.524E-02	0.169
	1038.57			-2.629E+00	3.748E+00	5.737E+00	5.253E-01	-0.458
	1167.94			-1.725E+00	2.499E+00	3.804E+00	3.076E-01	-0.454
	1365.15			-1.660E-01	1.161E+00	1.836E+00	1.600E-01	-0.090
CS-135	268.24	*		8.513E-02	1.604E-01	2.406E-01	3.775E-02	0.354
I-135	288.45			1.934E+12	1.604E-01	Half-Life	too short	
	417.63			2.315E+12	1.604E-01	Half-Life	too short	
	546.56			-8.125E+11	1.604E-01	Half-Life	too short	
	836.80			1.790E+12	1.604E-01	Half-Life	too short	
	1038.76			-1.069E+12	1.604E-01	Half-Life	too short	
	1124.00			4.826E+12	1.604E-01	Half-Life	too short	
	1131.51			-1.685E+11	1.604E-01	Half-Life	too short	
	1260.41	*		3.756E+11	1.604E-01	Half-Life	too short	
	1457.56			2.508E+13	1.604E-01	Half-Life	too short	
	1678.03			3.068E+11	1.604E-01	Half-Life	too short	
	1706.46			-1.860E+12	1.604E-01	Half-Life	too short	
	1791.20			-1.222E+11	1.604E-01	Half-Life	too short	
	66.91			-2.287E-01	7.514E-01	1.074E+00	1.594E-01	-0.213
	86.29			4.912E+00	1.396E+00	1.940E+00	2.581E-01	2.531
CS-136	153.22			4.996E-01	6.498E-01	1.122E+00	1.147E-01	0.445
	163.89			2.500E-01	1.067E+00	1.801E+00	1.906E-01	0.139
	176.55			1.108E-01	3.730E-01	6.288E-01	6.672E-02	0.176
	273.65			5.491E-02	6.594E-01	7.558E-01	1.172E-01	0.073
	340.57			1.839E-01	1.570E-01	2.409E-01	3.265E-02	0.763
	818.51			-7.311E-02	8.083E-02	1.154E-01	1.136E-02	-0.633
	1048.07	*		1.916E-02	1.193E-01	2.006E-01	1.894E-02	0.096
	1235.34			5.596E-01	7.400E-01	1.137E+00	1.309E-01	0.492
	165.85	*		-1.168E-02	2.762E-02	4.522E-02	4.394E-03	-0.258
	162.64			-7.513E-02	7.495E-01	1.247E+00	1.254E-01	-0.060
CE-139 BA-140	304.84			-7.284E-01	1.375E+00	1.983E+00	6.044E-01	-0.367
	423.70			-6.252E-01	1.895E+00	3.098E+00	1.024E+00	-0.202
	537.32	*		-6.864E-02	2.658E-01	4.286E-01	1.445E-01	-0.160
	328.77			8.562E-01	4.551E-01	6.329E-01	8.983E-02	1.353
LA-140	432.53			7.486E-02	2.244E+00	3.780E+00	4.202E-01	0.020
	487.03			8.660E-02	1.486E-01	2.575E-01	2.882E-02	0.336
	751.79			-5.847E-01	1.947E+00	3.042E+00	3.212E-01	-0.192
	815.85			1.058E-01	3.406E-01	5.622E-01	6.023E-02	0.188
	867.82			1.858E-01	1.572E+00	2.340E+00	2.401E-01	0.079
	919.63			9.201E-02	2.990E+00	4.890E+00	5.672E-01	0.019
	925.24			-8.799E-01	1.168E+00	1.795E+00	1.837E-01	-0.490
	1596.49	*		-3.753E-03	8.043E-02	1.330E-01	1.119E-02	-0.028
	57.37			1.747E-04	8.043E-02	Half-Life	too short	
	231.56			9.013E-04	8.043E-02	Half-Life	too short	
CE-143								

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		293.26	*	9.109E-04	8.043E-02	Half-Life	too short	
	+	350.59		8.920E-02	8.043E-02	Half-Life	too short	
		490.36		-7.482E-03	8.043E-02	Half-Life	too short	
		664.57		-2.022E-03	8.043E-02	Half-Life	too short	
		721.93		1.732E-03	8.043E-02	Half-Life	too short	
CE-144		80.11		2.794E-01	2.121E+00	2.700E+00	2.322E-01	0.103
		133.54	*	2.101E-02	1.944E-01	3.157E-01	4.925E-02	0.067
PM-144		476.78		-5.213E-02	6.151E-02	9.534E-02	1.090E-02	-0.547
		618.01		2.548E-03	3.045E-02	5.017E-02	5.101E-03	0.051
		696.49	*	-1.717E-02	3.468E-02	5.365E-02	5.144E-03	-0.320
		778.57		-1.028E+00	2.130E+00	3.234E+00	3.165E-01	-0.318
PR-144		696.49	*	-1.165E+00	2.352E+00	3.639E+00	3.488E-01	-0.320
		1489.15		4.549E+00	9.589E+00	1.735E+01	1.459E+00	0.262
PM-146		453.90	*	2.250E-02	3.960E-02	6.888E-02	8.637E-03	0.327
		633.02		3.248E-01	1.365E+00	2.266E+00	8.535E-01	0.143
		735.90		-5.100E-02	1.542E-01	2.398E-01	6.941E-02	-0.213
		747.13		-2.700E-02	9.568E-02	1.488E-01	2.193E-02	-0.182
ND-147	+	91.11		8.915E-01	3.582E-01	5.124E-01	5.078E-02	1.740
		319.41		-1.081E+00	3.604E+00	5.637E+00	8.037E-01	-0.192
		439.89		4.627E+00	6.435E+00	1.128E+01	1.217E+00	0.410
		531.02	*	1.052E-02	5.952E-01	9.869E-01	1.597E-01	0.011
PM-149		285.90	*	-6.101E+01	1.593E+02	2.497E+02	5.007E+01	-0.244
EU-152		121.78		-2.971E-02	6.655E-02	1.109E-01	1.085E-02	-0.268
		244.69		1.181E-01	3.352E-01	5.001E-01	6.797E-02	0.236
		344.27	*	-1.210E-02	1.058E-01	1.479E-01	2.005E-02	-0.082
		443.98		2.613E-01	8.658E-01	1.484E+00	1.601E-01	0.176
		778.89		-9.767E-02	2.469E-01	3.790E-01	3.709E-02	-0.258
		867.32		5.555E-02	8.953E-01	1.322E+00	1.303E-01	0.042
	+	964.01		5.084E-01	4.500E-01	5.651E-01	5.416E-02	0.900
		1085.78		3.380E-01	3.672E-01	6.612E-01	5.829E-02	0.511
		1112.02		2.061E-01	3.268E-01	5.681E-01	4.886E-02	0.363
		1407.95		1.033E-01	1.694E-01	2.971E-01	2.482E-02	0.348
GD-153		69.67		1.710E-01	1.392E+00	2.209E+00	1.701E-01	0.077
	+	83.37		2.041E+01	1.714E+01	2.188E+01	1.957E+00	0.933
		97.43	*	-8.119E-02	8.416E-02	1.125E-01	9.997E-03	-0.722
		103.18		4.895E-02	8.778E-02	1.534E-01	1.331E-02	0.319
EU-154		123.07		-5.113E-03	4.786E-02	8.092E-02	9.102E-03	-0.063
		247.94		-8.121E-02	3.385E-01	5.431E-01	8.533E-02	-0.150
		591.81		3.307E-02	5.715E-01	9.430E-01	1.215E-01	0.035
		723.30		-2.636E-02	1.965E-01	2.725E-01	2.856E-02	-0.097
		756.87		2.191E-01	7.717E-01	1.274E+00	1.632E-01	0.172
		873.19		-1.016E-01	2.591E-01	4.170E-01	5.481E-02	-0.244
		996.32		-1.839E-01	3.829E-01	6.056E-01	1.100E-01	-0.304
		1004.76		-2.478E-01	2.178E-01	3.175E-01	3.875E-02	-0.780
		1274.45	*	-7.720E-02	1.182E-01	1.666E-01	1.832E-02	-0.463
EU-155		48.70		-2.046E+00	1.680E+00	2.520E+00	2.038E-01	-0.812
		60.01		3.143E+00	4.138E+00	6.308E+00	4.501E-01	0.498
	+	86.54		4.097E-01	1.099E-01	1.670E-01	1.568E-02	2.453
		105.31	*	-5.281E-04	9.289E-02	1.589E-01	1.387E-02	-0.003

## ---- 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		1.114E+00	2.984E-01	4.566E-01	4.264E-02	2.440	
		197.04		-3.427E-01	5.645E-01	8.742E-01	9.743E-02	-0.392	
		215.65		5.941E-01	7.216E-01	1.228E+00	1.482E-01	0.484	
	+	298.57		3.483E-01	1.514E-01	2.030E-01	3.037E-02	1.716	
		879.36	*	7.739E-03	1.371E-01	2.314E-01	2.280E-02	0.033	
		962.29		3.467E-01	5.670E-01	8.833E-01	8.472E-02	0.393	
	+	966.15		3.555E-01	3.147E-01	4.604E-01	4.407E-02	0.772	
		1177.93		-5.155E-01	4.148E-01	5.987E-01	4.815E-02	-0.861	
		1271.85		-2.538E-01	6.933E-01	1.078E+00	8.840E-02	-0.235	
HO-166M		80.57		-5.911E-02	2.677E-01	3.317E-01	2.869E-02	-0.178	
	+	184.41		2.561E-01	6.173E-02	7.133E-02	7.521E-03	3.590	
		280.46		3.886E-02	8.544E-02	1.274E-01	1.969E-02	0.305	
	+	410.95		6.841E-01	3.825E-01	4.290E-01	4.603E-02	1.595	
		711.68	*	1.395E-04	6.338E-02	1.025E-01	9.872E-03	0.001	
	752.31		-6.942E-02	2.818E-01	4.429E-01	4.311E-02	-0.157		
	810.29		-4.461E-03	6.162E-02	9.782E-02	9.612E-03	-0.046		
	TM-171		51.35		1.071E-03	2.259E+01	3.620E+01	2.800E+00	0.000
			52.39		6.718E+00	1.158E+01	1.903E+01	1.449E+00	0.353
		59.40		-1.783E+00	2.226E+01	3.250E+01	2.312E+00	-0.055	
		66.72	*	-8.984E+00	2.464E+01	3.512E+01	2.635E+00	-0.256	
LU-176	+	88.36		8.063E-01	2.160E-01	2.984E-01	2.821E-02	2.702	
		201.83		-2.744E-02	2.662E-02	4.139E-02	4.710E-03	-0.663	
	*	306.84		2.221E-02	2.273E-02	3.852E-02	5.662E-03	0.577	
		401.10		6.432E+00	6.178E+00	1.105E+01	1.183E+00	0.582	
LU-177		112.95		1.560E+00	1.792E+00	3.145E+00	2.671E-01	0.496	
	+	208.36	*	5.284E+00	1.632E+00	2.408E+00	2.818E-01	2.194	
LU-177M			52.97		5.140E-01	1.211E+00	1.975E+00	1.492E-01	0.260
		54.07		3.795E-01	6.292E-01	1.034E+00	7.702E-02	0.367	
		61.30		1.995E-01	1.281E+00	1.891E+00	1.361E-01	0.106	
		121.62		-1.137E-01	3.456E-01	5.792E-01	4.894E-02	-0.196	
		147.16		8.499E-02	6.369E-01	9.697E-01	8.794E-02	0.088	
		171.86		2.714E-01	4.190E-01	7.184E-01	7.166E-02	0.378	
		218.09		-6.026E-01	8.264E-01	1.302E+00	1.588E-01	-0.463	
		268.79		1.567E+00	8.864E-01	1.399E+00	2.085E-01	1.120	
		319.02		-9.466E-02	2.508E-01	3.899E-01	5.565E-02	-0.243	
		367.43		2.913E-01	9.119E-01	1.476E+00	1.781E-01	0.197	
HF-181	*	413.65		-1.509E-01	1.801E-01	2.446E-01	2.626E-02	-0.617	
		56.28		-1.564E-01	7.063E-01	1.114E+00	8.112E-02	-0.140	
		57.53		1.370E-03	3.966E-01	6.322E-01	4.553E-02	0.002	
		65.20		1.479E-01	8.153E-01	1.199E+00	8.885E-02	0.123	
		133.02		6.253E-02	6.591E-02	1.051E-01	9.114E-03	0.595	
		136.25		3.672E-02	4.235E-01	7.177E-01	6.281E-02	0.051	
		345.85		-2.032E-02	2.115E-01	2.959E-01	3.890E-02	-0.069	
	*	482.03		1.418E-03	4.253E-02	7.110E-02	7.658E-03	0.020	
		56.28		-5.971E-02	2.709E-01	4.274E-01	3.111E-02	-0.140	
W-181		57.53		5.521E-04	1.522E-01	2.426E-01	1.747E-02	0.002	
	65.20	*	5.630E-02	3.104E-01	4.564E-01	3.383E-02	0.123		
TA-182		67.75		-3.055E-02	9.033E-02	1.407E-01	1.065E-02	-0.217	
		100.10		5.953E-02	1.547E-01	2.690E-01	2.361E-02	0.221	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		152.43		-1.934E-01	3.032E-01	4.938E-01	4.563E-02	-0.392
		222.10		-1.148E-01	3.309E-01	5.326E-01	6.605E-02	-0.216
		1001.68		1.607E+00	2.197E+00	3.784E+00	3.552E-01	0.425
	+	1121.28		7.287E-01	2.437E-01	3.769E-01	3.212E-02	1.933
		1189.05		6.227E-02	3.130E-01	5.218E-01	4.208E-02	0.119
		1221.42	*	6.874E-03	1.980E-01	3.243E-01	2.635E-02	0.021
		1230.97		-1.079E-01	4.855E-01	7.529E-01	6.128E-02	-0.143
		57.98		-2.922E-03	1.543E-01	2.456E-01	1.763E-02	-0.012
		59.32		-1.023E-02	9.302E-02	1.356E-01	9.651E-03	-0.075
		67.20		-1.019E-01	1.798E-01	2.532E-01	1.908E-02	-0.402
RE-184		162.32	*	-1.612E-02	1.007E-01	1.671E-01	1.602E-02	-0.096
	+	208.81		3.966E+00	1.225E+00	1.857E+00	2.178E-01	2.135
		291.72		-1.288E-01	9.819E-01	1.392E+00	2.110E-01	-0.093
		57.98		-1.065E-02	5.621E-01	8.949E-01	6.423E-02	-0.012
		59.32		-3.724E-02	3.387E-01	4.937E-01	3.514E-02	-0.075
		67.20		-3.713E-01	6.548E-01	9.224E-01	6.950E-02	-0.402
		161.27		-9.836E-02	3.235E-01	5.336E-01	5.095E-02	-0.184
		216.55		8.276E-02	2.562E-01	4.273E-01	5.178E-02	0.194
		252.85	*	-9.175E-02	2.113E-01	3.337E-01	4.681E-02	-0.275
		318.01		-2.838E-01	4.306E-01	6.532E-01	9.346E-02	-0.435
OS-185		792.07		1.585E-01	1.062E+00	1.515E+00	1.485E-01	0.105
		903.28		2.287E-01	9.081E-01	1.558E+00	1.531E-01	0.147
		920.93		3.570E-02	4.403E-01	7.422E-01	7.248E-02	0.048
		59.72		3.627E-02	2.525E-01	3.732E-01	2.657E-02	0.097
		61.14		9.812E-03	1.413E-01	2.077E-01	1.494E-02	0.047
		69.30		1.348E-01	2.457E-01	3.966E-01	3.044E-02	0.340
		592.07		-2.051E-01	2.390E+00	3.894E+00	3.973E-01	-0.053
		646.12	*	-1.766E-02	4.027E-02	6.285E-02	6.066E-03	-0.281
		717.42		-3.863E-01	9.452E-01	1.470E+00	1.418E-01	-0.263
		874.81		-2.401E-01	5.447E-01	8.745E-01	8.618E-02	-0.275
RE-188		880.27		3.473E-01	7.724E-01	1.348E+00	1.328E-01	0.258
		155.03	*	7.708E-02	1.571E-01	2.686E-01	2.505E-02	0.287
		477.96		1.372E-01	2.814E+00	4.715E+00	5.081E-01	0.029
		633.10		6.877E-01	2.803E+00	4.672E+00	4.579E-01	0.147
	+	63.58		1.721E+02	6.948E+01	8.645E+01	6.329E+00	1.991
W-188		227.08		-7.805E+00	1.230E+01	1.914E+01	2.423E+00	-0.408
IR-192		290.67	*	-4.034E+00	8.156E+00	1.118E+01	1.698E+00	-0.361
	+	295.96		1.157E+00	2.339E-01	2.955E-01	4.454E-02	3.916
		308.46		-5.252E-02	9.463E-02	1.455E-01	2.134E-02	-0.361
		316.51	*	-1.310E-02	3.214E-02	4.980E-02	7.158E-03	-0.263
		468.07		3.765E-02	6.783E-02	1.054E-01	1.190E-02	0.357
AU-195		604.41		2.229E-01	5.078E-01	7.628E-01	1.071E-01	0.292
		612.46		1.009E-01	8.116E-01	1.180E+00	1.314E-01	0.086
		65.12		4.243E-02	1.428E-01	2.112E-01	1.565E-02	0.201
		66.83		-2.703E-02	8.201E-02	1.171E-01	8.797E-03	-0.231
	+	75.70		1.084E+00	2.142E-01	3.749E-01	3.067E-02	2.891
TL-200		98.88	*	3.731E-01	2.087E-01	3.478E-01	3.068E-02	1.073
	+	129.76		7.494E+00	3.829E+00	4.788E+00	4.115E-01	1.565
		367.94	*	-3.716E-04	3.829E+00	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	579.30			5.786E-03	3.829E+00	Half-Life	too short	
	828.27			-4.597E-03	3.829E+00	Half-Life	too short	
	1205.75			-1.479E-03	3.829E+00	Half-Life	too short	
TL-201	68.90			2.955E+00	6.050E+00	9.749E+00	7.456E-01	0.303
	70.82			-2.879E+00	3.978E+00	5.561E+00	4.329E-01	-0.518
	80.30			-3.781E-01	7.717E+00	9.694E+00	8.356E-01	-0.039
	135.34			6.260E-01	3.555E+01	6.010E+01	5.246E+00	0.010
	167.43	*		9.666E+00	9.635E+00	1.673E+01	1.637E+00	0.578
TL-202	68.90			1.910E-01	3.910E-01	6.301E-01	4.819E-02	0.303
	70.82			-1.856E-01	2.564E-01	3.584E-01	2.790E-02	-0.518
	80.30			-2.438E-02	4.976E-01	6.251E-01	5.388E-02	-0.039
	439.56	*		6.024E-02	7.670E-02	1.348E-01	1.454E-02	0.447
BI-207	72.80			1.970E-02	1.718E-01	2.505E-01	1.988E-02	0.079
	74.97			5.968E-01	1.180E-01	1.947E-01	1.581E-02	3.065
	84.90			2.625E-01	2.205E-01	2.657E-01	2.423E-02	0.988
	569.67			1.968E-02	3.032E-02	5.120E-02	5.313E-03	0.384
	1063.62	*		3.292E-02	5.246E-02	9.175E-02	8.242E-03	0.359
	1770.23			-1.457E-01	4.930E-01	6.357E-01	5.232E-02	-0.229
TL-207	81.07			7.281E-02	2.092E-01	2.704E-01	2.352E-02	0.269
	83.78			1.731E-01	1.453E-01	1.865E-01	1.677E-02	0.928
	94.90			1.986E-01	2.223E-01	3.323E-01	2.994E-02	0.598
	122.32			-1.349E+00	1.603E+00	2.624E+00	2.387E-01	-0.514
	144.24			8.806E-01	8.678E-01	1.083E+00	1.079E-01	0.813
	154.21			5.813E-01	3.564E-01	6.303E-01	6.367E-02	0.922
	269.46			6.961E-01	3.676E-01	3.549E-01	5.339E-02	1.961
	323.87	*		-3.710E-01	7.014E-01	9.400E-01	1.966E-01	-0.395
	338.28			8.133E+00	2.427E+00	2.689E+00	4.329E-01	3.025
	445.03			2.498E-02	2.013E+00	3.380E+00	4.638E-01	0.007
PO-209	260.50			-5.636E+00	9.005E+00	1.399E+01	2.021E+00	-0.403
	262.80			3.761E+00	2.436E+01	3.987E+01	5.810E+00	0.094
	896.60	*		-4.048E+00	6.418E+00	1.001E+01	9.858E-01	-0.404
BI-210	46.50	*		9.760E-01	2.318E+00	3.813E+00	3.549E-01	0.256
PB-210	46.50	*		9.760E-01	2.318E+00	3.813E+00	3.549E-01	0.256
PO-210	46.50	*		9.760E-01	2.317E+00	3.813E+00	3.214E-01	0.256
PB-211	404.84	*		-6.900E-01	1.110E+00	1.432E+00	9.022E-01	-0.482
	427.08			-7.799E-01	1.807E+00	2.828E+00	1.767E+00	-0.276
	831.96			-2.995E-01	1.182E+00	1.810E+00	1.138E+00	-0.165
BI-212	727.18	*		1.232E+00	5.749E-01	7.058E-01	7.714E-02	1.746
	785.46			6.673E-01	1.827E+00	2.995E+00	2.933E-01	0.223
	1620.62			5.615E-02	1.206E+00	2.023E+00	1.699E-01	0.028
PO-215	81.07			7.281E-02	2.092E-01	2.704E-01	2.352E-02	0.269
	83.78			1.731E-01	1.453E-01	1.865E-01	1.677E-02	0.928
	94.90			1.986E-01	2.223E-01	3.323E-01	2.994E-02	0.598
	122.32			-1.349E+00	1.603E+00	2.624E+00	2.387E-01	-0.514
	144.24			8.806E-01	8.678E-01	1.083E+00	1.079E-01	0.813
	154.21			5.813E-01	3.564E-01	6.303E-01	6.367E-02	0.922
	269.46			6.961E-01	3.676E-01	3.549E-01	5.339E-02	1.961
	323.87	*		-3.710E-01	7.014E-01	9.400E-01	1.966E-01	-0.395
	338.28			8.133E+00	2.427E+00	2.689E+00	4.329E-01	3.025



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		2.498E-02	2.013E+00	3.380E+00	4.638E-01	0.007
		271.23		8.931E-01	4.741E-01	4.704E-01	7.559E-02	1.898
		401.81	*	4.658E-01	3.860E-01	6.884E-01	1.123E-01	0.677
RN-220		549.76	*	1.380E+01	2.496E+01	4.295E+01	4.513E+00	0.321
RA-223	+	81.07		7.281E-02	2.092E-01	2.704E-01	2.352E-02	0.269
		83.78		1.731E-01	1.453E-01	1.865E-01	1.677E-02	0.928
		94.90		1.986E-01	2.223E-01	3.323E-01	2.994E-02	0.598
	+	122.32		-1.349E+00	1.603E+00	2.624E+00	2.387E-01	-0.514
		144.24		8.806E-01	8.678E-01	1.083E+00	1.079E-01	0.813
		154.21		5.813E-01	3.564E-01	6.303E-01	6.367E-02	0.922
	+	269.46		6.961E-01	3.676E-01	3.549E-01	5.339E-02	1.961
		323.87	*	-3.710E-01	7.014E-01	9.400E-01	1.966E-01	-0.395
		338.28		8.133E+00	2.427E+00	2.689E+00	4.329E-01	3.025
AC-227		445.03		2.498E-02	2.013E+00	3.380E+00	4.638E-01	0.007
		79.80		3.571E-01	1.435E+00	2.096E+00	4.502E-01	0.170
		236.00		-9.668E-02	2.432E-01	3.448E-01	5.430E-02	-0.280
	+	256.20	*	6.873E-03	3.497E-01	5.688E-01	1.084E-01	0.012
		286.10		2.872E-02	1.436E+00	2.319E+00	4.240E-01	0.012
		299.80		4.354E+00	2.005E+00	2.650E+00	5.648E-01	1.643
	+	304.40		-7.234E-01	1.908E+00	2.620E+00	5.764E-01	-0.276
		334.20		-1.300E-01	2.405E+00	3.391E+00	7.499E-01	-0.038
		79.80		3.571E-01	1.435E+00	2.096E+00	4.560E-01	0.170
TH-227	+	94.00		1.575E+01	4.404E+00	3.506E+00	7.697E-01	4.492
		236.00		-9.668E-02	2.432E-01	3.448E-01	5.123E-02	-0.280
		256.20	*	6.873E-03	3.497E-01	5.688E-01	1.212E-01	0.012
	+	286.10		2.872E-02	1.437E+00	2.319E+00	2.346E+00	0.012
		299.80		4.354E+00	2.005E+00	2.650E+00	5.648E-01	1.643
		304.40		-7.234E-01	1.908E+00	2.620E+00	5.764E-01	-0.276
	+	334.20		-1.300E-01	2.405E+00	3.391E+00	7.499E-01	-0.038
		85.43		2.265E-01	1.913E-01	2.584E-01	2.372E-02	0.876
		88.47		4.641E-01	1.243E-01	1.690E-01	1.596E-02	2.746
TH-229	+	100.00		1.659E-01	1.573E-01	2.791E-01	2.450E-02	0.594
		193.63	*	-7.983E-02	4.647E-01	7.625E-01	8.372E-02	-0.105
		210.97		9.565E-01	7.618E-01	1.200E+00	1.420E-01	0.797
PA-231	+	283.67	*	-5.767E-01	1.445E+00	2.263E+00	4.484E-01	-0.255
		301.29		1.154E+00	6.290E-01	9.788E-01	1.687E-01	1.179
		81.07		7.281E-02	2.092E-01	2.704E-01	2.352E-02	0.269
TH-231	+	83.78		1.731E-01	1.453E-01	1.865E-01	1.677E-02	0.928
		94.90		1.986E-01	2.223E-01	3.323E-01	2.994E-02	0.598
		122.32		-1.349E+00	1.603E+00	2.624E+00	2.387E-01	-0.514
	+	144.24		8.806E-01	8.678E-01	1.083E+00	1.079E-01	0.813
		154.21		5.813E-01	3.564E-01	6.303E-01	6.367E-02	0.922
		269.46		6.961E-01	3.676E-01	3.549E-01	5.339E-02	1.961
	+	323.87	*	-3.710E-01	7.014E-01	9.400E-01	1.966E-01	-0.395
		338.28		8.133E+00	2.427E+00	2.689E+00	4.329E-01	3.025
		445.03		2.498E-02	2.013E+00	3.380E+00	4.638E-01	0.007
U-231	+	84.21		1.025E+01	8.608E+00	1.090E+01	9.852E-01	0.941
		92.29		2.139E+01	4.182E+00	6.052E+00	5.546E-01	3.534
		95.87	*	6.069E-01	1.429E+00	2.088E+00	1.870E-01	0.291

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		1.291E+00	2.460E+00	4.282E+00	3.667E-01	0.301
	+	75.28		1.741E+01	4.091E+00	5.783E+00	8.724E-01	3.011
	+	86.59		6.655E+00	2.457E+00	2.724E+00	7.369E-01	2.443
	+	300.12		1.214E+00	5.478E-01	7.288E-01	1.401E-01	1.666
		311.98	*	5.567E-02	6.178E-02	1.040E-01	1.526E-02	0.535
		340.50		9.807E-01	7.336E-01	1.086E+00	2.818E-01	0.903
		398.62		-1.375E+00	1.917E+00	3.022E+00	8.270E-01	-0.455
PA-234		415.76		1.719E-01	1.583E+00	2.502E+00	5.626E-01	0.069
	+	63.00		4.896E+00	2.075E+00	2.517E+00	3.726E-01	1.945
		94.67		2.295E-01	1.638E-01	2.482E-01	3.149E-02	0.924
		98.44		6.497E-02	9.292E-02	1.375E-01	7.676E-02	0.472
		99.86		4.570E-01	4.001E-01	7.114E-01	6.250E-02	0.642
		111.00		-7.984E-02	1.627E-01	2.720E-01	3.268E-02	-0.294
		131.20		7.807E-02	1.001E-01	1.586E-01	1.369E-02	0.492
		152.70		-1.594E-01	2.945E-01	4.806E-01	8.349E-02	-0.332
	+	186.00		9.218E+00	3.548E+00	2.973E+00	9.460E-01	3.101
		226.40		-1.116E-01	3.799E-01	6.043E-01	9.732E-02	-0.185
		227.20		-1.900E-01	4.017E-01	6.314E-01	7.998E-02	-0.301
		248.90		4.695E-01	7.489E-01	1.249E+00	3.108E-01	0.376
		293.70		4.108E+00	1.219E+00	1.564E+00	3.329E-01	2.627
		369.80		-2.919E-01	9.166E-01	1.394E+00	3.246E-01	-0.209
		568.70		4.194E-01	9.723E-01	1.617E+00	1.679E-01	0.259
		569.50		1.961E-01	2.708E-01	4.596E-01	4.770E-02	0.427
		574.00		-9.871E-01	1.403E+00	2.165E+00	2.239E-01	-0.456
		699.00		1.102E-01	7.091E-01	1.163E+00	2.273E-01	0.095
		706.10		5.801E-01	1.109E+00	1.823E+00	8.166E-01	0.318
		733.00		1.383E-01	4.209E-01	6.166E-01	1.396E-01	0.224
		742.81		6.619E-01	1.486E+00	2.379E+00	1.603E+00	0.278
	+	796.30		1.769E+00	1.483E+00	1.759E+00	4.830E-01	1.005
		805.60		2.527E-01	1.009E+00	1.650E+00	5.115E-01	0.153
		819.60		2.419E-01	1.143E+00	1.863E+00	7.140E-01	0.130
		826.30		2.415E-01	8.085E-01	1.320E+00	5.937E-01	0.183
		831.60		-1.754E-01	6.044E-01	9.304E-01	2.812E-01	-0.188
		876.40		-8.808E-02	7.608E-01	1.254E+00	1.291E+00	-0.070
		880.51		1.368E-01	2.766E-01	4.843E-01	4.772E-02	0.283
		883.24		9.487E-02	2.808E-01	4.736E-01	3.192E-01	0.200
		899.00		-4.665E-01	7.462E-01	1.118E+00	4.918E-01	-0.417
		925.00		-3.320E-01	1.076E+00	1.741E+00	1.698E-01	-0.191
		926.50		-2.390E-01	1.741E-01	2.297E-01	5.898E-02	-1.041
		946.00	*	-7.577E-02	2.799E-01	4.539E-01	8.746E-02	-0.167
		949.00		1.003E-01	4.099E-01	7.004E-01	6.761E-02	0.143
		980.50		5.003E-02	7.096E-01	1.189E+00	1.130E-01	0.042
		1394.10		5.109E-01	1.089E+00	1.803E+00	1.173E+00	0.283
PA-234M		766.42		1.266E+01	1.342E+01	1.878E+01	9.566E+00	0.674
NP-236		1001.03	*	7.185E+00	4.959E+00	8.945E+00	9.516E-01	0.803
		94.67		1.755E-01	1.234E-01	1.885E-01	1.700E-02	0.931
		98.44		4.908E-02	6.482E-02	1.039E-01	9.190E-03	0.472
		111.00		-6.039E-02	1.230E-01	2.057E-01	1.752E-02	-0.294
		160.31	*	7.242E-03	7.216E-02	1.213E-01	1.154E-02	0.060

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.799E-01	1.349E-01	2.410E-01	2.120E-02	0.746
		117.00	*	-1.416E-01	1.689E-01	2.771E-01	2.345E-02	-0.511
	+	209.75		3.070E+00	9.483E-01	1.417E+00	1.668E-01	2.167
		228.18		-1.112E-01	2.123E-01	3.326E-01	4.230E-02	-0.334
	+	277.60		2.007E-01	2.381E-01	3.128E-01	4.815E-02	0.641
AM-241		334.30		-1.421E-01	1.359E+00	1.907E+00	2.604E-01	-0.075
		59.54	*	-5.240E-02	1.329E-01	1.906E-01	1.498E-02	-0.275
CM-243		99.55		1.851E-01	1.388E-01	2.480E-01	2.181E-02	0.746
		103.76	*	2.817E-02	8.084E-02	1.402E-01	1.214E-02	0.201
		117.00		-1.457E-01	1.738E-01	2.852E-01	2.413E-02	-0.511
	+	209.75		3.026E+00	9.350E-01	1.397E+00	1.644E-01	2.167
		228.18		-1.124E-01	2.145E-01	3.361E-01	4.274E-02	-0.334
AM-246	+	277.60		2.023E-01	2.401E-01	3.154E-01	4.855E-02	0.641
		798.80		7.913E-03	1.556E-01	2.187E-01	2.147E-02	0.036
		1036.00		2.127E-02	2.792E-01	4.662E-01	4.277E-02	0.046
		1062.04		1.307E-02	2.223E-01	3.696E-01	3.325E-02	0.035
		1078.86	*	9.392E-02	1.411E-01	2.475E-01	2.195E-02	0.380
CM-247	+	278.00		8.321E-01	9.875E-01	1.313E+00	2.025E-01	0.634
		287.40		6.757E-01	1.156E+00	1.925E+00	2.940E-01	0.351
		402.60	*	3.362E-03	3.474E-02	5.907E-02	6.322E-03	0.057
CF-249		252.85		-3.416E-01	7.866E-01	1.242E+00	1.743E-01	-0.275
		333.44		-3.322E-02	2.016E-01	2.550E-01	3.492E-02	-0.130
		387.95	*	3.099E-02	3.742E-02	6.632E-02	7.222E-03	0.467
CF-251		176.60	*	3.872E-02	1.164E-01	1.965E-01	2.002E-02	0.197
		227.00		-2.146E-01	3.626E-01	5.661E-01	7.164E-02	-0.379
		285.00		-1.965E-02	1.639E+00	2.641E+00	4.052E-01	-0.007

# 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]G246341004      *
* Acquisition date   : 18-FEB-2010 13:10:03 Detector SN#      :             *
* Detector ID        : GAM11 Sensitivity      : 5.000           *
* Geometry           : CAN Energy tolerance: 1.500           *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 02:00:01.77 Half life ratio : 8.000     *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID      *
* Sample ID          : G246341004 Analyst initials: MXR1          *
* Batch Number       : 950786 Sample Quantity : 1.1941E+02 GRAM    *
* Recovery           : 1.00000 Carrier Weight : 0.00000          *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope      :             *
* MSD DPM             : 0.000 MSD Isotope      :                 *
* LCS DPM             : 0.000 LCS Isotope      :                 *
* LCSD DPM           : 0.000 LCSD Isotope     :                 *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.862E+01	2.959E+00	6.398E-01	0.000E+00
CD-109	3.469E+00	9.105E-01	1.008E+00	0.000E+00
SN-126	3.400E-01	8.923E-02	9.913E-02	0.000E+00
BA-137M	1.669E-01	5.931E-02	5.860E-02	0.000E+00
CS-137	1.765E-01	6.271E-02	6.194E-02	0.000E+00
CE-141	8.487E-02	8.190E-02	9.911E-02	0.000E+00
HG-203	4.719E-02	5.489E-02	6.339E-02	0.000E+00
TL-208	6.004E-01	1.015E-01	5.957E-02	0.000E+00
BI-211	4.250E+00	7.281E-01	2.858E-01	0.000E+00
PB-212	1.828E+00	2.762E-01	8.693E-02	0.000E+00
PO-212	1.828E+00	2.762E-01	8.693E-02	0.000E+00
BI-214	1.278E+00	2.048E-01	1.143E-01	0.000E+00
PB-214	1.478E+00	2.643E-01	9.964E-02	0.000E+00
PO-214	1.478E+00	2.643E-01	9.964E-02	0.000E+00
PO-216	1.828E+00	2.762E-01	8.693E-02	0.000E+00
PO-218	1.478E+00	2.643E-01	9.964E-02	0.000E+00
RA-224	5.323E+00	1.518E+00	9.895E-01	0.000E+00
RA-226	1.278E+00	2.048E-01	1.143E-01	0.000E+00
AC-228	1.870E+00	3.452E-01	1.933E-01	0.000E+00
RA-228	1.870E+00	3.452E-01	1.933E-01	0.000E+00
TH-228	1.860E+00	2.810E-01	8.841E-02	0.000E+00
TH-230	1.278E+00	2.048E-01	1.143E-01	0.000E+00
TH-232	1.870E+00	3.452E-01	1.933E-01	0.000E+00
TH-234	4.200E+00	1.784E+00	1.734E+00	0.000E+00
U-234	1.278E+00	2.048E-01	1.143E-01	0.000E+00
U-235	2.717E-01	2.653E-01	3.009E-01	0.000E+00
NP-237	9.983E-01	3.308E-01	3.003E-01	0.000E+00
U-238	4.200E+00	1.784E+00	1.734E+00	0.000E+00
AM-243	3.325E-01	6.440E-02	7.592E-02	0.000E+00
ANH-511	1.144E-01	6.089E-02	4.514E-02	0.000E+00

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

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-1.371E-01	2.901E-01	4.804E-01	0.000E+00	NOT IDENT.
NA-22	-2.808E-02	4.144E-02	5.947E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.571E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	6.121E-03	2.021E-02	3.656E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.406E-02	6.316E-02	0.000E+00	FAIL ABUN
SC-46	5.757E-03	3.989E-02	6.935E-02	0.000E+00	FAIL ABUN
V-48	-3.447E-02	7.220E-02	1.168E-01	0.000E+00	NOT IDENT.
CR-51	2.694E-01	3.627E-01	6.274E-01	0.000E+00	NOT IDENT.
MN-52	-1.986E-01	2.914E-01	4.242E-01	0.000E+00	NOT IDENT.
MN-54	-1.103E-02	3.522E-02	5.925E-02	0.000E+00	NOT IDENT.
CO-56	2.843E-02	3.510E-02	6.477E-02	0.000E+00	FAIL ABUN
CO-57	-1.738E-02	2.257E-02	3.883E-02	0.000E+00	NOT IDENT.
CO-58	-7.233E-03	4.128E-02	6.648E-02	0.000E+00	NOT IDENT.
FE-59	-5.548E-04	9.333E-02	1.570E-01	0.000E+00	FAIL ABUN
CO-60	3.071E-02	4.337E-02	7.694E-02	0.000E+00	NOT IDENT.
ZN-65	-5.145E-02	1.035E-01	1.404E-01	0.000E+00	NOT IDENT.
GE-68	-2.981E-01	1.248E+00	2.055E+00	0.000E+00	NOT IDENT.
AS-73	2.719E-01	6.102E-01	1.052E+00	0.000E+00	NOT IDENT.
AS-74	2.608E-02	9.265E-02	1.599E-01	0.000E+00	NOT IDENT.
SE-75	9.330E-03	4.141E-02	6.737E-02	0.000E+00	NOT IDENT.
BR-77	4.735E+00	1.564E+01	2.737E+01	0.000E+00	FAIL ABUN
SR-82	-3.329E-01	3.714E-01	5.505E-01	0.000E+00	NOT IDENT.
RB-83	1.440E-02	5.945E-02	1.036E-01	0.000E+00	NOT IDENT.
RB-84	3.991E-02	7.020E-02	1.264E-01	0.000E+00	NOT IDENT.
KR-85	1.061E+01	6.926E+00	1.186E+01	0.000E+00	NOT IDENT.
SR-85	5.549E-02	3.624E-02	6.205E-02	0.000E+00	NOT IDENT.
RB-86	-2.528E-01	8.329E-01	1.362E+00	0.000E+00	NOT IDENT.
Y-88	1.626E-04	3.102E-02	5.187E-02	0.000E+00	NOT IDENT.
ZR-88	-3.147E-03	2.781E-02	4.829E-02	0.000E+00	NOT IDENT.
Y-91	-2.783E+00	1.735E+01	2.845E+01	0.000E+00	NOT IDENT.
NB-94	-1.274E-02	3.474E-02	5.596E-02	0.000E+00	NOT IDENT.
NB-95	3.628E-02	4.154E-02	6.663E-02	0.000E+00	NOT IDENT.
NB-95M	-4.883E-02	1.285E-01	1.898E-01	0.000E+00	NOT IDENT.
ZR-95	4.444E-03	7.197E-02	1.194E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.667E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.180E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.595E+00	1.926E+01	3.161E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.381E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	9.145E-03	3.135E-02	5.281E-02	0.000E+00	NOT IDENT.
RH-102	-4.748E-03	2.445E-02	4.145E-02	0.000E+00	NOT IDENT.
RU-103	-1.472E-02	3.902E-02	6.492E-02	0.000E+00	FAIL ABUN
RH-106	1.245E-01	2.807E-01	4.897E-01	0.000E+00	FAIL ABUN
RU-106	1.245E-01	2.804E-01	4.897E-01	0.000E+00	FAIL ABUN
AG-108M	1.789E-02	3.119E-02	5.599E-02	0.000E+00	NOT IDENT.
AG-110M	1.806E-02	3.576E-02	5.557E-02	0.000E+00	NOT IDENT.
IN-111	6.009E-01	1.712E+00	2.652E+00	0.000E+00	NOT IDENT.
IN-113M	-3.802E-02	4.045E-02	6.611E-02	0.000E+00	NOT IDENT.
SN-113	-3.802E-02	4.045E-02	6.611E-02	0.000E+00	NOT IDENT.
IN-114M	1.224E-01	1.775E-01	2.858E-01	0.000E+00	NOT IDENT.
CD-115	-1.373E+01	1.711E+01	2.706E+01	0.000E+00	NOT IDENT.
SN-117M	2.017E-02	5.257E-02	9.338E-02	0.000E+00	NOT IDENT.
SB-122	-3.037E-01	3.076E+00	5.175E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	5.790E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.997E-02	2.502E-02	4.513E-02	0.000E+00	NOT IDENT.
I-124	3.713E-01	9.031E-01	1.568E+00	0.000E+00	NOT IDENT.
SB-124	-2.583E-02	7.921E-02	1.260E-01	0.000E+00	FAIL ABUN
SB-125	-5.041E-02	7.778E-02	1.283E-01	0.000E+00	FAIL ABUN
TE-125M	4.277E+00	8.173E+00	1.490E+01	0.000E+00	NOT IDENT.
I-126	8.172E-02	2.280E-01	3.464E-01	0.000E+00	NOT IDENT.
SB-126	1.005E-02	1.707E-01	2.618E-01	0.000E+00	FAIL ABUN
SB-127	2.103E+00	1.798E+00	3.273E+00	0.000E+00	NOT IDENT.
XE-127	-2.732E-02	4.376E-02	7.272E-02	0.000E+00	FAIL ABUN
I-131	-1.029E-01	1.331E-01	2.041E-01	0.000E+00	NOT IDENT.
TE-132	-5.113E-01	9.616E-01	1.563E+00	0.000E+00	NOT IDENT.
BA-133	-1.737E-02	4.389E-02	6.121E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.587E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.116E-02	7.135E-02	9.273E-02	0.000E+00	FAIL ABUN
CS-135	8.513E-02	1.571E-01	2.447E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.846E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.916E-02	1.170E-01	2.008E-01	0.000E+00	FAIL ABUN
CE-139	-1.168E-02	2.707E-02	4.625E-02	0.000E+00	NOT IDENT.
BA-140	-6.864E-02	2.605E-01	4.325E-01	0.000E+00	NOT IDENT.
LA-140	-3.753E-03	7.882E-02	1.325E-01	0.000E+00	FAIL ABUN
CE-143	0.000E+00	4.559E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.101E-02	1.905E-01	3.236E-01	0.000E+00	NOT IDENT.

PM-144	-1.717E-02	3.399E-02	5.398E-02	0.000E+00	NOT IDENT.
PR-144	-1.165E+00	2.305E+00	3.661E+00	0.000E+00	NOT IDENT.
PM-146	2.250E-02	3.881E-02	6.964E-02	0.000E+00	NOT IDENT.
ND-147	1.052E-02	5.833E-01	9.960E-01	0.000E+00	FAIL ABUN
PM-149	-6.101E+01	1.561E+02	2.538E+02	0.000E+00	NOT IDENT.
EU-152	-1.210E-02	1.037E-01	1.500E-01	0.000E+00	FAIL ABUN
GD-153	-8.119E-02	8.248E-02	1.158E-01	0.000E+00	FAIL ABUN
EU-154	-7.720E-02	1.159E-01	1.664E-01	0.000E+00	NOT IDENT.
EU-155	-5.281E-04	9.103E-02	1.634E-01	0.000E+00	FAIL ABUN
TB-160	7.739E-03	1.344E-01	2.322E-01	0.000E+00	FAIL ABUN
HO-166M	1.395E-04	6.211E-02	1.031E-01	0.000E+00	FAIL ABUN
TM-171	-8.984E+00	2.415E+01	3.628E+01	0.000E+00	NOT IDENT.
LU-176	2.221E-02	2.227E-02	3.912E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.600E+00	2.456E+00	0.000E+00	FAIL ABUN
LU-177M	-1.509E-01	1.765E-01	2.475E-01	0.000E+00	NOT IDENT.
HF-181	1.418E-03	4.167E-02	7.184E-02	0.000E+00	NOT IDENT.
W-181	5.630E-02	3.042E-01	4.716E-01	0.000E+00	NOT IDENT.
TA-182	6.874E-03	1.941E-01	3.242E-01	0.000E+00	FAIL ABUN
RE-183	-1.612E-02	9.864E-02	1.709E-01	0.000E+00	FAIL ABUN
RE-184	-9.175E-02	2.071E-01	3.396E-01	0.000E+00	NOT IDENT.
OS-185	-1.766E-02	3.947E-02	6.328E-02	0.000E+00	NOT IDENT.
RE-188	7.708E-02	1.539E-01	2.748E-01	0.000E+00	NOT IDENT.
W-188	-4.034E+00	7.993E+00	1.136E+01	0.000E+00	FAIL ABUN
IR-192	-1.310E-02	3.150E-02	5.056E-02	0.000E+00	FAIL ABUN
AU-195	0.000E+00	2.045E-01	3.577E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.593E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	9.666E+00	9.443E+00	1.711E+01	0.000E+00	NOT IDENT.
TL-202	6.024E-02	7.516E-02	1.363E-01	0.000E+00	NOT IDENT.
BI-207	3.292E-02	5.141E-02	9.185E-02	0.000E+00	FAIL ABUN
TL-207	-3.710E-01	6.874E-01	9.541E-01	0.000E+00	FAIL ABUN
PO-209	-4.048E+00	6.290E+00	1.004E+01	0.000E+00	NOT IDENT.
BI-210	9.760E-01	2.271E+00	3.954E+00	0.000E+00	NOT IDENT.
PB-210	9.760E-01	2.271E+00	3.954E+00	0.000E+00	NOT IDENT.
PO-210	9.760E-01	2.271E+00	3.954E+00	0.000E+00	NOT IDENT.
PB-211	-6.900E-01	1.088E+00	1.450E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.634E-01	7.097E-01	0.000E+00	FAIL ABUN
PO-215	-3.710E-01	6.874E-01	9.541E-01	0.000E+00	FAIL ABUN
RN-219	4.658E-01	3.783E-01	6.970E-01	0.000E+00	FAIL ABUN
RN-220	1.380E+01	2.446E+01	4.333E+01	0.000E+00	NOT IDENT.
RA-223	-3.710E-01	6.874E-01	9.541E-01	0.000E+00	FAIL ABUN
AC-227	6.873E-03	3.427E-01	5.788E-01	0.000E+00	FAIL ABUN
TH-227	6.873E-03	3.427E-01	5.788E-01	0.000E+00	FAIL ABUN
TH-229	-7.983E-02	4.555E-01	7.784E-01	0.000E+00	FAIL ABUN
PA-231	-5.767E-01	1.416E+00	2.300E+00	0.000E+00	NOT IDENT.
TH-231	-3.710E-01	6.874E-01	9.541E-01	0.000E+00	FAIL ABUN
U-231	6.069E-01	1.400E+00	2.148E+00	0.000E+00	FAIL ABUN
PA-233	5.567E-02	6.054E-02	1.056E-01	0.000E+00	FAIL ABUN
PA-234	-7.577E-02	2.743E-01	4.551E-01	0.000E+00	FAIL ABUN
PA-234M	7.185E+00	4.860E+00	8.962E+00	0.000E+00	NOT IDENT.
NP-236	7.242E-03	7.072E-02	1.241E-01	0.000E+00	NOT IDENT.
NP-239	-1.416E-01	1.655E-01	2.845E-01	0.000E+00	FAIL ABUN
AM-241	-5.240E-02	1.302E-01	1.971E-01	0.000E+00	NOT IDENT.
CM-243	2.817E-02	7.922E-02	1.442E-01	0.000E+00	FAIL ABUN
AM-246	9.392E-02	1.383E-01	2.477E-01	0.000E+00	NOT IDENT.
CM-247	3.362E-03	3.405E-02	5.980E-02	0.000E+00	FAIL ABUN
CF-249	3.099E-02	3.668E-02	6.717E-02	0.000E+00	NOT IDENT.
CF-251	3.872E-02	1.141E-01	2.008E-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]G246341004.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:10:03
Sample ID          : G246341004      Sample quantity   : 1.19410E+02 GRAM
Detector name      : GAM11           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.77  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 950786          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1190	10.67*	1.225E+00	2.862E+01	2.862E+01	10.55
CD-109	88.03	271	3.72*	6.785E+00	3.381E+00	3.469E+00	26.78
SN-126	64.28	218	9.60	4.287E+00	1.662E+00	1.662E+00	42.26
	86.94	271	8.90	6.785E+00	1.413E+00	1.413E+00	48.51
	87.57	271	37.00*	6.785E+00	3.400E-01	3.400E-01	26.78
BA-137M	661.65	115	89.98*	2.403E+00	1.668E-01	1.669E-01	36.26
CS-137	661.65	115	85.12*	2.403E+00	1.763E-01	1.765E-01	36.26
CE-141	145.44	64	48.40*	7.030E+00	5.895E-02	8.487E-02	98.47
HG-203	70.83	-----	4.75	5.333E+00	-----	Line Not Found	-----
	72.87	-----	8.00	5.576E+00	-----	Line Not Found	-----
	82.60	89	3.55	6.575E+00	1.204E+00	1.553E+00	84.65
	279.20	42	77.30*	4.668E+00	3.660E-02	4.719E-02	118.69
TL-208	277.35	42	6.80	4.668E+00	4.161E-01	4.161E-01	119.00
	510.84	107	21.60	2.953E+00	5.297E-01	5.297E-01	54.94
	583.14	428	84.20*	2.661E+00	6.004E-01	6.004E-01	17.25
	860.37	-----	12.46	1.927E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	5.576E+00	-----	Line Not Found	-----
	351.07	686	12.94*	3.922E+00	4.250E+00	4.250E+00	17.48
PB-212	74.81	404	10.70	5.795E+00	2.051E+00	2.051E+00	21.86
	77.11	756	18.00	6.021E+00	2.193E+00	2.193E+00	13.63
	87.30	271	8.00	6.785E+00	1.572E+00	1.572E+00	28.59
	238.63	1351	44.60*	5.210E+00	1.828E+00	1.828E+00	15.42
	300.09	113	3.41	4.417E+00	2.350E+00	2.350E+00	43.86
PO-212	74.81	404	10.70	5.795E+00	2.051E+00	2.051E+00	21.86
	77.11	756	18.00	6.021E+00	2.193E+00	2.193E+00	13.63
	87.30	271	8.00	6.785E+00	1.572E+00	1.572E+00	28.59
	115.19	-----	0.60	7.407E+00	-----	Line Not Found	-----
	238.63	1351	44.60*	5.210E+00	1.828E+00	1.828E+00	15.42
	300.09	113	3.41	4.417E+00	2.350E+00	2.350E+00	43.86
BI-214	609.31	484	46.30*	2.569E+00	1.278E+00	1.278E+00	16.35
	1120.29	112	15.10	1.531E+00	1.523E+00	1.523E+00	34.10
	1764.49	108	15.80	1.071E+00	2.005E+00	2.005E+00	24.36

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	74.81	404	6.21	5.795E+00	3.533E+00	3.534E+00	21.11
	77.11	756	10.50	6.021E+00	3.760E+00	3.760E+00	15.61
	87.30	271	4.67	6.785E+00	2.693E+00	2.694E+00	27.87
	241.98	345	7.49	5.165E+00	2.807E+00	2.807E+00	29.64
	295.21	407	19.20	4.467E+00	1.490E+00	1.490E+00	21.14
PO-214	351.92	686	37.20*	3.922E+00	1.478E+00	1.478E+00	18.24
	74.81	404	6.21	5.795E+00	3.533E+00	3.534E+00	21.11
	77.11	756	10.50	6.021E+00	3.760E+00	3.760E+00	15.61
	87.30	271	4.67	6.785E+00	2.693E+00	2.694E+00	27.87
	241.98	345	7.49	5.165E+00	2.807E+00	2.807E+00	29.64
PO-216	295.21	407	19.20	4.467E+00	1.490E+00	1.490E+00	21.14
	351.92	686	37.20*	3.922E+00	1.478E+00	1.478E+00	18.24
	74.81	404	10.70	5.795E+00	2.051E+00	2.051E+00	21.86
	77.11	756	18.00	6.021E+00	2.193E+00	2.193E+00	13.63
	87.30	271	8.00	6.785E+00	1.572E+00	1.572E+00	28.59
PO-218	238.63	1351	44.60*	5.210E+00	1.828E+00	1.828E+00	15.42
	300.09	113	3.41	4.417E+00	2.350E+00	2.350E+00	43.86
	74.81	404	6.21	5.795E+00	3.533E+00	3.534E+00	21.11
	77.11	756	10.50	6.021E+00	3.760E+00	3.760E+00	15.61
	87.30	271	4.67	6.785E+00	2.693E+00	2.694E+00	27.87
RA-224	241.98	345	7.49	5.165E+00	2.807E+00	2.807E+00	29.64
	295.21	407	19.20	4.467E+00	1.490E+00	1.490E+00	21.14
	351.92	686	37.20*	3.922E+00	1.478E+00	1.478E+00	18.24
	240.98	345	3.95*	5.165E+00	5.323E+00	5.323E+00	29.10
	609.31	484	46.30*	2.569E+00	1.278E+00	1.278E+00	16.35
AC-228	1120.29	112	15.10	1.531E+00	1.523E+00	1.523E+00	34.10
	1764.49	108	15.80	1.071E+00	2.005E+00	2.005E+00	24.36
	338.32	285	11.40	4.039E+00	1.948E+00	1.948E+00	49.41
	911.07	302	27.70*	1.833E+00	1.870E+00	1.870E+00	18.83
	969.11	199	16.60	1.738E+00	2.173E+00	2.173E+00	29.74
RA-228	338.32	285	11.40	4.039E+00	1.948E+00	1.948E+00	49.41
	911.07	302	27.70*	1.833E+00	1.870E+00	1.870E+00	18.83
	969.11	199	16.60	1.738E+00	2.173E+00	2.173E+00	29.74
	74.81	404	10.70	5.795E+00	2.051E+00	2.086E+00	19.80
	77.11	756	18.00	6.021E+00	2.193E+00	2.231E+00	13.63
TH-228	87.30	271	8.00	6.785E+00	1.572E+00	1.599E+00	26.78
	238.63	1351	44.60*	5.210E+00	1.828E+00	1.860E+00	15.42
	300.09	113	3.41	4.417E+00	2.350E+00	2.390E+00	73.00
	609.31	484	46.30*	2.569E+00	1.278E+00	1.278E+00	16.35
	1120.29	112	15.10	1.531E+00	1.523E+00	1.523E+00	34.10
TH-230	1764.49	108	15.80	1.071E+00	2.005E+00	2.005E+00	24.36
	338.32	285	11.40	4.039E+00	1.948E+00	1.948E+00	28.52
	911.07	302	27.70*	1.833E+00	1.870E+00	1.870E+00	18.83
	969.11	199	16.60	1.738E+00	2.173E+00	2.173E+00	29.74
	63.29	218	3.80*	4.287E+00	4.200E+00	4.200E+00	43.35
TH-232	92.38	495	5.41	7.054E+00	4.075E+00	4.075E+00	25.20
	609.31	484	46.30*	2.569E+00	1.278E+00	1.278E+00	16.35
	1120.29	112	15.10	1.531E+00	1.523E+00	1.523E+00	34.10
	1764.49	108	15.80	1.071E+00	2.005E+00	2.005E+00	24.36



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-235	89.95	187	2.70	6.933E+00	3.143E+00	3.143E+00	49.80
	93.35	495	4.50	7.054E+00	4.899E+00	4.899E+00	33.07
	105.00	-----	2.10	7.364E+00	-----	Line Not Found	-----
	143.76	64	10.50*	7.030E+00	2.717E-01	2.717E-01	99.63
	163.35	-----	4.70	6.629E+00	-----	Line Not Found	-----
	185.71	361	54.00	6.157E+00	3.414E-01	3.414E-01	24.11
NP-237	205.31	-----	4.70	5.777E+00	-----	Line Not Found	-----
	86.50	271	12.60*	6.785E+00	9.983E-01	9.983E-01	33.81
	95.87	-----	2.60	7.169E+00	-----	Line Not Found	-----
U-238	63.29	218	3.80*	4.287E+00	4.200E+00	4.200E+00	43.35
	92.38	495	5.41	7.054E+00	4.075E+00	4.075E+00	19.55
AM-243	74.67	404	66.00*	5.795E+00	3.325E-01	3.325E-01	19.76
	86.72	271	0.34	6.785E+00	3.744E+01	3.744E+01	26.78
	117.66	-----	0.55	7.397E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.065E+00	-----	Line Not Found	-----
ANH-511	511.00	107	100.00*	2.953E+00	1.144E-01	1.144E-01	54.31

Flag: "\*" = Keyline

Total number of lines in spectrum 40  
Number of unidentified lines 5  
Number of lines tentatively identified by NID 35 87.50%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.862E+01	2.862E+01	0.302E+01	10.55	
CD-109	464.00D	1.03	3.381E+00	3.469E+00	0.929E+00	26.78	
SN-126	1.00E+05Y	1.00	3.400E-01	3.400E-01	0.911E-01	26.78	
BA-137M	30.17Y	1.00	1.668E-01	1.669E-01	0.605E-01	36.26	
CS-137	30.17Y	1.00	1.763E-01	1.765E-01	0.640E-01	36.26	
CE-141	32.50D	1.44	5.895E-02	8.487E-02	8.357E-02	98.47	
HG-203	46.60D	1.29	3.660E-02	4.719E-02	5.601E-02	118.69	
TL-208	1.41E+10Y	1.00	6.004E-01	6.004E-01	1.036E-01	17.25	
BI-211	7.04E+08Y	1.00	4.250E+00	4.250E+00	0.743E+00	17.48	
PB-212	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.282E+00	15.42	
PO-212	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.282E+00	15.42	
BI-214	1600.00Y	1.00	1.278E+00	1.278E+00	0.209E+00	16.35	
PB-214	1600.00Y	1.00	1.478E+00	1.478E+00	0.270E+00	18.24	
PO-214	1600.00Y	1.00	1.478E+00	1.478E+00	0.270E+00	18.24	
PO-216	1.41E+10Y	1.00	1.828E+00	1.828E+00	0.282E+00	15.42	
PO-218	1600.00Y	1.00	1.478E+00	1.478E+00	0.270E+00	18.24	
RA-224	1.41E+10Y	1.00	5.323E+00	5.323E+00	1.549E+00	29.10	
RA-226	1600.00Y	1.00	1.278E+00	1.278E+00	0.209E+00	16.35	
AC-228	1.41E+10Y	1.00	1.870E+00	1.870E+00	0.352E+00	18.83	
RA-228	1.41E+10Y	1.00	1.870E+00	1.870E+00	0.352E+00	18.83	
TH-228	1.91Y	1.02	1.828E+00	1.860E+00	0.287E+00	15.42	
TH-230	4.47E+09Y	1.00	1.278E+00	1.278E+00	0.209E+00	16.35	
TH-232	1.41E+10Y	1.00	1.870E+00	1.870E+00	0.352E+00	18.83	
TH-234	4.47E+09Y	1.00	4.200E+00	4.200E+00	1.821E+00	43.35	
U-234	4.47E+09Y	1.00	1.278E+00	1.278E+00	0.209E+00	16.35	
U-235	7.04E+08Y	1.00	2.717E-01	2.717E-01	2.707E-01	99.63	
NP-237	2.14E+06Y	1.00	9.983E-01	9.983E-01	3.375E-01	33.81	
U-238	4.47E+09Y	1.00	4.200E+00	4.200E+00	1.821E+00	43.35	
AM-243	7380.00Y	1.00	3.325E-01	3.325E-01	0.657E-01	19.76	
ANH-511	1.00E+09Y	1.00	1.144E-01	1.144E-01	0.621E-01	54.31	
Total Activity :			7.555E+01	7.570E+01			

Grand Total Activity : 7.555E+01 7.570E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.10	132	322	0.94	257.19	253	8	1.83E-02	50.4	7.28E+00	T
0	209.13	181	175	1.45	417.36	414	7	2.51E-02	28.6	5.71E+00	T
0	270.77	143	274	1.37	540.72	535	13	1.99E-02	50.6	4.76E+00	T
0	328.28	91	142	0.88	655.83	652	9	1.27E-02	51.2	4.13E+00	T
0	409.60	85	122	1.79	818.57	814	11	1.18E-02	54.9	3.50E+00	T
0	463.36	109	91	1.32	926.16	921	11	1.51E-02	39.4	3.19E+00	T
0	727.73	103	97	1.34	1455.19	1448	14	1.43E-02	45.4	2.22E+00	T
0	768.59	44	82	0.88	1536.96	1530	13	6.16E-03	89.0	2.12E+00	
0	795.59	45	69	1.60	1590.99	1584	12	6.28E-03	79.3	2.06E+00	T
0	862.18	33	110	1.69	1724.23	1719	17	4.65E-03	****	1.92E+00	
3	964.92	41	61	2.10	1929.81	1922	23	5.63E-03	88.0	1.74E+00	T
0	1238.05	68	24	1.64	2476.26	2472	10	9.51E-03	35.6	1.40E+00	T
0	1378.32	34	19	1.51	2756.88	2750	11	4.67E-03	61.2	1.28E+00	
0	1589.13	25	11	2.25	3178.59	3172	10	3.52E-03	61.7	1.15E+00	
0	1631.33	17	4	1.45	3263.01	3259	8	2.41E-03	62.0	1.13E+00	

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341004.CNF;1
* Acquisition date   : 18-FEB-2010 13:10:03   Detector SN#      :
* Detector ID        : GAM11                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.77          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G246341004             Analyst initials: MXR1
* Batch Number       : 950786                 Sample Quantity : 1.19410E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22.2MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.862E+01	3.019E+00	6.415E-01	5.546E-02	44.623
CD-109	3.469E+00	9.291E-01	9.788E-01	9.282E-02	3.544
SN-126	3.400E-01	9.106E-02	9.624E-02	9.078E-03	3.532
BA-137M	1.669E-01	6.053E-02	5.821E-02	5.508E-03	2.868
CS-137	1.765E-01	6.399E-02	6.153E-02	5.832E-03	2.868
CE-141	8.487E-02	8.357E-02	9.677E-02	8.869E-03	0.877
HG-203	4.719E-02	5.601E-02	6.235E-02	9.739E-03	0.757
TL-208	6.004E-01	1.036E-01	5.909E-02	6.381E-03	10.161
BI-211	4.250E+00	7.429E-01	2.819E-01	3.719E-02	15.076
PB-212	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
PO-212	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
BI-214	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
PB-214	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
PO-214	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
PO-216	1.828E+00	2.819E-01	8.535E-02	1.195E-02	21.422
PO-218	1.478E+00	2.697E-01	9.827E-02	1.390E-02	15.044
RA-224	5.323E+00	1.549E+00	9.716E-01	1.301E-01	5.478
RA-226	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-228	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
RA-228	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
TH-228	1.860E+00	2.867E-01	8.681E-02	1.216E-02	21.422
TH-230	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
TH-232	1.870E+00	3.523E-01	1.927E-01	2.346E-02	9.706
TH-234	4.200E+00	1.821E+00	1.678E+00	2.918E-01	2.504
U-234	1.278E+00	2.090E-01	1.134E-01	1.282E-02	11.268
U-235	2.717E-01	2.707E-01	2.938E-01	5.194E-02	0.925
NP-237	9.983E-01	3.375E-01	2.915E-01	6.599E-02	3.424
U-238	4.200E+00	1.821E+00	1.678E+00	2.918E-01	2.504
AM-243	3.325E-01	6.571E-02	7.358E-02	5.955E-03	4.518
ANH-511	1.144E-01	6.213E-02	4.471E-02	4.781E-03	2.559

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.371E-01		2.960E-01	4.755E-01	5.381E-02	-0.288
NA-22	-2.808E-02		4.228E-02	5.953E-02	4.889E-03	-0.472
NA-24	1.061E+00		2.842E+00	Half-Life too short		
AL-26	6.121E-03		2.062E-02	3.675E-02	3.000E-03	0.167
TI-44	4.048E-01	+	5.516E-02	6.125E-02	5.163E-03	6.609
SC-46	5.757E-03		4.070E-02	6.913E-02	6.809E-03	0.083
V-48	-3.447E-02		7.367E-02	1.166E-01	1.106E-02	-0.296
CR-51	2.694E-01		3.701E-01	6.181E-01	8.971E-02	0.436
MN-52	-1.986E-01		2.973E-01	4.253E-01	3.563E-02	-0.467
MN-54	-1.103E-02		3.594E-02	5.902E-02	5.812E-03	-0.187
CO-56	2.843E-02		3.582E-02	6.453E-02	6.358E-03	0.441
CO-57	-1.738E-02		2.303E-02	3.784E-02	3.201E-03	-0.459
CO-58	-7.233E-03		4.212E-02	6.620E-02	6.518E-03	-0.109
FE-59	-5.548E-04		9.523E-02	1.568E-01	1.474E-02	-0.004
CO-60	3.071E-02		4.425E-02	7.706E-02	6.367E-03	0.399
ZN-65	-5.145E-02		1.056E-01	1.404E-01	1.204E-02	-0.367
GE-68	-2.981E-01		1.273E+00	2.053E+00	1.823E-01	-0.145
AS-73	2.719E-01		6.226E-01	1.016E+00	7.628E-02	0.268
AS-74	2.608E-02		9.454E-02	1.586E-01	1.613E-02	0.164
SE-75	9.330E-03		4.226E-02	6.623E-02	9.734E-03	0.141
BR-77	4.735E+00		1.596E+01	2.712E+01	2.889E+00	0.175
SR-82	-3.329E-01		3.789E-01	5.478E-01	5.358E-02	-0.608
RB-83	1.440E-02		6.066E-02	1.026E-01	1.093E-02	0.140
RB-84	3.991E-02		7.163E-02	1.260E-01	1.241E-02	0.317
KR-85	1.061E+01		7.067E+00	1.175E+01	1.255E+00	0.903
SR-85	5.549E-02		3.698E-02	6.146E-02	6.565E-03	0.903
RB-86	-2.528E-01		8.499E-01	1.361E+00	1.209E-01	-0.186
Y-88	1.626E-04		3.165E-02	5.214E-02	4.233E-03	0.003
ZR-88	-3.147E-03		2.838E-02	4.769E-02	5.086E-03	-0.066
Y-91	-2.783E+00		1.770E+01	2.846E+01	2.304E+00	-0.098
NB-94	-1.274E-02		3.545E-02	5.563E-02	5.342E-03	-0.229

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	3.628E-02		4.239E-02	6.630E-02	6.472E-03	0.547
NB-95M	-4.883E-02		1.312E-01	1.863E-01	2.601E-02	-0.262
ZR-95	4.444E-03		7.344E-02	1.188E-01	1.250E-02	0.037
NB-97	3.689E-01		3.402E-01	Half-Life	too short	
ZR-97	4.722E+00		6.018E+00	Half-Life	too short	
MO-99	-1.595E+00		1.966E+01	3.144E+01	4.976E+00	-0.051
TC-99M	-5.828E+11		3.766E+12	Half-Life	too short	
RH-101	9.145E-03		3.199E-02	5.174E-02	5.791E-03	0.177
RH-102	-4.748E-03		2.495E-02	4.102E-02	4.422E-03	-0.116
RU-103	-1.472E-02		3.982E-02	6.427E-02	9.989E-03	-0.229
RH-106	1.245E-01		2.864E-01	4.861E-01	6.919E-02	0.256
RU-106	1.245E-01		2.861E-01	4.861E-01	4.823E-02	0.256
AG-108M	1.789E-02		3.183E-02	5.535E-02	6.119E-03	0.323
AG-110M	1.806E-02		3.649E-02	5.520E-02	5.379E-03	0.327
IN-111	6.009E-01		1.747E+00	2.605E+00	3.550E-01	0.231
IN-113M	-3.802E-02		4.127E-02	6.527E-02	7.100E-03	-0.582
SN-113	-3.802E-02		4.127E-02	6.527E-02	7.100E-03	-0.582
IN-114M	1.224E-01		1.811E-01	2.799E-01	3.029E-02	0.437
CD-115	-1.373E+01		1.746E+01	2.681E+01	2.848E+00	-0.512
SN-117M	2.017E-02		5.364E-02	9.126E-02	8.625E-03	0.221
SB-122	-3.037E-01		3.139E+00	5.132E+00	5.346E-01	-0.059
I-123	4.621E+01		2.954E+01	Half-Life	too short	
TE-123M	1.997E-02		2.554E-02	4.410E-02	4.196E-03	0.453
I-124	3.713E-01		9.216E-01	1.556E+00	1.572E-01	0.239
SB-124	-2.583E-02		8.083E-02	1.265E-01	1.100E-02	-0.204
SB-125	-5.041E-02		7.937E-02	1.268E-01	1.383E-02	-0.397
TE-125M	4.277E+00		8.339E+00	1.450E+01	1.488E+00	0.295
I-126	8.172E-02		2.326E-01	3.442E-01	3.262E-02	0.237
SB-126	1.005E-02		1.742E-01	2.604E-01	2.514E-02	0.039
SB-127	2.103E+00		1.835E+00	3.253E+00	4.115E-01	0.646
XE-127	-2.732E-02		4.466E-02	7.127E-02	8.145E-03	-0.383
I-131	-1.029E-01		1.358E-01	2.013E-01	2.530E-02	-0.511
TE-132	-5.113E-01		9.812E-01	1.534E+00	2.854E-01	-0.333
BA-133	-1.737E-02		4.479E-02	6.038E-02	9.737E-03	-0.288
I-133	-2.237E-02		1.320E-02	Half-Life	too short	
CS-134	9.116E-02	+	7.281E-02	9.232E-02	9.107E-03	0.987
CS-135	8.513E-02		1.604E-01	2.406E-01	3.775E-02	0.354
I-135	3.756E+11		3.493E+11	Half-Life	too short	
CS-136	1.916E-02		1.193E-01	2.006E-01	1.894E-02	0.096
CE-139	-1.168E-02		2.762E-02	4.522E-02	4.394E-03	-0.258
BA-140	-6.864E-02		2.658E-01	4.286E-01	1.445E-01	-0.160
LA-140	-3.753E-03		8.043E-02	1.330E-01	1.119E-02	-0.028
CE-143	9.109E-04		2.326E-04	Half-Life	too short	
CE-144	2.101E-02		1.944E-01	3.157E-01	4.925E-02	0.067
PM-144	-1.717E-02		3.468E-02	5.365E-02	5.144E-03	-0.320
PR-144	-1.165E+00		2.352E+00	3.639E+00	3.488E-01	-0.320
PM-146	2.250E-02		3.960E-02	6.888E-02	8.637E-03	0.327
ND-147	1.052E-02		5.952E-01	9.869E-01	1.597E-01	0.011

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149	-6.101E+01		1.593E+02	2.497E+02	5.007E+01	-0.244
EU-152	-1.210E-02		1.058E-01	1.479E-01	2.005E-02	-0.082
GD-153	-8.119E-02		8.416E-02	1.125E-01	9.997E-03	-0.722
EU-154	-7.720E-02		1.182E-01	1.666E-01	1.832E-02	-0.463
EU-155	-5.281E-04		9.289E-02	1.589E-01	1.387E-02	-0.003
TB-160	7.739E-03		1.371E-01	2.314E-01	2.280E-02	0.033
HO-166M	1.395E-04		6.338E-02	1.025E-01	9.872E-03	0.001
TM-171	-8.984E+00		2.464E+01	3.512E+01	2.635E+00	-0.256
LU-176	2.221E-02		2.273E-02	3.852E-02	5.662E-03	0.577
LU-177	5.284E+00	+	1.632E+00	2.408E+00	2.818E-01	2.194
LU-177M	-1.509E-01		1.801E-01	2.446E-01	2.626E-02	-0.617
HF-181	1.418E-03		4.253E-02	7.110E-02	7.658E-03	0.020
W-181	5.630E-02		3.104E-01	4.564E-01	3.383E-02	0.123
TA-182	6.874E-03		1.980E-01	3.243E-01	2.635E-02	0.021
RE-183	-1.612E-02		1.007E-01	1.671E-01	1.602E-02	-0.096
RE-184	-9.175E-02		2.113E-01	3.337E-01	4.681E-02	-0.275
OS-185	-1.766E-02		4.027E-02	6.285E-02	6.066E-03	-0.281
RE-188	7.708E-02		1.571E-01	2.686E-01	2.505E-02	0.287
W-188	-4.034E+00		8.156E+00	1.118E+01	1.698E+00	-0.361
IR-192	-1.310E-02		3.214E-02	4.980E-02	7.158E-03	-0.263
AU-195	3.731E-01		2.087E-01	3.478E-01	3.068E-02	1.073
TL-200	-3.716E-04		8.129E-04	Half-Life too short		
TL-201	9.666E+00		9.635E+00	1.673E+01	1.637E+00	0.578
TL-202	6.024E-02		7.670E-02	1.348E-01	1.454E-02	0.447
BI-207	3.292E-02		5.246E-02	9.175E-02	8.242E-03	0.359
TL-207	-3.710E-01		7.014E-01	9.400E-01	1.966E-01	-0.395
PO-209	-4.048E+00		6.418E+00	1.001E+01	9.858E-01	-0.404
BI-210	9.760E-01		2.318E+00	3.813E+00	3.549E-01	0.256
PB-210	9.760E-01		2.318E+00	3.813E+00	3.549E-01	0.256
PO-210	9.760E-01		2.317E+00	3.813E+00	3.214E-01	0.256
PB-211	-6.900E-01		1.110E+00	1.432E+00	9.022E-01	-0.482
BI-212	1.232E+00	+	5.749E-01	7.058E-01	7.714E-02	1.746
PO-215	-3.710E-01		7.014E-01	9.400E-01	1.966E-01	-0.395
RN-219	4.658E-01		3.860E-01	6.884E-01	1.123E-01	0.677
RN-220	1.380E+01		2.496E+01	4.295E+01	4.513E+00	0.321
RA-223	-3.710E-01		7.014E-01	9.400E-01	1.966E-01	-0.395
AC-227	6.873E-03		3.497E-01	5.688E-01	1.084E-01	0.012
TH-227	6.873E-03		3.497E-01	5.688E-01	1.212E-01	0.012
TH-229	-7.983E-02		4.647E-01	7.625E-01	8.372E-02	-0.105
PA-231	-5.767E-01		1.445E+00	2.263E+00	4.484E-01	-0.255
TH-231	-3.710E-01		7.014E-01	9.400E-01	1.966E-01	-0.395
U-231	6.069E-01		1.429E+00	2.088E+00	1.870E-01	0.291
PA-233	5.567E-02		6.178E-02	1.040E-01	1.526E-02	0.535
PA-234	-7.577E-02		2.799E-01	4.539E-01	8.746E-02	-0.167
PA-234M	7.185E+00		4.959E+00	8.945E+00	9.516E-01	0.803
NP-236	7.242E-03		7.216E-02	1.213E-01	1.154E-02	0.060
NP-239	-1.416E-01		1.689E-01	2.771E-01	2.345E-02	-0.511
AM-241	-5.240E-02		1.329E-01	1.906E-01	1.498E-02	-0.275

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.817E-02		8.084E-02	1.402E-01	1.214E-02	0.201
AM-246	9.392E-02		1.411E-01	2.475E-01	2.195E-02	0.380
CM-247	3.362E-03		3.474E-02	5.907E-02	6.322E-03	0.057
CF-249	3.099E-02		3.742E-02	6.632E-02	7.222E-03	0.467
CF-251	3.872E-02		1.164E-01	1.965E-01	2.002E-02	0.197



# 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]G246341004          *
* Acquisition date   : 18-FEB-2010 13:10:03 Detector SN# :                  *
* Detector ID        : GAM11 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance   : 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000              *
* Elapsed real time  : 0 02:00:01.77 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341004 Analyst initials: MXR1                  *
* Batch Number       : 950786 Sample Quantity : 1.1941E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                  *
* LCS DPM             : 0.000 LCS Isotope :                  *
* LCSD DPM            : 0.000 LCSD Isotope :                  *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.862E+01	2.959E+00	3.201E-01	1.510E+00
CD-109	3.469E+00	9.105E-01	5.044E-01	4.645E-01
SN-126	3.400E-01	8.923E-02	4.959E-02	4.553E-02
BA-137M	1.669E-01	5.931E-02	2.932E-02	3.026E-02
CS-137	1.765E-01	6.271E-02	3.099E-02	3.199E-02
CE-141	8.487E-02	8.190E-02	4.958E-02	4.179E-02
HG-203	4.719E-02	5.489E-02	3.171E-02	2.801E-02
TL-208	6.004E-01	1.015E-01	2.980E-02	5.178E-02
BI-211	4.250E+00	7.281E-01	1.430E-01	3.715E-01
PB-212	1.828E+00	2.762E-01	4.349E-02	1.409E-01
PO-212	1.828E+00	2.762E-01	4.349E-02	1.409E-01
BI-214	1.278E+00	2.048E-01	5.719E-02	1.045E-01
PB-214	1.478E+00	2.643E-01	4.985E-02	1.348E-01
PO-214	1.478E+00	2.643E-01	4.985E-02	1.348E-01
PO-216	1.828E+00	2.762E-01	4.349E-02	1.409E-01
PO-218	1.478E+00	2.643E-01	4.985E-02	1.348E-01
RA-224	5.323E+00	1.518E+00	4.950E-01	7.744E-01
RA-226	1.278E+00	2.048E-01	5.719E-02	1.045E-01
AC-228	1.870E+00	3.452E-01	9.669E-02	1.761E-01
RA-228	1.870E+00	3.452E-01	9.669E-02	1.761E-01
TH-228	1.860E+00	2.810E-01	4.423E-02	1.434E-01
TH-230	1.278E+00	2.048E-01	5.719E-02	1.045E-01
TH-232	1.870E+00	3.452E-01	9.669E-02	1.761E-01
TH-234	4.200E+00	1.784E+00	8.675E-01	9.103E-01
U-234	1.278E+00	2.048E-01	5.719E-02	1.045E-01
U-235	2.717E-01	2.653E-01	1.506E-01	1.354E-01
NP-237	9.983E-01	3.308E-01	1.502E-01	1.688E-01
U-238	4.200E+00	1.784E+00	8.675E-01	9.103E-01
AM-243	3.325E-01	6.440E-02	3.798E-02	3.286E-02
ANH-511	1.144E-01	6.089E-02	2.259E-02	3.107E-02

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

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.371E-01	2.901E-01	2.404E-01	1.480E-01 NOT IDENT.
NA-22	-2.808E-02	4.144E-02	2.975E-02	2.114E-02 NOT IDENT.
NA-24	1.061E+06	5.571E+06	0.000E+00	2.842E+06 SHORT HLIF
AL-26	6.121E-03	2.021E-02	1.829E-02	1.031E-02 NOT IDENT.
TI-44	4.048E-01	5.406E-02	3.160E-02	2.758E-02 FAIL ABUN
SC-46	5.757E-03	3.989E-02	3.470E-02	2.035E-02 FAIL ABUN
V-48	-3.447E-02	7.220E-02	5.846E-02	3.684E-02 NOT IDENT.
CR-51	2.694E-01	3.627E-01	3.139E-01	1.850E-01 NOT IDENT.
MN-52	-1.986E-01	2.914E-01	2.122E-01	1.487E-01 NOT IDENT.
MN-54	-1.103E-02	3.522E-02	2.964E-02	1.797E-02 NOT IDENT.
CO-56	2.843E-02	3.510E-02	3.241E-02	1.791E-02 FAIL ABUN
CO-57	-1.738E-02	2.257E-02	1.943E-02	1.151E-02 NOT IDENT.
CO-58	-7.233E-03	4.128E-02	3.326E-02	2.106E-02 NOT IDENT.
FE-59	-5.548E-04	9.333E-02	7.853E-02	4.762E-02 FAIL ABUN
CO-60	3.071E-02	4.337E-02	3.849E-02	2.213E-02 NOT IDENT.
ZN-65	-5.145E-02	1.035E-01	7.026E-02	5.281E-02 NOT IDENT.
GE-68	-2.981E-01	1.248E+00	1.028E+00	6.366E-01 NOT IDENT.
AS-73	2.719E-01	6.102E-01	5.263E-01	3.113E-01 NOT IDENT.
AS-74	2.608E-02	9.265E-02	7.997E-02	4.727E-02 NOT IDENT.
SE-75	9.330E-03	4.141E-02	3.371E-02	2.113E-02 NOT IDENT.
BR-77	4.735E+00	1.564E+01	1.369E+01	7.980E+00 FAIL ABUN
SR-82	-3.329E-01	3.714E-01	2.754E-01	1.895E-01 NOT IDENT.
RB-83	1.440E-02	5.945E-02	5.182E-02	3.033E-02 NOT IDENT.
RB-84	3.991E-02	7.020E-02	6.325E-02	3.581E-02 NOT IDENT.
KR-85	1.061E+01	6.926E+00	5.933E+00	3.533E+00 NOT IDENT.
SR-85	5.549E-02	3.624E-02	3.104E-02	1.849E-02 NOT IDENT.
RB-86	-2.528E-01	8.329E-01	6.815E-01	4.250E-01 NOT IDENT.
Y-88	1.626E-04	3.102E-02	2.595E-02	1.583E-02 NOT IDENT.
ZR-88	-3.147E-03	2.781E-02	2.416E-02	1.419E-02 NOT IDENT.
Y-91	-2.783E+00	1.735E+01	1.423E+01	8.851E+00 NOT IDENT.
NB-94	-1.274E-02	3.474E-02	2.800E-02	1.773E-02 NOT IDENT.
NB-95	3.628E-02	4.154E-02	3.334E-02	2.119E-02 NOT IDENT.
NB-95M	-4.883E-02	1.285E-01	9.494E-02	6.558E-02 NOT IDENT.
ZR-95	4.444E-03	7.197E-02	5.974E-02	3.672E-02 NOT IDENT.
NB-97	3.689E+05	6.667E+05	0.000E+00	3.402E+05 SHORT HLIF
ZR-97	4.722E+06	1.180E+07	0.000E+00	6.018E+06 SHORT HLIF
MO-99	-1.595E+00	1.926E+01	1.581E+01	9.828E+00 NOT IDENT.
TC-99M	-5.828E+17	7.381E+18	0.000E+00	0.000E+00 SHORT HLIF
RH-101	9.145E-03	3.135E-02	2.642E-02	1.599E-02 NOT IDENT.
RH-102	-4.748E-03	2.445E-02	2.074E-02	1.248E-02 NOT IDENT.
RU-103	-1.472E-02	3.902E-02	3.248E-02	1.991E-02 FAIL ABUN
RH-106	1.245E-01	2.807E-01	2.450E-01	1.432E-01 FAIL ABUN
RU-106	1.245E-01	2.804E-01	2.450E-01	1.431E-01 FAIL ABUN
AG-108M	1.789E-02	3.119E-02	2.801E-02	1.591E-02 NOT IDENT.
AG-110M	1.806E-02	3.576E-02	2.780E-02	1.824E-02 NOT IDENT.
IN-111	6.009E-01	1.712E+00	1.327E+00	8.735E-01 NOT IDENT.
IN-113M	-3.802E-02	4.045E-02	3.307E-02	2.064E-02 NOT IDENT.
SN-113	-3.802E-02	4.045E-02	3.307E-02	2.064E-02 NOT IDENT.
IN-114M	1.224E-01	1.775E-01	1.430E-01	9.057E-02 NOT IDENT.
CD-115	-1.373E+01	1.711E+01	1.354E+01	8.729E+00 NOT IDENT.
SN-117M	2.017E-02	5.257E-02	4.672E-02	2.682E-02 NOT IDENT.
SB-122	-3.037E-01	3.076E+00	2.589E+00	1.570E+00 NOT IDENT.
I-123	4.621E+07	5.790E+07	0.000E+00	2.954E+07 SHORT HLIF
TE-123M	1.997E-02	2.502E-02	2.258E-02	1.277E-02 NOT IDENT.
I-124	3.713E-01	9.031E-01	7.843E-01	4.608E-01 NOT IDENT.
SB-124	-2.583E-02	7.921E-02	6.302E-02	4.042E-02 FAIL ABUN
SB-125	-5.041E-02	7.778E-02	6.419E-02	3.968E-02 FAIL ABUN
TE-125M	4.277E+00	8.173E+00	7.452E+00	4.170E+00 NOT IDENT.
I-126	8.172E-02	2.280E-01	1.733E-01	1.163E-01 NOT IDENT.
SB-126	1.005E-02	1.707E-01	1.310E-01	8.710E-02 FAIL ABUN
SB-127	2.103E+00	1.798E+00	1.637E+00	9.173E-01 NOT IDENT.
XE-127	-2.732E-02	4.376E-02	3.638E-02	2.233E-02 FAIL ABUN
I-131	-1.029E-01	1.331E-01	1.021E-01	6.791E-02 NOT IDENT.
TE-132	-5.113E-01	9.616E-01	7.819E-01	4.906E-01 NOT IDENT.
BA-133	-1.737E-02	4.389E-02	3.062E-02	2.239E-02 NOT IDENT.
I-133	-2.237E+04	2.587E+04	0.000E+00	1.320E+04 SHORT HLIF
CS-134	9.116E-02	7.135E-02	4.639E-02	3.641E-02 FAIL ABUN
CS-135	8.513E-02	1.571E-01	1.224E-01	8.018E-02 NOT IDENT.
I-135	3.756E+17	6.846E+17	0.000E+00	0.000E+00 SHORT HLIF
CS-136	1.916E-02	1.170E-01	1.005E-01	5.967E-02 FAIL ABUN
CE-139	-1.168E-02	2.707E-02	2.314E-02	1.381E-02 NOT IDENT.
BA-140	-6.864E-02	2.605E-01	2.164E-01	1.329E-01 NOT IDENT.
LA-140	-3.753E-03	7.882E-02	6.630E-02	4.022E-02 FAIL ABUN
CE-143	9.109E+02	4.559E+02	0.000E+00	2.326E+02 SHORT HLIF
CE-144	2.101E-02	1.905E-01	1.619E-01	9.720E-02 NOT IDENT.

PM-144	-1.717E-02	3.399E-02	2.700E-02	1.734E-02	NOT IDENT.
PR-144	-1.165E+00	2.305E+00	1.832E+00	1.176E+00	NOT IDENT.
PM-146	2.250E-02	3.881E-02	3.484E-02	1.980E-02	NOT IDENT.
ND-147	1.052E-02	5.833E-01	4.983E-01	2.976E-01	FAIL ABUN
PM-149	-6.101E+01	1.561E+02	1.270E+02	7.965E+01	NOT IDENT.
EU-152	-1.210E-02	1.037E-01	7.505E-02	5.291E-02	FAIL ABUN
GD-153	-8.119E-02	8.248E-02	5.792E-02	4.208E-02	FAIL ABUN
EU-154	-7.720E-02	1.159E-01	8.327E-02	5.912E-02	NOT IDENT.
EU-155	-5.281E-04	9.103E-02	8.172E-02	4.644E-02	FAIL ABUN
TB-160	7.739E-03	1.344E-01	1.162E-01	6.855E-02	FAIL ABUN
HO-166M	1.395E-04	6.211E-02	5.158E-02	3.169E-02	FAIL ABUN
TM-171	-8.984E+00	2.415E+01	1.815E+01	1.232E+01	NOT IDENT.
LU-176	2.221E-02	2.227E-02	1.957E-02	1.136E-02	FAIL ABUN
LU-177	5.284E+00	1.600E+00	1.229E+00	8.162E-01	FAIL ABUN
LU-177M	-1.509E-01	1.765E-01	1.238E-01	9.005E-02	NOT IDENT.
HF-181	1.418E-03	4.167E-02	3.594E-02	2.126E-02	NOT IDENT.
W-181	5.630E-02	3.042E-01	2.359E-01	1.552E-01	NOT IDENT.
TA-182	6.874E-03	1.941E-01	1.622E-01	9.902E-02	FAIL ABUN
RE-183	-1.612E-02	9.864E-02	8.551E-02	5.033E-02	FAIL ABUN
RE-184	-9.175E-02	2.071E-01	1.699E-01	1.056E-01	NOT IDENT.
OS-185	-1.766E-02	3.947E-02	3.166E-02	2.014E-02	NOT IDENT.
RE-188	7.708E-02	1.539E-01	1.375E-01	7.853E-02	NOT IDENT.
W-188	-4.034E+00	7.993E+00	5.682E+00	4.078E+00	FAIL ABUN
IR-192	-1.310E-02	3.150E-02	2.529E-02	1.607E-02	FAIL ABUN
AU-195	3.731E-01	2.045E-01	1.790E-01	1.043E-01	FAIL ABUN
TL-200	-3.716E+02	1.593E+03	0.000E+00	8.129E+02	SHORT HLIF
TL-201	9.666E+00	9.443E+00	8.561E+00	4.818E+00	NOT IDENT.
TL-202	6.024E-02	7.516E-02	6.821E-02	3.835E-02	NOT IDENT.
BI-207	3.292E-02	5.141E-02	4.595E-02	2.623E-02	FAIL ABUN
TL-207	-3.710E-01	6.874E-01	4.773E-01	3.507E-01	FAIL ABUN
PO-209	-4.048E+00	6.290E+00	5.025E+00	3.209E+00	NOT IDENT.
BI-210	9.760E-01	2.271E+00	1.978E+00	1.159E+00	NOT IDENT.
PB-210	9.760E-01	2.271E+00	1.978E+00	1.159E+00	NOT IDENT.
PO-210	9.760E-01	2.271E+00	1.978E+00	1.159E+00	NOT IDENT.
PB-211	-6.900E-01	1.088E+00	7.255E-01	5.552E-01	NOT IDENT.
BI-212	1.232E+00	5.634E-01	3.551E-01	2.875E-01	FAIL ABUN
PO-215	-3.710E-01	6.874E-01	4.773E-01	3.507E-01	FAIL ABUN
RN-219	4.658E-01	3.783E-01	3.487E-01	1.930E-01	FAIL ABUN
RN-220	1.380E+01	2.446E+01	2.168E+01	1.248E+01	NOT IDENT.
RA-223	-3.710E-01	6.874E-01	4.773E-01	3.507E-01	FAIL ABUN
AC-227	6.873E-03	3.427E-01	2.896E-01	1.748E-01	FAIL ABUN
TH-227	6.873E-03	3.427E-01	2.896E-01	1.748E-01	FAIL ABUN
TH-229	-7.983E-02	4.555E-01	3.894E-01	2.324E-01	FAIL ABUN
PA-231	-5.767E-01	1.416E+00	1.151E+00	7.223E-01	NOT IDENT.
TH-231	-3.710E-01	6.874E-01	4.773E-01	3.507E-01	FAIL ABUN
U-231	6.069E-01	1.400E+00	1.075E+00	7.144E-01	FAIL ABUN
PA-233	5.567E-02	6.054E-02	5.285E-02	3.089E-02	FAIL ABUN
PA-234	-7.577E-02	2.743E-01	2.277E-01	1.400E-01	FAIL ABUN
PA-234M	7.185E+00	4.860E+00	4.483E+00	2.480E+00	NOT IDENT.
NP-236	7.242E-03	7.072E-02	6.208E-02	3.608E-02	NOT IDENT.
NP-239	-1.416E-01	1.655E-01	1.424E-01	8.445E-02	FAIL ABUN
AM-241	-5.240E-02	1.302E-01	9.863E-02	6.644E-02	NOT IDENT.
CM-243	2.817E-02	7.922E-02	7.213E-02	4.042E-02	FAIL ABUN
AM-246	9.392E-02	1.383E-01	1.239E-01	7.054E-02	NOT IDENT.
CM-247	3.362E-03	3.405E-02	2.992E-02	1.737E-02	FAIL ABUN
CF-249	3.099E-02	3.668E-02	3.361E-02	1.871E-02	NOT IDENT.
CF-251	3.872E-02	1.141E-01	1.005E-01	5.820E-02	NOT IDENT.

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

```

46.50	205.5342
46.50	205.5342
46.50	205.5342
48.70	268.4931
49.72	238.6401
51.35	262.0675
52.39	242.9974
52.97	250.1295
53.15	250.2763
53.44	247.1713
54.07	237.6335
56.28	251.6608
56.28	251.6633
57.37	0.0000
57.53	269.5597
57.53	269.5615
57.60	269.6180
57.98	276.7101
57.98	276.7101
59.32	294.8506
59.32	294.8506
59.40	294.9220
59.54	319.2549
59.72	299.7473
60.01	278.7959
61.10	319.2255
61.14	319.2628
61.30	319.4135
63.00	348.5208
63.29	348.8130
63.29	348.8130
63.58	349.1053
64.28	331.3965
65.12	295.2793
65.20	299.9610
65.20	299.9610
66.05	333.0615
66.72	332.1385
66.83	332.2435
66.91	332.3157
67.20	348.0537
67.20	348.0537
67.75	346.2586
67.85	346.3541
68.90	333.3648
68.90	333.3648
69.30	332.5602
69.67	360.9306
70.82	417.1142
70.82	417.1142
70.83	417.1250
72.80	424.0201
72.87	424.0970
72.87	424.0970
74.67	368.0905
74.81	368.2234
74.81	368.2234
74.81	368.2234
74.81	368.2234
74.81	368.2234
74.81	368.2234
74.97	368.3753
75.28	368.6695
75.70	369.0657
77.11	370.3874
77.11	370.3874

77.11	370.3874
77.11	370.3874
77.11	370.3874
77.11	370.3874
77.11	370.3874
78.38	371.5690
79.62	308.3968
79.80	308.5342
79.80	308.5342
80.11	309.5697
80.18	309.6228
80.30	309.7134
80.30	309.7134
80.57	309.9181
81.00	286.1949
81.07	286.2439
81.07	286.2439
81.07	286.2439
81.07	286.2439
82.60	315.4714
83.37	319.2766
83.78	327.6613
83.78	327.6613
83.78	327.6613
83.78	327.6613
84.21	327.9958
84.90	286.4547
85.43	286.8112
86.29	287.3891
86.50	287.5296
86.54	290.8058
86.59	290.8404
86.72	290.9278
86.79	290.9733
86.94	291.0753
87.30	275.0445
87.30	275.0445
87.30	275.0445
87.30	275.0445
87.30	275.0445
87.30	275.0445
87.57	275.2147
87.88	275.4124
88.03	275.5069
88.36	275.7166
88.47	275.7854
89.95	276.7172
91.11	277.4410
92.29	278.1733
92.38	278.2283
92.38	278.2283
93.35	278.8266
94.00	279.2255
94.67	279.6329
94.67	279.6363
94.90	279.7756
94.90	279.7756
94.90	279.7756
94.90	279.7756
95.87	268.7542
95.87	268.7542
96.73	304.1586
97.43	329.5811
98.44	261.4796
98.44	261.4812
98.88	222.9047
99.55	249.1367
99.55	249.1367
99.86	249.3004
100.00	249.3731
100.10	272.8638
103.18	240.9168
103.76	247.1085
105.00	268.0250
105.31	271.5785
108.00	261.9899
109.28	263.5069

111.00	286.6451
111.00	286.6451
111.76	291.3540
112.95	264.5402
115.19	277.7505
116.30	271.4201
117.00	279.5676
117.00	279.5676
117.66	267.7818
121.11	259.0306
121.62	270.6209
121.78	270.6997
122.06	276.9542
122.32	284.9515
122.32	284.9515
122.32	284.9515
122.32	284.9515
123.07	274.8362
127.23	259.2523
129.76	275.0206
131.20	221.0995
133.02	223.1296
133.54	255.6909
135.34	254.8631
136.00	237.2422
136.25	248.0895
136.48	244.6014
140.51	223.2445
140.51	0.0000
142.18	227.9238
142.65	225.3852
143.76	220.3498
144.24	220.5203
144.24	220.5203
144.24	220.5203
144.24	220.5203
145.22	237.2295
145.44	242.7673
147.16	232.4945
152.43	251.8914
152.70	258.4352
153.22	220.9058
154.21	199.1162
154.21	199.1162
154.21	199.1162
154.21	199.1162
155.03	228.9038
156.02	259.7558
158.56	215.2863
159.00	0.0000
159.00	206.1422
160.31	230.7366
161.27	237.5891
162.32	232.3610
162.64	230.6027
163.35	226.1709
163.89	223.5446
165.85	242.9469
167.43	192.7339
171.28	218.3813
171.86	182.6063
172.10	182.6691
176.55	214.2883
176.60	214.3044
181.06	236.8975
184.41	205.0502
185.71	213.1248
186.00	213.2057
190.27	181.9134
192.34	204.2963
193.63	213.4083
197.04	226.0935
198.01	197.9540
198.60	198.1020
200.40	208.3856
201.83	232.3941
202.84	219.8718
205.31	188.4071

208.36	196.5619
208.81	191.7042
209.75	168.5551
209.75	168.5551
210.97	174.7823
215.65	185.2842
216.55	199.5203
218.09	218.9713
222.10	200.8320
223.80	186.0627
226.40	186.6223
227.00	191.8262
227.08	191.8435
227.20	183.7489
228.16	187.0004
228.18	187.0042
228.18	187.0042
231.56	0.0000
235.69	210.6362
236.00	221.4756
236.00	221.4756
238.63	184.0748
238.63	184.0748
238.63	184.0748
238.63	184.0748
239.00	184.1495
240.98	184.5519
241.98	184.7558
241.98	184.7558
241.98	184.7558
244.69	156.8339
245.39	155.3986
247.94	162.0604
248.90	135.1892
249.79	145.7265
252.40	141.9572
252.85	149.3351
252.85	149.3351
254.15	0.0000
256.20	146.7192
256.20	146.7192
260.50	158.9567
260.90	154.8088
262.80	137.1755
264.65	133.2059
268.24	138.4677
268.79	133.7673
269.46	140.2339
269.46	140.2339
269.46	140.2339
269.46	140.2339
271.23	140.4836
273.65	153.6240
276.40	154.0459
277.35	145.1951
277.60	134.9491
277.60	134.9491
278.00	135.0029
278.60	139.9068
279.20	141.5981
279.53	141.6438
280.46	124.0511
281.68	143.5549
283.67	143.2932
284.30	135.8335
285.00	134.8470
285.90	143.6017
286.10	133.9095
286.10	133.9095
287.40	124.3470
288.45	0.0000
290.67	154.5634
290.80	139.9390
291.72	136.8025
293.26	0.0000
293.70	133.7955
295.21	129.6285
295.21	129.6285

295.21	129.6285
295.96	129.7205
296.50	129.7858
297.23	129.8754
298.57	130.0376
299.80	130.1853
299.80	130.1853
300.09	130.2216
300.09	130.2216
300.09	130.2216
300.09	130.2216
300.12	130.2240
301.29	105.1680
302.84	106.9640
303.76	130.1133
303.91	131.7773
304.40	125.2465
304.40	125.2465
304.84	129.2543
306.84	100.1996
308.46	136.7375
311.98	109.5179
316.51	116.6275
318.01	129.0155
319.02	128.0180
319.41	126.9489
320.08	106.9668
323.87	127.4475
323.87	127.4475
323.87	127.4475
323.87	127.4475
325.23	120.8826
328.77	103.2904
333.44	128.5051
334.20	120.1288
334.20	120.1288
334.30	120.1397
338.28	121.1108
338.28	121.1108
338.28	121.1108
338.28	121.1108
338.32	121.1152
338.32	121.1152
338.32	121.1152
340.50	124.1722
340.57	124.1811
344.27	117.7409
345.85	112.7688
350.59	0.0000
351.07	96.0962
351.92	96.1628
351.92	96.1628
351.92	96.1628
355.39	0.0000
356.01	105.0988
364.48	119.1147
366.43	98.4507
367.43	104.3243
367.94	0.0000
369.80	124.2630
374.96	116.6036
383.85	97.7415
387.95	95.3965
388.63	98.0972
391.69	115.1544
391.69	115.1544
392.90	101.9586
398.62	107.7379
400.65	85.6055
401.10	86.5268
401.81	83.8952
402.60	105.3764
404.84	123.0812
410.95	81.9403
411.60	73.3499
413.65	103.7057
414.70	112.4335
415.30	95.1763



415.76	88.9575
417.63	0.0000
418.52	89.4348
423.70	92.4842
427.08	83.6151
427.89	88.2097
432.53	101.2679
433.93	91.3208
439.47	90.7550
439.56	90.7596
439.89	88.9468
443.98	80.0000
444.90	80.0505
445.03	80.0571
445.03	80.0571
445.03	80.0571
445.03	80.0571
453.90	75.9091
463.38	78.2501
468.07	71.7633
473.00	80.6171
475.06	72.2768
475.35	76.0450
476.78	89.2712
477.59	82.7363
477.96	76.1736
482.03	87.6856
484.57	98.2157
487.03	79.4511
490.36	0.0000
492.35	87.3099
497.08	85.6645
507.63	0.0000
510.53	0.0000
510.84	81.5921
511.00	81.5999
511.85	84.5242
511.85	84.5242
513.99	61.5513
513.99	61.5513
520.41	61.7891
520.65	61.7988
527.90	74.6736
528.96	0.0000
529.64	82.5150
529.87	0.0000
531.02	73.8384
537.32	74.1121
543.00	68.4875
546.56	0.0000
549.76	67.7724
552.65	88.5443
555.20	61.0861
563.23	67.3007
563.90	73.2661
568.70	66.5154
569.32	60.5793
569.50	65.5508
569.67	65.5569
573.80	83.6283
574.00	80.6490
574.64	77.6906
578.91	62.2991
579.30	0.0000
583.14	82.0576
585.48	64.1250
591.81	65.3511
592.07	68.3777
593.00	77.4653
595.88	69.5243
600.56	87.8815
602.52	0.0000
602.71	80.9033
602.71	80.9033
603.60	76.8929
604.41	76.1180
604.70	89.0876
609.31	85.2458

609.31	85.2458
609.31	85.2458
609.31	85.2458
610.33	77.9789
612.46	84.5736
614.37	74.8893
618.01	67.2830
621.84	54.1387
621.84	54.1387
631.29	69.7992
633.02	65.7520
633.10	65.7539
634.78	61.6974
635.90	67.9054
636.97	60.7357
645.85	62.0435
646.12	65.1533
656.30	53.2203
657.75	54.9221
657.90	0.0000
661.65	73.9966
661.65	73.9966
664.57	0.0000
666.33	71.8675
666.33	71.8675
675.00	43.0095
677.61	58.8181
685.20	47.4376
692.80	48.6672
695.00	67.7813
696.49	78.4263
696.49	78.4263
697.00	83.7470
697.49	82.7060
698.33	75.3140
698.50	75.3183
699.00	70.0303
702.63	85.0317
706.10	69.1994
706.58	0.0000
706.67	78.8011
709.31	86.3616
711.68	73.6494
713.82	68.3789
717.42	75.9857
720.50	64.3030
721.93	0.0000
722.20	65.2123
722.78	65.2290
722.78	65.2290
722.89	65.2327
722.95	65.2346
723.30	70.3947
724.18	73.8580
727.18	72.0238
733.00	58.6334
735.90	70.1515
739.58	68.1045
742.81	61.7088
744.21	67.1635
747.13	60.7424
751.79	68.4756
752.31	68.4929
753.82	56.5703
755.35	63.1401
756.15	63.1631
756.87	58.8252
763.93	55.9484
765.79	43.7451
766.42	49.0082
766.84	56.0187
776.49	62.6255
778.00	56.0707
778.57	56.0847
778.89	56.0925
783.80	44.0869
785.46	59.5585
792.07	53.0903

795.84	58.4928
796.30	69.1412
798.80	56.7906
801.93	57.1195
805.60	55.6183
810.29	61.2993
810.76	63.5405
815.85	45.8009
817.79	62.6069
818.51	60.3891
819.60	43.6346
826.30	48.2425
828.27	0.0000
831.60	56.2164
831.96	56.2256
834.83	65.7481
836.80	0.0000
846.75	39.8191
848.13	45.2747
856.28	0.0000
856.80	46.9453
860.37	43.9791
867.32	50.1821
867.82	44.1077
871.10	45.6873
873.19	45.7251
874.81	51.2436
875.33	0.0000
876.40	46.6981
879.36	51.3352
880.27	48.6019
880.51	48.6064
881.50	47.7077
883.24	46.8214
884.67	57.8705
889.25	56.1316
896.60	47.0629
898.02	44.3180
899.00	47.1053
903.28	44.4070
911.07	44.8476
911.07	44.8476
911.07	44.8476
919.63	47.5773
920.93	49.3588
925.00	47.5685
925.24	53.1703
926.50	60.6614
935.52	45.8813
937.48	64.6555
944.10	49.7833
946.00	48.8782
949.00	43.2856
962.29	50.4284
964.01	46.3598
966.15	46.3945
968.20	46.4292
969.11	46.4447
969.11	46.4447
969.11	46.4447
977.42	40.8783
980.50	47.5842
983.50	51.4463
989.30	35.3216
996.32	62.2054
1001.03	39.3013
1001.68	47.9395
1004.76	66.2272
1021.30	0.0000
1024.50	0.0000
1034.80	43.6377
1036.00	42.6852
1037.82	51.4473
1038.57	53.4021
1038.76	0.0000
1045.16	49.6304
1046.59	56.4679
1048.07	48.7036

1050.47	47.7678
1050.47	47.7678
1062.04	46.9734
1063.62	44.0596
1076.63	53.0982
1077.35	54.0950
1078.86	42.3134
1085.78	33.5318
1099.22	52.4980
1112.02	49.7290
1112.84	48.5001
1115.52	63.0612
1120.29	58.8358
1120.29	58.8358
1120.29	58.8358
1120.29	58.8358
1120.51	58.8387
1121.28	69.8257
1124.00	0.0000
1129.67	66.0097
1131.51	0.0000
1147.95	0.0000
1167.94	60.7236
1173.22	55.7520
1175.09	49.6986
1177.93	83.2412
1189.05	53.9834
1204.90	50.1460
1205.75	0.0000
1213.00	61.5498
1221.42	58.6170
1230.97	61.8750
1235.34	56.7913
1236.41	0.0000
1238.25	71.3079
1246.25	51.7920
1260.41	0.0000
1271.85	42.7817
1274.45	38.6368
1274.54	38.6368
1291.56	38.8229
1298.22	0.0000
1312.09	32.7135
1325.50	30.7162
1325.50	30.7162
1332.49	35.0190
1333.61	40.3379
1360.21	26.7285
1362.66	0.0000
1365.15	25.6934
1368.21	19.2858
1368.53	0.0000
1376.25	16.1060
1384.27	26.1309
1394.10	17.2602
1395.20	18.3447
1407.95	19.4880
1434.06	28.3397
1436.60	21.8135
1457.56	0.0000
1460.81	32.9224
1489.15	11.9727
1509.49	18.5124
1596.49	16.0655
1620.62	18.0560
1678.03	0.0000
1691.02	18.3444
1691.02	18.3444
1706.46	0.0000
1750.46	0.0000
1764.49	8.8293
1764.49	8.8293
1764.49	8.8293
1764.49	8.8293
1770.23	13.4710
1771.40	58.9502
1791.20	0.0000
1808.65	4.9512

1836.01

10.9543

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341004

Total Uranium Activity	1.2620E+01	ug/g
Total Uranium Counting Unc.	5.3096E+00	ug/g
Total Uranium Tpu	2.7090E-06	ug/g
Total Uranium Mda	2.5818E+00	ug/g

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*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
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*
*  BATCH ID      : 950786          SAMPLE ID   : G246341004   *
*  ANALYST       : MXR1            DETECTOR    : GAM11        *
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00 *
*  ANALYSIS DATE: 18-FEB-2010 13:10:03.57  SAMPLE ALQT: 119.410 GRAM *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.076E+01
GROSS GAMMA ERROR (pCi/GRAM ) : 1.561E+00
GROSS GAMMA MDA (pCi/GRAM ) : 3.946E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.910E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:11:40.85

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341005.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:10:31
Sample ID          : G246341005      Sample quantity      : 1.40620E+02 GRAM
Detector name      : GAM16           Detector geometry    : CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time  : 0 02:00:02.09  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials   : MXR1
Abundance limit    : 75.00000        Sensitivity        : 5.00000
Batch ID           : 950786          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	63.25*	110	487	0.78	126.69	123	7	1.52E-02	35.6	
2	3	74.83	484	366	0.82	149.84	144	14	6.72E-02	7.5	2.37E+00
3	3	77.10*	718	346	0.87	154.39	144	14	9.97E-02	5.5	
4	0	87.31	272	511	1.16	174.80	171	7	3.78E-02	15.1	
5	4	89.95	209	189	0.88	180.09	178	15	2.90E-02	10.4	1.26E+00
6	4	92.80*	438	425	1.29	185.79	178	15	6.08E-02	10.1	
7	0	128.93	95	413	0.94	258.06	255	8	1.32E-02	38.5	
8	0	153.96	98	442	1.01	308.11	304	10	1.37E-02	41.1	
9	0	185.75*	311	311	0.99	371.69	368	8	4.32E-02	11.8	
10	0	209.13	120	305	1.01	418.45	415	8	1.66E-02	27.0	
11	5	238.56*	1473	211	0.97	477.32	473	16	2.05E-01	3.1	1.48E+00
12	5	241.54*	313	268	1.52	483.28	473	16	4.34E-02	11.9	
13	0	270.11	151	242	1.27	540.40	535	10	2.10E-02	20.9	
14	0	277.49	100	183	1.68	555.17	551	9	1.39E-02	26.4	
15	0	295.04*	469	193	1.10	590.26	586	9	6.52E-02	7.1	
16	0	300.26	92	195	0.90	600.71	596	10	1.27E-02	30.6	
17	0	327.77	105	170	0.84	655.72	651	9	1.45E-02	24.6	
18	0	338.06*	344	177	1.27	676.30	671	10	4.78E-02	9.1	
19	0	351.84*	745	193	1.17	703.87	699	10	1.04E-01	5.1	
20	0	463.20	80	113	0.94	926.57	922	10	1.11E-02	27.8	
21	0	510.63*	152	169	1.64	1021.42	1014	15	2.11E-02	22.6	
22	0	583.07*	468	110	1.26	1166.28	1161	11	6.50E-02	6.5	
23	0	609.23*	544	122	1.39	1218.59	1212	15	7.55E-02	6.2	
24	0	727.49	97	112	1.14	1455.06	1448	14	1.35E-02	25.3	
25	0	768.04	73	64	1.52	1536.16	1531	11	1.01E-02	24.2	
26	0	795.37*	48	59	1.49	1590.80	1584	11	6.71E-03	35.1	
27	0	860.08	67	49	1.37	1720.19	1712	12	9.26E-03	24.6	
28	0	911.16*	325	71	1.61	1822.32	1815	13	4.52E-02	7.8	
29	9	964.59	48	51	2.48	1929.16	1924	26	6.71E-03	31.4	2.32E+00
30	9	969.02*	203	42	1.99	1938.02	1924	26	2.83E-02	9.8	
31	0	1122.13*	63	144	1.65	2244.15	2233	16	8.81E-03	44.5	
32	0	1378.65*	27	31	1.41	2756.98	2751	14	3.78E-03	49.2	
33	0	1407.96	30	12	2.08	2815.57	2809	12	4.20E-03	29.2	
34	0	1460.79*	1420	22	1.87	2921.18	2914	17	1.97E-01	2.8	
35	0	1621.01	24	5	0.69	3241.47	3237	9	3.26E-03	26.3	
36	0	1729.73	31	8	1.01	3458.78	3453	14	4.32E-03	25.6	
37	0	1764.42*	106	9	1.65	3528.11	3522	12	1.47E-02	11.9	
38	0	1847.58*	14	8	1.58	3694.35	3689	10	1.88E-03	53.1	



Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
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Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:11:43

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341005.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:10:31
Sample ID        : G246341005             Sample quantity  : 140.62 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA16                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:02.09   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                 Half life ratio  : 8.00
Errors propagated: Yes                       Systematic Error : 0.00 %
Efficiency type   : Empirical                 Efficiencies at  : Peak Energy
Abundance limit  : 75.00                     WTM error limit  : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.940E+01	3.058E+00	4.137E-01	3.636E-02	71.072
CD-109	+	88.03	*	3.197E+00	1.013E+00	1.003E+00	9.664E-02	3.188
SN-126	+	64.28		8.647E-01	6.291E-01	6.809E-01	9.921E-02	1.270
	+	86.94		1.303E+00	6.693E-01	4.842E-01	2.012E-01	2.690
	+	87.57	*	3.134E-01	9.924E-02	9.873E-02	9.467E-03	3.174
RE-188	+	155.03	*	3.071E-01	2.541E-01	2.284E-01	2.009E-02	1.345
		477.96		4.772E+00	2.754E+00	5.020E+00	4.773E-01	0.951
		633.10		-1.543E+00	2.584E+00	3.976E+00	3.609E-01	-0.388
TL-208	+	277.35		8.350E-01	4.576E-01	4.997E-01	7.429E-02	1.671
	+	510.84		6.321E-01	2.972E-01	1.858E-01	2.350E-02	3.402
	+	583.14	*	5.562E-01	9.067E-02	5.224E-02	5.178E-03	10.647
	+	860.37		7.439E-01	3.735E-01	3.870E-01	3.875E-02	1.922
BI-211		72.87		2.851E+00	2.668E+00	4.285E+00	3.484E-01	0.665
	+	351.07	*	3.902E+00	5.845E-01	2.873E-01	3.141E-02	13.583
BI-212	+	727.18	*	9.882E-01	5.101E-01	3.845E-01	4.017E-02	2.570
		785.46		1.185E+00	1.554E+00	2.761E+00	2.566E-01	0.429
	+	1620.62		2.043E+00	1.087E+00	1.630E+00	1.385E-01	1.253
PB-212	+	74.81		2.362E+00	4.603E-01	4.408E-01	5.507E-02	5.359
	+	77.11		1.986E+00	2.749E-01	2.501E-01	2.124E-02	7.943
	+	87.30		1.449E+00	4.813E-01	5.367E-01	7.424E-02	2.700
	+	238.63	*	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
	+	300.09		1.619E+00	1.014E+00	1.068E+00	1.399E-01	1.516
PO-212	+	74.81		2.362E+00	4.603E-01	4.408E-01	5.507E-02	5.359
	+	77.11		1.986E+00	2.749E-01	2.501E-01	2.124E-02	7.943
	+	87.30		1.449E+00	4.813E-01	5.367E-01	7.424E-02	2.700
		115.19		-2.861E+00	2.959E+00	4.766E+00	3.977E-01	-0.600
	+	238.63	*	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
	+	300.09		1.619E+00	1.014E+00	1.068E+00	1.399E-01	1.516
BI-214	+	609.31	*	1.218E+00	1.986E-01	9.015E-02	9.531E-03	13.507
		1120.29		1.233E+00	3.918E-01	7.223E-01	7.755E-02	1.707
	+	1764.49		1.691E+00	4.259E-01	2.664E-01	2.205E-02	6.348
PB-214	+	74.81		4.070E+00	7.584E-01	7.595E-01	8.444E-02	5.359
	+	77.11		3.405E+00	5.380E-01	4.287E-01	4.892E-02	7.943
	+	87.30		2.483E+00	8.093E-01	9.195E-01	1.129E-01	2.700

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	241.98		2.150E+00	5.782E-01	4.935E-01	6.114E-02	4.357
	+	295.21		1.454E+00	2.835E-01	1.702E-01	2.272E-02	8.544
	+	351.92	*	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
	+	74.81		4.070E+00	7.584E-01	7.595E-01	8.444E-02	5.359
	+	77.11		3.405E+00	5.380E-01	4.287E-01	4.892E-02	7.943
	+	87.30		2.483E+00	8.093E-01	9.195E-01	1.129E-01	2.700
PO-216	+	241.98		2.150E+00	5.782E-01	4.935E-01	6.114E-02	4.357
	+	295.21		1.454E+00	2.835E-01	1.702E-01	2.272E-02	8.544
	+	351.92	*	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
	+	74.81		2.362E+00	4.603E-01	4.408E-01	5.507E-02	5.359
	+	77.11		1.986E+00	2.749E-01	2.501E-01	2.124E-02	7.943
	+	87.30		1.449E+00	4.813E-01	5.367E-01	7.424E-02	2.700
PO-218	+	238.63	*	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
	+	300.09		1.619E+00	1.014E+00	1.068E+00	1.399E-01	1.516
	+	74.81		4.070E+00	7.584E-01	7.595E-01	8.444E-02	5.359
	+	77.11		3.405E+00	5.380E-01	4.287E-01	4.892E-02	7.943
	+	87.30		2.483E+00	8.093E-01	9.195E-01	1.129E-01	2.700
	+	241.98		2.150E+00	5.782E-01	4.935E-01	6.114E-02	4.357
RA-224	+	295.21		1.454E+00	2.835E-01	1.702E-01	2.272E-02	8.544
	+	351.92	*	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
	+	240.98	*	4.077E+00	1.072E+00	9.326E-01	1.028E-01	4.372
RA-226	+	609.31	*	1.218E+00	1.986E-01	9.015E-02	9.531E-03	13.507
	+	1120.29		1.233E+00	3.918E-01	7.223E-01	7.755E-02	1.707
	+	1764.49		1.691E+00	4.259E-01	2.664E-01	2.205E-02	6.348
AC-228	+	338.32		1.984E+00	9.049E-01	3.342E-01	1.397E-01	5.935
	+	911.07	*	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868
	+	969.11		1.894E+00	5.799E-01	2.883E-01	6.798E-02	6.571
RA-228	+	338.32		1.984E+00	9.049E-01	3.342E-01	1.397E-01	5.935
	+	911.07	*	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868
	+	969.11		1.894E+00	5.799E-01	2.883E-01	6.798E-02	6.571
TH-228	+	74.81		2.403E+00	4.117E-01	4.484E-01	3.751E-02	5.359
	+	77.11		2.021E+00	2.797E-01	2.544E-01	2.161E-02	7.943
	+	87.30		1.474E+00	4.669E-01	5.459E-01	5.217E-02	2.700
TH-230	+	238.63	*	1.716E+00	2.290E-01	8.334E-02	9.867E-03	20.584
	+	300.09		1.646E+00	1.409E+00	1.086E+00	6.497E-01	1.516
	+	609.31	*	1.218E+00	1.986E-01	9.014E-02	9.531E-03	13.507
TH-232	+	1120.29		1.233E+00	3.918E-01	7.223E-01	7.755E-02	1.707
	+	1764.49		1.691E+00	4.259E-01	2.664E-01	2.205E-02	6.348
	+	338.32		1.984E+00	4.220E-01	3.342E-01	3.648E-02	5.935
TH-234	+	911.07	*	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868
	+	969.11		1.894E+00	5.799E-01	2.883E-01	6.798E-02	6.571
	+	63.29	*	2.185E+00	1.603E+00	1.759E+00	3.068E-01	1.242
U-234	+	92.38		3.276E+00	8.923E-01	5.981E-01	1.099E-01	5.476
	+	609.31	*	1.218E+00	1.986E-01	9.014E-02	9.531E-03	13.507
	+	1120.29		1.233E+00	3.918E-01	7.223E-01	7.755E-02	1.707
NP-237	+	1764.49		1.691E+00	4.259E-01	2.664E-01	2.205E-02	6.348
	+	86.50	*	9.202E-01	3.478E-01	3.436E-01	7.801E-02	2.678
	+	95.87		-4.191E-01	8.003E-01	1.177E+00	2.914E-01	-0.356
U-238	+	63.29	*	2.185E+00	1.603E+00	1.759E+00	3.068E-01	1.242

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	92.38		3.276E+00	7.246E-01	5.981E-01	5.519E-02	5.476
	+	74.67	*	3.829E-01	6.548E-02	7.168E-02	5.934E-03	5.342
	+	86.72		3.451E+01	1.093E+01	1.286E+01	1.220E+00	2.684
		117.66		1.823E+00	3.183E+00	5.453E+00	4.537E-01	0.334
ANH-511		142.18		-2.103E+01	1.582E+01	2.438E+01	2.079E+00	-0.863
	+	511.00	*	1.365E-01	6.318E-02	4.015E-02	3.818E-03	3.401

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.314E-01	2.999E-01	5.203E-01	5.263E-02	0.445
NA-22		1274.54	*	-3.544E-02	4.291E-02	6.349E-02	5.283E-03	-0.558
NA-24		1368.53	*	9.766E-01	4.291E-02	Half-Life too short		
AL-26		1129.67		-1.065E+00	1.568E+00	2.400E+00	2.011E-01	-0.444
TI-44		1808.65	*	5.035E-03	2.898E-02	4.914E-02	4.018E-03	0.102
		67.85		1.011E-03	4.121E-02	6.365E-02	4.929E-03	0.016
SC-46	+	78.38	*	3.666E-01	5.074E-02	6.164E-02	5.308E-03	5.948
		889.25	*	-3.589E-02	3.571E-02	5.393E-02	5.098E-03	-0.665
V-48		1120.51		2.189E-01	6.703E-02	1.264E-01	1.068E-02	1.731
		944.10		1.618E-01	8.874E-01	1.499E+00	1.400E-01	0.108
CR-51		983.50	*	-4.590E-02	6.541E-02	1.005E-01	9.249E-03	-0.457
		1312.09		2.925E-02	7.093E-02	1.207E-01	1.013E-02	0.242
MN-52		320.08	*	3.065E-02	3.416E-01	5.438E-01	6.358E-02	0.056
		744.21		4.865E-02	2.933E-01	4.765E-01	4.375E-02	0.102
		848.13		-2.112E+00	7.136E+00	1.164E+01	1.096E+00	-0.181
		935.52		3.513E-01	2.970E-01	5.386E-01	5.045E-02	0.652
		1246.25		-1.805E+00	8.808E+00	1.404E+01	1.157E+00	-0.129
		1333.61		-3.824E+00	6.186E+00	9.226E+00	7.784E-01	-0.414
MN-54		1434.06	*	-1.715E-02	2.559E-01	4.063E-01	3.467E-02	-0.042
		834.83	*	1.545E-02	3.368E-02	5.845E-02	5.490E-03	0.264
CO-56		846.75	*	-1.919E-02	3.244E-02	5.131E-02	4.828E-03	-0.374
		977.42		2.574E+00	2.562E+00	4.225E+00	3.899E-01	0.609
		1037.82		-1.679E-01	2.690E-01	4.146E-01	3.897E-02	-0.405
		1175.09		-7.834E-01	2.111E+00	3.328E+00	2.678E-01	-0.235
		1238.25		1.581E-01	8.894E-02	1.621E-01	1.375E-02	0.976
		1360.21		-4.070E-01	9.248E-01	1.401E+00	1.186E-01	-0.291
CO-57		1771.40		-3.454E-02	2.246E-01	3.184E-01	2.630E-02	-0.108
		122.06	*	-2.264E-02	2.024E-02	3.213E-02	2.670E-03	-0.705
CO-58		136.48		-8.045E-02	1.748E-01	2.854E-01	2.595E-02	-0.282
		810.76	*	-6.049E-03	3.432E-02	5.688E-02	5.329E-03	-0.106
FE-59		142.65		-2.989E-01	2.493E+00	4.062E+00	3.467E-01	-0.074
		192.34		-3.114E-01	8.151E-01	1.307E+00	1.850E-01	-0.238
		1099.22	*	-2.849E-02	8.370E-02	1.328E-01	1.235E-02	-0.215
		1291.56		-1.249E-01	1.140E-01	1.592E-01	1.520E-02	-0.785
CO-60		1173.22		3.368E-02	4.227E-02	7.367E-02	5.923E-03	0.457
		1332.49	*	-2.459E-02	3.726E-02	5.516E-02	4.653E-03	-0.446
ZN-65		1115.52	*	-2.760E-02	9.417E-02	1.285E-01	1.091E-02	-0.215
GE-68		1077.35	*	5.608E-01	1.171E+00	2.007E+00	1.753E-01	0.279

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-73	53.44	*		3.317E-01	7.335E-01	1.174E+00	8.959E-02	0.282
AS-74	595.88	*		6.955E-02	8.229E-02	1.429E-01	1.326E-02	0.487
	634.78			4.109E-01	3.429E-01	6.064E-01	5.497E-02	0.678
SE-75	66.05			9.459E-02	4.639E+00	6.617E+00	6.366E-01	0.014
	96.73			-4.994E-01	6.782E-01	9.890E-01	1.367E-01	-0.505
	121.11			-6.814E-02	1.116E-01	1.818E-01	1.996E-02	-0.375
	136.00			-4.617E-03	3.289E-02	5.448E-02	4.624E-03	-0.085
	198.60			2.150E-01	1.566E+00	2.544E+00	2.727E-01	0.084
	264.65	*		1.040E-02	4.022E-02	5.860E-02	6.838E-03	0.178
	279.53			7.122E-02	1.083E-01	1.611E-01	1.971E-02	0.442
	303.91			-1.398E-01	2.050E+00	2.876E+00	3.997E-01	-0.049
	400.65			-9.878E-03	2.415E-01	4.041E-01	4.704E-02	-0.024
BR-77	87.88	+		1.210E+03	3.832E+02	5.041E+02	4.852E+01	2.401
	200.40			-1.686E+02	2.562E+02	4.046E+02	4.020E+01	-0.417
	239.00	+		4.758E+02	5.984E+01	6.321E+01	6.933E+00	7.527
	249.79			1.894E+01	9.396E+01	1.530E+02	1.721E+01	0.124
	281.68			1.297E+01	1.548E+02	2.213E+02	2.651E+01	0.059
	297.23			9.583E+01	1.311E+02	1.556E+02	1.830E+01	0.616
	303.76			-3.023E+01	3.029E+02	4.239E+02	4.940E+01	-0.071
	439.47			-1.719E+01	2.065E+02	3.422E+02	3.229E+01	-0.050
	484.57			1.741E+02	3.327E+02	5.709E+02	5.430E+01	0.305
	520.65	*		-3.428E+00	1.602E+01	2.595E+01	2.466E+00	-0.132
	574.64			2.351E+02	3.099E+02	5.354E+02	5.017E+01	0.439
	578.91			-6.104E+01	1.518E+02	2.076E+02	1.942E+01	-0.294
	585.48			1.213E+03	3.683E+02	6.352E+02	5.925E+01	1.910
	755.35			1.966E+02	2.600E+02	4.433E+02	4.084E+01	0.443
	817.79			5.401E+01	1.964E+02	3.379E+02	3.164E+01	0.160
SR-82	698.33			1.729E+01	3.352E+01	5.611E+01	5.063E+00	0.308
	776.49	*		9.764E-02	3.637E-01	5.947E-01	5.514E-02	0.164
	1395.20			5.777E-01	8.908E+00	1.448E+01	1.231E+00	0.040
RB-83	520.41	*		-9.813E-03	6.146E-02	1.000E-01	9.503E-03	-0.098
	529.64			-4.140E-02	8.654E-02	1.366E-01	1.296E-02	-0.303
	552.65			-1.344E-01	1.651E-01	2.511E-01	2.370E-02	-0.535
RB-84	881.50	*		-2.251E-02	6.714E-02	1.090E-01	1.030E-02	-0.207
KR-85	513.99	*		3.344E+00	6.664E+00	1.010E+01	9.601E-01	0.331
SR-85	513.99	*		1.750E-02	3.487E-02	5.284E-02	5.024E-03	0.331
RB-86	1076.63	*		1.934E-01	7.828E-01	1.317E+00	1.151E-01	0.147
Y-88	898.02			-2.963E-02	3.643E-02	5.604E-02	5.323E-03	-0.529
	1836.01	*		-2.936E-03	2.791E-02	4.486E-02	3.642E-03	-0.065
ZR-88	392.90	*		-1.451E-02	2.655E-02	4.303E-02	3.980E-03	-0.337
Y-91	1204.90	*		5.837E+00	1.762E+01	2.955E+01	2.403E+00	0.198
NB-94	702.63	*		-1.358E-02	3.164E-02	4.910E-02	4.439E-03	-0.277
	871.10			-9.925E-03	2.923E-02	4.737E-02	4.471E-03	-0.210
NB-95	765.79	*		2.681E-02	4.311E-02	6.447E-02	5.959E-03	0.416
NB-95M	235.69	*		2.266E-02	1.245E-01	1.812E-01	2.154E-02	0.125
ZR-95	724.18			-5.924E-02	9.634E-02	1.249E-01	1.227E-02	-0.474
	756.15	*		3.095E-02	6.366E-02	1.063E-01	1.067E-02	0.291
NB-97	657.90	*		-8.545E-01	6.366E-02	Half-Life too short		
	1024.50			1.775E+01	6.366E-02	Half-Life too short		

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	254.15			9.657E+00	6.366E-02	Half-Life	too short	
	355.39			-1.685E+01	6.366E-02	Half-Life	too short	
	507.63	*		1.503E+01	6.366E-02	Half-Life	too short	
	602.52			2.434E+01	6.366E-02	Half-Life	too short	
	1021.30			-2.315E+01	6.366E-02	Half-Life	too short	
	1147.95			-7.567E+00	6.366E-02	Half-Life	too short	
	1362.66			1.638E+01	6.366E-02	Half-Life	too short	
	1750.46			5.861E+00	6.366E-02	Half-Life	too short	
MO-99	140.51			-1.910E+01	3.639E+01	5.863E+01	1.621E+01	-0.326
	181.06			-5.846E+00	2.556E+01	3.949E+01	7.379E+00	-0.148
	366.43			6.151E+01	1.186E+02	2.057E+02	2.081E+01	0.299
	739.58	*		7.806E+00	1.841E+01	3.049E+01	4.727E+00	0.256
	778.00			-1.872E+01	5.032E+01	7.741E+01	7.181E+00	-0.242
TC-99M	140.51	*		-3.553E+12	5.032E+01	Half-Life	too short	
RH-101	127.23			1.366E-02	2.876E-02	4.421E-02	3.681E-03	0.309
	198.01	*		1.591E-03	2.846E-02	4.607E-02	4.549E-03	0.035
	325.23			2.009E-01	2.200E-01	3.309E-01	3.715E-02	0.607
RH-102	418.52			2.773E-02	2.329E-01	3.924E-01	3.675E-02	0.071
	475.06	*		-2.046E-03	2.472E-02	4.073E-02	3.871E-03	-0.050
	631.29			-3.995E-02	5.206E-02	7.933E-02	7.209E-03	-0.504
	697.49			2.694E-02	7.249E-02	1.194E-01	1.077E-02	0.226
	766.84	+		2.731E-01	1.345E-01	1.886E-01	1.744E-02	1.448
	1046.59			4.411E-02	1.058E-01	1.808E-01	1.611E-02	0.244
	1112.84			-2.941E-01	2.722E-01	3.332E-01	2.833E-02	-0.883
RU-103	497.08	*		1.260E-02	3.749E-02	6.331E-02	9.322E-03	0.199
	610.33	+		1.360E+01	2.864E+00	2.823E+00	4.798E-01	4.819
RH-106	511.85	+		6.844E-01	3.167E-01	3.882E-01	3.692E-02	1.763
	621.84	*		-8.701E-03	2.773E-01	4.494E-01	6.157E-02	-0.019
	1050.47			5.243E-01	2.133E+00	3.594E+00	3.195E-01	0.146
RU-106	511.85	+		6.844E-01	3.167E-01	3.882E-01	3.692E-02	1.763
	621.84	*		-8.701E-03	2.773E-01	4.494E-01	4.109E-02	-0.019
	1050.47			5.243E-01	2.133E+00	3.594E+00	3.195E-01	0.146
AG-108M	433.93	*		3.803E-02	2.639E-02	4.784E-02	4.657E-03	0.795
	614.37			1.453E-03	3.735E-02	5.339E-02	5.075E-03	0.027
	722.95			-5.512E-02	4.416E-02	5.195E-02	4.901E-03	-1.061
AG-110M	657.75	*		-3.074E-02	2.938E-02	4.264E-02	3.903E-03	-0.721
	677.61			-1.900E-01	2.809E-01	4.256E-01	3.906E-02	-0.447
	706.67			1.192E-01	1.839E-01	3.116E-01	2.892E-02	0.382
	763.93			1.166E-01	1.396E-01	2.171E-01	2.055E-02	0.537
	884.67			6.176E-03	4.454E-02	7.532E-02	7.309E-03	0.082
	937.48			-5.751E-02	1.031E-01	1.630E-01	1.573E-02	-0.353
	1384.27			7.448E-02	1.345E-01	2.102E-01	1.838E-02	0.354
IN-111	171.28			7.784E-01	1.358E+00	2.289E+00	2.104E-01	0.340
	245.39	*		4.576E-01	1.520E+00	2.231E+00	2.485E-01	0.205
IN-113M	391.69	*		-1.015E-02	3.812E-02	6.296E-02	5.976E-03	-0.161
SN-113	391.69	*		-1.015E-02	3.812E-02	6.296E-02	5.976E-03	-0.161
IN-114M	190.27	*		2.324E-02	1.615E-01	2.537E-01	2.453E-02	0.092
CD-115	260.90			-1.498E+02	1.972E+02	3.004E+02	3.467E+01	-0.499
	492.35			-1.832E+01	5.587E+01	9.008E+01	8.572E+00	-0.203

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M	527.90	*		-9.376E+00	1.725E+01	2.716E+01	2.578E+00	-0.345
	156.02			-9.903E-02	2.298E+00	3.395E+00	2.995E-01	-0.029
SB-122	158.56	*		1.079E-02	5.546E-02	8.300E-02	7.372E-03	0.130
	563.90	*		1.732E+00	2.945E+00	5.028E+00	4.730E-01	0.345
I-123	692.80			1.633E+01	6.814E+01	1.118E+02	1.007E+01	0.146
	159.00	*		1.306E+01	6.814E+01	Half-Life too short		
TE-123M	528.96			-2.544E+03	6.814E+01	Half-Life too short		
	159.00	*		5.643E-03	2.647E-02	3.964E-02	3.545E-03	0.142
I-124	602.71	*		4.792E-01	8.427E-01	1.277E+00	1.181E-01	0.375
	722.78			-3.456E+00	5.931E+00	7.714E+00	7.029E-01	-0.448
	1325.50			-2.933E+01	4.094E+01	5.957E+01	5.016E+00	-0.492
	1376.25			6.810E+01	4.500E+01	7.701E+01	6.536E+00	0.884
	1509.49			1.211E+01	1.988E+01	3.563E+01	3.047E+00	0.340
	1691.02			-4.339E-01	4.049E+00	6.560E+00	5.516E-01	-0.066
SB-124	602.71			2.067E-02	3.635E-02	5.509E-02	5.096E-03	0.375
	645.85			-8.185E-03	4.597E-01	7.437E-01	7.056E-02	-0.011
	709.31			-5.012E-01	2.508E+00	3.962E+00	3.591E-01	-0.126
	713.82			1.070E+00	1.372E+00	2.356E+00	2.915E-01	0.454
	722.78			-2.161E-01	3.709E-01	4.824E-01	4.480E-02	-0.448
	968.20	+		1.994E+01	4.307E+00	7.026E+00	6.508E-01	2.838
	1045.16			8.720E-02	2.259E+00	3.739E+00	3.334E-01	0.023
	1325.50			-1.959E+00	2.734E+00	3.978E+00	3.350E-01	-0.492
	1368.21			8.282E-02	1.536E+00	2.494E+00	3.339E-01	0.033
	1436.60			1.887E+00	3.130E+00	5.665E+00	4.834E-01	0.333
SB-125	1691.02	*		-6.400E-03	5.972E-02	9.676E-02	8.474E-03	-0.066
	427.89	*		3.800E-02	7.667E-02	1.320E-01	1.261E-02	0.288
	463.38	+		6.511E-01	3.682E-01	4.873E-01	4.926E-02	1.336
	600.56			-5.282E-03	1.538E-01	2.499E-01	2.462E-02	-0.021
	635.90			2.036E-01	2.435E-01	4.203E-01	4.086E-02	0.484
TE-125M	109.28	*		4.960E+00	7.689E+00	1.324E+01	1.348E+00	0.375
I-126	388.63			7.114E-02	1.926E-01	3.304E-01	3.092E-02	0.215
	666.33	*		-7.666E-02	1.837E-01	2.865E-01	2.548E-02	-0.268
	753.82			2.020E+00	1.407E+00	2.525E+00	2.325E-01	0.800
	223.80			-1.001E+00	4.043E+00	6.470E+00	6.833E-01	-0.155
SB-126	278.60	+		6.150E+00	3.327E+00	4.296E+00	5.153E-01	1.432
	296.50	+		1.613E+01	2.979E+00	3.626E+00	4.269E-01	4.448
	414.70			1.306E-02	6.943E-02	1.175E-01	1.099E-02	0.111
	415.30			3.425E+00	5.738E+00	9.949E+00	9.306E-01	0.344
	555.20			2.986E+00	3.666E+00	6.380E+00	6.018E-01	0.468
	573.80			-1.641E-01	9.852E-01	1.589E+00	1.490E-01	-0.103
	593.00			1.737E-02	8.950E-01	1.462E+00	1.359E-01	0.012
	656.30			-2.518E-01	3.058E+00	4.910E+00	4.378E-01	-0.051
	666.33			-3.218E-02	7.710E-02	1.203E-01	1.070E-02	-0.268
	675.00			5.737E-01	2.080E+00	3.432E+00	3.066E-01	0.167
	695.00			-4.950E-02	8.420E-02	1.283E-01	1.156E-02	-0.386
	697.00			-1.767E-01	2.930E-01	4.459E-01	4.021E-02	-0.396
	720.50	*		1.349E-01	1.479E-01	2.402E-01	2.186E-02	0.562
	856.80			-5.873E-03	4.508E-01	6.561E-01	6.182E-02	-0.009
	989.30			-9.269E-03	1.164E+00	1.927E+00	1.769E-01	-0.005

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

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SB-127	1034.80			3.743E-01	8.546E+00	1.417E+01	1.271E+00	0.026
	1213.00			-1.643E+00	5.083E+00	8.047E+00	6.562E-01	-0.204
	61.10			3.960E+00	7.498E+01	1.077E+02	1.161E+01	0.037
	252.40			-1.331E-02	5.198E+00	8.357E+00	3.579E+00	-0.002
	290.80			-1.933E+01	3.098E+01	4.154E+01	5.941E+00	-0.465
	411.60			-1.987E+01	1.519E+01	2.273E+01	3.761E+00	-0.874
	444.90			-2.829E+00	1.108E+01	1.810E+01	2.467E+00	-0.156
	473.00			-9.731E-01	1.993E+00	3.179E+00	4.440E-01	-0.306
	543.00			-1.562E+01	2.060E+01	3.157E+01	4.850E+00	-0.495
	603.60			6.430E+00	1.463E+01	2.189E+01	2.946E+00	0.294
	685.20	*		-9.625E-01	1.704E+00	2.601E+00	3.179E-01	-0.370
	698.50			9.694E+00	2.003E+01	3.339E+01	5.496E+00	0.290
XE-127	722.20			-5.177E+00	4.267E+01	5.916E+01	7.169E+00	-0.088
	783.80			1.961E+00	4.734E+00	7.816E+00	1.048E+00	0.251
	57.60			3.968E+00	5.719E+00	9.201E+00	6.652E-01	0.431
	145.22			-3.965E-01	6.303E-01	1.019E+00	8.751E-02	-0.389
	172.10			-1.001E-01	1.056E-01	1.656E-01	1.526E-02	-0.605
	202.84	*		2.172E-02	4.341E-02	7.222E-02	7.223E-03	0.301
I-131	374.96			-9.024E-02	1.701E-01	2.768E-01	2.723E-02	-0.326
	80.18			1.580E+00	4.435E+00	6.929E+00	6.135E-01	0.228
	284.30			5.520E-02	1.529E+00	2.445E+00	3.004E-01	0.023
	364.48	*		-7.907E-02	1.190E-01	1.925E-01	2.038E-02	-0.411
	636.97			3.499E-01	1.697E+00	2.798E+00	2.665E-01	0.125
TE-132	722.89			-5.670E+00	8.141E+00	1.040E+01	9.544E-01	-0.545
	49.72			5.057E+00	2.533E+01	4.021E+01	4.419E+00	0.126
	111.76			5.914E+00	3.698E+01	6.257E+01	7.016E+00	0.095
	116.30			-8.811E+00	3.440E+01	5.716E+01	6.384E+00	-0.154
BA-133	228.16	*		-2.508E-01	9.387E-01	1.498E+00	2.588E-01	-0.167
	53.15			8.920E-01	3.114E+00	4.950E+00	3.793E-01	0.180
	79.62			-3.875E-01	1.079E+00	1.631E+00	2.493E-01	-0.238
	81.00			-1.174E-01	8.156E-02	1.223E-01	1.959E-02	-0.960
I-133	+	276.40		8.254E-01	4.566E-01	5.564E-01	9.260E-02	1.484
		302.84		-4.744E-03	1.363E-01	1.919E-01	2.963E-02	-0.025
		356.01	*	-1.848E-02	4.039E-02	5.685E-02	8.215E-03	-0.325
		383.85		7.870E-02	2.583E-01	4.417E-01	5.849E-02	0.178
	+	510.53		6.513E+00	2.583E-01	Half-Life	too short	
		529.87	*	-1.392E-02	2.583E-01	Half-Life	too short	
		706.58		1.025E+00	2.583E-01	Half-Life	too short	
		856.28		-5.488E-01	2.583E-01	Half-Life	too short	
		875.33		3.980E-01	2.583E-01	Half-Life	too short	
		1236.41		3.558E+00	2.583E-01	Half-Life	too short	
		1298.22		6.592E-01	2.583E-01	Half-Life	too short	
		475.35		-7.264E-01	1.657E+00	2.659E+00	2.528E-01	-0.273
CS-134		563.23		2.665E-01	3.106E-01	5.396E-01	5.119E-02	0.494
		569.32		3.002E-02	1.727E-01	2.792E-01	2.651E-02	0.108
		604.70		-2.504E-02	3.283E-02	4.262E-02	3.946E-03	-0.588
	+	795.84	*	8.292E-02	5.873E-02	8.091E-02	7.586E-03	1.025
		801.93		-3.818E-01	3.597E-01	5.398E-01	5.061E-02	-0.707
		1038.57		-2.742E+00	3.400E+00	5.138E+00	4.600E-01	-0.534



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1167.94			-8.973E-01	2.299E+00	3.617E+00	2.924E-01	-0.248
	1365.15			9.276E-01	1.090E+00	1.949E+00	1.730E-01	0.476
	268.24	*		2.003E-01	1.565E-01	2.404E-01	3.066E-02	0.833
	288.45			4.712E+12	1.565E-01	Half-Life	too short	
	417.63			2.738E+11	1.565E-01	Half-Life	too short	
	546.56			1.551E+11	1.565E-01	Half-Life	too short	
	836.80			1.193E+12	1.565E-01	Half-Life	too short	
	1038.76			-6.593E+11	1.565E-01	Half-Life	too short	
	1124.00			-1.219E+12	1.565E-01	Half-Life	too short	
	1131.51			-6.798E+11	1.565E-01	Half-Life	too short	
	1260.41	*		-1.164E+11	1.565E-01	Half-Life	too short	
	1457.56			4.874E+13	1.565E-01	Half-Life	too short	
	1678.03			1.309E+11	1.565E-01	Half-Life	too short	
	1706.46			-2.573E+12	1.565E-01	Half-Life	too short	
	1791.20			2.807E+10	1.565E-01	Half-Life	too short	
CS-136	66.91			-3.677E-01	7.729E-01	1.166E+00	1.741E-01	-0.315
	86.29	+		4.527E+00	1.497E+00	1.923E+00	2.579E-01	2.355
	153.22	+		1.281E+00	1.061E+00	1.122E+00	1.095E-01	1.142
	163.89			9.985E-01	1.070E+00	1.789E+00	1.791E-01	0.558
	176.55			-2.333E-01	3.400E-01	5.399E-01	5.283E-02	-0.432
	273.65			1.716E-01	5.469E-01	6.352E-01	7.806E-02	0.270
	340.57			2.097E-01	1.356E-01	2.211E-01	2.445E-02	0.949
	818.51			-2.021E-02	6.968E-02	1.142E-01	1.070E-02	-0.177
	1048.07	*		2.603E-02	1.110E-01	1.868E-01	1.730E-02	0.139
	1235.34			1.904E-01	6.142E-01	1.023E+00	1.182E-01	0.186
BA-137M	661.65	*		3.193E-02	3.119E-02	5.443E-02	4.831E-03	0.587
CS-137	661.65	*		3.375E-02	3.297E-02	5.754E-02	5.116E-03	0.587
CE-139	165.85	*		-3.713E-03	2.516E-02	4.122E-02	3.738E-03	-0.090
BA-140	162.64			6.928E-01	7.573E-01	1.266E+00	1.199E-01	0.547
	304.84			-1.881E-01	1.430E+00	1.994E+00	5.802E-01	-0.094
LA-140	423.70			3.528E-02	1.820E+00	3.023E+00	9.863E-01	0.012
	537.32	*		-1.759E-02	2.340E-01	3.820E-01	1.275E-01	-0.046
	328.77	+		8.277E-01	4.177E-01	5.325E-01	6.137E-02	1.554
	432.53			1.726E+00	1.864E+00	3.290E+00	3.225E-01	0.525
	487.03			-5.656E-02	1.281E-01	2.049E-01	2.048E-02	-0.276
	751.79			-7.966E-01	1.687E+00	2.575E+00	2.594E-01	-0.309
	815.85			-2.317E-03	3.032E-01	5.096E-01	5.240E-02	-0.005
	867.82			1.689E-02	1.250E+00	2.095E+00	2.064E-01	0.008
	919.63			-3.744E-01	2.708E+00	4.455E+00	5.033E-01	-0.084
	925.24			4.874E-01	1.150E+00	1.984E+00	1.963E-01	0.246
CE-141	1596.49	*		-5.396E-02	8.595E-02	1.298E-01	1.105E-02	-0.416
CE-143	145.44	*		-5.130E-02	5.694E-02	9.088E-02	7.950E-03	-0.564
	57.37			3.156E-03	5.694E-02	Half-Life	too short	
	231.56			-1.569E-04	5.694E-02	Half-Life	too short	
	293.26	*		1.164E-03	5.694E-02	Half-Life	too short	
	350.59	+		8.192E-02	5.694E-02	Half-Life	too short	
	490.36			9.705E-04	5.694E-02	Half-Life	too short	
	664.57			1.978E-04	5.694E-02	Half-Life	too short	
	721.93			-3.475E-04	5.694E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-144		80.11		6.229E-01	1.737E+00	2.714E+00	2.382E-01	0.230
		133.54	*	1.636E-02	1.946E-01	2.924E-01	4.515E-02	0.056
PM-144		476.78		2.128E-02	6.009E-02	1.019E-01	1.044E-02	0.209
		618.01		5.321E-03	2.862E-02	4.721E-02	4.434E-03	0.113
		696.49	*	-3.268E-02	3.428E-02	5.050E-02	4.555E-03	-0.647
		778.57		-8.740E-01	2.117E+00	3.245E+00	3.011E-01	-0.269
PR-144		696.49	*	-2.217E+00	2.326E+00	3.425E+00	3.089E-01	-0.647
		1489.15		-4.903E-01	9.252E+00	1.536E+01	1.313E+00	-0.032
PM-146		453.90	*	5.505E-02	3.802E-02	6.822E-02	7.790E-03	0.807
		633.02		-1.290E+00	1.380E+00	1.924E+00	7.210E-01	-0.671
		735.90		3.156E-02	1.360E-01	2.221E-01	6.390E-02	0.142
		747.13		-8.156E-03	7.976E-02	1.265E-01	1.820E-02	-0.064
ND-147	+	91.11		9.086E-01	2.095E-01	4.903E-01	4.901E-02	1.853
		319.41		5.465E-02	3.251E+00	5.153E+00	5.851E-01	0.011
		439.89		4.112E+00	5.334E+00	9.332E+00	8.809E-01	0.441
		531.02	*	-2.739E-02	5.115E-01	8.374E-01	1.295E-01	-0.033
PM-149		285.90	*	-2.207E+02	1.567E+02	2.205E+02	3.881E+01	-1.001
EU-152		121.78		-6.938E-02	5.945E-02	9.404E-02	9.079E-03	-0.738
		244.69		2.696E-01	2.889E-01	4.418E-01	4.912E-02	0.610
		344.27	*	-9.584E-02	8.290E-02	1.301E-01	1.454E-02	-0.737
		443.98		3.027E-01	7.631E-01	1.306E+00	1.234E-01	0.232
		778.89		-9.413E-02	2.441E-01	3.751E-01	3.480E-02	-0.251
		867.32		-6.033E-02	6.942E-01	1.153E+00	1.088E-01	-0.052
	+	964.01		5.179E-01	3.289E-01	5.080E-01	4.712E-02	1.020
		1085.78		1.882E-01	3.554E-01	6.128E-01	5.320E-02	0.307
		1112.02		7.169E-02	3.175E-01	5.024E-01	4.275E-02	0.143
	+	1407.95		3.141E-01	1.854E-01	3.129E-01	2.664E-02	1.004
GD-153		69.67		6.316E-01	1.456E+00	2.295E+00	1.809E-01	0.275
		83.37		1.673E+01	1.327E+01	2.123E+01	1.935E+00	0.788
		97.43	*	-4.946E-02	7.115E-02	1.044E-01	9.273E-03	-0.474
		103.18		-9.170E-02	8.426E-02	1.355E-01	1.168E-02	-0.677
EU-154		123.07		-4.079E-02	4.129E-02	6.580E-02	7.322E-03	-0.620
		247.94		-2.571E-01	2.950E-01	4.465E-01	6.038E-02	-0.576
		591.81		1.310E-02	5.252E-01	8.584E-01	1.046E-01	0.015
		723.30		-2.272E-01	1.851E-01	2.183E-01	2.178E-02	-1.041
		756.87		2.953E-01	6.586E-01	1.097E+00	1.362E-01	0.269
		873.19		-5.179E-02	2.673E-01	4.396E-01	5.643E-02	-0.118
		996.32		-3.880E-01	3.383E-01	4.862E-01	8.767E-02	-0.798
		1004.76		-5.259E-02	1.941E-01	3.130E-01	3.760E-02	-0.168
		1274.45	*	-7.146E-02	1.177E-01	1.785E-01	1.977E-02	-0.400
EU-155		48.70		-7.147E-02	2.156E+00	3.387E+00	2.783E-01	-0.021
		60.01		-2.456E+00	4.791E+00	6.669E+00	4.763E-01	-0.368
	+	86.54		3.777E-01	1.197E-01	1.632E-01	1.558E-02	2.314
		105.31	*	7.996E-02	8.791E-02	1.528E-01	1.322E-02	0.523
TB-160	+	86.79		1.027E+00	3.252E-01	4.508E-01	4.281E-02	2.278
		197.04		-1.811E-01	4.977E-01	7.900E-01	7.780E-02	-0.229
		215.65		-1.405E-01	6.778E-01	1.090E+00	1.127E-01	-0.129
		298.57		2.057E-02	1.575E-01	1.768E-01	2.076E-02	0.116
		879.36	*	9.454E-02	1.329E-01	2.344E-01	2.214E-02	0.403

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		962.29		1.226E-01	5.591E-01	8.293E-01	7.698E-02	0.148
		966.15		8.805E-01	2.295E-01	4.436E-01	4.112E-02	1.985
		1177.93		-2.980E-01	3.307E-01	4.907E-01	3.952E-02	-0.607
		1271.85		5.914E-01	6.725E-01	1.183E+00	9.829E-02	0.500
		80.57		-1.962E-01	2.320E-01	3.424E-01	3.022E-02	-0.573
	+	184.41		1.878E-01	4.796E-02	6.167E-02	5.871E-03	3.045
		280.46		3.398E-02	8.161E-02	1.196E-01	1.435E-02	0.284
		410.95		7.589E-02	2.086E-01	3.566E-01	3.329E-02	0.213
		711.68	*	-6.077E-02	5.413E-02	7.747E-02	7.029E-03	-0.784
		752.31		3.815E-02	2.376E-01	3.860E-01	3.553E-02	0.099
TM-171		810.29		-3.363E-02	5.217E-02	8.292E-02	7.752E-03	-0.406
		51.35		-1.001E+01	2.638E+01	4.059E+01	3.198E+00	-0.247
		52.39		4.564E-01	1.370E+01	2.153E+01	1.669E+00	0.021
		59.40		-2.556E+01	2.628E+01	3.557E+01	2.526E+00	-0.719
LU-176		66.72	*	-1.822E+01	2.781E+01	3.821E+01	2.928E+00	-0.477
	+	88.36		7.432E-01	2.354E-01	3.010E-01	2.890E-02	2.469
		201.83		1.929E-02	2.510E-02	4.221E-02	4.210E-03	0.457
		306.84	*	1.837E-03	2.297E-02	3.663E-02	4.249E-03	0.050
LU-177		401.10		2.900E+00	6.159E+00	1.059E+01	9.835E-01	0.274
		112.95		4.022E-01	1.601E+00	2.717E+00	2.275E-01	0.148
LU-177M	+	208.36	*	2.971E+00	1.634E+00	2.228E+00	2.261E-01	1.333
		52.97		2.703E-01	1.416E+00	2.242E+00	1.722E-01	0.121
		54.07		1.810E-01	7.513E-01	1.191E+00	9.000E-02	0.152
		61.30		1.764E-01	1.381E+00	1.992E+00	1.445E-01	0.089
		121.62		-2.467E-01	3.035E-01	4.898E-01	4.065E-02	-0.504
		147.16		-4.182E-02	5.588E-01	9.245E-01	7.972E-02	-0.045
		171.86		-2.694E-01	4.180E-01	6.670E-01	6.142E-02	-0.404
		218.09		2.903E-01	7.522E-01	1.242E+00	1.293E-01	0.234
	+	268.79		2.674E+00	1.161E+00	1.349E+00	1.585E-01	1.981
		319.02		9.601E-02	2.252E-01	3.662E-01	4.161E-02	0.262
HF-181		367.43		-2.210E-01	7.888E-01	1.308E+00	1.319E-01	-0.169
		413.65	*	-2.522E-02	1.446E-01	2.392E-01	2.235E-02	-0.105
		56.28		2.004E-01	8.910E-01	1.408E+00	1.033E-01	0.142
		57.53		3.494E-01	4.796E-01	7.727E-01	5.590E-02	0.452
		65.20		-5.364E-01	9.277E-01	1.282E+00	9.685E-02	-0.418
		133.02		7.601E-03	6.300E-02	9.487E-02	7.956E-03	0.080
		136.25		-1.423E-01	3.947E-01	6.476E-01	5.459E-02	-0.220
		345.85		-1.410E-01	1.717E-01	2.658E-01	2.848E-02	-0.530
		482.03	*	-1.548E-02	3.940E-02	6.344E-02	6.034E-03	-0.244
		56.28		7.773E-02	3.417E-01	5.399E-01	3.963E-02	0.144
W-181		57.53		1.343E-01	1.841E-01	2.966E-01	2.146E-02	0.453
		65.20	*	-2.042E-01	3.532E-01	4.883E-01	3.687E-02	-0.418
TA-182		67.75		2.433E-03	9.953E-02	1.538E-01	1.190E-02	0.016
		100.10		6.887E-02	1.475E-01	2.535E-01	2.217E-02	0.272
		152.43		1.754E-02	3.232E-01	4.809E-01	4.201E-02	0.036
		222.10		-1.336E-02	3.112E-01	5.034E-01	5.294E-02	-0.027
		1001.68		2.247E+00	1.898E+00	3.392E+00	3.097E-01	0.662
	+	1121.28		3.544E-01	3.171E-01	3.491E-01	2.947E-02	1.015
		1189.05		2.947E-01	2.749E-01	4.904E-01	3.965E-02	0.601

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1221.42	*		1.997E-03	1.938E-01	3.157E-01	2.582E-02	0.006
	1230.97			-1.709E-01	4.370E-01	6.868E-01	5.634E-02	-0.249
	57.98			6.541E-02	1.829E-01	2.902E-01	2.090E-02	0.225
	59.32			-1.163E-01	1.108E-01	1.493E-01	1.061E-02	-0.779
	67.20			-8.088E-02	1.833E-01	2.776E-01	2.137E-02	-0.291
RE-184	162.32	*		6.764E-02	1.009E-01	1.673E-01	1.502E-02	0.404
	208.81			2.230E+00	1.226E+00	1.661E+00	1.688E-01	1.342
	291.72			-3.210E-01	9.233E-01	1.269E+00	1.503E-01	-0.253
	57.98			2.383E-01	6.665E-01	1.058E+00	7.614E-02	0.225
	59.32			-4.236E-01	4.034E-01	5.434E-01	3.862E-02	-0.779
OS-185	67.20			-2.946E-01	6.678E-01	1.011E+00	7.784E-02	-0.291
	161.27			-9.635E-02	3.093E-01	5.039E-01	4.510E-02	-0.191
	216.55			1.038E-01	2.319E-01	3.841E-01	3.982E-02	0.270
	252.85	*		7.788E-02	1.993E-01	3.273E-01	3.709E-02	0.238
	318.01			4.650E-02	3.896E-01	6.219E-01	7.079E-02	0.075
W-188	792.07			1.102E-01	9.126E-01	1.360E+00	1.266E-01	0.081
	903.28			6.140E-01	9.049E-01	1.522E+00	1.438E-01	0.403
	920.93			-2.206E-01	4.113E-01	6.512E-01	6.125E-02	-0.339
	59.72			-1.095E-01	2.846E-01	3.992E-01	2.841E-02	-0.274
	61.14			1.037E-02	1.528E-01	2.197E-01	1.591E-02	0.047
IR-192	69.30			1.420E-01	2.489E-01	4.170E-01	3.274E-02	0.340
	592.07			3.715E-01	2.199E+00	3.636E+00	3.381E-01	0.102
	646.12	*		1.375E-04	3.887E-02	6.300E-02	5.663E-03	0.002
	717.42			-4.730E-01	8.484E-01	1.295E+00	1.177E-01	-0.365
	874.81			2.599E-01	5.420E-01	9.417E-01	8.892E-02	0.276
AU-195	880.27			-2.440E-01	7.363E-01	1.196E+00	1.130E-01	-0.204
	63.58			8.952E+01	6.415E+01	8.406E+01	6.248E+00	1.065
	227.08			2.605E+00	1.155E+01	1.889E+01	2.012E+00	0.138
	290.67	*		-3.674E+00	7.757E+00	1.056E+01	1.253E+00	-0.348
	295.96			1.129E+00	2.089E-01	2.773E-01	3.280E-02	4.071
TL-200	308.46			9.130E-02	8.734E-02	1.466E-01	1.701E-02	0.623
	316.51	*		-2.178E-02	3.140E-02	4.727E-02	5.402E-03	-0.461
	468.07			4.734E-02	5.642E-02	8.943E-02	8.999E-03	0.529
	604.41			-3.698E-01	4.512E-01	5.787E-01	7.776E-02	-0.639
	612.46			4.091E-01	6.772E-01	1.026E+00	1.068E-01	0.399
TL-201	65.12			-9.555E-02	1.630E-01	2.253E-01	1.700E-02	-0.424
	66.83			-5.767E-02	9.247E-02	1.273E-01	9.763E-03	-0.453
	75.70			1.248E+00	2.135E-01	3.814E-01	3.192E-02	3.273
	98.88	*		3.489E-01	1.926E-01	3.307E-01	2.912E-02	1.055
	129.76			4.668E+00	3.614E+00	4.531E+00	3.783E-01	1.030
TL-201	367.94	*		-6.928E-05	3.614E+00	Half-Life	too short	
	579.30			1.671E-03	3.614E+00	Half-Life	too short	
	828.27			-1.540E-02	3.614E+00	Half-Life	too short	
	1205.75			1.995E-03	3.614E+00	Half-Life	too short	
	68.90			2.435E+00	5.899E+00	1.025E+01	8.018E-01	0.237
TL-201	70.82			2.431E-01	3.625E+00	5.627E+00	4.483E-01	0.043
	80.30			2.236E+00	6.349E+00	9.917E+00	8.724E-01	0.226
	135.34			-1.252E-01	3.322E+01	5.535E+01	4.658E+00	-0.002
	167.43	*		-1.280E+01	9.098E+00	1.391E+01	1.266E+00	-0.920

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		1.574E-01	3.812E-01	6.626E-01	5.182E-02	0.237
		70.82		1.567E-02	2.336E-01	3.626E-01	2.889E-02	0.043
		80.30		1.442E-01	4.093E-01	6.394E-01	5.625E-02	0.226
HG-203		439.56	*	1.215E-02	6.260E-02	1.057E-01	9.976E-03	0.115
		70.83		6.200E-02	9.339E-01	1.450E+00	1.914E-01	0.043
		72.87		5.837E-01	5.493E-01	8.772E-01	1.130E-01	0.665
		82.60		-3.078E-01	9.577E-01	1.534E+00	2.149E-01	-0.201
		279.20	*	4.974E-02	4.136E-02	6.342E-02	7.730E-03	0.784
BI-207		72.80		1.567E-01	1.555E-01	2.492E-01	2.025E-02	0.629
	+	74.97		6.875E-01	1.175E-01	1.931E-01	1.603E-02	3.561
		84.90		1.633E-01	1.705E-01	2.699E-01	2.506E-02	0.605
		569.67		-1.128E-02	2.725E-02	4.201E-02	3.944E-03	-0.269
		1063.62	*	-9.589E-03	4.710E-02	7.535E-02	6.642E-03	-0.127
TL-207		1770.23		1.571E-01	3.857E-01	6.143E-01	5.077E-02	0.256
		81.07		-2.521E-01	1.767E-01	2.707E-01	2.402E-02	-0.931
		83.78		1.701E-01	1.132E-01	1.822E-01	1.669E-02	0.933
		94.90		1.657E-01	1.895E-01	3.005E-01	2.716E-02	0.552
		122.32		-1.585E+00	1.380E+00	2.184E+00	1.956E-01	-0.726
		144.24		6.014E-01	6.006E-01	1.016E+00	9.743E-02	0.592
	+	154.21		6.960E-01	5.766E-01	6.143E-01	5.911E-02	1.133
	+	269.46		6.207E-01	2.697E-01	3.305E-01	3.932E-02	1.878
		323.87	*	5.694E-01	6.522E-01	9.713E-01	1.858E-01	0.586
	+	338.28		8.284E+00	1.907E+00	2.412E+00	3.381E-01	3.434
PO-209		445.03		-4.473E-01	1.824E+00	2.983E+00	3.786E-01	-0.150
		260.50		-5.439E+00	7.956E+00	1.219E+01	1.406E+00	-0.446
		262.80		-8.280E+00	2.191E+01	3.429E+01	3.975E+00	-0.241
		896.60	*	-7.422E+00	6.652E+00	9.905E+00	9.368E-01	-0.749
BI-210		46.50	*	7.843E-01	3.191E+00	5.062E+00	4.721E-01	0.155
PB-210		46.50	*	7.843E-01	3.191E+00	5.062E+00	4.721E-01	0.155
PO-210		46.50	*	7.843E-01	3.191E+00	5.062E+00	4.276E-01	0.155
PB-211		404.84	*	-8.173E-01	9.653E-01	1.287E+00	8.080E-01	-0.635
PO-215		427.08		1.060E+00	1.849E+00	2.998E+00	1.866E+00	0.354
		831.96		3.607E-01	1.060E+00	1.789E+00	1.123E+00	0.202
		81.07		-2.521E-01	1.767E-01	2.707E-01	2.402E-02	-0.931
		83.78		1.701E-01	1.132E-01	1.822E-01	1.669E-02	0.933
		94.90		1.657E-01	1.895E-01	3.005E-01	2.716E-02	0.552
		122.32		-1.585E+00	1.380E+00	2.184E+00	1.956E-01	-0.726
		144.24		6.014E-01	6.006E-01	1.016E+00	9.743E-02	0.592
	+	154.21		6.960E-01	5.766E-01	6.143E-01	5.911E-02	1.133
	+	269.46		6.207E-01	2.697E-01	3.305E-01	3.932E-02	1.878
		323.87	*	5.694E-01	6.522E-01	9.713E-01	1.858E-01	0.586
RN-219	+	338.28		8.284E+00	1.907E+00	2.412E+00	3.381E-01	3.434
		445.03		-4.473E-01	1.824E+00	2.983E+00	3.786E-01	-0.150
		271.23		7.964E-01	3.486E-01	4.108E-01	5.379E-02	1.939
		401.81	*	2.345E-01	3.744E-01	6.468E-01	9.976E-02	0.363
RN-220		549.76	*	-5.533E+00	2.181E+01	3.503E+01	3.309E+00	-0.158
RA-223		81.07		-2.521E-01	1.767E-01	2.707E-01	2.402E-02	-0.931
		83.78		1.701E-01	1.132E-01	1.822E-01	1.669E-02	0.933
		94.90		1.657E-01	1.895E-01	3.005E-01	2.716E-02	0.552

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-1.585E+00	1.380E+00	2.184E+00	1.956E-01	-0.726
		144.24		6.014E-01	6.006E-01	1.016E+00	9.743E-02	0.592
	+	154.21		6.960E-01	5.766E-01	6.143E-01	5.911E-02	1.133
	+	269.46		6.207E-01	2.697E-01	3.305E-01	3.932E-02	1.878
		323.87	*	5.694E-01	6.522E-01	9.713E-01	1.858E-01	0.586
	+	338.28		8.284E+00	1.907E+00	2.412E+00	3.381E-01	3.434
		445.03		-4.473E-01	1.824E+00	2.983E+00	3.786E-01	-0.150
		79.80		-3.720E-01	1.372E+00	2.081E+00	4.487E-01	-0.179
		236.00		1.252E-01	2.254E-01	3.347E-01	4.664E-02	0.374
		256.20	*	1.846E-02	3.265E-01	5.262E-01	8.986E-02	0.035
		286.10		-1.648E+00	1.405E+00	2.042E+00	3.177E-01	-0.807
	+	299.80		3.000E+00	1.925E+00	2.285E+00	4.388E-01	1.313
TH-227		304.40		-6.293E-01	1.890E+00	2.587E+00	5.182E-01	-0.243
		334.20		2.094E+00	2.045E+00	3.237E+00	6.665E-01	0.647
		79.80		-3.720E-01	1.372E+00	2.081E+00	4.544E-01	-0.179
	+	94.00		1.266E+01	3.775E+00	3.281E+00	7.210E-01	3.858
		236.00		1.252E-01	2.253E-01	3.347E-01	4.324E-02	0.374
		256.20	*	1.846E-02	3.265E-01	5.262E-01	1.029E-01	0.035
		286.10		-1.648E+00	2.159E+00	2.042E+00	2.056E+00	-0.807
	+	299.80		3.000E+00	1.925E+00	2.285E+00	4.388E-01	1.313
		304.40		-6.293E-01	1.890E+00	2.587E+00	5.182E-01	-0.243
		334.20		2.094E+00	2.045E+00	3.237E+00	6.665E-01	0.647
		85.43		1.279E-01	1.738E-01	2.730E-01	2.550E-02	0.469
	+	88.47		4.278E-01	1.355E-01	1.741E-01	1.669E-02	2.457
TH-229		100.00		7.714E-02	1.517E-01	2.609E-01	2.283E-02	0.296
		193.63	*	1.257E-02	4.366E-01	7.061E-01	6.890E-02	0.018
		210.97		5.099E-01	7.134E-01	1.079E+00	1.102E+00	0.473
		283.67	*	4.565E-01	1.319E+00	2.145E+00	3.710E-01	0.213
	+	301.29		1.200E+00	7.554E-01	8.664E-01	1.263E-01	1.385
		81.07		-2.521E-01	1.767E-01	2.707E-01	2.402E-02	-0.931
		83.78		1.701E-01	1.132E-01	1.822E-01	1.669E-02	0.933
		94.90		1.657E-01	1.895E-01	3.005E-01	2.716E-02	0.552
		122.32		-1.585E+00	1.380E+00	2.184E+00	1.956E-01	-0.726
		144.24		6.014E-01	6.006E-01	1.016E+00	9.743E-02	0.592
	+	154.21		6.960E-01	5.766E-01	6.143E-01	5.911E-02	1.133
	+	269.46		6.207E-01	2.697E-01	3.305E-01	3.932E-02	1.878
U-231		323.87	*	5.694E-01	6.522E-01	9.713E-01	1.858E-01	0.586
	+	338.28		8.284E+00	1.907E+00	2.412E+00	3.381E-01	3.434
		445.03		-4.473E-01	1.824E+00	2.983E+00	3.786E-01	-0.150
		84.21		6.807E+00	6.794E+00	1.077E+01	9.917E-01	0.632
	+	92.29		1.719E+01	3.803E+00	5.238E+00	4.837E-01	3.282
		95.87	*	-6.533E-01	1.238E+00	1.834E+00	1.647E-01	-0.356
		108.00		-1.056E+00	2.361E+00	3.909E+00	3.311E-01	-0.270
	+	75.28		2.006E+01	4.272E+00	5.680E+00	8.626E-01	3.532
	+	86.59		6.135E+00	2.490E+00	2.660E+00	7.210E-01	2.306
	+	300.12		8.363E-01	5.312E-01	6.357E-01	1.072E-01	1.315
		311.98	*	-6.005E-02	5.775E-02	8.453E-02	9.880E-03	-0.710
		340.50		1.032E+00	6.434E-01	9.868E-01	2.441E-01	1.046
		398.62		1.642E-01	1.951E+00	3.287E+00	8.826E-01	0.050
PA-233								

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		6.808E-01	1.372E+00	2.355E+00	5.147E-01	0.289
		63.00		2.546E+00	1.854E+00	2.468E+00	3.666E-01	1.032
		94.67		2.180E-01	1.439E-01	2.307E-01	2.932E-02	0.945
		98.44		1.195E-01	1.043E-01	1.309E-01	7.309E-02	0.912
		99.86		2.642E-01	3.822E-01	6.613E-01	5.791E-02	0.400
		111.00		-5.235E-02	1.495E-01	2.480E-01	2.960E-02	-0.211
		131.20		-1.843E-02	9.813E-02	1.455E-01	1.217E-02	-0.127
	+	152.70		5.711E-01	4.800E-01	4.767E-01	8.156E-02	1.198
	+	186.00		6.759E+00	2.663E+00	2.480E+00	7.808E-01	2.726
		226.40		1.713E-01	3.593E-01	5.937E-01	8.666E-02	0.289
		227.20		8.217E-02	3.824E-01	6.254E-01	6.662E-02	0.131
		248.90		1.422E-01	6.531E-01	1.064E+00	2.504E-01	0.134
	+	293.70		6.980E+00	1.661E+00	1.492E+00	2.848E-01	4.680
		369.80		4.528E-03	7.399E-01	1.248E+00	2.790E-01	0.004
		568.70		1.122E-01	8.702E-01	1.402E+00	1.317E-01	0.080
		569.50		1.578E-02	2.365E-01	3.791E-01	3.559E-02	0.042
		574.00		-5.359E-02	1.282E+00	2.089E+00	1.958E-01	-0.026
		699.00		3.004E-01	6.694E-01	1.112E+00	2.142E-01	0.270
		706.10		2.827E-01	9.547E-01	1.560E+00	6.971E-01	0.181
		733.00		-4.961E-02	3.883E-01	5.329E-01	1.194E-01	-0.093
		742.81		1.627E+00	1.741E+00	2.377E+00	1.599E+00	0.685
	+	796.30		1.609E+00	1.212E+00	1.534E+00	4.186E-01	1.048
		805.60		1.109E+00	9.474E-01	1.628E+00	5.025E-01	0.681
		819.60		-9.051E-01	1.133E+00	1.683E+00	6.428E-01	-0.538
		826.30		-2.437E-01	7.111E-01	1.145E+00	5.141E-01	-0.213
		831.60		3.201E-02	5.451E-01	9.196E-01	2.766E-01	0.035
		876.40		1.771E-01	8.212E-01	1.363E+00	1.402E+00	0.130
		880.51		-1.518E-01	2.625E-01	4.168E-01	3.937E-02	-0.364
		883.24		-6.892E-02	2.590E-01	4.157E-01	2.799E-01	-0.166
		899.00		-1.936E-01	7.004E-01	1.130E+00	4.960E-01	-0.171
		925.00		4.208E-01	1.081E+00	1.859E+00	1.747E-01	0.226
		926.50		6.501E-02	1.581E-01	2.713E-01	6.931E-02	0.240
		946.00	*	-6.763E-02	2.764E-01	4.491E-01	8.579E-02	-0.151
		949.00		3.005E-01	4.004E-01	7.070E-01	6.595E-02	0.425
		980.50		-1.657E-01	6.048E-01	9.745E-01	8.981E-02	-0.170
		1394.10		4.692E-01	9.069E-01	1.500E+00	9.761E-01	0.313
PA-234M		766.42		1.303E+01	1.369E+01	1.869E+01	9.502E+00	0.697
		1001.03	*	4.456E+00	4.397E+00	7.746E+00	8.065E-01	0.575
U-235	+	89.95		3.204E+00	1.197E+00	1.650E+00	5.132E-01	1.941
	+	93.35		3.938E+00	1.364E+00	1.173E+00	3.308E-01	3.356
		105.00		6.628E-01	8.762E-01	1.482E+00	4.420E-01	0.447
		143.76	*	2.559E-01	1.894E-01	3.170E-01	5.539E-02	0.807
		163.35		5.709E-01	4.375E-01	7.222E-01	1.391E-01	0.791
	+	185.71		2.503E-01	6.394E-02	9.254E-02	8.840E-03	2.705
		205.31		-3.195E-01	5.246E-01	7.235E-01	1.431E-01	-0.442
NP-236		94.67		1.675E-01	1.082E-01	1.752E-01	1.587E-02	0.956
		98.44		9.025E-02	6.110E-02	9.898E-02	8.739E-03	0.912
		111.00		-3.960E-02	1.131E-01	1.876E-01	1.577E-02	-0.211
		160.31	*	-8.952E-02	6.865E-02	1.063E-01	9.483E-03	-0.842

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		9.635E-02	1.297E-01	2.248E-01	1.972E-02	0.429
		117.00	*	3.510E-02	1.578E-01	2.671E-01	2.224E-02	0.131
	+	209.75		1.726E+00	9.491E-01	1.265E+00	1.288E-01	1.364
		228.18		-5.605E-02	2.034E-01	3.246E-01	3.466E-02	-0.173
	+	277.60		4.027E-01	2.178E-01	2.907E-01	3.480E-02	1.385
AM-241		334.30		1.155E+00	1.138E+00	1.828E+00	2.014E-01	0.632
		59.54	*	-6.609E-02	1.478E-01	2.065E-01	1.620E-02	-0.320
CM-243		99.55		9.915E-02	1.335E-01	2.313E-01	2.029E-02	0.429
		103.76	*	-5.887E-02	7.677E-02	1.254E-01	1.078E-02	-0.470
		117.00		3.611E-02	1.623E-01	2.748E-01	2.288E-02	0.131
	+	209.75		1.702E+00	9.357E-01	1.247E+00	1.270E-01	1.364
		228.18		-5.664E-02	2.055E-01	3.280E-01	3.503E-02	-0.173
AM-246	+	277.60		4.060E-01	2.196E-01	2.931E-01	3.509E-02	1.385
		798.80		-3.701E-02	1.195E-01	1.680E-01	1.566E-02	-0.220
		1036.00		1.011E-02	2.435E-01	4.036E-01	3.619E-02	0.025
		1062.04		-1.343E-01	2.102E-01	3.213E-01	2.835E-02	-0.418
		1078.86	*	5.507E-02	1.357E-01	2.311E-01	2.016E-02	0.238
CM-247	+	278.00		1.670E+00	9.033E-01	1.193E+00	1.429E-01	1.400
		287.40		3.352E-01	1.098E+00	1.782E+00	2.122E-01	0.188
		402.60	*	3.388E-02	3.312E-02	5.846E-02	5.436E-03	0.579
CF-249		252.85		2.899E-01	7.420E-01	1.218E+00	1.381E-01	0.238
		333.44		2.021E-01	1.491E-01	2.441E-01	2.694E-02	0.828
		387.95	*	7.489E-03	3.445E-02	5.861E-02	5.498E-03	0.128
CF-251		176.60	*	-7.552E-02	1.058E-01	1.677E-01	1.564E-02	-0.450
		227.00		2.095E-02	3.427E-01	5.565E-01	5.925E-02	0.038
		285.00		-1.604E+00	1.552E+00	2.297E+00	2.743E-01	-0.698



# 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]G246341005          *
* Acquisition date   : 18-FEB-2010 13:10:31 Detector SN# :                      *
* Detector ID        : GAM16 Sensitivity      : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                          *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000                  *
* Elapsed real time  : 0 02:00:02.09 Half life ratio : 8.000                  *
*****
*                               SAMPLE DATA                               *
*
* Sample date       : 1-FEB-2010 12:00:00 Nuclide Library : SOLID              *
* Sample ID         : G246341005 Analyst initials: MXR1                      *
* Batch Number      : 950786 Sample Quantity : 1.4062E+02 GRAM              *
* Recovery          : 1.00000 Carrier Weight : 0.00000                      *
*****
*                               QC DATA                               *
*
* Standard Weight   : 0.00000                                                *
* CALIB. DATE/TIME  : 16-NOV-2009 11:22:16 MS Isotope :                      *
* MSD DPM           : 0.000 MSD Isotope :                      *
* LCS DPM           : 0.000 LCS Isotope :                      *
* LCSD DPM          : 0.000 LCSD Isotope :                      *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.940E+01	2.997E+00	4.153E-01	0.000E+00
CD-109	3.197E+00	9.924E-01	1.066E+00	0.000E+00
SN-126	3.134E-01	9.726E-02	1.050E-01	0.000E+00
RE-188	3.071E-01	2.490E-01	2.402E-01	0.000E+00
TL-208	5.562E-01	8.886E-02	5.347E-02	0.000E+00
BI-211	3.902E+00	5.728E-01	2.972E-01	0.000E+00
BI-212	9.882E-01	4.999E-01	3.918E-01	0.000E+00
PB-212	1.687E+00	2.207E-01	8.542E-02	0.000E+00
PO-212	1.687E+00	2.207E-01	8.542E-02	0.000E+00
BI-214	1.218E+00	1.947E-01	9.220E-02	0.000E+00
PB-214	1.357E+00	2.110E-01	1.036E-01	0.000E+00
PO-214	1.357E+00	2.110E-01	1.036E-01	0.000E+00
PO-216	1.687E+00	2.207E-01	8.542E-02	0.000E+00
PO-218	1.357E+00	2.110E-01	1.036E-01	0.000E+00
RA-224	4.077E+00	1.051E+00	9.721E-01	0.000E+00
RA-226	1.218E+00	1.947E-01	9.220E-02	0.000E+00
AC-228	1.719E+00	3.301E-01	1.966E-01	0.000E+00
RA-228	1.719E+00	3.301E-01	1.966E-01	0.000E+00
TH-228	1.716E+00	2.245E-01	8.688E-02	0.000E+00
TH-230	1.218E+00	1.947E-01	9.220E-02	0.000E+00
TH-232	1.719E+00	3.301E-01	1.966E-01	0.000E+00
TH-234	2.185E+00	1.571E+00	1.882E+00	0.000E+00
U-234	1.218E+00	1.947E-01	9.220E-02	0.000E+00
NP-237	9.202E-01	3.409E-01	3.654E-01	0.000E+00
U-238	2.185E+00	1.571E+00	1.882E+00	0.000E+00
AM-243	3.829E-01	6.417E-02	7.645E-02	0.000E+00
ANH-511	1.365E-01	6.192E-02	4.121E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	2.314E-01	2.939E-01	5.348E-01	0.000E+00	NOT IDENT.
NA-22	-3.544E-02	4.205E-02	6.393E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.381E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	5.035E-03	2.840E-02	4.910E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.973E-02	6.567E-02	0.000E+00	FAIL ABUN
SC-46	-3.589E-02	3.500E-02	5.472E-02	0.000E+00	NOT IDENT.
V-48	-4.590E-02	6.410E-02	1.017E-01	0.000E+00	NOT IDENT.
CR-51	3.065E-02	3.347E-01	5.636E-01	0.000E+00	NOT IDENT.
MN-52	-1.715E-02	2.508E-01	4.081E-01	0.000E+00	NOT IDENT.
MN-54	1.545E-02	3.301E-02	5.939E-02	0.000E+00	NOT IDENT.
CO-56	-1.919E-02	3.179E-02	5.212E-02	0.000E+00	NOT IDENT.
CO-57	-2.264E-02	1.984E-02	3.395E-02	0.000E+00	NOT IDENT.
CO-58	-6.049E-03	3.363E-02	5.783E-02	0.000E+00	NOT IDENT.
FE-59	-2.849E-02	8.202E-02	1.342E-01	0.000E+00	NOT IDENT.
CO-60	-2.459E-02	3.651E-02	5.549E-02	0.000E+00	NOT IDENT.
ZN-65	-2.760E-02	9.228E-02	1.297E-01	0.000E+00	NOT IDENT.
GE-68	5.608E-01	1.148E+00	2.029E+00	0.000E+00	NOT IDENT.
AS-73	3.317E-01	7.188E-01	1.260E+00	0.000E+00	NOT IDENT.
AS-74	6.955E-02	8.064E-02	1.462E-01	0.000E+00	NOT IDENT.
SE-75	1.040E-02	3.942E-02	6.096E-02	0.000E+00	NOT IDENT.
BR-77	-3.428E+00	1.570E+01	2.663E+01	0.000E+00	FAIL ABUN
SR-82	9.764E-02	3.564E-01	6.052E-01	0.000E+00	NOT IDENT.
RB-83	-9.813E-03	6.023E-02	1.026E-01	0.000E+00	NOT IDENT.
RB-84	-2.251E-02	6.580E-02	1.106E-01	0.000E+00	NOT IDENT.
KR-85	3.344E+00	6.530E+00	1.036E+01	0.000E+00	NOT IDENT.
SR-85	1.750E-02	3.417E-02	5.423E-02	0.000E+00	NOT IDENT.
RB-86	1.934E-01	7.671E-01	1.331E+00	0.000E+00	NOT IDENT.
Y-88	-2.936E-03	2.736E-02	4.482E-02	0.000E+00	NOT IDENT.
ZR-88	-1.451E-02	2.602E-02	4.441E-02	0.000E+00	NOT IDENT.
Y-91	5.837E+00	1.727E+01	2.979E+01	0.000E+00	NOT IDENT.
NB-94	-1.358E-02	3.101E-02	5.007E-02	0.000E+00	NOT IDENT.
NB-95	2.681E-02	4.224E-02	6.562E-02	0.000E+00	NOT IDENT.
NB-95M	2.266E-02	1.220E-01	1.889E-01	0.000E+00	NOT IDENT.
ZR-95	3.095E-02	6.239E-02	1.082E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	5.590E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.098E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	7.806E+00	1.805E+01	3.106E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.663E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.591E-03	2.789E-02	4.821E-02	0.000E+00	NOT IDENT.
RH-102	-2.046E-03	2.422E-02	4.187E-02	0.000E+00	FAIL ABUN
RU-103	1.260E-02	3.674E-02	6.503E-02	0.000E+00	FAIL ABUN
RU-106	-8.701E-03	2.717E-01	4.594E-01	0.000E+00	FAIL ABUN
RU-106	-8.701E-03	2.717E-01	4.594E-01	0.000E+00	FAIL ABUN
AG-108M	3.803E-02	2.587E-02	4.927E-02	0.000E+00	NOT IDENT.
AG-110M	-3.074E-02	2.879E-02	4.354E-02	0.000E+00	NOT IDENT.
IN-111	4.576E-01	1.490E+00	2.325E+00	0.000E+00	NOT IDENT.
IN-113M	-1.015E-02	3.736E-02	6.498E-02	0.000E+00	NOT IDENT.
SN-113	-1.015E-02	3.736E-02	6.498E-02	0.000E+00	NOT IDENT.
IN-114M	2.324E-02	1.582E-01	2.656E-01	0.000E+00	NOT IDENT.
CD-115	-9.376E+00	1.691E+01	2.786E+01	0.000E+00	NOT IDENT.
SN-117M	1.079E-02	5.435E-02	8.723E-02	0.000E+00	NOT IDENT.
SB-122	1.732E+00	2.886E+00	5.150E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.005E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.643E-03	2.594E-02	4.166E-02	0.000E+00	NOT IDENT.
I-124	4.792E-01	8.259E-01	1.306E+00	0.000E+00	NOT IDENT.
SB-124	-6.400E-03	5.853E-02	9.683E-02	0.000E+00	FAIL ABUN
SB-125	3.800E-02	7.513E-02	1.360E-01	0.000E+00	FAIL ABUN
TE-125M	4.960E+00	7.536E+00	1.401E+01	0.000E+00	NOT IDENT.
I-126	-7.666E-02	1.800E-01	2.925E-01	0.000E+00	NOT IDENT.
SB-126	1.349E-01	1.449E-01	2.448E-01	0.000E+00	FAIL ABUN
SB-127	-9.625E-01	1.670E+00	2.653E+00	0.000E+00	NOT IDENT.
XE-127	2.172E-02	4.254E-02	7.554E-02	0.000E+00	NOT IDENT.
I-131	-7.907E-02	1.166E-01	1.990E-01	0.000E+00	NOT IDENT.
TE-132	-2.508E-01	9.199E-01	1.563E+00	0.000E+00	NOT IDENT.
BA-133	-1.848E-02	3.959E-02	5.879E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.300E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.756E-02	8.229E-02	0.000E+00	FAIL ABUN
CS-135	2.003E-01	1.533E-01	2.500E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.401E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.603E-02	1.088E-01	1.889E-01	0.000E+00	FAIL ABUN
BA-137M	3.193E-02	3.056E-02	5.557E-02	0.000E+00	NOT IDENT.
CS-137	3.375E-02	3.231E-02	5.875E-02	0.000E+00	NOT IDENT.
CE-139	-3.713E-03	2.466E-02	4.328E-02	0.000E+00	NOT IDENT.
BA-140	-1.759E-02	2.293E-01	3.917E-01	0.000E+00	NOT IDENT.
LA-140	-5.396E-02	8.423E-02	1.300E-01	0.000E+00	FAIL ABUN
CE-141	-5.130E-02	5.580E-02	9.568E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.620E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.636E-02	1.907E-01	3.084E-01	0.000E+00	NOT IDENT.

PM-144	-3.268E-02	3.360E-02	5.150E-02	0.000E+00	NOT IDENT.
PR-144	-2.217E+00	2.279E+00	3.494E+00	0.000E+00	NOT IDENT.
PM-146	5.505E-02	3.726E-02	7.019E-02	0.000E+00	NOT IDENT.
ND-147	-2.739E-02	5.013E-01	8.589E-01	0.000E+00	FAIL ABUN
PM-149	-2.207E+02	1.536E+02	2.291E+02	0.000E+00	NOT IDENT.
EU-152	-9.584E-02	8.124E-02	1.346E-01	0.000E+00	FAIL ABUN
GD-153	-4.946E-02	6.973E-02	1.108E-01	0.000E+00	NOT IDENT.
EU-154	-7.146E-02	1.154E-01	1.797E-01	0.000E+00	NOT IDENT.
EU-155	7.996E-02	8.615E-02	1.619E-01	0.000E+00	FAIL ABUN
TB-160	9.454E-02	1.303E-01	2.379E-01	0.000E+00	FAIL ABUN
HO-166M	-6.077E-02	5.305E-02	7.897E-02	0.000E+00	FAIL ABUN
TM-171	-1.822E+01	2.725E+01	4.084E+01	0.000E+00	NOT IDENT.
LU-176	1.837E-03	2.251E-02	3.800E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.601E+00	2.329E+00	0.000E+00	FAIL ABUN
LU-177M	-2.522E-02	1.417E-01	2.466E-01	0.000E+00	FAIL ABUN
HF-181	-1.548E-02	3.861E-02	6.520E-02	0.000E+00	NOT IDENT.
W-181	-2.042E-01	3.461E-01	5.221E-01	0.000E+00	NOT IDENT.
TA-182	1.997E-03	1.899E-01	3.182E-01	0.000E+00	FAIL ABUN
RE-183	6.764E-02	9.883E-02	1.758E-01	0.000E+00	FAIL ABUN
RE-184	7.788E-02	1.953E-01	3.408E-01	0.000E+00	NOT IDENT.
OS-185	1.375E-04	3.810E-02	6.436E-02	0.000E+00	NOT IDENT.
W-188	-3.674E+00	7.602E+00	1.097E+01	0.000E+00	FAIL ABUN
IR-192	-2.178E-02	3.077E-02	4.900E-02	0.000E+00	FAIL ABUN
AU-195	3.489E-01	1.888E-01	3.508E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.315E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.280E+01	8.916E+00	1.460E+01	0.000E+00	NOT IDENT.
TL-202	1.215E-02	6.135E-02	1.089E-01	0.000E+00	NOT IDENT.
HG-203	4.974E-02	4.053E-02	6.591E-02	0.000E+00	NOT IDENT.
BI-207	-9.589E-03	4.616E-02	7.616E-02	0.000E+00	FAIL ABUN
TL-207	5.694E-01	6.391E-01	1.006E+00	0.000E+00	FAIL ABUN
PO-209	-7.422E+00	6.519E+00	1.005E+01	0.000E+00	NOT IDENT.
BI-210	7.843E-01	3.127E+00	5.447E+00	0.000E+00	NOT IDENT.
PB-210	7.843E-01	3.127E+00	5.447E+00	0.000E+00	NOT IDENT.
PO-210	7.843E-01	3.127E+00	5.447E+00	0.000E+00	NOT IDENT.
PB-211	-8.173E-01	9.460E-01	1.328E+00	0.000E+00	NOT IDENT.
PO-215	5.694E-01	6.391E-01	1.006E+00	0.000E+00	FAIL ABUN
RN-219	2.345E-01	3.669E-01	6.673E-01	0.000E+00	FAIL ABUN
RN-220	-5.533E+00	2.137E+01	3.590E+01	0.000E+00	NOT IDENT.
RA-223	5.694E-01	6.391E-01	1.006E+00	0.000E+00	FAIL ABUN
AC-227	1.846E-02	3.199E-01	5.478E-01	0.000E+00	FAIL ABUN
TH-227	1.846E-02	3.199E-01	5.478E-01	0.000E+00	FAIL ABUN
TH-229	1.257E-02	4.278E-01	7.392E-01	0.000E+00	FAIL ABUN
PA-231	4.565E-01	1.292E+00	2.228E+00	0.000E+00	FAIL ABUN
TH-231	5.694E-01	6.391E-01	1.006E+00	0.000E+00	FAIL ABUN
U-231	-6.533E-01	1.214E+00	1.947E+00	0.000E+00	FAIL ABUN
PA-233	-6.005E-02	5.660E-02	8.765E-02	0.000E+00	FAIL ABUN
PA-234	-6.763E-02	2.709E-01	4.551E-01	0.000E+00	FAIL ABUN
PA-234M	4.456E+00	4.309E+00	7.840E+00	0.000E+00	NOT IDENT.
U-235	2.559E-01	1.856E-01	3.338E-01	0.000E+00	FAIL ABUN
NP-236	-8.952E-02	6.728E-02	1.117E-01	0.000E+00	NOT IDENT.
NP-239	3.510E-02	1.546E-01	2.824E-01	0.000E+00	FAIL ABUN
AM-241	-6.609E-02	1.449E-01	2.212E-01	0.000E+00	NOT IDENT.
CM-243	-5.887E-02	7.523E-02	1.329E-01	0.000E+00	FAIL ABUN
AM-246	5.507E-02	1.330E-01	2.335E-01	0.000E+00	NOT IDENT.
CM-247	3.388E-02	3.246E-02	6.031E-02	0.000E+00	FAIL ABUN
CF-249	7.489E-03	3.376E-02	6.050E-02	0.000E+00	NOT IDENT.
CF-251	-7.552E-02	1.037E-01	1.759E-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]G246341005.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:10:31
Sample ID          : G246341005          Sample quantity  : 1.40620E+02 GRAM
Detector name      : GAM16              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:02.09  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1420	10.67*	1.208E+00	2.940E+01	2.940E+01	10.40
CD-109	88.03	272	3.72*	6.263E+00	3.117E+00	3.197E+00	31.67
SN-126	64.28	110	9.60	3.524E+00	8.647E-01	8.647E-01	72.75
	86.94	272	8.90	6.263E+00	1.303E+00	1.303E+00	51.37
	87.57	272	37.00*	6.263E+00	3.134E-01	3.134E-01	31.67
RE-188	155.03	98	15.00*	6.766E+00	2.589E-01	3.071E-01	82.75
	477.96	-----	1.04	3.122E+00	-----	Line Not Found	-----
	633.10	-----	1.26	2.495E+00	-----	Line Not Found	-----
TL-208	277.35	100	6.80	4.693E+00	8.350E-01	8.350E-01	54.80
	510.84	152	21.60	2.965E+00	6.321E-01	6.321E-01	47.02
	583.14	468	84.20*	2.668E+00	5.562E-01	5.562E-01	16.30
	860.37	67	12.46	1.920E+00	7.439E-01	7.439E-01	50.21
BI-211	72.87	-----	1.27	4.872E+00	-----	Line Not Found	-----
	351.07	745	12.94*	3.940E+00	3.902E+00	3.902E+00	14.98
BI-212	727.18	97	11.80*	2.220E+00	9.882E-01	9.882E-01	51.62
	785.46	-----	1.97	2.079E+00	-----	Line Not Found	-----
	1620.62	24	2.75	1.117E+00	2.043E+00	2.043E+00	53.23
PB-212	74.81	484	10.70	5.107E+00	2.362E+00	2.362E+00	19.49
	77.11	718	18.00	5.361E+00	1.986E+00	1.986E+00	13.84
	87.30	272	8.00	6.263E+00	1.449E+00	1.449E+00	33.21
	238.63	1473	44.60*	5.225E+00	1.687E+00	1.687E+00	13.35
	300.09	92	3.41	4.431E+00	1.619E+00	1.619E+00	62.63
PO-212	74.81	484	10.70	5.107E+00	2.362E+00	2.362E+00	19.49
	77.11	718	18.00	5.361E+00	1.986E+00	1.986E+00	13.84
	87.30	272	8.00	6.263E+00	1.449E+00	1.449E+00	33.21
	115.19	-----	0.60	7.166E+00	-----	Line Not Found	-----
	238.63	1473	44.60*	5.225E+00	1.687E+00	1.687E+00	13.35
	300.09	92	3.41	4.431E+00	1.619E+00	1.619E+00	62.63
BI-214	609.31	544	46.30*	2.575E+00	1.218E+00	1.218E+00	16.31
	1120.29	-----	15.10	1.516E+00	-----	Line Not Found	-----
	1764.49	106	15.80	1.056E+00	1.691E+00	1.691E+00	25.18
PB-214	74.81	484	6.21	5.107E+00	4.070E+00	4.070E+00	18.63

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	77.11	718	10.50	5.361E+00	3.405E+00	3.405E+00	15.80
	87.30	272	4.67	6.263E+00	2.483E+00	2.483E+00	32.60
	241.98	313	7.49	5.180E+00	2.150E+00	2.150E+00	26.89
	295.21	469	19.20	4.488E+00	1.454E+00	1.454E+00	19.50
	351.92	745	37.20*	3.940E+00	1.357E+00	1.357E+00	15.86
	74.81	484	6.21	5.107E+00	4.070E+00	4.070E+00	18.63
	77.11	718	10.50	5.361E+00	3.405E+00	3.405E+00	15.80
	87.30	272	4.67	6.263E+00	2.483E+00	2.483E+00	32.60
	241.98	313	7.49	5.180E+00	2.150E+00	2.150E+00	26.89
	295.21	469	19.20	4.488E+00	1.454E+00	1.454E+00	19.50
PO-216	351.92	745	37.20*	3.940E+00	1.357E+00	1.357E+00	15.86
	74.81	484	10.70	5.107E+00	2.362E+00	2.362E+00	19.49
	77.11	718	18.00	5.361E+00	1.986E+00	1.986E+00	13.84
	87.30	272	8.00	6.263E+00	1.449E+00	1.449E+00	33.21
	238.63	1473	44.60*	5.225E+00	1.687E+00	1.687E+00	13.35
PO-218	300.09	92	3.41	4.431E+00	1.619E+00	1.619E+00	62.63
	74.81	484	6.21	5.107E+00	4.070E+00	4.070E+00	18.63
	77.11	718	10.50	5.361E+00	3.405E+00	3.405E+00	15.80
	87.30	272	4.67	6.263E+00	2.483E+00	2.483E+00	32.60
	241.98	313	7.49	5.180E+00	2.150E+00	2.150E+00	26.89
	295.21	469	19.20	4.488E+00	1.454E+00	1.454E+00	19.50
RA-224	351.92	745	37.20*	3.940E+00	1.357E+00	1.357E+00	15.86
RA-224	240.98	313	3.95*	5.180E+00	4.077E+00	4.077E+00	26.30
RA-226	609.31	544	46.30*	2.575E+00	1.218E+00	1.218E+00	16.31
AC-228	1120.29	-----	15.10	1.516E+00	-----	Line Not Found	-----
	1764.49	106	15.80	1.056E+00	1.691E+00	1.691E+00	25.18
	338.32	344	11.40	4.059E+00	1.984E+00	1.984E+00	45.61
	911.07	325	27.70*	1.824E+00	1.719E+00	1.719E+00	19.59
	969.11	203	16.60	1.727E+00	1.894E+00	1.894E+00	30.61
RA-228	338.32	344	11.40	4.059E+00	1.984E+00	1.984E+00	45.61
	911.07	325	27.70*	1.824E+00	1.719E+00	1.719E+00	19.59
	969.11	203	16.60	1.727E+00	1.894E+00	1.894E+00	30.61
TH-228	74.81	484	10.70	5.107E+00	2.362E+00	2.403E+00	17.14
	77.11	718	18.00	5.361E+00	1.986E+00	2.021E+00	13.84
	87.30	272	8.00	6.263E+00	1.449E+00	1.474E+00	31.67
	238.63	1473	44.60*	5.225E+00	1.687E+00	1.716E+00	13.35
TH-230	300.09	92	3.41	4.431E+00	1.619E+00	1.646E+00	85.60
	609.31	544	46.30*	2.575E+00	1.218E+00	1.218E+00	16.31
	1120.29	-----	15.10	1.516E+00	-----	Line Not Found	-----
	1764.49	106	15.80	1.056E+00	1.691E+00	1.691E+00	25.18
TH-232	338.32	344	11.40	4.059E+00	1.984E+00	1.984E+00	21.27
	911.07	325	27.70*	1.824E+00	1.719E+00	1.719E+00	19.59
	969.11	203	16.60	1.727E+00	1.894E+00	1.894E+00	30.61
TH-234	63.29	110	3.80*	3.524E+00	2.185E+00	2.185E+00	73.39
	92.38	438	5.41	6.596E+00	3.276E+00	3.276E+00	27.24
U-234	609.31	544	46.30*	2.575E+00	1.218E+00	1.218E+00	16.31
NF-237	1120.29	-----	15.10	1.516E+00	-----	Line Not Found	-----
	1764.49	106	15.80	1.056E+00	1.691E+00	1.691E+00	25.18
	86.50	272	12.60*	6.263E+00	9.202E-01	9.202E-01	37.80

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	95.87	-----	2.60	6.742E+00	-----	Line Not Found	-----
U-238	63.29	110	3.80*	3.524E+00	2.185E+00	2.185E+00	73.39
	92.38	438	5.41	6.596E+00	3.276E+00	3.276E+00	22.12
AM-243	74.67	484	66.00*	5.107E+00	3.829E-01	3.829E-01	17.10
	86.72	272	0.34	6.263E+00	3.451E+01	3.451E+01	31.67
	117.66	-----	0.55	7.175E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.968E+00	-----	Line Not Found	-----
ANH-511	511.00	152	100.00*	2.965E+00	1.365E-01	1.365E-01	46.28

Flag: "\*" = Keyline

Total number of lines in spectrum 38  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 35 92.11%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.940E+01	2.940E+01	0.306E+01	10.40	
CD-109	464.00D	1.03	3.117E+00	3.197E+00	1.013E+00	31.67	
SN-126	1.00E+05Y	1.00	3.134E-01	3.134E-01	0.992E-01	31.67	
RE-188	69.40D	1.19	2.589E-01	3.071E-01	2.541E-01	82.75	
TL-208	1.41E+10Y	1.00	5.562E-01	5.562E-01	0.907E-01	16.30	
BI-211	7.04E+08Y	1.00	3.902E+00	3.902E+00	0.585E+00	14.98	
BI-212	1.41E+10Y	1.00	9.882E-01	9.882E-01	5.101E-01	51.62	
PB-212	1.41E+10Y	1.00	1.687E+00	1.687E+00	0.225E+00	13.35	
PO-212	1.41E+10Y	1.00	1.687E+00	1.687E+00	0.225E+00	13.35	
BI-214	1600.00Y	1.00	1.218E+00	1.218E+00	0.199E+00	16.31	
PB-214	1600.00Y	1.00	1.357E+00	1.357E+00	0.215E+00	15.86	
PO-214	1600.00Y	1.00	1.357E+00	1.357E+00	0.215E+00	15.86	
PO-216	1.41E+10Y	1.00	1.687E+00	1.687E+00	0.225E+00	13.35	
PO-218	1600.00Y	1.00	1.357E+00	1.357E+00	0.215E+00	15.86	
RA-224	1.41E+10Y	1.00	4.077E+00	4.077E+00	1.072E+00	26.30	
RA-226	1600.00Y	1.00	1.218E+00	1.218E+00	0.199E+00	16.31	
AC-228	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.337E+00	19.59	
RA-228	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.337E+00	19.59	
TH-228	1.91Y	1.02	1.687E+00	1.716E+00	0.229E+00	13.35	
TH-230	4.47E+09Y	1.00	1.218E+00	1.218E+00	0.199E+00	16.31	
TH-232	1.41E+10Y	1.00	1.719E+00	1.719E+00	0.337E+00	19.59	
TH-234	4.47E+09Y	1.00	2.185E+00	2.185E+00	1.603E+00	73.39	
U-234	4.47E+09Y	1.00	1.218E+00	1.218E+00	0.199E+00	16.31	
NP-237	2.14E+06Y	1.00	9.202E-01	9.202E-01	3.478E-01	37.80	
U-238	4.47E+09Y	1.00	2.185E+00	2.185E+00	1.603E+00	73.39	
AM-243	7380.00Y	1.00	3.829E-01	3.829E-01	0.655E-01	17.10	
ANH-511	1.00E+09Y	1.00	1.365E-01	1.365E-01	0.632E-01	46.28	
Total Activity :			6.927E+01	6.943E+01			

Grand Total Activity : 6.927E+01 6.943E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	89.95	209	189	0.88	180.09	178	15	2.90E-02	20.7	6.44E+00	T
0	128.93	95	413	0.94	258.06	255	8	1.32E-02	77.0	7.13E+00	T
0	185.75	311	311	0.99	371.69	368	8	4.32E-02	23.7	6.15E+00	T
0	209.13	120	305	1.01	418.45	415	8	1.66E-02	54.0	5.71E+00	T
0	270.11	151	242	1.27	540.40	535	10	2.10E-02	41.8	4.79E+00	T
0	327.77	105	170	0.84	655.72	651	9	1.45E-02	49.1	4.15E+00	T
0	463.20	80	113	0.94	926.57	922	10	1.11E-02	55.6	3.20E+00	T
0	768.04	73	64	1.52	1536.16	1531	11	1.01E-02	48.4	2.12E+00	T
0	795.37	48	59	1.49	1590.80	1584	11	6.71E-03	70.2	2.06E+00	T
9	964.59	48	51	2.48	1929.16	1924	26	6.71E-03	62.8	1.73E+00	T
0	1122.13	63	144	1.65	2244.15	2233	16	8.81E-03	89.1	1.51E+00	T
0	1378.65	27	31	1.41	2756.98	2751	14	3.78E-03	98.5	1.27E+00	
0	1407.96	30	12	2.08	2815.57	2809	12	4.20E-03	58.4	1.24E+00	T
0	1729.73	31	8	1.01	3458.78	3453	14	4.32E-03	51.2	1.07E+00	
0	1847.58	14	8	1.58	3694.35	3689	10	1.88E-03	****	1.03E+00	

Flags: "T" = Tentatively associated



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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341005.CNF;1
* Acquisition date   : 18-FEB-2010 13:10:31  Detector SN#      :
* Detector ID        : GAM16                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:02.09          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G246341005           Analyst initials: MXR1
* Batch Number       : 950786               Sample Quantity : 1.40620E+02 GRAM
*****
*                               QC DATA                                   *
*
* CALIB. DATE/TIME   : 16-NOV-2009 11:22:16.1MS Isotope      :
* MSD ID              :                               MSD Isotope :
* LCS ID              : 1032-A                       LCS Isotope  :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.940E+01	3.058E+00	4.137E-01	3.636E-02	71.072
CD-109	3.197E+00	1.013E+00	1.003E+00	9.664E-02	3.188
SN-126	3.134E-01	9.924E-02	9.873E-02	9.467E-03	3.174
RE-188	3.071E-01	2.541E-01	2.284E-01	2.009E-02	1.345
TL-208	5.562E-01	9.067E-02	5.224E-02	5.178E-03	10.647
BI-211	3.902E+00	5.845E-01	2.873E-01	3.141E-02	13.583
BI-212	9.882E-01	5.101E-01	3.845E-01	4.017E-02	2.570
PB-212	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
PO-212	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
BI-214	1.218E+00	1.986E-01	9.015E-02	9.531E-03	13.507
PB-214	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
PO-214	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
PO-216	1.687E+00	2.252E-01	8.194E-02	9.701E-03	20.584
PO-218	1.357E+00	2.153E-01	1.001E-01	1.211E-02	13.554
RA-224	4.077E+00	1.072E+00	9.326E-01	1.028E-01	4.372
RA-226	1.218E+00	1.986E-01	9.015E-02	9.531E-03	13.507
AC-228	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868
RA-228	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.716E+00	2.290E-01	8.334E-02	9.867E-03	20.584
TH-230	1.218E+00	1.986E-01	9.014E-02	9.531E-03	13.507
TH-232	1.719E+00	3.369E-01	1.939E-01	2.303E-02	8.868
TH-234	2.185E+00	1.603E+00	1.759E+00	3.068E-01	1.242
U-234	1.218E+00	1.986E-01	9.014E-02	9.531E-03	13.507
NP-237	9.202E-01	3.478E-01	3.436E-01	7.801E-02	2.678
U-238	2.185E+00	1.603E+00	1.759E+00	3.068E-01	1.242
AM-243	3.829E-01	6.548E-02	7.168E-02	5.934E-03	5.342
ANH-511	1.365E-01	6.318E-02	4.015E-02	3.818E-03	3.401

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.314E-01		2.999E-01	5.203E-01	5.263E-02	0.445
NA-22	-3.544E-02		4.291E-02	6.349E-02	5.283E-03	-0.558
NA-24	9.766E-01		2.745E+00	Half-Life too short		
AL-26	5.035E-03		2.898E-02	4.914E-02	4.018E-03	0.102
TI-44	3.666E-01	+	5.074E-02	6.164E-02	5.308E-03	5.948
SC-46	-3.589E-02		3.571E-02	5.393E-02	5.098E-03	-0.665
V-48	-4.590E-02		6.541E-02	1.005E-01	9.249E-03	-0.457
CR-51	3.065E-02		3.416E-01	5.438E-01	6.358E-02	0.056
MN-52	-1.715E-02		2.559E-01	4.063E-01	3.467E-02	-0.042
MN-54	1.545E-02		3.368E-02	5.845E-02	5.490E-03	0.264
CO-56	-1.919E-02		3.244E-02	5.131E-02	4.828E-03	-0.374
CO-57	-2.264E-02		2.024E-02	3.213E-02	2.670E-03	-0.705
CO-58	-6.049E-03		3.432E-02	5.688E-02	5.329E-03	-0.106
FE-59	-2.849E-02		8.370E-02	1.328E-01	1.235E-02	-0.215
CO-60	-2.459E-02		3.726E-02	5.516E-02	4.653E-03	-0.446
ZN-65	-2.760E-02		9.417E-02	1.285E-01	1.091E-02	-0.215
GE-68	5.608E-01		1.171E+00	2.007E+00	1.753E-01	0.279
AS-73	3.317E-01		7.335E-01	1.174E+00	8.959E-02	0.282
AS-74	6.955E-02		8.229E-02	1.429E-01	1.326E-02	0.487
SE-75	1.040E-02		4.022E-02	5.860E-02	6.838E-03	0.178
BR-77	-3.428E+00		1.602E+01	2.595E+01	2.466E+00	-0.132
SR-82	9.764E-02		3.637E-01	5.947E-01	5.514E-02	0.164
RB-83	-9.813E-03		6.146E-02	1.000E-01	9.503E-03	-0.098
RB-84	-2.251E-02		6.714E-02	1.090E-01	1.030E-02	-0.207
KR-85	3.344E+00		6.664E+00	1.010E+01	9.601E-01	0.331
SR-85	1.750E-02		3.487E-02	5.284E-02	5.024E-03	0.331
RB-86	1.934E-01		7.828E-01	1.317E+00	1.151E-01	0.147
Y-88	-2.936E-03		2.791E-02	4.486E-02	3.642E-03	-0.065
ZR-88	-1.451E-02		2.655E-02	4.303E-02	3.980E-03	-0.337
Y-91	5.837E+00		1.762E+01	2.955E+01	2.403E+00	0.198
NB-94	-1.358E-02		3.164E-02	4.910E-02	4.439E-03	-0.277
NB-95	2.681E-02		4.311E-02	6.447E-02	5.959E-03	0.416
NB-95M	2.266E-02		1.245E-01	1.812E-01	2.154E-02	0.125
ZR-95	3.095E-02		6.366E-02	1.063E-01	1.067E-02	0.291

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	-8.545E-01		2.852E-01	Half-Life too short		
ZR-97	1.503E+01		5.600E+00	Half-Life too short		
MO-99	7.806E+00		1.841E+01	3.049E+01	4.727E+00	0.256
TC-99M	-3.553E+12		3.399E+12	Half-Life too short		
RH-101	1.591E-03		2.846E-02	4.607E-02	4.549E-03	0.035
RH-102	-2.046E-03		2.472E-02	4.073E-02	3.871E-03	-0.050
RU-103	1.260E-02		3.749E-02	6.331E-02	9.322E-03	0.199
RH-106	-8.701E-03		2.773E-01	4.494E-01	6.157E-02	-0.019
RU-106	-8.701E-03		2.773E-01	4.494E-01	4.109E-02	-0.019
AG-108M	3.803E-02		2.639E-02	4.784E-02	4.657E-03	0.795
AG-110M	-3.074E-02		2.938E-02	4.264E-02	3.903E-03	-0.721
IN-111	4.576E-01		1.520E+00	2.231E+00	2.485E-01	0.205
IN-113M	-1.015E-02		3.812E-02	6.296E-02	5.976E-03	-0.161
SN-113	-1.015E-02		3.812E-02	6.296E-02	5.976E-03	-0.161
IN-114M	2.324E-02		1.615E-01	2.537E-01	2.453E-02	0.092
CD-115	-9.376E+00		1.725E+01	2.716E+01	2.578E+00	-0.345
SN-117M	1.079E-02		5.546E-02	8.300E-02	7.372E-03	0.130
SB-122	1.732E+00		2.945E+00	5.028E+00	4.730E-01	0.345
I-123	1.306E+01		3.064E+01	Half-Life too short		
TE-123M	5.643E-03		2.647E-02	3.964E-02	3.545E-03	0.142
I-124	4.792E-01		8.427E-01	1.277E+00	1.181E-01	0.375
SB-124	-6.400E-03		5.972E-02	9.676E-02	8.474E-03	-0.066
SB-125	3.800E-02		7.667E-02	1.320E-01	1.261E-02	0.288
TE-125M	4.960E+00		7.689E+00	1.324E+01	1.348E+00	0.375
I-126	-7.666E-02		1.837E-01	2.865E-01	2.548E-02	-0.268
SB-126	1.349E-01		1.479E-01	2.402E-01	2.186E-02	0.562
SB-127	-9.625E-01		1.704E+00	2.601E+00	3.179E-01	-0.370
XE-127	2.172E-02		4.341E-02	7.222E-02	7.223E-03	0.301
I-131	-7.907E-02		1.190E-01	1.925E-01	2.038E-02	-0.411
TE-132	-2.508E-01		9.387E-01	1.498E+00	2.588E-01	-0.167
BA-133	-1.848E-02		4.039E-02	5.685E-02	8.215E-03	-0.325
I-133	-1.392E-02		1.173E-02	Half-Life too short		
CS-134	8.292E-02	+	5.873E-02	8.091E-02	7.586E-03	1.025
CS-135	2.003E-01		1.565E-01	2.404E-01	3.066E-02	0.833
I-135	-1.164E+11		3.266E+11	Half-Life too short		
CS-136	2.603E-02		1.110E-01	1.868E-01	1.730E-02	0.139
BA-137M	3.193E-02		3.119E-02	5.443E-02	4.831E-03	0.587
CS-137	3.375E-02		3.297E-02	5.754E-02	5.116E-03	0.587
CE-139	-3.713E-03		2.516E-02	4.122E-02	3.738E-03	-0.090
BA-140	-1.759E-02		2.340E-01	3.820E-01	1.275E-01	-0.046
LA-140	-5.396E-02		8.595E-02	1.298E-01	1.105E-02	-0.416
CE-141	-5.130E-02		5.694E-02	9.088E-02	7.950E-03	-0.564
CE-143	1.164E-03		2.357E-04	Half-Life too short		
CE-144	1.636E-02		1.946E-01	2.924E-01	4.515E-02	0.056
PM-144	-3.268E-02		3.428E-02	5.050E-02	4.555E-03	-0.647
PR-144	-2.217E+00		2.326E+00	3.425E+00	3.089E-01	-0.647
PM-146	5.505E-02		3.802E-02	6.822E-02	7.790E-03	0.807
ND-147	-2.739E-02		5.115E-01	8.374E-01	1.295E-01	-0.033

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149	-2.207E+02		1.567E+02	2.205E+02	3.881E+01	-1.001
EU-152	-9.584E-02		8.290E-02	1.301E-01	1.454E-02	-0.737
GD-153	-4.946E-02		7.115E-02	1.044E-01	9.273E-03	-0.474
EU-154	-7.146E-02		1.177E-01	1.785E-01	1.977E-02	-0.400
EU-155	7.996E-02		8.791E-02	1.528E-01	1.322E-02	0.523
TB-160	9.454E-02		1.329E-01	2.344E-01	2.214E-02	0.403
HO-166M	-6.077E-02		5.413E-02	7.747E-02	7.029E-03	-0.784
TM-171	-1.822E+01		2.781E+01	3.821E+01	2.928E+00	-0.477
LU-176	1.837E-03		2.297E-02	3.663E-02	4.249E-03	0.050
LU-177	2.971E+00	+	1.634E+00	2.228E+00	2.261E-01	1.333
LU-177M	-2.522E-02		1.446E-01	2.392E-01	2.235E-02	-0.105
HF-181	-1.548E-02		3.940E-02	6.344E-02	6.034E-03	-0.244
W-181	-2.042E-01		3.532E-01	4.883E-01	3.687E-02	-0.418
TA-182	1.997E-03		1.938E-01	3.157E-01	2.582E-02	0.006
RE-183	6.764E-02		1.009E-01	1.673E-01	1.502E-02	0.404
RE-184	7.788E-02		1.993E-01	3.273E-01	3.709E-02	0.238
OS-185	1.375E-04		3.887E-02	6.300E-02	5.663E-03	0.002
W-188	-3.674E+00		7.757E+00	1.056E+01	1.253E+00	-0.348
IR-192	-2.178E-02		3.140E-02	4.727E-02	5.402E-03	-0.461
AU-195	3.489E-01		1.926E-01	3.307E-01	2.912E-02	1.055
TL-200	-6.928E-05		6.712E-04	Half-Life too short		
TL-201	-1.280E+01		9.098E+00	1.391E+01	1.266E+00	-0.920
TL-202	1.215E-02		6.260E-02	1.057E-01	9.976E-03	0.115
HG-203	4.974E-02		4.136E-02	6.342E-02	7.730E-03	0.784
BI-207	-9.589E-03		4.710E-02	7.535E-02	6.642E-03	-0.127
TL-207	5.694E-01		6.522E-01	9.713E-01	1.858E-01	0.586
PO-209	-7.422E+00		6.652E+00	9.905E+00	9.368E-01	-0.749
BI-210	7.843E-01		3.191E+00	5.062E+00	4.721E-01	0.155
PB-210	7.843E-01		3.191E+00	5.062E+00	4.721E-01	0.155
PO-210	7.843E-01		3.191E+00	5.062E+00	4.276E-01	0.155
PB-211	-8.173E-01		9.653E-01	1.287E+00	8.080E-01	-0.635
PO-215	5.694E-01		6.522E-01	9.713E-01	1.858E-01	0.586
RN-219	2.345E-01		3.744E-01	6.468E-01	9.976E-02	0.363
RN-220	-5.533E+00		2.181E+01	3.503E+01	3.309E+00	-0.158
RA-223	5.694E-01		6.522E-01	9.713E-01	1.858E-01	0.586
AC-227	1.846E-02		3.265E-01	5.262E-01	8.986E-02	0.035
TH-227	1.846E-02		3.265E-01	5.262E-01	1.029E-01	0.035
TH-229	1.257E-02		4.366E-01	7.061E-01	6.890E-02	0.018
PA-231	4.565E-01		1.319E+00	2.145E+00	3.710E-01	0.213
TH-231	5.694E-01		6.522E-01	9.713E-01	1.858E-01	0.586
U-231	-6.533E-01		1.238E+00	1.834E+00	1.647E-01	-0.356
PA-233	-6.005E-02		5.775E-02	8.453E-02	9.880E-03	-0.710
PA-234	-6.763E-02		2.764E-01	4.491E-01	8.579E-02	-0.151
PA-234M	4.456E+00		4.397E+00	7.746E+00	8.065E-01	0.575
U-235	2.559E-01		1.894E-01	3.170E-01	5.539E-02	0.807
NP-236	-8.952E-02		6.865E-02	1.063E-01	9.483E-03	-0.842
NP-239	3.510E-02		1.578E-01	2.671E-01	2.224E-02	0.131
AM-241	-6.609E-02		1.478E-01	2.065E-01	1.620E-02	-0.320

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-5.887E-02		7.677E-02	1.254E-01	1.078E-02	-0.470
AM-246	5.507E-02		1.357E-01	2.311E-01	2.016E-02	0.238
CM-247	3.388E-02		3.312E-02	5.846E-02	5.436E-03	0.579
CF-249	7.489E-03		3.445E-02	5.861E-02	5.498E-03	0.128
CF-251	-7.552E-02		1.058E-01	1.677E-01	1.564E-02	-0.450

# 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]G246341005
* Acquisition date   : 18-FEB-2010 13:10:31 Detector SN#      :
* Detector ID        : GAM16 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 02:00:02.09 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G246341005 Analyst initials: MXR1
* Batch Number       : 950786 Sample Quantity : 1.4062E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME  : 16-NOV-2009 11:22:16 MS Isotope      :
* MSD DPM           : 0.000 MSD Isotope      :
* LCS DPM           : 0.000 LCS Isotope      :
* LCSD DPM          : 0.000 LCSD Isotope     :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.940E+01	2.997E+00	2.078E-01	1.529E+00
CD-109	3.197E+00	9.924E-01	5.334E-01	5.063E-01
SN-126	3.134E-01	9.726E-02	5.252E-02	4.962E-02
RE-188	3.071E-01	2.490E-01	1.202E-01	1.271E-01
TL-208	5.562E-01	8.886E-02	2.675E-02	4.534E-02
BI-211	3.902E+00	5.728E-01	1.487E-01	2.923E-01
BI-212	9.882E-01	4.999E-01	1.960E-01	2.550E-01
PB-212	1.687E+00	2.207E-01	4.274E-02	1.126E-01
PO-212	1.687E+00	2.207E-01	4.274E-02	1.126E-01
BI-214	1.218E+00	1.947E-01	4.613E-02	9.931E-02
PB-214	1.357E+00	2.110E-01	5.183E-02	1.077E-01
PO-214	1.357E+00	2.110E-01	5.183E-02	1.077E-01
PO-216	1.687E+00	2.207E-01	4.274E-02	1.126E-01
PO-218	1.357E+00	2.110E-01	5.183E-02	1.077E-01
RA-224	4.077E+00	1.051E+00	4.863E-01	5.361E-01
AC-226	1.218E+00	1.947E-01	4.613E-02	9.931E-02
RA-228	1.719E+00	3.301E-01	9.837E-02	1.684E-01
RA-228	1.719E+00	3.301E-01	9.837E-02	1.684E-01
TH-228	1.716E+00	2.245E-01	4.347E-02	1.145E-01
TH-230	1.218E+00	1.947E-01	4.612E-02	9.931E-02
TH-232	1.719E+00	3.301E-01	9.837E-02	1.684E-01
TH-234	2.185E+00	1.571E+00	9.414E-01	8.016E-01
U-234	1.218E+00	1.947E-01	4.612E-02	9.931E-02
NP-237	9.202E-01	3.409E-01	1.828E-01	1.739E-01
U-238	2.185E+00	1.571E+00	9.414E-01	8.016E-01
AM-243	3.829E-01	6.417E-02	3.825E-02	3.274E-02
ANH-511	1.365E-01	6.192E-02	2.062E-02	3.159E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.314E-01	2.939E-01	2.676E-01	1.500E-01	NOT IDENT.
NA-22	-3.544E-02	4.205E-02	3.198E-02	2.145E-02	NOT IDENT.
NA-24	9.766E+05	5.381E+06	0.000E+00	2.745E+06	SHORT HLIF
AL-26	5.035E-03	2.840E-02	2.457E-02	1.449E-02	NOT IDENT.
TI-44	3.666E-01	4.973E-02	3.286E-02	2.537E-02	FAIL ABUN
SC-46	-3.589E-02	3.500E-02	2.738E-02	1.786E-02	NOT IDENT.
V-48	-4.590E-02	6.410E-02	5.090E-02	3.270E-02	NOT IDENT.
CR-51	3.065E-02	3.347E-01	2.820E-01	1.708E-01	NOT IDENT.
MN-52	-1.715E-02	2.508E-01	2.042E-01	1.280E-01	NOT IDENT.
MN-54	1.545E-02	3.301E-02	2.971E-02	1.684E-02	NOT IDENT.
CO-56	-1.919E-02	3.179E-02	2.607E-02	1.622E-02	NOT IDENT.
CO-57	-2.264E-02	1.984E-02	1.698E-02	1.012E-02	NOT IDENT.
CO-58	-6.049E-03	3.363E-02	2.893E-02	1.716E-02	NOT IDENT.
FE-59	-2.849E-02	8.202E-02	6.712E-02	4.185E-02	NOT IDENT.
CO-60	-2.459E-02	3.651E-02	2.776E-02	1.863E-02	NOT IDENT.
ZN-65	-2.760E-02	9.228E-02	6.490E-02	4.708E-02	NOT IDENT.
GE-68	5.608E-01	1.148E+00	1.015E+00	5.855E-01	NOT IDENT.
AS-73	3.317E-01	7.188E-01	6.306E-01	3.667E-01	NOT IDENT.
AS-74	6.955E-02	8.064E-02	7.315E-02	4.114E-02	NOT IDENT.
SE-75	1.040E-02	3.942E-02	3.050E-02	2.011E-02	NOT IDENT.
BR-77	-3.428E+00	1.570E+01	1.332E+01	8.010E+00	FAIL ABUN
SR-82	9.764E-02	3.564E-01	3.028E-01	1.818E-01	NOT IDENT.
RB-83	-9.813E-03	6.023E-02	5.134E-02	3.073E-02	NOT IDENT.
RB-84	-2.251E-02	6.580E-02	5.534E-02	3.357E-02	NOT IDENT.
KR-85	3.344E+00	6.530E+00	5.185E+00	3.332E+00	NOT IDENT.
SR-85	1.750E-02	3.417E-02	2.713E-02	1.743E-02	NOT IDENT.
RB-86	1.934E-01	7.671E-01	6.657E-01	3.914E-01	NOT IDENT.
Y-88	-2.936E-03	2.736E-02	2.242E-02	1.396E-02	NOT IDENT.
ZR-88	-1.451E-02	2.602E-02	2.222E-02	1.328E-02	NOT IDENT.
Y-91	5.837E+00	1.727E+01	1.490E+01	8.811E+00	NOT IDENT.
NB-94	-1.358E-02	3.101E-02	2.505E-02	1.582E-02	NOT IDENT.
NB-95	2.681E-02	4.224E-02	3.283E-02	2.155E-02	NOT IDENT.
NB-95M	2.266E-02	1.220E-01	9.451E-02	6.223E-02	NOT IDENT.
ZR-95	3.095E-02	6.239E-02	5.415E-02	3.183E-02	NOT IDENT.
NB-97	-8.545E+05	5.590E+05	0.000E+00	2.852E+05	SHORT HLIF
ZR-97	1.503E+07	1.098E+07	0.000E+00	5.600E+06	SHORT HLIF
MO-99	7.806E+00	1.805E+01	1.554E+01	9.207E+00	NOT IDENT.
TC-99M	-3.553E+18	6.663E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.591E-03	2.789E-02	2.412E-02	1.423E-02	NOT IDENT.
RH-102	-2.046E-03	2.422E-02	2.095E-02	1.236E-02	FAIL ABUN
RU-103	1.260E-02	3.674E-02	3.253E-02	1.875E-02	FAIL ABUN
RH-106	-8.701E-03	2.717E-01	2.298E-01	1.386E-01	FAIL ABUN
RU-106	-8.701E-03	2.717E-01	2.298E-01	1.386E-01	FAIL ABUN
AG-108M	3.803E-02	2.587E-02	2.465E-02	1.320E-02	NOT IDENT.
AG-110M	-3.074E-02	2.879E-02	2.178E-02	1.469E-02	NOT IDENT.
IN-111	4.576E-01	1.490E+00	1.163E+00	7.601E-01	NOT IDENT.
IN-113M	-1.015E-02	3.736E-02	3.251E-02	1.906E-02	NOT IDENT.
SN-113	-1.015E-02	3.736E-02	3.251E-02	1.906E-02	NOT IDENT.
IN-114M	2.324E-02	1.582E-01	1.329E-01	8.073E-02	NOT IDENT.
CD-115	-9.376E+00	1.691E+01	1.394E+01	8.625E+00	NOT IDENT.
SN-117M	1.079E-02	5.435E-02	4.364E-02	2.773E-02	NOT IDENT.
SB-122	1.732E+00	2.886E+00	2.577E+00	1.473E+00	NOT IDENT.
I-123	1.306E+07	6.005E+07	0.000E+00	3.064E+07	SHORT HLIF
TE-123M	5.643E-03	2.594E-02	2.084E-02	1.324E-02	NOT IDENT.
I-124	4.792E-01	8.259E-01	6.536E-01	4.214E-01	NOT IDENT.
SB-124	-6.400E-03	5.853E-02	4.844E-02	2.986E-02	FAIL ABUN
SB-125	3.800E-02	7.513E-02	6.804E-02	3.833E-02	FAIL ABUN
TE-125M	4.960E+00	7.536E+00	7.011E+00	3.845E+00	NOT IDENT.
I-126	-7.666E-02	1.800E-01	1.463E-01	9.185E-02	NOT IDENT.
SB-126	1.349E-01	1.449E-01	1.225E-01	7.394E-02	FAIL ABUN
SB-127	-9.625E-01	1.670E+00	1.327E+00	8.519E-01	NOT IDENT.
XE-127	2.172E-02	4.254E-02	3.779E-02	2.170E-02	NOT IDENT.
I-131	-7.907E-02	1.166E-01	9.956E-02	5.949E-02	NOT IDENT.
TE-132	-2.508E-01	9.199E-01	7.819E-01	4.694E-01	NOT IDENT.
BA-133	-1.848E-02	3.959E-02	2.941E-02	2.020E-02	FAIL ABUN
I-133	-1.392E+04	2.300E+04	0.000E+00	1.173E+04	SHORT HLIF
CS-134	8.292E-02	5.756E-02	4.117E-02	2.937E-02	FAIL ABUN
CS-135	2.003E-01	1.533E-01	1.251E-01	7.823E-02	NOT IDENT.
I-135	-1.164E+17	6.401E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.603E-02	1.088E-01	9.450E-02	5.549E-02	FAIL ABUN
BA-137M	3.193E-02	3.056E-02	2.780E-02	1.559E-02	NOT IDENT.
CS-137	3.375E-02	3.231E-02	2.939E-02	1.648E-02	NOT IDENT.
CE-139	-3.713E-03	2.466E-02	2.165E-02	1.258E-02	NOT IDENT.
BA-140	-1.759E-02	2.293E-01	1.960E-01	1.170E-01	NOT IDENT.
LA-140	-5.396E-02	8.423E-02	6.506E-02	4.297E-02	FAIL ABUN
CE-141	-5.130E-02	5.580E-02	4.787E-02	2.847E-02	NOT IDENT.
CE-143	1.164E+03	4.620E+02	0.000E+00	2.357E+02	SHORT HLIF
CE-144	1.636E-02	1.907E-01	1.543E-01	9.731E-02	NOT IDENT.

PM-144	-3.268E-02	3.360E-02	2.577E-02	1.714E-02	NOT IDENT.
PR-144	-2.217E+00	2.279E+00	1.748E+00	1.163E+00	NOT IDENT.
PM-146	5.505E-02	3.726E-02	3.512E-02	1.901E-02	NOT IDENT.
ND-147	-2.739E-02	5.013E-01	4.297E-01	2.557E-01	FAIL ABUN
PM-149	-2.207E+02	1.536E+02	1.146E+02	7.837E+01	NOT IDENT.
EU-152	-9.584E-02	8.124E-02	6.735E-02	4.145E-02	FAIL ABUN
GD-153	-4.946E-02	6.973E-02	5.541E-02	3.558E-02	NOT IDENT.
EU-154	-7.146E-02	1.154E-01	8.991E-02	5.887E-02	NOT IDENT.
EU-155	7.996E-02	8.615E-02	8.101E-02	4.395E-02	FAIL ABUN
TB-160	9.454E-02	1.303E-01	1.190E-01	6.645E-02	FAIL ABUN
HO-166M	-6.077E-02	5.305E-02	3.951E-02	2.707E-02	FAIL ABUN
TM-171	-1.822E+01	2.725E+01	2.043E+01	1.390E+01	NOT IDENT.
LU-176	1.837E-03	2.251E-02	1.901E-02	1.148E-02	FAIL ABUN
LU-177	2.971E+00	1.601E+00	1.165E+00	8.169E-01	FAIL ABUN
LU-177M	-2.522E-02	1.417E-01	1.234E-01	7.229E-02	FAIL ABUN
HF-181	-1.548E-02	3.861E-02	3.262E-02	1.970E-02	NOT IDENT.
W-181	-2.042E-01	3.461E-01	2.612E-01	1.766E-01	NOT IDENT.
TA-182	1.997E-03	1.899E-01	1.592E-01	9.691E-02	FAIL ABUN
RE-183	6.764E-02	9.883E-02	8.795E-02	5.043E-02	FAIL ABUN
RE-184	7.788E-02	1.953E-01	1.705E-01	9.966E-02	NOT IDENT.
OS-185	1.375E-04	3.810E-02	3.220E-02	1.944E-02	NOT IDENT.
W-188	-3.674E+00	7.602E+00	5.488E+00	3.879E+00	FAIL ABUN
IR-192	-2.178E-02	3.077E-02	2.451E-02	1.570E-02	FAIL ABUN
AU-195	3.489E-01	1.888E-01	1.755E-01	9.631E-02	FAIL ABUN
TL-200	-6.928E+01	1.315E+03	0.000E+00	6.712E+02	SHORT HLIF
TL-201	-1.280E+01	8.916E+00	7.305E+00	4.549E+00	NOT IDENT.
TL-202	1.215E-02	6.135E-02	5.446E-02	3.130E-02	NOT IDENT.
HG-203	4.974E-02	4.053E-02	3.298E-02	2.068E-02	NOT IDENT.
BI-207	-9.589E-03	4.616E-02	3.810E-02	2.355E-02	FAIL ABUN
TL-207	5.694E-01	6.391E-01	5.035E-01	3.261E-01	FAIL ABUN
PO-209	-7.422E+00	6.519E+00	5.027E+00	3.326E+00	NOT IDENT.
BI-210	7.843E-01	3.127E+00	2.725E+00	1.596E+00	NOT IDENT.
PB-210	7.843E-01	3.127E+00	2.725E+00	1.596E+00	NOT IDENT.
PO-210	7.843E-01	3.127E+00	2.725E+00	1.596E+00	NOT IDENT.
PB-211	-8.173E-01	9.460E-01	6.643E-01	4.827E-01	NOT IDENT.
PO-215	5.694E-01	6.391E-01	5.035E-01	3.261E-01	FAIL ABUN
RN-219	2.345E-01	3.669E-01	3.338E-01	1.872E-01	FAIL ABUN
RN-220	-5.533E+00	2.137E+01	1.796E+01	1.091E+01	NOT IDENT.
RA-223	5.694E-01	6.391E-01	5.035E-01	3.261E-01	FAIL ABUN
AC-227	1.846E-02	3.199E-01	2.740E-01	1.632E-01	FAIL ABUN
TH-227	1.846E-02	3.199E-01	2.740E-01	1.632E-01	FAIL ABUN
TH-229	1.257E-02	4.278E-01	3.698E-01	2.183E-01	FAIL ABUN
PA-231	4.565E-01	1.292E+00	1.115E+00	6.593E-01	FAIL ABUN
TH-231	5.694E-01	6.391E-01	5.035E-01	3.261E-01	FAIL ABUN
U-231	-6.533E-01	1.214E+00	9.740E-01	6.192E-01	FAIL ABUN
PA-233	-6.005E-02	5.660E-02	4.385E-02	2.888E-02	FAIL ABUN
PA-234	-6.763E-02	2.709E-01	2.277E-01	1.382E-01	FAIL ABUN
PA-234M	4.456E+00	4.309E+00	3.922E+00	2.199E+00	NOT IDENT.
U-235	2.559E-01	1.856E-01	1.670E-01	9.468E-02	FAIL ABUN
NP-236	-8.952E-02	6.728E-02	5.586E-02	3.433E-02	NOT IDENT.
NP-239	3.510E-02	1.546E-01	1.413E-01	7.889E-02	FAIL ABUN
AM-241	-6.609E-02	1.449E-01	1.107E-01	7.390E-02	NOT IDENT.
CM-243	-5.887E-02	7.523E-02	6.647E-02	3.838E-02	FAIL ABUN
AM-246	5.507E-02	1.330E-01	1.168E-01	6.786E-02	NOT IDENT.
CM-247	3.388E-02	3.246E-02	3.017E-02	1.656E-02	FAIL ABUN
CF-249	7.489E-03	3.376E-02	3.027E-02	1.722E-02	NOT IDENT.
CF-251	-7.552E-02	1.037E-01	8.800E-02	5.289E-02	NOT IDENT.



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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
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46.50	252.7274
46.50	252.7274
46.50	252.7274
48.70	265.1173
49.72	250.5094
51.35	261.2805
52.39	260.8850
52.97	258.9295
53.15	259.0650
53.44	256.8818
54.07	266.9684
56.28	308.5741
56.28	308.5760
57.37	0.0000
57.53	304.7903
57.53	304.7917
57.60	304.8492
57.98	312.4619
57.98	312.4619
59.32	372.5804
59.32	372.5804
59.40	366.1514
59.54	335.3587
59.72	335.5206
60.01	350.4521
61.10	325.3143
61.14	325.3482
61.30	325.4854
63.00	361.0264
63.29	361.2980
63.29	361.2980
63.58	361.9798
64.28	375.8165
65.12	389.8373
65.20	389.9147
65.20	389.9147
66.05	360.9494
66.72	401.3590
66.83	401.4698
66.91	390.7656
67.20	397.2727
67.20	397.2727
67.75	375.3659
67.85	375.4600
68.90	381.8484
68.90	381.8484
69.30	376.5462
69.67	380.8953
70.82	389.4891
70.82	389.4891
70.83	389.4985
72.80	390.0644
72.87	390.1281
72.87	390.1281
74.67	376.1342
74.81	376.2541
74.81	376.2541
74.81	376.2541
74.81	376.2541
74.81	376.2541
74.81	376.2541
74.97	376.3945
75.28	376.6638
75.70	377.0259
77.11	378.2391
77.11	378.2391

77.11	378.2391
77.11	378.2391
77.11	378.2391
77.11	378.2391
77.11	378.2391
78.38	366.9633
79.62	373.1079
79.80	373.2567
79.80	373.2567
80.11	341.4234
80.18	341.4761
80.30	341.5654
80.30	341.5654
80.57	406.0105
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81.07	431.1526
81.07	431.1526
81.07	431.1526
81.07	431.1526
82.60	407.8115
83.37	364.5354
83.78	364.8582
83.78	364.8582
83.78	364.8582
83.78	364.8582
84.21	398.8641
84.90	390.3708
85.43	432.3573
86.29	512.4868
86.50	468.4680
86.54	468.5065
86.59	468.5559
86.72	468.6823
86.79	468.7482
86.94	468.8992
87.30	469.2508
87.30	469.2508
87.30	469.2508
87.30	469.2508
87.30	469.2508
87.30	469.2508
87.57	341.7022
87.88	341.9221
88.03	342.0280
88.36	342.2619
88.47	342.3398
89.95	343.3793
91.11	292.9546
92.29	293.6522
92.38	293.7049
92.38	293.7049
93.35	294.2732
94.00	294.6543
94.67	295.0405
94.67	295.0439
94.90	283.2636
94.90	283.2636
94.90	283.2636
94.90	283.2636
95.87	303.6951
95.87	303.6951
96.73	317.4912
97.43	328.5613
98.44	258.5606
98.44	258.5621
98.88	257.1790
99.55	299.1791
99.55	299.1791
99.86	290.4465
100.00	298.5434
100.10	298.6030
103.18	311.0871
103.76	299.7554
105.00	274.3539
105.31	274.5105
108.00	325.5963
109.28	275.5804

111.00	299.1536
111.00	299.1536
111.76	300.4640
112.95	281.9298
115.19	320.5788
116.30	297.3296
117.00	282.9850
117.00	282.9850
117.66	277.7826
121.11	280.3191
121.62	276.8527
121.78	289.8921
122.06	280.7614
122.32	276.2466
122.32	276.2466
122.32	276.2466
122.32	276.2466
123.07	279.3721
127.23	269.1167
129.76	295.5336
131.20	299.0275
133.02	285.7331
133.54	294.4551
135.34	290.5420
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136.25	291.8957
136.48	291.9991
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140.51	0.0000
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142.65	307.1581
143.76	253.9880
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144.24	264.7162
144.24	264.7162
144.24	264.7162
145.22	334.2540
145.44	334.3602
147.16	297.6306
152.43	286.7797
152.70	272.3250
153.22	245.8067
154.21	246.1464
154.21	246.1464
154.21	246.1464
154.21	246.1464
155.03	246.4295
156.02	266.2766
158.56	251.0623
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159.00	252.6801
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161.27	288.8320
162.32	260.7111
162.64	257.8690
163.35	242.3539
163.89	253.3739
165.85	262.9342
167.43	285.2754
171.28	238.9282
171.86	275.9715
172.10	276.0561
176.55	260.5951
176.60	260.6136
181.06	286.6740
184.41	288.4732
185.71	273.7244
186.00	273.8232
190.27	233.6509
192.34	245.2686
193.63	232.3388
197.04	250.7439
198.01	236.6260
198.60	233.6989
200.40	281.6451
201.83	238.7099
202.84	254.5058
205.31	275.4552

208.36	271.7210
208.81	254.1518
209.75	243.9928
209.75	243.9928
210.97	223.9655
215.65	248.7410
216.55	219.5708
218.09	223.0977
222.10	234.6352
223.80	242.4739
226.40	220.8477
227.00	230.5493
227.08	223.1314
227.20	223.1592
228.16	239.3417
228.18	239.3463
228.18	239.3463
231.56	0.0000
235.69	246.0453
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236.00	238.0814
238.63	236.5721
238.63	236.5721
238.63	236.5721
238.63	236.5721
239.00	236.6593
240.98	237.1360
241.98	237.3755
241.98	237.3755
241.98	237.3755
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245.39	160.7768
247.94	176.9216
248.90	151.0146
249.79	154.4097
252.40	171.1582
252.85	165.7800
252.85	165.7800
254.15	0.0000
256.20	173.9782
256.20	173.9782
260.50	170.3039
260.90	171.4661
262.80	160.7657
264.65	143.9477
268.24	164.3555
268.79	169.4231
269.46	165.0968
269.46	165.0968
269.46	165.0968
269.46	165.0968
271.23	156.4879
273.65	140.1530
276.40	150.5429
277.35	165.1812
277.60	165.2203
277.60	165.2203
278.00	174.2146
278.60	164.2535
279.20	152.6016
279.53	162.7136
280.46	156.1343
281.68	164.7081
283.67	150.4120
284.30	157.2351
285.00	180.9317
285.90	197.9499
286.10	191.2327
286.10	191.2327
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290.80	189.7690
291.72	167.8782
293.26	0.0000
293.70	154.5789
295.21	139.4736
295.21	139.4736

295.21	139.4736
295.96	204.2432
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297.23	204.4666
298.57	204.7009
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299.80	169.0565
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300.09	169.0988
300.09	169.0988
300.09	169.0988
300.12	169.1049
301.29	147.0461
302.84	147.2404
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303.91	150.8015
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304.40	166.2925
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306.84	162.6274
308.46	130.7386
311.98	165.6299
316.51	155.8603
318.01	132.9337
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319.41	136.5575
320.08	137.7899
323.87	127.1819
323.87	127.1819
323.87	127.1819
323.87	127.1819
325.23	132.5547
328.77	136.4286
333.44	108.1459
334.20	113.8311
334.20	113.8311
334.30	113.8410
338.28	155.0823
338.28	155.0823
338.28	155.0823
338.28	155.0823
338.32	155.0876
338.32	155.0876
338.32	155.0876
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340.57	138.4106
344.27	161.1162
345.85	150.9306
350.59	0.0000
351.07	139.7107
351.92	139.8018
351.92	139.8018
351.92	139.8018
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364.48	143.8184
366.43	120.6217
367.43	134.2219
367.94	0.0000
369.80	130.8465
374.96	126.8088
383.85	120.3259
387.95	123.4190
388.63	117.0742
391.69	124.6591
391.69	124.6591
392.90	129.3518
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400.65	145.7262
401.10	132.8555
401.81	125.5348
402.60	115.4442
404.84	145.2183
410.95	116.1003
411.60	144.0259
413.65	109.7968
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427.08	96.6945
427.89	95.8071
432.53	82.9069
433.93	72.6081
439.47	98.4188
439.56	91.7989
439.89	83.2990
443.98	84.4655
444.90	94.0104
445.03	94.0195
445.03	94.0195
445.03	94.0195
445.03	94.0195
453.90	82.1288
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468.07	64.7370
473.00	99.5219
475.06	95.7763
475.35	105.4690
476.78	98.7798
477.59	96.8903
477.96	73.6528
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497.08	94.0898
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510.53	0.0000
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511.00	91.8804
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511.85	91.9236
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513.99	91.8371
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520.65	93.3746
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529.64	81.8624
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531.02	75.9304
537.32	77.1950
543.00	96.5391
546.56	0.0000
549.76	81.7539
552.65	84.9126
555.20	65.7954
563.23	74.2075
563.90	79.3163
568.70	74.4191
569.32	74.4436
569.50	74.4503
569.67	84.6566
573.80	83.8168
574.00	83.8243
574.64	70.5582
578.91	95.1053
579.30	0.0000
583.14	89.3550
585.48	83.9084
591.81	76.3396
592.07	76.3486
593.00	79.4814
595.88	65.1245
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602.52	0.0000
602.71	69.7040
602.71	69.7040
603.60	68.0744
604.41	96.3400
604.70	96.3542
609.31	74.9268

609.31	74.9268
609.31	74.9268
609.31	74.9268
610.33	74.9641
612.46	75.0432
614.37	80.1211
618.01	80.4731
621.84	76.4352
621.84	76.4352
631.29	92.5627
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633.10	87.3795
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636.97	81.2133
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646.12	77.3286
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657.75	80.9448
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661.65	64.0192
664.57	0.0000
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666.33	89.8191
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677.61	84.9091
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692.80	85.4901
695.00	95.3235
696.49	104.0566
696.49	104.0566
697.00	97.5751
697.49	78.0776
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698.50	80.2826
699.00	81.3858
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706.58	0.0000
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711.68	86.2037
713.82	52.4253
717.42	85.3244
720.50	56.9591
721.93	0.0000
722.20	73.6620
722.78	75.4348
722.78	75.4348
722.89	75.4390
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723.30	92.9984
724.18	80.7471
727.18	65.9106
733.00	66.9564
735.90	68.3612
739.58	75.0930
742.81	68.5618
744.21	77.4533
747.13	65.3613
751.79	72.1490
752.31	62.1729
753.82	46.6591
755.35	58.9166
756.15	60.0480
756.87	56.7291
763.93	42.8379
765.79	66.0923
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766.84	71.4824
776.49	65.0358
778.00	71.8086
778.57	74.0687
778.89	74.0788
783.80	68.6027
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792.07	60.1790

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798.80	54.3062
801.93	72.4980
805.60	53.5451
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810.76	64.5674
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828.27	0.0000
831.60	66.0076
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836.80	0.0000
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856.28	0.0000
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860.37	55.6084
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875.33	0.0000
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879.36	57.8662
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880.51	72.8298
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884.67	58.9133
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896.60	72.3172
898.02	65.7771
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903.28	49.4264
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911.07	62.3084
911.07	62.3084
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920.93	65.3698
925.00	56.9238
925.24	55.9794
926.50	54.1069
935.52	50.4678
937.48	70.5132
944.10	58.2598
946.00	64.0311
949.00	50.7045
962.29	68.8742
964.01	49.6825
966.15	44.2660
968.20	44.2963
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969.11	44.3109
969.11	44.3109
977.42	30.5889
980.50	50.2823
983.50	57.1087
989.30	47.5214
996.32	70.9611
1001.03	50.6264
1001.68	44.7950
1004.76	62.3859
1021.30	0.0000
1024.50	0.0000
1034.80	50.2006
1036.00	44.3123
1037.82	55.1742
1038.57	60.1154
1038.76	0.0000
1045.16	54.3179
1046.59	53.3540
1048.07	56.3432



1050.47	55.3984
1050.47	55.3984
1062.04	61.5580
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1077.35	53.8708
1078.86	56.8887
1085.78	48.0094
1099.22	58.2492
1112.02	61.7524
1112.84	90.7646
1115.52	65.6030
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1120.29	71.7627
1120.29	71.7627
1120.29	71.7627
1120.51	71.7662
1121.28	71.7835
1124.00	0.0000
1129.67	67.9095
1131.51	0.0000
1147.95	0.0000
1167.94	65.6000
1173.22	55.4344
1175.09	66.7646
1177.93	68.8746
1189.05	46.4063
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1235.34	76.2650
1236.41	0.0000
1238.25	61.6878
1246.25	67.0656
1260.41	0.0000
1271.85	41.1519
1274.45	60.1895
1274.54	64.4134
1291.56	53.0396
1298.22	0.0000
1312.09	28.7969
1325.50	38.5313
1325.50	38.5313
1332.49	45.0331
1333.61	46.1200
1360.21	35.6361
1362.66	0.0000
1365.15	22.7062
1368.21	27.0520
1368.53	0.0000
1376.25	25.2998
1384.27	16.2971
1394.10	15.2482
1395.20	20.6996
1407.95	27.3230
1434.06	24.1989
1436.60	19.2611
1457.56	0.0000
1460.81	18.4513
1489.15	18.5758
1509.49	24.2639
1596.49	28.5571
1620.62	16.2688
1678.03	0.0000
1691.02	12.6308
1691.02	12.6308
1706.46	0.0000
1750.46	0.0000
1764.49	12.8249
1764.49	12.8249
1764.49	12.8249
1764.49	12.8249
1770.23	8.4658
1771.40	14.8187
1791.20	0.0000
1808.65	14.9304

1836.01

12.0093

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341005

Total Uranium Activity	6.6177E+00	ug/g
Total Uranium Counting Unc.	4.6750E+00	ug/g
Total Uranium Tpu	2.3852E-06	ug/g
Total Uranium Mda	2.8017E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 950786          SAMPLE ID   : G246341005
*  ANALYST       : MXR1            DETECTOR    : GAM16
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 18-FEB-2010 13:10:31.64  SAMPLE ALQT: 140.620 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.797E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.341E+00
GROSS GAMMA MDA (pCi/GRAM ) : 3.667E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.778E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:12:48.49

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341006.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:12:24
Sample ID          : G246341006      Sample quantity   : 1.40980E+02 GRAM
Detector name      : GAM12           Detector geometry: CAN
Elapsed live time: 0 02:00:00.00     Elapsed real time: 0 02:00:01.72  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 950786          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	63.18*	321	717	0.92	125.84	122	9	4.46E-02	16.3	
2	3	74.67*	401	593	1.02	148.84	145	19	5.57E-02	10.7	9.12E-01
3	3	76.97	697	523	0.95	153.44	145	19	9.68E-02	6.5	
4	4	84.19*	163	438	1.29	167.87	165	12	2.26E-02	21.9	7.09E-01
5	4	86.99	310	477	1.19	173.48	165	12	4.30E-02	13.2	
6	5	89.74	255	258	1.33	178.98	177	15	3.55E-02	10.5	4.11E+00
7	5	92.52*	1101	483	1.31	184.55	177	15	1.53E-01	4.7	
8	0	129.05	75	294	1.05	257.66	255	6	1.04E-02	38.3	
9	0	143.19*	109	291	1.23	285.94	283	7	1.52E-02	28.0	
10	0	185.81*	440	457	1.12	371.22	366	11	6.11E-02	11.0	
11	0	209.19	141	331	1.48	418.00	414	10	1.96E-02	25.6	
12	5	238.41*	1341	182	1.07	476.48	469	19	1.86E-01	3.2	1.13E+00
13	5	241.38	318	239	1.92	482.42	469	19	4.42E-02	11.9	
14	0	258.38	53	184	1.35	516.43	512	9	7.42E-03	48.0	
15	0	270.14	130	206	1.57	539.96	536	9	1.80E-02	21.9	
16	0	277.38	55	193	0.79	554.45	551	8	7.65E-03	45.6	
17	0	294.96*	370	261	1.14	589.62	584	11	5.13E-02	10.0	
18	0	300.09	121	210	1.49	599.89	595	11	1.68E-02	25.1	
19	0	327.39	77	164	0.74	654.50	650	10	1.07E-02	33.1	
20	0	337.94*	269	239	1.16	675.62	669	12	3.74E-02	13.1	
21	0	351.61*	665	235	1.33	702.97	697	14	9.24E-02	6.3	
22	0	408.60	40	142	0.66	816.98	814	10	5.55E-03	58.1	
23	0	462.67	98	76	1.41	925.18	920	9	1.37E-02	18.9	
24	0	510.44*	104	169	1.76	1020.75	1014	13	1.45E-02	31.4	
25	0	562.38	32	69	0.70	1124.65	1121	8	4.46E-03	48.0	
26	0	582.68*	384	154	1.38	1165.26	1160	14	5.33E-02	8.7	
27	0	608.92*	520	104	1.30	1217.75	1211	14	7.22E-02	6.2	
28	0	661.38*	161	92	1.41	1322.70	1317	10	2.24E-02	13.8	
29	0	726.76	98	63	1.57	1453.49	1450	10	1.37E-02	17.5	
30	0	794.65*	70	51	1.63	1589.29	1584	12	9.79E-03	24.4	
31	0	860.54	46	57	1.53	1721.10	1715	11	6.41E-03	35.6	
32	0	910.77*	264	74	1.89	1821.58	1812	16	3.66E-02	9.7	
33	2	964.17	75	26	2.20	1928.39	1922	27	1.05E-02	18.9	2.25E+00
34	2	968.62*	183	22	1.82	1937.28	1922	27	2.54E-02	9.3	
35	0	1000.96*	68	47	1.72	2001.96	1996	15	9.41E-03	26.4	
36	0	1119.50*	122	57	2.00	2239.06	2233	12	1.70E-02	15.6	
37	0	1459.94*	1316	20	2.20	2919.89	2909	20	1.83E-01	2.9	
38	0	1630.14	18	12	1.49	3260.22	3252	12	2.50E-03	45.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1763.58*	73	12	1.68	3527.04	3518	15	1.01E-02	16.3	

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

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:12:50

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341006.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:12:24
Sample ID        : G246341006             Sample quantity  : 140.98 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA12                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.72   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                Half life ratio   : 8.00
Errors propagated: Yes                      Systematic Error  : 0.00 %
Efficiency type  : Empirical                Efficiencies at   : Peak Energy
Abundance limit  : 75.00                   WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.888E+01	2.657E+00	5.633E-01	4.017E-02	51.259
CD-109	+	88.03	*	4.037E+00	1.108E+00	1.156E+00	8.846E-02	3.492
SN-126	+	64.28		2.788E+00	9.891E-01	7.919E-01	1.112E-01	3.521
	+	86.94		1.645E+00	8.041E-01	5.098E-01	2.098E-01	3.226
	+	87.57	*	3.956E-01	1.086E-01	1.138E-01	8.675E-03	3.475
BA-137M	+	661.65	*	2.122E-01	6.026E-02	6.242E-02	4.047E-03	3.399
CS-137	+	661.65	*	2.243E-01	6.372E-02	6.599E-02	4.292E-03	3.399
TL-208	+	277.35		4.788E-01	4.400E-01	5.675E-01	5.944E-02	0.844
	+	510.84		4.599E-01	2.928E-01	1.968E-01	2.031E-02	2.337
	+	583.14	*	4.846E-01	9.088E-02	5.614E-02	4.016E-03	8.631
	+	860.37		5.492E-01	3.939E-01	3.941E-01	3.443E-02	1.394
BI-211	+	72.87		3.696E+00	3.510E+00	5.489E+00	3.683E-01	0.673
	+	351.07	*	3.637E+00	5.143E-01	2.917E-01	1.834E-02	12.468
PB-212	+	74.81		2.177E+00	5.289E-01	5.690E-01	6.577E-02	3.826
	+	77.11		2.142E+00	3.145E-01	3.229E-01	2.235E-02	6.635
	+	87.30		1.830E+00	5.347E-01	5.280E-01	6.632E-02	3.465
	+	238.63	*	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
	+	300.09		2.223E+00	1.130E+00	1.054E+00	8.602E-02	2.110
PO-212	+	74.81		2.177E+00	5.289E-01	5.690E-01	6.577E-02	3.826
	+	77.11		2.142E+00	3.145E-01	3.229E-01	2.235E-02	6.635
	+	87.30		1.830E+00	5.347E-01	5.280E-01	6.632E-02	3.465
	+	115.19		-4.765E+00	3.538E+00	5.484E+00	3.478E-01	-0.869
	+	238.63	*	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
	+	300.09		2.223E+00	1.130E+00	1.054E+00	8.602E-02	2.110
BI-214	+	609.31	*	1.237E+00	1.833E-01	1.050E-01	8.647E-03	11.781
	+	1120.29		1.515E+00	4.932E-01	4.950E-01	4.496E-02	3.060
	+	1764.49		1.243E+00	4.110E-01	2.520E-01	1.493E-02	4.932
PB-214	+	74.81		3.751E+00	8.859E-01	9.804E-01	9.859E-02	3.826
	+	77.11		3.673E+00	6.074E-01	5.536E-01	5.698E-02	6.635
	+	87.30		3.134E+00	8.939E-01	9.045E-01	9.791E-02	3.466
	+	241.98		2.274E+00	5.705E-01	4.708E-01	3.705E-02	4.830
	+	295.21		1.191E+00	2.596E-01	1.899E-01	1.603E-02	6.272
	+	351.92	*	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
PO-214	+	74.81		3.751E+00	8.859E-01	9.804E-01	9.859E-02	3.826

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.673E+00	6.074E-01	5.536E-01	5.698E-02	6.635
	+	87.30		3.134E+00	8.939E-01	9.045E-01	9.791E-02	3.466
	+	241.98		2.274E+00	5.705E-01	4.708E-01	3.705E-02	4.830
	+	295.21		1.191E+00	2.596E-01	1.899E-01	1.603E-02	6.272
	+	351.92	*	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
PO-216	+	74.81		2.177E+00	5.289E-01	5.690E-01	6.577E-02	3.826
	+	77.11		2.142E+00	3.145E-01	3.229E-01	2.235E-02	6.635
	+	87.30		1.830E+00	5.347E-01	5.280E-01	6.632E-02	3.465
	+	238.63	*	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
	+	300.09		2.223E+00	1.130E+00	1.054E+00	8.602E-02	2.110
PO-218	+	74.81		3.751E+00	8.859E-01	9.804E-01	9.859E-02	3.826
	+	77.11		3.673E+00	6.074E-01	5.536E-01	5.698E-02	6.635
	+	87.30		3.134E+00	8.939E-01	9.045E-01	9.791E-02	3.466
	+	241.98		2.274E+00	5.705E-01	4.708E-01	3.705E-02	4.830
	+	295.21		1.191E+00	2.596E-01	1.899E-01	1.603E-02	6.272
	+	351.92	*	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
RA-224	+	240.98	*	4.312E+00	1.054E+00	8.897E-01	4.907E-02	4.847
RA-226	+	609.31	*	1.237E+00	1.833E-01	1.050E-01	8.647E-03	11.781
	+	1120.29		1.515E+00	4.932E-01	4.950E-01	4.496E-02	3.060
	+	1764.49		1.243E+00	4.110E-01	2.520E-01	1.493E-02	4.932
AC-228	+	338.32		1.619E+00	7.848E-01	3.489E-01	1.422E-01	4.642
	+	911.07	*	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506
	+	969.11		1.813E+00	5.375E-01	3.443E-01	7.937E-02	5.266
RA-228	+	338.32		1.619E+00	7.848E-01	3.489E-01	1.422E-01	4.642
	+	911.07	*	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506
	+	969.11		1.813E+00	5.375E-01	3.443E-01	7.937E-02	5.266
TH-228	+	74.81		2.214E+00	4.972E-01	5.787E-01	3.990E-02	3.826
	+	77.11		2.179E+00	3.198E-01	3.284E-01	2.274E-02	6.635
	+	87.30		1.861E+00	5.110E-01	5.370E-01	4.081E-02	3.466
	+	238.63	*	1.623E+00	1.551E-01	7.950E-02	5.645E-03	20.411
	+	300.09		2.261E+00	1.750E+00	1.072E+00	6.315E-01	2.110
TH-230	+	609.31	*	1.237E+00	1.833E-01	1.050E-01	8.646E-03	11.781
	+	1120.29		1.515E+00	4.932E-01	4.950E-01	4.496E-02	3.060
	+	1764.49		1.243E+00	4.110E-01	2.520E-01	1.493E-02	4.932
TH-232	+	338.32		1.619E+00	4.347E-01	3.489E-01	1.976E-02	4.642
	+	911.07	*	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506
	+	969.11		1.813E+00	5.375E-01	3.443E-01	7.937E-02	5.266
TH-234	+	63.29	*	7.044E+00	2.590E+00	2.088E+00	3.555E-01	3.374
	+	92.38		9.085E+00	1.807E+00	7.061E-01	1.235E-01	12.865
U-234	+	609.31	*	1.237E+00	1.833E-01	1.050E-01	8.646E-03	11.781
	+	1120.29		1.515E+00	4.932E-01	4.950E-01	4.496E-02	3.060
	+	1764.49		1.243E+00	4.110E-01	2.520E-01	1.493E-02	4.932
U-235	+	89.95		4.333E+00	1.607E+00	1.444E+00	4.412E-01	3.001
	+	93.35		1.092E+01	3.192E+00	8.428E-01	2.328E-01	12.959
	+	105.00		1.010E+00	1.088E+00	1.788E+00	5.245E-01	0.565
	+	143.76	*	4.252E-01	2.482E-01	3.289E-01	5.341E-02	1.293
	+	163.35		3.169E-01	4.585E-01	7.545E-01	1.342E-01	0.420
	+	185.71		3.700E-01	8.336E-02	6.671E-02	3.483E-03	5.546
	+	205.31		6.598E-01	5.514E-01	8.180E-01	1.459E-01	0.807



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	1.162E+00	3.990E-01	3.618E-01	7.949E-02	3.211
		95.87		-5.710E-01	1.043E+00	1.496E+00	3.608E-01	-0.382
U-238	+	63.29	*	7.044E+00	2.590E+00	2.088E+00	3.555E-01	3.374
	+	92.38		9.085E+00	1.086E+00	7.061E-01	5.141E-02	12.865
AM-243	+	74.67	*	3.530E-01	7.915E-02	9.253E-02	6.287E-03	3.815
	+	86.72		4.356E+01	1.196E+01	1.354E+01	1.023E+00	3.218
		117.66		-1.554E+00	3.620E+00	5.835E+00	3.676E-01	-0.266
	+	142.18		3.572E+01	2.013E+01	2.553E+01	1.445E+00	1.399
ANH-511	+	511.00	*	9.935E-02	6.270E-02	4.252E-02	2.591E-03	2.337

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.600E-01	3.343E-01	5.557E-01	3.824E-02	0.288
NA-22		1274.54	*	-3.028E-02	4.606E-02	7.091E-02	4.567E-03	-0.427
NA-24		1368.53	*	-2.575E-01	4.606E-02	Half-Life too short		
AL-26		1129.67		-1.116E+00	1.707E+00	2.672E+00	1.629E-01	-0.418
		1808.65	*	-5.363E-04	2.729E-02	4.498E-02	2.581E-03	-0.012
TI-44		67.85		-1.725E-02	5.046E-02	7.535E-02	4.904E-03	-0.229
	+	78.38	*	3.954E-01	5.803E-02	7.267E-02	5.083E-03	5.441
SC-46		889.25	*	-5.118E-03	4.083E-02	6.537E-02	5.418E-03	-0.078
	+	1120.51		2.634E-01	8.399E-02	1.351E-01	8.393E-03	1.950
V-48		944.10		-1.019E+00	9.869E-01	1.419E+00	1.140E-01	-0.718
		983.50	*	-3.185E-02	7.447E-02	1.141E-01	8.791E-03	-0.279
		1312.09		7.976E-02	8.500E-02	1.528E-01	1.037E-02	0.522
CR-51		320.08	*	-1.227E-01	3.558E-01	5.782E-01	3.676E-02	-0.212
MN-52		744.21		1.902E-01	2.920E-01	5.050E-01	3.607E-02	0.377
		848.13		7.030E-01	8.504E+00	1.393E+01	1.110E+00	0.050
		935.52		7.194E-02	3.323E-01	5.464E-01	4.424E-02	0.132
		1246.25		-2.873E+00	8.947E+00	1.430E+01	8.811E-01	-0.201
		1333.61		2.188E+00	6.875E+00	1.136E+01	7.933E-01	0.193
		1434.06	*	2.173E-02	2.603E-01	4.287E-01	2.945E-02	0.051
MN-54		834.83	*	-2.989E-03	3.857E-02	6.242E-02	4.907E-03	-0.048
CO-56		846.75	*	-1.544E-03	3.958E-02	6.417E-02	5.105E-03	-0.024
		977.42		3.023E+00	3.112E+00	4.916E+00	3.814E-01	0.615
		1037.82		8.741E-03	2.786E-01	4.675E-01	3.611E-02	0.019
		1175.09		-6.227E-01	2.397E+00	3.885E+00	2.142E-01	-0.160
		1238.25		1.092E-01	9.648E-02	1.712E-01	1.102E-02	0.638
		1360.21		-1.033E+00	9.418E-01	1.295E+00	9.019E-02	-0.798
		1771.40		-2.542E-01	2.394E-01	3.199E-01	1.887E-02	-0.795
CO-57		122.06	*	-2.815E-02	2.496E-02	3.846E-02	2.405E-03	-0.732
		136.48		-6.319E-03	2.002E-01	3.253E-01	2.188E-02	-0.019
CO-58		810.76	*	-2.333E-02	4.000E-02	6.189E-02	4.762E-03	-0.377
FE-59	+	142.65		5.653E+00	3.185E+00	4.583E+00	2.589E-01	1.233
		192.34		7.391E-04	9.229E-01	1.471E+00	1.700E-01	0.001
		1099.22	*	1.362E-02	8.936E-02	1.508E-01	1.114E-02	0.090
		1291.56		3.668E-02	1.331E-01	2.243E-01	1.806E-02	0.164
CO-60		1173.22		-1.593E-02	4.693E-02	7.552E-02	4.151E-03	-0.211

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		6.575E-03	4.127E-02	6.871E-02	4.799E-03	0.096
ZN-65	1115.52	*		7.780E-02	1.084E-01	1.675E-01	1.054E-02	0.464
GE-68	1077.35	*		-3.097E-01	1.119E+00	1.816E+00	1.224E-01	-0.171
AS-73	53.44	*		5.098E-01	8.375E-01	1.453E+00	9.380E-02	0.351
AS-74	595.88	*		-6.001E-02	8.729E-02	1.382E-01	8.798E-03	-0.434
	634.78			2.017E-01	3.880E-01	6.692E-01	4.313E-02	0.301
SE-75	66.05			-3.051E+00	5.249E+00	7.744E+00	6.761E-01	-0.394
	96.73			-2.077E-01	8.559E-01	1.256E+00	1.590E-01	-0.165
	121.11			-1.573E-02	1.331E-01	2.148E-01	2.046E-02	-0.073
	136.00			3.387E-02	3.704E-02	6.250E-02	3.691E-03	0.542
	198.60			3.939E-01	1.727E+00	2.775E+00	1.865E-01	0.142
	264.65	*		3.152E-02	4.252E-02	6.915E-02	3.920E-03	0.456
	279.53			5.023E-02	1.119E-01	1.699E-01	1.041E-02	0.296
	303.91			1.763E+00	1.985E+00	3.097E+00	2.932E-01	0.569
	400.65			1.143E-01	2.479E-01	4.157E-01	3.715E-02	0.275
BR-77	+ 87.88			1.528E+03	4.196E+02	5.962E+02	4.558E+01	2.563
	200.40			3.161E+01	2.717E+02	4.342E+02	2.303E+01	0.073
	+ 239.00			4.503E+02	3.800E+01	6.334E+01	3.488E+00	7.109
	249.79			4.890E+01	1.034E+02	1.780E+02	9.886E+00	0.275
	281.68			-3.213E+01	1.626E+02	2.360E+02	1.334E+01	-0.136
	297.23			1.857E+02	1.317E+02	1.625E+02	9.224E+00	1.143
	303.76			2.667E+02	2.935E+02	4.595E+02	2.611E+01	0.580
	439.47			9.893E+01	2.424E+02	4.036E+02	2.324E+01	0.245
	484.57			-3.399E+01	3.987E+02	6.371E+02	3.811E+01	-0.053
	520.65	*		1.066E+00	1.764E+01	2.834E+01	1.738E+00	0.038
	574.64			2.869E-01	3.358E+02	5.636E+02	3.557E+01	0.001
	578.91			6.971E+01	1.588E+02	2.419E+02	1.529E+01	0.288
	585.48			9.764E+02	3.615E+02	6.301E+02	3.995E+01	1.550
	755.35			2.575E+01	3.051E+02	5.044E+02	3.647E+01	0.051
	817.79			-6.998E-01	2.289E+02	3.734E+02	2.885E+01	-0.002
SR-82	698.33			1.186E+01	3.645E+01	6.162E+01	4.176E+00	0.192
	776.49	*		-4.265E-01	4.287E-01	6.449E-01	4.772E-02	-0.661
	1395.20			-6.377E+00	1.026E+01	1.514E+01	1.048E+00	-0.421
RB-83	520.41	*		1.849E-02	6.598E-02	1.079E-01	6.613E-03	0.171
	529.64			-1.575E-02	1.033E-01	1.629E-01	1.004E-02	-0.097
	552.65			-9.915E-02	1.902E-01	3.083E-01	1.925E-02	-0.322
RB-84	881.50	*		6.382E-02	7.771E-02	1.344E-01	1.106E-02	0.475
KR-85	513.99	*		6.209E+00	7.281E+00	1.104E+01	6.744E-01	0.562
SR-85	513.99	*		3.249E-02	3.810E-02	5.779E-02	3.529E-03	0.562
RB-86	1076.63	*		-2.699E-01	7.599E-01	1.223E+00	8.256E-02	-0.221
Y-88	898.02			-5.290E-03	4.254E-02	6.806E-02	5.717E-03	-0.078
	1836.01	*		-2.062E-02	3.186E-02	4.564E-02	2.569E-03	-0.452
ZR-88	392.90	*		-3.807E-02	3.063E-02	4.415E-02	2.422E-03	-0.862
Y-91	1204.90	*		1.617E+01	2.059E+01	3.600E+01	2.081E+00	0.449
NB-94	702.63	*		2.217E-02	3.387E-02	5.848E-02	3.983E-03	0.379
	871.10			3.479E-03	3.242E-02	5.316E-02	4.330E-03	0.065
NB-95	765.79	*		4.718E-02	4.888E-02	8.501E-02	6.218E-03	0.555
NB-95M	235.69	*		1.999E-01	1.262E-01	2.036E-01	1.485E-02	0.982
ZR-95	724.18			1.653E-01	9.924E-02	1.660E-01	1.309E-02	0.996

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	756.15	*		-1.933E-02	7.751E-02	1.249E-01	1.031E-02	-0.155
	657.90	*		-2.162E-01	7.751E-02	Half-Life too short		
ZR-97	1024.50			1.328E+01	7.751E-02	Half-Life too short		
	254.15			-1.946E+01	7.751E-02	Half-Life too short		
	355.39			-1.579E+00	7.751E-02	Half-Life too short		
	507.63	*		2.225E+01	7.751E-02	Half-Life too short		
	602.52			8.871E+00	7.751E-02	Half-Life too short		
	1021.30			1.300E+01	7.751E-02	Half-Life too short		
	1147.95			1.407E+01	7.751E-02	Half-Life too short		
	1362.66			-3.512E+01	7.751E-02	Half-Life too short		
	1750.46			3.865E+00	7.751E-02	Half-Life too short		
	140.51			2.047E+01	4.208E+01	6.167E+01	1.661E+01	0.332
MO-99	181.06			6.714E+00	3.003E+01	4.328E+01	7.333E+00	0.155
	366.43			4.998E+01	1.311E+02	2.202E+02	1.231E+01	0.227
TC-99M	739.58	*		-7.195E+00	1.848E+01	2.937E+01	4.224E+00	-0.245
	778.00			-1.497E+01	5.572E+01	8.925E+01	6.616E+00	-0.168
RH-101	140.51	*		3.821E+12	5.572E+01	Half-Life too short		
	127.23			9.626E-03	3.467E-02	5.133E-02	3.115E-03	0.188
RH-102	198.01	*		3.830E-02	3.041E-02	5.115E-02	2.706E-03	0.749
	325.23			-1.108E-01	2.239E-01	3.127E-01	1.776E-02	-0.354
	418.52			1.485E-02	2.708E-01	4.421E-01	2.494E-02	0.034
	475.06	*		-2.275E-03	2.917E-02	4.671E-02	2.774E-03	-0.049
	631.29			5.797E-03	5.588E-02	9.377E-02	6.037E-03	0.062
	697.49			-1.044E-02	7.463E-02	1.221E-01	8.264E-03	-0.086
	766.84			9.897E-02	1.258E-01	2.162E-01	1.583E-02	0.458
	1046.59			-1.088E-02	1.126E-01	1.867E-01	1.323E-02	-0.058
	1112.84			2.447E-01	2.563E-01	4.085E-01	2.578E-02	0.599
	497.08	*		-5.846E-02	4.344E-02	6.147E-02	7.841E-03	-0.951
RU-103	610.33	+		1.382E+01	2.753E+00	2.910E+00	4.554E-01	4.751
	511.85	+		4.980E-01	3.143E-01	4.195E-01	2.558E-02	1.187
RH-106	621.84	*		-1.149E-01	3.229E-01	5.248E-01	6.327E-02	-0.219
	1050.47			1.617E-02	2.183E+00	3.651E+00	2.572E-01	0.004
RU-106	511.85	+		4.980E-01	3.143E-01	4.195E-01	2.558E-02	1.187
	621.84	*		-1.149E-01	3.227E-01	5.248E-01	3.370E-02	-0.219
AG-108M	1050.47			1.617E-02	2.183E+00	3.651E+00	2.572E-01	0.004
	433.93	*		6.506E-03	2.971E-02	4.894E-02	3.050E-03	0.133
AG-110M	614.37			-2.107E-02	4.384E-02	6.057E-02	4.152E-03	-0.348
	722.95			-2.084E-02	4.056E-02	5.401E-02	3.989E-03	-0.386
	657.75	*		-1.562E-02	4.099E-02	5.674E-02	3.867E-03	-0.275
	677.61			1.170E-01	2.800E-01	4.794E-01	3.320E-02	0.244
	706.67			-6.373E-02	2.033E-01	3.276E-01	2.339E-02	-0.195
	763.93			-1.803E-01	1.923E-01	2.946E-01	2.235E-02	-0.612
	884.67			2.555E-02	5.202E-02	8.786E-02	7.505E-03	0.291
	937.48			-7.797E-02	1.167E-01	1.761E-01	1.482E-02	-0.443
	1384.27			-6.364E-02	1.558E-01	2.404E-01	1.740E-02	-0.265
	171.28			1.220E+00	1.522E+00	2.530E+00	1.302E-01	0.482
IN-111	245.39	*		-5.494E-01	1.613E+00	2.344E+00	1.298E-01	-0.234
IN-113M	391.69	*		-4.868E-02	4.278E-02	6.454E-02	3.800E-03	-0.754
SN-113	391.69	*		-4.868E-02	4.278E-02	6.454E-02	3.800E-03	-0.754

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-114M	190.27	*		1.180E-01	1.921E-01	2.829E-01	1.484E-02	0.417
CD-115	260.90			-1.194E+02	2.293E+02	3.267E+02	1.827E+01	-0.365
	492.35			6.285E+01	6.408E+01	1.101E+02	6.627E+00	0.571
	527.90	*		7.642E-01	1.921E+01	3.078E+01	1.896E+00	0.025
SN-117M	156.02			-6.988E-01	2.410E+00	3.843E+00	2.052E-01	-0.182
	158.56	*		-7.453E-03	5.758E-02	9.236E-02	4.879E-03	-0.081
SB-122	563.90	*		3.865E+00	3.662E+00	5.878E+00	3.691E-01	0.658
	692.80			1.460E+01	6.718E+01	1.130E+02	7.606E+00	0.129
I-123	159.00	*		2.154E+01	6.718E+01	Half-Life	too short	
	528.96			9.557E+02	6.718E+01	Half-Life	too short	
TE-123M	159.00	*		9.291E-03	2.745E-02	4.491E-02	2.406E-03	0.207
I-124	602.71	*		3.467E-01	9.473E-01	1.429E+00	9.117E-02	0.243
	722.78			-3.303E+00	5.815E+00	7.678E+00	5.353E-01	-0.430
	1325.50			3.485E+00	4.733E+01	7.817E+01	5.407E+00	0.045
	1376.25			7.953E+01	4.589E+01	8.702E+01	6.044E+00	0.914
	1509.49			3.281E+01	2.315E+01	4.365E+01	2.937E+00	0.752
	1691.02			-1.413E+00	4.530E+00	7.092E+00	4.402E-01	-0.199
SB-124	602.71			1.495E-02	4.086E-02	6.161E-02	3.933E-03	0.243
	645.85			-4.306E-01	4.758E-01	7.316E-01	5.222E-02	-0.589
	709.31			-1.685E+00	2.723E+00	4.269E+00	2.930E-01	-0.395
	713.82			2.847E-01	1.647E+00	2.754E+00	2.994E-01	0.103
	722.78			-2.065E-01	3.636E-01	4.800E-01	3.457E-02	-0.430
	+ 968.20			1.908E+01	3.859E+00	7.317E+00	5.734E-01	2.608
	1045.16			1.195E+00	2.454E+00	4.273E+00	3.034E-01	0.280
	1325.50			2.327E-01	3.161E+00	5.220E+00	3.610E-01	0.045
	1368.21			2.382E-01	1.759E+00	2.921E+00	3.645E-01	0.082
	1436.60			7.997E-01	3.267E+00	5.513E+00	3.785E-01	0.145
	1691.02	*		-2.083E-02	6.680E-02	1.046E-01	6.978E-03	-0.199
SB-125	427.89	*		2.414E-02	8.404E-02	1.392E-01	8.274E-03	0.173
	+ 463.38			8.453E-01	3.250E-01	5.101E-01	3.486E-02	1.657
	600.56			4.405E-02	1.613E-01	2.684E-01	1.936E-02	0.164
	635.90			3.573E-02	2.694E-01	4.529E-01	3.329E-02	0.079
TE-125M	109.28	*		3.626E-01	9.471E+00	1.541E+01	1.330E+00	0.024
I-126	388.63			2.680E-01	2.115E-01	3.719E-01	2.043E-02	0.721
	666.33	*		1.999E-01	2.132E-01	3.372E-01	2.198E-02	0.593
	753.82			8.139E-01	1.647E+00	2.807E+00	2.027E-01	0.290
SB-126	223.80			2.114E+00	4.067E+00	7.041E+00	3.826E-01	0.300
	+ 278.60			3.527E+00	3.226E+00	4.639E+00	2.619E-01	0.760
	296.50			1.025E+01	2.452E+00	3.564E+00	2.022E-01	2.877
	414.70			-6.779E-02	8.611E-02	1.127E-01	6.333E-03	-0.601
	415.30			-7.663E+00	6.886E+00	9.311E+00	5.235E-01	-0.823
	555.20			-7.017E-01	4.270E+00	7.104E+00	4.442E-01	-0.099
	573.80			-5.218E-01	1.069E+00	1.731E+00	1.092E-01	-0.301
	593.00			-1.076E-01	9.243E-01	1.534E+00	9.753E-02	-0.070
	656.30			-3.089E+00	4.356E+00	5.802E+00	3.757E-01	-0.532
	666.33			8.392E-02	8.950E-02	1.415E-01	9.227E-03	0.593
	675.00			-2.975E-02	1.948E+00	3.225E+00	2.125E-01	-0.009
	695.00			-2.767E-02	8.274E-02	1.333E-01	8.996E-03	-0.208
	697.00			-2.193E-01	2.972E-01	4.635E-01	3.136E-02	-0.473

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		720.50	*	-1.338E-02	1.518E-01	2.339E-01	1.626E-02	-0.057
		856.80		1.072E-01	6.120E-01	8.774E-01	7.049E-02	0.122
		989.30		-2.421E-02	1.347E+00	2.158E+00	1.652E-01	-0.011
		1034.80		-8.793E+00	8.553E+00	1.274E+01	9.182E-01	-0.690
		1213.00		7.236E-02	5.301E+00	8.661E+00	5.071E-01	0.008
		61.10		1.138E+02	8.496E+01	1.356E+02	1.381E+01	0.839
		252.40		3.736E+00	5.919E+00	9.615E+00	4.007E+00	0.389
		290.80		-2.336E+01	3.071E+01	4.243E+01	4.158E+00	-0.551
		411.60		1.031E+01	1.679E+01	2.527E+01	3.731E+00	0.408
		444.90		9.410E-01	1.281E+01	2.084E+01	2.375E+00	0.045
		473.00		-1.279E+00	2.369E+00	3.660E+00	4.330E-01	-0.350
		543.00		1.452E+01	2.095E+01	3.685E+01	5.015E+00	0.394
		603.60		9.513E+00	1.661E+01	2.550E+01	2.980E+00	0.373
		685.20	*	8.186E-01	1.739E+00	2.986E+00	3.180E-01	0.274
		698.50		7.358E+00	2.184E+01	3.690E+01	5.663E+00	0.199
XE-127		722.20		-4.613E+01	4.372E+01	5.359E+01	5.683E+00	-0.861
		783.80		7.238E+00	5.567E+00	9.846E+00	1.202E+00	0.735
		57.60		-5.416E+00	6.042E+00	9.921E+00	6.269E-01	-0.546
		145.22		1.026E+00	7.517E-01	1.165E+00	6.509E-02	0.881
		172.10		2.221E-02	1.174E-01	1.900E-01	9.780E-03	0.117
I-131		202.84	*	-5.599E-03	4.650E-02	7.342E-02	3.904E-03	-0.076
		374.96		-1.829E-01	2.027E-01	3.137E-01	1.743E-02	-0.583
		80.18		-5.356E+00	5.972E+00	8.614E+00	6.191E-01	-0.622
		284.30		5.761E-01	1.609E+00	2.737E+00	1.735E-01	0.211
TE-132		364.48	*	-6.405E-02	1.278E-01	2.033E-01	1.284E-02	-0.315
		636.97		2.563E-02	1.799E+00	2.998E+00	2.128E-01	0.009
		722.89		-4.294E+00	8.059E+00	1.070E+01	7.553E-01	-0.401
		49.72		8.896E+00	2.848E+01	4.909E+01	4.863E+00	0.181
		111.76		3.099E+01	4.589E+01	7.663E+01	7.528E+00	0.404
BA-133		116.30		-1.625E+01	3.963E+01	6.394E+01	6.243E+00	-0.254
		228.16	*	-4.647E-02	9.127E-01	1.543E+00	2.258E-01	-0.030
		53.15		1.632E+00	3.564E+00	6.157E+00	3.981E-01	0.265
		79.62		-1.233E+00	1.432E+00	2.057E+00	2.963E-01	-0.599
I-133		81.00		2.693E-02	1.260E-01	1.524E-01	2.306E-02	0.177
	+	276.40		4.733E-01	4.364E-01	6.159E-01	7.940E-02	0.768
		302.84		3.757E-02	1.387E-01	2.071E-01	2.402E-02	0.181
		356.01	*	-1.159E-02	4.444E-02	6.268E-02	7.191E-03	-0.185
		383.85		1.075E-01	2.791E-01	4.675E-01	5.013E-02	0.230
	+	510.53		4.744E+00	2.791E-01	Half-Life	too short	
		529.87	*	-6.883E-03	2.791E-01	Half-Life	too short	
		706.58		-6.010E-01	2.791E-01	Half-Life	too short	
		856.28		-3.051E-01	2.791E-01	Half-Life	too short	
		875.33		-3.981E-01	2.791E-01	Half-Life	too short	
CS-134		1236.41		2.768E+00	2.791E-01	Half-Life	too short	
		1298.22		-3.153E-01	2.791E-01	Half-Life	too short	
		475.35		5.887E-01	1.882E+00	3.098E+00	1.840E-01	0.190
	+	563.23		4.013E-01	3.859E-01	6.242E-01	3.988E-02	0.643
		569.32		5.113E-02	1.815E-01	3.050E-01	1.968E-02	0.168
	604.70		2.783E-02	3.415E-02	5.364E-02	3.441E-03	0.519	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	+	795.84	*	1.289E-01	6.374E-02	8.807E-02	6.714E-03	1.464
		801.93		-1.473E-01	4.375E-01	6.565E-01	5.026E-02	-0.224
		1038.57		1.759E+00	3.459E+00	6.059E+00	4.345E-01	0.290
		1167.94		1.241E+00	2.569E+00	4.421E+00	2.463E-01	0.281
		1365.15		3.651E-01	1.157E+00	1.967E+00	1.463E-01	0.186
		268.24	*	1.320E-01	1.684E-01	2.606E-01	1.960E-02	0.507
		288.45		-2.212E+12	1.684E-01	Half-Life	too short	
		417.63		-7.806E+11	1.684E-01	Half-Life	too short	
		546.56		-1.423E+12	1.684E-01	Half-Life	too short	
		836.80		1.753E+12	1.684E-01	Half-Life	too short	
		1038.76		1.213E+12	1.684E-01	Half-Life	too short	
		1124.00		2.206E+12	1.684E-01	Half-Life	too short	
		1131.51		-6.171E+10	1.684E-01	Half-Life	too short	
		1260.41	*	1.323E+11	1.684E-01	Half-Life	too short	
		1457.56		1.363E+14	1.684E-01	Half-Life	too short	
		1678.03		-1.160E+12	1.684E-01	Half-Life	too short	
		1706.46		7.758E+11	1.684E-01	Half-Life	too short	
		1791.20		4.828E+11	1.684E-01	Half-Life	too short	
		66.91		-7.429E-01	9.470E-01	1.377E+00	1.977E-01	-0.539
CS-136	+	86.29		5.716E+00	1.661E+00	2.298E+00	2.790E-01	2.488
		153.22		-3.076E-02	7.076E-01	1.142E+00	7.890E-02	-0.027
		163.89		9.440E-01	1.143E+00	1.902E+00	1.285E-01	0.496
		176.55		3.062E-02	3.838E-01	6.173E-01	3.683E-02	0.050
		273.65		2.160E-01	6.658E-01	7.421E-01	4.802E-02	0.291
		340.57		2.043E-01	1.439E-01	2.293E-01	1.385E-02	0.891
		818.51		-3.010E-02	8.297E-02	1.310E-01	1.014E-02	-0.230
		1048.07	*	-7.114E-02	1.163E-01	1.836E-01	1.379E-02	-0.388
		1235.34		2.790E-01	7.021E-01	1.189E+00	1.206E-01	0.235
		165.85	*	-2.704E-02	2.927E-02	4.510E-02	2.311E-03	-0.599
		162.64		3.121E-01	8.102E-01	1.326E+00	7.942E-02	0.235
		304.84		1.268E+00	1.336E+00	2.038E+00	5.556E-01	0.622
		423.70		8.027E-01	2.089E+00	3.452E+00	1.097E+00	0.233
LA-140	+	537.32	*	-2.574E-01	2.693E-01	3.997E-01	1.303E-01	-0.644
		328.77		6.344E-01	4.216E-01	5.495E-01	3.510E-02	1.155
		432.53		-2.033E+00	2.150E+00	3.241E+00	2.053E-01	-0.627
		487.03		-1.705E-01	1.553E-01	2.284E-01	1.538E-02	-0.747
		751.79		1.221E+00	1.848E+00	3.193E+00	2.645E-01	0.382
		815.85		-2.901E-01	3.660E-01	5.538E-01	4.877E-02	-0.524
		867.82		-1.725E-01	1.447E+00	2.255E+00	1.940E-01	-0.076
		919.63		1.199E+00	2.993E+00	5.018E+00	5.178E-01	0.239
		925.24		-3.866E-01	1.291E+00	2.024E+00	1.769E-01	-0.191
		1596.49	*	-5.213E-02	8.825E-02	1.348E-01	8.780E-03	-0.387
CE-141		145.44	*	4.097E-02	6.951E-02	1.037E-01	6.038E-03	0.395
		57.37		-2.235E-03	6.951E-02	Half-Life	too short	
CE-143		231.56		-3.779E-03	6.951E-02	Half-Life	too short	
		293.26	*	2.186E-03	6.951E-02	Half-Life	too short	
+		350.59		7.641E-02	6.951E-02	Half-Life	too short	
		490.36		1.307E-03	6.951E-02	Half-Life	too short	
		664.57		1.723E-03	6.951E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			-3.578E-03	6.951E-02	Half-Life too short		
CE-144	80.11			-1.964E+00	2.342E+00	3.388E+00	2.405E-01	-0.580
	133.54	*		-1.069E-01	1.978E-01	3.141E-01	4.472E-02	-0.340
PM-144	476.78			1.177E-02	6.909E-02	1.125E-01	7.954E-03	0.105
	618.01			1.699E-02	3.271E-02	5.643E-02	3.798E-03	0.301
	696.49	*		-1.272E-02	3.420E-02	5.496E-02	3.719E-03	-0.231
	778.57			-2.413E-02	2.300E+00	3.766E+00	2.794E-01	-0.006
PR-144	696.49	*		-8.629E-01	2.320E+00	3.728E+00	2.521E-01	-0.231
	1489.15			-6.540E+00	1.128E+01	1.654E+01	1.120E+00	-0.395
PM-146	453.90	*		-1.232E-02	4.316E-02	6.835E-02	5.909E-03	-0.180
	633.02			3.292E-01	1.423E+00	2.400E+00	8.864E-01	0.137
	735.90			-5.028E-02	1.506E-01	2.402E-01	6.767E-02	-0.209
	747.13			-3.208E-02	8.942E-02	1.425E-01	1.880E-02	-0.225
ND-147	91.11	+		1.229E+00	2.777E-01	7.353E-01	6.029E-02	1.672
	319.41			-4.067E+00	3.503E+00	5.415E+00	3.080E-01	-0.751
	439.89			2.023E+00	6.370E+00	1.054E+01	6.076E-01	0.192
	531.02	*		-8.494E-01	6.384E-01	8.886E-01	1.216E-01	-0.956
PM-149	285.90	*		6.198E+01	1.531E+02	2.606E+02	3.681E+01	0.238
EU-152	121.78			-4.728E-02	7.129E-02	1.122E-01	8.926E-03	-0.421
	244.69			-1.145E-01	3.108E-01	4.510E-01	2.495E-02	-0.254
	344.27	*		-4.618E-02	9.401E-02	1.450E-01	9.295E-03	-0.318
	443.98			-4.793E-01	9.111E-01	1.418E+00	8.203E-02	-0.338
	778.89			4.066E-02	2.664E-01	4.418E-01	3.278E-02	0.092
	867.32			-4.065E-01	8.359E-01	1.204E+00	9.776E-02	-0.337
	964.01	+		8.612E-01	3.319E-01	5.601E-01	4.409E-02	1.538
	1085.78			-1.111E-01	4.134E-01	6.734E-01	4.473E-02	-0.165
	1112.02			2.499E-01	3.553E-01	5.699E-01	3.603E-02	0.439
	1407.95			1.203E-01	1.730E-01	3.063E-01	2.116E-02	0.393
GD-153	69.67			2.920E-01	1.719E+00	2.781E+00	1.829E-01	0.105
	83.37	+		3.809E+01	1.693E+01	2.593E+01	1.896E+00	1.469
	97.43	*		-6.702E-03	8.922E-02	1.316E-01	9.153E-03	-0.051
	103.18			-7.486E-02	1.052E-01	1.690E-01	1.129E-02	-0.443
EU-154	123.07			-2.580E-02	4.931E-02	7.885E-02	7.619E-03	-0.327
	247.94			-1.234E-01	3.199E-01	5.291E-01	4.967E-02	-0.233
	591.81			-2.995E-01	5.669E-01	9.104E-01	9.207E-02	-0.329
	723.30			-8.719E-02	1.740E-01	2.325E-01	1.877E-02	-0.375
	756.87			-4.684E-01	8.223E-01	1.289E+00	1.421E-01	-0.364
	873.19			1.269E-01	2.825E-01	4.775E-01	5.695E-02	0.266
	996.32			2.768E-01	3.785E-01	5.969E-01	1.032E-01	0.464
	1004.76			6.053E-02	2.263E-01	3.390E-01	3.675E-02	0.179
	1274.45	*		-8.234E-02	1.289E-01	1.986E-01	1.935E-02	-0.415
EU-155	48.70			8.426E-02	2.346E+00	4.012E+00	2.622E-01	0.021
	60.01			4.996E+00	5.165E+00	8.195E+00	5.149E-01	0.610
	86.54	+		4.768E-01	1.311E-01	1.922E-01	1.469E-02	2.480
	105.31	*		5.922E-02	1.064E-01	1.791E-01	1.207E-02	0.331
TB-160	86.79	+		1.297E+00	3.560E-01	5.187E-01	3.922E-02	2.500
	197.04			1.555E-01	5.376E-01	8.670E-01	4.581E-02	0.179
	215.65			1.357E-01	7.263E-01	1.159E+00	6.248E-02	0.117
	298.57			2.180E-01	1.632E-01	2.000E-01	1.135E-02	1.090

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		879.36	*	-5.611E-02	1.495E-01	2.342E-01	1.923E-02	-0.240
		962.29		1.065E+00	5.687E-01	9.622E-01	7.588E-02	1.107
		966.15		1.346E+00	2.898E-01	5.565E-01	4.371E-02	2.419
		1177.93		9.611E-03	3.821E-01	6.338E-01	3.510E-02	0.015
		1271.85		-2.632E-02	6.931E-01	1.135E+00	7.267E-02	-0.023
		80.57		-3.381E-01	2.960E-01	4.215E-01	3.004E-02	-0.802
	+	184.41		2.775E-01	6.252E-02	7.784E-02	4.058E-03	3.565
		280.46		5.096E-03	8.601E-02	1.272E-01	7.185E-03	0.040
		410.95		2.439E-01	2.475E-01	3.841E-01	2.150E-02	0.635
		711.68	*	2.786E-02	5.786E-02	9.903E-02	6.816E-03	0.281
TM-171		752.31		1.357E-01	2.717E-01	4.638E-01	3.343E-02	0.292
		810.29		-4.408E-02	5.917E-02	9.006E-02	6.905E-03	-0.489
		51.35		-1.362E+01	3.044E+01	5.108E+01	3.329E+00	-0.267
		52.39		-3.369E+00	1.585E+01	2.680E+01	1.739E+00	-0.126
		59.40		-3.067E+00	2.822E+01	4.284E+01	2.687E+00	-0.072
LU-176		66.72	*	-2.454E+01	3.092E+01	4.518E+01	2.924E+00	-0.543
	+	88.36		9.383E-01	2.576E-01	3.582E-01	2.729E-02	2.620
		201.83		-3.960E-02	2.824E-02	4.171E-02	2.216E-03	-0.950
		306.84	*	-1.857E-02	2.154E-02	3.398E-02	1.931E-03	-0.547
LU-177		401.10		2.288E+00	6.412E+00	1.069E+01	5.919E-01	0.214
		112.95		1.562E+00	2.046E+00	3.430E+00	2.191E-01	0.455
LU-177M	+	208.36	*	3.655E+00	1.879E+00	2.263E+00	1.210E-01	1.615
		52.97		6.661E-01	1.623E+00	2.800E+00	1.812E-01	0.238
		54.07		4.836E-01	8.555E-01	1.481E+00	9.533E-02	0.326
		61.30		2.701E+00	1.576E+00	2.560E+00	1.617E-01	1.055
		121.62		-2.070E-01	3.698E-01	5.853E-01	3.655E-02	-0.354
		147.16		9.153E-03	6.861E-01	9.923E-01	5.499E-02	0.009
		171.86		1.699E-01	4.632E-01	7.556E-01	3.889E-02	0.225
		218.09		1.058E-01	8.087E-01	1.287E+00	6.951E-02	0.082
	+	268.79		2.379E+00	1.048E+00	1.408E+00	7.913E-02	1.689
		319.02		-2.165E-01	2.436E-01	3.833E-01	2.179E-02	-0.565
HF-181		367.43		1.098E+00	8.619E-01	1.518E+00	8.482E-02	0.723
		413.65	*	-2.192E-02	1.779E-01	2.503E-01	1.405E-02	-0.088
		56.28		-1.512E-01	9.385E-01	1.585E+00	1.008E-01	-0.095
		57.53		-4.428E-01	5.062E-01	8.320E-01	5.259E-02	-0.532
		65.20		-1.601E-01	1.055E+00	1.588E+00	1.020E-01	-0.101
		133.02		-2.636E-02	7.240E-02	1.032E-01	6.087E-03	-0.255
		136.25		2.347E-01	4.438E-01	7.379E-01	4.288E-02	0.318
		345.85		2.821E-02	2.084E-01	3.049E-01	1.723E-02	0.093
W-181		482.03	*	1.473E-02	4.390E-02	7.229E-02	4.317E-03	0.204
		56.28		-5.803E-02	3.599E-01	6.079E-01	3.866E-02	-0.095
		57.53		-1.698E-01	1.943E-01	3.193E-01	2.019E-02	-0.532
TA-182		65.20	*	-6.094E-02	4.016E-01	6.047E-01	3.885E-02	-0.101
		67.75		-6.992E-02	1.229E-01	1.815E-01	1.181E-02	-0.385
		100.10		4.093E-02	1.825E-01	3.043E-01	2.074E-02	0.134
		152.43		6.451E-03	3.217E-01	5.206E-01	2.821E-02	0.012
		222.10		1.288E-01	3.203E-01	5.522E-01	2.995E-02	0.233
	+	1001.68		6.093E+00	3.248E+00	4.472E+00	3.371E-01	1.362
		1121.28		6.374E-01	2.027E-01	3.629E-01	2.251E-02	1.756



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1189.05			1.789E-01	3.116E-01	5.394E-01	3.041E-02	0.332
	1221.42	*		2.183E-01	2.050E-01	3.652E-01	2.166E-02	0.598
	1230.97			5.645E-02	5.134E-01	8.536E-01	5.138E-02	0.066
	57.98			-1.697E-01	1.936E-01	3.181E-01	2.007E-02	-0.534
	59.32			-3.230E-03	1.172E-01	1.786E-01	1.120E-02	-0.018
	67.20			-1.533E-01	2.223E-01	3.264E-01	2.118E-02	-0.469
RE-184	162.32	*		7.075E-02	1.095E-01	1.810E-01	9.412E-03	0.391
	208.81	+		2.743E+00	1.410E+00	1.722E+00	9.214E-02	1.593
	291.72			-3.105E-01	9.707E-01	1.392E+00	7.891E-02	-0.223
	57.98			-6.184E-01	7.055E-01	1.159E+00	7.311E-02	-0.534
	59.32			-1.176E-02	4.267E-01	6.502E-01	4.079E-02	-0.018
	67.20			-5.583E-01	8.098E-01	1.189E+00	7.714E-02	-0.469
OS-185	161.27			-1.342E-01	3.493E-01	5.535E-01	2.890E-02	-0.243
	216.55			-6.090E-03	2.577E-01	4.070E-01	2.196E-02	-0.015
	252.85	*		1.990E-01	2.230E-01	3.663E-01	2.038E-02	0.543
	318.01			-3.758E-01	4.323E-01	6.821E-01	3.877E-02	-0.551
	792.07			1.460E+00	1.172E+00	1.872E+00	1.409E-01	0.780
	903.28			3.398E-01	1.085E+00	1.580E+00	1.315E-01	0.215
RE-188	920.93			1.425E-01	4.426E-01	7.369E-01	6.044E-02	0.193
	59.72			6.231E-02	3.161E-01	4.862E-01	3.051E-02	0.128
	61.14			2.336E-01	1.721E-01	2.765E-01	1.746E-02	0.845
	69.30			3.879E-02	2.961E-01	5.005E-01	3.284E-02	0.077
	592.07			-8.772E-01	2.307E+00	3.751E+00	2.384E-01	-0.234
	646.12	*		-3.305E-02	4.016E-02	6.226E-02	4.023E-03	-0.531
W-188	717.42			3.756E-01	8.690E-01	1.481E+00	1.026E-01	0.254
	874.81			-2.852E-01	6.055E-01	9.386E-01	7.673E-02	-0.304
	880.27			6.937E-01	8.087E-01	1.407E+00	1.156E-01	0.493
	155.03	*		1.270E-01	1.689E-01	2.812E-01	1.507E-02	0.452
	477.96			3.197E-01	3.227E+00	5.230E+00	3.113E-01	0.061
	633.10			6.780E-01	2.921E+00	4.943E+00	3.184E-01	0.137
IR-192	63.58	+		2.886E+02	9.582E+01	1.152E+02	7.346E+00	2.506
	227.08			1.284E+00	1.174E+01	1.999E+01	1.089E+00	0.064
	290.67	*		-3.620E+00	7.511E+00	1.063E+01	6.024E-01	-0.341
	295.96	+		9.247E-01	1.933E-01	2.698E-01	1.556E-02	3.428
	308.46			-7.495E-02	8.694E-02	1.372E-01	7.890E-03	-0.546
	316.51	*		3.880E-03	3.299E-02	5.508E-02	3.147E-03	0.070
AU-195	468.07			4.452E-02	6.653E-02	1.088E-01	7.376E-03	0.409
	604.41			3.612E-01	4.692E-01	7.322E-01	8.538E-02	0.493
	612.46			-3.636E-01	7.880E-01	1.091E+00	8.778E-02	-0.333
	65.12			4.884E-02	1.842E-01	2.822E-01	1.812E-02	0.173
	66.83			-7.909E-02	1.028E-01	1.504E-01	9.739E-03	-0.526
	75.70	+		1.151E+00	2.580E-01	4.598E-01	3.148E-02	2.502
TL-200	98.88	*		3.426E-01	2.419E-01	3.999E-01	2.750E-02	0.857
	129.76	+		3.941E+00	3.026E+00	4.803E+00	2.878E-01	0.820
	367.94	*		9.532E-04	3.026E+00	Half-Life too short		
	579.30			6.903E-03	3.026E+00	Half-Life too short		
	828.27			-6.665E-03	3.026E+00	Half-Life too short		
	1205.75			2.529E-03	3.026E+00	Half-Life too short		
TL-201	68.90			2.813E+00	7.225E+00	1.231E+01	8.057E-01	0.229

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	70.82			8.901E-01	4.576E+00	6.970E+00	4.615E-01	0.128
	80.30			-8.506E+00	8.532E+00	1.224E+01	8.706E-01	-0.695
	135.34			4.411E+01	3.714E+01	6.325E+01	3.691E+00	0.697
	167.43	*		2.787E-01	1.023E+01	1.647E+01	8.442E-01	0.017
TL-202	68.90			1.818E-01	4.669E-01	7.953E-01	5.206E-02	0.229
	70.82			5.736E-02	2.949E-01	4.492E-01	2.974E-02	0.128
	80.30			-5.483E-01	5.500E-01	7.893E-01	5.612E-02	-0.695
	439.56	*		3.128E-02	7.457E-02	1.242E-01	7.155E-03	0.252
HG-203	70.83			2.380E-01	1.179E+00	1.796E+00	2.234E-01	0.133
	72.87			7.567E-01	7.225E-01	1.124E+00	1.353E-01	0.673
	82.60			2.866E-01	1.543E+00	1.859E+00	2.405E-01	0.154
	279.20	*		3.314E-02	4.324E-02	6.690E-02	4.023E-03	0.495
BI-207	72.80			1.649E-01	2.034E-01	3.158E-01	2.118E-02	0.522
	74.97			6.336E-01	1.421E-01	2.287E-01	1.557E-02	2.771
	84.90			4.900E-01	2.178E-01	3.398E-01	2.522E-02	1.442
	569.67			9.538E-03	2.852E-02	4.809E-02	3.028E-03	0.198
	1063.62	*		-5.704E-02	5.632E-02	8.586E-02	5.923E-03	-0.664
	1770.23			-1.391E+00	6.155E-01	6.630E-01	3.913E-02	-2.098
TL-207	81.07			5.749E-02	2.778E-01	3.359E-01	2.405E-02	0.171
	83.78			3.230E-01	1.436E-01	2.216E-01	1.627E-02	1.458
	94.90			2.845E-01	2.435E-01	3.800E-01	2.700E-02	0.749
	122.32			-1.867E+00	1.721E+00	2.656E+00	1.880E-01	-0.703
	144.24			1.378E+00	7.788E-01	1.148E+00	8.132E-02	1.200
	154.21			3.884E-01	3.739E-01	6.291E-01	4.196E-02	0.617
	269.46			5.523E-01	2.436E-01	3.410E-01	2.009E-02	1.619
	323.87	*		2.517E-01	6.466E-01	9.688E-01	1.596E-01	0.260
	338.28			6.762E+00	1.910E+00	2.429E+00	2.540E-01	2.784
	445.03			2.492E-01	2.102E+00	3.432E+00	3.522E-01	0.073
PO-209	260.50			-3.244E+00	9.244E+00	1.334E+01	7.463E-01	-0.243
	262.80			-2.106E+00	2.720E+01	4.005E+01	2.243E+00	-0.053
	896.60	*		-1.719E+00	7.610E+00	1.206E+01	1.007E+00	-0.143
BI-210	46.50	*		-1.082E+00	3.302E+00	5.516E+00	4.155E-01	-0.196
PB-210	46.50	*		-1.082E+00	3.302E+00	5.516E+00	4.155E-01	-0.196
PO-210	46.50	*		-1.082E+00	3.302E+00	5.516E+00	3.538E-01	-0.196
PB-211	404.84	*		-2.185E-01	1.006E+00	1.394E+00	8.686E-01	-0.157
	427.08			-3.237E-01	1.924E+00	3.070E+00	1.897E+00	-0.105
	831.96			-5.020E-01	1.258E+00	1.914E+00	1.197E+00	-0.262
BI-212	727.18	*		1.069E+00	3.864E-01	6.401E-01	5.542E-02	1.670
	785.46			1.811E+00	1.902E+00	3.319E+00	2.480E-01	0.546
	1620.62			1.610E+00	1.278E+00	2.370E+00	1.526E-01	0.679
PO-215	81.07			5.749E-02	2.778E-01	3.359E-01	2.405E-02	0.171
	83.78			3.230E-01	1.436E-01	2.216E-01	1.627E-02	1.458
	94.90			2.845E-01	2.435E-01	3.800E-01	2.700E-02	0.749
	122.32			-1.867E+00	1.721E+00	2.656E+00	1.880E-01	-0.703
	144.24			1.378E+00	7.788E-01	1.148E+00	8.132E-02	1.200
	154.21			3.884E-01	3.739E-01	6.291E-01	4.196E-02	0.617
	269.46			5.523E-01	2.436E-01	3.410E-01	2.009E-02	1.619
	323.87	*		2.517E-01	6.466E-01	9.688E-01	1.596E-01	0.260
	338.28			6.762E+00	1.910E+00	2.429E+00	2.540E-01	2.784

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		2.492E-01	2.102E+00	3.432E+00	3.522E-01	0.073
		271.23		7.086E-01	3.149E-01	4.348E-01	3.470E-02	1.630
		401.81	*	-5.992E-02	3.938E-01	6.361E-01	8.585E-02	-0.094
RN-220		549.76	*	1.940E+01	2.389E+01	4.240E+01	2.644E+00	0.458
RA-223	+	81.07		5.749E-02	2.778E-01	3.359E-01	2.405E-02	0.171
		83.78		3.230E-01	1.436E-01	2.216E-01	1.627E-02	1.458
		94.90		2.845E-01	2.435E-01	3.800E-01	2.700E-02	0.749
AC-227	+	122.32		-1.867E+00	1.721E+00	2.656E+00	1.880E-01	-0.703
		144.24		1.378E+00	7.788E-01	1.148E+00	8.132E-02	1.200
		154.21		3.884E-01	3.739E-01	6.291E-01	4.196E-02	0.617
	+	269.46		5.523E-01	2.436E-01	3.410E-01	2.009E-02	1.619
		323.87	*	2.517E-01	6.466E-01	9.688E-01	1.596E-01	0.260
		338.28		6.762E+00	1.910E+00	2.429E+00	2.540E-01	2.784
	+	445.03		2.492E-01	2.102E+00	3.432E+00	3.522E-01	0.073
		79.80		-1.449E+00	1.829E+00	2.620E+00	5.484E-01	-0.553
		236.00		8.599E-01	2.558E-01	4.224E-01	4.345E-02	2.036
	+	256.20	*	-1.427E-01	3.849E-01	5.558E-01	7.708E-02	-0.257
		286.10		8.136E-01	1.389E+00	2.383E+00	2.738E-01	0.341
		299.80		4.119E+00	2.173E+00	2.527E+00	4.105E-01	1.630
TH-227	+	304.40		2.154E+00	1.708E+00	2.697E+00	4.654E-01	0.799
		334.20		1.231E-01	2.378E+00	3.465E+00	6.338E-01	0.036
		79.80		-1.449E+00	1.830E+00	2.620E+00	5.558E-01	-0.553
	+	94.00		3.511E+01	8.180E+00	4.461E+00	9.478E-01	7.869
		236.00		8.599E-01	2.518E-01	4.224E-01	3.745E-02	2.036
		256.20	*	-1.427E-01	3.851E-01	5.558E-01	9.350E-02	-0.257
	+	286.10		8.136E-01	1.607E+00	2.383E+00	2.386E+00	0.341
		299.80		4.119E+00	2.173E+00	2.527E+00	4.105E-01	1.630
TH-229	+	304.40		2.154E+00	1.708E+00	2.697E+00	4.654E-01	0.799
		334.20		1.231E-01	2.378E+00	3.465E+00	6.338E-01	0.036
		85.43		4.836E-01	2.149E-01	3.421E-01	2.552E-02	1.414
	+	88.47		4.317E-01	9.630E-02	2.049E-01	1.559E-02	2.107
		100.00		-1.230E-02	1.910E-01	3.132E-01	2.136E-02	-0.039
		193.63	*	-1.467E-01	4.840E-01	7.598E-01	4.000E-02	-0.193
	+	210.97		8.147E-01	7.829E-01	1.173E+00	6.293E-02	0.694
		283.67	*	-3.899E-01	1.388E+00	2.285E+00	3.135E-01	-0.171
PA-231		301.29		1.648E+00	8.444E-01	9.674E-01	1.005E-01	1.703
TH-231	+	81.07		5.749E-02	2.778E-01	3.359E-01	2.405E-02	0.171
		83.78		3.230E-01	1.436E-01	2.216E-01	1.627E-02	1.458
		94.90		2.845E-01	2.435E-01	3.800E-01	2.700E-02	0.749
	+	122.32		-1.867E+00	1.721E+00	2.656E+00	1.880E-01	-0.703
		144.24		1.378E+00	7.788E-01	1.148E+00	8.132E-02	1.200
		154.21		3.884E-01	3.739E-01	6.291E-01	4.196E-02	0.617
	+	269.46		5.523E-01	2.436E-01	3.410E-01	2.009E-02	1.619
		323.87	*	2.517E-01	6.466E-01	9.688E-01	1.596E-01	0.260
		338.28		6.762E+00	1.910E+00	2.429E+00	2.540E-01	2.784
	+	445.03		2.492E-01	2.102E+00	3.432E+00	3.522E-01	0.073
		84.21		1.914E+01	8.506E+00	1.318E+01	9.717E-01	1.452
		92.29		4.770E+01	5.702E+00	7.824E+00	5.702E-01	6.096
U-231		95.87	*	-8.902E-01	1.613E+00	2.332E+00	1.642E-01	-0.382

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-2.752E+00	2.870E+00	4.490E+00	2.925E-01	-0.613
	+	75.28		1.849E+01	4.764E+00	6.946E+00	1.001E+00	2.662
	+	86.59		7.745E+00	2.897E+00	3.124E+00	8.278E-01	2.479
	+	300.12		1.148E+00	5.965E-01	7.067E-01	9.460E-02	1.625
		311.98	*	-8.865E-03	6.002E-02	9.888E-02	5.983E-03	-0.090
		340.50		1.024E+00	6.761E-01	1.026E+00	2.352E-01	0.998
PA-234		398.62		4.000E-01	2.068E+00	3.410E+00	8.796E-01	0.117
		415.76		-1.006E+00	1.560E+00	2.304E+00	4.732E-01	-0.437
	+	63.00		8.211E+00	2.924E+00	3.362E+00	4.831E-01	2.442
		94.67		4.380E-01	1.876E-01	2.965E-01	3.383E-02	1.477
		98.44		1.184E-01	1.227E-01	1.614E-01	8.966E-02	0.733
		99.86		1.963E-01	4.781E-01	7.970E-01	5.442E-02	0.246
		111.00		8.731E-02	1.812E-01	3.033E-01	3.227E-02	0.288
		131.20		-2.021E-02	1.108E-01	1.597E-01	9.502E-03	-0.127
		152.70		-1.084E-01	3.123E-01	4.967E-01	7.784E-02	-0.218
	+	186.00		9.990E+00	3.748E+00	2.985E+00	9.091E-01	3.346
		226.40		7.623E-02	3.666E-01	6.264E-01	7.133E-02	0.122
		227.20		2.594E-01	3.801E-01	6.621E-01	3.609E-02	0.392
		248.90		-2.663E-01	7.338E-01	1.212E+00	2.596E-01	-0.220
	+	293.70		5.717E+00	1.470E+00	1.640E+00	2.630E-01	3.486
		369.80		-5.064E-01	8.713E-01	1.371E+00	2.847E-01	-0.369
		568.70		-4.374E-02	9.525E-01	1.527E+00	9.611E-02	-0.029
		569.50		1.048E-01	2.533E-01	4.294E-01	2.704E-02	0.244
		574.00		-7.984E-01	1.369E+00	2.199E+00	1.388E-01	-0.363
		699.00		3.800E-01	7.276E-01	1.241E+00	2.274E-01	0.306
		706.10		3.584E-02	1.002E+00	1.658E+00	7.344E-01	0.022
		733.00		3.433E-01	4.253E-01	6.517E-01	1.410E-01	0.527
		742.81		1.026E+00	1.462E+00	2.259E+00	1.514E+00	0.454
		796.30		1.448E+00	1.111E+00	1.708E+00	4.565E-01	0.848
		805.60		5.837E-01	1.015E+00	1.711E+00	5.199E-01	0.341
		819.60		8.076E-02	1.236E+00	2.028E+00	7.672E-01	0.040
		826.30		-1.551E-01	7.999E-01	1.276E+00	5.690E-01	-0.122
		831.60		-3.853E-01	6.436E-01	9.778E-01	2.897E-01	-0.394
		876.40		1.766E-01	8.458E-01	1.367E+00	1.404E+00	0.129
		880.51		2.728E-01	2.974E-01	5.183E-01	4.261E-02	0.526
		883.24		-2.045E-02	3.131E-01	5.042E-01	3.387E-01	-0.041
		899.00		1.372E-01	8.356E-01	1.370E+00	5.980E-01	0.100
		925.00		-1.614E-01	1.205E+00	1.920E+00	1.569E-01	-0.084
		926.50		-1.662E-02	1.784E-01	2.853E-01	7.169E-02	-0.058
		946.00	*	-1.498E-01	3.139E-01	4.808E-01	8.892E-02	-0.312
		949.00		4.402E-01	4.620E-01	8.054E-01	6.438E-02	0.547
		980.50		2.834E-01	6.824E-01	1.143E+00	8.836E-02	0.248
		1394.10		-4.703E-01	1.012E+00	1.448E+00	9.397E-01	-0.325
PA-234M		766.42		1.729E+01	1.556E+01	2.290E+01	1.157E+01	0.755
NP-236	+	1001.03	*	1.367E+01	7.321E+00	1.004E+01	9.084E-01	1.362
		94.67		3.361E-01	1.393E-01	2.253E-01	1.604E-02	1.492
		98.44		8.944E-02	7.856E-02	1.220E-01	8.418E-03	0.733
		111.00		6.604E-02	1.370E-01	2.294E-01	1.476E-02	0.288
		160.31	*	-5.358E-02	7.820E-02	1.223E-01	6.411E-03	-0.438

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		9.417E-02	1.607E-01	2.694E-01	1.843E-02	0.350
		117.00	*	-1.945E-01	1.839E-01	2.882E-01	1.819E-02	-0.675
	+	209.75		2.123E+00	1.091E+00	1.322E+00	7.080E-02	1.606
		228.18		2.397E-03	1.973E-01	3.344E-01	1.824E-02	0.007
	+	277.60		2.309E-01	2.112E-01	3.002E-01	1.694E-02	0.769
AM-241		334.30		1.625E-02	1.345E+00	1.953E+00	1.108E-01	0.008
		59.54	*	-8.274E-04	1.641E-01	2.502E-01	1.778E-02	-0.003
		99.55		9.691E-02	1.654E-01	2.772E-01	1.897E-02	0.350
		103.76	*	2.709E-02	9.498E-02	1.585E-01	1.056E-02	0.171
		117.00		-2.001E-01	1.892E-01	2.966E-01	1.872E-02	-0.675
CM-243	+	209.75		2.093E+00	1.076E+00	1.303E+00	6.981E-02	1.606
		228.18		2.422E-03	1.994E-01	3.380E-01	1.844E-02	0.007
	+	277.60		2.328E-01	2.129E-01	3.027E-01	1.708E-02	0.769
		798.80		-3.141E-02	1.499E-01	2.062E-01	1.562E-02	-0.152
		1036.00		-1.958E-01	2.639E-01	4.079E-01	2.936E-02	-0.480
AM-246		1062.04		1.402E-01	2.365E-01	4.136E-01	2.861E-02	0.339
		1078.86	*	-8.520E-03	1.300E-01	2.154E-01	1.449E-02	-0.040
		278.00		9.575E-01	8.758E-01	1.259E+00	7.105E-02	0.760
	+	287.40		1.063E+00	1.104E+00	1.930E+00	1.093E-01	0.551
		402.60	*	-1.846E-02	3.523E-02	5.549E-02	3.078E-03	-0.333
CF-249		252.85		7.409E-01	8.301E-01	1.364E+00	7.588E-02	0.543
		333.44		-1.121E-02	1.891E-01	2.544E-01	1.443E-02	-0.044
CF-251		387.95	*	3.216E-02	3.804E-02	6.533E-02	3.591E-03	0.492
		176.60	*	1.155E-02	1.196E-01	1.925E-01	9.956E-03	0.060
		227.00		3.912E-02	3.457E-01	5.886E-01	3.207E-02	0.066
		285.00		1.840E-01	1.609E+00	2.704E+00	1.530E-01	0.068

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341006      *
* Acquisition date   : 18-FEB-2010 13:12:24 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 02:00:01.72 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341006 Analyst initials: MXR1                 *
* Batch Number       : 950786 Sample Quantity : 1.4098E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM           : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.888E+01	2.604E+00	5.656E-01	0.000E+00
CD-109	4.037E+00	1.086E+00	1.230E+00	0.000E+00
SN-126	3.956E-01	1.065E-01	1.211E-01	0.000E+00
BA-137M	2.122E-01	5.906E-02	6.375E-02	0.000E+00
CS-137	2.243E-01	6.244E-02	6.739E-02	0.000E+00
TL-208	4.846E-01	8.906E-02	5.749E-02	0.000E+00
BI-211	3.637E+00	5.040E-01	3.019E-01	0.000E+00
PB-212	1.595E+00	1.494E-01	8.152E-02	0.000E+00
PO-212	1.595E+00	1.494E-01	8.152E-02	0.000E+00
BI-214	1.237E+00	1.797E-01	1.074E-01	0.000E+00
PB-214	1.265E+00	1.869E-01	1.052E-01	0.000E+00
PO-214	1.265E+00	1.869E-01	1.052E-01	0.000E+00
PO-216	1.595E+00	1.494E-01	8.152E-02	0.000E+00
PO-218	1.265E+00	1.869E-01	1.052E-01	0.000E+00
RA-224	4.312E+00	1.033E+00	9.277E-01	0.000E+00
RA-226	1.237E+00	1.797E-01	1.074E-01	0.000E+00
AC-228	1.484E+00	3.252E-01	2.005E-01	0.000E+00
RA-228	1.484E+00	3.252E-01	2.005E-01	0.000E+00
TH-228	1.623E+00	1.520E-01	8.291E-02	0.000E+00
TH-230	1.237E+00	1.796E-01	1.074E-01	0.000E+00
TH-232	1.484E+00	3.252E-01	2.005E-01	0.000E+00
TH-234	7.044E+00	2.538E+00	2.235E+00	0.000E+00
U-234	1.237E+00	1.796E-01	1.074E-01	0.000E+00
U-235	4.252E-01	2.433E-01	3.464E-01	0.000E+00
NP-237	1.162E+00	3.910E-01	3.850E-01	0.000E+00
U-238	7.044E+00	2.538E+00	2.235E+00	0.000E+00
AM-243	3.530E-01	7.756E-02	9.873E-02	0.000E+00
ANH-511	9.935E-02	6.144E-02	4.365E-02	0.000E+00

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

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

BE-7	1.600E-01	3.277E-01	5.714E-01	0.000E+00	NOT IDENT.
NA-22	-3.028E-02	4.514E-02	7.141E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.124E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-5.363E-04	2.675E-02	4.495E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.687E-02	7.748E-02	0.000E+00	FAIL ABUN
SC-46	-5.118E-03	4.001E-02	6.635E-02	0.000E+00	FAIL ABUN
V-48	-3.185E-02	7.298E-02	1.156E-01	0.000E+00	NOT IDENT.
CR-51	-1.227E-01	3.486E-01	5.994E-01	0.000E+00	NOT IDENT.
MN-52	2.173E-02	2.551E-01	4.306E-01	0.000E+00	NOT IDENT.
MN-54	-2.989E-03	3.780E-02	6.344E-02	0.000E+00	NOT IDENT.
CO-56	-1.544E-03	3.879E-02	6.519E-02	0.000E+00	NOT IDENT.
CO-57	-2.815E-02	2.446E-02	4.065E-02	0.000E+00	NOT IDENT.
CO-58	-2.333E-02	3.920E-02	6.293E-02	0.000E+00	NOT IDENT.
FE-59	1.362E-02	8.758E-02	1.524E-01	0.000E+00	FAIL ABUN
CO-60	6.575E-03	4.044E-02	6.912E-02	0.000E+00	NOT IDENT.
ZN-65	7.780E-02	1.062E-01	1.692E-01	0.000E+00	NOT IDENT.
GE-68	-3.097E-01	1.097E+00	1.835E+00	0.000E+00	NOT IDENT.
AS-73	5.098E-01	8.207E-01	1.560E+00	0.000E+00	NOT IDENT.
AS-74	-6.001E-02	8.555E-02	1.415E-01	0.000E+00	NOT IDENT.
SE-75	3.152E-02	4.167E-02	7.197E-02	0.000E+00	NOT IDENT.
BR-77	1.066E+00	1.729E+01	2.909E+01	0.000E+00	FAIL ABUN
SR-82	-4.265E-01	4.201E-01	6.564E-01	0.000E+00	NOT IDENT.
RB-83	1.849E-02	6.466E-02	1.107E-01	0.000E+00	NOT IDENT.
RB-84	6.382E-02	7.615E-02	1.365E-01	0.000E+00	NOT IDENT.
KR-85	6.209E+00	7.136E+00	1.134E+01	0.000E+00	NOT IDENT.
SR-85	3.249E-02	3.734E-02	5.933E-02	0.000E+00	NOT IDENT.
RB-86	-2.699E-01	7.447E-01	1.236E+00	0.000E+00	NOT IDENT.
Y-88	-2.062E-02	3.122E-02	4.559E-02	0.000E+00	NOT IDENT.
ZR-88	-3.807E-02	3.002E-02	4.558E-02	0.000E+00	NOT IDENT.
Y-91	1.617E+01	2.018E+01	3.629E+01	0.000E+00	NOT IDENT.
NB-94	2.217E-02	3.319E-02	5.965E-02	0.000E+00	NOT IDENT.
NB-95	4.718E-02	4.790E-02	8.655E-02	0.000E+00	NOT IDENT.
NB-95M	1.999E-01	1.236E-01	2.124E-01	0.000E+00	NOT IDENT.
ZR-95	-1.933E-02	7.596E-02	1.272E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.516E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.337E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-7.195E+00	1.811E+01	2.993E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.725E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.830E-02	2.980E-02	5.355E-02	0.000E+00	NOT IDENT.
RH-102	-2.275E-03	2.858E-02	4.804E-02	0.000E+00	NOT IDENT.
RU-103	-5.846E-02	4.257E-02	6.316E-02	0.000E+00	FAIL ABUN
RH-106	-1.149E-01	3.165E-01	5.367E-01	0.000E+00	FAIL ABUN
RU-106	-1.149E-01	3.163E-01	5.367E-01	0.000E+00	FAIL ABUN
AG-108M	6.506E-03	2.911E-02	5.042E-02	0.000E+00	NOT IDENT.
AG-110M	-1.562E-02	4.017E-02	5.796E-02	0.000E+00	NOT IDENT.
IN-111	-5.494E-01	1.581E+00	2.443E+00	0.000E+00	NOT IDENT.
IN-113M	-4.868E-02	4.193E-02	6.664E-02	0.000E+00	NOT IDENT.
SN-113	-4.868E-02	4.193E-02	6.664E-02	0.000E+00	NOT IDENT.
IN-114M	1.180E-01	1.882E-01	2.963E-01	0.000E+00	NOT IDENT.
CD-115	7.642E-01	1.883E+01	3.158E+01	0.000E+00	NOT IDENT.
SN-117M	-7.453E-03	5.643E-02	9.711E-02	0.000E+00	NOT IDENT.
SB-122	3.865E+00	3.589E+00	6.023E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.236E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	9.291E-03	2.690E-02	4.721E-02	0.000E+00	NOT IDENT.
I-124	3.467E-01	9.283E-01	1.462E+00	0.000E+00	NOT IDENT.
SB-124	-2.083E-02	6.547E-02	1.047E-01	0.000E+00	FAIL ABUN
SB-125	2.414E-02	8.236E-02	1.434E-01	0.000E+00	FAIL ABUN
TE-125M	3.626E-01	9.282E+00	1.632E+01	0.000E+00	NOT IDENT.
I-126	1.999E-01	2.090E-01	3.443E-01	0.000E+00	NOT IDENT.
SB-126	-1.338E-02	1.487E-01	2.384E-01	0.000E+00	FAIL ABUN
SB-127	8.186E-01	1.704E+00	3.047E+00	0.000E+00	NOT IDENT.
XE-127	-5.599E-03	4.557E-02	7.682E-02	0.000E+00	NOT IDENT.
I-131	-6.405E-02	1.253E-01	2.103E-01	0.000E+00	NOT IDENT.
TE-132	-4.647E-02	8.945E-01	1.610E+00	0.000E+00	NOT IDENT.
BA-133	-1.159E-02	4.355E-02	6.484E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.661E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.247E-02	8.959E-02	0.000E+00	FAIL ABUN
CS-135	1.320E-01	1.651E-01	2.711E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.374E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.114E-02	1.140E-01	1.856E-01	0.000E+00	FAIL ABUN
CE-139	-2.704E-02	2.868E-02	4.738E-02	0.000E+00	NOT IDENT.
BA-140	-2.574E-01	2.639E-01	4.100E-01	0.000E+00	NOT IDENT.
LA-140	-5.213E-02	8.649E-02	1.351E-01	0.000E+00	FAIL ABUN
CE-141	4.097E-02	6.812E-02	1.092E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.380E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.069E-01	1.938E-01	3.314E-01	0.000E+00	NOT IDENT.
PM-144	-1.272E-02	3.351E-02	5.606E-02	0.000E+00	NOT IDENT.

PR-144	-8.629E-01	2.273E+00	3.803E+00	0.000E+00	NOT IDENT.
PM-146	-1.232E-02	4.230E-02	7.035E-02	0.000E+00	NOT IDENT.
ND-147	-8.494E-01	6.256E-01	9.116E-01	0.000E+00	FAIL ABUN
PM-149	6.198E+01	1.501E+02	2.708E+02	0.000E+00	NOT IDENT.
EU-152	-4.618E-02	9.213E-02	1.501E-01	0.000E+00	FAIL ABUN
GD-153	-6.702E-03	8.744E-02	1.397E-01	0.000E+00	FAIL ABUN
EU-154	-8.234E-02	1.263E-01	2.000E-01	0.000E+00	NOT IDENT.
EU-155	5.922E-02	1.043E-01	1.898E-01	0.000E+00	FAIL ABUN
TB-160	-5.611E-02	1.466E-01	2.378E-01	0.000E+00	FAIL ABUN
HO-166M	2.786E-02	5.671E-02	1.010E-01	0.000E+00	FAIL ABUN
TM-171	-2.454E+01	3.030E+01	4.832E+01	0.000E+00	NOT IDENT.
LU-176	-1.857E-02	2.111E-02	3.525E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.841E+00	2.367E+00	0.000E+00	FAIL ABUN
LU-177M	-2.192E-02	1.744E-01	2.582E-01	0.000E+00	FAIL ABUN
HF-181	1.473E-02	4.302E-02	7.432E-02	0.000E+00	NOT IDENT.
W-181	-6.094E-02	3.935E-01	6.470E-01	0.000E+00	NOT IDENT.
TA-182	2.183E-01	2.009E-01	3.681E-01	0.000E+00	FAIL ABUN
RE-183	7.075E-02	1.073E-01	1.903E-01	0.000E+00	FAIL ABUN
RE-184	1.990E-01	2.185E-01	3.815E-01	0.000E+00	NOT IDENT.
OS-185	-3.305E-02	3.936E-02	6.362E-02	0.000E+00	NOT IDENT.
RE-188	1.270E-01	1.656E-01	2.958E-01	0.000E+00	NOT IDENT.
W-188	-3.620E+00	7.360E+00	1.104E+01	0.000E+00	FAIL ABUN
IR-192	3.880E-03	3.233E-02	5.711E-02	0.000E+00	FAIL ABUN
AU-195	3.426E-01	2.371E-01	4.244E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.487E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.787E-01	1.003E+01	1.730E+01	0.000E+00	NOT IDENT.
TL-202	3.128E-02	7.307E-02	1.280E-01	0.000E+00	NOT IDENT.
HG-203	3.314E-02	4.238E-02	6.955E-02	0.000E+00	NOT IDENT.
BI-207	-5.704E-02	5.519E-02	8.680E-02	0.000E+00	FAIL ABUN
TL-207	2.517E-01	6.337E-01	1.004E+00	0.000E+00	FAIL ABUN
PO-209	-1.719E+00	7.458E+00	1.224E+01	0.000E+00	NOT IDENT.
BI-210	-1.082E+00	3.236E+00	5.939E+00	0.000E+00	NOT IDENT.
PB-210	-1.082E+00	3.236E+00	5.939E+00	0.000E+00	NOT IDENT.
PO-210	-1.082E+00	3.236E+00	5.939E+00	0.000E+00	NOT IDENT.
PB-211	-2.185E-01	9.858E-01	1.438E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.787E-01	6.524E-01	0.000E+00	FAIL ABUN
PO-215	2.517E-01	6.337E-01	1.004E+00	0.000E+00	FAIL ABUN
RN-219	-5.992E-02	3.860E-01	6.564E-01	0.000E+00	FAIL ABUN
RN-220	1.940E+01	2.342E+01	4.347E+01	0.000E+00	NOT IDENT.
RA-223	2.517E-01	6.337E-01	1.004E+00	0.000E+00	FAIL ABUN
AC-227	-1.427E-01	3.772E-01	5.788E-01	0.000E+00	FAIL ABUN
TH-227	-1.427E-01	3.774E-01	5.788E-01	0.000E+00	FAIL ABUN
TH-229	-1.467E-01	4.744E-01	7.958E-01	0.000E+00	FAIL ABUN
PA-231	-3.899E-01	1.360E+00	2.374E+00	0.000E+00	FAIL ABUN
TH-231	2.517E-01	6.337E-01	1.004E+00	0.000E+00	FAIL ABUN
U-231	-8.902E-01	1.580E+00	2.476E+00	0.000E+00	FAIL ABUN
PA-233	-8.865E-03	5.882E-02	1.026E-01	0.000E+00	FAIL ABUN
PA-234	-1.498E-01	3.076E-01	4.873E-01	0.000E+00	FAIL ABUN
PA-234M	0.000E+00	7.174E+00	1.016E+01	0.000E+00	FAIL ABUN
NP-236	-5.358E-02	7.664E-02	1.285E-01	0.000E+00	NOT IDENT.
NP-239	-1.945E-01	1.802E-01	3.049E-01	0.000E+00	FAIL ABUN
AM-241	-8.274E-04	1.608E-01	2.682E-01	0.000E+00	NOT IDENT.
CM-243	2.709E-02	9.308E-02	1.681E-01	0.000E+00	FAIL ABUN
AM-246	-8.520E-03	1.274E-01	2.177E-01	0.000E+00	NOT IDENT.
CM-247	-1.846E-02	3.453E-02	5.726E-02	0.000E+00	FAIL ABUN
CF-249	3.216E-02	3.728E-02	6.746E-02	0.000E+00	NOT IDENT.
CF-251	1.155E-02	1.172E-01	2.020E-01	0.000E+00	NOT IDENT.



```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341006.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:12:24
Sample ID          : G246341006          Sample quantity   : 1.40980E+02 GRAM
Detector name      : GAM12              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time  : 0 02:00:01.72  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 950786             Detector SN#       :
Matrix Spike ID    :                   LCS ID              : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1316	10.67*	1.138E+00	2.888E+01	2.888E+01	9.20
CD-109	88.03	310	3.72*	5.636E+00	3.935E+00	4.037E+00	27.46
SN-126	64.28	321	9.60	3.191E+00	2.788E+00	2.788E+00	35.47
	86.94	310	8.90	5.636E+00	1.645E+00	1.645E+00	48.89
	87.57	310	37.00*	5.636E+00	3.956E-01	3.956E-01	27.46
BA-137M	661.65	161	89.98*	2.253E+00	2.120E-01	2.122E-01	28.40
CS-137	661.65	161	85.12*	2.253E+00	2.241E-01	2.243E-01	28.41
TL-208	277.35	55	6.80	4.504E+00	4.788E-01	4.788E-01	91.90
	510.84	104	21.60	2.796E+00	4.599E-01	4.599E-01	63.66
	583.14	384	84.20*	2.506E+00	4.846E-01	4.846E-01	18.76
	860.37	46	12.46	1.794E+00	5.492E-01	5.492E-01	71.71
BI-211	72.87	-----	1.27	4.387E+00	-----	Line Not Found	-----
	351.07	665	12.94*	3.764E+00	3.637E+00	3.637E+00	14.14
PB-212	74.81	401	10.70	4.581E+00	2.177E+00	2.177E+00	24.29
	77.11	697	18.00	4.814E+00	2.142E+00	2.142E+00	14.68
	87.30	310	8.00	5.636E+00	1.830E+00	1.830E+00	29.22
	238.63	1341	44.60*	5.017E+00	1.595E+00	1.595E+00	9.56
	300.09	121	3.41	4.248E+00	2.223E+00	2.223E+00	50.85
PO-212	74.81	401	10.70	4.581E+00	2.177E+00	2.177E+00	24.29
	77.11	697	18.00	4.814E+00	2.142E+00	2.142E+00	14.68
	87.30	310	8.00	5.636E+00	1.830E+00	1.830E+00	29.22
	115.19	-----	0.60	6.604E+00	-----	Line Not Found	-----
	238.63	1341	44.60*	5.017E+00	1.595E+00	1.595E+00	9.56
	300.09	121	3.41	4.248E+00	2.223E+00	2.223E+00	50.85
BI-214	609.31	520	46.30*	2.416E+00	1.237E+00	1.237E+00	14.82
	1120.29	122	15.10	1.424E+00	1.515E+00	1.515E+00	32.56
	1764.49	73	15.80	9.905E-01	1.243E+00	1.243E+00	33.06
PB-214	74.81	401	6.21	4.581E+00	3.751E+00	3.751E+00	23.61
	77.11	697	10.50	4.814E+00	3.673E+00	3.673E+00	16.54
	87.30	310	4.67	5.636E+00	3.134E+00	3.134E+00	28.52
	241.98	318	7.49	4.974E+00	2.274E+00	2.274E+00	25.09
	295.21	370	19.20	4.304E+00	1.191E+00	1.191E+00	21.79

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	665	37.20*	3.764E+00	1.265E+00	1.265E+00	15.07
	74.81	401	6.21	4.581E+00	3.751E+00	3.751E+00	23.61
	77.11	697	10.50	4.814E+00	3.673E+00	3.673E+00	16.54
	87.30	310	4.67	5.636E+00	3.134E+00	3.134E+00	28.52
	241.98	318	7.49	4.974E+00	2.274E+00	2.274E+00	25.09
PO-216	295.21	370	19.20	4.304E+00	1.191E+00	1.191E+00	21.79
	351.92	665	37.20*	3.764E+00	1.265E+00	1.265E+00	15.07
	74.81	401	10.70	4.581E+00	2.177E+00	2.177E+00	24.29
	77.11	697	18.00	4.814E+00	2.142E+00	2.142E+00	14.68
	87.30	310	8.00	5.636E+00	1.830E+00	1.830E+00	29.22
PO-218	238.63	1341	44.60*	5.017E+00	1.595E+00	1.595E+00	9.56
	300.09	121	3.41	4.248E+00	2.223E+00	2.223E+00	50.85
	74.81	401	6.21	4.581E+00	3.751E+00	3.751E+00	23.61
	77.11	697	10.50	4.814E+00	3.673E+00	3.673E+00	16.54
	87.30	310	4.67	5.636E+00	3.134E+00	3.134E+00	28.52
RA-224	241.98	318	7.49	4.974E+00	2.274E+00	2.274E+00	25.09
	295.21	370	19.20	4.304E+00	1.191E+00	1.191E+00	21.79
	351.92	665	37.20*	3.764E+00	1.265E+00	1.265E+00	15.07
	240.98	318	3.95*	4.974E+00	4.312E+00	4.312E+00	24.45
	609.31	520	46.30*	2.416E+00	1.237E+00	1.237E+00	14.82
AC-228	1120.29	122	15.10	1.424E+00	1.515E+00	1.515E+00	32.56
	1764.49	73	15.80	9.905E-01	1.243E+00	1.243E+00	33.06
	338.32	269	11.40	3.881E+00	1.619E+00	1.619E+00	48.46
	911.07	264	27.70*	1.707E+00	1.484E+00	1.484E+00	22.36
	969.11	183	16.60	1.617E+00	1.813E+00	1.813E+00	29.65
TH-228	338.32	269	11.40	3.881E+00	1.619E+00	1.619E+00	48.46
	911.07	264	27.70*	1.707E+00	1.484E+00	1.484E+00	22.36
	969.11	183	16.60	1.617E+00	1.813E+00	1.813E+00	29.65
	74.81	401	10.70	4.581E+00	2.177E+00	2.214E+00	22.45
	77.11	697	18.00	4.814E+00	2.142E+00	2.179E+00	14.68
TH-230	87.30	310	8.00	5.636E+00	1.830E+00	1.861E+00	27.46
	238.63	1341	44.60*	5.017E+00	1.595E+00	1.623E+00	9.56
	300.09	121	3.41	4.248E+00	2.223E+00	2.261E+00	77.40
	609.31	520	46.30*	2.416E+00	1.237E+00	1.237E+00	14.82
	1120.29	122	15.10	1.424E+00	1.515E+00	1.515E+00	32.56
TH-232	1764.49	73	15.80	9.905E-01	1.243E+00	1.243E+00	33.06
	338.32	269	11.40	3.881E+00	1.619E+00	1.619E+00	26.84
	911.07	264	27.70*	1.707E+00	1.484E+00	1.484E+00	22.36
	969.11	183	16.60	1.617E+00	1.813E+00	1.813E+00	29.65
	63.29	321	3.80*	3.191E+00	7.044E+00	7.044E+00	36.76
U-234	92.38	1101	5.41	5.964E+00	9.085E+00	9.085E+00	19.89
	609.31	520	46.30*	2.416E+00	1.237E+00	1.237E+00	14.82
	1120.29	122	15.10	1.424E+00	1.515E+00	1.515E+00	32.56
	1764.49	73	15.80	9.905E-01	1.243E+00	1.243E+00	33.06
	89.95	255	2.70	5.809E+00	4.333E+00	4.333E+00	37.09
U-235	93.35	1101	4.50	5.964E+00	1.092E+01	1.092E+01	29.22
	105.00	-----	2.10	6.433E+00	-----	Line Not Found	-----
	143.76	109	10.50*	6.523E+00	4.252E-01	4.252E-01	58.37
	163.35	-----	4.70	6.238E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.71	440	54.00	5.860E+00	3.700E-01	3.700E-01	22.53
	205.31	-----	4.70	5.531E+00	-----	Line Not Found	-----
NP-237	86.50	310	12.60*	5.636E+00	1.162E+00	1.162E+00	34.35
	95.87	-----	2.60	6.124E+00	-----	Line Not Found	-----
U-238	63.29	321	3.80*	3.191E+00	7.044E+00	7.044E+00	36.76
	92.38	1101	5.41	5.964E+00	9.085E+00	9.085E+00	11.95
AM-243	74.67	401	66.00*	4.581E+00	3.530E-01	3.530E-01	22.42
	86.72	310	0.34	5.636E+00	4.356E+01	4.356E+01	27.46
	117.66	-----	0.55	6.624E+00	-----	Line Not Found	-----
	142.18	109	0.13	6.523E+00	3.572E+01	3.572E+01	56.35
ANH-511	511.00	104	100.00*	2.796E+00	9.935E-02	9.935E-02	63.11

Flag: "\*" = Keyline

Total number of lines in spectrum 39  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 36 92.31%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.888E+01	2.888E+01	0.266E+01	9.20	
CD-109	464.00D	1.03	3.935E+00	4.037E+00	1.108E+00	27.46	
SN-126	1.00E+05Y	1.00	3.956E-01	3.956E-01	1.086E-01	27.46	
BA-137M	30.17Y	1.00	2.120E-01	2.122E-01	0.603E-01	28.40	
CS-137	30.17Y	1.00	2.241E-01	2.243E-01	0.637E-01	28.41	
TL-208	1.41E+10Y	1.00	4.846E-01	4.846E-01	0.909E-01	18.76	
BI-211	7.04E+08Y	1.00	3.637E+00	3.637E+00	0.514E+00	14.14	
PB-212	1.41E+10Y	1.00	1.595E+00	1.595E+00	0.152E+00	9.56	
PO-212	1.41E+10Y	1.00	1.595E+00	1.595E+00	0.152E+00	9.56	
BI-214	1600.00Y	1.00	1.237E+00	1.237E+00	0.183E+00	14.82	
PB-214	1600.00Y	1.00	1.265E+00	1.265E+00	0.191E+00	15.07	
PO-214	1600.00Y	1.00	1.265E+00	1.265E+00	0.191E+00	15.07	
PO-216	1.41E+10Y	1.00	1.595E+00	1.595E+00	0.152E+00	9.56	
PO-218	1600.00Y	1.00	1.265E+00	1.265E+00	0.191E+00	15.07	
RA-224	1.41E+10Y	1.00	4.312E+00	4.312E+00	1.054E+00	24.45	
RA-226	1600.00Y	1.00	1.237E+00	1.237E+00	0.183E+00	14.82	
AC-228	1.41E+10Y	1.00	1.484E+00	1.484E+00	0.332E+00	22.36	
RA-228	1.41E+10Y	1.00	1.484E+00	1.484E+00	0.332E+00	22.36	
TH-228	1.91Y	1.02	1.595E+00	1.623E+00	0.155E+00	9.56	
TH-230	4.47E+09Y	1.00	1.237E+00	1.237E+00	0.183E+00	14.82	
TH-232	1.41E+10Y	1.00	1.484E+00	1.484E+00	0.332E+00	22.36	
TH-234	4.47E+09Y	1.00	7.044E+00	7.044E+00	2.590E+00	36.76	
U-234	4.47E+09Y	1.00	1.237E+00	1.237E+00	0.183E+00	14.82	
U-235	7.04E+08Y	1.00	4.252E-01	4.252E-01	2.482E-01	58.37	
NP-237	2.14E+06Y	1.00	1.162E+00	1.162E+00	0.399E+00	34.35	
U-238	4.47E+09Y	1.00	7.044E+00	7.044E+00	2.590E+00	36.76	
AM-243	7380.00Y	1.00	3.530E-01	3.530E-01	0.791E-01	22.42	
ANH-511	1.00E+09Y	1.00	9.935E-02	9.935E-02	6.270E-02	63.11	

Total Activity : 7.778E+01 7.791E+01

Grand Total Activity : 7.778E+01 7.791E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	84.19	163	438	1.29	167.87	165	12	2.26E-02	43.8	5.44E+00	T
0	129.05	75	294	1.05	257.66	255	6	1.04E-02	76.6	6.64E+00	T
0	209.19	141	331	1.48	418.00	414	10	1.96E-02	51.1	5.47E+00	T
0	258.38	53	184	1.35	516.43	512	9	7.42E-03	96.0	4.74E+00	
0	270.14	130	206	1.57	539.96	536	9	1.80E-02	43.7	4.59E+00	T
0	327.39	77	164	0.74	654.50	650	10	1.07E-02	66.1	3.98E+00	T
0	408.60	40	142	0.66	816.98	814	10	5.55E-03	****	3.34E+00	
0	462.67	98	76	1.41	925.18	920	9	1.37E-02	37.8	3.03E+00	T
0	562.38	32	69	0.70	1124.65	1121	8	4.46E-03	96.0	2.58E+00	T
0	726.76	98	63	1.57	1453.49	1450	10	1.37E-02	35.1	2.08E+00	T
0	794.65	70	51	1.63	1589.29	1584	12	9.79E-03	48.8	1.92E+00	T
2	964.17	75	26	2.20	1928.39	1922	27	1.05E-02	37.7	1.62E+00	T
0	1000.96	68	47	1.72	2001.96	1996	15	9.41E-03	52.8	1.57E+00	T
0	1630.14	18	12	1.49	3260.22	3252	12	2.50E-03	90.3	1.05E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341006.CNF;1  *
* Acquisition date   : 18-FEB-2010 13:12:24  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 02:00:01.72             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G246341006             Analyst initials: MXR1          *
* Batch Number       : 950786                 Sample Quantity : 1.40980E+02 GRAM  *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24.5MS Isotope      :              *
* MSD ID              :                      MSD Isotope      :              *
* LCS ID              : 1032-A                 LCS Isotope     :              *
*****

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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	2.888E+01	2.657E+00	5.633E-01	4.017E-02	51.259
CD-109	4.037E+00	1.108E+00	1.156E+00	8.846E-02	3.492
SN-126	3.956E-01	1.086E-01	1.138E-01	8.675E-03	3.475
BA-137M	2.122E-01	6.026E-02	6.242E-02	4.047E-03	3.399
CS-137	2.243E-01	6.372E-02	6.599E-02	4.292E-03	3.399
TL-208	4.846E-01	9.088E-02	5.614E-02	4.016E-03	8.631
BI-211	3.637E+00	5.143E-01	2.917E-01	1.834E-02	12.468
PB-212	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
PO-212	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
BI-214	1.237E+00	1.833E-01	1.050E-01	8.647E-03	11.781
PB-214	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
PO-214	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
PO-216	1.595E+00	1.525E-01	7.816E-02	5.550E-03	20.411
PO-218	1.265E+00	1.907E-01	1.017E-01	8.308E-03	12.440
RA-224	4.312E+00	1.054E+00	8.897E-01	4.907E-02	4.847
RA-226	1.237E+00	1.833E-01	1.050E-01	8.647E-03	11.781
AC-228	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506
RA-228	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.623E+00	1.551E-01	7.950E-02	5.645E-03	20.411
TH-230	1.237E+00	1.833E-01	1.050E-01	8.646E-03	11.781
TH-232	1.484E+00	3.319E-01	1.977E-01	2.171E-02	7.506
TH-234	7.044E+00	2.590E+00	2.088E+00	3.555E-01	3.374
U-234	1.237E+00	1.833E-01	1.050E-01	8.646E-03	11.781
U-235	4.252E-01	2.482E-01	3.289E-01	5.341E-02	1.293
NP-237	1.162E+00	3.990E-01	3.618E-01	7.949E-02	3.211
U-238	7.044E+00	2.590E+00	2.088E+00	3.555E-01	3.374
AM-243	3.530E-01	7.915E-02	9.253E-02	6.287E-03	3.815
ANH-511	9.935E-02	6.270E-02	4.252E-02	2.591E-03	2.337

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.600E-01		3.343E-01	5.557E-01	3.824E-02	0.288
NA-22	-3.028E-02		4.606E-02	7.091E-02	4.567E-03	-0.427
NA-24	-2.575E-01		3.125E+00	Half-Life too short		
AL-26	-5.363E-04		2.729E-02	4.498E-02	2.581E-03	-0.012
TI-44	3.954E-01	+	5.803E-02	7.267E-02	5.083E-03	5.441
SC-46	-5.118E-03		4.083E-02	6.537E-02	5.418E-03	-0.078
V-48	-3.185E-02		7.447E-02	1.141E-01	8.791E-03	-0.279
CR-51	-1.227E-01		3.558E-01	5.782E-01	3.676E-02	-0.212
MN-52	2.173E-02		2.603E-01	4.287E-01	2.945E-02	0.051
MN-54	-2.989E-03		3.857E-02	6.242E-02	4.907E-03	-0.048
CO-56	-1.544E-03		3.958E-02	6.417E-02	5.105E-03	-0.024
CO-57	-2.815E-02		2.496E-02	3.846E-02	2.405E-03	-0.732
CO-58	-2.333E-02		4.000E-02	6.189E-02	4.762E-03	-0.377
FE-59	1.362E-02		8.936E-02	1.508E-01	1.114E-02	0.090
CO-60	6.575E-03		4.127E-02	6.871E-02	4.799E-03	0.096
ZN-65	7.780E-02		1.084E-01	1.675E-01	1.054E-02	0.464
GE-68	-3.097E-01		1.119E+00	1.816E+00	1.224E-01	-0.171
AS-73	5.098E-01		8.375E-01	1.453E+00	9.380E-02	0.351
AS-74	-6.001E-02		8.729E-02	1.382E-01	8.798E-03	-0.434
SE-75	3.152E-02		4.252E-02	6.915E-02	3.920E-03	0.456
BR-77	1.066E+00		1.764E+01	2.834E+01	1.738E+00	0.038
SR-82	-4.265E-01		4.287E-01	6.449E-01	4.772E-02	-0.661
RB-83	1.849E-02		6.598E-02	1.079E-01	6.613E-03	0.171
RB-84	6.382E-02		7.771E-02	1.344E-01	1.106E-02	0.475
KR-85	6.209E+00		7.281E+00	1.104E+01	6.744E-01	0.562
SR-85	3.249E-02		3.810E-02	5.779E-02	3.529E-03	0.562
RB-86	-2.699E-01		7.599E-01	1.223E+00	8.256E-02	-0.221
Y-88	-2.062E-02		3.186E-02	4.564E-02	2.569E-03	-0.452
ZR-88	-3.807E-02		3.063E-02	4.415E-02	2.422E-03	-0.862
Y-91	1.617E+01		2.059E+01	3.600E+01	2.081E+00	0.449
NB-94	2.217E-02		3.387E-02	5.848E-02	3.983E-03	0.379
NB-95	4.718E-02		4.888E-02	8.501E-02	6.218E-03	0.555
NB-95M	1.999E-01		1.262E-01	2.036E-01	1.485E-02	0.982

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	-1.933E-02		7.751E-02	1.249E-01	1.031E-02	-0.155
NB-97	-2.162E-01		3.835E-01	Half-Life too short		
ZR-97	2.225E+01		6.820E+00	Half-Life too short		
MO-99	-7.195E+00		1.848E+01	2.937E+01	4.224E+00	-0.245
TC-99M	3.821E+12		3.941E+12	Half-Life too short		
RH-101	3.830E-02		3.041E-02	5.115E-02	2.706E-03	0.749
RH-102	-2.275E-03		2.917E-02	4.671E-02	2.774E-03	-0.049
RU-103	-5.846E-02		4.344E-02	6.147E-02	7.841E-03	-0.951
RH-106	-1.149E-01		3.229E-01	5.248E-01	6.327E-02	-0.219
RU-106	-1.149E-01		3.227E-01	5.248E-01	3.370E-02	-0.219
AG-108M	6.506E-03		2.971E-02	4.894E-02	3.050E-03	0.133
AG-110M	-1.562E-02		4.099E-02	5.674E-02	3.867E-03	-0.275
IN-111	-5.494E-01		1.613E+00	2.344E+00	1.298E-01	-0.234
IN-113M	-4.868E-02		4.278E-02	6.454E-02	3.800E-03	-0.754
SN-113	-4.868E-02		4.278E-02	6.454E-02	3.800E-03	-0.754
IN-114M	1.180E-01		1.921E-01	2.829E-01	1.484E-02	0.417
CD-115	7.642E-01		1.921E+01	3.078E+01	1.896E+00	0.025
SN-117M	-7.453E-03		5.758E-02	9.236E-02	4.879E-03	-0.081
SB-122	3.865E+00		3.662E+00	5.878E+00	3.691E-01	0.658
I-123	2.154E+01		3.182E+01	Half-Life too short		
TE-123M	9.291E-03		2.745E-02	4.491E-02	2.406E-03	0.207
I-124	3.467E-01		9.473E-01	1.429E+00	9.117E-02	0.243
SB-124	-2.083E-02		6.680E-02	1.046E-01	6.978E-03	-0.199
SB-125	2.414E-02		8.404E-02	1.392E-01	8.274E-03	0.173
TE-125M	3.626E-01		9.471E+00	1.541E+01	1.330E+00	0.024
I-126	1.999E-01		2.132E-01	3.372E-01	2.198E-02	0.593
SB-126	-1.338E-02		1.518E-01	2.339E-01	1.626E-02	-0.057
SB-127	8.186E-01		1.739E+00	2.986E+00	3.180E-01	0.274
XE-127	-5.599E-03		4.650E-02	7.342E-02	3.904E-03	-0.076
I-131	-6.405E-02		1.278E-01	2.033E-01	1.284E-02	-0.315
TE-132	-4.647E-02		9.127E-01	1.543E+00	2.258E-01	-0.030
BA-133	-1.159E-02		4.444E-02	6.268E-02	7.191E-03	-0.185
I-133	-6.883E-03		1.358E-02	Half-Life too short		
CS-134	1.289E-01	+	6.374E-02	8.807E-02	6.714E-03	1.464
CS-135	1.320E-01		1.684E-01	2.606E-01	1.960E-02	0.507
I-135	1.323E+11		3.762E+11	Half-Life too short		
CS-136	-7.114E-02		1.163E-01	1.836E-01	1.379E-02	-0.388
CE-139	-2.704E-02		2.927E-02	4.510E-02	2.311E-03	-0.599
BA-140	-2.574E-01		2.693E-01	3.997E-01	1.303E-01	-0.644
LA-140	-5.213E-02		8.825E-02	1.348E-01	8.780E-03	-0.387
CE-141	4.097E-02		6.951E-02	1.037E-01	6.038E-03	0.395
CE-143	2.186E-03		3.255E-04	Half-Life too short		
CE-144	-1.069E-01		1.978E-01	3.141E-01	4.472E-02	-0.340
PM-144	-1.272E-02		3.420E-02	5.496E-02	3.719E-03	-0.231
PR-144	-8.629E-01		2.320E+00	3.728E+00	2.521E-01	-0.231
PM-146	-1.232E-02		4.316E-02	6.835E-02	5.909E-03	-0.180
ND-147	-8.494E-01		6.384E-01	8.886E-01	1.216E-01	-0.956
PM-149	6.198E+01		1.531E+02	2.606E+02	3.681E+01	0.238



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-4.618E-02		9.401E-02	1.450E-01	9.295E-03	-0.318
GD-153	-6.702E-03		8.922E-02	1.316E-01	9.153E-03	-0.051
EU-154	-8.234E-02		1.289E-01	1.986E-01	1.935E-02	-0.415
EU-155	5.922E-02		1.064E-01	1.791E-01	1.207E-02	0.331
TB-160	-5.611E-02		1.495E-01	2.342E-01	1.923E-02	-0.240
HO-166M	2.786E-02		5.786E-02	9.903E-02	6.816E-03	0.281
TM-171	-2.454E+01		3.092E+01	4.518E+01	2.924E+00	-0.543
LU-176	-1.857E-02		2.154E-02	3.398E-02	1.931E-03	-0.547
LU-177	3.655E+00	+	1.879E+00	2.263E+00	1.210E-01	1.615
LU-177M	-2.192E-02		1.779E-01	2.503E-01	1.405E-02	-0.088
HF-181	1.473E-02		4.390E-02	7.229E-02	4.317E-03	0.204
W-181	-6.094E-02		4.016E-01	6.047E-01	3.885E-02	-0.101
TA-182	2.183E-01		2.050E-01	3.652E-01	2.166E-02	0.598
RE-183	7.075E-02		1.095E-01	1.810E-01	9.412E-03	0.391
RE-184	1.990E-01		2.230E-01	3.663E-01	2.038E-02	0.543
OS-185	-3.305E-02		4.016E-02	6.226E-02	4.023E-03	-0.531
RE-188	1.270E-01		1.689E-01	2.812E-01	1.507E-02	0.452
W-188	-3.620E+00		7.511E+00	1.063E+01	6.024E-01	-0.341
IR-192	3.880E-03		3.299E-02	5.508E-02	3.147E-03	0.070
AU-195	3.426E-01		2.419E-01	3.999E-01	2.750E-02	0.857
TL-200	9.532E-04		7.587E-04	Half-Life too short		
TL-201	2.787E-01		1.023E+01	1.647E+01	8.442E-01	0.017
TL-202	3.128E-02		7.457E-02	1.242E-01	7.155E-03	0.252
HG-203	3.314E-02		4.324E-02	6.690E-02	4.023E-03	0.495
BI-207	-5.704E-02		5.632E-02	8.586E-02	5.923E-03	-0.664
TL-207	2.517E-01		6.466E-01	9.688E-01	1.596E-01	0.260
PO-209	-1.719E+00		7.610E+00	1.206E+01	1.007E+00	-0.143
BI-210	-1.082E+00		3.302E+00	5.516E+00	4.155E-01	-0.196
PB-210	-1.082E+00		3.302E+00	5.516E+00	4.155E-01	-0.196
PO-210	-1.082E+00		3.302E+00	5.516E+00	3.538E-01	-0.196
PB-211	-2.185E-01		1.006E+00	1.394E+00	8.686E-01	-0.157
BI-212	1.069E+00	+	3.864E-01	6.401E-01	5.542E-02	1.670
PO-215	2.517E-01		6.466E-01	9.688E-01	1.596E-01	0.260
RN-219	-5.992E-02		3.938E-01	6.361E-01	8.585E-02	-0.094
RN-220	1.940E+01		2.389E+01	4.240E+01	2.644E+00	0.458
RA-223	2.517E-01		6.466E-01	9.688E-01	1.596E-01	0.260
AC-227	-1.427E-01		3.849E-01	5.558E-01	7.708E-02	-0.257
TH-227	-1.427E-01		3.851E-01	5.558E-01	9.350E-02	-0.257
TH-229	-1.467E-01		4.840E-01	7.598E-01	4.000E-02	-0.193
PA-231	-3.899E-01		1.388E+00	2.285E+00	3.135E-01	-0.171
TH-231	2.517E-01		6.466E-01	9.688E-01	1.596E-01	0.260
U-231	-8.902E-01		1.613E+00	2.332E+00	1.642E-01	-0.382
PA-233	-8.865E-03		6.002E-02	9.888E-02	5.983E-03	-0.090
PA-234	-1.498E-01		3.139E-01	4.808E-01	8.892E-02	-0.312
PA-234M	1.367E+01	+	7.321E+00	1.004E+01	9.084E-01	1.362
NP-236	-5.358E-02		7.820E-02	1.223E-01	6.411E-03	-0.438
NP-239	-1.945E-01		1.839E-01	2.882E-01	1.819E-02	-0.675
AM-241	-8.274E-04		1.641E-01	2.502E-01	1.778E-02	-0.003

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.709E-02		9.498E-02	1.585E-01	1.056E-02	0.171
AM-246	-8.520E-03		1.300E-01	2.154E-01	1.449E-02	-0.040
CM-247	-1.846E-02		3.523E-02	5.549E-02	3.078E-03	-0.333
CF-249	3.216E-02		3.804E-02	6.533E-02	3.591E-03	0.492
CF-251	1.155E-02		1.196E-01	1.925E-01	9.956E-03	0.060

## 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]G246341006
* Acquisition date   : 18-FEB-2010 13:12:24 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 02:00:01.72                      Half life ratio  : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G246341006                      Analyst initials: MXR1
* Batch Number       : 950786                          Sample Quantity : 1.4098E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight  : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME  : 10-FEB-2009 09:20:24 MS Isotope      :
* MSD DPM           : 0.000                               MSD Isotope      :
* LCS DPM           : 0.000                               LCS Isotope      :
* LCSD DPM          : 0.000                               LCSD Isotope     :
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.888E+01	2.604E+00	2.830E-01	1.328E+00
CD-109	4.037E+00	1.086E+00	6.152E-01	5.542E-01
SN-126	3.956E-01	1.065E-01	6.058E-02	5.431E-02
BA-137M	2.122E-01	5.906E-02	3.189E-02	3.013E-02
CS-137	2.243E-01	6.244E-02	3.371E-02	3.186E-02
TL-208	4.846E-01	8.906E-02	2.876E-02	4.544E-02
BI-211	3.637E+00	5.040E-01	1.510E-01	2.572E-01
PB-212	1.595E+00	1.494E-01	4.078E-02	7.624E-02
PO-212	1.595E+00	1.494E-01	4.078E-02	7.624E-02
BI-214	1.237E+00	1.797E-01	5.375E-02	9.166E-02
PB-214	1.265E+00	1.869E-01	5.265E-02	9.535E-02
PO-214	1.265E+00	1.869E-01	5.265E-02	9.535E-02
PO-216	1.595E+00	1.494E-01	4.078E-02	7.624E-02
PO-218	1.265E+00	1.869E-01	5.265E-02	9.535E-02
RA-224	4.312E+00	1.033E+00	4.641E-01	5.272E-01
RA-226	1.237E+00	1.797E-01	5.375E-02	9.166E-02
AC-228	1.484E+00	3.252E-01	1.003E-01	1.659E-01
RA-228	1.484E+00	3.252E-01	1.003E-01	1.659E-01
TH-228	1.623E+00	1.520E-01	4.148E-02	7.755E-02
TH-230	1.237E+00	1.796E-01	5.375E-02	9.166E-02
TH-232	1.484E+00	3.252E-01	1.003E-01	1.659E-01
TH-234	7.044E+00	2.538E+00	1.118E+00	1.295E+00
U-234	1.237E+00	1.796E-01	5.375E-02	9.166E-02
U-235	4.252E-01	2.433E-01	1.733E-01	1.241E-01
NP-237	1.162E+00	3.910E-01	1.926E-01	1.995E-01
U-238	7.044E+00	2.538E+00	1.118E+00	1.295E+00
AM-243	3.530E-01	7.756E-02	4.940E-02	3.957E-02
ANH-511	9.935E-02	6.144E-02	2.184E-02	3.135E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.600E-01	3.277E-01	2.859E-01	1.672E-01	NOT IDENT.
NA-22	-3.028E-02	4.514E-02	3.573E-02	2.303E-02	NOT IDENT.
NA-24	-2.575E+05	6.124E+06	0.000E+00	3.125E+06	SHORT HLIF
AL-26	-5.363E-04	2.675E-02	2.249E-02	1.365E-02	NOT IDENT.
TI-44	3.954E-01	5.687E-02	3.876E-02	2.902E-02	FAIL ABUN
SC-46	-5.118E-03	4.001E-02	3.319E-02	2.041E-02	FAIL ABUN
V-48	-3.185E-02	7.298E-02	5.782E-02	3.724E-02	NOT IDENT.
CR-51	-1.227E-01	3.486E-01	2.999E-01	1.779E-01	NOT IDENT.
MN-52	2.173E-02	2.551E-01	2.154E-01	1.301E-01	NOT IDENT.
MN-54	-2.989E-03	3.780E-02	3.174E-02	1.928E-02	NOT IDENT.
CO-56	-1.544E-03	3.879E-02	3.262E-02	1.979E-02	NOT IDENT.
CO-57	-2.815E-02	2.446E-02	2.034E-02	1.248E-02	NOT IDENT.
CO-58	-2.333E-02	3.920E-02	3.149E-02	2.000E-02	NOT IDENT.
FE-59	1.362E-02	8.758E-02	7.623E-02	4.468E-02	FAIL ABUN
CO-60	6.575E-03	4.044E-02	3.458E-02	2.063E-02	NOT IDENT.
ZN-65	7.780E-02	1.062E-01	8.465E-02	5.419E-02	NOT IDENT.
GE-68	-3.097E-01	1.097E+00	9.180E-01	5.595E-01	NOT IDENT.
AS-73	5.098E-01	8.207E-01	7.806E-01	4.187E-01	NOT IDENT.
AS-74	-6.001E-02	8.555E-02	7.077E-02	4.365E-02	NOT IDENT.
SE-75	3.152E-02	4.167E-02	3.601E-02	2.126E-02	NOT IDENT.
BR-77	1.066E+00	1.729E+01	1.455E+01	8.821E+00	FAIL ABUN
SR-82	-4.265E-01	4.201E-01	3.284E-01	2.143E-01	NOT IDENT.
RB-83	1.849E-02	6.466E-02	5.538E-02	3.299E-02	NOT IDENT.
RB-84	6.382E-02	7.615E-02	6.827E-02	3.885E-02	NOT IDENT.
KR-85	6.209E+00	7.136E+00	5.672E+00	3.641E+00	NOT IDENT.
SR-85	3.249E-02	3.734E-02	2.968E-02	1.905E-02	NOT IDENT.
RB-86	-2.699E-01	7.447E-01	6.185E-01	3.800E-01	NOT IDENT.
Y-88	-2.062E-02	3.122E-02	2.281E-02	1.593E-02	NOT IDENT.
ZR-88	-3.807E-02	3.002E-02	2.280E-02	1.532E-02	NOT IDENT.
Y-91	1.617E+01	2.018E+01	1.816E+01	1.030E+01	NOT IDENT.
NB-94	2.217E-02	3.319E-02	2.984E-02	1.693E-02	NOT IDENT.
NB-95	4.718E-02	4.790E-02	4.330E-02	2.444E-02	NOT IDENT.
NB-95M	1.999E-01	1.236E-01	1.062E-01	6.308E-02	NOT IDENT.
ZR-95	-1.933E-02	7.596E-02	6.362E-02	3.875E-02	NOT IDENT.
NB-97	-2.162E+05	7.516E+05	0.000E+00	3.835E+05	SHORT HLIF
ZR-97	2.225E+07	1.337E+07	0.000E+00	6.820E+06	SHORT HLIF
MO-99	-7.195E+00	1.811E+01	1.497E+01	9.238E+00	NOT IDENT.
TC-99M	3.821E+18	7.725E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.830E-02	2.980E-02	2.679E-02	1.521E-02	NOT IDENT.
RH-102	-2.275E-03	2.858E-02	2.403E-02	1.458E-02	NOT IDENT.
RU-103	-5.846E-02	4.257E-02	3.160E-02	2.172E-02	FAIL ABUN
RH-106	-1.149E-01	3.165E-01	2.685E-01	1.615E-01	FAIL ABUN
RU-106	-1.149E-01	3.163E-01	2.685E-01	1.614E-01	FAIL ABUN
AG-108M	6.506E-03	2.911E-02	2.522E-02	1.485E-02	NOT IDENT.
AG-110M	-1.562E-02	4.017E-02	2.900E-02	2.049E-02	NOT IDENT.
IN-111	-5.494E-01	1.581E+00	1.222E+00	8.065E-01	NOT IDENT.
IN-113M	-4.868E-02	4.193E-02	3.334E-02	2.139E-02	NOT IDENT.
SN-113	-4.868E-02	4.193E-02	3.334E-02	2.139E-02	NOT IDENT.
IN-114M	1.180E-01	1.882E-01	1.483E-01	9.604E-02	NOT IDENT.
CD-115	7.642E-01	1.883E+01	1.580E+01	9.605E+00	NOT IDENT.
SN-117M	-7.453E-03	5.643E-02	4.858E-02	2.879E-02	NOT IDENT.
SB-122	3.865E+00	3.589E+00	3.013E+00	1.831E+00	NOT IDENT.
I-123	2.154E+07	6.236E+07	0.000E+00	3.182E+07	SHORT HLIF
TE-123M	9.291E-03	2.690E-02	2.362E-02	1.372E-02	NOT IDENT.
I-124	3.467E-01	9.283E-01	7.313E-01	4.736E-01	NOT IDENT.
SB-124	-2.083E-02	6.547E-02	5.237E-02	3.340E-02	FAIL ABUN
SB-125	2.414E-02	8.236E-02	7.176E-02	4.202E-02	FAIL ABUN
TE-125M	3.626E-01	9.282E+00	8.166E+00	4.736E+00	NOT IDENT.
I-126	1.999E-01	2.090E-01	1.722E-01	1.066E-01	NOT IDENT.
SB-126	-1.338E-02	1.487E-01	1.193E-01	7.588E-02	FAIL ABUN
SB-127	8.186E-01	1.704E+00	1.524E+00	8.696E-01	NOT IDENT.
XE-127	-5.599E-03	4.557E-02	3.843E-02	2.325E-02	NOT IDENT.
I-131	-6.405E-02	1.253E-01	1.052E-01	6.392E-02	NOT IDENT.
TE-132	-4.647E-02	8.945E-01	8.057E-01	4.564E-01	NOT IDENT.
BA-133	-1.159E-02	4.355E-02	3.244E-02	2.222E-02	FAIL ABUN
I-133	-6.883E+03	2.661E+04	0.000E+00	1.358E+04	SHORT HLIF
CS-134	1.289E-01	6.247E-02	4.482E-02	3.187E-02	FAIL ABUN
CS-135	1.320E-01	1.651E-01	1.356E-01	8.422E-02	NOT IDENT.
I-135	1.323E+17	7.374E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-7.114E-02	1.140E-01	9.287E-02	5.817E-02	FAIL ABUN
CE-139	-2.704E-02	2.868E-02	2.371E-02	1.463E-02	NOT IDENT.
BA-140	-2.574E-01	2.639E-01	2.051E-01	1.346E-01	NOT IDENT.
LA-140	-5.213E-02	8.649E-02	6.759E-02	4.413E-02	FAIL ABUN
CE-141	4.097E-02	6.812E-02	5.465E-02	3.476E-02	NOT IDENT.
CE-143	2.186E+03	6.380E+02	0.000E+00	3.255E+02	SHORT HLIF
CE-144	-1.069E-01	1.938E-01	1.658E-01	9.890E-02	NOT IDENT.
PM-144	-1.272E-02	3.351E-02	2.805E-02	1.710E-02	NOT IDENT.

PR-144	-8.629E-01	2.273E+00	1.903E+00	1.160E+00	NOT IDENT.
PM-146	-1.232E-02	4.230E-02	3.520E-02	2.158E-02	NOT IDENT.
ND-147	-8.494E-01	6.256E-01	4.561E-01	3.192E-01	FAIL ABUN
PM-149	6.198E+01	1.501E+02	1.355E+02	7.657E+01	NOT IDENT.
EU-152	-4.618E-02	9.213E-02	7.511E-02	4.700E-02	FAIL ABUN
GD-153	-6.702E-03	8.744E-02	6.991E-02	4.461E-02	FAIL ABUN
EU-154	-8.234E-02	1.263E-01	1.000E-01	6.443E-02	NOT IDENT.
EU-155	5.922E-02	1.043E-01	9.497E-02	5.320E-02	FAIL ABUN
TB-160	-5.611E-02	1.466E-01	1.189E-01	7.477E-02	FAIL ABUN
HO-166M	2.786E-02	5.671E-02	5.052E-02	2.893E-02	FAIL ABUN
TM-171	-2.454E+01	3.030E+01	2.417E+01	1.546E+01	NOT IDENT.
LU-176	-1.857E-02	2.111E-02	1.764E-02	1.077E-02	FAIL ABUN
LU-177	3.655E+00	1.841E+00	1.184E+00	9.393E-01	FAIL ABUN
LU-177M	-2.192E-02	1.744E-01	1.292E-01	8.897E-02	FAIL ABUN
HF-181	1.473E-02	4.302E-02	3.718E-02	2.195E-02	NOT IDENT.
W-181	-6.094E-02	3.935E-01	3.237E-01	2.008E-01	NOT IDENT.
TA-182	2.183E-01	2.009E-01	1.841E-01	1.025E-01	FAIL ABUN
RE-183	7.075E-02	1.073E-01	9.519E-02	5.474E-02	FAIL ABUN
RE-184	1.990E-01	2.185E-01	1.909E-01	1.115E-01	NOT IDENT.
OS-185	-3.305E-02	3.936E-02	3.183E-02	2.008E-02	NOT IDENT.
RE-188	1.270E-01	1.656E-01	1.480E-01	8.447E-02	NOT IDENT.
W-188	-3.620E+00	7.360E+00	5.524E+00	3.755E+00	FAIL ABUN
IR-192	3.880E-03	3.233E-02	2.857E-02	1.649E-02	FAIL ABUN
AU-195	3.426E-01	2.371E-01	2.123E-01	1.210E-01	FAIL ABUN
TL-200	9.532E+02	1.487E+03	0.000E+00	7.587E+02	SHORT HLIF
TL-201	2.787E-01	1.003E+01	8.655E+00	5.116E+00	NOT IDENT.
TL-202	3.128E-02	7.307E-02	6.401E-02	3.728E-02	NOT IDENT.
HG-203	3.314E-02	4.238E-02	3.479E-02	2.162E-02	NOT IDENT.
BI-207	-5.704E-02	5.519E-02	4.343E-02	2.816E-02	FAIL ABUN
TL-207	2.517E-01	6.337E-01	5.024E-01	3.233E-01	FAIL ABUN
PO-209	-1.719E+00	7.458E+00	6.123E+00	3.805E+00	NOT IDENT.
BI-210	-1.082E+00	3.236E+00	2.972E+00	1.651E+00	NOT IDENT.
PB-210	-1.082E+00	3.236E+00	2.972E+00	1.651E+00	NOT IDENT.
PO-210	-1.082E+00	3.236E+00	2.972E+00	1.651E+00	NOT IDENT.
PB-211	-2.185E-01	9.858E-01	7.195E-01	5.030E-01	NOT IDENT.
BI-212	1.069E+00	3.787E-01	3.264E-01	1.932E-01	FAIL ABUN
PO-215	2.517E-01	6.337E-01	5.024E-01	3.233E-01	FAIL ABUN
RN-219	-5.992E-02	3.860E-01	3.284E-01	1.969E-01	FAIL ABUN
RN-220	1.940E+01	2.342E+01	2.175E+01	1.195E+01	NOT IDENT.
RA-223	2.517E-01	6.337E-01	5.024E-01	3.233E-01	FAIL ABUN
AC-227	-1.427E-01	3.772E-01	2.896E-01	1.924E-01	FAIL ABUN
TH-227	-1.427E-01	3.774E-01	2.896E-01	1.926E-01	FAIL ABUN
TH-229	-1.467E-01	4.744E-01	3.981E-01	2.420E-01	FAIL ABUN
PA-231	-3.899E-01	1.360E+00	1.188E+00	6.940E-01	FAIL ABUN
TH-231	2.517E-01	6.337E-01	5.024E-01	3.233E-01	FAIL ABUN
U-231	-8.902E-01	1.580E+00	1.239E+00	8.063E-01	FAIL ABUN
PA-233	-8.865E-03	5.882E-02	5.131E-02	3.001E-02	FAIL ABUN
PA-234	-1.498E-01	3.076E-01	2.438E-01	1.569E-01	FAIL ABUN
PA-234M	1.367E+01	7.174E+00	5.083E+00	3.660E+00	FAIL ABUN
NP-236	-5.358E-02	7.664E-02	6.430E-02	3.910E-02	NOT IDENT.
NP-239	-1.945E-01	1.802E-01	1.525E-01	9.196E-02	FAIL ABUN
AM-241	-8.274E-04	1.608E-01	1.342E-01	8.205E-02	NOT IDENT.
CM-243	2.709E-02	9.308E-02	8.409E-02	4.749E-02	FAIL ABUN
AM-246	-8.520E-03	1.274E-01	1.089E-01	6.499E-02	NOT IDENT.
CM-247	-1.846E-02	3.453E-02	2.865E-02	1.762E-02	FAIL ABUN
CF-249	3.216E-02	3.728E-02	3.375E-02	1.902E-02	NOT IDENT.
CF-251	1.155E-02	1.172E-01	1.011E-01	5.982E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
46.50	331.0667
46.50	331.0667
46.50	331.0667
48.70	342.9426
49.72	339.8311
51.35	370.0496
52.39	373.0177
52.97	348.6208
53.15	348.8196
53.44	343.9413
54.07	348.0961
56.28	357.4693
56.28	357.4724
57.37	0.0000
57.53	385.1465
57.53	385.1487
57.60	385.2280
57.98	383.9098
57.98	383.9098
59.32	374.4128
59.32	374.4128
59.40	382.4402
59.54	382.5978
59.72	378.8258
60.01	348.6568
61.10	353.7505
61.14	353.7917
61.30	353.9540
63.00	421.6391
63.29	421.9832
63.29	421.9832
63.58	422.3278
64.28	420.0248
65.12	426.3847
65.20	443.9688
65.20	443.9688
66.05	450.4001
66.72	468.7831
66.83	468.9260
66.91	471.7326
67.20	470.7500
67.20	470.7500
67.75	472.8003
67.85	472.9308
68.90	452.9699
68.90	452.9699
69.30	473.4023
69.67	477.1350
70.82	479.3928
70.82	479.3928
70.83	479.4062
72.80	532.6445
72.87	532.7422
72.87	532.7422
74.67	510.3506
74.81	510.5313
74.81	510.5313
74.81	510.5313
74.81	510.5313
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74.81	510.5313
74.81	510.5313
74.97	510.7359
75.28	511.1325
75.70	511.6689
77.11	513.4586
77.11	513.4586

77.11	513.4586
77.11	513.4586
77.11	513.4586
77.11	513.4586
77.11	513.4586
78.38	515.0563
79.62	516.6033
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80.30	517.4473
80.30	517.4473
80.57	517.7804
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81.07	423.1253
81.07	423.1253
81.07	423.1253
81.07	423.1253
82.60	466.8395
83.37	467.6779
83.78	425.8280
83.78	425.8280
83.78	425.8280
83.78	425.8280
84.21	423.4291
84.90	424.1043
85.43	424.6216
86.29	425.4547
86.50	425.6584
86.54	425.6973
86.59	425.7454
86.72	425.8713
86.79	425.9377
86.94	426.0841
87.30	372.4153
87.30	372.4153
87.30	372.4153
87.30	372.4153
87.30	372.4153
87.30	372.4153
87.57	372.6432
87.88	372.9030
88.03	373.0290
88.36	373.3048
88.47	373.3968
89.95	336.0196
91.11	336.8802
92.29	337.7480
92.38	337.8143
92.38	337.8143
93.35	338.5225
94.00	338.9958
94.67	364.0361
94.67	364.0399
94.90	364.2188
94.90	364.2188
94.90	364.2188
94.90	364.2188
95.87	404.0724
95.87	404.0724
96.73	387.3977
97.43	377.7927
98.44	343.6397
98.44	343.6415
98.88	331.1294
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99.55	358.0517
99.86	358.2800
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103.18	377.3669
103.76	339.5343
105.00	329.5526
105.31	337.6302
108.00	380.9759
109.28	339.2655

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111.00	333.4188
111.76	345.8616
112.95	346.6400
115.19	381.1983
116.30	325.6908
117.00	346.2396
117.00	346.2396
117.66	320.4585
121.11	305.2255
121.62	319.7136
121.78	319.8049
122.06	338.2489
122.32	338.4047
122.32	338.4047
122.32	338.4047
122.32	338.4047
123.07	317.4860
127.23	327.4929
129.76	302.6671
131.20	314.2448
133.02	322.9719
133.54	329.4676
135.34	273.3002
136.00	273.5971
136.25	287.2417
136.48	310.2530
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140.51	0.0000
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142.65	279.1877
143.76	330.2459
144.24	319.4254
144.24	319.4254
144.24	319.4254
144.24	319.4254
145.22	273.9897
145.44	301.0179
147.16	300.2411
152.43	302.1471
152.70	322.5646
153.22	321.7477
154.21	275.1252
154.21	275.1252
154.21	275.1252
154.21	275.1252
155.03	295.8302
156.02	317.7369
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159.00	0.0000
159.00	286.7948
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161.27	316.9576
162.32	293.6054
162.64	295.9083
163.35	284.2758
163.89	280.1535
165.85	323.4087
167.43	279.3906
171.28	254.5689
171.86	269.0504
172.10	269.1401
176.55	269.6848
176.60	269.7034
181.06	288.5665
184.41	328.3873
185.71	290.9052
186.00	291.0162
190.27	241.4238
192.34	265.1997
193.63	274.6777
197.04	258.8356
198.01	226.1868
198.60	265.0261
200.40	259.9210
201.83	315.1971
202.84	269.8525
205.31	230.5251



208.36	291.8123
208.81	257.9928
209.75	258.2845
209.75	258.2845
210.97	228.6374
215.65	241.5177
216.55	248.7458
218.09	231.7254
222.10	241.2838
223.80	231.2025
226.40	239.8220
227.00	236.4547
227.08	236.4772
227.20	212.6806
228.16	225.2787
228.18	222.6341
228.18	222.6341
231.56	0.0000
235.69	219.5064
236.00	205.3230
236.00	205.3230
238.63	199.3001
238.63	199.3001
238.63	199.3001
238.63	199.3001
239.00	199.3784
240.98	199.8071
241.98	200.0215
241.98	200.0215
241.98	200.0215
244.69	195.7440
245.39	191.5690
247.94	203.0994
248.90	205.1126
249.79	184.5030
252.40	183.4511
252.85	172.9953
252.85	172.9953
254.15	0.0000
256.20	198.1164
256.20	198.1164
260.50	175.5791
260.90	178.5769
262.80	189.1884
264.65	168.9708
268.24	204.9673
268.79	199.1777
269.46	194.8805
269.46	194.8805
269.46	194.8805
269.46	194.8805
271.23	199.6589
273.65	177.8965
276.40	197.6946
277.35	197.1358
277.60	195.3209
277.60	195.3209
278.00	186.0931
278.60	178.7520
279.20	177.3669
279.53	177.4221
280.46	179.0742
281.68	185.2583
283.67	181.4931
284.30	170.3695
285.00	177.9771
285.90	168.7527
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286.10	162.2218
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290.80	188.3698
291.72	184.0067
293.26	0.0000
293.70	152.6121
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295.21	160.3923

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295.96	170.3458
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297.23	170.5435
298.57	170.7523
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299.80	151.9507
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300.09	151.9922
300.09	151.9922
300.09	151.9922
300.12	151.9946
301.29	153.6798
302.84	146.2758
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303.91	125.0640
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304.40	106.8098
304.84	116.0113
306.84	160.5659
308.46	165.5849
311.98	167.0624
316.51	160.0172
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323.87	133.4890
323.87	133.4890
323.87	133.4890
325.23	158.5109
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333.44	158.4429
334.20	156.5869
334.20	156.5869
334.30	156.5991
338.28	155.1552
338.28	155.1552
338.28	155.1552
338.28	155.1552
338.32	155.1624
338.32	155.1624
338.32	155.1624
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340.57	140.1011
344.27	157.8979
345.85	143.8715
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351.92	132.0705
351.92	132.0705
351.92	132.0705
355.39	0.0000
356.01	137.0856
364.48	141.4174
366.43	130.5832
367.43	112.5896
367.94	0.0000
369.80	165.1661
374.96	160.7687
383.85	120.1192
387.95	119.4690
388.63	107.2703
391.69	148.4715
391.69	148.4715
392.90	140.4053
398.62	135.8491
400.65	123.6823
401.10	125.7846
401.81	133.0706
402.60	138.3061
404.84	129.0199
410.95	99.6812
411.60	94.7416
413.65	108.1958
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415.30	127.7634

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423.70	119.4377
427.08	113.4168
427.89	101.9228
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433.93	99.1794
439.47	108.0264
439.56	108.0326
439.89	110.1763
443.98	116.8532
444.90	102.0439
445.03	100.9897
445.03	100.9897
445.03	100.9897
445.03	100.9897
453.90	120.8332
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473.00	119.0872
475.06	112.7391
475.35	104.0859
476.78	113.9481
477.59	107.4912
477.96	116.2051
482.03	104.5254
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487.03	126.6971
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497.08	128.5847
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511.00	91.9895
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511.85	79.8387
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513.99	87.0462
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529.64	93.0052
529.87	0.0000
531.02	113.2675
537.32	99.0483
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546.56	0.0000
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552.65	100.8214
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563.90	82.2612
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569.32	80.6738
569.50	80.6824
569.67	81.6058
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574.00	96.5046
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578.91	86.0098
579.30	0.0000
583.14	91.4421
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591.81	90.0092
592.07	85.3830
593.00	80.7809
595.88	88.3435
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602.52	0.0000
602.71	83.9949
602.71	83.9949
603.60	79.3658
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604.70	77.8544
609.31	89.9039

609.31	89.9039
609.31	89.9039
609.31	89.9039
610.33	90.5754
612.46	107.8743
614.37	107.9810
618.01	93.1315
621.84	100.8532
621.84	100.8532
631.29	93.7624
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633.10	91.9511
634.78	85.3879
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636.97	87.3798
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646.12	86.8255
656.30	102.2839
657.75	99.1581
657.90	0.0000
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661.65	104.1518
664.57	0.0000
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666.33	69.0562
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677.61	65.8783
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692.80	77.0848
695.00	87.9082
696.49	94.8118
696.49	94.8118
697.00	100.6991
697.49	88.9872
698.33	90.9792
698.50	90.9861
699.00	88.0730
702.63	84.2993
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706.58	0.0000
706.67	88.3850
709.31	88.4905
711.68	71.8540
713.82	79.8056
717.42	71.0561
720.50	69.1780
721.93	0.0000
722.20	82.4178
722.78	69.2498
722.78	69.2498
722.89	69.2532
722.95	69.2549
723.30	72.5635
724.18	56.0939
727.18	75.3339
733.00	67.9113
735.90	84.5829
739.58	79.7383
742.81	60.8868
744.21	64.9191
747.13	79.0039
751.79	66.1370
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753.82	74.2204
755.35	85.3092
756.15	93.3701
756.87	96.4125
763.93	129.9511
765.79	98.8015
766.42	96.8109
766.84	110.9507
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778.00	80.0627
778.57	76.0272
778.89	75.0244
783.80	74.1638
785.46	79.2987
792.07	67.9655

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798.80	68.1559
801.93	76.7743
805.60	65.6141
810.29	79.0942
810.76	77.0544
815.85	80.3042
817.79	64.9118
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819.60	67.0217
826.30	66.1703
828.27	0.0000
831.60	81.8526
831.96	78.7554
834.83	81.9586
836.80	0.0000
846.75	66.7125
848.13	64.6625
856.28	0.0000
856.80	69.7673
860.37	50.6521
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867.82	54.8856
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873.19	51.6067
874.81	70.6084
875.33	0.0000
876.40	59.0516
879.36	73.8982
880.27	55.9709
880.51	59.1445
881.50	61.2809
883.24	75.0648
884.67	62.4124
889.25	66.7606
896.60	68.0078
898.02	65.9189
899.00	60.6251
903.28	53.2654
911.07	56.9818
911.07	56.9818
911.07	56.9818
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920.93	53.6157
925.00	64.4355
925.24	66.5895
926.50	63.3962
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949.00	54.1663
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964.01	55.5459
966.15	55.5883
968.20	55.6281
969.11	55.6468
969.11	55.6468
969.11	55.6468
977.42	38.3009
980.50	46.0103
983.50	58.1214
989.30	52.7449
996.32	44.0605
1001.03	63.4395
1001.68	63.4536
1004.76	52.0793
1021.30	0.0000
1024.50	0.0000
1034.80	55.8008
1036.00	54.8924
1037.82	47.4784
1038.57	43.7642
1038.76	0.0000
1045.16	53.1940
1046.59	60.6862
1048.07	65.3886

1050.47	55.1565
1050.47	55.1565
1062.04	59.1189
1063.62	83.5606
1076.63	52.8008
1077.35	51.8691
1078.86	51.8937
1085.78	69.0316
1099.22	55.0830
1112.02	58.6447
1112.84	53.9588
1115.52	67.0940
1120.29	73.7496
1120.29	73.7496
1120.29	73.7496
1120.29	73.7496
1120.51	63.9218
1121.28	65.5776
1124.00	0.0000
1129.67	72.8704
1131.51	0.0000
1147.95	0.0000
1167.94	64.0261
1173.22	76.7595
1175.09	76.8045
1177.93	72.0037
1189.05	61.5029
1204.90	70.6201
1205.75	0.0000
1213.00	70.7871
1221.42	64.0611
1230.97	84.9922
1235.34	90.0484
1236.41	0.0000
1238.25	77.2478
1246.25	64.5213
1260.41	0.0000
1271.85	48.9920
1274.45	66.0376
1274.54	66.0403
1291.56	51.2719
1298.22	0.0000
1312.09	33.3639
1325.50	39.5745
1325.50	39.5745
1332.49	42.6990
1333.61	39.6602
1360.21	38.9185
1362.66	0.0000
1365.15	27.6888
1368.21	31.8174
1368.53	0.0000
1376.25	29.8272
1384.27	35.0431
1394.10	24.7998
1395.20	29.9747
1407.95	24.8887
1434.06	21.9229
1436.60	19.8473
1457.56	0.0000
1460.81	30.4774
1489.15	26.4587
1509.49	21.2720
1596.49	26.9862
1620.62	13.1001
1678.03	0.0000
1691.02	15.2087
1691.02	15.2087
1706.46	0.0000
1750.46	0.0000
1764.49	10.1396
1764.49	10.1396
1764.49	10.1396
1764.49	10.1396
1770.23	48.3416
1771.40	24.1769
1791.20	0.0000
1808.65	12.6699

1836.01

16.6620

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341006

Total Uranium Activity	2.1153E+01	ug/g
Total Uranium Counting Unc.	7.5506E+00	ug/g
Total Uranium Tpu	3.8524E-06	ug/g
Total Uranium Mda	3.3272E+00	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                 *
*               CHARLESTON ,SC 29417             *
*               GROSS GAMMA REPORT               *
*
*****
*
*  BATCH ID      : 950786                      SAMPLE ID   : G246341006
*  ANALYST       : MXR1                        DETECTOR    : GAM12
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00      COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 18-FEB-2010 13:12:24.27     SAMPLE ALQT  : 140.980 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.031E+01
GROSS GAMMA ERROR (pCi/GRAM )   : 1.414E+00
GROSS GAMMA MDA (pCi/GRAM )     : 3.676E+00
GROSS GAMMA DLC (pCi/GRAM )     : 1.786E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:13:59.58

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341007.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:12:54
Sample ID          : G246341007          Sample quantity  : 1.27620E+02 GRAM
Detector name      : GAM20              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:34.67  0.5%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             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	63.45*	198	549	1.30	126.88	123	8	2.74E-02	22.4	
2	3	74.96	682	623	1.37	149.86	143	15	9.47E-02	7.5	2.20E+00
3	3	77.25*	898	430	0.98	154.45	143	15	1.25E-01	5.1	
4	5	84.46*	115	554	1.31	168.83	164	28	1.60E-02	35.6	1.69E+00
5	5	87.30	373	516	1.27	174.51	164	28	5.18E-02	11.6	
6	5	89.92	234	423	1.11	179.74	164	28	3.25E-02	16.4	
7	5	92.93*	445	493	1.53	185.74	164	28	6.17E-02	11.0	
8	0	128.66	67	392	0.74	257.11	254	8	9.25E-03	53.3	
9	0	185.86*	233	338	1.05	371.35	367	9	3.24E-02	16.4	
10	0	209.20	90	250	0.96	417.96	415	7	1.25E-02	31.2	
11	3	238.62*	1576	190	1.08	476.73	469	19	2.19E-01	2.9	2.15E+00
12	3	241.55	341	303	1.62	482.58	469	19	4.74E-02	12.1	
13	0	270.53	94	248	1.10	540.48	535	10	1.31E-02	33.0	
14	2	295.21	495	135	1.17	589.77	585	27	6.87E-02	6.0	1.48E+00
15	2	300.09	101	158	1.39	599.52	585	27	1.40E-02	23.6	
16	0	327.91*	99	186	1.11	655.11	651	11	1.38E-02	29.0	
17	0	338.39*	348	201	1.42	676.04	670	12	4.83E-02	9.9	
18	0	351.85*	808	201	1.31	702.94	697	12	1.12E-01	5.0	
19	0	463.24	131	153	1.41	925.50	918	16	1.83E-02	22.7	
20	0	510.54*	189	144	1.48	1020.04	1012	16	2.63E-02	17.9	
21	0	583.37*	512	94	1.27	1165.59	1159	13	7.11E-02	6.0	
22	0	609.40*	615	102	1.33	1217.64	1210	14	8.54E-02	5.4	
23	0	727.71	92	108	1.27	1454.15	1447	12	1.28E-02	24.9	
24	0	769.12	100	104	1.59	1536.94	1528	18	1.39E-02	25.8	
25	0	795.29	67	48	0.97	1589.27	1585	8	9.26E-03	22.0	
26	0	861.74	30	101	1.14	1722.15	1715	13	4.12E-03	72.3	
27	0	911.22*	364	45	1.31	1821.11	1814	13	5.06E-02	6.6	
28	1	965.16	56	64	1.84	1929.01	1924	20	7.74E-03	31.0	1.97E+00
29	1	969.08	201	48	1.55	1936.84	1924	20	2.80E-02	9.5	
30	0	1002.64*	67	72	3.89	2003.97	1995	19	9.32E-03	33.1	
31	0	1120.48	143	69	1.48	2239.72	2233	15	1.99E-02	15.1	
32	0	1460.87*	1678	27	1.82	2921.02	2913	18	2.33E-01	2.6	
33	0	1592.47	14	17	1.10	3184.52	3180	10	1.92E-03	62.4	
34	0	1730.04	18	10	1.73	3460.06	3453	11	2.46E-03	43.1	
35	0	1764.45*	114	9	1.37	3528.99	3523	13	1.58E-02	11.1	

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

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:14:02

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341007.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:12:54
Sample ID         : G246341007           Sample quantity  : 127.62 GRAM
Sample type       : SOLID                Sample geometry   :
Detector name     : GAMMA20              Detector geometry: CAN
Elapsed live time : 0 02:00:00.00        Elapsed real time: 0 02:00:34.67    0.5%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV              Half life ratio   : 8.00
Errors propagated : Yes                   Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                 WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.691E+01	3.731E+00	4.750E-01	4.142E-02	77.717
CD-109	+	88.03	*	4.359E+00	1.089E+00	1.077E+00	1.018E-01	4.048
SN-126	+	64.28		1.299E+00	6.110E-01	6.565E-01	9.505E-02	1.979
	+	86.94		1.776E+00	8.444E-01	4.418E-01	1.834E-01	4.020
	+	87.57	*	4.272E-01	1.068E-01	1.058E-01	9.954E-03	4.037
TL-208		277.35		9.217E-01	4.111E-01	7.193E-01	9.564E-02	1.281
	+	510.84		8.603E-01	3.268E-01	1.969E-01	2.461E-02	4.369
	+	583.14	*	6.637E-01	1.046E-01	5.217E-02	5.363E-03	12.724
	+	860.37		3.584E-01	5.194E-01	4.289E-01	4.546E-02	0.836
BI-211		72.87		6.174E+00	2.755E+00	4.725E+00	3.731E-01	1.307
	+	351.07	*	4.627E+00	6.411E-01	3.201E-01	3.066E-02	14.456
PB-212	+	74.81		3.097E+00	6.032E-01	4.747E-01	5.859E-02	6.524
	+	77.11		2.343E+00	3.075E-01	2.732E-01	2.259E-02	8.577
	+	87.30		1.976E+00	5.318E-01	4.903E-01	6.720E-02	4.030
	+	238.63	*	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
	+	300.09		1.950E+00	9.475E-01	1.126E+00	1.287E-01	1.732
PO-212	+	74.81		3.097E+00	6.032E-01	4.747E-01	5.859E-02	6.524
	+	77.11		2.343E+00	3.075E-01	2.732E-01	2.259E-02	8.577
	+	87.30		1.976E+00	5.318E-01	4.903E-01	6.720E-02	4.030
		115.19		1.845E+00	3.478E+00	5.665E+00	4.758E-01	0.326
	+	238.63	*	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
	+	300.09		1.950E+00	9.475E-01	1.126E+00	1.287E-01	1.732
BI-214	+	609.31	*	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
	+	1120.29		1.791E+00	5.733E-01	4.484E-01	4.852E-02	3.994
	+	1764.49		1.924E+00	4.558E-01	2.351E-01	1.931E-02	8.182
PB-214	+	74.81		5.337E+00	9.938E-01	8.180E-01	8.955E-02	6.524
	+	77.11		4.017E+00	6.096E-01	4.683E-01	5.266E-02	8.577
	+	87.30		3.385E+00	8.852E-01	8.400E-01	1.019E-01	4.030
	+	241.98		2.573E+00	6.848E-01	5.384E-01	6.021E-02	4.779
	+	295.21		1.679E+00	2.803E-01	1.973E-01	2.302E-02	8.513
	+	351.92	*	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
PO-214	+	74.81		5.337E+00	9.938E-01	8.180E-01	8.955E-02	6.524
	+	77.11		4.017E+00	6.096E-01	4.683E-01	5.266E-02	8.577
	+	87.30		3.385E+00	8.852E-01	8.400E-01	1.019E-01	4.030

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.573E+00	6.848E-01	5.384E-01	6.021E-02	4.779
	+	295.21		1.679E+00	2.803E-01	1.973E-01	2.302E-02	8.513
	+	351.92	*	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
	+	74.81		3.097E+00	6.032E-01	4.747E-01	5.859E-02	6.524
	+	77.11		2.343E+00	3.075E-01	2.732E-01	2.259E-02	8.577
	+	87.30		1.976E+00	5.318E-01	4.903E-01	6.720E-02	4.030
PO-218	+	238.63	*	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
	+	300.09		1.950E+00	9.475E-01	1.126E+00	1.287E-01	1.732
	+	74.81		5.337E+00	9.938E-01	8.180E-01	8.955E-02	6.524
	+	77.11		4.017E+00	6.096E-01	4.683E-01	5.266E-02	8.577
	+	87.30		3.385E+00	8.852E-01	8.400E-01	1.019E-01	4.030
	+	241.98		2.573E+00	6.848E-01	5.384E-01	6.021E-02	4.779
RA-224	+	295.21		1.679E+00	2.803E-01	1.973E-01	2.302E-02	8.513
	+	351.92	*	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
	+	240.98	*	4.879E+00	1.269E+00	1.018E+00	9.836E-02	4.795
RA-226	+	609.31	*	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
AC-228	+	1120.29		1.791E+00	5.733E-01	4.484E-01	4.852E-02	3.994
	+	1764.49		1.924E+00	4.558E-01	2.351E-01	1.931E-02	8.182
	+	338.32		2.198E+00	1.009E+00	3.616E-01	1.498E-01	6.079
	+	911.07	*	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
RA-228	+	969.11		2.022E+00	6.142E-01	3.652E-01	8.667E-02	5.535
	+	338.32		2.198E+00	1.009E+00	3.616E-01	1.498E-01	6.079
	+	911.07	*	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
TH-228	+	969.11		2.022E+00	6.142E-01	3.652E-01	8.667E-02	5.535
	+	74.81		3.150E+00	5.394E-01	4.829E-01	3.930E-02	6.524
	+	77.11		2.383E+00	3.128E-01	2.779E-01	2.298E-02	8.577
	+	87.30		2.010E+00	5.022E-01	4.987E-01	4.674E-02	4.030
TH-230	+	238.63	*	2.015E+00	2.441E-01	9.097E-02	9.674E-03	22.145
	+	300.09		1.983E+00	1.506E+00	1.145E+00	6.809E-01	1.732
	+	609.31	*	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
	+	1120.29		1.791E+00	5.733E-01	4.484E-01	4.852E-02	3.994
TH-232	+	1764.49		1.924E+00	4.558E-01	2.351E-01	1.931E-02	8.182
	+	338.32		2.198E+00	4.805E-01	3.616E-01	3.388E-02	6.079
	+	911.07	*	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
TH-234	+	969.11		2.022E+00	6.142E-01	3.652E-01	8.667E-02	5.535
	+	63.29	*	3.283E+00	1.576E+00	1.682E+00	2.923E-01	1.951
U-234	+	92.38		3.370E+00	9.673E-01	7.060E-01	1.295E-01	4.773
	+	609.31	*	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
	+	1120.29		1.791E+00	5.733E-01	4.484E-01	4.852E-02	3.994
NP-237	+	1764.49		1.924E+00	4.558E-01	2.351E-01	1.931E-02	8.182
	+	86.50	*	1.254E+00	4.066E-01	3.130E-01	7.081E-02	4.008
	+	95.87		-1.962E-02	9.476E-01	1.361E+00	3.369E-01	-0.014
U-238	+	63.29	*	3.283E+00	1.576E+00	1.682E+00	2.923E-01	1.951
	+	92.38		3.370E+00	8.054E-01	7.060E-01	6.453E-02	4.773
AM-243	+	74.67	*	5.021E-01	8.579E-02	7.713E-02	6.208E-03	6.510
	+	86.72		4.704E+01	1.176E+01	1.172E+01	1.090E+00	4.014
	+	117.66		3.017E-01	3.649E+00	5.892E+00	4.932E-01	0.051
ANH-511	+	142.18		-1.684E+01	1.754E+01	2.675E+01	2.258E+00	-0.629
	+	511.00	*	1.858E-01	6.888E-02	4.254E-02	3.964E-03	4.368

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	477.59	*		-2.996E-01	3.326E-01	5.018E-01	4.878E-02	-0.597
NA-22	1274.54	*		3.805E-02	4.965E-02	8.537E-02	7.072E-03	0.446
NA-24	1368.53	*		1.449E+00	4.965E-02	Half-Life too short		
AL-26	1129.67			6.153E-01	1.750E+00	2.933E+00	2.484E-01	0.210
	1808.65	*		8.251E-03	2.494E-02	4.385E-02	3.562E-03	0.188
TI-44	67.85			-5.640E-03	4.054E-02	6.299E-02	4.739E-03	-0.090
	78.38	*		4.324E-01	5.675E-02	7.715E-02	6.475E-03	5.605
SC-46	889.25	*		-5.773E-03	3.924E-02	6.397E-02	6.377E-03	-0.090
	1120.51	+		3.116E-01	9.757E-02	1.393E-01	1.191E-02	2.237
V-48	944.10			-1.145E+00	1.016E+00	1.489E+00	1.453E-01	-0.769
	983.50	*		1.172E-01	7.447E-02	1.382E-01	1.321E-02	0.848
	1312.09			6.323E-03	8.483E-02	1.376E-01	1.148E-02	0.046
CR-51	320.08	*		1.364E-01	3.845E-01	6.490E-01	6.506E-02	0.210
MN-52	744.21			-3.173E-02	2.805E-01	4.643E-01	4.716E-02	-0.068
	848.13			1.314E+00	8.601E+00	1.443E+01	1.454E+00	0.091
	935.52			5.794E-02	3.403E-01	5.682E-01	5.566E-02	0.102
	1246.25			1.192E+01	9.966E+00	1.763E+01	1.449E+00	0.676
	1333.61			4.672E-01	6.391E+00	1.036E+01	8.676E-01	0.045
	1434.06	*		1.465E-01	2.701E-01	4.827E-01	4.085E-02	0.303
MN-54	834.83	*		3.133E-03	4.025E-02	6.715E-02	6.783E-03	0.047
CO-56	846.75	*		3.135E-02	3.957E-02	6.964E-02	7.019E-03	0.450
	977.42			-1.106E+00	3.008E+00	4.621E+00	4.432E-01	-0.239
	1037.82			-1.649E-01	3.170E-01	4.916E-01	4.743E-02	-0.335
	1175.09			-9.849E-01	2.430E+00	3.796E+00	3.054E-01	-0.259
	1238.25			1.977E-01	1.055E-01	1.902E-01	1.609E-02	1.039
	1360.21			-1.911E-01	9.059E-01	1.481E+00	1.245E-01	-0.129
	1771.40			-1.261E-01	2.581E-01	3.913E-01	3.209E-02	-0.322
CO-57	122.06	*		1.505E-02	2.546E-02	4.186E-02	3.494E-03	0.360
	136.48			-5.618E-02	2.033E-01	3.212E-01	2.908E-02	-0.175
CO-58	810.76	*		-8.567E-03	3.850E-02	6.276E-02	6.373E-03	-0.137
FE-59	142.65			-1.613E+00	2.758E+00	4.287E+00	3.621E-01	-0.376
	192.34			2.560E-01	9.350E-01	1.600E+00	2.197E-01	0.160
	1099.22	*		-8.041E-03	9.589E-02	1.550E-01	1.462E-02	-0.052
	1291.56			8.007E-03	1.333E-01	2.160E-01	2.054E-02	0.037
CO-60	1173.22			6.536E-03	4.644E-02	7.624E-02	6.129E-03	0.086
	1332.49	*		-1.530E-02	4.049E-02	6.201E-02	5.194E-03	-0.247
ZN-65	1115.52	*		-5.721E-02	1.099E-01	1.441E-01	1.241E-02	-0.397
GE-68	1077.35	*		6.058E-01	1.331E+00	2.256E+00	2.012E-01	0.269
AS-73	53.44	*		-1.168E-01	5.902E-01	9.665E-01	7.175E-02	-0.121
AS-74	595.88	*		-3.434E-03	1.009E-01	1.611E-01	1.577E-02	-0.021
	634.78			-1.707E-01	3.530E-01	5.725E-01	5.694E-02	-0.298
SE-75	66.05			-1.754E+00	4.450E+00	6.370E+00	6.026E-01	-0.275
	96.73			-5.354E-01	8.131E-01	1.130E+00	1.560E-01	-0.474
	121.11			-3.949E-02	1.362E-01	2.161E-01	2.379E-02	-0.183
	136.00			-1.552E-02	3.772E-02	5.919E-02	5.001E-03	-0.262
	198.60			8.114E-02	1.805E+00	3.024E+00	3.043E-01	0.027
	264.65	*		-1.757E-03	4.574E-02	7.082E-02	7.012E-03	-0.025
	279.53			-2.255E-02	1.166E-01	1.929E-01	1.974E-02	-0.117
	303.91			1.882E+00	2.070E+00	3.576E+00	4.424E-01	0.526

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	400.65		6.727E-02	2.477E-01	4.128E-01	4.530E-02	0.163
		87.88		1.651E+03	4.125E+02	5.714E+02	5.397E+01	2.888
		200.40		1.068E+02	2.848E+02	4.884E+02	4.492E+01	0.219
	+	239.00		5.590E+02	6.294E+01	7.179E+01	6.925E+00	7.787
		249.79		1.277E+00	1.109E+02	1.861E+02	1.814E+01	0.007
		281.68		-1.421E+02	1.607E+02	2.554E+02	2.540E+01	-0.556
		297.23		4.557E+02	1.126E+02	2.015E+02	1.982E+01	2.262
		303.76		2.738E+02	3.055E+02	5.287E+02	5.172E+01	0.518
		439.47		2.316E+02	2.429E+02	4.201E+02	3.691E+01	0.551
		484.57		-1.448E+02	3.885E+02	6.116E+02	5.588E+01	-0.237
		520.65	*	-1.907E+01	1.861E+01	2.748E+01	2.578E+00	-0.694
		574.64		1.781E+02	3.554E+02	5.926E+02	5.740E+01	0.301
		578.91		-6.255E+01	1.525E+02	2.021E+02	1.962E+01	-0.310
		585.48		2.878E+03	5.205E+02	8.836E+02	8.606E+01	3.257
		755.35		7.438E+01	2.877E+02	4.896E+02	4.975E+01	0.152
SR-82		817.79		1.280E+02	2.221E+02	3.865E+02	3.914E+01	0.331
		698.33		1.290E+00	3.443E+01	5.790E+01	5.855E+00	0.022
		776.49	*	-3.974E-01	4.746E-01	6.187E-01	6.286E-02	-0.642
RB-83		1395.20		-2.264E+00	8.771E+00	1.411E+01	1.191E+00	-0.160
		520.41	*	-7.681E-02	7.123E-02	1.046E-01	9.814E-03	-0.734
		529.64		-3.536E-02	1.075E-01	1.688E-01	1.593E-02	-0.209
RB-84		552.65		-3.947E-02	2.112E-01	3.348E-01	3.204E-02	-0.118
		881.50	*	-1.356E-02	7.345E-02	1.194E-01	1.194E-02	-0.114
		513.99	*	8.656E+00	8.166E+00	1.259E+01	1.176E+00	0.688
KR-85		513.99	*	4.529E-02	4.273E-02	6.588E-02	6.151E-03	0.688
SR-85		513.99	*	4.529E-02	4.273E-02	6.588E-02	6.151E-03	0.688
RB-86		1076.63	*	5.328E-02	9.273E-01	1.520E+00	1.357E-01	0.035
Y-88		898.02		-2.737E-02	4.418E-02	6.894E-02	6.879E-03	-0.397
		1836.01	*	-1.546E-04	3.143E-02	5.158E-02	4.162E-03	-0.003
		392.90	*	-1.938E-03	2.998E-02	4.896E-02	4.095E-03	-0.040
ZR-88		392.90	*	-1.938E-03	2.998E-02	4.896E-02	4.095E-03	-0.040
Y-91		1204.90	*	-1.753E+01	2.128E+01	3.194E+01	2.593E+00	-0.549
NB-94		702.63	*	-1.733E-03	3.334E-02	5.570E-02	5.635E-03	-0.031
		871.10		-2.051E-02	3.109E-02	4.796E-02	4.807E-03	-0.428
		765.79	*	3.100E-02	4.716E-02	7.299E-02	7.418E-03	0.425
NB-95		765.79	*	3.100E-02	4.716E-02	7.299E-02	7.418E-03	0.425
NB-95M		235.69	*	1.086E-01	1.359E-01	2.098E-01	2.254E-02	0.518
ZR-95		724.18		-2.363E-02	1.060E-01	1.507E-01	1.625E-02	-0.157
		756.15	*	-1.072E-02	7.137E-02	1.177E-01	1.285E-02	-0.091
		657.90	*	-6.318E-01	7.137E-02	Half-Life	too short	
NB-97		657.90	*	-6.318E-01	7.137E-02	Half-Life	too short	
ZR-97		1024.50		9.397E+00	7.137E-02	Half-Life	too short	
		254.15		-2.014E+01	7.137E-02	Half-Life	too short	
		355.39		5.879E+00	7.137E-02	Half-Life	too short	
		507.63	*	2.040E+01	7.137E-02	Half-Life	too short	
		602.52		-1.228E+01	7.137E-02	Half-Life	too short	
		1021.30		5.712E+01	7.137E-02	Half-Life	too short	
		1147.95		5.335E+00	7.137E-02	Half-Life	too short	
		1362.66		-1.800E+01	7.137E-02	Half-Life	too short	
		1750.46		2.151E+01	7.137E-02	Half-Life	too short	
MO-99		140.51		-1.529E+01	4.309E+01	6.676E+01	1.845E+01	-0.229
		181.06		-3.415E+01	3.258E+01	4.182E+01	7.712E+00	-0.817
		366.43		-4.472E+00	1.366E+02	2.245E+02	1.996E+01	-0.020

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		739.58	*	1.316E-01	1.729E+01	2.892E+01	4.658E+00	0.005
		778.00		-8.418E+00	5.535E+01	8.863E+01	9.006E+00	-0.095
TC-99M		140.51	*	-2.858E+12	5.535E+01	Half-Life	too short	
RH-101	+	127.23		3.987E-02	4.262E-02	5.387E-02	4.493E-03	0.740
		198.01	*	3.654E-03	3.263E-02	5.480E-02	5.023E-03	0.067
		325.23		1.062E-02	2.539E-01	3.706E-01	3.538E-02	0.029
RH-102		418.52		1.921E-02	2.739E-01	4.499E-01	3.870E-02	0.043
		475.06	*	7.158E-03	2.839E-02	4.690E-02	4.253E-03	0.153
		631.29		-1.723E-02	5.490E-02	8.515E-02	8.459E-03	-0.202
		697.49		-3.840E-02	7.549E-02	1.218E-01	1.231E-02	-0.315
		766.84		2.349E-01	1.149E-01	2.125E-01	2.160E-02	1.105
		1046.59		-2.365E-02	1.140E-01	1.826E-01	1.671E-02	-0.130
		1112.84		9.970E-02	2.684E-01	4.115E-01	3.548E-02	0.242
RU-103		497.08	*	-1.232E-02	3.949E-02	6.227E-02	9.053E-03	-0.198
	+	610.33		1.676E+01	3.420E+00	3.292E+00	5.713E-01	5.090
RH-106	+	511.85		9.315E-01	3.453E-01	4.410E-01	4.111E-02	2.112
		621.84	*	2.048E-02	3.136E-01	5.036E-01	7.159E-02	0.041
		1050.47		-9.009E-02	2.142E+00	3.486E+00	3.181E-01	-0.026
RU-106	+	511.85		9.315E-01	3.453E-01	4.410E-01	4.111E-02	2.112
		621.84	*	2.048E-02	3.136E-01	5.036E-01	4.985E-02	0.041
		1050.47		-9.009E-02	2.142E+00	3.486E+00	3.181E-01	-0.026
AG-108M		433.93	*	5.865E-03	2.995E-02	4.955E-02	4.497E-03	0.118
		614.37		-1.729E-02	4.316E-02	5.722E-02	5.816E-03	-0.302
		722.95		-3.268E-03	4.427E-02	6.394E-02	6.670E-03	-0.051
AG-110M		657.75	*	-3.355E-02	3.506E-02	5.466E-02	5.600E-03	-0.614
		677.61		-8.757E-02	2.808E-01	4.598E-01	4.727E-02	-0.190
		706.67		1.071E-01	2.114E-01	3.663E-01	3.782E-02	0.293
		763.93		-1.179E-01	1.777E-01	2.369E-01	2.456E-02	-0.498
		884.67		-2.292E-02	4.753E-02	7.490E-02	7.657E-03	-0.306
		937.48		2.938E-02	1.187E-01	1.994E-01	2.006E-02	0.147
		1384.27		-1.317E-01	1.433E-01	2.099E-01	1.822E-02	-0.628
IN-111		171.28		4.836E-01	1.577E+00	2.535E+00	2.231E-01	0.191
		245.39	*	9.776E-01	1.786E+00	2.731E+00	2.652E-01	0.358
IN-113M		391.69	*	-4.941E-02	4.353E-02	6.568E-02	5.666E-03	-0.752
SN-113		391.69	*	-4.941E-02	4.353E-02	6.568E-02	5.666E-03	-0.752
IN-114M		190.27	*	-9.046E-02	2.032E-01	2.968E-01	2.690E-02	-0.305
CD-115		260.90		-1.195E+02	2.231E+02	3.628E+02	3.569E+01	-0.329
		492.35		-1.869E+01	6.153E+01	9.720E+01	8.934E+00	-0.192
		527.90	*	4.929E-01	1.989E+01	3.214E+01	3.030E+00	0.015
SN-117M		156.02		-2.061E+00	2.557E+00	3.912E+00	3.363E-01	-0.527
		158.56	*	4.936E-02	5.934E-02	9.769E-02	8.431E-03	0.505
SB-122		563.90	*	2.933E+00	3.500E+00	5.951E+00	5.732E-01	0.493
		692.80		-1.832E+01	7.395E+01	1.184E+02	1.196E+01	-0.155
I-123		159.00	*	2.723E+01	7.395E+01	Half-Life	too short	
		528.96		4.479E+02	7.395E+01	Half-Life	too short	
TE-123M		159.00	*	1.174E-02	2.848E-02	4.609E-02	4.005E-03	0.255
I-124		602.71	*	5.616E-01	1.062E+00	1.562E+00	1.533E-01	0.360
		722.78		-3.156E-01	6.384E+00	9.245E+00	9.377E-01	-0.034
		1325.50		-6.163E+00	4.594E+01	7.255E+01	6.069E+00	-0.085

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

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SB-124		1376.25		3.605E+01	4.380E+01	7.906E+01	6.659E+00	0.456
		1509.49		2.718E+01	2.122E+01	4.047E+01	3.430E+00	0.672
		1691.02		5.009E-01	4.975E+00	8.364E+00	6.975E-01	0.060
		602.71		2.422E-02	4.580E-02	6.735E-02	6.614E-03	0.360
		645.85		-1.578E-01	4.588E-01	7.514E-01	7.841E-02	-0.210
		709.31		8.889E-01	2.863E+00	4.899E+00	4.961E-01	0.181
		713.82		-2.431E-01	1.630E+00	2.699E+00	3.552E-01	-0.090
		722.78		-1.973E-02	3.991E-01	5.780E-01	5.954E-02	-0.034
	+	968.20		2.128E+01	4.527E+00	8.089E+00	7.798E-01	2.631
		1045.16		4.523E-01	2.528E+00	4.201E+00	3.851E-01	0.108
		1325.50		-4.115E-01	3.067E+00	4.844E+00	4.052E-01	-0.085
		1368.21		4.628E-01	1.736E+00	2.999E+00	4.003E-01	0.154
		1436.60		1.628E+00	3.235E+00	5.781E+00	4.893E-01	0.282
		1691.02	*	7.387E-03	7.336E-02	1.233E-01	1.072E-02	0.060
SB-125		427.89	*	2.449E-02	8.842E-02	1.470E-01	1.301E-02	0.167
	+	463.38		1.171E+00	5.439E-01	5.750E-01	5.536E-02	2.036
		600.56		2.771E-02	1.893E-01	3.063E-01	3.176E-02	0.090
		635.90		-1.345E-01	2.443E-01	3.933E-01	4.154E-02	-0.342
TE-125M		109.28	*	1.068E+01	9.598E+00	1.604E+01	1.640E+00	0.666
		388.63		5.081E-02	2.194E-01	3.652E-01	3.076E-02	0.139
		666.33	*	2.244E-02	1.991E-01	3.374E-01	3.390E-02	0.067
SB-126		753.82		8.295E-01	1.594E+00	2.763E+00	2.808E-01	0.300
		223.80		2.568E+00	4.245E+00	7.323E+00	6.946E-01	0.351
		278.60		4.010E+00	2.925E+00	5.121E+00	5.097E-01	0.783
	+	296.50		1.863E+01	2.883E+00	4.284E+00	4.218E-01	4.348
		414.70		-1.868E-02	8.181E-02	1.318E-01	1.129E-02	-0.142
		415.30		-1.780E+00	6.868E+00	1.104E+01	9.463E-01	-0.161
		555.20		-2.066E+00	4.687E+00	7.277E+00	6.975E-01	-0.284
		573.80		1.419E+00	1.141E+00	1.995E+00	1.931E-01	0.712
		593.00		4.605E-01	1.036E+00	1.717E+00	1.678E-01	0.268
		656.30		4.178E-01	3.648E+00	6.190E+00	6.202E-01	0.067
		666.33		9.419E-03	8.357E-02	1.416E-01	1.423E-02	0.067
		675.00		-9.167E-01	1.991E+00	3.217E+00	3.239E-01	-0.285
		695.00		4.007E-02	8.287E-02	1.437E-01	1.452E-02	0.279
		697.00		-2.295E-01	2.948E-01	4.649E-01	4.700E-02	-0.494
		720.50	*	-8.900E-02	1.712E-01	2.471E-01	2.506E-02	-0.360
		856.80		-4.582E-01	6.005E-01	7.775E-01	7.820E-02	-0.589
		989.30		-1.208E+00	1.372E+00	2.044E+00	1.947E-01	-0.591
		1034.80		2.461E+00	9.647E+00	1.616E+01	1.493E+00	0.152
SB-127		1213.00		-2.325E+00	5.846E+00	9.144E+00	7.443E-01	-0.254
		61.10		5.603E+01	6.923E+01	1.051E+02	1.126E+01	0.533
		252.40		-2.944E+00	5.974E+00	9.551E+00	4.054E+00	-0.308
		290.80		-1.481E+00	3.147E+01	4.594E+01	5.840E+00	-0.032
		411.60		1.597E+01	1.844E+01	3.137E+01	5.054E+00	0.509
		444.90		-6.051E+00	1.304E+01	2.048E+01	2.704E+00	-0.295
		473.00		8.713E-01	2.304E+00	3.838E+00	5.245E-01	0.227
		543.00		-3.483E+01	2.407E+01	3.311E+01	5.097E+00	-1.052
		603.60		-8.080E+00	1.978E+01	2.635E+01	3.653E+00	-0.307
		685.20	*	6.559E-01	1.902E+00	3.270E+00	4.273E-01	0.201



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		698.50		2.421E+00	2.072E+01	3.503E+01	5.984E+00	0.069
		722.20		-1.493E+01	4.646E+01	6.523E+01	8.423E+00	-0.229
		783.80		-1.039E+00	5.246E+00	8.605E+00	1.207E+00	-0.121
		57.60		-3.657E+00	4.799E+00	7.678E+00	5.486E-01	-0.476
		145.22		1.751E-01	7.255E-01	1.153E+00	9.766E-02	0.152
I-131		172.10		1.409E-02	1.214E-01	1.934E-01	1.704E-02	0.073
		202.84	*	-1.008E-02	4.860E-02	8.156E-02	7.527E-03	-0.124
		374.96		1.152E-01	1.998E-01	3.396E-01	2.961E-02	0.339
		80.18		2.568E+00	6.473E+00	7.636E+00	6.601E-01	0.336
		284.30		-3.634E-01	1.701E+00	2.803E+00	2.897E-01	-0.130
TE-132		364.48	*	9.520E-02	1.324E-01	2.270E-01	2.132E-02	0.419
		636.97		-5.014E-01	1.668E+00	2.746E+00	2.853E-01	-0.183
		722.89		-5.748E-01	8.814E+00	1.274E+01	1.300E+00	-0.045
		49.72		-5.662E+00	1.845E+01	3.012E+01	3.258E+00	-0.188
		111.76		-3.675E+01	4.462E+01	6.923E+01	7.794E+00	-0.531
BA-133		116.30		1.311E+01	4.067E+01	6.570E+01	7.365E+00	0.200
		228.16	*	6.440E-02	1.003E+00	1.693E+00	2.810E-01	0.038
		53.15		-4.369E-01	2.488E+00	4.078E+00	3.038E-01	-0.107
		79.62		-1.662E-01	1.617E+00	1.844E+00	2.796E-01	-0.090
		81.00		-6.118E-02	1.225E-01	1.352E-01	2.150E-02	-0.452
I-133		276.40		6.362E-01	4.089E-01	6.894E-01	1.053E-01	0.923
		302.84		1.066E-01	1.379E-01	2.369E-01	3.335E-02	0.450
		356.01	*	3.232E-03	4.620E-02	6.724E-02	9.083E-03	0.048
		383.85		5.718E-02	2.963E-01	4.922E-01	6.173E-02	0.116
	+	510.53		8.877E+00	2.963E-01	Half-Life	too short	
CS-134		529.87	*	-1.029E-02	2.963E-01	Half-Life	too short	
		706.58		9.490E-01	2.963E-01	Half-Life	too short	
		856.28		-2.687E+00	2.963E-01	Half-Life	too short	
		875.33		-1.816E-01	2.963E-01	Half-Life	too short	
		1236.41		3.122E+00	2.963E-01	Half-Life	too short	
I-135		1298.22		3.658E-01	2.963E-01	Half-Life	too short	
		475.35		7.317E-01	1.856E+00	3.096E+00	2.808E-01	0.236
		563.23		7.632E-02	3.706E-01	6.046E-01	5.866E-02	0.126
		569.32		-1.888E-01	2.039E-01	3.021E-01	2.950E-02	-0.625
		604.70		-1.809E-02	3.993E-02	5.294E-02	5.212E-03	-0.342
CS-135		795.84	*	1.241E-01	5.602E-02	9.634E-02	9.830E-03	1.288
	+	801.93		2.288E-01	4.072E-01	7.051E-01	7.182E-02	0.324
		1038.57		-1.669E+00	3.921E+00	6.146E+00	5.662E-01	-0.272
		1167.94		-2.227E+00	2.602E+00	3.872E+00	3.134E-01	-0.575
		1365.15		4.342E-01	1.175E+00	2.054E+00	1.810E-01	0.211
I-135		268.24	*	2.234E-01	1.730E-01	2.729E-01	3.025E-02	0.819
		288.45		-6.139E+10	1.730E-01	Half-Life	too short	
		417.63		5.327E+11	1.730E-01	Half-Life	too short	
		546.56		9.438E+11	1.730E-01	Half-Life	too short	
		836.80		1.976E+12	1.730E-01	Half-Life	too short	
I-135		1038.76		-1.039E+12	1.730E-01	Half-Life	too short	
		1124.00		1.515E+12	1.730E-01	Half-Life	too short	
		1131.51		2.192E+11	1.730E-01	Half-Life	too short	
		1260.41	*	-1.903E+11	1.730E-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		5.814E+13	1.730E-01	Half-Life	too short	
		1678.03		-1.852E+11	1.730E-01	Half-Life	too short	
		1706.46		-1.402E+12	1.730E-01	Half-Life	too short	
		1791.20		-6.721E+11	1.730E-01	Half-Life	too short	
		66.91		8.354E-01	7.749E-01	1.168E+00	1.731E-01	0.715
	+	86.29		6.173E+00	1.651E+00	2.095E+00	2.783E-01	2.947
		153.22		1.305E+00	7.236E-01	1.225E+00	1.174E-01	1.066
		163.89		1.169E+00	1.158E+00	1.915E+00	1.864E-01	0.610
		176.55		3.885E-01	4.180E-01	6.871E-01	6.431E-02	0.565
		273.65		-1.076E+00	5.935E-01	7.526E-01	7.844E-02	-1.430
		340.57		4.772E-01	1.613E-01	2.711E-01	2.594E-02	1.761
		818.51		7.512E-02	7.549E-02	1.356E-01	1.375E-02	0.554
		1048.07	*	-5.076E-02	1.163E-01	1.816E-01	1.724E-02	-0.279
BA-137M		1235.34		-5.181E-01	7.694E-01	1.177E+00	1.359E-01	-0.440
		661.65	*	5.771E-04	3.581E-02	6.032E-02	6.054E-03	0.010
		661.65	*	6.100E-04	3.786E-02	6.377E-02	6.409E-03	0.010
CE-139		165.85	*	-1.893E-02	3.000E-02	4.612E-02	4.026E-03	-0.410
BA-140		162.64		9.442E-01	8.246E-01	1.370E+00	1.258E-01	0.689
		304.84		9.044E-01	1.570E+00	2.359E+00	6.699E-01	0.383
LA-140		423.70		-1.234E-01	1.996E+00	3.246E+00	1.052E+00	-0.038
		537.32	*	1.564E-01	2.950E-01	4.868E-01	1.625E-01	0.321
	+	328.77		8.598E-01	5.052E-01	6.042E-01	6.008E-02	1.423
		432.53		-4.580E-01	2.118E+00	3.400E+00	3.108E-01	-0.135
		487.03		-2.841E-02	1.392E-01	2.219E-01	2.143E-02	-0.128
		751.79		-2.170E-01	1.876E+00	3.105E+00	3.401E-01	-0.070
		815.85		-1.970E-01	3.401E-01	5.345E-01	5.873E-02	-0.368
		867.82		3.849E-01	1.669E+00	2.467E+00	2.572E-01	0.156
		919.63		1.644E+00	3.116E+00	5.363E+00	6.261E-01	0.307
		925.24		-3.939E-01	1.194E+00	1.904E+00	1.965E-01	-0.207
		1596.49	*	-8.043E-02	1.009E-01	1.163E-01	9.817E-03	-0.692
		145.44	*	2.257E-02	6.640E-02	1.059E-01	9.147E-03	0.213
		57.37		-1.600E-03	6.640E-02	Half-Life	too short	
CE-143		231.56		-2.263E-03	6.640E-02	Half-Life	too short	
		293.26	*	1.718E-03	6.640E-02	Half-Life	too short	
	+	350.59		9.722E-02	6.640E-02	Half-Life	too short	
		490.36		1.863E-04	6.640E-02	Half-Life	too short	
		664.57		1.742E-04	6.640E-02	Half-Life	too short	
		721.93		-1.305E-03	6.640E-02	Half-Life	too short	
		80.11		9.104E-01	2.531E+00	2.979E+00	2.552E-01	0.306
CE-144		133.54	*	-2.584E-02	2.025E-01	3.064E-01	4.728E-02	-0.084
		476.78		-3.527E-02	6.710E-02	1.045E-01	1.030E-02	-0.337
PM-144		618.01		8.158E-03	3.190E-02	5.203E-02	5.251E-03	0.157
		696.49	*	-1.537E-02	3.349E-02	5.422E-02	5.482E-03	-0.283
		778.57		6.703E-01	2.253E+00	3.841E+00	3.903E-01	0.175
PR-144		696.49	*	-1.043E+00	2.271E+00	3.678E+00	3.718E-01	-0.283
		1489.15		1.900E+00	1.008E+01	1.730E+01	1.467E+00	0.110
PM-146		453.90	*	1.517E-02	4.344E-02	7.232E-02	7.921E-03	0.210
		633.02		1.288E+00	1.386E+00	2.252E+00	8.491E-01	0.572
		735.90		-6.273E-02	1.436E-01	2.297E-01	6.684E-02	-0.273

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	747.13		2.206E-03	8.470E-02	1.418E-01	2.132E-02	0.016
		91.11		1.025E+00	3.505E-01	5.583E-01	5.523E-02	1.836
		319.41		1.495E+00	3.691E+00	6.247E+00	6.011E-01	0.239
		439.89		5.599E+00	6.385E+00	1.099E+01	9.665E-01	0.509
PM-149	*	531.02		-6.380E-01	6.304E-01	9.193E-01	1.419E-01	-0.694
		285.90		-2.415E+01	1.618E+02	2.674E+02	4.360E+01	-0.090
EU-152		121.78		1.639E-02	7.375E-02	1.196E-01	1.158E-02	0.137
		244.69		5.104E-02	3.466E-01	5.175E-01	5.020E-02	0.099
		344.27	*	-5.013E-02	1.007E-01	1.483E-01	1.447E-02	-0.338
		443.98		-3.168E-01	8.881E-01	1.408E+00	1.242E-01	-0.225
		778.89		9.310E-02	2.555E-01	4.378E-01	4.448E-02	0.213
		867.32		3.867E-01	8.597E-01	1.307E+00	1.311E-01	0.296
		964.01	+	6.444E-01	4.043E-01	5.858E-01	5.659E-02	1.100
		1085.78		-2.100E-01	3.954E-01	6.099E-01	5.400E-02	-0.344
		1112.02		2.926E-01	3.535E-01	5.997E-01	5.175E-02	0.488
		1407.95		3.394E-01	1.700E-01	3.432E-01	2.899E-02	0.989
GD-153	+	69.67		6.068E-02	1.544E+00	2.264E+00	1.732E-01	0.027
		83.37		2.379E+01	1.705E+01	2.213E+01	1.973E+00	1.075
		97.43	*	-6.081E-02	8.498E-02	1.171E-01	1.039E-02	-0.519
		103.18		-1.617E-02	1.063E-01	1.709E-01	1.478E-02	-0.095
EU-154		123.07		1.285E-02	5.311E-02	8.612E-02	9.603E-03	0.149
		247.94		-1.159E-01	3.470E-01	5.724E-01	7.059E-02	-0.202
		591.81		2.905E-01	6.174E-01	1.025E+00	1.286E-01	0.283
		723.30		-9.476E-02	1.908E-01	2.622E-01	2.864E-02	-0.361
		756.87		-1.894E-01	7.645E-01	1.251E+00	1.642E-01	-0.151
		873.19		-2.462E-01	2.817E-01	4.234E-01	5.616E-02	-0.581
		996.32		-2.387E-02	3.788E-01	5.326E-01	9.694E-02	-0.045
		1004.76		1.423E-01	2.108E-01	3.654E-01	4.478E-02	0.389
		1274.45	*	1.263E-01	1.372E-01	2.384E-01	2.635E-02	0.530
		48.70		-1.106E+00	1.522E+00	2.443E+00	1.955E-01	-0.453
EU-155	+	60.01		2.709E+00	4.178E+00	6.321E+00	4.485E-01	0.429
		86.54		5.149E-01	1.288E-01	1.759E-01	1.646E-02	2.928
		105.31	*	6.391E-02	1.112E-01	1.833E-01	1.593E-02	0.349
		86.79	+	1.400E+00	3.499E-01	4.819E-01	4.487E-02	2.905
TB-160	+	197.04		-2.499E-01	5.648E-01	9.278E-01	8.492E-02	-0.269
		215.65		-1.103E-02	7.155E-01	1.207E+00	1.133E-01	-0.009
		298.57		2.226E-01	1.140E-01	2.034E-01	1.999E-02	1.095
		879.36	*	1.597E-01	1.441E-01	2.586E-01	2.586E-02	0.618
		962.29		5.475E-01	5.931E-01	9.315E-01	9.007E-02	0.588
		966.15	+	4.506E-01	2.828E-01	4.945E-01	4.772E-02	0.911
		1177.93		-1.694E-02	3.967E-01	6.406E-01	5.158E-02	-0.026
		1271.85		-3.500E-02	7.908E-01	1.269E+00	1.049E-01	-0.028
HO-166M	+	80.57		1.242E-01	3.221E-01	3.797E-01	3.270E-02	0.327
		184.41		1.543E-01	5.259E-02	6.840E-02	6.144E-03	2.255
		280.46		-8.692E-02	8.992E-02	1.426E-01	1.419E-02	-0.610
		410.95		3.396E-01	2.585E-01	4.518E-01	3.856E-02	0.752
		711.68	*	-4.153E-02	6.028E-02	9.553E-02	9.677E-03	-0.435
		752.31		-3.862E-02	2.715E-01	4.483E-01	4.555E-02	-0.086
		810.29		-1.550E-03	5.531E-02	9.171E-02	9.297E-03	-0.017

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		51.35		3.734E+00	2.025E+01	3.367E+01	2.572E+00	0.111
		52.39		-6.104E+00	1.085E+01	1.752E+01	1.318E+00	-0.348
		59.40		1.643E+01	2.241E+01	3.404E+01	2.409E+00	0.483
LU-176		66.72	*	6.651E+00	2.589E+01	3.815E+01	2.842E+00	0.174
	+	88.36		1.013E+00	2.532E-01	3.586E-01	3.381E-02	2.826
		201.83		-5.566E-03	2.822E-02	4.737E-02	4.366E-03	-0.117
LU-177		306.84	*	-1.143E-02	2.746E-02	3.879E-02	3.784E-03	-0.295
		401.10		8.141E-01	6.473E+00	1.069E+01	9.024E-01	0.076
		112.95		-1.442E+00	1.953E+00	3.047E+00	2.568E-01	-0.473
LU-177M	+	208.36	*	2.444E+00	1.540E+00	2.446E+00	2.275E-01	0.999
		52.97		-2.370E-01	1.131E+00	1.851E+00	1.382E-01	-0.128
		54.07		7.454E-02	6.094E-01	1.009E+00	7.439E-02	0.074
		61.30		6.962E-01	1.289E+00	1.939E+00	1.387E-01	0.359
		121.62		7.325E-02	3.782E-01	6.126E-01	5.109E-02	0.120
		147.16		-1.694E-01	6.573E-01	1.036E+00	8.801E-02	-0.163
		171.86		8.402E-02	4.766E-01	7.615E-01	6.708E-02	0.110
		218.09		5.535E-01	8.079E-01	1.399E+00	1.317E-01	0.396
		268.79		1.578E+00	9.084E-01	1.459E+00	1.443E-01	1.082
		319.02		3.806E-02	2.545E-01	4.253E-01	4.093E-02	0.090
		367.43		4.681E-01	8.856E-01	1.503E+00	1.333E-01	0.311
		413.65	*	-1.494E-01	1.882E-01	2.922E-01	2.501E-02	-0.512
HF-181		56.28		-3.014E-01	7.207E-01	1.169E+00	8.433E-02	-0.258
		57.53		-3.040E-01	4.015E-01	6.426E-01	4.593E-02	-0.473
		65.20		4.829E-01	9.099E-01	1.356E+00	9.978E-02	0.356
		133.02		3.053E-02	6.942E-02	1.015E-01	8.494E-03	0.301
		136.25		-2.016E-01	4.546E-01	7.123E-01	5.976E-02	-0.283
		345.85		9.288E-02	2.138E-01	3.206E-01	2.966E-02	0.290
		482.03	*	3.308E-02	4.278E-02	7.307E-02	6.662E-03	0.453
		56.28		-1.153E-01	2.764E-01	4.483E-01	3.234E-02	-0.257
		57.53		-1.166E-01	1.541E-01	2.466E-01	1.763E-02	-0.473
W-181		65.20	*	1.839E-01	3.464E-01	5.163E-01	3.799E-02	0.356
		67.75		-8.058E-03	1.044E-01	1.524E-01	1.145E-02	-0.053
		100.10		-2.046E-02	1.756E-01	2.799E-01	2.451E-02	-0.073
TA-182		152.43		9.246E-02	3.400E-01	5.478E-01	4.685E-02	0.169
		222.10		5.913E-02	3.340E-01	5.670E-01	5.367E-02	0.104
	+	1001.68		6.111E+00	4.087E+00	3.982E+00	3.763E-01	1.535
	+	1121.28		8.568E-01	2.683E-01	3.829E-01	3.272E-02	2.238
		1189.05		-4.345E-02	3.210E-01	5.135E-01	4.150E-02	-0.085
		1221.42	*	9.129E-02	2.184E-01	3.647E-01	2.976E-02	0.250
		1230.97		1.215E-01	4.977E-01	8.205E-01	6.713E-02	0.148
RE-183		57.98		-4.640E-02	1.531E-01	2.493E-01	1.777E-02	-0.186
		59.32		6.849E-02	9.373E-02	1.423E-01	1.008E-02	0.481
		67.20		2.112E-01	1.818E-01	2.773E-01	2.074E-02	0.762
		162.32	*	6.855E-02	1.107E-01	1.805E-01	1.567E-02	0.380
	+	208.81		1.834E+00	1.156E+00	1.795E+00	1.670E-01	1.022
		291.72		-2.128E-02	9.903E-01	1.448E+00	1.431E-01	-0.015
RE-184		57.98		-1.691E-01	5.580E-01	9.084E-01	6.475E-02	-0.186
		59.32		2.494E-01	3.412E-01	5.182E-01	3.668E-02	0.481
		67.20		7.693E-01	6.621E-01	1.010E+00	7.556E-02	0.762

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		161.27		-1.316E-01	3.557E-01	5.551E-01	4.811E-02	-0.237
		216.55		8.342E-02	2.512E-01	4.294E-01	4.037E-02	0.194
		252.85	*	-2.367E-01	2.232E-01	3.525E-01	3.445E-02	-0.672
		318.01		7.783E-02	4.270E-01	7.150E-01	6.890E-02	0.109
		792.07		-5.992E-01	1.137E+00	1.542E+00	1.565E-01	-0.389
		903.28		-1.298E-01	1.062E+00	1.632E+00	1.620E-01	-0.079
		920.93		-6.527E-01	4.740E-01	6.743E-01	6.646E-02	-0.968
		59.72		1.862E-01	2.507E-01	3.809E-01	2.697E-02	0.489
		61.14		1.133E-01	1.407E-01	2.140E-01	1.529E-02	0.530
		69.30		-8.923E-04	2.785E-01	4.076E-01	3.107E-02	-0.002
		592.07		1.779E+00	2.551E+00	4.305E+00	4.206E-01	0.413
		646.12	*	-9.107E-04	3.802E-02	6.394E-02	6.385E-03	-0.014
		717.42		-1.416E-01	8.951E-01	1.481E+00	1.501E-01	-0.096
		874.81		-3.125E-01	5.655E-01	8.853E-01	8.863E-02	-0.353
		880.27		8.268E-01	7.820E-01	1.401E+00	1.401E-01	0.590
RE-188		155.03	*	1.682E-03	1.779E-01	2.832E-01	2.432E-02	0.006
		477.96		-2.741E+00	3.190E+00	4.835E+00	4.394E-01	-0.567
W-188	+	633.10		2.564E+00	2.699E+00	4.647E+00	4.619E-01	0.552
		63.58		1.345E+02	6.097E+01	8.081E+01	5.873E+00	1.665
IR-192	+	227.08		-5.166E+00	1.246E+01	2.060E+01	1.961E+00	-0.251
		290.67	*	3.208E-02	7.864E+00	1.152E+01	1.139E+00	0.003
		295.96		1.304E+00	2.023E-01	3.085E-01	3.055E-02	4.226
		308.46		-6.760E-02	1.131E-01	1.575E-01	1.540E-02	-0.429
		316.51	*	-5.123E-03	3.334E-02	5.480E-02	5.300E-03	-0.093
		468.07		-3.667E-02	7.328E-02	9.850E-02	9.464E-03	-0.372
		604.41		-1.195E-01	5.374E-01	7.311E-01	1.012E-01	-0.164
AU-195		612.46		9.140E-01	8.260E-01	1.273E+00	1.400E-01	0.718
		65.12		1.141E-01	1.607E-01	2.411E-01	1.773E-02	0.473
		66.83		8.951E-02	8.380E-02	1.275E-01	9.505E-03	0.702
	+	75.70		1.637E+00	2.797E-01	4.316E-01	3.513E-02	3.793
		98.88	*	2.028E-01	2.278E-01	3.606E-01	3.176E-02	0.562
TL-200	+	129.76		3.536E+00	3.780E+00	4.855E+00	4.054E-01	0.728
		367.94	*	3.031E-04	3.780E+00	Half-Life	too short	
		579.30		-2.910E-03	3.780E+00	Half-Life	too short	
		828.27		-6.907E-03	3.780E+00	Half-Life	too short	
TL-201		1205.75		-4.118E-03	3.780E+00	Half-Life	too short	
		68.90		-1.349E+00	6.898E+00	1.001E+01	7.604E-01	-0.135
		70.82		-3.082E-01	3.959E+00	5.770E+00	4.463E-01	-0.053
		80.30		-2.362E+00	9.729E+00	1.098E+01	9.425E-01	-0.215
TL-202		135.34		-1.740E+01	3.696E+01	5.782E+01	4.848E+00	-0.301
		167.43	*	2.372E+00	1.063E+01	1.703E+01	1.490E+00	0.139
		68.90		-8.717E-02	4.457E-01	6.468E-01	4.913E-02	-0.135
		70.82		-1.986E-02	2.551E-01	3.718E-01	2.876E-02	-0.053
HG-203		80.30		-1.523E-01	6.271E-01	7.076E-01	6.075E-02	-0.215
		439.56	*	7.254E-02	7.473E-02	1.294E-01	1.137E-02	0.561
		70.83		-7.285E-02	1.020E+00	1.487E+00	1.942E-01	-0.049
		72.87		1.264E+00	5.779E-01	9.672E-01	1.232E-01	1.307
		82.60		-8.251E-02	1.114E+00	1.614E+00	2.240E-01	-0.051
		279.20	*	2.051E-02	4.416E-02	7.510E-02	7.638E-03	0.273

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-207		72.80		3.230E-01	1.746E-01	2.710E-01	2.139E-02	1.192
	+	74.97		9.014E-01	1.540E-01	2.117E-01	1.709E-02	4.259
	+	84.90		3.061E-01	2.194E-01	2.889E-01	2.626E-02	1.059
		569.67		-1.522E-02	3.123E-02	4.817E-02	4.654E-03	-0.316
		1063.62	*	3.097E-02	5.324E-02	9.140E-02	8.253E-03	0.339
		1770.23		3.792E-01	3.420E-01	6.592E-01	5.408E-02	0.575
TL-207		81.07		-1.446E-01	2.696E-01	2.973E-01	2.576E-02	-0.487
	+	83.78		2.018E-01	1.446E-01	1.884E-01	1.688E-02	1.071
		94.90		5.445E-01	2.407E-01	3.759E-01	3.381E-02	1.449
		122.32		1.524E+00	1.739E+00	2.887E+00	2.595E-01	0.528
		144.24		-2.520E-01	7.013E-01	1.086E+00	1.032E-01	-0.232
		154.21		5.615E-01	3.981E-01	6.666E-01	6.291E-02	0.842
	+	269.46		4.246E-01	2.831E-01	3.485E-01	3.504E-02	1.218
		323.87	*	-3.067E-01	7.546E-01	1.061E+00	1.930E-01	-0.289
	+	338.28		9.179E+00	2.162E+00	2.679E+00	3.442E-01	3.427
		445.03		-1.074E+00	2.140E+00	3.349E+00	4.099E-01	-0.321
PO-209		260.50		-4.080E+00	9.100E+00	1.488E+01	1.463E+00	-0.274
		262.80		-1.932E+01	2.579E+01	4.143E+01	4.082E+00	-0.466
		896.60	*	4.131E+00	7.500E+00	1.295E+01	1.288E+00	0.319
BI-210		46.50	*	-3.928E-01	2.141E+00	3.493E+00	3.239E-01	-0.112
PB-210		46.50	*	-3.928E-01	2.141E+00	3.493E+00	3.239E-01	-0.112
PO-210		46.50	*	-3.928E-01	2.141E+00	3.493E+00	2.930E-01	-0.112
PB-211		404.84	*	-7.642E-01	1.051E+00	1.453E+00	9.105E-01	-0.526
		427.08		2.186E-01	1.960E+00	3.216E+00	1.999E+00	0.068
		831.96		-6.805E-01	1.311E+00	1.966E+00	1.237E+00	-0.346
BI-212	+	727.18	*	1.018E+00	5.200E-01	6.839E-01	7.761E-02	1.489
		785.46		1.083E+00	1.780E+00	3.092E+00	3.140E-01	0.350
		1620.62		6.762E-01	1.133E+00	2.044E+00	1.721E-01	0.331
PO-215		81.07		-1.446E-01	2.696E-01	2.973E-01	2.576E-02	-0.487
	+	83.78		2.018E-01	1.446E-01	1.884E-01	1.688E-02	1.071
		94.90		5.445E-01	2.407E-01	3.759E-01	3.381E-02	1.449
		122.32		1.524E+00	1.739E+00	2.887E+00	2.595E-01	0.528
		144.24		-2.520E-01	7.013E-01	1.086E+00	1.032E-01	-0.232
		154.21		5.615E-01	3.981E-01	6.666E-01	6.291E-02	0.842
	+	269.46		4.246E-01	2.831E-01	3.485E-01	3.504E-02	1.218
		323.87	*	-3.067E-01	7.546E-01	1.061E+00	1.930E-01	-0.289
	+	338.28		9.179E+00	2.162E+00	2.679E+00	3.442E-01	3.427
		445.03		-1.074E+00	2.140E+00	3.349E+00	4.099E-01	-0.321
RN-219	+	271.23		5.448E-01	3.644E-01	4.506E-01	5.142E-02	1.209
		401.81	*	-7.819E-02	4.040E-01	6.533E-01	9.753E-02	-0.120
RN-220		549.76	*	-8.276E+00	2.841E+01	4.472E+01	4.273E+00	-0.185
RA-223		81.07		-1.446E-01	2.696E-01	2.973E-01	2.576E-02	-0.487
	+	83.78		2.018E-01	1.446E-01	1.884E-01	1.688E-02	1.071
		94.90		5.445E-01	2.407E-01	3.759E-01	3.381E-02	1.449
		122.32		1.524E+00	1.739E+00	2.887E+00	2.595E-01	0.528
		144.24		-2.520E-01	7.013E-01	1.086E+00	1.032E-01	-0.232
		154.21		5.615E-01	3.981E-01	6.666E-01	6.291E-02	0.842
	+	269.46		4.246E-01	2.831E-01	3.485E-01	3.504E-02	1.218
		323.87	*	-3.067E-01	7.546E-01	1.061E+00	1.930E-01	-0.289

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227	+	338.28		9.179E+00	2.162E+00	2.679E+00	3.442E-01	3.427
		445.03		-1.074E+00	2.140E+00	3.349E+00	4.099E-01	-0.321
		79.80		5.276E-01	1.947E+00	2.275E+00	4.884E-01	0.232
		236.00		5.469E-01	2.680E-01	4.250E-01	5.510E-02	1.287
		256.20	*	1.504E-01	3.672E-01	6.255E-01	1.003E-01	0.240
TH-227		286.10		-7.868E-02	1.474E+00	2.450E+00	3.450E-01	-0.032
	+	299.80		3.614E+00	1.828E+00	2.625E+00	4.755E-01	1.377
		304.40		1.825E+00	2.038E+00	3.127E+00	5.943E-01	0.584
		334.20		-1.893E-01	2.936E+00	3.570E+00	7.062E-01	-0.053
		79.80		5.276E-01	1.947E+00	2.275E+00	4.947E-01	0.232
TH-229	+	94.00		1.302E+01	4.058E+00	3.800E+00	8.340E-01	3.427
		236.00		5.469E-01	2.665E-01	4.250E-01	5.044E-02	1.287
		256.20	*	1.504E-01	3.675E-01	6.255E-01	1.167E-01	0.240
		286.10		-7.868E-02	1.476E+00	2.450E+00	2.462E+00	-0.032
	+	299.80		3.614E+00	1.828E+00	2.625E+00	4.755E-01	1.377
PA-231		304.40		1.825E+00	2.038E+00	3.127E+00	5.943E-01	0.584
		334.20		-1.893E-01	2.936E+00	3.570E+00	7.062E-01	-0.053
	+	85.43		3.021E-01	2.165E-01	3.005E-01	2.750E-02	1.005
	+	88.47		5.833E-01	1.458E-01	2.054E-01	1.934E-02	2.840
		100.00		-2.366E-02	1.800E-01	2.868E-01	2.512E-02	-0.082
TH-231		193.63	*	1.317E-01	4.856E-01	8.313E-01	7.571E-02	0.158
		210.97		6.279E-01	8.098E-01	1.255E+00	1.172E-01	0.500
		283.67	*	-2.954E-01	1.480E+00	2.441E+00	3.897E-01	-0.121
	+	301.29		1.446E+00	7.085E-01	1.056E+00	1.384E-01	1.369
		81.07		-1.446E-01	2.696E-01	2.973E-01	2.576E-02	-0.487
U-231	+	83.78		2.018E-01	1.446E-01	1.884E-01	1.688E-02	1.071
		94.90		5.445E-01	2.407E-01	3.759E-01	3.381E-02	1.449
		122.32		1.524E+00	1.739E+00	2.887E+00	2.595E-01	0.528
		144.24		-2.520E-01	7.013E-01	1.086E+00	1.032E-01	-0.232
		154.21		5.615E-01	3.981E-01	6.666E-01	6.291E-02	0.842
PA-233	+	269.46		4.246E-01	2.831E-01	3.485E-01	3.504E-02	1.218
		323.87	*	-3.067E-01	7.546E-01	1.061E+00	1.930E-01	-0.289
	+	338.28		9.179E+00	2.162E+00	2.679E+00	3.442E-01	3.427
		445.03		-1.074E+00	2.140E+00	3.349E+00	4.099E-01	-0.321
	+	84.21		1.195E+01	8.569E+00	1.117E+01	1.006E+00	1.070
PA-234	+	92.29		1.769E+01	4.229E+00	5.558E+00	5.084E-01	3.183
		95.87	*	-3.060E-02	1.477E+00	2.122E+00	1.898E-01	-0.014
		108.00		-3.848E-01	2.929E+00	4.704E+00	4.008E-01	-0.082
	+	75.28		2.630E+01	5.599E+00	6.315E+00	9.512E-01	4.165
	+	86.59		8.363E+00	2.980E+00	2.863E+00	7.741E-01	2.922
PA-234	+	300.12		1.008E+00	5.010E-01	7.314E-01	1.141E-01	1.378
		311.98	*	4.385E-02	6.226E-02	1.070E-01	1.061E-02	0.410
		340.50		2.358E+00	8.939E-01	1.226E+00	2.954E-01	1.923
		398.62		-1.097E+00	2.086E+00	3.269E+00	8.686E-01	-0.336
		415.76		-9.801E-01	1.664E+00	2.594E+00	5.587E-01	-0.378
PA-234	+	63.00		3.827E+00	1.803E+00	2.358E+00	3.485E-01	1.623
		94.67		5.744E-01	1.888E-01	2.875E-01	3.644E-02	1.998
		98.44		7.198E-02	9.853E-02	1.424E-01	7.947E-02	0.506
		99.86		-7.190E-02	4.558E-01	7.255E-01	6.360E-02	-0.099

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

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00	-6.279E-02	1.852E-01	2.943E-01	3.525E-02	-0.213
		131.20	-5.002E-02	1.136E-01	1.577E-01	1.318E-02	-0.317
		152.70	2.858E-01	3.237E-01	5.295E-01	9.009E-02	0.540
	+	186.00	5.554E+00	2.522E+00	2.669E+00	8.360E-01	2.081
		226.40	-3.631E-01	3.865E-01	6.187E-01	8.541E-02	-0.587
		227.20	-1.893E-01	4.146E-01	6.836E-01	6.511E-02	-0.277
		248.90	-4.512E-02	7.802E-01	1.305E+00	2.983E-01	-0.035
		293.70	5.863E+00	1.404E+00	1.758E+00	3.156E-01	3.336
		369.80	-7.209E-01	8.513E-01	1.302E+00	2.846E-01	-0.554
		568.70	-6.719E-01	1.020E+00	1.550E+00	1.497E-01	-0.433
		569.50	-2.398E-01	2.829E-01	4.226E-01	4.082E-02	-0.568
		574.00	1.765E+00	1.466E+00	2.556E+00	2.475E-01	0.690
		699.00	2.753E-02	6.887E-01	1.158E+00	2.293E-01	0.024
		706.10	3.367E-01	1.056E+00	1.790E+00	8.039E-01	0.188
		733.00	1.094E-01	3.995E-01	5.982E-01	1.366E-01	0.183
		742.81	1.745E-01	1.224E+00	2.060E+00	1.389E+00	0.085
	+	796.30	2.407E+00	1.249E+00	1.883E+00	5.192E-01	1.278
		805.60	2.324E-01	9.800E-01	1.656E+00	5.153E-01	0.140
		819.60	5.709E-01	1.145E+00	1.951E+00	7.491E-01	0.293
		826.30	2.397E-01	8.022E-01	1.353E+00	6.097E-01	0.177
		831.60	-3.161E-01	6.477E-01	1.021E+00	3.094E-01	-0.310
		876.40	3.219E-01	8.895E-01	1.411E+00	1.453E+00	0.228
		880.51	2.111E-01	2.792E-01	4.900E-01	4.898E-02	0.431
		883.24	-2.000E-01	3.156E-01	4.418E-01	2.978E-01	-0.453
		899.00	-3.959E-01	8.589E-01	1.331E+00	5.854E-01	-0.298
		925.00	-4.454E-01	1.110E+00	1.757E+00	1.729E-01	-0.254
		926.50	6.881E-02	1.608E-01	2.744E-01	7.056E-02	0.251
		946.00	* -1.394E-01	3.054E-01	4.798E-01	9.264E-02	-0.290
		949.00	2.537E-01	4.584E-01	7.888E-01	7.679E-02	0.322
		980.50	-7.681E-01	7.367E-01	1.081E+00	1.035E-01	-0.711
PA-234M		1394.10	-6.462E-01	9.874E-01	1.324E+00	8.612E-01	-0.488
		766.42	2.204E+01	1.696E+01	2.151E+01	1.098E+01	1.025
		1001.03	* 7.000E+00	4.854E+00	8.795E+00	9.408E-01	0.796
U-235	+	89.95	3.613E+00	1.630E+00	1.801E+00	5.594E-01	2.006
	+	93.35	4.051E+00	1.451E+00	1.269E+00	3.574E-01	3.193
		105.00	4.410E-01	1.093E+00	1.779E+00	5.307E-01	0.248
		143.76	* -6.470E-02	2.156E-01	3.347E-01	5.832E-02	-0.193
		163.35	3.345E-01	4.735E-01	7.691E-01	1.470E-01	0.435
	+	185.71	2.057E-01	7.012E-02	9.836E-02	8.852E-03	2.091
		205.31	3.689E-01	5.780E-01	8.846E-01	1.714E-01	0.417
NP-236		94.67	4.391E-01	1.380E-01	2.184E-01	1.967E-02	2.010
		98.44	5.436E-02	6.818E-02	1.076E-01	9.496E-03	0.505
		111.00	-4.749E-02	1.400E-01	2.226E-01	1.884E-02	-0.213
		160.31	* -1.014E-01	8.120E-02	1.208E-01	1.045E-02	-0.840
NP-239		99.55	3.169E-02	1.512E-01	2.442E-01	2.143E-02	0.130
		117.00	* 8.567E-02	1.823E-01	2.989E-01	2.505E-02	0.287
	+	209.75	1.419E+00	8.947E-01	1.385E+00	1.290E-01	1.025
		228.18	2.865E-02	2.170E-01	3.672E-01	3.501E-02	0.078
		277.60	4.233E-01	1.960E-01	3.488E-01	3.469E-02	1.214



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.30		-7.220E-02	1.665E+00	2.029E+00	1.913E-01	-0.036
AM-241		59.54	*	9.593E-02	1.301E-01	1.976E-01	1.546E-02	0.486
CM-243		99.55		3.261E-02	1.556E-01	2.513E-01	2.206E-02	0.130
		103.76	*	8.083E-02	9.612E-02	1.599E-01	1.380E-02	0.505
		117.00		8.815E-02	1.876E-01	3.076E-01	2.577E-02	0.287
	+	209.75		1.399E+00	8.821E-01	1.365E+00	1.272E-01	1.025
		228.18		2.895E-02	2.192E-01	3.711E-01	3.538E-02	0.078
		277.60		4.268E-01	1.976E-01	3.516E-01	3.498E-02	1.214
AM-246		798.80		-2.644E-02	1.632E-01	2.315E-01	2.350E-02	-0.114
		1036.00		-8.924E-02	2.933E-01	4.652E-01	4.294E-02	-0.192
		1062.04		-2.365E-01	2.354E-01	3.453E-01	3.122E-02	-0.685
		1078.86	*	2.442E-01	1.451E-01	2.691E-01	2.397E-02	0.908
CM-247		278.00		1.634E+00	8.102E-01	1.438E+00	1.431E-01	1.136
		287.40		-3.145E-01	1.184E+00	1.944E+00	1.927E-01	-0.162
		402.60	*	-7.636E-03	3.561E-02	5.750E-02	4.862E-03	-0.133
CF-249		252.85		-8.813E-01	8.308E-01	1.312E+00	1.282E-01	-0.672
		333.44		1.091E-01	2.355E-01	2.639E-01	2.491E-02	0.413
		387.95	*	4.871E-02	3.920E-02	6.878E-02	5.804E-03	0.708
CF-251		176.60	*	1.257E-01	1.304E-01	2.146E-01	1.904E-02	0.586
		227.00		-1.577E-01	3.666E-01	6.053E-01	5.763E-02	-0.261
		285.00		-2.415E-01	1.689E+00	2.794E+00	2.773E-01	-0.086

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341007      *
* Acquisition date   : 18-FEB-2010 13:12:54 Detector SN# :                  *
* Detector ID        : GAM20 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:34.67 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                          *
*
* Sample date       : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G246341007 Analyst initials: MXR1                 *
* Batch Number      : 950786 Sample Quantity : 1.2762E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                              *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME : 26-AUG-2009 06:32:11 MS Isotope :                  *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.691E+01	3.656E+00	4.750E-01	0.000E+00
CD-109	4.359E+00	1.068E+00	1.123E+00	0.000E+00
SN-126	4.272E-01	1.046E-01	1.104E-01	0.000E+00
TL-208	6.637E-01	1.025E-01	5.291E-02	0.000E+00
BI-211	4.627E+00	6.283E-01	3.271E-01	0.000E+00
PB-212	1.981E+00	2.352E-01	9.193E-02	0.000E+00
PO-212	1.981E+00	2.352E-01	9.193E-02	0.000E+00
BI-214	1.500E+00	2.274E-01	1.051E-01	0.000E+00
PB-214	1.609E+00	2.335E-01	1.140E-01	0.000E+00
PO-214	1.609E+00	2.335E-01	1.140E-01	0.000E+00
PO-216	1.981E+00	2.352E-01	9.193E-02	0.000E+00
PO-218	1.609E+00	2.335E-01	1.140E-01	0.000E+00
RA-224	4.879E+00	1.244E+00	1.046E+00	0.000E+00
RA-226	1.500E+00	2.274E-01	1.051E-01	0.000E+00
AC-228	2.079E+00	3.667E-01	2.004E-01	0.000E+00
TH-228	2.079E+00	3.667E-01	2.004E-01	0.000E+00
TH-228	2.015E+00	2.392E-01	9.350E-02	0.000E+00
TH-230	1.500E+00	2.274E-01	1.051E-01	0.000E+00
TH-232	2.079E+00	3.667E-01	2.004E-01	0.000E+00
TH-234	3.283E+00	1.544E+00	1.763E+00	0.000E+00
U-234	1.500E+00	2.274E-01	1.051E-01	0.000E+00
NP-237	1.254E+00	3.984E-01	3.265E-01	0.000E+00
U-238	3.283E+00	1.544E+00	1.763E+00	0.000E+00
AM-243	5.021E-01	8.408E-02	8.063E-02	0.000E+00
ANH-511	1.858E-01	6.750E-02	4.323E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-2.996E-01	3.259E-01	5.105E-01	0.000E+00 NOT IDENT.
NA-22	3.805E-02	4.865E-02	8.554E-02	0.000E+00 NOT IDENT.

NA-24	0.000E+00	5.968E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	8.251E-03	2.444E-02	4.370E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.562E-02	8.059E-02	0.000E+00	FAIL ABUN
SC-46	-5.773E-03	3.845E-02	6.446E-02	0.000E+00	FAIL ABUN
V-48	1.172E-01	7.298E-02	1.391E-01	0.000E+00	NOT IDENT.
CR-51	1.364E-01	3.768E-01	6.641E-01	0.000E+00	NOT IDENT.
MN-52	1.465E-01	2.647E-01	4.829E-01	0.000E+00	NOT IDENT.
MN-54	3.133E-03	3.944E-02	6.773E-02	0.000E+00	NOT IDENT.
CO-56	3.135E-02	3.878E-02	7.023E-02	0.000E+00	NOT IDENT.
CO-57	1.505E-02	2.495E-02	4.345E-02	0.000E+00	NOT IDENT.
CO-58	-8.567E-03	3.773E-02	6.333E-02	0.000E+00	NOT IDENT.
FE-59	-8.041E-03	9.397E-02	1.556E-01	0.000E+00	NOT IDENT.
CO-60	-1.530E-02	3.968E-02	6.209E-02	0.000E+00	NOT IDENT.
ZN-65	-5.721E-02	1.077E-01	1.447E-01	0.000E+00	NOT IDENT.
GE-68	6.058E-01	1.304E+00	2.266E+00	0.000E+00	NOT IDENT.
AS-73	-1.168E-01	5.784E-01	1.015E+00	0.000E+00	NOT IDENT.
AS-74	-3.434E-03	9.887E-02	1.633E-01	0.000E+00	NOT IDENT.
SE-75	-1.757E-03	4.482E-02	7.268E-02	0.000E+00	NOT IDENT.
BR-77	-1.907E+01	1.824E+01	2.792E+01	0.000E+00	FAIL ABUN
SR-82	-3.974E-01	4.651E-01	6.247E-01	0.000E+00	NOT IDENT.
RB-83	-7.681E-02	6.981E-02	1.063E-01	0.000E+00	NOT IDENT.
RB-84	-1.356E-02	7.198E-02	1.204E-01	0.000E+00	NOT IDENT.
KR-85	8.656E+00	8.002E+00	1.279E+01	0.000E+00	NOT IDENT.
SR-85	4.529E-02	4.187E-02	6.694E-02	0.000E+00	NOT IDENT.
RB-86	5.328E-02	9.087E-01	1.527E+00	0.000E+00	NOT IDENT.
Y-88	-1.546E-04	3.081E-02	5.139E-02	0.000E+00	NOT IDENT.
ZR-88	-1.938E-03	2.938E-02	4.995E-02	0.000E+00	NOT IDENT.
Y-91	-1.753E+01	2.085E+01	3.203E+01	0.000E+00	NOT IDENT.
NB-94	-1.733E-03	3.268E-02	5.633E-02	0.000E+00	NOT IDENT.
NB-95	3.100E-02	4.621E-02	7.371E-02	0.000E+00	NOT IDENT.
NB-95M	1.086E-01	1.332E-01	2.157E-01	0.000E+00	NOT IDENT.
ZR-95	-1.072E-02	6.994E-02	1.189E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.387E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.263E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.316E-01	1.694E+01	2.922E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.908E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.654E-03	3.198E-02	5.648E-02	0.000E+00	FAIL ABUN
RH-102	7.158E-03	2.782E-02	4.772E-02	0.000E+00	NOT IDENT.
RU-103	-1.232E-02	3.870E-02	6.331E-02	0.000E+00	FAIL ABUN
RH-106	2.048E-02	3.073E-01	5.103E-01	0.000E+00	FAIL ABUN
RU-106	2.048E-02	3.073E-01	5.103E-01	0.000E+00	FAIL ABUN
AG-108M	5.865E-03	2.935E-02	5.048E-02	0.000E+00	NOT IDENT.
AG-110M	-3.355E-02	3.436E-02	5.533E-02	0.000E+00	NOT IDENT.
IN-111	9.776E-01	1.751E+00	2.806E+00	0.000E+00	NOT IDENT.
IN-113M	-4.941E-02	4.266E-02	6.702E-02	0.000E+00	NOT IDENT.
SN-113	-4.941E-02	4.266E-02	6.702E-02	0.000E+00	NOT IDENT.
IN-114M	-9.046E-02	1.991E-01	3.061E-01	0.000E+00	NOT IDENT.
CD-115	4.929E-01	1.949E+01	3.265E+01	0.000E+00	NOT IDENT.
SN-117M	4.936E-02	5.816E-02	1.010E-01	0.000E+00	NOT IDENT.
SB-122	2.933E+00	3.430E+00	6.039E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.475E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.174E-02	2.791E-02	4.766E-02	0.000E+00	NOT IDENT.
I-124	5.616E-01	1.041E+00	1.583E+00	0.000E+00	NOT IDENT.
SB-124	7.387E-03	7.190E-02	1.230E-01	0.000E+00	FAIL ABUN
SB-125	2.449E-02	8.665E-02	1.498E-01	0.000E+00	FAIL ABUN
TE-125M	1.068E+01	9.406E+00	1.667E+01	0.000E+00	NOT IDENT.
I-126	2.244E-02	1.951E-01	3.415E-01	0.000E+00	NOT IDENT.
SB-126	-8.900E-02	1.678E-01	2.498E-01	0.000E+00	FAIL ABUN
SB-127	6.559E-01	1.864E+00	3.309E+00	0.000E+00	NOT IDENT.
XE-127	-1.008E-02	4.763E-02	8.403E-02	0.000E+00	NOT IDENT.
I-131	9.520E-02	1.298E-01	2.318E-01	0.000E+00	NOT IDENT.
TE-132	6.440E-02	9.833E-01	1.742E+00	0.000E+00	NOT IDENT.
BA-133	3.232E-03	4.528E-02	6.870E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.786E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.490E-02	9.724E-02	0.000E+00	FAIL ABUN
CS-135	2.234E-01	1.696E-01	2.800E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.663E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.076E-02	1.139E-01	1.825E-01	0.000E+00	FAIL ABUN
BA-137M	5.771E-04	3.510E-02	6.106E-02	0.000E+00	NOT IDENT.
CS-137	6.100E-04	3.710E-02	6.455E-02	0.000E+00	NOT IDENT.
CE-139	-1.893E-02	2.940E-02	4.766E-02	0.000E+00	NOT IDENT.
BA-140	1.564E-01	2.891E-01	4.943E-01	0.000E+00	NOT IDENT.
LA-140	-8.043E-02	9.893E-02	1.161E-01	0.000E+00	FAIL ABUN
CE-141	2.257E-02	6.508E-02	1.097E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	5.857E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.584E-02	1.985E-01	3.176E-01	0.000E+00	NOT IDENT.
PM-144	-1.537E-02	3.282E-02	5.484E-02	0.000E+00	NOT IDENT.
PR-144	-1.043E+00	2.226E+00	3.720E+00	0.000E+00	NOT IDENT.

PM-146	1.517E-02	4.257E-02	7.363E-02	0.000E+00	NOT IDENT.
ND-147	-6.380E-01	6.178E-01	9.337E-01	0.000E+00	FAIL ABUN
PM-149	-2.415E+01	1.585E+02	2.741E+02	0.000E+00	NOT IDENT.
EU-152	-5.013E-02	9.871E-02	1.516E-01	0.000E+00	FAIL ABUN
GD-153	-6.081E-02	8.328E-02	1.220E-01	0.000E+00	FAIL ABUN
EU-154	1.263E-01	1.345E-01	2.389E-01	0.000E+00	NOT IDENT.
EU-155	6.391E-02	1.090E-01	1.907E-01	0.000E+00	FAIL ABUN
TB-160	1.597E-01	1.412E-01	2.607E-01	0.000E+00	FAIL ABUN
HO-166M	-4.153E-02	5.907E-02	9.659E-02	0.000E+00	FAIL ABUN
TM-171	6.651E+00	2.537E+01	3.994E+01	0.000E+00	NOT IDENT.
LU-176	-1.143E-02	2.691E-02	3.972E-02	0.000E+00	FAIL ABUN
LU-177	2.444E+00	1.510E+00	2.519E+00	0.000E+00	FAIL ABUN
LU-177M	-1.494E-01	1.844E-01	2.978E-01	0.000E+00	NOT IDENT.
HF-181	3.308E-02	4.192E-02	7.432E-02	0.000E+00	NOT IDENT.
W-181	1.839E-01	3.395E-01	5.408E-01	0.000E+00	NOT IDENT.
TA-182	9.129E-02	2.140E-01	3.657E-01	0.000E+00	FAIL ABUN
RE-183	6.855E-02	1.085E-01	1.866E-01	0.000E+00	FAIL ABUN
RE-184	-2.367E-01	2.187E-01	3.620E-01	0.000E+00	NOT IDENT.
OS-185	-9.107E-04	3.726E-02	6.475E-02	0.000E+00	NOT IDENT.
RE-188	1.682E-03	1.743E-01	2.930E-01	0.000E+00	NOT IDENT.
W-188	3.208E-02	7.707E+00	1.181E+01	0.000E+00	FAIL ABUN
IR-192	-5.123E-03	3.267E-02	5.609E-02	0.000E+00	FAIL ABUN
AU-195	2.028E-01	2.232E-01	3.755E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.485E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.372E+00	1.041E+01	1.760E+01	0.000E+00	NOT IDENT.
TL-202	7.254E-02	7.324E-02	1.318E-01	0.000E+00	NOT IDENT.
HG-203	2.051E-02	4.328E-02	7.701E-02	0.000E+00	NOT IDENT.
BI-207	3.097E-02	5.218E-02	9.185E-02	0.000E+00	FAIL ABUN
TL-207	-3.067E-01	7.395E-01	1.086E+00	0.000E+00	FAIL ABUN
PO-209	4.131E+00	7.350E+00	1.305E+01	0.000E+00	NOT IDENT.
BI-210	-3.928E-01	2.098E+00	3.676E+00	0.000E+00	NOT IDENT.
PB-210	-3.928E-01	2.098E+00	3.676E+00	0.000E+00	NOT IDENT.
PO-210	-3.928E-01	2.098E+00	3.676E+00	0.000E+00	NOT IDENT.
PB-211	-7.642E-01	1.030E+00	1.482E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.096E-01	6.912E-01	0.000E+00	FAIL ABUN
PO-215	-3.067E-01	7.395E-01	1.086E+00	0.000E+00	FAIL ABUN
RN-219	-7.819E-02	3.959E-01	6.663E-01	0.000E+00	FAIL ABUN
RN-220	-8.276E+00	2.784E+01	4.540E+01	0.000E+00	NOT IDENT.
RA-223	-3.067E-01	7.395E-01	1.086E+00	0.000E+00	FAIL ABUN
AC-227	1.504E-01	3.599E-01	6.422E-01	0.000E+00	FAIL ABUN
TH-227	1.504E-01	3.602E-01	6.422E-01	0.000E+00	FAIL ABUN
TH-229	1.317E-01	4.759E-01	8.571E-01	0.000E+00	FAIL ABUN
PA-231	-2.954E-01	1.450E+00	2.502E+00	0.000E+00	FAIL ABUN
TH-231	-3.067E-01	7.395E-01	1.086E+00	0.000E+00	FAIL ABUN
U-231	-3.060E-02	1.448E+00	2.210E+00	0.000E+00	FAIL ABUN
PA-233	4.385E-02	6.101E-02	1.095E-01	0.000E+00	FAIL ABUN
PA-234	-1.394E-01	2.993E-01	4.830E-01	0.000E+00	FAIL ABUN
PA-234M	7.000E+00	4.757E+00	8.846E+00	0.000E+00	NOT IDENT.
U-235	-6.470E-02	2.113E-01	3.466E-01	0.000E+00	FAIL ABUN
NP-236	-1.014E-01	7.957E-02	1.249E-01	0.000E+00	NOT IDENT.
NP-239	8.567E-02	1.786E-01	3.105E-01	0.000E+00	FAIL ABUN
AM-241	9.593E-02	1.275E-01	2.072E-01	0.000E+00	NOT IDENT.
CM-243	8.083E-02	9.420E-02	1.664E-01	0.000E+00	FAIL ABUN
AM-246	2.442E-01	1.422E-01	2.703E-01	0.000E+00	NOT IDENT.
CM-247	-7.636E-03	3.489E-02	5.864E-02	0.000E+00	NOT IDENT.
CF-249	4.871E-02	3.841E-02	7.019E-02	0.000E+00	NOT IDENT.
CF-251	1.257E-01	1.278E-01	2.216E-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]G246341007.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:12:54
Sample ID          : G246341007      Sample quantity   : 1.27620E+02 GRAM
Detector name      : GAM20            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:34.67  0.5%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 950786            Detector SN#     :
Matrix Spike ID    :                   LCS ID          : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1678	10.67*	1.253E+00	3.691E+01	3.691E+01	10.11
CD-109	88.03	373	3.72*	6.939E+00	4.249E+00	4.359E+00	24.99
SN-126	64.28	198	9.60	4.658E+00	1.299E+00	1.299E+00	47.02
	86.94	373	8.90	6.939E+00	1.776E+00	1.776E+00	47.55
	87.57	373	37.00*	6.939E+00	4.272E-01	4.272E-01	24.99
TL-208	277.35	----	6.80	4.722E+00	-----	Line Not Found	-----
	510.84	189	21.60	2.994E+00	8.603E-01	8.603E-01	37.99
	583.14	512	84.20*	2.696E+00	6.637E-01	6.637E-01	15.76
	860.37	30	12.46	1.952E+00	3.584E-01	3.584E-01	144.91
BI-211	72.87	----	1.27	5.845E+00	-----	Line Not Found	-----
	351.07	808	12.94*	3.970E+00	4.627E+00	4.627E+00	13.86
PB-212	74.81	682	10.70	6.055E+00	3.097E+00	3.097E+00	19.48
	77.11	898	18.00	6.264E+00	2.343E+00	2.343E+00	13.12
	87.30	373	8.00	6.939E+00	1.976E+00	1.976E+00	26.92
	238.63	1576	44.60*	5.249E+00	1.981E+00	1.981E+00	12.12
	300.09	101	3.41	4.461E+00	1.950E+00	1.950E+00	48.59
PO-212	74.81	682	10.70	6.055E+00	3.097E+00	3.097E+00	19.48
	77.11	898	18.00	6.264E+00	2.343E+00	2.343E+00	13.12
	87.30	373	8.00	6.939E+00	1.976E+00	1.976E+00	26.92
	115.19	----	0.60	7.430E+00	-----	Line Not Found	-----
	238.63	1576	44.60*	5.249E+00	1.981E+00	1.981E+00	12.12
	300.09	101	3.41	4.461E+00	1.950E+00	1.950E+00	48.59
BI-214	609.31	615	46.30*	2.603E+00	1.500E+00	1.500E+00	15.47
	1120.29	143	15.10	1.557E+00	1.791E+00	1.791E+00	32.01
	1764.49	114	15.80	1.100E+00	1.924E+00	1.924E+00	23.70
PB-214	74.81	682	6.21	6.055E+00	5.337E+00	5.337E+00	18.62
	77.11	898	10.50	6.264E+00	4.017E+00	4.017E+00	15.18
	87.30	373	4.67	6.939E+00	3.385E+00	3.385E+00	26.15
	241.98	341	7.49	5.205E+00	2.573E+00	2.573E+00	26.61
	295.21	495	19.20	4.514E+00	1.679E+00	1.679E+00	16.69
	351.92	808	37.20*	3.970E+00	1.609E+00	1.609E+00	14.81
PO-214	74.81	682	6.21	6.055E+00	5.337E+00	5.337E+00	18.62

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	898	10.50	6.264E+00	4.017E+00	4.017E+00	15.18
	87.30	373	4.67	6.939E+00	3.385E+00	3.385E+00	26.15
	241.98	341	7.49	5.205E+00	2.573E+00	2.573E+00	26.61
	295.21	495	19.20	4.514E+00	1.679E+00	1.679E+00	16.69
	351.92	808	37.20*	3.970E+00	1.609E+00	1.609E+00	14.81
	74.81	682	10.70	6.055E+00	3.097E+00	3.097E+00	19.48
	77.11	898	18.00	6.264E+00	2.343E+00	2.343E+00	13.12
	87.30	373	8.00	6.939E+00	1.976E+00	1.976E+00	26.92
	238.63	1576	44.60*	5.249E+00	1.981E+00	1.981E+00	12.12
	300.09	101	3.41	4.461E+00	1.950E+00	1.950E+00	48.59
PO-218	74.81	682	6.21	6.055E+00	5.337E+00	5.337E+00	18.62
	77.11	898	10.50	6.264E+00	4.017E+00	4.017E+00	15.18
	87.30	373	4.67	6.939E+00	3.385E+00	3.385E+00	26.15
	241.98	341	7.49	5.205E+00	2.573E+00	2.573E+00	26.61
	295.21	495	19.20	4.514E+00	1.679E+00	1.679E+00	16.69
	351.92	808	37.20*	3.970E+00	1.609E+00	1.609E+00	14.81
	240.98	341	3.95*	5.205E+00	4.879E+00	4.879E+00	26.02
RA-224	609.31	615	46.30*	2.603E+00	1.500E+00	1.500E+00	15.47
RA-226	1120.29	143	15.10	1.557E+00	1.791E+00	1.791E+00	32.01
AC-228	1764.49	114	15.80	1.100E+00	1.924E+00	1.924E+00	23.70
	338.32	348	11.40	4.086E+00	2.198E+00	2.198E+00	45.89
	911.07	364	27.70*	1.860E+00	2.079E+00	2.079E+00	18.00
	969.11	201	16.60	1.764E+00	2.022E+00	2.022E+00	30.38
RA-228	338.32	348	11.40	4.086E+00	2.198E+00	2.198E+00	45.89
	911.07	364	27.70*	1.860E+00	2.079E+00	2.079E+00	18.00
	969.11	201	16.60	1.764E+00	2.022E+00	2.022E+00	30.38
TH-228	74.81	682	10.70	6.055E+00	3.097E+00	3.150E+00	17.12
	77.11	898	18.00	6.264E+00	2.343E+00	2.383E+00	13.12
	87.30	373	8.00	6.939E+00	1.976E+00	2.010E+00	24.99
	238.63	1576	44.60*	5.249E+00	1.981E+00	2.015E+00	12.12
TH-230	300.09	101	3.41	4.461E+00	1.950E+00	1.983E+00	75.93
	609.31	615	46.30*	2.603E+00	1.500E+00	1.500E+00	15.47
	1120.29	143	15.10	1.557E+00	1.791E+00	1.791E+00	32.01
	1764.49	114	15.80	1.100E+00	1.924E+00	1.924E+00	23.70
TH-232	338.32	348	11.40	4.086E+00	2.198E+00	2.198E+00	21.86
	911.07	364	27.70*	1.860E+00	2.079E+00	2.079E+00	18.00
	969.11	201	16.60	1.764E+00	2.022E+00	2.022E+00	30.38
TH-234	63.29	198	3.80*	4.658E+00	3.283E+00	3.283E+00	48.00
	92.38	445	5.41	7.172E+00	3.370E+00	3.370E+00	28.70
U-234	609.31	615	46.30*	2.603E+00	1.500E+00	1.500E+00	15.47
	1120.29	143	15.10	1.557E+00	1.791E+00	1.791E+00	32.01
	1764.49	114	15.80	1.100E+00	1.924E+00	1.924E+00	23.70
NP-237	86.50	373	12.60*	6.939E+00	1.254E+00	1.254E+00	32.41
	95.87	-----	2.60	7.260E+00	-----	Line Not Found	-----
U-238	63.29	198	3.80*	4.658E+00	3.283E+00	3.283E+00	48.00
	92.38	445	5.41	7.172E+00	3.370E+00	3.370E+00	23.90
AM-243	74.67	682	66.00*	6.055E+00	5.021E-01	5.021E-01	17.09
	86.72	373	0.34	6.939E+00	4.704E+01	4.704E+01	24.99
	117.66	-----	0.55	7.416E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	142.18	-----	0.13	7.067E+00	-----	Line Not Found	-----
ANH-511	511.00	189	100.00*	2.994E+00	1.858E-01	1.858E-01	37.07

Flag: "\*" = Keyline

Total number of lines in spectrum 35  
Number of unidentified lines 3  
Number of lines tentatively identified by NID 32 91.43%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.691E+01	3.691E+01	0.373E+01	10.11	
CD-109	464.00D	1.03	4.249E+00	4.359E+00	1.089E+00	24.99	
SN-126	1.00E+05Y	1.00	4.272E-01	4.272E-01	1.068E-01	24.99	
TL-208	1.41E+10Y	1.00	6.637E-01	6.637E-01	1.046E-01	15.76	
BI-211	7.04E+08Y	1.00	4.627E+00	4.627E+00	0.641E+00	13.86	
PB-212	1.41E+10Y	1.00	1.981E+00	1.981E+00	0.240E+00	12.12	
PO-212	1.41E+10Y	1.00	1.981E+00	1.981E+00	0.240E+00	12.12	
BI-214	1600.00Y	1.00	1.500E+00	1.500E+00	0.232E+00	15.47	
PB-214	1600.00Y	1.00	1.609E+00	1.609E+00	0.238E+00	14.81	
PO-214	1600.00Y	1.00	1.609E+00	1.609E+00	0.238E+00	14.81	
PO-216	1.41E+10Y	1.00	1.981E+00	1.981E+00	0.240E+00	12.12	
PO-218	1600.00Y	1.00	1.609E+00	1.609E+00	0.238E+00	14.81	
RA-224	1.41E+10Y	1.00	4.879E+00	4.879E+00	1.269E+00	26.02	
RA-226	1600.00Y	1.00	1.500E+00	1.500E+00	0.232E+00	15.47	
AC-228	1.41E+10Y	1.00	2.079E+00	2.079E+00	0.374E+00	18.00	
RA-228	1.41E+10Y	1.00	2.079E+00	2.079E+00	0.374E+00	18.00	
TH-228	1.91Y	1.02	1.981E+00	2.015E+00	0.244E+00	12.12	
TH-230	4.47E+09Y	1.00	1.500E+00	1.500E+00	0.232E+00	15.47	
TH-232	1.41E+10Y	1.00	2.079E+00	2.079E+00	0.374E+00	18.00	
TH-234	4.47E+09Y	1.00	3.283E+00	3.283E+00	1.576E+00	48.00	
U-234	4.47E+09Y	1.00	1.500E+00	1.500E+00	0.232E+00	15.47	
NP-237	2.14E+06Y	1.00	1.254E+00	1.254E+00	0.407E+00	32.41	
U-238	4.47E+09Y	1.00	3.283E+00	3.283E+00	1.576E+00	48.00	
AM-243	7380.00Y	1.00	5.021E-01	5.021E-01	0.858E-01	17.09	
ANH-511	1.00E+09Y	1.00	1.858E-01	1.858E-01	0.689E-01	37.07	

Total Activity : 8.526E+01 8.540E+01

Grand Total Activity : 8.526E+01 8.540E+01

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

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



It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	84.46	115	554	1.31	168.83	164	28	1.60E-02	71.1	6.79E+00	T
5	89.92	234	423	1.11	179.74	164	28	3.25E-02	32.7	7.06E+00	T
0	128.66	67	392	0.74	257.11	254	8	9.25E-03	****	7.30E+00	T
0	185.86	233	338	1.05	371.35	367	9	3.24E-02	32.9	6.18E+00	T
0	209.20	90	250	0.96	417.96	415	7	1.25E-02	62.3	5.73E+00	T
0	270.53	94	248	1.10	540.48	535	10	1.31E-02	65.9	4.81E+00	T
0	327.91	99	186	1.11	655.11	651	11	1.38E-02	57.9	4.18E+00	T
0	463.24	131	153	1.41	925.50	918	16	1.83E-02	45.5	3.23E+00	T
0	727.71	92	108	1.27	1454.15	1447	12	1.28E-02	49.8	2.25E+00	T
0	769.12	100	104	1.59	1536.94	1528	18	1.39E-02	51.6	2.15E+00	
0	795.29	67	48	0.97	1589.27	1585	8	9.26E-03	44.0	2.09E+00	T
1	965.16	56	64	1.84	1929.01	1924	20	7.74E-03	62.0	1.77E+00	T
0	1002.64	67	72	3.89	2003.97	1995	19	9.32E-03	66.2	1.71E+00	T
0	1592.47	14	17	1.10	3184.52	3180	10	1.92E-03	****	1.18E+00	
0	1730.04	18	10	1.73	3460.06	3453	11	2.46E-03	86.2	1.11E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341007.CNF;1 *
* Acquisition date   : 18-FEB-2010 13:12:54 Detector SN#      :              *
* Detector ID        : GAM20                      Sensitivity   : 5.00000      *
* Geometry           : CAN                      Energy tolerance: 1.50000      *
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000      *
* Elapsed real time  : 0 02:00:34.67             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 1-FEB-2010 12:00:00. Nuclide Library : SOLID          *
* Sample ID           : G246341007             Analyst initials: MXR1         *
* Batch Number        : 950786                 Sample Quantity : 1.27620E+02 GRAM *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 26-AUG-2009 06:32:11.7MS Isotope      :              *
* MSD ID              :                      MSD Isotope       :              *
* LCS ID              : 1032-A                 LCS Isotope      :              *
*****

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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	3.691E+01	3.731E+00	4.750E-01	4.142E-02	77.717
CD-109	4.359E+00	1.089E+00	1.077E+00	1.018E-01	4.048
SN-126	4.272E-01	1.068E-01	1.058E-01	9.954E-03	4.037
TL-208	6.637E-01	1.046E-01	5.217E-02	5.363E-03	12.724
BI-211	4.627E+00	6.411E-01	3.201E-01	3.066E-02	14.456
PB-212	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
PO-212	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
BI-214	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
PB-214	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
PO-214	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
PO-216	1.981E+00	2.400E-01	8.944E-02	9.511E-03	22.145
PO-218	1.609E+00	2.383E-01	1.116E-01	1.216E-02	14.427
RA-224	4.879E+00	1.269E+00	1.018E+00	9.836E-02	4.795
RA-226	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
AC-228	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
RA-228	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
TH-228	2.015E+00	2.441E-01	9.097E-02	9.674E-03	22.145
TH-230	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	2.079E+00	3.742E-01	1.990E-01	2.437E-02	10.448
TH-234	3.283E+00	1.576E+00	1.682E+00	2.923E-01	1.951
U-234	1.500E+00	2.320E-01	1.037E-01	1.154E-02	14.459
NP-237	1.254E+00	4.066E-01	3.130E-01	7.081E-02	4.008
U-238	3.283E+00	1.576E+00	1.682E+00	2.923E-01	1.951
AM-243	5.021E-01	8.579E-02	7.713E-02	6.208E-03	6.510
ANH-511	1.858E-01	6.888E-02	4.254E-02	3.964E-03	4.368

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.996E-01		3.326E-01	5.018E-01	4.878E-02	-0.597
NA-22	3.805E-02		4.965E-02	8.537E-02	7.072E-03	0.446
NA-24	1.449E+00		3.045E+00	Half-Life too short		
AL-26	8.251E-03		2.494E-02	4.385E-02	3.562E-03	0.188
TI-44	4.324E-01	+	5.675E-02	7.715E-02	6.475E-03	5.605
SC-46	-5.773E-03		3.924E-02	6.397E-02	6.377E-03	-0.090
V-48	1.172E-01		7.447E-02	1.382E-01	1.321E-02	0.848
CR-51	1.364E-01		3.845E-01	6.490E-01	6.506E-02	0.210
MN-52	1.465E-01		2.701E-01	4.827E-01	4.085E-02	0.303
MN-54	3.133E-03		4.025E-02	6.715E-02	6.783E-03	0.047
CO-56	3.135E-02		3.957E-02	6.964E-02	7.019E-03	0.450
CO-57	1.505E-02		2.546E-02	4.186E-02	3.494E-03	0.360
CO-58	-8.567E-03		3.850E-02	6.276E-02	6.373E-03	-0.137
FE-59	-8.041E-03		9.589E-02	1.550E-01	1.462E-02	-0.052
CO-60	-1.530E-02		4.049E-02	6.201E-02	5.194E-03	-0.247
ZN-65	-5.721E-02		1.099E-01	1.441E-01	1.241E-02	-0.397
GE-68	6.058E-01		1.331E+00	2.256E+00	2.012E-01	0.269
AS-73	-1.168E-01		5.902E-01	9.665E-01	7.175E-02	-0.121
AS-74	-3.434E-03		1.009E-01	1.611E-01	1.577E-02	-0.021
SE-75	-1.757E-03		4.574E-02	7.082E-02	7.012E-03	-0.025
BR-77	-1.907E+01		1.861E+01	2.748E+01	2.578E+00	-0.694
SR-82	-3.974E-01		4.746E-01	6.187E-01	6.286E-02	-0.642
RB-83	-7.681E-02		7.123E-02	1.046E-01	9.814E-03	-0.734
RB-84	-1.356E-02		7.345E-02	1.194E-01	1.194E-02	-0.114
KR-85	8.656E+00		8.166E+00	1.259E+01	1.176E+00	0.688
SR-85	4.529E-02		4.273E-02	6.588E-02	6.151E-03	0.688
RB-86	5.328E-02		9.273E-01	1.520E+00	1.357E-01	0.035
Y-88	-1.546E-04		3.143E-02	5.158E-02	4.162E-03	-0.003
ZR-88	-1.938E-03		2.998E-02	4.896E-02	4.095E-03	-0.040
Y-91	-1.753E+01		2.128E+01	3.194E+01	2.593E+00	-0.549
NB-94	-1.733E-03		3.334E-02	5.570E-02	5.635E-03	-0.031
NB-95	3.100E-02		4.716E-02	7.299E-02	7.418E-03	0.425
NB-95M	1.086E-01		1.359E-01	2.098E-01	2.254E-02	0.518
ZR-95	-1.072E-02		7.137E-02	1.177E-01	1.285E-02	-0.091
NB-97	-6.318E-01		3.259E-01	Half-Life too short		
ZR-97	2.040E+01		6.446E+00	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99	1.316E-01		1.729E+01	2.892E+01	4.658E+00	0.005
TC-99M	-2.858E+12		4.035E+12	Half-Life too short		
RH-101	3.654E-03		3.263E-02	5.480E-02	5.023E-03	0.067
RH-102	7.158E-03		2.839E-02	4.690E-02	4.253E-03	0.153
RU-103	-1.232E-02		3.949E-02	6.227E-02	9.053E-03	-0.198
RH-106	2.048E-02		3.136E-01	5.036E-01	7.159E-02	0.041
RU-106	2.048E-02		3.136E-01	5.036E-01	4.985E-02	0.041
AG-108M	5.865E-03		2.995E-02	4.955E-02	4.497E-03	0.118
AG-110M	-3.355E-02		3.506E-02	5.466E-02	5.600E-03	-0.614
IN-111	9.776E-01		1.786E+00	2.731E+00	2.652E-01	0.358
IN-113M	-4.941E-02		4.353E-02	6.568E-02	5.666E-03	-0.752
SN-113	-4.941E-02		4.353E-02	6.568E-02	5.666E-03	-0.752
IN-114M	-9.046E-02		2.032E-01	2.968E-01	2.690E-02	-0.305
CD-115	4.929E-01		1.989E+01	3.214E+01	3.030E+00	0.015
SN-117M	4.936E-02		5.934E-02	9.769E-02	8.431E-03	0.505
SB-122	2.933E+00		3.500E+00	5.951E+00	5.732E-01	0.493
I-123	2.723E+01		3.304E+01	Half-Life too short		
TE-123M	1.174E-02		2.848E-02	4.609E-02	4.005E-03	0.255
I-124	5.616E-01		1.062E+00	1.562E+00	1.533E-01	0.360
SB-124	7.387E-03		7.336E-02	1.233E-01	1.072E-02	0.060
SB-125	2.449E-02		8.842E-02	1.470E-01	1.301E-02	0.167
TE-125M	1.068E+01		9.598E+00	1.604E+01	1.640E+00	0.666
I-126	2.244E-02		1.991E-01	3.374E-01	3.390E-02	0.067
SB-126	-8.900E-02		1.712E-01	2.471E-01	2.506E-02	-0.360
SB-127	6.559E-01		1.902E+00	3.270E+00	4.273E-01	0.201
XE-127	-1.008E-02		4.860E-02	8.156E-02	7.527E-03	-0.124
I-131	9.520E-02		1.324E-01	2.270E-01	2.132E-02	0.419
TE-132	6.440E-02		1.003E+00	1.693E+00	2.810E-01	0.038
BA-133	3.232E-03		4.620E-02	6.724E-02	9.083E-03	0.048
I-133	-1.029E-02		1.421E-02	Half-Life too short		
CS-134	1.241E-01	+	5.602E-02	9.634E-02	9.830E-03	1.288
CS-135	2.234E-01		1.730E-01	2.729E-01	3.025E-02	0.819
I-135	-1.903E+11		3.909E+11	Half-Life too short		
CS-136	-5.076E-02		1.163E-01	1.816E-01	1.724E-02	-0.279
BA-137M	5.771E-04		3.581E-02	6.032E-02	6.054E-03	0.010
CS-137	6.100E-04		3.786E-02	6.377E-02	6.409E-03	0.010
CE-139	-1.893E-02		3.000E-02	4.612E-02	4.026E-03	-0.410
BA-140	1.564E-01		2.950E-01	4.868E-01	1.625E-01	0.321
LA-140	-8.043E-02		1.009E-01	1.163E-01	9.817E-03	-0.692
CE-141	2.257E-02		6.640E-02	1.059E-01	9.147E-03	0.213
CE-143	1.718E-03		2.988E-04	Half-Life too short		
CE-144	-2.584E-02		2.025E-01	3.064E-01	4.728E-02	-0.084
PM-144	-1.537E-02		3.349E-02	5.422E-02	5.482E-03	-0.283
PR-144	-1.043E+00		2.271E+00	3.678E+00	3.718E-01	-0.283
PM-146	1.517E-02		4.344E-02	7.232E-02	7.921E-03	0.210
ND-147	-6.380E-01		6.304E-01	9.193E-01	1.419E-01	-0.694
PM-149	-2.415E+01		1.618E+02	2.674E+02	4.360E+01	-0.090
EU-152	-5.013E-02		1.007E-01	1.483E-01	1.447E-02	-0.338

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-6.081E-02		8.498E-02	1.171E-01	1.039E-02	-0.519
EU-154	1.263E-01		1.372E-01	2.384E-01	2.635E-02	0.530
EU-155	6.391E-02		1.112E-01	1.833E-01	1.593E-02	0.349
TB-160	1.597E-01		1.441E-01	2.586E-01	2.586E-02	0.618
HO-166M	-4.153E-02		6.028E-02	9.553E-02	9.677E-03	-0.435
TM-171	6.651E+00		2.589E+01	3.815E+01	2.842E+00	0.174
LU-176	-1.143E-02		2.746E-02	3.879E-02	3.784E-03	-0.295
LU-177	2.444E+00	+	1.540E+00	2.446E+00	2.275E-01	0.999
LU-177M	-1.494E-01		1.882E-01	2.922E-01	2.501E-02	-0.512
HF-181	3.308E-02		4.278E-02	7.307E-02	6.662E-03	0.453
W-181	1.839E-01		3.464E-01	5.163E-01	3.799E-02	0.356
TA-182	9.129E-02		2.184E-01	3.647E-01	2.976E-02	0.250
RE-183	6.855E-02		1.107E-01	1.805E-01	1.567E-02	0.380
RE-184	-2.367E-01		2.232E-01	3.525E-01	3.445E-02	-0.672
OS-185	-9.107E-04		3.802E-02	6.394E-02	6.385E-03	-0.014
RE-188	1.682E-03		1.779E-01	2.832E-01	2.432E-02	0.006
W-188	3.208E-02		7.864E+00	1.152E+01	1.139E+00	0.003
IR-192	-5.123E-03		3.334E-02	5.480E-02	5.300E-03	-0.093
AU-195	2.028E-01		2.278E-01	3.606E-01	3.176E-02	0.562
TL-200	3.031E-04		7.575E-04	Half-Life too short		
TL-201	2.372E+00		1.063E+01	1.703E+01	1.490E+00	0.139
TL-202	7.254E-02		7.473E-02	1.294E-01	1.137E-02	0.561
HG-203	2.051E-02		4.416E-02	7.510E-02	7.638E-03	0.273
BI-207	3.097E-02		5.324E-02	9.140E-02	8.253E-03	0.339
TL-207	-3.067E-01		7.546E-01	1.061E+00	1.930E-01	-0.289
PO-209	4.131E+00		7.500E+00	1.295E+01	1.288E+00	0.319
BI-210	-3.928E-01		2.141E+00	3.493E+00	3.239E-01	-0.112
PB-210	-3.928E-01		2.141E+00	3.493E+00	3.239E-01	-0.112
PO-210	-3.928E-01		2.141E+00	3.493E+00	2.930E-01	-0.112
PB-211	-7.642E-01		1.051E+00	1.453E+00	9.105E-01	-0.526
BI-212	1.018E+00	+	5.200E-01	6.839E-01	7.761E-02	1.489
PO-215	-3.067E-01		7.546E-01	1.061E+00	1.930E-01	-0.289
RN-219	-7.819E-02		4.040E-01	6.533E-01	9.753E-02	-0.120
RN-220	-8.276E+00		2.841E+01	4.472E+01	4.273E+00	-0.185
RA-223	-3.067E-01		7.546E-01	1.061E+00	1.930E-01	-0.289
AC-227	1.504E-01		3.672E-01	6.255E-01	1.003E-01	0.240
TH-227	1.504E-01		3.675E-01	6.255E-01	1.167E-01	0.240
TH-229	1.317E-01		4.856E-01	8.313E-01	7.571E-02	0.158
PA-231	-2.954E-01		1.480E+00	2.441E+00	3.897E-01	-0.121
TH-231	-3.067E-01		7.546E-01	1.061E+00	1.930E-01	-0.289
U-231	-3.060E-02		1.477E+00	2.122E+00	1.898E-01	-0.014
PA-233	4.385E-02		6.226E-02	1.070E-01	1.061E-02	0.410
PA-234	-1.394E-01		3.054E-01	4.798E-01	9.264E-02	-0.290
PA-234M	7.000E+00		4.854E+00	8.795E+00	9.408E-01	0.796
U-235	-6.470E-02		2.156E-01	3.347E-01	5.832E-02	-0.193
NP-236	-1.014E-01		8.120E-02	1.208E-01	1.045E-02	-0.840
NP-239	8.567E-02		1.823E-01	2.989E-01	2.505E-02	0.287
AM-241	9.593E-02		1.301E-01	1.976E-01	1.546E-02	0.486

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	8.083E-02		9.612E-02	1.599E-01	1.380E-02	0.505
AM-246	2.442E-01		1.451E-01	2.691E-01	2.397E-02	0.908
CM-247	-7.636E-03		3.561E-02	5.750E-02	4.862E-03	-0.133
CF-249	4.871E-02		3.920E-02	6.878E-02	5.804E-03	0.708
CF-251	1.257E-01		1.304E-01	2.146E-01	1.904E-02	0.586

# 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]G246341007             *
* Acquisition date   : 18-FEB-2010 13:12:54 Detector SN#      :               *
* Detector ID        : GAM20                               Sensitivity      : 5.000   *
* Geometry           : CAN                               Energy tolerance: 1.500   *
* Elapsed live time  : 0 02:00:00.00                     Abundance limit : 75.000   *
* Elapsed real time  : 0 02:00:34.67                     Half life ratio : 8.000   *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G246341007                         Analyst initials: MXR1      *
* Batch Number       : 950786                             Sample Quantity : 1.2762E+02 GRAM *
* Recovery           : 1.00000                           Carrier Weight  : 0.00000   *
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME  : 26-AUG-2009 06:32:11 MS Isotope       :               *
* MSD DPM            : 0.000                               MSD Isotope       :               *
* LCS DPM            : 0.000                               LCS Isotope       :               *
* LCSD DPM           : 0.000                               LCSD Isotope      :               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.691E+01	3.656E+00	2.376E-01	1.865E+00
CD-109	4.359E+00	1.068E+00	5.618E-01	5.447E-01
SN-126	4.272E-01	1.046E-01	5.522E-02	5.338E-02
TL-208	6.637E-01	1.025E-01	2.647E-02	5.232E-02
BI-211	4.627E+00	6.283E-01	1.636E-01	3.205E-01
PB-212	1.981E+00	2.352E-01	4.599E-02	1.200E-01
PO-212	1.981E+00	2.352E-01	4.599E-02	1.200E-01
BI-214	1.500E+00	2.274E-01	5.260E-02	1.160E-01
PB-214	1.609E+00	2.335E-01	5.704E-02	1.191E-01
PO-214	1.609E+00	2.335E-01	5.704E-02	1.191E-01
PO-216	1.981E+00	2.352E-01	4.599E-02	1.200E-01
PO-218	1.609E+00	2.335E-01	5.704E-02	1.191E-01
RA-224	4.879E+00	1.244E+00	5.232E-01	6.347E-01
RA-226	1.500E+00	2.274E-01	5.260E-02	1.160E-01
AC-228	2.079E+00	3.667E-01	1.003E-01	1.871E-01
RA-228	2.079E+00	3.667E-01	1.003E-01	1.871E-01
TH-228	2.015E+00	2.392E-01	4.678E-02	1.221E-01
TH-230	1.500E+00	2.274E-01	5.260E-02	1.160E-01
TH-232	2.079E+00	3.667E-01	1.003E-01	1.871E-01
TH-234	3.283E+00	1.544E+00	8.820E-01	7.878E-01
U-234	1.500E+00	2.274E-01	5.260E-02	1.160E-01
NP-237	1.254E+00	3.984E-01	1.633E-01	2.033E-01
U-238	3.283E+00	1.544E+00	8.820E-01	7.878E-01
AM-243	5.021E-01	8.408E-02	4.034E-02	4.290E-02
ANH-511	1.858E-01	6.750E-02	2.163E-02	3.444E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-2.996E-01	3.259E-01	2.554E-01	1.663E-01 NOT IDENT.
NA-22	3.805E-02	4.865E-02	4.280E-02	2.482E-02 NOT IDENT.

NA-24	1.449E+06	5.968E+06	0.000E+00	3.045E+06	SHORT HLIF
AL-26	8.251E-03	2.444E-02	2.186E-02	1.247E-02	NOT IDENT.
TI-44	4.324E-01	5.562E-02	4.032E-02	2.838E-02	FAIL ABUN
SC-46	-5.773E-03	3.845E-02	3.225E-02	1.962E-02	FAIL ABUN
V-48	1.172E-01	7.298E-02	6.959E-02	3.724E-02	NOT IDENT.
CR-51	1.364E-01	3.768E-01	3.323E-01	1.922E-01	NOT IDENT.
MN-52	1.465E-01	2.647E-01	2.416E-01	1.350E-01	NOT IDENT.
MN-54	3.133E-03	3.944E-02	3.389E-02	2.012E-02	NOT IDENT.
CO-56	3.135E-02	3.878E-02	3.513E-02	1.979E-02	NOT IDENT.
CO-57	1.505E-02	2.495E-02	2.174E-02	1.273E-02	NOT IDENT.
CO-58	-8.567E-03	3.773E-02	3.168E-02	1.925E-02	NOT IDENT.
FE-59	-8.041E-03	9.397E-02	7.786E-02	4.794E-02	NOT IDENT.
CO-60	-1.530E-02	3.968E-02	3.106E-02	2.024E-02	NOT IDENT.
ZN-65	-5.721E-02	1.077E-01	7.241E-02	5.497E-02	NOT IDENT.
GE-68	6.058E-01	1.304E+00	1.134E+00	6.653E-01	NOT IDENT.
AS-73	-1.168E-01	5.784E-01	5.079E-01	2.951E-01	NOT IDENT.
AS-74	-3.434E-03	9.887E-02	8.171E-02	5.044E-02	NOT IDENT.
SE-75	-1.757E-03	4.482E-02	3.636E-02	2.287E-02	NOT IDENT.
BR-77	-1.907E+01	1.824E+01	1.397E+01	9.305E+00	FAIL ABUN
SR-82	-3.974E-01	4.651E-01	3.125E-01	2.373E-01	NOT IDENT.
RB-83	-7.681E-02	6.981E-02	5.319E-02	3.562E-02	NOT IDENT.
RB-84	-1.356E-02	7.198E-02	6.023E-02	3.672E-02	NOT IDENT.
KR-85	8.656E+00	8.002E+00	6.400E+00	4.083E+00	NOT IDENT.
SR-85	4.529E-02	4.187E-02	3.349E-02	2.136E-02	NOT IDENT.
RB-86	5.328E-02	9.087E-01	7.641E-01	4.636E-01	NOT IDENT.
Y-88	-1.546E-04	3.081E-02	2.571E-02	1.572E-02	NOT IDENT.
ZR-88	-1.938E-03	2.938E-02	2.499E-02	1.499E-02	NOT IDENT.
Y-91	-1.753E+01	2.085E+01	1.603E+01	1.064E+01	NOT IDENT.
NB-94	-1.733E-03	3.268E-02	3.818E-02	1.667E-02	NOT IDENT.
NB-95	3.100E-02	4.621E-02	3.688E-02	2.358E-02	NOT IDENT.
NB-95M	1.086E-01	1.332E-01	1.079E-01	6.797E-02	NOT IDENT.
ZR-95	-1.072E-02	6.994E-02	5.950E-02	3.568E-02	NOT IDENT.
NB-97	-6.318E+05	6.387E+05	0.000E+00	3.259E+05	SHORT HLIF
ZR-97	2.040E+07	1.263E+07	0.000E+00	6.446E+06	SHORT HLIF
MO-99	1.316E-01	1.694E+01	1.462E+01	8.645E+00	NOT IDENT.
TC-99M	-2.858E+18	7.908E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.654E-03	3.198E-02	2.826E-02	1.632E-02	FAIL ABUN
RH-102	7.158E-03	2.782E-02	2.387E-02	1.419E-02	NOT IDENT.
RU-103	-1.232E-02	3.870E-02	3.167E-02	1.975E-02	FAIL ABUN
RH-106	2.048E-02	3.073E-01	2.553E-01	1.568E-01	FAIL ABUN
RU-106	2.048E-02	3.073E-01	2.553E-01	1.568E-01	FAIL ABUN
AG-108M	5.865E-03	2.935E-02	2.525E-02	1.498E-02	NOT IDENT.
AG-110M	-3.355E-02	3.436E-02	2.768E-02	1.753E-02	NOT IDENT.
IN-111	9.776E-01	1.751E+00	1.404E+00	8.931E-01	NOT IDENT.
IN-113M	-4.941E-02	4.266E-02	3.353E-02	2.176E-02	NOT IDENT.
SN-113	-4.941E-02	4.266E-02	3.353E-02	2.176E-02	NOT IDENT.
IN-114M	-9.046E-02	1.991E-01	1.532E-01	1.016E-01	NOT IDENT.
CD-115	4.929E-01	1.949E+01	1.633E+01	9.945E+00	NOT IDENT.
SN-117M	4.936E-02	5.816E-02	5.054E-02	2.967E-02	NOT IDENT.
SB-122	2.933E+00	3.430E+00	3.021E+00	1.750E+00	NOT IDENT.
I-123	2.723E+07	6.475E+07	0.000E+00	3.304E+07	SHORT HLIF
TE-123M	1.174E-02	2.791E-02	2.384E-02	1.424E-02	NOT IDENT.
I-124	5.616E-01	1.041E+00	7.920E-01	5.310E-01	NOT IDENT.
SB-124	7.387E-03	7.190E-02	6.156E-02	3.668E-02	FAIL ABUN
SB-125	2.449E-02	8.665E-02	7.495E-02	4.421E-02	FAIL ABUN
TE-125M	1.068E+01	9.406E+00	8.341E+00	4.799E+00	NOT IDENT.
I-126	2.244E-02	1.951E-01	1.709E-01	9.955E-02	NOT IDENT.
SB-126	-8.900E-02	1.678E-01	1.250E-01	8.562E-02	FAIL ABUN
SB-127	6.559E-01	1.864E+00	1.655E+00	9.512E-01	NOT IDENT.
XE-127	-1.008E-02	4.763E-02	4.204E-02	2.430E-02	NOT IDENT.
I-131	9.520E-02	1.298E-01	1.160E-01	6.621E-02	NOT IDENT.
TE-132	6.440E-02	9.833E-01	8.714E-01	5.017E-01	NOT IDENT.
BA-133	3.232E-03	4.528E-02	3.437E-02	2.310E-02	NOT IDENT.
I-133	-1.029E+04	2.786E+04	0.000E+00	1.421E+04	SHORT HLIF
CS-134	1.241E-01	5.490E-02	4.865E-02	2.801E-02	FAIL ABUN
CS-135	2.234E-01	1.696E-01	1.401E-01	8.651E-02	NOT IDENT.
I-135	-1.903E+17	7.663E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.076E-02	1.139E-01	9.132E-02	5.814E-02	FAIL ABUN
BA-137M	5.771E-04	3.510E-02	3.055E-02	1.791E-02	NOT IDENT.
CS-137	6.100E-04	3.710E-02	3.229E-02	1.893E-02	NOT IDENT.
CE-139	-1.893E-02	2.940E-02	2.384E-02	1.500E-02	NOT IDENT.
BA-140	1.564E-01	2.891E-01	2.473E-01	1.475E-01	NOT IDENT.
LA-140	-8.043E-02	9.893E-02	5.809E-02	5.047E-02	FAIL ABUN
CE-141	2.257E-02	6.508E-02	5.487E-02	3.320E-02	NOT IDENT.
CE-143	1.718E+03	5.857E+02	0.000E+00	2.988E+02	SHORT HLIF
CE-144	-2.584E-02	1.985E-01	1.589E-01	1.013E-01	NOT IDENT.
PM-144	-1.537E-02	3.282E-02	2.744E-02	1.674E-02	NOT IDENT.
PR-144	-1.043E+00	2.226E+00	1.861E+00	1.136E+00	NOT IDENT.



PM-146	1.517E-02	4.257E-02	3.684E-02	2.172E-02	NOT IDENT.
ND-147	-6.380E-01	6.178E-01	4.671E-01	3.152E-01	FAIL ABUN
PM-149	-2.415E+01	1.585E+02	1.371E+02	8.088E+01	NOT IDENT.
EU-152	-5.013E-02	9.871E-02	7.585E-02	5.036E-02	FAIL ABUN
GD-153	-6.081E-02	8.328E-02	6.102E-02	4.249E-02	FAIL ABUN
EU-154	1.263E-01	1.345E-01	1.195E-01	6.862E-02	NOT IDENT.
EU-155	6.391E-02	1.090E-01	9.538E-02	5.562E-02	FAIL ABUN
TB-160	1.597E-01	1.412E-01	1.304E-01	7.205E-02	FAIL ABUN
HO-166M	-4.153E-02	5.907E-02	4.832E-02	3.014E-02	FAIL ABUN
TM-171	6.651E+00	2.537E+01	1.998E+01	1.294E+01	NOT IDENT.
LU-176	-1.143E-02	2.691E-02	1.987E-02	1.373E-02	FAIL ABUN
LU-177	2.444E+00	1.510E+00	1.260E+00	7.702E-01	FAIL ABUN
LU-177M	-1.494E-01	1.844E-01	1.490E-01	9.410E-02	NOT IDENT.
HF-181	3.308E-02	4.192E-02	3.718E-02	2.139E-02	NOT IDENT.
W-181	1.839E-01	3.395E-01	2.705E-01	1.732E-01	NOT IDENT.
TA-182	9.129E-02	2.140E-01	1.830E-01	1.092E-01	FAIL ABUN
RE-183	6.855E-02	1.085E-01	9.335E-02	5.534E-02	FAIL ABUN
RE-184	-2.367E-01	2.187E-01	1.811E-01	1.116E-01	NOT IDENT.
OS-185	-9.107E-04	3.726E-02	3.239E-02	1.901E-02	NOT IDENT.
RE-188	1.682E-03	1.743E-01	1.466E-01	8.895E-02	NOT IDENT.
W-188	3.208E-02	7.707E+00	5.908E+00	3.932E+00	FAIL ABUN
IR-192	-5.123E-03	3.267E-02	2.806E-02	1.667E-02	FAIL ABUN
AU-195	2.028E-01	2.232E-01	1.878E-01	1.139E-01	FAIL ABUN
TL-200	3.031E+02	1.485E+03	0.000E+00	7.575E+02	SHORT HLIF
TL-201	2.372E+00	1.041E+01	8.803E+00	5.313E+00	NOT IDENT.
TL-202	7.254E-02	7.324E-02	6.593E-02	3.737E-02	NOT IDENT.
HG-203	2.051E-02	4.328E-02	3.853E-02	2.208E-02	NOT IDENT.
BI-207	3.097E-02	5.218E-02	4.595E-02	2.662E-02	FAIL ABUN
TL-207	-3.067E-01	7.395E-01	5.434E-01	3.773E-01	FAIL ABUN
PO-209	4.131E+00	7.350E+00	6.526E+00	3.750E+00	NOT IDENT.
BI-210	-3.928E-01	2.098E+00	1.839E+00	1.070E+00	NOT IDENT.
PB-210	-3.928E-01	2.098E+00	1.839E+00	1.070E+00	NOT IDENT.
PO-210	-3.928E-01	2.098E+00	1.839E+00	1.070E+00	NOT IDENT.
PB-211	-7.642E-01	1.030E+00	7.415E-01	5.256E-01	NOT IDENT.
BI-212	1.018E+00	5.096E-01	3.458E-01	2.600E-01	FAIL ABUN
PO-215	-3.067E-01	7.395E-01	5.434E-01	3.773E-01	FAIL ABUN
RN-219	-7.819E-02	3.959E-01	3.334E-01	2.020E-01	FAIL ABUN
RN-220	-8.276E+00	2.784E+01	2.271E+01	1.420E+01	NOT IDENT.
RA-223	-3.067E-01	7.395E-01	5.434E-01	3.773E-01	FAIL ABUN
AC-227	1.504E-01	3.599E-01	3.213E-01	1.836E-01	FAIL ABUN
TH-227	1.504E-01	3.602E-01	3.213E-01	1.838E-01	FAIL ABUN
TH-229	1.317E-01	4.759E-01	4.288E-01	2.428E-01	FAIL ABUN
PA-231	-2.954E-01	1.450E+00	1.252E+00	7.399E-01	FAIL ABUN
TH-231	-3.067E-01	7.395E-01	5.434E-01	3.773E-01	FAIL ABUN
U-231	-3.060E-02	1.448E+00	1.106E+00	7.387E-01	FAIL ABUN
PA-233	4.385E-02	6.101E-02	5.478E-02	3.113E-02	FAIL ABUN
PA-234	-1.394E-01	2.993E-01	2.416E-01	1.527E-01	FAIL ABUN
PA-234M	7.000E+00	4.757E+00	4.426E+00	2.427E+00	NOT IDENT.
U-235	-6.470E-02	2.113E-01	1.734E-01	1.078E-01	FAIL ABUN
NP-236	-1.014E-01	7.957E-02	6.250E-02	4.060E-02	NOT IDENT.
NP-239	8.567E-02	1.786E-01	1.553E-01	9.114E-02	FAIL ABUN
AM-241	9.593E-02	1.275E-01	1.037E-01	6.507E-02	NOT IDENT.
CM-243	8.083E-02	9.420E-02	8.323E-02	4.806E-02	FAIL ABUN
AM-246	2.442E-01	1.422E-01	1.352E-01	7.256E-02	NOT IDENT.
CM-247	-7.636E-03	3.489E-02	2.934E-02	1.780E-02	NOT IDENT.
CF-249	4.871E-02	3.841E-02	3.511E-02	1.960E-02	NOT IDENT.
CF-251	1.257E-01	1.278E-01	1.109E-01	6.518E-02	NOT IDENT.

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

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46.50	344.2726
46.50	344.2726
46.50	344.2726
48.70	363.4818
49.72	344.6747
51.35	340.9225
52.39	378.0703
52.97	368.6546
53.15	368.7868
53.44	372.9474
54.07	368.4743
56.28	405.7839
56.28	405.7859
57.37	0.0000
57.53	438.5843
57.53	438.5854
57.60	438.6426
57.98	418.0560
57.98	418.0560
59.32	395.1631
59.32	395.1631
59.40	395.2215
59.54	395.3253
59.72	395.4582
60.01	401.6657
61.10	414.4896
61.14	414.5191
61.30	434.1714
63.00	469.1704
63.29	469.4145
63.29	469.4145
63.58	469.6585
64.28	484.8478
65.12	494.6458
65.20	494.7156
65.20	494.7156
66.05	490.9092
66.72	468.7289
66.83	418.7505
66.91	418.8094
67.20	419.0200
67.20	419.0200
67.75	502.9977
67.85	504.6034
68.90	500.9449
68.90	500.9449
69.30	490.6206
69.67	490.9301
70.82	511.7394
70.82	511.7394
70.83	511.7471
72.80	495.0349
72.87	501.7336
72.87	501.7336
74.67	503.2121
74.81	503.3270
74.81	503.3270
74.81	503.3270
74.81	503.3270
74.81	503.3270
74.81	503.3270
74.97	503.4568
75.28	503.7090
75.70	504.0487
77.11	505.1875
77.11	505.1875

77.11	505.1875
77.11	505.1875
77.11	505.1875
77.11	505.1875
77.11	505.1875
78.38	474.7595
79.62	498.9241
79.80	440.1684
79.80	440.1684
80.11	440.3807
80.18	440.4284
80.30	499.4523
80.30	499.4523
80.57	437.5914
81.00	499.9928
81.07	500.0468
81.07	500.0468
81.07	500.0468
81.07	500.0468
82.60	474.7591
83.37	393.7546
83.78	394.0013
83.78	394.0013
83.78	394.0013
83.78	394.0013
84.21	394.2558
84.90	394.6645
85.43	394.9787
86.29	395.4837
86.50	395.6071
86.54	395.6302
86.59	395.6591
86.72	395.7343
86.79	395.7748
86.94	395.8635
87.30	396.0736
87.30	396.0736
87.30	396.0736
87.30	396.0736
87.30	396.0736
87.30	396.0736
87.57	396.2297
87.88	396.4109
88.03	396.4977
88.36	396.6885
88.47	396.7521
89.95	397.6061
91.11	398.2692
92.29	398.9401
92.38	398.9921
92.38	398.9921
93.35	399.5396
94.00	399.9059
94.67	337.4374
94.67	337.4407
94.90	335.9632
94.90	335.9632
94.90	335.9632
94.90	335.9632
95.87	344.3521
95.87	344.3521
96.73	386.0706
97.43	386.4414
98.44	323.5942
98.44	323.5942
98.88	332.7113
99.55	354.0666
99.55	354.0666
99.86	368.0439
100.00	367.0503
100.10	367.1012
103.18	389.9827
103.76	348.5803
105.00	386.6344
105.31	384.6476
108.00	405.3448
109.28	342.4701

111.00	375.5973
111.00	375.5973
111.76	382.4395
112.95	368.9449
115.19	310.2988
116.30	310.7236
117.00	300.1160
117.00	300.1160
117.66	309.0635
121.11	326.7438
121.62	318.1939
121.78	322.6292
122.06	310.7030
122.32	297.6660
122.32	297.6660
122.32	297.6660
122.32	297.6660
123.07	337.3638
127.23	366.5256
129.76	299.7039
131.20	316.7809
133.02	262.5892
133.54	287.3523
135.34	293.2644
136.00	297.9259
136.25	305.7915
136.48	305.8698
140.51	321.7441
140.51	0.0000
142.18	349.1877
142.65	335.9253
143.76	321.7510
144.24	325.2824
144.24	325.2824
144.24	325.2824
144.24	325.2824
145.22	293.0595
145.44	293.1285
147.16	325.1662
152.43	302.0644
152.70	280.6461
153.22	253.6224
154.21	272.0142
154.21	272.0142
154.21	272.0142
154.21	272.0142
155.03	317.6147
156.02	336.1014
158.56	261.8290
159.00	0.0000
159.00	277.8881
160.31	330.7104
161.27	296.7820
162.32	270.8079
162.64	256.0355
163.35	272.2266
163.89	252.9167
165.85	299.2643
167.43	266.4210
171.28	255.8813
171.86	259.4810
172.10	259.5406
176.55	264.1051
176.60	264.1190
181.06	317.5558
184.41	268.8235
185.71	261.9558
186.00	262.0242
190.27	296.9815
192.34	272.3223
193.63	269.9842
197.04	290.2557
198.01	277.2158
198.60	280.8988
200.40	285.7740
201.83	295.8972
202.84	304.1580
205.31	268.0767

208.36	283.0588
208.81	281.5562
209.75	288.9336
209.75	288.9336
210.97	252.1557
215.65	244.4974
216.55	233.8834
218.09	223.3669
222.10	237.6435
223.80	220.7750
226.40	258.4052
227.00	247.6416
227.08	247.6562
227.20	250.4030
228.16	238.7872
228.18	236.0674
228.18	236.0674
231.56	0.0000
235.69	244.0255
236.00	244.0826
236.00	244.0826
238.63	234.3223
238.63	234.3223
238.63	234.3223
238.63	234.3223
239.00	234.3887
240.98	234.7422
241.98	234.9180
241.98	234.9180
241.98	234.9180
244.69	205.9736
245.39	191.3612
247.94	211.0814
248.90	201.0852
249.79	198.4492
252.40	205.3033
252.85	215.5470
252.85	215.5470
254.15	0.0000
256.20	191.0355
256.20	191.0355
260.50	197.2102
260.90	194.4769
262.80	207.7865
264.65	189.0877
268.24	179.5928
268.79	182.6545
269.46	193.7877
269.46	193.7877
269.46	193.7877
269.46	193.7877
271.23	193.4653
273.65	271.9110
276.40	198.8918
277.35	184.4977
277.60	192.0624
277.60	192.0624
278.00	194.9406
278.60	205.3829
279.20	219.6036
279.53	236.6223
280.46	246.2068
281.68	221.8652
283.67	183.4025
284.30	181.5908
285.00	180.7296
285.90	179.8935
286.10	177.0759
286.10	177.0759
287.40	181.0210
288.45	0.0000
290.67	167.1699
290.80	167.1860
291.72	167.2881
293.26	0.0000
293.70	181.2106
295.21	156.2399
295.21	156.2399

295.21	156.2399
295.96	156.3175
296.50	156.3726
297.23	156.4476
298.57	156.5853
299.80	156.7104
299.80	156.7104
300.09	156.7404
300.09	156.7404
300.09	156.7404
300.09	156.7404
300.12	156.7429
301.29	156.8630
302.84	157.0207
303.76	157.1133
303.91	157.1283
304.40	148.7444
304.40	148.7444
304.84	159.5242
306.84	172.0168
308.46	187.5690
311.98	146.3849
316.51	152.5996
318.01	145.0081
319.02	155.7403
319.41	153.8420
320.08	154.8755
323.87	178.5251
323.87	178.5251
323.87	178.5251
323.87	178.5251
325.23	175.5666
328.77	153.7617
333.44	128.8237
334.20	156.2207
334.20	156.2207
334.30	156.2305
338.28	151.7101
338.28	151.7101
338.28	151.7101
338.28	151.7101
338.32	151.7149
338.32	151.7149
338.32	151.7149
340.50	122.3130
340.57	122.3187
344.27	151.9243
345.85	133.7131
350.59	0.0000
351.07	144.9723
351.92	145.0441
351.92	145.0441
351.92	145.0441
355.39	0.0000
356.01	131.3430
364.48	119.2603
366.43	137.3009
367.43	121.4508
367.94	0.0000
369.80	147.5303
374.96	120.9649
383.85	128.5918
387.95	109.7501
388.63	123.8915
391.69	142.2586
391.69	142.2586
392.90	124.1786
398.62	137.7245
400.65	117.5966
401.10	122.6949
401.81	130.8562
402.60	126.8520
404.84	148.3392
410.95	125.3704
411.60	133.5706
413.65	158.2095
414.70	124.5950
415.30	126.6773

415.76	134.8823
417.63	0.0000
418.52	111.5381
423.70	109.7821
427.08	106.8882
427.89	105.9044
432.53	103.0609
433.93	94.8820
439.47	93.0762
439.56	93.0803
439.89	95.1642
443.98	102.6134
444.90	106.8081
445.03	106.8144
445.03	106.8144
445.03	106.8144
445.03	106.8144
453.90	106.2365
463.38	97.3069
468.07	105.7034
473.00	94.5992
475.06	96.7954
475.35	94.7035
476.78	111.6141
477.59	120.0830
477.96	121.1575
482.03	87.6113
484.57	101.4521
487.03	87.8139
490.36	0.0000
492.35	91.2110
497.08	92.4707
507.63	0.0000
510.53	0.0000
510.84	86.6286
511.00	86.6341
511.85	86.6675
511.85	86.6675
513.99	102.8145
513.99	102.8145
520.41	112.7737
520.65	111.7092
527.90	94.8240
528.96	0.0000
529.64	99.2100
529.87	0.0000
531.02	103.5850
537.32	87.6371
543.00	111.7133
546.56	0.0000
549.76	112.0339
552.65	102.3679
555.20	106.8376
563.23	96.2581
563.90	87.5317
568.70	106.3424
569.32	111.8551
569.50	111.8613
569.67	103.0965
573.80	71.4111
574.00	71.4171
574.64	79.1279
578.91	77.5049
579.30	0.0000
583.14	74.9913
585.48	65.3480
591.81	79.6794
592.07	76.3679
593.00	80.8240
595.88	93.1106
600.56	103.2797
602.52	0.0000
602.71	90.6968
602.71	90.6968
603.60	112.0742
604.41	103.2134
604.70	110.3437
609.31	83.5762

609.31	83.5762
609.31	83.5762
609.31	83.5762
610.33	71.3477
612.46	83.9023
614.37	91.1127
618.01	80.5056
621.84	78.3868
621.84	78.3868
631.29	84.2903
633.02	58.4794
633.10	59.6056
634.78	81.0264
635.90	78.3595
636.97	77.4903
645.85	74.1323
646.12	67.8113
656.30	84.4061
657.75	102.6132
657.90	0.0000
661.65	92.7562
661.65	92.7562
664.57	0.0000
666.33	89.2743
666.33	89.2743
675.00	74.9351
677.61	74.0905
685.20	77.9630
692.80	85.5323
695.00	76.3961
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696.49	91.1714
697.00	98.5544
697.49	94.8877
698.33	83.8573
698.50	83.8617
699.00	84.7990
702.63	90.4442
706.10	85.0124
706.58	0.0000
706.67	83.1797
709.31	84.1817
711.68	92.5854
713.82	81.5354
717.42	82.5640
720.50	86.2352
721.93	0.0000
722.20	85.1788
722.78	77.4516
722.78	77.4516
722.89	77.4536
722.95	77.4556
723.30	86.7617
724.18	88.3365
727.18	80.9826
733.00	66.8428
735.90	77.4883
739.58	65.4336
742.81	60.8264
744.21	68.3448
747.13	66.5382
751.79	77.9057
752.31	78.8587
753.82	68.5658
755.35	73.3002
756.15	78.0192
756.87	79.9178
763.93	81.6774
765.79	72.2980
766.42	66.0249
766.84	68.8635
776.49	89.9021
778.00	73.6401
778.57	69.1290
778.89	66.2949
783.80	86.3211
785.46	73.0804
792.07	84.0159



795.84	82.5301
796.30	84.1302
798.80	81.0198
801.93	70.6053
805.60	66.8674
810.29	62.1832
810.76	67.9336
815.85	68.0428
817.79	54.6593
818.51	46.0395
819.60	50.8521
826.30	60.5744
828.27	0.0000
831.60	82.8254
831.96	83.7970
834.83	87.7275
836.80	0.0000
846.75	57.0886
848.13	65.8235
856.28	0.0000
856.80	77.6445
860.37	58.2964
867.32	48.6829
867.82	55.1822
871.10	59.4601
873.19	65.3495
874.81	63.4290
875.33	0.0000
876.40	57.6013
879.36	51.7902
880.27	49.8483
880.51	53.7620
881.50	66.4893
883.24	70.4373
884.67	62.6375
889.25	62.7219
896.60	57.9470
898.02	77.6210
899.00	69.7814
903.28	66.4239
911.07	56.2193
911.07	56.2193
911.07	56.2193
919.63	56.3585
920.93	81.1071
925.00	58.4253
925.24	58.4296
926.50	46.5617
935.52	69.5266
937.48	68.5704
944.10	78.6567
946.00	67.7394
949.00	58.8243
962.29	60.0439
964.01	63.4091
966.15	61.1087
968.20	61.1445
969.11	61.1594
969.11	61.1594
969.11	61.1594
977.42	60.2944
980.50	70.4033
983.50	37.2439
989.30	64.5234
996.32	48.8219
1001.03	51.5802
1001.68	51.5889
1004.76	51.6325
1021.30	0.0000
1024.50	0.0000
1034.80	52.0459
1036.00	58.1870
1037.82	63.3199
1038.57	63.3351
1038.76	0.0000
1045.16	56.2810
1046.59	59.3707
1048.07	59.3962

1050.47	50.2106
1050.47	50.2106
1062.04	71.9414
1063.62	53.4650
1076.63	68.0851
1077.35	59.8437
1078.86	40.2549
1085.78	62.0391
1099.22	62.2500
1112.02	62.4492
1112.84	68.4096
1115.52	78.1311
1120.29	59.4492
1120.29	59.4492
1120.29	59.4492
1120.29	59.4492
1120.51	59.4520
1121.28	59.4631
1124.00	0.0000
1129.67	60.6310
1131.51	0.0000
1147.95	0.0000
1167.94	77.0207
1173.22	65.4996
1175.09	76.0957
1177.93	74.0332
1189.05	69.9864
1204.90	91.5346
1205.75	0.0000
1213.00	90.6404
1221.42	77.9974
1230.97	73.8853
1235.34	117.9063
1236.41	0.0000
1238.25	76.1517
1246.25	56.9491
1260.41	0.0000
1271.85	60.5227
1274.45	52.9884
1274.54	56.2326
1291.56	51.0184
1298.22	0.0000
1312.09	39.2537
1325.50	37.1825
1325.50	37.1825
1332.49	43.8086
1333.61	37.2473
1360.21	31.2165
1362.66	0.0000
1365.15	29.4102
1368.21	31.2690
1368.53	0.0000
1376.25	36.8490
1384.27	35.0653
1394.10	24.0417
1395.20	21.2724
1407.95	13.9099
1434.06	21.4436
1436.60	18.6556
1457.56	0.0000
1460.81	21.5597
1489.15	17.9107
1509.49	18.9290
1596.49	26.3940
1620.62	15.4661
1678.03	0.0000
1691.02	15.6647
1691.02	15.6647
1706.46	0.0000
1750.46	0.0000
1764.49	8.9257
1764.49	8.9257
1764.49	8.9257
1764.49	8.9257
1770.23	3.4036
1771.40	23.8301
1791.20	0.0000
1808.65	8.9934

1836.01

13.0503

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341007

Total Uranium Activity	9.7367E+00	ug/g
Total Uranium Counting Unc.	4.5948E+00	ug/g
Total Uranium Tpu	2.3443E-06	ug/g
Total Uranium Mda	2.6250E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 950786                SAMPLE ID   : G246341007                *
*  ANALYST       : MXR1                  DETECTOR    : GAM20                  *
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE: 18-FEB-2010 13:12:54.82  SAMPLE ALQT: 127.620 GRAM          *
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.166E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.520E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.735E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.817E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:25:47.75

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341008.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:24:56
Sample ID          : G246341008          Sample quantity  : 1.30570E+02 GRAM
Detector name      : GAM21              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:26.59  0.4%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 950786             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	46.49	249	428	0.59	92.96	89	8	3.45E-02	15.7	
2	0	63.33	197	475	0.79	126.62	125	6	2.73E-02	18.9	
3	4	74.84*	705	461	0.80	149.63	146	11	9.79E-02	5.8	1.54E+00
4	4	77.08*	1069	294	0.68	154.10	146	11	1.48E-01	3.9	
5	6	84.06	155	271	1.24	168.06	165	13	2.16E-02	18.1	1.80E+00
6	6	87.21*	373	347	0.98	174.36	165	13	5.18E-02	9.5	
7	0	89.94	257	278	0.87	179.81	178	5	3.57E-02	11.6	
8	0	92.98*	498	462	1.43	185.89	183	10	6.92E-02	9.4	
9	0	129.26	110	380	0.88	258.42	254	9	1.53E-02	33.3	
10	0	185.85*	244	217	1.13	371.55	368	8	3.39E-02	12.6	
11	0	208.78	119	171	1.07	417.39	414	7	1.65E-02	20.4	
12	0	238.46*	1178	242	0.96	476.74	473	7	1.64E-01	3.7	
13	0	241.41*	159	242	0.97	482.63	481	8	2.21E-02	19.7	
14	0	269.82	84	188	1.81	539.43	535	10	1.16E-02	32.6	
15	1	295.04*	355	99	1.08	589.85	585	19	4.93E-02	6.9	3.96E+00
16	1	299.69	71	110	1.14	599.16	585	19	9.86E-03	27.3	
17	0	328.45	56	123	0.87	656.66	652	9	7.80E-03	38.5	
18	0	338.22	169	201	1.15	676.21	669	12	2.34E-02	18.5	
19	0	351.61*	562	113	1.03	702.98	697	10	7.81E-02	5.5	
20	0	462.63	32	77	0.75	924.97	924	6	4.49E-03	48.3	
21	0	510.52*	70	102	1.53	1020.74	1014	12	9.70E-03	35.6	
22	0	582.84	317	72	1.21	1165.38	1161	11	4.40E-02	7.6	
23	0	608.90*	401	49	1.24	1217.49	1212	12	5.57E-02	6.2	
24	0	726.91*	54	65	1.82	1453.53	1447	13	7.55E-03	33.7	
25	0	769.35	68	52	4.29	1538.42	1530	18	9.51E-03	27.8	
26	0	860.01	44	26	1.65	1719.76	1715	10	6.17E-03	25.9	
27	0	910.67	221	67	1.58	1821.12	1812	18	3.06E-02	11.0	
28	2	964.26	48	36	1.95	1928.34	1922	29	6.69E-03	26.1	1.85E+00
29	2	968.55	130	18	1.80	1936.91	1922	29	1.81E-02	11.1	
30	0	1119.94*	46	38	1.41	2239.81	2235	10	6.36E-03	29.9	
31	0	1460.08*	948	24	1.89	2920.53	2913	18	1.32E-01	3.5	
32	0	1728.93	15	7	1.08	3458.72	3451	13	2.01E-03	44.8	
33	0	1763.59*	63	8	1.54	3528.13	3521	16	8.74E-03	16.7	

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

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:25:50

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341008.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:24:56
Sample ID        : G246341008             Sample quantity  : 130.57 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA21                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:26.59   0.4%
Peak Width (FWHM): 3.00                   Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                Half life ratio   : 8.00 %
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type  : Empirical                Efficiencies at   : Peak Energy
Abundance limit  : 75.00                   WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.543E+01	3.914E+00	7.799E-01	6.658E-02	45.429
CD-109	+	88.03	*	3.634E+00	7.672E-01	7.249E-01	6.820E-02	5.013
SN-126	+	64.28		7.206E-01	2.926E-01	2.983E-01	4.420E-02	2.415
	+	86.94		1.481E+00	6.756E-01	3.030E-01	1.258E-01	4.887
	+	87.57	*	3.561E-01	7.519E-02	7.305E-02	6.848E-03	4.875
TL-208		277.35		5.333E-01	3.702E-01	6.486E-01	8.138E-02	0.822
	+	510.84		4.559E-01	3.302E-01	2.489E-01	3.162E-02	1.832
	+	583.14	*	6.078E-01	1.141E-01	7.127E-02	7.764E-03	8.528
	+	860.37		8.531E-01	4.501E-01	6.276E-01	6.231E-02	1.359
BI-210	+	46.50	*	2.404E+00	7.907E-01	6.408E-01	6.110E-02	3.753
PB-210	+	46.50	*	2.404E+00	7.907E-01	6.408E-01	6.110E-02	3.753
PO-210	+	46.50	*	2.404E+00	7.850E-01	6.408E-01	5.561E-02	3.753
BI-211		72.87		8.594E-01	1.633E+00	2.535E+00	2.122E-01	0.339
	+	351.07	*	4.167E+00	5.957E-01	3.206E-01	2.894E-02	12.997
PB-212	+	74.81		2.289E+00	3.926E-01	2.856E-01	3.605E-02	8.016
	+	77.11		2.066E+00	2.397E-01	1.707E-01	1.472E-02	12.105
	+	87.30		1.647E+00	3.848E-01	3.375E-01	4.621E-02	4.880
	+	238.63	*	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
	+	300.09		1.700E+00	9.458E-01	1.181E+00	1.261E-01	1.439
PO-212	+	74.81		2.289E+00	3.926E-01	2.856E-01	3.605E-02	8.016
	+	77.11		2.066E+00	2.397E-01	1.707E-01	1.472E-02	12.105
	+	87.30		1.647E+00	3.848E-01	3.375E-01	4.621E-02	4.880
	+	115.19		1.705E+00	2.751E+00	4.499E+00	4.943E-01	0.379
	+	238.63	*	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
	+	300.09		1.700E+00	9.458E-01	1.181E+00	1.261E-01	1.439
BI-214	+	609.31	*	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
	+	1120.29		9.376E-01	5.702E-01	6.483E-01	6.961E-02	1.446
	+	1764.49		1.913E+00	6.594E-01	3.809E-01	3.167E-02	5.021
PB-214	+	74.81		3.945E+00	6.380E-01	4.921E-01	5.542E-02	8.016
	+	77.11		3.542E+00	4.916E-01	2.926E-01	3.367E-02	12.105
	+	87.30		2.822E+00	6.342E-01	5.782E-01	7.008E-02	4.880
	+	241.98		1.411E+00	5.752E-01	4.788E-01	5.033E-02	2.947
	+	295.21		1.487E+00	2.610E-01	2.058E-01	2.243E-02	7.223
	+	351.92	*	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		3.945E+00	6.380E-01	4.921E-01	5.542E-02	8.016
	+	77.11		3.542E+00	4.916E-01	2.926E-01	3.367E-02	12.105
	+	87.30		2.822E+00	6.342E-01	5.782E-01	7.008E-02	4.880
	+	241.98		1.411E+00	5.752E-01	4.788E-01	5.033E-02	2.947
	+	295.21		1.487E+00	2.610E-01	2.058E-01	2.243E-02	7.223
	+	351.92	*	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042
PO-216	+	74.81		2.289E+00	3.926E-01	2.856E-01	3.605E-02	8.016
	+	77.11		2.066E+00	2.397E-01	1.707E-01	1.472E-02	12.105
	+	87.30		1.647E+00	3.848E-01	3.375E-01	4.621E-02	4.880
	+	238.63	*	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
	+	300.09		1.700E+00	9.458E-01	1.181E+00	1.261E-01	1.439
PO-218	+	74.81		3.945E+00	6.380E-01	4.921E-01	5.542E-02	8.016
	+	77.11		3.542E+00	4.916E-01	2.926E-01	3.367E-02	12.105
	+	87.30		2.822E+00	6.342E-01	5.782E-01	7.008E-02	4.880
	+	241.98		1.411E+00	5.752E-01	4.788E-01	5.033E-02	2.947
	+	295.21		1.487E+00	2.610E-01	2.058E-01	2.243E-02	7.223
	+	351.92	*	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042
RA-224	+	240.98	*	2.676E+00	1.080E+00	1.009E+00	8.969E-02	2.651
RA-226	+	609.31	*	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
	+	1120.29		9.376E-01	5.702E-01	6.483E-01	6.961E-02	1.446
	+	1764.49		1.913E+00	6.594E-01	3.809E-01	3.167E-02	5.021
AC-228	+	338.32		1.364E+00	7.558E-01	3.917E-01	1.617E-01	3.481
	+	911.07	*	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105
	+	969.11		2.112E+00	6.825E-01	4.922E-01	1.151E-01	4.291
RA-228	+	338.32		1.364E+00	7.558E-01	3.917E-01	1.617E-01	3.481
	+	911.07	*	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105
	+	969.11		2.112E+00	6.825E-01	4.922E-01	1.151E-01	4.291
TH-228	+	74.81		2.329E+00	3.358E-01	2.905E-01	2.486E-02	8.016
	+	77.11		2.102E+00	2.438E-01	1.736E-01	1.497E-02	12.105
	+	87.30		1.675E+00	3.537E-01	3.433E-01	3.211E-02	4.880
	+	238.63	*	1.760E+00	2.176E-01	1.157E-01	1.151E-02	15.206
	+	300.09		1.729E+00	1.394E+00	1.201E+00	7.128E-01	1.439
TH-230	+	609.31	*	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
	+	1120.29		9.376E-01	5.702E-01	6.483E-01	6.961E-02	1.446
	+	1764.49		1.913E+00	6.593E-01	3.809E-01	3.167E-02	5.021
TH-232	+	338.32		1.364E+00	5.182E-01	3.917E-01	3.415E-02	3.481
	+	911.07	*	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105
	+	969.11		2.112E+00	6.825E-01	4.922E-01	1.151E-01	4.291
TH-234	+	63.29	*	1.820E+00	7.597E-01	7.540E-01	1.332E-01	2.414
	+	92.38		3.300E+00	8.715E-01	4.408E-01	8.189E-02	7.487
U-234	+	609.31	*	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
	+	1120.29		9.376E-01	5.702E-01	6.483E-01	6.961E-02	1.446
	+	1764.49		1.913E+00	6.593E-01	3.809E-01	3.167E-02	5.021
NP-237	+	86.50	*	1.046E+00	3.087E-01	2.136E-01	4.835E-02	4.895
	+	95.87		-3.590E-01	6.415E-01	9.088E-01	2.278E-01	-0.395
U-238	+	63.29	*	1.820E+00	7.597E-01	7.540E-01	1.332E-01	2.414
	+	92.38		3.300E+00	6.959E-01	4.408E-01	4.238E-02	7.487
AM-243	+	74.67	*	3.711E-01	5.336E-02	4.629E-02	3.923E-03	8.018
	+	86.72		3.922E+01	8.280E+00	8.018E+00	7.463E-01	4.891



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-6.065E-02	2.909E+00	4.603E+00	5.137E-01	-0.013
		142.18		-1.236E+01	1.534E+01	2.275E+01	2.305E+00	-0.544
ANH-511	+	511.00	*	9.848E-02	7.084E-02	5.379E-02	5.157E-03	1.831

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.242E-01	3.470E-01	6.114E-01	5.990E-02	0.367
NA-22		1274.54	*	-6.261E-02	6.869E-02	9.830E-02	8.064E-03	-0.637
NA-24		1368.53	*	-1.242E+00	6.869E-02	Half-Life too short		
AL-26		1129.67		2.190E-01	2.310E+00	3.806E+00	3.204E-01	0.058
		1808.65	*	-1.470E-02	3.992E-02	5.832E-02	4.826E-03	-0.252
TI-44		67.85		1.092E-03	1.936E-02	3.198E-02	2.593E-03	0.034
	+	78.38	*	3.813E-01	4.423E-02	3.646E-02	3.175E-03	10.458
SC-46		889.25	*	3.174E-02	4.908E-02	8.682E-02	7.720E-03	0.366
	+	1120.51		1.631E-01	9.860E-02	1.633E-01	1.380E-02	0.999
V-48		944.10		-7.087E-01	1.274E+00	1.983E+00	1.738E-01	-0.357
		983.50	*	-2.292E-02	9.806E-02	1.578E-01	1.380E-02	-0.145
		1312.09		9.242E-02	1.274E-01	2.231E-01	1.818E-02	0.414
CR-51		320.08	*	-4.172E-01	4.031E-01	5.986E-01	5.565E-02	-0.697
MN-52		744.21		3.232E-02	4.409E-01	7.135E-01	7.583E-02	0.045
		848.13		-4.702E+00	9.781E+00	1.549E+01	1.473E+00	-0.304
		935.52		2.904E-01	4.647E-01	8.155E-01	7.149E-02	0.356
		1246.25		8.952E+00	1.375E+01	2.364E+01	1.943E+00	0.379
		1333.61		-2.001E+00	7.350E+00	1.181E+01	9.586E-01	-0.169
		1434.06	*	1.207E-01	3.081E-01	5.517E-01	4.556E-02	0.219
MN-54		834.83	*	-1.642E-02	4.955E-02	8.073E-02	7.824E-03	-0.203
CO-56		846.75	*	-3.370E-02	4.382E-02	6.650E-02	6.339E-03	-0.507
		977.42		2.107E+00	4.021E+00	6.285E+00	5.502E-01	0.335
		1037.82		7.224E-02	3.893E-01	6.546E-01	5.977E-02	0.110
		1175.09		-1.756E+00	3.218E+00	4.904E+00	4.041E-01	-0.358
		1238.25		1.866E-01	1.353E-01	2.438E-01	2.069E-02	0.765
		1360.21		8.022E-01	1.253E+00	2.288E+00	1.867E-01	0.351
		1771.40		-2.005E-01	3.226E-01	4.420E-01	3.673E-02	-0.453
CO-57		122.06	*	9.089E-03	1.975E-02	3.197E-02	3.673E-03	0.284
		136.48		-1.638E-01	1.799E-01	2.653E-01	2.939E-02	-0.618
CO-58		810.76	*	-3.520E-02	4.378E-02	6.661E-02	6.666E-03	-0.528
FE-59		142.65		-7.434E-01	2.380E+00	3.644E+00	3.680E-01	-0.204
		192.34		2.520E-01	7.977E-01	1.367E+00	1.823E-01	0.184
		1099.22	*	-4.918E-02	1.434E-01	2.262E-01	2.087E-02	-0.217
		1291.56		-5.333E-02	1.796E-01	2.773E-01	2.605E-02	-0.192
CO-60		1173.22		3.490E-02	6.545E-02	1.120E-01	9.227E-03	0.312
		1332.49	*	-2.715E-02	4.575E-02	6.957E-02	5.647E-03	-0.390
ZN-65		1115.52	*	4.322E-02	1.385E-01	2.056E-01	1.743E-02	0.210
GE-68		1077.35	*	6.809E-01	1.799E+00	3.063E+00	2.630E-01	0.222
AS-73		53.44	*	1.274E-01	1.807E-01	3.107E-01	2.516E-02	0.410
AS-74		595.88	*	6.452E-03	1.137E-01	1.878E-01	1.971E-02	0.034
		634.78		4.253E-01	4.586E-01	8.119E-01	8.798E-02	0.524

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75		66.05		-1.137E+00	2.098E+00	3.120E+00	3.105E-01	-0.364
		96.73		-5.620E-01	5.677E-01	7.816E-01	1.128E-01	-0.719
		121.11		5.758E-02	1.068E-01	1.735E-01	2.340E-02	0.332
		136.00		1.078E-03	3.320E-02	5.207E-02	5.533E-03	0.021
		198.60		-7.102E-01	1.610E+00	2.652E+00	2.518E-01	-0.268
		264.65	*	1.889E-02	4.226E-02	6.847E-02	6.147E-03	0.276
		279.53		-6.439E-02	1.109E-01	1.749E-01	1.614E-02	-0.368
		303.91		1.220E+00	2.163E+00	3.304E+00	3.865E-01	0.369
		400.65		1.099E-01	2.885E-01	4.713E-01	5.045E-02	0.233
BR-77	+	87.88		1.379E+03	2.912E+02	4.038E+02	3.795E+01	3.416
		200.40		2.998E+01	2.580E+02	4.366E+02	3.740E+01	0.069
	+	239.00		4.895E+02	5.641E+01	7.211E+01	6.401E+00	6.788
		249.79		2.896E+01	1.097E+02	1.841E+02	1.642E+01	0.157
		281.68		6.791E+01	1.442E+02	2.435E+02	2.172E+01	0.279
		297.23		6.605E+01	9.060E+01	1.542E+02	1.376E+01	0.428
		303.76		3.204E+02	3.118E+02	4.964E+02	4.424E+01	0.645
		439.47		-3.453E+01	2.627E+02	4.393E+02	3.800E+01	-0.079
		484.57		9.614E+01	4.310E+02	7.350E+02	6.805E+01	0.131
		520.65	*	-8.411E+00	2.107E+01	3.382E+01	3.281E+00	-0.249
		574.64		6.858E+01	4.396E+02	7.346E+02	7.558E+01	0.093
		578.91		-7.688E+01	1.925E+02	2.630E+02	2.717E+01	-0.292
		585.48		5.854E+02	4.274E+02	7.097E+02	7.379E+01	0.825
		755.35		3.750E+02	3.937E+02	6.881E+02	7.253E+01	0.545
		817.79		-1.611E+02	2.903E+02	4.599E+02	4.556E+01	-0.350
SR-82		698.33		2.223E+01	3.859E+01	6.631E+01	7.236E+00	0.335
		776.49	*	3.178E-01	5.784E-01	8.730E-01	9.037E-02	0.364
		1395.20		1.420E+01	1.400E+01	2.687E+01	2.206E+00	0.528
RB-83		520.41	*	-2.788E-02	8.004E-02	1.291E-01	1.252E-02	-0.216
		529.64		6.580E-02	1.183E-01	2.058E-01	2.018E-02	0.320
		552.65		-9.403E-02	2.459E-01	3.932E-01	3.956E-02	-0.239
RB-84		881.50	*	-1.396E-02	8.995E-02	1.478E-01	1.333E-02	-0.094
KR-85		513.99	*	-4.701E+00	8.543E+00	1.167E+01	1.123E+00	-0.403
SR-85		513.99	*	-2.460E-02	4.471E-02	6.107E-02	5.877E-03	-0.403
RB-86		1076.63	*	7.175E-01	1.207E+00	2.098E+00	1.801E-01	0.342
Y-88		898.02		6.050E-03	5.051E-02	8.540E-02	7.506E-03	0.071
		1836.01	*	-8.355E-03	4.774E-02	7.399E-02	6.109E-03	-0.113
ZR-88		392.90	*	-1.723E-02	3.256E-02	4.913E-02	3.914E-03	-0.351
Y-91		1204.90	*	-2.325E+00	3.028E+01	4.868E+01	4.011E+00	-0.048
NB-94		702.63	*	1.954E-02	3.842E-02	6.537E-02	7.119E-03	0.299
		871.10		2.340E-02	3.975E-02	7.073E-02	6.492E-03	0.331
NB-95		765.79	*	-1.904E-02	7.151E-02	9.645E-02	1.008E-02	-0.197
NB-95M		235.69	*	4.345E-02	1.301E-01	1.981E-01	1.996E-02	0.219
ZR-95		724.18		6.722E-02	1.441E-01	2.148E-01	2.443E-02	0.313
		756.15	*	5.038E-02	9.936E-02	1.672E-01	1.882E-02	0.301
NB-97		657.90	*	-3.644E-01	9.936E-02	Half-Life	too short	
		1024.50		-2.418E+01	9.936E-02	Half-Life	too short	
ZR-97		254.15		1.443E+01	9.936E-02	Half-Life	too short	
		355.39		-9.396E+00	9.936E-02	Half-Life	too short	
		507.63	*	1.472E+01	9.936E-02	Half-Life	too short	

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

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	602.52			4.291E+01	9.936E-02	Half-Life too short		
	1021.30			2.934E+01	9.936E-02	Half-Life too short		
	1147.95			1.399E+01	9.936E-02	Half-Life too short		
	1362.66			-2.865E+01	9.936E-02	Half-Life too short		
	1750.46			5.561E+00	9.936E-02	Half-Life too short		
MO-99	140.51			9.365E+00	3.690E+01	5.819E+01	1.644E+01	0.161
	181.06			-1.458E+01	2.324E+01	3.609E+01	6.552E+00	-0.404
	366.43			7.420E+01	1.416E+02	2.360E+02	1.979E+01	0.314
	739.58	*		-4.091E+00	2.643E+01	4.183E+01	6.873E+00	-0.098
	778.00			3.148E+01	7.703E+01	1.244E+02	1.286E+01	0.253
TC-99M	140.51	*		1.788E+12	7.703E+01	Half-Life too short		
RH-101	127.23			1.421E-02	2.726E-02	4.084E-02	4.559E-03	0.348
	198.01	*		-9.123E-03	2.871E-02	4.760E-02	4.065E-03	-0.192
	325.23			-9.448E-02	2.614E-01	3.635E-01	3.205E-02	-0.260
RH-102	418.52			-3.482E-02	2.963E-01	4.983E-01	4.161E-02	-0.070
	475.06	*		-2.616E-02	2.982E-02	4.593E-02	4.195E-03	-0.570
	631.29			-5.598E-03	6.780E-02	1.099E-01	1.188E-02	-0.051
	697.49			5.502E-02	8.247E-02	1.430E-01	1.561E-02	0.385
	766.84			2.474E-02	1.751E-01	2.490E-01	2.600E-02	0.099
	1046.59			2.966E-02	1.352E-01	2.283E-01	1.977E-02	0.130
	1112.84			4.011E-02	3.305E-01	5.163E-01	4.377E-02	0.078
RU-103	497.08	*		-1.076E-02	4.530E-02	7.408E-02	1.086E-02	-0.145
+	610.33			1.636E+01	3.551E+00	3.750E+00	6.678E-01	4.363
RH-106	511.85	+		4.937E-01	3.552E-01	4.600E-01	4.414E-02	1.073
	621.84	*		-2.144E-01	4.101E-01	6.364E-01	9.423E-02	-0.337
	1050.47			-2.772E-01	2.835E+00	4.600E+00	3.979E-01	-0.060
RU-106	511.85	+		4.937E-01	3.552E-01	4.600E-01	4.414E-02	1.073
	621.84	*		-2.144E-01	4.095E-01	6.364E-01	6.828E-02	-0.337
	1050.47			-2.772E-01	2.835E+00	4.600E+00	3.979E-01	-0.060
AG-108M	433.93	*		-1.556E-02	3.450E-02	5.627E-02	5.018E-03	-0.276
	614.37			2.109E-02	5.187E-02	7.824E-02	8.559E-03	0.270
	722.95			-2.335E-02	6.216E-02	8.281E-02	9.149E-03	-0.282
AG-110M	657.75	*		-3.309E-02	5.019E-02	7.676E-02	8.611E-03	-0.431
	677.61			3.609E-01	3.676E-01	6.523E-01	7.298E-02	0.553
	706.67			2.594E-02	2.755E-01	4.491E-01	4.967E-02	0.058
	763.93			1.110E-01	2.478E-01	3.675E-01	3.920E-02	0.302
	884.67			-3.520E-02	6.022E-02	9.376E-02	8.657E-03	-0.375
	937.48			-5.069E-02	1.493E-01	2.392E-01	2.171E-02	-0.212
	1384.27			1.632E-01	2.001E-01	3.731E-01	3.153E-02	0.437
IN-111	171.28			6.597E-01	1.329E+00	2.314E+00	1.897E-01	0.285
	245.39	*		2.742E-01	1.652E+00	2.484E+00	2.212E-01	0.110
IN-113M	391.69	*		-6.142E-03	4.781E-02	7.507E-02	6.182E-03	-0.082
SN-113	391.69	*		-6.142E-03	4.781E-02	7.507E-02	6.182E-03	-0.082
IN-114M	190.27	*		-2.306E-02	1.582E-01	2.533E-01	2.141E-02	-0.091
CD-115	260.90			-1.332E+02	2.161E+02	3.409E+02	3.047E+01	-0.391
	492.35			1.821E+01	7.142E+01	1.220E+02	1.141E+01	0.149
	527.90	*		1.275E+01	2.211E+01	3.852E+01	3.769E+00	0.331
SN-117M	156.02			-4.244E-01	2.081E+00	3.537E+00	3.192E-01	-0.120
	158.56	*		-9.977E-03	4.956E-02	8.412E-02	7.404E-03	-0.119

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

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SB-122	563.90	*		1.738E+00	4.081E+00	6.975E+00	7.101E-01	0.249
	692.80			8.434E+00	9.053E+01	1.479E+02	1.618E+01	0.057
I-123	159.00	*		-1.990E+01	9.053E+01	Half-Life too short		
	528.96			4.523E+03	9.053E+01	Half-Life too short		
TE-123M	159.00	*		-8.489E-03	2.388E-02	4.025E-02	3.547E-03	-0.211
I-124	602.71	*		7.697E-01	1.128E+00	1.839E+00	1.942E-01	0.419
	722.78			-3.606E+00	8.941E+00	1.186E+01	1.278E+00	-0.304
	1325.50			9.071E+00	6.013E+01	1.029E+02	8.366E+00	0.088
	1376.25			5.386E+01	5.806E+01	1.077E+02	8.814E+00	0.500
	1509.49			3.046E+01	2.811E+01	5.416E+01	4.508E+00	0.562
	1691.02			2.567E+00	6.539E+00	1.167E+01	9.749E-01	0.220
SB-124	602.71			3.315E-02	4.859E-02	7.921E-02	8.365E-03	0.419
	645.85			-3.008E-01	6.078E-01	9.376E-01	1.063E-01	-0.321
	709.31			3.828E+00	3.600E+00	6.372E+00	6.917E-01	0.601
	713.82			8.207E-01	2.099E+00	3.518E+00	4.823E-01	0.233
	722.78			-2.252E-01	5.582E-01	7.404E-01	8.090E-02	-0.304
	+ 968.20			2.224E+01	5.326E+00	9.608E+00	8.416E-01	2.314
	1045.16			-3.661E-01	3.034E+00	4.910E+00	4.252E-01	-0.075
	1325.50			6.049E-01	4.009E+00	6.864E+00	5.579E-01	0.088
	1368.21			-2.541E-01	2.247E+00	3.694E+00	4.873E-01	-0.069
	1436.60			2.076E-02	4.123E+00	6.871E+00	5.676E-01	0.003
	1691.02	*		3.780E-02	9.631E-02	1.719E-01	1.496E-02	0.220
SB-125	427.89	*		7.532E-02	1.034E-01	1.833E-01	1.587E-02	0.411
	+ 463.38			4.023E-01	3.907E-01	6.494E-01	6.254E-02	0.619
	600.56			4.422E-02	2.056E-01	3.441E-01	3.808E-02	0.129
	635.90			-5.186E-02	3.366E-01	5.413E-01	6.174E-02	-0.096
TE-125M	109.28	*		2.655E+00	6.831E+00	1.110E+01	1.335E+00	0.239
I-126	388.63			1.697E-01	2.534E-01	4.238E-01	3.393E-02	0.401
	666.33	*		1.701E-01	2.392E-01	4.146E-01	4.574E-02	0.410
	753.82			1.140E+00	2.317E+00	3.888E+00	4.103E-01	0.293
SB-126	223.80			3.025E+00	4.080E+00	7.059E+00	6.200E-01	0.429
	278.60			2.352E+00	2.670E+00	4.596E+00	4.099E-01	0.512
	+ 296.50			1.650E+01	2.707E+00	3.872E+00	3.456E-01	4.261
	414.70			1.821E-02	8.637E-02	1.488E-01	1.234E-02	0.122
	415.30			1.514E+00	7.287E+00	1.255E+01	1.042E+00	0.121
	555.20			6.330E-01	5.276E+00	8.816E+00	8.894E-01	0.072
	573.80			4.870E-01	1.418E+00	2.406E+00	2.473E-01	0.202
	593.00			2.520E-01	1.254E+00	2.098E+00	2.196E-01	0.120
	656.30			6.498E-01	4.911E+00	8.089E+00	8.902E-01	0.080
	666.33			7.140E-02	1.004E-01	1.740E-01	1.920E-02	0.410
	675.00			-1.837E+00	2.766E+00	4.166E+00	4.585E-01	-0.441
	695.00			-6.541E-02	1.030E-01	1.548E-01	1.692E-02	-0.422
	697.00			2.572E-03	3.348E-01	5.421E-01	5.918E-02	0.005
	720.50	*		1.723E-01	2.225E-01	3.470E-01	3.744E-02	0.497
	856.80			-1.468E-01	7.233E-01	1.022E+00	9.600E-02	-0.144
	989.30			5.169E-01	1.742E+00	2.977E+00	2.603E-01	0.174
	1034.80			-1.039E+01	1.265E+01	1.864E+01	1.618E+00	-0.557
	1213.00			1.449E-01	7.996E+00	1.296E+01	1.068E+00	0.011
SB-127	61.10			4.177E+00	2.950E+01	4.566E+01	5.115E+00	0.091

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	252.40			-2.918E+00	5.895E+00	9.225E+00	3.899E+00	-0.316
	290.80			1.938E+00	3.126E+01	4.583E+01	5.493E+00	0.042
	411.60			-1.947E+01	2.004E+01	2.859E+01	4.563E+00	-0.681
	444.90			1.664E+01	1.513E+01	2.730E+01	3.587E+00	0.610
	473.00			-6.853E-01	2.400E+00	3.924E+00	5.379E-01	-0.175
	543.00			8.609E-03	2.601E+01	4.311E+01	6.757E+00	0.000
	603.60			9.792E+00	2.077E+01	3.163E+01	4.557E+00	0.310
	685.20	*		-5.914E-02	2.488E+00	4.024E+00	5.536E-01	-0.015
	698.50			1.246E+01	2.307E+01	3.941E+01	6.924E+00	0.316
	722.20			7.441E+00	6.099E+01	8.731E+01	1.172E+01	0.085
	783.80			8.181E+00	7.015E+00	1.235E+01	1.743E+00	0.663
XE-127	57.60			-1.352E+00	1.739E+00	2.795E+00	2.201E-01	-0.484
	145.22			1.513E-01	6.066E-01	9.578E-01	9.488E-02	0.158
	172.10			3.407E-02	1.037E-01	1.791E-01	1.470E-02	0.190
	202.84	*		3.640E-04	4.310E-02	7.251E-02	6.231E-03	0.005
I-131	374.96			-2.660E-02	2.293E-01	3.622E-01	2.989E-02	-0.073
	80.18			2.201E+00	3.001E+00	4.687E+00	4.170E-01	0.469
	284.30			-1.054E+00	1.657E+00	2.582E+00	2.420E-01	-0.408
	364.48	*		-6.638E-02	1.421E-01	2.180E-01	1.942E-02	-0.305
	636.97			-2.387E+00	2.404E+00	3.524E+00	3.966E-01	-0.677
	722.89			-4.767E+00	1.237E+01	1.645E+01	1.782E+00	-0.290
TE-132	49.72			1.619E+00	4.686E+00	7.447E+00	8.342E-01	0.217
	111.76			-2.378E-02	3.219E+01	5.120E+01	6.696E+00	0.000
	116.30			3.004E+01	3.179E+01	5.258E+01	7.011E+00	0.571
	228.16	*		-4.873E-02	9.343E-01	1.552E+00	2.513E-01	-0.031
BA-133	53.15			5.248E-01	7.518E-01	1.293E+00	1.049E-01	0.406
	79.62			7.017E-04	7.368E-01	1.111E+00	1.702E-01	0.001
	81.00			-1.499E-02	5.687E-02	8.437E-02	1.352E-02	-0.178
	276.40			4.218E-01	3.506E-01	6.086E-01	8.904E-02	0.693
	302.84			-6.103E-02	1.535E-01	2.139E-01	2.884E-02	-0.285
	356.01	*		-1.316E-02	5.244E-02	7.280E-02	9.568E-03	-0.181
	383.85			-1.890E-01	3.307E-01	4.958E-01	6.075E-02	-0.381
I-133	510.53	+		4.736E+00	3.307E-01	Half-Life	too short	
	529.87	*		2.553E-02	3.307E-01	Half-Life	too short	
	706.58			7.546E-02	3.307E-01	Half-Life	too short	
	856.28			-1.443E+00	3.307E-01	Half-Life	too short	
	875.33			3.516E-01	3.307E-01	Half-Life	too short	
	1236.41			5.040E+00	3.307E-01	Half-Life	too short	
	1298.22			1.484E-01	3.307E-01	Half-Life	too short	
CS-134	475.35			-8.912E-01	1.963E+00	3.159E+00	2.887E-01	-0.282
	563.23			2.192E-01	4.291E-01	7.386E-01	7.565E-02	0.297
	569.32			8.489E-02	2.348E-01	3.992E-01	4.126E-02	0.213
	604.70			-7.702E-03	4.363E-02	6.130E-02	6.495E-03	-0.126
	795.84	*		5.379E-02	6.135E-02	1.064E-01	1.086E-02	0.506
	801.93			3.146E-02	5.338E-01	9.050E-01	9.169E-02	0.035
	1038.57			3.949E+00	4.736E+00	8.534E+00	7.401E-01	0.463
	1167.94			-2.608E-01	3.812E+00	6.151E+00	5.083E-01	-0.042
	1365.15			-6.889E-01	1.497E+00	2.316E+00	1.988E-01	-0.297
CS-135	268.24	*		1.137E-01	1.738E-01	2.679E-01	2.743E-02	0.425

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-135	288.45			-1.781E+12	1.738E-01	Half-Life	too short	
	417.63			5.091E+11	1.738E-01	Half-Life	too short	
	546.56			-1.067E+12	1.738E-01	Half-Life	too short	
	836.80			1.027E+12	1.738E-01	Half-Life	too short	
	1038.76			2.616E+12	1.738E-01	Half-Life	too short	
	1124.00			-7.430E+12	1.738E-01	Half-Life	too short	
	1131.51			-1.998E+11	1.738E-01	Half-Life	too short	
	1260.41	*		-1.676E+11	1.738E-01	Half-Life	too short	
	1457.56			1.463E+14	1.738E-01	Half-Life	too short	
	1678.03			8.272E+11	1.738E-01	Half-Life	too short	
	1706.46			2.204E+12	1.738E-01	Half-Life	too short	
	1791.20			1.906E+11	1.738E-01	Half-Life	too short	
CS-136	66.91			8.669E-02	3.727E-01	5.754E-01	8.708E-02	0.151
	86.29	+		5.148E+00	1.193E+00	1.407E+00	1.871E-01	3.659
	153.22			-6.865E-02	5.821E-01	9.942E-01	1.016E-01	-0.069
	163.89			-2.122E-01	9.735E-01	1.647E+00	1.546E-01	-0.129
	176.55			-1.587E-01	3.253E-01	5.389E-01	4.738E-02	-0.294
	273.65			-2.372E-01	4.893E-01	6.851E-01	6.496E-02	-0.346
	340.57			3.675E-02	1.572E-01	2.303E-01	2.061E-02	0.160
	818.51			-5.222E-02	9.902E-02	1.571E-01	1.556E-02	-0.332
	1048.07	*		1.835E-02	1.482E-01	2.471E-01	2.229E-02	0.074
	1235.34			7.353E-01	9.570E-01	1.649E+00	1.908E-01	0.446
BA-137M	661.65	*		-3.579E-02	5.154E-02	7.858E-02	8.679E-03	-0.455
CS-137	661.65	*		-3.783E-02	5.448E-02	8.307E-02	9.185E-03	-0.455
CE-139	165.85	*		-4.275E-03	2.436E-02	4.125E-02	3.354E-03	-0.104
BA-140	162.64			2.929E-01	6.868E-01	1.195E+00	1.069E-01	0.245
	304.84			-3.417E-01	1.452E+00	2.201E+00	6.187E-01	-0.155
	423.70			-1.748E+00	2.145E+00	3.266E+00	1.057E+00	-0.535
LA-140	537.32	*		3.444E-02	3.102E-01	5.196E-01	1.740E-01	0.066
	328.77	+		6.195E-01	4.802E-01	6.070E-01	5.627E-02	1.020
	432.53			2.428E-01	2.501E+00	4.260E+00	3.823E-01	0.057
	487.03			3.488E-02	1.618E-01	2.757E-01	2.698E-02	0.127
	751.79			-1.392E+00	2.756E+00	4.199E+00	4.758E-01	-0.332
	815.85			1.953E-01	4.293E-01	7.552E-01	8.158E-02	0.259
	867.82			-1.055E+00	1.916E+00	3.012E+00	2.909E-01	-0.350
	919.63			1.459E+00	4.075E+00	6.872E+00	7.396E-01	0.212
	925.24			1.546E-01	1.637E+00	2.750E+00	2.557E-01	0.056
	1596.49	*		-2.057E-01	1.087E-01	7.572E-02	6.332E-03	-2.717
CE-141	145.44	*		6.320E-03	5.497E-02	8.614E-02	8.636E-03	0.073
CE-143	57.37			-5.853E-04	5.497E-02	Half-Life	too short	
	231.56			3.970E-03	5.497E-02	Half-Life	too short	
	293.26	*		1.172E-03	5.497E-02	Half-Life	too short	
	350.59	+		8.793E-02	5.497E-02	Half-Life	too short	
	490.36			-1.748E-03	5.497E-02	Half-Life	too short	
	664.57			2.866E-04	5.497E-02	Half-Life	too short	
	721.93			6.640E-04	5.497E-02	Half-Life	too short	
CE-144	80.11			8.913E-01	1.174E+00	1.836E+00	1.620E-01	0.486
	133.54	*		3.192E-02	1.691E-01	2.678E-01	4.510E-02	0.119
PM-144	476.78			3.610E-02	7.170E-02	1.250E-01	1.241E-02	0.289

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-1.234E-02	3.982E-02	6.327E-02	6.889E-03	-0.195
		696.49	*	-3.089E-02	4.108E-02	6.078E-02	6.639E-03	-0.508
		778.57		9.267E-01	3.140E+00	5.175E+00	5.349E-01	0.179
PR-144		696.49	*	-2.096E+00	2.786E+00	4.123E+00	4.502E-01	-0.508
	1489.15			1.909E+00	1.274E+01	2.180E+01	1.811E+00	0.088
PM-146		453.90	*	-4.406E-05	4.304E-02	7.250E-02	7.911E-03	-0.001
		633.02		-6.977E-01	1.754E+00	2.721E+00	1.032E+00	-0.256
		735.90		8.922E-02	1.874E-01	3.140E-01	9.198E-02	0.284
		747.13		-4.625E-02	1.310E-01	2.028E-01	3.110E-02	-0.228
ND-147	+	91.11		9.601E-01	2.432E-01	3.394E-01	3.462E-02	2.829
		319.41		-4.413E+00	3.958E+00	5.850E+00	5.180E-01	-0.754
		439.89		-3.280E+00	6.972E+00	1.134E+01	9.816E-01	-0.289
		531.02	*	2.542E-01	6.911E-01	1.184E+00	1.856E-01	0.215
PM-149		285.90	*	7.139E+01	1.560E+02	2.624E+02	4.126E+01	0.272
EU-152		121.78		2.261E-02	5.661E-02	9.136E-02	1.140E-02	0.248
		244.69		-1.269E-01	3.188E-01	4.570E-01	4.068E-02	-0.278
		344.27	*	-7.061E-02	1.022E-01	1.550E-01	1.422E-02	-0.455
		443.98		3.951E-01	1.044E+00	1.810E+00	1.577E-01	0.218
		778.89		4.547E-02	3.630E-01	5.882E-01	6.075E-02	0.077
		867.32		2.064E-02	1.023E+00	1.716E+00	1.584E-01	0.012
	+	964.01		8.970E-01	4.748E-01	7.675E-01	6.725E-02	1.169
		1085.78		2.371E-01	5.233E-01	9.004E-01	7.708E-02	0.263
		1112.02		-2.111E-01	4.512E-01	6.991E-01	5.928E-02	-0.302
		1407.95		-5.359E-03	2.191E-01	3.641E-01	2.995E-02	-0.015
GD-153		69.67		-5.095E-01	7.278E-01	1.162E+00	9.528E-02	-0.438
	+	83.37		2.606E+01	9.740E+00	1.473E+01	1.334E+00	1.768
		97.43	*	-2.727E-02	5.950E-02	8.552E-02	8.449E-03	-0.319
		103.18		-6.040E-02	7.580E-02	1.158E-01	1.182E-02	-0.522
EU-154		123.07		-2.460E-02	4.050E-02	6.143E-02	8.364E-03	-0.400
		247.94		1.257E-01	3.263E-01	5.520E-01	6.457E-02	0.228
		591.81		4.670E-01	7.367E-01	1.276E+00	1.670E-01	0.366
		723.30		-1.227E-01	2.695E-01	3.553E-01	4.091E-02	-0.345
		756.87		2.004E-01	1.058E+00	1.730E+00	2.321E-01	0.116
		873.19		-3.658E-03	3.851E-01	6.437E-01	8.124E-02	-0.006
		996.32		1.284E-01	4.539E-01	7.730E-01	1.378E-01	0.166
		1004.76		-2.167E-01	2.665E-01	3.941E-01	4.618E-02	-0.550
		1274.45	*	-1.866E-01	1.933E-01	2.739E-01	3.010E-02	-0.681
EU-155		48.70		-9.924E-02	3.607E-01	5.544E-01	4.690E-02	-0.179
		60.01		2.226E+00	1.623E+00	2.818E+00	2.201E-01	0.790
	+	86.54		4.292E-01	9.078E-02	1.256E-01	1.178E-02	3.417
		105.31	*	1.068E-01	7.987E-02	1.348E-01	1.406E-02	0.792
TB-160	+	86.79		1.167E+00	2.465E-01	3.572E-01	3.326E-02	3.268
		197.04		1.248E-01	4.955E-01	8.450E-01	7.208E-02	0.148
		215.65		-1.564E-01	6.783E-01	1.121E+00	9.775E-02	-0.139
	+	298.57		2.519E-01	1.394E-01	2.068E-01	1.845E-02	1.218
		879.36	*	7.386E-02	1.784E-01	3.108E-01	2.813E-02	0.238
		962.29		1.218E+00	8.097E-01	1.379E+00	1.208E-01	0.883
		966.15		1.156E+00	3.576E-01	6.953E-01	6.091E-02	1.663
		1177.93		-5.148E-01	5.189E-01	7.440E-01	6.131E-02	-0.692

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1271.85			8.400E-01	1.053E+00	1.849E+00	1.515E-01	0.454
	80.57			4.921E-02	1.532E-01	2.345E-01	2.077E-02	0.210
	184.41		+	1.788E-01	4.735E-02	5.572E-02	4.667E-03	3.209
	280.46			-2.958E-02	8.254E-02	1.319E-01	1.177E-02	-0.224
	410.95			4.272E-02	2.663E-01	4.268E-01	3.516E-02	0.100
	711.68		*	-8.427E-02	8.278E-02	1.191E-01	1.292E-02	-0.707
TM-171	752.31			-2.312E-01	3.945E-01	5.953E-01	6.289E-02	-0.388
	810.29			-8.376E-02	6.690E-02	9.539E-02	9.534E-03	-0.878
	51.35			-6.025E+00	5.584E+00	8.873E+00	7.313E-01	-0.679
	52.39			1.503E+00	3.020E+00	5.163E+00	4.217E-01	0.291
	59.40			6.611E+00	8.401E+00	1.435E+01	1.120E+00	0.461
	66.72		*	-2.031E-01	1.219E+01	1.860E+01	1.499E+00	-0.011
LU-176	88.36		+	8.447E-01	1.783E-01	2.187E-01	2.061E-02	3.863
	201.83			8.556E-03	2.570E-02	4.390E-02	3.768E-03	0.195
	306.84		*	-1.164E-02	2.396E-02	3.747E-02	3.336E-03	-0.311
	401.10			-1.221E+00	7.603E+00	1.188E+01	9.614E-01	-0.103
LU-177	112.95			-1.764E+00	1.493E+00	2.197E+00	2.380E-01	-0.803
	208.36		+	3.677E+00	1.536E+00	2.284E+00	1.976E-01	1.610
LU-177M	52.97			2.507E-01	3.396E-01	5.849E-01	4.754E-02	0.429
	54.07			1.529E-01	1.915E-01	3.302E-01	2.662E-02	0.463
	61.30			-1.860E-01	5.571E-01	8.429E-01	6.616E-02	-0.221
	121.62			6.058E-02	2.939E-01	4.697E-01	5.377E-02	0.129
	147.16			-7.667E-02	5.499E-01	8.480E-01	8.272E-02	-0.090
	171.86			6.637E-02	4.077E-01	6.994E-01	5.740E-02	0.095
	218.09			4.359E-01	7.723E-01	1.327E+00	1.160E-01	0.328
	268.79		+	1.956E+00	1.287E+00	1.449E+00	1.295E-01	1.350
	319.02			-1.639E-01	2.704E-01	4.177E-01	3.699E-02	-0.392
	367.43			5.899E-01	9.601E-01	1.609E+00	1.347E-01	0.367
	413.65		*	-9.902E-02	1.964E-01	2.957E-01	2.448E-02	-0.335
	56.28			-1.196E-01	2.440E-01	3.978E-01	3.158E-02	-0.301
HF-181	57.53			-1.119E-01	1.451E-01	2.333E-01	1.838E-02	-0.480
	65.20			-2.303E-01	3.978E-01	5.909E-01	4.723E-02	-0.390
	133.02			-3.053E-02	6.168E-02	8.579E-02	9.250E-03	-0.356
	136.25			-2.949E-01	4.070E-01	6.089E-01	6.431E-02	-0.484
	345.85			-3.175E-02	2.197E-01	3.094E-01	2.674E-02	-0.103
	482.03		*	-3.098E-02	4.777E-02	7.550E-02	6.965E-03	-0.410
W-181	56.28			-4.586E-02	9.358E-02	1.526E-01	1.211E-02	-0.301
	57.53			-4.292E-02	5.568E-02	8.953E-02	7.053E-03	-0.479
	65.20		*	-8.767E-02	1.514E-01	2.250E-01	1.798E-02	-0.390
TA-182	67.75			2.135E-02	4.597E-02	7.707E-02	6.247E-03	0.277
	100.10			-2.045E-02	1.266E-01	2.005E-01	2.011E-02	-0.102
	152.43			4.527E-02	2.930E-01	4.584E-01	4.277E-02	0.099
	222.10			-2.249E-01	3.189E-01	5.113E-01	4.484E-02	-0.440
	1001.68			3.138E-01	2.573E+00	4.306E+00	3.759E-01	0.073
RE-183	1121.28		+	4.485E-01	2.712E-01	4.424E-01	3.737E-02	1.014
	1189.05			-2.386E-01	4.359E-01	6.632E-01	5.465E-02	-0.360
	1221.42		*	5.798E-02	3.239E-01	5.322E-01	4.381E-02	0.109
	1230.97			-2.531E-01	7.242E-01	1.130E+00	9.294E-02	-0.224
	57.98			-7.174E-02	5.890E-02	9.265E-02	7.281E-03	-0.774



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

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RE-184		59.32		2.496E-02	3.491E-02	5.952E-02	4.644E-03	0.419
		67.20		4.333E-02	8.949E-02	1.397E-01	1.129E-02	0.310
		162.32	*	7.437E-02	9.164E-02	1.619E-01	1.370E-02	0.459
	+	208.81		2.757E+00	1.152E+00	1.709E+00	1.479E-01	1.613
		291.72		2.123E-01	9.843E-01	1.463E+00	1.306E-01	0.145
		57.98		-2.614E-01	2.146E-01	3.376E-01	2.653E-02	-0.774
		59.32		9.089E-02	1.271E-01	2.167E-01	1.691E-02	0.419
		67.20		1.578E-01	3.260E-01	5.089E-01	4.112E-02	0.310
		161.27		4.457E-02	2.955E-01	5.089E-01	4.355E-02	0.088
		216.55		1.666E-01	2.371E-01	4.103E-01	3.580E-02	0.406
		252.85	*	-2.724E-02	2.165E-01	3.548E-01	3.166E-02	-0.077
		318.01		2.137E-01	4.453E-01	7.459E-01	6.609E-02	0.287
		792.07		2.415E-01	1.306E+00	2.126E+00	2.168E-01	0.114
		903.28		1.120E+00	1.332E+00	2.179E+00	1.907E-01	0.514
OS-185		920.93		6.577E-03	5.845E-01	9.742E-01	8.536E-02	0.007
		59.72		1.030E-01	9.635E-02	1.659E-01	1.295E-02	0.621
		61.14		7.985E-03	6.008E-02	9.296E-02	7.292E-03	0.086
		69.30		-6.263E-02	1.313E-01	2.119E-01	1.733E-02	-0.296
		592.07		2.166E+00	3.069E+00	5.351E+00	5.597E-01	0.405
		646.12	*	-2.090E-02	5.067E-02	7.889E-02	8.621E-03	-0.265
		717.42		-8.208E-01	1.195E+00	1.785E+00	1.929E-01	-0.460
		874.81		3.262E-01	7.286E-01	1.275E+00	1.163E-01	0.256
		880.27		-2.399E-01	9.620E-01	1.564E+00	1.413E-01	-0.153
		155.03	*	5.341E-02	1.401E-01	2.441E-01	2.224E-02	0.219
RE-188		477.96		1.659E+00	3.404E+00	5.924E+00	5.434E-01	0.280
		633.10		-1.305E+00	3.585E+00	5.645E+00	6.110E-01	-0.231
	+	63.58		7.460E+01	2.882E+01	4.007E+01	3.177E+00	1.862
W-188		227.08		-9.630E+00	1.211E+01	1.926E+01	1.696E+00	-0.500
	*	290.67		3.592E-01	7.771E+00	1.138E+01	1.016E+00	0.032
IR-192	+	295.96		1.154E+00	1.898E-01	3.153E-01	2.833E-02	3.662
		308.46		9.247E-02	9.282E-02	1.610E-01	1.440E-02	0.574
		316.51	*	2.998E-02	3.457E-02	5.937E-02	5.276E-03	0.505
		468.07		4.788E-02	7.525E-02	1.246E-01	1.200E-02	0.384
		604.41		-1.219E-01	5.903E-01	8.254E-01	1.188E-01	-0.148
		612.46		-1.431E-01	8.870E-01	1.245E+00	1.458E-01	-0.115
AU-195		65.12		-3.664E-02	6.983E-02	1.041E-01	8.313E-03	-0.352
		66.83		6.576E-03	4.049E-02	6.235E-02	5.027E-03	0.105
	+	75.70		1.210E+00	1.740E-01	2.394E-01	2.044E-02	5.054
		98.88	*	2.753E-01	1.591E-01	2.718E-01	2.707E-02	1.013
	+	129.76		5.977E+00	4.031E+00	4.330E+00	4.762E-01	1.381
TL-200		367.94	*	7.640E-04	4.031E+00	Half-Life	too short	
		579.30		-4.680E-03	4.031E+00	Half-Life	too short	
		828.27		-1.337E-02	4.031E+00	Half-Life	too short	
		1205.75		-2.797E-03	4.031E+00	Half-Life	too short	
TL-201		68.90		8.832E-01	3.124E+00	5.199E+00	4.242E-01	0.170
		70.82		-9.172E-01	2.055E+00	3.056E+00	2.524E-01	-0.300
		80.30		5.292E+00	4.700E+00	6.704E+00	5.924E-01	0.789
		135.34		2.949E+01	3.277E+01	5.369E+01	5.704E+00	0.549
	*	167.43		1.581E+00	8.740E+00	1.504E+01	1.225E+00	0.105

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		5.698E-02	2.015E-01	3.354E-01	2.737E-02	0.170
		70.82		-5.902E-02	1.322E-01	1.967E-01	1.624E-02	-0.300
		80.30		3.406E-01	3.025E-01	4.315E-01	3.813E-02	0.789
		439.56	*	-1.747E-02	8.000E-02	1.328E-01	1.149E-02	-0.132
HG-203		70.83		-2.353E-01	5.290E-01	7.860E-01	1.052E-01	-0.299
		72.87		1.759E-01	3.349E-01	5.190E-01	6.769E-02	0.339
	+	82.60		1.983E+00	7.710E-01	9.900E-01	1.384E-01	2.003
		279.20	*	-1.335E-02	4.203E-02	6.747E-02	6.175E-03	-0.198
BI-207		72.80		4.384E-02	9.500E-02	1.471E-01	1.231E-02	0.298
	+	74.97		6.663E-01	9.579E-02	1.425E-01	1.210E-02	4.675
	+	84.90		3.352E-01	1.253E-01	1.863E-01	1.708E-02	1.799
		569.67		2.107E-02	3.701E-02	6.390E-02	6.543E-03	0.330
		1063.62	*	1.333E-02	6.589E-02	1.107E-01	9.540E-03	0.120
		1770.23		1.414E-02	6.307E-01	8.874E-01	7.374E-02	0.016
TL-207		81.07		-3.739E-02	1.254E-01	1.857E-01	1.651E-02	-0.201
	+	83.78		2.210E-01	8.260E-02	1.314E-01	1.194E-02	1.682
		94.90		1.024E-01	1.496E-01	2.312E-01	2.253E-02	0.443
		122.32		6.299E-01	1.353E+00	2.190E+00	2.617E-01	0.288
		144.24		4.764E-01	5.773E-01	9.376E-01	1.020E-01	0.508
		154.21		1.359E-01	3.207E-01	5.599E-01	5.594E-02	0.243
	+	269.46		4.541E-01	2.988E-01	3.524E-01	3.210E-02	1.289
		323.87	*	1.103E-01	7.556E-01	1.104E+00	1.965E-01	0.100
	+	338.28		5.694E+00	2.221E+00	2.675E+00	3.312E-01	2.129
		445.03		2.625E+00	2.470E+00	4.457E+00	5.422E-01	0.589
PO-209		260.50		-2.576E+00	8.600E+00	1.388E+01	1.241E+00	-0.186
		262.80		6.471E+00	2.336E+01	3.918E+01	3.502E+00	0.165
		896.60	*	4.371E+00	9.245E+00	1.618E+01	1.420E+00	0.270
PB-211		404.84	*	1.879E-01	1.024E+00	1.637E+00	1.025E+00	0.115
		427.08		3.262E+00	2.986E+00	4.096E+00	2.544E+00	0.796
		831.96		9.485E-01	1.672E+00	2.771E+00	1.741E+00	0.342
BI-212	+	727.18	*	9.328E-01	6.387E-01	7.991E-01	9.501E-02	1.167
		785.46		1.382E+00	2.350E+00	3.976E+00	4.081E-01	0.348
		1620.62		1.321E+00	1.769E+00	3.274E+00	2.738E-01	0.403
PO-215		81.07		-3.739E-02	1.254E-01	1.857E-01	1.651E-02	-0.201
	+	83.78		2.210E-01	8.260E-02	1.314E-01	1.194E-02	1.682
		94.90		1.024E-01	1.496E-01	2.312E-01	2.253E-02	0.443
		122.32		6.299E-01	1.353E+00	2.190E+00	2.617E-01	0.288
		144.24		4.764E-01	5.773E-01	9.376E-01	1.020E-01	0.508
		154.21		1.359E-01	3.207E-01	5.599E-01	5.594E-02	0.243
	+	269.46		4.541E-01	2.988E-01	3.524E-01	3.210E-02	1.289
		323.87	*	1.103E-01	7.556E-01	1.104E+00	1.965E-01	0.100
	+	338.28		5.694E+00	2.221E+00	2.675E+00	3.312E-01	2.129
		445.03		2.625E+00	2.470E+00	4.457E+00	5.422E-01	0.589
RN-219	+	271.23		5.827E-01	3.847E-01	4.097E-01	4.333E-02	1.422
		401.81	*	-1.200E-01	4.660E-01	7.216E-01	1.063E-01	-0.166
RN-220		549.76	*	2.069E+01	3.163E+01	5.509E+01	5.526E+00	0.376
RA-223		81.07		-3.739E-02	1.254E-01	1.857E-01	1.651E-02	-0.201
	+	83.78		2.210E-01	8.260E-02	1.314E-01	1.194E-02	1.682
		94.90		1.024E-01	1.496E-01	2.312E-01	2.253E-02	0.443

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		6.299E-01	1.353E+00	2.190E+00	2.617E-01	0.288
		144.24		4.764E-01	5.773E-01	9.376E-01	1.020E-01	0.508
		154.21		1.359E-01	3.207E-01	5.599E-01	5.594E-02	0.243
	+	269.46		4.541E-01	2.988E-01	3.524E-01	3.210E-02	1.289
		323.87	*	1.103E-01	7.556E-01	1.104E+00	1.965E-01	0.100
	+	338.28		5.694E+00	2.221E+00	2.675E+00	3.312E-01	2.129
		445.03		2.625E+00	2.470E+00	4.457E+00	5.422E-01	0.589
		79.80		8.038E-01	9.168E-01	1.420E+00	3.065E-01	0.566
		236.00		2.403E-01	2.325E-01	3.678E-01	4.566E-02	0.653
		256.20	*	-6.911E-02	3.464E-01	5.640E-01	8.757E-02	-0.123
		286.10		7.484E-01	1.429E+00	2.415E+00	3.237E-01	0.310
	+	299.80		3.150E+00	1.808E+00	2.625E+00	4.630E-01	1.200
TH-227		304.40		-5.800E-01	2.015E+00	2.837E+00	5.270E-01	-0.204
		334.20		-2.525E-01	2.696E+00	3.837E+00	7.471E-01	-0.066
		79.80		8.038E-01	9.173E-01	1.420E+00	3.104E-01	0.566
	+	94.00		1.275E+01	3.706E+00	2.483E+00	5.518E-01	5.137
		236.00		2.403E-01	2.322E-01	3.678E-01	4.143E-02	0.653
		256.20	*	-6.911E-02	3.464E-01	5.640E-01	1.027E-01	-0.123
		286.10		7.484E-01	1.612E+00	2.415E+00	2.424E+00	0.310
	+	299.80		3.150E+00	1.808E+00	2.625E+00	4.630E-01	1.200
		304.40		-5.800E-01	2.015E+00	2.837E+00	5.270E-01	-0.204
		334.20		-2.525E-01	2.696E+00	3.837E+00	7.471E-01	-0.066
	+	85.43		3.308E-01	1.237E-01	1.744E-01	1.606E-02	1.896
	+	88.47		4.862E-01	1.027E-01	1.237E-01	1.166E-02	3.932
TH-229		100.00		-1.175E-02	1.302E-01	2.069E-01	2.074E-02	-0.057
		193.63	*	-2.507E-01	4.346E-01	7.115E-01	6.041E-02	-0.352
		210.97		-1.155E-01	6.796E-01	1.010E+00	8.763E-02	-0.114
PA-231		283.67	*	-1.093E+00	1.445E+00	2.222E+00	3.412E-01	-0.492
		301.29		6.802E-01	6.261E-01	9.858E-01	1.228E-01	0.690
TH-231		81.07		-3.739E-02	1.254E-01	1.857E-01	1.651E-02	-0.201
	+	83.78		2.210E-01	8.260E-02	1.314E-01	1.194E-02	1.682
		94.90		1.024E-01	1.496E-01	2.312E-01	2.253E-02	0.443
		122.32		6.299E-01	1.353E+00	2.190E+00	2.617E-01	0.288
		144.24		4.764E-01	5.773E-01	9.376E-01	1.020E-01	0.508
		154.21		1.359E-01	3.207E-01	5.599E-01	5.594E-02	0.243
	+	269.46		4.541E-01	2.988E-01	3.524E-01	3.210E-02	1.289
		323.87	*	1.103E-01	7.556E-01	1.104E+00	1.965E-01	0.100
	+	338.28		5.694E+00	2.221E+00	2.675E+00	3.312E-01	2.129
		445.03		2.625E+00	2.470E+00	4.457E+00	5.422E-01	0.589
	+	84.21		1.311E+01	4.901E+00	7.674E+00	6.996E-01	1.708
	+	92.29		1.735E+01	3.659E+00	3.942E+00	3.789E-01	4.402
U-231		95.87	*	-5.605E-01	9.932E-01	1.419E+00	1.390E-01	-0.395
		108.00		-1.863E+00	2.076E+00	3.136E+00	3.295E-01	-0.594
	+	75.28		1.944E+01	3.729E+00	4.126E+00	6.308E-01	4.711
	+	86.59		6.972E+00	2.303E+00	2.066E+00	5.587E-01	3.375
	+	300.12		8.781E-01	4.975E-01	7.238E-01	1.089E-01	1.213
		311.98	*	-1.840E-02	6.085E-02	9.636E-02	8.794E-03	-0.191
		340.50		1.855E-01	6.909E-01	1.014E+00	2.419E-01	0.183
		398.62		-2.107E-01	2.418E+00	3.805E+00	1.007E+00	-0.055

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		1.136E+00	1.699E+00	2.991E+00	6.410E-01	0.380
		63.00		2.122E+00	8.641E-01	1.136E+00	1.718E-01	1.867
		94.67		1.663E-01	1.125E-01	1.783E-01	2.353E-02	0.933
		98.44		1.027E-01	8.555E-02	1.091E-01	6.112E-02	0.942
		99.86		1.059E-01	3.261E-01	5.290E-01	5.297E-02	0.200
		111.00		-8.759E-03	1.359E-01	2.155E-01	2.942E-02	-0.041
		131.20		2.994E-02	8.904E-02	1.316E-01	1.436E-02	0.227
		152.70		-3.124E-02	2.845E-01	4.381E-01	7.624E-02	-0.071
	+	186.00		6.436E+00	2.576E+00	2.488E+00	7.752E-01	2.587
		226.40		-2.756E-01	3.653E-01	5.805E-01	7.733E-02	-0.475
		227.20		-3.323E-01	4.006E-01	6.357E-01	5.599E-02	-0.523
		248.90		4.089E-01	7.587E-01	1.286E+00	2.898E-01	0.318
	+	293.70		7.136E+00	1.586E+00	1.751E+00	3.056E-01	4.076
		369.80		-1.987E-01	8.965E-01	1.403E+00	3.039E-01	-0.142
		568.70		2.957E-02	1.187E+00	1.964E+00	2.009E-01	0.015
		569.50		1.576E-01	3.256E-01	5.588E-01	5.721E-02	0.282
		574.00		4.685E-01	1.813E+00	3.055E+00	3.142E-01	0.153
		699.00		-1.517E-01	7.714E-01	1.218E+00	2.463E-01	-0.125
		706.10		-9.329E-01	1.479E+00	2.148E+00	9.682E-01	-0.434
		733.00		-4.382E-01	5.726E-01	6.984E-01	1.612E-01	-0.627
		742.81		1.527E+00	2.139E+00	3.250E+00	2.194E+00	0.470
		796.30		3.006E-02	1.231E+00	1.969E+00	5.431E-01	0.015
		805.60		1.055E+00	1.370E+00	2.397E+00	7.451E-01	0.440
		819.60		6.704E-01	1.491E+00	2.587E+00	9.916E-01	0.259
		826.30		-2.983E-01	9.565E-01	1.538E+00	6.918E-01	-0.194
		831.60		5.605E-01	8.114E-01	1.421E+00	4.288E-01	0.394
		876.40		2.070E-01	1.091E+00	1.825E+00	1.877E+00	0.113
		880.51		-9.512E-02	3.418E-01	5.535E-01	5.000E-02	-0.172
		883.24		1.432E-02	3.369E-01	5.655E-01	3.804E-01	0.025
		899.00		-5.590E-01	1.045E+00	1.589E+00	6.951E-01	-0.352
		925.00		-1.982E-02	1.530E+00	2.542E+00	2.228E-01	-0.008
		926.50		7.773E-02	2.322E-01	3.983E-01	1.009E-01	0.195
		946.00	*	1.968E-01	3.902E-01	6.794E-01	1.279E-01	0.290
		949.00		2.753E-01	5.792E-01	1.008E+00	8.838E-02	0.273
		980.50		3.957E-02	9.231E-01	1.535E+00	1.343E-01	0.026
		1394.10		9.995E-01	1.603E+00	2.697E+00	1.754E+00	0.371
PA-234M		766.42		-6.508E-01	1.885E+01	2.623E+01	1.340E+01	-0.025
		1001.03	*	2.673E+00	5.630E+00	9.781E+00	9.841E-01	0.273
U-235	+	89.95		3.383E+00	1.313E+00	1.360E+00	4.233E-01	2.487
	+	93.35		3.968E+00	1.349E+00	9.262E-01	2.627E-01	4.284
		105.00		8.995E-01	8.265E-01	1.318E+00	4.002E-01	0.683
		143.76	*	1.148E-01	1.788E-01	2.868E-01	5.230E-02	0.400
		163.35		1.304E-01	3.911E-01	6.770E-01	1.284E-01	0.193
	+	185.71		2.384E-01	6.313E-02	9.166E-02	7.693E-03	2.601
NP-236		205.31		1.276E-02	4.850E-01	7.333E-01	1.399E-01	0.017
		94.67		1.278E-01	8.466E-02	1.354E-01	1.318E-02	0.944
		98.44		7.765E-02	4.847E-02	8.249E-02	8.195E-03	0.941
		111.00		-6.625E-03	1.028E-01	1.630E-01	1.745E-02	-0.041
		160.31	*	-3.713E-02	6.605E-02	1.101E-01	9.518E-03	-0.337

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		5.864E-02	1.120E-01	1.833E-01	1.832E-02	0.320
		117.00	*	-1.615E-02	1.503E-01	2.367E-01	2.631E-02	-0.068
	+	209.75		2.134E+00	8.915E-01	1.295E+00	1.122E-01	1.648
		228.18		-9.602E-03	2.022E-01	3.360E-01	2.962E-02	-0.029
		277.60		2.432E-01	1.789E-01	3.145E-01	2.806E-02	0.773
		334.30		-2.371E-01	1.522E+00	2.154E+00	1.885E-01	-0.110
AM-241		59.54	*	4.493E-02	4.932E-02	8.453E-02	7.171E-03	0.532
CM-243		99.55		6.034E-02	1.153E-01	1.886E-01	1.885E-02	0.320
		103.76	*	-3.473E-02	7.114E-02	1.108E-01	1.135E-02	-0.313
		117.00		-1.662E-02	1.546E-01	2.436E-01	2.707E-02	-0.068
	+	209.75		2.104E+00	8.790E-01	1.277E+00	1.106E-01	1.648
		228.18		-9.704E-03	2.044E-01	3.396E-01	2.993E-02	-0.029
		277.60		2.452E-01	1.804E-01	3.171E-01	2.829E-02	0.773
AM-246		798.80		-8.866E-02	1.878E-01	2.837E-01	2.872E-02	-0.313
		1036.00		-4.057E-01	3.893E-01	5.548E-01	4.815E-02	-0.731
		1062.04		1.291E-03	3.053E-01	5.012E-01	4.322E-02	0.003
		1078.86	*	-4.078E-03	2.030E-01	3.318E-01	2.847E-02	-0.012
CM-247		278.00		9.175E-01	7.449E-01	1.302E+00	1.161E-01	0.705
		287.40		4.965E-01	1.157E+00	1.945E+00	1.736E-01	0.255
		402.60	*	-7.385E-03	4.123E-02	6.428E-02	5.216E-03	-0.115
CF-249		252.85		-1.014E-01	8.058E-01	1.321E+00	1.179E-01	-0.077
		333.44		1.078E-01	2.094E-01	2.902E-01	2.542E-02	0.371
		387.95	*	2.571E-02	4.482E-02	7.444E-02	5.971E-03	0.345
CF-251		176.60	*	-4.855E-02	1.013E-01	1.680E-01	1.389E-02	-0.289
		227.00		-2.752E-01	3.567E-01	5.684E-01	5.005E-02	-0.484
		285.00		3.705E-02	1.621E+00	2.655E+00	2.370E-01	0.014

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341008
* Acquisition date   : 18-FEB-2010 13:24:56 Detector SN#      :
* Detector ID        : GAM21 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 02:00:26.59 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G246341008 Analyst initials: MXR1
* Batch Number       : 950786 Sample Quantity : 1.3057E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51 MS Isotope      :
* MSD DPM            : 0.000 MSD Isotope      :
* LCS DPM            : 0.000 LCS Isotope      :
* LCSD DPM           : 0.000 LCSD Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.543E+01	3.836E+00	7.805E-01	0.000E+00
CD-109	3.634E+00	7.519E-01	7.593E-01	0.000E+00
SN-126	3.561E-01	7.369E-02	7.653E-02	0.000E+00
TL-208	6.078E-01	1.118E-01	7.243E-02	0.000E+00
BI-210	2.404E+00	7.749E-01	6.778E-01	0.000E+00
PB-210	2.404E+00	7.749E-01	6.778E-01	0.000E+00
PO-210	2.404E+00	7.693E-01	6.778E-01	0.000E+00
BI-211	4.167E+00	5.837E-01	3.286E-01	0.000E+00
PB-212	1.730E+00	2.097E-01	1.173E-01	0.000E+00
PO-212	1.730E+00	2.097E-01	1.173E-01	0.000E+00
BI-214	1.464E+00	2.459E-01	1.227E-01	0.000E+00
PB-214	1.450E+00	2.162E-01	1.139E-01	0.000E+00
PO-214	1.450E+00	2.162E-01	1.139E-01	0.000E+00
PO-216	1.730E+00	2.097E-01	1.173E-01	0.000E+00
PO-218	1.450E+00	2.162E-01	1.139E-01	0.000E+00
RA-224	2.676E+00	1.059E+00	1.041E+00	0.000E+00
RA-226	1.464E+00	2.459E-01	1.227E-01	0.000E+00
AC-228	2.015E+00	4.898E-01	2.860E-01	0.000E+00
RA-228	2.015E+00	4.898E-01	2.860E-01	0.000E+00
TH-228	1.760E+00	2.132E-01	1.193E-01	0.000E+00
TH-230	1.464E+00	2.459E-01	1.227E-01	0.000E+00
TH-232	2.015E+00	4.898E-01	2.860E-01	0.000E+00
TH-234	1.820E+00	7.445E-01	7.938E-01	0.000E+00
U-234	1.464E+00	2.459E-01	1.227E-01	0.000E+00
NP-237	1.046E+00	3.026E-01	2.239E-01	0.000E+00
U-238	1.820E+00	7.445E-01	7.938E-01	0.000E+00
AM-243	3.711E-01	5.229E-02	4.861E-02	0.000E+00
ANH-511	9.848E-02	6.943E-02	5.479E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	2.242E-01	3.400E-01	6.234E-01	0.000E+00	NOT IDENT.
NA-22	-6.261E-02	6.732E-02	9.861E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.772E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.470E-02	3.912E-02	5.816E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.335E-02	3.826E-02	0.000E+00	FAIL ABUN
SC-46	3.174E-02	4.810E-02	8.762E-02	0.000E+00	FAIL ABUN
V-48	-2.292E-02	9.610E-02	1.589E-01	0.000E+00	NOT IDENT.
CR-51	-4.172E-01	3.951E-01	6.144E-01	0.000E+00	NOT IDENT.
MN-52	1.207E-01	3.019E-01	5.524E-01	0.000E+00	NOT IDENT.
MN-54	-1.642E-02	4.856E-02	8.156E-02	0.000E+00	NOT IDENT.
CO-56	-3.370E-02	4.295E-02	6.717E-02	0.000E+00	NOT IDENT.
CO-57	9.089E-03	1.936E-02	3.332E-02	0.000E+00	NOT IDENT.
CO-58	-3.520E-02	4.291E-02	6.733E-02	0.000E+00	NOT IDENT.
FE-59	-4.918E-02	1.405E-01	2.275E-01	0.000E+00	NOT IDENT.
CO-60	-2.715E-02	4.483E-02	6.974E-02	0.000E+00	NOT IDENT.
ZN-65	4.322E-02	1.357E-01	2.067E-01	0.000E+00	NOT IDENT.
GE-68	6.809E-01	1.763E+00	3.082E+00	0.000E+00	NOT IDENT.
AS-73	1.274E-01	1.771E-01	3.280E-01	0.000E+00	NOT IDENT.
AS-74	6.452E-03	1.114E-01	1.908E-01	0.000E+00	NOT IDENT.
SE-75	1.889E-02	4.142E-02	7.048E-02	0.000E+00	NOT IDENT.
BR-77	-8.411E+00	2.065E+01	3.443E+01	0.000E+00	FAIL ABUN
SR-82	3.178E-01	5.668E-01	8.831E-01	0.000E+00	NOT IDENT.
RB-83	-2.788E-02	7.844E-02	1.314E-01	0.000E+00	NOT IDENT.
RB-84	-1.396E-02	8.815E-02	1.492E-01	0.000E+00	NOT IDENT.
KR-85	-4.701E+00	8.372E+00	1.189E+01	0.000E+00	NOT IDENT.
SR-85	-2.460E-02	4.381E-02	6.220E-02	0.000E+00	NOT IDENT.
RB-86	7.175E-01	1.183E+00	2.111E+00	0.000E+00	NOT IDENT.
Y-88	-8.355E-03	4.678E-02	7.376E-02	0.000E+00	NOT IDENT.
ZR-88	-1.723E-02	3.191E-02	5.026E-02	0.000E+00	NOT IDENT.
Y-91	-2.325E+00	2.967E+01	4.888E+01	0.000E+00	NOT IDENT.
NB-94	1.954E-02	3.765E-02	6.623E-02	0.000E+00	NOT IDENT.
NB-95	-1.904E-02	7.007E-02	9.758E-02	0.000E+00	NOT IDENT.
NB-95M	4.345E-02	1.275E-01	2.043E-01	0.000E+00	NOT IDENT.
ZR-95	5.038E-02	9.737E-02	1.692E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	9.028E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.468E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-4.091E+00	2.590E+01	4.235E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.909E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-9.123E-03	2.814E-02	4.923E-02	0.000E+00	NOT IDENT.
RH-102	-2.616E-02	2.922E-02	4.683E-02	0.000E+00	NOT IDENT.
RU-103	-1.076E-02	4.439E-02	7.549E-02	0.000E+00	FAIL ABUN
RH-106	-2.144E-01	4.019E-01	6.461E-01	0.000E+00	FAIL ABUN
RU-106	-2.144E-01	4.013E-01	6.461E-01	0.000E+00	FAIL ABUN
AG-108M	-1.556E-02	3.381E-02	5.747E-02	0.000E+00	NOT IDENT.
AG-110M	-3.309E-02	4.919E-02	7.786E-02	0.000E+00	NOT IDENT.
IN-111	2.742E-01	1.619E+00	2.560E+00	0.000E+00	NOT IDENT.
IN-113M	-6.142E-03	4.686E-02	7.679E-02	0.000E+00	NOT IDENT.
SN-113	-6.142E-03	4.686E-02	7.679E-02	0.000E+00	NOT IDENT.
IN-114M	-2.306E-02	1.550E-01	2.622E-01	0.000E+00	NOT IDENT.
CD-115	1.275E+01	2.166E+01	3.921E+01	0.000E+00	NOT IDENT.
SN-117M	-9.977E-03	4.857E-02	8.731E-02	0.000E+00	NOT IDENT.
SB-122	1.738E+00	3.999E+00	7.093E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	5.488E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-8.489E-03	2.341E-02	4.177E-02	0.000E+00	NOT IDENT.
I-124	7.697E-01	1.105E+00	1.868E+00	0.000E+00	NOT IDENT.
SB-124	3.780E-02	9.438E-02	1.716E-01	0.000E+00	FAIL ABUN
SB-125	7.532E-02	1.013E-01	1.873E-01	0.000E+00	FAIL ABUN
TE-125M	2.655E+00	6.694E+00	1.159E+01	0.000E+00	NOT IDENT.
I-126	1.701E-01	2.344E-01	4.204E-01	0.000E+00	NOT IDENT.
SB-126	1.723E-01	2.181E-01	3.514E-01	0.000E+00	FAIL ABUN
SB-127	-5.914E-02	2.439E+00	4.078E+00	0.000E+00	NOT IDENT.
XE-127	3.640E-04	4.224E-02	7.496E-02	0.000E+00	NOT IDENT.
I-131	-6.638E-02	1.393E-01	2.233E-01	0.000E+00	NOT IDENT.
TE-132	-4.873E-02	9.156E-01	1.602E+00	0.000E+00	NOT IDENT.
BA-133	-1.316E-02	5.139E-02	7.459E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.057E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.379E-02	6.012E-02	1.075E-01	0.000E+00	NOT IDENT.
CS-135	1.137E-01	1.703E-01	2.757E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.058E+18	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.835E-02	1.452E-01	2.487E-01	0.000E+00	FAIL ABUN
BA-137M	-3.579E-02	5.051E-02	7.970E-02	0.000E+00	NOT IDENT.
CS-137	-3.783E-02	5.339E-02	8.425E-02	0.000E+00	NOT IDENT.
CE-139	-4.275E-03	2.387E-02	4.279E-02	0.000E+00	NOT IDENT.
BA-140	3.444E-02	3.040E-01	5.288E-01	0.000E+00	NOT IDENT.
LA-140	-2.057E-01	1.066E-01	7.567E-02	0.000E+00	FAIL ABUN
CE-141	6.320E-03	5.387E-02	8.953E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.794E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	3.192E-02	1.657E-01	2.788E-01	0.000E+00	NOT IDENT.
PM-144	-3.089E-02	4.026E-02	6.159E-02	0.000E+00	NOT IDENT.
PR-144	-2.096E+00	2.731E+00	4.178E+00	0.000E+00	NOT IDENT.
PM-146	-4.406E-05	4.218E-02	7.399E-02	0.000E+00	NOT IDENT.
ND-147	2.542E-01	6.772E-01	1.205E+00	0.000E+00	FAIL ABUN
PM-149	7.139E+01	1.529E+02	2.698E+02	0.000E+00	NOT IDENT.
EU-152	-7.061E-02	1.001E-01	1.589E-01	0.000E+00	FAIL ABUN
GD-153	-2.727E-02	5.831E-02	8.945E-02	0.000E+00	FAIL ABUN
EU-154	-1.866E-01	1.894E-01	2.747E-01	0.000E+00	NOT IDENT.
EU-155	1.068E-01	7.828E-02	1.408E-01	0.000E+00	FAIL ABUN
TB-160	7.386E-02	1.748E-01	3.137E-01	0.000E+00	FAIL ABUN
HO-166M	-8.427E-02	8.113E-02	1.207E-01	0.000E+00	FAIL ABUN
TM-171	-2.031E-01	1.194E+01	1.957E+01	0.000E+00	NOT IDENT.
LU-176	-1.164E-02	2.348E-02	3.848E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.506E+00	2.360E+00	0.000E+00	FAIL ABUN
LU-177M	-9.902E-02	1.924E-01	3.023E-01	0.000E+00	FAIL ABUN
HF-181	-3.098E-02	4.681E-02	7.697E-02	0.000E+00	NOT IDENT.
W-181	-8.767E-02	1.484E-01	2.368E-01	0.000E+00	NOT IDENT.
TA-182	5.798E-02	3.174E-01	5.342E-01	0.000E+00	FAIL ABUN
RE-183	7.437E-02	8.981E-02	1.680E-01	0.000E+00	FAIL ABUN
RE-184	-2.724E-02	2.121E-01	3.655E-01	0.000E+00	NOT IDENT.
OS-185	-2.090E-02	4.965E-02	8.005E-02	0.000E+00	NOT IDENT.
RE-188	5.341E-02	1.373E-01	2.535E-01	0.000E+00	NOT IDENT.
W-188	3.592E-01	7.615E+00	1.170E+01	0.000E+00	FAIL ABUN
IR-192	2.998E-02	3.388E-02	6.094E-02	0.000E+00	FAIL ABUN
AU-195	2.753E-01	1.559E-01	2.842E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.631E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.581E+00	8.565E+00	1.559E+01	0.000E+00	NOT IDENT.
TL-202	-1.747E-02	7.840E-02	1.356E-01	0.000E+00	NOT IDENT.
HG-203	-1.335E-02	4.119E-02	6.940E-02	0.000E+00	FAIL ABUN
BI-207	1.333E-02	6.457E-02	1.114E-01	0.000E+00	FAIL ABUN
TL-207	1.103E-01	7.405E-01	1.133E+00	0.000E+00	FAIL ABUN
PO-209	4.371E+00	9.060E+00	1.633E+01	0.000E+00	NOT IDENT.
PB-211	1.879E-01	1.004E+00	1.673E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.259E-01	8.092E-01	0.000E+00	FAIL ABUN
PO-215	1.103E-01	7.405E-01	1.133E+00	0.000E+00	FAIL ABUN
RN-219	-1.200E-01	4.567E-01	7.379E-01	0.000E+00	FAIL ABUN
RN-220	2.069E+01	3.100E+01	5.605E+01	0.000E+00	NOT IDENT.
RA-223	1.103E-01	7.405E-01	1.133E+00	0.000E+00	FAIL ABUN
AC-227	-6.911E-02	3.395E-01	5.810E-01	0.000E+00	FAIL ABUN
TH-227	-6.911E-02	3.395E-01	5.810E-01	0.000E+00	FAIL ABUN
TH-229	-2.507E-01	4.259E-01	7.362E-01	0.000E+00	FAIL ABUN
PA-231	-1.093E+00	1.416E+00	2.285E+00	0.000E+00	NOT IDENT.
TH-231	1.103E-01	7.405E-01	1.133E+00	0.000E+00	FAIL ABUN
U-231	-5.605E-01	9.733E-01	1.484E+00	0.000E+00	FAIL ABUN
PA-233	-1.840E-02	5.963E-02	9.894E-02	0.000E+00	FAIL ABUN
PA-234	1.968E-01	3.824E-01	6.849E-01	0.000E+00	FAIL ABUN
PA-234M	2.673E+00	5.518E+00	9.852E+00	0.000E+00	NOT IDENT.
U-235	1.148E-01	1.752E-01	2.981E-01	0.000E+00	FAIL ABUN
NP-236	-3.713E-02	6.473E-02	1.143E-01	0.000E+00	NOT IDENT.
NP-239	-1.615E-02	1.472E-01	2.469E-01	0.000E+00	FAIL ABUN
AM-241	4.493E-02	4.833E-02	8.908E-02	0.000E+00	NOT IDENT.
CM-243	-3.473E-02	6.971E-02	1.158E-01	0.000E+00	FAIL ABUN
AM-246	-4.078E-03	1.989E-01	3.338E-01	0.000E+00	NOT IDENT.
CM-247	-7.385E-03	4.040E-02	6.573E-02	0.000E+00	NOT IDENT.
CF-249	2.571E-02	4.393E-02	7.616E-02	0.000E+00	NOT IDENT.
CF-251	-4.855E-02	9.930E-02	1.740E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341008.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:24:56
Sample ID          : G246341008           Sample quantity  : 1.30570E+02 GRAM
Detector name      : GAM21                Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00        Elapsed real time: 0 02:00:26.59 0.4%
Energy tolerance   : 1.50000 keV          Analyst Initials : MXR1
Abundance limit    : 75.00000             Sensitivity       : 5.00000
Batch ID           : 950786               Detector SN#      :
Matrix Spike ID    :                     LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	948	10.67*	7.206E-01	3.543E+01	3.543E+01	11.05
CD-109	88.03	373	3.72*	8.136E+00	3.542E+00	3.634E+00	21.11
SN-126	64.28	197	9.60	8.182E+00	7.206E-01	7.206E-01	40.60
	86.94	373	8.90	8.136E+00	1.481E+00	1.481E+00	45.63
	87.57	373	37.00*	8.136E+00	3.561E-01	3.561E-01	21.11
TL-208	277.35	---	6.80	3.801E+00	-----	Line Not Found	-----
	510.84	70	21.60	2.039E+00	4.559E-01	4.559E-01	72.42
	583.14	317	84.20*	1.778E+00	6.078E-01	6.078E-01	18.77
	860.37	44	12.46	1.202E+00	8.531E-01	8.531E-01	52.76
BI-210	46.50	249	4.05*	7.347E+00	2.401E+00	2.404E+00	32.88
PB-210	46.50	249	4.05*	7.347E+00	2.401E+00	2.404E+00	32.88
PO-210	46.50	249	4.05*	7.347E+00	2.401E+00	2.404E+00	32.65
BI-211	72.87	-----	1.27	8.278E+00	-----	Line Not Found	-----
	351.07	562	12.94*	2.998E+00	4.167E+00	4.167E+00	14.29
PB-212	74.81	705	10.70	8.275E+00	2.289E+00	2.289E+00	17.15
	77.11	1069	18.00	8.264E+00	2.066E+00	2.066E+00	11.60
	87.30	373	8.00	8.136E+00	1.647E+00	1.647E+00	23.36
	238.63	1178	44.60*	4.388E+00	1.730E+00	1.730E+00	12.37
	300.09	71	3.41	3.523E+00	1.700E+00	1.700E+00	55.65
PO-212	74.81	705	10.70	8.275E+00	2.289E+00	2.289E+00	17.15
	77.11	1069	18.00	8.264E+00	2.066E+00	2.066E+00	11.60
	87.30	373	8.00	8.136E+00	1.647E+00	1.647E+00	23.36
	115.19	-----	0.60	7.423E+00	-----	Line Not Found	-----
	238.63	1178	44.60*	4.388E+00	1.730E+00	1.730E+00	12.37
	300.09	71	3.41	3.523E+00	1.700E+00	1.700E+00	55.65
BI-214	609.31	401	46.30*	1.700E+00	1.464E+00	1.464E+00	17.14
	1120.29	46	15.10	9.297E-01	9.376E-01	9.376E-01	60.82
	1764.49	63	15.80	5.985E-01	1.913E+00	1.913E+00	34.47
PB-214	74.81	705	6.21	8.275E+00	3.945E+00	3.945E+00	16.17
	77.11	1069	10.50	8.264E+00	3.542E+00	3.542E+00	13.88
	87.30	373	4.67	8.136E+00	2.822E+00	2.822E+00	22.48
	241.98	159	7.49	4.338E+00	1.411E+00	1.411E+00	40.77

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	355	19.20	3.578E+00	1.487E+00	1.487E+00	17.55
	351.92	562	37.20*	2.998E+00	1.450E+00	1.450E+00	15.22
	74.81	705	6.21	8.275E+00	3.945E+00	3.945E+00	16.17
	77.11	1069	10.50	8.264E+00	3.542E+00	3.542E+00	13.88
	87.30	373	4.67	8.136E+00	2.822E+00	2.822E+00	22.48
PO-216	241.98	159	7.49	4.338E+00	1.411E+00	1.411E+00	40.77
	295.21	355	19.20	3.578E+00	1.487E+00	1.487E+00	17.55
	351.92	562	37.20*	2.998E+00	1.450E+00	1.450E+00	15.22
	74.81	705	10.70	8.275E+00	2.289E+00	2.289E+00	17.15
	77.11	1069	18.00	8.264E+00	2.066E+00	2.066E+00	11.60
PO-218	87.30	373	8.00	8.136E+00	1.647E+00	1.647E+00	23.36
	238.63	1178	44.60*	4.388E+00	1.730E+00	1.730E+00	12.37
	300.09	71	3.41	3.523E+00	1.700E+00	1.700E+00	55.65
	74.81	705	6.21	8.275E+00	3.945E+00	3.945E+00	16.17
	77.11	1069	10.50	8.264E+00	3.542E+00	3.542E+00	13.88
RA-224	87.30	373	4.67	8.136E+00	2.822E+00	2.822E+00	22.48
	241.98	159	7.49	4.338E+00	1.411E+00	1.411E+00	40.77
	295.21	355	19.20	3.578E+00	1.487E+00	1.487E+00	17.55
	351.92	562	37.20*	2.998E+00	1.450E+00	1.450E+00	15.22
	240.98	159	3.95*	4.338E+00	2.676E+00	2.676E+00	40.38
AC-228	609.31	401	46.30*	1.700E+00	1.464E+00	1.464E+00	17.14
	1120.29	46	15.10	9.297E-01	9.376E-01	9.376E-01	60.82
	1764.49	63	15.80	5.985E-01	1.913E+00	1.913E+00	34.47
	338.32	169	11.40	3.119E+00	1.364E+00	1.364E+00	55.43
	911.07	221	27.70*	1.136E+00	2.015E+00	2.015E+00	24.81
RA-228	969.11	130	16.60	1.070E+00	2.112E+00	2.112E+00	32.31
	338.32	169	11.40	3.119E+00	1.364E+00	1.364E+00	55.43
	911.07	221	27.70*	1.136E+00	2.015E+00	2.015E+00	24.81
	969.11	130	16.60	1.070E+00	2.112E+00	2.112E+00	32.31
	74.81	705	10.70	8.275E+00	2.289E+00	2.329E+00	14.42
TH-228	77.11	1069	18.00	8.264E+00	2.066E+00	2.102E+00	11.60
	87.30	373	8.00	8.136E+00	1.647E+00	1.675E+00	21.11
	238.63	1178	44.60*	4.388E+00	1.730E+00	1.760E+00	12.37
	300.09	71	3.41	3.523E+00	1.700E+00	1.729E+00	80.64
	609.31	401	46.30*	1.700E+00	1.464E+00	1.464E+00	17.14
TH-230	1120.29	46	15.10	9.297E-01	9.376E-01	9.376E-01	60.82
	1764.49	63	15.80	5.985E-01	1.913E+00	1.913E+00	34.47
	338.32	169	11.40	3.119E+00	1.364E+00	1.364E+00	38.00
	911.07	221	27.70*	1.136E+00	2.015E+00	2.015E+00	24.81
	969.11	130	16.60	1.070E+00	2.112E+00	2.112E+00	32.31
TH-234	63.29	197	3.80*	8.182E+00	1.820E+00	1.820E+00	41.73
	92.38	498	5.41	8.020E+00	3.300E+00	3.300E+00	26.41
	609.31	401	46.30*	1.700E+00	1.464E+00	1.464E+00	17.14
	1120.29	46	15.10	9.297E-01	9.376E-01	9.376E-01	60.82
	1764.49	63	15.80	5.985E-01	1.913E+00	1.913E+00	34.47
NP-237	86.50	373	12.60*	8.136E+00	1.046E+00	1.046E+00	29.52
	95.87	-----	2.60	7.953E+00	-----	Line Not Found	-----
	63.29	197	3.80*	8.182E+00	1.820E+00	1.820E+00	41.73
	92.38	498	5.41	8.020E+00	3.300E+00	3.300E+00	21.09

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	705	66.00*	8.275E+00	3.711E-01	3.711E-01	14.38
	86.72	373	0.34	8.136E+00	3.922E+01	3.922E+01	21.11
	117.66	-----	0.55	7.349E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.613E+00	-----	Line Not Found	-----
ANH-511	511.00	70	100.00*	2.039E+00	9.848E-02	9.848E-02	71.94

Flag: "\*" = Keyline

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.543E+01	3.543E+01	0.391E+01	11.05	
CD-109	464.00D	1.03	3.542E+00	3.634E+00	0.767E+00	21.11	
SN-126	1.00E+05Y	1.00	3.561E-01	3.561E-01	0.752E-01	21.11	
TL-208	1.41E+10Y	1.00	6.078E-01	6.078E-01	1.141E-01	18.77	
BI-210	22.26Y	1.00	2.401E+00	2.404E+00	0.791E+00	32.88	
PB-210	22.26Y	1.00	2.401E+00	2.404E+00	0.791E+00	32.88	
PO-210	22.26Y	1.00	2.401E+00	2.404E+00	0.785E+00	32.65	
BI-211	7.04E+08Y	1.00	4.167E+00	4.167E+00	0.596E+00	14.29	
PB-212	1.41E+10Y	1.00	1.730E+00	1.730E+00	0.214E+00	12.37	
PO-212	1.41E+10Y	1.00	1.730E+00	1.730E+00	0.214E+00	12.37	
BI-214	1600.00Y	1.00	1.464E+00	1.464E+00	0.251E+00	17.14	
PB-214	1600.00Y	1.00	1.450E+00	1.450E+00	0.221E+00	15.22	
PO-214	1600.00Y	1.00	1.450E+00	1.450E+00	0.221E+00	15.22	
PO-216	1.41E+10Y	1.00	1.730E+00	1.730E+00	0.214E+00	12.37	
PO-218	1600.00Y	1.00	1.450E+00	1.450E+00	0.221E+00	15.22	
RA-224	1.41E+10Y	1.00	2.676E+00	2.676E+00	1.080E+00	40.38	
RA-226	1600.00Y	1.00	1.464E+00	1.464E+00	0.251E+00	17.14	
AC-228	1.41E+10Y	1.00	2.015E+00	2.015E+00	0.500E+00	24.81	
RA-228	1.41E+10Y	1.00	2.015E+00	2.015E+00	0.500E+00	24.81	
TH-228	1.91Y	1.02	1.730E+00	1.760E+00	0.218E+00	12.37	
TH-230	4.47E+09Y	1.00	1.464E+00	1.464E+00	0.251E+00	17.14	
TH-232	1.41E+10Y	1.00	2.015E+00	2.015E+00	0.500E+00	24.81	
TH-234	4.47E+09Y	1.00	1.820E+00	1.820E+00	0.760E+00	41.73	
U-234	4.47E+09Y	1.00	1.464E+00	1.464E+00	0.251E+00	17.14	
NP-237	2.14E+06Y	1.00	1.046E+00	1.046E+00	0.309E+00	29.52	
U-238	4.47E+09Y	1.00	1.820E+00	1.820E+00	0.760E+00	41.73	
AM-243	7380.00Y	1.00	3.711E-01	3.711E-01	0.534E-01	14.38	
ANH-511	1.00E+09Y	1.00	9.848E-02	9.848E-02	7.084E-02	71.94	

Total Activity : 8.231E+01 8.244E+01

Grand Total Activity : 8.231E+01 8.244E+01

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
6	84.06	155	271	1.24	168.06	165	13	2.16E-02	36.3	8.19E+00	T
0	89.94	257	278	0.87	179.81	178	5	3.57E-02	23.2	8.08E+00	T
0	129.26	110	380	0.88	258.42	254	9	1.53E-02	66.5	7.00E+00	T
0	185.85	244	217	1.13	371.55	368	8	3.39E-02	25.1	5.45E+00	T
0	208.78	119	171	1.07	417.39	414	7	1.65E-02	40.9	4.94E+00	T
0	269.82	84	188	1.81	539.43	535	10	1.16E-02	65.2	3.90E+00	T
0	328.45	56	123	0.87	656.66	652	9	7.80E-03	77.0	3.21E+00	T
0	462.63	32	77	0.75	924.97	924	6	4.49E-03	96.7	2.26E+00	T
0	726.91	54	65	1.82	1453.53	1447	13	7.55E-03	67.4	1.42E+00	T
0	769.35	68	52	4.29	1538.42	1530	18	9.51E-03	55.7	1.34E+00	
2	964.26	48	36	1.95	1928.34	1922	29	6.69E-03	52.2	1.07E+00	T
0	1728.93	15	7	1.08	3458.72	3451	13	2.01E-03	89.5	6.11E-01	

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341008.CNF;1
* Acquisition date   : 18-FEB-2010 13:24:56   Detector SN#      :
* Detector ID        : GAM21                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:26.59          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 1-FEB-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G246341008             Analyst initials: MXR1
* Batch Number       : 950786                 Sample Quantity : 1.30570E+02 GRAM
*****
*                               QC DATA                                *
*
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51.9MS Isotope      :
* MSD ID             :                               MSD Isotope :
* LCS ID             : 1032-A                       LCS Isotope  :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.543E+01	3.914E+00	7.799E-01	6.658E-02	45.429
CD-109	3.634E+00	7.672E-01	7.249E-01	6.820E-02	5.013
SN-126	3.561E-01	7.519E-02	7.305E-02	6.848E-03	4.875
TL-208	6.078E-01	1.141E-01	7.127E-02	7.764E-03	8.528
BI-210	2.404E+00	7.907E-01	6.408E-01	6.110E-02	3.753
PB-210	2.404E+00	7.907E-01	6.408E-01	6.110E-02	3.753
PO-210	2.404E+00	7.850E-01	6.408E-01	5.561E-02	3.753
BI-211	4.167E+00	5.957E-01	3.206E-01	2.894E-02	12.997
PB-212	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
PO-212	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
BI-214	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
PB-214	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042
PO-214	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042
PO-216	1.730E+00	2.139E-01	1.138E-01	1.131E-02	15.206
PO-218	1.450E+00	2.206E-01	1.111E-01	1.158E-02	13.042
RA-224	2.676E+00	1.080E+00	1.009E+00	8.969E-02	2.651
RA-226	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
AC-228	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105
TH-228	1.760E+00	2.176E-01	1.157E-01	1.151E-02	15.206
TH-230	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
TH-232	2.015E+00	4.998E-01	2.835E-01	3.218E-02	7.105
TH-234	1.820E+00	7.597E-01	7.540E-01	1.332E-01	2.414
U-234	1.464E+00	2.509E-01	1.208E-01	1.428E-02	12.117
NP-237	1.046E+00	3.087E-01	2.136E-01	4.835E-02	4.895
U-238	1.820E+00	7.597E-01	7.540E-01	1.332E-01	2.414
AM-243	3.711E-01	5.336E-02	4.629E-02	3.923E-03	8.018
ANH-511	9.848E-02	7.084E-02	5.379E-02	5.157E-03	1.831

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.242E-01		3.470E-01	6.114E-01	5.990E-02	0.367
NA-22	-6.261E-02		6.869E-02	9.830E-02	8.064E-03	-0.637
NA-24	-1.242E+00		3.965E+00	Half-Life too short		
AL-26	-1.470E-02		3.992E-02	5.832E-02	4.826E-03	-0.252
TI-44	3.813E-01	+	4.423E-02	3.646E-02	3.175E-03	10.458
SC-46	3.174E-02		4.908E-02	8.682E-02	7.720E-03	0.366
V-48	-2.292E-02		9.806E-02	1.578E-01	1.380E-02	-0.145
CR-51	-4.172E-01		4.031E-01	5.986E-01	5.565E-02	-0.697
MN-52	1.207E-01		3.081E-01	5.517E-01	4.556E-02	0.219
MN-54	-1.642E-02		4.955E-02	8.073E-02	7.824E-03	-0.203
CO-56	-3.370E-02		4.382E-02	6.650E-02	6.339E-03	-0.507
CO-57	9.089E-03		1.975E-02	3.197E-02	3.673E-03	0.284
CO-58	-3.520E-02		4.378E-02	6.661E-02	6.666E-03	-0.528
FE-59	-4.918E-02		1.434E-01	2.262E-01	2.087E-02	-0.217
CO-60	-2.715E-02		4.575E-02	6.957E-02	5.647E-03	-0.390
ZN-65	4.322E-02		1.385E-01	2.056E-01	1.743E-02	0.210
GE-68	6.809E-01		1.799E+00	3.063E+00	2.630E-01	0.222
AS-73	1.274E-01		1.807E-01	3.107E-01	2.516E-02	0.410
AS-74	6.452E-03		1.137E-01	1.878E-01	1.971E-02	0.034
SE-75	1.889E-02		4.226E-02	6.847E-02	6.147E-03	0.276
BR-77	-8.411E+00		2.107E+01	3.382E+01	3.281E+00	-0.249
SR-82	3.178E-01		5.784E-01	8.730E-01	9.037E-02	0.364
RB-83	-2.788E-02		8.004E-02	1.291E-01	1.252E-02	-0.216
RB-84	-1.396E-02		8.995E-02	1.478E-01	1.333E-02	-0.094
KR-85	-4.701E+00		8.543E+00	1.167E+01	1.123E+00	-0.403
SR-85	-2.460E-02		4.471E-02	6.107E-02	5.877E-03	-0.403
RB-86	7.175E-01		1.207E+00	2.098E+00	1.801E-01	0.342
Y-88	-8.355E-03		4.774E-02	7.399E-02	6.109E-03	-0.113
ZR-88	-1.723E-02		3.256E-02	4.913E-02	3.914E-03	-0.351
Y-91	-2.325E+00		3.028E+01	4.868E+01	4.011E+00	-0.048
NB-94	1.954E-02		3.842E-02	6.537E-02	7.119E-03	0.299
NB-95	-1.904E-02		7.151E-02	9.645E-02	1.008E-02	-0.197
NB-95M	4.345E-02		1.301E-01	1.981E-01	1.996E-02	0.219

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	5.038E-02		9.936E-02	1.672E-01	1.882E-02	0.301
NB-97	-3.644E-01		4.606E-01	Half-Life too short		
ZR-97	1.472E+01		7.488E+00	Half-Life too short		
MO-99	-4.091E+00		2.643E+01	4.183E+01	6.873E+00	-0.098
TC-99M	1.788E+12		3.525E+12	Half-Life too short		
RH-101	-9.123E-03		2.871E-02	4.760E-02	4.065E-03	-0.192
RH-102	-2.616E-02		2.982E-02	4.593E-02	4.195E-03	-0.570
RU-103	-1.076E-02		4.530E-02	7.408E-02	1.086E-02	-0.145
RH-106	-2.144E-01		4.101E-01	6.364E-01	9.423E-02	-0.337
RU-106	-2.144E-01		4.095E-01	6.364E-01	6.828E-02	-0.337
AG-108M	-1.556E-02		3.450E-02	5.627E-02	5.018E-03	-0.276
AG-110M	-3.309E-02		5.019E-02	7.676E-02	8.611E-03	-0.431
IN-111	2.742E-01		1.652E+00	2.484E+00	2.212E-01	0.110
IN-113M	-6.142E-03		4.781E-02	7.507E-02	6.182E-03	-0.082
SN-113	-6.142E-03		4.781E-02	7.507E-02	6.182E-03	-0.082
IN-114M	-2.306E-02		1.582E-01	2.533E-01	2.141E-02	-0.091
CD-115	1.275E+01		2.211E+01	3.852E+01	3.769E+00	0.331
SN-117M	-9.977E-03		4.956E-02	8.412E-02	7.404E-03	-0.119
SB-122	1.738E+00		4.081E+00	6.975E+00	7.101E-01	0.249
I-123	-1.990E+01		2.800E+01	Half-Life too short		
TE-123M	-8.489E-03		2.388E-02	4.025E-02	3.547E-03	-0.211
I-124	7.697E-01		1.128E+00	1.839E+00	1.942E-01	0.419
SB-124	3.780E-02		9.631E-02	1.719E-01	1.496E-02	0.220
SB-125	7.532E-02		1.034E-01	1.833E-01	1.587E-02	0.411
TE-125M	2.655E+00		6.831E+00	1.110E+01	1.335E+00	0.239
I-126	1.701E-01		2.392E-01	4.146E-01	4.574E-02	0.410
SB-126	1.723E-01		2.225E-01	3.470E-01	3.744E-02	0.497
SB-127	-5.914E-02		2.488E+00	4.024E+00	5.536E-01	-0.015
XE-127	3.640E-04		4.310E-02	7.251E-02	6.231E-03	0.005
I-131	-6.638E-02		1.421E-01	2.180E-01	1.942E-02	-0.305
TE-132	-4.873E-02		9.343E-01	1.552E+00	2.513E-01	-0.031
BA-133	-1.316E-02		5.244E-02	7.280E-02	9.568E-03	-0.181
I-133	2.553E-02		1.560E-02	Half-Life too short		
CS-134	5.379E-02		6.135E-02	1.064E-01	1.086E-02	0.506
CS-135	1.137E-01		1.738E-01	2.679E-01	2.743E-02	0.425
I-135	-1.676E+11		5.396E+11	Half-Life too short		
CS-136	1.835E-02		1.482E-01	2.471E-01	2.229E-02	0.074
BA-137M	-3.579E-02		5.154E-02	7.858E-02	8.679E-03	-0.455
CS-137	-3.783E-02		5.448E-02	8.307E-02	9.185E-03	-0.455
CE-139	-4.275E-03		2.436E-02	4.125E-02	3.354E-03	-0.104
BA-140	3.444E-02		3.102E-01	5.196E-01	1.740E-01	0.066
LA-140	-2.057E-01		1.087E-01	7.572E-02	6.332E-03	-2.717
CE-141	6.320E-03		5.497E-02	8.614E-02	8.636E-03	0.073
CE-143	1.172E-03		2.446E-04	Half-Life too short		
CE-144	3.192E-02		1.691E-01	2.678E-01	4.510E-02	0.119
PM-144	-3.089E-02		4.108E-02	6.078E-02	6.639E-03	-0.508
PR-144	-2.096E+00		2.786E+00	4.123E+00	4.502E-01	-0.508
PM-146	-4.406E-05		4.304E-02	7.250E-02	7.911E-03	-0.001



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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	2.542E-01		6.911E-01	1.184E+00	1.856E-01	0.215
PM-149	7.139E+01		1.560E+02	2.624E+02	4.126E+01	0.272
EU-152	-7.061E-02		1.022E-01	1.550E-01	1.422E-02	-0.455
GD-153	-2.727E-02		5.950E-02	8.552E-02	8.449E-03	-0.319
EU-154	-1.866E-01		1.933E-01	2.739E-01	3.010E-02	-0.681
EU-155	1.068E-01		7.987E-02	1.348E-01	1.406E-02	0.792
TB-160	7.386E-02		1.784E-01	3.108E-01	2.813E-02	0.238
HO-166M	-8.427E-02		8.278E-02	1.191E-01	1.292E-02	-0.707
TM-171	-2.031E-01		1.219E+01	1.860E+01	1.499E+00	-0.011
LU-176	-1.164E-02		2.396E-02	3.747E-02	3.336E-03	-0.311
LU-177	3.677E+00	+	1.536E+00	2.284E+00	1.976E-01	1.610
LU-177M	-9.902E-02		1.964E-01	2.957E-01	2.448E-02	-0.335
HF-181	-3.098E-02		4.777E-02	7.550E-02	6.965E-03	-0.410
W-181	-8.767E-02		1.514E-01	2.250E-01	1.798E-02	-0.390
TA-182	5.798E-02		3.239E-01	5.322E-01	4.381E-02	0.109
RE-183	7.437E-02		9.164E-02	1.619E-01	1.370E-02	0.459
RE-184	-2.724E-02		2.165E-01	3.548E-01	3.166E-02	-0.077
OS-185	-2.090E-02		5.067E-02	7.889E-02	8.621E-03	-0.265
RE-188	5.341E-02		1.401E-01	2.441E-01	2.224E-02	0.219
W-188	3.592E-01		7.771E+00	1.138E+01	1.016E+00	0.032
IR-192	2.998E-02		3.457E-02	5.937E-02	5.276E-03	0.505
AU-195	2.753E-01		1.591E-01	2.718E-01	2.707E-02	1.013
TL-200	7.640E-04		8.320E-04	Half-Life too short		
TL-201	1.581E+00		8.740E+00	1.504E+01	1.225E+00	0.105
TL-202	-1.747E-02		8.000E-02	1.328E-01	1.149E-02	-0.132
HG-203	-1.335E-02		4.203E-02	6.747E-02	6.175E-03	-0.198
BI-207	1.333E-02		6.589E-02	1.107E-01	9.540E-03	0.120
TL-207	1.103E-01		7.556E-01	1.104E+00	1.965E-01	0.100
PO-209	4.371E+00		9.245E+00	1.618E+01	1.420E+00	0.270
PB-211	1.879E-01		1.024E+00	1.637E+00	1.025E+00	0.115
BI-212	9.328E-01	+	6.387E-01	7.991E-01	9.501E-02	1.167
PO-215	1.103E-01		7.556E-01	1.104E+00	1.965E-01	0.100
RN-219	-1.200E-01		4.660E-01	7.216E-01	1.063E-01	-0.166
RN-220	2.069E+01		3.163E+01	5.509E+01	5.526E+00	0.376
RA-223	1.103E-01		7.556E-01	1.104E+00	1.965E-01	0.100
AC-227	-6.911E-02		3.464E-01	5.640E-01	8.757E-02	-0.123
TH-227	-6.911E-02		3.464E-01	5.640E-01	1.027E-01	-0.123
TH-229	-2.507E-01		4.346E-01	7.115E-01	6.041E-02	-0.352
PA-231	-1.093E+00		1.445E+00	2.222E+00	3.412E-01	-0.492
TH-231	1.103E-01		7.556E-01	1.104E+00	1.965E-01	0.100
U-231	-5.605E-01		9.932E-01	1.419E+00	1.390E-01	-0.395
PA-233	-1.840E-02		6.085E-02	9.636E-02	8.794E-03	-0.191
PA-234	1.968E-01		3.902E-01	6.794E-01	1.279E-01	0.290
PA-234M	2.673E+00		5.630E+00	9.781E+00	9.841E-01	0.273
U-235	1.148E-01		1.788E-01	2.868E-01	5.230E-02	0.400
NP-236	-3.713E-02		6.605E-02	1.101E-01	9.518E-03	-0.337
NP-239	-1.615E-02		1.503E-01	2.367E-01	2.631E-02	-0.068
AM-241	4.493E-02		4.932E-02	8.453E-02	7.171E-03	0.532

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-3.473E-02		7.114E-02	1.108E-01	1.135E-02	-0.313
AM-246	-4.078E-03		2.030E-01	3.318E-01	2.847E-02	-0.012
CM-247	-7.385E-03		4.123E-02	6.428E-02	5.216E-03	-0.115
CF-249	2.571E-02		4.482E-02	7.444E-02	5.971E-03	0.345
CF-251	-4.855E-02		1.013E-01	1.680E-01	1.389E-02	-0.289

# 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]G246341008          *
* Acquisition date   : 18-FEB-2010 13:24:56 Detector SN# :                  *
* Detector ID        : GAM21 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                       *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:26.59 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341008 Analyst initials: MXR1                 *
* Batch Number       : 950786 Sample Quantity : 1.3057E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM           : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.543E+01	3.836E+00	3.905E-01	1.957E+00
CD-109	3.634E+00	7.519E-01	3.799E-01	3.836E-01
SN-126	3.561E-01	7.369E-02	3.829E-02	3.760E-02
TL-208	6.078E-01	1.118E-01	3.624E-02	5.705E-02
BI-210	2.404E+00	7.749E-01	3.391E-01	3.953E-01
PB-210	2.404E+00	7.749E-01	3.391E-01	3.953E-01
PO-210	2.404E+00	7.693E-01	3.391E-01	3.925E-01
BI-211	4.167E+00	5.837E-01	1.644E-01	2.978E-01
PB-212	1.730E+00	2.097E-01	5.870E-02	1.070E-01
PO-212	1.730E+00	2.097E-01	5.870E-02	1.070E-01
BI-214	1.464E+00	2.459E-01	6.140E-02	1.255E-01
PB-214	1.450E+00	2.162E-01	5.698E-02	1.103E-01
PO-214	1.450E+00	2.162E-01	5.698E-02	1.103E-01
PO-216	1.730E+00	2.097E-01	5.870E-02	1.070E-01
PO-218	1.450E+00	2.162E-01	5.698E-02	1.103E-01
RA-224	2.676E+00	1.059E+00	5.206E-01	5.402E-01
RA-226	1.464E+00	2.459E-01	6.140E-02	1.255E-01
AC-228	2.015E+00	4.898E-01	1.431E-01	2.499E-01
RA-228	2.015E+00	4.898E-01	1.431E-01	2.499E-01
TH-228	1.760E+00	2.132E-01	5.970E-02	1.088E-01
TH-230	1.464E+00	2.459E-01	6.140E-02	1.255E-01
TH-232	2.015E+00	4.898E-01	1.431E-01	2.499E-01
TH-234	1.820E+00	7.445E-01	3.971E-01	3.798E-01
U-234	1.464E+00	2.459E-01	6.140E-02	1.255E-01
NP-237	1.046E+00	3.026E-01	1.120E-01	1.544E-01
U-238	1.820E+00	7.445E-01	3.971E-01	3.798E-01
AM-243	3.711E-01	5.229E-02	2.432E-02	2.668E-02
ANH-511	9.848E-02	6.943E-02	2.741E-02	3.542E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.242E-01	3.400E-01	3.119E-01	1.735E-01	NOT IDENT.
NA-22	-6.261E-02	6.732E-02	4.933E-02	3.434E-02	NOT IDENT.
NA-24	-1.242E+06	7.772E+06	0.000E+00	3.965E+06	SHORT HLIF
AL-26	-1.470E-02	3.912E-02	2.909E-02	1.996E-02	NOT IDENT.
TI-44	3.813E-01	4.335E-02	1.914E-02	2.212E-02	FAIL ABUN
SC-46	3.174E-02	4.810E-02	4.384E-02	2.454E-02	FAIL ABUN
V-48	-2.292E-02	9.610E-02	7.952E-02	4.903E-02	NOT IDENT.
CR-51	-4.172E-01	3.951E-01	3.074E-01	2.016E-01	NOT IDENT.
MN-52	1.207E-01	3.019E-01	2.764E-01	1.540E-01	NOT IDENT.
MN-54	-1.642E-02	4.856E-02	4.080E-02	2.478E-02	NOT IDENT.
CO-56	-3.370E-02	4.295E-02	3.361E-02	2.191E-02	NOT IDENT.
CO-57	9.089E-03	1.936E-02	1.667E-02	9.877E-03	NOT IDENT.
CO-58	-3.520E-02	4.291E-02	3.368E-02	2.189E-02	NOT IDENT.
FE-59	-4.918E-02	1.405E-01	1.138E-01	7.170E-02	NOT IDENT.
CO-60	-2.715E-02	4.483E-02	3.489E-02	2.287E-02	NOT IDENT.
ZN-65	4.322E-02	1.357E-01	1.034E-01	6.926E-02	NOT IDENT.
GE-68	6.809E-01	1.763E+00	1.542E+00	8.997E-01	NOT IDENT.
AS-73	1.274E-01	1.771E-01	1.641E-01	9.036E-02	NOT IDENT.
AS-74	6.452E-03	1.114E-01	9.545E-02	5.684E-02	NOT IDENT.
SE-75	1.889E-02	4.142E-02	3.526E-02	2.113E-02	NOT IDENT.
BR-77	-8.411E+00	2.065E+01	1.723E+01	1.053E+01	FAIL ABUN
SR-82	3.178E-01	5.668E-01	4.418E-01	2.892E-01	NOT IDENT.
RB-83	-2.788E-02	7.844E-02	6.576E-02	4.002E-02	NOT IDENT.
RB-84	-1.396E-02	8.815E-02	7.464E-02	4.498E-02	NOT IDENT.
KR-85	-4.701E+00	8.372E+00	5.947E+00	4.272E+00	NOT IDENT.
SR-85	-2.460E-02	4.381E-02	3.112E-02	2.235E-02	NOT IDENT.
RB-86	7.175E-01	1.183E+00	1.056E+00	6.035E-01	NOT IDENT.
Y-88	-8.355E-03	4.678E-02	3.690E-02	2.387E-02	NOT IDENT.
ZR-88	-1.723E-02	3.191E-02	2.514E-02	1.628E-02	NOT IDENT.
Y-91	-2.325E+00	2.967E+01	2.446E+01	1.514E+01	NOT IDENT.
NB-94	1.954E-02	3.765E-02	3.314E-02	1.921E-02	NOT IDENT.
NB-95	-1.904E-02	7.007E-02	4.882E-02	3.575E-02	NOT IDENT.
NB-95M	4.345E-02	1.275E-01	1.022E-01	6.505E-02	NOT IDENT.
ZR-95	5.038E-02	9.737E-02	8.464E-02	4.968E-02	NOT IDENT.
NB-97	-3.644E+05	9.028E+05	0.000E+00	4.606E+05	SHORT HLIF
ZR-97	1.472E+07	1.468E+07	0.000E+00	7.488E+06	SHORT HLIF
MO-99	-4.091E+00	2.590E+01	2.211E+01	1.321E+01	NOT IDENT.
TC-99M	1.788E+18	6.909E+18	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-9.123E-03	2.814E-02	2.463E-02	1.436E-02	NOT IDENT.
RH-102	-2.616E-02	2.922E-02	2.343E-02	1.491E-02	NOT IDENT.
RU-103	-1.076E-02	4.439E-02	3.777E-02	2.265E-02	FAIL ABUN
RH-106	-2.144E-01	4.019E-01	3.233E-01	2.051E-01	FAIL ABUN
RU-106	-2.144E-01	4.013E-01	3.233E-01	2.048E-01	FAIL ABUN
AG-108M	-1.556E-02	3.381E-02	2.875E-02	1.725E-02	NOT IDENT.
AG-110M	-3.309E-02	4.919E-02	3.895E-02	2.510E-02	NOT IDENT.
IN-111	2.742E-01	1.619E+00	1.281E+00	8.260E-01	NOT IDENT.
IN-113M	-6.142E-03	4.686E-02	3.842E-02	2.391E-02	NOT IDENT.
SN-113	-6.142E-03	4.686E-02	3.842E-02	2.391E-02	NOT IDENT.
IN-114M	-2.306E-02	1.550E-01	1.312E-01	7.909E-02	NOT IDENT.
CD-115	1.275E+01	2.166E+01	1.962E+01	1.105E+01	NOT IDENT.
SN-117M	-9.977E-03	4.857E-02	4.368E-02	2.478E-02	NOT IDENT.
SB-122	1.738E+00	3.999E+00	3.549E+00	2.040E+00	NOT IDENT.
I-123	-1.990E+07	5.488E+07	0.000E+00	2.800E+07	SHORT HLIF
TE-123M	-8.489E-03	2.341E-02	2.090E-02	1.194E-02	NOT IDENT.
I-124	7.697E-01	1.105E+00	9.346E-01	5.640E-01	NOT IDENT.
SB-124	3.780E-02	9.438E-02	8.584E-02	4.815E-02	FAIL ABUN
SB-125	7.532E-02	1.013E-01	9.369E-02	5.169E-02	FAIL ABUN
TE-125M	2.655E+00	6.694E+00	5.797E+00	3.416E+00	NOT IDENT.
I-126	1.701E-01	2.344E-01	2.103E-01	1.196E-01	NOT IDENT.
SB-126	1.723E-01	2.181E-01	1.758E-01	1.113E-01	FAIL ABUN
SB-127	-5.914E-02	2.439E+00	2.040E+00	1.244E+00	NOT IDENT.
XE-127	3.640E-04	4.224E-02	3.750E-02	2.155E-02	NOT IDENT.
I-131	-6.638E-02	1.393E-01	1.117E-01	7.107E-02	NOT IDENT.
TE-132	-4.873E-02	9.156E-01	8.012E-01	4.671E-01	NOT IDENT.
BA-133	-1.316E-02	5.139E-02	3.732E-02	2.622E-02	NOT IDENT.
I-133	2.553E+04	3.057E+04	0.000E+00	1.560E+04	SHORT HLIF
CS-134	5.379E-02	6.012E-02	5.380E-02	3.067E-02	NOT IDENT.
CS-135	1.137E-01	1.703E-01	1.379E-01	8.691E-02	NOT IDENT.
I-135	-1.676E+17	1.058E+18	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.835E-02	1.452E-01	1.244E-01	7.410E-02	FAIL ABUN
BA-137M	-3.579E-02	5.051E-02	3.987E-02	2.577E-02	NOT IDENT.
CS-137	-3.783E-02	5.339E-02	4.215E-02	2.724E-02	NOT IDENT.
CE-139	-4.275E-03	2.387E-02	2.141E-02	1.218E-02	NOT IDENT.
BA-140	3.444E-02	3.040E-01	2.646E-01	1.551E-01	NOT IDENT.
LA-140	-2.057E-01	1.066E-01	3.786E-02	5.437E-02	FAIL ABUN
CE-141	6.320E-03	5.387E-02	4.479E-02	2.748E-02	NOT IDENT.
CE-143	1.172E+03	4.794E+02	0.000E+00	2.446E+02	SHORT HLIF

CE-144	3.192E-02	1.657E-01	1.395E-01	8.455E-02	NOT IDENT.
PM-144	-3.089E-02	4.026E-02	3.081E-02	2.054E-02	NOT IDENT.
PR-144	-2.096E+00	2.731E+00	2.090E+00	1.393E+00	NOT IDENT.
PM-146	-4.406E-05	4.218E-02	3.702E-02	2.152E-02	NOT IDENT.
ND-147	2.542E-01	6.772E-01	6.029E-01	3.455E-01	FAIL ABUN
PM-149	7.139E+01	1.529E+02	1.350E+02	7.801E+01	NOT IDENT.
EU-152	-7.061E-02	1.001E-01	7.950E-02	5.108E-02	FAIL ABUN
GD-153	-2.727E-02	5.831E-02	4.475E-02	2.975E-02	FAIL ABUN
EU-154	-1.866E-01	1.894E-01	1.374E-01	9.666E-02	NOT IDENT.
EU-155	1.068E-01	7.828E-02	7.046E-02	3.994E-02	FAIL ABUN
TB-160	7.386E-02	1.748E-01	1.570E-01	8.918E-02	FAIL ABUN
HO-166M	-8.427E-02	8.113E-02	6.037E-02	4.139E-02	FAIL ABUN
TM-171	-2.031E-01	1.194E+01	9.792E+00	6.093E+00	NOT IDENT.
LU-176	-1.164E-02	2.348E-02	1.925E-02	1.198E-02	FAIL ABUN
LU-177	3.677E+00	1.506E+00	1.181E+00	7.682E-01	FAIL ABUN
LU-177M	-9.902E-02	1.924E-01	1.512E-01	9.818E-02	FAIL ABUN
HF-181	-3.098E-02	4.681E-02	3.851E-02	2.388E-02	NOT IDENT.
W-181	-8.767E-02	1.484E-01	1.185E-01	7.572E-02	NOT IDENT.
TA-182	5.798E-02	3.174E-01	2.673E-01	1.619E-01	FAIL ABUN
RE-183	7.437E-02	8.981E-02	8.405E-02	4.582E-02	FAIL ABUN
RE-184	-2.724E-02	2.121E-01	1.828E-01	1.082E-01	NOT IDENT.
OS-185	-2.090E-02	4.965E-02	4.005E-02	2.533E-02	NOT IDENT.
RE-188	5.341E-02	1.373E-01	1.268E-01	7.005E-02	NOT IDENT.
W-188	3.592E-01	7.615E+00	5.851E+00	3.885E+00	FAIL ABUN
IR-192	2.998E-02	3.388E-02	3.049E-02	1.728E-02	FAIL ABUN
AU-195	2.753E-01	1.559E-01	1.422E-01	7.957E-02	FAIL ABUN
TL-200	7.640E+02	1.631E+03	0.000E+00	8.320E+02	SHORT HLIF
TL-201	1.581E+00	8.565E+00	7.801E+00	4.370E+00	NOT IDENT.
TL-202	-1.747E-02	7.840E-02	6.784E-02	4.000E-02	NOT IDENT.
HG-203	-1.335E-02	4.119E-02	3.472E-02	2.102E-02	FAIL ABUN
BI-207	1.333E-02	6.457E-02	5.572E-02	3.294E-02	FAIL ABUN
TL-207	1.103E-01	7.405E-01	5.667E-01	3.778E-01	FAIL ABUN
PO-209	4.371E+00	9.060E+00	8.171E+00	4.623E+00	NOT IDENT.
PB-211	1.879E-01	1.004E+00	8.371E-01	5.122E-01	NOT IDENT.
BI-212	9.328E-01	6.259E-01	4.048E-01	3.193E-01	FAIL ABUN
PO-215	1.103E-01	7.405E-01	5.667E-01	3.778E-01	FAIL ABUN
RN-219	-1.200E-01	4.567E-01	3.691E-01	2.330E-01	FAIL ABUN
RN-220	2.069E+01	3.100E+01	2.804E+01	1.582E+01	NOT IDENT.
RA-223	1.103E-01	7.405E-01	5.667E-01	3.778E-01	FAIL ABUN
AC-227	-6.911E-02	3.395E-01	2.907E-01	1.732E-01	FAIL ABUN
TH-227	-6.911E-02	3.395E-01	2.907E-01	1.732E-01	FAIL ABUN
TH-229	-2.507E-01	4.259E-01	3.683E-01	2.173E-01	FAIL ABUN
PA-231	-1.093E+00	1.416E+00	1.143E+00	7.225E-01	NOT IDENT.
TH-231	1.103E-01	7.405E-01	5.667E-01	3.778E-01	FAIL ABUN
U-231	-5.605E-01	9.733E-01	7.426E-01	4.966E-01	FAIL ABUN
PA-233	-1.840E-02	5.963E-02	4.950E-02	3.043E-02	FAIL ABUN
PA-234	1.968E-01	3.824E-01	3.427E-01	1.951E-01	FAIL ABUN
PA-234M	2.673E+00	5.518E+00	4.929E+00	2.815E+00	NOT IDENT.
U-235	1.148E-01	1.752E-01	1.492E-01	8.939E-02	FAIL ABUN
NP-236	-3.713E-02	6.473E-02	5.716E-02	3.303E-02	NOT IDENT.
NP-239	-1.615E-02	1.472E-01	1.235E-01	7.513E-02	FAIL ABUN
AM-241	4.493E-02	4.833E-02	4.457E-02	2.466E-02	NOT IDENT.
CM-243	-3.473E-02	6.971E-02	5.792E-02	3.557E-02	FAIL ABUN
AM-246	-4.078E-03	1.989E-01	1.670E-01	1.015E-01	NOT IDENT.
CM-247	-7.385E-03	4.040E-02	3.289E-02	2.061E-02	NOT IDENT.
CF-249	2.571E-02	4.393E-02	3.810E-02	2.241E-02	NOT IDENT.
CF-251	-4.855E-02	9.930E-02	8.706E-02	5.066E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT          *
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ENERGY	MDA COUNTS
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46.50	202.8737
46.50	202.8737
46.50	202.8737
48.70	215.1525
49.72	197.9047
51.35	258.5565
52.39	214.3551
52.97	228.8908
53.15	229.0813
53.44	230.3206
54.07	228.1813
56.28	258.7899
56.28	258.7930
57.37	0.0000
57.53	286.8081
57.53	286.8115
57.60	286.8956
57.98	315.9157
57.98	315.9157
59.32	290.9410
59.32	290.9410
59.40	291.0396
59.54	291.2135
59.72	291.4350
60.01	285.0733
61.10	321.4124
61.14	321.4658
61.30	346.1271
63.00	325.2296
63.29	307.4516
63.29	307.4516
63.58	307.8120
64.28	308.6805
65.12	330.6238
65.20	330.7294
65.20	330.7294
66.05	344.9547
66.72	318.2404
66.83	311.8026
66.91	311.8991
67.20	312.2487
67.20	312.2487
67.75	305.9801
67.85	325.9126
68.90	307.3309
68.90	307.3309
69.30	344.6537
69.67	345.1368
70.82	345.9551
70.82	345.9551
70.83	345.9683
72.80	365.9787
72.87	366.0700
72.87	366.0700
74.67	357.6182
74.81	357.7981
74.81	357.7981
74.81	357.7981
74.81	357.7981
74.81	357.7981
74.81	357.7981
74.81	357.7981
74.97	358.0022
75.28	358.3970
75.70	358.9287
77.11	360.7092
77.11	360.7092

77.11	360.7092
77.11	360.7092
77.11	360.7092
77.11	360.7092
77.11	360.7092
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79.62	303.2005
79.80	260.6364
79.80	260.6364
80.11	262.2917
80.18	262.3536
80.30	234.1419
80.30	234.1419
80.57	282.0564
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81.07	306.0737
81.07	306.0737
81.07	306.0737
81.07	306.0737
82.60	277.0137
83.37	266.5478
83.78	266.9092
83.78	266.9092
83.78	266.9092
83.78	266.9092
84.21	267.2842
84.90	267.8846
85.43	268.3431
86.29	269.0834
86.50	269.2641
86.54	269.2990
86.59	269.3418
86.72	269.4525
86.79	269.5108
86.94	269.6429
87.30	269.9500
87.30	269.9500
87.30	269.9500
87.30	269.9500
87.30	269.9500
87.30	269.9500
87.57	270.1812
87.88	254.8700
88.03	254.9908
88.36	255.2545
88.47	255.3424
89.95	228.7318
91.11	227.4060
92.29	228.2245
92.38	205.3152
92.38	205.3152
93.35	205.9160
94.00	206.3189
94.67	206.7277
94.67	206.7306
94.90	206.8717
94.90	206.8717
94.90	206.8717
94.90	206.8717
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95.87	223.4256
96.73	253.0809
97.43	244.8513
98.44	190.7532
98.44	190.7539
98.88	185.5078
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99.55	222.1565
99.86	212.4470
100.00	225.7452
100.10	225.8125
103.18	236.6625
103.76	239.2702
105.00	204.3546
105.31	196.7042
108.00	233.0424
109.28	195.4315

111.00	208.8039
111.00	208.8039
111.76	196.7117
112.95	231.5376
115.19	199.6051
116.30	180.6125
117.00	214.3515
117.00	214.3515
117.66	197.3913
121.11	180.4581
121.62	185.3455
121.78	179.5870
122.06	180.8767
122.32	178.6549
122.32	178.6549
122.32	178.6549
122.32	178.6549
123.07	202.3767
127.23	187.4604
129.76	203.2295
131.20	179.6592
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136.48	225.6606
140.51	200.8848
140.51	0.0000
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142.65	215.2681
143.76	191.2604
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144.24	186.5465
144.24	186.5465
144.24	186.5465
145.22	194.3152
145.44	194.4044
147.16	193.8759
152.43	189.7542
152.70	202.3492
153.22	205.8961
154.21	197.9557
154.21	197.9557
154.21	197.9557
154.21	197.9557
155.03	193.2637
156.02	218.7957
158.56	203.0520
159.00	0.0000
159.00	211.6587
160.31	213.8934
161.27	196.5076
162.32	178.2343
162.64	188.5365
163.35	192.1956
163.89	200.0574
165.85	189.6995
167.43	176.5556
171.28	170.9236
171.86	184.0696
172.10	178.9624
176.55	176.0637
176.60	176.0801
181.06	180.2994
184.41	163.0685
185.71	171.8517
186.00	171.9386
190.27	166.0593
192.34	155.8892
193.63	186.7544
197.04	176.9810
198.01	189.0214
198.60	197.3496
200.40	186.1295
201.83	181.1009
202.84	182.3079
205.31	166.0999



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208.81	145.3975
209.75	138.2401
209.75	138.2401
210.97	152.3544
215.65	169.2716
216.55	148.0823
218.09	153.0977
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223.80	145.9416
226.40	170.1324
227.00	178.7967
227.08	178.8179
227.20	178.8486
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228.18	152.5720
228.18	152.5720
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236.00	153.8207
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238.63	277.0430
238.63	277.0430
238.63	277.0430
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240.98	167.9324
241.98	134.8228
241.98	134.8228
241.98	134.8228
244.69	133.8742
245.39	122.3509
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248.90	120.9878
249.79	129.9261
252.40	139.2063
252.85	129.4823
252.85	129.4823
254.15	0.0000
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256.20	125.1345
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260.90	125.9122
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264.65	107.5957
268.24	133.6141
268.79	138.2162
269.46	130.3147
269.46	130.3147
269.46	130.3147
269.46	130.3147
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277.60	113.4241
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278.60	115.5911
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281.68	99.7446
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284.30	117.4216
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285.90	98.2129
286.10	98.2363
286.10	98.2363
287.40	101.4653
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290.80	106.5091
291.72	105.0817
293.26	0.0000
293.70	113.0734
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295.21	111.7222

295.21	111.7222
295.96	111.8210
296.50	111.8914
297.23	111.9880
298.57	112.1638
299.80	112.3242
299.80	112.3242
300.09	112.3616
300.09	112.3616
300.09	112.3616
300.09	112.3616
300.12	112.3660
301.29	103.1411
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303.91	87.7786
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304.40	108.2168
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319.02	115.8546
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323.87	104.1829
323.87	104.1829
323.87	104.1829
325.23	118.7821
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334.20	111.8260
334.30	111.8386
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338.28	108.5103
338.28	108.5103
338.28	108.5103
338.32	108.5144
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338.32	108.5144
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344.27	108.0959
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351.92	85.8362
351.92	85.8362
355.39	0.0000
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364.48	89.1471
366.43	73.6860
367.43	75.9937
367.94	0.0000
369.80	86.2506
374.96	94.5615
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387.95	83.1929
388.63	80.9656
391.69	81.1953
391.69	81.1953
392.90	82.4312
398.62	93.2212
400.65	80.7111
401.10	91.1252
401.81	91.1830
402.60	87.7838
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410.95	79.1313
411.60	101.3000
413.65	86.3198
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427.89	76.1738
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433.93	79.2371
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439.56	72.4570
439.89	78.7416
443.98	70.9289
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445.03	60.2076
445.03	60.2076
445.03	60.2076
445.03	60.2076
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473.00	61.5796
475.06	69.0434
475.35	65.3762
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487.03	58.5357
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497.08	63.6639
507.63	0.0000
510.53	0.0000
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511.00	67.1638
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511.85	56.0361
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513.99	72.8086
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529.87	0.0000
531.02	51.8247
537.32	53.0194
543.00	56.1344
546.56	0.0000
549.76	58.3411
552.65	71.1242
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563.23	58.8794
563.90	60.8685
568.70	64.0201
569.32	60.1046
569.50	59.1266
569.67	59.1339
573.80	62.2617
574.00	62.2694
574.64	61.3075
578.91	60.2897
579.30	0.0000
583.14	63.6387
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591.81	50.9984
592.07	51.0062
593.00	58.0425
595.88	55.1427
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602.52	0.0000
602.71	51.0192
602.71	51.0192
603.60	51.5859
604.41	59.6770
604.70	61.3010
609.31	50.5585

609.31	50.5585
609.31	50.5585
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610.33	50.1858
612.46	55.1155
614.37	55.1819
618.01	64.0497
621.84	68.2779
621.84	68.2779
631.29	57.3997
633.02	61.5656
633.10	61.5674
634.78	42.1148
635.90	57.5620
636.97	73.0259
645.85	54.8051
646.12	52.7447
656.30	61.3875
657.75	82.2668
657.90	0.0000
661.65	85.5860
661.65	85.5860
664.57	0.0000
666.33	45.0025
666.33	45.0025
675.00	59.9537
677.61	37.9226
685.20	56.0715
692.80	55.2500
695.00	56.3820
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696.49	57.4937
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698.33	36.2371
698.50	36.2402
699.00	43.7139
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706.58	0.0000
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711.68	71.9359
713.82	47.2979
717.42	62.4693
720.50	41.4281
721.93	0.0000
722.20	53.5598
722.78	62.2178
722.78	62.2178
722.89	62.2222
722.95	62.2248
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724.18	57.0765
727.18	50.8885
733.00	60.8228
735.90	42.4242
739.58	59.9464
742.81	48.0391
744.21	62.2776
747.13	64.5619
751.79	68.0093
752.31	68.0282
753.82	54.9042
755.35	43.9587
756.15	50.5736
756.87	53.8921
763.93	51.2187
765.79	72.4827
766.42	72.5047
766.84	67.2144
776.49	40.8834
778.00	47.0127
778.57	50.0455
778.89	52.2783
783.80	42.3719
785.46	46.8719
792.07	49.2664

795.84	42.6271
796.30	54.9799
798.80	56.1707
801.93	54.9074
805.60	45.0879
810.29	47.9019
810.76	41.5853
815.85	36.2510
817.79	48.0765
818.51	45.3711
819.60	35.4085
826.30	40.0770
828.27	0.0000
831.60	41.0922
831.96	43.8387
834.83	58.5313
836.80	0.0000
846.75	39.5472
848.13	39.5734
856.28	0.0000
856.80	43.1211
860.37	49.3633
867.32	39.9262
867.82	45.5080
871.10	29.7641
873.19	42.8274
874.81	34.4734
875.33	0.0000
876.40	40.0920
879.36	36.4121
880.27	40.1624
880.51	40.1676
881.50	40.1855
883.24	34.6053
884.67	42.1150
889.25	30.0102
896.60	34.8131
898.02	35.7762
899.00	42.3853
903.28	28.3103
911.07	44.5054
911.07	44.5054
911.07	44.5054
919.63	36.9634
920.93	39.9431
925.00	40.9665
925.24	40.0179
926.50	39.0861
935.52	45.9375
937.48	47.8918
944.10	46.1063
946.00	35.5682
949.00	36.5769
962.29	37.1045
964.01	42.6196
966.15	42.6572
968.20	42.6938
969.11	42.7099
969.11	42.7099
969.11	42.7099
977.42	27.5973
980.50	36.0849
983.50	39.0586
989.30	32.2999
996.32	33.3733
1001.03	32.4538
1001.68	37.3803
1004.76	43.3361
1021.30	0.0000
1024.50	0.0000
1034.80	42.8593
1036.00	45.8697
1037.82	31.9328
1038.57	25.9530
1038.76	0.0000
1045.16	33.0242
1046.59	29.0382
1048.07	33.0628

1050.47	34.0963
1050.47	34.0963
1062.04	39.2837
1063.62	33.2610
1076.63	38.4898
1077.35	41.5385
1078.86	44.6037
1085.78	33.5398
1099.22	55.1602
1112.02	51.3159
1112.84	43.6310
1115.52	39.3927
1120.29	46.3228
1120.29	46.3228
1120.29	46.3228
1120.29	46.3228
1120.51	41.1797
1121.28	41.1914
1124.00	0.0000
1129.67	41.3164
1131.51	0.0000
1147.95	0.0000
1167.94	54.4477
1173.22	44.0590
1175.09	51.4356
1177.93	55.6888
1189.05	51.6845
1204.90	61.5117
1205.75	0.0000
1213.00	58.4912
1221.42	65.0567
1230.97	63.1254
1235.34	52.5027
1236.41	0.0000
1238.25	47.1904
1246.25	43.0137
1260.41	0.0000
1271.85	31.4483
1274.45	54.2676
1274.54	53.1822
1291.56	36.0132
1298.22	0.0000
1312.09	26.3625
1325.50	22.9808
1325.50	22.9808
1332.49	23.9529
1333.61	21.1956
1360.21	15.7957
1362.66	0.0000
1365.15	21.4025
1368.21	20.4907
1368.53	0.0000
1376.25	20.5409
1384.27	14.0393
1394.10	14.0802
1395.20	11.2681
1407.95	17.9084
1434.06	9.4979
1436.60	12.3568
1457.56	0.0000
1460.81	20.1002
1489.15	9.6488
1509.49	10.6742
1596.49	19.8690
1620.62	10.9973
1678.03	0.0000
1691.02	7.1248
1691.02	7.1248
1706.46	0.0000
1750.46	0.0000
1764.49	7.2541
1764.49	7.2541
1764.49	7.2541
1764.49	7.2541
1770.23	7.1158
1771.40	12.4561
1791.20	0.0000
1808.65	9.4252

1836.01

9.4852

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341008

Total Uranium Activity	5.4687E+00	ug/g
Total Uranium Counting Unc.	2.2163E+00	ug/g
Total Uranium Tpu	1.1308E-06	ug/g
Total Uranium Mda	1.1835E+00	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950786          SAMPLE ID   : G246341008
*  ANALYST       : MXR1            DETECTOR    : GAM21
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 18-FEB-2010 13:24:56.90  SAMPLE ALQT: 130.570 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.053E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.335E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.909E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.891E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:49:39.08

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341009.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:49:14
Sample ID          : G246341009      Sample quantity   : 1.30730E+02 GRAM
Detector name      : GAM14           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.64  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 950786          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	63.36*	608	1064	1.25	126.28	121	12	8.45E-02	11.6	
2	1	74.80*	531	823	1.35	149.12	144	16	7.37E-02	10.4	6.62E-01
3	1	77.16*	814	756	1.36	153.85	144	16	1.13E-01	7.1	
4	0	83.88*	138	855	1.04	167.27	162	9	1.92E-02	39.5	
5	1	87.39	357	599	1.55	174.28	171	24	4.96E-02	11.9	9.14E+00
6	1	92.75*	1547	629	1.56	184.99	171	24	2.15E-01	4.1	
7	0	143.83*	140	499	0.87	287.06	282	10	1.94E-02	31.6	
8	0	185.82*	773	546	1.29	370.95	365	13	1.07E-01	7.3	
9	0	205.18	55	249	0.89	409.63	406	7	7.61E-03	49.7	
10	0	208.92	112	338	1.45	417.11	414	9	1.55E-02	31.0	
11	2	238.46*	1498	233	1.33	476.14	468	21	2.08E-01	3.2	1.48E+00
12	2	241.56	340	289	1.87	482.35	468	21	4.73E-02	13.4	
13	0	270.59	84	289	1.57	540.35	534	11	1.17E-02	40.7	
14	2	294.98*	464	167	1.53	589.10	584	21	6.45E-02	6.9	1.24E+00
15	2	300.02*	126	187	1.92	599.17	584	21	1.75E-02	24.9	
16	0	338.21	294	190	1.64	675.49	670	12	4.08E-02	11.1	
17	0	351.65*	723	186	1.39	702.35	696	12	1.00E-01	5.3	
18	0	463.13	86	181	1.95	925.18	920	16	1.19E-02	36.9	
19	0	510.56*	150	137	2.22	1019.97	1011	16	2.08E-02	21.6	
20	0	567.83	161	185	2.83	1134.46	1127	16	2.24E-02	20.4	
21	0	582.91*	402	188	1.60	1164.61	1159	15	5.59E-02	9.0	
22	0	609.17*	444	168	1.47	1217.12	1210	15	6.17E-02	8.1	
23	0	661.55	442	107	1.41	1321.84	1316	14	6.14E-02	6.8	
24	0	727.16*	122	97	1.33	1453.02	1446	15	1.69E-02	20.2	
25	0	794.77	60	55	1.22	1588.20	1583	11	8.33E-03	27.2	
26	0	861.02	62	53	2.10	1720.70	1715	11	8.67E-03	26.1	
27	0	911.42	271	105	1.71	1821.48	1815	14	3.76E-02	10.1	
28	0	934.50	30	52	1.03	1867.65	1863	10	4.14E-03	49.0	
29	3	964.65	64	27	2.52	1927.94	1922	26	8.95E-03	19.9	2.20E+00
30	3	969.01	170	29	2.17	1936.68	1922	26	2.36E-02	10.6	
31	0	1002.30*	52	85	2.03	2003.25	1995	18	7.18E-03	46.1	
32	0	1120.69	102	113	2.05	2240.06	2231	19	1.42E-02	26.9	
33	0	1378.03	27	36	1.49	2754.93	2747	13	3.79E-03	49.0	
34	0	1460.81*	1218	38	1.92	2920.60	2911	21	1.69E-01	3.1	
35	0	1764.30*	82	7	2.41	3528.08	3522	13	1.14E-02	13.3	

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

## VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:49:42

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341009.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:49:14
Sample ID        : G246341009             Sample quantity  : 130.73 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA14               Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.64    0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                   Systematic Error  : 0.00 %
Efficiency type   : Empirical             Efficiencies at   : Peak Energy
Abundance limit  : 75.00                 WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.706E+01	2.600E+00	5.227E-01	3.795E-02	51.778
CD-109	+	88.03	*	4.009E+00	1.017E+00	1.376E+00	1.203E-01	2.913
SN-126	+	64.28		3.924E+00	1.069E+00	7.846E-01	1.118E-01	5.001
	+	86.94		1.633E+00	7.798E-01	5.886E-01	2.434E-01	2.775
	+	87.57	*	3.929E-01	9.963E-02	1.470E-01	1.279E-02	2.672
BA-137M	+	661.65	*	5.722E-01	8.493E-02	5.983E-02	3.557E-03	9.564
CS-137	+	661.65	*	6.049E-01	8.983E-02	6.324E-02	3.776E-03	9.564
TL-208		277.35		3.377E-01	4.070E-01	6.822E-01	7.214E-02	0.495
	+	510.84		6.450E-01	2.869E-01	2.244E-01	2.288E-02	2.875
	+	583.14	*	4.974E-01	9.592E-02	6.071E-02	4.152E-03	8.193
	+	860.37		7.403E-01	3.933E-01	4.372E-01	4.113E-02	1.693
BI-211		72.87		1.529E+01	4.096E+00	6.260E+00	4.613E-01	2.443
	+	351.07	*	3.838E+00	4.760E-01	3.204E-01	2.030E-02	11.977
PB-212	+	74.81		2.343E+00	5.636E-01	5.922E-01	7.102E-02	3.957
	+	77.11		2.059E+00	3.338E-01	3.399E-01	2.617E-02	6.057
	+	87.30		1.817E+00	4.953E-01	6.530E-01	8.644E-02	2.783
	+	238.63	*	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
	+	300.09		2.250E+00	1.137E+00	1.168E+00	9.658E-02	1.927
PO-212	+	74.81		2.343E+00	5.636E-01	5.922E-01	7.102E-02	3.957
	+	77.11		2.059E+00	3.338E-01	3.399E-01	2.617E-02	6.057
	+	87.30		1.817E+00	4.953E-01	6.530E-01	8.644E-02	2.783
		115.19		-4.088E+00	4.052E+00	6.290E+00	4.578E-01	-0.650
	+	238.63	*	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
	+	300.09		2.250E+00	1.137E+00	1.168E+00	9.658E-02	1.927
BI-214	+	609.31	*	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
	+	1120.29		1.276E+00	6.968E-01	4.646E-01	4.305E-02	2.746
	+	1764.49		1.411E+00	3.857E-01	2.180E-01	1.307E-02	6.472
PB-214	+	74.81		4.037E+00	9.434E-01	1.020E+00	1.077E-01	3.957
	+	77.11		3.529E+00	6.323E-01	5.827E-01	6.312E-02	6.057
	+	87.30		3.113E+00	8.251E-01	1.119E+00	1.298E-01	2.783
	+	241.98		2.364E+00	6.600E-01	5.387E-01	4.327E-02	4.388
	+	295.21		1.453E+00	2.352E-01	2.047E-01	1.750E-02	7.098
	+	351.92	*	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
PO-214	+	74.81		4.037E+00	9.434E-01	1.020E+00	1.077E-01	3.957

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.529E+00	6.323E-01	5.827E-01	6.312E-02	6.057
	+	87.30		3.113E+00	8.251E-01	1.119E+00	1.298E-01	2.783
	+	241.98		2.364E+00	6.600E-01	5.387E-01	4.327E-02	4.388
	+	295.21		1.453E+00	2.352E-01	2.047E-01	1.750E-02	7.098
	+	351.92	*	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
PO-216	+	74.81		2.343E+00	5.636E-01	5.922E-01	7.102E-02	3.957
	+	77.11		2.059E+00	3.338E-01	3.399E-01	2.617E-02	6.057
	+	87.30		1.817E+00	4.953E-01	6.530E-01	8.644E-02	2.783
	+	238.63	*	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
	+	300.09		2.250E+00	1.137E+00	1.168E+00	9.658E-02	1.927
PO-218	+	74.81		4.037E+00	9.434E-01	1.020E+00	1.077E-01	3.957
	+	77.11		3.529E+00	6.323E-01	5.827E-01	6.312E-02	6.057
	+	87.30		3.113E+00	8.251E-01	1.119E+00	1.298E-01	2.783
	+	241.98		2.364E+00	6.600E-01	5.387E-01	4.327E-02	4.388
	+	295.21		1.453E+00	2.352E-01	2.047E-01	1.750E-02	7.098
	+	351.92	*	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
RA-224	+	240.98	*	4.482E+00	1.226E+00	1.018E+00	5.853E-02	4.401
RA-226	+	609.31	*	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
	+	1120.29		1.276E+00	6.968E-01	4.646E-01	4.305E-02	2.746
	+	1764.49		1.411E+00	3.857E-01	2.180E-01	1.307E-02	6.472
AC-228	+	338.32		1.718E+00	7.970E-01	3.733E-01	1.521E-01	4.602
	+	911.07	*	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658
	+	969.11		1.689E+00	5.320E-01	3.508E-01	8.191E-02	4.815
RA-228	+	338.32		1.718E+00	7.970E-01	3.733E-01	1.521E-01	4.602
	+	911.07	*	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658
	+	969.11		1.689E+00	5.320E-01	3.508E-01	8.191E-02	4.815
TH-228	+	74.81		2.383E+00	5.289E-01	6.023E-01	4.577E-02	3.957
	+	77.11		2.094E+00	3.396E-01	3.457E-01	2.662E-02	6.057
	+	87.30		1.848E+00	4.687E-01	6.642E-01	5.760E-02	2.783
	+	238.63	*	1.761E+00	1.703E-01	9.106E-02	6.633E-03	19.335
	+	300.09		2.289E+00	1.767E+00	1.188E+00	7.001E-01	1.927
TH-230	+	609.31	*	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
	+	1120.29		1.276E+00	6.968E-01	4.646E-01	4.305E-02	2.746
	+	1764.49		1.411E+00	3.857E-01	2.180E-01	1.307E-02	6.472
TH-232	+	338.32		1.718E+00	3.933E-01	3.733E-01	2.145E-02	4.602
	+	911.07	*	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658
	+	969.11		1.689E+00	5.320E-01	3.508E-01	8.191E-02	4.815
TH-234	+	63.29	*	9.912E+00	2.865E+00	2.044E+00	3.513E-01	4.850
	+	92.38		1.123E+01	2.213E+00	8.981E-01	1.613E-01	12.504
U-234	+	609.31	*	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
	+	1120.29		1.276E+00	6.968E-01	4.646E-01	4.305E-02	2.746
	+	1764.49		1.411E+00	3.857E-01	2.180E-01	1.307E-02	6.472
U-235	+	89.95		7.592E+00	2.756E+00	2.399E+00	7.401E-01	3.164
	+	93.35		1.350E+01	3.929E+00	1.075E+00	3.001E-01	12.565
	+	105.00		-2.558E-01	1.190E+00	1.905E+00	5.633E-01	-0.134
	+	143.76	*	5.193E-01	3.390E-01	3.607E-01	5.938E-02	1.439
	+	163.35		6.555E-01	5.479E-01	8.930E-01	1.597E-01	0.734
	+	185.71		6.296E-01	9.848E-02	7.500E-02	4.108E-03	8.394
	+	205.31		5.442E-01	5.497E-01	8.915E-01	1.597E-01	0.610

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	1.154E+00	3.772E-01	4.172E-01	9.324E-02	2.766
		95.87		3.829E-01	1.283E+00	1.831E+00	4.479E-01	0.209
U-238	+	63.29	*	9.912E+00	2.865E+00	2.044E+00	3.513E-01	4.850
	+	92.38		1.123E+01	1.308E+00	8.981E-01	7.514E-02	12.504
AM-243	+	74.67	*	3.799E-01	8.419E-02	9.623E-02	7.221E-03	3.948
	+	86.72		4.326E+01	1.097E+01	1.562E+01	1.345E+00	2.770
		117.66		-1.151E+00	4.149E+00	6.618E+00	4.771E-01	-0.174
		142.18		4.262E+01	2.302E+01	3.440E+01	2.163E+00	1.239
ANH-511	+	511.00	*	1.393E-01	6.087E-02	4.848E-02	2.848E-03	2.874

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	7.979E-02	3.514E-01	5.838E-01	3.935E-02	0.137
NA-22		1274.54	*	-1.154E-02	4.614E-02	7.414E-02	4.843E-03	-0.156
NA-24		1368.53	*	-2.628E+00	4.614E-02	Half-Life too short		
AL-26		1129.67		-1.015E-02	1.842E+00	2.729E+00	1.723E-01	-0.004
		1808.65	*	-8.489E-03	2.919E-02	4.429E-02	2.567E-03	-0.192
TI-44		67.85		-8.312E-02	5.436E-02	7.255E-02	5.106E-03	-1.146
	+	78.38	*	3.799E-01	6.161E-02	8.346E-02	6.517E-03	4.552
SC-46		889.25	*	3.755E-02	4.004E-02	7.171E-02	6.626E-03	0.524
	+	1120.51		2.220E-01	1.203E-01	1.330E-01	8.610E-03	1.669
V-48		944.10		-1.662E-01	9.713E-01	1.597E+00	1.427E-01	-0.104
		983.50	*	4.202E-02	7.374E-02	1.289E-01	1.094E-02	0.326
		1312.09		7.122E-03	7.807E-02	1.297E-01	8.963E-03	0.055
CR-51		320.08	*	-3.372E-02	4.085E-01	6.537E-01	4.224E-02	-0.052
MN-52		744.21		2.029E-01	2.964E-01	5.048E-01	3.563E-02	0.402
		848.13		-1.389E-01	7.922E+00	1.326E+01	1.140E+00	-0.010
	+	935.52		4.195E-01	4.131E-01	6.096E-01	5.502E-02	0.688
		1246.25		5.218E+00	1.043E+01	1.784E+01	1.112E+00	0.292
		1333.61		-2.176E+00	6.172E+00	9.700E+00	6.912E-01	-0.224
		1434.06	*	-3.265E-01	3.119E-01	4.352E-01	3.050E-02	-0.750
MN-54		834.83	*	1.171E-03	3.918E-02	6.586E-02	5.525E-03	0.018
CO-56		846.75	*	-2.337E-02	3.703E-02	5.859E-02	5.022E-03	-0.399
		977.42		-2.217E+00	3.289E+00	4.263E+00	3.651E-01	-0.520
		1037.82		2.788E-02	3.164E-01	5.299E-01	4.390E-02	0.053
		1175.09		1.506E+00	2.482E+00	4.292E+00	2.372E-01	0.351
		1238.25		1.043E-01	1.011E-01	1.779E-01	1.155E-02	0.586
		1360.21		4.063E-02	9.184E-01	1.515E+00	1.077E-01	0.027
		1771.40		-4.368E-01	2.378E-01	2.166E-01	1.292E-02	-2.017
CO-57		122.06	*	-4.158E-03	2.801E-02	4.485E-02	3.191E-03	-0.093
		136.48		7.209E-02	2.306E-01	3.744E-01	2.748E-02	0.193
CO-58		810.76	*	-3.213E-02	3.744E-02	5.465E-02	4.397E-03	-0.588
FE-59	+	142.65		6.906E+00	4.383E+00	5.497E+00	3.447E-01	1.256
		192.34		-1.925E-02	1.115E+00	1.635E+00	1.909E-01	-0.012
		1099.22	*	-5.825E-02	1.042E-01	1.647E-01	1.268E-02	-0.354
		1291.56		3.498E-02	1.179E-01	2.001E-01	1.629E-02	0.175
CO-60		1173.22		2.329E-02	4.774E-02	8.192E-02	4.512E-03	0.284

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-1.726E-02	3.928E-02	6.117E-02	4.360E-03	-0.282
ZN-65	1115.52	*		2.166E-02	1.050E-01	1.533E-01	1.008E-02	0.141
GE-68	1077.35	*		-1.707E-01	1.212E+00	1.984E+00	1.426E-01	-0.086
AS-73	53.44	*		-1.720E-01	7.419E-01	1.204E+00	7.848E-02	-0.143
AS-74	595.88	*		-2.541E-02	9.505E-02	1.513E-01	9.051E-03	-0.168
	634.78			-1.798E-01	3.958E-01	6.117E-01	3.653E-02	-0.294
SE-75	66.05			-1.168E+00	5.585E+00	7.861E+00	7.149E-01	-0.149
	96.73			1.094E+00	9.918E-01	1.452E+00	1.929E-01	0.753
	121.11			-2.682E-03	1.498E-01	2.411E-01	2.439E-02	-0.011
	136.00			6.762E-03	4.352E-02	7.027E-02	4.641E-03	0.096
	198.60			9.802E-01	1.958E+00	3.232E+00	2.238E-01	0.303
	264.65	*		-1.915E-02	5.243E-02	7.440E-02	4.368E-03	-0.257
	279.53			9.566E-02	1.133E-01	1.953E-01	1.230E-02	0.490
	303.91			-5.285E-01	2.400E+00	3.415E+00	3.264E-01	-0.155
	400.65			3.680E-01	2.638E-01	4.642E-01	4.134E-02	0.793
BR-77	+ 87.88			1.529E+03	3.878E+02	6.680E+02	5.835E+01	2.289
	200.40			1.639E+02	3.491E+02	5.231E+02	2.909E+01	0.313
	+ 239.00			4.922E+02	4.219E+01	6.724E+01	3.860E+00	7.320
	249.79			-2.530E+00	1.161E+02	1.941E+02	1.121E+01	-0.013
	281.68			-2.091E+02	1.654E+02	2.597E+02	1.514E+01	-0.805
	297.23			5.894E+02	1.153E+02	2.164E+02	1.262E+01	2.724
	303.76			-1.816E+02	3.644E+02	5.085E+02	2.963E+01	-0.357
	439.47			4.165E+01	2.752E+02	4.562E+02	2.579E+01	0.091
	484.57			-1.789E+02	4.004E+02	6.360E+02	3.693E+01	-0.281
	520.65	*		8.121E+00	1.871E+01	3.145E+01	1.854E+00	0.258
	574.64			-1.927E+02	4.459E+02	5.994E+02	3.579E+01	-0.322
	578.91			1.514E+02	1.799E+02	2.729E+02	1.630E+01	0.555
	585.48			2.593E+03	4.737E+02	8.627E+02	5.156E+01	3.006
	755.35			9.374E+01	3.105E+02	5.117E+02	3.692E+01	0.183
	817.79			1.272E+02	2.268E+02	3.972E+02	3.229E+01	0.320
SR-82	698.33			-3.062E+01	3.547E+01	5.313E+01	3.415E+00	-0.576
	776.49	*		-4.167E-01	4.270E-01	6.273E-01	4.716E-02	-0.664
	1395.20			4.596E+00	1.167E+01	2.003E+01	1.415E+00	0.229
RB-83	520.41	*		2.402E-02	7.051E-02	1.178E-01	6.947E-03	0.204
	529.64			-8.334E-03	1.103E-01	1.792E-01	1.060E-02	-0.046
	552.65			1.754E-01	1.999E-01	3.455E-01	2.055E-02	0.508
RB-84	881.50	*		1.267E-02	7.281E-02	1.228E-01	1.119E-02	0.103
KR-85	513.99	*		1.484E+01	7.636E+00	1.260E+01	7.409E-01	1.178
SR-85	513.99	*		7.767E-02	3.996E-02	6.593E-02	3.878E-03	1.178
RB-86	1076.63	*		-6.967E-02	8.126E-01	1.337E+00	9.628E-02	-0.052
Y-88	898.02			-3.033E-02	4.224E-02	6.622E-02	6.238E-03	-0.458
	1836.01	*		-6.155E-03	3.245E-02	5.029E-02	2.856E-03	-0.122
ZR-88	392.90	*		-1.384E-03	3.134E-02	5.159E-02	2.809E-03	-0.027
Y-91	1204.90	*		-1.868E+01	2.037E+01	3.102E+01	1.804E+00	-0.602
NB-94	702.63	*		-1.009E-02	3.262E-02	5.132E-02	3.329E-03	-0.197
	871.10			-3.957E-03	3.056E-02	5.057E-02	4.527E-03	-0.078
NB-95	765.79	*		5.481E-02	4.963E-02	8.557E-02	6.301E-03	0.641
NB-95M	235.69	*		7.647E-01	1.752E-01	2.881E-01	2.153E-02	2.655
ZR-95	724.18			1.785E-01	1.134E-01	1.820E-01	1.402E-02	0.981

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	756.15	*		2.794E-02	7.660E-02	1.268E-01	1.046E-02	0.220
	657.90	*		1.118E+00	7.660E-02	Half-Life	too short	
	1024.50			1.460E+01	7.660E-02	Half-Life	too short	
ZR-97	254.15			-1.638E+01	7.660E-02	Half-Life	too short	
	355.39			1.216E+01	7.660E-02	Half-Life	too short	
	507.63	*		1.912E+01	7.660E-02	Half-Life	too short	
	602.52			1.963E+01	7.660E-02	Half-Life	too short	
	1021.30			-1.741E+01	7.660E-02	Half-Life	too short	
	1147.95			-3.139E+01	7.660E-02	Half-Life	too short	
	1362.66			-3.482E+01	7.660E-02	Half-Life	too short	
	1750.46			2.031E+01	7.660E-02	Half-Life	too short	
MO-99	140.51			-6.557E+00	5.378E+01	7.418E+01	2.008E+01	-0.088
	181.06			1.231E+01	3.238E+01	4.837E+01	8.235E+00	0.254
	366.43			-4.465E+01	1.325E+02	2.148E+02	1.206E+01	-0.208
	739.58	*		-9.157E+00	1.870E+01	2.874E+01	4.116E+00	-0.319
	778.00			-4.179E+01	6.040E+01	9.137E+01	6.891E+00	-0.457
	140.51	*		-1.305E+12	6.040E+01	Half-Life	too short	
TC-99M	127.23			2.593E-02	3.567E-02	5.871E-02	4.039E-03	0.442
	198.01	*		2.172E-02	3.464E-02	5.876E-02	3.260E-03	0.370
RH-101	325.23			-6.138E-02	2.261E-01	3.705E-01	2.144E-02	-0.166
	418.52			-1.686E-01	2.906E-01	4.620E-01	2.572E-02	-0.365
	475.06	*		-4.195E-03	3.061E-02	4.975E-02	2.875E-03	-0.084
	631.29			-6.465E-03	5.455E-02	8.765E-02	5.237E-03	-0.074
	697.49			-1.454E-03	7.367E-02	1.188E-01	7.622E-03	-0.012
	766.84			1.806E-01	1.263E-01	2.211E-01	1.632E-02	0.817
	1046.59			3.663E-02	1.134E-01	1.937E-01	1.482E-02	0.189
	1112.84			-4.378E-02	2.621E-01	3.654E-01	2.414E-02	-0.120
RU-103	497.08	*		1.015E-02	4.217E-02	7.010E-02	8.877E-03	0.145
	610.33	+		1.160E+01	2.597E+00	2.904E+00	4.497E-01	3.995
RH-106	511.85	+		6.985E-01	3.052E-01	4.124E-01	2.423E-02	1.694
	621.84	*		1.641E-01	3.234E-01	5.436E-01	6.429E-02	0.302
RU-106	1050.47			5.913E-01	2.271E+00	3.859E+00	2.931E-01	0.153
	511.85	+		6.985E-01	3.052E-01	4.124E-01	2.423E-02	1.694
	621.84	*		1.641E-01	3.229E-01	5.436E-01	3.250E-02	0.302
AG-108M	1050.47			5.913E-01	2.271E+00	3.859E+00	2.931E-01	0.153
	433.93	*		-2.603E-02	3.438E-02	5.395E-02	3.314E-03	-0.482
	614.37			2.425E-02	4.282E-02	6.357E-02	4.106E-03	0.382
AG-110M	722.95			4.705E-02	4.531E-02	7.034E-02	5.056E-03	0.669
	657.75	*		3.854E-02	4.116E-02	6.308E-02	3.985E-03	0.611
	677.61			-3.705E-02	3.187E-01	5.106E-01	3.313E-02	-0.073
	706.67			1.692E-02	2.097E-01	3.406E-01	2.333E-02	0.050
	763.93			-1.459E-01	1.935E-01	2.939E-01	2.240E-02	-0.496
	884.67			1.272E-02	4.917E-02	8.401E-02	7.920E-03	0.151
	937.48			-3.114E-02	1.280E-01	1.785E-01	1.661E-02	-0.174
	1384.27			1.740E-01	1.753E-01	2.895E-01	2.135E-02	0.601
IN-111	171.28			-2.101E-01	1.738E+00	2.762E+00	1.490E-01	-0.076
	245.39	*		5.292E-01	1.878E+00	2.780E+00	1.602E-01	0.190
IN-113M	391.69	*		1.643E-02	4.442E-02	7.481E-02	4.377E-03	0.220
SN-113	391.69	*		1.643E-02	4.442E-02	7.481E-02	4.377E-03	0.220

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-114M	190.27	*		9.606E-02	2.117E-01	3.177E-01	1.749E-02	0.302
CD-115	260.90			-9.001E+01	2.511E+02	4.133E+02	2.399E+01	-0.218
	492.35			1.065E+01	6.532E+01	1.081E+02	6.303E+00	0.098
	527.90	*		9.090E-01	2.051E+01	3.359E+01	1.985E+00	0.027
SN-117M	156.02			1.701E+00	2.872E+00	4.690E+00	2.700E-01	0.363
	158.56	*		-1.494E-02	6.955E-02	1.104E-01	6.246E-03	-0.135
SB-122	563.90	*		3.441E+00	4.169E+00	6.310E+00	3.761E-01	0.545
	692.80			6.189E+01	7.101E+01	1.223E+02	7.771E+00	0.506
I-123	159.00	*		-8.405E+01	7.101E+01	Half-Life	too short	
	528.96			-4.273E+02	7.101E+01	Half-Life	too short	
TE-123M	159.00	*		-3.510E-02	3.338E-02	5.128E-02	2.933E-03	-0.684
I-124	602.71	*		4.396E-01	1.008E+00	1.478E+00	8.843E-02	0.297
	722.78			6.423E+00	6.519E+00	1.008E+01	6.812E-01	0.637
	1325.50			1.362E+01	4.516E+01	7.677E+01	5.414E+00	0.177
	1376.25			7.427E+01	5.064E+01	8.627E+01	6.114E+00	0.861
	1509.49			1.580E+01	2.122E+01	3.799E+01	2.606E+00	0.416
	1691.02			3.845E+00	4.365E+00	8.307E+00	5.234E-01	0.463
SB-124	602.71			1.888E-02	4.329E-02	6.350E-02	3.800E-03	0.297
	645.85			-4.390E-01	5.130E-01	7.716E-01	5.162E-02	-0.569
	709.31			1.229E+00	2.841E+00	4.740E+00	3.117E-01	0.259
	713.82			-2.756E-01	1.571E+00	2.496E+00	2.673E-01	-0.110
	722.78			4.000E-01	4.060E-01	6.276E-01	4.390E-02	0.637
	968.20	+		1.779E+01	4.063E+00	7.211E+00	6.253E-01	2.467
	1045.16			-1.142E-02	2.518E+00	4.181E+00	3.208E-01	-0.003
	1325.50			9.058E-01	3.004E+00	5.106E+00	3.601E-01	0.177
	1368.21			-7.076E-01	1.668E+00	2.503E+00	3.142E-01	-0.283
	1436.60			2.289E-01	3.619E+00	5.973E+00	4.184E-01	0.038
	1691.02	*		5.648E-02	6.412E-02	1.220E-01	8.249E-03	0.463
SB-125	427.89	*		3.805E-02	9.376E-02	1.579E-01	9.253E-03	0.241
	463.38	+		7.188E-01	5.327E-01	5.434E-01	3.648E-02	1.323
	600.56			-6.009E-02	1.808E-01	2.782E-01	1.910E-02	-0.216
	635.90			-5.487E-02	2.895E-01	4.579E-01	3.178E-02	-0.120
TE-125M	109.28	*		-1.132E+01	1.131E+01	1.760E+01	1.653E+00	-0.643
I-126	388.63			8.757E-02	2.274E-01	3.832E-01	2.093E-02	0.229
	666.33	*		4.008E-02	2.266E-01	3.227E-01	1.938E-02	0.124
	753.82			1.079E+00	1.735E+00	2.926E+00	2.105E-01	0.369
SB-126	223.80			2.133E-01	4.623E+00	7.769E+00	4.412E-01	0.027
	278.60			2.688E+00	2.883E+00	4.982E+00	2.904E-01	0.540
	296.50			1.414E+01	2.165E+00	4.009E+00	2.339E-01	3.528
	414.70			-2.086E-02	8.695E-02	1.413E-01	7.841E-03	-0.148
	415.30			6.606E-01	6.997E+00	1.159E+01	6.433E-01	0.057
	555.20			-4.655E+00	4.678E+00	7.076E+00	4.211E-01	-0.658
	573.80			-8.590E-01	1.437E+00	1.900E+00	1.134E-01	-0.452
	593.00			-3.144E-01	9.884E-01	1.567E+00	9.368E-02	-0.201
	656.30			2.089E+00	4.217E+00	6.217E+00	3.701E-01	0.336
	666.33			1.682E-02	9.512E-02	1.354E-01	8.134E-03	0.124
	675.00			1.685E+00	2.217E+00	3.795E+00	2.322E-01	0.444
	695.00			2.631E-02	8.664E-02	1.432E-01	9.142E-03	0.184
	697.00			-2.573E-02	2.915E-01	4.675E-01	2.997E-02	-0.055



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		720.50	*	5.335E-02	1.760E-01	2.537E-01	1.707E-02	0.210
		856.80		-1.696E-01	5.920E-01	8.266E-01	7.214E-02	-0.205
		989.30		-6.905E-01	1.337E+00	2.116E+00	1.782E-01	-0.326
		1034.80		3.059E+00	9.476E+00	1.621E+01	1.268E+00	0.189
		1213.00		-8.219E-03	5.521E+00	9.107E+00	5.371E-01	-0.001
		61.10		2.892E+02	1.024E+02	1.532E+02	1.599E+01	1.887
		252.40		-4.243E+00	6.520E+00	1.020E+01	4.253E+00	-0.416
		290.80		-2.314E+01	3.447E+01	4.754E+01	4.709E+00	-0.487
		411.60		2.918E+00	1.807E+01	3.002E+01	4.427E+00	0.097
		444.90		9.038E+00	1.424E+01	2.422E+01	2.748E+00	0.373
		473.00		-8.836E-01	2.574E+00	4.010E+00	4.717E-01	-0.220
		543.00		1.125E+01	2.245E+01	3.788E+01	5.109E+00	0.297
		603.60		1.337E+00	1.874E+01	2.649E+01	3.040E+00	0.050
		685.20	*	1.306E+00	2.050E+00	3.464E+00	3.603E-01	0.377
		698.50		-1.891E+01	2.141E+01	3.175E+01	4.826E+00	-0.596
		722.20		3.632E+01	4.656E+01	7.037E+01	7.369E+00	0.516
XE-127		783.80		9.004E+00	5.569E+00	9.867E+00	1.216E+00	0.913
		57.60		3.188E+00	6.805E+00	9.900E+00	6.520E-01	0.322
	+	145.22		1.781E+00	1.131E+00	1.444E+00	8.910E-02	1.234
		172.10		5.004E-02	1.316E-01	2.133E-01	1.151E-02	0.235
I-131		202.84	*	-4.343E-02	5.926E-02	8.361E-02	4.661E-03	-0.519
		374.96		7.869E-02	2.107E-01	3.550E-01	1.973E-02	0.222
		80.18		6.462E+00	9.227E+00	9.816E+00	7.895E-01	0.658
		284.30		-1.114E+00	1.755E+00	2.836E+00	1.843E-01	-0.393
TE-132		364.48	*	5.243E-02	1.346E-01	2.273E-01	1.441E-02	0.231
		636.97		8.988E-01	1.855E+00	3.116E+00	2.078E-01	0.288
		722.89		9.198E+00	9.019E+00	1.398E+01	9.578E-01	0.658
		49.72		-4.376E+01	2.486E+01	3.789E+01	3.732E+00	-1.155
BA-133		111.76		1.995E+01	5.226E+01	8.524E+01	8.940E+00	0.234
		116.30		-4.238E+00	4.647E+01	7.464E+01	7.757E+00	-0.057
		228.16	*	-4.917E-01	1.063E+00	1.747E+00	2.574E-01	-0.281
		53.15		-3.989E-01	3.121E+00	5.081E+00	3.310E-01	-0.079
I-133		79.62		4.262E+00	2.316E+00	2.538E+00	3.766E-01	1.679
		81.00		7.265E-02	1.659E-01	1.735E-01	2.701E-02	0.419
		276.40		5.711E-01	4.289E-01	6.856E-01	8.897E-02	0.833
		302.84		-9.191E-02	1.652E-01	2.292E-01	2.675E-02	-0.401
CS-134		356.01	*	-4.486E-03	4.877E-02	6.954E-02	7.993E-03	-0.065
		383.85		-1.785E-01	3.086E-01	4.924E-01	5.275E-02	-0.363
	+	510.53		6.791E+00	3.086E-01	Half-Life too short		
		529.87	*	-3.690E-03	3.086E-01	Half-Life too short		
		706.58		1.590E-01	3.086E-01	Half-Life too short		
		856.28		-1.780E+00	3.086E-01	Half-Life too short		
		875.33		-1.318E-01	3.086E-01	Half-Life too short		
		1236.41		1.560E+00	3.086E-01	Half-Life too short		
		1298.22		-3.453E-01	3.086E-01	Half-Life too short		
		475.35		-6.278E-02	2.007E+00	3.284E+00	1.898E-01	-0.019
		563.23		6.538E-02	4.517E-01	6.443E-01	3.917E-02	0.101
	+	569.32		1.079E+00	4.456E-01	5.092E-01	3.124E-02	2.119
		604.70		1.183E-02	3.802E-02	5.501E-02	3.308E-03	0.215

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	+	795.84	*	1.089E-01	5.982E-02	8.903E-02	7.007E-03	1.223
		801.93		-2.692E-01	4.543E-01	6.547E-01	5.201E-02	-0.411
		1038.57		-5.934E-01	3.889E+00	6.374E+00	4.952E-01	-0.093
		1167.94		-8.730E-01	2.626E+00	4.219E+00	2.367E-01	-0.207
		1365.15		5.314E-01	1.058E+00	1.854E+00	1.404E-01	0.287
		268.24	*	2.870E-01	1.824E-01	2.870E-01	2.201E-02	1.000
		288.45		2.343E+12	1.824E-01	Half-Life	too short	
		417.63		-2.633E+12	1.824E-01	Half-Life	too short	
		546.56		-2.358E+12	1.824E-01	Half-Life	too short	
		836.80		-5.611E+11	1.824E-01	Half-Life	too short	
		1038.76		-4.214E+11	1.824E-01	Half-Life	too short	
		1124.00		4.903E+12	1.824E-01	Half-Life	too short	
		1131.51		-5.943E+10	1.824E-01	Half-Life	too short	
		1260.41	*	-1.745E+11	1.824E-01	Half-Life	too short	
		1457.56		7.029E+13	1.824E-01	Half-Life	too short	
CS-136		1678.03		8.609E+11	1.824E-01	Half-Life	too short	
		1706.46		-1.669E+11	1.824E-01	Half-Life	too short	
		1791.20		-1.825E+12	1.824E-01	Half-Life	too short	
	+	66.91		-1.154E+00	1.002E+00	1.339E+00	1.953E-01	-0.862
		86.29		5.684E+00	1.540E+00	2.465E+00	3.159E-01	2.306
		153.22		4.558E-02	8.192E-01	1.314E+00	9.566E-02	0.035
		163.89		1.693E+00	1.345E+00	2.238E+00	1.561E-01	0.756
		176.55		-1.177E-01	4.340E-01	6.848E-01	4.237E-02	-0.172
		273.65		-4.666E-01	6.108E-01	8.454E-01	5.613E-02	-0.552
		340.57		3.756E-01	1.634E-01	2.669E-01	1.631E-02	1.407
		818.51		2.709E-02	7.979E-02	1.375E-01	1.121E-02	0.197
		1048.07	*	-1.704E-02	1.197E-01	1.964E-01	1.580E-02	-0.087
		1235.34		-2.742E-01	7.249E-01	1.162E+00	1.182E-01	-0.236
		165.85	*	1.705E-03	3.413E-02	5.465E-02	2.934E-03	0.031
		162.64		6.257E-01	9.483E-01	1.551E+00	9.700E-02	0.403
CE-139 BA-140		304.84		-3.564E-01	1.625E+00	2.309E+00	6.302E-01	-0.154
		423.70		2.936E-01	2.191E+00	3.631E+00	1.153E+00	0.081
		537.32	*	-1.428E-01	2.972E-01	4.627E-01	1.506E-01	-0.309
		328.77		2.000E-02	3.385E-01	5.633E-01	3.648E-02	0.036
		432.53		-5.241E-01	2.355E+00	3.822E+00	2.389E-01	-0.137
		487.03		4.535E-02	1.423E-01	2.383E-01	1.567E-02	0.190
		751.79		1.417E+00	1.896E+00	3.237E+00	2.671E-01	0.438
		815.85		1.689E-01	3.272E-01	5.724E-01	5.237E-02	0.295
		867.82		4.592E-02	1.428E+00	2.228E+00	2.082E-01	0.021
		919.63		-1.293E+00	3.420E+00	5.092E+00	5.656E-01	-0.254
		925.24		5.461E-01	1.293E+00	2.231E+00	2.151E-01	0.245
		1596.49	*	-1.986E-02	9.116E-02	1.432E-01	9.494E-03	-0.139
		145.44	*	1.970E-01	8.460E-02	1.298E-01	8.284E-03	1.518
		57.37		-3.751E-04	8.460E-02	Half-Life	too short	
		231.56		4.556E-03	8.460E-02	Half-Life	too short	
CE-141 CE-143		293.26	*	3.194E-03	8.460E-02	Half-Life	too short	
	+	350.59		8.167E-02	8.460E-02	Half-Life	too short	
		490.36		-8.339E-03	8.460E-02	Half-Life	too short	
		664.57		1.610E-02	8.460E-02	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			6.448E-04	8.460E-02	Half-Life too short		
CE-144	80.11			2.679E+00	3.607E+00	3.847E+00	3.063E-01	0.697
	133.54	*		-1.817E-01	2.307E-01	3.578E-01	5.208E-02	-0.508
PM-144	476.78			1.029E-02	7.113E-02	1.176E-01	8.152E-03	0.088
	618.01			5.189E-03	3.305E-02	5.425E-02	3.429E-03	0.096
	696.49	*		-3.278E-03	3.410E-02	5.465E-02	3.502E-03	-0.060
	778.57			-6.725E-01	2.426E+00	3.809E+00	2.877E-01	-0.177
PR-144	696.49	*		-2.224E-01	2.313E+00	3.707E+00	2.374E-01	-0.060
	1489.15			6.451E+00	1.201E+01	2.105E+01	1.454E+00	0.306
PM-146	453.90	*		2.937E-02	4.344E-02	7.418E-02	6.350E-03	0.396
	633.02			-6.933E-01	1.450E+00	2.228E+00	8.210E-01	-0.311
	735.90			-4.579E-02	1.431E-01	2.161E-01	6.081E-02	-0.212
	747.13			-9.120E-02	9.291E-02	1.353E-01	1.780E-02	-0.674
ND-147	91.11			5.736E+00	7.189E-01	9.026E-01	8.297E-02	6.356
	319.41			-1.503E+00	3.896E+00	6.133E+00	3.560E-01	-0.245
	439.89			2.491E+00	7.084E+00	1.187E+01	6.720E-01	0.210
	531.02	*		2.914E-02	6.708E-01	1.098E+00	1.491E-01	0.027
PM-149	285.90	*		4.578E+01	1.672E+02	2.818E+02	4.001E+01	0.162
EU-152	121.78			-2.575E-02	8.115E-02	1.291E-01	1.117E-02	-0.199
	244.69			1.069E-01	3.713E-01	5.497E-01	3.166E-02	0.194
	344.27	*		8.593E-02	1.169E-01	1.579E-01	1.021E-02	0.544
	443.98			1.983E-01	9.903E-01	1.647E+00	9.339E-02	0.120
	778.89			-2.608E-02	2.756E-01	4.394E-01	3.319E-02	-0.059
	867.32			6.725E-02	7.904E-01	1.201E+00	1.068E-01	0.056
+	964.01			7.367E-01	2.997E-01	5.190E-01	4.526E-02	1.419
	1085.78			2.619E-01	3.874E-01	6.803E-01	4.799E-02	0.385
	1112.02			-2.809E-01	3.875E-01	5.006E-01	3.315E-02	-0.561
	1407.95			1.749E-01	1.909E-01	3.443E-01	2.426E-02	0.508
GD-153	69.67			1.734E+00	2.234E+00	2.777E+00	1.986E-01	0.624
+	83.37			2.769E+01	2.197E+01	2.884E+01	2.385E+00	0.960
	97.43	*		1.138E-01	1.000E-01	1.477E-01	1.185E-02	0.770
	103.18			-1.251E-02	1.162E-01	1.870E-01	1.443E-02	-0.067
EU-154	123.07			-2.082E-03	5.579E-02	8.967E-02	9.175E-03	-0.023
	247.94			1.027E-01	4.147E-01	6.123E-01	5.831E-02	0.168
	591.81			-1.655E-01	6.520E-01	9.756E-01	9.641E-02	-0.170
	723.30			2.357E-01	1.882E-01	2.979E-01	2.351E-02	0.791
	756.87			3.026E-01	8.224E-01	1.361E+00	1.500E-01	0.222
	873.19			-8.505E-02	2.626E-01	4.260E-01	5.327E-02	-0.200
	996.32			-1.580E-02	3.785E-01	5.396E-01	9.511E-02	-0.029
	1004.76			7.209E-02	2.371E-01	3.529E-01	4.006E-02	0.204
	1274.45	*		-3.111E-02	1.289E-01	2.072E-01	2.032E-02	-0.150
EU-155	48.70			-7.543E-02	1.945E+00	3.180E+00	2.038E-01	-0.024
	60.01			7.152E+00	5.602E+00	8.337E+00	5.542E-01	0.858
+	86.54			4.735E-01	1.202E-01	2.024E-01	1.757E-02	2.340
	105.31	*		-3.090E-02	1.215E-01	1.945E-01	1.506E-02	-0.159
TB-160	86.79			1.288E+00	3.266E-01	5.467E-01	4.711E-02	2.356
	197.04			3.841E-01	5.969E-01	1.013E+00	5.616E-02	0.379
	215.65			-2.795E-01	8.310E-01	1.300E+00	7.332E-02	-0.215
+	298.57			3.336E-01	1.674E-01	2.090E-01	1.219E-02	1.597

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

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HO-166M		879.36	*	-3.098E-02	1.347E-01	2.193E-01	1.992E-02	-0.141
		962.29		3.562E-01	5.794E-01	8.906E-01	7.782E-02	0.400
		966.15		9.408E-01	2.560E-01	4.927E-01	4.284E-02	1.909
		1177.93		-6.148E-02	4.074E-01	6.651E-01	3.694E-02	-0.092
		1271.85		3.123E-01	7.324E-01	1.254E+00	8.140E-02	0.249
		80.57		2.078E-01	4.574E-01	4.797E-01	3.839E-02	0.433
	+	184.41		4.722E-01	7.386E-02	9.587E-02	5.243E-03	4.926
		280.46		-5.294E-02	8.790E-02	1.427E-01	8.321E-03	-0.371
		410.95		1.017E-01	2.590E-01	4.355E-01	2.409E-02	0.234
		711.68	*	-6.372E-03	6.009E-02	9.612E-02	6.351E-03	-0.066
TM-171		752.31		3.240E-01	2.770E-01	4.867E-01	3.490E-02	0.666
		810.29		-5.511E-02	5.810E-02	8.431E-02	6.759E-03	-0.654
		51.35		-4.329E+00	2.573E+01	4.186E+01	2.714E+00	-0.103
		52.39		4.652E+00	1.347E+01	2.225E+01	1.447E+00	0.209
		59.40		4.170E+01	2.975E+01	4.448E+01	2.947E+00	0.938
LU-176		66.72	*	-3.310E+01	3.234E+01	4.395E+01	3.065E+00	-0.753
	+	88.36		9.318E-01	2.363E-01	4.146E-01	3.612E-02	2.248
		201.83		-1.377E-02	3.412E-02	4.897E-02	2.727E-03	-0.281
		306.84	*	2.345E-02	2.671E-02	4.387E-02	2.555E-03	0.535
LU-177		401.10		6.738E+00	6.911E+00	1.197E+01	6.567E-01	0.563
		112.95		1.654E+00	2.261E+00	3.727E+00	2.737E-01	0.444
LU-177M	+	208.36	*	2.813E+00	1.753E+00	2.468E+00	1.383E-01	1.140
		52.97		2.060E-01	1.408E+00	2.311E+00	1.505E-01	0.089
HF-181		54.07		4.834E-02	7.680E-01	1.257E+00	8.207E-02	0.038
		61.30		7.331E+00	1.882E+00	2.929E+00	1.964E-01	2.503
		121.62		-8.306E-02	4.171E-01	6.666E-01	4.741E-02	-0.125
		147.16		4.627E-01	7.850E-01	1.130E+00	6.892E-02	0.409
		171.86		2.048E-01	5.156E-01	8.361E-01	4.512E-02	0.245
		218.09		1.678E-01	8.817E-01	1.490E+00	8.424E-02	0.113
		268.79		1.459E+00	9.529E-01	1.497E+00	8.708E-02	0.975
		319.02		-1.903E-01	2.734E-01	4.235E-01	2.457E-02	-0.449
		367.43		-9.257E-01	8.906E-01	1.382E+00	7.746E-02	-0.670
		413.65	*	-1.178E-01	1.873E-01	2.976E-01	1.650E-02	-0.396
		56.28		-1.130E+00	9.306E-01	1.462E+00	9.595E-02	-0.773
		57.53		2.453E-01	5.687E-01	8.263E-01	5.441E-02	0.297
		65.20		4.751E+00	1.241E+00	1.917E+00	1.321E-01	2.478
		133.02		-7.874E-02	7.647E-02	1.181E-01	7.848E-03	-0.667
		136.25		2.158E-01	5.165E-01	8.414E-01	5.484E-02	0.256
		345.85		1.685E-02	2.316E-01	3.161E-01	1.807E-02	0.053
		482.03	*	-2.615E-02	4.556E-02	7.187E-02	4.168E-03	-0.364
W-181		56.28		-4.328E-01	3.568E-01	5.606E-01	3.679E-02	-0.772
		57.53		9.389E-02	2.182E-01	3.170E-01	2.087E-02	0.296
TA-182		65.20	*	1.808E+00	4.723E-01	7.298E-01	5.028E-02	2.478
		67.75		-2.009E-01	1.312E-01	1.751E-01	1.231E-02	-1.148
		100.10		4.196E-01	2.210E-01	3.353E-01	2.638E-02	1.252
		152.43		-5.880E-04	3.820E-01	6.118E-01	3.607E-02	-0.001
		222.10		2.254E-01	3.631E-01	6.225E-01	3.531E-02	0.362
	+	1001.68		4.667E+00	4.323E+00	4.481E+00	3.703E-01	1.042
	+	1121.28		6.104E-01	3.309E-01	3.596E-01	2.324E-02	1.697

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1189.05			-1.003E-01	3.142E-01	5.045E-01	2.857E-02	-0.199
	1221.42	*		2.574E-01	2.052E-01	3.700E-01	2.213E-02	0.696
	1230.97			3.756E-01	4.988E-01	8.687E-01	5.279E-02	0.432
RE-183	57.98			1.812E-01	2.194E-01	3.232E-01	2.131E-02	0.561
	59.32			1.660E-01	1.242E-01	1.854E-01	1.228E-02	0.896
	67.20			-2.638E-01	2.340E-01	3.165E-01	2.216E-02	-0.833
	162.32	*		6.161E-02	1.277E-01	2.077E-01	1.144E-02	0.297
	208.81	+		2.106E+00	1.312E+00	1.865E+00	1.046E-01	1.129
	291.72			5.228E-01	1.072E+00	1.599E+00	9.331E-02	0.327
RE-184	57.98			6.600E-01	7.994E-01	1.177E+00	7.764E-02	0.561
	59.32			6.043E-01	4.522E-01	6.748E-01	4.469E-02	0.896
	67.20			-9.608E-01	8.522E-01	1.153E+00	8.070E-02	-0.833
	161.27			-1.099E-01	4.117E-01	6.520E-01	3.619E-02	-0.169
	216.55			-4.339E-02	2.745E-01	4.583E-01	2.587E-02	-0.095
	252.85	*		-2.113E-01	2.408E-01	3.873E-01	2.240E-02	-0.546
	318.01			-2.196E-01	4.492E-01	7.278E-01	4.225E-02	-0.302
	792.07			6.835E-01	1.139E+00	1.688E+00	1.307E-01	0.405
	903.28			1.215E-01	1.160E+00	1.818E+00	1.697E-01	0.067
	920.93			-1.192E-01	4.608E-01	7.530E-01	6.905E-02	-0.158
OS-185	59.72			3.947E-01	3.367E-01	4.996E-01	3.315E-02	0.790
	61.14			6.606E-01	2.027E-01	3.136E-01	2.100E-02	2.107
	69.30			-2.900E-01	5.003E-01	4.920E-01	3.507E-02	-0.590
	592.07			4.051E-02	2.573E+00	4.074E+00	2.436E-01	0.010
	646.12	*		-2.784E-02	4.316E-02	6.621E-02	3.949E-03	-0.420
	717.42			-8.700E-01	9.022E-01	1.330E+00	8.896E-02	-0.654
	874.81			-1.400E-01	5.486E-01	8.973E-01	8.085E-02	-0.156
	880.27			1.073E-01	7.508E-01	1.263E+00	1.149E-01	0.085
RE-188	155.03	*		2.614E-01	1.976E-01	3.301E-01	1.913E-02	0.792
	477.96			1.547E+00	3.298E+00	5.557E+00	3.216E-01	0.278
	633.10			-1.546E+00	2.933E+00	4.559E+00	2.724E-01	-0.339
W-188	63.58	+		4.063E+02	9.837E+01	1.141E+02	7.766E+00	3.561
	227.08			-6.438E+00	1.304E+01	2.145E+01	1.221E+00	-0.300
	290.67	*		-5.788E+00	8.541E+00	1.179E+01	6.880E-01	-0.491
IR-192	295.96	+		1.128E+00	1.689E-01	2.869E-01	1.700E-02	3.934
	308.46			5.866E-02	1.005E-01	1.716E-01	1.010E-02	0.342
	316.51	*		3.736E-03	3.427E-02	5.725E-02	3.342E-03	0.065
	468.07			-2.299E-02	8.042E-02	1.112E-01	7.397E-03	-0.207
	604.41			-2.531E-02	5.415E-01	7.562E-01	8.654E-02	-0.033
	612.46			1.682E+00	9.025E-01	1.456E+00	1.123E-01	1.155
AU-195	65.12			9.194E-01	2.211E-01	3.425E-01	2.358E-02	2.684
	66.83			-1.101E-01	1.075E-01	1.462E-01	1.020E-02	-0.753
	75.70	+		1.238E+00	2.745E-01	4.831E-01	3.664E-02	2.564
	98.88	*		1.566E-01	2.856E-01	4.129E-01	3.276E-02	0.379
	129.76			5.225E+00	3.169E+00	5.346E+00	3.622E-01	0.977
TL-200	367.94	*		-1.358E-03	3.169E+00	Half-Life	too short	
	579.30			2.064E-02	3.169E+00	Half-Life	too short	
	828.27			-9.886E-03	3.169E+00	Half-Life	too short	
	1205.75			-8.947E-03	3.169E+00	Half-Life	too short	
TL-201	68.90			-8.162E+00	1.229E+01	1.201E+01	8.529E-01	-0.680

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		6.259E+00	4.903E+00	7.271E+00	5.254E-01	0.861
		80.30		8.314E+00	1.325E+01	1.404E+01	1.120E+00	0.592
		135.34		-1.463E+00	4.316E+01	6.923E+01	4.536E+00	-0.021
		167.43	*	-1.105E+01	1.224E+01	1.886E+01	1.013E+00	-0.586
		68.90		-5.251E-01	7.907E-01	7.726E-01	5.487E-02	-0.680
HG-203		70.82		4.016E-01	3.146E-01	4.665E-01	3.371E-02	0.861
		80.30		5.336E-01	8.502E-01	9.008E-01	7.187E-02	0.592
		439.56	*	1.315E-02	8.409E-02	1.394E-01	7.885E-03	0.094
		70.83		1.609E+00	1.268E+00	1.863E+00	2.379E-01	0.864
BI-207		72.87		3.132E+00	8.953E-01	1.282E+00	1.592E-01	2.443
	+	82.60		2.107E+00	1.687E+00	2.219E+00	2.991E-01	0.950
		279.20	*	4.035E-02	4.385E-02	7.575E-02	4.687E-03	0.533
		72.80		8.578E-01	2.358E-01	3.613E-01	2.661E-02	2.374
	+	74.97		6.820E-01	1.511E-01	2.483E-01	1.869E-02	2.747
TL-207	+	84.90		3.561E-01	2.826E-01	3.774E-01	3.178E-02	0.944
		569.67		1.563E-01	4.472E-02	7.761E-02	4.631E-03	2.013
		1063.62	*	5.954E-03	5.373E-02	9.003E-02	6.663E-03	0.066
		1770.23		-9.190E-02	3.408E-01	4.135E-01	2.470E-02	-0.222
		81.07		1.635E-01	3.654E-01	3.830E-01	3.083E-02	0.427
PO-209	+	83.78		2.348E-01	1.863E-01	2.426E-01	2.016E-02	0.968
		94.90		2.303E+00	3.992E-01	5.970E-01	4.885E-02	3.857
		122.32		2.165E-01	1.906E+00	3.081E+00	2.418E-01	0.070
	+	144.24		1.683E+00	1.071E+00	1.372E+00	1.038E-01	1.227
		154.21		5.907E-01	4.451E-01	7.427E-01	5.225E-02	0.795
BI-210	+	269.46		3.495E-01	2.850E-01	3.513E-01	2.136E-02	0.995
		323.87	*	-9.801E-03	6.715E-01	1.114E+00	1.840E-01	-0.009
	+	338.28		7.174E+00	1.759E+00	2.412E+00	2.533E-01	2.974
		445.03		1.480E+00	2.330E+00	3.965E+00	4.044E-01	0.373
		260.50		-3.463E-01	9.998E+00	1.668E+01	9.681E-01	-0.021
PB-210		262.80		-3.187E+01	2.872E+01	4.426E+01	2.571E+00	-0.720
		896.60	*	-6.010E+00	7.239E+00	1.119E+01	1.047E+00	-0.537
		46.50	*	6.010E-01	2.707E+00	4.487E+00	3.327E-01	0.134
		46.50	*	6.010E-01	2.707E+00	4.487E+00	3.327E-01	0.134
		46.50	*	6.010E-01	2.707E+00	4.487E+00	2.816E-01	0.134
PB-211		404.84	*	-2.195E+00	1.706E+00	1.486E+00	9.257E-01	-1.477
		427.08		1.843E-01	2.115E+00	3.494E+00	2.159E+00	0.053
		831.96		9.599E-01	1.414E+00	2.258E+00	1.414E+00	0.425
	+	727.18	*	1.304E+00	5.391E-01	6.992E-01	5.948E-02	1.865
		785.46		1.876E+00	1.905E+00	3.282E+00	2.511E-01	0.572
PO-215		1620.62		-8.180E-02	1.176E+00	1.890E+00	1.238E-01	-0.043
		81.07		1.635E-01	3.654E-01	3.830E-01	3.083E-02	0.427
	+	83.78		2.348E-01	1.863E-01	2.426E-01	2.016E-02	0.968
		94.90		2.303E+00	3.992E-01	5.970E-01	4.885E-02	3.857
		122.32		2.165E-01	1.906E+00	3.081E+00	2.418E-01	0.070
	+	144.24		1.683E+00	1.071E+00	1.372E+00	1.038E-01	1.227
		154.21		5.907E-01	4.451E-01	7.427E-01	5.225E-02	0.795
	+	269.46		3.495E-01	2.850E-01	3.513E-01	2.136E-02	0.995
		323.87	*	-9.801E-03	6.715E-01	1.114E+00	1.840E-01	-0.009
	+	338.28		7.174E+00	1.759E+00	2.412E+00	2.533E-01	2.974

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		1.480E+00	2.330E+00	3.965E+00	4.044E-01	0.373
		271.23		4.484E-01	3.664E-01	4.481E-01	3.639E-02	1.001
		401.81	*	4.720E-01	4.256E-01	7.356E-01	9.913E-02	0.642
		549.76	*	8.876E+00	2.577E+01	4.305E+01	2.559E+00	0.206
RN-220		81.07		1.635E-01	3.654E-01	3.830E-01	3.083E-02	0.427
RA-223	+	83.78		2.348E-01	1.863E-01	2.426E-01	2.016E-02	0.968
		94.90		2.303E+00	3.992E-01	5.970E-01	4.885E-02	3.857
		122.32		2.165E-01	1.906E+00	3.081E+00	2.418E-01	0.070
		144.24		1.683E+00	1.071E+00	1.372E+00	1.038E-01	1.227
	+	154.21		5.907E-01	4.451E-01	7.427E-01	5.225E-02	0.795
		269.46		3.495E-01	2.850E-01	3.513E-01	2.136E-02	0.995
		323.87	*	-9.801E-03	6.715E-01	1.114E+00	1.840E-01	-0.009
		338.28		7.174E+00	1.759E+00	2.412E+00	2.533E-01	2.974
AC-227		445.03		1.480E+00	2.330E+00	3.965E+00	4.044E-01	0.373
		79.80		4.120E+00	2.939E+00	3.123E+00	6.633E-01	1.319
		236.00		2.654E+00	4.318E-01	6.237E-01	6.495E-02	4.256
		256.20	*	2.918E-01	4.007E-01	6.857E-01	9.571E-02	0.425
	+	286.10		6.011E-01	1.509E+00	2.558E+00	2.962E-01	0.235
		299.80		4.170E+00	2.187E+00	2.629E+00	4.284E-01	1.586
		304.40		-6.350E-01	2.140E+00	3.025E+00	5.235E-01	-0.210
		334.20		-6.613E-01	2.707E+00	3.829E+00	7.014E-01	-0.173
TH-227	+	79.80		4.120E+00	2.942E+00	3.123E+00	6.720E-01	1.319
		94.00		4.340E+01	1.004E+01	5.958E+00	1.289E+00	7.284
		236.00		2.654E+00	4.090E-01	6.237E-01	5.621E-02	4.256
		256.20	*	2.918E-01	4.016E-01	6.857E-01	1.159E-01	0.425
	+	286.10		6.011E-01	1.623E+00	2.558E+00	2.563E+00	0.235
		299.80		4.170E+00	2.187E+00	2.629E+00	4.284E-01	1.586
		304.40		-6.350E-01	2.140E+00	3.025E+00	5.235E-01	-0.210
		334.20		-6.613E-01	2.707E+00	3.829E+00	7.014E-01	-0.173
TH-229	+	85.43		8.426E-01	3.384E-01	3.886E-01	3.294E-02	2.168
		88.47		5.364E-01	1.360E-01	2.386E-01	2.076E-02	2.248
		100.00		4.425E-01	2.272E-01	3.451E-01	2.717E-02	1.282
		193.63	*	-3.107E-01	5.286E-01	8.477E-01	4.682E-02	-0.366
PA-231		210.97		1.061E+00	9.048E-01	1.395E+00	7.838E-02	0.760
		283.67	*	-1.353E+00	1.537E+00	2.440E+00	3.365E-01	-0.555
		301.29		1.668E+00	8.495E-01	1.038E+00	1.087E-01	1.606
		81.07		1.635E-01	3.654E-01	3.830E-01	3.083E-02	0.427
TH-231	+	83.78		2.348E-01	1.863E-01	2.426E-01	2.016E-02	0.968
		94.90		2.303E+00	3.992E-01	5.970E-01	4.885E-02	3.857
		122.32		2.165E-01	1.906E+00	3.081E+00	2.418E-01	0.070
		144.24		1.683E+00	1.071E+00	1.372E+00	1.038E-01	1.227
	+	154.21		5.907E-01	4.451E-01	7.427E-01	5.225E-02	0.795
		269.46		3.495E-01	2.850E-01	3.513E-01	2.136E-02	0.995
		323.87	*	-9.801E-03	6.715E-01	1.114E+00	1.840E-01	-0.009
		338.28		7.174E+00	1.759E+00	2.412E+00	2.533E-01	2.974
U-231	+	445.03		1.480E+00	2.330E+00	3.965E+00	4.044E-01	0.373
		84.21		1.397E+01	1.108E+01	1.442E+01	1.204E+00	0.969
		92.29		5.922E+01	6.894E+00	8.612E+00	7.211E-01	6.876
		95.87	*	5.995E-01	2.004E+00	2.866E+00	2.327E-01	0.209

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-1.008E+00	3.257E+00	5.204E+00	3.910E-01	-0.194
	+	75.28		1.990E+01	5.083E+00	7.542E+00	1.114E+00	2.638
	+	86.59		7.691E+00	2.760E+00	3.278E+00	8.788E-01	2.347
	+	300.12		1.163E+00	6.002E-01	7.322E-01	9.849E-02	1.588
		311.98	*	3.592E-03	6.455E-02	1.076E-01	6.642E-03	0.033
		340.50		1.824E+00	8.289E-01	1.192E+00	2.737E-01	1.530
		398.62		4.328E-01	2.162E+00	3.601E+00	9.284E-01	0.120
PA-234		415.76		4.859E-01	1.649E+00	2.758E+00	5.659E-01	0.176
	+	63.00		1.155E+01	3.169E+00	3.346E+00	4.871E-01	3.454
		94.67		2.283E+00	3.820E-01	4.647E-01	5.629E-02	4.912
		98.44		5.615E-02	1.205E-01	1.679E-01	9.348E-02	0.335
		99.86		1.081E+00	5.794E-01	8.774E-01	6.915E-02	1.231
		111.00		3.098E-01	2.135E-01	3.556E-01	4.002E-02	0.871
		131.20		7.644E-02	1.163E-01	1.910E-01	1.283E-02	0.400
		152.70		3.094E-02	3.646E-01	5.856E-01	9.275E-02	0.053
	+	186.00		1.700E+01	5.751E+00	3.524E+00	1.075E+00	4.824
		226.40		-2.605E-01	4.047E-01	6.602E-01	7.596E-02	-0.395
		227.20		-1.943E-01	4.327E-01	7.129E-01	4.060E-02	-0.273
		248.90		2.982E-01	8.480E-01	1.360E+00	2.921E-01	0.219
	+	293.70		6.974E+00	1.476E+00	1.749E+00	2.815E-01	3.987
		369.80		-2.790E-01	8.342E-01	1.350E+00	2.803E-01	-0.207
	+	568.70		5.463E+00	2.255E+00	2.628E+00	1.568E-01	2.079
		569.50		1.449E+00	4.005E-01	6.977E-01	4.163E-02	2.077
		574.00		-1.131E+00	1.849E+00	2.440E+00	1.457E-01	-0.463
		699.00		-2.729E-01	6.875E-01	1.071E+00	1.949E-01	-0.255
		706.10		3.845E-02	1.038E+00	1.681E+00	7.434E-01	0.023
		733.00		-1.784E-02	3.893E-01	5.374E-01	1.160E-01	-0.033
		742.81		6.414E-01	1.403E+00	2.239E+00	1.501E+00	0.286
		796.30		1.345E+00	1.161E+00	1.729E+00	4.635E-01	0.778
		805.60		1.212E+00	1.051E+00	1.748E+00	5.326E-01	0.694
		819.60		-1.035E-01	1.241E+00	2.069E+00	7.846E-01	-0.050
		826.30		-5.204E-01	8.786E-01	1.355E+00	6.051E-01	-0.384
		831.60		5.153E-01	6.811E-01	1.173E+00	3.492E-01	0.439
		876.40		-1.314E-01	8.208E-01	1.261E+00	1.297E+00	-0.104
		880.51		6.192E-02	2.698E-01	4.570E-01	4.160E-02	0.135
		883.24		-1.969E-01	3.127E-01	4.459E-01	3.000E-01	-0.442
		899.00		-2.041E-01	8.329E-01	1.356E+00	5.951E-01	-0.150
		925.00		4.092E-01	1.215E+00	2.084E+00	1.903E-01	0.196
		926.50		9.222E-02	1.882E-01	3.179E-01	8.090E-02	0.290
		946.00	*	-1.290E-01	3.022E-01	4.842E-01	9.153E-02	-0.266
		949.00		3.649E-01	4.269E-01	7.618E-01	6.768E-02	0.479
		980.50		8.422E-03	6.786E-01	1.132E+00	9.652E-02	0.007
		1394.10		7.987E-02	1.201E+00	1.983E+00	1.287E+00	0.040
PA-234M		766.42		1.895E+01	1.616E+01	2.295E+01	1.160E+01	0.826
NP-236	+	1001.03	*	1.047E+01	9.714E+00	9.961E+00	9.629E-01	1.051
		94.67		1.742E+00	2.459E-01	3.531E-01	2.895E-02	4.934
		98.44		4.250E-02	8.802E-02	1.269E-01	1.010E-02	0.335
		111.00		2.344E-01	1.603E-01	2.690E-01	1.992E-02	0.871
		160.31	*	-1.249E-01	9.329E-02	1.416E-01	7.911E-03	-0.882



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.789E-01	1.999E-01	2.927E-01	2.312E-02	0.611
		117.00	*	-1.056E-01	2.133E-01	3.376E-01	2.440E-02	-0.313
	+	209.75		1.629E+00	1.015E+00	1.460E+00	8.194E-02	1.116
		228.18		-1.088E-01	2.286E-01	3.763E-01	2.144E-02	-0.289
		277.60		1.619E-01	1.906E-01	3.282E-01	1.913E-02	0.493
		334.30		-4.788E-01	1.528E+00	2.152E+00	1.240E-01	-0.222
AM-241		59.54	*	1.985E-01	1.747E-01	2.588E-01	1.921E-02	0.767
CM-243		99.55		1.841E-01	2.058E-01	3.013E-01	2.380E-02	0.611
		103.76	*	5.193E-02	1.063E-01	1.744E-01	1.341E-02	0.298
		117.00		-1.086E-01	2.195E-01	3.474E-01	2.510E-02	-0.313
	+	209.75		1.606E+00	1.001E+00	1.440E+00	8.078E-02	1.116
		228.18		-1.100E-01	2.311E-01	3.803E-01	2.167E-02	-0.289
		277.60		1.632E-01	1.921E-01	3.309E-01	1.929E-02	0.493
AM-246		798.80		-2.036E-02	1.585E-01	2.155E-01	1.691E-02	-0.094
		1036.00		2.208E-02	2.825E-01	4.730E-01	3.691E-02	0.047
		1062.04		4.750E-02	2.240E-01	3.789E-01	2.813E-02	0.125
		1078.86	*	1.331E-02	1.386E-01	2.319E-01	1.661E-02	0.057
CM-247		278.00		8.495E-01	7.821E-01	1.358E+00	7.919E-02	0.625
		287.40		7.463E-01	1.231E+00	2.056E+00	1.200E-01	0.363
		402.60	*	3.835E-02	3.827E-02	6.636E-02	3.645E-03	0.578
CF-249		252.85		-7.867E-01	8.962E-01	1.442E+00	8.340E-02	-0.546
		333.44		7.444E-04	2.031E-01	2.926E-01	1.686E-02	0.003
CF-251		387.95	*	1.008E-02	4.030E-02	6.744E-02	3.687E-03	0.149
		176.60	*	-3.853E-02	1.349E-01	2.128E-01	1.154E-02	-0.181
		227.00		-2.011E-01	3.833E-01	6.295E-01	3.584E-02	-0.320
		285.00		-7.719E-01	1.730E+00	2.822E+00	1.647E-01	-0.273

# 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]G246341009      *
* Acquisition date   : 18-FEB-2010 13:49:14 Detector SN#                   *
* Detector ID        : GAM14 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.64 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G246341009 Analyst initials: MXR1                 *
* Batch Number       : 950786 Sample Quantity : 1.3073E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.706E+01	2.548E+00	5.231E-01	0.000E+00
CD-109	4.009E+00	9.963E-01	1.442E+00	0.000E+00
SN-126	3.929E-01	9.764E-02	1.541E-01	0.000E+00
BA-137M	5.722E-01	8.323E-02	6.069E-02	0.000E+00
CS-137	6.049E-01	8.804E-02	6.415E-02	0.000E+00
TL-208	4.974E-01	9.400E-02	6.171E-02	0.000E+00
BI-211	3.838E+00	4.664E-01	3.284E-01	0.000E+00
PB-212	1.731E+00	1.641E-01	9.234E-02	0.000E+00
PO-212	1.731E+00	1.641E-01	9.234E-02	0.000E+00
BI-214	1.038E+00	1.830E-01	1.147E-01	0.000E+00
PB-214	1.335E+00	1.760E-01	1.201E-01	0.000E+00
PO-214	1.335E+00	1.760E-01	1.201E-01	0.000E+00
PO-216	1.731E+00	1.641E-01	9.234E-02	0.000E+00
PO-218	1.335E+00	1.760E-01	1.201E-01	0.000E+00
RA-224	4.482E+00	1.201E+00	1.050E+00	0.000E+00
AC-226	1.038E+00	1.830E-01	1.147E-01	0.000E+00
RA-228	1.524E+00	3.479E-01	2.309E-01	0.000E+00
RA-228	1.524E+00	3.479E-01	2.309E-01	0.000E+00
TH-228	1.761E+00	1.669E-01	9.392E-02	0.000E+00
TH-230	1.038E+00	1.830E-01	1.147E-01	0.000E+00
TH-232	1.524E+00	3.479E-01	2.309E-01	0.000E+00
TH-234	9.912E+00	2.808E+00	2.152E+00	0.000E+00
U-234	1.038E+00	1.830E-01	1.147E-01	0.000E+00
U-235	5.193E-01	3.322E-01	3.751E-01	0.000E+00
NP-237	1.154E+00	3.696E-01	4.372E-01	0.000E+00
U-238	9.912E+00	2.808E+00	2.152E+00	0.000E+00
AM-243	3.799E-01	8.251E-02	1.011E-01	0.000E+00
ANH-511	1.393E-01	5.966E-02	4.938E-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	7.979E-02	3.444E-01	5.954E-01	0.000E+00	NOT IDENT.
NA-22	-1.154E-02	4.521E-02	7.438E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.151E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-8.489E-03	2.861E-02	4.417E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.038E-02	8.761E-02	0.000E+00	FAIL ABUN
SC-46	3.755E-02	3.924E-02	7.238E-02	0.000E+00	FAIL ABUN
V-48	4.202E-02	7.226E-02	1.299E-01	0.000E+00	NOT IDENT.
CR-51	-3.372E-02	4.003E-01	6.711E-01	0.000E+00	NOT IDENT.
MN-52	-3.265E-01	3.056E-01	4.357E-01	0.000E+00	FAIL ABUN
MN-54	1.171E-03	3.840E-02	6.655E-02	0.000E+00	NOT IDENT.
CO-56	-2.337E-02	3.629E-02	5.918E-02	0.000E+00	NOT IDENT.
CO-57	-4.158E-03	2.745E-02	4.676E-02	0.000E+00	NOT IDENT.
CO-58	-3.213E-02	3.669E-02	5.525E-02	0.000E+00	NOT IDENT.
FE-59	-5.825E-02	1.022E-01	1.657E-01	0.000E+00	FAIL ABUN
CO-60	-1.726E-02	3.849E-02	6.132E-02	0.000E+00	NOT IDENT.
ZN-65	2.166E-02	1.029E-01	1.542E-01	0.000E+00	NOT IDENT.
GE-68	-1.707E-01	1.188E+00	1.996E+00	0.000E+00	NOT IDENT.
AS-73	-1.720E-01	7.271E-01	1.271E+00	0.000E+00	NOT IDENT.
AS-74	-2.541E-02	9.315E-02	1.538E-01	0.000E+00	NOT IDENT.
SE-75	-1.915E-02	5.138E-02	7.661E-02	0.000E+00	NOT IDENT.
BR-77	8.121E+00	1.834E+01	3.203E+01	0.000E+00	FAIL ABUN
SR-82	-4.167E-01	4.185E-01	6.346E-01	0.000E+00	NOT IDENT.
RB-83	2.402E-02	6.910E-02	1.200E-01	0.000E+00	NOT IDENT.
RB-84	1.267E-02	7.135E-02	1.240E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.483E+00	1.283E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.917E-02	6.716E-02	0.000E+00	NOT IDENT.
RB-86	-6.967E-02	7.963E-01	1.345E+00	0.000E+00	NOT IDENT.
Y-88	-6.155E-03	3.180E-02	5.013E-02	0.000E+00	NOT IDENT.
ZR-88	-1.384E-03	3.071E-02	5.278E-02	0.000E+00	NOT IDENT.
Y-91	-1.868E+01	1.996E+01	3.115E+01	0.000E+00	NOT IDENT.
NB-94	-1.009E-02	3.197E-02	5.201E-02	0.000E+00	NOT IDENT.
NB-95	5.481E-02	4.864E-02	8.658E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.717E-01	2.972E-01	0.000E+00	NOT IDENT.
ZR-95	2.794E-02	7.507E-02	1.284E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.938E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.576E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-9.157E+00	1.832E+01	2.910E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.049E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.172E-02	3.394E-02	6.079E-02	0.000E+00	NOT IDENT.
RH-102	-4.195E-03	3.000E-02	5.075E-02	0.000E+00	NOT IDENT.
RU-103	1.015E-02	4.133E-02	7.144E-02	0.000E+00	FAIL ABUN
RH-106	1.641E-01	3.169E-01	5.520E-01	0.000E+00	FAIL ABUN
RU-106	1.641E-01	3.165E-01	5.520E-01	0.000E+00	FAIL ABUN
AG-108M	-2.603E-02	3.369E-02	5.510E-02	0.000E+00	NOT IDENT.
AG-110M	3.854E-02	4.034E-02	6.399E-02	0.000E+00	NOT IDENT.
IN-111	5.292E-01	1.840E+00	2.866E+00	0.000E+00	NOT IDENT.
IN-113M	1.643E-02	4.353E-02	7.654E-02	0.000E+00	NOT IDENT.
SN-113	1.643E-02	4.353E-02	7.654E-02	0.000E+00	NOT IDENT.
IN-114M	9.606E-02	2.075E-01	3.289E-01	0.000E+00	NOT IDENT.
CD-115	9.090E-01	2.010E+01	3.420E+01	0.000E+00	NOT IDENT.
SN-117M	-1.494E-02	6.816E-02	1.146E-01	0.000E+00	NOT IDENT.
SB-122	3.441E+00	4.085E+00	6.418E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	7.834E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.510E-02	3.272E-02	5.323E-02	0.000E+00	NOT IDENT.
I-124	4.396E-01	9.876E-01	1.502E+00	0.000E+00	NOT IDENT.
SB-124	5.648E-02	6.284E-02	1.218E-01	0.000E+00	FAIL ABUN
SB-125	3.805E-02	9.189E-02	1.613E-01	0.000E+00	FAIL ABUN
TE-125M	-1.132E+01	1.109E+01	1.837E+01	0.000E+00	NOT IDENT.
I-126	4.008E-02	2.221E-01	3.272E-01	0.000E+00	NOT IDENT.
SB-126	5.335E-02	1.725E-01	2.570E-01	0.000E+00	NOT IDENT.
SB-127	1.306E+00	2.009E+00	3.511E+00	0.000E+00	NOT IDENT.
XE-127	-4.343E-02	5.807E-02	8.646E-02	0.000E+00	FAIL ABUN
I-131	5.243E-02	1.319E-01	2.328E-01	0.000E+00	NOT IDENT.
TE-132	-4.917E-01	1.042E+00	1.803E+00	0.000E+00	NOT IDENT.
BA-133	-4.486E-03	4.779E-02	7.126E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.963E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.863E-02	9.003E-02	0.000E+00	FAIL ABUN
CS-135	2.870E-01	1.788E-01	2.954E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.282E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.704E-02	1.173E-01	1.977E-01	0.000E+00	FAIL ABUN
CE-139	1.705E-03	3.345E-02	5.669E-02	0.000E+00	NOT IDENT.
BA-140	-1.428E-01	2.912E-01	4.710E-01	0.000E+00	NOT IDENT.
LA-140	-1.986E-02	8.933E-02	1.431E-01	0.000E+00	NOT IDENT.
CE-141	0.000E+00	8.291E-02	1.349E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	8.446E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.817E-01	2.261E-01	3.724E-01	0.000E+00	NOT IDENT.
PM-144	-3.278E-03	3.341E-02	5.539E-02	0.000E+00	NOT IDENT.

PR-144	-2.224E-01	2.267E+00	3.757E+00	0.000E+00	NOT IDENT.
PM-146	2.937E-02	4.257E-02	7.571E-02	0.000E+00	NOT IDENT.
ND-147	2.914E-02	6.574E-01	1.118E+00	0.000E+00	NOT IDENT.
PM-149	4.578E+01	1.638E+02	2.898E+02	0.000E+00	NOT IDENT.
EU-152	8.593E-02	1.146E-01	1.619E-01	0.000E+00	FAIL ABUN
GD-153	1.138E-01	9.805E-02	1.546E-01	0.000E+00	FAIL ABUN
EU-154	-3.111E-02	1.263E-01	2.079E-01	0.000E+00	NOT IDENT.
EU-155	-3.090E-02	1.191E-01	2.032E-01	0.000E+00	FAIL ABUN
TB-160	-3.098E-02	1.320E-01	2.214E-01	0.000E+00	FAIL ABUN
HO-166M	-6.372E-03	5.889E-02	9.738E-02	0.000E+00	FAIL ABUN
TM-171	-3.310E+01	3.169E+01	4.625E+01	0.000E+00	NOT IDENT.
LU-176	2.345E-02	2.617E-02	4.506E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.718E+00	2.551E+00	0.000E+00	FAIL ABUN
LU-177M	-1.178E-01	1.835E-01	3.042E-01	0.000E+00	NOT IDENT.
HF-181	-2.615E-02	4.465E-02	7.328E-02	0.000E+00	NOT IDENT.
W-181	0.000E+00	4.628E-01	7.682E-01	0.000E+00	NOT IDENT.
TA-182	2.574E-01	2.011E-01	3.715E-01	0.000E+00	FAIL ABUN
RE-183	6.161E-02	1.252E-01	2.155E-01	0.000E+00	FAIL ABUN
RE-184	-2.113E-01	2.359E-01	3.991E-01	0.000E+00	NOT IDENT.
OS-185	-2.784E-02	4.230E-02	6.719E-02	0.000E+00	NOT IDENT.
RE-188	2.614E-01	1.937E-01	3.428E-01	0.000E+00	NOT IDENT.
W-188	-5.788E+00	8.370E+00	1.212E+01	0.000E+00	FAIL ABUN
IR-192	3.736E-03	3.358E-02	5.878E-02	0.000E+00	FAIL ABUN
AU-195	1.566E-01	2.799E-01	4.318E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.501E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.105E+01	1.199E+01	1.956E+01	0.000E+00	NOT IDENT.
TL-202	1.315E-02	8.241E-02	1.424E-01	0.000E+00	NOT IDENT.
HG-203	4.035E-02	4.297E-02	7.793E-02	0.000E+00	FAIL ABUN
BI-207	5.954E-03	5.266E-02	9.060E-02	0.000E+00	FAIL ABUN
TL-207	-9.801E-03	6.581E-01	1.143E+00	0.000E+00	FAIL ABUN
PO-209	-6.010E+00	7.094E+00	1.129E+01	0.000E+00	NOT IDENT.
BI-210	6.010E-01	2.653E+00	4.748E+00	0.000E+00	NOT IDENT.
PB-210	6.010E-01	2.653E+00	4.748E+00	0.000E+00	NOT IDENT.
PO-210	6.010E-01	2.653E+00	4.748E+00	0.000E+00	NOT IDENT.
PB-211	-2.195E+00	1.672E+00	1.519E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.283E-01	7.081E-01	0.000E+00	FAIL ABUN
PO-215	-9.801E-03	6.581E-01	1.143E+00	0.000E+00	FAIL ABUN
RN-219	4.720E-01	4.171E-01	7.523E-01	0.000E+00	FAIL ABUN
RN-220	8.876E+00	2.526E+01	4.380E+01	0.000E+00	NOT IDENT.
RA-223	-9.801E-03	6.581E-01	1.143E+00	0.000E+00	FAIL ABUN
AC-227	2.918E-01	3.927E-01	7.064E-01	0.000E+00	FAIL ABUN
TH-227	2.918E-01	3.936E-01	7.064E-01	0.000E+00	FAIL ABUN
TH-229	-3.107E-01	5.180E-01	8.772E-01	0.000E+00	FAIL ABUN
PA-231	-1.353E+00	1.507E+00	2.509E+00	0.000E+00	FAIL ABUN
TH-231	-9.801E-03	6.581E-01	1.143E+00	0.000E+00	FAIL ABUN
U-231	5.995E-01	1.964E+00	2.999E+00	0.000E+00	FAIL ABUN
PA-233	3.592E-03	6.326E-02	1.105E-01	0.000E+00	FAIL ABUN
PA-234	-1.290E-01	2.962E-01	4.882E-01	0.000E+00	FAIL ABUN
PA-234M	0.000E+00	9.520E+00	1.003E+01	0.000E+00	FAIL ABUN
NP-236	-1.249E-01	9.142E-02	1.469E-01	0.000E+00	NOT IDENT.
NP-239	-1.056E-01	2.090E-01	3.522E-01	0.000E+00	FAIL ABUN
AM-241	1.985E-01	1.712E-01	2.728E-01	0.000E+00	NOT IDENT.
CM-243	5.193E-02	1.042E-01	1.823E-01	0.000E+00	FAIL ABUN
AM-246	1.331E-02	1.358E-01	2.333E-01	0.000E+00	NOT IDENT.
CM-247	3.835E-02	3.750E-02	6.786E-02	0.000E+00	NOT IDENT.
CF-249	1.008E-02	3.950E-02	6.901E-02	0.000E+00	NOT IDENT.
CF-251	-3.853E-02	1.322E-01	2.205E-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]G246341009.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:49:14
Sample ID          : G246341009      Sample quantity   : 1.30730E+02 GRAM
Detector name      : GAM14           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.64  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 950786          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1218	10.67*	1.211E+00	2.706E+01	2.706E+01	9.61
CD-109	88.03	357	3.72*	7.058E+00	3.908E+00	4.009E+00	25.36
SN-126	64.28	608	9.60	4.638E+00	3.924E+00	3.924E+00	27.25
	86.94	357	8.90	7.058E+00	1.633E+00	1.633E+00	47.74
	87.57	357	37.00*	7.058E+00	3.929E-01	3.929E-01	25.36
BA-137M	661.65	442	89.98*	2.469E+00	5.716E-01	5.722E-01	14.84
CS-137	661.65	442	85.12*	2.469E+00	6.042E-01	6.049E-01	14.85
TL-208	277.35	-----	6.80	5.002E+00	-----	Line Not Found	-----
	510.84	150	21.60	3.090E+00	6.450E-01	6.450E-01	44.48
	583.14	402	84.20*	2.759E+00	4.974E-01	4.974E-01	19.28
	860.37	62	12.46	1.943E+00	7.403E-01	7.403E-01	53.13
BI-211	72.87	-----	1.27	5.875E+00	-----	Line Not Found	-----
	351.07	723	12.94*	4.179E+00	3.838E+00	3.838E+00	12.40
PB-212	74.81	531	10.70	6.080E+00	2.343E+00	2.343E+00	24.05
	77.11	814	18.00	6.310E+00	2.059E+00	2.059E+00	16.22
	87.30	357	8.00	7.058E+00	1.817E+00	1.817E+00	27.26
	238.63	1498	44.60*	5.570E+00	1.731E+00	1.731E+00	9.67
	300.09	126	3.41	4.719E+00	2.250E+00	2.250E+00	50.53
PO-212	74.81	531	10.70	6.080E+00	2.343E+00	2.343E+00	24.05
	77.11	814	18.00	6.310E+00	2.059E+00	2.059E+00	16.22
	87.30	357	8.00	7.058E+00	1.817E+00	1.817E+00	27.26
	115.19	-----	0.60	7.689E+00	-----	Line Not Found	-----
	238.63	1498	44.60*	5.570E+00	1.731E+00	1.731E+00	9.67
	300.09	126	3.41	4.719E+00	2.250E+00	2.250E+00	50.53
BI-214	609.31	444	46.30*	2.655E+00	1.038E+00	1.038E+00	17.99
	1120.29	102	15.10	1.523E+00	1.276E+00	1.276E+00	54.62
	1764.49	82	15.80	1.059E+00	1.411E+00	1.411E+00	27.34
PB-214	74.81	531	6.21	6.080E+00	4.037E+00	4.037E+00	23.37
	77.11	814	10.50	6.310E+00	3.529E+00	3.529E+00	17.92
	87.30	357	4.67	7.058E+00	3.113E+00	3.113E+00	26.50
	241.98	340	7.49	5.520E+00	2.364E+00	2.364E+00	27.92
	295.21	464	19.20	4.779E+00	1.453E+00	1.453E+00	16.19

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	723	37.20*	4.179E+00	1.335E+00	1.335E+00	13.46
	74.81	531	6.21	6.080E+00	4.037E+00	4.037E+00	23.37
	77.11	814	10.50	6.310E+00	3.529E+00	3.529E+00	17.92
	87.30	357	4.67	7.058E+00	3.113E+00	3.113E+00	26.50
	241.98	340	7.49	5.520E+00	2.364E+00	2.364E+00	27.92
PO-216	295.21	464	19.20	4.779E+00	1.453E+00	1.453E+00	16.19
	351.92	723	37.20*	4.179E+00	1.335E+00	1.335E+00	13.46
	74.81	531	10.70	6.080E+00	2.343E+00	2.343E+00	24.05
	77.11	814	18.00	6.310E+00	2.059E+00	2.059E+00	16.22
	87.30	357	8.00	7.058E+00	1.817E+00	1.817E+00	27.26
PO-218	238.63	1498	44.60*	5.570E+00	1.731E+00	1.731E+00	9.67
	300.09	126	3.41	4.719E+00	2.250E+00	2.250E+00	50.53
	74.81	531	6.21	6.080E+00	4.037E+00	4.037E+00	23.37
	77.11	814	10.50	6.310E+00	3.529E+00	3.529E+00	17.92
	87.30	357	4.67	7.058E+00	3.113E+00	3.113E+00	26.50
RA-224	241.98	340	7.49	5.520E+00	2.364E+00	2.364E+00	27.92
	295.21	464	19.20	4.779E+00	1.453E+00	1.453E+00	16.19
	351.92	723	37.20*	4.179E+00	1.335E+00	1.335E+00	13.46
	240.98	340	3.95*	5.520E+00	4.482E+00	4.482E+00	27.35
	609.31	444	46.30*	2.655E+00	1.038E+00	1.038E+00	17.99
AC-228	1120.29	102	15.10	1.523E+00	1.276E+00	1.276E+00	54.62
	1764.49	82	15.80	1.059E+00	1.411E+00	1.411E+00	27.34
	338.32	294	11.40	4.308E+00	1.718E+00	1.718E+00	46.39
	911.07	271	27.70*	1.843E+00	1.524E+00	1.524E+00	23.30
	969.11	170	16.60	1.742E+00	1.689E+00	1.689E+00	31.50
TH-228	338.32	294	11.40	4.308E+00	1.718E+00	1.718E+00	46.39
	911.07	271	27.70*	1.843E+00	1.524E+00	1.524E+00	23.30
	969.11	170	16.60	1.742E+00	1.689E+00	1.689E+00	31.50
	74.81	531	10.70	6.080E+00	2.343E+00	2.343E+00	22.19
	77.11	814	18.00	6.310E+00	2.059E+00	2.059E+00	16.22
TH-230	87.30	357	8.00	7.058E+00	1.817E+00	1.848E+00	25.36
	238.63	1498	44.60*	5.570E+00	1.731E+00	1.761E+00	9.67
	300.09	126	3.41	4.719E+00	2.250E+00	2.289E+00	77.19
	609.31	444	46.30*	2.655E+00	1.038E+00	1.038E+00	17.99
	1120.29	102	15.10	1.523E+00	1.276E+00	1.276E+00	54.62
TH-232	1764.49	82	15.80	1.059E+00	1.411E+00	1.411E+00	27.34
	338.32	294	11.40	4.308E+00	1.718E+00	1.718E+00	22.90
	911.07	271	27.70*	1.843E+00	1.524E+00	1.524E+00	23.30
	969.11	170	16.60	1.742E+00	1.689E+00	1.689E+00	31.50
	63.29	608	3.80*	4.638E+00	9.912E+00	9.912E+00	28.91
U-234	92.38	1547	5.41	7.313E+00	1.123E+01	1.123E+01	19.70
	609.31	444	46.30*	2.655E+00	1.038E+00	1.038E+00	17.99
	1120.29	102	15.10	1.523E+00	1.276E+00	1.276E+00	54.62
	1764.49	82	15.80	1.059E+00	1.411E+00	1.411E+00	27.34
	89.95	-----	2.70	7.190E+00	-----	Line Not Found	-----
U-235	93.35	1547	4.50	7.313E+00	1.350E+01	1.350E+01	29.10
	105.00	-----	2.10	7.628E+00	-----	Line Not Found	-----
	143.76	140	10.50*	7.370E+00	5.193E-01	5.193E-01	65.27
	163.35	-----	4.70	6.991E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.71	773	54.00	6.531E+00	6.296E-01	6.296E-01	15.64
	205.31	55	4.70	6.153E+00	5.442E-01	5.442E-01	101.01
NP-237	86.50	357	12.60*	7.058E+00	1.154E+00	1.154E+00	32.69
	95.87	-----	2.60	7.425E+00	-----	Line Not Found	-----
U-238	63.29	608	3.80*	4.638E+00	9.912E+00	9.912E+00	28.91
	92.38	1547	5.41	7.313E+00	1.123E+01	1.123E+01	11.64
AM-243	74.67	531	66.00*	6.080E+00	3.799E-01	3.799E-01	22.16
	86.72	357	0.34	7.058E+00	4.326E+01	4.326E+01	25.36
	117.66	-----	0.55	7.685E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.399E+00	-----	Line Not Found	-----
ANH-511	511.00	150	100.00*	3.090E+00	1.393E-01	1.393E-01	43.69

Flag: "\*" = Keyline

Total number of lines in spectrum 35  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 34 97.14%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.706E+01	2.706E+01	0.260E+01	9.61	
CD-109	464.00D	1.03	3.908E+00	4.009E+00	1.017E+00	25.36	
SN-126	1.00E+05Y	1.00	3.929E-01	3.929E-01	0.996E-01	25.36	
BA-137M	30.17Y	1.00	5.716E-01	5.722E-01	0.849E-01	14.84	
CS-137	30.17Y	1.00	6.042E-01	6.049E-01	0.898E-01	14.85	
TL-208	1.41E+10Y	1.00	4.974E-01	4.974E-01	0.959E-01	19.28	
BI-211	7.04E+08Y	1.00	3.838E+00	3.838E+00	0.476E+00	12.40	
PB-212	1.41E+10Y	1.00	1.731E+00	1.731E+00	0.167E+00	9.67	
PO-212	1.41E+10Y	1.00	1.731E+00	1.731E+00	0.167E+00	9.67	
BI-214	1600.00Y	1.00	1.038E+00	1.038E+00	0.187E+00	17.99	
PB-214	1600.00Y	1.00	1.335E+00	1.335E+00	0.180E+00	13.46	
PO-214	1600.00Y	1.00	1.335E+00	1.335E+00	0.180E+00	13.46	
PO-216	1.41E+10Y	1.00	1.731E+00	1.731E+00	0.167E+00	9.67	
PO-218	1600.00Y	1.00	1.335E+00	1.335E+00	0.180E+00	13.46	
RA-224	1.41E+10Y	1.00	4.482E+00	4.482E+00	1.226E+00	27.35	
RA-226	1600.00Y	1.00	1.038E+00	1.038E+00	0.187E+00	17.99	
AC-228	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.355E+00	23.30	
RA-228	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.355E+00	23.30	
TH-228	1.91Y	1.02	1.731E+00	1.761E+00	0.170E+00	9.67	
TH-230	4.47E+09Y	1.00	1.038E+00	1.038E+00	0.187E+00	17.99	
TH-232	1.41E+10Y	1.00	1.524E+00	1.524E+00	0.355E+00	23.30	
TH-234	4.47E+09Y	1.00	9.912E+00	9.912E+00	2.865E+00	28.91	
U-234	4.47E+09Y	1.00	1.038E+00	1.038E+00	0.187E+00	17.99	
U-235	7.04E+08Y	1.00	5.193E-01	5.193E-01	3.390E-01	65.27	
NP-237	2.14E+06Y	1.00	1.154E+00	1.154E+00	0.377E+00	32.69	
U-238	4.47E+09Y	1.00	9.912E+00	9.912E+00	2.865E+00	28.91	
AM-243	7380.00Y	1.00	3.799E-01	3.799E-01	0.842E-01	22.16	
ANH-511	1.00E+09Y	1.00	1.393E-01	1.393E-01	0.609E-01	43.69	

Total Activity : 8.302E+01 8.316E+01

Grand Total Activity : 8.302E+01 8.316E+01

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

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



Unidentified Energy Lines  
Sample ID : G246341009

Page : 5  
Acquisition date : 18-FEB-2010 13:49:14

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.88	138	855	1.04	167.27	162	9	1.92E-02	78.9	6.84E+00	T
0	208.92	112	338	1.45	417.11	414	9	1.55E-02	62.1	6.08E+00	T
0	270.59	84	289	1.57	540.35	534	11	1.17E-02	81.3	5.09E+00	T
0	463.13	86	181	1.95	925.18	920	16	1.19E-02	73.8	3.35E+00	T
0	567.83	161	185	2.83	1134.46	1127	16	2.24E-02	40.8	2.82E+00	T
0	727.16	122	97	1.33	1453.02	1446	15	1.69E-02	40.5	2.27E+00	T
0	794.77	60	55	1.22	1588.20	1583	11	8.33E-03	54.4	2.09E+00	T
0	934.50	30	52	1.03	1867.65	1863	10	4.14E-03	98.1	1.80E+00	T
3	964.65	64	27	2.52	1927.94	1922	26	8.95E-03	39.7	1.75E+00	T
0	1002.30	52	85	2.03	2003.25	1995	18	7.18E-03	92.3	1.69E+00	T
0	1378.03	27	36	1.49	2754.93	2747	13	3.79E-03	98.1	1.27E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G246341009.CNF;1
* Acquisition date   : 18-FEB-2010 13:49:14   Detector SN#      :
* Detector ID        : GAM14                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit     : 75.00000
* Elapsed real time  : 0 02:00:01.64          Half life ratio    : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00.   Nuclide Library   : SOLID
* Sample ID          : G246341009             Analyst initials: MXR1
* Batch Number       : 950786                 Sample Quantity   : 1.30730E+02 GRAM
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06.61MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.706E+01	2.600E+00	5.227E-01	3.795E-02	51.778
CD-109	4.009E+00	1.017E+00	1.376E+00	1.203E-01	2.913
SN-126	3.929E-01	9.963E-02	1.470E-01	1.279E-02	2.672
BA-137M	5.722E-01	8.493E-02	5.983E-02	3.557E-03	9.564
CS-137	6.049E-01	8.983E-02	6.324E-02	3.776E-03	9.564
TL-208	4.974E-01	9.592E-02	6.071E-02	4.152E-03	8.193
BI-211	3.838E+00	4.760E-01	3.204E-01	2.030E-02	11.977
PB-212	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
PO-212	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
BI-214	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
PB-214	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
PO-214	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
PO-216	1.731E+00	1.674E-01	8.953E-02	6.521E-03	19.335
PO-218	1.335E+00	1.796E-01	1.172E-01	9.619E-03	11.388
RA-224	4.482E+00	1.226E+00	1.018E+00	5.853E-02	4.401
RA-226	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
AC-228	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658
RA-228	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.761E+00	1.703E-01	9.106E-02	6.633E-03	19.335
TH-230	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
TH-232	1.524E+00	3.550E-01	2.289E-01	2.688E-02	6.658
TH-234	9.912E+00	2.865E+00	2.044E+00	3.513E-01	4.850
U-234	1.038E+00	1.868E-01	1.129E-01	8.939E-03	9.191
U-235	5.193E-01	3.390E-01	3.607E-01	5.938E-02	1.439
NP-237	1.154E+00	3.772E-01	4.172E-01	9.324E-02	2.766
U-238	9.912E+00	2.865E+00	2.044E+00	3.513E-01	4.850
AM-243	3.799E-01	8.419E-02	9.623E-02	7.221E-03	3.948
ANH-511	1.393E-01	6.087E-02	4.848E-02	2.848E-03	2.874

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.979E-02		3.514E-01	5.838E-01	3.935E-02	0.137
NA-22	-1.154E-02		4.614E-02	7.414E-02	4.843E-03	-0.156
NA-24	-2.628E+00		3.138E+00	Half-Life too short		
AL-26	-8.489E-03		2.919E-02	4.429E-02	2.567E-03	-0.192
TI-44	3.799E-01	+	6.161E-02	8.346E-02	6.517E-03	4.552
SC-46	3.755E-02		4.004E-02	7.171E-02	6.626E-03	0.524
V-48	4.202E-02		7.374E-02	1.289E-01	1.094E-02	0.326
CR-51	-3.372E-02		4.085E-01	6.537E-01	4.224E-02	-0.052
MN-52	-3.265E-01		3.119E-01	4.352E-01	3.050E-02	-0.750
MN-54	1.171E-03		3.918E-02	6.586E-02	5.525E-03	0.018
CO-56	-2.337E-02		3.703E-02	5.859E-02	5.022E-03	-0.399
CO-57	-4.158E-03		2.801E-02	4.485E-02	3.191E-03	-0.093
CO-58	-3.213E-02		3.744E-02	5.465E-02	4.397E-03	-0.588
FE-59	-5.825E-02		1.042E-01	1.647E-01	1.268E-02	-0.354
CO-60	-1.726E-02		3.928E-02	6.117E-02	4.360E-03	-0.282
ZN-65	2.166E-02		1.050E-01	1.533E-01	1.008E-02	0.141
GE-68	-1.707E-01		1.212E+00	1.984E+00	1.426E-01	-0.086
AS-73	-1.720E-01		7.419E-01	1.204E+00	7.848E-02	-0.143
AS-74	-2.541E-02		9.505E-02	1.513E-01	9.051E-03	-0.168
SE-75	-1.915E-02		5.243E-02	7.440E-02	4.368E-03	-0.257
BR-77	8.121E+00		1.871E+01	3.145E+01	1.854E+00	0.258
SR-82	-4.167E-01		4.270E-01	6.273E-01	4.716E-02	-0.664
RB-83	2.402E-02		7.051E-02	1.178E-01	6.947E-03	0.204
RB-84	1.267E-02		7.281E-02	1.228E-01	1.119E-02	0.103
KR-85	1.484E+01		7.636E+00	1.260E+01	7.409E-01	1.178
SR-85	7.767E-02		3.996E-02	6.593E-02	3.878E-03	1.178
RB-86	-6.967E-02		8.126E-01	1.337E+00	9.628E-02	-0.052
Y-88	-6.155E-03		3.245E-02	5.029E-02	2.856E-03	-0.122
ZR-88	-1.384E-03		3.134E-02	5.159E-02	2.809E-03	-0.027
Y-91	-1.868E+01		2.037E+01	3.102E+01	1.804E+00	-0.602
NB-94	-1.009E-02		3.262E-02	5.132E-02	3.329E-03	-0.197
NB-95	5.481E-02		4.963E-02	8.557E-02	6.301E-03	0.641
NB-95M	7.647E-01		1.752E-01	2.881E-01	2.153E-02	2.655

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	2.794E-02		7.660E-02	1.268E-01	1.046E-02	0.220
NB-97	1.118E+00		4.050E-01	Half-Life too short		
ZR-97	1.912E+01		8.039E+00	Half-Life too short		
MO-99	-9.157E+00		1.870E+01	2.874E+01	4.116E+00	-0.319
TC-99M	-1.305E+12		5.353E+12	Half-Life too short		
RH-101	2.172E-02		3.464E-02	5.876E-02	3.260E-03	0.370
RH-102	-4.195E-03		3.061E-02	4.975E-02	2.875E-03	-0.084
RU-103	1.015E-02		4.217E-02	7.010E-02	8.877E-03	0.145
RH-106	1.641E-01		3.234E-01	5.436E-01	6.429E-02	0.302
RU-106	1.641E-01		3.229E-01	5.436E-01	3.250E-02	0.302
AG-108M	-2.603E-02		3.438E-02	5.395E-02	3.314E-03	-0.482
AG-110M	3.854E-02		4.116E-02	6.308E-02	3.985E-03	0.611
IN-111	5.292E-01		1.878E+00	2.780E+00	1.602E-01	0.190
IN-113M	1.643E-02		4.442E-02	7.481E-02	4.377E-03	0.220
SN-113	1.643E-02		4.442E-02	7.481E-02	4.377E-03	0.220
IN-114M	9.606E-02		2.117E-01	3.177E-01	1.749E-02	0.302
CD-115	9.090E-01		2.051E+01	3.359E+01	1.985E+00	0.027
SN-117M	-1.494E-02		6.955E-02	1.104E-01	6.246E-03	-0.135
SB-122	3.441E+00		4.169E+00	6.310E+00	3.761E-01	0.545
I-123	-8.405E+01		3.997E+01	Half-Life too short		
TE-123M	-3.510E-02		3.338E-02	5.128E-02	2.933E-03	-0.684
I-124	4.396E-01		1.008E+00	1.478E+00	8.843E-02	0.297
SB-124	5.648E-02		6.412E-02	1.220E-01	8.249E-03	0.463
SB-125	3.805E-02		9.376E-02	1.579E-01	9.253E-03	0.241
TE-125M	-1.132E+01		1.131E+01	1.760E+01	1.653E+00	-0.643
I-126	4.008E-02		2.266E-01	3.227E-01	1.938E-02	0.124
SB-126	5.335E-02		1.760E-01	2.537E-01	1.707E-02	0.210
SB-127	1.306E+00		2.050E+00	3.464E+00	3.603E-01	0.377
XE-127	-4.343E-02		5.926E-02	8.361E-02	4.661E-03	-0.519
I-131	5.243E-02		1.346E-01	2.273E-01	1.441E-02	0.231
TE-132	-4.917E-01		1.063E+00	1.747E+00	2.574E-01	-0.281
BA-133	-4.486E-03		4.877E-02	6.954E-02	7.993E-03	-0.065
I-133	-3.690E-03		1.512E-02	Half-Life too short		
CS-134	1.089E-01	+	5.982E-02	8.903E-02	7.007E-03	1.223
CS-135	2.870E-01		1.824E-01	2.870E-01	2.201E-02	1.000
I-135	-1.745E+11		3.715E+11	Half-Life too short		
CS-136	-1.704E-02		1.197E-01	1.964E-01	1.580E-02	-0.087
CE-139	1.705E-03		3.413E-02	5.465E-02	2.934E-03	0.031
BA-140	-1.428E-01		2.972E-01	4.627E-01	1.506E-01	-0.309
LA-140	-1.986E-02		9.116E-02	1.432E-01	9.494E-03	-0.139
CE-141	1.970E-01		8.460E-02	1.298E-01	8.284E-03	1.518
CE-143	3.194E-03		4.309E-04	Half-Life too short		
CE-144	-1.817E-01		2.307E-01	3.578E-01	5.208E-02	-0.508
PM-144	-3.278E-03		3.410E-02	5.465E-02	3.502E-03	-0.060
PR-144	-2.224E-01		2.313E+00	3.707E+00	2.374E-01	-0.060
PM-146	2.937E-02		4.344E-02	7.418E-02	6.350E-03	0.396
ND-147	2.914E-02		6.708E-01	1.098E+00	1.491E-01	0.027
PM-149	4.578E+01		1.672E+02	2.818E+02	4.001E+01	0.162

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	8.593E-02		1.169E-01	1.579E-01	1.021E-02	0.544
GD-153	1.138E-01		1.000E-01	1.477E-01	1.185E-02	0.770
EU-154	-3.111E-02		1.289E-01	2.072E-01	2.032E-02	-0.150
EU-155	-3.090E-02		1.215E-01	1.945E-01	1.506E-02	-0.159
TB-160	-3.098E-02		1.347E-01	2.193E-01	1.992E-02	-0.141
HO-166M	-6.372E-03		6.009E-02	9.612E-02	6.351E-03	-0.066
TM-171	-3.310E+01		3.234E+01	4.395E+01	3.065E+00	-0.753
LU-176	2.345E-02		2.671E-02	4.387E-02	2.555E-03	0.535
LU-177	2.813E+00	+	1.753E+00	2.468E+00	1.383E-01	1.140
LU-177M	-1.178E-01		1.873E-01	2.976E-01	1.650E-02	-0.396
HF-181	-2.615E-02		4.556E-02	7.187E-02	4.168E-03	-0.364
W-181	1.808E+00		4.723E-01	7.298E-01	5.028E-02	2.478
TA-182	2.574E-01		2.052E-01	3.700E-01	2.213E-02	0.696
RE-183	6.161E-02		1.277E-01	2.077E-01	1.144E-02	0.297
RE-184	-2.113E-01		2.408E-01	3.873E-01	2.240E-02	-0.546
OS-185	-2.784E-02		4.316E-02	6.621E-02	3.949E-03	-0.420
RE-188	2.614E-01		1.976E-01	3.301E-01	1.913E-02	0.792
W-188	-5.788E+00		8.541E+00	1.179E+01	6.880E-01	-0.491
IR-192	3.736E-03		3.427E-02	5.725E-02	3.342E-03	0.065
AU-195	1.566E-01		2.856E-01	4.129E-01	3.276E-02	0.379
TL-200	-1.358E-03		7.659E-04	Half-Life too short		
TL-201	-1.105E+01		1.224E+01	1.886E+01	1.013E+00	-0.586
TL-202	1.315E-02		8.409E-02	1.394E-01	7.885E-03	0.094
HG-203	4.035E-02		4.385E-02	7.575E-02	4.687E-03	0.533
BI-207	5.954E-03		5.373E-02	9.003E-02	6.663E-03	0.066
TL-207	-9.801E-03		6.715E-01	1.114E+00	1.840E-01	-0.009
PO-209	-6.010E+00		7.239E+00	1.119E+01	1.047E+00	-0.537
BI-210	6.010E-01		2.707E+00	4.487E+00	3.327E-01	0.134
PB-210	6.010E-01		2.707E+00	4.487E+00	3.327E-01	0.134
PO-210	6.010E-01		2.707E+00	4.487E+00	2.816E-01	0.134
PB-211	-2.195E+00		1.706E+00	1.486E+00	9.257E-01	-1.477
BI-212	1.304E+00	+	5.391E-01	6.992E-01	5.948E-02	1.865
PO-215	-9.801E-03		6.715E-01	1.114E+00	1.840E-01	-0.009
RN-219	4.720E-01		4.256E-01	7.356E-01	9.913E-02	0.642
RN-220	8.876E+00		2.577E+01	4.305E+01	2.559E+00	0.206
RA-223	-9.801E-03		6.715E-01	1.114E+00	1.840E-01	-0.009
AC-227	2.918E-01		4.007E-01	6.857E-01	9.571E-02	0.425
TH-227	2.918E-01		4.016E-01	6.857E-01	1.159E-01	0.425
TH-229	-3.107E-01		5.286E-01	8.477E-01	4.682E-02	-0.366
PA-231	-1.353E+00		1.537E+00	2.440E+00	3.365E-01	-0.555
TH-231	-9.801E-03		6.715E-01	1.114E+00	1.840E-01	-0.009
U-231	5.995E-01		2.004E+00	2.866E+00	2.327E-01	0.209
PA-233	3.592E-03		6.455E-02	1.076E-01	6.642E-03	0.033
PA-234	-1.290E-01		3.022E-01	4.842E-01	9.153E-02	-0.266
PA-234M	1.047E+01	+	9.714E+00	9.961E+00	9.629E-01	1.051
NP-236	-1.249E-01		9.329E-02	1.416E-01	7.911E-03	-0.882
NP-239	-1.056E-01		2.133E-01	3.376E-01	2.440E-02	-0.313
AM-241	1.985E-01		1.747E-01	2.588E-01	1.921E-02	0.767

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	5.193E-02		1.063E-01	1.744E-01	1.341E-02	0.298
AM-246	1.331E-02		1.386E-01	2.319E-01	1.661E-02	0.057
CM-247	3.835E-02		3.827E-02	6.636E-02	3.645E-03	0.578
CF-249	1.008E-02		4.030E-02	6.744E-02	3.687E-03	0.149
CF-251	-3.853E-02		1.349E-01	2.128E-01	1.154E-02	-0.181

# 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]G246341009             *
* Acquisition date   : 18-FEB-2010 13:49:14 Detector SN#      :               *
* Detector ID        : GAM14                      Sensitivity   : 5.000         *
* Geometry           : CAN                        Energy tolerance: 1.500         *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000         *
* Elapsed real time  : 0 02:00:01.64              Half life ratio : 8.000         *
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G246341009                 Analyst initials: MXR1         *
* Batch Number       : 950786                     Sample Quantity : 1.3073E+02 GRAM *
* Recovery           : 1.00000                     Carrier Weight  : 0.00000         *
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope        :               *
* MSD DPM             : 0.000                      MSD Isotope   :               *
* LCS DPM             : 0.000                      LCS Isotope   :               *
* LCSD DPM            : 0.000                      LCSD Isotope  :               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.706E+01	2.548E+00	2.617E-01	1.300E+00
CD-109	4.009E+00	9.963E-01	7.214E-01	5.083E-01
SN-126	3.929E-01	9.764E-02	7.708E-02	4.982E-02
BA-137M	5.722E-01	8.323E-02	3.036E-02	4.246E-02
CS-137	6.049E-01	8.804E-02	3.209E-02	4.492E-02
TL-208	4.974E-01	9.400E-02	3.087E-02	4.796E-02
BI-211	3.838E+00	4.664E-01	1.643E-01	2.380E-01
PB-212	1.731E+00	1.641E-01	4.620E-02	8.372E-02
PO-212	1.731E+00	1.641E-01	4.620E-02	8.372E-02
BI-214	1.038E+00	1.830E-01	5.739E-02	9.338E-02
PB-214	1.335E+00	1.760E-01	6.011E-02	8.981E-02
PO-214	1.335E+00	1.760E-01	6.011E-02	8.981E-02
PO-216	1.731E+00	1.641E-01	4.620E-02	8.372E-02
PO-218	1.335E+00	1.760E-01	6.011E-02	8.981E-02
RA-224	4.482E+00	1.201E+00	5.254E-01	6.130E-01
RA-226	1.038E+00	1.830E-01	5.739E-02	9.338E-02
AC-228	1.524E+00	3.479E-01	1.155E-01	1.775E-01
RA-228	1.524E+00	3.479E-01	1.155E-01	1.775E-01
TH-228	1.761E+00	1.669E-01	4.699E-02	8.516E-02
TH-230	1.038E+00	1.830E-01	5.738E-02	9.338E-02
TH-232	1.524E+00	3.479E-01	1.155E-01	1.775E-01
TH-234	9.912E+00	2.808E+00	1.077E+00	1.433E+00
U-234	1.038E+00	1.830E-01	5.738E-02	9.338E-02
U-235	5.193E-01	3.322E-01	1.877E-01	1.695E-01
NP-237	1.154E+00	3.696E-01	2.187E-01	1.886E-01
U-238	9.912E+00	2.808E+00	1.077E+00	1.433E+00
AM-243	3.799E-01	8.251E-02	5.057E-02	4.210E-02
ANH-511	1.393E-01	5.966E-02	2.471E-02	3.044E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	7.979E-02	3.444E-01	2.979E-01	1.757E-01	NOT IDENT.
NA-22	-1.154E-02	4.521E-02	3.721E-02	2.307E-02	NOT IDENT.
NA-24	-2.628E+06	6.151E+06	0.000E+00	3.138E+06	SHORT HLIF
AL-26	-8.489E-03	2.861E-02	2.210E-02	1.460E-02	NOT IDENT.
TI-44	3.799E-01	6.038E-02	4.383E-02	3.080E-02	FAIL ABUN
SC-46	3.755E-02	3.924E-02	3.621E-02	2.002E-02	FAIL ABUN
V-48	4.202E-02	7.226E-02	6.496E-02	3.687E-02	NOT IDENT.
CR-51	-3.372E-02	4.003E-01	3.357E-01	2.042E-01	NOT IDENT.
MN-52	-3.265E-01	3.056E-01	2.180E-01	1.559E-01	FAIL ABUN
MN-54	1.171E-03	3.840E-02	3.329E-02	1.959E-02	NOT IDENT.
CO-56	-2.337E-02	3.629E-02	2.961E-02	1.851E-02	NOT IDENT.
CO-57	-4.158E-03	2.745E-02	2.339E-02	1.401E-02	NOT IDENT.
CO-58	-3.213E-02	3.669E-02	2.764E-02	1.872E-02	NOT IDENT.
FE-59	-5.825E-02	1.022E-01	8.290E-02	5.212E-02	FAIL ABUN
CO-60	-1.726E-02	3.849E-02	3.068E-02	1.964E-02	NOT IDENT.
ZN-65	2.166E-02	1.029E-01	7.714E-02	5.251E-02	NOT IDENT.
GE-68	-1.707E-01	1.188E+00	9.986E-01	6.059E-01	NOT IDENT.
AS-73	-1.720E-01	7.271E-01	6.360E-01	3.710E-01	NOT IDENT.
AS-74	-2.541E-02	9.315E-02	7.693E-02	4.753E-02	NOT IDENT.
SE-75	-1.915E-02	5.138E-02	3.833E-02	2.621E-02	NOT IDENT.
BR-77	8.121E+00	1.834E+01	1.603E+01	9.355E+00	FAIL ABUN
SR-82	-4.167E-01	4.185E-01	3.175E-01	2.135E-01	NOT IDENT.
RB-83	2.402E-02	6.910E-02	6.004E-02	3.525E-02	NOT IDENT.
RB-84	1.267E-02	7.135E-02	6.201E-02	3.640E-02	NOT IDENT.
KR-85	1.484E+01	7.483E+00	6.419E+00	3.818E+00	NOT IDENT.
SR-85	7.767E-02	3.917E-02	3.360E-02	1.998E-02	NOT IDENT.
RB-86	-6.967E-02	7.963E-01	6.731E-01	4.063E-01	NOT IDENT.
Y-88	-6.155E-03	3.180E-02	2.508E-02	1.623E-02	NOT IDENT.
ZR-88	-1.384E-03	3.071E-02	2.641E-02	1.567E-02	NOT IDENT.
Y-91	-1.868E+01	1.996E+01	1.558E+01	1.019E+01	NOT IDENT.
NB-94	-1.009E-02	3.197E-02	2.602E-02	1.631E-02	NOT IDENT.
NB-95	5.481E-02	4.864E-02	4.332E-02	2.482E-02	NOT IDENT.
NB-95M	7.647E-01	1.717E-01	1.487E-01	8.758E-02	NOT IDENT.
ZR-95	2.794E-02	7.507E-02	6.422E-02	3.830E-02	NOT IDENT.
NB-97	1.118E+06	7.938E+05	0.000E+00	4.050E+05	SHORT HLIF
ZR-97	1.912E+07	1.576E+07	0.000E+00	8.039E+06	SHORT HLIF
MO-99	-9.157E+00	1.832E+01	1.456E+01	9.349E+00	NOT IDENT.
TC-99M	-1.305E+18	1.049E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.172E-02	3.394E-02	3.041E-02	1.732E-02	NOT IDENT.
RH-102	-4.195E-03	3.000E-02	2.539E-02	1.530E-02	NOT IDENT.
RU-103	1.015E-02	4.133E-02	3.574E-02	2.109E-02	FAIL ABUN
RH-106	1.641E-01	3.169E-01	2.761E-01	1.617E-01	FAIL ABUN
RU-106	1.641E-01	3.165E-01	2.761E-01	1.615E-01	FAIL ABUN
AG-108M	-2.603E-02	3.369E-02	2.757E-02	1.719E-02	NOT IDENT.
AG-110M	3.854E-02	4.034E-02	3.201E-02	2.058E-02	NOT IDENT.
IN-111	5.292E-01	1.840E+00	1.434E+00	9.389E-01	NOT IDENT.
IN-113M	1.643E-02	4.353E-02	3.829E-02	2.221E-02	NOT IDENT.
SN-113	1.643E-02	4.353E-02	3.829E-02	2.221E-02	NOT IDENT.
IN-114M	9.606E-02	2.075E-01	1.645E-01	1.058E-01	NOT IDENT.
CD-115	9.090E-01	2.010E+01	1.711E+01	1.025E+01	NOT IDENT.
SN-117M	-1.494E-02	6.816E-02	5.734E-02	3.477E-02	NOT IDENT.
SB-122	3.441E+00	4.085E+00	3.211E+00	2.084E+00	NOT IDENT.
I-123	-8.405E+07	7.834E+07	0.000E+00	3.997E+07	SHORT HLIF
TE-123M	-3.510E-02	3.272E-02	2.663E-02	1.669E-02	NOT IDENT.
I-124	4.396E-01	9.876E-01	7.513E-01	5.039E-01	NOT IDENT.
SB-124	5.648E-02	6.284E-02	6.095E-02	3.206E-02	FAIL ABUN
SB-125	3.805E-02	9.189E-02	8.070E-02	4.688E-02	FAIL ABUN
TE-125M	-1.132E+01	1.109E+01	9.193E+00	5.656E+00	NOT IDENT.
I-126	4.008E-02	2.121E-01	1.637E-01	1.133E-01	NOT IDENT.
SB-126	5.335E-02	1.725E-01	1.286E-01	8.800E-02	NOT IDENT.
SB-127	1.306E+00	2.009E+00	1.757E+00	1.025E+00	NOT IDENT.
XE-127	-4.343E-02	5.807E-02	4.326E-02	2.963E-02	FAIL ABUN
I-131	5.243E-02	1.319E-01	1.165E-01	6.729E-02	NOT IDENT.
TE-132	-4.917E-01	1.042E+00	9.020E-01	5.315E-01	NOT IDENT.
BA-133	-4.486E-03	4.779E-02	3.565E-02	2.438E-02	NOT IDENT.
I-133	-3.690E+03	2.963E+04	0.000E+00	1.512E+04	SHORT HLIF
CS-134	1.089E-01	5.863E-02	4.504E-02	2.991E-02	FAIL ABUN
CS-135	2.870E-01	1.788E-01	1.478E-01	9.120E-02	NOT IDENT.
I-135	-1.745E+17	7.282E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.704E-02	1.173E-01	9.888E-02	5.987E-02	FAIL ABUN
CE-139	1.705E-03	3.345E-02	2.836E-02	1.707E-02	NOT IDENT.
BA-140	-1.428E-01	2.912E-01	2.356E-01	1.486E-01	NOT IDENT.
LA-140	-1.986E-02	8.933E-02	7.161E-02	4.558E-02	NOT IDENT.
CE-141	1.970E-01	8.291E-02	6.751E-02	4.230E-02	NOT IDENT.
CE-143	3.194E+03	8.446E+02	0.000E+00	4.309E+02	SHORT HLIF
CE-144	-1.817E-01	2.261E-01	1.863E-01	1.154E-01	NOT IDENT.
PM-144	-3.278E-03	3.341E-02	2.771E-02	1.705E-02	NOT IDENT.



PR-144	-2.224E-01	2.267E+00	1.880E+00	1.156E+00	NOT IDENT.
PM-146	2.937E-02	4.257E-02	3.788E-02	2.172E-02	NOT IDENT.
ND-147	2.914E-02	6.574E-01	5.594E-01	3.354E-01	NOT IDENT.
PM-149	4.578E+01	1.638E+02	1.450E+02	8.358E+01	NOT IDENT.
EU-152	8.593E-02	1.146E-01	8.099E-02	5.847E-02	FAIL ABUN
GD-153	1.138E-01	9.805E-02	7.732E-02	5.002E-02	FAIL ABUN
EU-154	-3.111E-02	1.263E-01	1.040E-01	6.443E-02	NOT IDENT.
EU-155	-3.090E-02	1.191E-01	1.017E-01	6.074E-02	FAIL ABUN
TB-160	-3.098E-02	1.320E-01	1.108E-01	6.736E-02	FAIL ABUN
HO-166M	-6.372E-03	5.889E-02	4.872E-02	3.004E-02	FAIL ABUN
TM-171	-3.310E+01	3.169E+01	2.314E+01	1.617E+01	NOT IDENT.
LU-176	2.345E-02	2.617E-02	2.254E-02	1.335E-02	FAIL ABUN
LU-177	2.813E+00	1.718E+00	1.276E+00	8.764E-01	FAIL ABUN
LU-177M	-1.178E-01	1.835E-01	1.522E-01	9.363E-02	NOT IDENT.
HF-181	-2.615E-02	4.465E-02	3.666E-02	2.278E-02	NOT IDENT.
W-181	1.808E+00	4.628E-01	3.843E-01	2.361E-01	NOT IDENT.
TA-182	2.574E-01	2.011E-01	1.858E-01	1.026E-01	FAIL ABUN
RE-183	6.161E-02	1.252E-01	1.078E-01	6.386E-02	FAIL ABUN
RE-184	-2.113E-01	2.359E-01	1.997E-01	1.204E-01	NOT IDENT.
OS-185	-2.784E-02	4.230E-02	3.362E-02	2.158E-02	NOT IDENT.
RE-188	2.614E-01	1.937E-01	1.715E-01	9.882E-02	NOT IDENT.
W-188	-5.788E+00	8.370E+00	6.065E+00	4.270E+00	FAIL ABUN
IR-192	3.736E-03	3.358E-02	2.941E-02	1.714E-02	FAIL ABUN
AU-195	1.566E-01	2.799E-01	2.160E-01	1.428E-01	FAIL ABUN
TL-200	-1.358E+03	1.501E+03	0.000E+00	7.659E+02	SHORT HLIF
TL-201	-1.105E+01	1.199E+01	9.786E+00	6.119E+00	NOT IDENT.
TL-202	1.315E-02	8.241E-02	7.125E-02	4.205E-02	NOT IDENT.
HG-203	4.035E-02	4.297E-02	3.899E-02	2.193E-02	FAIL ABUN
BI-207	5.954E-03	5.266E-02	4.533E-02	2.686E-02	FAIL ABUN
TL-207	-9.801E-03	6.581E-01	5.721E-01	3.358E-01	FAIL ABUN
PO-209	-6.010E+00	7.094E+00	5.650E+00	3.619E+00	NOT IDENT.
BI-210	6.010E-01	2.653E+00	2.375E+00	1.353E+00	NOT IDENT.
PB-210	6.010E-01	2.653E+00	2.375E+00	1.353E+00	NOT IDENT.
PO-210	6.010E-01	2.653E+00	2.375E+00	1.353E+00	NOT IDENT.
PB-211	-2.195E+00	1.672E+00	7.600E-01	8.532E-01	NOT IDENT.
BI-212	1.304E+00	5.283E-01	3.543E-01	2.696E-01	FAIL ABUN
PO-215	-9.801E-03	6.581E-01	5.721E-01	3.358E-01	FAIL ABUN
RN-219	4.720E-01	4.171E-01	3.764E-01	2.128E-01	FAIL ABUN
RN-220	8.876E+00	2.526E+01	2.191E+01	1.289E+01	NOT IDENT.
RA-223	-9.801E-03	6.581E-01	5.721E-01	3.358E-01	FAIL ABUN
AC-227	2.918E-01	3.927E-01	3.534E-01	2.003E-01	FAIL ABUN
TH-227	2.918E-01	3.936E-01	3.534E-01	2.008E-01	FAIL ABUN
TH-229	-3.107E-01	5.180E-01	4.389E-01	2.643E-01	FAIL ABUN
PA-231	-1.353E+00	1.507E+00	1.255E+00	7.687E-01	FAIL ABUN
TH-231	-9.801E-03	6.581E-01	5.721E-01	3.358E-01	FAIL ABUN
U-231	5.995E-01	1.964E+00	1.501E+00	1.002E+00	FAIL ABUN
PA-233	3.592E-03	6.326E-02	5.527E-02	3.227E-02	FAIL ABUN
PA-234	-1.290E-01	2.962E-01	2.443E-01	1.511E-01	FAIL ABUN
PA-234M	1.047E+01	9.520E+00	5.020E+00	4.857E+00	FAIL ABUN
NP-236	-1.249E-01	9.142E-02	7.352E-02	4.664E-02	NOT IDENT.
NP-239	-1.056E-01	2.090E-01	1.762E-01	1.066E-01	FAIL ABUN
AM-241	1.985E-01	1.712E-01	1.365E-01	8.734E-02	NOT IDENT.
CM-243	5.193E-02	1.042E-01	9.118E-02	5.317E-02	FAIL ABUN
AM-246	1.331E-02	1.358E-01	1.167E-01	6.928E-02	NOT IDENT.
CM-247	3.835E-02	3.750E-02	3.395E-02	1.913E-02	NOT IDENT.
CF-249	1.008E-02	3.950E-02	3.453E-02	2.015E-02	NOT IDENT.
CF-251	-3.853E-02	1.322E-01	1.103E-01	6.746E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	545.6313
46.50	545.6313
46.50	545.6313
48.70	573.5344
49.72	656.8250
51.35	572.2139
52.39	557.5375
52.97	567.1112
53.15	586.6778
53.44	598.1320
54.07	598.5474
56.28	709.9117
56.28	709.9136
57.37	0.0000
57.53	641.9349
57.53	641.9361
57.60	641.9825
57.98	630.7134
57.98	630.7134
59.32	646.4423
59.32	646.4423
59.40	646.4962
59.54	672.9821
59.72	673.1078
60.01	673.3096
61.10	730.2388
61.14	730.2685
61.30	730.3885
63.00	724.2001
63.29	724.4118
63.29	724.4118
63.58	724.6221
64.28	725.1301
65.12	719.9284
65.20	719.9860
65.20	719.9860
66.05	747.1534
66.72	757.6101
66.83	757.6936
66.91	771.0460
67.20	771.2641
67.20	771.2641
67.75	831.5460
67.85	831.6254
68.90	815.8183
68.90	815.8183
69.30	828.6211
69.67	702.5651
70.82	723.9011
70.82	723.9011
70.83	723.9064
72.80	813.8093
72.87	813.8613
72.87	813.8613
74.67	832.7902
74.81	832.8965
74.81	832.8965
74.81	832.8965
74.81	832.8965
74.81	832.8965
74.81	832.8965
74.81	832.8965
74.97	833.0179
75.28	833.2533
75.70	833.5706
77.11	834.6334
77.11	834.6334

77.11	834.6334
77.11	834.6334
77.11	834.6334
77.11	834.6334
77.11	834.6334
78.38	747.4039
79.62	748.2269
79.80	748.3464
79.80	748.3464
80.11	748.5501
80.18	748.5963
80.30	748.6750
80.30	748.6750
80.57	748.8516
81.00	749.1340
81.07	749.1802
81.07	749.1802
81.07	749.1802
81.07	749.1802
82.60	792.3218
83.37	759.1058
83.78	839.5313
83.78	839.5313
83.78	839.5313
83.78	839.5313
84.21	759.6552
84.90	760.1028
85.43	760.4434
86.29	760.9955
86.50	761.1301
86.54	761.1575
86.59	761.1877
86.72	761.2729
86.79	761.3141
86.94	761.4130
87.30	761.6409
87.30	761.6409
87.30	761.6409
87.30	761.6409
87.30	761.6409
87.30	761.6409
87.57	829.5308
87.88	702.7441
88.03	702.8303
88.36	703.0253
88.47	703.0886
89.95	703.9498
91.11	704.6185
92.29	705.2949
92.38	705.3480
92.38	705.3480
93.35	705.9002
94.00	706.2700
94.67	706.6449
94.67	706.6475
94.90	706.7766
94.90	706.7766
94.90	706.7766
94.90	706.7766
95.87	674.9402
95.87	674.9402
96.73	538.9571
97.43	518.7742
98.44	536.2627
98.44	536.2627
98.88	521.0709
99.55	519.6333
99.55	519.6333
99.86	449.6587
100.00	439.4490
100.10	439.4835
103.18	513.1566
103.76	489.8040
105.00	536.3922
105.31	539.7353
108.00	559.0976
109.28	613.4376

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111.00	484.9022
111.76	540.1559
112.95	500.6952
115.19	541.4899
116.30	483.5077
117.00	496.7346
117.00	496.7346
117.66	462.3189
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121.62	451.6548
121.78	460.3906
122.06	452.8773
122.32	435.5787
122.32	435.5787
122.32	435.5787
122.32	435.5787
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136.48	435.3243
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140.51	0.0000
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142.65	422.7275
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144.24	400.2288
144.24	400.2288
144.24	400.2288
145.22	396.9443
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147.16	388.5906
152.43	456.2955
152.70	456.3710
153.22	456.5124
154.21	413.5464
154.21	413.5464
154.21	413.5464
154.21	413.5464
155.03	418.1884
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159.00	494.7821
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161.27	463.1567
162.32	434.4743
162.64	424.5264
163.35	407.9831
163.89	402.5335
165.85	435.3639
167.43	445.8156
171.28	377.3638
171.86	355.0844
172.10	355.1328
176.55	375.1104
176.60	375.1206
181.06	373.7888
184.41	400.0363
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186.00	392.8541
190.27	340.9473
192.34	350.3813
193.63	376.8154
197.04	349.7310
198.01	354.4503
198.60	358.5992
200.40	374.6031
201.83	385.5010
202.84	409.9960
205.31	372.5020

208.36	347.1884
208.81	347.2672
209.75	338.2867
209.75	338.2867
210.97	352.2148
215.65	351.8864
216.55	341.2619
218.09	328.6656
222.10	317.3499
223.80	324.0531
226.40	324.4570
227.00	318.0953
227.08	318.1079
227.20	318.1248
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228.18	322.8870
228.18	322.8870
231.56	0.0000
235.69	322.4847
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236.00	311.7290
238.63	277.1900
238.63	277.1900
238.63	277.1900
238.63	277.1900
239.00	277.2375
240.98	277.4911
241.98	277.6189
241.98	277.6189
241.98	277.6189
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245.39	246.4335
247.94	254.4766
248.90	238.6750
249.79	252.5143
252.40	277.9963
252.85	288.3164
252.85	288.3164
254.15	0.0000
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256.20	259.7775
260.50	268.6946
260.90	279.0440
262.80	292.6016
264.65	262.6162
268.24	228.5795
268.79	245.8619
269.46	234.9670
269.46	234.9670
269.46	234.9670
269.46	234.9670
271.23	275.9023
273.65	312.2817
276.40	245.0894
277.35	261.9493
277.60	260.3032
277.60	260.3032
278.00	248.0842
278.60	250.9758
279.20	244.4344
279.53	237.8588
280.46	269.1114
281.68	279.6427
283.67	243.9442
284.30	234.5495
285.00	228.9429
285.90	212.9398
286.10	208.2239
286.10	208.2239
287.40	199.9190
288.45	0.0000
290.67	238.6440
290.80	238.6563
291.72	215.0290
293.26	0.0000
293.70	197.7971
295.21	197.6025
295.21	197.6025

295.21	197.6025
295.96	197.6609
296.50	197.7041
297.23	197.7625
298.57	197.8717
299.80	197.9682
299.80	197.9682
300.09	197.9910
300.09	197.9910
300.09	197.9910
300.09	197.9910
300.12	197.9935
301.29	198.4050
302.84	230.2913
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303.91	214.4998
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304.40	217.7222
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308.46	201.5163
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319.41	196.6243
320.08	193.7962
323.87	208.4917
323.87	208.4917
323.87	208.4917
323.87	208.4917
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328.77	224.2824
333.44	218.5706
334.20	217.0267
334.20	217.0267
334.30	217.0349
338.28	188.3754
338.28	188.3754
338.28	188.3754
338.28	188.3754
338.32	188.3802
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338.32	188.3802
340.50	174.0300
340.57	174.0344
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351.92	186.0889
351.92	186.0889
355.39	0.0000
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366.43	154.2024
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367.94	0.0000
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374.96	162.4964
383.85	176.7437
387.95	157.3262
388.63	152.4457
391.69	145.7128
391.69	145.7128
392.90	157.5918
398.62	160.8570
400.65	133.3158
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401.81	141.2701
402.60	147.2375
404.84	228.4368
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413.65	178.5212
414.70	162.7087
415.30	145.8713

415.76	139.9397
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427.08	145.4333
427.89	136.5050
432.53	146.6860
433.93	161.7251
439.47	155.0095
439.56	155.0151
439.89	148.0289
443.98	137.2040
444.90	126.2230
445.03	126.2292
445.03	126.2292
445.03	126.2292
445.03	126.2292
453.90	117.5356
463.38	133.9985
468.07	139.5711
473.00	140.3402
475.06	136.4963
475.35	135.4967
476.78	132.5192
477.59	134.5748
477.96	126.4954
482.03	137.7930
484.57	122.6883
487.03	97.4098
490.36	0.0000
492.35	108.7424
497.08	111.9457
507.63	0.0000
510.53	0.0000
510.84	125.6749
511.00	125.6809
511.85	107.3142
511.85	107.3142
513.99	88.6307
513.99	88.6307
520.41	105.5272
520.65	105.5348
527.90	112.9380
528.96	0.0000
529.64	115.0461
529.87	0.0000
531.02	118.1726
537.32	117.3510
543.00	87.6355
546.56	0.0000
549.76	96.0629
552.65	88.9017
555.20	128.2746
563.23	122.6784
563.90	107.1453
568.70	123.5497
569.32	105.5710
569.50	105.5760
569.67	105.5809
573.80	126.4906
574.00	126.4965
574.64	117.8517
578.91	100.6362
579.30	0.0000
583.14	111.5167
585.48	93.8562
591.81	99.2351
592.07	92.8581
593.00	92.9959
595.88	96.2024
600.56	107.0214
602.52	0.0000
602.71	90.7863
602.71	90.7863
603.60	104.7778
604.41	113.5331
604.70	101.3136
609.31	108.0796

609.31	108.0796
609.31	108.0796
609.31	108.0796
610.33	117.2037
612.46	101.5142
614.37	87.5549
618.01	98.8538
621.84	87.3709
621.84	87.3709
631.29	90.7430
633.02	101.3367
633.10	101.3391
634.78	95.0449
635.90	98.2403
636.97	84.5313
645.85	98.4833
646.12	95.3130
656.30	79.6252
657.75	81.4228
657.90	0.0000
661.65	98.8647
661.65	98.8647
664.57	0.0000
666.33	85.1406
666.33	85.1406
675.00	75.7183
677.61	91.7739
685.20	85.5254
692.80	74.9680
695.00	85.7227
696.49	88.9677
696.49	88.9677
697.00	86.8337
697.49	83.6272
698.33	99.7298
698.50	99.7343
699.00	89.0203
702.63	89.0953
706.10	87.0177
706.58	0.0000
706.67	87.0295
709.31	80.6323
711.68	83.9033
713.82	75.3354
717.42	92.6306
720.50	71.8571
721.93	0.0000
722.20	70.0892
722.78	66.5024
722.78	66.5024
722.89	66.5054
722.95	66.5054
723.30	62.9163
724.18	75.5149
727.18	80.9637
733.00	64.8560
735.90	70.9075
739.58	80.1083
742.81	68.2495
744.21	65.0200
747.13	90.0031
751.79	67.3009
752.31	64.0516
753.82	79.2770
755.35	82.5628
756.15	81.4911
756.87	82.5906
763.93	126.2576
765.79	97.9980
766.42	95.8332
766.84	99.1091
776.49	97.1352
778.00	96.0760
778.57	86.2597
778.89	81.8994
783.80	66.6815
785.46	77.6406
792.07	69.3559



795.84	67.5849
796.30	73.0729
798.80	73.1120
801.93	79.5624
805.60	54.9133
810.29	76.9556
810.76	69.2662
815.85	55.0317
817.79	60.5604
818.51	64.2407
819.60	74.3522
826.30	85.4865
828.27	0.0000
831.60	77.2991
831.96	77.3059
834.83	89.3212
836.80	0.0000
846.75	69.2337
848.13	60.9431
856.28	0.0000
856.80	74.5292
860.37	62.9462
867.32	50.0570
867.82	50.6806
871.10	55.6616
873.19	55.6848
874.81	60.3451
875.33	0.0000
876.40	55.7214
879.36	59.4714
880.27	55.7642
880.51	55.7666
881.50	61.3553
883.24	73.4662
884.67	62.3245
889.25	55.8643
896.60	72.7299
898.02	76.4796
899.00	69.0317
903.28	78.4270
911.07	76.6765
911.07	76.6765
911.07	76.6765
919.63	72.4339
920.93	69.3283
925.00	64.6959
925.24	62.8234
926.50	64.4584
935.52	61.2026
937.48	67.6714
944.10	65.8742
946.00	69.6641
949.00	49.9226
962.29	63.1342
964.01	66.3933
966.15	57.6442
968.20	57.6665
969.11	57.6765
969.11	57.6765
969.11	57.6765
977.42	61.6890
980.50	53.0617
983.50	50.2471
989.30	60.7409
996.32	50.5026
1001.03	47.5566
1001.68	47.5622
1004.76	55.4753
1021.30	0.0000
1024.50	0.0000
1034.80	51.6753
1036.00	52.6434
1037.82	59.3637
1038.57	62.2441
1038.76	0.0000
1045.16	60.4006
1046.59	55.6211
1048.07	62.3499

1050.47	55.6589
1050.47	55.6589
1062.04	55.7721
1063.62	62.5218
1076.63	55.9161
1077.35	57.8516
1078.86	55.9373
1085.78	49.2465
1099.22	82.2677
1112.02	78.1519
1112.84	66.5206
1115.52	66.5513
1120.29	64.1067
1120.29	64.1067
1120.29	64.1067
1120.29	64.1067
1120.51	64.1094
1121.28	64.1174
1124.00	0.0000
1129.67	59.8309
1131.51	0.0000
1147.95	0.0000
1167.94	75.3896
1173.22	67.6158
1175.09	69.5988
1177.93	82.3799
1189.05	71.7227
1204.90	88.6523
1205.75	0.0000
1213.00	78.9030
1221.42	60.2454
1230.97	70.2286
1235.34	104.9217
1236.41	0.0000
1238.25	85.1637
1246.25	74.3652
1260.41	0.0000
1271.85	48.7807
1274.45	60.7518
1274.54	60.7518
1291.56	38.9429
1298.22	0.0000
1312.09	34.0567
1325.50	33.1222
1325.50	33.1222
1332.49	43.2047
1333.61	39.1936
1360.21	28.2507
1362.66	0.0000
1365.15	21.2034
1368.21	30.8549
1368.53	0.0000
1376.25	29.4737
1384.27	22.5650
1394.10	32.4479
1395.20	29.4106
1407.95	28.4489
1434.06	39.7744
1436.60	25.5056
1457.56	0.0000
1460.81	25.5931
1489.15	21.5836
1509.49	21.6443
1596.49	23.9855
1620.62	19.8775
1678.03	0.0000
1691.02	7.3899
1691.02	7.3899
1706.46	0.0000
1750.46	0.0000
1764.49	7.4583
1764.49	7.4583
1764.49	7.4583
1764.49	7.4583
1770.23	7.3111
1771.40	26.6591
1791.20	0.0000
1808.65	14.9975

1836.01

13.9717

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G246341009

Total Uranium Activity	2.9729E+01	ug/g
Total Uranium Counting Unc.	8.3548E+00	ug/g
Total Uranium Tpu	4.2627E-06	ug/g
Total Uranium Mda	3.2047E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 950786          SAMPLE ID   : G246341009
*  ANALYST       : MXR1            DETECTOR    : GAM14
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 18-FEB-2010 13:49:14.59  SAMPLE ALQT: 130.730 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.075E+01
GROSS GAMMA ERROR (pCi/GRAM ) : 1.411E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.425E+00
GROSS GAMMA DLC (pCi/GRAM ) : 2.165E+00

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:52:35.82

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037546.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 13:52:09
Sample ID          : G1202037546      Sample quantity   : 1.71260E+02 GRAM
Detector name      : GAM01             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:00.50  0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 950786            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	63.85*	34	158	2.08	128.44	122	14	4.69E-03	86.7	
2	2	92.92*	35	77	1.34	186.53	180	14	4.81E-03	66.5	1.91E+00
3	0	239.03*	18	55	1.42	478.60	474	9	2.56E-03	90.6	
4	0	511.29*	24	39	2.24	1022.78	1015	17	3.39E-03	83.9	
5	0	1460.86*	1	5	1.35	2920.61	2915	10	1.24E-04	697.7	

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

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037546.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 13:52:09
Sample ID         : G1202037546 Sample quantity : 171.26 GRAM
Sample type       : SOLID Sample geometry :
Detector name     : GAMMA1 Detector geometry: CAN
Elapsed live time : 0 02:00:00.00 Elapsed real time: 0 02:00:00.50 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type   : Empirical Efficiencies at : Peak Energy
Abundance limit   : 75.00 WTM error limit : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	1.934E-02	2.699E-01	2.641E-01	2.348E-02	0.073
TH-234	+	63.29	*	6.827E-01	1.190E+00	8.429E-01	1.481E-01	0.810
	+	92.38		2.548E-01	3.422E-01	3.068E-01	5.625E-02	0.830
U-238	+	63.29	*	6.827E-01	1.190E+00	8.429E-01	1.481E-01	0.810
	+	92.38		2.548E-01	3.398E-01	3.068E-01	2.802E-02	0.830
ANH-511	+	511.00	*	2.236E-02	3.758E-02	2.252E-02	1.909E-03	0.993

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.058E-01	1.507E-01	2.631E-01	2.393E-02	0.402
NA-22		1274.54	*	-1.237E-02	1.671E-02	2.343E-02	1.967E-03	-0.528
NA-24		1368.53	*	9.748E-07	1.671E-02	Half-Life too short		
AL-26		1129.67		-4.071E-01	7.281E-01	1.014E+00	8.470E-02	-0.401
		1808.65	*	1.929E-03	2.132E-02	3.551E-02	2.942E-03	0.054
TI-44		67.85		-7.352E-03	1.996E-02	2.755E-02	2.184E-03	-0.267
		78.38	*	3.086E-03	1.476E-02	2.413E-02	2.071E-03	0.128
SC-46		889.25	*	-1.103E-03	1.681E-02	2.713E-02	2.453E-03	-0.041
		1120.51		4.871E-03	2.446E-02	4.105E-02	3.449E-03	0.119
V-48		944.10		2.003E-01	3.317E-01	5.941E-01	5.351E-02	0.337
		983.50	*	7.200E-04	2.120E-02	3.468E-02	3.096E-03	0.021
		1312.09		1.115E-03	2.491E-02	4.192E-02	3.554E-03	0.027
CR-51		320.08	*	2.153E-02	1.510E-01	2.510E-01	2.361E-02	0.086
MN-52		744.21		-4.525E-03	4.530E-02	7.371E-02	6.323E-03	-0.061
		848.13		-7.881E-01	1.196E+00	1.700E+00	1.520E-01	-0.463
		935.52		6.836E-03	4.726E-02	7.903E-02	7.128E-03	0.087
		1246.25		-1.010E+00	1.222E+00	1.688E+00	1.404E-01	-0.598
		1333.61		-6.639E-02	9.234E-01	1.512E+00	1.289E-01	-0.044
		1434.06	*	-3.374E-02	3.993E-02	4.729E-02	4.083E-03	-0.713
MN-54		834.83	*	-2.344E-02	1.974E-02	2.478E-02	2.206E-03	-0.946
CO-56		846.75	*	-6.258E-04	1.773E-02	2.890E-02	2.582E-03	-0.022
		977.42		-7.353E-03	1.383E+00	2.245E+00	2.007E-01	-0.003
		1037.82		-5.367E-02	1.233E-01	1.786E-01	1.647E-02	-0.300

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1175.09			-3.620E-01	7.454E-01	1.107E+00	8.967E-02	-0.327
	1238.25			5.617E-03	2.982E-02	5.172E-02	4.422E-03	0.109
	1360.21			2.245E-01	4.764E-01	8.689E-01	7.440E-02	0.258
	1771.40			3.104E-02	1.667E-01	2.829E-01	2.369E-02	0.110
CO-57	122.06	*		-3.295E-03	1.134E-02	1.752E-02	1.542E-03	-0.188
	136.48			6.292E-02	8.571E-02	1.527E-01	1.411E-02	0.412
CO-58	810.76	*		1.261E-02	1.637E-02	3.038E-02	2.687E-03	0.415
FE-59	142.65			1.604E+00	1.179E+00	2.035E+00	1.740E-01	0.788
	192.34			-3.821E-01	4.121E-01	6.381E-01	8.618E-02	-0.599
	1099.22	*		1.753E-02	3.920E-02	6.849E-02	6.313E-03	0.256
	1291.56			-2.411E-02	4.063E-02	5.657E-02	5.441E-03	-0.426
CO-60	1173.22			-2.555E-03	1.632E-02	2.645E-02	2.141E-03	-0.097
	1332.49	*		-2.084E-03	1.805E-02	2.925E-02	2.493E-03	-0.071
ZN-65	1115.52	*		-4.942E-02	4.468E-02	5.547E-02	4.681E-03	-0.891
GE-68	1077.35	*		1.497E-01	6.186E-01	1.043E+00	8.981E-02	0.144
AS-73	53.44	*		-1.154E-02	3.920E-01	6.368E-01	5.154E-02	-0.018
AS-74	595.88	*		-2.255E-02	3.409E-02	5.197E-02	4.379E-03	-0.434
	634.78			6.085E-02	1.362E-01	2.402E-01	1.996E-02	0.253
SE-75	66.05			1.412E+00	1.955E+00	3.045E+00	2.985E-01	0.464
	96.73			-6.365E-02	3.495E-01	4.868E-01	6.725E-02	-0.131
	121.11			-9.265E-04	5.899E-02	9.346E-02	1.060E-02	-0.010
	136.00			9.466E-03	1.561E-02	2.761E-02	2.390E-03	0.343
	198.60			-6.315E-01	8.980E-01	1.374E+00	1.337E-01	-0.460
	264.65	*		-1.795E-03	2.134E-02	3.501E-02	3.216E-03	-0.051
	279.53			-2.595E-02	5.216E-02	8.201E-02	7.749E-03	-0.316
	303.91			2.092E-01	1.072E+00	1.791E+00	2.116E-01	0.117
	400.65			-6.783E-02	1.218E-01	1.832E-01	1.963E-02	-0.370
BR-77	87.88			7.042E+00	8.419E+00	1.304E+01	1.232E+00	0.540
	200.40			-5.648E+00	8.450E+00	1.339E+01	1.181E+00	-0.422
+	239.00			3.714E-01	6.735E-01	9.339E-01	8.479E-02	0.398
	249.79			-2.648E+00	3.957E+00	5.844E+00	5.329E-01	-0.453
	281.68			-3.239E+00	5.145E+00	7.866E+00	7.190E-01	-0.412
	297.23			-2.845E-01	2.864E+00	4.666E+00	4.245E-01	-0.061
	303.76			1.640E+00	1.054E+01	1.756E+01	1.592E+00	0.093
	439.47			2.531E+00	8.311E+00	1.389E+01	1.151E+00	0.182
	484.57			4.615E+00	1.196E+01	2.024E+01	1.706E+00	0.228
	520.65	*		-5.219E-01	5.729E-01	7.758E-01	6.582E-02	-0.673
	574.64			-4.671E+00	1.113E+01	1.763E+01	1.493E+00	-0.265
	578.91			-2.964E+00	5.111E+00	7.976E+00	6.746E-01	-0.372
	585.48			1.277E+01	9.144E+00	1.765E+01	1.491E+00	0.723
	755.35			-3.683E+00	7.728E+00	1.161E+01	1.001E+00	-0.317
	817.79			3.590E+00	7.114E+00	1.265E+01	1.120E+00	0.284
SR-82	698.33			-1.739E+00	1.432E+01	2.338E+01	1.958E+00	-0.074
	776.49	*		-5.606E-02	1.529E-01	2.372E-01	2.065E-02	-0.236
	1395.20			1.236E+00	4.515E+00	7.948E+00	6.836E-01	0.156
RB-83	520.41	*		-3.339E-02	3.160E-02	4.125E-02	3.499E-03	-0.810
	529.64			-3.101E-03	4.707E-02	7.869E-02	6.680E-03	-0.039
	552.65			7.779E-02	9.341E-02	1.722E-01	1.461E-02	0.452
RB-84	881.50	*		4.083E-03	3.092E-02	5.168E-02	4.663E-03	0.079



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
KR-85	513.99	*		9.152E+00	5.052E+00	8.673E+00	7.354E-01	1.055
SR-85	513.99	*		4.335E-02	2.393E-02	4.108E-02	3.483E-03	1.055
RB-86	1076.63	*		-1.096E-01	3.118E-01	4.690E-01	4.040E-02	-0.234
Y-88	898.02			-6.559E-03	1.826E-02	2.772E-02	2.522E-03	-0.237
	1836.01	*		9.661E-03	1.985E-02	3.668E-02	3.017E-03	0.263
ZR-88	392.90	*		-3.346E-03	1.495E-02	2.361E-02	1.901E-03	-0.142
Y-91	1204.90	*		6.086E-01	6.186E+00	1.058E+01	8.669E-01	0.058
NB-94	702.63	*		1.445E-02	1.794E-02	3.265E-02	2.741E-03	0.443
	871.10			-2.754E-03	1.823E-02	2.909E-02	2.618E-03	-0.095
NB-95	765.79	*		-2.761E-03	1.719E-02	2.761E-02	2.393E-03	-0.100
NB-95M	235.69	*		-1.681E-02	5.920E-02	8.367E-02	8.582E-03	-0.201
ZR-95	724.18			-3.563E-02	4.413E-02	6.439E-02	5.955E-03	-0.553
	756.15	*		-1.107E-02	3.040E-02	4.711E-02	4.476E-03	-0.235
NB-97	657.90	*		-9.682E-06	3.040E-02	Half-Life	too short	
	1024.50			4.601E-04	3.040E-02	Half-Life	too short	
ZR-97	254.15			1.174E-05	3.040E-02	Half-Life	too short	
	355.39			-9.418E-04	3.040E-02	Half-Life	too short	
	507.63	*		3.612E-04	3.040E-02	Half-Life	too short	
	602.52			-1.581E-03	3.040E-02	Half-Life	too short	
	1021.30			2.454E-03	3.040E-02	Half-Life	too short	
	1147.95			-6.717E-04	3.040E-02	Half-Life	too short	
	1362.66			-6.439E-04	3.040E-02	Half-Life	too short	
	1750.46			4.295E-04	3.040E-02	Half-Life	too short	
MO-99	140.51			-2.361E+00	1.884E+00	2.719E+00	7.524E-01	-0.868
	181.06			7.027E-01	1.216E+00	2.112E+00	3.865E-01	0.333
	366.43			-2.583E+00	6.155E+00	9.499E+00	8.032E-01	-0.272
	739.58	*		3.930E-01	7.922E-01	1.410E+00	2.136E-01	0.279
	778.00			8.751E-01	2.451E+00	4.265E+00	3.716E-01	0.205
TC-99M	140.51	*		-2.055E+01	2.451E+00	Half-Life	too short	
RH-101	127.23			4.103E-03	1.438E-02	2.331E-02	2.028E-03	0.176
	198.01	*		-4.852E-03	1.704E-02	2.697E-02	2.373E-03	-0.180
	325.23			2.336E-02	1.155E-01	1.927E-01	1.720E-02	0.121
RH-102	418.52			9.181E-02	1.490E-01	2.576E-01	2.111E-02	0.356
	475.06	*		3.976E-03	1.543E-02	2.557E-02	2.150E-03	0.156
	631.29			1.217E-02	2.876E-02	5.052E-02	4.204E-03	0.241
	697.49			-1.649E-02	3.951E-02	6.179E-02	5.171E-03	-0.267
	766.84			3.793E-02	4.442E-02	8.310E-02	7.204E-03	0.456
	1046.59			-1.599E-02	4.932E-02	7.377E-02	6.444E-03	-0.217
	1112.84			6.955E-02	8.826E-02	1.663E-01	1.404E-02	0.418
RU-103	497.08	*		1.227E-02	1.858E-02	3.221E-02	4.529E-03	0.381
	610.33			-3.657E-01	4.083E-01	5.603E-01	9.282E-02	-0.653
RH-106	511.85	+		1.101E-01	1.851E-01	2.676E-01	2.269E-02	0.411
	621.84	*		-3.354E-02	1.603E-01	2.604E-01	3.433E-02	-0.129
	1050.47			-7.296E-01	1.037E+00	1.404E+00	1.224E-01	-0.520
RU-106	511.85	+		1.101E-01	1.851E-01	2.676E-01	2.269E-02	0.411
	621.84	*		-3.354E-02	1.603E-01	2.604E-01	2.175E-02	-0.129
	1050.47			-7.296E-01	1.037E+00	1.404E+00	1.224E-01	-0.520
AG-108M	433.93	*		3.835E-03	1.634E-02	2.714E-02	2.340E-03	0.141
	614.37			-7.723E-03	1.846E-02	2.908E-02	2.538E-03	-0.266

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CD-109	722.95			1.789E-03	2.101E-02	3.520E-02	3.108E-03	0.051
	88.03	*		3.036E-01	3.477E-01	5.399E-01	5.109E-02	0.562
AG-110M	657.75	*		-1.060E-02	1.578E-02	2.349E-02	1.992E-03	-0.451
	677.61			7.037E-03	1.469E-01	2.459E-01	2.097E-02	0.029
	706.67			4.797E-02	1.105E-01	1.931E-01	1.672E-02	0.248
	763.93			-7.659E-02	7.136E-02	9.422E-02	8.386E-03	-0.813
	884.67			-1.567E-02	2.419E-02	3.469E-02	3.225E-03	-0.452
	937.48			-1.102E-02	5.558E-02	8.735E-02	8.137E-03	-0.126
	1384.27			2.245E-02	6.919E-02	1.241E-01	1.096E-02	0.181
IN-111	171.28			-1.822E-03	6.975E-02	1.172E-01	1.003E-02	-0.016
	245.39	*		3.400E-05	7.788E-02	1.292E-01	1.176E-02	0.000
IN-113M	391.69	*		1.408E-02	2.237E-02	3.871E-02	3.225E-03	0.364
SN-113	391.69	*		1.408E-02	2.237E-02	3.871E-02	3.225E-03	0.364
IN-114M	190.27	*		-7.177E-02	8.504E-02	1.341E-01	1.171E-02	-0.535
CD-115	260.90			2.205E+00	6.461E+00	1.099E+01	1.005E+00	0.201
	492.35			1.173E+00	1.765E+00	3.074E+00	2.597E-01	0.382
	527.90	*		9.675E-03	5.221E-01	8.822E-01	7.489E-02	0.011
SN-117M	156.02			5.472E-01	6.857E-01	1.219E+00	1.038E-01	0.449
	158.56	*		-3.809E-03	1.745E-02	2.901E-02	2.470E-03	-0.131
SB-122	563.90	*		5.131E-02	1.491E-01	2.606E-01	2.210E-02	0.197
	692.80			-1.172E+00	3.066E+00	4.803E+00	4.009E-01	-0.244
I-123	159.00	*		3.171E-05	3.066E+00	Half-Life	too short	
	528.96			1.926E-03	3.066E+00	Half-Life	too short	
TE-123M	159.00	*		2.110E-03	1.266E-02	2.161E-02	1.851E-03	0.098
I-124	602.71	*		-6.345E-02	1.048E-01	1.628E-01	1.369E-02	-0.390
	722.78			2.145E-01	6.274E-01	1.087E+00	9.224E-02	0.197
	1325.50			4.099E+00	4.683E+00	9.152E+00	7.787E-01	0.448
	1376.25			1.116E+00	4.018E+00	7.084E+00	6.079E-01	0.158
	1509.49			7.796E-01	2.046E+00	3.714E+00	3.216E-01	0.210
	1691.02			9.195E-01	6.376E-01	1.407E+00	1.199E-01	0.653
SB-124	602.71			-1.180E-02	1.949E-02	3.028E-02	2.547E-03	-0.390
	645.85			-6.008E-02	2.277E-01	3.653E-01	3.215E-02	-0.164
	709.31			-1.100E+00	1.380E+00	2.030E+00	1.711E-01	-0.542
	713.82			-2.197E-02	7.359E-01	1.214E+00	1.447E-01	-0.018
	722.78			5.785E-02	1.692E-01	2.931E-01	2.543E-02	0.197
	968.20			8.932E-01	1.154E+00	2.098E+00	1.880E-01	0.426
	1045.16			1.081E+00	9.473E-01	1.882E+00	1.645E-01	0.574
	1325.50			1.181E+00	1.349E+00	2.636E+00	2.243E-01	0.448
	1368.21			-8.675E-02	6.680E-01	1.069E+00	1.438E-01	-0.081
	1436.60			-6.143E-01	1.428E+00	2.036E+00	1.758E-01	-0.302
SB-125	1691.02	*		5.849E-02	4.058E-02	8.950E-02	7.934E-03	0.653
	427.89	*		-3.426E-03	4.016E-02	6.400E-02	5.385E-03	-0.054
	463.38			-2.230E-02	1.468E-01	2.313E-01	2.098E-02	-0.096
	600.56			7.095E-03	1.011E-01	1.705E-01	1.545E-02	0.042
	635.90			-2.074E-02	1.419E-01	2.323E-01	2.096E-02	-0.089
TE-125M	109.28	*		2.614E+00	3.683E+00	6.202E+00	6.419E-01	0.421
I-126	388.63			3.837E-02	7.559E-02	1.289E-01	1.044E-02	0.298
	666.33	*		-2.767E-02	5.303E-02	8.076E-02	6.634E-03	-0.343
	753.82			-4.047E-02	4.514E-01	7.346E-01	6.331E-02	-0.055

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126		223.80		-2.559E-01	1.323E+00	2.171E+00	1.953E-01	-0.118
		278.60		-3.014E-01	8.330E-01	1.330E+00	1.216E-01	-0.227
		296.50		-9.580E-02	4.670E-01	7.341E-01	6.680E-02	-0.131
		414.70		-8.205E-03	2.720E-02	4.246E-02	3.471E-03	-0.193
		415.30		-1.922E-01	2.238E+00	3.582E+00	2.929E-01	-0.054
		555.20		6.959E-01	1.339E+00	2.387E+00	2.026E-01	0.291
		573.80		-6.670E-02	3.202E-01	5.223E-01	4.422E-02	-0.128
		593.00		-3.006E-01	2.896E-01	4.092E-01	3.450E-02	-0.735
		656.30		-6.000E-01	1.052E+00	1.601E+00	1.316E-01	-0.375
		666.33		-1.137E-02	2.178E-02	3.317E-02	2.725E-03	-0.343
		675.00		-2.592E-02	6.381E-01	1.055E+00	8.713E-02	-0.025
		695.00		1.758E-02	2.469E-02	4.489E-02	3.752E-03	0.392
		697.00		-5.144E-02	9.271E-02	1.421E-01	1.189E-02	-0.362
		720.50	*	5.843E-03	4.926E-02	8.216E-02	6.964E-03	0.071
		856.80		-8.685E-02	1.316E-01	1.859E-01	1.666E-02	-0.467
		989.30		2.719E-02	3.129E-01	5.187E-01	4.623E-02	0.052
		1034.80		-3.100E-01	2.624E+00	4.137E+00	3.631E-01	-0.075
		1213.00		-2.055E-01	1.187E+00	1.729E+00	1.421E-01	-0.119
SN-126	+	64.28		2.702E-01	4.704E-01	4.143E-01	6.096E-02	0.652
		86.94		4.132E-02	1.511E-01	2.207E-01	9.161E-02	0.187
	*	87.57		2.324E-02	3.487E-02	5.318E-02	5.009E-03	0.437
SB-127		61.10		4.266E+00	7.354E+00	1.126E+01	9.473E-01	0.379
		252.40		-8.593E-02	5.389E-01	8.782E-01	3.661E-01	-0.098
		290.80		-1.851E-01	2.582E+00	4.220E+00	4.132E-01	-0.044
		411.60		-3.473E-01	1.580E+00	2.487E+00	3.534E-01	-0.140
		444.90		-2.573E-01	1.274E+00	1.996E+00	2.133E-01	-0.129
		473.00		1.962E-02	2.205E-01	3.580E-01	3.991E-02	0.055
		543.00		-1.339E+00	1.996E+00	3.038E+00	3.931E-01	-0.441
		603.60		1.060E-01	1.604E+00	2.705E+00	2.904E-01	0.039
	*	685.20		1.503E-01	1.858E-01	3.396E-01	3.164E-02	0.443
		698.50		7.624E-02	1.995E+00	3.328E+00	4.805E-01	0.023
XE-127		722.20		3.589E+00	3.905E+00	7.219E+00	6.643E-01	0.497
		783.80		1.628E-01	4.606E-01	7.984E-01	8.694E-02	0.204
		57.60		-2.070E+00	2.706E+00	3.887E+00	2.985E-01	-0.533
		145.22		-3.968E-02	2.870E-01	4.511E-01	3.852E-02	-0.088
		172.10		6.080E-03	4.631E-02	7.870E-02	6.742E-03	0.077
	*	202.84		-3.296E-03	1.804E-02	2.973E-02	2.628E-03	-0.111
I-131		374.96		-9.372E-02	8.224E-02	1.131E-01	9.417E-03	-0.829
		80.18		-6.108E-01	1.024E+00	1.572E+00	1.374E-01	-0.388
		284.30		5.775E-02	4.136E-01	6.583E-01	6.270E-02	0.088
	*	364.48		5.428E-03	2.799E-02	4.662E-02	4.159E-03	0.116
		636.97		-2.731E-01	4.337E-01	6.620E-01	5.798E-02	-0.413
TE-132		722.89		2.206E-01	1.856E+00	3.124E+00	2.656E-01	0.071
		49.72		-6.513E-01	1.982E+00	3.141E+00	2.861E-01	-0.207
		111.76		1.823E-02	2.632E+00	4.191E+00	3.889E-01	0.004
		116.30		3.869E-01	2.465E+00	3.970E+00	3.697E-01	0.097
BA-133	*	228.16		-1.784E-02	7.031E-02	1.146E-01	1.706E-02	-0.156
		53.15		-9.434E-01	1.860E+00	2.903E+00	2.359E-01	-0.325
		79.62		-5.204E-01	5.665E-01	8.403E-01	1.282E-01	-0.619

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	81.00		-1.809E-02	4.171E-02	6.477E-02	1.035E-02	-0.279
		276.40		2.942E-02	1.950E-01	3.257E-01	4.810E-02	0.090
		302.84		1.017E-02	7.427E-02	1.235E-01	1.678E-02	0.082
		356.01	*	-3.821E-03	2.188E-02	3.497E-02	4.612E-03	-0.109
		383.85		-1.910E-01	1.656E-01	2.303E-01	2.835E-02	-0.829
		510.53		5.473E-04	1.656E-01	Half-Life	too short	
		529.87	*	-8.993E-07	1.656E-01	Half-Life	too short	
		706.58		2.265E-04	1.656E-01	Half-Life	too short	
		856.28		-4.062E-04	1.656E-01	Half-Life	too short	
		875.33		-9.715E-05	1.656E-01	Half-Life	too short	
		1236.41		-2.922E-04	1.656E-01	Half-Life	too short	
		1298.22		1.469E-04	1.656E-01	Half-Life	too short	
CS-134		475.35		0.000E+00	1.025E+00	1.643E+00	1.382E-01	0.000
		563.23		1.082E-01	1.794E-01	3.225E-01	2.761E-02	0.335
		569.32		3.127E-02	9.772E-02	1.704E-01	1.463E-02	0.184
		604.70		-5.802E-03	1.868E-02	3.018E-02	2.543E-03	-0.192
		795.84	*	5.241E-03	2.130E-02	3.645E-02	3.221E-03	0.144
		801.93		8.392E-02	1.952E-01	3.423E-01	3.028E-02	0.245
		1038.57		-1.745E+00	1.809E+00	2.268E+00	1.988E-01	-0.769
		1167.94		1.912E-01	8.017E-01	1.422E+00	1.156E-01	0.134
		1365.15		2.142E-01	5.101E-01	9.390E-01	8.416E-02	0.228
		268.24	*	8.790E-03	7.974E-02	1.330E-01	1.386E-02	0.066
I-135		288.45		-1.485E+01	7.974E-02	Half-Life	too short	
		417.63		6.516E+01	7.974E-02	Half-Life	too short	
		546.56		9.545E+00	7.974E-02	Half-Life	too short	
		836.80		-2.486E+01	7.974E-02	Half-Life	too short	
		1038.76		-4.360E+01	7.974E-02	Half-Life	too short	
		1124.00		-8.541E+01	7.974E-02	Half-Life	too short	
		1131.51		1.048E+01	7.974E-02	Half-Life	too short	
		1260.41	*	1.293E+01	7.974E-02	Half-Life	too short	
		1457.56		1.978E+01	7.974E-02	Half-Life	too short	
		1678.03		5.143E+00	7.974E-02	Half-Life	too short	
		1706.46		-1.533E+00	7.974E-02	Half-Life	too short	
		1791.20		-6.277E+00	7.974E-02	Half-Life	too short	
CS-136		66.91		-4.145E-02	2.298E-01	3.247E-01	4.882E-02	-0.128
		86.29		4.889E-02	2.932E-01	4.545E-01	6.047E-02	0.108
		153.22		-8.425E-02	1.968E-01	3.223E-01	3.075E-02	-0.261
		163.89		-5.991E-02	3.852E-01	6.174E-01	5.901E-02	-0.097
		176.55		-3.660E-02	1.176E-01	1.932E-01	1.758E-02	-0.189
		273.65		2.427E-02	1.625E-01	2.714E-01	2.627E-02	0.089
		340.57		1.980E-02	3.976E-02	6.821E-02	6.152E-03	0.290
		818.51		2.132E-02	2.205E-02	4.218E-02	3.734E-03	0.506
		1048.07	*	-2.661E-02	3.386E-02	4.493E-02	4.082E-03	-0.592
		1235.34		-9.092E-02	1.399E-01	2.002E-01	2.322E-02	-0.454
BA-137M		661.65	*	1.401E-02	1.545E-02	2.907E-02	2.381E-03	0.482
		661.65	*	1.481E-02	1.633E-02	3.073E-02	2.522E-03	0.482
CE-139		165.85	*	1.832E-04	1.376E-02	2.321E-02	1.977E-03	0.008
BA-140		162.64		8.193E-02	2.558E-01	4.215E-01	3.802E-02	0.194
		304.84		3.082E-03	4.556E-01	7.486E-01	2.108E-01	0.004

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140	423.70			2.460E-02	5.353E-01	8.701E-01	2.812E-01	0.028
	537.32	*		2.719E-02	8.806E-02	1.460E-01	4.832E-02	0.186
	328.77			7.995E-03	1.017E-01	1.677E-01	1.570E-02	0.048
	432.53			2.966E-01	6.773E-01	1.152E+00	1.002E-01	0.257
	487.03			-1.747E-02	4.766E-02	7.240E-02	6.502E-03	-0.241
	751.79			7.274E-02	5.418E-01	8.755E-01	8.345E-02	0.083
	815.85			1.726E-02	1.029E-01	1.739E-01	1.706E-02	0.099
	867.82			-2.804E-01	4.804E-01	7.054E-01	6.651E-02	-0.398
	919.63			8.560E-01	8.140E-01	1.579E+00	1.736E-01	0.542
	925.24			-3.494E-01	2.863E-01	2.982E-01	2.848E-02	-1.172
CE-141	1596.49	*		1.119E-02	2.822E-02	5.122E-02	4.419E-03	0.219
	145.44	*		4.328E-03	2.257E-02	3.874E-02	3.369E-03	0.112
CE-143	57.37			-9.330E+00	1.238E+01	1.780E+01	1.602E+00	-0.524
	231.56			-2.846E+00	2.817E+01	4.646E+01	1.472E+01	-0.061
	293.26	*		5.433E-01	1.374E+00	2.335E+00	5.050E-01	0.233
	350.59			3.967E+00	2.079E+01	3.313E+01	1.028E+01	0.120
	490.36			2.400E+01	3.361E+01	5.755E+01	1.814E+01	0.417
	664.57			-1.734E+01	1.447E+01	1.751E+01	5.634E+00	-0.990
CE-144	721.93			1.333E+01	1.607E+01	2.875E+01	8.367E+00	0.464
	80.11			-5.416E-01	8.863E-01	1.359E+00	1.185E-01	-0.399
PM-144	133.54	*		-2.236E-02	8.940E-02	1.380E-01	2.148E-02	-0.162
	476.78			5.371E-04	3.549E-02	5.703E-02	5.267E-03	0.009
	618.01			2.669E-03	1.497E-02	2.562E-02	2.206E-03	0.104
	696.49	*		-2.998E-03	1.692E-02	2.739E-02	2.292E-03	-0.109
	778.57			7.413E-01	1.061E+00	1.938E+00	1.689E-01	0.383
PR-144	696.49	*		-2.023E-01	1.142E+00	1.849E+00	1.547E-01	-0.109
	1489.15			-1.257E+00	6.765E+00	1.068E+01	9.241E-01	-0.118
PM-146	453.90	*		1.336E-02	2.359E-02	4.043E-02	4.246E-03	0.330
	633.02			-1.038E-01	7.509E-01	1.230E+00	4.587E-01	-0.084
	735.90			-6.356E-02	7.674E-02	1.065E-01	3.044E-02	-0.597
	747.13			7.603E-03	4.172E-02	7.098E-02	9.952E-03	0.107
ND-147	91.11			-6.367E-02	9.056E-02	1.489E-01	1.472E-02	-0.428
	319.41			-4.320E-01	1.039E+00	1.627E+00	1.460E-01	-0.265
	439.89			6.435E-01	1.959E+00	3.279E+00	2.719E-01	0.196
	531.02	*		-7.224E-02	1.663E-01	2.638E-01	3.923E-02	-0.274
PM-149	285.90	*		-3.376E-01	4.636E+00	7.238E+00	1.145E+00	-0.047
	121.78			-4.032E-03	3.394E-02	5.328E-02	5.368E-03	-0.076
EU-152	244.69			3.507E-02	1.606E-01	2.628E-01	2.392E-02	0.133
	344.27	*		6.314E-03	5.004E-02	8.274E-02	7.650E-03	0.076
	443.98			-1.020E-01	4.986E-01	7.817E-01	6.495E-02	-0.131
	778.89			9.853E-02	1.228E-01	2.275E-01	1.982E-02	0.433
	867.32			-1.726E-01	4.194E-01	6.366E-01	5.722E-02	-0.271
	964.01			-4.940E-02	1.297E-01	1.959E-01	1.757E-02	-0.252
	1085.78			-9.813E-02	1.897E-01	2.716E-01	2.328E-02	-0.361
	1112.02			2.943E-02	1.367E-01	2.302E-01	1.944E-02	0.128
GD-153	1407.95			4.641E-02	9.606E-02	1.752E-01	1.509E-02	0.265
	69.67			3.757E-01	6.735E-01	1.030E+00	8.265E-02	0.365
	83.37			3.966E-01	6.256E+00	9.460E+00	8.519E-01	0.042
	97.43	*		-9.652E-03	3.880E-02	5.320E-02	4.725E-03	-0.181

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	103.18			-1.436E-02	4.551E-02	7.062E-02	6.160E-03	-0.203
	123.07			5.756E-03	2.299E-02	3.725E-02	4.277E-03	0.155
	247.94			1.249E-01	1.732E-01	3.039E-01	3.601E-02	0.411
	591.81			5.772E-02	2.780E-01	4.793E-01	5.528E-02	0.120
	723.30			-3.693E-02	8.997E-02	1.404E-01	1.321E-02	-0.263
	756.87			-1.163E-01	3.414E-01	5.295E-01	6.345E-02	-0.220
	873.19			2.508E-02	1.587E-01	2.663E-01	3.334E-02	0.094
	996.32			2.668E-02	1.398E-01	2.368E-01	4.239E-02	0.113
	1004.76			-1.291E-02	1.002E-01	1.582E-01	1.871E-02	-0.082
	1274.45	*		-3.365E-02	4.718E-02	6.669E-02	7.426E-03	-0.505
EU-155	48.70			-4.553E-01	1.269E+00	2.009E+00	1.719E-01	-0.227
	60.01			1.315E+00	2.384E+00	3.657E+00	2.765E-01	0.360
	86.54			9.446E-03	4.020E-02	6.269E-02	5.889E-03	0.151
TB-160	105.31	*		-1.631E-02	4.751E-02	7.349E-02	6.464E-03	-0.222
	86.79			2.877E-02	1.082E-01	1.589E-01	1.484E-02	0.181
	197.04			-1.194E-01	2.741E-01	4.295E-01	3.776E-02	-0.278
	215.65			-1.279E-01	3.224E-01	5.203E-01	4.652E-02	-0.246
	298.57			-2.844E-02	5.157E-02	8.025E-02	7.296E-03	-0.354
	879.36	*		5.022E-02	6.842E-02	1.246E-01	1.123E-02	0.403
	962.29			2.842E-02	1.987E-01	3.322E-01	2.981E-02	0.086
	966.15			-9.031E-02	9.131E-02	1.215E-01	1.089E-02	-0.744
	1177.93			-1.087E-03	1.142E-01	1.912E-01	1.551E-02	-0.006
	1271.85			1.382E-01	2.479E-01	4.655E-01	3.902E-02	0.297
HO-166M	80.57			-4.142E-02	1.124E-01	1.757E-01	1.539E-02	-0.236
	184.41			2.542E-02	1.779E-02	3.214E-02	2.789E-03	0.791
	280.46			-1.983E-02	4.310E-02	6.802E-02	6.219E-03	-0.292
	410.95			-2.377E-02	1.246E-01	1.969E-01	1.606E-02	-0.121
	711.68	*		1.425E-02	2.929E-02	5.189E-02	4.378E-03	0.275
	752.31			4.067E-02	1.276E-01	2.121E-01	1.827E-02	0.192
	810.29			5.014E-03	2.713E-02	4.604E-02	4.063E-03	0.109
	51.35			-4.699E+00	1.523E+01	2.416E+01	2.011E+00	-0.194
	52.39			-8.249E+00	7.922E+00	1.171E+01	9.610E-01	-0.705
	59.40			5.112E+00	1.303E+01	1.968E+01	1.483E+00	0.260
TM-171	66.72	*		1.957E+00	1.200E+01	1.764E+01	1.390E+00	0.111
	88.36			9.543E-02	7.965E-02	1.273E-01	1.201E-02	0.750
	201.83			-2.894E-03	1.282E-02	2.106E-02	1.860E-03	-0.137
LU-176	306.84	*		7.307E-03	1.262E-02	2.183E-02	1.976E-03	0.335
	401.10			-2.955E+00	3.523E+00	5.119E+00	4.147E-01	-0.577
	112.95			2.477E-02	3.204E-01	5.131E-01	4.449E-02	0.048
LU-177	208.36	*		-1.376E-01	2.102E-01	3.313E-01	2.944E-02	-0.415
LU-177M	52.97			-4.708E-01	8.137E-01	1.262E+00	1.028E-01	-0.373
	54.07			3.176E-01	4.072E-01	7.029E-01	5.641E-02	0.452
	61.30			5.088E-01	7.195E-01	1.114E+00	8.498E-02	0.457
	121.62			-3.180E-02	1.713E-01	2.673E-01	2.348E-02	-0.119
	147.16			-5.369E-01	2.682E-01	3.757E-01	3.206E-02	-1.429
	171.86			1.922E-02	2.078E-01	3.522E-01	3.017E-02	0.055
	218.09			2.133E-01	3.975E-01	6.891E-01	6.173E-02	0.310
	268.79			1.066E-01	3.857E-01	6.519E-01	5.965E-02	0.164
	319.02			-7.659E-02	1.238E-01	1.891E-01	1.697E-02	-0.405

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HF-181		367.43		-2.141E-01	4.348E-01	6.651E-01	5.614E-02	-0.322
		413.65	*	-6.718E-02	9.133E-02	1.344E-01	1.098E-02	-0.500
		56.28		1.932E-02	4.122E-01	6.728E-01	5.247E-02	0.029
		57.53		-1.757E-01	2.327E-01	3.346E-01	2.572E-02	-0.525
	+	65.20		4.664E-01	8.098E-01	6.159E-01	4.808E-02	0.757
		133.02		2.679E-03	2.523E-02	4.027E-02	3.473E-03	0.067
		136.25		1.082E-01	1.678E-01	2.975E-01	2.556E-02	0.364
W-181		345.85		1.745E-02	8.449E-02	1.409E-01	1.229E-02	0.124
		482.03	*	-1.494E-02	1.847E-02	2.589E-02	2.181E-03	-0.577
		56.28		8.034E-03	1.748E-01	2.853E-01	2.225E-02	0.028
		57.53		-7.453E-02	9.877E-02	1.420E-01	1.091E-02	-0.525
	+	65.20	*	1.964E-01	3.410E-01	2.593E-01	2.024E-02	0.757
TA-182		67.75		-3.518E-02	4.764E-02	6.282E-02	4.978E-03	-0.560
		100.10		1.719E-02	7.676E-02	1.248E-01	1.098E-02	0.138
		152.43		3.279E-02	1.386E-01	2.382E-01	2.029E-02	0.138
		222.10		-3.289E-02	1.604E-01	2.630E-01	2.363E-02	-0.125
		1001.68		-3.309E-01	1.030E+00	1.624E+00	1.442E-01	-0.204
		1121.28		4.002E-02	6.702E-02	1.196E-01	1.005E-02	0.335
		1189.05		-1.848E-02	1.248E-01	2.035E-01	1.657E-02	-0.091
RE-183		1221.42	*	-2.346E-02	6.266E-02	9.550E-02	7.872E-03	-0.246
		1230.97		5.129E-02	1.511E-01	2.713E-01	2.244E-02	0.189
		57.98		-6.628E-02	1.005E-01	1.352E-01	1.034E-02	-0.490
		59.32		2.081E-02	5.025E-02	7.605E-02	5.736E-03	0.274
		67.20		-1.913E-02	8.075E-02	1.133E-01	8.952E-03	-0.169
		162.32	*	2.714E-02	5.294E-02	8.836E-02	7.522E-03	0.307
		208.81		-2.423E-01	3.782E-01	5.965E-01	5.302E-02	-0.406
RE-184		291.72		-1.065E-01	4.297E-01	6.905E-01	6.295E-02	-0.154
		57.98		-2.552E-01	3.870E-01	5.203E-01	3.979E-02	-0.490
		59.32		8.005E-02	1.933E-01	2.925E-01	2.206E-02	0.274
		67.20		-7.361E-02	3.108E-01	4.362E-01	3.445E-02	-0.169
		161.27		7.749E-02	1.661E-01	2.885E-01	2.456E-02	0.269
		216.55		1.807E-02	1.199E-01	2.024E-01	1.811E-02	0.089
		252.85	*	-9.542E-03	1.092E-01	1.795E-01	1.639E-02	-0.053
OS-185		318.01		-1.189E-01	2.119E-01	3.257E-01	2.925E-02	-0.365
		792.07		-1.432E-01	4.604E-01	7.198E-01	6.307E-02	-0.199
		903.28		1.687E-01	3.894E-01	6.920E-01	6.266E-02	0.244
		920.93		3.512E-02	1.902E-01	3.219E-01	2.909E-02	0.109
		59.72		7.381E-02	1.337E-01	2.052E-01	1.548E-02	0.360
		61.14		4.662E-02	7.696E-02	1.182E-01	9.003E-03	0.395
		69.30		5.130E-02	1.197E-01	1.807E-01	1.446E-02	0.284
RE-188		592.07		-2.991E-01	1.108E+00	1.785E+00	1.506E-01	-0.168
		646.12	*	-1.087E-02	2.075E-02	3.204E-02	2.647E-03	-0.339
		717.42		-3.289E-01	4.171E-01	6.037E-01	5.109E-02	-0.545
		874.81		9.485E-02	2.954E-01	5.079E-01	4.575E-02	0.187
		880.27		1.212E-01	3.922E-01	6.729E-01	6.069E-02	0.180
		155.03	*	2.644E-03	7.039E-02	1.193E-01	1.016E-02	0.022
		477.96		1.528E+00	1.411E+00	2.577E+00	2.169E-01	0.593
W-188		633.10		-1.314E-01	1.395E+00	2.300E+00	1.912E-01	-0.057
	+	63.58		2.545E+01	4.419E+01	4.153E+01	3.212E+00	0.613

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

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IR-192		227.08		-7.819E-01	5.995E+00	9.880E+00	8.908E-01	-0.079
		290.67	*	-2.725E-01	3.218E+00	5.253E+00	4.791E-01	-0.052
		295.96		-2.578E-03	5.101E-02	8.138E-02	7.455E-03	-0.032
		308.46		-2.898E-02	4.615E-02	7.088E-02	6.439E-03	-0.409
		316.51	*	1.618E-03	1.515E-02	2.512E-02	2.263E-03	0.064
		468.07		-3.626E-03	3.119E-02	4.929E-02	4.449E-03	-0.074
AU-195		604.41		-9.269E-02	2.379E-01	3.805E-01	4.900E-02	-0.244
		612.46		-2.903E-01	3.139E-01	4.566E-01	4.426E-02	-0.636
	+	65.12		9.208E-02	1.599E-01	1.232E-01	9.614E-03	0.747
		66.83		-6.758E-03	3.996E-02	5.656E-02	4.457E-03	-0.119
		75.70		-3.890E-03	7.730E-02	1.164E-01	9.763E-03	-0.033
		98.88	*	3.010E-02	1.130E-01	1.639E-01	1.447E-02	0.184
TL-200		129.76		5.191E-01	1.264E+00	2.067E+00	1.791E-01	0.251
		367.94	*	-1.200E+00	1.855E+00	2.776E+00	2.342E-01	-0.432
		579.30		-1.153E+01	1.498E+01	2.270E+01	1.920E+00	-0.508
		828.27		1.443E+01	1.960E+01	3.593E+01	3.191E+00	0.402
TL-201		1205.75		5.922E+00	6.749E+00	1.338E+01	1.097E+00	0.442
		68.90		2.622E-01	3.399E-01	5.335E-01	4.258E-02	0.491
		70.82		8.485E-02	1.799E-01	3.019E-01	2.440E-02	0.281
		80.30		-1.422E-01	3.775E-01	5.899E-01	5.153E-02	-0.241
		135.34		5.196E-01	2.008E+00	3.245E+00	2.791E-01	0.160
TL-202		167.43	*	-1.210E-01	5.791E-01	9.611E-01	8.195E-02	-0.126
		68.90		8.561E-02	1.110E-01	1.742E-01	1.390E-02	0.491
		70.82		2.763E-02	5.857E-02	9.831E-02	7.946E-03	0.281
		80.30		-4.632E-02	1.230E-01	1.921E-01	1.678E-02	-0.241
HG-203		439.56	*	7.941E-03	2.374E-02	3.980E-02	3.299E-03	0.200
		70.83		1.646E-01	3.483E-01	5.839E-01	7.750E-02	0.282
		72.87		-2.378E-01	2.130E-01	3.083E-01	3.987E-02	-0.771
		82.60		2.113E-01	3.939E-01	6.578E-01	9.172E-02	0.321
BI-207		279.20	*	-1.457E-03	1.814E-02	2.970E-02	2.785E-03	-0.049
		72.80		-7.988E-02	6.939E-02	1.008E-01	8.259E-03	-0.793
		74.97		-2.315E-02	4.376E-02	6.299E-02	5.251E-03	-0.367
		84.90		-1.301E-01	8.567E-02	1.120E-01	1.025E-02	-1.161
TL-207		569.67		5.948E-03	1.499E-02	2.639E-02	2.235E-03	0.225
		1063.62	*	9.186E-03	2.290E-02	4.008E-02	3.474E-03	0.229
		1770.23		-4.198E-01	4.217E-01	5.383E-01	4.508E-02	-0.780
		81.07		2.499E-03	8.902E-02	1.435E-01	1.263E-02	0.017
		83.78		-3.280E-02	5.539E-02	7.935E-02	7.176E-03	-0.413
		94.90		3.811E-02	1.088E-01	1.606E-01	1.444E-02	0.237
		122.32		-2.573E-01	7.921E-01	1.219E+00	1.147E-01	-0.211
		144.24		9.841E-02	3.354E-01	5.455E-01	5.222E-02	0.180
TL-208		154.21		-6.513E-04	1.788E-01	3.021E-01	2.836E-02	-0.002
		269.46		2.205E-02	9.386E-02	1.581E-01	1.473E-02	0.139
		323.87	*	1.259E-01	3.512E-01	5.931E-01	1.059E-01	0.212
		338.28		-2.357E-01	5.188E-01	8.076E-01	1.005E-01	-0.292
		445.03		1.970E-01	1.109E+00	1.828E+00	2.171E-01	0.108
		277.35		5.607E-02	1.923E-01	3.248E-01	4.127E-02	0.173
	+	510.84		1.035E-01	1.742E-01	2.541E-01	3.020E-02	0.407
		583.14	*	-7.562E-03	2.276E-02	3.659E-02	3.323E-03	-0.207



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

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PO-209	860.37			9.211E-02	1.320E-01	2.412E-01	2.311E-02	0.382
	260.50			-1.239E+00	5.069E+00	8.212E+00	7.508E-01	-0.151
	262.80			9.753E-01	1.407E+01	2.341E+01	2.141E+00	0.042
	896.60	*		-1.230E+00	3.450E+00	5.239E+00	4.744E-01	-0.235
BI-210	46.50	*		3.791E-01	2.066E+00	3.225E+00	3.044E-01	0.118
PB-210	46.50	*		3.791E-01	2.066E+00	3.225E+00	3.044E-01	0.118
PO-210	46.50	*		3.791E-01	2.066E+00	3.225E+00	2.765E-01	0.118
BI-211	72.87			-1.338E+00	1.190E+00	1.734E+00	1.422E-01	-0.771
PB-211	351.07	*		3.356E-02	1.192E-01	1.921E-01	1.747E-02	0.175
	404.84	*		-7.572E-02	4.905E-01	7.761E-01	4.859E-01	-0.098
	427.08			3.983E-02	9.157E-01	1.486E+00	9.229E-01	0.027
	831.96			8.182E-04	5.641E-01	9.263E-01	5.808E-01	0.001
BI-212	727.18	*		-1.377E-01	1.625E-01	2.310E-01	2.290E-02	-0.596
PB-212	785.46			5.738E-01	9.193E-01	1.607E+00	1.405E-01	0.357
	1620.62			-4.357E-01	7.007E-01	1.039E+00	8.944E-02	-0.419
	74.81			-9.253E-02	1.505E-01	2.143E-01	2.682E-02	-0.432
	77.11			8.939E-02	8.137E-02	1.408E-01	1.195E-02	0.635
+ PO-212	87.30			1.524E-02	1.702E-01	2.454E-01	3.367E-02	0.062
	238.63	*		2.085E-02	3.781E-02	5.300E-02	5.366E-03	0.393
	300.09			1.182E-01	3.705E-01	6.268E-01	6.777E-02	0.189
	74.81			-9.253E-02	1.505E-01	2.143E-01	2.682E-02	-0.432
+ BI-214	77.11			8.939E-02	8.137E-02	1.408E-01	1.195E-02	0.635
	87.30			1.524E-02	1.702E-01	2.454E-01	3.367E-02	0.062
	115.19			-1.169E-01	1.542E+00	2.435E+00	2.116E-01	-0.048
	238.63	*		2.085E-02	3.781E-02	5.300E-02	5.366E-03	0.393
PB-214	300.09			1.182E-01	3.705E-01	6.268E-01	6.777E-02	0.189
	609.31	*		-5.064E-02	4.384E-02	5.859E-02	5.779E-03	-0.864
	1120.29			1.171E-02	1.535E-01	2.524E-01	2.701E-02	0.046
	1764.49			2.622E-02	1.711E-01	3.251E-01	2.727E-02	0.081
PO-214	74.81			-1.594E-01	2.591E-01	3.692E-01	4.114E-02	-0.432
	77.11			1.532E-01	1.400E-01	2.414E-01	2.753E-02	0.635
	87.30			2.611E-02	2.916E-01	4.204E-01	5.108E-02	0.062
	241.98			6.006E-02	1.641E-01	2.502E-01	2.673E-02	0.240
PO-215	295.21			3.751E-03	7.120E-02	1.146E-01	1.266E-02	0.033
	351.92	*		2.015E-02	4.133E-02	6.778E-02	7.102E-03	0.297
	74.81			-1.594E-01	2.591E-01	3.692E-01	4.114E-02	-0.432
	77.11			1.532E-01	1.400E-01	2.414E-01	2.753E-02	0.635
PO-215	87.30			2.611E-02	2.916E-01	4.204E-01	5.108E-02	0.062
	241.98			6.006E-02	1.641E-01	2.502E-01	2.673E-02	0.240
	295.21			3.751E-03	7.120E-02	1.146E-01	1.266E-02	0.033
	351.92	*		2.015E-02	4.133E-02	6.778E-02	7.102E-03	0.297
PO-215	81.07			2.499E-03	8.902E-02	1.435E-01	1.263E-02	0.017
	83.78			-3.280E-02	5.539E-02	7.935E-02	7.176E-03	-0.413
	94.90			3.811E-02	1.088E-01	1.606E-01	1.444E-02	0.237
	122.32			-2.573E-01	7.921E-01	1.219E+00	1.147E-01	-0.211
PO-215	144.24			9.841E-02	3.354E-01	5.455E-01	5.222E-02	0.180
	154.21			-6.513E-04	1.788E-01	3.021E-01	2.836E-02	-0.002
	269.46			2.205E-02	9.386E-02	1.581E-01	1.473E-02	0.139
	323.87	*		1.259E-01	3.512E-01	5.931E-01	1.059E-01	0.212

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	338.28			-2.357E-01	5.188E-01	8.076E-01	1.005E-01	-0.292
	445.03			1.970E-01	1.109E+00	1.828E+00	2.171E-01	0.108
	74.81			-9.253E-02	1.505E-01	2.143E-01	2.682E-02	-0.432
	77.11			8.939E-02	8.137E-02	1.408E-01	1.195E-02	0.635
	87.30			1.524E-02	1.702E-01	2.454E-01	3.367E-02	0.062
PO-218	238.63		*	2.085E-02	3.781E-02	5.300E-02	5.366E-03	0.393
	300.09			1.182E-01	3.705E-01	6.268E-01	6.777E-02	0.189
	74.81			-1.594E-01	2.591E-01	3.692E-01	4.114E-02	-0.432
	77.11			1.532E-01	1.400E-01	2.414E-01	2.753E-02	0.635
	87.30			2.611E-02	2.916E-01	4.204E-01	5.108E-02	0.062
RN-219	241.98			6.006E-02	1.641E-01	2.502E-01	2.673E-02	0.240
	295.21			3.751E-03	7.120E-02	1.146E-01	1.266E-02	0.033
	351.92		*	2.015E-02	4.133E-02	6.778E-02	7.102E-03	0.297
	271.23			-2.587E-02	1.285E-01	2.088E-01	2.246E-02	-0.124
	401.81		*	-5.478E-02	2.085E-01	3.268E-01	4.816E-02	-0.168
RN-220	549.76		*	-1.102E+01	1.256E+01	1.853E+01	1.573E+00	-0.595
RA-223	81.07			2.499E-03	8.902E-02	1.435E-01	1.263E-02	0.017
	83.78			-3.280E-02	5.539E-02	7.935E-02	7.176E-03	-0.413
	94.90			3.811E-02	1.088E-01	1.606E-01	1.444E-02	0.237
	122.32			-2.573E-01	7.921E-01	1.219E+00	1.147E-01	-0.211
	144.24			9.841E-02	3.354E-01	5.455E-01	5.222E-02	0.180
RA-224	154.21			-6.513E-04	1.788E-01	3.021E-01	2.836E-02	-0.002
	269.46			2.205E-02	9.386E-02	1.581E-01	1.473E-02	0.139
	323.87		*	1.259E-01	3.512E-01	5.931E-01	1.059E-01	0.212
	338.28			-2.357E-01	5.188E-01	8.076E-01	1.005E-01	-0.292
	445.03			1.970E-01	1.109E+00	1.828E+00	2.171E-01	0.108
RA-226	240.98		*	6.352E-02	3.416E-01	5.091E-01	4.626E-02	0.125
AC-227	609.31		*	-5.064E-02	4.384E-02	5.859E-02	5.779E-03	-0.864
	1120.29			1.171E-02	1.535E-01	2.524E-01	2.701E-02	0.046
	1764.49			2.622E-02	1.711E-01	3.251E-01	2.727E-02	0.081
	79.80			-5.341E-01	7.082E-01	1.060E+00	2.282E-01	-0.504
	236.00			-6.046E-02	1.194E-01	1.639E-01	2.058E-02	-0.369
TH-227	256.20		*	-1.212E-01	1.899E-01	2.949E-01	4.613E-02	-0.411
	286.10			-1.277E-01	8.257E-01	1.279E+00	1.732E-01	-0.100
	299.80			-5.090E-02	7.092E-01	1.158E+00	2.052E-01	-0.044
	304.40			3.595E-01	9.721E-01	1.647E+00	3.071E-01	0.218
	334.20			7.037E-02	1.194E+00	1.963E+00	3.830E-01	0.036
AC-228	79.80			-5.341E-01	7.085E-01	1.060E+00	2.311E-01	-0.504
	94.00		+	9.846E-01	1.328E+00	1.844E+00	4.048E-01	0.534
	236.00			-6.046E-02	1.193E-01	1.639E-01	1.872E-02	-0.369
	256.20		*	-1.212E-01	1.902E-01	2.949E-01	5.401E-02	-0.411
	286.10			-1.277E-01	8.354E-01	1.279E+00	1.284E+00	-0.100
RA-228	299.80			-5.090E-02	7.092E-01	1.158E+00	2.052E-01	-0.044
	304.40			3.595E-01	9.721E-01	1.647E+00	3.071E-01	0.218
	334.20			7.037E-02	1.194E+00	1.963E+00	3.830E-01	0.036
	338.32			-5.413E-02	1.263E-01	1.942E-01	8.019E-02	-0.279
	911.07		*	1.057E-03	6.765E-02	1.217E-01	1.409E-02	0.009
RA-228	969.11			-7.671E-04	1.347E-01	2.271E-01	5.328E-02	-0.003
	338.32			-5.413E-02	1.263E-01	1.942E-01	8.019E-02	-0.279

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	911.07	*		1.057E-03	6.765E-02	1.217E-01	1.409E-02	0.009
	969.11			-7.671E-04	1.347E-01	2.271E-01	5.328E-02	-0.003
	74.81			-9.323E-02	1.514E-01	2.159E-01	1.813E-02	-0.432
	77.11			9.007E-02	8.198E-02	1.419E-01	1.204E-02	0.635
	87.30			1.536E-02	1.715E-01	2.473E-01	2.322E-02	0.062
TH-229	238.63	*	+	2.100E-02	3.810E-02	5.340E-02	5.407E-03	0.393
	300.09			1.191E-01	3.797E-01	6.315E-01	3.748E-01	0.189
	85.43			-6.632E-02	8.120E-02	1.138E-01	1.047E-02	-0.583
	88.47			5.521E-02	4.582E-02	7.327E-02	6.904E-03	0.753
	100.00			7.399E-02	8.020E-02	1.374E-01	1.209E-02	0.538
TH-230	193.63	*		-9.407E-02	2.540E-01	4.144E-01	3.631E-02	-0.227
	210.97			4.210E-01	3.354E-01	6.099E-01	5.432E-02	0.690
	609.31	*		-5.064E-02	4.384E-02	5.859E-02	5.779E-03	-0.864
	1120.29			1.171E-02	1.535E-01	2.524E-01	2.701E-02	0.046
	1764.49			2.622E-02	1.711E-01	3.251E-01	2.727E-02	0.081
PA-231	283.67	*		3.904E-01	7.956E-01	1.348E+00	2.086E-01	0.290
	301.29			1.253E-01	2.819E-01	4.813E-01	6.050E-02	0.260
TH-231	81.07			2.499E-03	8.902E-02	1.435E-01	1.263E-02	0.017
	83.78			-3.280E-02	5.539E-02	7.935E-02	7.176E-03	-0.413
	94.90			3.811E-02	1.088E-01	1.606E-01	1.444E-02	0.237
	122.32			-2.573E-01	7.921E-01	1.219E+00	1.147E-01	-0.211
	144.24			9.841E-02	3.354E-01	5.455E-01	5.222E-02	0.180
U-231	154.21			-6.513E-04	1.788E-01	3.021E-01	2.836E-02	-0.002
	269.46			2.205E-02	9.386E-02	1.581E-01	1.473E-02	0.139
	323.87	*		1.259E-01	3.512E-01	5.931E-01	1.059E-01	0.212
	338.28			-2.357E-01	5.188E-01	8.076E-01	1.005E-01	-0.292
	445.03			1.970E-01	1.109E+00	1.828E+00	2.171E-01	0.108
	84.21			-5.290E-01	6.824E-01	9.599E-01	8.719E-02	-0.551
	92.29		+	2.802E-01	3.737E-01	6.074E-01	5.550E-02	0.461
	95.87	*		-1.332E-01	1.488E-01	1.892E-01	1.693E-02	-0.704
	108.00			-2.429E-02	2.683E-01	4.243E-01	3.678E-02	-0.057
	338.32			-5.413E-02	1.244E-01	1.942E-01	1.709E-02	-0.279
TH-232	911.07	*		1.057E-03	6.765E-02	1.217E-01	1.409E-02	0.009
	969.11			-7.671E-04	1.347E-01	2.271E-01	5.328E-02	-0.003
	75.28			-4.871E-01	1.287E+00	1.881E+00	2.859E-01	-0.259
	86.59			2.028E-01	6.558E-01	1.026E+00	2.775E-01	0.198
	300.12			6.381E-02	1.918E-01	3.247E-01	4.918E-02	0.197
PA-233	311.98	*		4.858E-03	3.074E-02	5.125E-02	4.744E-03	0.095
	340.50			1.387E-01	2.880E-01	4.907E-01	1.172E-01	0.283
	398.62			-4.547E-02	1.012E+00	1.629E+00	4.312E-01	-0.028
	415.76			3.998E-01	8.790E-01	1.488E+00	3.180E-01	0.269
	63.00		+	7.958E-01	1.385E+00	1.346E+00	2.020E-01	0.591
PA-234	94.67			1.096E-01	7.416E-02	1.293E-01	1.638E-02	0.848
	98.44			1.258E-02	4.730E-02	6.788E-02	3.789E-02	0.185
	99.86			2.155E-01	2.054E-01	3.547E-01	3.122E-02	0.607
	111.00			-2.001E-02	8.295E-02	1.292E-01	1.566E-02	-0.155
	131.20			-3.452E-02	4.859E-02	7.188E-02	6.213E-03	-0.480
	152.70			4.014E-02	1.396E-01	2.406E-01	4.089E-02	0.167
	186.00			-9.859E-02	7.592E-01	1.274E+00	3.980E-01	-0.077

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	226.40			-4.819E-03	1.989E-01	3.305E-01	4.449E-02	-0.015
	227.20			-3.054E-02	2.182E-01	3.593E-01	3.240E-02	-0.085
	248.90			-2.435E-01	4.515E-01	6.738E-01	1.523E-01	-0.361
	293.70			1.310E-01	3.216E-01	5.471E-01	9.602E-02	0.239
	369.80			-1.143E-01	4.339E-01	6.832E-01	1.482E-01	-0.167
	568.70			-2.789E-02	5.123E-01	8.547E-01	7.242E-02	-0.033
	569.50			5.900E-02	1.340E-01	2.368E-01	2.006E-02	0.249
	574.00			-1.186E-01	6.919E-01	1.134E+00	9.602E-02	-0.105
	699.00			-4.103E-02	3.710E-01	6.065E-01	1.151E-01	-0.068
	706.10			2.878E-02	5.910E-01	9.858E-01	4.392E-01	0.029
	733.00			6.230E-02	1.860E-01	3.218E-01	7.133E-02	0.194
	742.81			3.027E-01	6.682E-01	1.130E+00	7.597E-01	0.268
	796.30			5.212E-03	4.122E-01	6.799E-01	1.843E-01	0.008
	805.60			-2.017E-01	5.254E-01	8.060E-01	2.475E-01	-0.250
	819.60			-3.586E-01	5.850E-01	8.221E-01	3.131E-01	-0.436
	826.30			-2.084E-01	4.173E-01	6.081E-01	2.724E-01	-0.343
	831.60			6.226E-02	2.945E-01	4.997E-01	1.495E-01	0.125
	876.40			-1.786E-01	5.101E-01	7.327E-01	7.534E-01	-0.244
	880.51			4.027E-02	1.490E-01	2.542E-01	2.293E-02	0.158
	883.24			-1.158E-01	1.630E-01	1.982E-01	1.333E-01	-0.584
	899.00			1.868E-01	3.871E-01	6.745E-01	2.955E-01	0.277
	925.00			-5.709E-01	4.418E-01	4.359E-01	3.938E-02	-1.310
	926.50			1.604E-02	6.272E-02	1.084E-01	2.756E-02	0.148
	946.00	*		-4.375E-02	1.639E-01	2.543E-01	4.818E-02	-0.172
	949.00			1.368E-01	2.134E-01	3.865E-01	3.478E-02	0.354
	980.50			-3.397E-02	3.502E-01	5.579E-01	4.985E-02	-0.061
	1394.10			1.335E-01	5.995E-01	1.035E+00	6.734E-01	0.129
PA-234M	766.42			3.665E+00	5.109E+00	8.809E+00	4.470E+00	0.416
	1001.03	*		-1.321E+00	2.567E+00	3.904E+00	3.979E-01	-0.338
U-234	609.31	*		-5.064E-02	4.384E-02	5.859E-02	5.779E-03	-0.864
	1120.29			1.171E-02	1.535E-01	2.524E-01	2.701E-02	0.046
	1764.49			2.622E-02	1.711E-01	3.251E-01	2.727E-02	0.081
U-235	89.95			2.103E-02	5.176E-01	7.415E-01	2.303E-01	0.028
+	93.35			3.063E-01	4.166E-01	6.212E-01	1.750E-01	0.493
	105.00			-1.498E-01	4.732E-01	7.309E-01	2.183E-01	-0.205
	143.76	*		1.008E-01	1.044E-01	1.748E-01	3.053E-02	0.577
	163.35			1.341E-02	2.511E-01	4.080E-01	7.764E-02	0.033
	185.71			-9.550E-03	2.836E-02	4.712E-02	4.095E-03	-0.203
	205.31			5.673E-02	2.159E-01	3.683E-01	7.067E-02	0.154
NP-236	94.67			8.422E-02	5.585E-02	9.829E-02	8.849E-03	0.857
	98.44			9.495E-03	3.537E-02	5.131E-02	4.538E-03	0.185
	111.00			-1.513E-02	6.273E-02	9.776E-02	8.471E-03	-0.155
	160.31	*		-2.010E-02	3.893E-02	6.339E-02	5.397E-03	-0.317
NP-237	86.50	*		2.202E-02	9.838E-02	1.531E-01	3.466E-02	0.144
	95.87			-4.081E-01	4.654E-01	5.795E-01	1.434E-01	-0.704
NP-239	99.55			5.517E-02	7.616E-02	1.210E-01	1.066E-02	0.456
	117.00	*		-1.567E-02	8.604E-02	1.345E-01	1.171E-02	-0.117
	209.75			2.076E-01	3.318E-01	5.805E-01	5.164E-02	0.358
	228.18			-3.029E-02	1.142E-01	1.861E-01	1.679E-02	-0.163

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	277.60			1.954E-02	9.346E-02	1.568E-01	1.435E-02	0.125
	334.30			2.702E-02	6.752E-01	1.108E+00	9.800E-02	0.024
AM-241	59.54		*	4.125E-02	7.468E-02	1.146E-01	9.448E-03	0.360
AM-243	74.67		*	-1.722E-02	2.454E-02	3.474E-02	2.889E-03	-0.496
	86.72			1.435E+00	3.693E+00	5.832E+00	5.442E-01	0.246
	117.66			1.681E-01	1.760E+00	2.818E+00	2.457E-01	0.060
	142.18			1.319E+01	7.703E+00	1.437E+01	1.229E+00	0.917
CM-243	99.55			5.674E-02	7.833E-02	1.245E-01	1.097E-02	0.456
	103.76		*	1.622E-02	4.165E-02	6.865E-02	5.981E-03	0.236
	117.00			-1.612E-02	8.847E-02	1.383E-01	1.204E-02	-0.117
	209.75			2.045E-01	3.269E-01	5.720E-01	5.089E-02	0.358
	228.18			-3.059E-02	1.153E-01	1.880E-01	1.696E-02	-0.163
	277.60			1.969E-02	9.418E-02	1.580E-01	1.446E-02	0.125
AM-246	798.80			-6.488E-02	7.030E-02	9.748E-02	8.564E-03	-0.666
	1036.00			3.789E-02	1.216E-01	2.107E-01	1.848E-02	0.180
	1062.04			-2.784E-02	1.001E-01	1.514E-01	1.314E-02	-0.184
	1078.86		*	7.556E-03	7.021E-02	1.156E-01	9.948E-03	0.065
CM-247	278.00			1.323E-01	3.785E-01	6.427E-01	5.878E-02	0.206
	287.40			-1.480E-01	6.018E-01	9.673E-01	8.831E-02	-0.153
	402.60		*	7.892E-03	1.783E-02	3.039E-02	2.464E-03	0.260
CF-249	252.85			-3.693E-02	4.226E-01	6.947E-01	6.341E-02	-0.053
	333.44			1.936E-02	8.809E-02	1.471E-01	1.302E-02	0.132
	387.95		*	1.401E-02	2.092E-02	3.636E-02	2.949E-03	0.385
CF-251	176.60		*	-2.017E-02	6.019E-02	9.876E-02	8.500E-03	-0.204
	227.00			6.891E-03	1.908E-01	3.185E-01	2.871E-02	0.022
	285.00			-3.997E-01	9.541E-01	1.441E+00	1.316E-01	-0.277

# 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]G1202037546      *
* Acquisition date   : 18-FEB-2010 13:52:09 Detector SN# :                  *
* Detector ID        : GAM01 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 02:00:00.50 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 11-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202037546 Analyst initials: MXR1                 *
* Batch Number      : 950786 Sample Quantity : 1.7126E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME  : 12-JAN-2010 15:15:52 MS Isotope :                  *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	1.934E-02	2.645E-01	2.677E-01	0.000E+00
TH-234	6.827E-01	1.166E+00	9.441E-01	0.000E+00
U-238	6.827E-01	1.166E+00	9.441E-01	0.000E+00
ANH-511	2.236E-02	3.683E-02	2.366E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	1.058E-01	1.477E-01	2.769E-01	0.000E+00 NOT IDENT.
NA-22	-1.237E-02	1.638E-02	2.386E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	6.782E+01	0.000E+00	0.000E+00 SHORT HLIF
AL-26	1.929E-03	2.089E-02	3.571E-02	0.000E+00 NOT IDENT.
TI-44	3.086E-03	1.447E-02	2.686E-02	0.000E+00 NOT IDENT.
SC-46	-1.103E-03	1.648E-02	2.797E-02	0.000E+00 NOT IDENT.
V-48	7.200E-04	2.077E-02	3.563E-02	0.000E+00 NOT IDENT.
CR-51	2.153E-02	1.480E-01	2.676E-01	0.000E+00 NOT IDENT.
MN-52	-3.374E-02	3.913E-02	4.796E-02	0.000E+00 NOT IDENT.
MN-54	-2.344E-02	1.934E-02	2.561E-02	0.000E+00 NOT IDENT.
CO-56	-6.258E-04	1.738E-02	2.985E-02	0.000E+00 NOT IDENT.
CO-57	-3.295E-03	1.112E-02	1.925E-02	0.000E+00 NOT IDENT.
CO-58	1.261E-02	1.604E-02	3.142E-02	0.000E+00 NOT IDENT.
FE-59	1.753E-02	3.842E-02	7.010E-02	0.000E+00 NOT IDENT.
CO-60	-2.084E-03	1.769E-02	2.974E-02	0.000E+00 NOT IDENT.
ZN-65	-4.942E-02	4.379E-02	5.675E-02	0.000E+00 NOT IDENT.
GE-68	1.497E-01	6.062E-01	1.068E+00	0.000E+00 NOT IDENT.
AS-73	-1.154E-02	3.841E-01	7.167E-01	0.000E+00 NOT IDENT.
AS-74	-2.255E-02	3.341E-02	5.431E-02	0.000E+00 NOT IDENT.
SE-75	-1.795E-03	2.091E-02	3.756E-02	0.000E+00 NOT IDENT.
BR-77	-5.219E-01	5.614E-01	8.143E-01	0.000E+00 FAIL ABUN
SR-82	-5.606E-02	1.499E-01	2.457E-01	0.000E+00 NOT IDENT.
RB-83	-3.339E-02	3.097E-02	4.329E-02	0.000E+00 NOT IDENT.

RB-84	4.083E-03	3.030E-02	5.330E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	4.951E+00	9.108E+00	0.000E+00	NOT IDENT.
SR-85	0.000E+00	2.345E-02	4.314E-02	0.000E+00	NOT IDENT.
RB-86	-1.096E-01	3.055E-01	4.804E-01	0.000E+00	NOT IDENT.
Y-88	9.661E-03	1.945E-02	3.687E-02	0.000E+00	NOT IDENT.
ZR-88	-3.346E-03	1.466E-02	2.501E-02	0.000E+00	NOT IDENT.
Y-91	6.086E-01	6.062E+00	1.080E+01	0.000E+00	NOT IDENT.
NB-94	1.445E-02	1.759E-02	3.394E-02	0.000E+00	NOT IDENT.
NB-95	-2.761E-03	1.684E-02	2.861E-02	0.000E+00	NOT IDENT.
NB-95M	-1.681E-02	5.802E-02	9.009E-02	0.000E+00	NOT IDENT.
ZR-95	-1.107E-02	2.979E-02	4.884E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.523E+01	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.286E+02	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.930E-01	7.763E-01	1.463E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.543E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-4.852E-03	1.670E-02	2.920E-02	0.000E+00	NOT IDENT.
RH-102	3.976E-03	1.512E-02	2.692E-02	0.000E+00	NOT IDENT.
RU-103	1.227E-02	1.821E-02	3.386E-02	0.000E+00	NOT IDENT.
RH-106	-3.354E-02	1.571E-01	2.717E-01	0.000E+00	FAIL ABUN
RU-106	-3.354E-02	1.571E-01	2.717E-01	0.000E+00	FAIL ABUN
AG-108M	3.835E-03	1.601E-02	2.865E-02	0.000E+00	NOT IDENT.
CD-109	3.036E-01	3.408E-01	5.990E-01	0.000E+00	NOT IDENT.
AG-110M	-1.060E-02	1.547E-02	2.447E-02	0.000E+00	NOT IDENT.
IN-111	3.400E-05	7.633E-02	1.389E-01	0.000E+00	NOT IDENT.
IN-113M	1.408E-02	2.192E-02	4.101E-02	0.000E+00	NOT IDENT.
SN-113	1.408E-02	2.192E-02	4.101E-02	0.000E+00	NOT IDENT.
IN-114M	-7.177E-02	8.334E-02	1.453E-01	0.000E+00	NOT IDENT.
CD-115	9.675E-03	5.116E-01	9.256E-01	0.000E+00	NOT IDENT.
SN-117M	-3.809E-03	1.710E-02	3.162E-02	0.000E+00	NOT IDENT.
SB-122	5.131E-02	1.461E-01	2.729E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.864E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	2.110E-03	1.240E-02	2.355E-02	0.000E+00	NOT IDENT.
I-124	-6.345E-02	1.027E-01	1.700E-01	0.000E+00	NOT IDENT.
SB-124	5.849E-02	3.977E-02	9.023E-02	0.000E+00	NOT IDENT.
SB-125	-3.426E-03	3.936E-02	6.761E-02	0.000E+00	NOT IDENT.
TE-125M	2.614E+00	3.609E+00	6.836E+00	0.000E+00	NOT IDENT.
I-126	-2.767E-02	5.197E-02	8.408E-02	0.000E+00	NOT IDENT.
SB-126	5.843E-03	4.828E-02	8.532E-02	0.000E+00	NOT IDENT.
SN-126	2.324E-02	3.418E-02	5.901E-02	0.000E+00	FAIL ABUN
SB-127	1.503E-01	1.820E-01	3.532E-01	0.000E+00	NOT IDENT.
XE-127	-3.296E-03	1.768E-02	3.215E-02	0.000E+00	NOT IDENT.
I-131	5.428E-03	2.743E-02	4.951E-02	0.000E+00	NOT IDENT.
TE-132	-1.784E-02	6.890E-02	1.236E-01	0.000E+00	NOT IDENT.
BA-133	-3.821E-03	2.145E-02	3.717E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	6.692E+00	0.000E+00	0.000E+00	SHORT HLIF
CS-134	5.241E-03	2.087E-02	3.772E-02	0.000E+00	NOT IDENT.
CS-135	8.790E-03	7.815E-02	1.426E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.318E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.661E-02	3.319E-02	4.606E-02	0.000E+00	NOT IDENT.
BA-137M	1.401E-02	1.514E-02	3.027E-02	0.000E+00	NOT IDENT.
CS-137	1.481E-02	1.601E-02	3.200E-02	0.000E+00	NOT IDENT.
CE-139	1.832E-04	1.348E-02	2.526E-02	0.000E+00	NOT IDENT.
BA-140	2.719E-02	8.630E-02	1.531E-01	0.000E+00	NOT IDENT.
LA-140	1.119E-02	2.766E-02	5.174E-02	0.000E+00	NOT IDENT.
CE-141	4.328E-03	2.211E-02	4.233E-02	0.000E+00	NOT IDENT.
CE-143	5.433E-01	1.346E+00	2.497E+00	0.000E+00	NOT IDENT.
CE-144	-2.236E-02	8.761E-02	1.512E-01	0.000E+00	NOT IDENT.
PM-144	-2.998E-03	1.659E-02	2.848E-02	0.000E+00	NOT IDENT.
PR-144	-2.023E-01	1.119E+00	1.922E+00	0.000E+00	NOT IDENT.
PM-146	1.336E-02	2.311E-02	4.262E-02	0.000E+00	NOT IDENT.
ND-147	-7.224E-02	1.629E-01	2.767E-01	0.000E+00	NOT IDENT.
PM-149	-3.376E-01	4.543E+00	7.746E+00	0.000E+00	NOT IDENT.
EU-152	6.314E-03	4.904E-02	8.802E-02	0.000E+00	NOT IDENT.
GD-153	-9.652E-03	3.802E-02	5.884E-02	0.000E+00	NOT IDENT.
EU-154	-3.365E-02	4.623E-02	6.791E-02	0.000E+00	NOT IDENT.
EU-155	-1.631E-02	4.656E-02	8.109E-02	0.000E+00	NOT IDENT.
TB-160	5.022E-02	6.706E-02	1.285E-01	0.000E+00	NOT IDENT.
HO-166M	1.425E-02	2.870E-02	5.391E-02	0.000E+00	NOT IDENT.
TM-171	1.957E+00	1.176E+01	1.973E+01	0.000E+00	NOT IDENT.
LU-176	7.307E-03	1.237E-02	2.331E-02	0.000E+00	NOT IDENT.
LU-177	-1.376E-01	2.060E-01	3.581E-01	0.000E+00	NOT IDENT.
LU-177M	-6.718E-02	8.950E-02	1.422E-01	0.000E+00	NOT IDENT.
HF-181	-1.494E-02	1.810E-02	2.724E-02	0.000E+00	FAIL ABUN
W-181	1.964E-01	3.341E-01	2.902E-01	0.000E+00	FAIL ABUN
TA-182	-2.346E-02	6.141E-02	9.739E-02	0.000E+00	NOT IDENT.
RE-183	2.714E-02	5.188E-02	9.624E-02	0.000E+00	NOT IDENT.
RE-184	-9.542E-03	1.070E-01	1.929E-01	0.000E+00	NOT IDENT.
OS-185	-1.087E-02	2.034E-02	3.340E-02	0.000E+00	NOT IDENT.

RE-188	2.644E-03	6.898E-02	1.301E-01	0.000E+00	NOT IDENT.
W-188	-2.725E-01	3.154E+00	5.619E+00	0.000E+00	FAIL ABUN
IR-192	1.618E-03	1.485E-02	2.679E-02	0.000E+00	NOT IDENT.
AU-195	3.010E-02	1.107E-01	1.812E-01	0.000E+00	FAIL ABUN
TL-200	-1.200E+00	1.818E+00	2.947E+00	0.000E+00	NOT IDENT.
TL-201	-1.210E-01	5.675E-01	1.046E+00	0.000E+00	NOT IDENT.
TL-202	7.941E-03	2.326E-02	4.200E-02	0.000E+00	NOT IDENT.
HG-203	-1.457E-03	1.778E-02	3.181E-02	0.000E+00	NOT IDENT.
BI-207	9.186E-03	2.244E-02	4.107E-02	0.000E+00	NOT IDENT.
TL-207	1.259E-01	3.441E-01	6.322E-01	0.000E+00	NOT IDENT.
TL-208	-7.562E-03	2.231E-02	3.826E-02	0.000E+00	FAIL ABUN
PO-209	-1.230E+00	3.381E+00	5.400E+00	0.000E+00	NOT IDENT.
BI-210	3.791E-01	2.025E+00	3.645E+00	0.000E+00	NOT IDENT.
PB-210	3.791E-01	2.025E+00	3.645E+00	0.000E+00	NOT IDENT.
PO-210	3.791E-01	2.025E+00	3.645E+00	0.000E+00	NOT IDENT.
BI-211	3.356E-02	1.168E-01	2.042E-01	0.000E+00	NOT IDENT.
PB-211	-7.572E-02	4.807E-01	8.214E-01	0.000E+00	NOT IDENT.
BI-212	-1.377E-01	1.593E-01	2.398E-01	0.000E+00	NOT IDENT.
PB-212	2.085E-02	3.706E-02	5.704E-02	0.000E+00	FAIL ABUN
PO-212	2.085E-02	3.706E-02	5.704E-02	0.000E+00	FAIL ABUN
BI-214	-5.064E-02	4.296E-02	6.118E-02	0.000E+00	NOT IDENT.
PB-214	2.015E-02	4.050E-02	7.205E-02	0.000E+00	NOT IDENT.
PO-214	2.015E-02	4.050E-02	7.205E-02	0.000E+00	NOT IDENT.
PO-215	1.259E-01	3.441E-01	6.322E-01	0.000E+00	NOT IDENT.
PO-216	2.085E-02	3.706E-02	5.704E-02	0.000E+00	FAIL ABUN
PO-218	2.015E-02	4.050E-02	7.205E-02	0.000E+00	NOT IDENT.
RN-219	-5.478E-02	2.044E-01	3.459E-01	0.000E+00	NOT IDENT.
RN-220	-1.102E+01	1.231E+01	1.942E+01	0.000E+00	NOT IDENT.
RA-223	1.259E-01	3.441E-01	6.322E-01	0.000E+00	NOT IDENT.
RA-224	6.352E-02	3.347E-01	5.477E-01	0.000E+00	NOT IDENT.
RA-226	-5.064E-02	4.296E-02	6.118E-02	0.000E+00	NOT IDENT.
AC-227	-1.212E-01	1.861E-01	3.167E-01	0.000E+00	NOT IDENT.
TH-227	-1.212E-01	1.864E-01	3.167E-01	0.000E+00	FAIL ABUN
AC-228	1.057E-03	6.629E-02	1.253E-01	0.000E+00	NOT IDENT.
RA-228	1.057E-03	6.629E-02	1.253E-01	0.000E+00	NOT IDENT.
TH-228	2.100E-02	3.734E-02	5.747E-02	0.000E+00	FAIL ABUN
TH-229	-9.407E-02	2.490E-01	4.489E-01	0.000E+00	NOT IDENT.
TH-230	-5.064E-02	4.296E-02	6.118E-02	0.000E+00	NOT IDENT.
PA-231	3.904E-01	7.797E-01	1.442E+00	0.000E+00	NOT IDENT.
TH-231	1.259E-01	3.441E-01	6.322E-01	0.000E+00	NOT IDENT.
U-231	-1.332E-01	1.459E-01	2.094E-01	0.000E+00	FAIL ABUN
TH-232	1.057E-03	6.629E-02	1.253E-01	0.000E+00	NOT IDENT.
PA-233	4.858E-03	3.013E-02	5.470E-02	0.000E+00	NOT IDENT.
PA-234	-4.375E-02	1.606E-01	2.616E-01	0.000E+00	FAIL ABUN
PA-234M	-1.321E+00	2.516E+00	4.009E+00	0.000E+00	NOT IDENT.
U-234	-5.064E-02	4.296E-02	6.118E-02	0.000E+00	NOT IDENT.
U-235	1.008E-01	1.023E-01	1.910E-01	0.000E+00	FAIL ABUN
NP-236	-2.010E-02	3.815E-02	6.907E-02	0.000E+00	NOT IDENT.
NP-237	2.202E-02	9.642E-02	1.699E-01	0.000E+00	NOT IDENT.
NP-239	-1.567E-02	8.432E-02	1.479E-01	0.000E+00	NOT IDENT.
AM-241	4.125E-02	7.319E-02	1.286E-01	0.000E+00	NOT IDENT.
AM-243	-1.722E-02	2.405E-02	3.873E-02	0.000E+00	NOT IDENT.
CM-243	1.622E-02	4.082E-02	7.579E-02	0.000E+00	NOT IDENT.
AM-246	7.556E-03	6.880E-02	1.184E-01	0.000E+00	NOT IDENT.
CM-247	7.892E-03	1.747E-02	3.216E-02	0.000E+00	NOT IDENT.
CF-249	1.401E-02	2.051E-02	3.853E-02	0.000E+00	NOT IDENT.
CF-251	-2.017E-02	5.899E-02	1.073E-01	0.000E+00	NOT IDENT.



```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037546.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 13:52:09
Sample ID          : G1202037546 Sample quantity : 1.71260E+02 GRAM
Detector name      : GAM01 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.50 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 5.00000
Batch ID          : 950786 Detector SN# :
Matrix Spike ID   : LCS ID : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1	10.67*	9.456E-01	1.934E-02	1.934E-02	1395.37
TH-234	63.29	34	3.80*	2.850E+00	6.827E-01	6.827E-01	174.33
	92.38	35	5.41	5.506E+00	2.548E-01	2.548E-01	134.32
U-238	63.29	34	3.80*	2.850E+00	6.827E-01	6.827E-01	174.33
	92.38	35	5.41	5.506E+00	2.548E-01	2.548E-01	133.37
ANH-511	511.00	24	100.00*	2.392E+00	2.236E-02	2.236E-02	168.10

Flag: "\*" = Keyline

Total number of lines in spectrum 5  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 5 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	1.934E-02	1.934E-02	26.99E-02	1395.37	
TH-234	4.47E+09Y	1.00	6.827E-01	6.827E-01	11.90E-01	174.33	
U-238	4.47E+09Y	1.00	6.827E-01	6.827E-01	11.90E-01	174.33	
ANH-511	1.00E+09Y	1.00	2.236E-02	2.236E-02	3.758E-02	168.10	
Total Activity :			1.407E+00	1.407E+00			

Grand Total Activity : 1.407E+00 1.407E+00

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

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

Unidentified Energy Lines  
Sample ID : G1202037546

Page : 3  
Acquisition date : 18-FEB-2010 13:52:09

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	239.03	18	55	1.42	478.60	474	9	2.56E-03	****	4.34E+00	T

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037546.CNF;1
* Acquisition date   : 18-FEB-2010 13:52:09   Detector SN#      :
* Detector ID        : GAM01                  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 02:00:00.50          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 11-FEB-2010 00:00:00   Nuclide Library  : SOLID
* Sample ID          : G1202037546           Analyst initials: MXR1
* Batch Number       : 950786                Sample Quantity  : 1.71260E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 12-JAN-2010 15:15:52.7MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A                LCS Isotope      :
*****

```

## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	1.934E-02	2.699E-01	2.641E-01	2.348E-02	0.073
TH-234	6.827E-01	1.190E+00	8.429E-01	1.481E-01	0.810
U-238	6.827E-01	1.190E+00	8.429E-01	1.481E-01	0.810
ANH-511	2.236E-02	3.758E-02	2.252E-02	1.909E-03	0.993

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.058E-01		1.507E-01	2.631E-01	2.393E-02	0.402
NA-22	-1.237E-02		1.671E-02	2.343E-02	1.967E-03	-0.528
NA-24	9.748E-07		3.460E-05	Half-Life too short		
AL-26	1.929E-03		2.132E-02	3.551E-02	2.942E-03	0.054
TI-44	3.086E-03		1.476E-02	2.413E-02	2.071E-03	0.128
SC-46	-1.103E-03		1.681E-02	2.713E-02	2.453E-03	-0.041
V-48	7.200E-04		2.120E-02	3.468E-02	3.096E-03	0.021
CR-51	2.153E-02		1.510E-01	2.510E-01	2.361E-02	0.086

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MN-52	-3.374E-02		3.993E-02	4.729E-02	4.083E-03	-0.713
MN-54	-2.344E-02		1.974E-02	2.478E-02	2.206E-03	-0.946
CO-56	-6.258E-04		1.773E-02	2.890E-02	2.582E-03	-0.022
CO-57	-3.295E-03		1.134E-02	1.752E-02	1.542E-03	-0.188
CO-58	1.261E-02		1.637E-02	3.038E-02	2.687E-03	0.415
FE-59	1.753E-02		3.920E-02	6.849E-02	6.313E-03	0.256
CO-60	-2.084E-03		1.805E-02	2.925E-02	2.493E-03	-0.071
ZN-65	-4.942E-02		4.468E-02	5.547E-02	4.681E-03	-0.891
GE-68	1.497E-01		6.186E-01	1.043E+00	8.981E-02	0.144
AS-73	-1.154E-02		3.920E-01	6.368E-01	5.154E-02	-0.018
AS-74	-2.255E-02		3.409E-02	5.197E-02	4.379E-03	-0.434
SE-75	-1.795E-03		2.134E-02	3.501E-02	3.216E-03	-0.051
BR-77	-5.219E-01		5.729E-01	7.758E-01	6.582E-02	-0.673
SR-82	-5.606E-02		1.529E-01	2.372E-01	2.065E-02	-0.236
RB-83	-3.339E-02		3.160E-02	4.125E-02	3.499E-03	-0.810
RB-84	4.083E-03		3.092E-02	5.168E-02	4.663E-03	0.079
KR-85	9.152E+00		5.052E+00	8.673E+00	7.354E-01	1.055
SR-85	4.335E-02		2.393E-02	4.108E-02	3.483E-03	1.055
RB-86	-1.096E-01		3.118E-01	4.690E-01	4.040E-02	-0.234
Y-88	9.661E-03		1.985E-02	3.668E-02	3.017E-03	0.263
ZR-88	-3.346E-03		1.495E-02	2.361E-02	1.901E-03	-0.142
Y-91	6.086E-01		6.186E+00	1.058E+01	8.669E-01	0.058
NB-94	1.445E-02		1.794E-02	3.265E-02	2.741E-03	0.443
NB-95	-2.761E-03		1.719E-02	2.761E-02	2.393E-03	-0.100
NB-95M	-1.681E-02		5.920E-02	8.367E-02	8.582E-03	-0.201
ZR-95	-1.107E-02		3.040E-02	4.711E-02	4.476E-03	-0.235
NB-97	-9.682E-06		1.287E-05	Half-Life	too short	
ZR-97	3.612E-04		3.207E-04	Half-Life	too short	
MO-99	3.930E-01		7.922E-01	1.410E+00	2.136E-01	0.279
TC-99M	-2.055E+01		7.873E+00	Half-Life	too short	
RH-101	-4.852E-03		1.704E-02	2.697E-02	2.373E-03	-0.180
RH-102	3.976E-03		1.543E-02	2.557E-02	2.150E-03	0.156
RU-103	1.227E-02		1.858E-02	3.221E-02	4.529E-03	0.381
RH-106	-3.354E-02		1.603E-01	2.604E-01	3.433E-02	-0.129
RU-106	-3.354E-02		1.603E-01	2.604E-01	2.175E-02	-0.129
AG-108M	3.835E-03		1.634E-02	2.714E-02	2.340E-03	0.141
CD-109	3.036E-01		3.477E-01	5.399E-01	5.109E-02	0.562
AG-110M	-1.060E-02		1.578E-02	2.349E-02	1.992E-03	-0.451
IN-111	3.400E-05		7.788E-02	1.292E-01	1.176E-02	0.000
IN-113M	1.408E-02		2.237E-02	3.871E-02	3.225E-03	0.364
SN-113	1.408E-02		2.237E-02	3.871E-02	3.225E-03	0.364
IN-114M	-7.177E-02		8.504E-02	1.341E-01	1.171E-02	-0.535
CD-115	9.675E-03		5.221E-01	8.822E-01	7.489E-02	0.011
SN-117M	-3.809E-03		1.745E-02	2.901E-02	2.470E-03	-0.131
SB-122	5.131E-02		1.491E-01	2.606E-01	2.210E-02	0.197
I-123	3.171E-05		9.510E-05	Half-Life	too short	
TE-123M	2.110E-03		1.266E-02	2.161E-02	1.851E-03	0.098
I-124	-6.345E-02		1.048E-01	1.628E-01	1.369E-02	-0.390

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	5.849E-02		4.058E-02	8.950E-02	7.934E-03	0.653
SB-125	-3.426E-03		4.016E-02	6.400E-02	5.385E-03	-0.054
TE-125M	2.614E+00		3.683E+00	6.202E+00	6.419E-01	0.421
I-126	-2.767E-02		5.303E-02	8.076E-02	6.634E-03	-0.343
SB-126	5.843E-03		4.926E-02	8.216E-02	6.964E-03	0.071
SN-126	2.324E-02		3.487E-02	5.318E-02	5.009E-03	0.437
SB-127	1.503E-01		1.858E-01	3.396E-01	3.164E-02	0.443
XE-127	-3.296E-03		1.804E-02	2.973E-02	2.628E-03	-0.111
I-131	5.428E-03		2.799E-02	4.662E-02	4.159E-03	0.116
TE-132	-1.784E-02		7.031E-02	1.146E-01	1.706E-02	-0.156
BA-133	-3.821E-03		2.188E-02	3.497E-02	4.612E-03	-0.109
I-133	-8.993E-07		3.414E-06	Half-Life	too short	
CS-134	5.241E-03		2.130E-02	3.645E-02	3.221E-03	0.144
CS-135	8.790E-03		7.974E-02	1.330E-01	1.386E-02	0.066
I-135	1.293E+01		6.722E+00	Half-Life	too short	
CS-136	-2.661E-02		3.386E-02	4.493E-02	4.082E-03	-0.592
BA-137M	1.401E-02		1.545E-02	2.907E-02	2.381E-03	0.482
CS-137	1.481E-02		1.633E-02	3.073E-02	2.522E-03	0.482
CE-139	1.832E-04		1.376E-02	2.321E-02	1.977E-03	0.008
BA-140	2.719E-02		8.806E-02	1.460E-01	4.832E-02	0.186
LA-140	1.119E-02		2.822E-02	5.122E-02	4.419E-03	0.219
CE-141	4.328E-03		2.257E-02	3.874E-02	3.369E-03	0.112
CE-143	5.433E-01		1.374E+00	2.335E+00	5.050E-01	0.233
CE-144	-2.236E-02		8.940E-02	1.380E-01	2.148E-02	-0.162
PM-144	-2.998E-03		1.692E-02	2.739E-02	2.292E-03	-0.109
PR-144	-2.023E-01		1.142E+00	1.849E+00	1.547E-01	-0.109
PM-146	1.336E-02		2.359E-02	4.043E-02	4.246E-03	0.330
ND-147	-7.224E-02		1.663E-01	2.638E-01	3.923E-02	-0.274
PM-149	-3.376E-01		4.636E+00	7.238E+00	1.145E+00	-0.047
EU-152	6.314E-03		5.004E-02	8.274E-02	7.650E-03	0.076
GD-153	-9.652E-03		3.880E-02	5.320E-02	4.725E-03	-0.181
EU-154	-3.365E-02		4.718E-02	6.669E-02	7.426E-03	-0.505
EU-155	-1.631E-02		4.751E-02	7.349E-02	6.464E-03	-0.222
TB-160	5.022E-02		6.842E-02	1.246E-01	1.123E-02	0.403
HO-166M	1.425E-02		2.929E-02	5.189E-02	4.378E-03	0.275
TM-171	1.957E+00		1.200E+01	1.764E+01	1.390E+00	0.111
LU-176	7.307E-03		1.262E-02	2.183E-02	1.976E-03	0.335
LU-177	-1.376E-01		2.102E-01	3.313E-01	2.944E-02	-0.415
LU-177M	-6.718E-02		9.133E-02	1.344E-01	1.098E-02	-0.500
HF-181	-1.494E-02		1.847E-02	2.589E-02	2.181E-03	-0.577
W-181	1.964E-01	+	3.410E-01	2.593E-01	2.024E-02	0.757
TA-182	-2.346E-02		6.266E-02	9.550E-02	7.872E-03	-0.246
RE-183	2.714E-02		5.294E-02	8.836E-02	7.522E-03	0.307
RE-184	-9.542E-03		1.092E-01	1.795E-01	1.639E-02	-0.053
OS-185	-1.087E-02		2.075E-02	3.204E-02	2.647E-03	-0.339
RE-188	2.644E-03		7.039E-02	1.193E-01	1.016E-02	0.022
W-188	-2.725E-01		3.218E+00	5.253E+00	4.791E-01	-0.052
IR-192	1.618E-03		1.515E-02	2.512E-02	2.263E-03	0.064

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AU-195	3.010E-02		1.130E-01	1.639E-01	1.447E-02	0.184
TL-200	-1.200E+00		1.855E+00	2.776E+00	2.342E-01	-0.432
TL-201	-1.210E-01		5.791E-01	9.611E-01	8.195E-02	-0.126
TL-202	7.941E-03		2.374E-02	3.980E-02	3.299E-03	0.200
HG-203	-1.457E-03		1.814E-02	2.970E-02	2.785E-03	-0.049
BI-207	9.186E-03		2.290E-02	4.008E-02	3.474E-03	0.229
TL-207	1.259E-01		3.512E-01	5.931E-01	1.059E-01	0.212
TL-208	-7.562E-03		2.276E-02	3.659E-02	3.323E-03	-0.207
PO-209	-1.230E+00		3.450E+00	5.239E+00	4.744E-01	-0.235
BI-210	3.791E-01		2.066E+00	3.225E+00	3.044E-01	0.118
PB-210	3.791E-01		2.066E+00	3.225E+00	3.044E-01	0.118
PO-210	3.791E-01		2.066E+00	3.225E+00	2.765E-01	0.118
BI-211	3.356E-02		1.192E-01	1.921E-01	1.747E-02	0.175
PB-211	-7.572E-02		4.905E-01	7.761E-01	4.859E-01	-0.098
BI-212	-1.377E-01		1.625E-01	2.310E-01	2.290E-02	-0.596
PB-212	2.085E-02	+	3.781E-02	5.300E-02	5.366E-03	0.393
PO-212	2.085E-02	+	3.781E-02	5.300E-02	5.366E-03	0.393
BI-214	-5.064E-02		4.384E-02	5.859E-02	5.779E-03	-0.864
PB-214	2.015E-02		4.133E-02	6.778E-02	7.102E-03	0.297
PO-214	2.015E-02		4.133E-02	6.778E-02	7.102E-03	0.297
PO-215	1.259E-01		3.512E-01	5.931E-01	1.059E-01	0.212
PO-216	2.085E-02	+	3.781E-02	5.300E-02	5.366E-03	0.393
PO-218	2.015E-02		4.133E-02	6.778E-02	7.102E-03	0.297
RN-219	-5.478E-02		2.085E-01	3.268E-01	4.816E-02	-0.168
RN-220	-1.102E+01		1.256E+01	1.853E+01	1.573E+00	-0.595
RA-223	1.259E-01		3.512E-01	5.931E-01	1.059E-01	0.212
RA-224	6.352E-02		3.416E-01	5.091E-01	4.626E-02	0.125
RA-226	-5.064E-02		4.384E-02	5.859E-02	5.779E-03	-0.864
AC-227	-1.212E-01		1.899E-01	2.949E-01	4.613E-02	-0.411
TH-227	-1.212E-01		1.902E-01	2.949E-01	5.401E-02	-0.411
AC-228	1.057E-03		6.765E-02	1.217E-01	1.409E-02	0.009
RA-228	1.057E-03		6.765E-02	1.217E-01	1.409E-02	0.009
TH-228	2.100E-02	+	3.810E-02	5.340E-02	5.407E-03	0.393
TH-229	-9.407E-02		2.540E-01	4.144E-01	3.631E-02	-0.227
TH-230	-5.064E-02		4.384E-02	5.859E-02	5.779E-03	-0.864
PA-231	3.904E-01		7.956E-01	1.348E+00	2.086E-01	0.290
TH-231	1.259E-01		3.512E-01	5.931E-01	1.059E-01	0.212
U-231	-1.332E-01		1.488E-01	1.892E-01	1.693E-02	-0.704
TH-232	1.057E-03		6.765E-02	1.217E-01	1.409E-02	0.009
PA-233	4.858E-03		3.074E-02	5.125E-02	4.744E-03	0.095
PA-234	-4.375E-02		1.639E-01	2.543E-01	4.818E-02	-0.172
PA-234M	-1.321E+00		2.567E+00	3.904E+00	3.979E-01	-0.338
U-234	-5.064E-02		4.384E-02	5.859E-02	5.779E-03	-0.864
U-235	1.008E-01		1.044E-01	1.748E-01	3.053E-02	0.577
NP-236	-2.010E-02		3.893E-02	6.339E-02	5.397E-03	-0.317
NP-237	2.202E-02		9.838E-02	1.531E-01	3.466E-02	0.144
NP-239	-1.567E-02		8.604E-02	1.345E-01	1.171E-02	-0.117
AM-241	4.125E-02		7.468E-02	1.146E-01	9.448E-03	0.360

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	-1.722E-02		2.454E-02	3.474E-02	2.889E-03	-0.496
CM-243	1.622E-02		4.165E-02	6.865E-02	5.981E-03	0.236
AM-246	7.556E-03		7.021E-02	1.156E-01	9.948E-03	0.065
CM-247	7.892E-03		1.783E-02	3.039E-02	2.464E-03	0.260
CF-249	1.401E-02		2.092E-02	3.636E-02	2.949E-03	0.385
CF-251	-2.017E-02		6.019E-02	9.876E-02	8.500E-03	-0.204



# VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202037546
* Acquisition date   : 18-FEB-2010 13:52:09 Detector SN#      :
* Detector ID        : GAM01 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 02:00:00.50 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID
* Sample ID          : G1202037546 Analyst initials: MXR1
* Batch Number       : 950786 Sample Quantity : 1.7126E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME  : 12-JAN-2010 15:15:52 MS Isotope      :
* MSD DPM           : 0.000 MSD Isotope      :
* LCS DPM           : 0.000 LCS Isotope      :
* LCSD DPM          : 0.000 LCSD Isotope     :
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	1.934E-02	2.645E-01	1.339E-01	1.350E-01
TH-234	6.827E-01	1.166E+00	4.723E-01	5.951E-01
U-238	6.827E-01	1.166E+00	4.723E-01	5.951E-01
ANH-511	2.236E-02	3.683E-02	1.184E-02	1.879E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	1.058E-01	1.477E-01	1.385E-01	7.537E-02	NOT IDENT.
NA-22	-1.237E-02	1.638E-02	1.193E-02	8.355E-03	NOT IDENT.
NA-24	9.748E-01	6.782E+01	0.000E+00	3.460E+01	SHORT HLIF
AL-26	1.929E-03	2.089E-02	1.787E-02	1.066E-02	NOT IDENT.
TI-44	3.086E-03	1.447E-02	1.344E-02	7.380E-03	NOT IDENT.
SC-46	-1.103E-03	1.648E-02	1.400E-02	8.406E-03	NOT IDENT.
V-48	7.200E-04	2.077E-02	1.782E-02	1.060E-02	NOT IDENT.
CR-51	2.153E-02	1.480E-01	1.339E-01	7.549E-02	NOT IDENT.
MN-52	-3.374E-02	3.913E-02	2.399E-02	1.997E-02	NOT IDENT.
MN-54	-2.344E-02	1.934E-02	1.281E-02	9.868E-03	NOT IDENT.
CO-56	-6.258E-04	1.738E-02	1.493E-02	8.866E-03	NOT IDENT.
CO-57	-3.295E-03	1.112E-02	9.631E-03	5.672E-03	NOT IDENT.
CO-58	1.261E-02	1.604E-02	1.572E-02	8.185E-03	NOT IDENT.
FE-59	1.753E-02	3.842E-02	3.507E-02	1.960E-02	NOT IDENT.
CO-60	-2.084E-03	1.769E-02	1.488E-02	9.027E-03	NOT IDENT.
ZN-65	-4.942E-02	4.379E-02	2.839E-02	2.234E-02	NOT IDENT.
GE-68	1.497E-01	6.062E-01	5.344E-01	3.093E-01	NOT IDENT.
AS-73	-1.154E-02	3.841E-01	3.586E-01	1.960E-01	NOT IDENT.
AS-74	-2.255E-02	3.341E-02	2.717E-02	1.704E-02	NOT IDENT.
SE-75	-1.795E-03	2.091E-02	1.879E-02	1.067E-02	NOT IDENT.
BR-77	-5.219E-01	5.614E-01	4.074E-01	2.864E-01	FAIL ABUN
SR-82	-5.606E-02	1.499E-01	1.229E-01	7.646E-02	NOT IDENT.
RB-83	-3.339E-02	3.097E-02	2.166E-02	1.580E-02	NOT IDENT.

RB-84	4.083E-03	3.030E-02	2.667E-02	1.546E-02	NOT IDENT.
KR-85	9.152E+00	4.951E+00	4.557E+00	2.526E+00	NOT IDENT.
SR-85	4.335E-02	2.345E-02	2.158E-02	1.196E-02	NOT IDENT.
RB-86	-1.096E-01	3.055E-01	2.403E-01	1.559E-01	NOT IDENT.
Y-88	9.661E-03	1.945E-02	1.845E-02	9.923E-03	NOT IDENT.
ZR-88	-3.346E-03	1.466E-02	1.251E-02	7.477E-03	NOT IDENT.
Y-91	6.086E-01	6.062E+00	5.401E+00	3.093E+00	NOT IDENT.
NB-94	1.445E-02	1.759E-02	1.698E-02	8.972E-03	NOT IDENT.
NB-95	-2.761E-03	1.684E-02	1.432E-02	8.593E-03	NOT IDENT.
NB-95M	-1.681E-02	5.802E-02	4.507E-02	2.960E-02	NOT IDENT.
ZR-95	-1.107E-02	2.979E-02	2.444E-02	1.520E-02	NOT IDENT.
NB-97	-9.682E+00	2.523E+01	0.000E+00	1.287E+01	SHORT HLIF
ZR-97	3.612E+02	6.286E+02	0.000E+00	3.207E+02	SHORT HLIF
MO-99	3.930E-01	7.763E-01	7.318E-01	3.961E-01	NOT IDENT.
TC-99M	-2.055E+07	1.543E+07	0.000E+00	7.873E+06	SHORT HLIF
RH-101	-4.852E-03	1.670E-02	1.461E-02	8.519E-03	NOT IDENT.
RH-102	3.976E-03	1.512E-02	1.347E-02	7.716E-03	NOT IDENT.
RU-103	1.227E-02	1.821E-02	1.694E-02	9.292E-03	NOT IDENT.
RH-106	-3.354E-02	1.571E-01	1.359E-01	8.016E-02	FAIL ABUN
RU-106	-3.354E-02	1.571E-01	1.359E-01	8.014E-02	FAIL ABUN
AG-108M	3.835E-03	1.601E-02	1.434E-02	8.171E-03	NOT IDENT.
CD-109	3.036E-01	3.408E-01	2.997E-01	1.739E-01	NOT IDENT.
AG-110M	-1.060E-02	1.547E-02	1.224E-02	7.892E-03	NOT IDENT.
IN-111	3.400E-05	7.633E-02	6.951E-02	3.894E-02	NOT IDENT.
IN-113M	1.408E-02	2.192E-02	2.052E-02	1.119E-02	NOT IDENT.
SN-113	1.408E-02	2.192E-02	2.052E-02	1.119E-02	NOT IDENT.
IN-114M	-7.177E-02	8.334E-02	7.271E-02	4.252E-02	NOT IDENT.
CD-115	9.675E-03	5.116E-01	4.631E-01	2.610E-01	NOT IDENT.
SN-117M	-3.809E-03	1.710E-02	1.582E-02	8.723E-03	NOT IDENT.
SB-122	5.131E-02	1.461E-01	1.365E-01	7.453E-02	NOT IDENT.
I-123	3.171E+01	1.864E+02	0.000E+00	9.510E+01	SHORT HLIF
TE-123M	2.110E-03	1.240E-02	1.178E-02	6.328E-03	NOT IDENT.
I-124	-6.345E-02	1.027E-01	8.507E-02	5.238E-02	NOT IDENT.
SB-124	5.849E-02	3.977E-02	4.514E-02	2.029E-02	NOT IDENT.
SB-125	-3.426E-03	3.936E-02	3.382E-02	2.008E-02	NOT IDENT.
TE-125M	2.614E+00	3.609E+00	3.420E+00	1.841E+00	NOT IDENT.
I-126	-2.767E-02	5.197E-02	4.206E-02	2.651E-02	NOT IDENT.
SB-126	5.843E-03	4.828E-02	4.268E-02	2.463E-02	NOT IDENT.
SN-126	2.324E-02	3.418E-02	2.952E-02	1.744E-02	FAIL ABUN
SB-127	1.503E-01	1.820E-01	1.767E-01	9.288E-02	NOT IDENT.
XE-127	-3.296E-03	1.768E-02	1.609E-02	9.019E-03	NOT IDENT.
I-131	5.428E-03	2.743E-02	2.477E-02	1.399E-02	NOT IDENT.
TE-132	-1.784E-02	6.890E-02	6.182E-02	3.515E-02	NOT IDENT.
BA-133	-3.821E-03	2.145E-02	1.859E-02	1.094E-02	NOT IDENT.
I-133	-8.993E-01	6.692E+00	0.000E+00	3.414E+00	SHORT HLIF
CS-134	5.241E-03	2.087E-02	1.887E-02	1.065E-02	NOT IDENT.
CS-135	8.790E-03	7.815E-02	7.133E-02	3.987E-02	NOT IDENT.
I-135	1.293E+07	1.318E+07	0.000E+00	6.722E+06	SHORT HLIF
CS-136	-2.661E-02	3.319E-02	2.304E-02	1.693E-02	NOT IDENT.
BA-137M	1.401E-02	1.514E-02	1.515E-02	7.726E-03	NOT IDENT.
CS-137	1.481E-02	1.601E-02	1.601E-02	8.167E-03	NOT IDENT.
CE-139	1.832E-04	1.348E-02	1.264E-02	6.879E-03	NOT IDENT.
BA-140	2.719E-02	8.630E-02	7.657E-02	4.403E-02	NOT IDENT.
LA-140	1.119E-02	2.766E-02	2.589E-02	1.411E-02	NOT IDENT.
CE-141	4.328E-03	2.211E-02	2.118E-02	1.128E-02	NOT IDENT.
CE-143	5.433E-01	1.346E+00	1.249E+00	6.868E-01	NOT IDENT.
CE-144	-2.236E-02	8.761E-02	7.563E-02	4.470E-02	NOT IDENT.
PM-144	-2.998E-03	1.659E-02	1.425E-02	8.462E-03	NOT IDENT.
PR-144	-2.023E-01	1.119E+00	9.616E-01	5.712E-01	NOT IDENT.
ND-146	1.336E-02	2.311E-02	2.133E-02	1.179E-02	NOT IDENT.
PM-147	-7.224E-02	1.629E-01	1.384E-01	8.314E-02	NOT IDENT.
PM-149	-3.376E-01	4.543E+00	3.875E+00	2.318E+00	NOT IDENT.
EU-152	6.314E-03	4.904E-02	4.404E-02	2.502E-02	NOT IDENT.
GD-153	-9.652E-03	3.802E-02	2.944E-02	1.940E-02	NOT IDENT.
EU-154	-3.365E-02	4.623E-02	3.397E-02	2.359E-02	NOT IDENT.
EU-155	-1.631E-02	4.656E-02	4.057E-02	2.376E-02	NOT IDENT.
TB-160	5.022E-02	6.706E-02	6.427E-02	3.421E-02	NOT IDENT.
HO-166M	1.425E-02	2.870E-02	2.697E-02	1.464E-02	NOT IDENT.
TM-171	1.957E+00	1.176E+01	9.873E+00	6.002E+00	NOT IDENT.
LU-176	7.307E-03	1.237E-02	1.166E-02	6.310E-03	NOT IDENT.
LU-177	-1.376E-01	2.060E-01	1.792E-01	1.051E-01	NOT IDENT.
LU-177M	-6.718E-02	8.950E-02	7.113E-02	4.566E-02	NOT IDENT.
HF-181	-1.494E-02	1.810E-02	1.363E-02	9.237E-03	FAIL ABUN
W-181	1.964E-01	3.341E-01	1.452E-01	1.705E-01	FAIL ABUN
TA-182	-2.346E-02	6.141E-02	4.873E-02	3.133E-02	NOT IDENT.
RE-183	2.714E-02	5.188E-02	4.815E-02	2.647E-02	NOT IDENT.
RE-184	-9.542E-03	1.070E-01	9.649E-02	5.460E-02	NOT IDENT.
OS-185	-1.087E-02	2.034E-02	1.671E-02	1.038E-02	NOT IDENT.

RE-188	2.644E-03	6.898E-02	6.508E-02	3.519E-02	NOT IDENT.
W-188	-2.725E-01	3.154E+00	2.811E+00	1.609E+00	FAIL ABUN
IR-192	1.618E-03	1.485E-02	1.341E-02	7.575E-03	NOT IDENT.
AU-195	3.010E-02	1.107E-01	9.064E-02	5.650E-02	FAIL ABUN
TL-200	-1.200E+00	1.818E+00	1.475E+00	9.275E-01	NOT IDENT.
TL-201	-1.210E-01	5.675E-01	5.232E-01	2.895E-01	NOT IDENT.
TL-202	7.941E-03	2.326E-02	2.101E-02	1.187E-02	NOT IDENT.
HG-203	-1.457E-03	1.778E-02	1.591E-02	9.070E-03	NOT IDENT.
BI-207	9.186E-03	2.244E-02	2.055E-02	1.145E-02	NOT IDENT.
TL-207	1.259E-01	3.441E-01	3.163E-01	1.756E-01	NOT IDENT.
TL-208	-7.562E-03	2.231E-02	1.914E-02	1.138E-02	FAIL ABUN
PO-209	-1.230E+00	3.381E+00	2.702E+00	1.725E+00	NOT IDENT.
BI-210	3.791E-01	2.025E+00	1.823E+00	1.033E+00	NOT IDENT.
PB-210	3.791E-01	2.025E+00	1.823E+00	1.033E+00	NOT IDENT.
PO-210	3.791E-01	2.025E+00	1.823E+00	1.033E+00	NOT IDENT.
BI-211	3.356E-02	1.168E-01	1.022E-01	5.961E-02	NOT IDENT.
PB-211	-7.572E-02	4.807E-01	4.109E-01	2.453E-01	NOT IDENT.
BI-212	-1.377E-01	1.593E-01	1.200E-01	8.126E-02	NOT IDENT.
PB-212	2.085E-02	3.706E-02	2.854E-02	1.891E-02	FAIL ABUN
PO-212	2.085E-02	3.706E-02	2.854E-02	1.891E-02	FAIL ABUN
BI-214	-5.064E-02	4.296E-02	3.061E-02	2.192E-02	NOT IDENT.
PB-214	2.015E-02	4.050E-02	3.605E-02	2.066E-02	NOT IDENT.
PO-214	2.015E-02	4.050E-02	3.605E-02	2.066E-02	NOT IDENT.
PO-215	1.259E-01	3.441E-01	3.163E-01	1.756E-01	NOT IDENT.
PO-216	2.085E-02	3.706E-02	2.854E-02	1.891E-02	FAIL ABUN
PO-218	2.015E-02	4.050E-02	3.605E-02	2.066E-02	NOT IDENT.
RN-219	-5.478E-02	2.044E-01	1.731E-01	1.043E-01	NOT IDENT.
RN-220	-1.102E+01	1.231E+01	9.715E+00	6.279E+00	NOT IDENT.
RA-223	1.259E-01	3.441E-01	3.163E-01	1.756E-01	NOT IDENT.
RA-224	6.352E-02	3.347E-01	2.740E-01	1.708E-01	NOT IDENT.
RA-226	-5.064E-02	4.296E-02	3.061E-02	2.192E-02	NOT IDENT.
AC-227	-1.212E-01	1.861E-01	1.584E-01	9.494E-02	NOT IDENT.
TH-227	-1.212E-01	1.864E-01	1.584E-01	9.511E-02	FAIL ABUN
AC-228	1.057E-03	6.629E-02	6.271E-02	3.382E-02	NOT IDENT.
RA-228	1.057E-03	6.629E-02	6.271E-02	3.382E-02	NOT IDENT.
TH-228	2.100E-02	3.734E-02	2.875E-02	1.905E-02	FAIL ABUN
TH-229	-9.407E-02	2.490E-01	2.246E-01	1.270E-01	NOT IDENT.
TH-230	-5.064E-02	4.296E-02	3.061E-02	2.192E-02	NOT IDENT.
PA-231	3.904E-01	7.797E-01	7.216E-01	3.978E-01	NOT IDENT.
TH-231	1.259E-01	3.441E-01	3.163E-01	1.756E-01	NOT IDENT.
U-231	-1.332E-01	1.459E-01	1.048E-01	7.442E-02	FAIL ABUN
TH-232	1.057E-03	6.629E-02	6.271E-02	3.382E-02	NOT IDENT.
PA-233	4.858E-03	3.013E-02	2.736E-02	1.537E-02	NOT IDENT.
PA-234	-4.375E-02	1.606E-01	1.309E-01	8.194E-02	FAIL ABUN
PA-234M	-1.321E+00	2.516E+00	2.006E+00	1.283E+00	NOT IDENT.
U-234	-5.064E-02	4.296E-02	3.061E-02	2.192E-02	NOT IDENT.
U-235	1.008E-01	1.023E-01	9.558E-02	5.219E-02	FAIL ABUN
NP-236	-2.010E-02	3.815E-02	3.456E-02	1.947E-02	NOT IDENT.
NP-237	2.202E-02	9.642E-02	8.502E-02	4.919E-02	NOT IDENT.
NP-239	-1.567E-02	8.432E-02	7.401E-02	4.302E-02	NOT IDENT.
AM-241	4.125E-02	7.319E-02	6.436E-02	3.734E-02	NOT IDENT.
AM-243	-1.722E-02	2.405E-02	1.938E-02	1.227E-02	NOT IDENT.
CM-243	1.622E-02	4.082E-02	3.792E-02	2.083E-02	NOT IDENT.
AM-246	7.556E-03	6.880E-02	5.924E-02	3.510E-02	NOT IDENT.
CM-247	7.892E-03	1.747E-02	1.609E-02	8.913E-03	NOT IDENT.
CF-249	1.401E-02	2.051E-02	1.928E-02	1.046E-02	NOT IDENT.
CF-251	-2.017E-02	5.899E-02	5.368E-02	3.010E-02	NOT IDENT.

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

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46.50	73.7012
46.50	73.7012
46.50	73.7012
48.70	81.2399
49.72	78.3184
51.35	78.5766
52.39	91.1716
52.97	91.2759
53.15	91.3079
53.44	80.9780
54.07	68.6038
56.28	84.5522
56.28	84.5526
57.37	99.1611
57.53	97.9350
57.53	97.9354
57.60	97.9478
57.98	95.8179
57.98	95.8179
59.32	74.0098
59.32	74.0098
59.40	74.0206
59.54	69.3136
59.72	69.3365
60.01	70.9497
61.10	80.5684
61.14	80.5742
61.30	80.5974
63.00	76.0863
63.29	76.1252
63.29	76.1252
63.58	76.1641
64.28	76.2575
65.12	76.3688
65.20	76.3794
65.20	76.3794
66.05	63.7427
66.72	71.7926
66.83	79.7848
66.91	79.7955
67.20	79.8347
67.20	79.8347
67.75	91.0964
67.85	79.9229
68.90	57.6461
68.90	57.6461
69.30	72.1057
69.67	67.3403
70.82	69.6100
70.82	69.6100
70.83	69.6110
72.80	103.1406
72.87	103.1523
72.87	103.1523
74.67	103.4502
74.81	101.3179
74.81	101.3179
74.81	101.3179
74.81	101.3179
74.81	101.3179
74.81	101.3179
74.81	101.3179
74.97	101.3433
75.28	102.4721
75.70	100.3810
77.11	86.5405
77.11	86.5405

77.11	86.5405
77.11	86.5405
77.11	86.5405
77.11	86.5405
77.11	86.5405
78.38	101.8859
79.62	121.6273
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80.30	106.5340
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80.57	104.4028
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81.07	97.9518
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83.37	85.1844
83.78	99.4424
83.78	99.4424
83.78	99.4424
83.78	99.4424
84.21	101.6927
84.90	120.4037
85.43	102.9708
86.29	88.1833
86.50	88.2103
86.54	88.2152
86.59	86.9050
86.72	86.9215
86.79	90.5520
86.94	90.5717
87.30	97.2096
87.30	97.2096
87.30	97.2096
87.30	97.2096
87.30	97.2096
87.30	97.2096
87.57	80.7648
87.88	77.5027
88.03	77.5196
88.36	69.3055
88.47	69.3164
89.95	109.1559
91.11	79.5161
92.29	79.6472
92.38	79.6575
92.38	79.6575
93.35	79.7648
94.00	79.8362
94.67	79.9094
94.67	79.9098
94.90	86.5963
94.90	86.5963
94.90	86.5963
94.90	86.5963
95.87	96.7161
95.87	96.7161
96.73	83.4736
97.43	80.2101
98.44	75.2989
98.44	75.2993
98.88	77.0179
99.55	69.7131
99.55	69.7131
99.86	69.2946
100.00	69.3076
100.10	84.9693
103.18	86.4351
103.76	73.0199
105.00	87.7639
105.31	86.6732
108.00	88.0999
109.28	70.1407

111.00	87.2974
111.00	87.2974
111.76	81.7053
112.95	76.1428
115.19	77.4906
116.30	77.5947
117.00	83.3700
117.00	83.3700
117.66	83.4361
121.11	79.1867
121.62	87.2724
121.78	83.8432
122.06	83.8705
122.32	82.7468
122.32	82.7468
122.32	82.7468
122.32	82.7468
123.07	73.6169
127.23	79.7484
129.76	81.1355
131.20	94.0369
133.02	73.2872
133.54	80.3133
135.34	72.3081
136.00	69.1503
136.25	68.2937
136.48	68.3107
140.51	112.5869
140.51	0.0000
142.18	63.4422
142.65	60.8293
143.76	67.9613
144.24	79.4751
144.24	79.4751
144.24	79.4751
144.24	79.4751
145.22	78.6728
145.44	78.6905
147.16	105.4033
152.43	78.3663
152.70	77.4970
153.22	92.6885
154.21	89.2128
154.21	89.2128
154.21	89.2128
154.21	89.2128
155.03	84.8217
156.02	74.1802
158.56	94.0788
159.00	0.0000
159.00	87.8450
160.31	106.8060
161.27	89.8369
162.32	84.5327
162.64	84.5593
163.35	97.2199
163.89	101.7735
165.85	93.8445
167.43	88.5635
171.28	76.1878
171.86	76.2288
172.10	76.2461
176.55	92.0552
176.60	92.0591
181.06	82.3666
184.41	95.4656
185.71	90.0619
186.00	82.7312
190.27	115.3364
192.34	100.7546
193.63	98.0908
197.04	82.6003
198.01	78.0245
198.60	84.5689
200.40	88.4211
201.83	76.4127
202.84	74.6124
205.31	61.6821

208.36	75.8912
208.81	74.0450
209.75	62.8457
209.75	62.8457
210.97	56.3361
215.65	77.2841
216.55	70.7382
218.09	69.8809
222.10	78.6294
223.80	82.5283
226.40	77.9429
227.00	77.9792
227.08	82.7393
227.20	82.7473
228.16	83.7602
228.18	83.7615
228.18	83.7615
231.56	78.2538
235.69	76.5851
236.00	79.6675
236.00	79.6675
238.63	66.2010
238.63	66.2010
238.63	66.2010
238.63	66.2010
239.00	66.2194
240.98	67.6629
241.98	53.8629
241.98	53.8629
241.98	53.8629
244.69	62.7826
245.39	61.7129
247.94	53.1340
248.90	67.6720
249.79	65.7811
252.40	62.0288
252.85	62.0488
252.85	62.0488
254.15	0.0000
256.20	70.9449
256.20	70.9449
260.50	73.1117
260.90	63.3813
262.80	68.3476
264.65	64.5256
268.24	66.6470
268.79	63.7315
269.46	64.7422
269.46	64.7422
269.46	64.7422
269.46	64.7422
271.23	78.5706
273.65	74.7661
276.40	69.9773
277.35	64.1054
277.60	66.0891
277.60	66.0891
278.00	61.1732
278.60	71.0695
279.20	62.2108
279.53	67.1627
280.46	67.2052
281.68	64.2928
283.67	50.5121
284.30	51.5239
285.00	61.4608
285.90	55.5463
286.10	56.5460
286.10	56.5460
287.40	56.5938
288.45	0.0000
290.67	52.7355
290.80	52.7404
291.72	60.7375
293.26	50.8319
293.70	54.8347
295.21	55.8864
295.21	55.8864

295.21	55.8864
295.96	57.9097
296.50	58.9289
297.23	59.9561
298.57	65.0089
299.80	60.0549
299.80	60.0549
300.09	52.0579
300.09	52.0579
300.09	52.0579
300.09	52.0579
300.12	52.0587
301.29	53.0995
302.84	58.1664
303.76	60.2069
303.91	60.2133
304.40	54.2085
304.40	54.2085
304.84	62.2564
306.84	47.2546
308.46	60.3864
311.98	44.3807
316.51	42.4832
318.01	51.6342
319.02	53.6923
319.41	53.7052
320.08	45.6173
323.87	52.8355
323.87	52.8355
323.87	52.8355
323.87	52.8355
325.23	53.8961
328.77	56.0490
333.44	52.1183
334.20	54.1872
334.20	54.1872
334.30	54.1904
338.28	45.0944
338.28	45.0944
338.28	45.0944
338.28	45.0944
338.32	45.0950
338.32	45.0950
338.32	45.0950
340.50	42.0742
340.57	42.0760
344.27	47.3098
345.85	43.2356
350.59	40.2574
351.07	41.3007
351.92	38.2217
351.92	38.2217
351.92	38.2217
355.39	0.0000
356.01	46.5944
364.48	33.2925
366.43	41.6614
367.43	43.7688
367.94	44.8234
369.80	43.8265
374.96	46.0437
383.85	57.8341
387.95	36.8842
388.63	43.2234
391.69	36.9579
391.69	36.9579
392.90	43.3216
398.62	36.0337
400.65	42.4377
401.10	49.8765
401.81	41.4018
402.60	31.8608
404.84	43.5938
410.95	41.5982
411.60	40.5455
413.65	49.1326
414.70	47.0219
415.30	43.8290



415.76	36.3548
417.63	0.0000
418.52	33.1934
423.70	24.6919
427.08	26.8845
427.89	26.8955
432.53	29.1143
433.93	31.2922
439.47	33.5420
439.56	33.5434
439.89	35.7131
443.98	36.8690
444.90	34.7158
445.03	29.2931
445.03	29.2931
445.03	29.2931
445.03	29.2931
453.90	32.6875
463.38	39.4019
468.07	32.9073
473.00	30.7844
475.06	31.9143
475.35	35.2202
476.78	34.1423
477.59	26.4426
477.96	20.9372
482.03	34.2246
484.57	23.2116
487.03	34.3031
490.36	24.3811
492.35	24.4029
497.08	25.5665
507.63	0.0000
510.53	0.0000
510.84	27.9600
511.00	27.9619
511.85	27.9722
511.85	27.9722
513.99	34.0460
513.99	34.0460
520.41	32.5692
520.65	32.5728
527.90	29.7451
528.96	0.0000
529.64	27.0615
529.87	0.0000
531.02	29.7846
537.32	23.5301
543.00	29.9369
546.56	0.0000
549.76	32.7507
552.65	21.8602
555.20	25.5302
563.23	24.7001
563.90	26.5368
568.70	31.1728
569.32	26.5956
569.50	24.7634
569.67	24.7647
573.80	26.6438
574.00	25.7271
574.64	29.4102
578.91	38.6675
579.30	38.6726
583.14	33.1989
585.48	18.4614
591.81	20.3586
592.07	24.9882
593.00	31.4774
595.88	32.4399
600.56	37.1426
602.52	0.0000
602.71	40.8912
602.71	40.8912
603.60	34.3975
604.41	41.8480
604.70	40.9234
609.31	37.2695

609.31	37.2695
609.31	37.2695
609.31	37.2695
610.33	32.6237
612.46	34.5159
614.37	28.9399
618.01	22.4367
621.84	28.0865
621.84	28.0865
631.29	24.4290
633.02	30.0859
633.10	29.1465
634.78	22.5791
635.90	28.2363
636.97	32.9552
645.85	25.5070
646.12	29.2888
656.30	26.5535
657.75	25.6184
657.90	0.0000
661.65	13.3027
661.65	13.3027
664.57	30.4383
666.33	22.8434
666.33	22.8434
675.00	22.9148
677.61	21.9803
685.20	20.1233
692.80	25.9420
695.00	18.2699
696.49	25.9756
696.49	25.9756
697.00	31.7536
697.49	29.8345
698.33	27.9182
698.50	25.9941
699.00	27.9245
702.63	22.1751
706.10	30.8891
706.58	0.0000
706.67	25.1024
709.31	33.8225
711.68	18.3761
713.82	22.2610
717.42	27.1339
720.50	18.4318
721.93	18.4406
722.20	18.4424
722.78	22.3295
722.78	22.3295
722.89	24.2719
722.95	24.2725
723.30	29.1306
724.18	32.0533
727.18	27.2241
733.00	19.4844
735.90	27.3048
739.58	14.6455
742.81	15.6387
744.21	20.5355
747.13	16.6402
751.79	14.7052
752.31	12.7467
753.82	18.6391
755.35	17.6669
756.15	20.6165
756.87	18.6577
763.93	24.6063
765.79	19.6973
766.42	12.8058
766.84	11.8222
776.49	22.7305
778.00	16.8091
778.57	13.8452
778.89	12.8575
783.80	18.8214
785.46	14.8671
792.07	21.8507

795.84	16.9050
796.30	17.9020
798.80	26.8741
801.93	16.9377
805.60	23.9396
810.29	14.9843
810.76	10.9901
815.85	16.0109
817.79	14.0178
818.51	9.0136
819.60	19.0348
826.30	21.0820
828.27	13.0587
831.60	16.0889
831.96	17.0963
834.83	26.1701
836.80	0.0000
846.75	17.1735
848.13	18.1912
856.28	0.0000
856.80	17.2254
860.37	12.1723
867.32	20.3291
867.82	22.3652
871.10	20.3516
873.19	18.3278
874.81	17.3179
875.33	0.0000
876.40	24.4605
879.36	14.2810
880.27	17.3457
880.51	17.3470
881.50	17.3520
883.24	21.4460
884.67	20.4331
889.25	14.3223
896.60	16.4035
898.02	16.4102
899.00	11.2852
903.28	9.2448
911.07	9.2654
911.07	9.2654
911.07	9.2654
919.63	7.2240
920.93	11.3561
925.00	14.4700
925.24	14.4710
926.50	7.2381
935.52	14.5130
937.48	18.6697
944.10	13.5088
946.00	20.7935
949.00	11.4461
962.29	12.5323
964.01	18.8073
966.15	26.1365
968.20	14.6446
969.11	12.5558
969.11	12.5558
969.11	12.5558
977.42	15.7302
980.50	14.6938
983.50	10.5042
989.30	8.4164
996.32	8.4322
1001.03	11.6088
1001.68	8.4443
1004.76	14.7896
1021.30	0.0000
1024.50	0.0000
1034.80	12.7770
1036.00	8.5207
1037.82	12.7869
1038.57	18.1189
1038.76	0.0000
1045.16	5.3381
1046.59	12.8162
1048.07	17.0945

1050.47	16.0364
1050.47	16.0364
1062.04	12.8666
1063.62	9.6539
1076.63	18.2958
1077.35	13.9934
1078.86	13.9985
1085.78	16.1799
1099.22	11.9050
1112.02	10.8569
1112.84	6.5156
1115.52	23.9057
1120.29	11.9668
1120.29	11.9668
1120.29	11.9668
1120.29	11.9668
1120.51	10.8799
1121.28	7.6173
1124.00	0.0000
1129.67	14.1750
1131.51	0.0000
1147.95	0.0000
1167.94	6.4192
1173.22	10.0999
1175.09	11.0229
1177.93	8.2727
1189.05	13.8239
1204.90	9.2497
1205.75	4.6259
1213.00	6.4870
1221.42	10.2131
1230.97	7.4440
1235.34	13.9716
1236.41	0.0000
1238.25	10.2525
1246.25	16.8069
1260.41	0.0000
1271.85	5.6343
1274.45	9.3962
1274.54	9.3962
1291.56	9.4316
1298.22	0.0000
1312.09	8.5261
1325.50	5.7004
1325.50	5.7004
1332.49	9.5150
1333.61	9.5174
1360.21	7.6569
1362.66	0.0000
1365.15	4.7904
1368.21	6.7109
1368.53	0.0000
1376.25	7.6826
1384.27	5.7715
1394.10	7.7109
1395.20	7.7126
1407.95	7.7327
1434.06	8.7458
1436.60	6.8057
1457.56	0.0000
1460.81	6.8385
1489.15	9.8242
1509.49	4.9314
1596.49	5.0132
1620.62	8.0570
1678.03	0.0000
1691.02	1.0199
1691.02	1.0199
1706.46	0.0000
1750.46	0.0000
1764.49	5.1650
1764.49	5.1650
1764.49	5.1650
1764.49	5.1650
1770.23	19.6463
1771.40	9.3080
1791.20	0.0000
1808.65	7.2854

1836.01

4.1820

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037546

Total Uranium Activity	2.0778E+00	ug/g
Total Uranium Counting Unc.	3.4705E+00	ug/g
Total Uranium Tpu	1.7706E-06	ug/g
Total Uranium Mda	1.4058E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 950786          SAMPLE ID   : G1202037546
*  ANALYST       : MXR1            DETECTOR    : GAM01
*  SAMPLE DATE   : 11-FEB-2010 00:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 18-FEB-2010 13:52:09.28  SAMPLE ALQT: 171.260 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.344E-02
GROSS GAMMA ERROR (pCi/GRAM ) : 7.483E-02
GROSS GAMMA MDA (pCi/GRAM ) : 2.138E-01
GROSS GAMMA DLC (pCi/GRAM ) : 1.003E-01

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## VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:53:26.23

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037547.CNF;1
Sample date       : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:52:40
Sample ID        : G1202037547      Sample quantity   : 9.51500E+01 GRAM
Detector name    : GAM07            Detector geometry: CAN
Elapsed live time: 0 02:00:00.00    Elapsed real time: 0 02:00:05.44  0.1%
Energy tolerance : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit  : 75.00000          Sensitivity     : 5.00000
Batch ID        : 950786            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	53.16	557	9479	1.35	105.99	101	10	7.73E-02	32.9	
2	0	63.26*	25791	11093	1.04	126.17	120	11	3.58E+00	1.0	
3	0	76.95*	499	7632	0.96	153.55	152	7	6.93E-02	29.4	
4	0	84.13*	3129	10598	1.01	167.90	164	9	4.35E-01	6.2	
5	2	92.65*	52450	8900	1.12	184.95	180	15	7.28E+00	0.5	5.05E+01
6	2	94.70*	2494	6661	1.26	189.04	180	15	3.46E-01	10.4	
7	0	98.55	4132	4118	1.10	196.73	194	8	5.74E-01	3.1	
8	6	105.54	921	3149	1.88	210.71	207	26	1.28E-01	10.5	1.24E+01
9	6	109.21	1741	4816	1.85	218.05	207	26	2.42E-01	8.3	
10	6	111.10	1282	3026	1.18	221.84	207	26	1.78E-01	8.3	
11	6	112.87	3447	3392	1.30	225.38	207	26	4.79E-01	3.5	
12	0	120.68	355	3385	1.28	241.00	237	9	4.92E-02	30.1	
13	0	131.61	180	1955	0.91	262.84	260	6	2.50E-02	39.6	
14	0	143.87*	5646	3421	1.08	287.38	282	11	7.84E-01	2.4	
15	0	163.46*	2532	2202	1.14	326.54	322	9	3.52E-01	3.9	
16	0	185.82*	26751	1758	1.11	371.25	368	10	3.72E+00	0.7	
17	0	195.29	233	1105	1.02	390.20	386	8	3.24E-02	25.7	
18	2	202.35	415	995	1.31	404.30	400	16	5.76E-02	13.9	1.12E+00
19	2	205.43	2114	714	1.06	410.46	400	16	2.94E-01	3.0	
20	0	238.73*	793	854	1.12	477.06	473	8	1.10E-01	7.4	
21	0	241.55	161	641	1.48	482.69	481	7	2.23E-02	27.5	
22	0	258.44	569	640	1.29	516.47	512	10	7.91E-02	9.3	
23	0	295.34	329	580	1.15	590.24	586	10	4.58E-02	14.8	
24	0	300.03*	88	300	1.67	599.63	597	6	1.23E-02	33.2	
25	0	338.24	200	426	1.33	676.03	671	10	2.78E-02	20.6	
26	0	352.03*	530	434	1.28	703.61	699	11	7.36E-02	8.8	
27	0	511.44*	130	327	2.00	1022.38	1017	14	1.80E-02	33.3	
28	0	569.23*	83	205	1.42	1137.95	1134	10	1.15E-02	34.2	
29	0	583.55*	284	286	1.32	1166.58	1161	14	3.95E-02	14.1	
30	0	609.75*	375	290	1.43	1218.97	1213	14	5.20E-02	11.2	
31	0	661.83	1215	252	1.44	1323.12	1317	12	1.69E-01	3.9	
32	0	727.68*	43	168	1.20	1454.80	1449	10	5.95E-03	59.6	
33	0	743.15	309	239	1.47	1485.73	1480	13	4.29E-02	11.9	
34	0	766.65	1201	211	1.43	1532.73	1526	15	1.67E-01	3.9	
35	0	911.49*	210	102	1.94	1822.38	1814	19	2.92E-02	13.7	
36	0	946.81	80	98	1.31	1893.01	1888	13	1.10E-02	28.0	
37	1	965.13	42	69	1.98	1929.64	1921	24	5.82E-03	44.7	1.52E+00
38	1	969.20*	86	68	1.62	1937.79	1921	24	1.19E-02	20.7	



Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1001.36*	2483	144	1.76	2002.09	1992	20	3.45E-01	2.3	
40	0	1120.50	100	39	2.08	2240.35	2232	14	1.39E-02	16.6	
41	0	1239.21	53	68	1.72	2477.75	2469	15	7.42E-03	36.9	
42	0	1461.26*	792	27	1.83	2921.81	2913	18	1.10E-01	3.9	
43	0	1510.33*	30	8	1.85	3019.94	3014	14	4.17E-03	28.1	
44	0	1591.48	67	14	6.57	3182.25	3166	28	9.31E-03	20.0	
45	0	1730.41	22	5	1.05	3460.08	3454	11	3.00E-03	30.0	
46	0	1738.39	60	7	2.58	3476.05	3470	14	8.33E-03	15.9	
47	0	1765.46*	74	24	2.22	3530.19	3522	16	1.03E-02	19.4	

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

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037547.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 1-FEB-2010 12:00:00   Acquisition date : 18-FEB-2010 13:52:40
Sample ID         : G1202037547           Sample quantity  : 95.150 GRAM
Sample type       : SOLID                  Sample geometry   :
Detector name     : GAMMA7                Detector geometry: CAN
Elapsed live time : 0 02:00:00.00         Elapsed real time: 0 02:00:05.44   0.1%
Peak Width (FWHM): 3.00                   Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV               Half life ratio   : 8.00
Errors propagated : Yes                    Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                  WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

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

Nuclide	Line	Energy	Activity	Act error	MDA	MDA error	Act/MDA
	Idea	(keV)	(pCi/GRAM)		(pCi/GRAM)		
K-40	+	1460.81 *	2.594E+01	3.012E+00	7.702E-01	6.614E-02	33.681
CO-57	+	122.06 *	2.410E-01	1.464E-01	1.552E-01	1.335E-02	1.553
		136.48	2.881E-02	7.697E-01	1.232E+00	1.109E-01	0.023
AS-73	+	53.44 *	7.686E+00	5.096E+00	4.687E+00	3.520E-01	1.640
NB-95	+	765.79 *	2.901E+00	3.482E-01	1.488E-01	1.357E-02	19.492
TE-125M	+	109.28 *	4.147E+02	8.150E+01	6.031E+01	6.256E+00	6.877
BA-137M	+	661.65 *	2.390E+00	2.813E-01	1.292E-01	1.144E-02	18.496
CS-137	+	661.65 *	2.527E+00	2.977E-01	1.366E-01	1.211E-02	18.496
TL-208		277.35	1.093E+00	8.743E-01	1.485E+00	1.819E-01	0.736
	+	510.84	8.619E-01	5.836E-01	5.071E-01	6.177E-02	1.700
	+	583.14 *	5.381E-01	1.599E-01	1.239E-01	1.185E-02	4.344
		860.37	9.920E-02	5.736E-01	9.370E-01	9.162E-02	0.106
BI-211		72.87	1.462E+00	1.226E+01	2.016E+01	1.591E+00	0.072
	+	351.07 *	4.391E+00	8.705E-01	7.403E-01	6.641E-02	5.931
PB-212		74.81	1.897E+00	1.604E+00	2.361E+00	2.912E-01	0.803
	+	77.11	1.752E+00	1.040E+00	1.375E+00	1.135E-01	1.274
		87.30	-1.208E+01	2.846E+00	2.866E+00	3.921E-01	-4.215
	+	238.63 *	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
	+	300.09	2.465E+00	1.657E+00	2.711E+00	2.812E-01	0.909
PO-212		74.81	1.897E+00	1.604E+00	2.361E+00	2.912E-01	0.803
	+	77.11	1.752E+00	1.040E+00	1.375E+00	1.135E-01	1.274
		87.30	-1.208E+01	2.846E+00	2.866E+00	3.921E-01	-4.215
		115.19	6.612E+01	1.695E+01	2.464E+01	2.122E+00	2.683
	+	238.63 *	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
	+	300.09	2.465E+00	1.657E+00	2.711E+00	2.812E-01	0.909
BI-214	+	609.31 *	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
	+	1120.29	1.845E+00	6.428E-01	7.236E-01	7.769E-02	2.550
	+	1764.49	1.881E+00	7.446E-01	4.116E-01	3.385E-02	4.569
PB-214		74.81	3.268E+00	2.757E+00	4.068E+00	4.450E-01	0.803
	+	77.11	3.004E+00	1.798E+00	2.358E+00	2.648E-01	1.274
		87.30	-2.069E+01	4.694E+00	4.910E+00	5.945E-01	-4.215
	+	241.98	1.739E+00	9.742E-01	1.304E+00	1.324E-01	1.334
	+	295.21	1.611E+00	5.060E-01	5.029E-01	5.323E-02	3.204
	+	351.92 *	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214		74.81		3.268E+00	2.757E+00	4.068E+00	4.450E-01	0.803
	+	77.11		3.004E+00	1.798E+00	2.358E+00	2.648E-01	1.274
		87.30		-2.069E+01	4.694E+00	4.910E+00	5.945E-01	-4.215
	+	241.98		1.739E+00	9.742E-01	1.304E+00	1.324E-01	1.334
	+	295.21		1.611E+00	5.060E-01	5.029E-01	5.323E-02	3.204
PO-216	+	351.92	*	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987
		74.81		1.897E+00	1.604E+00	2.361E+00	2.912E-01	0.803
	+	77.11		1.752E+00	1.040E+00	1.375E+00	1.135E-01	1.274
		87.30		-1.208E+01	2.846E+00	2.866E+00	3.921E-01	-4.215
	+	238.63	*	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
PO-218	+	300.09		2.465E+00	1.657E+00	2.711E+00	2.812E-01	0.909
		74.81		3.268E+00	2.757E+00	4.068E+00	4.450E-01	0.803
	+	77.11		3.004E+00	1.798E+00	2.358E+00	2.648E-01	1.274
		87.30		-2.069E+01	4.694E+00	4.910E+00	5.945E-01	-4.215
	+	241.98		1.739E+00	9.742E-01	1.304E+00	1.324E-01	1.334
RA-224	+	295.21		1.611E+00	5.060E-01	5.029E-01	5.323E-02	3.204
	+	351.92	*	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987
	+	240.98	*	3.298E+00	1.838E+00	2.684E+00	2.269E-01	1.229
	RA-226	609.31	*	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
	+	1120.29		1.845E+00	6.428E-01	7.236E-01	7.769E-02	2.550
AC-228	+	1764.49		1.881E+00	7.446E-01	4.116E-01	3.385E-02	4.569
	+	338.32		1.823E+00	1.063E+00	8.220E-01	3.391E-01	2.218
	+	911.07	*	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
	+	969.11		1.270E+00	6.055E-01	5.626E-01	1.322E-01	2.257
	RA-228	338.32		1.823E+00	1.063E+00	8.220E-01	3.391E-01	2.218
TH-228	+	911.07	*	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
	+	969.11		1.270E+00	6.055E-01	5.626E-01	1.322E-01	2.257
		74.81		1.929E+00	1.621E+00	2.401E+00	1.952E-01	0.803
	+	77.11		1.782E+00	1.058E+00	1.399E+00	1.155E-01	1.274
		87.30		-1.229E+01	2.621E+00	2.915E+00	2.722E-01	-4.215
TH-230	+	238.63	*	1.454E+00	2.559E-01	2.434E-01	2.328E-02	5.974
	+	300.09		2.507E+00	2.232E+00	2.757E+00	1.634E+00	0.909
	+	609.31	*	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
	+	1120.29		1.845E+00	6.428E-01	7.236E-01	7.769E-02	2.550
	+	1764.49		1.881E+00	7.446E-01	4.116E-01	3.385E-02	4.569
U-231	+	84.21		4.442E+02	6.804E+01	5.740E+01	5.154E+00	7.739
	+	92.29		2.876E+03	2.648E+02	2.316E+01	2.123E+00	124.155
	+	95.87	*	8.391E+01	1.900E+01	9.045E+00	8.142E-01	9.277
	+	108.00		1.232E+02	2.316E+01	1.789E+01	1.554E+00	6.886
	TH-232	338.32		1.823E+00	7.671E-01	8.220E-01	7.037E-02	2.218
PA-234M	+	911.07	*	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
	+	969.11		1.270E+00	6.055E-01	5.626E-01	1.322E-01	2.257
	+	766.42		7.517E+02	3.865E+02	3.860E+01	1.962E+01	19.476
	+	1001.03	*	7.472E+02	8.419E+01	1.330E+01	1.364E+00	56.172
	TH-234	63.29	*	5.587E+02	9.786E+01	7.802E+00	1.358E+00	71.610
U-234	+	92.38		5.452E+02	1.002E+02	4.390E+00	8.055E-01	124.187
	+	609.31	*	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
	+	1120.29		1.845E+00	6.428E-01	7.236E-01	7.769E-02	2.550
	+	1764.49		1.881E+00	7.446E-01	4.116E-01	3.385E-02	4.569

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235		89.95		3.379E+01	1.233E+01	9.896E+00	3.073E+00	3.414
	+	93.35		6.555E+02	1.849E+02	5.264E+00	1.483E+00	124.521
	+	105.00		2.408E+01	8.781E+00	6.931E+00	2.071E+00	3.473
	+	143.76	*	3.172E+01	5.702E+00	1.172E+00	2.030E-01	27.052
	+	163.35		3.386E+01	6.885E+00	2.616E+00	4.914E-01	12.942
	+	185.71		3.360E+01	2.759E+00	2.602E-01	2.106E-02	129.137
	+	205.31		3.256E+01	6.453E+00	2.199E+00	4.161E-01	14.804
U-238	+	63.29	*	5.587E+02	9.786E+01	7.802E+00	1.358E+00	71.610
	+	92.38		5.452E+02	5.021E+01	4.390E+00	4.022E-01	124.187
ANH-511	+	511.00	*	1.862E-01	1.251E-01	1.096E-01	9.735E-03	1.699

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	4.215E-01	7.817E-01	1.282E+00	1.210E-01	0.329
NA-22		1274.54	*	-1.527E-03	5.823E-02	9.596E-02	7.877E-03	-0.016
NA-24		1368.53	*	-5.669E-01	5.823E-02	Half-Life too short		
AL-26		1129.67		-2.448E+00	2.445E+00	3.692E+00	3.101E-01	-0.663
		1808.65	*	2.957E-03	4.647E-02	7.984E-02	6.511E-03	0.037
TI-44		67.85		-3.678E-01	1.931E-01	2.749E-01	2.074E-02	-1.338
	+	78.38	*	3.234E-01	1.920E-01	2.491E-01	2.085E-02	1.298
SC-46		889.25	*	-3.143E-02	7.573E-02	1.191E-01	1.091E-02	-0.264
	+	1120.51		3.211E-01	1.098E-01	1.666E-01	1.408E-02	1.927
V-48		944.10		3.640E+00	2.255E+00	3.598E+00	3.271E-01	1.012
		983.50	*	1.611E-01	1.310E-01	2.312E-01	2.082E-02	0.697
		1312.09		-3.422E-02	1.152E-01	1.831E-01	1.501E-02	-0.187
CR-51		320.08	*	8.472E-01	8.716E-01	1.477E+00	1.335E-01	0.574
MN-52	+	744.21		5.587E+00	1.418E+00	1.839E+00	1.669E-01	3.038
		848.13		-1.055E+01	1.722E+01	2.685E+01	2.465E+00	-0.393
		935.52		4.324E-01	5.105E-01	8.826E-01	8.037E-02	0.490
		1246.25		9.257E+00	1.267E+01	2.059E+01	1.686E+00	0.450
		1333.61		-3.118E+00	8.981E+00	1.423E+01	1.166E+00	-0.219
		1434.06	*	7.440E-01	4.954E-01	9.384E-01	7.803E-02	0.793
MN-54		834.83	*	2.157E-02	7.383E-02	1.226E-01	1.125E-02	0.176
CO-56		846.75	*	-7.824E-02	7.881E-02	1.190E-01	1.093E-02	-0.657
		977.42		-5.737E+00	5.471E+00	7.689E+00	6.934E-01	-0.746
		1037.82		-1.888E-01	4.374E-01	7.044E-01	6.535E-02	-0.268
		1175.09		-1.514E+00	3.049E+00	4.827E+00	3.929E-01	-0.314
	+	1238.25		2.825E-01	2.096E-01	2.563E-01	2.166E-02	1.102
		1360.21		4.260E-01	1.393E+00	2.378E+00	1.958E-01	0.179
		1771.40		6.456E-02	3.195E-01	4.851E-01	3.984E-02	0.133
CO-58		810.76	*	-2.912E-02	8.613E-02	1.379E-01	1.267E-02	-0.211
FE-59	+	142.65		4.218E+02	4.025E+01	2.896E+01	2.388E+00	14.564
		192.34		1.013E+00	3.074E+00	4.326E+00	5.680E-01	0.234
		1099.22	*	-1.090E-01	1.250E-01	1.902E-01	1.762E-02	-0.573
		1291.56		-1.651E-02	1.622E-01	2.646E-01	2.491E-02	-0.062
CO-60		1173.22		4.126E-02	6.118E-02	1.077E-01	8.763E-03	0.383
		1332.49	*	1.104E-02	5.453E-02	9.233E-02	7.563E-03	0.120

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZN-65	1115.52	*		-3.899E-02	1.422E-01	1.972E-01	1.673E-02	-0.198
GE-68	1077.35	*		-5.495E-01	1.777E+00	2.891E+00	2.505E-01	-0.190
AS-74	595.88	*		6.050E-02	2.023E-01	3.427E-01	3.073E-02	0.177
	634.78			1.363E-01	8.187E-01	1.373E+00	1.224E-01	0.099
SE-75	66.05			-5.724E+01	1.974E+01	2.690E+01	2.552E+00	-2.128
	96.73			4.657E+01	7.939E+00	6.456E+00	8.943E-01	7.213
	121.11	+		1.304E+00	7.977E-01	9.032E-01	1.012E-01	1.444
	136.00			4.748E-02	1.528E-01	2.338E-01	1.966E-02	0.203
	198.60			-5.420E-01	7.059E+00	7.632E+00	7.015E-01	-0.071
	264.65	*		-3.485E-02	1.014E-01	1.610E-01	1.374E-02	-0.217
	279.53			-7.928E-02	2.563E-01	4.207E-01	3.709E-02	-0.188
	303.91			2.809E+00	5.227E+00	7.749E+00	8.859E-01	0.362
	400.65			-4.176E-01	5.557E-01	8.682E-01	9.491E-02	-0.481
BR-77	87.88			-1.542E+04	2.789E+03	2.442E+03	2.298E+02	-6.313
	200.40			1.363E+03	9.137E+02	1.324E+03	1.088E+02	1.030
	239.00	+		4.067E+02	6.922E+01	9.692E+01	8.190E+00	4.197
	249.79			-8.813E+01	2.791E+02	4.611E+02	3.911E+01	-0.191
	281.68			-3.155E+02	3.692E+02	5.938E+02	5.046E+01	-0.531
	297.23			6.129E+02	3.256E+02	3.855E+02	3.295E+01	1.590
	303.76			4.263E+02	7.797E+02	1.157E+03	9.908E+01	0.368
	439.47			-1.734E+02	5.633E+02	8.948E+02	7.707E+01	-0.194
	484.57			3.524E+02	9.289E+02	1.514E+03	1.333E+02	0.233
	520.65	*		5.965E+00	4.087E+01	6.930E+01	6.173E+00	0.086
	574.64			5.443E+01	8.808E+02	1.289E+03	1.156E+02	0.042
	578.91			-1.115E+02	3.606E+02	5.139E+02	4.609E+01	-0.217
	585.48			2.643E+03	8.326E+02	1.368E+03	1.226E+02	1.933
	755.35			-1.215E+02	6.510E+02	1.059E+03	9.634E+01	-0.115
	817.79			-1.510E+02	4.876E+02	7.806E+02	7.160E+01	-0.193
SR-82	698.33			3.260E+01	8.108E+01	1.365E+02	1.224E+01	0.239
	776.49	*		-3.168E-01	9.233E-01	1.486E+00	1.357E-01	-0.213
	1395.20			-3.838E+00	1.767E+01	2.820E+01	2.334E+00	-0.136
RB-83	520.41	*		3.130E-02	1.553E-01	2.640E-01	2.351E-02	0.119
	529.64			8.357E-02	2.509E-01	4.278E-01	3.818E-02	0.195
	552.65			-1.016E-01	4.319E-01	7.171E-01	6.423E-02	-0.142
RB-84	881.50	*		3.793E-01	1.684E-01	3.029E-01	2.777E-02	1.252
KR-85	513.99	*		1.502E+01	1.714E+01	2.638E+01	2.346E+00	0.569
SR-85	513.99	*		7.863E-02	8.971E-02	1.381E-01	1.228E-02	0.569
RB-86	1076.63	*		2.091E-01	1.172E+00	1.993E+00	1.728E-01	0.105
Y-88	898.02			7.387E-02	7.868E-02	1.351E-01	1.242E-02	0.547
	1836.01	*		-7.533E-02	6.582E-02	9.086E-02	7.374E-03	-0.829
ZR-88	392.90	*		-3.948E-02	7.219E-02	1.145E-01	9.537E-03	-0.345
Y-91	1204.90	*		-2.374E+00	2.427E+01	3.991E+01	3.259E+00	-0.059
NB-94	702.63	*		-2.722E-02	7.614E-02	1.235E-01	1.109E-02	-0.220
	871.10			-7.603E-03	6.216E-02	1.001E-01	9.188E-03	-0.076
NB-95M	235.69	*		1.408E-01	3.243E-01	4.846E-01	4.704E-02	0.291
ZR-95	724.18			-3.453E-02	2.391E-01	3.379E-01	3.294E-02	-0.102
	756.15	*		-1.212E-02	1.626E-01	2.661E-01	2.643E-02	-0.046
NB-97	657.90	*		-3.904E-01	1.626E-01	Half-Life too short		
	1024.50			3.873E+01	1.626E-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
ZR-97	254.15			6.187E+01	1.626E-01	Half-Life too short		
	355.39			-1.700E+01	1.626E-01	Half-Life too short		
	507.63	*		1.164E+01	1.626E-01	Half-Life too short		
	602.52			9.005E+01	1.626E-01	Half-Life too short		
	1021.30			9.258E+00	1.626E-01	Half-Life too short		
	1147.95			-2.087E+00	1.626E-01	Half-Life too short		
	1362.66			-1.148E+01	1.626E-01	Half-Life too short		
	1750.46			6.453E+01	1.626E-01	Half-Life too short		
MO-99	140.51			1.959E+02	1.833E+02	2.545E+02	7.022E+01	0.769
	181.06			3.066E+01	9.916E+01	1.570E+02	2.830E+01	0.195
	366.43			-1.643E+02	3.198E+02	5.106E+02	4.325E+01	-0.322
	739.58	*		1.234E+01	5.360E+01	7.759E+01	1.198E+01	0.159
	778.00			-3.005E+01	1.336E+02	2.165E+02	1.977E+01	-0.139
TC-99M	140.51	*		3.922E+13	1.336E+02	Half-Life too short		
RH-101	127.23			-9.203E-02	1.253E-01	1.884E-01	1.600E-02	-0.488
	198.01	*		-2.378E-02	1.290E-01	1.386E-01	1.137E-02	-0.172
	325.23			-1.688E-01	4.863E-01	7.888E-01	6.764E-02	-0.214
RH-102	418.52			2.260E-01	6.613E-01	1.085E+00	9.215E-02	0.208
	475.06	*		-1.428E-02	6.963E-02	1.106E-01	9.702E-03	-0.129
	631.29			-4.824E-02	1.165E-01	1.897E-01	1.692E-02	-0.254
	697.49			7.097E-03	1.741E-01	2.883E-01	2.584E-02	0.025
	766.84	+		7.155E+00	8.588E-01	1.012E+00	9.227E-02	7.070
	1046.59			-2.130E-02	1.697E-01	2.786E-01	2.450E-02	-0.076
	1112.84			8.860E-02	3.392E-01	5.057E-01	4.294E-02	0.175
RU-103	497.08	*		1.596E-02	9.746E-02	1.570E-01	2.245E-02	0.102
	610.33	+		1.494E+01	4.182E+00	4.509E+00	7.602E-01	3.313
RH-106	511.85	+		9.333E-01	6.272E-01	7.342E-01	6.525E-02	1.271
	621.84	*		3.087E-01	6.649E-01	1.131E+00	1.534E-01	0.273
	1050.47			1.898E-01	3.290E+00	5.546E+00	4.869E-01	0.034
RU-106	511.85	+		9.333E-01	6.272E-01	7.342E-01	6.525E-02	1.271
	621.84	*		3.087E-01	6.642E-01	1.131E+00	1.011E-01	0.273
	1050.47			1.898E-01	3.290E+00	5.546E+00	4.869E-01	0.034
AG-108M	433.93	*		2.460E-02	7.219E-02	1.182E-01	1.056E-02	0.208
	614.37			-5.221E-03	8.960E-02	1.293E-01	1.199E-02	-0.040
	722.95			9.897E-04	1.022E-01	1.462E-01	1.367E-02	0.007
CD-109	88.03	*		-3.314E+01	6.939E+00	6.488E+00	6.112E-01	-5.108
AG-110M	657.75	*		-3.332E-02	9.078E-02	1.273E-01	1.160E-02	-0.262
	677.61			-3.936E-01	6.368E-01	1.017E+00	9.294E-02	-0.387
	706.67			2.620E-01	4.531E-01	7.689E-01	7.088E-02	0.341
	763.93			4.307E+00	7.045E-01	1.106E+00	1.034E-01	3.894
	884.67			2.829E-03	1.109E-01	1.804E-01	1.701E-02	0.016
	937.48			4.635E-02	1.856E-01	3.063E-01	2.878E-02	0.151
	1384.27			-1.344E-01	2.267E-01	3.421E-01	2.914E-02	-0.393
IN-111	171.28			-1.403E+00	5.610E+00	8.825E+00	7.023E-01	-0.159
	245.39	*		-2.577E+00	4.583E+00	6.581E+00	5.574E-01	-0.392
IN-113M	391.69	*		-8.817E-02	1.065E-01	1.668E-01	1.434E-02	-0.529
SN-113	391.69	*		-8.817E-02	1.065E-01	1.668E-01	1.434E-02	-0.529
IN-114M	190.27	*		-4.287E-01	7.578E-01	7.995E-01	6.505E-02	-0.536
CD-115	260.90			7.207E+02	6.087E+02	9.306E+02	7.907E+01	0.774

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		492.35		1.275E+01	1.523E+02	2.446E+02	2.161E+01	0.052
		527.90	*	2.660E+01	4.604E+01	7.923E+01	7.069E+00	0.336
SN-117M		156.02		-9.257E+00	8.657E+00	1.343E+01	1.082E+00	-0.689
		158.56	*	7.428E-02	2.354E-01	3.345E-01	2.682E-02	0.222
SB-122		563.90	*	6.272E+00	8.279E+00	1.265E+01	1.134E+00	0.496
		692.80		1.901E+02	1.597E+02	2.777E+02	2.485E+01	0.684
I-123		159.00	*	2.018E+02	1.597E+02	Half-Life	too short	
		528.96		1.046E+04	1.597E+02	Half-Life	too short	
TE-123M		159.00	*	8.403E-02	1.117E-01	1.601E-01	1.292E-02	0.525
I-124		602.71	*	1.990E+00	2.028E+00	3.254E+00	2.916E-01	0.612
		722.78		8.289E-01	1.482E+01	2.125E+01	1.919E+00	0.039
		1325.50		1.636E+00	7.194E+01	1.188E+02	9.735E+00	0.014
		1376.25		4.324E+01	5.916E+01	1.051E+02	8.676E+00	0.411
+		1509.49		6.330E+01	3.599E+01	6.070E+01	5.075E+00	1.043
		1691.02		-3.719E+00	7.506E+00	1.091E+01	9.065E-01	-0.341
SB-124		602.71		8.548E-02	8.711E-02	1.398E-01	1.252E-02	0.612
		645.85		-1.795E-01	1.055E+00	1.738E+00	1.632E-01	-0.103
		709.31		-3.202E+00	5.995E+00	9.602E+00	8.638E-01	-0.333
		713.82		-9.455E-01	3.360E+00	5.452E+00	6.717E-01	-0.173
		722.78		5.160E-02	9.222E-01	1.323E+00	1.218E-01	0.039
+		968.20		1.337E+01	5.678E+00	9.499E+00	8.587E-01	1.408
		1045.16		7.437E-01	3.779E+00	6.341E+00	5.581E-01	0.117
		1325.50		1.087E-01	4.783E+00	7.899E+00	6.473E-01	0.014
		1368.21		-1.564E-01	2.208E+00	3.590E+00	4.752E-01	-0.044
		1436.60		1.023E+01	6.436E+00	1.225E+01	1.019E+00	0.835
		1691.02	*	-5.460E-02	1.102E-01	1.602E-01	1.388E-02	-0.341
SB-125		427.89	*	1.449E-01	2.082E-01	3.459E-01	3.016E-02	0.419
		463.38		8.443E-01	6.599E-01	1.108E+00	1.041E-01	0.762
		600.56		-1.666E-01	3.691E-01	6.025E-01	5.768E-02	-0.276
		635.90		4.691E-01	5.763E-01	9.944E-01	9.534E-02	0.472
I-126		388.63		4.059E-01	5.253E-01	8.777E-01	7.322E-02	0.462
		666.33	*	-1.992E-01	5.096E-01	7.125E-01	6.317E-02	-0.280
		753.82		3.205E+00	3.476E+00	5.981E+00	5.440E-01	0.536
SB-126		223.80		-1.161E+01	1.093E+01	1.778E+01	1.490E+00	-0.653
		278.60		-4.090E-01	6.424E+00	1.063E+01	9.022E-01	-0.038
+		296.50		1.790E+01	5.509E+00	6.883E+00	5.882E-01	2.600
		414.70		6.985E-02	1.849E-01	3.040E-01	2.576E-02	0.230
		415.30		1.190E+01	1.541E+01	2.572E+01	2.180E+00	0.462
		555.20		2.795E+00	9.454E+00	1.608E+01	1.440E+00	0.174
		573.80		7.839E-01	2.756E+00	4.093E+00	3.670E-01	0.192
		593.00		-9.653E-01	2.180E+00	3.562E+00	3.194E-01	-0.271
		656.30		-7.532E-01	9.352E+00	1.340E+01	1.188E+00	-0.056
		666.33		-8.360E-02	2.139E-01	2.991E-01	2.652E-02	-0.280
		675.00		-1.113E+00	4.499E+00	7.349E+00	6.537E-01	-0.151
		695.00		-2.077E-01	1.995E-01	3.116E-01	2.791E-02	-0.667
		697.00		4.366E-02	6.741E-01	1.118E+00	1.002E-01	0.039
		720.50	*	-3.069E-02	3.676E-01	5.686E-01	5.132E-02	-0.054
		856.80		-1.440E+00	1.100E+00	1.626E+00	1.492E-01	-0.886
		989.30		-1.187E+00	2.281E+00	3.490E+00	3.136E-01	-0.340

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-126	+	1034.80		-1.752E+00	1.290E+01	2.137E+01	1.889E+00	-0.082
		1213.00		1.416E+00	7.301E+00	1.231E+01	1.006E+00	0.115
		64.28		2.212E+02	3.233E+01	6.361E+00	9.225E-01	34.768
		86.94		-1.130E+01	5.133E+00	2.569E+00	1.066E+00	-4.399
SB-127	*	87.57		-3.167E+00	6.652E-01	6.226E-01	5.834E-02	-5.086
		61.10		2.653E+03	4.707E+02	5.935E+02	6.403E+01	4.471
		252.40		-3.418E+00	1.510E+01	2.405E+01	1.014E+01	-0.142
		290.80		-2.240E+01	7.765E+01	1.113E+02	1.301E+01	-0.201
		411.60		-3.991E+00	3.837E+01	6.184E+01	9.939E+00	-0.065
		444.90		-9.470E-01	3.205E+01	5.156E+01	6.748E+00	-0.018
		473.00		-4.017E+00	5.689E+00	8.786E+00	1.185E+00	-0.457
		543.00		-5.538E+00	5.360E+01	8.969E+01	1.351E+01	-0.062
		603.60		1.929E+01	3.878E+01	5.803E+01	7.704E+00	0.332
		685.20		-9.170E-01	4.193E+00	6.857E+00	8.364E-01	-0.134
		698.50		2.612E+01	4.859E+01	8.204E+01	1.348E+01	0.318
		722.20		5.845E+01	1.021E+02	1.518E+02	1.832E+01	0.385
XE-127	+	783.80		1.442E+00	1.445E+01	2.378E+01	3.166E+00	0.061
		57.60		2.630E+00	3.346E+01	3.942E+01	2.858E+00	0.067
		145.22		1.088E+02	1.038E+01	7.115E+00	5.841E-01	15.292
		172.10		-2.433E-01	4.296E-01	6.708E-01	5.344E-02	-0.363
I-131	*	202.84		6.044E-01	1.751E-01	2.539E-01	2.093E-02	2.380
		374.96		-3.369E-02	4.726E-01	7.675E-01	6.467E-02	-0.044
		80.18		-6.059E-01	3.429E+01	3.961E+01	3.414E+00	-0.015
		284.30		7.617E-01	4.041E+00	6.731E+00	6.042E-01	0.113
TE-132	*	364.48		-3.615E-02	3.141E-01	5.101E-01	4.575E-02	-0.071
		636.97		7.839E-01	3.958E+00	6.646E+00	6.242E-01	0.118
		722.89		5.312E-01	2.041E+01	2.921E+01	2.657E+00	0.018
		49.72		2.034E+02	9.616E+01	1.437E+02	1.565E+01	1.415
BA-133	+	111.76		1.454E+03	2.925E+02	4.386E+02	5.004E+01	3.314
		116.30		2.846E+02	2.339E+02	2.711E+02	3.086E+01	1.050
		228.16		1.684E+00	2.530E+00	4.286E+00	6.847E-01	0.393
		53.15		3.201E+01	2.122E+01	2.077E+01	1.565E+00	1.541
I-133	*	79.62		-1.699E+01	8.680E+00	9.226E+00	1.398E+00	-1.842
		81.00		1.639E-01	6.283E-01	7.282E-01	1.157E-01	0.225
		276.40		7.676E-01	8.723E-01	1.472E+00	2.115E-01	0.522
		302.84		-2.629E-01	3.687E-01	5.137E-01	6.805E-02	-0.512
CS-134	+	356.01		-3.238E-02	1.119E-01	1.583E-01	2.079E-02	-0.205
		383.85		-1.081E-01	6.843E-01	1.106E+00	1.375E-01	-0.098
		510.53		9.091E+00	6.843E-01	Half-Life too short		
		529.87		1.063E-02	6.843E-01	Half-Life too short		
	*	706.58		2.392E+00	6.843E-01	Half-Life too short		
		856.28		-6.722E+00	6.843E-01	Half-Life too short		
		875.33		-1.901E-01	6.843E-01	Half-Life too short		
		1236.41		4.500E+00	6.843E-01	Half-Life too short		
	+	1298.22		-1.690E+00	6.843E-01	Half-Life too short		
		475.35		2.256E+00	4.445E+00	7.288E+00	6.394E-01	0.310
		563.23		9.202E-01	8.471E-01	1.367E+00	1.237E-01	0.673
		569.32		8.529E-01	5.885E-01	7.938E-01	7.208E-02	1.074
	+	604.70		4.152E-02	8.044E-02	1.205E-01	1.082E-02	0.345



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	795.84	*		1.480E-01	1.083E-01	1.880E-01	1.732E-02	0.787
	801.93			-8.703E-01	8.885E-01	1.375E+00	1.266E-01	-0.633
	1038.57			-2.522E+00	5.484E+00	8.815E+00	7.779E-01	-0.286
	1167.94			-2.077E+00	3.128E+00	4.840E+00	3.955E-01	-0.429
	1365.15			-1.464E-01	1.575E+00	2.554E+00	2.209E-01	-0.057
	268.24	*		-5.540E-03	3.524E-01	5.852E-01	5.770E-02	-0.009
	288.45			-3.144E+12	3.524E-01	Half-Life	too short	
	417.63			3.813E+12	3.524E-01	Half-Life	too short	
	546.56			-1.780E+12	3.524E-01	Half-Life	too short	
	836.80			2.180E+12	3.524E-01	Half-Life	too short	
	1038.76			-1.617E+12	3.524E-01	Half-Life	too short	
	1124.00			1.046E+13	3.524E-01	Half-Life	too short	
	1131.51			-6.375E+11	3.524E-01	Half-Life	too short	
	1260.41	*		-2.488E+11	3.524E-01	Half-Life	too short	
	1457.56			4.085E+13	3.524E-01	Half-Life	too short	
CS-136	1678.03			2.455E+11	3.524E-01	Half-Life	too short	
	1706.46			-2.081E+12	3.524E-01	Half-Life	too short	
	1791.20			1.248E+12	3.524E-01	Half-Life	too short	
	66.91			-8.998E+00	3.691E+00	4.903E+00	7.274E-01	-1.835
	86.29			2.253E+00	6.279E+00	9.182E+00	1.218E+00	0.245
	153.22			3.556E+00	2.512E+00	4.064E+00	3.727E-01	0.875
	163.89	+		8.505E+01	1.016E+01	1.016E+01	9.199E-01	8.372
	176.55			-8.343E-01	1.318E+00	2.210E+00	1.889E-01	-0.377
	273.65			-2.945E-01	1.162E+00	1.913E+00	1.736E-01	-0.154
	340.57			3.776E-01	3.336E-01	5.040E-01	4.440E-02	0.749
	818.51			-2.813E-02	1.717E-01	2.776E-01	2.549E-02	-0.101
	1048.07	*		-9.103E-02	1.800E-01	2.854E-01	2.611E-02	-0.319
	1235.34			4.302E-01	1.104E+00	1.640E+00	1.892E-01	0.262
	165.85	*		1.882E-01	1.182E-01	1.716E-01	1.357E-02	1.097
	162.64	+		6.006E+01	6.921E+00	7.125E+00	6.055E-01	8.431
CE-139 BA-140	304.84			2.104E+00	3.436E+00	5.305E+00	1.486E+00	0.397
	423.70			-3.887E+00	5.042E+00	7.616E+00	2.467E+00	-0.510
	537.32	*		1.811E-01	6.576E-01	1.114E+00	3.702E-01	0.163
	328.77			3.483E-01	7.258E-01	1.210E+00	1.096E-01	0.288
	432.53			7.188E-01	5.185E+00	8.419E+00	7.576E-01	0.085
	487.03			1.993E-01	3.498E-01	5.745E-01	5.364E-02	0.347
	751.79			-1.007E+00	4.046E+00	6.556E+00	6.536E-01	-0.154
	815.85			-2.093E-01	7.253E-01	1.162E+00	1.175E-01	-0.180
	867.82			-5.519E-01	2.719E+00	4.352E+00	4.181E-01	-0.127
	919.63			-3.372E+00	6.874E+00	9.075E+00	1.004E+00	-0.372
	925.24			6.729E+00	2.778E+00	5.041E+00	4.858E-01	1.335
	1596.49	*		1.415E-01	1.602E-01	2.620E-01	2.192E-02	0.540
	145.44	*		5.940E+00	5.914E-01	5.901E-01	4.940E-02	10.066
	57.37			-8.864E-03	5.914E-01	Half-Life	too short	
	231.56			-6.622E-03	5.914E-01	Half-Life	too short	
CE-143	293.26	*		2.216E-03	5.914E-01	Half-Life	too short	
	350.59	+		9.355E-02	5.914E-01	Half-Life	too short	
	490.36			-2.045E-03	5.914E-01	Half-Life	too short	
	664.57			7.776E-02	5.914E-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
	721.93			4.709E-03	5.914E-01	Half-Life	too short	
CE-144	80.11			-1.623E+00	1.338E+01	1.543E+01	1.318E+00	-0.105
	133.54	*		1.660E-01	8.361E-01	1.196E+00	1.846E-01	0.139
PM-144	476.78			6.899E-02	1.597E-01	2.609E-01	2.498E-02	0.264
	618.01			-8.610E-03	6.989E-02	1.127E-01	1.034E-02	-0.076
	696.49	*		-3.869E-02	7.803E-02	1.257E-01	1.127E-02	-0.308
	778.57			-1.377E+00	5.502E+00	8.903E+00	8.136E-01	-0.155
PR-144	696.49	*		-2.624E+00	5.293E+00	8.529E+00	7.643E-01	-0.308
	1489.15			-4.895E+00	1.751E+01	2.738E+01	2.287E+00	-0.179
PM-146	453.90	*		-1.055E-02	1.058E-01	1.694E-01	1.825E-02	-0.062
	633.02			-7.923E-01	3.009E+00	4.916E+00	1.841E+00	-0.161
	735.90			3.037E-01	3.676E-01	5.827E-01	1.674E-01	0.521
	747.13			2.663E-02	2.288E-01	3.289E-01	4.713E-02	0.081
ND-147	91.11			1.693E+02	1.697E+01	5.330E+00	5.276E-01	31.756
	319.41			1.085E+00	8.466E+00	1.399E+01	1.200E+00	0.078
	439.89			-7.168E-01	1.466E+01	2.358E+01	2.032E+00	-0.030
	531.02	*		7.989E-01	1.468E+00	2.517E+00	3.808E-01	0.317
PM-149	285.90	*		7.137E+00	3.837E+02	6.356E+02	9.846E+01	0.011
EU-152	121.78			6.962E-01	4.243E-01	4.793E-01	4.749E-02	1.452
	244.69			-3.552E-01	8.586E-01	1.241E+00	1.051E-01	-0.286
	344.27	*		-3.714E-02	2.193E-01	3.443E-01	3.121E-02	-0.108
	443.98			5.957E-01	2.184E+00	3.561E+00	3.075E-01	0.167
	778.89			-5.635E-02	6.379E-01	1.041E+00	9.512E-02	-0.054
	867.32			-6.117E-02	1.475E+00	2.391E+00	2.194E-01	-0.026
	964.01			7.138E-01	6.415E-01	8.671E-01	7.847E-02	0.823
	1085.78			2.012E-01	5.565E-01	9.609E-01	8.289E-02	0.209
	1112.02			1.248E-01	4.600E-01	7.127E-01	6.054E-02	0.175
	1407.95			1.751E-01	2.745E-01	4.829E-01	4.003E-02	0.363
GD-153	69.67			9.069E+00	6.378E+00	1.057E+01	8.097E-01	0.858
	83.37			8.801E+02	1.348E+02	1.346E+02	1.195E+01	6.541
	97.43	*		7.673E+00	8.350E-01	7.425E-01	6.640E-02	10.333
	103.18			9.716E-01	5.829E-01	6.869E-01	6.028E-02	1.414
EU-154	123.07			2.496E-02	2.210E-01	3.171E-01	3.592E-02	0.079
	247.94			8.717E-01	8.577E-01	1.461E+00	1.661E-01	0.597
	591.81			-9.882E-02	1.361E+00	2.140E+00	2.553E-01	-0.046
	723.30			-1.067E-02	4.270E-01	6.089E-01	6.029E-02	-0.018
	756.87			-1.480E-01	1.742E+00	2.850E+00	3.513E-01	-0.052
	873.19			9.183E-02	5.670E-01	9.323E-01	1.178E-01	0.099
	996.32			1.042E+00	7.847E-01	1.213E+00	2.176E-01	0.859
	1004.76			5.897E+00	9.790E-01	1.438E+00	1.708E-01	4.102
	1274.45	*		-1.034E-02	1.637E-01	2.687E-01	2.954E-02	-0.038
EU-155	48.70			5.117E+00	7.445E+00	1.121E+01	9.074E-01	0.456
	60.01			6.246E+01	2.198E+01	3.291E+01	2.370E+00	1.898
	86.54			-2.532E+00	5.909E-01	7.489E-01	6.986E-02	-3.382
	105.31	*		2.459E+00	5.584E-01	7.526E-01	6.650E-02	3.267
TB-160	86.79			-7.066E+00	1.610E+00	2.029E+00	1.882E-01	-3.482
	197.04			1.272E+00	1.950E+00	2.524E+00	2.068E-01	0.504
	215.65			-6.019E-02	1.792E+00	3.009E+00	2.508E-01	-0.020
	298.57			3.655E-01	2.448E-01	4.267E-01	3.649E-02	0.857

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		879.36	*	5.721E-02	3.265E-01	5.359E-01	4.915E-02	0.107
		962.29		9.530E-01	9.107E-01	1.440E+00	1.304E-01	0.662
	+	966.15		4.993E-01	4.487E-01	6.527E-01	5.904E-02	0.765
		1177.93		-3.776E-01	4.912E-01	7.544E-01	6.143E-02	-0.500
		1271.85		1.043E-01	9.683E-01	1.619E+00	1.327E-01	0.064
		80.57		-1.706E+00	1.764E+00	1.995E+00	1.714E-01	-0.855
	+	184.41		2.520E+01	2.069E+00	6.492E-01	5.247E-02	38.817
		280.46		-7.459E-02	1.968E-01	3.221E-01	2.736E-02	-0.232
		410.95		5.073E-01	5.358E-01	8.993E-01	7.599E-02	0.564
		711.68	*	-5.439E-02	1.245E-01	2.003E-01	1.803E-02	-0.272
TM-171		752.31		-1.342E-01	5.918E-01	9.604E-01	8.732E-02	-0.140
		810.29		-1.752E-02	1.282E-01	2.078E-01	1.905E-02	-0.084
		51.35		2.630E+02	1.075E+02	1.624E+02	1.254E+01	1.619
	+	52.39		1.336E+02	8.856E+01	8.916E+01	6.784E+00	1.498
		59.40		2.783E+02	1.160E+02	1.741E+02	1.252E+01	1.599
LU-176		66.72	*	-3.365E+02	1.155E+02	1.598E+02	1.195E+01	-2.106
		88.36		-5.998E+00	1.553E+00	1.550E+00	1.457E-01	-3.869
	+	201.83		3.567E-01	1.033E-01	1.433E-01	1.180E-02	2.489
		306.84	*	-4.733E-03	5.669E-02	9.319E-02	7.983E-03	-0.051
LU-177		401.10		-1.148E+01	1.434E+01	2.238E+01	1.877E+00	-0.513
	+	112.95		1.738E+02	1.940E+01	1.891E+01	1.631E+00	9.192
		208.36	*	7.206E+00	3.556E+00	5.540E+00	4.589E-01	1.301
LU-177M	+	52.97		1.442E+01	9.561E+00	9.428E+00	7.119E-01	1.530
	+	54.07		8.172E+00	5.418E+00	5.063E+00	3.775E-01	1.614
		61.30		8.390E+01	9.346E+00	1.172E+01	8.482E-01	7.160
HF-181	+	121.62		3.600E+00	2.187E+00	2.489E+00	2.139E-01	1.447
		147.16		2.068E+00	2.474E+00	3.568E+00	2.919E-01	0.580
		171.86		-9.937E-01	1.681E+00	2.624E+00	2.090E-01	-0.379
		218.09		-1.704E+00	2.054E+00	3.372E+00	2.815E-01	-0.505
		268.79		1.495E+00	1.797E+00	3.051E+00	2.593E-01	0.490
		319.02		1.871E-02	5.860E-01	9.650E-01	8.276E-02	0.019
		367.43		-9.116E-01	2.147E+00	3.442E+00	2.914E-01	-0.265
		413.65	*	-4.227E-01	4.006E-01	6.161E-01	5.216E-02	-0.686
		56.28		-9.863E+00	4.112E+00	5.843E+00	4.272E-01	-1.688
		57.53		1.712E-02	2.797E+00	3.291E+00	2.386E-01	0.005
		65.20		7.069E+01	6.760E+00	7.411E+00	5.484E-01	9.539
	+	133.02		3.259E-01	2.597E-01	3.989E-01	3.348E-02	0.817
		136.25		7.269E-01	1.727E+00	2.780E+00	2.319E-01	0.261
		345.85		-1.807E-03	4.535E-01	7.168E-01	6.124E-02	-0.003
		482.03	*	-9.823E-02	1.043E-01	1.590E-01	1.399E-02	-0.618
W-181		56.28		-3.779E+00	1.576E+00	2.240E+00	1.638E-01	-1.687
		57.53		4.277E-03	1.073E+00	1.263E+00	9.155E-02	0.003
		65.20	*	2.691E+01	2.573E+00	2.821E+00	2.087E-01	9.539
TA-182		67.75		-9.569E-01	4.662E-01	6.611E-01	4.984E-02	-1.447
		100.10		8.518E+00	1.155E+00	1.446E+00	1.281E-01	5.889
		152.43		1.124E+00	1.169E+00	1.887E+00	1.530E-01	0.596
		222.10		2.602E-01	8.428E-01	1.424E+00	1.192E-01	0.183
	+	1001.68		3.330E+02	3.363E+01	3.150E+01	2.820E+00	10.572
	+	1121.28		8.829E-01	3.019E-01	4.616E-01	3.898E-02	1.913

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		1189.05		-5.069E-01	4.485E-01	6.659E-01	5.429E-02	-0.761
		1221.42	*	-1.378E-01	2.677E-01	4.226E-01	3.456E-02	-0.326
		1230.97		-6.228E-02	7.815E-01	1.103E+00	9.025E-02	-0.056
		57.98		9.425E-01	9.365E-01	1.285E+00	9.293E-02	0.734
		59.32		1.229E+00	4.841E-01	7.262E-01	5.223E-02	1.693
		67.20		-2.019E+00	8.340E-01	1.171E+00	8.791E-02	-1.724
	+	162.32	*	8.057E+00	8.966E-01	9.355E-01	7.448E-02	8.613
		208.81		4.140E+00	2.633E+00	4.070E+00	3.372E-01	1.017
		291.72		1.570E+00	2.393E+00	3.571E+00	3.047E-01	0.440
		57.98		3.434E+00	3.412E+00	4.680E+00	3.386E-01	0.734
RE-184		59.32		4.475E+00	1.762E+00	2.643E+00	1.901E-01	1.693
		67.20		-7.352E+00	3.037E+00	4.265E+00	3.202E-01	-1.724
		161.27		4.087E+00	1.503E+00	2.201E+00	1.756E-01	1.857
		216.55		-3.998E-01	6.345E-01	1.048E+00	8.740E-02	-0.381
		252.85	*	3.841E-02	5.898E-01	9.140E-01	7.757E-02	0.042
		318.01		-5.816E-01	1.021E+00	1.644E+00	1.410E-01	-0.354
		792.07		-6.862E+00	2.666E+00	3.692E+00	3.378E-01	-1.859
		903.28		-9.327E-01	1.959E+00	2.733E+00	2.501E-01	-0.341
		920.93		-1.096E+00	1.036E+00	1.434E+00	1.309E-01	-0.764
		59.72		3.801E+00	1.314E+00	1.968E+00	1.415E-01	1.931
OS-185		61.14		6.161E+00	8.840E-01	1.223E+00	8.844E-02	5.039
		69.30		1.893E+00	1.140E+00	1.889E+00	1.443E-01	1.002
		592.07		-4.709E-01	5.453E+00	8.837E+00	7.924E-01	-0.053
		646.12	*	-2.149E-02	8.951E-02	1.468E-01	1.305E-02	-0.146
		717.42		1.566E-01	1.903E+00	3.153E+00	2.843E-01	0.050
		874.81		4.078E-01	1.174E+00	1.952E+00	1.791E-01	0.209
		880.27		2.845E-01	1.817E+00	2.980E+00	2.732E-01	0.095
		155.03	*	-3.385E-01	6.020E-01	9.460E-01	7.633E-02	-0.358
		477.96		2.460E+00	7.466E+00	1.214E+01	1.067E+00	0.203
		633.10		-1.273E+00	6.187E+00	1.019E+01	9.086E-01	-0.125
W-188	+	63.58		2.290E+04	1.736E+03	7.147E+02	5.235E+01	32.040
		227.08		3.661E+01	3.147E+01	5.400E+01	4.535E+00	0.678
IR-192		290.67	*	-6.786E+00	1.923E+01	2.747E+01	2.343E+00	-0.247
	+	295.96		1.251E+00	3.853E-01	4.888E-01	4.207E-02	2.560
		308.46		-7.255E-02	2.212E-01	3.603E-01	3.103E-02	-0.201
		316.51	*	-1.930E-02	7.985E-02	1.303E-01	1.120E-02	-0.148
		468.07		1.907E-02	1.624E-01	2.621E-01	2.453E-02	0.073
		604.41		6.201E-01	1.110E+00	1.664E+00	2.203E-01	0.373
AU-195		612.46		1.685E+00	1.747E+00	2.675E+00	2.726E-01	0.630
		65.12		1.629E+01	1.436E+00	1.391E+00	1.029E-01	11.714
		66.83		-1.060E+00	3.838E-01	5.335E-01	3.994E-02	-1.987
	+	75.70		1.558E+00	9.249E-01	1.253E+00	1.018E-01	1.244
	+	98.88	*	2.238E+01	2.436E+00	2.165E+00	1.925E-01	10.339
		129.76		1.496E+00	1.193E+01	1.706E+01	1.442E+00	0.088
TL-200		367.94	*	-6.167E-04	1.193E+01	Half-Life	too short	
		579.30		-3.451E-03	1.193E+01	Half-Life	too short	
		828.27		-9.230E-03	1.193E+01	Half-Life	too short	
TL-201		1205.75		-6.534E-03	1.193E+01	Half-Life	too short	
		68.90		3.126E+01	2.786E+01	4.618E+01	3.514E+00	0.677

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		2.468E+00	1.653E+01	2.723E+01	2.107E+00	0.091
		80.30		7.887E+00	4.941E+01	5.723E+01	4.900E+00	0.138
		135.34		1.853E+02	1.612E+02	2.342E+02	1.957E+01	0.791
		167.43	*	1.476E+01	4.181E+01	5.929E+01	4.696E+00	0.249
		68.90		2.011E+00	1.791E+00	2.970E+00	2.260E-01	0.677
		70.82		1.583E-01	1.060E+00	1.746E+00	1.351E-01	0.091
HG-203		80.30		5.059E-01	3.169E+00	3.672E+00	3.143E-01	0.138
		439.56	*	-4.238E-02	1.724E-01	2.747E-01	2.366E-02	-0.154
		70.83		6.548E-01	4.234E+00	6.972E+00	9.110E-01	0.094
		72.87		2.993E-01	2.510E+00	4.129E+00	5.260E-01	0.072
BI-207		82.60		4.146E+01	8.402E+00	9.590E+00	1.329E+00	4.323
		279.20	*	-1.147E-02	9.807E-02	1.620E-01	1.415E-02	-0.071
		72.80		5.694E-02	7.152E-01	1.176E+00	9.276E-02	0.048
		74.97		2.458E-01	4.645E-01	6.853E-01	5.526E-02	0.359
TL-207	+	84.90		1.132E+01	1.734E+00	1.682E+00	1.523E-01	6.732
	+	569.67		1.327E-01	9.154E-02	1.239E-01	1.111E-02	1.071
		1063.62	*	8.778E-03	6.816E-02	1.156E-01	1.009E-02	0.076
		1770.23		4.800E-01	6.881E-01	1.160E+00	9.532E-02	0.414
PO-209		81.07		3.985E-01	1.386E+00	1.608E+00	1.389E-01	0.248
	+	83.78		7.463E+00	1.143E+00	1.140E+00	1.018E-01	6.544
	+	94.90		1.244E+01	2.816E+00	2.545E+00	2.301E-01	4.887
		122.32		1.362E+01	7.631E+00	1.117E+01	1.030E+00	1.220
BI-210	+	144.24		1.028E+02	1.077E+01	7.412E+00	6.885E-01	13.867
		154.21		1.499E+00	1.358E+00	2.192E+00	1.971E-01	0.684
		269.46		3.601E-01	4.254E-01	7.218E-01	6.265E-02	0.499
		323.87	*	-9.336E-01	1.462E+00	2.331E+00	4.122E-01	-0.401
PO-209	+	338.28		7.612E+00	3.272E+00	4.117E+00	5.051E-01	1.849
		445.03		-3.827E-01	5.236E+00	8.407E+00	1.017E+00	-0.046
		260.50		7.173E+01	2.622E+01	4.140E+01	3.518E+00	1.733
		262.80		8.541E+00	6.573E+01	9.669E+01	8.217E+00	0.088
BI-210		896.60	*	6.341E+00	1.434E+01	2.385E+01	2.184E+00	0.266
PB-210		46.50	*	-5.431E+00	8.630E+00	1.428E+01	1.339E+00	-0.380
PB-210		46.50	*	-5.431E+00	8.630E+00	1.428E+01	1.339E+00	-0.380
PB-211		404.84	*	-2.253E-01	2.020E+00	3.250E+00	2.036E+00	-0.069
BI-212		427.08		1.759E+00	4.780E+00	7.640E+00	4.746E+00	0.230
		831.96		-1.823E+00	2.751E+00	3.897E+00	2.445E+00	-0.468
	+	727.18	*	6.956E-01	8.326E-01	1.096E+00	1.137E-01	0.635
		785.46		1.520E+01	5.158E+00	9.134E+00	8.351E-01	1.664
PO-215		1620.62		1.576E-01	1.886E+00	3.094E+00	2.585E-01	0.051
		81.07		3.985E-01	1.386E+00	1.608E+00	1.389E-01	0.248
	+	83.78		7.463E+00	1.143E+00	1.140E+00	1.018E-01	6.544
	+	94.90		1.244E+01	2.816E+00	2.545E+00	2.301E-01	4.887
		122.32		1.362E+01	7.631E+00	1.117E+01	1.030E+00	1.220
	+	144.24		1.028E+02	1.077E+01	7.412E+00	6.885E-01	13.867
		154.21		1.499E+00	1.358E+00	2.192E+00	1.971E-01	0.684
		269.46		3.601E-01	4.254E-01	7.218E-01	6.265E-02	0.499
		323.87	*	-9.336E-01	1.462E+00	2.331E+00	4.122E-01	-0.401
	+	338.28		7.612E+00	3.272E+00	4.117E+00	5.051E-01	1.849

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219		445.03		-3.827E-01	5.236E+00	8.407E+00	1.017E+00	-0.046
		271.23		3.976E-01	5.573E-01	9.417E-01	9.614E-02	0.422
		401.81	*	-5.246E-01	8.800E-01	1.383E+00	2.061E-01	-0.379
RN-220		549.76	*	-1.802E+01	5.701E+01	9.435E+01	8.448E+00	-0.191
RA-223		81.07		3.985E-01	1.386E+00	1.608E+00	1.389E-01	0.248
	+	83.78		7.463E+00	1.143E+00	1.140E+00	1.018E-01	6.544
	+	94.90		1.244E+01	2.816E+00	2.545E+00	2.301E-01	4.887
AC-227		122.32		1.362E+01	7.631E+00	1.117E+01	1.030E+00	1.220
	+	144.24		1.028E+02	1.077E+01	7.412E+00	6.885E-01	13.867
		154.21		1.499E+00	1.358E+00	2.192E+00	1.971E-01	0.684
		269.46		3.601E-01	4.254E-01	7.218E-01	6.265E-02	0.499
		323.87	*	-9.336E-01	1.462E+00	2.331E+00	4.122E-01	-0.401
	+	338.28		7.612E+00	3.272E+00	4.117E+00	5.051E-01	1.849
		445.03		-3.827E-01	5.236E+00	8.407E+00	1.017E+00	-0.046
		79.80		-1.975E+01	1.135E+01	1.176E+01	2.523E+00	-1.680
		236.00		4.129E-01	5.953E-01	8.948E-01	1.084E-01	0.461
		256.20	*	1.715E+00	1.099E+00	1.657E+00	2.531E-01	1.035
		286.10		1.849E-01	3.482E+00	5.774E+00	7.583E-01	0.032
	+	299.80		4.569E+00	3.137E+00	5.343E+00	9.327E-01	0.855
TH-227		304.40		2.626E+00	4.700E+00	6.949E+00	1.279E+00	0.378
		334.20		3.048E+00	5.852E+00	8.587E+00	1.665E+00	0.355
		79.80		-1.975E+01	1.137E+01	1.176E+01	2.556E+00	-1.680
	+	94.00		9.950E+01	3.006E+01	3.887E+01	8.537E+00	2.560
		236.00		4.129E-01	5.949E-01	8.948E-01	9.786E-02	0.461
		256.20	*	1.715E+00	1.111E+00	1.657E+00	2.983E-01	1.035
		286.10		1.849E-01	3.487E+00	5.774E+00	5.795E+00	0.032
	+	299.80		4.569E+00	3.137E+00	5.343E+00	9.327E-01	0.855
TH-229		304.40		2.626E+00	4.700E+00	6.949E+00	1.279E+00	0.378
		334.20		3.048E+00	5.852E+00	8.587E+00	1.665E+00	0.355
	+	85.43		1.117E+01	1.711E+00	1.598E+00	1.457E-01	6.992
		88.47		-1.690E+00	8.285E-01	9.022E-01	8.472E-02	-1.873
	+	100.00		1.844E+01	2.007E+00	1.534E+00	1.359E-01	12.019
PA-231		193.63	*	2.450E+00	1.586E+00	2.446E+00	1.997E-01	1.002
		210.97		-9.219E-01	1.937E+00	2.983E+00	2.477E-01	-0.309
		283.67	*	1.475E+00	3.494E+00	5.852E+00	8.847E-01	0.252
TH-231	+	301.29		1.827E+00	1.234E+00	2.140E+00	2.611E-01	0.854
		81.07		3.985E-01	1.386E+00	1.608E+00	1.389E-01	0.248
	+	83.78		7.463E+00	1.143E+00	1.140E+00	1.018E-01	6.544
PA-233	+	94.90		1.244E+01	2.816E+00	2.545E+00	2.301E-01	4.887
		122.32		1.362E+01	7.631E+00	1.117E+01	1.030E+00	1.220
	+	144.24		1.028E+02	1.077E+01	7.412E+00	6.885E-01	13.867
		154.21		1.499E+00	1.358E+00	2.192E+00	1.971E-01	0.684
		269.46		3.601E-01	4.254E-01	7.218E-01	6.265E-02	0.499
		323.87	*	-9.336E-01	1.462E+00	2.331E+00	4.122E-01	-0.401
	+	338.28		7.612E+00	3.272E+00	4.117E+00	5.051E-01	1.849
		445.03		-3.827E-01	5.236E+00	8.407E+00	1.017E+00	-0.046
		75.28		1.036E+01	1.360E+01	2.001E+01	3.012E+00	0.518
		86.59		-4.135E+01	1.422E+01	1.215E+01	3.285E+00	-3.402
	+	300.12		1.274E+00	8.668E-01	1.492E+00	2.214E-01	0.854

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

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234		311.98	*	-4.522E-02	1.463E-01	2.384E-01	2.102E-02	-0.190
		340.50		1.846E+00	1.523E+00	2.226E+00	5.301E-01	0.829
		398.62		4.916E-01	4.575E+00	7.454E+00	1.979E+00	0.066
		415.76		1.590E+00	3.724E+00	6.110E+00	1.313E+00	0.260
	+	63.00		6.512E+02	9.736E+01	2.091E+01	3.096E+00	31.148
	+	94.67		8.872E+00	2.159E+00	2.200E+00	2.796E-01	4.033
	+	98.44		9.002E+00	5.057E+00	8.741E-01	4.880E-01	10.299
	+	99.86		4.666E+01	5.078E+00	4.029E+00	3.571E-01	11.582
	+	111.00		5.971E+00	1.226E+00	1.639E+00	1.985E-01	3.643
	+	131.20		5.036E-01	4.012E-01	6.336E-01	5.337E-02	0.795
		152.70		9.309E-01	1.125E+00	1.799E+00	3.020E-01	0.518
	+	186.00		9.071E+02	2.821E+02	2.645E+01	8.218E+00	34.300
		226.40		1.160E+00	9.770E-01	1.665E+00	2.174E-01	0.697
		227.20		1.083E+00	1.042E+00	1.784E+00	1.498E-01	0.607
		248.90		3.436E-01	1.930E+00	3.233E+00	7.229E-01	0.106
		293.70		5.834E+00	2.042E+00	2.906E+00	5.016E-01	2.007
		369.80		1.783E+00	2.013E+00	3.331E+00	7.232E-01	0.535
	+	568.70		4.318E+00	2.979E+00	3.991E+00	3.579E-01	1.082
	+	569.50		1.178E+00	8.124E-01	1.098E+00	9.845E-02	1.073
		574.00		1.111E+00	3.552E+00	5.283E+00	4.739E-01	0.210
		699.00		1.267E+00	1.618E+00	2.742E+00	5.276E-01	0.462
		706.10		6.587E-01	2.298E+00	3.817E+00	1.705E+00	0.173
		733.00		4.646E-01	9.413E-01	1.385E+00	3.099E-01	0.335
	+	742.81		2.509E+01	1.790E+01	8.384E+00	5.641E+00	2.992
		796.30		2.328E+00	2.191E+00	3.624E+00	9.866E-01	0.642
		805.60		-1.020E+00	2.234E+00	3.522E+00	1.085E+00	-0.290
		819.60		3.586E-01	2.588E+00	4.258E+00	1.625E+00	0.084
		826.30		1.354E+00	1.842E+00	2.971E+00	1.333E+00	0.456
		831.60		-5.050E-01	1.287E+00	2.034E+00	6.104E-01	-0.248
		876.40		-1.759E+00	2.543E+00	2.716E+00	2.793E+00	-0.648
		880.51		6.641E-01	6.280E-01	1.080E+00	9.906E-02	0.615
		883.24		7.829E-01	8.389E-01	1.135E+00	7.637E-01	0.690
		899.00		1.265E+00	1.647E+00	2.665E+00	1.168E+00	0.475
		925.00		6.797E+00	2.566E+00	4.711E+00	4.298E-01	1.443
		926.50		8.333E-01	4.284E-01	6.866E-01	1.748E-01	1.214
	+	946.00	*	1.594E+00	9.411E-01	1.166E+00	2.214E-01	1.367
		949.00		1.690E+00	9.308E-01	1.526E+00	1.385E-01	1.108
		980.50		9.145E-01	1.295E+00	2.201E+00	1.983E-01	0.416
		1394.10		1.413E+00	1.911E+00	3.036E+00	1.975E+00	0.465
NP-236	+	94.67		6.729E+00	1.524E+00	1.674E+00	1.516E-01	4.019
	+	98.44		6.805E+00	7.406E-01	6.608E-01	5.886E-02	10.298
	+	111.00		4.516E+00	8.443E-01	1.240E+00	1.072E-01	3.643
NP-237		160.31	*	-4.868E-02	3.132E-01	4.398E-01	3.515E-02	-0.111
		86.50	*	-6.144E+00	1.916E+00	1.826E+00	4.128E-01	-3.365
NP-239	+	95.87		5.358E+01	1.732E+01	7.944E+00	1.968E+00	6.744
	+	99.55		1.555E+01	1.693E+00	1.447E+00	1.284E-01	10.747
		117.00	*	2.322E-01	1.053E+00	1.196E+00	1.029E-01	0.194
		209.75		1.011E+00	2.070E+00	3.117E+00	2.585E-01	0.324
		228.18		3.626E-01	5.431E-01	9.236E-01	7.761E-02	0.393

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		277.60		4.254E-01	4.199E-01	7.141E-01	6.062E-02	0.596
		334.30		1.677E+00	3.301E+00	4.860E+00	4.163E-01	0.345
AM-241		59.54	*	1.763E+00	6.793E-01	1.015E+00	8.045E-02	1.737
AM-243		74.67	*	3.310E-01	2.592E-01	3.841E-01	3.087E-02	0.862
		86.72		-2.357E+02	5.403E+01	6.823E+01	6.324E+00	-3.455
		117.66		-1.687E+00	2.107E+01	2.371E+01	2.039E+00	-0.071
		142.18		1.373E+03	1.440E+02	1.569E+02	1.295E+01	8.752
CM-243	+	99.55		1.601E+01	1.742E+00	1.489E+00	1.321E-01	10.747
		103.76	*	1.057E+00	4.783E-01	6.471E-01	5.670E-02	1.633
		117.00		2.389E-01	1.083E+00	1.230E+00	1.059E-01	0.194
		209.75		9.971E-01	2.040E+00	3.073E+00	2.548E-01	0.324
		228.18		3.664E-01	5.488E-01	9.333E-01	7.844E-02	0.393
		277.60		4.289E-01	4.234E-01	7.200E-01	6.112E-02	0.596
AM-246		798.80		-2.581E-01	3.199E-01	4.991E-01	4.570E-02	-0.517
		1036.00		9.428E-02	3.910E-01	6.714E-01	5.932E-02	0.140
		1062.04		7.046E-02	2.954E-01	5.063E-01	4.421E-02	0.139
		1078.86	*	-1.646E-01	2.142E-01	3.336E-01	2.888E-02	-0.493
CM-247		278.00		8.114E-01	1.743E+00	2.927E+00	2.485E-01	0.277
		287.40		-1.181E+00	2.796E+00	4.561E+00	3.885E-01	-0.259
		402.60	*	-2.211E-02	7.790E-02	1.247E-01	1.047E-02	-0.177
CF-249		252.85		1.430E-01	2.196E+00	3.402E+00	2.887E-01	0.042
		333.44		7.171E-02	4.384E-01	6.354E-01	5.444E-02	0.113
		387.95	*	4.697E-02	9.218E-02	1.527E-01	1.275E-02	0.308
CF-251		176.60	*	-2.561E-01	4.098E-01	6.877E-01	5.508E-02	-0.372
		227.00		1.085E+00	9.264E-01	1.589E+00	1.335E-01	0.683
		285.00		-4.596E-01	4.006E+00	6.608E+00	5.623E-01	-0.070



# 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]G1202037547      *
* Acquisition date   : 18-FEB-2010 13:52:40 Detector SN# :                  *
* Detector ID        : GAM07 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:05.44 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037547 Analyst initials: MXR1                 *
* Batch Number       : 950786 Sample Quantity : 9.5150E+01 GRAM           *
* Recovery           : 1.00000 Carrier Weight : 0.00000                   *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                              *
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.594E+01	2.952E+00	7.623E-01	0.000E+00
CO-57	2.410E-01	1.435E-01	1.537E-01	0.000E+00
AS-73	7.686E+00	4.994E+00	4.644E+00	0.000E+00
NB-95	2.901E+00	3.413E-01	1.473E-01	0.000E+00
TE-125M	4.147E+02	7.987E+01	5.974E+01	0.000E+00
BA-137M	2.390E+00	2.757E-01	1.279E-01	0.000E+00
CS-137	2.527E+00	2.918E-01	1.352E-01	0.000E+00
TL-208	5.381E-01	1.567E-01	1.227E-01	0.000E+00
BI-211	4.391E+00	8.531E-01	7.330E-01	0.000E+00
PB-212	1.430E+00	2.466E-01	2.370E-01	0.000E+00
PO-212	1.430E+00	2.466E-01	2.370E-01	0.000E+00
BI-214	1.337E+00	3.225E-01	2.337E-01	0.000E+00
PB-214	1.527E+00	3.069E-01	2.526E-01	0.000E+00
PO-214	1.527E+00	3.069E-01	2.526E-01	0.000E+00
PO-216	1.430E+00	2.466E-01	2.370E-01	0.000E+00
PO-218	1.527E+00	3.069E-01	2.526E-01	0.000E+00
RA-224	3.298E+00	1.801E+00	2.658E+00	0.000E+00
RA-226	1.337E+00	3.225E-01	2.337E-01	0.000E+00
AC-228	1.764E+00	5.138E-01	3.422E-01	0.000E+00
RA-228	1.764E+00	5.138E-01	3.422E-01	0.000E+00
TH-228	1.454E+00	2.508E-01	2.410E-01	0.000E+00
TH-230	1.337E+00	3.225E-01	2.337E-01	0.000E+00
U-231	8.391E+01	1.862E+01	8.960E+00	0.000E+00
TH-232	1.764E+00	5.138E-01	3.422E-01	0.000E+00
PA-234M	7.472E+02	8.251E+01	1.317E+01	0.000E+00
TH-234	5.587E+02	9.590E+01	7.729E+00	0.000E+00
U-234	1.337E+00	3.225E-01	2.337E-01	0.000E+00
U-235	3.172E+01	5.588E+00	1.161E+00	0.000E+00
U-238	5.587E+02	9.590E+01	7.729E+00	0.000E+00
ANH-511	1.862E-01	1.226E-01	1.085E-01	0.000E+00

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

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	4.215E-01	7.661E-01	1.270E+00	0.000E+00	NOT IDENT.
NA-22	-1.527E-03	5.707E-02	9.498E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.852E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.957E-03	4.554E-02	7.902E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	1.881E-01	2.468E-01	0.000E+00	FAIL ABUN
SC-46	-3.143E-02	7.421E-02	1.179E-01	0.000E+00	FAIL ABUN
V-48	1.611E-01	1.284E-01	2.289E-01	0.000E+00	NOT IDENT.
CR-51	8.472E-01	8.541E-01	1.462E+00	0.000E+00	NOT IDENT.
MN-52	7.440E-01	4.855E-01	9.288E-01	0.000E+00	FAIL ABUN
MN-54	2.157E-02	7.235E-02	1.213E-01	0.000E+00	NOT IDENT.
CO-56	-7.824E-02	7.724E-02	1.178E-01	0.000E+00	FAIL ABUN
CO-58	-2.912E-02	8.441E-02	1.365E-01	0.000E+00	NOT IDENT.
FE-59	-1.090E-01	1.225E-01	1.883E-01	0.000E+00	FAIL ABUN
CO-60	1.104E-02	5.344E-02	9.139E-02	0.000E+00	NOT IDENT.
ZN-65	-3.899E-02	1.394E-01	1.952E-01	0.000E+00	NOT IDENT.
GE-68	-5.495E-01	1.742E+00	2.862E+00	0.000E+00	NOT IDENT.
AS-74	6.050E-02	1.982E-01	3.393E-01	0.000E+00	NOT IDENT.
SE-75	-3.485E-02	9.936E-02	1.594E-01	0.000E+00	FAIL ABUN
BR-77	5.965E+00	4.005E+01	6.861E+01	0.000E+00	FAIL ABUN
SR-82	-3.168E-01	9.048E-01	1.471E+00	0.000E+00	NOT IDENT.
RB-83	3.130E-02	1.522E-01	2.613E-01	0.000E+00	NOT IDENT.
RB-84	0.000E+00	1.650E-01	2.999E-01	0.000E+00	NOT IDENT.
KR-85	1.502E+01	1.680E+01	2.612E+01	0.000E+00	NOT IDENT.
SR-85	7.863E-02	8.791E-02	1.367E-01	0.000E+00	NOT IDENT.
RB-86	2.091E-01	1.148E+00	1.973E+00	0.000E+00	NOT IDENT.
Y-88	-7.533E-02	6.451E-02	8.993E-02	0.000E+00	NOT IDENT.
ZR-88	-3.948E-02	7.074E-02	1.134E-01	0.000E+00	NOT IDENT.
Y-91	-2.374E+00	2.379E+01	3.950E+01	0.000E+00	NOT IDENT.
NB-94	-2.722E-02	7.461E-02	1.223E-01	0.000E+00	NOT IDENT.
NB-95M	1.408E-01	3.178E-01	4.799E-01	0.000E+00	NOT IDENT.
ZR-95	-1.212E-02	1.594E-01	2.635E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.711E+06	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.002E+07	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.234E+01	5.252E+01	7.681E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.658E+19	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.378E-02	1.264E-01	1.373E-01	0.000E+00	NOT IDENT.
RH-102	-1.428E-02	6.823E-02	1.095E-01	0.000E+00	FAIL ABUN
RU-103	1.596E-02	9.551E-02	1.554E-01	0.000E+00	FAIL ABUN
RH-106	3.087E-01	6.516E-01	1.120E+00	0.000E+00	FAIL ABUN
RU-106	3.087E-01	6.509E-01	1.120E+00	0.000E+00	FAIL ABUN
AG-108M	2.460E-02	7.074E-02	1.171E-01	0.000E+00	NOT IDENT.
CD-109	-3.314E+01	6.800E+00	6.427E+00	0.000E+00	NOT IDENT.
AG-110M	-3.332E-02	8.896E-02	1.261E-01	0.000E+00	NOT IDENT.
IN-111	-2.577E+00	4.491E+00	6.517E+00	0.000E+00	NOT IDENT.
IN-113M	-8.817E-02	1.043E-01	1.651E-01	0.000E+00	NOT IDENT.
SN-113	-8.817E-02	1.043E-01	1.651E-01	0.000E+00	NOT IDENT.
IN-114M	-4.287E-01	7.426E-01	7.918E-01	0.000E+00	NOT IDENT.
CD-115	2.660E+01	4.512E+01	7.845E+01	0.000E+00	NOT IDENT.
SN-117M	7.428E-02	2.307E-01	3.313E-01	0.000E+00	NOT IDENT.
SB-122	6.272E+00	8.113E+00	1.252E+01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.629E+08	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	8.403E-02	1.094E-01	1.586E-01	0.000E+00	NOT IDENT.
I-124	1.990E+00	1.988E+00	3.222E+00	0.000E+00	FAIL ABUN
SB-124	-5.460E-02	1.080E-01	1.586E-01	0.000E+00	FAIL ABUN
SB-125	1.449E-01	2.040E-01	3.425E-01	0.000E+00	NOT IDENT.
I-126	-1.992E-01	4.994E-01	7.054E-01	0.000E+00	NOT IDENT.
SB-126	-3.069E-02	3.602E-01	5.630E-01	0.000E+00	FAIL ABUN
SN-126	-3.167E+00	6.519E-01	6.168E-01	0.000E+00	FAIL ABUN
SB-127	-9.170E-01	4.109E+00	6.788E+00	0.000E+00	NOT IDENT.
XE-127	0.000E+00	1.716E-01	2.515E-01	0.000E+00	FAIL ABUN
I-131	-3.615E-02	3.078E-01	5.051E-01	0.000E+00	NOT IDENT.
TE-132	1.684E+00	2.480E+00	4.244E+00	0.000E+00	FAIL ABUN
BA-133	-3.238E-02	1.097E-01	1.568E-01	0.000E+00	FAIL ABUN
I-133	0.000E+00	6.655E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.480E-01	1.062E-01	1.862E-01	0.000E+00	FAIL ABUN
CS-135	-5.540E-03	3.454E-01	5.795E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.088E+18	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.103E-02	1.764E-01	2.825E-01	0.000E+00	FAIL ABUN
CE-139	0.000E+00	1.159E-01	1.699E-01	0.000E+00	NOT IDENT.
BA-140	1.811E-01	6.445E-01	1.103E+00	0.000E+00	FAIL ABUN
LA-140	1.415E-01	1.570E-01	2.594E-01	0.000E+00	NOT IDENT.
CE-141	0.000E+00	5.795E-01	5.845E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.026E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.660E-01	8.194E-01	1.185E+00	0.000E+00	NOT IDENT.
PM-144	-3.869E-02	7.647E-02	1.245E-01	0.000E+00	NOT IDENT.

PR-144	-2.624E+00	5.187E+00	8.444E+00	0.000E+00	NOT IDENT.
PM-146	-1.055E-02	1.036E-01	1.677E-01	0.000E+00	NOT IDENT.
ND-147	7.989E-01	1.438E+00	2.492E+00	0.000E+00	NOT IDENT.
PM-149	7.137E+00	3.761E+02	6.294E+02	0.000E+00	NOT IDENT.
EU-152	-3.714E-02	2.149E-01	3.409E-01	0.000E+00	FAIL ABUN
GD-153	0.000E+00	8.183E-01	7.355E-01	0.000E+00	FAIL ABUN
EU-154	-1.034E-02	1.604E-01	2.659E-01	0.000E+00	NOT IDENT.
EU-155	0.000E+00	5.472E-01	7.455E-01	0.000E+00	FAIL ABUN
TB-160	5.721E-02	3.200E-01	5.305E-01	0.000E+00	FAIL ABUN
HO-166M	-5.439E-02	1.220E-01	1.983E-01	0.000E+00	FAIL ABUN
TM-171	-3.365E+02	1.132E+02	1.583E+02	0.000E+00	FAIL ABUN
LU-176	-4.733E-03	5.556E-02	9.228E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	3.485E+00	5.487E+00	0.000E+00	FAIL ABUN
LU-177M	-4.227E-01	3.926E-01	6.100E-01	0.000E+00	FAIL ABUN
HF-181	-9.823E-02	1.022E-01	1.574E-01	0.000E+00	FAIL ABUN
W-181	0.000E+00	2.521E+00	2.795E+00	0.000E+00	NOT IDENT.
TA-182	-1.378E-01	2.623E-01	4.183E-01	0.000E+00	FAIL ABUN
RE-183	0.000E+00	8.787E-01	9.265E-01	0.000E+00	FAIL ABUN
RE-184	3.841E-02	5.780E-01	9.051E-01	0.000E+00	NOT IDENT.
OS-185	-2.149E-02	8.772E-02	1.453E-01	0.000E+00	NOT IDENT.
RE-188	-3.385E-01	5.900E-01	9.369E-01	0.000E+00	NOT IDENT.
W-188	-6.786E+00	1.884E+01	2.720E+01	0.000E+00	FAIL ABUN
IR-192	-1.930E-02	7.825E-02	1.290E-01	0.000E+00	FAIL ABUN
AU-195	0.000E+00	2.387E+00	2.144E+00	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.639E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.476E+01	4.097E+01	5.872E+01	0.000E+00	NOT IDENT.
TL-202	-4.238E-02	1.690E-01	2.720E-01	0.000E+00	NOT IDENT.
HG-203	-1.147E-02	9.611E-02	1.604E-01	0.000E+00	NOT IDENT.
BI-207	8.778E-03	6.680E-02	1.145E-01	0.000E+00	FAIL ABUN
TL-207	-9.336E-01	1.432E+00	2.308E+00	0.000E+00	FAIL ABUN
PO-209	6.341E+00	1.405E+01	2.361E+01	0.000E+00	NOT IDENT.
BI-210	-5.431E+00	8.457E+00	1.414E+01	0.000E+00	NOT IDENT.
PB-210	-5.431E+00	8.457E+00	1.414E+01	0.000E+00	NOT IDENT.
PO-210	-5.431E+00	8.455E+00	1.414E+01	0.000E+00	NOT IDENT.
PB-211	-2.253E-01	1.979E+00	3.218E+00	0.000E+00	NOT IDENT.
BI-212	6.956E-01	8.160E-01	1.085E+00	0.000E+00	FAIL ABUN
PO-215	-9.336E-01	1.432E+00	2.308E+00	0.000E+00	FAIL ABUN
RN-219	-5.246E-01	8.624E-01	1.370E+00	0.000E+00	NOT IDENT.
RN-220	-1.802E+01	5.587E+01	9.341E+01	0.000E+00	NOT IDENT.
RA-223	-9.336E-01	1.432E+00	2.308E+00	0.000E+00	FAIL ABUN
AC-227	0.000E+00	1.077E+00	1.641E+00	0.000E+00	FAIL ABUN
TH-227	0.000E+00	1.089E+00	1.641E+00	0.000E+00	FAIL ABUN
TH-229	0.000E+00	1.555E+00	2.422E+00	0.000E+00	FAIL ABUN
PA-231	1.475E+00	3.424E+00	5.795E+00	0.000E+00	FAIL ABUN
TH-231	-9.336E-01	1.432E+00	2.308E+00	0.000E+00	FAIL ABUN
PA-233	-4.522E-02	1.434E-01	2.360E-01	0.000E+00	FAIL ABUN
PA-234	0.000E+00	9.223E-01	1.154E+00	0.000E+00	FAIL ABUN
NP-236	-4.868E-02	3.070E-01	4.356E-01	0.000E+00	FAIL ABUN
NP-237	-6.144E+00	1.878E+00	1.808E+00	0.000E+00	FAIL ABUN
NP-239	2.322E-01	1.032E+00	1.184E+00	0.000E+00	FAIL ABUN
AM-241	0.000E+00	6.657E-01	1.005E+00	0.000E+00	NOT IDENT.
AM-243	3.310E-01	2.540E-01	3.805E-01	0.000E+00	NOT IDENT.
CM-243	0.000E+00	4.688E-01	6.409E-01	0.000E+00	FAIL ABUN
AM-246	-1.646E-01	2.099E-01	3.302E-01	0.000E+00	NOT IDENT.
CM-247	-2.211E-02	7.635E-02	1.235E-01	0.000E+00	NOT IDENT.
CF-249	4.697E-02	9.034E-02	1.512E-01	0.000E+00	NOT IDENT.
CF-251	-2.561E-01	4.016E-01	6.811E-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]G1202037547.CNF;1
Sample date        : 1-FEB-2010 12:00:00. Acquisition date : 18-FEB-2010 13:52:40
Sample ID          : G1202037547      Sample quantity   : 9.51500E+01 GRAM
Detector name      : GAM07             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:05.44  0.1%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 950786             Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	792	10.67*	1.129E+00	2.594E+01	2.594E+01	11.61
CO-57	122.06	355	85.51*	7.092E+00	2.307E-01	2.410E-01	60.74
	136.48	-----	10.60	6.835E+00	-----	Line Not Found	-----
AS-73	53.44	557	10.30*	3.217E+00	6.630E+00	7.686E+00	66.30
NB-95	765.79	1201	99.81*	1.970E+00	2.410E+00	2.901E+00	12.00
TE-125M	109.28	1741	0.28*	7.183E+00	3.380E+02	4.147E+02	19.65
BA-137M	661.65	1215	89.98*	2.231E+00	2.388E+00	2.390E+00	11.77
CS-137	661.65	1215	85.12*	2.231E+00	2.524E+00	2.527E+00	11.78
TL-208	277.35	-----	6.80	4.401E+00	-----	Line Not Found	-----
	510.84	130	21.60	2.753E+00	8.619E-01	8.619E-01	67.71
	583.14	284	84.20*	2.475E+00	5.381E-01	5.381E-01	29.72
	860.37	-----	12.46	1.783E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	5.899E+00	-----	Line Not Found	-----
	351.07	530	12.94*	3.680E+00	4.391E+00	4.391E+00	19.83
PB-212	74.81	-----	10.70	6.073E+00	-----	Line Not Found	-----
	77.11	499	18.00	6.245E+00	1.752E+00	1.752E+00	59.37
	87.30	-----	8.00	6.839E+00	-----	Line Not Found	-----
	238.63	793	44.60*	4.909E+00	1.430E+00	1.430E+00	17.60
	300.09	88	3.41	4.152E+00	2.465E+00	2.465E+00	67.22
PO-212	74.81	-----	10.70	6.073E+00	-----	Line Not Found	-----
	77.11	499	18.00	6.245E+00	1.752E+00	1.752E+00	59.37
	87.30	-----	8.00	6.839E+00	-----	Line Not Found	-----
	115.19	-----	0.60	7.150E+00	-----	Line Not Found	-----
	238.63	793	44.60*	4.909E+00	1.430E+00	1.430E+00	17.60
	300.09	88	3.41	4.152E+00	2.465E+00	2.465E+00	67.22
BI-214	609.31	375	46.30*	2.388E+00	1.337E+00	1.337E+00	24.62
	1120.29	100	15.10	1.414E+00	1.845E+00	1.845E+00	34.84
	1764.49	74	15.80	9.830E-01	1.881E+00	1.881E+00	39.59
PB-214	74.81	-----	6.21	6.073E+00	-----	Line Not Found	-----
	77.11	499	10.50	6.245E+00	3.004E+00	3.004E+00	59.86
	87.30	-----	4.67	6.839E+00	-----	Line Not Found	-----
	241.98	161	7.49	4.868E+00	1.739E+00	1.739E+00	56.00

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	295.21	329	19.20	4.201E+00	1.611E+00	1.611E+00	31.40
	351.92	530	37.20*	3.680E+00	1.527E+00	1.527E+00	20.50
PO-214	74.81	-----	6.21	6.073E+00	-----	Line Not Found	-----
	77.11	499	10.50	6.245E+00	3.004E+00	3.004E+00	59.86
	87.30	-----	4.67	6.839E+00	-----	Line Not Found	-----
	241.98	161	7.49	4.868E+00	1.739E+00	1.739E+00	56.00
	295.21	329	19.20	4.201E+00	1.611E+00	1.611E+00	31.40
	351.92	530	37.20*	3.680E+00	1.527E+00	1.527E+00	20.50
PO-216	74.81	-----	10.70	6.073E+00	-----	Line Not Found	-----
	77.11	499	18.00	6.245E+00	1.752E+00	1.752E+00	59.37
	87.30	-----	8.00	6.839E+00	-----	Line Not Found	-----
	238.63	793	44.60*	4.909E+00	1.430E+00	1.430E+00	17.60
	300.09	88	3.41	4.152E+00	2.465E+00	2.465E+00	67.22
PO-218	74.81	-----	6.21	6.073E+00	-----	Line Not Found	-----
	77.11	499	10.50	6.245E+00	3.004E+00	3.004E+00	59.86
	87.30	-----	4.67	6.839E+00	-----	Line Not Found	-----
	241.98	161	7.49	4.868E+00	1.739E+00	1.739E+00	56.00
	295.21	329	19.20	4.201E+00	1.611E+00	1.611E+00	31.40
	351.92	530	37.20*	3.680E+00	1.527E+00	1.527E+00	20.50
RA-224	240.98	161	3.95*	4.868E+00	3.298E+00	3.298E+00	55.72
RA-226	609.31	375	46.30*	2.388E+00	1.337E+00	1.337E+00	24.62
	1120.29	100	15.10	1.414E+00	1.845E+00	1.845E+00	34.84
	1764.49	74	15.80	9.830E-01	1.881E+00	1.881E+00	39.59
AC-228	338.32	200	11.40	3.794E+00	1.823E+00	1.823E+00	58.30
	911.07	210	27.70*	1.695E+00	1.764E+00	1.764E+00	29.72
	969.11	86	16.60	1.606E+00	1.270E+00	1.270E+00	47.67
RA-228	338.32	200	11.40	3.794E+00	1.823E+00	1.823E+00	58.30
	911.07	210	27.70*	1.695E+00	1.764E+00	1.764E+00	29.72
	969.11	86	16.60	1.606E+00	1.270E+00	1.270E+00	47.67
TH-228	74.81	-----	10.70	6.073E+00	-----	Line Not Found	-----
	77.11	499	18.00	6.245E+00	1.752E+00	1.782E+00	59.37
	87.30	-----	8.00	6.839E+00	-----	Line Not Found	-----
	238.63	793	44.60*	4.909E+00	1.430E+00	1.454E+00	17.60
	300.09	88	3.41	4.152E+00	2.465E+00	2.507E+00	89.02
TH-230	609.31	375	46.30*	2.388E+00	1.337E+00	1.337E+00	24.62
	1120.29	100	15.10	1.414E+00	1.845E+00	1.845E+00	34.84
	1764.49	74	15.80	9.830E-01	1.881E+00	1.881E+00	39.59
U-231	84.21	3129	7.00	6.696E+00	2.634E+01	4.442E+02	15.32
	92.29	52450	17.30	7.015E+00	1.705E+02	2.876E+03	9.21
	95.87	2494	28.00*	7.063E+00	4.975E+00	8.391E+01	22.64
	108.00	1741	13.10	7.183E+00	7.302E+00	1.232E+02	18.81
TH-232	338.32	200	11.40	3.794E+00	1.823E+00	1.823E+00	42.08
	911.07	210	27.70*	1.695E+00	1.764E+00	1.764E+00	29.72
	969.11	86	16.60	1.606E+00	1.270E+00	1.270E+00	47.67
PA-234M	766.42	1201	0.32	1.970E+00	7.517E+02	7.517E+02	51.42
	1001.03	2483	0.84*	1.561E+00	7.472E+02	7.472E+02	11.27
TH-234	63.29	25791	3.80*	4.793E+00	5.587E+02	5.587E+02	17.52
	92.38	52450	5.41	7.015E+00	5.452E+02	5.452E+02	18.37
U-234	609.31	375	46.30*	2.388E+00	1.337E+00	1.337E+00	24.62

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	1120.29	100	15.10	1.414E+00	1.845E+00	1.845E+00	34.84
	1764.49	74	15.80	9.830E-01	1.881E+00	1.881E+00	39.59
U-235	89.95	-----	2.70	6.936E+00	-----	Line Not Found	-----
	93.35	52450	4.50	7.015E+00	6.555E+02	6.555E+02	28.21
	105.00	921	2.10	7.183E+00	2.408E+01	2.408E+01	36.47
	143.76	5646	10.50*	6.688E+00	3.172E+01	3.172E+01	17.98
	163.35	2532	4.70	6.276E+00	3.386E+01	3.386E+01	20.34
	185.71	26751	54.00	5.817E+00	3.360E+01	3.360E+01	8.21
	205.31	2114	4.70	5.449E+00	3.256E+01	3.256E+01	19.82
U-238	63.29	25791	3.80*	4.793E+00	5.587E+02	5.587E+02	17.52
	92.38	52450	5.41	7.015E+00	5.452E+02	5.452E+02	9.21
ANH-511	511.00	130	100.00*	2.753E+00	1.862E-01	1.862E-01	67.20

Flag: "\*" = Keyline

Total number of lines in spectrum 47  
Number of unidentified lines 5  
Number of lines tentatively identified by NID 42 89.36%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.594E+01	2.594E+01	0.301E+01	11.61	
CO-57	270.90D	1.04	2.307E-01	2.410E-01	1.464E-01	60.74	
AS-73	80.30D	1.16	6.630E+00	7.686E+00	5.096E+00	66.30	
NB-95	64.02D	1.20	2.410E+00	2.901E+00	0.348E+00	12.00	
TE-125M	58.00D	1.23	3.380E+02	4.147E+02	0.815E+02	19.65	
BA-137M	30.17Y	1.00	2.388E+00	2.390E+00	0.281E+00	11.77	
CS-137	30.17Y	1.00	2.524E+00	2.527E+00	0.298E+00	11.78	
TL-208	1.41E+10Y	1.00	5.381E-01	5.381E-01	1.599E-01	29.72	
BI-211	7.04E+08Y	1.00	4.391E+00	4.391E+00	0.870E+00	19.83	
PB-212	1.41E+10Y	1.00	1.430E+00	1.430E+00	0.252E+00	17.60	
PO-212	1.41E+10Y	1.00	1.430E+00	1.430E+00	0.252E+00	17.60	
BI-214	1600.00Y	1.00	1.337E+00	1.337E+00	0.329E+00	24.62	
PB-214	1600.00Y	1.00	1.527E+00	1.527E+00	0.313E+00	20.50	
PO-214	1600.00Y	1.00	1.527E+00	1.527E+00	0.313E+00	20.50	
PO-216	1.41E+10Y	1.00	1.430E+00	1.430E+00	0.252E+00	17.60	
PO-218	1600.00Y	1.00	1.527E+00	1.527E+00	0.313E+00	20.50	
RA-224	1.41E+10Y	1.00	3.298E+00	3.298E+00	1.838E+00	55.72	
RA-226	1600.00Y	1.00	1.337E+00	1.337E+00	0.329E+00	24.62	
AC-228	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.524E+00	29.72	
RA-228	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.524E+00	29.72	
TH-228	1.91Y	1.02	1.430E+00	1.454E+00	0.256E+00	17.60	
TH-230	4.47E+09Y	1.00	1.337E+00	1.337E+00	0.329E+00	24.62	
U-231	4.20D	16.9	4.975E+00	8.391E+01	1.900E+01	22.64	
TH-232	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.524E+00	29.72	
PA-234M	4.47E+09Y	1.00	7.472E+02	7.472E+02	0.842E+02	11.27	
TH-234	4.47E+09Y	1.00	5.587E+02	5.587E+02	0.979E+02	17.52	
U-234	4.47E+09Y	1.00	1.337E+00	1.337E+00	0.329E+00	24.62	
U-235	7.04E+08Y	1.00	3.172E+01	3.172E+01	0.570E+01	17.98	
U-238	4.47E+09Y	1.00	5.587E+02	5.587E+02	0.979E+02	17.52	
ANH-511	1.00E+09Y	1.00	1.862E-01	1.862E-01	1.251E-01	67.20	
Total Activity :			2.309E+03	2.466E+03			

Grand Total Activity : 2.309E+03 2.466E+03

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

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

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	98.55	4132	4118	1.10	196.73	194	8	5.74E-01	6.3	7.13E+00	T
6	111.10	1282	3026	1.18	221.84	207	26	1.78E-01	16.6	7.18E+00	T
6	112.87	3447	3392	1.30	225.38	207	26	4.79E-01	7.1	7.17E+00	T
0	131.61	180	1955	0.91	262.84	260	6	2.50E-02	79.2	6.92E+00	T
0	195.29	233	1105	1.02	390.20	386	8	3.24E-02	51.3	5.63E+00	
2	202.35	415	995	1.31	404.30	400	16	5.76E-02	27.8	5.50E+00	T
0	258.44	569	640	1.29	516.47	512	10	7.91E-02	18.7	4.64E+00	
0	569.23	83	205	1.42	1137.95	1134	10	1.15E-02	68.4	2.53E+00	T
0	727.68	43	168	1.20	1454.80	1449	10	5.95E-03	****	2.06E+00	T
0	743.15	309	239	1.47	1485.73	1480	13	4.29E-02	23.7	2.02E+00	T
0	946.81	80	98	1.31	1893.01	1888	13	1.10E-02	55.9	1.64E+00	T
1	965.13	42	69	1.98	1929.64	1921	24	5.82E-03	89.4	1.61E+00	T
0	1239.21	53	68	1.72	2477.75	2469	15	7.42E-03	73.7	1.30E+00	T
0	1510.33	30	8	1.85	3019.94	3014	14	4.17E-03	56.2	1.10E+00	T
0	1591.48	67	14	6.57	3182.25	3166	28	9.31E-03	39.9	1.06E+00	
0	1730.41	22	5	1.05	3460.08	3454	11	3.00E-03	60.0	9.96E-01	
0	1738.39	60	7	2.58	3476.05	3470	14	8.33E-03	31.9	9.93E-01	

Flags: "T" = Tentatively associated



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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037547.CNF;1
* Acquisition date   : 18-FEB-2010 13:52:40  Detector SN#      :
* Detector ID        : GAM07                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:05.44          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 1-FEB-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G1202037547           Analyst initials: MXR1
* Batch Number       : 950786                Sample Quantity : 9.51500E+01 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58.0MS 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	2.594E+01	3.012E+00	7.702E-01	6.614E-02	33.681
CO-57	2.410E-01	1.464E-01	1.552E-01	1.335E-02	1.553
AS-73	7.686E+00	5.096E+00	4.687E+00	3.520E-01	1.640
NB-95	2.901E+00	3.482E-01	1.488E-01	1.357E-02	19.492
TE-125M	4.147E+02	8.150E+01	6.031E+01	6.256E+00	6.877
BA-137M	2.390E+00	2.813E-01	1.292E-01	1.144E-02	18.496
CS-137	2.527E+00	2.977E-01	1.366E-01	1.211E-02	18.496
TL-208	5.381E-01	1.599E-01	1.239E-01	1.185E-02	4.344
BI-211	4.391E+00	8.705E-01	7.403E-01	6.641E-02	5.931
PB-212	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
PO-212	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
BI-214	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
PB-214	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987
PO-214	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987
PO-216	1.430E+00	2.516E-01	2.393E-01	2.289E-02	5.974
PO-218	1.527E+00	3.131E-01	2.551E-01	2.647E-02	5.987
RA-224	3.298E+00	1.838E+00	2.684E+00	2.269E-01	1.229
RA-226	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-228	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
RA-228	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
TH-228	1.454E+00	2.559E-01	2.434E-01	2.328E-02	5.974
TH-230	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
U-231	8.391E+01	1.900E+01	9.045E+00	8.142E-01	9.277
TH-232	1.764E+00	5.243E-01	3.456E-01	4.026E-02	5.104
PA-234M	7.472E+02	8.419E+01	1.330E+01	1.364E+00	56.172
TH-234	5.587E+02	9.786E+01	7.802E+00	1.358E+00	71.610
U-234	1.337E+00	3.291E-01	2.361E-01	2.442E-02	5.662
U-235	3.172E+01	5.702E+00	1.172E+00	2.030E-01	27.052
U-238	5.587E+02	9.786E+01	7.802E+00	1.358E+00	71.610
ANH-511	1.862E-01	1.251E-01	1.096E-01	9.735E-03	1.699

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.215E-01		7.817E-01	1.282E+00	1.210E-01	0.329
NA-22	-1.527E-03		5.823E-02	9.596E-02	7.877E-03	-0.016
NA-24	-5.669E-01		4.006E+00	Half-Life too short		
AL-26	2.957E-03		4.647E-02	7.984E-02	6.511E-03	0.037
TI-44	3.234E-01	+	1.920E-01	2.491E-01	2.085E-02	1.298
SC-46	-3.143E-02		7.573E-02	1.191E-01	1.091E-02	-0.264
V-48	1.611E-01		1.310E-01	2.312E-01	2.082E-02	0.697
CR-51	8.472E-01		8.716E-01	1.477E+00	1.335E-01	0.574
MN-52	7.440E-01		4.954E-01	9.384E-01	7.803E-02	0.793
MN-54	2.157E-02		7.383E-02	1.226E-01	1.125E-02	0.176
CO-56	-7.824E-02		7.881E-02	1.190E-01	1.093E-02	-0.657
CO-58	-2.912E-02		8.613E-02	1.379E-01	1.267E-02	-0.211
FE-59	-1.090E-01		1.250E-01	1.902E-01	1.762E-02	-0.573
CO-60	1.104E-02		5.453E-02	9.233E-02	7.563E-03	0.120
ZN-65	-3.899E-02		1.422E-01	1.972E-01	1.673E-02	-0.198
GE-68	-5.495E-01		1.777E+00	2.891E+00	2.505E-01	-0.190
AS-74	6.050E-02		2.023E-01	3.427E-01	3.073E-02	0.177
SE-75	-3.485E-02		1.014E-01	1.610E-01	1.374E-02	-0.217
BR-77	5.965E+00		4.087E+01	6.930E+01	6.173E+00	0.086
SR-82	-3.168E-01		9.233E-01	1.486E+00	1.357E-01	-0.213
RB-83	3.130E-02		1.553E-01	2.640E-01	2.351E-02	0.119
RB-84	3.793E-01		1.684E-01	3.029E-01	2.777E-02	1.252
KR-85	1.502E+01		1.714E+01	2.638E+01	2.346E+00	0.569
SR-85	7.863E-02		8.971E-02	1.381E-01	1.228E-02	0.569
RB-86	2.091E-01		1.172E+00	1.993E+00	1.728E-01	0.105
Y-88	-7.533E-02		6.582E-02	9.086E-02	7.374E-03	-0.829
ZR-88	-3.948E-02		7.219E-02	1.145E-01	9.537E-03	-0.345
Y-91	-2.374E+00		2.427E+01	3.991E+01	3.259E+00	-0.059
NB-94	-2.722E-02		7.614E-02	1.235E-01	1.109E-02	-0.220
NB-95M	1.408E-01		3.243E-01	4.846E-01	4.704E-02	0.291
ZR-95	-1.212E-02		1.626E-01	2.661E-01	2.643E-02	-0.046

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	-3.904E-01		8.727E-01	Half-Life too short		
ZR-97	1.164E+01		1.531E+01	Half-Life too short		
MO-99	1.234E+01		5.360E+01	7.759E+01	1.198E+01	0.159
TC-99M	3.922E+13		1.866E+13	Half-Life too short		
RH-101	-2.378E-02		1.290E-01	1.386E-01	1.137E-02	-0.172
RH-102	-1.428E-02		6.963E-02	1.106E-01	9.702E-03	-0.129
RU-103	1.596E-02		9.746E-02	1.570E-01	2.245E-02	0.102
RH-106	3.087E-01		6.649E-01	1.131E+00	1.534E-01	0.273
RU-106	3.087E-01		6.642E-01	1.131E+00	1.011E-01	0.273
AG-108M	2.460E-02		7.219E-02	1.182E-01	1.056E-02	0.208
CD-109	-3.314E+01		6.939E+00	6.488E+00	6.112E-01	-5.108
AG-110M	-3.332E-02		9.078E-02	1.273E-01	1.160E-02	-0.262
IN-111	-2.577E+00		4.583E+00	6.581E+00	5.574E-01	-0.392
IN-113M	-8.817E-02		1.065E-01	1.668E-01	1.434E-02	-0.529
SN-113	-8.817E-02		1.065E-01	1.668E-01	1.434E-02	-0.529
IN-114M	-4.287E-01		7.578E-01	7.995E-01	6.505E-02	-0.536
CD-115	2.660E+01		4.604E+01	7.923E+01	7.069E+00	0.336
SN-117M	7.428E-02		2.354E-01	3.345E-01	2.682E-02	0.222
SB-122	6.272E+00		8.279E+00	1.265E+01	1.134E+00	0.496
I-123	2.018E+02		1.341E+02	Half-Life too short		
TE-123M	8.403E-02		1.117E-01	1.601E-01	1.292E-02	0.525
I-124	1.990E+00		2.028E+00	3.254E+00	2.916E-01	0.612
SB-124	-5.460E-02		1.102E-01	1.602E-01	1.388E-02	-0.341
SB-125	1.449E-01		2.082E-01	3.459E-01	3.016E-02	0.419
I-126	-1.992E-01		5.096E-01	7.125E-01	6.317E-02	-0.280
SB-126	-3.069E-02		3.676E-01	5.686E-01	5.132E-02	-0.054
SN-126	-3.167E+00		6.652E-01	6.226E-01	5.834E-02	-5.086
SB-127	-9.170E-01		4.193E+00	6.857E+00	8.364E-01	-0.134
XE-127	6.044E-01	+	1.751E-01	2.539E-01	2.093E-02	2.380
I-131	-3.615E-02		3.141E-01	5.101E-01	4.575E-02	-0.071
TE-132	1.684E+00		2.530E+00	4.286E+00	6.847E-01	0.393
BA-133	-3.238E-02		1.119E-01	1.583E-01	2.079E-02	-0.205
I-133	1.063E-02		3.396E-02	Half-Life too short		
CS-134	1.480E-01		1.083E-01	1.880E-01	1.732E-02	0.787
CS-135	-5.540E-03		3.524E-01	5.852E-01	5.770E-02	-0.009
I-135	-2.488E+11		5.552E+11	Half-Life too short		
CS-136	-9.103E-02		1.800E-01	2.854E-01	2.611E-02	-0.319
CE-139	1.882E-01		1.182E-01	1.716E-01	1.357E-02	1.097
BA-140	1.811E-01		6.576E-01	1.114E+00	3.702E-01	0.163
LA-140	1.415E-01		1.602E-01	2.620E-01	2.192E-02	0.540
CE-141	5.940E+00		5.914E-01	5.901E-01	4.940E-02	10.066
CE-143	2.216E-03		5.233E-04	Half-Life too short		
CE-144	1.660E-01		8.361E-01	1.196E+00	1.846E-01	0.139
PM-144	-3.869E-02		7.803E-02	1.257E-01	1.127E-02	-0.308
PR-144	-2.624E+00		5.293E+00	8.529E+00	7.643E-01	-0.308
PM-146	-1.055E-02		1.058E-01	1.694E-01	1.825E-02	-0.062
ND-147	7.989E-01		1.468E+00	2.517E+00	3.808E-01	0.317
PM-149	7.137E+00		3.837E+02	6.356E+02	9.846E+01	0.011

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-3.714E-02		2.193E-01	3.443E-01	3.121E-02	-0.108
GD-153	7.673E+00	+	8.350E-01	7.425E-01	6.640E-02	10.333
EU-154	-1.034E-02		1.637E-01	2.687E-01	2.954E-02	-0.038
EU-155	2.459E+00	+	5.584E-01	7.526E-01	6.650E-02	3.267
TB-160	5.721E-02		3.265E-01	5.359E-01	4.915E-02	0.107
HO-166M	-5.439E-02		1.245E-01	2.003E-01	1.803E-02	-0.272
TM-171	-3.365E+02		1.155E+02	1.598E+02	1.195E+01	-2.106
LU-176	-4.733E-03		5.669E-02	9.319E-02	7.983E-03	-0.051
LU-177	7.206E+00		3.556E+00	5.540E+00	4.589E-01	1.301
LU-177M	-4.227E-01		4.006E-01	6.161E-01	5.216E-02	-0.686
HF-181	-9.823E-02		1.043E-01	1.590E-01	1.399E-02	-0.618
W-181	2.691E+01		2.573E+00	2.821E+00	2.087E-01	9.539
TA-182	-1.378E-01		2.677E-01	4.226E-01	3.456E-02	-0.326
RE-183	8.057E+00	+	8.966E-01	9.355E-01	7.448E-02	8.613
RE-184	3.841E-02		5.898E-01	9.140E-01	7.757E-02	0.042
OS-185	-2.149E-02		8.951E-02	1.468E-01	1.305E-02	-0.146
RE-188	-3.385E-01		6.020E-01	9.460E-01	7.633E-02	-0.358
W-188	-6.786E+00		1.923E+01	2.747E+01	2.343E+00	-0.247
IR-192	-1.930E-02		7.985E-02	1.303E-01	1.120E-02	-0.148
AU-195	2.238E+01	+	2.436E+00	2.165E+00	1.925E-01	10.339
TL-200	-6.167E-04		1.857E-03	Half-Life too short		
TL-201	1.476E+01		4.181E+01	5.929E+01	4.696E+00	0.249
TL-202	-4.238E-02		1.724E-01	2.747E-01	2.366E-02	-0.154
HG-203	-1.147E-02		9.807E-02	1.620E-01	1.415E-02	-0.071
BI-207	8.778E-03		6.816E-02	1.156E-01	1.009E-02	0.076
TL-207	-9.336E-01		1.462E+00	2.331E+00	4.122E-01	-0.401
PO-209	6.341E+00		1.434E+01	2.385E+01	2.184E+00	0.266
BI-210	-5.431E+00		8.630E+00	1.428E+01	1.339E+00	-0.380
PB-210	-5.431E+00		8.630E+00	1.428E+01	1.339E+00	-0.380
PO-210	-5.431E+00		8.627E+00	1.428E+01	1.215E+00	-0.380
PB-211	-2.253E-01		2.020E+00	3.250E+00	2.036E+00	-0.069
BI-212	6.956E-01	+	8.326E-01	1.096E+00	1.137E-01	0.635
PO-215	-9.336E-01		1.462E+00	2.331E+00	4.122E-01	-0.401
RN-219	-5.246E-01		8.800E-01	1.383E+00	2.061E-01	-0.379
RN-220	-1.802E+01		5.701E+01	9.435E+01	8.448E+00	-0.191
RA-223	-9.336E-01		1.462E+00	2.331E+00	4.122E-01	-0.401
AC-227	1.715E+00		1.099E+00	1.657E+00	2.531E-01	1.035
TH-227	1.715E+00		1.111E+00	1.657E+00	2.983E-01	1.035
TH-229	2.450E+00		1.586E+00	2.446E+00	1.997E-01	1.002
PA-231	1.475E+00		3.494E+00	5.852E+00	8.847E-01	0.252
TH-231	-9.336E-01		1.462E+00	2.331E+00	4.122E-01	-0.401
PA-233	-4.522E-02		1.463E-01	2.384E-01	2.102E-02	-0.190
PA-234	1.594E+00	+	9.411E-01	1.166E+00	2.214E-01	1.367
NP-236	-4.868E-02		3.132E-01	4.398E-01	3.515E-02	-0.111
NP-237	-6.144E+00		1.916E+00	1.826E+00	4.128E-01	-3.365
NP-239	2.322E-01		1.053E+00	1.196E+00	1.029E-01	0.194
AM-241	1.763E+00		6.793E-01	1.015E+00	8.045E-02	1.737
AM-243	3.310E-01		2.592E-01	3.841E-01	3.087E-02	0.862

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.057E+00		4.783E-01	6.471E-01	5.670E-02	1.633
AM-246	-1.646E-01		2.142E-01	3.336E-01	2.888E-02	-0.493
CM-247	-2.211E-02		7.790E-02	1.247E-01	1.047E-02	-0.177
CF-249	4.697E-02		9.218E-02	1.527E-01	1.275E-02	0.308
CF-251	-2.561E-01		4.098E-01	6.877E-01	5.508E-02	-0.372

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 Savage Road      *
*               Charleston, SC 29414  *
*                                     *
*****
*               DETECTOR DATA        *
*                                     *
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202037547 *
* Acquisition date   : 18-FEB-2010 13:52:40 Detector SN#      : *
* Detector ID        : GAM07          Sensitivity             : 5.000 *
* Geometry           : CAN            Energy tolerance:       1.500 *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000 *
* Elapsed real time  : 0 02:00:05.44 Half life ratio : 8.000 *
*****
*               SAMPLE DATA          *
*                                     *
* Sample date        : 1-FEB-2010 12:00:00 Nuclide Library : SOLID *
* Sample ID          : G1202037547   Analyst initials: MXR1  *
* Batch Number       : 950786        Sample Quantity : 9.5150E+01 GRAM *
* Recovery           : 1.00000       Carrier Weight  : 0.00000 *
*****
*               QC DATA              *
*                                     *
* CALIB. DATE/TIME   : 20-JUL-2009 15:29:58 MS Isotope      : *
* MSD DPM             : 0.000         MSD Isotope           : *
* LCS DPM             : 0.000         LCS Isotope           : *
* LCSD DPM            : 0.000         LCSD Isotope          : *
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.594E+01	2.952E+00	3.814E-01	1.506E+00
CO-57	2.410E-01	1.435E-01	7.689E-02	7.319E-02
AS-73	7.686E+00	4.994E+00	2.323E+00	2.548E+00
NB-95	2.901E+00	3.413E-01	7.371E-02	1.741E-01
TE-125M	4.147E+02	7.987E+01	2.989E+01	4.075E+01
BA-137M	2.390E+00	2.757E-01	6.400E-02	1.407E-01
CS-137	2.527E+00	2.918E-01	6.766E-02	1.489E-01
TL-208	5.381E-01	1.567E-01	6.136E-02	7.995E-02
BI-211	4.391E+00	8.531E-01	3.667E-01	4.352E-01
PB-212	1.430E+00	2.466E-01	1.186E-01	1.258E-01
PO-212	1.430E+00	2.466E-01	1.186E-01	1.258E-01
BI-214	1.337E+00	3.225E-01	1.169E-01	1.645E-01
PB-214	1.527E+00	3.069E-01	1.264E-01	1.566E-01
PO-214	1.527E+00	3.069E-01	1.264E-01	1.566E-01
PO-216	1.430E+00	2.466E-01	1.186E-01	1.258E-01
PO-218	1.527E+00	3.069E-01	1.264E-01	1.566E-01
RA-224	3.298E+00	1.801E+00	1.330E+00	9.189E-01
RA-226	1.337E+00	3.225E-01	1.169E-01	1.645E-01
AC-228	1.764E+00	5.138E-01	1.712E-01	2.621E-01
RA-228	1.764E+00	5.138E-01	1.712E-01	2.621E-01
TH-228	1.454E+00	2.508E-01	1.206E-01	1.280E-01
TH-230	1.337E+00	3.225E-01	1.169E-01	1.645E-01
U-231	8.391E+01	1.862E+01	4.482E+00	9.500E+00
TH-232	1.764E+00	5.138E-01	1.712E-01	2.621E-01
PA-234M	7.472E+02	8.251E+01	6.588E+00	4.210E+01
TH-234	5.587E+02	9.590E+01	3.867E+00	4.893E+01
U-234	1.337E+00	3.225E-01	1.169E-01	1.645E-01
U-235	3.172E+01	5.588E+00	5.810E-01	2.851E+00
U-238	5.587E+02	9.590E+01	3.867E+00	4.893E+01
ANH-511	1.862E-01	1.226E-01	5.427E-02	6.255E-02

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

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	4.215E-01	7.661E-01	6.351E-01	3.908E-01 NOT IDENT.
NA-22	-1.527E-03	5.707E-02	4.752E-02	2.912E-02 NOT IDENT.
NA-24	-5.669E+05	7.852E+06	0.000E+00	4.006E+06 SHORT HLIF
AL-26	2.957E-03	4.554E-02	3.953E-02	2.323E-02 NOT IDENT.
TI-44	3.234E-01	1.881E-01	1.235E-01	9.599E-02 FAIL ABUN
SC-46	-3.143E-02	7.421E-02	5.897E-02	3.786E-02 FAIL ABUN
V-48	1.611E-01	1.284E-01	1.145E-01	6.552E-02 NOT IDENT.
CR-51	8.472E-01	8.541E-01	7.317E-01	4.358E-01 NOT IDENT.
MN-52	7.440E-01	4.855E-01	4.647E-01	2.477E-01 FAIL ABUN
MN-54	2.157E-02	7.235E-02	6.071E-02	3.692E-02 NOT IDENT.
CO-56	-7.824E-02	7.724E-02	5.896E-02	3.941E-02 FAIL ABUN
CO-58	-2.912E-02	8.441E-02	6.829E-02	4.307E-02 NOT IDENT.
FE-59	-1.090E-01	1.225E-01	9.419E-02	6.251E-02 FAIL ABUN
CO-60	1.104E-02	5.344E-02	4.572E-02	2.727E-02 NOT IDENT.
ZN-65	-3.899E-02	1.394E-01	9.764E-02	7.110E-02 NOT IDENT.
GE-68	-5.495E-01	1.742E+00	1.432E+00	8.886E-01 NOT IDENT.
AS-74	6.050E-02	1.982E-01	1.698E-01	1.011E-01 NOT IDENT.
SE-75	-3.485E-02	9.936E-02	7.974E-02	5.069E-02 FAIL ABUN
BR-77	5.965E+00	4.005E+01	3.433E+01	2.043E+01 FAIL ABUN
SR-82	-3.168E-01	9.048E-01	7.359E-01	4.616E-01 NOT IDENT.
RB-83	3.130E-02	1.522E-01	1.307E-01	7.766E-02 NOT IDENT.
RB-84	3.793E-01	1.650E-01	1.500E-01	8.420E-02 NOT IDENT.
KR-85	1.502E+01	1.680E+01	1.307E+01	8.569E+00 NOT IDENT.
SR-85	7.863E-02	8.791E-02	6.840E-02	4.485E-02 NOT IDENT.
RB-86	2.091E-01	1.148E+00	9.870E-01	5.858E-01 NOT IDENT.
Y-88	-7.533E-02	6.451E-02	4.499E-02	3.291E-02 NOT IDENT.
ZR-88	-3.948E-02	7.074E-02	5.672E-02	3.609E-02 NOT IDENT.
Y-91	-2.374E+00	2.379E+01	1.976E+01	1.214E+01 NOT IDENT.
NB-94	-2.722E-02	7.461E-02	6.118E-02	3.807E-02 NOT IDENT.
NB-95M	1.408E-01	3.178E-01	2.401E-01	1.621E-01 NOT IDENT.
ZR-95	-1.212E-02	1.594E-01	1.318E-01	8.130E-02 NOT IDENT.
NB-97	-3.904E+05	1.711E+06	0.000E+00	8.727E+05 SHORT HLIF
ZR-97	1.164E+07	3.002E+07	0.000E+00	1.531E+07 SHORT HLIF
MO-99	1.234E+01	5.252E+01	3.843E+01	2.680E+01 NOT IDENT.
TC-99M	3.922E+19	3.658E+19	0.000E+00	0.000E+00 SHORT HLIF
RH-101	-2.378E-02	1.264E-01	6.868E-02	6.448E-02 NOT IDENT.
RH-102	-1.428E-02	6.823E-02	5.478E-02	3.481E-02 FAIL ABUN
RU-103	1.596E-02	9.551E-02	7.777E-02	4.873E-02 FAIL ABUN
RH-106	3.087E-01	6.516E-01	5.603E-01	3.325E-01 FAIL ABUN
RU-106	3.087E-01	6.509E-01	5.603E-01	3.321E-01 FAIL ABUN
AG-108M	2.460E-02	7.074E-02	5.857E-02	3.609E-02 NOT IDENT.
CD-109	-3.314E+01	6.800E+00	3.216E+00	3.469E+00 NOT IDENT.
AG-110M	-3.332E-02	8.896E-02	6.307E-02	4.539E-02 NOT IDENT.
IN-111	-2.577E+00	4.491E+00	3.261E+00	2.291E+00 NOT IDENT.
IN-113M	-8.817E-02	1.043E-01	8.262E-02	5.323E-02 NOT IDENT.
SN-113	-8.817E-02	1.043E-01	8.262E-02	5.323E-02 NOT IDENT.
IN-114M	-4.287E-01	7.426E-01	3.961E-01	3.789E-01 NOT IDENT.
CD-115	2.660E+01	4.512E+01	3.925E+01	2.302E+01 NOT IDENT.
SN-117M	7.428E-02	2.307E-01	1.657E-01	1.177E-01 NOT IDENT.
SB-122	6.272E+00	8.113E+00	6.264E+00	4.140E+00 NOT IDENT.
I-123	2.018E+08	2.629E+08	0.000E+00	1.341E+08 SHORT HLIF
TE-123M	8.403E-02	1.094E-01	7.935E-02	5.584E-02 NOT IDENT.
I-124	1.990E+00	1.988E+00	1.612E+00	1.014E+00 FAIL ABUN
SB-124	-5.460E-02	1.080E-01	7.933E-02	5.511E-02 FAIL ABUN
SB-125	1.449E-01	2.040E-01	1.713E-01	1.041E-01 NOT IDENT.
I-126	-1.992E-01	4.994E-01	3.529E-01	2.548E-01 NOT IDENT.
SB-126	-3.069E-02	3.602E-01	2.816E-01	1.838E-01 FAIL ABUN
SN-126	3.167E+00	6.519E-01	3.086E-01	3.326E-01 FAIL ABUN
SB-127	-9.170E-01	4.109E+00	3.396E+00	2.096E+00 NOT IDENT.
XE-127	6.044E-01	1.716E-01	1.258E-01	8.756E-02 FAIL ABUN
I-131	-3.615E-02	3.078E-01	2.527E-01	1.570E-01 NOT IDENT.
TE-132	1.684E+00	2.480E+00	2.123E+00	1.265E+00 FAIL ABUN
BA-133	-3.238E-02	1.097E-01	7.843E-02	5.596E-02 FAIL ABUN
I-133	1.063E+04	6.655E+04	0.000E+00	3.396E+04 SHORT HLIF
CS-134	1.480E-01	1.062E-01	9.313E-02	5.416E-02 FAIL ABUN
CS-135	-5.540E-03	3.454E-01	2.899E-01	1.762E-01 NOT IDENT.
I-135	-2.488E+17	1.088E+18	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-9.103E-02	1.764E-01	1.413E-01	9.000E-02 FAIL ABUN
CE-139	1.882E-01	1.159E-01	8.501E-02	5.912E-02 NOT IDENT.
BA-140	1.811E-01	6.445E-01	5.519E-01	3.288E-01 FAIL ABUN
LA-140	1.415E-01	1.570E-01	1.298E-01	8.011E-02 NOT IDENT.
CE-141	5.940E+00	5.795E-01	2.924E-01	2.957E-01 NOT IDENT.
CE-143	2.216E+03	1.026E+03	0.000E+00	5.233E+02 SHORT HLIF
CE-144	1.660E-01	8.194E-01	5.926E-01	4.181E-01 NOT IDENT.
PM-144	-3.869E-02	7.647E-02	6.227E-02	3.902E-02 NOT IDENT.

PR-144	-2.624E+00	5.187E+00	4.224E+00	2.647E+00	NOT IDENT.
PM-146	-1.055E-02	1.036E-01	8.390E-02	5.288E-02	NOT IDENT.
ND-147	7.989E-01	1.438E+00	1.247E+00	7.339E-01	NOT IDENT.
PM-149	7.137E+00	3.761E+02	3.149E+02	1.919E+02	NOT IDENT.
EU-152	-3.714E-02	2.149E-01	1.706E-01	1.097E-01	FAIL ABUN
GD-153	7.673E+00	8.183E-01	3.680E-01	4.175E-01	FAIL ABUN
EU-154	-1.034E-02	1.604E-01	1.330E-01	8.184E-02	NOT IDENT.
EU-155	2.459E+00	5.472E-01	3.730E-01	2.792E-01	FAIL ABUN
TB-160	5.721E-02	3.200E-01	2.654E-01	1.632E-01	FAIL ABUN
HO-166M	-5.439E-02	1.220E-01	9.920E-02	6.224E-02	FAIL ABUN
TM-171	-3.365E+02	1.132E+02	7.919E+01	5.774E+01	FAIL ABUN
LU-176	-4.733E-03	5.556E-02	4.617E-02	2.834E-02	FAIL ABUN
LU-177	7.206E+00	3.485E+00	2.745E+00	1.778E+00	FAIL ABUN
LU-177M	-4.227E-01	3.926E-01	3.052E-01	2.003E-01	FAIL ABUN
HF-181	-9.823E-02	1.022E-01	7.874E-02	5.213E-02	FAIL ABUN
W-181	2.691E+01	2.521E+00	1.398E+00	1.286E+00	NOT IDENT.
TA-182	-1.378E-01	2.623E-01	2.093E-01	1.338E-01	FAIL ABUN
RE-183	8.057E+00	8.787E-01	4.635E-01	4.483E-01	FAIL ABUN
RE-184	3.841E-02	5.780E-01	4.528E-01	2.949E-01	NOT IDENT.
OS-185	-2.149E-02	8.772E-02	7.271E-02	4.475E-02	NOT IDENT.
RE-188	-3.385E-01	5.900E-01	4.687E-01	3.010E-01	NOT IDENT.
W-188	-6.786E+00	1.884E+01	1.361E+01	9.613E+00	FAIL ABUN
IR-192	-1.930E-02	7.825E-02	6.453E-02	3.993E-02	FAIL ABUN
AU-195	2.238E+01	2.387E+00	1.073E+00	1.218E+00	FAIL ABUN
TL-200	-6.167E+02	3.639E+03	0.000E+00	1.857E+03	SHORT HLIF
TL-201	1.476E+01	4.097E+01	2.938E+01	2.090E+01	NOT IDENT.
TL-202	-4.238E-02	1.690E-01	1.361E-01	8.621E-02	NOT IDENT.
HG-203	-1.147E-02	9.611E-02	8.025E-02	4.903E-02	NOT IDENT.
BI-207	8.778E-03	6.680E-02	5.726E-02	3.408E-02	FAIL ABUN
TL-207	-9.336E-01	1.432E+00	1.155E+00	7.308E-01	FAIL ABUN
PO-209	6.341E+00	1.405E+01	1.181E+01	7.169E+00	NOT IDENT.
BI-210	-5.431E+00	8.457E+00	7.077E+00	4.315E+00	NOT IDENT.
PB-210	-5.431E+00	8.457E+00	7.077E+00	4.315E+00	NOT IDENT.
PO-210	-5.431E+00	8.455E+00	7.077E+00	4.314E+00	NOT IDENT.
PB-211	-2.253E-01	1.979E+00	1.610E+00	1.010E+00	NOT IDENT.
BI-212	6.956E-01	8.160E-01	5.427E-01	4.163E-01	FAIL ABUN
PO-215	-9.336E-01	1.432E+00	1.155E+00	7.308E-01	FAIL ABUN
RN-219	-5.246E-01	8.624E-01	6.853E-01	4.400E-01	NOT IDENT.
RN-220	-1.802E+01	5.587E+01	4.673E+01	2.850E+01	NOT IDENT.
RA-223	-9.336E-01	1.432E+00	1.155E+00	7.308E-01	FAIL ABUN
AC-227	1.715E+00	1.077E+00	8.209E-01	5.495E-01	FAIL ABUN
TH-227	1.715E+00	1.089E+00	8.209E-01	5.556E-01	FAIL ABUN
TH-229	2.450E+00	1.555E+00	1.212E+00	7.932E-01	FAIL ABUN
PA-231	1.475E+00	3.424E+00	2.899E+00	1.747E+00	FAIL ABUN
TH-231	-9.336E-01	1.432E+00	1.155E+00	7.308E-01	FAIL ABUN
PA-233	-4.522E-02	1.434E-01	1.181E-01	7.317E-02	FAIL ABUN
PA-234	1.594E+00	9.223E-01	5.775E-01	4.706E-01	FAIL ABUN
NP-236	-4.868E-02	3.070E-01	2.179E-01	1.566E-01	FAIL ABUN
NP-237	-6.144E+00	1.878E+00	9.048E-01	9.582E-01	FAIL ABUN
NP-239	2.322E-01	1.032E+00	5.926E-01	5.265E-01	FAIL ABUN
AM-241	1.763E+00	6.657E-01	5.029E-01	3.397E-01	NOT IDENT.
AM-243	3.310E-01	2.540E-01	1.904E-01	1.296E-01	NOT IDENT.
CM-243	1.057E+00	4.688E-01	3.207E-01	2.392E-01	FAIL ABUN
AM-246	-1.646E-01	2.099E-01	1.652E-01	1.071E-01	NOT IDENT.
CM-247	-2.211E-02	7.635E-02	6.176E-02	3.895E-02	NOT IDENT.
CF-249	4.697E-02	9.034E-02	7.564E-02	4.609E-02	NOT IDENT.
CF-251	-2.561E-01	4.016E-01	3.407E-01	2.049E-01	NOT IDENT.



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*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON, SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	4308.1660
46.50	4308.1660
46.50	4308.1660
48.70	4520.4492
49.72	4508.4565
51.35	4826.6230
52.39	5475.3882
52.97	5483.4556
53.15	5485.9458
53.44	5489.9502
54.07	6008.0483
56.28	6596.9517
56.28	6596.9863
57.37	0.0000
57.53	6423.7280
57.53	6423.7622
57.60	6424.8076
57.98	6301.7021
57.98	6301.7021
59.32	6381.0806
59.32	6381.0806
59.40	6452.3037
59.54	6454.4292
59.72	6457.1616
60.01	6566.7388
61.10	6970.1260
61.14	6970.7612
61.30	6973.3384
63.00	6006.8281
63.29	6010.7686
63.29	6010.7686
63.58	6014.7007
64.28	4903.2197
65.12	5114.9185
65.20	5115.8223
65.20	5115.8223
66.05	5557.9536
66.72	5707.0151
66.83	5708.4243
66.91	5687.1602
67.20	5781.3154
67.20	5781.3154
67.75	5916.0728
67.85	5917.3477
68.90	5661.9180
68.90	5661.9180
69.30	5700.5713
69.67	5870.3110
70.82	6327.5166
70.82	6327.5166
70.83	6327.6455
72.80	6751.3394
72.87	6752.3330
72.87	6752.3330
74.67	6655.5317
74.81	6657.4170
74.81	6657.4170
74.81	6657.4170
74.81	6657.4170
74.81	6657.4170
74.81	6657.4170
74.81	6657.4170
74.97	6825.6074
75.28	6829.8857
75.70	6961.1133
77.11	7130.8281
77.11	7130.8281

77.11	7130.8281
77.11	7130.8281
77.11	7130.8281
77.11	7130.8281
77.11	7130.8281
78.38	7083.3887
79.62	7464.6567
79.80	7467.2739
79.80	7467.2739
80.11	6996.0068
80.18	6996.9521
80.30	6998.5620
80.30	6998.5620
80.57	7478.3770
81.00	7157.7051
81.07	7158.6699
81.07	7158.6699
81.07	7158.6699
81.07	7158.6699
82.60	7144.3813
83.37	7400.2319
83.78	7563.1479
83.78	7563.1479
83.78	7563.1479
83.78	7563.1479
84.21	7569.2734
84.90	7369.2183
85.43	7280.9907
86.29	7466.9351
86.50	8618.0674
86.54	8618.7070
86.59	8619.5166
86.72	8621.5615
86.79	8622.6260
86.94	8975.1641
87.30	8981.0596
87.30	8981.0596
87.30	8981.0596
87.30	8981.0596
87.30	8981.0596
87.30	8981.0596
87.30	8981.0596
87.57	9432.9121
87.88	10078.8291
88.03	9849.4102
88.36	9855.3340
88.47	9216.0723
89.95	8593.0527
91.11	8618.6904
92.29	8231.2109
92.38	8232.5400
92.38	8232.5400
93.35	8246.5527
94.00	8255.9355
94.67	8265.4785
94.67	8265.5596
94.90	8268.8613
94.90	8268.8613
94.90	8268.8613
94.90	8268.8613
95.87	3364.5581
95.87	3364.5581
96.73	3369.5308
97.43	3373.5383
98.44	3379.3289
98.44	3379.3289
98.88	3418.1106
99.55	3254.5754
99.55	3254.5754
99.86	3172.5364
100.00	3173.2717
100.10	3173.8232
103.18	2850.0444
103.76	2940.7437
105.00	3247.2852
105.31	2947.0881
108.00	2959.8101
109.28	2965.8044

111.00	2973.8157
111.00	2973.8157
111.76	2977.3276
112.95	2982.8142
115.19	2621.2280
116.30	2614.2854
117.00	2617.0525
117.00	2617.0525
117.66	2619.6477
121.11	2517.6609
121.62	2362.0820
121.78	2362.6333
122.06	2397.9534
122.32	2333.4060
122.32	2333.4060
122.32	2333.4060
122.32	2333.4060
123.07	2406.4021
127.23	2452.1428
129.76	2393.1106
131.20	2254.8706
133.02	2251.1450
133.54	2134.7166
135.34	2039.9875
136.00	2143.2417
136.25	2123.7197
136.48	2163.3289
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140.51	0.0000
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142.65	2012.9211
143.76	2015.8411
144.24	2017.1185
144.24	2017.1185
144.24	2017.1185
144.24	2017.1185
145.22	1808.6035
145.44	1807.4210
147.16	1736.9484
152.43	1754.3085
152.70	1776.5006
153.22	1719.6570
154.21	1725.1958
154.21	1725.1958
154.21	1725.1958
154.21	1725.1958
155.03	1840.9429
156.02	1858.0471
158.56	1720.7504
159.00	0.0000
159.00	1690.7395
160.31	1782.9330
161.27	1774.6660
162.32	1806.2412
162.64	1806.9281
163.35	1771.0375
163.89	1652.3589
165.85	1623.2936
167.43	1600.2896
171.28	1633.0638
171.86	1645.7954
172.10	1646.2560
176.55	1654.9401
176.60	1655.0409
181.06	1724.1697
184.41	1746.8662
185.71	1986.0955
186.00	1524.4346
190.27	1054.2471
192.34	988.7653
193.63	1040.8837
197.04	951.8494
198.01	944.4339
198.60	927.0458
200.40	919.7859
201.83	940.0782
202.84	941.0570
205.31	943.4363

208.36	750.5588
208.81	756.7092
209.75	830.1107
209.75	830.1107
210.97	847.8674
215.65	743.9661
216.55	770.2380
218.09	780.5623
222.10	732.0999
223.80	787.6487
226.40	680.6308
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227.08	682.9232
227.20	688.5418
228.16	695.6425
228.18	695.6597
228.18	695.6597
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236.00	711.1970
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238.63	816.0407
238.63	816.0407
238.63	816.0407
239.00	792.3992
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241.98	670.1208
241.98	670.1208
241.98	670.1208
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245.39	645.1182
247.94	556.7228
248.90	580.7663
249.79	604.8156
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252.85	563.8746
254.15	0.0000
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256.20	576.9163
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260.90	461.8900
262.80	462.6372
264.65	490.4596
268.24	531.1168
268.79	505.4652
269.46	523.0291
269.46	523.0291
269.46	523.0291
269.46	523.0291
271.23	544.9467
273.65	584.5673
276.40	533.7780
277.35	504.2458
277.60	515.9436
277.60	515.9436
278.00	537.3779
278.60	553.1125
279.20	544.6760
279.53	544.8221
280.46	530.7078
281.68	533.1734
283.67	462.1854
284.30	469.2181
285.00	480.1756
285.90	465.9316
286.10	466.0047
286.10	466.0047
287.40	480.1289
288.45	0.0000
290.67	482.7446
290.80	482.7974
291.72	442.4984
293.26	0.0000
293.70	465.1139
295.21	489.1834
295.21	489.1834

295.21	489.1834
295.96	489.4729
296.50	404.1417
297.23	431.8561
298.57	432.3059
299.80	421.7074
299.80	421.7074
300.09	437.5378
300.09	437.5378
300.09	437.5378
300.09	437.5378
300.12	437.5514
301.29	436.3697
302.84	468.4348
303.76	396.1645
303.91	396.2074
304.40	404.2563
304.40	404.2563
304.84	406.7632
306.84	435.0720
308.46	426.6989
311.98	426.8440
316.51	413.3536
318.01	415.8102
319.02	396.1640
319.41	396.2791
320.08	361.5194
323.87	409.5991
323.87	409.5991
323.87	409.5991
323.87	409.5991
325.23	404.9925
328.77	402.0203
333.44	413.0562
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334.20	390.6799
334.30	390.7095
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338.28	375.4269
338.28	375.4269
338.28	375.4269
338.32	375.4382
338.32	375.4382
338.32	375.4382
340.50	345.4073
340.57	345.4230
344.27	354.2253
345.85	359.2642
350.59	0.0000
351.07	370.8369
351.92	362.6811
351.92	362.6811
351.92	362.6811
355.39	0.0000
356.01	350.7907
364.48	348.2737
366.43	359.0502
367.43	369.6136
367.94	0.0000
369.80	324.6989
374.96	343.4448
383.85	325.6110
387.95	325.4263
388.63	319.2876
391.69	370.2579
391.69	370.2579
392.90	346.4003
398.62	292.8723
400.65	301.6843
401.10	302.8223
401.81	294.5132
402.60	281.9845
404.84	294.0133
410.95	274.9543
411.60	304.8018
413.65	329.6399
414.70	277.7148
415.30	267.1701

415.76	284.2823
417.63	0.0000
418.52	296.4906
423.70	320.9518
427.08	276.5776
427.89	265.9862
432.53	274.2487
433.93	255.0997
439.47	271.0498
439.56	271.0613
439.89	265.7142
443.98	267.4276
444.90	279.4869
445.03	279.5105
445.03	279.5105
445.03	279.5105
445.03	279.5105
453.90	308.1581
463.38	269.3065
468.07	293.0620
473.00	292.7640
475.06	283.1800
475.35	253.4717
476.78	262.4915
477.59	261.5043
477.96	268.1803
482.03	289.7927
484.57	241.4579
487.03	234.0170
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492.35	240.2479
497.08	244.1996
507.63	0.0000
510.53	0.0000
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511.00	270.7058
511.85	270.8253
511.85	270.8253
513.99	246.0000
513.99	246.0000
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520.65	236.6124
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528.96	0.0000
529.64	256.7520
529.87	0.0000
531.02	241.4976
537.32	240.4424
543.00	245.6858
546.56	0.0000
549.76	229.1016
552.65	218.4126
555.20	203.0653
563.23	196.3472
563.90	198.3868
568.70	209.6335
569.32	200.7568
569.50	200.7727
569.67	200.7886
573.80	194.6960
574.00	194.7114
574.64	199.4104
578.91	210.6572
579.30	0.0000
583.14	198.3510
585.48	208.2027
591.81	191.6770
592.07	191.1775
593.00	203.9439
595.88	183.6064
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602.52	0.0000
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602.71	175.8622
603.60	197.4236
604.41	202.1976
604.70	202.2239
609.31	202.6490

609.31	202.6490
609.31	202.6490
609.31	202.6490
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612.46	202.9377
614.37	190.5199
618.01	196.6128
621.84	171.5700
621.84	171.5700
631.29	192.2797
633.02	194.3329
633.10	194.3379
634.78	180.1821
635.90	165.0089
636.97	184.1746
645.85	171.4790
646.12	174.3708
656.30	194.0648
657.75	213.4408
657.90	0.0000
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661.65	199.6519
664.57	0.0000
666.33	209.3933
666.33	209.3933
675.00	164.8950
677.61	174.7837
685.20	184.1043
692.80	172.9553
695.00	236.6885
696.49	219.2148
696.49	219.2148
697.00	207.5126
697.49	211.4701
698.33	202.7296
698.50	197.8476
699.00	192.0092
702.63	218.7861
706.10	186.6694
706.58	0.0000
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711.68	169.3671
713.82	157.6875
717.42	162.8489
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721.93	0.0000
722.20	164.8071
722.78	182.9766
722.78	182.9766
722.89	182.9856
722.95	182.9901
723.30	183.0172
724.18	197.9248
727.18	168.4353
733.00	163.8560
735.90	166.5308
739.58	205.7635
742.81	176.4512
744.21	152.9403
747.13	163.0981
751.79	164.0601
752.31	169.0949
753.82	143.1641
755.35	177.3068
756.15	179.3671
756.87	181.4198
763.93	182.5803
765.79	176.0040
766.42	176.0468
766.84	176.0724
776.49	188.8353
778.00	200.0544
778.57	200.0979
778.89	200.1221
783.80	280.4828
785.46	211.7605
792.07	300.6467

795.84	164.7725
796.30	171.9212
798.80	195.4969
801.93	171.2566
805.60	168.4241
810.29	151.3278
810.76	152.3758
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817.79	135.3354
818.51	135.3709
819.60	131.3219
826.30	124.4386
828.27	0.0000
831.60	143.2182
831.96	152.5130
834.83	128.9429
836.80	0.0000
846.75	132.5938
848.13	129.5471
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856.80	159.0475
860.37	120.7352
867.32	92.8546
867.82	92.8698
871.10	96.1092
873.19	100.3594
874.81	105.6456
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876.40	145.4715
879.36	146.6650
880.27	147.7608
880.51	122.6186
881.50	105.8873
883.24	125.8799
884.67	139.5851
889.25	107.2145
896.60	94.8362
898.02	82.2294
899.00	86.4764
903.28	96.5558
911.07	78.3522
911.07	78.3522
911.07	78.3522
919.63	106.1816
920.93	139.4211
925.00	79.7754
925.24	86.1653
926.50	88.3293
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937.48	74.7595
944.10	85.6230
946.00	85.6758
949.00	66.1050
962.29	55.6199
964.01	66.7802
966.15	66.8256
968.20	66.8680
969.11	66.8876
969.11	66.8876
969.11	66.8876
977.42	94.9440
980.50	72.5403
983.50	59.6030
989.30	73.8238
996.32	70.7208
1001.03	90.4347
1001.68	90.4530
1004.76	58.1771
1021.30	0.0000
1024.50	0.0000
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1036.00	44.9645
1037.82	57.8423
1038.57	60.6101
1038.76	0.0000
1045.16	57.0478
1046.59	58.9141
1048.07	65.3867



1050.47	56.2170
1050.47	56.2170
1062.04	44.3867
1063.62	46.2565
1076.63	51.0746
1077.35	59.4453
1078.86	71.5515
1085.78	50.2800
1099.22	58.8856
1112.02	47.8416
1112.84	48.2540
1115.52	61.1695
1120.29	70.9230
1120.29	70.9230
1120.29	70.9230
1120.29	70.9230
1120.51	70.9261
1121.28	54.8184
1124.00	0.0000
1129.67	71.6458
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1147.95	0.0000
1167.94	53.3499
1173.22	48.6550
1175.09	59.1795
1177.93	62.0907
1189.05	76.6471
1204.90	51.9543
1205.75	0.0000
1213.00	61.7057
1221.42	65.7090
1230.97	68.0864
1235.34	74.8138
1236.41	0.0000
1238.25	51.4365
1246.25	37.9288
1260.41	0.0000
1271.85	42.0919
1274.45	44.0790
1274.54	43.0994
1291.56	37.3815
1298.22	0.0000
1312.09	37.5717
1325.50	41.6633
1325.50	41.6633
1332.49	30.8045
1333.61	35.7817
1360.21	28.0091
1362.66	0.0000
1365.15	26.0391
1368.21	24.0537
1368.53	0.0000
1376.25	29.1204
1384.27	35.2122
1394.10	23.1928
1395.20	36.3105
1407.95	29.3375
1434.06	23.4080
1436.60	23.4211
1457.56	0.0000
1460.81	25.5981
1489.15	26.7913
1509.49	17.7441
1596.49	18.0769
1620.62	22.2561
1678.03	0.0000
1691.02	18.2756
1691.02	18.2756
1706.46	0.0000
1750.46	0.0000
1764.49	12.1526
1764.49	12.1526
1764.49	12.1526
1764.49	12.1526
1770.23	9.8262
1771.40	9.8287
1791.20	0.0000
1808.65	13.1978

1836.01

34.1116

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037547

Total Uranium Activity	1.6768E+03	ug/g
Total Uranium Counting Unc.	2.8532E+02	ug/g
Total Uranium Tpu	1.4557E-04	ug/g
Total Uranium Mda	1.1507E+01	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 950786                SAMPLE ID   : G1202037547                *
*  ANALYST       : MXR1                  DETECTOR    : GAM07                    *
*  SAMPLE DATE   : 1-FEB-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00            *
*  ANALYSIS DATE: 18-FEB-2010 13:52:40.05  SAMPLE ALQT: 95.150 GRAM            *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.072E+02
GROSS GAMMA ERROR   (pCi/GRAM ) : 5.866E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.588E+01
GROSS GAMMA DLC     (pCi/GRAM ) : 1.285E+01

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VAX/VMS Nuclide Identification Report Generated 18-FEB-2010 15:48:34.96

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037548.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 14:48:04
Sample ID          : G1202037548 Sample quantity : 1.55440E+02 GRAM
Detector name      : GAM17 Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00 Elapsed real time: 0 01:00:06.12 0.2%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 950786 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	49.67	283	1391	1.83	98.96	95	12	7.87E-02	26.9	
2	3	57.47	140	748	1.14	114.57	112	12	3.88E-02	28.0	3.85E+00
3	3	59.55*	6516	483	0.86	118.74	112	12	1.81E+00	1.3	
4	4	74.94*	175	377	0.98	149.52	146	12	4.86E-02	18.6	3.89E+00
5	4	77.17*	294	279	0.88	153.98	146	12	8.17E-02	10.5	
6	0	88.03*	1612	497	1.01	175.71	171	11	4.48E-01	3.7	
7	0	92.81*	103	291	1.04	185.27	182	9	2.85E-02	32.8	
8	0	122.19	247	312	0.96	244.05	239	11	6.86E-02	15.3	
9	0	185.69*	95	237	1.02	371.11	366	11	2.64E-02	33.5	
10	3	238.58*	421	143	1.03	476.93	473	18	1.17E-01	6.6	3.28E+00
11	3	241.49	95	172	1.51	482.75	473	18	2.64E-02	30.3	
12	0	294.96*	119	176	1.20	589.75	583	11	3.31E-02	23.6	
13	0	300.91	48	227	2.54	601.65	595	13	1.33E-02	66.6	
14	0	337.95	84	126	1.26	675.76	671	9	2.33E-02	26.4	
15	0	351.68*	162	195	1.15	703.23	697	12	4.51E-02	19.0	
16	0	510.74*	67	120	1.84	1021.51	1015	13	1.85E-02	38.5	
17	0	582.95*	154	68	1.16	1166.00	1160	13	4.28E-02	13.8	
18	0	608.94*	157	88	1.54	1218.01	1212	15	4.36E-02	15.3	
19	0	661.22	1660	80	1.40	1322.62	1315	14	4.61E-01	2.7	
20	0	910.93*	75	164	1.66	1822.37	1815	17	2.10E-02	40.8	
21	0	1172.43*	1203	45	1.79	2345.74	2338	15	3.34E-01	3.1	
22	0	1331.54	1065	9	1.79	2664.21	2655	18	2.96E-01	3.1	
23	0	1763.31*	20	7	1.67	3528.56	3524	9	5.57E-03	33.3	

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

VMS Nuclide Identification Report V3.1 Generated 18-FEB-2010 15:48:37

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037548.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 14:48:04
Sample ID        : G1202037548 Sample quantity : 155.44 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA17 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:06.12 0.2%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00
    
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	+	122.06	*	2.359E-01	7.709E-02	5.918E-02	6.933E-03	3.986
		136.48		2.347E-01	3.111E-01	5.295E-01	5.960E-02	0.443
CO-60	+	1173.22		6.211E+00	6.396E-01	1.395E-01	1.139E-02	44.536
	+	1332.49	*	6.140E+00	6.495E-01	9.995E-02	8.519E-03	61.425
CD-109	+	88.03	*	3.176E+01	3.885E+00	1.615E+00	1.576E-01	19.671
SN-126		64.28		-4.453E-02	3.570E-01	5.873E-01	9.374E-02	-0.076
	+	86.94		1.313E+01	5.547E+00	6.651E-01	2.767E-01	19.736
	+	87.57	*	3.157E+00	3.862E-01	1.603E-01	1.564E-02	19.698
BA-137M	+	661.65	*	5.558E+00	5.568E-01	1.373E-01	1.157E-02	40.464
CS-137	+	661.65	*	5.875E+00	5.894E-01	1.452E-01	1.226E-02	40.464
W-181	+	56.28		5.635E-01	3.207E-01	5.246E-01	5.259E-02	1.074
	+	57.53		3.232E-01	1.840E-01	2.535E-01	2.546E-02	1.275
		65.20	*	-3.026E-01	2.485E-01	3.987E-01	3.949E-02	-0.759
TL-208		277.35		9.015E-01	6.828E-01	1.219E+00	1.552E-01	0.740
	+	510.84		7.249E-01	5.657E-01	5.132E-01	6.269E-02	1.412
	+	583.14	*	4.877E-01	1.426E-01	1.275E-01	1.206E-02	3.826
		860.37		4.981E-01	8.057E-01	1.395E+00	1.312E-01	0.357
BI-211		72.87		2.454E-01	3.139E+00	4.791E+00	4.685E-01	0.051
	+	351.07	*	2.082E+00	8.158E-01	6.604E-01	6.163E-02	3.153
PB-212	+	74.81		1.162E+00	4.610E-01	5.514E-01	7.451E-02	2.108
	+	77.11		1.163E+00	2.689E-01	3.292E-01	3.210E-02	3.533
	+	87.30		1.460E+01	2.307E+00	7.407E-01	1.035E-01	19.714
	+	238.63	*	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
	+	300.09		2.042E+00	2.730E+00	2.335E+00	2.543E-01	0.874
PO-212	+	74.81		1.162E+00	4.610E-01	5.514E-01	7.451E-02	2.108
	+	77.11		1.163E+00	2.689E-01	3.292E-01	3.210E-02	3.533
	+	87.30		1.460E+01	2.307E+00	7.407E-01	1.035E-01	19.714
		115.19		1.275E+00	4.902E+00	8.232E+00	9.268E-01	0.155
	+	238.63	*	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
	+	300.09		2.042E+00	2.730E+00	2.335E+00	2.543E-01	0.874
BI-214	+	609.31	*	9.422E-01	3.046E-01	2.197E-01	2.234E-02	4.289
		1120.29		1.409E-01	7.373E-01	1.219E+00	1.303E-01	0.116
	+	1764.49		9.119E-01	6.129E-01	4.849E-01	4.101E-02	1.880
PB-214	+	74.81		2.003E+00	7.861E-01	9.500E-01	1.164E-01	2.108

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	77.11		1.994E+00	4.853E-01	5.644E-01	6.983E-02	3.533
	+	87.30		2.502E+01	3.617E+00	1.269E+00	1.578E-01	19.715
	+	241.98		1.539E+00	9.464E-01	9.213E-01	9.808E-02	1.670
	+	295.21		8.849E-01	4.284E-01	4.175E-01	4.637E-02	2.120
	+	351.92	*	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
	+	74.81		2.003E+00	7.861E-01	9.500E-01	1.164E-01	2.108
	+	77.11		1.994E+00	4.853E-01	5.644E-01	6.983E-02	3.533
	+	87.30		2.502E+01	3.617E+00	1.269E+00	1.578E-01	19.715
PO-216	+	241.98		1.539E+00	9.464E-01	9.213E-01	9.808E-02	1.670
	+	295.21		8.849E-01	4.284E-01	4.175E-01	4.637E-02	2.120
	+	351.92	*	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
	+	74.81		1.162E+00	4.610E-01	5.514E-01	7.451E-02	2.108
	+	77.11		1.163E+00	2.689E-01	3.292E-01	3.210E-02	3.533
	+	87.30		1.460E+01	2.307E+00	7.407E-01	1.035E-01	19.714
	+	238.63	*	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
	+	300.09		2.042E+00	2.730E+00	2.335E+00	2.543E-01	0.874
PO-218	+	74.81		2.003E+00	7.861E-01	9.500E-01	1.164E-01	2.108
	+	77.11		1.994E+00	4.853E-01	5.644E-01	6.983E-02	3.533
	+	87.30		2.502E+01	3.617E+00	1.269E+00	1.578E-01	19.715
	+	241.98		1.539E+00	9.464E-01	9.213E-01	9.808E-02	1.670
	+	295.21		8.849E-01	4.284E-01	4.175E-01	4.637E-02	2.120
	+	351.92	*	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
	+	240.98	*	2.918E+00	1.787E+00	1.741E+00	1.574E-01	1.676
	+	609.31	*	9.422E-01	3.046E-01	2.197E-01	2.234E-02	4.289
TH-228	+	1120.29		1.409E-01	7.373E-01	1.219E+00	1.303E-01	0.116
	+	1764.49		9.119E-01	6.129E-01	4.849E-01	4.101E-02	1.880
	+	74.81		1.171E+00	4.516E-01	5.556E-01	5.459E-02	2.108
	+	77.11		1.172E+00	2.709E-01	3.318E-01	3.234E-02	3.533
	+	87.30		1.471E+01	1.800E+00	7.464E-01	7.282E-02	19.715
	+	238.63	*	1.142E+00	1.893E-01	1.540E-01	1.552E-02	7.417
	+	300.09		2.057E+00	3.002E+00	2.353E+00	1.397E+00	0.874
	+	609.31	*	9.422E-01	3.046E-01	2.196E-01	2.234E-02	4.289
U-234	+	1120.29		1.409E-01	7.373E-01	1.219E+00	1.303E-01	0.116
	+	1764.49		9.119E-01	6.129E-01	4.849E-01	4.101E-02	1.880
	+	609.31	*	9.422E-01	3.046E-01	2.196E-01	2.234E-02	4.289
	+	1120.29		1.409E-01	7.373E-01	1.219E+00	1.303E-01	0.116
	+	1764.49		9.119E-01	6.129E-01	4.849E-01	4.101E-02	1.880
	+	59.54	*	1.303E+01	1.427E+00	2.197E-01	2.333E-02	59.300
	+	74.67	*	1.884E-01	7.264E-02	8.937E-02	8.724E-03	2.109
	+	86.72		3.477E+02	4.253E+01	1.859E+01	1.814E+00	18.698
ANH-511	+	117.66		-3.494E+00	6.104E+00	8.677E+00	9.908E-01	-0.403
	+	142.18		7.339E-01	2.552E+01	4.194E+01	4.325E+00	0.017
	+	511.00	*	1.566E-01	1.215E-01	1.109E-01	9.904E-03	1.412

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-2.123E-01	6.744E-01	1.080E+00	1.028E-01	-0.196

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		-2.684E-02	6.294E-02	9.232E-02	7.777E-03	-0.291
NA-24	1368.53	*		8.122E-05	6.294E-02	Half-Life too short		
AL-26	1129.67			1.062E+00	4.158E+00	6.920E+00	5.783E-01	0.153
	1808.65	*		1.514E-03	4.792E-02	7.899E-02	6.620E-03	0.019
K-40	1460.81	*		6.903E-01	6.679E-01	1.291E+00	1.146E-01	0.535
TI-44	67.85			2.441E-02	3.664E-02	6.351E-02	6.255E-03	0.384
	78.38	*	+	2.146E-01	4.960E-02	7.381E-02	7.191E-03	2.908
SC-46	889.25	*		4.230E-02	9.822E-02	1.683E-01	1.473E-02	0.251
	1120.51			6.364E-02	1.153E-01	1.967E-01	1.651E-02	0.323
V-48	944.10			-6.169E-01	2.154E+00	3.476E+00	3.041E-01	-0.177
	983.50	*		3.384E-02	1.570E-01	2.621E-01	2.286E-02	0.129
	1312.09			-3.030E-02	8.046E-02	1.251E-01	1.062E-02	-0.242
CR-51	320.08	*		-9.027E-02	5.595E-01	9.320E-01	8.900E-02	-0.097
MN-52	744.21			-3.851E-01	2.059E-01	2.785E-01	2.421E-02	-1.383
	848.13			-1.207E+00	7.623E+00	1.251E+01	1.100E+00	-0.096
	935.52			8.025E-03	3.132E-01	5.172E-01	4.526E-02	0.016
	1246.25			1.888E-01	3.910E+00	6.350E+00	5.304E-01	0.030
	1333.61			2.513E+02	2.760E+01	4.010E+01	3.418E+00	6.267
	1434.06	*		1.534E-01	1.163E-01	2.500E-01	2.156E-02	0.614
MN-54	834.83	*		-1.939E-03	9.798E-02	1.627E-01	1.431E-02	-0.012
CO-56	846.75	*		-3.764E-02	1.045E-01	1.687E-01	1.483E-02	-0.223
	977.42			4.471E+00	8.438E+00	1.441E+01	1.258E+00	0.310
	1037.82			1.324E-01	8.145E-01	1.350E+00	1.228E-01	0.098
	1175.09			1.418E+02	1.693E+01	2.777E+01	2.270E+00	5.106
	1238.25			1.460E-01	1.208E-01	2.272E-01	1.952E-02	0.643
	1360.21			7.412E-01	1.165E+00	2.217E+00	1.897E-01	0.334
	1771.40			-2.147E-01	3.763E-01	5.109E-01	4.315E-02	-0.420
CO-58	810.76	*		-7.259E-02	9.226E-02	1.432E-01	1.261E-02	-0.507
FE-59	142.65			1.235E+00	3.517E+00	5.874E+00	6.037E-01	0.210
	192.34			8.268E-01	1.314E+00	2.194E+00	2.947E-01	0.377
	1099.22	*		-5.058E-02	2.305E-01	3.678E-01	3.375E-02	-0.138
	1291.56			-1.156E-01	1.377E-01	1.714E-01	1.651E-02	-0.675
ZN-65	1115.52	*		4.705E-02	2.216E-01	3.671E-01	3.091E-02	0.128
GE-68	1077.35	*		1.800E+00	3.688E+00	6.244E+00	5.329E-01	0.288
AS-73	53.44	*		-6.006E-01	6.996E-01	9.545E-01	9.550E-02	-0.629
AS-74	595.88	*		1.066E-01	1.431E-01	2.458E-01	2.165E-02	0.434
	634.78			-2.070E-01	5.925E-01	9.191E-01	7.916E-02	-0.225
SE-75	66.05			-3.834E+00	3.469E+00	5.592E+00	6.432E-01	-0.686
	96.73			-4.630E-01	9.594E-01	1.388E+00	2.036E-01	-0.334
	121.11		+	1.238E+00	4.142E-01	4.486E-01	6.138E-02	2.760
	136.00			6.921E-02	5.677E-02	9.836E-02	1.064E-02	0.704
	198.60			2.070E+00	2.945E+00	4.917E+00	4.737E-01	0.421
	264.65	*		-3.013E-02	7.875E-02	1.214E-01	1.115E-02	-0.248
	279.53			-1.438E-01	1.788E-01	2.884E-01	2.736E-02	-0.499
	303.91			1.366E+00	4.027E+00	6.159E+00	7.325E-01	0.222
	400.65			-4.370E-01	5.177E-01	8.074E-01	8.888E-02	-0.541
BR-77	87.88		+	7.741E+02	9.468E+01	9.576E+01	9.346E+00	8.084
	200.40			1.572E+01	3.138E+01	5.189E+01	4.524E+00	0.303
	239.00		+	2.030E+01	3.240E+00	5.492E+00	4.960E-01	3.697



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	249.79			-5.887E+00	1.386E+01	2.139E+01	1.945E+00	-0.275
	281.68			-8.388E+00	1.644E+01	2.698E+01	2.477E+00	-0.311
	297.23			2.397E+00	1.602E+01	1.779E+01	1.633E+00	0.135
	303.76			1.527E+01	4.005E+01	6.147E+01	5.636E+00	0.248
	439.47			-1.005E+01	3.686E+01	5.967E+01	5.200E+00	-0.168
	484.57			-1.864E+01	6.035E+01	9.665E+01	8.587E+00	-0.193
	520.65	*		1.372E+00	2.710E+00	4.578E+00	4.092E-01	0.300
	574.64			3.261E+01	5.249E+01	8.906E+01	7.908E+00	0.366
	578.91			-1.177E+01	2.396E+01	3.179E+01	2.819E+00	-0.370
	585.48			1.367E+01	4.869E+01	7.080E+01	6.264E+00	0.193
	755.35			-1.739E+01	4.182E+01	6.754E+01	5.886E+00	-0.257
	817.79			-1.202E+01	3.955E+01	6.426E+01	5.648E+00	-0.187
SR-82	698.33			-1.776E+01	5.781E+01	9.491E+01	8.128E+00	-0.187
	776.49	*		9.182E-01	7.366E-01	1.344E+00	1.177E-01	0.683
	1395.20			1.922E+00	1.221E+01	2.108E+01	1.811E+00	0.091
RB-83	520.41	*		8.450E-02	1.518E-01	2.573E-01	2.299E-02	0.328
	529.64			-1.577E-01	2.244E-01	3.450E-01	3.084E-02	-0.457
	552.65			-9.213E-02	4.140E-01	6.589E-01	5.880E-02	-0.140
RB-84	881.50	*		4.811E-02	1.577E-01	2.677E-01	2.346E-02	0.180
KR-85	513.99	*		6.443E+00	1.734E+01	2.568E+01	2.294E+00	0.251
SR-85	513.99	*		3.053E-02	8.214E-02	1.217E-01	1.087E-02	0.251
RB-86	1076.63	*		-4.406E-01	1.851E+00	2.958E+00	2.525E-01	-0.149
Y-88	898.02			4.642E-02	1.165E-01	1.984E-01	1.742E-02	0.234
	1836.01	*		4.469E-02	5.443E-02	1.081E-01	9.013E-03	0.413
ZR-88	392.90	*		-1.644E-02	6.512E-02	1.065E-01	8.974E-03	-0.154
Y-91	1204.90	*		4.088E+00	2.630E+01	4.348E+01	3.588E+00	0.094
NB-94	702.63	*		-4.528E-03	7.325E-02	1.232E-01	1.057E-02	-0.037
	871.10			1.212E-01	9.804E-02	1.765E-01	1.549E-02	0.687
NB-95	765.79	*		3.094E-02	8.959E-02	1.539E-01	1.344E-02	0.201
NB-95M	235.69	*		-1.123E-01	2.129E-01	2.881E-01	2.941E-02	-0.390
ZR-95	724.18			6.819E-02	1.930E-01	3.330E-01	3.125E-02	0.205
	756.15	*		-1.868E-02	1.486E-01	2.464E-01	2.361E-02	-0.076
NB-97	657.90	*		2.337E-04	1.486E-01	Half-Life	too short	
	1024.50			2.156E-03	1.486E-01	Half-Life	too short	
ZR-97	254.15			-5.865E-03	1.486E-01	Half-Life	too short	
	355.39			1.894E-03	1.486E-01	Half-Life	too short	
	507.63	*		1.459E-03	1.486E-01	Half-Life	too short	
	602.52			1.096E-02	1.486E-01	Half-Life	too short	
	1021.30			4.120E-03	1.486E-01	Half-Life	too short	
	1147.95			-1.952E-03	1.486E-01	Half-Life	too short	
	1362.66			-8.828E-05	1.486E-01	Half-Life	too short	
	1750.46			-3.547E-04	1.486E-01	Half-Life	too short	
MO-99	140.51			-4.404E+00	5.959E+00	9.176E+00	2.598E+00	-0.480
	181.06			2.013E+00	4.276E+00	6.388E+00	1.165E+00	0.315
	366.43			7.139E+00	2.743E+01	4.645E+01	4.065E+00	0.154
	739.58	*		3.893E+00	3.839E+00	6.912E+00	1.052E+00	0.563
	778.00			1.178E-03	1.205E+01	2.015E+01	1.764E+00	0.000
TC-99M	140.51	*		-4.017E+01	1.205E+01	Half-Life	too short	
RH-101	127.23			-4.466E-03	5.128E-02	7.527E-02	8.561E-03	-0.059

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RH-102	198.01	*		5.673E-02	5.470E-02	9.288E-02	8.075E-03	0.611
	325.23			1.227E-01	4.262E-01	7.277E-01	6.615E-02	0.169
	418.52			5.145E-01	6.416E-01	1.111E+00	9.557E-02	0.463
	475.06	*		-6.619E-03	6.789E-02	1.106E-01	9.795E-03	-0.060
	631.29			1.117E-01	1.260E-01	2.174E-01	1.877E-02	0.514
	697.49			-5.268E-02	1.631E-01	2.675E-01	2.290E-02	-0.197
	766.84			1.531E-01	2.451E-01	4.292E-01	3.750E-02	0.357
RU-103	1046.59			5.505E-02	3.401E-01	5.635E-01	4.855E-02	0.098
	1112.84			8.824E-02	5.921E-01	9.754E-01	8.213E-02	0.090
	497.08	*		4.261E-02	8.093E-02	1.370E-01	1.965E-02	0.311
	610.33	+		8.911E+00	3.116E+00	3.696E+00	6.191E-01	2.411
RH-106	511.85	+		7.711E-01	5.984E-01	7.258E-01	6.482E-02	1.062
	621.84	*		1.153E-01	6.564E-01	1.073E+00	1.438E-01	0.107
RU-106	1050.47			-4.563E+00	6.518E+00	9.962E+00	8.574E-01	-0.458
	511.85	+		7.711E-01	5.984E-01	7.258E-01	6.482E-02	1.062
	621.84	*		1.153E-01	6.563E-01	1.073E+00	9.323E-02	0.107
AG-108M	1050.47			-4.563E+00	6.518E+00	9.962E+00	8.574E-01	-0.458
	433.93	*		3.247E-02	7.746E-02	1.311E-01	1.183E-02	0.248
	614.37			-2.969E-03	8.936E-02	1.250E-01	1.132E-02	-0.024
AG-110M	722.95			-5.107E-02	9.501E-02	1.528E-01	1.371E-02	-0.334
	657.75	*		1.276E-01	9.604E-02	1.531E-01	1.335E-02	0.833
	677.61			-1.853E-01	7.054E-01	1.098E+00	9.594E-02	-0.169
	706.67			6.594E-02	4.650E-01	7.914E-01	6.987E-02	0.083
	763.93			-2.233E-01	3.708E-01	5.895E-01	5.289E-02	-0.379
	884.67			-1.147E-01	1.294E-01	1.968E-01	1.778E-02	-0.583
	937.48			2.149E-01	3.467E-01	5.954E-01	5.393E-02	0.361
IN-111	1384.27			-1.564E-01	1.977E-01	2.600E-01	2.295E-02	-0.601
	171.28			-5.214E-03	2.385E-01	3.870E-01	3.249E-02	-0.013
	245.39	*		-8.201E-02	3.274E-01	4.524E-01	4.103E-02	-0.181
IN-113M	391.69	*		-8.615E-02	9.411E-02	1.470E-01	1.277E-02	-0.586
SN-113	391.69	*		-8.615E-02	9.411E-02	1.470E-01	1.277E-02	-0.586
IN-114M	190.27	*		4.107E-02	2.856E-01	4.159E-01	3.582E-02	0.099
CD-115	260.90			2.696E+00	2.415E+01	3.855E+01	3.522E+00	0.070
SN-117M	492.35			-9.696E-01	8.220E+00	1.333E+01	1.187E+00	-0.073
	527.90	*		1.050E+00	2.346E+00	3.950E+00	3.531E-01	0.266
	156.02			-4.270E-01	2.282E+00	3.686E+00	3.393E-01	-0.116
	158.56	*		-2.066E-02	5.602E-02	8.941E-02	8.036E-03	-0.231
SB-122	563.90	*		2.731E-01	6.234E-01	1.048E+00	9.328E-02	0.261
I-123	692.80			-3.462E+00	1.413E+01	2.337E+01	1.997E+00	-0.148
	159.00	*		-3.524E-04	1.413E+01	Half-Life	too short	
TE-123M	528.96			-2.787E-02	1.413E+01	Half-Life	too short	
	159.00	*		-2.291E-02	4.162E-02	6.567E-02	5.911E-03	-0.349
I-124	602.71	*		6.203E-01	4.522E-01	7.347E-01	6.452E-02	0.844
SB-124	722.78			-2.350E+00	2.892E+00	4.540E+00	3.922E-01	-0.517
	1325.50			1.271E+01	1.679E+01	2.884E+01	2.455E+00	0.441
	1376.25			5.345E+00	1.407E+01	2.499E+01	2.143E+00	0.214
	1509.49			5.287E+00	7.911E+00	1.467E+01	1.269E+00	0.360
	1691.02			4.048E-01	2.178E+00	3.724E+00	3.185E-01	0.109
	602.71			1.151E-01	8.388E-02	1.363E-01	1.197E-02	0.844

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	645.85	1.816E-01		1.085E+00	1.766E+00	1.600E-01	0.103	
	709.31	1.320E+00		5.834E+00	9.989E+00	8.590E-01	0.132	
	713.82	-2.308E+00		3.517E+00	5.592E+00	6.729E-01	-0.413	
	722.78	-6.318E-01		7.778E-01	1.221E+00	1.077E-01	-0.517	
	968.20	5.449E+00		6.910E+00	1.196E+01	1.044E+00	0.456	
	1045.16	5.536E+00		6.616E+00	1.153E+01	9.938E-01	0.480	
	1325.50	3.651E+00		4.823E+00	8.284E+00	7.051E-01	0.441	
	1368.21	1.063E+00		2.103E+00	3.891E+00	5.230E-01	0.273	
	1436.60	-1.067E+00		4.796E+00	7.560E+00	6.519E-01	-0.141	
	1691.02	* 2.567E-02		1.382E-01	2.362E-01	2.101E-02	0.109	
SB-125	427.89	* 6.060E-02		2.006E-01	3.378E-01	2.980E-02	0.179	
	463.38	8.482E-01		6.801E-01	1.192E+00	1.130E-01	0.711	
	600.56	-1.965E-01		3.899E-01	6.001E-01	5.649E-02	-0.327	
	635.90	-5.565E-01		6.156E-01	8.986E-01	8.359E-02	-0.619	
TE-125M	109.28	* 5.109E+00		1.099E+01	1.867E+01	2.292E+00	0.274	
I-126	388.63	7.025E-02		3.003E-01	5.058E-01	4.280E-02	0.139	
	666.33	* 5.714E-02		3.078E-01	4.394E-01	3.710E-02	0.130	
	753.82	-4.409E-01		2.162E+00	3.558E+00	3.100E-01	-0.124	
SB-126	223.80	-4.051E+00		4.984E+00	7.578E+00	6.764E-01	-0.535	
	278.60	1.455E+00		2.902E+00	5.046E+00	4.632E-01	0.288	
	296.50	3.525E+00		2.584E+00	3.268E+00	3.000E-01	1.079	
	414.70	-7.873E-02		1.121E-01	1.770E-01	1.518E-02	-0.445	
	415.30	-7.969E-01		9.197E+00	1.514E+01	1.299E+00	-0.053	
	555.20	3.063E-01		5.829E+00	9.495E+00	8.470E-01	0.032	
	573.80	-4.667E-01		1.657E+00	2.621E+00	2.328E-01	-0.178	
	593.00	-1.021E+00		1.324E+00	1.978E+00	1.745E-01	-0.516	
	656.30	2.490E+00		5.447E+00	8.058E+00	6.821E-01	0.309	
	666.33	2.347E-02		1.264E-01	1.805E-01	1.524E-02	0.130	
	675.00	2.035E+00		2.928E+00	4.976E+00	4.218E-01	0.409	
	695.00	4.844E-02		1.080E-01	1.884E-01	1.611E-02	0.257	
	697.00	-8.199E-02		3.702E-01	6.124E-01	5.242E-02	-0.134	
	720.50	* -1.384E-01		2.196E-01	3.503E-01	3.024E-02	-0.395	
	856.80	3.312E-01		8.528E-01	1.456E+00	1.279E-01	0.228	
	989.30	-5.139E-01		2.553E+00	4.123E+00	3.593E-01	-0.125	
	1034.80	-8.136E+00		1.628E+01	2.539E+01	2.194E+00	-0.320	
	1213.00	1.820E+00		4.365E+00	7.515E+00	6.218E-01	0.242	
SB-127	61.10	3.230E+02		3.941E+01	4.076E+01	4.337E+00	7.924	
	252.40	5.429E-01		2.073E+00	3.328E+00	1.387E+00	0.163	
	290.80	1.981E+00		9.821E+00	1.493E+01	1.472E+00	0.133	
	411.60	3.744E-01		6.913E+00	1.149E+01	1.659E+00	0.033	
	444.90	3.567E+00		5.931E+00	1.012E+01	1.117E+00	0.352	
	473.00	-2.196E-03		1.040E+00	1.706E+00	1.961E-01	-0.001	
	543.00	-3.612E+00		9.513E+00	1.494E+01	1.978E+00	-0.242	
	603.60	8.438E+00		7.023E+00	1.121E+01	1.236E+00	0.753	
	685.20	* -6.007E-01		7.975E-01	1.172E+00	1.114E-01	-0.512	
	698.50	-1.143E+00		8.081E+00	1.346E+01	1.958E+00	-0.085	
	722.20	-2.704E+01		1.823E+01	2.673E+01	2.499E+00	-1.011	
	783.80	8.183E-01		2.036E+00	3.517E+00	3.838E-01	0.233	
XE-127	+ 57.60	8.904E+00		5.068E+00	9.935E+00	9.978E-01	0.896	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131		145.22		1.168E-01	8.533E-01	1.409E+00	1.421E-01	0.083
		172.10		-4.207E-02	1.563E-01	2.497E-01	2.099E-02	-0.168
		202.84	*	-3.222E-02	6.777E-02	1.059E-01	9.259E-03	-0.304
		374.96		1.575E-01	3.627E-01	6.198E-01	5.361E-02	0.254
		80.18		-5.079E-01	2.780E+00	4.168E+00	4.065E-01	-0.122
		284.30		6.612E-01	1.294E+00	2.256E+00	2.159E-01	0.293
		364.48	*	7.248E-03	1.270E-01	2.128E-01	1.957E-02	0.034
TE-132	+	636.97		-1.495E+00	1.817E+00	2.673E+00	2.417E-01	-0.559
		722.89		-4.974E+00	8.380E+00	1.341E+01	1.161E+00	-0.371
		49.72		8.212E+00	4.499E+00	3.776E+00	3.989E-01	2.175
		111.76		-1.051E+01	8.081E+00	1.226E+01	1.413E+00	-0.858
BA-133		116.30		-2.897E+00	7.713E+00	1.252E+01	1.478E+00	-0.231
		228.16	*	-4.408E-02	2.491E-01	3.937E-01	5.845E-02	-0.112
		53.15		-3.497E+00	2.899E+00	4.271E+00	4.273E-01	-0.819
		79.62		-3.658E-01	1.448E+00	2.161E+00	3.433E-01	-0.169
		81.00		-7.941E-02	1.164E-01	1.687E-01	2.786E-02	-0.471
		276.40		1.189E+00	6.967E-01	1.243E+00	1.837E-01	0.957
		302.84		-8.731E-02	2.957E-01	4.297E-01	5.866E-02	-0.203
I-133	+	356.01	*	1.123E-02	9.502E-02	1.413E-01	1.888E-02	0.080
		383.85		-1.554E-01	6.703E-01	1.099E+00	1.379E-01	-0.141
		510.53		3.889E-03	6.703E-01	Half-Life	too short	
		529.87	*	-3.007E-05	6.703E-01	Half-Life	too short	
		706.58		3.423E-04	6.703E-01	Half-Life	too short	
		856.28		2.332E-04	6.703E-01	Half-Life	too short	
		875.33		-3.684E-04	6.703E-01	Half-Life	too short	
CS-134		1236.41		2.143E-03	6.703E-01	Half-Life	too short	
		1298.22		-8.008E-04	6.703E-01	Half-Life	too short	
		475.35		1.181E+00	4.394E+00	7.337E+00	6.499E-01	0.161
		563.23		3.023E-01	7.471E-01	1.252E+00	1.125E-01	0.242
		569.32		1.125E-01	4.535E-01	7.483E-01	6.739E-02	0.150
		604.70		2.534E-02	8.211E-02	1.197E-01	1.053E-02	0.212
		795.84	*	1.008E-01	1.089E-01	1.945E-01	1.718E-02	0.518
CS-135		801.93		-5.203E-01	9.247E-01	1.473E+00	1.300E-01	-0.353
		1038.57		-1.771E-01	1.077E+01	1.758E+01	1.517E+00	-0.010
		1167.94		2.970E+00	7.324E+00	1.078E+01	8.836E-01	0.275
		1365.15		-5.050E-01	1.699E+00	2.653E+00	2.376E-01	-0.190
		268.24	*	6.114E-02	2.903E-01	4.655E-01	4.857E-02	0.131
		288.45		-1.369E+02	2.903E-01	Half-Life	too short	
		417.63		1.048E+02	2.903E-01	Half-Life	too short	
I-135		546.56		-1.561E+02	2.903E-01	Half-Life	too short	
		836.80		1.001E+02	2.903E-01	Half-Life	too short	
		1038.76		-2.972E+01	2.903E-01	Half-Life	too short	
		1124.00		-4.723E+02	2.903E-01	Half-Life	too short	
		1131.51		6.101E+01	2.903E-01	Half-Life	too short	
		1260.41	*	4.134E+01	2.903E-01	Half-Life	too short	
		1457.56		-1.168E+01	2.903E-01	Half-Life	too short	
		1678.03		7.085E+01	2.903E-01	Half-Life	too short	
		1706.46		-1.439E+02	2.903E-01	Half-Life	too short	
		1791.20		8.859E+01	2.903E-01	Half-Life	too short	

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	66.91			3.727E-01	3.968E-01	6.888E-01	1.113E-01	0.541
	86.29			5.840E+00	1.412E+00	2.088E+00	2.847E-01	2.797
	153.22			2.535E-01	6.335E-01	1.058E+00	1.098E-01	0.240
	163.89			4.317E-01	1.087E+00	1.809E+00	1.730E-01	0.239
	176.55			1.990E-03	3.694E-01	5.993E-01	5.370E-02	0.003
	273.65			-3.376E-01	5.752E-01	8.723E-01	8.463E-02	-0.387
	340.57			5.930E-02	1.738E-01	2.639E-01	2.436E-02	0.225
	818.51			-1.153E-01	1.357E-01	2.100E-01	1.847E-02	-0.549
	1048.07	*		-8.463E-02	2.116E-01	3.335E-01	2.992E-02	-0.254
	1235.34			5.312E-01	6.146E-01	1.102E+00	1.282E-01	0.482
CE-139	165.85	*		-3.999E-03	4.366E-02	7.070E-02	5.895E-03	-0.057
BA-140	162.64			-1.478E-02	7.945E-01	1.293E+00	1.181E-01	-0.011
	304.84			-7.699E-02	1.735E+00	2.575E+00	7.260E-01	-0.030
LA-140	423.70			-2.759E-01	2.772E+00	4.549E+00	1.475E+00	-0.061
	537.32	*		-1.167E-01	3.756E-01	5.912E-01	1.964E-01	-0.197
	328.77			-1.131E-01	3.862E-01	6.380E-01	6.081E-02	-0.177
	432.53			3.224E-01	3.246E+00	5.391E+00	4.904E-01	0.060
	487.03			-1.024E-02	2.151E-01	3.510E-01	3.302E-02	-0.029
	751.79			-2.221E+00	2.664E+00	4.137E+00	3.980E-01	-0.537
	815.85			6.190E-01	5.390E-01	9.751E-01	9.521E-02	0.635
	867.82			-1.662E+00	2.681E+00	4.225E+00	3.898E-01	-0.393
	919.63			7.879E-01	5.480E+00	8.650E+00	9.302E-01	0.091
	925.24			-1.250E+00	2.283E+00	3.601E+00	3.344E-01	-0.347
CE-141	1596.49	*		-6.146E-02	8.888E-02	1.203E-01	1.038E-02	-0.511
	145.44	*		-4.596E-02	7.768E-02	1.229E-01	1.253E-02	-0.374
CE-143	57.37	+		4.017E+01	2.294E+01	4.296E+01	4.756E+00	0.935
	231.56			2.687E+01	9.737E+01	1.576E+02	4.989E+01	0.171
	293.26	*		1.007E+01	6.350E+00	9.982E+00	2.162E+00	1.009
	350.59	+		3.724E+02	1.830E+02	1.767E+02	5.494E+01	2.107
	490.36			-1.283E+01	1.491E+02	2.423E+02	7.667E+01	-0.053
	664.57			1.071E+02	9.576E+01	1.399E+02	4.510E+01	0.766
CE-144	721.93			-1.118E+02	8.036E+01	1.085E+02	3.162E+01	-1.031
	80.11			-5.147E-01	2.397E+00	3.588E+00	3.495E-01	-0.143
PM-144	133.54	*		-4.221E-01	3.022E-01	4.447E-01	7.543E-02	-0.949
	476.78			-2.366E-02	1.536E-01	2.491E-01	2.403E-02	-0.095
PR-144	618.01			3.260E-02	6.554E-02	1.103E-01	9.861E-03	0.296
	696.49	*		-1.036E-02	7.186E-02	1.197E-01	1.024E-02	-0.087
	778.57			-2.090E+00	5.368E+00	8.677E+00	7.596E-01	-0.241
PM-146	696.49	*		-6.991E-01	4.850E+00	8.079E+00	6.913E-01	-0.087
	1489.15			-1.100E+00	1.709E+01	2.834E+01	2.450E+00	-0.039
ND-147	453.90	*		-2.817E-02	1.029E-01	1.661E-01	1.803E-02	-0.170
	633.02			4.673E-01	3.209E+00	5.213E+00	1.948E+00	0.090
	735.90			-6.982E-02	3.343E-01	5.504E-01	1.575E-01	-0.127
	747.13			2.905E-02	1.984E-01	3.369E-01	4.745E-02	0.086
PM-149	91.11			3.112E-01	2.513E-01	3.312E-01	3.487E-02	0.940
	319.41			1.825E+00	3.646E+00	6.320E+00	5.763E-01	0.289
	439.89			-2.997E+00	8.436E+00	1.358E+01	1.184E+00	-0.221
PM-149	531.02	*		-2.570E-01	7.810E-01	1.240E+00	1.877E-01	-0.207
	285.90	*		-5.265E+00	1.471E+01	2.434E+01	3.857E+00	-0.216

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	+	121.78		6.972E-01	2.304E-01	2.594E-01	3.291E-02	2.688
		244.69		3.423E-02	6.059E-01	8.613E-01	7.807E-02	0.040
		344.27	*	-9.154E-02	1.910E-01	3.103E-01	2.936E-02	-0.295
		443.98		1.901E-01	2.257E+00	3.740E+00	3.267E-01	0.051
		778.89		-1.886E-01	6.150E-01	1.001E+00	8.763E-02	-0.188
		867.32		-5.863E-01	2.312E+00	3.755E+00	3.297E-01	-0.156
		964.01		9.287E-02	8.821E-01	1.461E+00	1.277E-01	0.064
		1085.78		-6.165E-01	1.163E+00	1.804E+00	1.535E-01	-0.342
		1112.02		-1.005E+00	8.913E-01	1.292E+00	1.088E-01	-0.777
		1407.95		2.847E-01	2.891E-01	5.638E-01	4.851E-02	0.505
GD-153		69.67		-9.922E-01	1.367E+00	2.246E+00	2.205E-01	-0.442
		83.37		1.437E+00	1.811E+01	2.766E+01	2.695E+00	0.052
		97.43	*	5.653E-03	1.029E-01	1.549E-01	1.583E-02	0.037
EU-154	+	103.18		-7.929E-02	1.247E-01	2.003E-01	2.110E-02	-0.396
		123.07		4.892E-01	1.639E-01	1.771E-01	2.445E-02	2.762
		247.94		1.775E-01	7.274E-01	1.049E+00	1.241E-01	0.169
		591.81		-6.533E-01	1.351E+00	2.080E+00	2.459E-01	-0.314
		723.30		-1.665E-01	4.005E-01	6.510E-01	6.215E-02	-0.256
		756.87		1.164E+00	1.663E+00	2.944E+00	3.547E-01	0.395
		873.19		-2.108E-01	8.800E-01	1.431E+00	1.768E-01	-0.147
		996.32		-8.424E-01	1.065E+00	1.611E+00	2.869E-01	-0.523
		1004.76		-2.982E-01	6.085E-01	9.541E-01	1.116E-01	-0.313
		1274.45	*	-1.790E-02	1.673E-01	2.628E-01	2.931E-02	-0.068
EU-155	+	48.70		4.620E+00	2.526E+00	1.951E+00	1.960E-01	2.368
		60.01		4.226E+02	4.408E+01	2.478E+01	2.493E+00	17.055
		86.54		3.792E+00	4.661E-01	3.352E-01	3.296E-02	11.310
TB-160	+	105.31	*	1.791E-02	1.310E-01	2.197E-01	2.360E-02	0.082
		86.79		9.451E+00	1.156E+00	9.790E-01	9.550E-02	9.653
		197.04		2.280E-01	8.549E-01	1.399E+00	1.215E-01	0.163
		215.65		6.559E-01	1.282E+00	2.112E+00	1.871E-01	0.311
		298.57		9.269E-02	2.888E-01	3.277E-01	3.008E-02	0.283
		879.36	*	1.528E-01	3.513E-01	6.021E-01	5.279E-02	0.254
		962.29		-1.444E-01	1.482E+00	2.429E+00	2.123E-01	-0.059
		966.15		4.006E-01	5.604E-01	9.618E-01	8.404E-02	0.417
		1177.93		-4.319E-02	6.596E-01	9.076E-01	7.426E-02	-0.048
		1271.85		1.250E-02	1.031E+00	1.660E+00	1.396E-01	0.008
HO-166M	+	80.57		4.020E-03	3.103E-01	4.700E-01	4.578E-02	0.009
		184.41		1.327E-01	8.955E-02	9.338E-02	7.983E-03	1.421
		280.46		-2.269E-01	1.483E-01	2.265E-01	2.080E-02	-1.001
		410.95		2.726E-01	5.316E-01	9.073E-01	7.758E-02	0.300
		711.68	*	-1.479E-02	1.403E-01	2.342E-01	2.016E-02	-0.063
		752.31		-2.834E-01	6.261E-01	1.008E+00	8.781E-02	-0.281
TM-171		810.29		-5.595E-02	1.484E-01	2.394E-01	2.104E-02	-0.234
		51.35		3.223E+01	1.871E+01	3.282E+01	3.286E+00	0.982
		52.39		-8.258E+00	1.184E+01	1.783E+01	1.784E+00	-0.463
		59.40		2.212E+03	2.308E+02	1.325E+02	1.335E+01	16.696
LU-176	+	66.72	*	6.872E+00	2.132E+01	3.658E+01	3.610E+00	0.188
		88.36		7.489E+00	9.160E-01	9.181E-01	8.977E-02	8.156
		201.83		-1.900E-02	4.925E-02	7.749E-02	6.767E-03	-0.245

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-177		306.84	*	3.790E-02	4.746E-02	7.851E-02	7.193E-03	0.483
		401.10		-8.478E+00	1.391E+01	2.211E+01	1.876E+00	-0.383
		112.95		-1.416E-01	9.972E-01	1.632E+00	1.815E-01	-0.087
		208.36	*	5.363E-01	8.509E-01	1.413E+00	1.242E-01	0.380
		52.97		-1.429E+00	1.257E+00	1.858E+00	1.859E-01	-0.769
		54.07		-3.150E-01	8.888E-01	1.077E+00	1.078E-01	-0.292
		61.30		1.272E+01	1.902E+00	2.777E+00	2.781E-01	4.582
	+	121.62		3.465E+00	1.132E+00	1.289E+00	1.506E-01	2.688
		147.16		-1.309E-01	8.805E-01	1.430E+00	1.420E-01	-0.092
		171.86		-8.147E-02	7.019E-01	1.132E+00	9.515E-02	-0.072
HF-181		218.09		-1.484E+00	1.551E+00	2.341E+00	2.079E-01	-0.634
		268.79		1.399E+00	1.403E+00	2.353E+00	2.155E-01	0.595
		319.02		3.849E-01	4.543E-01	8.011E-01	7.306E-02	0.480
		367.43		1.178E+00	1.872E+00	3.234E+00	2.826E-01	0.364
		413.65	*	-1.708E-01	3.739E-01	6.004E-01	5.144E-02	-0.284
	+	56.28		1.329E+00	7.564E-01	1.308E+00	1.311E-01	1.016
	+	57.53		7.618E-01	4.337E-01	8.397E-01	8.433E-02	0.907
		65.20		-7.188E-01	5.903E-01	9.472E-01	9.381E-02	-0.759
		133.02		-8.953E-02	8.350E-02	1.283E-01	1.408E-02	-0.698
		136.25		6.899E-01	6.082E-01	1.051E+00	1.130E-01	0.656
TA-182		345.85		5.385E-02	3.709E-01	5.540E-01	4.959E-02	0.097
		482.03	*	-3.094E-04	8.644E-02	1.416E-01	1.257E-02	-0.002
		67.75		5.652E-02	8.316E-02	1.442E-01	1.420E-02	0.392
		100.10		7.499E-02	2.140E-01	3.629E-01	3.762E-02	0.207
		152.43		8.155E-02	4.614E-01	7.620E-01	7.244E-02	0.107
		222.10		6.548E-01	5.979E-01	1.012E+00	9.020E-02	0.647
		1001.68		3.548E+00	5.453E+00	9.397E+00	8.175E-01	0.378
		1121.28		3.515E-01	3.175E-01	5.668E-01	4.755E-02	0.620
		1189.05		2.356E-01	4.696E-01	8.145E-01	6.688E-02	0.289
		1221.42	*	9.987E-02	2.326E-01	4.045E-01	3.355E-02	0.247
RE-183		1230.97		-1.631E-01	6.970E-01	1.082E+00	9.003E-02	-0.151
	+	57.98		3.181E-01	1.811E-01	5.319E-01	5.345E-02	0.598
	+	59.32		8.478E+00	8.844E-01	5.088E-01	5.126E-02	16.665
		67.20		1.512E-01	1.405E-01	2.465E-01	2.431E-02	0.613
		162.32	*	1.194E-01	1.578E-01	2.673E-01	2.314E-02	0.447
		208.81		2.040E+00	1.526E+00	2.615E+00	2.301E-01	0.780
		291.72		-8.685E-01	1.623E+00	2.311E+00	2.122E-01	-0.376
	+	57.98		1.224E+00	6.969E-01	2.047E+00	2.057E-01	0.598
	+	59.32		3.261E+01	3.401E+00	1.957E+00	1.972E-01	16.665
		67.20		5.820E-01	5.407E-01	9.487E-01	9.355E-02	0.613
RE-184		161.27		2.774E-01	5.302E-01	8.885E-01	7.775E-02	0.312
		216.55		6.780E-01	4.684E-01	8.043E-01	7.132E-02	0.843
		252.85	*	1.625E-01	4.127E-01	6.717E-01	6.116E-02	0.242
		318.01		5.540E-01	7.869E-01	1.378E+00	1.257E-01	0.402
		792.07		-3.046E-01	2.325E+00	3.842E+00	3.369E-01	-0.079
		903.28		1.979E+00	3.247E+00	5.142E+00	4.497E-01	0.385
		920.93		-7.573E-01	1.265E+00	1.982E+00	1.734E-01	-0.382
	+	59.72		2.357E+01	2.458E+00	1.401E+00	1.411E-01	16.827
		61.14		2.864E+00	3.430E-01	3.946E-01	3.954E-02	7.256
OS-185	+							

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	69.30			-5.800E-02	2.309E-01	3.873E-01	3.805E-02	-0.150
	592.07			-3.674E+00	5.251E+00	7.914E+00	6.983E-01	-0.464
	646.12	*		1.574E-02	9.669E-02	1.572E-01	1.342E-02	0.100
	717.42			9.171E-01	1.973E+00	3.434E+00	2.961E-01	0.267
	874.81			-8.210E-02	1.605E+00	2.649E+00	2.324E-01	-0.031
	880.27			-2.387E-01	2.047E+00	3.359E+00	2.944E-01	-0.071
RE-188	155.03	*		9.830E-02	2.319E-01	3.877E-01	3.602E-02	0.254
	477.96			-3.243E+00	6.662E+00	1.054E+01	9.341E-01	-0.308
	633.10			8.782E-01	6.025E+00	9.799E+00	8.450E-01	0.090
W-188	63.58			6.622E+00	3.511E+01	5.547E+01	5.517E+00	0.119
	227.08			2.952E+00	2.094E+01	3.375E+01	3.021E+00	0.087
	290.67	*		2.565E+00	1.222E+01	1.860E+01	1.709E+00	0.138
IR-192	295.96	+		6.289E-01	3.020E-01	3.810E-01	3.520E-02	1.651
	308.46			-3.048E-02	1.603E-01	2.672E-01	2.458E-02	-0.114
	316.51	*		-8.537E-03	5.827E-02	9.721E-02	8.894E-03	-0.088
	468.07			2.675E-02	1.531E-01	2.541E-01	2.399E-02	0.105
	604.41			2.924E-01	1.040E+00	1.511E+00	1.983E-01	0.193
	612.46			-1.123E+00	1.552E+00	1.965E+00	1.966E-01	-0.572
AU-195	65.12			-1.298E-01	1.169E-01	1.887E-01	1.869E-02	-0.688
	66.83			6.335E-02	6.813E-02	1.191E-01	1.175E-02	0.532
	75.70	+		5.927E-01	2.285E-01	3.816E-01	3.722E-02	1.553
	98.88	*		2.118E-01	2.748E-01	4.741E-01	4.883E-02	0.447
	129.76			2.891E+00	3.977E+00	6.778E+00	7.593E-01	0.427
TL-200	367.94	*		5.732E+00	8.029E+00	1.394E+01	1.217E+00	0.411
	579.30			-3.502E+01	7.220E+01	9.585E+01	8.499E+00	-0.365
	828.27			-1.662E+01	1.063E+02	1.746E+02	1.535E+01	-0.095
	1205.75			8.638E+00	3.114E+01	5.242E+01	4.327E+00	0.165
TL-201	68.90			3.149E-01	7.005E-01	1.205E+00	1.185E-01	0.261
	70.82			-3.512E-01	4.741E-01	6.935E-01	6.797E-02	-0.506
	80.30			4.443E-01	1.018E+00	1.576E+00	1.535E-01	0.282
	135.34			7.057E+00	6.740E+00	1.162E+01	1.257E+00	0.607
	167.43	*		-1.919E-01	1.818E+00	2.938E+00	2.453E-01	-0.065
TL-202	68.90			1.025E-01	2.280E-01	3.924E-01	3.857E-02	0.261
	70.82			-1.140E-01	1.539E-01	2.251E-01	2.206E-02	-0.506
	80.30			1.443E-01	3.307E-01	5.116E-01	4.983E-02	0.282
	439.56	*		-3.033E-02	1.043E-01	1.687E-01	1.470E-02	-0.180
HG-203	70.83			-6.755E-01	9.163E-01	1.336E+00	1.922E-01	-0.505
	72.87			4.365E-02	5.583E-01	8.521E-01	1.192E-01	0.051
	82.60			-2.896E-02	1.134E+00	1.821E+00	2.635E-01	-0.016
	279.20	*		-2.564E-02	6.380E-02	1.057E-01	9.952E-03	-0.242
	72.80			4.252E-03	1.826E-01	2.779E-01	2.718E-02	0.015
BI-207	74.97	+		3.381E-01	1.303E-01	1.993E-01	1.945E-02	1.696
	84.90			1.442E-02	2.418E-01	3.687E-01	3.594E-02	0.039
	569.67			3.113E-02	7.003E-02	1.173E-01	1.043E-02	0.265
	1063.62	*		5.965E-02	1.489E-01	2.509E-01	2.151E-02	0.238
	1770.23			-7.654E-01	8.852E-01	1.097E+00	9.263E-02	-0.698
TL-207	81.07			-2.579E-01	2.608E-01	3.727E-01	3.630E-02	-0.692
	83.78			1.007E-01	1.567E-01	2.455E-01	2.392E-02	0.410
	94.90			6.155E-02	2.724E-01	4.149E-01	4.188E-02	0.148



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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-209	+	122.32		1.662E+01	5.460E+00	6.217E+00	7.567E-01	2.673
		144.24		8.587E-01	9.936E-01	1.697E+00	1.873E-01	0.506
		154.21		1.134E-01	5.809E-01	9.595E-01	9.744E-02	0.118
		269.46		3.236E-01	3.434E-01	5.737E-01	5.353E-02	0.564
		323.87	*	-3.690E-01	1.253E+00	2.061E+00	3.697E-01	-0.179
	+	338.28		4.931E+00	2.681E+00	3.728E+00	4.693E-01	1.323
		445.03		3.310E+00	5.361E+00	9.153E+00	1.114E+00	0.362
		260.50		4.524E+00	1.874E+01	3.014E+01	2.753E+00	0.150
		262.80		7.919E-01	5.022E+01	7.962E+01	7.280E+00	0.010
		896.60	*	-3.803E+00	2.204E+01	3.596E+01	3.145E+00	-0.106
BI-210		46.50	*	1.014E+00	1.240E+00	1.880E+00	2.040E-01	0.539
PB-210		46.50	*	1.014E+00	1.240E+00	1.880E+00	2.040E-01	0.539
PO-210		46.50	*	1.014E+00	1.239E+00	1.880E+00	1.900E-01	0.539
PB-211		404.84	*	7.223E-01	2.071E+00	3.424E+00	2.145E+00	0.211
BI-212		427.08		-1.330E+00	4.644E+00	7.403E+00	4.601E+00	-0.180
		831.96		1.363E+00	3.303E+00	5.481E+00	3.436E+00	0.249
		727.18	*	5.715E-01	6.831E-01	1.215E+00	1.219E-01	0.471
		785.46		-1.293E-01	4.051E+00	6.751E+00	5.916E-01	-0.019
PO-215		1620.62		1.057E+00	2.305E+00	4.147E+00	3.573E-01	0.255
		81.07		-2.579E-01	2.608E-01	3.727E-01	3.630E-02	-0.692
		83.78		1.007E-01	1.567E-01	2.455E-01	2.392E-02	0.410
		94.90		6.155E-02	2.724E-01	4.149E-01	4.188E-02	0.148
RN-219	+	122.32		1.662E+01	5.460E+00	6.217E+00	7.567E-01	2.673
		144.24		8.587E-01	9.936E-01	1.697E+00	1.873E-01	0.506
		154.21		1.134E-01	5.809E-01	9.595E-01	9.744E-02	0.118
		269.46		3.236E-01	3.434E-01	5.737E-01	5.353E-02	0.564
		323.87	*	-3.690E-01	1.253E+00	2.061E+00	3.697E-01	-0.179
	+	338.28		4.931E+00	2.681E+00	3.728E+00	4.693E-01	1.323
		445.03		3.310E+00	5.361E+00	9.153E+00	1.114E+00	0.362
		271.23		-4.531E-02	4.441E-01	6.973E-01	7.512E-02	-0.065
		401.81	*	3.357E-01	8.606E-01	1.461E+00	2.184E-01	0.230
		549.76	*	1.153E+01	5.647E+01	9.322E+01	8.322E+00	0.124
RA-223		81.07		-2.579E-01	2.608E-01	3.727E-01	3.630E-02	-0.692
AC-227		83.78		1.007E-01	1.567E-01	2.455E-01	2.392E-02	0.410
		94.90		6.155E-02	2.724E-01	4.149E-01	4.188E-02	0.148
	+	122.32		1.662E+01	5.460E+00	6.217E+00	7.567E-01	2.673
		144.24		8.587E-01	9.936E-01	1.697E+00	1.873E-01	0.506
		154.21		1.134E-01	5.809E-01	9.595E-01	9.744E-02	0.118
		269.46		3.236E-01	3.434E-01	5.737E-01	5.353E-02	0.564
		323.87	*	-3.690E-01	1.253E+00	2.061E+00	3.697E-01	-0.179
	+	338.28		4.931E+00	2.681E+00	3.728E+00	4.693E-01	1.323
		445.03		3.310E+00	5.361E+00	9.153E+00	1.114E+00	0.362
		79.80		-4.716E-01	1.845E+00	2.752E+00	6.049E-01	-0.171
		236.00		-1.223E-01	4.312E-01	5.968E-01	7.475E-02	-0.205
		256.20	*	-9.313E-02	7.421E-01	1.165E+00	1.821E-01	-0.080
		286.10		-5.473E-01	2.558E+00	4.275E+00	5.805E-01	-0.128
	+	299.80		3.784E+00	5.088E+00	4.730E+00	8.405E-01	0.800
		304.40		7.286E-03	3.806E+00	5.670E+00	1.060E+00	0.001
		334.20		3.818E-01	5.041E+00	7.500E+00	1.470E+00	0.051

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

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		79.80		-4.716E-01	1.845E+00	2.752E+00	6.123E-01	-0.171
	+	94.00		5.370E+00	3.720E+00	3.865E+00	8.650E-01	1.390
		236.00		-1.223E-01	4.312E-01	5.968E-01	6.795E-02	-0.205
		256.20	*	-9.313E-02	7.421E-01	1.165E+00	2.132E-01	-0.080
		286.10		-5.473E-01	2.616E+00	4.275E+00	4.293E+00	-0.128
	+	299.80		3.784E+00	5.088E+00	4.730E+00	8.405E-01	0.800
		304.40		7.286E-03	3.806E+00	5.670E+00	1.060E+00	0.001
		334.20		3.818E-01	5.041E+00	7.500E+00	1.470E+00	0.051
AC-228	+	338.32		1.181E+00	7.928E-01	8.923E-01	3.689E-01	1.323
	+	911.07	*	1.113E+00	9.182E-01	9.034E-01	1.025E-01	1.232
		969.11		5.968E-01	7.381E-01	1.260E+00	2.946E-01	0.474
RA-228	+	338.32		1.181E+00	7.928E-01	8.923E-01	3.689E-01	1.323
	+	911.07	*	1.113E+00	9.182E-01	9.034E-01	1.025E-01	1.232
		969.11		5.968E-01	7.381E-01	1.260E+00	2.946E-01	0.474
TH-229		85.43		4.305E-03	2.450E-01	3.726E-01	3.632E-02	0.012
	+	88.47		4.311E+00	5.273E-01	5.253E-01	5.139E-02	8.206
		100.00		1.253E-03	2.354E-01	3.928E-01	4.070E-02	0.003
		193.63	*	6.872E-02	7.966E-01	1.292E+00	1.118E-01	0.053
		210.97		-3.364E-01	1.323E+00	2.093E+00	1.846E-01	-0.161
PA-231		283.67	*	1.612E+00	2.529E+00	4.426E+00	6.865E-01	0.364
	+	301.29		1.514E+00	2.026E+00	1.942E+00	2.455E-01	0.779
TH-231		81.07		-2.579E-01	2.608E-01	3.727E-01	3.630E-02	-0.692
		83.78		1.007E-01	1.567E-01	2.455E-01	2.392E-02	0.410
		94.90		6.155E-02	2.724E-01	4.149E-01	4.188E-02	0.148
	+	122.32		1.662E+01	5.460E+00	6.217E+00	7.567E-01	2.673
		144.24		8.587E-01	9.936E-01	1.697E+00	1.873E-01	0.506
		154.21		1.134E-01	5.809E-01	9.595E-01	9.744E-02	0.118
		269.46		3.236E-01	3.434E-01	5.737E-01	5.353E-02	0.564
		323.87	*	-3.690E-01	1.253E+00	2.061E+00	3.697E-01	-0.179
	+	338.28		4.931E+00	2.681E+00	3.728E+00	4.693E-01	1.323
		445.03		3.310E+00	5.361E+00	9.153E+00	1.114E+00	0.362
U-231		84.21		5.860E-01	1.994E+00	3.075E+00	2.996E-01	0.191
	+	92.29		1.533E+00	1.016E+00	1.250E+00	1.245E-01	1.227
		95.87	*	-3.366E-01	3.909E-01	5.493E-01	5.571E-02	-0.613
		108.00		5.908E-01	7.682E-01	1.322E+00	1.430E-01	0.447
TH-232	+	338.32		1.181E+00	6.336E-01	8.923E-01	8.040E-02	1.323
	+	911.07	*	1.113E+00	9.182E-01	9.034E-01	1.025E-01	1.232
		969.11		5.968E-01	7.381E-01	1.260E+00	2.946E-01	0.474
PA-233	+	75.28		9.870E+00	4.006E+00	5.978E+00	9.574E-01	1.651
	+	86.59		6.181E+01	1.742E+01	5.661E+00	1.540E+00	10.918
	+	300.12		1.055E+00	1.415E+00	1.328E+00	2.019E-01	0.794
		311.98	*	-3.083E-02	1.124E-01	1.861E-01	1.745E-02	-0.166
		340.50		4.926E-01	1.261E+00	1.915E+00	4.591E-01	0.257
		398.62		-4.373E+00	4.600E+00	6.912E+00	1.837E+00	-0.633
		415.76		-1.057E+00	3.698E+00	5.998E+00	1.292E+00	-0.176
PA-234		63.00		-1.463E-01	1.099E+00	1.710E+00	2.784E-01	-0.086
		94.67		9.958E-02	1.972E-01	3.052E-01	4.107E-02	0.326
		98.44		1.523E-01	1.409E-01	1.993E-01	1.117E-01	0.764
		99.86		-3.102E-02	5.935E-01	9.879E-01	1.023E-01	-0.031

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		-2.877E-01	2.497E-01	3.816E-01	5.298E-02	-0.754
		131.20		-6.576E-02	1.514E-01	2.434E-01	2.702E-02	-0.270
		152.70		2.837E-01	4.561E-01	7.682E-01	1.344E-01	0.369
	+	186.00		4.777E+00	3.528E+00	3.655E+00	1.140E+00	1.307
		226.40		6.616E-01	7.108E-01	1.190E+00	1.597E-01	0.556
		227.20		-9.304E-02	7.700E-01	1.222E+00	1.094E-01	-0.076
		248.90		-5.268E-01	1.522E+00	2.358E+00	5.328E-01	-0.223
	+	293.70		4.247E+00	2.136E+00	2.454E+00	4.316E-01	1.731
		369.80		-7.991E-01	1.854E+00	2.998E+00	6.540E-01	-0.267
		568.70		8.739E-01	2.294E+00	3.823E+00	3.400E-01	0.229
		569.50		1.911E-01	6.267E-01	1.039E+00	9.236E-02	0.184
		574.00		5.899E-01	3.464E+00	5.680E+00	5.045E-01	0.104
		699.00		-3.517E-01	1.484E+00	2.449E+00	4.667E-01	-0.144
		706.10		5.174E-01	2.411E+00	4.107E+00	1.831E+00	0.126
		733.00		-3.050E-02	8.352E-01	1.398E+00	3.106E-01	-0.022
		742.81		-5.131E-01	2.909E+00	4.768E+00	3.206E+00	-0.108
		796.30		1.168E+00	2.124E+00	3.663E+00	9.926E-01	0.319
		805.60		8.151E-01	2.458E+00	4.189E+00	1.286E+00	0.195
		819.60		-2.738E+00	3.510E+00	5.224E+00	1.989E+00	-0.524
		826.30		-2.724E+00	2.530E+00	3.312E+00	1.483E+00	-0.822
		831.60		5.653E-01	1.669E+00	2.834E+00	8.471E-01	0.199
		876.40		-1.514E+00	2.910E+00	3.880E+00	3.990E+00	-0.390
		880.51		-1.636E-01	7.767E-01	1.264E+00	1.108E-01	-0.129
		883.24		-6.995E-01	9.081E-01	1.187E+00	7.980E-01	-0.589
		899.00		-5.779E-01	2.559E+00	4.141E+00	1.811E+00	-0.140
		925.00		-6.832E-01	3.491E+00	5.671E+00	4.963E-01	-0.120
		926.50		1.594E-02	5.287E-01	8.742E-01	2.214E-01	0.018
		946.00	*	3.247E-01	9.728E-01	1.637E+00	3.082E-01	0.198
		949.00		-4.443E-01	1.463E+00	2.357E+00	2.062E-01	-0.189
		980.50		-8.834E-01	2.318E+00	3.694E+00	3.223E-01	-0.239
PA-234M		1394.10		8.403E-01	1.604E+00	2.834E+00	1.845E+00	0.296
		766.42		1.243E+01	2.647E+01	4.464E+01	2.266E+01	0.279
		1001.03	*	8.467E+00	1.304E+01	2.246E+01	2.254E+00	0.377
TH-234		63.29	*	9.068E-02	9.381E-01	1.476E+00	2.755E-01	0.061
	+	92.38		1.390E+00	9.476E-01	1.139E+00	2.137E-01	1.220
U-235		89.95		4.846E+00	2.263E+00	2.476E+00	7.732E-01	1.957
	+	93.35		1.671E+00	1.194E+00	1.351E+00	3.848E-01	1.237
		105.00		2.204E-01	1.290E+00	2.165E+00	6.600E-01	0.102
		143.76	*	3.087E-01	3.076E-01	5.230E-01	9.588E-02	0.590
		163.35		-8.208E-02	7.366E-01	1.192E+00	2.272E-01	-0.069
	+	185.71		1.769E-01	1.194E-01	1.348E-01	1.154E-02	1.313
		205.31		-6.784E-01	8.472E-01	1.280E+00	2.450E-01	-0.530
NP-236		94.67		7.634E-02	1.495E-01	2.316E-01	2.334E-02	0.330
		98.44		1.151E-01	8.556E-02	1.506E-01	1.548E-02	0.764
		111.00		-2.176E-01	1.880E-01	2.887E-01	3.174E-02	-0.754
		160.31	*	-1.286E-02	1.226E-01	1.987E-01	1.756E-02	-0.065
NP-237		86.50	*	3.158E+00	8.377E-01	8.015E-01	1.829E-01	3.940
		95.87		-1.028E+00	1.217E+00	1.677E+00	4.228E-01	-0.613
U-238		63.29	*	9.068E-02	9.381E-01	1.476E+00	2.755E-01	0.061

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	92.38		1.390E+00	9.215E-01	1.139E+00	1.135E-01	1.220
		99.55		7.100E-02	1.938E-01	3.290E-01	3.400E-02	0.216
		117.00	*	-2.022E-01	3.038E-01	4.287E-01	4.876E-02	-0.472
		209.75		1.764E+00	1.296E+00	2.223E+00	1.958E-01	0.794
		228.18		-7.401E-02	4.033E-01	6.373E-01	5.709E-02	-0.116
		277.60		4.218E-01	3.236E-01	5.815E-01	5.337E-02	0.725
CM-243		334.30		7.565E-02	2.849E+00	4.222E+00	3.816E-01	0.018
		99.55		7.302E-02	1.993E-01	3.384E-01	3.497E-02	0.216
		103.76	*	-1.186E-01	1.201E-01	1.885E-01	1.992E-02	-0.629
		117.00		-2.080E-01	3.124E-01	4.408E-01	5.014E-02	-0.472
		209.75		1.738E+00	1.277E+00	2.190E+00	1.929E-01	0.794
		228.18		-7.475E-02	4.073E-01	6.436E-01	5.766E-02	-0.116
AM-246		277.60		4.251E-01	3.261E-01	5.859E-01	5.378E-02	0.725
		798.80		-2.187E-01	3.293E-01	5.172E-01	4.540E-02	-0.423
		1036.00		-5.755E-03	8.139E-01	1.330E+00	1.149E-01	-0.004
		1062.04		-1.142E-01	6.431E-01	1.031E+00	8.846E-02	-0.111
		1078.86	*	2.986E-01	4.191E-01	7.220E-01	6.159E-02	0.414
		278.00		1.633E+00	1.324E+00	2.374E+00	2.179E-01	0.688
CM-247		287.40		-7.645E-01	2.058E+00	3.404E+00	3.127E-01	-0.225
		402.60	*	5.150E-02	7.831E-02	1.350E-01	1.147E-02	0.381
		252.85		6.287E-01	1.597E+00	2.599E+00	2.367E-01	0.242
CF-249		333.44		4.481E-01	3.573E-01	5.785E-01	5.231E-02	0.775
		387.95	*	2.819E-02	8.597E-02	1.456E-01	1.234E-02	0.194
CF-251		176.60	*	-5.573E-03	1.889E-01	3.059E-01	2.588E-02	-0.018
		227.00		4.502E-01	6.598E-01	1.097E+00	9.815E-02	0.411
		285.00		1.424E+00	2.941E+00	5.120E+00	4.702E-01	0.278

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037548      *
* Acquisition date   : 18-FEB-2010 14:48:04 Detector SN#      :              *
* Detector ID        : GAM17                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 01:00:00.00           Abundance limit : 75.000        *
* Elapsed real time  : 0 01:00:06.12           Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037548           Analyst initials: MXR1          *
* Batch Number       : 950786                Sample Quantity : 1.5544E+02 GRAM  *
* Recovery           : 1.00000               Carrier Weight  : 0.00000        *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                                       *
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope      :                  *
* MSD DPM             : 0.000                MSD Isotope    :                  *
* LCS DPM             : 0.000                LCS Isotope     :                  *
* LCSD DPM            : 0.000                LCSD Isotope    :                  *
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
CO-57	2.359E-01	7.555E-02	6.373E-02	0.000E+00
CO-60	6.140E+00	6.365E-01	1.011E-01	0.000E+00
CD-109	3.176E+01	3.808E+00	1.753E+00	0.000E+00
SN-126	3.157E+00	3.785E-01	1.740E-01	0.000E+00
BA-137M	5.558E+00	5.456E-01	1.416E-01	0.000E+00
CS-137	5.875E+00	5.776E-01	1.497E-01	0.000E+00
W-181	-3.026E-01	2.435E-01	4.361E-01	0.000E+00
TL-208	4.877E-01	1.397E-01	1.319E-01	0.000E+00
BI-211	2.082E+00	7.994E-01	6.924E-01	0.000E+00
PB-212	1.133E+00	1.841E-01	1.618E-01	0.000E+00
PO-212	1.133E+00	1.841E-01	1.618E-01	0.000E+00
BI-214	9.422E-01	2.985E-01	2.269E-01	0.000E+00
PB-214	7.242E-01	2.805E-01	2.414E-01	0.000E+00
PO-214	7.242E-01	2.805E-01	2.414E-01	0.000E+00
PO-216	1.133E+00	1.841E-01	1.618E-01	0.000E+00
PO-218	7.242E-01	2.805E-01	2.414E-01	0.000E+00
RA-224	2.918E+00	1.751E+00	1.843E+00	0.000E+00
RA-226	9.422E-01	2.985E-01	2.269E-01	0.000E+00
TH-228	1.142E+00	1.855E-01	1.631E-01	0.000E+00
TH-230	9.422E-01	2.985E-01	2.269E-01	0.000E+00
U-234	9.422E-01	2.985E-01	2.269E-01	0.000E+00
AM-241	1.303E+01	1.399E+00	2.408E-01	0.000E+00
AM-243	1.884E-01	7.118E-02	9.742E-02	0.000E+00
ANH-511	1.566E-01	1.191E-01	1.151E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-2.123E-01	6.609E-01	1.124E+00	0.000E+00 NOT IDENT.
NA-22	-2.684E-02	6.168E-02	9.346E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.293E+02	0.000E+00	0.000E+00 SHORT HLIF

AL-26	1.514E-03	4.696E-02	7.918E-02	0.000E+00	NOT IDENT.
K-40	6.903E-01	6.545E-01	1.302E+00	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.861E-02	8.036E-02	0.000E+00	FAIL ABUN
SC-46	4.230E-02	9.626E-02	1.721E-01	0.000E+00	NOT IDENT.
V-48	3.384E-02	1.539E-01	2.673E-01	0.000E+00	NOT IDENT.
CR-51	-9.027E-02	5.483E-01	9.795E-01	0.000E+00	NOT IDENT.
MN-52	1.534E-01	1.140E-01	2.523E-01	0.000E+00	NOT IDENT.
MN-54	-1.939E-03	9.602E-02	1.667E-01	0.000E+00	NOT IDENT.
CO-56	-3.764E-02	1.024E-01	1.727E-01	0.000E+00	NOT IDENT.
CO-58	-7.259E-02	9.042E-02	1.468E-01	0.000E+00	NOT IDENT.
FE-59	-5.058E-02	2.259E-01	3.739E-01	0.000E+00	NOT IDENT.
ZN-65	4.705E-02	2.171E-01	3.731E-01	0.000E+00	NOT IDENT.
GE-68	1.800E+00	3.614E+00	6.351E+00	0.000E+00	NOT IDENT.
AS-73	-6.006E-01	6.856E-01	1.049E+00	0.000E+00	NOT IDENT.
AS-74	1.066E-01	1.403E-01	2.541E-01	0.000E+00	NOT IDENT.
SE-75	-3.013E-02	7.718E-02	1.282E-01	0.000E+00	FAIL ABUN
BR-77	1.372E+00	2.656E+00	4.750E+00	0.000E+00	FAIL ABUN
SR-82	9.182E-01	7.219E-01	1.380E+00	0.000E+00	NOT IDENT.
RB-83	8.450E-02	1.488E-01	2.669E-01	0.000E+00	NOT IDENT.
RB-84	4.811E-02	1.545E-01	2.738E-01	0.000E+00	NOT IDENT.
KR-85	6.443E+00	1.699E+01	2.665E+01	0.000E+00	NOT IDENT.
SR-85	3.053E-02	8.050E-02	1.263E-01	0.000E+00	NOT IDENT.
RB-86	-4.406E-01	1.814E+00	3.009E+00	0.000E+00	NOT IDENT.
Y-88	4.469E-02	5.334E-02	1.083E-01	0.000E+00	NOT IDENT.
ZR-88	-1.644E-02	6.382E-02	1.113E-01	0.000E+00	NOT IDENT.
Y-91	4.088E+00	2.577E+01	4.409E+01	0.000E+00	NOT IDENT.
NB-94	-4.528E-03	7.179E-02	1.268E-01	0.000E+00	NOT IDENT.
NB-95	3.094E-02	8.780E-02	1.580E-01	0.000E+00	NOT IDENT.
NB-95M	-1.123E-01	2.086E-01	3.052E-01	0.000E+00	NOT IDENT.
ZR-95	-1.868E-02	1.456E-01	2.530E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.747E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.575E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.893E+00	3.763E+00	7.103E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.254E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	5.673E-02	5.361E-02	9.883E-02	0.000E+00	NOT IDENT.
RH-102	-6.619E-03	6.653E-02	1.150E-01	0.000E+00	NOT IDENT.
RU-103	4.261E-02	7.932E-02	1.423E-01	0.000E+00	FAIL ABUN
RH-106	1.153E-01	6.432E-01	1.108E+00	0.000E+00	FAIL ABUN
RU-106	1.153E-01	6.431E-01	1.108E+00	0.000E+00	FAIL ABUN
AG-108M	3.247E-02	7.591E-02	1.366E-01	0.000E+00	NOT IDENT.
AG-110M	1.276E-01	9.412E-02	1.579E-01	0.000E+00	NOT IDENT.
IN-111	-8.201E-02	3.208E-01	4.787E-01	0.000E+00	NOT IDENT.
IN-113M	-8.615E-02	9.222E-02	1.536E-01	0.000E+00	NOT IDENT.
SN-113	-8.615E-02	9.222E-02	1.536E-01	0.000E+00	NOT IDENT.
IN-114M	4.107E-02	2.799E-01	4.430E-01	0.000E+00	NOT IDENT.
CD-115	1.050E+00	2.300E+00	4.097E+00	0.000E+00	NOT IDENT.
SN-117M	-2.066E-02	5.490E-02	9.567E-02	0.000E+00	NOT IDENT.
SB-122	2.731E-01	6.110E-01	1.085E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	6.272E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.291E-02	4.078E-02	7.026E-02	0.000E+00	NOT IDENT.
I-124	6.203E-01	4.431E-01	7.593E-01	0.000E+00	NOT IDENT.
SB-124	2.567E-02	1.354E-01	2.372E-01	0.000E+00	NOT IDENT.
SB-125	6.060E-02	1.966E-01	3.524E-01	0.000E+00	NOT IDENT.
TE-125M	5.109E+00	1.077E+01	2.017E+01	0.000E+00	NOT IDENT.
I-126	5.714E-02	3.016E-01	4.528E-01	0.000E+00	NOT IDENT.
SB-126	-1.384E-01	2.152E-01	3.603E-01	0.000E+00	NOT IDENT.
SB-127	-6.007E-01	7.815E-01	1.207E+00	0.000E+00	NOT IDENT.
XE-127	-3.222E-02	6.642E-02	1.126E-01	0.000E+00	FAIL ABUN
I-131	7.248E-03	1.245E-01	2.229E-01	0.000E+00	NOT IDENT.
TE-132	-4.408E-02	2.441E-01	4.174E-01	0.000E+00	FAIL ABUN
BA-133	1.123E-02	9.312E-02	1.481E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.306E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.008E-01	1.068E-01	1.995E-01	0.000E+00	NOT IDENT.
CS-135	6.114E-02	2.845E-01	4.914E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	5.450E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.463E-02	2.073E-01	3.394E-01	0.000E+00	NOT IDENT.
CE-139	-3.999E-03	4.279E-02	7.556E-02	0.000E+00	NOT IDENT.
BA-140	-1.167E-01	3.681E-01	6.129E-01	0.000E+00	NOT IDENT.
LA-140	-6.146E-02	8.710E-02	1.210E-01	0.000E+00	NOT IDENT.
CE-141	-4.596E-02	7.613E-02	1.318E-01	0.000E+00	NOT IDENT.
CE-143	1.007E+01	6.223E+00	1.051E+01	0.000E+00	FAIL ABUN
CE-144	-4.221E-01	2.961E-01	4.779E-01	0.000E+00	NOT IDENT.
PM-144	-1.036E-02	7.042E-02	1.232E-01	0.000E+00	NOT IDENT.
PR-144	-6.991E-01	4.753E+00	8.317E+00	0.000E+00	NOT IDENT.
PM-146	-2.817E-02	1.008E-01	1.730E-01	0.000E+00	NOT IDENT.
ND-147	-2.570E-01	7.654E-01	1.286E+00	0.000E+00	NOT IDENT.
PM-149	-5.265E+00	1.441E+01	2.566E+01	0.000E+00	NOT IDENT.
EU-152	-9.154E-02	1.872E-01	3.255E-01	0.000E+00	FAIL ABUN

GD-153	5.653E-03	1.009E-01	1.677E-01	0.000E+00	NOT IDENT.
EU-154	-1.790E-02	1.639E-01	2.660E-01	0.000E+00	FAIL ABUN
EU-155	1.791E-02	1.284E-01	2.375E-01	0.000E+00	FAIL ABUN
TB-160	1.528E-01	3.443E-01	6.159E-01	0.000E+00	FAIL ABUN
HO-166M	-1.479E-02	1.375E-01	2.410E-01	0.000E+00	FAIL ABUN
TM-171	6.872E+00	2.089E+01	3.998E+01	0.000E+00	FAIL ABUN
LU-176	3.790E-02	4.651E-02	8.260E-02	0.000E+00	FAIL ABUN
LU-177	5.363E-01	8.339E-01	1.501E+00	0.000E+00	NOT IDENT.
LU-177M	-1.708E-01	3.664E-01	6.268E-01	0.000E+00	FAIL ABUN
HF-181	-3.094E-04	8.471E-02	1.472E-01	0.000E+00	FAIL ABUN
TA-182	9.987E-02	2.279E-01	4.100E-01	0.000E+00	NOT IDENT.
RE-183	1.194E-01	1.547E-01	2.858E-01	0.000E+00	FAIL ABUN
RE-184	1.625E-01	4.044E-01	7.102E-01	0.000E+00	FAIL ABUN
OS-185	1.574E-02	9.476E-02	1.622E-01	0.000E+00	FAIL ABUN
RE-188	9.830E-02	2.273E-01	4.151E-01	0.000E+00	NOT IDENT.
W-188	2.565E+00	1.198E+01	1.960E+01	0.000E+00	NOT IDENT.
IR-192	-8.537E-03	5.710E-02	1.022E-01	0.000E+00	FAIL ABUN
AU-195	2.118E-01	2.693E-01	5.133E-01	0.000E+00	FAIL ABUN
TL-200	5.732E+00	7.869E+00	1.459E+01	0.000E+00	NOT IDENT.
TL-201	-1.919E-01	1.781E+00	3.139E+00	0.000E+00	NOT IDENT.
TL-202	-3.033E-02	1.023E-01	1.758E-01	0.000E+00	NOT IDENT.
HG-203	-2.564E-02	6.252E-02	1.115E-01	0.000E+00	NOT IDENT.
BI-207	5.965E-02	1.459E-01	2.553E-01	0.000E+00	FAIL ABUN
TL-207	-3.690E-01	1.228E+00	2.165E+00	0.000E+00	FAIL ABUN
PO-209	-3.803E+00	2.160E+01	3.677E+01	0.000E+00	NOT IDENT.
BI-210	1.014E+00	1.215E+00	2.073E+00	0.000E+00	NOT IDENT.
PB-210	1.014E+00	1.215E+00	2.073E+00	0.000E+00	NOT IDENT.
PO-210	1.014E+00	1.214E+00	2.073E+00	0.000E+00	NOT IDENT.
PB-211	7.223E-01	2.029E+00	3.576E+00	0.000E+00	NOT IDENT.
BI-212	5.715E-01	6.694E-01	1.249E+00	0.000E+00	NOT IDENT.
PO-215	-3.690E-01	1.228E+00	2.165E+00	0.000E+00	FAIL ABUN
RN-219	3.357E-01	8.434E-01	1.526E+00	0.000E+00	NOT IDENT.
RN-220	1.153E+01	5.534E+01	9.658E+01	0.000E+00	NOT IDENT.
RA-223	-3.690E-01	1.228E+00	2.165E+00	0.000E+00	FAIL ABUN
AC-227	-9.313E-02	7.272E-01	1.231E+00	0.000E+00	FAIL ABUN
TH-227	-9.313E-02	7.273E-01	1.231E+00	0.000E+00	FAIL ABUN
AC-228	0.000E+00	8.999E-01	9.232E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	8.999E-01	9.232E-01	0.000E+00	FAIL ABUN
TH-229	6.872E-02	7.806E-01	1.376E+00	0.000E+00	FAIL ABUN
PA-231	1.612E+00	2.478E+00	4.666E+00	0.000E+00	FAIL ABUN
TH-231	-3.690E-01	1.228E+00	2.165E+00	0.000E+00	FAIL ABUN
U-231	-3.366E-01	3.830E-01	5.952E-01	0.000E+00	FAIL ABUN
TH-232	0.000E+00	8.999E-01	9.232E-01	0.000E+00	FAIL ABUN
PA-233	-3.083E-02	1.101E-01	1.957E-01	0.000E+00	FAIL ABUN
PA-234	3.247E-01	9.533E-01	1.671E+00	0.000E+00	FAIL ABUN
PA-234M	8.467E+00	1.278E+01	2.289E+01	0.000E+00	NOT IDENT.
TH-234	9.068E-02	9.193E-01	1.616E+00	0.000E+00	FAIL ABUN
U-235	3.087E-01	3.015E-01	5.610E-01	0.000E+00	FAIL ABUN
NP-236	-1.286E-02	1.201E-01	2.126E-01	0.000E+00	NOT IDENT.
NP-237	0.000E+00	8.209E-01	8.706E-01	0.000E+00	NOT IDENT.
U-238	9.068E-02	9.193E-01	1.616E+00	0.000E+00	FAIL ABUN
NP-239	-2.022E-01	2.977E-01	4.622E-01	0.000E+00	NOT IDENT.
CM-243	-1.186E-01	1.177E-01	2.038E-01	0.000E+00	NOT IDENT.
AM-246	2.986E-01	4.107E-01	7.343E-01	0.000E+00	NOT IDENT.
CM-247	5.150E-02	7.674E-02	1.410E-01	0.000E+00	NOT IDENT.
CF-249	2.819E-02	8.425E-02	1.523E-01	0.000E+00	NOT IDENT.
CF-251	-5.573E-03	1.851E-01	3.264E-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]G1202037548.CNF;1
Sample date        : 11-FEB-2010 00:00:00 Acquisition date : 18-FEB-2010 14:48:04
Sample ID          : G1202037548          Sample quantity  : 1.55440E+02 GRAM
Detector name      : GAM17                Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00        Elapsed real time: 0 01:00:06.12  0.2%
Energy tolerance   : 1.50000 keV          Analyst Initials : MXR1
Abundance limit    : 75.00000             Sensitivity       : 5.00000
Batch ID           : 950786               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	247	85.51*	6.034E+00	2.313E-01	2.359E-01	32.68
	136.48	-----	10.60	5.740E+00	-----	Line Not Found	-----
CO-60	1173.22	1203	100.00	9.381E-01	6.194E+00	6.211E+00	10.30
	1332.49	1065	100.00*	8.401E-01	6.123E+00	6.140E+00	10.58
CD-109	88.03	1612	3.72*	6.665E+00	3.140E+01	3.176E+01	12.23
SN-126	64.28	-----	9.60	6.785E+00	-----	Line Not Found	-----
	86.94	1612	8.90	6.665E+00	1.313E+01	1.313E+01	42.26
	87.57	1612	37.00*	6.665E+00	3.157E+00	3.157E+00	12.23
BA-137M	661.65	1660	89.98*	1.604E+00	5.555E+00	5.558E+00	10.02
CS-137	661.65	1660	85.12*	1.604E+00	5.872E+00	5.875E+00	10.03
W-181	56.28	140	18.70	6.691E+00	5.393E-01	5.635E-01	56.92
	57.53	140	32.60	6.691E+00	3.094E-01	3.232E-01	56.92
	65.20	-----	13.80*	6.792E+00	-----	Line Not Found	-----
TL-208	277.35	-----	6.80	3.568E+00	-----	Line Not Found	-----
	510.84	67	21.60	2.057E+00	7.249E-01	7.249E-01	78.05
	583.14	154	84.20*	1.812E+00	4.877E-01	4.877E-01	29.23
	860.37	-----	12.46	1.247E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	6.803E+00	-----	Line Not Found	-----
	351.07	162	12.94*	2.909E+00	2.082E+00	2.082E+00	39.18
PB-212	74.81	175	10.70	6.795E+00	1.162E+00	1.162E+00	39.66
	77.11	294	18.00	6.781E+00	1.163E+00	1.163E+00	23.11
	87.30	1612	8.00	6.665E+00	1.460E+01	1.460E+01	15.80
	238.63	421	44.60*	4.022E+00	1.133E+00	1.133E+00	16.58
	300.09	48	3.41	3.333E+00	2.042E+00	2.042E+00	133.73
PO-212	74.81	175	10.70	6.795E+00	1.162E+00	1.162E+00	39.66
	77.11	294	18.00	6.781E+00	1.163E+00	1.163E+00	23.11
	87.30	1612	8.00	6.665E+00	1.460E+01	1.460E+01	15.80
	115.19	-----	0.60	6.177E+00	-----	Line Not Found	-----
	238.63	421	44.60*	4.022E+00	1.133E+00	1.133E+00	16.58
	300.09	48	3.41	3.333E+00	2.042E+00	2.042E+00	133.73
BI-214	609.31	157	46.30*	1.737E+00	9.422E-01	9.422E-01	32.33
	1120.29	-----	15.10	9.769E-01	-----	Line Not Found	-----



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	1764.49	20	15.80	6.717E-01	9.119E-01	9.119E-01	67.21
	74.81	175	6.21	6.795E+00	2.003E+00	2.003E+00	39.25
	77.11	294	10.50	6.781E+00	1.994E+00	1.994E+00	24.33
	87.30	1612	4.67	6.665E+00	2.502E+01	2.502E+01	14.46
	241.98	95	7.49	3.985E+00	1.539E+00	1.539E+00	61.50
PO-214	295.21	119	19.20	3.389E+00	8.849E-01	8.849E-01	48.41
	351.92	162	37.20*	2.909E+00	7.242E-01	7.242E-01	39.53
	74.81	175	6.21	6.795E+00	2.003E+00	2.003E+00	39.25
	77.11	294	10.50	6.781E+00	1.994E+00	1.994E+00	24.33
	87.30	1612	4.67	6.665E+00	2.502E+01	2.502E+01	14.46
PO-216	241.98	95	7.49	3.985E+00	1.539E+00	1.539E+00	61.50
	295.21	119	19.20	3.389E+00	8.849E-01	8.849E-01	48.41
	351.92	162	37.20*	2.909E+00	7.242E-01	7.242E-01	39.53
	74.81	175	10.70	6.795E+00	1.162E+00	1.162E+00	39.66
	77.11	294	18.00	6.781E+00	1.163E+00	1.163E+00	23.11
PO-218	87.30	1612	8.00	6.665E+00	1.460E+01	1.460E+01	15.80
	238.63	421	44.60*	4.022E+00	1.133E+00	1.133E+00	16.58
	300.09	48	3.41	3.333E+00	2.042E+00	2.042E+00	133.73
	74.81	175	6.21	6.795E+00	2.003E+00	2.003E+00	39.25
	77.11	294	10.50	6.781E+00	1.994E+00	1.994E+00	24.33
RA-224	87.30	1612	4.67	6.665E+00	2.502E+01	2.502E+01	14.46
	241.98	95	7.49	3.985E+00	1.539E+00	1.539E+00	61.50
	295.21	119	19.20	3.389E+00	8.849E-01	8.849E-01	48.41
	351.92	162	37.20*	2.909E+00	7.242E-01	7.242E-01	39.53
	240.98	95	3.95*	3.985E+00	2.918E+00	2.918E+00	61.25
RA-226	609.31	157	46.30*	1.737E+00	9.422E-01	9.422E-01	32.33
	1120.29	-----	15.10	9.769E-01	-----	Line Not Found	-----
TH-228	1764.49	20	15.80	6.717E-01	9.119E-01	9.119E-01	67.21
	74.81	175	10.70	6.795E+00	1.162E+00	1.171E+00	38.56
	77.11	294	18.00	6.781E+00	1.163E+00	1.172E+00	23.11
	87.30	1612	8.00	6.665E+00	1.460E+01	1.471E+01	12.23
	238.63	421	44.60*	4.022E+00	1.133E+00	1.142E+00	16.58
TH-230	300.09	48	3.41	3.333E+00	2.042E+00	2.057E+00	145.91
	609.31	157	46.30*	1.737E+00	9.422E-01	9.422E-01	32.33
	1120.29	-----	15.10	9.769E-01	-----	Line Not Found	-----
	1764.49	20	15.80	6.717E-01	9.119E-01	9.119E-01	67.21
	609.31	157	46.30*	1.737E+00	9.422E-01	9.422E-01	32.33
U-234	1120.29	-----	15.10	9.769E-01	-----	Line Not Found	-----
	1764.49	20	15.80	6.717E-01	9.119E-01	9.119E-01	67.21
AM-241	59.54	6516	35.90*	6.729E+00	1.303E+01	1.303E+01	10.95
AM-243	74.67	175	66.00*	6.795E+00	1.884E-01	1.884E-01	38.55
	86.72	1612	0.34	6.665E+00	3.477E+02	3.477E+02	12.23
	117.66	-----	0.55	6.127E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.624E+00	-----	Line Not Found	-----
ANH-511	511.00	67	100.00*	2.057E+00	1.566E-01	1.566E-01	77.60

Flag: "\*" = Keyline

Total number of lines in spectrum 23  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 23 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	270.90D	1.02	2.313E-01	2.359E-01	0.771E-01	32.68	
CO-60	5.27Y	1.00	6.123E+00	6.140E+00	0.650E+00	10.58	
CD-109	464.00D	1.01	3.140E+01	3.176E+01	0.389E+01	12.23	
SN-126	1.00E+05Y	1.00	3.157E+00	3.157E+00	0.386E+00	12.23	
BA-137M	30.17Y	1.00	5.555E+00	5.558E+00	0.557E+00	10.02	
CS-137	30.17Y	1.00	5.872E+00	5.875E+00	0.589E+00	10.03	
W-181	120.95D	1.04	3.094E-01	3.232E-01	1.840E-01	56.92	K
TL-208	1.41E+10Y	1.00	4.877E-01	4.877E-01	1.426E-01	29.23	
BI-211	7.04E+08Y	1.00	2.082E+00	2.082E+00	0.816E+00	39.18	
PB-212	1.41E+10Y	1.00	1.133E+00	1.133E+00	0.188E+00	16.58	
PO-212	1.41E+10Y	1.00	1.133E+00	1.133E+00	0.188E+00	16.58	
BI-214	1600.00Y	1.00	9.422E-01	9.422E-01	3.046E-01	32.33	
PB-214	1600.00Y	1.00	7.242E-01	7.242E-01	2.863E-01	39.53	
PO-214	1600.00Y	1.00	7.242E-01	7.242E-01	2.863E-01	39.53	
PO-216	1.41E+10Y	1.00	1.133E+00	1.133E+00	0.188E+00	16.58	
PO-218	1600.00Y	1.00	7.242E-01	7.242E-01	2.863E-01	39.53	
RA-224	1.41E+10Y	1.00	2.918E+00	2.918E+00	1.787E+00	61.25	
RA-226	1600.00Y	1.00	9.422E-01	9.422E-01	3.046E-01	32.33	
TH-228	1.91Y	1.01	1.133E+00	1.142E+00	0.189E+00	16.58	
TH-230	4.47E+09Y	1.00	9.422E-01	9.422E-01	3.046E-01	32.33	
U-234	4.47E+09Y	1.00	9.422E-01	9.422E-01	3.046E-01	32.33	
AM-241	432.20Y	1.00	1.303E+01	1.303E+01	0.143E+01	10.95	
AM-243	7380.00Y	1.00	1.884E-01	1.884E-01	0.726E-01	38.55	
ANH-511	1.00E+09Y	1.00	1.566E-01	1.566E-01	1.215E-01	77.60	

Total Activity : 8.199E+01 8.240E+01

Grand Total Activity : 8.199E+01 8.240E+01

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

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

Unidentified Energy Lines  
Sample ID : G1202037548

Page : 4  
Acquisition date : 18-FEB-2010 14:48:04

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.67	283	1391	1.83	98.96	95	12	7.87E-02	53.8	6.46E+00	T
0	92.81	103	291	1.04	185.27	182	9	2.85E-02	65.6	6.59E+00	T
0	185.69	95	237	1.02	371.11	366	11	2.64E-02	66.9	4.81E+00	T
0	337.95	84	126	1.26	675.76	671	9	2.33E-02	52.9	3.01E+00	T
0	910.93	75	164	1.66	1822.37	1815	17	2.10E-02	81.7	1.18E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202037548.CNF;1 *
* Acquisition date   : 18-FEB-2010 14:48:04  Detector SN#      :              *
* Detector ID        : GAM17                  Sensitivity       : 5.00000      *
* Geometry           : CAN                    Energy tolerance: 1.50000      *
* Elapsed live time  : 0 01:00:00.00          Abundance limit  : 75.00000      *
* Elapsed real time  : 0 01:00:06.12          Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00  Nuclide Library   : SOLID        *
* Sample ID          : G1202037548           Analyst initials: MXR1         *
* Batch Number       : 950786                Sample Quantity  : 1.55440E+02 GRAM *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36.18MS Isotope       :              *
* MSD ID              :                      MSD Isotope       :              *
* LCS ID              : 1032-A                LCS Isotope       :              *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.359E-01	7.709E-02	5.918E-02	6.933E-03	3.986
CO-60	6.140E+00	6.495E-01	9.995E-02	8.519E-03	61.425
CD-109	3.176E+01	3.885E+00	1.615E+00	1.576E-01	19.671
SN-126	3.157E+00	3.862E-01	1.603E-01	1.564E-02	19.698
BA-137M	5.558E+00	5.568E-01	1.373E-01	1.157E-02	40.464
CS-137	5.875E+00	5.894E-01	1.452E-01	1.226E-02	40.464
W-181	3.232E-01	1.840E-01	3.987E-01	3.949E-02	0.811
TL-208	4.877E-01	1.426E-01	1.275E-01	1.206E-02	3.826
BI-211	2.082E+00	8.158E-01	6.604E-01	6.163E-02	3.153
PB-212	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
PO-212	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
BI-214	9.422E-01	3.046E-01	2.197E-01	2.234E-02	4.289
PB-214	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
PO-214	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
PO-216	1.133E+00	1.879E-01	1.528E-01	1.541E-02	7.417
PO-218	7.242E-01	2.863E-01	2.303E-01	2.461E-02	3.145
RA-224	2.918E+00	1.787E+00	1.741E+00	1.574E-01	1.676
RA-226	9.422E-01	3.046E-01	2.197E-01	2.234E-02	4.289

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.142E+00	1.893E-01	1.540E-01	1.552E-02	7.417
TH-230	9.422E-01	3.046E-01	2.196E-01	2.234E-02	4.289
U-234	9.422E-01	3.046E-01	2.196E-01	2.234E-02	4.289
AM-241	1.303E+01	1.427E+00	2.197E-01	2.333E-02	59.300
AM-243	1.884E-01	7.264E-02	8.937E-02	8.724E-03	2.109
ANH-511	1.566E-01	1.215E-01	1.109E-01	9.904E-03	1.412

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.123E-01		6.744E-01	1.080E+00	1.028E-01	-0.196
NA-22	-2.684E-02		6.294E-02	9.232E-02	7.777E-03	-0.291
NA-24	8.122E-05		1.170E-04	Half-Life too short		
AL-26	1.514E-03		4.792E-02	7.899E-02	6.620E-03	0.019
K-40	6.903E-01		6.679E-01	1.291E+00	1.146E-01	0.535
TI-44	2.146E-01	+	4.960E-02	7.381E-02	7.191E-03	2.908
SC-46	4.230E-02		9.822E-02	1.683E-01	1.473E-02	0.251
V-48	3.384E-02		1.570E-01	2.621E-01	2.286E-02	0.129
CR-51	-9.027E-02		5.595E-01	9.320E-01	8.900E-02	-0.097
MN-52	1.534E-01		1.163E-01	2.500E-01	2.156E-02	0.614
MN-54	-1.939E-03		9.798E-02	1.627E-01	1.431E-02	-0.012
CO-56	-3.764E-02		1.045E-01	1.687E-01	1.483E-02	-0.223
CO-58	-7.259E-02		9.226E-02	1.432E-01	1.261E-02	-0.507
FE-59	-5.058E-02		2.305E-01	3.678E-01	3.375E-02	-0.138
ZN-65	4.705E-02		2.216E-01	3.671E-01	3.091E-02	0.128
GE-68	1.800E+00		3.688E+00	6.244E+00	5.329E-01	0.288
AS-73	-6.006E-01		6.996E-01	9.545E-01	9.550E-02	-0.629
AS-74	1.066E-01		1.431E-01	2.458E-01	2.165E-02	0.434
SE-75	-3.013E-02		7.875E-02	1.214E-01	1.115E-02	-0.248
BR-77	1.372E+00		2.710E+00	4.578E+00	4.092E-01	0.300
SR-82	9.182E-01		7.366E-01	1.344E+00	1.177E-01	0.683
RB-83	8.450E-02		1.518E-01	2.573E-01	2.299E-02	0.328
RB-84	4.811E-02		1.577E-01	2.677E-01	2.346E-02	0.180
KR-85	6.443E+00		1.734E+01	2.568E+01	2.294E+00	0.251
SR-85	3.053E-02		8.214E-02	1.217E-01	1.087E-02	0.251
RB-86	-4.406E-01		1.851E+00	2.958E+00	2.525E-01	-0.149
Y-88	4.469E-02		5.443E-02	1.081E-01	9.013E-03	0.413
ZR-88	-1.644E-02		6.512E-02	1.065E-01	8.974E-03	-0.154
Y-91	4.088E+00		2.630E+01	4.348E+01	3.588E+00	0.094
NB-94	-4.528E-03		7.325E-02	1.232E-01	1.057E-02	-0.037
NB-95	3.094E-02		8.959E-02	1.539E-01	1.344E-02	0.201
NB-95M	-1.123E-01		2.129E-01	2.881E-01	2.941E-02	-0.390
ZR-95	-1.868E-02		1.486E-01	2.464E-01	2.361E-02	-0.076
NB-97	2.337E-04		8.916E-05	Half-Life too short		
ZR-97	1.459E-03		1.314E-03	Half-Life too short		
MO-99	3.893E+00		3.839E+00	6.912E+00	1.052E+00	0.563
TC-99M	-4.017E+01		2.680E+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
RH-101	5.673E-02		5.470E-02	9.288E-02	8.075E-03	0.611
RH-102	-6.619E-03		6.789E-02	1.106E-01	9.795E-03	-0.060
RU-103	4.261E-02		8.093E-02	1.370E-01	1.965E-02	0.311
RH-106	1.153E-01		6.564E-01	1.073E+00	1.438E-01	0.107
RU-106	1.153E-01		6.563E-01	1.073E+00	9.323E-02	0.107
AG-108M	3.247E-02		7.746E-02	1.311E-01	1.183E-02	0.248
AG-110M	1.276E-01		9.604E-02	1.531E-01	1.335E-02	0.833
IN-111	-8.201E-02		3.274E-01	4.524E-01	4.103E-02	-0.181
IN-113M	-8.615E-02		9.411E-02	1.470E-01	1.277E-02	-0.586
SN-113	-8.615E-02		9.411E-02	1.470E-01	1.277E-02	-0.586
IN-114M	4.107E-02		2.856E-01	4.159E-01	3.582E-02	0.099
CD-115	1.050E+00		2.346E+00	3.950E+00	3.531E-01	0.266
SN-117M	-2.066E-02		5.602E-02	8.941E-02	8.036E-03	-0.231
SB-122	2.731E-01		6.234E-01	1.048E+00	9.328E-02	0.261
I-123	-3.524E-04		3.200E-04	Half-Life	too short	
TE-123M	-2.291E-02		4.162E-02	6.567E-02	5.911E-03	-0.349
I-124	6.203E-01		4.522E-01	7.347E-01	6.452E-02	0.844
SB-124	2.567E-02		1.382E-01	2.362E-01	2.101E-02	0.109
SB-125	6.060E-02		2.006E-01	3.378E-01	2.980E-02	0.179
TE-125M	5.109E+00		1.099E+01	1.867E+01	2.292E+00	0.274
I-126	5.714E-02		3.078E-01	4.394E-01	3.710E-02	0.130
SB-126	-1.384E-01		2.196E-01	3.503E-01	3.024E-02	-0.395
SB-127	-6.007E-01		7.975E-01	1.172E+00	1.114E-01	-0.512
XE-127	-3.222E-02		6.777E-02	1.059E-01	9.259E-03	-0.304
I-131	7.248E-03		1.270E-01	2.128E-01	1.957E-02	0.034
TE-132	-4.408E-02		2.491E-01	3.937E-01	5.845E-02	-0.112
BA-133	1.123E-02		9.502E-02	1.413E-01	1.888E-02	0.080
I-133	-3.007E-05		1.687E-05	Half-Life	too short	
CS-134	1.008E-01		1.089E-01	1.945E-01	1.718E-02	0.518
CS-135	6.114E-02		2.903E-01	4.655E-01	4.857E-02	0.131
I-135	4.134E+01		2.780E+01	Half-Life	too short	
CS-136	-8.463E-02		2.116E-01	3.335E-01	2.992E-02	-0.254
CE-139	-3.999E-03		4.366E-02	7.070E-02	5.895E-03	-0.057
BA-140	-1.167E-01		3.756E-01	5.912E-01	1.964E-01	-0.197
LA-140	-6.146E-02		8.888E-02	1.203E-01	1.038E-02	-0.511
CE-141	-4.596E-02		7.768E-02	1.229E-01	1.253E-02	-0.374
CE-143	1.007E+01		6.350E+00	9.982E+00	2.162E+00	1.009
CE-144	-4.221E-01		3.022E-01	4.447E-01	7.543E-02	-0.949
PM-144	-1.036E-02		7.186E-02	1.197E-01	1.024E-02	-0.087
PR-144	-6.991E-01		4.850E+00	8.079E+00	6.913E-01	-0.087
PM-146	-2.817E-02		1.029E-01	1.661E-01	1.803E-02	-0.170
ND-147	-2.570E-01		7.810E-01	1.240E+00	1.877E-01	-0.207
PM-149	-5.265E+00		1.471E+01	2.434E+01	3.857E+00	-0.216
EU-152	-9.154E-02		1.910E-01	3.103E-01	2.936E-02	-0.295
GD-153	5.653E-03		1.029E-01	1.549E-01	1.583E-02	0.037
EU-154	-1.790E-02		1.673E-01	2.628E-01	2.931E-02	-0.068
EU-155	1.791E-02		1.310E-01	2.197E-01	2.360E-02	0.082
TB-160	1.528E-01		3.513E-01	6.021E-01	5.279E-02	0.254

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	-1.479E-02		1.403E-01	2.342E-01	2.016E-02	-0.063
TM-171	6.872E+00		2.132E+01	3.658E+01	3.610E+00	0.188
LU-176	3.790E-02		4.746E-02	7.851E-02	7.193E-03	0.483
LU-177	5.363E-01		8.509E-01	1.413E+00	1.242E-01	0.380
LU-177M	-1.708E-01		3.739E-01	6.004E-01	5.144E-02	-0.284
HF-181	-3.094E-04		8.644E-02	1.416E-01	1.257E-02	-0.002
TA-182	9.987E-02		2.326E-01	4.045E-01	3.355E-02	0.247
RE-183	1.194E-01		1.578E-01	2.673E-01	2.314E-02	0.447
RE-184	1.625E-01		4.127E-01	6.717E-01	6.116E-02	0.242
OS-185	1.574E-02		9.669E-02	1.572E-01	1.342E-02	0.100
RE-188	9.830E-02		2.319E-01	3.877E-01	3.602E-02	0.254
W-188	2.565E+00		1.222E+01	1.860E+01	1.709E+00	0.138
IR-192	-8.537E-03		5.827E-02	9.721E-02	8.894E-03	-0.088
AU-195	2.118E-01		2.748E-01	4.741E-01	4.883E-02	0.447
TL-200	5.732E+00		8.029E+00	1.394E+01	1.217E+00	0.411
TL-201	-1.919E-01		1.818E+00	2.938E+00	2.453E-01	-0.065
TL-202	-3.033E-02		1.043E-01	1.687E-01	1.470E-02	-0.180
HG-203	-2.564E-02		6.380E-02	1.057E-01	9.952E-03	-0.242
BI-207	5.965E-02		1.489E-01	2.509E-01	2.151E-02	0.238
TL-207	-3.690E-01		1.253E+00	2.061E+00	3.697E-01	-0.179
PO-209	-3.803E+00		2.204E+01	3.596E+01	3.145E+00	-0.106
BI-210	1.014E+00		1.240E+00	1.880E+00	2.040E-01	0.539
PB-210	1.014E+00		1.240E+00	1.880E+00	2.040E-01	0.539
PO-210	1.014E+00		1.239E+00	1.880E+00	1.900E-01	0.539
PB-211	7.223E-01		2.071E+00	3.424E+00	2.145E+00	0.211
BI-212	5.715E-01		6.831E-01	1.215E+00	1.219E-01	0.471
PO-215	-3.690E-01		1.253E+00	2.061E+00	3.697E-01	-0.179
RN-219	3.357E-01		8.606E-01	1.461E+00	2.184E-01	0.230
RN-220	1.153E+01		5.647E+01	9.322E+01	8.322E+00	0.124
RA-223	-3.690E-01		1.253E+00	2.061E+00	3.697E-01	-0.179
AC-227	-9.313E-02		7.421E-01	1.165E+00	1.821E-01	-0.080
TH-227	-9.313E-02		7.421E-01	1.165E+00	2.132E-01	-0.080
AC-228	1.113E+00	+	9.182E-01	9.034E-01	1.025E-01	1.232
RA-228	1.113E+00	+	9.182E-01	9.034E-01	1.025E-01	1.232
TH-229	6.872E-02		7.966E-01	1.292E+00	1.118E-01	0.053
PA-231	1.612E+00		2.529E+00	4.426E+00	6.865E-01	0.364
TH-231	-3.690E-01		1.253E+00	2.061E+00	3.697E-01	-0.179
U-231	-3.366E-01		3.909E-01	5.493E-01	5.571E-02	-0.613
TH-232	1.113E+00	+	9.182E-01	9.034E-01	1.025E-01	1.232
PA-233	-3.083E-02		1.124E-01	1.861E-01	1.745E-02	-0.166
PA-234	3.247E-01		9.728E-01	1.637E+00	3.082E-01	0.198
PA-234M	8.467E+00		1.304E+01	2.246E+01	2.254E+00	0.377
TH-234	9.068E-02		9.381E-01	1.476E+00	2.755E-01	0.061
U-235	3.087E-01		3.076E-01	5.230E-01	9.588E-02	0.590
NP-236	-1.286E-02		1.226E-01	1.987E-01	1.756E-02	-0.065
NP-237	3.158E+00		8.377E-01	8.015E-01	1.829E-01	3.940
U-238	9.068E-02		9.381E-01	1.476E+00	2.755E-01	0.061
NP-239	-2.022E-01		3.038E-01	4.287E-01	4.876E-02	-0.472

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.186E-01		1.201E-01	1.885E-01	1.992E-02	-0.629
AM-246	2.986E-01		4.191E-01	7.220E-01	6.159E-02	0.414
CM-247	5.150E-02		7.831E-02	1.350E-01	1.147E-02	0.381
CF-249	2.819E-02		8.597E-02	1.456E-01	1.234E-02	0.194
CF-251	-5.573E-03		1.889E-01	3.059E-01	2.588E-02	-0.018



## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202037548          *
* Acquisition date   : 18-FEB-2010 14:48:04 Detector SN# :                  *
* Detector ID        : GAM17 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 01:00:06.12 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 11-FEB-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202037548 Analyst initials: MXR1                 *
* Batch Number       : 950786 Sample Quantity : 1.5544E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                  *
* LCS DPM             : 0.000 LCS Isotope :                  *
* LCSD DPM            : 0.000 LCSD Isotope :                  *
*****

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## Combined Activity-MDA Report

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

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
CO-57	2.359E-01	7.555E-02	3.189E-02	3.854E-02
CO-60	6.140E+00	6.365E-01	5.056E-02	3.248E-01
CD-109	3.176E+01	3.808E+00	8.771E-01	1.943E+00
SN-126	3.157E+00	3.785E-01	8.708E-02	1.931E-01
BA-137M	5.558E+00	5.456E-01	7.084E-02	2.784E-01
CS-137	5.875E+00	5.776E-01	7.488E-02	2.947E-01
W-181	-3.026E-01	2.435E-01	2.182E-01	1.243E-01
TL-208	4.877E-01	1.397E-01	6.597E-02	7.128E-02
BI-211	2.082E+00	7.994E-01	3.464E-01	4.079E-01
PB-212	1.133E+00	1.841E-01	8.096E-02	9.395E-02
PO-212	1.133E+00	1.841E-01	8.096E-02	9.395E-02
BI-214	9.422E-01	2.985E-01	1.135E-01	1.523E-01
PB-214	7.242E-01	2.805E-01	1.208E-01	1.431E-01
PO-214	7.242E-01	2.805E-01	1.208E-01	1.431E-01
PO-216	1.133E+00	1.841E-01	8.096E-02	9.395E-02
PO-218	7.242E-01	2.805E-01	1.208E-01	1.431E-01
RA-224	2.918E+00	1.751E+00	9.219E-01	8.936E-01
RA-226	9.422E-01	2.985E-01	1.135E-01	1.523E-01
TH-228	1.142E+00	1.855E-01	8.158E-02	9.467E-02
TH-230	9.422E-01	2.985E-01	1.135E-01	1.523E-01
U-234	9.422E-01	2.985E-01	1.135E-01	1.523E-01
AM-241	1.303E+01	1.399E+00	1.205E-01	7.136E-01
AM-243	1.884E-01	7.118E-02	4.874E-02	3.632E-02
ANH-511	1.566E-01	1.191E-01	5.759E-02	6.075E-02

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

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-2.123E-01	6.609E-01	5.622E-01	3.372E-01 NOT IDENT.
NA-22	-2.684E-02	6.168E-02	4.676E-02	3.147E-02 NOT IDENT.
NA-24	8.122E+01	2.293E+02	0.000E+00	1.170E+02 SHORT HLIF

AL-26	1.514E-03	4.696E-02	3.961E-02	2.396E-02	NOT IDENT.
K-40	6.903E-01	6.545E-01	6.512E-01	3.339E-01	NOT IDENT.
TI-44	2.146E-01	4.861E-02	4.020E-02	2.480E-02	FAIL ABUN
SC-46	4.230E-02	9.626E-02	8.608E-02	4.911E-02	NOT IDENT.
V-48	3.384E-02	1.539E-01	1.337E-01	7.851E-02	NOT IDENT.
CR-51	-9.027E-02	5.483E-01	4.900E-01	2.797E-01	NOT IDENT.
MN-52	1.534E-01	1.140E-01	1.262E-01	5.816E-02	NOT IDENT.
MN-54	-1.939E-03	9.602E-02	8.339E-02	4.899E-02	NOT IDENT.
CO-56	-3.764E-02	1.024E-01	8.642E-02	5.223E-02	NOT IDENT.
CO-58	-7.259E-02	9.042E-02	7.345E-02	4.613E-02	NOT IDENT.
FE-59	-5.058E-02	2.259E-01	1.870E-01	1.153E-01	NOT IDENT.
ZN-65	4.705E-02	2.171E-01	1.866E-01	1.108E-01	NOT IDENT.
GE-68	1.800E+00	3.614E+00	3.177E+00	1.844E+00	NOT IDENT.
AS-73	-6.006E-01	6.856E-01	5.248E-01	3.498E-01	NOT IDENT.
AS-74	1.066E-01	1.403E-01	1.271E-01	7.156E-02	NOT IDENT.
SE-75	-3.013E-02	7.718E-02	6.413E-02	3.938E-02	FAIL ABUN
BR-77	1.372E+00	2.656E+00	2.376E+00	1.355E+00	FAIL ABUN
SR-82	9.182E-01	7.219E-01	6.904E-01	3.683E-01	NOT IDENT.
RB-83	8.450E-02	1.488E-01	1.335E-01	7.591E-02	NOT IDENT.
RB-84	4.811E-02	1.545E-01	1.370E-01	7.883E-02	NOT IDENT.
KR-85	6.443E+00	1.699E+01	1.333E+01	8.670E+00	NOT IDENT.
SR-85	3.053E-02	8.050E-02	6.317E-02	4.107E-02	NOT IDENT.
RB-86	-4.406E-01	1.814E+00	1.505E+00	9.255E-01	NOT IDENT.
Y-88	4.469E-02	5.334E-02	5.418E-02	2.722E-02	NOT IDENT.
ZR-88	-1.644E-02	6.382E-02	5.570E-02	3.256E-02	NOT IDENT.
Y-91	4.088E+00	2.577E+01	2.206E+01	1.315E+01	NOT IDENT.
NB-94	-4.528E-03	7.179E-02	6.345E-02	3.663E-02	NOT IDENT.
NB-95	3.094E-02	8.790E-02	7.907E-02	4.480E-02	NOT IDENT.
NB-95M	-1.123E-01	2.086E-01	1.527E-01	1.064E-01	NOT IDENT.
ZR-95	-1.868E-02	1.456E-01	1.266E-01	7.431E-02	NOT IDENT.
NB-97	2.337E+02	1.747E+02	0.000E+00	8.916E+01	SHORT HLIF
ZR-97	1.459E+03	2.575E+03	0.000E+00	1.314E+03	SHORT HLIF
MO-99	3.893E+00	3.763E+00	3.554E+00	1.920E+00	NOT IDENT.
TC-99M	-4.017E+07	5.254E+07	0.000E+00	2.680E+07	SHORT HLIF
RH-101	5.673E-02	5.361E-02	4.944E-02	2.735E-02	NOT IDENT.
RH-102	-6.619E-03	6.653E-02	5.754E-02	3.394E-02	NOT IDENT.
RU-103	4.261E-02	7.932E-02	7.122E-02	4.047E-02	FAIL ABUN
RH-106	1.153E-01	6.432E-01	5.544E-01	3.282E-01	FAIL ABUN
RU-106	1.153E-01	6.431E-01	5.544E-01	3.281E-01	FAIL ABUN
AG-108M	3.247E-02	7.591E-02	6.836E-02	3.873E-02	NOT IDENT.
AG-110M	1.276E-01	9.412E-02	7.899E-02	4.802E-02	NOT IDENT.
IN-111	-8.201E-02	3.208E-01	2.395E-01	1.637E-01	NOT IDENT.
IN-113M	-8.615E-02	9.222E-02	7.687E-02	4.705E-02	NOT IDENT.
SN-113	-8.615E-02	9.222E-02	7.687E-02	4.705E-02	NOT IDENT.
IN-114M	4.107E-02	2.799E-01	2.216E-01	1.428E-01	NOT IDENT.
CD-115	1.050E+00	2.300E+00	2.050E+00	1.173E+00	NOT IDENT.
SN-117M	-2.066E-02	5.490E-02	4.786E-02	2.801E-02	NOT IDENT.
SB-122	2.731E-01	6.110E-01	5.426E-01	3.117E-01	NOT IDENT.
I-123	-3.524E+02	6.272E+02	0.000E+00	3.200E+02	SHORT HLIF
TE-123M	-2.291E-02	4.078E-02	3.515E-02	2.081E-02	NOT IDENT.
I-124	6.203E-01	4.431E-01	3.799E-01	2.261E-01	NOT IDENT.
SB-124	2.567E-02	1.354E-01	1.187E-01	6.909E-02	NOT IDENT.
SB-125	6.060E-02	1.966E-01	1.763E-01	1.003E-01	NOT IDENT.
TE-125M	5.109E+00	1.077E+01	1.009E+01	5.496E+00	NOT IDENT.
I-126	5.714E-02	3.016E-01	2.266E-01	1.539E-01	NOT IDENT.
SB-126	-1.384E-01	2.152E-01	1.802E-01	1.098E-01	NOT IDENT.
SB-127	-6.007E-01	7.815E-01	6.040E-01	3.987E-01	NOT IDENT.
XE-127	-3.222E-02	6.642E-02	5.635E-02	3.389E-02	FAIL ABUN
I-131	7.248E-03	1.245E-01	1.115E-01	6.352E-02	NOT IDENT.
TE-132	-4.408E-02	2.441E-01	2.088E-01	1.245E-01	FAIL ABUN
BA-133	1.123E-02	9.312E-02	7.408E-02	4.751E-02	NOT IDENT.
I-133	-3.007E+01	3.306E+01	0.000E+00	1.687E+01	SHORT HLIF
CS-134	1.008E-01	1.068E-01	9.980E-02	5.447E-02	NOT IDENT.
CS-135	6.114E-02	2.845E-01	2.459E-01	1.452E-01	NOT IDENT.
I-135	4.134E+07	5.450E+07	0.000E+00	2.780E+07	SHORT HLIF
CS-136	-8.463E-02	2.073E-01	1.698E-01	1.058E-01	NOT IDENT.
CE-139	-3.999E-03	4.279E-02	3.780E-02	2.183E-02	NOT IDENT.
BA-140	-1.167E-01	3.681E-01	3.066E-01	1.878E-01	NOT IDENT.
LA-140	-6.146E-02	8.710E-02	6.054E-02	4.444E-02	NOT IDENT.
CE-141	-4.596E-02	7.613E-02	6.591E-02	3.884E-02	NOT IDENT.
CE-143	1.007E+01	6.223E+00	5.260E+00	3.175E+00	FAIL ABUN
CE-144	-4.221E-01	2.961E-01	2.391E-01	1.511E-01	NOT IDENT.
PM-144	-1.036E-02	7.042E-02	6.165E-02	3.593E-02	NOT IDENT.
PR-144	-6.991E-01	4.753E+00	4.161E+00	2.425E+00	NOT IDENT.
PM-146	-2.817E-02	1.008E-01	8.655E-02	5.144E-02	NOT IDENT.
ND-147	-2.570E-01	7.654E-01	6.434E-01	3.905E-01	NOT IDENT.
PM-149	-5.265E+00	1.441E+01	1.284E+01	7.354E+00	NOT IDENT.
EU-152	-9.154E-02	1.872E-01	1.629E-01	9.550E-02	FAIL ABUN

GD-153	5.653E-03	1.009E-01	8.390E-02	5.146E-02	NOT IDENT.
EU-154	-1.790E-02	1.639E-01	1.331E-01	8.364E-02	FAIL ABUN
EU-155	1.791E-02	1.284E-01	1.188E-01	6.552E-02	FAIL ABUN
TB-160	1.528E-01	3.443E-01	3.081E-01	1.757E-01	FAIL ABUN
HO-166M	-1.479E-02	1.375E-01	1.206E-01	7.017E-02	FAIL ABUN
TM-171	6.872E+00	2.089E+01	2.000E+01	1.066E+01	FAIL ABUN
LU-176	3.790E-02	4.651E-02	4.133E-02	2.373E-02	FAIL ABUN
LU-177	5.363E-01	8.339E-01	7.510E-01	4.254E-01	NOT IDENT.
LU-177M	-1.708E-01	3.664E-01	3.136E-01	1.870E-01	FAIL ABUN
HF-181	-3.094E-04	8.471E-02	7.365E-02	4.322E-02	FAIL ABUN
TA-182	9.987E-02	2.279E-01	2.051E-01	1.163E-01	NOT IDENT.
RE-183	1.194E-01	1.547E-01	1.430E-01	7.890E-02	FAIL ABUN
RE-184	1.625E-01	4.044E-01	3.553E-01	2.064E-01	FAIL ABUN
OS-185	1.574E-02	9.476E-02	8.114E-02	4.835E-02	FAIL ABUN
RE-188	9.830E-02	2.273E-01	2.077E-01	1.160E-01	NOT IDENT.
W-188	2.565E+00	1.198E+01	9.805E+00	6.112E+00	NOT IDENT.
IR-192	-8.537E-03	5.710E-02	5.113E-02	2.913E-02	FAIL ABUN
AU-195	2.118E-01	2.693E-01	2.568E-01	1.374E-01	FAIL ABUN
TL-200	5.732E+00	7.869E+00	7.301E+00	4.015E+00	NOT IDENT.
TL-201	-1.919E-01	1.781E+00	1.571E+00	9.088E-01	NOT IDENT.
TL-202	-3.033E-02	1.023E-01	8.797E-02	5.217E-02	NOT IDENT.
HG-203	-2.564E-02	6.252E-02	5.580E-02	3.190E-02	NOT IDENT.
BI-207	5.965E-02	1.459E-01	1.277E-01	7.444E-02	FAIL ABUN
TL-207	-3.690E-01	1.228E+00	1.083E+00	6.266E-01	FAIL ABUN
PO-209	-3.803E+00	2.160E+01	1.840E+01	1.102E+01	NOT IDENT.
BI-210	1.014E+00	1.215E+00	1.037E+00	6.199E-01	NOT IDENT.
PB-210	1.014E+00	1.215E+00	1.037E+00	6.199E-01	NOT IDENT.
PO-210	1.014E+00	1.214E+00	1.037E+00	6.196E-01	NOT IDENT.
PB-211	7.223E-01	2.029E+00	1.789E+00	1.035E+00	NOT IDENT.
BI-212	5.715E-01	6.694E-01	6.248E-01	3.415E-01	NOT IDENT.
PO-215	-3.690E-01	1.228E+00	1.083E+00	6.266E-01	FAIL ABUN
RN-219	3.357E-01	8.434E-01	7.634E-01	4.303E-01	NOT IDENT.
RN-220	1.153E+01	5.534E+01	4.832E+01	2.824E+01	NOT IDENT.
RA-223	-3.690E-01	1.228E+00	1.083E+00	6.266E-01	FAIL ABUN
AC-227	-9.313E-02	7.272E-01	6.160E-01	3.710E-01	FAIL ABUN
TH-227	-9.313E-02	7.273E-01	6.160E-01	3.711E-01	FAIL ABUN
AC-228	1.113E+00	8.999E-01	4.619E-01	4.591E-01	FAIL ABUN
RA-228	1.113E+00	8.999E-01	4.619E-01	4.591E-01	FAIL ABUN
TH-229	6.872E-02	7.806E-01	6.882E-01	3.983E-01	FAIL ABUN
PA-231	1.612E+00	2.478E+00	2.334E+00	1.264E+00	FAIL ABUN
TH-231	-3.690E-01	1.228E+00	1.083E+00	6.266E-01	FAIL ABUN
U-231	-3.366E-01	3.830E-01	2.978E-01	1.954E-01	FAIL ABUN
TH-232	1.113E+00	8.999E-01	4.619E-01	4.591E-01	FAIL ABUN
PA-233	-3.083E-02	1.101E-01	9.789E-02	5.619E-02	FAIL ABUN
PA-234	3.247E-01	9.533E-01	8.362E-01	4.864E-01	FAIL ABUN
PA-234M	8.467E+00	1.278E+01	1.145E+01	6.522E+00	NOT IDENT.
TH-234	9.068E-02	9.193E-01	8.082E-01	4.690E-01	FAIL ABUN
U-235	3.087E-01	3.015E-01	2.807E-01	1.538E-01	FAIL ABUN
NP-236	-1.286E-02	1.201E-01	1.064E-01	6.130E-02	NOT IDENT.
NP-237	3.158E+00	8.209E-01	4.356E-01	4.188E-01	NOT IDENT.
U-238	9.068E-02	9.193E-01	8.082E-01	4.690E-01	FAIL ABUN
NP-239	-2.022E-01	2.977E-01	2.312E-01	1.519E-01	NOT IDENT.
CM-243	-1.186E-01	1.177E-01	1.020E-01	6.007E-02	NOT IDENT.
AM-246	2.986E-01	4.107E-01	3.674E-01	2.096E-01	NOT IDENT.
CM-247	5.150E-02	7.674E-02	7.056E-02	3.915E-02	NOT IDENT.
CF-249	2.819E-02	8.425E-02	7.619E-02	4.298E-02	NOT IDENT.
CF-251	-5.573E-03	1.851E-01	1.633E-01	9.446E-02	NOT IDENT.

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*                                     GEL Laboratories LLC                      *
*                                     2040 SAVAGE ROAD                        *
*                                     CHARLESTON , SC 29417                   *
*                                     GAMMA SPECTROSCOPY BACKGROUND REPORT      *
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ENERGY	MDA COUNTS
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46.50	359.5320
46.50	359.5320
46.50	359.5320
48.70	622.4299
49.72	624.2836
51.35	627.2086
52.39	779.7522
52.97	816.6334
53.15	817.0399
53.44	808.3585
54.07	798.7050
56.28	776.5410
56.28	776.5456
57.37	555.2423
57.53	555.4776
57.53	555.4809
57.60	555.5796
57.98	556.1357
57.98	556.1357
59.32	558.0790
59.32	558.0790
59.40	558.1942
59.54	558.3965
59.72	558.6548
60.01	559.0712
61.10	314.5407
61.14	288.5744
61.30	288.6913
63.00	257.2756
63.29	249.6190
63.29	249.6190
63.58	249.7982
64.28	264.1155
65.12	309.8180
65.20	309.8778
65.20	309.8778
66.05	325.4270
66.72	286.4140
66.83	260.1261
66.91	260.1758
67.20	256.8382
67.20	256.8382
67.75	279.1905
67.85	281.0201
68.90	287.8964
68.90	287.8964
69.30	307.6135
69.67	328.2292
70.82	335.3104
70.82	335.3104
70.83	335.3181
72.80	330.1443
72.87	330.1952
72.87	330.1952
74.67	318.5545
74.81	318.6523
74.81	318.6523
74.81	318.6523
74.81	318.6523
74.81	318.6523
74.81	318.6523
74.81	318.6523
74.97	318.7664
75.28	318.9836
75.70	319.2806
77.11	320.2656
77.11	320.2656

77.11	320.2656
77.11	320.2656
77.11	320.2656
77.11	320.2656
77.11	320.2656
78.38	290.9255
79.62	287.6279
79.80	287.7379
79.80	287.7379
80.11	298.7923
80.18	298.8376
80.30	269.0218
80.30	269.0218
80.57	285.4880
81.00	315.6830
81.07	332.0598
81.07	332.0598
81.07	332.0598
81.07	332.0598
82.60	300.3566
83.37	299.4659
83.78	280.5612
83.78	280.5612
83.78	280.5612
83.78	280.5612
84.21	302.7251
84.90	304.5234
85.43	321.3305
86.29	338.3983
86.50	345.4218
86.54	345.4486
86.59	345.4850
86.72	345.5750
86.79	345.6210
86.94	309.9140
87.30	310.1389
87.30	310.1389
87.30	310.1389
87.30	310.1389
87.30	310.1389
87.30	310.1389
87.57	310.3054
87.88	310.4977
88.03	310.5904
88.36	310.7929
88.47	310.8616
89.95	210.6177
91.11	211.0944
92.29	211.5768
92.38	162.8870
92.38	162.8870
93.35	163.1905
94.00	163.3922
94.67	174.7847
94.67	174.7866
94.90	174.8629
94.90	174.8629
94.90	174.8629
94.90	174.8629
95.87	197.6057
95.87	197.6057
96.73	193.7140
97.43	186.9379
98.44	162.4092
98.44	162.4092
98.88	180.3926
99.55	180.6143
99.55	180.6143
99.86	196.7178
100.00	196.7677
100.10	184.5635
103.18	177.0683
103.76	188.6253
105.00	160.5417
105.31	160.6294
108.00	162.3399
109.28	165.5699

111.00	199.6518
111.00	199.6518
111.76	201.8311
112.95	176.2341
115.19	175.9265
116.30	185.9326
117.00	197.7806
117.00	197.7806
117.66	196.5385
121.11	177.6279
121.62	177.7733
121.78	177.8186
122.06	177.8973
122.32	177.9704
122.32	177.9704
122.32	177.9704
122.32	177.9704
123.07	178.1824
127.23	184.7639
129.76	167.1811
131.20	183.4098
133.02	188.8828
133.54	201.9633
135.34	153.6240
136.00	156.7700
136.25	156.8275
136.48	168.8711
140.51	192.9824
140.51	0.0000
142.18	171.2814
142.65	167.3627
143.76	149.4513
144.24	154.6046
144.24	154.6046
144.24	154.6046
144.24	154.6046
145.22	158.8670
145.44	178.1467
147.16	155.2397
152.43	152.2830
152.70	137.0030
153.22	147.3311
154.21	157.7739
154.21	157.7739
154.21	157.7739
154.21	157.7739
155.03	150.7683
156.02	164.3197
158.56	165.9068
159.00	0.0000
159.00	175.2831
160.31	169.3886
161.27	157.1907
162.32	154.3004
162.64	178.1921
163.35	173.1718
163.89	152.5388
165.85	161.2471
167.43	142.8087
171.28	147.6954
171.86	149.8981
172.10	153.0888
176.55	144.4448
176.60	144.4546
181.06	139.9371
184.41	162.8520
185.71	157.7724
186.00	157.8266
190.27	151.1149
192.34	138.5860
193.63	149.5511
197.04	162.0132
198.01	152.4603
198.60	167.7085
200.40	170.2175
201.83	185.6918
202.84	176.1163
205.31	174.4165

208.36	170.6234
208.81	151.0105
209.75	148.9741
209.75	148.9741
210.97	189.7538
215.65	177.4760
216.55	151.1649
218.09	207.7746
222.10	150.9373
223.80	199.0079
226.40	142.6888
227.00	140.5452
227.08	158.4052
227.20	166.2351
228.16	166.3973
228.18	166.4003
228.18	166.4003
231.56	141.1963
235.69	165.4109
236.00	165.4632
236.00	165.4632
238.63	148.9659
238.63	148.9659
238.63	148.9659
238.63	148.9659
239.00	149.0197
240.98	149.3097
241.98	149.4547
241.98	149.4547
241.98	149.4547
244.69	126.0098
245.39	141.4303
247.94	134.9447
248.90	152.7361
249.79	156.2879
252.40	137.2339
252.85	133.8602
252.85	133.8602
254.15	0.0000
256.20	156.0879
256.20	156.0879
260.50	149.7994
260.90	147.5495
262.80	140.8788
264.65	144.5872
268.24	140.4183
268.79	124.2325
269.46	127.7918
269.46	127.7918
269.46	127.7918
269.46	127.7918
271.23	146.6129
273.65	162.0903
276.40	125.3716
277.35	128.1087
277.60	125.5047
277.60	125.5047
278.00	122.9144
278.60	139.6685
279.20	145.8959
279.53	145.9364
280.46	158.3734
281.68	124.1926
283.67	103.2301
284.30	105.9357
285.00	109.5331
285.90	124.6465
286.10	118.4789
286.10	118.4789
287.40	121.2672
288.45	0.0000
290.67	103.6757
290.80	103.6864
291.72	125.0906
293.26	119.5605
293.70	119.6057
295.21	146.1326
295.21	146.1326

295.21	146.1326
295.96	135.5258
296.50	135.5861
297.23	135.6696
298.57	135.8226
299.80	140.2529
299.80	140.2529
300.09	140.2888
300.09	140.2888
300.09	140.2888
300.09	140.2888
300.12	140.2912
301.29	140.4276
302.84	137.7375
303.76	119.1767
303.91	119.1909
304.40	126.4227
304.40	126.4227
304.84	127.9049
306.84	105.5635
308.46	120.7157
311.98	114.7372
316.51	117.8760
318.01	103.4917
319.02	101.7581
319.41	101.7888
320.08	118.2092
323.87	128.5967
323.87	128.5967
323.87	128.5967
323.87	128.5967
325.23	131.4734
328.77	151.0620
333.44	104.3783
334.20	133.8584
334.20	133.8584
334.30	133.8695
338.28	132.8005
338.28	132.8005
338.28	132.8005
338.28	132.8005
338.32	132.8049
338.32	132.8049
338.32	132.8049
340.50	118.2441
340.57	118.2500
344.27	132.4762
345.85	117.2367
350.59	122.8618
351.07	122.9061
351.92	122.9826
351.92	122.9826
351.92	122.9826
355.39	0.0000
356.01	113.6326
364.48	124.1105
366.43	126.1668
367.43	116.8347
367.94	113.1061
369.80	137.7951
374.96	116.5118
383.85	138.2031
387.95	117.5647
388.63	124.3129
391.69	143.7378
391.69	143.7378
392.90	138.1025
398.62	132.8578
400.65	128.2187
401.10	121.5069
401.81	107.0926
402.60	106.1832
404.84	116.9750
410.95	114.5340
411.60	123.3219
413.65	127.3780
414.70	137.1940
415.30	123.6204



415.76	125.6045
417.63	0.0000
418.52	107.2960
423.70	113.5255
427.08	117.6929
427.89	104.9967
432.53	123.0202
433.93	117.2187
439.47	120.5908
439.56	120.5964
439.89	123.5886
443.98	117.9541
444.90	108.1035
445.03	108.1118
445.03	108.1118
445.03	108.1118
445.03	108.1118
453.90	121.6631
463.38	111.3252
468.07	122.7000
473.00	112.9707
475.06	108.0564
475.35	101.0056
476.78	106.1440
477.59	108.2164
477.96	112.2855
482.03	100.3837
484.57	109.6710
487.03	103.7245
490.36	98.8279
492.35	103.0204
497.08	85.9098
507.63	0.0000
510.53	0.0000
510.84	103.0632
511.00	103.0724
511.85	102.2962
511.85	102.2962
513.99	90.8527
513.99	90.8527
520.41	84.9579
520.65	84.9679
527.90	78.0212
528.96	0.0000
529.64	91.6309
529.87	0.0000
531.02	84.4038
537.32	80.5060
543.00	83.8940
546.56	0.0000
549.76	71.5631
552.65	80.1029
555.20	77.0434
563.23	65.7047
563.90	64.6673
568.70	79.7035
569.32	82.9178
569.50	80.7987
569.67	77.6160
573.80	95.8914
574.00	82.0475
574.64	71.4165
578.91	82.0383
579.30	82.0547
583.14	74.9326
585.48	84.0226
591.81	75.2551
592.07	78.4893
593.00	77.4492
595.88	57.0921
600.56	82.0558
602.52	0.0000
602.71	53.6082
602.71	53.6082
603.60	55.3609
604.41	72.6899
604.70	72.7002
609.31	61.8028

609.31	61.8028
609.31	61.8028
609.31	61.8028
610.33	61.8323
612.46	76.4479
614.37	62.6045
618.01	55.5276
621.84	57.8102
621.84	57.8102
631.29	60.2586
633.02	69.0793
633.10	69.0831
634.78	69.1370
635.90	77.9574
636.97	74.7008
645.85	69.4926
646.12	71.7067
656.30	56.7453
657.75	63.8807
657.90	0.0000
661.65	77.7695
661.65	77.7695
664.57	81.8769
666.33	64.1285
666.33	64.1285
675.00	54.7646
677.61	70.4924
685.20	70.7289
692.80	74.7932
695.00	59.5321
696.49	66.7897
696.49	66.7897
697.00	66.8060
697.49	70.4304
698.33	67.7472
698.50	64.1392
699.00	65.9584
702.63	66.9668
706.10	72.5059
706.58	0.0000
706.67	71.6169
709.31	69.8809
711.68	73.5862
713.82	80.9279
717.42	65.5699
720.50	80.2441
721.93	96.7147
722.20	96.7276
722.78	85.7979
722.78	85.7979
722.89	81.2386
722.95	80.3258
723.30	80.3387
724.18	68.4961
727.18	64.9244
733.00	64.1655
735.90	65.1602
739.58	46.8762
742.81	57.0624
744.21	78.2764
747.13	56.2418
751.79	76.6717
752.31	69.2963
753.82	61.9423
755.35	67.5303
756.15	64.7773
756.87	49.0599
763.93	77.9769
765.79	68.7445
766.42	66.9041
766.84	65.9853
776.49	52.2457
778.00	65.3464
778.57	70.9624
778.89	67.2363
783.80	54.2674
785.46	65.5378
792.07	74.1551

795.84	57.3439
796.30	60.1750
798.80	73.4087
801.93	66.9022
805.60	63.2214
810.29	72.7891
810.76	78.4751
815.85	52.1023
817.79	77.7378
818.51	87.2428
819.60	85.3813
826.30	89.4010
828.27	73.2872
831.60	74.3323
831.96	72.4356
834.83	83.9631
836.80	0.0000
846.75	88.1682
848.13	86.2954
856.28	0.0000
856.80	76.9531
860.37	77.0527
867.32	80.1449
867.82	90.7825
871.10	62.8497
873.19	87.0886
874.81	81.3299
875.33	0.0000
876.40	91.0648
879.36	64.9766
880.27	75.6691
880.51	75.6749
881.50	63.0846
883.24	80.6048
884.67	77.7305
889.25	62.2859
896.60	85.8666
898.02	78.0996
899.00	91.7992
903.28	83.8330
911.07	87.2834
911.07	87.2834
911.07	87.2834
919.63	70.0828
920.93	83.6449
925.00	82.7777
925.24	90.6681
926.50	82.8208
935.52	93.9563
937.48	87.0912
944.10	105.1408
946.00	90.3202
949.00	103.3271
962.29	102.7888
964.01	106.8433
966.15	92.9296
968.20	86.9915
969.11	85.0187
969.11	85.0187
969.11	85.0187
977.42	75.2216
980.50	92.3661
983.50	79.3915
989.30	84.5763
996.32	83.7599
1001.03	66.7058
1001.68	65.7094
1004.76	78.9293
1021.30	0.0000
1024.50	0.0000
1034.80	71.5107
1036.00	62.3403
1037.82	64.4212
1038.57	66.4822
1038.76	0.0000
1045.16	59.4443
1046.59	70.7486
1048.07	76.9373

1050.47	78.0225
1050.47	78.0225
1062.04	67.9980
1063.62	62.8765
1076.63	83.8239
1077.35	70.3873
1078.86	64.2039
1085.78	77.8308
1099.22	71.8907
1112.02	83.6719
1112.84	61.7224
1115.52	58.6305
1120.29	59.7609
1120.29	59.7609
1120.29	59.7609
1120.29	59.7609
1120.51	52.4243
1121.28	44.0467
1124.00	0.0000
1129.67	50.4633
1131.51	0.0000
1147.95	0.0000
1167.94	54.9185
1173.22	33.7108
1175.09	23.0769
1177.93	26.6492
1189.05	20.3165
1204.90	21.4795
1205.75	20.4111
1213.00	17.2227
1221.42	12.9463
1230.97	25.9605
1235.34	20.5762
1236.41	0.0000
1238.25	15.1737
1246.25	16.2927
1260.41	0.0000
1271.85	17.4977
1274.45	14.2264
1274.54	17.5102
1291.56	14.2905
1298.22	0.0000
1312.09	14.7350
1325.50	9.5052
1325.50	9.5052
1332.49	13.8861
1333.61	9.5248
1360.21	5.5935
1362.66	0.0000
1365.15	11.2007
1368.21	6.5386
1368.53	0.0000
1376.25	13.1034
1384.27	11.2539
1394.10	5.6404
1395.20	8.4631
1407.95	7.5459
1434.06	1.8984
1436.60	9.4979
1457.56	0.0000
1460.81	9.5524
1489.15	7.6927
1509.49	9.6606
1596.49	11.8203
1620.62	8.9117
1678.03	0.0000
1691.02	9.0454
1691.02	9.0454
1706.46	0.0000
1750.46	0.0000
1764.49	5.2469
1764.49	5.2469
1764.49	5.2469
1764.49	5.2469
1770.23	12.2568
1771.40	9.1948
1791.20	0.0000
1808.65	5.1459

1836.01

3.1041

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202037548

Total Uranium Activity	4.1260E-01	ug/g
Total Uranium Counting Unc.	2.7384E+00	ug/g
Total Uranium Tpu	1.3972E-06	ug/g
Total Uranium Mda	2.4080E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 950786                SAMPLE ID   : G1202037548                *
*  ANALYST       : MXR1                  DETECTOR    : GAM17                    *
*  SAMPLE DATE   : 11-FEB-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00          *
*  ANALYSIS DATE : 18-FEB-2010 14:48:04.09  SAMPLE ALQT: 155.440 GRAM          *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.690E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 2.767E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 5.577E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 2.725E+00

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# Radiochemistry Batch Checklist, Rev10

Batch# 953095 Product: H3 Date: 2-23-10

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

Secondary Review Performed By: [Signature] 2/23/10

LANL 3-5-10





T953085

## Tritium Solid

Filename : H9VAC.XLS  
File type : Excel  
Version # : 1.2.6

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

LCS S/N : 0134-K  
LCS Exp Date : 3/27/2010  
LCS Activity (dpm/ml): 2465.92  
LCS Volume Added: 0.10

Batch : 953085  
Analyst : KKK2  
Prep Date : 2/17/2010

Procedure Code : LSC\_VH3S  
Pinnname : Tritium  
Required WDC : 250 pCi/L  
Half-life of Tritium : 12.32 years

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

Pipet, 0.1 ml Stdew : +/- 0.000701 ml  
Pipet, 0.5 ml Stdew : +/- 0.002564 ml  
Pipet, 1.0 ml Stdew : +/- 0.005480 ml  
Pipet, 5.0 ml Stdew : +/- 0.025729 ml

Sample Characteristics		Wet Sample Weight (g)	Total Moisture L	Sample Aliquot in Vial L	Sample Aliquot Stdew. L	Dry Sample Weight (g)	% Moisture of Sample	Flg number	Sample Date/Time
Pos.	Sample ID								
1	246341001.1	458.68	0.0631	0.0100	2.5729E-05	365.55	20.30%	1	2/1/2010 12:00
2	246341002.1	319.80	0.1225	0.0100	2.5729E-05	197.32	38.30%	2	2/1/2010 12:00
3	246341003.1	437.58	0.0628	0.0100	2.5729E-05	344.81	21.20%	3	2/1/2010 12:00
4	246341004.1	386.16	0.0556	0.0100	2.5729E-05	330.55	14.40%	4	2/1/2010 12:00
5	246341005.1	434.27	0.0460	0.0100	2.5729E-05	388.24	10.80%	5	2/1/2010 12:00
6	246341006.1	355.44	0.0981	0.0100	2.5729E-05	257.34	27.60%	6	2/1/2010 12:00
7	246341007.1	415.11	0.0245	0.0100	2.5729E-05	390.62	5.80%	7	2/1/2010 12:00
8	246341008.1	291.44	0.0692	0.0100	2.5729E-05	202.26	30.60%	8	2/1/2010 12:00
9	246341009.1	409.04	0.0851	0.0100	2.5729E-05	323.96	20.80%	9	2/1/2010 12:00
10	246341010.1	296.44	0.0753	0.0100	2.5729E-05	221.14	25.40%	10	2/1/2010 12:00
11	246341011.1	304.50	0.0761	0.0100	2.5729E-05	228.38	25.00%	11	2/1/2010 12:00
12	246341012.1	426.35	0.0222	0.0100	2.5729E-05	404.18	5.20%	12	2/1/2010 12:00
13	246341013.1	504.50	0.0787	0.0100	2.5729E-05	425.80	15.60%	13	2/1/2010 12:00
14	246341014.1	197.52	0.0942	0.0100	2.5729E-05	103.30	47.70%	14	2/1/2010 12:00
15	246444001.1	431.60	0.0777	0.0100	2.5729E-05	363.91	18.00%	15	2/3/2010 12:00
16	246444002.1	335.90	0.0689	0.0100	2.5729E-05	267.04	20.50%	16	2/3/2010 12:00
17	246444003.1	469.19	0.0319	0.0100	2.5729E-05	437.29	8.80%	17	2/3/2010 12:00
18	246444004.1	448.33	0.0735	0.0100	2.5729E-05	374.80	16.40%	18	2/3/2010 12:00
19	246444005.1	285.47	0.0782	0.0100	2.5729E-05	207.25	27.40%	19	2/3/2010 12:00
20	1202042910.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	20	2/1/2010 0:00
21	1202042911.1	458.66	0.0631	0.0100	2.5729E-05	365.55	20.30%	1	2/1/2010 12:00
22	1202042912.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	21	2/1/2010 0:00

Count raw Data			Counting Time (min.)	Quench#	Gross cpm	Background		Count Start Date/Time	Sample Decay	Calibration Data			Detector Efficiency (cpm/dpm)	Detector Error (cpm/dpm)	Backgrounds Count Start Date/Time
Pos.	Rack Position #	Count Time (min.)				cpm	Counted on			Calibration Date	Calibration Due Date				
1	14-2	95	109.5	3.05	3.37	95	2/19/2010 8:55	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00782	14-1	2/19/2010 7:17
2	14-3	95	110.4	3.64	3.37	95	2/19/2010 10:33	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00782	14-1	2/19/2010 7:17
3	14-4	95	110.3	5.34	3.37	95	2/19/2010 12:11	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00782	14-1	2/19/2010 7:17
4	14-5	95	112.7	7.18	3.37	95	2/19/2010 13:49	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2350	0.00782	14-1	2/19/2010 7:17
5	14-6	95	109.5	4.85	3.37	95	2/19/2010 15:27	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00782	14-1	2/19/2010 7:17
6	14-7	95	113	3.65	3.37	95	2/19/2010 17:05	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2348	0.00782	14-1	2/19/2010 7:17
7	14-8	95	109.4	6.92	3.37	95	2/19/2010 18:43	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00782	14-1	2/19/2010 7:17
8	14-8	95	110.1	3.37	3.37	95	2/19/2010 20:21	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2365	0.00782	14-1	2/19/2010 7:17
9	14-10	95	110.4	5.27	3.37	95	2/19/2010 22:00	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2364	0.00782	14-1	2/19/2010 7:17
10	14-11	95	112	5.12	3.37	95	2/19/2010 23:38	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2354	0.00782	14-1	2/19/2010 7:17
11	14-12	95	110.6	4.41	3.37	95	2/20/2010 1:16	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2362	0.00782	14-1	2/19/2010 7:17
12	49-1	95	109.4	3.97	3.37	95	2/20/2010 4:08	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00782	14-1	2/19/2010 7:17
13	49-2	95	108.9	4.44	3.37	95	2/20/2010 5:46	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00782	14-1	2/19/2010 7:17
14	49-3	95	108.7	4.62	3.37	95	2/20/2010 7:24	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2372	0.00782	14-1	2/19/2010 7:17
15	49-4	95	109.5	4.6	3.37	95	2/20/2010 9:02	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2368	0.00782	14-1	2/19/2010 7:17
16	49-5	95	109.2	3.47	3.37	95	2/20/2010 10:40	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2370	0.00782	14-1	2/19/2010 7:17
17	49-6	95	109.9	7.34	3.37	95	2/20/2010 12:18	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2366	0.00782	14-1	2/19/2010 7:17
18	49-7	95	109	5.56	3.37	95	2/20/2010 13:56	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00782	14-1	2/19/2010 7:17
19	49-8	95	109.4	3.85	3.37	95	2/20/2010 15:34	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00782	14-1	2/19/2010 7:17
20	49-9	95	109	3.45	3.37	95	2/20/2010 17:12	0.999	LSCBROWN	9/9/2009	9/30/2010	0.2371	0.00782	14-1	2/19/2010 7:17
21	49-10	95	108.1	3.45	3.37	95	2/20/2010 18:50	0.997	LSCBROWN	9/9/2009	9/30/2010	0.2375	0.00782	14-1	2/19/2010 7:17
22	20-1	15	109.4	30.13	3.37	95	2/20/2010 20:27	0.999	LSCBROWN	9/9/2009	9/30/2010	0.2369	0.00782	14-1	2/19/2010 7:17

## Notes:

- 1- Results are decay corrected to Sample Date/Time
- 2- Reference date for Spike Activity (d0mvm) is the batch Prep Date
- 3- Spike Nominals are decay corrected to Sample Date/Time

\* - RPD changed to 0% due to activity below MDC for 1202042911.1

Pos.	Results		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
	Decision Level	pCi/L				pCi/L		CPM	CPM	Counting Uncertainty	Total Prop. Uncertainty						
1	118.3672	83.5682	250	173.1583	173.1583	83.4029	0.971	0.280	0.272	51.8458	51.9791	SAMPLE					
2	118.6066	83.7373	250	173.5096	173.5096	81.5969	1.006	0.270	0.272	51.9137	52.0379	SAMPLE					
3	118.5804	83.7188	250	173.4713	173.4713	81.5969	1.006	0.270	0.272	51.9137	52.0379	SAMPLE					
4	119.3080	84.2325	250	174.5357	174.5357	732.4374	0.088	3.810	0.333	84.0634	81.8925	SAMPLE					
5	118.3721	83.5717	250	173.1666	173.1666	282.2845	0.199	1.480	0.284	56.1047	59.4497	SAMPLE					
6	119.4111	84.3053	250	174.6965	174.6965	83.8739	0.971	0.280	0.272	52.3031	52.4375	SAMPLE					
7	118.3494	83.5557	250	173.1333	173.1333	678.9713	0.093	3.550	0.329	82.7807	78.4982	SAMPLE					
8	118.5324	83.6949	250	173.4011	173.4011	0.000E+00	0.000	0.000	0.286	50.8723	50.8725	SAMPLE					
9	118.6153	83.7434	250	173.5224	173.5224	363.1368	0.159	1.900	0.302	57.6384	82.9432	SAMPLE					
10	119.0692	84.0780	250	174.2156	174.2156	336.8044	0.171	1.750	0.289	57.3641	61.9487	SAMPLE					
11	118.6734	83.7845	250	173.6074	173.6074	198.8670	0.275	1.040	0.286	54.7214	56.4471	SAMPLE					
12	118.3555	83.5607	250	173.1438	173.1438	114.4246	0.463	0.600	0.278	53.0066	53.8063	SAMPLE					
13	118.2354	83.4752	250	172.9666	172.9666	203.8483	0.268	1.070	0.287	54.6245	56.4394	SAMPLE					
14	118.1894	83.4428	250	172.8984	172.8984	238.0480	0.232	1.250	0.290	55.2289	57.6637	SAMPLE					
15	118.3480	83.5554	250	173.1328	173.1328	234.5555	0.236	1.230	0.280	55.2342	57.5894	SAMPLE					
16	118.2753	83.5034	250	173.0250	173.0250	18.0577	2.683	0.100	0.268	51.1371	51.1544	SAMPLE					
17	118.4549	83.6301	250	173.2876	173.2876	757.7384	0.085	3.970	0.336	64.0858	83.0190	SAMPLE					
18	118.2291	83.4708	250	172.9574	172.9574	417.2002	0.140	2.190	0.307	58.4069	65.2355	SAMPLE					
19	118.3287	83.5411	250	173.1032	173.1032	91.5182	0.574	0.490	0.276	52.5821	52.9472	SAMPLE					
20	117.9860	83.2991	250	172.6017	172.6017	15.2089	3.349	0.080	0.288	50.9374	50.9484	SAMPLE					
21	118.0626	83.3532	250	172.7138	172.7138	15.2187	3.349	0.080	0.288	50.9705	50.9815	MB		0.0%	0.1854	5553.8768	81.7%
22	228.1177	159.6410	250	357.3365	357.3365	5091.8778	0.054	26.760	1.430	272.0384	446.9476	DUP					
												LCS					

Instrument Type LS 6000  
 Data Capture Date 19 Feb 2010 07:14:54  
 User Filename C:\LSCCAPTURE\BROWN\USER13\UN021901.BSF

User Number 13  
 User Id TRITIUM  
 User Comments BROWN

Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	14-1	95.00	110.1	3.61	3.37	11.58	0.57	97.57
2	14-2	95.00	109.5	3.92	3.65	11.12	0.66	195.66
3	14-3	95.00	110.4	3.91	3.64	11.13	0.63	293.75
4	14-4	95.00	110.3	5.59	5.34	9.09	0.57	391.82
5	14-5	95.00	112.7	7.40	7.18	7.78	0.49	489.87
6	14-6	95.00	109.5	5.07	4.85	9.52	0.55	587.93
7	14-7	95.00	113.0	3.87	3.65	11.06	0.56	685.98
8	14-8	95.00	109.4	7.13	6.92	7.92	0.49	784.03
9	14-9	95.00	110.1	3.59	3.37	11.54	0.56	882.09
10	14-10	95.00	110.4	5.53	5.27	9.15	0.59	980.17
11	14-11	95.00	112.0	5.33	5.12	9.26	0.49	1078.20
12	14-12	95.00	110.6	4.61	4.41	9.99	0.50	1176.24

Instrument Type LS 6000  
 Data Capture Date 20 Feb 2010 04:05:38  
 User Filename C:\LSCCAPTURE\BROWN\USER13\UN022001.BSF

User Number 13  
 User Id TRITIUM  
 User Comments BROWN

Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	49-1	95.00	109.4	4.15	3.97	10.53	0.44	97.54
2	49-2	95.00	108.9	4.62	4.44	9.93	0.43	195.55
3	49-3	95.00	108.7	4.79	4.62	9.72	0.40	293.55
4	49-4	95.00	109.5	4.78	4.60	9.75	0.44	391.58
5	49-5	95.00	109.2	3.65	3.47	11.29	0.42	489.60
6	49-6	95.00	109.9	7.49	7.34	7.66	0.37	587.60
7	49-7	95.00	109.0	5.72	5.56	8.83	0.40	685.62
8	49-8	95.00	109.4	4.03	3.85	10.69	0.45	783.63
9	49-9	95.00	109.0	3.63	3.45	11.33	0.43	881.64
10	49-10	95.00	108.1	3.64	3.45	11.34	0.44	979.66

Filename: 2:02 PMab

Instrument Type LS 6000  
Data Capture Date 20 Feb 2010 20:26:15  
User Filename C:\LSCCAPTURE\BROWN\USER06\UN022001.BSF

User Number 6  
User Id TRITIUM  
User Comments BROWN

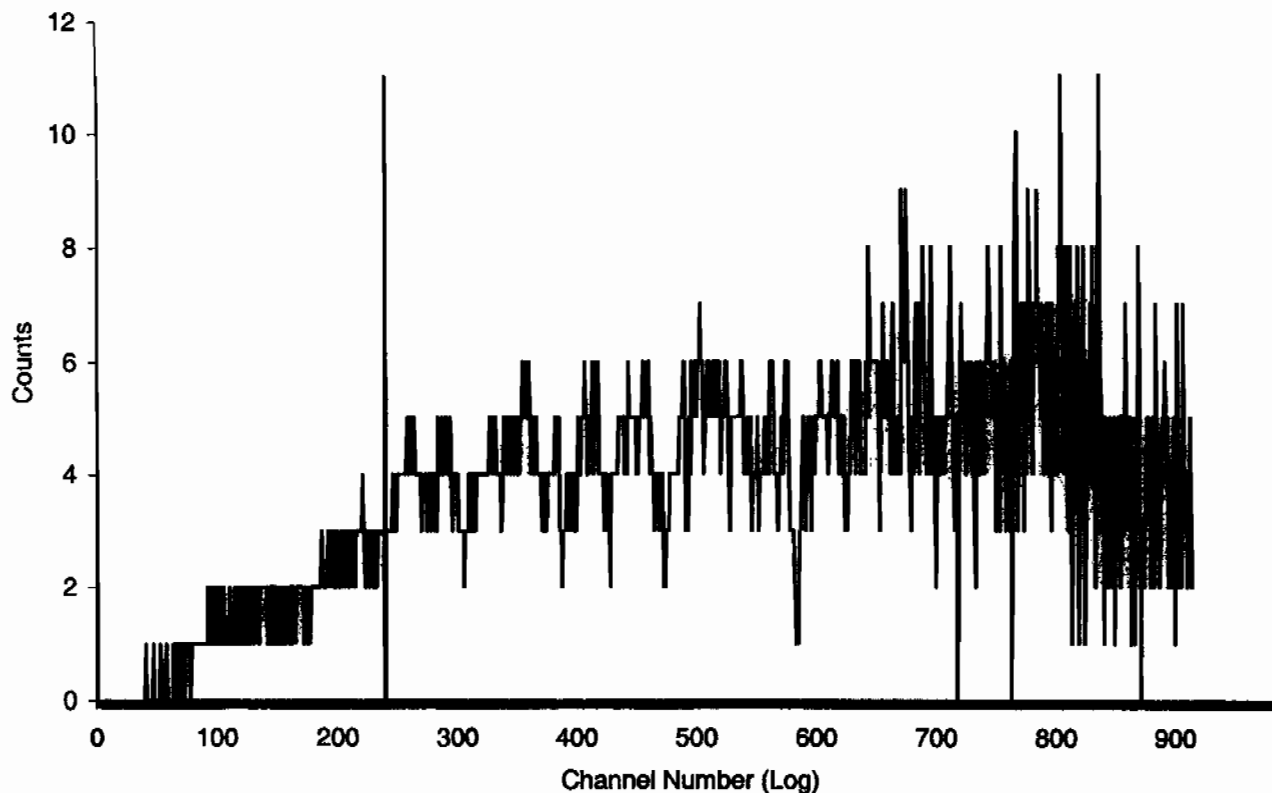
Scintillator Choice: LIQUID

Sam	Rack	Time	H#	Raw CPM1	CPM Iso1	%Err1	LumEx	EITime
1	20-1	15.00	109.4	30.20	30.13	9.42	0.21	15.78

Sample Count Start Time:	19 Feb 2010 07:17:28		
Data Capture Date	19 Feb 2010 08:52:36		
User Filename	S13021914-1A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	14-1	95.00
H#, Total Counts:	110.1	3393	
Win1: Tritium - Start, End, Counts:	0	240	320
Win2: - Start, End, Counts:	0	990	3393

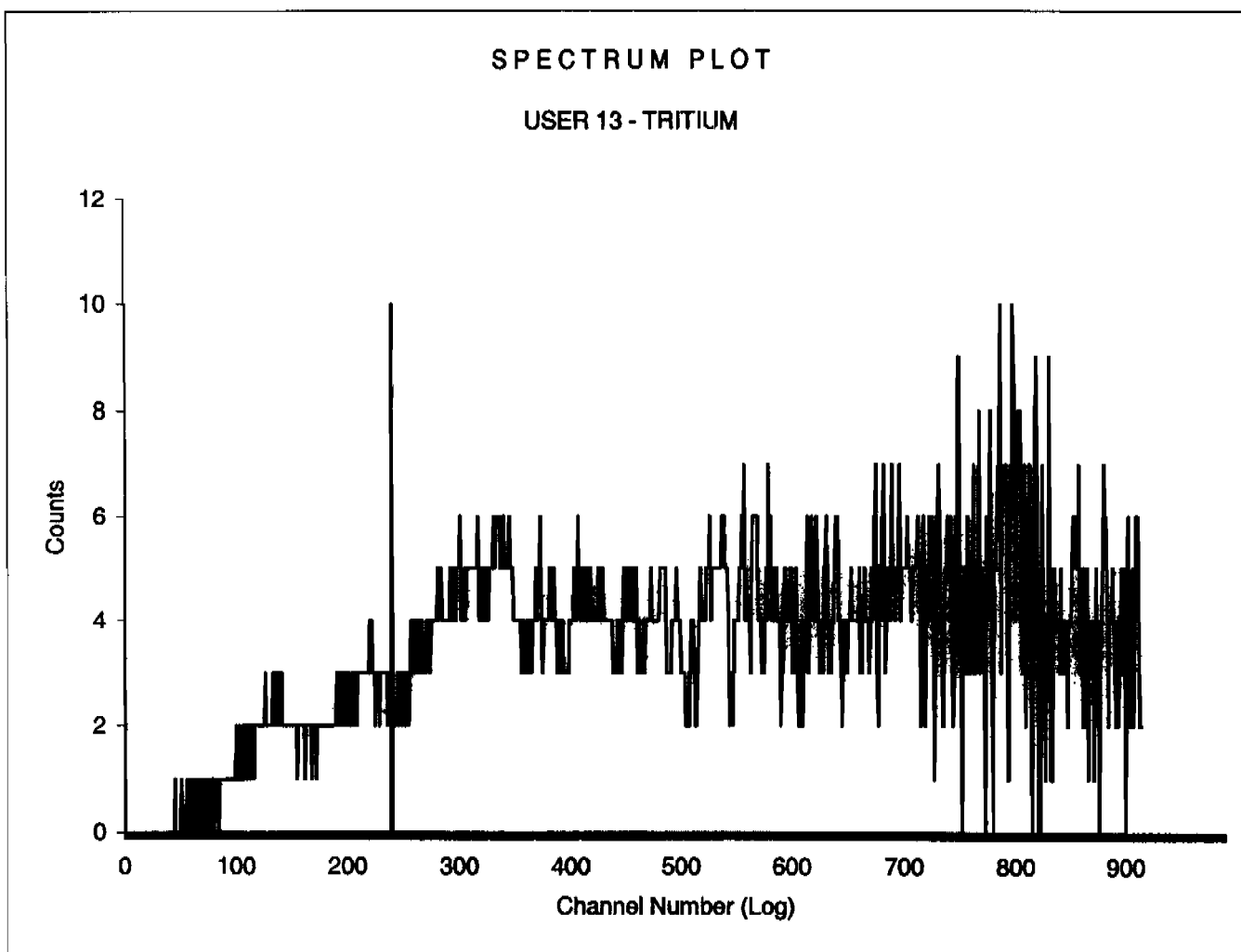
# SPECTRUM PLOT

USER 13 - TRITIUM





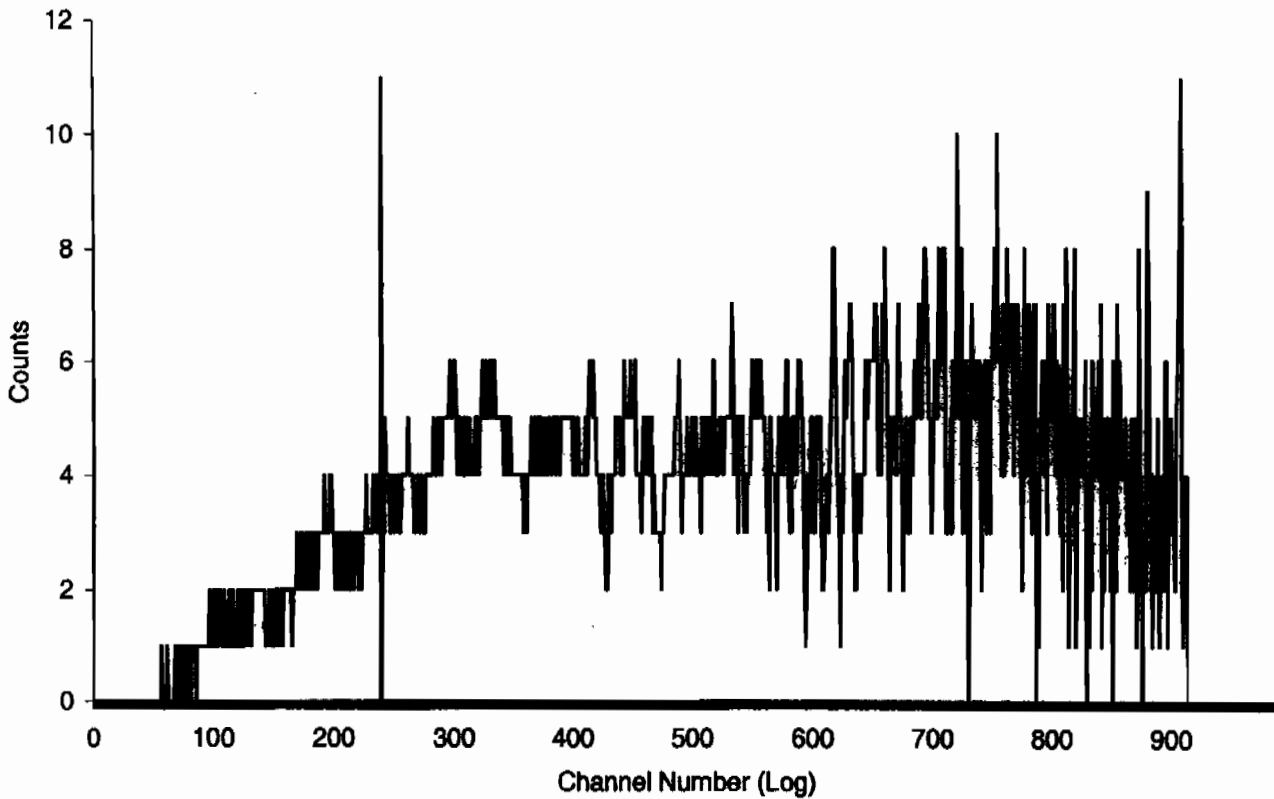
Sample Count Start Time:	19 Feb 2010 08:55:34		
Data Capture Date	19 Feb 2010 10:30:41		
User Filename	S13021914-2A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	14-2	95.00
H#, Total Counts:	109.5	3215	
Win1: Tritium - Start, End, Counts:	0	240	347
Win2: - Start, End, Counts:	0	990	3215



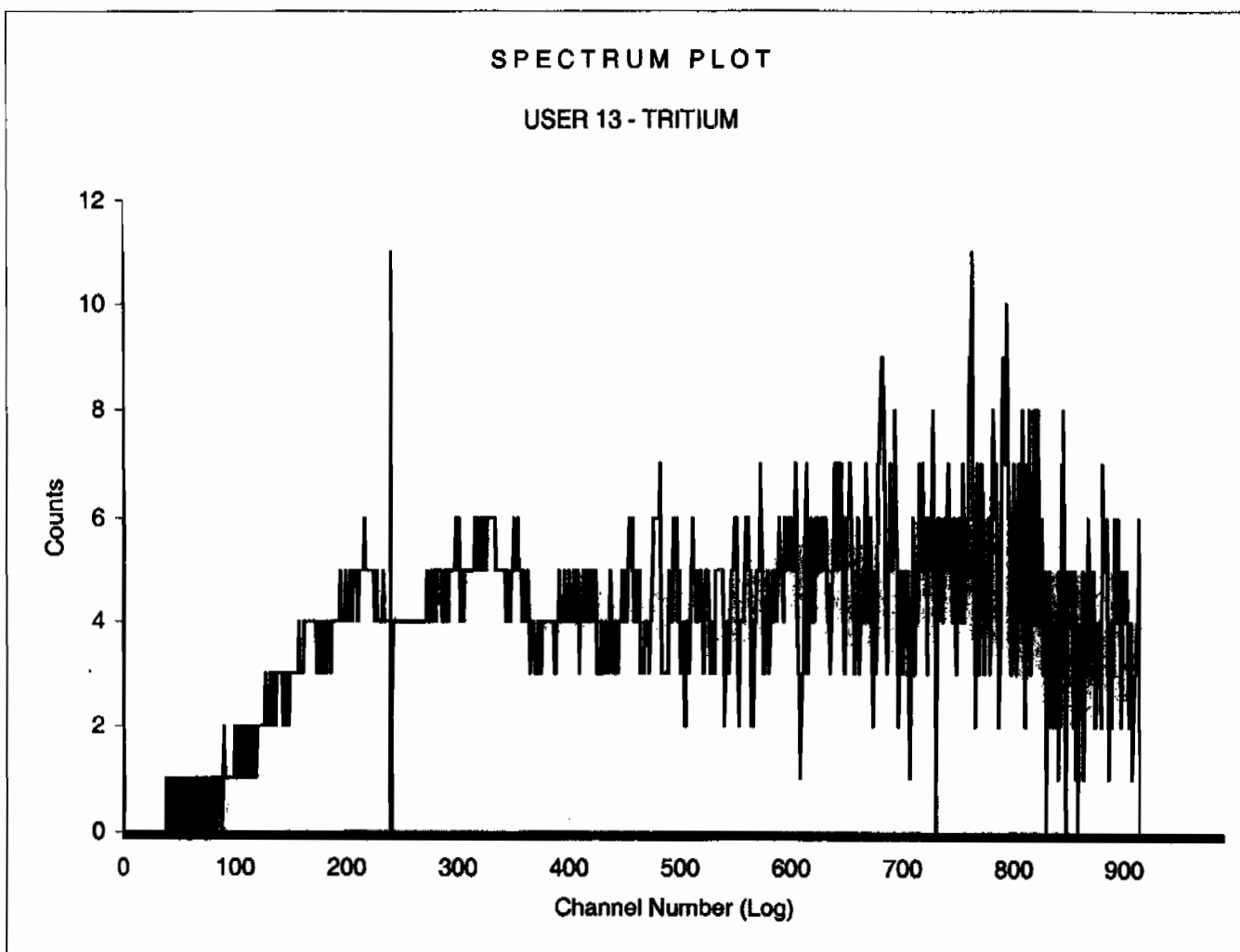
Sample Count Start Time:	19 Feb 2010 10:33:39		
Data Capture Date	19 Feb 2010 12:09:01		
User Filename	S13021914-3A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	14-3	95.00
H#, Total Counts:	110.4	3392	
Win1: Tritium - Start, End, Counts:	0	240	346
Win2: - Start, End, Counts:	0	990	3392

# SPECTRUM PLOT

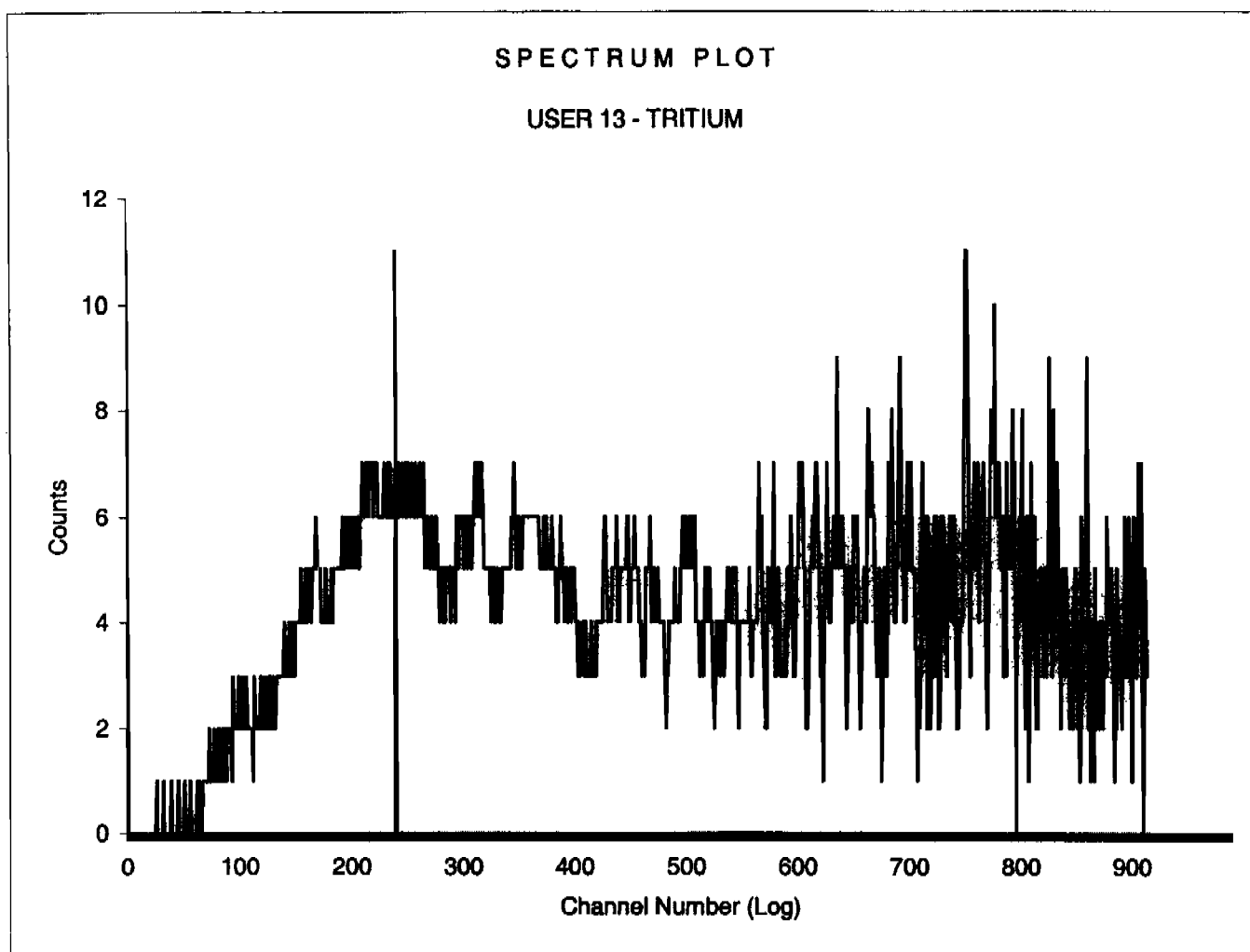
USER 13 - TRITIUM



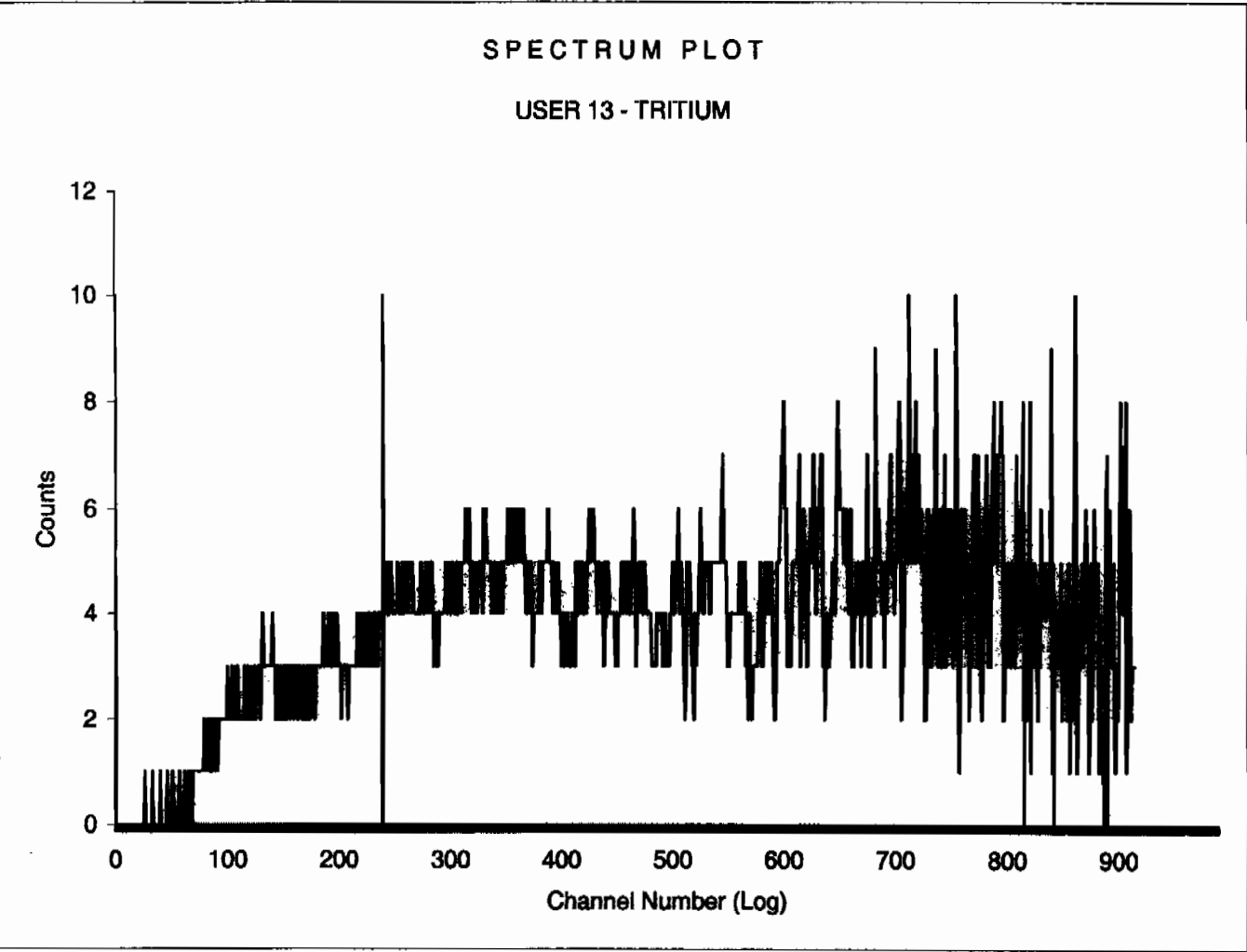
Sample Count Start Time:	19 Feb 2010 12:11:43		
Data Capture Date	19 Feb 2010 13:46:51		
User Filename	S13021914-4A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	14-4	95.00
H#, Total Counts:	110.3	3587	
Win1: Tritium - Start, End, Counts:	0	240	507
Win2: - Start, End, Counts:	0	990	3587



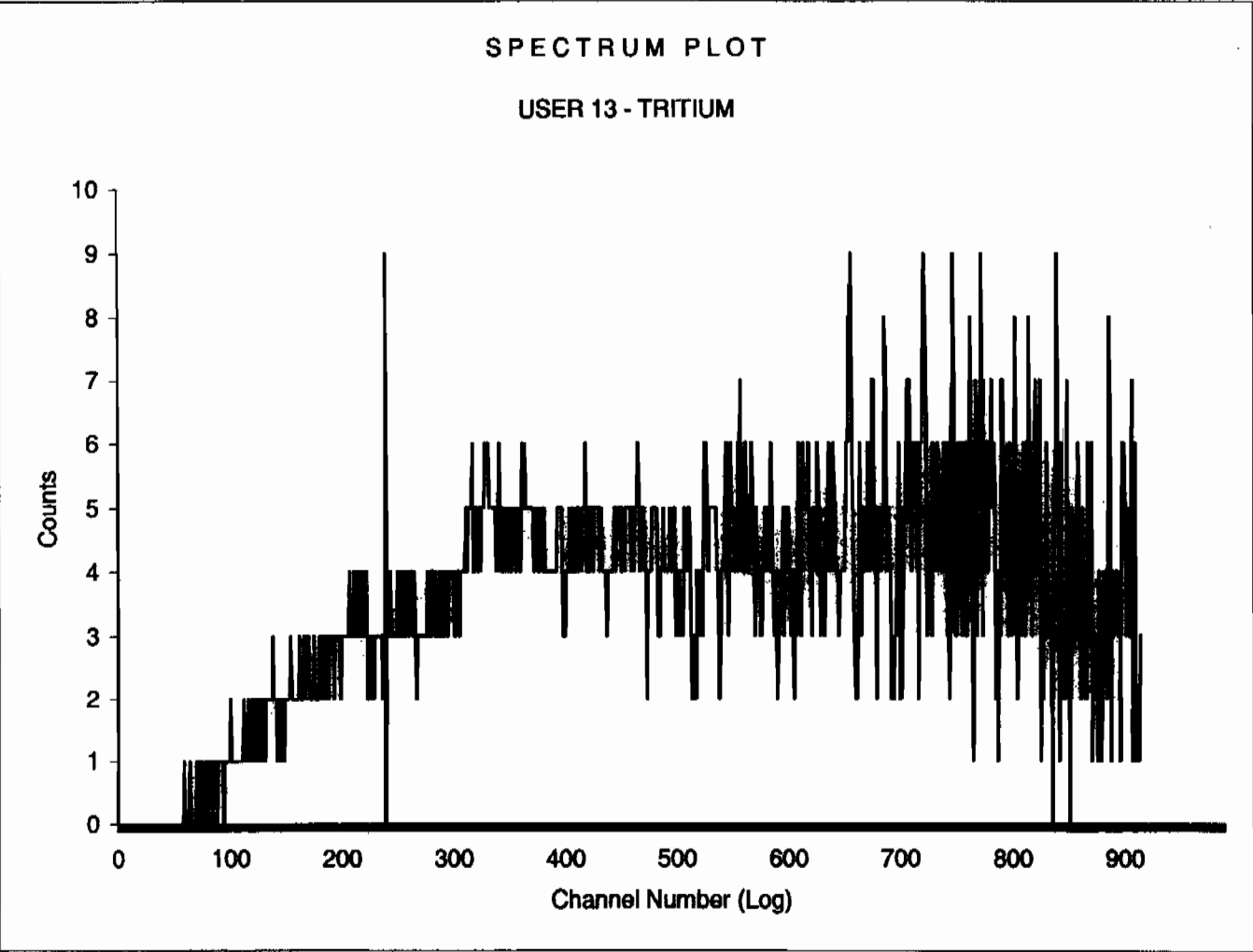
Sample Count Start Time:	19 Feb 2010 13:49:46		
Data Capture Date	19 Feb 2010 15:24:54		
User Filename	S13021914-5A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	14-5	95.00
H#, Total Counts:	112.7	3867	
Win1: Tritium - Start, End, Counts:	0	240	682
Win2: - Start, End, Counts:	0	990	3867



Sample Count Start Time:	19 Feb 2010 15:27:50		
Data Capture Date	19 Feb 2010 17:02:57		
User Filename	S13021914-6A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	14-6	95.00
H#, Total Counts:	109.5	3475	
Win1: Tritium - Start, End, Counts:	0	240	461
Win2: - Start, End, Counts:	0	990	3475



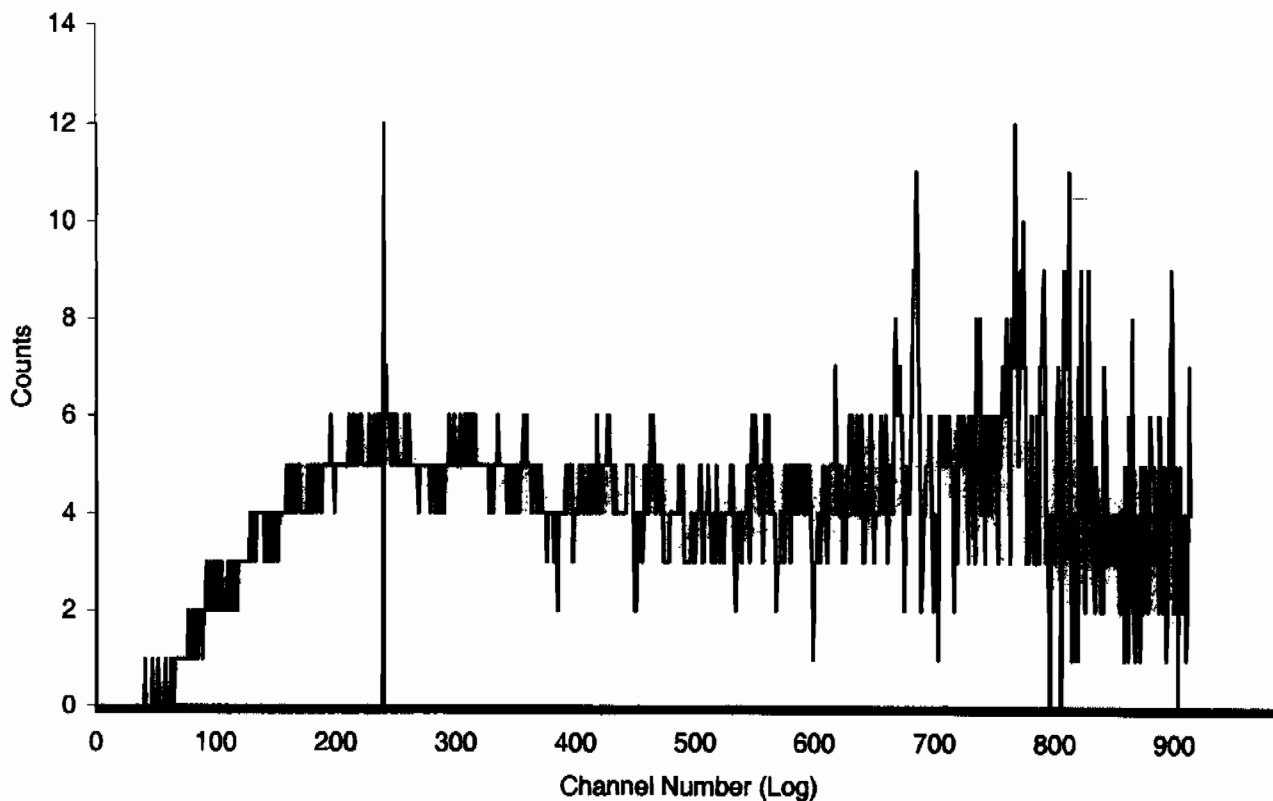
Sample Count Start Time:	19 Feb 2010 17:05:53		
Data Capture Date	19 Feb 2010 18:41:01		
User Filename	S13021914-7A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	14-7	95.00
H#, Total Counts:	113.0	3258	
Win1: Tritium - Start, End, Counts:	0	240	347
Win2: - Start, End, Counts:	0	990	3258



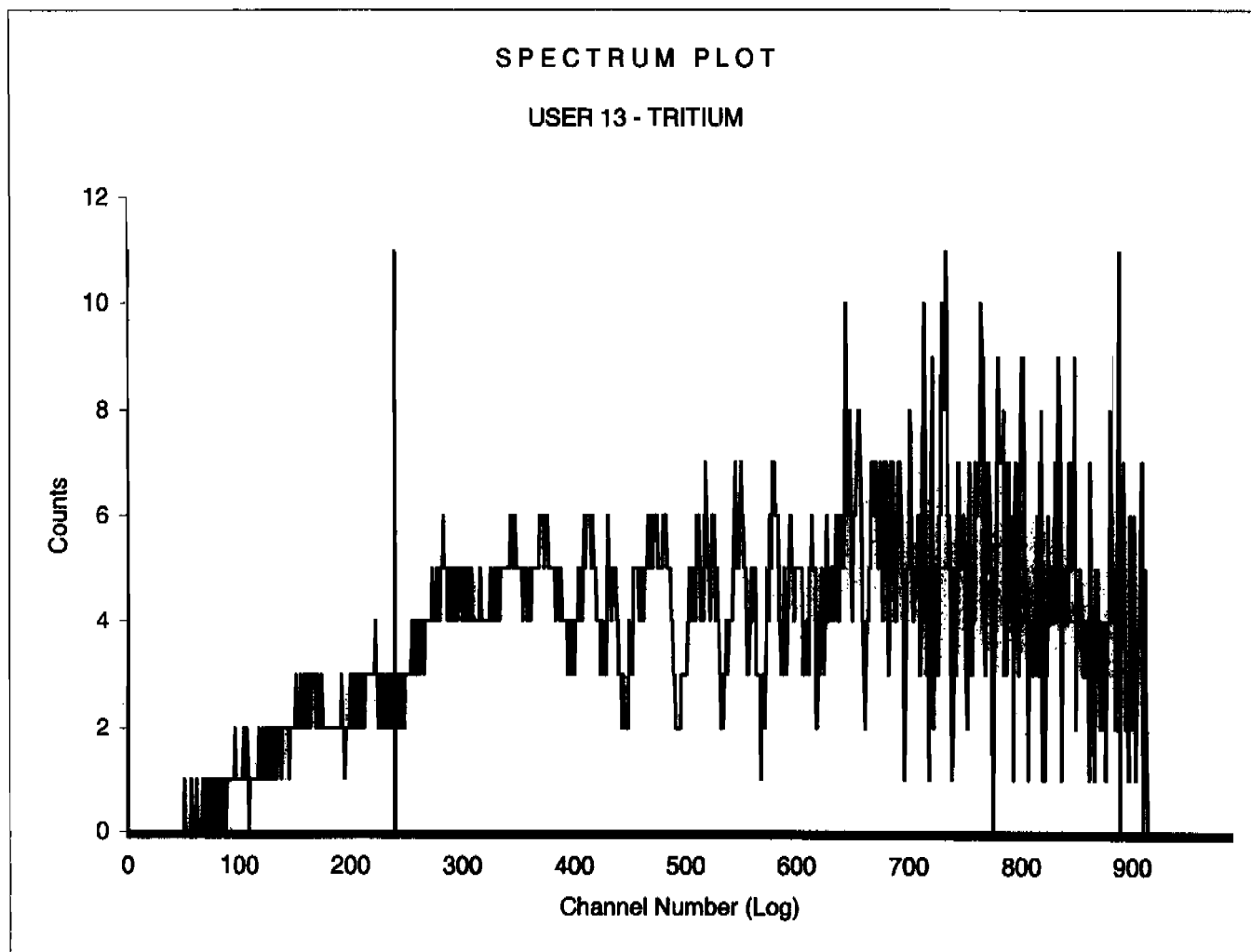
Sample Count Start Time:	19 Feb 2010 18:43:56		
Data Capture Date	19 Feb 2010 20:19:04		
User Filename	S13021914-8A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	14-8	95.00
H#, Total Counts:	109.4	3737	
Win1: Tritium - Start, End, Counts:	0	240	657
Win2: - Start, End, Counts:	0	990	3737

# SPECTRUM PLOT

USER 13 - TRITIUM

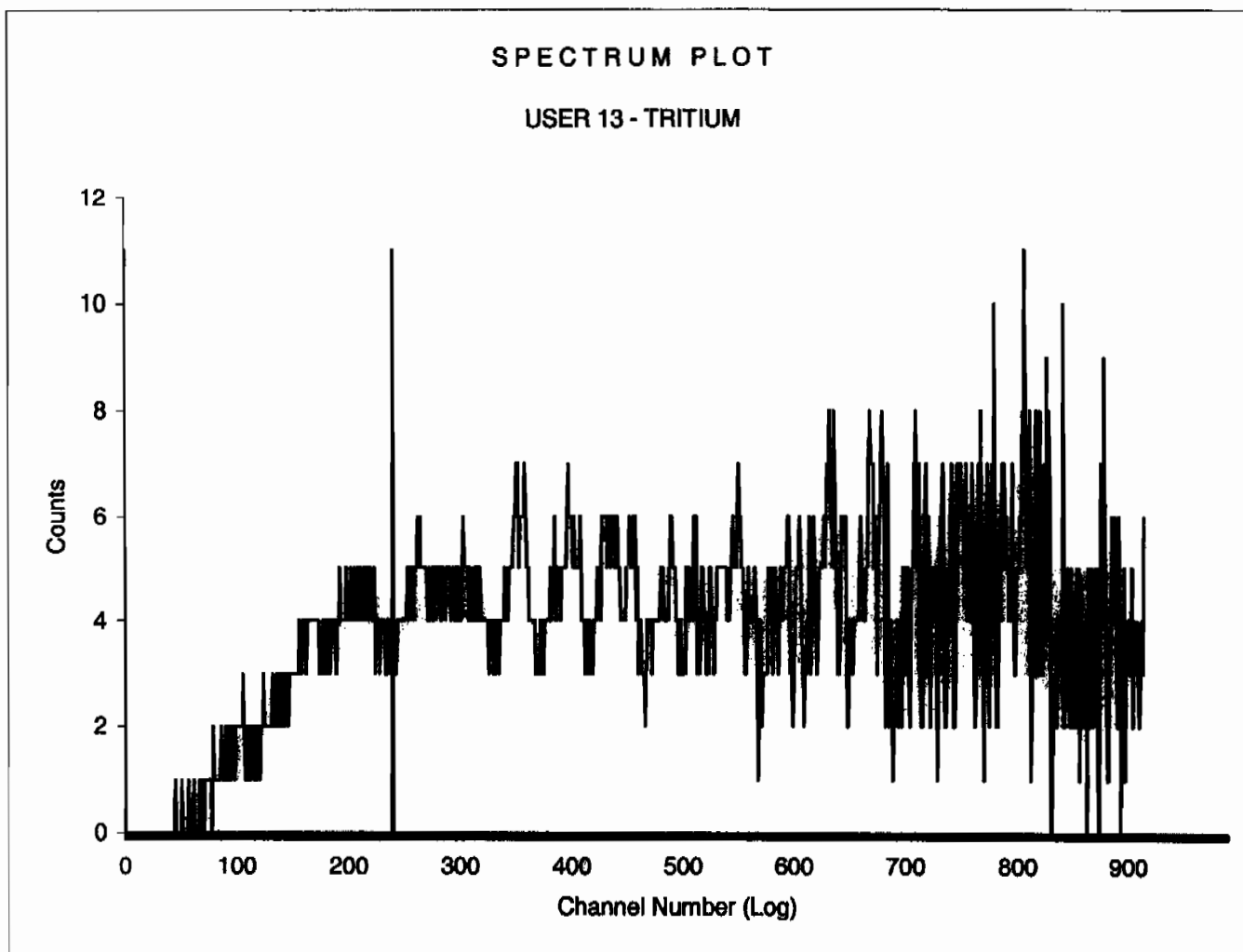


Sample Count Start Time:	19 Feb 2010 20:21:59		
Data Capture Date	19 Feb 2010 21:57:08		
User Filename	S13021914-9A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	14-9	95.00
H#, Total Counts:	110.1	3447	
Win1: Tritium - Start, End, Counts:	0	240	320
Win2: - Start, End, Counts:	0	990	3447

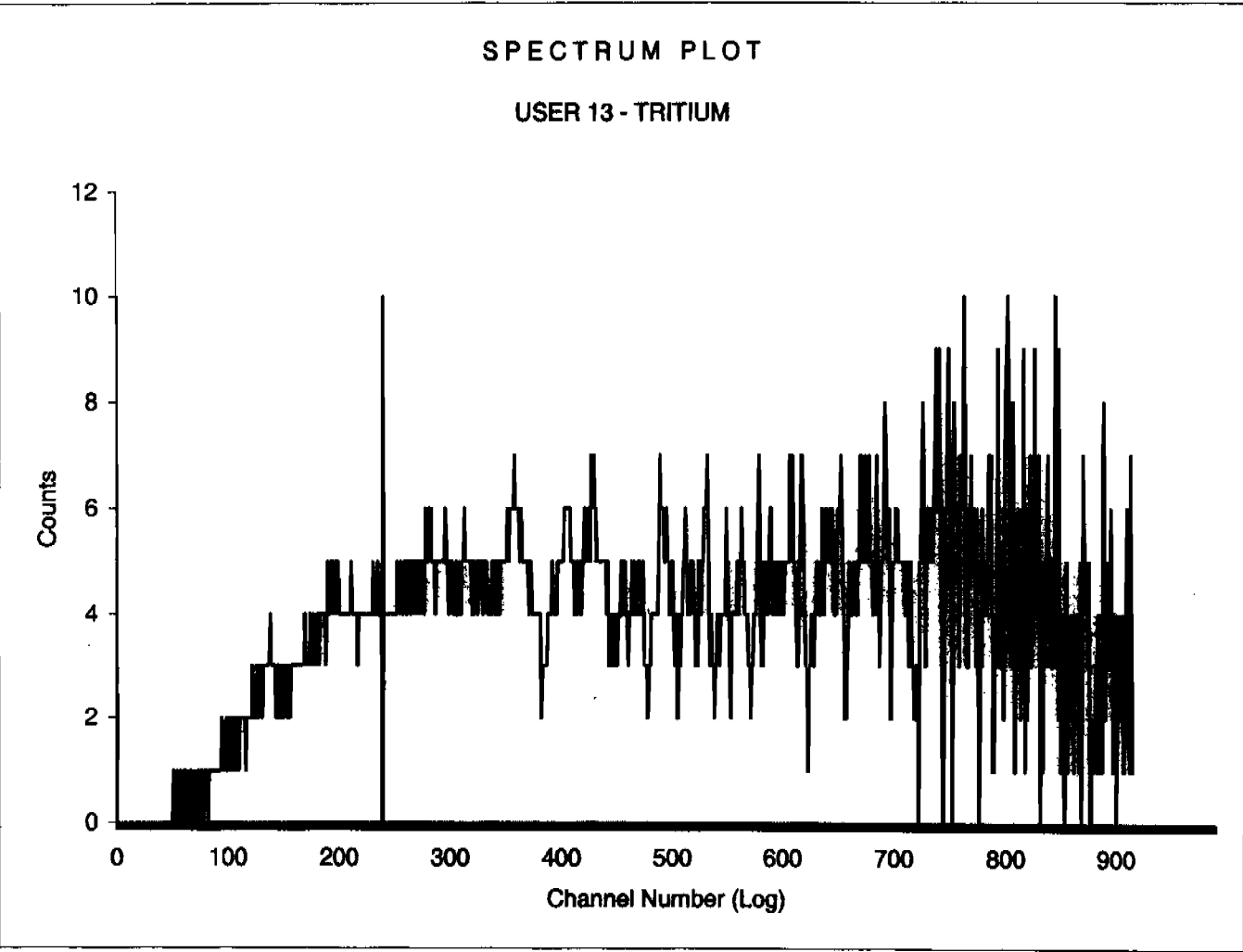




Sample Count Start Time:	19 Feb 2010 22:00:04		
Data Capture Date	19 Feb 2010 23:35:13		
User Filename	S13021914-10A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	14-10	95.00
H#, Total Counts:	110.4	3511	
Win1: Tritium - Start, End, Counts:	0	240	501
Win2: - Start, End, Counts:	0	990	3511



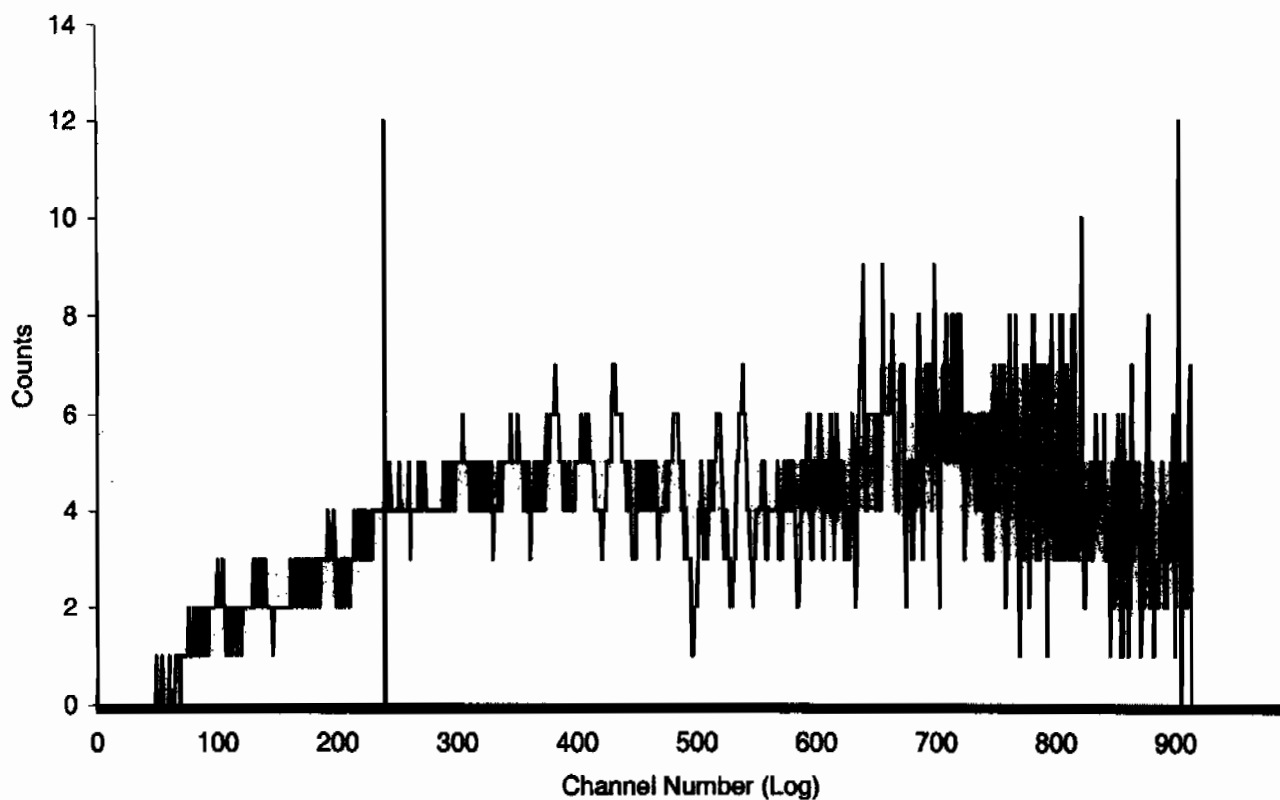
Sample Count Start Time:	19 Feb 2010 23:38:06		
Data Capture Date	20 Feb 2010 01:13:15		
User Filename	S13022014-11A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	11	14-11	95.00
H#, Total Counts:	112.0	3536	
Win1: Tritium - Start, End, Counts:	0	240	486
Win2: - Start, End, Counts:	0	990	3536



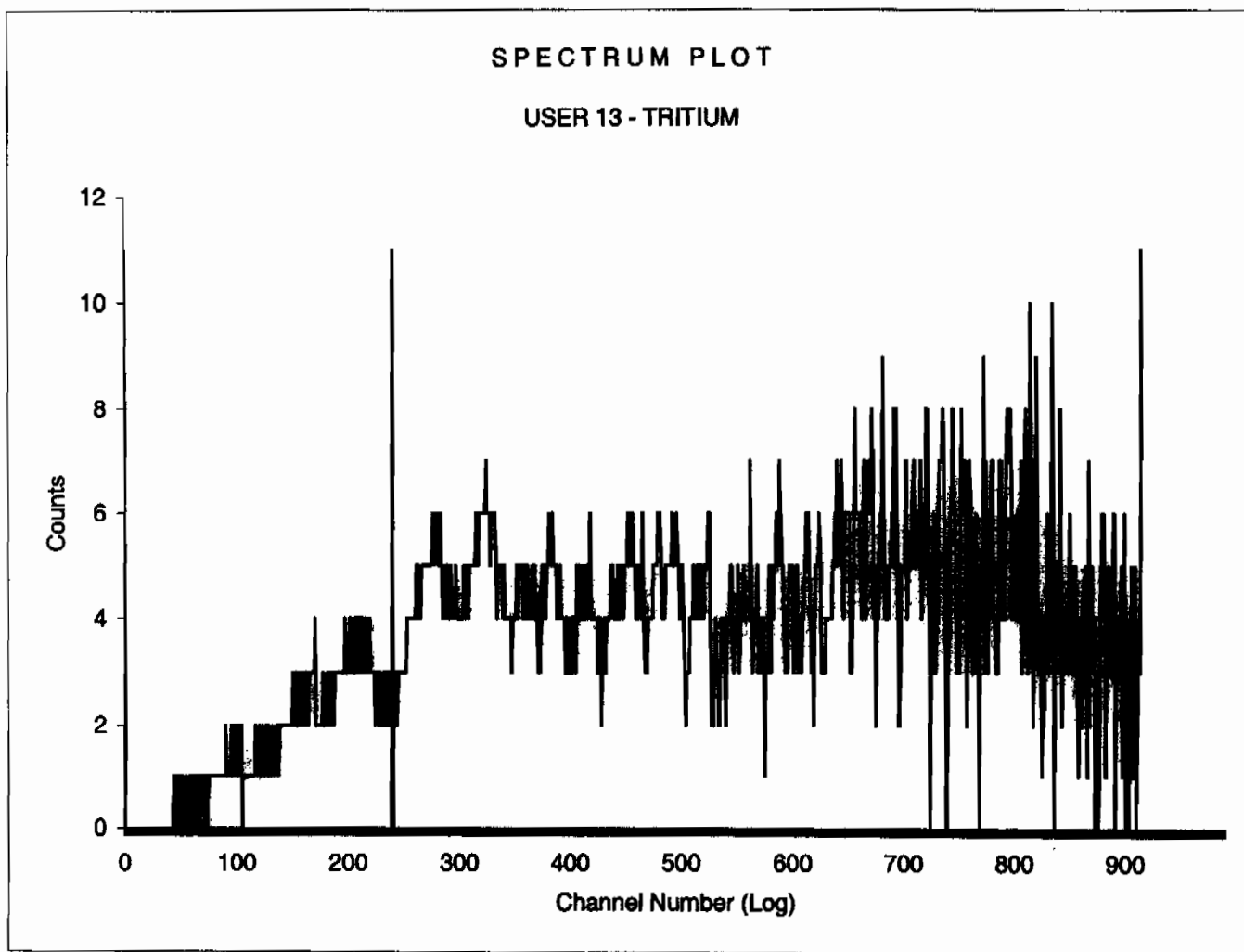
Sample Count Start Time:	20 Feb 2010 01:16:08		
Data Capture Date	20 Feb 2010 02:51:17		
User Filename	S13022014-12A.XLS		
	U13021914-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	12	14-12	95.00
H#, Total Counts:	110.6	3543	
Win1: Tritium - Start, End, Counts:	0	240	419
Win2: - Start, End, Counts:	0	990	3543

### SPECTRUM PLOT

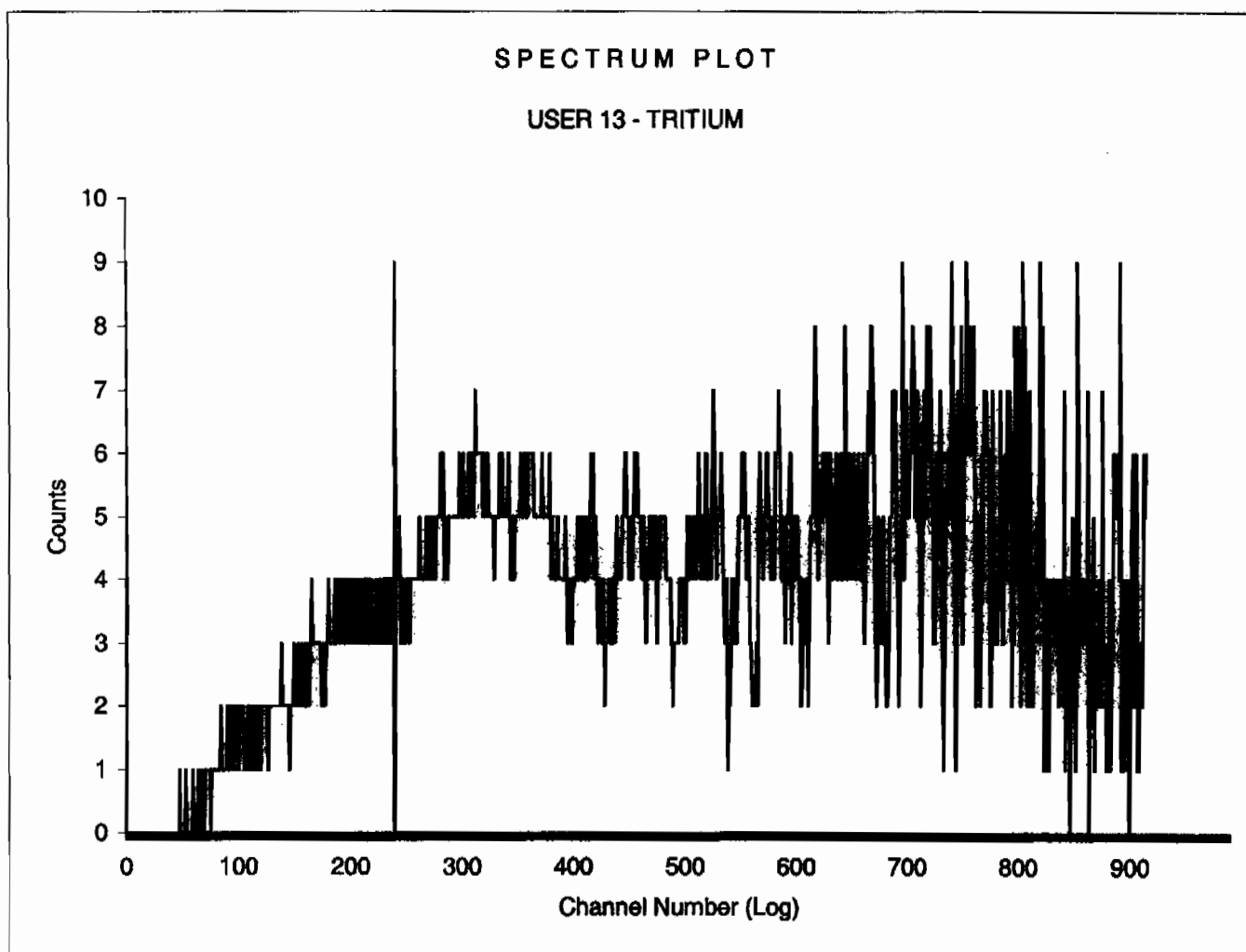
USER 13 - TRITIUM



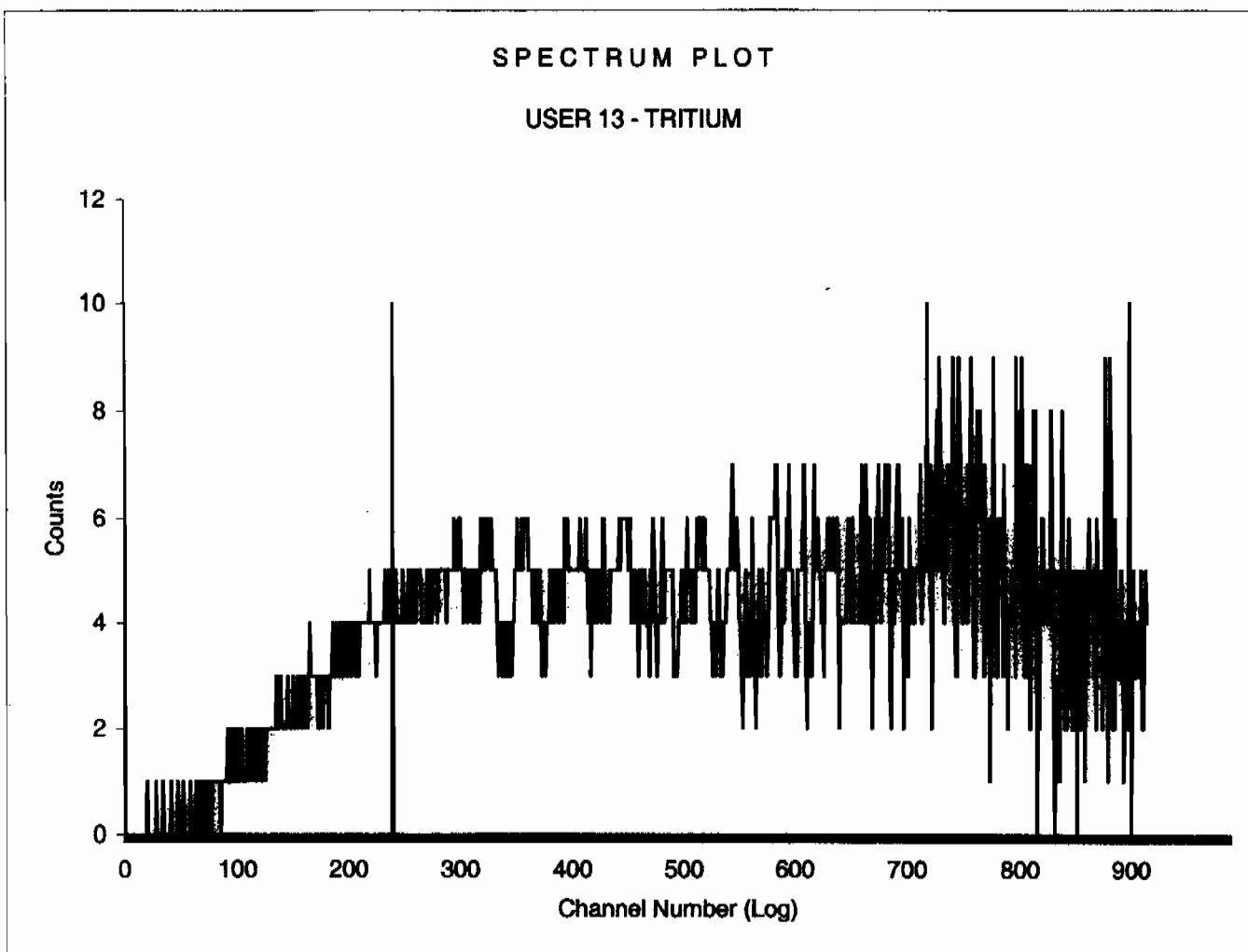
Sample Count Start Time:	20 Feb 2010 04:08:10		
Data Capture Date	20 Feb 2010 05:43:02		
User Filename	S13022049-1A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	49-1	95.00
H#, Total Counts:	109.4	3414	
Win1: Tritium - Start, End, Counts:	0	240	377
Win2: - Start, End, Counts:	0	990	3414



Sample Count Start Time:	20 Feb 2010 05:46:11		
Data Capture Date	20 Feb 2010 07:21:03		
User Filename	S13022049-2A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	49-2	95.00
H#, Total Counts:	108.9	3493	
Win1: Tritium - Start, End, Counts:	0	240	422
Win2: - Start, End, Counts:	0	990	3493



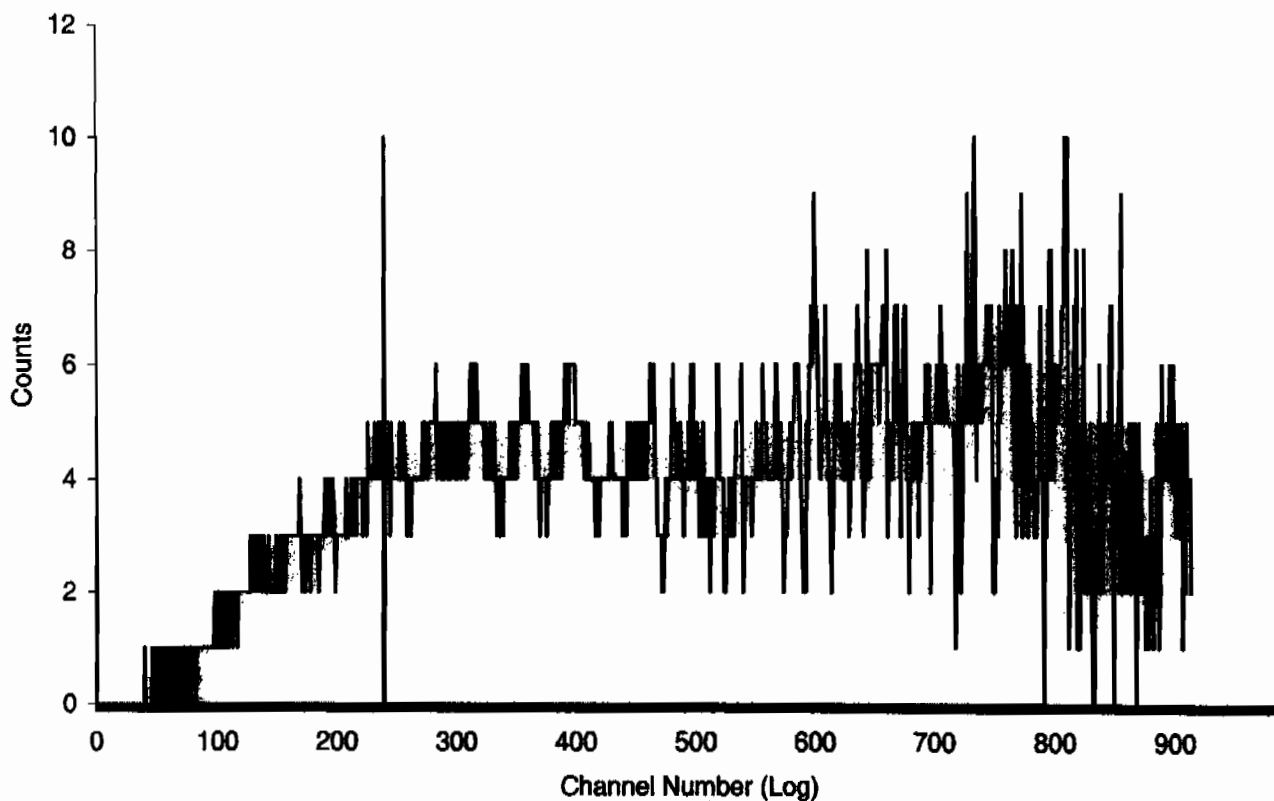
Sample Count Start Time:	20 Feb 2010 07:24:11		
Data Capture Date	20 Feb 2010 08:59:04		
User Filename	S13022049-3A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	49-3	95.00
H#, Total Counts:	108.7	3607	
Win1: Tritium - Start, End, Counts:	0	240	439
Win2: - Start, End, Counts:	0	990	3607



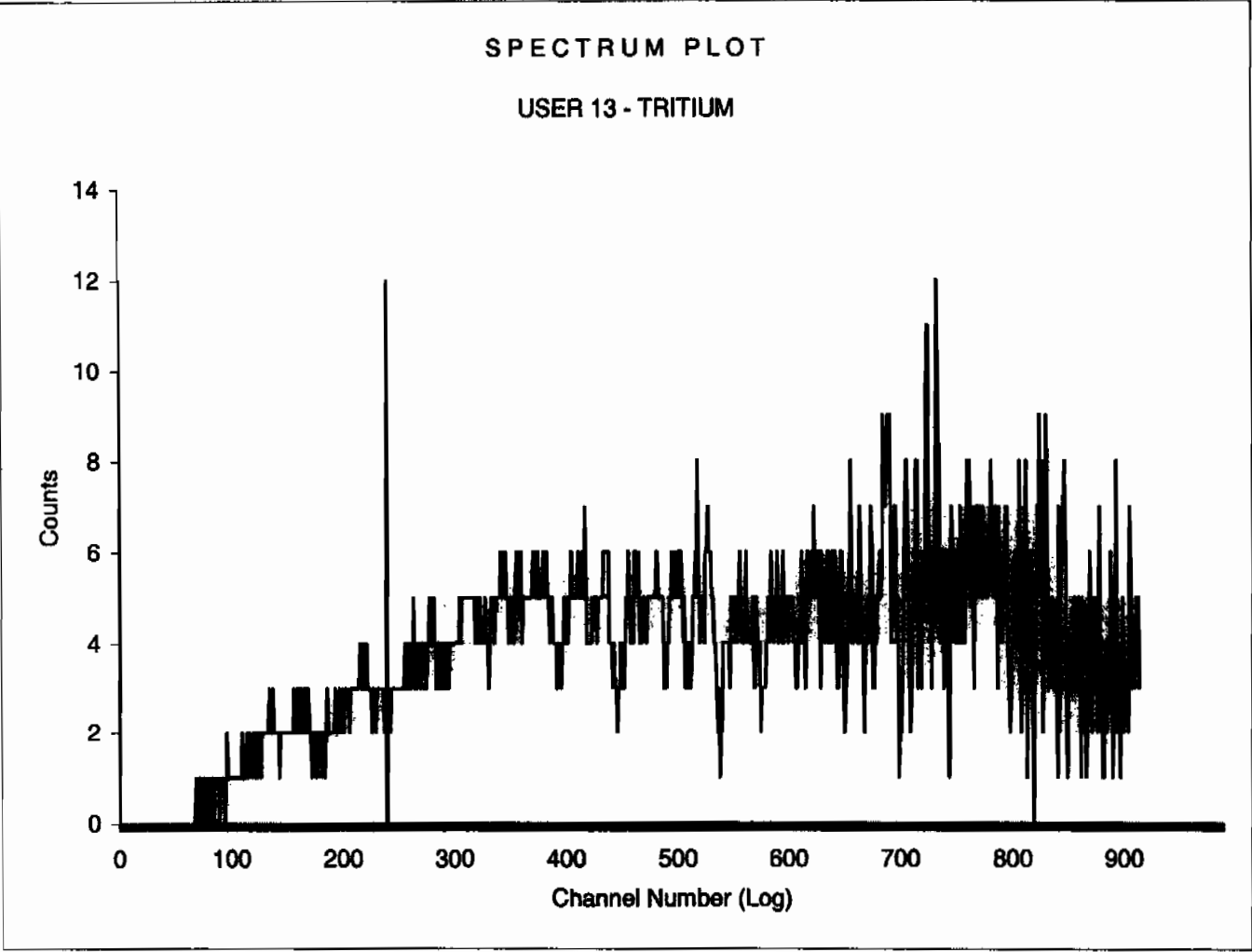
Sample Count Start Time:	20 Feb 2010 09:02:13		
Data Capture Date	20 Feb 2010 10:37:06		
User Filename	S13022049-4A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	49-4	95.00
H#, Total Counts:	109.5	3486	
Win1: Tritium - Start, End, Counts:	0	240	437
Win2: - Start, End, Counts:	0	990	3486

# SPECTRUM PLOT

USER 13 - TRITIUM

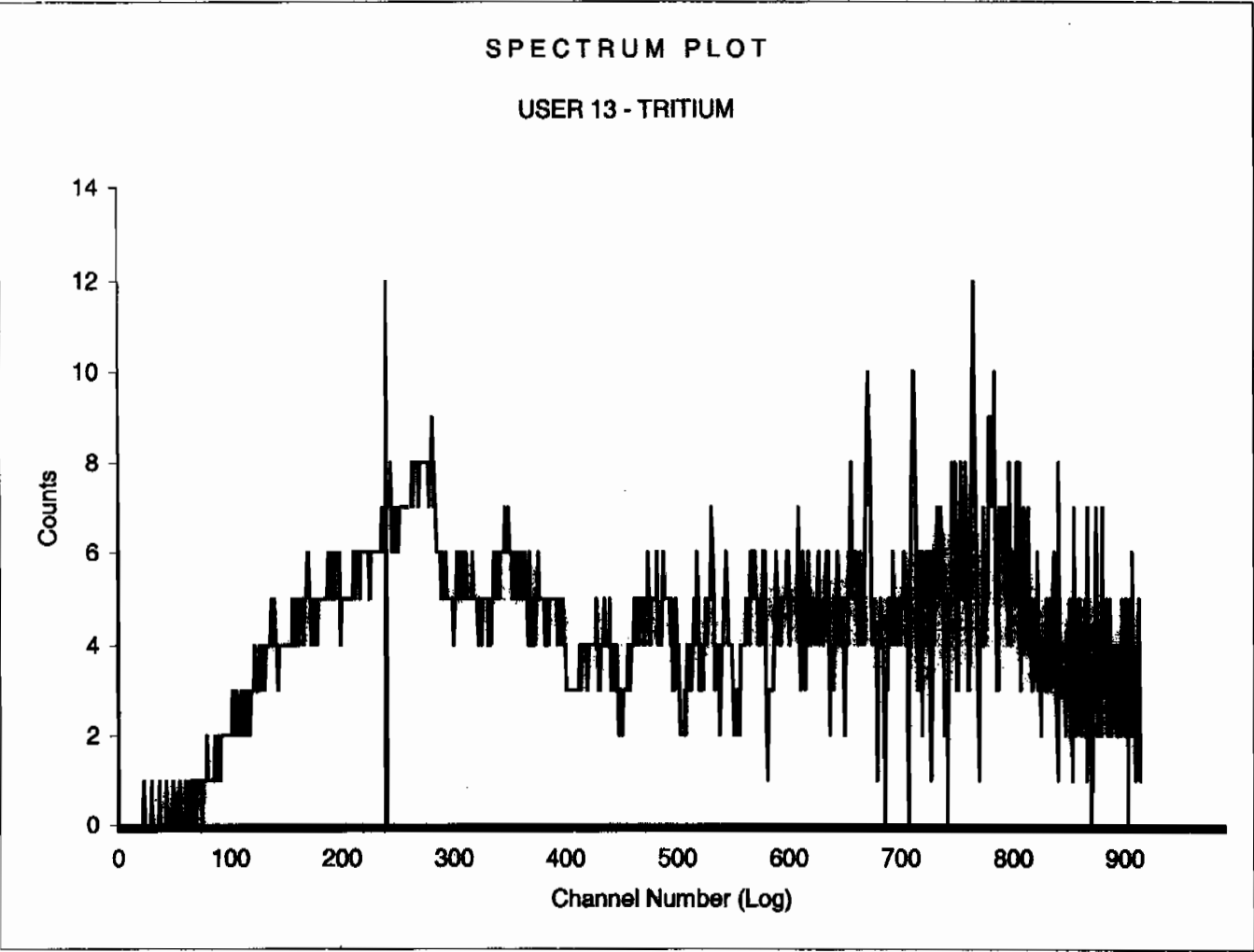


Sample Count Start Time:	20 Feb 2010 10:40:14		
Data Capture Date	20 Feb 2010 12:15:06		
User Filename	S13022049-5A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	5	49-5	95.00
H#, Total Counts:	109.2	3464	
Win1: Tritium - Start, End, Counts:	0	240	330
Win2: - Start, End, Counts:	0	990	3464

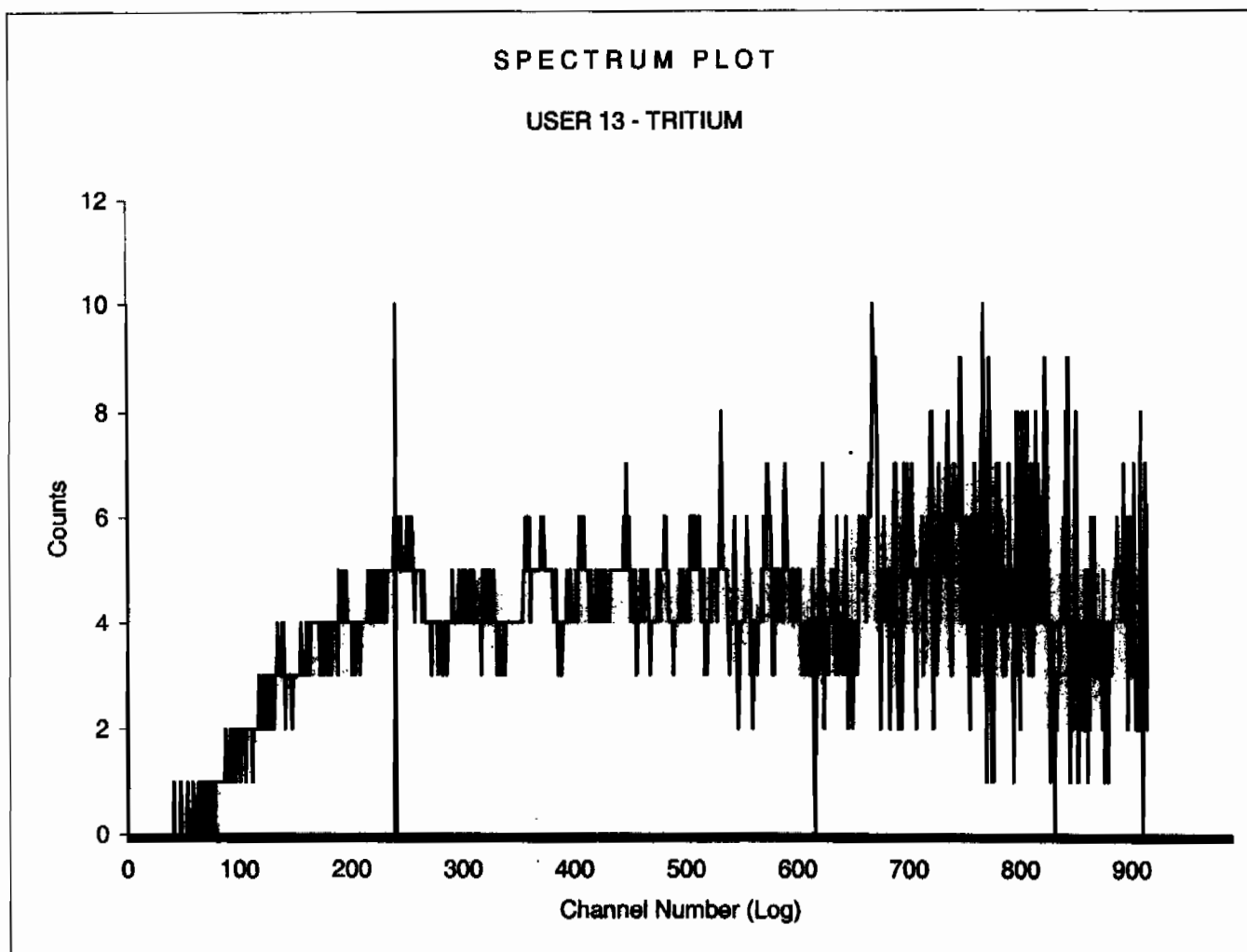




Sample Count Start Time:	20 Feb 2010 12:18:14		
Data Capture Date	20 Feb 2010 13:53:07		
User Filename	S13022049-6A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	6	49-6	95.00
H#, Total Counts:	109.9	3892	
Win1: Tritium - Start, End, Counts:	0	240	697
Win2: - Start, End, Counts:	0	990	3892



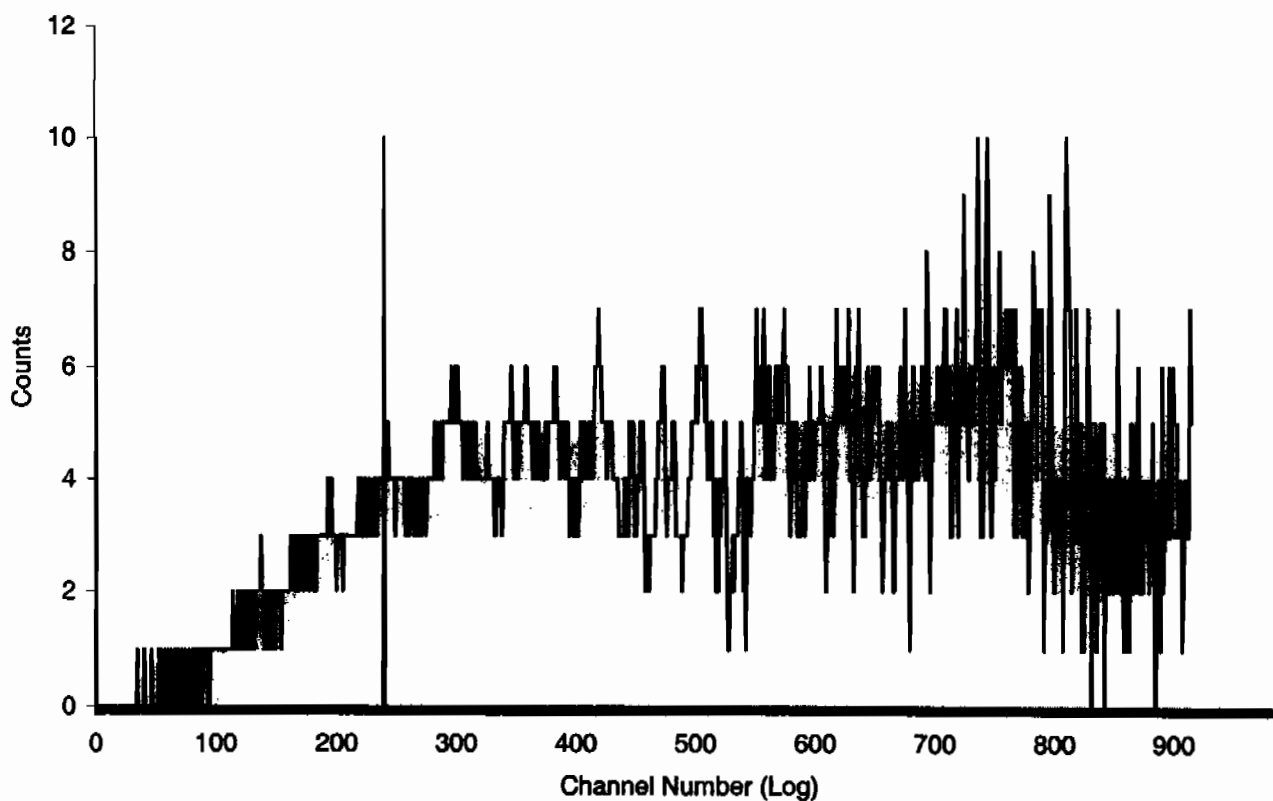
Sample Count Start Time:	20 Feb 2010 13:56:15		
Data Capture Date	20 Feb 2010 15:31:08		
User Filename	S13022049-7A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	7	49-7	95.00
H#, Total Counts:	109.0	3593	
Win1: Tritium - Start, End, Counts:	0	240	528
Win2: - Start, End, Counts:	0	990	3593



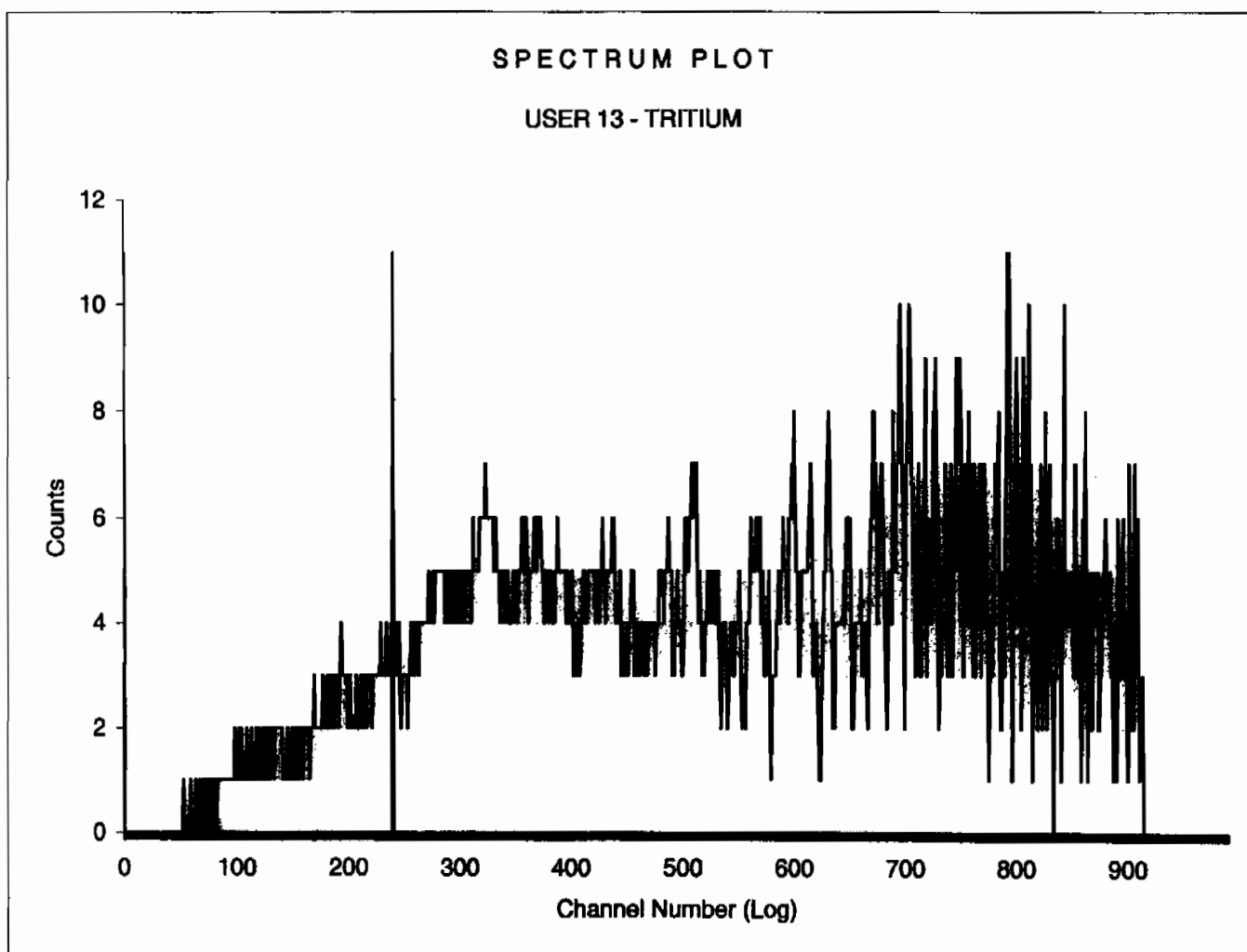
Sample Count Start Time:	20 Feb 2010 15:34:16		
Data Capture Date	20 Feb 2010 17:09:09		
User Filename	S13022049-8A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	8	49-8	95.00
H#, Total Counts:	109.4	3339	
Win1: Tritium - Start, End, Counts:	0	240	366
Win2: - Start, End, Counts:	0	990	3339

# SPECTRUM PLOT

USER 13 - TRITIUM



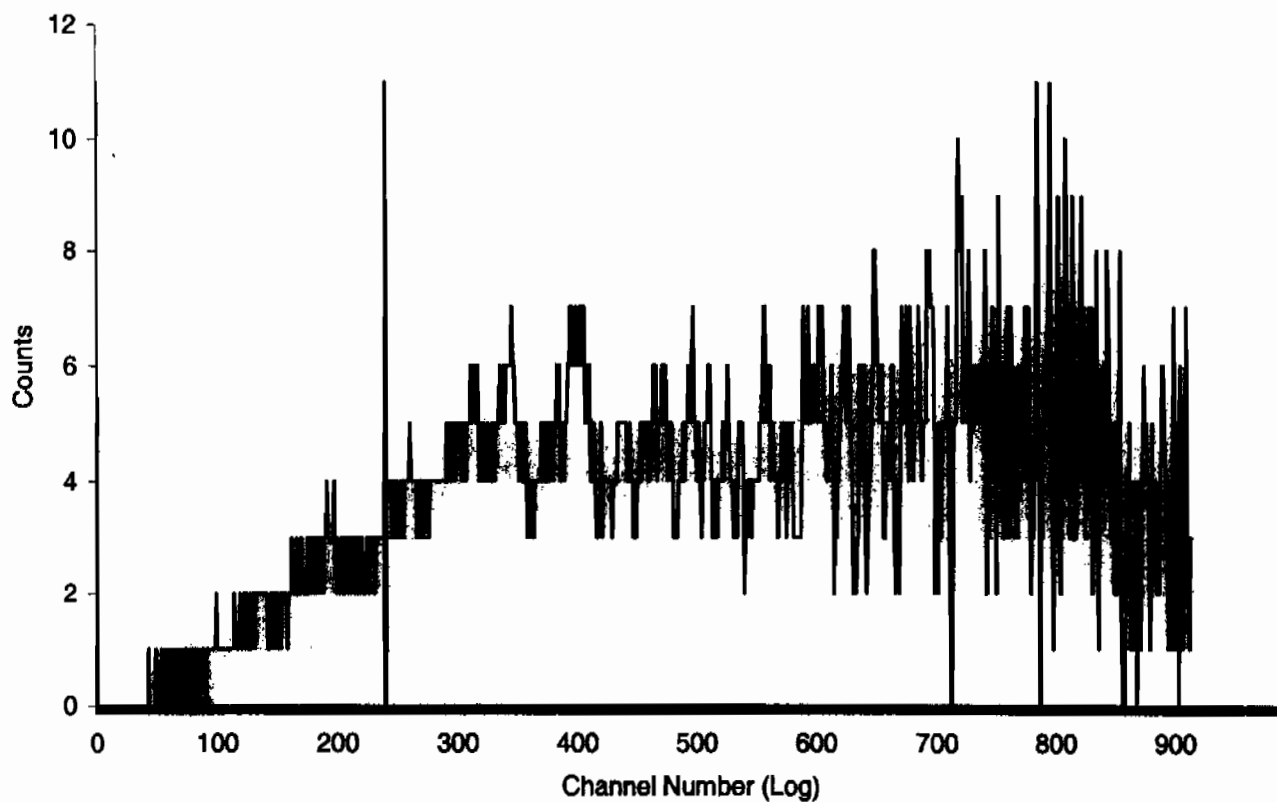
Sample Count Start Time:	20 Feb 2010 17:12:16		
Data Capture Date	20 Feb 2010 18:47:10		
User Filename	S13022049-9A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	9	49-9	95.00
H#, Total Counts:	109.0	3451	
Win1: Tritium - Start, End, Counts:	0	240	328
Win2: - Start, End, Counts:	0	990	3451



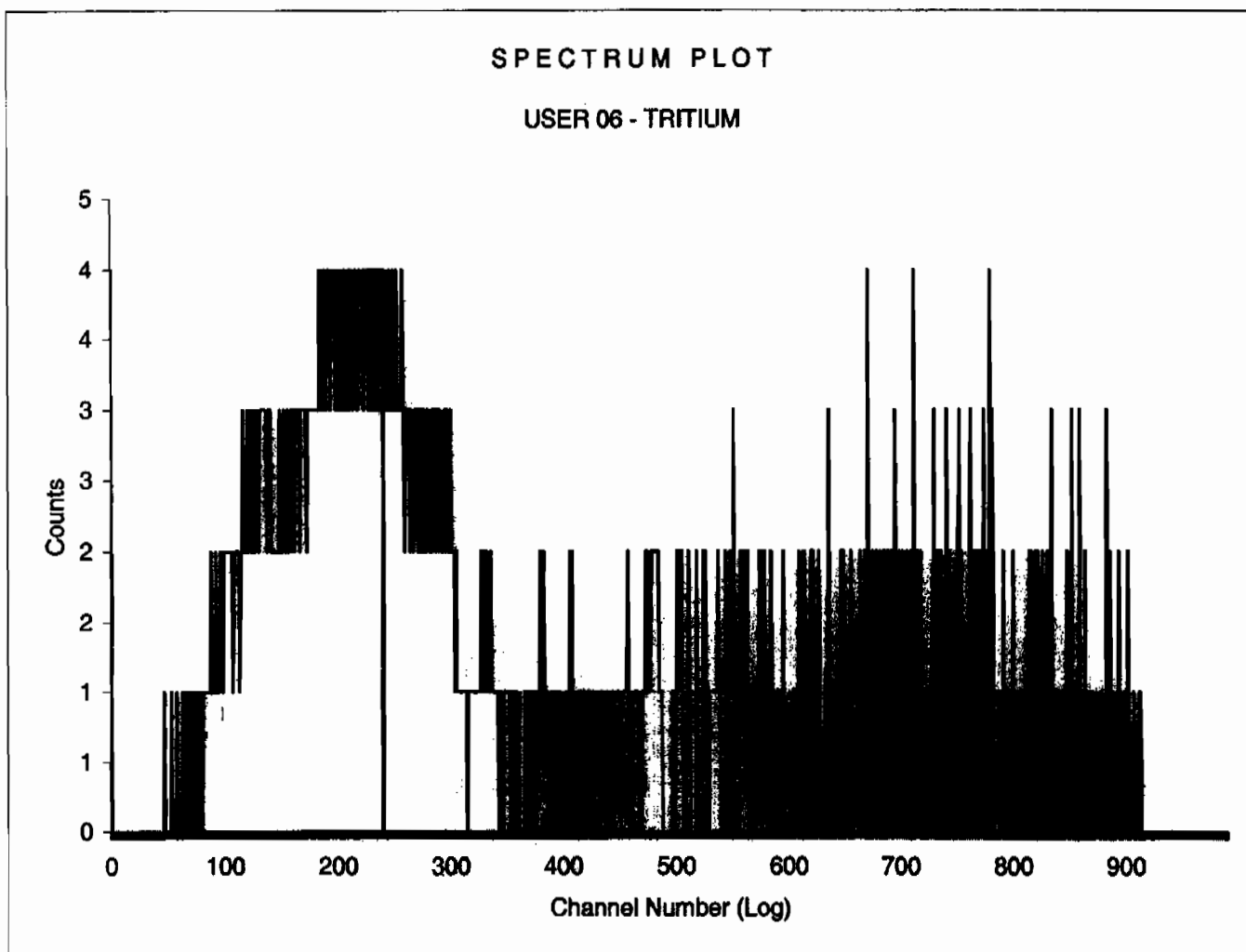
Sample Count Start Time:	20 Feb 2010 18:50:18		
Data Capture Date	20 Feb 2010 20:25:11		
User Filename	S13022049-10A.XLS		
	U13022049-1A.XLS		
Spectrum Type	Log Counts		
User Number	13		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	10	49-10	95.00
H#, Total Counts:	108.1	3455	
Win1: Tritium - Start, End, Counts:	0	240	328
Win2: - Start, End, Counts:	0	990	3455

# SPECTRUM PLOT

USER 13 - TRITIUM

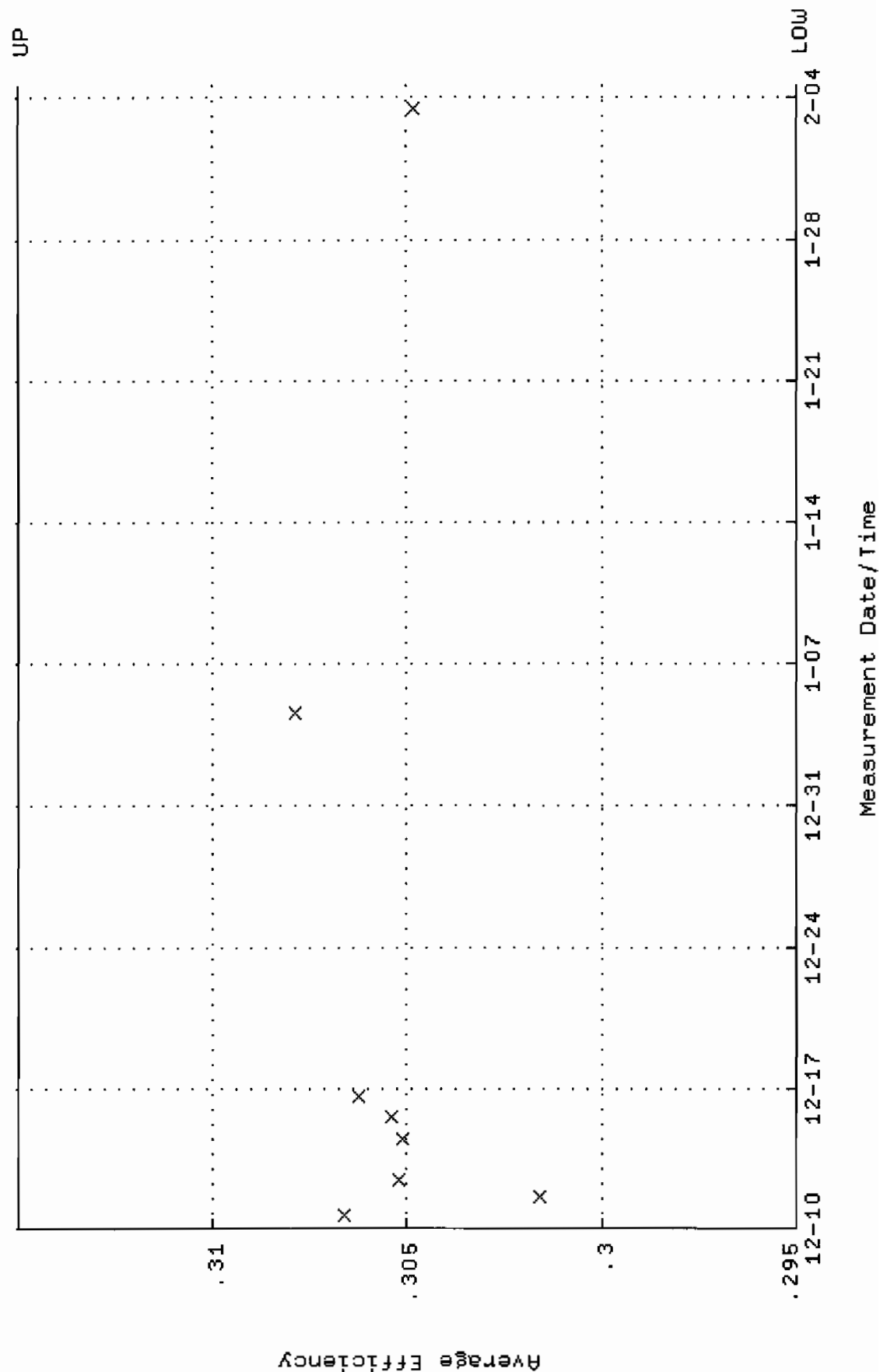


Sample Count Start Time:	20 Feb 2010 20:27:02		
Data Capture Date	20 Feb 2010 20:41:37		
User Filename	S06022020-1A.XLS		
	U06022020-1A.XLS		
Spectrum Type	Log Counts		
User Number	06		
User Id	TRITIUM		
User Comment	BROWN		
Isotope Name	14C		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	20-1	15.00
H#, Total Counts:	109.4	1089	
Win1: Tritium - Start, End, Counts:	0	240	452
Win2: - Start, End, Counts:	0	990	1089



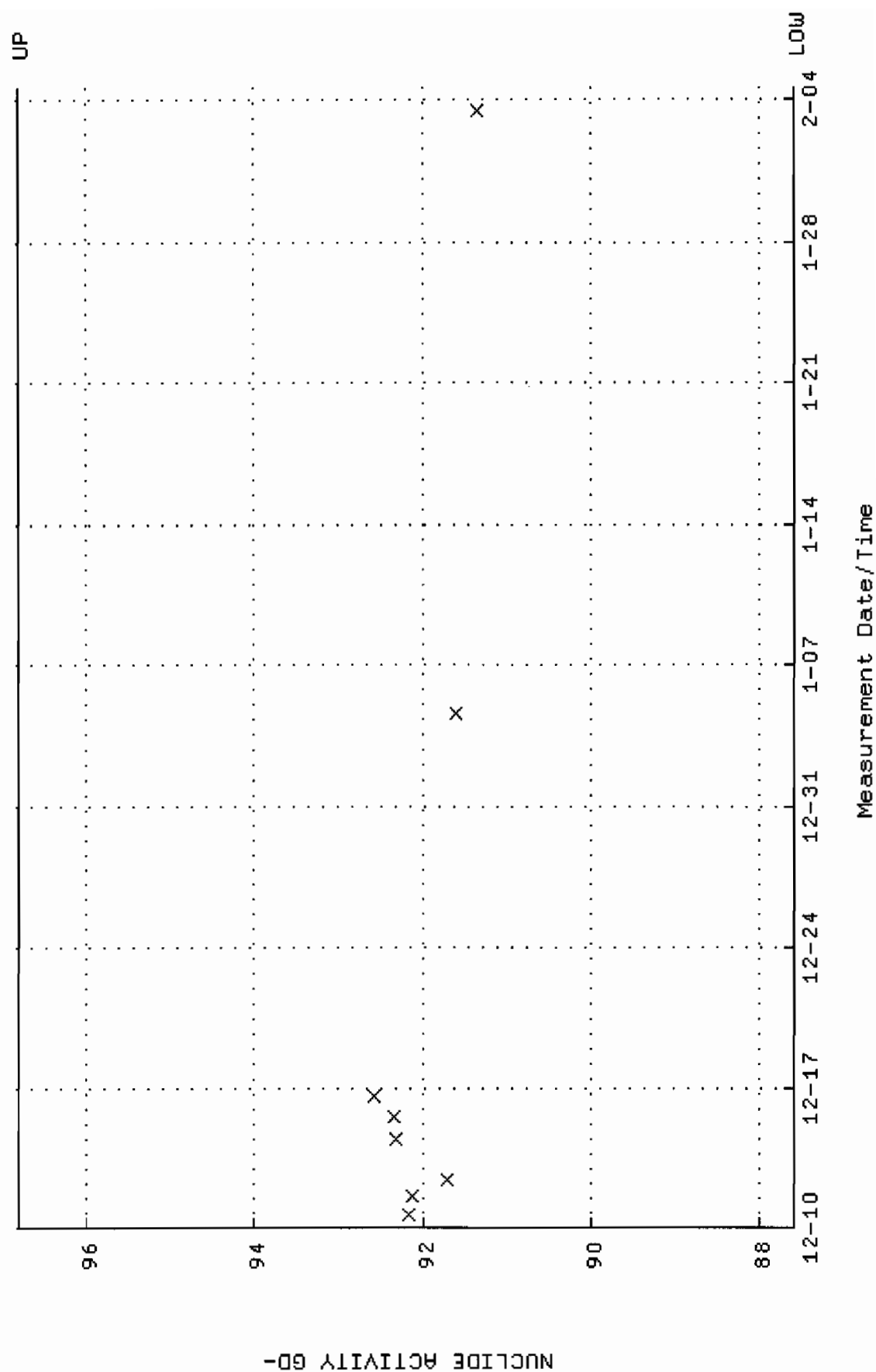
# BACKGROUND AND EFFICIENCY DATA

QA filename : DKA100:[ENV\_ALPHA.QA.W]W004.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 10-DEC-2009 15:29:34 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.294995 through 0.314995





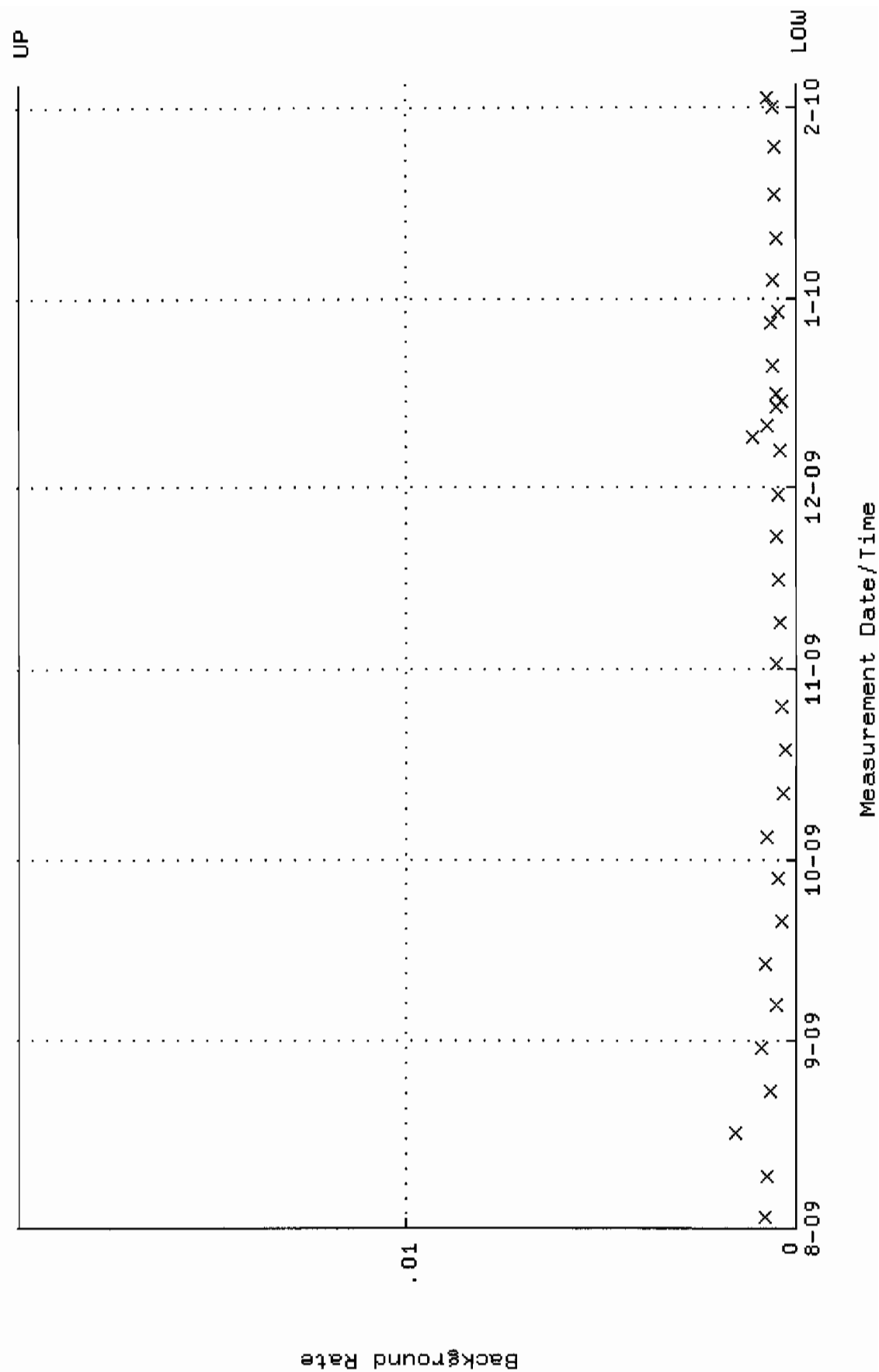
QA filename : DKA100:[ENV\_ALPHA.QA.W]W004.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 10-DEC-2009 15:29:34 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.5863 through 96.8059



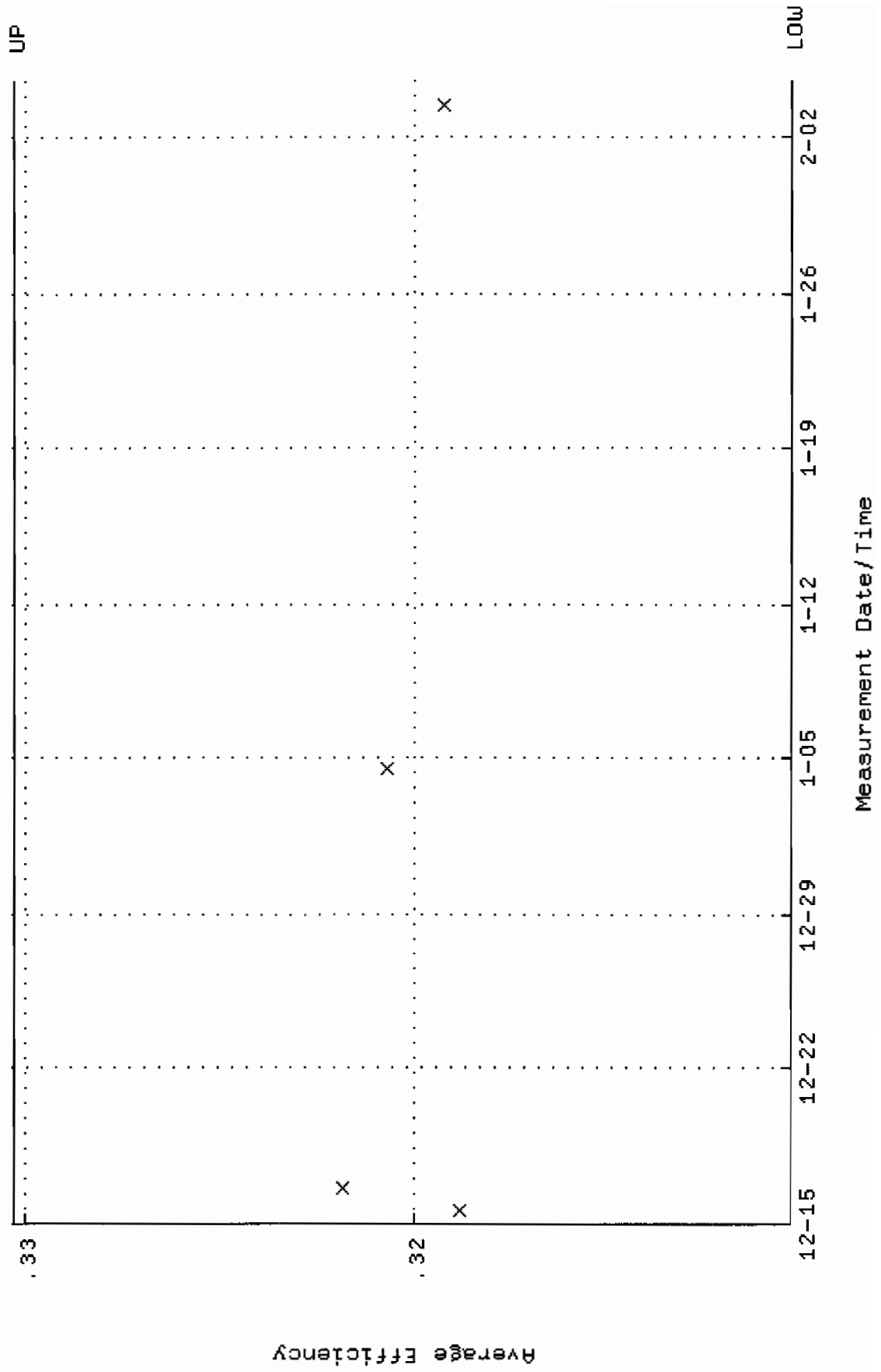
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QA filename      : DKA100:[ENV_ALPHA.QA.B]B004.QAF;1
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 2-AUG-2009 17:38:31 through 4-FEB-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

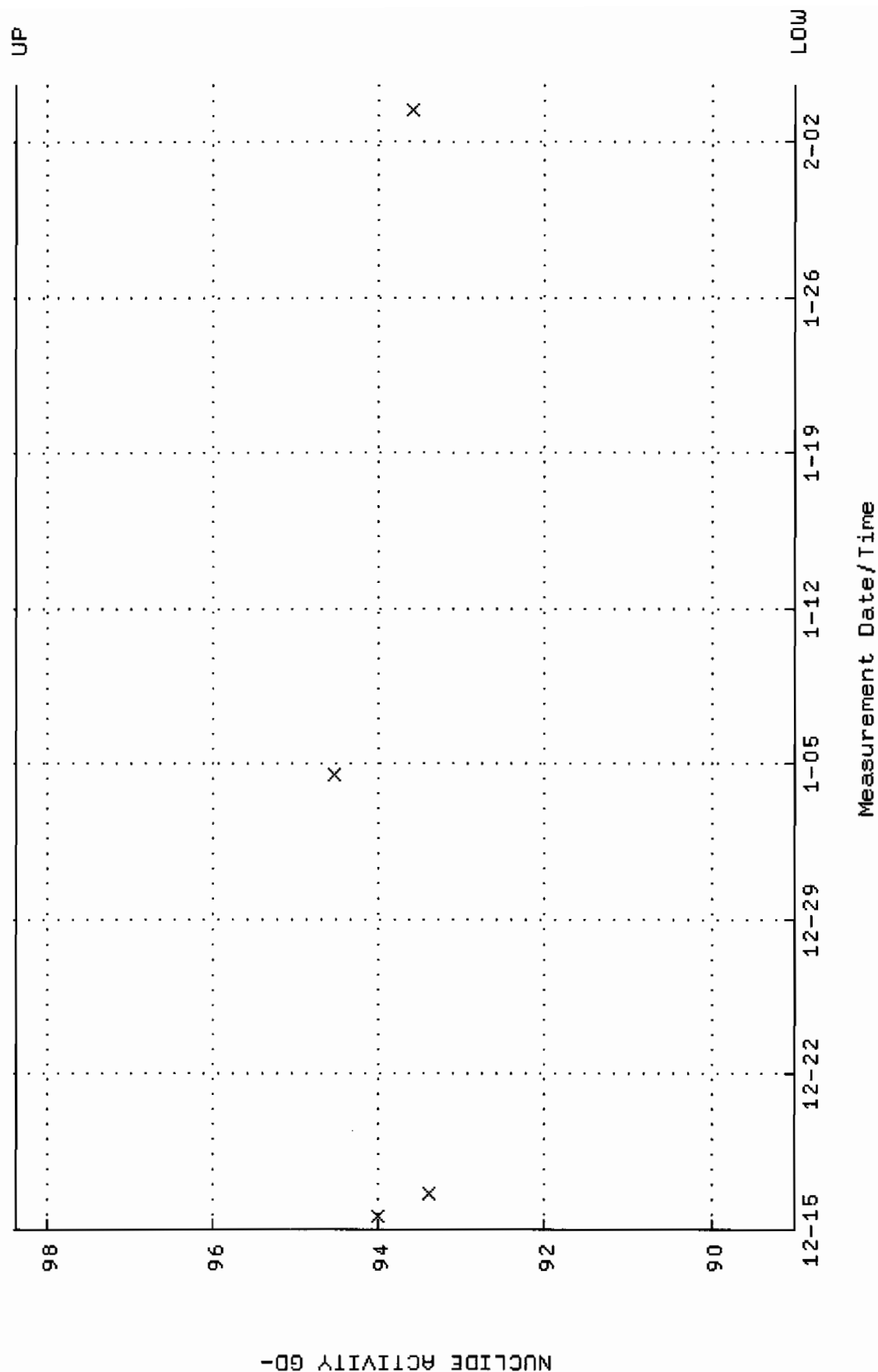
```



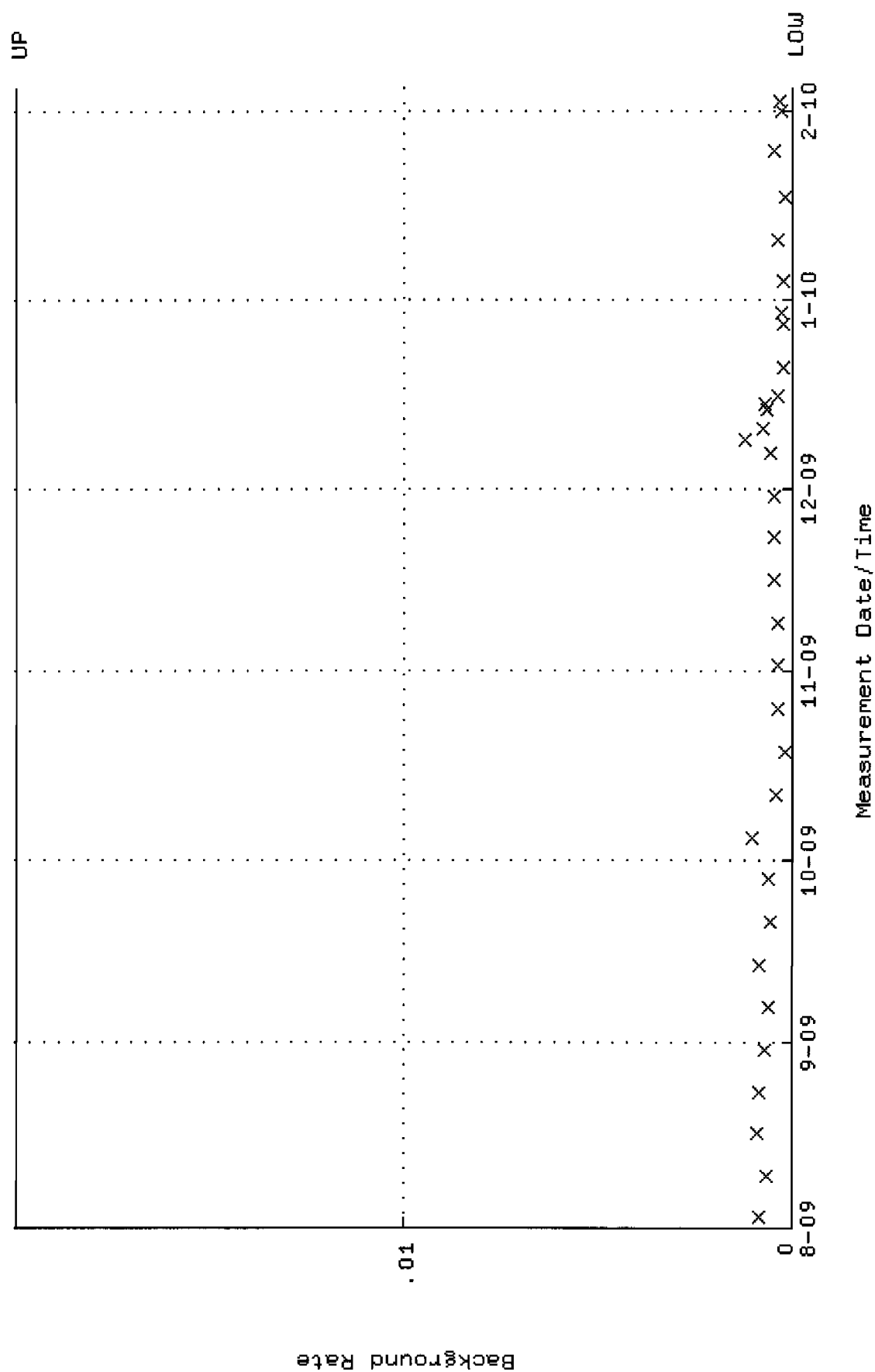
QA filename : DKA100:[ENV\_ALPHA.QA.W]W005.QAF;6  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 15-DEC-2009 14:48:34 through 4-FEB-2010 12:00:00  
Lower/Upper Lmts: 0.310305 through 0.330305



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 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.0042 through 98.3730



QA filename : DKA100:[ENV\_ALPHA.QA.B]B0005.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:31 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

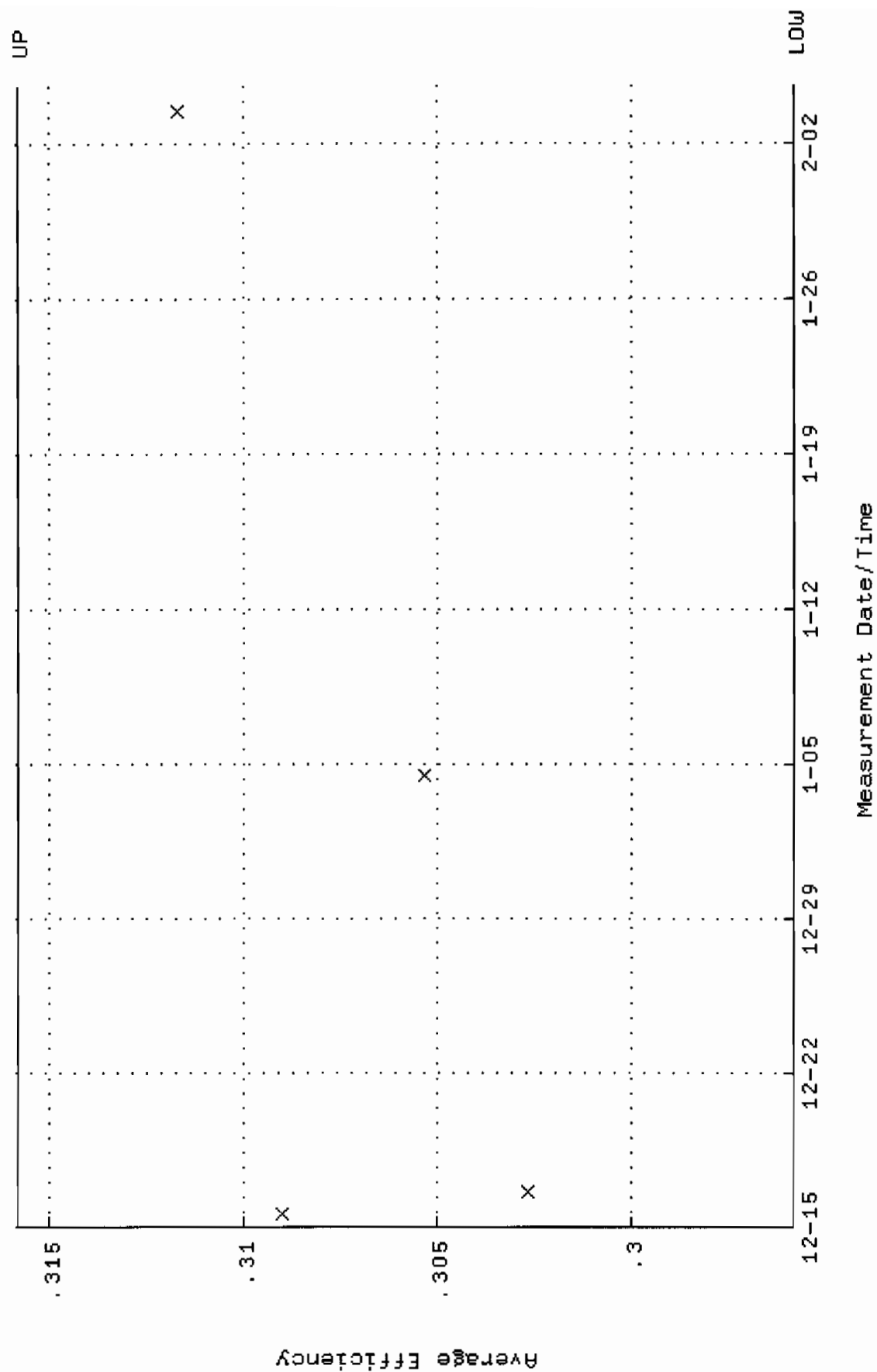


QA filename : DKA100:[ENV\_ALPHA.QA.W]W006.QAF;6

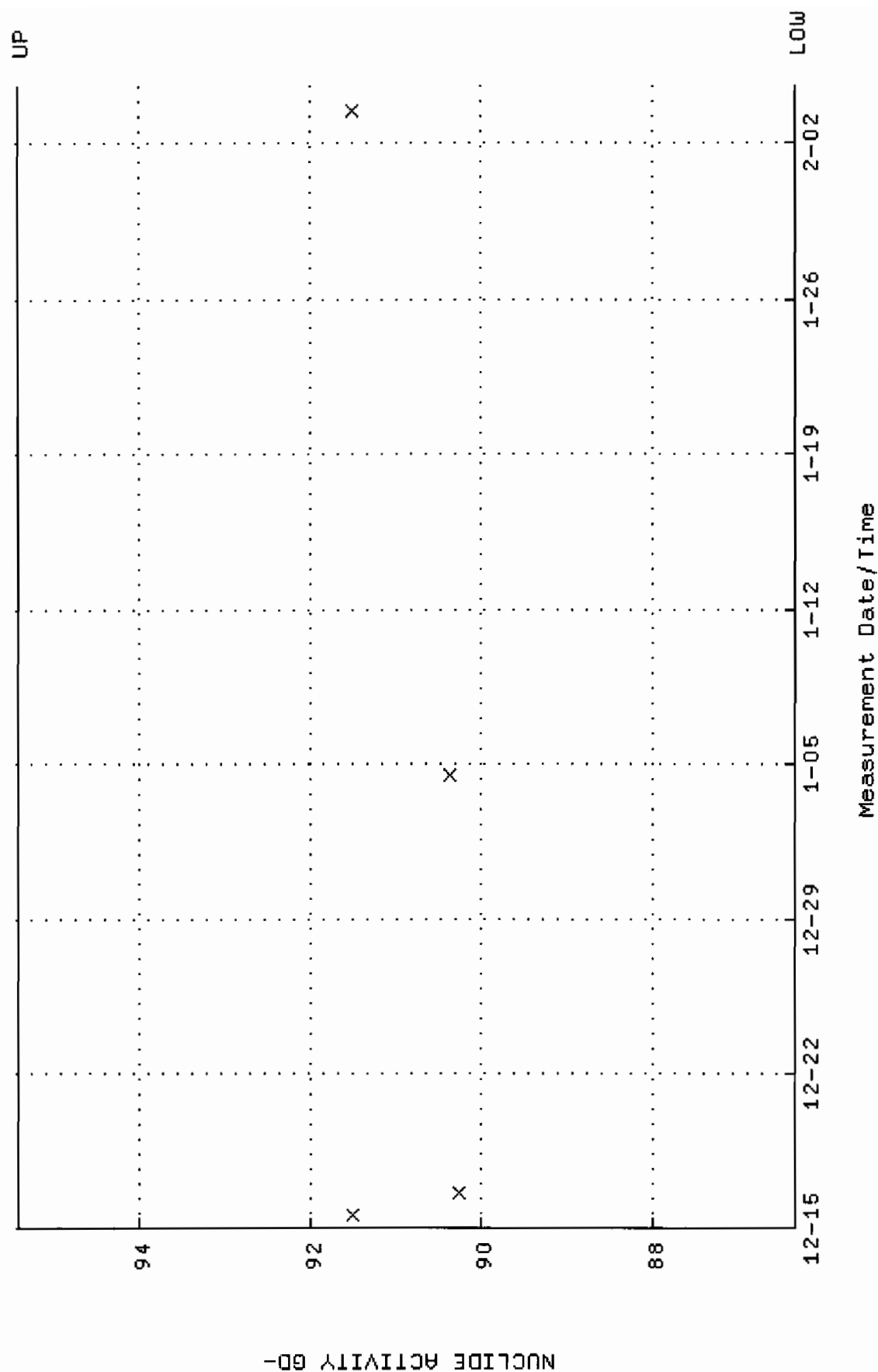
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 15-DEC-2009 14:48:34 through 4-FEB-2010 12:00:00

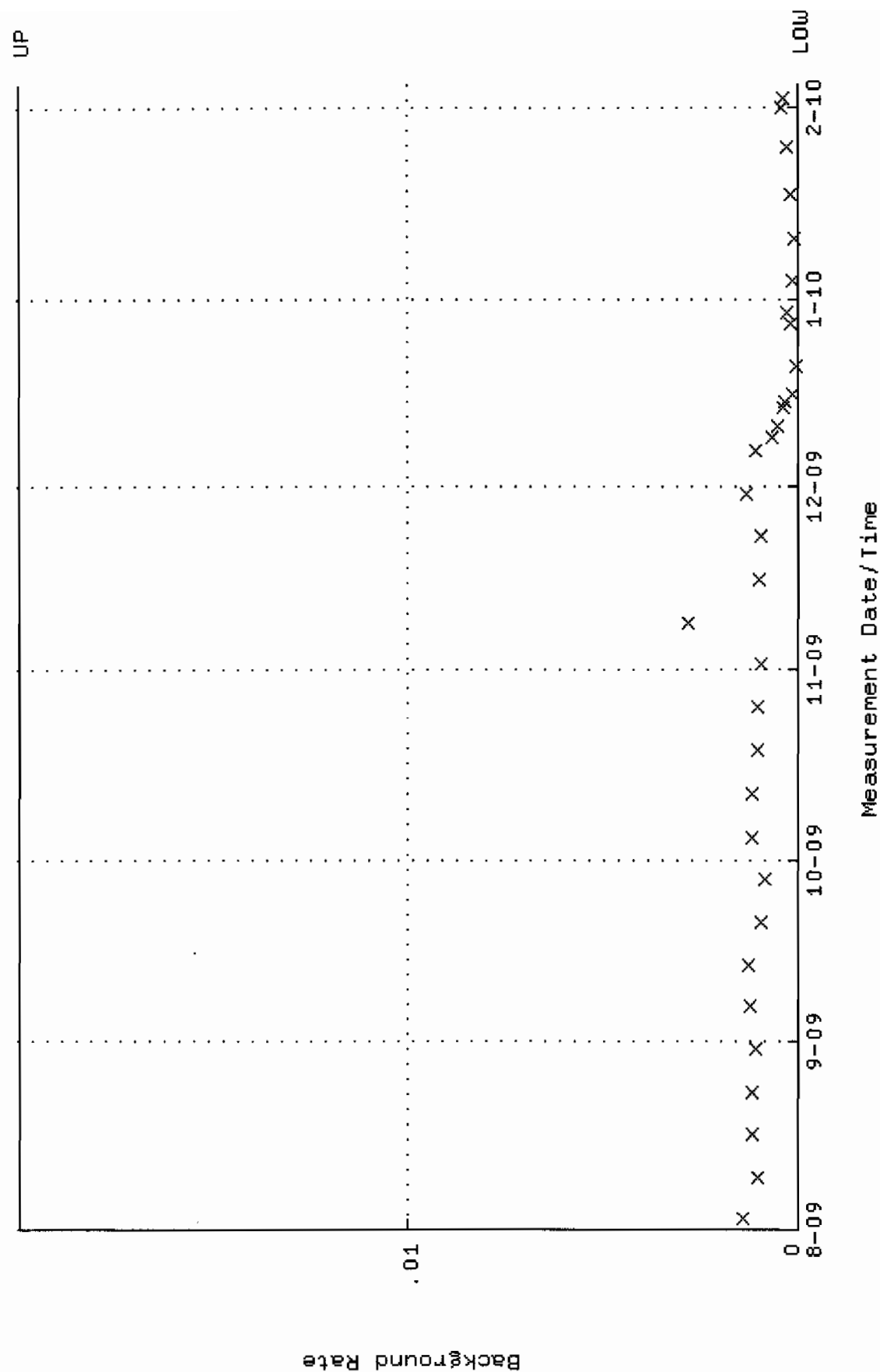
Lower/Upper Lmts: 0.295821 through 0.315821



QA filename : DKA100:[ENV\_ALPHA.QA.W]W0006.QAF;6  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.3237 through 95.4105

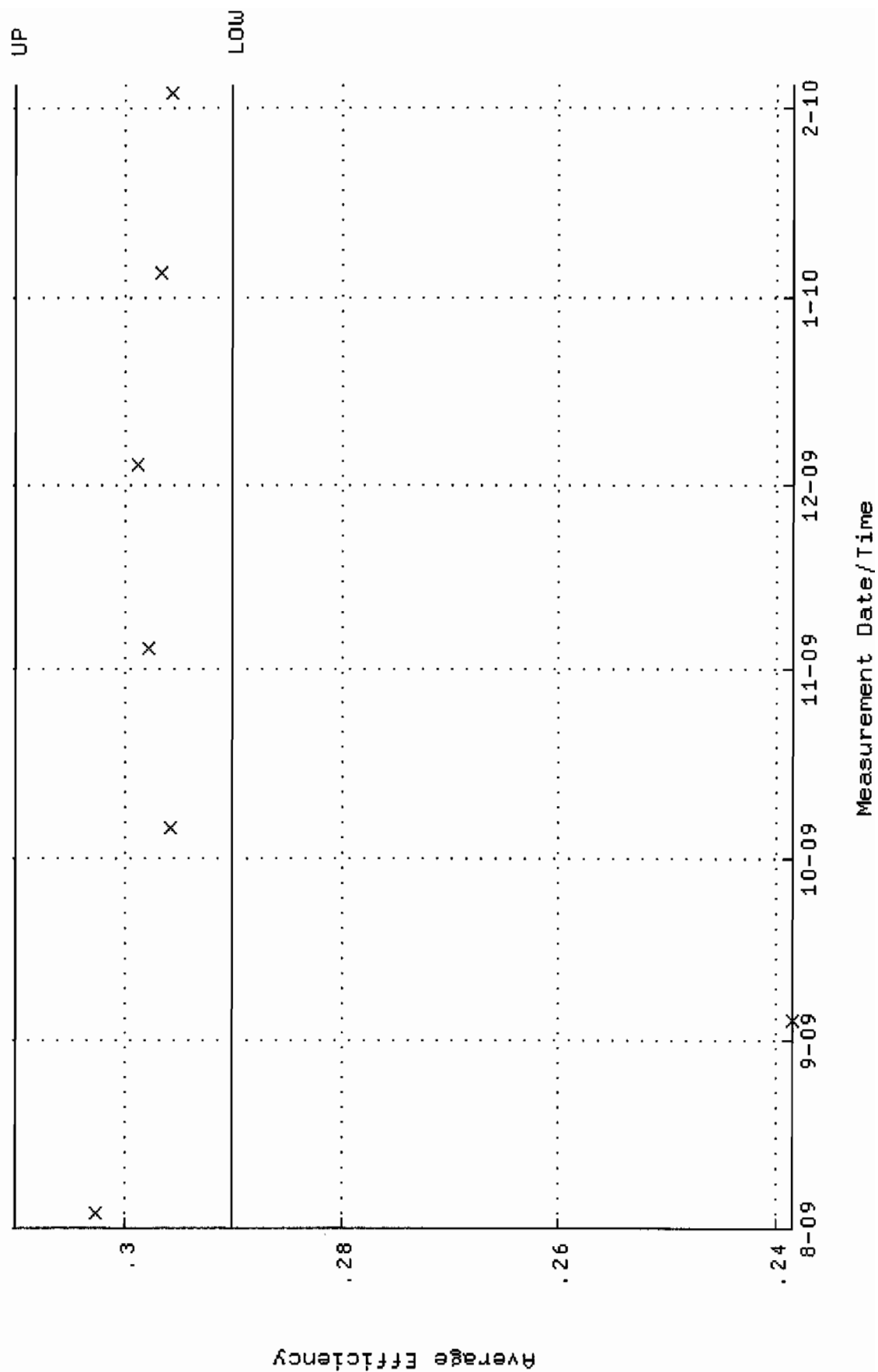


QA filename : DKA100:[ENV\_ALPHA.QA.B]B0006.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:31 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

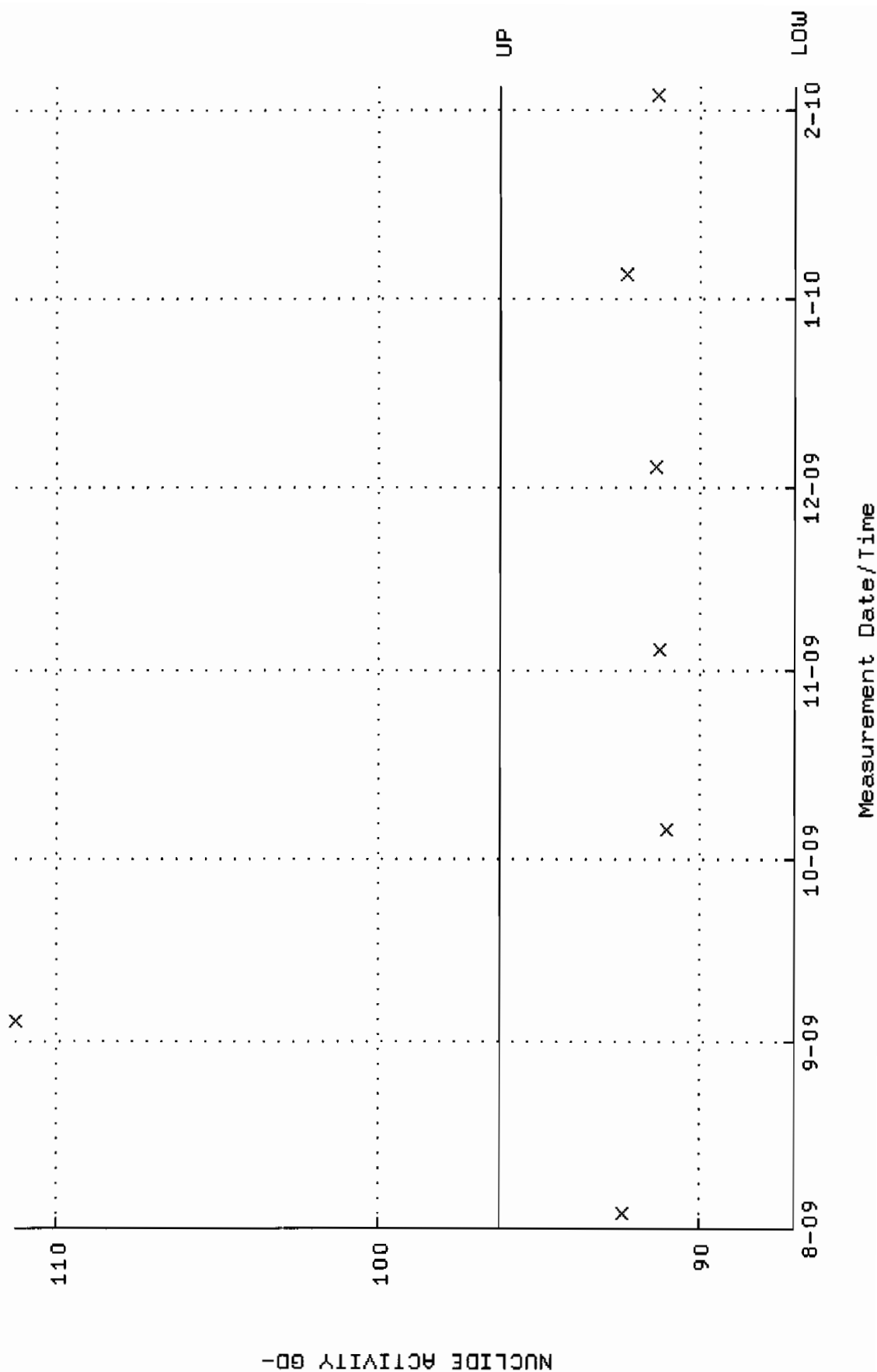




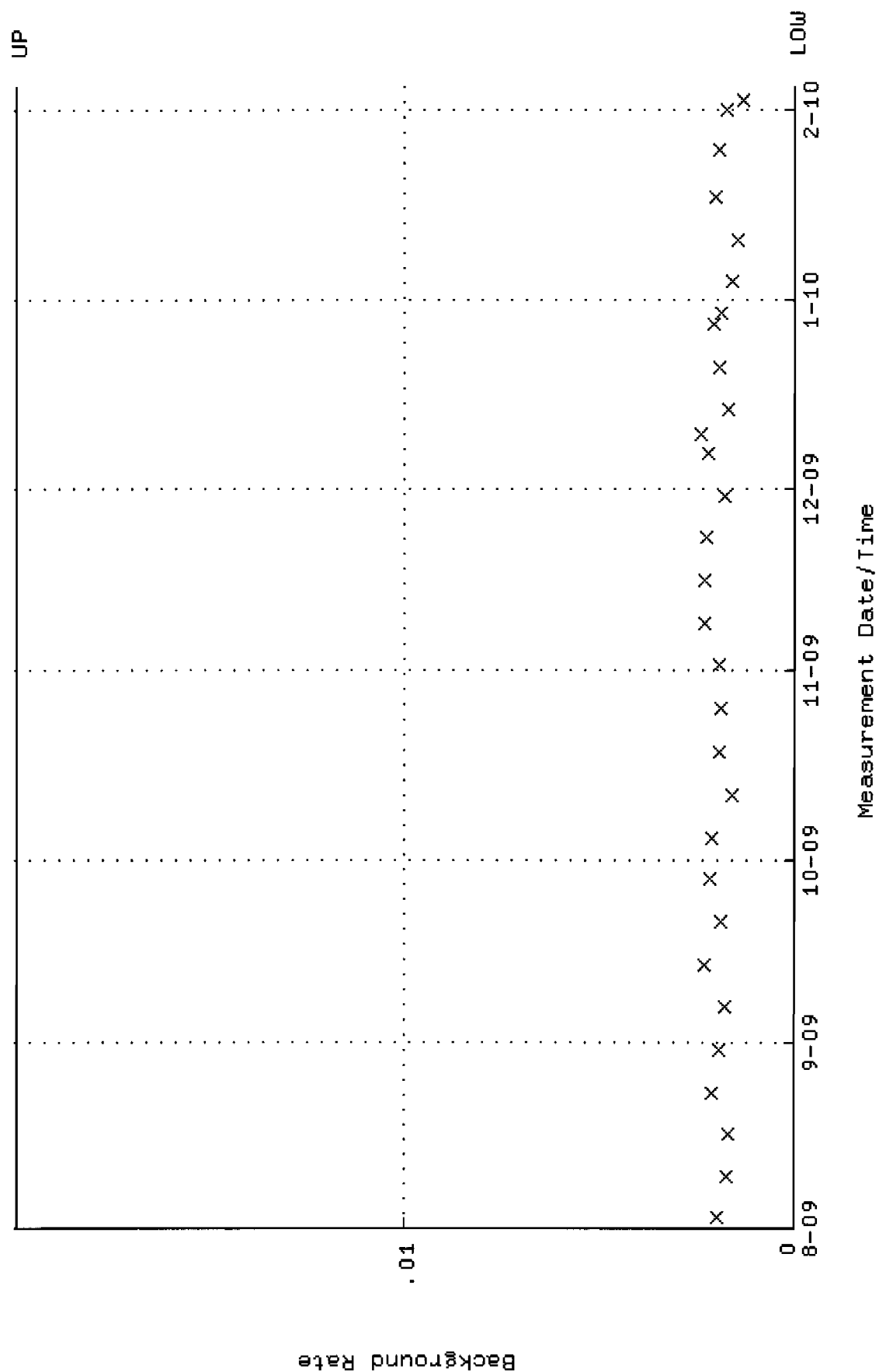
QA filename : DKA100:[ENV\_ALPHA.QA.W]W007.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-AUG-2009 10:53:33 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.290108 through 0.310108



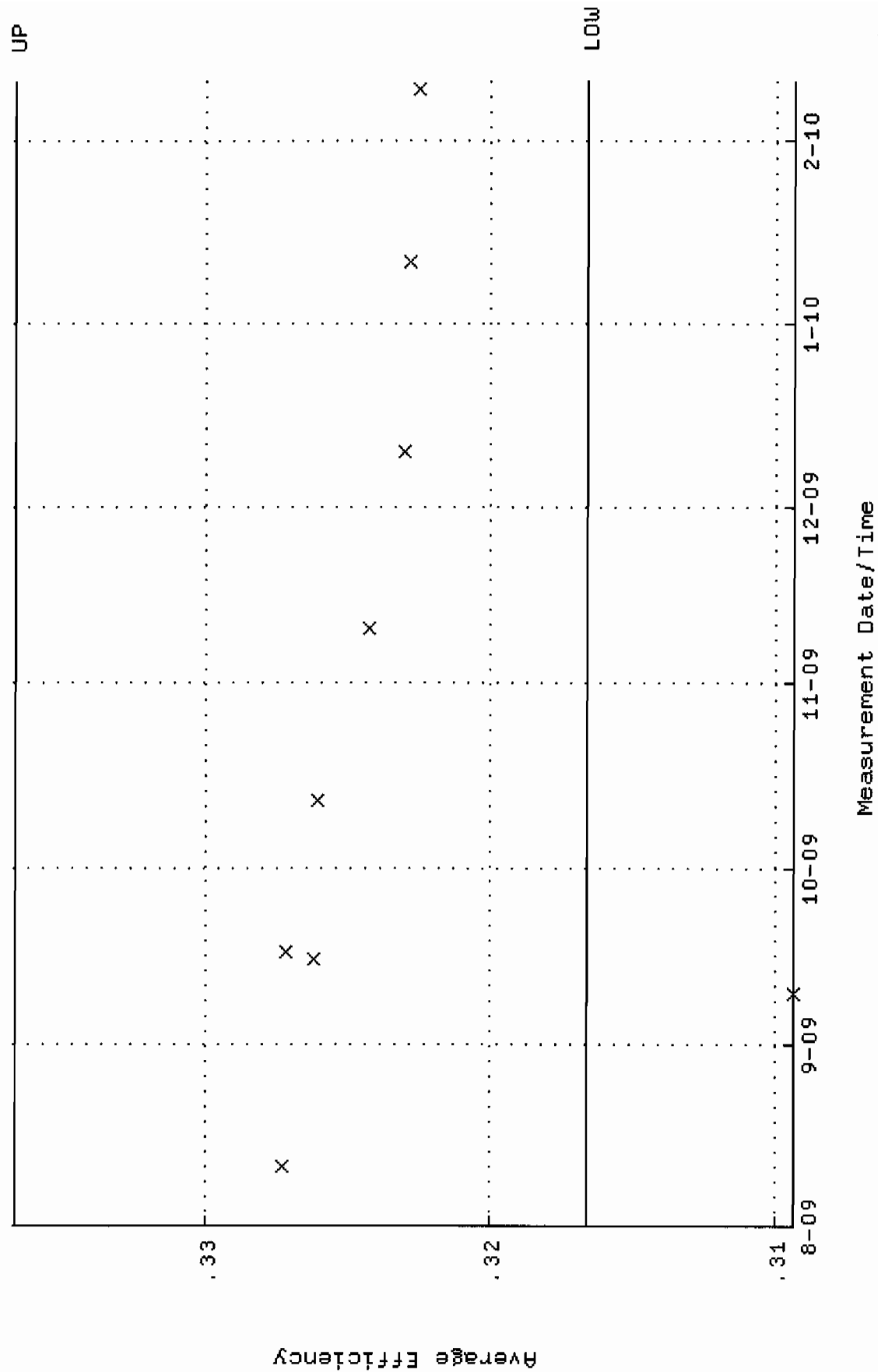
QA filename : DKA100:[ENV\_ALPHA.QA.W]W007.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-AUG-2009 10:53:33 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.0687 through 96.2339



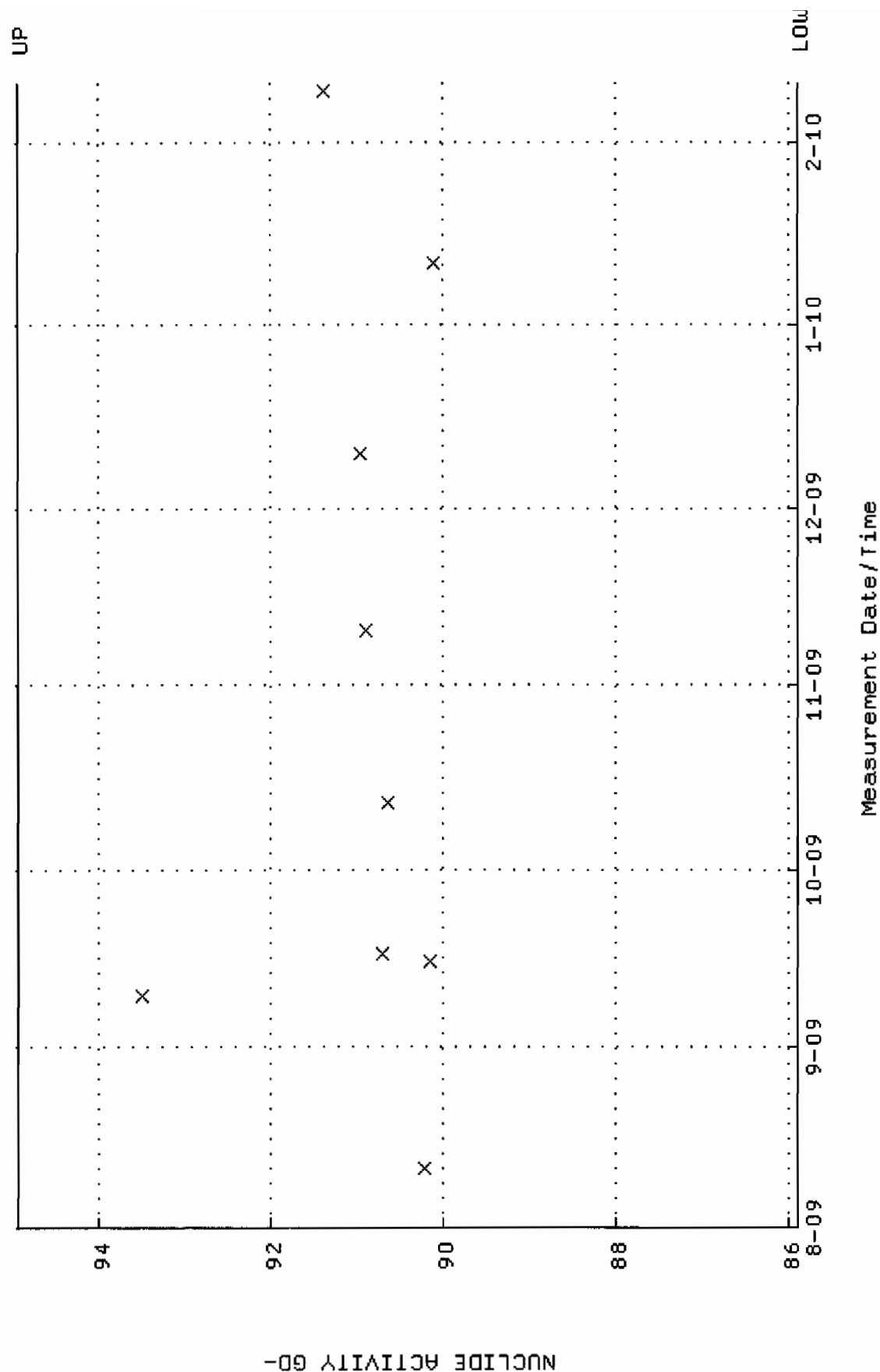
QA filename : DKA100:[ENV\_ALPHA.QA.B]B007.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:32 through 4-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



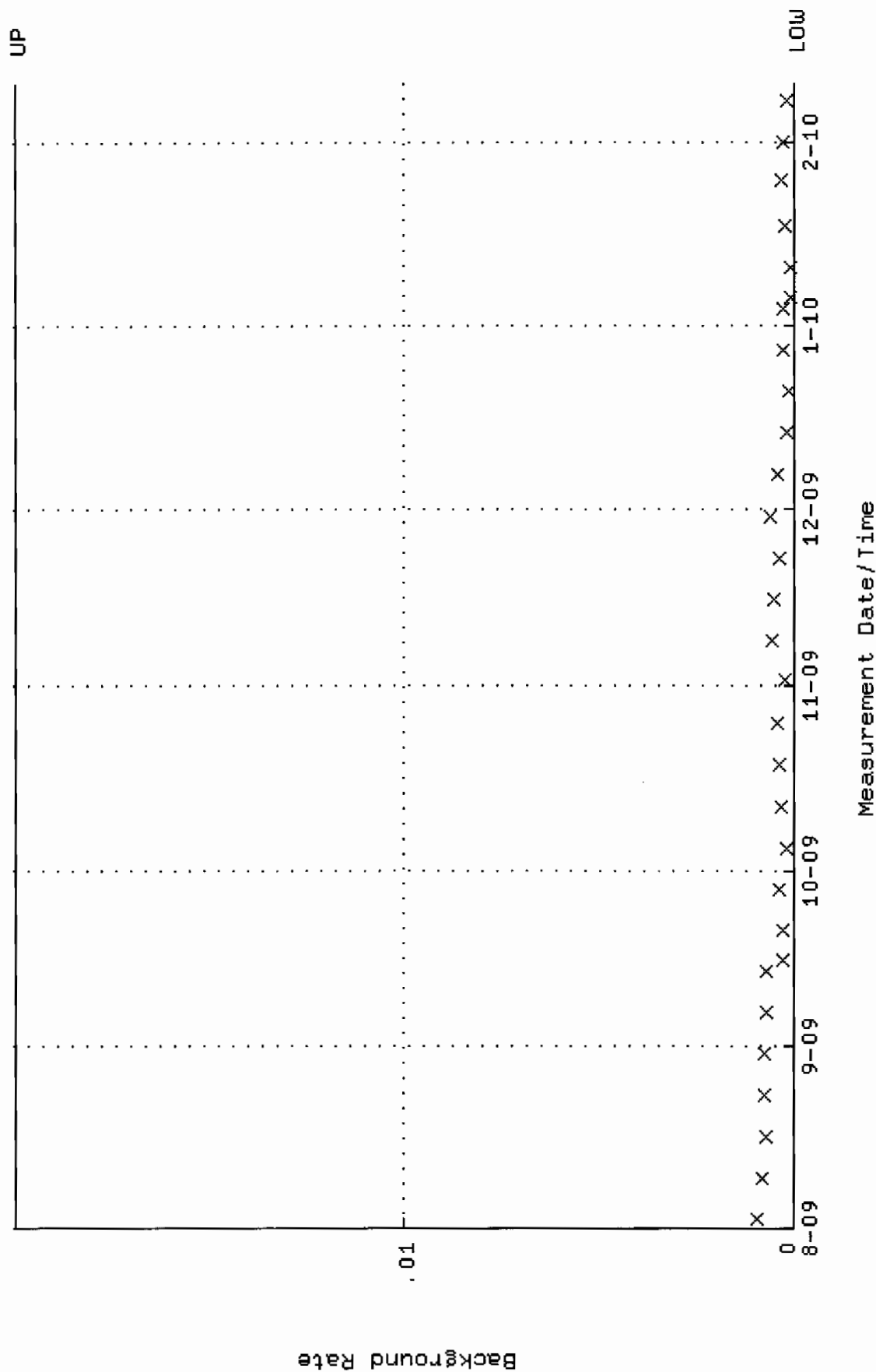
QA filename : DKA100:[ENV\_ALPHA.QA.W]W079.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.316654 through 0.336654



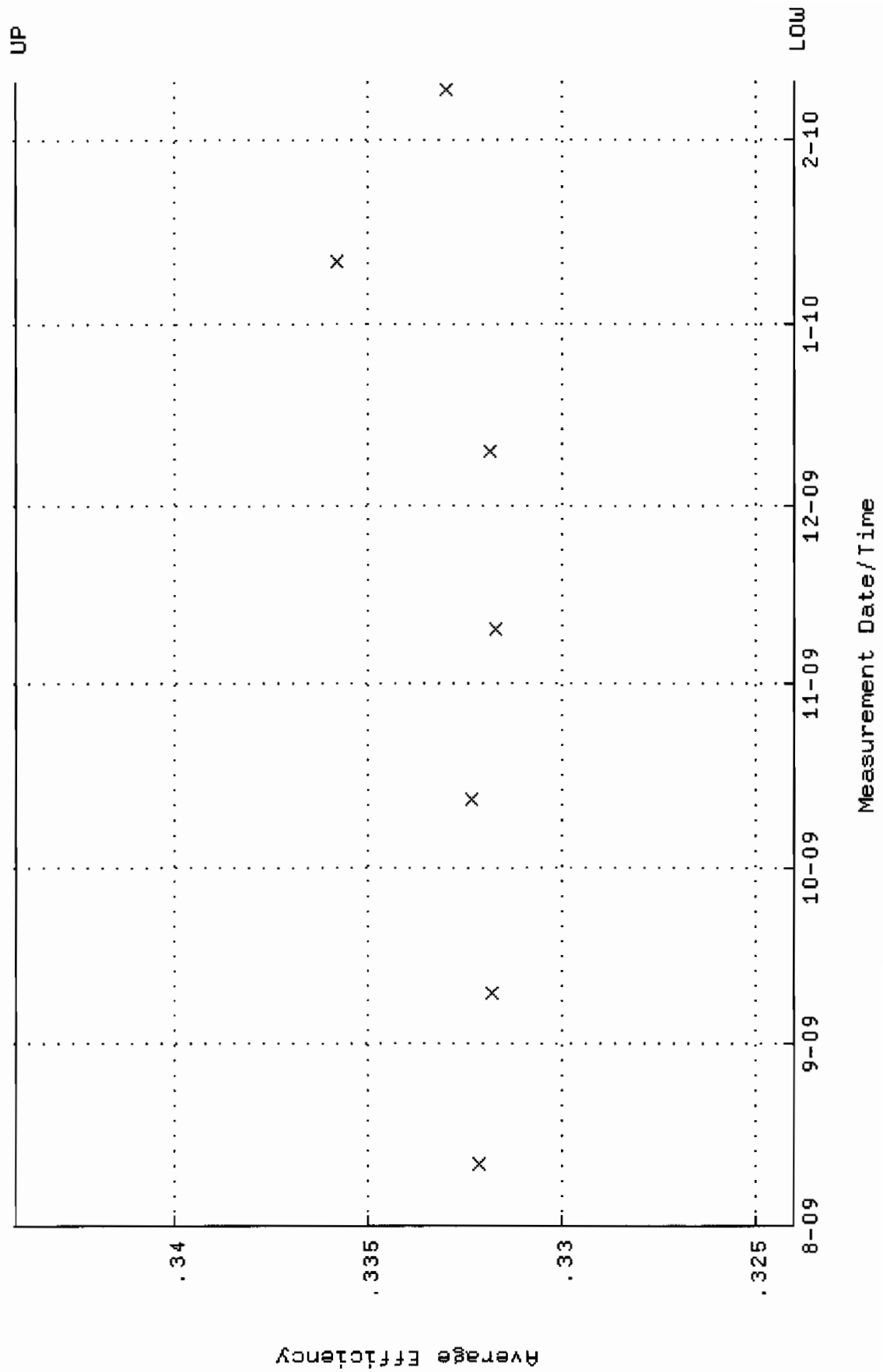
QA filename : DKA100:[ENV\_ALPHA.QA.W]w079.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 85.8913 through 94.9325



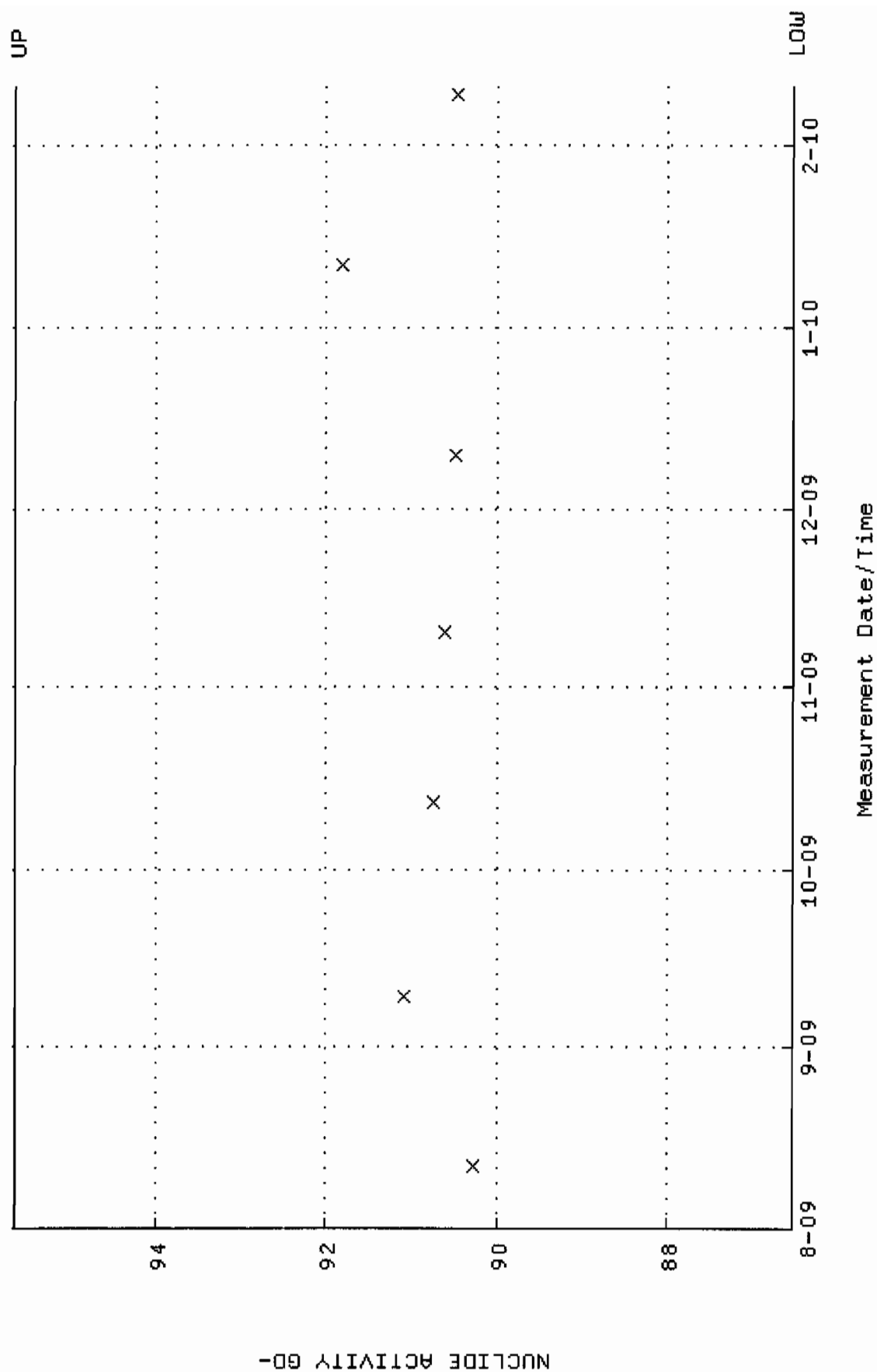
QA filename : DKA100:[ENV\_ALPHA.QA.B]B079.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W080.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 12:17:29 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.324032 through 0.344032

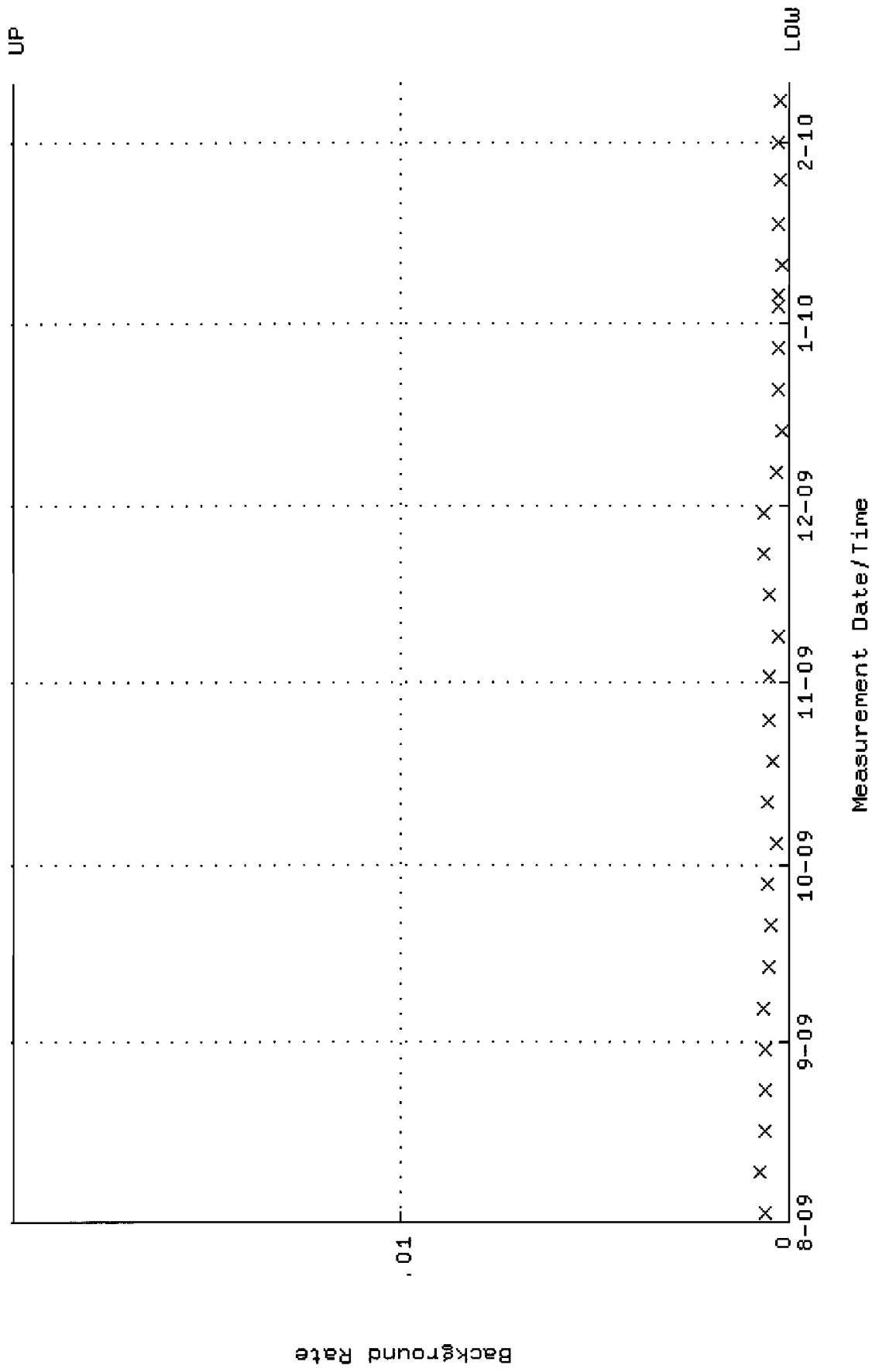


QA filename : DKA100:[ENV\_ALPHA.QA.W]W080.QAF;4  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 12:17:29 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.5393 through 95.6487

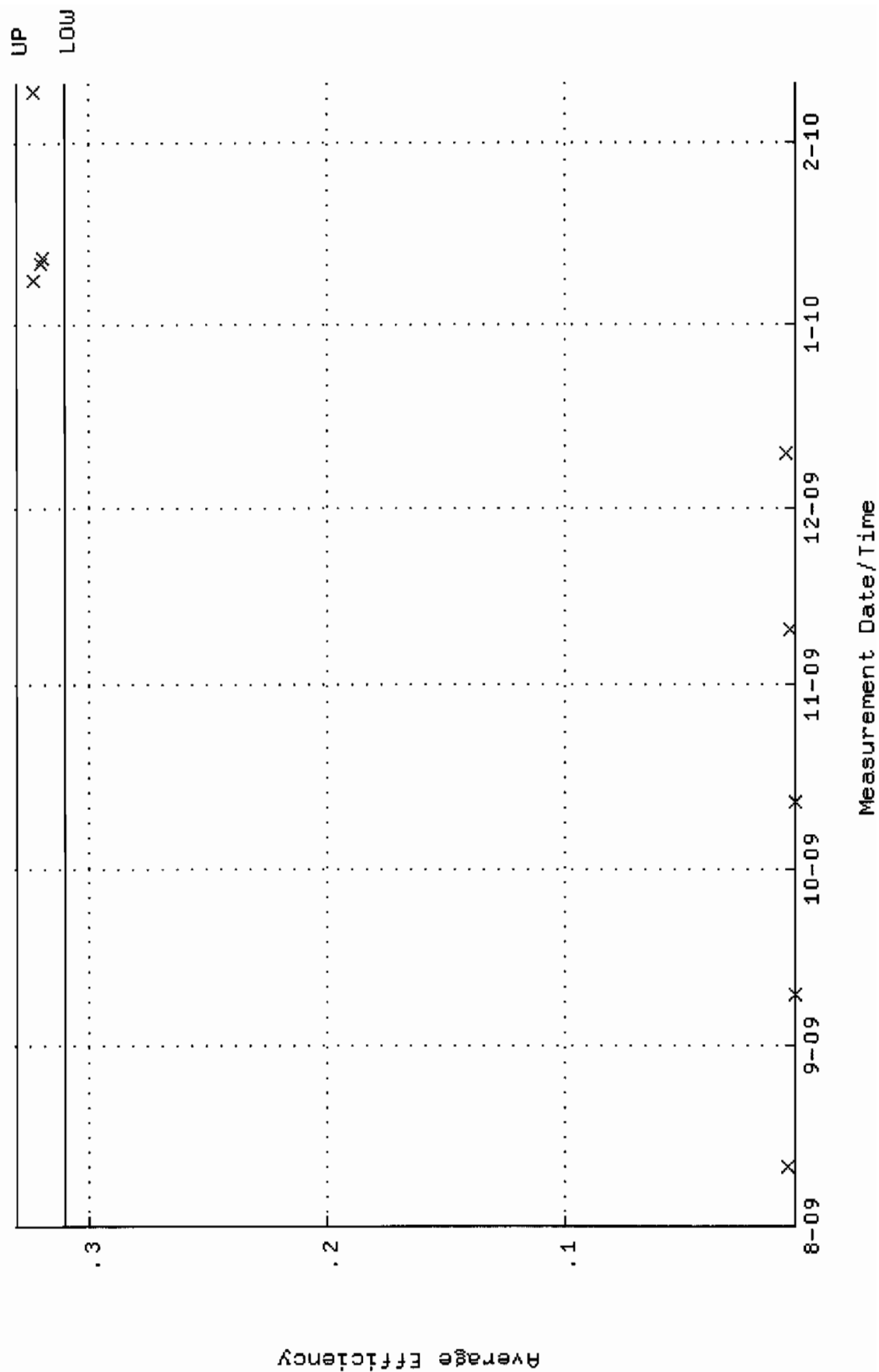




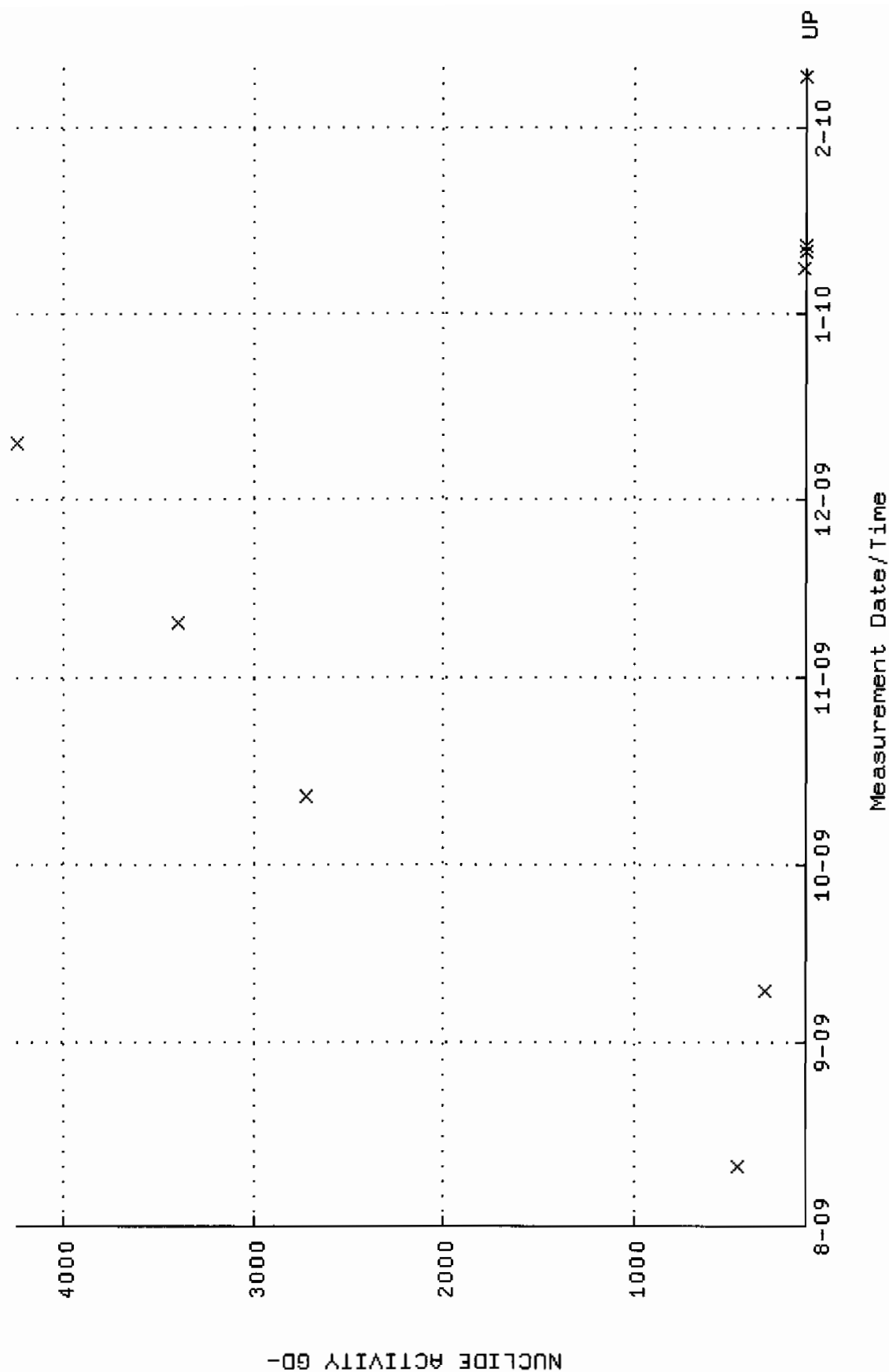
QA filename : DKA100:[ENV\_ALPHA.QA.B]B080.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.310202 through 0.330202



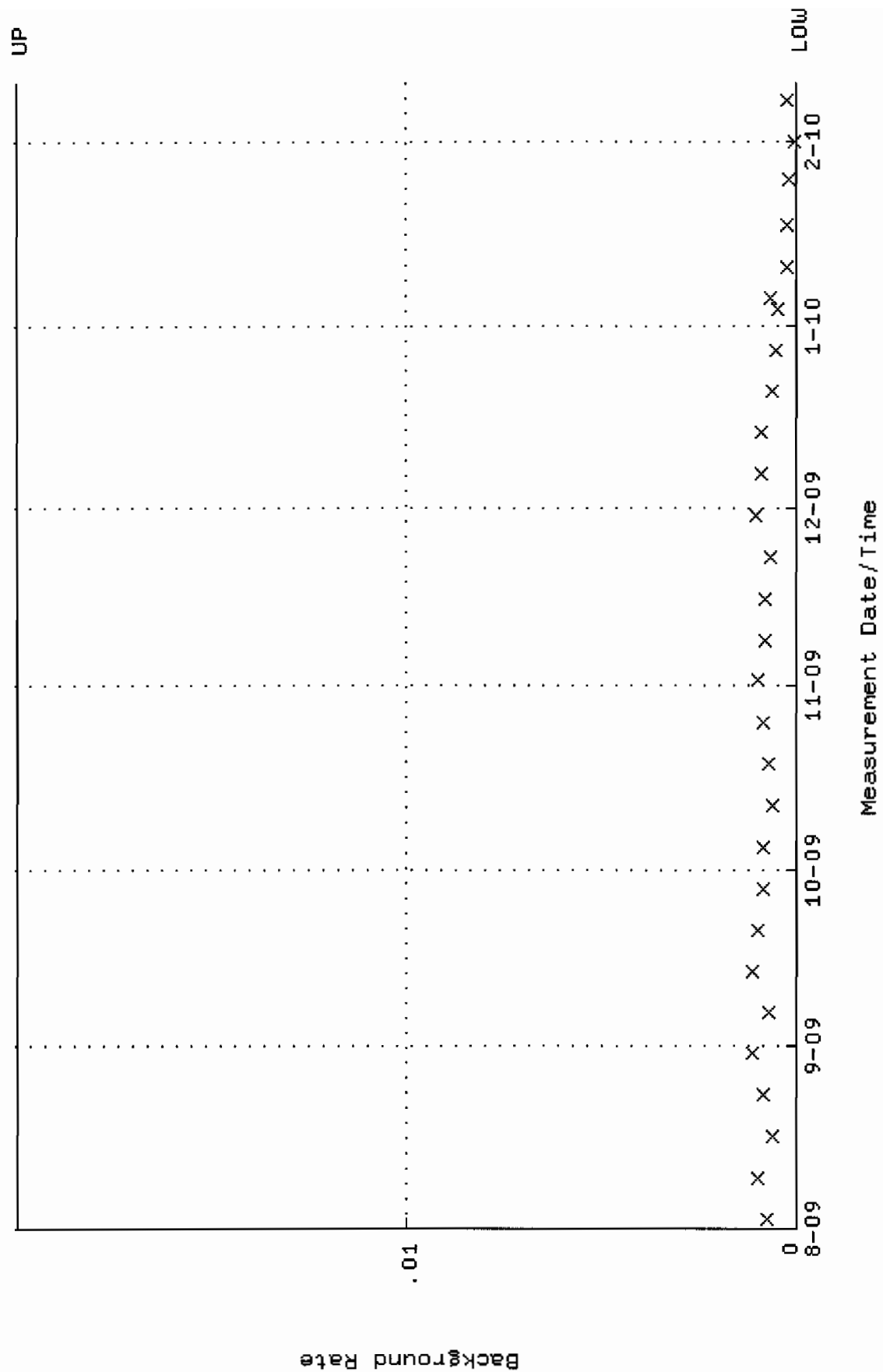
QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.2016 through 98.5912



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QA filename      : DKA100:[ENV-ALPHA.QA.B]B081.QAF;2
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

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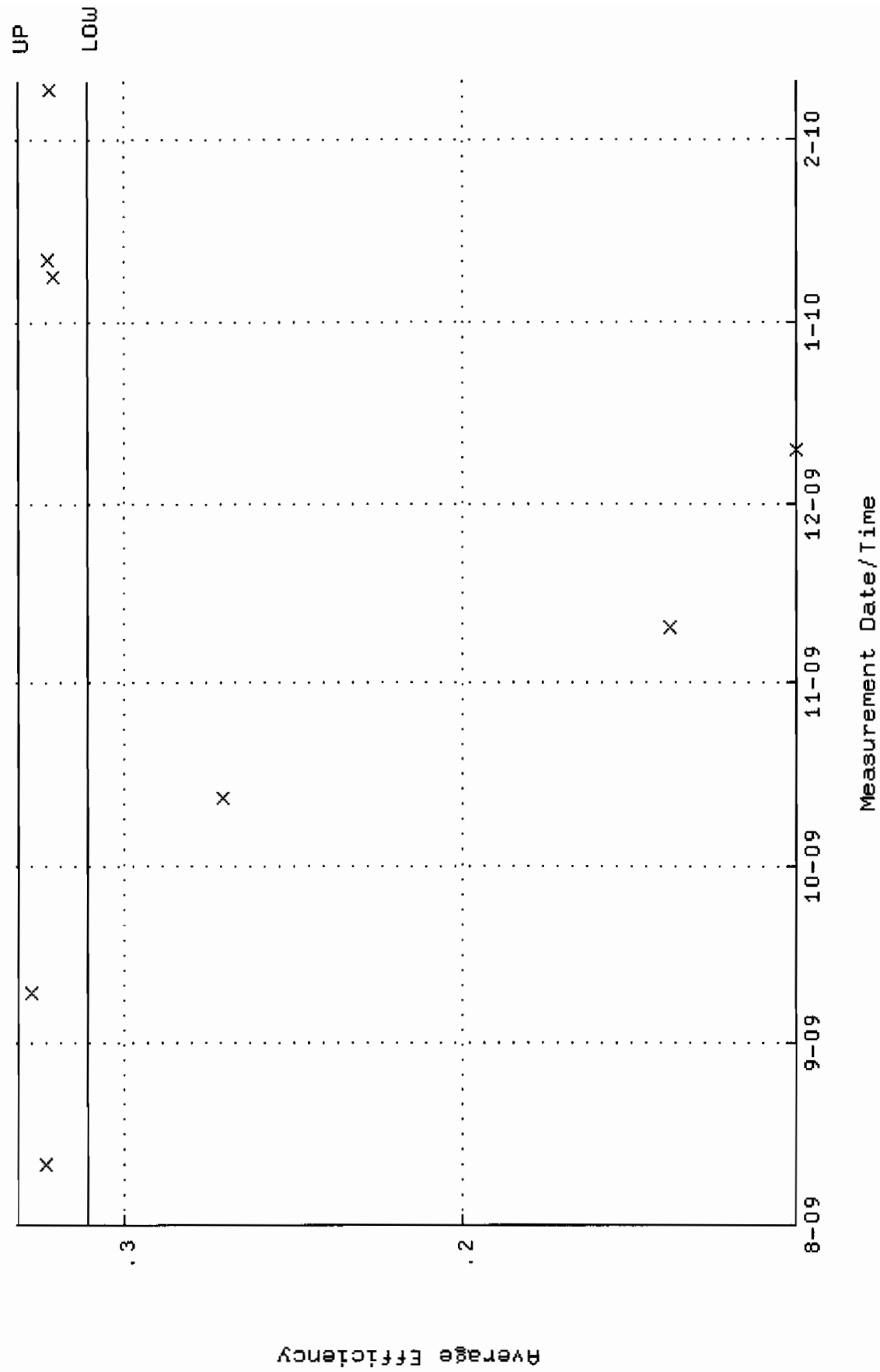


QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5

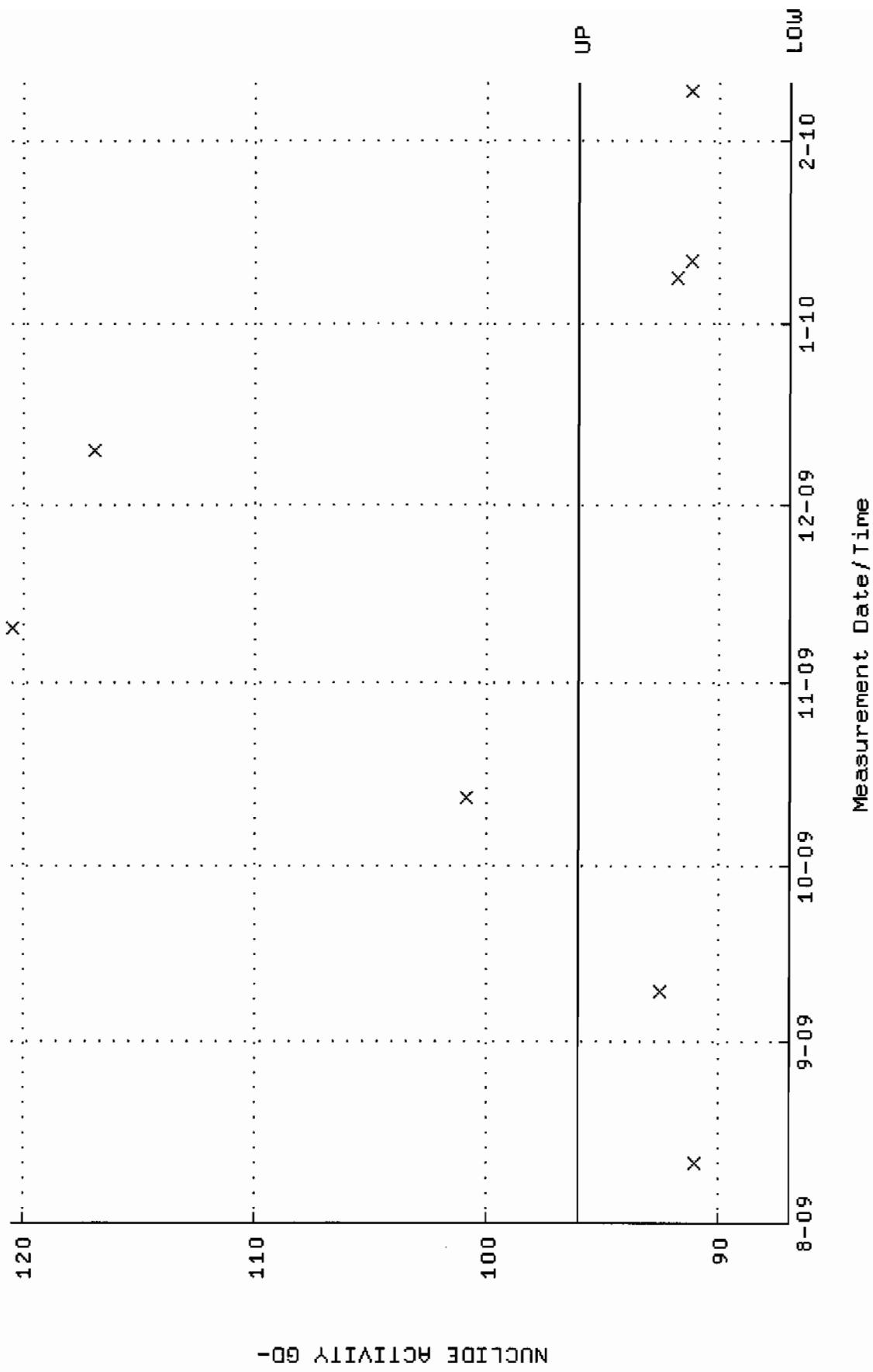
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.311357 through 0.331357



QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:12 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.9094 through 96.0578



DKA100:[ENV\_ALPHA.QA.B]B082.QAF;2

Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:40 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

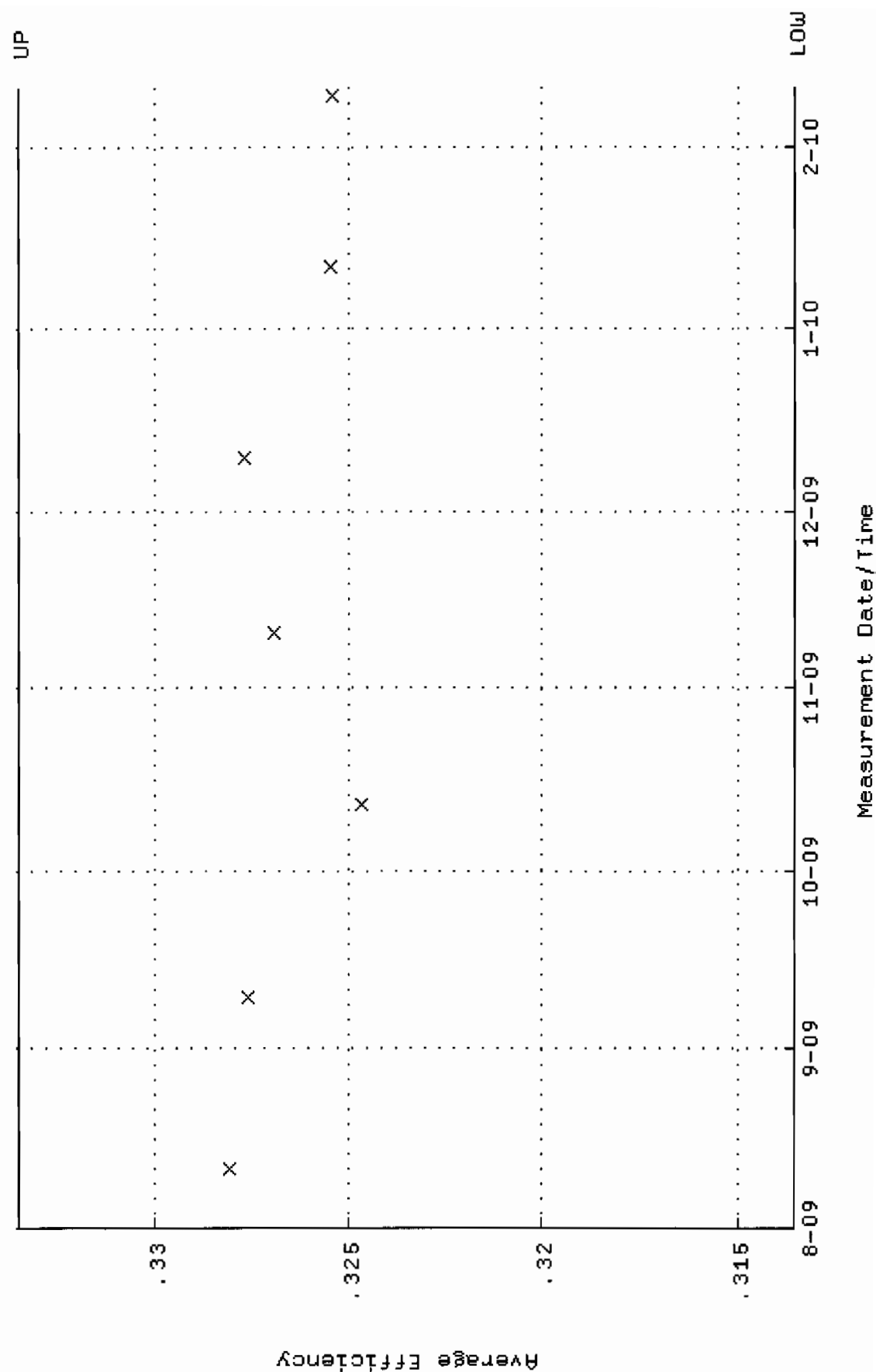


QA filename : DKA100:[ENV\_ALPHA.QA.W]w090.QAF;3

Parameter Name : AVRGEFF (Average Efficiency)

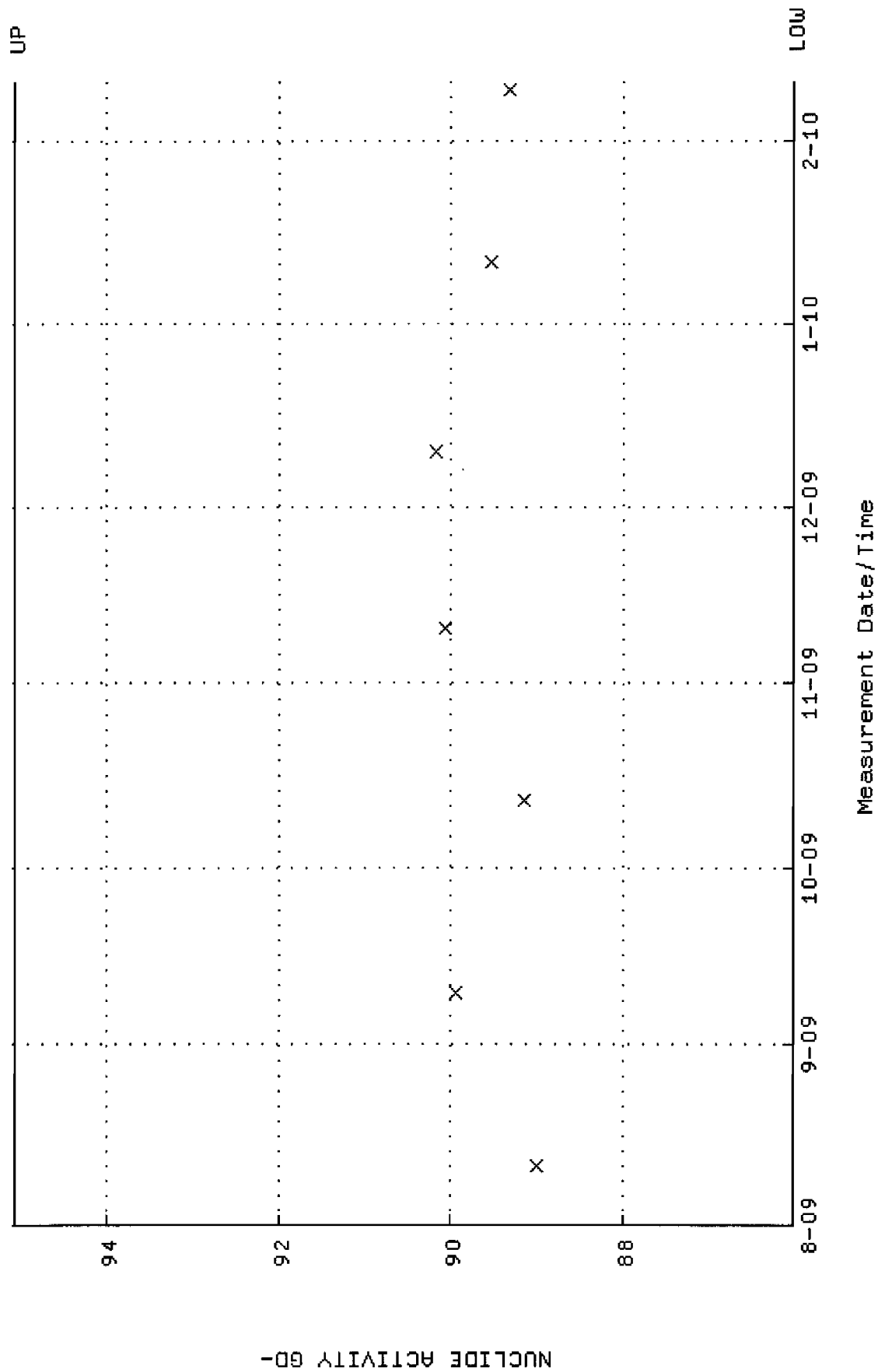
Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.313529 through 0.333529





QA filename : DKA100:[ENV\_ALPHA.QA.W]W090.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.0139 through 95.0680

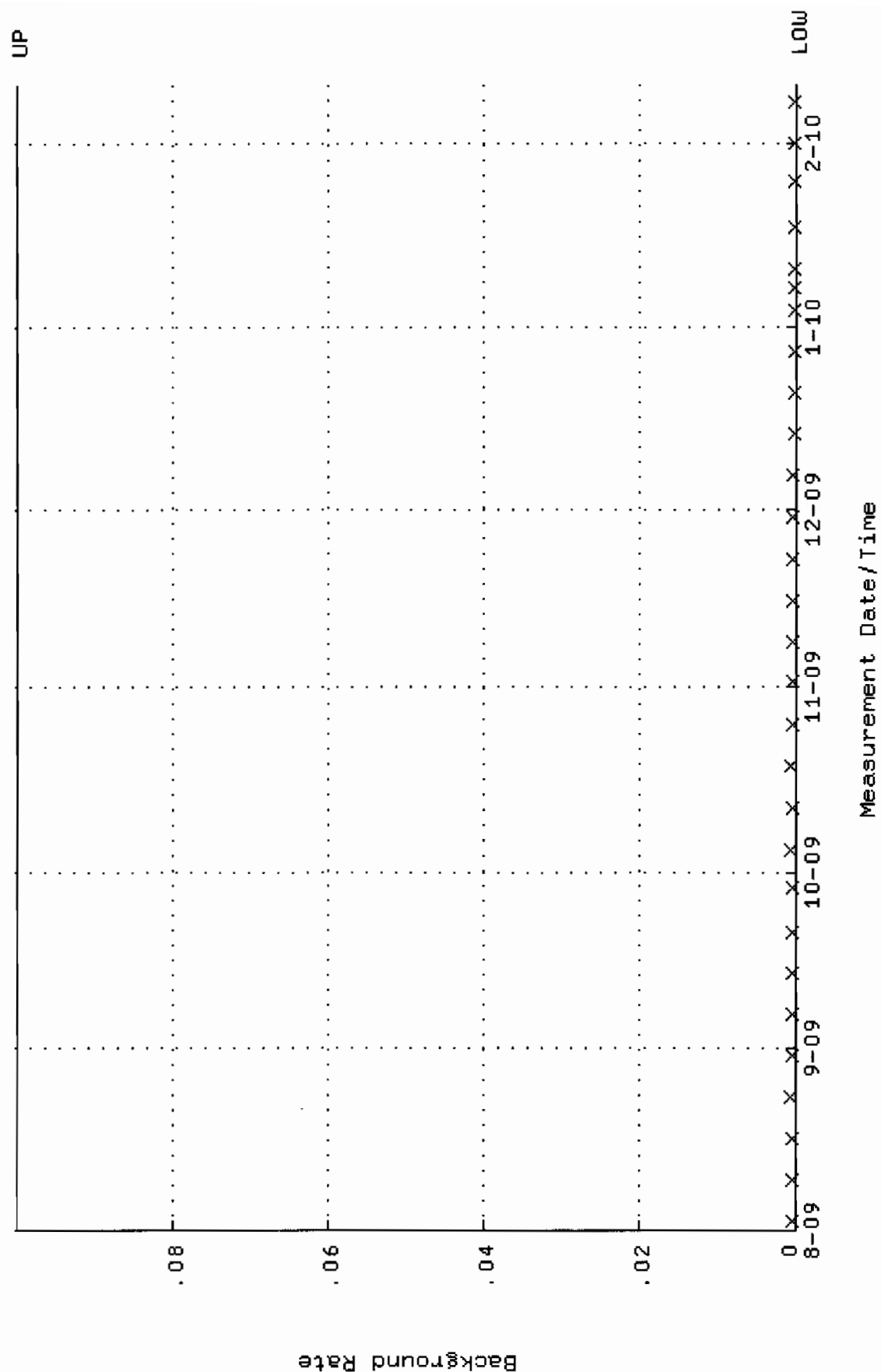


QA filename : DKA100:[ENV\_ALPHA.QA.B]B090.QAF;2

Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.000000E+00 through 0.100000

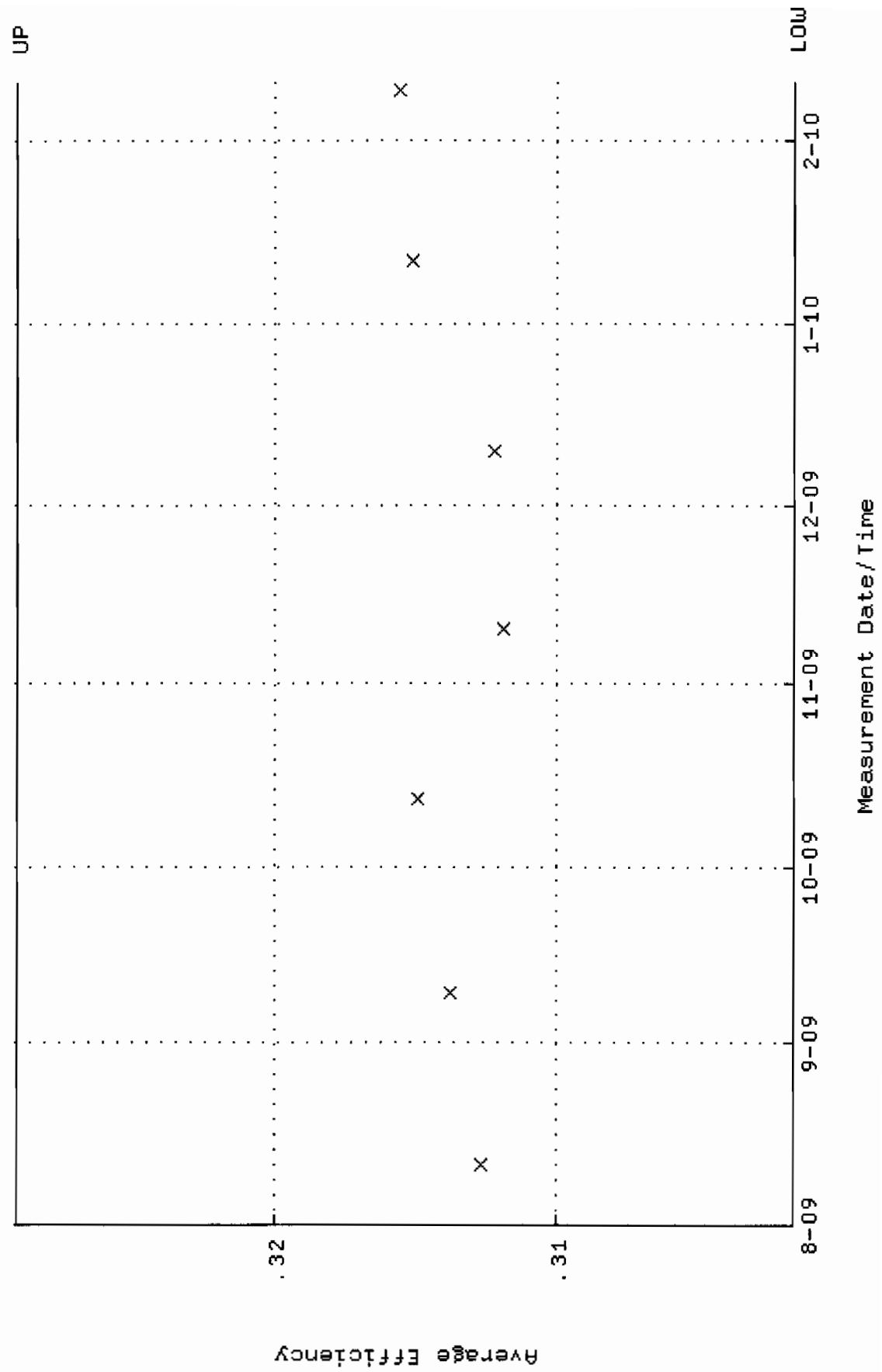


QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1

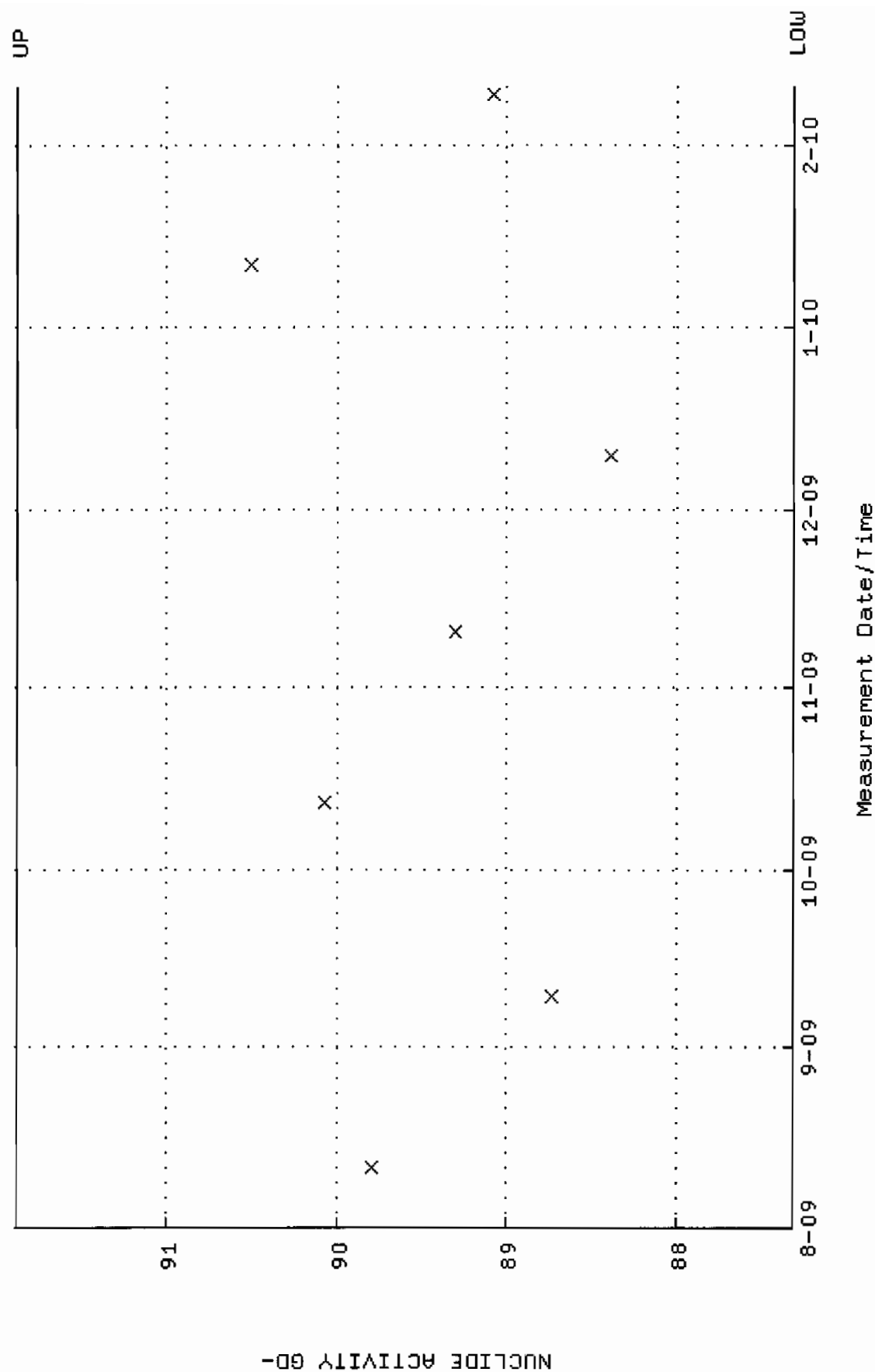
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: 0.301529 through 0.329133



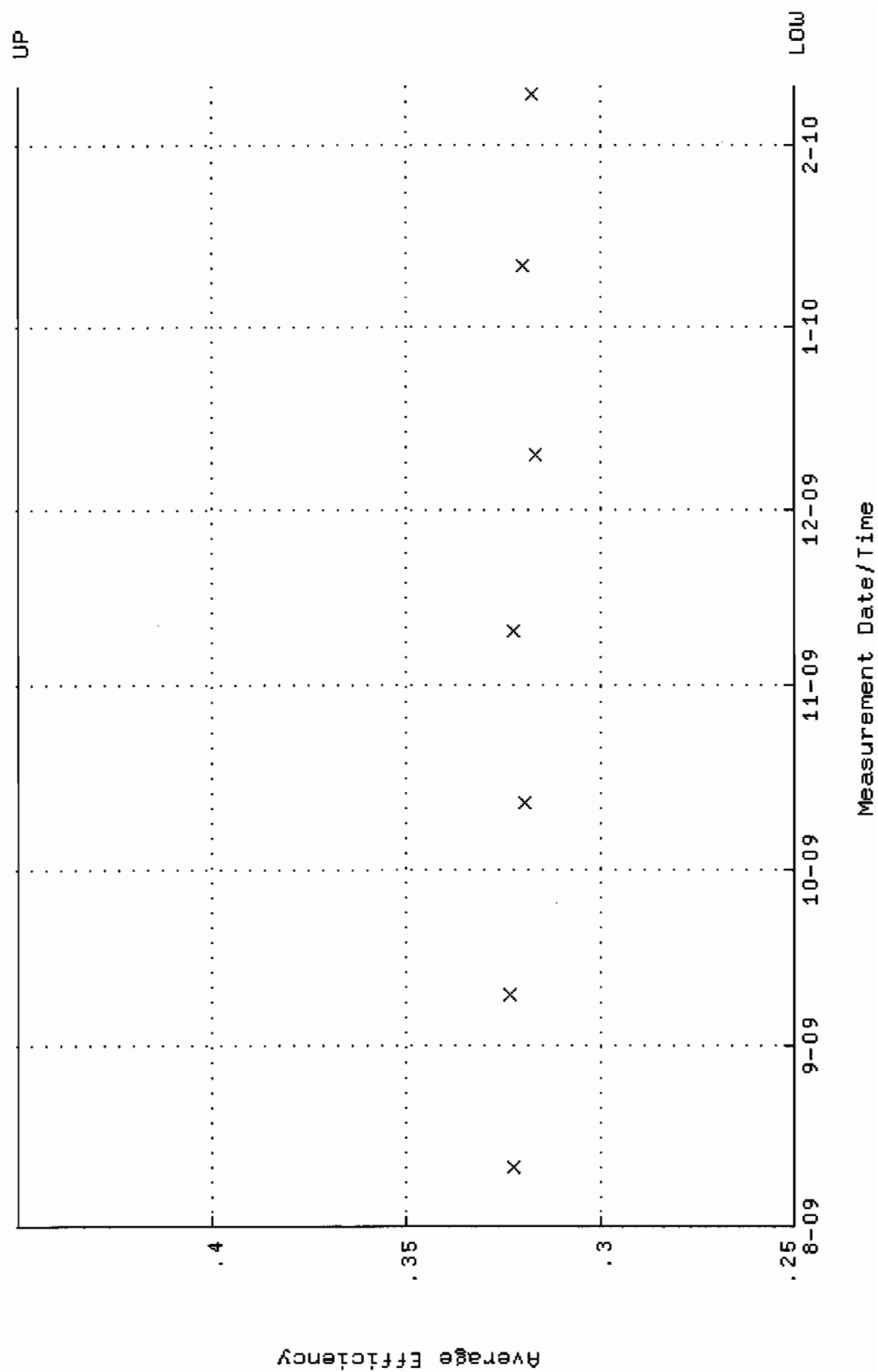
QA filename : DKA100:[ENV\_ALPHA.QA.W]W092.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 87.3140 through 91.8878



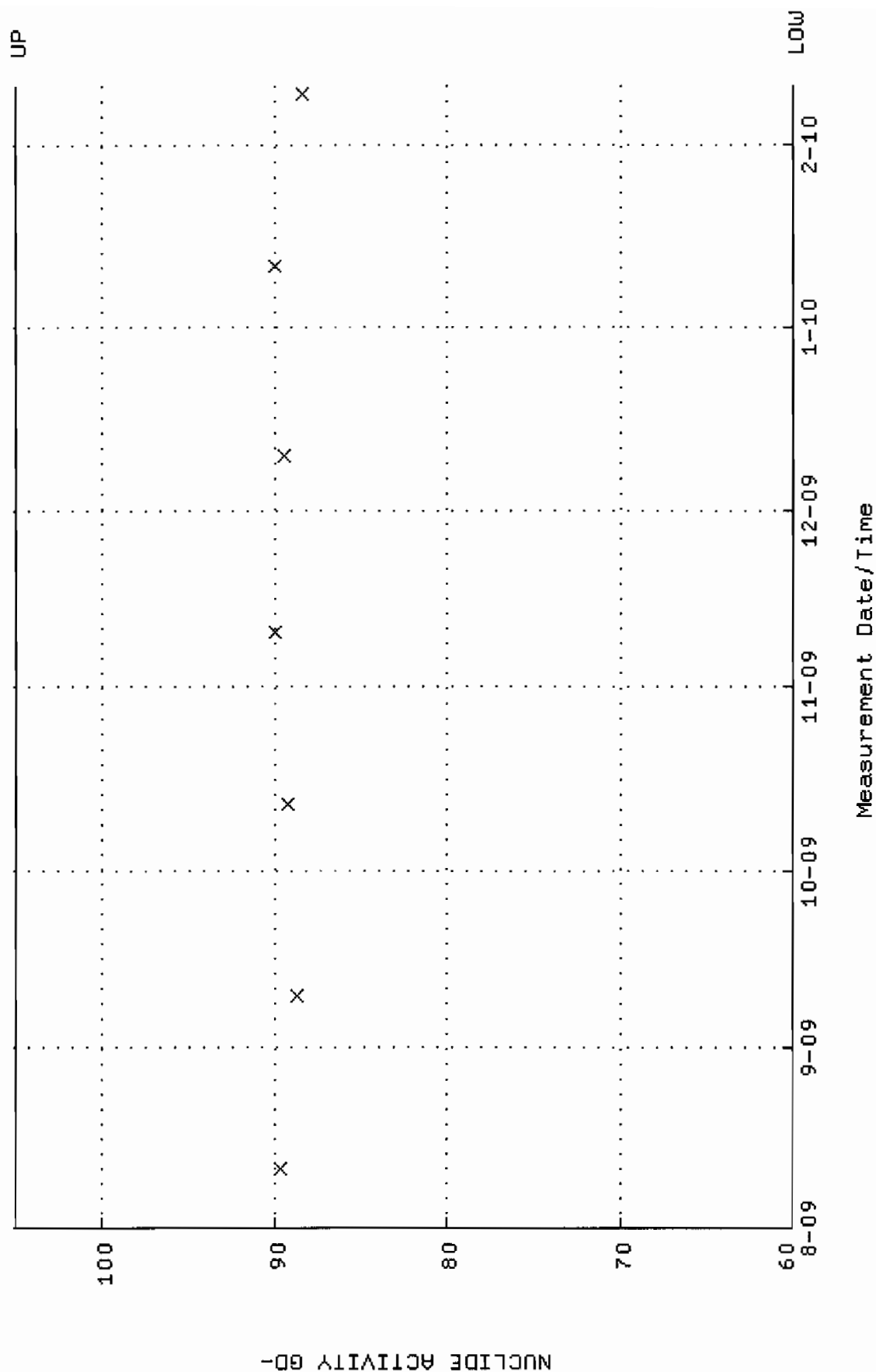
Lower/Upper Lmts: -1.00000 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W093.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W093.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000

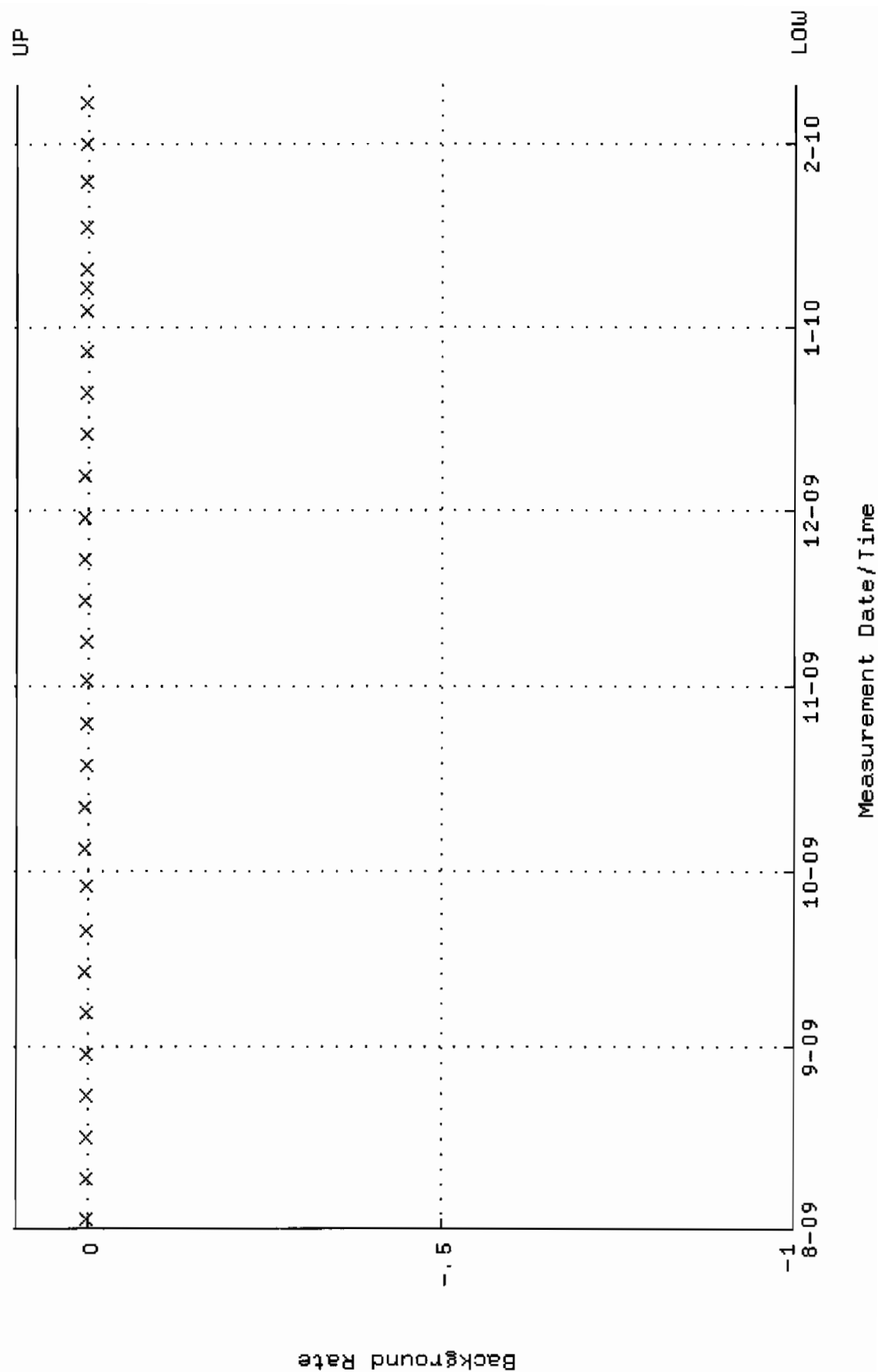


QA filename : DKA100:[ENV\_ALPHA.QA.B]B093.QAF;1

Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00

Lower/Upper Lmts: -1.00000 through 0.100000



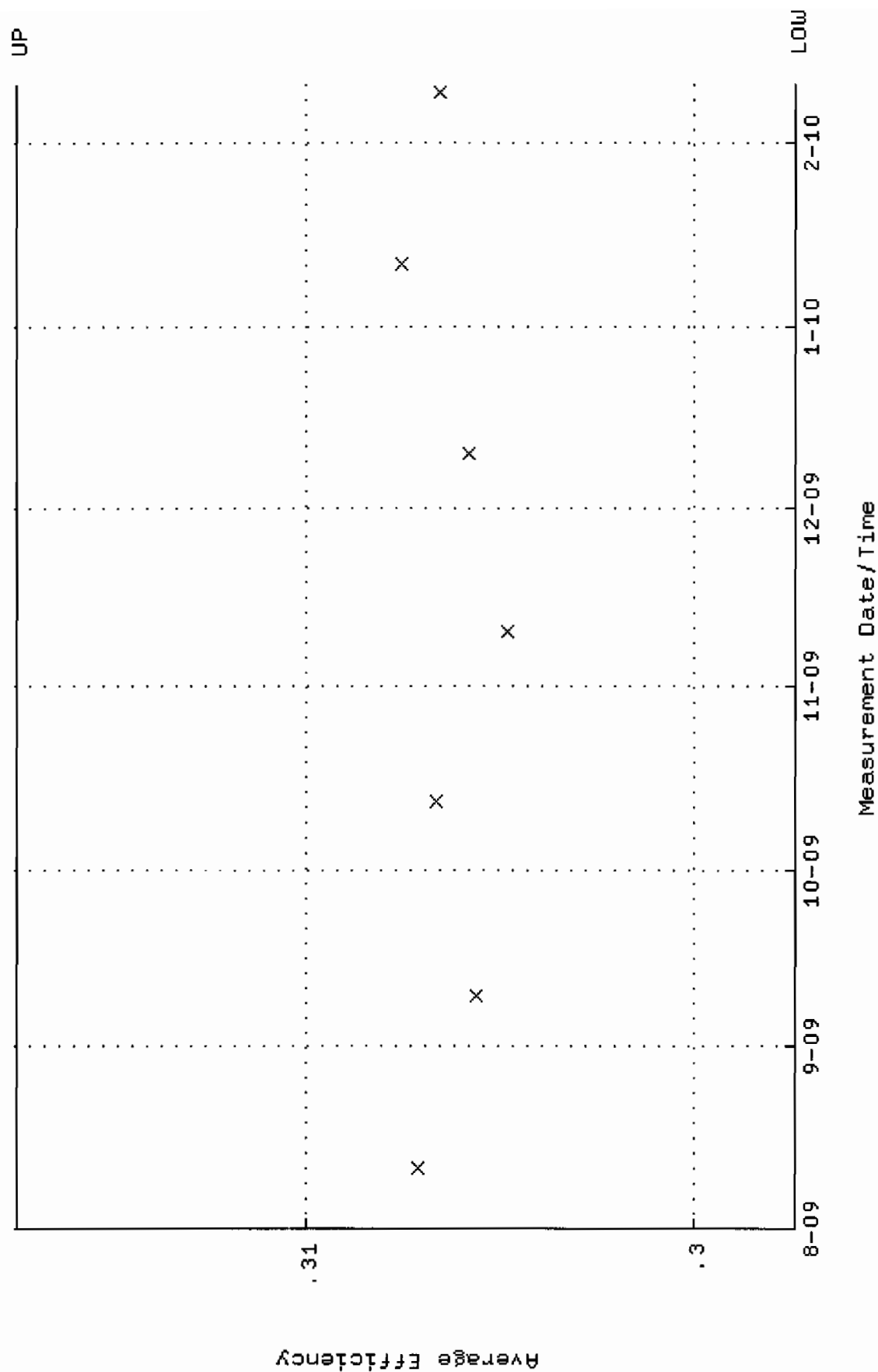


QA filename : DKA100:[ENV\_ALPHA.QA.W]w094.QAF;1

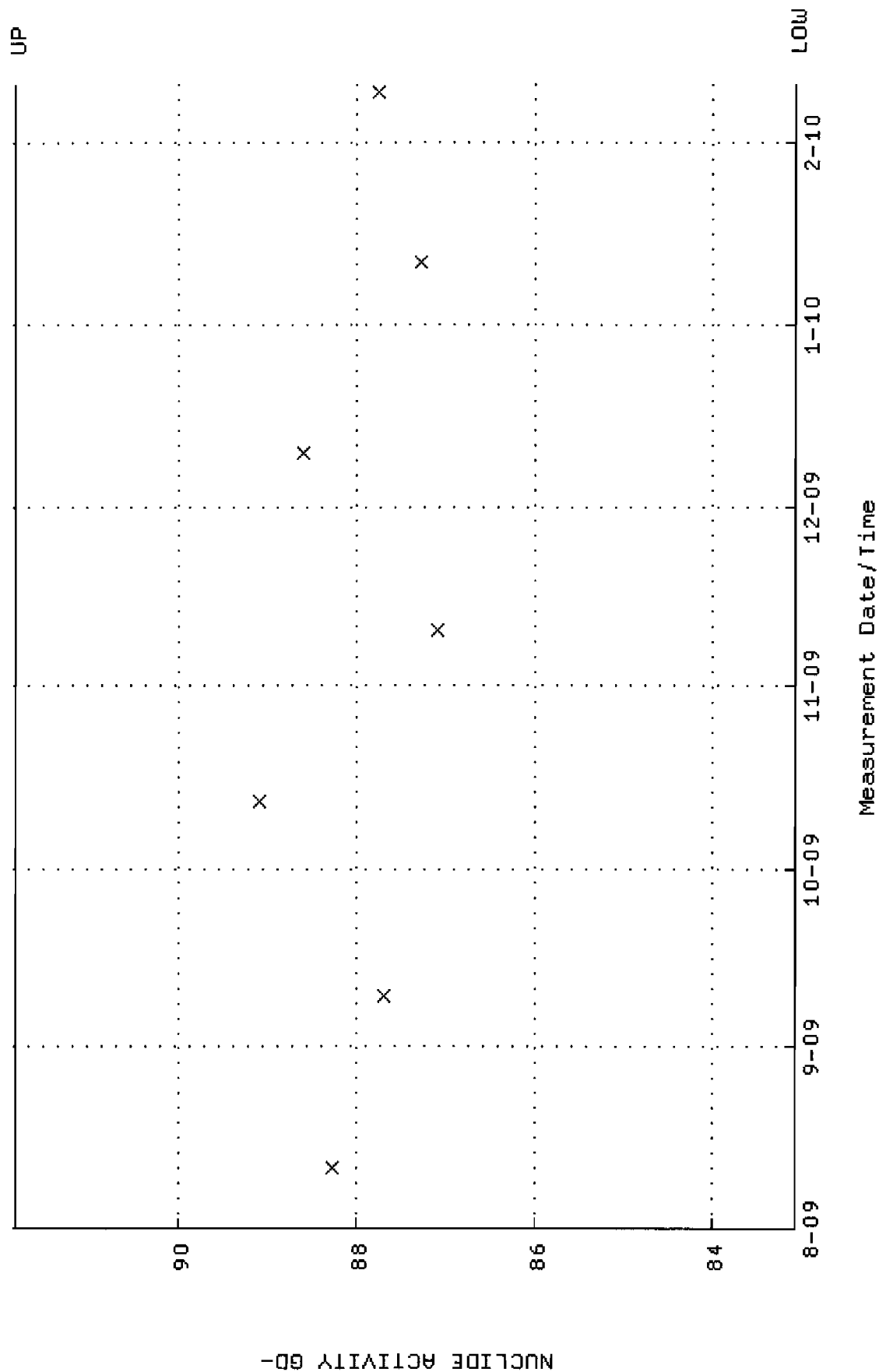
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00

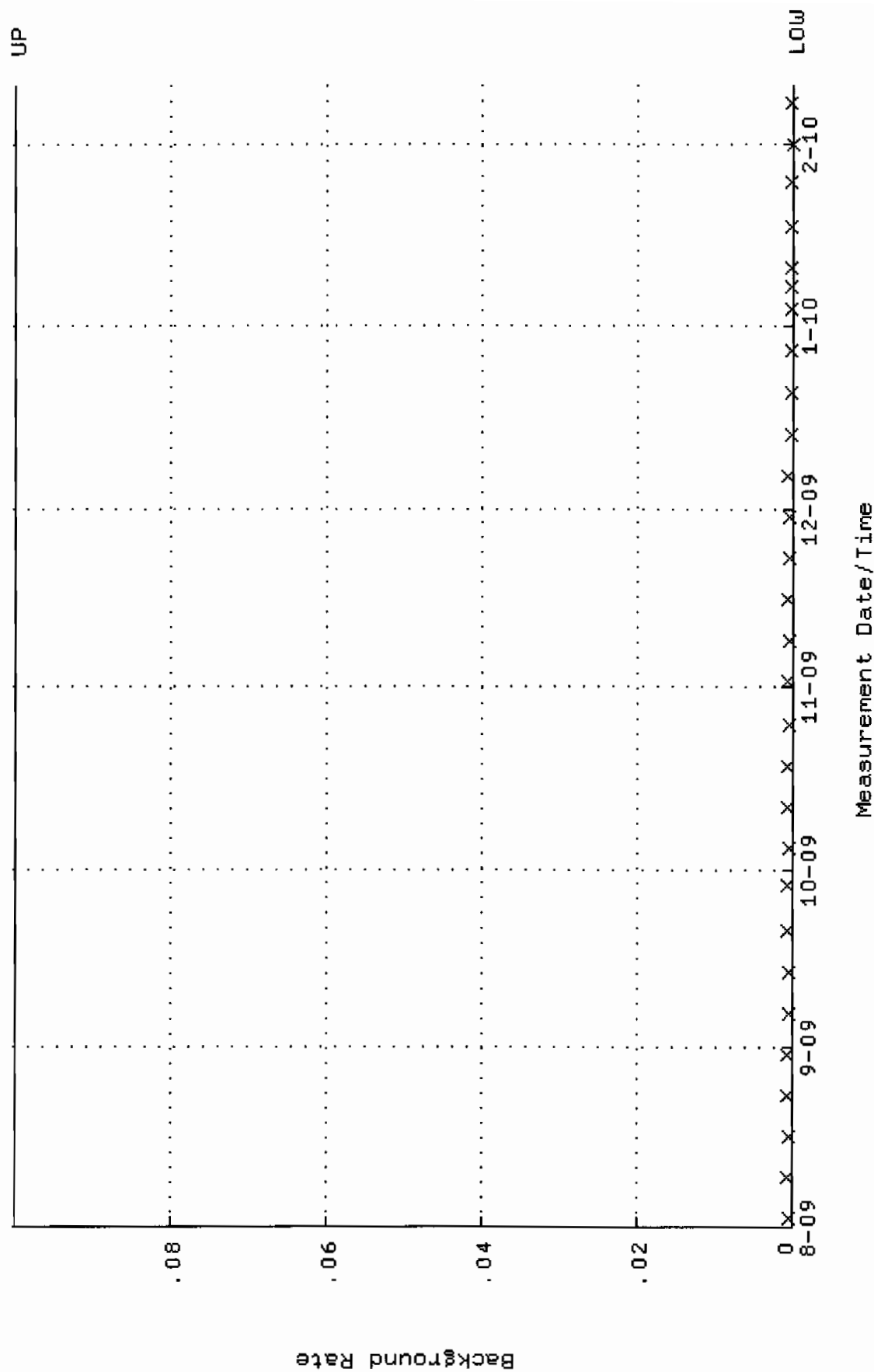
Lower/Upper Lmts: 0.297429 through 0.317429



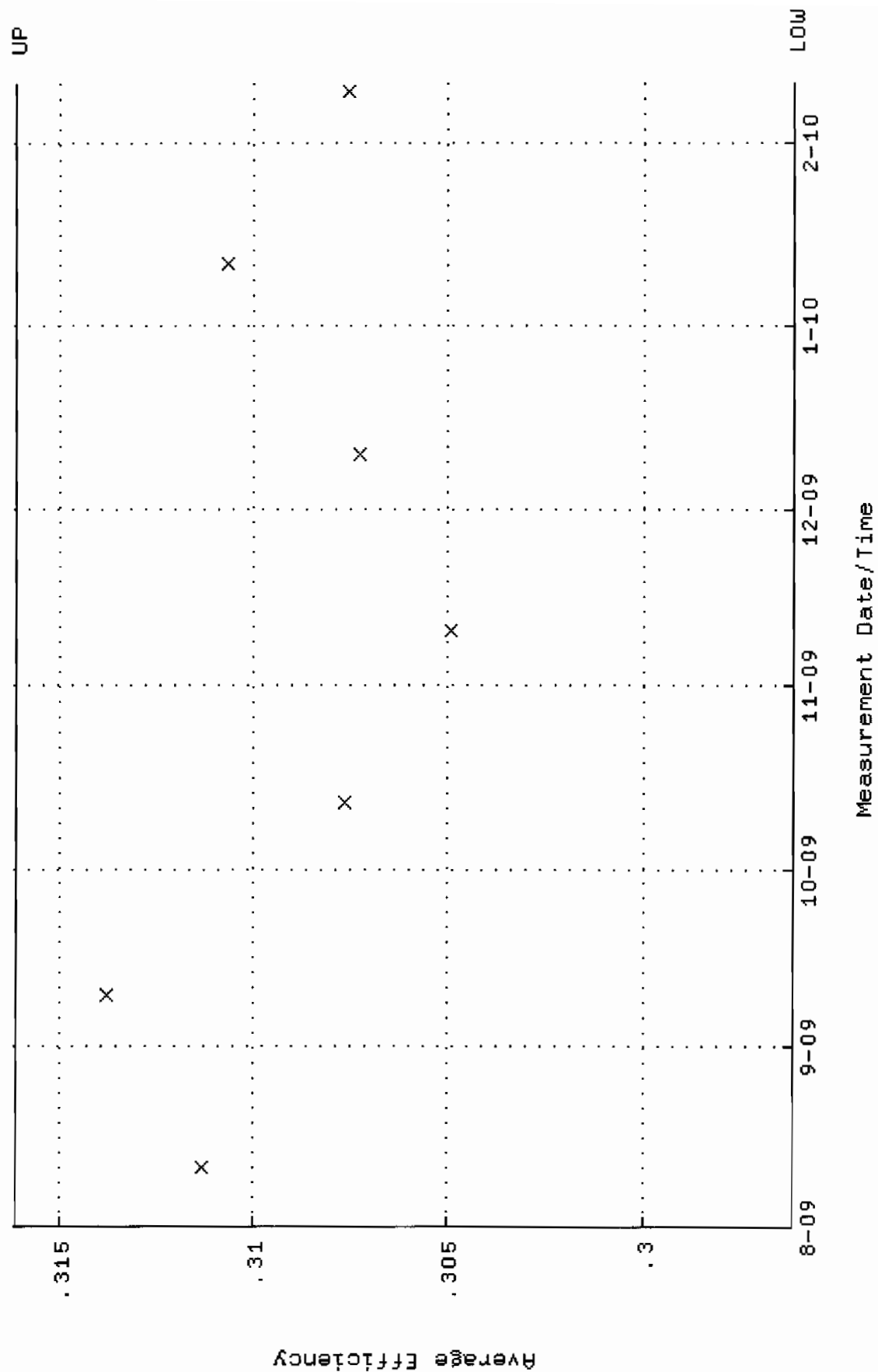
QA filename : DKA100:[ENV\_ALPHA.QA.W]W094.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:15 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 83.0827 through 91.8283



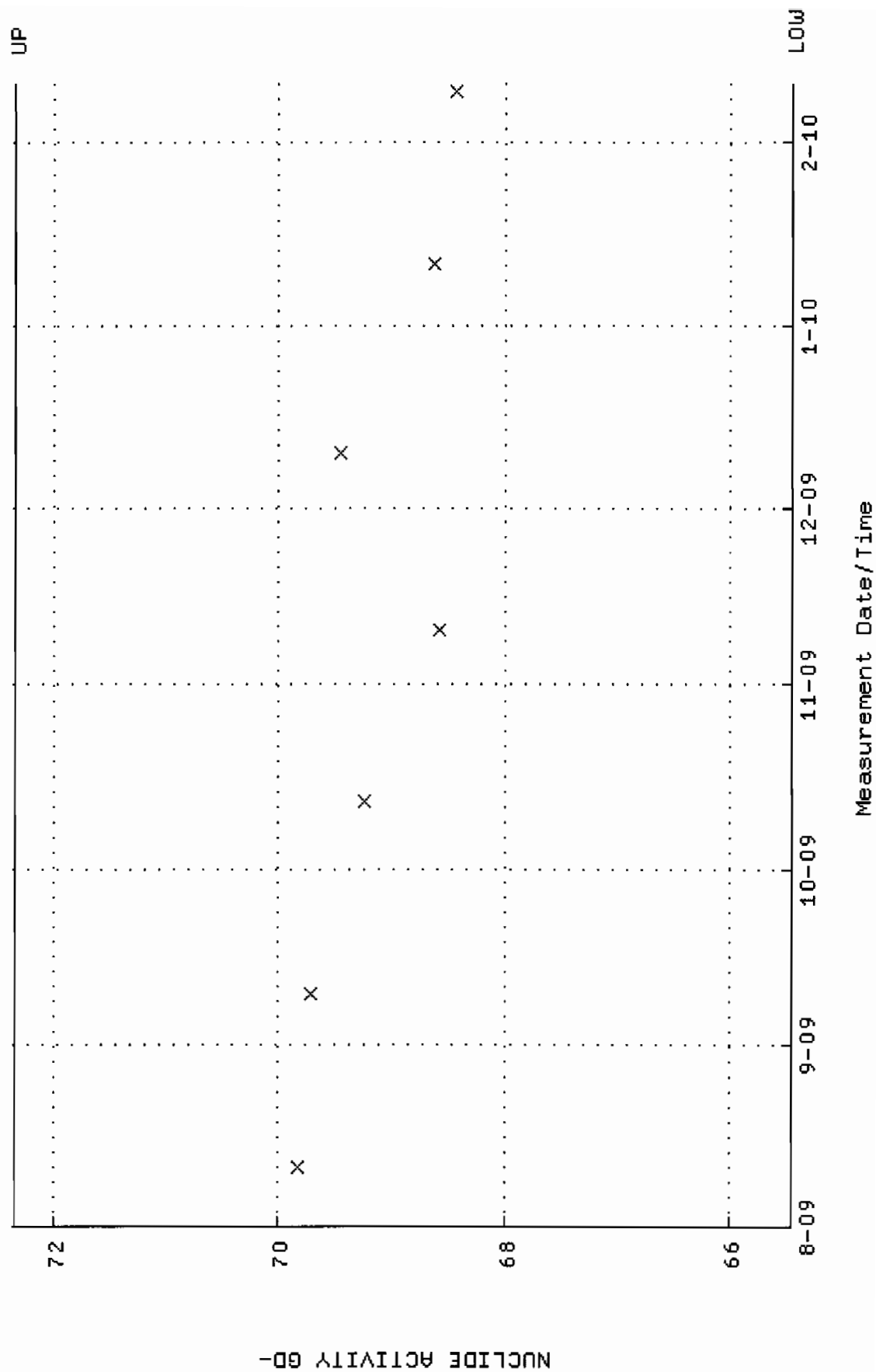
QA filename : DKA100:[ENV\_ALPHA.QA.B]B094.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:42 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



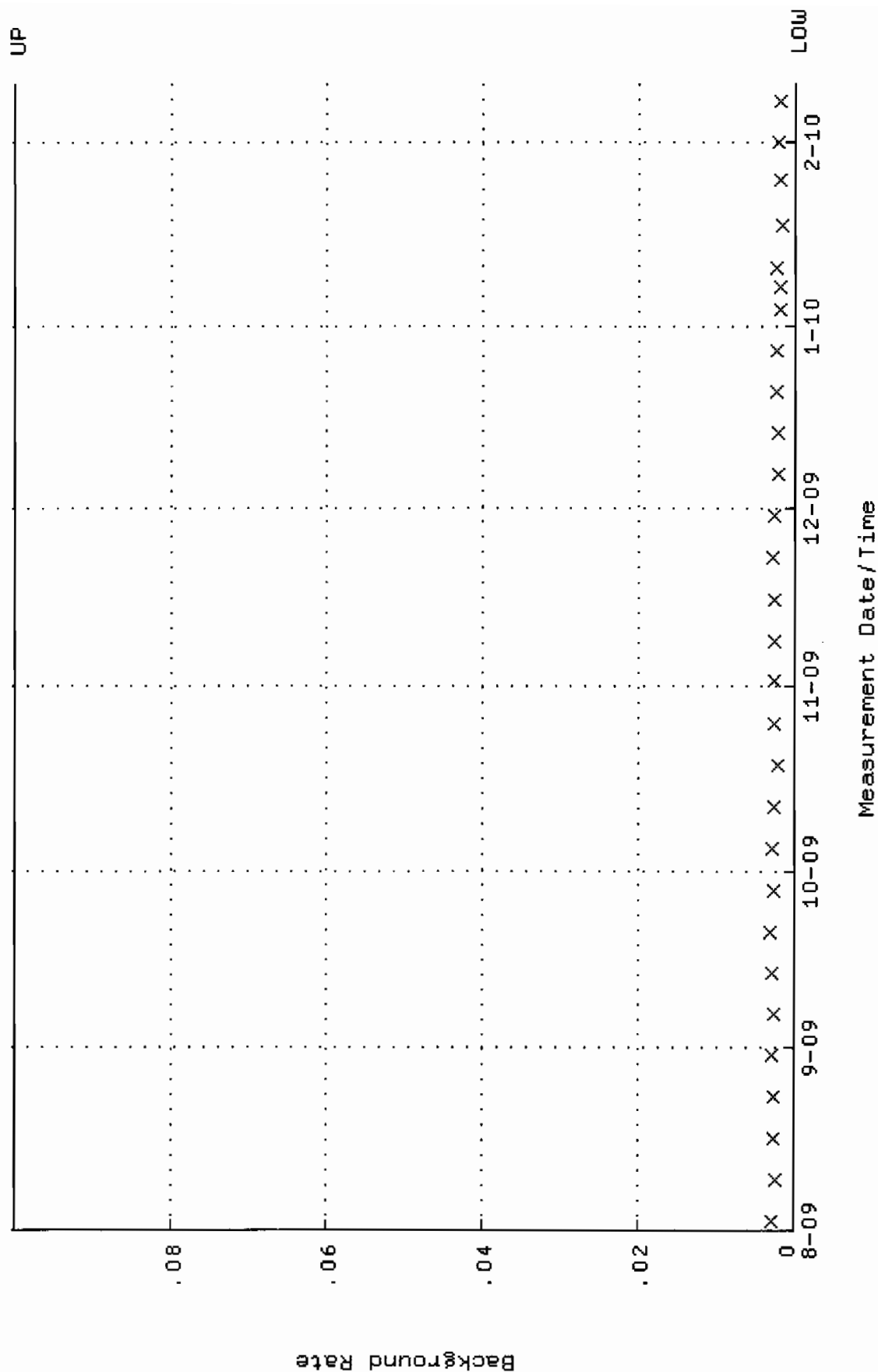
QA filename : DKA100:[ENV\_ALPHA.QA.W]W095.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.296122 through 0.316122



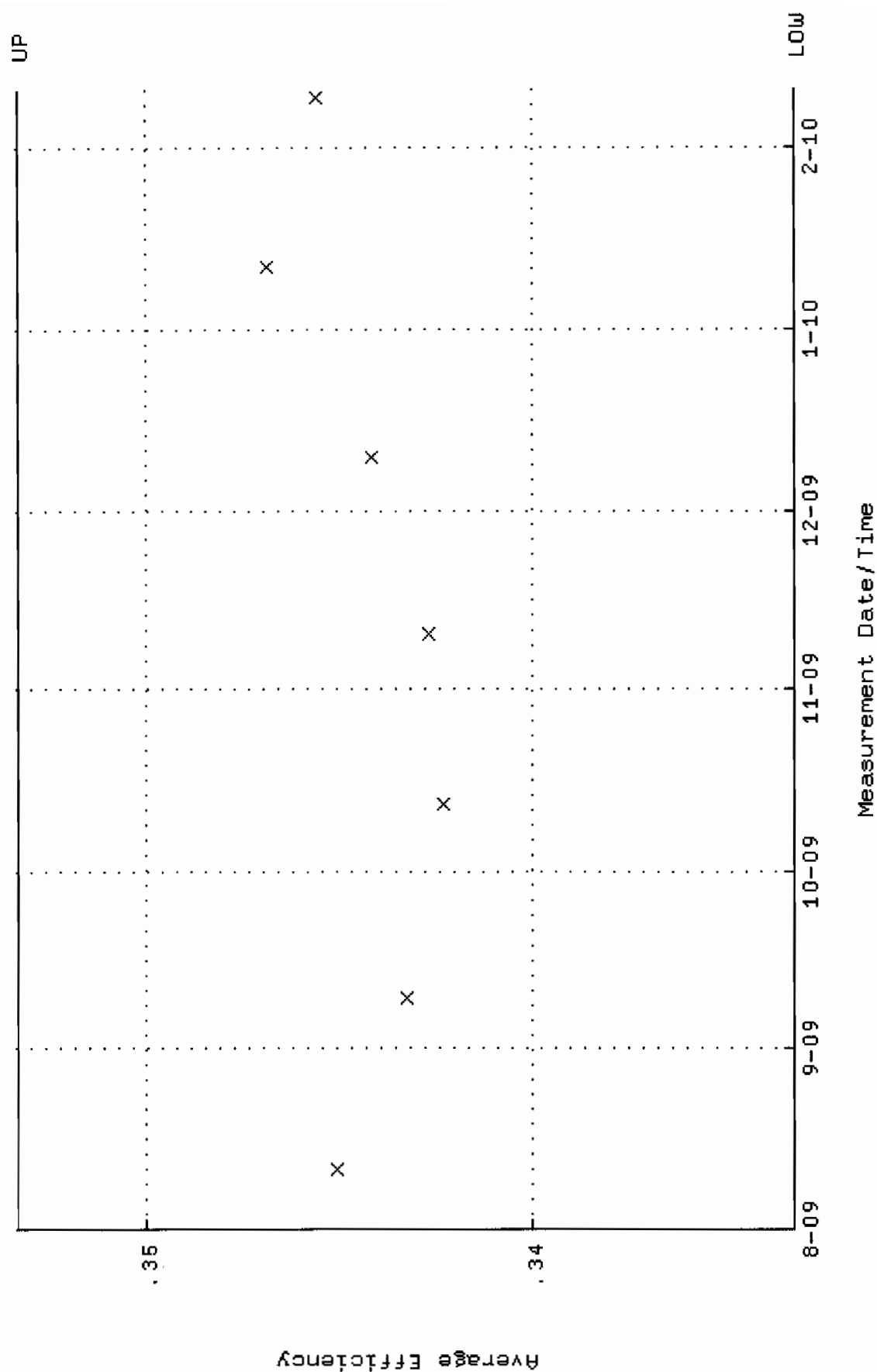
QA filename : DKA100:[ENV-ALPHA.QA.W]W095.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 65.4492 through 72.3386



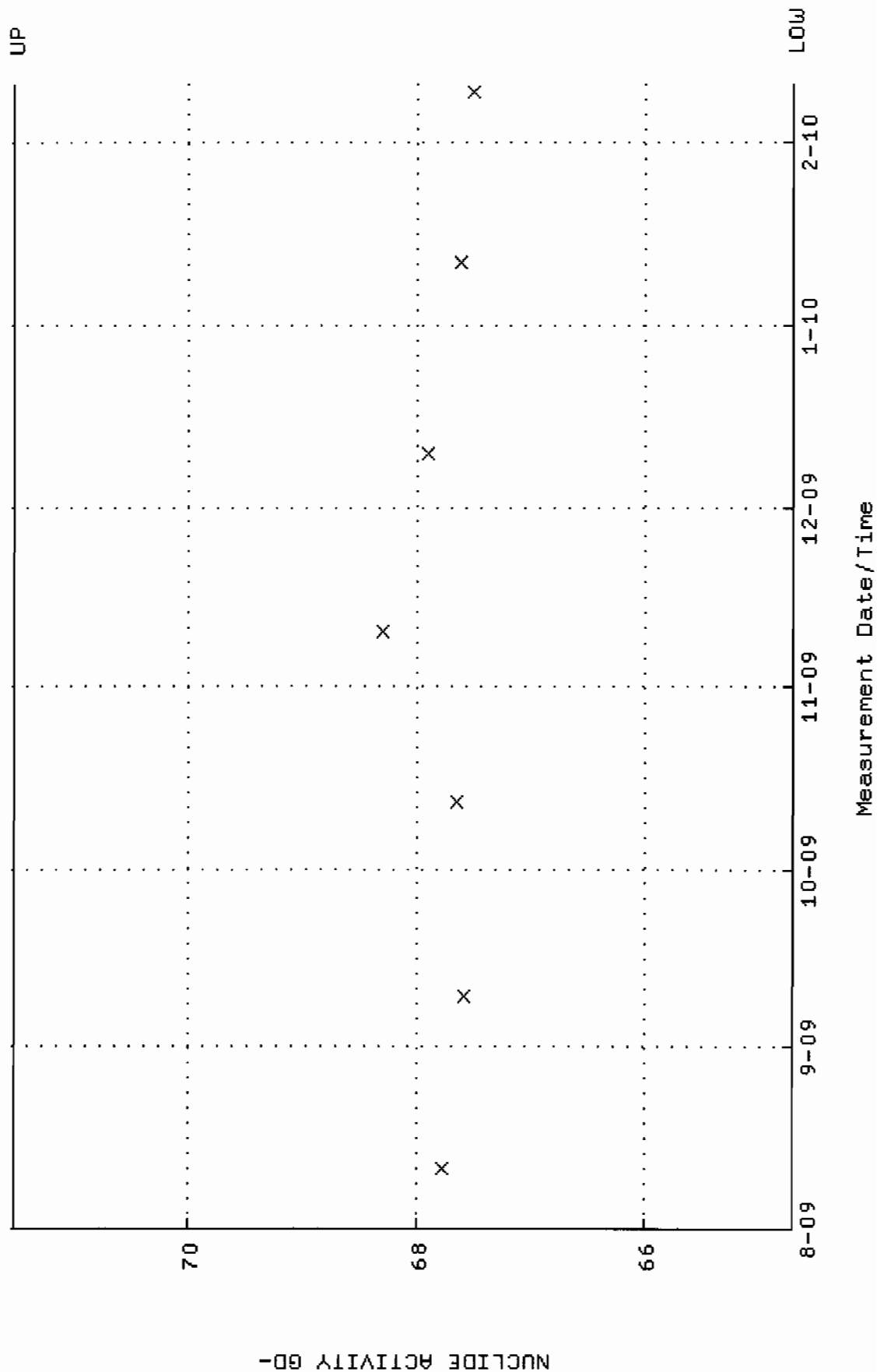
QA filename : DKA100:[ENV\_ALPHA.QA.B]B095.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W097.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.333275 through 0.353275

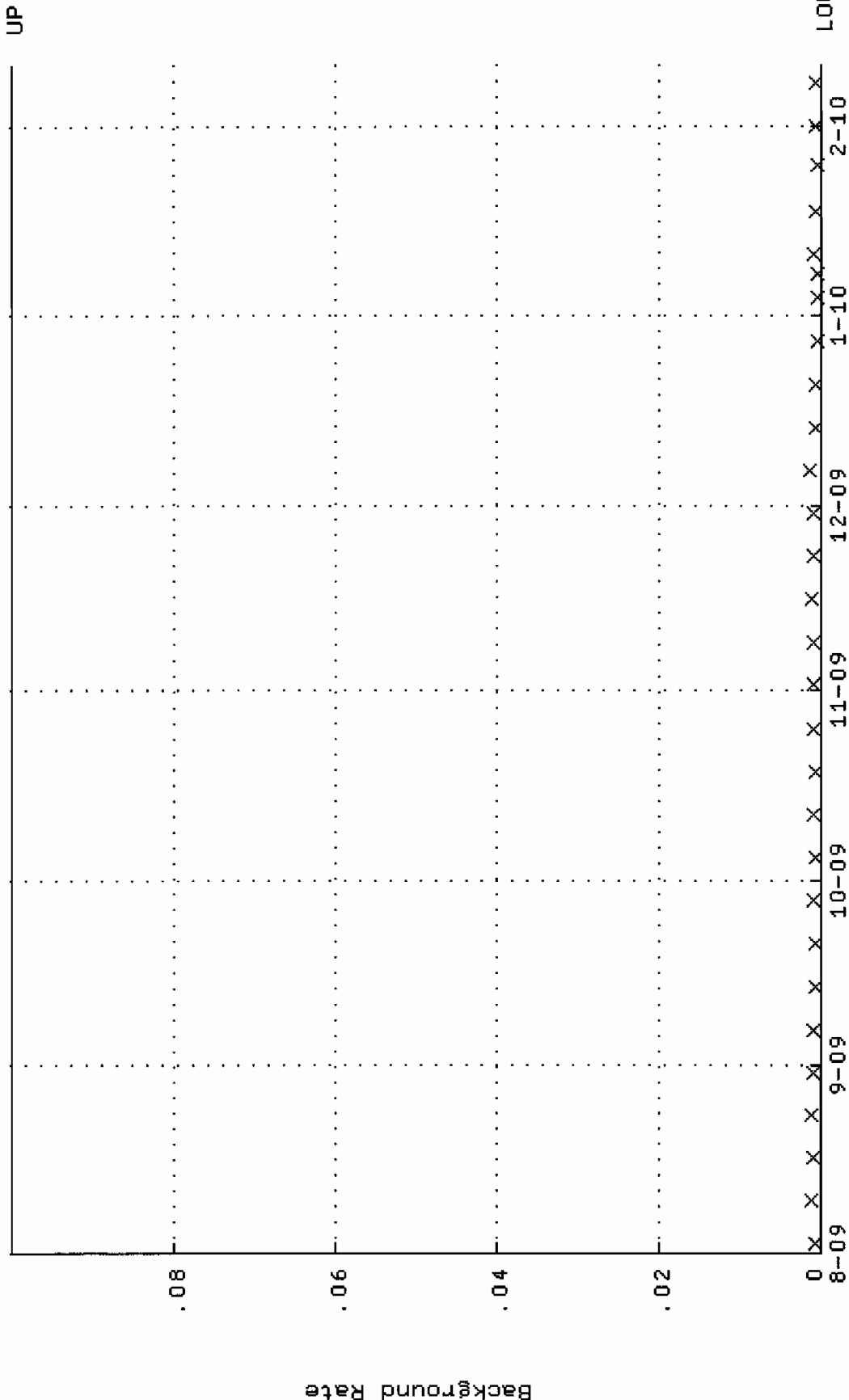


QA filename : DKA100:[ENV\_ALPHA.QA.W]W097.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 64.7068 through 71.5180

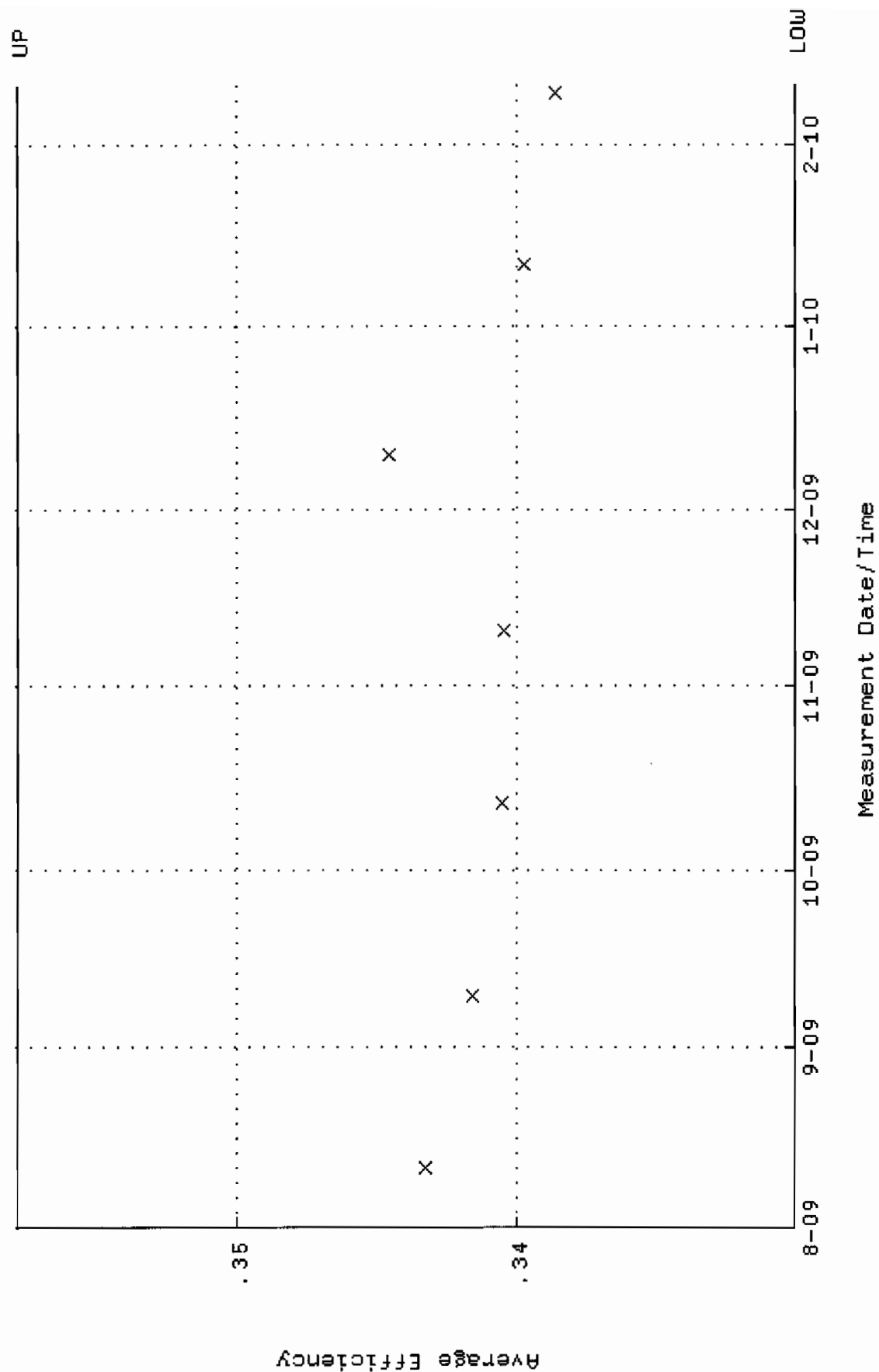




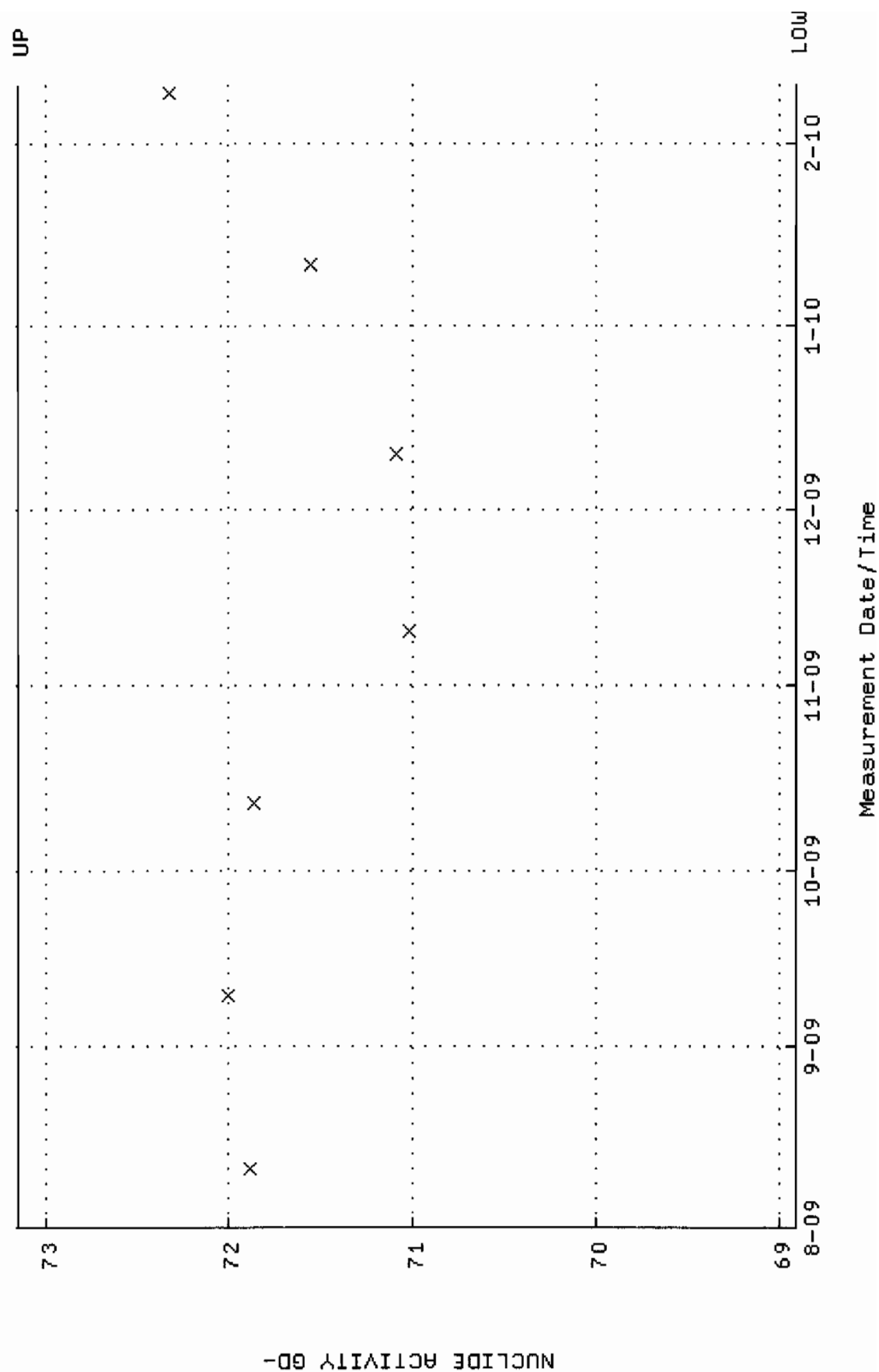
Lower/Upper Lmts: 0.00000E+00 through 0.100000



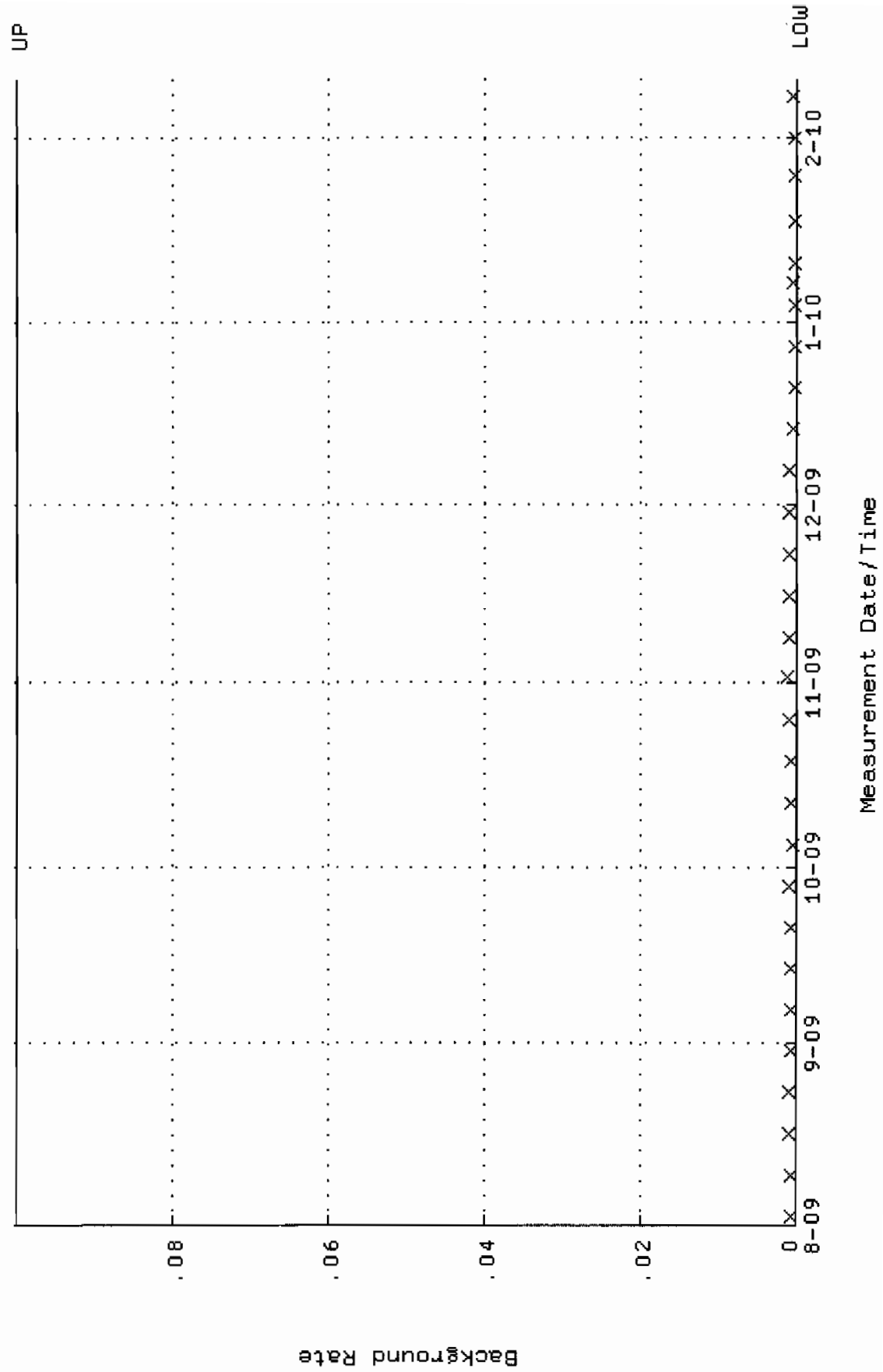
QA filename : DKA100:[ENV\_ALPHA.QA.W]W099.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.330127 through 0.357809



QA filename : DKA100:[ENV\_ALPHA.QA.w]W099.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 68.9116 through 73.1498



QA filename : DKA100:[ENV\_ALPHA.QA.B]B099.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

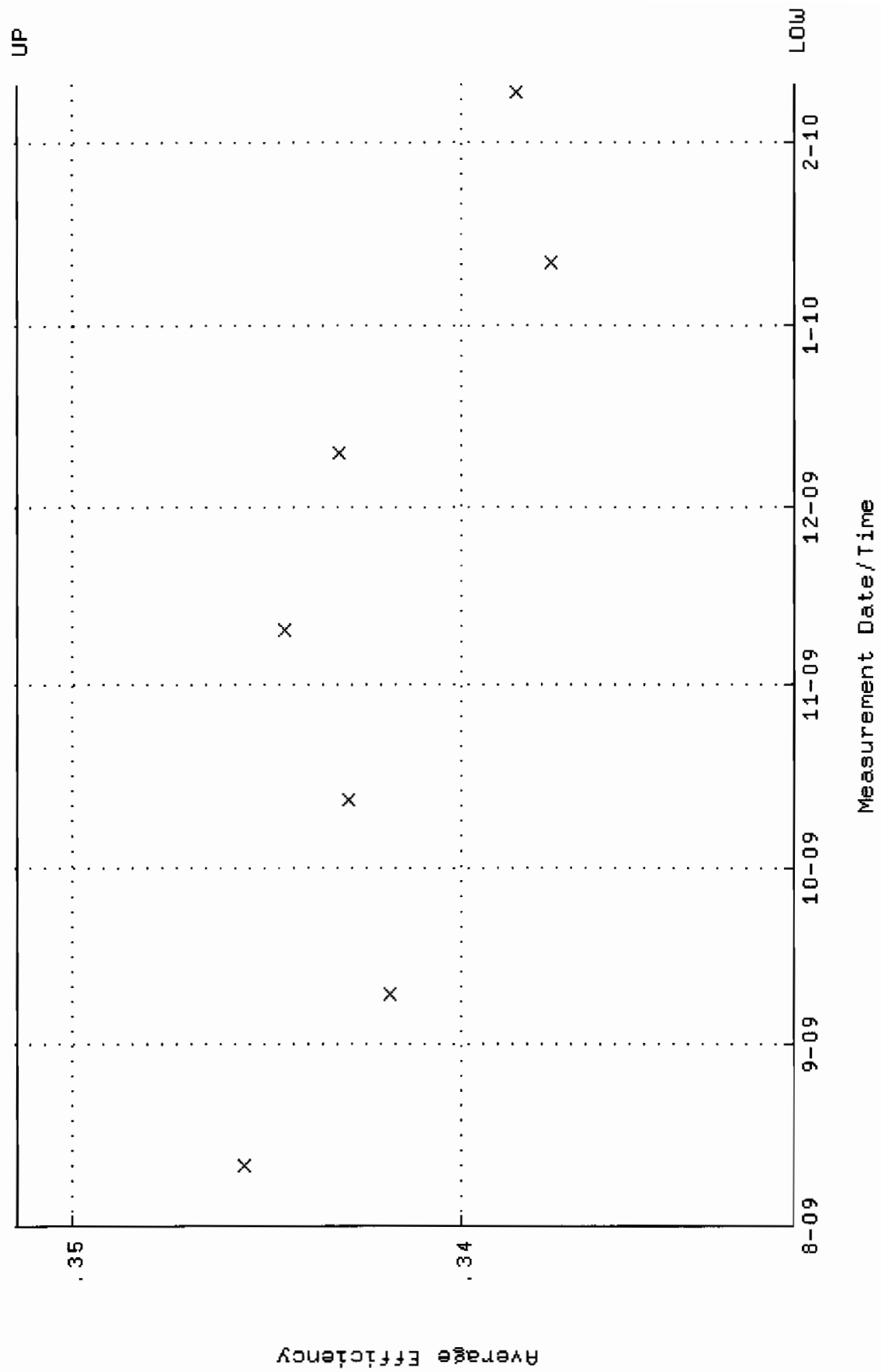


QA filename : DKA100:[ENV\_ALPHA.QA.W]W100.QAF;2

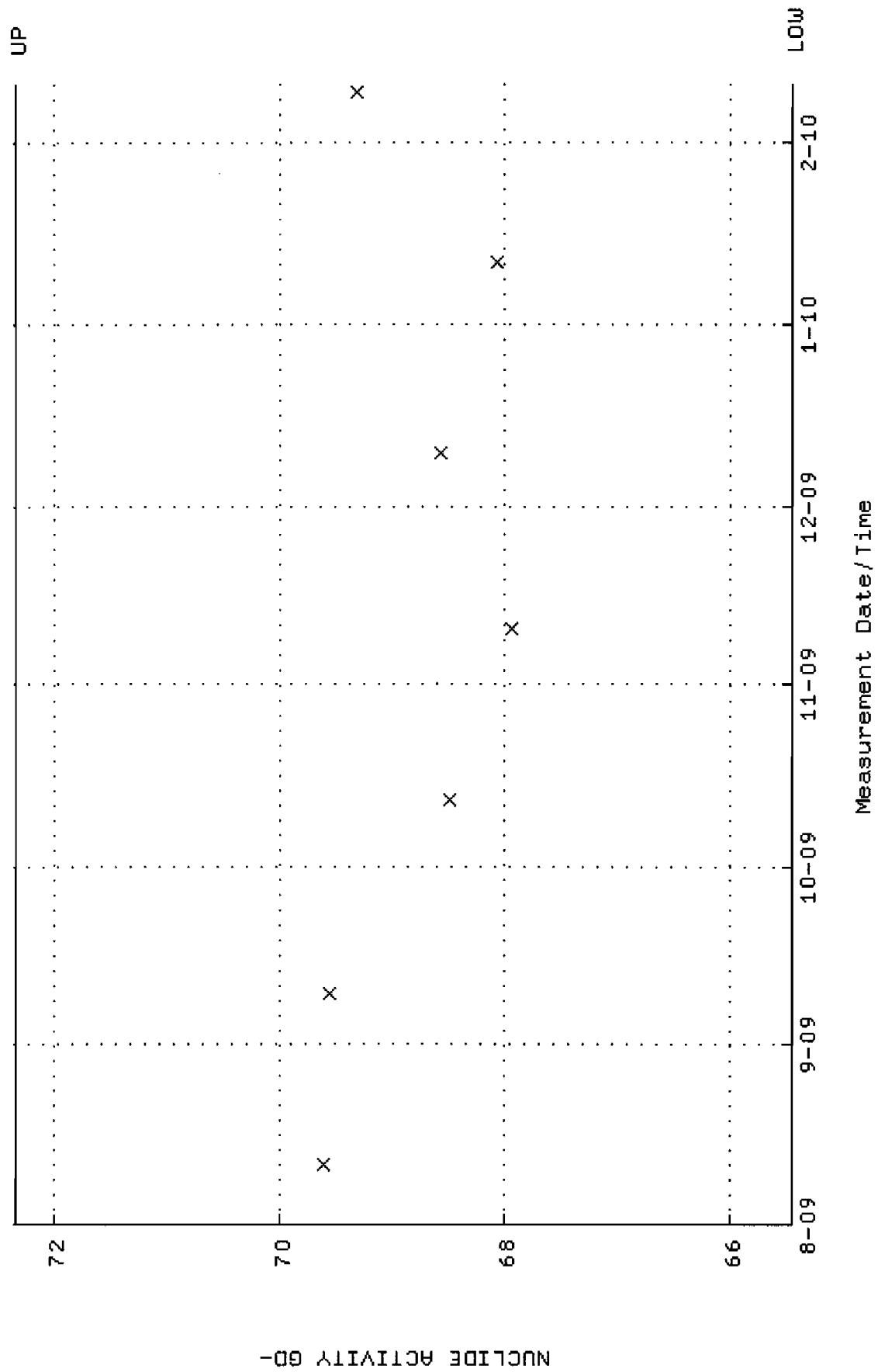
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00

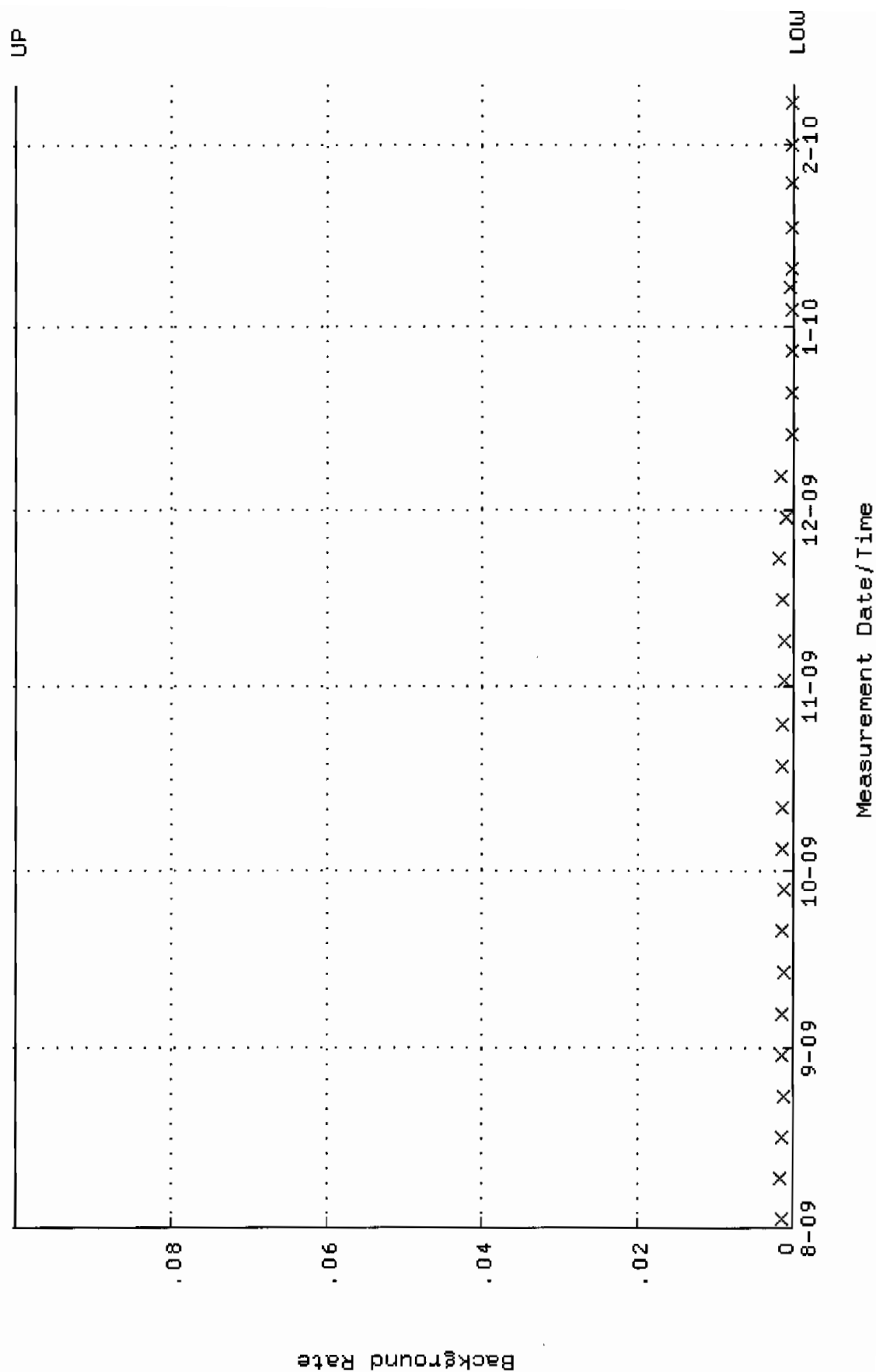
Lower/Upper Lmts: 0.331433 through 0.351433



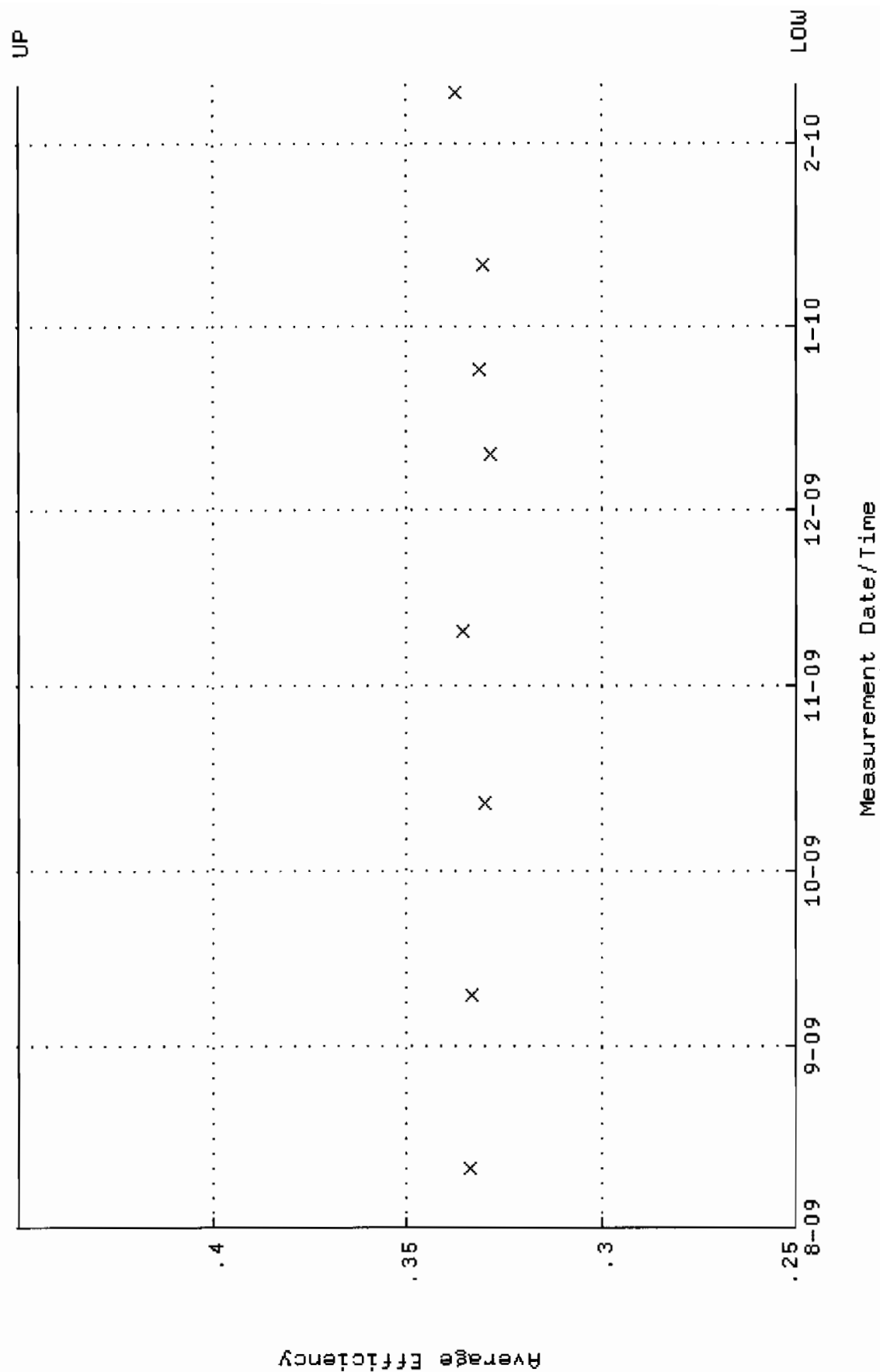
QA filename : DKA100:[ENV\_ALPHA.QA.W]W100.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:16 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 65.4550 through 72.3450



QA filename : DKA100:[ENV\_ALPHA.QA.B]B100.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

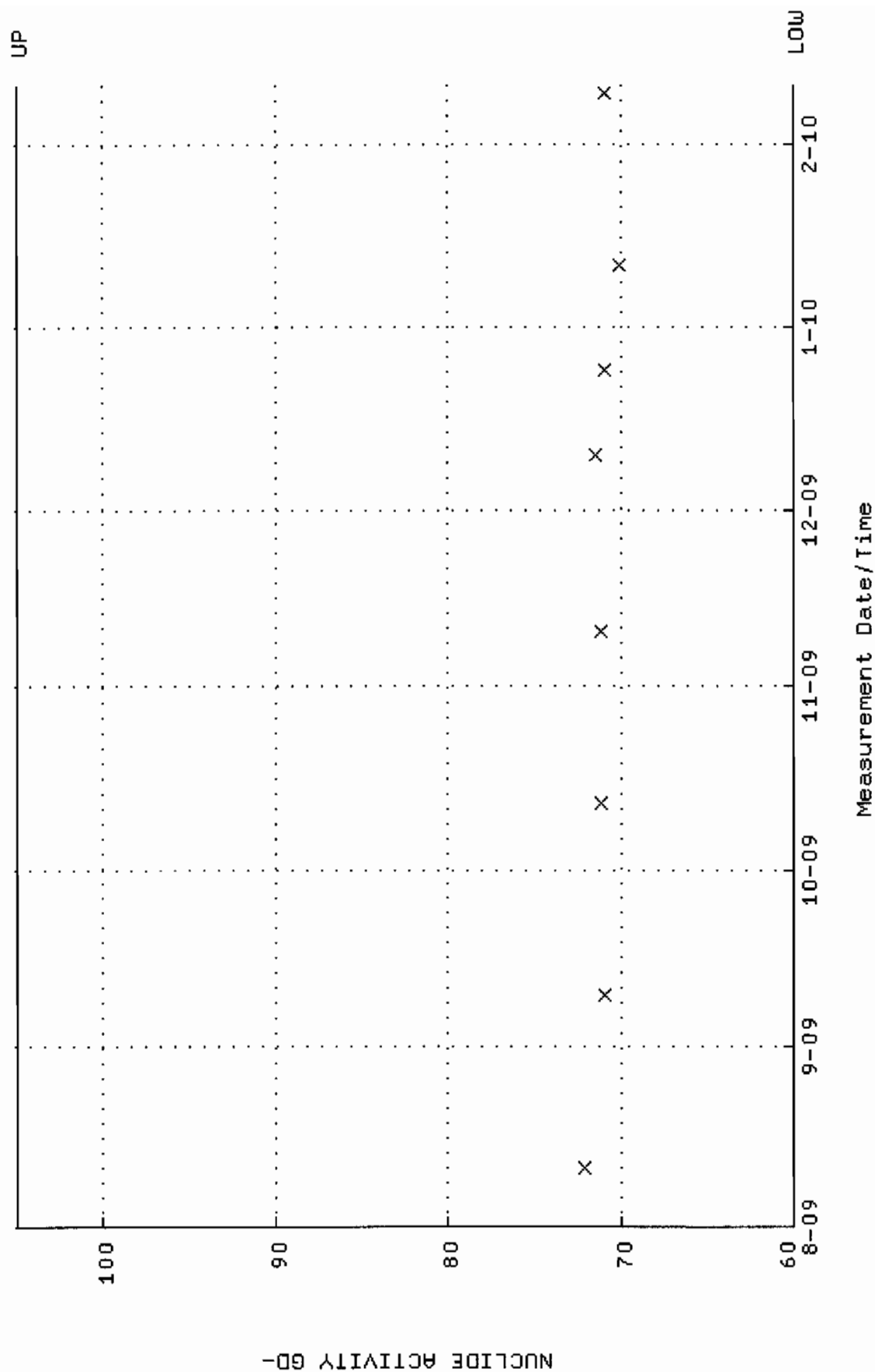


QA filename : DKA100:[ENV\_ALPHA.QA.W]W101.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000

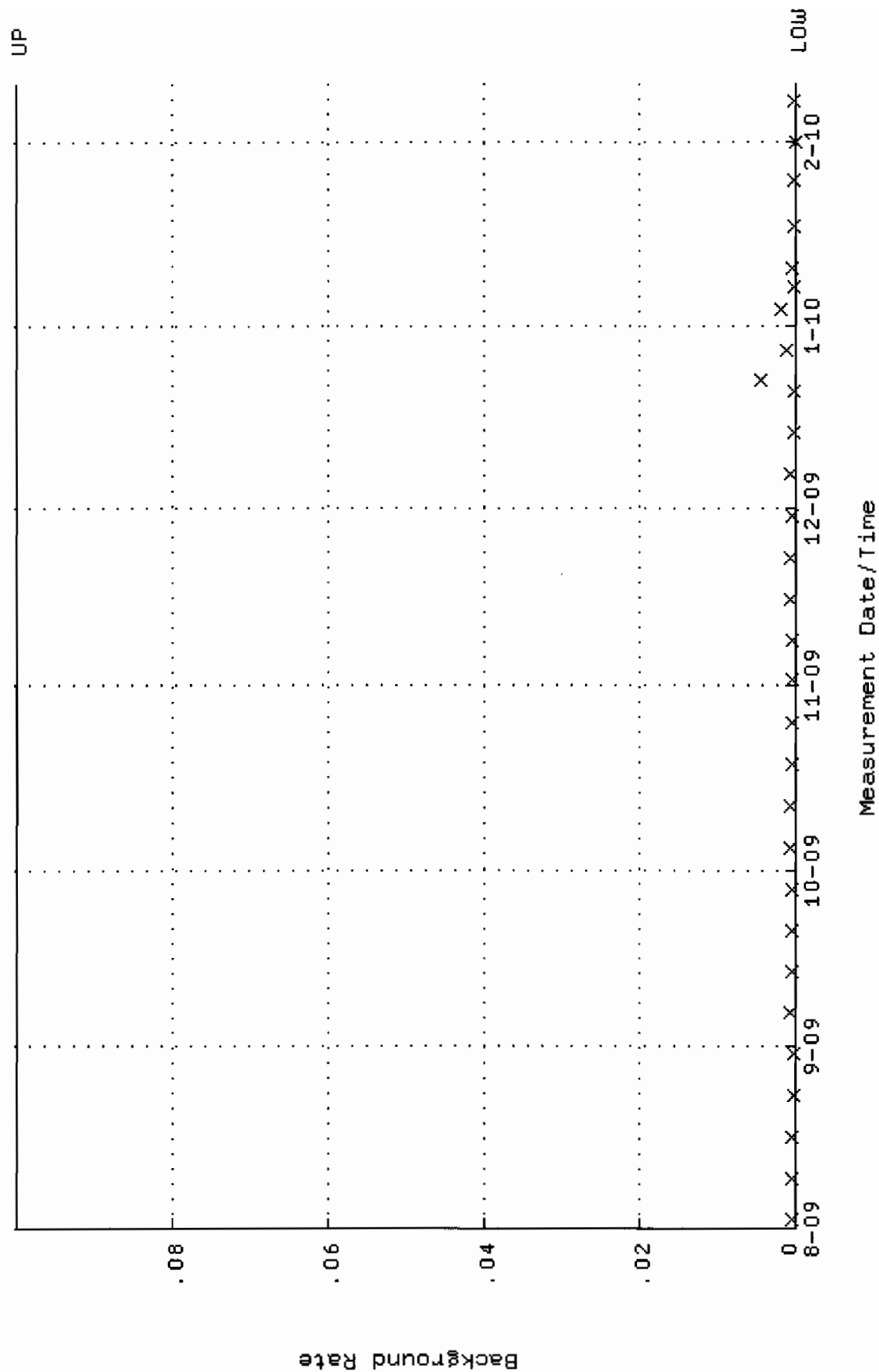




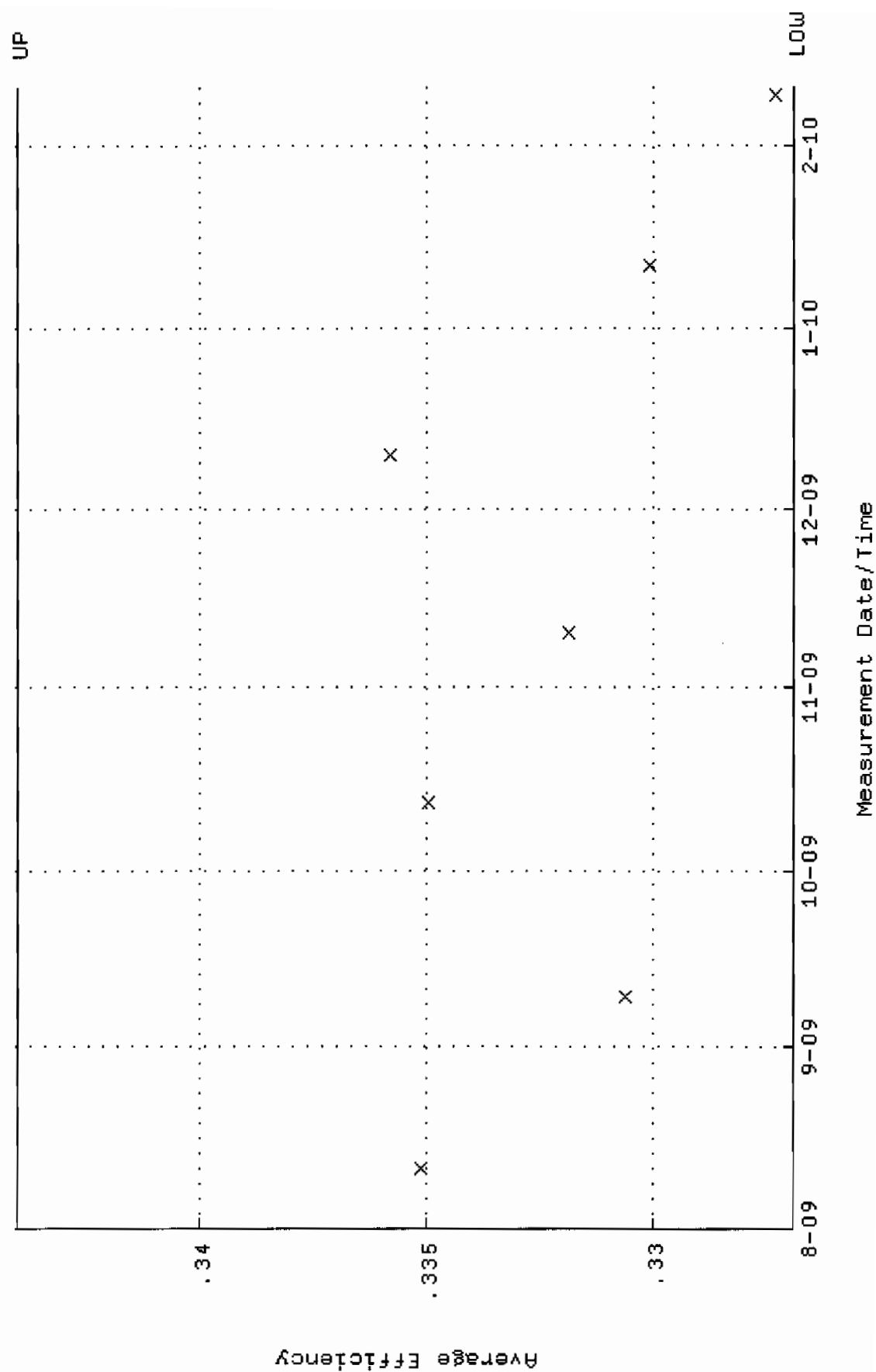
QA filename : DKA100:[ENV\_ALPHA.QA.W]w101.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



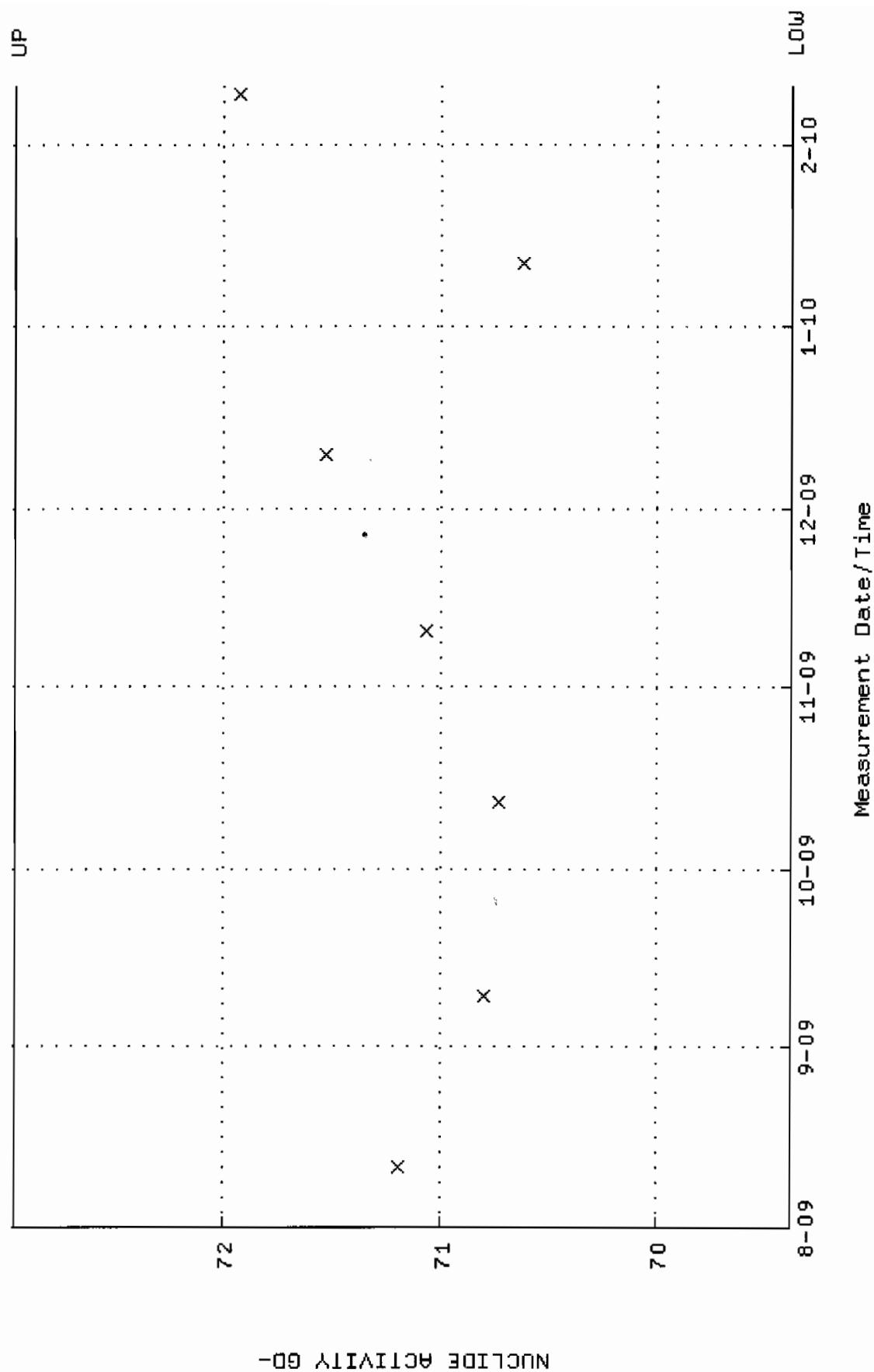
QA filename : DKA100:[ENV\_ALPHA.QA.B]B101.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



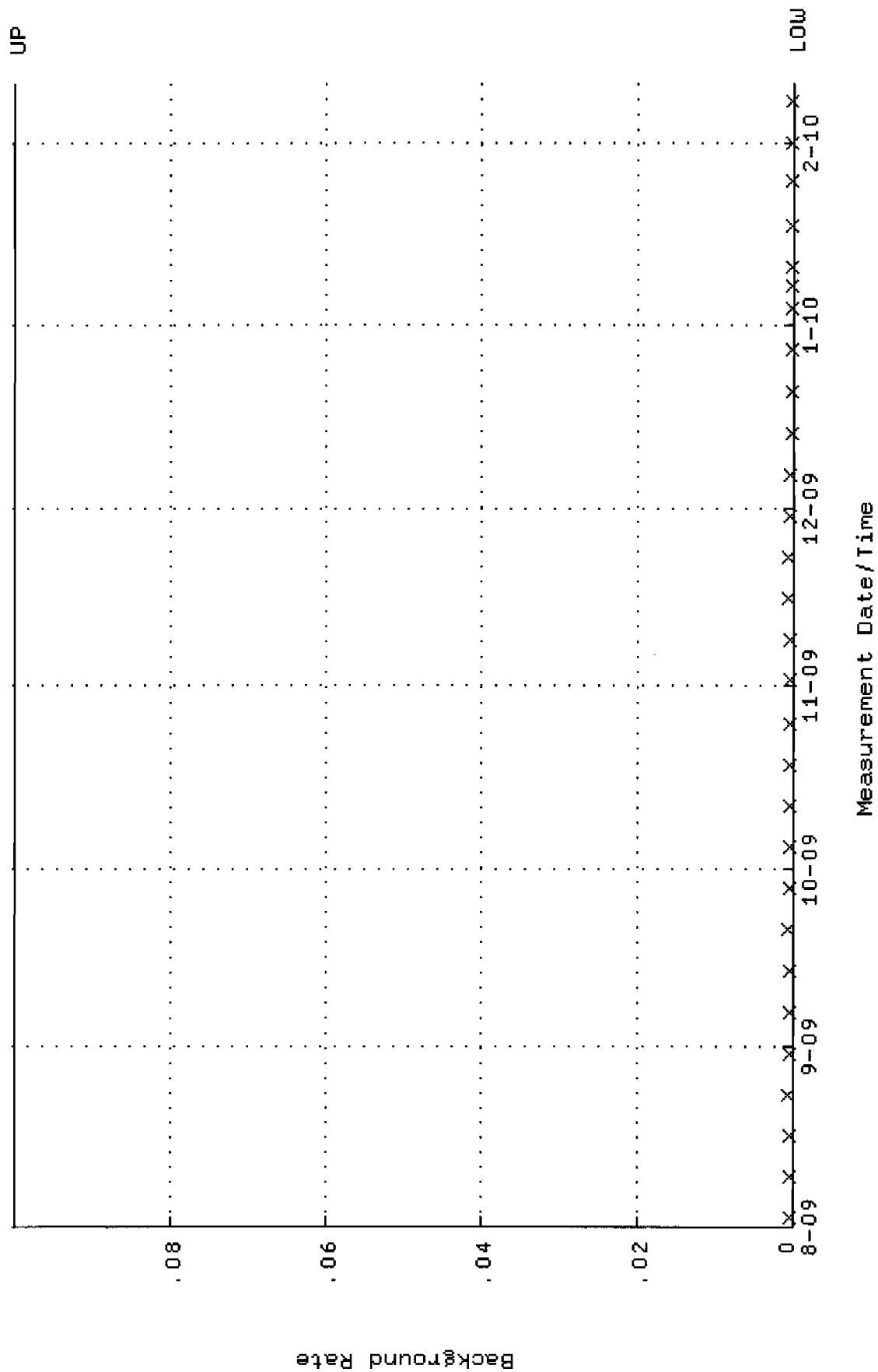
QA filename : DKA100:[ENV\_ALPHA.QA.W]W102.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.326915 through 0.344021



QA filename : DKA100:[ENV\_ALPHA.QA.W]W102.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 69.3731 through 72.9663



QA filename : DKA100:[ENV\_ALPHA.QA.B]B102.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

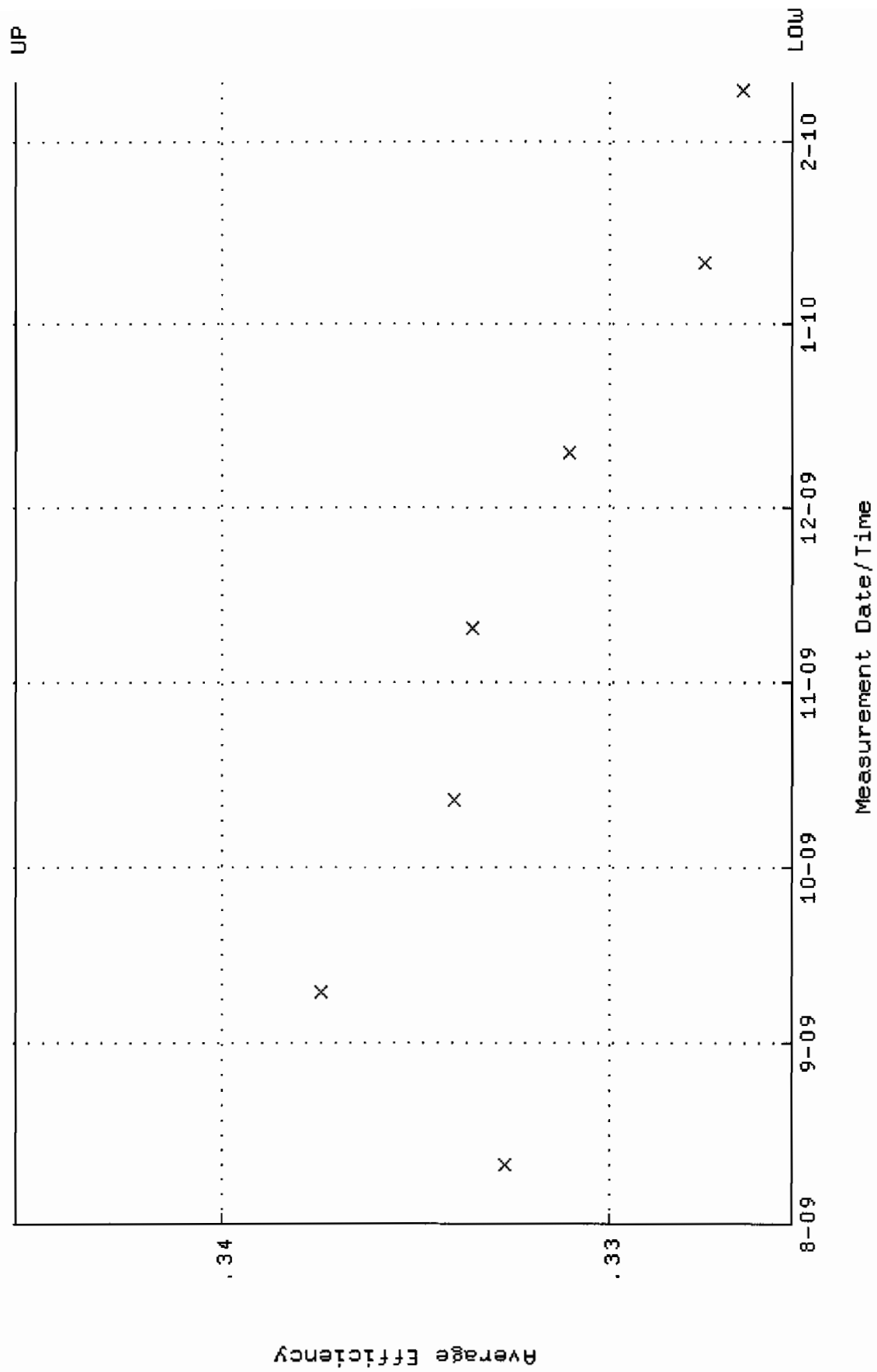


QA filename : DKA100:[ENV\_ALPHA.QA.W]w103.QAF;2

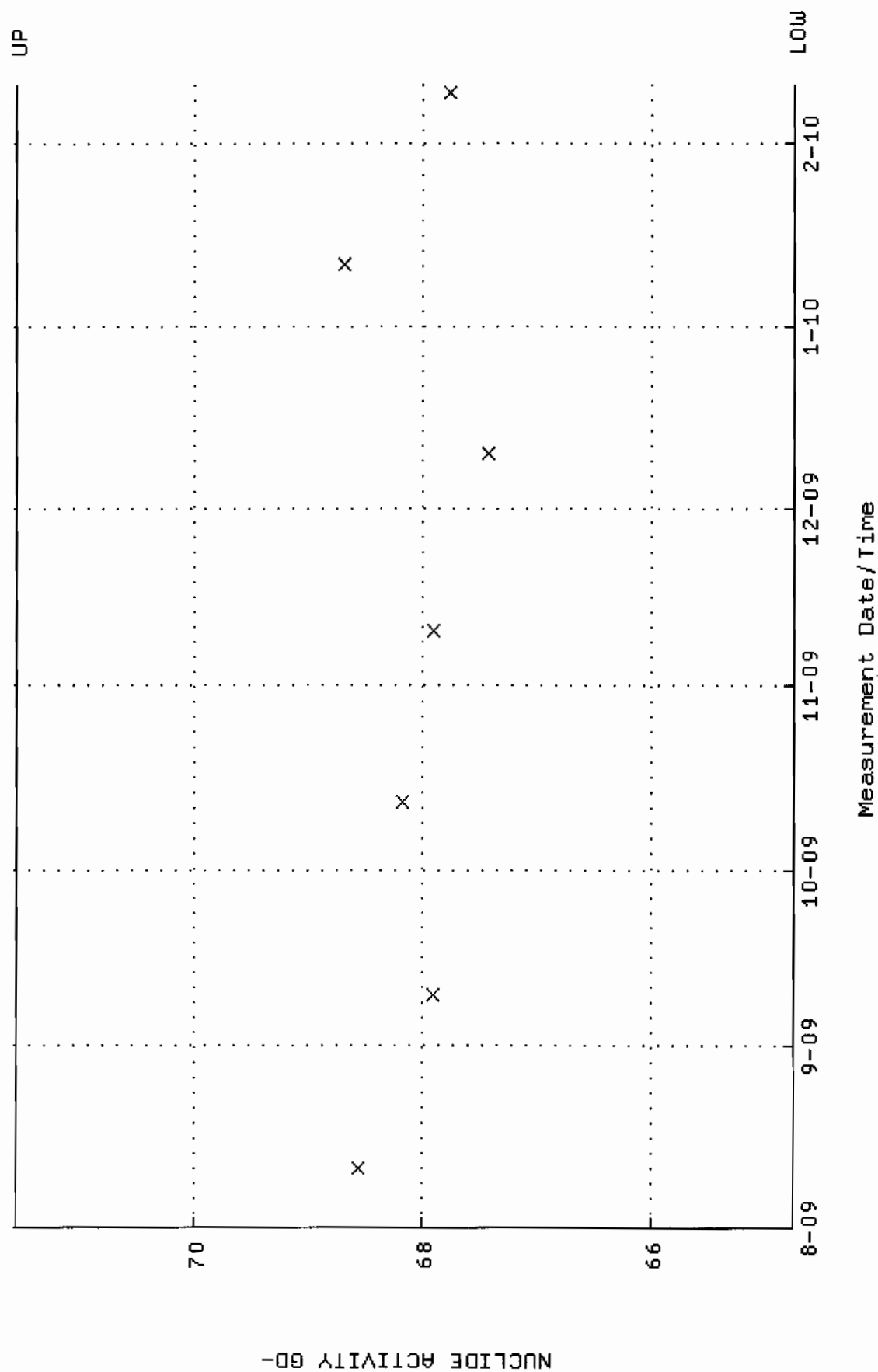
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00

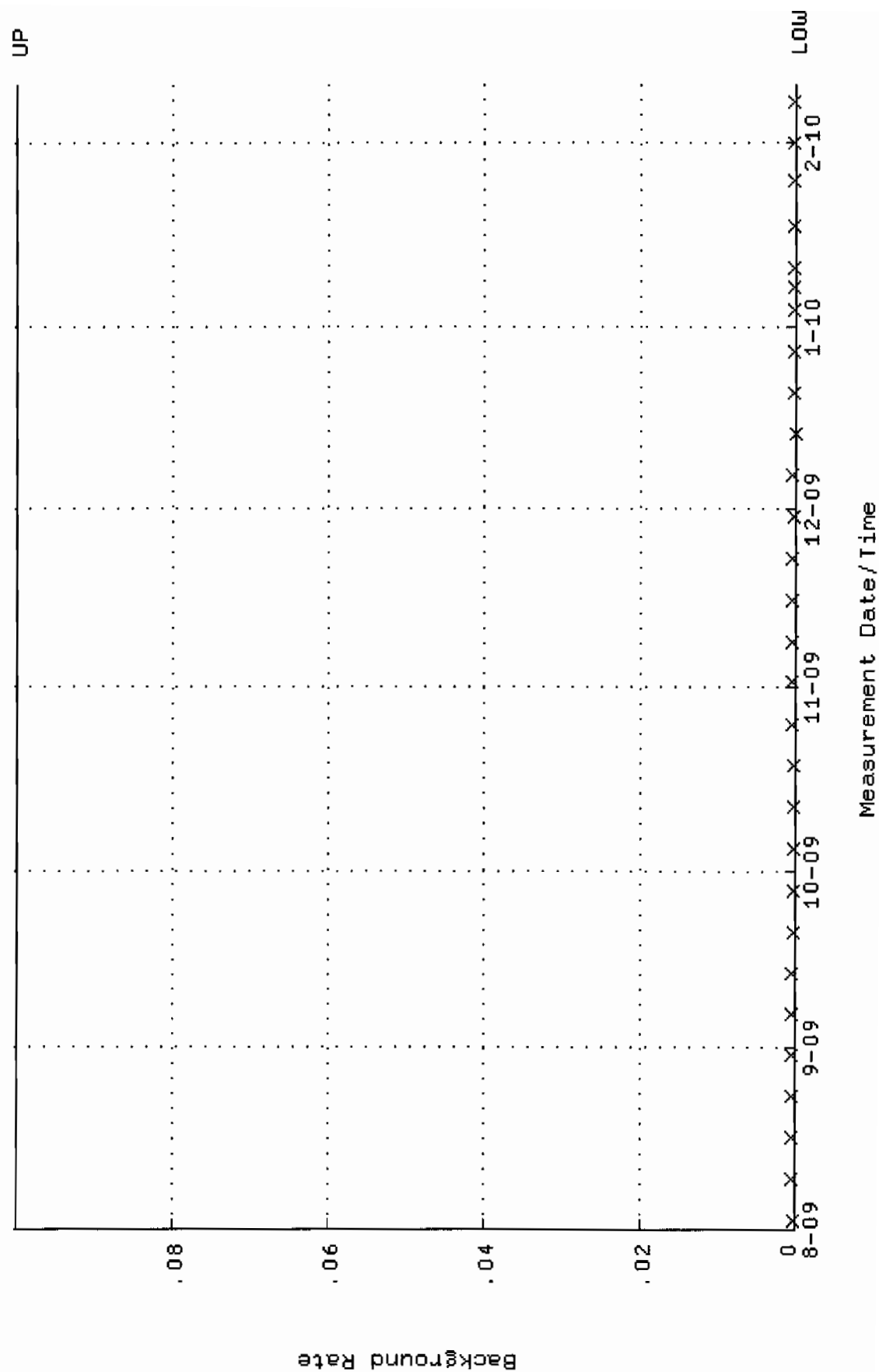
Lower/Upper Lmts: 0.325314 through 0.345314



QA filename : DKA100:[ENV\_ALPHA.QA.W]W103.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:17 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 64.7479 through 71.5635

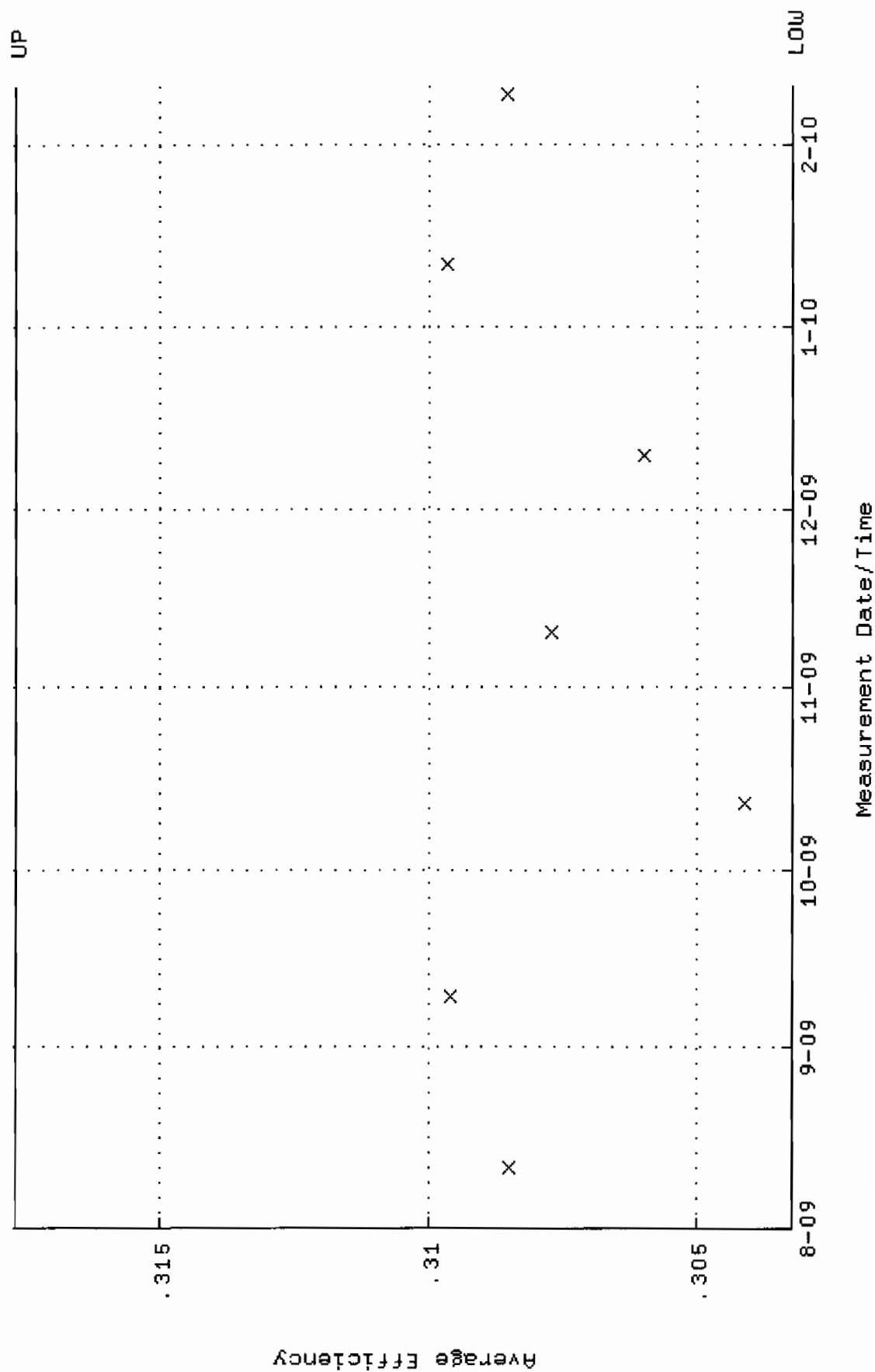


QA filename : DKA100:[ENV\_ALPHA.QA.B]B103.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:43 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

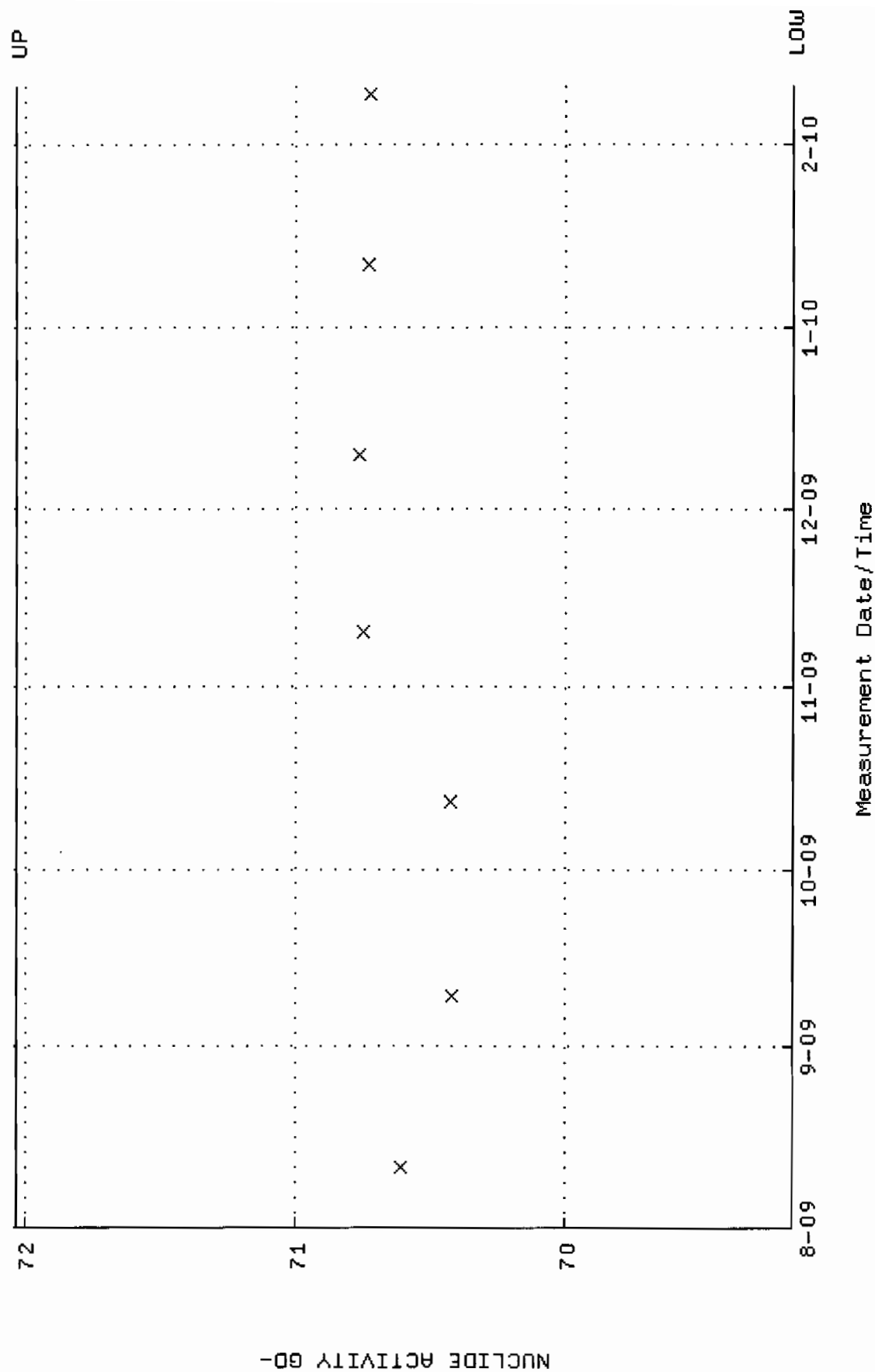




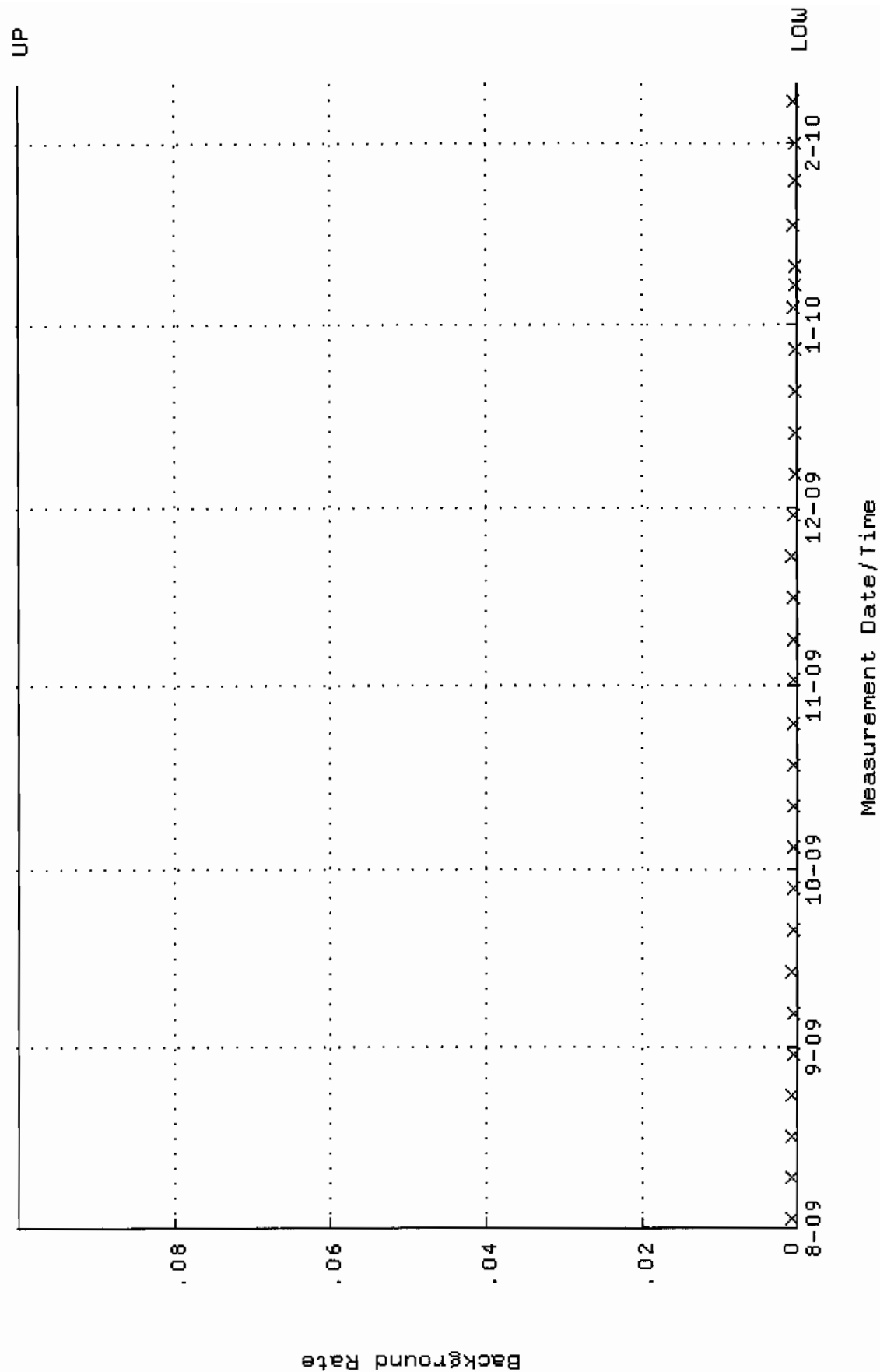
QA filename : DKA100:[ENV\_ALPHA.QA.W]W107.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.303231 through 0.317703



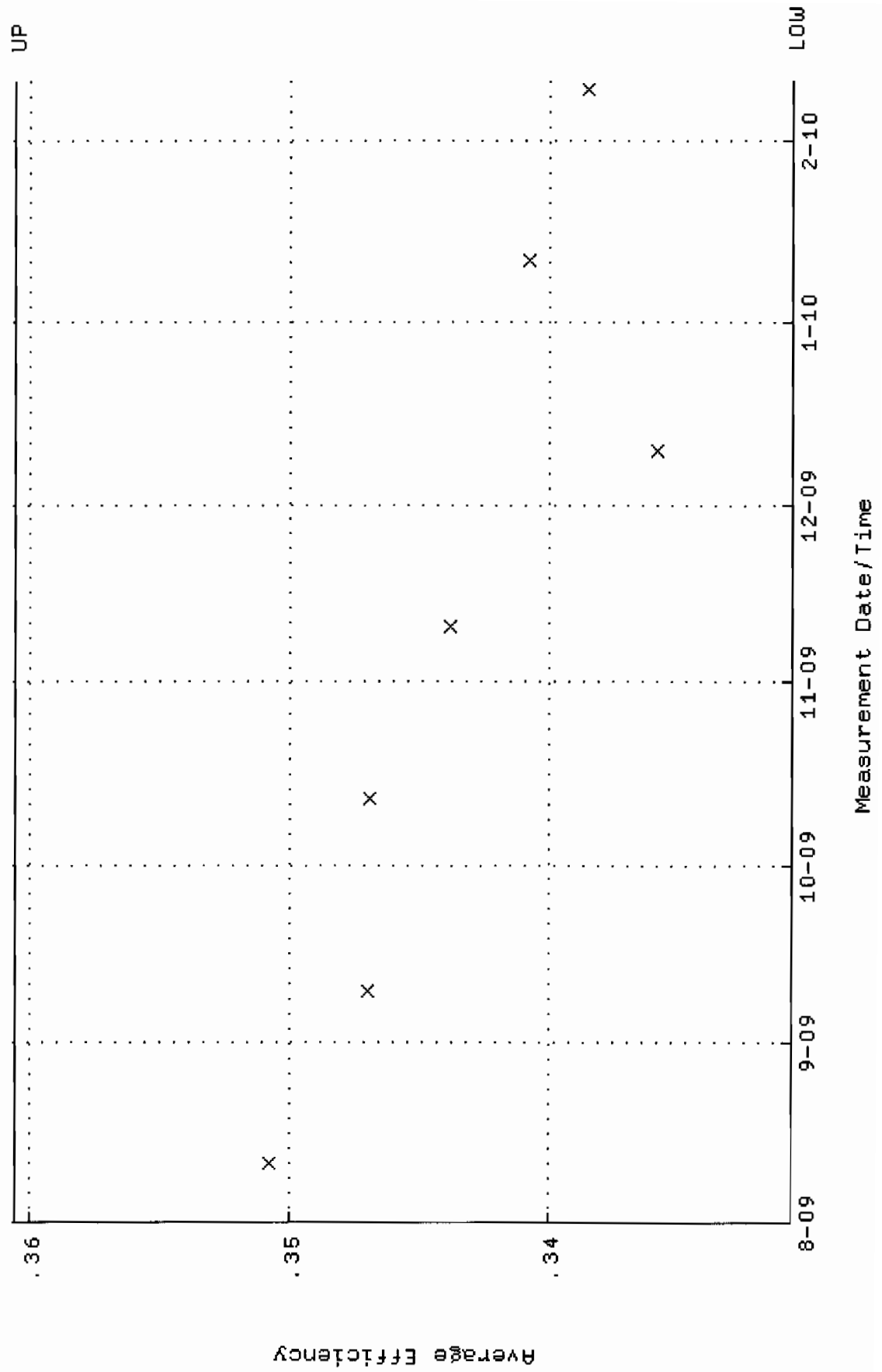
QA filename : DKA100:[ENV\_ALPHA.QA.W]w107.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 69.1572 through 72.0358



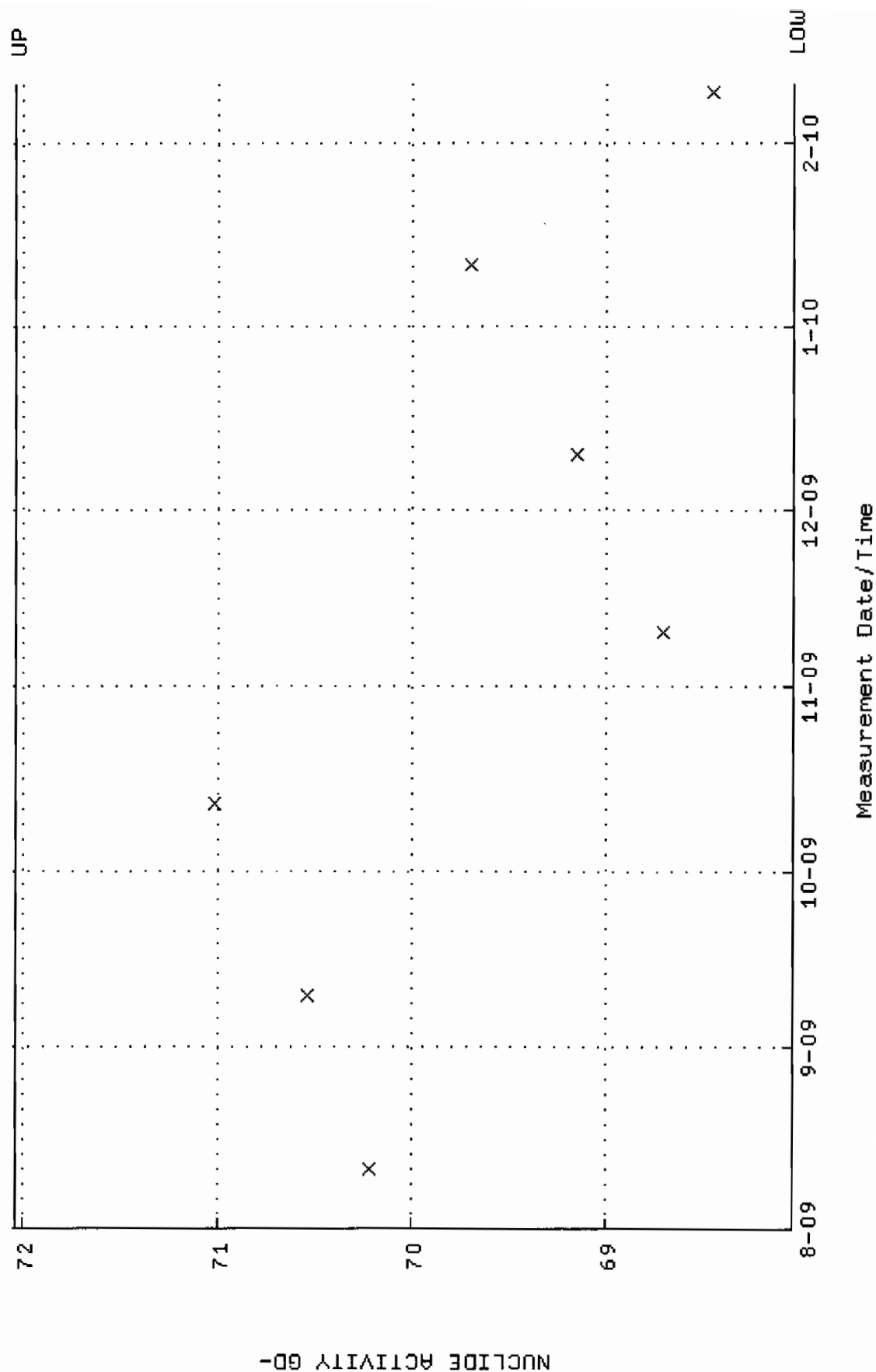
QA filename : DKA100:[ENV\_ALPHA.QA.B]B107.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



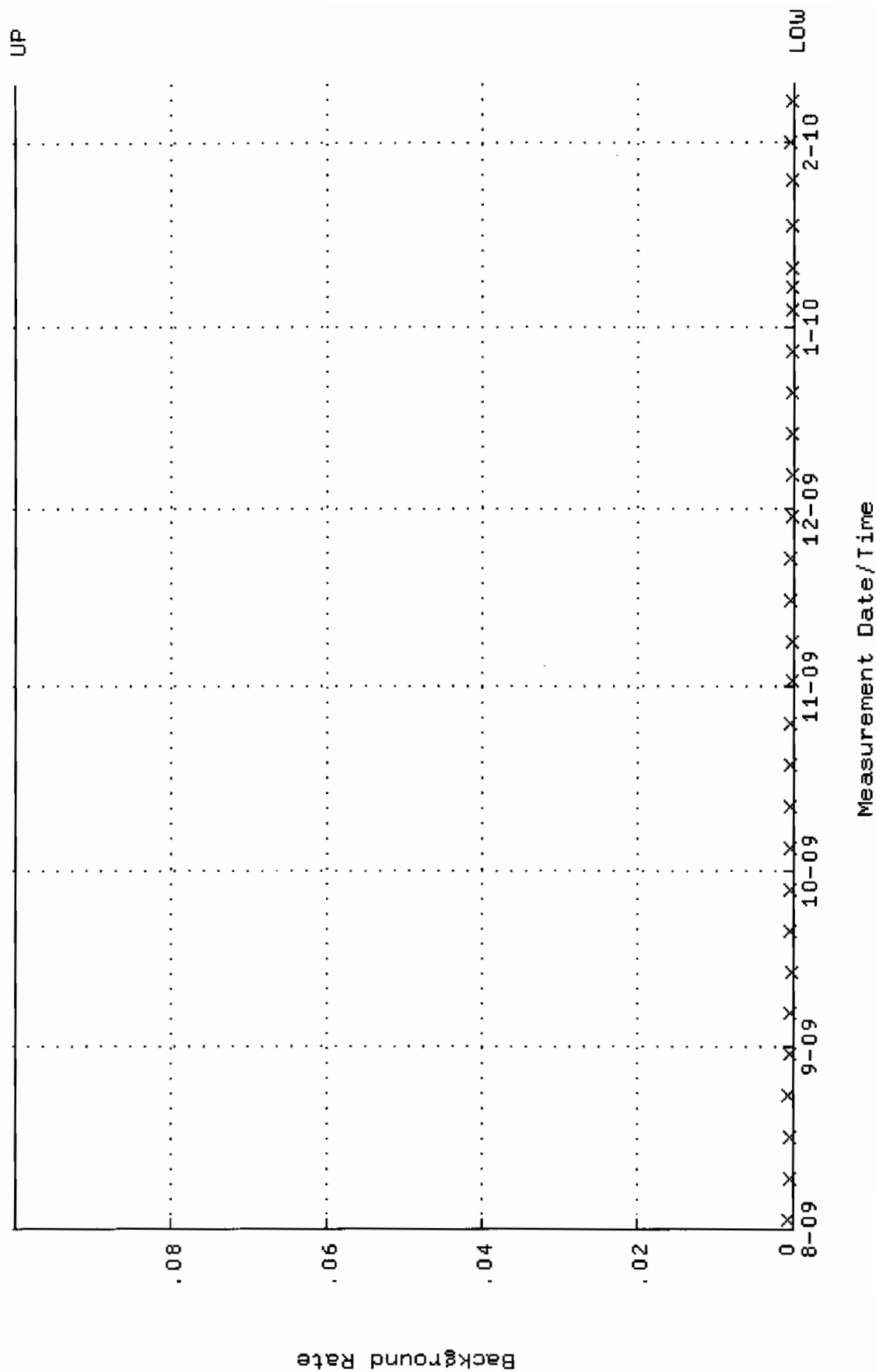
QA filename : DKA100:[ENV\_ALPHA.QA.W]W108.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.330641 through 0.360561



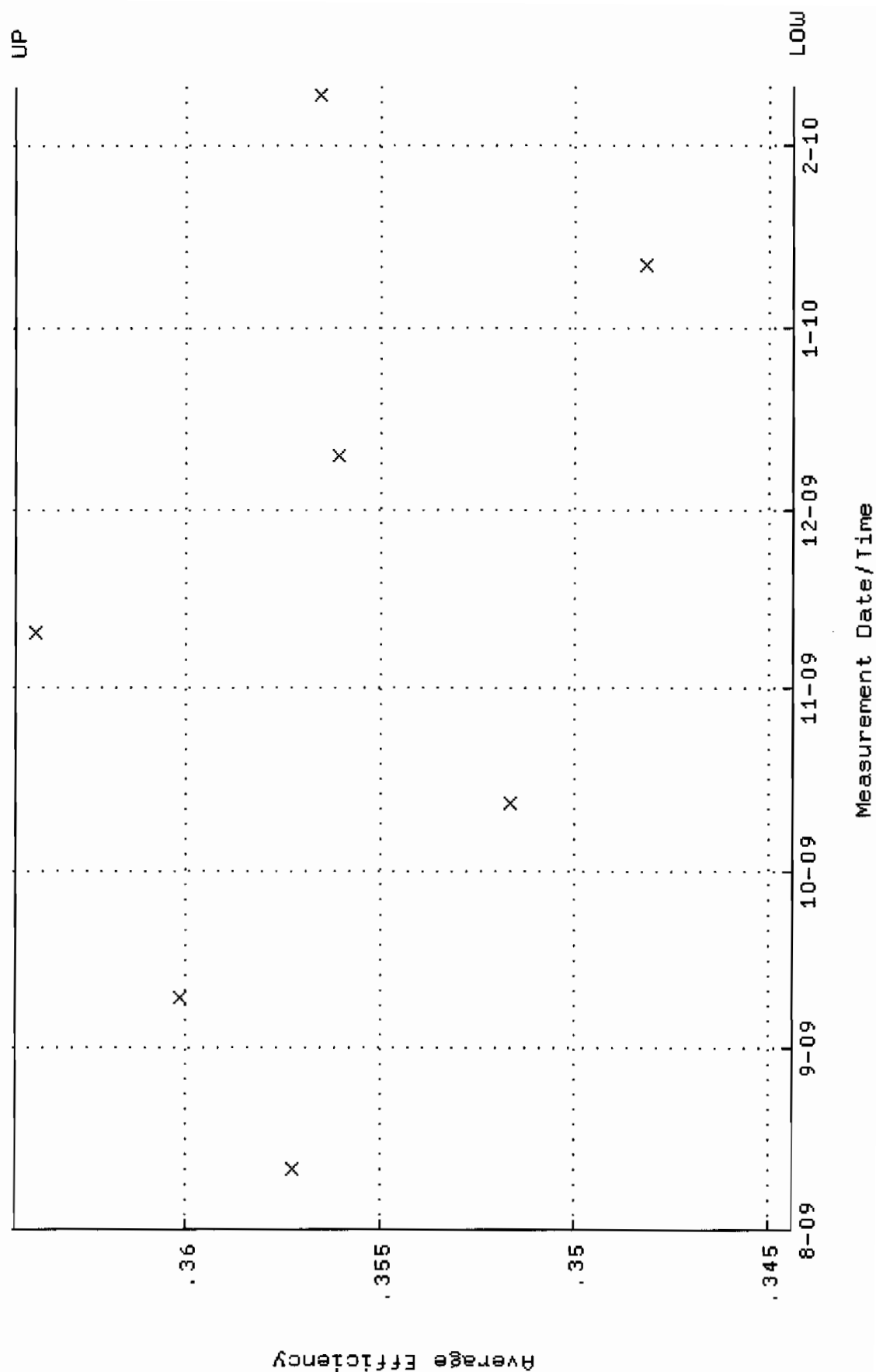
QA filename : DKA100:[ENV\_ALPHA.QA.W]W108.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 68.0460 through 72.0402



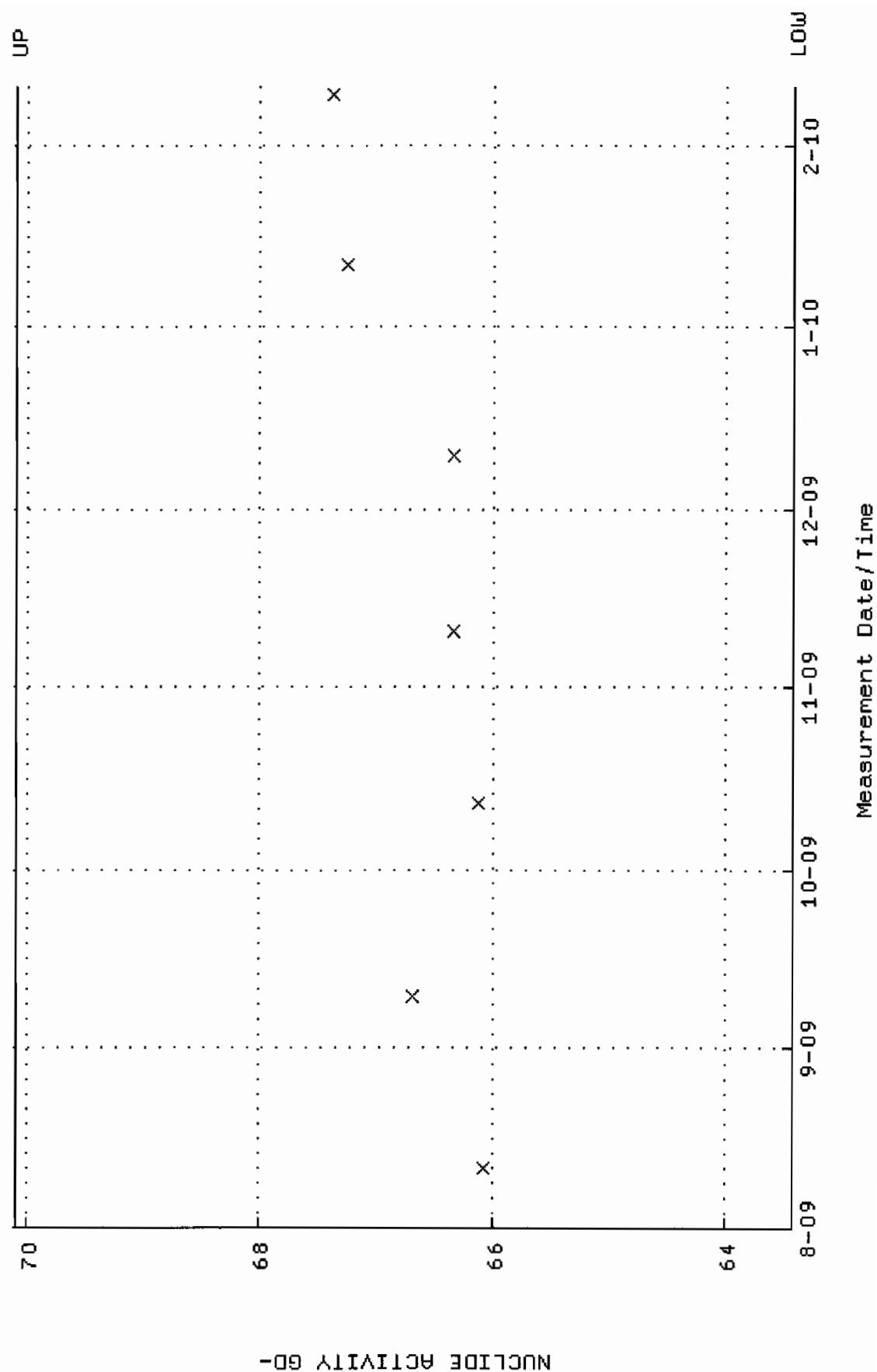
QA filename : DKA100:[ENV\_ALPHA.QA.B]B108.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W109.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.344397 through 0.364397

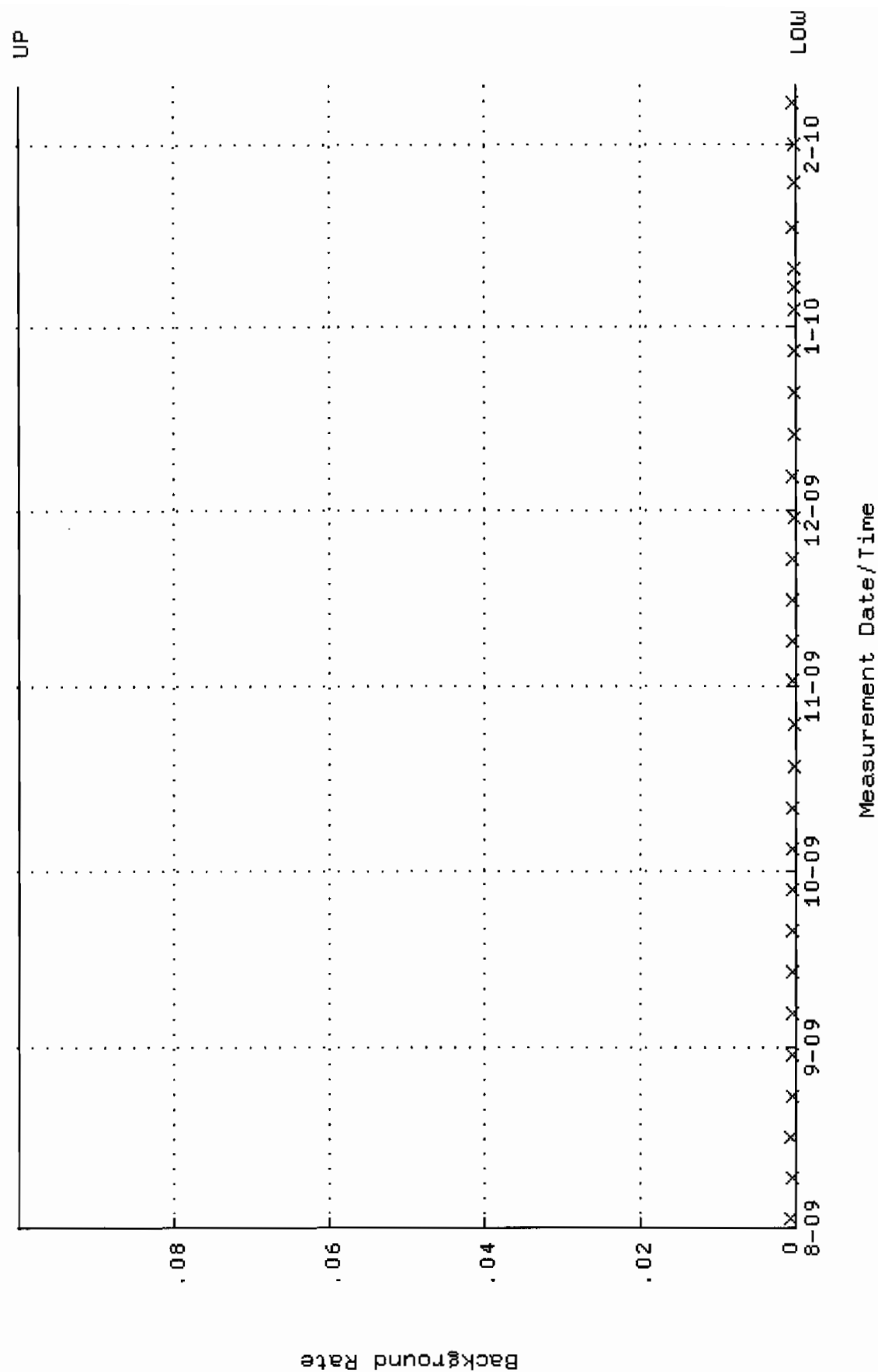


QA filename : DKA100:[ENV\_ALPHA.QA.W]W109.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 63.4194 through 70.0952





QA filename : DKA100:[ENV\_ALPHA.QA.B]B109.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

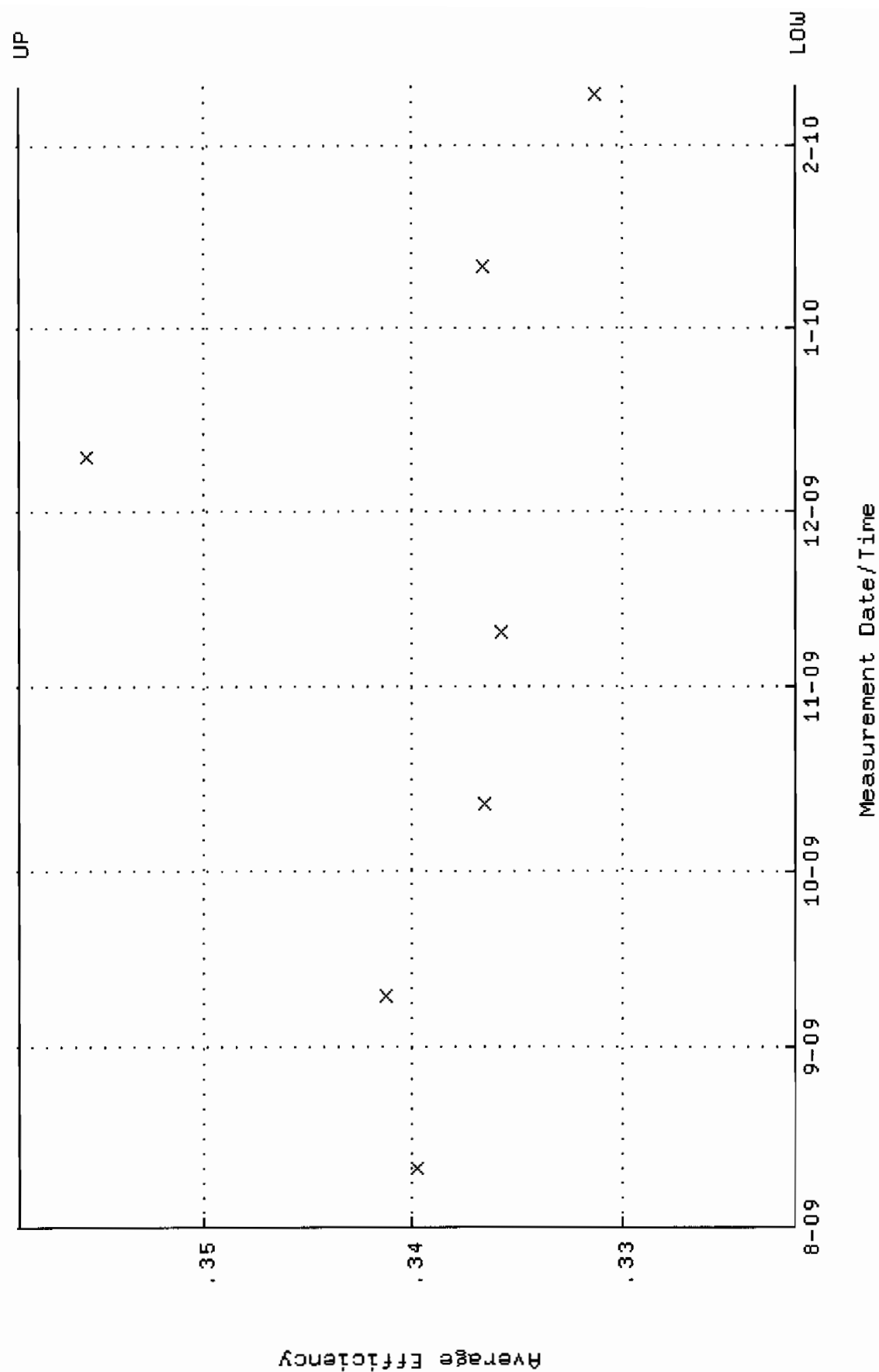


QA filename : DKA100:[ENV\_ALPHA.QA.W]W111.QAF;3

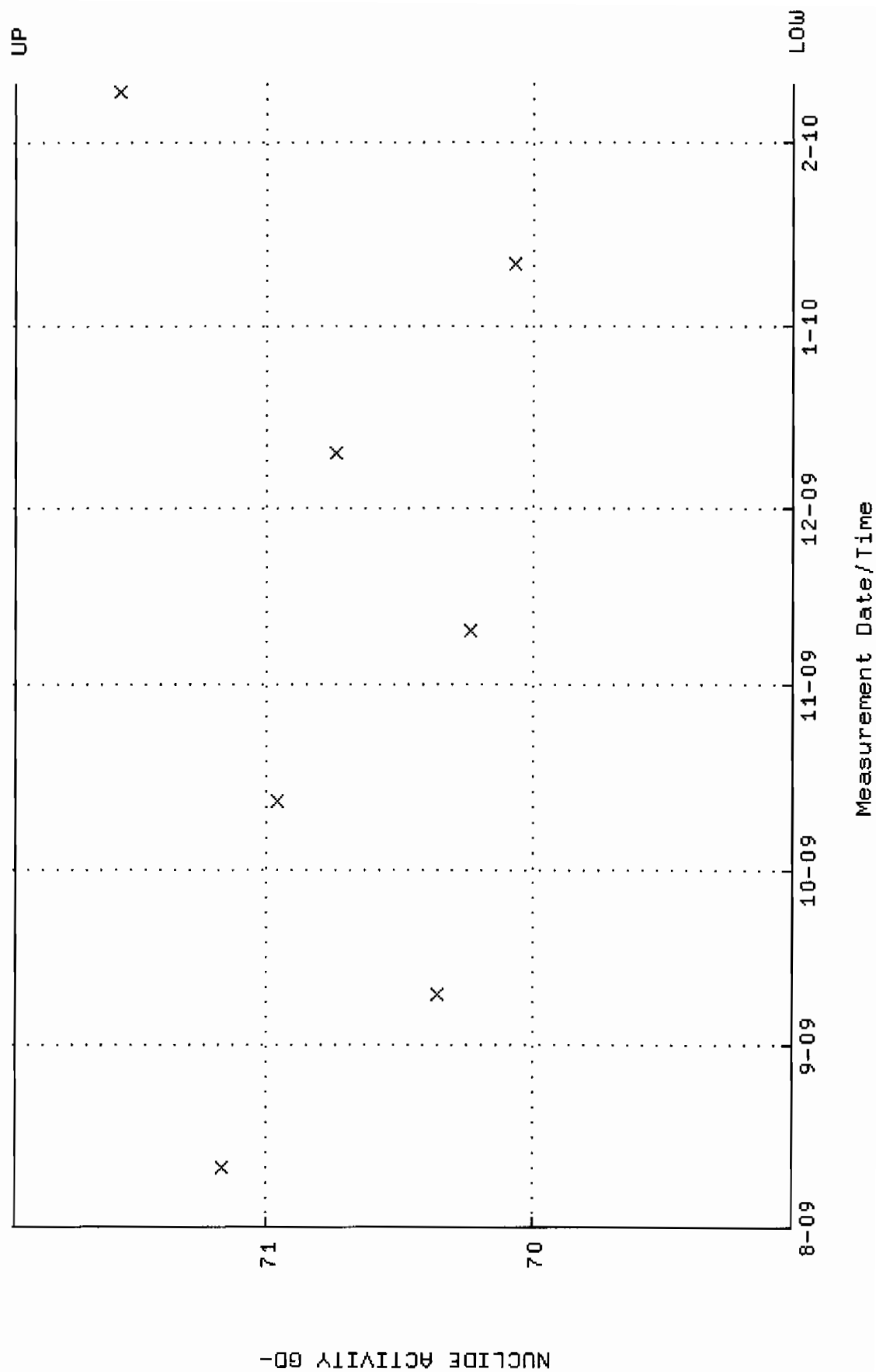
Parameter Name : AVRGEFF (Average Efficiency)

Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00

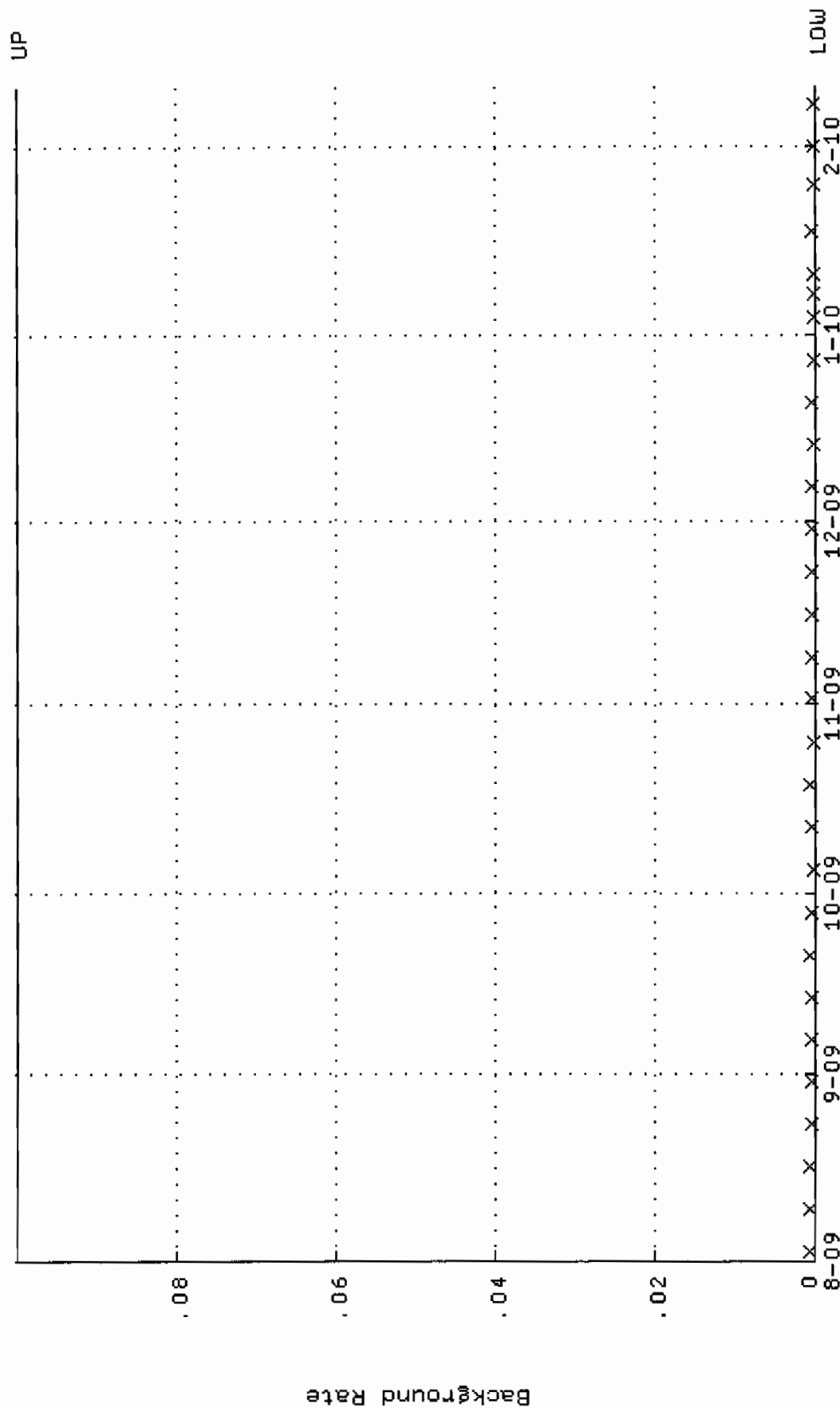
Lower/Upper Lmts: 0.321662 through 0.358794



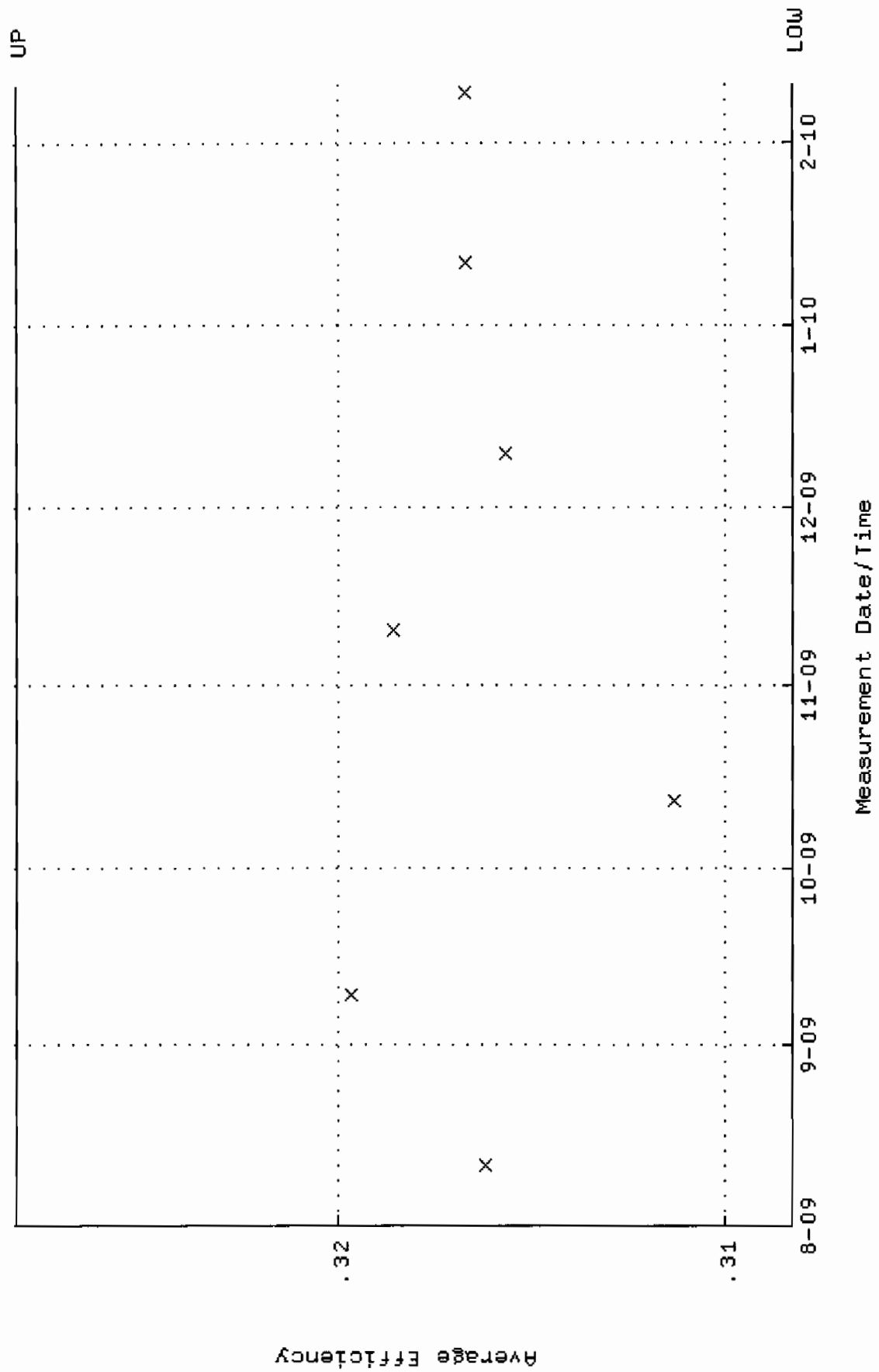
QA filename : DKA100:[ENV\_ALPHA.QA.W]w111.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 69.0200 through 71.9448



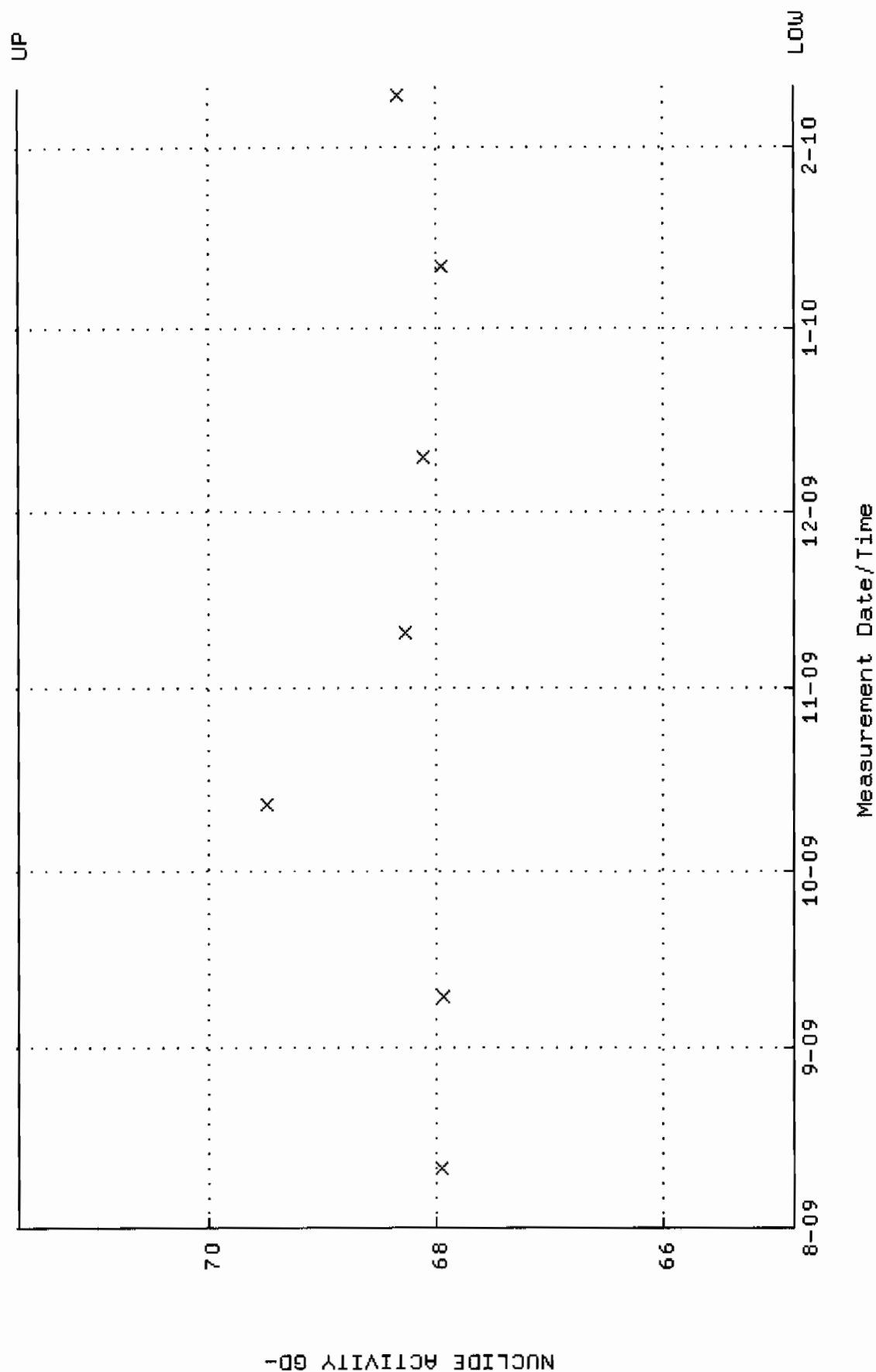
QA filename : DKA100:[ENV\_ALPHA.QA.B]B111.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



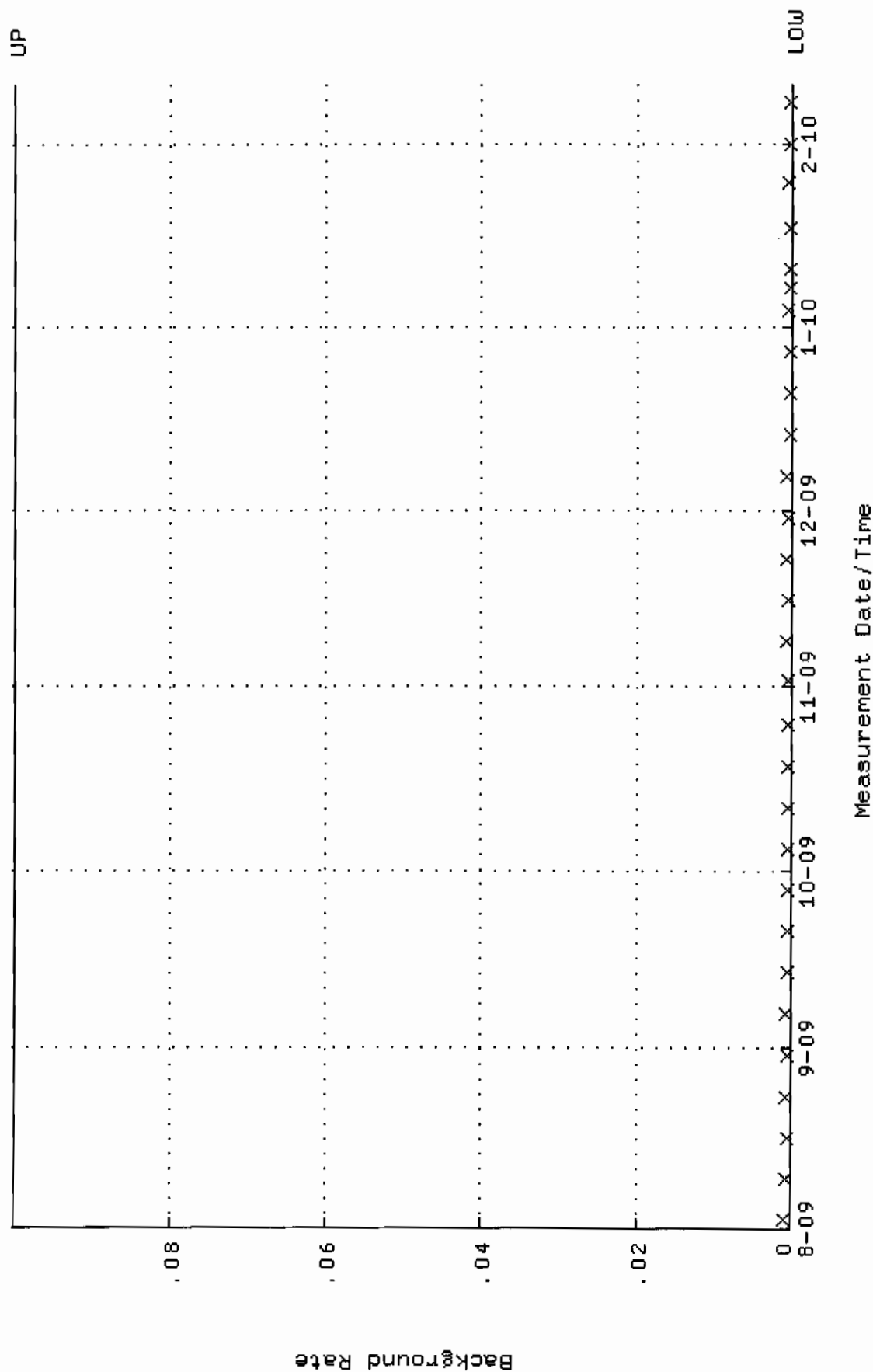
QA filename : DKA100:[ENV\_ALPHA.QA.W]W112.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.308263 through 0.328263



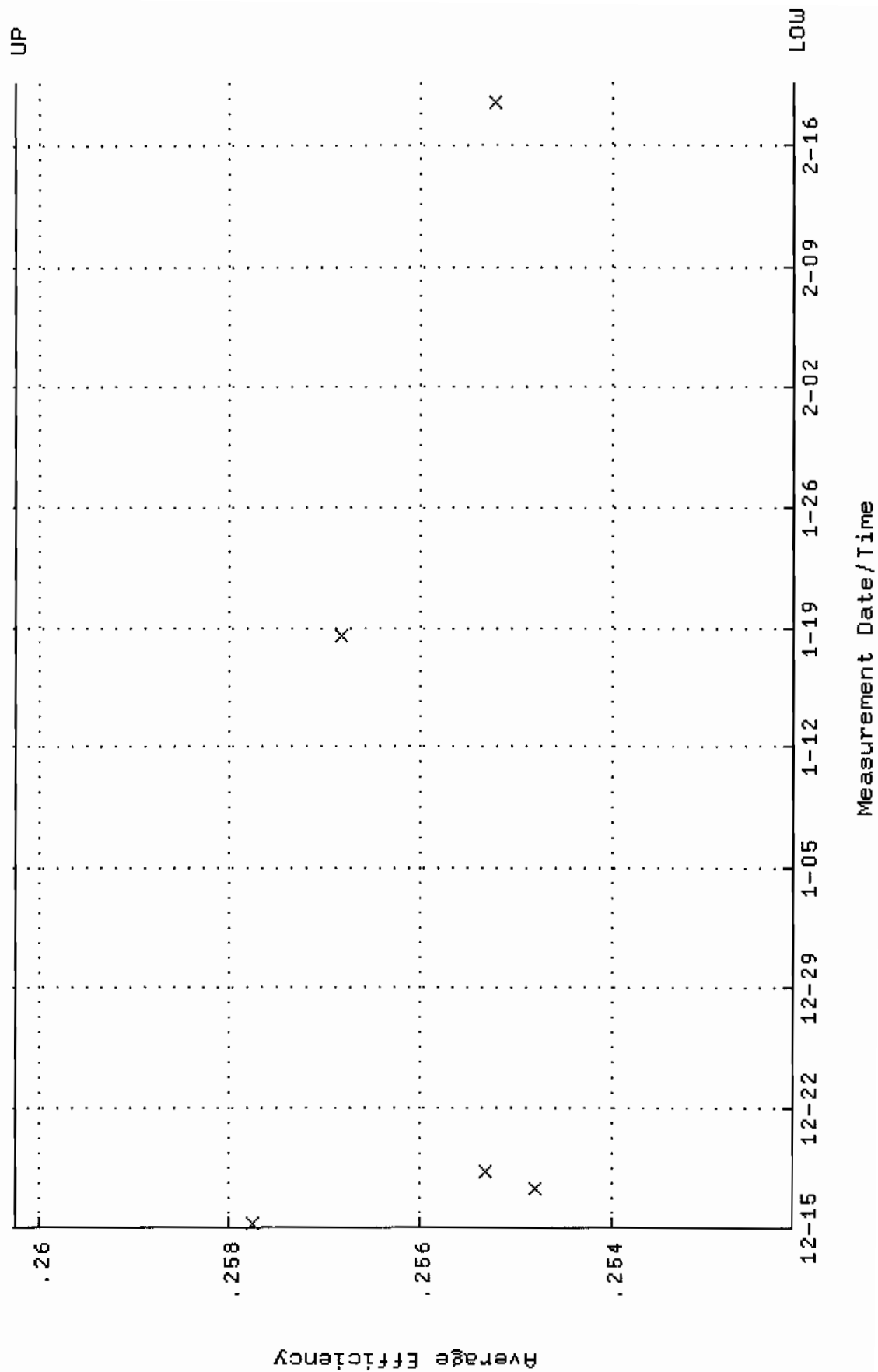
QA filename : DKA100:[ENV\_ALPHA.QA.W]W112.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 11-AUG-2009 07:20:19 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 64.8451 through 71.6709



QA filename : DKA100:[ENV\_ALPHA.QA.B]B112.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:38:44 through 10-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

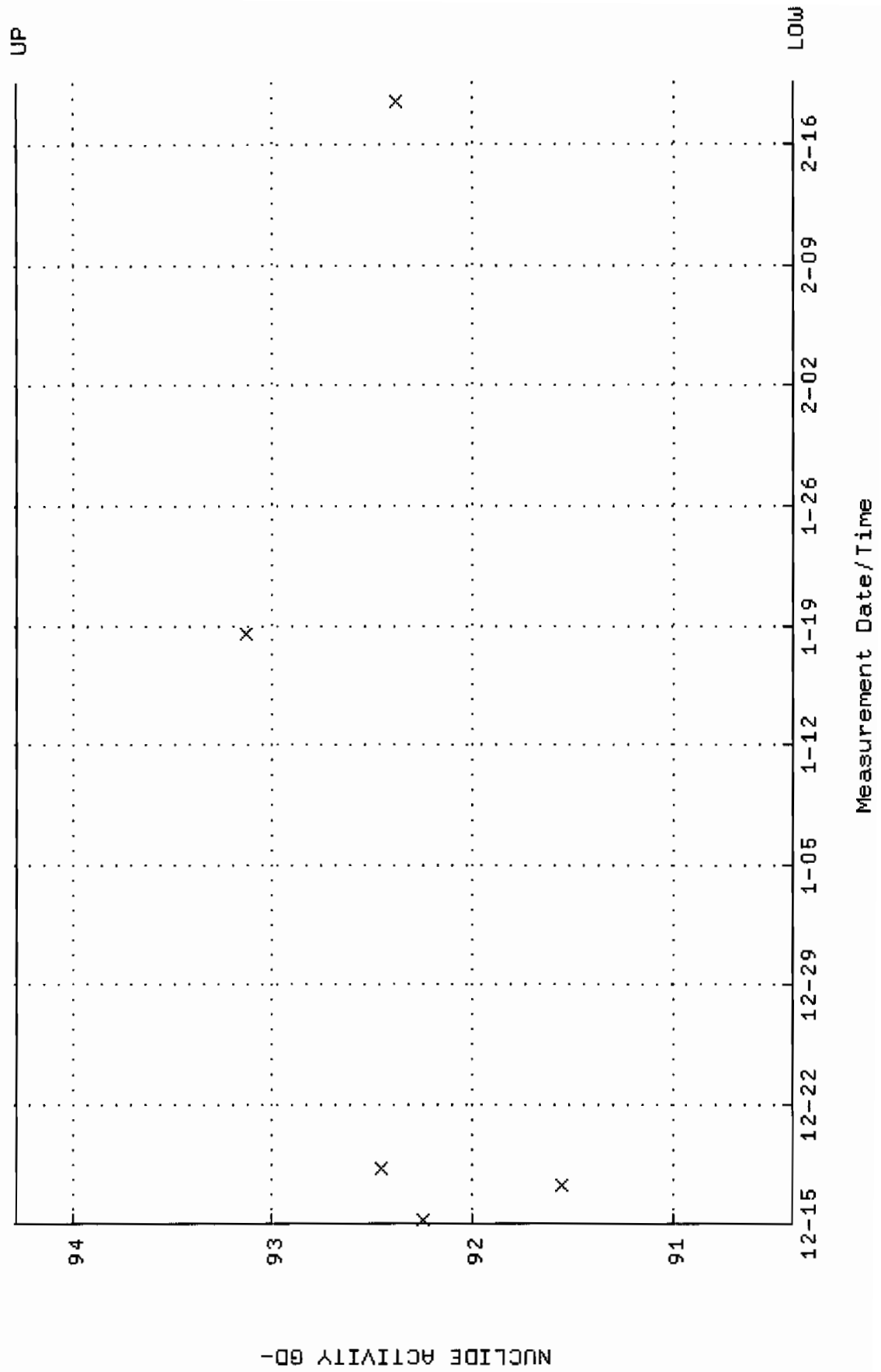


QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.252093 through 0.260243

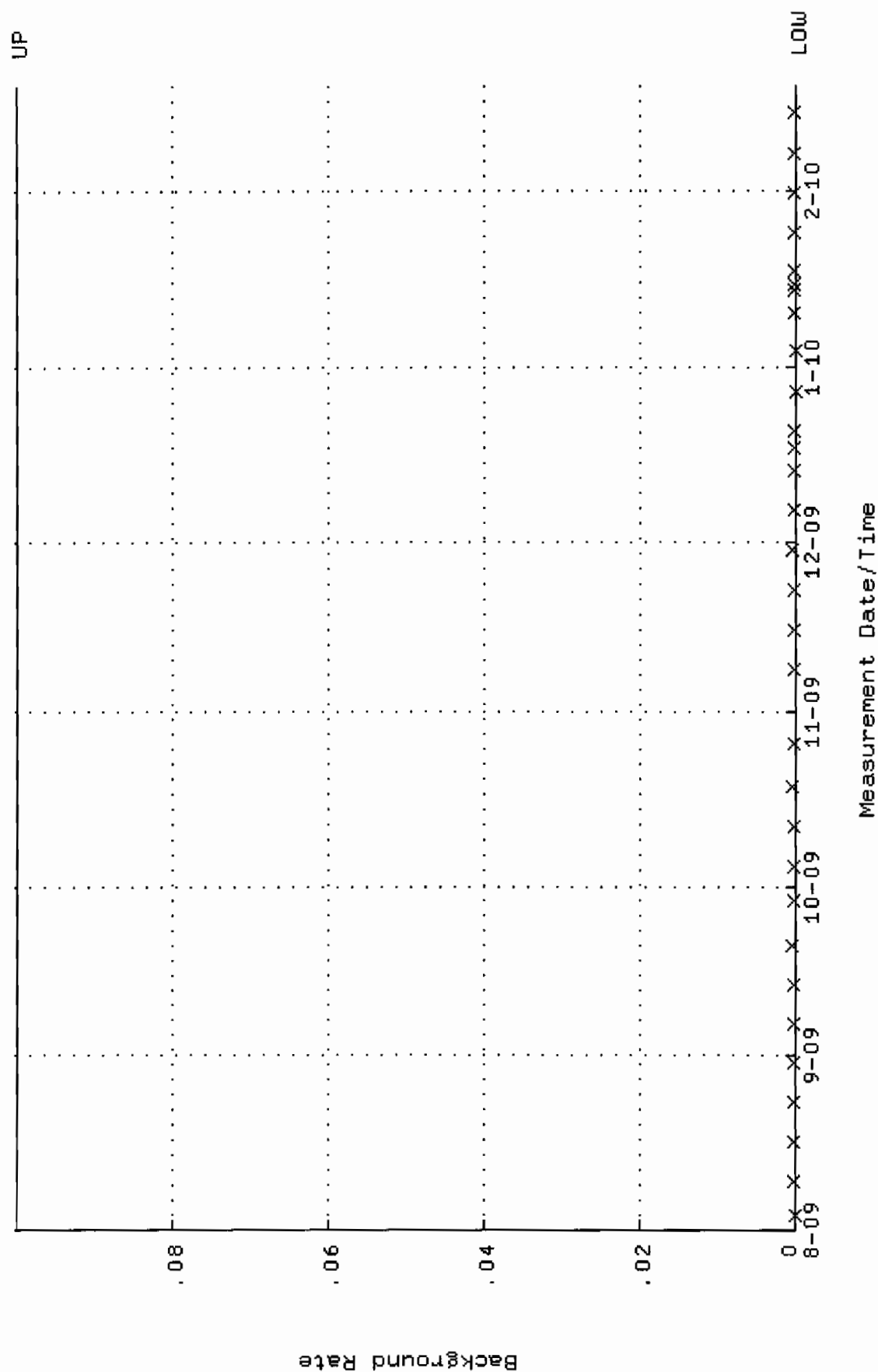




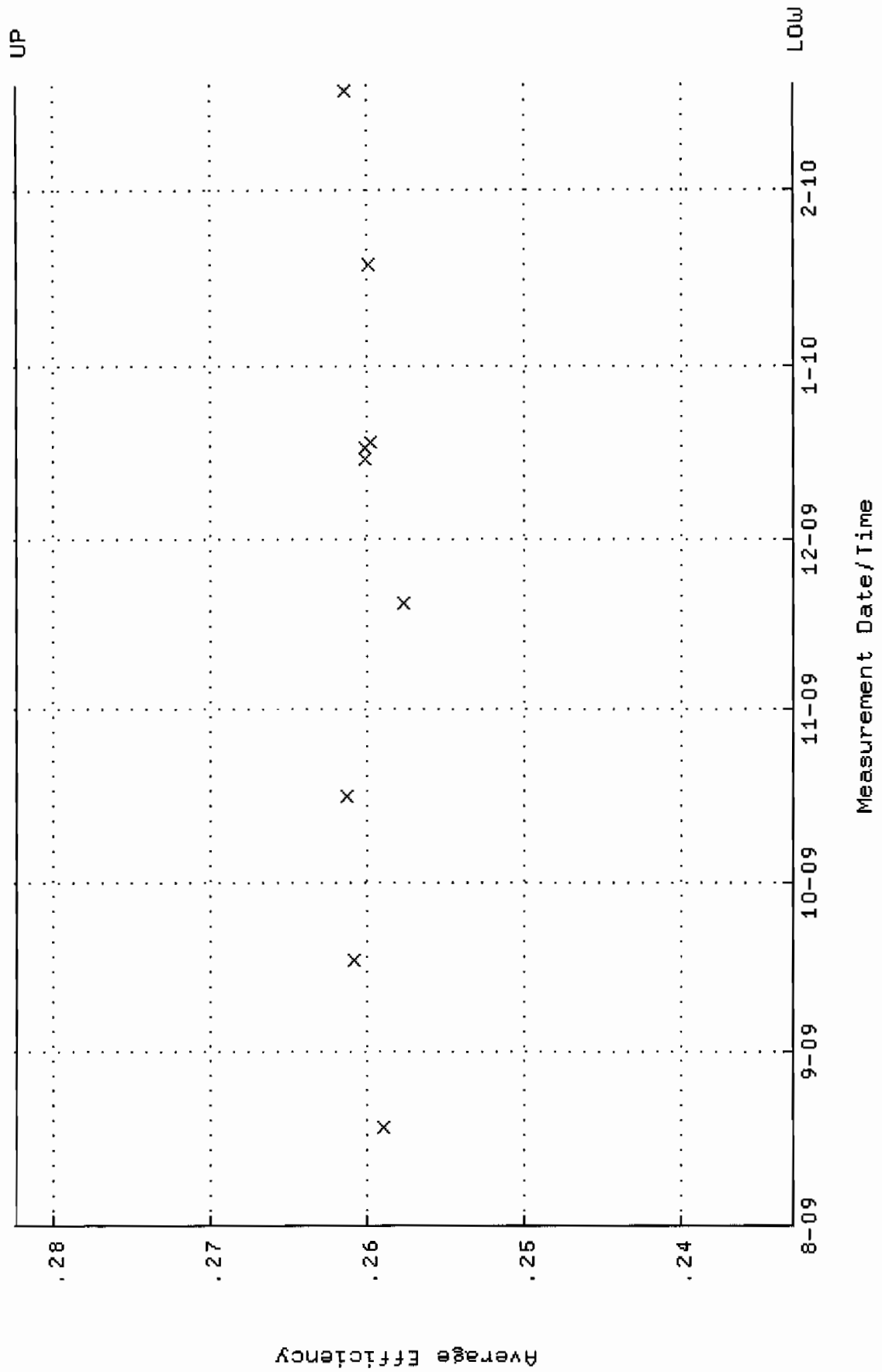
QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 90.4107 through 94.2781



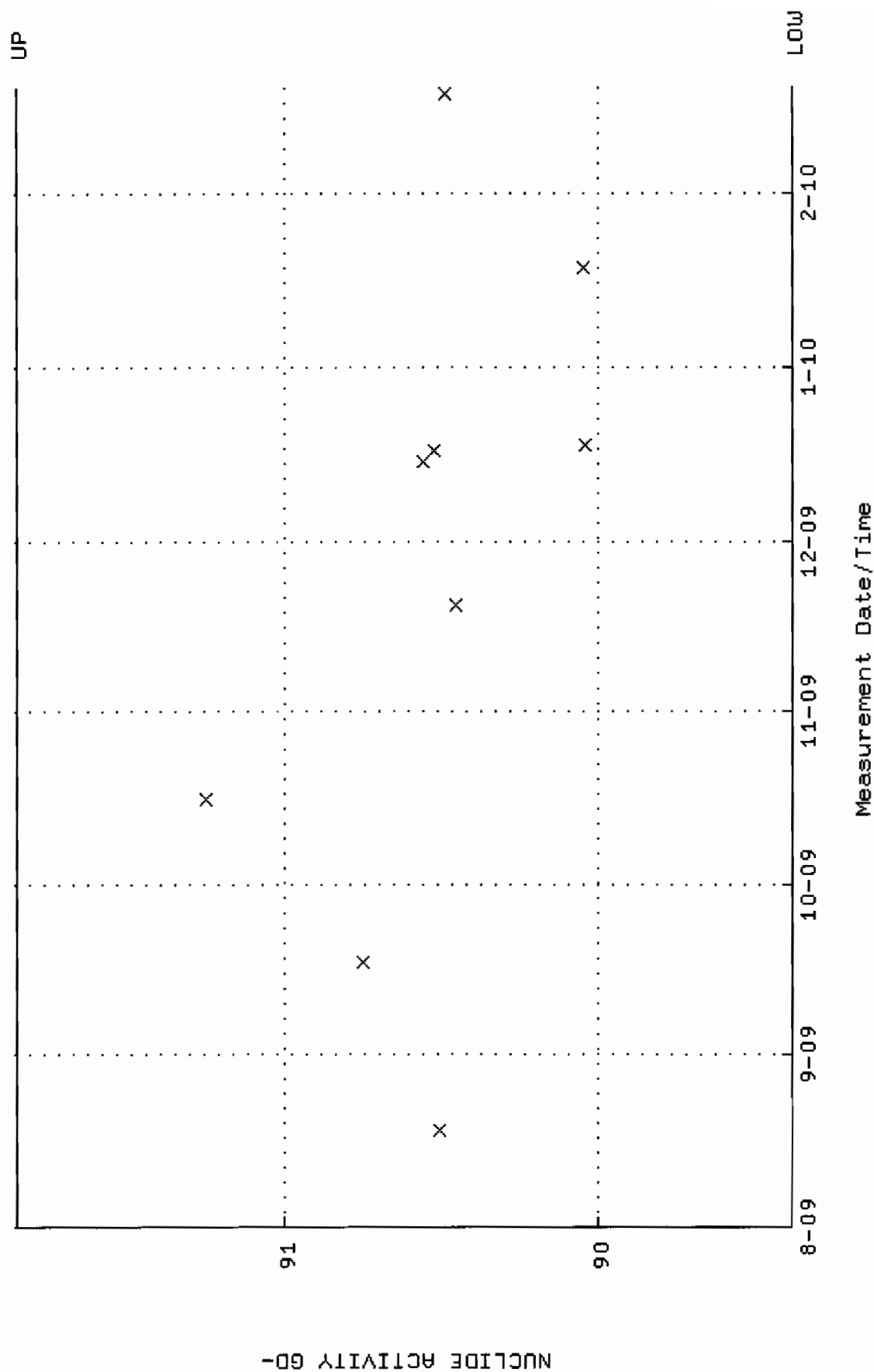
QA filename : DKA100:[ENV\_ALPHA.QA.B]B119.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 3-AUG-2009 15:38:13 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



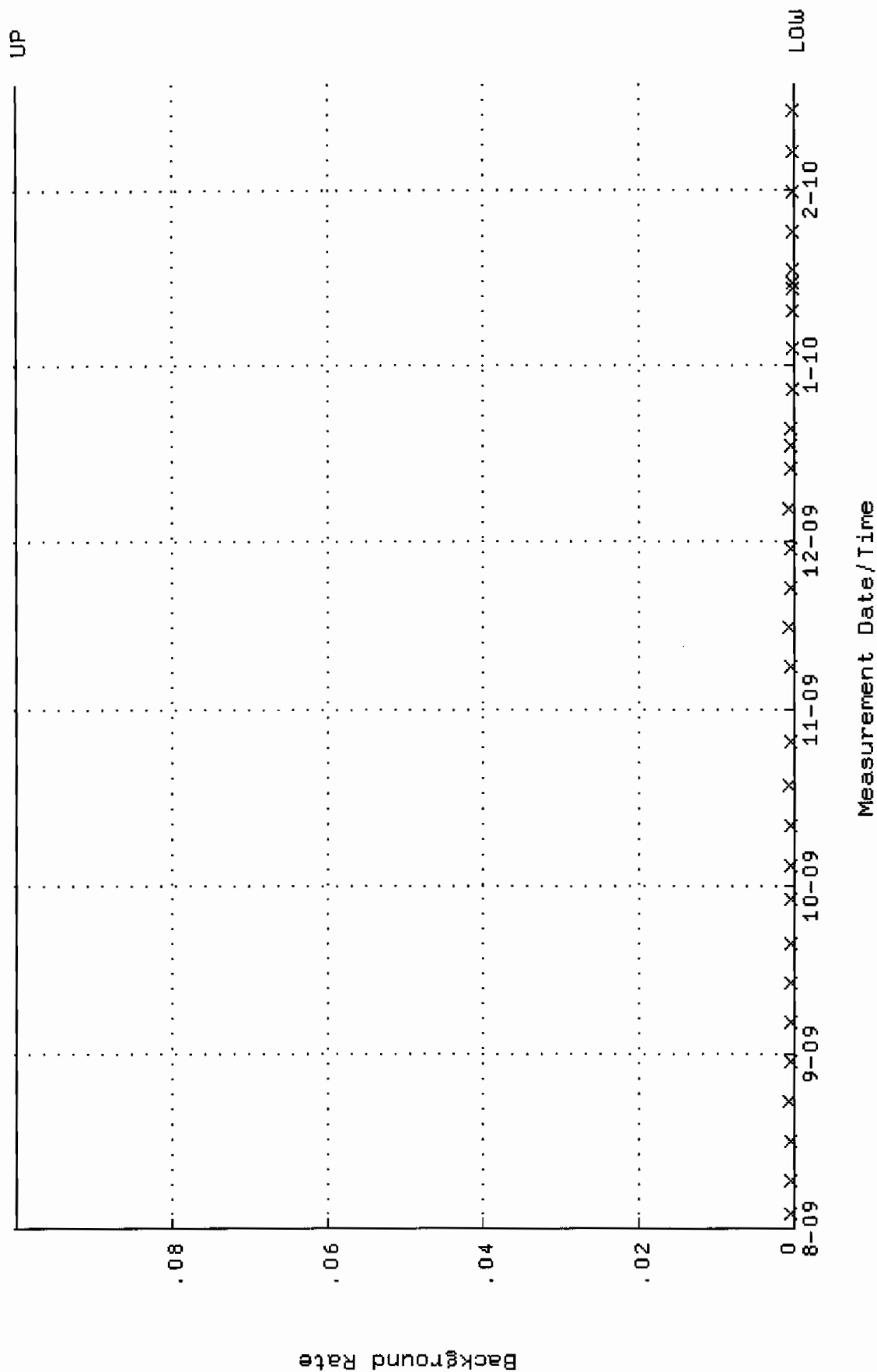
QA filename : DKA100:[ENV\_ALPHA.QA.W]W120.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 18-AUG-2009 08:35:01 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.232847 through 0.282381



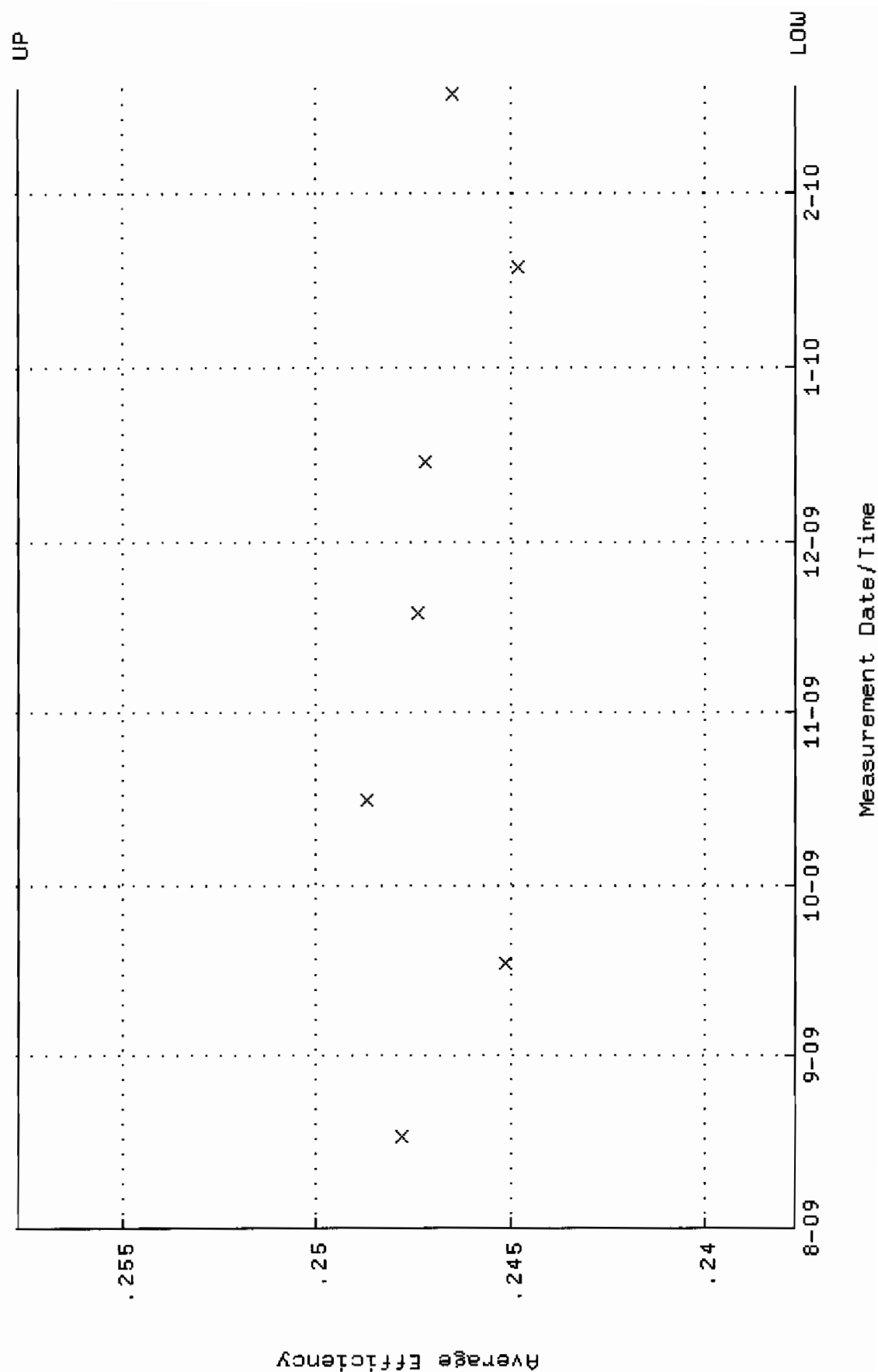
QA filename : DKA100:[ENV\_ALPHA.QA.W]W120.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 18-AUG-2009 08:35:01 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.3881 through 91.8481



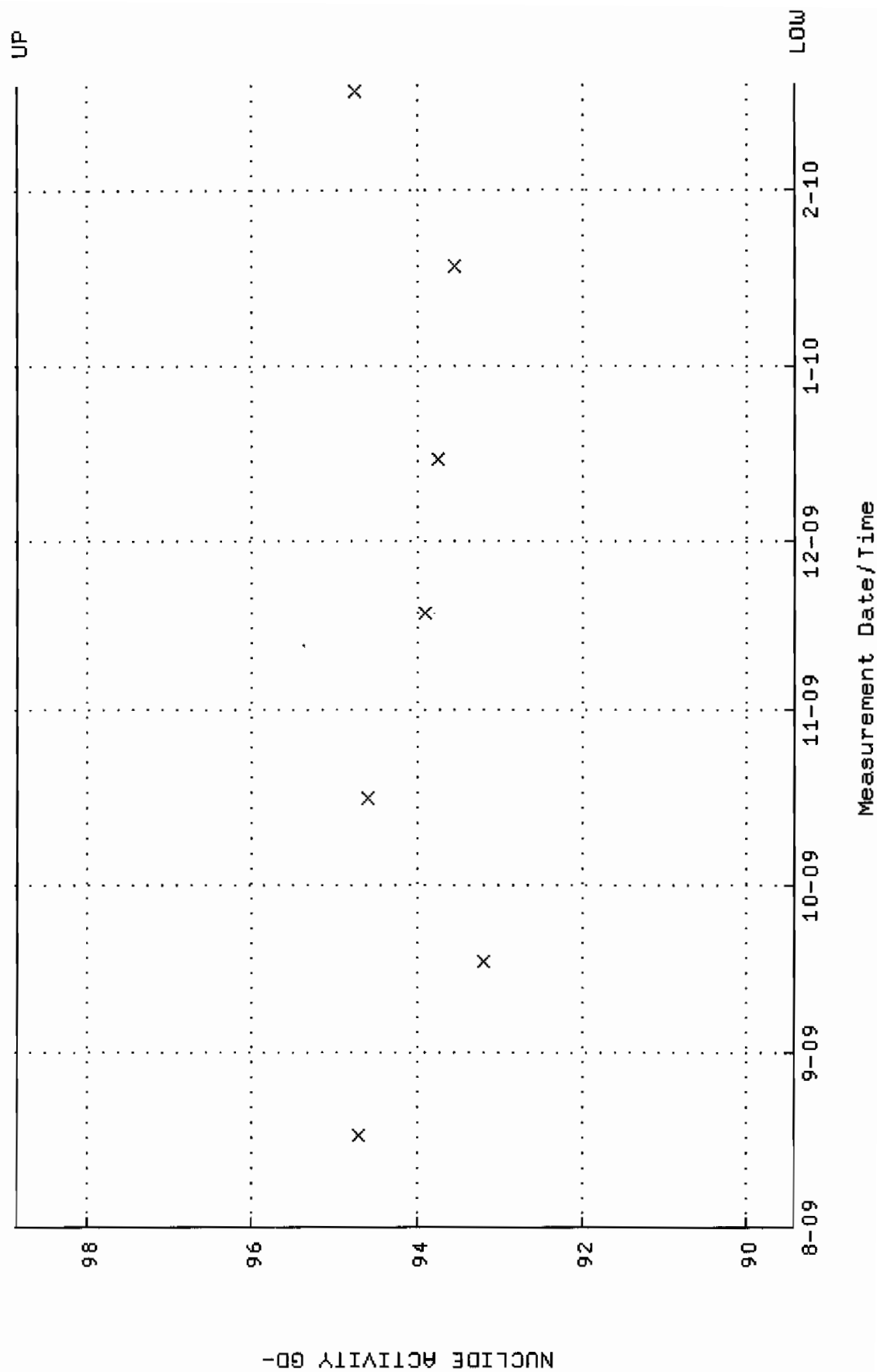
QA filename : DKA100:[ENV\_ALPHA.QA.B]B120.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 3-AUG-2009 15:38:20 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



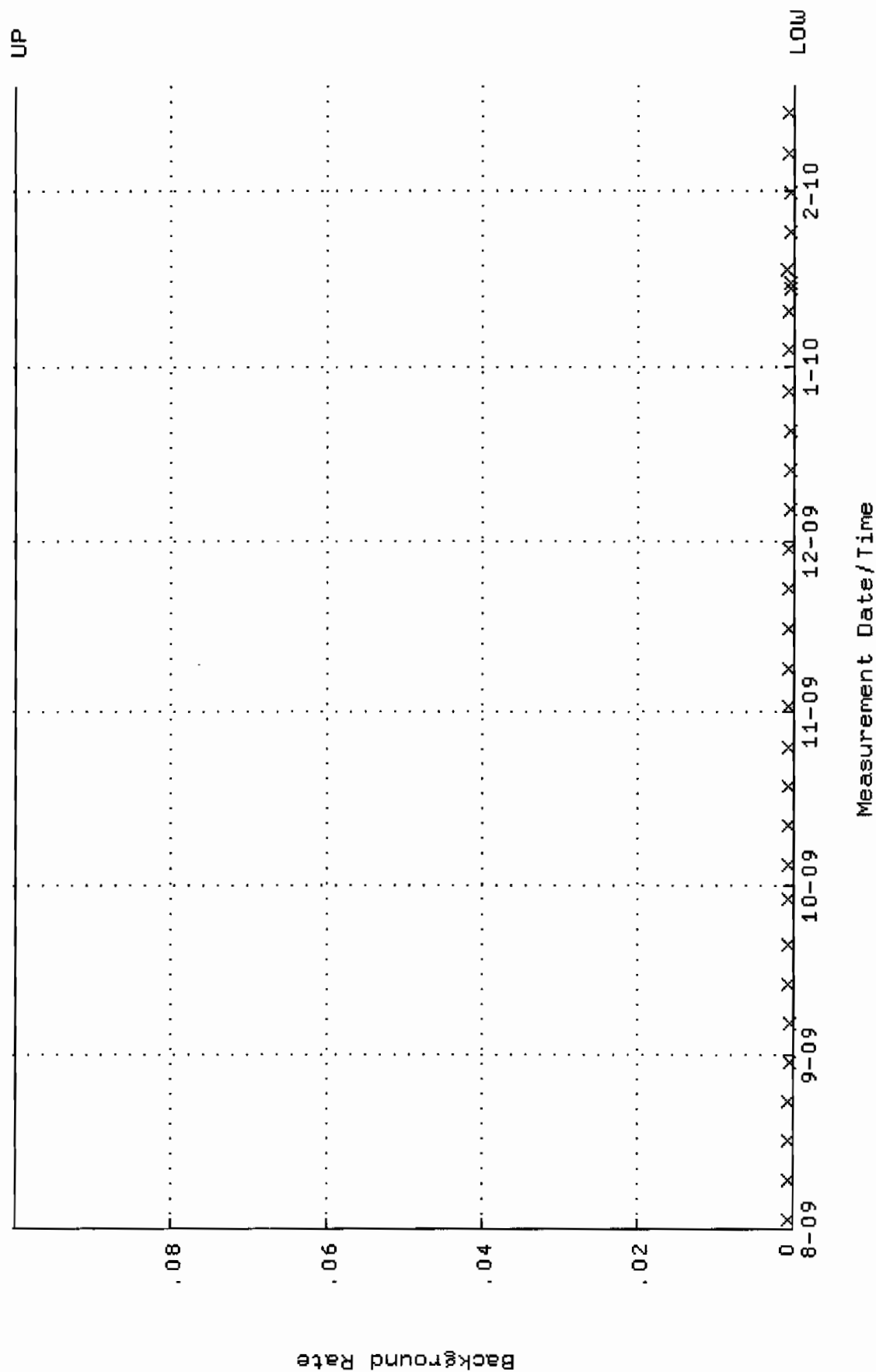
QA filename : DKA100:[ENV\_ALPHA,QA,W]W121.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 09:41:25 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.237686 through 0.257686



QA filename : DKA100:[ENV\_ALPHA.QA.W]W121.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:41:25 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 89.4263 through 98.8395

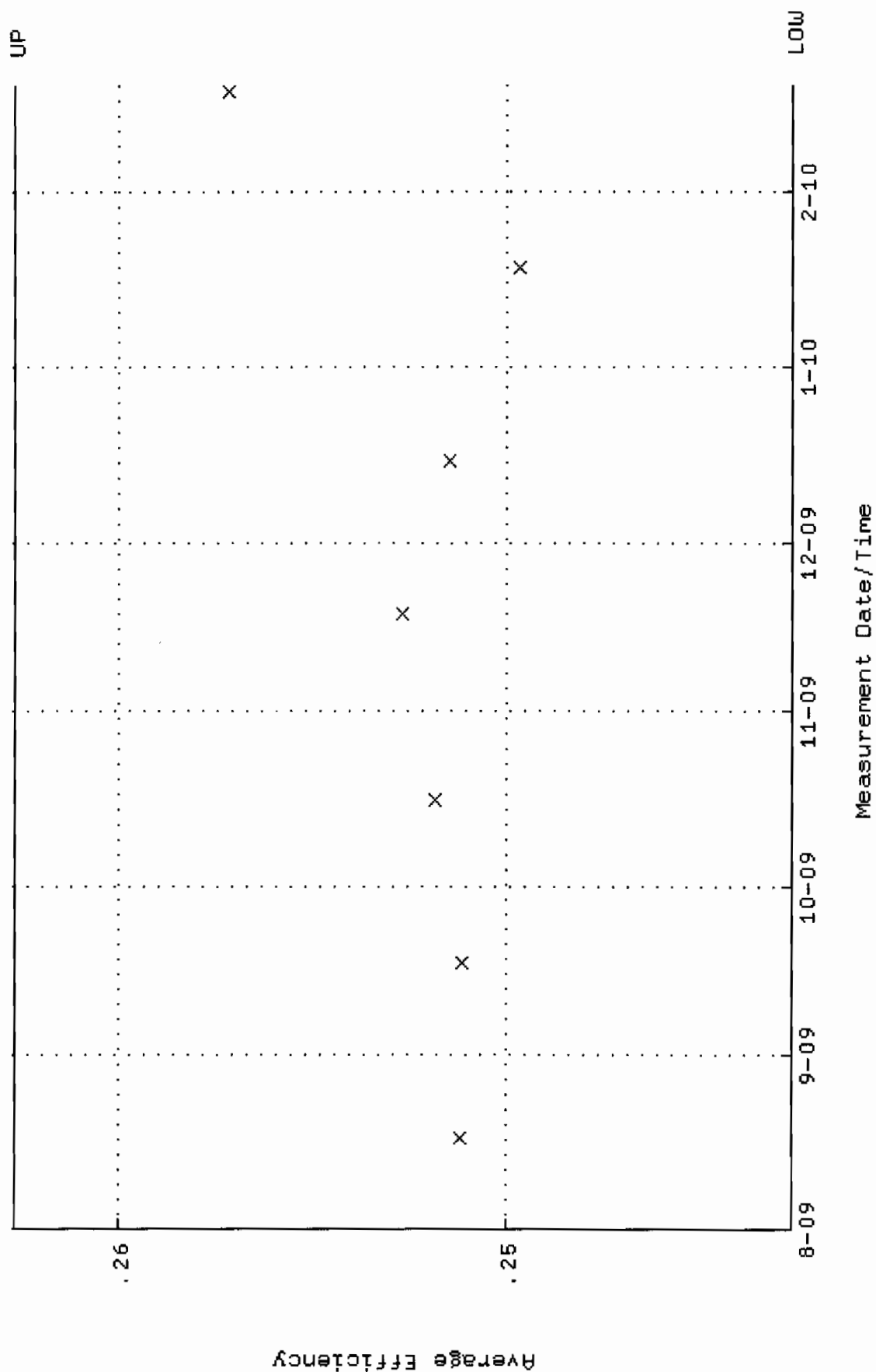


QA filename : DKA100:[ENV\_ALPHA.QA.B]B121.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:12:33 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

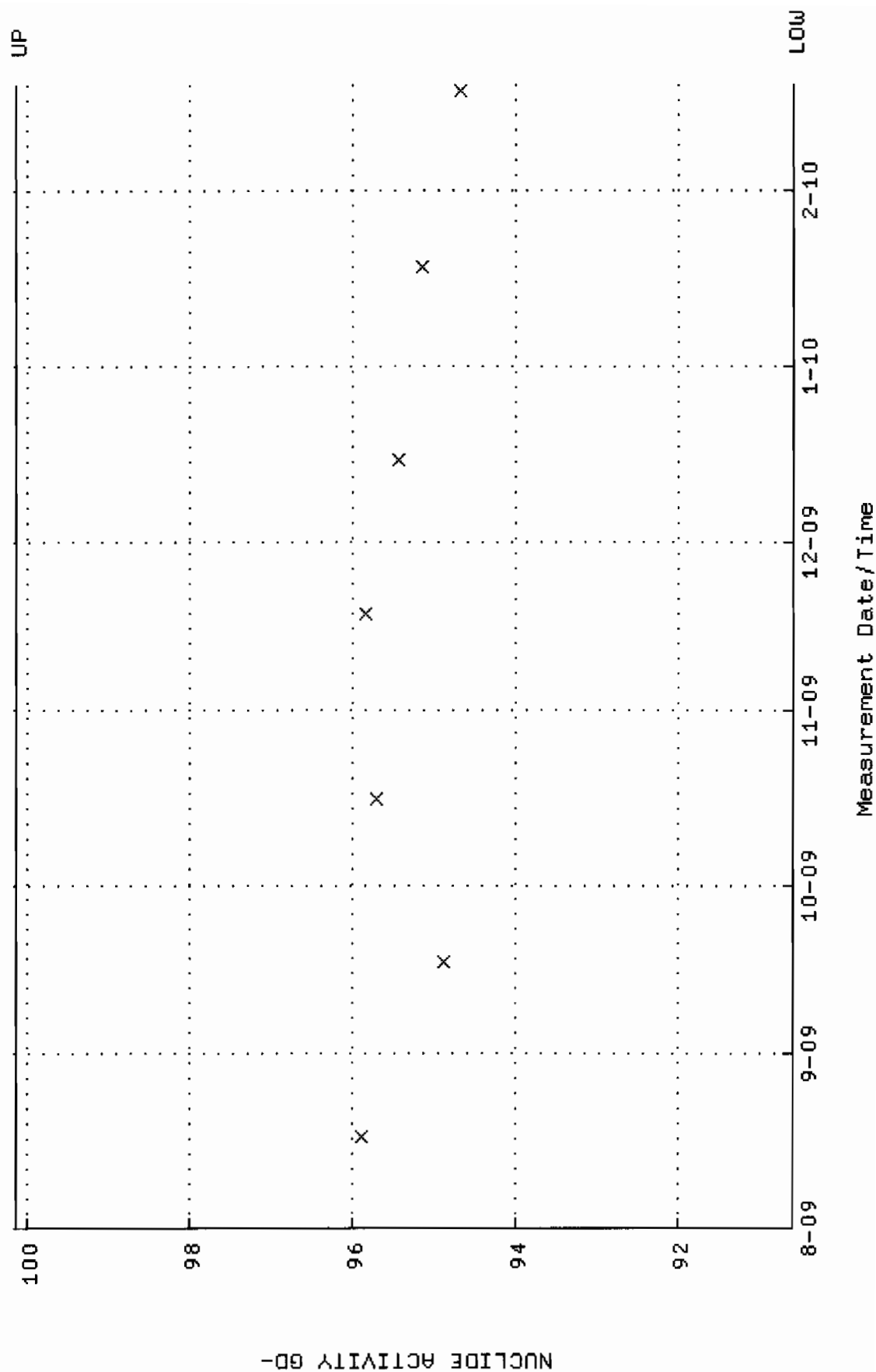




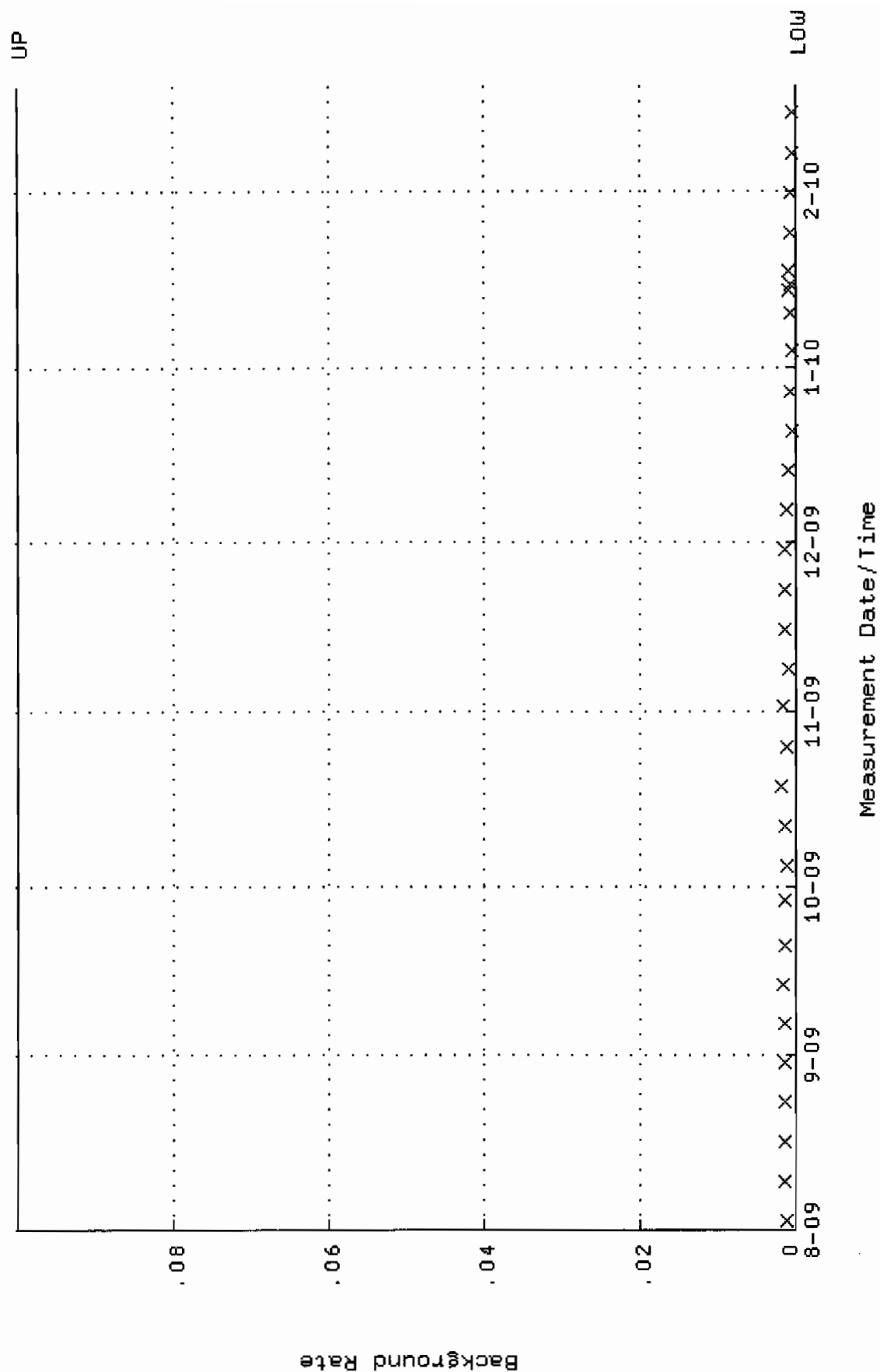
QA filename : DKA100:[ENV\_ALPHA.QA.W]W122.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 09:41:30 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.242659 through 0.262659



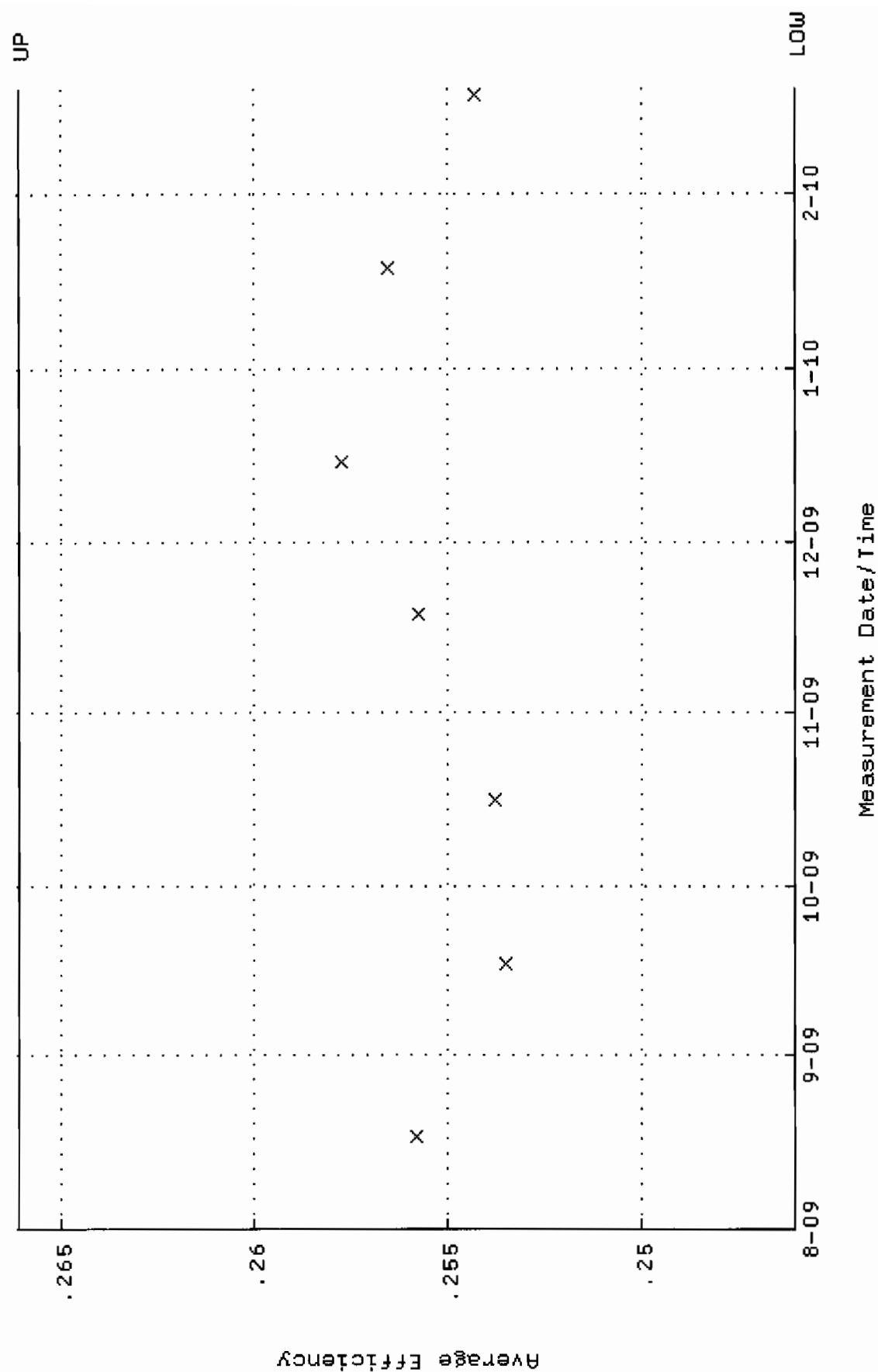
QA filename : DKA100:[ENV-ALPHA.QA.W]W122.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:41:30 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 90.5949 through 100.131



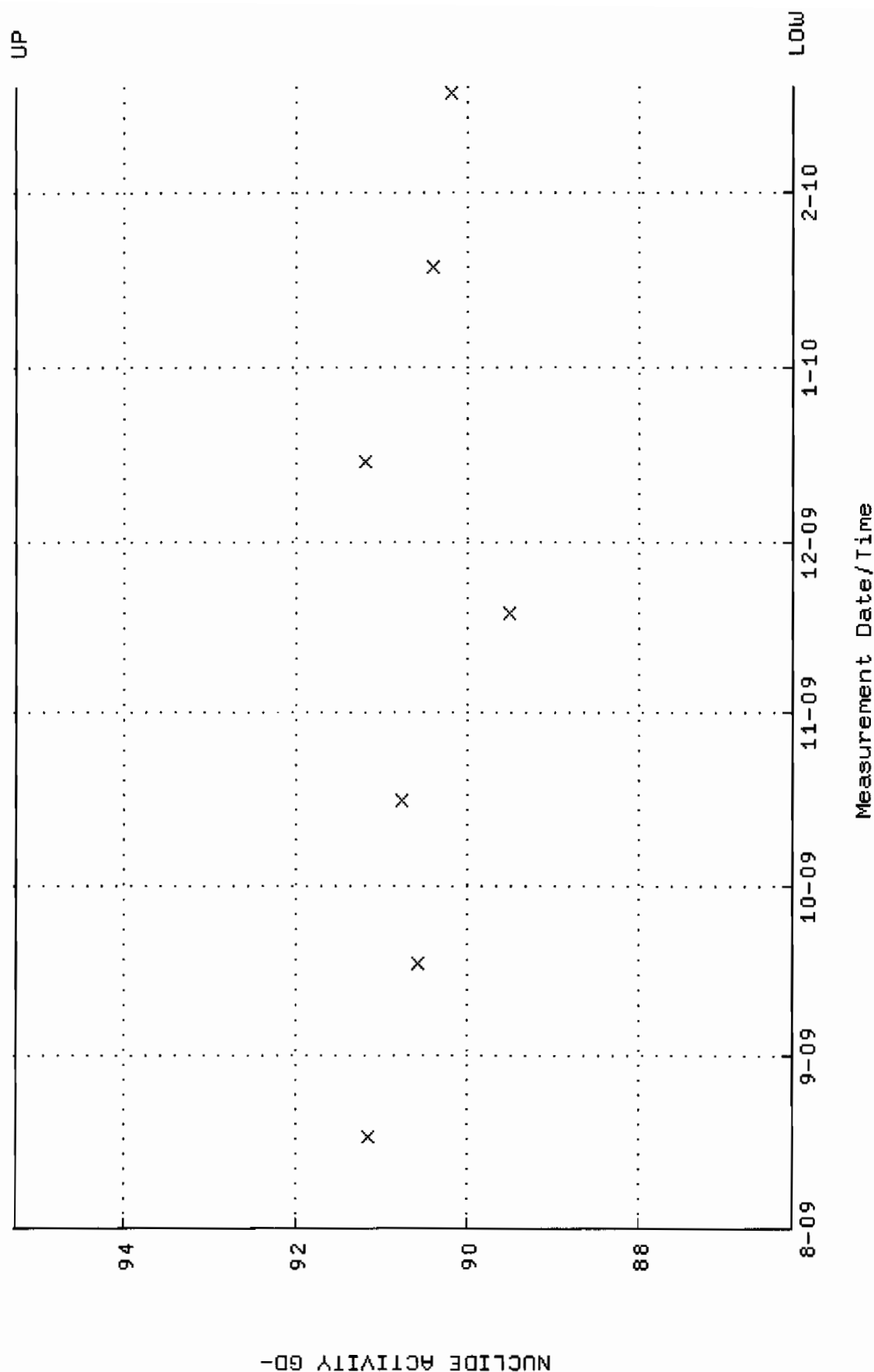
QA filename : DKA100:[ENV\_ALPHA.QA.B]B122.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:12:37 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



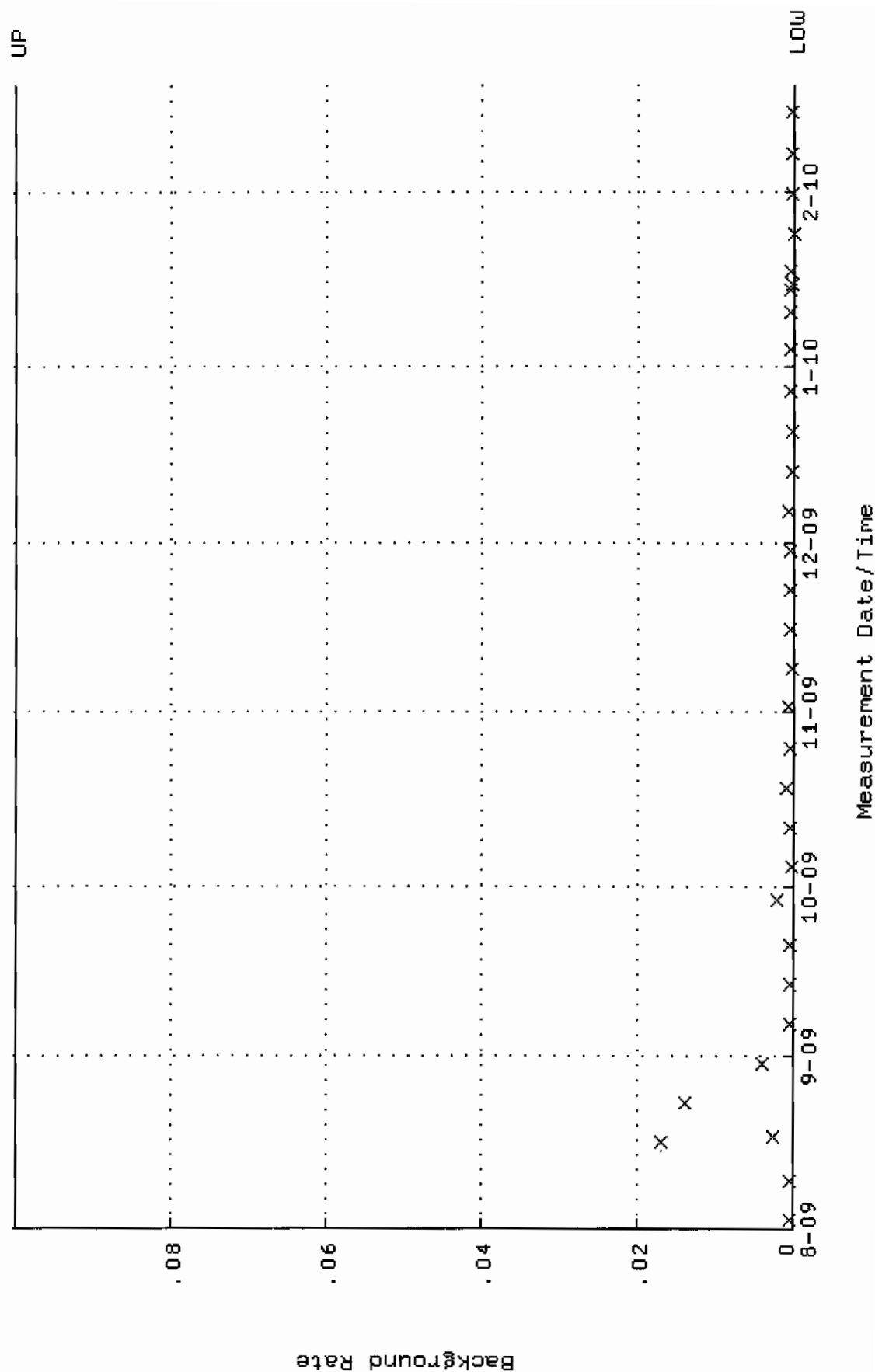
QA filename : DKA100:[ENV\_ALPHA.QA.W]W128.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 09:41:59 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.246062 through 0.266062



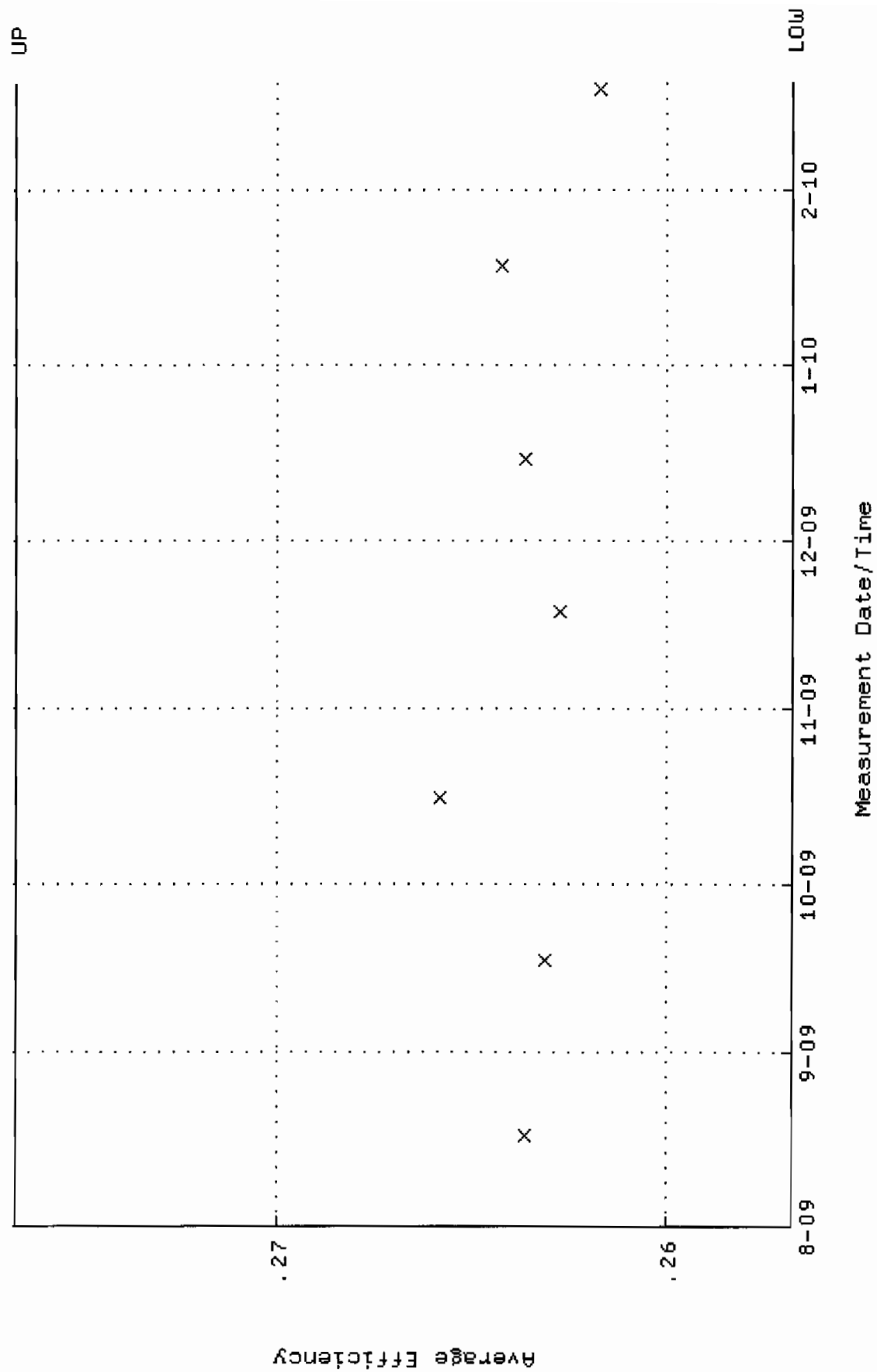
QA filename : DKA100:[ENV\_ALPHA.QA.W]W128.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:41:59 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.1964 through 95.2697



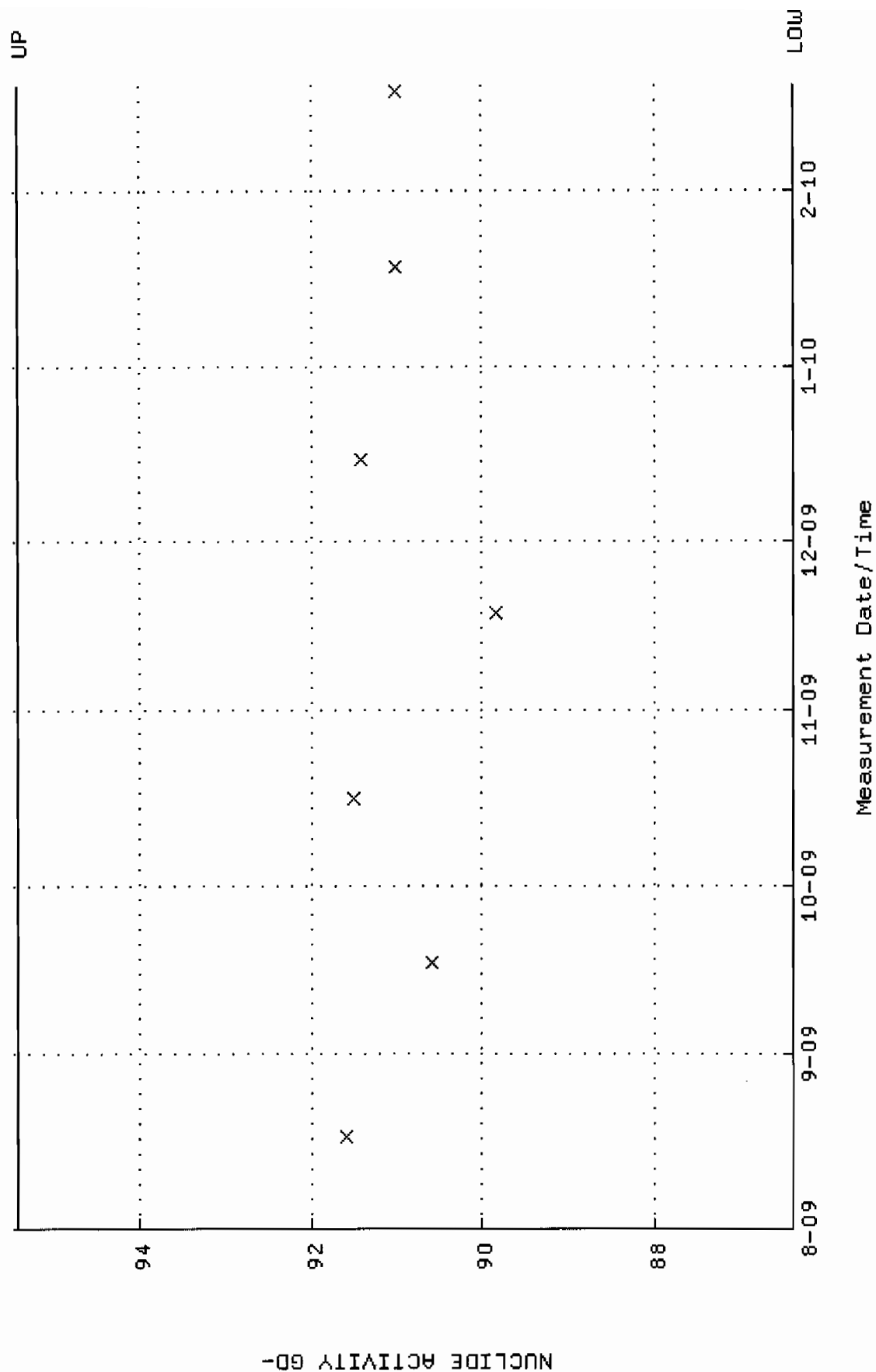
QA filename : DKA100:[ENV\_ALPHA.QA.B]B128.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:13:04 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W129.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 09:42:03 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.256741 through 0.276741

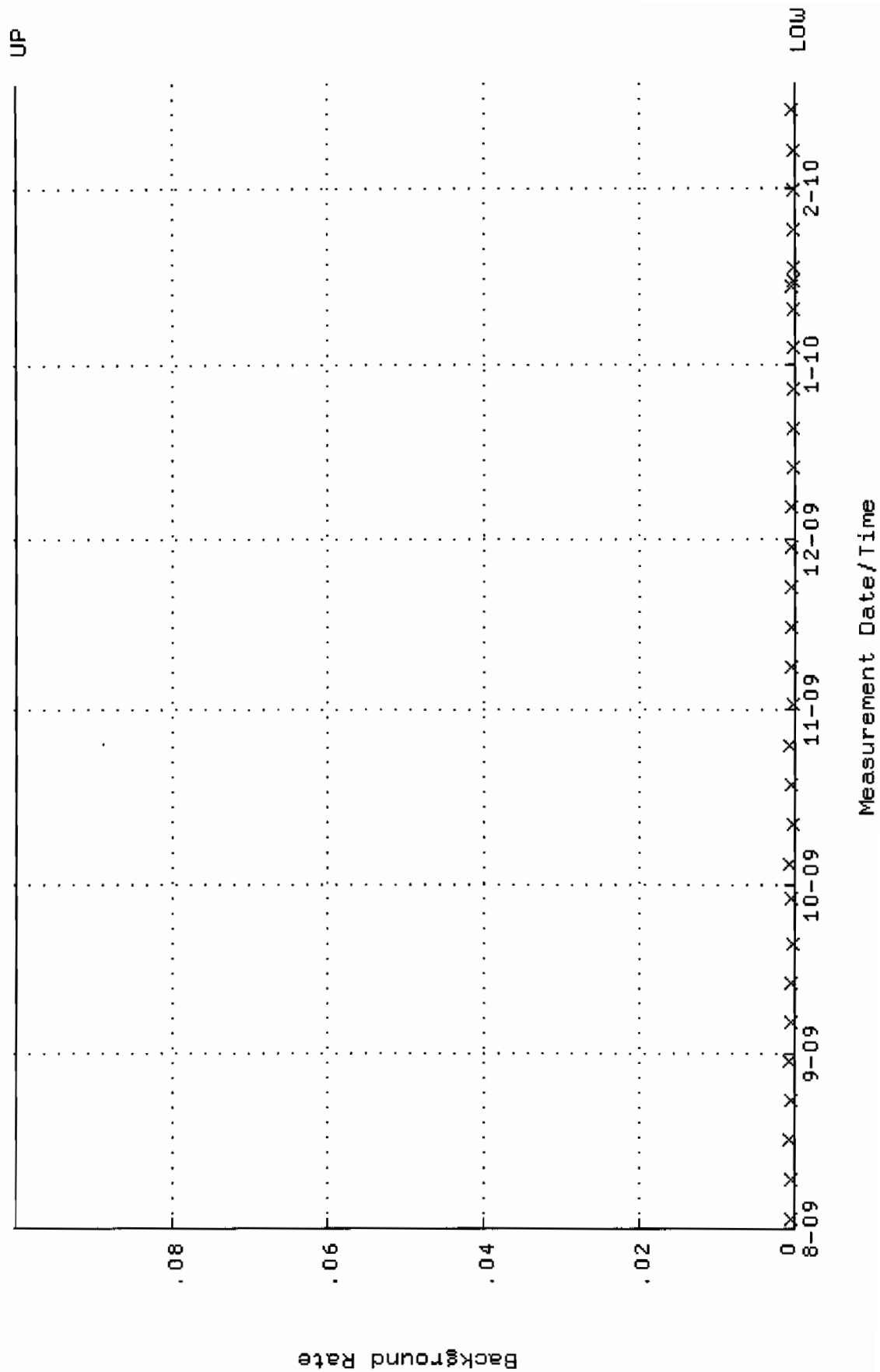


QA filename : DKA100:[ENV\_ALPHA.QA.W]W129.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:42:03 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 86.3646 through 95.4556

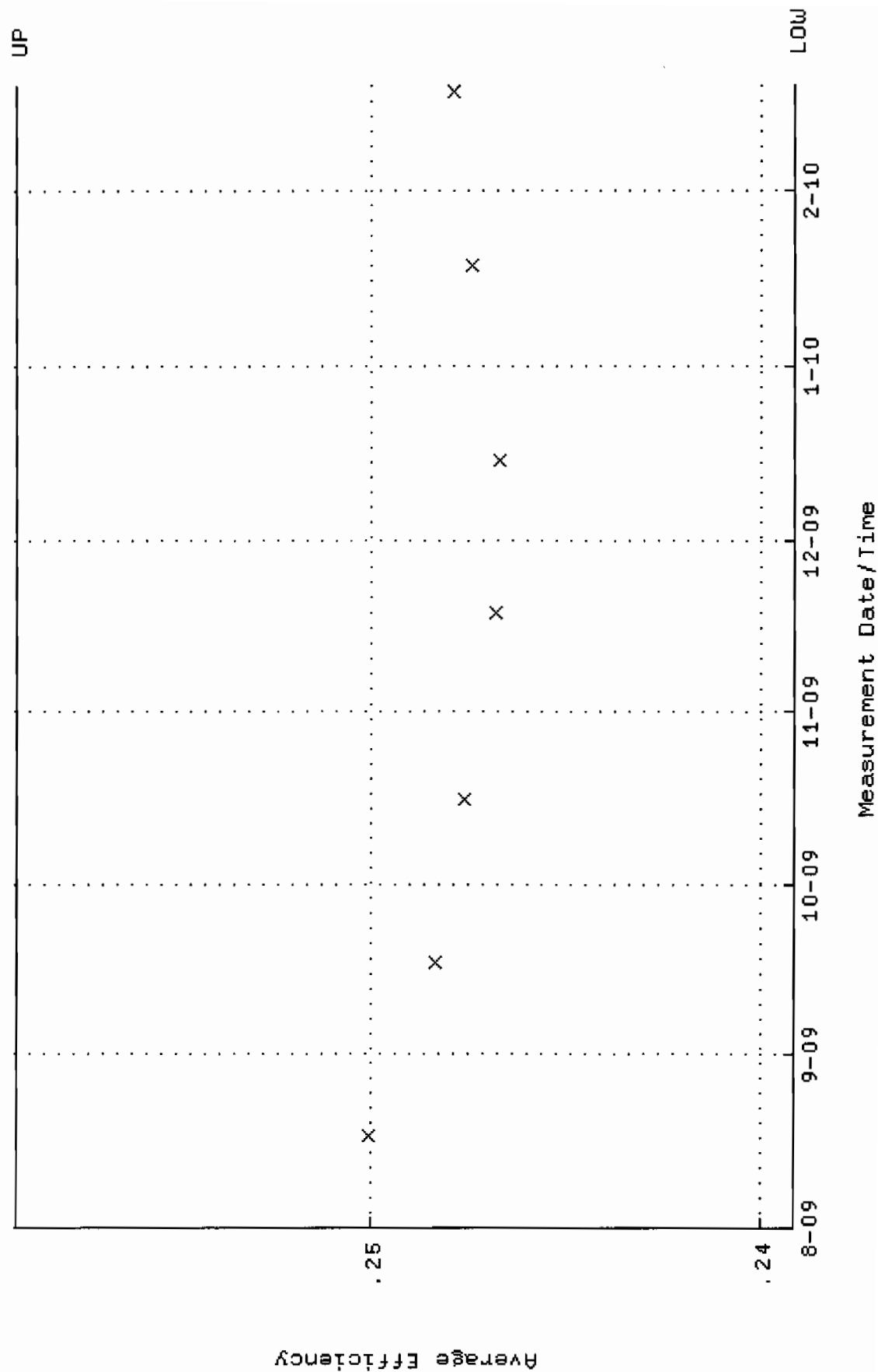




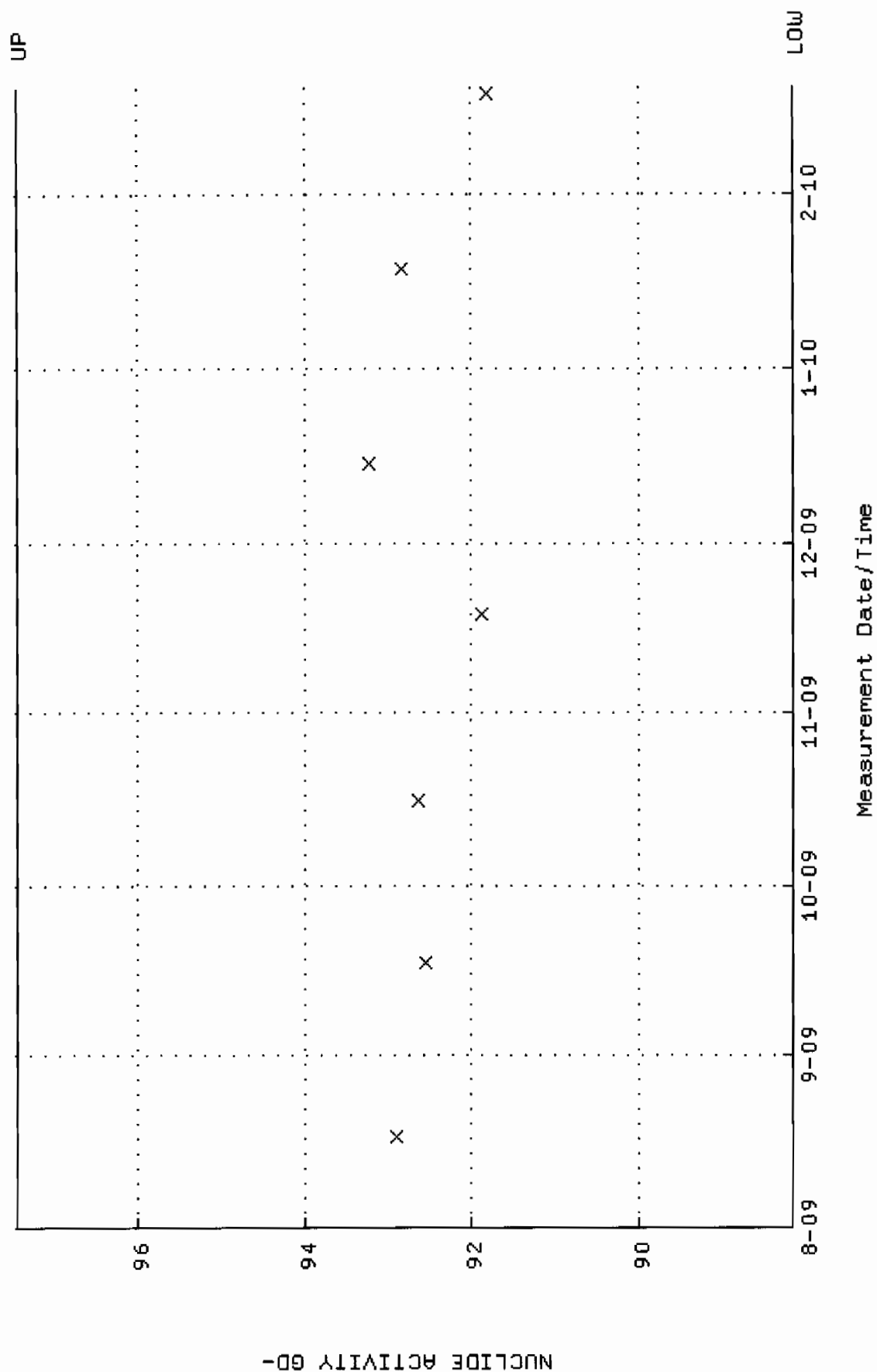
QA filename : DKA100:[ENV\_ALPHA.QA.B]B129.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:13:09 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



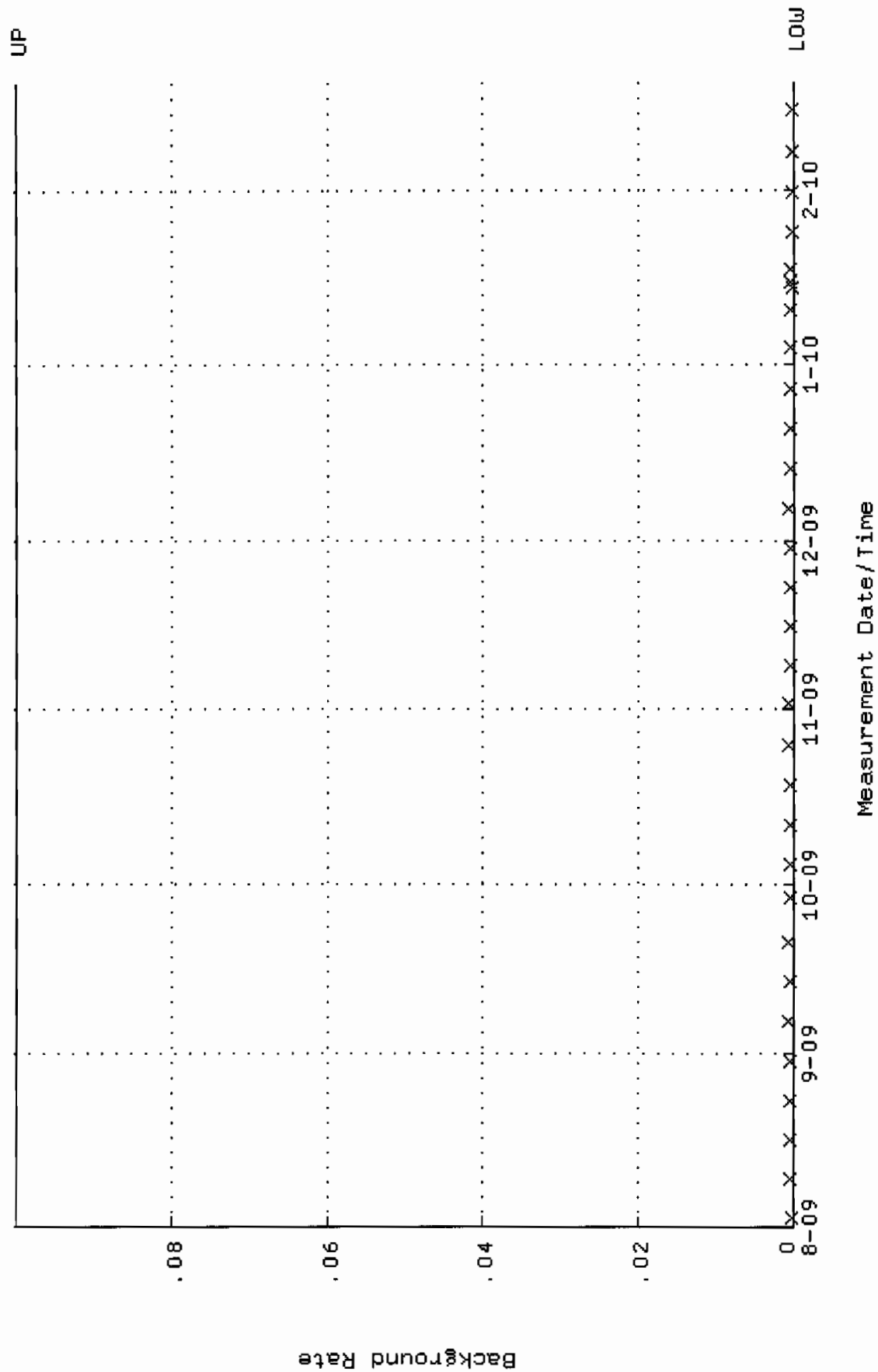
QA filename : DKA100:[ENV\_ALPHA.QA.W]W130.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 09:42:09 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.239131 through 0.259131



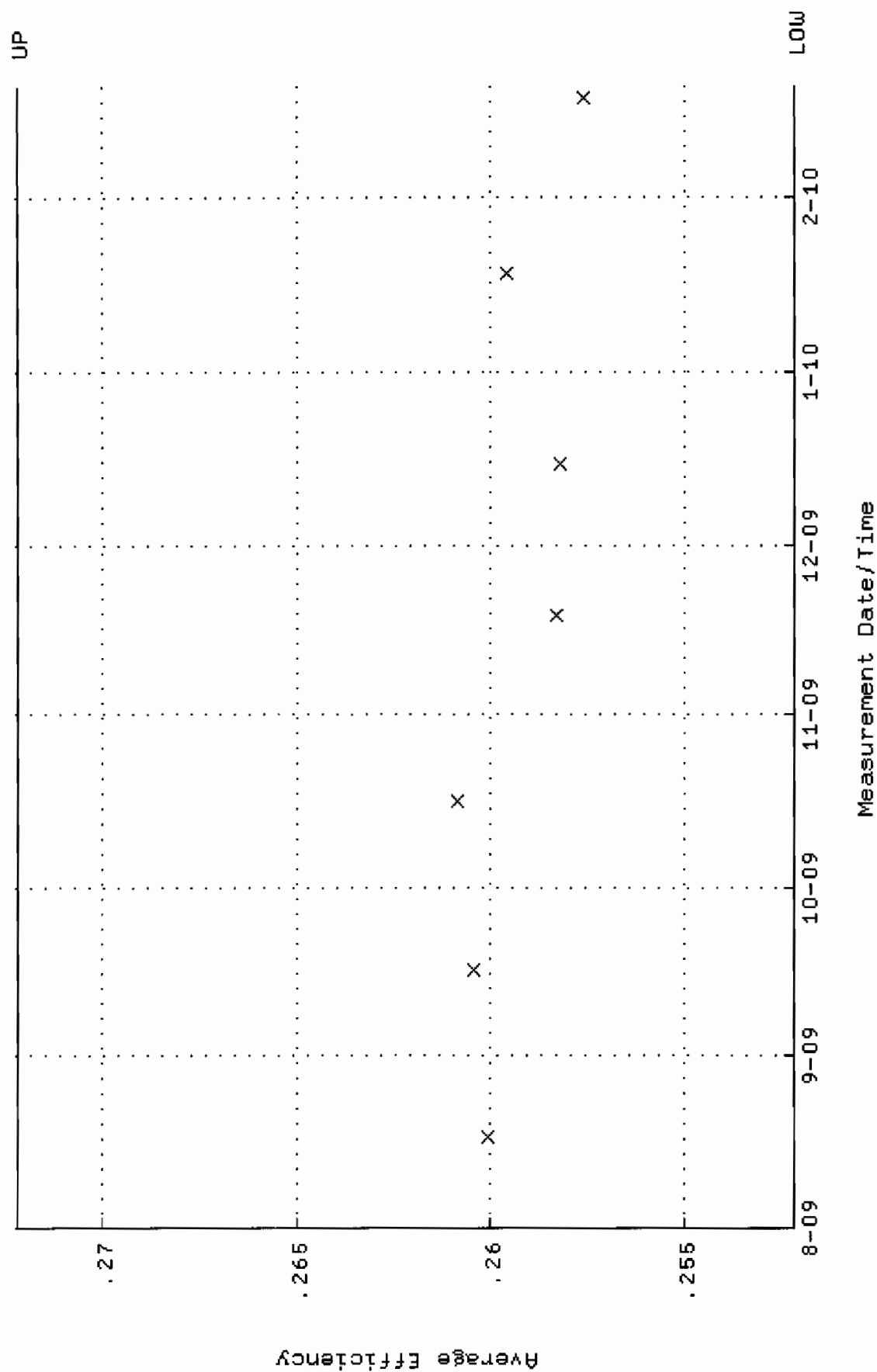
QA filename : DKA100:[ENV\_ALPHA.QA.W]W130.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 09:42:09 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 88.1614 through 97.4416



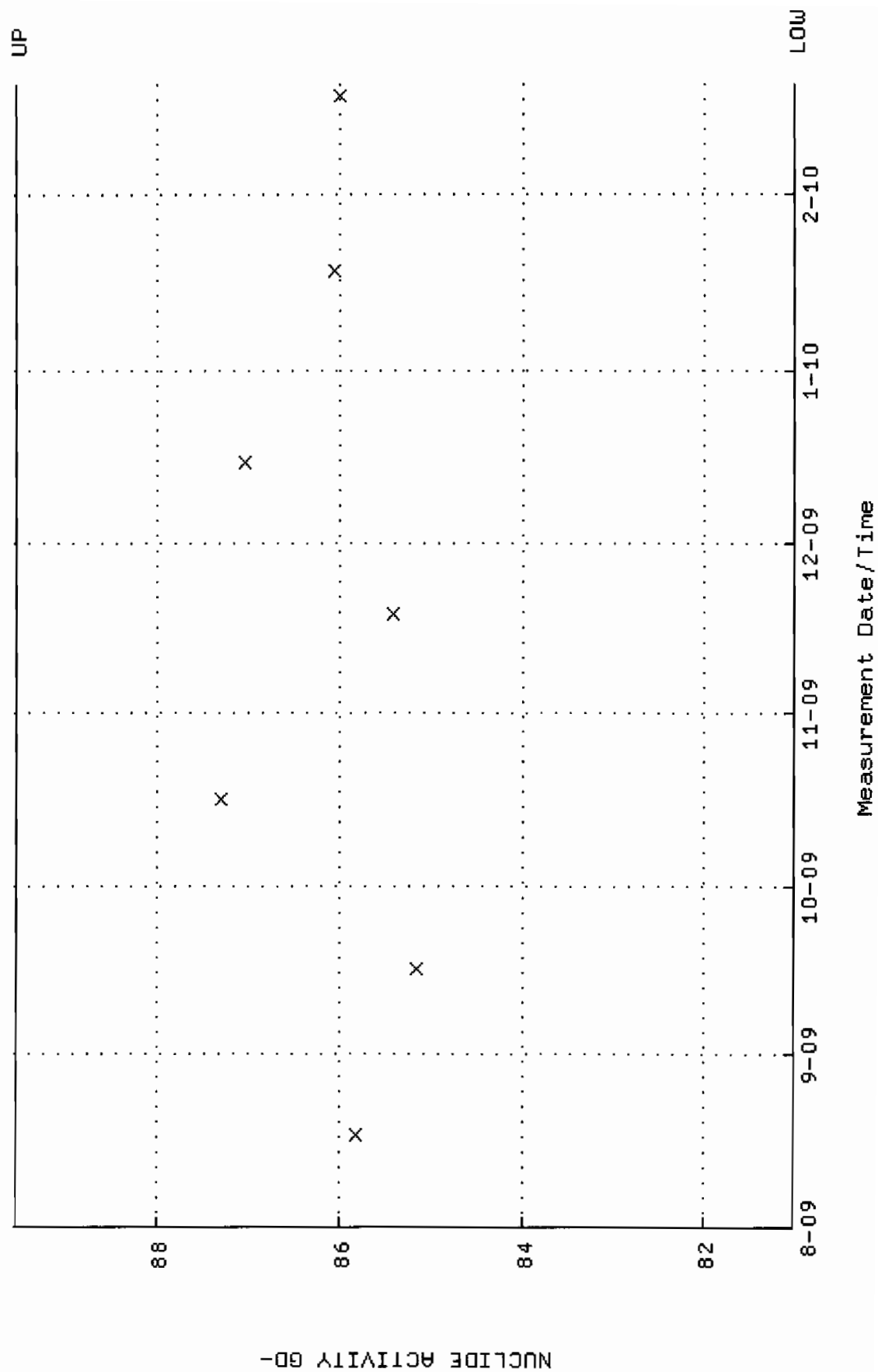
QA filename : DKA100:[ENV\_ALPHA.QA.B]B130.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:13:13 through 19-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



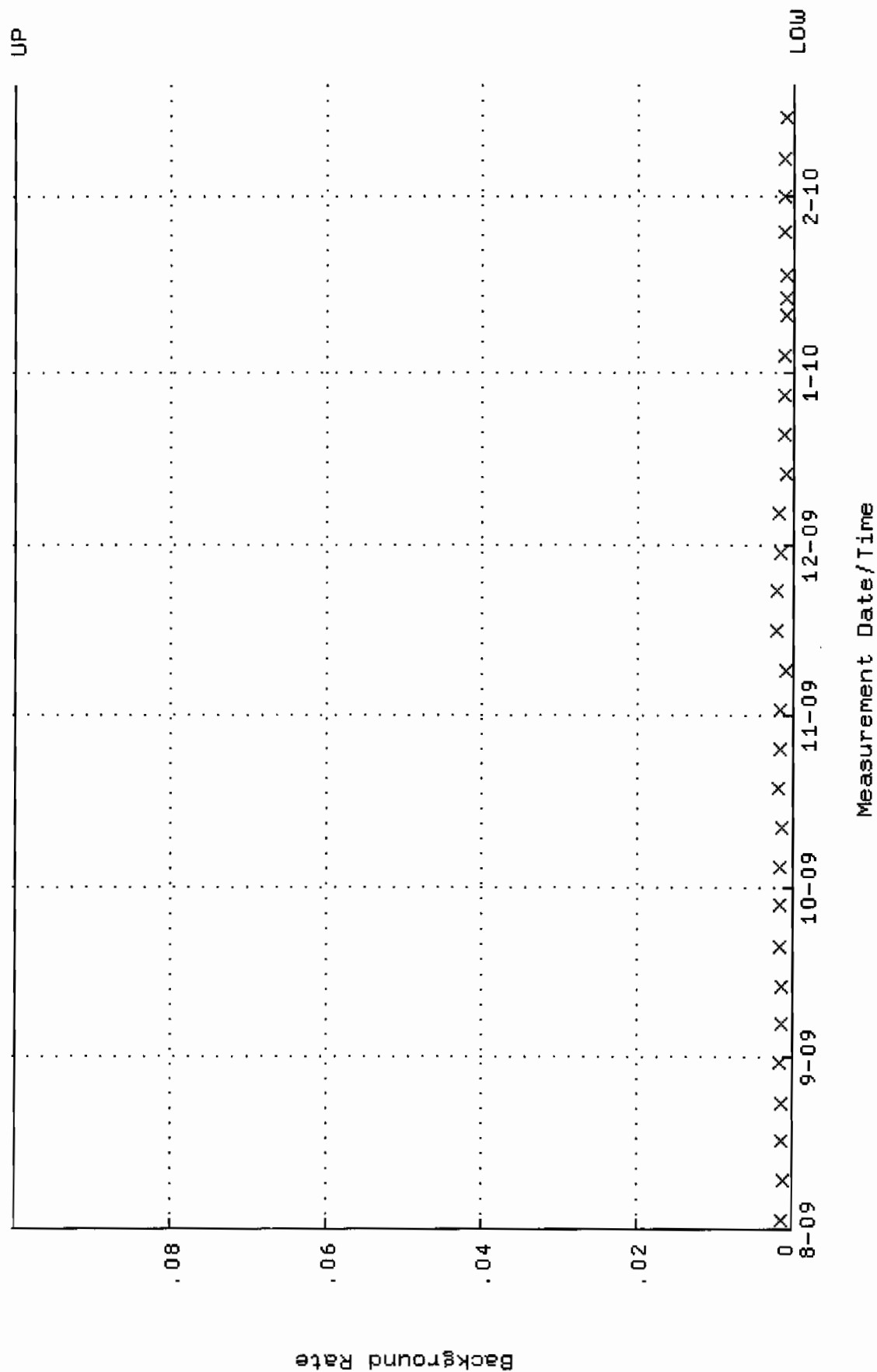
QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:21 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.252182 through 0.272182



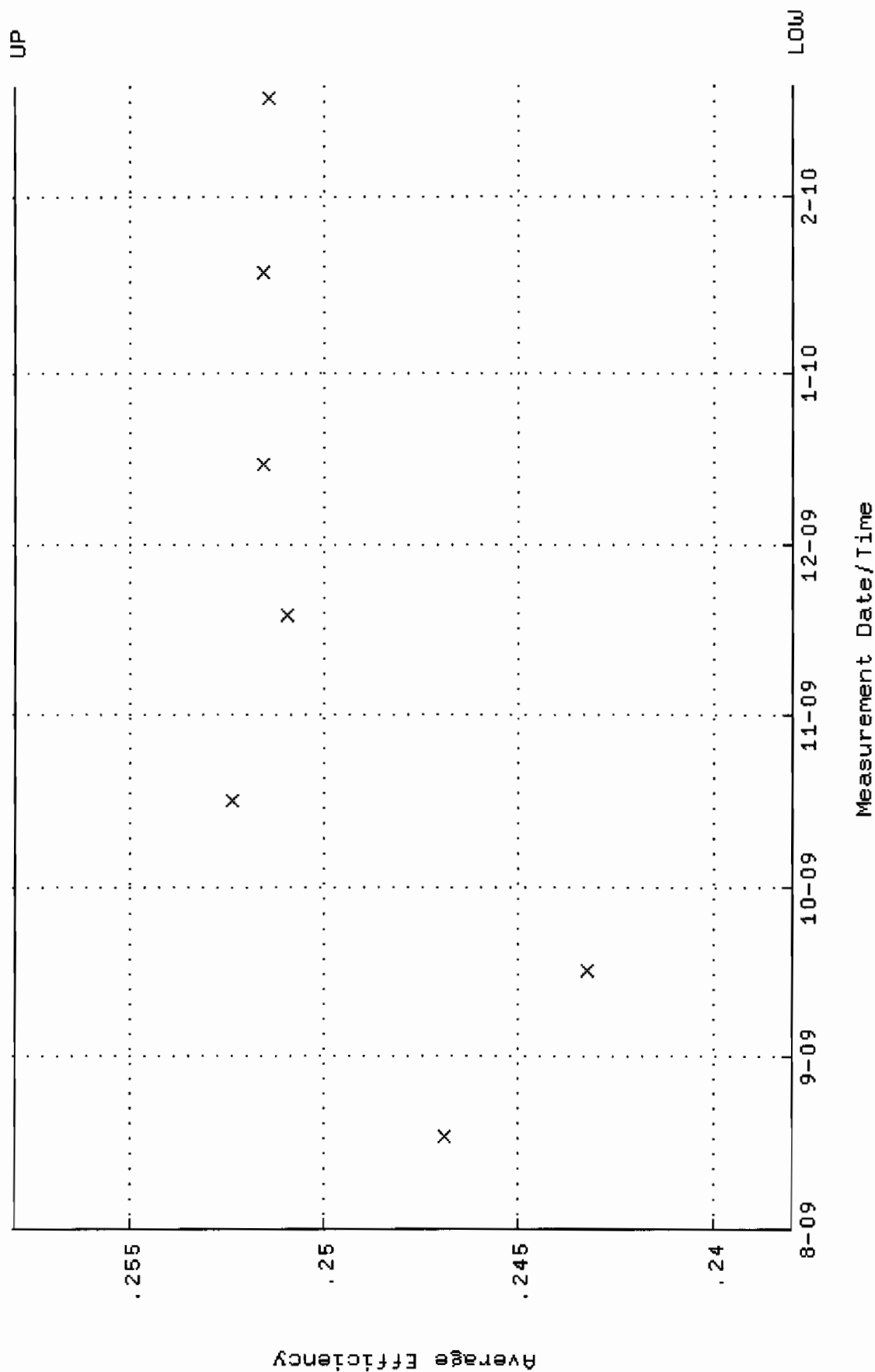
QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:21 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 81.0245 through 89.5533



QA filename : DKA100:[ENV\_ALPHA.QA.B]B142.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:04 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

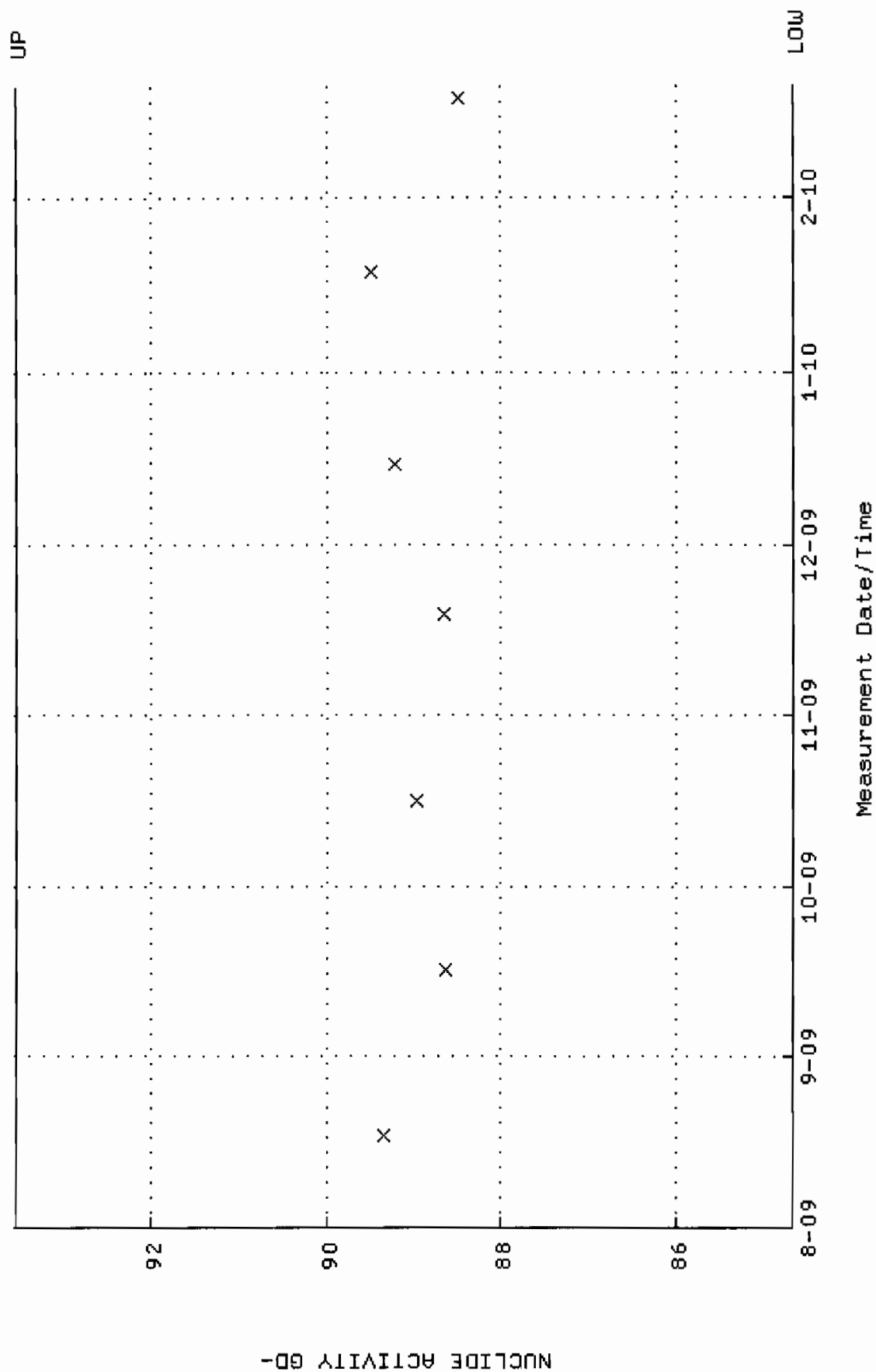


QA filename : DKA100:[ENV\_ALPHA.QA.W]W144.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.237963 through 0.257963

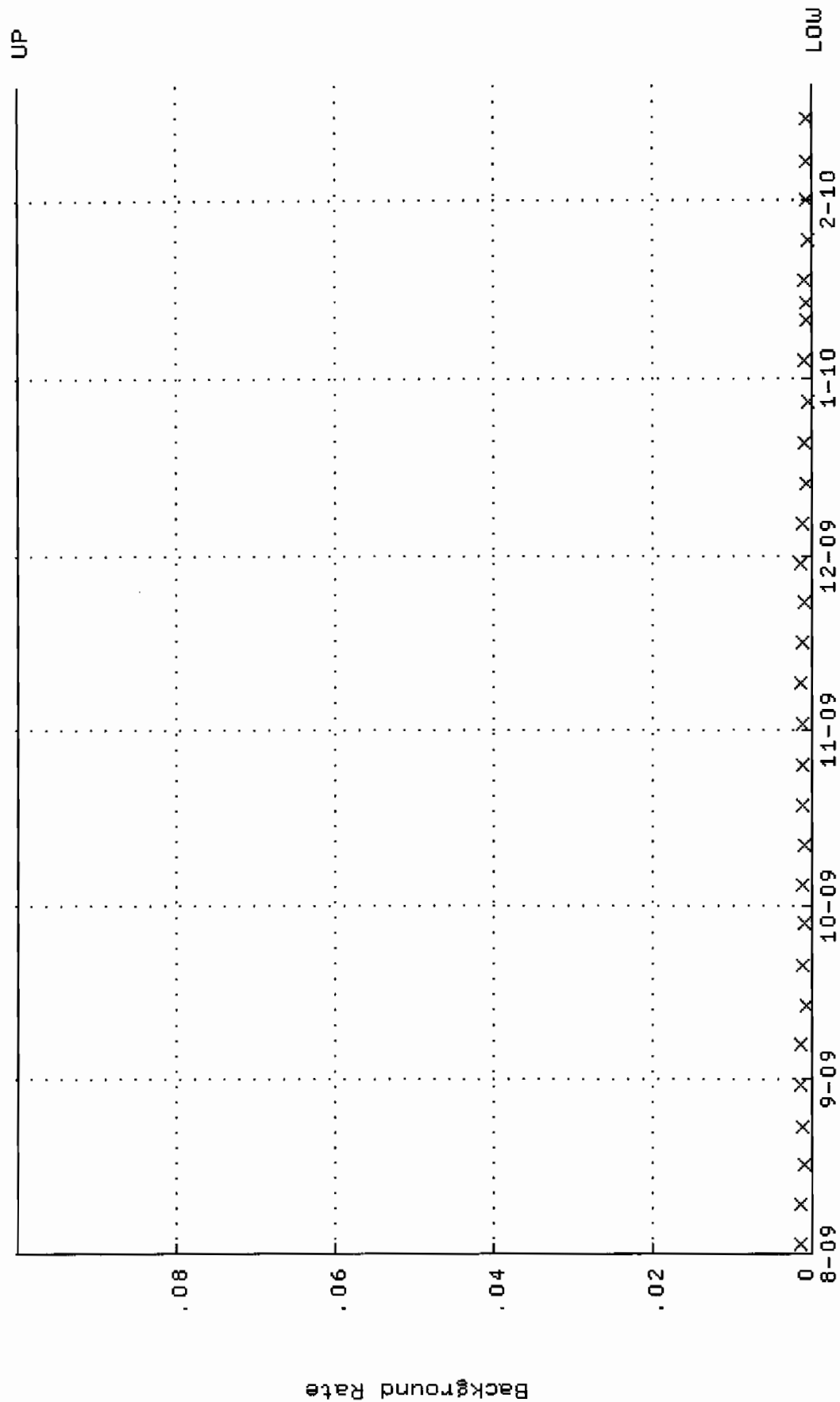




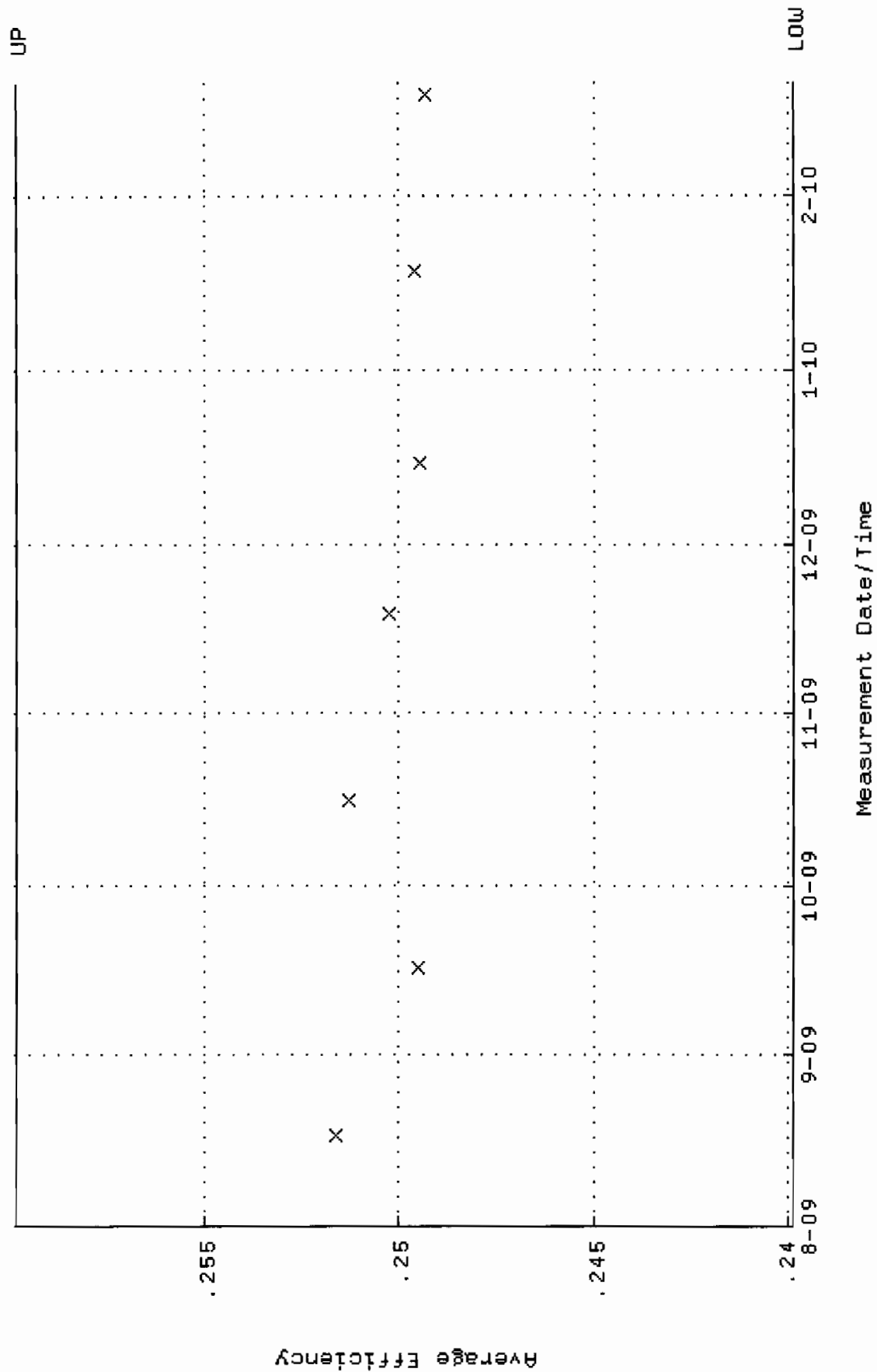
QA filename : DKA100:[ENV\_ALPHA.QA.W]W144.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:42 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.6507 through 93.5613



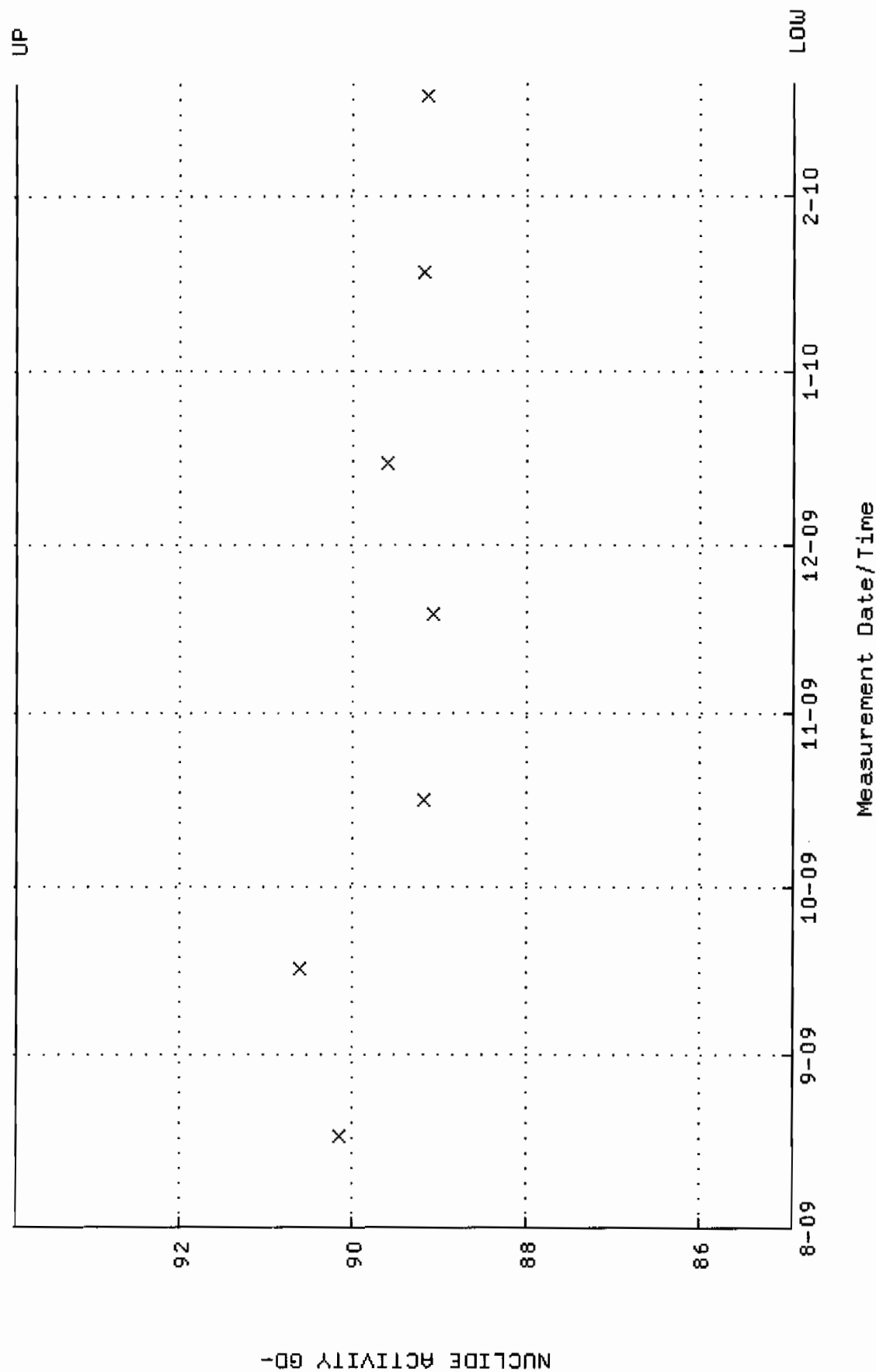
QA filename : DKA100:[ENV\_ALPHA.QA.B]B144.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:12 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



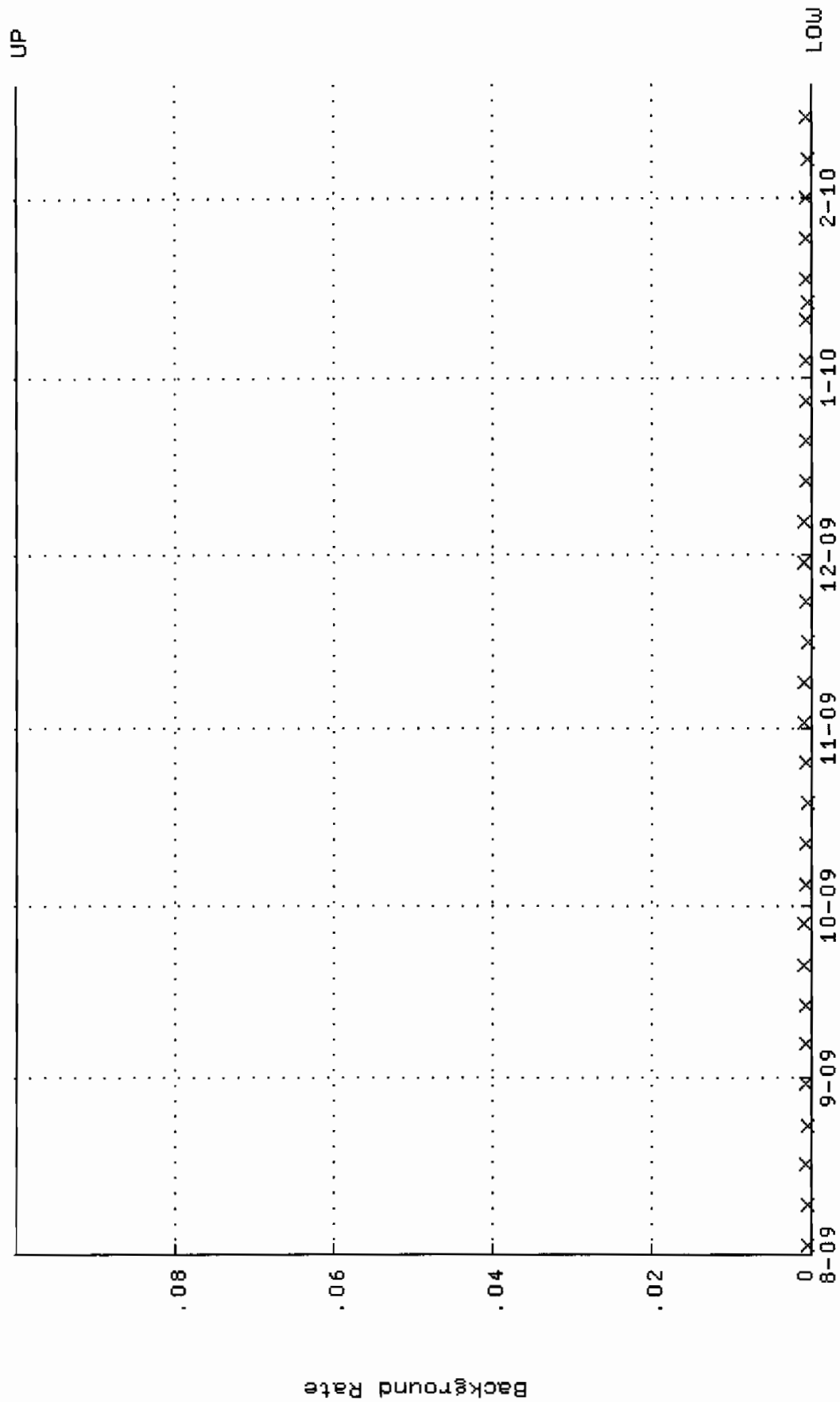
QA filename : DKA100:[ENV\_ALPHA.QA.W]W145.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-AUG-2009 10:06:50 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.239850 through 0.259850



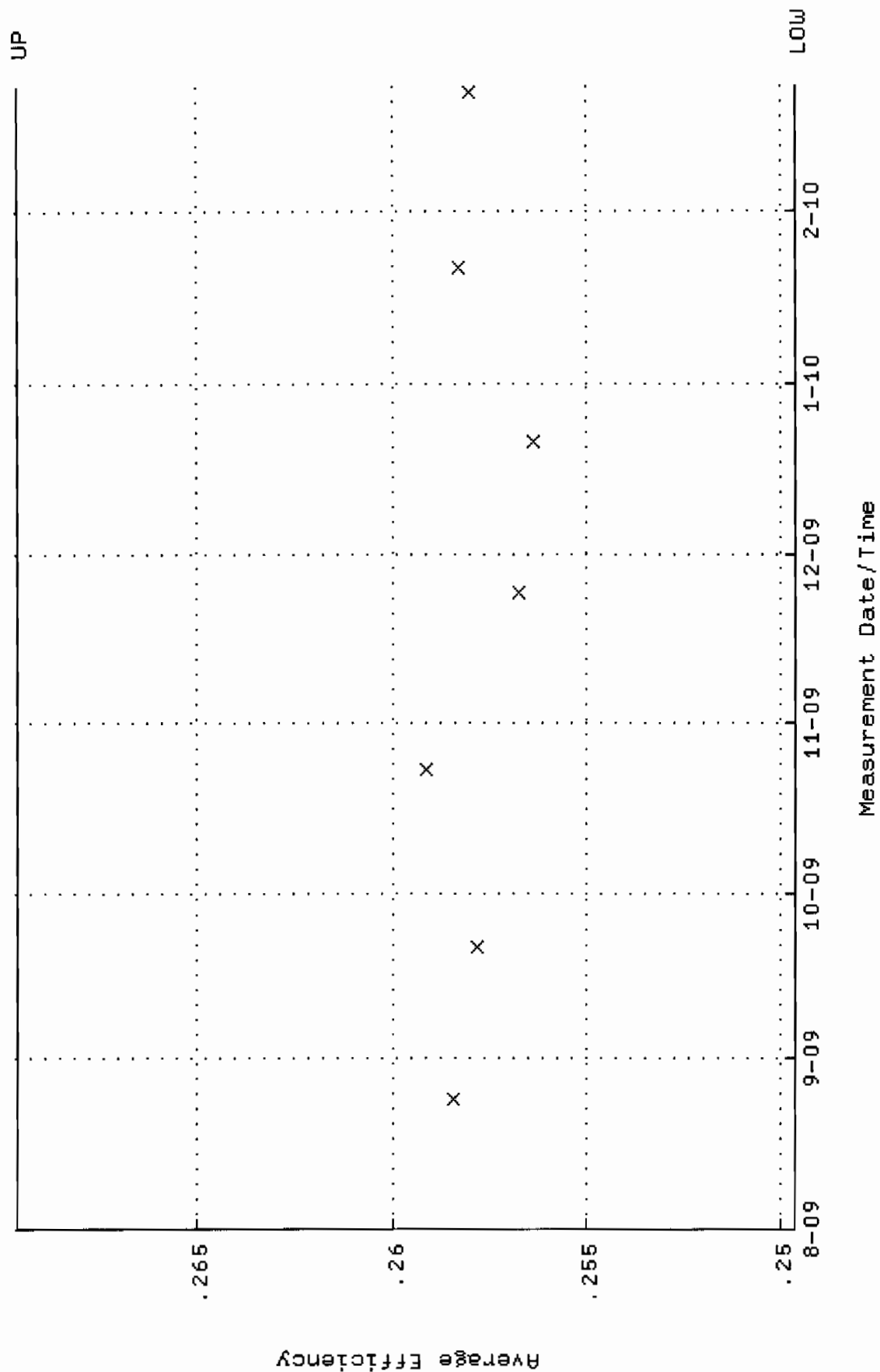
QA filename : DKA100:[ENV\_ALPHA.QA.W]U145.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-AUG-2009 10:06:50 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.9354 through 93.8760



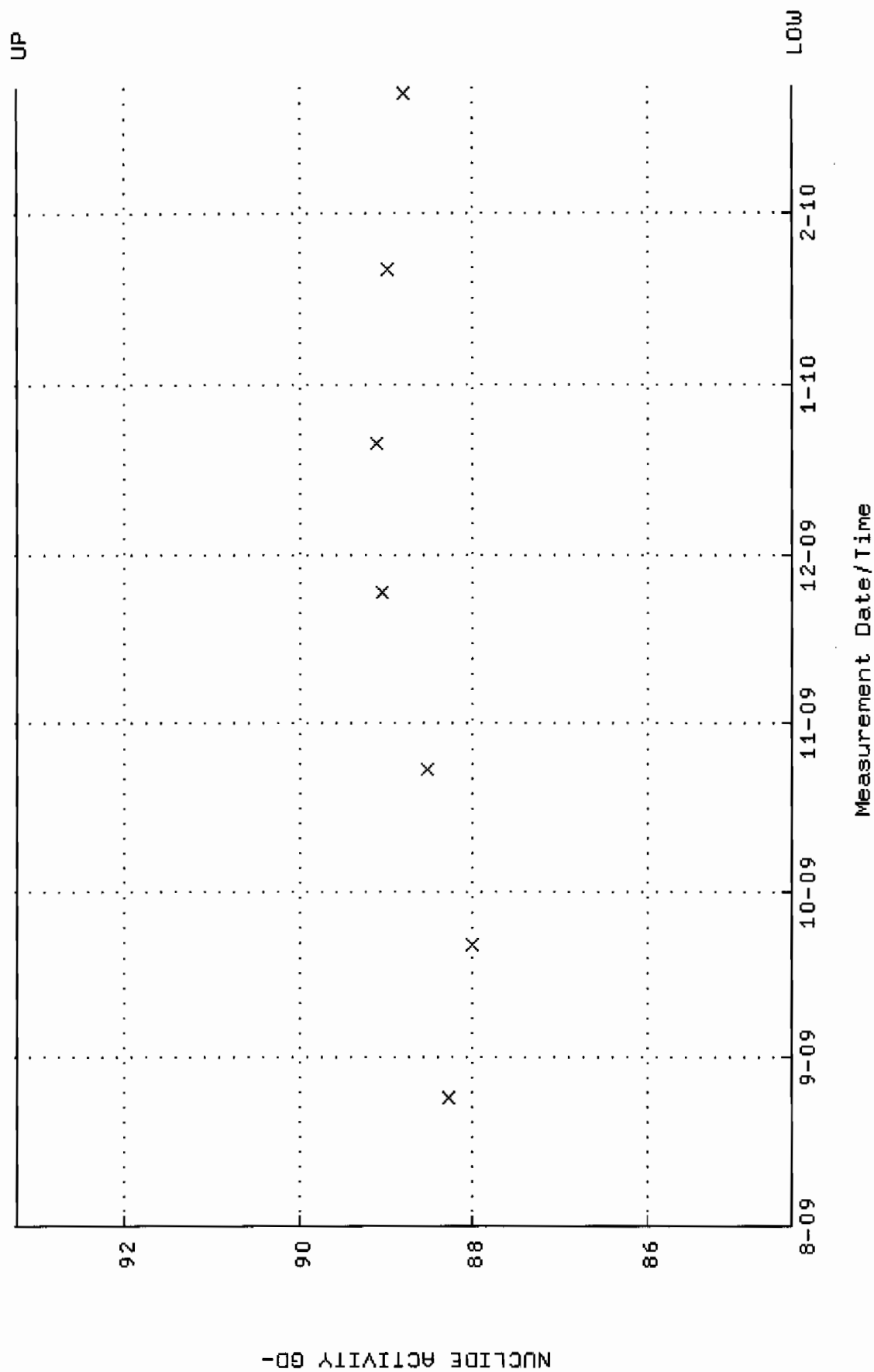
QA filename : DKA100:[ENV\_ALPHA.QA.B]B145.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:14:16 through 20-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



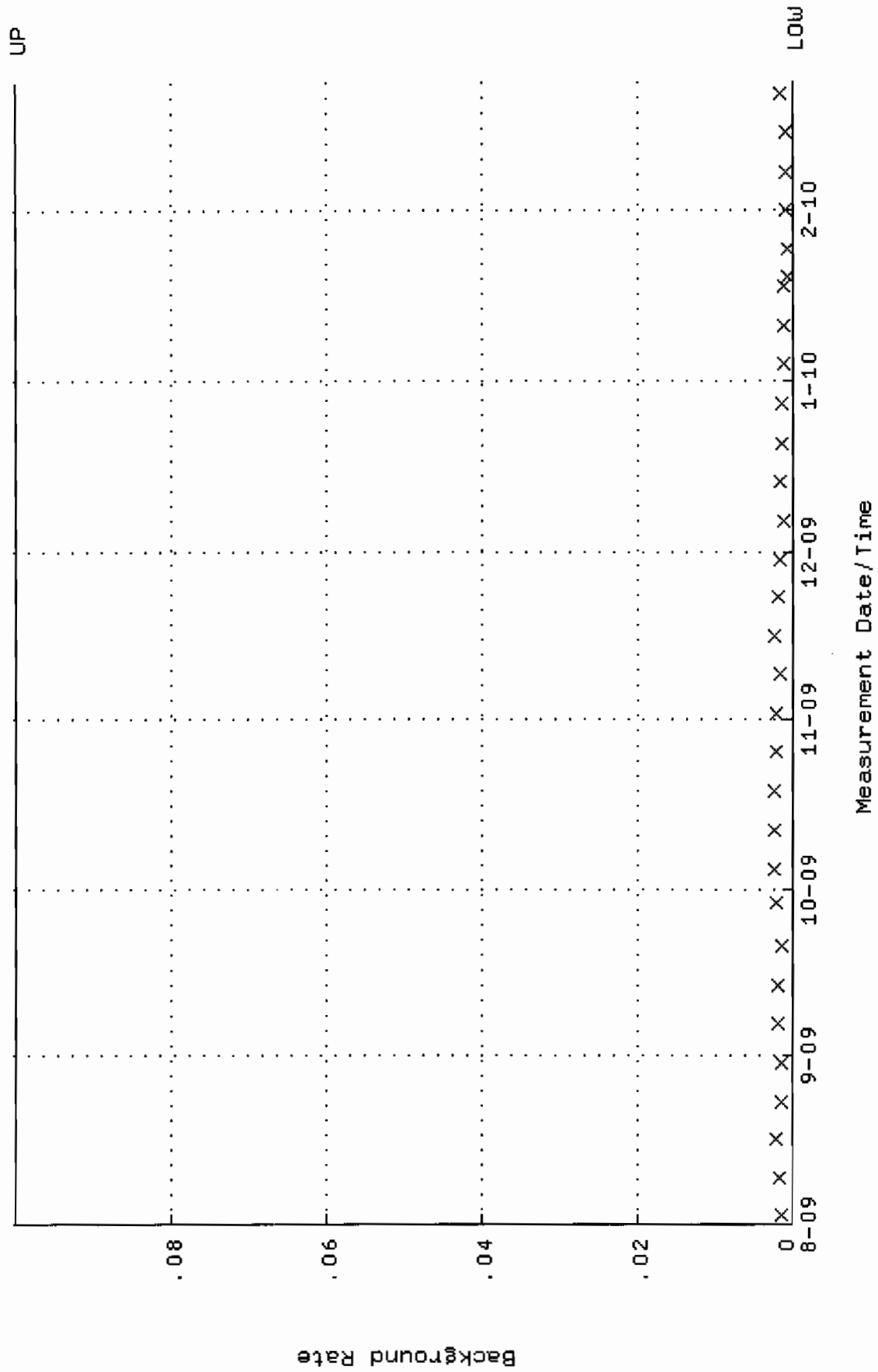
QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 24-AUG-2009 08:42:07 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.249628 through 0.269628



QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 24-AUG-2009 08:42:07 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 84.3502 through 93.2292

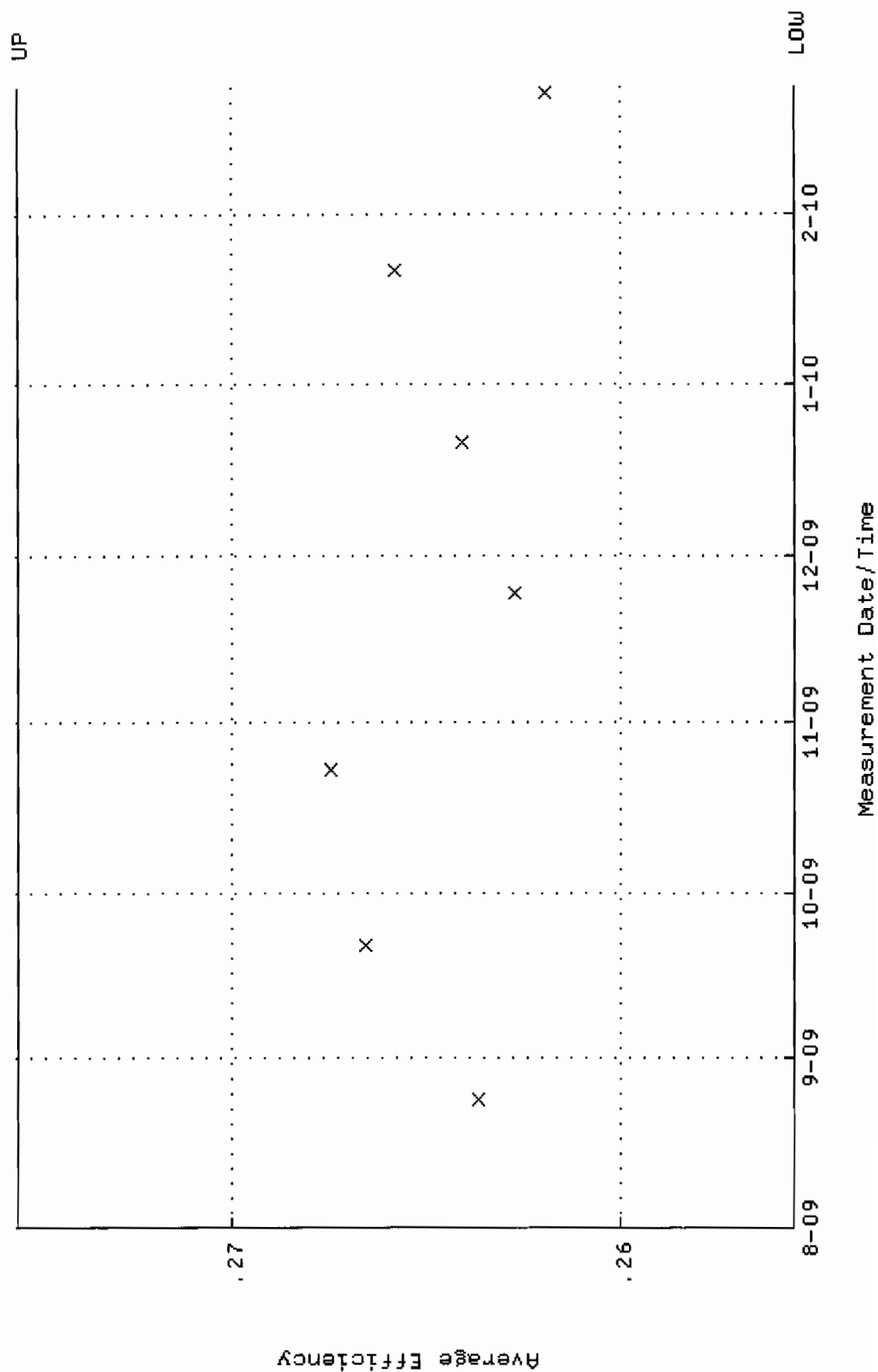


QA filename : DKA100:[ENV\_ALPHA.QA.B]B185.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:23:26 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

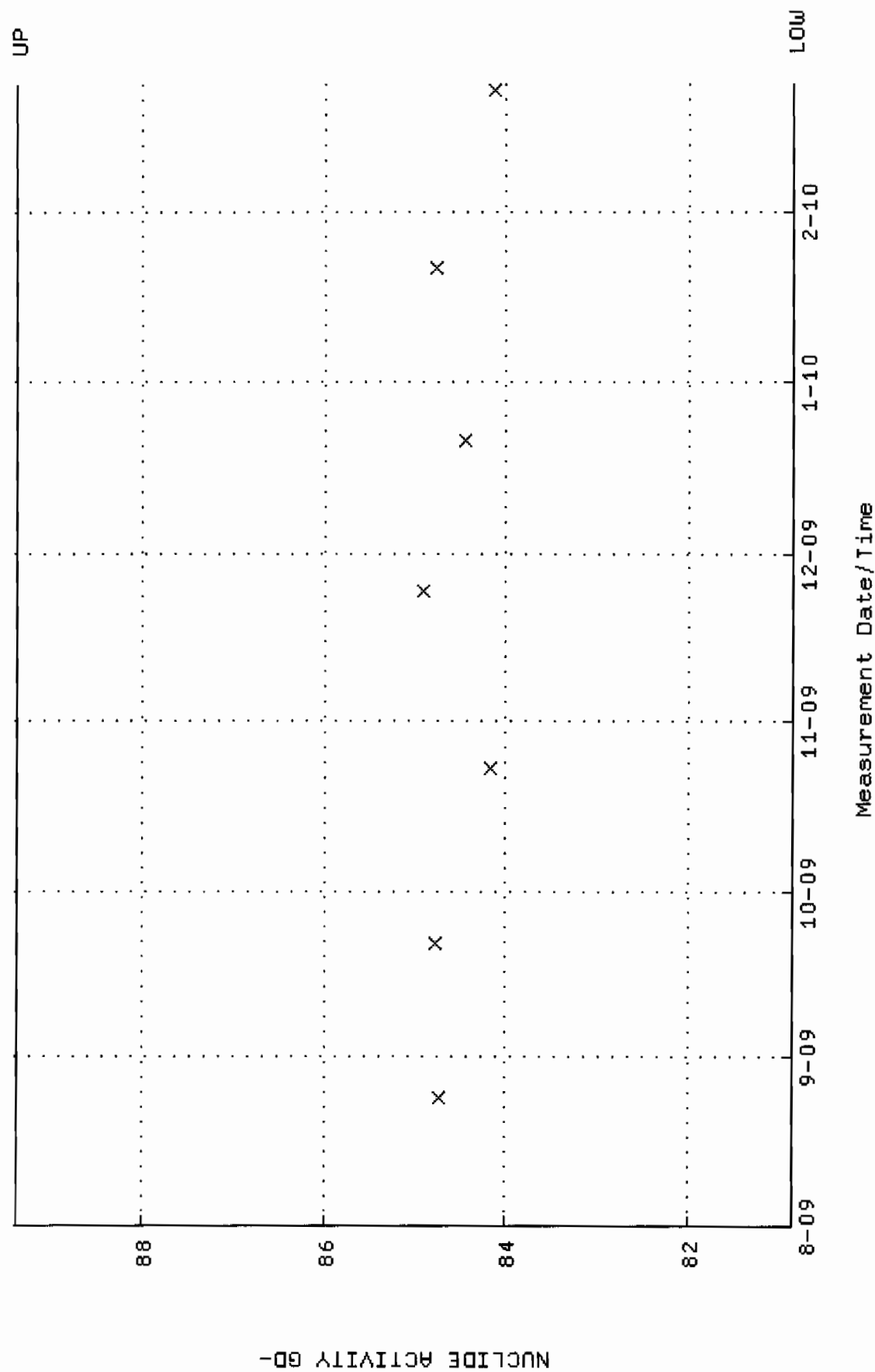




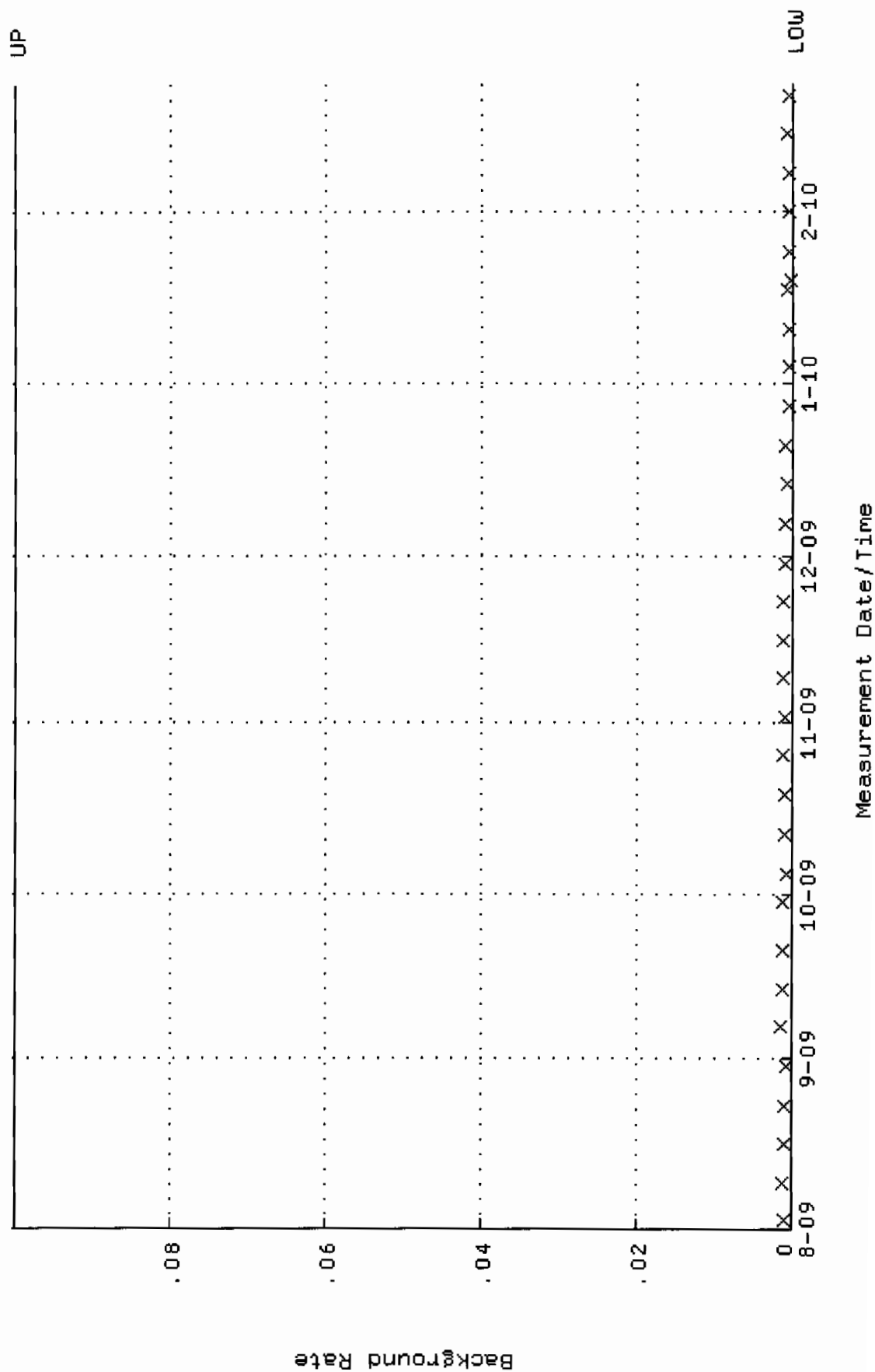
QA filename : DKA100:[ENV\_ALPHA.QA.W]W202.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 24-AUG-2009 08:43:39 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.255511 through 0.275511



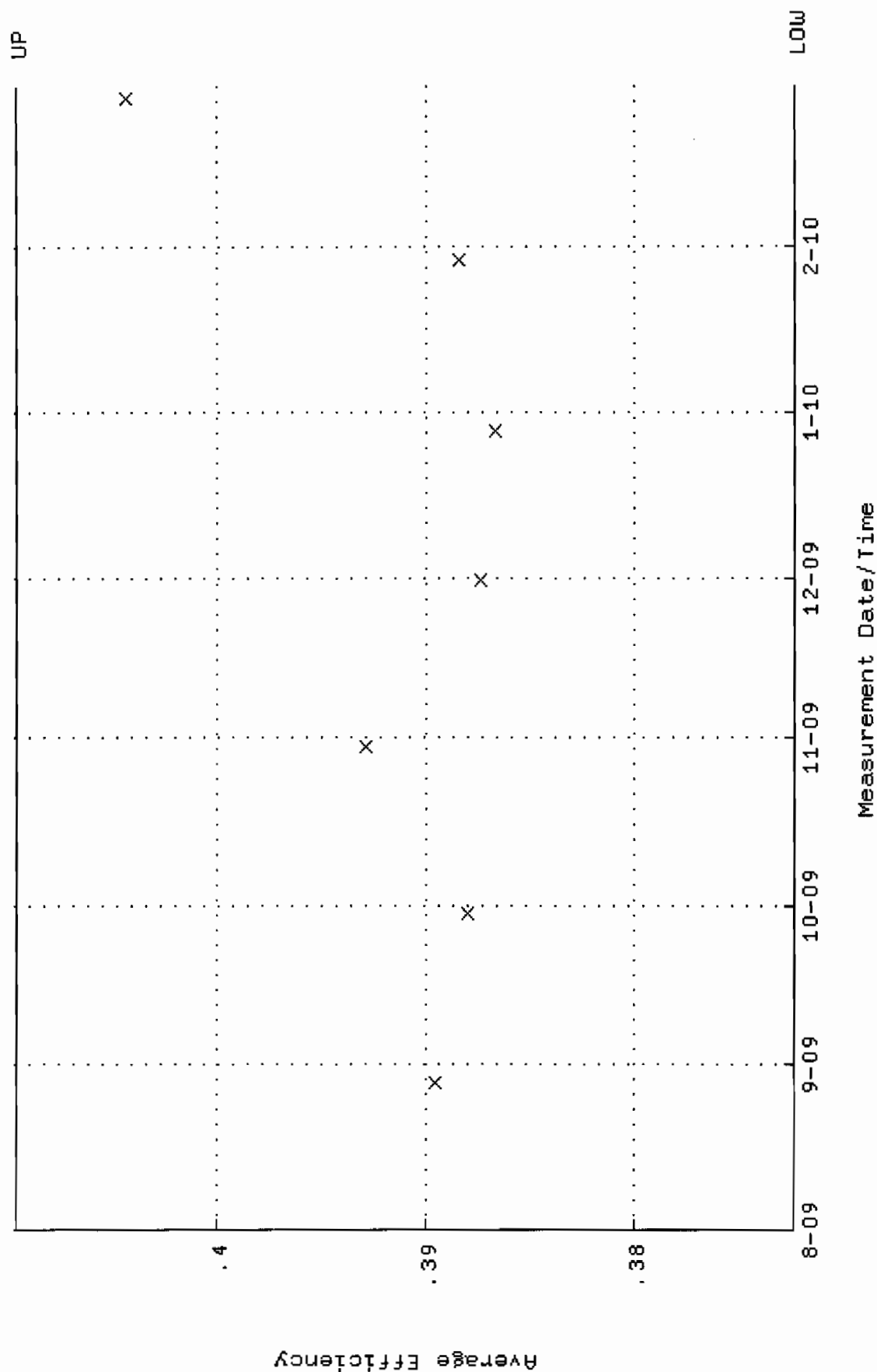
QA filename : DKA100:[ENV\_ALPHA.QA.W]W202.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 24-AUG-2009 08:43:39 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 80.8649 through 89.3769



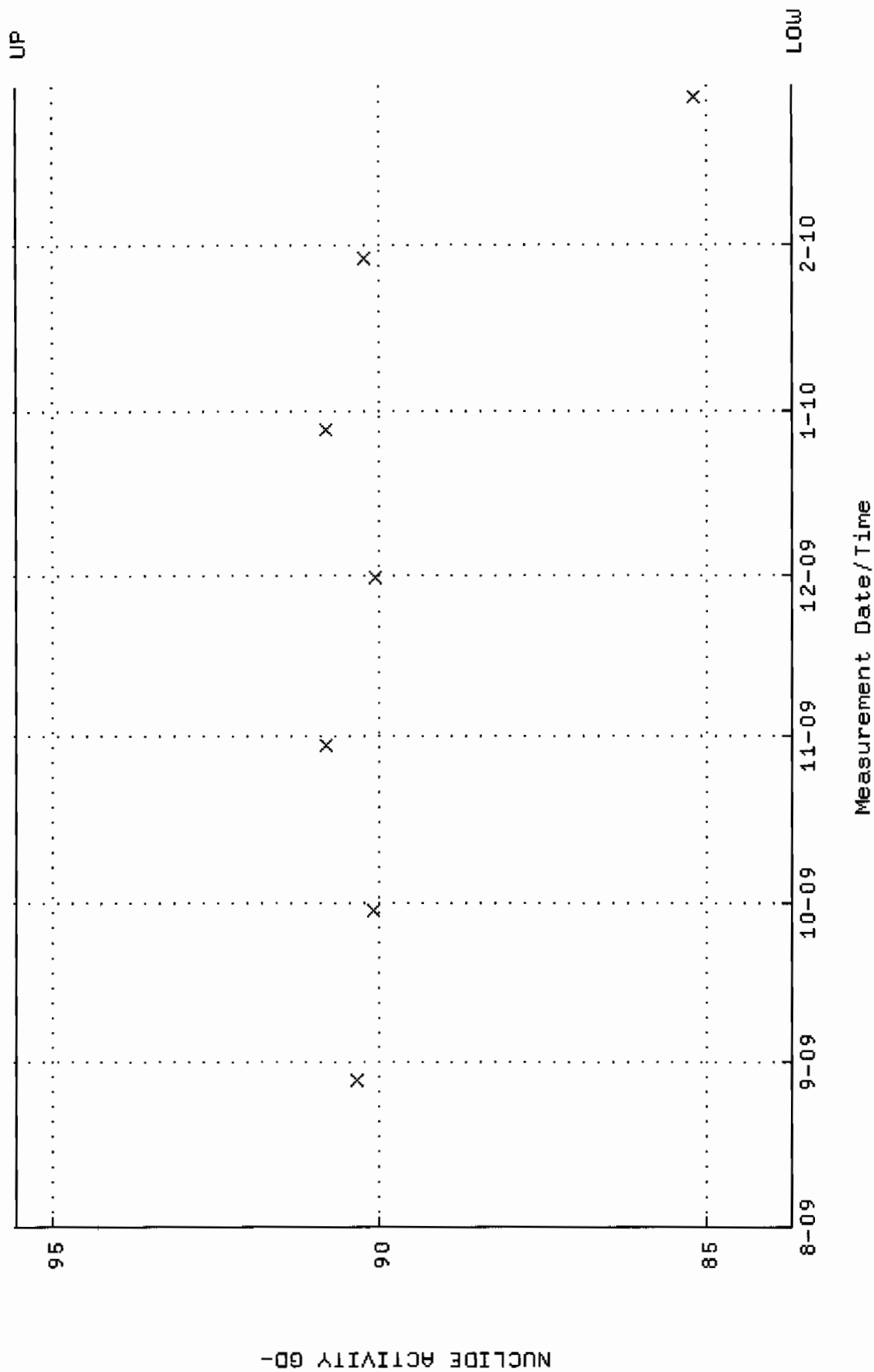
QA filename : DKA100:[ENV\_ALPHA.QA.B]B202.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:24:39 through 23-FEB-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



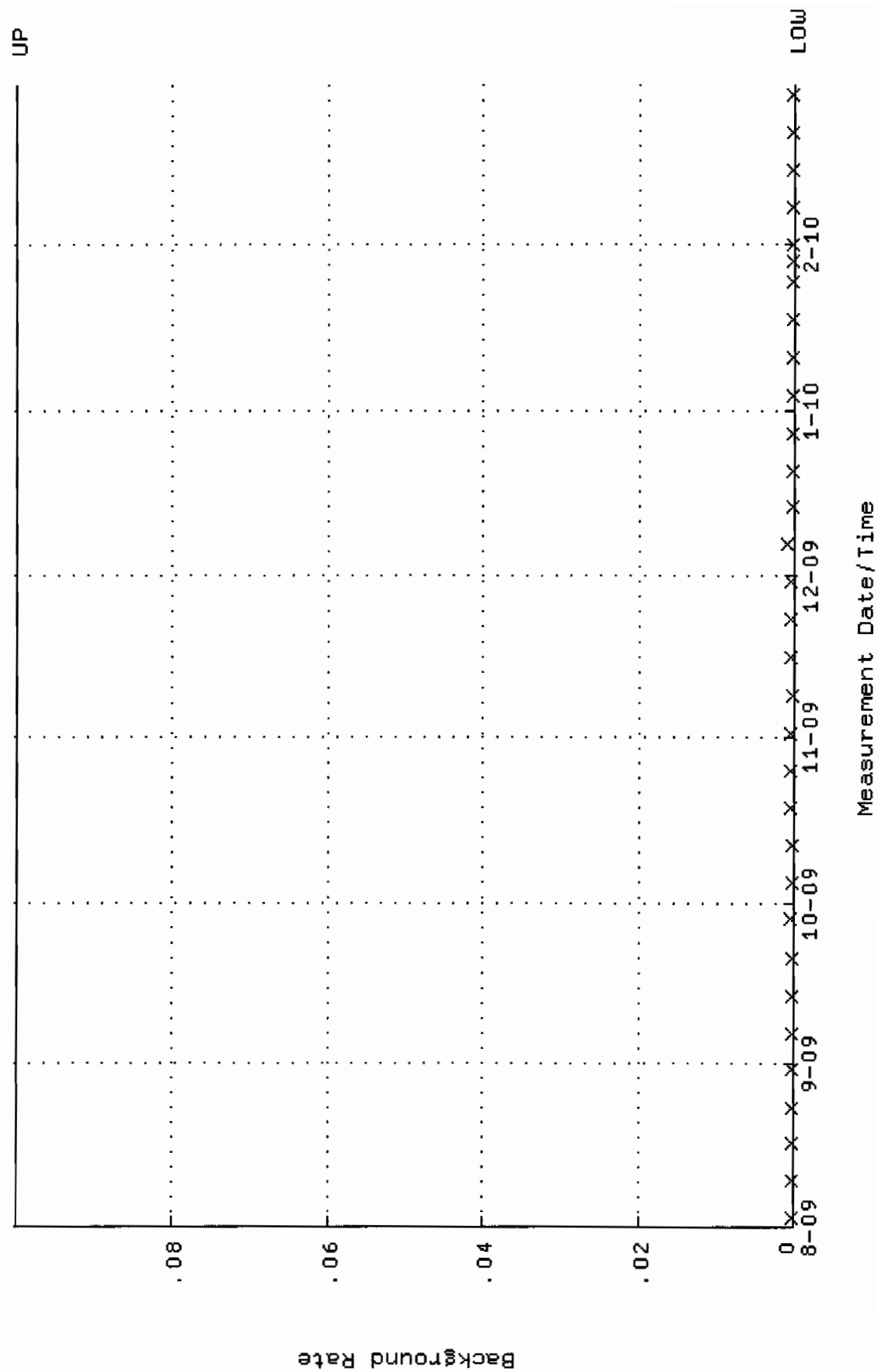
QA filename : DKA100:[ENV\_ALPHA.QA.W]W231.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 28-AUG-2009 07:08:24 through 2-MAR-2010 12:00:00  
 Lower/Upper Lmts: 0.372352 through 0.409678



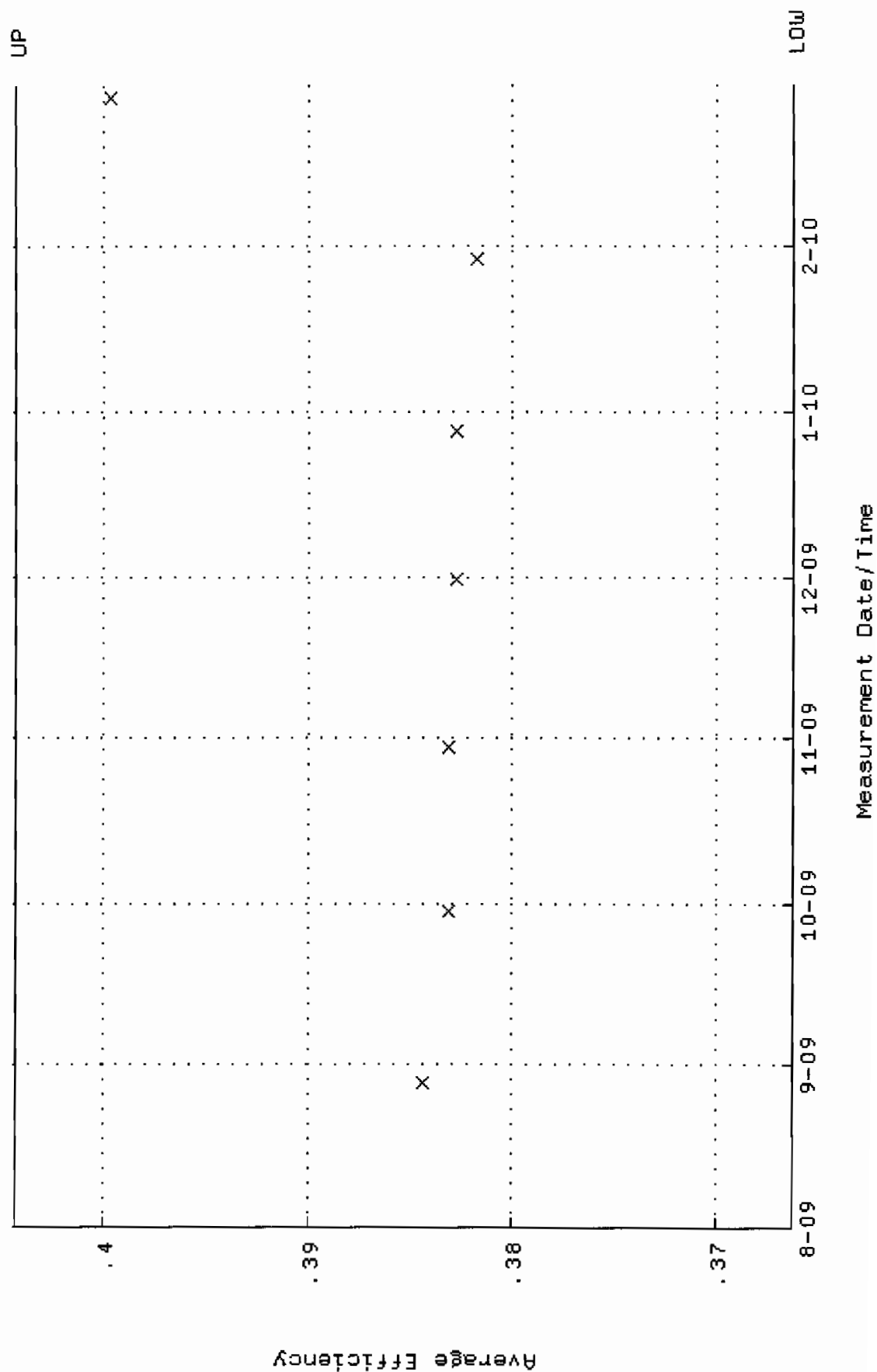
QA filename : DKA100:[ENV\_ALPHA.QA.W]W231.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 28-AUG-2009 07:08:24 through 2-MAR-2010 12:00:00  
 Lower/Upper Lmts: 83.6949 through 95.5595



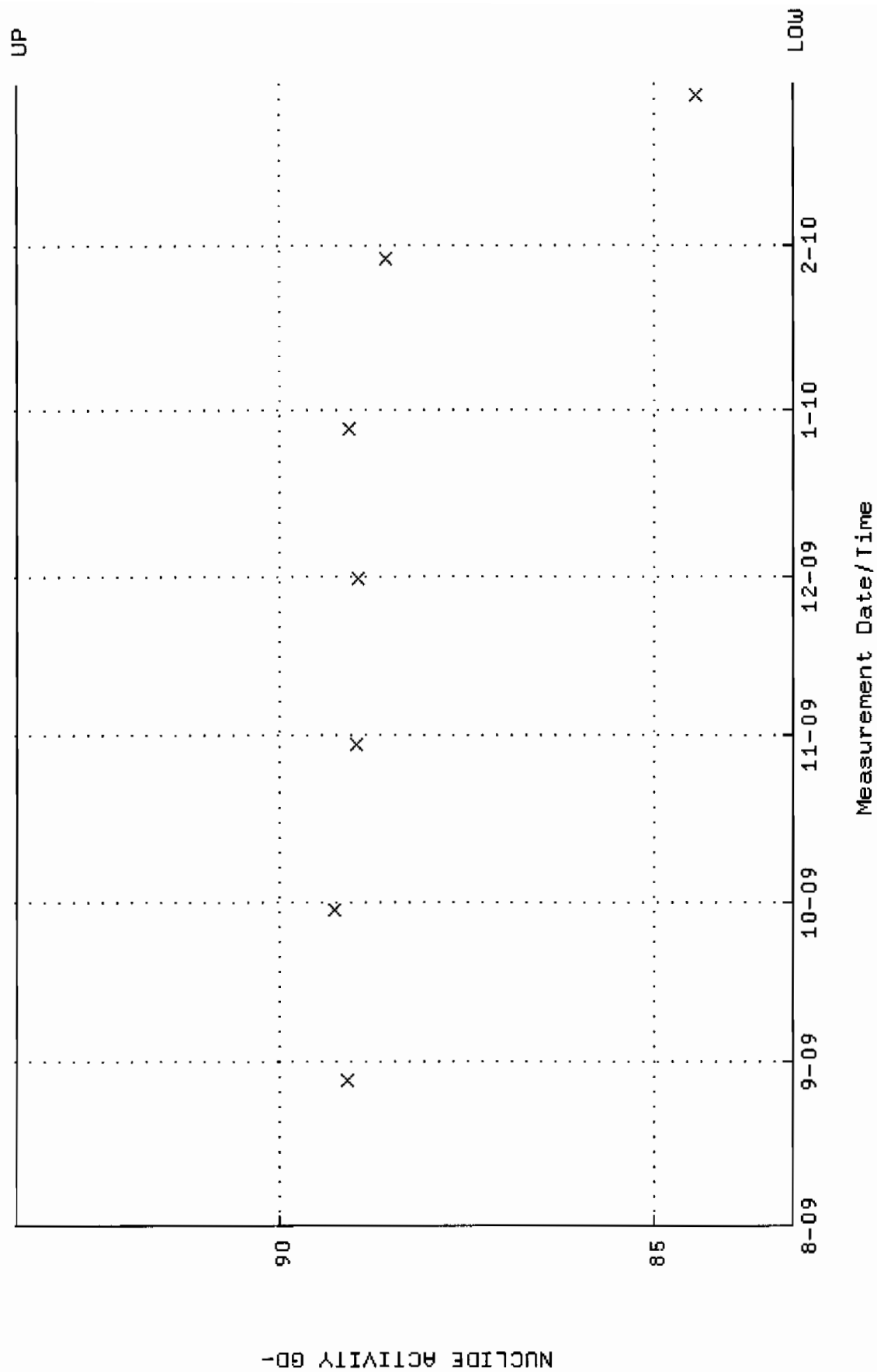
QA filename : DKA100:[ENV\_ALPHA.QA.B]B231.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 2-AUG-2009 17:26:43 through 2-MAR-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W253.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

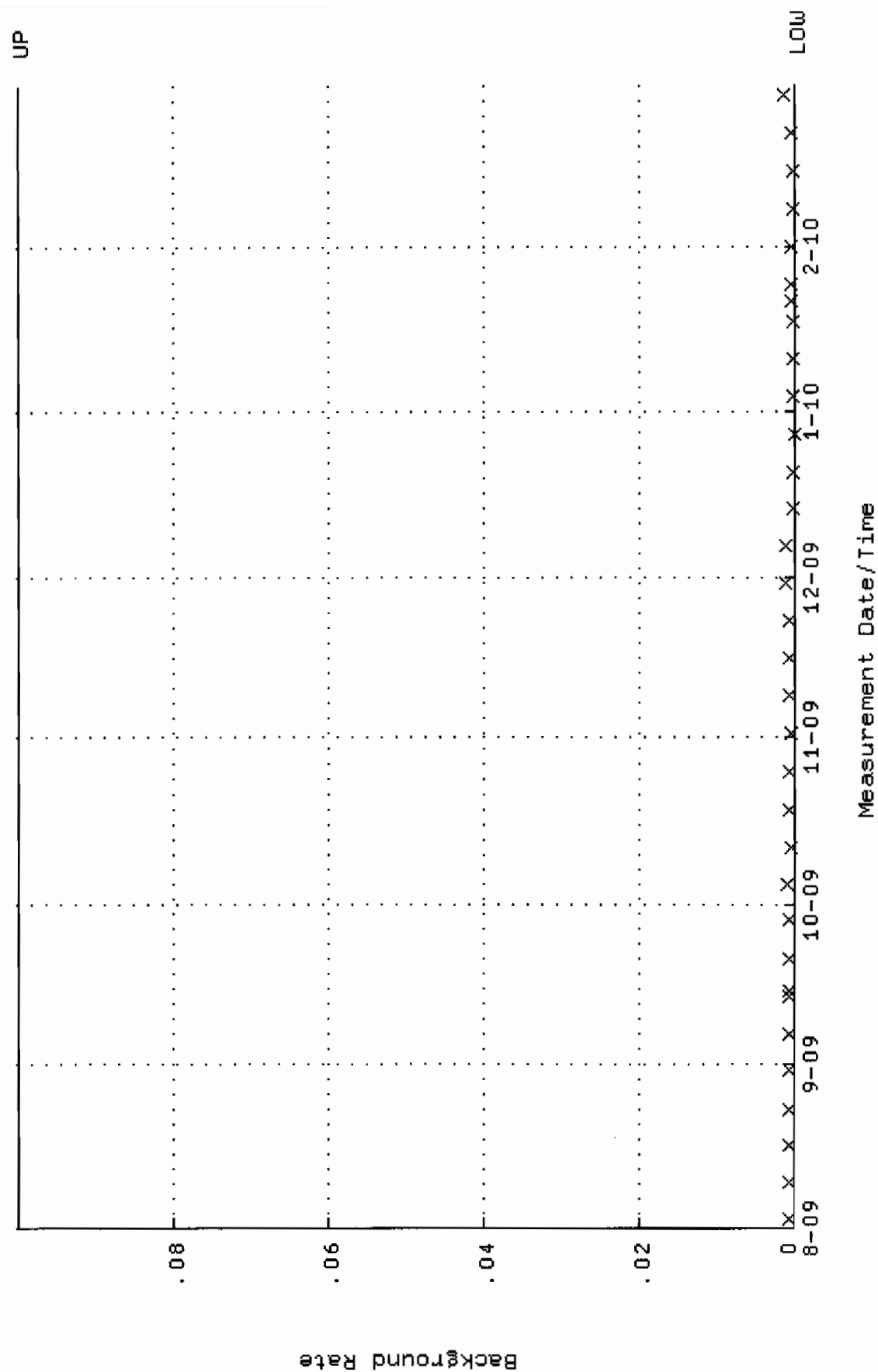


QA filename : DKA100:[ENV\_ALPHA.QA.W]W253.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 28-AUG-2009 07:10:22 through 2-MAR-2010 12:00:00  
 Lower/Upper Lmts: 83.1439 through 93.5297





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

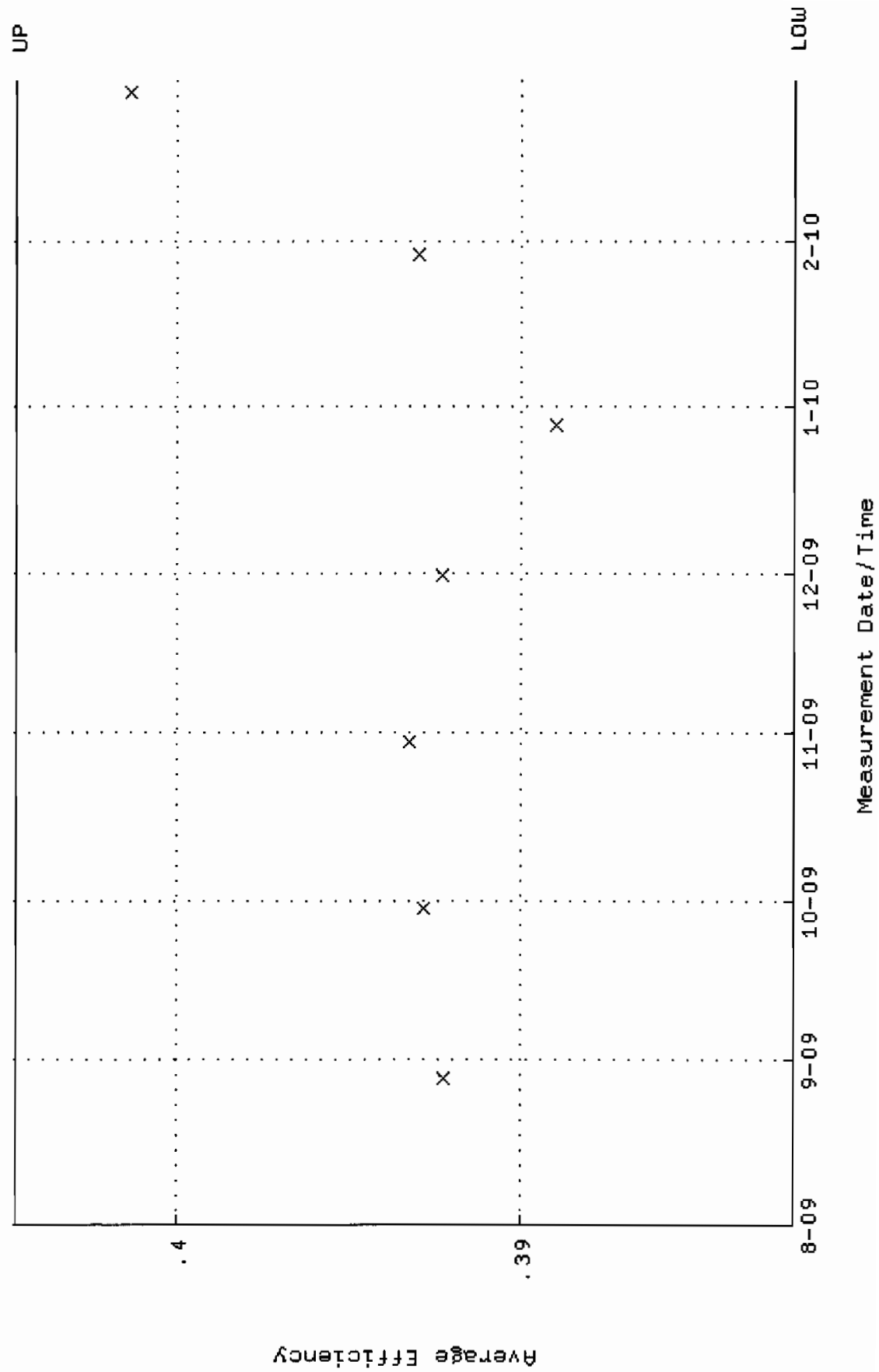


QA filename : DKA100:[ENV\_ALPHA.QA.W]W254.QAF;1

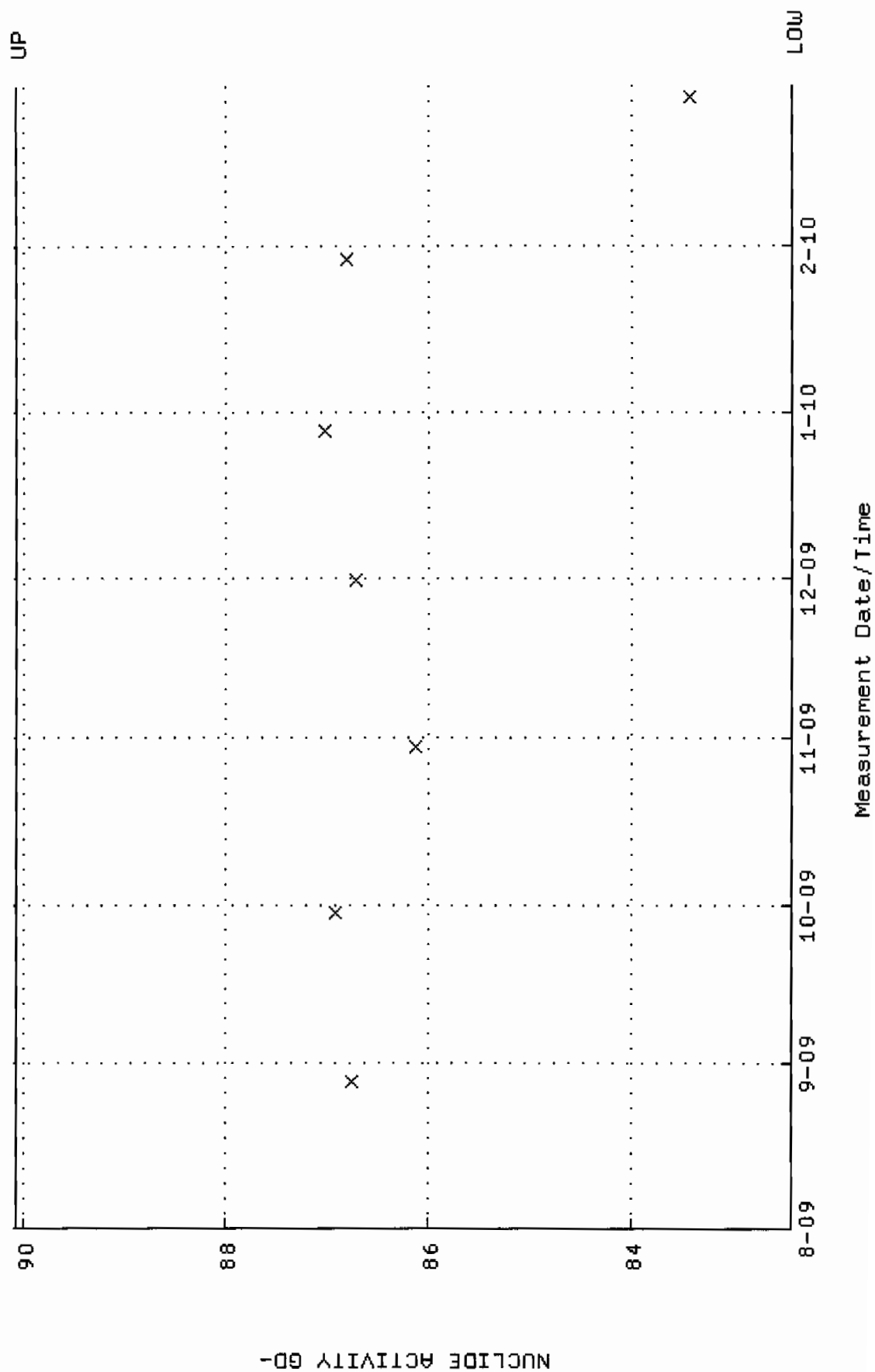
Parameter Name : AVRGEFF (Average Efficiency)

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:[ENVY\_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

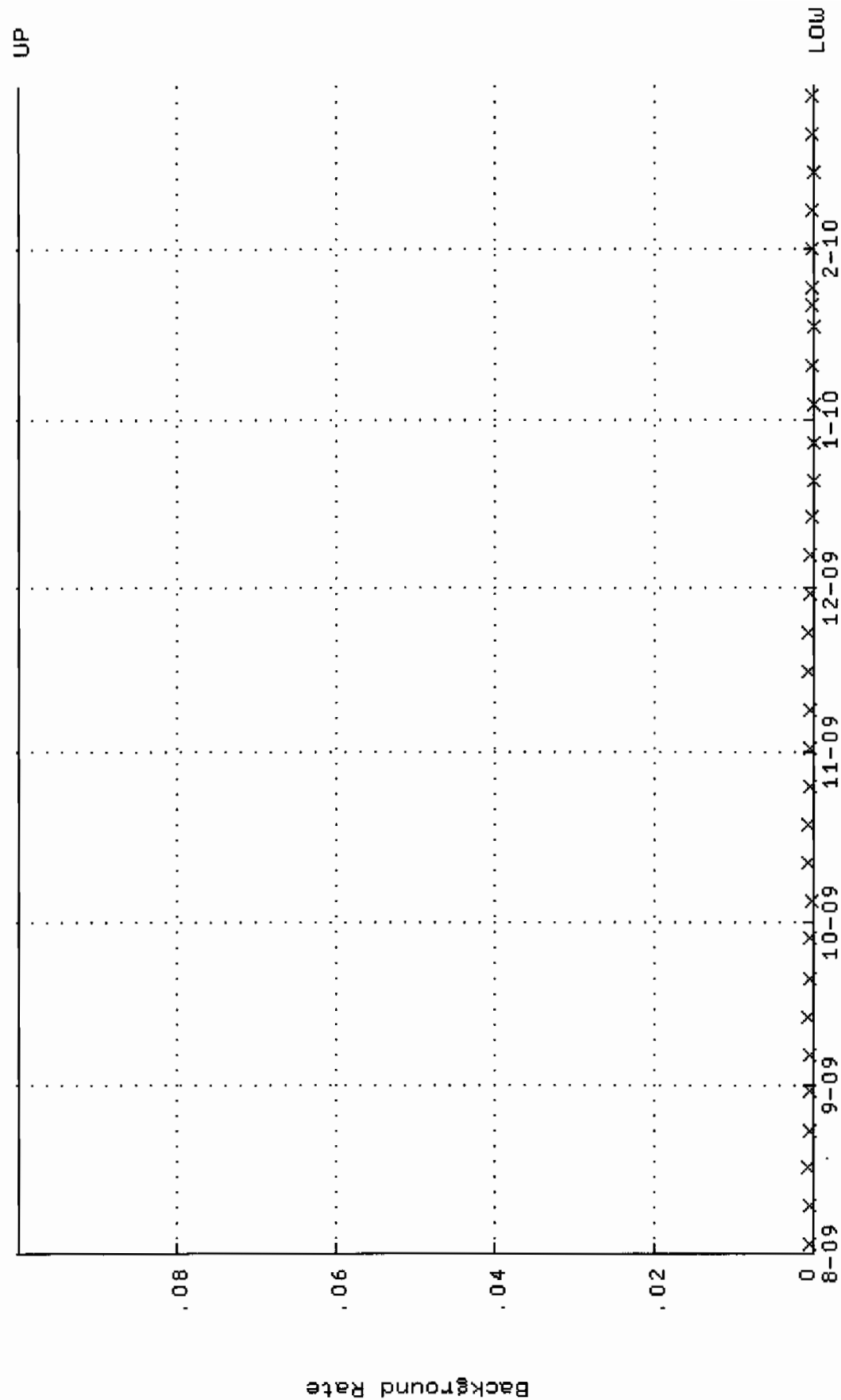


QA filename : DKA100:[ENV\_ALPHA.QA.B]B254.QAF;1

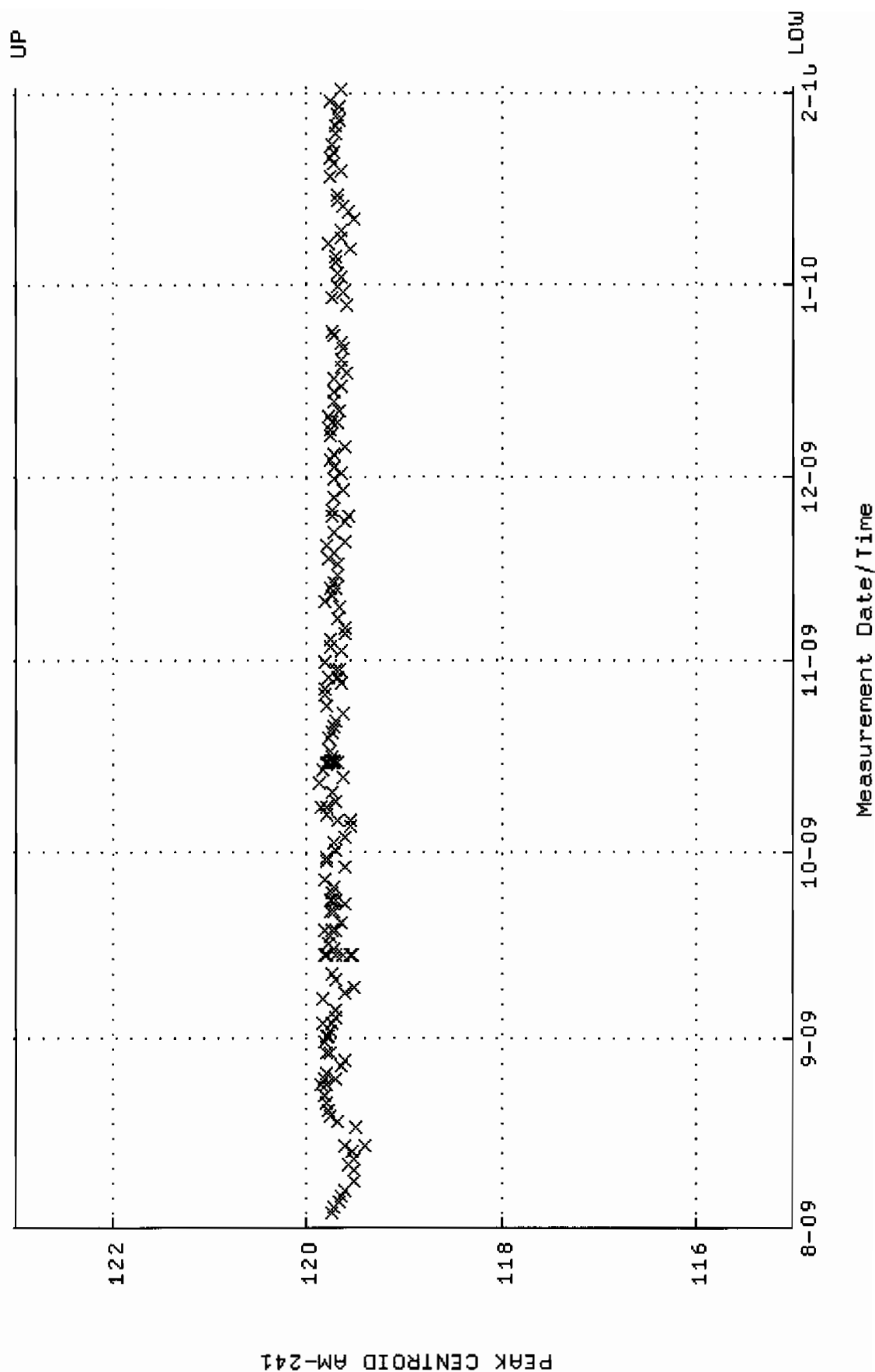
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 2-AUG-2009 17:28:28 through 2-MAR-2010 12:00:00

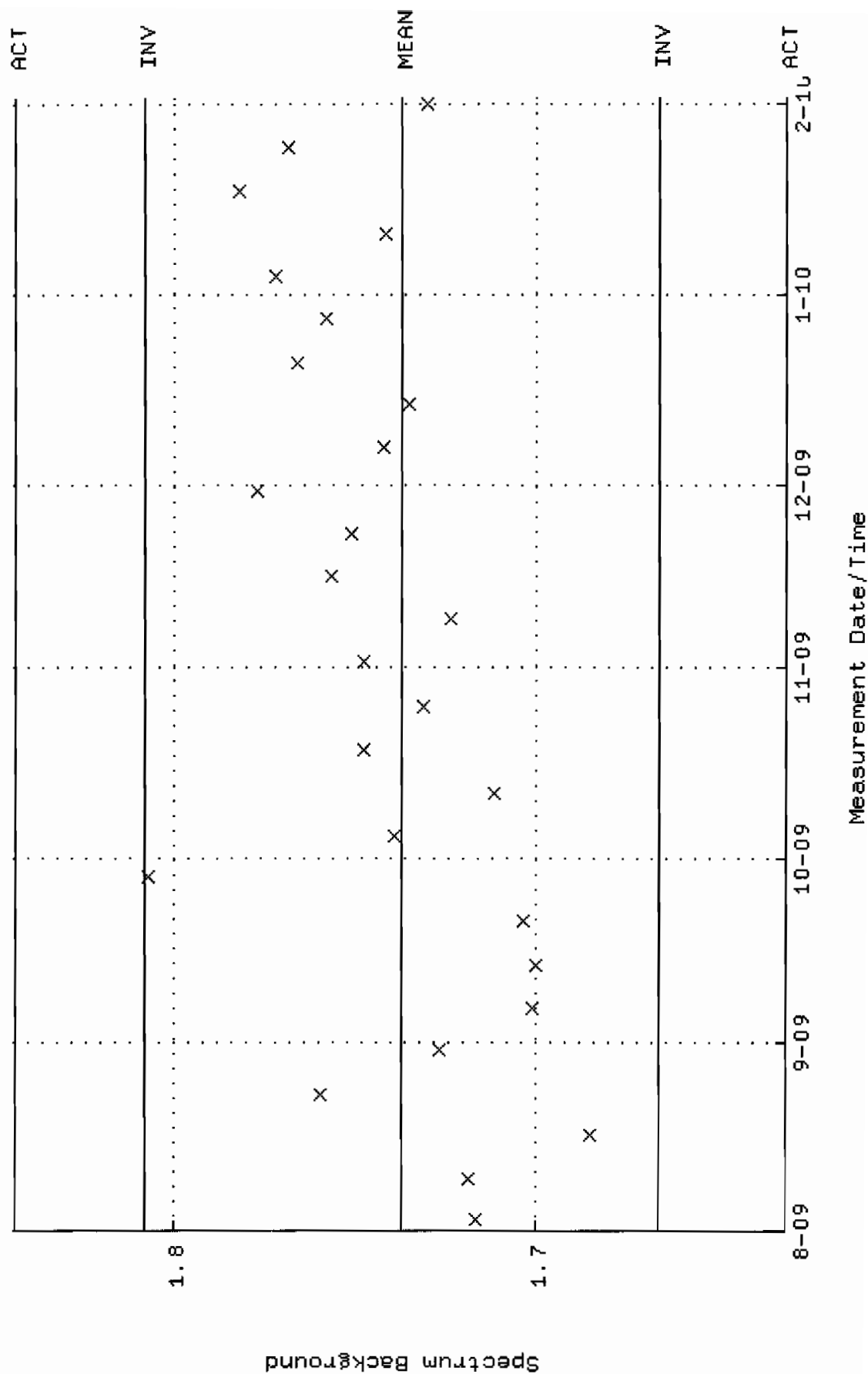
Lower/Upper Lmts: 0.000000E+00 through 0.100000



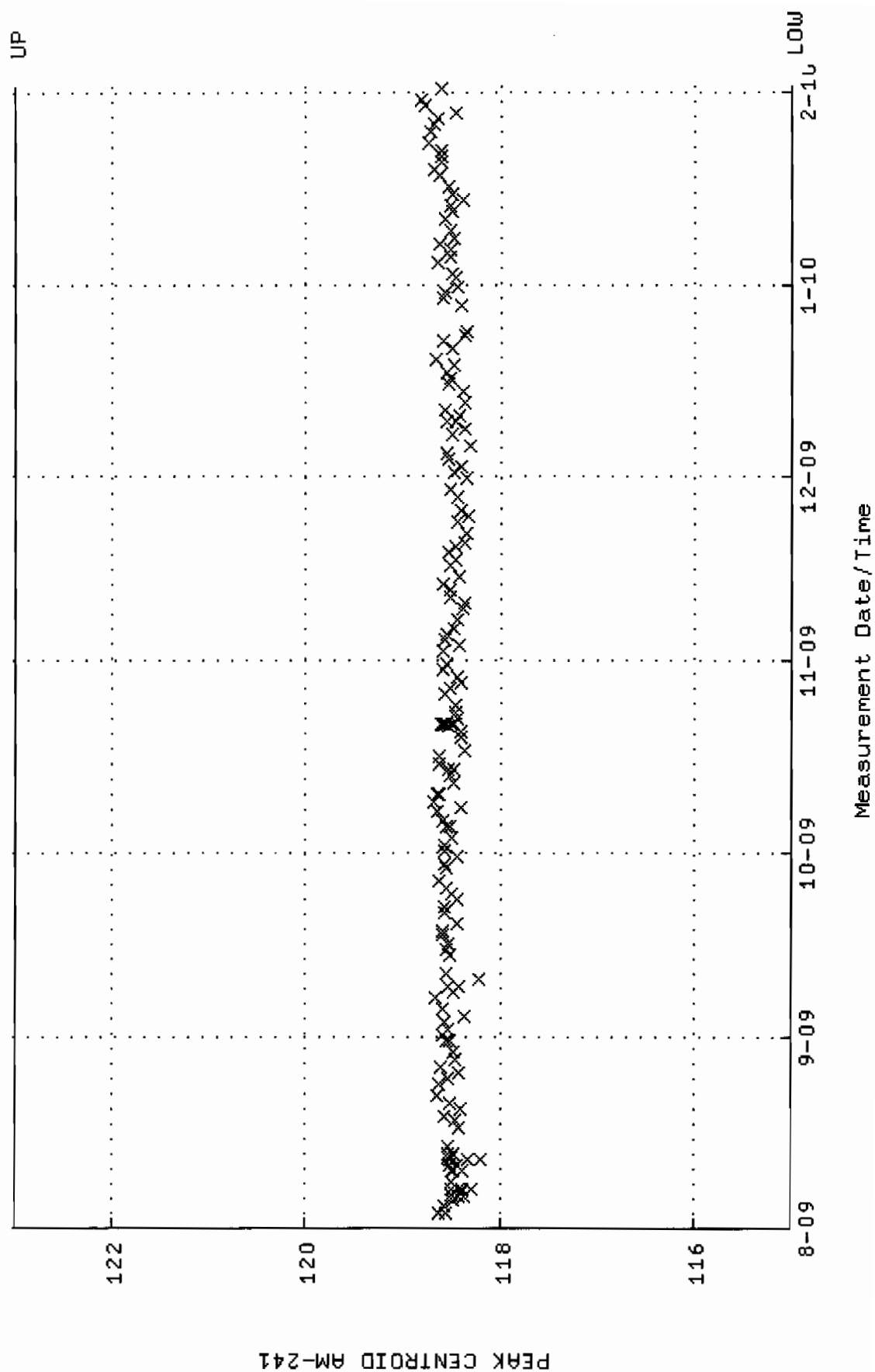
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM01\_500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:08:48 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



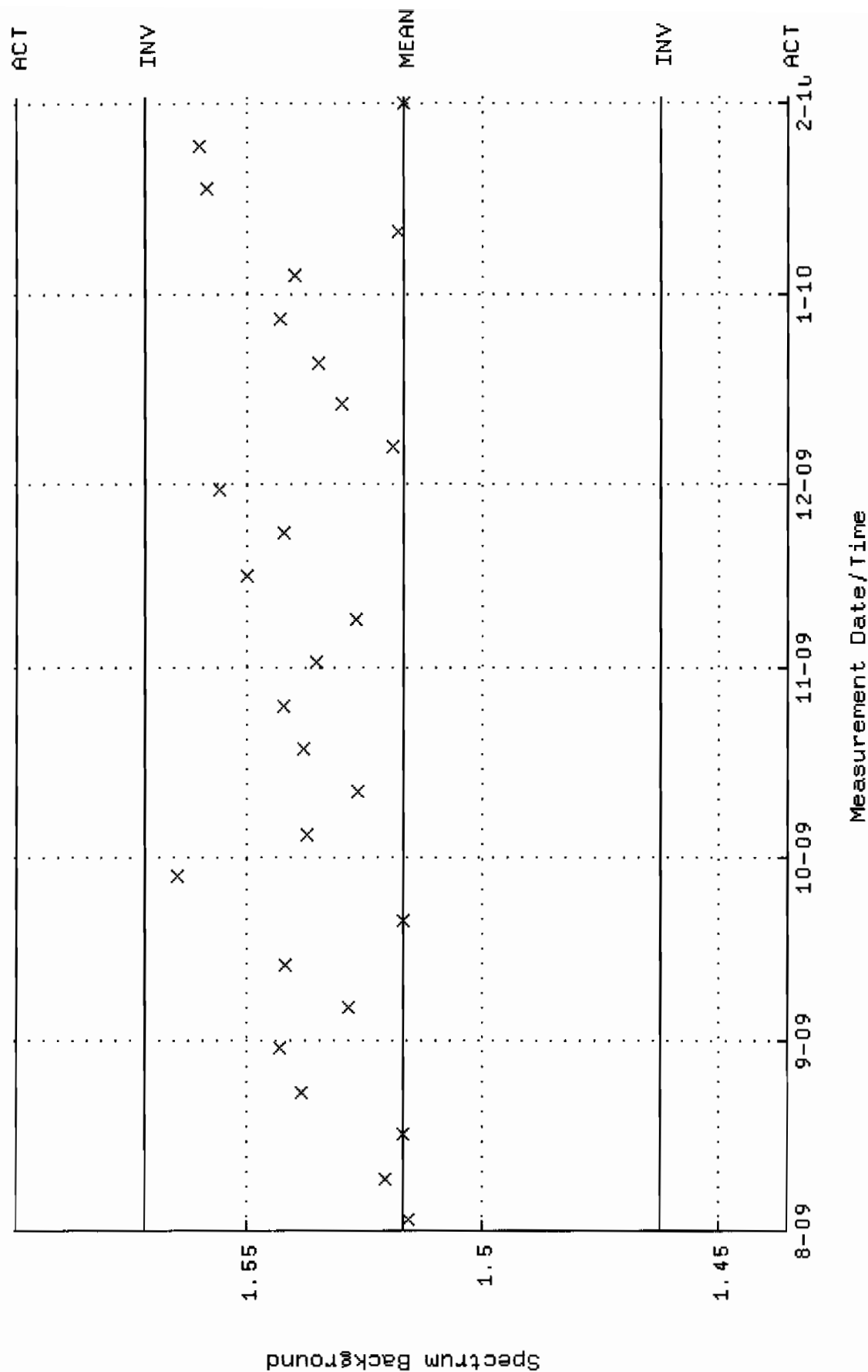
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM01.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:21:01 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.73723 +- 3.552524E-02 (2.04 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM07\_JAR.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 3-AUG-2009 09:13:52 through 1-FEB-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000

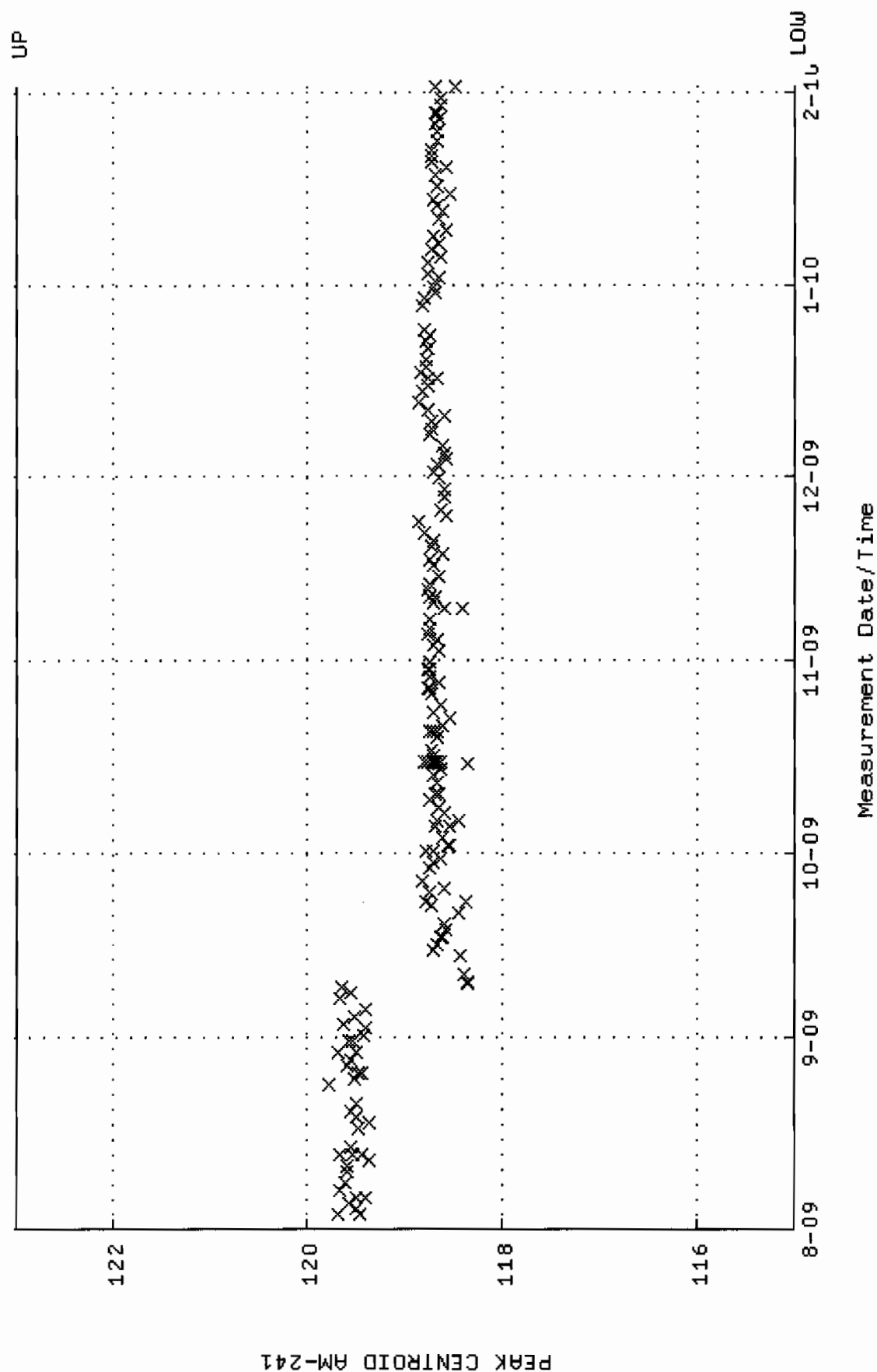


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM07.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:23:26 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.51715 +- 2.726376E-02 (1.80 %)

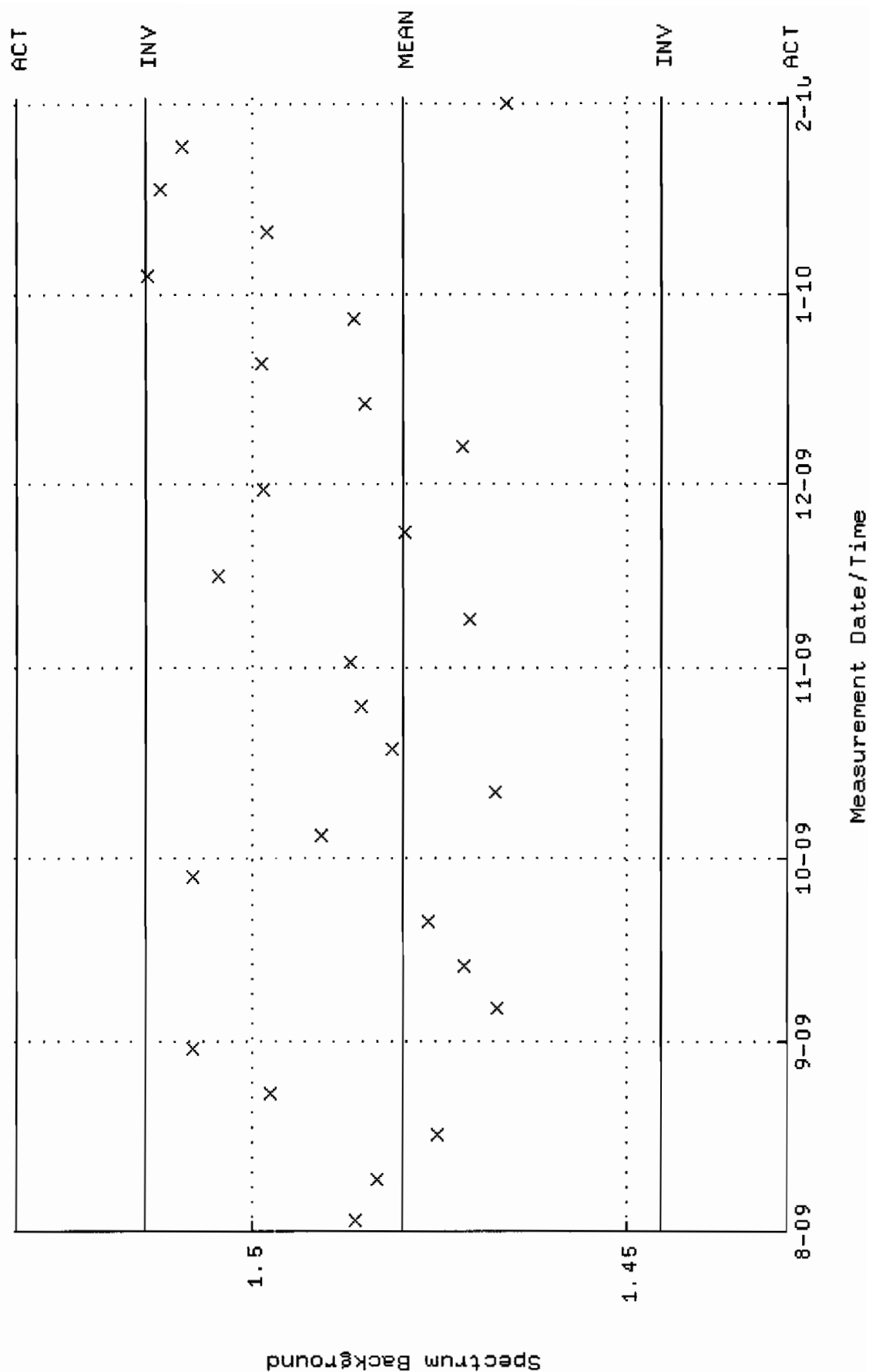




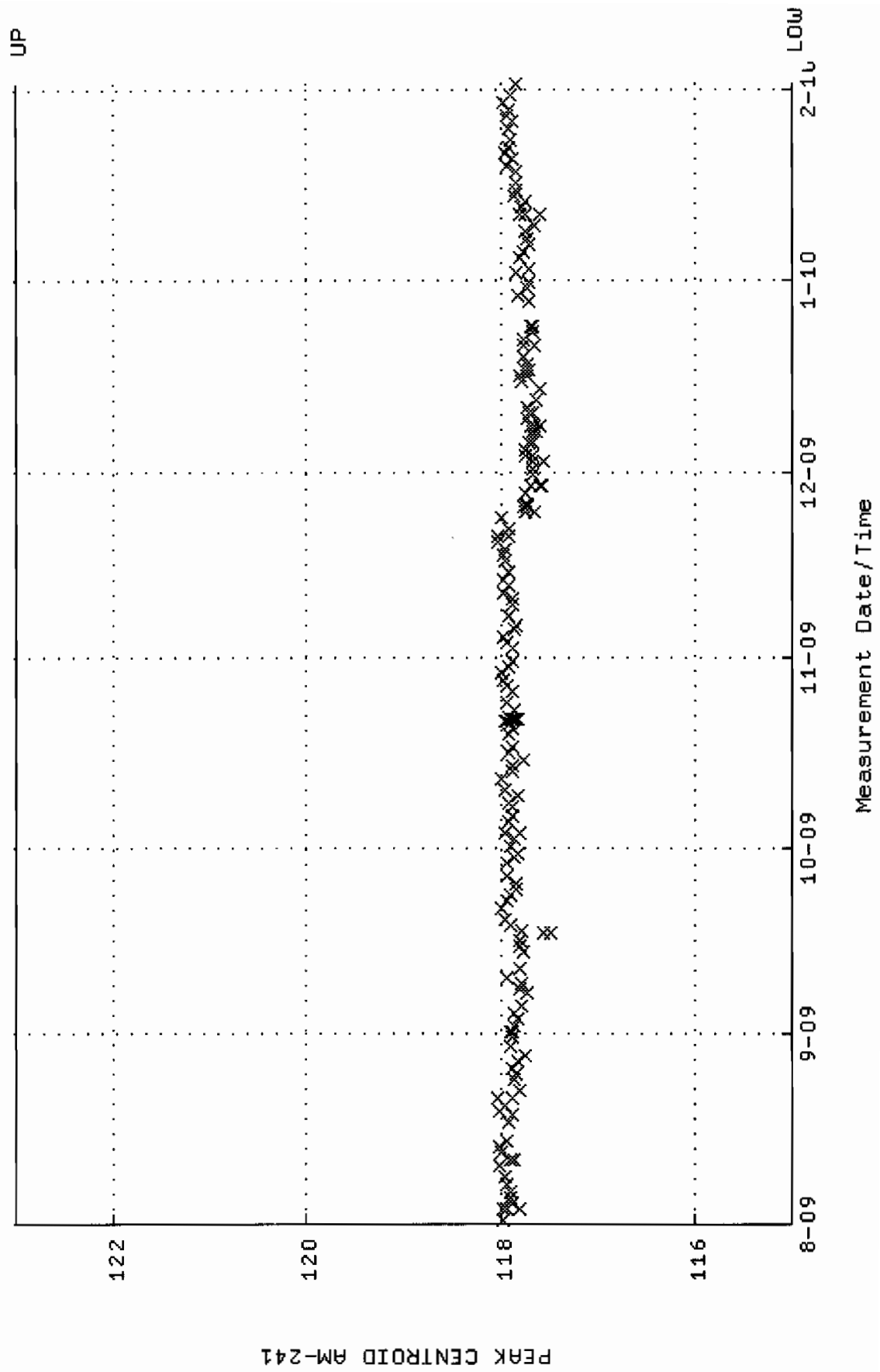
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM10\_500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:36:50 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



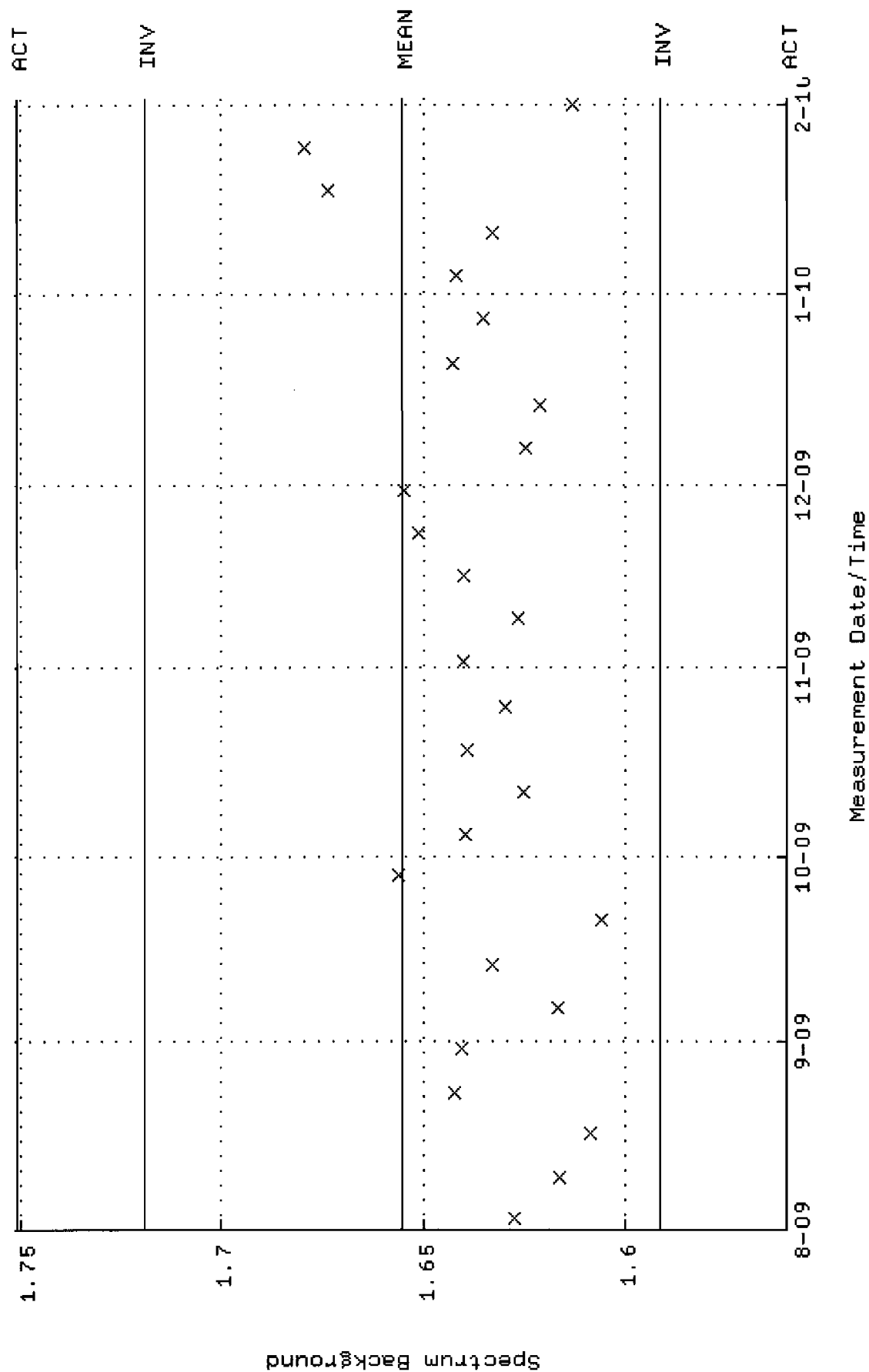
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM10.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:23:43 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.48000 +- 1.723892E-02 (1.16 %)



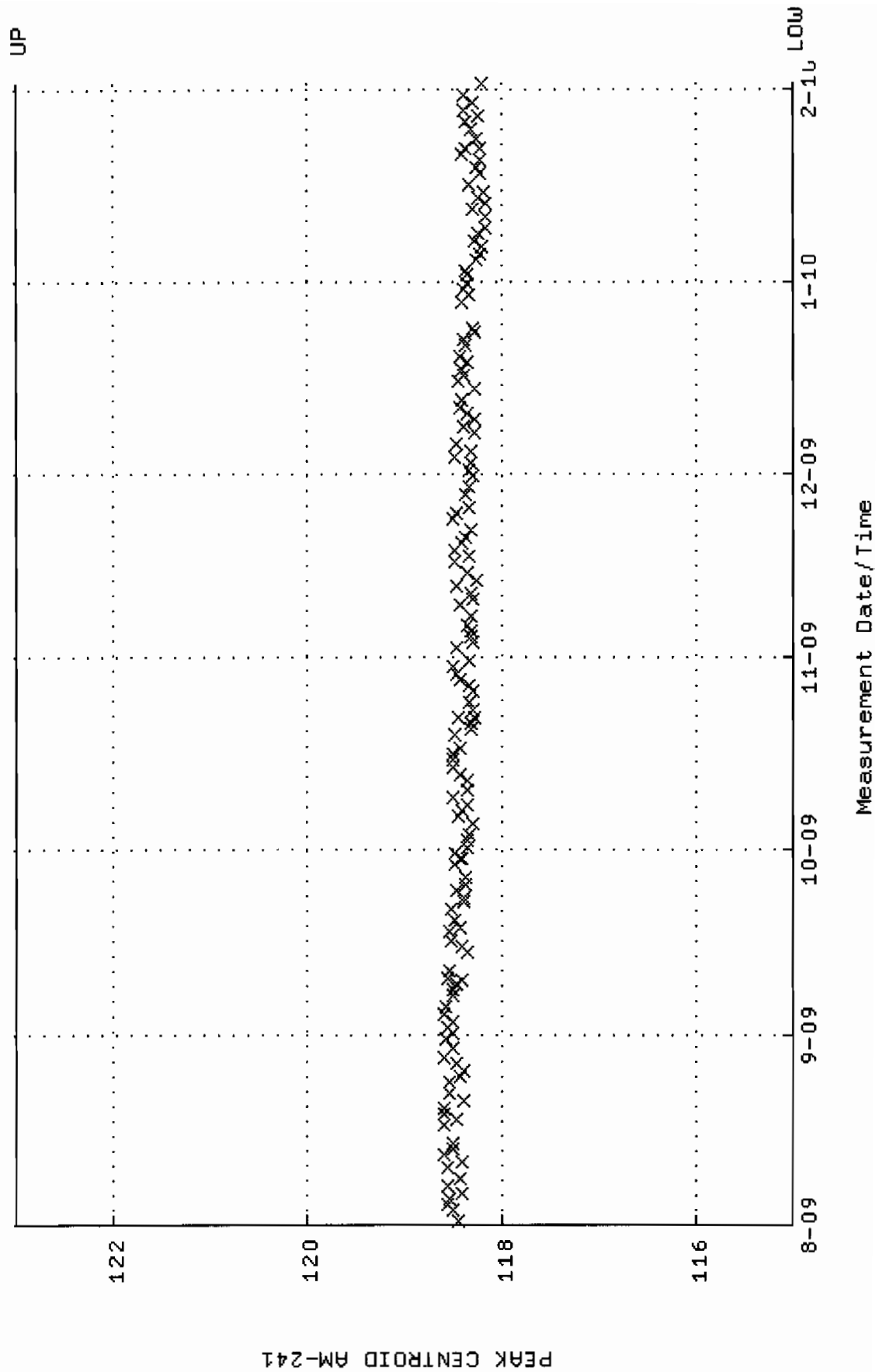
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM11\_JAR.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 1-AUG-2009 13:27:21 through 1-FEB-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



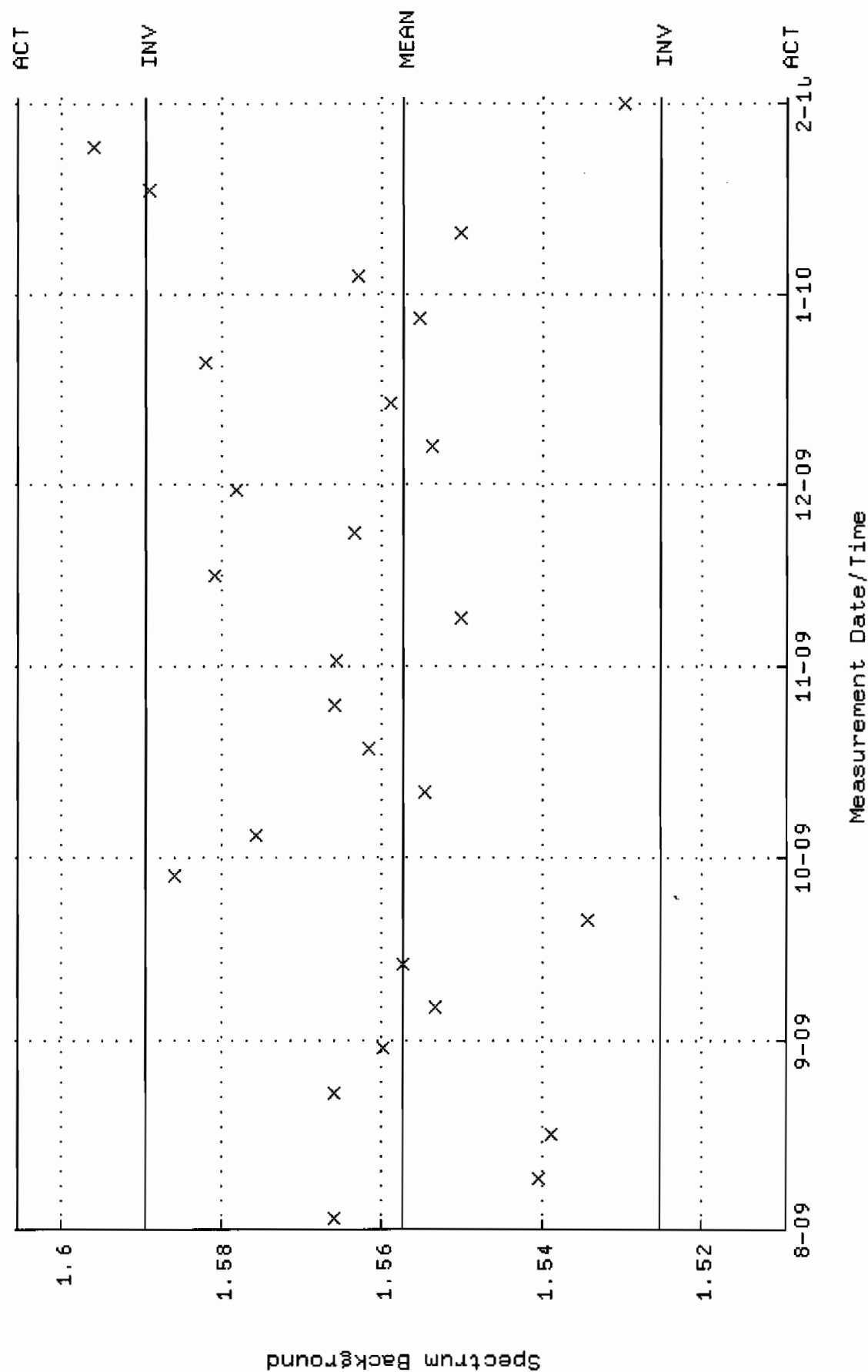
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM11.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:23:55 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)



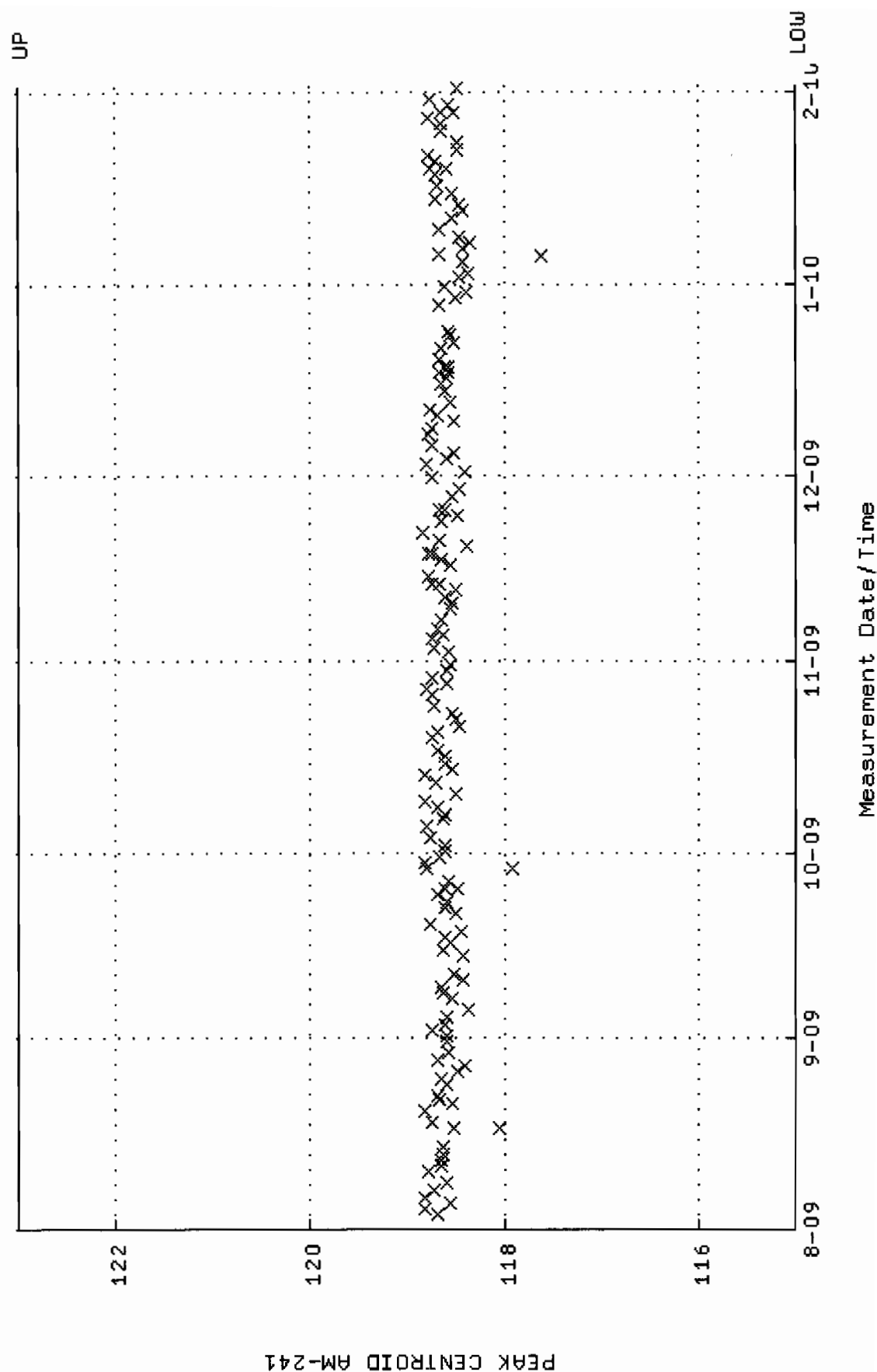
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM12\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 1-AUG-2009 13:58:23 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



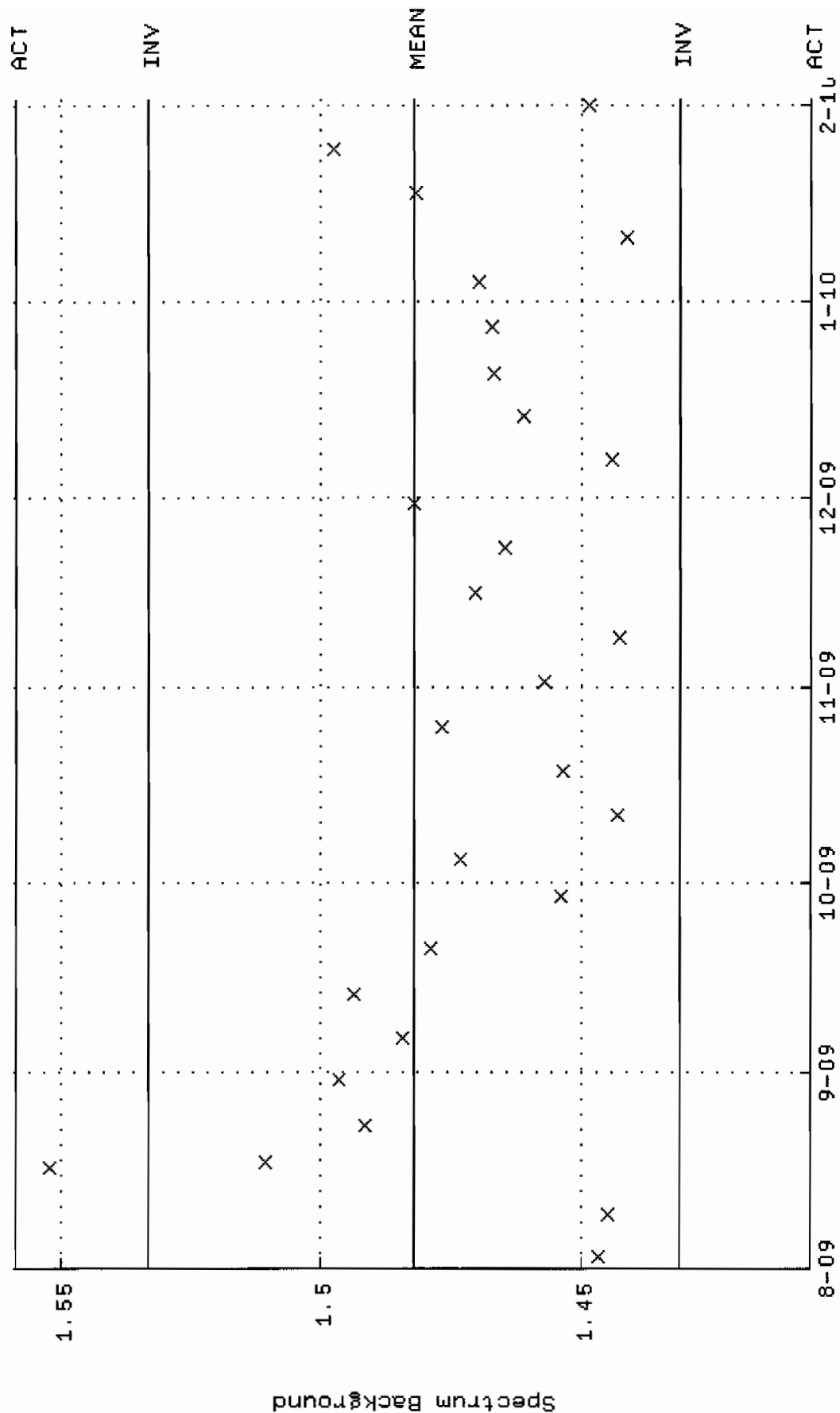
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM12.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:24:08 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.55746 +- 1.601675E-02 (1.03 %)



QA filename : DKA100:[CANSBERRA.GAMMA.SCUSR.QA]QCC\_GAM14\_2LMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:15:54 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

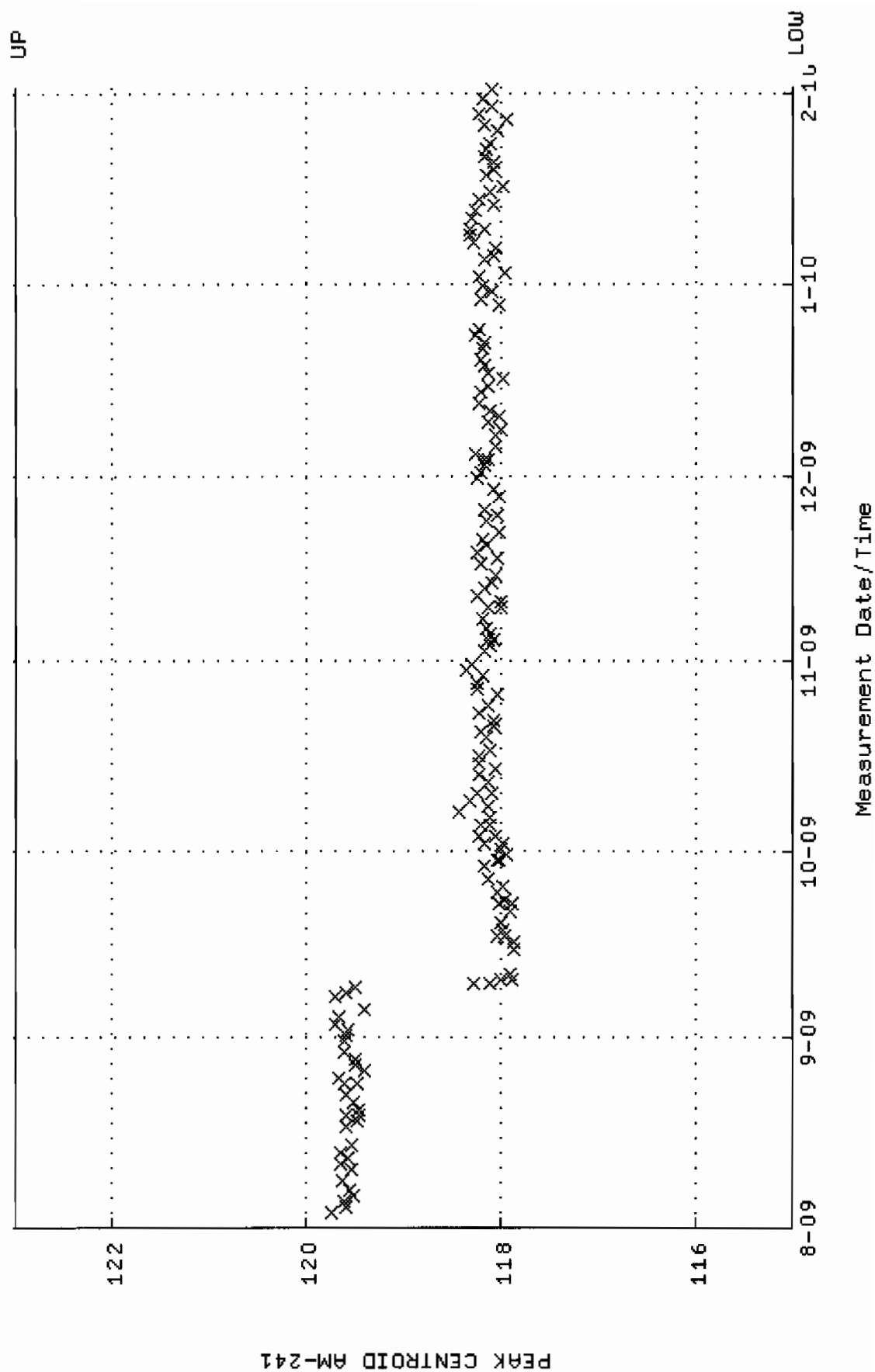


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM14.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:24:33 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)

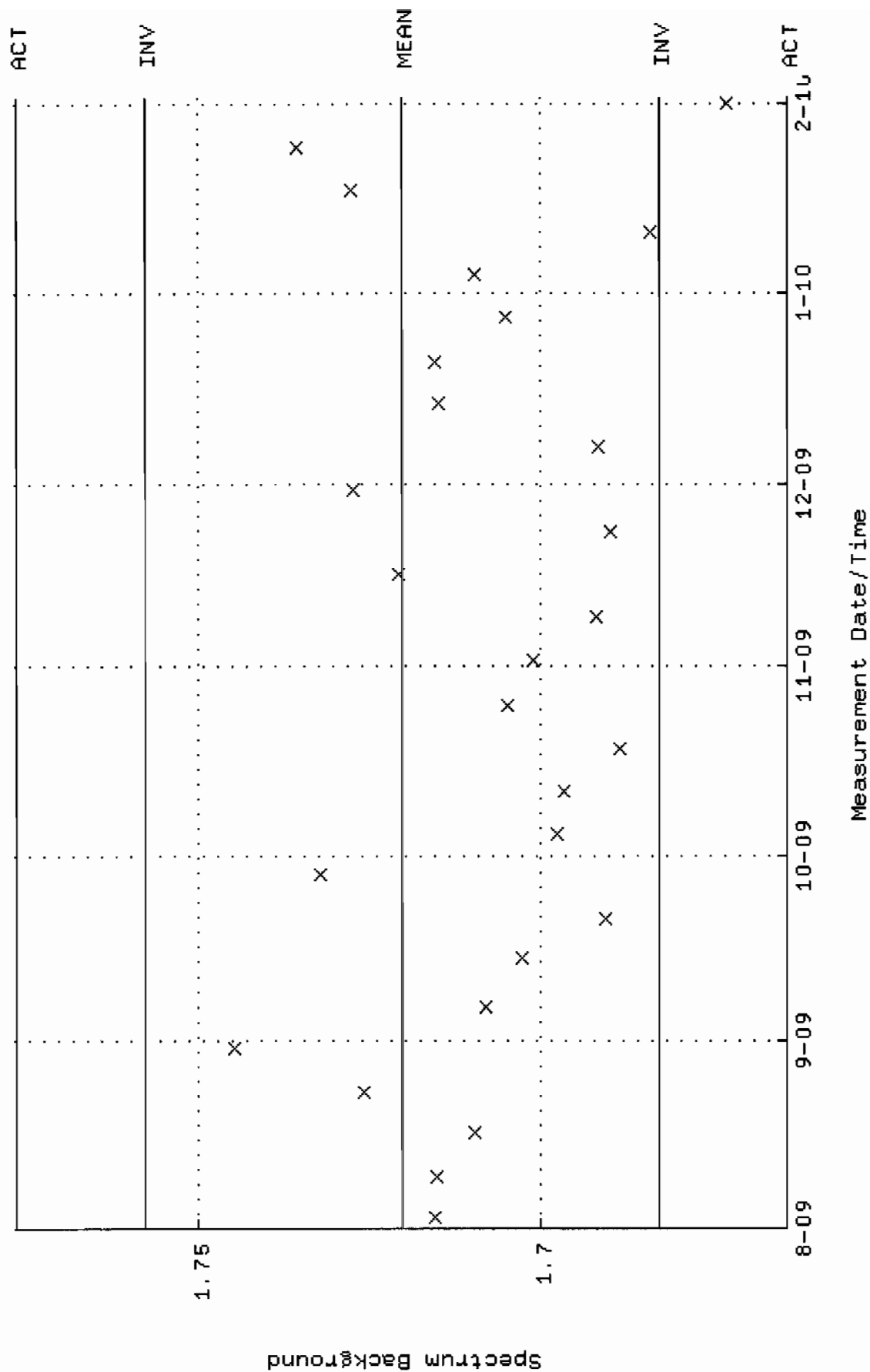




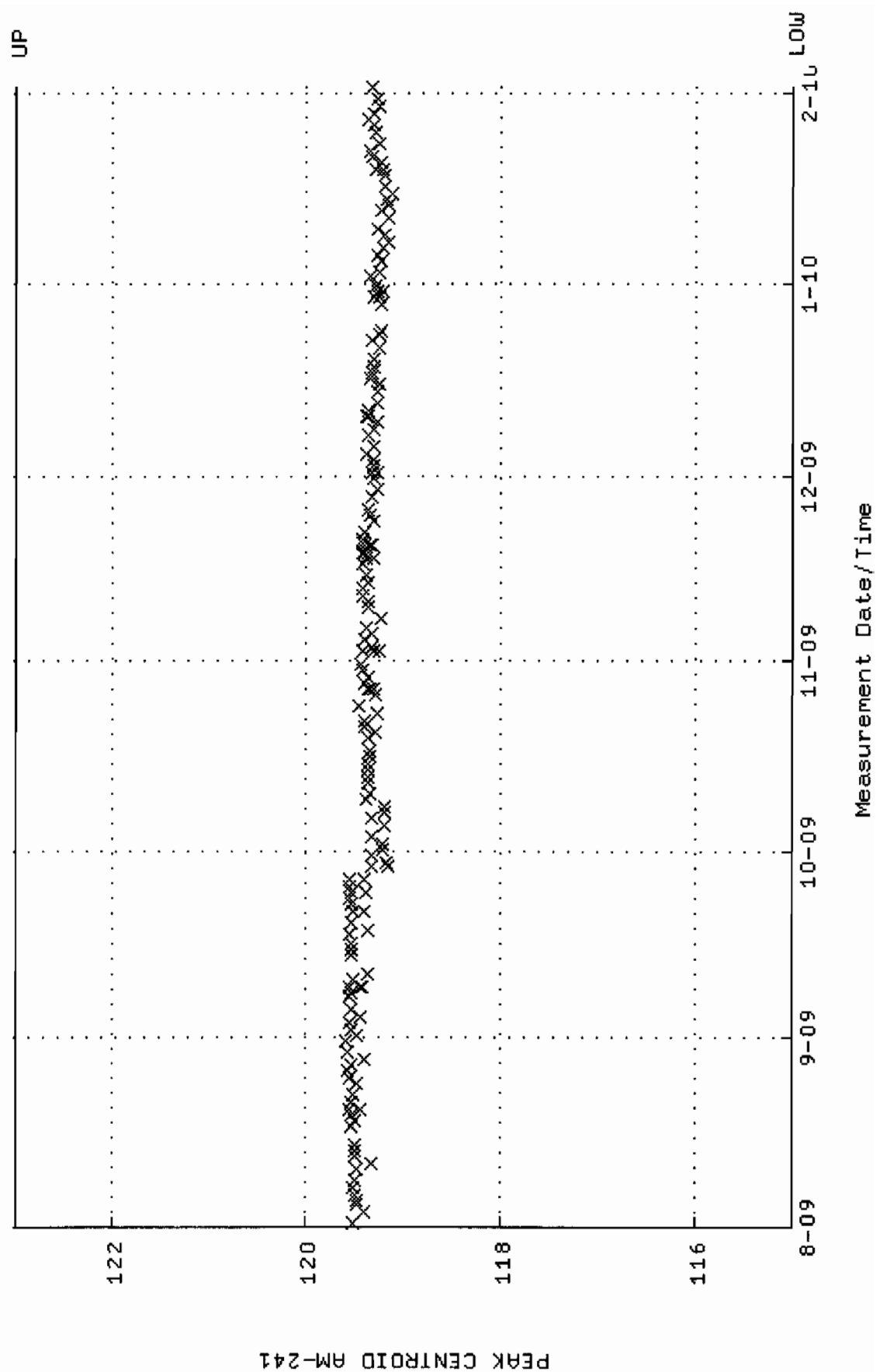
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM15-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:53:43 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



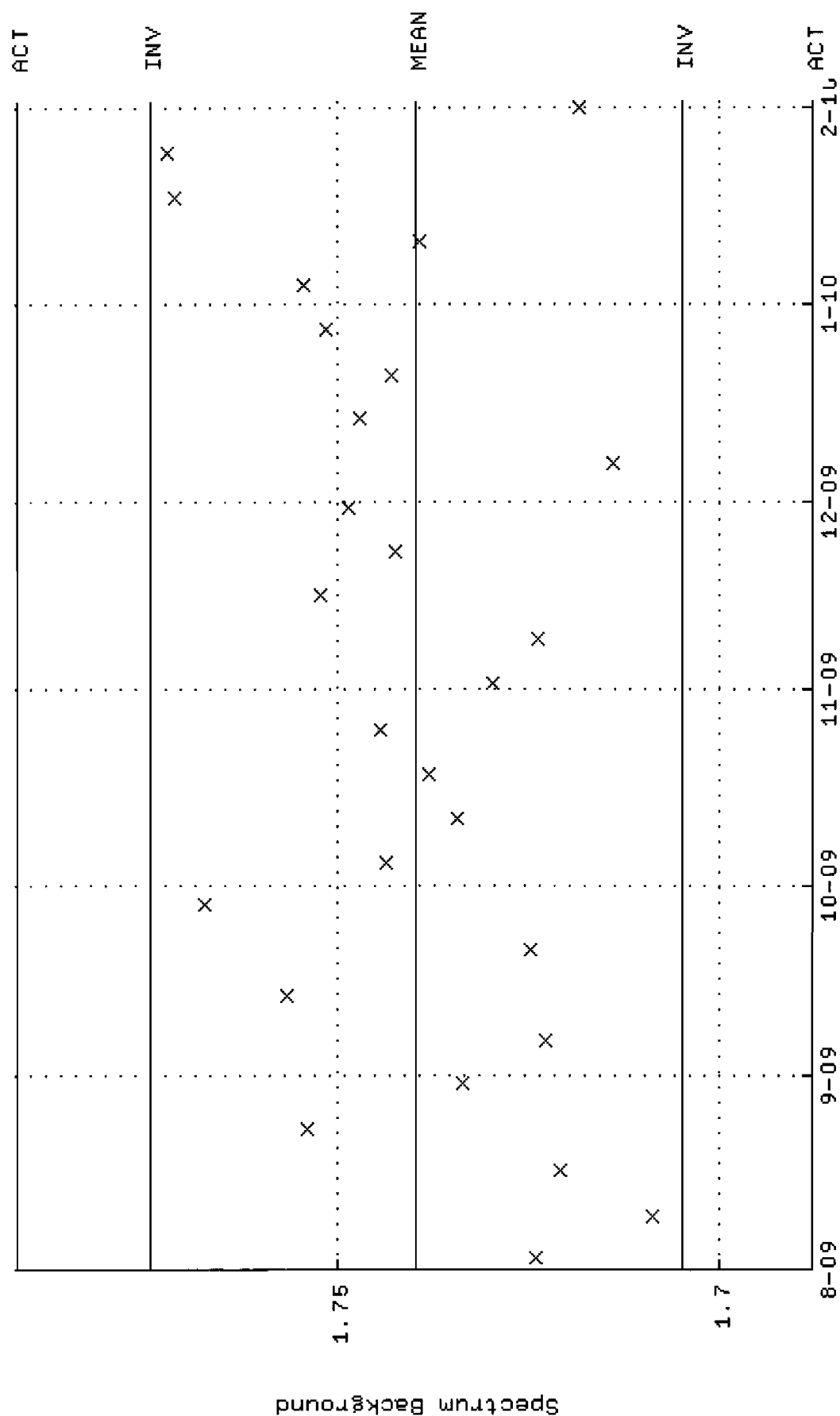
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM15.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:24:46 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)



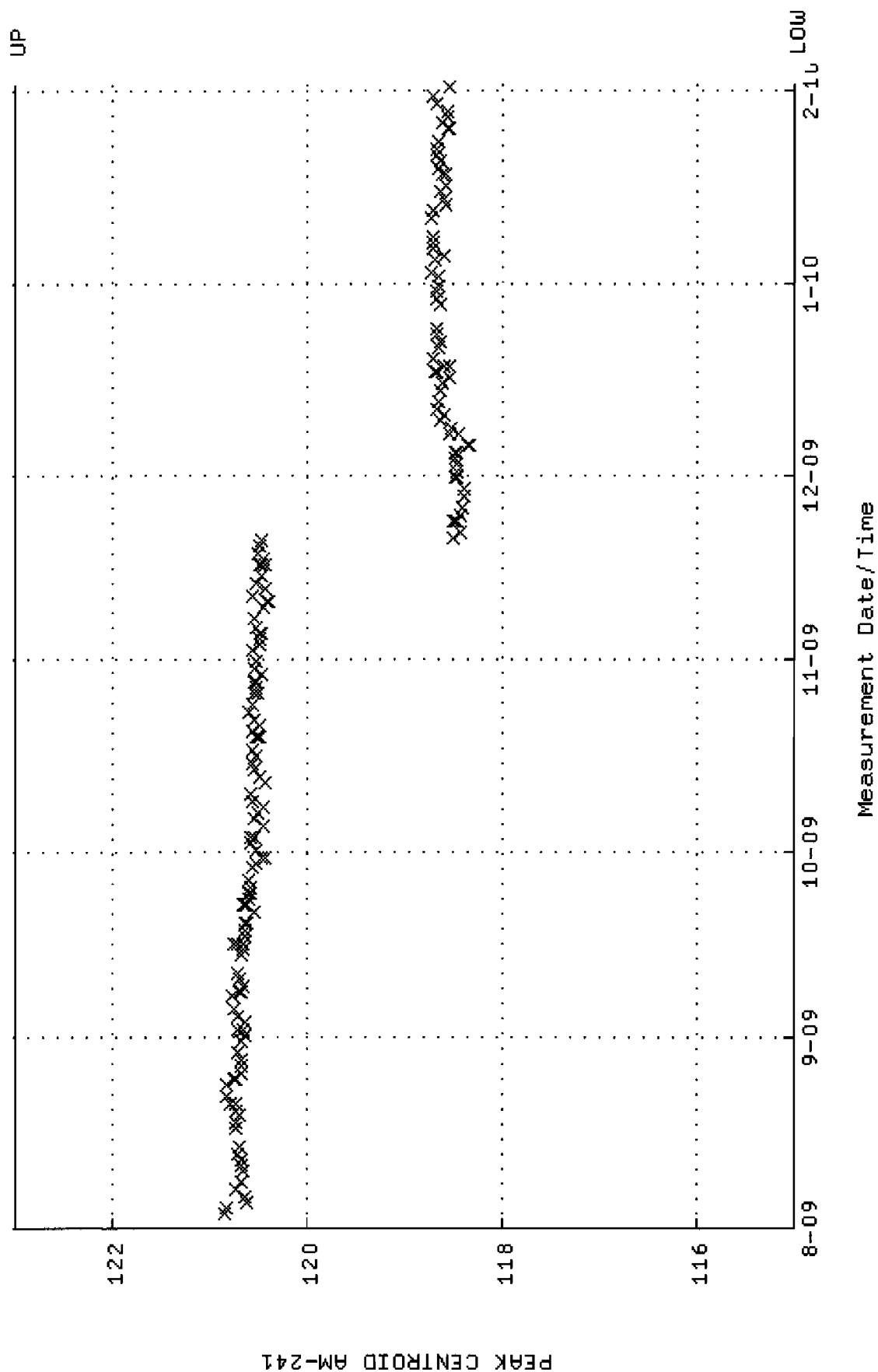
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM16\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 1-AUG-2009 13:27:30 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



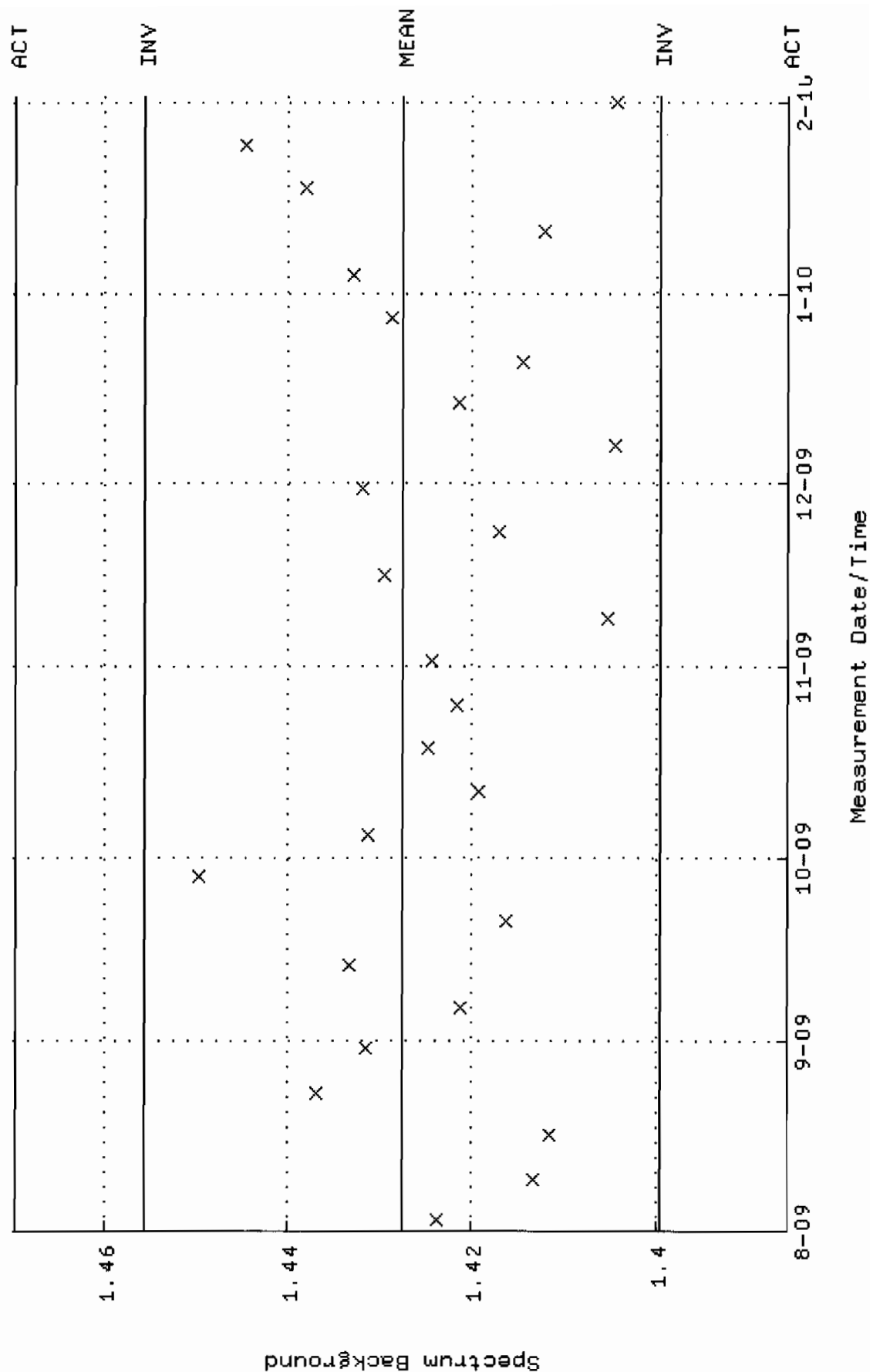
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM16.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:24:58 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.73980 +- 1.729897E-02 (0.99 %)



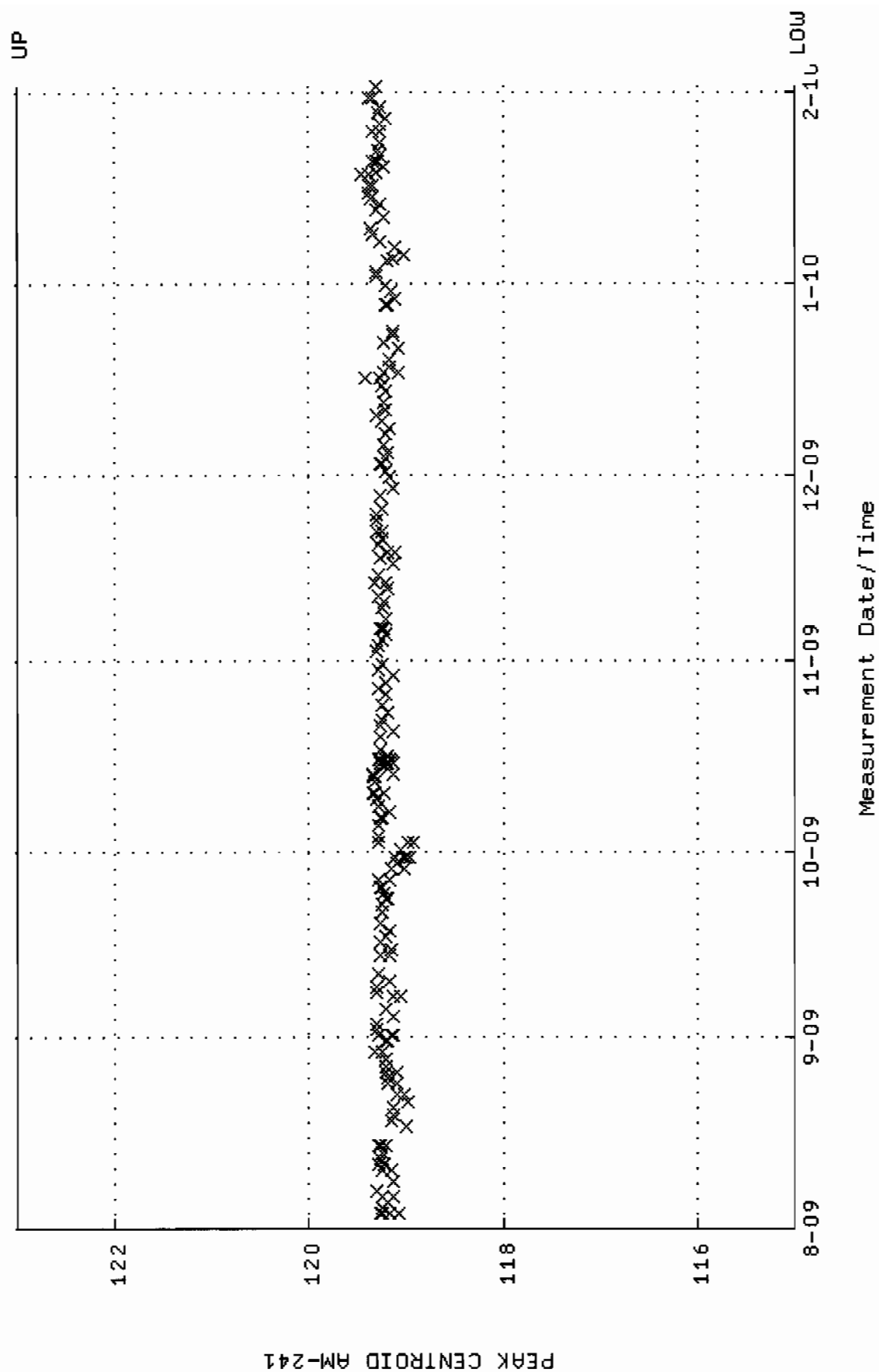
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM17\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:55:06 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



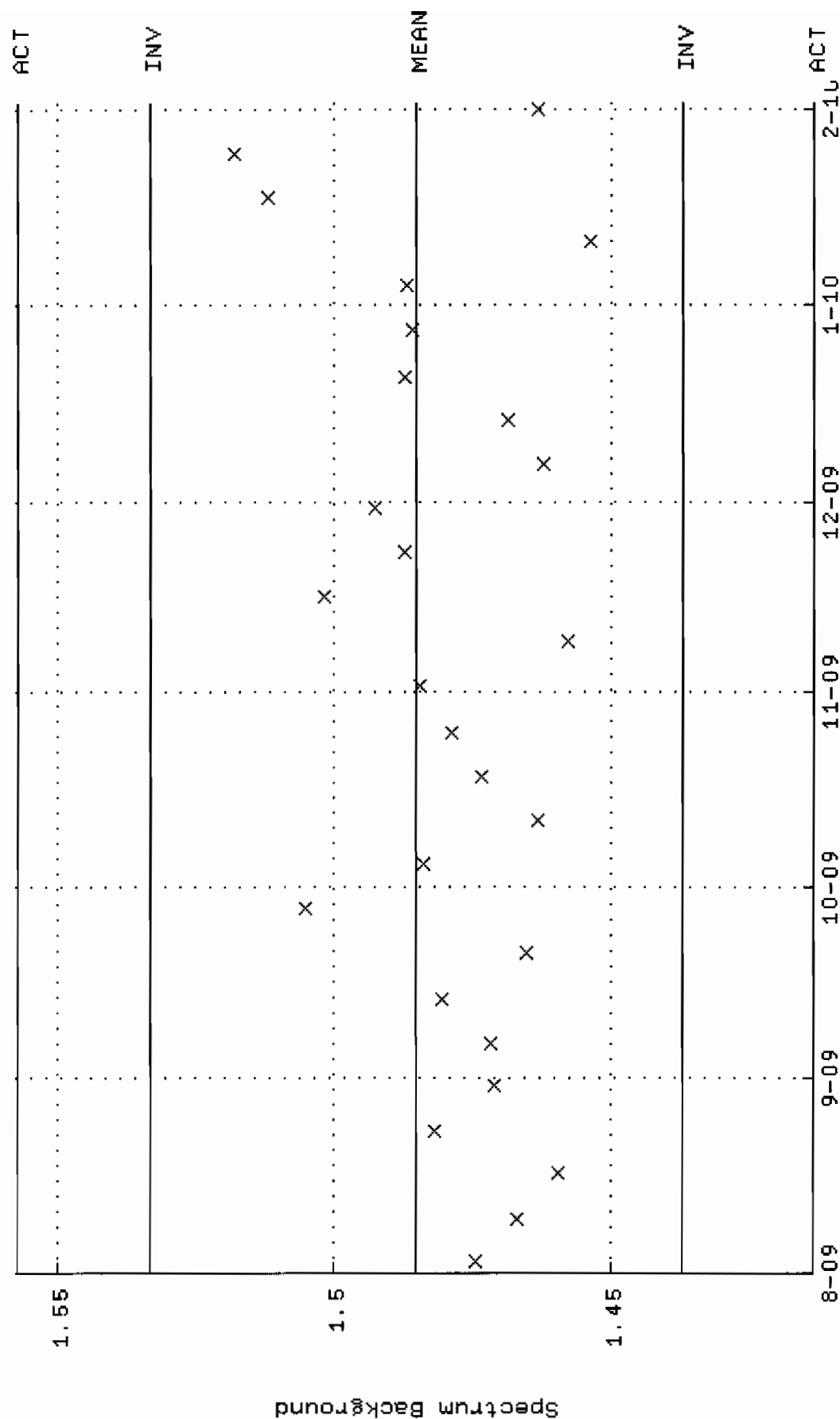
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM17.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:25:10 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM20-500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-AUG-2009 09:19:21 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

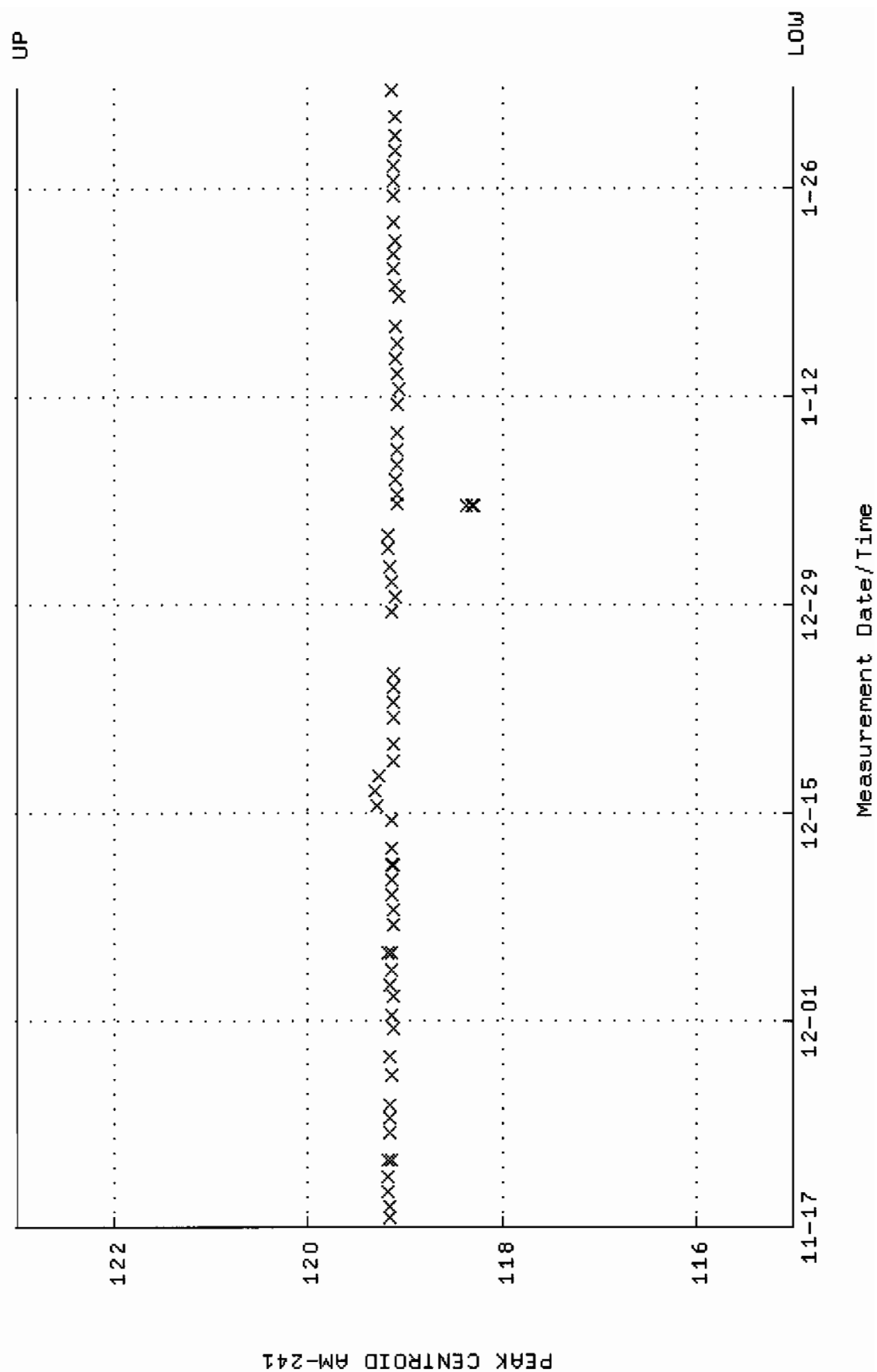


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM20.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 2-AUG-2009 16:25:55 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.48527 +- 2.388665E-02 (1.61 %)

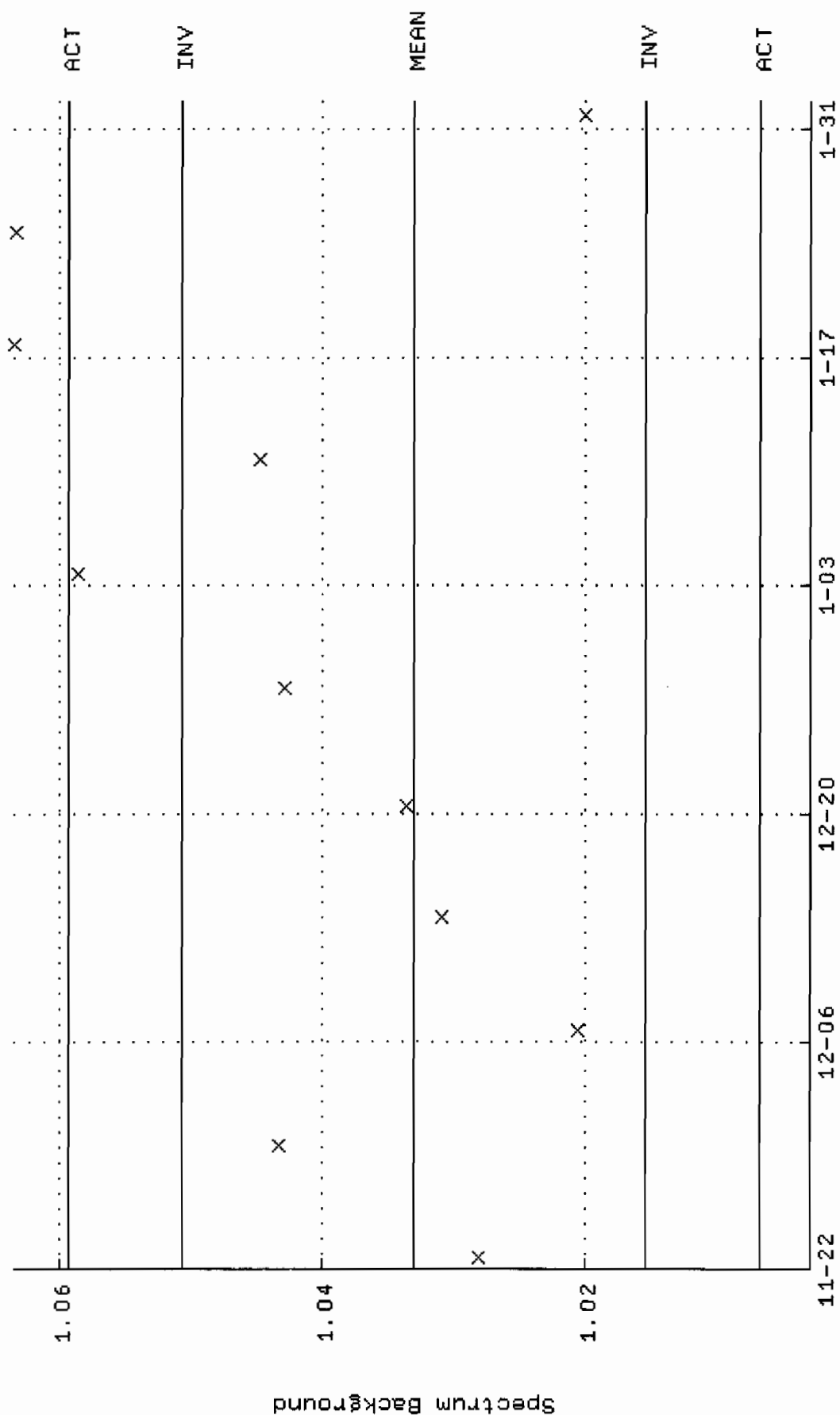




QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM21\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 17-NOV-2009 15:50:12 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

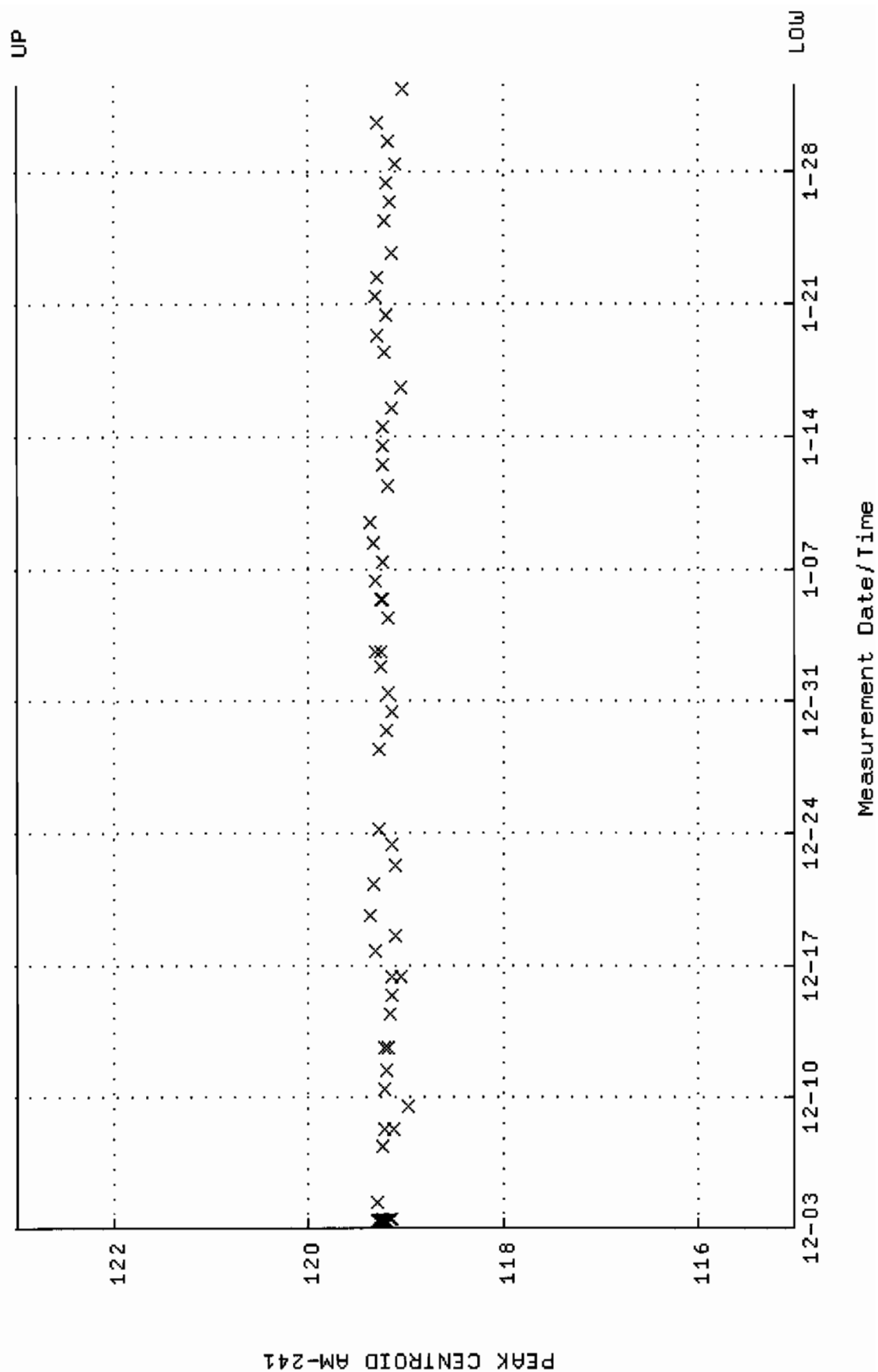


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM21.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 22-NOV-2009 17:05:16 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 1.03312 +- 8.784250E-03 (0.85 %)

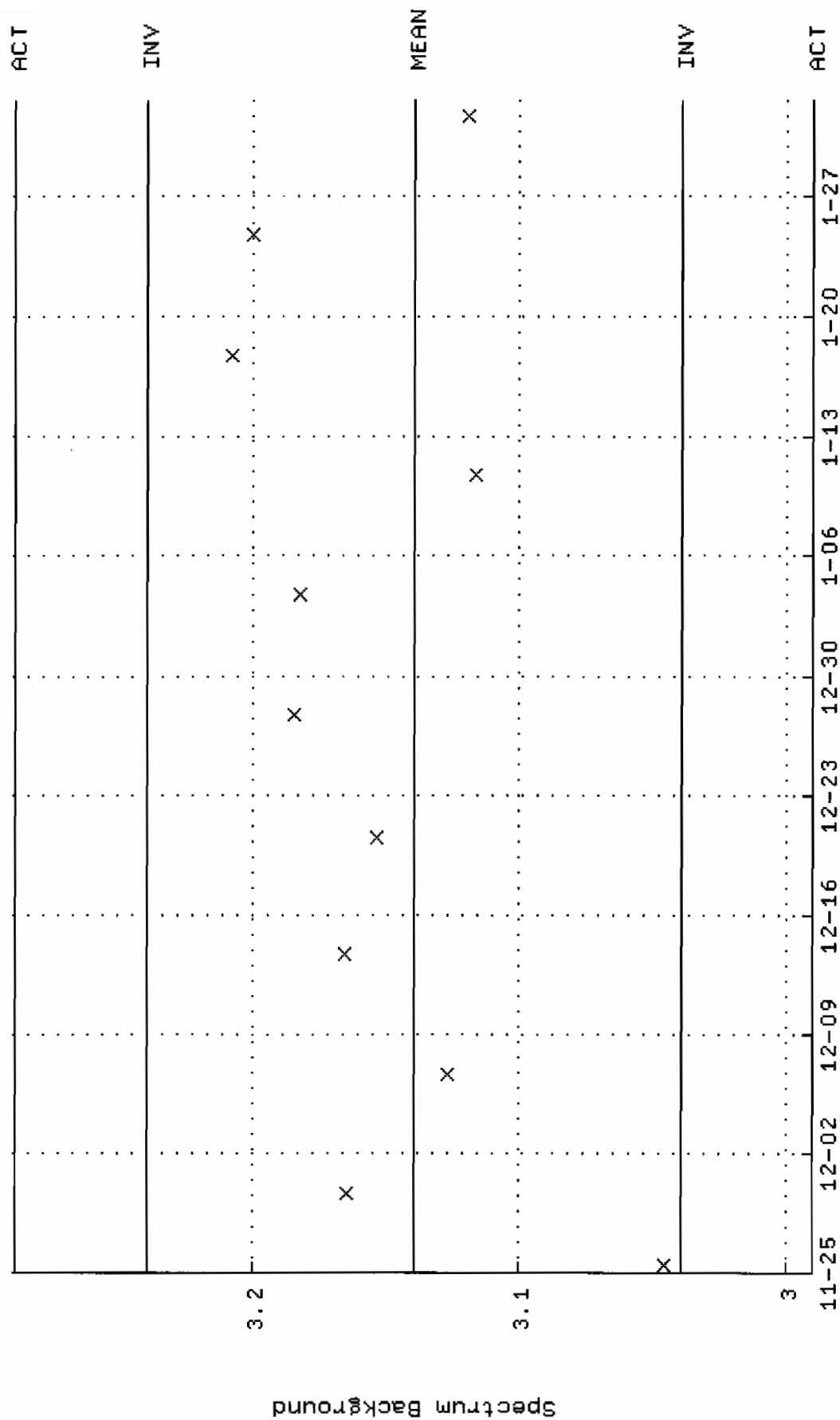


Measurement Date/Time

QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM22\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 3-DEC-2009 09:11:39 through 1-FEB-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

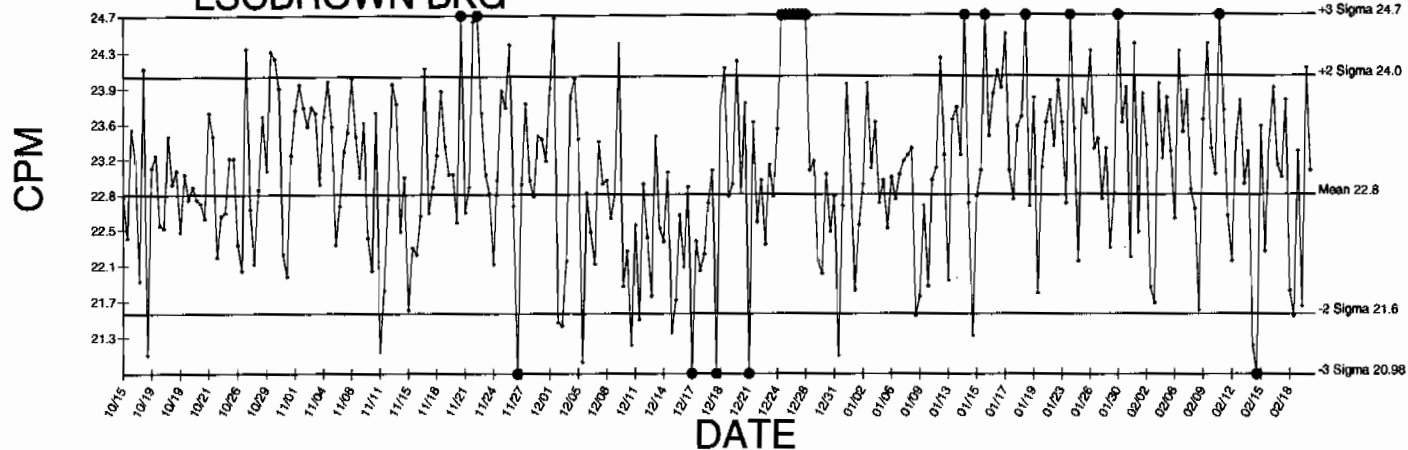


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM22.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 25-NOV-2009 10:28:37 through 1-FEB-2010 12:00:00  
 Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)

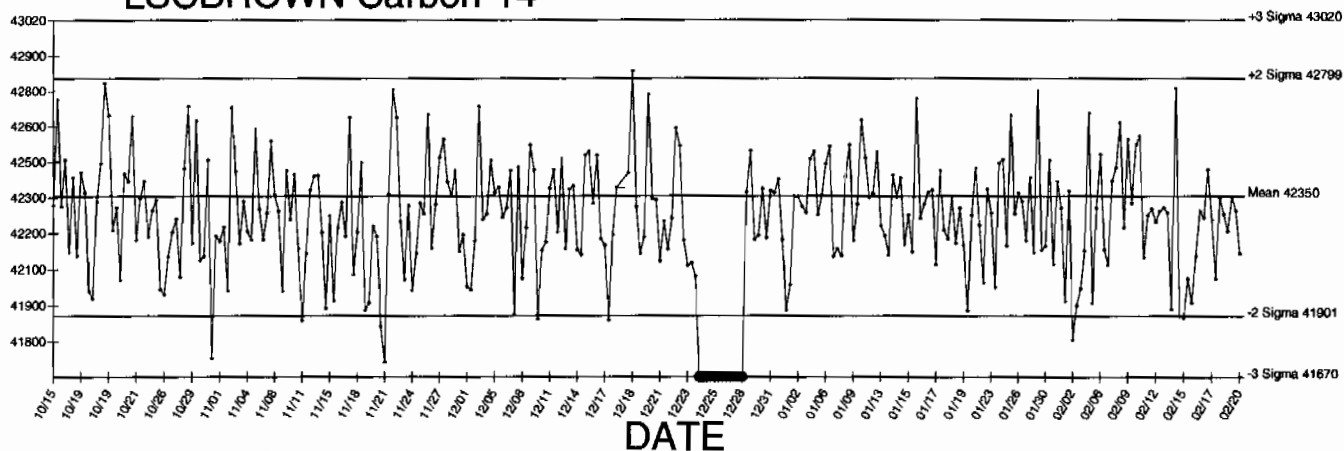


# LSCBROWN BKG

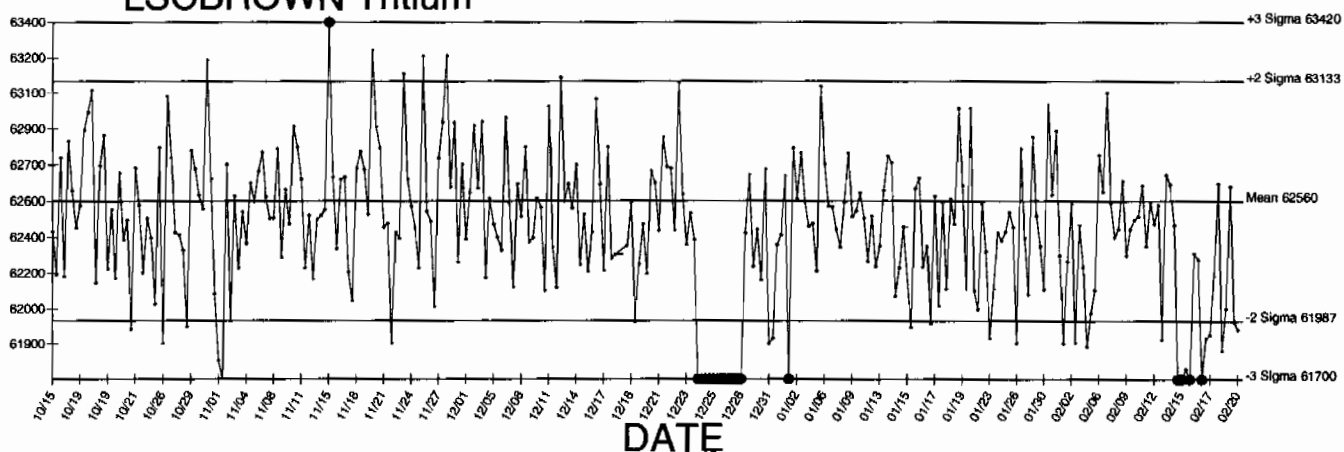
Generated 02/20/2010



# LSCBROWN Carbon-14



# LSCBROWN Tritium



● Denotes Outlier

# STANDARDS DATA

0134



CALIBRATION  
No. 0146

**Description** Radionuclide: TRITIUM (HYDROGEN-3)

Product code: TRY-64

Chemical form: water

Batch: 111

**Measurement** Reference time: 1200 GMT on 1 March 1996

Radioactive concentration of tritium: 488.0 kilobecquerels per gram of water

which is equivalent to: 13.19 microcuries per gram of water

or:  $2.93 \times 10^7$  disintegrations per minute  
per gram of water

**Method of Measurement**

This reference material was calibrated by direct comparison with a standard of tritium-labelled water obtained from the National Institute of Standards and Technology, USA.

**Accuracy** The OVERALL UNCERTAINTY of the result quoted above is estimated to be less than  $\pm 2.5\%$

This estimate of uncertainty was calculated in accordance with the recommendations of the International Commission on Radiation Units and Measurements (ICRU Report 12). The limits of uncertainty were taken as the arithmetic sum of the uncertainty due to random variations, calculated at the 99.7% confidence level, and the estimated systematic uncertainties.

**Purity** No radioactive impurities were detected. (Impurities with total activity greater than 0.001% of the activity of the tritium would have been detected).

**Physical Data** Half-life of tritium:  $12.43 \pm 0.11$  years

Maximum beta energy of tritium: 18.6 keV

**Remarks:** The S.I. unit of radioactivity is the becquerel.

1 becquerel (Bq) = 1 nuclear transformation per second, therefore  
1 curie (Ci) =  $3.7 \times 10^{10}$  becquerels exactly.

Useful conversion factors are:

1 microcurie ( $\mu\text{Ci}$ ) =  $3.7 \times 10^4$  Bq = 37 kilobecquerels (kBq)

1 kilobecquerel (kBq) = 27.027 nanocuries (nCi)

This product meets the quality assurance requirements of NRC Regulatory Guide 4.15 for achieving implicit NIST (NBS) traceability as defined in NCRP58 (1985).

**Approved  
signatory**

*W. F. Case*

Page 861 of 901  
W.F. Case

Page 1 of 2

2C-5-023-061a

**Amersham**  
The Health Science Group

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0134	Isotope:	Tritium
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	DI WATER	Prep Date:	02/21/2001
Reference Date:	03/01/1996	Verification Date:	09/10/2008
Ampoule Mass (g):	5 g	Expiration Date:	03/27/2010
Uncertainty:	+/- 2.5 %	Primary Code:	0134-A
LogBook No:	RC S 023 061	Dilution(mL):	100 mL
		Mass of Parent(g):	3.3659 g
		Density(g/mL):	1.0004
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 985535.5200 \text{ dpm/mL}$
$(3.3659 \text{ g}) * (488 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0004 \text{ g/mL}) / (100 \text{ mL}) = 985180.3116 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
07/20/2004	Amanda Fehr	5.86	1000	0134-H	5773.1566 dpm/mL	07/25/2006	07/25/2007
12/20/2005	Amanda Fehr	5.5451	1000	0134-I	5462.92 dpm/mL	12/20/2006	12/20/2007
07/11/2007	Daniel Roy	5.5863	1000	0134-J	5503.5128 dpm/ml	07/29/2008	07/29/2009
03/25/2009	Mary Aders	5.4917	1000	0134-K	5410.3147 dpm/ml	03/27/2009	03/27/2010

GEL Laboratories LLC  
Version 1.0 9/18/2000



# Verification for H-3 Standard 0134-K

M. Aders	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Standard	Source DPM/mL
4/9/2009	0134-K N1	1097.2000	54.0000	1043.2000	0.380548	1.0000	2741.3099
	0134-K N2	1073.2000	54.0000	1019.2000	0.380548	1.0000	2678.242955
	0134-K N3	1085.2000	54.0000	1031.2000	0.380548	1.0000	2709.776428
						Average =	2709.776428

Mean Value (Counting) = 2709.776428  
 Stdev = 31.53347278

Certificate Value = 2581.86 dpm/mL  
 Lower Limit = 2646.709482 dpm/mL  
 Upper Limit = 2772.943373 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

Henry Griffiths 4/9/09  
 Amanda J. Dehn 4/9/09

1032

 1380 Seaboard Industrial Blvd.  
 Atlanta, Georgia 30318  
 Tel 404-352-8677  
 Fax 404-352-2837  
 www.analytixinc.com

## CERTIFICATE OF CALIBRATION

### Standard Radionuclide Source

74047-278

5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Analytix maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE	GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432 y	3339	3.0
Cd-109	88	462.6 d	4815	3.3
Co-57	122	271.79 d	2409	3.0
Ce-139	166	137.6 d	3408	2.8
Hg-203	279	46.61 d	7522	2.7
Sn-113	392	115.1 d	4728	2.6
Cs-137	662	30.07 y	2973	3.0
Y-88	898	106.6 d	11600	2.6
Co-60	1173	5.2714 y	5780	2.7
Co-60	1332	5.2714 y	5783	2.6
Y-88	1836	106.6 d	12260	2.6

5.31725 grams 4M HCl solution.

P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova  
 M. Dimitrova, Radiochemist

Q A APPROVED:

W.M. Myers 11-28-06

This standard will expire one year after the calibration date.

 rec'd 11/30/06  
 RC-S-045-073-e

1380 Seaboard Industrial Blvd.  
 Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytiscinc.com

## ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS BATCH 127

### CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method <sup>1</sup>	Statistics <sup>2</sup>	Calibration <sup>2</sup>	Peak Fitting <sup>2</sup>	Geometry <sup>2</sup>	Impurities <sup>2</sup>	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertainty (k=2)
Cd-109	88	HPGe	0.16	1.1	0.88	0.8	0	0.2	1.64	3.3
Co-57	122	HPGe	0.23	1.1	0.71	0.7	0	0.2	1.52	3.0
Ce-139	166	HPGe	0.17	1.0	0.58	0.7	0	0.2	1.38	2.8
Hg-203	279	HPGe	0.11	1.1	0.34	0.7	0	0.2	1.37	2.7
Sn-113	392	HPGe	0.21	1.0	0.35	0.7	0	0.2	1.30	2.6
Cs-137	662	HPGe	0.36	1.1	0.60	0.7	0	0.2	1.49	3.0
Y-88	898	HPGe	0.19	1.0	0.33	0.7	0	0.2	1.29	2.6
Co-60	1173	HPGe	0.31	.97	0.45	0.7	0	0.2	1.33	2.7
Co-60	1332	HPGe	0.33	.93	0.48	0.7	0	0.2	1.32	2.6
Y-88	1836	HPGe	0.24	1.0	0.35	0.7	0	0.2	1.31	2.6

#### Optional Additional Isotopes

Pb-210	46.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Am-241	59.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Sr-85	514	IC	0.30	1.1	0	0.7	0.17	0.2	1.36	2.7
Cs-134	605	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Cs-134	796	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Mn-54	835	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Zn-65	1116	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7

#### Calibration Methods:

4π LS (4 pi Liquid Scintillation Counting)

HPGe (High Purity Germanium Gamma Ray Spectrometer)

IC (Gamma Ray Ionization Chamber)

<sup>2</sup>As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1032	Isotope:	Mixed Gamma
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL	Prep Date:	11/30/2006
Reference Date:	10/01/2006	Verification Date:	12/02/2009
Ampoule Mass (g):	5.31725 g	Expiration Date:	12/02/2010
Uncertainty:	+/- 2.81 %	Primary Code:	1032-A
LogBook No:	RC-S-045-073	Dilution(mL):	100 mL
		Mass of Parent(g):	5.2579 g
		Density(g/mL):	1.0611
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC  
Version 1.0 9/18/2000

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Am-241

Isotope	Result	pCi/L - Var. Tar. 1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L

Mean Value (Counting) = 2485.67  
Stdev = 64.065  
Pass  
Rule 3 (Pass/Fail)

Certificate Value = 2485.68018  
Lower Limit = 2357.536524  
Upper Limit = 2613.796809  
Rule 1 (Pass/Fail) Pass  
Two sigma = 128.1301422  
10 % of Mean = 248.56666667  
Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

M. Stamps  
12/2/09  
independent  
12/2/09

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Cs-137

Isotope	Result	
Mixed Gamma N1	854.2	pCi/L - VER-TAR-1
Mixed Gamma N2	907.6	pCi/L - VER-TAR-3
Mixed Gamma N3	898.9	pCi/L - VER-TAR-2

Mean Value (Counting) =  
Stdev =

886.90  
28.651  
95.01  
Rule 3 (Pass/Fail)

Certificate Value =  
Lower Limit =  
Upper Limit =  
Rule 1 (Pass/Fail)  
Two sigma =  
10 % of Mean =  
Rule 2 (Pass/Fail)

933.44144  
829.597644  
944.202356  
Pass  
57.30235597  
88.69000000  
Pass

*12/2/09  
11:58 AM  
M. Stamps  
12/2/09*

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - VER-JAN-5
Mixed Gamma N1	1572	pCi/L - VER-JAN-2
Mixed Gamma N2	1495	pCi/L - VER-JAN-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67  
Stdev = 42.829  
98.50 Pass  
Rule 3 (Pass/Fail)

Certificate Value = 1545.8378  
Lower Limit = 1437.008431  
Upper Limit = 1608.324902  
Rule 1 (Pass/Fail) Pass  
Two sigma = 85.65823564  
10 % of Mean = 152.26666667  
Rule 2 (Pass/Fail) Pass

*M. Stamps issued 12/2/09*  
*12/2/09*

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# 0244-A Characterization

Sample #	Uranium-233/234 Result (pCi/g)	Uranium-238 Result (pCi/g)	Thorium-230 Result (pCi/g)
0244-A 1	6.59	6.12	25.3
0244-A 2	6.36	6.07	28.5
0244-A 3	5.78	5.53	26.5
0244-A 4	6.48	5.97	25.5
0244-A 5	5.65	5.59	26.2
0244-A 6	6.96	5.78	27.0
0244-A 7	5.95	5.75	24.2
0244-A 8	5.29	5.67	27.2
0244-A 9	5.51	6.05	24.3
0244-A 10	6.37	5.57	25.6
0244-A 11	6.50	5.80	25.8
0244-A 12	6.13	5.42	22.4
0244-A 13	5.49	5.24	24.7
0244-A 14	6.19	5.21	26.9
0244-A 15	6.50	6.27	27.6
0244-A 16	6.50	5.24	24.9
0244-A 17	6.25	6.05	24.7
0244-A 18	6.14	6.00	25.4
0244-A 19	6.19	6.14	26.4
0244-A 20	5.67	5.61	23.2
Mean Value	6.13	5.75	25.62
1 sigma	0.439	0.325	1.493
2 sigma	0.878	0.650	2.986
75% Limit	4.60	4.31	19.22
125% Limit	7.66	7.19	32.03
Expected Result	6.2 +/- 4.0	6.0 +/- 4.0	24.5 +/- 0.6
Achieved Results	6.13 +/- 0.439	5.75 +/- 0.325	25.62 +/- 1.493

REFERENCE DATE 4/11/2000 *lett c held 12/1/04*

*angela l. johnson 12/13/04*



TRM

Invoice:

5 boxes of TRM-1  
 10 " " TRM-2 and 3  
 5 " each of NRM-1 through 6  
 7 " baghouse dirt

Use 1/4 gm x 10 samples with together  
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
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	25 ± 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. Feby 4/30/04  
lett & dated 5/1/04

## PREPARATION AND CHARACTERIZATION OF THE PERFORMANCE EVALUATION SOIL SAMPLE PEM-1

### INTRODUCTION

Rust Geotech (Rust) was contracted by Los Alamos National Laboratory (LANL) to prepare and characterize a soil performance evaluation sample designated PEM-1. This report describes sample preparation, homogeneity assessment, and determination of the concentrations of 28 elements and radioactive isotopes in the sample.

### SAMPLE PREPARATION

Rust received nine five-gallon buckets of soil from LANL. The soils were dried overnight in ovens at 103 °C. The large pieces of leaves and sticks were removed and the soils were ground with ceramic-plate grinders to a particle size that passed through a 325 mesh screen. The samples were blended at the proportions specified by LANL for 48 hours in a 3-cubic-foot cross-flow blender. The sample identifications and the amounts used are listed in Table 1.

Table 1. Sample Identifications and Amounts Used to Prepare PEM-1

LANL Sample ID	Amount Used (kg)
AAA 1592	1.7
AAA 2505-1	10.9
AAA 2505-2	12.8
AAA 2750-1	8.4
AAA 2750-2	8.4
AAA 3205	12.6
AAA 8581	4.2
AAB 3417	12.8
AAB 3475	12.6

The blended sample was transferred to three five-gallon plastic containers. While the sample was being transferred, 10 samples were taken at pre-determined time intervals to be used for homogeneity assessment and sample characterization. These samples are believed to be representative of the bulk material.



# CERTIFICATE OF CALIBRATION

## ALPHA STANDARD SOLUTION

Radionuclide: Am-243  
Half Life: 7380  $\pm$  40 years  
Catalog No.: 7243  
Source No.: 445-96-2

Customer: GENERAL ENGINEERING LABS  
P.O.No.: 9290-RAD  
Reference Date: January 1 1994 12:00 PST.  
Contained Radioactivity: (Am-243) 101.2  $\mu$ Ci  
Contained Radioactivity: (Am-243) 3750 kBq

### Description of Solution

a. Mass of solution: 5.3739 g (in a 5 ml Flame Sealed Ampoule)  
b. Chemical form: Am(NO<sub>3</sub>)<sub>3</sub> in 2N HNO<sub>3</sub>  
c. Carrier content: None added  
d. Density: 1.0651 g/ml @ 20°C.

### Radioimpurities

None detected

### Radioactive Daughters

Np-239 (beta active) in equilibrium

### Radionuclide Concentration

(Am-243) 18.84  $\mu$ Ci/g

### Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) integrated under: 228, 278 keV.  
Branching ratio(s) used: 0.108, 0.1420 gamma rays per decay.

### Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:  $\pm 3.0\%$   
b. Random uncertainty in assay:  $\pm 0.4\%$   
c. Random uncertainty in weighing(s):  $\pm 0.0\%$   
d. Total uncertainty at the 99% confidence level:  $\pm 3.0\%$

### NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

### Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

### Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES  
1800 North Keystone Street  
Burbank, California 91504  
(818) 843 - 7000

*Chuan H. Khan*  
QUALITY CONTROL

*Jan 3, 1994*  
Date Signed

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO  
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE

☒ 1. STANDARD WIPE TEST

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 2. SOAK TEST

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 3. SOAK TEST -- BERYLLIUM WINDOW

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 4. GAS SOURCE TEST (Radioactive Gas)

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.

☒ 5. OTHER LEAK TEST

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 6. LEAK TEST NOT APPLICABLE

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha at the time of shipment.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	05/11/2009
Expiration Date:	05/11/2010
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$



## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Julie Strock	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/30/2008	09/29/2009
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/mL	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/mL	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
04/14/2003	Lonnie Morris	.0315	1000	445-96-2-X	65.2559 dpm/mL	04/14/2004	04/14/2005
05/03/2003	Tim Chandler	.0103	1000	445-96-2-Y	21.3376 dpm/mL	05/05/2003	05/05/2004
05/05/2003	Eric Williamson	.011	1000	445-96-2-Z	22.7877 dpm/mL	04/03/2007	04/03/2008

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Am-243 Standard 445-96-2-SS

M. Aders 5/15/2009	Isotope	Value	Uncertainty
	445-96-2-SS #1	1.360	0.1690
	445-96-2-SS #2	1.370	0.1690
	445-96-2-SS #3	1.290	0.1590
Mean Value (Counting) =	1.340	101.99	Pass
Stdev =	0.043588989	Rule 3 (Pass/Fail)	
Target =	1.314		
Lower Limit =	1.252822021		
Upper Limit =	1.427177979		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.087177979		
10 % of Mean =	0.134		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard **445-96-2-SS** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **Cm-244** standard **0533-O** and 50 micrograms of neodymium carrier in a disposable centrifuge tube. Each standard was diluted with 4 mL of 2 M HCl and 6 mL of DI Water. Two mL of 48% HF was added to precipitate Nd (and Americium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Am-243 were calculated by comparison to Am-241 certified values.

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

*Handwritten:* M. Aders 5/15/09  
Taheri 007509



**Eckert & Ziegler**  
Analytics

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318  
Tel 404-352-8677  
Fax 404-352-2837  
www.analyticsinc.com

**CERTIFICATE OF CALIBRATION**  
Standard Radionuclide Source

**78747-278**

1283

**U-232 5 mL Liquid in Flame Sealed Vial**

**Customer:** GEL Laboratories, LLC  
**P.O. No.:** 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

<b>Isotope:</b>	U-232
<b>Activity (Bq):</b>	3.754 E3
<b>Half-Life:</b>	68.9 years
<b>Calibration Date:</b>	December 9, 2008 12:00 EST
<b>Relative Expanded Uncertainty (k=2):</b>	5.0%

**Comments:**

**Impurities:** U-233 <0.3%, Am-241 <0.15%  
5.20453 grams 1M HNO<sub>3</sub> solution.

**Source Prepared By:** WLS  
W. Mao, Radiochemist

**QA Approved:** D. M. Montgomery  
D. M. Montgomery, QA Manager

**Date:** 12-11-08

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1283
Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3
Reference Date:	12/09/2008
Ampoule Mass (g):	5.20453 g
Uncertainty:	+/- 5 %
LogBook No:	RC-S-051-002

A Solution Material Info	
Isotope:	Uranium-232
Prepared By:	Daniel Roy
Prep Date:	12/16/2008
Verification Date:	12/30/2008
Expiration Date:	12/30/2009
Primary Code:	1283-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.0245 g
Density(g/mL):	1.0285
Balance ID:	

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/02/2009	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  
Date: 12/10/09

Serial #	Value	Uncertainty
1283-H N1	2.020	pCi/L 0.238
1283-H N2	2.000	pCi/L 0.234
1283-H N3	2.060	pCi/L 0.242

Mean Value (Counting) =	2.027	pCi/L	99.66904	Pass
Stdev =	0.030550505	pCi/L	Rule 3 (Pass/Fail)	
Target =	2.033	pCi/L		
Lower Limit =	1.965565857	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

1375



# National Institute of Standards & Technology Certificate

## Standard Reference Material 4334H Plutonium-242 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive plutonium-242 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

**Radiological Hazard:** The SRM ampoule contains plutonium-242 with a total activity of approximately 150 Bq. Plutonium-242 decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process, X-rays and gamma rays with energies from 10 keV to 160 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

**Chemical Hazard:** The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 3 moles per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

**Storage and Handling:** The SRM should be stored and used at a temperature between 5 °C and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least January 2015. The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

**Preparation:** This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, M.P. Unterweger, Acting Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group. The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program.

RECEIVED  
7/21/01

Lisa R. Karam, Acting Chief  
Ionizing Radiation Division

Gaithersburg, Maryland 20899  
January 2005

Robert L. Watters, Jr., Chief  
Measurement Services Division



### **Recommended Procedure for Opening the SRM Ampoule**

- 1) If the SRM solution is to be diluted, it is recommended that the diluting solution have a composition comparable to that of the SRM solution.
- 2) Wear eye protection, gloves, and protective clothing and work over a tray with absorbent paper in it. Work in a fume hood. In addition to the radioactive material, the solution contains strong acid and is corrosive.
- 3) Shake the ampoule to wet all of the inside surface of the ampoule. Return the ampoule to the upright position.
- 4) Check that all of the liquid has drained out of the neck of the ampoule. If necessary, gently tap the neck to speed the process.
- 5) Holding the ampoule upright, score the narrowest part of the neck with a scribe or diamond pencil.
- 6) Lightly wet the scored line. This reduces the crack propagation velocity and makes for a cleaner break.
- 7) Hold the ampoule upright with a paper towel, a wiper, or a support jig. Position the scored line away from you. Using a paper towel or wiper to avoid contamination, snap off the top of the ampoule by pressing the narrowest part of the neck away from you while pulling the tip of the ampoule towards you.
- 8) Transfer the solution from the ampoule using a pycnometer or a pipet with dispenser handle. NEVER PIPETTE BY MOUTH.
- 9) Seal any unused SRM solution in a flame-sealed glass ampoule, if possible, to minimize the evaporation loss.

See also reference [4]\*.

# PROPERTIES OF SRM 4334H

## Certified values

Radionuclide	Plutonium-242
Reference time	1200 EST, 07 June 1994 [b]*
Massic activity of the solution [c]	26.31 Bq·g <sup>-1</sup>
Relative expanded uncertainty (k=2)	0.72% [d] [c]
Solution density	(1.105 ± 0.002) g·mL <sup>-1</sup> at 20 °C [f]

## Uncertified values

Physical Properties:			
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule		
Ampoule specifications	Body outside diameter	(16.5 ± 0.5) mm	
	Wall thickness	(0.60 ± 0.04) mm	
	Barium content	Less than 2.5%	
	Lead-oxide content	Less than 0.02%	
	Other heavy elements	Trace quantities	
Solution mass	Approximately 5.5 g		
Chemical Properties:			
Solution composition	Chemical Formula	Concentration (mol·L <sup>-1</sup> )	Mass Fraction (g·g <sup>-1</sup> )
	H <sub>2</sub> O HNO <sub>3</sub> <sup>242</sup> Pu <sup>+6</sup>	50 3.2 8 × 10 <sup>-7</sup>	0.81 0.19 2 × 10 <sup>-7</sup>
Radiological Properties:			
Alpha-particle-emitting impurities	None detected [g] [h]. See table on page 5.		
Beta-particle-emitting impurities	Plutonium-241: (0.092 ± 0.018) Bq·g <sup>-1</sup> [f] [h]		
Photon-emitting impurities	None detected [i]		
Half lives used	Plutonium-242: (373 500 ± 1100) a [j] [5] Plutonium-241: (14.35 ± 0.10) a [j] [5] Americium-241: (432.2 ± 0.7) a [j] [5]		
Calibration method and measuring instrument(s)	Three 4π liquid-scintillation counters, a calibrated germanium detector system, and a silicon surface-barrier detector		

**EVALUATION OF THE UNCERTAINTY OF THE MASSIC ACTIVITY [d] [c]\***

Input Quantity $x_i$ , the source of uncertainty  (and individual uncertainty components where appropriate)	Method Used To Evaluate $u(x_i)$ , the standard uncertainty of $x_i$ (A) denotes evaluation by statistical methods (B) denotes evaluation by other methods	Relative Uncertainty Of Input Quantity, $u(x_i)/x_i$ , (%) [k]	Relative Sensitivity Factor, $ \partial y/\partial x_i  \cdot$ $(x_i/y)$ [m]	Relative Uncertainty Of Output Quantity, $u_c(y)/y$ , (%) [n]
Massic alpha-particle emission rate, corrected for background and decay	Standard deviation of the mean for 80 sets of $4\pi\alpha$ liquid- scintillation measurements (A)	0.05	1.0	0.05
Half life of Pu-242	Standard uncertainty of the half life (A)	0.32 [p]	0.00001 [q]	0.000003
Decay-scheme data	Standard uncertainty of the probability of decay by alpha- particle emission (A)	0.001	1.0	0.001
Extrapolation of alpha- particle-count-rate- versus-energy to zero energy	Estimated (B)	0.25	1.0	0.25
Gravimetric measurements	Estimated (B)	0.10	1.0	0.10
Live time [r]	Estimated (B)	0.10	1.0	0.10
Alpha-particle detection efficiency of scintillators	Estimated (B)	0.15	1.0	0.15
Alpha-particle-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Photon-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Relative Combined Standard Uncertainty of the Output Quantity, $u_c(y)/y$ , (%)				0.36
Coverage Factor, $k$				<u>x 2</u>
Relative Expanded Uncertainty of the Output Quantity, $U/y$ , (%)				0.72

**RELATIVE ACTIVITIES OF RADIONUCLIDIC IMPURITIES AT THE REFERENCE TIME [b]**

Radionuclide	Half Life (years) [j] [5]	Relative Activity As Determined By	
		LLNL	NIST
Plutonium-242	373 500 ± 1100	1.000 000	1.000 000
Plutonium-241	14.35 ± 0.10	- -	0.0035 ± 0.0004 [t]
Plutonium-240	6 564 ± 11	<sup>239</sup> Pu + <sup>240</sup> Pu <0.000 001 [u]	<sup>239</sup> Pu + <sup>240</sup> Pu 0.000 020 ± 0.000 021 [v]
Plutonium-239	24 110 ± 30		
Plutonium-238	87.7 ± 0.1	<sup>238</sup> Pu + <sup>241</sup> Am <0.000 016 [u]	0.000 009 ± 0.000 016 [v]
Americium-241	432.2 ± 0.7		0.000 000 assumed [t]

**NOTES**

- [a] The Sievert is the SI unit for dose equivalent. See reference [1]. One  $\mu\text{Sv}$  is equal to 0.1 mrem.  
 Distance from Ampoule (cm):      1      30      100  
 Approximate Dose Rate ( $\mu\text{Sv/h}$ ):   <0.1      -      -
- [b] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994.
- [c] **Massic activity** is the preferred name for the quantity activity divided by the total mass of the sample. See reference [1].
- [d] The reported value,  $y$ , of massic activity (activity per unit mass) at the reference time was not measured directly but was derived from measurements and calculations of other quantities. This can be expressed as  $y = f(x_1, x_2, x_3, \dots, x_n)$ , where  $f$  is a mathematical function derived from the assumed model of the measurement process. The value,  $x_i$ , used for each input quantity  $i$  has a **standard uncertainty**,  $u(x_i)$ , that generates a corresponding uncertainty in  $y$ ,  $u(y) = |\partial y / \partial x_i| \cdot u(x_i)$ , called a **component of combined standard uncertainty** of  $y$ . The **combined standard uncertainty** of  $y$ ,  $u_c(y)$ , is the positive square root of the sum of the squares of the components of combined standard uncertainty. The combined standard uncertainty is multiplied by a **coverage factor** of  $k=2$  to obtain  $U$ , the **expanded uncertainty** of  $y$ .

Since it can be assumed that the possible estimated values of the massic activity are approximately normally distributed with approximate standard deviation  $u_c(y)$ , the unknown value of the massic activity is believed to lie in the interval  $y \pm U$  with a level of confidence of approximately 95 percent.

For further information on the expression of uncertainties, see references [2] and [3].

- [e] The value of each component of combined standard uncertainty, and hence the value of the expanded uncertainty itself, is a best estimate based upon all available information, but is only approximately known. That is to say, the "uncertainty of the uncertainty" is large and not well known. This is true for uncertainties evaluated by statistical methods (e.g., the relative standard deviation of the standard deviation of the mean for the massic response is approximately 50%) and for uncertainties evaluated by other methods (which could easily be over estimated or under estimated by substantial amounts). The unknown value of the expanded uncertainty is believed to lie in the interval  $U/2$  to  $2U$  (i.e., within a factor of 2 of the estimated value).
- [f] The stated uncertainty is two times the standard uncertainty.
- [g] Estimated limits of detection for alpha-particle-emitting impurities, expressed as massic alpha-particle emission rates (numbers of alpha particles per second per gram), are:  
 $0.003 \text{ s}^{-1}\text{g}^{-1}$  for energies less than 3.1 MeV,  
 $0.03 \text{ s}^{-1}\text{g}^{-1}$  for energies between 3.1 and 4.4 MeV, and  
 $0.003 \text{ s}^{-1}\text{g}^{-1}$  for energies greater than 5.0 MeV.
- [h] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994. Americium-241, the daughter of plutonium-241, was removed but has been growing in since that time.
- [i] Estimated limits of detection for photon-emitting impurities, expressed as massic photon emission rates (numbers of photons per second per gram), are:  
 $5 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 19 and 39 keV,  
 $7 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 49 and 92 keV,  
 $2 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 106 and 507 keV,  
 $1 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 515 and 1456 keV, and  
 $5 \times 10^{-6} \text{ s}^{-1}\text{g}^{-1}$  for energies between 1465 and 2750 keV,  
provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of plutonium-242, plutonium-241, or americium-241.
- [j] The stated uncertainty is the standard uncertainty.
- [k] Relative standard uncertainty of the input quantity  $x_i$ .
- [m] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [n] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u(y)/y = |\partial y / \partial x_i| \cdot u(x_i)/y = |\partial y / \partial x_i| \cdot (x_i / y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y / \partial x_i| \cdot (x_i / y)$ , and  $u(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.

- [p] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [q]  $|\partial y / \partial x_i| \cdot (x_i / y) = |\lambda \cdot t|$
- [r] The live time is determined by counting the pulses from a gated crystal-controlled oscillator.
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i) / x_i = 100\%$ .  $|\partial y / \partial x_i| \cdot (x_i / y) = \{(\text{response per Bq of impurity}) / (\text{response per Bq of Pu-242})\} \cdot \{(\text{Bq of impurity}) / (\text{Bq of Pu-242})\}$ . Thus  $u(y) / y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.
- [t] The stated uncertainty is the standard uncertainty. The plutonium-241 activity was calculated from a gamma-ray measurement of the americium-241 ingrowth as of 25 November 1998, assuming that americium-241 was completely removed at the time of chemical purification.
- [u] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The value shown is an estimated upper limit based upon background and counting statistics. Measurements were made at the Lawrence Livermore National Laboratory (LLNL) in July of 1994.
- [v] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The stated uncertainty is the standard uncertainty. Measurements were made at the National Institute of Standards and Technology (NIST) in June and July of 1999.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993 (corrected and reprinted, 1995). Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [3] B.N. Taylor and C.E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), January 2005.

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1375	Isotope:	Plutonium-242
Prepared By:	Mary Aders	Prepared By:	Ashley Drochter
Carrier Conc:	0.5M HNO3	Prep Date:	01/08/2010
Reference Date:	06/07/1994	Verification Date:	01/08/2010
Ampoule Mass (g):	5.5 g	Expiration Date:	01/08/2011
Uncertainty:	+/- .72 %	Primary Code:	1375-A
LogBook No:	RC-S-051-094	Dilution(mL):	250 mL
		Mass of Parent(g):	5.3542 g
		Density(g/mL):	1.0148
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3542 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (250 \text{ mL}) = 33.8086 \text{ dpm/mL}$
$(5.3542 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0148 \text{ g/mL}) / (250 \text{ mL}) = 33.3155 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC

Version 1.0 9/18/2000

## Verification for Pu-242 Standard 1375-A

A.Drochter 1/9/2010	Isotope	Value	Uncertainty
	1375-A	1.530	0.2410
	1375-A	1.630	0.2630
	1375-A	1.580	0.2480
Mean Value (Counting) =	1.580	103.75	Pass
Stdev =	0.05	Rule 3 (Pass/Fail)	
Target =	1.52		
Lower Limit =	1.48		
Upper Limit =	1.68		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.1		
10 % of Mean =	0.158		
Rule 2 (Pass/Fail)	Pass		

**Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**

**Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**

**Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 1375-A 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. Two mL of 49% HF was added to precipitate neodymium (and plutonium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Pu-242 were calculated by comparison to Pu-239 certified values.

*Handwritten signature* 1/12/10  
*Handwritten signature* 1/12/10



# RUNLOGS

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 950643**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246312001	SAMPLE	JXD2	1080	19-FEB-10 15:53	DONE		
246328001	SAMPLE	JXD2	1081	19-FEB-10 15:53	DONE		
246328002	SAMPLE	JXD2	1082	19-FEB-10 15:53	DONE		
246328003	SAMPLE	JXD2	1083	19-FEB-10 15:53	DONE		
246328004	SAMPLE	JXD2	1084	19-FEB-10 15:53	DONE		
246328005	SAMPLE	JXD2	1085	19-FEB-10 15:53	DONE		
246328006	SAMPLE	JXD2	1086	19-FEB-10 15:53	DONE		
246328007	SAMPLE	JXD2	1087	19-FEB-10 15:53	DONE		
246328008	SAMPLE	JXD2	1088	19-FEB-10 15:53	DONE		
246328009	SAMPLE	JXD2	1089	19-FEB-10 15:53	DONE		
246341001	SAMPLE	JXD2	1090	19-FEB-10 15:53	DONE		
246341002	SAMPLE	JXD2	1091	19-FEB-10 15:53	DUSE		
246341003	SAMPLE	JXD2	1092	19-FEB-10 15:53	DONE		
246341004	SAMPLE	JXD2	1093	19-FEB-10 15:53	DONE		
246341005	SAMPLE	JXD2	1094	19-FEB-10 15:53	DONE		
246341006	SAMPLE	JXD2	1095	19-FEB-10 15:53	DONE		
246341007	SAMPLE	JXD2	1097	19-FEB-10 15:53	DONE		
246341008	SAMPLE	JXD2	1099	19-FEB-10 15:53	DONE		
246341009	SAMPLE	JXD2	1100	19-FEB-10 15:53	DONE		
1202037247	MB	JXD2	1101	19-FEB-10 15:53	DONE		
1202037248	DUP	JXD2	1102	19-FEB-10 15:53	DONE		
1202037249	LCS	JXD2	1103	19-FEB-10 15:53	DONE		
246341002	SAMPLE	JXD2	1231	20-FEB-10 13:37	DONE		

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 950644**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202037252	LCS	JXD2	1202	20-FEB-10 13:39	DONE		
1202037250	MB	JXD2	1253	20-FEB-10 13:40	DONE		
1202037251	DUP	JXD2	1254	20-FEB-10 13:40	DONE		
246312001	SAMPLE	JXD2	1013	20-FEB-10 14:31	DONE		
246328001	SAMPLE	JXD2	1014	20-FEB-10 14:31	DONE		
246328002	SAMPLE	JXD2	1016	20-FEB-10 14:31	DONE		
246328003	SAMPLE	JXD2	1017	20-FEB-10 14:31	DONE		
246328004	SAMPLE	JXD2	1018	20-FEB-10 14:31	DONE		
246328005	SAMPLE	JXD2	1031	20-FEB-10 14:31	DONE		
246328006	SAMPLE	JXD2	1033	20-FEB-10 14:31	DONE		
246328007	SAMPLE	JXD2	1035	20-FEB-10 14:31	DONE		
246328008	SAMPLE	JXD2	1036	20-FEB-10 14:31	DONE		
246328009	SAMPLE	JXD2	1077	20-FEB-10 14:31	DONE		
246341001	SAMPLE	JXD2	1079	20-FEB-10 14:31	DONE		
246341002	SAMPLE	JXD2	1080	20-FEB-10 14:31	DONE		
246341003	SAMPLE	JXD2	1081	20-FEB-10 14:31	DONE		
246341004	SAMPLE	JXD2	1082	20-FEB-10 14:31	DONE		
246341005	SAMPLE	JXD2	1107	20-FEB-10 14:31	DONE		
246341006	SAMPLE	JXD2	1108	20-FEB-10 14:31	DONE		
246341007	SAMPLE	JXD2	1109	20-FEB-10 14:31	DONE		
246341008	SAMPLE	JXD2	1111	20-FEB-10 14:31	DONE		
246341009	SAMPLE	JXD2	1112	20-FEB-10 14:31	DONE		

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 950645**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246341003	SAMPLE	JXD2	1119	20-FEB-10 10:57	DONE		
246341004	SAMPLE	JXD2	1120	20-FEB-10 10:57	DONE		
1202037254	DUP	JXD2	1123	20-FEB-10 10:57	DUSE		
246341009	SAMPLE	JXD2	1128	20-FEB-10 10:58	DONE		
1202037253	MB	JXD2	1129	20-FEB-10 10:58	DONE		
246341005	SAMPLE	JXD2	1130	20-FEB-10 10:58	DONE		
246341006	SAMPLE	JXD2	1142	20-FEB-10 10:58	DONE		
246341007	SAMPLE	JXD2	1144	20-FEB-10 10:58	DONE		
246341008	SAMPLE	JXD2	1145	20-FEB-10 10:58	DONE		
1202037255	LCS	JXD2	1185	20-FEB-10 11:06	DONE		
246312001	SAMPLE	JXD2	1001	20-FEB-10 11:14	DONE		
246328001	SAMPLE	JXD2	1002	20-FEB-10 11:14	DONE		
246328002	SAMPLE	JXD2	1003	20-FEB-10 11:14	DONE		
246328003	SAMPLE	JXD2	1004	20-FEB-10 11:14	DONE		
246328004	SAMPLE	JXD2	1005	20-FEB-10 11:14	DONE		
246328005	SAMPLE	JXD2	1006	20-FEB-10 11:14	DONE		
246328006	SAMPLE	JXD2	1007	20-FEB-10 11:43	DONE		
246328007	SAMPLE	JXD2	1008	20-FEB-10 11:43	DONE		
246328008	SAMPLE	JXD2	1009	20-FEB-10 11:43	DONE		
246328009	SAMPLE	JXD2	1010	20-FEB-10 11:43	DONE		
246341001	SAMPLE	JXD2	1011	20-FEB-10 11:43	DUSE		
246341001	SAMPLE	JXD2	1121	22-FEB-10 12:41	DONE		
1202037254	DUP	JXD2	1122	22-FEB-10 12:41	DONE		

# Instrument Run Log

**Instrument Type: GAMMA SPECTROMETER**

**Batch ID: 950786**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246312001	SAMPLE	MXR1	GAM15	18-FEB-10 10:53	DONE	CAN	03-FEB-10 00:00
246328001	SAMPLE	MXR1	GAM22	18-FEB-10 10:54	DONE	CAN	02-DEC-09 00:00
246328002	SAMPLE	MXR1	GAM11	18-FEB-10 11:05	DONE	CAN	18-NOV-09 00:00
246328003	SAMPLE	MXR1	GAM16	18-FEB-10 11:06	DONE	CAN	16-NOV-09 00:00
246328004	SAMPLE	MXR1	GAM12	18-FEB-10 11:08	DONE	CAN	10-FEB-09 00:00
246328005	SAMPLE	MXR1	GAM20	18-FEB-10 11:08	DONE	CAN	26-AUG-09 00:00
246328006	SAMPLE	MXR1	GAM25	18-FEB-10 11:16	DONE	CAN	07-OCT-09 00:00
246328007	SAMPLE	MXR1	GAM19	18-FEB-10 11:16	DONE	CAN	12-MAR-09 00:00
246328008	SAMPLE	MXR1	GAM01	18-FEB-10 11:47	DONE	CAN	12-JAN-10 00:00
246328009	SAMPLE	MXR1	GAM07	18-FEB-10 11:48	DONE	CAN	20-JUL-09 00:00
246341001	SAMPLE	MXR1	GAM15	18-FEB-10 12:56	DONE	CAN	03-FEB-10 00:00
246341002	SAMPLE	MXR1	GAM22	18-FEB-10 12:57	DONE	CAN	02-DEC-09 00:00
246341003	SAMPLE	MXR1	GAM10	18-FEB-10 13:09	DONE	CAN	16-MAR-09 00:00
246341004	SAMPLE	MXR1	GAM11	18-FEB-10 13:10	DONE	CAN	18-NOV-09 00:00
246341005	SAMPLE	MXR1	GAM16	18-FEB-10 13:10	DONE	CAN	16-NOV-09 00:00
246341006	SAMPLE	MXR1	GAM12	18-FEB-10 13:12	DONE	CAN	10-FEB-09 00:00
246341007	SAMPLE	MXR1	GAM20	18-FEB-10 13:12	DONE	CAN	26-AUG-09 00:00
246341008	SAMPLE	MXR1	GAM21	18-FEB-10 13:24	DONE	CAN	28-JUL-09 00:00
246341009	SAMPLE	MXR1	GAM14	18-FEB-10 13:49	DONE	CAN	06-MAR-09 00:00
1202037546	MB	MXR1	GAM01	18-FEB-10 13:52	DONE	CAN	12-JAN-10 00:00
1202037547	DUP	MXR1	GAM07	18-FEB-10 13:52	DONE	CAN	20-JUL-09 00:00
1202037548	LCS	MXR1	GAM17	18-FEB-10 14:48	DONE	CAN	06-JAN-10 00:00

# Instrument Run Log

Instrument Type: LSC

Batch ID: 953095

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246341001	SAMPLE	KXK2	LSCBROWN	19-FEB-10 08:55	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341002	SAMPLE	KXK2	LSCBROWN	19-FEB-10 10:33	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341003	SAMPLE	KXK2	LSCBROWN	19-FEB-10 12:11	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341004	SAMPLE	KXK2	LSCBROWN	19-FEB-10 13:49	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341005	SAMPLE	KXK2	LSCBROWN	19-FEB-10 15:27	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341006	SAMPLE	KXK2	LSCBROWN	19-FEB-10 17:05	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341007	SAMPLE	KXK2	LSCBROWN	19-FEB-10 18:43	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341008	SAMPLE	KXK2	LSCBROWN	19-FEB-10 20:21	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246341009	SAMPLE	KXK2	LSCBROWN	19-FEB-10 22:00	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344001	SAMPLE	KXK2	LSCBROWN	19-FEB-10 23:38	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344002	SAMPLE	KXK2	LSCBROWN	20-FEB-10 01:16	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344003	SAMPLE	KXK2	LSCBROWN	20-FEB-10 04:08	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344004	SAMPLE	KXK2	LSCBROWN	20-FEB-10 05:46	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246344005	SAMPLE	KXK2	LSCBROWN	20-FEB-10 07:24	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444001	SAMPLE	KXK2	LSCBROWN	20-FEB-10 09:02	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444002	SAMPLE	KXK2	LSCBROWN	20-FEB-10 10:40	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444003	SAMPLE	KXK2	LSCBROWN	20-FEB-10 12:18	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444004	SAMPLE	KXK2	LSCBROWN	20-FEB-10 13:56	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
246444005	SAMPLE	KXK2	LSCBROWN	20-FEB-10 15:34	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042910	MB	KXK2	LSCBROWN	20-FEB-10 17:12	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042911	DUP	KXK2	LSCBROWN	20-FEB-10 18:50	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00
1202042912	LCS	KXK2	LSCBROWN	20-FEB-10 20:27	DONE	10mL DW/13mL Ecoscint Ultra	09-SEP-09 00:00

## Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

**Batch ID: 956088**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
246341002	SAMPLE	JXD2	1165	26-FEB-10 13:18	DUSE		
1202050050	MB	JXD2	1166	26-FEB-10 13:18	DUSE		
1202050051	DUP	JXD2	1168	26-FEB-10 13:18	DUSE		
1202050052	LCS	JXD2	1169	26-FEB-10 13:18	DUSE		
246341002	SAMPLE	JXD2	1004	01-MAR-10 10:29	DONE		
1202050050	MB	JXD2	1005	01-MAR-10 10:29	DONE		
1202050051	DUP	JXD2	1006	01-MAR-10 10:29	DONE		
1202050052	LCS	JXD2	1007	01-MAR-10 10:29	DONE		